APPENDIX A

Neighborhood Responsibility Agreement

NEIGHBORHOOD RESPONSIBILITY AGREEMENT

FOR MARIJUANA CULTIVATION PROJECT

This Agreement is made and entered into on _____, by and between Balbir Sohal ("Property Owner"), and the CITY OF SACRAMENTO, a municipal corporation ("City").

RECITALS

A. Property Owner plans to develop a marijuana cultivation project (the "Project"), identified by City Project No. _____, on real property (the "Property") owned by Property Owner and located at:

Address: 8280 Elder Creek Drive.
Sacramento, CA 95828

Assessor's Parcel #: 064-0010-028 & 064-0010-053

B. Development of the Project on the Property is subject to the special use regulations for marijuana cultivation in Sacramento City Code section 17.228.127.

C. Sacramento City Code section 17.228.127 requires Property Owner to provide a neighborhood responsibility plan that addresses the adverse impacts of marijuana cultivation on the surrounding area. The section further states that compliance with the neighborhood responsibility plan can be achieved through an agreement with the City, conditions of approval on the use permit, or through other means acceptable to the City.

D. The requirement for a neighborhood responsibility plan may be achieved through means other than this agreement. However, the Sacramento City Council has resolved that the Property Owner shall be deemed to have sufficiently mitigated its neighborhood impact and satisfied the neighborhood responsibility plan requirement for the Project if the Property Owner voluntarily enters into an agreement for either (a) the periodic payment of 1% of the gross receipts of every marijuana cultivation business on the Property, or (b) the payment of a fee in the amount established by a development impact fee study.

E. The scope of the adverse impacts of marijuana cultivation developments on the surrounding community are not yet quantified as a specific payment obligation, because the impact fee study has not yet been completed. To meet scheduling requirements, Property Owner desires to proceed with development of the Project before completion of the impact fee study. Accordingly, Property Owner has offered to mitigate the adverse impacts of the Project on the surrounding neighborhood and meet the neighborhood responsibility plan requirement by entering into this Agreement.

F. This Agreement sets forth the terms of the parties' understanding and agreement regarding the Property Owner's future payment.

AGREEMENT

Based on the facts and other matters set forth in the Recitals above, together with the covenants and agreements set forth below, the parties agree as follows:

1. Property Owner's Payment Options.

Property Owner agrees for itself, its constituents, successors and assigns, that Property Owner will mitigate adverse impacts of the Project on the surrounding neighborhood by one of the following payment options [indicated by Property Owner's initial]:

✓ One Percent of Gross Receipts: Pay a fee in the amount of 1% of the gross receipts of every marijuana cultivation business on the Property. Payment shall be made in accordance with section 2 of this Agreement.

____ Fee Established by Study: Pay a fee in the amount established by a development impact fee study approved by the City Council. Payment shall be made in accordance with section 3 of this Agreement.

2. Payment of One Percent of Gross Receipts.

If the Property Owner selects the option to pay a fee in the amount of 1% of gross receipts, the following terms and conditions apply:

a. Property Owner shall pay 1% of the gross receipts of every marijuana cultivation business on the Property for the term of the conditional use permit.

b. For purposes of this Agreement, the following definitions apply:

(1) "Marijuana cultivation business" has the same meaning as in chapter 5.150 of the Sacramento City Code.

(2) "Gross receipts" has the same meaning as in chapter 3.08 of the Sacramento City Code.

c. Payments shall be made monthly to the City of Sacramento, Department of Finance, Revenue Division at 915 I Street, Room 1201, Sacramento, California 95814. City may change the payment address by giving written notice of the change to the Property Owner.

d. Property Owner shall keep complete records of business activities and transactions including sales, receipts, purchases, expenditures and any other record and data relevant to establish and verify the payments made pursuant to this Agreement; and shall retain all such records and data for examination by the City for a period of at least three years. Upon request by the City, the Property Owner shall make such records available for inspection and audit at reasonable times and places for the purpose of administering and enforcing this Agreement.

3. **Payment of Fee Established by Study.**

If the Property Owner selects the option to pay a fee in the amount established by a development impact fee study in section 1 above, the following terms and conditions shall apply:

a. Property Owner shall pay a fee in the amount established by the development impact fee study approved by the City Council.

b. If the development impact fee study has not been completed and approved before the City's approval of the conditional use permit for the Project, Property Owner shall comply with the fee payment terms established by the study no later than 30 days after the City notifies Property Owner in writing. If the development impact fee study has been completed and approved before the City's approval of the conditional use permit for the Project, Property Owner shall comply with the fee payment terms established by the study prior to the City's approval of the conditional use permit.

c. Payments shall be made to the City of Sacramento, Department of Finance, Revenue Division at 915 I Street, Room 1201, Sacramento, California 95814. City may change the payment address by giving written notice of the change to the Property Owner.

4. **Property Owner Obligations Relative to Establishing the Fee.**

Property Owner understands and agrees that the amount of the fees to be imposed for the mitigation of adverse impacts of marijuana cultivation will be established based on a development impact fee study performed by or for the City. Property Owner further understands and agrees that an important component of this Agreement is Property Owner's advance consent to the establishment, implementation, and imposition of any such developer fees. City agrees that all property and property owners engaged in marijuana cultivation will be treated on a fair and equitable basis in respect to any such fees the City establishes and imposes.

Without limiting the generality of the foregoing, Property Owner for itself, its constituents, successors and assigns, as to the Property, specifically agrees to the following:

a. Property Owner hereby grants advance consent to the establishment, implementation, and retroactive application of any and all fees, exactions, assessments, taxes or other charges established or imposed by City for the purpose of funding the mitigation of adverse impacts of the Project on the surrounding neighborhood. Property Owner further agrees that it will not contest, challenge, or protest the retroactive imposition or application of any such fees, exactions, development fees, assessments, taxes or other charges so established or imposed by City. Without limiting the generality of the foregoing, Property Owner specifically waives the provisions of the Mitigation Fee Act (California Government Code section 66000, et seq.), or any other provision of law providing a procedure for contest or protest of establishment or imposition of fees, exactions, assessments, taxes or other charges of a similar nature.

b. Property Owner agrees and specifically represents to City that it is fully aware of all of its legal rights relative to the advance consents, waivers and other agreements set forth above, having been fully advised by its own independent attorneys. Having such knowledge and understanding of its rights, Property Owner has nevertheless voluntarily entered into this Agreement. Each party is aware that the other party is relying on the representations contained in this section 4 in entering into this Agreement.

5. **Covenants Run with Property Owner's Land.**

The parties agree that all of Property Owner's waivers, advance consents, and other covenants contained herein are covenants that run with the Property, in accordance with California Civil Code section 1486, and the burden thereof shall be binding upon Property Owner's constituents, successors and assigns. Property

Owner's compliance with this Agreement is a condition of the conditional use permit for marijuana cultivation issued by the City in accordance with Sacramento City Code section 17.228.127.

6. Term of Agreement.

The term of this Agreement shall commence upon its execution and shall remain effective until terminated by the mutual written agreement of the parties.

7. Property Owner's Representations Regarding Ownership.

Property Owner certifies that it owns full legal title to the Property. Each individual executing this Agreement on behalf of a corporation or partnership represents and warrants to City that he or she has been authorized to do so by the entity on whose behalf he or she executes this Agreement and that said entity will thereby be obligated to perform the terms of this Agreement.

8. Indemnification.

Property Owner agrees to indemnify, defend, and hold harmless City from any and all claims, costs, expenses, losses and liabilities of whatever nature and whatever kind, including attorneys' fees, made or caused either by signatories hereto or third parties not signatories hereto, that arise out of or are in any way related to, caused by, or based upon any breach of this Agreement by Property Owner or any negligent act of Property Owner under this Agreement.

9. Notices.

Any notice, tender, delivery, invoice or other communications pursuant to this Agreement shall be in writing and shall be deemed to be properly given when delivered to the following persons:

a. If to City:
CITY MANAGER
City of Sacramento
915 I Street
Sacramento, CA 95814

b. If to Property Owner:
Balbir Sohal
8193 Chriton Way
Elk Grove, CA 95758

Any party may change that party's address for these purposes by giving written notice of the change to the other parties.

10. Governing Law.

This Agreement and the legal relations between the parties shall be governed by and construed in accordance with the laws of the State of California.

11. Waiver.

The waiver by any party to this Agreement of a breach of any provision of this Agreement shall not be deemed a continuing waiver or a waiver of any subsequent breach of that or any other provision of the Agreement.

12. Partial Invalidity.

If any term or provision of this Agreement or the application thereof shall be determined by a court of competent jurisdiction to be invalid or unenforceable, or prohibited by law, the remainder of this Agreement, or the application of such term or provision to persons, entities or circumstances other than those as to which it is held invalid or unenforceable or prohibited, shall not be affected thereby, and each such term and provision of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

14. Assignment.

This Agreement may not be assigned by either party without the written consent of the non-assigning party, and any purported assignment without such consent shall be void.

15. Entire Agreement.

This Agreement constitutes the entire agreement and understanding between City and Property Owner concerning the subject matter contained herein.

IN WITNESS WHEREOF this Agreement has been executed by the parties hereto on the date first above stated.

PROPERTY OWNER:

Balbir Sohal

_____

Print Name

By: Balbir sohal (Mar 31, 2017)

Title: Owner

By: _____*

Title:

* ***Note***: *If the Property Owner is a corporation, the following two signatures are required (1) the first signature by either the Chairman of the Board, the President, or any Vice President of the corporation; and (2) the second signature by either the Secretary, any Assistant Secretary, the Chief Financial Officer, or any Assistant Treasurer of the corporation.*

CITY OF SACRAMENTO

A Municipal Corporation

By: _____

Howard Chan, City Manager

APPROVED AS TO FORM:

_____

City Attorney

ATTEST:

_____

City Clerk

APPENDIX B

Community Relations Plan

May 29, 2018

Daniel Abbes, Planner
City of Sacramento
Community Development Department
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

RE: P17-020 Elder Creek: Revised Community Relations Plan

Mr. Abbes:

Please accept this revised Community Relations Plan as part of the Conditional Use Permit and concurrent Business Operations Permit applications. The owners, partners and staff at our proposed Sacramento area location are dedicated to working with the Power Inn Alliance, the neighbors, City Council and staff.

I will serve as the Community Relations Liaison for our Sacramento locations, oversee our corporate and social responsibility, compliance with business operating permits as well as managing our communications and public outreach. I will be the point of contact for any questions or concerns related to our neighbors. I can be reached at any time at (530) 902-6861 or via email at cpowell@wegrowca.com. Should this contact information change, we will notify the City within 3 business days.

As you know, we have also committed to the Neighborhood Responsibility Plan which includes the voluntary commitment for periodic payments of 1% of the gross receipts from this location to assist in the mitigation of any possible development impacts. Further, we plan to work with the City Council Member Guerra and the Power Inn Alliance regarding additional opportunities to be a good corporate neighbor and ensure the safety, security and prosperity of our business and those around us.

Thank you in advance for your time and consideration. Should you have any questions or would like any additional information, please contact me at your convenience.

Best,

Craig Powell
Chief Operating Officer

APPENDIX C

Odor Mitigation Plan

Proposed Cultivation Facility in Sacramento Odor Mitigation Plan
Appendix C

1. **Nursery Building 2**
2. **Mixed Light Cultivation Facility (MLCF) 1-3**
3. **Cultivation Processor Building 1**

We Grow CA (We Grow) will engage neighbors to ensure they are aware of the steps being taking to reduce odors. We Grow will be available to discuss potential concerns/complaints, future issues, and ensure the needs of the local community are being met. We Grow will work with City and State inspectors to ensure compliance with all rules and regulations. Should an odor issue arise, We Grow will take all necessary steps to correct the issue, and to maintain good standing with their neighbors and officials. The following design and operational considerations have been incorporated into We Grow's Cannabis Campus.

1) Nursery Building 2

We Grow will renovate an existing 17,059 square foot (sf) building into a state-of-the-art nursery facility, purpose-built for producing healthy, consistent, and pest, pesticide and pathogen-free plant stock for California-licensed cultivators.

Nursery operations will not produce a high level of recognizable cannabis odor. The nursery will only house immature plants and seedlings which have not yet begun to produce their flowers, which emit the familiar cannabis smell. Nonetheless, We Grow has taken an integrated and systems-based approach to minimizing the odors produced by the facility, as well as eliminating any unavoidable odors produced throughout operations.

1. Nursery Administrative Controls
    i. Procedural activities
        1. We Grow will isolate odor-emitting activities by keeping all doors closed and having proper and effective equipment.
        2. All production areas will be maintained in a sanitary and organized condition, as to limit the potential for the buildup of unpleasant odors.
    ii. Staff training procedures on Standard Operating Procedures (SOPs)
        1. Each operating day, the Operations Manager or designee will evaluate on-site odors and operations for potential release of objectionable odors. All staff will be required to take a 90 minute in-person training course, highlighting the importance of closing doors and ensuring exhaust and filtration systems are running as required.
    iii. Record keeping systems and forms
        1. We Grow will keep records of all purchases, including but not limited to, carbon filters and odor neutralizing liquids.
        2. We Grow will document all routine/scheduled cleaning/maintenance of all odor mitigating equipment/machinery.
2. Systems/Engineering Controls
    i. Carbon Filtration
    ii. Negative-pressure environment
3. Chemical Controls
    i. We Grow will routinely deploy measured concentrations of chlorine dioxide gas, delivered both in a liquid, and slow-release packet form. This hospital-grade sanitizer and deodorizer neutralizes odor in the atmosphere on an ongoing basis.

1. Floor and all hard surfaces to be washed with 100 ppm chlorine dioxide liquid weekly.
2. Extended release packets of chlorine dioxide gas to be replaced monthly.

4. Systems/Engineering controls for all odor sources
   i. We Grow CA Odor Control Plan is consistent with accepted and available industry-specific best control technologies designed to effectively mitigate odors.
   ii. We Grow odor plan has been reviewed and approved as "sufficient", to effectively mitigate odors from all related sources, by a Certified Industrial Hygienist.
   iii. Equipment has been approved as sufficient method to effectively mitigate odors for all odor sources.
5. Maintenance plan
   i. Change carbon filter, every 6 months, carried out by the Facility Manager
   ii. Exchange extended release chlorine dioxide gas packets, every 1 month, carried out by the systems technician
   iii. Exchange air-scrubber pre-filters every 1 month

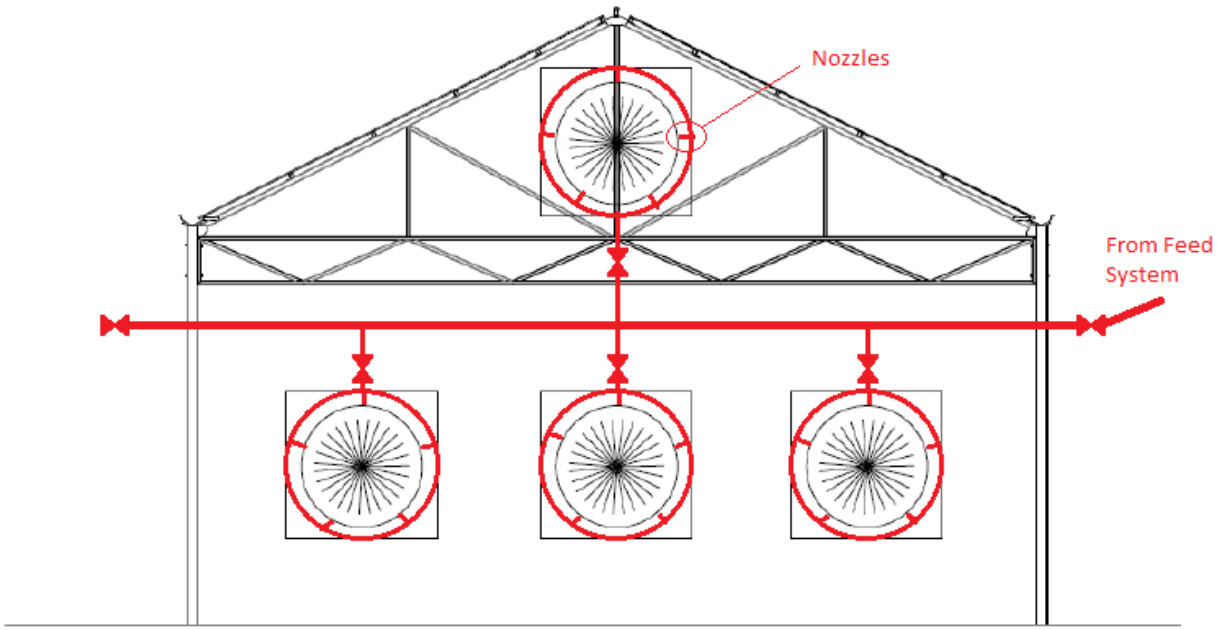
2) Mixed Light Cultivation Facility (MLCF) 1-3

We Grow's 189,550 sf MLCF will be built by a leading Israeli agricultural design/build firm, P. Maron. The MLCF structure is ideal for tropical, humid and sub-tropical areas that require proper ventilation.

To ensure that the facility does not disturb the surrounding areas with unpleasant odors, we are taking several measures to mitigate any odors that may be released from the facility. We Grows MLCF buildings will utilize a sophisticated and proven system to remove the odors from the air, designed and built by OMI, a leader in the odor mitigation field

Each MLCF is comprised of several compartments. Within each compartment there are twelve exhaust fans on the exterior wall, opposite from the evaporative cooling walls. The evaporative cooling acts as an

intake for the MLCF. The exhaust fans are oriented in groups of four, with three fans on the middle of the wall, and a fourth towards the ceiling. A diagram of how these fans are oriented is located below (Figure 1):



MLCF 1 has 6 compartments with a total of 72 fans.

MLCF 2 has 8 compartments with a total of 96 fans.

MLCF 3 has 4 compartments with a total of 73 fans.

Each exhaust fan is a 1.5 HP 51” fan. Each fan can move 24,298 cubic feet per minute (cfm) of air. At this rate, the air in each compartment in MLCF 1-3 will turn over approximately 1.6 times every minute. A table showing how these numbers were calculated can be found below (Figure 2). In order to ensure odor is not released into the atmosphere and surrounding areas, OMI will provide a vapor phase unit for each of the exhaust fans. These units will combine safe odor mitigating chemicals with the exhaust air, preventing the odor from spreading to the surrounding area.

Odor Mitigation Table				
Compartments	1 - 14	15	16	
Volume	186046.9	542784.4	386071.9	ft^3
Exhaust Fans	12	40	33	
CFM/fan	24298	24298	24298	ft^3/min
Total Exhaust CFM	291576	971920	801834	ft^3/min
Air Turnover per Minute	1.6	1.8	2.1	

**attached diagram of MLCF 1-3 with fans.

We Grow is able to eliminate nuisance odors, including those associated with cannabis.

1. MLCF Administrative Controls
    i. Procedural activities
        1. We Grow will isolate odor-emitting activities by keeping all doors closed and having proper and effective equipment.
    ii. Staff training procedures
        1. Each operating day the Operations Manager or designee will evaluate on-site odors and operations for potential release of objectionable odors. All staff will be required to take a 90 minute in-person training course, highlighting the importance of closing doors and ensuring exhaust and filtration systems are running as required.
    iii. Recordkeeping systems and forms
        1. We Grow will keep records of all purchases, including but not limited to, odor neutralizing liquids and chlorine dioxide gas packets.
            1. We Grow will document all routine/scheduled cleaning/maintenance of all odor mitigating equipment/machinery.

2. Systems/Engineering Controls
    i. Odor Neutralizers system.
    ii. Negative-pressure environment.
3. Chemical Controls
    i. We Grow will routinely deploy measured concentrations of chlorine dioxide gas, delivered both in a liquid, and slow-release packet form. This hospital-grade sanitizer and deodorizer neutralizes odor in the atmosphere on an ongoing basis.
        1. Floor and all hard surfaces to be washed with 100 ppm chlorine dioxide liquid weekly.
    ii. Extended release packets of chlorine dioxide gas to be replaced monthly.
4. Systems/Engineering controls for all odor sources
    i. We Grow Odor Control Plan is consistent with accepted and available industry-specific best control technologies designed to effectively mitigate odors.
    ii. We Grow odor plan has been reviewed and approved as "sufficient", to effectively mitigate odors from all related sources, by a Certified Industrial Hygienist.
5. Operational processes
    i. During cannabis cultivation, Cultivation Superintendents will be responsible for isolating the flower rooms from non-odorous areas of the facility, and for ensuring the exhaust system is operational and routed through the odor mitigation systems.
6. Maintenance plan
    i. Change odor neutralizing liquid, every 1 month, carried out by the systems technician.
    ii. Exchange extended release chlorine dioxide gas packets, every 1 month, carried out by the systems technician
    iii. Exchange air-scrubber pre-filters every 1 month

3) Cultivation Processor Building 1

We Grow's processing operations will take place within its existing 54,895 sf Building 1, which will be renovated for this use. We Grow has taken every possible precaution and spared no expense to ensure the structure and surrounding areas remain odor-neutral.

Odor-mitigating systems and equipment have been engineered into both the processing area's design and construction plan, as well as into it operational procedures. Because the processing area will contain large amounts of dry and unpackaged cannabis material, We Grow has focused special attention to the HVAC and air sanitization systems for this area.

All return ducts will feature both a HEPA filter, as well as activated carbon filters. Hospital-grade chlorine dioxide gas deodorizer, delivered both in a liquid, and slow-release packet form, will be deployed routinely throughout the processing area to reduce buildup odor. The processing facility itself will be maintained under negative pressure so that odiferous air is forced through odor-reduction systems prior to leaving the area. Activated carbon air-scrubbers will be located throughout the facility to reduce particulates and resulting odors.

1. Processor Administrative Controls
    i. Procedural activities
        1. We Grow will isolate odor-emitting activities by keeping all doors closed and having proper and effective equipment.
    ii. Staff training procedures
        1. Each operating day the Operations Manager or designee will evaluate on-site odors and operations for potential release of objectionable odors. All staff will be required to take a 90 minute in-person training course, highlighting the importance of closing doors and ensuring exhaust and filtration systems are running as required.

iii. Recordkeeping systems and forms
    1. We Grow will keep records of all purchases, including but not limited to, carbon filters and odor neutralizing liquids.
        1. We Grow will document all routine/scheduled cleaning/maintenance of all odor mitigating equipment/machinery.

2. Systems/Engineering Controls
    i. Carbon Filtration
    ii. Negative-pressure environment
3. Chemical Controls
    i. We Grow will routinely deploy measured concentrations of chlorine dioxide gas, delivered both in a liquid, and slow-release packet form. This hospital-grade sanitizer and deodorizer neutralizes odor in the atmosphere on an ongoing basis.
        1. Floor and all hard surfaces to be washed with 100 ppm chlorine dioxide liquid weekly.
        2. Dry rooms and harvest areas will be washed with 250 ppm chlorine dioxide liquid each time they are emptied (weekly).
    ii. Extended release packets of chlorine dioxide gas to be replaced monthly.
4. Systems/Engineering controls for all odor sources
    i. We Grow Odor Control Plan is consistent with accepted and available industry-specific best control technologies designed to effectively mitigate odors.
    ii. We Grow odor plan has been reviewed and approved as "sufficient", to effectively mitigate odors from all related sources, by a Certified Industrial Hygienist.
    iii. Equipment has been approved as sufficient method to effectively mitigate odors for all odor sources.
5. Operational processes
    i. During cannabis cultivation, Cultivation Superintendents will be responsible for isolating the dry rooms and other processing areas from non-odorous areas of the facility, and

for ensuring the exhaust system is operational and routed through the odor mitigation systems.

6. Maintenance plan
    i. Change carbon filters, every 1 month, carried out by the Facility Manager
    ii. Exchange extended release chlorine dioxide gas packets, every 1 month, carried out by the systems technician
    iii. Exchange air-scrubber pre-filters every 1 month

APPENDIX D

Energy Efficiency Plan

WE GROW CA ENVIRONMENTAL PLAN
WATER AND ENERGY EFFICIENCY
APPENDIX D

We Grow CA has created an Environmental Impact Plan aimed at minimizing its carbon footprint, conserving water and energy usage and reducing any undesired impact on the community at large and its natural resources. The following considerations have been taken and will be implemented at the proposed We Grow CA Cannabis Campus.

1. The use of Light Emitting Diode (LED) lighting throughout non-flowering areas of the facility. LED lights are up to 80% more efficient than traditional lighting such as fluorescent and incandescent lights. 95% of the energy in LEDs is converted into light and only 5% is wasted as heat. Additionally, a longer life span means lower carbon emissions. LED lights last up to six times longer than other types of lights, reducing the requirements for frequent replacements.

2. The use of Double-Ended (DE) High Pressure Sodium (HPS) lighting throughout the flowering area of the facility. DE-HPS improves the quality of the plant and have been the industry standard for over 10 years. They are also more efficient for We Grows' light coverage, electricity and maintenance bills than the single-ended bulb. Additionally, We Grow will implement Mixed Light Cultivation Facility Technology (MLCF), which drastically reduces the need to use lights by 70%. Throughout the majority of the year, We Grow will use natural sunlight for cultivation.

3. We Grow CA will utilize energy efficient heat retention curtains as well as light deprivation curtains in the three Mixed-Light Cultivation Facilities (MLCF). These curtains not only serve their purpose for triggering the flowering response in the crop production cycle but also save energy by retaining valuable heat in the winter months.

4. Sophisticated, intuitive environmental control systems will be utilized, that will minimize energy consumption based on interpretation of real time environmental data. For example, if on a sunny day in February, the crop is receiving enough natural light radiation to meet the instantaneous needs of the crop, the control software will send an output signal to the lighting system to "turn OFF" until such time as the supplemental light is again required, this greatly reduces energy consumption.

5. We Grow CA will use the latest available technology, utilizing smart phones, tablets, and computers. These devices can be used throughout cultivation operations. This includes manipulating the environmental controls within the MLCF (on site and remotely), collecting and displaying data and analytics and managing inventory. We Grow will further reduce its paper use by collecting data electronically, emailing invoices and paying bills and receiving payments electronically.

6. The net result of the MLCF technology (natural sunlight through a transparent roof, heat retention curtains, and sophisticated controls integrated with real-time environmental

data) coupled with the ideal conditions in Sacramento, results in energy consumption that is 4-5 times more efficient than conventional indoor facilities.

7. Cultivation areas will utilize a closed loop irrigation system. All irrigation water will be recaptured, recycled and sent through mechanical and UV filtration. (Please see irrigation plan in previous section)

8. We Grow plans to buy and source products and materials locally whenever possible.

9. We Grow will recycle all recyclable materials.

LED LIGHTS

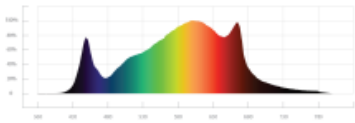
FLUENCE
BIOENGINEERING

+1(512) 212-4544
info@fluencebioengineering.com
www.fluence.science/SPYDR

SPYDRx

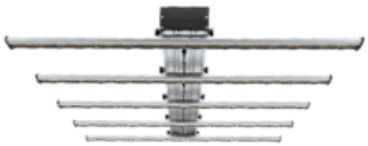
SPECIFICATIONS	
Light Source	LED
Spectrum	I
PPF	810 µmol/s
Input Power	330W
Efficacy	2.5 µmol/J
Input Voltage	Autosensing 100-277V & 347V*
Fixture Dimensions | Weight	42" L x 44" W x 4.6" H | 22lbs 106.7cm L x 111.8cm W x 11.7cm H | 10kg
Mounting Height	≥ 6" (15.2cm) Above Canopy
Thermal Management	Passive
Dimming	0-10V
Light Distribution	120°
Lifetime	L70 > 150,000hrs
Power Factor	> 90%
Certifications	UL1598 Damp Location Rating & IP55 (Console Only)
Warranty	3 Year Standard or 5 Year Extended Warranty

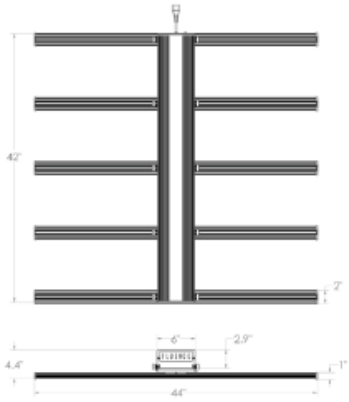
PhysioSpec Indoor™



MAX AMPERAGE BY VOLTAGE SERVICE

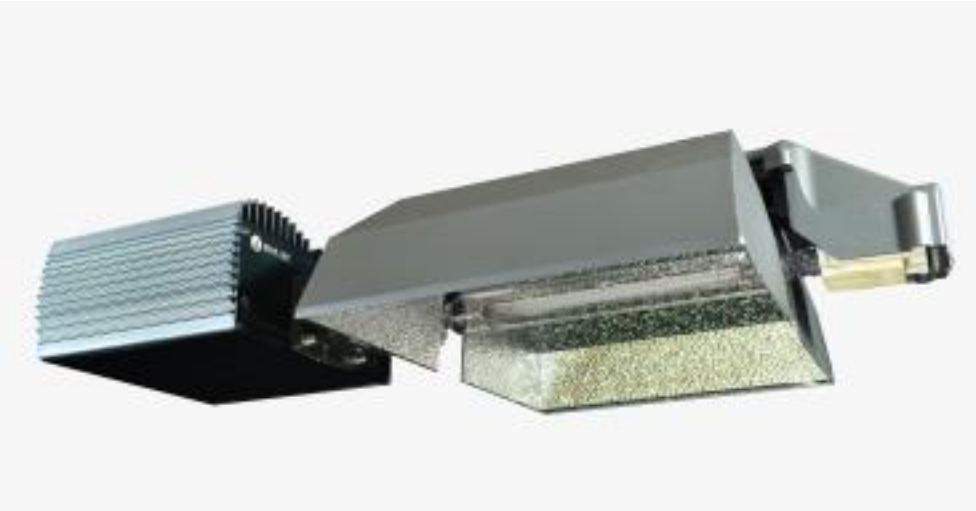
VOLTAGE	120V	208V	240V	277V	347V
AMPERAGE	2.75A	1.59A	1.38A	1.19A	0.98A





FAMILY	MODEL	SPECTRUM	INPUT VOLTAGE	AC EXTENSION CORD	AC PLUG	MOUNTING
SR SPYDR	X x	I PhysioSpec Indoor™	1 100-277V 3 347V*	06 6 ft (1.83m) 15 15 ft (4.57m)	N5 NEMA 5-15P N6 NEMA 6-15P L7 NEMA L7-15P PT Pigtails	B C-Bracket G Aircraft Cable A Adjustable Cable

HPS Lights



Manufacturer	SolisTek
SKU	ST1001A1+
Warranty	3 Years Fixture, 1 Year Warranty
Voltage	120V / 240V
Wattage	1100W (9.90A / 4.95A) | 1000W (9.00A / 4.50A) | 825W (7.43A / 3.71A) | 750W (6.75A / 3.38A) | 660W (5.94A / 2.97A) | 600W (5.4A / 2.7A)
Amps	8.91A (120V) / 4.45 (240V)
Actual Input Power	1070 W
Power Factor	> 0.99
Input Frequency	50 - 60 hz
Input Connection	NEMA 5-15P (120V) | NEMA 6-15P (240V)
Inrush Current	30A
Compatible Lamp Type	DE HPS / MH
Dimensions	27.5 x 17.5 x 5.5 (inches)
Weight	20 lbs / 9.07 kg

The following is a description of We Grow's ongoing efforts to reduce energy consumption and increase efficiencies while reducing overall carbon footprint in our cultivation and processing facilities:

- SMUD Energy Efficiency Approval
- Mix Light Design
- Indoor Propagation
- Waste and Carbon Footprint Reduction
- Solar Photovoltaic Electricity Generation

1. SMUD Energy Efficiency Approval

On March 3, 2017, the Sacramento Municipal Utilities Department ("SMUD") representative, Matthew McGregor visited our facilities and performed an assessment and deemed our Energy Efficiency Plan to be in compliance with their cannabis requirements for being energy efficient.

2. Mix Light Cultivation Facility Design

Conventional indoor or warehouse cultivation designs often create a high demand on local utilities' infrastructure in comparison to mixed light Mix Light designs. Utilizing high-efficiency purpose-engineered Mix Light systems lessen utilities demand by taking advantage of natural inputs. (Please note that unlike traditional Mix Light, our design allows no visible activity from the public right of way and only the roof is transparent to allow for natural light to alternate with artificial light.) Further efficiencies are achieved by implementing structure designs that are properly matched for local climate. Also, appropriate structure design selection must also be considered as it applies to site specific restrictions. Modern construction and horticultural materials further increase lighting efficiency, thereby lessening the need for supplemental lighting. P Marom, our Mix Light manufacturer is providing design, construction and implementation consultation for our organization to ensure these goals are achieved.

Additional efficiencies are gained when designing the layout and selection of lighting systems following manufacturer's guidelines. Proper ballast and lamp matching, as well as reflector type and luminary placement following manufacturer's recommendations assist in achieving optimum efficiency. Lighting controllers with DLI (Daily Light Integral) sensors dim or deaden electrical lighting systems in order to minimize electrical draw, *supplementing artificial light only as needed*.

Further efficiencies are achieved through the implementation of sensor-driven environmental control systems combined with modern high-efficiency heating and ventilation equipment, including energy efficient dehumidification systems and ventilation fans. With proper design and implementation of purpose engineered equipment and design and layout, electricity consumption is minimum.

The net result of the MLCF technology (natural sunlight through a transparent roof, heat retention curtains, and sophisticated controls integrated with real-time environmental data) coupled with the ideal conditions in Sacramento, results in energy consumption that is 4-5 times more efficient than conventional indoor facilities.

3. Indoor Propagation

High-efficiency LED horticultural lamps are utilized within our indoor nursery facilities. Utilizing multi-tiered rack systems for propagation reduces total cubic space needed to be climate controlled. LED lamps also dissipate less heat and consume less wattage compared to their high-intensity discharge or fluorescent gas lamp counterparts conventionally used. Reducing total cubic area needed to be climate controlled and by dissipating less heat from lighting fixtures, HVAC electricity requirements and load on public grid is significantly reduced. Lighting control systems are again implemented to further minimize electricity consumption. High-efficiency HVAC equipment shall also be installed to lower energy demand.

4. Waste and Carbon Footprint Reduction

Energy Efficiency efforts extend to our total calculated carbon footprint by sourcing raw materials and other inputs through local and domestic sources when available. By sourcing materials close to operations we reduce the transportation carbon footprint. Through process optimization strategies, manufacturing waste and defects are continually being minimized.

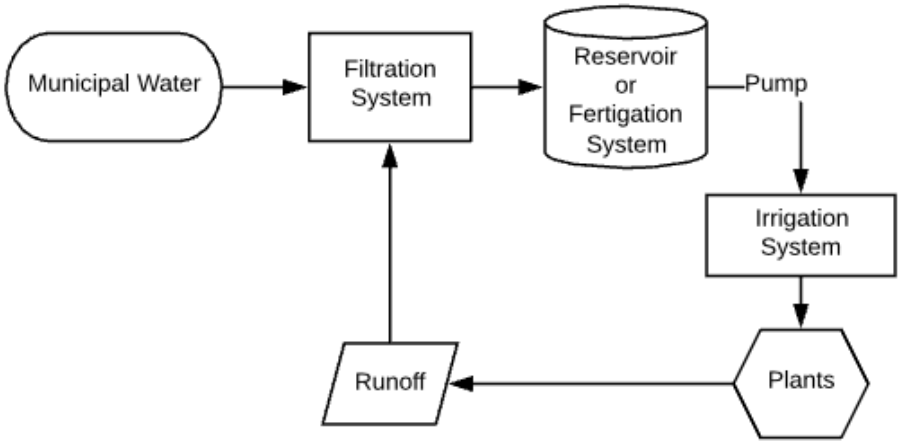
APPENDIX E

Wastewater and Greenwaste Disposal Plan

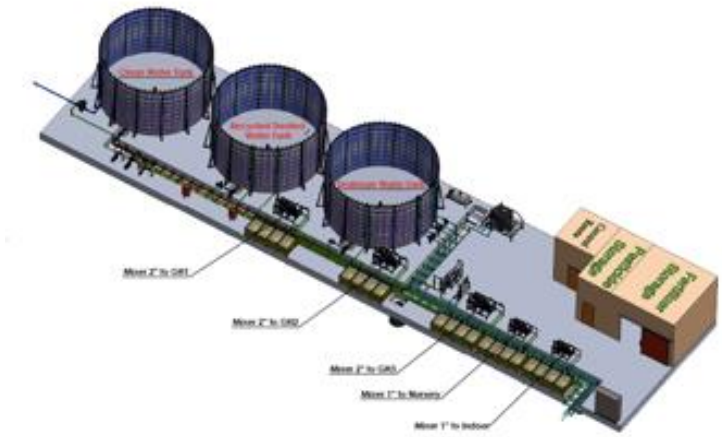
APPENDIX E
Water and Green Waste Disposal Plan

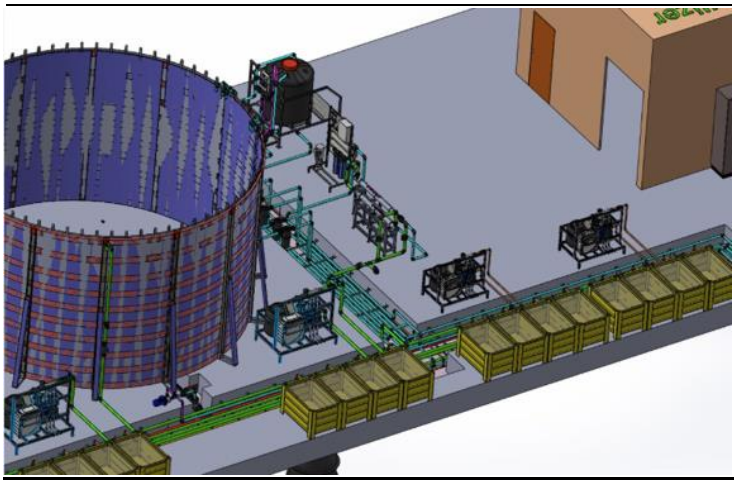
Water System

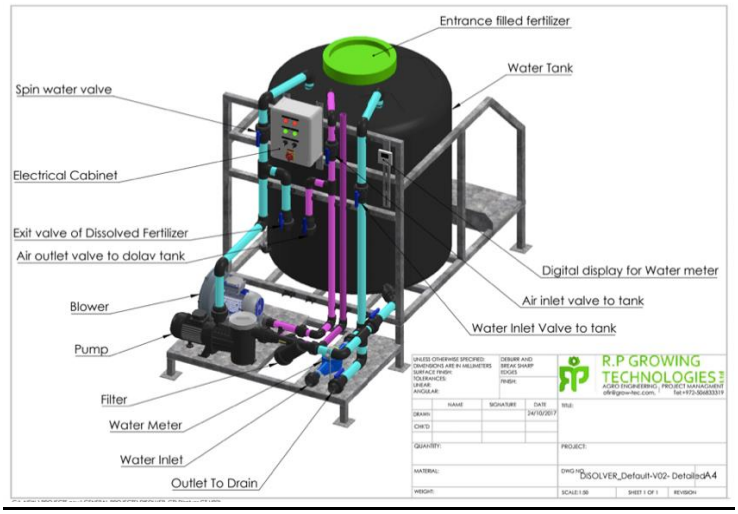
In order to significantly reduce water consumption, We Grow CA will use a professionally-installed, drip-irrigation system, flood benches and fertilizer injection system (fertigation). Fertigation systems automatically mix, dose, balance pH, and distribute nutrients through a drip-feeding system directly to the plants. Irrigation pumps are controlled by digital timers, and will deliver water/nutrients to plants 3 times per day, for approximately 1-2 minutes each time (based on small, medium or large plants). Drip irrigation systems slowly release the amount of nutrient solution required, thus saving water. 95% of all irrigated water delivered to plants will be absorbed during "feeding", the additional 5% runoff will drain to a large tank (head-house), where it is filtered and reused (i.e. closed loop system).



Equipment Specifications







Water Purification

City water is pumped through filters into a “fresh water tank”. Runoff water from plant irrigation would be pumped from the Mixed-Light Cultivation Facility (MLCF) through a filter and back into the head-house to the Drainage Water Tank. Drainage Water is then pumped through an R.O System, where inorganic solids (such as salts) are removed and clean water is returned to the treatment water tank.

Holding Tanks

There are three water storage tanks (fresh water, treatment water, and drainage water) with a storage capacity of 39,626 gallons in each tank.

Mainlines

PVC mainlines will run from the Head-house to each Mixed-Light Cultivation Facility (MLCF) where they are attached to cultivation trays like “benches”. Each bench will have a flexible connection to the PVC mainlines to allow for bench movement. Each bench will also be equipped with a shut-off valve to allow for individual control of each of the benches.

Drip Irrigation

Each plant will receive 2, pressure compensated drippers with angle stake assemblies fed by 16mm coextruded white/black poly pipe, tied to the supply mainline. The irrigation system will consist of a total of 140,000 dripper assemblies.

Drain collection

Each bench will have drain hose connection to a common drain line in the room. This common drain line will be plumbed to the drainage water tank in the Head-house.

Water Demand

Water demand for the facility will not exceed 50,000 gallons per day (GPD). At maximum capacity, there will be 70,000-plants within the facility, 25% as small plants, which receive 0.25 gallons of water per day; 25% as medium plant, which receive .5 gallons of water per day; And 50% as large plants, which receive 1 gallon of water per day. It is estimated that an additional 500-gallons will be used for ancillary cleaning and daily sink and toilet use. For comparison, it takes between 1200-1900 gallons of water to produce a pound of almonds. We Grow estimates it can produce 1 pound of cannabis for under 100 gallons.

Type	Small Plants	Medium Plants	Large Plants	Wastewater
# of Plants	17,500	17,500	35,000	Misc.
Daily Total Per Plant (Gallons)	.25	.5	1	500
Total Water (Gallons)	4,375	8,750	35,000	500

Green Waste Disposal Plan

Green Waste Procedures

1. Collect green waste in a strain-specific, labeled, 5-gallon bucket.
2. Once all waste is picked up bring the waste over to the scale located in the main hallway.
3. Turn the scale on and wait for it to balance.
4. Place bucket full of waste onto scale.
   4.1. Orange, 5-gallon buckets are 820 grams, on average.
5. Using the calculator located in the green waste binder, subtract 820 grams form your total on the scale, record this onto the waste log.

Waste Log Procedures

1. Record:
   1.1. Date
   1.2. Location where the waste was generated
   1.3. Strain Name
   1.4. Table/Tag number
   1.5. Weight of waste
   1.6. Employee badge number
2. Once waste log is completely filled out, take your green waste over to the rolling trash bin labeled "Green Waste Only."
3. Dump your waste into the bin and close the lid.

Transferring Green Waste

At the end of each day, green waste, including spent Rockwool Cubes, will need to be taken to the waste area and rendered unusable and unrecognizable. The key for the compost dumpster is located in the Office of the Director of Cultivation.

1. Obtain the green waste bin & key for green waste lock.
2. Walk over to compost dumpster.
   2.1. Unlock the lock, kick the latch up on side of the dumpster and open the door, roll Chipper so that exit shoot is aimed into dumpster.
   2.2. Follow Chipper SOP, PPE SOP and Chipper Operators Manual to render all waste unusable; be sure that green waste is mixed with AT LEAST 50% non-cannabis material, in most cases these will be spent Rockwool Cubes.
   2.3. Close the door and slide the latch back down, loop the lock through the bar and the chain to ensure its locked and secured.
3. Bring rolling green waste bin back inside and return key to Director of Cultivation.

Daily Green Waste Procedures

At the end of each day the green waste bin should be taken out and emptied into green waste dumpster. Follow these same steps, and then bring the rolling bin inside to the cleaning room to sanitize the inside.

1. Dump hot water inside the bin.
2. Using the orange bristle scrubber, scrub the corners and seams of the green waste bin.
3. Scrub free of any residue left behind in the bin.
   3.1. Make sure the drain has a filter before pouring waste water down it.

4. Once all water is poured out, take the drain filter and throw away any remains that are in it.
5. Place filter back in floor drain.
6. After the first rinse, use cleaning solution (bleach) and follow the same steps as before. Scrub the corners and seams of the bin and then rinse the bin out.
7. After bin is sanitized leave the lid open so it air-dries overnight.
8. Place open bin in is original resting place.

Green Waste Procedures

At the end of each harvest the green waste dumpster will be picked up by a designated waste removal company. While bin is empty, it will be power washed and sanitized. The chipper will also be power washed and sanitized weekly. Follow these steps to clean and sanitize dumpster and chipper.

1. Be sure to read and understand pressure washer owner's manual prior to use.
2. Check to ensure inlet filter screen is clean and that rubber washer is in place.
3. Connect power washer to 208V power source and connect hose to hose bib.
4. Uncoil high-pressure hose and attach quick connect end to spray gun.
5. Attach black low pressure nozzle for use with chemicals and green nozzle for general cleaning.
6. Run water through power washer for 30-seconds, then turn on power washer.
7. Power wash all exposed areas of the chipper (excluding motor and electronics), make sure to clean input and exit chambers.
8. Power wash dumpster top to bottom.
9. Dumpster will drain into floor drain. Make sure the drain has a filter before pouring waste water down it.
10. Once all water is poured out, take the drain filter and throw away any remains that are in it.
11. Place filter back in floor drain.
12. After bin is sanitized leave the lid open so it air-dries overnight.
13. Drain power washer and hoses.
14. Coil all hoses and disconnect power washer from power source.

Calculations

In order to determine the disposal requirements, there are three things to consider: how much green waste will be generated after each harvest; how long the harvest will last; and, how compact we can make the waste using a trash compactor.

- Calculating green waste after each harvest:
    a. Estimated values:
        i. Rockwool blocks: $6\ in = 0.5\ ft$

$0.5 * 0.5 * 0.5 = 0.125\ ft^3$ → $0.5\ ft^3$ to account for remaining stock and FoS

        ii. Stems: $0.1\ ft^3$
        iii. Leaves: $1.5\ ft^3$ (per 20 plants) → $0.075\ ft^3$
        iv. Plants per compartments:

1. Two Main Harvests: (A) 6966 plants and (B) 13500 plants

   Waste per harvest:

    b. $6966 * (0.5 + 0.1 + 0.075) = 4702.05\ ft^3$
    c. $13500 * (0.5 + 0.1 + 0.075) = 9112.5\ ft^3$

- Assuming a 3-day harvest:
    a. $\frac{4702.05}{3} = 1567.35\ ft^3$
    b. $\frac{9112.5}{3} = 3037.5\ ft^3$
- Volume of a 40 Yard trash container: 1080 ft^3
- Trash containers required before trash compactor:
    a. $\frac{1567.35}{1080} = 1.45\ containers/day$
    b. $\frac{3037.5}{1080} = 2.81\ containers/day$
- Assuming 10:1 Compacting ratio:
    a. $\frac{1.45}{10} = .145\ containers/day$
    b. $\frac{2.81}{10} = .281\ containers/day$

Conclusion

With one 40-yard trash container, and a trash compactor with the ability to compact the green waste by a factor of 10, We Grow will only need to have their trash picked up weekly.

APPENDIX F

Hazardous Materials Spill Plan

APPENDIX F
Hazardous Spill Plan

The chemicals used in the cultivation and manufacturing of cannabis are relatively benign. They are composed of concentrated salts high in nitrogen, phosphorous, and potassium (in the form of alkaline salts), with an assortment of micronutrients essential for plant growth. Undiluted, these fertilizers can pose an inhalation, skin and eye irritation risk. When mixed with water, the risk is significantly reduced.

The disposal of other waste that does not include cannabis, including hazardous waste and liquid waste, shall be performed in a manner consistent with federal and state laws. We Grow CA will keep plastic-lined metal cans or drums for storing hazardous waste until it can be disposed of. Each can will be labelled with a list of the hazardous materials that may me placed into the can, labelled with the words “Hazardous Waste,” and labelled with the words “Flammable Materials” as appropriate. Some cans will be used for liquid waste and others for solid waste, such as hazardous-waste-soaked rags. The can must be sealed with a lid when it is not being used. When a can is full, it will be labelled with the date and disposed of at a hazardous waste disposal company. Hazardous waste will be removed from the facility weekly.

In the event of a chemical spill, employees are to: Contain spill as best as possible using absorbent paper/sand or appropriate chemicals. If liquid has spilled from a container, return the container to the upright position to prevent further spread of the liquid; notify all staff in the surrounding area of the chemical spill; close all drains to prevent the spill from reaching the environment; switch off all electrical equipment in the vicinity of the spill; cordon off the area and control access of non-essential staff; assist any person that has been exposed to chemical contamination; first aid kit and spill kit available throughout the facility; Supervisor will report spill to Cal-EPA and the Sacramento City Fire Department if help is needed. Employees are to clean up spill as follows: put on all protective clothing, goggles and acid resistant gloves and read label for instructions or warnings on how to handle a spill; cover all wet spills according to SOPs; clean up all dry spills using a designated scoop; try not to mix chemicals when scooping up; place all dry chemicals in a sturdy plastic bag, tie with vinyl bag ties, and label if contents are known and put into clear plastic drum with lid; pick up all broken glass or plastic from chemical container using tongs and put it into containers supplied. Take note of all information on the labels from broken containers, both safety information and toxicity; after the rag has absorbed 10-20x their own weight, they are saturated and need to be replaced by another rag; put saturated rag into plastic bags in clear plastic drum for disposal.

Employees must record all spills and disposals of chemicals in the Chemical Spill Log and the Chemical Waste Log respectively. In addition to documentation, staff responsible for a spill or disposal must notify the Director of Cultivation. These chemical logs are kept indefinitely in the office of the Compliance Officer. We Grow mitigates the risk of a chemical spill at the cultivation facility by adopting Good Agricultural Practices (GAPs) regarding watering criteria and installing a fertilizer injection system (fertigation): fertigation systems automatically mix, dose, balance pH, and distribute nutrients through a drip-feeding system directly to the plants.

WE GROW CA

8280 Elder Creek Road, Sacramento CA 95828

Cultivation Product Name	Component	Location Where Stored/Used	Container Size	NFPA 704 Rating			
				Fire	Health	Reactive	Special
Calcium Nitrate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Potassium Nitrate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Iron Chelate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Magnesium Sulfate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Monopotassium Phosphate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Ammonium Nitrate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Manganese Sulphate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Solubor	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Zinc Chelate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Copper Sulfate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
Ammonium Molybdate	Salt	Storage / Mix-Light Cultivation Facility	275 Gallons	0	2	1	OX
MicroBloc	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	0	3	0	COR
PAC (Professional Agricultural Cleane	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	1	3	0	COR
Strip-It	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	1	3	0	OX
Isopropyl alcohol	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	3	2	0	
pH Down	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	0	3	0	COR
pH Up	Liquid	Storage / Mix-Light Cultivation Facility	1 Gallon	0	3	0	COR
Vita Grow	Liquid	Storage / Mix-Light Cultivation Facility	.0625 Gallons				

Manufacturing Product Name	Component	Location Where Stored/Used	Container Size	NFPA 704 Rating			
				Fire	Health	Reactive	Special
Carbon Dioxide – CO2	Gas	CO2 Room / Manufacturing	250L Dewar	0	3	0	
Ethyl Alcohol	Liquid	CO2, Ethanol, Distillation Room / Manufacturing	5 gallon	3	0	0	
Acetone	Liquid	CO2 Room / Manufacturing	1 Gallon	3	1	1	
Isopropyl alcohol	Liquid	CO2, Ethanol, Distillation Room / Manufacturing	1 Gallon	3	2	0	
Nitrogen	Gas	Distillation Room / Manufacturing	5lb tank	0	0	0	
Black Gold – Machine Oil	Liquid	CO2 Room / Manufacturing	1 gal	1	0	0	

APPENDIX G

Drainage and Water Quality Studies

We Grow CA Medical Cannabis Campus
8280 Elder Creek Road
Sacramento, CA

Drainage Study

Prepared for:
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April 22, 2018

Entcho Anguelov, PE C 70806

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SECTION 1 - SUMMARY

PURPOSE

The purpose of this report is to document the hydrologic and hydraulic analyses performed in support of the We Grow CA Medical Cannabis Campus project located at 8280 Elder Creek Road in the City of Sacramento, CA. The project is bounded by Elder Creek Road and Morrison Creek Channel to the north, a railroad to the west and other industrial developments to the east. There is a vacant parcel of land to the south. The project proposes to remodel two existing metal buildings and build three new light industrial buildings on approximately 11 acres. This report will summarize the hydrology and hydraulic analyses that were completed to determine the necessary drainage improvements required for the project to safely convey runoff through the site.

The scope of this report will include the following:

- Determine the peak 100-year and 10-year flow rates for the developed condition
- Determine the required storm drain facilities, alignment, and sizes required to flood protect the project site.
- Determine the necessary volume required for hydromodification.

DESCRIPTION OF WATERSHED

In addition to remodeling two existing buildings, the project is proposing to build three light industrial buildings on approximately 11 acres parcel. Approximately a quarter of the side is covered with impervious surfaces – roofs and drive isles. The remaining is a pervious open area used for staging, parking and material storage. The site is located on relatively flat ground, the existing elevations of the site vary from 38 feet in the areas around the existing metal buildings and 36 feet in the south-west property boundary. The terrain slopes down from the center outwards and the existing runoff drains outside of the property either to Elder Creek Road or to the south. There are no defined surface drainage patterns in the project vicinity and there are no existing drainage on-site facilities.

Two existing main drainage Lines A and B of the Morrison Creek Assessment District Sump 148 run just outside of the project south and east boundaries. An existing pump station just south of Elder Creek Road and adjacent to the north-east property corner elevates the flows from Line A to Morrison Creek Channel. The proposed on-site drainage system will be connected to the existing Line A to the east.

The project site falls within City Drainage Basin 148. There are no significant geologic features onsite. Based on the Geotechnical Study by MPE, dated October 30 2017, no ground water was encountered to a maximum depth of 16.5 feet below existing grades.

PROPOSED CONDITIONS

The project site is not impacted by any off-site flows. On-site flows generated by the proposed project will be collected and conveyed using a combination of surface flow, ribbon gutters, inlets, subsurface storm drains, water quality low impact facilities, proprietary treatment facilities, underground stormtech chambers for mitigation of the increased runoff and outlet control structures.

The site essentially breaks down into two main sub-drainage areas – north and south. The dividing ridge runs in the middle of the site from east to west between the proposed buildings.

The north half of the site (Area N) consists of 6.34 acres and will allow the runoff generated to surface flow towards the proposed amended soil areas and then to northerly property line where a bioretention infiltration planter is proposed. The runoff from the existing two buildings 1 and 2 will be conveyed predominantly by ribbon gutter and will be directed towards the bioretention area. The runoff from the roof of the newly proposed mix-light indoor building 1 will drain to the north into the proposed amended soil and the flow-through bioretention planters. The treated low flows will directly drain to the proposed storm drain pipes via a 6” underdrain system and all other excess high flows will overflow and will be picked up by the proposed grate catch basins. Underground stormtech volume storage chambers are proposed for mitigation of the storm events required under the hydromodification criteria. The runoff conveyed by the on-site storm drain will be separated by a weir split structure. The top of the weir is the top of the proposed underground chambers. Once the chambers are filled, the excess runoff will run over the weir wall and will be directly conveyed out of the site. All storm events up to 10-yr frequency are expected to enter the underground mitigation storage. An outlet control structure with an orifice and notch plate will be installed at the underground chambers outlet point and then connected to the storm drain system. A connection to the existing Morrison Creek Line A just before entering the pump station is proposed for the runoff generated from the northerly site area.

A small parking area just east of the new building 1 will be treated by porous pavers and the excess flows will be picked up by a grate catch basin with filter insert and then connected to the underground chambers.

The south half of the site (Area S) consists of 4.56 cares and will allow the runoff generated to surface flow towards the proposed amended soil areas and the proposed bioretention facilities. The runoff from the roof of the newly proposed mix-light indoor building 3 will drain to the south and will enter first the proposed amended soil area and then will overflow into the proposed infiltration bioretention planter. The runoff from the drive allays between the new buildings 2 and 3 and along the south-west property line will also drain into the bioretention planter on the surface via concrete curbs and gutters. The high excess flows will overflow the planter and enter the adjacent grate catch basin.

The runoff from the roof of the newly proposed mix-light indoor building 2 will drain to the south into the proposed amended soil and the flow-through bioretention planters. The treated low flows will directly drain to the proposed storm drain pipes via a 6” underdrain system and all other excess high flows will overflow and will be picked up by the proposed grate catch basins. A separate underground stormtech volume storage chambers are proposed for mitigation of the storm events required under the hydromodification criteria for the south area. The runoff conveyed by the on-site storm drain will be separated by a weir split structure. The top of the weir is the top of the proposed underground chambers. Once the chambers are filled, the excess runoff will run over the weir wall and will be directly conveyed out of the site. All storm events up to 10-yr frequency are expected to enter the underground mitigation storage. An outlet control structure with an orifice and notch plate will be installed at the underground chambers outlet point and then connected to the storm drain system. A connection to the existing Morrison Creek Line A just downstream of the junction with Line B just outside of the

south-east property corner entering the pump station is proposed for the runoff generated from the southerly site area.

A small parking area just east of the new building 2 will be treated by porous pavers and the excess flows will be picked up by a grate catch basin and then connected to the underground storm drain system.

All on-site drainage improvements will be privately maintained.

METHODOLOGY

HYDROLOGY

Hydrologic calculations were performed in accordance with the City of Sacramento Design and Procedures Manual, Section 11 - Storm Drainage Design Manual, draft version dated 2/23/2018. The Rational Method for Level 1 onsite projects described in 11.3.5.5. was utilized in determining peak flow rates.

The Rational Method was used to determine the peak flow rates used to size and design the subsurface storm drain systems to convey on-site flows. The peak flow rates for the 10 and 100-yr events were computed by using equations 11-1 and 11-2.

The results were derived for each of the two drainage subareas – North and South and then prorated for the areas each catch basin collects. Table 1 below shows the results of the peak flow rates at each catch basins. The results are also shown in the included Hydrology Map.

Equation 11-1 $Q = CiA_S$

Equation 11-2 $i = at^b$

Where:
Q = Peak flow rate to a particular node (CFS)
C = Runoff coefficient (*unit-less*, Refer to Table 11-1)
i = Rainfall intensity (inches/hour)
A_S = Shed area draining to a particular Node (acres)
a = Rainfall intensity coefficient = 8.10 (10 Year Event) and 14.465 (100 Year Event)
b = Rainfall intensity coefficient = -0.573 (10 Year Event) and -0.602 (100 Year Event)
t = Time of concentration (minutes) = Inlet Time + Time thru pipe/channel to a particular Node (Refer to Table 11-1 for Inlet Time)

Table 11-1 Runoff Coefficients and Inlet Times

Imperviousness/ Land Use	Runoff Coefficient C	Inlet Time t_i
Proposed/Existing Development		
Impervious areas	0.95	5
Pervious areas	0.40	10

(use area weighted average)

Table 1 – Rational Method peak flow rates

Area	Acres	%imp	Inlet Tc	Runoff	i_{10}	i_{100}	Q_{10}	Q_{100}
N	6.34	0.84	5.8	0.862	2.96	5.02	16.2	27.4
S	4.56	0.83	5.9	0.857	2.94	4.99	11.5	19.5

N1	4.7	12.0	20.3
N2	1.34	3.4	5.8
N3	0.3	0.8	1.3
S1	1.96	4.9	8.4
S2	1.35	3.4	5.8
S3	0.84	2.1	3.6
S4	0.41	1.0	1.8

SOILS

The project site consists of hydrologic Soil C, with conductivity pervious factor of 0.06 in/hr based on the USGS maps and reports.

OVERLAND RELEASE

The site has two low overland release locations – one for each drainage subarea. The north area runoff would escape over the street right-of-way low point, and the runoff from the south area would escape through a low point between the newly proposed buildings 2 and 3 to the south outside of the property. The two overland routes correspond to the existing conditions runoff locations. The buildings finish floor elevations are chosen to be at least 6 inches above the overland release point.

HYDRAULICS

Based on the results from the Rational Method Hydrology, the pipes were sized using Manning's normal depth formula and utilizing AES Software and grate inlet calculations were performed using orifice formula and 50% clogging factor. Hydraulic calculations can be found in Appendix C.

HYDROMODIFICATION

Based on the Hydromodification Management Plan (HMP) for Sacramento area AND THE Hydromodification Applicability Map the project site is part of the Morrison Creek Major Watershed and it is susceptible to hydromodification.

The Sacramento Area Hydrology Model (SAHM) continuous simulation hydrology model was used to evaluate the necessary mitigation storage and to model the hydromodification conditions of the site. In addition to the proposed LID facilities, an underground stormtech chamber storage was used in the model. The results are included in Appendix B. The location and the technical specifications of the stormtech chambers can be found in the Hydrology Map, the Water Quality BMP Map and the Grading and Drainage Plans.

FIG. 1 VICINITY MAP

FIG. 2 SOILS MAP

FIG. 3 PLATE 11-1 DRAINAGE BASINS MAP

FIG. 4 HUDROMODIFICATION APPLICABILITY MAP

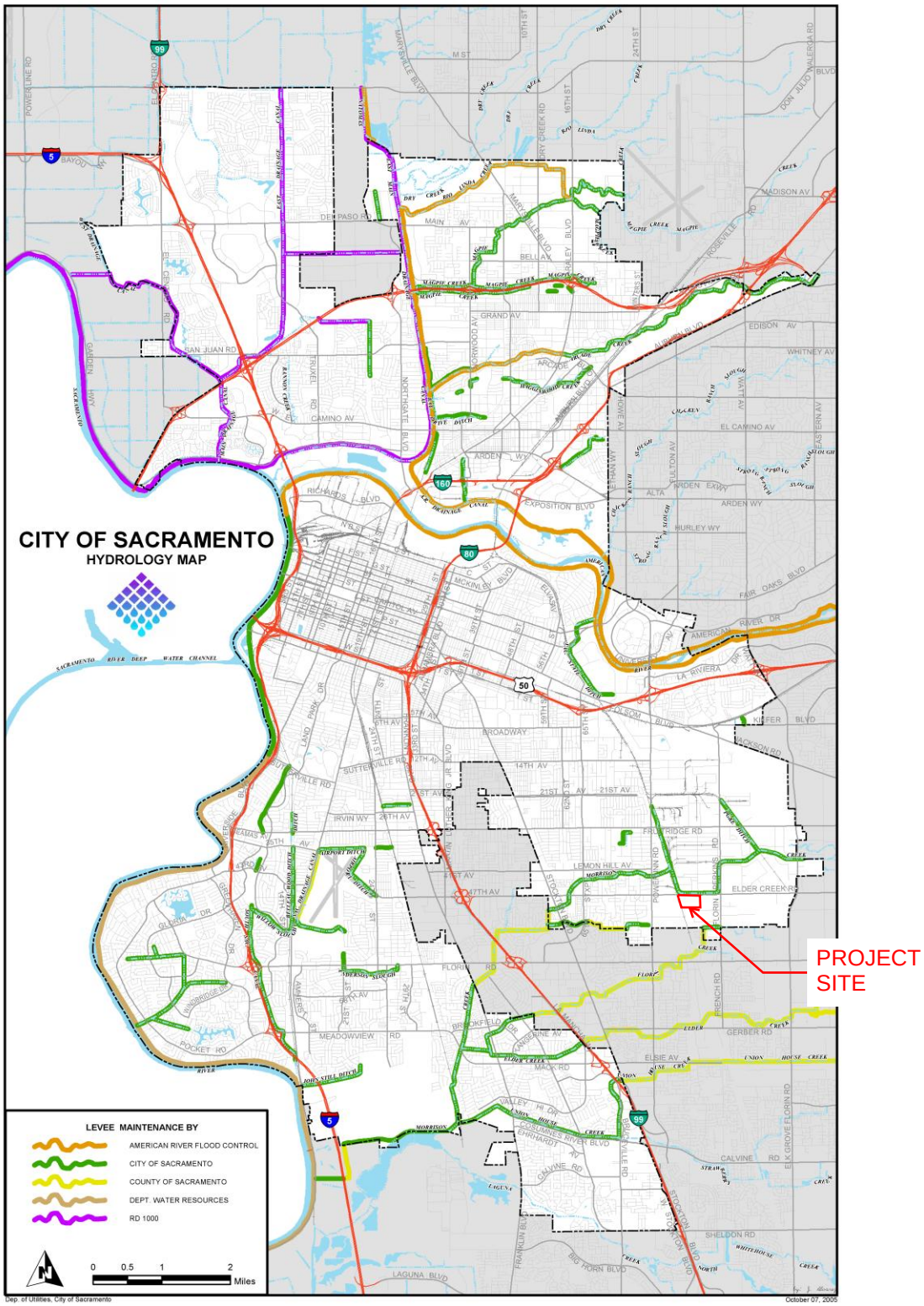


Figure 11.6-1 Levee Maintenance Map

Soil Map—Sacramento County, California
(8280 Elder Creek Road)

Map Scale: 1:1,660 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Sacramento County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
213—San Joaquin silt loam, leveled, 0 to 1 percent slopes			
San joaquin	85	High	C

Hydrologic Soil Group and Surface Runoff–Sacramento County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
214—San Joaquin silt loam, 0 to 3 percent slopes			
San joaquin	85	High	C
240—Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes			
Xerarents	45	—	—
Urban land	25	—	—
San joaquin	15	High	C

Data Source Information

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 16, Sep 26, 2017

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	0.4575	1.5	12.3%
214	San Joaquin silt loam, 0 to 3 percent slopes	0.4575	5.5	46.3%
240	Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes		4.9	41.4%
Totals for Area of Interest			**11.8**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 48

Bottom Depth: 72

Units of Measure: Inches

SEE PAGE 1 OF 2

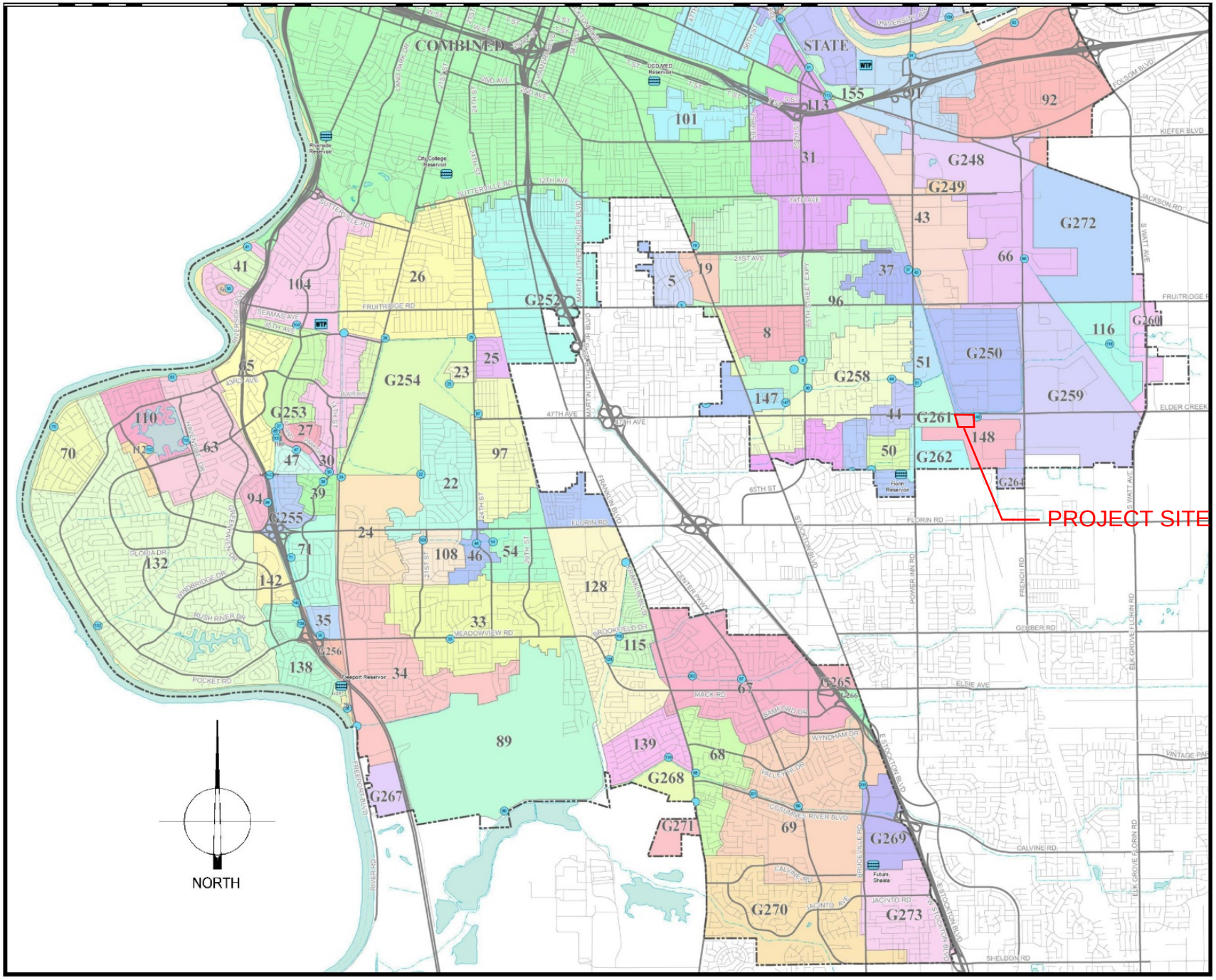
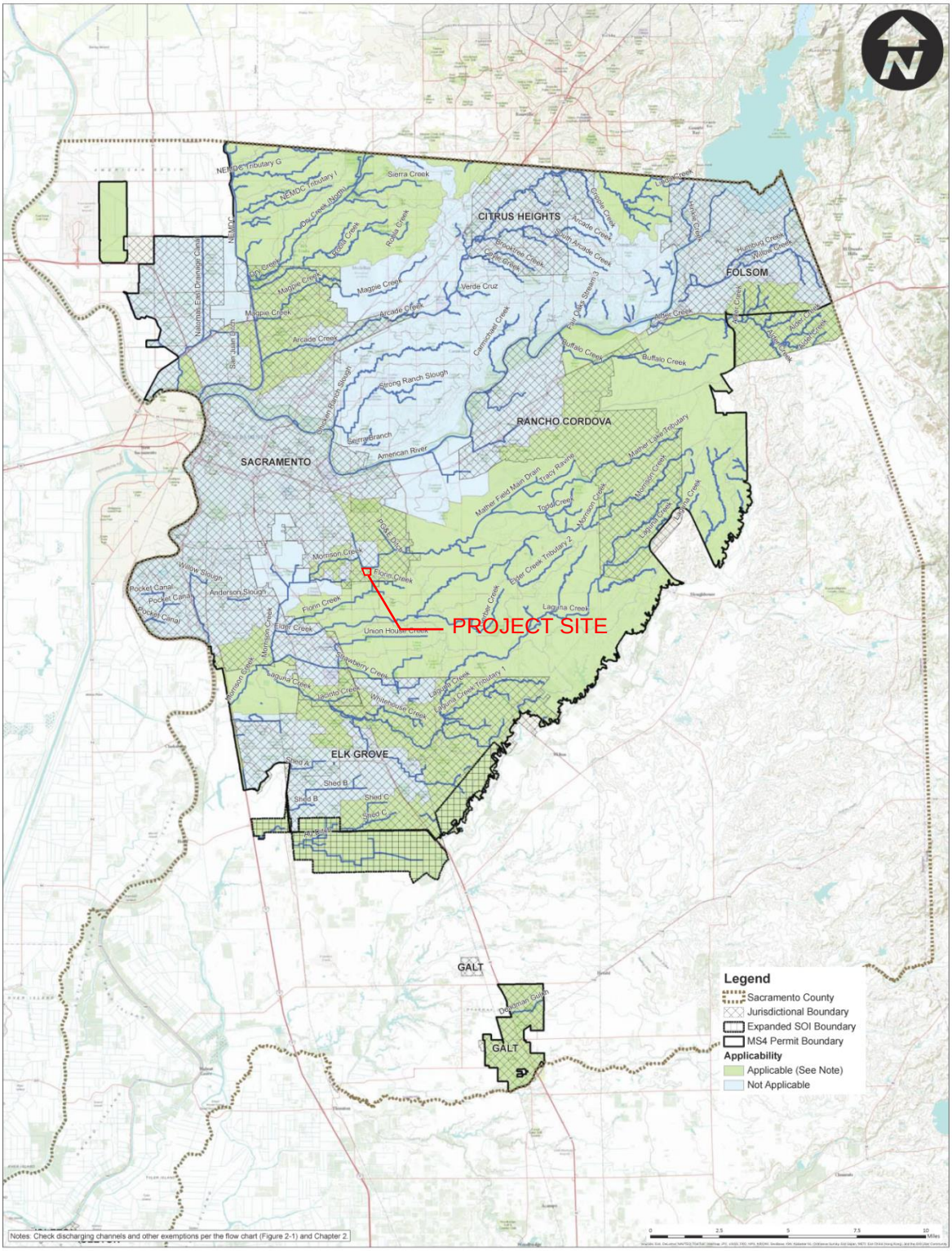
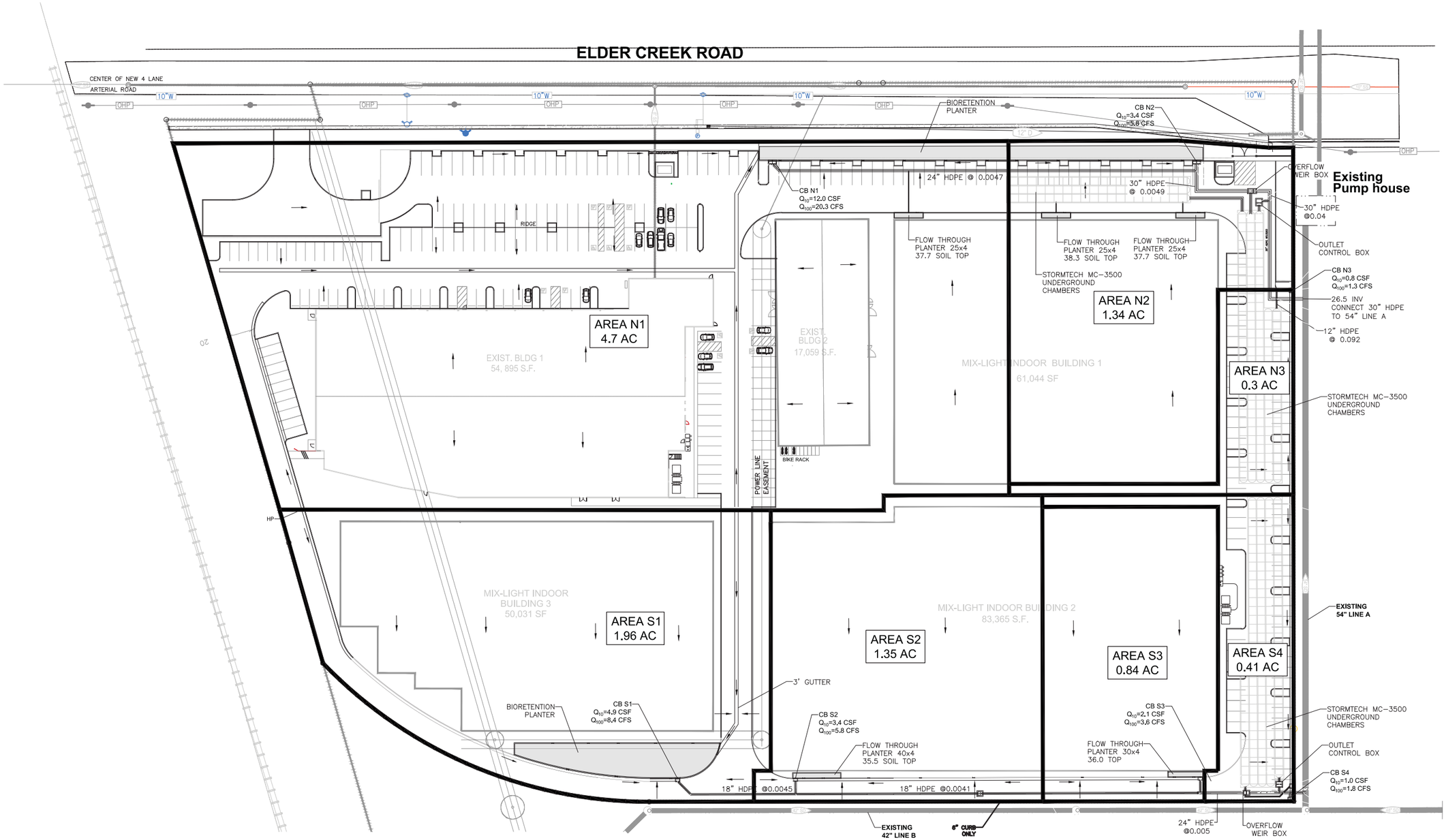


Figure 5-2 Applicability Map



[Click here to link to Figure 3-1, Identifying Stormwater Quality Requirements for New Development and Redevelopment Projects.]

APPENDIX A – HYDROLOGY MAP



CITY OF SACRAMENTO
8280 ELDER CREEK ROAD

HYDROLOGY MAP AND DRIANGE ONSITE SUBAREAS

WE GROW CA MEDICAL CANNABIS CAMPUS

SCALE: 1"=40' DATE: April 2018 DESIGNED: EA	G&M ENGINEERING	SHEET 1 OF 1 SHEETS

APPENDIX B – HYDROMODIFICATION STUDIES

NORTH AREA HYDROMODIFICATION

SAHM

PROJECT REPORT

General Model Information

Project Name:	ElderNorthUP2
Site Name:	Elder
Site Address:	8280 Elder Crekk
City:	Sacramento
Report Date:	4/20/2018
Gage:	ELK GROV
Data Start:	1963/10/01
Data End:	2004/09/30
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2018/02/20

POC Thresholds

Low Flow Threshold for POC1:	25 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Pre-Project Land Use

Pervious North Area

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Grass,Flat(0-1%)	6.34
Pervious Total	6.34
Impervious Land Use	acre
Impervious Total	0
Basin Total	6.34

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

To Bioretntion

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.24
Impervious Total	1.24
Basin Total	1.24

Element Flows To:

Surface	Interflow	Groundwater
Bioretenti Surfaceon	Bioretenti Surfaceon	

To Planters

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	2.34
Impervious Total	2.34
Basin Total	2.34

Element Flows To:

Surface	Interflow	Groundwater
F T Plante Surface 2	F T Plante Surface 2	

To Porous Pavement

Bypass:	No
Impervious Land Use	acre
Imperv,Flat(0-1%) LAT	0.08

Element Flows To:

Outlet 1	Outlet 2
Porous Pavement 1	

To Amended Soil

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.64
Impervious Total	1.64
Basin Total	1.64

Element Flows To:

Surface	Interflow	Groundwater
Surface Amended Soil	Surface Amended Soil	

Pervious

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Urban,Flat(0-1%)	1
Pervious Total	1
Impervious Land Use	acre
Impervious Total	0
Basin Total	1

Element Flows To:

Surface	Interflow	Groundwater
StormTech 2	StormTech 2	

Routing Elements

Pre-Project Routing

Mitigated Routing

Bioretention

Bottom Length:	362.50 ft.
Bottom Width:	12.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	29.67
Total Volume Through Riser (ac-ft.):	1.547
Total Volume Through Facility (ac-ft.):	63.863
Percent Infiltrated:	46.46
Total Precip Applied to Facility:	4.671
Total Evap From Facility:	2.481
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	6
Flow Through Underdrain (ac-ft.):	32.646
Total Outflow (ac-ft.):	63.863
Percent Through Underdrain:	51.12
Discharge Structure	
Riser Height:	0.75 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0999	0.0000	0.0000	0.0000
0.0522	0.0999	0.0022	0.0000	0.0000
0.1044	0.0999	0.0044	0.0000	0.0000
0.1566	0.0999	0.0066	0.0000	0.0000
0.2088	0.0999	0.0088	0.0060	0.0060
0.2610	0.0999	0.0109	0.0060	0.0060
0.3132	0.0999	0.0131	0.0060	0.0060
0.3654	0.0999	0.0153	0.0060	0.0060
0.4176	0.0999	0.0175	0.0060	0.0060
0.4698	0.0999	0.0197	0.0060	0.0060
0.5220	0.0999	0.0219	0.0060	0.0060
0.5742	0.0999	0.0241	0.0060	0.0060
0.6264	0.0999	0.0263	0.0060	0.0060
0.6786	0.0999	0.0285	0.0060	0.0060
0.7308	0.0999	0.0307	0.0060	0.0060
0.7830	0.0999	0.0328	0.0060	0.0060
0.8352	0.0999	0.0350	0.0060	0.0060
0.8874	0.0999	0.0372	0.0060	0.0060
0.9396	0.0999	0.0394	0.0060	0.0060
0.9918	0.0999	0.0416	0.0060	0.0060

1.0440	0.0999	0.0438	0.0060	0.0060
1.0962	0.0999	0.0460	0.0060	0.0060
1.1484	0.0999	0.0482	0.0060	0.0060
1.2005	0.0999	0.0504	0.0060	0.0060
1.2527	0.0999	0.0525	0.0060	0.0060
1.3049	0.0999	0.0547	0.0060	0.0060
1.3571	0.0999	0.0569	0.0060	0.0060
1.4093	0.0999	0.0591	0.0060	0.0060
1.4615	0.0999	0.0613	0.0060	0.0060
1.5137	0.0999	0.0635	0.0060	0.0060
1.5659	0.0999	0.0657	0.0060	0.0060
1.6181	0.0999	0.0679	0.0060	0.0060
1.6703	0.0999	0.0701	0.0060	0.0060
1.7225	0.0999	0.0722	0.0060	0.0060
1.7747	0.0999	0.0744	0.0060	0.0060
1.8269	0.0999	0.0766	0.0060	0.0060
1.8791	0.0999	0.0788	0.0060	0.0060
1.9313	0.0999	0.0810	0.0060	0.0060
1.9835	0.0999	0.0832	0.0060	0.0060
2.0357	0.0999	0.0854	0.0060	0.0060
2.0879	0.0999	0.0875	0.0060	0.0060
2.1401	0.0999	0.0897	0.0060	0.0060
2.1923	0.0999	0.0918	0.0060	0.0060
2.2445	0.0999	0.0940	0.0060	0.0060
2.2967	0.0999	0.0962	0.0060	0.0060
2.3489	0.0999	0.0983	0.0060	0.0060
2.4011	0.0999	0.1005	0.0060	0.0060
2.4533	0.0999	0.1027	0.0060	0.0060
2.5055	0.0999	0.1048	0.0060	0.0060
2.5577	0.0999	0.1070	0.0060	0.0060
2.6099	0.0999	0.1092	0.0060	0.0060
2.6621	0.0999	0.1113	0.0060	0.0060
2.7143	0.0999	0.1135	0.0060	0.0060
2.7665	0.0999	0.1156	0.0060	0.0060
2.8187	0.0999	0.1178	0.0060	0.0060
2.8709	0.0999	0.1200	0.0060	0.0060
2.9231	0.0999	0.1221	0.0060	0.0060
2.9753	0.0999	0.1243	0.0060	0.0060
3.0000	0.0999	0.1253	0.0060	0.0060

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0999	0.1253	0.0000	0.1125	0.0000
3.0522	0.0999	0.1305	0.0000	0.1125	0.0000
3.1044	0.0999	0.1357	0.0000	0.1125	0.0000
3.1566	0.0999	0.1410	0.0000	0.1125	0.0000
3.2088	0.0999	0.1462	0.0000	0.1125	0.0000
3.2610	0.0999	0.1514	0.0000	0.1125	0.0000
3.3132	0.0999	0.1566	0.0000	0.1125	0.0000
3.3654	0.0999	0.1618	0.0000	0.1125	0.0000
3.4176	0.0999	0.1670	0.0000	0.1125	0.0000
3.4698	0.0999	0.1722	0.0000	0.1125	0.0000
3.5220	0.0999	0.1774	0.0000	0.1125	0.0000
3.5742	0.0999	0.1827	0.0000	0.1125	0.0000
3.6264	0.0999	0.1879	0.0000	0.1125	0.0000
3.6786	0.0999	0.1931	0.0000	0.1125	0.0000
3.7308	0.0999	0.1983	0.0000	0.1125	0.0000
3.7830	0.0999	0.2035	0.0000	0.1125	0.0000

3.8352	0.0999	0.2087	0.0000	0.1125	0.0000
3.8874	0.0999	0.2139	0.0000	0.1125	0.0000
3.9396	0.0999	0.2191	0.0000	0.1125	0.0000
3.9918	0.0999	0.2244	0.0000	0.1125	0.0000
4.0440	0.0999	0.2296	0.0000	0.1125	0.0000
4.0962	0.0999	0.2348	0.0093	0.1125	0.0000
4.1484	0.0999	0.2400	0.0199	0.1125	0.0000
4.2005	0.0999	0.2452	0.0228	0.1125	0.0000
4.2527	0.0999	0.2504	0.0258	0.1125	0.0000
4.3049	0.0999	0.2556	0.0291	0.1125	0.0000
4.3571	0.0999	0.2608	0.0361	0.1125	0.0000
4.4093	0.0999	0.2661	0.0400	0.1125	0.0000
4.4615	0.0999	0.2713	0.0440	0.1125	0.0000
4.5137	0.0999	0.2765	0.0477	0.1125	0.0000
4.5659	0.0999	0.2817	0.0509	0.1125	0.0000
4.6181	0.0999	0.2869	0.0539	0.1125	0.0000
4.6703	0.0999	0.2921	0.0567	0.1125	0.0000
4.7225	0.0999	0.2973	0.0594	0.1125	0.0000
4.7500	0.0999	0.3001	0.0620	0.1125	0.0000

Bioretenti Surfaceon

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Bioretention

Porous Pavement 1

Pavement Area:0.0368 acre.Pavement Length:107.00 ft.

Pavement Width:	15.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.67
Pour Space of Pavement:	0.5
Material thickness of second layer:	0.5
Pour Space of material for second layer:	0.3
Material thickness of third layer:	0.75
Pour Space of material for third layer:	0.4
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	0.065
Total Volume Through Riser (ac-ft.):	5.681
Total Volume Through Facility (ac-ft.):	5.746
Percent Infiltrated:	1.13
Total Precip Applied to Facility:	0
Total Evap From Facility:	0.051

Element Flows To:

Outlet 1 Outlet 2

StormTech 2

Porous Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.036	0.000	0.000	0.000
0.0213	0.036	0.000	0.063	0.000
0.0427	0.036	0.000	0.089	0.000
0.0640	0.036	0.000	0.109	0.000
0.0853	0.036	0.001	0.126	0.000
0.1067	0.036	0.001	0.141	0.000
0.1280	0.036	0.001	0.155	0.000
0.1493	0.036	0.002	0.167	0.000
0.1707	0.036	0.002	0.179	0.000
0.1920	0.036	0.002	0.190	0.000
0.2133	0.036	0.003	0.200	0.000
0.2347	0.036	0.003	0.210	0.000
0.2560	0.036	0.003	0.219	0.000
0.2773	0.036	0.004	0.228	0.000
0.2987	0.036	0.004	0.237	0.000
0.3200	0.036	0.004	0.245	0.000
0.3413	0.036	0.005	0.253	0.000
0.3627	0.036	0.005	0.261	0.000
0.3840	0.036	0.005	0.269	0.000
0.4053	0.036	0.006	0.276	0.000
0.4267	0.036	0.006	0.283	0.000
0.4480	0.036	0.006	0.290	0.000
0.4693	0.036	0.006	0.297	0.000
0.4907	0.036	0.007	0.304	0.000
0.5120	0.036	0.007	0.310	0.000
0.5333	0.036	0.007	0.317	0.000
0.5547	0.036	0.008	0.323	0.000
0.5760	0.036	0.008	0.329	0.000
0.5973	0.036	0.008	0.335	0.000
0.6187	0.036	0.009	0.341	0.000
0.6400	0.036	0.009	0.347	0.000

0.6613	0.036	0.009	0.353	0.000
0.6827	0.036	0.010	0.358	0.000
0.7040	0.036	0.010	0.364	0.000
0.7253	0.036	0.010	0.369	0.000
0.7467	0.036	0.011	0.375	0.000
0.7680	0.036	0.011	0.380	0.000
0.7893	0.036	0.011	0.385	0.000
0.8107	0.036	0.011	0.390	0.000
0.8320	0.036	0.011	0.396	0.000
0.8533	0.036	0.012	0.401	0.000
0.8747	0.036	0.012	0.406	0.000
0.8960	0.036	0.012	0.411	0.000
0.9173	0.036	0.012	0.415	0.000
0.9387	0.036	0.013	0.420	0.000
0.9600	0.036	0.013	0.425	0.000
0.9813	0.036	0.013	0.430	0.000
1.0027	0.036	0.013	0.434	0.000
1.0240	0.036	0.014	0.439	0.000
1.0453	0.036	0.014	0.443	0.000
1.0667	0.036	0.014	0.448	0.000
1.0880	0.036	0.014	0.452	0.000
1.1093	0.036	0.015	0.457	0.000
1.1307	0.036	0.015	0.461	0.000
1.1520	0.036	0.015	0.466	0.000
1.1733	0.036	0.015	0.470	0.000
1.1947	0.036	0.016	0.474	0.000
1.2160	0.036	0.016	0.478	0.000
1.2373	0.036	0.016	0.483	0.000
1.2587	0.036	0.016	0.487	0.000
1.2800	0.036	0.017	0.491	0.000
1.3013	0.036	0.017	0.495	0.000
1.3227	0.036	0.018	0.499	0.000
1.3440	0.036	0.018	0.503	0.000
1.3653	0.036	0.018	0.507	0.000
1.3867	0.036	0.019	0.511	0.000
1.4080	0.036	0.019	0.515	0.000
1.4293	0.036	0.020	0.519	0.000
1.4507	0.036	0.020	0.523	0.000
1.4720	0.036	0.020	0.526	0.000
1.4933	0.036	0.021	0.530	0.000
1.5147	0.036	0.021	0.534	0.000
1.5360	0.036	0.021	0.538	0.000
1.5573	0.036	0.022	0.541	0.000
1.5787	0.036	0.022	0.545	0.000
1.6000	0.036	0.023	0.549	0.000
1.6213	0.036	0.023	0.552	0.000
1.6427	0.036	0.023	0.556	0.000
1.6640	0.036	0.024	0.560	0.000
1.6853	0.036	0.024	0.563	0.000
1.7067	0.036	0.025	0.567	0.000
1.7280	0.036	0.025	0.570	0.000
1.7493	0.036	0.025	0.574	0.000
1.7707	0.036	0.026	0.577	0.000
1.7920	0.036	0.026	0.581	0.000
1.8133	0.036	0.027	0.584	0.000
1.8347	0.036	0.027	0.588	0.000
1.8560	0.036	0.027	0.591	0.000
1.8773	0.036	0.028	0.594	0.000

1.8987	0.036	0.028	0.598	0.000
1.9200	0.036	0.029	0.601	0.000

F T Planter 2

Bottom Length:	70.00 ft.
Bottom Width:	4.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 15 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	59.119
Total Outflow (ac-ft.):	116.493
Percent Through Underdrain:	50.75
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0064	0.0000	0.0000	0.0000
0.0549	0.0064	0.0001	0.0000	0.0000
0.1099	0.0064	0.0003	0.0000	0.0000
0.1648	0.0064	0.0004	0.0000	0.0000
0.2198	0.0064	0.0006	0.0000	0.0000
0.2747	0.0064	0.0007	0.0000	0.0000
0.3297	0.0064	0.0009	0.0000	0.0000
0.3846	0.0064	0.0010	0.0000	0.0000
0.4396	0.0064	0.0012	0.0000	0.0000
0.4945	0.0064	0.0013	0.0000	0.0000
0.5495	0.0064	0.0015	0.0000	0.0000
0.6044	0.0064	0.0016	0.0000	0.0000
0.6593	0.0064	0.0018	0.0000	0.0000
0.7143	0.0064	0.0019	0.0000	0.0000
0.7692	0.0064	0.0021	0.0000	0.0000
0.8242	0.0064	0.0022	0.0000	0.0000
0.8791	0.0064	0.0024	0.0000	0.0000
0.9341	0.0064	0.0025	0.0000	0.0000
0.9890	0.0064	0.0027	0.0000	0.0000
1.0440	0.0064	0.0028	0.0000	0.0000
1.0989	0.0064	0.0030	0.0000	0.0000
1.1538	0.0064	0.0031	0.0000	0.0000
1.2088	0.0064	0.0033	0.0000	0.0000
1.2637	0.0064	0.0034	0.0000	0.0000
1.3187	0.0064	0.0036	0.0000	0.0000
1.3736	0.0064	0.0037	0.0000	0.0000
1.4286	0.0064	0.0039	0.0000	0.0000
1.4835	0.0064	0.0040	0.0000	0.0000
1.5385	0.0064	0.0042	0.0000	0.0000
1.5934	0.0064	0.0043	0.0000	0.0000
1.6484	0.0064	0.0045	0.0000	0.0000

1.7033	0.0064	0.0046	0.0000	0.0000
1.7582	0.0064	0.0047	0.0000	0.0000
1.8132	0.0064	0.0049	0.0000	0.0000
1.8681	0.0064	0.0050	0.0000	0.0000
1.9231	0.0064	0.0052	0.0000	0.0000
1.9780	0.0064	0.0053	0.0000	0.0000
2.0330	0.0064	0.0055	0.0000	0.0000
2.0879	0.0064	0.0056	0.0000	0.0000
2.1429	0.0064	0.0058	0.0000	0.0000
2.1978	0.0064	0.0059	0.0000	0.0000
2.2527	0.0064	0.0061	0.0000	0.0000
2.3077	0.0064	0.0062	0.0000	0.0000
2.3626	0.0064	0.0064	0.0000	0.0000
2.4176	0.0064	0.0065	0.0000	0.0000
2.4725	0.0064	0.0067	0.0000	0.0000
2.5275	0.0064	0.0068	0.0000	0.0000
2.5824	0.0064	0.0070	0.0000	0.0000
2.6374	0.0064	0.0071	0.0000	0.0000
2.6923	0.0064	0.0072	0.0000	0.0000
2.7473	0.0064	0.0074	0.0000	0.0000
2.8022	0.0064	0.0075	0.0000	0.0000
2.8571	0.0064	0.0077	0.0000	0.0000
2.9121	0.0064	0.0078	0.0000	0.0000
2.9670	0.0064	0.0080	0.0000	0.0000
3.0000	0.0064	0.0081	0.0000	0.0000

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0064	0.0081	0.0000	0.0995	0.0000
3.0549	0.0064	0.0084	0.0000	0.0995	0.0000
3.1099	0.0064	0.0088	0.0000	0.0995	0.0000
3.1648	0.0064	0.0091	0.0000	0.0995	0.0000
3.2198	0.0064	0.0095	0.0001	0.0995	0.0000
3.2747	0.0064	0.0098	0.0002	0.0995	0.0000
3.3297	0.0064	0.0102	0.0004	0.0995	0.0000
3.3846	0.0064	0.0105	0.0007	0.0995	0.0000
3.4396	0.0064	0.0109	0.0011	0.0995	0.0000
3.4945	0.0064	0.0112	0.0017	0.0995	0.0000
3.5495	0.0064	0.0116	0.0023	0.0995	0.0000
3.6044	0.0064	0.0120	0.0031	0.0995	0.0000
3.6593	0.0064	0.0123	0.0040	0.0995	0.0000
3.7143	0.0064	0.0127	0.0051	0.0995	0.0000
3.7692	0.0064	0.0130	0.0063	0.0995	0.0000
3.8242	0.0064	0.0134	0.0077	0.0995	0.0000
3.8791	0.0064	0.0137	0.0092	0.0995	0.0000
3.9341	0.0064	0.0141	0.0109	0.0995	0.0000
3.9890	0.0064	0.0144	0.0128	0.0995	0.0000
4.0440	0.0064	0.0148	0.0149	0.0995	0.0000
4.0989	0.0064	0.0151	0.0172	0.0995	0.0000
4.1538	0.0064	0.0155	0.0190	0.0995	0.0000
4.2088	0.0064	0.0158	0.0197	0.0995	0.0000
4.2637	0.0064	0.0162	0.0224	0.0995	0.0000
4.3187	0.0064	0.0165	0.0253	0.0995	0.0000
4.3736	0.0064	0.0169	0.0284	0.0995	0.0000
4.4286	0.0064	0.0172	0.0317	0.0995	0.0000
4.4835	0.0064	0.0176	0.0353	0.0995	0.0000
4.5385	0.0064	0.0180	0.0369	0.0995	0.0000
4.5934	0.0064	0.0183	0.0412	0.0995	0.0000

4.6484	0.0064	0.0187	0.0450	0.0995	0.0000
4.7033	0.0064	0.0190	0.0473	0.0995	0.0000
4.7582	0.0064	0.0194	0.0486	0.0995	0.0000
4.8132	0.0064	0.0197	0.0519	0.0995	0.0000
4.8681	0.0064	0.0201	0.0550	0.0995	0.0000
4.9231	0.0064	0.0204	0.0579	0.0995	0.0000
4.9780	0.0064	0.0208	0.0607	0.0995	0.0000
5.0000	0.0064	0.0209	0.0634	0.0995	0.0000

F T Plante Surface 2

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	F T Planter 2

StormTech 2

Chamber Model:	3500		
Dimensions			
Max Row Length:	300		
Number of Chambers:	188		
Number of Endcaps:	10		
Top Stone Depth:	9		
Bottom Stone Depth:	9		
Infiltration On			
Infiltration rate:	0.06		
Infiltration safety factor:	0.33		
Total Volume Infiltrated (ac-ft.):		7.694	
Total Volume Through Riser (ac-ft.):		189.587	
Total Volume Through Facility (ac-ft.):		197.281	
Percent Infiltrated:		3.9	
Total Precip Applied to Facility:		0	
Total Evap From Facility:		0	
Discharge Structure			
Riser Height:	3.25 ft.		
Riser Diameter:	18 in.		
Notch Type:	Rectangular		
Notch Width:	0.960 ft.		
Notch Height:	0.830 ft.		
Orifice 1 Diameter:	2.4 in.	Elevation:0 ft.	
Element Flows To:			
Outlet 1	Outlet 2		

StormTech Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
3.0000	1.294	0.000	0.000	0.000
3.1111	1.294	0.143	0.052	0.025
3.2222	1.294	0.287	0.073	0.025
3.3333	1.294	0.431	0.090	0.025
3.4444	1.294	0.575	0.104	0.025
3.5556	1.294	0.719	0.116	0.025
3.6667	1.294	0.863	0.127	0.025
3.7778	1.294	1.007	0.137	0.025
3.8889	1.294	1.150	0.147	0.025
4.0000	1.294	1.294	0.156	0.025
4.1111	1.294	1.438	0.164	0.025
4.2222	1.294	1.582	0.172	0.025
4.3333	1.294	1.726	0.180	0.025
4.4444	1.294	1.870	0.187	0.025
4.5556	1.294	2.014	0.195	0.025
4.6667	1.294	2.157	0.201	0.025
4.7778	1.294	2.301	0.208	0.025
4.8889	1.294	2.445	0.214	0.025
5.0000	1.294	2.589	0.221	0.025
5.1111	1.294	2.733	0.227	0.025
5.2222	1.294	2.877	0.233	0.025
5.3333	1.294	3.021	0.238	0.025
5.4444	1.294	3.165	0.256	0.025
5.5556	1.294	3.308	0.409	0.025
5.6667	1.294	3.452	0.646	0.025
5.7778	1.294	3.596	0.944	0.025

5.8889	1.294	3.740	1.292	0.025
6.0000	1.294	3.884	1.682	0.025
6.1111	1.294	4.028	2.112	0.025
6.2222	1.294	4.172	2.577	0.025
6.3333	1.294	4.315	3.085	0.025
6.4444	1.294	4.459	4.055	0.025
6.5556	1.294	4.603	5.276	0.025
6.6667	1.294	4.747	6.529	0.025
6.7778	1.294	4.891	7.599	0.025
6.8889	1.294	5.035	8.346	0.025
7.0000	1.294	5.179	8.867	0.025
7.1111	1.294	5.322	9.310	0.025
7.2222	1.294	5.466	9.726	0.025
7.3333	1.294	5.610	10.11	0.025
7.4444	1.294	5.754	10.49	0.025
7.5556	1.294	5.898	10.84	0.025
7.6667	1.294	6.042	11.19	0.025
7.7778	1.294	6.186	11.51	0.025
7.8889	1.294	6.330	11.83	0.025
8.0000	1.294	6.473	12.14	0.025
8.1111	1.294	6.617	12.43	0.025
8.2222	1.294	6.761	12.72	0.025
8.3333	1.294	6.905	13.00	0.025
8.4444	1.294	7.049	13.28	0.025
8.5556	1.294	7.193	13.54	0.025
8.6667	1.294	7.337	13.80	0.025
8.7778	1.294	7.480	14.06	0.025
8.8889	1.294	7.624	14.30	0.025
9.0000	1.294	7.768	14.55	0.025
9.1111	1.294	7.912	14.79	0.025
9.2222	1.294	8.056	15.02	0.025
9.3333	1.294	8.200	15.25	0.025
9.4444	1.294	8.344	15.48	0.025
9.5556	1.294	8.487	15.70	0.025
9.6667	1.294	8.631	15.92	0.025
9.7778	1.294	8.775	16.13	0.025
9.8889	1.294	8.919	16.34	0.025
10.000	1.294	9.063	16.55	0.025
10.111	1.294	9.207	16.75	0.025
10.222	1.294	9.351	16.96	0.025
10.333	1.294	9.494	17.16	0.025
10.444	1.294	9.638	17.35	0.025
10.556	1.294	9.782	17.55	0.025
10.667	1.294	9.926	17.74	0.025
10.778	1.294	10.07	17.93	0.025
10.889	1.294	10.21	18.12	0.025
11.000	1.294	10.35	18.30	0.025
11.111	1.294	10.50	18.48	0.025
11.222	1.294	10.64	18.66	0.025
11.333	1.294	10.79	18.84	0.025
11.444	1.294	10.93	19.02	0.025
11.556	1.294	11.07	19.19	0.025
11.667	1.294	11.22	19.37	0.025
11.778	1.294	11.36	19.54	0.025
11.889	1.294	11.50	19.71	0.025
12.000	1.294	11.65	19.87	0.025
12.111	1.294	11.79	20.04	0.025
12.222	1.294	11.94	20.21	0.025

12.333	1.294	12.08	20.37	0.025
12.444	1.294	12.22	20.53	0.025
12.556	1.294	12.37	20.69	0.025
12.667	1.294	12.51	20.85	0.025
12.778	1.294	12.66	21.01	0.025
12.889	1.294	12.80	21.16	0.025
13.000	1.294	12.94	21.32	0.025
13.111	1.294	13.09	21.47	0.025
13.222	0.000	0.000	21.62	0.000

Amended Soil

Bottom Length:	150.00 ft.
Bottom Width:	120.00 ft.
Material thickness of first layer:	1.4
Material type for first layer:	Amended 2.5 in/hr
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.333
Total Volume Infiltrated (ac-ft.):	63.986
Total Volume Through Riser (ac-ft.):	25.546
Total Volume Through Facility (ac-ft.):	89.532
Percent Infiltrated:	71.47
Total Precip Applied to Facility:	18.978
Total Evap From Facility:	11.019
Underdrain not used	
Discharge Structure	
Riser Height:	0.25 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.4132	0.0000	0.0000	0.0000
0.0218	0.4132	0.0035	0.0000	0.0000
0.0435	0.4132	0.0070	0.0000	0.0000
0.0653	0.4132	0.0105	0.0000	0.0000
0.0870	0.4132	0.0140	0.0000	0.0000
0.1088	0.4132	0.0175	0.0000	0.0000
0.1305	0.4132	0.0210	0.0000	0.0000
0.1523	0.4132	0.0245	0.0000	0.0000
0.1741	0.4132	0.0281	0.0000	0.0000
0.1958	0.4132	0.0316	0.0000	0.0000
0.2176	0.4132	0.0351	0.0083	0.0083
0.2393	0.4132	0.0386	0.0083	0.0083
0.2611	0.4132	0.0421	0.0083	0.0083
0.2829	0.4132	0.0456	0.0083	0.0083
0.3046	0.4132	0.0491	0.0083	0.0083
0.3264	0.4132	0.0526	0.0083	0.0083
0.3481	0.4132	0.0561	0.0083	0.0083
0.3699	0.4132	0.0596	0.0083	0.0083
0.3916	0.4132	0.0631	0.0083	0.0083
0.4134	0.4132	0.0666	0.0083	0.0083
0.4352	0.4132	0.0701	0.0083	0.0083
0.4569	0.4132	0.0736	0.0083	0.0083
0.4787	0.4132	0.0771	0.0083	0.0083
0.5004	0.4132	0.0806	0.0083	0.0083
0.5222	0.4132	0.0842	0.0083	0.0083
0.5440	0.4132	0.0877	0.0083	0.0083
0.5657	0.4132	0.0912	0.0083	0.0083
0.5875	0.4132	0.0947	0.0083	0.0083

0.6092	0.4132	0.0982	0.0083	0.0083
0.6310	0.4132	0.1017	0.0083	0.0083
0.6527	0.4132	0.1052	0.0083	0.0083
0.6745	0.4132	0.1087	0.0083	0.0083
0.6963	0.4132	0.1122	0.0083	0.0083
0.7180	0.4132	0.1157	0.0083	0.0083
0.7398	0.4132	0.1192	0.0083	0.0083
0.7615	0.4132	0.1227	0.0083	0.0083
0.7833	0.4132	0.1262	0.0083	0.0083
0.8051	0.4132	0.1297	0.0083	0.0083
0.8268	0.4132	0.1332	0.0083	0.0083
0.8486	0.4132	0.1368	0.0083	0.0083
0.8703	0.4132	0.1403	0.0083	0.0083
0.8921	0.4132	0.1438	0.0083	0.0083
0.9138	0.4132	0.1473	0.0083	0.0083
0.9356	0.4132	0.1508	0.0083	0.0083
0.9574	0.4132	0.1543	0.0083	0.0083
0.9791	0.4132	0.1578	0.0083	0.0083
1.0009	0.4132	0.1613	0.0083	0.0083
1.0226	0.4132	0.1648	0.0083	0.0083
1.0444	0.4132	0.1683	0.0083	0.0083
1.0662	0.4132	0.1718	0.0083	0.0083
1.0879	0.4132	0.1753	0.0083	0.0083
1.1097	0.4132	0.1788	0.0083	0.0083
1.1314	0.4132	0.1823	0.0083	0.0083
1.1532	0.4132	0.1858	0.0083	0.0083
1.1749	0.4132	0.1894	0.0083	0.0083
1.1967	0.4132	0.1929	0.0083	0.0083
1.2185	0.4132	0.1964	0.0083	0.0083
1.2402	0.4132	0.1999	0.0083	0.0083
1.2620	0.4132	0.2034	0.0083	0.0083
1.2837	0.4132	0.2069	0.0083	0.0083
1.3055	0.4132	0.2104	0.0083	0.0083
1.3273	0.4132	0.2139	0.0083	0.0083
1.3490	0.4132	0.2174	0.0083	0.0083
1.3708	0.4132	0.2209	0.0083	0.0083
1.3925	0.4132	0.2244	0.0083	0.0083
1.4000	0.4132	0.2256	0.0083	0.0083

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
1.4000	0.4132	0.2256	0.0000	1.0828	0.0000
1.4218	0.4132	0.2346	0.0000	1.0828	0.0000
1.4435	0.4132	0.2436	0.0000	1.0994	0.0000
1.4653	0.4132	0.2526	0.0000	1.1160	0.0000
1.4870	0.4132	0.2616	0.0000	1.1326	0.0000
1.5088	0.4132	0.2706	0.0000	1.1491	0.0000
1.5305	0.4132	0.2796	0.0000	1.1657	0.0000
1.5523	0.4132	0.2886	0.0000	1.1823	0.0000
1.5741	0.4132	0.2975	0.0000	1.1988	0.0000
1.5958	0.4132	0.3065	0.0000	1.2154	0.0000
1.6176	0.4132	0.3155	0.0000	1.2320	0.0000
1.6393	0.4132	0.3245	0.0000	1.2486	0.0000
1.6611	0.4132	0.3335	0.0000	1.2651	0.0000
1.6829	0.4132	0.3425	0.0000	1.2817	0.0000
1.7046	0.4132	0.3515	0.0000	1.2983	0.0000
1.7264	0.4132	0.3605	0.0000	1.3148	0.0000
1.7481	0.4132	0.3695	0.0000	1.3314	0.0000

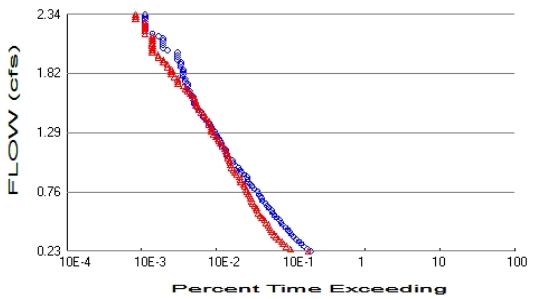
1.7699	0.4132	0.3785	0.0000	1.3480	0.0000
1.7916	0.4132	0.3875	0.0000	1.3646	0.0000
1.8134	0.4132	0.3964	0.0000	1.3811	0.0000
1.8352	0.4132	0.4054	0.0000	1.3977	0.0000
1.8569	0.4132	0.4144	0.0000	1.4143	0.0000
1.8787	0.4132	0.4234	0.0000	1.4308	0.0000
1.9004	0.4132	0.4324	0.0000	1.4474	0.0000
1.9222	0.4132	0.4414	0.0000	1.4640	0.0000
1.9440	0.4132	0.4504	0.0000	1.4806	0.0000
1.9657	0.4132	0.4594	0.0000	1.4971	0.0000
1.9800	0.4132	0.4653	0.0000	1.5080	0.0000

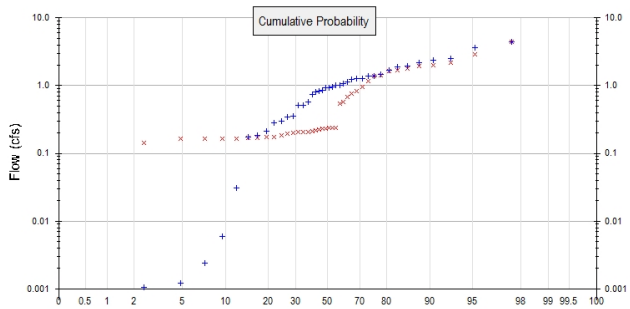
Surface Amended Soil

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Amended Soil

Analysis Results
POC 1





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 6.34
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1
Total Impervious Area: 5.336846

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	0.926417
5 year	1.586916
10 year	2.343477
25 year	3.773685

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.234393
5 year	1.544319
10 year	1.985846
25 year	3.141974

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1964	0.968	0.225
1965	0.737	0.581
1966	0.006	0.167
1967	2.400	2.849
1968	0.212	0.185
1969	2.163	0.681
1970	1.231	1.178
1971	1.261	1.427
1972	0.002	0.165
1973	2.516	0.234
1974	0.345	0.176
1975	0.001	0.144
1976	0.001	0.166
1977	0.001	0.120

1978	1.128	0.755
1979	1.005	0.237
1980	0.926	0.221
1981	0.031	0.205
1982	1.384	1.945
1983	1.919	1.396
1984	1.084	0.535
1985	0.183	0.174
1986	1.670	1.999
1987	0.568	0.230
1988	0.353	0.163
1989	0.839	0.169
1990	0.816	0.198
1991	0.512	0.205
1992	1.004	0.238
1993	0.927	0.835
1994	0.301	0.163
1995	4.366	4.389
1996	1.870	1.791
1997	3.634	2.163
1998	1.382	1.633
1999	1.277	0.944
2000	1.477	1.691
2001	0.285	0.195
2002	0.510	0.215
2003	0.174	0.235
2004	0.857	0.207

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	**Pre-Project**	**Mitigated**
1	4.3664	4.3889
2	3.6342	2.8486
3	2.5161	2.1632
4	2.3999	1.9987
5	2.1631	1.9448
6	1.9193	1.7907
7	1.8702	1.6910
8	1.6697	1.6326
9	1.4766	1.4266
10	1.3837	1.3961
11	1.3818	1.1781
12	1.2769	0.9436
13	1.2614	0.8346
14	1.2310	0.7545
15	1.1280	0.6813
16	1.0836	0.5808
17	1.0051	0.5348
18	1.0038	0.2377
19	0.9683	0.2374
20	0.9269	0.2347
21	0.9264	0.2344
22	0.8570	0.2303
23	0.8395	0.2247
24	0.8159	0.2213
25	0.7375	0.2153
26	0.5677	0.2068
27	0.5119	0.2049

28	0.5101	0.2046
29	0.3529	0.1984
30	0.3450	0.1946
31	0.3008	0.1849
32	0.2848	0.1756
33	0.2121	0.1740
34	0.1834	0.1693
35	0.1738	0.1674
36	0.0305	0.1662
37	0.0059	0.1653
38	0.0024	0.1629
39	0.0012	0.1626
40	0.0011	0.1442
41	0.0009	0.1199

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.2316	661	621	93	Pass
0.2529	597	357	59	Pass
0.2743	542	313	57	Pass
0.2956	496	286	57	Pass
0.3169	464	272	58	Pass
0.3383	429	246	57	Pass
0.3596	391	231	59	Pass
0.3809	366	214	58	Pass
0.4023	349	200	57	Pass
0.4236	328	193	58	Pass
0.4449	307	186	60	Pass
0.4663	283	180	63	Pass
0.4876	266	167	62	Pass
0.5089	251	160	63	Pass
0.5303	231	148	64	Pass
0.5516	216	140	64	Pass
0.5729	206	131	63	Pass
0.5942	198	126	63	Pass
0.6156	183	124	67	Pass
0.6369	172	118	68	Pass
0.6582	164	112	68	Pass
0.6796	152	108	71	Pass
0.7009	146	105	71	Pass
0.7222	140	102	72	Pass
0.7436	133	97	72	Pass
0.7649	129	92	71	Pass
0.7862	119	91	76	Pass
0.8076	109	86	78	Pass
0.8289	104	84	80	Pass
0.8502	97	77	79	Pass
0.8716	94	76	80	Pass
0.8929	92	74	80	Pass
0.9142	85	68	80	Pass
0.9356	79	65	82	Pass
0.9569	75	61	81	Pass
0.9782	72	58	80	Pass
0.9996	64	56	87	Pass
1.0209	60	55	91	Pass
1.0422	59	54	91	Pass
1.0636	54	52	96	Pass
1.0849	50	52	104	Pass
1.1062	49	50	102	Pass
1.1276	49	49	100	Pass
1.1489	47	47	100	Pass
1.1702	43	44	102	Pass
1.1915	42	41	97	Pass
1.2129	41	39	95	Pass
1.2342	39	38	97	Pass
1.2555	37	36	97	Pass
1.2769	35	33	94	Pass
1.2982	34	31	91	Pass
1.3195	32	31	96	Pass
1.3409	31	31	100	Pass

1.3622	30	29	96	Pass
1.3835	29	29	100	Pass
1.4049	26	27	103	Pass
1.4262	24	26	108	Pass
1.4475	24	25	104	Pass
1.4689	23	23	100	Pass
1.4902	21	21	100	Pass
1.5115	20	21	104	Pass
1.5329	19	19	100	Pass
1.5542	18	19	105	Pass
1.5755	18	19	105	Pass
1.5969	18	18	100	Pass
1.6182	17	17	100	Pass
1.6395	16	16	100	Pass
1.6609	16	15	93	Pass
1.6822	15	14	93	Pass
1.7035	15	13	86	Pass
1.7248	15	11	73	Pass
1.7462	14	11	78	Pass
1.7675	14	11	78	Pass
1.7888	13	10	76	Pass
1.8102	13	9	69	Pass
1.8315	13	9	69	Pass
1.8528	13	9	69	Pass
1.8742	12	8	66	Pass
1.8955	12	8	66	Pass
1.9168	12	7	58	Pass
1.9382	11	7	63	Pass
1.9595	11	6	54	Pass
1.9808	11	6	54	Pass
2.0022	11	5	45	Pass
2.0235	8	5	62	Pass
2.0448	7	5	71	Pass
2.0662	7	5	71	Pass
2.0875	7	5	71	Pass
2.1088	7	5	71	Pass
2.1302	7	5	71	Pass
2.1515	6	5	83	Pass
2.1728	5	4	80	Pass
2.1942	4	4	100	Pass
2.2155	4	4	100	Pass
2.2368	4	4	100	Pass
2.2581	4	4	100	Pass
2.2795	4	4	100	Pass
2.3008	4	3	75	Pass
2.3221	4	3	75	Pass
2.3435	4	3	75	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

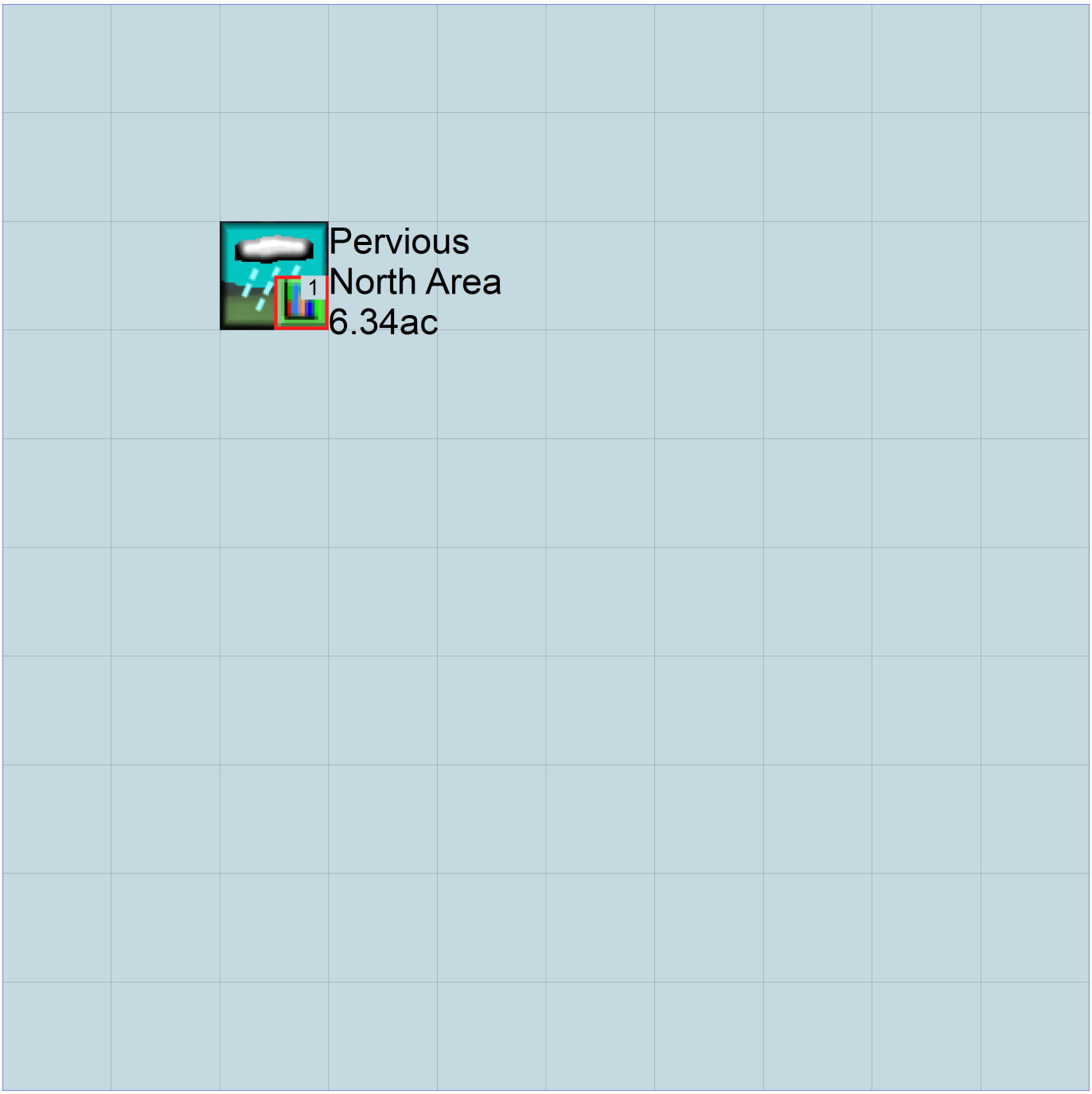
No PERLND changes have been made.

IMPLND Changes

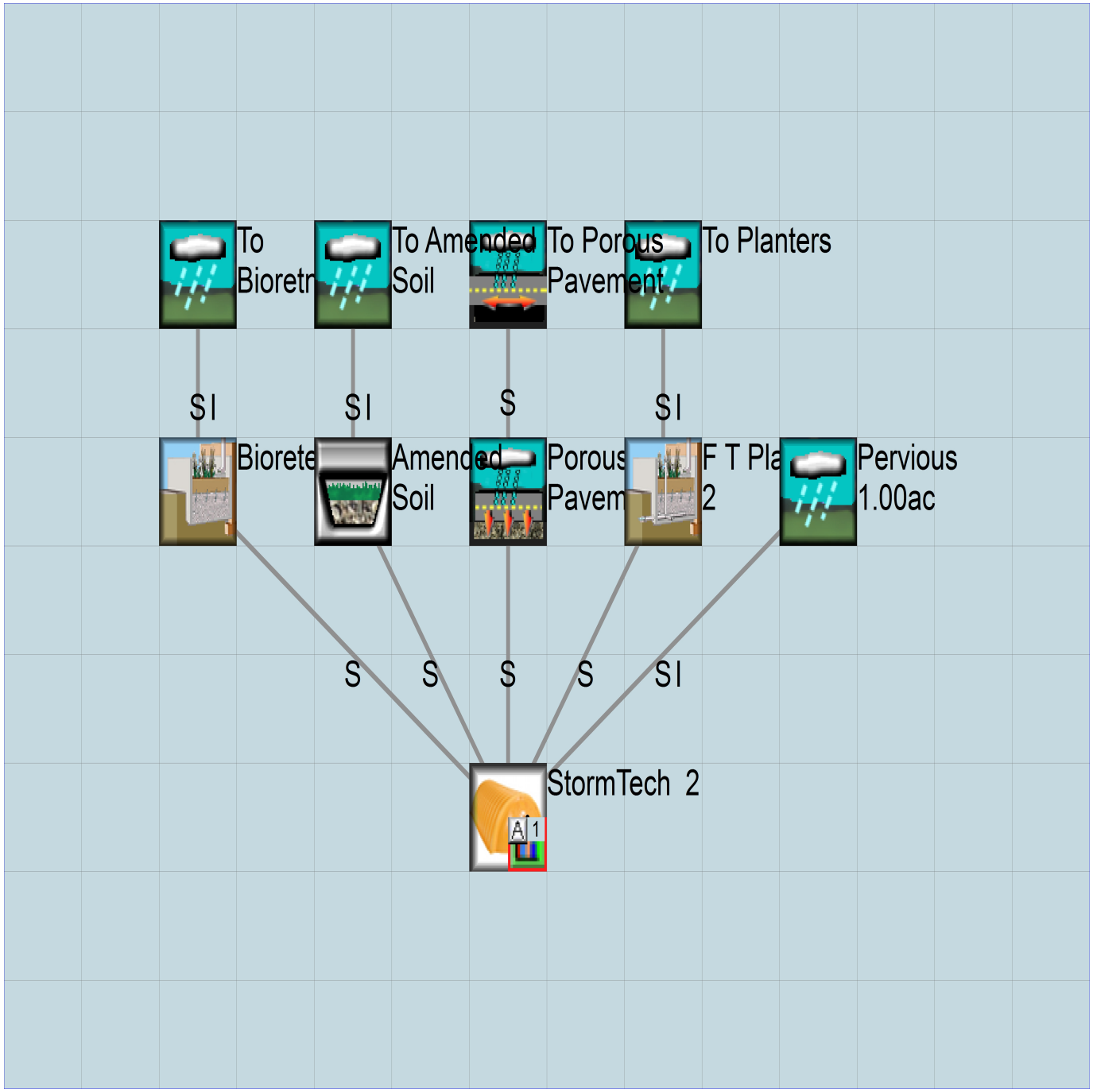
No IMPLND changes have been made.

Appendix

Pre-Project Schematic



Mitigated Schematic



Pre-Project UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderNorthUP2.wdm
MESSU      25   PreElderNorthUP2.MES
           27   PreElderNorthUP2.L61
           28   PreElderNorthUP2.L62
           30   POCElderNorthUP21.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      33
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Pervious North Area         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   33     C,Grass,Flat(0-1%)      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   33         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   33         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   33         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   33             0       4.5     0.045       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   33            40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   33             0       0.3      0.25       0.7       0.5         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33       0.4  0.4  0.4 0.45  0.5 0.55 0.55 0.55 0.55 0.55 0.45  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33      0.12 0.12 0.12 0.11  0.1  0.1  0.1  0.1  0.1  0.1 0.11 0.12
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   33             0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                       in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Pervious North Area***
PERLND  33                        6.34     COPY   501     12
PERLND  33                        6.34     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                        in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderNorthUP2.wdm
MESSU      25   MitElderNorthUP2.MES
           27   MitElderNorthUP2.L61
           28   MitElderNorthUP2.L62
           30   POCElderNorthUP21.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      IMPLND       1
      IMPLND       9
      PERLND      41
      RCHRES       1
      RCHRES       2
      IMPLND      10
      RCHRES       3
      RCHRES       4
      RCHRES       5
      GENER        7
      RCHRES       6
      RCHRES       7
      RCHRES       8
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        StormTech  2               MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    7        24
  END OPCODE
  PARM
    #    #         K ***
    7             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   41     C,Urban,Flat(0-1%)      1    1    1    1   27    0
```

```
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   41         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   41         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   41         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   41              0      4.45     0.035       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   41             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   41              0       0.3      0.25       0.5       0.4         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41       0.5  0.5  0.5  0.6 0.65 0.65 0.65 0.65 0.65 0.65 0.55  0.5
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   41              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1     Imperv,Flat(0-1%)       1    1    1   27    0
    9     Imperv,Flat(0-1%) LAT   1    1    1   27    0
   10     Porous Pavement         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
```

```
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    9         0    0    1    0    0    0
   10         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
   10         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    9         0    0    0    0    0
   10         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.01      0.05       0.1
    9            100      0.01      0.05       0.1
   10            100      0.01      0.05       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    9              0         0
   10              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    9              0         0
   10              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
To Bioretntion***
IMPLND   1                       1.24     RCHRES   1      5
To Planters***
IMPLND   1                       2.34     RCHRES   4      5
To Porous Pavement***
IMPLND   9                     2.1712     IMPLND  10     53
IMPLND  10                     0.0368     RCHRES   3      5
To Amended Soil***
IMPLND   1                       1.64     RCHRES   6      5
Pervious***
PERLND  41                          1     RCHRES   8      2
PERLND  41                          1     RCHRES   8      3

******Routing******
RCHRES   2                          1     RCHRES   8      7
RCHRES   2                                COPY     1     17
RCHRES   1                          1     RCHRES   8      7
RCHRES   1                                COPY     1     17
RCHRES   1                          1     RCHRES   2      8
```

```
RCHRES   3                            1     RCHRES   8      7
RCHRES   3                                  COPY     1     17
RCHRES   5                            1     RCHRES   8      6
RCHRES   5                                  COPY     1     16
RCHRES   4                            1     RCHRES   8      7
RCHRES   4                                  COPY     1     17
RCHRES   4                            1     RCHRES   5      8
RCHRES   7                            1     RCHRES   8      7
RCHRES   7                                  COPY     1     17
RCHRES   6                            1     RCHRES   8      7
RCHRES   6                                  COPY     1     17
RCHRES   6                            1     RCHRES   7      8
PERLND  41                            1     COPY     1     12
PERLND  41                            1     COPY     1     13
RCHRES   8                            1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    7 OUTPUT TIMSER      .0002778     RCHRES   6     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                          in  out                             ***
    1     Bioretenti Surfa-023    3    1    1    1   28    0    1
    2     Bioretention            2    1    1    1   28    0    1
    3     Porous Pavement -027    2    1    1    1   28    0    1
    4     F T Plante Surfa-029    3    1    1    1   28    0    1
    5     F T Planter  2          1    1    1    1   28    0    1
    6     Surface Amended -033    3    1    1    1   28    0    1
    7     Amended Soil            2    1    1    1   28    0    1
    8     StormTech  2            2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
    6         1    0    0    0    0    0    0    0    0    0
    7         1    0    0    0    0    0    0    0    0    0
    8         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         4    0    0    0    0    0    0    0    0    0    1    9
    6         4    0    0    0    0    0    0    0    0    0    1    9
    7         4    0    0    0    0    0    0    0    0    0    1    9
    8         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    2       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    5       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    6       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    7       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    8       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1              1      0.01       0.0       0.0       0.5       0.0
    2              2      0.07       0.0       0.0       0.5       0.0
    3              3      0.02       0.0       0.0       0.5       0.0
    4              4      0.01       0.0       0.0       0.5       0.0
    5              5      0.01       0.0       0.0       0.5       0.0
    6              6      0.01       0.0       0.0       0.5       0.0
    7              7      0.03       0.0       0.0       0.5       0.0
    8              8      0.06       0.0       3.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    6            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    7            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    8            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                           addr
***                          <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol7   RCHRES   7 VOL              4
  UVQUAN v2m7   GLOBAL     WORKSP  6        3
  UVQUAN vpo7   GLOBAL     WORKSP  7        3
  UVQUAN v2d7   GENER    7 K       1        3
*** User-Defined Target Variable Names
***                  addr or                       addr or
***                 <------>                      <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m7    1 WORKSP  6         1.0 QUAN
  UVNAME  vpo7    1 WORKSP  7         1.0 QUAN
  UVNAME  v2d7    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><-><><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   7                               v2m7            =  9286.
*** Compute remaining available pore space
  GENER   7                               vpo7            =  v2m7
  GENER   7                               vpo7           -=  vol7
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo7 < 0.0) THEN
```

```
  GENER   7                                   vpo7            =  0.0
END IF
*** Infiltration volume
  GENER   7                                   v2d7            =  vpo7
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   59    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.099862  0.000000  0.000000  0.000000
  0.052198  0.099862  0.002189  0.000000  0.000000
  0.104396  0.099862  0.004379  0.000000  0.000000
  0.156593  0.099862  0.006568  0.000000  0.000000
  0.208791  0.099862  0.008757  0.000000  0.006042
  0.260989  0.099862  0.010946  0.000000  0.006042
  0.313187  0.099862  0.013136  0.000000  0.006042
  0.365385  0.099862  0.015325  0.000000  0.006042
  0.417582  0.099862  0.017514  0.000000  0.006042
  0.469780  0.099862  0.019704  0.000000  0.006042
  0.521978  0.099862  0.021893  0.000000  0.006042
  0.574176  0.099862  0.024082  0.000000  0.006042
  0.626374  0.099862  0.026271  0.000000  0.006042
  0.678571  0.099862  0.028461  0.000000  0.006042
  0.730769  0.099862  0.030650  0.000000  0.006042
  0.782967  0.099862  0.032839  0.000000  0.006042
  0.835165  0.099862  0.035029  0.000000  0.006042
  0.887363  0.099862  0.037218  0.000000  0.006042
  0.939560  0.099862  0.039407  0.000000  0.006042
  0.991758  0.099862  0.041596  0.000000  0.006042
  1.043956  0.099862  0.043786  0.000000  0.006042
  1.096154  0.099862  0.045975  0.009257  0.006042
  1.148352  0.099862  0.048164  0.019913  0.006042
  1.200549  0.099862  0.050354  0.022781  0.006042
  1.252747  0.099862  0.052543  0.025833  0.006042
  1.304945  0.099862  0.054732  0.029072  0.006042
  1.357143  0.099862  0.056921  0.036128  0.006042
  1.409341  0.099862  0.059111  0.039951  0.006042
  1.461538  0.099862  0.061300  0.043977  0.006042
  1.513736  0.099862  0.063489  0.047711  0.006042
  1.565934  0.099862  0.065679  0.050891  0.006042
  1.618132  0.099862  0.067868  0.053888  0.006042
  1.670330  0.099862  0.070057  0.056731  0.006042
  1.722527  0.099862  0.072247  0.059443  0.006042
  1.774725  0.099862  0.074436  0.062044  0.006042
  1.826923  0.099862  0.076625  0.064549  0.006042
  1.879121  0.099862  0.078814  0.066975  0.006042
  1.931319  0.099862  0.081004  0.069339  0.006042
  1.983516  0.099862  0.083193  0.071671  0.006042
  2.035714  0.099862  0.085356  0.074106  0.006042
  2.087912  0.099862  0.087519  0.078113  0.006042
  2.140110  0.099862  0.089683  0.080057  0.006042
  2.192308  0.099862  0.091846  0.081955  0.006042
  2.244505  0.099862  0.094009  0.083810  0.006042
  2.296703  0.099862  0.096172  0.085625  0.006042
  2.348901  0.099862  0.098336  0.087403  0.006042
  2.401099  0.099862  0.100499  0.089144  0.006042
  2.453297  0.099862  0.102662  0.090853  0.006042
  2.505495  0.099862  0.104825  0.092530  0.006042
  2.557692  0.099862  0.106988  0.094177  0.006042
  2.609890  0.099862  0.109152  0.095795  0.006042
  2.662088  0.099862  0.111315  0.097387  0.006042
  2.714286  0.099862  0.113478  0.098953  0.006042
  2.766484  0.099862  0.115641  0.100495  0.006042
  2.818681  0.099862  0.117805  0.102014  0.006042
  2.870879  0.099862  0.119968  0.103510  0.006042
  2.923077  0.099862  0.122131  0.104985  0.006042
  2.975275  0.099862  0.124294  0.106439  0.006042
  3.000000  0.099862  0.250638  0.107121  0.006042
  END FTABLE  2
```

```
  FTABLE      1
   35    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.099862  0.000000  0.000000  0.000000  0.000000
  0.052198  0.099862  0.005213  0.000000  0.112481  0.000000
  0.104396  0.099862  0.010425  0.000000  0.112481  0.000000
  0.156593  0.099862  0.015638  0.000000  0.112481  0.000000
  0.208791  0.099862  0.020850  0.000000  0.112481  0.000000
  0.260989  0.099862  0.026063  0.000000  0.112481  0.000000
  0.313187  0.099862  0.031276  0.000000  0.112481  0.000000
  0.365385  0.099862  0.036488  0.000000  0.112481  0.000000
  0.417582  0.099862  0.041701  0.000000  0.112481  0.000000
  0.469780  0.099862  0.046913  0.000000  0.112481  0.000000
  0.521978  0.099862  0.052126  0.000000  0.112481  0.000000
  0.574176  0.099862  0.057338  0.000000  0.112481  0.000000
  0.626374  0.099862  0.062551  0.000000  0.112481  0.000000
  0.678571  0.099862  0.067764  0.000000  0.112481  0.000000
  0.730769  0.099862  0.072976  0.000000  0.112481  0.000000
  0.782967  0.099862  0.078189  0.127045  0.112481  0.000000
  0.835165  0.099862  0.083401  0.526949  0.112481  0.000000
  0.887363  0.099862  0.088614  1.077788  0.112481  0.000000
  0.939560  0.099862  0.093827  1.742293  0.112481  0.000000
  0.991758  0.099862  0.099039  2.496989  0.112481  0.000000
  1.043956  0.099862  0.104252  3.321994  0.112481  0.000000
  1.096154  0.099862  0.109464  4.198067  0.112481  0.000000
  1.148352  0.099862  0.114677  5.105639  0.112481  0.000000
  1.200549  0.099862  0.119890  6.024661  0.112481  0.000000
  1.252747  0.099862  0.125102  6.934895  0.112481  0.000000
  1.304945  0.099862  0.130315  7.816484  0.112481  0.000000
  1.357143  0.099862  0.135527  8.650718  0.112481  0.000000
  1.409341  0.099862  0.140740  9.420966  0.112481  0.000000
  1.461538  0.099862  0.145953  10.11373  0.112481  0.000000
  1.513736  0.099862  0.151165  10.71979  0.112481  0.000000
  1.565934  0.099862  0.156378  11.23554  0.112481  0.000000
  1.618132  0.099862  0.161590  11.66425  0.112481  0.000000
  1.670330  0.099862  0.166803  12.01762  0.112481  0.000000
  1.722527  0.099862  0.172015  12.31719  0.112481  0.000000
  1.750000  0.099862  0.174759  12.75332  0.112481  0.000000
  END FTABLE  1
  FTABLE      3
   91    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.036846  0.000000  0.000000  0.000000
  0.021333  0.036846  0.000314  0.063417  0.000736
  0.042667  0.036846  0.000629  0.089686  0.000736
  0.064000  0.036846  0.000943  0.109842  0.000736
  0.085333  0.036846  0.001258  0.126835  0.000736
  0.106667  0.036846  0.001572  0.141805  0.000736
  0.128000  0.036846  0.001887  0.155340  0.000736
  0.149333  0.036846  0.002201  0.167787  0.000736
  0.170667  0.036846  0.002515  0.179371  0.000736
  0.192000  0.036846  0.002830  0.190252  0.000736
  0.213333  0.036846  0.003144  0.200543  0.000736
  0.234667  0.036846  0.003459  0.210332  0.000736
  0.256000  0.036846  0.003773  0.219684  0.000736
  0.277333  0.036846  0.004087  0.228654  0.000736
  0.298667  0.036846  0.004402  0.237286  0.000736
  0.320000  0.036846  0.004716  0.245614  0.000736
  0.341333  0.036846  0.005031  0.253669  0.000736
  0.362667  0.036846  0.005345  0.261476  0.000736
  0.384000  0.036846  0.005660  0.269057  0.000736
  0.405333  0.036846  0.005974  0.276430  0.000736
  0.426667  0.036846  0.006288  0.283611  0.000736
  0.448000  0.036846  0.006603  0.290615  0.000736
  0.469333  0.036846  0.006917  0.297454  0.000736
  0.490667  0.036846  0.007232  0.304139  0.000736
```

```
0.512000  0.036846  0.007546  0.310680  0.000736
0.533333  0.036846  0.007860  0.317087  0.000736
0.554667  0.036846  0.008175  0.323366  0.000736
0.576000  0.036846  0.008489  0.329526  0.000736
0.597333  0.036846  0.008804  0.335573  0.000736
0.618667  0.036846  0.009118  0.341513  0.000736
0.640000  0.036846  0.009433  0.347351  0.000736
0.661333  0.036846  0.009747  0.353093  0.000736
0.682667  0.036846  0.010061  0.358743  0.000736
0.704000  0.036846  0.010376  0.364305  0.000736
0.725333  0.036846  0.010690  0.369783  0.000736
0.746667  0.036846  0.011005  0.375182  0.000736
0.768000  0.036846  0.011240  0.380504  0.000736
0.789333  0.036846  0.011476  0.385753  0.000736
0.810667  0.036846  0.011712  0.390931  0.000736
0.832000  0.036846  0.011948  0.396041  0.000736
0.853333  0.036846  0.012184  0.401087  0.000736
0.874667  0.036846  0.012419  0.406069  0.000736
0.896000  0.036846  0.012655  0.410991  0.000736
0.917333  0.036846  0.012891  0.415855  0.000736
0.938667  0.036846  0.013127  0.420663  0.000736
0.960000  0.036846  0.013363  0.425416  0.000736
0.981333  0.036846  0.013599  0.430117  0.000736
1.002667  0.036846  0.013834  0.434767  0.000736
1.024000  0.036846  0.014070  0.439368  0.000736
1.045333  0.036846  0.014306  0.443921  0.000736
1.066667  0.036846  0.014542  0.448428  0.000736
1.088000  0.036846  0.014778  0.452890  0.000736
1.109333  0.036846  0.015013  0.457309  0.000736
1.130667  0.036846  0.015249  0.461685  0.000736
1.152000  0.036846  0.015485  0.466020  0.000736
1.173333  0.036846  0.015721  0.470316  0.000736
1.194667  0.036846  0.015957  0.474572  0.000736
1.216000  0.036846  0.016192  0.478790  0.000736
1.237333  0.036846  0.016428  0.482972  0.000736
1.258667  0.036846  0.016821  0.487118  0.000736
1.280000  0.036846  0.017214  0.491229  0.000736
1.301333  0.036846  0.017607  0.495305  0.000736
1.322667  0.036846  0.018000  0.499349  0.000736
1.344000  0.036846  0.018393  0.503360  0.000736
1.365333  0.036846  0.018786  0.507339  0.000736
1.386667  0.036846  0.019179  0.511287  0.000736
1.408000  0.036846  0.019572  0.515205  0.000736
1.429333  0.036846  0.019965  0.519093  0.000736
1.450667  0.036846  0.020358  0.522953  0.000736
1.472000  0.036846  0.020752  0.526784  0.000736
1.493333  0.036846  0.021145  0.530588  0.000736
1.514667  0.036846  0.021538  0.534364  0.000736
1.536000  0.036846  0.021931  0.538114  0.000736
1.557333  0.036846  0.022324  0.541838  0.000736
1.578667  0.036846  0.022717  0.545537  0.000736
1.600000  0.036846  0.023110  0.549210  0.000736
1.621333  0.036846  0.023503  0.552860  0.000736
1.642667  0.036846  0.023896  0.556485  0.000736
1.664000  0.036846  0.024289  0.560087  0.000736
1.685333  0.036846  0.024682  0.563666  0.000736
1.706667  0.036846  0.025075  0.567222  0.000736
1.728000  0.036846  0.025468  0.570756  0.000736
1.749333  0.036846  0.025861  0.574268  0.000736
1.770667  0.036846  0.026254  0.577760  0.000736
1.792000  0.036846  0.026647  0.581230  0.000736
1.813333  0.036846  0.027040  0.584679  0.000736
1.834667  0.036846  0.027433  0.588108  0.000736
1.856000  0.036846  0.027826  0.591518  0.000736
1.877333  0.036846  0.028219  0.594907  0.000736
1.898667  0.036846  0.028612  0.598278  0.000736
1.920000  0.036846  0.029005  0.601630  0.000736
END FTABLE  3
FTABLE      5
 56    4
```

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     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.006428  0.000000  0.000000
  0.054945  0.006428  0.000148  0.000000
  0.109890  0.006428  0.000297  0.000000
  0.164835  0.006428  0.000445  0.000018
  0.219780  0.006428  0.000593  0.000083
  0.274725  0.006428  0.000742  0.000213
  0.329670  0.006428  0.000890  0.000424
  0.384615  0.006428  0.001038  0.000728
  0.439560  0.006428  0.001187  0.001136
  0.494505  0.006428  0.001335  0.001659
  0.549451  0.006428  0.001483  0.002305
  0.604396  0.006428  0.001632  0.003083
  0.659341  0.006428  0.001780  0.004001
  0.714286  0.006428  0.001928  0.005066
  0.769231  0.006428  0.002077  0.006286
  0.824176  0.006428  0.002225  0.007668
  0.879121  0.006428  0.002373  0.009217
  0.934066  0.006428  0.002522  0.010941
  0.989011  0.006428  0.002670  0.012846
  1.043956  0.006428  0.002818  0.014938
  1.098901  0.006428  0.002967  0.017221
  1.153846  0.006428  0.003115  0.018955
  1.208791  0.006428  0.003263  0.019703
  1.263736  0.006428  0.003412  0.022387
  1.318681  0.006428  0.003560  0.025280
  1.373626  0.006428  0.003708  0.028387
  1.428571  0.006428  0.003857  0.031712
  1.483516  0.006428  0.004005  0.035261
  1.538462  0.006428  0.004153  0.036882
  1.593407  0.006428  0.004302  0.041177
  1.648352  0.006428  0.004450  0.045049
  1.703297  0.006428  0.004598  0.047296
  1.758242  0.006428  0.004747  0.048602
  1.813187  0.006428  0.004895  0.051905
  1.868132  0.006428  0.005043  0.055004
  1.923077  0.006428  0.005192  0.057933
  1.978022  0.006428  0.005340  0.060718
  2.032967  0.006428  0.005487  0.063378
  2.087912  0.006428  0.005633  0.065928
  2.142857  0.006428  0.005780  0.068383
  2.197802  0.006428  0.005926  0.070750
  2.252747  0.006428  0.006073  0.073041
  2.307692  0.006428  0.006220  0.075261
  2.362637  0.006428  0.006366  0.077417
  2.417582  0.006428  0.006513  0.079515
  2.472527  0.006428  0.006659  0.081559
  2.527473  0.006428  0.006806  0.083553
  2.582418  0.006428  0.006952  0.085501
  2.637363  0.006428  0.007099  0.087407
  2.692308  0.006428  0.007246  0.089641
  2.747253  0.006428  0.007392  0.093252
  2.802198  0.006428  0.007539  0.096738
  2.857143  0.006428  0.007685  0.099519
  2.912088  0.006428  0.007832  0.099519
  2.967033  0.006428  0.007978  0.099519
  3.000000  0.006428  0.016939  0.099519
  END FTABLE  5
  FTABLE      4
   38    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.006428  0.000000  0.000000  0.000000  0.000000
  0.054945  0.006428  0.000353  0.000000  0.099519  0.000000
  0.109890  0.006428  0.000706  0.000000  0.099519  0.000000
  0.164835  0.006428  0.001060  0.000000  0.099519  0.000000
  0.219780  0.006428  0.001413  0.000000  0.099519  0.000000
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0.274725  0.006428  0.001766  0.000000  0.099519  0.000000
0.329670  0.006428  0.002119  0.000000  0.099519  0.000000
0.384615  0.006428  0.002472  0.000000  0.099519  0.000000
0.439560  0.006428  0.002825  0.000000  0.099519  0.000000
0.494505  0.006428  0.003179  0.000000  0.099519  0.000000
0.549451  0.006428  0.003532  0.000000  0.099519  0.000000
0.604396  0.006428  0.003885  0.000000  0.099519  0.000000
0.659341  0.006428  0.004238  0.000000  0.099519  0.000000
0.714286  0.006428  0.004591  0.000000  0.099519  0.000000
0.769231  0.006428  0.004945  0.000000  0.099519  0.000000
0.824176  0.006428  0.005298  0.000000  0.099519  0.000000
0.879121  0.006428  0.005651  0.000000  0.099519  0.000000
0.934066  0.006428  0.006004  0.000000  0.099519  0.000000
0.989011  0.006428  0.006357  0.000000  0.099519  0.000000
1.043956  0.006428  0.006710  0.195553  0.099519  0.000000
1.098901  0.006428  0.007064  0.659242  0.099519  0.000000
1.153846  0.006428  0.007417  1.276591  0.099519  0.000000
1.208791  0.006428  0.007770  2.010935  0.099519  0.000000
1.263736  0.006428  0.008123  2.836899  0.099519  0.000000
1.318681  0.006428  0.008476  3.731796  0.099519  0.000000
1.373626  0.006428  0.008830  4.673072  0.099519  0.000000
1.428571  0.006428  0.009183  5.637608  0.099519  0.000000
1.483516  0.006428  0.009536  6.601841  0.099519  0.000000
1.538462  0.006428  0.009889  7.542349  0.099519  0.000000
1.593407  0.006428  0.010242  8.436754  0.099519  0.000000
1.648352  0.006428  0.010595  9.264852  0.099519  0.000000
1.703297  0.006428  0.010949  10.00993  0.099519  0.000000
1.758242  0.006428  0.011302  10.66024  0.099519  0.000000
1.813187  0.006428  0.011655  11.21062  0.099519  0.000000
1.868132  0.006428  0.012008  11.66425  0.099519  0.000000
1.923077  0.006428  0.012361  12.03449  0.099519  0.000000
1.978022  0.006428  0.012715  12.34684  0.099519  0.000000
2.000000  0.006428  0.012856  12.80450  0.099519  0.000000
END FTABLE  4
FTABLE      8
 63    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.225535  0.000000  0.000000  0.000000
0.083333  0.225535  0.007517  0.045122  0.004503
0.166667  0.225535  0.015035  0.063812  0.004503
0.250000  0.225535  0.022553  0.078154  0.004503
0.333333  0.225535  0.030071  0.090244  0.004503
0.416667  0.225535  0.037588  0.100896  0.004503
0.500000  0.225535  0.045106  0.110526  0.004503
0.583333  0.225535  0.052624  0.119382  0.004503
0.666667  0.225535  0.060140  0.127625  0.004503
0.750000  0.225535  0.067659  0.135367  0.004503
0.833333  0.225535  0.084338  0.142689  0.004503
0.916667  0.225535  0.100938  0.149654  0.004503
1.000000  0.225535  0.117485  0.156308  0.004503
1.083333  0.225535  0.133978  0.162691  0.004503
1.166667  0.225535  0.150412  0.168832  0.004503
1.250000  0.225535  0.166783  0.174758  0.004503
1.333333  0.225535  0.183103  0.180489  0.004503
1.416667  0.225535  0.199349  0.186044  0.004503
1.500000  0.225535  0.215529  0.191437  0.004503
1.583333  0.225535  0.231635  0.196683  0.004503
1.666667  0.225535  0.247666  0.201793  0.004503
1.750000  0.225535  0.263617  0.206776  0.004503
1.833333  0.225535  0.279484  0.211642  0.004503
1.916667  0.225535  0.295264  0.216399  0.004503
2.000000  0.225535  0.310950  0.221053  0.004503
2.083333  0.225535  0.326542  0.225611  0.004503
2.166667  0.225535  0.342025  0.230079  0.004503
2.250000  0.225535  0.357401  0.234462  0.004503
2.333333  0.225535  0.372666  0.238764  0.004503
2.416667  0.225535  0.387810  0.242991  0.004503
2.500000  0.225535  0.402828  0.319480  0.004503
2.583333  0.225535  0.417711  0.462252  0.004503
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2.666667  0.225535  0.432454  0.646885  0.004503
2.750000  0.225535  0.447051  0.865227  0.004503
2.833333  0.225535  0.461493  1.112611  0.004503
2.916667  0.225535  0.475772  1.385903  0.004503
3.000000  0.225535  0.489879  1.682807  0.004503
3.083333  0.225535  0.503800  2.001551  0.004503
3.166667  0.225535  0.517535  2.340707  0.004503
3.250000  0.225535  0.531065  2.699100  0.004503
3.333333  0.225535  0.544380  3.084981  0.004503
3.416667  0.225535  0.557450  3.780504  0.004503
3.500000  0.225535  0.570286  4.648167  0.004503
3.583333  0.225535  0.582852  5.595717  0.004503
3.666667  0.225535  0.595132  6.529238  0.004503
3.750000  0.225535  0.607086  7.359092  0.004503
3.833333  0.225535  0.618700  8.017288  0.004503
3.916667  0.225535  0.629920  8.481148  0.004503
4.000000  0.225535  0.640691  8.801604  0.004503
4.083333  0.225535  0.650876  9.202380  0.004503
4.166667  0.225535  0.660186  9.521341  0.004503
4.250000  0.225535  0.668759  9.826216  0.004503
4.333333  0.225535  0.677041  10.11873  0.004503
4.416667  0.225535  0.685065  10.40028  0.026125
4.500000  0.225535  0.692738  10.67203  0.026125
4.583333  0.225535  0.700384  10.93493  0.026125
4.666667  0.225535  0.707901  11.18980  0.026125
4.750000  0.225535  0.715421  11.43734  0.026125
4.833333  0.225535  0.722937  11.67815  0.026125
4.916667  0.225535  0.730455  11.91275  0.026125
5.000000  0.225535  0.737973  12.14161  0.026125
5.083333  0.225535  0.745490  12.36512  0.026125
5.166667  0.225535  0.753009  12.58365  0.026125
END FTABLE  8
FTABLE      7
 66    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.413223  0.000000  0.000000  0.000000
0.021758  0.413223  0.003506  0.000000  0.000000
0.043516  0.413223  0.007013  0.000000  0.000000
0.065275  0.413223  0.010519  0.000000  0.000000
0.087033  0.413223  0.014026  0.000000  0.000000
0.108791  0.413223  0.017532  0.000000  0.000000
0.130549  0.413223  0.021039  0.000000  0.000000
0.152308  0.413223  0.024545  0.000000  0.000000
0.174066  0.413223  0.028052  0.000000  0.000000
0.195824  0.413223  0.031558  0.000000  0.000000
0.217582  0.413223  0.035065  0.000000  0.008325
0.239341  0.413223  0.038571  0.000000  0.008325
0.261099  0.413223  0.042078  0.000000  0.008325
0.282857  0.413223  0.045584  0.000000  0.008325
0.304615  0.413223  0.049091  0.000000  0.008325
0.326374  0.413223  0.052597  0.000000  0.008325
0.348132  0.413223  0.056104  0.000000  0.008325
0.369890  0.413223  0.059610  0.000000  0.008325
0.391648  0.413223  0.063117  0.000000  0.008325
0.413407  0.413223  0.066623  0.000000  0.008325
0.435165  0.413223  0.070130  0.000000  0.008325
0.456923  0.413223  0.073636  0.000000  0.008325
0.478681  0.413223  0.077143  0.000000  0.008325
0.500440  0.413223  0.080649  0.000000  0.008325
0.522198  0.413223  0.084156  0.000000  0.008325
0.543956  0.413223  0.087662  0.000000  0.008325
0.565714  0.413223  0.091169  0.000000  0.008325
0.587473  0.413223  0.094675  0.000000  0.008325
0.609231  0.413223  0.098182  0.000000  0.008325
0.630989  0.413223  0.101688  0.000000  0.008325
0.652747  0.413223  0.105195  0.000000  0.008325
0.674505  0.413223  0.108701  0.000000  0.008325
0.696264  0.413223  0.112208  0.000000  0.008325
0.718022  0.413223  0.115714  0.000000  0.008325
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  0.739780  0.413223  0.119221  0.000000  0.008325
  0.761538  0.413223  0.122727  0.000000  0.008325
  0.783297  0.413223  0.126234  0.000000  0.008325
  0.805055  0.413223  0.129740  0.000000  0.008325
  0.826813  0.413223  0.133247  0.000000  0.008325
  0.848571  0.413223  0.136753  0.000000  0.008325
  0.870330  0.413223  0.140260  0.000000  0.008325
  0.892088  0.413223  0.143766  0.000000  0.008325
  0.913846  0.413223  0.147273  0.000000  0.008325
  0.935604  0.413223  0.150779  0.000000  0.008325
  0.957363  0.413223  0.154286  0.000000  0.008325
  0.979121  0.413223  0.157792  0.000000  0.008325
  1.000879  0.413223  0.161299  0.000000  0.008325
  1.022637  0.413223  0.164805  0.000000  0.008325
  1.044396  0.413223  0.168312  0.000000  0.008325
  1.066154  0.413223  0.171818  0.000000  0.008325
  1.087912  0.413223  0.175325  0.000000  0.008325
  1.109670  0.413223  0.178831  0.000000  0.008325
  1.131429  0.413223  0.182338  0.000000  0.008325
  1.153187  0.413223  0.185844  0.000000  0.008325
  1.174945  0.413223  0.189351  0.000000  0.008325
  1.196703  0.413223  0.192857  0.000000  0.008325
  1.218462  0.413223  0.196364  0.000000  0.008325
  1.240220  0.413223  0.199870  0.000000  0.008325
  1.261978  0.413223  0.203377  0.000000  0.008325
  1.283736  0.413223  0.206883  0.000000  0.008325
  1.305495  0.413223  0.210390  0.000000  0.008325
  1.327253  0.413223  0.213896  0.000000  0.008325
  1.349011  0.413223  0.217403  0.000000  0.008325
  1.370769  0.413223  0.220909  0.000000  0.008325
  1.392527  0.413223  0.224416  0.000000  0.008325
  1.400000  0.413223  0.473802  0.000000  0.008325
  END FTABLE  7
  FTABLE      6
   28    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.413223  0.000000  0.000000  0.000000  0.000000
  0.021758  0.413223  0.008991  0.000000  1.082845  0.000000
  0.043516  0.413223  0.017982  0.000000  1.099417  0.000000
  0.065275  0.413223  0.026973  0.000000  1.115989  0.000000
  0.087033  0.413223  0.035964  0.000000  1.132560  0.000000
  0.108791  0.413223  0.044955  0.000000  1.149132  0.000000
  0.130549  0.413223  0.053946  0.000000  1.165703  0.000000
  0.152308  0.413223  0.062937  0.000000  1.182275  0.000000
  0.174066  0.413223  0.071928  0.000000  1.198847  0.000000
  0.195824  0.413223  0.080919  0.000000  1.215418  0.000000
  0.217582  0.413223  0.089910  0.000000  1.231990  0.000000
  0.239341  0.413223  0.098901  0.000000  1.248561  0.000000
  0.261099  0.413223  0.107892  0.024832  1.265133  0.000000
  0.282857  0.413223  0.116883  0.126411  1.281705  0.000000
  0.304615  0.413223  0.125874  0.270779  1.298276  0.000000
  0.326374  0.413223  0.134865  0.447582  1.314848  0.000000
  0.348132  0.413223  0.143856  0.651578  1.331419  0.000000
  0.369890  0.413223  0.152847  0.879364  1.347991  0.000000
  0.391648  0.413223  0.161838  1.128427  1.364563  0.000000
  0.413407  0.413223  0.170829  1.396742  1.381134  0.000000
  0.435165  0.413223  0.179820  1.682566  1.397706  0.000000
  0.456923  0.413223  0.188811  1.984331  1.414277  0.000000
  0.478681  0.413223  0.197802  2.300563  1.430849  0.000000
  0.500440  0.413223  0.206793  2.629844  1.447421  0.000000
  0.522198  0.413223  0.215784  2.970783  1.463992  0.000000
  0.543956  0.413223  0.224775  3.321994  1.480564  0.000000
  0.565714  0.413223  0.233766  3.682082  1.497135  0.000000
  0.580000  0.413223  0.239669  4.049644  1.508016  0.000000
  END FTABLE  6
END FTABLES
```

```
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  41     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   4     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   6     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.85           RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   4     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   5     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   6     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   7     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   8 HYDR   RO     1 1        1      WDM   1004 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      1 1        1      WDM   1005 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      2 1        1      WDM   1006 FLOW     ENGL      REPL
RCHRES   8 HYDR   STAGE  1 1        1      WDM   1007 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        6
RCHRES     ROFLOW                          RCHRES         INFLOW
  END MASS-LINK    6

  MASS-LINK        7
RCHRES     OFLOW  OVOL   1                  RCHRES         INFLOW IVOL
  END MASS-LINK    7

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                  RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16
```

```
  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                COPY           INPUT  MEAN
  END MASS-LINK   17

  MASS-LINK       53
IMPLND     IWATER SURO                     IMPLND         EXTNL  SURLI
  END MASS-LINK   53


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

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SOUTH AREA HYDROMODIFICATION

SAHM

PROJECT REPORT

General Model Information

Project Name:	ElderSouthUP5
Site Name:	Elder
Site Address:	8280 Elder Crekk
City:	Sacramento
Report Date:	4/19/2018
Gage:	ELK GROV
Data Start:	1963/10/01
Data End:	2004/09/30
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2018/02/20

POC Thresholds

Low Flow Threshold for POC1:	25 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Pre-Project Land Use

Pervious South Area

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Grass,Flat(0-1%)	4.56
Pervious Total	4.56
Impervious Land Use	acre
Impervious Total	0
Basin Total	4.56

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

To Bioretntion

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.34
Impervious Total	1.34
Basin Total	1.34

Element Flows To:

Surface	Interflow	Groundwater
Infilt Pla Surface 3	Infilt Pla Surface 3	

To Filterra

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.61
Impervious Total	1.61
Basin Total	1.61

Element Flows To:

Surface	Interflow	Groundwater
F T Plante Surface 2	F T Plante Surface 2	

To Porous Pavement

Bypass:	No
Impervious Land Use	acre
Imperv,Flat(0-1%) LAT	0.19

Element Flows To:

Outlet 1	Outlet 2
Porous Pavement 1	

Pervious

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Urban,Flat(0-1%)	0.79
Pervious Total	0.79
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.79

Element Flows To:

Surface	Interflow	Groundwater
StormTech 2	StormTech 2	

To Amended Soil

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	0.53
Impervious Total	0.53
Basin Total	0.53

Element Flows To:

Surface	Interflow	Groundwater
Surface Amended Soil	Surface Amended Soil	

Routing Elements

Pre-Project Routing

Mitigated Routing

Porous Pavement 1

Pavement Area:0.0962 acre.Pavement Length:261.90 ft.

Pavement Width:	16.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.67
Pour Space of Pavement:	0.5
Material thickness of second layer:	0.5
Pour Space of material for second layer:	0.3
Material thickness of third layer:	0.75
Pour Space of material for third layer:	0.4
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	0.39
Total Volume Through Riser (ac-ft.):	13.691
Total Volume Through Facility (ac-ft.):	14.08
Percent Infiltrated:	2.77
Total Precip Applied to Facility:	0
Total Evap From Facility:	0.144

Element Flows To:

Outlet 1 Outlet 2

StormTech 2

Porous Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.096	0.000	0.000	0.000
0.0213	0.096	0.000	0.063	0.001
0.0427	0.096	0.001	0.089	0.001
0.0640	0.096	0.002	0.109	0.001
0.0853	0.096	0.003	0.126	0.001
0.1067	0.096	0.004	0.141	0.001
0.1280	0.096	0.004	0.155	0.001
0.1493	0.096	0.005	0.167	0.001
0.1707	0.096	0.006	0.179	0.001
0.1920	0.096	0.007	0.190	0.001
0.2133	0.096	0.008	0.200	0.001
0.2347	0.096	0.009	0.210	0.001
0.2560	0.096	0.009	0.219	0.001
0.2773	0.096	0.010	0.228	0.001
0.2987	0.096	0.011	0.237	0.001
0.3200	0.096	0.012	0.245	0.001
0.3413	0.096	0.013	0.253	0.001
0.3627	0.096	0.014	0.261	0.001
0.3840	0.096	0.014	0.269	0.001
0.4053	0.096	0.015	0.276	0.001
0.4267	0.096	0.016	0.283	0.001
0.4480	0.096	0.017	0.290	0.001
0.4693	0.096	0.018	0.297	0.001
0.4907	0.096	0.018	0.304	0.001
0.5120	0.096	0.019	0.310	0.001
0.5333	0.096	0.020	0.317	0.001
0.5547	0.096	0.021	0.323	0.001
0.5760	0.096	0.022	0.329	0.001
0.5973	0.096	0.023	0.335	0.001

0.6187	0.096	0.023	0.341	0.001
0.6400	0.096	0.024	0.347	0.001
0.6613	0.096	0.025	0.353	0.001
0.6827	0.096	0.026	0.358	0.001
0.7040	0.096	0.027	0.364	0.001
0.7253	0.096	0.027	0.369	0.001
0.7467	0.096	0.028	0.375	0.001
0.7680	0.096	0.029	0.380	0.001
0.7893	0.096	0.030	0.385	0.001
0.8107	0.096	0.030	0.390	0.001
0.8320	0.096	0.031	0.396	0.001
0.8533	0.096	0.031	0.401	0.001
0.8747	0.096	0.032	0.406	0.001
0.8960	0.096	0.033	0.411	0.001
0.9173	0.096	0.033	0.415	0.001
0.9387	0.096	0.034	0.420	0.001
0.9600	0.096	0.034	0.425	0.001
0.9813	0.096	0.035	0.430	0.001
1.0027	0.096	0.036	0.434	0.001
1.0240	0.096	0.036	0.439	0.001
1.0453	0.096	0.037	0.443	0.001
1.0667	0.096	0.038	0.448	0.001
1.0880	0.096	0.038	0.452	0.001
1.1093	0.096	0.039	0.457	0.001
1.1307	0.096	0.039	0.461	0.001
1.1520	0.096	0.040	0.466	0.001
1.1733	0.096	0.041	0.470	0.001
1.1947	0.096	0.041	0.474	0.001
1.2160	0.096	0.042	0.478	0.001
1.2373	0.096	0.042	0.483	0.001
1.2587	0.096	0.043	0.487	0.001
1.2800	0.096	0.044	0.491	0.001
1.3013	0.096	0.046	0.495	0.001
1.3227	0.096	0.047	0.499	0.001
1.3440	0.096	0.048	0.503	0.001
1.3653	0.096	0.049	0.507	0.001
1.3867	0.096	0.050	0.511	0.001
1.4080	0.096	0.051	0.515	0.001
1.4293	0.096	0.052	0.519	0.001
1.4507	0.096	0.053	0.523	0.001
1.4720	0.096	0.054	0.526	0.001
1.4933	0.096	0.055	0.530	0.001
1.5147	0.096	0.056	0.534	0.001
1.5360	0.096	0.057	0.538	0.001
1.5573	0.096	0.058	0.541	0.001
1.5787	0.096	0.059	0.545	0.001
1.6000	0.096	0.060	0.549	0.001
1.6213	0.096	0.061	0.552	0.001
1.6427	0.096	0.062	0.556	0.001
1.6640	0.096	0.063	0.560	0.001
1.6853	0.096	0.064	0.563	0.001
1.7067	0.096	0.065	0.567	0.001
1.7280	0.096	0.066	0.570	0.001
1.7493	0.096	0.067	0.574	0.001
1.7707	0.096	0.068	0.577	0.001
1.7920	0.096	0.069	0.581	0.001
1.8133	0.096	0.070	0.584	0.001
1.8347	0.096	0.071	0.588	0.001

1.8560	0.096	0.072	0.591	0.001
1.8773	0.096	0.073	0.594	0.001
1.8987	0.096	0.074	0.598	0.001
1.9200	0.096	0.075	0.601	0.001

F T Planter 2

Bottom Length:	70.00 ft.
Bottom Width:	4.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 15 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	51.541
Total Outflow (ac-ft.):	80.182
Percent Through Underdrain:	64.28
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0064	0.0000	0.0000	0.0000
0.0549	0.0064	0.0001	0.0000	0.0000
0.1099	0.0064	0.0003	0.0000	0.0000
0.1648	0.0064	0.0004	0.0000	0.0000
0.2198	0.0064	0.0006	0.0000	0.0000
0.2747	0.0064	0.0007	0.0000	0.0000
0.3297	0.0064	0.0009	0.0000	0.0000
0.3846	0.0064	0.0010	0.0000	0.0000
0.4396	0.0064	0.0012	0.0000	0.0000
0.4945	0.0064	0.0013	0.0000	0.0000
0.5495	0.0064	0.0015	0.0000	0.0000
0.6044	0.0064	0.0016	0.0000	0.0000
0.6593	0.0064	0.0018	0.0000	0.0000
0.7143	0.0064	0.0019	0.0000	0.0000
0.7692	0.0064	0.0021	0.0000	0.0000
0.8242	0.0064	0.0022	0.0000	0.0000
0.8791	0.0064	0.0024	0.0000	0.0000
0.9341	0.0064	0.0025	0.0000	0.0000
0.9890	0.0064	0.0027	0.0000	0.0000
1.0440	0.0064	0.0028	0.0000	0.0000
1.0989	0.0064	0.0030	0.0000	0.0000
1.1538	0.0064	0.0031	0.0000	0.0000
1.2088	0.0064	0.0033	0.0000	0.0000
1.2637	0.0064	0.0034	0.0000	0.0000
1.3187	0.0064	0.0036	0.0000	0.0000
1.3736	0.0064	0.0037	0.0000	0.0000
1.4286	0.0064	0.0039	0.0000	0.0000
1.4835	0.0064	0.0040	0.0000	0.0000
1.5385	0.0064	0.0042	0.0000	0.0000
1.5934	0.0064	0.0043	0.0000	0.0000
1.6484	0.0064	0.0045	0.0000	0.0000

1.7033	0.0064	0.0046	0.0000	0.0000
1.7582	0.0064	0.0047	0.0000	0.0000
1.8132	0.0064	0.0049	0.0000	0.0000
1.8681	0.0064	0.0050	0.0000	0.0000
1.9231	0.0064	0.0052	0.0000	0.0000
1.9780	0.0064	0.0053	0.0000	0.0000
2.0330	0.0064	0.0055	0.0000	0.0000
2.0879	0.0064	0.0056	0.0000	0.0000
2.1429	0.0064	0.0058	0.0000	0.0000
2.1978	0.0064	0.0059	0.0000	0.0000
2.2527	0.0064	0.0061	0.0000	0.0000
2.3077	0.0064	0.0062	0.0000	0.0000
2.3626	0.0064	0.0064	0.0000	0.0000
2.4176	0.0064	0.0065	0.0000	0.0000
2.4725	0.0064	0.0067	0.0000	0.0000
2.5275	0.0064	0.0068	0.0000	0.0000
2.5824	0.0064	0.0070	0.0000	0.0000
2.6374	0.0064	0.0071	0.0000	0.0000
2.6923	0.0064	0.0072	0.0000	0.0000
2.7473	0.0064	0.0074	0.0000	0.0000
2.8022	0.0064	0.0075	0.0000	0.0000
2.8571	0.0064	0.0077	0.0000	0.0000
2.9121	0.0064	0.0078	0.0000	0.0000
2.9670	0.0064	0.0080	0.0000	0.0000
3.0000	0.0064	0.0081	0.0000	0.0000

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0064	0.0081	0.0000	0.0995	0.0000
3.0549	0.0064	0.0084	0.0000	0.0995	0.0000
3.1099	0.0064	0.0088	0.0000	0.0995	0.0000
3.1648	0.0064	0.0091	0.0000	0.0995	0.0000
3.2198	0.0064	0.0095	0.0001	0.0995	0.0000
3.2747	0.0064	0.0098	0.0002	0.0995	0.0000
3.3297	0.0064	0.0102	0.0004	0.0995	0.0000
3.3846	0.0064	0.0105	0.0007	0.0995	0.0000
3.4396	0.0064	0.0109	0.0011	0.0995	0.0000
3.4945	0.0064	0.0112	0.0017	0.0995	0.0000
3.5495	0.0064	0.0116	0.0023	0.0995	0.0000
3.6044	0.0064	0.0120	0.0031	0.0995	0.0000
3.6593	0.0064	0.0123	0.0040	0.0995	0.0000
3.7143	0.0064	0.0127	0.0051	0.0995	0.0000
3.7692	0.0064	0.0130	0.0063	0.0995	0.0000
3.8242	0.0064	0.0134	0.0077	0.0995	0.0000
3.8791	0.0064	0.0137	0.0092	0.0995	0.0000
3.9341	0.0064	0.0141	0.0109	0.0995	0.0000
3.9890	0.0064	0.0144	0.0128	0.0995	0.0000
4.0440	0.0064	0.0148	0.0149	0.0995	0.0000
4.0989	0.0064	0.0151	0.0172	0.0995	0.0000
4.1538	0.0064	0.0155	0.0190	0.0995	0.0000
4.2088	0.0064	0.0158	0.0197	0.0995	0.0000
4.2637	0.0064	0.0162	0.0224	0.0995	0.0000
4.3187	0.0064	0.0165	0.0253	0.0995	0.0000
4.3736	0.0064	0.0169	0.0284	0.0995	0.0000
4.4286	0.0064	0.0172	0.0317	0.0995	0.0000
4.4835	0.0064	0.0176	0.0353	0.0995	0.0000
4.5385	0.0064	0.0180	0.0369	0.0995	0.0000
4.5934	0.0064	0.0183	0.0412	0.0995	0.0000

4.6484	0.0064	0.0187	0.0450	0.0995	0.0000
4.7033	0.0064	0.0190	0.0473	0.0995	0.0000
4.7582	0.0064	0.0194	0.0486	0.0995	0.0000
4.8132	0.0064	0.0197	0.0519	0.0995	0.0000
4.8681	0.0064	0.0201	0.0550	0.0995	0.0000
4.9231	0.0064	0.0204	0.0579	0.0995	0.0000
4.9780	0.0064	0.0208	0.0607	0.0995	0.0000
5.0000	0.0064	0.0209	0.0634	0.0995	0.0000

F T Plante Surface 2

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	F T Planter 2

StormTech 2

Chamber Model:	3500
Dimensions	
Max Row Length:	300
Number of Chambers:	140
Number of Endcaps:	12
Top Stone Depth:	9
Bottom Stone Depth:	9
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	24.339
Total Volume Through Riser (ac-ft.):	130.023
Total Volume Through Facility (ac-ft.):	154.363
Percent Infiltrated:	15.77
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3.25 ft.
Riser Diameter:	18 in.
Notch Type:	Rectangular
Notch Width:	1.277 ft.
Notch Height:	0.423 ft.
Orifice 1 Diameter:	1.998 in. Elevation:0 ft.
Element Flows To:	
Outlet 1	Outlet 2

StormTech Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
3.0000	0.964	0.000	0.000	0.000
3.1333	0.964	0.128	0.039	0.019
3.2667	0.964	0.257	0.055	0.019
3.4000	0.964	0.385	0.068	0.019
3.5333	0.964	0.514	0.079	0.019
3.6667	0.964	0.642	0.088	0.019
3.8000	0.964	0.771	0.096	0.019
3.9333	0.964	0.899	0.104	0.019
4.0667	0.964	1.028	0.111	0.019
4.2000	0.964	1.157	0.118	0.019
4.3333	0.964	1.285	0.125	0.019
4.4667	0.964	1.414	0.131	0.019
4.6000	0.964	1.542	0.137	0.019
4.7333	0.964	1.671	0.142	0.019
4.8667	0.964	1.799	0.148	0.019
5.0000	0.964	1.928	0.153	0.019
5.1333	0.964	2.056	0.158	0.019
5.2667	0.964	2.185	0.163	0.019
5.4000	0.964	2.314	0.167	0.019
5.5333	0.964	2.442	0.172	0.019
5.6667	0.964	2.571	0.176	0.019
5.8000	0.964	2.699	0.181	0.019
5.9333	0.964	2.828	0.333	0.019
6.0667	0.964	2.956	0.689	0.019
6.2000	0.964	3.085	1.163	0.019
6.3333	0.964	3.214	1.751	0.019

6.4667	0.964	3.342	2.951	0.019
6.6000	0.964	3.471	4.449	0.019
6.7333	0.964	3.599	5.866	0.019
6.8667	0.964	3.728	6.885	0.019
7.0000	0.964	3.856	7.459	0.019
7.1333	0.964	3.985	8.052	0.019
7.2667	0.964	4.113	8.540	0.019
7.4000	0.964	4.242	8.998	0.019
7.5333	0.964	4.371	9.430	0.019
7.6667	0.964	4.499	9.840	0.019
7.8000	0.964	4.628	10.23	0.019
7.9333	0.964	4.756	10.60	0.019
8.0667	0.964	4.885	10.96	0.019
8.2000	0.964	5.013	11.31	0.019
8.3333	0.964	5.142	11.65	0.019
8.4667	0.964	5.270	11.97	0.019
8.6000	0.964	5.399	12.29	0.019
8.7333	0.964	5.528	12.59	0.019
8.8667	0.964	5.656	12.89	0.019
9.0000	0.964	5.785	13.18	0.019
9.1333	0.964	5.913	13.47	0.019
9.2667	0.964	6.042	13.75	0.019
9.4000	0.964	6.170	14.02	0.019
9.5333	0.964	6.299	14.28	0.019
9.6667	0.964	6.427	14.55	0.019
9.8000	0.964	6.556	14.80	0.019
9.9333	0.964	6.685	15.05	0.019
10.067	0.964	6.813	15.30	0.019
10.200	0.964	6.942	15.54	0.019
10.333	0.964	7.070	15.78	0.019
10.467	0.964	7.199	16.02	0.019
10.600	0.964	7.327	16.25	0.019
10.733	0.964	7.456	16.47	0.019
10.867	0.964	7.584	16.70	0.019
11.000	0.964	7.713	16.92	0.019
11.133	0.964	7.842	17.14	0.019
11.267	0.964	7.970	17.35	0.019
11.400	0.964	8.099	17.56	0.019
11.533	0.964	8.227	17.77	0.019
11.667	0.964	8.356	17.98	0.019
11.800	0.964	8.484	18.18	0.019
11.933	0.964	8.613	18.39	0.019
12.067	0.964	8.742	18.58	0.019
12.200	0.964	8.870	18.78	0.019
12.333	0.964	8.999	18.98	0.019
12.467	0.964	9.127	19.17	0.019
12.600	0.964	9.256	19.36	0.019
12.733	0.964	9.384	19.55	0.019
12.867	0.964	9.513	19.74	0.019
13.000	0.964	9.641	19.92	0.019
13.133	0.964	9.770	20.10	0.019
13.267	0.964	9.899	20.29	0.019
13.400	0.964	10.02	20.47	0.019
13.533	0.964	10.15	20.64	0.019
13.667	0.964	10.28	20.82	0.019
13.800	0.964	10.41	21.00	0.019
13.933	0.964	10.54	21.17	0.019
14.067	0.964	10.67	21.34	0.019

14.200	0.964	10.79	21.51	0.019
14.333	0.964	10.92	21.68	0.019
14.467	0.964	11.05	21.85	0.019
14.600	0.964	11.18	22.01	0.019
14.733	0.964	11.31	22.18	0.019
14.867	0.964	11.44	22.34	0.019
15.000	0.964	11.57	22.50	0.019
15.133	0.964	11.69	22.67	0.019
15.267	0.000	0.000	22.83	0.000

Amended Soil

Bottom Length:	95.30 ft.
Bottom Width:	60.00 ft.
Material thickness of first layer:	1.4
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.333
Total Volume Infiltrated (ac-ft.):	21.714
Total Volume Through Riser (ac-ft.):	7.832
Total Volume Through Facility (ac-ft.):	29.546
Percent Infiltrated:	73.49
Total Precip Applied to Facility:	5.89
Total Evap From Facility:	2.707
Underdrain not used	
Discharge Structure	
Riser Height:	0.25 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.1313	0.0000	0.0000	0.0000
0.0218	0.1313	0.0012	0.0000	0.0000
0.0435	0.1313	0.0024	0.0000	0.0000
0.0653	0.1313	0.0036	0.0006	0.0006
0.0870	0.1313	0.0048	0.0010	0.0010
0.1088	0.1313	0.0060	0.0016	0.0016
0.1305	0.1313	0.0072	0.0023	0.0023
0.1523	0.1313	0.0084	0.0026	0.0026
0.1741	0.1313	0.0096	0.0026	0.0026
0.1958	0.1313	0.0108	0.0026	0.0026
0.2176	0.1313	0.0120	0.0026	0.0026
0.2393	0.1313	0.0132	0.0026	0.0026
0.2611	0.1313	0.0144	0.0026	0.0026
0.2829	0.1313	0.0156	0.0026	0.0026
0.3046	0.1313	0.0168	0.0026	0.0026
0.3264	0.1313	0.0180	0.0026	0.0026
0.3481	0.1313	0.0192	0.0026	0.0026
0.3699	0.1313	0.0204	0.0026	0.0026
0.3916	0.1313	0.0216	0.0026	0.0026
0.4134	0.1313	0.0228	0.0026	0.0026
0.4352	0.1313	0.0240	0.0026	0.0026
0.4569	0.1313	0.0252	0.0026	0.0026
0.4787	0.1313	0.0264	0.0026	0.0026
0.5004	0.1313	0.0276	0.0026	0.0026
0.5222	0.1313	0.0288	0.0026	0.0026
0.5440	0.1313	0.0300	0.0026	0.0026
0.5657	0.1313	0.0312	0.0026	0.0026
0.5875	0.1313	0.0324	0.0026	0.0026

0.6092	0.1313	0.0336	0.0026	0.0026
0.6310	0.1313	0.0348	0.0026	0.0026
0.6527	0.1313	0.0360	0.0026	0.0026
0.6745	0.1313	0.0372	0.0026	0.0026
0.6963	0.1313	0.0384	0.0026	0.0026
0.7180	0.1313	0.0396	0.0026	0.0026
0.7398	0.1313	0.0408	0.0026	0.0026
0.7615	0.1313	0.0420	0.0026	0.0026
0.7833	0.1313	0.0432	0.0026	0.0026
0.8051	0.1313	0.0444	0.0026	0.0026
0.8268	0.1313	0.0456	0.0026	0.0026
0.8486	0.1313	0.0468	0.0026	0.0026
0.8703	0.1313	0.0480	0.0026	0.0026
0.8921	0.1313	0.0492	0.0026	0.0026
0.9138	0.1313	0.0504	0.0026	0.0026
0.9356	0.1313	0.0516	0.0026	0.0026
0.9574	0.1313	0.0528	0.0026	0.0026
0.9791	0.1313	0.0540	0.0026	0.0026
1.0009	0.1313	0.0552	0.0026	0.0026
1.0226	0.1313	0.0564	0.0026	0.0026
1.0444	0.1313	0.0576	0.0026	0.0026
1.0662	0.1313	0.0588	0.0026	0.0026
1.0879	0.1313	0.0600	0.0026	0.0026
1.1097	0.1313	0.0612	0.0026	0.0026
1.1314	0.1313	0.0624	0.0026	0.0026
1.1532	0.1313	0.0636	0.0026	0.0026
1.1749	0.1313	0.0648	0.0026	0.0026
1.1967	0.1313	0.0660	0.0026	0.0026
1.2185	0.1313	0.0672	0.0026	0.0026
1.2402	0.1313	0.0684	0.0026	0.0026
1.2620	0.1313	0.0696	0.0026	0.0026
1.2837	0.1313	0.0708	0.0026	0.0026
1.3055	0.1313	0.0720	0.0026	0.0026
1.3273	0.1313	0.0732	0.0026	0.0026
1.3490	0.1313	0.0744	0.0026	0.0026
1.3708	0.1313	0.0756	0.0026	0.0026
1.3925	0.1313	0.0768	0.0026	0.0026
1.4000	0.1313	0.0772	0.0026	0.0026

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
1.4000	0.1313	0.0772	0.0000	0.6880	0.0000
1.4218	0.1313	0.0800	0.0000	0.6880	0.0000
1.4435	0.1313	0.0829	0.0000	0.6985	0.0000
1.4653	0.1313	0.0858	0.0000	0.7090	0.0000
1.4870	0.1313	0.0886	0.0000	0.7196	0.0000
1.5088	0.1313	0.0915	0.0000	0.7301	0.0000
1.5305	0.1313	0.0943	0.0000	0.7406	0.0000
1.5523	0.1313	0.0972	0.0000	0.7511	0.0000
1.5741	0.1313	0.1000	0.0000	0.7617	0.0000
1.5958	0.1313	0.1029	0.0000	0.7722	0.0000
1.6176	0.1313	0.1057	0.0000	0.7827	0.0000
1.6393	0.1313	0.1086	0.0000	0.7933	0.0000
1.6611	0.1313	0.1115	0.0000	0.8038	0.0000
1.6829	0.1313	0.1143	0.0000	0.8143	0.0000
1.7046	0.1313	0.1172	0.0000	0.8248	0.0000
1.7264	0.1313	0.1200	0.0000	0.8354	0.0000
1.7481	0.1313	0.1229	0.0000	0.8459	0.0000

1.7699	0.1313	0.1257	0.0000	0.8564	0.0000
1.7916	0.1313	0.1286	0.0000	0.8670	0.0000
1.8134	0.1313	0.1315	0.0000	0.8775	0.0000
1.8352	0.1313	0.1343	0.0000	0.8880	0.0000
1.8569	0.1313	0.1372	0.0000	0.8985	0.0000
1.8787	0.1313	0.1400	0.0000	0.9091	0.0000
1.9004	0.1313	0.1429	0.0000	0.9196	0.0000
1.9222	0.1313	0.1457	0.0000	0.9301	0.0000
1.9440	0.1313	0.1486	0.0000	0.9407	0.0000
1.9657	0.1313	0.1514	0.0000	0.9512	0.0000
1.9800	0.1313	0.1533	0.0000	0.9581	0.0000

Surface Amended Soil

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Amended Soil

Infilt Planter 3

Bottom Length:	78.00 ft.
Bottom Width:	50.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	28.064
Total Volume Through Riser (ac-ft.):	1.56
Total Volume Through Facility (ac-ft.):	68.599
Percent Infiltrated:	40.91
Total Precip Applied to Facility:	4.159
Total Evap From Facility:	2.211
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	6
Flow Through Underdrain (ac-ft.):	38.975
Total Outflow (ac-ft.):	68.599
Percent Through Underdrain:	56.82
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0895	0.0000	0.0000	0.0000
0.0495	0.0895	0.0019	0.0000	0.0000
0.0989	0.0895	0.0037	0.0000	0.0000
0.1484	0.0895	0.0056	0.0000	0.0000
0.1978	0.0895	0.0074	0.0054	0.0054
0.2473	0.0895	0.0093	0.0054	0.0054
0.2967	0.0895	0.0112	0.0054	0.0054
0.3462	0.0895	0.0130	0.0054	0.0054
0.3956	0.0895	0.0149	0.0054	0.0054
0.4451	0.0895	0.0167	0.0054	0.0054
0.4945	0.0895	0.0186	0.0054	0.0054
0.5440	0.0895	0.0205	0.0054	0.0054
0.5934	0.0895	0.0223	0.0054	0.0054
0.6429	0.0895	0.0242	0.0054	0.0054
0.6923	0.0895	0.0260	0.0054	0.0054
0.7418	0.0895	0.0279	0.0054	0.0054
0.7912	0.0895	0.0298	0.0054	0.0054
0.8407	0.0895	0.0316	0.0054	0.0054
0.8901	0.0895	0.0335	0.0054	0.0054
0.9396	0.0895	0.0353	0.0054	0.0054
0.9890	0.0895	0.0372	0.0054	0.0054
1.0385	0.0895	0.0390	0.0054	0.0054

1.0879	0.0895	0.0409	0.0054	0.0054
1.1374	0.0895	0.0428	0.0054	0.0054
1.1868	0.0895	0.0446	0.0054	0.0054
1.2363	0.0895	0.0465	0.0054	0.0054
1.2857	0.0895	0.0483	0.0054	0.0054
1.3352	0.0895	0.0502	0.0054	0.0054
1.3846	0.0895	0.0521	0.0054	0.0054
1.4341	0.0895	0.0539	0.0054	0.0054
1.4835	0.0895	0.0558	0.0054	0.0054
1.5330	0.0895	0.0576	0.0054	0.0054
1.5824	0.0895	0.0595	0.0054	0.0054
1.6319	0.0895	0.0614	0.0054	0.0054
1.6813	0.0895	0.0632	0.0054	0.0054
1.7308	0.0895	0.0651	0.0054	0.0054
1.7802	0.0895	0.0669	0.0054	0.0054
1.8297	0.0895	0.0688	0.0054	0.0054
1.8791	0.0895	0.0707	0.0054	0.0054
1.9286	0.0895	0.0725	0.0054	0.0054
1.9780	0.0895	0.0744	0.0054	0.0054
2.0275	0.0895	0.0762	0.0054	0.0054
2.0769	0.0895	0.0781	0.0054	0.0054
2.1264	0.0895	0.0799	0.0054	0.0054
2.1758	0.0895	0.0817	0.0054	0.0054
2.2253	0.0895	0.0836	0.0054	0.0054
2.2747	0.0895	0.0854	0.0054	0.0054
2.3242	0.0895	0.0872	0.0054	0.0054
2.3736	0.0895	0.0891	0.0054	0.0054
2.4231	0.0895	0.0909	0.0054	0.0054
2.4725	0.0895	0.0928	0.0054	0.0054
2.5220	0.0895	0.0946	0.0054	0.0054
2.5714	0.0895	0.0964	0.0054	0.0054
2.6209	0.0895	0.0983	0.0054	0.0054
2.6703	0.0895	0.1001	0.0054	0.0054
2.7198	0.0895	0.1019	0.0054	0.0054
2.7692	0.0895	0.1038	0.0054	0.0054
2.8187	0.0895	0.1056	0.0054	0.0054
2.8681	0.0895	0.1075	0.0054	0.0054
2.9176	0.0895	0.1093	0.0054	0.0054
2.9670	0.0895	0.1111	0.0054	0.0054
3.0000	0.0895	0.1124	0.0054	0.0054

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0895	0.1124	0.0000	0.1103	0.0000
3.0495	0.0895	0.1168	0.0000	0.1103	0.0000
3.0989	0.0895	0.1212	0.0000	0.1103	0.0000
3.1484	0.0895	0.1256	0.0000	0.1103	0.0000
3.1978	0.0895	0.1301	0.0000	0.1103	0.0000
3.2473	0.0895	0.1345	0.0000	0.1103	0.0000
3.2967	0.0895	0.1389	0.0000	0.1103	0.0000
3.3462	0.0895	0.1433	0.0000	0.1103	0.0000
3.3956	0.0895	0.1478	0.0000	0.1103	0.0000
3.4451	0.0895	0.1522	0.0000	0.1103	0.0000
3.4945	0.0895	0.1566	0.0000	0.1103	0.0000
3.5440	0.0895	0.1611	0.0000	0.1103	0.0000
3.5934	0.0895	0.1655	0.0000	0.1103	0.0000
3.6429	0.0895	0.1699	0.0000	0.1103	0.0000
3.6923	0.0895	0.1743	0.0000	0.1103	0.0000

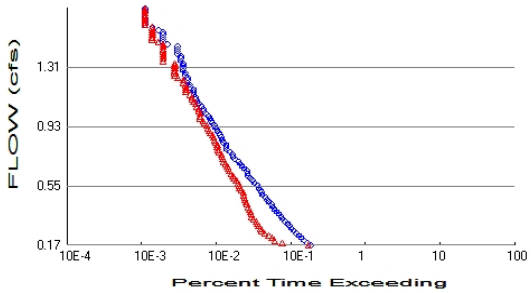
3.7418	0.0895	0.1788	0.0000	0.1103	0.0000
3.7912	0.0895	0.1832	0.0000	0.1103	0.0000
3.8407	0.0895	0.1876	0.0000	0.1103	0.0000
3.8901	0.0895	0.1920	0.0000	0.1103	0.0000
3.9396	0.0895	0.1965	0.0000	0.1103	0.0000
3.9890	0.0895	0.2009	0.0000	0.1103	0.0000
4.0385	0.0895	0.2053	0.0000	0.1103	0.0000
4.0879	0.0895	0.2098	0.0060	0.1103	0.0000
4.1374	0.0895	0.2142	0.0172	0.1103	0.0000
4.1868	0.0895	0.2186	0.0196	0.1103	0.0000
4.2363	0.0895	0.2230	0.0221	0.1103	0.0000
4.2857	0.0895	0.2275	0.0277	0.1103	0.0000
4.3352	0.0895	0.2319	0.0307	0.1103	0.0000
4.3846	0.0895	0.2363	0.0338	0.1103	0.0000
4.4341	0.0895	0.2407	0.0371	0.1103	0.0000
4.4835	0.0895	0.2452	0.0406	0.1103	0.0000
4.5000	0.0895	0.2466	0.0459	0.1103	0.0000

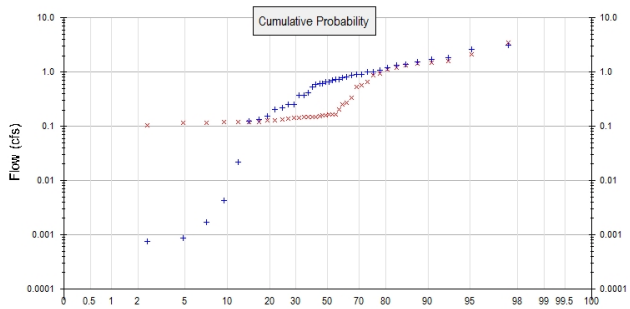
Infilt Pla Surface 3

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Infilt Planter 3

Analysis Results
POC 1





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 4.56
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.79
Total Impervious Area: 3.766198

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	0.666319
5 year	1.141374
10 year	1.685528
25 year	2.714199

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.161713
5 year	1.045608
10 year	1.472135
25 year	2.356871

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1964	0.696	0.162
1965	0.530	0.341
1966	0.004	0.119
1967	1.726	2.103
1968	0.153	0.139
1969	1.556	0.527
1970	0.885	0.657
1971	0.907	0.947
1972	0.002	0.122
1973	1.810	0.167
1974	0.248	0.126
1975	0.001	0.104
1976	0.001	0.118
1977	0.001	0.091

1978	0.811	0.253
1979	0.723	0.157
1980	0.666	0.150
1981	0.022	0.143
1982	0.995	1.457
1983	1.380	0.884
1984	0.779	0.272
1985	0.132	0.128
1986	1.201	1.477
1987	0.408	0.162
1988	0.254	0.117
1989	0.604	0.118
1990	0.587	0.143
1991	0.368	0.147
1992	0.722	0.165
1993	0.667	0.205
1994	0.216	0.118
1995	3.141	3.436
1996	1.345	1.334
1997	2.614	1.577
1998	0.994	1.119
1999	0.918	0.565
2000	1.062	1.201
2001	0.205	0.134
2002	0.367	0.149
2003	0.125	0.151
2004	0.616	0.150

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	**Pre-Project**	**Mitigated**
1	3.1405	3.4358
2	2.6139	2.1030
3	1.8097	1.5771
4	1.7261	1.4768
5	1.5558	1.4571
6	1.3804	1.3337
7	1.3452	1.2010
8	1.2009	1.1193
9	1.0620	0.9474
10	0.9952	0.8841
11	0.9939	0.6573
12	0.9184	0.5654
13	0.9073	0.5274
14	0.8854	0.3407
15	0.8113	0.2723
16	0.7794	0.2527
17	0.7229	0.2052
18	0.7220	0.1669
19	0.6964	0.1655
20	0.6667	0.1624
21	0.6663	0.1617
22	0.6164	0.1566
23	0.6038	0.1514
24	0.5868	0.1503
25	0.5304	0.1503
26	0.4083	0.1489
27	0.3681	0.1473

28	0.3669	0.1434
29	0.2538	0.1433
30	0.2481	0.1390
31	0.2163	0.1336
32	0.2049	0.1285
33	0.1525	0.1264
34	0.1319	0.1216
35	0.1250	0.1194
36	0.0220	0.1182
37	0.0043	0.1178
38	0.0017	0.1175
39	0.0009	0.1170
40	0.0008	0.1036
41	0.0006	0.0910

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1666	661	619	93	Pass
0.1819	598	276	46	Pass
0.1973	542	218	40	Pass
0.2126	497	199	40	Pass
0.2280	464	182	39	Pass
0.2433	429	160	37	Pass
0.2586	392	147	37	Pass
0.2740	367	140	38	Pass
0.2893	349	134	38	Pass
0.3047	328	128	39	Pass
0.3200	304	123	40	Pass
0.3354	283	114	40	Pass
0.3507	266	107	40	Pass
0.3660	250	106	42	Pass
0.3814	231	104	45	Pass
0.3967	216	100	46	Pass
0.4121	206	97	47	Pass
0.4274	198	92	46	Pass
0.4428	183	90	49	Pass
0.4581	172	87	50	Pass
0.4734	165	86	52	Pass
0.4888	152	84	55	Pass
0.5041	146	83	56	Pass
0.5195	140	78	55	Pass
0.5348	134	74	55	Pass
0.5502	129	73	56	Pass
0.5655	119	70	58	Pass
0.5808	110	67	60	Pass
0.5962	104	62	59	Pass
0.6115	97	60	61	Pass
0.6269	94	57	60	Pass
0.6422	92	54	58	Pass
0.6576	85	52	61	Pass
0.6729	80	51	63	Pass
0.6882	75	48	64	Pass
0.7036	72	45	62	Pass
0.7189	64	44	68	Pass
0.7343	60	43	71	Pass
0.7496	59	42	71	Pass
0.7650	55	39	70	Pass
0.7803	50	38	76	Pass
0.7956	49	37	75	Pass
0.8110	49	37	75	Pass
0.8263	45	35	77	Pass
0.8417	43	34	79	Pass
0.8570	42	33	78	Pass
0.8724	41	32	78	Pass
0.8877	39	30	76	Pass
0.9030	37	29	78	Pass
0.9184	35	28	80	Pass
0.9337	34	27	79	Pass
0.9491	32	25	78	Pass
0.9644	31	24	77	Pass

0.9798	30	22	73	Pass
0.9951	29	22	75	Pass
1.0104	26	22	84	Pass
1.0258	24	21	87	Pass
1.0411	24	21	87	Pass
1.0565	23	20	86	Pass
1.0718	21	19	90	Pass
1.0872	20	18	90	Pass
1.1025	19	17	89	Pass
1.1178	19	17	89	Pass
1.1332	18	16	88	Pass
1.1485	18	14	77	Pass
1.1639	18	14	77	Pass
1.1792	16	14	87	Pass
1.1946	16	14	87	Pass
1.2099	15	13	86	Pass
1.2252	15	13	86	Pass
1.2406	15	11	73	Pass
1.2559	14	10	71	Pass
1.2713	14	10	71	Pass
1.2866	13	10	76	Pass
1.3020	13	10	76	Pass
1.3173	13	10	76	Pass
1.3326	13	10	76	Pass
1.3480	12	7	58	Pass
1.3633	12	7	58	Pass
1.3787	12	7	58	Pass
1.3940	11	7	63	Pass
1.4094	11	7	63	Pass
1.4247	11	7	63	Pass
1.4400	11	7	63	Pass
1.4554	8	7	87	Pass
1.4707	7	6	85	Pass
1.4861	7	5	71	Pass
1.5014	7	5	71	Pass
1.5168	7	5	71	Pass
1.5321	7	5	71	Pass
1.5474	6	5	83	Pass
1.5628	5	5	100	Pass
1.5781	4	4	100	Pass
1.5935	4	4	100	Pass
1.6088	4	4	100	Pass
1.6242	4	4	100	Pass
1.6395	4	4	100	Pass
1.6548	4	4	100	Pass
1.6702	4	4	100	Pass
1.6855	4	4	100	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

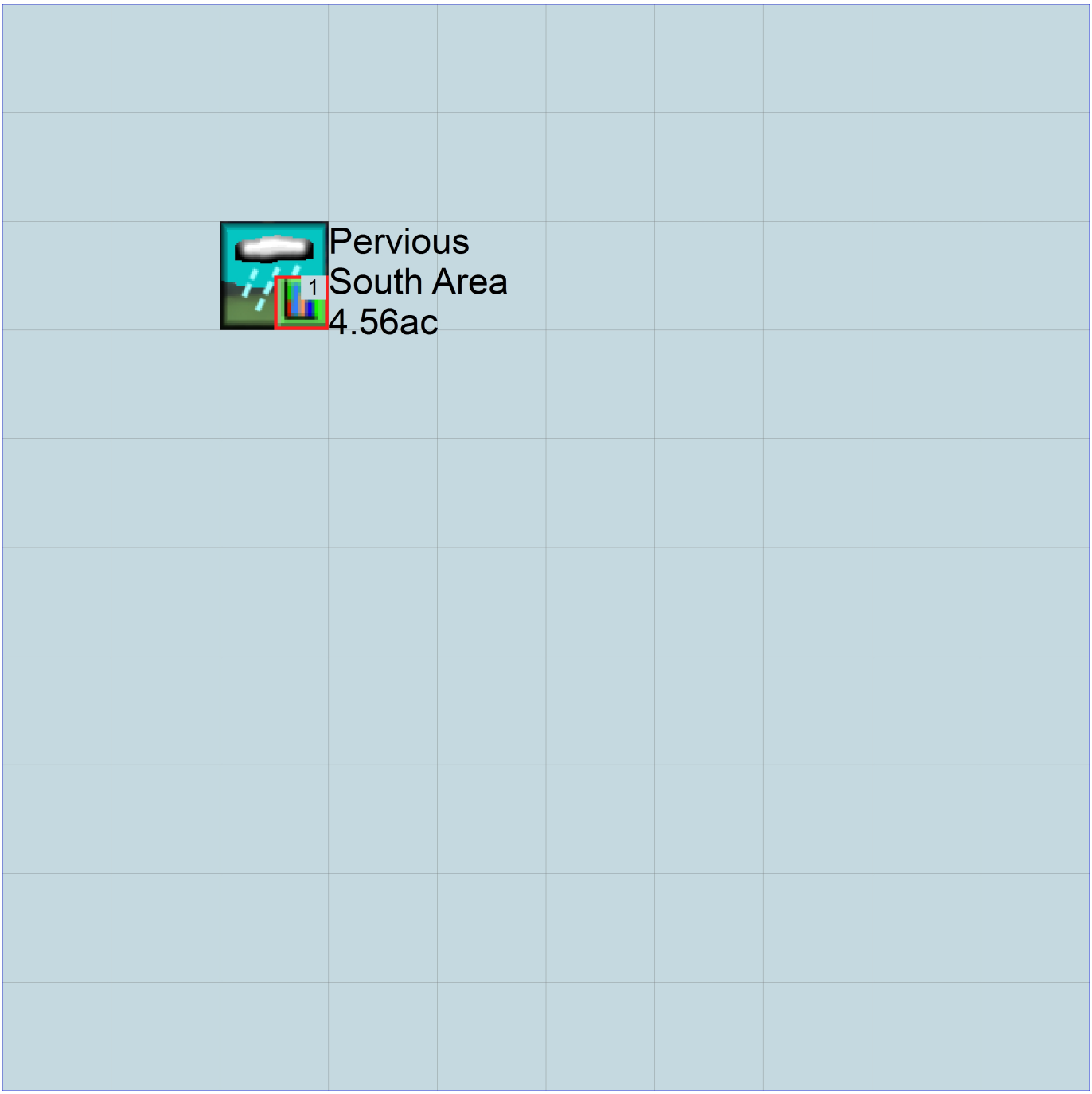
No PERLND changes have been made.

IMPLND Changes

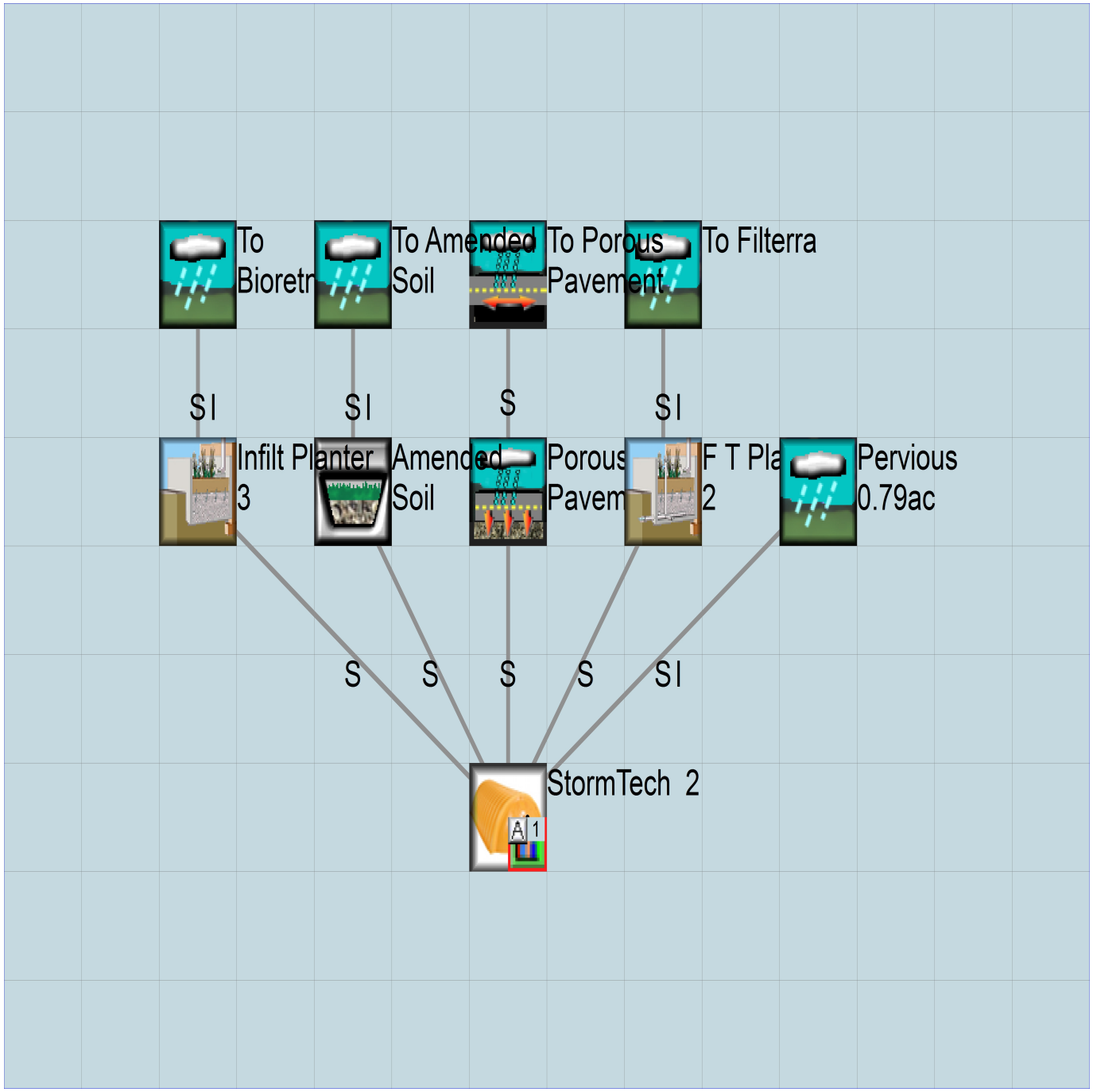
No IMPLND changes have been made.

Appendix

Pre-Project Schematic



Mitigated Schematic



Pre-Project UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderSouthUP5.wdm
MESSU      25   PreElderSouthUP5.MES
           27   PreElderSouthUP5.L61
           28   PreElderSouthUP5.L62
           30   POCElderSouthUP51.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      33
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Pervious South Area         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   33     C,Grass,Flat(0-1%)      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   33         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   33         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   33         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   33              0       4.5     0.045       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   33             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   33              0       0.3      0.25       0.7       0.5         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33       0.4  0.4  0.4 0.45  0.5 0.55 0.55 0.55 0.55 0.55 0.45  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33      0.12 0.12 0.12 0.11  0.1  0.1  0.1  0.1  0.1  0.1 0.11 0.12
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   33              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                       in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Pervious South Area***
PERLND  33                        4.56     COPY   501     12
PERLND  33                        4.56     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                        in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderSouthUP5.wdm
MESSU      25   MitElderSouthUP5.MES
           27   MitElderSouthUP5.L61
           28   MitElderSouthUP5.L62
           30   POCElderSouthUP51.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      IMPLND       1
      IMPLND       9
      PERLND      41
      IMPLND      10
      RCHRES       1
      RCHRES       2
      RCHRES       3
      GENER        5
      RCHRES       4
      RCHRES       5
      RCHRES       6
      RCHRES       7
      RCHRES       8
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        StormTech  2               MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    5        24
  END OPCODE
  PARM
    #    #         K ***
    5            0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   41     C,Urban,Flat(0-1%)      1    1    1    1   27    0
```

```
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   41         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   41         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   41         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   41              0      4.45     0.035       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   41             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   41              0       0.3      0.25       0.5       0.4         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41       0.5  0.5  0.5  0.6 0.65 0.65 0.65 0.65 0.65 0.65 0.55  0.5
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   41              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1     Imperv,Flat(0-1%)       1    1    1   27    0
    9     Imperv,Flat(0-1%) LAT   1    1    1   27    0
   10     Porous Pavement         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
```

```
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    9         0    0    1    0    0    0
   10         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
   10         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    9         0    0    0    0    0
   10         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.01      0.05       0.1
    9            100      0.01      0.05       0.1
   10            100      0.01      0.05       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    9              0         0
   10              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    9              0         0
   10              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
To Bioretntion***
IMPLND   1                        1.34     RCHRES   6      5
To Filterra***
IMPLND   1                        1.61     RCHRES   2      5
To Porous Pavement***
IMPLND   9                      1.9751     IMPLND  10     53
IMPLND  10                      0.0962     RCHRES   1      5
Pervious***
PERLND  41                        0.79     RCHRES   8      2
PERLND  41                        0.79     RCHRES   8      3
To Amended Soil***
IMPLND   1                        0.53     RCHRES   4      5

******Routing******
RCHRES   1                           1     RCHRES   8      7
RCHRES   1                                 COPY     1     17
RCHRES   3                           1     RCHRES   8      6
RCHRES   3                                 COPY     1     16
RCHRES   2                           1     RCHRES   8      7
```

```
RCHRES   2                                  COPY     1     17
RCHRES   2                            1     RCHRES   3      8
PERLND  41                         0.79     COPY     1     12
PERLND  41                         0.79     COPY     1     13
RCHRES   5                            1     RCHRES   8      7
RCHRES   5                                  COPY     1     17
RCHRES   4                            1     RCHRES   8      7
RCHRES   4                                  COPY     1     17
RCHRES   4                            1     RCHRES   5      8
RCHRES   7                            1     RCHRES   8      7
RCHRES   7                                  COPY     1     17
RCHRES   6                            1     RCHRES   8      7
RCHRES   6                                  COPY     1     17
RCHRES   6                            1     RCHRES   7      8
RCHRES   8                            1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    5 OUTPUT TIMSER      .0002778     RCHRES   4     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                          in  out                             ***
    1     Porous Pavement -027    2    1    1    1   28    0    1
    2     F T Plante Surfa-029    3    1    1    1   28    0    1
    3     F T Planter  2          1    1    1    1   28    0    1
    4     Surface Amended -035    3    1    1    1   28    0    1
    5     Amended Soil            2    1    1    1   28    0    1
    6     Infilt Pla Surfa-046    3    1    1    1   28    0    1
    7     Infilt Planter  -045    2    1    1    1   28    0    1
    8     StormTech  2            2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
    6         1    0    0    0    0    0    0    0    0    0
    7         1    0    0    0    0    0    0    0    0    0
    8         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         4    0    0    0    0    0    0    0    0    0    1    9
    6         4    0    0    0    0    0    0    0    0    0    1    9
    7         4    0    0    0    0    0    0    0    0    0    1    9
    8         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    2       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    5       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    6       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    7       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    8       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1              1      0.05       0.0       0.0       0.5       0.0
    2              2      0.01       0.0       0.0       0.5       0.0
    3              3      0.01       0.0       0.0       0.5       0.0
    4              4      0.01       0.0       0.0       0.5       0.0
    5              5      0.02       0.0       0.0       0.5       0.0
    6              6      0.01       0.0       0.0       0.5       0.0
    7              7      0.01       0.0       0.0       0.5       0.0
    8              8      0.06       0.0       3.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    6            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    7            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    8            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol5   RCHRES   5 VOL              4
  UVQUAN v2m5   GLOBAL     WORKSP  4        3
  UVQUAN vpo5   GLOBAL     WORKSP  5        3
  UVQUAN v2d5   GENER    5 K       1        3
*** User-Defined Target Variable Names
***                  addr or                       addr or
***                 <------>                      <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m5    1 WORKSP  4         1.0 QUAN
  UVNAME  vpo5    1 WORKSP  5         1.0 QUAN
  UVNAME  v2d5    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   5                               v2m5            =  3177.
*** Compute remaining available pore space
  GENER   5                               vpo5            =  v2m5
  GENER   5                               vpo5           -=  vol5
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo5 < 0.0) THEN
```

```
  GENER   5                                   vpo5            =  0.0
END IF
*** Infiltration volume
  GENER   5                                   v2d5            =  vpo5
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   91    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.096198  0.000000  0.000000  0.000000
  0.021333  0.096198  0.000821  0.063417  0.001921
  0.042667  0.096198  0.001642  0.089686  0.001921
  0.064000  0.096198  0.002463  0.109842  0.001921
  0.085333  0.096198  0.003284  0.126835  0.001921
  0.106667  0.096198  0.004104  0.141805  0.001921
  0.128000  0.096198  0.004925  0.155340  0.001921
  0.149333  0.096198  0.005746  0.167787  0.001921
  0.170667  0.096198  0.006567  0.179371  0.001921
  0.192000  0.096198  0.007388  0.190252  0.001921
  0.213333  0.096198  0.008209  0.200543  0.001921
  0.234667  0.096198  0.009030  0.210332  0.001921
  0.256000  0.096198  0.009851  0.219684  0.001921
  0.277333  0.096198  0.010672  0.228654  0.001921
  0.298667  0.096198  0.011492  0.237286  0.001921
  0.320000  0.096198  0.012313  0.245614  0.001921
  0.341333  0.096198  0.013134  0.253669  0.001921
  0.362667  0.096198  0.013955  0.261476  0.001921
  0.384000  0.096198  0.014776  0.269057  0.001921
  0.405333  0.096198  0.015597  0.276430  0.001921
  0.426667  0.096198  0.016418  0.283611  0.001921
  0.448000  0.096198  0.017239  0.290615  0.001921
  0.469333  0.096198  0.018060  0.297454  0.001921
  0.490667  0.096198  0.018881  0.304139  0.001921
  0.512000  0.096198  0.019701  0.310680  0.001921
  0.533333  0.096198  0.020522  0.317087  0.001921
  0.554667  0.096198  0.021343  0.323366  0.001921
  0.576000  0.096198  0.022164  0.329526  0.001921
  0.597333  0.096198  0.022985  0.335573  0.001921
  0.618667  0.096198  0.023806  0.341513  0.001921
  0.640000  0.096198  0.024627  0.347351  0.001921
  0.661333  0.096198  0.025448  0.353093  0.001921
  0.682667  0.096198  0.026269  0.358743  0.001921
  0.704000  0.096198  0.027089  0.364305  0.001921
  0.725333  0.096198  0.027910  0.369783  0.001921
  0.746667  0.096198  0.028731  0.375182  0.001921
  0.768000  0.096198  0.029347  0.380504  0.001921
  0.789333  0.096198  0.029963  0.385753  0.001921
  0.810667  0.096198  0.030578  0.390931  0.001921
  0.832000  0.096198  0.031194  0.396041  0.001921
  0.853333  0.096198  0.031810  0.401087  0.001921
  0.874667  0.096198  0.032425  0.406069  0.001921
  0.896000  0.096198  0.033041  0.410991  0.001921
  0.917333  0.096198  0.033657  0.415855  0.001921
  0.938667  0.096198  0.034272  0.420663  0.001921
  0.960000  0.096198  0.034888  0.425416  0.001921
  0.981333  0.096198  0.035504  0.430117  0.001921
  1.002667  0.096198  0.036119  0.434767  0.001921
  1.024000  0.096198  0.036735  0.439368  0.001921
  1.045333  0.096198  0.037351  0.443921  0.001921
  1.066667  0.096198  0.037966  0.448428  0.001921
  1.088000  0.096198  0.038582  0.452890  0.001921
  1.109333  0.096198  0.039198  0.457309  0.001921
  1.130667  0.096198  0.039813  0.461685  0.001921
  1.152000  0.096198  0.040429  0.466020  0.001921
  1.173333  0.096198  0.041045  0.470316  0.001921
  1.194667  0.096198  0.041660  0.474572  0.001921
  1.216000  0.096198  0.042276  0.478790  0.001921
  1.237333  0.096198  0.042892  0.482972  0.001921
  1.258667  0.096198  0.043918  0.487118  0.001921
```

```
1.280000  0.096198  0.044944  0.491229  0.001921
1.301333  0.096198  0.045970  0.495305  0.001921
1.322667  0.096198  0.046996  0.499349  0.001921
1.344000  0.096198  0.048022  0.503360  0.001921
1.365333  0.096198  0.049048  0.507339  0.001921
1.386667  0.096198  0.050074  0.511287  0.001921
1.408000  0.096198  0.051101  0.515205  0.001921
1.429333  0.096198  0.052127  0.519093  0.001921
1.450667  0.096198  0.053153  0.522953  0.001921
1.472000  0.096198  0.054179  0.526784  0.001921
1.493333  0.096198  0.055205  0.530588  0.001921
1.514667  0.096198  0.056231  0.534364  0.001921
1.536000  0.096198  0.057257  0.538114  0.001921
1.557333  0.096198  0.058283  0.541838  0.001921
1.578667  0.096198  0.059309  0.545537  0.001921
1.600000  0.096198  0.060336  0.549210  0.001921
1.621333  0.096198  0.061362  0.552860  0.001921
1.642667  0.096198  0.062388  0.556485  0.001921
1.664000  0.096198  0.063414  0.560087  0.001921
1.685333  0.096198  0.064440  0.563666  0.001921
1.706667  0.096198  0.065466  0.567222  0.001921
1.728000  0.096198  0.066492  0.570756  0.001921
1.749333  0.096198  0.067518  0.574268  0.001921
1.770667  0.096198  0.068545  0.577760  0.001921
1.792000  0.096198  0.069571  0.581230  0.001921
1.813333  0.096198  0.070597  0.584679  0.001921
1.834667  0.096198  0.071623  0.588108  0.001921
1.856000  0.096198  0.072649  0.591518  0.001921
1.877333  0.096198  0.073675  0.594907  0.001921
1.898667  0.096198  0.074701  0.598278  0.001921
1.920000  0.096198  0.075727  0.601630  0.001921
END FTABLE  1
FTABLE      3
 56    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.006428  0.000000  0.000000
0.054945  0.006428  0.000148  0.000000
0.109890  0.006428  0.000297  0.000000
0.164835  0.006428  0.000445  0.000018
0.219780  0.006428  0.000593  0.000083
0.274725  0.006428  0.000742  0.000213
0.329670  0.006428  0.000890  0.000424
0.384615  0.006428  0.001038  0.000728
0.439560  0.006428  0.001187  0.001136
0.494505  0.006428  0.001335  0.001659
0.549451  0.006428  0.001483  0.002305
0.604396  0.006428  0.001632  0.003083
0.659341  0.006428  0.001780  0.004001
0.714286  0.006428  0.001928  0.005066
0.769231  0.006428  0.002077  0.006286
0.824176  0.006428  0.002225  0.007668
0.879121  0.006428  0.002373  0.009217
0.934066  0.006428  0.002522  0.010941
0.989011  0.006428  0.002670  0.012846
1.043956  0.006428  0.002818  0.014938
1.098901  0.006428  0.002967  0.017221
1.153846  0.006428  0.003115  0.018955
1.208791  0.006428  0.003263  0.019703
1.263736  0.006428  0.003412  0.022387
1.318681  0.006428  0.003560  0.025280
1.373626  0.006428  0.003708  0.028387
1.428571  0.006428  0.003857  0.031712
1.483516  0.006428  0.004005  0.035261
1.538462  0.006428  0.004153  0.036882
1.593407  0.006428  0.004302  0.041177
1.648352  0.006428  0.004450  0.045049
1.703297  0.006428  0.004598  0.047296
1.758242  0.006428  0.004747  0.048602
1.813187  0.006428  0.004895  0.051905
```

```
  1.868132  0.006428  0.005043  0.055004
  1.923077  0.006428  0.005192  0.057933
  1.978022  0.006428  0.005340  0.060718
  2.032967  0.006428  0.005487  0.063378
  2.087912  0.006428  0.005633  0.065928
  2.142857  0.006428  0.005780  0.068383
  2.197802  0.006428  0.005926  0.070750
  2.252747  0.006428  0.006073  0.073041
  2.307692  0.006428  0.006220  0.075261
  2.362637  0.006428  0.006366  0.077417
  2.417582  0.006428  0.006513  0.079515
  2.472527  0.006428  0.006659  0.081559
  2.527473  0.006428  0.006806  0.083553
  2.582418  0.006428  0.006952  0.085501
  2.637363  0.006428  0.007099  0.087407
  2.692308  0.006428  0.007246  0.089641
  2.747253  0.006428  0.007392  0.093252
  2.802198  0.006428  0.007539  0.096738
  2.857143  0.006428  0.007685  0.099519
  2.912088  0.006428  0.007832  0.099519
  2.967033  0.006428  0.007978  0.099519
  3.000000  0.006428  0.016939  0.099519
  END FTABLE  3
  FTABLE      2
   38    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.006428  0.000000  0.000000  0.000000  0.000000
  0.054945  0.006428  0.000353  0.000000  0.099519  0.000000
  0.109890  0.006428  0.000706  0.000000  0.099519  0.000000
  0.164835  0.006428  0.001060  0.000000  0.099519  0.000000
  0.219780  0.006428  0.001413  0.000000  0.099519  0.000000
  0.274725  0.006428  0.001766  0.000000  0.099519  0.000000
  0.329670  0.006428  0.002119  0.000000  0.099519  0.000000
  0.384615  0.006428  0.002472  0.000000  0.099519  0.000000
  0.439560  0.006428  0.002825  0.000000  0.099519  0.000000
  0.494505  0.006428  0.003179  0.000000  0.099519  0.000000
  0.549451  0.006428  0.003532  0.000000  0.099519  0.000000
  0.604396  0.006428  0.003885  0.000000  0.099519  0.000000
  0.659341  0.006428  0.004238  0.000000  0.099519  0.000000
  0.714286  0.006428  0.004591  0.000000  0.099519  0.000000
  0.769231  0.006428  0.004945  0.000000  0.099519  0.000000
  0.824176  0.006428  0.005298  0.000000  0.099519  0.000000
  0.879121  0.006428  0.005651  0.000000  0.099519  0.000000
  0.934066  0.006428  0.006004  0.000000  0.099519  0.000000
  0.989011  0.006428  0.006357  0.000000  0.099519  0.000000
  1.043956  0.006428  0.006710  0.195553  0.099519  0.000000
  1.098901  0.006428  0.007064  0.659242  0.099519  0.000000
  1.153846  0.006428  0.007417  1.276591  0.099519  0.000000
  1.208791  0.006428  0.007770  2.010935  0.099519  0.000000
  1.263736  0.006428  0.008123  2.836899  0.099519  0.000000
  1.318681  0.006428  0.008476  3.731796  0.099519  0.000000
  1.373626  0.006428  0.008830  4.673072  0.099519  0.000000
  1.428571  0.006428  0.009183  5.637608  0.099519  0.000000
  1.483516  0.006428  0.009536  6.601841  0.099519  0.000000
  1.538462  0.006428  0.009889  7.542349  0.099519  0.000000
  1.593407  0.006428  0.010242  8.436754  0.099519  0.000000
  1.648352  0.006428  0.010595  9.264852  0.099519  0.000000
  1.703297  0.006428  0.010949  10.00993  0.099519  0.000000
  1.758242  0.006428  0.011302  10.66024  0.099519  0.000000
  1.813187  0.006428  0.011655  11.21062  0.099519  0.000000
  1.868132  0.006428  0.012008  11.66425  0.099519  0.000000
  1.923077  0.006428  0.012361  12.03449  0.099519  0.000000
  1.978022  0.006428  0.012715  12.34684  0.099519  0.000000
  2.000000  0.006428  0.012856  12.80450  0.099519  0.000000
  END FTABLE  2
  FTABLE      8
   63    5
```

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.168166	0.000000	0.000000	0.000000		
0.083333	0.168166	0.005605	0.031272	0.003357		
0.166667	0.168166	0.011210	0.044226	0.003357		
0.250000	0.168166	0.016816	0.054165	0.003357		
0.333333	0.168166	0.022422	0.062544	0.003357		
0.416667	0.168166	0.028027	0.069927	0.003357		
0.500000	0.168166	0.033632	0.076601	0.003357		
0.583333	0.168166	0.039238	0.082739	0.003357		
0.666667	0.168166	0.044842	0.088451	0.003357		
0.750000	0.168166	0.050449	0.093817	0.003357		
0.833333	0.168166	0.062881	0.098892	0.003357		
0.916667	0.168166	0.075254	0.103718	0.003357		
1.000000	0.168166	0.087587	0.108330	0.003357		
1.083333	0.168166	0.099881	0.112754	0.003357		
1.166667	0.168166	0.112130	0.117010	0.003357		
1.250000	0.168166	0.124332	0.121117	0.003357		
1.333333	0.168166	0.136497	0.125089	0.003357		
1.416667	0.168166	0.148605	0.128939	0.003357		
1.500000	0.168166	0.160666	0.132677	0.003357		
1.583333	0.168166	0.172670	0.136313	0.003357		
1.666667	0.168166	0.184619	0.139854	0.003357		
1.750000	0.168166	0.196509	0.143307	0.003357		
1.833333	0.168166	0.208335	0.146680	0.003357		
1.916667	0.168166	0.220097	0.149976	0.003357		
2.000000	0.168166	0.231788	0.153202	0.003357		
2.083333	0.168166	0.243410	0.156361	0.003357		
2.166667	0.168166	0.254950	0.159458	0.003357		
2.250000	0.168166	0.266411	0.162495	0.003357		
2.333333	0.168166	0.277789	0.165477	0.003357		
2.416667	0.168166	0.289076	0.168406	0.003357		
2.500000	0.168166	0.300269	0.171285	0.003357		
2.583333	0.168166	0.311363	0.174116	0.003357		
2.666667	0.168166	0.322352	0.176903	0.003357		
2.750000	0.168166	0.333232	0.179645	0.003357		
2.833333	0.168166	0.343995	0.184654	0.003357		
2.916667	0.168166	0.354639	0.299811	0.003357		
3.000000	0.168166	0.365153	0.494509	0.003357		
3.083333	0.168166	0.375529	0.743206	0.003357		
3.166667	0.168166	0.385766	1.035889	0.003357		
3.250000	0.168166	0.395852	1.366675	0.003357		
3.333333	0.168166	0.405776	1.751454	0.003357		
3.416667	0.168166	0.415518	2.445889	0.003357		
3.500000	0.168166	0.425085	3.312477	0.003357		
3.583333	0.168166	0.434452	4.258965	0.003357		
3.666667	0.168166	0.443605	5.191436	0.003357		
3.750000	0.168166	0.452515	6.020252	0.003357		
3.833333	0.168166	0.461172	6.677421	0.003357		
3.916667	0.168166	0.469536	7.140266	0.003357		
4.000000	0.168166	0.477565	7.459717	0.003357		
4.083333	0.168166	0.485157	7.859498	0.003357		
4.166667	0.168166	0.492097	8.177475	0.003357		
4.250000	0.168166	0.498489	8.481376	0.003357		
4.333333	0.168166	0.504664	8.772924	0.003357		
4.416667	0.168166	0.510647	9.053521	0.019250		
4.500000	0.168166	0.516368	9.324318	0.019250		
4.583333	0.168166	0.522076	9.586280	0.019250		
4.666667	0.168166	0.527681	9.840221	0.019250		
4.750000	0.168166	0.533288	10.08684	0.019250		
4.833333	0.168166	0.538892	10.32674	0.019250		
4.916667	0.168166	0.544498	10.56043	0.019250		
5.000000	0.168166	0.550103	10.78839	0.019250		
5.083333	0.168166	0.555708	11.01102	0.019250		
5.166667	0.168166	0.561314	11.22866	0.019250		

END FTABLE 8
FTABLE 5
66 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***

```
0.000000  0.131267  0.000000  0.000000  0.000000
0.021758  0.131267  0.001200  0.000000  0.000000
0.043516  0.131267  0.002399  0.000000  0.000000
0.065275  0.131267  0.003599  0.000000  0.000616
0.087033  0.131267  0.004798  0.000000  0.001013
0.108791  0.131267  0.005998  0.000000  0.001558
0.130549  0.131267  0.007197  0.000000  0.002269
0.152308  0.131267  0.008397  0.000000  0.002645
0.174066  0.131267  0.009597  0.000000  0.002645
0.195824  0.131267  0.010796  0.000000  0.002645
0.217582  0.131267  0.011996  0.000000  0.002645
0.239341  0.131267  0.013195  0.000000  0.002645
0.261099  0.131267  0.014395  0.000000  0.002645
0.282857  0.131267  0.015595  0.000000  0.002645
0.304615  0.131267  0.016794  0.000000  0.002645
0.326374  0.131267  0.017994  0.000000  0.002645
0.348132  0.131267  0.019193  0.000000  0.002645
0.369890  0.131267  0.020393  0.000000  0.002645
0.391648  0.131267  0.021592  0.000000  0.002645
0.413407  0.131267  0.022792  0.000000  0.002645
0.435165  0.131267  0.023992  0.000000  0.002645
0.456923  0.131267  0.025191  0.000000  0.002645
0.478681  0.131267  0.026391  0.000000  0.002645
0.500440  0.131267  0.027590  0.000000  0.002645
0.522198  0.131267  0.028790  0.000000  0.002645
0.543956  0.131267  0.029990  0.000000  0.002645
0.565714  0.131267  0.031189  0.000000  0.002645
0.587473  0.131267  0.032389  0.000000  0.002645
0.609231  0.131267  0.033588  0.000000  0.002645
0.630989  0.131267  0.034788  0.000000  0.002645
0.652747  0.131267  0.035987  0.000000  0.002645
0.674505  0.131267  0.037187  0.000000  0.002645
0.696264  0.131267  0.038387  0.000000  0.002645
0.718022  0.131267  0.039586  0.000000  0.002645
0.739780  0.131267  0.040786  0.000000  0.002645
0.761538  0.131267  0.041985  0.000000  0.002645
0.783297  0.131267  0.043185  0.000000  0.002645
0.805055  0.131267  0.044384  0.000000  0.002645
0.826813  0.131267  0.045584  0.000000  0.002645
0.848571  0.131267  0.046784  0.000000  0.002645
0.870330  0.131267  0.047983  0.000000  0.002645
0.892088  0.131267  0.049183  0.000000  0.002645
0.913846  0.131267  0.050382  0.000000  0.002645
0.935604  0.131267  0.051582  0.000000  0.002645
0.957363  0.131267  0.052782  0.000000  0.002645
0.979121  0.131267  0.053981  0.000000  0.002645
1.000879  0.131267  0.055181  0.000000  0.002645
1.022637  0.131267  0.056380  0.000000  0.002645
1.044396  0.131267  0.057580  0.000000  0.002645
1.066154  0.131267  0.058779  0.000000  0.002645
1.087912  0.131267  0.059979  0.000000  0.002645
1.109670  0.131267  0.061179  0.000000  0.002645
1.131429  0.131267  0.062378  0.000000  0.002645
1.153187  0.131267  0.063578  0.000000  0.002645
1.174945  0.131267  0.064777  0.000000  0.002645
1.196703  0.131267  0.065977  0.000000  0.002645
1.218462  0.131267  0.067177  0.000000  0.002645
1.240220  0.131267  0.068376  0.000000  0.002645
1.261978  0.131267  0.069576  0.000000  0.002645
1.283736  0.131267  0.070775  0.000000  0.002645
1.305495  0.131267  0.071975  0.000000  0.002645
1.327253  0.131267  0.073174  0.000000  0.002645
1.349011  0.131267  0.074374  0.000000  0.002645
1.370769  0.131267  0.075574  0.000000  0.002645
1.392527  0.131267  0.076773  0.000000  0.002645
1.400000  0.131267  0.162089  0.000000  0.002645
END FTABLE  5
FTABLE      4
 28    6
   Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
```

```
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.131267  0.000000  0.000000  0.000000  0.000000
  0.021758  0.131267  0.002856  0.000000  0.687968  0.000000
  0.043516  0.131267  0.005712  0.000000  0.698496  0.000000
  0.065275  0.131267  0.008568  0.000000  0.709025  0.000000
  0.087033  0.131267  0.011425  0.000000  0.719553  0.000000
  0.108791  0.131267  0.014281  0.000000  0.730082  0.000000
  0.130549  0.131267  0.017137  0.000000  0.740610  0.000000
  0.152308  0.131267  0.019993  0.000000  0.751139  0.000000
  0.174066  0.131267  0.022849  0.000000  0.761667  0.000000
  0.195824  0.131267  0.025705  0.000000  0.772196  0.000000
  0.217582  0.131267  0.028561  0.000000  0.782724  0.000000
  0.239341  0.131267  0.031418  0.000000  0.793253  0.000000
  0.261099  0.131267  0.034274  0.024832  0.803781  0.000000
  0.282857  0.131267  0.037130  0.126411  0.814310  0.000000
  0.304615  0.131267  0.039986  0.270779  0.824838  0.000000
  0.326374  0.131267  0.042842  0.447582  0.835367  0.000000
  0.348132  0.131267  0.045698  0.651578  0.845895  0.000000
  0.369890  0.131267  0.048554  0.879364  0.856424  0.000000
  0.391648  0.131267  0.051411  1.128427  0.866952  0.000000
  0.413407  0.131267  0.054267  1.396742  0.877481  0.000000
  0.435165  0.131267  0.057123  1.682566  0.888009  0.000000
  0.456923  0.131267  0.059979  1.984331  0.898538  0.000000
  0.478681  0.131267  0.062835  2.300563  0.909066  0.000000
  0.500440  0.131267  0.065691  2.629844  0.919595  0.000000
  0.522198  0.131267  0.068547  2.970783  0.930123  0.000000
  0.543956  0.131267  0.071404  3.321994  0.940652  0.000000
  0.565714  0.131267  0.074260  3.682082  0.951180  0.000000
  0.580000  0.131267  0.076135  4.049644  0.958093  0.000000
  END FTABLE  4
  FTABLE      7
   62    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.089532  0.000000  0.000000  0.000000
  0.049451  0.089532  0.001860  0.000000  0.000000
  0.098901  0.089532  0.003719  0.000000  0.000000
  0.148352  0.089532  0.005579  0.000000  0.000000
  0.197802  0.089532  0.007438  0.000000  0.005417
  0.247253  0.089532  0.009298  0.000000  0.005417
  0.296703  0.089532  0.011157  0.000000  0.005417
  0.346154  0.089532  0.013017  0.000000  0.005417
  0.395604  0.089532  0.014876  0.000000  0.005417
  0.445055  0.089532  0.016736  0.000000  0.005417
  0.494505  0.089532  0.018595  0.000000  0.005417
  0.543956  0.089532  0.020455  0.000000  0.005417
  0.593407  0.089532  0.022314  0.000000  0.005417
  0.642857  0.089532  0.024174  0.000000  0.005417
  0.692308  0.089532  0.026033  0.000000  0.005417
  0.741758  0.089532  0.027893  0.000000  0.005417
  0.791209  0.089532  0.029752  0.000000  0.005417
  0.840659  0.089532  0.031612  0.000000  0.005417
  0.890110  0.089532  0.033471  0.000000  0.005417
  0.939560  0.089532  0.035331  0.000000  0.005417
  0.989011  0.089532  0.037190  0.000000  0.005417
  1.038462  0.089532  0.039050  0.000000  0.005417
  1.087912  0.089532  0.040909  0.006027  0.005417
  1.137363  0.089532  0.042769  0.017204  0.005417
  1.186813  0.089532  0.044628  0.019595  0.005417
  1.236264  0.089532  0.046488  0.022133  0.005417
  1.285714  0.089532  0.048347  0.027662  0.005417
  1.335165  0.089532  0.050207  0.030658  0.005417
  1.384615  0.089532  0.052066  0.033812  0.005417
  1.434066  0.089532  0.053926  0.037127  0.005417
  1.483516  0.089532  0.055785  0.040606  0.005417
  1.532967  0.089532  0.057645  0.045949  0.005417
  1.582418  0.089532  0.059504  0.049075  0.005417
  1.631868  0.089532  0.061364  0.052015  0.005417
```

```
  1.681319  0.089532  0.063223  0.054801  0.005417
  1.730769  0.089532  0.065083  0.057456  0.005417
  1.780220  0.089532  0.066942  0.059999  0.005417
  1.829670  0.089532  0.068802  0.062445  0.005417
  1.879121  0.089532  0.070661  0.064808  0.005417
  1.928571  0.089532  0.072521  0.067101  0.005417
  1.978022  0.089532  0.074380  0.069339  0.005417
  2.027473  0.089532  0.076218  0.071548  0.005417
  2.076923  0.089532  0.078055  0.073827  0.005417
  2.126374  0.089532  0.079892  0.077802  0.005417
  2.175824  0.089532  0.081730  0.079652  0.005417
  2.225275  0.089532  0.083567  0.081460  0.005417
  2.274725  0.089532  0.085404  0.083229  0.005417
  2.324176  0.089532  0.087242  0.084961  0.005417
  2.373626  0.089532  0.089079  0.086659  0.005417
  2.423077  0.089532  0.090916  0.088324  0.005417
  2.472527  0.089532  0.092754  0.089958  0.005417
  2.521978  0.089532  0.094591  0.091563  0.005417
  2.571429  0.089532  0.096429  0.093140  0.005417
  2.620879  0.089532  0.098266  0.094691  0.005417
  2.670330  0.089532  0.100103  0.096217  0.005417
  2.719780  0.089532  0.101941  0.097719  0.005417
  2.769231  0.089532  0.103778  0.099198  0.005417
  2.818681  0.089532  0.105615  0.100656  0.005417
  2.868132  0.089532  0.107453  0.102093  0.005417
  2.917582  0.089532  0.109290  0.103510  0.005417
  2.967033  0.089532  0.111128  0.104908  0.005417
  3.000000  0.089532  0.224705  0.105829  0.005417
  END FTABLE  7
  FTABLE      6
   32    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.089532  0.000000  0.000000  0.000000  0.000000
  0.049451  0.089532  0.004427  0.000000  0.110324  0.000000
  0.098901  0.089532  0.008855  0.000000  0.110324  0.000000
  0.148352  0.089532  0.013282  0.000000  0.110324  0.000000
  0.197802  0.089532  0.017710  0.000000  0.110324  0.000000
  0.247253  0.089532  0.022137  0.000000  0.110324  0.000000
  0.296703  0.089532  0.026564  0.000000  0.110324  0.000000
  0.346154  0.089532  0.030992  0.000000  0.110324  0.000000
  0.395604  0.089532  0.035419  0.000000  0.110324  0.000000
  0.445055  0.089532  0.039847  0.000000  0.110324  0.000000
  0.494505  0.089532  0.044274  0.000000  0.110324  0.000000
  0.543956  0.089532  0.048701  0.000000  0.110324  0.000000
  0.593407  0.089532  0.053129  0.000000  0.110324  0.000000
  0.642857  0.089532  0.057556  0.000000  0.110324  0.000000
  0.692308  0.089532  0.061983  0.000000  0.110324  0.000000
  0.741758  0.089532  0.066411  0.000000  0.110324  0.000000
  0.791209  0.089532  0.070838  0.000000  0.110324  0.000000
  0.840659  0.089532  0.075266  0.000000  0.110324  0.000000
  0.890110  0.089532  0.079693  0.000000  0.110324  0.000000
  0.939560  0.089532  0.084120  0.000000  0.110324  0.000000
  0.989011  0.089532  0.088548  0.000000  0.110324  0.000000
  1.038462  0.089532  0.092975  0.160076  0.110324  0.000000
  1.087912  0.089532  0.097403  0.552618  0.110324  0.000000
  1.137363  0.089532  0.101830  1.077788  0.110324  0.000000
  1.186813  0.089532  0.106257  1.704888  0.110324  0.000000
  1.236264  0.089532  0.110685  2.413902  0.110324  0.000000
  1.285714  0.089532  0.115112  3.187839  0.110324  0.000000
  1.335165  0.089532  0.119540  4.010349  0.110324  0.000000
  1.384615  0.089532  0.123967  4.864869  0.110324  0.000000
  1.434066  0.089532  0.128394  5.734435  0.110324  0.000000
  1.483516  0.089532  0.132822  6.601841  0.110324  0.000000
  1.500000  0.089532  0.134298  7.450016  0.110324  0.000000
  END FTABLE  6
END FTABLES
```

```
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  41     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   2     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   4     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   6     EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   4     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   5     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   6     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   7     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   8 HYDR   RO     1 1        1      WDM   1004 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      1 1        1      WDM   1005 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      2 1        1      WDM   1006 FLOW     ENGL      REPL
RCHRES   8 HYDR   STAGE  1 1        1      WDM   1007 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        6
RCHRES     ROFLOW                          RCHRES         INFLOW
  END MASS-LINK    6

  MASS-LINK        7
RCHRES     OFLOW  OVOL   1                  RCHRES         INFLOW IVOL
  END MASS-LINK    7

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                  RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16
```

```
  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                COPY           INPUT  MEAN
  END MASS-LINK   17

  MASS-LINK       53
IMPLND     IWATER SURO                     IMPLND         EXTNL  SURLI
  END MASS-LINK   53


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

Disclaimer

Legal Notice

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Local (360)943-0304

www.clearcreeksolutions.com

APPENDIX C – HYDRAULICS

INLET CAPACITY CALCULATIONS

GRATE INLET PONDING DEPTH

Area N1

WIDTH (ft)	2
LENGTH (ft)	6

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	20.3	ft^3/s
INLET AREA (gross)	A	12	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.49	ft

GRATE INLET PONDING DEPTH

Area N2

WIDTH (ft)	2
LENGTH (ft)	3

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	5.8	ft^3/s
INLET AREA (gross)	A	6	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.16	ft

GRATE INLET PONDING DEPTH

Area N3

WIDTH (ft)	2
LENGTH (ft)	2

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	1.3	ft^3/s
INLET AREA (gross)	A	4	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.02	ft

GRATE INLET PONDING DEPTH

Area S1

WIDTH (ft)	2
LENGTH (ft)	3

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	8.4	ft^3/s
INLET AREA (gross)	A	6	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.34	ft

GRATE INLET PONDING DEPTH

Area S2

WIDTH (ft)	2
LENGTH (ft)	3

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	5.8	ft^3/s
INLET AREA (gross)	A	6	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.16	ft

GRATE INLET PONDING DEPTH

Area S3

WIDTH (ft)	2
LENGTH (ft)	3

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	3.6	ft^3/s
INLET AREA (gross)	A	6	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.06	ft

GRATE INLET PONDING DEPTH

Area S4

WIDTH (ft)	2
LENGTH (ft)	3

$$H = \frac{Q^2}{2gC^2A^2f^2}$$

TRIBUTARY FLOW	Q	1.8	ft^3/s
INLET AREA (gross)	A	6	ft^2
DISCHARGE COEFFICIENT	C	0.6	
CLOGGING FACTOR	f	0.5	
GRAVITY ACCELERATION	g	32.2	f/s^2
PONDING DEPTH	H	0.02	ft

PIPE CAPACITIY CALCULATIONS

```
____________________________________________________________________________
****************************************************************************
                 HYDRAULIC ELEMENTS - I  PROGRAM PACKAGE
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             Ver. 20.0  Release Date: 06/01/2013  License ID 1238

                           Analysis prepared by:




----------------------------------------------------------------------------
  TIME/DATE OF STUDY: 20:05 04/22/2018
============================================================================
 Problem Descriptions:
  South Area HDPE Pipe
  Downstream of CB S2

****************************************************************************
>>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
----------------------------------------------------------------------------
    PIPE SLOPE(FEET/FEET) =  0.0041
    PIPEFLOW(CFS) =        14.20
    MANNINGS FRICTION FACTOR = 0.012000
    >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   1.926
============================================================================

  24" HDPE USED

____________________________________________________________________________
****************************************************************************
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                           Analysis prepared by:




----------------------------------------------------------------------------
  TIME/DATE OF STUDY: 20:05 04/22/2018
============================================================================
 Problem Descriptions:
  South Area HDPE Pipe
  Downstream of CB S3

****************************************************************************
>>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
----------------------------------------------------------------------------
    PIPE SLOPE(FEET/FEET) =  0.0041
    PIPEFLOW(CFS) =        17.80
    MANNINGS FRICTION FACTOR = 0.012000
    >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   2.097
============================================================================

  24" HDPE USED
```

```
_____________________________________________________________________________
*****************************************************************************
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                           Analysis prepared by:




-----------------------------------------------------------------------------
  TIME/DATE OF STUDY: 20:05 04/22/2018
=============================================================================
 Problem Descriptions:
  South Area HDPE Pipe
  Downstream of outlet control streucture

*****************************************************************************
>>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
-----------------------------------------------------------------------------
    PIPE SLOPE(FEET/FEET) =  0.0041
    PIPEFLOW(CFS) =        19.60
    MANNINGS FRICTION FACTOR = 0.012000
    >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   2.174
=============================================================================


  30" HDPE USED


_____________________________________________________________________________
*****************************************************************************
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                           Analysis prepared by:



-----------------------------------------------------------------------------
  TIME/DATE OF STUDY: 20:05 04/22/2018
=============================================================================
 Problem Descriptions:
  North Area HDPE Pipe
  Downstream of CB N1

*****************************************************************************
>>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
-----------------------------------------------------------------------------
    PIPE SLOPE(FEET/FEET) =  0.0047
    PIPEFLOW(CFS) =        20.30
    MANNINGS FRICTION FACTOR = 0.012000
    >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   2.147
=============================================================================


  30" HDPE USED
```

```
____________________________________________________________________________
****************************************************************************
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             Ver. 20.0  Release Date: 06/01/2013  License ID 1238

                         Analysis prepared by:


 ---------------------------------------------------------------------------
   TIME/DATE OF STUDY: 20:05 04/22/2018
 ===========================================================================
  Problem Descriptions:
   North Area HDPE Pipe
   Downstream of CB N2

  ****************************************************************************
 >>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
 ---------------------------------------------------------------------------
     PIPE SLOPE(FEET/FEET) =  0.0047
     PIPEFLOW(CFS) =        26.10
     MANNINGS FRICTION FACTOR = 0.012000
     >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   2.359
 ===========================================================================


   30" HDPE USED


____________________________________________________________________________
****************************************************************************
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             Ver. 20.0  Release Date: 06/01/2013  License ID 1238

                         Analysis prepared by:




 ---------------------------------------------------------------------------
   TIME/DATE OF STUDY: 20:05 04/22/2018
 ===========================================================================
  Problem Descriptions:
   North Area HDPE Pipe
   Downstream of outlet control structure

****************************************************************************
 >>>>PIPEFLOW HYDRAULIC INPUT INFORMATION<<<<
 ---------------------------------------------------------------------------
     PIPE SLOPE(FEET/FEET) =  0.0047
     PIPEFLOW(CFS) =        27.40
     MANNINGS FRICTION FACTOR = 0.012000
     >>>>>SOFFIT-FLOW PIPE DIAMETER(FEET) =   2.403
 ===========================================================================


   30" HDPE USED
```

APPENDIX D – REFERENCES

8437

MORRISON CREEK

ASSESSMENT DISTRICT

INDEX TO PLANS

1. TITLE SHEET
2. LOCATION MAP & INDEX TO SHEETS
3. DETAILS
4. POWER INN OUTFALL
5. POWER INN ROAD
6. JUNIPERO STREET
7. BERRY AVENUE - STATION 0+06 TO 28+00
8. INDUSTRIAL PARK LINE - STATION 10+00 TO 30+85
9. PUMPING PLANT - LINE A
10. PUMPING PLANT - LINE B
11. FLORIN - PERKINS ROAD STATION 86+84 TO 116+00
12. FLORIN - PERKINS ROAD STATION 116+00 TO 137.65
13. ELDER CREEK ROAD STATION 9+81 TO 39+00
14. ELDER CREEK ROAD STATION 39+00 TO 67+75
15. LINE C - EAST OF FLORIN - PERKINS ROAD
16. UNSWORTH AVENUE
17. THYS COURT & ROXANA CIRCLE

17A. LINE D EAST OF FLORIN-PERKINS RD. STATION 0+00 TO 27+00

17B. LINE D EAST OF FLORIN-PERKINS RD. STATION 27+00 TO 48+11

PUMPING PLANT

18. SITE PLAN & DETAILS
19. EQUIPMENT PLAN
20. EQUIPMENT SECTION
21. STRUCTURAL PLAN
22. STRUCTURAL SECTION
23. STRUCTURAL SECTIONS
24. DETAILS
25. HOIST FRAME & TRASH RACK DETAILS

ELECTRICAL

26. ELECTRICAL PLANS & DETAILS
27. "
28. "
29. "
30.
31. "

31 A. "

32. "

32 A. SEWAGE LIFT STATION

32 B. SEWAGE LIFT STATION ELECTRICAL PLANS

33. STATION 341+50 TO 351+00
34. STATION 351+00 TO 365+50
35. STATION 365+50 TO 380+00
36. STATION 380+00 TO 394+17.33
37. STATION 394+17.33 TO 408+50
38. STATION 408+50 TO 422+00
39. STATION 422+00 TO 436+50
40. STATION 436+50 TO 448+25
41. STATION 448+25 TO 452+39.43
42. CHANNEL ACCESS RAMPS & DRAINAGE
43. CHANNEL ACCESS RAMP, DRAINAGE & DETAILS

43A. CONCRETE LINED CHANNEL EXTENSION

44. DISCHARGE & EROSION CONTROL DETAILS
45. TYPICAL CHANNEL SECTIONS

BRIDGE PLANS

46. SITE PLAN
47. FOUNDATION PLAN & DETAILS
48. ABUTMENT, BENT & WINGWALL DETAILS
49. BRIDGE SLAB DETAILS
50. BRIDGE RAILING DETAILS TYPE 115
51. SEE SHEET NO. 31A.
52. SEE SHEET NO. 17A.
53. SEE SHEET NO. 17B.
54. SEE SHEET NO. 43A.

LEVEE RAISING PLANS

LR-1 LOCATION AND LAYOUT
LR-2 PLAN AND PROFILE
LR-3 PLAN AND PROFILE
LR-4 PLAN AND PROFILE
LR-5 PLAN AND PROFILE
LR-6 PLAN AND PROFILE
LR-7 CROSS SECTIONS
LR-8 CROSS SECTIONS
LR-9 CROSS SECTIONS
LR-10 CROSS SECTIONS

LANDSCAPING PLANS

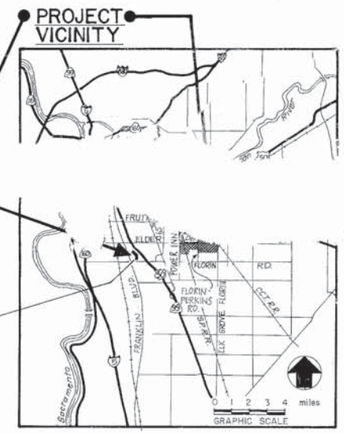
L-1 IRRIGATION PLAN
L-2 PLANTING PLAN
L-3 PLANTING PLAN
L-4 PLANTING AND IRRIGATION PLANS
L-5 PLANTING PLAN
L-6 PLANT LIST AND DETAILS

FENCE DETAILS

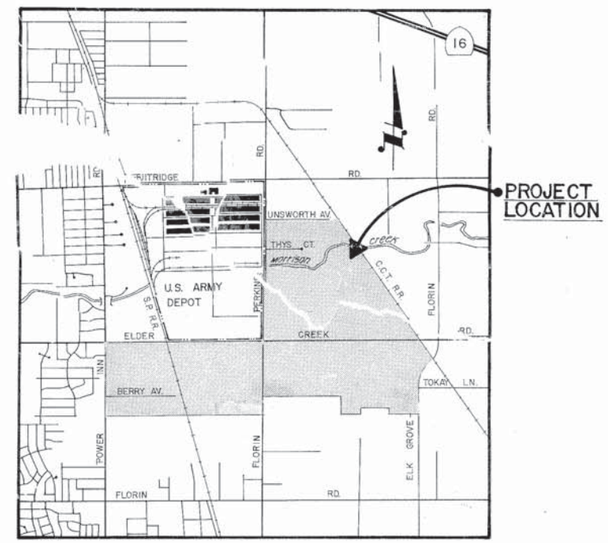
CL-1 CHAIN LINK FENCE DETAILS (Sacramento Army Depot)

WATER PLAN

W-1 WATER MAIN RELOCATION
W-2 FLORIN-PERKINS ROAD
W-3 ELDER CREEK ROAD
W-4 STANDARD DRAWINGS
W-5 STANDARD DRAWINGS



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

GENERAL NOTES

1. All construction shall conform to the City of Sacramento Standard Specifications, dated May, 1981.
2. The Contractor shall contact City of Sacramento Construction Supervisor, Paul Schmidt, (Phone 449-5281) 48 hours in advance for construction stakes within the public right of way.
3. The Contractor shall be responsible for determining the exact location of all existing utilities, and protection of and repair of damage to them. Prior to beginning any excavation, the Contractor shall notify "Underground Service Alert (USA)", a minimum of 48 hours in advance of beginning work. Call Toll Free 1-800-642-2444.
4. For all trench excavations 5 feet or more in depth, the Contractor shall obtain a permit from the Division of Industrial Safety (2422 Arden Way, Suite 55, Phone 920-0123), prior to beginning any excavation. A copy of this permit shall be available at the construction site at all times.
5. The Contractor shall be responsible for all barricades, safety devices, and control of traffic within the construction area. Two way traffic shall be maintained at all times on Power Inn Road, Elder Creek Road, and Florin-Perkins Road.
6. The Contractor shall maintain all existing drainage facilities within the construction area until new drainage improvements are in place and functioning.

   Construction activities within the channel of Morrison Creek shall only occur from April 15 through November 1.
7. Access to the entrances to the Sacramento Army Depot, as well as access to private driveways of residences and businesses along the various streets within the Assessment District, shall be maintained at all times.
8. The Contractor shall maintain the integrity of the perimeter security surrounding the Sacramento Army Depot at all times. See Special Provisions for specific requirements concerning the relocation of the existing security fence.
9. The Contractor shall comply with the requirements of the various conditions imposed by the public agencies and private corporations that have issued permits for this assessment district project.
10. Drain pipe shall be reinforced concrete pipe, Class III, with rubber gasket joints or asbestos joints or cast-in-place concrete pipe.
11. The cost of removal and replacement of existing pavement over storm drain, sanitary sewer, and water main trenches shall be included in the Unit Price bid for pipe in place. Replacement pavement shall consist of 4 inches of asphalt concrete over 7 inches of aggregate base.
12. All concrete shall meet the requirements of Section 10 of the City Standard Specifications and shall have the following 28 day ultimate compressive strengths:

Drainage Pump Station	4600 psi
Replacement Slab Bridge	3750 psi
Miscellaneous Drainage Structures, Manholes, Cast-in-Place Concrete Pipe, Channel Lining, etc.	3500 psi

13. In the placement of sewer services the actual location, as well as the depth of each service shall be determined in the field by coordination with the owner of the property to be served by the service.

PLANS FOR THE CONSTRUCTION OF

DRAINAGE, SEWER & WATER FACILITIES

SUMP NO. 148

APPROVED BY: _____
L.M. FRINK DEPUTY DIR. OF PUBLIC WORKS R.C.E. 10420

APPROVAL RECOMMENDED BY: _____
N. DEE LEWIS SUPERVISING ENGINEER R.C.E. 16361

APPROVED BY: _____ 9/21/82
SACRAMENTO COUNTY WATER QUALITY DIVISION DATE

SUBMITTED BY: _____
ROBERT E. YOUNG R.C.E. 11564
THE SPINK CORPORATION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. 39.66
DESCRIPTION: CO. B.M. # 24-27 7/8" DISC S.E. CONC. WINGWALL - BRIDGE TO SIGNAL DEPOT 800'N. OF ELDER CREEK ROAD W. SIDE FLORIN-PERKINS ROAD

FIELD BOOK

SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

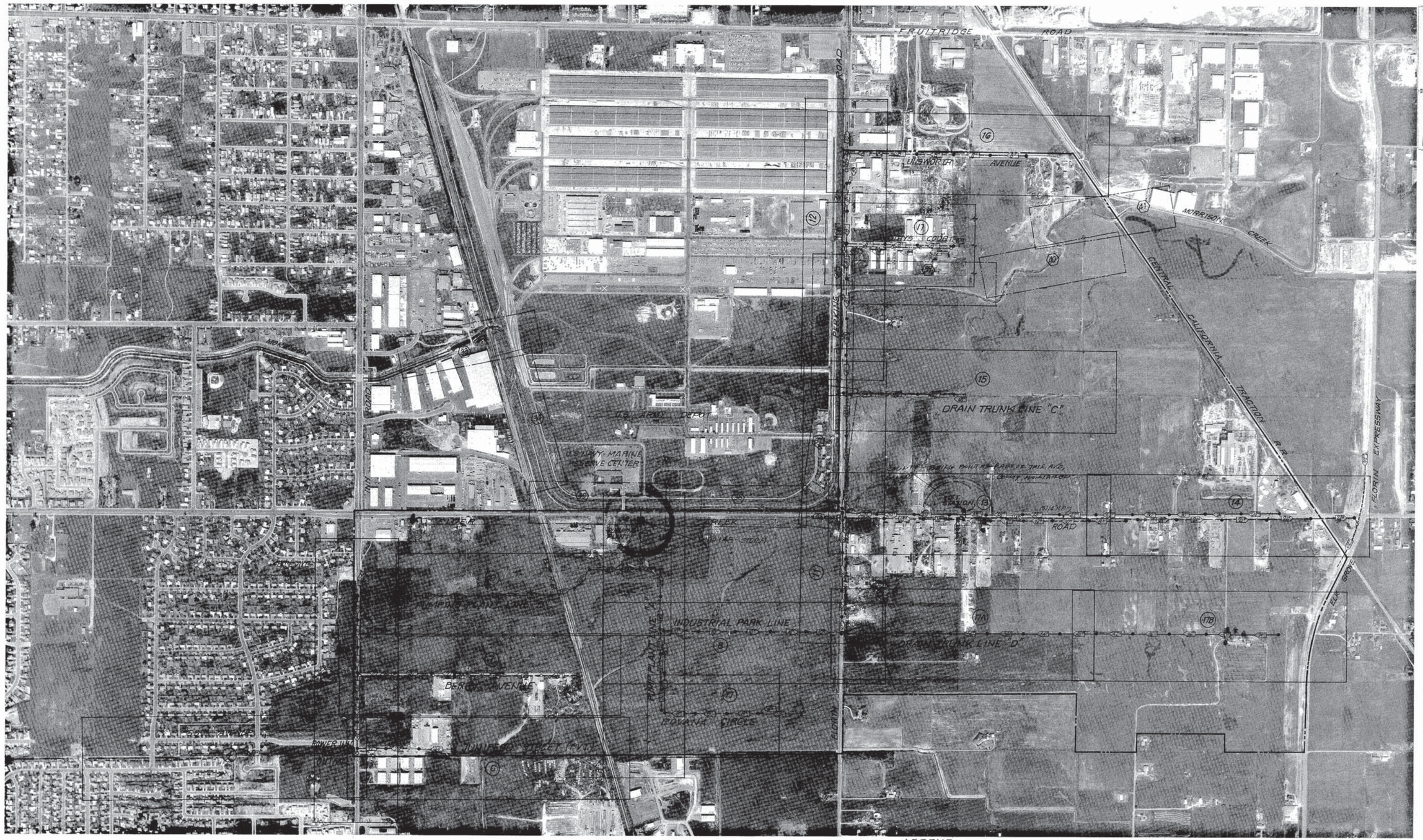
DRAWN BY: EO
DESIGNED BY: DL.
CHECKED BY: Gary E. Jones
APPROVED BY: R.L. Schmidt
R. C. E. 18128

MORRISON CREEK ASSESSMENT DISTRICT
TITLE SHEET
SUMP 148

THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS - PLANNERS - SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

BRUNING 44-132 39126-1

8437



LEGEND:
(6) SEWER, WATER, & DRAINAGE IMPROVEMENTS
(27) MORRISON CREEK IMPROVEMENTS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION: SEE SHEET NO. 1

FIELD BOOK
SCALE 1" = 500'

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

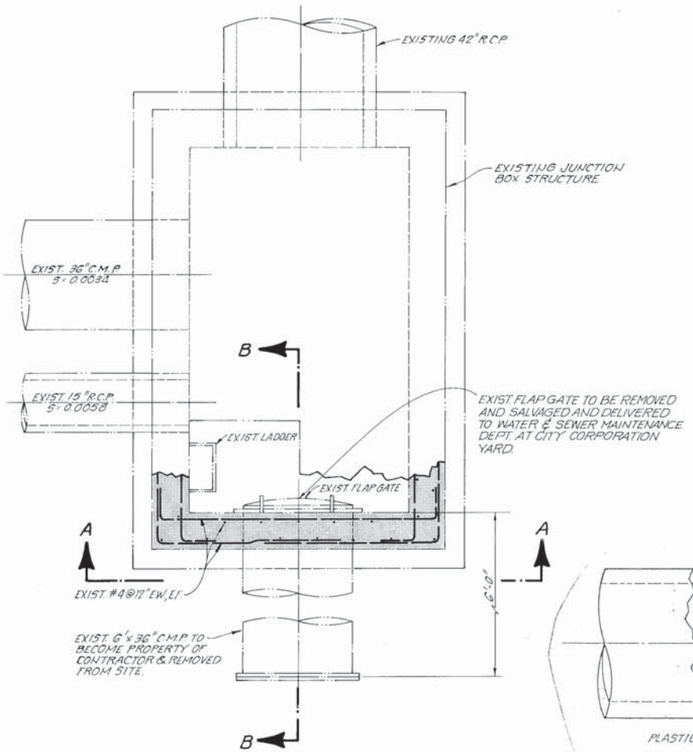
DRAWN BY: G. ZUEGER
DESIGNED BY: D. LITTLEFIELD
CHECKED BY: _____
APPROVED BY: _____
R. C. E. _____
DATE: _____

MORRISON CREEK ASSESSMENT DISTRICT
LOCATION MAP
& INDEX TO PROFILE SHEETS

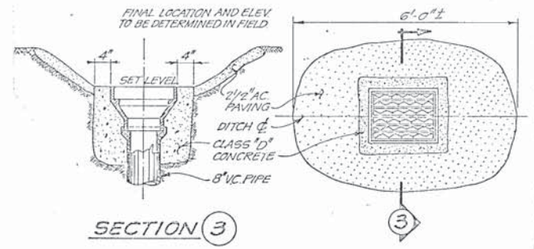
CC 5599

THE SPINK CORPORATION
ENVIRONMENTAL PLANNING-ENGINEERING
ARCHITECTURE - SURVEYING
MAPPING - SYSTEMS
720 F STREET, SACRAMENTO, CALIFORNIA

SHEET 2 OF 54

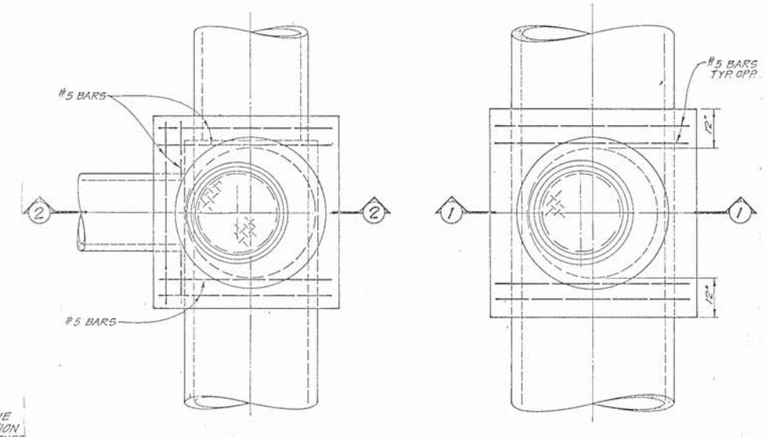


PLAN - POWER INN OUTFALL
STATION 13+58.59 TO 13+68.59 (SEE SHEET NO. 4)



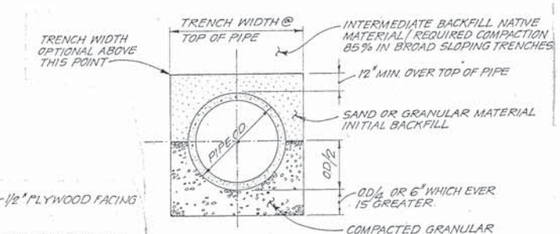
SECTION 3

GUTTER DRAIN NO. 20 DETAIL
DITCH INSTALLATION
NO SCALE

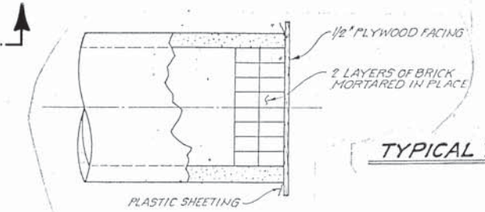


PLAN

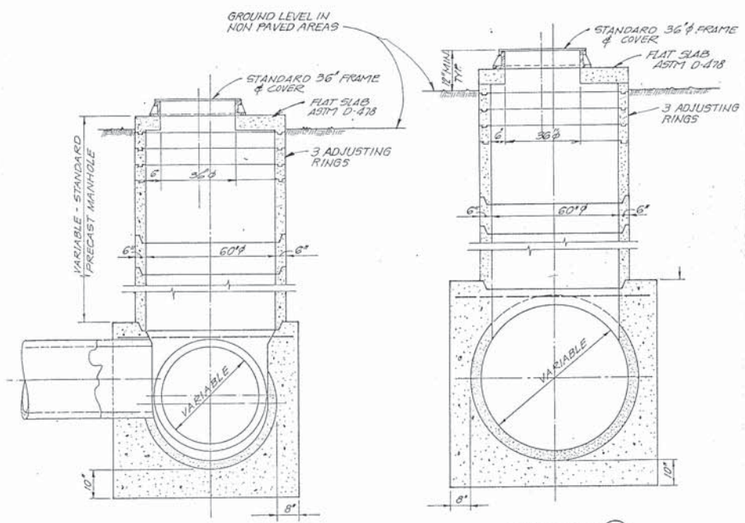
PLAN



TYPICAL TRENCH, BEDDING, AND BACKFILL DETAIL
1/4" = 1'-0"



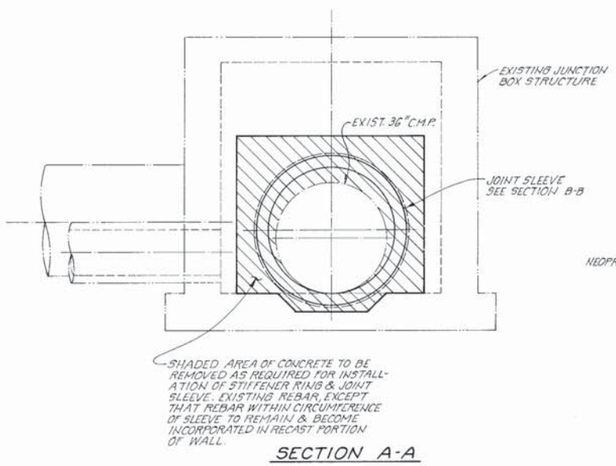
PLUG DETAIL
NO SCALE



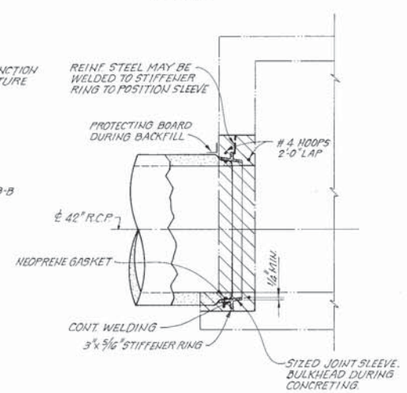
SECTION 2

SECTION 1

SADDLE MANHOLE TYPE A DETAILS
NO SCALE

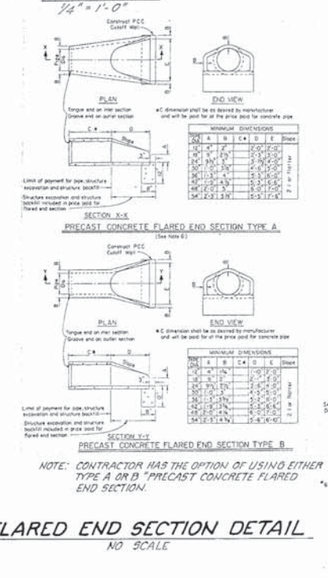


SECTION A-A



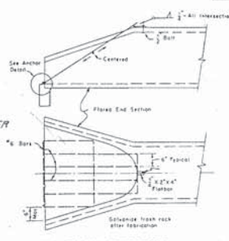
SECTION B-B

DRAINAGE STRUCTURE MODIFICATION
SCALE: 1/2" = 1'-0"

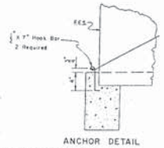


NOTE: CONTRACTOR HAS THE OPTION OF USING EITHER TYPE A OR B "PRECAST CONCRETE FLARED END SECTION.

FLARED END SECTION DETAIL
NO SCALE



TRASH RACK FOR F.E.S.



ANCHOR DETAIL

FLARED END SECTION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION:

FIELD BOOK
SCALE AS SHOWN

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

DRAWN BY: G. ZUEGER DESIGNED BY: D. LITTLEFIELD CHECKED BY: _____
APPROVED BY: _____ R. C. E. _____ DATE: _____

MORRISON CREEK ASSESSMENT DISTRICT

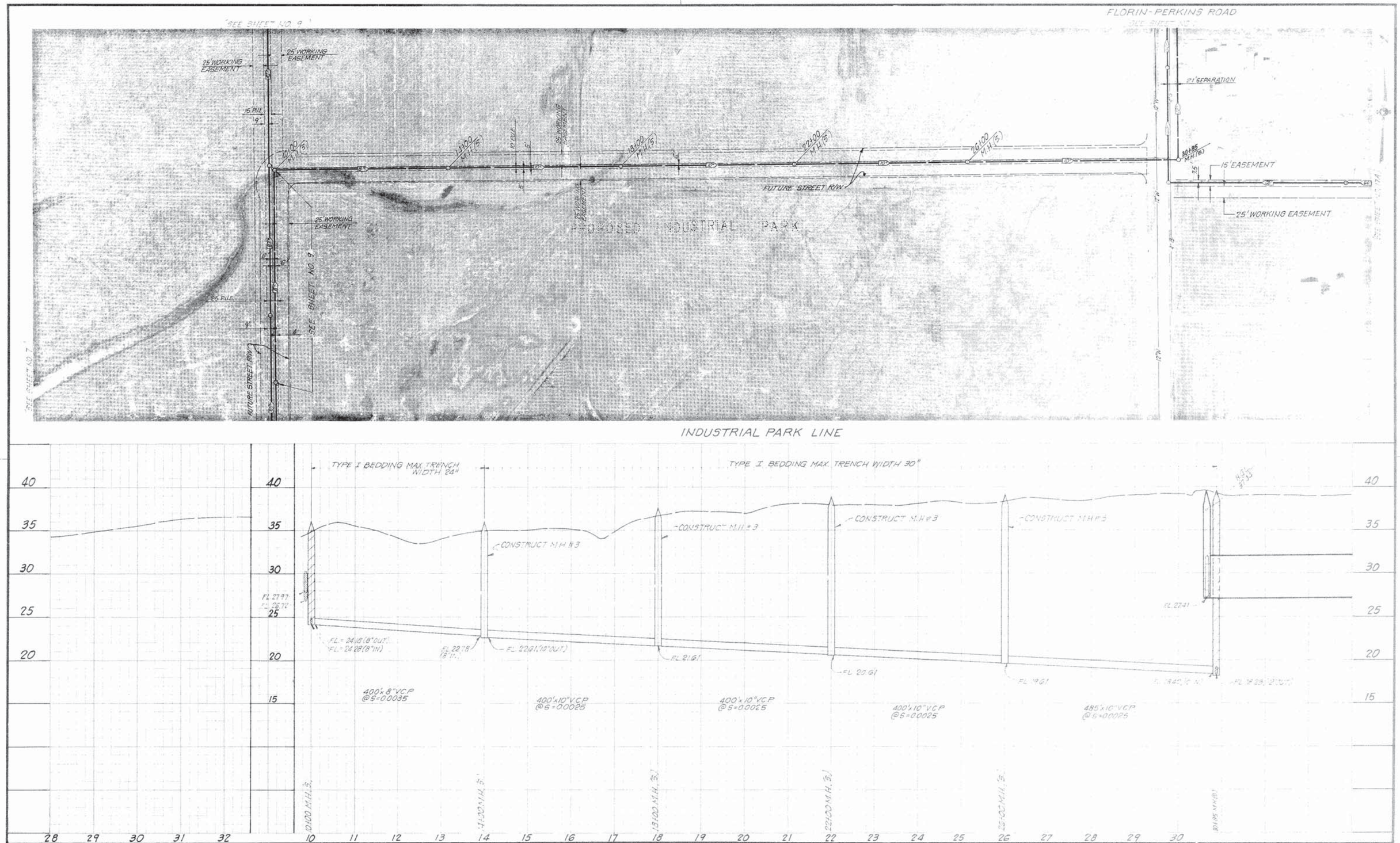
DETAILS

THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS - PLANNERS - SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

CC 8599

SHEET 3 — OF — 54

8437



REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION: SEE SHEET NO. 1

FIELD BOOK

SCALE
HORIZ. 1" = 100'
VERT. 1" = 5'

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

DRAWN BY: R. CHEVERIE DESIGNED BY: D. LITTLEFIELD CHECKED BY: _____
APPROVED BY: _____ R. C. E. _____ DATE: _____

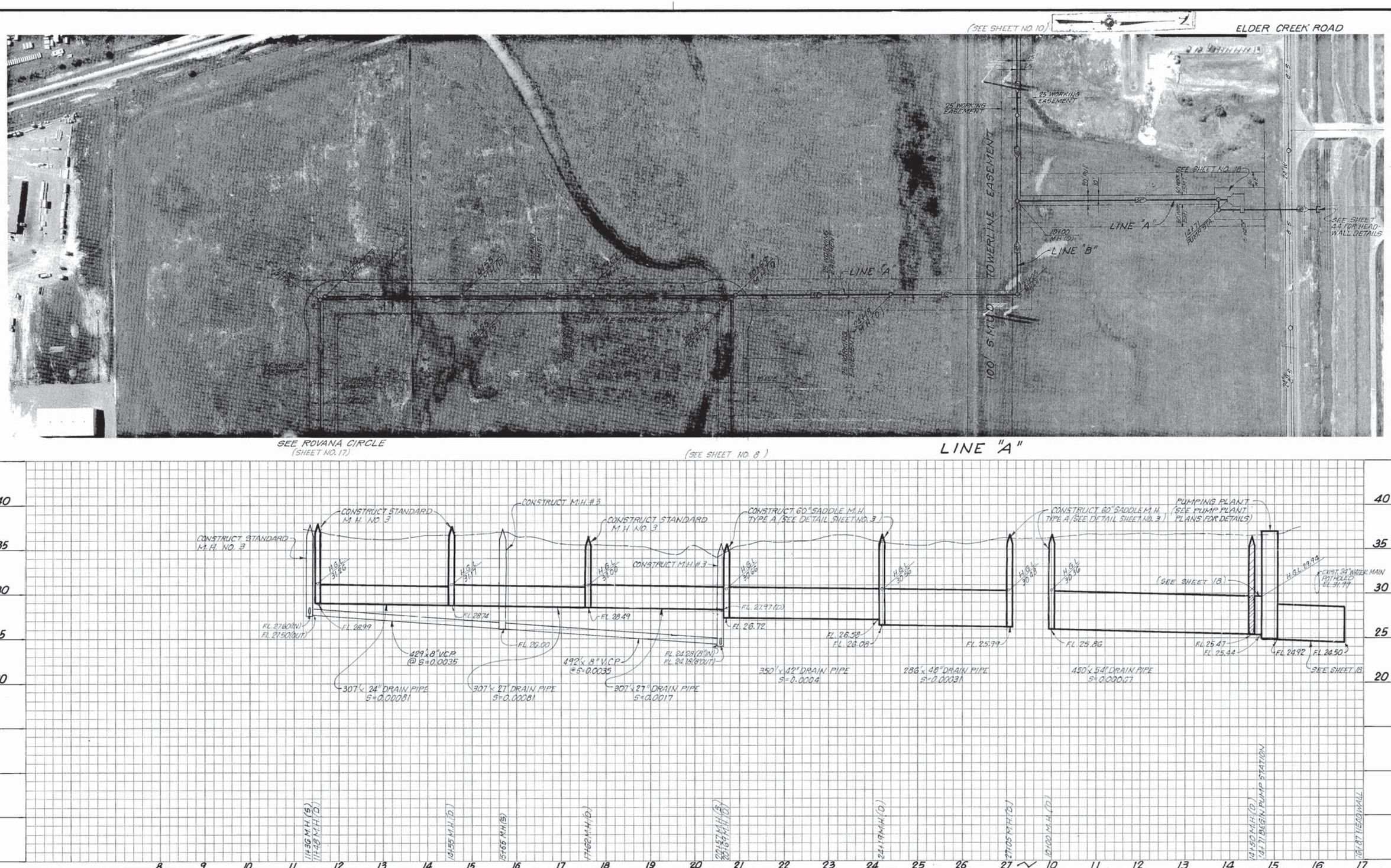
MORRISON CREEK ASSESSMENT DISTRICT

INDUSTRIAL PARK LINE
STA. 10+00 TO 30+85

CC 8599

THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS · PLANNERS · SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

SHEET 8 OF 54



REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION: SEE SHEET NO. 1

FIELD BOOK

SCALE
HORIZ. 1"=100'
VERT. 1"=5'

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

DRAWN BY: G. ZUEGER
DESIGNED BY: D. LITTLEFIELD
CHECKED BY: _____
APPROVED BY: _____
R. C. E. _____
DATE: _____

MORRISON CREEK ASSESSMENT DISTRICT

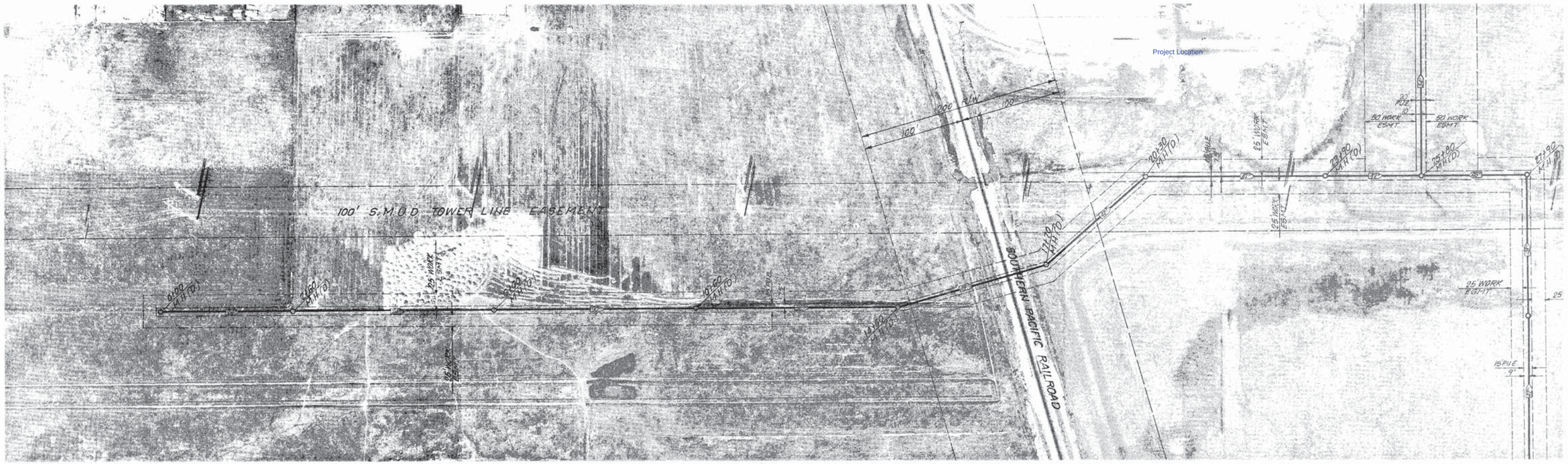
PUMPING PLANT - LINE A

CC 8599

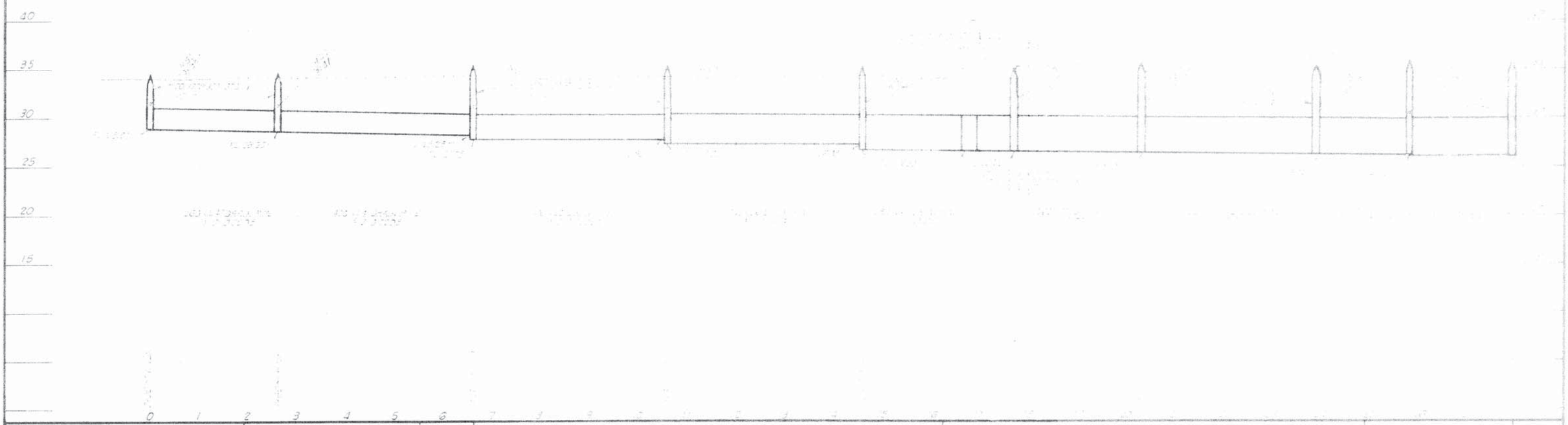
THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS - PLANNERS - SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

SHEET 9 OF 54

8437



LINE "B"



REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. .....
DESCRIPTION.

FIELD BOOK

SCALE
HORIZ. .....
VERT. .....

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

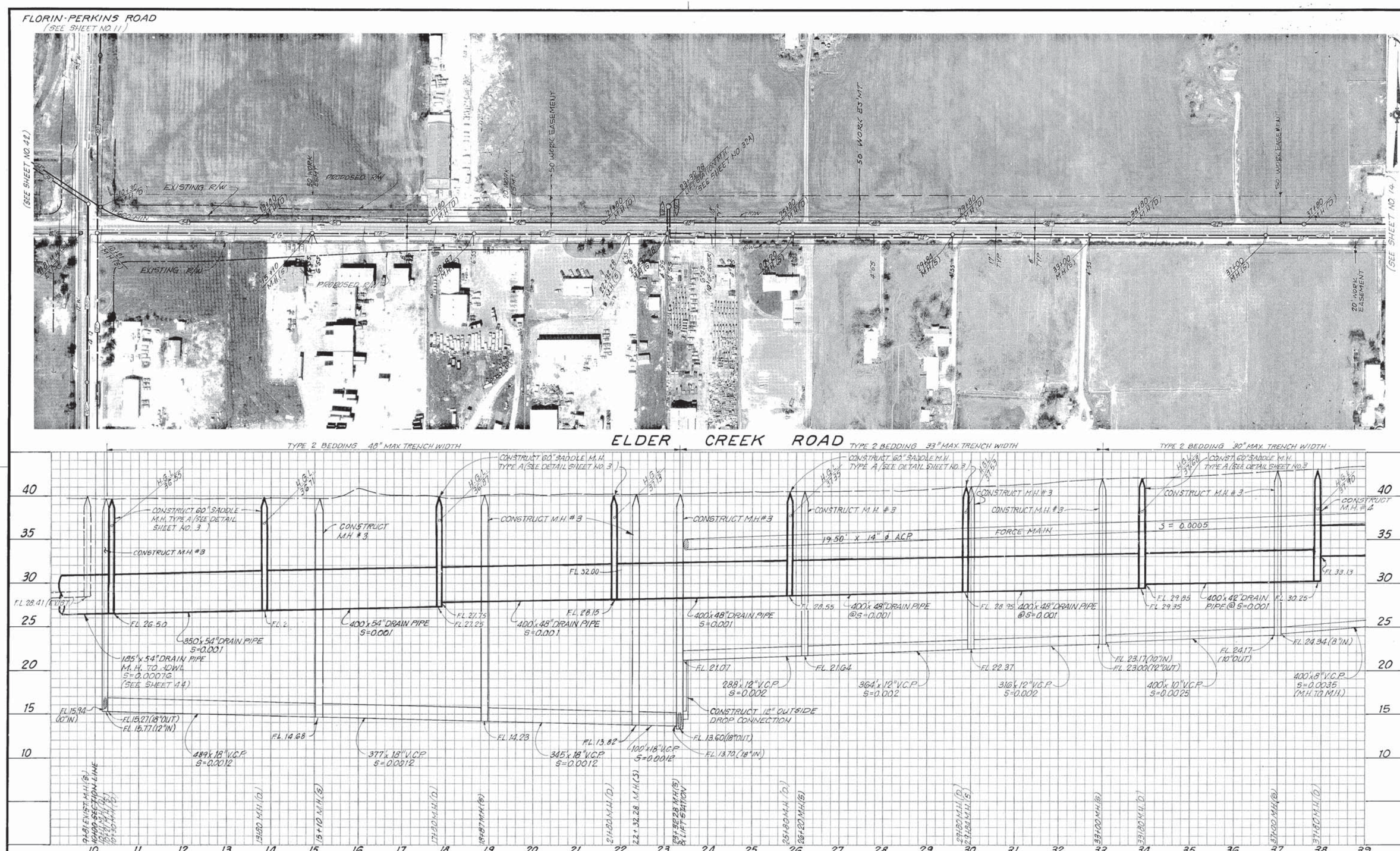
DRAWN BY
DESIGNED BY
CHECKED BY
APPROVED BY
R. C. E.
DATE

MORRISON CREEK ASSESSMENT DISTRICT

PUMPING PLANT - LINE B

THE SPINK CORPORATION

54



REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION: SEE SHEET NO. 1

FIELD BOOK

SCALE
HORIZ. 1"=100'
VERT. 1"=5'

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

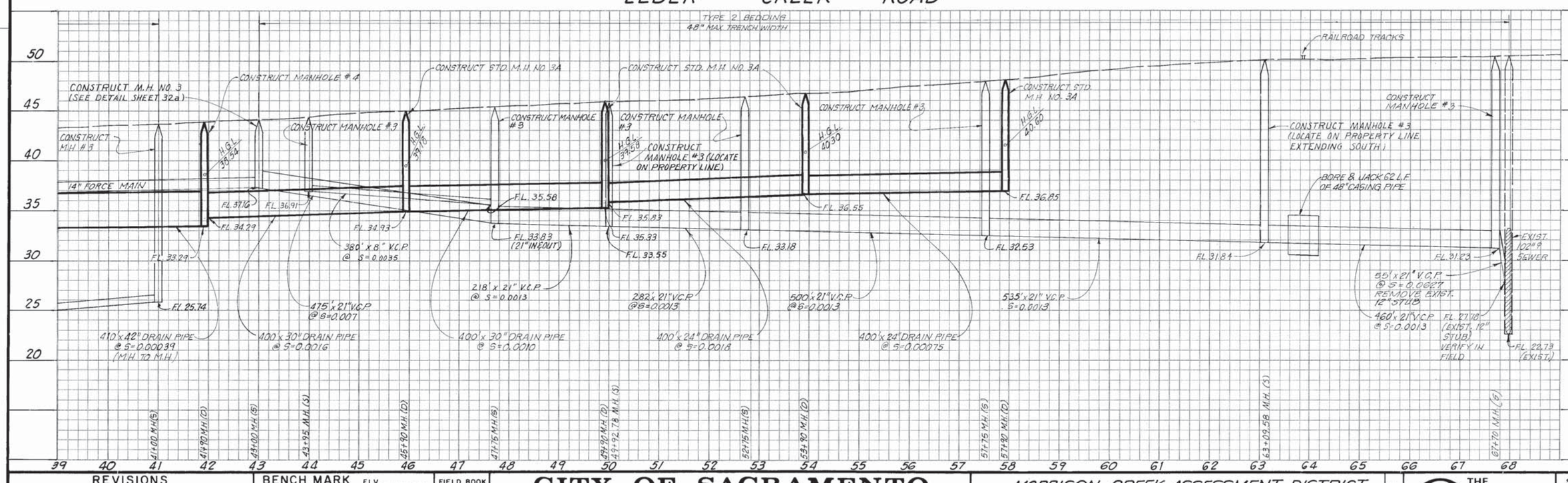
DRAWN BY: G. ZUEGER
DESIGNED BY: D. LITTLEFIELD
CHECKED BY: _____
APPROVED BY: _____
R. C. E. _____
DATE: _____

MORRISON CREEK ASSESSMENT DISTRICT
ELDER CREEK ROAD
STATION 9+81 TO 39+00

CC 8599

THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS - PLANNERS - SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

SHEET 13 OF 54



REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELV. _____
DESCRIPTION: SEE SHEET NO. 1

FIELD BOOK

SCALE
HORIZ. 1"=100'
VERT. 1"=5'

CITY OF SACRAMENTO
ENGINEERING DEPARTMENT

DRAWN BY: G. ZUEGER DESIGNED BY: D. LITTLEFIELD CHECKED BY: _____
APPROVED BY: _____ R. C. E. _____ DATE: _____

MORRISON CREEK ASSESSMENT DISTRICT
ELDER CREEK ROAD
STATION 39+00 TO 67+75

CC 8599

THE SPINK CORPORATION
ENVIRONMENTAL DESIGN CONSULTANTS
ENGINEERS - PLANNERS - SURVEYORS
720 F STREET, SACRAMENTO, CALIFORNIA

SHEET 14 OF 54

8437

APPENDIX E – DRAINAGE STUDY CHECKLIST

Plate 11-7 DRAINAGE STUDY CHECKLIST

City of SACRAMENTO
Department of Utilities

Note to Consultant: The checklist was developed to aid the Designer in the development of drainage studies for submittal to the City of Sacramento Department of Utilities (DOU). The intent is to expedite review by reducing the number of incomplete or unclear submittals. Completion of this checklist does not imply approval of the submitted Drainage Design Report or Plans. See City of Sacramento Design and Procedures Manual (DPM) Section 11 and 9.4. Please include the completed checklist with your Drainage Design Report submittals. This will ensure the study is routed in an expeditious manner.

Storm Drain Master Plan (SDMP) and Drainage Design Reports (See DPM 11.2.6 & Plate 11-5)

Level 1	Level 2	SDMP	Report Requirements	DPM Section	DOU Acceptance
I. COVER SHEET AND TABLE OF CONTENTS					
✓			A.Name of Project		
✓			B. Address		
✓			C. Owner		
U			D. Developer		
✓			E. Engineer - Signed and Stamped		
✓			F. Submittal date and revision dates as applicable		
✓			G. Table of Contents		
II. SITE LOCATION AND DESCRIPTION					
			A. Site Location		
✓			1. Vicinity Map		
✓			2. Assessor parcel number and address, if applicable		
✓			3. Sewer Book page numbers and drainage Basin number		
✓			4. Streets, roadways, and highways adjacent to the proposed development, or within the area served by the proposed drainage improvements		
U			5. Names of surrounding or adjacent developments		
			B. Narrative description of property		
✓			1. Existing ground cover, vegetation, and percent of impervious cover		
✓ N/A			2. Existing soils hydrological group(s)		
✓			3. Existing site topography and slopes		
✓			4. Major and minor drainageways		
U			5. Existing irrigation canals or ditches		
✓			6. Significant geologic features		
✓			7. Proposed land use & site activities		
✓			8. Site area(s) in acres		
✓			9. Groundwater depths		
III. DRAINAGE BASIN					
			A. Decribe overall drainage Basin containing site		
✓			1. On-site and off-site major drainage basin characteristics and flow patterns and paths		
✓			2. Existing and proposed land uses within the basins		
✓			3. Reference all drainage planning studies and floodplain delineation		
✓			4. Discussion of the impacts of the off-site flow patterns and paths, under fully developed conditions		
IV. EXISTING STORMWATER FACILITIES					
			A. Narrative of existing stormwater conveyance facilities		
✓			1. Existing conveyance facilities that will be incorporated into the design		
N.A.			2. Existing conveyance facilities that will be incorporated into the design with modifications		
N.A.			3. Existing conveyance facilities that will be rebuilt or abandoned		

U - unknown.

	N.A.		B. Narrative of existing stormwater storage facilities		
			1. Existing storage facilities that will be incorporated into the design		
			2. Existing storage facilities that will be incorporated into the design with modifications		
			3. Existing storage facilities that will be rebuilt or abandoned		
			C. Narrative of existing stormwater pumping facilities		
			1. Existing pumping facilities that will be incorporated into the design		
			2. Existing pumping facilities that will be incorporated into the design with modifications		
			3. Existing pumping facilities that will be rebuilt or abandoned		
V. PROPOSED STORMWATER CONVEYANCE OR STORAGE FACILITIES					
			A. Narrative of proposed stormwater conveyance facilities		
✓			1. Conceptual discussion of proposed drainage patterns and describe differences from historic patterns		
✓			2. Conveyance of off-site runoff		
✓			3. Discuss the content of any pertinent tables, charts, figures, graphs, drawings, etc. that are presented in the report		
✓			4. Discussion of anticipated conveyance problems and potential solutions		
✓			5. Discuss the anticipated major drainageway improvements		
✓			6. Discuss the maintenance and access aspects of the design		
			B. Narrative of proposed stormwater storage facilities		
✓			1. Detention storage locations and conceptual outlet structure design		
✓			2. Discuss anticipated storage problems and potential solutions		
✓			3. Discuss the maintenance and access aspects of the design		
	N.A.		C. Narative of Proposed Stormwater Pumping Facilities		
			1.Discuss pump station location and conceptual layout		
			2. Discuss anticipated problems and potential solutions		
			3. Discuss the maintenance and access aspects of the design		
			D. Describe proposed phasing plan if the project will be divided into several phases.		
			E. Describe and attach a financing plan, if applicable		
			F. Discuss any needs for a variance from DPM standards		
VI. APPENDIX A - CALCULATIONS					
✓			A. Calculation of existing and post project drainage flows	11.3	
✓			B. Demonstrate project meets 10yr and 100yr HGL criteria	11.2.1	
✓			C. Demonstrate that overland flow release has been met	11.8	
N/A			D. Complete & provide Modeling Checklist (SSWMM, InfoWorks or XPSWMM as applicable)		
✓			E. Demonstrate that public safety hazards do not exist	11.2.1.9	
✓			F. Mitigate increased drainage flows if necessary (storage w/restricted outlet, fee, CIP and/or HMP)	9.4, 11.2, 11.3, 11.10	
✓			G. Demonstrate that pipe velocity requirements are met	11.4.2	
NA			H. Account for removal of existing storage	11.3	
✓	N/A	N/A	I. Small Project Storage calculations for onsite ponds	11.3.5.1	
NA			J. Additional requirements for Projects in the Combined Sewer System (CSS)	9.4	
		N/A	1. Demonstrate no increase in flooding		
		N/A	2. Demonstrate no increase in outflows		
		N/A	3. Demonstrate no increase in sewage on the street		
		N/A	4. Demonstrate no increase in treated and untreated CSS overflows to the river		
		N/A	5. Calculation of existing and post project sewer flows		
		N/A	6. Mitigate increased sewer flows (fee and/or CIP)		
		N/A	7. Calculate available capacity in existing CSS mains from the Project's point of service to the nearest 18-inch main and determine whether any mains need to be upsized		
			K. Verify that calculations match plans and maps		
			1. Areas match map and overall parcel		
			2. Pipe lengths match map/improvement plans		
			3. Pipe slopes match improvement plans		
			4. Pipe Diameters match map/improvement plans		
			5. Pipe roughness = 0.015		
			6. Overland flow segments match overland release map		

VII. APPENDIX B - Maps & Plans (8.5"x11" or 11"x17")					
			A. Project Title Sheet with legend, notes, abbreviations, etc.		
✓			B. Project Site Plan		
✓			C. Title Block – include name and address of proposed Project/development, submittal date, title of drawing, and page number		
✓			D. General drawing information (north arrow, appropriate drawing scale, etc.)		
✓			E. Project site and abutting property topographic map with land cover and land use		
NA			F. Offsite drainage to the property; creeks, lakes, ponds, wetlands and other environmentally sensitive areas on or adjacent to the project site.		
✓			G. Existing natural and manmade drainage facilities within and immediately adjacent to the project site with points of drainage discharge from site		
			H. Overall shed and drainage system map ("bubble map")		
✓			1. 1' Countours — FLOW DIRECTIONS, LOW & HIGH PTS		
✓			2. Existing and proposed ground elevations (pads, gutters, street high & low points) —		
✓			3. Structures, geographical features, property lines, rights of way and easements		
✓			4. Sub sheds with impervious percent		
✓			5. Water surface elevations and design flows: (10-year and 100-year) at key analysis points with corresponding tributary areas		
NA			I. Current Tentative Map, if applicable		
✓		N/A	J. Current Plans		
✓			K. Points of discharge for drainage from the Project site		
VIII. APPENDIX C - Details					
NA			A. Pump station		
N/A		N/A	1. Pump curves		
N/A			2. Pump settings		
N/A			3. Pump station layout		
NA			B. Proposed Detention Ponds — UNDERGROUND STORAGE.		
		N/A	1. 1' Contours		
		N/A	2. 1% minimum bottom slope (2% for WQ basin)		
		N/A	3. 3:1 Max. Side slopes		
		N/A	4. All weather acess road		
		N/A	5. All weather acces ramp		
		N/A	B. Outlet structures		
IX. APPENDIX D - Variances N.A.					
NA			A. Attach approved Variances for all deviations from DPM requirements	9.2.4	
X. APPENDIX E - Electronic Copies and Attachments					
✓			A. Modeling files		
✓			B. Geotechinical Design Report		
NA			C. Dedication or irrevocable offer of dedication for all applicable easements and right-of-way		
✓			D. Report and all Appendices (Submitted in Microsoft Word with all edits from previous version shown using "Track Changes")		
XI. APPENDIX F - Additional Requirements for Dynamic Model N.A.					
N.A.			A. Runoff Parameters		
N/A			1. Shed Width - Calculated overland flow length less than 150' for residential and 200' for commercial		
N/A			2. Slope - minimum of 1%		
N/A			3. Infiltration rates match soil type per manual		
N/A			4. Roughness coefficients per manual		
N/A			5. Storm		
N/A			6. Impervious Percent		
			B. Extran Parameters		
N/A			1. Pump setting match report		
N/A			2. Redundant Pump off		
N/A			3. Pump service factor applied		
N/A			4. Basin storage curve matches basin details		
N/A			5. Boundary conditions		
			C. Model results		
N/A			1. Continuity		

We Grow CA Medical Cannabis Campus
8280 Elder Creek Road
Sacramento, CA

Stormwater Quality Compliance Report

Prepared for:
Attn: Guy Matalon
8280 Elder Creek Road
Sacramento, CA 95828

Prepared By:

G+M Engineering
1623 Thompson Avenue
Glendale, CA 91201
Work: 1-(818)-551-0353
Cell: 1-(818)-486-2581
E-mail: gpmarkov@gmail.com

April 22, 2018

Entcho Anguelov, PE C 70806

Sacramento County Supplemental Application:
Preliminary Stormwater Quality Compliance Form

This form is provided for example purposes only.
Check with your local permitting agency for copies of forms and procedures appropriate for your project site.

---

1) Project Information We Grow CA Medical Cannabis Campus

Applicant Name: Phone Number:

Address: 8280 Elder Creek Road, Sacramento, CA

Project Contact: Guy Matalon Phone Number:

Project name: Assessor Parcel Number(s):

Site Address: 8280 Elder Creek Road, Sacramento, CA

Project Category (check all that apply): ***Refer to Design Manual Table 3-2 for Priority Project Categories***

- ☐ Residential (Single Family)
- ☐ Residential (Multi-Family)
- ☐ Commercial Development
- ☐ Automotive Repair Shop
- ☐ Retail Gasoline Outlet
- ☐ Restaurant
- ☒ Industrial Development
- ☐ Street/Road
- ☐ Hillside Development
- ☐ Parking Lot

Project Gross Acres: 10.9 Project Net Acres: 10.9

Existing Impervious Surface Area: 3.0 Ac Proposed Impervious Surface Area: 9.11 Ac

Project Density (Residential Only): Proposed Pervious Surface Area: 1.79 Ac

Watershed or Receiving Water: Morrison Creek

303(d) Listed Water Bodies: Morrison Creek, Beach Lake

TMDLs: Diazinon, Pentachlorophenol (PCP) Pyrethroids, Toxicity, Mercury

---

2) Source Controls (check source control measure or applicable pollutant sources, check Design Manual Chapter 4 for more information on source control measures)

Refer to Design Manual Table 3-2 for Requirements

- ☑ Storm Drain Message and Signage
- ☐ Fueling Areas
- ☑ Loading/Unloading Areas
- ☐ Outdoor Storage Areas
- ☑ Outdoor Work Areas
- ☑ Vehicle/Equipment Wash Areas
- ☑ Waste Management Areas
- ☑ Other. Describe: Landscaping, Efficient Irrigation

3) Low Impact Development Measures

Refer to Design Manual Table 3-2 for Requirements

Will LID measures be utilized for this project? ☑ Yes ☐ No

If yes, check selected LID measures below; attach completed worksheet (Design Manual Appendix D).

- ☐ Alternative Driveway Design
- ☐ Disconnected Roof Drains
- ☐ Disconnected Pavement
- ☐ Green Roof
- ☑ Interceptor Trees
- ☑ Porous Pavement
- ☑ Other. Describe: Amended Soil, In Ground Bioretention

4) Stormwater Quality Treatment Requirements

Refer to Design Manual Table 3-2 for Requirements

Is treatment required? ☑ Yes ☐ No

If no, form is complete with signature. If yes, complete this section.

Indicate number of drainage subwatersheds for the site: 2

Early consideration of stormwater quality during site planning may reduce the overall cost of treatment controls. Low Impact Development (LID) methods and innovative design options can reduce the size of treatment options. In addition, early consideration allows for non-proprietary treatment options that can significantly reduce construction and maintenance costs.

5) Attach Project Overview and Stormwater Quality Narrative

☑ Include Project description indicating nature of project (e.g., is it a newly developing site, replacement of a previously developed site, is it an infill site). Describe activities planned for site that may impact water quality such as a retail gasoline outlet as part of a development. Describe selected treatment options. Developers should keep in mind that proprietary devices require extensive maintenance by the owners of the property and do not qualify for LID credit, and should consider alternative treatment measures first. Project description should be no more than 1 page relating to stormwater quality.

☑ Include annotated copy of Figure 3-1 of the Design Manual demonstrating applicability of stormwater quality requirements.

☐ Include a copy of the discretionary level conditions of approval (if applicable).

6) Attach Site Plans* and/or Drawings Showing:

☑ Existing and natural hydrologic features

☑ Existing and proposed drainage system (including material, size, slope, and invert elevations)

☑ Locations where site discharges to municipal storm drain system and/or receiving waters

☑ Proposed grades/contours (agency may specify contour interval)

☑ Proposed drainage subwatersheds including (**Refer to item #4, if treatment is required)**

- Name of subwatershed
- Existing amount of pervious and impervious areas
- Proposed amount of pervious and impervious areas
- Proposed treatment option(s) for each subwatershed
- WQV or WQF to be treated

☑ Pollutant source areas including loading docks, food service areas, refuse areas, outdoor processes and storage, vehicle cleaning, repair or maintenance, fuel dispensing, equipment washing, etc.

☑ Proposed design features to minimize impervious areas, applicable runoff reduction techniques, innovative design, and all treatment options selected.

☑ Details for post-construction control measures, including the following information, where applicable:

- Dimensions and setbacks from property lines and structures
- Profile view, including typical cross-sections and dimensions
- Water surface elevations/freeboard
- Inlets, outlet structures, and release points
- Vegetation & growing medium specifications, including provisions for temporary irrigation if needed
- Specifications for construction materials, such as filter fabric and infiltration materials
- Installation requirements

*Note: Plans will not be checked for adequacy of treatment options until design review of drainage system. For information related to correct sizing and other requirements refer to *Stormwater Quality Design Manual for the Sacramento Region*.

7) Attach HMP Calculations (SAHM Output Report):

☑ Include SAHM output summary report demonstrating compliance with HMP flow duration criteria.

8) Attach LID Credit Backup:

☑ Include LID credit worksheet for either Residential or Commercial development (as applicable), or other backup documentation of LID credits.

9) Attach Treatment Calculations:

☑ Include miscellaneous treatment calculations for any BMPs that are not already included in item 7 (HMP calculations) or item 8 (LID Credit Spreadsheet) above.

10) List Subwatersheds and Selected Stormwater Quality Measures (as required)

Subwatershed Name	Total Subwatershed Area		Flow (cfs) or Volume (ft^3)	Control Measures Selected (for Hydromodification Management, LID, and/or Treatment)
	Impervious Area	Pervious Area		
North	6.34		0.41 cfs For Treatment	Amended Soil, Porous Pavement, In Ground Bioretention, Flowthrough Bioretention, Underground Storage
	5.34	1.0		
South	4.56		0.31 cfs For Treatment	Amended Soil, Porous Pavement, In Ground Bioretention, Flowthrough Bioretention, Underground Storage
	3.77	0.79		
				Interceptor Trees for both subareas

11) Signature

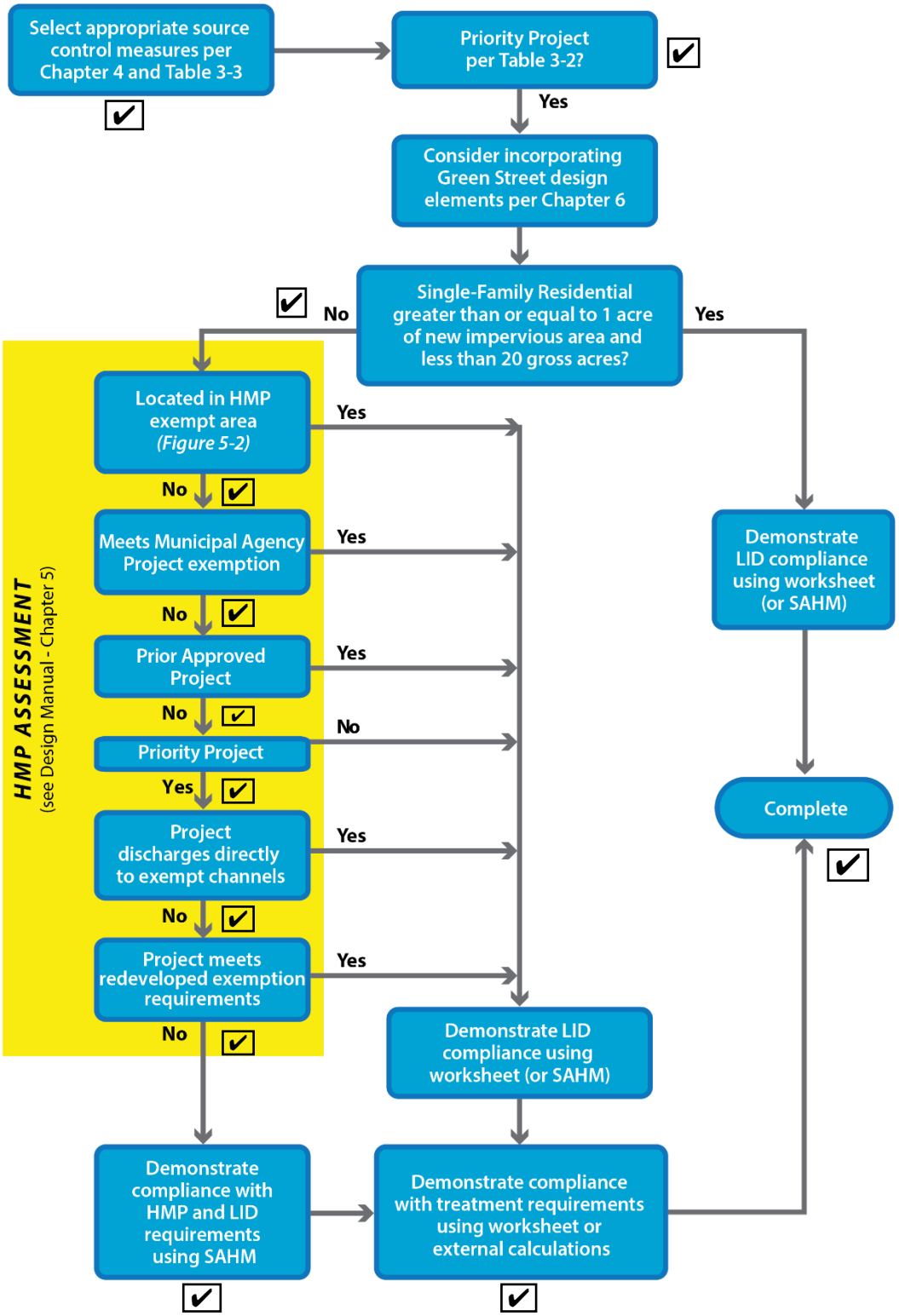
Print Name: Entcho Anguelov, PE Indicate Owner or Title: Design Engineer

Signature: _____ Date: 4/24/2018

*Control measures may be those included in the *Stormwater Quality Design Manual for the Sacramento Region* or alternative measures. For projects proposing use of control measures not specified in the Design Manual, the review and approval process may take longer. Also, slight variations to design criteria stated in the manual may be approved on occasion, provided the agency determines that performance of the facility itself or other site structures/features is not compromised. For agencies in Sacramento County, proposals of alternative proprietary structural devices may be accepted if the manufacturer can satisfy the agencies' protocol or the property owner agrees to conduct a pilot scale monitoring study.

To avoid delays, all alternative proposals should be discussed with the stormwater quality staff at the permitting agency as early as possible in the planning stages of the project, preferably at the pre-application meeting.

Figure 3-1 Identifying Stormwater Quality Requirements for New Development and Redevelopment Projects



Click here to link to Figure 5-2, Applicability Map.

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SECTION 1 - SUMMARY

PURPOSE

The purpose of this report is to document the post construction stormwater quality measures in support of the We Grow CA Medical Cannabis Campus project located at 8280 Elder Creek Road in the City of Sacramento, CA. The project is bounded by Elder Creek Road and Morrison Creek Channel to the north, a railroad to the west and other industrial developments to the east. There is a vacant parcel of land to the south. The project proposes to remodel two existing metal buildings and build three new light industrial buildings on approximately 11 acres. This report will summarize the implementation of the required source control, low impact development principles, treatment control measures and hydromdification management that were completed in accordance with the "Stormwater Quality Design Manual" for Sacramento Region.

The scope of this report will include the following related to the stormwater quality requirements:

- Implementation of source control measures
- Implementation of low impact development measures (LID)
- Implementation of treatment control
- Hydromodification assessment and analysis

DESCRIPTION OF WATERSHED

In addition to remodeling two existing buildings, the project is proposing to build three light industrial buildings on approximately 11 acres parcel. Approximately a quarter of the side is covered with impervious surfaces – roofs and drive isles. The remaining is a pervious open area used for staging, parking and material storage. The site is located on relatively flat ground, the existing elevations of the site vary from 38 feet in the areas around the existing metal buildings and 36 feet in the south-west property boundary. The terrain slopes down from the center outwards and the existing runoff drains outside of the property either to Elder Creek Road or to the south. There are no defined surface drainage patterns in the project vicinity and there are no existing drainage on-site facilities.

Two existing main drainage Lines A and B of the Morrison Creek Assessment District Sump 148 run just outside of the project south and east boundaries. An existing pump station just south of Elder Creek Road and adjacent to the north-east property corner elevates the flows from Line A to Morrison Creek Channel. The proposed on-site drainage system will be connected to the existing Line A to the east.

The project site falls within City Drainage Basin 148. There are no significant geologic features onsite. Based on the Geotechnical Study by MPE, dated October 30 2017, no ground water was encountered to a maximum depth of 16.5 feet below existing grades.

PROPOSED WATER QUALITY TREATMENT MEASURES

On-site flows generated by the proposed project will be collected and conveyed using a combination of surface flow, ribbon gutters, inlets, subsurface storm drains, water quality low impact facilities, proprietary treatment facilities, underground stormtech chambers for mitigation of the increased runoff and outlet control structures.

The site essentially breaks down into two main sub-drainage areas – north and south. The dividing ridge runs in the middle of the site from east to west between the proposed buildings.

The north half of the site (Area N) consists of 6.34 acres. The runoff generated from the existing two buildings 1 and 2 and will surface flow towards the proposed amended soil areas and then to northerly property line where a bioretention infiltration planter is proposed. The runoff from the roof of the newly proposed mix-light indoor building 1 will drain to the north into the proposed amended soil and the flow-through bioretention planters. The treated low flows will directly drain to the proposed storm drain pipes via a 6" underdrain system and all other excess high flows will overflow and will be picked up by the proposed grate catch basins. Underground stormtech volume storage chambers are proposed for mitigation of the storm events required under the hydromodification criteria. All storm events up to 10-yr frequency will be split to enter the underground mitigation storage. An outlet control structure with an orifice and notch plate will be installed at the underground chambers outlet point and then connected to the storm drain system. A connection to the existing Morrison Creek Line A just before entering the pump station is proposed for the runoff generated from the northerly site area.

A small parking area just east of the new building 1 will be treated by porous pavers and the excess flows will be picked up by a grate catch basin with filter insert and then connected to the underground chambers.

The south half of the site (Area S) consists of 4.56 cares and will allow the runoff generated to surface flow towards the proposed amended soil areas and the proposed bioretention facilities. The runoff from the roof of the newly proposed mix-light indoor building 3 will drain to the south and will enter first the proposed amended soil area and then will overflow into the proposed infiltration bioretention planter. The runoff from the drive allays between the new buildings 2 and 3 and along the south-west property line will also drain into the bioretention planter on the surface via concrete curbs and gutters. The high excess flows will overflow the planter and enter the adjacent grate catch basin.

The runoff from the roof of the newly proposed mix-light indoor building 2 will drain to the south into the proposed amended soil and the flow-through bioretention planters. The treated low flows will directly drain to the proposed storm drain pipes via a 6" underdrain system and all other excess high flows will overflow and will be picked up by the proposed grate catch basins. A separate underground stormtech volume storage chambers are proposed for mitigation of the storm events required under the hydromodification criteria for the south area. The runoff conveyed by the on-site storm drain will be separated by a weir split structure. The top of the weir is the top of the proposed underground chambers. Once the chambers are filled, the excess runoff will run over the weir wall and will be directly conveyed out of the site. All storm events up to 10-yr frequency will be split to enter the underground mitigation storage. An outlet control structure with an orifice and notch plate will be installed at the underground chambers outlet point and then connected to the storm drain system. A connection to the existing Morrison Creek Line A just downstream of the junction with Line B just outside of the south-east property corner entering the pump station is proposed for the runoff generated from the southerly site area.

A small parking area just east of the new building 2 will be treated by porous pavers and the excess flows will be picked up by a grate catch basin and then connected to the underground storm drain system.

All on-site drainage improvements will be privately maintained.

SOURCE CONTROL MEASURES

Source control measures are required to be implemented to prevent pollutants from contacting the site runoff, leaving the site and entering the municipal drain system or local waterways. The selection and description of source control measures are provided in Chapter 4 of the "Stormwater Quality Design Manual" for Sacramento Region.

The fact sheets for the applicable for this project measures, such as landscape design requirements, efficient irrigation, storm drain inlet signage and markings, wash areas, and waste management areas are included in Appendix A.

LOW IMPACT DEVELOPMENT MEASURES

The low impact development (LID) principles are outlined in Chapter 5 of the "Stormwater Quality Design Manual" for Sacramento Region and include implementation of technics that infiltrate, store, evaporate, and detain runoff in order to mimic the site's predevelopment runoff balance and infiltration. The implementation of LID principles includes the following measures:

Pervious areas: The site is a light industrial medical cannabis growing facility and follows the requirements for providing the minimum landscape areas according to this type of developments. Approximately 15% pervious open space as landscape, amended soil and bioretention planters are available onsite.

Runoff reduction: The site runoff reduction is achieved by disconnection of impervious surface and planting interceptor trees. The disconnection of the impervious surfaces is achieved by proposing compost amended soil, bioretention facilities, porous pavement and landscape areas.

The implementation of LID for the project is measured by LID point system worksheets included in Appendix B for both north and south project areas. A Post Construction Best Management Practices (BMP) Plan with the location, details and sections of the proposed facilities is included at the end of the report.

TRETMENT CONTROL MEASURES

After implementation of required LID measures, the remaining required treatment water quality volume or flow are directed to additional treatment control facilities. This project proposes the use of flow based Filterra Bioscape Vault type flowthrough planters. The necessary size was established based on manufacturers provided area based sizing tables for the west coast with 0.2 in/hr uniform intensity approach.

Based on the LID Calculations Sheets, the adjusted area for non-LID flow based treatment is 2.40 acres for the north project subwatershed and 1.81 acres for the south one. The flow based planters are proposed to serve the roofs of the new buildings 1 and 2 and are located adjacent to the buildings. For a commercial development with a minimum runoff coefficient of 0.85 the maximum drainage area for a Filterra box size of 8'x4' is 0.35 acres. In this case, the north area

will need 7 boxes, and the south 6 boxes. Total length of 70 feet of planter boxes are provided for each of the project areas which exceeds the size required.

HYDROMODIFICATION

Based on the Hydromodification Management Plan (HMP) for Sacramento area and the Hydromodification Applicability Map the project site is part of the Morrison Creek Major Watershed and it is susceptible to hydromodification. The Hydromodification Applicability Map is included at the end of this Section.

The Sacramento Area Hydrology Model (SAHM) continuous simulation hydrology model was used to evaluate the necessary mitigation storage and to model the hydromodification conditions of the site. In addition to the proposed LID facilities, an underground stormtech chamber storage was used in the model. The results are included in Appendix B. The location and the technical specifications of the stormtech chambers can be found in the Water Quality BMP Plan and in the Grading and Drainage Plans.

The SAHM results are included in Appendix D.

SOILS

The project site consists of hydrologic Soil C, with conductivity pervious factor of 0.06 in/hr based on the USGS maps and reports. Infiltration LID facilities are not feasible. All biretention planters and the porous pavers are proposed to have perforated PVC underdrain systems connected to either the onsite storm drain or directly to the underground storage chambers. Soil type characteristics reports are included at the end of this section.

MAINTENANCE RESPONSIBILITY

All proposed onsite LID and treatment control facilities, underground storage and related drainage conveyance and flow control structures will be privately maintained by the Owner.

A Maintenance Agreement between the City and the Property Owner is included in Appendix F.

FIG. 1 VICINITY MAP

FIG. 2 HYDROMODIFICATION APPLICABILITY MAP

SITE SOIL CHARACTERISTICS

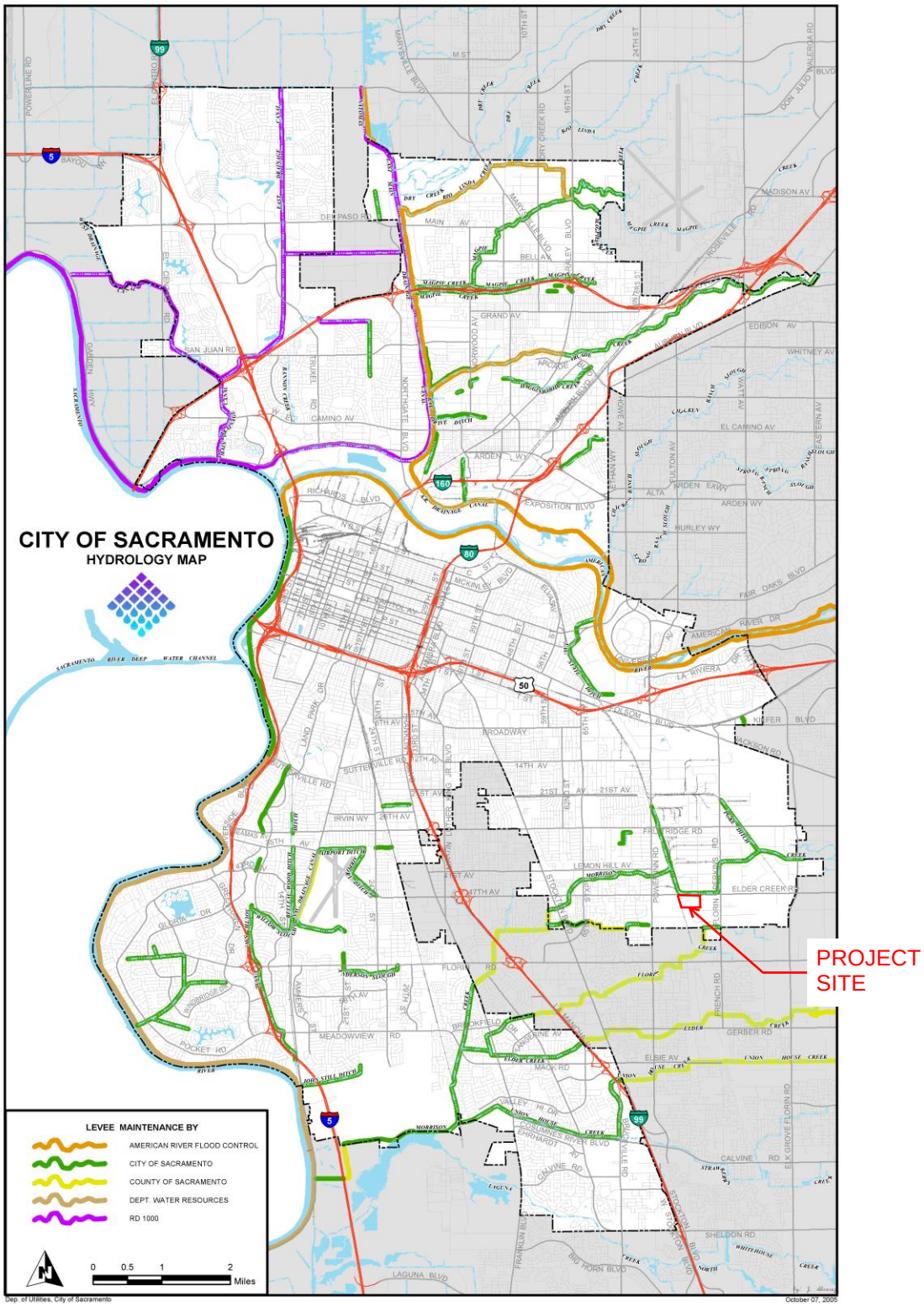
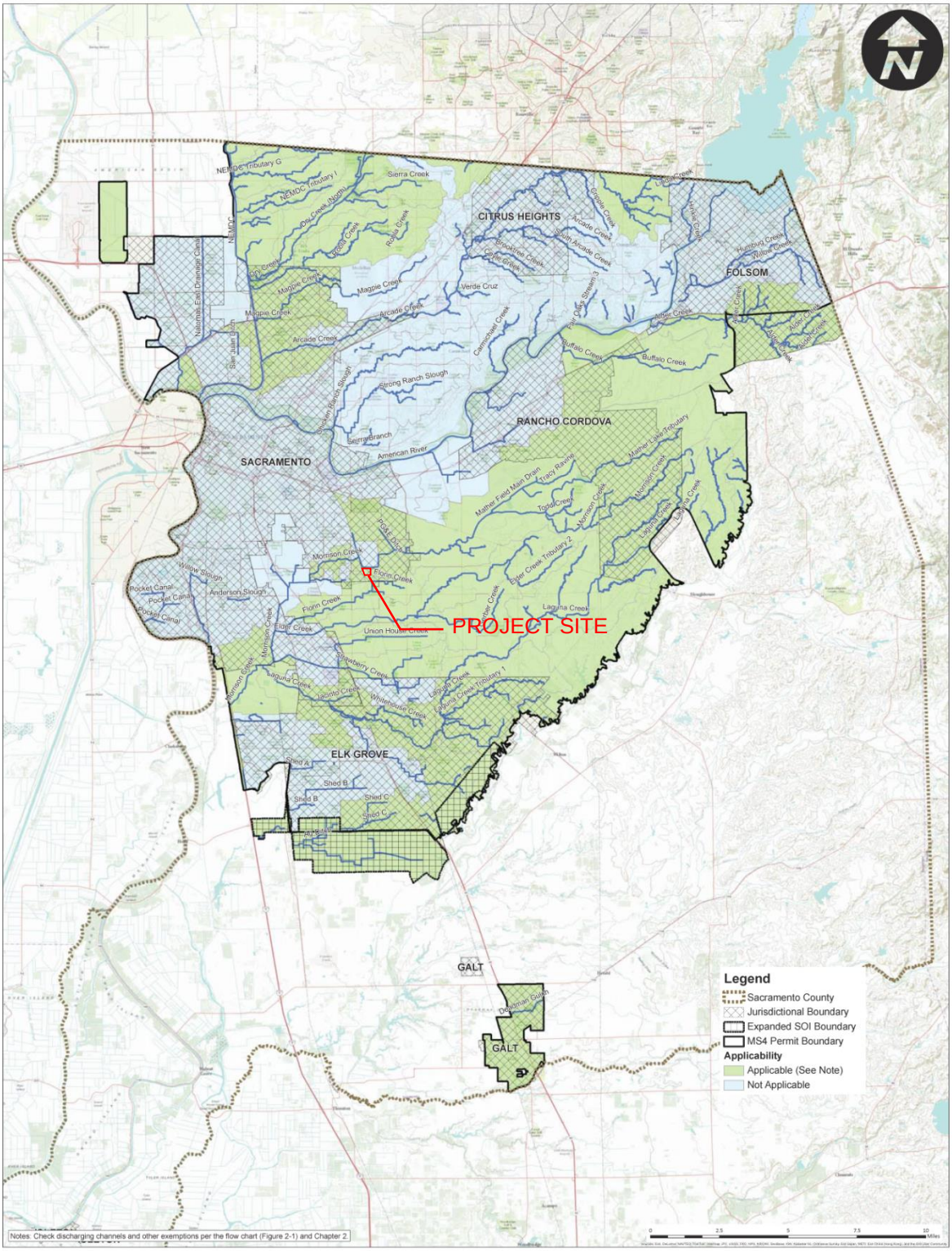


Figure 11.6-1 Levee Maintenance Map

Figure 5-2 Applicability Map



[Click here to link to Figure 3-1, Identifying Stormwater Quality Requirements for New Development and Redevelopment Projects.]

Soil Map—Sacramento County, California
(8280 Elder Creek Road)

Map Scale: 1:1,660 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	1.5	12.3%
214	San Joaquin silt loam, 0 to 3 percent slopes	5.5	46.3%
240	Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes	4.9	41.4%
Totals for Area of Interest		**11.8**	**100.0%**

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Sacramento County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
213—San Joaquin silt loam, leveled, 0 to 1 percent slopes			
San joaquin	85	High	C

Hydrologic Soil Group and Surface Runoff–Sacramento County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
214—San Joaquin silt loam, 0 to 3 percent slopes			
San joaquin	85	High	C
240—Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes			
Xerarents	45	—	—
Urban land	25	—	—
San joaquin	15	High	C

Data Source Information

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 16, Sep 26, 2017

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	0.4575	1.5	12.3%
214	San Joaquin silt loam, 0 to 3 percent slopes	0.4575	5.5	46.3%
240	Xerarents-Urban land-San Joaquin complex, 0 to 5 percent slopes		4.9	41.4%
Totals for Area of Interest			**11.8**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 48

Bottom Depth: 72

Units of Measure: Inches

APPENDIX A – SOURCE CONTROL MEASURES FACT SHEETS

Landscaping

Purpose

Proper planning and design of landscaping is an easy way to positively impact local and regional water quality. Aside from the aesthetic value that is created, a well-designed landscape is an effective source control measure that can reduce runoff volume, peak flow rate, pollutant load, and water usage.

2500 River Plaza, City of Sacramento

Applicability

The source control options provided in this fact sheet must be considered within all new development and redevelopment projects, and incorporated to the maximum extent practicable.

Design Requirements

When designing landscape to reduce water quality impacts, the following design principles should be considered:

- Incorporate natural depressions, rain gardens and/or swales into the design to maximize natural water storage and infiltration opportunities. Refer to the Stormwater Planter and Vegetated Swale BMP Fact Sheets.
- Protect existing slopes and channels (additional guidance can be found in the City of Sacramento Manual for Grading and Erosion and Sediment Control[1], from CASQA and/or other local agency publications).
    - Stabilize disturbed slopes and channel crossings as quickly as possible.
    - Install energy dissipaters where appropriate to prevent erosion.
- Organic fertilizers should be used instead of synthetic fertilizer because they are less soluble in water and less likely to be transported to natural water ways by stormwater runoff. In some cases, use of organic wood mulch can eliminate the need to use any fertilizers.

[1] http://www.sacstormwater.org/ConstructionandNewDevelopment/ConstructionandNewDevelopment.html

The Sacramento Stormwater Quality Partnership has adopted several principles of "river-friendly" landscaping. These include the following:

- Landscape locally – take into account the existing site characteristics.
- Landscape for less to the landfill – compost onsite plant debris and select plants that require minimal pruning.
- Nurture the soil – amend the soil with compost before planting and mulch regularly after planting.
- Conserve Water – minimize the use of lawns and select drought resistant Californian & Mediterranean plant varieties.
- Conserve Energy – plant trees to shade homes and reduce unnecessary outdoor lighting.
- Protect water & air quality –Minimize the use of pesticides.
- Create and protect wildlife habitat – preserve existing vegetation and select native plants.

Operation and Maintenance

General

- Reduce the potential for dry weather runoff by installing efficient irrigation systems (see Efficient Irrigation BMP Fact Sheet).
- Over watering after fertilizer application can leach nitrogen into the surrounding water ways.
- Apply fertilizer only in the spring and fall (if needed).
- Sweep up all fertilizer, soil and plant clippings off of paved surfaces to prevent contact with stormwater runoff.

Fertilizer Application

If fertilizers are improperly applied, the nutrients they contain will bypass the plant and end up polluting stormwater runoff. These nutrients can cause detrimental algae blooms in the receiving creek. It is very important to follow the instructions included with the fertilizer for application. There are several different fertilized application methods:

- Surface Application – a fertilizer spreader should be used to apply evenly over an area.
- Soil Incorporation – the best method for applying low soluble nutrients like potassium and phosphorus is to place it into a hole or a trench dug around an individual plant.
- Foliage Spraying - spraying a fertilizer solution onto the leaves of plants is an efficient way to apply micro nutrients such as zinc and iron. It is not recommended for applying potassium or phosphorus.

Table L-1 Fertilizer Comparison

Fertilizer Type*:	Nutrient Origin	Advantages	Disadvantages
Organic	Remains or byproduct of ounce-living organisms, such as compost, bone meal, sewage sludge and fish emulsion	Improves soil health, less leachable, contains multiple nutrients	High cost per unit of nutrient
Inorganic (synthetic)	Synthesized from non-living materials. They are typically salts like ammonium sulfate, potassium chloride and potassium phosphate.	Low cost, consistent nutrient levels, readily available to plants, easy to handle	Potential loss by leaching, more easily over-applied

**Use of mulch can reduce or eliminate the need to apply fertilizer*

References Used to Develop This Fact Sheet

- California Stormwater Quality Association, *California Storm Water Best Management Practice Handbook for New Development and Redevelopment*, January 2003 (revised September 2004). www.cabmphandbooks.com
- River-Friendly Landscaping, *The Seven Principles of River-Friendly Landscaping (RFL)*, http://www.msa.saccounty.net/sactostormwater/RFL/principles.asp, accessed 6/12/13.
- University of Nevada, Reno, *Using Fertilizers Properly, A Tahoe Landscape BMP Fact Sheet for Lake Tahoe*, Fact Sheet 94-11.

Efficient Irrigation

Purpose

This fact sheet provides details about efficient irrigation for the purpose of reducing water use and dry weather runoff from excess irrigation for residential and commercial projects. Improper irrigation generates runoff that transports bacteria, fertilizers and pesticides to local natural waterways. Some jurisdictions have specific water conservation ordinances that outline how customers can save water by adjusting their irrigation schedules to prevent overspray and runoff. Below are links to some of the jurisdiction's water conservation codes.

- City of Elk Grove: Chapter 14.10 Water Efficient Landscape Requirements
  http://www.codepublishing.com/CA/ElkGrove/html/ElkGrove14/ElkGrove1410.html#14.10
- City of Folsom: Municipal Code, Title 13 Water and Sewage – Chapter 13.26 Water Conservation
  http://www.folsom.ca.us/depts/city_clerk/charter.asp
- Citrus Heights: Municipal Code, Chapter 98 – Utilities, Article II. - Water, Division 3. – Use and Conservation
  http://library.municode.com/index.aspx?clientId=13326
- City of Sacramento: Water Efficient Landscape Requirements-Chapter 15.92: Landscaping Requirements for Water Conservation
  http://www.qcode.us/codes/sacramento/?view=desktop&topic=15-15_92-15_92_010
- City of Galt Water: Chapter 13.10: Water Conservation
  http://www.codepublishing.com/CA/galt/
- County of Sacramento and City of Rancho Cordova: Title 14 Agricultural Activities And Water Use And Conservation
  http://qcode.us/codes/sacramentocounty/view.php?topic=14-14_10&frames=on

Some ordinances have strong enforcement measures including fines for repeat offenders. By following a few simple steps for efficient irrigation, residents can make a positive impact on local water quality.

Applicability

Efficient irrigation should be implemented to the maximum extent practicable for all landscaped areas that require irrigation and in accordance with Model Water Efficient Landscape Ordinance AB 1881.

Design Requirements

General

Most irrigation systems can easily be designed or updated to offer maximum water use efficiency and prevent runoff. A well-designed irrigation system will deliver the appropriate amount of water needed, but will not generate excess runoff or overspray onto impervious surfaces. Automatic shutoff valves that turn off irrigation systems when there is a broken pipe or sprinkler head, or when it is raining, should be incorporated into the design. Timers should be installed to control the schedule of the irrigation. Landscapes should include drought tolerant vegetation where feasible, reducing the required frequency of watering.

Smart irrigation controllers can automatically adjust the rate and timing of irrigation based on soil and weather conditions. These systems often use historic weather data as well as site-specific data, and include underground sensors that monitor soil moisture. Smart systems will not only automatically shut off when it is raining, but can also make automatic seasonal adjustments.

Manual Irrigation

There are a variety of products available to make hand watering easy – soaker hoses, automatic shutoff hose nozzles, and portable sprinklers. When watering manually, allow water to soak into the ground by using slow spray patterns as opposed to a constant and direct watering stream; many commercially available portable sprinklers incorporate a rotor action to meet this need.

Drip/Micro Spray Irrigation

Drip irrigation is the most effective way of getting water directly to plant roots. This is done by delivering small amounts of water to the ground over a longer period of time. This eliminates wasted water to misting, foliage blockage, and overspray, and also significantly reduces the potential for runoff. These systems work very well in areas with clay soils; which are more prone to irrigation runoff, or cobble/rocky soils, which can drain too quickly. There are several different types of drip irrigation systems that are available – bubblers, micro sprayers and drippers. Drip systems require a low pressure water system. This can be achieved by installing a pressure regulator to an existing in-ground system. These systems can clog over time from lime build up and suspended particles - installing filter systems can help alleviate this problem. Most systems come pre-packaged with user installation and operation instructions.

Scheduling

- To reduce water loss from evaporation, water landscapes before 10 a.m. or after 6 p.m.
- Spring and Summer- irrigate no more than three times per week.
- Fall and Winter- keep systems turned off as much as possible, and irrigate no more than once per week when necessary.
- Reduce the frequency of irrigation during and immediately after rain events. Automatic shut off devices can be used to automatically stop irrigation during a rain event.
- New landscaping may require more frequent irrigation for root establishment.

Operation & Maintenance

- Check for broken sprinkler heads and leaks monthly. Leaks are easy identified by looking for wet spots, areas that are overgrown or weak water outputs.
- Cap, close (tighten small screw on top), or remove any unnecessary sprinklers.
- If a sprinkler head is blocked by foliage move the sprinkler head, install a riser, or eliminate the foliage.

Storm Drain Inlet Markings and Signage

Purpose

This fact sheet provides details about permanent "No dumping-drains to creek/river" messages at storm drain inlets and "No dumping" signs at public access points to channels and creeks on the development project site, where applicable. Storm drain markings are intended to help stop illegal dumping by alerting people that the drain leads directly to a waterbody and dumping is prohibited. Signs at access points to creeks and channels serve as reminders that dumping is illegal at these locations.

Inlet marking directly in concrete
Photo source: County of Sacramento

Applicability

As indicated in Table 3-3, permanent storm drain inlet markings are required on all new drain inlets (also known as catch basins) installed in development/ redevelopment projects. Signs are also required at public access points to any creeks or drainage channels within or adjacent to the site.

Pre-fabricated inlet marker
Photo source: County of Sacramento

Design Requirements

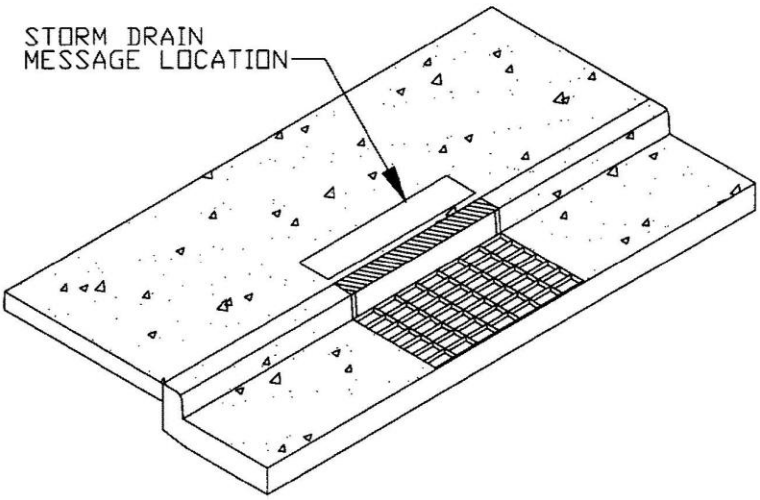
To protect water quality, follow the requirements shown in Table SD-1 to create consistent "no dumping" messages at storm drain inlets and public access points at creeks and channels.

Operation and Maintenance

The legibility of storm drain inlet messages and signs must be maintained to ensure effective pollution prevention over time.

Table SD-1. Design Requirements for Storm Drain Inlet Markings and Signage

Design Feature	Requirement
Location	▪ Identify all storm drain inlets on the improvement plans and indicate they must be marked with appropriate storm drain messages. ▪ Locate the message on each inlet as described in the next section.
Message Layout and Content	▪ Follow the message layout, content, and other specifications provided by the local permitting agency. Each agency may have its own design. See Figure SD-1 for an example detail. ▪ For signs posted at access points to waterways, consult the local permitting agency for their required/preferred message and style. ▪ Alternatively, obtain approval from the local jurisdiction for a different layout/message that clearly prohibits dumping using words or graphical icons. ▪ Consider the use of bilingual messages where appropriate based on local population.
Method of Application	▪ Permanently apply the message at storm drain inlets by stamping it in concrete, affixing as a tile or cast-iron plate, or using an alternative approach approved by the local jurisdiction. ▪ For area drain markers, make sure any inset tiles or plates are flush with the surface of the inlet to avoid a tripping hazard. ▪ Consider permanently affixing signs at access points to creeks and channels.



NOTES:

1. STORM DRAIN MESSAGE SHALL BE APPLIED IN SUCH A WAY AS TO PROVIDE A CLEAR, LEGIBLE IMAGE.
2. STORM DRAIN MESSAGE SHALL BE PERMANENTLY APPLIED DURING THE CONSTRUCTION OF THE CURB AND GUTTER USING A METHOD APPROVED BY THE LOCAL AGENCY.
3. FOR AREA DRAIN INLETS, STORM DRAIN MESSAGE SHALL BE PLACED ADJACENT AND PARALLEL TO THE LONG AXIS OF THE DRAIN.
4. LETTERS SHALL BE 1-1/2" IN HEIGHT. DIMENSIONS OF STORM DRAIN MESSAGE SHALL NOT EXCEED 12" X 33".
5. IF THE MESSAGE IS STAMPED IN CONCRETE, THE DEPTH SHOULD BE APPROXIMATELY 0.25".
6. IF AN ALTERNATIVE STORM DRAIN MESSAGE IS PROPOSED, IT SHALL BE APPROVED BY THE LOCAL AGENCY.

Figure SD-1. Storm Drain Inlet Message

Wash Areas

Purpose

This fact sheet specifies how to locate and design permanent wash areas for vehicles and equipment (including restaurant mats) so that wash water does not enter the storm drain system and receiving waters. Wash water typically carries an array of pollutants harmful to the aquatic environment. Potential pollutants depend on what is being washed but typically include oil and grease, metals, suspended solids, soluble organics, food waste, fats/oils/greases from food, and/or detergents or other cleaning chemicals.

Central Wash Area in Apartment Complex Parking Lot. Source: City of Palo Alto, California

Applicability

Table 3-3 indicates the project land use types that need to comply with this fact sheet if a permanent wash area (including steam cleaning) is planned for the development project. In these cases, the wash area must be designed according to the design requirements specified in this fact sheet. Some permitting agencies may require the inclusion of a permanent designated wash area for some land uses. Check with the local permitting agency for verification. This fact sheet also pertains to the washing of equipment in outdoor areas, particularly, restaurant mats and similar equipment, which can send food waste and fats, oils and grease to the storm drain system.

Design Requirements

To protect water quality, design equipment and vehicle wash areas following the requirements in Table WA-1. Design requirements on this fact sheet are intended to supplement (not supersede) those in other codes. Discuss any potential conflicts with the local permitting agency early in the planning process before proceeding with design.

Operation and Maintenance

The design features required by this fact sheet need to be maintained and properly operated. In addition, actuated valve installations may be subject to inspections by the local sanitary sewer agency. See Appendix C for sanitary sewer connection and contact information.

Table WA-1. Design Requirements for Equipment and Vehicle Wash Areas to Protect Water Quality

Design Feature	Requirement
Small Equipment Wash Areas – Applies to washing of restaurant mats and other kitchen supplies, as well as small equipment used at other commercial facilities.	
Size and Location	▪ Locate the designated wash area indoors. ▪ Provide a sink or contained wash area large enough to accommodate the largest item that will typically be washed.
Drainage and Pretreatment	▪ Drain the sink/wash area to the sanitary sewer (or a zero-discharge water recycling system, subject to approval of permitting agency). ▪ For food-handling facilities: equip the wash area with a grease interceptor to meet the approval of the applicable permitting agency.
Vehicle and Large Equipment Wash Areas	
Size and Location	▪ Locate the wash area such that access is from paved areas only (to prevent tracking of sediment). ▪ Size vehicle and equipment wash areas to extend at least 4 ft. in all directions around the largest piece of equipment/vehicle to be washed. ▪ For vehicle wash areas where vehicle size is unknown, size the wash area to be at least 25 ft. long and 15 ft. wide.
Paving	▪ Pave the wash area with asphalt or concrete.
Cover	▪ Cover the entire wash area with a roof or other type of approved permanent canopy. For covers 10 feet high or less, extend at least 3 feet beyond the perimeter of the hydraulically isolated wash area. For covers higher than 10 feet, extend at least 5 feet beyond the wash area. ▪ For new development in infill areas, or for redevelopment projects where there is no space to add a covered wash area, or for airport facilities, a diversion valve is required (see the Grading/Drainage section of this table). ▪ New facilities servicing oversized vehicles (bus, fire trucks) are required to provide a cover. Redevelopment of such facilities should consider addition of a shut-off/diversion valve if a cover is not feasible.
Grading/Drainage – General	▪ Hydraulically isolate the wash area to contain the wash water and prevent runoff from leaving the area and run-on from surrounding areas from entering the wash area. Use grade breaks, berms, or interceptor drains (around the perimeter or in the entrance and exit zones) to accomplish this.
Drainage – Covered Areas	▪ Connect the covered wash area to an appropriate pretreatment device (e.g., oil/water separator), then to the sanitary sewer. ▪ Alternatively, install a zero-discharge water recycling system. ▪ For any of these options, first obtain approval from the applicable permitting agency. See Appendix C for sanitary sewer connection and contact information.

Design Feature	Requirement
Drainage – Cover not feasible	▪ When a cover is not feasible (see "cover" discussion earlier in this table), connect the hydraulically isolated area to the storm drain system and equip the drainage system with a shut-off/diversion valve that can temporarily redirect polluted wash water to the sanitary sewer when washing activities are taking place. ▪ Various types of actuated valve configurations have been used in the Sacramento area for truck washing areas and children's water parks. Diversion valves could be triggered when the water supply faucet is turned on or by a rain gage. Check with the local permitting agency early in the planning process before proceeding with design of this type of system. ▪ See Appendix C for sanitary sewer connection and contact information.
Trash Receptacle	▪ Locate a covered garbage receptacle within or immediately adjacent to a vehicle wash area to provide a convenient means for people to dispose of trash and keep the materials out of the storm drain system.
Signage	▪ Post signs that clearly identify the facility's intended use for employees and tenants. ▪ Post signs that prohibit: ○ the use of cleaning products that contain hazardous substances (hydrofluoric acid, muriatic acid, sodium hydroxide, bleach, etc.) and can turn wastewater into hazardous waste ○ the use of specific cleaning products incompatible with any pre-treatment device (check with local permitting agency) ○ dumping of vehicle fluids in wash areas ○ engine/car repair in the wash area ○ dumping in storm drains

Loading Areas

Purpose

This fact sheet specifies how to design loading/unloading areas to minimize the chance of spills and leaks and to keep any spilled/leaked materials out of the storm drain system and receiving waters. Potential pollutants addressed depend on the operations and materials being handled, but may include toxic compounds, oil and grease, nutrients, suspended solids, fluids leaked from delivery vehicles, and/or other contaminants. Leaked fluids from delivery vehicles can also accumulate in the loading area.

Delivery loading/unloading area.
Photo source unknown

Applicability

Refer to Table 3-3 regarding the project land use types that need to comply with this fact sheet. The design requirements provided in this fact sheet are primarily intended for new development. If applied to significant redevelopment, the requirements would only apply in the case of complete redesign of the loading area.

Design Requirements

To protect water quality, design loading/unloading areas as explained in Table LA-1. These requirements are not intended to supersede other codes or other loading dock design or access requirements established by individual companies; discuss any potential conflicts with the local permitting agency early in the planning process before proceeding with design. It is recognized that some land uses (e.g., food-handling, chemical distribution, hazardous materials) have a greater potential to pollute stormwater if spills were to occur than other land uses and the level of control needed therefore varies. However, most times agency planners/reviewers will not know the use of the building at the time of plan approval. Further, warehouses and other buildings often have tenant turnover and use/materials handled will change over time. Therefore, a single set of design requirements is provided in order to address all anticipated land use types.

Operation and Maintenance

The design features required by this fact sheet need to be maintained and properly operated. This includes proper handling and disposal of any materials which may accumulate in the spill

containment vault. In addition, features may be subject to inspections by local fire and/or sanitary sewer agencies, depending on the configuration.

Table LA-1. Design Requirements for Loading Areas to Protect Water Quality

Design Feature	Requirement
Paving	▪ Pave the loading area with an impervious paving material that is compatible with materials that will be loaded/unloaded. For example, use Portland Cement Concrete if gasoline or other materials that react with asphalt will be loaded/unloaded.
Cover	▪ Several options are presented for covering the active loading area, to minimize the exposure of pollutants to rainfall and runoff; check with the local permitting agency on which of the options will be allowed for the project: ▪ Option 1. If feasible, design the facility so loading/unloading occurs inside an indoor loading bay. This is the best option from the perspective of protecting stormwater quality. If this is not feasible, consider the next option. ▪ Option 2. For buildings with less than 10 bays, provide a roof overhang that extends at least 10 feet beyond the loading dock (or the building face, if there isn't a loading dock). If the building includes 10 or more bays or a cover is deemed otherwise not feasible, consider the next option and proceed to "Grading/Drainage" element of this table. ▪ Option 3. Use of a door skirt that fits snugly to both the trailer end and the building door during material transfers maybe allowed on a case-by-case basis. Check with the permitting agency for verification.
Grading/Drainage	▪ Direct runoff from roof downspouts away from the loading/unloading areas. ▪ Design outdoor loading areas so that the first 6 ft. of pavement, as measured from the dock face (or from the building if there is no elevated loading dock) is hydraulically isolated to prevent runon/runoff. This can be accomplished with berms, grading, or interceptor drains. See Figure LA-1 for suggested configuration using interceptor drains; check acceptability of this method with local permitting agency. ▪ Drain the hydraulically isolated area to a pretreatment device (e.g., oil/water separator) then to the sanitary sewer (discharge to the storm drain system is not allowed); equip the system with an emergency spill shut-off/diversion valve as described below. Verify that this is acceptable to the local permitting agency; the agency may require a cover on the entire area draining to the sanitary sewer. ▪ Refer to Appendix C for sanitary sewer connection and contact information.
Spill Control Diversion Valve and Containment Tank	▪ Equip the drainage system with an emergency spill shut-off/diversion valve. ▪ The bypass on the shut-off valve should flow to an adequately-sized* spill containment vault located a safe distance away from structures due to potential for explosive/fire reaction (see Figure LA-1). This is subject to approval of local permitting agency and fire department/district (could be two different agencies). **The size of the spill containment vault should be equal to 125% of the volume of the largest container handled at the facility. If this is not known, assume that 250 gal is typically largest*

Design Feature	Requirement
	size handled at the loading areas. Containment vault would be 312 gal in this case.
Indoor Loading Areas – no obstruction zones	▪ If loading is designed to occur indoors (beyond a bay door), provide a 10-ft. no obstruction zone within the building to allow the truck to extend inside and to provide a staging area. Clearly identify the no obstruction zone on the building plan. Clearly mark the no obstruction zone at an interior transfer area using bright or fluorescent floor paint.
Signage for Spill Control Features	▪ Provide signage to identify the location and simple use instructions of any spill control/response design features (such as shutoff valves or spill response kits).
These requirements are intended to supplement, not supersede, those found in other codes (e.g., building, plumbing, fire). If conflicts are identified, consult with the local development permitting agency and other agencies as needed (e.g., fire, sanitation district) for resolution.	

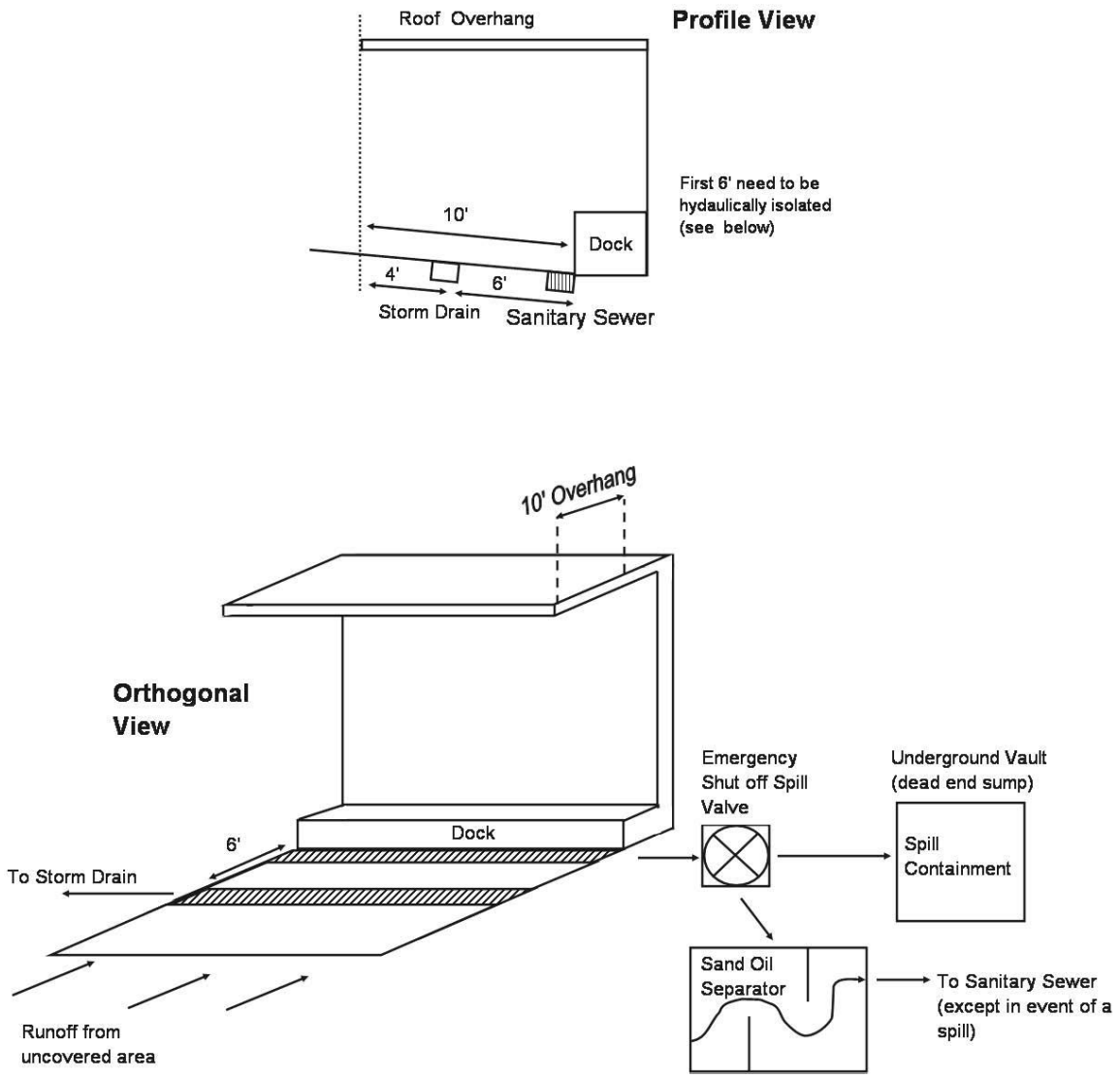
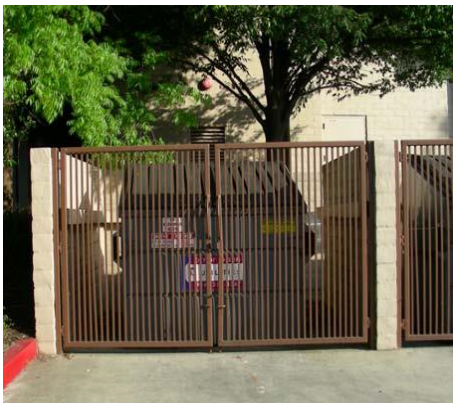


Figure LA-1. Recommended Loading Area Drainage Design

Waste Management Areas

Purpose

This fact sheet specifies how to design waste and recycling storage areas so that they aren't sources of pollutants to the storm drainage system and receiving waters. A properly designed waste/recycling storage area keeps rain, runoff, and other site water from leaching away pollutants; minimizes the chance of spills and leaks; and prevents any spilled or leaked wastes from entering the storm drainage system. Potential pollutants from waste include fats/oils/greases (from food), particulates, organic matter, toxic chemicals, and more.



Trash enclosure with covered dumpster.
Photo: City of Folsom

Applicability

Refer to Table 3-3 regarding the project land use types that need to comply with this fact sheet. The design requirements provided in this fact sheet are primarily intended for new development. If applied to significant redevelopment, the requirements would only apply in the case of complete redesign of the portion of the facility involving the waste management/trash enclosure area(s).

Design Requirements

To protect water quality, design waste and recycling storage areas as explained in Table WM-1. Design requirements in this fact sheet are intended to supplement (not supersede) those in other codes (such as the Building, Fire, and Zoning Codes and the hazardous waste requirements in Title 22, California Code of Regulations, as applicable). Discuss any potential conflicts with the local permitting agency early in the planning process before proceeding with design. In addition, check with the appropriate waste management agency regarding design or access requirements.

Covered Storage for Waste and Recycling Bins and Compactor, Pleasanton, California
Photo: CKB Environmental

Operation and Maintenance

The design features required by this fact sheet need to be maintained and properly operated. This includes regular maintenance of the grease interceptor and handling and disposal of materials which

accumulate in the interceptor, and maintenance of covers and sanitary sewer connections, if applicable.

Table WM-1. Design Requirements for Waste Management Areas to Protect Water Quality

Design Feature	Requirement
Location and Enclosure – General	▪ Design an enclosed area for waste and recycling storage and collection on the site so that containers cannot be knocked over and where unauthorized use or vandalism is unlikely. This will help keep debris from being blown off site and pollutants from entering the storm drain system.
Location/Access – Enclosure Area	▪ Provide adequate room for waste collection trucks to pick up and empty dumpsters to minimize chance of accidents and spillage. Check with the local solid waste agency for access standards. ▪ In the absence of local standards, design the enclosure to have direct access for collection trucks, meaning the truck can drive directly at the bin and insert the forks into the sides of the bin. A minimum straight approach of 50-65 feet is recommended to line up directly with the bin.
Paving	▪ Pave the waste/recycling storage area with Portland Cement Concrete.
Space and Waste Segregation	▪ Provide ample space inside the waste management area for bins to contain the maximum amount of expected waste and recycling matter to be generated at the facility, considering the typical waste collection schedule. Check with the local solid waste agency for detail drawings if available. ▪ For areas designated to contain tallow bin(s), provide a separate enclosed area for storage of the tallow bin, segregated from the area used to store solid and recycling wastes, and covered if acceptable to permitting agency (some agencies may not want solid waste enclosures covered [see discussion below], but will allow tallow bin enclosures to be covered due to different loading practices).
Cover	▪ Provide a cover for the entire waste area if acceptable to permitting agency. Some local waste haulers may not allow a cover, due to vertical clearance/accessibility needs for front loading trucks. ▪ If a cover will be installed, check with local fire department about possible sprinkling requirements.
Grading/Drainage	▪ Direct runoff from roof downspouts away from the waste/recycling storage area. ▪ Locate the waste management area at least 35 feet from the nearest storm drain inlet. The intention is to deter employees/tenants/contractors from directing wash water to the storm drain system with a hose or pressure washer. ▪ Hydraulically isolate the area; this can be achieved by reverse grading at the perimeter, perimeter curbing or berming, or the use of perimeter or area drains to collect and divert runoff.
Sanitary Sewer Connection	▪ If acceptable to the permitting agency, connect the hydraulically isolated area to the sanitary sewer via a trench drain at the back of the enclosure or similar, to facilitate proper disposal of polluted wash water. Check with the local waste management agency for detail drawings if available. ▪ Provide pretreatment with an approved grease interceptor prior to discharge to the sanitary sewer. Check with the local sanitary sewer permitting agency for specifics and approval. Note that the Plumbing Code limits the number of connections to a single grease interceptor at a facility.

Design Feature	Requirement
	▪ See Appendix C for sanitary sewer connection and contact information.
Signage	▪ Post signs inside the enclosure and/or on the bins prohibiting the disposal of liquids and hazardous materials therein. ▪ Consider posting signs on the inside of the enclosure walls to educate employees and tenants about proper wash down procedures (procedures will vary depending on whether or not the area is connected to the sanitary sewer system).
These requirements are intended to supplement, not supersede, those found in other codes (e.g., building, plumbing, fire, hazardous waste). If conflicts are identified, consult with the local permitting agency and other agencies as needed (e.g., fire, sanitation district) for resolution.	

APPENDIX B – LID CALCULATIONS SHEETS

NORTH AREA LID POINTS CALCULATION SHEETS

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Morrison Creek
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	
1 b. Project Drainage Shed Area (Total)	6.34	acres	A
Project-Specific Open Space (In-project, communal)**	1.00	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	1.00	acres	
e. Flood Control/Drainage basins	0.00	acres	

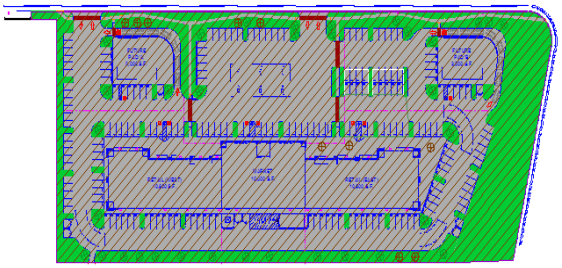
see area example below

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

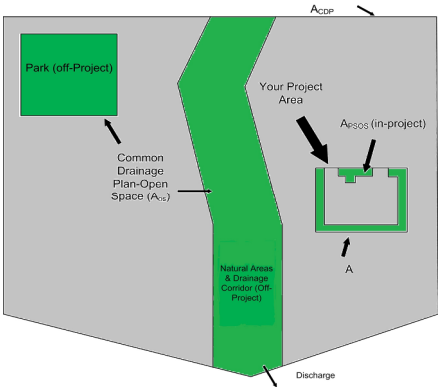
Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	5.34	acres	A_T
Assumed Initial Impervious Fraction	A_T / A =	0.84		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 16 pts



A – Drainage Shed Area
A_{PSOS} Open Space and Landscaping
A_T – Area with Runoff Reduction Potential



Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)		acres	x	1	=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.04	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)		acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)		acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.02	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.06	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100$ =		1	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_E)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.08 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.04 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 2.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

0.55 — Box K4

6. Enter Efficiency of Porous Pavement (see table below) — 0.75 — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.03 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.03 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.04 acres — Box K8
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.	15	trees	Box L1
2. Multiply Box L1 by 200 and enter result in Box L2	3000	sq. ft.	Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.	15	trees	Box L3
4. Multiply Box L3 by 100 and enter result in Box L4	1500	sq. ft.	Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.	0	sq. ft.	Box L5
6. Multiply Box L5 by 0.5 and enter the result in Box L6	0	sq. ft.	Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7	4500	sq. ft.	Box L7
Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2	0.02	acres	Box L8

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems
(see Fact Sheet) - enter gallons, for simple rain barrels — 0.00 acres

Automated-Control Capture and Use System
(see Fact Sheet, then enter impervious area managed by the system) — 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs
(see Fact Sheet)

Bioretention Area	4,350	sq ft
Subdrain Elevation	6	inches
Ponding Depth, inches	10	inches

1.24 acres

Impervious Area Managed by Infiltration BMPs
(see Fact Sheet)

Drawdown Time, hrs	12	drawdown_hrs_inf
Soil Infiltration Rate, in/hr	0.50	soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf — 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area — 0.00 acres

Basin or trench? Basin — approximate BMP depth 1.43 ft

Impervious Area Managed by Amended Soil or Mulch Beds
(see Fact Sheet) Mulched Infiltration Area, sq ft 17,900 mulch_area — 1.64 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs — 2.88 A_{LIDc}

Runoff Management Credit (Step 3) — A_{LIDC}/A_T*200 = 108.0 pts

Total LID Credits (Step 1+2+3) — LID compliant, check for treatment sizing in Step 4 — 124.9

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment — $A_T - A_C - A_{LIDC}$ = 2.40 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment — A_{AT} / A = 0.38 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	2.40	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	0.41	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet):	WQV = Area x Maximized Detention Volume (P_0)				
Obtain A from Step 1	6.34	A	12	hrs	Specified Draw Down time
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.19	P_0			
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.10	Acre-Feet			

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SOUTH AREA LID POINTS CALCULATION SHEETS

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Morrison Creek
Location of project: Sacramento

Fill in Blue Highlighted boxes

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area	0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)	0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors	0	acres	
b. Buffer zones for natural water bodies	0	acres	
c. Natural areas including existing trees, other vegetation, and soil	0	acres	
d. Common landscape area/park	0	acres	
e. Regional Flood Control/Drainage basins	0	acres	
1 b. Project Drainage Shed Area (Total)	4.56	acres	A
Project-Specific Open Space (In-project, communal)**	0.79	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors	0.00	acres	
b. Buffer zones for natural water bodies	0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil	0.00	acres	
d. Landscape area/park	0.79	acres	
e. Flood Control/Drainage basins	0.00	acres	

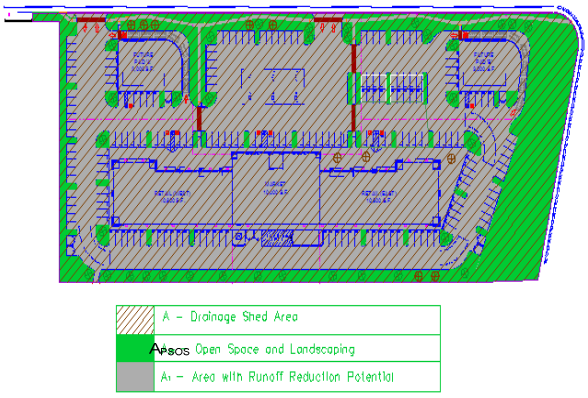
see area example below

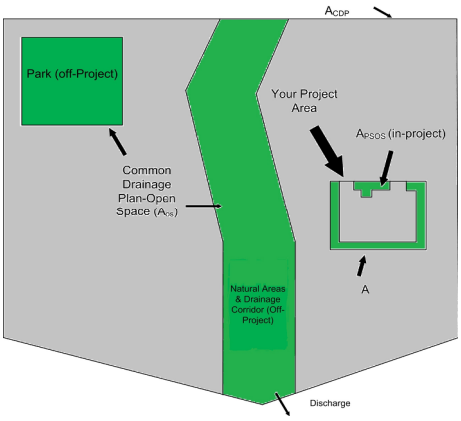
see area example below

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	3.77	acres	A_T
Assumed Initial Impervious Fraction	A_T / A =	0.83		I

Open Space & Pervious Area LID Credit (Step 1)
$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100$ = 17 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)		acres	x	1	=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.09	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)		acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)		acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.01	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.10	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100$ =		3	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.19 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.10 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 2.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4: 0.55

6. Enter Efficiency of Porous Pavement (see table below) — 0.75 — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.07 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.08 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.09 acres — Box K8
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.	5	trees	Box L1
2. Multiply Box L1 by 200 and enter result in Box L2	1000	sq. ft.	Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.	4	trees	Box L3
4. Multiply Box L3 by 100 and enter result in Box L4	400	sq. ft.	Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.	0	sq. ft.	Box L5
6. Multiply Box L5 by 0.5 and enter the result in Box L6	0	sq. ft.	Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7	1400	sq. ft.	Box L7
Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2	0.01	acres	Box L8

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) - enter gallons, for simple rain barrels — 0.00 acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) — 0.00 acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area 3,900 sq ft
Subdrain Elevation 6 inches
Ponding Depth, inches 12 inches — 1.34 acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs 12 drawdown_hrs_inf
Soil Infiltration Rate, in/hr 0.50 soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf — 0.00 acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area — 0.00 acres

Basin or trench? Basin — approximate BMP depth 1.43 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft 5,780 mulch_area — 0.53 acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs — 1.87 A_{LIDc}

Runoff Management Credit (Step 3) — A_{LIDC}/A_T*200 = 99.0 pts

Total LID Credits (Step 1+2+3) — LID compliant, check for treatment sizing in Step 4 — 118.9

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment — $A_T - A_C - A_{LIDC}$ = 1.81 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment — A_{AT} / A = 0.40 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs):	Flow = Runoff Coefficient x Rainfall Intensity x Area	
Look up value for i in Table D-2c (Rainfall Intensity)	0.18	i
Obtain A_{AT} from Step 3	1.81	A_{AT}
Use C = 0.95	0.95	C
Flow = 0.95 * i * A_{AT}	0.31	cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet):	WQV = Area x Maximized Detention Volume (P_0)			
Obtain A from Step 1	4.56	A	12 hrs	Specified Draw Down time
Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2.	0.20	P_0		
Calculate treatment volume (acre-ft): **Treatment volume = A x (P_0 / 12)**	0.08	Acre-Feet		

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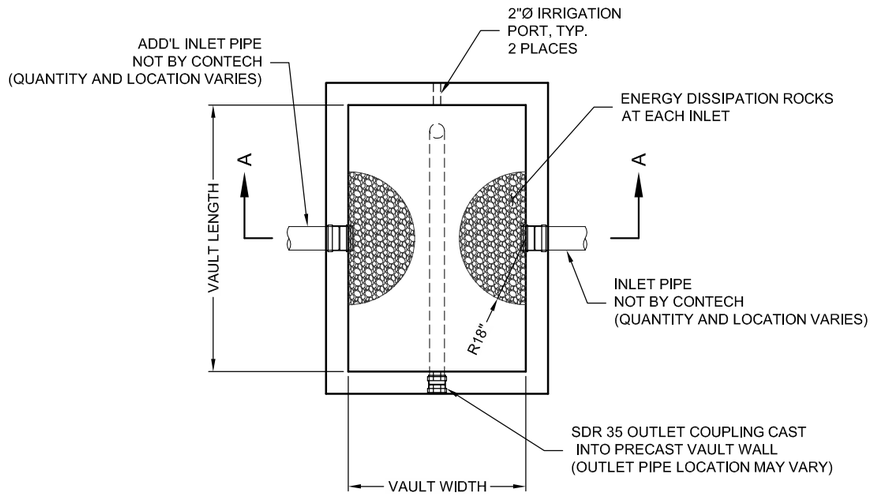
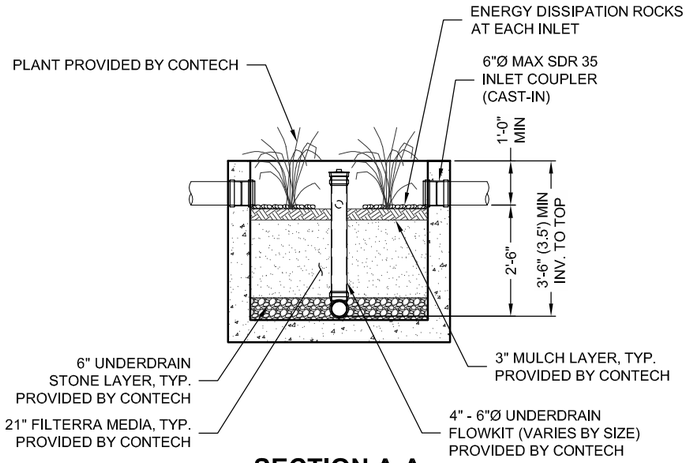
APPENDIX C – TREATMENT CONTROL FACILITES



PLAN VIEW



SECTION A-A

INTERNAL PIPE CONFIGURATION MAY VARY
DEPENDING UPON OUTLET LOCATION.

FTBSV-P CONFIGURATION

DESIGNATION	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (L x W)	OUTLET PIPE	MIN NO. OF INLET PIPES
FTBSV0404-P	ALL	4 x 4	4 x 4	4" SDR 35	1
FTBSV0604-P	N/A CA	6 x 4	6 x 4	4" SDR 35	1
FTBSV0606-P	ALL	6 x 6	6 x 6	4" SDR 35	1
FTBSV06504-P	CA ONLY	6.5 x 4	6.5 x 4	4" SDR 35	1
FTBSV078045-P	MID-ATL ONLY	7.83 x 4.5	7.83 x 4.5	4" SDR 35	1
FTBSV0804-P	N/A MID-ATL	8 x 4	8 x 4	4" SDR 35	1
FTBSV0806-P	ALL	8 x 6	8 x 6	4" SDR 35	1
FTBSV1006-P	ALL	10 x 6	10 x 6	6" SDR 35	2
FTBSV1206-P	ALL	12 x 6	12 x 6	6" SDR 35	2
FTBSV1307-P	ALL	13 x 7	13 x 7	6" SDR 35	2
FTBSV1408-P	CALL CONTECH	14 x 8	14 x 8	6" SDR 35	3
FTBSV1608-P	CALL CONTECH	16 x 8	16 x 8	6" SDR 35	3
FTBSV1808-P	CALL CONTECH	18 x 8	18 x 8	6" SDR 35	3
FTBSV2008-P	CALL CONTECH	20 x 8	20 x 8	6" SDR 35	4
FTBSV2208-P	CALL CONTECH	22 x 8	22 x 8	6" SDR 35	4

N/A = NOT AVAILABLE

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filterra®

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800-338-1122 513-645-7000 513-645-7993 FAX

FILTERRA BIOSCAPE VAULT OFFLINE WITH PIPE INLET (FTBSV-P) CONFIGURATION DETAIL

I:\COMMON\CAD\TREATMENT\54 FILTERRA\40 STANDARD DRAWINGS\FTBSV-P - BIOSCAPE VAULT WITH PIPE INLET\LAYOUT DETAILS\DWG\FILTERRA BIOSCAPE VAULT WITH PIPE INLET CONFIG DTL.DWG 11/1/2017 2:00 PM

filterra

Table 1: Filterra® Quick Sizing Table
(West Coast - 0.2 in/hr Uniform Intensity Approach)

Available Filterra® Box Sizes (feet)	Total Contributing Drainage Area (acres)	Outlet Pipe
4x6 or 6x4	up to 0.22	4" SDR-35 PVC
4x8 or 8x4	0.23 to 0.29	4" SDR-35 PVC
Standard 6x6	0.30 to 0.33	4" SDR-35 PVC
6x8 or 8x6	0.34 to 0.44	4" SDR-35 PVC
6x10 or 10x6	0.45 to 0.55	6" SDR-35 PVC
6x12 or 12x6	0.56 to 0.66	6" SDR-35 PVC

Notes:

1. All boxes are a standard 3.5 feet depth (INV to TC)

2. A standard SDR-35 PVC pipe coupling is cast into the wall for easy connection to discharge drain

3. Dimensions shown are internal. Please add 1' to each for external (using 6" walls)

4. For Commercial Developments a minimum C factor of 0.85 is required. For Residential Developments, use of C factors less than 0.5 require individual site review by Filterra.

5. Please ask for Sizing Tables for other target treatment goals, e.g. 0.3 in/hr

Design Rainfall is 0.2 in/hr	Example Calculation 1	Example Calculation 2
Using Rational Formula Per CASQA	Commercial Development Min. Runoff Coefficient is 0.85	Residential Development Min. Runoff Coefficient is 0.50
Filterra Box Size (feet)	Maximum Drainage Area (acres)	Maximum Drainage Area (acres)
4x6 or 6x4	0.26	0.44
4x8 or 8x4	0.35	0.59
6x6 (standard)	0.39	0.66
6x8 or 8x6	0.52	0.88
6x10 or 10x6	0.65	1.10
6x12 or 12x6	0.78	1.32

APPENDIX D – HYDROMODIFICATION STUDIES

SAHM

PROJECT REPORT

General Model Information

Project Name:	ElderNorthUP2
Site Name:	Elder
Site Address:	8280 Elder Crekk
City:	Sacramento
Report Date:	4/20/2018
Gage:	ELK GROV
Data Start:	1963/10/01
Data End:	2004/09/30
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2018/02/20

POC Thresholds

Low Flow Threshold for POC1:	25 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Pre-Project Land Use

Pervious North Area

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Grass,Flat(0-1%)	6.34
Pervious Total	6.34
Impervious Land Use	acre
Impervious Total	0
Basin Total	6.34

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

To Bioretntion

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.24
Impervious Total	1.24
Basin Total	1.24

Element Flows To:

Surface	Interflow	Groundwater
Bioretenti Surfaceon	Bioretenti Surfaceon	

To Planters

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	2.34
Impervious Total	2.34
Basin Total	2.34

Element Flows To:

Surface	Interflow	Groundwater
F T Plante Surface 2	F T Plante Surface 2	

To Porous Pavement

Bypass:	No
Impervious Land Use	acre
Imperv,Flat(0-1%) LAT	0.08

Element Flows To:

Outlet 1	Outlet 2
Porous Pavement 1	

To Amended Soil

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.64
Impervious Total	1.64
Basin Total	1.64

Element Flows To:

Surface	Interflow	Groundwater
Surface Amended Soil	Surface Amended Soil	

Pervious

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Urban,Flat(0-1%)	1
Pervious Total	1
Impervious Land Use	acre
Impervious Total	0
Basin Total	1

Element Flows To:

Surface	Interflow	Groundwater
StormTech 2	StormTech 2	

Routing Elements

Pre-Project Routing

Mitigated Routing

Bioretention

Bottom Length:	362.50 ft.
Bottom Width:	12.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	29.67
Total Volume Through Riser (ac-ft.):	1.547
Total Volume Through Facility (ac-ft.):	63.863
Percent Infiltrated:	46.46
Total Precip Applied to Facility:	4.671
Total Evap From Facility:	2.481
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	6
Flow Through Underdrain (ac-ft.):	32.646
Total Outflow (ac-ft.):	63.863
Percent Through Underdrain:	51.12
Discharge Structure	
Riser Height:	0.75 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0999	0.0000	0.0000	0.0000
0.0522	0.0999	0.0022	0.0000	0.0000
0.1044	0.0999	0.0044	0.0000	0.0000
0.1566	0.0999	0.0066	0.0000	0.0000
0.2088	0.0999	0.0088	0.0060	0.0060
0.2610	0.0999	0.0109	0.0060	0.0060
0.3132	0.0999	0.0131	0.0060	0.0060
0.3654	0.0999	0.0153	0.0060	0.0060
0.4176	0.0999	0.0175	0.0060	0.0060
0.4698	0.0999	0.0197	0.0060	0.0060
0.5220	0.0999	0.0219	0.0060	0.0060
0.5742	0.0999	0.0241	0.0060	0.0060
0.6264	0.0999	0.0263	0.0060	0.0060
0.6786	0.0999	0.0285	0.0060	0.0060
0.7308	0.0999	0.0307	0.0060	0.0060
0.7830	0.0999	0.0328	0.0060	0.0060
0.8352	0.0999	0.0350	0.0060	0.0060
0.8874	0.0999	0.0372	0.0060	0.0060
0.9396	0.0999	0.0394	0.0060	0.0060
0.9918	0.0999	0.0416	0.0060	0.0060

1.0440	0.0999	0.0438	0.0060	0.0060
1.0962	0.0999	0.0460	0.0060	0.0060
1.1484	0.0999	0.0482	0.0060	0.0060
1.2005	0.0999	0.0504	0.0060	0.0060
1.2527	0.0999	0.0525	0.0060	0.0060
1.3049	0.0999	0.0547	0.0060	0.0060
1.3571	0.0999	0.0569	0.0060	0.0060
1.4093	0.0999	0.0591	0.0060	0.0060
1.4615	0.0999	0.0613	0.0060	0.0060
1.5137	0.0999	0.0635	0.0060	0.0060
1.5659	0.0999	0.0657	0.0060	0.0060
1.6181	0.0999	0.0679	0.0060	0.0060
1.6703	0.0999	0.0701	0.0060	0.0060
1.7225	0.0999	0.0722	0.0060	0.0060
1.7747	0.0999	0.0744	0.0060	0.0060
1.8269	0.0999	0.0766	0.0060	0.0060
1.8791	0.0999	0.0788	0.0060	0.0060
1.9313	0.0999	0.0810	0.0060	0.0060
1.9835	0.0999	0.0832	0.0060	0.0060
2.0357	0.0999	0.0854	0.0060	0.0060
2.0879	0.0999	0.0875	0.0060	0.0060
2.1401	0.0999	0.0897	0.0060	0.0060
2.1923	0.0999	0.0918	0.0060	0.0060
2.2445	0.0999	0.0940	0.0060	0.0060
2.2967	0.0999	0.0962	0.0060	0.0060
2.3489	0.0999	0.0983	0.0060	0.0060
2.4011	0.0999	0.1005	0.0060	0.0060
2.4533	0.0999	0.1027	0.0060	0.0060
2.5055	0.0999	0.1048	0.0060	0.0060
2.5577	0.0999	0.1070	0.0060	0.0060
2.6099	0.0999	0.1092	0.0060	0.0060
2.6621	0.0999	0.1113	0.0060	0.0060
2.7143	0.0999	0.1135	0.0060	0.0060
2.7665	0.0999	0.1156	0.0060	0.0060
2.8187	0.0999	0.1178	0.0060	0.0060
2.8709	0.0999	0.1200	0.0060	0.0060
2.9231	0.0999	0.1221	0.0060	0.0060
2.9753	0.0999	0.1243	0.0060	0.0060
3.0000	0.0999	0.1253	0.0060	0.0060

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0999	0.1253	0.0000	0.1125	0.0000
3.0522	0.0999	0.1305	0.0000	0.1125	0.0000
3.1044	0.0999	0.1357	0.0000	0.1125	0.0000
3.1566	0.0999	0.1410	0.0000	0.1125	0.0000
3.2088	0.0999	0.1462	0.0000	0.1125	0.0000
3.2610	0.0999	0.1514	0.0000	0.1125	0.0000
3.3132	0.0999	0.1566	0.0000	0.1125	0.0000
3.3654	0.0999	0.1618	0.0000	0.1125	0.0000
3.4176	0.0999	0.1670	0.0000	0.1125	0.0000
3.4698	0.0999	0.1722	0.0000	0.1125	0.0000
3.5220	0.0999	0.1774	0.0000	0.1125	0.0000
3.5742	0.0999	0.1827	0.0000	0.1125	0.0000
3.6264	0.0999	0.1879	0.0000	0.1125	0.0000
3.6786	0.0999	0.1931	0.0000	0.1125	0.0000
3.7308	0.0999	0.1983	0.0000	0.1125	0.0000
3.7830	0.0999	0.2035	0.0000	0.1125	0.0000

3.8352	0.0999	0.2087	0.0000	0.1125	0.0000
3.8874	0.0999	0.2139	0.0000	0.1125	0.0000
3.9396	0.0999	0.2191	0.0000	0.1125	0.0000
3.9918	0.0999	0.2244	0.0000	0.1125	0.0000
4.0440	0.0999	0.2296	0.0000	0.1125	0.0000
4.0962	0.0999	0.2348	0.0093	0.1125	0.0000
4.1484	0.0999	0.2400	0.0199	0.1125	0.0000
4.2005	0.0999	0.2452	0.0228	0.1125	0.0000
4.2527	0.0999	0.2504	0.0258	0.1125	0.0000
4.3049	0.0999	0.2556	0.0291	0.1125	0.0000
4.3571	0.0999	0.2608	0.0361	0.1125	0.0000
4.4093	0.0999	0.2661	0.0400	0.1125	0.0000
4.4615	0.0999	0.2713	0.0440	0.1125	0.0000
4.5137	0.0999	0.2765	0.0477	0.1125	0.0000
4.5659	0.0999	0.2817	0.0509	0.1125	0.0000
4.6181	0.0999	0.2869	0.0539	0.1125	0.0000
4.6703	0.0999	0.2921	0.0567	0.1125	0.0000
4.7225	0.0999	0.2973	0.0594	0.1125	0.0000
4.7500	0.0999	0.3001	0.0620	0.1125	0.0000

Bioretenti Surfaceon

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Bioretention

Porous Pavement 1

Pavement Area:0.0368 acre.Pavement Length:107.00 ft.

Pavement Width:	15.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.67
Pour Space of Pavement:	0.5
Material thickness of second layer:	0.5
Pour Space of material for second layer:	0.3
Material thickness of third layer:	0.75
Pour Space of material for third layer:	0.4
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	0.065
Total Volume Through Riser (ac-ft.):	5.681
Total Volume Through Facility (ac-ft.):	5.746
Percent Infiltrated:	1.13
Total Precip Applied to Facility:	0
Total Evap From Facility:	0.051

Element Flows To:

Outlet 1 Outlet 2

StormTech 2

Porous Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.036	0.000	0.000	0.000
0.0213	0.036	0.000	0.063	0.000
0.0427	0.036	0.000	0.089	0.000
0.0640	0.036	0.000	0.109	0.000
0.0853	0.036	0.001	0.126	0.000
0.1067	0.036	0.001	0.141	0.000
0.1280	0.036	0.001	0.155	0.000
0.1493	0.036	0.002	0.167	0.000
0.1707	0.036	0.002	0.179	0.000
0.1920	0.036	0.002	0.190	0.000
0.2133	0.036	0.003	0.200	0.000
0.2347	0.036	0.003	0.210	0.000
0.2560	0.036	0.003	0.219	0.000
0.2773	0.036	0.004	0.228	0.000
0.2987	0.036	0.004	0.237	0.000
0.3200	0.036	0.004	0.245	0.000
0.3413	0.036	0.005	0.253	0.000
0.3627	0.036	0.005	0.261	0.000
0.3840	0.036	0.005	0.269	0.000
0.4053	0.036	0.006	0.276	0.000
0.4267	0.036	0.006	0.283	0.000
0.4480	0.036	0.006	0.290	0.000
0.4693	0.036	0.006	0.297	0.000
0.4907	0.036	0.007	0.304	0.000
0.5120	0.036	0.007	0.310	0.000
0.5333	0.036	0.007	0.317	0.000
0.5547	0.036	0.008	0.323	0.000
0.5760	0.036	0.008	0.329	0.000
0.5973	0.036	0.008	0.335	0.000
0.6187	0.036	0.009	0.341	0.000
0.6400	0.036	0.009	0.347	0.000

0.6613	0.036	0.009	0.353	0.000
0.6827	0.036	0.010	0.358	0.000
0.7040	0.036	0.010	0.364	0.000
0.7253	0.036	0.010	0.369	0.000
0.7467	0.036	0.011	0.375	0.000
0.7680	0.036	0.011	0.380	0.000
0.7893	0.036	0.011	0.385	0.000
0.8107	0.036	0.011	0.390	0.000
0.8320	0.036	0.011	0.396	0.000
0.8533	0.036	0.012	0.401	0.000
0.8747	0.036	0.012	0.406	0.000
0.8960	0.036	0.012	0.411	0.000
0.9173	0.036	0.012	0.415	0.000
0.9387	0.036	0.013	0.420	0.000
0.9600	0.036	0.013	0.425	0.000
0.9813	0.036	0.013	0.430	0.000
1.0027	0.036	0.013	0.434	0.000
1.0240	0.036	0.014	0.439	0.000
1.0453	0.036	0.014	0.443	0.000
1.0667	0.036	0.014	0.448	0.000
1.0880	0.036	0.014	0.452	0.000
1.1093	0.036	0.015	0.457	0.000
1.1307	0.036	0.015	0.461	0.000
1.1520	0.036	0.015	0.466	0.000
1.1733	0.036	0.015	0.470	0.000
1.1947	0.036	0.016	0.474	0.000
1.2160	0.036	0.016	0.478	0.000
1.2373	0.036	0.016	0.483	0.000
1.2587	0.036	0.016	0.487	0.000
1.2800	0.036	0.017	0.491	0.000
1.3013	0.036	0.017	0.495	0.000
1.3227	0.036	0.018	0.499	0.000
1.3440	0.036	0.018	0.503	0.000
1.3653	0.036	0.018	0.507	0.000
1.3867	0.036	0.019	0.511	0.000
1.4080	0.036	0.019	0.515	0.000
1.4293	0.036	0.020	0.519	0.000
1.4507	0.036	0.020	0.523	0.000
1.4720	0.036	0.020	0.526	0.000
1.4933	0.036	0.021	0.530	0.000
1.5147	0.036	0.021	0.534	0.000
1.5360	0.036	0.021	0.538	0.000
1.5573	0.036	0.022	0.541	0.000
1.5787	0.036	0.022	0.545	0.000
1.6000	0.036	0.023	0.549	0.000
1.6213	0.036	0.023	0.552	0.000
1.6427	0.036	0.023	0.556	0.000
1.6640	0.036	0.024	0.560	0.000
1.6853	0.036	0.024	0.563	0.000
1.7067	0.036	0.025	0.567	0.000
1.7280	0.036	0.025	0.570	0.000
1.7493	0.036	0.025	0.574	0.000
1.7707	0.036	0.026	0.577	0.000
1.7920	0.036	0.026	0.581	0.000
1.8133	0.036	0.027	0.584	0.000
1.8347	0.036	0.027	0.588	0.000
1.8560	0.036	0.027	0.591	0.000
1.8773	0.036	0.028	0.594	0.000

1.8987	0.036	0.028	0.598	0.000
1.9200	0.036	0.029	0.601	0.000

F T Planter 2

Bottom Length:	70.00 ft.
Bottom Width:	4.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 15 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	59.119
Total Outflow (ac-ft.):	116.493
Percent Through Underdrain:	50.75
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0064	0.0000	0.0000	0.0000
0.0549	0.0064	0.0001	0.0000	0.0000
0.1099	0.0064	0.0003	0.0000	0.0000
0.1648	0.0064	0.0004	0.0000	0.0000
0.2198	0.0064	0.0006	0.0000	0.0000
0.2747	0.0064	0.0007	0.0000	0.0000
0.3297	0.0064	0.0009	0.0000	0.0000
0.3846	0.0064	0.0010	0.0000	0.0000
0.4396	0.0064	0.0012	0.0000	0.0000
0.4945	0.0064	0.0013	0.0000	0.0000
0.5495	0.0064	0.0015	0.0000	0.0000
0.6044	0.0064	0.0016	0.0000	0.0000
0.6593	0.0064	0.0018	0.0000	0.0000
0.7143	0.0064	0.0019	0.0000	0.0000
0.7692	0.0064	0.0021	0.0000	0.0000
0.8242	0.0064	0.0022	0.0000	0.0000
0.8791	0.0064	0.0024	0.0000	0.0000
0.9341	0.0064	0.0025	0.0000	0.0000
0.9890	0.0064	0.0027	0.0000	0.0000
1.0440	0.0064	0.0028	0.0000	0.0000
1.0989	0.0064	0.0030	0.0000	0.0000
1.1538	0.0064	0.0031	0.0000	0.0000
1.2088	0.0064	0.0033	0.0000	0.0000
1.2637	0.0064	0.0034	0.0000	0.0000
1.3187	0.0064	0.0036	0.0000	0.0000
1.3736	0.0064	0.0037	0.0000	0.0000
1.4286	0.0064	0.0039	0.0000	0.0000
1.4835	0.0064	0.0040	0.0000	0.0000
1.5385	0.0064	0.0042	0.0000	0.0000
1.5934	0.0064	0.0043	0.0000	0.0000
1.6484	0.0064	0.0045	0.0000	0.0000

1.7033	0.0064	0.0046	0.0000	0.0000
1.7582	0.0064	0.0047	0.0000	0.0000
1.8132	0.0064	0.0049	0.0000	0.0000
1.8681	0.0064	0.0050	0.0000	0.0000
1.9231	0.0064	0.0052	0.0000	0.0000
1.9780	0.0064	0.0053	0.0000	0.0000
2.0330	0.0064	0.0055	0.0000	0.0000
2.0879	0.0064	0.0056	0.0000	0.0000
2.1429	0.0064	0.0058	0.0000	0.0000
2.1978	0.0064	0.0059	0.0000	0.0000
2.2527	0.0064	0.0061	0.0000	0.0000
2.3077	0.0064	0.0062	0.0000	0.0000
2.3626	0.0064	0.0064	0.0000	0.0000
2.4176	0.0064	0.0065	0.0000	0.0000
2.4725	0.0064	0.0067	0.0000	0.0000
2.5275	0.0064	0.0068	0.0000	0.0000
2.5824	0.0064	0.0070	0.0000	0.0000
2.6374	0.0064	0.0071	0.0000	0.0000
2.6923	0.0064	0.0072	0.0000	0.0000
2.7473	0.0064	0.0074	0.0000	0.0000
2.8022	0.0064	0.0075	0.0000	0.0000
2.8571	0.0064	0.0077	0.0000	0.0000
2.9121	0.0064	0.0078	0.0000	0.0000
2.9670	0.0064	0.0080	0.0000	0.0000
3.0000	0.0064	0.0081	0.0000	0.0000

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0064	0.0081	0.0000	0.0995	0.0000
3.0549	0.0064	0.0084	0.0000	0.0995	0.0000
3.1099	0.0064	0.0088	0.0000	0.0995	0.0000
3.1648	0.0064	0.0091	0.0000	0.0995	0.0000
3.2198	0.0064	0.0095	0.0001	0.0995	0.0000
3.2747	0.0064	0.0098	0.0002	0.0995	0.0000
3.3297	0.0064	0.0102	0.0004	0.0995	0.0000
3.3846	0.0064	0.0105	0.0007	0.0995	0.0000
3.4396	0.0064	0.0109	0.0011	0.0995	0.0000
3.4945	0.0064	0.0112	0.0017	0.0995	0.0000
3.5495	0.0064	0.0116	0.0023	0.0995	0.0000
3.6044	0.0064	0.0120	0.0031	0.0995	0.0000
3.6593	0.0064	0.0123	0.0040	0.0995	0.0000
3.7143	0.0064	0.0127	0.0051	0.0995	0.0000
3.7692	0.0064	0.0130	0.0063	0.0995	0.0000
3.8242	0.0064	0.0134	0.0077	0.0995	0.0000
3.8791	0.0064	0.0137	0.0092	0.0995	0.0000
3.9341	0.0064	0.0141	0.0109	0.0995	0.0000
3.9890	0.0064	0.0144	0.0128	0.0995	0.0000
4.0440	0.0064	0.0148	0.0149	0.0995	0.0000
4.0989	0.0064	0.0151	0.0172	0.0995	0.0000
4.1538	0.0064	0.0155	0.0190	0.0995	0.0000
4.2088	0.0064	0.0158	0.0197	0.0995	0.0000
4.2637	0.0064	0.0162	0.0224	0.0995	0.0000
4.3187	0.0064	0.0165	0.0253	0.0995	0.0000
4.3736	0.0064	0.0169	0.0284	0.0995	0.0000
4.4286	0.0064	0.0172	0.0317	0.0995	0.0000
4.4835	0.0064	0.0176	0.0353	0.0995	0.0000
4.5385	0.0064	0.0180	0.0369	0.0995	0.0000
4.5934	0.0064	0.0183	0.0412	0.0995	0.0000

4.6484	0.0064	0.0187	0.0450	0.0995	0.0000
4.7033	0.0064	0.0190	0.0473	0.0995	0.0000
4.7582	0.0064	0.0194	0.0486	0.0995	0.0000
4.8132	0.0064	0.0197	0.0519	0.0995	0.0000
4.8681	0.0064	0.0201	0.0550	0.0995	0.0000
4.9231	0.0064	0.0204	0.0579	0.0995	0.0000
4.9780	0.0064	0.0208	0.0607	0.0995	0.0000
5.0000	0.0064	0.0209	0.0634	0.0995	0.0000

F T Plante Surface 2

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	F T Planter 2

StormTech 2

Chamber Model:	3500		
Dimensions			
Max Row Length:	300		
Number of Chambers:	188		
Number of Endcaps:	10		
Top Stone Depth:	9		
Bottom Stone Depth:	9		
Infiltration On			
Infiltration rate:	0.06		
Infiltration safety factor:	0.33		
Total Volume Infiltrated (ac-ft.):		7.694	
Total Volume Through Riser (ac-ft.):		189.587	
Total Volume Through Facility (ac-ft.):		197.281	
Percent Infiltrated:		3.9	
Total Precip Applied to Facility:		0	
Total Evap From Facility:		0	
Discharge Structure			
Riser Height:	3.25 ft.		
Riser Diameter:	18 in.		
Notch Type:	Rectangular		
Notch Width:	0.960 ft.		
Notch Height:	0.830 ft.		
Orifice 1 Diameter:	2.4 in.	Elevation:0 ft.	
Element Flows To:			
Outlet 1	Outlet 2		

StormTech Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
3.0000	1.294	0.000	0.000	0.000
3.1111	1.294	0.143	0.052	0.025
3.2222	1.294	0.287	0.073	0.025
3.3333	1.294	0.431	0.090	0.025
3.4444	1.294	0.575	0.104	0.025
3.5556	1.294	0.719	0.116	0.025
3.6667	1.294	0.863	0.127	0.025
3.7778	1.294	1.007	0.137	0.025
3.8889	1.294	1.150	0.147	0.025
4.0000	1.294	1.294	0.156	0.025
4.1111	1.294	1.438	0.164	0.025
4.2222	1.294	1.582	0.172	0.025
4.3333	1.294	1.726	0.180	0.025
4.4444	1.294	1.870	0.187	0.025
4.5556	1.294	2.014	0.195	0.025
4.6667	1.294	2.157	0.201	0.025
4.7778	1.294	2.301	0.208	0.025
4.8889	1.294	2.445	0.214	0.025
5.0000	1.294	2.589	0.221	0.025
5.1111	1.294	2.733	0.227	0.025
5.2222	1.294	2.877	0.233	0.025
5.3333	1.294	3.021	0.238	0.025
5.4444	1.294	3.165	0.256	0.025
5.5556	1.294	3.308	0.409	0.025
5.6667	1.294	3.452	0.646	0.025
5.7778	1.294	3.596	0.944	0.025

5.8889	1.294	3.740	1.292	0.025
6.0000	1.294	3.884	1.682	0.025
6.1111	1.294	4.028	2.112	0.025
6.2222	1.294	4.172	2.577	0.025
6.3333	1.294	4.315	3.085	0.025
6.4444	1.294	4.459	4.055	0.025
6.5556	1.294	4.603	5.276	0.025
6.6667	1.294	4.747	6.529	0.025
6.7778	1.294	4.891	7.599	0.025
6.8889	1.294	5.035	8.346	0.025
7.0000	1.294	5.179	8.867	0.025
7.1111	1.294	5.322	9.310	0.025
7.2222	1.294	5.466	9.726	0.025
7.3333	1.294	5.610	10.11	0.025
7.4444	1.294	5.754	10.49	0.025
7.5556	1.294	5.898	10.84	0.025
7.6667	1.294	6.042	11.19	0.025
7.7778	1.294	6.186	11.51	0.025
7.8889	1.294	6.330	11.83	0.025
8.0000	1.294	6.473	12.14	0.025
8.1111	1.294	6.617	12.43	0.025
8.2222	1.294	6.761	12.72	0.025
8.3333	1.294	6.905	13.00	0.025
8.4444	1.294	7.049	13.28	0.025
8.5556	1.294	7.193	13.54	0.025
8.6667	1.294	7.337	13.80	0.025
8.7778	1.294	7.480	14.06	0.025
8.8889	1.294	7.624	14.30	0.025
9.0000	1.294	7.768	14.55	0.025
9.1111	1.294	7.912	14.79	0.025
9.2222	1.294	8.056	15.02	0.025
9.3333	1.294	8.200	15.25	0.025
9.4444	1.294	8.344	15.48	0.025
9.5556	1.294	8.487	15.70	0.025
9.6667	1.294	8.631	15.92	0.025
9.7778	1.294	8.775	16.13	0.025
9.8889	1.294	8.919	16.34	0.025
10.000	1.294	9.063	16.55	0.025
10.111	1.294	9.207	16.75	0.025
10.222	1.294	9.351	16.96	0.025
10.333	1.294	9.494	17.16	0.025
10.444	1.294	9.638	17.35	0.025
10.556	1.294	9.782	17.55	0.025
10.667	1.294	9.926	17.74	0.025
10.778	1.294	10.07	17.93	0.025
10.889	1.294	10.21	18.12	0.025
11.000	1.294	10.35	18.30	0.025
11.111	1.294	10.50	18.48	0.025
11.222	1.294	10.64	18.66	0.025
11.333	1.294	10.79	18.84	0.025
11.444	1.294	10.93	19.02	0.025
11.556	1.294	11.07	19.19	0.025
11.667	1.294	11.22	19.37	0.025
11.778	1.294	11.36	19.54	0.025
11.889	1.294	11.50	19.71	0.025
12.000	1.294	11.65	19.87	0.025
12.111	1.294	11.79	20.04	0.025
12.222	1.294	11.94	20.21	0.025

12.333	1.294	12.08	20.37	0.025
12.444	1.294	12.22	20.53	0.025
12.556	1.294	12.37	20.69	0.025
12.667	1.294	12.51	20.85	0.025
12.778	1.294	12.66	21.01	0.025
12.889	1.294	12.80	21.16	0.025
13.000	1.294	12.94	21.32	0.025
13.111	1.294	13.09	21.47	0.025
13.222	0.000	0.000	21.62	0.000

Amended Soil

Bottom Length:	150.00 ft.
Bottom Width:	120.00 ft.
Material thickness of first layer:	1.4
Material type for first layer:	Amended 2.5 in/hr
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.333
Total Volume Infiltrated (ac-ft.):	63.986
Total Volume Through Riser (ac-ft.):	25.546
Total Volume Through Facility (ac-ft.):	89.532
Percent Infiltrated:	71.47
Total Precip Applied to Facility:	18.978
Total Evap From Facility:	11.019
Underdrain not used	
Discharge Structure	
Riser Height:	0.25 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.4132	0.0000	0.0000	0.0000
0.0218	0.4132	0.0035	0.0000	0.0000
0.0435	0.4132	0.0070	0.0000	0.0000
0.0653	0.4132	0.0105	0.0000	0.0000
0.0870	0.4132	0.0140	0.0000	0.0000
0.1088	0.4132	0.0175	0.0000	0.0000
0.1305	0.4132	0.0210	0.0000	0.0000
0.1523	0.4132	0.0245	0.0000	0.0000
0.1741	0.4132	0.0281	0.0000	0.0000
0.1958	0.4132	0.0316	0.0000	0.0000
0.2176	0.4132	0.0351	0.0083	0.0083
0.2393	0.4132	0.0386	0.0083	0.0083
0.2611	0.4132	0.0421	0.0083	0.0083
0.2829	0.4132	0.0456	0.0083	0.0083
0.3046	0.4132	0.0491	0.0083	0.0083
0.3264	0.4132	0.0526	0.0083	0.0083
0.3481	0.4132	0.0561	0.0083	0.0083
0.3699	0.4132	0.0596	0.0083	0.0083
0.3916	0.4132	0.0631	0.0083	0.0083
0.4134	0.4132	0.0666	0.0083	0.0083
0.4352	0.4132	0.0701	0.0083	0.0083
0.4569	0.4132	0.0736	0.0083	0.0083
0.4787	0.4132	0.0771	0.0083	0.0083
0.5004	0.4132	0.0806	0.0083	0.0083
0.5222	0.4132	0.0842	0.0083	0.0083
0.5440	0.4132	0.0877	0.0083	0.0083
0.5657	0.4132	0.0912	0.0083	0.0083
0.5875	0.4132	0.0947	0.0083	0.0083

0.6092	0.4132	0.0982	0.0083	0.0083
0.6310	0.4132	0.1017	0.0083	0.0083
0.6527	0.4132	0.1052	0.0083	0.0083
0.6745	0.4132	0.1087	0.0083	0.0083
0.6963	0.4132	0.1122	0.0083	0.0083
0.7180	0.4132	0.1157	0.0083	0.0083
0.7398	0.4132	0.1192	0.0083	0.0083
0.7615	0.4132	0.1227	0.0083	0.0083
0.7833	0.4132	0.1262	0.0083	0.0083
0.8051	0.4132	0.1297	0.0083	0.0083
0.8268	0.4132	0.1332	0.0083	0.0083
0.8486	0.4132	0.1368	0.0083	0.0083
0.8703	0.4132	0.1403	0.0083	0.0083
0.8921	0.4132	0.1438	0.0083	0.0083
0.9138	0.4132	0.1473	0.0083	0.0083
0.9356	0.4132	0.1508	0.0083	0.0083
0.9574	0.4132	0.1543	0.0083	0.0083
0.9791	0.4132	0.1578	0.0083	0.0083
1.0009	0.4132	0.1613	0.0083	0.0083
1.0226	0.4132	0.1648	0.0083	0.0083
1.0444	0.4132	0.1683	0.0083	0.0083
1.0662	0.4132	0.1718	0.0083	0.0083
1.0879	0.4132	0.1753	0.0083	0.0083
1.1097	0.4132	0.1788	0.0083	0.0083
1.1314	0.4132	0.1823	0.0083	0.0083
1.1532	0.4132	0.1858	0.0083	0.0083
1.1749	0.4132	0.1894	0.0083	0.0083
1.1967	0.4132	0.1929	0.0083	0.0083
1.2185	0.4132	0.1964	0.0083	0.0083
1.2402	0.4132	0.1999	0.0083	0.0083
1.2620	0.4132	0.2034	0.0083	0.0083
1.2837	0.4132	0.2069	0.0083	0.0083
1.3055	0.4132	0.2104	0.0083	0.0083
1.3273	0.4132	0.2139	0.0083	0.0083
1.3490	0.4132	0.2174	0.0083	0.0083
1.3708	0.4132	0.2209	0.0083	0.0083
1.3925	0.4132	0.2244	0.0083	0.0083
1.4000	0.4132	0.2256	0.0083	0.0083

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
1.4000	0.4132	0.2256	0.0000	1.0828	0.0000
1.4218	0.4132	0.2346	0.0000	1.0828	0.0000
1.4435	0.4132	0.2436	0.0000	1.0994	0.0000
1.4653	0.4132	0.2526	0.0000	1.1160	0.0000
1.4870	0.4132	0.2616	0.0000	1.1326	0.0000
1.5088	0.4132	0.2706	0.0000	1.1491	0.0000
1.5305	0.4132	0.2796	0.0000	1.1657	0.0000
1.5523	0.4132	0.2886	0.0000	1.1823	0.0000
1.5741	0.4132	0.2975	0.0000	1.1988	0.0000
1.5958	0.4132	0.3065	0.0000	1.2154	0.0000
1.6176	0.4132	0.3155	0.0000	1.2320	0.0000
1.6393	0.4132	0.3245	0.0000	1.2486	0.0000
1.6611	0.4132	0.3335	0.0000	1.2651	0.0000
1.6829	0.4132	0.3425	0.0000	1.2817	0.0000
1.7046	0.4132	0.3515	0.0000	1.2983	0.0000
1.7264	0.4132	0.3605	0.0000	1.3148	0.0000
1.7481	0.4132	0.3695	0.0000	1.3314	0.0000

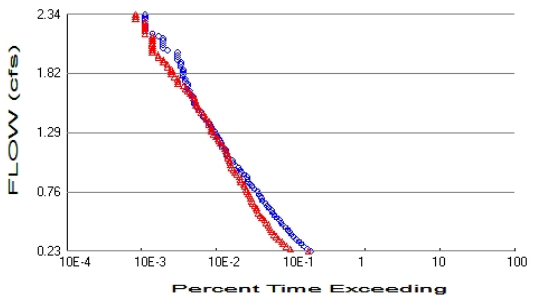
1.7699	0.4132	0.3785	0.0000	1.3480	0.0000
1.7916	0.4132	0.3875	0.0000	1.3646	0.0000
1.8134	0.4132	0.3964	0.0000	1.3811	0.0000
1.8352	0.4132	0.4054	0.0000	1.3977	0.0000
1.8569	0.4132	0.4144	0.0000	1.4143	0.0000
1.8787	0.4132	0.4234	0.0000	1.4308	0.0000
1.9004	0.4132	0.4324	0.0000	1.4474	0.0000
1.9222	0.4132	0.4414	0.0000	1.4640	0.0000
1.9440	0.4132	0.4504	0.0000	1.4806	0.0000
1.9657	0.4132	0.4594	0.0000	1.4971	0.0000
1.9800	0.4132	0.4653	0.0000	1.5080	0.0000

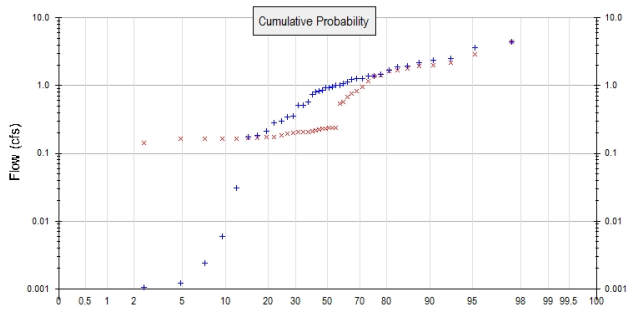
Surface Amended Soil

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Amended Soil

Analysis Results
POC 1





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 6.34
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1
Total Impervious Area: 5.336846

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	0.926417
5 year	1.586916
10 year	2.343477
25 year	3.773685

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.234393
5 year	1.544319
10 year	1.985846
25 year	3.141974

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1964	0.968	0.225
1965	0.737	0.581
1966	0.006	0.167
1967	2.400	2.849
1968	0.212	0.185
1969	2.163	0.681
1970	1.231	1.178
1971	1.261	1.427
1972	0.002	0.165
1973	2.516	0.234
1974	0.345	0.176
1975	0.001	0.144
1976	0.001	0.166
1977	0.001	0.120

1978	1.128	0.755
1979	1.005	0.237
1980	0.926	0.221
1981	0.031	0.205
1982	1.384	1.945
1983	1.919	1.396
1984	1.084	0.535
1985	0.183	0.174
1986	1.670	1.999
1987	0.568	0.230
1988	0.353	0.163
1989	0.839	0.169
1990	0.816	0.198
1991	0.512	0.205
1992	1.004	0.238
1993	0.927	0.835
1994	0.301	0.163
1995	4.366	4.389
1996	1.870	1.791
1997	3.634	2.163
1998	1.382	1.633
1999	1.277	0.944
2000	1.477	1.691
2001	0.285	0.195
2002	0.510	0.215
2003	0.174	0.235
2004	0.857	0.207

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	**Pre-Project**	**Mitigated**
1	4.3664	4.3889
2	3.6342	2.8486
3	2.5161	2.1632
4	2.3999	1.9987
5	2.1631	1.9448
6	1.9193	1.7907
7	1.8702	1.6910
8	1.6697	1.6326
9	1.4766	1.4266
10	1.3837	1.3961
11	1.3818	1.1781
12	1.2769	0.9436
13	1.2614	0.8346
14	1.2310	0.7545
15	1.1280	0.6813
16	1.0836	0.5808
17	1.0051	0.5348
18	1.0038	0.2377
19	0.9683	0.2374
20	0.9269	0.2347
21	0.9264	0.2344
22	0.8570	0.2303
23	0.8395	0.2247
24	0.8159	0.2213
25	0.7375	0.2153
26	0.5677	0.2068
27	0.5119	0.2049

28	0.5101	0.2046
29	0.3529	0.1984
30	0.3450	0.1946
31	0.3008	0.1849
32	0.2848	0.1756
33	0.2121	0.1740
34	0.1834	0.1693
35	0.1738	0.1674
36	0.0305	0.1662
37	0.0059	0.1653
38	0.0024	0.1629
39	0.0012	0.1626
40	0.0011	0.1442
41	0.0009	0.1199

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.2316	661	621	93	Pass
0.2529	597	357	59	Pass
0.2743	542	313	57	Pass
0.2956	496	286	57	Pass
0.3169	464	272	58	Pass
0.3383	429	246	57	Pass
0.3596	391	231	59	Pass
0.3809	366	214	58	Pass
0.4023	349	200	57	Pass
0.4236	328	193	58	Pass
0.4449	307	186	60	Pass
0.4663	283	180	63	Pass
0.4876	266	167	62	Pass
0.5089	251	160	63	Pass
0.5303	231	148	64	Pass
0.5516	216	140	64	Pass
0.5729	206	131	63	Pass
0.5942	198	126	63	Pass
0.6156	183	124	67	Pass
0.6369	172	118	68	Pass
0.6582	164	112	68	Pass
0.6796	152	108	71	Pass
0.7009	146	105	71	Pass
0.7222	140	102	72	Pass
0.7436	133	97	72	Pass
0.7649	129	92	71	Pass
0.7862	119	91	76	Pass
0.8076	109	86	78	Pass
0.8289	104	84	80	Pass
0.8502	97	77	79	Pass
0.8716	94	76	80	Pass
0.8929	92	74	80	Pass
0.9142	85	68	80	Pass
0.9356	79	65	82	Pass
0.9569	75	61	81	Pass
0.9782	72	58	80	Pass
0.9996	64	56	87	Pass
1.0209	60	55	91	Pass
1.0422	59	54	91	Pass
1.0636	54	52	96	Pass
1.0849	50	52	104	Pass
1.1062	49	50	102	Pass
1.1276	49	49	100	Pass
1.1489	47	47	100	Pass
1.1702	43	44	102	Pass
1.1915	42	41	97	Pass
1.2129	41	39	95	Pass
1.2342	39	38	97	Pass
1.2555	37	36	97	Pass
1.2769	35	33	94	Pass
1.2982	34	31	91	Pass
1.3195	32	31	96	Pass
1.3409	31	31	100	Pass

1.3622	30	29	96	Pass
1.3835	29	29	100	Pass
1.4049	26	27	103	Pass
1.4262	24	26	108	Pass
1.4475	24	25	104	Pass
1.4689	23	23	100	Pass
1.4902	21	21	100	Pass
1.5115	20	21	104	Pass
1.5329	19	19	100	Pass
1.5542	18	19	105	Pass
1.5755	18	19	105	Pass
1.5969	18	18	100	Pass
1.6182	17	17	100	Pass
1.6395	16	16	100	Pass
1.6609	16	15	93	Pass
1.6822	15	14	93	Pass
1.7035	15	13	86	Pass
1.7248	15	11	73	Pass
1.7462	14	11	78	Pass
1.7675	14	11	78	Pass
1.7888	13	10	76	Pass
1.8102	13	9	69	Pass
1.8315	13	9	69	Pass
1.8528	13	9	69	Pass
1.8742	12	8	66	Pass
1.8955	12	8	66	Pass
1.9168	12	7	58	Pass
1.9382	11	7	63	Pass
1.9595	11	6	54	Pass
1.9808	11	6	54	Pass
2.0022	11	5	45	Pass
2.0235	8	5	62	Pass
2.0448	7	5	71	Pass
2.0662	7	5	71	Pass
2.0875	7	5	71	Pass
2.1088	7	5	71	Pass
2.1302	7	5	71	Pass
2.1515	6	5	83	Pass
2.1728	5	4	80	Pass
2.1942	4	4	100	Pass
2.2155	4	4	100	Pass
2.2368	4	4	100	Pass
2.2581	4	4	100	Pass
2.2795	4	4	100	Pass
2.3008	4	3	75	Pass
2.3221	4	3	75	Pass
2.3435	4	3	75	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

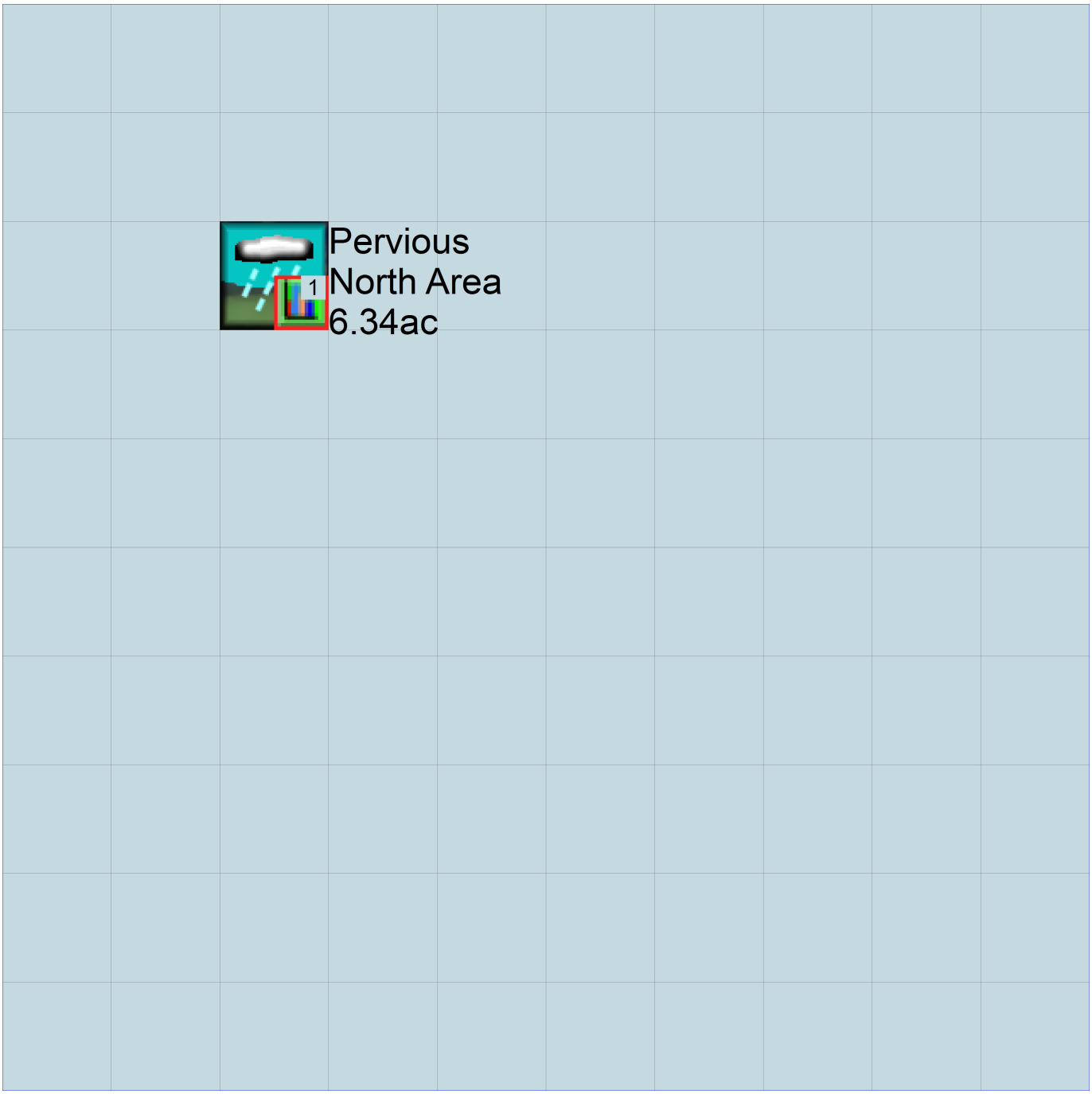
No PERLND changes have been made.

IMPLND Changes

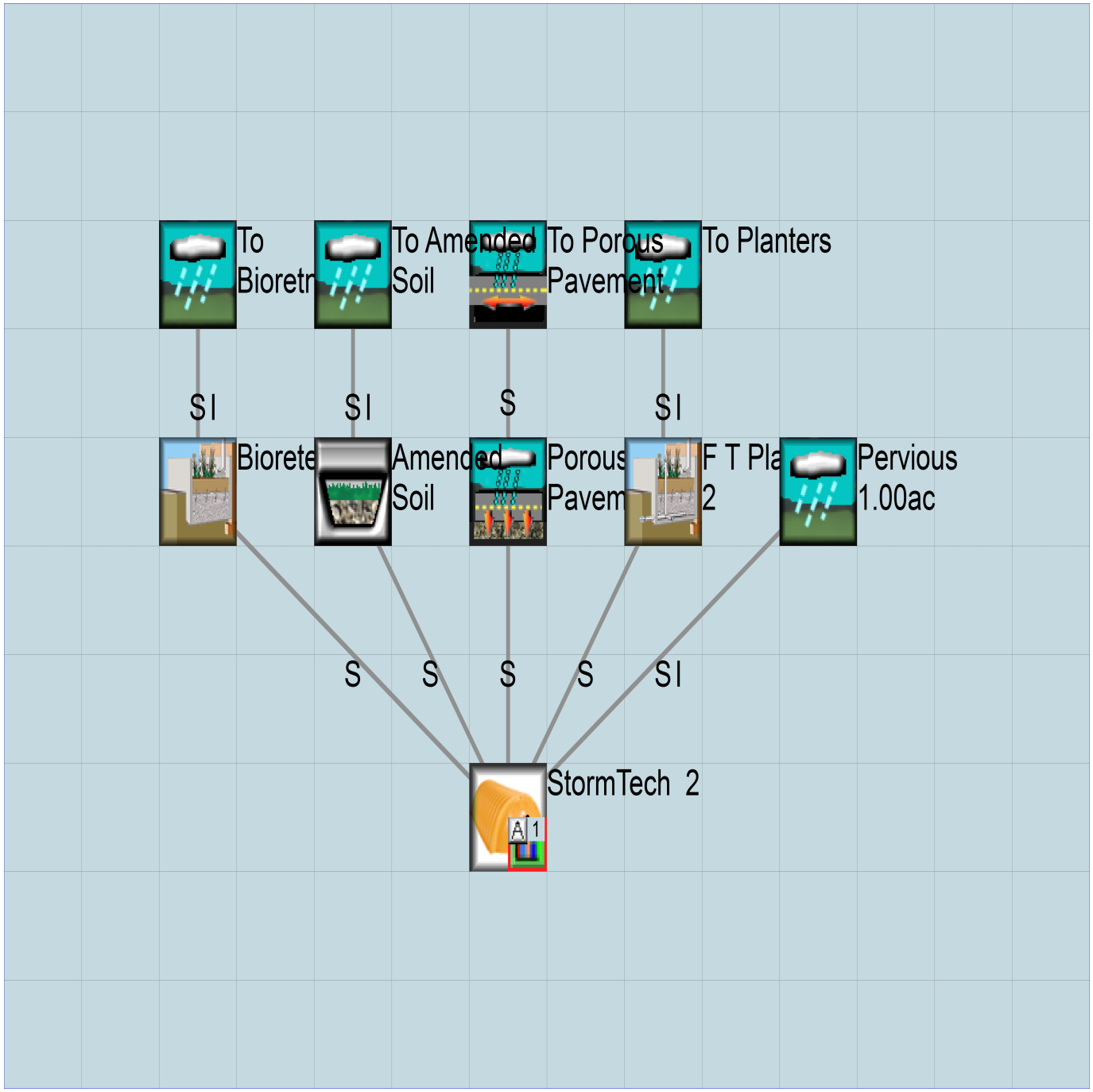
No IMPLND changes have been made.

Appendix

Pre-Project Schematic



Mitigated Schematic



Pre-Project UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderNorthUP2.wdm
MESSU      25   PreElderNorthUP2.MES
           27   PreElderNorthUP2.L61
           28   PreElderNorthUP2.L62
           30   POCElderNorthUP21.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      33
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Pervious North Area         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   33     C,Grass,Flat(0-1%)      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   33         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   33         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   33         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   33             0       4.5     0.045       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   33            40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   33             0       0.3      0.25       0.7       0.5         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33       0.4  0.4  0.4 0.45  0.5 0.55 0.55 0.55 0.55 0.55 0.45  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33      0.12 0.12 0.12 0.11  0.1  0.1  0.1  0.1  0.1  0.1 0.11 0.12
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   33             0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                       in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Pervious North Area***
PERLND  33                        6.34     COPY   501     12
PERLND  33                        6.34     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                        in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderNorthUP2.wdm
MESSU      25   MitElderNorthUP2.MES
           27   MitElderNorthUP2.L61
           28   MitElderNorthUP2.L62
           30   POCElderNorthUP21.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      IMPLND       1
      IMPLND       9
      PERLND      41
      RCHRES       1
      RCHRES       2
      IMPLND      10
      RCHRES       3
      RCHRES       4
      RCHRES       5
      GENER        7
      RCHRES       6
      RCHRES       7
      RCHRES       8
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        StormTech  2               MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    7        24
  END OPCODE
  PARM
    #    #         K ***
    7             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   41     C,Urban,Flat(0-1%)      1    1    1    1   27    0
```

```
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   41         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   41         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   41         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   41              0      4.45     0.035       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   41             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   41              0       0.3      0.25       0.5       0.4         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41       0.5  0.5  0.5  0.6 0.65 0.65 0.65 0.65 0.65 0.65 0.55  0.5
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   41              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1     Imperv,Flat(0-1%)       1    1    1   27    0
    9     Imperv,Flat(0-1%) LAT   1    1    1   27    0
   10     Porous Pavement         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
```

```
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    9         0    0    1    0    0    0
   10         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
   10         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    9         0    0    0    0    0
   10         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.01      0.05       0.1
    9            100      0.01      0.05       0.1
   10            100      0.01      0.05       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    9              0         0
   10              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    9              0         0
   10              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
To Bioretntion***
IMPLND   1                       1.24     RCHRES   1      5
To Planters***
IMPLND   1                       2.34     RCHRES   4      5
To Porous Pavement***
IMPLND   9                     2.1712     IMPLND  10     53
IMPLND  10                     0.0368     RCHRES   3      5
To Amended Soil***
IMPLND   1                       1.64     RCHRES   6      5
Pervious***
PERLND  41                          1     RCHRES   8      2
PERLND  41                          1     RCHRES   8      3

******Routing******
RCHRES   2                          1     RCHRES   8      7
RCHRES   2                                COPY     1     17
RCHRES   1                          1     RCHRES   8      7
RCHRES   1                                COPY     1     17
RCHRES   1                          1     RCHRES   2      8
```

```
RCHRES   3                            1     RCHRES   8      7
RCHRES   3                                  COPY     1     17
RCHRES   5                            1     RCHRES   8      6
RCHRES   5                                  COPY     1     16
RCHRES   4                            1     RCHRES   8      7
RCHRES   4                                  COPY     1     17
RCHRES   4                            1     RCHRES   5      8
RCHRES   7                            1     RCHRES   8      7
RCHRES   7                                  COPY     1     17
RCHRES   6                            1     RCHRES   8      7
RCHRES   6                                  COPY     1     17
RCHRES   6                            1     RCHRES   7      8
PERLND  41                            1     COPY     1     12
PERLND  41                            1     COPY     1     13
RCHRES   8                            1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    7 OUTPUT TIMSER      .0002778     RCHRES   6     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                          in  out                             ***
    1     Bioretenti Surfa-023    3    1    1    1   28    0    1
    2     Bioretention            2    1    1    1   28    0    1
    3     Porous Pavement -027    2    1    1    1   28    0    1
    4     F T Plante Surfa-029    3    1    1    1   28    0    1
    5     F T Planter  2          1    1    1    1   28    0    1
    6     Surface Amended -033    3    1    1    1   28    0    1
    7     Amended Soil            2    1    1    1   28    0    1
    8     StormTech  2            2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
    6         1    0    0    0    0    0    0    0    0    0
    7         1    0    0    0    0    0    0    0    0    0
    8         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         4    0    0    0    0    0    0    0    0    0    1    9
    6         4    0    0    0    0    0    0    0    0    0    1    9
    7         4    0    0    0    0    0    0    0    0    0    1    9
    8         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    2       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    5       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    6       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    7       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    8       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1              1      0.01       0.0       0.0       0.5       0.0
    2              2      0.07       0.0       0.0       0.5       0.0
    3              3      0.02       0.0       0.0       0.5       0.0
    4              4      0.01       0.0       0.0       0.5       0.0
    5              5      0.01       0.0       0.0       0.5       0.0
    6              6      0.01       0.0       0.0       0.5       0.0
    7              7      0.03       0.0       0.0       0.5       0.0
    8              8      0.06       0.0       3.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    6            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    7            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    8            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                           addr
***                          <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol7   RCHRES   7 VOL              4
  UVQUAN v2m7   GLOBAL     WORKSP  6        3
  UVQUAN vpo7   GLOBAL     WORKSP  7        3
  UVQUAN v2d7   GENER    7 K       1        3
*** User-Defined Target Variable Names
***                  addr or                       addr or
***                 <------>                      <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m7    1 WORKSP  6         1.0 QUAN
  UVNAME  vpo7    1 WORKSP  7         1.0 QUAN
  UVNAME  v2d7    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><-><><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   7                               v2m7            =  9286.
*** Compute remaining available pore space
  GENER   7                               vpo7            =  v2m7
  GENER   7                               vpo7           -=  vol7
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo7 < 0.0) THEN
```

```
  GENER   7                                   vpo7            =  0.0
END IF
*** Infiltration volume
  GENER   7                                   v2d7            =  vpo7
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   59    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.099862  0.000000  0.000000  0.000000
  0.052198  0.099862  0.002189  0.000000  0.000000
  0.104396  0.099862  0.004379  0.000000  0.000000
  0.156593  0.099862  0.006568  0.000000  0.000000
  0.208791  0.099862  0.008757  0.000000  0.006042
  0.260989  0.099862  0.010946  0.000000  0.006042
  0.313187  0.099862  0.013136  0.000000  0.006042
  0.365385  0.099862  0.015325  0.000000  0.006042
  0.417582  0.099862  0.017514  0.000000  0.006042
  0.469780  0.099862  0.019704  0.000000  0.006042
  0.521978  0.099862  0.021893  0.000000  0.006042
  0.574176  0.099862  0.024082  0.000000  0.006042
  0.626374  0.099862  0.026271  0.000000  0.006042
  0.678571  0.099862  0.028461  0.000000  0.006042
  0.730769  0.099862  0.030650  0.000000  0.006042
  0.782967  0.099862  0.032839  0.000000  0.006042
  0.835165  0.099862  0.035029  0.000000  0.006042
  0.887363  0.099862  0.037218  0.000000  0.006042
  0.939560  0.099862  0.039407  0.000000  0.006042
  0.991758  0.099862  0.041596  0.000000  0.006042
  1.043956  0.099862  0.043786  0.000000  0.006042
  1.096154  0.099862  0.045975  0.009257  0.006042
  1.148352  0.099862  0.048164  0.019913  0.006042
  1.200549  0.099862  0.050354  0.022781  0.006042
  1.252747  0.099862  0.052543  0.025833  0.006042
  1.304945  0.099862  0.054732  0.029072  0.006042
  1.357143  0.099862  0.056921  0.036128  0.006042
  1.409341  0.099862  0.059111  0.039951  0.006042
  1.461538  0.099862  0.061300  0.043977  0.006042
  1.513736  0.099862  0.063489  0.047711  0.006042
  1.565934  0.099862  0.065679  0.050891  0.006042
  1.618132  0.099862  0.067868  0.053888  0.006042
  1.670330  0.099862  0.070057  0.056731  0.006042
  1.722527  0.099862  0.072247  0.059443  0.006042
  1.774725  0.099862  0.074436  0.062044  0.006042
  1.826923  0.099862  0.076625  0.064549  0.006042
  1.879121  0.099862  0.078814  0.066975  0.006042
  1.931319  0.099862  0.081004  0.069339  0.006042
  1.983516  0.099862  0.083193  0.071671  0.006042
  2.035714  0.099862  0.085356  0.074106  0.006042
  2.087912  0.099862  0.087519  0.078113  0.006042
  2.140110  0.099862  0.089683  0.080057  0.006042
  2.192308  0.099862  0.091846  0.081955  0.006042
  2.244505  0.099862  0.094009  0.083810  0.006042
  2.296703  0.099862  0.096172  0.085625  0.006042
  2.348901  0.099862  0.098336  0.087403  0.006042
  2.401099  0.099862  0.100499  0.089144  0.006042
  2.453297  0.099862  0.102662  0.090853  0.006042
  2.505495  0.099862  0.104825  0.092530  0.006042
  2.557692  0.099862  0.106988  0.094177  0.006042
  2.609890  0.099862  0.109152  0.095795  0.006042
  2.662088  0.099862  0.111315  0.097387  0.006042
  2.714286  0.099862  0.113478  0.098953  0.006042
  2.766484  0.099862  0.115641  0.100495  0.006042
  2.818681  0.099862  0.117805  0.102014  0.006042
  2.870879  0.099862  0.119968  0.103510  0.006042
  2.923077  0.099862  0.122131  0.104985  0.006042
  2.975275  0.099862  0.124294  0.106439  0.006042
  3.000000  0.099862  0.250638  0.107121  0.006042
  END FTABLE  2
```

```
  FTABLE      1
   35    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.099862  0.000000  0.000000  0.000000  0.000000
  0.052198  0.099862  0.005213  0.000000  0.112481  0.000000
  0.104396  0.099862  0.010425  0.000000  0.112481  0.000000
  0.156593  0.099862  0.015638  0.000000  0.112481  0.000000
  0.208791  0.099862  0.020850  0.000000  0.112481  0.000000
  0.260989  0.099862  0.026063  0.000000  0.112481  0.000000
  0.313187  0.099862  0.031276  0.000000  0.112481  0.000000
  0.365385  0.099862  0.036488  0.000000  0.112481  0.000000
  0.417582  0.099862  0.041701  0.000000  0.112481  0.000000
  0.469780  0.099862  0.046913  0.000000  0.112481  0.000000
  0.521978  0.099862  0.052126  0.000000  0.112481  0.000000
  0.574176  0.099862  0.057338  0.000000  0.112481  0.000000
  0.626374  0.099862  0.062551  0.000000  0.112481  0.000000
  0.678571  0.099862  0.067764  0.000000  0.112481  0.000000
  0.730769  0.099862  0.072976  0.000000  0.112481  0.000000
  0.782967  0.099862  0.078189  0.127045  0.112481  0.000000
  0.835165  0.099862  0.083401  0.526949  0.112481  0.000000
  0.887363  0.099862  0.088614  1.077788  0.112481  0.000000
  0.939560  0.099862  0.093827  1.742293  0.112481  0.000000
  0.991758  0.099862  0.099039  2.496989  0.112481  0.000000
  1.043956  0.099862  0.104252  3.321994  0.112481  0.000000
  1.096154  0.099862  0.109464  4.198067  0.112481  0.000000
  1.148352  0.099862  0.114677  5.105639  0.112481  0.000000
  1.200549  0.099862  0.119890  6.024661  0.112481  0.000000
  1.252747  0.099862  0.125102  6.934895  0.112481  0.000000
  1.304945  0.099862  0.130315  7.816484  0.112481  0.000000
  1.357143  0.099862  0.135527  8.650718  0.112481  0.000000
  1.409341  0.099862  0.140740  9.420966  0.112481  0.000000
  1.461538  0.099862  0.145953  10.11373  0.112481  0.000000
  1.513736  0.099862  0.151165  10.71979  0.112481  0.000000
  1.565934  0.099862  0.156378  11.23554  0.112481  0.000000
  1.618132  0.099862  0.161590  11.66425  0.112481  0.000000
  1.670330  0.099862  0.166803  12.01762  0.112481  0.000000
  1.722527  0.099862  0.172015  12.31719  0.112481  0.000000
  1.750000  0.099862  0.174759  12.75332  0.112481  0.000000
  END FTABLE  1
  FTABLE      3
   91    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.036846  0.000000  0.000000  0.000000
  0.021333  0.036846  0.000314  0.063417  0.000736
  0.042667  0.036846  0.000629  0.089686  0.000736
  0.064000  0.036846  0.000943  0.109842  0.000736
  0.085333  0.036846  0.001258  0.126835  0.000736
  0.106667  0.036846  0.001572  0.141805  0.000736
  0.128000  0.036846  0.001887  0.155340  0.000736
  0.149333  0.036846  0.002201  0.167787  0.000736
  0.170667  0.036846  0.002515  0.179371  0.000736
  0.192000  0.036846  0.002830  0.190252  0.000736
  0.213333  0.036846  0.003144  0.200543  0.000736
  0.234667  0.036846  0.003459  0.210332  0.000736
  0.256000  0.036846  0.003773  0.219684  0.000736
  0.277333  0.036846  0.004087  0.228654  0.000736
  0.298667  0.036846  0.004402  0.237286  0.000736
  0.320000  0.036846  0.004716  0.245614  0.000736
  0.341333  0.036846  0.005031  0.253669  0.000736
  0.362667  0.036846  0.005345  0.261476  0.000736
  0.384000  0.036846  0.005660  0.269057  0.000736
  0.405333  0.036846  0.005974  0.276430  0.000736
  0.426667  0.036846  0.006288  0.283611  0.000736
  0.448000  0.036846  0.006603  0.290615  0.000736
  0.469333  0.036846  0.006917  0.297454  0.000736
  0.490667  0.036846  0.007232  0.304139  0.000736
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0.512000  0.036846  0.007546  0.310680  0.000736
0.533333  0.036846  0.007860  0.317087  0.000736
0.554667  0.036846  0.008175  0.323366  0.000736
0.576000  0.036846  0.008489  0.329526  0.000736
0.597333  0.036846  0.008804  0.335573  0.000736
0.618667  0.036846  0.009118  0.341513  0.000736
0.640000  0.036846  0.009433  0.347351  0.000736
0.661333  0.036846  0.009747  0.353093  0.000736
0.682667  0.036846  0.010061  0.358743  0.000736
0.704000  0.036846  0.010376  0.364305  0.000736
0.725333  0.036846  0.010690  0.369783  0.000736
0.746667  0.036846  0.011005  0.375182  0.000736
0.768000  0.036846  0.011240  0.380504  0.000736
0.789333  0.036846  0.011476  0.385753  0.000736
0.810667  0.036846  0.011712  0.390931  0.000736
0.832000  0.036846  0.011948  0.396041  0.000736
0.853333  0.036846  0.012184  0.401087  0.000736
0.874667  0.036846  0.012419  0.406069  0.000736
0.896000  0.036846  0.012655  0.410991  0.000736
0.917333  0.036846  0.012891  0.415855  0.000736
0.938667  0.036846  0.013127  0.420663  0.000736
0.960000  0.036846  0.013363  0.425416  0.000736
0.981333  0.036846  0.013599  0.430117  0.000736
1.002667  0.036846  0.013834  0.434767  0.000736
1.024000  0.036846  0.014070  0.439368  0.000736
1.045333  0.036846  0.014306  0.443921  0.000736
1.066667  0.036846  0.014542  0.448428  0.000736
1.088000  0.036846  0.014778  0.452890  0.000736
1.109333  0.036846  0.015013  0.457309  0.000736
1.130667  0.036846  0.015249  0.461685  0.000736
1.152000  0.036846  0.015485  0.466020  0.000736
1.173333  0.036846  0.015721  0.470316  0.000736
1.194667  0.036846  0.015957  0.474572  0.000736
1.216000  0.036846  0.016192  0.478790  0.000736
1.237333  0.036846  0.016428  0.482972  0.000736
1.258667  0.036846  0.016821  0.487118  0.000736
1.280000  0.036846  0.017214  0.491229  0.000736
1.301333  0.036846  0.017607  0.495305  0.000736
1.322667  0.036846  0.018000  0.499349  0.000736
1.344000  0.036846  0.018393  0.503360  0.000736
1.365333  0.036846  0.018786  0.507339  0.000736
1.386667  0.036846  0.019179  0.511287  0.000736
1.408000  0.036846  0.019572  0.515205  0.000736
1.429333  0.036846  0.019965  0.519093  0.000736
1.450667  0.036846  0.020358  0.522953  0.000736
1.472000  0.036846  0.020752  0.526784  0.000736
1.493333  0.036846  0.021145  0.530588  0.000736
1.514667  0.036846  0.021538  0.534364  0.000736
1.536000  0.036846  0.021931  0.538114  0.000736
1.557333  0.036846  0.022324  0.541838  0.000736
1.578667  0.036846  0.022717  0.545537  0.000736
1.600000  0.036846  0.023110  0.549210  0.000736
1.621333  0.036846  0.023503  0.552860  0.000736
1.642667  0.036846  0.023896  0.556485  0.000736
1.664000  0.036846  0.024289  0.560087  0.000736
1.685333  0.036846  0.024682  0.563666  0.000736
1.706667  0.036846  0.025075  0.567222  0.000736
1.728000  0.036846  0.025468  0.570756  0.000736
1.749333  0.036846  0.025861  0.574268  0.000736
1.770667  0.036846  0.026254  0.577760  0.000736
1.792000  0.036846  0.026647  0.581230  0.000736
1.813333  0.036846  0.027040  0.584679  0.000736
1.834667  0.036846  0.027433  0.588108  0.000736
1.856000  0.036846  0.027826  0.591518  0.000736
1.877333  0.036846  0.028219  0.594907  0.000736
1.898667  0.036846  0.028612  0.598278  0.000736
1.920000  0.036846  0.029005  0.601630  0.000736
END FTABLE  3
FTABLE      5
 56    4
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     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.006428  0.000000  0.000000
  0.054945  0.006428  0.000148  0.000000
  0.109890  0.006428  0.000297  0.000000
  0.164835  0.006428  0.000445  0.000018
  0.219780  0.006428  0.000593  0.000083
  0.274725  0.006428  0.000742  0.000213
  0.329670  0.006428  0.000890  0.000424
  0.384615  0.006428  0.001038  0.000728
  0.439560  0.006428  0.001187  0.001136
  0.494505  0.006428  0.001335  0.001659
  0.549451  0.006428  0.001483  0.002305
  0.604396  0.006428  0.001632  0.003083
  0.659341  0.006428  0.001780  0.004001
  0.714286  0.006428  0.001928  0.005066
  0.769231  0.006428  0.002077  0.006286
  0.824176  0.006428  0.002225  0.007668
  0.879121  0.006428  0.002373  0.009217
  0.934066  0.006428  0.002522  0.010941
  0.989011  0.006428  0.002670  0.012846
  1.043956  0.006428  0.002818  0.014938
  1.098901  0.006428  0.002967  0.017221
  1.153846  0.006428  0.003115  0.018955
  1.208791  0.006428  0.003263  0.019703
  1.263736  0.006428  0.003412  0.022387
  1.318681  0.006428  0.003560  0.025280
  1.373626  0.006428  0.003708  0.028387
  1.428571  0.006428  0.003857  0.031712
  1.483516  0.006428  0.004005  0.035261
  1.538462  0.006428  0.004153  0.036882
  1.593407  0.006428  0.004302  0.041177
  1.648352  0.006428  0.004450  0.045049
  1.703297  0.006428  0.004598  0.047296
  1.758242  0.006428  0.004747  0.048602
  1.813187  0.006428  0.004895  0.051905
  1.868132  0.006428  0.005043  0.055004
  1.923077  0.006428  0.005192  0.057933
  1.978022  0.006428  0.005340  0.060718
  2.032967  0.006428  0.005487  0.063378
  2.087912  0.006428  0.005633  0.065928
  2.142857  0.006428  0.005780  0.068383
  2.197802  0.006428  0.005926  0.070750
  2.252747  0.006428  0.006073  0.073041
  2.307692  0.006428  0.006220  0.075261
  2.362637  0.006428  0.006366  0.077417
  2.417582  0.006428  0.006513  0.079515
  2.472527  0.006428  0.006659  0.081559
  2.527473  0.006428  0.006806  0.083553
  2.582418  0.006428  0.006952  0.085501
  2.637363  0.006428  0.007099  0.087407
  2.692308  0.006428  0.007246  0.089641
  2.747253  0.006428  0.007392  0.093252
  2.802198  0.006428  0.007539  0.096738
  2.857143  0.006428  0.007685  0.099519
  2.912088  0.006428  0.007832  0.099519
  2.967033  0.006428  0.007978  0.099519
  3.000000  0.006428  0.016939  0.099519
  END FTABLE  5
  FTABLE      4
   38    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.006428  0.000000  0.000000  0.000000  0.000000
  0.054945  0.006428  0.000353  0.000000  0.099519  0.000000
  0.109890  0.006428  0.000706  0.000000  0.099519  0.000000
  0.164835  0.006428  0.001060  0.000000  0.099519  0.000000
  0.219780  0.006428  0.001413  0.000000  0.099519  0.000000
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0.274725  0.006428  0.001766  0.000000  0.099519  0.000000
0.329670  0.006428  0.002119  0.000000  0.099519  0.000000
0.384615  0.006428  0.002472  0.000000  0.099519  0.000000
0.439560  0.006428  0.002825  0.000000  0.099519  0.000000
0.494505  0.006428  0.003179  0.000000  0.099519  0.000000
0.549451  0.006428  0.003532  0.000000  0.099519  0.000000
0.604396  0.006428  0.003885  0.000000  0.099519  0.000000
0.659341  0.006428  0.004238  0.000000  0.099519  0.000000
0.714286  0.006428  0.004591  0.000000  0.099519  0.000000
0.769231  0.006428  0.004945  0.000000  0.099519  0.000000
0.824176  0.006428  0.005298  0.000000  0.099519  0.000000
0.879121  0.006428  0.005651  0.000000  0.099519  0.000000
0.934066  0.006428  0.006004  0.000000  0.099519  0.000000
0.989011  0.006428  0.006357  0.000000  0.099519  0.000000
1.043956  0.006428  0.006710  0.195553  0.099519  0.000000
1.098901  0.006428  0.007064  0.659242  0.099519  0.000000
1.153846  0.006428  0.007417  1.276591  0.099519  0.000000
1.208791  0.006428  0.007770  2.010935  0.099519  0.000000
1.263736  0.006428  0.008123  2.836899  0.099519  0.000000
1.318681  0.006428  0.008476  3.731796  0.099519  0.000000
1.373626  0.006428  0.008830  4.673072  0.099519  0.000000
1.428571  0.006428  0.009183  5.637608  0.099519  0.000000
1.483516  0.006428  0.009536  6.601841  0.099519  0.000000
1.538462  0.006428  0.009889  7.542349  0.099519  0.000000
1.593407  0.006428  0.010242  8.436754  0.099519  0.000000
1.648352  0.006428  0.010595  9.264852  0.099519  0.000000
1.703297  0.006428  0.010949  10.00993  0.099519  0.000000
1.758242  0.006428  0.011302  10.66024  0.099519  0.000000
1.813187  0.006428  0.011655  11.21062  0.099519  0.000000
1.868132  0.006428  0.012008  11.66425  0.099519  0.000000
1.923077  0.006428  0.012361  12.03449  0.099519  0.000000
1.978022  0.006428  0.012715  12.34684  0.099519  0.000000
2.000000  0.006428  0.012856  12.80450  0.099519  0.000000
END FTABLE  4
FTABLE      8
 63    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.225535  0.000000  0.000000  0.000000
0.083333  0.225535  0.007517  0.045122  0.004503
0.166667  0.225535  0.015035  0.063812  0.004503
0.250000  0.225535  0.022553  0.078154  0.004503
0.333333  0.225535  0.030071  0.090244  0.004503
0.416667  0.225535  0.037588  0.100896  0.004503
0.500000  0.225535  0.045106  0.110526  0.004503
0.583333  0.225535  0.052624  0.119382  0.004503
0.666667  0.225535  0.060140  0.127625  0.004503
0.750000  0.225535  0.067659  0.135367  0.004503
0.833333  0.225535  0.084338  0.142689  0.004503
0.916667  0.225535  0.100938  0.149654  0.004503
1.000000  0.225535  0.117485  0.156308  0.004503
1.083333  0.225535  0.133978  0.162691  0.004503
1.166667  0.225535  0.150412  0.168832  0.004503
1.250000  0.225535  0.166783  0.174758  0.004503
1.333333  0.225535  0.183103  0.180489  0.004503
1.416667  0.225535  0.199349  0.186044  0.004503
1.500000  0.225535  0.215529  0.191437  0.004503
1.583333  0.225535  0.231635  0.196683  0.004503
1.666667  0.225535  0.247666  0.201793  0.004503
1.750000  0.225535  0.263617  0.206776  0.004503
1.833333  0.225535  0.279484  0.211642  0.004503
1.916667  0.225535  0.295264  0.216399  0.004503
2.000000  0.225535  0.310950  0.221053  0.004503
2.083333  0.225535  0.326542  0.225611  0.004503
2.166667  0.225535  0.342025  0.230079  0.004503
2.250000  0.225535  0.357401  0.234462  0.004503
2.333333  0.225535  0.372666  0.238764  0.004503
2.416667  0.225535  0.387810  0.242991  0.004503
2.500000  0.225535  0.402828  0.319480  0.004503
2.583333  0.225535  0.417711  0.462252  0.004503
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2.666667  0.225535  0.432454  0.646885  0.004503
2.750000  0.225535  0.447051  0.865227  0.004503
2.833333  0.225535  0.461493  1.112611  0.004503
2.916667  0.225535  0.475772  1.385903  0.004503
3.000000  0.225535  0.489879  1.682807  0.004503
3.083333  0.225535  0.503800  2.001551  0.004503
3.166667  0.225535  0.517535  2.340707  0.004503
3.250000  0.225535  0.531065  2.699100  0.004503
3.333333  0.225535  0.544380  3.084981  0.004503
3.416667  0.225535  0.557450  3.780504  0.004503
3.500000  0.225535  0.570286  4.648167  0.004503
3.583333  0.225535  0.582852  5.595717  0.004503
3.666667  0.225535  0.595132  6.529238  0.004503
3.750000  0.225535  0.607086  7.359092  0.004503
3.833333  0.225535  0.618700  8.017288  0.004503
3.916667  0.225535  0.629920  8.481148  0.004503
4.000000  0.225535  0.640691  8.801604  0.004503
4.083333  0.225535  0.650876  9.202380  0.004503
4.166667  0.225535  0.660186  9.521341  0.004503
4.250000  0.225535  0.668759  9.826216  0.004503
4.333333  0.225535  0.677041  10.11873  0.004503
4.416667  0.225535  0.685065  10.40028  0.026125
4.500000  0.225535  0.692738  10.67203  0.026125
4.583333  0.225535  0.700384  10.93493  0.026125
4.666667  0.225535  0.707901  11.18980  0.026125
4.750000  0.225535  0.715421  11.43734  0.026125
4.833333  0.225535  0.722937  11.67815  0.026125
4.916667  0.225535  0.730455  11.91275  0.026125
5.000000  0.225535  0.737973  12.14161  0.026125
5.083333  0.225535  0.745490  12.36512  0.026125
5.166667  0.225535  0.753009  12.58365  0.026125
END FTABLE  8
FTABLE      7
 66    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.413223  0.000000  0.000000  0.000000
0.021758  0.413223  0.003506  0.000000  0.000000
0.043516  0.413223  0.007013  0.000000  0.000000
0.065275  0.413223  0.010519  0.000000  0.000000
0.087033  0.413223  0.014026  0.000000  0.000000
0.108791  0.413223  0.017532  0.000000  0.000000
0.130549  0.413223  0.021039  0.000000  0.000000
0.152308  0.413223  0.024545  0.000000  0.000000
0.174066  0.413223  0.028052  0.000000  0.000000
0.195824  0.413223  0.031558  0.000000  0.000000
0.217582  0.413223  0.035065  0.000000  0.008325
0.239341  0.413223  0.038571  0.000000  0.008325
0.261099  0.413223  0.042078  0.000000  0.008325
0.282857  0.413223  0.045584  0.000000  0.008325
0.304615  0.413223  0.049091  0.000000  0.008325
0.326374  0.413223  0.052597  0.000000  0.008325
0.348132  0.413223  0.056104  0.000000  0.008325
0.369890  0.413223  0.059610  0.000000  0.008325
0.391648  0.413223  0.063117  0.000000  0.008325
0.413407  0.413223  0.066623  0.000000  0.008325
0.435165  0.413223  0.070130  0.000000  0.008325
0.456923  0.413223  0.073636  0.000000  0.008325
0.478681  0.413223  0.077143  0.000000  0.008325
0.500440  0.413223  0.080649  0.000000  0.008325
0.522198  0.413223  0.084156  0.000000  0.008325
0.543956  0.413223  0.087662  0.000000  0.008325
0.565714  0.413223  0.091169  0.000000  0.008325
0.587473  0.413223  0.094675  0.000000  0.008325
0.609231  0.413223  0.098182  0.000000  0.008325
0.630989  0.413223  0.101688  0.000000  0.008325
0.652747  0.413223  0.105195  0.000000  0.008325
0.674505  0.413223  0.108701  0.000000  0.008325
0.696264  0.413223  0.112208  0.000000  0.008325
0.718022  0.413223  0.115714  0.000000  0.008325
```

```
  0.739780  0.413223  0.119221  0.000000  0.008325
  0.761538  0.413223  0.122727  0.000000  0.008325
  0.783297  0.413223  0.126234  0.000000  0.008325
  0.805055  0.413223  0.129740  0.000000  0.008325
  0.826813  0.413223  0.133247  0.000000  0.008325
  0.848571  0.413223  0.136753  0.000000  0.008325
  0.870330  0.413223  0.140260  0.000000  0.008325
  0.892088  0.413223  0.143766  0.000000  0.008325
  0.913846  0.413223  0.147273  0.000000  0.008325
  0.935604  0.413223  0.150779  0.000000  0.008325
  0.957363  0.413223  0.154286  0.000000  0.008325
  0.979121  0.413223  0.157792  0.000000  0.008325
  1.000879  0.413223  0.161299  0.000000  0.008325
  1.022637  0.413223  0.164805  0.000000  0.008325
  1.044396  0.413223  0.168312  0.000000  0.008325
  1.066154  0.413223  0.171818  0.000000  0.008325
  1.087912  0.413223  0.175325  0.000000  0.008325
  1.109670  0.413223  0.178831  0.000000  0.008325
  1.131429  0.413223  0.182338  0.000000  0.008325
  1.153187  0.413223  0.185844  0.000000  0.008325
  1.174945  0.413223  0.189351  0.000000  0.008325
  1.196703  0.413223  0.192857  0.000000  0.008325
  1.218462  0.413223  0.196364  0.000000  0.008325
  1.240220  0.413223  0.199870  0.000000  0.008325
  1.261978  0.413223  0.203377  0.000000  0.008325
  1.283736  0.413223  0.206883  0.000000  0.008325
  1.305495  0.413223  0.210390  0.000000  0.008325
  1.327253  0.413223  0.213896  0.000000  0.008325
  1.349011  0.413223  0.217403  0.000000  0.008325
  1.370769  0.413223  0.220909  0.000000  0.008325
  1.392527  0.413223  0.224416  0.000000  0.008325
  1.400000  0.413223  0.473802  0.000000  0.008325
  END FTABLE  7
  FTABLE      6
   28    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.413223  0.000000  0.000000  0.000000  0.000000
  0.021758  0.413223  0.008991  0.000000  1.082845  0.000000
  0.043516  0.413223  0.017982  0.000000  1.099417  0.000000
  0.065275  0.413223  0.026973  0.000000  1.115989  0.000000
  0.087033  0.413223  0.035964  0.000000  1.132560  0.000000
  0.108791  0.413223  0.044955  0.000000  1.149132  0.000000
  0.130549  0.413223  0.053946  0.000000  1.165703  0.000000
  0.152308  0.413223  0.062937  0.000000  1.182275  0.000000
  0.174066  0.413223  0.071928  0.000000  1.198847  0.000000
  0.195824  0.413223  0.080919  0.000000  1.215418  0.000000
  0.217582  0.413223  0.089910  0.000000  1.231990  0.000000
  0.239341  0.413223  0.098901  0.000000  1.248561  0.000000
  0.261099  0.413223  0.107892  0.024832  1.265133  0.000000
  0.282857  0.413223  0.116883  0.126411  1.281705  0.000000
  0.304615  0.413223  0.125874  0.270779  1.298276  0.000000
  0.326374  0.413223  0.134865  0.447582  1.314848  0.000000
  0.348132  0.413223  0.143856  0.651578  1.331419  0.000000
  0.369890  0.413223  0.152847  0.879364  1.347991  0.000000
  0.391648  0.413223  0.161838  1.128427  1.364563  0.000000
  0.413407  0.413223  0.170829  1.396742  1.381134  0.000000
  0.435165  0.413223  0.179820  1.682566  1.397706  0.000000
  0.456923  0.413223  0.188811  1.984331  1.414277  0.000000
  0.478681  0.413223  0.197802  2.300563  1.430849  0.000000
  0.500440  0.413223  0.206793  2.629844  1.447421  0.000000
  0.522198  0.413223  0.215784  2.970783  1.463992  0.000000
  0.543956  0.413223  0.224775  3.321994  1.480564  0.000000
  0.565714  0.413223  0.233766  3.682082  1.497135  0.000000
  0.580000  0.413223  0.239669  4.049644  1.508016  0.000000
  END FTABLE  6
END FTABLES
```

```
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  41     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   4     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   6     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.85           RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   4     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   5     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   6     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   7     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   8 HYDR   RO     1 1        1      WDM   1004 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      1 1        1      WDM   1005 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      2 1        1      WDM   1006 FLOW     ENGL      REPL
RCHRES   8 HYDR   STAGE  1 1        1      WDM   1007 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        6
RCHRES     ROFLOW                          RCHRES         INFLOW
  END MASS-LINK    6

  MASS-LINK        7
RCHRES     OFLOW  OVOL   1                  RCHRES         INFLOW IVOL
  END MASS-LINK    7

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                  RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16
```

```
  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                COPY           INPUT  MEAN
  END MASS-LINK   17

  MASS-LINK       53
IMPLND     IWATER SURO                     IMPLND         EXTNL  SURLI
  END MASS-LINK   53


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

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Local (360)943-0304

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SAHM

PROJECT REPORT

General Model Information

Project Name:	ElderSouthUP5
Site Name:	Elder
Site Address:	8280 Elder Crekk
City:	Sacramento
Report Date:	4/19/2018
Gage:	ELK GROV
Data Start:	1963/10/01
Data End:	2004/09/30
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2018/02/20

POC Thresholds

Low Flow Threshold for POC1:	25 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Pre-Project Land Use

Pervious South Area

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Grass,Flat(0-1%)	4.56
Pervious Total	4.56
Impervious Land Use	acre
Impervious Total	0
Basin Total	4.56

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

To Bioretntion

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.34
Impervious Total	1.34
Basin Total	1.34

Element Flows To:

Surface	Interflow	Groundwater
Infilt Pla Surface 3	Infilt Pla Surface 3	

To Filterra

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	1.61
Impervious Total	1.61
Basin Total	1.61

Element Flows To:

Surface	Interflow	Groundwater
F T Plante Surface 2	F T Plante Surface 2	

To Porous Pavement

Bypass:	No
Impervious Land Use	acre
Imperv,Flat(0-1%) LAT	0.19

Element Flows To:

Outlet 1	Outlet 2
Porous Pavement 1	

Pervious

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,Urban,Flat(0-1%)	0.79
Pervious Total	0.79
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.79

Element Flows To:

Surface	Interflow	Groundwater
StormTech 2	StormTech 2	

To Amended Soil

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
Imperv,Flat(0-1%)	0.53
Impervious Total	0.53
Basin Total	0.53

Element Flows To:

Surface	Interflow	Groundwater
Surface Amended Soil	Surface Amended Soil	

Routing Elements

Pre-Project Routing

Mitigated Routing

Porous Pavement 1

Pavement Area:0.0962 acre.Pavement Length:261.90 ft.

Pavement Width:	16.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.67
Pour Space of Pavement:	0.5
Material thickness of second layer:	0.5
Pour Space of material for second layer:	0.3
Material thickness of third layer:	0.75
Pour Space of material for third layer:	0.4
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	0.39
Total Volume Through Riser (ac-ft.):	13.691
Total Volume Through Facility (ac-ft.):	14.08
Percent Infiltrated:	2.77
Total Precip Applied to Facility:	0
Total Evap From Facility:	0.144

Element Flows To:

Outlet 1 Outlet 2

StormTech 2

Porous Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.096	0.000	0.000	0.000
0.0213	0.096	0.000	0.063	0.001
0.0427	0.096	0.001	0.089	0.001
0.0640	0.096	0.002	0.109	0.001
0.0853	0.096	0.003	0.126	0.001
0.1067	0.096	0.004	0.141	0.001
0.1280	0.096	0.004	0.155	0.001
0.1493	0.096	0.005	0.167	0.001
0.1707	0.096	0.006	0.179	0.001
0.1920	0.096	0.007	0.190	0.001
0.2133	0.096	0.008	0.200	0.001
0.2347	0.096	0.009	0.210	0.001
0.2560	0.096	0.009	0.219	0.001
0.2773	0.096	0.010	0.228	0.001
0.2987	0.096	0.011	0.237	0.001
0.3200	0.096	0.012	0.245	0.001
0.3413	0.096	0.013	0.253	0.001
0.3627	0.096	0.014	0.261	0.001
0.3840	0.096	0.014	0.269	0.001
0.4053	0.096	0.015	0.276	0.001
0.4267	0.096	0.016	0.283	0.001
0.4480	0.096	0.017	0.290	0.001
0.4693	0.096	0.018	0.297	0.001
0.4907	0.096	0.018	0.304	0.001
0.5120	0.096	0.019	0.310	0.001
0.5333	0.096	0.020	0.317	0.001
0.5547	0.096	0.021	0.323	0.001
0.5760	0.096	0.022	0.329	0.001
0.5973	0.096	0.023	0.335	0.001

0.6187	0.096	0.023	0.341	0.001
0.6400	0.096	0.024	0.347	0.001
0.6613	0.096	0.025	0.353	0.001
0.6827	0.096	0.026	0.358	0.001
0.7040	0.096	0.027	0.364	0.001
0.7253	0.096	0.027	0.369	0.001
0.7467	0.096	0.028	0.375	0.001
0.7680	0.096	0.029	0.380	0.001
0.7893	0.096	0.030	0.385	0.001
0.8107	0.096	0.030	0.390	0.001
0.8320	0.096	0.031	0.396	0.001
0.8533	0.096	0.031	0.401	0.001
0.8747	0.096	0.032	0.406	0.001
0.8960	0.096	0.033	0.411	0.001
0.9173	0.096	0.033	0.415	0.001
0.9387	0.096	0.034	0.420	0.001
0.9600	0.096	0.034	0.425	0.001
0.9813	0.096	0.035	0.430	0.001
1.0027	0.096	0.036	0.434	0.001
1.0240	0.096	0.036	0.439	0.001
1.0453	0.096	0.037	0.443	0.001
1.0667	0.096	0.038	0.448	0.001
1.0880	0.096	0.038	0.452	0.001
1.1093	0.096	0.039	0.457	0.001
1.1307	0.096	0.039	0.461	0.001
1.1520	0.096	0.040	0.466	0.001
1.1733	0.096	0.041	0.470	0.001
1.1947	0.096	0.041	0.474	0.001
1.2160	0.096	0.042	0.478	0.001
1.2373	0.096	0.042	0.483	0.001
1.2587	0.096	0.043	0.487	0.001
1.2800	0.096	0.044	0.491	0.001
1.3013	0.096	0.046	0.495	0.001
1.3227	0.096	0.047	0.499	0.001
1.3440	0.096	0.048	0.503	0.001
1.3653	0.096	0.049	0.507	0.001
1.3867	0.096	0.050	0.511	0.001
1.4080	0.096	0.051	0.515	0.001
1.4293	0.096	0.052	0.519	0.001
1.4507	0.096	0.053	0.523	0.001
1.4720	0.096	0.054	0.526	0.001
1.4933	0.096	0.055	0.530	0.001
1.5147	0.096	0.056	0.534	0.001
1.5360	0.096	0.057	0.538	0.001
1.5573	0.096	0.058	0.541	0.001
1.5787	0.096	0.059	0.545	0.001
1.6000	0.096	0.060	0.549	0.001
1.6213	0.096	0.061	0.552	0.001
1.6427	0.096	0.062	0.556	0.001
1.6640	0.096	0.063	0.560	0.001
1.6853	0.096	0.064	0.563	0.001
1.7067	0.096	0.065	0.567	0.001
1.7280	0.096	0.066	0.570	0.001
1.7493	0.096	0.067	0.574	0.001
1.7707	0.096	0.068	0.577	0.001
1.7920	0.096	0.069	0.581	0.001
1.8133	0.096	0.070	0.584	0.001
1.8347	0.096	0.071	0.588	0.001

1.8560	0.096	0.072	0.591	0.001
1.8773	0.096	0.073	0.594	0.001
1.8987	0.096	0.074	0.598	0.001
1.9200	0.096	0.075	0.601	0.001

F T Planter 2

Bottom Length:	70.00 ft.
Bottom Width:	4.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 15 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	51.541
Total Outflow (ac-ft.):	80.182
Percent Through Underdrain:	64.28
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0064	0.0000	0.0000	0.0000
0.0549	0.0064	0.0001	0.0000	0.0000
0.1099	0.0064	0.0003	0.0000	0.0000
0.1648	0.0064	0.0004	0.0000	0.0000
0.2198	0.0064	0.0006	0.0000	0.0000
0.2747	0.0064	0.0007	0.0000	0.0000
0.3297	0.0064	0.0009	0.0000	0.0000
0.3846	0.0064	0.0010	0.0000	0.0000
0.4396	0.0064	0.0012	0.0000	0.0000
0.4945	0.0064	0.0013	0.0000	0.0000
0.5495	0.0064	0.0015	0.0000	0.0000
0.6044	0.0064	0.0016	0.0000	0.0000
0.6593	0.0064	0.0018	0.0000	0.0000
0.7143	0.0064	0.0019	0.0000	0.0000
0.7692	0.0064	0.0021	0.0000	0.0000
0.8242	0.0064	0.0022	0.0000	0.0000
0.8791	0.0064	0.0024	0.0000	0.0000
0.9341	0.0064	0.0025	0.0000	0.0000
0.9890	0.0064	0.0027	0.0000	0.0000
1.0440	0.0064	0.0028	0.0000	0.0000
1.0989	0.0064	0.0030	0.0000	0.0000
1.1538	0.0064	0.0031	0.0000	0.0000
1.2088	0.0064	0.0033	0.0000	0.0000
1.2637	0.0064	0.0034	0.0000	0.0000
1.3187	0.0064	0.0036	0.0000	0.0000
1.3736	0.0064	0.0037	0.0000	0.0000
1.4286	0.0064	0.0039	0.0000	0.0000
1.4835	0.0064	0.0040	0.0000	0.0000
1.5385	0.0064	0.0042	0.0000	0.0000
1.5934	0.0064	0.0043	0.0000	0.0000
1.6484	0.0064	0.0045	0.0000	0.0000

1.7033	0.0064	0.0046	0.0000	0.0000
1.7582	0.0064	0.0047	0.0000	0.0000
1.8132	0.0064	0.0049	0.0000	0.0000
1.8681	0.0064	0.0050	0.0000	0.0000
1.9231	0.0064	0.0052	0.0000	0.0000
1.9780	0.0064	0.0053	0.0000	0.0000
2.0330	0.0064	0.0055	0.0000	0.0000
2.0879	0.0064	0.0056	0.0000	0.0000
2.1429	0.0064	0.0058	0.0000	0.0000
2.1978	0.0064	0.0059	0.0000	0.0000
2.2527	0.0064	0.0061	0.0000	0.0000
2.3077	0.0064	0.0062	0.0000	0.0000
2.3626	0.0064	0.0064	0.0000	0.0000
2.4176	0.0064	0.0065	0.0000	0.0000
2.4725	0.0064	0.0067	0.0000	0.0000
2.5275	0.0064	0.0068	0.0000	0.0000
2.5824	0.0064	0.0070	0.0000	0.0000
2.6374	0.0064	0.0071	0.0000	0.0000
2.6923	0.0064	0.0072	0.0000	0.0000
2.7473	0.0064	0.0074	0.0000	0.0000
2.8022	0.0064	0.0075	0.0000	0.0000
2.8571	0.0064	0.0077	0.0000	0.0000
2.9121	0.0064	0.0078	0.0000	0.0000
2.9670	0.0064	0.0080	0.0000	0.0000
3.0000	0.0064	0.0081	0.0000	0.0000

Flow Through Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0064	0.0081	0.0000	0.0995	0.0000
3.0549	0.0064	0.0084	0.0000	0.0995	0.0000
3.1099	0.0064	0.0088	0.0000	0.0995	0.0000
3.1648	0.0064	0.0091	0.0000	0.0995	0.0000
3.2198	0.0064	0.0095	0.0001	0.0995	0.0000
3.2747	0.0064	0.0098	0.0002	0.0995	0.0000
3.3297	0.0064	0.0102	0.0004	0.0995	0.0000
3.3846	0.0064	0.0105	0.0007	0.0995	0.0000
3.4396	0.0064	0.0109	0.0011	0.0995	0.0000
3.4945	0.0064	0.0112	0.0017	0.0995	0.0000
3.5495	0.0064	0.0116	0.0023	0.0995	0.0000
3.6044	0.0064	0.0120	0.0031	0.0995	0.0000
3.6593	0.0064	0.0123	0.0040	0.0995	0.0000
3.7143	0.0064	0.0127	0.0051	0.0995	0.0000
3.7692	0.0064	0.0130	0.0063	0.0995	0.0000
3.8242	0.0064	0.0134	0.0077	0.0995	0.0000
3.8791	0.0064	0.0137	0.0092	0.0995	0.0000
3.9341	0.0064	0.0141	0.0109	0.0995	0.0000
3.9890	0.0064	0.0144	0.0128	0.0995	0.0000
4.0440	0.0064	0.0148	0.0149	0.0995	0.0000
4.0989	0.0064	0.0151	0.0172	0.0995	0.0000
4.1538	0.0064	0.0155	0.0190	0.0995	0.0000
4.2088	0.0064	0.0158	0.0197	0.0995	0.0000
4.2637	0.0064	0.0162	0.0224	0.0995	0.0000
4.3187	0.0064	0.0165	0.0253	0.0995	0.0000
4.3736	0.0064	0.0169	0.0284	0.0995	0.0000
4.4286	0.0064	0.0172	0.0317	0.0995	0.0000
4.4835	0.0064	0.0176	0.0353	0.0995	0.0000
4.5385	0.0064	0.0180	0.0369	0.0995	0.0000
4.5934	0.0064	0.0183	0.0412	0.0995	0.0000

4.6484	0.0064	0.0187	0.0450	0.0995	0.0000
4.7033	0.0064	0.0190	0.0473	0.0995	0.0000
4.7582	0.0064	0.0194	0.0486	0.0995	0.0000
4.8132	0.0064	0.0197	0.0519	0.0995	0.0000
4.8681	0.0064	0.0201	0.0550	0.0995	0.0000
4.9231	0.0064	0.0204	0.0579	0.0995	0.0000
4.9780	0.0064	0.0208	0.0607	0.0995	0.0000
5.0000	0.0064	0.0209	0.0634	0.0995	0.0000

F T Plante Surface 2

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	F T Planter 2

StormTech 2

Chamber Model:	3500
Dimensions	
Max Row Length:	300
Number of Chambers:	140
Number of Endcaps:	12
Top Stone Depth:	9
Bottom Stone Depth:	9
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.33
Total Volume Infiltrated (ac-ft.):	24.339
Total Volume Through Riser (ac-ft.):	130.023
Total Volume Through Facility (ac-ft.):	154.363
Percent Infiltrated:	15.77
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3.25 ft.
Riser Diameter:	18 in.
Notch Type:	Rectangular
Notch Width:	1.277 ft.
Notch Height:	0.423 ft.
Orifice 1 Diameter:	1.998 in. Elevation:0 ft.
Element Flows To:	
Outlet 1	Outlet 2

StormTech Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
3.0000	0.964	0.000	0.000	0.000
3.1333	0.964	0.128	0.039	0.019
3.2667	0.964	0.257	0.055	0.019
3.4000	0.964	0.385	0.068	0.019
3.5333	0.964	0.514	0.079	0.019
3.6667	0.964	0.642	0.088	0.019
3.8000	0.964	0.771	0.096	0.019
3.9333	0.964	0.899	0.104	0.019
4.0667	0.964	1.028	0.111	0.019
4.2000	0.964	1.157	0.118	0.019
4.3333	0.964	1.285	0.125	0.019
4.4667	0.964	1.414	0.131	0.019
4.6000	0.964	1.542	0.137	0.019
4.7333	0.964	1.671	0.142	0.019
4.8667	0.964	1.799	0.148	0.019
5.0000	0.964	1.928	0.153	0.019
5.1333	0.964	2.056	0.158	0.019
5.2667	0.964	2.185	0.163	0.019
5.4000	0.964	2.314	0.167	0.019
5.5333	0.964	2.442	0.172	0.019
5.6667	0.964	2.571	0.176	0.019
5.8000	0.964	2.699	0.181	0.019
5.9333	0.964	2.828	0.333	0.019
6.0667	0.964	2.956	0.689	0.019
6.2000	0.964	3.085	1.163	0.019
6.3333	0.964	3.214	1.751	0.019

6.4667	0.964	3.342	2.951	0.019
6.6000	0.964	3.471	4.449	0.019
6.7333	0.964	3.599	5.866	0.019
6.8667	0.964	3.728	6.885	0.019
7.0000	0.964	3.856	7.459	0.019
7.1333	0.964	3.985	8.052	0.019
7.2667	0.964	4.113	8.540	0.019
7.4000	0.964	4.242	8.998	0.019
7.5333	0.964	4.371	9.430	0.019
7.6667	0.964	4.499	9.840	0.019
7.8000	0.964	4.628	10.23	0.019
7.9333	0.964	4.756	10.60	0.019
8.0667	0.964	4.885	10.96	0.019
8.2000	0.964	5.013	11.31	0.019
8.3333	0.964	5.142	11.65	0.019
8.4667	0.964	5.270	11.97	0.019
8.6000	0.964	5.399	12.29	0.019
8.7333	0.964	5.528	12.59	0.019
8.8667	0.964	5.656	12.89	0.019
9.0000	0.964	5.785	13.18	0.019
9.1333	0.964	5.913	13.47	0.019
9.2667	0.964	6.042	13.75	0.019
9.4000	0.964	6.170	14.02	0.019
9.5333	0.964	6.299	14.28	0.019
9.6667	0.964	6.427	14.55	0.019
9.8000	0.964	6.556	14.80	0.019
9.9333	0.964	6.685	15.05	0.019
10.067	0.964	6.813	15.30	0.019
10.200	0.964	6.942	15.54	0.019
10.333	0.964	7.070	15.78	0.019
10.467	0.964	7.199	16.02	0.019
10.600	0.964	7.327	16.25	0.019
10.733	0.964	7.456	16.47	0.019
10.867	0.964	7.584	16.70	0.019
11.000	0.964	7.713	16.92	0.019
11.133	0.964	7.842	17.14	0.019
11.267	0.964	7.970	17.35	0.019
11.400	0.964	8.099	17.56	0.019
11.533	0.964	8.227	17.77	0.019
11.667	0.964	8.356	17.98	0.019
11.800	0.964	8.484	18.18	0.019
11.933	0.964	8.613	18.39	0.019
12.067	0.964	8.742	18.58	0.019
12.200	0.964	8.870	18.78	0.019
12.333	0.964	8.999	18.98	0.019
12.467	0.964	9.127	19.17	0.019
12.600	0.964	9.256	19.36	0.019
12.733	0.964	9.384	19.55	0.019
12.867	0.964	9.513	19.74	0.019
13.000	0.964	9.641	19.92	0.019
13.133	0.964	9.770	20.10	0.019
13.267	0.964	9.899	20.29	0.019
13.400	0.964	10.02	20.47	0.019
13.533	0.964	10.15	20.64	0.019
13.667	0.964	10.28	20.82	0.019
13.800	0.964	10.41	21.00	0.019
13.933	0.964	10.54	21.17	0.019
14.067	0.964	10.67	21.34	0.019

14.200	0.964	10.79	21.51	0.019
14.333	0.964	10.92	21.68	0.019
14.467	0.964	11.05	21.85	0.019
14.600	0.964	11.18	22.01	0.019
14.733	0.964	11.31	22.18	0.019
14.867	0.964	11.44	22.34	0.019
15.000	0.964	11.57	22.50	0.019
15.133	0.964	11.69	22.67	0.019
15.267	0.000	0.000	22.83	0.000

Amended Soil

Bottom Length:	95.30 ft.
Bottom Width:	60.00 ft.
Material thickness of first layer:	1.4
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	0
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	0.333
Total Volume Infiltrated (ac-ft.):	21.714
Total Volume Through Riser (ac-ft.):	7.832
Total Volume Through Facility (ac-ft.):	29.546
Percent Infiltrated:	73.49
Total Precip Applied to Facility:	5.89
Total Evap From Facility:	2.707
Underdrain not used	
Discharge Structure	
Riser Height:	0.25 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.1313	0.0000	0.0000	0.0000
0.0218	0.1313	0.0012	0.0000	0.0000
0.0435	0.1313	0.0024	0.0000	0.0000
0.0653	0.1313	0.0036	0.0006	0.0006
0.0870	0.1313	0.0048	0.0010	0.0010
0.1088	0.1313	0.0060	0.0016	0.0016
0.1305	0.1313	0.0072	0.0023	0.0023
0.1523	0.1313	0.0084	0.0026	0.0026
0.1741	0.1313	0.0096	0.0026	0.0026
0.1958	0.1313	0.0108	0.0026	0.0026
0.2176	0.1313	0.0120	0.0026	0.0026
0.2393	0.1313	0.0132	0.0026	0.0026
0.2611	0.1313	0.0144	0.0026	0.0026
0.2829	0.1313	0.0156	0.0026	0.0026
0.3046	0.1313	0.0168	0.0026	0.0026
0.3264	0.1313	0.0180	0.0026	0.0026
0.3481	0.1313	0.0192	0.0026	0.0026
0.3699	0.1313	0.0204	0.0026	0.0026
0.3916	0.1313	0.0216	0.0026	0.0026
0.4134	0.1313	0.0228	0.0026	0.0026
0.4352	0.1313	0.0240	0.0026	0.0026
0.4569	0.1313	0.0252	0.0026	0.0026
0.4787	0.1313	0.0264	0.0026	0.0026
0.5004	0.1313	0.0276	0.0026	0.0026
0.5222	0.1313	0.0288	0.0026	0.0026
0.5440	0.1313	0.0300	0.0026	0.0026
0.5657	0.1313	0.0312	0.0026	0.0026
0.5875	0.1313	0.0324	0.0026	0.0026

0.6092	0.1313	0.0336	0.0026	0.0026
0.6310	0.1313	0.0348	0.0026	0.0026
0.6527	0.1313	0.0360	0.0026	0.0026
0.6745	0.1313	0.0372	0.0026	0.0026
0.6963	0.1313	0.0384	0.0026	0.0026
0.7180	0.1313	0.0396	0.0026	0.0026
0.7398	0.1313	0.0408	0.0026	0.0026
0.7615	0.1313	0.0420	0.0026	0.0026
0.7833	0.1313	0.0432	0.0026	0.0026
0.8051	0.1313	0.0444	0.0026	0.0026
0.8268	0.1313	0.0456	0.0026	0.0026
0.8486	0.1313	0.0468	0.0026	0.0026
0.8703	0.1313	0.0480	0.0026	0.0026
0.8921	0.1313	0.0492	0.0026	0.0026
0.9138	0.1313	0.0504	0.0026	0.0026
0.9356	0.1313	0.0516	0.0026	0.0026
0.9574	0.1313	0.0528	0.0026	0.0026
0.9791	0.1313	0.0540	0.0026	0.0026
1.0009	0.1313	0.0552	0.0026	0.0026
1.0226	0.1313	0.0564	0.0026	0.0026
1.0444	0.1313	0.0576	0.0026	0.0026
1.0662	0.1313	0.0588	0.0026	0.0026
1.0879	0.1313	0.0600	0.0026	0.0026
1.1097	0.1313	0.0612	0.0026	0.0026
1.1314	0.1313	0.0624	0.0026	0.0026
1.1532	0.1313	0.0636	0.0026	0.0026
1.1749	0.1313	0.0648	0.0026	0.0026
1.1967	0.1313	0.0660	0.0026	0.0026
1.2185	0.1313	0.0672	0.0026	0.0026
1.2402	0.1313	0.0684	0.0026	0.0026
1.2620	0.1313	0.0696	0.0026	0.0026
1.2837	0.1313	0.0708	0.0026	0.0026
1.3055	0.1313	0.0720	0.0026	0.0026
1.3273	0.1313	0.0732	0.0026	0.0026
1.3490	0.1313	0.0744	0.0026	0.0026
1.3708	0.1313	0.0756	0.0026	0.0026
1.3925	0.1313	0.0768	0.0026	0.0026
1.4000	0.1313	0.0772	0.0026	0.0026

Landscape Swale Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
1.4000	0.1313	0.0772	0.0000	0.6880	0.0000
1.4218	0.1313	0.0800	0.0000	0.6880	0.0000
1.4435	0.1313	0.0829	0.0000	0.6985	0.0000
1.4653	0.1313	0.0858	0.0000	0.7090	0.0000
1.4870	0.1313	0.0886	0.0000	0.7196	0.0000
1.5088	0.1313	0.0915	0.0000	0.7301	0.0000
1.5305	0.1313	0.0943	0.0000	0.7406	0.0000
1.5523	0.1313	0.0972	0.0000	0.7511	0.0000
1.5741	0.1313	0.1000	0.0000	0.7617	0.0000
1.5958	0.1313	0.1029	0.0000	0.7722	0.0000
1.6176	0.1313	0.1057	0.0000	0.7827	0.0000
1.6393	0.1313	0.1086	0.0000	0.7933	0.0000
1.6611	0.1313	0.1115	0.0000	0.8038	0.0000
1.6829	0.1313	0.1143	0.0000	0.8143	0.0000
1.7046	0.1313	0.1172	0.0000	0.8248	0.0000
1.7264	0.1313	0.1200	0.0000	0.8354	0.0000
1.7481	0.1313	0.1229	0.0000	0.8459	0.0000

1.7699	0.1313	0.1257	0.0000	0.8564	0.0000
1.7916	0.1313	0.1286	0.0000	0.8670	0.0000
1.8134	0.1313	0.1315	0.0000	0.8775	0.0000
1.8352	0.1313	0.1343	0.0000	0.8880	0.0000
1.8569	0.1313	0.1372	0.0000	0.8985	0.0000
1.8787	0.1313	0.1400	0.0000	0.9091	0.0000
1.9004	0.1313	0.1429	0.0000	0.9196	0.0000
1.9222	0.1313	0.1457	0.0000	0.9301	0.0000
1.9440	0.1313	0.1486	0.0000	0.9407	0.0000
1.9657	0.1313	0.1514	0.0000	0.9512	0.0000
1.9800	0.1313	0.1533	0.0000	0.9581	0.0000

Surface Amended Soil

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Amended Soil

Infilt Planter 3

Bottom Length:	78.00 ft.
Bottom Width:	50.00 ft.
Material thickness of first layer:	2
Material type for first layer:	Amended 5 in/hr
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.06
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	28.064
Total Volume Through Riser (ac-ft.):	1.56
Total Volume Through Facility (ac-ft.):	68.599
Percent Infiltrated:	40.91
Total Precip Applied to Facility:	4.159
Total Evap From Facility:	2.211
Underdrain used	
Underdrain Diameter (feet):	6
Orifice Diameter (in.):	2
Offset (in.):	6
Flow Through Underdrain (ac-ft.):	38.975
Total Outflow (ac-ft.):	68.599
Percent Through Underdrain:	56.82
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	24 in.
Element Flows To:	
Outlet 1	Outlet 2
StormTech 2	

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0895	0.0000	0.0000	0.0000
0.0495	0.0895	0.0019	0.0000	0.0000
0.0989	0.0895	0.0037	0.0000	0.0000
0.1484	0.0895	0.0056	0.0000	0.0000
0.1978	0.0895	0.0074	0.0054	0.0054
0.2473	0.0895	0.0093	0.0054	0.0054
0.2967	0.0895	0.0112	0.0054	0.0054
0.3462	0.0895	0.0130	0.0054	0.0054
0.3956	0.0895	0.0149	0.0054	0.0054
0.4451	0.0895	0.0167	0.0054	0.0054
0.4945	0.0895	0.0186	0.0054	0.0054
0.5440	0.0895	0.0205	0.0054	0.0054
0.5934	0.0895	0.0223	0.0054	0.0054
0.6429	0.0895	0.0242	0.0054	0.0054
0.6923	0.0895	0.0260	0.0054	0.0054
0.7418	0.0895	0.0279	0.0054	0.0054
0.7912	0.0895	0.0298	0.0054	0.0054
0.8407	0.0895	0.0316	0.0054	0.0054
0.8901	0.0895	0.0335	0.0054	0.0054
0.9396	0.0895	0.0353	0.0054	0.0054
0.9890	0.0895	0.0372	0.0054	0.0054
1.0385	0.0895	0.0390	0.0054	0.0054

1.0879	0.0895	0.0409	0.0054	0.0054
1.1374	0.0895	0.0428	0.0054	0.0054
1.1868	0.0895	0.0446	0.0054	0.0054
1.2363	0.0895	0.0465	0.0054	0.0054
1.2857	0.0895	0.0483	0.0054	0.0054
1.3352	0.0895	0.0502	0.0054	0.0054
1.3846	0.0895	0.0521	0.0054	0.0054
1.4341	0.0895	0.0539	0.0054	0.0054
1.4835	0.0895	0.0558	0.0054	0.0054
1.5330	0.0895	0.0576	0.0054	0.0054
1.5824	0.0895	0.0595	0.0054	0.0054
1.6319	0.0895	0.0614	0.0054	0.0054
1.6813	0.0895	0.0632	0.0054	0.0054
1.7308	0.0895	0.0651	0.0054	0.0054
1.7802	0.0895	0.0669	0.0054	0.0054
1.8297	0.0895	0.0688	0.0054	0.0054
1.8791	0.0895	0.0707	0.0054	0.0054
1.9286	0.0895	0.0725	0.0054	0.0054
1.9780	0.0895	0.0744	0.0054	0.0054
2.0275	0.0895	0.0762	0.0054	0.0054
2.0769	0.0895	0.0781	0.0054	0.0054
2.1264	0.0895	0.0799	0.0054	0.0054
2.1758	0.0895	0.0817	0.0054	0.0054
2.2253	0.0895	0.0836	0.0054	0.0054
2.2747	0.0895	0.0854	0.0054	0.0054
2.3242	0.0895	0.0872	0.0054	0.0054
2.3736	0.0895	0.0891	0.0054	0.0054
2.4231	0.0895	0.0909	0.0054	0.0054
2.4725	0.0895	0.0928	0.0054	0.0054
2.5220	0.0895	0.0946	0.0054	0.0054
2.5714	0.0895	0.0964	0.0054	0.0054
2.6209	0.0895	0.0983	0.0054	0.0054
2.6703	0.0895	0.1001	0.0054	0.0054
2.7198	0.0895	0.1019	0.0054	0.0054
2.7692	0.0895	0.1038	0.0054	0.0054
2.8187	0.0895	0.1056	0.0054	0.0054
2.8681	0.0895	0.1075	0.0054	0.0054
2.9176	0.0895	0.1093	0.0054	0.0054
2.9670	0.0895	0.1111	0.0054	0.0054
3.0000	0.0895	0.1124	0.0054	0.0054

In Ground Infilt Planter Box Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.0000	0.0895	0.1124	0.0000	0.1103	0.0000
3.0495	0.0895	0.1168	0.0000	0.1103	0.0000
3.0989	0.0895	0.1212	0.0000	0.1103	0.0000
3.1484	0.0895	0.1256	0.0000	0.1103	0.0000
3.1978	0.0895	0.1301	0.0000	0.1103	0.0000
3.2473	0.0895	0.1345	0.0000	0.1103	0.0000
3.2967	0.0895	0.1389	0.0000	0.1103	0.0000
3.3462	0.0895	0.1433	0.0000	0.1103	0.0000
3.3956	0.0895	0.1478	0.0000	0.1103	0.0000
3.4451	0.0895	0.1522	0.0000	0.1103	0.0000
3.4945	0.0895	0.1566	0.0000	0.1103	0.0000
3.5440	0.0895	0.1611	0.0000	0.1103	0.0000
3.5934	0.0895	0.1655	0.0000	0.1103	0.0000
3.6429	0.0895	0.1699	0.0000	0.1103	0.0000
3.6923	0.0895	0.1743	0.0000	0.1103	0.0000

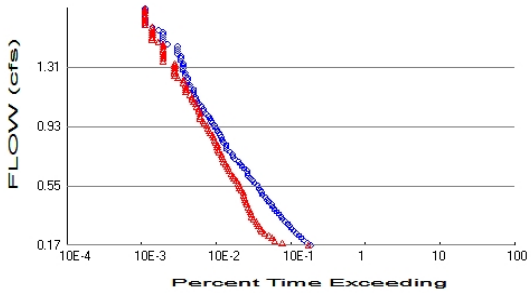
3.7418	0.0895	0.1788	0.0000	0.1103	0.0000
3.7912	0.0895	0.1832	0.0000	0.1103	0.0000
3.8407	0.0895	0.1876	0.0000	0.1103	0.0000
3.8901	0.0895	0.1920	0.0000	0.1103	0.0000
3.9396	0.0895	0.1965	0.0000	0.1103	0.0000
3.9890	0.0895	0.2009	0.0000	0.1103	0.0000
4.0385	0.0895	0.2053	0.0000	0.1103	0.0000
4.0879	0.0895	0.2098	0.0060	0.1103	0.0000
4.1374	0.0895	0.2142	0.0172	0.1103	0.0000
4.1868	0.0895	0.2186	0.0196	0.1103	0.0000
4.2363	0.0895	0.2230	0.0221	0.1103	0.0000
4.2857	0.0895	0.2275	0.0277	0.1103	0.0000
4.3352	0.0895	0.2319	0.0307	0.1103	0.0000
4.3846	0.0895	0.2363	0.0338	0.1103	0.0000
4.4341	0.0895	0.2407	0.0371	0.1103	0.0000
4.4835	0.0895	0.2452	0.0406	0.1103	0.0000
4.5000	0.0895	0.2466	0.0459	0.1103	0.0000

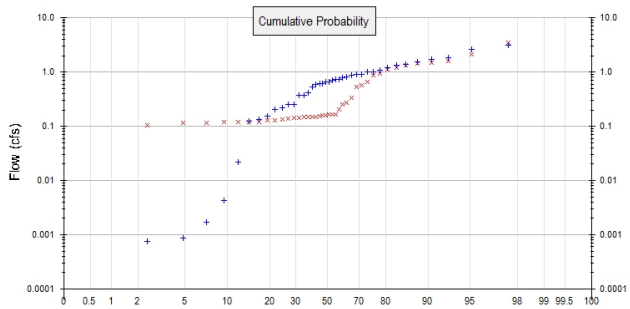
Infilt Pla Surface 3

Element Flows To:

Outlet 1	Outlet 2
StormTech 2	Infilt Planter 3

Analysis Results
POC 1





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 4.56
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.79
Total Impervious Area: 3.766198

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	0.666319
5 year	1.141374
10 year	1.685528
25 year	2.714199

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.161713
5 year	1.045608
10 year	1.472135
25 year	2.356871

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1964	0.696	0.162
1965	0.530	0.341
1966	0.004	0.119
1967	1.726	2.103
1968	0.153	0.139
1969	1.556	0.527
1970	0.885	0.657
1971	0.907	0.947
1972	0.002	0.122
1973	1.810	0.167
1974	0.248	0.126
1975	0.001	0.104
1976	0.001	0.118
1977	0.001	0.091

1978	0.811	0.253
1979	0.723	0.157
1980	0.666	0.150
1981	0.022	0.143
1982	0.995	1.457
1983	1.380	0.884
1984	0.779	0.272
1985	0.132	0.128
1986	1.201	1.477
1987	0.408	0.162
1988	0.254	0.117
1989	0.604	0.118
1990	0.587	0.143
1991	0.368	0.147
1992	0.722	0.165
1993	0.667	0.205
1994	0.216	0.118
1995	3.141	3.436
1996	1.345	1.334
1997	2.614	1.577
1998	0.994	1.119
1999	0.918	0.565
2000	1.062	1.201
2001	0.205	0.134
2002	0.367	0.149
2003	0.125	0.151
2004	0.616	0.150

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	**Pre-Project**	**Mitigated**
1	3.1405	3.4358
2	2.6139	2.1030
3	1.8097	1.5771
4	1.7261	1.4768
5	1.5558	1.4571
6	1.3804	1.3337
7	1.3452	1.2010
8	1.2009	1.1193
9	1.0620	0.9474
10	0.9952	0.8841
11	0.9939	0.6573
12	0.9184	0.5654
13	0.9073	0.5274
14	0.8854	0.3407
15	0.8113	0.2723
16	0.7794	0.2527
17	0.7229	0.2052
18	0.7220	0.1669
19	0.6964	0.1655
20	0.6667	0.1624
21	0.6663	0.1617
22	0.6164	0.1566
23	0.6038	0.1514
24	0.5868	0.1503
25	0.5304	0.1503
26	0.4083	0.1489
27	0.3681	0.1473

28	0.3669	0.1434
29	0.2538	0.1433
30	0.2481	0.1390
31	0.2163	0.1336
32	0.2049	0.1285
33	0.1525	0.1264
34	0.1319	0.1216
35	0.1250	0.1194
36	0.0220	0.1182
37	0.0043	0.1178
38	0.0017	0.1175
39	0.0009	0.1170
40	0.0008	0.1036
41	0.0006	0.0910

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1666	661	619	93	Pass
0.1819	598	276	46	Pass
0.1973	542	218	40	Pass
0.2126	497	199	40	Pass
0.2280	464	182	39	Pass
0.2433	429	160	37	Pass
0.2586	392	147	37	Pass
0.2740	367	140	38	Pass
0.2893	349	134	38	Pass
0.3047	328	128	39	Pass
0.3200	304	123	40	Pass
0.3354	283	114	40	Pass
0.3507	266	107	40	Pass
0.3660	250	106	42	Pass
0.3814	231	104	45	Pass
0.3967	216	100	46	Pass
0.4121	206	97	47	Pass
0.4274	198	92	46	Pass
0.4428	183	90	49	Pass
0.4581	172	87	50	Pass
0.4734	165	86	52	Pass
0.4888	152	84	55	Pass
0.5041	146	83	56	Pass
0.5195	140	78	55	Pass
0.5348	134	74	55	Pass
0.5502	129	73	56	Pass
0.5655	119	70	58	Pass
0.5808	110	67	60	Pass
0.5962	104	62	59	Pass
0.6115	97	60	61	Pass
0.6269	94	57	60	Pass
0.6422	92	54	58	Pass
0.6576	85	52	61	Pass
0.6729	80	51	63	Pass
0.6882	75	48	64	Pass
0.7036	72	45	62	Pass
0.7189	64	44	68	Pass
0.7343	60	43	71	Pass
0.7496	59	42	71	Pass
0.7650	55	39	70	Pass
0.7803	50	38	76	Pass
0.7956	49	37	75	Pass
0.8110	49	37	75	Pass
0.8263	45	35	77	Pass
0.8417	43	34	79	Pass
0.8570	42	33	78	Pass
0.8724	41	32	78	Pass
0.8877	39	30	76	Pass
0.9030	37	29	78	Pass
0.9184	35	28	80	Pass
0.9337	34	27	79	Pass
0.9491	32	25	78	Pass
0.9644	31	24	77	Pass

0.9798	30	22	73	Pass
0.9951	29	22	75	Pass
1.0104	26	22	84	Pass
1.0258	24	21	87	Pass
1.0411	24	21	87	Pass
1.0565	23	20	86	Pass
1.0718	21	19	90	Pass
1.0872	20	18	90	Pass
1.1025	19	17	89	Pass
1.1178	19	17	89	Pass
1.1332	18	16	88	Pass
1.1485	18	14	77	Pass
1.1639	18	14	77	Pass
1.1792	16	14	87	Pass
1.1946	16	14	87	Pass
1.2099	15	13	86	Pass
1.2252	15	13	86	Pass
1.2406	15	11	73	Pass
1.2559	14	10	71	Pass
1.2713	14	10	71	Pass
1.2866	13	10	76	Pass
1.3020	13	10	76	Pass
1.3173	13	10	76	Pass
1.3326	13	10	76	Pass
1.3480	12	7	58	Pass
1.3633	12	7	58	Pass
1.3787	12	7	58	Pass
1.3940	11	7	63	Pass
1.4094	11	7	63	Pass
1.4247	11	7	63	Pass
1.4400	11	7	63	Pass
1.4554	8	7	87	Pass
1.4707	7	6	85	Pass
1.4861	7	5	71	Pass
1.5014	7	5	71	Pass
1.5168	7	5	71	Pass
1.5321	7	5	71	Pass
1.5474	6	5	83	Pass
1.5628	5	5	100	Pass
1.5781	4	4	100	Pass
1.5935	4	4	100	Pass
1.6088	4	4	100	Pass
1.6242	4	4	100	Pass
1.6395	4	4	100	Pass
1.6548	4	4	100	Pass
1.6702	4	4	100	Pass
1.6855	4	4	100	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

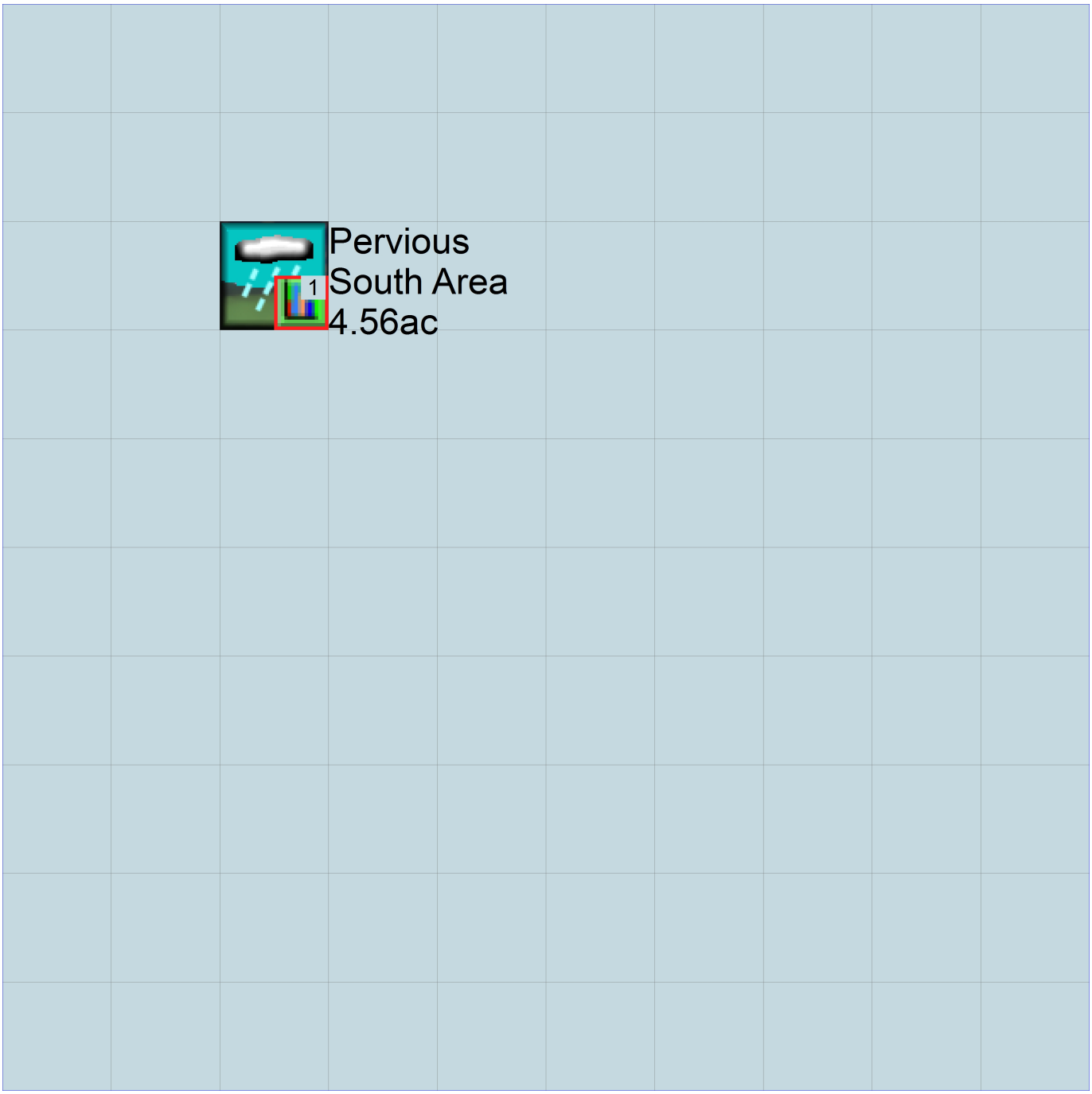
No PERLND changes have been made.

IMPLND Changes

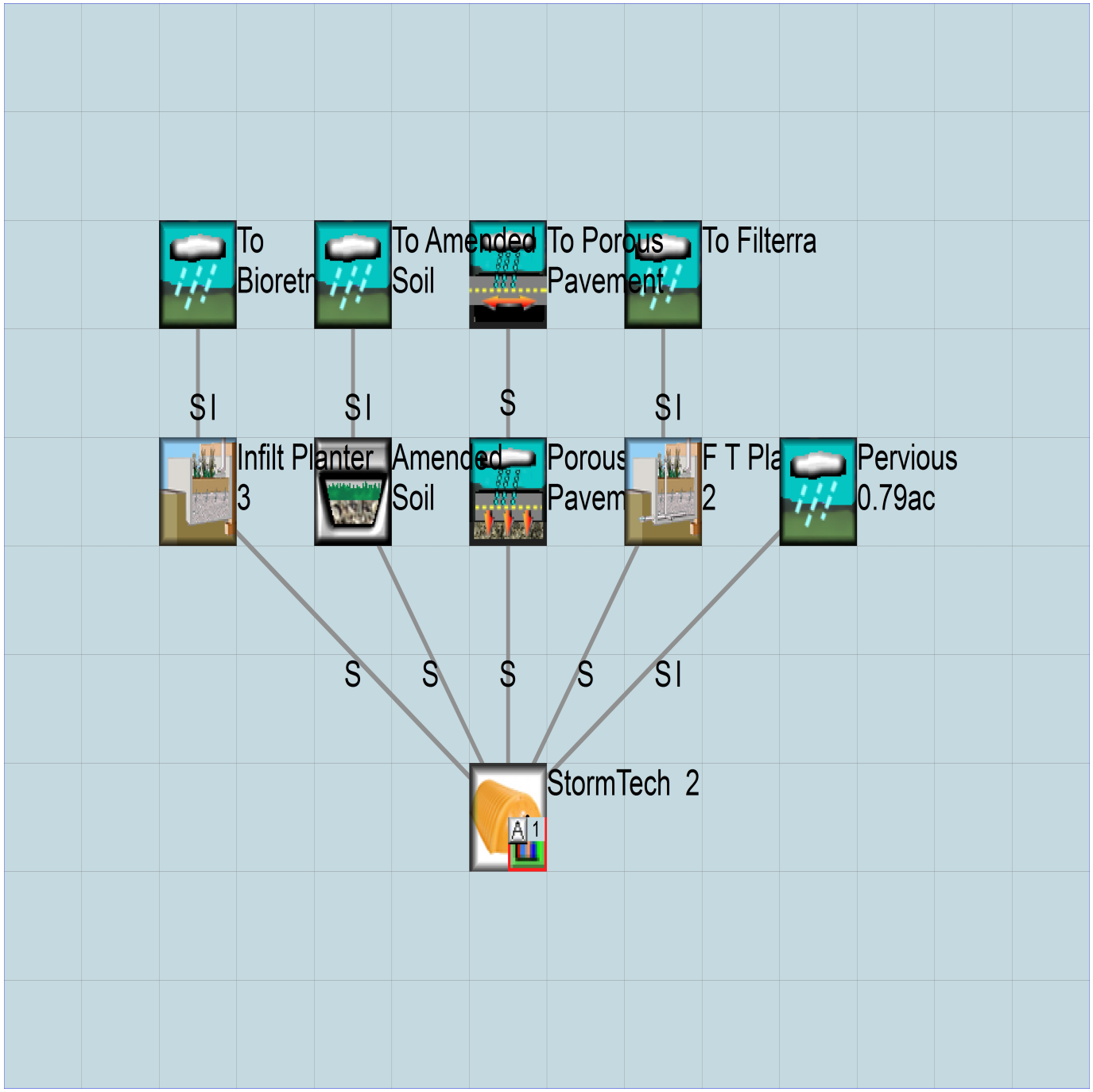
No IMPLND changes have been made.

Appendix

Pre-Project Schematic



Mitigated Schematic



Pre-Project UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderSouthUP5.wdm
MESSU      25   PreElderSouthUP5.MES
           27   PreElderSouthUP5.L61
           28   PreElderSouthUP5.L62
           30   POCElderSouthUP51.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      33
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Pervious South Area         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   33     C,Grass,Flat(0-1%)      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   33         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   33         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   33         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   33              0       4.5     0.045       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   33             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   33              0       0.3      0.25       0.7       0.5         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33       0.4  0.4  0.4 0.45  0.5 0.55 0.55 0.55 0.55 0.55 0.45  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   33      0.12 0.12 0.12 0.11  0.1  0.1  0.1  0.1  0.1  0.1 0.11 0.12
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   33              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                       in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Pervious South Area***
PERLND  33                        4.56     COPY   501     12
PERLND  33                        4.56     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                        in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   ElderSouthUP5.wdm
MESSU      25   MitElderSouthUP5.MES
           27   MitElderSouthUP5.L61
           28   MitElderSouthUP5.L62
           30   POCElderSouthUP51.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      IMPLND       1
      IMPLND       9
      PERLND      41
      IMPLND      10
      RCHRES       1
      RCHRES       2
      RCHRES       3
      GENER        5
      RCHRES       4
      RCHRES       5
      RCHRES       6
      RCHRES       7
      RCHRES       8
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        StormTech  2               MAX                     1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    5        24
  END OPCODE
  PARM
    #    #         K ***
    5            0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   41     C,Urban,Flat(0-1%)      1    1    1    1   27    0
```

```
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   41         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   41         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   41         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   41              0      4.45     0.035       400      0.01         3      0.92
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   41             40        35         2         2         0         0      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   41              0       0.3      0.25       0.5       0.4         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41       0.5  0.5  0.5  0.6 0.65 0.65 0.65 0.65 0.65 0.65 0.55  0.5
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   41      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   41              0         0      0.15         0         4      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1     Imperv,Flat(0-1%)       1    1    1   27    0
    9     Imperv,Flat(0-1%) LAT   1    1    1   27    0
   10     Porous Pavement         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
```

```
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    9         0    0    1    0    0    0
   10         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
   10         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    0
    9         0    0    0    0    0
   10         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.01      0.05       0.1
    9            100      0.01      0.05       0.1
   10            100      0.01      0.05       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    9              0         0
   10              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    9              0         0
   10              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
To Bioretntion***
IMPLND   1                        1.34     RCHRES   6      5
To Filterra***
IMPLND   1                        1.61     RCHRES   2      5
To Porous Pavement***
IMPLND   9                      1.9751     IMPLND  10     53
IMPLND  10                      0.0962     RCHRES   1      5
Pervious***
PERLND  41                        0.79     RCHRES   8      2
PERLND  41                        0.79     RCHRES   8      3
To Amended Soil***
IMPLND   1                        0.53     RCHRES   4      5

******Routing******
RCHRES   1                           1     RCHRES   8      7
RCHRES   1                                 COPY     1     17
RCHRES   3                           1     RCHRES   8      6
RCHRES   3                                 COPY     1     16
RCHRES   2                           1     RCHRES   8      7
```

```
RCHRES   2                                  COPY     1     17
RCHRES   2                            1     RCHRES   3      8
PERLND  41                         0.79     COPY     1     12
PERLND  41                         0.79     COPY     1     13
RCHRES   5                            1     RCHRES   8      7
RCHRES   5                                  COPY     1     17
RCHRES   4                            1     RCHRES   8      7
RCHRES   4                                  COPY     1     17
RCHRES   4                            1     RCHRES   5      8
RCHRES   7                            1     RCHRES   8      7
RCHRES   7                                  COPY     1     17
RCHRES   6                            1     RCHRES   8      7
RCHRES   6                                  COPY     1     17
RCHRES   6                            1     RCHRES   7      8
RCHRES   8                            1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    5 OUTPUT TIMSER      .0002778     RCHRES   4     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                          in  out                             ***
    1     Porous Pavement -027    2    1    1    1   28    0    1
    2     F T Plante Surfa-029    3    1    1    1   28    0    1
    3     F T Planter  2          1    1    1    1   28    0    1
    4     Surface Amended -035    3    1    1    1   28    0    1
    5     Amended Soil            2    1    1    1   28    0    1
    6     Infilt Pla Surfa-046    3    1    1    1   28    0    1
    7     Infilt Planter  -045    2    1    1    1   28    0    1
    8     StormTech  2            2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
    4         1    0    0    0    0    0    0    0    0    0
    5         1    0    0    0    0    0    0    0    0    0
    6         1    0    0    0    0    0    0    0    0    0
    7         1    0    0    0    0    0    0    0    0    0
    8         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         4    0    0    0    0    0    0    0    0    0    1    9
    6         4    0    0    0    0    0    0    0    0    0    1    9
    7         4    0    0    0    0    0    0    0    0    0    1    9
    8         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    2       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    5       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    6       0  1  0  0    4  5  6  0  0       0  0  0  0  0       2  2  2  2  2
    7       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    8       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1              1      0.05       0.0       0.0       0.5       0.0
    2              2      0.01       0.0       0.0       0.5       0.0
    3              3      0.01       0.0       0.0       0.5       0.0
    4              4      0.01       0.0       0.0       0.5       0.0
    5              5      0.02       0.0       0.0       0.5       0.0
    6              6      0.01       0.0       0.0       0.5       0.0
    7              7      0.01       0.0       0.0       0.5       0.0
    8              8      0.06       0.0       3.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    6            0         4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    7            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    8            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol5   RCHRES   5 VOL              4
  UVQUAN v2m5   GLOBAL     WORKSP  4        3
  UVQUAN vpo5   GLOBAL     WORKSP  5        3
  UVQUAN v2d5   GENER    5 K       1        3
*** User-Defined Target Variable Names
***                  addr or                       addr or
***                 <------>                      <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m5    1 WORKSP  4         1.0 QUAN
  UVNAME  vpo5    1 WORKSP  5         1.0 QUAN
  UVNAME  v2d5    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   5                               v2m5            =  3177.
*** Compute remaining available pore space
  GENER   5                               vpo5            =  v2m5
  GENER   5                               vpo5           -=  vol5
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo5 < 0.0) THEN
```

```
  GENER   5                                   vpo5            =  0.0
END IF
*** Infiltration volume
  GENER   5                                   v2d5            =  vpo5
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   91    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.096198  0.000000  0.000000  0.000000
  0.021333  0.096198  0.000821  0.063417  0.001921
  0.042667  0.096198  0.001642  0.089686  0.001921
  0.064000  0.096198  0.002463  0.109842  0.001921
  0.085333  0.096198  0.003284  0.126835  0.001921
  0.106667  0.096198  0.004104  0.141805  0.001921
  0.128000  0.096198  0.004925  0.155340  0.001921
  0.149333  0.096198  0.005746  0.167787  0.001921
  0.170667  0.096198  0.006567  0.179371  0.001921
  0.192000  0.096198  0.007388  0.190252  0.001921
  0.213333  0.096198  0.008209  0.200543  0.001921
  0.234667  0.096198  0.009030  0.210332  0.001921
  0.256000  0.096198  0.009851  0.219684  0.001921
  0.277333  0.096198  0.010672  0.228654  0.001921
  0.298667  0.096198  0.011492  0.237286  0.001921
  0.320000  0.096198  0.012313  0.245614  0.001921
  0.341333  0.096198  0.013134  0.253669  0.001921
  0.362667  0.096198  0.013955  0.261476  0.001921
  0.384000  0.096198  0.014776  0.269057  0.001921
  0.405333  0.096198  0.015597  0.276430  0.001921
  0.426667  0.096198  0.016418  0.283611  0.001921
  0.448000  0.096198  0.017239  0.290615  0.001921
  0.469333  0.096198  0.018060  0.297454  0.001921
  0.490667  0.096198  0.018881  0.304139  0.001921
  0.512000  0.096198  0.019701  0.310680  0.001921
  0.533333  0.096198  0.020522  0.317087  0.001921
  0.554667  0.096198  0.021343  0.323366  0.001921
  0.576000  0.096198  0.022164  0.329526  0.001921
  0.597333  0.096198  0.022985  0.335573  0.001921
  0.618667  0.096198  0.023806  0.341513  0.001921
  0.640000  0.096198  0.024627  0.347351  0.001921
  0.661333  0.096198  0.025448  0.353093  0.001921
  0.682667  0.096198  0.026269  0.358743  0.001921
  0.704000  0.096198  0.027089  0.364305  0.001921
  0.725333  0.096198  0.027910  0.369783  0.001921
  0.746667  0.096198  0.028731  0.375182  0.001921
  0.768000  0.096198  0.029347  0.380504  0.001921
  0.789333  0.096198  0.029963  0.385753  0.001921
  0.810667  0.096198  0.030578  0.390931  0.001921
  0.832000  0.096198  0.031194  0.396041  0.001921
  0.853333  0.096198  0.031810  0.401087  0.001921
  0.874667  0.096198  0.032425  0.406069  0.001921
  0.896000  0.096198  0.033041  0.410991  0.001921
  0.917333  0.096198  0.033657  0.415855  0.001921
  0.938667  0.096198  0.034272  0.420663  0.001921
  0.960000  0.096198  0.034888  0.425416  0.001921
  0.981333  0.096198  0.035504  0.430117  0.001921
  1.002667  0.096198  0.036119  0.434767  0.001921
  1.024000  0.096198  0.036735  0.439368  0.001921
  1.045333  0.096198  0.037351  0.443921  0.001921
  1.066667  0.096198  0.037966  0.448428  0.001921
  1.088000  0.096198  0.038582  0.452890  0.001921
  1.109333  0.096198  0.039198  0.457309  0.001921
  1.130667  0.096198  0.039813  0.461685  0.001921
  1.152000  0.096198  0.040429  0.466020  0.001921
  1.173333  0.096198  0.041045  0.470316  0.001921
  1.194667  0.096198  0.041660  0.474572  0.001921
  1.216000  0.096198  0.042276  0.478790  0.001921
  1.237333  0.096198  0.042892  0.482972  0.001921
  1.258667  0.096198  0.043918  0.487118  0.001921
```

```
1.280000  0.096198  0.044944  0.491229  0.001921
1.301333  0.096198  0.045970  0.495305  0.001921
1.322667  0.096198  0.046996  0.499349  0.001921
1.344000  0.096198  0.048022  0.503360  0.001921
1.365333  0.096198  0.049048  0.507339  0.001921
1.386667  0.096198  0.050074  0.511287  0.001921
1.408000  0.096198  0.051101  0.515205  0.001921
1.429333  0.096198  0.052127  0.519093  0.001921
1.450667  0.096198  0.053153  0.522953  0.001921
1.472000  0.096198  0.054179  0.526784  0.001921
1.493333  0.096198  0.055205  0.530588  0.001921
1.514667  0.096198  0.056231  0.534364  0.001921
1.536000  0.096198  0.057257  0.538114  0.001921
1.557333  0.096198  0.058283  0.541838  0.001921
1.578667  0.096198  0.059309  0.545537  0.001921
1.600000  0.096198  0.060336  0.549210  0.001921
1.621333  0.096198  0.061362  0.552860  0.001921
1.642667  0.096198  0.062388  0.556485  0.001921
1.664000  0.096198  0.063414  0.560087  0.001921
1.685333  0.096198  0.064440  0.563666  0.001921
1.706667  0.096198  0.065466  0.567222  0.001921
1.728000  0.096198  0.066492  0.570756  0.001921
1.749333  0.096198  0.067518  0.574268  0.001921
1.770667  0.096198  0.068545  0.577760  0.001921
1.792000  0.096198  0.069571  0.581230  0.001921
1.813333  0.096198  0.070597  0.584679  0.001921
1.834667  0.096198  0.071623  0.588108  0.001921
1.856000  0.096198  0.072649  0.591518  0.001921
1.877333  0.096198  0.073675  0.594907  0.001921
1.898667  0.096198  0.074701  0.598278  0.001921
1.920000  0.096198  0.075727  0.601630  0.001921
END FTABLE  1
FTABLE      3
 56    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.006428  0.000000  0.000000
0.054945  0.006428  0.000148  0.000000
0.109890  0.006428  0.000297  0.000000
0.164835  0.006428  0.000445  0.000018
0.219780  0.006428  0.000593  0.000083
0.274725  0.006428  0.000742  0.000213
0.329670  0.006428  0.000890  0.000424
0.384615  0.006428  0.001038  0.000728
0.439560  0.006428  0.001187  0.001136
0.494505  0.006428  0.001335  0.001659
0.549451  0.006428  0.001483  0.002305
0.604396  0.006428  0.001632  0.003083
0.659341  0.006428  0.001780  0.004001
0.714286  0.006428  0.001928  0.005066
0.769231  0.006428  0.002077  0.006286
0.824176  0.006428  0.002225  0.007668
0.879121  0.006428  0.002373  0.009217
0.934066  0.006428  0.002522  0.010941
0.989011  0.006428  0.002670  0.012846
1.043956  0.006428  0.002818  0.014938
1.098901  0.006428  0.002967  0.017221
1.153846  0.006428  0.003115  0.018955
1.208791  0.006428  0.003263  0.019703
1.263736  0.006428  0.003412  0.022387
1.318681  0.006428  0.003560  0.025280
1.373626  0.006428  0.003708  0.028387
1.428571  0.006428  0.003857  0.031712
1.483516  0.006428  0.004005  0.035261
1.538462  0.006428  0.004153  0.036882
1.593407  0.006428  0.004302  0.041177
1.648352  0.006428  0.004450  0.045049
1.703297  0.006428  0.004598  0.047296
1.758242  0.006428  0.004747  0.048602
1.813187  0.006428  0.004895  0.051905
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  1.868132  0.006428  0.005043  0.055004
  1.923077  0.006428  0.005192  0.057933
  1.978022  0.006428  0.005340  0.060718
  2.032967  0.006428  0.005487  0.063378
  2.087912  0.006428  0.005633  0.065928
  2.142857  0.006428  0.005780  0.068383
  2.197802  0.006428  0.005926  0.070750
  2.252747  0.006428  0.006073  0.073041
  2.307692  0.006428  0.006220  0.075261
  2.362637  0.006428  0.006366  0.077417
  2.417582  0.006428  0.006513  0.079515
  2.472527  0.006428  0.006659  0.081559
  2.527473  0.006428  0.006806  0.083553
  2.582418  0.006428  0.006952  0.085501
  2.637363  0.006428  0.007099  0.087407
  2.692308  0.006428  0.007246  0.089641
  2.747253  0.006428  0.007392  0.093252
  2.802198  0.006428  0.007539  0.096738
  2.857143  0.006428  0.007685  0.099519
  2.912088  0.006428  0.007832  0.099519
  2.967033  0.006428  0.007978  0.099519
  3.000000  0.006428  0.016939  0.099519
  END FTABLE  3
  FTABLE      2
   38    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.006428  0.000000  0.000000  0.000000  0.000000
  0.054945  0.006428  0.000353  0.000000  0.099519  0.000000
  0.109890  0.006428  0.000706  0.000000  0.099519  0.000000
  0.164835  0.006428  0.001060  0.000000  0.099519  0.000000
  0.219780  0.006428  0.001413  0.000000  0.099519  0.000000
  0.274725  0.006428  0.001766  0.000000  0.099519  0.000000
  0.329670  0.006428  0.002119  0.000000  0.099519  0.000000
  0.384615  0.006428  0.002472  0.000000  0.099519  0.000000
  0.439560  0.006428  0.002825  0.000000  0.099519  0.000000
  0.494505  0.006428  0.003179  0.000000  0.099519  0.000000
  0.549451  0.006428  0.003532  0.000000  0.099519  0.000000
  0.604396  0.006428  0.003885  0.000000  0.099519  0.000000
  0.659341  0.006428  0.004238  0.000000  0.099519  0.000000
  0.714286  0.006428  0.004591  0.000000  0.099519  0.000000
  0.769231  0.006428  0.004945  0.000000  0.099519  0.000000
  0.824176  0.006428  0.005298  0.000000  0.099519  0.000000
  0.879121  0.006428  0.005651  0.000000  0.099519  0.000000
  0.934066  0.006428  0.006004  0.000000  0.099519  0.000000
  0.989011  0.006428  0.006357  0.000000  0.099519  0.000000
  1.043956  0.006428  0.006710  0.195553  0.099519  0.000000
  1.098901  0.006428  0.007064  0.659242  0.099519  0.000000
  1.153846  0.006428  0.007417  1.276591  0.099519  0.000000
  1.208791  0.006428  0.007770  2.010935  0.099519  0.000000
  1.263736  0.006428  0.008123  2.836899  0.099519  0.000000
  1.318681  0.006428  0.008476  3.731796  0.099519  0.000000
  1.373626  0.006428  0.008830  4.673072  0.099519  0.000000
  1.428571  0.006428  0.009183  5.637608  0.099519  0.000000
  1.483516  0.006428  0.009536  6.601841  0.099519  0.000000
  1.538462  0.006428  0.009889  7.542349  0.099519  0.000000
  1.593407  0.006428  0.010242  8.436754  0.099519  0.000000
  1.648352  0.006428  0.010595  9.264852  0.099519  0.000000
  1.703297  0.006428  0.010949  10.00993  0.099519  0.000000
  1.758242  0.006428  0.011302  10.66024  0.099519  0.000000
  1.813187  0.006428  0.011655  11.21062  0.099519  0.000000
  1.868132  0.006428  0.012008  11.66425  0.099519  0.000000
  1.923077  0.006428  0.012361  12.03449  0.099519  0.000000
  1.978022  0.006428  0.012715  12.34684  0.099519  0.000000
  2.000000  0.006428  0.012856  12.80450  0.099519  0.000000
  END FTABLE  2
  FTABLE      8
   63    5
```

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.168166	0.000000	0.000000	0.000000		
0.083333	0.168166	0.005605	0.031272	0.003357		
0.166667	0.168166	0.011210	0.044226	0.003357		
0.250000	0.168166	0.016816	0.054165	0.003357		
0.333333	0.168166	0.022422	0.062544	0.003357		
0.416667	0.168166	0.028027	0.069927	0.003357		
0.500000	0.168166	0.033632	0.076601	0.003357		
0.583333	0.168166	0.039238	0.082739	0.003357		
0.666667	0.168166	0.044842	0.088451	0.003357		
0.750000	0.168166	0.050449	0.093817	0.003357		
0.833333	0.168166	0.062881	0.098892	0.003357		
0.916667	0.168166	0.075254	0.103718	0.003357		
1.000000	0.168166	0.087587	0.108330	0.003357		
1.083333	0.168166	0.099881	0.112754	0.003357		
1.166667	0.168166	0.112130	0.117010	0.003357		
1.250000	0.168166	0.124332	0.121117	0.003357		
1.333333	0.168166	0.136497	0.125089	0.003357		
1.416667	0.168166	0.148605	0.128939	0.003357		
1.500000	0.168166	0.160666	0.132677	0.003357		
1.583333	0.168166	0.172670	0.136313	0.003357		
1.666667	0.168166	0.184619	0.139854	0.003357		
1.750000	0.168166	0.196509	0.143307	0.003357		
1.833333	0.168166	0.208335	0.146680	0.003357		
1.916667	0.168166	0.220097	0.149976	0.003357		
2.000000	0.168166	0.231788	0.153202	0.003357		
2.083333	0.168166	0.243410	0.156361	0.003357		
2.166667	0.168166	0.254950	0.159458	0.003357		
2.250000	0.168166	0.266411	0.162495	0.003357		
2.333333	0.168166	0.277789	0.165477	0.003357		
2.416667	0.168166	0.289076	0.168406	0.003357		
2.500000	0.168166	0.300269	0.171285	0.003357		
2.583333	0.168166	0.311363	0.174116	0.003357		
2.666667	0.168166	0.322352	0.176903	0.003357		
2.750000	0.168166	0.333232	0.179645	0.003357		
2.833333	0.168166	0.343995	0.184654	0.003357		
2.916667	0.168166	0.354639	0.299811	0.003357		
3.000000	0.168166	0.365153	0.494509	0.003357		
3.083333	0.168166	0.375529	0.743206	0.003357		
3.166667	0.168166	0.385766	1.035889	0.003357		
3.250000	0.168166	0.395852	1.366675	0.003357		
3.333333	0.168166	0.405776	1.751454	0.003357		
3.416667	0.168166	0.415518	2.445889	0.003357		
3.500000	0.168166	0.425085	3.312477	0.003357		
3.583333	0.168166	0.434452	4.258965	0.003357		
3.666667	0.168166	0.443605	5.191436	0.003357		
3.750000	0.168166	0.452515	6.020252	0.003357		
3.833333	0.168166	0.461172	6.677421	0.003357		
3.916667	0.168166	0.469536	7.140266	0.003357		
4.000000	0.168166	0.477565	7.459717	0.003357		
4.083333	0.168166	0.485157	7.859498	0.003357		
4.166667	0.168166	0.492097	8.177475	0.003357		
4.250000	0.168166	0.498489	8.481376	0.003357		
4.333333	0.168166	0.504664	8.772924	0.003357		
4.416667	0.168166	0.510647	9.053521	0.019250		
4.500000	0.168166	0.516368	9.324318	0.019250		
4.583333	0.168166	0.522076	9.586280	0.019250		
4.666667	0.168166	0.527681	9.840221	0.019250		
4.750000	0.168166	0.533288	10.08684	0.019250		
4.833333	0.168166	0.538892	10.32674	0.019250		
4.916667	0.168166	0.544498	10.56043	0.019250		
5.000000	0.168166	0.550103	10.78839	0.019250		
5.083333	0.168166	0.555708	11.01102	0.019250		
5.166667	0.168166	0.561314	11.22866	0.019250		

END FTABLE 8
FTABLE 5
66 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***

```
0.000000  0.131267  0.000000  0.000000  0.000000
0.021758  0.131267  0.001200  0.000000  0.000000
0.043516  0.131267  0.002399  0.000000  0.000000
0.065275  0.131267  0.003599  0.000000  0.000616
0.087033  0.131267  0.004798  0.000000  0.001013
0.108791  0.131267  0.005998  0.000000  0.001558
0.130549  0.131267  0.007197  0.000000  0.002269
0.152308  0.131267  0.008397  0.000000  0.002645
0.174066  0.131267  0.009597  0.000000  0.002645
0.195824  0.131267  0.010796  0.000000  0.002645
0.217582  0.131267  0.011996  0.000000  0.002645
0.239341  0.131267  0.013195  0.000000  0.002645
0.261099  0.131267  0.014395  0.000000  0.002645
0.282857  0.131267  0.015595  0.000000  0.002645
0.304615  0.131267  0.016794  0.000000  0.002645
0.326374  0.131267  0.017994  0.000000  0.002645
0.348132  0.131267  0.019193  0.000000  0.002645
0.369890  0.131267  0.020393  0.000000  0.002645
0.391648  0.131267  0.021592  0.000000  0.002645
0.413407  0.131267  0.022792  0.000000  0.002645
0.435165  0.131267  0.023992  0.000000  0.002645
0.456923  0.131267  0.025191  0.000000  0.002645
0.478681  0.131267  0.026391  0.000000  0.002645
0.500440  0.131267  0.027590  0.000000  0.002645
0.522198  0.131267  0.028790  0.000000  0.002645
0.543956  0.131267  0.029990  0.000000  0.002645
0.565714  0.131267  0.031189  0.000000  0.002645
0.587473  0.131267  0.032389  0.000000  0.002645
0.609231  0.131267  0.033588  0.000000  0.002645
0.630989  0.131267  0.034788  0.000000  0.002645
0.652747  0.131267  0.035987  0.000000  0.002645
0.674505  0.131267  0.037187  0.000000  0.002645
0.696264  0.131267  0.038387  0.000000  0.002645
0.718022  0.131267  0.039586  0.000000  0.002645
0.739780  0.131267  0.040786  0.000000  0.002645
0.761538  0.131267  0.041985  0.000000  0.002645
0.783297  0.131267  0.043185  0.000000  0.002645
0.805055  0.131267  0.044384  0.000000  0.002645
0.826813  0.131267  0.045584  0.000000  0.002645
0.848571  0.131267  0.046784  0.000000  0.002645
0.870330  0.131267  0.047983  0.000000  0.002645
0.892088  0.131267  0.049183  0.000000  0.002645
0.913846  0.131267  0.050382  0.000000  0.002645
0.935604  0.131267  0.051582  0.000000  0.002645
0.957363  0.131267  0.052782  0.000000  0.002645
0.979121  0.131267  0.053981  0.000000  0.002645
1.000879  0.131267  0.055181  0.000000  0.002645
1.022637  0.131267  0.056380  0.000000  0.002645
1.044396  0.131267  0.057580  0.000000  0.002645
1.066154  0.131267  0.058779  0.000000  0.002645
1.087912  0.131267  0.059979  0.000000  0.002645
1.109670  0.131267  0.061179  0.000000  0.002645
1.131429  0.131267  0.062378  0.000000  0.002645
1.153187  0.131267  0.063578  0.000000  0.002645
1.174945  0.131267  0.064777  0.000000  0.002645
1.196703  0.131267  0.065977  0.000000  0.002645
1.218462  0.131267  0.067177  0.000000  0.002645
1.240220  0.131267  0.068376  0.000000  0.002645
1.261978  0.131267  0.069576  0.000000  0.002645
1.283736  0.131267  0.070775  0.000000  0.002645
1.305495  0.131267  0.071975  0.000000  0.002645
1.327253  0.131267  0.073174  0.000000  0.002645
1.349011  0.131267  0.074374  0.000000  0.002645
1.370769  0.131267  0.075574  0.000000  0.002645
1.392527  0.131267  0.076773  0.000000  0.002645
1.400000  0.131267  0.162089  0.000000  0.002645
END FTABLE  5
FTABLE      4
 28    6
   Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
```

```
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.131267  0.000000  0.000000  0.000000  0.000000
  0.021758  0.131267  0.002856  0.000000  0.687968  0.000000
  0.043516  0.131267  0.005712  0.000000  0.698496  0.000000
  0.065275  0.131267  0.008568  0.000000  0.709025  0.000000
  0.087033  0.131267  0.011425  0.000000  0.719553  0.000000
  0.108791  0.131267  0.014281  0.000000  0.730082  0.000000
  0.130549  0.131267  0.017137  0.000000  0.740610  0.000000
  0.152308  0.131267  0.019993  0.000000  0.751139  0.000000
  0.174066  0.131267  0.022849  0.000000  0.761667  0.000000
  0.195824  0.131267  0.025705  0.000000  0.772196  0.000000
  0.217582  0.131267  0.028561  0.000000  0.782724  0.000000
  0.239341  0.131267  0.031418  0.000000  0.793253  0.000000
  0.261099  0.131267  0.034274  0.024832  0.803781  0.000000
  0.282857  0.131267  0.037130  0.126411  0.814310  0.000000
  0.304615  0.131267  0.039986  0.270779  0.824838  0.000000
  0.326374  0.131267  0.042842  0.447582  0.835367  0.000000
  0.348132  0.131267  0.045698  0.651578  0.845895  0.000000
  0.369890  0.131267  0.048554  0.879364  0.856424  0.000000
  0.391648  0.131267  0.051411  1.128427  0.866952  0.000000
  0.413407  0.131267  0.054267  1.396742  0.877481  0.000000
  0.435165  0.131267  0.057123  1.682566  0.888009  0.000000
  0.456923  0.131267  0.059979  1.984331  0.898538  0.000000
  0.478681  0.131267  0.062835  2.300563  0.909066  0.000000
  0.500440  0.131267  0.065691  2.629844  0.919595  0.000000
  0.522198  0.131267  0.068547  2.970783  0.930123  0.000000
  0.543956  0.131267  0.071404  3.321994  0.940652  0.000000
  0.565714  0.131267  0.074260  3.682082  0.951180  0.000000
  0.580000  0.131267  0.076135  4.049644  0.958093  0.000000
  END FTABLE  4
  FTABLE      7
   62    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.089532  0.000000  0.000000  0.000000
  0.049451  0.089532  0.001860  0.000000  0.000000
  0.098901  0.089532  0.003719  0.000000  0.000000
  0.148352  0.089532  0.005579  0.000000  0.000000
  0.197802  0.089532  0.007438  0.000000  0.005417
  0.247253  0.089532  0.009298  0.000000  0.005417
  0.296703  0.089532  0.011157  0.000000  0.005417
  0.346154  0.089532  0.013017  0.000000  0.005417
  0.395604  0.089532  0.014876  0.000000  0.005417
  0.445055  0.089532  0.016736  0.000000  0.005417
  0.494505  0.089532  0.018595  0.000000  0.005417
  0.543956  0.089532  0.020455  0.000000  0.005417
  0.593407  0.089532  0.022314  0.000000  0.005417
  0.642857  0.089532  0.024174  0.000000  0.005417
  0.692308  0.089532  0.026033  0.000000  0.005417
  0.741758  0.089532  0.027893  0.000000  0.005417
  0.791209  0.089532  0.029752  0.000000  0.005417
  0.840659  0.089532  0.031612  0.000000  0.005417
  0.890110  0.089532  0.033471  0.000000  0.005417
  0.939560  0.089532  0.035331  0.000000  0.005417
  0.989011  0.089532  0.037190  0.000000  0.005417
  1.038462  0.089532  0.039050  0.000000  0.005417
  1.087912  0.089532  0.040909  0.006027  0.005417
  1.137363  0.089532  0.042769  0.017204  0.005417
  1.186813  0.089532  0.044628  0.019595  0.005417
  1.236264  0.089532  0.046488  0.022133  0.005417
  1.285714  0.089532  0.048347  0.027662  0.005417
  1.335165  0.089532  0.050207  0.030658  0.005417
  1.384615  0.089532  0.052066  0.033812  0.005417
  1.434066  0.089532  0.053926  0.037127  0.005417
  1.483516  0.089532  0.055785  0.040606  0.005417
  1.532967  0.089532  0.057645  0.045949  0.005417
  1.582418  0.089532  0.059504  0.049075  0.005417
  1.631868  0.089532  0.061364  0.052015  0.005417
```

```
  1.681319  0.089532  0.063223  0.054801  0.005417
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  1.780220  0.089532  0.066942  0.059999  0.005417
  1.829670  0.089532  0.068802  0.062445  0.005417
  1.879121  0.089532  0.070661  0.064808  0.005417
  1.928571  0.089532  0.072521  0.067101  0.005417
  1.978022  0.089532  0.074380  0.069339  0.005417
  2.027473  0.089532  0.076218  0.071548  0.005417
  2.076923  0.089532  0.078055  0.073827  0.005417
  2.126374  0.089532  0.079892  0.077802  0.005417
  2.175824  0.089532  0.081730  0.079652  0.005417
  2.225275  0.089532  0.083567  0.081460  0.005417
  2.274725  0.089532  0.085404  0.083229  0.005417
  2.324176  0.089532  0.087242  0.084961  0.005417
  2.373626  0.089532  0.089079  0.086659  0.005417
  2.423077  0.089532  0.090916  0.088324  0.005417
  2.472527  0.089532  0.092754  0.089958  0.005417
  2.521978  0.089532  0.094591  0.091563  0.005417
  2.571429  0.089532  0.096429  0.093140  0.005417
  2.620879  0.089532  0.098266  0.094691  0.005417
  2.670330  0.089532  0.100103  0.096217  0.005417
  2.719780  0.089532  0.101941  0.097719  0.005417
  2.769231  0.089532  0.103778  0.099198  0.005417
  2.818681  0.089532  0.105615  0.100656  0.005417
  2.868132  0.089532  0.107453  0.102093  0.005417
  2.917582  0.089532  0.109290  0.103510  0.005417
  2.967033  0.089532  0.111128  0.104908  0.005417
  3.000000  0.089532  0.224705  0.105829  0.005417
  END FTABLE  7
  FTABLE      6
   32    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.089532  0.000000  0.000000  0.000000  0.000000
  0.049451  0.089532  0.004427  0.000000  0.110324  0.000000
  0.098901  0.089532  0.008855  0.000000  0.110324  0.000000
  0.148352  0.089532  0.013282  0.000000  0.110324  0.000000
  0.197802  0.089532  0.017710  0.000000  0.110324  0.000000
  0.247253  0.089532  0.022137  0.000000  0.110324  0.000000
  0.296703  0.089532  0.026564  0.000000  0.110324  0.000000
  0.346154  0.089532  0.030992  0.000000  0.110324  0.000000
  0.395604  0.089532  0.035419  0.000000  0.110324  0.000000
  0.445055  0.089532  0.039847  0.000000  0.110324  0.000000
  0.494505  0.089532  0.044274  0.000000  0.110324  0.000000
  0.543956  0.089532  0.048701  0.000000  0.110324  0.000000
  0.593407  0.089532  0.053129  0.000000  0.110324  0.000000
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  0.692308  0.089532  0.061983  0.000000  0.110324  0.000000
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  0.791209  0.089532  0.070838  0.000000  0.110324  0.000000
  0.840659  0.089532  0.075266  0.000000  0.110324  0.000000
  0.890110  0.089532  0.079693  0.000000  0.110324  0.000000
  0.939560  0.089532  0.084120  0.000000  0.110324  0.000000
  0.989011  0.089532  0.088548  0.000000  0.110324  0.000000
  1.038462  0.089532  0.092975  0.160076  0.110324  0.000000
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  1.137363  0.089532  0.101830  1.077788  0.110324  0.000000
  1.186813  0.089532  0.106257  1.704888  0.110324  0.000000
  1.236264  0.089532  0.110685  2.413902  0.110324  0.000000
  1.285714  0.089532  0.115112  3.187839  0.110324  0.000000
  1.335165  0.089532  0.119540  4.010349  0.110324  0.000000
  1.384615  0.089532  0.123967  4.864869  0.110324  0.000000
  1.434066  0.089532  0.128394  5.734435  0.110324  0.000000
  1.483516  0.089532  0.132822  6.601841  0.110324  0.000000
  1.500000  0.089532  0.134298  7.450016  0.110324  0.000000
  END FTABLE  6
END FTABLES
```

```
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.85           IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  41     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   2     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   4     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   6     EXTNL  PREC
WDM      1 EVAP     ENGL    0.85           RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   4     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   5     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   6     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.595          RCHRES   7     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   8 HYDR   RO     1 1        1      WDM   1004 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      1 1        1      WDM   1005 FLOW     ENGL      REPL
RCHRES   8 HYDR   O      2 1        1      WDM   1006 FLOW     ENGL      REPL
RCHRES   8 HYDR   STAGE  1 1        1      WDM   1007 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        6
RCHRES     ROFLOW                          RCHRES         INFLOW
  END MASS-LINK    6

  MASS-LINK        7
RCHRES     OFLOW  OVOL   1                  RCHRES         INFLOW IVOL
  END MASS-LINK    7

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                  RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16
```

```
  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                COPY           INPUT  MEAN
  END MASS-LINK   17

  MASS-LINK       53
IMPLND     IWATER SURO                     IMPLND         EXTNL  SURLI
  END MASS-LINK   53


END MASS-LINK

END RUN
```

Mitigated HSPF Message File

Disclaimer

Legal Notice

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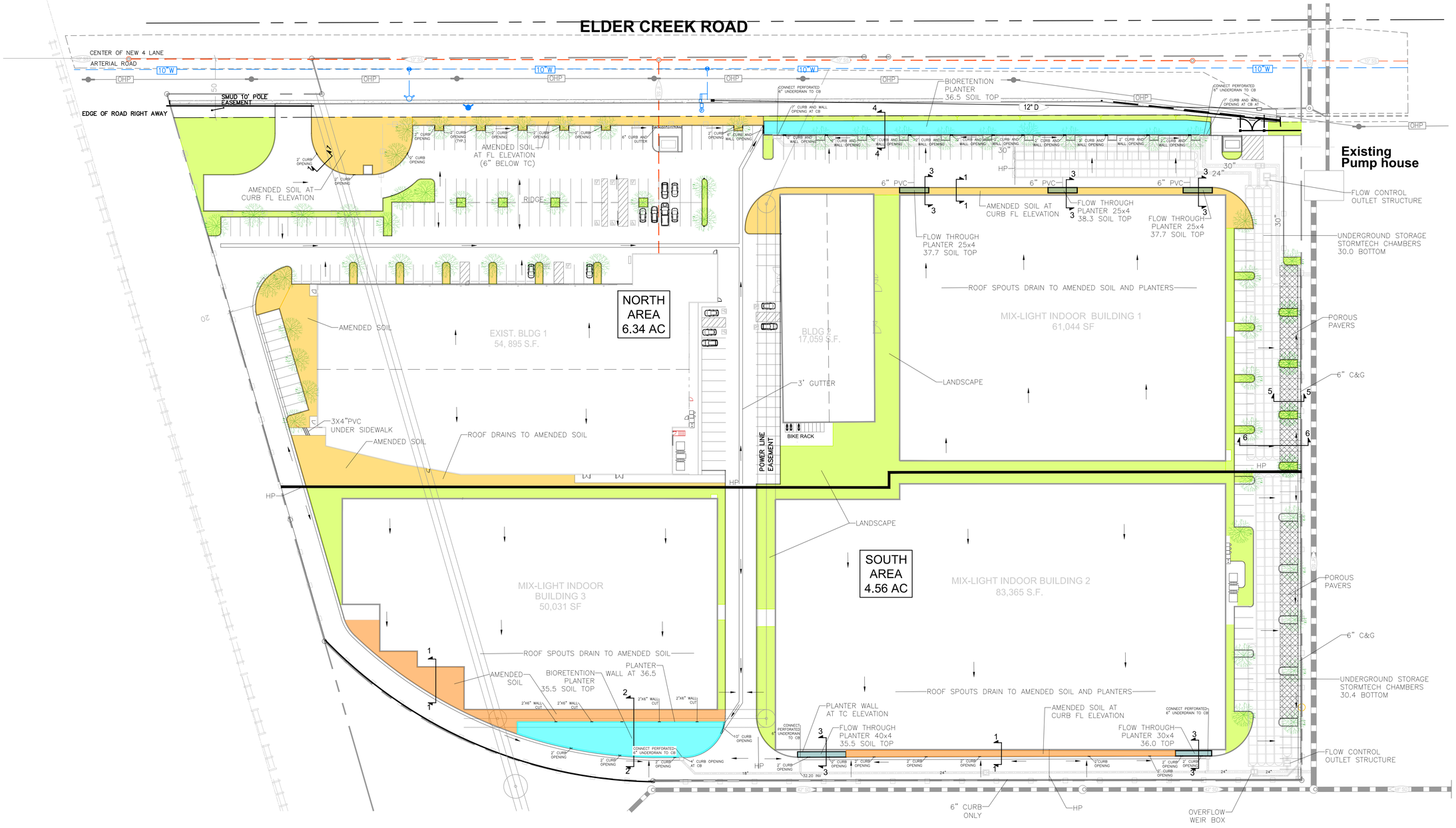
Local (360)943-0304

www.clearcreeksolutions.com

APPENDIX E - POST CONSTRUCTION BMP PLAN

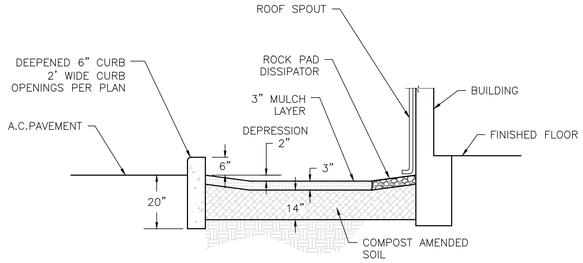


CITY OF SACRAMENTO
8280 ELDER CREEK ROAD

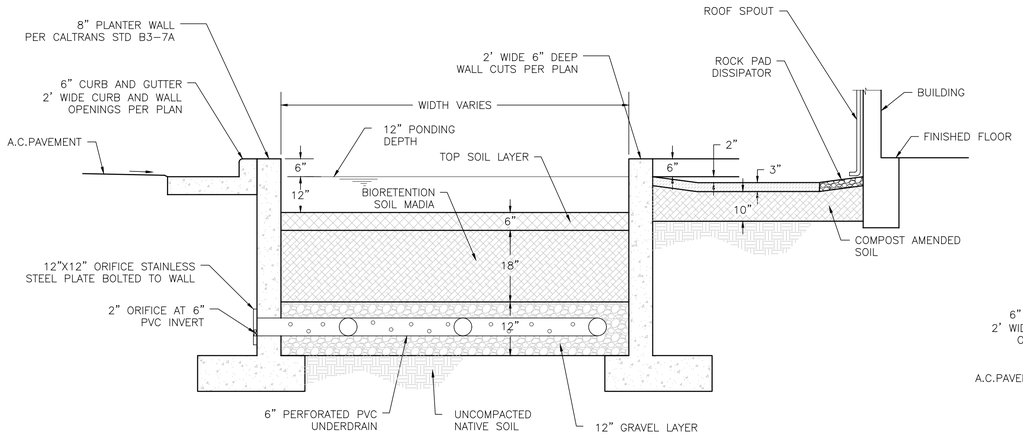
POST CONSTRUCTION BMP PLAN

WE GROW CA MEDICAL CANNABIS CAMPUS

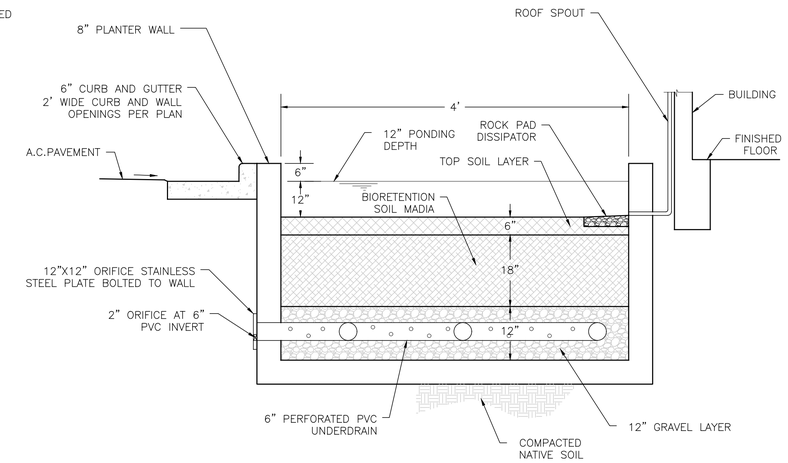
SCALE: 1"=40' DATE: April 2018 DESIGNED: EA	G&M ENGINEERING	SHEET 1 OF 1 SHEETS



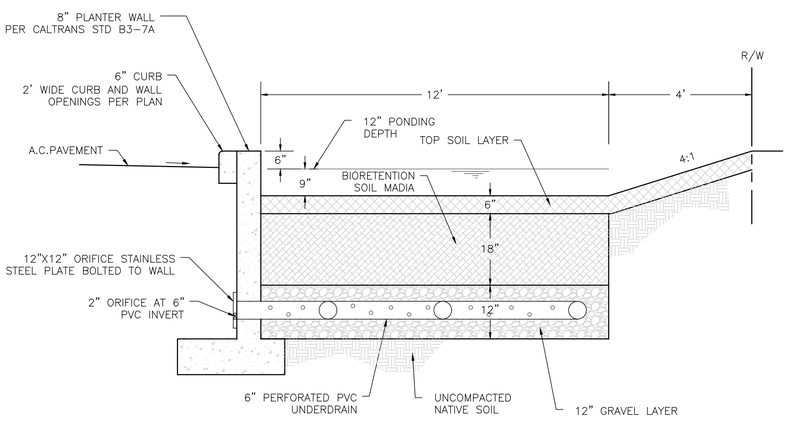
SECTION 1-1
COMPOST AMENDED SOIL



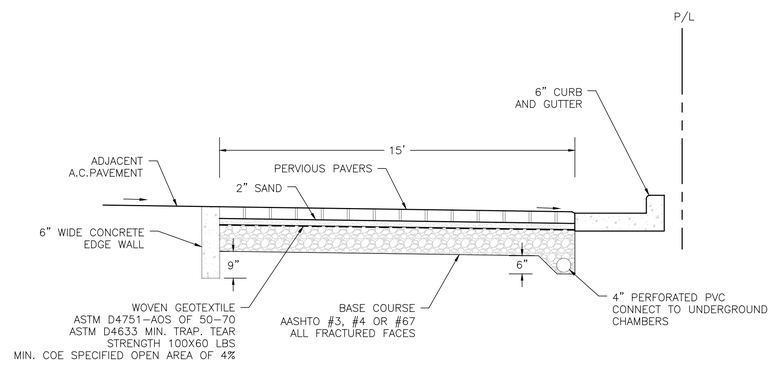
SECTION 2-2
INFILTRATION
BIORETENTION PLANTER



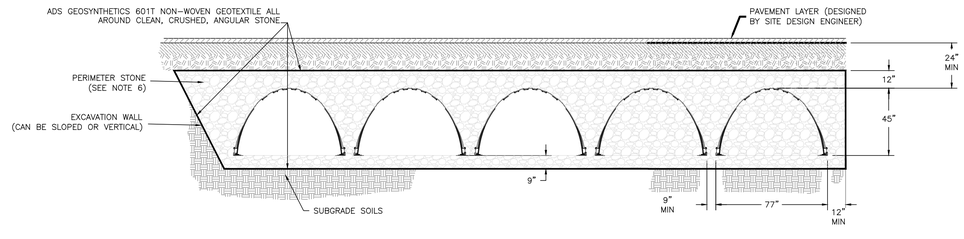
SECTION 3-3
FLOW THROUGH PLANTER



SECTION 4-4
INFILTRATION
BIORETENTION PLANTER



SECTION 5-5
PERVIOUS PAVERS SECTION



SECTION 6-6
STORMTECH MC-3500 UNDERGROUND CHAMBERS

CITY OF SACRAMENTO
8280 ELDER CREEK ROAD

POST CONSTRUCTION BMP SECTIONS AND DETAILS

WE GROW CA MEDICAL CANNABIS CAMPUS

SCALE: 1"=40'		SHEET 1
DATE: April 2018		OF 1 SHEETS
DESIGNED: EA		

APPENDIX F – MAINTENANACE AGREEMRNT

Recorded at the request of:
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES
No Fee per Government Code 6130

_____
After recording, return to:
Office of the City Clerk
Historic City Hall
915 "I" Street, 1st Floor
Sacramento CA 95814

STORMWATER TREATMENT MEASURE
ACCESS AND MAINTENANCE AGREEMENT

OWNER: _____

PROPERTY ADDRESS: _____

APN: _____

THIS AGREEMENT is made and entered into in Sacramento, California, this _____ day of _____ 20___, by and between _____("Owner"), and the CITY OF SACRAMENTO, a municipal corporation ("City").

WHEREAS, the Owner owns real property (the "Property") in the City of Sacramento, County of Sacramento, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of which exhibits is attached hereto and incorporated herein by this reference; and

WHEREAS, at the time of initial approval of the development project on the Property known as _____, the City's conditions of approval included a requirement for the Project to employ on-site control measures to minimize pollutants in urban runoff; and

WHEREAS, the Owner has chosen to install _____ (collectively referred to herein as the "Measure"), as the on-site control measure to minimize pollutants in urban runoff; and

WHEREAS, the Measure has been installed in accordance with plans and specifications accepted by the City; and

WHEREAS, the Measure, with installation on private property and draining only private property, is a private facility and all maintenance or replacement of the Measure is the sole responsibility of the Owner in accordance with the terms of this Agreement; and

WHEREAS, the Owner is aware and agrees that periodic and continuous maintenance, including, but not necessarily limited to, removal of sediment, trash and debris, maintenance of vegetation, and repairs to any ruts or holes, is required to assure peak performance of the Measure and that, furthermore, such maintenance activity will require compliance with all local, State, or Federal laws and regulations, including those pertaining to waste disposal methods, in effect at the time such maintenance occurs.

NOW THEREFORE, it is mutually stipulated and agreed as follows:

1. The foregoing recitals are incorporated herein by this reference.

2. Owner hereby provides the City or City's designee complete access to the Measure and its immediate vicinity at any time and for any duration, upon twenty-four (24) hour advance notice in writing, for the purpose of inspection, sampling and testing of the Measure. City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

3. Owner shall use its best efforts diligently to maintain the Measure in a manner assuring peak performance at all times, including but not necessarily limited to performance of the maintenance and repair measures specified on Exhibit "C", attached hereto and incorporated herein by this reference. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the maintenance of vegetation, the removal and extraction of material(s) from the Measure and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the material(s) removed, the quantity, and disposal destination. In addition, Owner shall provide maintenance reports to the City on an annual basis, not later than 60 days after receiving City's maintenance report request.

4. If Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the City, the City is hereby authorized (but shall not have any obligation) to cause any maintenance necessary to be done and charge the entire cost to the Owner or Owner's successors or assigns, including administrative costs and interest thereon at the maximum rate authorized by the Civil Code from the date of notice of the cost until paid in full.

5. The City may require the Owner to post security in a form and for a time period satisfactory to the City, to guarantee performance of the obligations stated herein. Should the Owner fail to perform its obligations as required under this Agreement, the City may, in the case of a cash deposit or letter of credit, use the proceeds to pay costs incurred by the City to take any action(s) authorized by this Agreement, or in the case of a surety bond, the City may require the sureties to perform the Owner's obligations under the Agreement.

6. This Agreement shall be recorded in the Office of the Recorder of Sacramento County, California, at the expense of the Owner and shall constitute notice to all successors and assigns of the title to the Property of the obligations herein set forth, and also a lien in such amount as will fully reimburse the City for costs incurred pursuant to Section 4, above, including interest as hereinabove set forth, subject to foreclosure in event of default in payment.

7. In the event of legal action occasioned by any default or action of the Owner, or its successors or assigns, then the Owner, on behalf of itself and its successors or assigns, agree(s) to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and further agrees that the same shall become a part of the lien against the Property.

8. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with the Property and constitute a lien against the Property.

9. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also its heirs, successors, executors, administrators, and assigns. Owner shall notify any successor to title of all or any part of the Property of the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor. If an Owner shall convey all of its interest in the Property, the Owner shall be released from any obligations arising under this Agreement in connection with the maintenance of or failure to maintain the Measure occurring after the date of such conveyance.

10. Time is of the essence in the performance of this Agreement.

11. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

    IF TO CITY:

    Director of Utilities – Stormwater Program
    City of Sacramento, Department of Utilities
    1395 35th Avenue
    Sacramento, CA 95822

    IF TO OWNER:

    _____
    _____
    _____
    _____

12. If Owner consists of more than one party, each person, entity or other party described as the "Owner" in the first paragraph of this Agreement and/or executing this Agreement for Owner shall be jointly and severally liable for each and every obligation and requirement imposed on Owner herein.

13. The Owner acknowledges and agrees that nothing contained in this Agreement reduces or otherwise affects Owner's responsibility to comply with all applicable provisions of the City of Sacramento's Stormwater Management and Discharge Control Code, set forth in Chapter 13.16 of the Sacramento City Code, and nothing contained in this Agreement shall in any way limit the City's right to enforce any provisions of the Stormwater Management and Discharge Control Code in accordance with the provisions of that Code.

IN WITNESS THEREOF, the parties hereto have affixed their signatures as of the date first written above.

APPROVED AS TO FORM:

_____
City Attorney

CITY OF SACRAMENTO:

_____
Dave Brent
Director, Department of Utilities

ATTEST:

_____
City Clerk Date

OWNER:

_____
Signature of Authorized Person

Print Name: _____

Title: _____

NOTARIES ON FOLLOWING PAGE

EXHIBIT A
[Legal Description of Parcel]

EXHIBIT B
[Map/Illustration]

EXHIBIT C

[Inspection and Maintenance Guidelines]

APPENDIX H

Air Quality Emissions Modeling Report
(CalEEMod)

CalEEMod Version: CalEEMod.2016.3.2

Date: 5/29/2018 2:47 PM

We Grow California Cannabis Campus Project

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	262.04	1000sqft	6.02	262,035.00	0
Parking Lot	268.00	Space	2.41	107,200.00	0
Other Non-Asphalt Surfaces	2.93	Acre	2.93	127,630.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	545.24	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - We Grow California Cannabis Campus Project. SMAQMD. CO2 Intensity adjusted based on SMUD 25% Renewables by Dec 31 2016.

Land Use - Project would renovate 262,035 SF of building and would provide 268 parking stalls on a 11.36-acre site.

Construction Phase - Construction would occur July 2018 through December 2019.

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Grading - Assumed soil balanced

Trips and VMT - Assumed a total of 8 vehicle trips per day for all phases

Construction Off-road Equipment Mitigation - Water twice daily.

Water Mitigation - Use of water efficient irrigation systems. Use of low flow water fixtures.

Water And Wastewater - Project would consume approx 17,748,125 Gallons per Year

Energy Use - Adjusted T24, NT24, and Lighting to meet energy consumption

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/1/2018	12/13/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	10/18/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	8/24/2018
tblConstructionPhase	PhaseEndDate	7/1/2018	11/15/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	7/13/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	11/16/2019
tblConstructionPhase	PhaseStartDate	7/2/2018	8/25/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	7/14/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	10/19/2019
tblEnergyUse	LightingElect	4.57	24.10
tblEnergyUse	NT24E	7.20	37.97
tblEnergyUse	T24E	3.41	17.98
tblLandUse	LandUseSquareFeet	262,040.00	262,035.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	545.24
tblTripsAndVMT	VendorTripNumber	81.00	4.00
tblTripsAndVMT	WorkerTripNumber	42.00	16.00
tblTripsAndVMT	WorkerTripNumber	209.00	12.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	18.00	16.00

tblWater	IndoorWaterUseRate	60,596,750.00	17,748,125.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2259	2.2245	1.4761	2.4600e-003	0.2279	0.1209	0.3487	0.1056	0.1126	0.2182	0.0000	220.9191	220.9191	0.0589	0.0000	222.3905
2019	1.5227	2.4293	2.0226	3.2900e-003	0.0140	0.1448	0.1588	3.7800e-003	0.1360	0.1398	0.0000	289.2319	289.2319	0.0675	0.0000	290.9194
Maximum	**1.5227**	**2.4293**	**2.0226**	**3.2900e-003**	**0.2279**	**0.1448**	**0.3487**	**0.1056**	**0.1360**	**0.2182**	**0.0000**	**289.2319**	**289.2319**	**0.0675**	**0.0000**	**290.9194**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2259	2.2245	1.4761	2.4600e-003	0.1066	0.1209	0.2275	0.0486	0.1126	0.1612	0.0000	220.9189	220.9189	0.0589	0.0000	222.3902
2019	1.5227	2.4293	2.0226	3.2900e-003	0.0140	0.1448	0.1588	3.7800e-003	0.1360	0.1398	0.0000	289.2316	289.2316	0.0675	0.0000	290.9190
Maximum	**1.5227**	**2.4293**	**2.0226**	**3.2900e-003**	**0.1066**	**0.1448**	**0.2275**	**0.0486**	**0.1360**	**0.1612**	**0.0000**	**289.2316**	**289.2316**	**0.0675**	**0.0000**	**290.9190**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.13**	**0.00**	**23.89**	**52.09**	**0.00**	**15.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1639	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141
Energy	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	5,697.7081	5,697.7081	0.2860	0.0664	5,724.6364
Mobile	0.4878	2.1413	5.9681	0.0173	1.4236	0.0187	1.4423	0.3818	0.0176	0.3994	0.0000	1,587.9226	1,587.9226	0.0809	0.0000	1,589.9440
Waste						0.0000	0.0000		0.0000	0.0000	65.9579	0.0000	65.9579	3.8980	0.0000	163.4078
Water						0.0000	0.0000		0.0000	0.0000	6.2793	21.8707	28.1500	0.0228	0.0139	32.8604
Total	**1.7024**	**2.6013**	**6.3614**	**0.0201**	**1.4236**	**0.0536**	**1.4772**	**0.3818**	**0.0525**	**0.4344**	**72.2372**	**7,307.5146**	**7,379.7517**	**4.2877**	**0.0803**	**7,510.8628**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1639	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141
Energy	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	5,697.7081	5,697.7081	0.2860	0.0664	5,724.6364
Mobile	0.4878	2.1413	5.9681	0.0173	1.4236	0.0187	1.4423	0.3818	0.0176	0.3994	0.0000	1,587.9226	1,587.9226	0.0809	0.0000	1,589.9440
Waste						0.0000	0.0000		0.0000	0.0000	65.9579	0.0000	65.9579	3.8980	0.0000	163.4078
Water						0.0000	0.0000		0.0000	0.0000	5.5032	19.1675	24.6706	0.0200	0.0122	28.7989
Total	**1.7024**	**2.6013**	**6.3614**	**0.0201**	**1.4236**	**0.0536**	**1.4772**	**0.3818**	**0.0525**	**0.4344**	**71.4610**	**7,304.8113**	**7,376.2724**	**4.2849**	**0.0786**	**7,506.8013**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.07**	**0.04**	**0.05**	**0.07**	**2.14**	**0.05**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/2/2018	7/13/2018	5	10	
2	Grading	Grading	7/14/2018	8/24/2018	5	30	
3	Building Construction	Building Construction	8/25/2018	10/18/2019	5	300	
4	Paving	Paving	10/19/2019	11/15/2019	5	20	
5	Architectural Coating	Architectural Coating	11/16/2019	12/13/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.34

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 393,053; Non-Residential Outdoor: 131,018; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	12.00	4.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.6000e-004	2.7400e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5560	0.5560	2.0000e-005	0.0000	0.5565
Total	**3.6000e-004**	**2.6000e-004**	**2.7400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5560**	**0.5560**	**2.0000e-005**	**0.0000**	**0.5565**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0407**	**0.0129**	**0.0535**	**0.0223**	**0.0119**	**0.0342**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.6000e-004	2.7400e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5560	0.5560	2.0000e-005	0.0000	0.5565
Total	**3.6000e-004**	**2.6000e-004**	**2.7400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5560**	**0.5560**	**2.0000e-005**	**0.0000**	**0.5565**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9728	84.9728	0.0265	0.0000	85.6341
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.1301**	**0.0395**	**0.1696**	**0.0540**	**0.0364**	**0.0903**	**0.0000**	**84.9728**	**84.9728**	**0.0265**	**0.0000**	**85.6341**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.8000e-004	8.2300e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.6680	1.6680	6.0000e-005	0.0000	1.6694
Total	**1.0700e-003**	**7.8000e-004**	**8.2300e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.6680**	**1.6680**	**6.0000e-005**	**0.0000**	**1.6694**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0586	0.0000	0.0586	0.0243	0.0000	0.0243	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8928	0.5263	9.3000e-004		0.0395	0.0395		0.0364	0.0364	0.0000	84.9727	84.9727	0.0265	0.0000	85.6340
Total	**0.0764**	**0.8928**	**0.5263**	**9.3000e-004**	**0.0586**	**0.0395**	**0.0981**	**0.0243**	**0.0364**	**0.0606**	**0.0000**	**84.9727**	**84.9727**	**0.0265**	**0.0000**	**85.6340**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.8000e-004	8.2300e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.6680	1.6680	6.0000e-005	0.0000	1.6694
Total	**1.0700e-003**	**7.8000e-004**	**8.2300e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.6680**	**1.6680**	**6.0000e-005**	**0.0000**	**1.6694**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1219	1.0643	0.7999	1.2200e-003		0.0682	0.0682		0.0642	0.0642	0.0000	108.1841	108.1841	0.0265	0.0000	108.8467
Total	**0.1219**	**1.0643**	**0.7999**	**1.2200e-003**		**0.0682**	**0.0682**		**0.0642**	**0.0642**	**0.0000**	**108.1841**	**108.1841**	**0.0265**	**0.0000**	**108.8467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0236	7.8200e-003	5.0000e-005	1.0600e-003	1.9000e-004	1.2500e-003	3.1000e-004	1.8000e-004	4.9000e-004	0.0000	4.3637	4.3637	2.8000e-004	0.0000	4.3708
Worker	2.4300e-003	1.7600e-003	0.0187	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.7946	3.7946	1.3000e-004	0.0000	3.7979
Total	**3.4200e-003**	**0.0254**	**0.0265**	**9.0000e-005**	**5.0700e-003**	**2.2000e-004**	**5.2900e-003**	**1.3800e-003**	**2.1000e-004**	**1.5800e-003**	**0.0000**	**8.1584**	**8.1584**	**4.1000e-004**	**0.0000**	**8.1686**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1219	1.0642	0.7999	1.2200e-003		0.0682	0.0682		0.0642	0.0642	0.0000	108.1840	108.1840	0.0265	0.0000	108.8466
Total	**0.1219**	**1.0642**	**0.7999**	**1.2200e-003**		**0.0682**	**0.0682**		**0.0642**	**0.0642**	**0.0000**	**108.1840**	**108.1840**	**0.0265**	**0.0000**	**108.8466**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0236	7.8200e-003	5.0000e-005	1.0600e-003	1.9000e-004	1.2500e-003	3.1000e-004	1.8000e-004	4.9000e-004	0.0000	4.3637	4.3637	2.8000e-004	0.0000	4.3708
Worker	2.4300e-003	1.7600e-003	0.0187	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.7946	3.7946	1.3000e-004	0.0000	3.7979
Total	**3.4200e-003**	**0.0254**	**0.0265**	**9.0000e-005**	**5.0700e-003**	**2.2000e-004**	**5.2900e-003**	**1.3800e-003**	**2.1000e-004**	**1.5800e-003**	**0.0000**	**8.1584**	**8.1584**	**4.1000e-004**	**0.0000**	**8.1686**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2467	2.2027	1.7936	2.8100e-003		0.1348	0.1348		0.1267	0.1267	0.0000	245.6839	245.6839	0.0599	0.0000	247.1802
Total	**0.2467**	**2.2027**	**1.7936**	**2.8100e-003**		**0.1348**	**0.1348**		**0.1267**	**0.1267**	**0.0000**	**245.6839**	**245.6839**	**0.0599**	**0.0000**	**247.1802**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-003	0.0513	0.0157	1.0000e-004	2.4400e-003	3.7000e-004	2.8100e-003	7.1000e-004	3.5000e-004	1.0600e-003	0.0000	9.9522	9.9522	6.2000e-004	0.0000	9.9678
Worker	5.0700e-003	3.5600e-003	0.0385	9.0000e-005	9.2100e-003	7.0000e-005	9.2800e-003	2.4500e-003	6.0000e-005	2.5100e-003	0.0000	8.4190	8.4190	2.6000e-004	0.0000	8.4256
Total	**7.0700e-003**	**0.0548**	**0.0542**	**1.9000e-004**	**0.0117**	**4.4000e-004**	**0.0121**	**3.1600e-003**	**4.1000e-004**	**3.5700e-003**	**0.0000**	**18.3712**	**18.3712**	**8.8000e-004**	**0.0000**	**18.3934**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2467	2.2027	1.7936	2.8100e-003		0.1348	0.1348		0.1267	0.1267	0.0000	245.6836	245.6836	0.0599	0.0000	247.1799
Total	**0.2467**	**2.2027**	**1.7936**	**2.8100e-003**		**0.1348**	**0.1348**		**0.1267**	**0.1267**	**0.0000**	**245.6836**	**245.6836**	**0.0599**	**0.0000**	**247.1799**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-003	0.0513	0.0157	1.0000e-004	2.4400e-003	3.7000e-004	2.8100e-003	7.1000e-004	3.5000e-004	1.0600e-003	0.0000	9.9522	9.9522	6.2000e-004	0.0000	9.9678
Worker	5.0700e-003	3.5600e-003	0.0385	9.0000e-005	9.2100e-003	7.0000e-005	9.2800e-003	2.4500e-003	6.0000e-005	2.5100e-003	0.0000	8.4190	8.4190	2.6000e-004	0.0000	8.4256
Total	**7.0700e-003**	**0.0548**	**0.0542**	**1.9000e-004**	**0.0117**	**4.4000e-004**	**0.0121**	**3.1600e-003**	**4.1000e-004**	**3.5700e-003**	**0.0000**	**18.3712**	**18.3712**	**8.8000e-004**	**0.0000**	**18.3934**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	3.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.9100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0742	1.0742	3.0000e-005	0.0000	1.0750
Total	**6.5000e-004**	**4.5000e-004**	**4.9100e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0742**	**1.0742**	**3.0000e-005**	**0.0000**	**1.0750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	3.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1524**	**0.1467**	**2.3000e-004**		**8.2500e-003**	**8.2500e-003**		**7.5900e-003**	**7.5900e-003**	**0.0000**	**20.4752**	**20.4752**	**6.4800e-003**	**0.0000**	**20.6371**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.9100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0742	1.0742	3.0000e-005	0.0000	1.0750
Total	**6.5000e-004**	**4.5000e-004**	**4.9100e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0742**	**1.0742**	**3.0000e-005**	**0.0000**	**1.0750**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2472					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5587
Total	**1.2499**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5587**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.9100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0742	1.0742	3.0000e-005	0.0000	1.0750
Total	**6.5000e-004**	**4.5000e-004**	**4.9100e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0742**	**1.0742**	**3.0000e-005**	**0.0000**	**1.0750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2472					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6600e-003	0.0184	0.0184	3.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	2.5533	2.5533	2.2000e-004	0.0000	2.5586
Total	**1.2499**	**0.0184**	**0.0184**	**3.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**2.5533**	**2.5533**	**2.2000e-004**	**0.0000**	**2.5586**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.9100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0742	1.0742	3.0000e-005	0.0000	1.0750
Total	**6.5000e-004**	**4.5000e-004**	**4.9100e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0742**	**1.0742**	**3.0000e-005**	**0.0000**	**1.0750**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4878	2.1413	5.9681	0.0173	1.4236	0.0187	1.4423	0.3818	0.0176	0.3994	0.0000	1,587.9226	1,587.9226	0.0809	0.0000	1,589.9440
Unmitigated	0.4878	2.1413	5.9681	0.0173	1.4236	0.0187	1.4423	0.3818	0.0176	0.3994	0.0000	1,587.9226	1,587.9226	0.0809	0.0000	1,589.9440

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,826.42	345.89	178.19	3,815,222	3,815,222
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,826.42	345.89	178.19	3,815,222	3,815,222

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Other Non-Asphalt Surfaces	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5,196.9702	5,196.9702	0.2764	0.0572	5,220.9229
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5,196.9702	5,196.9702	0.2764	0.0572	5,220.9229
NaturalGas Mitigated	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	500.7379	500.7379	9.6000e-003	9.1800e-003	503.7135
NaturalGas Unmitigated	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	500.7379	500.7379	9.6000e-003	9.1800e-003	503.7135

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	9.38347e+006	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	500.7379	500.7379	9.6000e-003	9.1800e-003	503.7135
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0506**	**0.4600**	**0.3864**	**2.7600e-003**		**0.0350**	**0.0350**		**0.0350**	**0.0350**	**0.0000**	**500.7379**	**500.7379**	**9.6000e-003**	**9.1800e-003**	**503.7135**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	9.38347e+006	0.0506	0.4600	0.3864	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	500.7379	500.7379	9.6000e-003	9.1800e-003	503.7135
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0506**	**0.4600**	**0.3864**	**2.7600e-003**		**0.0350**	**0.0350**		**0.0350**	**0.0350**	**0.0000**	**500.7379**	**500.7379**	**9.6000e-003**	**9.1800e-003**	**503.7135**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.09759e+007	5,187.6909	0.2759	0.0571	5,211.6008
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	37520	9.2793	4.9000e-004	1.0000e-004	9.3221
Total		**5,196.9702**	**0.2764**	**0.0572**	**5,220.9229**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.09759e+007	5,187.6909	0.2759	0.0571	5,211.6008
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	37520	9.2793	4.9000e-004	1.0000e-004	9.3221
Total		**5,196.9702**	**0.2764**	**0.0572**	**5,220.9229**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1639	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141
Unmitigated	1.1639	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.4000e-004	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141
Total	**1.1639**	**6.0000e-005**	**6.8500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**4.0000e-005**	**0.0000**	**0.0141**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.4000e-004	6.0000e-005	6.8500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	4.0000e-005	0.0000	0.0141
Total	**1.1639**	**6.0000e-005**	**6.8500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**4.0000e-005**	**0.0000**	**0.0141**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	24.6706	0.0200	0.0122	28.7989
Unmitigated	28.1500	0.0228	0.0139	32.8604

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	17.7481 / 0	28.1500	0.0228	0.0139	32.8604
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**28.1500**	**0.0228**	**0.0139**	**32.8604**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	15.5545 / 0	24.6706	0.0200	0.0122	28.7989
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**24.6706**	**0.0200**	**0.0122**	**28.7989**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	65.9579	3.8980	0.0000	163.4078
Unmitigated	65.9579	3.8980	0.0000	163.4078

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	324.93	65.9579	3.8980	0.0000	163.4078
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**65.9579**	**3.8980**	**0.0000**	**163.4078**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	324.93	65.9579	3.8980	0.0000	163.4078
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**65.9579**	**3.8980**	**0.0000**	**163.4078**

We Grow California Cannabis Campus Project

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	262.04	1000sqft	6.02	262,035.00	0
Parking Lot	268.00	Space	2.41	107,200.00	0
Other Non-Asphalt Surfaces	2.93	Acre	2.93	127,630.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	545.24	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - We Grow California Cannabis Campus Project. SMAQMD. CO2 Intensity adjusted based on SMUD 25% Renewables by Dec 31 2016.

Land Use - Project would renovate 262,035 SF of building and would provide 268 parking stalls on a 11.36-acre site.

Construction Phase - Construction would occur July 2018 through December 2019.

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Grading - Assumed soil balanced

Trips and VMT - Assumed a total of 8 vehicle trips per day for all phases

Construction Off-road Equipment Mitigation - Water twice daily.

Water Mitigation - Use of water efficient irrigation systems. Use of low flow water fixtures.

Water And Wastewater - Project would consume approx 17,748,125 Gallons per Year

Energy Use - Adjusted T24, NT24, and Lighting to meet energy consumption

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/1/2018	12/13/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	10/18/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	8/24/2018
tblConstructionPhase	PhaseEndDate	7/1/2018	11/15/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	7/13/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	11/16/2019
tblConstructionPhase	PhaseStartDate	7/2/2018	8/25/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	7/14/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	10/19/2019
tblEnergyUse	LightingElect	4.57	24.10
tblEnergyUse	NT24E	7.20	37.97
tblEnergyUse	T24E	3.41	17.98
tblLandUse	LandUseSquareFeet	262,040.00	262,035.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	545.24
tblTripsAndVMT	VendorTripNumber	81.00	4.00
tblTripsAndVMT	WorkerTripNumber	42.00	16.00
tblTripsAndVMT	WorkerTripNumber	209.00	12.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	18.00	16.00

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tblWater	IndoorWaterUseRate	60,596,750.00	17,748,125.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1726	59.5686	35.7327	0.0634	18.1880	2.6346	20.7658	9.9630	2.4239	12.3346	0.0000	6,380.0058	6,380.0058	1.9486	0.0000	6,428.7218
2019	125.0602	21.5888	17.7401	0.0289	0.1217	1.2940	1.4093	0.0323	1.2166	1.2478	0.0000	2,795.9175	2,795.9175	0.7182	0.0000	2,811.9376
Maximum	**125.0602**	**59.5686**	**35.7327**	**0.0634**	**18.1880**	**2.6346**	**20.7658**	**9.9630**	**2.4239**	**12.3346**	**0.0000**	**6,380.0058**	**6,380.0058**	**1.9486**	**0.0000**	**6,428.7218**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1726	59.5686	35.7327	0.0634	8.2515	2.6346	10.8293	4.5011	2.4239	6.8727	0.0000	6,380.0058	6,380.0058	1.9486	0.0000	6,428.7217
2019	125.0602	21.5888	17.7401	0.0289	0.1217	1.2940	1.4093	0.0323	1.2166	1.2478	0.0000	2,795.9175	2,795.9175	0.7182	0.0000	2,811.9376
Maximum	**125.0602**	**59.5686**	**35.7327**	**0.0634**	**8.2515**	**2.6346**	**10.8293**	**4.5011**	**2.4239**	**6.8727**	**0.0000**	**6,380.0058**	**6,380.0058**	**1.9486**	**0.0000**	**6,428.7217**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.27**	**0.00**	**44.81**	**54.64**	**0.00**	**40.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Energy	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Mobile	4.4294	14.8694	48.9516	0.1364	10.7209	0.1353	10.8562	2.8672	0.1272	2.9943		13,787.0997	13,787.0997	0.6700		13,803.8486
Total	**11.0859**	**17.3903**	**51.1235**	**0.1515**	**10.7209**	**0.3270**	**11.0479**	**2.8672**	**0.3190**	**3.1861**		**16,811.7041**	**16,811.7041**	**0.7282**	**0.0555**	**16,846.4338**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Energy	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Mobile	4.4294	14.8694	48.9516	0.1364	10.7209	0.1353	10.8562	2.8672	0.1272	2.9943		13,787.0997	13,787.0997	0.6700		13,803.8486
Total	**11.0859**	**17.3903**	**51.1235**	**0.1515**	**10.7209**	**0.3270**	**11.0479**	**2.8672**	**0.3190**	**3.1861**		**16,811.7041**	**16,811.7041**	**0.7282**	**0.0555**	**16,846.4338**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/2/2018	7/13/2018	5	10	
2	Grading	Grading	7/14/2018	8/24/2018	5	30	
3	Building Construction	Building Construction	8/25/2018	10/19/2019	5	300	
4	Paving	Paving	10/19/2019	11/15/2019	5	20	
5	Architectural Coating	Architectural Coating	11/16/2019	12/13/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.34

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 393,053; Non-Residential Outdoor: 131,018; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	12.00	4.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.0468	0.6434	1.3600e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		135.5774	135.5774	4.6600e-003		135.6940
Total	**0.0825**	**0.0468**	**0.6434**	**1.3600e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**135.5774**	**135.5774**	**4.6600e-003**		**135.6940**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**8.1298**	**2.5769**	**10.7067**	**4.4688**	**2.3708**	**6.8396**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.0468	0.6434	1.3600e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		135.5774	135.5774	4.6600e-003		135.6940
Total	**0.0825**	**0.0468**	**0.6434**	**1.3600e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**135.5774**	**135.5774**	**4.6600e-003**		**135.6940**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.0468	0.6434	1.3600e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		135.5774	135.5774	4.6600e-003		135.6940
Total	**0.0825**	**0.0468**	**0.6434**	**1.3600e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**135.5774**	**135.5774**	**4.6600e-003**		**135.6940**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.428 4	6,244.4284	1.9440		6,293.027 8
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.9030**	**2.6337**	**6.5367**	**1.6184**	**2.4230**	**4.0415**	**0.0000**	**6,244.428 4**	**6,244.4284**	**1.9440**		**6,293.027 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.0468	0.6434	1.3600e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		135.5774	135.5774	4.6600e-003		135.6940
Total	**0.0825**	**0.0468**	**0.6434**	**1.3600e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**135.5774**	**135.5774**	**4.6600e-003**		**135.6940**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0215	0.5062	0.1652	1.0100e-003	0.0241	4.0500e-003	0.0281	6.9300e-003	3.8700e-003	0.0108		106.8313	106.8313	6.6200e-003		106.9969
Worker	0.0618	0.0351	0.4825	1.0200e-003	0.0913	6.7000e-004	0.0920	0.0242	6.2000e-004	0.0248		101.6830	101.6830	3.5000e-003		101.7705
Total	**0.0833**	**0.5413**	**0.6477**	**2.0300e-003**	**0.1154**	**4.7200e-003**	**0.1201**	**0.0311**	**4.4900e-003**	**0.0356**		**208.5143**	**208.5143**	**0.0101**		**208.7674**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0215	0.5062	0.1652	1.0100e-003	0.0241	4.0500e-003	0.0281	6.9300e-003	3.8700e-003	0.0108		106.8313	106.8313	6.6200e-003		106.9969
Worker	0.0618	0.0351	0.4825	1.0200e-003	0.0913	6.7000e-004	0.0920	0.0242	6.2000e-004	0.0248		101.6830	101.6830	3.5000e-003		101.7705
Total	**0.0833**	**0.5413**	**0.6477**	**2.0300e-003**	**0.1154**	**4.7200e-003**	**0.1201**	**0.0311**	**4.4900e-003**	**0.0356**		**208.5143**	**208.5143**	**0.0101**		**208.7674**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0189	0.4791	0.1431	1.0000e-003	0.0241	3.4600e-003	0.0275	6.9300e-003	3.3100e-003	0.0102		106.1004	106.1004	6.3800e-003		106.2598
Worker	0.0562	0.0309	0.4333	9.9000e-004	0.0913	6.5000e-004	0.0919	0.0242	6.0000e-004	0.0248		98.2370	98.2370	3.0900e-003		98.3143
Total	**0.0752**	**0.5100**	**0.5763**	**1.9900e-003**	**0.1154**	**4.1100e-003**	**0.1195**	**0.0311**	**3.9100e-003**	**0.0351**		**204.3374**	**204.3374**	**9.4700e-003**		**204.5741**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0189	0.4791	0.1431	1.0000e-003	0.0241	3.4600e-003	0.0275	6.9300e-003	3.3100e-003	0.0102		106.1004	106.1004	6.3800e-003		106.2598
Worker	0.0562	0.0309	0.4333	9.9000e-004	0.0913	6.5000e-004	0.0919	0.0242	6.0000e-004	0.0248		98.2370	98.2370	3.0900e-003		98.3143
Total	**0.0752**	**0.5100**	**0.5763**	**1.9900e-003**	**0.1154**	**4.1100e-003**	**0.1195**	**0.0311**	**3.9100e-003**	**0.0351**		**204.3374**	**204.3374**	**9.4700e-003**		**204.5741**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7701**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0750	0.0412	0.5777	1.3200e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		130.9827	130.9827	4.1200e-003		131.0857
Total	**0.0750**	**0.0412**	**0.5777**	**1.3200e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**130.9827**	**130.9827**	**4.1200e-003**		**131.0857**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7701**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0750	0.0412	0.5777	1.3200e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		130.9827	130.9827	4.1200e-003		131.0857
Total	**0.0750**	**0.0412**	**0.5777**	**1.3200e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**130.9827**	**130.9827**	**4.1200e-003**		**131.0857**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.7188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**124.9853**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0750	0.0412	0.5777	1.3200e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		130.9827	130.9827	4.1200e-003		131.0857
Total	**0.0750**	**0.0412**	**0.5777**	**1.3200e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**130.9827**	**130.9827**	**4.1200e-003**		**131.0857**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.7188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**124.9853**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0750	0.0412	0.5777	1.3200e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		130.9827	130.9827	4.1200e-003		131.0857
Total	**0.0750**	**0.0412**	**0.5777**	**1.3200e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**130.9827**	**130.9827**	**4.1200e-003**		**131.0857**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.4294	14.8694	48.9516	0.1364	10.7209	0.1353	10.8562	2.8672	0.1272	2.9943		13,787.0997	13,787.0997	0.6700		13,803.8486
Unmitigated	4.4294	14.8694	48.9516	0.1364	10.7209	0.1353	10.8562	2.8672	0.1272	2.9943		13,787.0997	13,787.0997	0.6700		13,803.8486

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,826.42	345.89	178.19	3,815,222	3,815,222
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,826.42	345.89	178.19	3,815,222	3,815,222

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Other Non-Asphalt Surfaces	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
NaturalGas Unmitigated	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	25708.1	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2772**	**2.5204**	**2.1171**	**0.0151**		**0.1916**	**0.1916**		**0.1916**	**0.1916**		**3,024.4878**	**3,024.4878**	**0.0580**	**0.0555**	**3,042.4608**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	25.7081	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2772**	**2.5204**	**2.1171**	**0.0151**		**0.1916**	**0.1916**		**0.1916**	**0.1916**		**3,024.4878**	**3,024.4878**	**0.0580**	**0.0555**	**3,042.4608**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Unmitigated	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.6907					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1500e-003	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Total	**6.3793**	**5.1000e-004**	**0.0548**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**		**0.1166**	**0.1166**	**3.1000e-004**		**0.1245**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.6907					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1500e-003	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Total	**6.3793**	**5.1000e-004**	**0.0548**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**		**0.1166**	**0.1166**	**3.1000e-004**		**0.1245**

CalEEMod Version: CalEEMod.2016.3.2

Date: 5/29/2018 2:52 PM

We Grow California Cannabis Campus Project

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	262.04	1000sqft	6.02	262,035.00	0
Parking Lot	268.00	Space	2.41	107,200.00	0
Other Non-Asphalt Surfaces	2.93	Acre	2.93	127,630.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	545.24	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - We Grow California Cannabis Campus Project. SMAQMD. CO2 Intensity adjusted based on SMUD 25% Renewables by Dec 31 2016.

Land Use - Project would renovate 262,035 SF of building and would provide 268 parking stalls on a 11.36-acre site.

Construction Phase - Construction would occur July 2018 through December 2019.

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Off-road Equipment - Default equipment

Grading - Assumed soil balanced

Trips and VMT - Assumed a total of 8 vehicle trips per day for all phases

Construction Off-road Equipment Mitigation - Water twice daily.

Water Mitigation - Use of water efficient irrigation systems. Use of low flow water fixtures.

Water And Wastewater - Project would consume approx 17,748,125 Gallons per Year

Energy Use - Adjusted T24, NT24, and Lighting to meet energy consumption

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	7/1/2018	12/13/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	10/18/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	8/24/2018
tblConstructionPhase	PhaseEndDate	7/1/2018	11/15/2019
tblConstructionPhase	PhaseEndDate	7/1/2018	7/13/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	11/16/2019
tblConstructionPhase	PhaseStartDate	7/2/2018	8/25/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	7/14/2018
tblConstructionPhase	PhaseStartDate	7/2/2018	10/19/2019
tblEnergyUse	LightingElect	4.57	24.10
tblEnergyUse	NT24E	7.20	37.97
tblEnergyUse	T24E	3.41	17.98
tblLandUse	LandUseSquareFeet	262,040.00	262,035.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	545.24
tblTripsAndVMT	VendorTripNumber	81.00	4.00
tblTripsAndVMT	WorkerTripNumber	42.00	16.00
tblTripsAndVMT	WorkerTripNumber	209.00	12.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	18.00	16.00

tblWater	IndoorWaterUseRate	60,596,750.00	17,748,125.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1662	59.5797	35.6464	0.0632	18.1880	2.6346	20.7658	9.9630	2.4239	12.3346	0.0000	6,363.5156	6,363.5156	1.9481	0.0000	6,412.2188
2019	125.0543	21.6078	17.6993	0.0288	0.1217	1.2941	1.4094	0.0323	1.2167	1.2479	0.0000	2,781.2945	2,781.2945	0.7177	0.0000	2,797.3190
Maximum	**125.0543**	**59.5797**	**35.6464**	**0.0632**	**18.1880**	**2.6346**	**20.7658**	**9.9630**	**2.4239**	**12.3346**	**0.0000**	**6,363.5156**	**6,363.5156**	**1.9481**	**0.0000**	**6,412.2188**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.1662	59.5797	35.6464	0.0632	8.2515	2.6346	10.8293	4.5011	2.4239	6.8727	0.0000	6,363.5156	6,363.5156	1.9481	0.0000	6,412.2188
2019	125.0543	21.6078	17.6993	0.0288	0.1217	1.2941	1.4094	0.0323	1.2167	1.2479	0.0000	2,781.2945	2,781.2945	0.7177	0.0000	2,797.3190
Maximum	**125.0543**	**59.5797**	**35.6464**	**0.0632**	**8.2515**	**2.6346**	**10.8293**	**4.5011**	**2.4239**	**6.8727**	**0.0000**	**6,363.5156**	**6,363.5156**	**1.9481**	**0.0000**	**6,412.2188**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.27**	**0.00**	**44.81**	**54.64**	**0.00**	**40.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Energy	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Mobile	3.3861	16.0814	44.9552	0.1230	10.7209	0.1368	10.8577	2.8672	0.1287	2.9958		12,445.1501	12,445.1501	0.6586		12,461.6144
Total	**10.0426**	**18.6023**	**47.1271**	**0.1381**	**10.7209**	**0.3286**	**11.0494**	**2.8672**	**0.3204**	**3.1876**		**15,469.7545**	**15,469.7545**	**0.7169**	**0.0555**	**15,504.1997**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Energy	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Mobile	3.3861	16.0814	44.9552	0.1230	10.7209	0.1368	10.8577	2.8672	0.1287	2.9958		12,445.1501	12,445.1501	0.6586		12,461.6144
Total	**10.0426**	**18.6023**	**47.1271**	**0.1381**	**10.7209**	**0.3286**	**11.0494**	**2.8672**	**0.3204**	**3.1876**		**15,469.7545**	**15,469.7545**	**0.7169**	**0.0555**	**15,504.1997**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/2/2018	7/13/2018	5	10	
2	Grading	Grading	7/14/2018	8/24/2018	5	30	
3	Building Construction	Building Construction	8/25/2018	10/18/2019	5	300	
4	Paving	Paving	10/19/2019	11/15/2019	5	20	
5	Architectural Coating	Architectural Coating	11/16/2019	12/13/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 5.34

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 393,053; Non-Residential Outdoor: 131,018; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	12.00	4.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	16.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0761	0.0579	0.5570	1.2000e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		119.0872	119.0872	4.1500e-003		119.1910
Total	**0.0761**	**0.0579**	**0.5570**	**1.2000e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**119.0872**	**119.0872**	**4.1500e-003**		**119.1910**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**8.1298**	**2.5769**	**10.7067**	**4.4688**	**2.3708**	**6.8396**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0761	0.0579	0.5570	1.2000e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		119.0872	119.0872	4.1500e-003		119.1910
Total	**0.0761**	**0.0579**	**0.5570**	**1.2000e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**119.0872**	**119.0872**	**4.1500e-003**		**119.1910**

3.3 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**8.6733**	**2.6337**	**11.3071**	**3.5965**	**2.4230**	**6.0195**		**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0761	0.0579	0.5570	1.2000e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		119.0872	119.0872	4.1500e-003		119.1910
Total	**0.0761**	**0.0579**	**0.5570**	**1.2000e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**119.0872**	**119.0872**	**4.1500e-003**		**119.1910**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	**5.0901**	**59.5218**	**35.0894**	**0.0620**	**3.9030**	**2.6337**	**6.5367**	**1.6184**	**2.4230**	**4.0415**	**0.0000**	**6,244.4284**	**6,244.4284**	**1.9440**		**6,293.0278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0761	0.0579	0.5570	1.2000e-003	0.1217	8.9000e-004	0.1226	0.0323	8.3000e-004	0.0331		119.0872	119.0872	4.1500e-003		119.1910
Total	**0.0761**	**0.0579**	**0.5570**	**1.2000e-003**	**0.1217**	**8.9000e-004**	**0.1226**	**0.0323**	**8.3000e-004**	**0.0331**		**119.0872**	**119.0872**	**4.1500e-003**		**119.1910**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0226	0.5198	0.1867	9.9000e-004	0.0241	4.1500e-003	0.0282	6.9300e-003	3.9700e-003	0.0109		104.1840	104.1840	7.1800e-003		104.3635
Worker	0.0571	0.0434	0.4178	9.0000e-004	0.0913	6.7000e-004	0.0920	0.0242	6.2000e-004	0.0248		89.3154	89.3154	3.1100e-003		89.3932
Total	**0.0797**	**0.5632**	**0.6045**	**1.8900e-003**	**0.1154**	**4.8200e-003**	**0.1202**	**0.0311**	**4.5900e-003**	**0.0357**		**193.4994**	**193.4994**	**0.0103**		**193.7567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0226	0.5198	0.1867	9.9000e-004	0.0241	4.1500e-003	0.0282	6.9300e-003	3.9700e-003	0.0109		104.1840	104.1840	7.1800e-003		104.3635
Worker	0.0571	0.0434	0.4178	9.0000e-004	0.0913	6.7000e-004	0.0920	0.0242	6.2000e-004	0.0248		89.3154	89.3154	3.1100e-003		89.3932
Total	**0.0797**	**0.5632**	**0.6045**	**1.8900e-003**	**0.1154**	**4.8200e-003**	**0.1202**	**0.0311**	**4.5900e-003**	**0.0357**		**193.4994**	**193.4994**	**0.0103**		**193.7567**

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0199	0.4908	0.1627	9.8000e-004	0.0241	3.5500e-003	0.0276	6.9300e-003	3.4000e-003	0.0103		103.4343	103.4343	6.9100e-003		103.6071
Worker	0.0518	0.0382	0.3728	8.7000e-004	0.0913	6.5000e-004	0.0919	0.0242	6.0000e-004	0.0248		86.2800	86.2800	2.7400e-003		86.3485
Total	**0.0717**	**0.5290**	**0.5355**	**1.8500e-003**	**0.1154**	**4.2000e-003**	**0.1196**	**0.0311**	**4.0000e-003**	**0.0351**		**189.7143**	**189.7143**	**9.6500e-003**		**189.9555**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0199	0.4908	0.1627	9.8000e-004	0.0241	3.5500e-003	0.0276	6.9300e-003	3.4000e-003	0.0103		103.4343	103.4343	6.9100e-003		103.6071
Worker	0.0518	0.0382	0.3728	8.7000e-004	0.0913	6.5000e-004	0.0919	0.0242	6.0000e-004	0.0248		86.2800	86.2800	2.7400e-003		86.3485
Total	**0.0717**	**0.5290**	**0.5355**	**1.8500e-003**	**0.1154**	**4.2000e-003**	**0.1196**	**0.0311**	**4.0000e-003**	**0.0351**		**189.7143**	**189.7143**	**9.6500e-003**		**189.9555**

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7701**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.0509	0.4970	1.1600e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		115.0400	115.0400	3.6500e-003		115.1313
Total	**0.0690**	**0.0509**	**0.4970**	**1.1600e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**115.0400**	**115.0400**	**3.6500e-003**		**115.1313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.3157					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7701**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.0509	0.4970	1.1600e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		115.0400	115.0400	3.6500e-003		115.1313
Total	**0.0690**	**0.0509**	**0.4970**	**1.1600e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**115.0400**	**115.0400**	**3.6500e-003**		**115.1313**

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.7188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**124.9853**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.0509	0.4970	1.1600e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		115.0400	115.0400	3.6500e-003		115.1313
Total	**0.0690**	**0.0509**	**0.4970**	**1.1600e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**115.0400**	**115.0400**	**3.6500e-003**		**115.1313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.7188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**124.9853**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.0509	0.4970	1.1600e-003	0.1217	8.7000e-004	0.1226	0.0323	8.0000e-004	0.0331		115.0400	115.0400	3.6500e-003		115.1313
Total	**0.0690**	**0.0509**	**0.4970**	**1.1600e-003**	**0.1217**	**8.7000e-004**	**0.1226**	**0.0323**	**8.0000e-004**	**0.0331**		**115.0400**	**115.0400**	**3.6500e-003**		**115.1313**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3861	16.0814	44.9552	0.1230	10.7209	0.1368	10.8577	2.8672	0.1287	2.9958		12,445.1501	12,445.1501	0.6586		12,461.6144
Unmitigated	3.3861	16.0814	44.9552	0.1230	10.7209	0.1368	10.8577	2.8672	0.1287	2.9958		12,445.1501	12,445.1501	0.6586		12,461.6144

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,826.42	345.89	178.19	3,815,222	3,815,222
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,826.42	345.89	178.19	3,815,222	3,815,222

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Other Non-Asphalt Surfaces	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
NaturalGas Unmitigated	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	25708.1	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2772**	**2.5204**	**2.1171**	**0.0151**		**0.1916**	**0.1916**		**0.1916**	**0.1916**		**3,024.4878**	**3,024.4878**	**0.0580**	**0.0555**	**3,042.4608**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	25.7081	0.2772	2.5204	2.1171	0.0151		0.1916	0.1916		0.1916	0.1916		3,024.4878	3,024.4878	0.0580	0.0555	3,042.4608
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2772**	**2.5204**	**2.1171**	**0.0151**		**0.1916**	**0.1916**		**0.1916**	**0.1916**		**3,024.4878**	**3,024.4878**	**0.0580**	**0.0555**	**3,042.4608**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Unmitigated	6.3793	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.6907					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1500e-003	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Total	**6.3793**	**5.1000e-004**	**0.0548**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**		**0.1166**	**0.1166**	**3.1000e-004**		**0.1245**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.6907					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1500e-003	5.1000e-004	0.0548	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		0.1166	0.1166	3.1000e-004		0.1245
Total	**6.3793**	**5.1000e-004**	**0.0548**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**		**0.1166**	**0.1166**	**3.1000e-004**		**0.1245**

Emissions Summary - We Grow California Cannabis Campus Project

Emission Source	ROC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
	Pounds per Day						*MT/year*
Emergency Generators	0.04	0.52	0.86	0.00	0.01	0.01	4.71
Total	**0.04**	**0.52**	**0.86**	**0.00**	**0.01**	**0.01**	**4.71**

APPENDIX I

Negative Cultural Inventory Report

NEGATIVE CULTURAL RESOURCES INVENTORY REPORT for the WE GROW CALIFORNIA PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Lead Agency:

City of Sacramento
Community Development Department
Environmental Planning Services
Contact: Scott Johnson
300 Richards Boulevard, 3rd floor
Sacramento, California 95811

Prepared by:

Sarah Brewer, BA, and Adam Giacinto, MA, RPA

DUDEK
853 Lincoln Way #208 Third Street
Auburn, California 95603

Prepared for:

We Grow California
Contact: Guy Matalon
1601 Alhambra Blvd., Suite 100
Sacramento, CA 95816

MAY 2018

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Authors:	Sarah Brewer, BA and Adam Giacinto, MA, RPA
Firm:	Dudek
Client/Project Proponent:	We Grow CA
Report Date:	5/31/18
Report Title:	Negative Cultural Resources Inventory Report for the We Grow California Cannabis Campus Project, Sacramento County, California
Type of Study:	Cultural Resources Inventory
New Sites:	None
Updated Sites:	None
USGS Quad:	Sacramento East 7.5-minute
Acreage:	11.2 acres
Permit Numbers:	
Key Words:	Negative survey, Sacramento East,

DUDEK

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May 31, 2018

Guy Matalon
We Grow California
1601 Alhambra Blvd.
Sacramento, CA 95816

Subject: Negative Cultural Resources Inventory Report for the We Grow California Cannabis Campus Project, Sacramento, California

Dear Mr. Matalon:

This letter documents the negative cultural resources inventory conducted by Dudek for the We Grow California Cannabis Project (proposed project), located in the City of Sacramento, Sacramento County (Figure 1). The project proposes minor improvements to existing commercial facilities. The City of Sacramento (City) is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). All cultural resource fieldwork and reporting for this project has been conducted by archaeologists meeting the Secretary of the Interior's Professional Qualifications Standards. A Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search suggested the presence of Native American cultural resources and offered a list of Native American representatives to contact. The lead agency has been provided with this information and in conjunction with their consultation requirement pursuant to AB 52 with the NAHC-listed Native American representatives will take the findings of the NAHC SLF search results into account. A North Central Information Center (NCIC) records search indicated that no cultural resources have been recorded within the area of direct impact (ADI). An intensive pedestrian survey conducted of the ADI and surrounding area did not identify the presence of any cultural or potentially eligible historic resources. Based on available information and observed conditions within the project site, no additional archaeological resource efforts appear to be necessary in support of the proposed project. While unanticipated cultural resources are unlikely to be encountered, should resources be identified during project implementation standard management recommendations provided at the end of this report will ensure compliance with CEQA.

PROJECT DESCRIPTION AND LOCATION

The proposed project is situated in an area subject to previous development and grading and is currently developed with two warehouse buildings and parking areas. The project proposes

improvements to the existing commercial warehouses. The approximately 11.2-acre project site is located in eastern Sacramento, 3.1 miles east of the Golden State Highway (Highway 99) and 3 miles south of Highway 50, both of which provide regional access to the project site. Specifically, the project site is located directly south of the Sacramento Army Depot and directly east of the Western Pacific Railroad (Figure 2). The street address associated with the project is 8280 Elder Creek Road.

REGULATORY CONTEXT

State of California

The California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR, enumerated in the following text, were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

(2) Is associated with the lives of persons important in our past

(3) 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

(4) Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less

than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further in the following text, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

PRC Section 21083.2(g) defines "unique archaeological resource."

PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.

PRC Section 21074(a) defines "tribal cultural resources."

PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor, punishable by up to 1 year in jail, to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the

County Coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the County Coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA [CEQA Guidelines Section 15064.5(b)(2)].

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in PRC Section 5097.98.

Native American Historic Cultural Sites

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC).

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

NCIC RECORDS SEARCH

NCIC staff completed a records search of the project ADI, including a surrounding half-mile buffer on April 12, 2018 (Confidential Appendix A). This search included their collection of mapped prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports and archival resources. Additional consulted sources include the National Register of Historic Places (NRHP), California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information.

Previously Conducted Studies:

NCIC records indicate that seventeen (17) previous cultural resources technical investigations have been conducted within a half-mile of the proposed project site. None of these are known to have directly included portions of the current ADI (Table 1).

Table 1. Previous Technical Studies within a Half-mile Radius of the ADI

Report No.	Authors	Year	Title	Publisher
000088	Johnson, Jerald J.	1974	Reconnaissance Archeological Survey of the Morrison Stream Group in Sacramento County, California.	
000310	Nelson, Richard and Michael Rondeau	1979	An Intensive Archeological Survey of the Proposed Widening of Florin-Perkins Road, Sacramento County, California.	Archeological Study Center, CSU Sacramento
000310b	Bakarich,Lili and Michael F. Rondeau	1980	Additional Historic Archival Research and Reconnaissance for the Proposed Widening of Florin-Perkins Road. (Addendum Report)	Archeological Study Center, CSU Sacramento
000488	Ann S. Peak	1980	Cultural Resource Assessment of Sacramento Municipal Utility District's Project A, Phase II 230kV Transmission Line, Hurley to Hedge-Pocket Tap, Sacramento County, California.	Peak & Associates
000556	Rondeau, Michael F.	1980	A Cultural Resources Reconnaissance of the Proposed Widening of Power Inn Road, Sacramento, California.	Archeological Study Center, CSU Sacramento
003373	Green, Melvyn, Christy Johnson, Hisashi B. Sugaya, and Thomas Holtz	1998	Historic Properties Sacramento Army Depot and Benicia Army Cemetery	Green and Associates
003397		1998	Evaluation of Cultural Resources at Sacramento Army Depot	U.S. Army Corps of Engineers
003405	Maniery, Mary L. and Kathryn Kelly	1995	Historical Property Survey of the Sacramento Army Depot Redevelopment Plan EIR	PAR Environmental Services, Inc
003853	Nelson, Wendy, Maureen Carpenter, and Kimberley L. Holanda	2000	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WP04: Sacramento to Redding	Far Western Anthropological Research Group, Inc.
003853a	Ann Munns, Rhonda R. Turner, and Dustin Kay	2000	Cultural Resources Records Search and Literature Review Report, Level (3) Long Haul Fiber Optic Project: WS04 Sacramento to Cosumnes River, California	Chambers Group, Inc.
003853b	Denise Furlong and Kim Tremaine	2001	Archaeological Monitoring for WS04 Long Haul Fiber Optic Segment, Between Sacramento and Bakersfield, California	Tremaine & Associates, LLC
008619	Cindy Arrington et al	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	SWCA Environmental Consultants
008675	Mary L. Maniery and Cindy L. Baker	2007	Cultural Resource Inventory and Evaluation of United States Army Reserve 63D Regional Readiness Command Facilities	PAR Environmental Services, Inc.
008675a		2007	Cultural Resources Inventory and Evaluation of the United States Army Reserve BT Collins USAR Center/Area Maintenance Support Activity 98 (G), Sacramento, California P-34-1617	Environmental Division, U.S. Army Reserve; PAR Environmental Services, Inc.

Report No.	Authors	Year	Title	Publisher
010703	Iannone, J.F.	2010	NEGATIVE CULTURAL RESOURCES SURVEY REPORT FOR THE RENOVATION OF BUILDINGS 1, 2, AND 3 AT THE NAVY OPERATIONAL SUPPORT CENTER, SACRAMENTO, CA	United States Navy
011108	HHM Inc	2004	Naval Reserve Force Cultural Resources Survey Naval and Marine Corps Reserve Center Sacramento, CA	HHM Inc
011170	Kathleen Crawford	2012	Direct APE Historic Architectural Assessment for T-Mobile West, LLC Candidate SC06725A (Elder Creek & Power Inn), 6451 Power Inn Road, Sacramento, Sacramento County, California	Michael Brandman Associates
011180	Carrie Wills	2012	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SC06725A (Elder Creek & Power Inn), 6451 Power Inn Road, Sacramento, Sacramento County. California	Michael Brandman Associates
011816	Carrie D. Wills and Kathleen Crawford	2015	T-Mobile West, LLC Candidate SCO6725A (Elder Creek and Power Inn)	Environmental Assessment Specialists
012077	Mark R. Schultz	2015	Refurbishment and Relocation of Two Hazardous Material Storage Lockers at 8277 Elder Creek Road Sacramento	Department of the Navy
012296	Nancy E. Sikes and Cindy J. Arrington	2016	Cultural Resources Inventory for the Fair Deal Recycling Project, City of Sacramento, Sacramento County, California	Natural Investigations Company

Previously Identified Cultural Resources:

No cultural resources have been previously identified within the ADI; however, four (4) historic-age resources have been recorded within the surrounding half-mile records search area. These resources include the Western Pacific Railroad (P-34-001302) and the Sacramento Army Depot (P-34-004100), which are both adjacent to the project area. Two other resources are recorded within the half-mile buffer, a military building within the Sacramento Army Depot (P-34-001617) and a transmission tower (P-34-004521). None of the four resources are eligible for listing on the National Register of Historic Places (NHRP) or the California Register of Historical Resources (CRHR) (Table 2; Confidential Appendix A).

Dudek reviewed historical aerials and historic USGS 7.5-minute topographic quadrangles on historicaerials.com. Historical aerials were available dating as early as 1947 and historic maps were available dating back to 1902. These maps and aerial photographs indicated the presence of two structures built between 1947 and 1949 in the northwestern and northeastern portions of the project ADI. The structure in the northwest portion is shown in maps from 1949 to 1965 and on aerials between 1947 and 1964. By 1966, the structure was razed and does not appear in any subsequent maps or maps. The location of the structure is now a paved parking area. The

structure in the northeastern portion of the ADI is shown from 1949 to 1980 on maps and from 1947 to 1966 in the aerial maps. There is no indication of this structure after 1980. No remnants of either of these structures were observed during the project site survey.

Table 2. Cultural Resources in Relation to the ADI

Primary	Trinomial	Resource Name	Resource Type	Age	Attributes	Relationship to ADI	NRHP Eligibility
P-34-001302	CA-SAC-001230H	Western Pacific Railroad	Structure, Site, Other	Historic	AH07 (Roads/trails/railroad grades); AH16 (Other) - Railroad; HP11 (Engineering structure)	Adjacent	Not eligible
P-34-001617		BT Collins USAR Center	Building	Historic	HP34 (Military property)	½ -mile buffer	Not eligible
P-34-004100		Sacramento Army Depot	Building	Historic	HP14 (Government building)	Adjacent	Not eligible
P-34-004521			Structure	Historic	HP11 (Engineering structure)	½ -mile buffer	Not eligible

NAHC AND NATIVE AMERICAN COORDINATION

Dudek requested a NAHC search of their Sacred Lands File on April 19, 2018, for the proposed project area. The NAHC provided results on April 27, 2018. This search indicated the presence of Native American traditional cultural place(s) within the search area (Confidential Appendix B). Given that NCIC records did not identify the presence of resources of Native American origin within or near the project ADI, no additional information is known regarding the location or nature of this sacred site. The NAHC did provide a list of Native American tribes and individuals/organizations that might have knowledge of cultural resources in this area. The NAHC further recommended that the United Auburn Indian Community (UAIC) be contacted directly regarding this resource.

Follow up communications with NAHC-listed Native American representatives is underway by the lead agency, and consultation pursuant to Assembly Bill 52 with the NAHC-listed Native American representatives will take the findings of the NAHC SLF search results into account. The proposed project is subject to compliance with Assembly Bill 52 (PRC Section 21074), which requires consideration of impacts to tribal cultural resources (TCRs) as part of the CEQA process, and requires the CEQA lead agency to notify any groups (who have requested

notification) of the proposed project who are traditionally or culturally affiliated with the geographic area of the project. Because Assembly Bill 52 is a government-to-government process, all records of correspondence related to Assembly Bill 52 notification and any subsequent consultation are on file with the City. The City received a request for consultation from the United Auburn Indian Community (UAIC) on April 29, 2018. UAIC representatives responded that there are historic-age TCRs within the vicinity of the project, however did not indicate that these resources would be directly impacted by the project. UAIC requested that UAIC representatives be present during any cultural resources survey, be provided the opportunity to monitor during ground disturbing activities if TCRs are identified, that no resource evaluation or data recovery be completed without UAIC consent, and advised that UAIC has a strong preference that TCRs be preserved in place through avoidance. Additional mitigation was provided by Marcos Guerrero of UAIC on May 5, 2018, which has been integrated in the below recommendations. The full record of communication, including this recommended mitigation, is provided within Confidential Appendix B.

METHODS

Intensive Pedestrian Survey

Dudek Archaeologist Brittany Lovejoy, BA, inspected all areas of the project site on April 13, 2018. No archaeological or historic-era built-environment artifacts or features were identified. The Project area contains modern warehouses and paved parking areas. Ms. Lovejoy observed that the soils throughout the site have been substantially disturbed. No archaeological material was observed within the project ADI.

SUMMARY AND MANAGEMENT CONSIDERATIONS

No archaeological resources were identified within the project site or immediate vicinity as a result of intensive pedestrian survey and the CHRIS records search. A review of historical aerials and topographic maps revealed the possibility of two structural remains built between 1947 and 1949. These structures have since been demolished and no indication of their presence was observed in the archaeological survey of the area. The NAHC reported a Native American sacred site to be on file within or near the project site. No additional information is available regarding this resource, however City consultation with UAIC will request additional information. Any identified resource will be taken into consideration within the environmental document for the project. While the area appears to have a low potential to support the presence of unanticipated or buried archaeological resources, there is always some possibility that such resources could be encountered during project construction activities. Management recommendations to reduce

potential impacts to unanticipated archaeological resources and human remains during construction activities are provided below.

All construction crew(s) should be alerted to the potential to encounter sensitive archaeological material or tribal cultural resources. As requested by UAIC during consultation, it is recommended that NAHC-listed affiliated Native American Tribes be provided the opportunity to inspect soil piles, graded areas, or other disturbed areas, within the first five days of ground breaking activity. During this inspection, an on-site meeting of construction personnel should also be held in order to afford the tribal representative the opportunity to provide tribal cultural resources awareness information. In the event that such resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all earth disturbing work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole marine shell, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, evaluation testing, or data recovery may be warranted. The feasibility of project avoidance should also be discussed with the City prior to any excavation or other potentially destructive investigation. Per the request of UAIC as part of AB 52 consultation, it is recommended that should cultural resources be encountered, NAHC-listed Native American representatives be contacted prior to any earth-disturbing evaluation efforts and provided the opportunity provide management recommendations, information relating to potential impacts to TCRs, and monitor as appropriate. A feasible and appropriate approach management approach to any identified resource will be determined by the City, as informed by recommendations provided by NAHC-listed Native American representatives and the qualified archaeologist.

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent

remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete his/her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

This report was prepared by Sarah Brewer, BA, under the supervision of Adam Giacinto, MA, RPA. Should you have any questions relating to this report and its findings please do not hesitate to contact me directly.

Respectfully Submitted,

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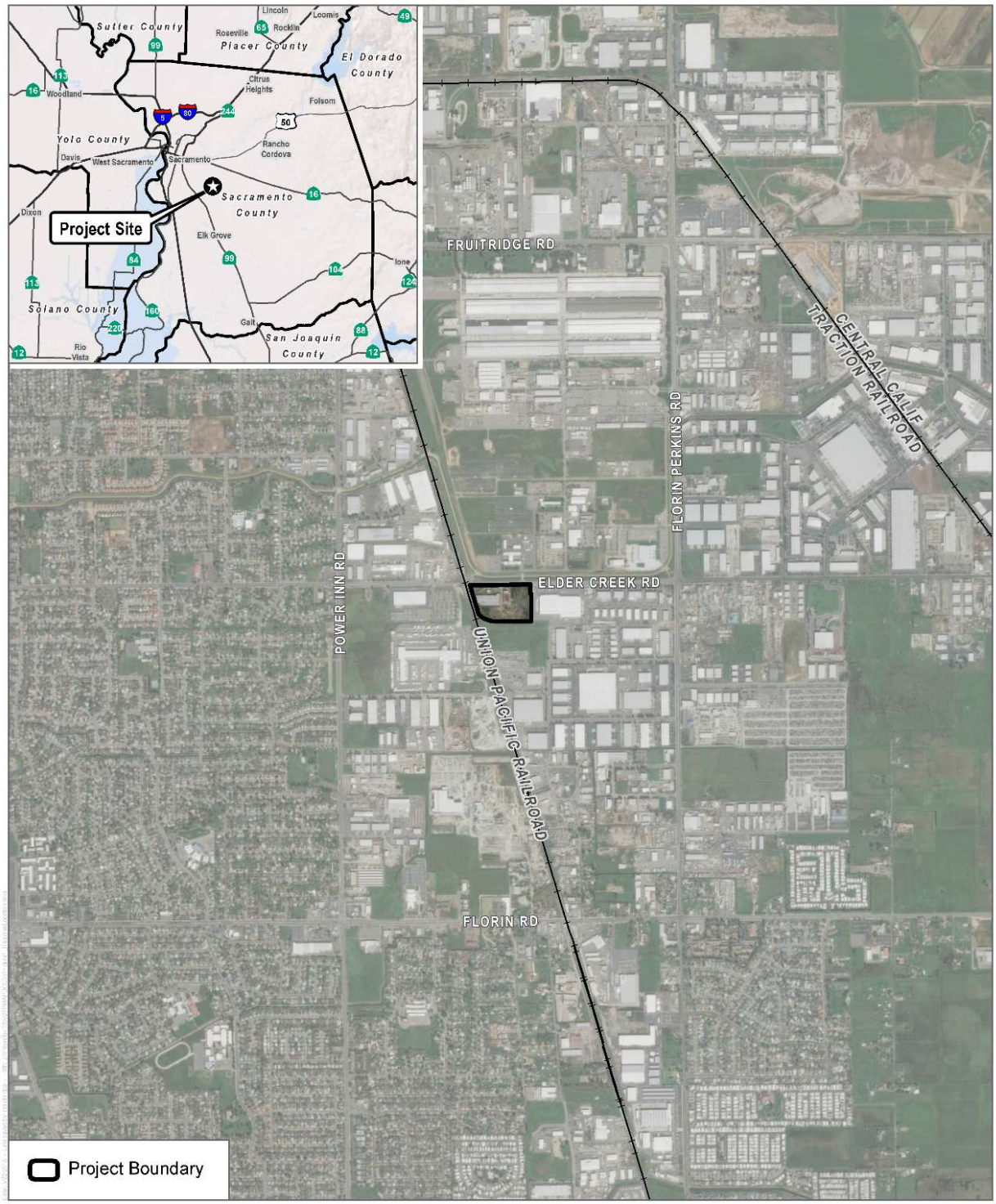
cc: Sarah Brewer, Dudek
Micah Hale, Dudek

Att: Figure 1. Regional Map
Figure 2. Vicinity Map
Appendix A: NCIC Records Search Information
Appendix B: NAHC Search Results and Tribal Correspondence



SOURCE: Bing Maps 2018; Sacramento County 2018

DUDEK 0 1,000 2,000 Feet

FIGURE 1

Regional Location

We Grow California Cannabis Campus Project IS/MND

SOURCE: Bing Maps 2018; Sacramento County 2018

DUDEK 0 100 200 Feet

FIGURE 2
Project Site
We Grow California Cannabis Campus Project IS/MND

APPENDIX A (CONFIDENTIAL)

NCIC Records Search Results

APPENDIX B (CONFIDENTIAL)

NAHC Sacred Lands File Search Results

APPENDIX J

Geotechnical Study

Geotechnical Engineering Report

WE GROW CA MEDICAL CANNABIS CAMPUS

Sacramento, CA

MPE No. 03550-01

MPE

MID PACIFIC ENGINEERING, INC.

October 30, 2017

MPE
MID PACIFIC ENGINEERING, INC.

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GEOTECHNICAL ENGINEERING | EARTHWORK TESTING | MATERIALS ENGINEERING AND TESTING | SPECIAL INSPECTIONS

Geotechnical Engineering Report

WE GROW CA MEDICAL CANNABIS CAMPUS

MPE No. 03550-01

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Geotechnical Engineering Report

WE GROW CA MEDICAL CANNABIS CAMPUS

Sacramento, California

MPE No. 03550-01

October 30, 2017

INTRODUCTION

We have completed a Geotechnical Engineering investigation for the proposed Industrial Warehouse facility to be located at 8280 Elder Creek Road in Sacramento, California. The purposes of our study have been to investigate the site, soil and groundwater conditions at the proposed project location, and to prepare Geotechnical Engineering conclusions and recommendations regarding design and construction of the proposed structures and associated development.

SCOPE OF SERVICES

Our scope of services for this project included the following:

1. Site reconnaissance;
2. Review of available historical aerial photographs, geologic maps, topographic maps, and groundwater information of the area;
3. Subsurface investigation, including the drilling and sampling of 7 exploratory soil borings within or adjacent to the proposed building footprints to maximum depths of approximately 10 to 16½ feet below existing site grades;
4. Collection of bulk samples of near surface soils;
5. Laboratory testing of selected soil samples;
6. Engineering analysis; and,
7. Preparation of this report.

FIGURES AND ATTACHMENTS

This report contains a Vicinity Map as Figure 1; a Site Plan, showing the approximate boring locations as Figure 2; and, Logs of Soil Borings as Figures 3 through 9. An explanation of the

symbols and classification system used on the logs is included as Figure 10. Appendix A contains information of a general nature regarding project concepts, exploratory methods used during the field phase of our investigation, an explanation of laboratory testing accomplished, and laboratory test results. Appendix B contains *Guide Earthwork Specifications* that may be used in the preparation of contract plans and documents.

PROJECT DESCRIPTION

Based on our correspondence with T2 Engineers, Inc. and review of the September 18, 2017 *Grading and Erosion Control Plans*, prepared by Realm Engineering of Redding, California, we understand the project will include the construction of three industrial buildings measuring approximately 54,191, 65,513, and 84,066 square feet. We understand the buildings will include pedestrian traffic only (no forklifts, automobiles, etc.). We anticipate the buildings will be single-story; light metal framed construction, and will include polycarbonate panels. The buildings are anticipated to We anticipate the buildings will be supported on shallow concrete pier foundations and conventional footings. A two-story wood or light metal-framed mezzanine will be constructed inside one of the existing metal buildings. Construction on the two existing metal buildings will include minor foundation improvements along the exterior walls. Associated development is anticipated to include construction of asphalt concrete and concrete paved drive aisles, driveways, parking spaces underground utilities, exterior concrete flatwork, drainage, entrance gates, interior floors, perimeter fencing, and typical landscaping.

Due to the topography, we anticipate maximum excavations and fills on the order of one to three feet to develop the site.

FINDINGS

SITE DESCRIPTION

The rectangular-shaped industrial site consists of approximately 12 acres. It is located at 8280 Elder Creek Road, in Sacramento, California. The site is bounded to the north by Elder Creek Road, beyond which is Morrison Creek; to the south by fallow undeveloped land; to the west by railroad tracks beyond which is a large parking area; and, to the east by a large warehouse building. Topography across the property is relatively flat with an average

surface elevation of approximately +30 feet relative to mean sea level (msl), based on review of the United States Geological Survey (USGS) *1:100,000 Series Topographic Map – Sacramento Quadrangle* (1994).

At the time of our field work on October 11, 2017, the surface of the project site was approximately the same elevation as the existing grades in the north entrance. The surface soils supported moderately dense concentrations of volunteer weeds, and the perimeter of the site was bounded by a chain-link fence.

Northeast Portion

The surface was disturbed with a mixture of aggregate base, asphalt concrete, gravels, and rubble. Two existing large metal buildings were observed on the western portion of the project. A tree was observed in the eastern boundary.

South Portion

Stockpiles containing soils, concrete rubble, aggregate, asphalt concrete, and other deleterious debris were observed through the southern portion of the site, with larger concentrations along the southwest and southeast corners. A 15 foot x 15 foot chain-link fence area with a paved walkway was observed near the south center of the site. A storm drain mainline was observed running east to west adjacent to the south boundary of the site.

Northwest Portions

Two metal framed buildings were observed in the northwest portion. The larger building extended east-west and included loading/unloading truck docks, with access doors through the north. The smaller building extended north-south and was open on the sides for entry access. A paved parking area was observed in the northwest corner. Existing pavements were observed to be in a fair to poor condition with visible cracks and potholes. Powerlines and underground utilities lines running east-west were observed adjacent to the northern boundary.

SITE HISTORY

Review of aerial photographs taken from 1993 to 1998 indicates the site as an industrial facility with the two warehouse buildings in the northwest portion; one large building extending east-west and a small building extending north-south. Fallow undeveloped land is observed in the southern and eastern portions. Several small to mature trees are observed in the northeast corner. Stockpiles of equipment and debris are observed in the southeast corner of the small building.

Review of aerial photographs taken from 2002 to 2012 indicates two drive way entrances in the north central portion, paved parking areas and drive aisles around the buildings. Agricultural discing activity was observed in the southern and eastern portions of the site. A stockpile is observed near the east center.

Based on an aerial image taken in 2013, the trees at the northeast corner were removed. Many stockpiles were observed in the southern and eastern portions of the site. The site was primarily used as a dumping ground and truck storage station.

From 2013 to present the site surface condition have remained highly disturbed with numerous fill stockpiles spread throughout, consistent with the current site conditions.

SITE GEOLOGY

The subject property is located in the central portion of the Great Valley geomorphic province of California. The Great Valley lies between the mountains and foothills of the Sierra Nevada Range to the east and the California Coast Ranges to the west. The sedimentary deposits range in thickness from relatively thin deposits along the eastern valley edge to more than 25,000 feet in the south central portion of the Great Valley (Norris and Webb, 1990).

The United State Geological Survey (USGS) *Preliminary Geologic Map of Cenozoic Deposits of the Davis, Knights Landing, Lincoln, and Fair Oak Quadrangles, California* (Helley and Harwood, 1979) shows the site to be underlain by Pleistocene-aged Riverbank formation – Lower Unit (Qr1). These river deposits generally consists of partially consolidated gravels, sands, and fine-grained silts deposited from present-day stream and river systems that drain from the Coast Ranges, Klamath Mountains and Sierra Nevadas.

SUBSURFACE SOIL CONDITIONS

Based on the results of our subsurface exploration the surface soils generally consisted of silty gravels with rubble in the upper two feet. Below the surface soils, the native soils consisted of silts, silty clays, clayey silts, and fine sandy silts. The surface fills and near surface native soils were underlain by well cemented silts, medium dense to dense sands, and medium stiff clayey soils to the maximum depth explored of approximately 16½ feet below the surface. Layers of clays were encountered above the cemented silts. In Boring D4, a four inch layer of asphalt concrete was encountered.

For more details regarding the soil conditions at a specific location, please refer to the Logs of Soil Borings, presented on Figures 3 through 9.

GROUNDWATER

Groundwater was not encountered in our borings drilled on October 11, 2017 to a maximum depth of about 16½ feet below existing grades.

To supplement our groundwater information, we have reviewed groundwater elevation data obtained from a California Department of Water Resources (DWR) monitored well, identified as #385047N1213636W001, located approximately 2-miles southeasterly of the subject property. Surface elevation at the well is indicated to be about +53 feet msl. The DWR has periodically measured water elevations in this well from at least March 9, 1965 to April 27, 2017. The "lowest" measured groundwater elevation in the well occurred on October 3, 1990, at an elevation of approximately -45 feet msl (about 98 feet below existing grade at the well); the highest elevation occurred on October 5, 1983, at an approximate elevation of -14 feet msl (about 67 feet below existing grade at the well).

Recent measurements taken over the past 20 to 25 years by the DWR indicates the groundwater elevation in this area has varied between approximately 75 to 90 feet below existing site grades.

CONCLUSIONS

SEISMIC CODE PARAMETERS

Section 1613 of the 2016 edition of the CBC references ASCE Standard 7-10 for seismic design. The following seismic parameters were determined based on the site latitude and longitude using the public domain computer program developed by the USGS. The seismic design parameters summarized in the table below may be used for seismic design of the proposed improvements.

TABLE 1 –2016 CBC/ASCE 7-10 Seismic Design Parameters

Latitude: 38.5094° N Longitude: -121.3995° W	ASCE 7-10 Table/Figure	2016 CBC Table/Figure	Factor/ Coefficient	Value
Short-Period MCE at 0.2s	Figure 22-1	Figure 1613.3.1(1)	S_S	0.632 g
1.0s Period MCE	Figure 22-2	Figure 1613.3.1(2)	S_1	0.282 g
Soil Class	Table 20.3-1	Section 1613.3.2	Site Class	C
Site Coefficient	Table 11.4-1	Table 1613.3.3(1)	F_a	1.147
Site Coefficient	Table 11.4-2	Table 1613.3.3(2)	F_v	1.518
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-37	S_{MS}	0.725 g
	Equation 11.4-2	Equation 16-38	S_{M1}	0.428 g
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-39	S_{DS}	0.484 g
	Equation 11.4-4	Equation 16-40	S_{D1}	0.285 g
Seismic Design Category	Table 11.6-1	Section 1613.3.5(1)	Risk Category I to III	C
	Table 11.6-1	Section 1613.3.5(1)	Risk Category IV	D
	Table 11.6-2	Section 1613.3.5(2)	Risk Category I to IV	D

MCE – Maximum Considered Earthquake
g – acceleration due to gravity

LIQUEFACTION POTENTIAL

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated cohesionless sands as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface Geotechnical investigation and the groundwater conditions beneath the site. A full liquefaction analysis was beyond our scope of work performed for this project; however, based on the stiff and cohesive nature of the soils underlying the site, it is our opinion that the potential for liquefaction occurring beneath this site is low. The site is not located within a State Designated Seismic Hazard Zone for liquefaction.

EXPANSIVE SOIL

The results of our subsurface exploration indicate that discontinuous layers of potential highly expansive clays were encountered above the cemented silts with low expansion potential when tested in accordance with the ASTM D4829 test method (See Figure A3). In our opinion, these soils are capable of exerting moderate to significant expansion pressures on foundations, interior floor slabs and exterior flatwork, if exposed at or near final subgrades. Therefore, we will recommend that imported non-expansive soils be used to construct the upper 12 inches of subgrades supporting buildings, exterior flatwork and pavements. Specific recommendations to mitigate the effects of potentially expansive soils are provided in later sections of this report.

As an alternate to 12 inches of granular, non-expansive soils for building pads and flatwork subgrades, lime-treatment may be considered as it can be an effective method of reducing the expansion potential of clay soils and can be used to reduce the moisture content of near-saturated soils to facilitate grading operations.

FOUNDATION AND SLAB SUPPORT

Results of our field and laboratory work indicate the undisturbed native soils are capable of providing adequate support for the proposed structures and associated improvements. However, complete removal of all undocumented fills including stockpiles, pavements, and slabs will be required. Undocumented fills used to backfill the tree depressions from the trees removed in the northeast portion will require thorough recompaction of the surface and near-surface soils. This will be important to providing uniform support of the planned

improvements. In our opinion we will recommend additional processing and re-compaction of the soils in all structural areas to facilitate proper clearing of the undocumented fills, trees depressions, pavements, and concrete slabs, and to promote more uniform support for the planned buildings.

Our work also indicates that properly processed and re-compacted native soils and new engineered fill, when placed and compacted in accordance with the recommendations of this report, will be capable of supporting the proposed structures, and associated improvements.

Specific recommendations for sub-excavation and recompaction are presented in the SUB-EXCAVATION section of this report.

EXCAVATION CONDITIONS

Based on our field investigation, the native soils on the site should be readily excavatable with conventional earthmoving and trenching equipment typically used in the area. Excavations encountering very dense and/or well cemented soils will be slower to excavate; although, special trenching and excavation equipment are not anticipated for this project.

Excavations likely will stand at a near-vertical inclination for short periods of time, unless zones or pockets of clean cohesionless sands are encountered or the construction is performed during the rainy season. Excavations encountering perched water areas may slough or cave if left open for an extended period of time. Excavations deeper than 5 feet that will be entered by workers should be sloped, braced or shored in accordance with current OSHA regulations. The contractor must provide an adequately constructed and braced shoring system in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground.

Excavated materials should not be stockpiled directly adjacent to an open trench to prevent surcharge loading of the trench sidewalls. Excessive truck and equipment traffic should be avoided near open trenches. If material is stored or heavy equipment is operated near an excavation, stronger shoring would be needed to resist the extra pressure due to the superimposed loads.

Temporarily sloped excavations should be constructed no steeper than one horizontal to one vertical (1:1).

Suitability Of On-Site Soils For Fill Construction

In our opinion, the on-site native soils encountered in our test borings are considered suitable for use as engineered fill materials provided they are free of debris and organics, and are at a compactable moisture content.

Pavement Subgrade Quality

Based on the laboratory test results and our experience in the area, a Resistance ("R") value of 10 is considered appropriate for design of pavements at this site.

Laboratory test results and our experience in the area also indicates that lime treatment of the near-surface clay soils can result in a substantial improvement to the support characteristics of the clays, and reduce the required thickness of the base materials. Chemical treatment also can be used to reduce the moisture content of near-saturated soils to facilitate grading operations. Preliminary recommendations for lime-treatment are presented in the Pavement Design section of this report. Additional sampling and laboratory testing will be needed to verify final design parameters.

Groundwater

Our borings and review of available groundwater information indicate that permanent groundwater should not be a significant factor in the proposed development of this site; therefore, groundwater should not be a factor in the design or construction of the planned improvements. However, it is possible that perched or seepage water may be present within excavations, depending upon the time of year when construction takes place. The need for dewatering of excavations can best be determined during site work when subsurface conditions are fully exposed. Localized dewatering, if required, can likely be accomplished by using sump pumps.

SEASONAL WATER

Perched water may exist seasonally over the top of underlying dense and cemented soils, especially during or shortly after periods of rainfall. The near-surface soils may be in a near-saturated condition during and for a significant time following the rainy season due to rain water being unable to penetrate dense and cemented soils below existing site grade. If grading operations are to proceed shortly after the rainy season, and before prolonged periods of warm dry weather, the near-surface soils may be at a moisture content where significant aeration or chemical-treatment may be required to dry the soils to a moisture content where the specified degree of compaction can be achieved.

Furthermore, soils located beneath existing pavements, slabs, and flatwork, or within or adjacent to landscaped areas will likely be at elevated moisture contents regardless of the time of year of construction and require drying. Wet soils should be anticipated and considered in the construction schedule.

The soils supporting pavements and slab-on-grade concrete will be moist at the time of site preparation. The soil moisture will be present through the life of structures and pavements, and can increase due to the introduction of storm water or irrigation water. The presence of moist soil beneath the buildings should be considered when selecting the type of floor coverings to be used within buildings, and in evaluating the need for water proofing of interior floor slabs to protect floor coverings.

SOIL CORROSION POTENTIAL

Two representative samples of the near-surface soils were submitted to Sunland Analytical Lab, Inc., located in Rancho Cordova, California, for testing to determine pH, resistivity, and sulfate, chloride and sulfide concentrations to help evaluate the potential for corrosive attack upon reinforced concrete. Results of the corrosion testing performed by Sunland Analytical Lab are summarized in the following table.

TABLE 2 –Soil Corrosivity Testing

Analyte	Test Method	Sample Identification	
		B1 (1'-3')	B4 (1'-3')
pH	CA DOT Test #643 Modified (Sm. Cell)	7.53	6.58
Minimum Resistivity		2680 Ω-cm	2950 Ω-cm
Chloride	CA DOT 417	5.6 ppm	3.4 ppm
Sulfate	CA DOT 422	18.6 ppm	21.7 ppm

Ω-cm = Ohm-centimeters; ppm = Parts per million

The California Department of Transportation Corrosion Technology Section, Office of Materials and Foundations, Corrosion Guidelines Version 2.1, January 2015, considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less. Based on this criterion, the on-site soils are not considered corrosive to steel reinforcement properly embedded within Portland cement concrete for the samples tested.

Table 19.3.1.1 – *Exposure Categories and Classes*, American Concrete Institute (ACI) 319-14, Section 19.3, as referenced in section 1901.1 of the 2016 CBC, indicates the sulfate exposure for the samples tested as Not Applicable. Type I-II Portland cement is considered suitable for use on this project assuming a minimum concrete cover is maintained over the reinforcement.

Our experience with concrete and steel corrosion is generally based on the Caltrans corrosion guidelines, which have been developed for use by designers for use on public transportation projects, such as bridges. Generally, these structures are more highly sensitive to corrosion of concrete and steel when compared to the proposed development.

Mid Pacific Engineering, Inc. are not corrosion engineers. Therefore, to further define the soil corrosion potential at the site, or to determine the need or design parameters for cathodic protection or grounding systems, a corrosion engineer should be consulted.

RECOMMENDATIONS

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months, and will not be compactable without drying by aeration or the addition of lime (or a similar product) to dry the soils. Should the construction schedule require work during wet conditions, additional recommendations can be provided, as conditions dictate.

We have provided recommendations pertaining to the development of permanent structures and improvements, such as the proposed buildings, pavements and exterior concrete flatwork.

Due to the previous site usage, conditions exist at the site that likely will require additional earthwork processing. The contractor should anticipate additional excavation, backfilling and reworking of the areas currently disturbed, or supporting undocumented fills.

We consider it essential that our office review site, grading, and structural foundation plans to verify the applicability of the following recommendations, and to provide supplemental recommendations, as needed.

Site Clearing

Initially, the structural areas of the site (planned buildings, pavements, and exterior flatwork, etc.) should be cleared of existing items designated for removal, including but not limited to, concrete slabs, foundations, existing asphalt concrete and concrete pavements, stockpiles, fences, posts, deleterious materials, vegetation, organic laden soils, irrigation piping, underground utilities to be relocated or abandoned including trench backfill, demolition debris, rubble, refuse, and any other items designed for removal. Demolition debris should be hauled off site. Trees designated for removal should include the rootball and all exposed roots greater than ½-inch diameter. Subsurface utilities to be relocated or abandoned should be removed from within and to at least 5 feet beyond the perimeter of the proposed building pads; remaining piping beyond the structure that is not removed should be plugged with concrete. Demolition debris should be hauled off site.

We anticipate the exposed soils underlying the existing pavements and slabs, and those areas adjacent to irrigated areas will be at an elevated moisture content. These soils should be appropriately aerated to bring the soils to a compactable moisture content, or the soils may be removed and replaced with drier on-site or imported soils, or lime-treated.

The upper 12 inches of soil subgrades within areas of removed undocumented fills, stockpiles, rubble and debris should be ripped and cross-ripped. All exposed remnants should be removed; and debris cleared from the site. Adequate removal of rubble and debris may require laborers and handpicking to clear the subgrade soils to the satisfaction of our on-site representative, prior to further site preparation.

All depressions resulting from the removal of such items, as well as all loose, disturbed or saturated soils in areas of clearing operations or tree removal, as identified by our representative in the field, should be cleaned out to firm, undisturbed soil, as determined by our representative and should be restored to grade with engineered fill compacted in accordance with the recommendations of this report. It is considered essential that our representative be notified prior to site clearing operations to schedule routine site visits.

It is essential that our representative be present during clearing operations to verify adequate removal of existing structures and utilities. It is essential that excavations resulting from clearing operations be left as shallow dish-shaped depressions for proper location and to allow proper access with compaction equipment during grading operations. If clearing and removal of structures and utilities takes place without direct observation by the Geotechnical Engineer, deeper cross-ripping and/or over-excavation of the disturbed areas and the building pad affected will be required.

Surface Vegetation Removal

We anticipate that site clearing operations will remove the major portion of any surface vegetation. If the site contains additional vegetation requiring removal, it should be stripped from the site. Strippings should be hauled from the site or used as fill only in landscape areas or non-structural areas. Strippings should not be used as fill in building pad areas, pavement or flatwork areas. Strippings should receive moisture conditioning and compactive effort, should not exceed a vertical thickness of two feet and should not extend within three feet of building pads or pavements. Discing may be a suitable alternate to stripping, depending upon the quantity and condition of the organics at the time of grading.

Discing should be allowed only with our approval after review of the site conditions at the time of grading. Mid Pacific Engineering can provide specific recommendations based on the condition and concentrations of vegetation at the time of grading.

Following site clearing activities, we recommend special attention be given in the area of the removed trees to remove the undocumented fills and expose firm, undisturbed native materials, as identified by our representative. The contractor should expect some depth of sub-excavation, and should include an add/deduct line item in their bids to account for variations in depth of sub-excavation.

Site Preparation and Engineered Fill Construction

Areas designated to receive engineered fill, including previously subexcavated areas, and areas left at-grade, or achieved by excavation, should be uniformly scarified to a depth of at least 12 inches, moisture conditioned to at least the optimum moisture content for granular soils, or at least two percent above the optimum moisture content for clay soils, and compacted to not less than 90 percent of the maximum dry density, as determined by ASTM D1557 specifications.

Compaction of the existing grade must be performed in the presence of our representative who will evaluate the performance of the subgrade under compactive loads and identify any loose or unstable soil conditions that could require additional excavation. We consider it essential that our representative be on-site continuously during site preparation operations to observe the materials under compactive loads and to identify unstable soil deposits or areas of loose rocky materials. Loose, soft or saturated soil deposits encountered below the depth of scarification during compaction operations should be removed to expose firm undisturbed soils as identified by our representative and backfilled with engineered fill as recommended in this report.

Difficulty in achieving subgrade compaction or unusual soil instability may be indications of loose fill associated with past subsurface items such as dump pits or utility lines. Should these conditions exist, the materials should be excavated to check for subsurface structures and the excavations backfilled with engineered fill. We recommend construction bid documents contain a unit price (price per cubic yard) for all excess excavation due to unsuitable materials and replacement with engineered fill.

On-site soils are considered suitable for use in engineered fill construction, if free of significant concentrations of organic material, rubble or debris. Clay soils are not allowed in the upper 12 inches of the building pad subgrades, flatwork, and pavements, unless they are lime-treated. Re-use of the existing fill soils may require laborers and hand-picking of debris to properly clean the soils prior to use. Imported fill materials should be granular materials with non-plastic fines (Plasticity Index of 15 or less), be free of particles greater than three inches in largest dimension, have an Expansion Index less than 20 and be free of contamination. Proposed import soils must be approved by our office prior to being transported to the project site.

Engineered fill composed of native or imported soils with particles less than six inches in maximum size should be placed in horizontal lifts not exceeding six inches in compacted thickness. Each layer should be uniformly moisture conditioned to at least the optimum moisture content for granular soils, or at least two percent above the optimum moisture content for clay soils, and compacted to at least 90 percent of the maximum dry density, as defined above. Compactive effort should be applied uniformly across the full width of the fill.

The upper 12 inches of final building pad subgrade for the buildings should consist of imported non-expansive, granular soils, aggregate base, or lime-treated native-clayey soils and should be moisture conditioned to at least the optimum moisture content, and uniformly compacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557, regardless of whether final grade is completed by excavation, filling, or left at existing grade.

The upper six inches of pavement subgrades should be uniformly moisture conditioned to at least the optimum moisture content and uniformly compacted to at least 95 percent of the maximum dry density, regardless of whether final grade is completed by excavation, filling or left at existing grade. Final subgrade preparation and compaction should be performed just prior to placement of aggregate base, after construction of underground utilities is complete.

Permanent excavation and fill slopes should be constructed no steeper than two horizontal to one vertical (2:1). Permanent slopes should either be overbuilt and trimmed, or should be track-walked, to provide a compacted slope face. Slopes should be re-vegetated as soon as possible to minimize erosion.

Site preparation should be accomplished in accordance with the recommendations of this section and the appended *Guide Earthwork Specifications*. It is essential that our representative be present on a regular basis during all grading operations to verify adequate removal of existing fills and also to verify thorough recompaction of disturbed soils and observe and test fill materials, as necessary.

LIME-TREATMENT ALTERNATIVE

It will be important that the subgrade soils be observed and evaluated after site clearing to determine the most appropriate treatment options based on the exposed soil conditions. The following are *preliminary* recommendations for clay soil subgrades.

If lime-treatment is selected for building pads, flatwork subgrades, and pavements, site preparation should be performed in accordance with the following recommendations. Following the site preparation, as recommended above, the upper 12 inches of the building pad grades should be treated with at least four percent high-calcium or dolomitic quicklime, as measured by dry unit weight of the untreated soil.

A large self-propelled rotary mixer should be used for mixing and remixing. Lime should be thoroughly mixed and remixed, as necessary, to a minimum depth of 12 inches at a minimum spread rate of at least 4½ pounds of lime per square foot based on a 12-inch mixing depth. This spread rate is provided for preliminary estimation purposes only as the actual amount of product can only be determined at the time of construction based upon the prevailing site, soil and moisture conditions. The contractor should include an add/deduct unit price for lime to account for variations in the quantities of product used.

It is emphasized that higher spread rates and/or deeper mixing depths with proportionately higher spread rates will be needed for areas exposing the wet and/or unstable soils.

Initial mixing of lime should be followed by remixing the next day. Additional remix passes should be performed to provide a uniform soil-lime mixture. Lime stabilized soils should be compacted to at least 95 percent of the ASTM D1557 maximum dry density at a moisture content of at least two percent above the optimum moisture content. The moisture content of the treated soils should be maintained in the soil until the treated soil is covered by aggregate base or slabs. Compaction operations should be undertaken with a heavy, self-propelled, compactor and should be performed in the presence of our representative who

will evaluate the performance of the subgrade under compactive load. No equipment or vehicle traffic should be allowed on the lime-treated materials during the first three days after treatment is completed.

If the lime-treatment alternate is selected, we recommend that additional laboratory testing be performed to further define the amount of lime required to produce the desired results.

A contractor experienced in such work should perform lime-treatment as specified in Chapter 24 of the Caltrans Standard Specifications.

Utility Trench Backfill

Utility trench backfill within structural areas should be mechanically compacted as engineered fill in accordance with the following recommendations. Bedding of utilities and initial backfill around and over the pipe should be in accordance with the manufacturer's recommendations for the pipe materials selected, and applicable City of Sacramento requirements.

We recommend that native soil be used as trench backfill where trenches cross from landscape areas to structural areas (buildings, areas supporting exterior flatwork, driveways, etc.) to help minimize soil moisture variations beneath the structures. The native soil backfill should extend at least three feet horizontally inside and outside the perimeter foundation lines. Utility trench backfill should be placed in maximum six-inch lifts (compacted thickness), moisture conditioned to at least optimum moisture content and mechanically compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. Within the upper six inches of pavement and sidewalk areas the minimum compaction should be increased to 95 percent of ASTM D1557. The upper 12 inches of backfill material trenches within the lime treated subgrades should be aggregate base compacted to 95 percent above relative compaction.

We recommend that underground utility trenches that are aligned nearly parallel with foundations be at least three feet from the outer edge of foundations, wherever possible. As a general rule, trenches should not encroach into the zone extending outward at a 1:1 inclination below the bottom of the foundations. Additionally, trenches parallel to existing foundations should not remain open longer than 72 hours. The intent of these

recommendations is to prevent loss of both lateral and vertical support of foundations, resulting in possible settlement.

FOUNDATION DESIGN

It is essential that our office review the plans when complete, to verify the applicability of the following recommendations and provide revised recommendations, as needed. We understand that the three buildings are proposed to be supported on reinforced shallow concrete foundations with cast-in-place drilled concrete piers.

We are providing design soil values for the analysis of the foundations, and suggested minimums for dimensions, but only from a Geotechnical Engineering perspective. The project Structural Engineer should determine final foundation width and depth dimensions and reinforcement requirements, based on their specific structural design which should include an appropriate factor of safety applied to the overall design.

Foundation excavations should be observed by a representative of MPE to verify competent and uniform bearing conditions and evaluate the need for any modifications to these recommendations as may be required by specific circumstances. The observations should take place prior to placement of reinforcing steel but following cleaning of the excavations. To account for any re-compaction of foundation bottoms or deepening of foundations that might be required, we suggest bid documents include a unit price for additional compaction or foundation excavation and concrete that may be required.

Areas adjacent to the structures should be landscaped or covered by flatwork to maintain more uniform soil moisture conditions adjacent to and under the structures. We recommend that final landscaping plans not allow fallow ground adjacent to structures. Areas adjacent to structures should not be allowed to remain fallow due to the drying shrinkage effects of clay soils.

Conventional Foundations

The proposed buildings may be supported on reinforced shallow concrete foundations constructed on the building pad subgrades prepared in accordance with the recommendations of this report. The buildings may be supported upon continuous and/or isolated spread foundations extending a minimum of 18 inches into the prepared building

pad or at least 18 inches below lowest adjacent soil grade, whichever is deeper. Continuous foundations should be at least 12 inches wide; isolated foundations should be at least 24 inches wide. Foundations must be continuous around the perimeter of the building to help minimize moisture migration beneath the structures.

Foundations bearing in engineered fill may be sized for maximum allowable soil bearing pressures of 2000 pounds per square foot (psf) for dead plus live loads, with an allowable 1/3 increase for total loads including the short-term effects of seismic or wind forces. The weight of the foundation concrete extending below adjacent soil grade may be disregarded in sizing computations.

We recommend all foundations be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. As a minimum, continuous foundations should contain *at least* two No. 4 steel reinforcing bars placed one each, near the top and bottom of the foundations. The project designer should determine the need for additional reinforcement based on structural requirements.

Resistance to lateral displacement of shallow foundations may be computed using an allowable friction factor of 0.25 multiplied by the effective vertical load on each foundation. Additional lateral resistance may be achieved using an allowable passive earth pressure against the vertical projection of the foundation equal to an equivalent fluid pressure of 250 psf per foot of depth. These two modes of resistance should not be added unless the frictional component is reduced by 50 percent since mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance.

Passive resistance should be computed below a depth at which at least five feet of engineered fill or native soil is present in front of the foundation, as measured horizontally from the exterior edge of the foundation to the face of the slope.

Pier Foundations

Piers for support of the buildings should be at least 18 inches in diameter and extend at least 4 feet below lowest adjacent soil grade. Drilled pier foundations should be structurally isolated from any adjacent concrete flatwork by a felt strip or similar material.

Drilled piers may be sized utilizing a maximum allowable vertical, end bearing capacity of 3,000 psf for dead plus live loads. This value may be increased by one-third to include short-term wind or seismic forces. The weight of foundation concrete below grade may be disregarded in sizing computations.

Uplift resistance of pier foundations may be computed using the following resisting forces, where applicable: 1) weight of the pier concrete (150 pounds per cubic foot) and, 2) the allowable skin friction of 150 psf applied over the shaft area of the pier. Increased uplift resistance can be achieved by increasing the diameter of the pier or increasing the depth. Sizing of piers to resist lateral loads can be evaluated using a lateral resistance value of 300 pounds per square foot per foot of depth (psf/f). The upper 18 inches of lateral resistance should be neglected unless the pier is completely surrounded by aggregate, concrete or pavements for a distance of at least three feet from the edge of the foundation pier.

Concrete and any reinforcement (if required by the Structural Engineer) should be placed in the pier excavations as soon as possible after excavation is completed to minimize the chances of sidewall caving into the excavations. Although we do not anticipate sloughing of the sidewalls during pier construction, we recommend that the pier contractor be prepared to case the pier holes if conditions require.

To minimize the amount of sidewall caving, we recommend that a maximum elapsed time of 48 hours between completion of the pier excavation and the start of concrete placement. The bottom of the pier excavations should be free of loose or disturbed soils prior to placement of the concrete.

To reduce lateral movement of the drilled shafts, it is necessary to place the concrete for the drilled shafts in intimate contact with the surrounding soil. Any voids or enlargements in the shafts due to excavation or temporary casing installation shall be filled with concrete at the time shaft concrete is placed.

We estimate total settlement for drilled pier foundations using the recommended maximum net allowable bearing pressure and skin friction presented above, should be less than one inch. The settlement estimate is based on the available soil information, our experience with similar structures and soil conditions, and field verification of suitable bearing soils during foundation construction.

It is considered essential that our representative be present during pier drilling to verify adequate depth of penetration into competent bearing soils. Concrete reinforcing steel should not be placed in any pier excavation until approved by our representative.

It is emphasized that thicker slabs with greater reinforcing will be needed in areas supporting higher loads or where increased performance is desired, especially within the warehouse areas which may be subjected to heavy concentrated loads from vehicles, fork lifts, and storage of products. *The architect or structural engineer should determine the final thickness, strength, reinforcement, and joint spacing of exterior slab-on-grade concrete based on anticipated slab loadings, uses and desired performance.* Temporary loads exerted during construction from vehicle traffic, carts, forklifts, and storage of palletized materials should be considered in the design of the slab-on-grade floors.

Effects of Existing Structures on New Construction

The mezzanine and other foundation improvements will be constructed adjacent to the existing building foundations. Our office should review the project plans to evaluate potential detrimental conflicts from adjacent foundations, and determine the need for special recommendations for foundations.

The following are preliminary recommendations to be revised, as needed, based on the review of project plans and additional structural information.

Where new foundations are constructed adjacent to existing foundations, the new foundations should extend to at least the same level as the bottom of the existing foundations. An engineer from this firm should observe the foundation excavations, prior to placement of reinforcing steel, to determine that a suitable bearing condition is present. We anticipate that some foundation areas will require recompaction or deepening to provide uniform support. The structural engineer should determine the need for and design of the foundation and slab dowels or ties.

INTERIOR FLOOR SLAB SUPPORT

Interior concrete slab-on-grade floors can be suitably supported upon the on-site soil subgrades prepared in accordance with the recommendations in this report and maintained in that condition (at or near optimum conditions). Interior concrete slab-on-grade floors

should be at least five inches thick and, as a minimum, should be reinforced with chaired No. 3 reinforcing bars on 18-inch center-to-center spacing each way, located at mid-slab depth. This slab thickness and reinforcement is suggested as a guide "minimum" only; final concrete slab thickness, compressive strength, reinforcement and joint spacing should be determined by the architect or structural engineer based on anticipated slab loading. It is emphasized that thicker slabs with greater reinforcing will be needed in areas supporting higher loads or where increased performance is desired. Temporary loads exerted during construction from vehicle traffic, cranes, forklifts, and storage of palletized construction materials should be considered in the design of the slab-on-grade floors. Proper and consistent location of the reinforcement at mid-slab is essential to its performance. The risk of uncontrolled shrinkage cracking is increased if the reinforcement is not properly located within the slab.

Floor slabs may be underlain by a layer of free-draining crushed rock, serving as a deterrent to migration of capillary moisture. The crushed rock layer should be at least four inches thick and graded such that 100 percent passes a one-inch sieve and none passes a No. 4 sieve. Additional moisture protection may be provided by placing a plastic water vapor retarder (at least 10-mils thick) directly over the crushed rock. The plastic water vapor retarder should meet or exceed the minimum specifications as outlined in ASTM E1745. Consideration should be given to using a thicker, higher quality membrane for additional moisture protection, such as a 15-mil thick Stego vapor barrier or other similar product. The membrane should be installed so that there are no holes or uncovered areas. All seams should overlap and be sealed with manufacturer-approved tape, continuous at the laps to create vapor tight conditions. All perimeter edges of the membrane, such as pipe penetrations, interior and exterior footings, joints, etc., should be sealed or caulked per manufacturer's recommendations. An optional, thin layer of clean sand above the membrane is acceptable, as an aid to curing of the slab concrete.

Floor slab construction over the past 25 years or more has included placement of a thin layer of sand over the vapor retarder membrane. The intent of the sand is to aid in the proper curing of the slab concrete. However, recent debate over excessive moisture vapor emissions from floor slabs includes concern for water trapped within the sand. As a consequence, we consider the use of the sand layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above are intended to mitigate any significant soils-related cracking of the slab-on-grade floors. More important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized and the spacing of control joints.

Floor Slab Moisture Penetration Resistance

It is considered likely that floor slab subgrade soils will become wet to near-saturated at some time during the life of the structures. This is a certainty when slabs are constructed during the wet seasons or when constantly wet ground or poor drainage conditions exist adjacent to structures. For this reason, it should be assumed that all slabs in occupied areas, as well as those intended for moisture-sensitive floor coverings or materials, require protection against moisture or moisture vapor penetration. Standard practice includes the gravel and water vapor retarder as suggested above. However, the gravel and plastic membrane offer only a limited, first-line of defense against soil-related moisture. Recommendations contained in this report concerning foundation and floor slab design are presented as *minimum* requirements, only from the geotechnical engineering standpoint.

It is emphasized that the use of sub-slab crushed rock and water vapor retarder will not "moisture proof" the slab, nor does it assure that slab moisture transmission levels will be low enough to prevent damage to floor coverings or other building components. If increased protection against moisture vapor penetration of slabs is desired, a concrete moisture protection specialist should be consulted. The architect and design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is an effective way to help reduce future moisture vapor penetration of the completed slabs.

Exterior Flatwork (Non-Pavement Areas)

The most effective way to eliminate cracking of exterior flatwork (e.g., sidewalks) due to expansive soil conditions is to remove and replace the upper 12 inches of soils within the flatwork areas with at least 12 inches of granular (non-expansive) soils or 12 inches of lime-treated on-site soils. If the clays are not removed and replaced, we offer the following alternate recommendations to help reduce the impact of the clays on the performance of the slabs. The subgrade soils should be uniformly compacted at a moisture content above the optimum and maintained in an over optimum moisture condition prior to concrete

placement. Consideration also should be given to reinforcing the slabs with rebar or welded wire fabric for crack control and to thickening the edges to double the slab thickness, especially within driveways.

Our recommendations are intended to reduce the effects of expansive soil subgrade conditions in exterior concrete flatwork areas. However, some seasonal movement of exterior flatwork should be anticipated due to the inability to completely eliminate soil movement in expansive soil areas. Uniform moisture conditioning of subgrade soils is important to reduce the risk of non-uniform moisture withdrawal from the concrete and the possibility of plastic shrinkage cracks.

Areas adjacent to new foundations and slabs-on-grade should be landscaped to maintain more uniform soil moisture conditions adjacent to and under the foundations and slabs. Alternatively, the adjacent areas can be covered with impervious materials, such as concrete, to help maintain uniform soil moisture. We recommend that final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Practices recommended by the Portland Cement Association for proper placement, curing, joint spacing, construction and placement of concrete should be followed during exterior concrete flatwork construction. Flatwork should be independent of the building foundations and felt strips should be used to separate concrete slabs from adjacent existing concrete structures.

PAVEMENT DESIGN

Based upon laboratory test results on the near-surface soils, our experience in the area, and using the City of Sacramento Design and Procedures Manual (Table 15-6.1D Traffic Index Guide by Street Class), we have calculated the following alternate pavement sections. The procedures used for design are in general conformance with Chapters 600 to 670 of the California Highway Design Manual, dated July 1, 2008, and the City of Sacramento, July 2009 Design and Procedures Manual, Section 15 – Street Design Standards. An R-value of ten was used for untreated native clay subgrades, and an R-value of 30 was assumed for preliminary design of clay subgrades amended with at least four percent high calcium or dolomitic quicklime. (Although our experience with amended clayey soils typically results in R-values greater than 50, the City of Sacramento only allows a maximum R-value of 30 for design on amended soils.). It is the responsibility of the project civil engineer to determine the

appropriate traffic index based on anticipated traffic conditions and as required by the City of Sacramento Street Design Standards. Additional pavement sections can be provided upon request.

TABLE 3A –Pavement Design Alternatives

Traffic Index (TI)	City of Sacramento Street Classification	Pavement Subgrade R-value = 10		Lime-treated Pavement Subgrade R-value = 50 (a)	
		Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
4.5	Automobile Parking Only	2 1/2[A]	8 1/2	4[A]	6
6.0	Driveways/ Fire Lanes	3 1/2[A]	13	4[A]	7

[A] = Asphalt thickness contains Caltrans Factor of Safety.
(a) = Lime-treated subgrade should possess a minimum unconfined compressive strength of 300 pounds per square inch (psi) when tested in accordance with California Test 373, and a minimum R-value of 50, when tested in accordance with CTM 301.

Table 3B – Pavement Design Alternatives within City Right-Of-Way

Traffic Index (TI)	City of Sacramento Street Classification	Lime-treated Pavement Subgrade R-value = 30 (a)	
		Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
7.0	Local Commercial	4[A,B]	10

[A] = Asphalt thickness contains Caltrans Factor of Safety.
[B] = Minimum thickness per City of Sacramento Standards.
(a) = Lime-treated subgrade should possess a minimum unconfined compressive strength of 300 pounds per square inch (psi) when tested in accordance with California Test 373, and a minimum R-value of 30, when tested in accordance with CTM 301.

We emphasize that the performance of a pavement is critically dependent upon uniform and adequate compaction of the soil subgrade, as well as all engineered fill and utility trench backfill within the limits of the pavement. The upper six inches of pavement subgrades should be compacted to at least 95 percent relative compaction at a moisture content of at least the optimum moisture content and be stable under the construction equipment. We recommend that the final subgrade compaction be achieved following completion of underground utility line trench backfill, including electrical and irrigation systems, and within 48 hours prior to the placement of the aggregate base layer. Aggregate base utilized within the pavement section should be compacted to at least 95 percent relative compaction.

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, we recommend that consideration be given to using a Portland cement concrete (PCC) section in areas subjected to concentrated heavy wheel loading, such as entry driveways, bus/truck maneuvering areas, and in front of trash enclosures. As a minimum, the concrete section subgrades should consist of at least six inches of PCC underlain by at least six inches of Class 2 aggregate base compacted to not less than 95 percent relative compaction. Construction of Portland cement concrete pavements should be performed in accordance with applicable American Concrete Institute (ACI) or PCA standards. Portland cement concrete utilized in pavements should attain a compressive strength of at least 3500 psi at 28 days.

Lime Treatment of Pavement Subgrade Soils

The native clay soils are anticipated to react well with the addition of quicklime (high-calcium or dolomitic) and could enhance the support characteristics of the subgrade and allow for a reduction in the aggregate base section. Chemical treatment of subgrade soils as part of the pavement section would be subject to approval by the City of Sacramento and should be performed in accordance with Section 24 of the *Caltrans Standard Specifications*.

<u>For estimating purposes only</u>, we recommend a minimum spread rate of at least 4½ pounds of quicklime per square foot of mixing depth (at least 12 inches). Lime-treated subgrades should be compacted to not less than 95 percent of the ASTM D1557 maximum dry density, at a moisture content of at least two percent above the optimum moisture content.

If chemical treatment alternates are selected for use at this site, additional testing should be performed as part of the final design level report and also during construction to verify that

the design parameters are achieved in the field. Samples of the laboratory and field-mixed soil and lime should be collected and tested for minimum unconfined compressive strength of 300 pounds per square inch (psi) when tested in accordance with California Test 373 and a minimum Resistance value of 30 when tested in accordance with California Test 301. This additional testing will either verify the design parameters or provide the opportunity to modify the pavement sections or spread rate based upon the test results.

Earthwork construction within the limits of the pavements should be performed in accordance with the recommendation contained within this report and the applicable City of Sacramento Standards, latest editions. Materials used for pavement construction should conform to the appropriate sections of the *Caltrans Standard Specifications* and the City of Sacramento Standards, latest editions.

Pavement Drainage

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. Consideration should be given to using full-depth curbs between landscaped areas and pavements to serve as a cut off for water that could migrate into the pavement base materials or subgrade soils. Geotextile water barriers also could be used to prevent migration of water into pavement base materials, if extruded curbs are used. Proprietary geotextile moisture barriers and curb details should be reviewed and approved by our office prior to construction. Weep holes are recommended in parking lot drop inlets to allow accumulating water moving through the aggregate base to drain from beneath the pavements.

Earthwork construction within the limits of the pavements should be performed in accordance with the recommendation contained within this report and the applicable City of Sacramento Standards, latest editions. Materials used for pavement construction should conform to the appropriate sections of the *Caltrans Standard Specifications* and the County of Sacramento Standards, latest editions.

SITE DRAINAGE

Final site grading should be accomplished to provide positive drainage of surface water away from the structure and prevent ponding of water adjacent to foundations. The grade adjacent to the structure should be sloped away from foundations at a minimum two

percent. Proper control of surface water drainage is essential to the performance of foundations, slabs-on-grade, and pavements. We recommend using full-roof gutters, with downspouts from roof drains connected to rigid non-perforated piping directed to an appropriate drainage point away from the structure, or discharging onto paved surfaces leading away from the house and foundations. Concentrated storm water discharge collected from roof downspouts or surface drains should not be allowed to drain on unprotected slopes adjacent to structures. The ground should be graded to drain positively away from all flatwork and building structures. Ponding of surface water should be avoided near foundations and flatwork. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward buildings.

All excavations and fill slopes should be protected from concentrated storm water run-off to minimize potential erosion. Control of water over the slopes may be accomplished by constructing V-ditches near the top of slopes, or by grading the area behind the top of slope to drain away from the slope. Ponding of surface water at the top of slope or allowing sheet flow of water over the top of a slope should be avoided.

Construction Testing and Observation

Site preparation should be accomplished in accordance with the recommendations of this report and the appended *Guide Earthwork Specifications*. Representatives of Mid Pacific Engineering, Inc. must be present during site preparation and all grading operations to observe and test the fills to verify compliance with our recommendations and the job specifications. In the event that MPE is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide this service should indicate in writing that they agree with the recommendations of this report, and prepare supplemental recommendations as necessary.

A final report by the "Geotechnical Engineer" should be prepared upon completion of the project indicating compliance with or deviations from this report and the project plans and specifications. Please be aware that the title Geotechnical Engineer is restricted in the State of California to a Civil Engineer authorized by the State of California to use the title "Geotechnical Engineer."

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed construction, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our best engineering judgment based upon the information provided and the data generated from our investigation. This report has been prepared in accordance with generally accepted standards of practice existing in northern California at the time of the report. No warranty, either expressed or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the locations of our subsurface exploration, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified. Mid Pacific Engineering, Inc., should be retained to review the final plans and specifications to verify that the intent of our recommendations has been implemented in those documents.

We emphasize that this report is applicable only to the proposed construction and the investigated site and should not be utilized for construction on any other site. The conclusions and recommendations of this report are considered valid for a period of two years. If design is not completed and construction has not started within two years of the date of this report, the report must be reviewed and updated, as necessary.

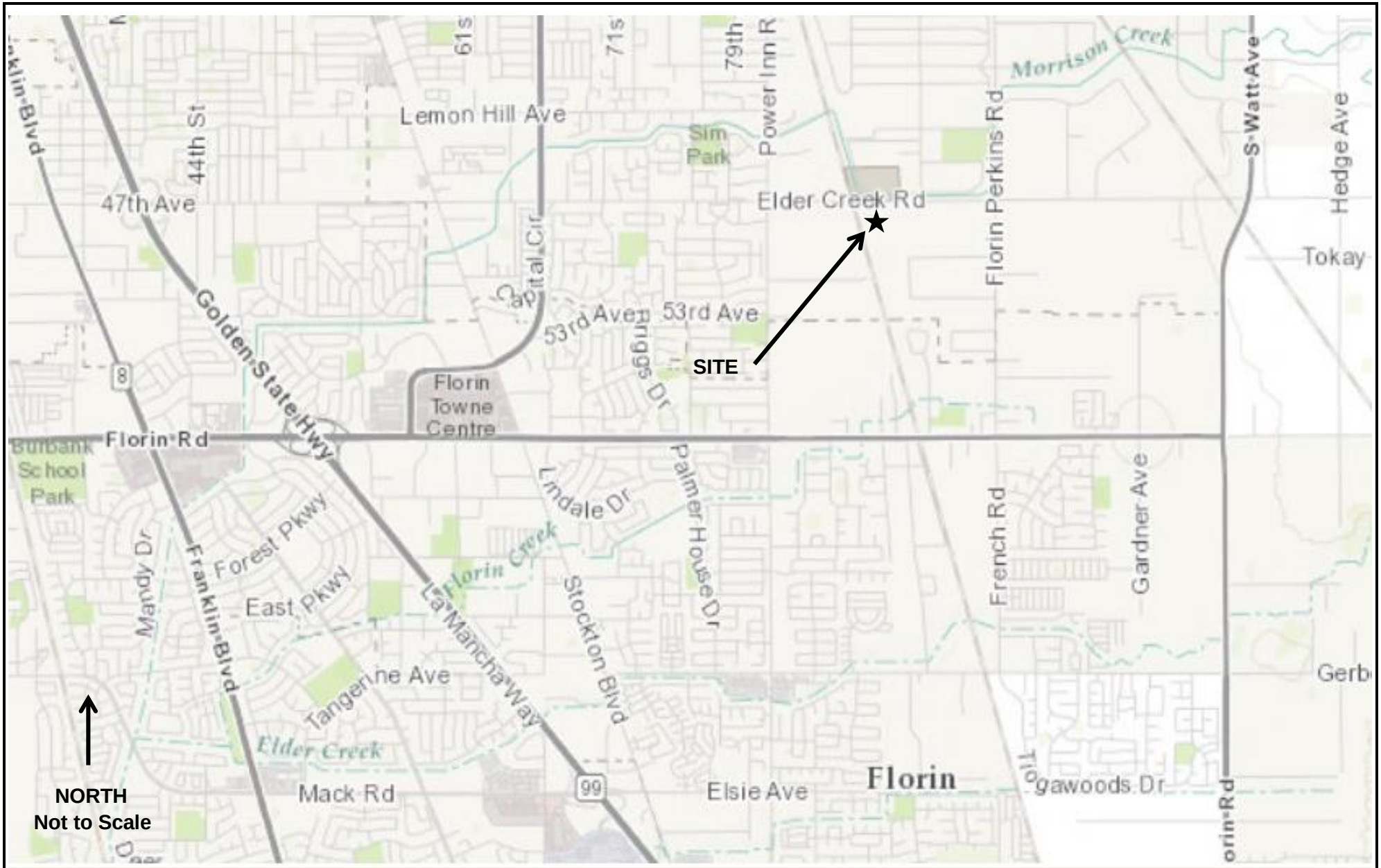
Mid Pacific Engineering, Inc.

Santiago Carrillo, EIT
Staff Engineer

Todd G. Kamisky
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
TODD G. KAMISKY
No. 2567
Exp. 12/31/17
GEOTECHNICAL
STATE OF CALIFORNIA

FIGURES



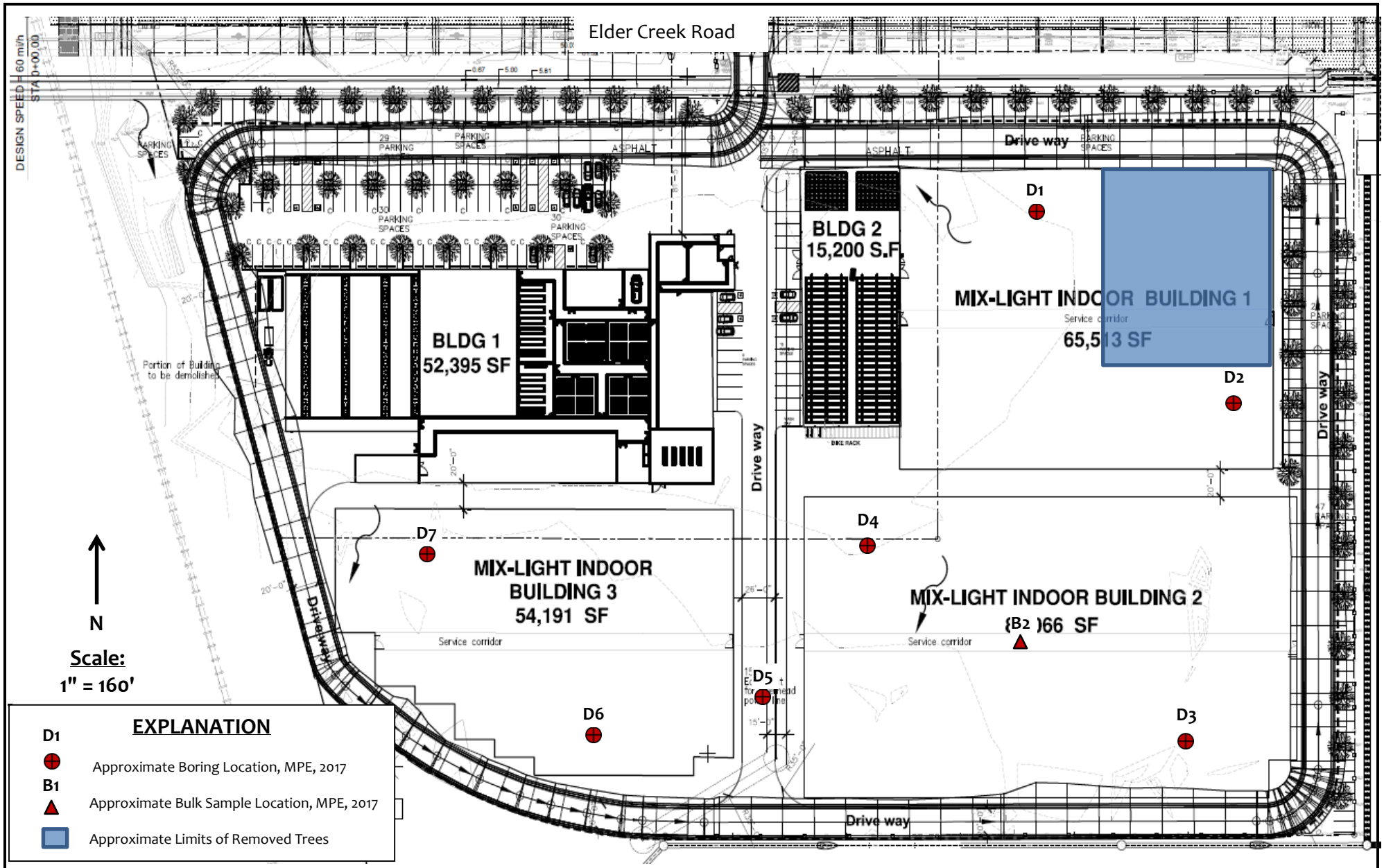
NOTES: *Adapted from the ESRI World Topographic Viewer.*

MPE
MID PACIFIC ENGINEERING, INC.

VICINITY MAP

WE GROW CA MEDICAL CANNABIS CAMPUS
8280 Elder Creek Road
Sacramento, California

FIGURE 1
Date: 10/17
MPE No. 03550-01



NOTES: Adapted from the September 18, 2017, Sundance, *Grading & Erosion Plans, Sheet C4,* prepared by Realm Engineering.

MPE
MID PACIFIC ENGINEERING, INC.

SITE PLAN

WE GROW CA MEDICAL CANNABIS CAMPUS

8280 Elder Creek Road
Sacramento, California

FIGURE 2

Date: 10/17

MPE No. 03550-01

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D1 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	16½ Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings

Remarks

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light browm, slightly moist, silty gravels with asphalt rubbles (GM-FILL)						
			Dark reddish brown, moist, silty clay (CL)						
			Brown/Light brown, moist, well cemented, fine sandy silt (ML)		D1-1	50/4"			
	5		Brown/Reddish brown, moist, medium dense, silty fine to medium sand with clay (SM) black spotting		D1-2	27			
			Brown, moist, soft, silty clay (CL)						
	10		Light brown, moist, very stiff, slightly clayey, silt (ML)		D1-3	25			
	15		hard		D1-4	54			
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D2 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	10 Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings

Remarks

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, loose, sandy, silty gravels with rubble (GM-FILL)						
			clayey		D2-1	9			
			Brown, moist, medium stiff, clayey silt (ML)						
			yellowish brown, well cemented, fine sandy		D2-2	42	13.9	109	UCC 1.6 tsf
	5								
			Reddish brown, moist, medium dense, silty fine to medium sand (SM)						
					D2-3	19			
	10								
	15								
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D3 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	14½ Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings
Remarks					

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, slightly moist, silty gravels with rubbles (GM-FILL)						
			Brown, moist, stiff, slightly clayey silt (ML)		D3-1	12			
			vary hard		D3-2	50/3"			
	5								
			Light brown, moist, medium stiff, sandy, silty clay (CL)						
			Light brown/Tan, moist, well cemented, slightly fine sandy, silt (ML)		D3-3	50/6"	16.3	105	
	10								
			tan, less sandy		D3-4	50/6"			
	15								
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D4 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	11½ Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings
Remarks					

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			4" Asphalt Concrete						
			Brown, moist, silty clay (CL)						
			Light reddish brown, moist, well cemented, fine sandy silt (ML)						
					D4-1	50/4"			
	5								
					D4-2	44			<#200 20.6%
			Orangish brown, moist, medium dense, silty fine sand (SM)						
			Tan, moist, medium dense, slightly fine sandy, silt (ML)						
	10								
					D4-3	18			
	15								
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D5 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	10 Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings
Remarks					

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, slightly moist, silty gravels (GM-FILL)						
			Brown/Dark brown, moist, silty clay with organics (CL-FILL)						
			Brown, moist, stiff, silty clay (CL)		D5-1	14			
			very silty						
			Light brown, moist, medium dense, silty fine sand (SM)		D5-2	34	13.3	110	
	5								
			Light brown/Tan, moist, silt (ML)						
			well cemented		D5-3	50/3"			
	10								
	15								
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D6 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	11½ Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings
Remarks					

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, slightly moist, loose, silty gravels with asphalt rubbles (GM-FILL)						
			Light brown, moist , well cemented, fine sandy, silt (ML)		D6-1	50/3"			
	5		Orangish brown, moist, silty, clayey fine to medium sand (SC)		D6-2	22	11.6	106	UCC 1.7 tsf
	10		Tan moist, hard, silt (ML) sandy		D6-3	47			
	15								
	20								
	25								

Project: We Grow Ca Medical Cannabis Campus Project Location: 8280 Elder Creek Road, Sacramento, California MPE Number: 03550-01	LOG OF SOIL BORING D7 Sheet 1 of 1

Date(s) Drilled	10/11/2017	Logged By	SC	Checked By	DJP
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling	Total Depth of Drill Hole, feet	14 Feet
Drill Rig Type	CME- 75	Diameter(s) of Hole, inches	6 Inches	Approx. Surface Elevation, ft MSL	+35 Feet
Groundwater Depth [Elevation], feet	Not Encountered	Sampling Method(s)	140 Lb Hammer/30" Drop	Drill Hole Backfill	Soil Cuttings
Remarks					

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	BLOWS PER FOOT	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, slightly moist, silty gravels with asphalt concrete rubble (GM-FILL)						
			Brown, moist, stiff, clayey silt (ML)						
					D7-1	17	12.3	113	EI
			Orangish brown, well cemented, fine sandy		D7-2	50/4"			
	5								
			Reddish brown, moist, moderately cemented, silty, clayey sand (SC)						
			well cemented		D7-3	50/6"			
	10								
			Tan, moist, well cemented, silt (ML)		D7-4	50/6"			
	15								
	20								
	25								

MPE *Mid Pacific Engineering, Inc .*

FIGURE 9

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - silt mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand clay mixtures
FINE GRAINED SOILS (More than 50% of soil < no. 200 sieve size)	SILTS & CLAYS LL< 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Hand Driven Sample

=SPT Sampler

= Initial Water Level

= Final Water Level

= Estimated or gradational material change line

= Observed material change line

Laboratory Tests

PI = Plasticity Index
EI =Expansive Index
UCC = Unconfined Compression Test
TR = Triaxial Compression Test
GR = Gradation Analysis (Sieve)
K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) Medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

MPE
Mid Pacific Engineering, Inc.

UNIFIED SOIL CLASSIFICATION SYSTEM
WE GROW CA MEDICAL CANNABIS CAMPUS
8280 Elder Creek Road
Sacramento, California

FIGURE 10
Date: 10/17
MPE No. 03550-01

APPENDICES

APPENDIX A

APPENDIX A

A. GENERAL INFORMATION

The performance of a Geotechnical Engineering investigation for the proposed We Grow Ca Medical Cannabis Campus to be constructed in Sacramento, California, was authorized by Guy Matalon on October 4, 2017. Authorization was for an investigation as described in our proposal letter dated October 2, 2017, sent to our client, We Grow Ca, whose mailing address is from 1900 O Street, Suite#1, in Sacramento, California 95811; telephone (323) 578-3136; email guy@wegrowca.com

In performing this investigation we made reference to electronic copies of the September 18, 2017, *Grading & Erosion Control Plans*, prepared by Realm Engineering.

B. FIELD EXPLORATION

On October 11, 2017, seven exploratory borings were performed using a CME-75 truck-mounted drill rig equipped with six-inch diameter, solid-stem flight augers, to maximum depths of approximately 10 to 16½ feet below existing site grades at the approximate locations indicated on Figure 2.

At various intervals, relatively undisturbed soil samples were recovered from the soil borings with a 2½-inch O.D., 2-inch I.D. Modified California sampler (ASTM D3550) driven by a cathead 140-pound hammer freely falling approximately 30 inches. The number of blows of the hammer required to drive the 18-inch long sampler each 6-inch interval was recorded with the sum of the blows required to drive the sampler the lower 12-inch interval being designated the penetration resistance or "blow count" for that particular drive.

The samples obtained with the hand auger equipment were retained in 2-inch diameter by 6-inch long, thin-walled tubes contained within the sampler. Immediately after recovery, the field engineer visually classified the soil in the tubes and the ends of the tubes were sealed to preserve the natural moisture contents. Disturbed bulk samples of the surface materials also were obtained at various locations and depths. Soil samples were taken to our laboratory for additional classification (ASTM D2488) and selection of samples for testing.

The Logs of Soil Borings presented on Figures 3 through 9, contain descriptions of the soils encountered in each boring. A legend explaining the Unified Soil Classification System and the symbols used on the logs is contained on Figure 10.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D2937), natural moisture content (ASTM D2216), and unconfined compressive strength (ASTM D2266). The results of these tests are included on the boring logs at the depth each sample was obtained.

Three bulk samples of the near-surface soils were subjected to Expansion Index testing (ASTM D4829). The results of this test are presented on Figures A1 and A2.

One representative bulk sample of the anticipated pavement subgrade soils was subjected to Resistance-value ("R") testing in accordance with California Test (CT) 301. Results of the R-value testing, which were used in the pavement design, are contained on Figure A3.

Two bulk samples of the near-surface soils were submitted to Sunland Analytical in Rancho Cordova, California, for corrosivity testing in accordance with No. 643 (Modified Small Cell), CT 532, CT 422, and CT 417. The analytical results are presented in the text of the report.

/

EXPANSION INDEX TEST RESULTS
(ASTM D4829-03)
(UBC 18-2)

Material Description: Brown, sandy, silty clay (CL)
Location: B2 (1 to 3 feet)

Sample Number	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
B2	8.9	17.7	113	23

CLASSIFICATION OF EXPANSIVE SOIL

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

MPE	**EXPANSION INDEX TEST RESULTS** **WE GROW CA MEDICAL CANNABIS CAMPUS** 8280 Elder Creek Road Sacramento, California	**FIGURE A1** Date: 10/17 MPE No. 03550-01

EXPANSION INDEX TEST RESULTS
(ASTM D4829-03)
(UBC 18-2)

Material Description: Brown, clayey silt (ML)
Location: D7 (1 to 3 feet)

Sample Number	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
B4	8.4	15.1	116	15

CLASSIFICATION OF EXPANSIVE SOIL

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

MPE	**EXPANSION INDEX TEST RESULTS** **WE GROW CA MEDICAL CANNABIS CAMPUS** 8280 Elder Creek Road Sacramento, California	**FIGURE A2** Date: 10/17 MPE No. 03550-01

EXPANSION INDEX TEST RESULTS
(ASTM D4829-03)
(UBC 18-2)

Material Description: Brown, silty clay (CL)
Location: Composite (1 to 3 feet)

Sample Number	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
Composite	8.8	17.6	113	42

CLASSIFICATION OF EXPANSIVE SOIL

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

MPE	**EXPANSION INDEX TEST RESULTS** **WE GROW CA MEDICAL CANNABIS CAMPUS** 8280 Elder Creek Road Sacramento, California	**FIGURE A3** Date: 10/17 MPE No. 03550-01

RESISTANCE VALUE TEST RESULTS
(California Test 301)

Material Description: Brown, silty clay (CL)

Location: B3 (1'– 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture at Compaction (%)	Exudation Pressure (psi)	Expansion Pressure (psi)	R-Value
1	113.2	16.0	220	0.00	8
2	115.2	15.1	262	0.09	9
3	117.1	14.2	330	0.24	13

R-value at 300 psi exudation pressure = 11

MPE MID PACIFIC ENGINEERING, INC.	**RESISTANCE VALUE TEST RESULTS** **WE GROW CA MEDICAL CANNABIS CAMPUS** 8280 Elder Creek Road Sacramento, California	**FIGURE A4** Date: 10/17 MPE No. 03550-01

APPENDIX B

APPENDIX B

GUIDE EARTHWORK SPECIFICATIONS

WE GROW CA MEDICAL CANNABIS CAMPUS

Sacramento, California

MPE No. 03550-01

PART 1: GENERAL

1.1 SCOPE

A. General Description

This item shall include clearing of all surface and subsurface structures including but not limited to; concrete slabs, foundations, undocumented fills, existing asphalt concrete and concrete pavements, stockpiles, fences, posts, deleterious materials, vegetation, organic-laden soils, irrigation piping, underground utilities to be relocated or abandoned including trench backfill, demolition debris, rubble, refuse, and any other items designated for removal; preparation of surfaces to be filled, filling, spreading, compaction, observation and testing of the fill; and all subsidiary work necessary to complete the grading of the building area to conform with the lines, grades and slopes as shown on the accepted Drawings.

B. Related Work Specified Elsewhere

1. Trenching and backfilling for sanitary sewer system: Section _____.
2. Trenching and backfilling for storm drain system: Section _____.
3. Trenching and backfilling for underground water, natural gas, and electric supplies: Section _____.

C. Geotechnical Engineer

Where specific reference is made to "Geotechnical Engineer" this designation shall be understood to include either him or his representative.

1.2 PROTECTION

A. Adequate protection measures shall be provided to protect workers and passers-by at the site. Streets and adjacent property shall be fully protected throughout the operations.

B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.

C. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site.

D. Adjacent streets and sidewalks shall be kept free of mud, dirt or similar nuisances resulting from earthwork operations.

E. Surface drainage provisions shall be made during the period of construction in a manner to avoid creating a nuisance to adjacent areas.

F. The site and adjacent influenced areas shall be watered as required to suppress dust nuisance.

1.3 GEOTECHNICAL REPORT

A. A Geotechnical Engineering Report (MPE No. 03550-01; dated October 30, 2017) has been prepared for this site by Mid Pacific Engineering, Inc., Geotechnical Engineers. A copy is available for review at the office of Mid Pacific Engineering, Inc., located at 840 Embarcadero Drive, Suite 20, West Sacramento, California 95605.

B. The information contained in this report was obtained for design purposes only. The Contractor is responsible for any conclusions he/she may draw from this report; should the Contractor prefer not to assume such risk, he/she

should employ their own experts to analyze available information and/or to make additional test pits or borings upon which to base their conclusions, all at no cost to the Owner.

1.4 EXISTING SITE CONDITIONS

The Contractor shall be acquainted with all site conditions. If unshown active utilities are encountered during the work, the Architect shall be promptly notified for instructions. Failure to notify will make the Contractor liable for damage to these utilities arising from Contractor's operations subsequent to the discovery of such unshown utilities.

1.5 SEASONAL LIMITS

Fill material shall not be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until field tests indicate that the moisture contents of the subgrade and fill materials are satisfactory.

PART 2: PRODUCTS

2.1 MATERIALS

A. All fill shall be of approved local materials from required excavations, supplemented by imported fill, if necessary. Approved local materials are defined as local soils free from clods, rocks or hard lumps exceeding six inches (6") in final size, significant quantities of rubble, rubbish, and organics, and having been tested and approved by the Geotechnical Engineer prior to use. Imported fill materials shall be approved by the Geotechnical Engineer; they shall be granular soils with a Plasticity Index of 15 or less; an Expansion Index of 20 or less; and, be free of particles greater than three inches (3") in maximum dimension. Import fill shall be clean of known contamination with

appropriate documentation. All imported materials shall be approved by the Geotechnical Engineer prior to being transported to the site. Clay soils encountered, shall not be used within the upper twelve inches (12") of final building pad subgrades, unless lime-treated as recommended in the Geotechnical Engineering Report.

B. Asphalt concrete, aggregate base, aggregate subbase, and other paving products shall comply with the appropriate provisions of the *State of California (Caltrans) Standard Specifications*, latest editions.

PART 3: EXECUTION

3.1 LAYOUT AND PREPARATION

Lay out all work, establish grades, locate existing underground utilities, set markers and stakes, set up and maintain barricades and protection of utilities--all prior to beginning actual earthwork operations.

3.2 CLEARING, GRUBBING AND PREPARING BUILDING PADS AND PAVEMENT AREAS

A. The site shall be cleared of existing structures designated for removal including but not limited to concrete slabs, foundations, undocumented fills, existing asphalt concrete and concrete pavements, stockpiles, fences, posts, deleterious materials, vegetation, organic-laden soils, irrigation piping, underground utilities to be relocated or abandoned including trench backfill, demolition debris, rubble, refuse, and any other items designated for removal. Exposed remnants, rubble and debris shall be removed from the subgrades. Hand picking of exposed rubble and debris shall be performed by the Contractor to adequately clear the grades. Subsurface utilities to be relocated or abandoned shall be removed from within and to at least five feet beyond the perimeter of the proposed structural areas; remaining piping beyond the

structure that is not removed shall be plugged. Trees and shrubs designated to be removed shall include the entire rootball and all roots larger than one-half inch (½") in diameter. Excavations and depressions resulting from the removal of such items, as well as any existing excavations or loose soil deposits, as determined by the Geotechnical Engineer, shall be cleaned out to firm, undisturbed soil and backfilled with suitable materials placed and compacted as engineered fills in accordance with these specifications. *It is essential that the Geotechnical Engineer be present during clearing operations to verify adequate removal of existing structures and determine the need for additional over-excavation of areas. Excavations resulting from clearing operations shall be left as shallow dish-shaped depressions for proper location and to allow proper access with compaction equipment during grading operations. If clearing and removal of structures takes place without direct observation by the Geotechnical Engineer, the Geotechnical Engineer shall determine the need for deep cross-ripping and/or over-excavation of the disturbed areas and the building pad or structural area affected.*

B. Following site clearing operations, all existing fill soils shall be sub-excavated to completely remove the fills and expose firm, undisturbed native materials, as identified by our representative.

C. The upper twelve inches (12") of soil subgrades within areas of removed rubble and debris shall be ripped and cross-ripped to expose any remaining remnants. All exposed rubble and debris shall be cleared from the site.

D. Areas designated to receive fill, remain at-grade or achieved by excavation, shall be scarified to a depth of twelve inches (12"), uniformly moisture conditioned to achieve at least the optimum moisture content for granular soils, or at least two percent above moisture content for clay soils, and compacted to at least 90 percent (90%) of the ASTM D1557 maximum dry

density. Compaction shall be performed using a heavy, self-propelled sheepsfoot compactor.

E. When the moisture content of the subgrade is below that required to achieve the specified density, and that minimum content recommended in the geotechnical report, water shall be added until the proper moisture content is achieved.

F. When the moisture content of the subgrade is too high to permit the specified compaction to be achieved, the subgrade shall be aerated by blading or other methods until the moisture content is satisfactory for compaction.

G. After the foundations for fill have been cleared, plowed or scarified, they shall be disced or bladed until uniform and free from large clods, brought to the proper moisture content and compacted to not less than ninety percent (90%) of the maximum dry density as determined by the ASTM D1557-91 Compaction Test. Soil compaction shall be performed using a heavy, self-propelled sheepsfoot compactor. Compaction operations shall be performed in the presence of the Geotechnical Engineer who will evaluate the performance of the materials under compactive load. Unstable soil deposits, as determined by the Geotechnical Engineer, shall be excavated to expose a firm base and grades restored with engineered fill in accordance with these specifications.

3.3 PLACING, SPREADING AND COMPACTING FILL MATERIAL

A. Engineered fills shall be placed in layers which when compacted shall not exceed six inches (6") in thickness. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to promote uniformity of material in each layer. Care shall be taken when compacting at the edges of the subexcavations to ensure that the fills are uniformly tied into the adjacent sloping ground by proper benching. Each lift of fill shall be benched slightly

into the side slope to remove loose or disturbed soils, as determined by the Geotechnical Engineer, and promote uniformity of the fill construction.

B. When the moisture content of the fill material is below that required to achieve the specified density, and the minimum content recommended in the geotechnical report, water shall be added until the proper moisture content is achieved.

C. When the moisture content of the fill material is too high to permit the specified degree of compaction to be achieved, the fill material shall be aerated by blading or other methods until the moisture content is satisfactory.

D. After each layer has been placed, mixed and spread evenly, soils shall be thoroughly compacted to at least ninety percent (90%) of the ASTM D1557 maximum dry density. Soils compaction shall be performed using a heavy, self-propelled sheepsfoot compactor, to the satisfaction of our on-site representative. Each layer shall be compacted over its entire area until the desired density has been obtained.

E. The filling operations shall be continued until the fills have been brought to the finished slopes and grades as shown on the accepted Drawings.

3.4 FINAL SUBGRADE PREPARATION

A. The upper twelve inches (12") of building pad subgrades shall consist of imported non-expansive, granular soils, aggregate base, or lime-treated native-clayey soils brought to a uniform moisture content of at least the optimum moisture content, and shall be uniformly compacted to not less than ninety percent (90%) of the ASTM D1557 maximum dry density, regardless of whether final subgrade elevations are attained by filling, excavation or are left at existing grades.

B. The upper six inches (6") of all subgrades supporting concrete flatwork shall be brought to a uniform moisture content of at least the optimum moisture

content for granular soils, or to at least two percent (2%) over the optimum moisture content for clay soils, and shall be uniformly compacted to not less than ninety percent (90%) of the ASTM D1557 maximum dry density, regardless of whether final subgrade elevations are attained by filling, excavation or are left at existing grades.

C. The upper six inches (6") of final subgrades supporting pavement sections shall be brought to a uniform moisture content of at least two percent above the optimum moisture content and shall be uniformly compacted to at least ninety-five percent (95%) relative compaction, regardless of whether final subgrade elevations are attained by filling, excavation, or are left at existing grades. Pavement subgrades shall be proof-rolled in the presence of the Geotechnical Engineer prior to placement of aggregate base and shall be stable under construction equipment traffic.

3.5 TRENCH BACKFILL

Utility trench backfill shall be placed in lifts of no more than six inches (6") in compacted thickness. Each lift shall be compacted to at least ninety percent (90%) compaction, as defined by ASTM D1557, except that the upper six inches (6”) of backfill within pavement areas shall be compacted in accordance with Section 3.4.C. The upper 12 inches of backfill material trenches within the lime treated subgrades should be aggregate base compacted to 95 percent above relative compaction.

3.6 TESTING AND OBSERVATION

A. Grading operations shall be observed by the Geotechnical Engineer, serving as the representative of the Owner.

B. Field density tests shall be made by the Geotechnical Engineer after compaction of each layer of fill. Additional layers of fill shall not be spread

until the field density tests indicate that the minimum specified density has been obtained.

C. Earthwork shall not be performed without the notification or approval of the Geotechnical Engineer. The Contractor shall notify the Geotechnical Engineer at least two (2) working days prior to commencement of any aspect of the site earthwork.

D. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, the Contractor shall make the necessary readjustments until all work is deemed satisfactory, as determined by the Geotechnical Engineer and the Project Design Engineer. No deviation from the specifications shall be made except upon written approval of the Geotechnical Engineer or Project Design Engineer.

//

APPENDIX K

Phase I ESA

PHASE1ASSESSMENTS.COM

PROVIDING ENVIRONMENTAL CONSULTING FOR YOUR BUSINESS

EXECUTIVE SUMMARY

September 3, 2016

Mr. Vakili was retained by Mr. Patrick M. Gardner of Sierra Holding Two, LLC to prepare a Phase I Environmental Site Assessment Report for the property located 8280 Elder Creek Road in Sacramento, Sacramento County, California (Subject Property). Any exceptions to, or deletion from this practice is described in Section 1.3 of Phase I Environmental Site Assessment Report of September 3, 2016 (Report).

Property Description

The Subject Property consists of two industrial buildings including Building 1 of approximately 42,000 square feet of metal building, and Building 2 of approximately 15,200 square feet of half open metal building with large truck parking areas in 11.5 acres of land in two parcels of land.

Findings

Recognized Environmental Conditions are defined by the ASTM Standard Practice 2247-08 s the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment, 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions. A release of any hazardous substance or petroleum product shall have the same meaning as the definition of "release" in CERCLA 42 U.S.C. § 9601(22). This assessment revealed no Existing Recognized Environmental Conditions in connection with the Subject Property.

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Historical Recognized Environmental Conditions

ASTM 1527-13 and ASTM 2247-08 defines a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls or engineering controls). Before calling the past release a historical recognized environmental condition, the Environmental Professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment (ESA) is conducted. If the Environmental Professional considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition. This assessment has revealed no evidence of Historical Recognized Environmental Conditions in connection with the Subject Property.

According to the Sacramento County Environmental Management files, there were two single walled underground storage tanks (one 500-gallon diesel tank and one 1,000-gallon unleaded gasoline tank) at the property installed in 1968. It is certain that the 500-gallon diesel tank was removed from the property but the 1,000-gallon unleaded gasoline tank was closed in place in 1986. SCS Engineers performed site assessment in 2011 and 2012 wherein soil samples were taken in the vicinity of the closed tanks. 20 soil samples and grab groundwater samples were taken at the Subject Property in January and February of 2012. The results of the samples taken revealed no contaminations. As a result of submitting the analytical report to the Sacramento County Environmental Management Department, the Sacramento County issued a No Further Action Letter on June 22, 2012. Please see Attachment 6 for all the information regarding the underground storage tanks at the Subject Property. Mr. Vakili reviewed the analytical results and no concern was noted for the tank closures.

Environmental issues

Environmental issues include environmental concerns identified by Mr. Vakili that warrant discussion but do not qualify as Recognized Environmental Conditions, as defined by the ASTM Standard Practice E-1527-13. Environmental concerns were detected at the Subject Property. Heavy oil stains on the ground were detected during the inspection of August 29, 2016 at the Zapata Truck Repair and Micky's Truck Repair. The drums were also stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums. There was also a sump observed during the inspection of August 29, 2016 in front of the Micky's Truck Repair. Mr. Vakili considers this sump area as environmental concern. Additional assessment needs to be performed to determine the nature of this sump. Please see Photograph 27 for additional information in the Report.

Recommendations

We have performed the Report in conformance with the scope and limitations of ASTM Practice E-1527-13 for the Subject Property. Any exceptions to, or deletions from this practice are described in Section 1 of the Report. The Report revealed that additional assessments are needed at the present time at the Subject Property including the cleaning of the heavy stain areas, providing secondary containment for hazardous waste and material drums, and figure out what the sump was used for in front of the Building 1.

Please let me know if you have any questions at (916) 804-6232.

Sincerely,

Farshad Vakili, P.E.
Environmental Engineer
273 Canyon Falls Drive
Folsom, California 95630

REGISTERED PROFESSIONAL ENGINEER
FARSHAD T. VAKILI
M 29991
EXP. 6/2018
MECHANICAL
STATE OF CALIFORNIA

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

MUTLTI-TENANT INDUSTRIAL WAREHOUSES TRUCK PARKING AREA AND LAND 8280 ELDER CREEK ROAD SACRAMENTO, SACRAMENTO COUNTY, CALIFORNIA

SEPTEMBER 3, 2016

PREPARED BY:
FARSHAD T. VAKILI, P.E.
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1. INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment performed by Farshad Vakili, P.E., an independent environmental assessor/engineer on the multi-tenants industrial warehouses, truck parking areas and a vacant land located at 8280 Elder Creek Road in Sacramento, Sacramento County, California (Subject Property). This Report reveals the results from the review of regulatory agencies files, interview of responsible parties, and site inspection of the Subject Property on August 29, 2016.

1.1 Purpose

The objectives of this Report is to evaluate whether there is evidence of an environmental impact to any of the environmental receptors such as human and/or wild life; or any environmental impacts to any environmental pathways such as surface, water, air, groundwater, and subsurface gas generation. Any potential environmental impacts resulted from past or present activities at the Subject Property or surrounding businesses, have been considered in this Report. All the extensive regulatory agencies files search which provide information on all the past, present and to some extent future impacts to the Subject Property and the surrounding area are noted in the Report.

1.2 Scope of Application

This Report is submitted to Mr. Patrick M. Gardner of Sierra Holding Two, LLC for distribution. The scope of the application is to determine any Recognized Environmental Conditions at the Subject Property.

1.3 Limitation and Exception

Mr. Vakili renders no opinion as to the Subject Property condition at un-surveyed and/or inaccessible portions of the Property, which are described below. Mr. Vakili relies completely on the information, whether written, graphic or verbal, provided by the Subject Property contact or as shown on any documents reviewed or received from the Subject Property contacts, owners or agents, or municipal sources, and assumes that information to be true and correct. The observations in this Report are valid on the date of the survey. Where access to portions of the Subject Property or to structures on the Subject Property was unavailable or limited, Mr. Vakili renders no opinion as to the presence of petroleum products or hazardous substances in that portion of the Subject Property or structure. In addition, Mr. Vakili renders no opinion as to the presence of, or indirect evidence relating to, petroleum products or hazardous substances where direct observation of the interior walls, floor, or ceiling of a structure was obstructed by objects or coverings on or over these surfaces. The conclusions provided by Mr. Vakili are

based on the information obtained by visual survey of the Subject Property, and information provided by agents representing the Subject Property, or agents of the owner. In addition, Mr. Vakili has relied on certain information provided by state and other referenced parties, and on information contained in the files of federal, state and/or local agencies available to Mr. Vakili at the time of the assessment. Although there may have been some degree of overlap in the information provided by these various sources, Mr. Vakili did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of these Environmental Services. CERCLA Requirements Other Than All Appropriate Inquiry (ASTM Standard Practice E1527-13 1.1.3) - This practice does not address whether requirements in addition to All Appropriate Inquiries have been met in order to qualify for the LLPs (specified in 42 U.S.C. §9607(b)(3)(a) and (b) including the continuing obligation not to impede the integrity and effectiveness of Activity and Use Limitations), or the duty to take reasonable steps to prevent releases, or the duty to comply with legally required release reporting obligations).

It is acknowledged that Mr. Vakili's judgments shall not be based on scientific or technical tests or procedures beyond the Scope of Services or beyond the time and budgetary constraints imposed by the Client. It is acknowledged further that Mr. Vakili's conclusions shall not rest on pure science but on such considerations as economic feasibility and available alternatives. The Client also acknowledges that, because geologic and soil formations are inherently random, variable, and indeterminate in nature, the conclusions and opinion of this Report are not guaranteed to be a representation of actual conditions on the Subject Property, which are also subject to change with time as a result of natural or man-made processes, including water permeation. In performing the Services, Mr. Vakili shall use that the degree of care and skill ordinarily exercised by environmental consultants or engineers performing similar services in the same or similar locality. The standard of care shall be determined solely at the time the Services are rendered and not according to standards utilized or in effect at a later date. The Services shall be rendered without any other warranty, expressed or implied, including, without limitation, the warranty of merchantability and the warranty of fitness for a particular purpose. It should be noted that certain conditions may not have been reasonably identifiable or ascertainable from the available information during the course of this Report. Mr. Vakili assumes that information obtained from the record review and the interviews concerning the Property is reliable. However, Mr. Vakili cannot and does not warrant or guarantee that the information provided by these other sources is accurate or correct. Some of the information provided in this Report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies.

This Report is subject to the limitations of historical documentation, availability, and accuracy of the pertinent records and the personal recollections of those persons contacted. This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Furthermore, this Report does not intend to address all of the health and safety concerns, if any, associated with the Subject Property.

The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The Report speaks only as of its date, in the absence of a specific written update of the Report, signed and delivered by Mr. Vakili.

This Report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM 1527-13, and contains all of the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this Report. The conclusions of this Report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated. Should such an event occur, Mr. Vakili must be notified in order that he may determine if modifications are necessary. The services performed and outlined in this Report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of Mr. Vakili. The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services. Our observations relating to the condition of environmental media at the site are described in this Report. It should be noted that compounds or materials other than those described could be present in the site environment.

1.4 Qualification

Mr. Vakili is a registered professional engineer in the State of California. Mr. Vakili has thirty three years of experience working for regulatory agencies and manufacturing facilities conducting complex environmental assessment, characterization and remediation projects. Mr. Vakili also conducted assessment projects for regulatory agencies preparing Resource Conservation and Recovery Act (RCRA) facility assessments reports for various industries throughout California in compliance with the California Department of Toxic Substances Control (DTSC) and United States Environmental Protection Agency laws and regulations. Mr. Vakili is currently a retired Senior Hazardous Substances Engineer from DTSC dated March 1, 2016. Mr. Vakili has also conducted phase I environmental site assessment projects for residential, commercial as well as industrial properties in California. Please see Attachment 1, Figure 1 for Mr. Vakili's Statement of Qualification and Insurance Liability.

2. SCOPE OF WORK

The scope of work for this Report is to provide information regarding the past and present activities at the Subject Property and the vicinity area. This Report has been performed in accordance with the Scope of Work pursuant to the requirements of the American Society for Testing and Materials (ASTM) Standards 1527-13 for environmental site assessments, and the United States Environmental Protection Agency's (USEPA) Resource Conservation and Recovery Act (RCRA) Facility Assessment for corrective action.

On Wednesday, November 6, 2013, ASTM International announced that it has officially approved and published the latest revision of its Phase I Environmental Site Assessment Protocol, E 1527-13, and Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process. As reported in a prior post, United States Environmental Protection Agency (USEPA) issued both a direct final rule and a backup proposed rule on August 15, 2013, that would add a reference to the expected ASTM E 1527-13 in USEPA's All Appropriate Inquiries (AAI) regulations at 40 CFR 312.11(c). Approximately forty comments were submitted, including adverse comments and therefore, on October 29, 2013, USEPA officially withdrew the direct final rule. USEPA expects the final rule incorporating a reference to the new version to be issued by the end of 2013. It should be noted that E 1527-13 is not officially recognized by USEPA as sufficient to meet AAI until USEPA issues its final rule. However, we are going use ASTM 1527-13 in this Report regardless per the request from the client. It will be prudent to require using E 1527-13 in phase I assessments once the USEPA rule change goes final. USEPA said conflicting things in the materials associated with the rule, for example it emphasized that approval of an additional version of the ASTM Standard would add flexibility (an additional option to E 1527-05), but it also made references to the greater "validity" of the new version of the standard. E 1527-05 will remain in the AAI Rule as acceptable, but there is a view that E 1527-13 is a clarification by ASTM of what ASTM intended in E 1527-05 all along, and, therefore, that compliance with E 1527-05 might be evaluated in the future by a court (in the inherently-after-the-fact determination characteristic of AAI and the landowner liability protections) through the lens of the more explicit language of E 1527-13.

After months of delays, rumors and speculation, the US EPA finally acknowledged that the newly revised ASTM Environmental Site Assessment standard, known as E1527-13, is consistent with the All Appropriate Inquires (AAI) rule. As described in the December 30, 2013 Federal Register announcement, the US EPA amended the AAI rule to reference ASTM E1527-13 as compliant with the standards and practices required to qualify for certain CERCLA liability protections as well as Brownfields grants. In fact, the US EPA now "strongly encourages" and "recommends that environmental professionals and prospective purchasers" use

ASTM E1527–13 when conducting AAI compliant Phase I Environmental Site Assessments to identify releases and threatened releases of hazardous substances at commercial and industrial properties.

It is worth noting that while the newly amended AAI rule does not remove reference to the previous ASTM standard (E1527-05), "the Agency's intent will be to promote the use of the current industry standard and reduce confusion associated with the regulatory reference to a standard no longer recognized as current by ASTM International and no longer marketed by the standards development organization." The US EPA will publish an additional proposed rulemaking to remove the reference to the ASTM E1527–05 standard in the AAI rule sometime in the near future. Therefor this Report will be in compliance with ASTM 1527-13.

The ASTM Standard Practice E1527-13 does not encompass analytical testing to evaluate Asbestos Containing Materials (ACM), radon, lead-based paint (LBP), drinking water quality, lead in drinking water, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, biological agents, mold, stored chemicals, debris, fill materials, surface water, or subsurface samples (soil and groundwater) as part of a Phase I ESA. Such additional information regarding non-ASTM Standard Practice E1527-13 issues may be provided merely for the User's convenience, and cannot be used to bind this report as a whole to the compliance and conformance with ASTM Standard Practice E1527-13. No disassembly of systems or building components or physical or invasive testing is to be performed unless the Client specifically calls for such testing as an additional scope of work.

The objective of ASTM Standard Practice E1527 is to help Users qualify for one of the CERCLA Landowner Liability Protections (LLPs). Users should be aware that there are other federal, state, and local environmental laws and regulations that can impose liabilities and obligations on owners and operators of real property that are outside the scope of this practice. This practice does not address all possible environmental liabilities that a User may need to consider in the context of a commercial real estate transaction. Therefore, Users may desire to expand the scope of pre-purchase or pre-finance due diligence to assess other business environmental risks that exist beyond CERCLA liability associated with the Property.

This work includes visual site inspection, interview of the responsible parties, review of the regulatory agencies' files and preparing this site assessment report. The regulatory agencies files include but not limited to:

- Review of Sacramento County Environmental Management Department, and City of Sacramento Building Department

- Review of the California Department of Toxic Substances Control's STARS List, Multi-Data Base Search, Site Mitigation and Brownfield Reuse Program Database for Unconfirmed Referral, Voluntary Clean-Up, School, No Further Action, Needing Further Evaluation, Cal Site and Envirostor.

- Review of California Regional Water Quality Control Board

- Review of California Department of Resource Conservation and Recycling (CalRecycle), List of Active and Inactive Landfills, and Used Oil Recycling Program

- Review of USEPA's RCRAinfo List for federal hazardous waste generators

3. SITE DECRIPTION

3.1 Location

The Subject Property is located at 8280 Elder Creek Road in Sacramento, Sacramento County, California in two parcels of land. The property is located west of South Watt Avenue and Florin Perkins Road; southwest of Former Sacramento Army Depot; south of Morrison Creek; and east of Power Inn Road. Attachment 1, Figure 1 is Mr. Vakili Statement of Qualification and Insurance Liability. Attachment 1, Figure 2 is the Sacramento County Assessor's Map and Site Maps. Attachment 1, Figure 3 is the Overview Map. Attachment 1, Figure 4 is the Historical Photographs from 1937, 1947, 1957, 1964, 1966, 1972, 1984, 1993, 1998, 2005, 2006, 2009, 2010 and 2012.

3.2 Adjacent Properties Current Use

The Subject Property is located 8280 Elder Creek Road in Sacramento, California. The Subject Property is surrounded by railroad and JH Auto Window Tinting at 8188 Elder Creek Road to the west; American Building Supply at 8360 Elder Creek Road to the east; Elder Creek Road and US Naval & Marine Reserve Readiness Center at 8277 Elder Creek Road to the north; and a vacant land to the south.

3.3 Current Use of the Subject Property

The Subject Property is currently used by:

Address	Square Foot	Business
Suite A, Building 1	24,000	Expo Furniture Gallery
Suite B, Building 1	9,000	Micky's Truck Repair
Suite C, Building 1	9,000	Zapata Truck Repair
Section 1, Building 2	3,800	Cabinet Maker
Section 2, Building 2	3,800	Truck Detailing
Section 3, Building 2	3,800	Upholstery
Section 4, Building 2	3,800	RV Stand Area
Land	20,000	Sun Trucking
Land	20,000	Magnet Trucking

The property is improved with a signpost; asphalt paved parking areas, gravel/asphalt dumped yard and associated landscaping.

3.4 Site Description

The Subject Property consists of two industrial buildings including Building 1 of approximately 42,000 square feet of metal building, and Building 2 of approximately 15,200 square feet of half open metal building with large truck parking areas in 11.5 acres of land in two parcels.

Real property in the City of Sacramento, County of Sacramento, State of California, described as follows:

PARCEL ONE: (APN: 064-0010-028)

ALL THAT CERTAIN PARCEL OF LAND SITUATE, LYING AND BEING IN THE NORTH HALF OF SECTION 35, TOWNSHIP 8 NORTH, RANGE 5 EAST, MOUNT DIABLO BASE AND MERIDIAN, COUNTY OF SACRAMENTO, STATE OF CALIFORNIA, AND THAT PORTION OF LOT 4, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "PLAT OF FLORIN ACRES", RECORDED MAY 14, 1907 IN BOOK 8 OF MAPS, MAP NO. 29, RECORDS OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 35, DISTANT SOUTH 89° 55' 35" EAST THEREON, 130.25 FEET FROM THE NORTHEASTERLY LINE OF LAND (275 FEET WIDE) OF SOUTHERN PACIFIC COMPANY; THENCE CONTINUING SOUTH 89° 55' 35" EAST ALONG SAID NORTHERLY LINE, 463.82 FEET TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE NORTH 89° 50' 50" EAST ALONG THE NORTHERLY LINE OF THE NORTHEAST QUARTER OF SAID SECTION 35, A DISTANCE OF 38.62 FEET; THENCE SOUTH 0° 04' 25" WEST 389.35 FEET; THENCE NORTH 89° 55' 35" WEST 520.00 FEET TO A POINT ON SAID NORTHEASTERLY LINE OF SOUTHERN PACIFIC COMPANY'S LAND; THENCE NORTH 16° 04' 30" WEST ALONG SAID NORTHEASTERLY LINE, 373.97 FEET; THENCE SOUTH 89° 55' 35" EAST 130.25 FEET; THENCE NORTH 16° 04' 30" WEST 31.22 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM, ALL THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING WITHIN LOT 4 OF FLORIN ACRES FILED IN BOOK 8 OF MAPS, MAP NO. 29, AS FOLLOWS:

ALL OIL, GAS AND MINERAL NOW OR AT ANY TIME HEREAFTER SITUATE THEREIN AND THEREUNDER BELOW A DEPTH OF 500 FEET WITHOUT THE RIGHT OF SURFACE ENTRY; TOGETHER WITH THE RIGHT TO MINE, DRILL, BORE, OPERATE AND REMOVE FROM BENEATH THE SURFACE OF SAID LAND OR LANDS, AT ANY LEVEL OR LEVELS FIVE HUNDRED FEET (500') OR MORE BELOW THE SURFACE OF SAID LAND FOR THE PURPOSE OF

DEVELOPMENT OR REMOVAL OF ALL OIL, GAS, MINERALS AND OTHER HYDROCARBONS SITUATED THEREIN OR THEREUNDER OF PRODUCIBLE THEREFROM, TOGETHER WITH ALL WATER NECESSARY IN CONNECTION WITH ITS DRILLING OR MINING OPERATION THEREUNDER, AS RESERVED IN DEED FROM CAPITAL COMPANY TO ROY L. BROOKE, RECORDED JANUARY 20, 1943 IN BOOK 991 OF OFFICIAL RECORDS, PAGE 158, AND AS MODIFIED BY A QUITCLAIM DEED FROM CAPITAL COMPANY, A CORPORATION, TO NORTHERN AMERICAN TITLE GUARANTY CORPORATION, SACRAMENTO DIVISION, A CORPORATION, RECORDED AUGUST 24, 1962, IN BOOK 4503 OF OFFICIAL RECORDS, PAGE 656.

ALSO EXCEPTING THEREFROM, ALL THAT PORTION OF ABOVE DESCRIBED PARCEL LYING WITHIN THE NORTHEAST ONE-QUARTER OF SECTION 35, TOWNSHIP 8 NORTH, RANGE 5 EAST, AS FOLLOWS:

ALL MINERALS AND MINERAL ORES OF EVERY KING AND CHARACTER NOW KNOWN TO EXIST OR HEREINAFTER DISCOVERED UPON, WITH OR UNDERLYING SAID LAND, OR THAT MAY BE PRODUCED THEREFROM INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ALL PETROLEUM OIL, NATURAL GAS AND OTHER HYDROCARBON SUBSTANCES AND PRODUCTS DERIVED THEREFROM; TOGETHER WITH THE EXCLUSIVE AND PERPETUAL RIGHT THERETO, WITHOUT, HOWEVER, THE RIGHT TO USE OR PENETRATE THE SURFACE OFOR REMOVE THE SAME AS RESERVED IN THE DEED FROM SOUTHERN PACIFIC COMPANY, A DELAWARE CORPORATION, TO WILLIAM MARTIN AND WILLIAM B. GILBERT, A PARTNERSHIP, RECORDED FEBRUARY 6, 1968 IN BOOK 680206 OFFICIAL RECORDS, PAGE 639.

PARCEL TWO: (APN: 064-0010-053)

ALL THAT CERTAIN PARCEL OF LAND SITUATE, LYING AND BEING IN THE NORTH HALF OF SECTION 35, TOWNSHIP 8 NORTH, RANGE 5 EAST, MOUNT DIABLO BASE AND MERIDIAN, COUNTY OF SACRAMENTO, STATE OF CALIFORNIA, AND THAT PORTION OF LOT 4, AS SHOWN ON THE "PLAT OF FLORIN. ACRES", RECORDED MAY 14, 1907 IN BOOK 8 OF MAPS, MAP NO. 29, RECORDS, OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN THE NORTHERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 35, DISTANT SOUTH 89° 55' 35" EAST THEREON, 130.25 FEET FROM THE NORTHEASTERLY LINE OF LAND (275 FEET WIDE) OF SOUTHERN PACIFIC COMPANY; THENCE CONTINUING SOUTH 89° 55' 35" EAST ALONG SAID NORTHERLY LINE 463.82 FEET TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 35; THENCE NORTH 89° 50' 50" EAST ALONG THE NORTHERLY

LINE OF THE NORTHEAST QUARTER OF SAID SECTION 35, A DISTANCE OF 38.62 FEET TO THE TRUE POINT OF BEGINNING OF THE PARCEL OF LAND TO BE DESCRIBED; THENCE CONTINUING NORTH 89° 50' 50" EAST, ALONG LAST SAID LINE, 328.38 FEET; THENCE SOUTH 0° 17' 22" EAST A DISTANCE OF 607.27 FEET TO A POINT IN A LINE PARALLEL WITH THE DISTANT 15.00 FEET NORTHERLY MEASURED AT RIGHT ANGLES, FROM THE NORTHERLY LINE OF LAND (100 FEET WIDE) OF SACRAMENTO MUNICIPAL UTILITY DISTRICT; THENCE SOUTH THE 89° 42' 38" WEST," ALONG SAID PARALLEL LINE, 544.77 FEET TO A POINT; THENCE WESTERLY AND NORTHWESTERLY ON A CURVE TO THE RIGHT HAVING A RADIUS, OF 382.25 FEET AND A CENTRAL ANGLE OF 46° 24' 28" (TANGENT TO SAID CURVE AT LAST MENTIONED POINT IS LAST DESCRIBED COURSE) AN ARC DISTANCE OF 309.61 FEET TO A POINT IN SAID NORTHEASTERLY LINE OF SOUTHERN PACIFIC COMPANY'S LAND; THENCE NORTH 16° 04' 30" WEST, ALONG SAID NORTHEASTERLY LINE 107.34 FEET; THENCE SOUTH 89° 55' 35" EAST, 520.00 FEET; THENCE NORTH 0° 04' 25" EAST 389.35 FEET TO THE TRUE POINT OF BEGINNING. EXCEPTING THEREFROM: ALL THAT PORTION OF SAID LAND AS GRANTED TO THE CITY OF SACRAMENTO, BY DEED RECORDED AUGUST 24, 1987 IN BOOK 870824 OF OFFICIAL RECORDS, PAGE 0547 UNDER RECORDERS SERIAL NUMBER 235420, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID PARCEL 2, SAID CORNER BEING ON THE NORTH LINE OF SECTION 35, TOWNSHIP 8 NORTH, RANGE 5 EAST, MOUNT DIABIO BASE AND MERIDIAN AND RUNNING THENCE ALONG THE EAST LINE OF SAID PARCEL 2, , SOUTH 00° 39' 15" EAST 172.00 FEET; THENCE SOUTH 89° 20' 45" WEST 15.00 FEET; THENCE NORTH 00° 39' 15" WEST 172.00 FEET; TO A POINT ON THE NORTH LINE OF SAID PARCEL 2; THENCE ALONG THE NORTH LINE OF SAID PARCEL 2, NORTH 89° 21' 32" EAST 15.00 FEET, TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ALL THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING WITHIN LOT 4 OF FLORIN ACRES FILED IN BOOK 8 OF MAPS, MAP NO. 29, AS FOLLOWS:

ALL OIL, GAS AND MINERALS NOW OR AT ANY TIME HEREAFTER SITUATE THEREIN AND THEREUNDER BELOW A DEPTH OF 500 FEET WITHOUT THE RIGHT OF SURFACE ENTRY, TOGETHER WITH THE RIGHT TO MINE, DRILL, BORE, OPERATE AND REMOVE FROM BENEATH THE SURFACE OF SAID LAND OR LANDS, AT ANY LEVEL OR LEVELS FIVE HUNDRED FEET (500')
OR MORE BELOW THE SURFACE OF SAID LAND FOR THE PURPOSE OF DEVELOPMENT OR REMOVAL OF ALL OIL, GAS, MINERALS AND OTHER HYDROCARBONS SITUATED THEREIN OR THEREUNDER OF PRODUCIBLE THEREFROM, TOGETHER WITH ALL WATER NECESSARY IN WITH ITS

DRILLING OR MINING OPERATIONS THEREUNDER, AS RESERVED IN DEED FROM CAPITAL COMPANY TO ROY L. BROOKE, RECORDED JANUARY 20, 1943 IN BOOK 991 OF OFFICIAL RECORDS, PAGE 158, AND AS MODIFIED BY A QUITCLAIM DEED FROM CAPITAL COMPANY, A CORPORATION, TO NORTHERN AMERICAN TITLE GUARANTY CORPORATION, SACRAMENTO DIVISION, A CORPORATION, RECORDED AUGUST 24, 1962 IN BOOK 4503 OF OFFICIAL RECORDS, PAGE 656.

ALSO EXCEPTING THEREFROM, ALL THAT PORTION OF THE ABOVE DESCRIBED PARCEL LYING WITHIN THE NORTHEAST ONE-QUARTER OF SECTION 35, TOWNSHIP 8 NORTH, RANGE 5 EAST, AS FOLLOWS:

ALL MINERALS AND MINERAL ORES OF EVERY KIND AND CHARACTER NOW KNOWN TO EXIST TO HEREAFTER DISCOVERED UPON WITHIN OR UNDERLYING SAID LAND, OR THAT MAY BE PRODUCED THEREFROM, INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING ALL PETROLEUM, OIL, NATURAL GAS AND OTHER HYDROCARBON SUBSTANCES AND PRODUCTS DERIVED THEREFROM, TOGETHER WITH THE EXCLUSIVE AND PERPETUAL RIGHT THERETO, WITHOUT, HOWEVER, THE RIGHT TO USE OR PENETRATE THE SURFACE OF, OR TO ENTER UPON, SAID LAND WITHIN 500 FEET OF THE SURFACE THEREOF, TO EXTRICATE OR REMOVE THE SAME AS RESERVED IN THE DEED FROM SOUTHERN PACIFIC COMPANY, A DELAWARE CORPORATION, TO WILLIAM MARTIN AND WILLIAM B. GILBERT, A PARTNERSHIP, RECORDED, FEBRUARY 6, 1968 IN BOOK 680206 OFFICIAL RECORDS, PAGE 539.

4. USER PROVIDED INFORMATION

4.1 Title Records/Environmental Liens

Mr. Vakili reviewed the Preliminary Title Report prepared by First American Title Company located at 1610 Arden Way, Suite 101 in Sacramento, California dated August 8, 2016 for the Subject Property and is not aware of any environmental cleanup liens against the Subject Property that are filed or recorded under federal, tribal, state or local law. Mr. Vakili is not aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry.

4.2 Owner and Property Manager Information

The owner of the Subject Property is Balbir S. Sohal, a married man as his sole and separate property.

4.3 Specialized Knowledge of the User

Mr. Vakili's research did not find any recognized environmental conditions in connections with the property prior to the site reconnaissance.

4.4 Actual Knowledge of the Uses

Mr. Vakili did not find any environmental liens in connection with the property.

4.5 Reason for Significantly Lower Purchase Price

Mr. Vakili did not find any evidence to identify lower price which does not reasonably reflect fair market value.

4.6 Commonly Known or Reasonably Ascertainable Information

Mr. Vakili is not aware of any commonly known or reasonably ascertainable information within local community about the property that is material to recognized environmental conditions.

5. RECORD REVIEW

5.1 Geologic Conditions

The Subject Property is located in the City of Sacramento and lies in the Central Valley geomorphologic province bounded to the east by the Sierra Nevada Mountains and to the west by the Coast Ranges. Structurally, this region developed between the late Jurassic (approximately 160 million years ago) and the Paleogene in the forearc region of a subduction zone. During the late Jurassic, a subduction zone formed to the west of the present-day Coast Ranges, which subducted oceanic crust under continental crust. As the subduction occurred, a volcanic arc formed well east of the subduction zone, and gave rise to the Sierra Nevada range. As the subduction continued, a subduction complex formed close to the subduction zone, which formed an accretionary wedge at the toe of the continental crust. This accretionary wedge was locally deformed and uplifted, and led to the formation of the Coast Ranges. As the Coast Ranges were uplifted, a forearc basin developed between the Coast Ranges and the Sierra Nevada, which evolved into the Central Valley. Early in its development, the forearc basin was deep water to shallow water marine setting. As the Coastal Ranges continued to uplift, they gradually cut off marine circulation into the basin and changed the depositional environment into a freshwater setting. The latter basin deposits are derived from the Coastal Ranges and Sierra Nevada, and were deposited in deltaic, fluvial, alluvial fan, or lacustrine settings. The properties are located in the northern portion of the San Joaquin Valley. The San Joaquin Valley constitutes the southern portion of the Central Valley, which is a large, northwest trending, asymmetric, structural trough that has been filled with as much as six vertical miles of sediments. The sediments range in age from Jurassic to Holocene and are composed of both marine and continental rocks and deposits.

The property is underlain by the Victor Formation, which consists of sands, silts, and clays with lenses of gravel and hardpan deposited by ancestral rivers and streams. The Victor Formation ranges from 90 to 150 feet in thickness. Locally, a shallow cobble zone is present ranging in thickness from 10 to 30 feet as observed. However, much of the cobbles have been removed during the previous quarrying activities. Please see Attachment 2 for additional information.

5.2 General Hydrogeology

Two distinct aquifer zones are present beneath the site. A shallow unconfined aquifer is present between -20 and -60 feet Mean Sea Level (MSL) and largely consists of sand and fine gravel, typically grading to a relatively coarser material at depth. The deeper aquifer is composed of similar materials to the shallow aquifer, and extends from approximately -75 to -85 feet MSL. A confining layer is present that separates the upper and lower aquifers, and consists of clays and silts.

Groundwater elevations in the shallow zone aquifer historically ranges between approximately -15 feet MSL and -27 feet MSL; and in the deep zone groundwater elevations range between approximately -20 feet MSL and -30 feet MSL. Groundwater within the shallow zone has consistently been observed to flow to the south towards the groundwater extraction wells, with groundwater gradients ranging between approximately 0.001 feet per foot (ft/ft) and 0.0070 ft/ft. Hydraulic conductivities have been measured in the shallow wells that fully penetrate the upper aquifer, and range between 25 and 85 feet per day. Assuming an average hydraulic conductivity of 50 feet per day, and an average porosity of 0.25 for the sandy aquifer, groundwater velocities have been estimated to range between approximately 0.3 feet per day (ft/day).

The depth to the groundwater is approximately 61.5 feet below ground surface and the groundwater direction is dominantly toward south.

5.3 Radon, Asbestos Containing Materials (ACM), Lead-Based Paint and Naturally Occurring Asbestos (NOA)

Radon gas is a radioactive gas found throughout the United States that cannot be seen, tasted or smelled. It can move up through the ground and into a home through cracks and holes in the foundation and can build up to high levels. Radon also can get into indoor air when released from water. Radon entering the home through tap water, in most cases, is small source in indoor air compared to radon entering home from soil. USEPA has determined that radon is a known human carcinogen and breathing air-containing radon may cause increased risk of stomach cancer. No evidence of radon gas detected at levels of concern (greater than 4.0 pCi/L) per any investigation at the Sacramento County. Most homes in Sacramento County do not have basements.

Geologic Maps prepared by the California Geologic Survey show areas of higher probability for asbestos containing rocks within the broad zone of faults that follows the low foothills and lay in a south-east to north-west band. There are some isolated areas of higher probability for the presence of NOA within Tahoe National Forest and El Dorado Hills. No asbestos stone was observed at the property during August 29, 2016 inspection.

Due to the age of the Subject Property building, there is a potential that asbestos containing materials (ACMs) are present. All observed suspect ACMs were in good condition and are not expected to pose a health and safety concern to the occupants of the Subject Property at this time. In the event that building renovation or demolition activities are planned, an asbestos survey adhering to Asbestos Hazard Emergency Response Act (AHERA) sampling protocol should be performed prior to demolition or renovation activities that may disturb suspect ACMs.

Due to the age of the Subject Property building, there is a potential that lead-based paint (LBP) is present. All observed painted surfaces were in good condition and are not expected to pose a health and safety concern to the occupants of the subject property at this time. Local regulations may apply to lead-based paint in association with building demolition/renovations and worker/occupant protection. Actual material samples would need to be collected or an X-Ray Fluorescence (XRF) survey performed in order to determine if LBP is present. It should be noted that construction activities that disturb materials or paints containing any amount of lead may be subject to certain requirements of the Occupational Safety and Health Administration (OSHA) lead standard contained in 29 CFR 1910.1025 and 1926.62.

5.4 Regional Conditions

The Subject Property is located in an industrial area of the City of Sacramento, County of Sacramento, California. Land use in the vicinity of the Subject Property is mainly used for the industrial and landfill use. Land in the vicinity area is not mined for natural resources.

The Subject Property is located south of the Former Sacramento Army Depot in higher elevation. The 485-acre Sacramento Army Depot (Depot), established in 1945, was a supply depot primarily responsible for the receipt, storage, issuance, maintenance, and disposal of electronics supplies. Wastes from metal-plating operations, spray booth operations, and degreasing operations were discharged to unlined sewage lagoons, burned, or buried on site. These practices resulted in the contamination of some on-site soils at the former Oxidation Lagoons and Burn Pits and other areas, as well as the groundwater beneath the site. Soil contamination also was shown in drainage ditches leading to the Old Morrison Creek. Approximately 50,000 people live within three miles of the site. Morrison Creek flows around the southern boundaries of Sacramento Army Depot. The groundwater contamination at the site is in both the shallow and intermediate water-bearing zones and has migrated off site. The Depot has been closed and property transferred.

In 1990, the Army began operating a groundwater treatment facility. Seven groundwater vertical extraction wells pump the water to the treatment plant where hydrogen peroxide is added; the water then passes through a bank of ultraviolet lights to be decontaminated and then discharged into a sanitary sewer. Additional extraction wells (one vertical and two horizontal) have been installed to expand the capture zone and decrease the time necessary to achieve remediation objectives. However, problems were encountered with the performance of the horizontal extraction wells. Due to biofouling of the well screens, the pumping rates of these two horizontal extraction wells decreased rapidly from the time of startup. Attempts to clean the well screens were unsuccessful. The horizontal extraction wells were then shut down. In February 2000, the groundwater treatment units were shut

down because the VOC concentrations in the groundwater pumped from the extraction wells met Sacramento County sanitary sewer system discharge requirements. Currently, groundwater is being pumped from the eight extraction wells and discharged directly to the Sacramento Regional Wastewater Treatment Plant. The Army has conducted four five-year reviews. The fourth five-year review was completed in 2012.

On March 3, 1995, the Depot officially closed. That same day, the City of Sacramento leased approximately 370 acres of the total 485-acre depot to Packard Bell for its world headquarters, an important first step in the revitalization of both the facility and local economy. On March 10, 2000, U.S. National Leasing LLC purchased Packard Bell's rights to The Depot. Today, following a dramatic transformation, Depot Park has entered the 21st century as a state-of-the-art solution for value-conscious tenants needing highly flexible storage, industrial and office space.

After reviewing the groundwater movement and cleanup at the Former Sacramento Army Depot, Mr. Vakili does not believe that the groundwater underneath the Subject Property is impacted by Former Sacramento Army Depot past activities. Because most of the groundwater monitoring wells for detecting the offsite contamination are located to the west to southwest area of the Subject Property. Please see Attachment 5 for the map specifying all the groundwater monitoring wells.

5.5 Historical Use

Sanborn Map Company maps were created for insurance underwriters from 1867 to present, and often contain information regarding the uses of individual structures, and the locations of fuel and/or chemical storage tanks that may have been on a particular property. In 1996, the entire Sanborn Map Company collection was acquired by Environmental Data Resources, Inc. (EDR). Mr. Vakili subcontracted with EDR to provide copies of Sanborn Map Company Maps, if available, for the Subject Property and vicinity. EDR responded that Sanborn Map Company fire insurance maps were not drawn for the Property or surrounding vicinity.

Historical Aerial Photographs from 1937 and 1947 showed that the Subject Property was an agricultural land while the area was used for agricultural use as well. Historical Aerial Photograph from 1957 showed that the Subject Property had a structure on it and Former Sacramento Army Depot was developed to the north. There was a residential neighborhood to the west while the rest of the area was still used for agricultural products. Historical Aerial Photographs from 1964 and 1966 showed that the structure on the property was no longer at the Subject Property while industrial warehouses were built to the neighboring west area and residential neighborhoods to the far west. Historical Aerial Photographs from 1972

and 1984 showed that the existing structures at the Subject Property while the neighboring lands were built with industrial warehouses to the north and the Former Sacramento Army Depot was operating the site to the north of the Subject Property. Historical Aerial Photographs from 1993, 1998, 2005, 2006, 2009, 2010 and 2012 showed that all the current structures existed at the Subject Property and the entire area in the vicinity was built up with industrial warehouses. Please see Attachment 1, Figure 4 for all the Historical Aerial Photographs.

Mr. Vakili reviewed the Historical City Directories provided by EDR for the years spanning 1920 through 2016. The Subject Property was an agricultural land or vacant land from 1920s to 1968. The Subject Property was then used by a food Lifetime Doors, Inc., California Cut Stock Facility from 1968 through 2000s. The Subject Property was vacant for years until is now operated by J B Transportation, Inc. from 2010s to the present time.

Historical Topographic Maps were reviewed from 1893-1992. No marking was noted on the maps prior to 1949. The 1949-1967 maps showed a rectangular mark on the Subject Property, most likely for a residence structure. The 1975 and 1980 maps showed a rectangular warehouse structure and a separate storage area on the property. The 1992 map showed no markings on the Subject Property but it did show a rail spur curving onto the property from the main railway to the west.

5.6 File Review

Regulatory agencies files were reviewed for the Subject Property and the vicinity area (please see Attachment 4) which included review of:

Department of Resource Conservation and Recycling (CalRecycle), Solid Waste Information System (SWIS) and Used Oil Recycling Program

According to the CalRecycle, there are two facilities on the list within 0.5 miles of the Subject Property including It's Unlimited, Inc. (8260 Berry Avenue, lower elevation, no impact) and Replanet, LLC (8100 Signal Court, no impact).

Environmental Protection Agency, Department of Toxic Substances Control (DTSC), STARS List, Multi-Data List, HWTS List, Site Mitigation and Brownfields Reuse Program, Cal Site List, Properties Needing Further Action, School Property Evaluation List, Voluntary Cleanup Program and Envirostor

DTSC Envirostor includes the following facilities within 1 mile of the Subject Property including Thunder Bird Moulding (6001 Power Inn Road, lower elevation, no impact), Protech Spray Service (8120 37th Street, lower elevation, no impact), Andrew Corporation (8430 Rovana Circle, needs evaluation, no immediate threat), and Rew Materials (8588 Thys Court, No Further Action).

DTSC's database revealed that there are hazardous waste generators within 0.25 miles radius of the Subject Property including the Former Sacramento Army Depot (8350 Fruitridge Road), Safe Waste Corporation (8360 Elder Creek Road), and NVL Operational Supply (8277 Elder Creek Road). Regardless, generators of hazardous wastes pose no risk to the Subject Property because they are small quantity generators and the hazardous wastes are sent for recycling and treatment or disposal to different facilities.

California Regional Water Quality Control Board (RWQCB), Leaking Underground Fuel Tank Report (LUFT), SLIC, Underground Storage Tank and Geo Tracker

There are facilities on the Regional Water Quality Control Board list containing LUFT are within 0.5 miles of the Subject Property including Ellis Roofing Company (8201 Elder Creek Road, case closed), M&B (8137 Elder Creek Road, case closed), Sacramento Building #680 (680 inside the Former Sacramento Army Depot, case closed), Arco Gas Station (8024 Elder Creek Road, case closed), Former Service Station (6300 Power Inn Road, case closed), Shanahan's Auto Body (6211 Power Inn Road, case closed), ARA Services (6211 Power Inn Road, case closed), and George Hall Trucking (8240 Berry Avenue, case closed).

The Regional Water Quality Control Board also has database containing facilities with registered underground storage tanks within 0.50 miles of the Subject Property including Ellis Roofing Company (8201 Elder Creek Road, secondary contained, no impact), and Bell Distributing Company (8180 Signal Court, secondary contained, no impact).

Sacramento County Environmental Management Department

This agency refers all the potential contaminated sites to the state agencies. This agency has identified no additional facility within 1.0 mile of the Subject Property.

Also, Sacramento County Master List has identified 15 additional facilities that store hazardous materials or are hazardous waste generator within 0.25 miles of the Subject Property. Generators of hazardous wastes pose no risk to the Subject Property because they are small quantity generators and the hazardous wastes are sent for recycling and treatment or disposal to different facilities; and hazardous material storage facilities handle the materials in containment area with minimum spill risk. Please see Attachment 4 for a list of all the facilities.

Mr. Vakili visited Sacramento County Environmental Management Department on August 30, 2016 to review the files. According to the Sacramento County Environmental Management files, there were two single walled underground storage tanks (one 500-gallon diesel tank and one 1,000-gallon unleaded gasoline tank) at the property installed in 1968. It is certain that the 500-gallon diesel tank was removed from the property but the 1,000-gallon unleaded gasoline tank was closed in place in 1986. SCS Engineers performed site assessment in 2011 and 2012 wherein soil samples were taken in the vicinity of the closed tanks. 20 soil samples and grab groundwater samples were taken at the Subject Property in January and February of 2012. The results of the samples taken revealed no contaminations. As a result of submitting the analytical report to the Sacramento County Environmental Management Department, the Sacramento County issued a No Further Action Letter on June 22, 2012. Please see Attachment 6 for all the information regarding the underground storage tanks at the Subject Property. Mr. Vakili reviewed the analytical results and no concern was noted for the tank closures.

6. SITE RECONNAISSANCE AND INTERVIEWS

6.1 Site Inspection and Interview

Mr. Vakili inspected the Subject Property on August 29, 2016. Mr. Vakili met with Mr. Jagit Singh (Manager) and Mr. Bud Applegate and Mr. Spencer Applegate of Colliers International. Mr. Singh stated that he was the onsite manager. He indicated that there were five tenants currently active at the property including Expo Furniture, Micky's Truck Repair, Zapata Truck Repair, Magnet Trucking, and Sun Trucking. Mr. Singh stated that Building 2 was subleased to several other tenants including an upholstery business, truck detailing business and a RV parked area. Mr. Singh also stated that he was not aware of any underground tanks at the property.

Mr. Vakili accompanied by Mr. Singh, Mr. Spencer Applegate, and Mr. Bud Applegate for an inspection of the interior of the buildings. Mr. Vakili inspected Expo Furniture Gallery. The business was designed for the storage of various beds in the entire area. Mr. Vakili did not Recognized Environmental Conditions inside Expo Furniture Gallery. There was also a PCB electrical utility box inside Expo Furniture Gallery but no stains were detected.

Mr. Vakili later inspected Zapata Truck Repair. The business was in the truck repair business. Various engine parts were stored on the concrete foundation. Mr. Vakili observed more than a dozen hazardous material 55-gallon drums including virgin oil and antifreeze, and a 250-gallon used oil aboveground tank. There was also an empty aboveground virgin oil tank which was on a forklift. There were stains on the concrete as a result of the operation which identified as environmental concerns. Mr. Vakili recommends secondary containment for hazardous waste drums and materials, and better housekeeping in this area.

Mr. Vakili then inspected Micky's Truck Repair shop. Mr. Vakili observed hazardous waste drums without secondary containment, and stains on the concrete foundation. Mr. Vakili considered this area as an environmental concern. Mr. Vakili recommends better housekeeping, and using secondary containment for hazardous waste and materials drums. There was also a sump immediately outside of the structure which may had been from the former operation by Lifetime Doors manufacturing process. This is also considered to be an environmental concern. Additional assessment needs to be conducted to determine the nature of this sump. Please see Photograph 27 for additional information.

Mr. Vakili later inspected Building 2 which was in operation by various tenants. Mr. Vakili observed gas capsules and hazardous material drums inside the building. Mr. Vakili inspected the entire interior area of Building 2 and did not observe Recognized Environmental Conditions.

Mr. Vakili then inspected the exterior area of the Subject Property including truck parking areas to the north of Building 1, and south and east of Building 2; and the bare land to the south and east of the buildings. Mr. Vakili did not observe Recognized Environmental Conditions inspecting the asphalt surfaced parking areas. Mr. Vakili noticed asphalt wastes to be dumped on the bare land. Mr. Singh stated that they asked the Magnet and Sun Trucking Companies to dump the materials that they had no use for, inside the vacant land to create a more stable area for truck parking. Mr. Singh stated that he never asked the truck companies regarding the sources of the asphalt waste piles. Mr. Vakili inspected the asphalt waste piles on the land, and did not observe Recognized Environmental Conditions because the groundwater was over 60 feet below ground surface, and if there were volatile organics in the waste piles, they had been already dispersed in the air. Mr. Singh said that he had already requested the trucking companies not to add any more asphalt waste piles into the land.

The possibility of the existence of asbestos containing materials and lead-based paint was high since the structures were built in 1968. Mr. Vakili strongly recommends ACM and LBP inspections when remodeling or demolishing the buildings. No distressed vegetation was noticed at the Subject Property. Based on the review of the regulatory agencies, the Subject Property was on Sacramento County Environmental Management Department Contaminated List for historical underground storage tanks. Mr. Vakili reviewed the files at Sacramento County Environmental Management Department and found that the underground storage tanks were properly removed and/or buried in place with Sacramento County oversight and approval. Please see Attachment 6 for the Sacramento County Environmental Management Department database. No concern was noted.

Roads

One Road runs through the property from Elder Creek Road. No concern was detected during August 29, 2016 inspection.

Potable Water Supply

Potable water on the property is supplied by the municipal water supply.

Sewage

There was a sewage system noticed during the inspection of August 29, 2016.

Hazardous Substances and Petroleum Products in Connection with Identified Uses

Hazardous substances or petroleum products were observed during the inspection of August 29, 2016 at Zapata Truck Repair, Mick's Truck Repair. Mr. Vakili considered these areas to be environmental concerns. The drums should be on secondary containments, and all the stains should be cleaned and pressured washed immediately.

Storage Tanks

Determining the presence of Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs) is considered essential in assessing potential contamination sources. Visual inspection and the review of tank registration are used to determine the possible existence of past and present storage tanks in the area of the Subject Property. It must be noted however, that the absence of certain site conditions or lack of records may restrict or prevent the determination of the number and contents of storage tanks on the Subject Property. No USTs were observed during the inspection of August 29, 2016. Two aboveground used oil and virgin oil tanks were observed at Zapata Truck Repair. The tanks were doubled contained and no concern was noted after the inspection of the tanks on August 29, 2016.

According to the Sacramento County Environmental Management files, there were two single walled underground storage tanks (one 500-gallon diesel tank and one 1,000-gallon unleaded gasoline tank) at the property installed in 1968. It is certain that the 500-gallon diesel tank was removed from the property but the 1,000-gallon unleaded gasoline tank was closed in place in 1986. SCS Engineers performed site assessment in 2011 and 2012 wherein soil samples were taken in the vicinity of the closed tanks. 20 soil samples and grab groundwater samples were taken at the Subject Property in January and February of 2012. The results of the samples taken revealed no contaminations. As a result of submitting the analytical report to the Sacramento County Environmental Management Department, the Sacramento County issued a No Further Action Letter on June 22, 2012. Please see Attachment 6 for all the information regarding the underground storage tanks at the Subject Property.

Odors

No strong, pungent or noxious odors were observed during August 29, 2016 inspection.

Pools of Liquid

No vernal pools and seasonal wet lands were observed at the Subject Property during August 29, 2016 inspection.

Drums

Drums or containers of hazardous wastes or materials were observed during August 29, 2016 inspection at Zapata Truck Repair and Mick's Truck Repair. The drums were stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums.

Hazardous Substances and Petroleum Products Containers

No containers with hazardous materials or petroleum products that might represent a recognized environmental condition were observed on the property during August 29, 2016 inspection.

Unidentified Substance Containers

No open or damaged containers containing unidentified substances suspected of being hazardous substances or petroleum products were observed on the Subject Property during August 29, 2016 inspection.

Heating/Cooling

Heating or cooling equipment was noticed at the Building 1 during August 29, 2016 inspection.

Stains or Corrosion

Heavy oil stains on the ground were detected during the inspection of August 29, 2016 at the Zapata Truck Repair and Micky's Truck Repair. The drums were stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums.

Pits, Ponds, or Lagoons

No pits, ponds or lagoons were observed at the Subject Property and the neighboring properties during August 29, 2016 inspection. There used to be pits at the Former Sacramento Army Depot which were demolished and decontaminated. No concern was noted.

Stained Soil or Pavement

No areas of stained soil were observed during August 29, 2016 inspection.

Stressed Vegetation

No areas of stressed vegetation were observed on the property during August 29, 2016 inspection.

Solid Waste

Areas, mounds, or depressions that may be filled or graded by non-natural causes or filled with fill of unknown origin suggesting trash or other solid waste disposal were observed on the property during August 29, 2016 inspection. Mr. Vakili noticed asphalt wastes to be dumped on the bare land inside the property. Mr. Singh stated that they asked the Magnet and Sun Trucking Companies to dump the materials that they had no use for, inside the vacant land to establish a more stable area for truck parking. Mr. Singh stated that he never asked the truck companies regarding the sources of the asphalt waste piles. Mr. Vakili inspected the asphalt waste piles on the land, and did not observe Recognized Environmental Conditions because the waste piles were solid, the groundwater was over 60 feet below ground surface, and if there were volatile organics, they had been already dispersed in the air. Mr. Singh said that he had already requested the companies not to add any more asphalt waste piles into the land.

Waste Water

There was no wastewater or other liquids being discharged into a drain, ditch, underground injection system, or stream on or adjacent to the property during August 29, 2016 inspection.

Wells

No wells were observed on the property during August 29, 2016 inspection.

Septic Systems

No septic systems or cesspools was observed on the property during August 29, 2016 inspection.

Sumps and Drains

There was no storm drains noticed during the August 29, 2016 at the Subject Property. There was however, a sump observed during the inspection of August 29, 2016 in front of the Micky's Truck Repair. Mr. Vakili considers this sump area as an environmental concern. Additional assessment needs to be performed to determine the nature of this sump. Please see Photograph 27 for additional information.

6.2 Site Vicinity

The Subject Property is located in a stretch of Elder Creek Road. There are industrial businesses in the surrounding area. The Subject Property is located southwest of the Former Sacramento Army Depot in higher elevation. The 485-acre Sacramento Army Depot, established in 1945, was a supply depot primarily responsible for the receipt, storage, issuance, maintenance, and disposal of electronics supplies. Wastes from metal-plating operations, spray booth operations, and degreasing operations were discharged to unlined sewage lagoons, burned, or buried on site. These practices resulted in the contamination of some on-site soils at the former Oxidation Lagoons and Burn Pits and other areas, as well as the groundwater beneath the site. Soil contamination also was shown in drainage ditches leading to the Old Morrison Creek. Approximately 50,000 people live within three miles of the site. Morrison Creek flows around the southern boundaries of Sacramento Army Depot. The groundwater contamination at the site is in both the shallow and intermediate water-bearing zones and has migrated off site. The Depot has been closed and property transferred.

In 1990, the Army began operating a groundwater treatment facility. Seven groundwater vertical extraction wells pump the water to the treatment plant where hydrogen peroxide is added; the water then passes through a bank of ultraviolet lights to be decontaminated and then discharged into a sanitary sewer. Additional extraction wells (one vertical and two horizontal) have been installed to expand the capture zone and decrease the time necessary to achieve remediation objectives. However, problems were encountered with the performance of the horizontal extraction wells. Due to biofouling of the well screens, the pumping rates of these two horizontal extraction wells decreased rapidly from the time of startup. Attempts to clean the well screens were unsuccessful. The horizontal extraction wells were then shut down. In February 2000, the groundwater treatment units were shut down because the VOC concentrations in the groundwater pumped from the extraction wells met Sacramento County sanitary sewer system discharge

requirements. Currently, groundwater is being pumped from the eight extraction wells and discharged directly to the Sacramento Regional Wastewater Treatment Plant. The Army has conducted four five-year reviews. The fourth five-year review was completed in 2012. It is highly unlikely that future exposures will pose a health hazard because remedial activities should restore the groundwater to conditions that are acceptable for drinking. No concern is noted from any contamination from the former Sacramento Army Depot on the Subject Property. Please see Attachment 5 for the groundwater monitoring map. Please also see Attachment 7 for the due diligence report.

7. FINDINGS, OPINION AND RECOMMENDATION

At the request of Mr. Patrick M. Gardner of Sierra Holding Two, LLC; Mr. Vakili completed this Report on the Subject Property. The Subject Property consists of two industrial buildings including Building 1 of approximately 42,000 square feet of metal building, and Building 2 of approximately 15,200 square feet of half open metal building with large truck parking areas in 11.5 acres of land. The assessment of the Subject Property included review of the regulatory agencies files relevant to any releases to the environment, conducting visual site inspection on August 29, 2016, interview of Mr. Singh, Mr. Spencer Applegate and Butt Applegate, surveillance of the surrounding area, and providing the findings in this Report.

No direct evidence was discovered to indicate that soil, groundwater or Surface water contamination may be present, or likely to be present beneath the Subject Property as result of operations of the former tenants at the property and/or other businesses in the neighborhood including the Former Sacramento Army Depot. There are no Recognized Environmental Conditions at the Subject Property. However, Environmental concerns were detected at the Subject Property. Heavy oil stains on the ground were detected during the inspection of August 29, 2016 at the Zapata Truck Repair and Micky's Truck Repair. The drums were stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums.

Historical Aerial Photographs from 1937 and 1947 showed that the Subject Property was an agricultural land while the area was used for agricultural use as well. Historical Aerial Photograph from 1957 showed that the Subject Property had a structure on it and Former Sacramento Army Depot was developed to the north. There was a residential neighborhood to the west while the rest of the area was still used for agricultural products. Historical Aerial Photographs from 1964 and 1966 showed that the structure on the property was no longer at the Subject Property while industrial warehouses were built to the neighboring west area and residential neighborhoods to the far west. Historical Aerial Photographs from 1972 and 1984 showed that the existing structures at the Subject Property while the neighboring lands were built with industrial warehouses to the north and the Former Sacramento Army Depot was operating the site to the north of the Subject Property. Historical Aerial Photographs from 1993, 1998, 2005, 2006, 2009, 2010 and 2012 showed that all the current structures existed at the Subject Property and the entire area in the vicinity was built up with industrial warehouses. Please see Attachment 1, Figure 4 for all the Historical Aerial Photographs.

The new Standard indicates the need to clarify that the potential for vapor migration must be considered in the Phase I report. The definition of "migrate" now expressly includes releases that migrate in the subsurface as vapor. Mr. Vakili does not believe that there is a need to assess possible indoor air quality impacts from vapor intrusion pathways because the groundwater may not have been impacted.

The following documents, maps, or other publications may have been used in the preparation of this Report.

- American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527-05).

- American Society for Testing and Materials Guide for Environmental Site Assessments: Transaction Screen Process (ASTM E1528).

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA" or "Superfund"), as amended by Superfund Amendments and Reauthorization Act of 1986 ("SARA") and Small Business Liability Relief and Brownfields Revitalization Act of 2002 ("Brownfield Amendments"), 42 U.S.C. §§9601, et. seq. • Resource Conservation and Recovery Act, as amended ("RCRA"), 42 U.S.C. §6901, et. seq.

- Federal Emergency Management Agency, National Flood Insurance Program, Flood Insurance Maps.

- United States Department of Agriculture, Soil Conservation Service, Soil Surveys.

- United States Geological Survey, Topographic Maps.

- United States Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Map

- RWQCB Geotracker

- Workplan to Install Monitoring Well at L&D Landfill prepared by SCS Engineers located at 3117 Fite Circle, Suite 108, Sacramento, California dated September 20, 2012

- Groundwater Monitoring Report for Pacific Pride Cardlock Facility located at 5800 South Watt Avenue, Sacramento, California dated May 26, 2010 prepared by Conestoga-Rovers & Associates located at 19449 Riverside Drive, Suite 230, Sonoma, California

- Soil Sampling Results and Closure Request for Former Metalloy Property located at 8588 Thys Court prepared by Fugro located at 1050 Melody lane, Suite 160 in Roseville, California dated July 8, 1994

- Draft Focused feasibility Study for Former Sacramento Army Depot prepared by Plexus Scientific Corporation located at 5510 Cherokee Avenue, Suite 350 in Alexandria, VA, dated November 2014

- Final Receptor Survey Report, Former Sacramento Army Depot, Sacramento, dated August 30, 2012 prepared by Plexus Scientific

- Results of Due Diligence Environmental Site Assessment for Lifetime Doors, Inc., California Cut Stock Facility at 8280 Elder Creek Road dated August 2, 2011, prepared by SCS Engineers located at 3843 Brickway Boulevard, Suite 208 in Santa Rosa, California

- Phase I Environmental Site Assessment Report for 8280 Elder Creek Road dated November 20, 2012 prepared by Bole & Associates

8. CONCLUSION AND CERTIFICATION

We have performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice 1527-13 for the Subject Property. Any exceptions to, or deletions from, this practice are described in Section 1 of this Report. This assessment has revealed no evidence of Existing or Historical Recognized Environmental Conditions in connection with the Subject Property. Heavy oil stains on the ground were detected during the inspection of August 29, 2016 at the Zapata Truck Repair and Mick's Truck Repair. The drums were stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums. There was also a sump observed during the inspection of August 29, 2016 in front of the Micky's Truck Repair. Mr. Vakili considers this sump area as environmental concern. Additional assessment needs to be performed to determine the nature of this sump. Please see Photograph 27 for additional information.

Except for the limitations and exceptions discussed in Section 1.3, this Report complies with the ASTM Standard 1527-13. Additional services beyond the scope of the ASTM Standard 1527-13 were conducted to include USEPA's RCRA Facility Assessment Criteria for corrective action facilities.

This is to certify that based on the assessment of the Subject Property, review of all regulatory agencies files, and a visual site inspection; we hereby recommend further action at the Subject Property. This means that additional work is necessary at this time. Heavy oil stains on the ground were detected during the inspection of August 29, 2016 at the Zapata Truck Repair and Micky's Truck Repair. The drums were stored without secondary containment and as a result, they were environmental concerns. Mr. Vakili strongly recommends secondary containment for the hazardous waste and material drums. Mr. Vakili also recommends cleaning the stains areas and have better housekeeping at businesses with hazardous waste or material drums. There was also a sump observed during the inspection of August 29, 2016 in front of the Micky's Truck Repair. Mr. Vakili considers this sump area as environmental concerns. Additional assessment needs to be performed to determine the nature of this opening. Please see Photograph 27 for additional information.

According to the Sacramento County Environmental Management files, there were two single walled underground storage tanks (one 500-gallon diesel tank and one 1,000-gallon unleaded gasoline tank) at the property installed in 1968. It is certain that the 500-gallon diesel tank was removed from the property but the 1,000-gallon unleaded gasoline tank was closed in place in 1986. SCS Engineers performed site assessment in 2011 and 2012 wherein soil samples were taken in the vicinity

of the closed tanks. 20 soil samples and grab groundwater samples were taken at the Subject Property in January and February of 2012. The results of the samples taken revealed no contaminations. As a result of submitting the analytical report to the Sacramento County Environmental Management Department, the Sacramento County issued a No Further Action Letter on June 22, 2012. Please see Attachment 6 for all the information regarding the underground storage tanks at the Subject Property.

The recommendation is based on the review of the regulatory agencies files, the inspection of the area around the Subject Property, the understanding of the status of nearby known or potentially contaminated sites, the distance from the known or potentially contaminated sites to the Subject Property, and the hydrogeological conditions of the subsurface soil and groundwater. It should be noted that there is always a potential of contamination from sources unknown to the regulatory agencies and/or Mr. Vakili at the time of this Report.

Data failure occurs when all the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met. If the data failure represents a significant data gap, the report shall comment on the impact of the data gap on the ability of the environmental professional to identify recognized environmental conditions. Mr. Vakili did not find any significant data failure that would impact of the data gap on the ability of Mr. Vakili to identify recognized environmental conditions.

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

9-3-2016

Date:

Farshad Vakili, P.E.
Principal Engineer
273 Canyon Falls Drive
Folsom, California 95630

REGISTERED PROFESSIONAL ENGINEER
FARSHAD T. VAKILI
M 29991
EXP. 6/2018
MECHANICAL
STATE OF CALIFORNIA

ATTACHMENT 1
FIGURES

FIGURE 1
STATEMENT OF QUALIFICATION
INSURANCE LIABILITY

FARSHAD T. VAKILI, P.E.

273 Canyon Falls Drive
Folsom, California 95630
Tel: (916) 804-6232 Cell: (916) 804-6232 Fax: (916) 988-6639
Email: fvakili@phase1assessments.com

OBJECTIVE

Ambitious, energetic, logistic, enthusiastic, creative, flexible, self-initiated & dynamic with strong analytical skills and exceptional communication skills at all levels skills is looking for to be on the lists of financial entities in their loaning process to conduct environmental assessment, investigation and remediation.

WORK HISTORY

Jun 2007 to Present

Principal Engineer/Independent Contractor
www.phase1assessments.com
Folsom, California

Conducting environmental consulting for banks, contractors, commercial brokers, and investors; preparing Reliance Letters for US Small Business Administration; preparing Phase I and Phase II Environmental Site Assessment Reports for residential, commercial and industrial sites

- Provide reports in less than 7 days
- Provide reports professionally in compliance to banks requirements

Jul 1990 to Present

Project Manager, Office of Permitting Chief, and Team Leader
Department of Toxic Substances Control
Sacramento, California

Responsible for permitting hazardous waste facilities; corrective action remediation; enforcement assistance; closure verification; groundwater monitoring data interpretation; project management assignments; staff supervision tasks; holding public meetings/hearings; drafting consent agreements for remediation activities

- Various award recipient
- Extensive writing/verbal communication skill
- Professional negotiator
- Extensive staff management skills
- Good analyzer of situations

- Extensive cost effective knowledge

Jan 1986 to Jun 1990 **Waste Management Engineer**
California Department of Health Services
Sacramento, California

Responsible to establish a program and initiate new law for used oil handlers and recyclers in the state; providing technical support to TSD (treatment, storage and disposal) facilities; issuing variances from permitting requirements; and overseeing corrective action program at contaminated facilities

- Contributing author in Used Oil regulations
- Department's representative in various industries meetings
- Department's expert in new adopted USEPA regulations
- Author of manual of how to obtain state permits

Jan 1983 to Jun 1985 **Environmental Health & Safety Manager**
Fairchild Semi Conductor
San Rafael, California

Responsible for health and safety of the personnel, compliance with local, state and federal laws and regulation compliance and enforcement for personnel health and safety; air, water and soil contamination and exposure; maintenace; and emergency coordination in case of catasrophies

- Reduce air pollution of the Facility by compliance to the Bay Area Air Pollution Control District
- Managed the groundwater contamination
- Evaluated alternative chemicals to reduce pollution at the Facility
- Conducted emergency response drills
- Provided continous feedback to management

EDUCATION

Jan 1976 to Jun 1981 **University of Nevada, Reno**
Reno, Nevada
Bachelor of Science in Mechanical Engineering

Mechanical Engineer specialized in environmental science

- Solar Project Heat Calculation
- Indoor Pollution Analysis
- Indoor Energy conservation calculation/recommendation

PROFESSIONAL LICENCES

Professional Engineer in Mechanical Engineering in the State of California, Certificate Number 29991

Registered Environmental Assessors in the State of California, Certificate Number 03456

SOFTWARE/SYSTEM SKILLS

Microsoft Work
Creating Reports

REFERENCES

Upon Request

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/26/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Valerie Adams
7932 Sunset Ave., #G
Fair Oaks, CA 95628
916-961-3436

CONTACT NAME:
PHONE (A/C, No, Ext):
FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Rockhill Insurance Company	3481
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Farshad Vakili, PE
DBA: Phase 1 Assessments.com
273 Canyon Falls Drive
Folsom, CA 95630

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / OCCUR X Professional Liability X Contractors Pollution Liability GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PRO-JECT / LOC			ENVP005894-02	11/09/2014	11/09/2015	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
							GENERAL AGGREGATE	$ 1,000,000
							PRODUCTS - COMP/OP AGG	$ 1,000,000
								$
	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS / SCHEDULED AUTOS HIRED AUTOS / NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB / OCCUR EXCESS LIAB / CLAIMS-MADE DED / RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					WC STATU-TORY LIMITS / OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

Farshad Vakili
273 Canyon Falls Dr.
Folsom, CA 95630

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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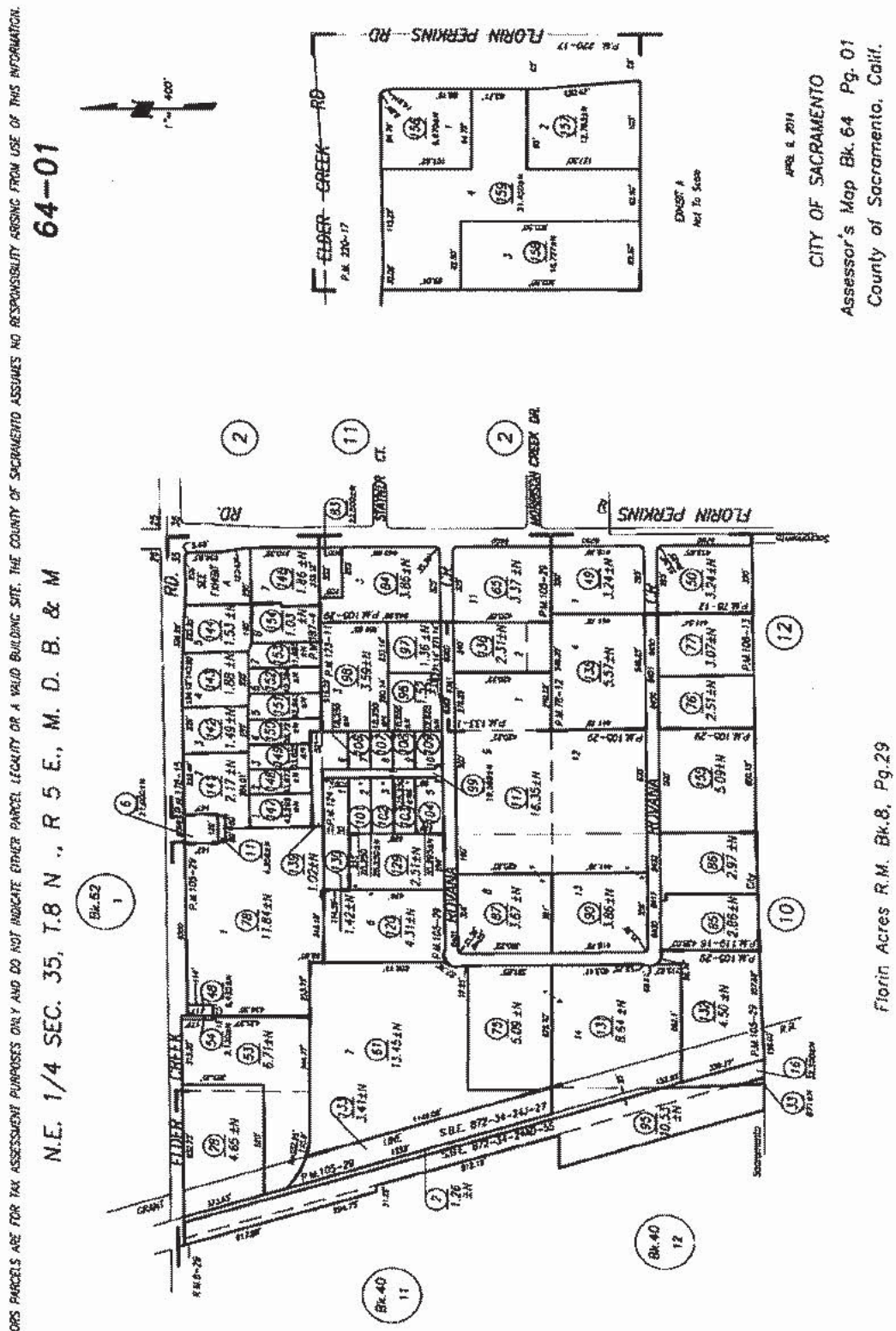
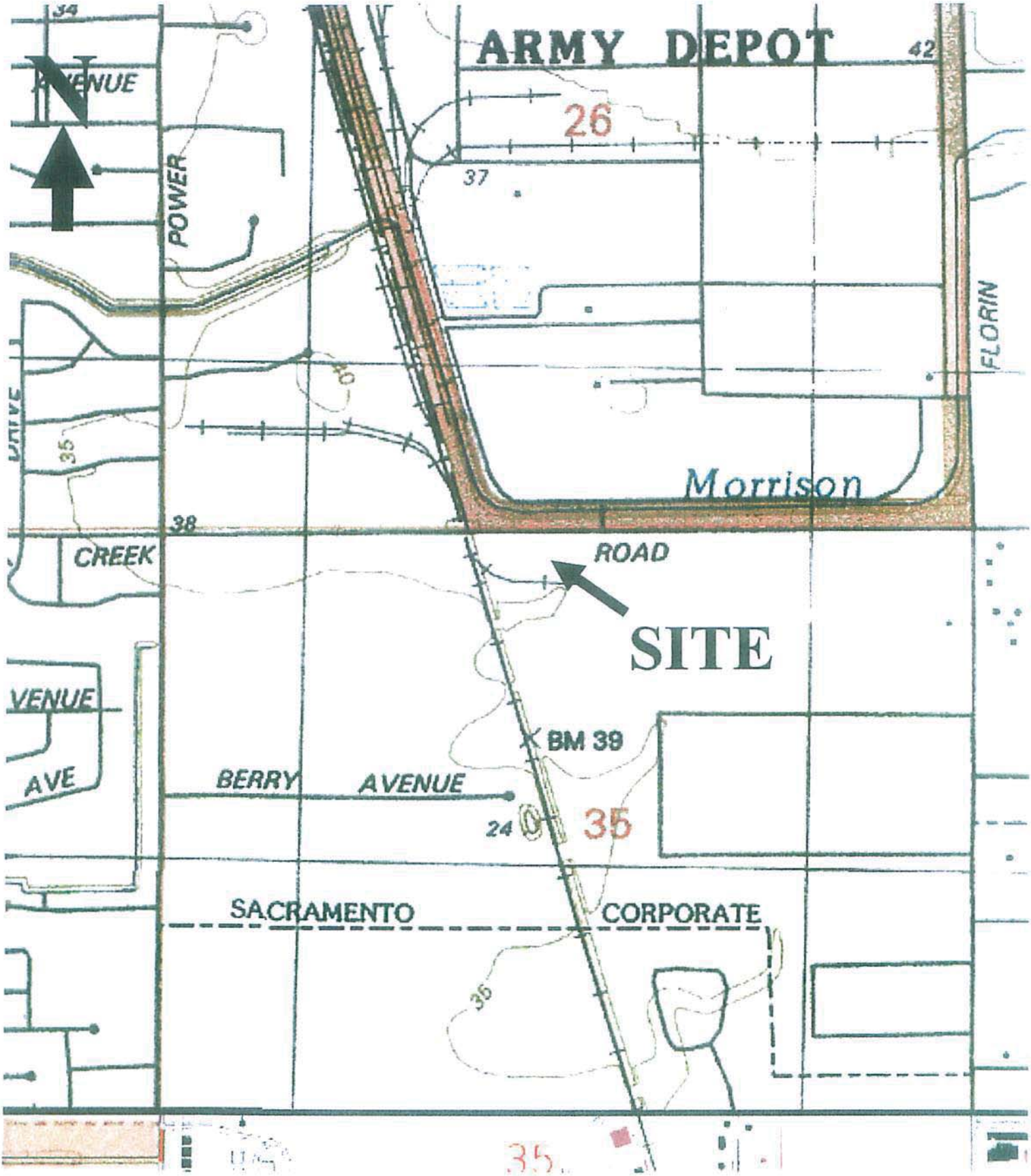
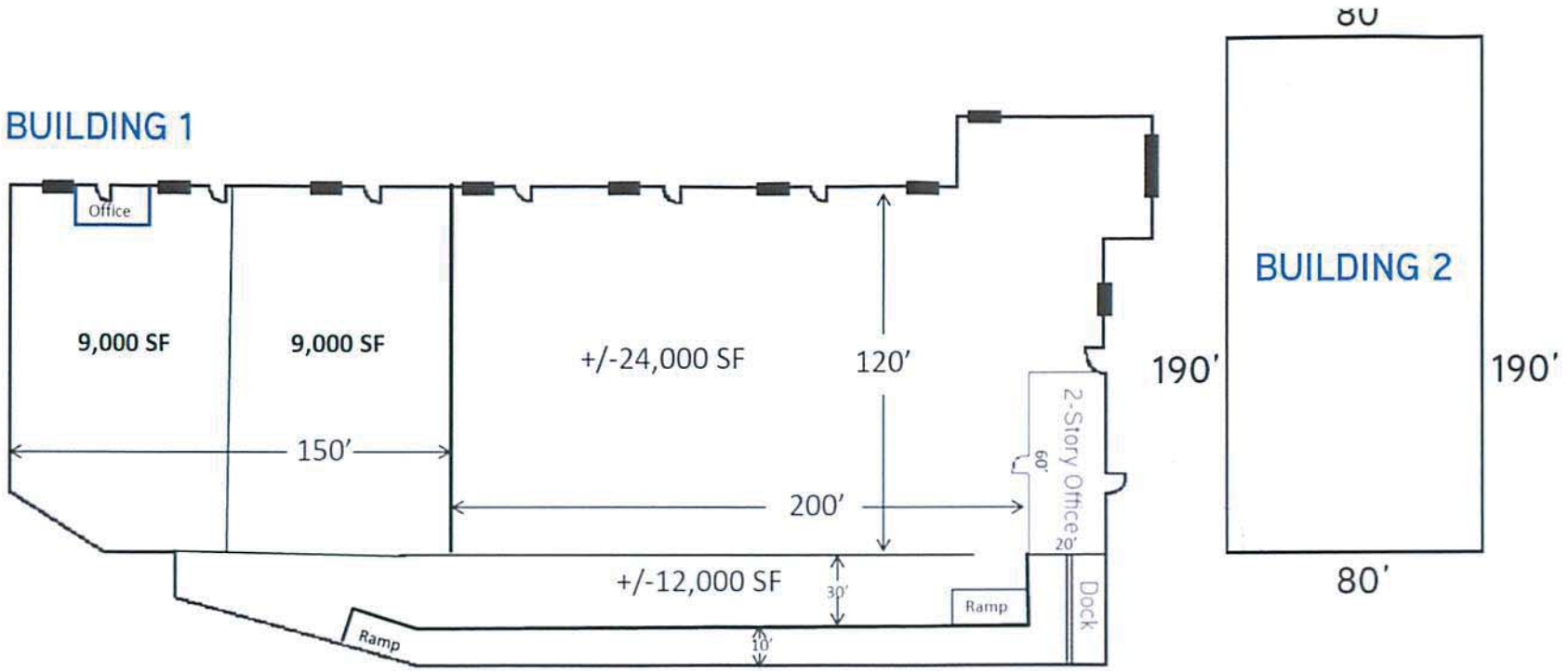
FIGURE 2
SACRAMENTO COUNTY ASSESSOR'S MAP
SITE MAPS


ASSESSORS PARCELS ARE FOR TAX ASSESSMENT PURPOSES ONLY AND DO NOT INDICATE EITHER PARCEL LEGALITY OR A VALID BUILDING SITE. THE COUNTY OF SACRAMENTO ASSUMES NO RESPONSIBILITY ARISING FROM USE OF THIS INFORMATION.
64-01
N.E. 1/4 SEC. 35, T.8 N., R 5 E., M. D. B. & M
CITY OF SACRAMENTO
Assessor's Map Bk. 64 Pg. 01
County of Sacramento, Calif.
FLORIN PERKINS RD.
ELDER CREEK RD.
HAVANA
Florin Acres R.M. Bk.8, Pg.29



Site Location Map: APNs 064-0010-028 & 064-0010-053, 8280 Elder Creek Road, Sacramento, Sacramento County, CA 95828. Section 35, T. 8 North, R. 6 East, Sacramento East USGS Quadrangle.

Figure 1

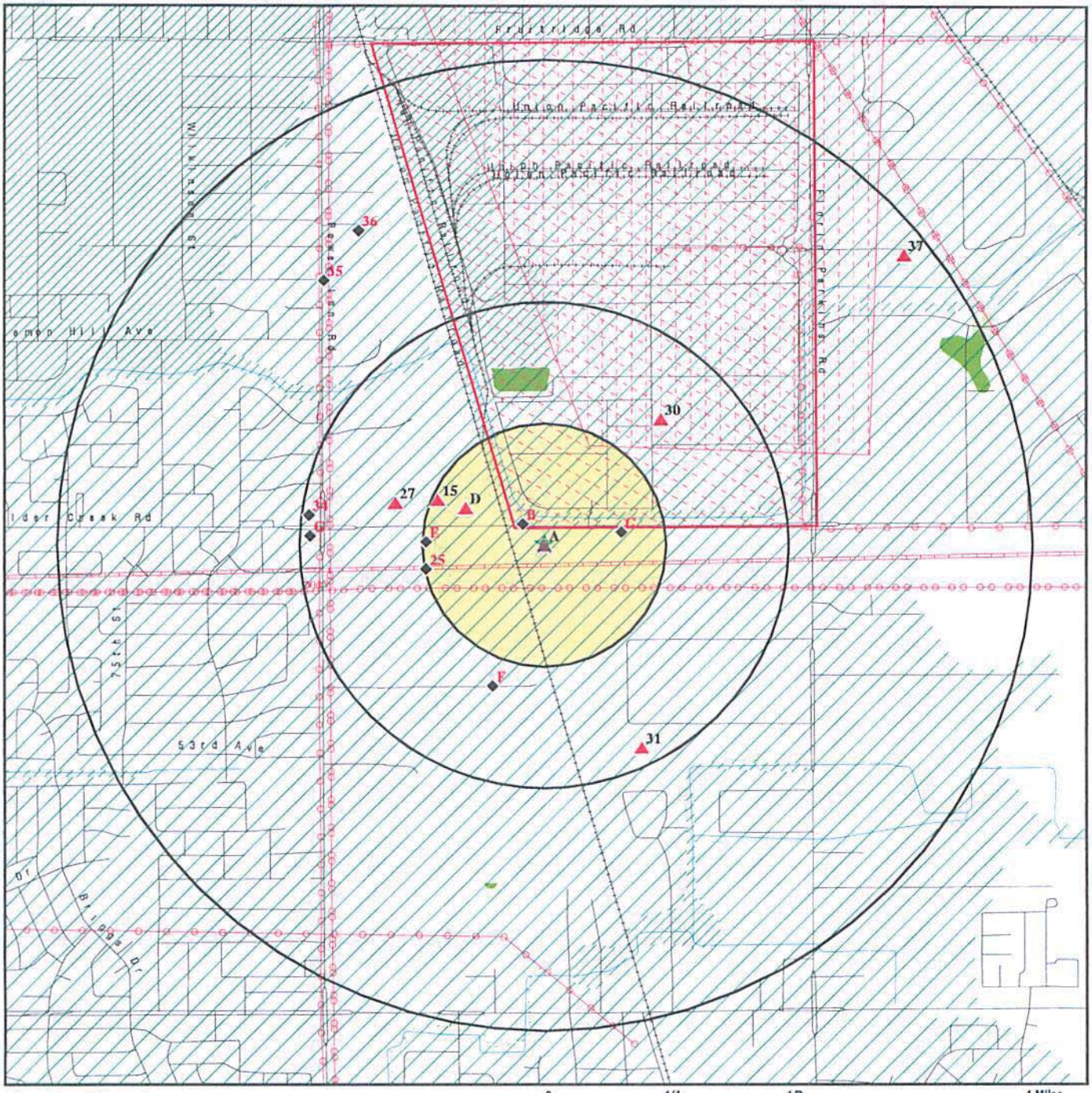

BUILDING 1
Office
9,000 SF
9,000 SF
+/-24,000 SF
120'
150'
200'
+/-12,000 SF
30'
10'
Ramp
Ramp
2-Story Office
60'
20'
Dock
190'
190'
80'
80'
BUILDING 2

VicinityMap: 8280 Elder Creek Road, Sacramento, CA 95828. Site is shown surrounded by office buildings, undeveloped land, a building products warehouse, a FEDEX facility, and the former Sacramento Army Depot property.

Figure 2

FIGURE 3
OVERVIEW MAP

OVERVIEW MAP - 4709881.2S



0 1/4 1/2 1 Miles

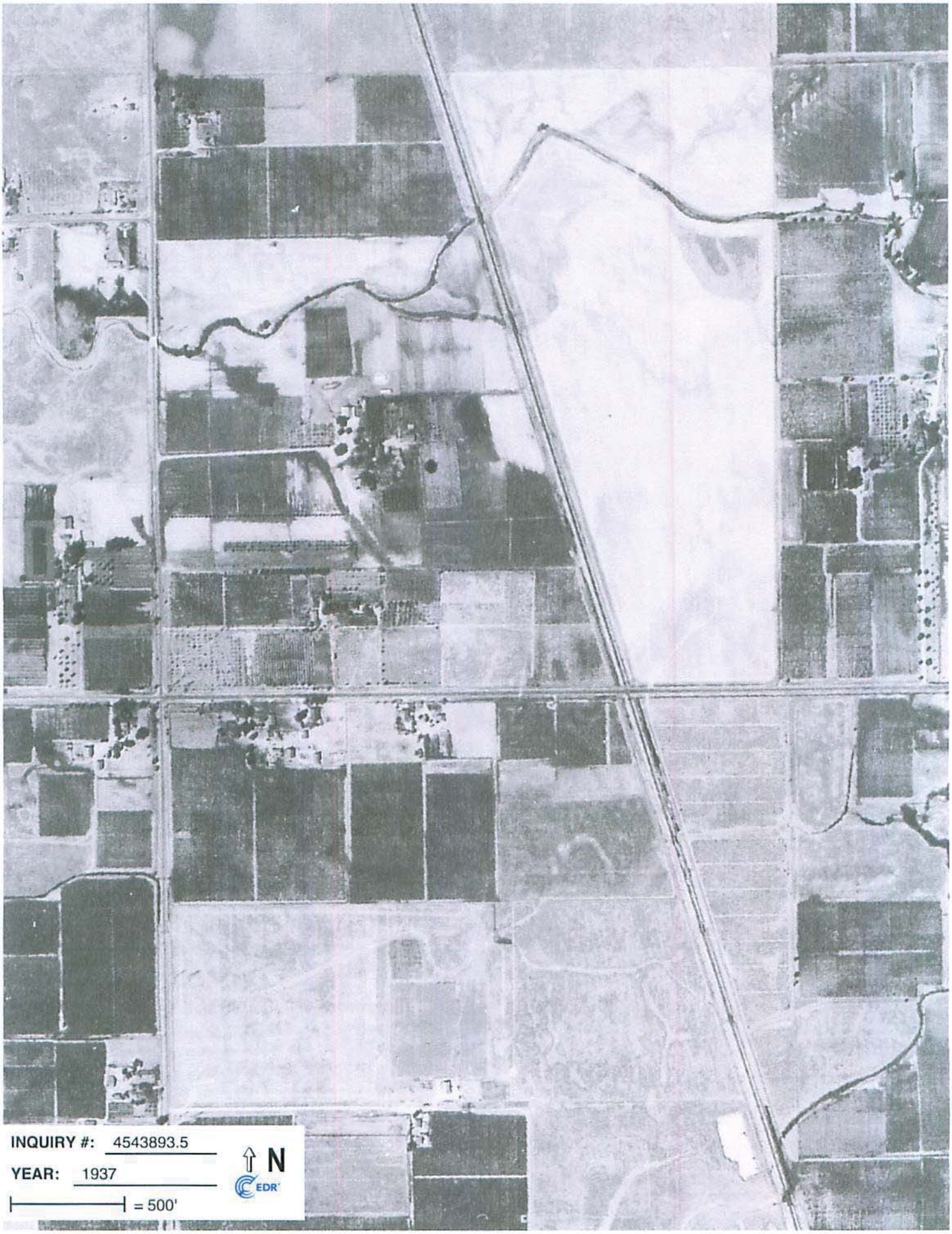
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ♟ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

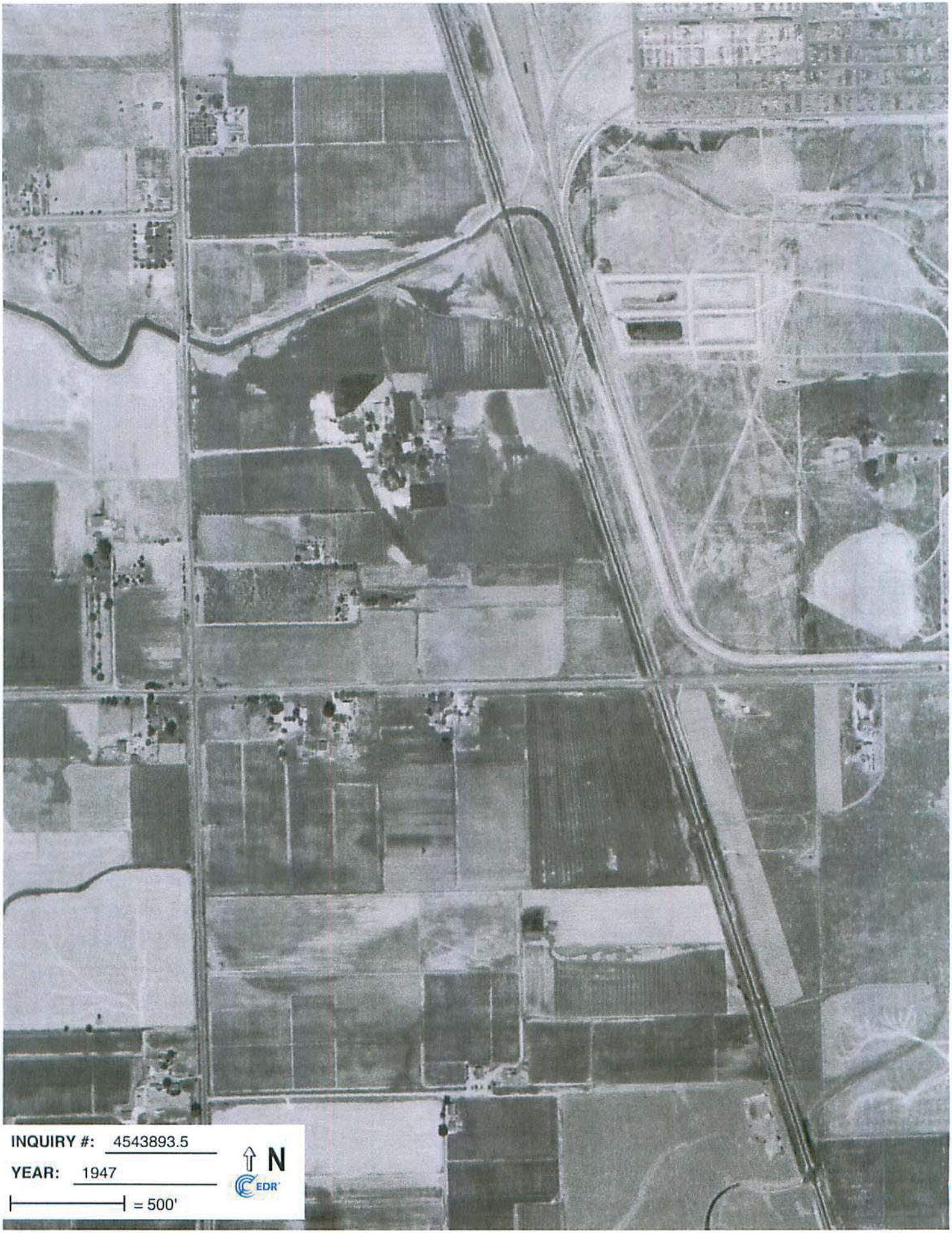
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

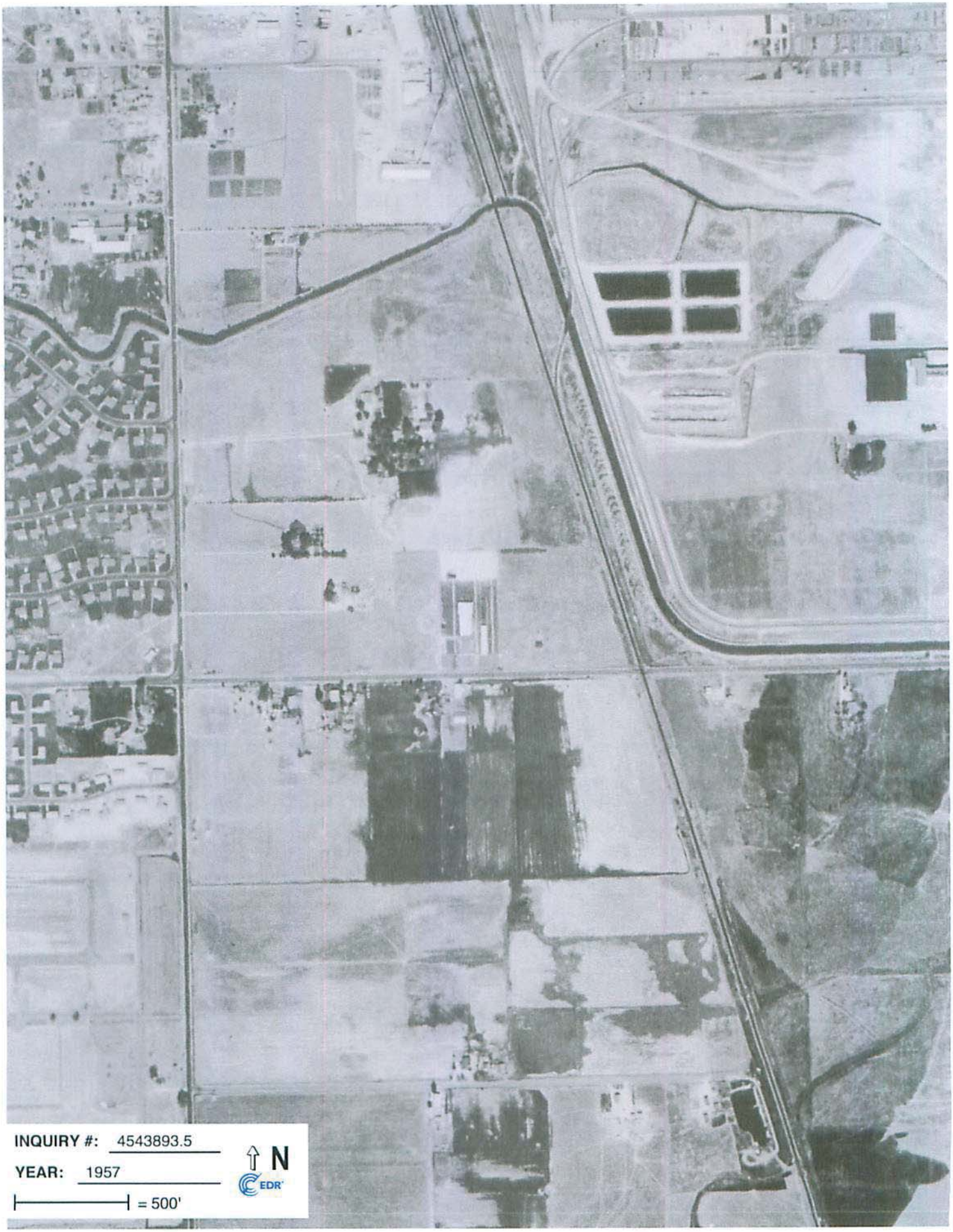
SITE NAME: 8280 Elder Creek Road ADDRESS: 8280 Elder Creek Road Sacramento CA 95828 LAT/LONG: 38.51 / 121.400729	CLIENT: Farshad Vakili, P.E., Phase 1 Assessment CONTACT: Farshad Vakili, P. E. INQUIRY #: 4709881.2s DATE: August 24, 2016 4:54 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

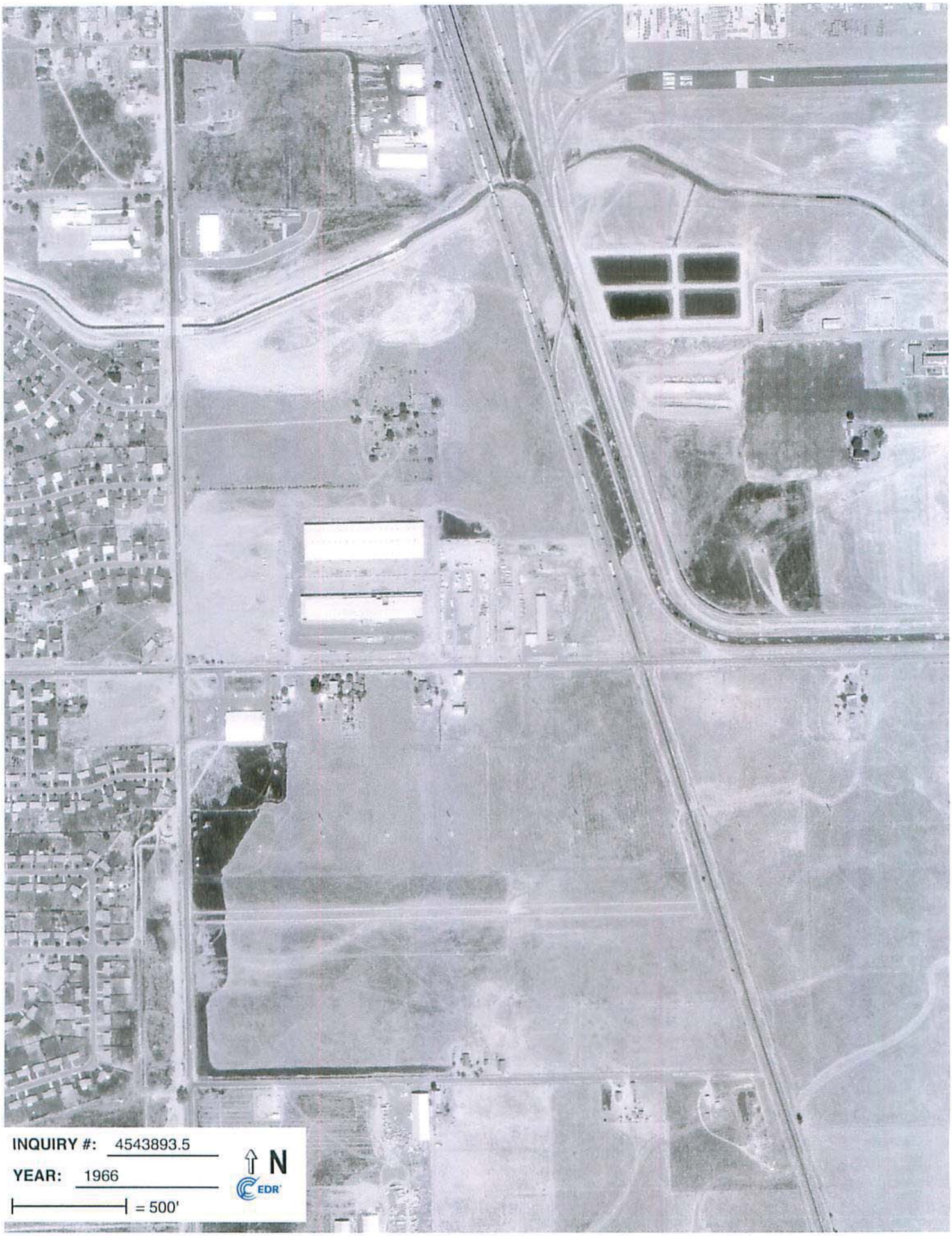
FIGURE 4
HISTORICAL AERIAL PHOTOGRPAHS


INQUIRY #: 4543893.5
YEAR: 1937
= 500'
N
EDR


INQUIRY #: 4543893.5
YEAR: 1947
= 500'
N
EDR

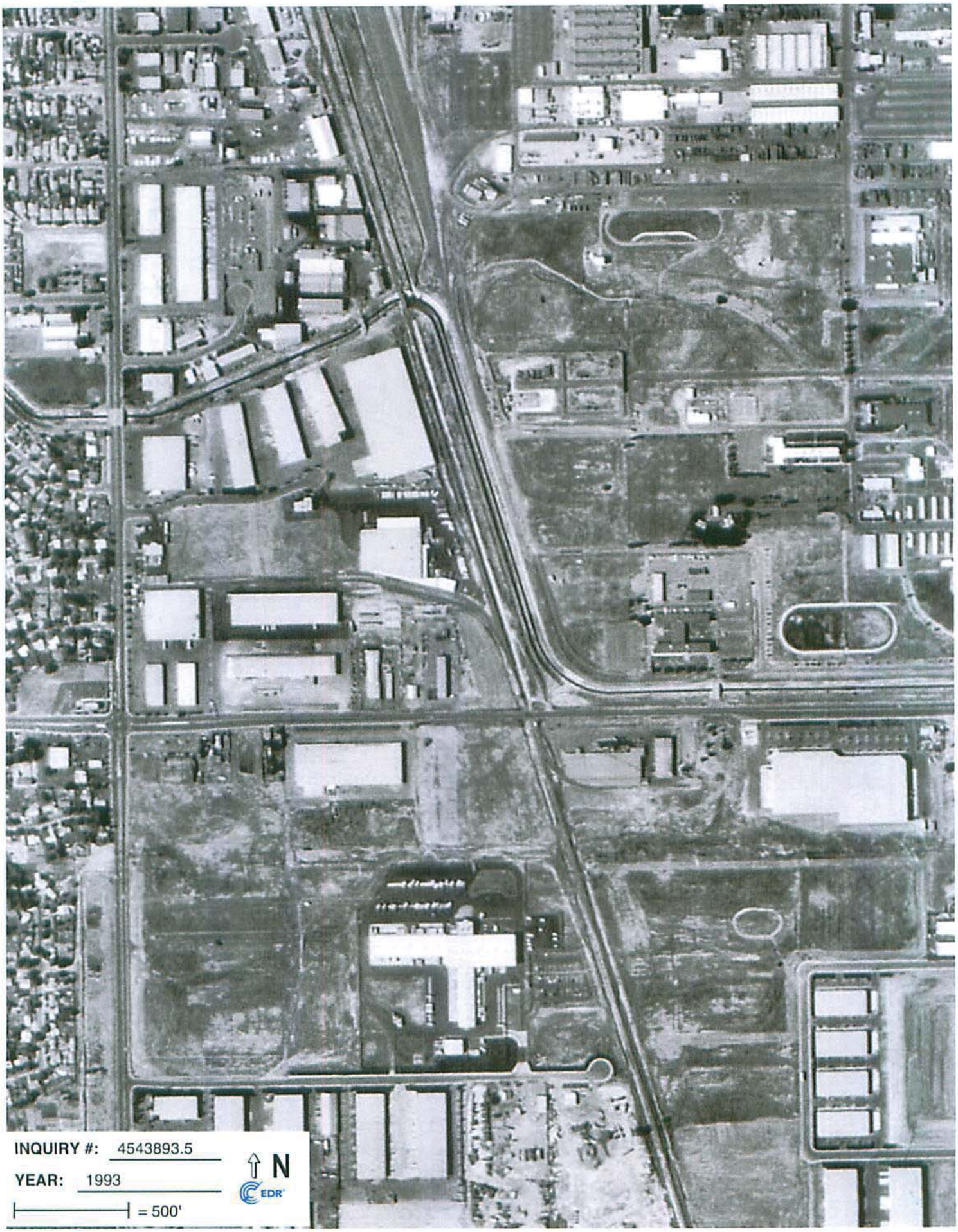

INQUIRY #: 4543893.5
YEAR: 1957
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 1964
= 500'
N
EDR


INQUIRY #: 4543893.5
YEAR: 1966
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 1972
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 1984
= 500'
N
EDR


INQUIRY #: 4543893.5
YEAR: 1993
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 1998
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 2005
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 2006
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 2009
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 2010
= 500'
N
EDR

INQUIRY #: 4543893.5
YEAR: 2012
= 500'
N
EDR

ATTACHMENT 2
SOIL, GROUNDWATER AND RADON GAS REPORT

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

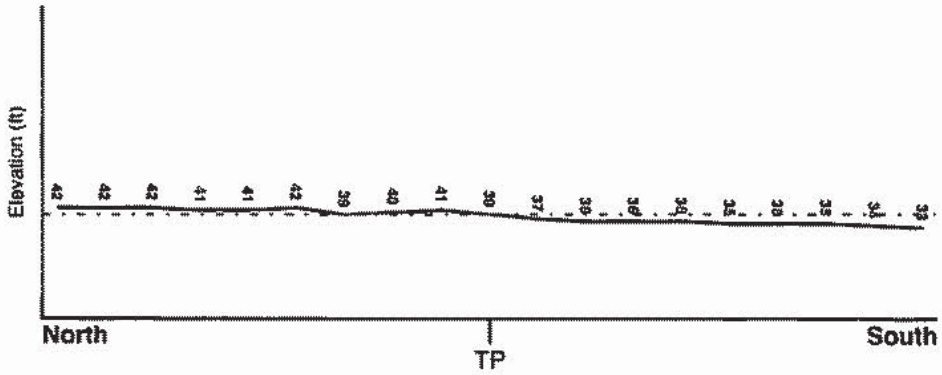
TOPOGRAPHIC INFORMATION

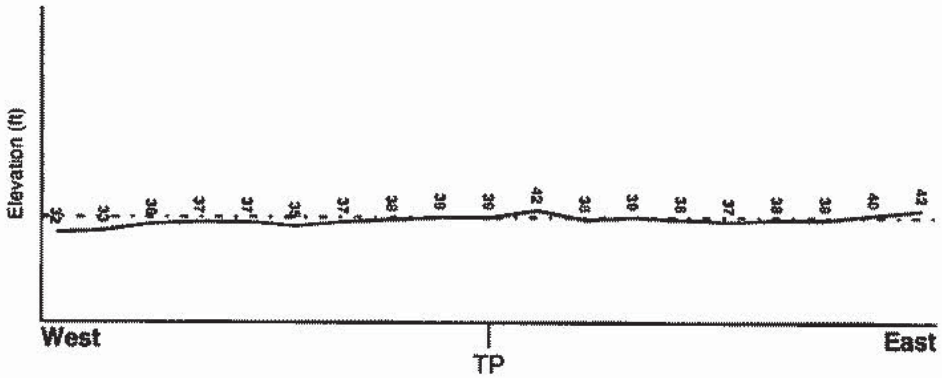
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 39 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SACRAMENTO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	0602660015E - FEMA Q3 Flood data
Additional Panels in search area:	0602620195E - FEMA Q3 Flood data 0602620310E - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SACRAMENTO EAST	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1995 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: XERARENTS

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 2

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 3

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 4

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 5

Soil Component Name: HEDGE

Soil Surface Texture: loam

Hydrologic Group: Class C/D - Drained/undrained hydrology class of soils that can be drained and classified.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	14 inches	22 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
3	22 inches	31 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
4	31 inches	38 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.6
5	38 inches	44 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
6	44 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000188641	1/2 - 1 Mile South
5	USGS40000188640	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	7303	1/2 - 1 Mile SSE
A3	8298	1/2 - 1 Mile SSE
A4	8299	1/2 - 1 Mile SSE

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG11000235277	1/4 - 1/2 Mile SE
A2	CAOG11000235340	1/2 - 1 Mile South
A3	CAOG11000235063	1/2 - 1 Mile South
4	CAOG11000235280	1/2 - 1 Mile South
A5	CAOG11000235141	1/2 - 1 Mile South
B6	CAOG11000235138	1/2 - 1 Mile SSW
B7	CAOG11000235284	1/2 - 1 Mile SSW
8	CAOG11000235105	1/2 - 1 Mile South

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
1 **South** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000188641**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382959121241901		
Monloc name:	008N005E35N002M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4996298
Longitude:	-121.4063416	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19700810	Welldepth:	295
Welldepth units:	ft	Wellholedepth:	305
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A2 **SSE** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**7303**

Water System Information:

Prime Station Code:	07N/05E-02C02 M	User ID:	TEN
FRDS Number:	3410033006	County:	Sacramento
District Number:	09	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Treated
Source Lat/Long:	383000.0 1212400.0	Precision:	Undefined
Source Name:	KARA - TREATED		
System Number:	3410033		
System Name:	Florin County Water District		
Organization That Operates System:			
	P.O. Box 292055		
	Sacramento, CA 95829		
Pop Served:	8460	Connections:	2202
Area Served:	FLORIN		
Sample Collected:	27-MAY-15	Findings:	. 21. MG/L
Chemical:	NITRATE (AS NO3)		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	09-JUN-11	Findings:	0.375 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	0.497 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	4.64 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	09-JUN-11	Findings:	0.33 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	2.3 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	09-JUN-11	Findings:	22. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-SEP-11	Findings:	1.67 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	0.433 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	0.404 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	1.7 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	22-SEP-11	Findings:	19. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-DEC-11	Findings:	0.404 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	0.447 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	22-DEC-11	Findings:	0.19 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	1.6 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	22-DEC-11	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-MAR-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-MAY-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-DEC-12	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-MAR-13	Findings:	16. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-JUL-13	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	12-DEC-13	Findings:	0.377 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	0.262 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	. 5. UNITS
Chemical:	COLOR		
Sample Collected:	12-DEC-13	Findings:	. 520. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-DEC-13	Findings:	. 8.
Chemical:	PH, LABORATORY		
Sample Collected:	12-DEC-13	Findings:	. 200. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	12-DEC-13	Findings:	. 240. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	12-DEC-13	Findings:	. 210. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	12-DEC-13	Findings:	. 42. MG/L
Chemical:	CALCIUM		
Sample Collected:	12-DEC-13	Findings:	. 25. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	12-DEC-13	Findings:	. 22. MG/L
Chemical:	SODIUM		
Sample Collected:	12-DEC-13	Findings:	. 2.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	12-DEC-13	Findings:	. 23. MG/L
Chemical:	CHLORIDE		
Sample Collected:	12-DEC-13	Findings:	. 2.7 UG/L
Chemical:	ARSENIC		
Sample Collected:	12-DEC-13	Findings:	. 0.191 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	. 2.7 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	12-DEC-13	Findings:	. 320. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	12-DEC-13	Findings:	. 0.38
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	12-DEC-13	Findings:	. 26. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-DEC-13	Findings:	. 12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	12-DEC-13	Findings:	. 1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	30-APR-14	Findings:	. 17. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	11-FEB-15	Findings:	. 17. MG/L
Chemical:	NITRATE (AS NO3)		

A3
SSE
1/2 - 1 Mile
Lower

CA WELLS 8298

Water System Information:

Prime Station Code:	08N/05E-35N02 M	User ID:	TEN
FRDS Number:	3410033008	County:	Sacramento
District Number:	09	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Treated
Source Lat/Long:	383000.0 1212400.0	Precision:	Undefined
Source Name:	POWER INN - TREATED		
System Number:	3410033		
System Name:	Florin County Water District		
Organization That Operates System:			
	P.O. Box 292055		
	Sacramento, CA 95829		
Pop Served:	8460	Connections:	2202
Area Served:	FLORIN		
Sample Collected:	24-FEB-11	Findings:	0.267 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	0.502 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	0.11 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	3.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JUN-11	Findings:	0.374 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	0.434 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	0.16 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	17. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-SEP-11	Findings:	1.05 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	0.305 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	0.401 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	13. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-DEC-11	Findings:	0.439 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		

Sample Collected:	22-DEC-11	Findings:	0.34 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	0.11 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	30-MAY-12	Findings:	6.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-DEC-12	Findings:	3.6 MG/L
Chemical:	NITRATE (AS NO3)		

A4
SSE
1/2 - 1 Mile
Lower

CA WELLS 8299

Water System Information:

Prime Station Code:	08N/05E-35Q01 M	User ID:	TEN
FRDS Number:	3410033007	County:	Sacramento
District Number:	09	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	383000.0 1212400.0	Precision:	Undefined
Source Name:	MCCOMBER		
System Number:	3410033		
System Name:	Florin County Water District		
Organization That Operates System:			
	P.O. Box 292055		
	Sacramento, CA 95829		
Pop Served:	8460	Connections:	2202
Area Served:	FLORIN		
Sample Collected:	24-FEB-11	Findings:	0.297 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	0.463 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	0.22 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	24-FEB-11	Findings:	6.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JUN-11	Findings:	0.457 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	0.436 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	0.22 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	09-JUN-11	Findings:	6.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-SEP-11	Findings:	1.21 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	0.239 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	22-SEP-11	Findings:	0.433 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-SEP-11	Findings:	6.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-DEC-11	Findings:	0.366 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	0.372 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	22-DEC-11	Findings:	0.16 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	30-MAY-12	Findings:	6.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-DEC-12	Findings:	7.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-MAR-13	Findings:	7.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-JUL-13	Findings:	0.271 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	18-JUL-13	Findings:	0.382 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	18-JUL-13	Findings:	240. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	18-JUL-13	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	18-JUL-13	Findings:	100. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	18-JUL-13	Findings:	120. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	18-JUL-13	Findings:	96. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	18-JUL-13	Findings:	21. MG/L
Chemical:	CALCIUM		
Sample Collected:	18-JUL-13	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	18-JUL-13	Findings:	16. MG/L
Chemical:	SODIUM		
Sample Collected:	18-JUL-13	Findings:	3. MG/L
Chemical:	POTASSIUM		
Sample Collected:	18-JUL-13	Findings:	9.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	18-JUL-13	Findings:	2.6 UG/L
Chemical:	ARSENIC		
Sample Collected:	18-JUL-13	Findings:	0.246 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	18-JUL-13	Findings:	200. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	18-JUL-13	Findings:	7.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-JUL-13	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	18-JUL-13	Findings:	1.64 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12-DEC-13	Findings:	0.314 PCI/L
Chemical:	RADIUM 226 COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	0.345 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	. 5. UNITS
Chemical:	COLOR		
Sample Collected:	12-DEC-13	Findings:	. 240. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-DEC-13	Findings:	. 8.
Chemical:	PH, LABORATORY		
Sample Collected:	12-DEC-13	Findings:	. 110. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	12-DEC-13	Findings:	. 130. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	12-DEC-13	Findings:	. 83. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	12-DEC-13	Findings:	. 18. MG/L
Chemical:	CALCIUM		
Sample Collected:	12-DEC-13	Findings:	. 9.2 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	12-DEC-13	Findings:	. 13. MG/L
Chemical:	SODIUM		
Sample Collected:	12-DEC-13	Findings:	. 2.6 MG/L
Chemical:	POTASSIUM		
Sample Collected:	12-DEC-13	Findings:	. 10. MG/L
Chemical:	CHLORIDE		
Sample Collected:	12-DEC-13	Findings:	. 3.9 UG/L
Chemical:	ARSENIC		
Sample Collected:	12-DEC-13	Findings:	. 0.269 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12-DEC-13	Findings:	. 180. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	12-DEC-13	Findings:	- 0.22
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	12-DEC-13	Findings:	. 8.9 MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	12-DEC-13	Findings:	. 12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	12-DEC-13	Findings:	. 1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	30-APR-14	Findings:	. 8.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-AUG-14	Findings:	. 240. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11-FEB-15	Findings:	. 6. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	11-FEB-15	Findings:	. 0.59 UG/L
Chemical:	TETRACHLOROETHYLENE		
Sample Collected:	11-FEB-15	Findings:	. 0.59 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	11-FEB-15	Findings:	. 9.9 MG/L
Chemical:	NITRATE (AS NO3)		

5
SSE **FED USGS** **USGS40000188640**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc identifier:	USGS-382959121234201		
Monloc name:	008N005E35Q002M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4996298
Longitude:	-121.3960635	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19750101	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	140
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance	Database	EDR ID Number

1
SE
1/4 - 1/2 Mile

OIL_GAS **CAOG11000235277**

District nun:	6	Api number:	06720224
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	TXO Production Corp.		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Northgate Beneficial	Wellnumber:	35-1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-JUL-83
Welldeptha:	4056		
Redrillloo:	0		
Abandonedd:	27-JUL-83	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDH
Site id:	CAOG11000235277		

A2
South
1/2 - 1 Mile

OIL_GAS **CAOG11000235340**

District nun:	6	Api number:	06720289
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	Venada National		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 007		
Leasename:	Lindsey	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	19-NOV-92
Welldeptha:	8477		
Redrillloo:	0		
Abandonedd:	04-DEC-92	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDH
Site id:	CAOG11000235340		

A3
South
1/2 - 1 Mile

OIL_GAS **CAOG11000235063**

District nun:	6	Api number:	06720125
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	Union Oil Company of California		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 025		
Leasename:	Florin	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-NOV-77
Welldepth:	4921		
Redrillfoo:	0		
Abandonedd:	04-MAY-89	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDG
Site id:	CAOG11000235063		

4
South
1/2 - 1 Mile

OIL_GAS **CAOG11000235280**

District nun:	6	Api number:	06720227
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	Union Oil Company of California		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 025		
Leasename:	Florin	Wellnumber:	4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-SEP-83
Welldepth:	5608		
Redrillfoo:	0		
Abandonedd:	23-APR-93	Completion:	31-OCT-83
Directiona:	Directionally drilled	Gissymbol:	PDG
Site id:	CAOG11000235280		

A5
South
1/2 - 1 Mile

OIL_GAS **CAOG11000235141**

District nun:	6	Api number:	06720206
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	Union Oil Company of California		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		

Comments:	Status Code 024		
Leasename:	Florin	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-DEC-82
Welldeptha:	4500		
Redrillfoo:	0		
Abandonedd:	20-APR-93	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000235141		

B6
SSW
1/2 - 1 Mile

OIL_GAS **CAOG11000235138**

District nun:	6	Api number:	06720203
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	The Procter and Gamble Co.		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	34
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Florin	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-SEP-82
Welldeptha:	4060		
Redrillfoo:	0		
Abandonedd:	12-SEP-88	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000235138		

B7
SSW
1/2 - 1 Mile

OIL_GAS **CAOG11000235284**

District nun:	6	Api number:	06720231
Blm well:	N	Redrill can:	Not Reported
Dryhole:	N	Well status:	P
Operator name:	The Procter and Gamble Co.		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	34
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 024		
Leasename:	Florin	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-NOV-83
Welldeptha:	4693		
Redrillfoo:	0		
Abandonedd:	06-JAN-86	Completion:	19-DEC-83
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000235284		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance		Database	EDR ID Number
8 **South** **1/2 - 1 Mile**		**OIL_GAS**	**CAOG11000235105**

District nun:	6	Api number:	06720167
Blm well:	N	Redrill can:	Not Reported
Dryhole:	Y	Well status:	P
Operator name:	Venada National		
County name:	Sacramento	Fieldname:	Florin Gas (ABD)
Area name:	Any Area	Section:	35
Township:	08N	Range:	05E
Base meridian:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Anderson	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidentl:	N	Spuddate:	10-DEC-80
Welldeptha:	4000		
Redrillfoo:	0		
Abandonedd:	16-DEC-80	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDH
Site id:	CAOG11000235105		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95824	6	0

Federal EPA Radon Zone for SACRAMENTO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95824

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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ATTACHMENT 3
PHOTOGRAPHS

Photo 1: Looking west at the side alongside of Elder Creek Road

Photo 2: Looking at the For Sale Sign

Photo 3: Looking south at the entrance gate to the Subject Property

Photo 4: Looking west at the parking area for the trucks

Photo 5: Looking south at the side of the Building 1

Photo 6: Looking east at land in the back side of the building

Photo 7: Looking northeast at the back side of Building1

Photo 8: Looking east at the land filled with asphalt waste piles

Photo 9: Looking at the one of the asphalt waste piles at the property

Photo 10: Looking north at the cell tower in the neighboring property

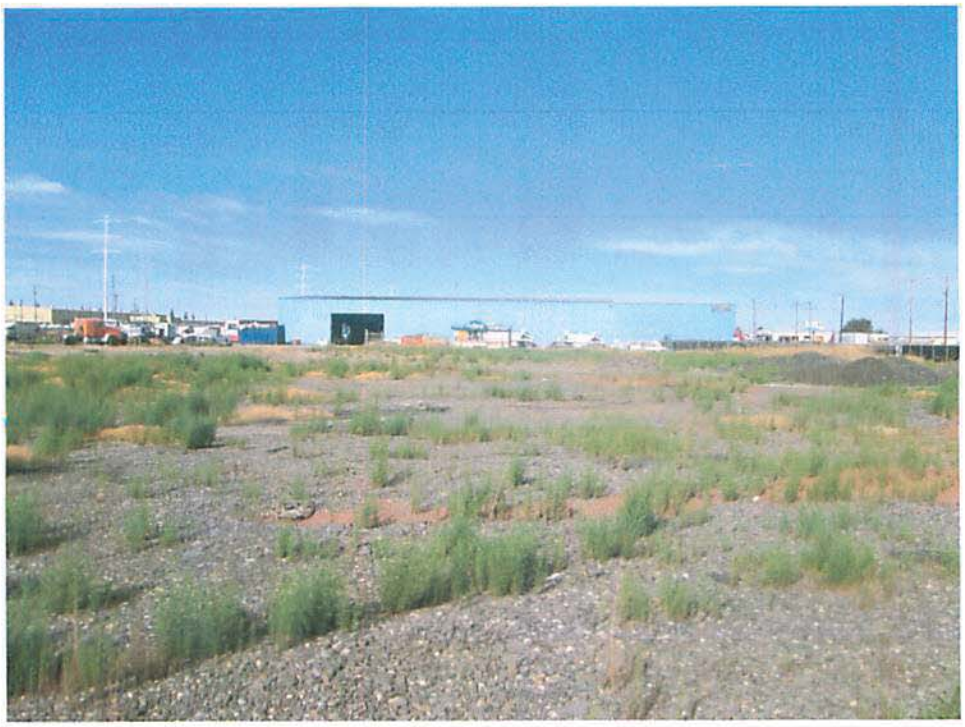

Photo 11: Looking west at the Building 2 and the land

Photo 12: Looking south at the property sprayed with asphalt wastes

Photo 13: Looking southwest at the Building 2

Photo 14: Looking inside Building 2

Photo 15: Looking inside Building 2

Photo 16: Looking south at the front of building 2

Photo 17: Looking east at the side of Building 2

Photo 18: Looking at waste oil tank inside Zapata at Building 1

Photo 19: Looking at the hazardous material oil drums inside Zapata

Photo 20: Looking inside Zapata at Building 1

Photo 21: Looking inside Zapata at Building 1

Photo 22: Looking inside Zapata at Building 1

Photo 23: Looking inside Mickey's Truck Repair at Building 1

Photo 24: Looking at the hazardous waste drums at Mickey's

Photo 25: Looking at the drums of hazardous wastes at Mickey's

Photo 26: Drums of hazardous wastes inside Mickey's without containment

Photo 27: Looking at a sump outside of Mickey's Truck Repair

Photo 28: Looking inside Expo Furniture Gallery

Photo 29: Inside Expo Furniture Gallery

Photo 30: Looking at the electrical box inside Expo Furniture Gallery

ATTACHMENT 4
REGULATORY FILE RESERACH

8280 Elder Creek Road
8280 Elder Creek Road
Sacramento, CA 95828

Inquiry Number: 4709881.2s
August 24, 2016

The EDR Radius Map™ Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

6280 ELDER CREEK ROAD
SACRAMENTO, CA 95828

COORDINATES

Latitude (North):	38.5100000 - 38' 30' 36.00"
Longitude (West):	121.4007290 - 121' 24' 2.62"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	639441.4
UTM Y (Meters):	4263408.0
Elevation:	39 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5619748 SACRAMENTO EAST, CA
Version Date:	2012
South Map:	5619710 FLORIN, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140621
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
8280 ELDER CREEK ROAD
SACRAMENTO, CA 95828

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	LIFETIME DOORS INC	8280 ELDER CREEK RD	LUST, Sacramento Co. CS, HIST UST		TP
A2	LIFETIME DOORS	8280 ELDER CREEK ROA	RGA LUST		TP
A3	LIFETIME DOORS INC	8280 ELDER CREEK RD	HAZNET		TP
A4	LIFETIME DOORS INC	8280 ELDER CREEK RD	EMI, Sacramento Co. ML		TP
A5	LIFETIME DOOR COMPAN	8280 ELDER CREEK RD	HAZNET		TP
A6	LIFETIME DOORS	8280 ELDER CREEK ROA	HAZNET		TP
A7	LIFETIME DOORS INC	8280 ELDER CREEK RD	FINDS, ECHO		TP
Reg	SACRAMENTO ARMY DEPO		DOD	Same	1186, 0.225, NNE
Reg	SACRAMENTO ARMY DEPO	8350 FRUITRIDGE RD	NPL, SEMS, CORRACTS, RCRA-TSDF, RCRA-SQG, US ENG..	Same	189, 0.036, North
B8	MTMAINTCO NAVAL INST	8277 ELDER CREEK RD	Sacramento Co. ML	Lower	332, 0.063, NW
B9	NVL OPERATIONAL SUPP	8277 ELDER CREEK RD	RCRA-SQG, FINDS, ECHO	Lower	332, 0.063, NW
B10	NAVY OPERATIONAL SUP	8277 ELDER CREEK RD	Sacramento Co. ML	Lower	332, 0.063, NW
C11	SAFEWASTE CORP	8360 ELDER CREEK RD	RCRA-SQG, FINDS, HAZNET, ECHO	Lower	848, 0.161, East
C12	AMERICAN BUILDING SU	8360 ELDER CREEK RD	Sacramento Co. ML	Lower	848, 0.161, East
D13	ELLIS ROOFING CO DBA	8201 ELDER CREEK RD	CA FID UST	Higher	940, 0.178, WNW
D14	ELLIS ROOFING COMPAN	8201 ELDER CREEK RD	LUST, Sacramento Co. CS, SWEEPS UST, HIST UST,...	Higher	940, 0.178, WNW
15	EASTMAN BUILDING PRO	8191 ELDER CREEK RD	Sacramento Co. ML	Higher	1252, 0.237, WNW
E16	ALLIANCE AUTO BODY I	8180 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E17	EXECUTIVE AUTO BODY	8188 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E18	BUXTON'S AUTO TRANSP	8176 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E19	SOUTH SACRAMENTO MAC	8178 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E20	AUTO BODY SPECIALIST	8188 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E21	LEVAN	8182 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E22	NORTHSTAR AUTO BODY	8184 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E23	ACCU-TECH UNLIMITED	8186 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
E24	ACE AUTO RESTORATION	8186 ELDER CREEK RD	Sacramento Co. ML	Lower	1280, 0.242, West
25	LEBATH - SUNNYWOOD	8170 ELDER CREEK RD	Sacramento Co. ML	Lower	1304, 0.247, WSW
F26	IT'S UNLIMITED, INC	8260 BERRY AV	SWF/LF, CHMIRS, Sacramento Co. ML, NPDES	Lower	1630, 0.309, SSW
27	M & B	8137 ELDER CREEK RD	LUST, Sacramento Co. CS, HIST CORTESE, Sacramento...	Higher	1669, 0.316, WNW
F28	GEORGE HALL TRUCKING	8240 BERRY AVE	LUST	Lower	1697, 0.321, SSW
F29	GEORGE HALL TRUCKING	8240 BERRY AV	LUST, Sacramento Co. CS, HIST UST, HIST CORTESE,...	Lower	1697, 0.321, SSW
30	BLDG #680	680 SAC. ARMY DEPOT	LUST, MCS, HIST CORTESE	Higher	1863, 0.353, NE
31	ANDREW CORPORATION	8430 ROVANA CIRCLE	RCRA-SQG, ENVIROSTOR, FINDS, HAZNET, Sacramento...	Higher	2443, 0.463, SSE
G32	ARCO #5424	8024 ELDER CREEK RD	LUST, Sacramento Co. CS	Lower	2532, 0.480, West
G33	ARCO #5424	8024 ELDER CREEK RD	LUST, SWEEPS UST, Sacramento Co. ML	Lower	2532, 0.480, West
34	FORMER SERVICE STATI	6300 POWER INN RD	LUST, Sacramento Co. CS, HIST CORTESE, Sacramento...	Lower	2559, 0.485, West
35	THUNDER BIRD MOULDIN	6001 POWER INN RD	ENVIROSTOR, SLIC, SWEEPS UST, CA FID UST,...	Lower	3728, 0.706, NW
36	PROTECH SPRAY SERVIC	8120 37TH AV	ENVIROSTOR, Sacramento Co. ML	Lower	3960, 0.750, NNW
37	REW MATERIALS	8588 THYS CT	ENVIROSTOR, Sacramento Co. CS, VCP, EMI,...	Higher	5009, 0.949, NE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
LIFETIME DOORS INC 8280 ELDER CREEK RD SACRAMENTO, CA 95828	LUST Database: LUST, Date of Government Version: 06/13/2016 Status: Completed - Case Closed Global Id: T10000003350 Sacramento Co. CS Facility Id: RO0001687 Date Closed: 06/01/2011 HIST UST Facility Id: 00000010184	N/A
LIFETIME DOORS 8280 ELDER CREEK ROA SACRAMENTO, CA	RGA LUST	N/A
LIFETIME DOORS INC 8280 ELDER CREEK RD SACRAMENTO, CA 95828	HAZNET GEPAID: CAL000358295	N/A
LIFETIME DOORS INC 8280 ELDER CREEK RD SACRAMENTO, CA 95205	EMI Facility Id: 86 Sacramento Co. ML	N/A
LIFETIME DOOR COMPAN 8280 ELDER CREEK RD SACRAMENTO, CA 95828	HAZNET GEPAID: CAC001508072	N/A
LIFETIME DOORS 8280 ELDER CREEK ROA SACRAMENTO, CA 93828	HAZNET GEPAID: CAC000712888	N/A
LIFETIME DOORS INC 8280 ELDER CREEK RD SACRAMENTO, CA 95828	FINDS Registry ID:: 110001170492 ECHO	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program
CDL..... Clandestine Drug Labs
Toxic Pits..... Toxic Pits Cleanup Act Sites
US CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS..... Environmental Liens Listing
LIENS 2..... CERCLA Lien Information
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System
LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
FUDS..... Formerly Used Defense Sites
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR..... Financial Assurance Information

EXECUTIVE SUMMARY

EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
FUELS PROGRAM	EPA Fuels Program Registered Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historic Gas Stations

EXECUTIVE SUMMARY

EDR Hist Cleaner..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 03/07/2016 has revealed that there is 1 NPL site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	***8350 FRUITRIDGE RD***	***N 0 - 1/8 (0.035 mi.)***	***0***	***21***

Federal CERCLIS list

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 03/07/2016 has revealed that there is 1 SEMS site within approximately 0.5 miles of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/09/2015 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-TSDF list, as provided by EDR, and dated 12/09/2015 has revealed that there is 1 RCRA-TSDF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/09/2015 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
NVL OPERATIONAL SUPP	*8277 ELDER CREEK RD*	*NW 0 - 1/8 (0.063 mi.)*	*B9*	*68*
SAFEWASTE CORP	*8360 ELDER CREEK RD*	*E 1/8 - 1/4 (0.161 mi.)*	*C11*	*72*

EXECUTIVE SUMMARY

Federal institutional controls / engineering controls registries

US ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the US ENG CONTROLS list, as provided by EDR, and dated 09/10/2015 has revealed that there is 1 US ENG CONTROLS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

US INST CONTROL: A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

A review of the US INST CONTROL list, as provided by EDR, and dated 09/10/2015 has revealed that there is 1 US INST CONTROL site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 05/02/2016 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANDREW CORPORATION Facility Id: 71003424 Status: Inactive - Needs Evaluation	*8430 ROVANA CIRCLE*	*SSE 1/4 - 1/2 (0.463 mi.)*	*31*	*103*
REW MATERIALS Facility Id: 34340038 Status: No Further Action	*8588 THYS CT*	*NE 1/2 - 1 (0.949 mi.)*	*37*	*123*

Lower Elevation	Address	Direction / Distance	Map ID	Page
THUNDER BIRD MOULDIN Facility Id: 34240035	*6001 POWER INN RD*	*NW 1/2 - 1 (0.706 mi.)*	*35*	*116*

Status: Refer: Other Agency

PROTECH SPRAY SERVIC	***8120 37TH AV***	***NNW 1/2 - 1 (0.750 mi.)***	***36***	***121***

Facility Id: 34510057
Status: Refer: Other Agency

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
IT'S UNLIMITED, INC	***8260 BERRY AV***	***SSW 1/4 - 1/2 (0.309 mi.)***	***F26***	***88***

Database: SWF/LF (SWIS), Date of Government Version: 05/16/2016
Facility ID: 34-AA-0214
Operational Status: Active
Regulation Status: Permitted

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, has revealed that there are 8 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN	***8201 ELDER CREEK RD***	***WNW 1/8 - 1/4 (0.178 mi.)***	***D14***	***77***

Database: LUST, Date of Government Version: 06/13/2016
Database: LUST REG 5, Date of Government Version: 07/01/2008
Status: Completed - Case Closed
Status: Case Closed
Global Id: T0606700757

M & B	***8137 ELDER CREEK RD***	***WNW 1/4 - 1/2 (0.316 mi.)***	***27***	***95***

Database: LUST, Date of Government Version: 06/13/2016
Database: LUST REG 5, Date of Government Version: 07/01/2008
Status: Completed - Case Closed
Status: Case Closed
Global Id: T0606700235

BLDG #680	***680 SAC. ARMY DEPOT***	***NE 1/4 - 1/2 (0.353 mi.)***	***30***	***101***

Database: LUST REG 5, Date of Government Version: 07/01/2008
Status: Case Closed

Lower Elevation	Address	Direction / Distance	Map ID	Page
GEORGE HALL TRUCKING	8240 BERRY AVE	SSW 1/4 - 1/2 (0.321 mi.)	F28	97

Database: LUST REG 5, Date of Government Version: 07/01/2008

Status: Case Closed

GEORGE HALL TRUCKING	***8240 BERRY AV***	***SSW 1/4 - 1/2 (0.321 mi.)***	***F29***	***98***

Database: LUST, Date of Government Version: 06/13/2016
Status: Completed - Case Closed
Global Id: T0606700694

ARCO #5424	***8024 ELDER CREEK RD***	***W 1/4 - 1/2 (0.480 mi.)***	***G32***	***107***

Database: LUST, Date of Government Version: 06/13/2016
Status: Completed - Case Closed
Global Id: T0606791424

ARCO #5424	***8024 ELDER CREEK RD***	***W 1/4 - 1/2 (0.480 mi.)***	***G33***	***112***

Database: LUST REG 5, Date of Government Version: 07/01/2008
Status: Pollution Characterization

FORMER SERVICE STATI	***6300 POWER INN RD***	***W 1/4 - 1/2 (0.485 mi.)***	***34***	***114***

Database: LUST, Date of Government Version: 06/13/2016
Database: LUST REG 5, Date of Government Version: 07/01/2008
Status: Completed - Case Closed
Status: Case Closed
Global Id: T0606700381

Sacramento Co. CS: List of sites where unauthorized releases of potentially hazardous materials have occurred.

A review of the Sacramento Co. CS list, as provided by EDR, and dated 05/02/2016 has revealed that there are 5 Sacramento Co. CS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN	***8201 ELDER CREEK RD***	***WNW 1/8 - 1/4 (0.178 mi.)***	***D14***	***77***
Facility Id: RO0000363				
Date Closed: 07/27/1994				
M & B	***8137 ELDER CREEK RD***	***WNW 1/4 - 1/2 (0.316 mi.)***	***27***	***95***
Facility Id: RO0000362				
Date Closed: 08/14/1992				

Lower Elevation	Address	Direction / Distance	Map ID	Page
GEORGE HALL TRUCKING	***8240 BERRY AV***	***SSW 1/4 - 1/2 (0.321 mi.)***	***F29***	***98***
Facility Id: RO0000236				
Date Closed: 09/14/1995				
ARCO #5424	***8024 ELDER CREEK RD***	***W 1/4 - 1/2 (0.480 mi.)***	***G32***	***107***
Facility Id: RO0001458				
FORMER SERVICE STATI	***6300 POWER INN RD***	***W 1/4 - 1/2 (0.485 mi.)***	***34***	***114***
Facility Id: RO0000983				
Date Closed: 01/19/1989				

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN	***8201 ELDER CREEK RD***	***WNW 1/8 - 1/4 (0.178 mi.)***	***D14***	***77***
Status: A				
Tank Status: A				
Comp Number: 11419				

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN	***8201 ELDER CREEK RD***	***WNW 1/8 - 1/4 (0.178 mi.)***	***D14***	***77***

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	***8350 FRUITRIDGE RD***	***N 0 - 1/8 (0.036 mi.)***	***0***	***21***
Facility Id: 34000054				
Status: A				
ELLIS ROOFING CO DBA	8201 ELDER CREEK RD	WNW 1/8 - 1/4 (0.178 mi.)	D13	76
Facility Id: 34006860				
Status: A				

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD

site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO		NNE 1/8 - 1/4 (0.225 mi.)	0	20

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 11/25/2013 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SACRAMENTO ARMY DEPO	*8350 FRUITRIDGE RD*	*N 0 - 1/8 (0.036 mi.)*	*0*	*21*

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 5 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN Reg Id: 340913	*8201 ELDER CREEK RD*	*WNW 1/8 - 1/4 (0.178 mi.)*	*D14*	*77*
M & B Reg Id: 340300	*8137 ELDER CREEK RD*	*WNW 1/4 - 1/2 (0.316 mi.)*	*27*	*95*
BLDG #680 Reg Id: 341114	*680 SAC. ARMY DEPOT*	*NE 1/4 - 1/2 (0.353 mi.)*	*30*	*101*

Lower Elevation	Address	Direction / Distance	Map ID	Page
GEORGE HALL TRUCKING Reg Id: 340842	*8240 BERRY AV*	*SSW 1/4 - 1/2 (0.321 mi.)*	*F29*	*98*
FORMER SERVICE STATI Reg Id: 340458	*6300 POWER INN RD*	*W 1/4 - 1/2 (0.485 mi.)*	*34*	*114*

Sacramento Co. ML: Sacramento County Master List. Any business that has hazardous materials on site - hazardous materials storage sites, underground storage tanks, waste generators.

A review of the Sacramento Co. ML list, as provided by EDR, and dated 05/02/2016 has revealed that there are 15 Sacramento Co. ML sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ELLIS ROOFING COMPAN Facility Status: Inactive. Included on a listing no longer updated. Facility Id: U0045686	*8201 ELDER CREEK RD*	*WNW 1/8 - 1/4 (0.178 mi.)*	*D14*	*77*
EASTMAN BUILDING PRO	8191 ELDER CREEK RD	WNW 1/8 - 1/4 (0.237 mi.)	15	81

Lower Elevation	Address	Direction / Distance	Map ID	Page
MTMAINTCO NAVAL INST	8277 ELDER CREEK RD	NW 0 - 1/8 (0.063 mi.)	B8	67

EXECUTIVE SUMMARY

Facility Status: Inactive. Included on a listing no longer updated.

NAVY OPERATIONAL SUP	8277 ELDER CREEK RD	NW 0 - 1/8 (0.063 mi.)	B10	72
AMERICAN BUILDING SU	8360 ELDER CREEK RD	E 1/8 - 1/4 (0.161 mi.)	C12	75

Facility Status: Inactive. Included on a listing no longer updated.

ALLIANCE AUTO BODY I	8180 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E16	81

Facility Status: Inactive. Included on a listing no longer updated.

EXECUTIVE AUTO BODY	8188 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E17	82

Facility Status: Inactive. Included on a listing no longer updated.

BUXTON'S AUTO TRANSP	8176 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E18	83
SOUTH SACRAMENTO MAC	8178 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E19	84

Facility Status: Inactive. Included on a listing no longer updated.

AUTO BODY SPECIALIST	8168 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E20	85
LEVAN	8182 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E21	85

Facility Status: Inactive. Included on a listing no longer updated.

NORTHSTAR AUTO BODY	8184 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E22	86
ACCU-TECH UNLIMITED	8186 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E23	86
ACE AUTO RESTORATION	8186 ELDER CREEK RD	W 1/8 - 1/4 (0.242 mi.)	E24	87
LEBATH - SUNNYWOOD	8170 ELDER CREEK RD	WSW 1/8 - 1/4 (0.247 mi.)	25	87

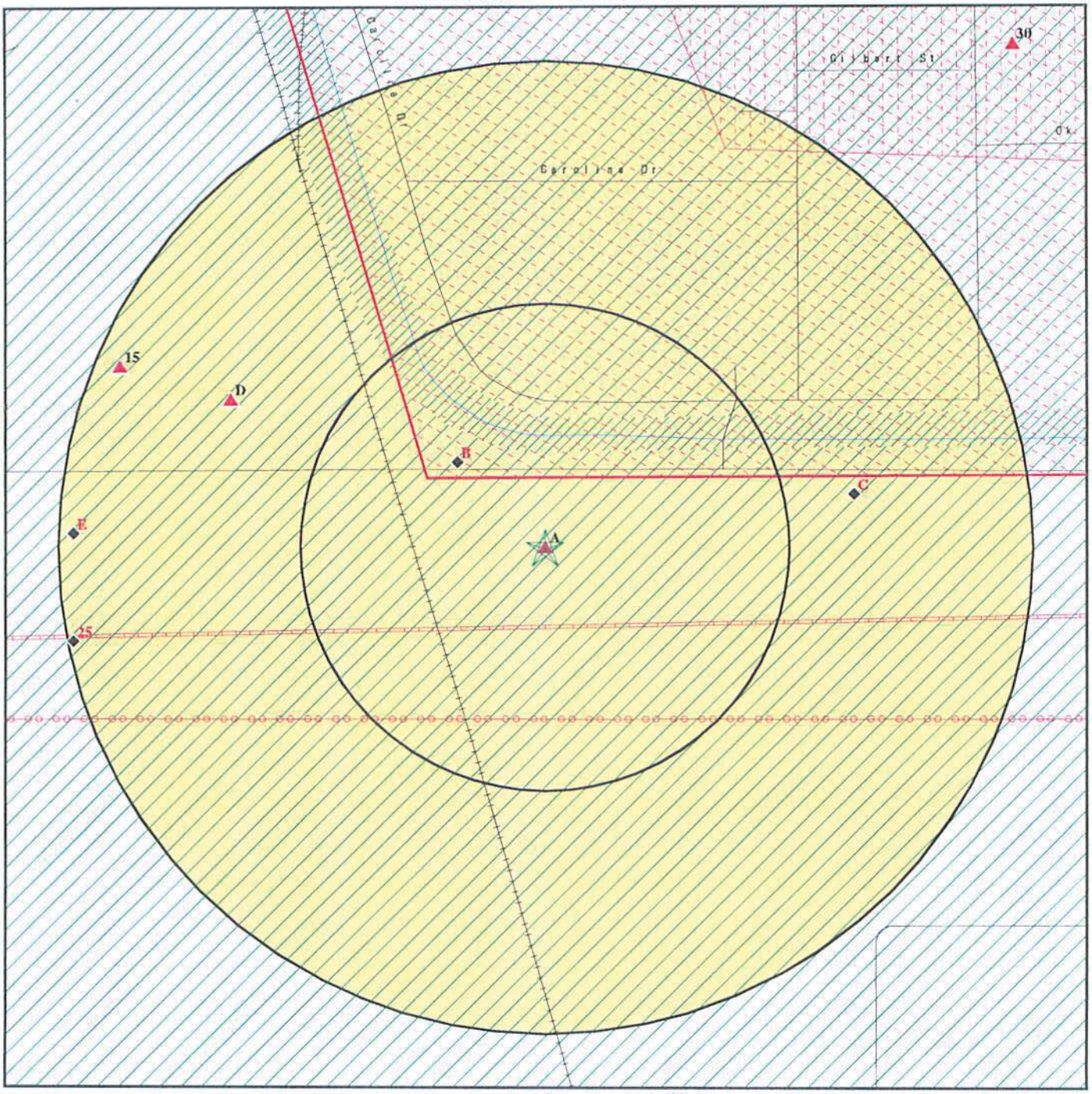
Facility Status: Inactive. Included on a listing no longer updated.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 15 records.

Site Name	Database(s)
ELDER CREEK RD	NPDES
8200 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK RD	HMIRS
8200 ELDER CREEK RD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK RD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
820 ELDER CREEK RD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
82020 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK ROAD	HMIRS
8200 ELDER CREEK RD	HMIRS
8200 ELDER CREEK ROAD	HMIRS

DETAIL MAP - 4709881.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 8280 Elder Creek Road ADDRESS: 8280 Elder Creek Road Sacramento CA 95828 LAT/LONG: 38.51 / 121.400729	CLIENT: Farshad Vakili, P.E., Phase 1 Assessment CONTACT: Farshad Vakili, P. E. INQUIRY #: 4709881.2s DATE: August 24, 2016 4:56 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		1	0	0	0	NR	1
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		1	0	0	NR	NR	1
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		1	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		1	0	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		2	1	NR	NR	NR	3
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		1	0	0	NR	NR	1
US INST CONTROL	0.500		1	0	0	NR	NR	1
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	1	3	NR	4
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500	1	0	1	7	NR	NR	9

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
Sacramento Co. CS	0.500	1	0	1	4	NR	NR	6
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250	1	0	1	NR	NR	NR	2
CA FID UST	0.250		1	1	NR	NR	NR	2
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	1	0	0	NR	1
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		1	0	0	0	NR	1
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP	1	NR	NR	NR	NR	NR	1
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP	3	NR	NR	NR	NR	NR	3
HIST CORTESE	0.500		0	1	4	NR	NR	5
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MINES	TP		NR	NR	NR	NR	NR	0
Sacramento Co. ML	0.250	1	2	13	NR	NR	NR	16
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP	1	NR	NR	NR	NR	NR	1
- Totals --		11	12	21	17	3	0	64

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property — **LIFETIME DOORS INC**, **8280 ELDER CREEK RD**, **SACRAMENTO, CA 95828** — **LUST**, **Sacramento Co. CS**, **HIST UST** — **U091615880**, **N/A**

Site 1 of 7 in cluster A

Actual: 39 ft.

LUST:

Region:	STATE
Global Id:	T10000003350
Latitude:	38.51
Longitude:	-121.400729
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	06/22/2012
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	CWL
Local Agency:	SACRAMENTO COUNTY LOP
RB Case Number:	341524
LOC Case Number:	G131
File Location:	Local Agency
Potential Media Affect:	Under Investigation
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T10000003350
Contact Type:	Local Agency Caseworker
Contact Name:	CHARLEY LANGER
Organization Name:	SACRAMENTO COUNTY LOP
Address:	10590 ARMSTRONG AVENUE, SUITE A
City:	MATHER
Email:	langerc@saccounty.net
Phone Number:	9168758474

Status History:

Global Id:	T10000003350
Status:	Completed - Case Closed
Status Date:	06/22/2012
Global Id:	T10000003350
Status:	Open - Case Begin Date
Status Date:	06/01/2011
Global Id:	T10000003350
Status:	Open - Site Assessment
Status Date:	10/27/2011

Regulatory Activities:

Global Id:	T10000003350
Action Type:	ENFORCEMENT
Date:	01/25/2012
Action:	File review
Global Id:	T10000003350
Action Type:	ENFORCEMENT
Date:	01/25/2012
Action:	Staff Letter

LIFETIME DOORS INC (Continued) **U001615880**

Global Id: T10000003350
Action Type: ENFORCEMENT
Date: 03/23/2012
Action: File review

Global Id: T10000003350
Action Type: ENFORCEMENT
Date: 03/23/2012
Action: Staff Letter

Global Id: T10000003350
Action Type: ENFORCEMENT
Date: 10/28/2011
Action: Notice of Responsibility

Global Id: T10000003350
Action Type: RESPONSE
Date: 04/27/2012
Action: Soil and Water Investigation Report

Global Id: T10000003350
Action Type: RESPONSE
Date: 06/27/2011
Action: Other Report / Document

Global Id: T10000003350
Action Type: Other
Date: 06/01/2011
Action: Leak Discovery

Global Id: T10000003350
Action Type: Other
Date: 08/02/2011
Action: Leak Reported

Global Id: T10000003350
Action Type: ENFORCEMENT
Date: 06/22/2012
Action: Closure/No Further Action Letter

Sacramento Co. CS:
State Site Number: G131
Lead Staff: Langer, C.
Lead Agency: HM
Remedial Action Taken: NO
Substance: Not reported
Date Reported: Not reported
Facility Id: RO0001687
Case Type: Not reported
Case Closed: Y
Date Closed: 06/01/2011
Case Type: Not reported
Substance: Not reported

HIST UST:

LIFETIME DOORS INC (Continued) U001615880

File Number:	0001FEDC
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001FEDC.pdf
Region:	STATE
Facility ID:	00000010184
Facility Type:	Other
Other Type:	MANUFACTURING
Contact Name:	ROBERT MATHES
Telephone:	9163813500
Owner Name:	LIFETIME DOORS, INC.
Owner Address:	30700 NORTHWESTERN HIGHWAY
Owner City,St,Zip:	FARMINGTOWN HILLS, MI 48018
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	1979
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	1/4
Leak Detection:	None
Tank Num:	002
Container Num:	2
Year Installed:	1958
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	1/4
Leak Detection:	None

Click here for Geo Tracker PDF:

A2 Target Property **LIFETIME DOORS** **RGA LUST** **S114644009**
8280 ELDER CREEK ROAD **N/A**
SACRAMENTO, CA

Site 2 of 7 in cluster A

Actual: 39 ft.

RGA LUST:

2012	LIFETIME DOORS	8280 ELDER CREEK ROAD
2011	LIFETIME DOORS	8280 ELDER CREEK ROAD

A3 Target Property **LIFETIME DOORS INC** **HAZNET** **S113468409**
8280 ELDER CREEK RD **N/A**
SACRAMENTO, CA 95828

Site 3 of 7 in cluster A

Actual: 39 ft.

HAZNET:

envid:	S113468409
Year:	2010
GEPAID:	CAL000358296
Contact:	BOB LONG
Telephone:	9163813500
Mailing Name:	Not reported

LIFETIME DOORS INC (Continued) S113468409

Mailing Address:	PO BOX 6216
Mailing City,St,Zip:	STOCKTON, CA 952050216
Gen County:	Not reported
TSD EPA ID:	NVT330010000
TSD County:	Not reported
Waste Category:	Liquids with pH <= 2
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.33
Cat Decode:	Liquids with pH <= 2
Method Decode:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County:	Sacramento

envid:	S113468409
Year:	2010
GEPAID:	CAL000358296
Contact:	BOB LONG
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	PO BOX 6216
Mailing City,St,Zip:	STOCKTON, CA 952050216
Gen County:	Not reported
TSD EPA ID:	NVT330010000
TSD County:	Not reported
Waste Category:	Adhesives
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.925
Cat Decode:	Adhesives
Method Decode:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Sacramento

envid:	S113468409
Year:	2010
GEPAID:	CAL000358296
Contact:	BOB LONG
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	PO BOX 6216
Mailing City,St,Zip:	STOCKTON, CA 952050216
Gen County:	Not reported
TSD EPA ID:	NVT330010000
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus inorganics
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.1025
Cat Decode:	Off-specification, aged or surplus inorganics
Method Decode:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Sacramento

envid:	S113468409
Year:	2010
GEPAID:	CAL000358296

LIFETIME DOORS INC (Continued) **S113468409**

Contact:	BOB LONG
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	PO BOX 6216
Mailing City,St,Zip:	STOCKTON, CA 952050216
Gen County:	Not reported
TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.0672
Cat Decode:	Aqueous solution with total organic residues less than 10 percent
Method Decode:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Sacramento

envid:	S113468409
Year:	2010
GEPAID:	CAL000358296
Contact:	BOB LONG
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	PO BOX 6216
Mailing City,St,Zip:	STOCKTON, CA 952050216
Gen County:	Not reported
TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.063
Cat Decode:	Aqueous solution with total organic residues less than 10 percent
Method Decode:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Sacramento

Click this hyperlink while viewing on your computer to access additional CA_HAZNET: detail in the EDR Site Report.

A4 Target Property **LIFETIME DOORS INC**
8280 ELDER CREEK RD
SACRAMENTO, CA 95205

EMI **S103707076**
Sacramento Co. ML **N/A**

Site 4 of 7 in cluster A

Actual: 39 ft.

EMI:

Year:	1987
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0

LIFETIME DOORS INC (Continued) S103707076

Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	1990
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2

Year:	1995
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2

Year:	1996
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2

LIFETIME DOORS INC (Continued) **S103707076**

Year:	1997
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2

Year:	1998
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2

Year:	1999
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2000
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431

LIFETIME DOORS INC (Continued) S103707076

Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2001
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2002
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2003
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0

LIFETIME DOORS INC (Continued) S103707076

NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2004
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.448752375
Reactive Organic Gases Tons/Yr:	0.39
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.127748571
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.085165714

Year:	2005
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.321
Reactive Organic Gases Tons/Yr:	.2784996
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.126
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.08

Year:	2006
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.321
Reactive Organic Gases Tons/Yr:	.2784996
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.126
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.08

Year:	2007

LIFETIME DOORS INC (Continued) **S103707076**

County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.321
Reactive Organic Gases Tons/Yr:	.2784996
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.126
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.08

Year:	2008
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.063687788
Reactive Organic Gases Tons/Yr:	.063687788
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.117324288
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.117324288

Year:	2009
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.12
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.12

Year:	2010
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD

LIFETIME DOORS INC (Continued) S103707076

Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.12
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.12

Year:	2011
County Code:	34
Air Basin:	SV
Facility ID:	86
Air District Name:	SAC
SIC Code:	2431
Air District Name:	SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.12
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.12

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

A5 Target Property — **LIFETIME DOOR COMPANY**
8280 ELDER CREEK RD
SACRAMENTO, CA 95828

HAZNET — **S112896881**
N/A

Site 5 of 7 in cluster A

Actual: 39 ft.

HAZNET:

envid:	S112896881
Year:	1998
GEPAID:	CAC001508072
Contact:	LIFETIME DOOR COMPANY
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	8280 ELDER CREEK RD
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAT080033681
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Disposal, Other
Tons:	.4000
Cat Decode:	Other organic solids
Method Decode:	Disposal, Other
Facility County:	Sacramento

envid:	S112896881
Year:	1998
GEPAID:	CAC001508072
Contact:	LIFETIME DOOR COMPANY
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	8280 ELDER CREEK RD
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD044003556
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Transfer Station
Tons:	.6548
Cat Decode:	Unspecified oil-containing waste
Method Decode:	Transfer Station
Facility County:	Sacramento

A6 Target Property — **LIFETIME DOORS**
8280 ELDER CREEK ROAD
SACRAMENTO, CA 93828

HAZNET — **S112839438**
N/A

Site 6 of 7 in cluster A

Actual: 39 ft.

HAZNET:

envid:	S112839438
Year:	1993
GEPAID:	CAC000712888
Contact:	JIM MITCHELL
Telephone:	9163813500
Mailing Name:	Not reported
Mailing Address:	8280 ELDER CREEK ROAD
Mailing City,St,Zip:	SACRAMENTO, CA 938280000
Gen County:	Not reported
TSD EPA ID:	CAD083166728

LIFETIME DOORS (Continued) **S112839438**

TSD County: Not reported
Waste Category: Unspecified oil-containing waste
Disposal Method: Recycler
Tons: 1.3552
Cat Decode: Unspecified oil-containing waste
Method Decode: Recycler
Facility County: Sacramento

A7 Target Property | **LIFETIME DOORS INC**
8280 ELDER CREEK RD
SACRAMENTO, CA 95828 | **FINDS** **1004441313**
ECHO **N/A**

Site 7 of 7 in cluster A

Actual: 39 ft.

FINDS:

Registry ID: 110001170492

Environmental Interest/Information System
HAZARDOUS AIR POLLUTANT MAJOR

ECHO:
Envid: 1004441313
Registry ID: 110001170492
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110001170492

DOD Region NNE 1/8-1/4 1186 ft. | **SACRAMENTO ARMY DEPOT (CLOSED)** | **DOD** **CUSA134693**
N/A

SACRAMENTO ARMY DEPOT (CL (County), CA

DOD:
Feature 1: Army DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Sacramento Army Depot (Closed)
Name 2: Not reported
Name 3: Not reported
State: CA
DOD Site: Yes
Tile name: CASACRAMENTO

NPL
Region
North
< 1/8
189 ft.

SACRAMENTO ARMY DEPOT
8350 FRUITRIDGE RD
SACRAMENTO, CA 95813

Database(s)	EDR ID Number / EPA ID Number
NPL	1000353465
SEMS	CA0210020780
CORRACTS	
RCRA-TSDF	
RCRA-SQG	
US ENG CONTROLS	
US INST CONTROL	
CA FID UST	
ROD	
PADS	
FTTS	
HIST FTTS	
DOCKET HWC	
EMI	
HAZNET	

NPL:

EPA ID:	CA0210020780
Cerclis ID:	902715
EPA Region:	9
Federal:	Y
Final Date:	1987-07-22 00:00:00
Site Score:	44.460000000000001
Latitude:	38.52028
Longitude:	-121.39579999999999

Category Details:

NPL Status:	Currently on the Final NPL
Category Description:	Depth To Aquifer-> 50 And <= 100 Feet
Category Value:	70

NPL Status:	Currently on the Final NPL
Category Description:	Distance To Nearest Population-> 0 And <= 1/4 Mile
Category Value:	10

Site Details:

Site Name:	SACRAMENTO ARMY DEPOT
Site Status:	Final
Site Zip:	95813
Site City:	SACRAMENTO
Site State:	CA
Federal Site:	Yes
Site County:	SACRAMENTO
EPA Region:	09
Date Proposed:	10/15/84
Date Deleted:	Not reported
Date Finalized:	07/22/87

Substance Details:

NPL Status:	Currently on the Final NPL
Substance ID:	Not reported
Substance:	Not reported
CAS #:	Not reported
Pathway:	Not reported
Scoring:	Not reported

NPL Status:	Currently on the Final NPL
Substance ID:	A020

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Substance: CHROMIUM AND COMPOUNDS
CAS #: Not reported
Pathway: GROUND WATER PATHWAY
Scoring: 3

NPL Status: Currently on the Final NPL
Substance ID: A020
Substance: CHROMIUM AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: A046
Substance: POLYCHLORINATED BIPHENYLS
CAS #: 1336-36-3
Pathway: NO PATHWAY INDICATED
Scoring: 1

NPL Status: Currently on the Final NPL
Substance ID: C178
Substance: COPPER AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: C247
Substance: ZINC AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: C318
Substance: HYPOCHLORIC ACID
CAS #: Not reported
Pathway: NO PATHWAY INDICATED
Scoring: 1

NPL Status: Currently on the Final NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: GROUND WATER PATHWAY
Scoring: 3

NPL Status: Currently on the Final NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: D008
Substance: LEAD (PB)

SACRAMENTO ARMY DEPOT (Continued) 1000353465

CAS #: 7439-92-1
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Currently on the Final NPL
Substance ID: U228
Substance: TRICHLOROETHYLENE (TCE)
CAS #: 79-01-6
Pathway: GROUND WATER PATHWAY
Scoring: 2

NPL Status: Currently on the Final NPL
Substance ID: W001
Substance: HEAVY METALS
CAS #: Not reported
Pathway: NO PATHWAY INDICATED
Scoring: 1

Summary Details:

Conditions at proposal October 15, 1984): The Sacramento Army Depot SAAD) occupies 485 acres within the city limits of Sacramento, Sacramento County, California, approximately 7 miles to the southeast of the Sacramento business district. Morrison Creek enters the SAAD eastern boundary. The creek parallels the depot perimeter to the south and discharges on the western boundary. SAAD is a supply depot primarily responsible for the receipt, storage, issue, maintenance, and disposal of various electronic materials. The primary sources of contamination at SAAD derive from metal-plating operations and their associated waste waters and solid wastes. Generally, these wastes were discharged to unlined sewage lagoons or burned and/or buried on the facility. Ground water on and off the site is contaminated with trichloroethylene. Heavy metals above background levels have been detected in on-site ground water and in sediment of Morrison Creek immediately downstream of SAAD. The California Regional Water Quality Control Board CRWQCB) and SAAD have been discussing additional monitoring of ground water and further investigations to define contaminated areas. SAAD is participating in theinstallation Restoration Program, established in l978. Under this program, the Department of Defense seeks to identify, investigate, and clean up contamination from ha ardous materials. The Army has completed Phase I records search) and Phase II preliminary survey). Status July 22, 1987): SAAD is conducting a remedial investigation/feasibility study to determine the type and extent of contamination at the base and to identify alternatives for remedial action. EPA, CRWQCB,and the California Department of Health Services will review the remedial investigation, as well as a feasibility study for a water treatment plant on the base. Within the boundaries of this Federal facility, there are areas subject to the Subtitle C corrective action authorities of the Resource Conservation and Recovery Act RCRA). However, no such areas were included in scoring this specific site. Therefore, this Federal facility site is being placed on the Federal sectionof the NPL under the NPL/RCRA policy announced on September 8, 1983 48 FR 40662).

Site Status Details:
NPL Status: Final
Proposed Date: 10/15/1984
Final Date: 07/22/1987
Deleted Date: Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Narratives Details:

NPL Name:	SACRAMENTO ARMY DEPOT
City:	SACRAMENTO
State:	CA

SEMS:

Site ID:	902715
EPA ID:	CA0210020780
Federal Facility:	Y
NPL:	Currently on the Final NPL
Non NPL Status:	Not reported

Following information was gathered from the prior CERCLIS update completed in 10/2013:

Site ID:	0902715
EPA ID:	CA0210020780
Facility County:	SACRAMENTO
Short Name:	SACRAMENTO ARMY DEPOT
Congressional District:	6
IFMS ID:	0979
SMSA Number:	6920
USGC Hydro Unit:	18020111
Federal Facility:	Federal Facility
DMNSN Number:	485.00000
Site Orphan Flag:	N
RCRA ID:	Not reported
USGS Quadrangle:	Not reported
Site Init By Prog:	Not reported
NFRAP Flag:	Not reported
Parent ID:	Not reported
RST Code:	Not reported
EPA Region:	09
Classification:	Military Related
Site Settings Code:	SU
NPL Status:	Currently on the Final NPL
DMNSN Unit Code:	ACRE
RBRAC Code:	Not reported
RResp Fed Agency Code:	USAR
Non NPL Status:	Not reported
Non NPL Status Date:	/ /
Site Fips Code:	06067
CC Concurrence Date:	08/28/02
CC Concurrence FY:	2002
Alias EPA ID:	Not reported
Site FUDS Flag:	Not reported

CERCLIS Site Contact Name(s):

Contact ID:	9270482.00000
Contact Name:	Martin Hausladen
Contact Tel:	(415) 972-3007
Contact Title:	Remedial Project Manager (RPM)
Contact Email:	Not reported

Contact ID:	13003854.00000
Contact Name:	Leslie Ramirez
Contact Tel:	(415) 972-3978

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13003858.00000
Contact Name: Sharon Murray
Contact Tel: (415) 972-4250
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13004003.00000
Contact Name: Carl Brickner
Contact Tel: Not reported
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

CERCLIS Site Alias Name(s):
Alias ID: 101
Alias Name: SAAD
Alias Address: Not reported
CA
Alias ID: 102
Alias Name: SACRAMENTO ARMY DEPOT
Alias Address: 8350 FRUITRIDGE RD
SACRAMENTO, CA 95813
Alias ID: 9270109
Alias Name: SACRAMENTO USAR DEPOT
Alias Address: 8350 FRUITRIDGE RD.
SACRAMENTO, CA 92134-5001
Alias ID: 101
Alias Comments: PREVIOUS EPA ID# AZD 981 416 977
Site Description: Site History The site investigations conducted at Sacramento Army Depot Activity (SADA) are part of the U.S. Army Installation Restoration Program (IRP). The Army owns the site and is the lead agency for implementing the environmental response actions. In the late 1970's, the U.S. Army Depot Systems Command recommended that SADA be included in the IRP. Consequently, in 1978 and 1979, the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), now known as the Army Environmental Center (AEC), conducted a review of historical data to assess areas of potential contamination at SADA with regard to the use, storage, treatment, and disposal of toxic and hazardous materials. In early 1981, the Army initiated an on-site investigation of soil and groundwater in the areas of concern identified by the USATHAMA, including the South Post Burn Pits, Oxidation Lagoons, Pesticide Mix Area, Morrison Creek, and Old Morrison Creek. Groundwater samples collected during this investigation indicated that volatile organic chemicals (VOCs) were present in groundwater under the southwest corner of SADA. Based on the location of the VOCs in groundwater, the South Post Burn Pits were identified as the source of groundwater contamination in this area. In late 1981, the Central Valley Regional Water Quality Control Board (CVRWQCB) sampled off-site wells near the southwest corner of SADA. VOCs were reported in some of the wells closest to SADA and the Army began working with the CVRWQCB to assess the source and extent of groundwater contamination. The EPA and the California Department of Health Services (now known as the Department of Toxic Substances Control of the California Environmental Protection Agency) subsequently became involved in the investigation of contamination at SADA, and SADA was placed on the National Priorities List (NPL), effective August 21, 1987. In December 1988, the Army, the EPA, and the State of California signed a Federal Facility Agreement (FFA) under CERCLA Section 120, in which the Army agreed to address

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

the entire facility, including the contaminated groundwater and several areas of suspected soil contamination. The Army assumed responsibility for implementing Interim Remedial Actions and conducting a Remedial Investigation (RI) and Feasibility Study (FS) at SADA. Initially, a total of fifty-one sites were identified as areas of potential contamination. Eight areas believed to have the greatest potential for releases to the environment were given priority for investigation: South Post Groundwater, Tank 2, Oxidation Lagoons, South Post Burn Pits, Building 300 Burn Pits, Firefighter Training Area, Pesticide Mix Area, and Battery Disposal Well. Four of these areas were addressed as Operable Units. They are South Post Groundwater, Tank 2, Oxidation Lagoons, and South Post Burn Pits. The South Post groundwater was the first area to begin cleanup under an interim ROD signed in 1989. The interim ROD addressed containment and cleanup of on-base groundwater contamination in the southwest corner of the depot. The Record of Decision (ROD) for cleanup of contaminated soil at the Tank 2 OU was signed in December 1991. The ROD for the Oxidation Lagoons was signed in September 1992. The ROD for cleanup of the South Post Burn Pit was signed in 1993. The 485-acre Sacramento Army Depot Activity (SADA) facility is located in Sacramento, Sacramento County, California and is approximately 7 miles southeast of downtown Sacramento. The site is bound by Fruitridge Road on the north, Florin-Perkins Road on the east, Elder Creek Road on the south, and the Southern Pacific Railroad tracks on the west. The population within a two-mile radius of the site is estimated at 64,152. SADA is surrounded on all sides by land currently zoned commercial/light industrial. The closest off-depot resident to contaminated areas at SADA is a residence located on Elder Creek Road approximately 1,800 feet southwest of the South Post Burn Pits. The closest off-depot businesses to the contaminated areas are located across the railroad tracks approximately 800 feet west of the Oxidation Lagoons and the South Post Burn Pits. The Operable Units (OUs) of concern in this Record of Decision (ROD) for this site include: the South Post Groundwater, Parking Lot 3 Groundwater, Battery Disposal Well Investigation-Derived Waste (Soil), Building 300 Burn Pits Soil, the Oxidation Lagoons Amendment, the South Post Burn Pits Amendment, and the Final Basewide OU. The South Post Groundwater: There are 1,106 million gallons of water in the A/B Zone aquifer and approximately 110 million gallons in the C Zone aquifer that require remediation. Groundwater in this area is impacted by trichloroethene (TCE), cis-1,2-dichloroethene and 1,2-dichloroethane (1,2-DCA). Parking Lot 3 Groundwater There are approximately 117 million gallons of water in the A/B Zone aquifer at Parking Lot 3. Groundwater in this area is impacted by carbon tetrachloride, (TCE), tetrachloroethene (PCE), and 1,2-dichloroethane (1,2 DCA). Battery Disposal Well (Investigation-Derived Waste) Approximately 400 tons of soil and debris (containing heavy metals) were excavated from the Battery Disposal Well Area during investigation activities. This waste is currently stored in 16 bins located along the north side of Building 555. Building 300 Burn Pits Soil Approximately 2100 cubic yards of soil located within the western burn pit area would need to be remediated. Contaminants of concern are arsenic, cadmium, and lead. South Post Burn Pits: The ROD for cleanup of soil contamination at the South Post Burn Pits was signed in 1993. The remedy selected was in situ soil ventilation to remove volatile organic contaminants, followed by excavation of the pit area with stabilization of the excavated soil to treat non-volatile compounds, and backfill of the pits with the stabilized soil. The Army is amending both phases of the previously selected remedy specified in the South Post Burn Pits OU-ROD. Primary on-site waste generating activities conducted at SADA included metal plating and treatment, and painting. Other activities included electro-optics equipment repair, parts manufacturing, and shelter repair. Past disposal and storage areas and structures at the site included several underground and aboveground storage

SACRAMENTO ARMY DEPOT (Continued) 1000353465

tanks, burn pits, unlined wastewater lagoons, a battery disposal area, and areas where pesticides were mixed or pesticides rinse water may have been discharged to the ground surface. Surface drainage of the SADA facility is mainly to Morrison Creek and man-made diversion structures. Morrison Creek also receives surface runoff from other industrial and agricultural sites located along its course. The creek ultimately discharges into the Sacramento River. SADA is underlain by a series of alluvial aquifers which provide water to residences, industries, and agricultural properties. The water-bearing sediments are divided into two hydraulically isolated upper and lower sections. The upper section is located at depths of about 80 to 250 feet, and the lower section at depths below 250 feet beneath the site. The primary water-producing aquifers are in the lower sections, although many wells in the area draw water from the upper section. Operable Unit 02: The Operable Unit 02 proposed by the Sacramento Army Depot (SAAD) will contain, extract and treat on-site contaminated ground water associated with the former burn pits located in the southwest corner of the installation. The ground water cleanup is intended to reduce potential health risks from exposure to contaminated ground water by treating the water to meet Federal and State drinking water standards. This is the first of several potential remedial actions addressing soil and ground water contamination which may be conducted at SAAD. Subsequent Records of Decision will address other potential threats posed by the site, both on and offsite. A Record of Decision addressing Operable Unit 2 was completed in September 1989. OU02 Amendment: The South Post groundwater was the first area to begin cleanup under an interim ROD signed in 1989. The interim ROD addressed containment and cleanup of on-base groundwater contamination in the southwest corner of the depot. The groundwater in this area is being extracted, treated with ultraviolet (UV) light/chemical oxidation in a on-base treatment plant, and discharged to the Sacramento Regional Wastewater Treatment System. Subsequent investigation of the South Post groundwater plume revealed off-base contamination of the aquifer. Consequently, the Army is expanding the remedy to include off-base contamination. A ROD Amendment addressing OU 2 at the Sacramento Army Depot site was completed in January 1995. Operable Unit 3: The Tank 2 Operable Unit is part of the Sacramento Army Depot (SAAD) military facility owned by the U.S. Army. The Tank 2 Operable Unit is located slightly northwest of the center of the SAAD facility, approximately 10 feet south of Building 320 and 15 to 20 feet north of Attu Street. The Operable Unit includes the area where Tank 2 was located prior to its removal and the soil that appears to have been affected by leakage from Tank 2. The Tank 2 Operable Unit encompasses approximately 875 square feet. Past and present activities conducted at SAAD include electro-optics equipment repair, the emergency manufacture of parts, shelter repair, metal plating and treatment, and painting. The metal-plating and painting operations were the primary on-site waste generating activities. Tank 2 was a 1000-gallon underground storage tank used to store waste solvents produced at SAAD until 1980. Past and present surface and subsurface storage units and other structures at the site include several underground and above ground storage tanks, unlined oxidation lagoons and burn pits, a battery disposal area, areas where pesticides were mixed or pesticide rinse water may have been discharged to the ground surface, and an area used for firefighter training where .flammable hydrocarbons were burned on the ground surface. Several of these areas have released contaminants into the soil and/or ground water at SAAD and are being investigated and cleaned up as separate Operable Units. In 1987, there were 76 people living on the SA AD facility and 56,398 people living off-site within two to three miles of SAAD. Data for the working populations on and around SAAD in 1987 are not available. In 1984, 3,430 people worked on the SAAD facility and 20,710 people worked off-site within two to three miles of SAAD. SAAD is immediately surrounded on all sides by land currently zoned as commercial/light industrial property.

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Within two to three miles of SAAD, the areas that are primarily low to medium density residential are northwest, west and southwest of SAAD, while the areas south, east, and north of SAAD are largely industrial. SAAD is located in the Central Valley of California, a broad flat valley that lies between the Sierra Nevada Mountains to the east and the Coast Ranges to the west. The youngest sediments (up to 5 million years old) underlying SAAD were deposited by the American River as its course meandered across the valley floor and, to a lesser extent, by Morrison Creek. Consequently, the topography at the SAAD is relatively flat. The slope of the land surface is approximately 0.13 percent to the west, with ground surface elevations ranging from 36 to 42 feet above mean sea level. The Remedial Investigations conducted at SAAD are a part of the U.S. Army Installation Restoration Program (IRP). The Army is the owner of the site and the lead agency for implementing the environmental response actions. In the late 1970's, the U.S. Army Depot Systems Command recommended that SAAD be included in the Installation Restoration Program (IRP). Consequently, in 1978 and 1979, the U.S. Army Toxic and Hazardous Materials Agency (USATHMA) conducted a review of historical data to assess SAAD with regard to the use, storage, treatment, and disposal of toxic and hazardous materials. USA THMA identified several areas of concern where further investigation was warranted. In early 1981, the Army initiated an on-site investigation of soil and ground water in the areas of concern identified by USATHMA, including the Oxidation Lagoons, Burn Pits, Pesticide Mix Area, Morrison Creek and Old Morrison Creek. Tank 2 was not an identified area of concern at that time. Ground water samples collected during this investigation indicated that VOCs were present in groundwater under the southwest corner of SAAD. Based on the location of the VOCs in groundwater, the Burn Pits appeared to be one of the main sources of groundwater contamination in this area. In late 1981, the Central Valley Regional Water Quality Control Board (CVRWQCB) sampled off-site wells near the southwest corner of SAAD. VOCs were reported in some of the wells closest to SAAD and the Army began working with the CVRWQCB to assess the source and extent of ground water contamination. The U.S. EPA and California Department of Health Services (DHS) subsequently became involved in the investigation of contamination at SAAD and SAAD was placed on the National Priorities List (NPL) effective August 21, 1987 (52 Fed. Reg. 27620; July 22, 1987). In December 1988, the U.S. Army, the U.S. EPA, and the State of California signed a Federal Facility Agreement under CERCLA Section 120 agreeing to address the entire facility, including the contaminated ground water and seven other areas of suspected contamination on the SAAD facility: - Tank 2 - Oxidation Lagoons - Burn Pits - Building 320 Leach Field - Pesticide Mix Area - Firefighter Training Area - Battery Disposal Well The FFA also calls for a rigorous RCRA Facility Assessment to identify specific Solid Waste Management Units that need further characterization and cleanup. To expedite the investigation and cleanup of the individual sites, the seven areas listed above and the on-site groundwater are each being treated as individual Operable Units. Ground water was the first Operable Unit investigated, and is currently being cleaned up under a ROD signed in 1989. Contaminated soil at the Tank 2 Operable Unit is scheduled to be cleaned up next, under the provisions of this ROD. Tank 2 was a 1000-gallon underground storage tank used to store waste solvents produced at SAAD. In 1980, Tank 2 was emptied, and in August 1986 it was removed. Upon removal, Tank 2 showed signs of deterioration. The Army subsequently performed a Remedial Investigation (RI) and Operable Unit Feasibility Study (OUFS) in accordance with the requirements of the Federal Facility Agreement. The RI was performed to characterize the extent of contamination at the Tank 2 Operable Unit. The field and laboratory work for the RI was conducted in accordance with the Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) reviewed and approved by the regulatory agencies. The RI Report concluded that VOCs were present in the soil around

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Tank 2, but that VOCs did not appear to have migrated to groundwater from this site. Therefore, the contaminants in the soil under Tank 2 have not yet impacted ground water. The OUFS identified alternatives for cleaning up the site. As part of the OUFS, the Army prepared a baseline Public Health Evaluation (PHE) to estimate potential health and environmental risks that could result if no action were taken at the site. The PHE indicated that two of the VOCs present in the soil, tetrachloroethene and 2-butanone, could migrate to groundwater in the future and subsequently pose a significant risk to future on-site residents if they were exposed to the groundwater. A Record of Decision addressing Operable Unit 03 was completed in December 1991. Operable Unit 04 Currently, the four Oxidation Lagoons are not in use, and are dry. Vegetation is present in three of the lagoons. The bottom of the southwest Oxidation Lagoon is void of vegetation, apparently due to hardpan soil exposed at the surface. As part of the IRP, the U.S. Army conducted additional soil assessments at the Oxidation Lagoons in 1985, 1986 and 1990 through 1991. In 1991, the U.S. Army prepared a Remedial Investigation/Feasibility Study (RI/FS) work plan in accordance with the FFA. The RI/FS evaluated the seven Operable Units. Based upon the RI/FS findings, four of these, including the Oxidation Lagoons, were recommended for operable unit feasibility studies (OUFS). The Oxidation Lagoons were recommended for an OUFS because: 1) heavy metals are present in the near surface, and pose a threat for airborne migration or migration in surface water runoff; and 2) the Toxic Pits Cleanup Act (TPCA) is an Applicable or Relevant and Appropriate Requirement (ARAR). TPCA requires that surface impoundments be closed as soon as feasible. An OUFS for the Oxidation Lagoons was prepared in 1991, and was revised March 13, 1992. As part of the OUFS, the Army prepared a baseline Public Health Evaluation (PHE) to estimate potential health and environmental risks that could results if no action was taken at the site. The PHE indicated potential cancer and non-cancer health effects to an on-site resident from metals in Oxidation Lagoons soils. A ROD addressing Sacramento Army Depot OU4 was completed in September 1992. OU04 ESD: The Oxidation Lagoons Record of Decision (ROD) was signed in September 1992. The selected remedy in the ROD was the excavation of contaminated soil and replacement of the soil back into the lagoons after treatment. The selected treatment process was washing of the soil to remove metals. After the ROD was signed, a large-scale pilot test of the soil washing treatment process was undertaken. The effectiveness of soil washing during the pilot test was monitored and the data were evaluated relative to remediation action objectives in the ROD. The pilot test indicated that soil washing was unreasonably costly and not reliable. Reliability is crucial because an overriding goal is to return the Oxidation Lagoons area to productive, unrestricted future uses as a clean parcel. If the soil washing process was not entirely effective, some contamination would remain. Additionally, when upsets to the process occurred, the process generated unexpectedly high volumes of wastes. Another factor influencing the Army's decision to amend the ROD was changing regulations. The State of California passed regulations allowing the formation of Corrective Action Management Units (CAMUs). The creation of CAMUs allows the flexibility to select an appropriate site-specific, protective, reliable, and cost-effective remedy. Finally, the South Post Burn Pits ROD was signed. It had been determined that stabilization of soils at the South Post Burn Pits was the best remedial alternative. Once this was decided, the alternative of consolidating soils at the CAMU for collective management by stabilization was considerably more attractive than in previous analyses. At the Oxidation Lagoons, the remedy will be changed from soil washing to soil excavation and transport to the South Post Burn Pits for management at the corrective action management unit (CAMU). A ROD Amendment addressing OU 4 at the Sacramento Army Depot site was completed in January 1995. Operable Unit 5: The

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Burn Pits Operable Unit is part of the Sacramento Army Depot (SAAD) military facility owned by the U.S. Army. The SAAD facility is located at 8350 Fruitridge Road, in the City and County of Sacramento, California. SAAD lies approximately 7 miles southeast of downtown Sacramento, and is bound by Fruitridge Road on the north, Florin-Perkins Road on the east, Elder Creek Road on the south, and the Southern Pacific Railroad tracks on the west. The facility encompasses an area of 485 acres. The Burn Pits Operable Unit occupies approximately two acres in the southwest portion of SAAD. The Operable Unit consists of two rectangular trenches (North and South Pits) containing soils and debris to a depth of 21 feet, and soils outside the trenches to a depth of 86 feet within about 60 feet of the Burn Pits. Site Description Past and present activities conducted at SAAD include electro-optics equipment repair, the emergency manufacture of parts, shelter repair, metal plating and treatment, and painting. The metal plating and painting operations are likely the primary on-site waste generating activities. In addition to the Burn Pits, past and present disposal and storage areas and structures at the site include: several underground and above-ground storage tanks; unlined wastewater lagoons; a battery disposal area; areas where pesticides were mixed or pesticide rinse water may have been discharged to the ground surface; and an area used for firefighter training, where flammable hydrocarbons were reportedly burned on the ground surface. Several of these areas have released contaminants into the soil and/or groundwater at SAAD, and are being investigated and cleaned up as separate Operable Units. Site History and Enforcement Activities The Remedial Investigations conducted at SAAD are a part of the U.S Army Installation Restoration Program (IRP). The Army owns the site and is the lead agency for implementing the environmental response actions. In the late 1970's, the U.S. Army Depot Systems Command recommended that SAAD be included in the IRP. Consequently, in 1978 and 1979, the U.S. Army Toxic and Hazardous Materials Agency (USATHMA) conducted a review of historical data to assess SAAD with regard to the use, storage, treatment, and disposal of toxic and hazardous materials. USATHMA identified several areas of concern where further investigations were warranted. In early 1981, the Army initiated an on-site investigation of soil and groundwater in the areas of concern identified by the USATHMA, including the Burn Pits, Oxidation Lagoons, Pesticide Mix Area, Morrison Creek, and Old Morrison Creek. Groundwater samples collected during this investigation indicated that volatile organic chemicals (VOCs) were present in groundwater under the southwest corner of SAAD. Based on the location of the VOCs in groundwater, the Burn Pits appeared to be one of the main sources of groundwater contamination in this area. In late 1981, the Central Valley Regional Water Quality Control Board (CVRWQCB) sampled off-site wells near the southwest corner of SAAD. VOCs were reported in some of the wells closest to SAAD, and the Army began working with the CVRWQCB to assess the source and extent of groundwater contamination. The EPA and the California Department of Health Services subsequently became involved in the investigation of contamination at SAAD, and SAAD was placed on the National Priorities List (NPL), effective August 21, 1987. In December 1988, the Army, the EPA, and the State of California signed a Federal Facility Agreement (FFA) under CERCLA Section 120, agreeing to address the entire facility, including the contaminated groundwater and seven areas of suspected contamination on the SAAD facility: - Tank 2 - Oxidation Lagoons - Burn Pits - Building 320 Leach Field - Pesticide Mix Area - Firefighter Training Area - Battery Disposal Well The FFA also calls for a RCRA Facility Assessment to identify other specific Solid Waste Management Units that need further characterization and cleanup. To expedite investigation and cleanup of the individual sites, three areas listed above and the on-site/off-site groundwater are each being treated as individual Operable Units. The remaining areas are being addressed under the

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installation-wide Remedial Investigation/Feasibility Study (RI/FS). Groundwater and the saturated zone immediately above the water table was the first Operable Unit investigated, and is currently being cleaned up under a Record of Decision (ROD) which was signed in 1989. Contaminated soil at the Tank 2 Operable Unit is scheduled to be cleaned up next, under a ROD that was signed in December 1991. A ROD for the Oxidation Lagoons was signed in September 1992, and this area will be cleaned up in 1994. Constructed in the late 1950's, the Burn Pits served intermittently as incineration pits until 1966. Materials that were reportedly buried and/or burned in the Burn Pits include plating shop wastes, oil and grease, batteries, and uncontaminated construction debris. Currently the Burn Pits are filled to the ground surface with soil and debris. As part of the IRP, the U.S. Army conducted additional soil assessments at the Burn Pits in 1985 through 1987, and 1990 through 1992. In 1991, the Army prepared a RI/FS work plan in accordance with the FFA. The RI/FS evaluated the seven Operable Units. Based upon the RI/FS findings, four of these, including the Burn Pits were recommended for Operable Unit feasibility studies (OUFS). The Burn Pits were recommended for an OUFS because heavy metals, VOCs and semi-volatile organic chemicals are present in the near surface, and pose a potential threat via direct contact, airborne migration, or migration through soil to groundwater. An OUFS for the Burn Pits was prepared in May 1992. As part of the OUFS, the Army prepared a baseline Public Health Evaluation (PHE) to estimate potential health and environmental risks that could result if no action was taken at the site. The PHE indicated potential cancer and non-cancer health effects to a future on-site business, an off-site resident, and a future on-site recreation user from metals, VOCs, polychlorinated biphenyls, and dioxins/furans in Burn Pits soil. A ROD addressing Operable Unit 05 Sacramento Army Depot site was completed in September 1992.

CERCLIS Assessment History:

Action Code:	001
Action:	DISCOVERY
Date Started:	/ /
Date Completed:	07/01/79
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	HAZARD RANKING SYSTEM PACKAGE
Date Started:	/ /
Date Completed:	04/01/84
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	PRELIMINARY ASSESSMENT
Date Started:	/ /
Date Completed:	04/01/84

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Priority Level:	Higher priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	SITE INSPECTION
Date Started:	/ /
Date Completed:	04/01/84
Priority Level:	Higher priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started:	/ /
Date Completed:	10/15/84
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FINAL LISTING ON NATIONAL PRIORITIES LIST
Date Started:	/ /
Date Completed:	07/22/87
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	NATIONAL PRIORITIES LIST RESPONSIBLE PARTY SEARCH
Date Started:	04/01/87
Date Completed:	09/01/87
Priority Level:	Search Complete, Viable PRPs
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Action:	Notice Letters Issued
Date Started:	/ /
Date Completed:	03/07/88
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	ISSUE REQUEST LETTERS (104E)
Date Started:	/ /
Date Completed:	11/01/88
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	INTERAGENCY AGREEMENT NEGOTIATIONS
Date Started:	03/07/88
Date Completed:	12/16/88
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL INTERAGENCY AGREEMENT
Date Started:	04/07/88
Date Completed:	12/16/88
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	12/16/88
Date Completed:	09/29/89
Priority Level:	Not reported
Operable Unit:	OU02
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

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Action Code:	001
Action:	RECORD OF DECISION
Date Started:	/ /
Date Completed:	09/29/89
Priority Level:	Not reported
Operable Unit:	OU02
Primary Responsibility:	Federal Facilities
Planning Status:	Project Suspended
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY REMEDIAL DESIGN
Date Started:	10/01/89
Date Completed:	10/31/89
Priority Level:	Not reported
Operable Unit:	OU02
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	003
Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	12/16/88
Date Completed:	12/09/91
Priority Level:	Not reported
Operable Unit:	LEAKING TANK
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	002
Action:	RECORD OF DECISION
Date Started:	/ /
Date Completed:	12/09/91
Priority Level:	Not reported
Operable Unit:	LEAKING TANK
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	002
Action:	FEDERAL FACILITY REMEDIAL DESIGN
Date Started:	12/10/91
Date Completed:	06/15/92
Priority Level:	Not reported
Operable Unit:	LEAKING TANK
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Action Code:	004
Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	12/16/88
Date Completed:	09/30/92
Priority Level:	Not reported
Operable Unit:	OXIDATION LAGOONS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	003
Action:	RECORD OF DECISION
Date Started:	/ /
Date Completed:	09/30/92
Priority Level:	Not reported
Operable Unit:	OXIDATION LAGOONS
Primary Responsibility:	Federal Facilities
Planning Status:	Project Suspended
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	005
Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	11/13/90
Date Completed:	03/29/93
Priority Level:	Not reported
Operable Unit:	BURN PITS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	004
Action:	RECORD OF DECISION
Date Started:	/ /
Date Completed:	03/29/93
Priority Level:	Not reported
Operable Unit:	BURN PITS
Primary Responsibility:	Federal Facilities
Planning Status:	Project Suspended
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	004
Action:	FEDERAL FACILITY REMEDIAL DESIGN
Date Started:	08/31/93
Date Completed:	04/08/94
Priority Level:	Not reported
Operable Unit:	BURN PITS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 08/05/92
Date Completed: 06/30/94
Priority Level: Not reported
Operable Unit: LEAKING TANK
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 12/16/88
Date Completed: 01/17/95
Priority Level: Not reported
Operable Unit: OVERALL SITE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 003
Action: RECORD OF DECISION AMENDMENT
Date Started: / /
Date Completed: 01/17/95
Priority Level: Final Remedy Selected at Site
Operable Unit: BURN PITS
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 002
Action: RECORD OF DECISION AMENDMENT
Date Started: / /
Date Completed: 01/17/95
Priority Level: Not reported
Operable Unit: OXIDATION LAGOONS
Primary Responsibility: Federal Facilities
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: RECORD OF DECISION AMENDMENT
Date Started: / /
Date Completed: 01/17/95
Priority Level: Not reported
Operable Unit: OU02
Primary Responsibility: Federal Facilities

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: RECORD OF DECISION
Date Started: / /
Date Completed: 01/17/95
Priority Level: Not reported
Operable Unit: OVERALL SITE
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 005
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 03/13/95
Date Completed: 07/15/95
Priority Level: Not reported
Operable Unit: OU02
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Other Start and Completion Anomaly

Action Code: 007
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 03/13/95
Date Completed: 03/15/96
Priority Level: Not reported
Operable Unit: BURN PITS
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 006
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 03/13/95
Date Completed: 03/15/96
Priority Level: Not reported
Operable Unit: OXIDATION LAGOONS
Primary Responsibility: Federal Facilities
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 008
Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 03/13/95
Date Completed: 03/29/96

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Priority Level:	Not reported
Operable Unit:	OVERALL SITE
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	007
Action:	FEDERAL FACILITY FIVE YEAR REVIEW
Date Started:	10/01/95
Date Completed:	05/03/96
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	006
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	08/01/96
Date Completed:	05/19/98
Priority Level:	Not reported
Operable Unit:	OXIDATION LAGOONS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Long Term Action
Action Anomaly:	Not reported

Action Code:	003
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	04/08/94
Date Completed:	05/27/98
Priority Level:	Not reported
Operable Unit:	BURN PITS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Long Term Action
Action Anomaly:	Not reported

Action Code:	007
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	06/24/96
Date Completed:	05/27/98
Priority Level:	Not reported
Operable Unit:	BURN PITS
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Long Term Action
Action Anomaly:	Not reported

Action Code:	002
Action:	FEDERAL FACILITY FIVE YEAR REVIEW
Date Started:	04/15/01

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Date Completed:	02/06/02
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	008
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	06/24/96
Date Completed:	08/28/02
Priority Level:	Not reported
Operable Unit:	OVERALL SITE
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	002
Action:	PRELIMINARY CLOSE-OUT REPORT PREPARED
Date Started:	/ /
Date Completed:	08/28/02
Priority Level:	Not reported
Operable Unit:	OVERALL SITE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	02/16/90
Date Completed:	08/05/03
Priority Level:	Not reported
Operable Unit:	OU02
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	009
Action:	FEDERAL FACILITY REMEDIAL ACTION
Date Started:	06/24/96
Date Completed:	08/05/03
Priority Level:	Not reported
Operable Unit:	OVERALL SITE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	003

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Action:	FEDERAL FACILITY FIVE YEAR REVIEW
Date Started:	/ /
Date Completed:	09/24/07
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	008
Action:	FEDERAL FACILITY FIVE YEAR REVIEW
Date Started:	/ /
Date Completed:	09/04/12
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	Restoration Advisory Board
Date Started:	06/01/94
Date Completed:	/ /
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Action Code:	001
Action:	OPERATIONS AND MAINTENANCE
Date Started:	08/05/03
Date Completed:	/ /
Priority Level:	Not reported
Operable Unit:	OVERALL SITE
Primary Responsibility:	Federal Facilities
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Federal Register Details:

Fed Register Date:	07/22/87
Fed Register Volume:	52
Page Number:	27620

Fed Register Date:	10/15/84
Fed Register Volume:	49
Page Number:	40320

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

CORRACTS:

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19840401
Action: CA049SI
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19840401
Action: CA029SF
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19840401
Action: CA049PA
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19940101
Action: CA300 - CMS Workplan Approved
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19940101
Action: CA150 - RFI Workplan Approved
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

EPA ID:	CA0210020780
EPA Region:	09
Area Name:	ENTIRE FACILITY
Actual Date:	19960101
Action:	CA210SF - CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA
NAICS Code(s):	49311 92119 General Warehousing and Storage Other General Government Support
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	CA0210020780
EPA Region:	09
Area Name:	ENTIRE FACILITY
Actual Date:	19910701
Action:	CA050RF - RFA Completed, Assessment was an RFA
NAICS Code(s):	49311 92119 General Warehousing and Storage Other General Government Support
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	CA0210020780
EPA Region:	09
Area Name:	ENTIRE FACILITY
Actual Date:	19970601
Action:	CA450 - Corrective Measures Design Approved
NAICS Code(s):	49311 92119 General Warehousing and Storage Other General Government Support
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	CA0210020780
EPA Region:	09
Area Name:	ENTIRE FACILITY
Actual Date:	19871101
Action:	CA650 - Stabilization Construction Completed
NAICS Code(s):	49311 92119 General Warehousing and Storage Other General Government Support
Original schedule date:	Not reported
Schedule end date:	Not reported

EPA ID:	CA0210020780
EPA Region:	09
Area Name:	ENTIRE FACILITY
Actual Date:	19980415
Action:	CA750IN - Migration of Contaminated Groundwater under Control, More information is needed to make a determination
NAICS Code(s):	49311 92119 General Warehousing and Storage Other General Government Support
Original schedule date:	Not reported
Schedule end date:	Not reported

SACRAMENTO ARMY DEPOT (Continued) 1000353465

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19980415
Action: CA210 - CA Responsibility Referred To A Non-RCRA Federal Authority
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19980415
Action: CA750IN - Migration of Contaminated Groundwater under Control, More information is needed to make a determination
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: 19980415
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19980415
Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19980415
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19881216

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Action: CA022
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19950117
Action: CA400 - Date For Remedy Selection (CM Imposed)
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: 19950117
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19950117
Action: CA400 - Date For Remedy Selection (CM Imposed)
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19970421
Action: CA350 - CMS Approved
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19881221
Action: CA250 - CMS Imposition
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19881221
Action: CA100 - RFI Imposition
NAICS Code(s): 49311 92119

SACRAMENTO ARMY DEPOT (Continued) 1000353465

General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: 20000522
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA750NO - Migration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: 20000522
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 20000522
Action: CA750NO - Migration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Area Name: ENTIRE FACILITY
Actual Date: 19960524
Action: CA200 - RFI Approved
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19950926
Action: CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 20130628
Action: CA550RC
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: 20130827
Schedule end date: Not reported

EPA ID: CA0210020780
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19871031
Action: CA600GW - Stabilization Measures Implemented, Groundwater extraction and treatment
NAICS Code(s): 49311 92119
General Warehousing and Storage
Other General Government Support
Original schedule date: Not reported
Schedule end date: Not reported

RCRA-TSDF:
Date form received by agency: 09/01/1986
Facility name: USARMY SACRAMENTO DEPOT
Facility address: FRUITRIDGE RD
SACRAMENTO, CA 95813
EPA ID: CA0210020780
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Land type: Federal
Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste

Owner/Operator Summary:
Owner/operator name: SACRAMENTO ARMY DEPOT
Owner/operator address: FRUITRIDGE RD
CITY NOT REPORTED, CA 99999
Owner/operator country: Not reported
Owner/operator telephone: (916) 388-2623
Legal status: Federal
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: SACRAMENTO ARMY DEPOT
Owner/operator address: FRUITRIDGE RD
SACRAMENTO, CA 95813
Owner/operator country: Not reported
Owner/operator telephone: (916) 388-2623
Legal status: Federal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/01/1996
Site name: USARMY SACRAMENTO DEPOT
Classification: Small Quantity Generator

Date form received by agency: 03/29/1994
Site name: USARMY SACRAMENTO ARMY DEPOT
Classification: Large Quantity Generator

Date form received by agency: 02/26/1992
Site name: SACRAMENTO ARMY DEPOT
Classification: Large Quantity Generator

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Date form received by agency: 06/18/1990
Site name: SACRAMENTO ARMY DEPOT
Classification: Large Quantity Generator

Date form received by agency: 08/18/1980
Site name: USARMY SACRAMENTO DEPOT
Classification: Large Quantity Generator

Corrective Action Summary:

Event date: 04/01/1984
Event: CA029SF

Event date: 04/01/1984
Event: CA049PA

Event date: 04/01/1984
Event: CA049SI

Event date: 10/31/1987
Event: Stabilization Measures Implemented, Groundwater extraction and treatment (e.g., to achieve groundwater containment, to achieve MCL).

Event date: 11/01/1987
Event: Stabilization Construction Completed

Event date: 12/16/1988
Event: CA022

Event date: 12/21/1988
Event: CMS Imposition

Event date: 12/21/1988
Event: RFI Imposition

Event date: 07/01/1991
Event: RFA Completed, Assesement was an RFA.

Event date: 01/01/1994
Event: RFI Workplan Approved

Event date: 01/01/1994
Event: CMS Workplan Approved

Event date: 01/17/1995
Event: Date For Remedy Selection (CM Imposed)

Event date: 01/17/1995
Event: Date For Remedy Selection (CM Imposed)

Event date: 09/26/1995
Event: CA Prioritization, Facility or area was assigned a low corrective action priority.

Event date: 01/01/1996
Event: CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA.

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Event date: 05/24/1996
Event: RFI Approved

Event date: 04/21/1997
Event: CMS Approved

Event date: 06/01/1997
Event: Corrective Measures Design Approved

Event date: 04/15/1998
Event: Stabilization Measures Evaluation,This facility is not amenable to stabilization activity at the present time for reasons other than 1- it appears to be technically infeasible or inappropriate (NF) or 2- there is a lack of technical information (IN). Reasons for this conclusion may be the status of closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other administrative considerations.

Event date: 04/15/1998
Event: CA Responsibility Referred To A Non-RCRA Federal Authority

Event date: 04/15/1998
Event: Igration of Contaminated Groundwater under Control, More information is needed to make a determination.

Event date: 04/15/1998
Event: Igration of Contaminated Groundwater under Control, More information is needed to make a determination.

Event date: 04/15/1998
Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Event date: 05/22/2000
Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Event date: 05/22/2000
Event: Current Human Exposures under Control, Yes, Current Human Exposures Under Control has been verified. Based on a review of information contained in the EI determination, current human exposures are expected to be under control at the facility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

Event date: 05/22/2000

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Event: Igration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected.

Event date: 05/22/2000
Event: Igration of Contaminated Groundwater under Control, Unacceptable migration of contaminated groundwater is observed or expected.

Event date: 06/28/2013
Event: CA550RC

Facility Has Received Notices of Violations:

Regulation violated: FR - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 09/16/1992
Date achieved compliance: 10/02/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/16/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.50-56.D
Area of violation: TSD - General
Date violation determined: 09/16/1992
Date achieved compliance: 10/02/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/16/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 06/12/1991
Date achieved compliance: 10/02/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/17/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 07/18/1990
Date achieved compliance: 09/28/1990

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/17/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/21/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/21/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/21/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.110-120.G
Area of violation: TSD - Closure/Post-Closure
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/21/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 264.110-120.G
Area of violation: TSD - Closure/Post-Closure
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268 ALL
Area of violation: LDR - General
Date violation determined: 02/10/1989
Date achieved compliance: 08/11/1989
Violation lead agency: EPA
Enforcement action: Not reported

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 10/15/1987
Date achieved compliance: 02/10/1989
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/10/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 270
Area of violation: TSD - General
Date violation determined: 11/05/1986
Date achieved compliance: 10/15/1987
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/10/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 02/14/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/05/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/19/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/02/1992
Evaluation lead agency: State

Evaluation date: 08/19/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Area of violation: Generators - General
Date achieved compliance: 10/02/1992
Evaluation lead agency: State

Evaluation date: 03/19/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/17/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State Contractor/Grantee

Evaluation date: 06/12/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/02/1992
Evaluation lead agency: State

Evaluation date: 07/18/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 09/28/1990
Evaluation lead agency: State

Evaluation date: 02/10/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/11/1989
Evaluation lead agency: EPA

Evaluation date: 02/10/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Closure/Post-Closure
Date achieved compliance: 08/11/1989
Evaluation lead agency: EPA

Evaluation date: 02/10/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 08/11/1989
Evaluation lead agency: EPA

Evaluation date: 10/15/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 02/10/1989
Evaluation lead agency: EPA

Evaluation date: 11/05/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 10/15/1987
Evaluation lead agency: EPA

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

US ENG CONTROLS:

EPA ID:	CA0210020780
Site ID:	0902715
Name:	SACRAMENTO ARMY DEPOT
Address:	8350 FRUITRIDGE RD SACRAMENTO, CA 95813
EPA Region:	09
County:	SACRAMENTO
Event Code:	Not reported
Actual Date:	03/31/1995
Contact Name:	Not reported
Contact Phone and Ext:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Action ID:	001
Action Name:	RECORD OF DECISION
Action Completion date:	09/29/1989
Operable Unit:	02
Contaminated Media :	Groundwater
Engineering Control:	Extraction
Contact Name:	Not reported
Contact Phone and Ext:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Action ID:	001
Action Name:	RECORD OF DECISION
Action Completion date:	09/29/1989
Operable Unit:	02
Contaminated Media :	Groundwater
Engineering Control:	Flocculation
Contact Name:	Not reported
Contact Phone and Ext:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Action ID:	001
Action Name:	RECORD OF DECISION
Action Completion date:	09/29/1989
Operable Unit:	02
Contaminated Media :	Groundwater
Engineering Control:	Operations & Maintenance (O&M)
Contact Name:	Not reported
Contact Phone and Ext:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Action ID:	001
Action Name:	RECORD OF DECISION
Action Completion date:	09/29/1989
Operable Unit:	02
Contaminated Media :	Groundwater
Engineering Control:	Publicly Owned Treatment Works (POTW)
Contact Name:	Not reported
Contact Phone and Ext:	Not reported
Latitude:	Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Longitude: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/29/1989
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Reuse as Process Water
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 09/29/1989
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: UV Oxidation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 002
Action Name: RECORD OF DECISION
Action Completion date: 12/09/1991
Operable Unit: 03
Contaminated Media : Soil
Engineering Control: Soil Vapor Extraction (in-situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/30/1992
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/30/1992
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Residuals Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 09/30/1992
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Soil Washing
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Carbon Adsorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Residuals Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Sampling
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Soil Vapor Extraction (in-situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Solidification/Stabilization (Ex-Situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Carbon Adsorption
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Discharge
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Groundwater
Engineering Control: Publicly Owned Treatment Works (POTW)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Sediment
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Consolidate
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Disposal

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Excavation
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Solidification/Stabilization (Ex-Situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 005
Action Name: RECORD OF DECISION
Action Completion date: 01/17/1995
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: Solidification/Stabilization (In-Situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 001
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 02
Contaminated Media : Groundwater
Engineering Control: Non-fundamental change (ESD)
Contact Name: Not reported
Contact Phone and Ext: Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Latitude: Not reported
Longitude: Not reported

Action ID: 002
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Consolidate
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 002
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 002
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 04
Contaminated Media : Soil
Engineering Control: Solidification/Stabilization (Ex-Situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 05
Contaminated Media : Debris
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Consolidate
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Action ID: 003
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Disposal
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

Action ID: 003
Action Name: ROD Amendment
Action Completion date: 01/17/1995
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Solidification/Stabilization (In-Situ)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Latitude: Not reported
Longitude: Not reported

US INST CONTROL:
EPA ID: CA0210020780
Site ID: 0902715
Name: SACRAMENTO ARMY DEPOT
Action Name: RECORD OF DECISION
Address: 8350 FRUITRIDGE RD
SACRAMENTO, CA 95813
EPA Region: 09
County: SACRAMENTO
Event Code: Not reported
Inst. Control: Deed Notices
Actual Date: 03/31/1993
Complet. Date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext : Not reported
Latitude : Not reported
Longitude : Not reported

EPA ID: CA0210020780
Site ID: 0902715
Name: SACRAMENTO ARMY DEPOT

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Action Name: RECORD OF DECISION
Address: 8350 FRUITRIDGE RD
SACRAMENTO, CA 95813
EPA Region: 09
County: SACRAMENTO
Event Code: Not reported
Inst. Control: Deed Restriction
Actual Date: 03/31/1993
Complet. Date: 03/29/1993
Operable Unit: 05
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext :Not reported
Latitude : Not reported
Longitude : Not reported

CA FID UST:
Facility ID: 34000054
Regulated By: UTNKA
Regulated ID: 00058860
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 9163882489
Mail To: Not reported
Mailing Address: 8350 FRUITRIDGE RD
Mailing Address 2: Not reported
Mailing City,St,Zip: SACRAMENTO 95813
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

ROD:
Full-text of USEPA Record of Decision(s) is available from EDR.

PADS:
EPAID: CA0210020780
Facility name: SACRAMENTO ARMY DEPOT
Facility Address: 8350 FRUITRIDGE ROAD
SACRAMENTO, CA 95813-5052
Facility country: US
Generator: Yes
Storer: No
Transporter: No
Disposer: No
Research facility: No
Smelter: No
Facility owner name: DEPARTMENT OF THE NAVY
Contact title: Not reported
Contact name: PICCO, STEVEN A.
Contact tel: (916)388-2489
Contact extension: Not reported
Mailing address: 8350 FRUITRIDGE ROAD

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

SACRAMENTO, CA 95813-5052
Mailing country: US
Cert. title: Not reported
Cert. name: Not reported
Cert. date: 02/06/1992
Date received: 04/29/1992

FTTS:
Case Number: Not reported
Docket Number: 09-89131-03-WR
Complaint Issue Date: 05/23/89
Abatement Amount: 0.0000
Proposed Penalty: 0.0000
Final Assessment: 0.0000
Final Order Date: 07/11/89
Close Date: / /
Violations(s): PCB, Use
PCB, Label or Marking
PCB, Storage
PCB, Failure to Maintain Records

FTTS INSP:
Inspection Number: 1989022401968 1
Region: 09
Inspection Date: 02/24/89
Inspector: GRISIER
Violation occurred: Yes
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: Neutral Scheme, Region
Legislation Code: TSCA
Facility Function: User

HIST FTTS:
Case Number: Not reported
Docket Number: 09-89131-03-WR
Complaint Issue Date: 05/23/1989
Abatement Amount: 0.0000
Proposed Penalty: 0.0000
Final Assessment: 0.0000
Final Order Date: 07/11/1989
Close Date: / /
Violations(s): PCB, Use
PCB, Label or Marking
PCB, Storage
PCB, Failure to Maintain Records

HIST FTTS INSP:
Inspection Number: 1989022401968 1
Region: 09
Inspection Date: Not reported
Inspector: GRISIER
Violation occurred: Yes
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: Neutral Scheme, Region

SACRAMENTO ARMY DEPOT (Continued) 1000353465

Legislation Code: TSCA
Facility Function: User

DOCKET HWC:
Agency: ARMY
Facility ID: MDL3187 - 2/12/1988
Reporting Mechanism: RCRA 3005
Status: On MDL

EMI:
Year: 1987
County Code: 34
Air Basin: SV
Facility ID: 64
Air District Name: SAC
SIC Code: 9711
Air District Name: SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 17
Reactive Organic Gases Tons/Yr: 9
Carbon Monoxide Emissions Tons/Yr: 1
NOX - Oxides of Nitrogen Tons/Yr: 3
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Year: 1990
County Code: 34
Air Basin: SV
Facility ID: 64
Air District Name: SAC
SIC Code: 9711
Air District Name: SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 18
Reactive Organic Gases Tons/Yr: 9
Carbon Monoxide Emissions Tons/Yr: 2
NOX - Oxides of Nitrogen Tons/Yr: 6
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

HAZNET:
envid: 1000353465
Year: 2006
GEPAID: CA0210020780
Contact: DAN AGUIRRE
Telephone: 9163614332
Mailing Name: Not reported
Mailing Address: 10620 MATHER BLVD
Mailing City,St,Zip: MATHER, CA 95655
Gen County: Not reported
TSD EPA ID: Not reported

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	Disposal, Land Fill
Tons:	4.21
Cat Decode:	Asbestos containing waste
Method Decode:	Disposal, Land Fill
Facility County:	Sacramento

envid:	1000353465
Year:	2006
GEPAID:	CA0210020780
Contact:	DAN AGUIRRE
Telephone:	9163614332
Mailing Name:	Not reported
Mailing Address:	10620 MATHER BLVD
Mailing City,St,Zip:	MATHER, CA 95655
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Disposal, Other
Tons:	33.71
Cat Decode:	Other inorganic solid waste
Method Decode:	Disposal, Other
Facility County:	Sacramento

envid:	1000353465
Year:	2006
GEPAID:	CA0210020780
Contact:	DAN AGUIRRE
Telephone:	9163614332
Mailing Name:	Not reported
Mailing Address:	10620 MATHER BLVD
Mailing City,St,Zip:	MATHER, CA 95655
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Disposal, Other
Tons:	33.71
Cat Decode:	Other inorganic solid waste
Method Decode:	Disposal, Other
Facility County:	Sacramento

envid:	1000353465
Year:	2006
GEPAID:	CA0210020780
Contact:	DAN AGUIRRE
Telephone:	9163614332
Mailing Name:	Not reported
Mailing Address:	10620 MATHER BLVD
Mailing City,St,Zip:	MATHER, CA 95655
Gen County:	Not reported
TSD EPA ID:	Not reported
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	Disposal, Land Fill

SACRAMENTO ARMY DEPOT (Continued) **1000353465**

Tons:	4.21
Cat Decode:	Asbestos containing waste
Method Decode:	Disposal, Land Fill
Facility County:	Sacramento

envid:	1000353465
Year:	2006
GEPAID:	CA0210020780
Contact:	DAN AGUIRRE
Telephone:	9163614332
Mailing Name:	Not reported
Mailing Address:	10620 MATHER BLVD
Mailing City,St,Zip:	MATHER, CA 95655
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Disposal, Other
Tons:	67.42
Cat Decode:	Other inorganic solid waste
Method Decode:	Disposal, Other
Facility County:	Sacramento

Click this hyperlink while viewing on your computer to access
653 additional CA_HAZNET: record(s) in the EDR Site Report.

B8 **MTMAINTCO NAVAL INSTALLATION** **Sacramento Co. ML** **S102823170**
NW **8277 ELDER CREEK RD** **N/A**
< 1/8 **SACRAMENTO, CA 95828**
0.063 mi.
332 ft. **Site 1 of 3 in cluster B**

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	Not reported
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

B9	**NVL OPERATIONAL SUPPORT CTR SACRAMENTO**	**RCRA-SQG**	**1016140174**
NW	**8277 ELDER CREEK RD**	**FINDS**	**CAR000237974**
< 1/8	**SACRAMENTO, CA 95828**	**ECHO**	
0.063 mi.			
332 ft.	**Site 2 of 3 in cluster B**		

Relative:
Lower

Actual:
38 ft.

RCRA-SQG:

Date form received by agency:	03/02/2015
Facility name:	NVL OPERATIONAL SUPPORT CTR SACRAMENTO
Facility address:	8277 ELDER CREEK RD SACRAMENTO, CA 95828
EPA ID:	CAR000237974
Contact:	JASON FITZGERALD
Contact address:	8277 ELDER CREEK RD SACRAMENTO, CA 95828
Contact country:	US
Contact telephone:	916-387-7100
Telephone ext.:	28
Contact email:	JASON.FITZGERALD@NAVY.MIL
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	COMMANDING OFFICER NRSW RCC
Owner/operator address:	937 N HARBOR DR BOX 52 BLDG 1 FL 4 ATTN N4 SAN DIEGO, 92132
Owner/operator country:	US
Owner/operator telephone:	619-532-1899
Legal status:	Federal
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported
Owner/operator name:	NVL OPERATIONAL SUPPORT CTR
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Federal
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No

NVL OPERATIONAL SUPPORT CTR SACRAMENTO (Continued) 1016140174

Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: 121
. Waste name: 121

. Waste code: 122
. Waste name: 122

. Waste code: 141
. Waste name: 141

. Waste code: 151
. Waste name: 151

. Waste code: 181
. Waste name: 181

. Waste code: 221
. Waste name: 221

. Waste code: 222
. Waste name: 222

. Waste code: 223
. Waste name: 223

. Waste code: 261
. Waste name: 261

. Waste code: 281
. Waste name: 281

. Waste code: 291
. Waste name: 291

. Waste code: 331
. Waste name: 331

. Waste code: 352
. Waste name: 352

. Waste code: 451
. Waste name: 451

. Waste code: 461
. Waste name: 461

. Waste code: 512
. Waste name: 512

. Waste code: 513
. Waste name: 513

NVL OPERATIONAL SUPPORT CTR SACRAMENTO (Continued) **1016140174**

. Waste code: 541
. Waste name: 541

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

NVL OPERATIONAL SUPPORT CTR SACRAMENTO (Continued) **1016140174**

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Historical Generators:
Date form received by agency: 05/09/2013
Site name: NVL OPERATIONAL SUPPORT CTR NOSC SACRAMENTO
Classification: Small Quantity Generator

. Waste code: 151
. Waste name: 151

. Waste code: 221
. Waste name: 221

. Waste code: 223
. Waste name: 223

. Waste code: 261
. Waste name: 261

. Waste code: 331
. Waste name: 331

. Waste code: 343
. Waste name: 343

. Waste code: 352
. Waste name: 352

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

FINDS:

Registry ID: 110055427532

NVL OPERATIONAL SUPPORT CTR SACRAMENTO (Continued) **1016140174**

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid:	1016140174
Registry ID:	110055427532
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110055427532

B10 **NAVY OPERATIONAL SUPPORT CENTER SACRAMENT** **Sacramento Co. ML** **S108751841**
NW **8277 ELDER CREEK RD** **N/A**
< 1/8 **SACRAMENTO, CA 95828**
0.063 mi.
332 ft. **Site 3 of 3 in cluster B**

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

C11 **SAFEWASTE CORP** **RCRA-SQG** **1000820376**
East **8360 ELDER CREEK RD** **FINDS** **CAD983664111**
1/8-1/4 **SACRAMENTO, CA 95828** **HAZNET**
0.161 mi. **ECHO**
848 ft. **Site 1 of 2 in cluster C**

Relative:
Lower

Actual:
38 ft.

RCRA-SQG:

Date form received by agency:	09/01/1996
Facility name:	SAFEWASTE CORP
Facility address:	8360 ELDER CREEK RD SECTION S E SACRAMENTO, CA 95828
EPA ID:	CAD983664111

SAFEWASTE CORP (Continued) 1000820376

Mailing address:	OAK AVENUE PARKWAY UNIT 7272 FOLSOM, CA 95630
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	SAFEWASTE CORP
Owner/operator address:	9580 OAK AVENUE PKWY UNIT 7272 FOLSOM, CA 95630
Owner/operator country:	Not reported
Owner/operator telephone:	(916) 989-7666
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110002896180

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

SAFEWASTE CORP (Continued) **1000820376**

corrective action activities required under RCRA.

HAZNET:

envid:	1000820376
Year:	1995
GEPAID:	CAD983664111
Contact:	SAFEWASTE CORP
Telephone:	9169897666
Mailing Name:	Not reported
Mailing Address:	9580 OAK AVENUE PKWY
Mailing City,St,Zip:	FOLSOM, CA 956301888
Gen County:	Not reported
TSD EPA ID:	NVT330010000
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Not reported
Tons:	56.0000
Cat Decode:	Other inorganic solid waste
Method Decode:	Not reported
Facility County:	Sacramento

envid:	1000820376
Year:	1995
GEPAID:	CAD983664111
Contact:	SAFEWASTE CORP
Telephone:	9169897666
Mailing Name:	Not reported
Mailing Address:	9580 OAK AVENUE PKWY
Mailing City,St,Zip:	FOLSOM, CA 956301888
Gen County:	Not reported
TSD EPA ID:	CAT080033681
TSD County:	Not reported
Waste Category:	Alkaline solution without metals pH >= 12.5
Disposal Method:	Recycler
Tons:	34.1688
Cat Decode:	Alkaline solution without metals pH >= 12.5
Method Decode:	Recycler
Facility County:	Sacramento

envid:	1000820376
Year:	1995
GEPAID:	CAD983664111
Contact:	SAFEWASTE CORP
Telephone:	9169897666
Mailing Name:	Not reported
Mailing Address:	9580 OAK AVENUE PKWY
Mailing City,St,Zip:	FOLSOM, CA 956301888
Gen County:	Not reported
TSD EPA ID:	CAT080033681
TSD County:	Not reported
Waste Category:	Alkaline solution without metals pH >= 12.5
Disposal Method:	Not reported
Tons:	6.9430
Cat Decode:	Alkaline solution without metals pH >= 12.5
Method Decode:	Not reported
Facility County:	Sacramento

SAFEWASTE CORP (Continued) **1000820376**

envid: 1000820376
Year: 1994
GEPAID: CAD983664111
Contact: SAFEWASTE CORP
Telephone: 9169897666
Mailing Name: Not reported
Mailing Address: 9580 OAK AVENUE PKWY
Mailing City,St,Zip: FOLSOM, CA 956301888
Gen County: Not reported
TSD EPA ID: CAT080033681
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Disposal, Other
Tons: .0350
Cat Decode: Not reported
Method Decode: Disposal, Other
Facility County: Sacramento

envid: 1000820376
Year: 1994
GEPAID: CAD983664111
Contact: SAFEWASTE CORP
Telephone: 9169897666
Mailing Name: Not reported
Mailing Address: 9580 OAK AVENUE PKWY
Mailing City,St,Zip: FOLSOM, CA 956301888
Gen County: Not reported
TSD EPA ID: CAT087003368
TSD County: Not reported
Waste Category: Liquids with pH <= 2
Disposal Method: Not reported
Tons: .0000
Cat Decode: Liquids with pH <= 2
Method Decode: Not reported
Facility County: Sacramento

Click this hyperlink while viewing on your computer to access
9 additional CA_HAZNET: record(s) in the EDR Site Report.

ECHO:
Envid: 1000820376
Registry ID: 110002896180
DFR URL: http://echo.epa.gov/detailed_facility_report?fid=110002896180

C12 **AMERICAN BUILDING SUPPLY, INC** **Sacramento Co. ML** **S108197467**
East **8360 ELDER CREEK RD** **N/A**
1/8-1/4 **SACRAMENTO, CA 95828**
0.161 mi.
848 ft. **Site 2 of 2 in cluster C**

Relative: Sacramento Co. ML:
Lower Facility Id: Not reported
Facility Status: Not reported
Actual: FD: Not reported
38 ft. Billing Codes BP: A
Billing Codes UST: Not reported
WG Bill Code: A

AMERICAN BUILDING SUPPLY, INC (Continued) **S108197467**

Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	03/24/1993
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	03/24/1993
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

D13
WNW
1/8-1/4
0.178 mi.
940 ft.

ELLIS ROOFING CO DBA THE ELLIS
8201 ELDER CREEK RD
SACRAMENTO, CA 95824

CA FID UST **S101590819**
N/A

Site 1 of 2 in cluster D

Relative:
Higher

Actual:
41 ft.

CA FID UST:

Facility ID:	34006860
Regulated By:	UTNKA
Regulated ID:	00011419
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9163831200
Mail To:	Not reported
Mailing Address:	PO BOX 277377
Mailing Address 2:	Not reported
Mailing City,St,Zip:	SACRAMENTO 95824
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported

ELLIS ROOFING CO DBA THE ELLIS (Continued) — **S101590819**

NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

D14 WNW 1/8-1/4 0.178 mi. 940 ft. — **ELLIS ROOFING COMPANY**, **8201 ELDER CREEK RD**, **SACRAMENTO, CA 95824** — **LUST, Sacramento Co. CS, SWEEPS UST, HIST UST, HIST CORTESE, Sacramento Co. ML** — **S100934660**, **N/A**

Site 2 of 2 in cluster D

Relative: Higher

Actual: 41 ft.

LUST:

Region:	STATE
Global Id:	T0606700757
Latitude:	38.511328
Longitude:	-121.403461
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/26/1994
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	DWB
Local Agency:	SACRAMENTO COUNTY LOP
RB Case Number:	340913
LOC Case Number:	A306
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606700757
Contact Type:	Regional Board Caseworker
Contact Name:	VERA FISCHER
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	vera.fischer@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0606700757
Contact Type:	Local Agency Caseworker
Contact Name:	DANA BOOTH
Organization Name:	SACRAMENTO COUNTY LOP
Address:	8475 JACKSON ROAD, SUITE 240
City:	SACRAMENTO
Email:	boothd@saccounty.net
Phone Number:	Not reported

Status History:

Global Id:	T0606700757
Status:	Completed - Case Closed
Status Date:	07/26/1994

Global Id:	T0606700757
Status:	Open - Case Begin Date

ELLIS ROOFING COMPANY (Continued) **S100934560**

Status Date: 01/05/1994

Global Id: T0606700757
Status: Open - Site Assessment
Status Date: 04/20/1994

Regulatory Activities:
Global Id: T0606700757
Action Type: Other
Date: 01/05/1994
Action: Leak Discovery

Global Id: T0606700757
Action Type: Other
Date: 04/20/1994
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 340913
Case Type: Soil only
Substance: GASOLINE
Staff Initials: VJF
Lead Agency: Local
Program: LUST
MTBE Code: N/A

Sacramento Co. CS:
State Site Number: A306
Lead Staff: Booth, D.
Lead Agency: HM
Remedial Action Taken: YE, S
Substance: Automotive(motor gasoline and additives)
Date Reported: 01/05/1994
Facility Id: RO0000363
Case Type: Soil only
Case Closed: Y
Date Closed: 07/27/1994
Case Type: Soil only affected
Substance: Automotive(motor gasoline and additives)

SWEEPS UST:
Status: Active
Comp Number: 11419
Number: 1
Board Of Equalization: 44-018899
Referral Date: 07-24-92
Action Date: 10-12-92
Created Date: 02-29-88
Owner Tank Id: B
SWRCB Tank Id: 34-000-011419-000001
Tank Status: A
Capacity: 5000

ELLIS ROOFING COMPANY (Continued) **S100934660**

Active Date: 07-24-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 3

Status: Active
Comp Number: 11419
Number: 1
Board Of Equalization: 44-018899
Referral Date: 07-24-92
Action Date: 10-12-92
Created Date: 02-29-88
Owner Tank Id: A
SWRCB Tank Id: 34-000-011419-000002
Tank Status: A
Capacity: 5000
Active Date: 07-24-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 11419
Number: 1
Board Of Equalization: 44-018899
Referral Date: 07-24-92
Action Date: 10-12-92
Created Date: 02-29-88
Owner Tank Id: 3
SWRCB Tank Id: 34-000-011419-000003
Tank Status: A
Capacity: 5000
Active Date: 03-07-89
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

HIST UST:
File Number: 0002947C
URL: http://geotracker.waterboards.ca.gov/uslpdfs/pdf/0002947C.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported

ELLIS ROOFING COMPANY (Continued) S100934660

Tank Capacity:	Not reported
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported

Click here for Geo Tracker PDF:

HIST CORTESE:

Region:	CORTESE
Facility County Code:	34
Reg By:	LTNKA
Reg Id:	340913

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	U0045686
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	10/12/1993
Hazmat Date BP Received:	Not reported
UST Permit Dt:	07/31/1987
UST Inspection Date:	10/12/1993
UST Tank Test Date:	06/03/1993
Number of Tanks:	0
UST Tank Test Date:	10/12/1993
SIC Code:	3545
Tier Permitting:	Not reported

ELLIS ROOFING COMPANY (Continued) — **S100934660**

AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

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15 WNW 1/8-1/4 0.237 mi. 1252 ft. — **EASTMAN BUILDING PRODUCTS**, **8191 ELDER CREEK RD**, **SACRAMENTO, CA 95824** — **Sacramento Co. ML** — **S106541777**, **N/A**

Relative: Higher
Actual: 40 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	Not reported
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E16 West 1/8-1/4 0.242 mi. 1280 ft. — **ALLIANCE AUTO BODY INC**, **8180 ELDER CREEK RD**, **SACRAMENTO, CA 95824** — **Sacramento Co. ML** — **S107147787**, **N/A**

Site 1 of 9 in cluster E

Relative: Lower
Actual: 38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported

ALLIANCE AUTO BODY INC (Continued) **S107147787**

SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported
Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	7538
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E17
West
1/8-1/4
0.242 mi.
1280 ft.

EXECUTIVE AUTO BODY AND
8188 ELDER CREEK RD
SACRAMENTO, CA 95824

Site 2 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML **S103673322**
N/A

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	05/07/1995
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported
Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.

EXECUTIVE AUTO BODY AND (Continued) **S103673322**

FD:	Not reported
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	11/01/1996
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	05/07/1996
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E18
West
1/8-1/4
0.242 mi.
1280 ft.

BUXTON'S AUTO TRANSPORT, INC
8176 ELDER CREEK RD
SACRAMENTO, CA 95824

Sacramento Co. ML **S107141743**
N/A

Site 3 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E19
West
1/8-1/4
0.242 mi.
1280 ft.

SOUTH SACRAMENTO MACHINE
8178 ELDER CREEK RD
SACRAMENTO, CA 95828

Site 4 of 9 in cluster E

Sacramento Co. ML **S105268788**
N/A

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E20
West
1/8-1/4
0.242 mi.
1280 ft.

AUTO BODY SPECIALIST
8188 ELDER CREEK RD
SACRAMENTO, CA 95824

Sacramento Co. ML

S107769596
N/A

Site 5 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E21
West
1/8-1/4
0.242 mi.
1280 ft.

LEVAN
8182 ELDER CREEK RD
SACRAMENTO, CA 95828

Sacramento Co. ML

S108197275
N/A

Site 6 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E22
West
1/8-1/4
0.242 mi.
1280 ft.

NORTHSTAR AUTO BODY
8184 ELDER CREEK RD
SACRAMENTO, CA 95824

Sacramento Co. ML **S104795784**
N/A

Site 7 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E23
West
1/8-1/4
0.242 mi.
1280 ft.

ACCU-TECH UNLIMITED
8186 ELDER CREEK RD
SACRAMENTO, CA 95824

Sacramento Co. ML **S105629113**
N/A

Site 8 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

E24
West
1/8-1/4
0.242 mi.
1280 ft.

ACE AUTO RESTORATION CENTER
8186 ELDER CREEK RD STE B
SACRAMENTO, CA 95824

Sacramento Co. ML

S107447378
N/A

Site 9 of 9 in cluster E

Relative:
Lower

Actual:
38 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

25
WSW
1/8-1/4
0.247 mi.
1304 ft.

LEBATH - SUNNYWOOD
8170 ELDER CREEK RD
SACRAMENTO, CA 95824

Sacramento Co. ML

S103973921
N/A

Relative:
Lower

Actual:
37 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	02/16/1995
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	02/16/1995
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

F26 SSW 1/4-1/2 0.309 mi. 1630 ft. | **IT'S UNLIMITED, INC**
8260 BERRY AV
SACRAMENTO, CA 95828
Site 1 of 3 in cluster F

SWF/LF **S102955981**
CHMIRS **N/A**
Sacramento Co. ML
NPDES

Relative:
Lower

Actual:
38 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	34-AA-0214
Lat/Long:	38.504850 / -121.40277
Owner Name:	Sierra Waste Recycling and Transfer Inc.
Owner Telephone:	6507764952
Owner Address:	Michal Smulski
Owner Address2:	4249 Suzanne Dr.
Owner City,St,Zip:	Palo Alto, CA 94306
Operational Status:	Active
Operator:	Sierra Waste Recycling and Transfer Inc.
Operator Phone:	6507764952
Operator Address:	Michal Smulski
Operator Address2:	8260 Berry Ave.
Operator City,St,Zip:	Sacramento, CA 95828
Permit Date:	06/07/2013
Permit Status:	Permitted
Permitted Acreage:	$5.00
Activity:	Large Volume Transfer/Proc Facility
Regulation Status:	Permitted
Landuse Name:	Residential,Industrial,Commercial
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Construction/demolition,Green Materials,Wood waste
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	Not reported
SWIS Num:	34-AA-0214
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	1000
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	1000
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/day
Lat/Long:	38.504850 / -121.40277

CHMIRS:

OES Incident Number:	13-2972
OES notification:	05/16/2013
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Yes
Waterway:	Storm Drains to Morrison Creek
Spill Site:	Other
Cleanup By:	Unknown
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Gal(s)
Other:	Not reported
Date/Time:	2200
Year:	2013
Agency:	Sacramento Co. Env. Management Dept.
Incident Date:	5/15/2013
Admin Agency:	Sacramento City Fire Department
Amount:	Not reported
Contained:	No
Site Type:	Storm Drains to Morrison Creek
E Date:	Not reported
Substance:	Dark colored Fire Water
Quantity Released:	10,000
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	Firewater used at a landfill to extinguish a fire involving construction debris

Sacramento Co. ML:
Facility Id: Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	Not reported
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	07/01/1997
HAZMAT Inspection Date:	03/21/1997
Hazmat Date BP Received:	07/01/1997
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

NPDES:

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	5S
Regulatory Measure Id:	452825
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	5S34I025279
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/12/2015
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Michal Smulski
Discharge Address:	4249 Suzanne Dr
Discharge City:	Palto Alto
Discharge State:	California
Discharge Zip:	94306
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported
Npdes Number:	Not reported
Facility Status:	Not reported
Agency Id:	Not reported
Region:	5S
Regulatory Measure Id:	293219
Order No:	Not reported
Regulatory Measure Type:	Industrial
Place Id:	Not reported
WDID:	5S34I020017
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	5/9/2008
PROCESSED DATE:	1/12/2006
STATUS CODE NAME:	Active
STATUS DATE:	1/12/2006
PLACE SIZE:	5
PLACE SIZE UNIT:	52
FACILITY CONTACT NAME:	Farima Mushtaq
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	916-388-8320
FACILITY CONTACT PHONE EXT:	Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Sierra Waste Wood Grinding Co
OPERATOR ADDRESS:	8260 Berry Ave
OPERATOR CITY:	Sacramento
OPERATOR STATE:	California
OPERATOR ZIP:	95828
OPERATOR CONTACT NAME:	Sunil Dutt
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	916-388-8320
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Private Business
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	California
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	999-999-9999
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Y
RECEIVING WATER NAME:	River
CERTIFIER NAME:	Sunil Dutt
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	03-JAN-06
PRIMARY SIC:	2411-Logging
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

Npdes Number:	CAS000001
Facility Status:	Terminated
Agency Id:	0
Region:	5S
Regulatory Measure Id:	293219
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	5S34I020017
Program Type:	Industrial

IT'S UNLIMITED, INC (Continued) **S102955981**

Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	01/12/2006
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	03/04/2015
Discharge Name:	Sierra Waste and Recycling Transfer Station
Discharge Address:	8260 Berry Ave
Discharge City:	Sacramento
Discharge State:	California
Discharge Zip:	95828
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported

IT'S UNLIMITED, INC (Continued) **S102955981**

DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

27
WNW
1/4-1/2
0.316 mi.
1669 ft.

M & B
8137 ELDER CREEK RD
SACRAMENTO, CA 95824

LUST **S101300851**
Sacramento Co. CS **N/A**
HIST CORTESE
Sacramento Co. ML

Relative:
Higher

Actual:
39 ft.

LUST:

Region:	STATE
Global Id:	T0606700235
Latitude:	38.511104
Longitude:	-121.406346
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	03/19/1996
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	340300
LOC Case Number:	0275
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606700235
Contact Type:	Regional Board Caseworker
Contact Name:	VERA FISCHER
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	vera.fischer@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606700235
Status:	Completed - Case Closed
Status Date:	03/19/1996
Global Id:	T0606700235
Status:	Open - Case Begin Date
Status Date:	07/14/1988
Global Id:	T0606700235
Status:	Open - Site Assessment
Status Date:	07/14/1988

M & B (Continued) **S101300851**

Regulatory Activities:

Global Id:	T0606700235
Action Type:	Other
Date:	07/14/1988
Action:	Leak Discovery
Global Id:	T0606700235
Action Type:	Other
Date:	07/18/1988
Action:	Leak Reported

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	340300
Case Type:	Soil only
Substance:	GASOLINE
Staff Initials:	VJF
Lead Agency:	Local
Program:	LUST
MTBE Code:	N/A

Sacramento Co. CS:

State Site Number:	0275
Lead Staff:	Benedict, A.
Lead Agency:	HM
Remedial Action Taken:	NO
Substance:	Not reported
Date Reported:	08/09/1988
Facility Id:	RO0000362
Case Type:	Soil only
Case Closed:	Y
Date Closed:	**08/14/1992**
Case Type:	**Soil only affected**
Substance:	**Not reported**

HIST CORTESE:

Region:	CORTESE
Facility County Code:	34
Reg By:	LTNKA
Reg Id:	340300

Sacramento Co. ML:

Facility Id:	U01918
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported

M & B (Continued) **S101300851**

Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	5211
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

F28 **GEORGE HALL TRUCKING** **LUST** **S105033476**
SSW **8240 BERRY AVE** **N/A**
1/4-1/2 **SACRAMENTO, CA 95828**
0.321 mi.
1697 ft. **Site 2 of 3 in cluster F**

Relative:
Lower

Actual:
37 ft.

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	340842
Case Type:	Soil only
Substance:	DIESEL
Staff Initials:	VJF
Lead Agency:	Local
Program:	LUST
MTBE Code:	N/A

F29 SSW 1/4-1/2 0.321 mi. 1697 ft. — **GEORGE HALL TRUCKING**, **8240 BERRY AV**, **SACRAMENTO, CA 95828**, **Site 3 of 3 in cluster F** — **LUST**, **Sacramento Co. CS**, **HIST UST**, **HIST CORTESE**, **Sacramento Co. ML** — **U001615871**, **N/A**

Relative: Lower

Actual: 37 ft.

LUST:

Region:	STATE
Global Id:	T0606700694
Latitude:	38.504495
Longitude:	-121.402707
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/28/1996
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	340842
LOC Case Number:	C548
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606700694
Contact Type:	Regional Board Caseworker
Contact Name:	VERA FISCHER
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	vera.fischer@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606700694
Status:	Completed - Case Closed
Status Date:	05/28/1996
Global Id:	T0606700694
Status:	Open - Case Begin Date
Status Date:	02/11/1993
Global Id:	T0606700694
Status:	Open - Remediation
Status Date:	04/07/1993
Global Id:	T0606700694
Status:	Open - Remediation
Status Date:	07/28/1993
Global Id:	T0606700694
Status:	Open - Site Assessment
Status Date:	02/11/1993
Global Id:	T0606700694
Status:	Open - Site Assessment

GEORGE HALL TRUCKING (Continued) U001615871

Status Date: 03/15/1993

Regulatory Activities:

Global Id: T0606700694
Action Type: ENFORCEMENT
Date: 05/28/1996
Action: Staff Letter

Global Id: T0606700694
Action Type: RESPONSE
Date: 09/14/1995
Action: Other Report / Document

Global Id: T0606700694
Action Type: RESPONSE
Date: 07/01/1993
Action: Other Report / Document

Global Id: T0606700694
Action Type: RESPONSE
Date: 07/29/1993
Action: Other Report / Document

Global Id: T0606700694
Action Type: RESPONSE
Date: 08/20/1996
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0606700694
Action Type: RESPONSE
Date: 07/01/1993
Action: Other Report / Document

Global Id: T0606700694
Action Type: RESPONSE
Date: 04/07/1993
Action: Other Report / Document

Global Id: T0606700694
Action Type: Other
Date: 02/11/1993
Action: Leak Discovery

Global Id: T0606700694
Action Type: Other
Date: 02/11/1993
Action: Leak Reported

Global Id: T0606700694
Action Type: ENFORCEMENT
Date: 04/07/1993
Action: * No Action

Global Id: T0606700694
Action Type: ENFORCEMENT
Date: 04/07/1993
Action: * Historical Enforcement

GEORGE HALL TRUCKING (Continued) **U001615871**

Sacramento Co. CS:

State Site Number:	C548
Lead Staff:	Rwb, R.
Lead Agency:	HM
Remedial Action Taken:	YE, S
Substance:	Diesel
Date Reported:	03/30/1993
Facility Id:	RO0000236
Case Type:	Soil only
Case Closed:	Y
Date Closed:	**09/14/1995**
Case Type:	**Soil only affected**
Substance:	**Diesel**

HIST UST:

File Number:	0001FDEA
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001FDEA.pdf
Region:	STATE
Facility ID:	00000013351
Facility Type:	Other
Other Type:	TRUCKING
Contact Name:	GEORGE HALL
Telephone:	9163837644
Owner Name:	GEORGE HALL TRUCKING COMPANY
Owner Address:	8240 BERRY AVE.
Owner City,St,Zip:	SACRAMENTO, CA 95828
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	1975
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	3/8
Leak Detection:	Stock Inventor, Groundwater Monitoring Well
Tank Num:	002
Container Num:	2
Year Installed:	1975
Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	3/8
Leak Detection:	Stock Inventor, Groundwater Monitoring Well

Click here for Geo Tracker PDF:

HIST CORTESE:

Region:	CORTESE
Facility County Code:	34
Reg By:	LTNKA
Reg Id:	340842

Sacramento Co. ML:

GEORGE HALL TRUCKING (Continued) **U001615871**

Facility Id:	U0071786
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	U
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	03/11/1987
UST Inspection Date:	04/23/1992
UST Tank Test Date:	12/21/1991
Number of Tanks:	0
UST Tank Test Date:	04/23/1992
SIC Code:	4212
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

30
NE
1/4-1/2
0.353 mi.
1863 ft.

BLDG #680
680 SAC. ARMY DEPOT
SACRAMENTO, CA 95813

LUST **S102444955**
MCS **N/A**
HIST CORTESE

Relative:
Higher

Actual:
39 ft.

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	341114
Case Type:	Soil only
Substance:	DIESEL
Staff Initials:	RRR
Lead Agency:	Regional
Program:	Department of Defense - Military Bases
MTBE Code:	N/A

MCS:

Global Id:	T0606700939
Latitude:	38.51375
Longitude:	-121.3963
Case Type:	Military UST Site
Status:	Completed - Case Closed
Status Date:	02/09/1996
Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Caseworker:	CC
Local Agency:	SACRAMENTO COUNTY LOP
RB Case Number:	341114
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Soil
EDR Link ID:	T0606700939
Potential Contaminants of Concern:	Diesel
Site History:	The depot is located approximately 7 miles southeast of downtown Sacramento. The former depot consisted of approximately 486.9 acres

BLDG #680 (Continued) **S102444955**

of land and was bounded on the north by Fruitridge Road, on the east by Florin Perkins Road, on the south by Elder Creek Road, and on the west by the Southern Pacific Railroad tracks. In 1995 the SAAD was closed as a part of the Base Realignment and Closure (BRAC) process. Most of the former depot is now owned by commercial firms and the City of Sacramento, with smaller parcels retained by the Army, the U.S. Navy/Marines, and the California National Guard. All properties in the former depot are zoned commercial/industrial or agricultural/open space. The former depot was an electronics and maintenance facility and was established in 1945. Residues from metal plating and painting operations were disposed of in oxidation lagoons and burn pit sites. Contaminated media includes site soils and the groundwater beneath the southwestern portion of the site extending down gradient some 2,000 feet to the south. Chemical contaminants detected in the soil and groundwater includes metals and volatile organic compounds (VOCs), including; carbon tetrachloride, trichloroethene (TCE), tetrachloroethene, 1,2-dichloroethane, and cis-1,2-dichloroethene (cis-DCE). The remedies selected for SAAD addressed soil and groundwater contamination. The South Post Burn Pits Operable Unit (OU) was remediated with a combination of soil vapor extraction and soil excavation/stabilization. The Corrective Action Management Unit (CAMU) is sited at the South Post Burn Pits OU and it received soils from this site, as well as the others sites described below. Soil excavation, stabilization, and consolidation in the CAMU were also the remedy chosen for the Oxidation Lagoons OU, the Battery Disposal Well (Investigation-Derived Waste), and Building 300 Burn Pits. The Parking Lot 3 Groundwater site was remediated with a combination of air sparging, dual-phase extraction, and groundwater extraction with wellhead treatment via carbon adsorption. Groundwater extraction with ultraviolet light and chemical oxidation treatment was the remedy selected for the South Post Groundwater OU. The soil remedies are complete with all stabilized soils consolidated within the CAMU. Groundwater extraction and treatment has ceased at the Parking Lot 3 Groundwater site, although discussion and evaluation continues regarding the success in meeting the remedial action objectives. Groundwater extraction continues at the South Post Groundwater OU. The extracted water is discharged directly to the sanitary sewer under permit. Ongoing evaluations are continuing on the following issues; 1) optimization of the groundwater treatment plant, 2) effectiveness of the present remedy and 3) evaluation of alternatives to the present remedy that would prove more effective at meeting the ROD requirements. Institutional controls are in place and currently enforced.

Click here to access the California GeoTracker records for this facility:

HIST CORTESE:

Region:	CORTESE
Facility County Code:	34
Reg By:	LTNKA
Reg Id:	341114

31 SSE 1/4-1/2 0.483 mi. 2443 ft.

Relative: Higher

Actual: 39 ft.

ANDREW CORPORATION
8430 ROVANA CIRCLE
SACRAMENTO, CA 95828

RCRA-SQG 1000985069
ENVIROSTOR CAR000001784
FINDS
HAZNET
Sacramento Co. ML
ECHO

RCRA-SQG:

Date form received by agency:	09/01/1996
Facility name:	ANDREW CORPORATION
Facility address:	8430 ROVANA CIRCLE SACRAMENTO, CA 95828
EPA ID:	CAR000001784
Mailing address:	ROVANA CIRCLE SACRAMENTO, CA 95828
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	ANDREW CORP PUBLICALLY OWNED
Owner/operator address:	10500 WEST 153RD ST ORLAND PARK, IL 60462
Owner/operator country:	Not reported
Owner/operator telephone:	(708) 349-3300
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

ANDREW CORPORATION (Continued) **1000985069**

ENVIROSTOR:

Facility ID:	71003424
Status:	Inactive - Needs Evaluation
Status Date:	Not reported
Site Code:	Not reported
Site Type:	Tiered Permit
Site Type Detailed:	Tiered Permit
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Not reported
Division Branch:	Cleanup Sacramento
Assembly:	07
Senate:	06
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not reported
Latitude:	38.50395
Longitude:	-121.3970
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CAR000001784
Alias Type:	EPA Identification Number
Alias Name:	110002905349
Alias Type:	EPA (FRS #)
Alias Name:	71003424
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

FINDS:

Registry ID: 110002905349

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource

ANDREW CORPORATION (Continued) **1000985069**

Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:

envid:	1000985069
Year:	2000
GEPAID:	CAR000001784
Contact:	DON RUHSTALLER-PLANT MGR
Telephone:	9163819378
Mailing Name:	Not reported
Mailing Address:	8430 ROVANA CIR
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified aqueous solution
Disposal Method:	Recycler
Tons:	0.45
Cat Decode:	Unspecified aqueous solution
Method Decode:	Recycler
Facility County:	Sacramento

envid:	1000985069
Year:	2000
GEPAID:	CAR000001784
Contact:	DON RUHSTALLER-PLANT MGR
Telephone:	9163819378
Mailing Name:	Not reported
Mailing Address:	8430 ROVANA CIR
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified aqueous solution
Disposal Method:	Treatment, Incineration
Tons:	2.5
Cat Decode:	Unspecified aqueous solution
Method Decode:	Treatment, Incineration
Facility County:	Sacramento

envid:	1000985069
Year:	2000
GEPAID:	CAR000001784
Contact:	DON RUHSTALLER-PLANT MGR
Telephone:	9163819378
Mailing Name:	Not reported
Mailing Address:	8430 ROVANA CIR
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified solvent mixture
Disposal Method:	Recycler

ANDREW CORPORATION (Continued) **1000985069**

Tons:	1.73
Cat Decode:	Unspecified solvent mixture
Method Decode:	Recycler
Facility County:	Sacramento

envid:	1000985069
Year:	2000
GEPAID:	CAR000001784
Contact:	DON RUHSTALLER-PLANT MGR
Telephone:	9163819378
Mailing Name:	Not reported
Mailing Address:	8430 ROVANA CIR
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified organic liquid mixture
Disposal Method:	Not reported
Tons:	14.59
Cat Decode:	Unspecified organic liquid mixture
Method Decode:	Not reported
Facility County:	Sacramento

envid:	1000985069
Year:	2000
GEPAID:	CAR000001784
Contact:	DON RUHSTALLER-PLANT MGR
Telephone:	9163819378
Mailing Name:	Not reported
Mailing Address:	8430 ROVANA CIR
Mailing City,St,Zip:	SACRAMENTO, CA 958280000
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified organic liquid mixture
Disposal Method:	Recycler
Tons:	35.04
Cat Decode:	Unspecified organic liquid mixture
Method Decode:	Recycler
Facility County:	Sacramento

Click this hyperlink while viewing on your computer to access
11 additional CA_HAZNET: record(s) in the EDR Site Report.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	I
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported

ANDREW CORPORATION (Continued) **1000985069**

UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	I
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

ECHO:

Envid:	1000985069
Registry ID:	110002905349
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110002905349

G32 **West** **1/4-1/2** **0.480 mi.** **2532 ft.**

ARCO #5424
8024 ELDER CREEK RD
SACRAMENTO, CA 95828

LUST **S108199568**
Sacramento Co. CS **N/A**

Site 1 of 2 in cluster G

Relative: **Lower**

Actual: **38 ft.**

LUST:

Region:	STATE
Global Id:	T0606791424
Latitude:	38.510363
Longitude:	-121.410031
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	11/03/2014
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	CWL
Local Agency:	SACRAMENTO COUNTY LOP
RB Case Number:	341345
LOC Case Number:	F584
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	A complete site history is located here.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606791424
Contact Type:	Regional Board Caseworker
Contact Name:	VERA FISCHER
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	vera.fischer@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0606791424
Contact Type:	Local Agency Caseworker
Contact Name:	CHARLEY LANGER
Organization Name:	SACRAMENTO COUNTY LOP
Address:	10590 ARMSTRONG AVENUE, SUITE A

ARCO #5424 (Continued) **S108199568**

City: MATHER
Email: langerc@saccounty.net
Phone Number: 9168758474

Status History:

Global Id: T0606791424
Status: Completed - Case Closed
Status Date: 11/03/2014

Global Id: T0606791424
Status: Open - Assessment & Interim Remedial Action
Status Date: 10/29/2012

Global Id: T0606791424
Status: Open - Case Begin Date
Status Date: 01/10/2000

Global Id: T0606791424
Status: Open - Eligible for Closure
Status Date: 03/28/2014

Global Id: T0606791424
Status: Open - Site Assessment
Status Date: 01/30/2002

Regulatory Activities:

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 01/05/2009
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 06/07/2010
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 04/28/2010
Action: Meeting

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 06/07/2010
Action: Staff Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 02/10/2009
Action: Staff Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 02/10/2009
Action: File review

ARCO #5424 (Continued) **S108199568**

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 11/18/2011
Action: Meeting

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 12/15/2011
Action: Staff Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 02/23/2004
Action: File review

Global Id: T0606791424
Action Type: RESPONSE
Date: 09/30/2010
Action: Soil and Water Investigation Workplan

Global Id: T0606791424
Action Type: RESPONSE
Date: 10/15/2011
Action: Request for Closure

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 11/03/2014
Action: Closure/No Further Action Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 06/24/2009
Action: Technical Correspondence / Assistance / Other

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 04/14/2005
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 06/07/2006
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 08/23/2012
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 03/17/2014
Action: Notification - Fee Title Owners Notice

Global Id: T0606791424
Action Type: Other

ARCO #5424 (Continued) **S108199568**

Date:	01/10/2000
Action:	Leak Discovery
Global Id:	T0606791424
Action Type:	Other
Date:	01/10/2000
Action:	Leak Reported
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	04/27/2004
Action:	File review
Global Id:	T0606791424
Action Type:	RESPONSE
Date:	09/30/2010
Action:	Interim Remedial Action Plan
Global Id:	T0606791424
Action Type:	RESPONSE
Date:	09/30/2012
Action:	Pilot Study/ Treatability Report
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	02/23/2004
Action:	Staff Letter
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	07/23/2008
Action:	Staff Letter
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	08/24/2009
Action:	File review
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	08/22/2011
Action:	File review
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	01/16/2013
Action:	File review
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	11/07/2008
Action:	File review
Global Id:	T0606791424
Action Type:	ENFORCEMENT
Date:	11/07/2008
Action:	Staff Letter

ARCO #5424 (Continued) **S108199568**

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 11/20/2009
Action: File review

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 11/20/2009
Action: Staff Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 08/12/2009
Action: File Review - Closure

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 12/27/2006
Action: File review

Global Id: T0606791424
Action Type: RESPONSE
Date: 03/19/2014
Action: Request for Closure - Regulator Responded

Global Id: T0606791424
Action Type: RESPONSE
Date: 01/09/2009
Action: Other Workplan

Global Id: T0606791424
Action Type: RESPONSE
Date: 09/18/2009
Action: Pilot Study/ Treatability Report

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 04/27/2011
Action: Staff Letter

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 07/13/2001
Action: Notice of Responsibility

Global Id: T0606791424
Action Type: REMEDIATION
Date: 11/01/2012
Action: Soil Vapor Extraction (SVE)

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 11/19/2004
Action: Meeting

Global Id: T0606791424
Action Type: Other

ARCO #5424 (Continued) **S108199568**

Date: 01/10/2000
Action: Leak Stopped

Global Id: T0606791424
Action Type: ENFORCEMENT
Date: 04/27/2011
Action: File review

Sacramento Co. CS:
State Site Number: F584
Lead Staff: Langer, C.
Lead Agency: HM
Remedial Action Taken: NO
Substance: Not reported
Date Reported: Not reported
Facility Id: RO0001458
Case Type: Undefined
Case Closed: Not reported
Date Closed: Not reported
Case Type: Undetermined affected
Substance: Not reported

G33
West
1/4-1/2
0.480 mi.
2532 ft.

ARCO #5424
8024 ELDER CREEK RD
SACRAMENTO, CA 95828

LUST S106174954
SWEEPS UST N/A
Sacramento Co. ML

Site 2 of 2 in cluster G

Relative:
Lower

Actual:
38 ft.

LUST REG 5:
Region: 5
Status: Pollution Characterization
Case Number: 341345
Case Type: Soil only
Substance: GASOLINE
Staff Initials: VJF
Lead Agency: Local
Program: LUST
MTBE Code: N/A

SWEEPS UST:
Status: Active
Comp Number: 14528
Number: 2
Board Of Equalization: 44-000506
Referral Date: 02-01-92
Action Date: 10-13-92
Created Date: 10-13-92
Owner Tank Id: 1-UNL-R
SWRCB Tank Id: 34-000-014528-000001
Tank Status: A
Capacity: 12000
Active Date: 02-21-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 3

ARCO #5424 (Continued) **S106174954**

Status:	Active
Comp Number:	14528
Number:	2
Board Of Equalization:	44-000506
Referral Date:	02-01-92
Action Date:	10-13-92
Created Date:	10-13-92
Owner Tank Id:	2-UNL-R
SWRCB Tank Id:	34-000-014528-000002
Tank Status:	A
Capacity:	12000
Active Date:	02-21-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Status:	Active
Comp Number:	14528
Number:	2
Board Of Equalization:	44-000506
Referral Date:	02-01-92
Action Date:	10-13-92
Created Date:	10-13-92
Owner Tank Id:	3-UNL-P
SWRCB Tank Id:	34-000-014528-000003
Tank Status:	A
Capacity:	12000
Active Date:	02-21-92
Tank Use:	M.V. FUEL
STG:	P
Content:	PRM UNLEADED
Number Of Tanks:	Not reported

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	A
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	3
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

34 West 1/4-1/2 0.485 mi. 2559 ft.

FORMER SERVICE STATION
6300 POWER INN RD
SACRAMENTO, CA 95824

LUST **S101332233**
Sacramento Co. CS **N/A**
HIST CORTESE
Sacramento Co. ML

Relative: Lower

Actual: 38 ft.

LUST:

Region:	STATE
Global Id:	T0606700381
Latitude:	38.5117402
Longitude:	-121.4091669
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	09/04/1990
Lead Agency:	SACRAMENTO COUNTY LOP
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	340458
LOC Case Number:	0282
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606700381
Contact Type:	Regional Board Caseworker
Contact Name:	VERA FISCHER
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	vera.fischer@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606700381
Status:	Completed - Case Closed
Status Date:	09/04/1990
Global Id:	T0606700381
Status:	Open - Case Begin Date
Status Date:	06/01/1988

Regulatory Activities:

Global Id:	T0606700381
Action Type:	Other
Date:	06/01/1988
Action:	Leak Discovery
Global Id:	T0606700381
Action Type:	Other
Date:	09/04/1990
Action:	Leak Reported

LUST REG 5:

FORMER SERVICE STATION (Continued) **S101332233**

Region: 5
Status: Case Closed
Case Number: 340458
Case Type: Soil only
Substance: GASOLINE
Staff Initials: VJF
Lead Agency: Local
Program: LUST
MTBE Code: N/A

Sacramento Co. CS:
State Site Number: 0282
Lead Staff: None assigned, H.
Lead Agency: HM
Remedial Action Taken: NO
Substance: Automotive(motor gasoline and additives)
Date Reported: 06/06/1988
Facility Id: RO0000983
Case Type: Not reported
Case Closed: Y
Date Closed: 01/19/1989
Case Type: Not reported
Substance: Automotive(motor gasoline and additives)

HIST CORTESE:
Region: CORTESE
Facility County Code: 34
Reg By: LTNKA
Reg Id: 340458

Sacramento Co. ML:
Facility Id: U01920
Facility Status: Inactive. Included on a listing no longer updated.
FD: U
Billing Codes BP: Out of Business
Billing Codes UST: No Tanks
WG Bill Code: Oil Changed by Outside Company-No Fee
Target Property Bill Cod: 51
Food Bill Code: 51
CUPA Permit Date: Not reported
HAZMAT Permit Date: Not reported
HAZMAT Inspection Date: Not reported
Hazmat Date BP Received: Not reported
UST Permit Dt: Not reported
UST Inspection Date: Not reported
UST Tank Test Date: Not reported
Number of Tanks: 0
UST Tank Test Date: Not reported
SIC Code: Not reported
Tier Permitting: Not reported
AST Bill Code: Not reported
CALARP Bill Code: Not reported

35 NW 1/2-1 0.706 mi. 3728 ft.

THUNDER BIRD MOULDING COMPANY
6001 POWER INN RD
SACRAMENTO, CA 95824

ENVIROSTOR **S101580541**
SLIC **N/A**
SWEEPS UST
CA FID UST
Sacramento Co. ML
NPDES

Relative:
Lower

Actual:
37 ft.

ENVIROSTOR:

Facility ID:	34240035
Status:	Refer: Other Agency
Status Date:	03/26/1993
Site Code:	Not reported
Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	1
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Sacramento
Assembly:	07
Senate:	06
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not reported
Latitude:	38.51675
Longitude:	-121.4058
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	PINE MOUNTAIN CORPORATION
Alias Type:	Alternate Name
Alias Name:	CAD983576711
Alias Type:	CERCLIS ID
Alias Name:	SLT5S2793316
Alias Type:	GeoTracker Global ID
Alias Name:	34240035
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	03/26/1993
Comments:	The facility manufactures artificial logs made from sawdust and unrefined petroleum wax. Hazardous wastes are stored on-site. The wastes include two 55 gallon drums of waste oil, one drum of waste oil filters, one drum of used solvents, and used 12 volt batteries stored on pallets. The county generally inspects small quantity hazardous waste generators.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported

THUNDER BIRD MOULDING COMPANY (Continued) **S101590541**

Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SLIC:

Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	03/20/2012
Global Id:	SLT5S2793316
Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number:	Not reported
Latitude:	38.5167264030405
Longitude:	-121.405920982361
Case Type:	Cleanup Program Site
Case Worker:	ZZZ
Local Agency:	Not reported
RB Case Number:	SLT5S226
File Location:	Not reported
Potential Media Affected:	Soil, Under Investigation
Potential Contaminants of Concern:	* Solvents, Waste Oil / Motor / Hydraulic / Lubricating
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

SLIC REG 5:

Region:	5
Facility Status:	Preliminary Assessment
Unit:	Facility is a Spill or site
Pollutant:	waste oil, waste oil filters, solvents, antifreeze
Lead Agency:	Not reported
Date Filed:	02/02/93
Report Date:	/ /
Date Added:	Not reported
Date Closed:	Not reported

SWEEPS UST:

Status:	Not reported
Comp Number:	64812
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	34-000-064812-000001
Tank Status:	Not reported
Capacity:	1000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	DIESEL
Number Of Tanks:	2

Status:	Not reported
Comp Number:	64812

THUNDER BIRD MOULDING COMPANY (Continued) **S101590541**

Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	34-000-064812-000002
Tank Status:	Not reported
Capacity:	550
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	LEADED
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	34001677
Regulated By:	UTNKI
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9163814200
Mail To:	Not reported
Mailing Address:	6001 POWER INN RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	SACRAMENTO 95824
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Inactive

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

THUNDER BIRD MOULDING COMPANY (Continued) **S101590541**

NPDES:

Npdes Number:	Not reported
Facility Status:	Not reported
Agency Id:	Not reported
Region:	5S
Regulatory Measure Id:	402672
Order No:	Not reported
Regulatory Measure Type:	Industrial
Place Id:	Not reported
WDID:	5S34I022563
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	3/15/2010
PROCESSED DATE:	3/23/2010
STATUS CODE NAME:	Active
STATUS DATE:	3/23/2010
PLACE SIZE:	7
PLACE SIZE UNIT:	52
FACILITY CONTACT NAME:	Johnny Godley
FACILITY CONTACT TITLE:	Plant Manager
FACILITY CONTACT PHONE:	916-381-8511
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	JohnnyGodley@jardenhomebrands.com
OPERATOR NAME:	Jarden Home Brands
OPERATOR ADDRESS:	6001 Power Inn rd
OPERATOR CITY:	Sacramento
OPERATOR STATE:	California
OPERATOR ZIP:	95824
OPERATOR CONTACT NAME:	Kevin Crain
OPERATOR CONTACT TITLE:	EHS Supervisor
OPERATOR CONTACT PHONE:	205-788-5647
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	KevinCrain@jardenhomebrands.com
OPERATOR TYPE:	Private Business
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	California
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported

THUNDER BIRD MOULDING COMPANY (Continued) **S101590541**

CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	N
RECEIVING WATER NAME:	Morrison Creek
CERTIFIER NAME:	Alan Zachary
CERTIFIER TITLE:	Operations Manager
CERTIFICATION DATE:	29-JUN-11
PRIMARY SIC:	2499-Wood Products, NEC
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	5S
Regulatory Measure Id:	402672
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	5S34I022563
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	03/23/2010
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Jarden Home Brands
Discharge Address:	6001 Power Inn Rd
Discharge City:	Sacramento
Discharge State:	California
Discharge Zip:	95824
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported

THUNDER BIRD MOULDING COMPANY (Continued) **S101590541**

OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

36
NNW
1/2-1
0.750 mi.
3960 ft.

PROTECH SPRAY SERVICE
8120 37TH AV
SACRAMENTO, CA 95824

ENVIROSTOR **S103673139**
Sacramento Co. ML **N/A**

Relative:
Lower

Actual:
37 ft.

ENVIROSTOR:

Facility ID:	34510057
Status:	Refer: Other Agency
Status Date:	11/16/1994
Site Code:	Not reported
Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned

PROTECH SPRAY SERVICE (Continued) **S103673139**

Division Branch: Cleanup Sacramento
Assembly: 07
Senate: 06
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 38.51917
Longitude: -121.4077
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: 34510057
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 12/01/1980
Comments: FACILITY IDENTIFIED INACTIVE LIST NUMBER 81.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Sacramento Co. ML:
Facility Id: Not reported
Facility Status: Not reported
FD: Not reported
Billing Codes BP: I
Billing Codes UST: Not reported
WG Bill Code: Not reported
Target Property Bill Cod: Not reported
Food Bill Code: Not reported
CUPA Permit Date: Not reported
HAZMAT Permit Date: Not reported
HAZMAT Inspection Date: Not reported
Hazmat Date BP Received: Not reported
UST Permit Dt: Not reported
UST Inspection Date: Not reported
UST Tank Test Date: Not reported
Number of Tanks: Not reported
UST Tank Test Date: Not reported
SIC Code: Not reported
Tier Permitting: Not reported
AST Bill Code: Not reported
CALARP Bill Code: Not reported

PROTECH SPRAY SERVICE (Continued) **S103673139**

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	J
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

37
NE
1/2-1
0.949 mi.
5009 ft.

REW MATERIALS
8588 THYS CT
SACRAMENTO, CA 95828

ENVIROSTOR **1000590620**
Sacramento Co. CS **N/A**
VCP
EMI
Sacramento Co. ML

Relative:
Higher

Actual:
40 ft.

ENVIROSTOR:

Facility ID:	34340038
Status:	No Further Action
Status Date:	02/27/1996
Site Code:	100334
Site Type:	Voluntary Cleanup
Site Type Detailed:	Voluntary Cleanup
Acres:	4
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	William Beckman
Division Branch:	Cleanup Sacramento
Assembly:	07
Senate:	06
Special Program:	Voluntary Cleanup Program
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Responsible Party
Latitude:	38.51830
Longitude:	-121.3870
APN:	NONE SPECIFIED
Past Use:	FOUNDRY
Potential COC:	Total Chromium (1:6 ratio Cr VI:Cr III Lead Polychlorinated biphenyls (PCBs Cadmium and compounds Copper and compounds Zinc
Confirmed COC:	Polychlorinated biphenyls (PCBs Cadmium and compounds Copper and compounds Total Chromium (1:6 ratio Cr VI:Cr III Lead Zinc
Potential Description:	SOIL
Alias Name:	METALLOY CO

REW MATERIALS (Continued) **1000590620**

Alias Type: Alternate Name
Alias Name: METALLOY STEEL
Alias Type: Alternate Name
Alias Name: 110033610607
Alias Type: EPA (FRS #)
Alias Name: 100334
Alias Type: Project Code (Site Code)
Alias Name: 34340038
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 11/20/1995
Comments: DTSC signed a Voluntary Cleanup Agreement with Massie and Company to review existing documentation of cleanup activities at the site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 01/22/1981
Comments: Facility identified. Identified as former Thys Co. steel foundry at 6900 FOLSOM BLVD. Inactive on-site land disposal.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 02/27/1996
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/27/1996
Comments: DTSC's review of documents for past investigation and cleanup activities at the site combined with the sampling efforts made by the project proponent resulting in NFA constitutes a PEA equivalent activity. Reviewed Summary Report of soil sampling describing further efforts to characterize soils underneath concrete foundation of the former steel foundry structure. Composite samples also collected and analyzed in area historically used for stockpiling, refuge sand, and metal debris from steel casting operations. Results indicate no threat to human health or the environment. Therefore, site requires No Further Action. Acres of land returned/released for reuse: 4.0 acres Any land use allowed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 06/29/1992
Comments: Site Screening completed June 29, 1992. County has indicate they are overseeing cleanup activities being conducted by RP

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 11/15/1991

REW MATERIALS (Continued) 1000590620

Comments: Site Screening Completed, recommend PEA-H and immediate acti stabilize site conditions.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Voluntary Cleanup Agreement Completion
Completed Date: 03/08/1996
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Sacramento Co. CS:
State Site Number: 0202B
Lead Staff: Booth, D.
Lead Agency: HM
Remedial Action Taken: YE, S
Substance: 0
Date Reported: 04/28/1992
Facility Id: RO0001113
Case Type: Soil only
Case Closed: Y
Date Closed: Not reported
Case Type: Soil only affected
Substance: Not reported

VCP:
Facility ID: 34340038
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 4
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: William Beckman
Division Branch: Cleanup Sacramento
Site Code: 100334
Assembly: 07
Senate: 06
Special Programs Code: Voluntary Cleanup Program
Status: No Further Action
Status Date: 02/27/1996
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 38.51830 / -121.3870
APN: NONE SPECIFIED

REW MATERIALS (Continued) **1000596620**

Past Use:	FOUNDRY
Potential COC:	30005, 30013, 30018, 30108, 30156, 30594
Confirmed COC:	30018,30108,30156,30005,30013,30594
Potential Description:	SOIL
Alias Name:	METALLOY CO
Alias Type:	Alternate Name
Alias Name:	METALLOY STEEL
Alias Type:	Alternate Name
Alias Name:	110033610607
Alias Type:	EPA (FRS #)
Alias Name:	100334
Alias Type:	Project Code (Site Code)
Alias Name:	34340038
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Voluntary Cleanup Agreement
Completed Date:	11/20/1995
Comments:	DTSC signed a Voluntary Cleanup Agreement with Massie and Company to review existing documentation of cleanup activities at the site.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	01/22/1981
Comments:	Facility identified. Identified as former Thys Co. steel foundry at 6900 FOLSOM BLVD. Inactive on-site land disposal.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Correspondence
Completed Date:	02/27/1996
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	02/27/1996
Comments:	DTSC's review of documents for past investigation and cleanup activities at the site combined with the sampling efforts made by the project proponent resulting in NFA constitutes a PEA equivalent activity. Reviewed Summary Report of soil sampling describing further efforts to characterize soils underneath concrete foundation of the former steel foundry structure. Composite samples also collected and analyzed in area historically used for stockpiling, refuge sand, and metal debris from steel casting operations. Results indicate no threat to human health or the environment. Therefore, site requires No Further Action. Acres of land returned/released for reuse: 4.0 acres Any land use allowed.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	06/29/1992
Comments:	Site Screening completed June 29, 1992. County has indicate they are overseeing cleanup activities being conducted by RP

REW MATERIALS (Continued) 1000590620

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 11/15/1991
Comments: Site Screening Completed, recommend PEA-H and immediate acti stabilize site conditions.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Voluntary Cleanup Agreement Completion
Completed Date: 03/08/1996
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

EMI:
Year: 1987
County Code: 34
Air Basin: SV
Facility ID: 21
Air District Name: SAC
SIC Code: 3325
Air District Name: SACRAMENTO METROPOLITAN AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Sacramento Co. ML:
Facility Id: Not reported
Facility Status: Not reported
FD: Not reported
Billing Codes BP: I
Billing Codes UST: Not reported
WG Bill Code: Not reported
Target Property Bill Cod: Not reported
Food Bill Code: Not reported
CUPA Permit Date: Not reported
HAZMAT Permit Date: Not reported
HAZMAT Inspection Date: Not reported
Hazmat Date BP Received: Not reported
UST Permit Dt: Not reported
UST Inspection Date: Not reported

REW MATERIALS (Continued) 1000590620

UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

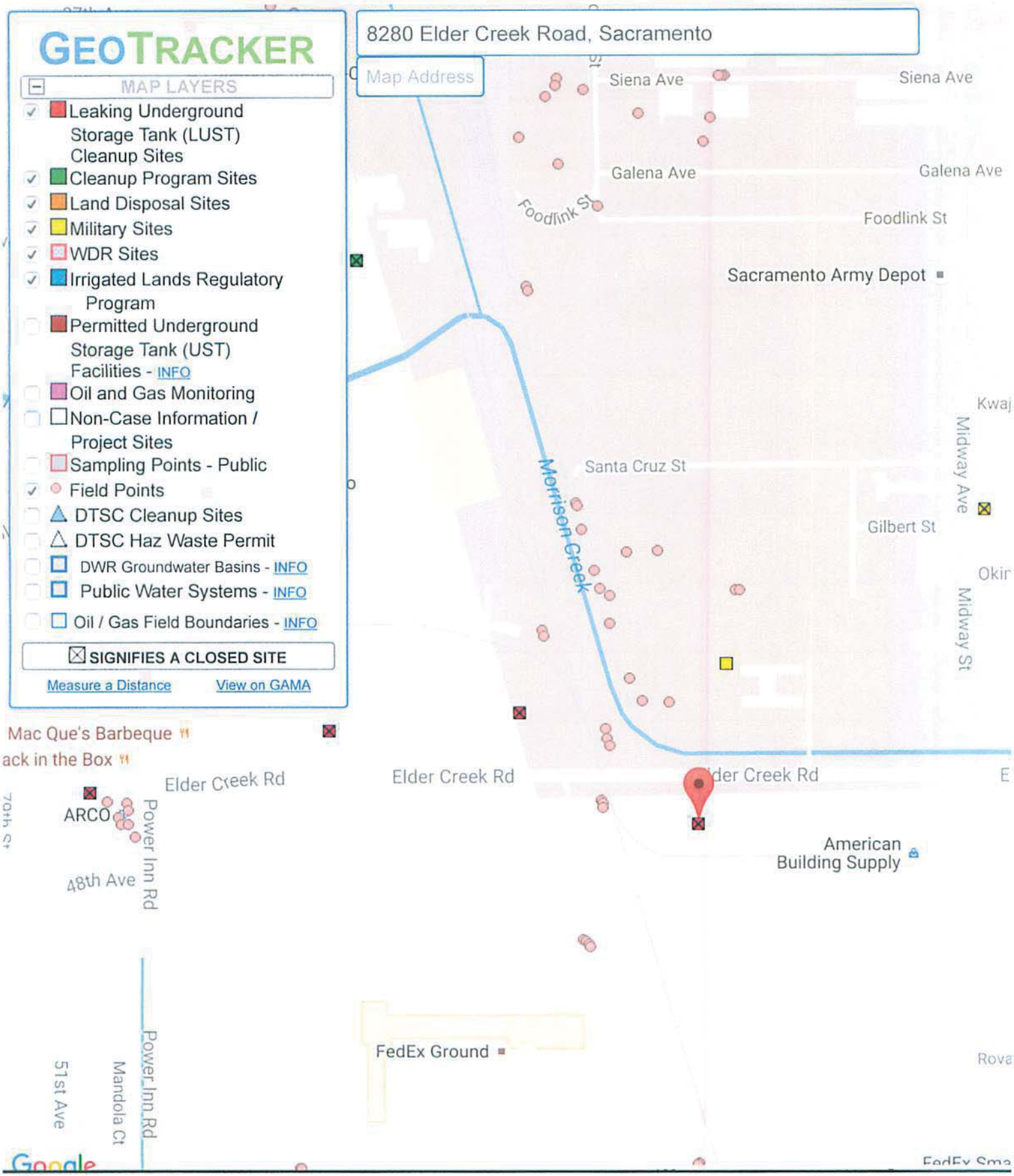
Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	Not reported
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

Count: 15 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SACRAMENTO	2015006552	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2015007294	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2015006694	8200 ELDER CREEK RD	8200 ELDER CREEK RD	95824	HMIRS
SACRAMENTO	2015004992	8200 ELDER CREEK RD	8200 ELDER CREEK RD	95824	HMIRS
SACRAMENTO	2015006918	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2015005408	8200 ELDER CREEK RD	8200 ELDER CREEK RD	95824	HMIRS
SACRAMENTO	2015005809	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2010103461	820 ELDER CREEK RD	820 ELDER CREEK RD	95824	HMIRS
SACRAMENTO	2015007673	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2015007423	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	S117699544	ELDER CREEK RD	ELDER CREEK RD	95828	NPDES
SACRAMENTO	2007434717	82020 ELDER CREEK ROAD	82020 ELDER CREEK ROAD		HMIRS
SACRAMENTO	2015006923	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS
SACRAMENTO	2015006636	8200 ELDER CREEK RD	8200 ELDER CREEK RD	95824	HMIRS
SACRAMENTO	2015005532	8200 ELDER CREEK ROAD	8200 ELDER CREEK ROAD	95824	HMIRS

ATTACHMENT 5
GROUNDWATER MONITORING WELL LOCATIONS FOR THE FORMER SACRAMENTO ARMY DEPOT



SITES CURRENTLY VISIBLE ON MAP

ATTACHMENT 6
SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT FILES FOR UNDERGROUND STORAGE TANKS

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Chief Deputy County Executive
Val F. Siebal, Department Director

June 22, 2012

Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

CERTIFIED MAIL: 7006 2150 0005 4531 6025

Dear Mr. Crawshaw:

SUBJECT: LOCAL REMEDIATION PROGRAM (LRP) SITE NO. D220; RO0001687
LIFETIME DOORS
8280 ELDER CREEK ROAD, SACRAMENTO, CA 95828

Remaining impediments to site closure have been satisfactorily addressed, and our office received concurrence for closure from the Central Valley Regional Water Quality Control Board at our closure review meeting on June 8, 2012.

Therefore, enclosed is a letter from the Environmental Management Department, together with the Case Closure Summary, indicating that this office requires no further action.

Please contact me at (916) 875-8474 if you have any questions about this.

Sincerely,

Charley W. Langer
Environmental Specialist III
Site Assessment and Mitigation

CWL:se

c: Steve Clements – SCS Engineers
Vera Fischer – CVRWQCB

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.LT4.DOC

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Chief Deputy County Executive
Val F. Siebal, Department Director

June 22, 2012

Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Dear Mr. Crawshaw:

SUBJECT: LOCAL REMEDIATION PROGRAM (LRP) SITE NO. D220; RO0001687
LIFETIME DOORS
8280 ELDER CREEK ROAD, SACRAMENTO, CA 95828

This letter confirms the completion of a site investigation and remedial action for the underground storage tank system formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the underground storage tank system is greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

Claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code.

Please contact Charley Langer at (916) 875-8474 if you have any questions regarding this matter.

Sincerely,

Val F. Siebal, Director
Environmental Management Department

VFS:CWL:se

W:\DATA\LANGERC\6280 ELDER CREEK\6280 ELDER CREEK.NFA.DOC

Leaking Underground Fuel Storage Tank Program

DATE: June 22, 2012

I. AGENCY INFORMATION

Agency Name: Sacramento County Environmental Mgmt. Dept.	Address: 10590 Armstrong Avenue, Suite A
City/State/Zip: Sacramento, CA 95655	Phone/email: (916) 875-8474/langerc@saccounty.net
Responsible staff person: Charley Langer	Title: Environmental Specialist III

II. CASE INFORMATION

Site Facility Name: Former Lifetime Doors		
Site Facility Address: 8280 Elder Creek Road, Sacramento, CA		
GeoTracker Case No: 341524	Local Case No: RO0001687	LOP Case No: G131
URF file date: June 23, 2011	Global ID No. T10000003350	
Responsible Parties:	Address:	Phone Number:
Masonite Corporation Attn: Tom Crawshaw	1955 Powis Road West Chicago, IL 60185	(630) 513-4444

Tank No.	Size in Gallons	Contents	Closed in-Place/Removed?	Date
1	1000	Gasoline	Closed In-Place	10/28/86
2	500	Diesel	Removed	Unknown

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: Unknown		
Site characterization complete? (✓)YES ()NO	Date approved by oversight agency: 06/08/2012	
Monitoring Wells Installed? (✓) YES () NO (Temporary Wells)	Number: 3	Proper screen interval? (✓) YES () NO
Highest GW depth below ground surface: 59 ft	Lowest Depth: 61.5 ft	Flow Direction: southerly
Most Sensitive Current Use:		
Are drinking water wells affected? () YES (✓) NO	Aquifer name: Sacramento River Basin	
Is surface water affected? () YES (✓) NO	Nearest affected SW name: New Morrison Creek	
Off-site beneficial use impacts (addresses/locations): None		
Report(s) on file? (✓) YES () NO	Where is report(s) filed? SCEMD	

Treatment and Disposal of Affected Material

Materials	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	500-gallon	Unknown	Unknown
Piping	Unknown	Unknown	Unknown
Free Product	NA	NA	NA
Soil	Unknown	Unknown	Unknown
Groundwater	NA	NA	NA
Barrels	NA	NA	NA

Case Closure Summary
Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (CONTINUED)

Maximum Documented Contaminant Concentrations--Before and After Cleanup

Contaminant ▼	Soil (mg/Kg)		Water (µg/L)		Contaminant ▼	Soil (mg/Kg)		Water (µg/L)	
	Before	After	Before	After		Before	After	Before	After
TPH (Gas)	1,900	1,900	ND<50	ND<50	Xylene	180	180	ND<0.5	ND<0.5
TPH (Diesel)	990	990	ND<50	ND<50	Ethylbenzene	31	31	ND<0.5	ND<0.5
Benzene	0.89	0.89	ND<0.5	ND<0.5	TPH (Motor Oil)	NA	NA	ND<250	ND<250
Toluene	8.9	8.9	ND<0.5	ND<0.5	Lead	6.3	6.3	4.0	4.0
MTBE	ND<0.40	ND<0.40	ND<0.5	ND<0.5	1,2-DCA	ND<0.004	ND<0.004	ND<0.5	ND<0.5

Comments (Depth/Type of Remediation, Mass Balance Calculations, Fate & Transport Results, etc.):
- Natural attenuation of soil and groundwater
- Negligible mass remaining
- SESOIL modeling predicts that benzene will not impact groundwater at concentrations exceeding the WQO

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Basin Plan? (✓) YES () NO

Does the completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? (✓) YES () NO

Does corrective action protect public health for current land use? (✓) YES () NO

Site management requirements No excavation or land use changes without EMD review

Should corrective action be reviewed if land use changes? (✓) Yes () No

Monitoring wells Decommissioned: (✓) Yes () No () N/A | No. Decommissioned: 3 | No. Retained: 0

Fee Title Certification: Yes

GeoTracker Input Verification: Yes

List Enforcement Actions Taken: NOR 12/02/2011

List enforcement actions rescinded: None

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Val F. Siebal	Title: Director, EMD
Signature:	Date: 6-21-12

VI. RWQCB NOTIFICATION

Date Submitted to RB: 06/06/2012	RB Response: Concur	
RWQCB Staff Name: Vera Fischer	Title: Engineering Geologist	Date: 06/08/2012

VII. ADDITIONAL COMMENTS, DATA, ETC.

Human Health Risk Assessment" results: Potential pathways incomplete. Negligible mass remaining.

Environmental Consultants
and Contractors

3843 Brickway Blvd.
Suite 208
Santa Rosa, CA 95403

707-546-9461
FAX 707-544-5769
www.scsengineers.com

SCS ENGINEERS

May 16, 2012
Project No. 01210234.00

Mr. Charley Langer
County of Sacramento
Environmental Management Department
Site Assessment and Mitigation Section
10590 Armstrong Ave., Suite A
Mather, CA 95655

Subject: Request for No Further Action
8280 Elder Creek Road (APN 064-010-028), Sacramento, California
Local Oversight Program (LOP) Case No. G131; RO0001687

Dear Mr. Langer:

On behalf of our client, the Masonite Corporation , this letter serves as SCS Engineers' (SCS) request for a No Further Action determination for LOP Case No. G131 located at 8280 Elder Creek Road, Sacramento, California. As indicated in the attached Case Closure Summary Documents and in the documents previously submitted to the County, the lateral and vertical extent of subsurface soil impacts associated with two former USTs appear to have been adequately characterized by two shallow soil borings (B-4 and B-5), a test pit (A3-SP), and six deeper borings (B-103 through B-108). Analytical results and field observations from these locations suggest that hydrocarbon-impacted soils are limited in vertical and horizontal extent. In addition, TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary monitoring wells and SESOIL modeling predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

Should you have any questions regarding this submittal, please call Steve Clements at (925) 240-5152 x24.

Sincerely,

Steve Clements, PG, REA, QSD
Senior Project Manager
SCS ENGINEERS

PROFESSIONAL GEOLOGIST
STEVEN J. CLEMENTS
No. 6740
exp. 10/12
STATE OF CALIFORNIA

Attachments: Case Closure Summary Form
No Further Action Summary
Notification of Record Owners of Fee Title

cc: Tom Crawshaw – Masonite Corporation

Leaking Underground Fuel Storage Tank Program

DATE: May 16, 2012

I. AGENCY INFORMATION

Agency Name: Sacramento County Environmental Mgmt. Dept.	Address: 10590 Armstrong Avenue, Suite A
City/State/Zip: Sacramento, CA 95655	Phone/email: (916) 875-8474/langerc@saccounty.net
Responsible staff person: Charley Langer	Title: Environmental Specialist III

II. CASE INFORMATION

Site Facility Name: Former Lifetime Doors		
Site Facility Address: 8280 Elder Creek Road, Sacramento, CA		
GeoTracker Case No: 341524	Local Case No: RO0001687	LOP Case No: G131
URF file date: June 23, 2011	Global ID No. T10000003350	
Responsible Parties:	Address:	Phone Number:
Masonite Corporation Attn: Tom Crawshaw	1955 Powis Road West Chicago, IL 60185	(630) 513-4444

Tank No.	Size in Gallons	Contents	Closed in-Place/Removed?	Date
1	1000	Gasoline	Closed In-Place	10/28/86
2	500	Diesel	Removed	Unknown

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: Unknown		
Site characterization complete? (✓)YES ()NO	Date approved by oversight agency:	
Monitoring Wells Installed? (✓) YES () NO (Temporary Wells)	Number: 3	Proper screen interval? (✓) YES () NO
Highest GW depth below ground surface: 59 ft	Lowest Depth: 61.5 ft	Flow Direction: southerly
Most Sensitive Current Use:		
Are drinking water wells affected? () YES (✓) NO	Aquifer name:	
Is surface water affected? () YES (✓) NO	Nearest affected SW name: New Morrison Creek	
Off-site beneficial use impacts (addresses/locations): None		
Report(s) on file? (✓) YES () NO	Where is report(s) filed? SCEMD	

Treatment and Disposal of Affected Material

Materials	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	500-gallon	Unknown	Unknown
Piping	Unknown	Unknown	Unknown
Free Product	NA	NA	NA
Soil	Unknown	Unknown	Unknown
Groundwater	NA	NA	NA
Barrels			

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (CONTINUED)

Maximum Documented Contaminant Concentrations--Before and After Cleanup

Contaminant ▼	Soil (mg/Kg)		Water (µg/L)		Contaminant ▼	Soil (mg/Kg)		Water (µg/L)	
	Before	After	Before	After		Before	After	Before	After
TPH (Gas)	1,900	NA	ND<50	NA	Xylene	180	NA	ND<0.5	NA
TPH (Diesel)	990	NA	ND<50	NA	Ethylbenzene	31	NA	ND<0.5	NA
Benzene	0.89	NA	ND<0.5	NA	TPH (Motor Oil)	NA	NA	ND<250	NA
Toluene	8.9	NA	ND<0.5	NA	Lead	6.3	NA	4.0	NA
MTBE	ND<0.40	NA	ND<0.5	NA	1,2-DCA	ND<0.004	NA	ND<0.5	NA

The potential for vapor intrusion appears minimal due to the low VOC detections in soil and lack of VOC detections in groundwater. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Basin Plan? (✓) YES () NO

Does the completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? (✓) YES () NO

Does corrective action protect public health for current land use? (✓) YES () NO

Site management requirements

Should corrective action be reviewed if land use changes? (✓) Yes () No

Monitoring wells Decommissioned: (✓) Yes () No () N/A	No. Decommissioned: 3	No. Retained: 0

Fee Title Certification: Yes

GeoTracker Input Verification: Yes

List Enforcement Actions Taken: None

List enforcement actions rescinded: None

V. LOCAL AGENCY REPRESENTATIVE DATA

Name:	Title
Signature:	Date:

VI. RWQCB NOTIFICATION

Date Submitted to RB:	RB Response:	
RWQCB Staff Name:	Title:	Date:

VII. ADDITIONAL COMMENTS, DATA, ETC.

NO FURTHER ACTION SUMMARY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

FORMER LIFETIME DOORS SITE
CWL; RO0001687; LOP G131
MAY 9, 2012

1.0 CHRONOLOGY

1968

A 1,000-gallon gasoline UST was installed on-Site in 1968 near the northeastern corner of the main manufacturing building. In addition, a Site Plan dated May 1968, depicts a 500-gallon diesel UST located approximately 2 feet south of the 1,000-gallon gasoline UST.

1986

The 1,000-gallon gasoline UST was closed-in-place by filling with cement slurry in 1986. The 500-gallon diesel UST was removed at an unknown date (removal confirmed during June 2011 investigation).

September 2010

Total petroleum hydrocarbons in the diesel range (TPH-d), motor oil range (TPH-mo), and volatile organic compounds (VOCs) were not detected two shallow soil samples (B-4 and B-5) collected at 1 foot below ground surface (bgs) near the northwest corner of the UST area in September 2010.

December 2010

To more fully assess the potential for environmental impacts in the UST area borings B-103 and B-104 were drilled in December 2010. TPH in the gasoline range (TPH-g) was detected in the soil sample collected from B-104 at 15.0 feet bgs at a concentration of 1,900 milligrams per kilogram (mg/kg) and TPH-d was detected at a concentration of 990 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in this sample at concentrations 0.89, 8.9, 31, and 180 mg/kg, respectively.

June 2011

Further assessment by physical methods (removal of the floor of the building) was conducted in June 2011 to confirm the presence of the USTs. The 1,000-gallon UST was discovered approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with cement grout and decommissioned in place, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, a further vertical and horizontal assessment of any impacts immediately beneath the UST could not be made. Subsequently, the area to the south of the 1,000-gallon UST was investigated and loose fill material was encountered to a depth of approximately 5 feet below the ground surface (bgs). After this material was removed, an impression of the former 500-gallon UST was found and a petroleum related impact to soil was observed.

January/February 2012

Four soil borings (B-105 through B-108) were drilled to total depths up to 65 feet bgs in January/February 2012 near northeastern corner of the main manufacturing building to delineate possible horizontal and vertical extents of soil and groundwater impacts associated with two USTs. First groundwater was encountered in each of the borings at a depth of approximately 60 feet bgs and temporary wells were installed in borings B-105, B-106, and B-107. Based on the results of this investigation SCS provides the following conclusions and recommendations:

- TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in any of the 20 soil samples collected from borings B-105 through B-108.
- Total lead was detected in five of the 20 soil samples collected from borings B-105 through B-108 at concentrations up to 6.3 mg/kg. These total lead concentrations are typical of background concentrations.
- TPH-g, TPH-d (with silica gel cleanup), TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from borings/temporary wells B-105, B-106, and B-107.
- Using the TRM approach for lead analysis in groundwater samples yielded concentrations ranging from 2.7 to 4.0 µg/L. The lead concentrations are well below the 50 µg/L MCL established for lead and, based on the soil sample analytical results, do not appear to related to the USTs.

May 2012

SESOIL modeling was performed for the site in May 2012 using the following parameters:

- Soil layers based mostly on log for B-104 (bgs) – 0 to 5.5 feet, silty clay; 5.5 to 50 feet, silt loam; 50 to 55 feet, sand; 55 to 60 feet, loam. Permeabilities were based on these USDA soil types.

- Organic carbon content of soil ranged from 0.13 to 0.25 percent. Cation exchange capacity and effective porosity based on soil types.

- Climate – Sacramento, California (see climate and hydrologic cycle reports provided in Attachment F).

- Concentration of benzene (worst case COPC) was based on the sample B-104@15.0' with benzene at 0.89 mg/kg. The model was run with this as a starting concentration and depth and downward migration and degradation from that point forward. The model was run for 99 years.

- Benzene was assumed to degrade with time, which seems reasonable.

Results indicated:

- Benzene took 76.31 years to get to groundwater at 60 feet bgs (this is not on the Pollutant Cycle report, but was extracted from elsewhere in SESOIL program).

- At the end of the process, the benzene concentration of the "leachate" (soil pore liquid moving downward at the bottom of the vadose zone) was 4.14×10^{-6} mg/l. (much lower than MCL). This does not include dilution that would occur once this "leachate" mixed with groundwater). Further details of the SESOIL modeling are presented in the Pollutant Cycle report provided in Attachment F):

Based on the SESOIL modeling, the detection of 0.89 mg/kg benzene at a depth of 15 feet at the site does not appear to present a significant threat to groundwater quality.

2.0 LOW RISK SOIL ONLY CRITERIA

2.1 The release has been stopped and sources, including free product, have been removed or remediated.

Hazardous substance release mechanisms must be identified, if possible, and the release must be sufficiently abated so as to prevent ongoing pollution.

If the release was from a petroleum underground storage tank, the tank or appurtenant structure that leaked must be repaired or permanently closed per Article 7, Section 2672 of the UST regulations. Free product shall be removed to the extent practicable per Article 5, Section 2655 of the UST regulations.

Soil that contains sufficient mobile constituents (leachate, vapors, or NAPL), as determined by site specific data used within appropriate models, to degrade water quality, or result in a significant threat to human health or other sensitive receptors should be considered a source.

Note: For old releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution. In these cases, if impacted soil is not in contact with, or expected to come in contact with, groundwater, it is unlikely that it is a source of groundwater pollution.

The 1,000-gallon gasoline UST was closed-in-place by filling with cement slurry in 1986 and the former 500-gallon diesel UST was removed at an unknown date (removal confirmed during June 2011 investigation). TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012 and SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

2.2 The site has been adequately characterized.

The vertical and lateral extent of the subsurface impact must be defined to the degree that is necessary to evaluate whether the site currently poses, or in the future may pose, a significant threat to human health, waters of the State, or other nearby sensitive receptors. The level of detail required at a given site will depend upon contaminant(s) of concern, the types of potential receptors and exposure pathways, and the proximity of the potential receptors. Please be aware that the groundwater immediately beneath a site needs to be considered a receptor. And therefore, depending on the constituent of concern, and/or the apparent separation from groundwater, groundwater samples may be required.

It is assumed that subsurface conditions are highly variable and that there is always some uncertainty associated with evaluating data at a site. However, the cost of obtaining additional data must be weighed against the benefit of obtaining that data and the effect the data may have on the certainty of decisions to be made at the site.

The lateral and vertical extent of subsurface soil impacts appear to have been adequately characterized by two shallow soil borings (B-4 and B-5) sampled at 1 foot bgs, a test pit (A3-SP) sampled at 5 feet bgs, and six deeper borings (B-103 through B-108) sampled at depths up to 55.5 feet bgs. Analytical results and field observations from these locations suggest that hydrocarbon-impacted soils are limited in vertical and horizontal extent. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary monitoring wells at depths of approximately 60 feet bgs.

2.3 No water of the State, or other sensitive receptors are likely to be impacted.

Waters of the State include all groundwater and surface water regardless of current use. Central Valley aquifers generally are not segregated into discrete units, but are subject to vertical and horizontal migration of water and any pollutants carried by or in the water, often by local pumping.

TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

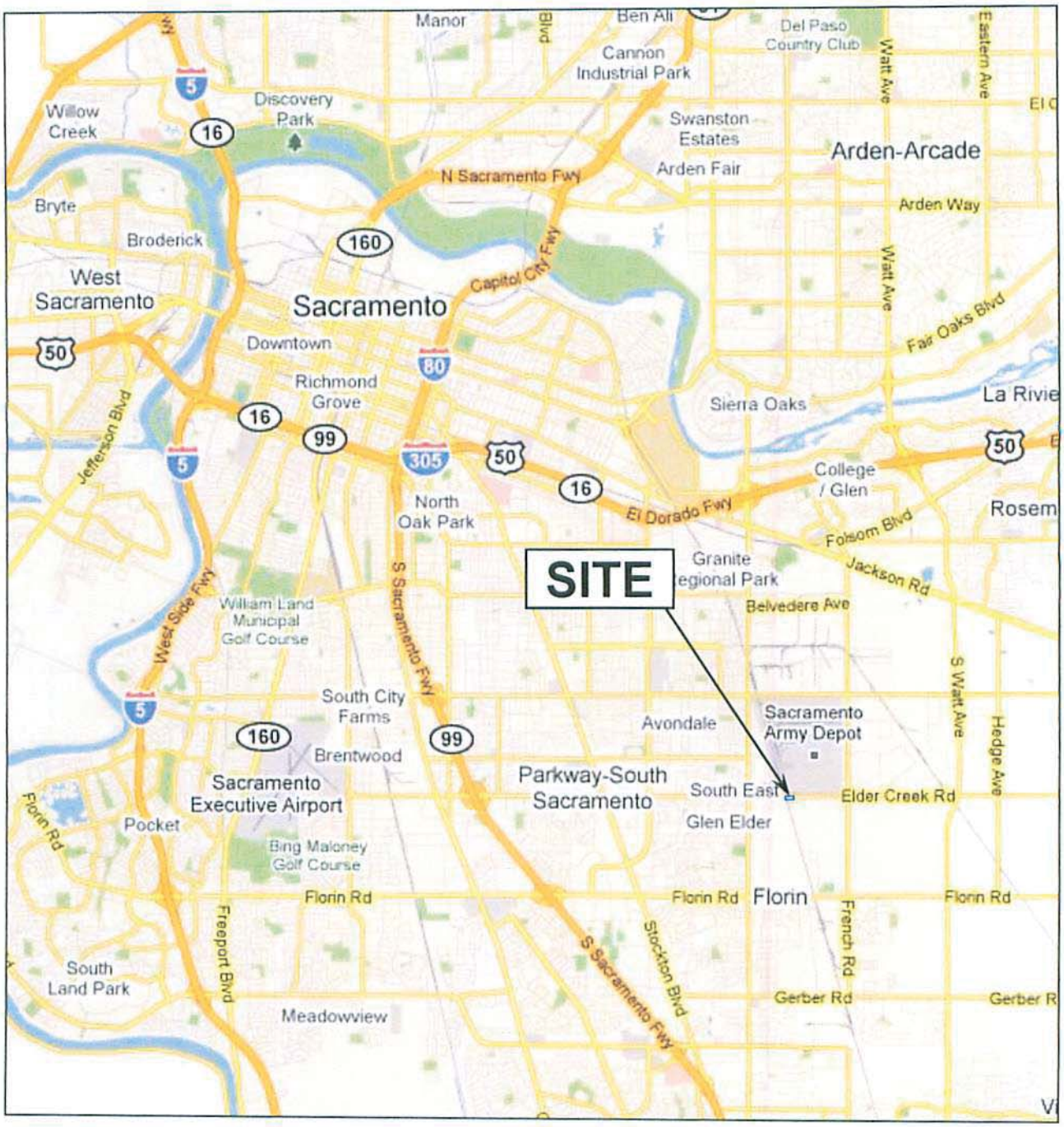
2.4 The site represents no significant risk to human health and safety.

Remaining site conditions shall not exceed a hazard index of one, a one-in-one million excess cancer risk (10-6) for residential receptors and a one-in-one-hundred thousand (10-5) excess cancer risk for commercial receptors (including construction workers). Site representative concentrations shall either be the maximum reported concentration, the 95% upper confidence level, or a weighted average, as appropriate. At a minimum, exposure pathways to be considered shall include surface soil ingestion, and surface soil, subsurface soil, and groundwater volatilization to indoor and outdoor air (via basements, buildings, subsurface utilities, etc.).

Note: The Responsible Party is required to demonstrate the acceptability of the model(s) used to determine the human health risk.

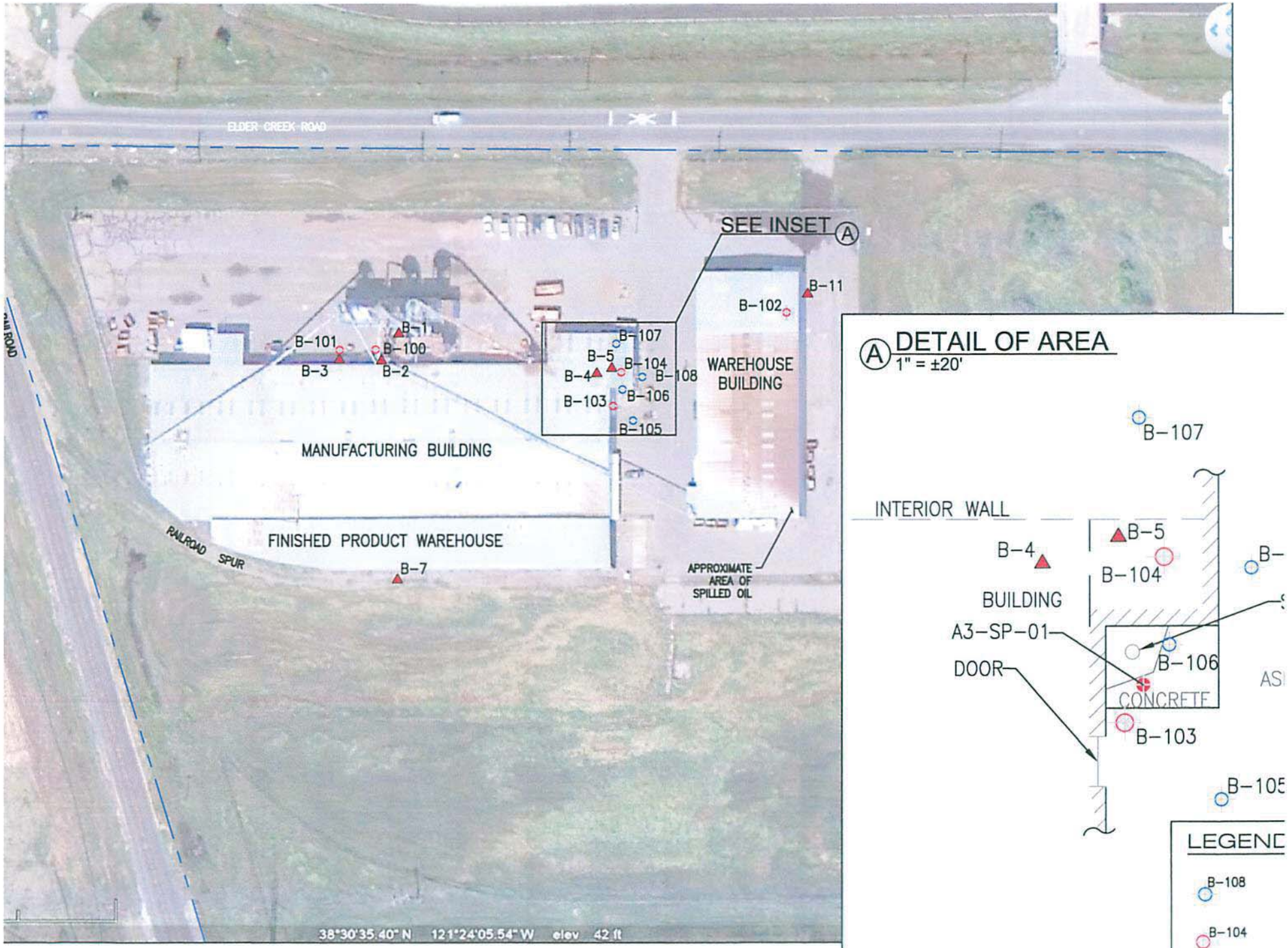
The potential for vapor intrusion appears minimal due to the low VOC detections in soil and lack of VOC detections in groundwater. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

Attachment A



Source of Base Map: GOOGLE PROFESSIONAL 2011®

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS AND CONTRACTORS 3843 BRICKWAY BOULEVARD SUITE 208 SANTA ROSA, CA 95403 PH. (707) 546-9461 FAX (707) 544-5769	SITE LOCATION MAP		APPROX. SCALE (MILES) 0 1 2
PROJ. NO: 012010234.00	SOURCE: GooglePro 2010	FILE: 10234.00 FIGURE 1	MASONITE LIFETIME DOOR FACILITY 8280 ELDER CREEK ROAD SACRAMENTO, CALIFORNIA	FIGURE: 1
DATE: 1/9/12	CREATED BY: JJM	APP. BY: CH		



SOURCE OF BASE MAP: AERIAL RASTER PHOTOGRAPH, GOOGLE EARTH PROFESSIONAL, 2010.
ALL LOCATIONS ARE APPROXIMATE; NOT A PRODUCT OF

Table 1: Soil Analytical Results - Petroleum Hydrocarbons

8280 Elder Creek Road, Sacramento, California

Sample ID	Date	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
		mg/kg							
B-4 @ 1.0	08/26/10	NA	<5.0	<10	NA	<0.005	<0.005	<0.005	<0.005
B-5 @ 1.0	08/26/10	NA	<5.0	<10	NA	<0.005	<0.005	<0.005	<0.005
B-103 @ 15.0'	12/29/10	**1.7**	**1.2[2]**	NA	<0.005	<0.005	<0.005	**0.030**	**0.10**
B-103 @ 20.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
B-104 @ 10.0'	12/29/10	NA	**1.3**	NA	NA	NA	NA	NA	NA
B-104 @ 15.0'	12/29/10	**1,900**	**990[2]**	NA	<0.40	**0.89**	**8.9**	**31**	**180**
B-104 @ 20.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
B-104 @ 25.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
A3-SP-01 @	06/01/11	48	**250**	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

NA - Not Analyzed

[2] Hydrocarbons are lower-boiling point than typical Diesel Fuel.

Table 1: Soil Analytical Results

8280 Elder Creek Road, Sacramento, California

Boring	Sample Depth (ft. bgs)	Sample ID	Sample Date	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	VOCs	Lead (Total)
				EPA 8015M			EPA 8260B					EPA 6010B
				mg/kg								
B-105	10.5	B-105, 10.5'	01/30/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.5**
	15.5	B-105, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-105, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-105, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-105, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-106	10.5	B-106, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	15.5	B-106, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-106, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.2**
	40.5	B-106, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-106, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-107	10.5	B-107, 10.5'	02/01/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.3**
	15.5	B-107, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-107, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-107, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-107, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-108	10.5	B-108, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.7**
	15.5	B-108, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-108, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-108, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-108, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.1**

ND = Analytes not detected at or above the laboratory method reporting limits.

Table 2: Grab Groundwater Analytical Results
8280 Elder Creek Road, Sacramento, California

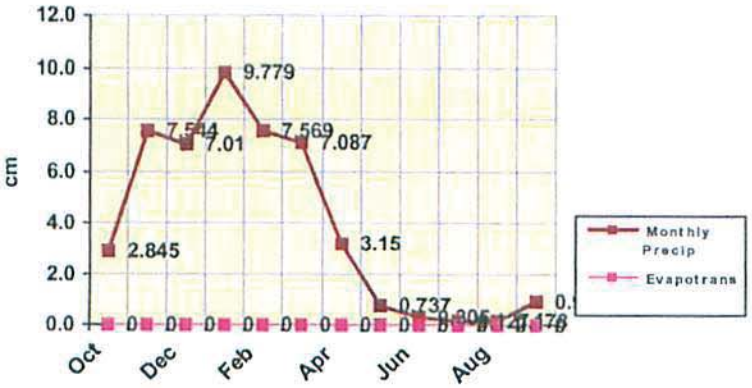
Boring	Sample ID	Sample Date	TPH-g	TPH-d	TPH- d (Silica Gel)	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead	VOCs	Lead (TRM)
			EPA 8015M				EPA 8260B						EPA 200.8
			µg/L										
B-105	B-105 @ W	01/30/12	<50	**120**	<50	<250	<0.5	<0.5	<0.5	<0.5	**3.8**	ND	**4.0**
B-106	B-106 @ W	01/31/12	<50	**66**	<50	<250	<0.5	<0.5	<0.5	<0.5	**83**	ND	**3.9**
B-107	B-107 @ W	02/01/12	<50	**370**	<50	<250	<0.5	<0.5	<0.5	<0.5	**54**	ND	**2.7**

ND = Analyte(s) not detected at or above the laboratory method reporting limit.
TRM = Total Recoverable Metals analysis.

Climate Report

Location Description: SACRAMENTO WSO CI
Climatic Input File: C:\SEVIEW63\SACRAMEN.CLM

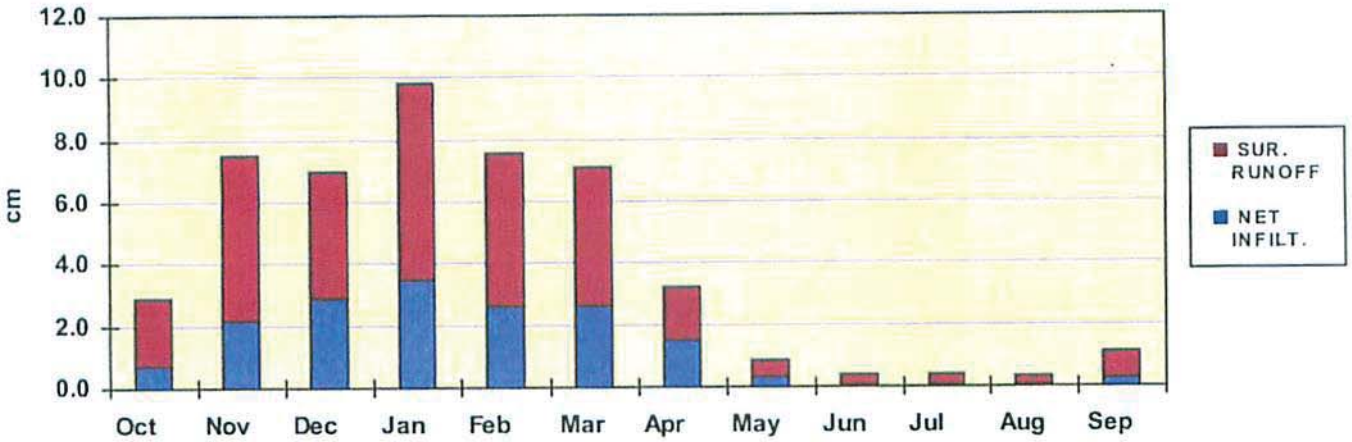
Month	Temperature		Precipitation		Evapotranspiration Rate		Storms		Cloud Cover	Albedo	Humidity
Units	°C	°F	cm	Inches	cm	Inches	# per Month	Length Days	Fraction	Fraction	Fraction
October	18.78	65.80	2.845	1.12	0.00	0.00	1.47	0.330	0.140	0.200	0.590
November	12.72	54.90	7.544	2.97	0.00	0.00	3.69	0.520	0.340	0.200	0.715
December	8.389	47.10	7.010	2.76	0.00	0.00	4.47	0.740	0.510	0.200	0.800
January	8.389	47.10	9.779	3.85	0.00	0.00	5.28	0.740	0.520	0.200	0.800
February	11.61	52.90	7.569	2.98	0.00	0.00	4.42	0.600	0.350	0.200	0.740
March	13.39	56.10	7.087	2.79	0.00	0.00	4.88	0.510	0.260	0.200	0.700
April	16.00	60.80	3.150	1.24	0.00	0.00	2.68	0.510	0.180	0.200	0.625
May	19.56	67.21	0.737	0.29	0.00	0.00	0.88	0.230	0.100	0.250	0.590
June	22.78	73.00	0.305	0.12	0.00	0.00	0.37	0.080	0.060	0.250	0.550
July	24.94	76.89	0.127	0.05	0.00	0.00	0.09	0.060	0.030	0.250	0.530
August	24.56	76.21	0.178	0.07	0.00	0.00	0.22	0.070	0.040	0.250	0.535
September	22.78	73.00	0.940	0.37	0.00	0.00	0.72	0.140	0.070	0.250	0.545
Total			47.27	18.61	0.00	0.00					

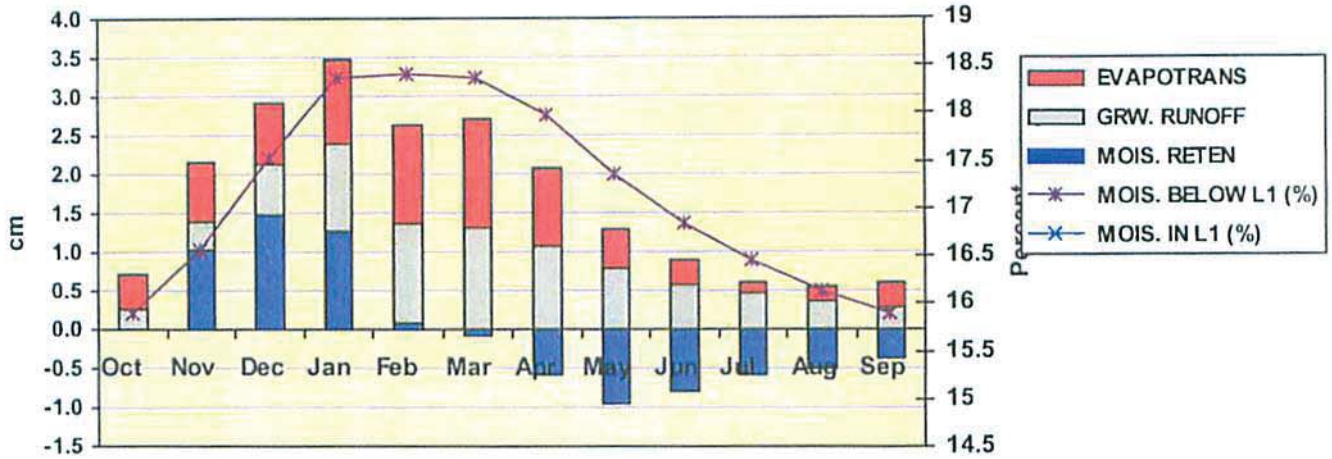


SESOIL Hydrologic Cycle Report (Continued)

Scenario Description:

SESOIL Output File: C:\SEVIEW63\SAC002.OUT





	Surface Water Runoff		Net Infiltration		Evapotranspiration		Soil Moisture Retention		Groundwater Runoff (Recharge)		Soil Moisture	
											Layer 1	Below Layer 1
Units	cm	Inches	cm	Inches	cm	Inches	cm	Inches	cm	Inches	Percent	Percent
October	2.18	0.86	0.71	0.28	0.45	0.18	0.00	0.00	0.26	0.10	15.89	15.89
November	5.37	2.11	2.16	0.85	0.76	0.30	1.03	0.41	0.37	0.15	16.57	16.57
December	4.06	1.60	2.93	1.15	0.79	0.31	1.49	0.59	0.65	0.26	17.54	17.54
January	6.35	2.50	3.48	1.37	1.09	0.43	1.26	0.50	1.14	0.45	18.37	18.37
February	4.96	1.95	2.64	1.04	1.28	0.50	0.08	0.03	1.29	0.51	18.42	18.42
March	4.47	1.76	2.65	1.04	1.42	0.56	-0.08	-0.03	1.31	0.52	18.37	18.37
April	1.72	0.68	1.52	0.60	1.00	0.39	-0.57	-0.22	1.09	0.43	17.99	17.99
May	0.50	0.20	0.34	0.13	0.51	0.20	-0.95	-0.37	0.78	0.31	17.37	17.37
June	0.31	0.12	0.09	0.04	0.30	0.12	-0.80	-0.31	0.58	0.23	16.84	16.84
July	0.39	0.15	0.04	0.02	0.14	0.06	-0.57	-0.22	0.47	0.19	16.47	16.47
August	0.26	0.10	0.07	0.03	0.20	0.08	-0.50	-0.20	0.37	0.15	16.14	16.14
September	0.91	0.36	0.24	0.09	0.33	0.13	-0.38	-0.15	0.29	0.11	15.89	15.89

SESOIL Profile and Load Report (Continued)

Layer No.	Number of Sub-Layers	Thickness		Intrinsic Permeability	Organic Carbon Content	Adsorption Coefficient	Cation Exchange Capacity	Freundlich Exponent	Solid Phase Degradation Rate	Liquid Phase Degradation Rate	Soil pH
		cm	feet	cm^2	percent	μg/g / μg/mL	mEq / 100 g soil	unitless	1/day	1/day	pH
1	10	168.0	5.51	5.00E-11	0.25	0.00	35.00	1.00	0.00E+00	9.00E-04	7.00
2	10	1360.0	44.62	3.50E-10	0.19	0.00	26.25	1.00	0.00E+00	9.00E-04	7.00
3	10	152.0	4.99	1.00E-8	0.13	0.00	7.00	1.00	0.00E+00	9.00E-04	7.00
4	10	152.0	4.99	8.00E-10	0.19	0.00	17.50	1.00	0.00E+00	9.00E-04	7.00

Soil Parameters

Bulk Density (g/cm^3)	1.66
Effective Porosity (fraction)	0.25
Soil Pore Disconnectedness	12.00

Application Parameters

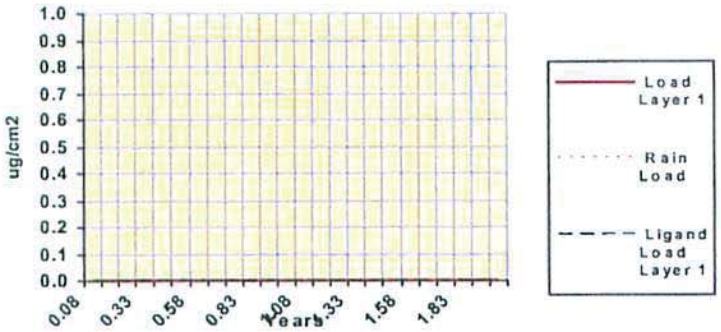
Area	cm^2	4.34E+5
	ft^2	467.15
Latitude	degrees	38.5
Spill Index		1

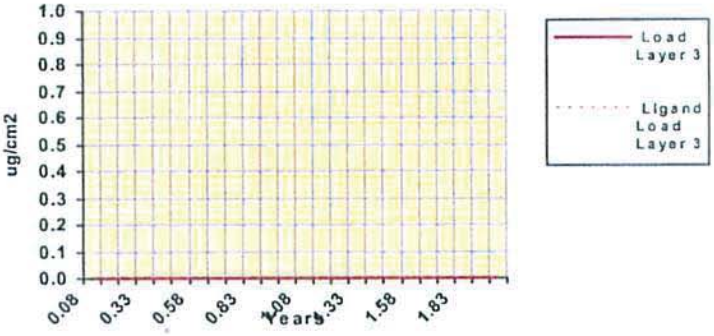
Chemical Parameters

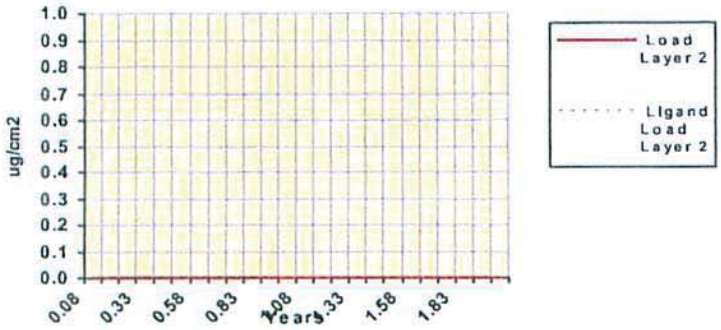
Water Solubility (μg/mL)	1.75E+3	Moles Ligand / Moles Chemical	0.00
Henry's Law (M^3atm/mol)	5.57E-3	Ligand Molecular Weight (g/mol)	0.00
K_{oc} (μg/g)/(μg/mL)	58.90	Base Hydrolysis Rate (L/mol/day)	0.00
Valance (g/mole)	0.00	Ligand Dissociation Constant	0.00
Air Diffusion Coefficient (cm^2/sec)	8.80E-2	Neutral Hydrolysis Rate (L/mol/day)	0.00
Water Diffusion Coefficient (cm^2/sec)	9.80E-6	Acid Hydrolysis Rate (L/mol/day)	0.00
Molecular Weight (g/mol)	78.10		

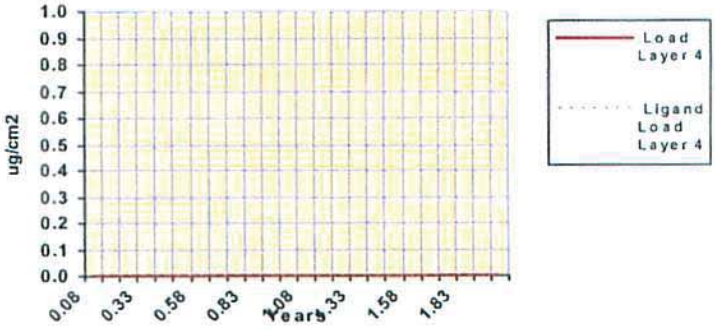
Output File:
C:\SEVIEW63\SAC002.OUT
Chemical File: Benzene with Liquid Phase Biodeg.
C:\SEVIEW63\BENZENEW.CHM
Soil File: Siltyclay
C:\SEVIEW63\SILTYCLA.SOI
Application File: SEVIEW Default Application Parameters
C:\SEVIEW63\SACTO.APL

Sublayer Loads	1	2	3	4	5	6	7	8	9	10
Layer 1 (ug/g)										
Layer 2 (ug/g)			8.90E-01							
Layer 3 (ug/g)										
Layer 4 (ug/g)										









SESOIL Pollutant Cycle Report

(Continued)

Scenario Description:

SESOIL Output File: C:\SEVIEW63\SAC002.OUT

SESOIL Process	Pollutant Mass (µg)	Percent of Total
Volatilized	4.016E+06	4.62
In Soil Air	5.840E+00	0.00
Sur. Runoff	0.000E+00	0.00
In Washld	0.000E+00	0.00
Ads On Soil	4.924E+01	0.00
Hydrol Soil	0.000E+00	0.00
Degrad Soil	0.000E+00	0.00
Pure Phase	0.000E+00	0.00
Complexed	0.000E+00	0.00
Immobile CEC	0.000E+00	0.00
Hydrol CEC	0.000E+00	0.00
In Soil Moi	4.487E+01	0.00
Hydrol Mois	0.000E+00	0.00
Degrad Mois	8.289E+07	95.33
Other Trans	0.000E+00	0.00
Other Sinks	0.000E+00	0.00
Gwr. Runoff	1.493E+02	0.00
Total Output	8.691E+07	99.95
Total Input	8.695E+07	
Input - Output	3.951E+04	

Maximum leachate concentration: 4.140E-06 **mg/l**

Climate File: SACRAMENTO WSO CI
C:\SEVIEW63\SACRAMEN.CLM

Chemical File: Benzene with Liquid Phase Biodeg.
C:\SEVIEW63\BENZENEW.CHM

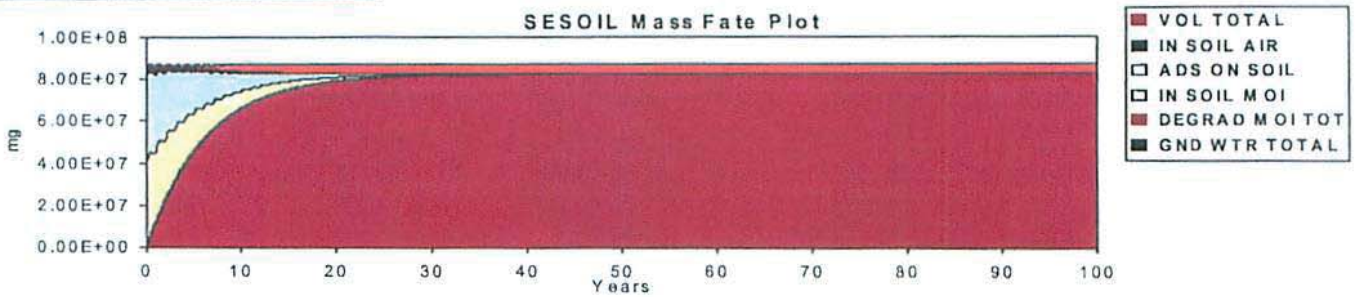
Soil File: Siltyclay
C:\SEVIEW63\SILTYCLA.SOI

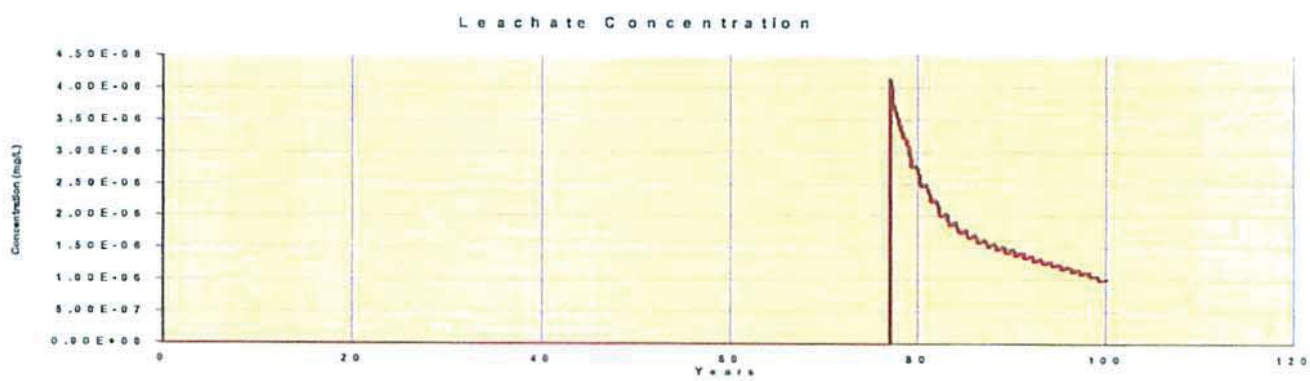
Application File: SEVIEW Default Application Parameters
C:\SEVIEW63\SACTO.APL

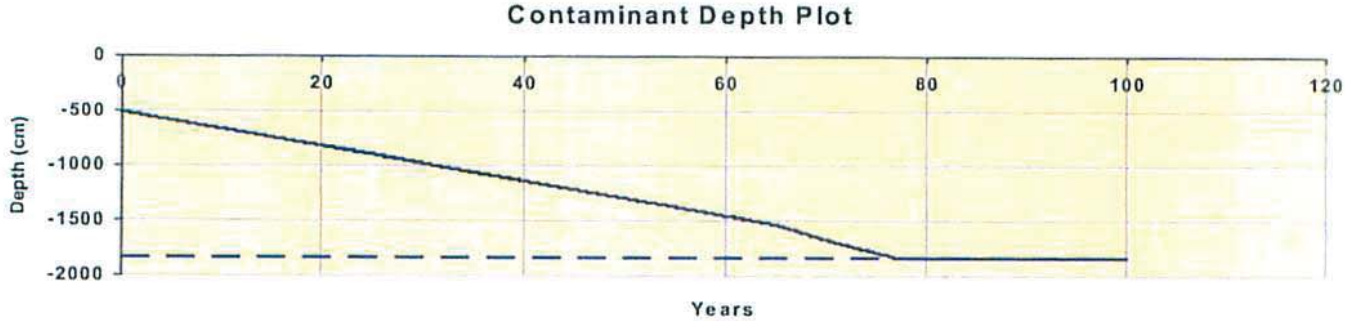
Starting Depth: 507.80 **cm**

Ending Depth: 1828.00 **cm**

Total Depth: 1832.00 **cm**







Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

NOTIFICATION OF RECORD OWNERS OF FEE TITLE:

PRIMARY RESPONSIBLE PARTY	SITE IDENTIFICATION/ADDRESS
MASONITE CORPORATION	LIFETIME DOORS
1955 POWIS ROAD	8280 ELDER CREEK ROAD
WEST CHICAGO, IL 60185	SACRAMENTO, CA 95828
ATTN: TOM CRAWSHAW	

The Environmental Compliance Division (ECD) has received your request to consider a:

☐ Cleanup proposal
☑ "No Further Action" determination

for the site identified above. The ECD has made the following preliminary determination of the current record owners of fee title for the site:

CURRENT RECORD OWNER OF FEE TITLE:
MASONITE INTERIOR DOOR MFG CORPORATION
201 N FRANKLIN ST 300
TAMPA FL 33602

Pursuant to the California Health & Safety Code and the California Water Code, it is your responsibility to notify the current record owner of fee title regarding a request for ECD consideration of a cleanup proposal or a request for "No Further Action." It is also your responsibility to provide proof of this notification to our agency. Your signature below certifies that you have confirmed the above party as the only current record owner of fee title for the subject property. You may use this form to verify that you have notified the current record owner of fee title by obtaining the signature of the owner or his/her authorized agent below and returning this form to our office. If there are additional current record owners of fee title, or if our determination is incorrect, please provide us with an additional/alternate form of proof of notification to the appropriate party/parties.

PRIMARY RESPONSIBLE PARTY:	RECORD OWNER OF FEE TITLE:
Signature:	Signature:
Name: Thomas B. Crawshaw	Name: Thomas B. Crawshaw
Title: Sr. Environmental Engineer	Title: Sr. Environmental Engineer
Date: 5/10/12	Date: 5/14/12

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.CERT.DOC

Environmental Consultants
and Contractors

3843 Brickway Blvd.
Suite 208
Santa Rosa, CA 95403

707-546-9461
FAX 707-544-5769
www.scsengineers.com

SCS ENGINEERS

May 16, 2012
Project No. 01210234.00

Mr. Charley Langer
County of Sacramento
Environmental Management Department
Site Assessment and Mitigation Section
10590 Armstrong Ave., Suite A
Mather, CA 95655

Subject: Request for No Further Action
8280 Elder Creek Road (APN 064-010-028), Sacramento, California
Local Oversight Program (LOP) Case No. G131; RO0001687

Dear Mr. Langer:

On behalf of our client, the Masonite Corporation , this letter serves as SCS Engineers' (SCS) request for a No Further Action determination for LOP Case No. G131 located at 8280 Elder Creek Road, Sacramento, California. As indicated in the attached Case Closure Summary Documents and in the documents previously submitted to the County, the lateral and vertical extent of subsurface soil impacts associated with two former USTs appear to have been adequately characterized by two shallow soil borings (B-4 and B-5), a test pit (A3-SP), and six deeper borings (B-103 through B-108). Analytical results and field observations from these locations suggest that hydrocarbon-impacted soils are limited in vertical and horizontal extent. In addition, TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary monitoring wells and SESOIL modeling predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

Should you have any questions regarding this submittal, please call Steve Clements at (925) 240-5152 x24.

Sincerely,

Steve Clements, PG, REA, QSD
Senior Project Manager
SCS ENGINEERS

PROFESSIONAL GEOLOGIST
STEVEN J. CLEMENTS
No. 6740
exp. 10/12
STATE OF CALIFORNIA

Attachments: Case Closure Summary Form
No Further Action Summary
Notification of Record Owners of Fee Title

cc: Tom Crawshaw – Masonite Corporation

Leaking Underground Fuel Storage Tank Program

DATE: May 16, 2012

I. AGENCY INFORMATION

Agency Name: Sacramento County Environmental Mgmt. Dept.	Address: 10590 Armstrong Avenue, Suite A
City/State/Zip: Sacramento, CA 95655	Phone/email: (916) 875-8474/langerc@saccounty.net
Responsible staff person: Charley Langer	Title: Environmental Specialist III

II. CASE INFORMATION

Site Facility Name: Former Lifetime Doors		
Site Facility Address: 8280 Elder Creek Road, Sacramento, CA		
GeoTracker Case No: 341524	Local Case No: RO0001687	LOP Case No: G131
URF file date: June 23, 2011	Global ID No. T10000003350	
Responsible Parties:	Address:	Phone Number:
Masonite Corporation Attn: Tom Crawshaw	1955 Powis Road West Chicago, IL 60185	(630) 513-4444

Tank No.	Size in Gallons	Contents	Closed in-Place/Removed?	Date
1	1000	Gasoline	Closed in-Place	10/28/86
2	500	Diesel	Removed	Unknown

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: Unknown		
Site characterization complete? (✓)YES ()NO	Date approved by oversight agency:	
Monitoring Wells Installed? (✓) YES () NO (Temporary Wells)	Number: 3	Proper screen interval? (✓) YES () NO
Highest GW depth below ground surface: 59 ft	Lowest Depth: 61.5 ft	Flow Direction: southerly
Most Sensitive Current Use:		
Are drinking water wells affected? () YES (✓) NO	Aquifer name:	
Is surface water affected? () YES (✓) NO	Nearest affected SW name: New Morrison Creek	
Off-site beneficial use impacts (addresses/locations): None		
Report(s) on file? (✓) YES () NO	Where is report(s) filed? SCEMD	

Treatment and Disposal of Affected Material

Materials	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	500-gallon	Unknown	Unknown
Piping	Unknown	Unknown	Unknown
Free Product	NA	NA	NA
Soil	Unknown	Unknown	Unknown
Groundwater	NA	NA	NA
Barrels			

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (CONTINUED)

Maximum Documented Contaminant Concentrations--Before and After Cleanup

Contaminant ▼	Soil (mg/Kg)		Water (µg/L)		Contaminant ▼	Soil (mg/Kg)		Water (µg/L)	
	Before	After	Before	After		Before	After	Before	After
TPH (Gas)	1,900	NA	ND<50	NA	Xylene	180	NA	ND<0.5	NA
TPH (Diesel)	990	NA	ND<50	NA	Ethylbenzene	31	NA	ND<0.5	NA
Benzene	0.89	NA	ND<0.5	NA	TPH (Motor Oil)	NA	NA	ND<250	NA
Toluene	8.9	NA	ND<0.5	NA	Lead	6.3	NA	4.0	NA
MTBE	ND<0.40	NA	ND<0.5	NA	1,2-DCA	ND<0.004	NA	ND<0.5	NA

The potential for vapor intrusion appears minimal due to the low VOC detections in soil and lack of VOC detections in groundwater. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Basin Plan? (✓) YES () NO

Does the completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? (✓) YES () NO

Does corrective action protect public health for current land use? (✓) YES () NO

Site management requirements

Should corrective action be reviewed if land use changes? (✓) Yes () No

Monitoring wells Decommissioned: (✓) Yes () No () N/A	No. Decommissioned: 3	No. Retained: 0

Fee Title Certification: Yes

GeoTracker Input Verification: Yes

List Enforcement Actions Taken: None

List enforcement actions rescinded: None

V. LOCAL AGENCY REPRESENTATIVE DATA

Name:	Title
Signature:	Date:

VI. RWQCB NOTIFICATION

Date Submitted to RB:	RB Response:	
RWQCB Staff Name:	Title:	Date:

VII. ADDITIONAL COMMENTS, DATA, ETC.

NO FURTHER ACTION SUMMARY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

FORMER LIFETIME DOORS SITE
CWL; RO0001687; LOP G131
MAY 9, 2012

1.0 CHRONOLOGY

1968

A 1,000-gallon gasoline UST was installed on-Site in 1968 near the northeastern corner of the main manufacturing building. In addition, a Site Plan dated May 1968, depicts a 500-gallon diesel UST located approximately 2 feet south of the 1,000-gallon gasoline UST.

1986

The 1,000-gallon gasoline UST was closed-in-place by filling with cement slurry in 1986. The 500-gallon diesel UST was removed at an unknown date (removal confirmed during June 2011 investigation).

September 2010

Total petroleum hydrocarbons in the diesel range (TPH-d), motor oil range (TPH-mo), and volatile organic compounds (VOCs) were not detected two shallow soil samples (B-4 and B-5) collected at 1 foot below ground surface (bgs) near the northwest corner of the UST area in September 2010.

December 2010

To more fully assess the potential for environmental impacts in the UST area borings B-103 and B-104 were drilled in December 2010. TPH in the gasoline range (TPH-g) was detected in the soil sample collected from B-104 at 15.0 feet bgs at a concentration of 1,900 milligrams per kilogram (mg/kg) and TPH-d was detected at a concentration of 990 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in this sample at concentrations 0.89, 8.9, 31, and 180 mg/kg, respectively.

June 2011

Further assessment by physical methods (removal of the floor of the building) was conducted in June 2011 to confirm the presence of the USTs. The 1,000-gallon UST was discovered approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with cement grout and decommissioned in place, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, a further vertical and horizontal assessment of any impacts immediately beneath the UST could not be made. Subsequently, the area to the south of the 1,000-gallon UST was investigated and loose fill material was encountered to a depth of approximately 5 feet below the ground surface (bgs). After this material was removed, an impression of the former 500-gallon UST was found and a petroleum related impact to soil was observed.

January/February 2012

Four soil borings (B-105 through B-108) were drilled to total depths up to 65 feet bgs in January/February 2012 near northeastern corner of the main manufacturing building to delineate possible horizontal and vertical extents of soil and groundwater impacts associated with two USTs. First groundwater was encountered in each of the borings at a depth of approximately 60 feet bgs and temporary wells were installed in borings B-105, B-106, and B-107. Based on the results of this investigation SCS provides the following conclusions and recommendations:

- TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in any of the 20 soil samples collected from borings B-105 through B-108.
- Total lead was detected in five of the 20 soil samples collected from borings B-105 through B-108 at concentrations up to 6.3 mg/kg. These total lead concentrations are typical of background concentrations.
- TPH-g, TPH-d (with silica gel cleanup), TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from borings/temporary wells B-105, B-106, and B-107.
- Using the TRM approach for lead analysis in groundwater samples yielded concentrations ranging from 2.7 to 4.0 µg/L. The lead concentrations are well below the 50 µg/L MCL established for lead and, based on the soil sample analytical results, do not appear to related to the USTs.

May 2012

SESOIL modeling was performed for the site in May 2012 using the following parameters:

- Soil layers based mostly on log for B-104 (bgs) – 0 to 5.5 feet, silty clay; 5.5 to 50 feet, silt loam; 50 to 55 feet, sand; 55 to 60 feet, loam. Permeabilities were based on these USDA soil types.

- Organic carbon content of soil ranged from 0.13 to 0.25 percent. Cation exchange capacity and effective porosity based on soil types.

- Climate – Sacramento, California (see climate and hydrologic cycle reports provided in Attachment F).

- Concentration of benzene (worst case COPC) was based on the sample B-104@15.0' with benzene at 0.89 mg/kg. The model was run with this as a starting concentration and depth and downward migration and degradation from that point forward. The model was run for 99 years.

- Benzene was assumed to degrade with time, which seems reasonable.

Results indicated:

- Benzene took 76.31 years to get to groundwater at 60 feet bgs (this is not on the Pollutant Cycle report, but was extracted from elsewhere in SESOIL program).

- At the end of the process, the benzene concentration of the "leachate" (soil pore liquid moving downward at the bottom of the vadose zone) was 4.14×10^{-6} mg/l. (much lower than MCL). This does not include dilution that would occur once this "leachate" mixed with groundwater). Further details of the SESOIL modeling are presented in the Pollutant Cycle report provided in Attachment F):

Based on the SESOIL modeling, the detection of 0.89 mg/kg benzene at a depth of 15 feet at the site does not appear to present a significant threat to groundwater quality.

2.0 LOW RISK SOIL ONLY CRITERIA

2.1 The release has been stopped and sources, including free product, have been removed or remediated.

Hazardous substance release mechanisms must be identified, if possible, and the release must be sufficiently abated so as to prevent ongoing pollution.

If the release was from a petroleum underground storage tank, the tank or appurtenant structure that leaked must be repaired or permanently closed per Article 7, Section 2672 of the UST regulations. Free product shall be removed to the extent practicable per Article 5, Section 2655 of the UST regulations.

Soil that contains sufficient mobile constituents (leachate, vapors, or NAPL), as determined by site specific data used within appropriate models, to degrade water quality, or result in a significant threat to human health or other sensitive receptors should be considered a source.

Note: For old releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution. In these cases, if impacted soil is not in contact with, or expected to come in contact with, groundwater, it is unlikely that it is a source of groundwater pollution.

The 1,000-gallon gasoline UST was closed-in-place by filling with cement slurry in 1986 and the former 500-gallon diesel UST was removed at an unknown date (removal confirmed during June 2011 investigation). TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012 and SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

2.2 The site has been adequately characterized.

The vertical and lateral extent of the subsurface impact must be defined to the degree that is necessary to evaluate whether the site currently poses, or in the future may pose, a significant threat to human health, waters of the State, or other nearby sensitive receptors. The level of detail required at a given site will depend upon contaminant(s) of concern, the types of potential receptors and exposure pathways, and the proximity of the potential receptors. Please be aware that the groundwater immediately beneath a site needs to be considered a receptor. And therefore, depending on the constituent of concern, and/or the apparent separation from groundwater, groundwater samples may be required.

It is assumed that subsurface conditions are highly variable and that there is always some uncertainty associated with evaluating data at a site. However, the cost of obtaining additional data must be weighed against the benefit of obtaining that data and the effect the data may have on the certainty of decisions to be made at the site.

The lateral and vertical extent of subsurface soil impacts appear to have been adequately characterized by two shallow soil borings (B-4 and B-5) sampled at 1 foot bgs, a test pit (A3-SP) sampled at 5 feet bgs, and six deeper borings (B-103 through B-108) sampled at depths up to 55.5 feet bgs. Analytical results and field observations from these locations suggest that hydrocarbon-impacted soils are limited in vertical and horizontal extent. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary monitoring wells at depths of approximately 60 feet bgs.

2.3 No water of the State, or other sensitive receptors are likely to be impacted.

Waters of the State include all groundwater and surface water regardless of current use. Central Valley aquifers generally are not segregated into discrete units, but are subject to vertical and horizontal migration of water and any pollutants carried by or in the water, often by local pumping.

TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

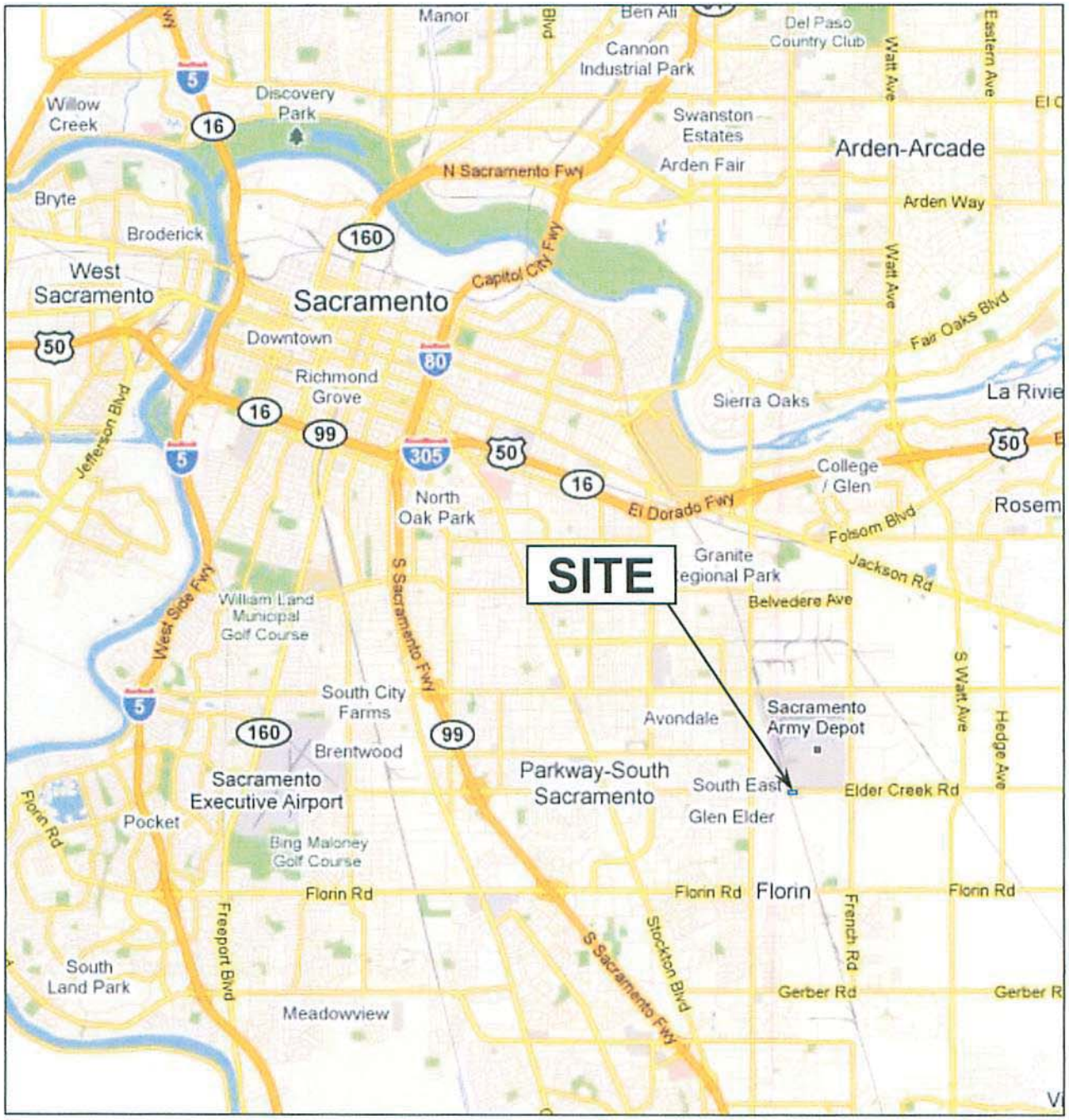
2.4 The site represents no significant risk to human health and safety.

Remaining site conditions shall not exceed a hazard index of one, a one-in-one million excess cancer risk (10-6) for residential receptors and a one-in-one-hundred thousand (10-5) excess cancer risk for commercial receptors (including construction workers). Site representative concentrations shall either be the maximum reported concentration, the 95% upper confidence level, or a weighted average, as appropriate. At a minimum, exposure pathways to be considered shall include surface soil ingestion, and surface soil, subsurface soil, and groundwater volatilization to indoor and outdoor air (via basements, buildings, subsurface utilities, etc.).

Note: The Responsible Party is required to demonstrate the acceptability of the model(s) used to determine the human health risk.

The potential for vapor intrusion appears minimal due to the low VOC detections in soil and lack of VOC detections in groundwater. TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in groundwater samples collected from three temporary wells sampled in January/February 2012. SESOIL modeling (See Attachment F) predicts that benzene will not impact groundwater at concentrations exceeding MCLs.

Attachment A



Source of Base Map: GOOGLE PROFESSIONAL 2011®

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS AND CONTRACTORS

3843 BRICKWAY BOULEVARD SUITE 208
SANTA ROSA, CA 95403
PH. (707) 546-9461 FAX (707) 544-5769

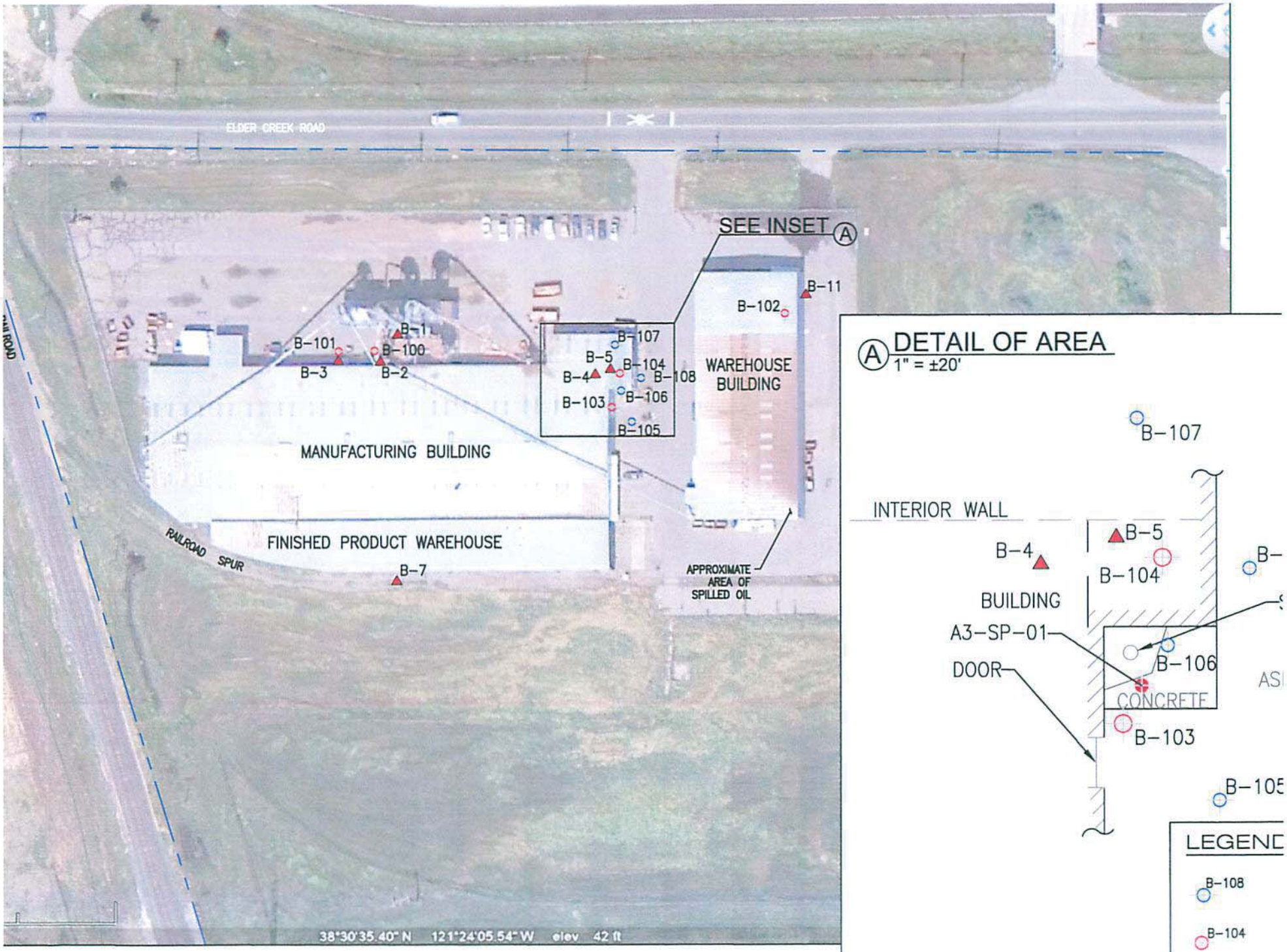
PROJ. NO:	SOURCE:	FILE:
012010234.00	GooglePro 2010	10234.00 FIGURE 1
DATE: 1/9/12	CREATED BY: JJM	APP. BY: CH

SITE LOCATION MAP

MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

APPROX. SCALE (MILES) 0 1 2

FIGURE: 1



SOURCE OF BASE MAP: AERIAL RASTER PHOTOGRAPH, GOOGLE EARTH PROFESSIONAL, 2010.
ALL LOCATIONS ARE APPROXIMATE; NOT A PRODUCT OF

Table 1: Soil Analytical Results - Petroleum Hydrocarbons

8280 Elder Creek Road, Sacramento, California

Sample ID	Date	TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
		mg/kg							
B-4 @ 1.0	08/26/10	NA	<5.0	<10	NA	<0.005	<0.005	<0.005	<0.005
B-5 @ 1.0	08/26/10	NA	<5.0	<10	NA	<0.005	<0.005	<0.005	<0.005
B-103 @ 15.0'	12/29/10	**1.7**	**1.2[2]**	NA	<0.005	<0.005	<0.005	**0.030**	**0.10**
B-103 @ 20.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
B-104 @ 10.0'	12/29/10	NA	**1.3**	NA	NA	NA	NA	NA	NA
B-104 @ 15.0'	12/29/10	**1,900**	**990[2]**	NA	<0.40	**0.89**	**8.9**	**31**	**180**
B-104 @ 20.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
B-104 @ 25.0'	12/29/10	NA	<1.0	NA	NA	NA	NA	NA	NA
A3-SP-01 @	06/01/11	48	**250**	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

NA - Not Analyzed

[2] Hydrocarbons are lower-boiling point than typical Diesel Fuel.

Attachment D

Table 1: Soil Analytical Results

8280 Elder Creek Road, Sacramento, California

Boring	Sample Depth (ft. bgs)	Sample ID	Sample Date	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	VOCs	Lead (Total)
				EPA 8015M			EPA 8260B					EPA 6010B
				mg/kg								
B-105	10.5	B-105, 10.5'	01/30/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.5**
	15.5	B-105, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-105, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-105, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-105, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-106	10.5	B-106, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	15.5	B-106, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-106, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.2**
	40.5	B-106, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-106, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-107	10.5	B-107, 10.5'	02/01/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.3**
	15.5	B-107, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-107, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-107, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-107, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-108	10.5	B-108, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.7**
	15.5	B-108, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-108, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-108, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-108, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.1**

ND = Analytes not detected at or above the laboratory method reporting limits.

Table 2: Grab Groundwater Analytical Results
8280 Elder Creek Road, Sacramento, California

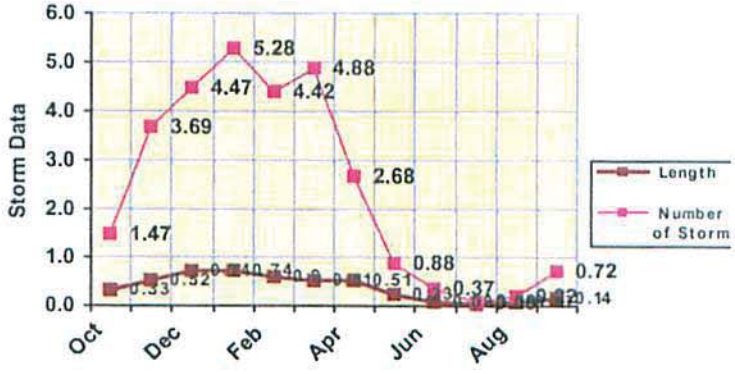
Boring	Sample ID	Sample Date	TPH-g	TPH-d	TPH- d (Silica Gel)	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead	VOCs	Lead (TRM)
			EPA 8015M				EPA 8260B						EPA 200.8
			µg/L										
B-105	B-105 @ W	01/30/12	<50	**120**	<50	<250	<0.5	<0.5	<0.5	<0.5	**3.8**	ND	**4.0**
B-106	B-106 @ W	01/31/12	<50	**66**	<50	<250	<0.5	<0.5	<0.5	<0.5	**83**	ND	**3.9**
B-107	B-107 @ W	02/01/12	<50	**370**	<50	<250	<0.5	<0.5	<0.5	<0.5	**54**	ND	**2.7**

ND = Analyte(s) not detected at or above the laboratory method reporting limit.
TRM = Total Recoverable Metals analysis.

Climate Report

Location Description: SACRAMENTO WSO CI
Climatic Input File: C:\SEVIEW63\SACRAMEN.CLM

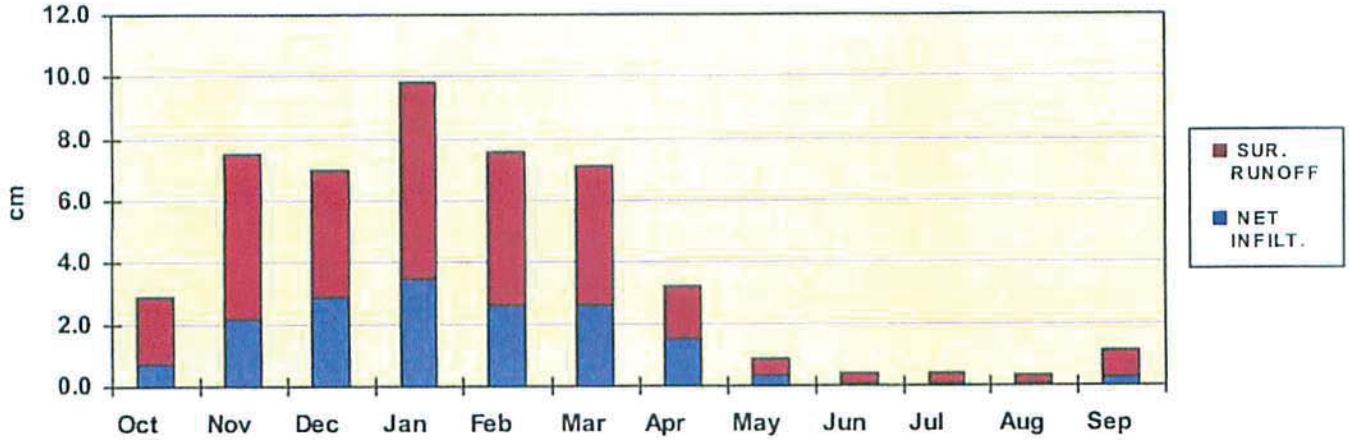
Month	Temperature		Precipitation		Evapotranspiration Rate		Storms		Cloud Cover	Albedo	Humidity
Units	^oC	^oF	cm	Inches	cm	Inches	# per Month	Length Days	Fraction	Fraction	Fraction
October	18.78	65.80	2.845	1.12	0.00	0.00	1.47	0.330	0.140	0.200	0.590
November	12.72	54.90	7.544	2.97	0.00	0.00	3.69	0.520	0.340	0.200	0.715
December	8.389	47.10	7.010	2.76	0.00	0.00	4.47	0.740	0.510	0.200	0.800
January	8.389	47.10	9.779	3.85	0.00	0.00	5.28	0.740	0.520	0.200	0.800
February	11.61	52.90	7.569	2.98	0.00	0.00	4.42	0.600	0.350	0.200	0.740
March	13.39	56.10	7.087	2.79	0.00	0.00	4.88	0.510	0.260	0.200	0.700
April	16.00	60.80	3.150	1.24	0.00	0.00	2.68	0.510	0.180	0.200	0.625
May	19.56	67.21	0.737	0.29	0.00	0.00	0.88	0.230	0.100	0.250	0.590
June	22.78	73.00	0.305	0.12	0.00	0.00	0.37	0.080	0.060	0.250	0.550
July	24.94	76.89	0.127	0.05	0.00	0.00	0.09	0.060	0.030	0.250	0.530
August	24.56	76.21	0.178	0.07	0.00	0.00	0.22	0.070	0.040	0.250	0.535
September	22.78	73.00	0.940	0.37	0.00	0.00	0.72	0.140	0.070	0.250	0.545
Total			47.27	18.61	0.00	0.00					

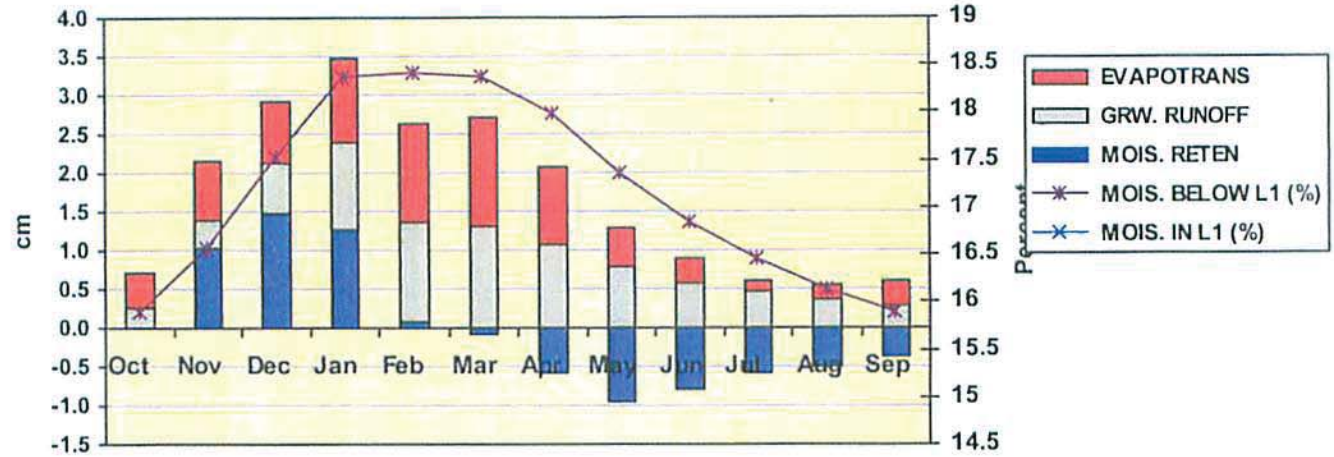


SESOIL Hydrologic Cycle Report (Continued)

Scenario Description:

SESOIL Output File: C:\SEVIEW63\SAC002.OUT





	Surface Water Runoff		Net Infiltration		Evapotranspiration		Soil Moisture Retention		Groundwater Runoff (Recharge)		Soil Moisture	
											Layer 1	Below Layer 1
Units	cm	Inches	cm	Inches	cm	Inches	cm	Inches	cm	Inches	Percent	Percent
October	2.18	0.86	0.71	0.28	0.45	0.18	0.00	0.00	0.26	0.10	15.89	15.89
November	5.37	2.11	2.16	0.85	0.76	0.30	1.03	0.41	0.37	0.15	16.57	16.57
December	4.06	1.60	2.93	1.15	0.79	0.31	1.49	0.59	0.65	0.26	17.54	17.54
January	6.35	2.50	3.48	1.37	1.09	0.43	1.26	0.50	1.14	0.45	18.37	18.37
February	4.96	1.95	2.64	1.04	1.28	0.50	0.08	0.03	1.29	0.51	18.42	18.42
March	4.47	1.76	2.65	1.04	1.42	0.56	-0.08	-0.03	1.31	0.52	18.37	18.37
April	1.72	0.68	1.52	0.60	1.00	0.39	-0.57	-0.22	1.09	0.43	17.99	17.99
May	0.50	0.20	0.34	0.13	0.51	0.20	-0.95	-0.37	0.78	0.31	17.37	17.37
June	0.31	0.12	0.09	0.04	0.30	0.12	-0.80	-0.31	0.58	0.23	16.84	16.84
July	0.39	0.15	0.04	0.02	0.14	0.06	-0.57	-0.22	0.47	0.19	16.47	16.47
August	0.26	0.10	0.07	0.03	0.20	0.08	-0.50	-0.20	0.37	0.15	16.14	16.14
September	0.91	0.36	0.24	0.09	0.33	0.13	-0.38	-0.15	0.29	0.11	15.89	15.89

SESOIL Profile and Load Report (Continued)

Layer No.	Number of Sub-Layers	Thickness		Intrinsic Permeability	Organic Carbon Content	Adsorption Coefficient	Cation Exchange Capacity	Freundlich Exponent	Solid Phase Degradation Rate	Liquid Phase Degradation Rate	Soil pH
		cm	feet	cm^2	percent	μg/g / μg/mL	mEq / 100 g soil	unitless	1/day	1/day	pH
1	10	168.0	5.51	5.00E-11	0.25	0.00	35.00	1.00	0.00E+00	9.00E-04	7.00
2	10	1360.0	44.62	3.50E-10	0.19	0.00	26.25	1.00	0.00E+00	9.00E-04	7.00
3	10	152.0	4.99	1.00E-8	0.13	0.00	7.00	1.00	0.00E+00	9.00E-04	7.00
4	10	152.0	4.99	8.00E-10	0.19	0.00	17.50	1.00	0.00E+00	9.00E-04	7.00

Soil Parameters

Bulk Density (g/cm^3)	1.66
Effective Porosity (fraction)	0.25
Soil Pore Disconnectedness	12.00

Application Parameters

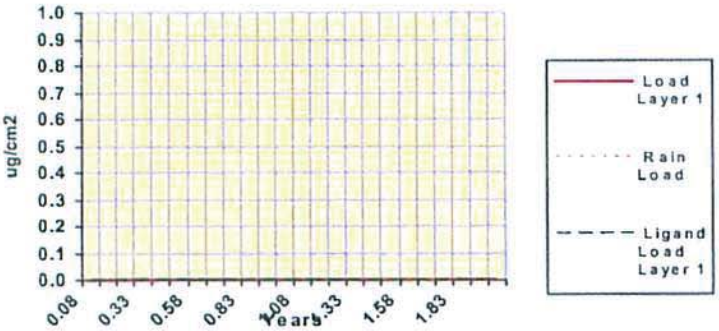
Area	cm^2	4.34E+5
	ft^2	467.15
Latitude	degrees	38.5
Spill Index		1

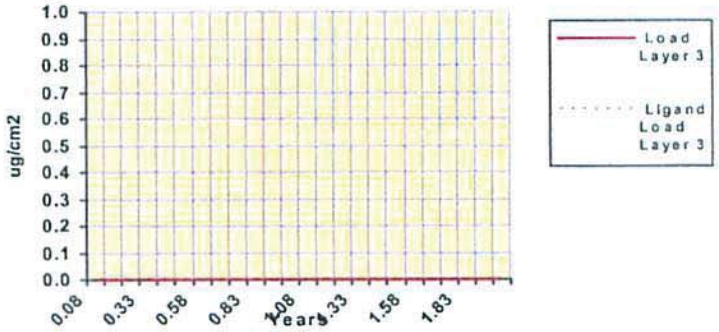
Chemical Parameters

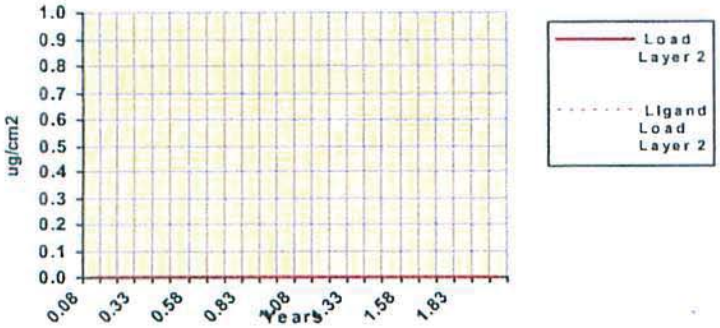
Water Solubility (μg/mL)	1.75E+3	Moles Ligand / Moles Chemical	0.00
Henry's Law (M^3-atm/mol)	5.57E-3	Ligand Molecular Weight (g/mol)	0.00
K_{oc} (μg/g)/(μg/mL)	58.90	Base Hydrolysis Rate (L/mol/day)	0.00
Valance (g/mole)	0.00	Ligand Dissociation Constant	0.00
Air Diffusion Coefficient (cm^2/sec)	8.80E-2	Neutral Hydrolysis Rate (L/mol/day)	0.00
Water Diffusion Coefficient (cm^2/sec)	9.80E-6	Acid Hydrolysis Rate (L/mol/day)	0.00
Molecular Weight (g/mol)	78.10		

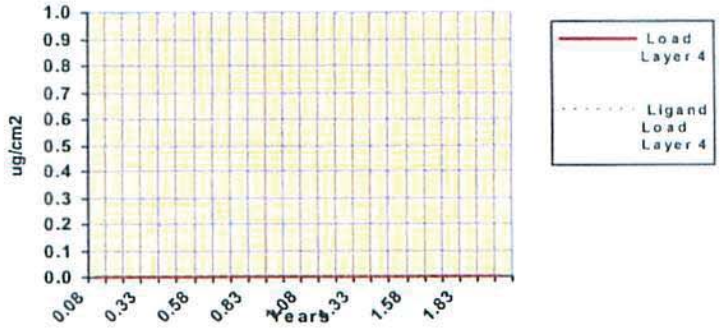
Output File:
C:\SEVIEW63\SAC002.OUT
Chemical File: Benzene with Liquid Phase Biodeg.
C:\SEVIEW63\BENZENEW.CHM
Soil File: Siltyclay
C:\SEVIEW63\SILTYCLA.SOI
Application File: SEVIEW Default Application Parameters
C:\SEVIEW63\SACTO.APL

Sublayer Loads	1	2	3	4	5	6	7	8	9	10
Layer 1 (ug/g)										
Layer 2 (ug/g)			8.90E-01							
Layer 3 (ug/g)										
Layer 4 (ug/g)										









SESOIL Pollutant Cycle Report (Continued)

Scenario Description:

SESOIL Output File: C:\SEVIEW63\SAC002.OUT

SESOIL Process	Pollutant Mass (µg)	Percent of Total
Volatilized	4.016E+06	4.62
In Soil Air	5.840E+00	0.00
Sur. Runoff	0.000E+00	0.00
In Washld	0.000E+00	0.00
Ads On Soil	4.924E+01	0.00
Hydrol Soil	0.000E+00	0.00
Degrad Soil	0.000E+00	0.00
Pure Phase	0.000E+00	0.00
Complexed	0.000E+00	0.00
Immobile CEC	0.000E+00	0.00
Hydrol CEC	0.000E+00	0.00
In Soil Moi	4.487E+01	0.00
Hydrol Mois	0.000E+00	0.00
Degrad Mois	8.289E+07	95.33
Other Trans	0.000E+00	0.00
Other Sinks	0.000E+00	0.00
Gwr. Runoff	1.493E+02	0.00
Total Output	8.691E+07	99.95
Total Input	8.695E+07	
Input - Output	3.951E+04	

Maximum leachate concentration: 4.140E-06 **mg/l**

Climate File: SACRAMENTO WSO CI
C:\SEVIEW63\SACRAMEN.CLM

Chemical File: Benzene with Liquid Phase Biodeg.
C:\SEVIEW63\BENZENEW.CHM

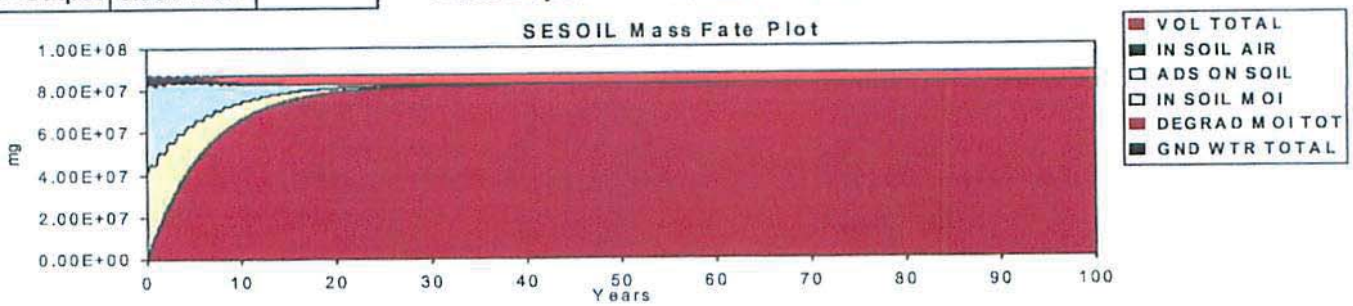
Soil File: Siltyclay
C:\SEVIEW63\SILTYCLA.SOI

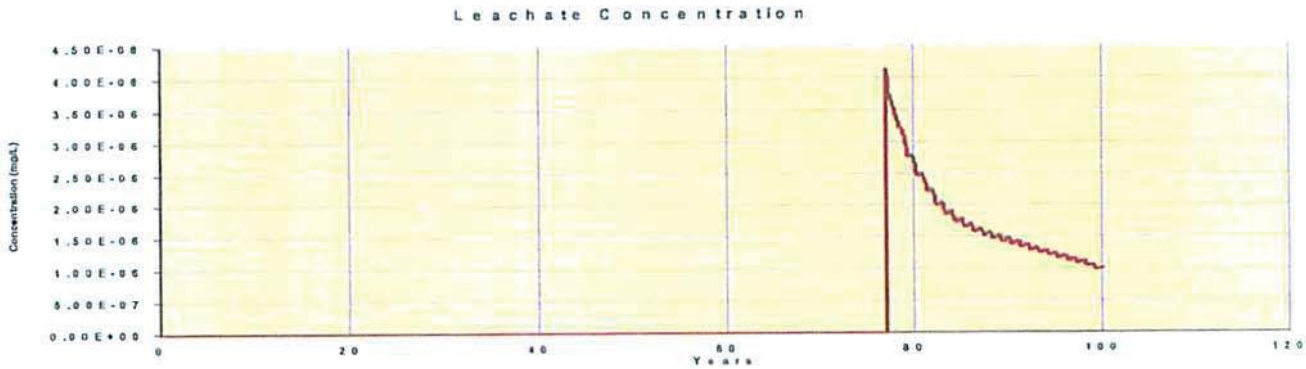
Application File: SEVIEW Default Application Parameters
C:\SEVIEW63\SACTO.APL

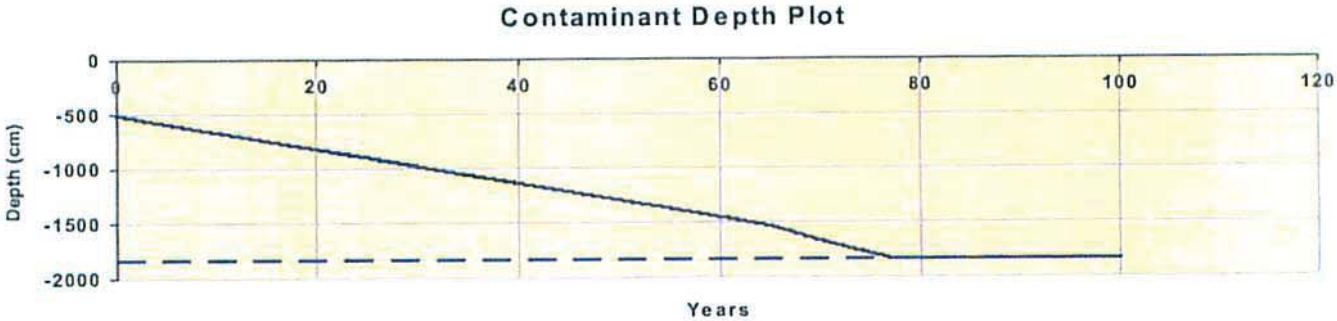
Starting Depth: 507.80 **cm**

Ending Depth: 1828.00 **cm**

Total Depth: 1832.00 **cm**







Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

NOTIFICATION OF RECORD OWNERS OF FEE TITLE:

PRIMARY RESPONSIBLE PARTY	SITE IDENTIFICATION/ADDRESS
MASONITE CORPORATION	LIFETIME DOORS
1955 POWIS ROAD	8280 ELDER CREEK ROAD
WEST CHICAGO, IL 60185	SACRAMENTO, CA 95828
ATTN: TOM CRAWSHAW	

The Environmental Compliance Division (ECD) has received your request to consider a:

☐ Cleanup proposal
☑ "No Further Action" determination

for the site identified above. The ECD has made the following preliminary determination of the current record owners of fee title for the site:

CURRENT RECORD OWNER OF FEE TITLE:
MASONITE INTERIOR DOOR MFG CORPORATION
201 N FRANKLIN ST 300
TAMPA FL 33602

Pursuant to the California Health & Safety Code and the California Water Code, it is your responsibility to notify the current record owner of fee title regarding a request for ECD consideration of a cleanup proposal or a request for "No Further Action." It is also your responsibility to provide proof of this notification to our agency. Your signature below certifies that you have confirmed the above party as the only current record owner of fee title for the subject property. You may use this form to verify that you have notified the current record owner of fee title by obtaining the signature of the owner or his/her authorized agent below and returning this form to our office. If there are additional current record owners of fee title, or if our determination is incorrect, please provide us with an additional/alternate form of proof of notification to the appropriate party/parties.

PRIMARY RESPONSIBLE PARTY:	RECORD OWNER OF FEE TITLE:
Signature:	Signature:
Name: Thomas B. Crawshaw	Name: Thomas B. Crawshaw
Title: Sr. Environmental Engineer	Title: Sr. Environmental Engineer
Date: 5/10/12	Date: 5/14/12

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.CERT.DOC

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Chief Deputy County Executive
Val F. Siebal, Department Director

March 23, 2012

Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Dear Mr. Crawshaw:

SUBJECT: LOCAL OVERSIGHT PROGRAM (LOP) SITE NO. G131; RO0001687
LIFETIME DOORS
8280 ELDER CREEK ROAD, SACRAMENTO, CA 95828

I have reviewed SCS Engineers (SCS), February 16, 2012, *Results of Subsurface Investigation, Former Lifetime Doors Site, 8280 Elder Creek Road, Sacramento, California*.

SCS drilled four soil borings and installed temporary monitoring wells in three of them. The borings were drilled near the northeastern corner of the main manufacturing building to delineate soil impacts and evaluate the potential for groundwater impacts from the former USTs. The results suggest the soil impacts are adequately delineated and that there have been no substantial groundwater impacts. SCS recommends no further site soil or groundwater assessment.

By **June 29, 2012**, you are directed to submit a closure request with supporting documentation. I have provided your consultant with guidance, which should be followed, for making this request.

Please contact me at (916) 875-8474 if you wish to discuss this further.

Sincerely,

Charley W. Langer
Environmental Specialist III
Site Assessment and Mitigation

CWL:dw

c: Steve Clements – SCS Engineers
Vera Fischer – CVRWQCB

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.LT2.DOC

SCS ENGINEERS

Results of Subsurface Investigation

Former Lifetime Doors Site
8280 Elder Creek Road
Sacramento, California

Presented to:

Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Presented by:

SCS ENGINEERS
3843 Brickway Blvd., Suite 208
Santa Rosa, California 95403
(707) 546-9461

February 16, 2012
File No. 01210234.00

Offices Nationwide
www.scsengineers.com

Results of Subsurface Investigation

Former Lifetime Doors Site
8280 Elder Creek Road
Sacramento, California

Prepared for:

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www.scsengineers.com

CERTIFICATION

This *Results of Subsurface Investigation, Former Lifetime Doors Site, Sacramento, California* was prepared under my direct supervision. I am a California Professional Geologist, pursuant to Section 7850 of the Business and Professional Code.

Steve Clements, PG
California Professional Geologist No. 6740

PROFESSIONAL GEOLOGIST
STEVEN J. CLEMENTS
No. 6740
exp. 10/12
STATE OF CALIFORNIA

Table of Contents

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3.0 Subsurface Investigation 3
4.0 Laboratory Analysis 4
5.0 Soil Analytical Results 4
6.0 Groundwater Analytical Results 5
7.0 Soil and Water Disposal 5
8.0 Conclusions and Recommendations 5

LIST OF ATTACHMENTS

Figure No.

1 Site Location Map
2 Site Plan with Boring Locations
3 Typical Temporary Well Detail

Table No.

1 Soil Analytical Results
2 Grab Groundwater Analytical Results

Appendices

A Unified Soil Classification System Chart and Boring Log Legend
Boring Logs for B-105 through B-108
B Sacramento County Drilling Permit Package, Permit Numbers 50629-50632
C McCampbell Analytical, Inc. Laboratory Report #1202043, dated February 7, 2012
McCampbell Analytical, Inc. Laboratory Report #1202043 A, dated February 10, 2012
McCampbell Analytical, Inc. Laboratory Report #1202043 B, dated February 13, 2012

1.0 INTRODUCTION

SCS Engineers (SCS) was retained by the Masonite Corporation (Masonite) to conduct an additional subsurface investigation at the Former Lifetime Doors facility located at 8280 Elder Creek Road, Sacramento, California (the "Site"). A Site Vicinity Map and Site Plan are provided as Figures 1 and 2, respectively. The purpose of this investigation was to delineate possible horizontal and vertical extents of soil and groundwater impacts associated with two former gasoline and diesel underground storage tanks (USTs).

This investigation was performed in accordance with the site specific Work Plan prepared by SCS, which was submitted to the County on January 13, 2012 and approved on January 25, 2012.

The former Lifetime Doors, Inc. Site is located at 8280 Elder Creek Road in Sacramento, California (Site). The property is an approximately 12 acre area that was improved with the addition of two buildings in 1968. The larger building with 76,000 square feet of floor space was used for manufacturing and contains offices, a manufacturing area, a finished product warehouse, maintenance shop, and a parts room. The smaller building is a two sided warehouse and was used to store raw lumber. The remaining developed portions of the property consist of paved and unpaved/gravel parking areas, driveways, a railroad spur, and a sawdust collection system. The eastern and southern sides of the property are undeveloped. Land-use of the immediately adjacent properties is generally industrial and the Sacramento Army Depot is located immediately north of the property. A channelized segment of Morrison Creek runs along the northern edge of the property, between the Sacramento Army Depot and the property. A Southern Pacific Railroad track borders the western boundary of the property.

Information obtained from previously conducted site assessments indicates that a closed-in-place 1,000-gallon underground storage tank (UST) is present at the Site. A 500-gallon UST was present at the Site, but was removed at an unknown time. The USTs were located within two feet of each other near the eastern side of the manufacturing building. SCS Engineers (SCS) conducted a site investigation in 2010 and identified petroleum-impacted soils in the vicinity of the USTs.

In response to the petroleum-impacted soil discovered around USTs, the Sacramento County Environmental Management Department, Environmental Management Division (County) requested, in a letter dated October 28, 2011, that a Corrective Action Work Plan (Work Plan) be prepared to propose activities that will delineate any possible horizontal and vertical extents of soil and groundwater impacts. A Work Plan prepared by SCS was submitted to the County on January 13, 2012 and was approved conditionally by the County on January 25, 2012.

2.0 BACKGROUND

2.1 PREVIOUS INVESTIGATIONS

The following environmental assessments were previously conducted at the Site:

- **Phase I Environmental Site Assessment & Environmental Compliance Review** – URS Corporation, September 7, 2010.
- **Phase II Environmental Site Assessment** – URS Corporation September 13, 2010.
- **Results of Limited Phase II Environmental Site Assessment** – SCS Engineers, February 9, 2011.
- **Results of Due Diligence Environmental Site Assessment** – SCS Engineers, August 2, 2011.

Information from these assessments indicates that a 1,000-gallon gasoline UST was installed on-Site in 1968 near the northeastern corner of the main manufacturing building. In addition, a Site Plan dated May 1968, depicts a 500-gallon diesel UST located approximately 2 feet south of the 1,000-gallon gasoline UST. The 1,000-gallon gasoline UST was reportedly closed-in-place by filling with cement slurry in 1986.

SCS conducted a further assessment by physical methods (removal of the floor of the building) to confirm the presence of the USTs in June 2011. The 1,000-gallon UST was discovered approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with cement grout and decommissioned in place, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, a further vertical and horizontal assessment of any impacts immediately beneath the UST could not be made. Subsequently, the area to the south of the 1,000-gallon UST was investigated in June 2011 and loose fill material was encountered to a depth of approximately 5 feet below the ground surface (bgs). After this material was removed, an impression of the former 500-gallon UST was found and a petroleum related impact to soil was observed.

To assess the potential for environmental impacts in this area, SCS drilled Borings B-103 and B-104 in December 2010. For the soil sample from B-104 at 15.0 feet bgs, total petroleum hydrocarbons in the gasoline range (TPH-g) was detected at a concentration of 1,900 milligrams per kilogram (mg/kg), and TPH in the diesel range (TPH-d) was detected at a concentration of 990 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected at concentrations above the laboratory method reporting limit (MRL) in this boring at this depth. TPH-d was detected at a concentration above the MRL in the soil sample from boring B-104 at 10.0 feet bgs. For the soil sample from B-103 at 15.0 feet bgs, TPH-g and TPH-d were detected at concentrations of 1.7 mg/kg and 1.2 mg/kg, respectively. Ethylbenzene and total xylenes were also detected at concentrations above the MRL in this boring at this depth. Please note that

according to the laboratory TPH-d detections in the soil samples from borings B-103 at 15.0 feet bgs and B-104 at 15.0 bgs were "hydrocarbons with lower-boiling point than typical diesel fuel".

2.2 SITE GEOLOGY

The Site lies in the Great Central Valley geomorphic province of Northern California. The Great Central Valley is a structural trough filled with a thick sequence of marine and non-marine sediments derived from the Sierra Nevada to the east and the Coast Range to the west (Norris and Webb, 1990). The uppermost strata at the Site were derived from alluvial deposits of clay, silt, sand, and gravel related to former courses of the Sacramento River and the American River during the late Pleistocene into the Holocene. The uppermost formation at the Site is the Victor (Pleistocene age, Old Alluvial Fan Deposits). In the vicinity of the Site, the Victor Formation is composed of 50 to 70 feet of a heterogeneous assemblage of sediments deposited by shifting streams (Shlemon, 1967).

Based on boring logs from this and previous investigations at the Site, the Site is underlain by alluvial deposits of clay, silt, and sand. The groundwater flow direction in the uppermost aquifer in the Site vicinity is reported to be southerly (Plexus, 2010). There are no groundwater monitoring wells at the Site, thus, Site-specific groundwater flow direction has not been verified. During this investigation first groundwater was encountered beneath the Site at depths of approximately 60 feet bgs.

3.0 SUBSURFACE INVESTIGATION

SCS drilled four soil borings (B-105 through B-108) and installed temporary monitoring wells in three of the borings (B-105, B-106, and B-107) between January 30 and February 1, 2012. Copies of the boring logs are attached as Appendix A. The borings were drilled in accordance with Sacramento County Drilling Permit Numbers 50629 through 50632 (Appendix B). Boring locations are shown on Figure 2 and were located near the northeastern corner of the main manufacturing building to assess the potential soil and groundwater impacts in the vicinity two USTs. The borings were drilled using 7-inch diameter hollow stem augers. All borings were completed to total depths between approximately 60 to 65 feet bgs. First groundwater was encountered in each of the borings at a depth of approximately 60 feet bgs.

Soil samples were collected from each boring at approximately 5 foot intervals to the total depth of the boring for logging purposes using a California modified split spoon sampler. Soil samples collected from each of the borings at depths of 10.5, 15.5, 25.5, 40.5, 55.5 feet bgs were retained for laboratory analysis. The soil samples were collected in stainless steel sampling sleeves, covered with Teflon® sheets, and sealed with plastic caps.

Temporary wells were constructed in borings B-105, B-106, and B-107 using 2-inch diameter schedule 40 PVC casing. The bottom 5-feet of the temporary casing consisted of 0.010-inch machine slotted schedule 40 PVC U-Pack® well screen. The U-Pack® well screen consisted of an outer 3-inch diameter well screen and a centralized inner 2-inch diameter well screen. The

annular space between the well screens was filled with a filter pack consisting of new washed No. 2/16 sand. A typical temporary well diagram is provided as Figure 3. Grab groundwater samples were collected from borings B-105, B106, and B-107 with a clean, disposable bailer for each temporary well. The soil and groundwater samples were collected and stored following SCS Standard Sampling Procedures and Quality Assurance/Quality Control (QA/QC) Protocol.

Downhole drilling equipment was pressure washed between borings to prevent cross contamination. Sampling equipment was also cleaned between sampling intervals and borings to prevent cross contamination between samples and borings. The soil and grab groundwater samples were secured and transported under standard chain of custody documentation in a sealed, chilled cooler to McCampbell Analytical, Inc. (McCampbell) in Pittsburg, California, a laboratory certified by the California Department of Public Health (CDPH) for all requested analyses.

The borings were backfilled with portland cement as designated by the C-57 licensed drilling contractor, Clear Heart Drilling, Inc. under the oversight of a Sacramento County inspector. All drilling derived soils and decontamination water generated during the investigation were stored in 55 gallon United Nations/Department of Transportation (UN/DOT) approved drums pending characterization and disposal.

4.0 LABORATORY ANALYSIS

Soil and groundwater samples collected during this investigation were analyzed for the following constituents of concern (COCs):

- TPH-g, TPH-d, and TPH in the motor oil range (TPH-mo) by Environmental Protection Agency (EPA) Method 8015M;
- Volatile organic compounds (VOCs) by EPA Method 8260B;
- Total lead in soil by EPA Method 6010B; and,
- Total lead in groundwater by EPA Method 200.8.

5.0 SOIL ANALYTICAL RESULTS

Five soil samples were selected for laboratory analysis from each boring. Soil samples submitted for laboratory analysis were collected from each boring at depths of 10.5, 15.5, 25.5, 40.5, and 55.5 feet bgs. Site COCs were not detected in any of the soil samples above the laboratory MRLs; however, total lead was found at select depths in each of the borings at concentrations ranging from non-detect (ND<5.0 mg/kg) to 6.3 mg/kg. These total lead concentrations are typical of background soil concentrations and are not of regulatory concern. Results from the soil samples submitted for laboratory analysis are presented on Table 1. Copies of the laboratory analytical reports are presented in Appendix C.

6.0 GROUNDWATER ANALYTICAL RESULTS

Groundwater was present in each of the borings, B-105 through B-108, at a depth of approximately 60 feet bgs. Grab groundwater samples were collected from temporary wells constructed in borings B-105, B-106, and B-107.

TPH-d was detected in each of the grab groundwater samples collected at concentrations ranging from 66 micrograms per liter (µg/L) in boring B-106 to 370 µg/L in boring B-108; however, these samples were re-analyzed by the laboratory using silica gel cleanup, which yielded non-detectable levels of TPH-d in all three samples.

Total lead was detected in each of the three grab groundwater samples collected at concentrations of 3.8 µg/L in boring B-105, 54 µg/L in boring B-107, and 83 µg/L in boring B-106; however, the laboratory noted that samples from borings B-106 and B-107 contained greater than 1% sediment and the samples were not field filtered. The total lead detected in these samples is likely due to suspended sediment, which is common in grab groundwater samples and groundwater samples collected from temporary wells. Accordingly, the groundwater samples were re-analyzed for lead using the total recoverable metals (TRM) approach. Using the TRM approach for lead analysis yielded concentrations ranging from 2.7 µg/L in Boring B-107, 3.9 µg/L in Boring B-106, and 4.0 µg/L in Boring B-105. These lead concentrations are well below the 50 µg/L Maximum Contaminant Level (MCL) established for lead and, based on the soil sample analytical results, do not appear to be related to the USTs.

No other Site COCs were detected in any of the grab groundwater samples above the laboratory MRLs. Results from the groundwater samples submitted for laboratory analysis are presented on Table 2. Copies of the laboratory analytical reports are presented in Appendix C.

7.0 SOIL AND WATER DISPOSAL

Investigation derived soil from the borings is currently stored on-Site in United Nations/Department of Transportation (UN/DOT) approved 55-gallon drums pending proper disposal. Investigation derived waste water generated from decontamination of augers is also stored on-Site in UN/DOT approved 55-gallon drums pending disposal.

8.0 CONCLUSIONS AND RECOMMENDATIONS

SCS drilled four soil borings (B-105 through B-108) and installed temporary monitoring wells in three of the borings (B-105, B-106, and B-107) between January 30 and February 1, 2012. The borings were drilled near the northeastern corner of the main manufacturing building to delineate possible horizontal and vertical extents of soil and groundwater impacts associated with two former gasoline and diesel underground storage tanks (USTs). Based on the results of this investigation SCS provides the following conclusions and recommendations:

- First groundwater was encountered in each of the borings at a depth of approximately 60 feet bgs.

- TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in any of the 20 soil samples collected during this investigation.

- Total lead was detected in five of the 20 soil samples collected during this investigation at concentrations up to 6.3 mg/kg. These total lead concentrations are typical of background concentrations and are not of regulatory concern.

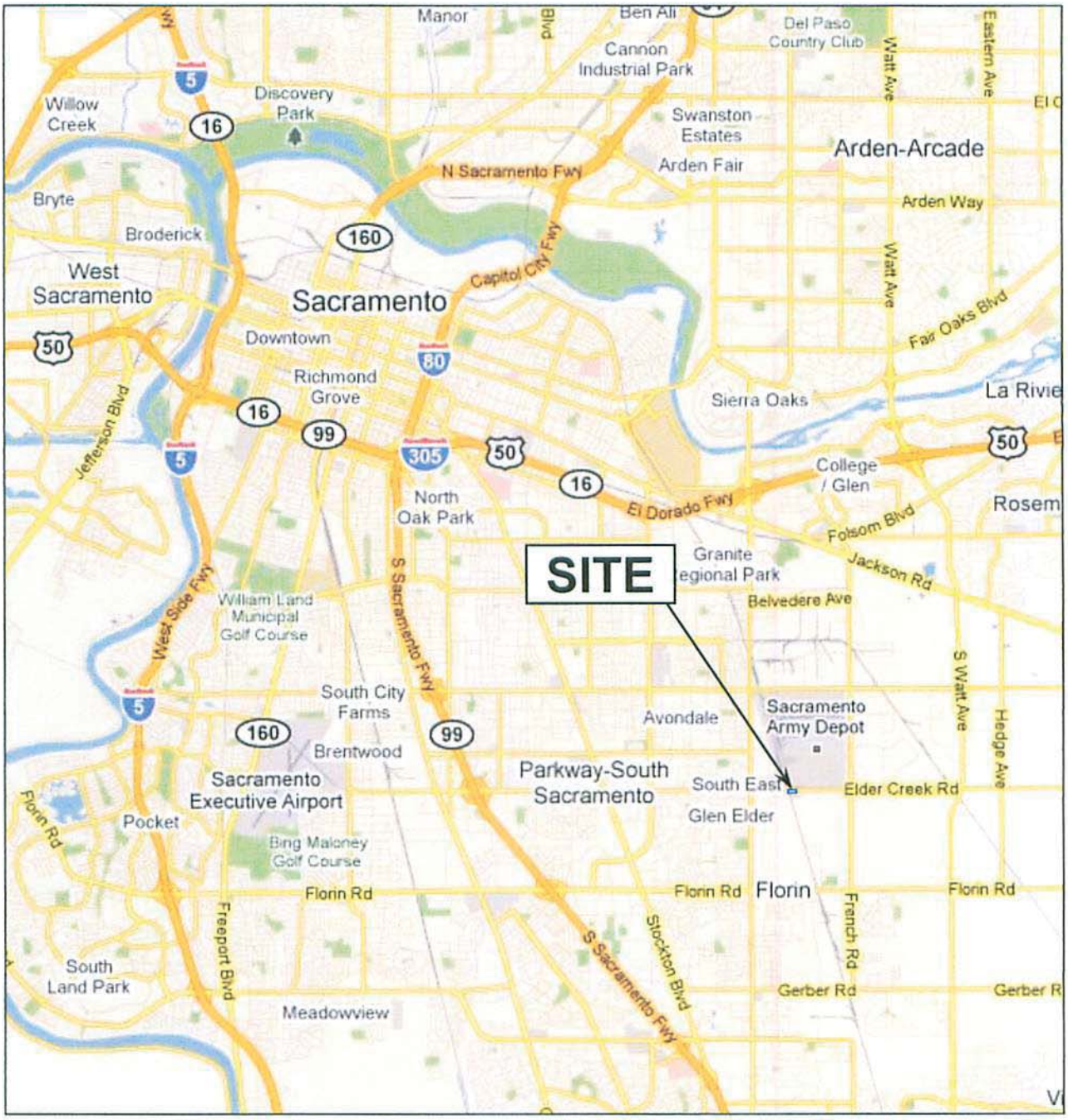
- TPH-g, TPH-mo, and VOCs (including BTEX and MTBE) were not detected in either the three groundwater samples collected during this investigation.

- Initial groundwater analytical results from the temporary wells contained TPH-d at concentrations ranging from 66 µg/L to 370 µg/L. However, the samples were re-analyzed by the laboratory using silica gel cleanup which yielded non-detectable levels of TPH-d. This data, along with the lack of TPH-d detections in any of the soil samples collected during this investigation, suggests that the initial TPH-d detections in groundwater were the result of naturally occurring organics and not related to the USTs.

- Using the TRM approach for lead analysis in groundwater samples yielded concentrations ranging from 2.7 µg/L to 4.0 µg/L. The lead concentrations are well below the 50 µg/L MCL established for lead and, based on the soil sample analytical results, do not appear to related to the USTs. These lead concentrations in groundwater were well below the 50 µg/L MCL established for lead and, based on the soil sample analytical results, do not appear to be related to the USTs.

Based on the results of the recent subsurface investigation at the Site, SCS recommends no further Site soil or groundwater assessment in the UST area at the Site.

Figures



Source of Base Map: GOOGLE PROFESSIONAL 2011®

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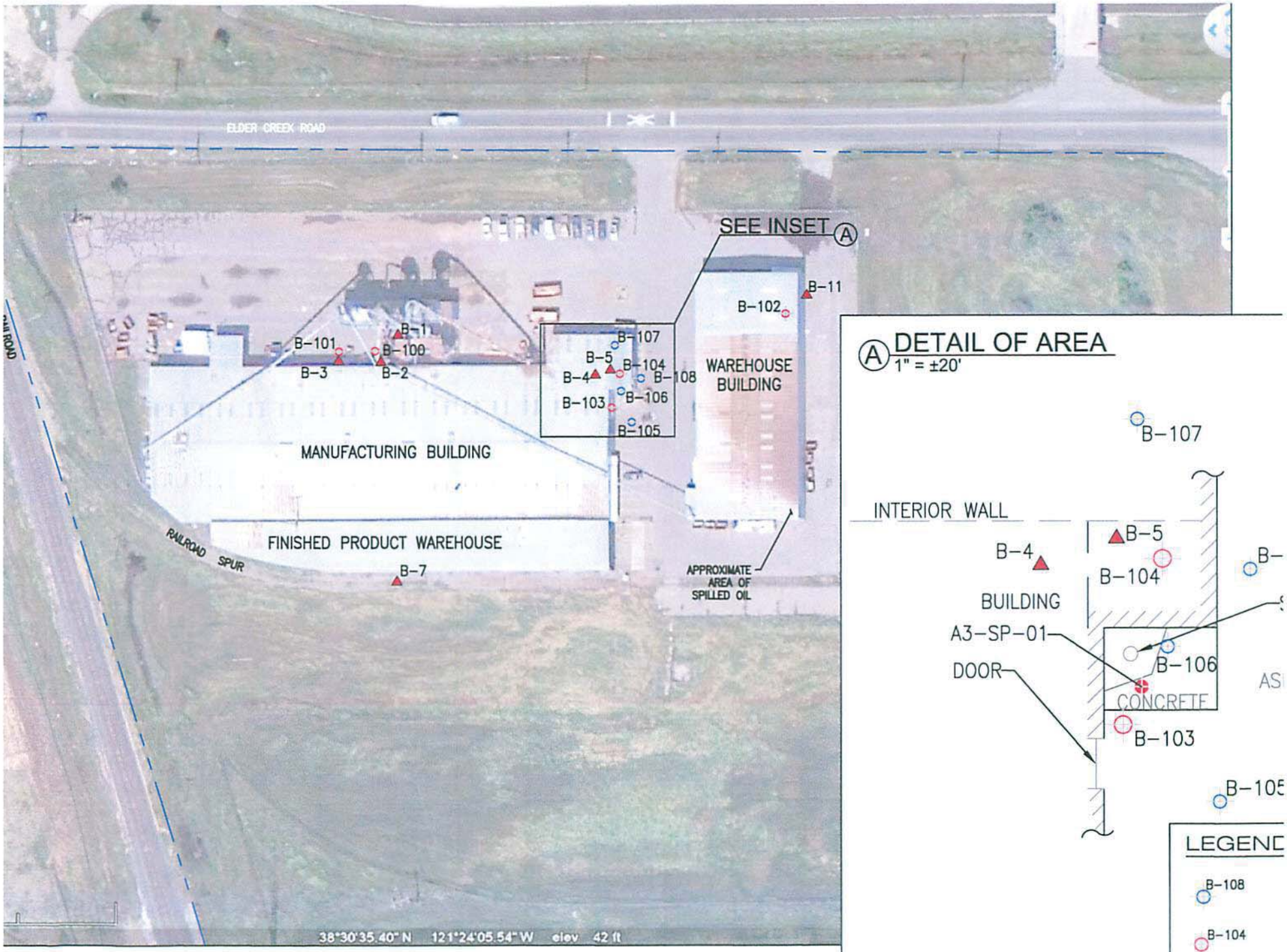
PROJ. NO:	SOURCE:	FILE:
012010234.00	GooglePro 2010	10234.00 FIGURE 1
DATE: 1/9/12	CREATED BY: JJM	APP. BY: CH

SITE LOCATION MAP

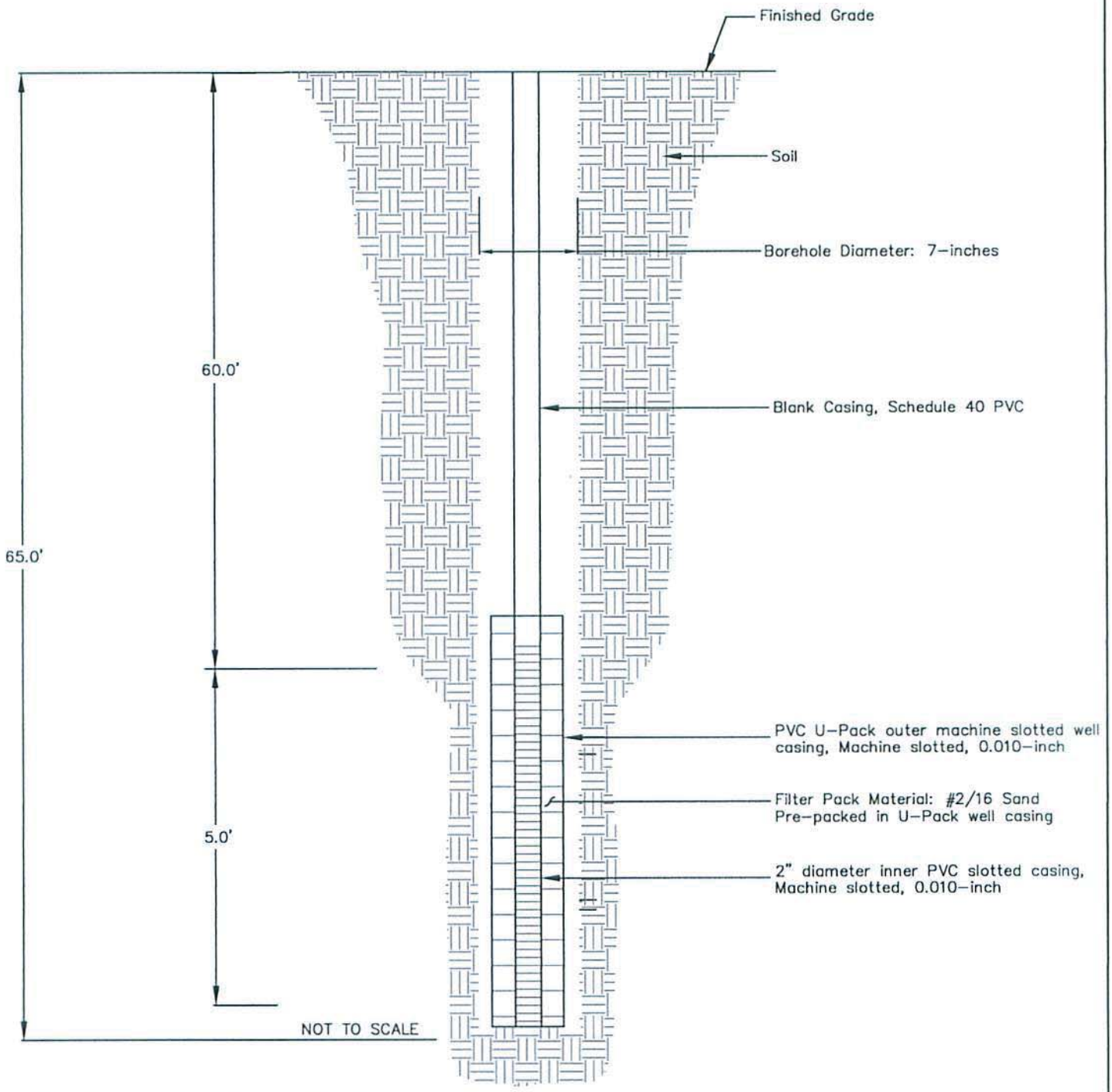
MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

APPROX. SCALE (MILES) 0 1 2

FIGURE 1



SOURCE OF BASE MAP: AERIAL RASTER PHOTOGRAPH, GOOGLE EARTH PROFESSIONAL, 2010.
ALL LOCATIONS ARE APPROXIMATE; NOT A PRODUCT OF



NOTE: ALL DEPTHS ARE BELOW GROUND SURFACE (bgs)

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PROJ. NO. 01210234.00	DWN. BY: JJM	ACAD FILE: 10234.00_TMP-WELL DTL
DATE: 2/15/12	CHK. BY: AJT	APP. BY: SJC

SHEET TITLE: TYPICAL TEMPORARY WELL DETAIL

PROJECT TITLE: MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

SCALE: N.T.S.

FIGURE NO. 3

Tables

Table 1: Soil Analytical Results

8280 Elder Creek Road, Sacramento, California

Boring	Sample Depth (ft. bgs)	Sample ID	Sample Date	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	VOCs	Lead (Total)
				EPA 8015M			EPA 8260B					EPA 6010B
				mg/kg								
B-105	10.5	B-105, 10.5'	01/30/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.5**
	15.5	B-105, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-105, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-105, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-105, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-106	10.5	B-106, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	15.5	B-106, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-106, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.2**
	40.5	B-106, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-106, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-107	10.5	B-107, 10.5'	02/01/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**6.3**
	15.5	B-107, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-107, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-107, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-107, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
B-108	10.5	B-108, 10.5'	01/31/12	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.7**
	15.5	B-108, 15.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	25.5	B-108, 25.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	40.5	B-108, 40.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	<5.0
	55.5	B-108, 55.5'		<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	**5.1**

ND = Analytes not detected at or above the laboratory method reporting limits.

Table 2: Grab Groundwater Analytical Results

8280 Elder Creek Road, Sacramento, California

Boring	Sample ID	Sample Date	TPH-g	TPH-d	TPH- d (Silica Gel)	TPH-mo	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead	VOCs	Lead (TRM)
			EPA 8015M				EPA 8260B						EPA 200.8
			µg/L										
B-105	B-105 @ W	01/30/12	<50	**120**	<50	<250	<0.5	<0.5	<0.5	<0.5	**3.8**	ND	**4.0**
B-106	B-106 @ W	01/31/12	<50	**66**	<50	<250	<0.5	<0.5	<0.5	<0.5	**83**	ND	**3.9**
B-107	B-107 @ W	02/01/12	<50	**370**	<50	<250	<0.5	<0.5	<0.5	<0.5	**54**	ND	**2.7**

ND = Analyte(s) not detected at or above the laboratory method reporting limit.
TRM = Total Recoverable Metals analysis.

Appendices

Appendix A

Unified Soil Classification System Chart and Boring Log Legend
Boring Logs for B-105 through B-108

GENERAL SOIL CATEGORIES			SYMBOLS (GRAPHIC)	SYMBOLS (LETTER)	TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than no. 200 sieve	**Gravel** More than half of coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines		GW	Well Graded Gravels, Gravel - Sand mixtures
				GP	Poorly Graded Gravels, Gravel - Sand mixtures
		Gravel with more than 15% fines		GM	Silty Gravels, Poorly Graded; Gravel - Sand - Silt Mixtures
				GC	Clayey Gravels, Poorly Graded; Gravel - Sand - Clay Mixtures
	Sand More than half of coarse fraction is smaller than No. 4 sieve size	Clean Sand with little or no fines		SW	Well Graded Sands, Gravelly Sands
				SP	Poorly Graded Sands, Gravelly Sands
		Sand with more than 15% fines		SM	Silty Sands, Poorly Graded; Sand - Silt Mixtures
				SC	Clayey Sands, Poorly Graded; Sand - Clay Mixtures
FINE GRAINED SOILS More than half is smaller than no. 200 sieve	**Silt and Clay** Liquid Limit Less than 50%			ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
				CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
				OL	Organic Silts and Organic Silty Clays of Low Plasticity
	Silt and Clay Liquid Limit Greater than 50%			MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts
				CH	Inorganic Clays of High Plasticity, Fat Clays
				OH	Organic Clays of Medium to High Plasticity
Highly Organic Soils				PT	Peat and Other Highly Organic Soils
Bedrock				BR	Bedrock
Aggregate Base				B	Mixed Fill
Asphalt				A	Asphalt
Concrete				C	Concrete

■ Soil sample submitted for chemical analysis

☒ Soil sample examined for soil classification

Sampler Type
- CBS = Continuous Barrel Sampler
- CMSS = CA Modified Split Spoon
- DP = Direct Push Sampler
- GRAB = Grab Sample
- HA = Hand Auger
- HP = Hydropunch
- SPT = Standard Penetration Test

▼ Water Level (after drilling)

▽ First Identified Free Water

n.a. = not applicable
n.r. = not recorded

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UNIFIED SOIL CLASSIFICATION SYSTEM CHART and BORING LOG LEGEND

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure
Appendix A
A-1
1 of 1

Date (start, end): 1/30/12 - 1/30/12
Drilling Time (start, end) 08:30 - 12:30
Logged By: Ted Sison
Checked By: Steven Clements

Boring No. **B-105**

Boring Location:

See Unified Soil Classification System (USCS) for Legend and information not noted.

Drilling Contractor: Clear Heart Drilling, Inc.
Driller's Name: Pablo Trejo
Drilling Method: 7-in. Hollow-Stem Auger
Sampling Method: CMSS
Hammer weight / fall: 140 lbs / 30 inch
Notes:

MW Installed: Y☐ N☒ *if no, boring backfilled with:*
Cement ☒ Bentonite: Cement ☐ Grout ☐ Chips ☐
Auger Depth, ft: 61.5 Total Depth, ft: 61.5

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
															ASPHALT.
									1						**SILT** (ML): Clayey silt, brown, moist, very stiff, no odor.
									2						
									3						
									4						
X	6	12	CMSS		0	No			5						**SILT** (ML): Clayey silt, brown, moist, hard, with some well graded sand, no odor.
X	6	14							6						
X	6	22													
									7						
									8						
									9						
X	6	10	CMSS		0				10						**SILT** (ML): brown to light tan, moist, hard, with some clay and crusty deposits, no odor (Sample B105, 10.5').
■	6	22							11						
X	6	24													

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BORING LOG B-105

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-105

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									13						
									14						
X	6	12	CMSS		0				15						**SAND** (SW): gray to tan, moist, dense, no odor.
■	6	20							16						**CLAY** (CL): Silty clay, gray, moist, hard, no odor (Sample B-105, 15.5').
X	6	34													
									17						
									18						
									19						
X	6	24	CMSS		0	No			20						**SILT** (ML): Clayey silt, gray, moist, hard, no odor.
X	6	42							21						
X	6	48													
									22						
									23						
									24						
X	6	12	CMSS		0				25						**SAND** (SP): brown, moist, dense, no odor (Sample B-105, 25.5').
■	6	18							26						
X	6	24													
									27						

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BORING LOG B-105

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-105

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									29						
									30						
X	6	22	CMSS		0										**CLAY** (CL): Silty clay, grayish brown, moist, hard, no odor.
X	5	50/5"							31						
									32						
									33						
									34						
									35						
X	6	35	CMSS		0										**SILTY SAND** (ML): brown, moist, very dense, very fine sand, no odor.
X	5	50/5"				No			36						
									37						
									38						
									39						
									40						
X	6	18			0										**CLAY** (CL): Silty clay, brown, moist, hard, with very little cohesion, no odor (Sample B-105, 40.5').
■	6	24	CMSS						41						
X	6	28													
									42						
									43						

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BORING LOG B-105

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	17	CMSS		0				45						**SAND** (SP): brown, moist, very dense, very fine sand with very little silt, no odor.
X	6	34													
X	6	40							46						
									47						
									48						
									49						
X	6	20	CMSS		0				50						**SAND** (SP): brown, moist, very dense, fine sand, no odor, some perched water.
X	6	26							51						
X	6	34													
						No			52						
									53						
									54						
X	6	17	CMSS		0				55						**CLAY** (CL): Silty clay, brown, moist, hard, with some very fine to fine sand, no odor (Sample B-105, 55.5').
■	6	22							56						
X	6	34													
									57						
									58						
				▽					59						

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BORING LOG B-105

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-105

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	17	CMSS		0										**SANDY CLAY** (CL): gray, moist, hard, fine sand, no odor.
X	6	53/6"				No			61						
									62						TOTAL DEPTH = 61.5 FEET
									63						
									64						
									65						
									66						
									67						
									68						
									69						
									70						
									71						
									72						
									73						
									74						
									75						

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BORING LOG B-105

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-105

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Date (start, end): 1/31/12 - 1/31/12 Drilling Time (start, end) 08:00 - 12:00 Logged By: Alex Tuveson Checked By: Steven Clements	Boring No. **B-106**	Boring Location: See Unified Soil Classification System (USCS) for Legend and information not noted.

Drilling Contractor: Clear Heart Drilling, Inc.
Driller's Name: Pablo Trejo
Drilling Method: 7-in. Hollow-Stem Auger
Sampling Method: CMSS
Hammer weight / fall: 140 lbs / 30 inch
Notes:

MW Installed: Y ☐ N ☒ *if no, boring backfilled with:*
Cement ☒ Bentonite: Cement ☐ Grout ☐ Chips ☐
Auger Depth, ft: 65.3 Total Depth, ft: 65.3

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
															CONCRETE.
															CLAY (CL): brown, moist, very stiff, no odor.
									1						
									2						
									3						
									4						
X	6	12	CMSS		0	No			5						**SILT** (ML): Clayey silt, brown, moist, hard, with some very fine sand, no odor.
X	6	28													
X	6	24							6						
									7						
									8						
									9						
X	6	18	CMSS		0				10						**SAND** (SP): red, moist, dense, medium sand, no odor.
■	6	22							11						**SILT** (ML): tan, moist, hard, with some fine sand, no odor (Sample B-106, 10.5').
X	6	24													

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BORING LOG B-106

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-106

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									13						
									14						
X	6	18	CMSS		0				15						**SILT** (ML): gray, moist, hard, with some fine sand, no odor. (Sample B-106, 15.5').
■	6	34							16						
X	6	42													
									17						
									18						
									19						
X	6	24	CMSS		0	No			20						**SILT**: gray, moist, hard, with some fine sand, no odor.
X	6	50/6"													
									21						
									22						
									23						
									24						
X	6	20	CMSS		0				25						**SILT** (ML): light gray, moist, hard, no odor.
■	6	20							26						**SAND** (SP): brown, moist, dense, fine sand, no odor (Sample B-106, 25.5').
X	6	20													
									27						

SCS ENGINEERS

Environmental Consultants and Contractors
3843 Brickway Boulevard, Suite 208
Santa Rosa, California 95403
Ph.: 707-546-9461 Fax: 707-544-5769

BORING LOG B-106

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-106

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									29						
X	6	20	CMSS		0				30						**SILTY SAND** (SM): light brown, moist, very dense, fine to medium sand, no odor.
X	6	24							31						
X	6	32													
									32						
									33						
									34						
X	6	18	CMSS		0	No			35						**SANDY SILT** (ML): brown, moist, hard, fine sand, no odor.
X	6	37							36						
X	6	44													
									37						
									38						
									39						
X	6	18	CMSS		0				40						**SILT** (ML): Clayey silt, light gray, moist, hard, with some fine sand, no odor. (Sample B-106, 40.5').
■	6	44							41						
X	6	48													
									42						
									43						

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BORING LOG B-106

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-106

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	20	CMSS		0				45						**SILT** (ML): light brown with light gray, moist, hard, with some fine sand, no odor.
X	6	40							46						
X	6	45													
									47						
									48						
									49						
X	6	22	CMSS		0				50						**SAND** (SP): brown, moist, very dense, medium sand, no odor.
X	6	26							51						
X	6	26													
						No			52						
									53						
									54						
X	6	10	CMSS		0				55						**SILT** (ML): light gray, moist, hard, no odor (Sample B-106, 55.5').
■	6	20							56						
X	6	38													
									57						
									58						
									59						
				∇											

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BORING LOG B-106

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-106

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	12	CMSS		0	No									**SILT** (ML): light gray, moist, hard, no odor.
X	6	20							61						
X	6	42							62						
									63						
									64						
									65						
									66						TOTAL DEPTH = 65.3 FEET
									67						
									68						
									69						
									70						
									71						
									72						
									73						
									74						
									75						

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BORING LOG B-106

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-106

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Date (start, end): 2/1/12 - 2/1/12
Drilling Time (start, end) 13:00 - 17:00
Logged By: Alex Tuveson
Checked By: Steven Clements

Boring No. **B-107**

Boring Location:

See Unified Soil Classification System (USCS) for Legend and information not noted.

Drilling Contractor: Clear Heart Drilling, Inc.
Driller's Name: Pablo Trejo
Drilling Method: 7-in. Hollow-Stem Auger
Sampling Method: CMSS
Hammer weight / fall: 140 lbs / 30 inch
Notes:

MW Installed: Y ☐ N ☒ if no, boring backfilled with:
Cement ☒ Bentonite: Cement ☐ Grout ☐ Chips ☐
Auger Depth, ft: 64.8 Total Depth, ft: 64.8

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
															ASPHALT.
									1						**SILT** (ML): Clayey silt, brown, moist, hard, with some very fine sand, no odor.
									2						
									3						
									4						
									5						
X	6	12	CMSS			No									**SANDY SILT** (ML): brown, moist, hard, very fine sand, no odor.
X	6	12							6						
X	6	14													
									7						
									8						
									9						
									10						
X	6	7	CMSS												**SILT** (ML): brown, moist, very stiff, with some very fine sand, no odor. (Sample B-107, 10.5').
■	6	8							11						
X	6	14													

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BORING LOG B-107

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-107

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									13						
									14						
									15						**CLAY** (CL): Silty clay, light gray, moist, hard, no odor.
X	6	10	CMSS												
■	6	18							16						**SILTY SAND** (SM): brown, moist, dense, fine sand, no odor (Sample B-107, 15.5').
X	6	22													
															SAND (SP): brown, moist, medium dense, no odor.
									17						
									18						
									19						
						No			20						
X	6	9	CMSS												
X	6	9							21						
X	6	14													
									22						
									23						
									24						
									25						**SAND** (SP): light brown, moist, dense, fine sand with some medium grains, no odor. (Sample B-107, 25.5').
X	6	17	CMSS												
■	6	18							26						
X	6	19													
									27						

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BORING LOG B-107

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-107

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									29						
									30						**SAND** (SP): light brown, moist, very dense, fine sand, no odor.
X	6	42	CMSS												**SILTY SAND** (SP): light gray to brown, moist, very dense, silt with sandstone fragments, no odor.
X	6	55/6"							31						
									32						
									33						
									34						
									35						**SILT** (ML): brown, moist, hard, no odor.
X	6	18													
X	6	26	CMSS			No			36						
X	6	34													
									37						
									38						
									39						
									40						**SILT** (ML): light gray to brown, moist, hard, no odor (Sample B-107, 40.5').
X	6	20													
■	6	34	CMSS						41						
X	6	42													
									42						
									43						

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BORING LOG B-107

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-107

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	26	CMSS						45						**SILTY SAND** (SM): light gray to brown, moist, hard, fine sand, no odor.
X	6	54/6"							46						
									47						
									48						
									49						
X	6	18	CMSS						50						**SAND** (SW): reddish brown, moist, dense, well graded medium sand, no odor.
X	6	24							51						
X	6	26													
						No			52						
									53						
									54						
X	6	20	CMSS						55						**SILTY SAND** (SM): brown, moist, very dense, fine sand, no odor (Sample B-107, 55.5').
■	6	32							56						
X	6	34													
									57						
									58						
									59						

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BORING LOG B-107

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-107

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
				∇		No			61						
									62						
									63						
									64						
									65						TOTAL DEPTH = 64.8 FEET
									66						
									67						
									68						
									69						
									70						
									71						
									72						
									73						
									74						
									75						

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BORING LOG B-107

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-107

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Date (start, end): 1/31/12 - 1/31/12
Drilling Time (start, end) 08:00 - 12:30
Logged By: Alex Tuveson
Checked By: Steven Clements

Boring No. **B-108**

Boring Location:

See Unified Soil Classification System (USCS) for Legend and information not noted.

Drilling Contractor: Clear Heart Drilling, Inc.
Driller's Name: Pablo Trejo
Drilling Method: 7-in. Hollow-Stem Auger
Sampling Method: CMSS
Hammer weight / fall: 140 lbs / 30 inch
Notes:

MW Installed: Y ☐ N ☒ *if no, boring backfilled with:*
Cement ☒ Bentonite: Cement ☐ Grout ☐ Chips ☐
Auger Depth, ft: 61.5 Total Depth, ft: 61.5

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
															ASPHALT.
									1						**CLAY** (CL): Silty clay, brown, moist, very stiff, no odor.
									2						
									3						
									4						
									5						**SAND** (SP): brown, moist, medium dense, fine sand, no odor.
X	6	8	CMSS			No									**SANDY SILT** (ML): brown, moist, very stiff, fine sand, no odor.
X	6	11							6						
X	6	14													
									7						
									8						
									9						
									10						**SILT** (ML): brown, moist, hard, with some fine sand, no odor. (Sample B-108, 10.5').
X	6	12	CMSS												
■	6	14													
X	6	22							11						

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BORING LOG B-108

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-108

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									13						
									14						
									15						**SILTY SAND** (SM): brown, moist, dense, fine sand, with some clay, no odor. (Sample B-108, 15.5').
X	6	12	CMSS												
■	6	17							16						
X	6	28													
									17						
									18						
									19						
						No			20						**SILT** (ML): light gray, dry, hard, no odor.
X	6	17													
X	6	37	CMSS						21						
X	6	48													
									22						
									23						
									24						
									25						**SAND** (SP): brown, moist, very dense, very fine sand, no odor (Sample B-108, 25.5').
X	6	17													
■	6	24	CMSS						26						
X	6	34													
									27						

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BORING LOG B-108

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-108

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									29						
									30						**SILTY SAND** (SM): brown, moist, very dense, fine sand, no odor.
X	6	36	CMSS												
X	6	37							31						
X	6	41													
									32						
									33						
									34						
									35						**SILTY SAND** (SM): brown, moist, very dense, fine sand, no odor.
X	6	10	CMSS												
X	6	21				No			36						
X	6	36													
									37						
									38						
									39						
									40						**SILT** (ML): light brown, moist, hard, with some fine sand, no odor (Sample B-108, 40.5').
X	6	18	CMSS												
■	6	34							41						
X	6	38													
									42						
									43						

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BORING LOG B-108

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure: B-108

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
									45						
X	6	20	CMSS												**SILT** (ML): brown, moist, hard, with some fine sand, no odor.
X	6	46							46						
X	6	37													
									47						
									48						
									49						
									50						
X	6	18	CMSS												**SAND** (SP): brown, moist, very dense, fine sand, no odor.
X	6	24							51						
X	6	34													
						No			52						
									53						
									54						
									55						
X	6	18	CMSS												**SANDY SILT** (ML): light brown, moist, hard, fine sand, no odor (Sample B-108, 55.5').
■	6	32							56						
X	6	36													
									57						
									58						
									59						
				▽											

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BORING LOG B-108

Lifetime Doors - Sacramento
8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-108

SCS-SANTA ROSA BORING LOG 01210234.00.GPJ SCS-SANTA ROSA.GDT 2/14/12

Sample	Inches Recovered	Blows / 6 in	Sampler Type	Water Levels	PID (ppm)	Odor	Discoloration	Elevation	Depth in Feet	Graphic Log	Gravel %	Sand %	Silt %	Clay %	Lithologic Description and Drilling Comments:
X	6	10	CMSS			No									**SILT** (ML): light gray, moist, hard, no odor.
X	6	22							61						
X	6	40													
									62						TOTAL DEPTH = 61.5 FEET
									63						
									64						
									65						
									66						
									67						
									68						
									69						
									70						
									71						
									72						
									73						
									74						
									75						

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BORING LOG B-108

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8280 Elder Creek Road
Sacramento, California
Job Number: 01210234.00

Figure:
B-108
5 of 5

Appendix B

Sacramento County Drilling Permit Package,

Permit Number 50629-50632

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

Well Program Contact List

Barry Marcus, P.G.
Supervising Environmental Specialist
(916) 875-8506 (office)
(916) 591-2661 (cell)
MarcusB@saccounty.net

Susan Williams, Permitting/Enforcement
(916) 875-8452 (office)
(916) 591-2687 (cell)
WilliamsSB@saccounty.net

Cheryl Hawkins, Small Water Systems
(916) 875-8429 (office)
(916) 591-2638 (cell)
HawkinsC@saccounty.net

Lisa Christy, Permitting
(916) 875-8466 (office)
(916) 261-3490 (cell)
ChristyL@saccounty.net

Accounting/Cashiering
(916) 875-8481, (916) 875-8485 or (916) 875-8599

Well Inspection Scheduling (916) 875-8524

Field Inspectors

Name	Office Phone	Cell Phone
Christine Abad	(916) 876-9830	(916) 591-0701
Jack Bellan	(916) 876-7560	(916) 202-8689
Sean Daneluk	(916) 875-8463	(916) 591-0808
Sue Erikson	(916) 875-8433	(916) 591-2635
Eric Haupt	(916) 876-7530	(916) 591-0932
Terry Kociemba	(916) 875-8504	(916) 591-1205
Charley Langer	(916) 875-8474	(916) 591-2648
John Lewis	(916) 876-7279	(916) 591-2696
David Von Aspern	(916) 875-8467	(916) 591-2679

08/17/2011 glb W:\Data\FORMSARCHIVE\WP\WELLS\02 WELL PROGRAM CONTACT LIST.DOC

WELL APPLICATION AND PERMIT FORM

ENVIRONMENTAL MANAGEMENT DEPARTMENT – ENVIRONMENTAL COMPLIANCE DIVISION
10590 ARMSTRONG AVENUE • SUITE A • MATHER, CA 95655
TELEPHONE (916) 875-8400 FAX: (916) 875-8513

WELL INSPECTION LINE: (916) 875-8524

IS THIS PERMIT FOR A HAZARDOUS SUBSTANCE INVESTIGATION? ☐ YES ☒ NO

AR 98530

FOR OFFICE USE ONLY

☑ APPROVED ☐ APPROVED W/CONDITIONS (ATTACHED)

BY: C.J. DATE: 1/26/12
INITIAL GROUT BY: DATE:
FINAL INSPECTION BY: DATE:
DESTRUCTION BY: DATE:

EXPEDITED PROCESSING? ☐ YES ☐ NO
PERMIT NUMBER(S): 50629 – 50632
DATE RECEIVED: 1/17/12
RECEIPT NO: 300626
WELL DEPTH:
GPS: N: 38 W: -121
TOTAL FEE: $146.00
DEPTH TO WATER:
GROUT DEPTH:

COMMENTS:

SITE ADDRESS: Sacramento 95828	
Job Address: 8280 Elder Creek Road	Nearest Major Cross Street: Power Inn/Elder Creek
Property Owner: Masonite Corporation	Parcel Number(s): 064-0010-028-0000
Well Contractor: Clear Heart Drilling	CA License No.: 780357 Exp 6/30/12 OK for C
Contractor's Address: 555 West College Avenue Suite B, Santa Rosa CA 95401 707-568-6096	
Well/Boring Identification Number(s): B-105, B-106, B-107, B-108	

CWA 10 1 Gal 920

TYPE OF WORK: (California C-57 License required unless noted otherwise)

☒ Well construction ☐ Vault box repair (General A or B) ☐ Well destruction (SUPPLEMENT REQUIRED)
☐ Pump replacement (or C-61) ☐ Well repair ☐ Exploratory boring (C-57 if water present)
☐ Well inactivation (Owner only) ☐ Pump repair (or C-61) ☐ Other:

INTENDED USE:

☐ Domestic/private ☐ Dewatering ☐ Geotechnical boring
☐ Irrigation/agricultural ☐ Cathodic protection ☐ Environmental boring
☒ Water/vapor monitoring/extraction ☐ Heat exchange ☐ Other:
☐ Public water system:
(NAME OF WATER PURVEYOR WITH CONTACT NAME AND TELEPHONE NUMBER)

DRILLING METHOD:

☐ Mud rotary ☐ Air Rotary ☐ Cable tool ☒ Auger ☐ Driven ☐ Other:

SETBACKS: (Wells only)

Is the well located within 50 feet of a: ☐ sewer line, ☐ stream, ☐ ditch, ☐ drainage course, ☐ pond, or ☐ lake? ☒ No
Is the well located within 100 feet of a: ☐ septic tank, ☐ leach line, ☐ deep trench, or ☐ animal enclosure? ☒ No

SPECIFICATIONS:

BOREHOLE: Diameter: 8 in Depth: ~70ft
Diameter: Depth:
CONDUCTOR: Diameter: Depth:
ANNULAR SEAL: Depth: NA Material:
TRANSITION SEAL: Material: NA

CASING: Diameter: 2 Depth: 70ft
CASING: Diameter: Depth:
IF STEEL: Gauge: or Thickness:
IF PLASTIC: Type: SCH 40 (Must meet ASTM F-480)
MULTIPLE COMPLETION? ☐ Yes (DIAGRAM REQUIRED)

COMMENTS: Temporary well construction; Will be abandoned with cement after sample collection; See attached work plan.

PUMP INSTALLATION/REPAIR:

Contractor:
License Number: Type of Pump: Horsepower:

I will comply with all Codes, Rules and Regulations of the State and County pertaining to or regulating wells and pumps, **call (916) 875-8524 for a grout inspection at least 24 hours prior to the requested appointment time**, submit a "Well Completion Report" (if required) within 60 days of the completion of my work so a final inspection can be made, and obtain WPD approval before placing a well in service.

SIGNATURE:
PRINTED NAME: Christopher J. Heiny, PG
COMPANY: SCS Engineers
MAILING ADDRESS: 3117 Fite Cir., Suite 108; Sacramento 95827
PHONE NUMBER: 916-361-1297

☐ Property Owner
☐ Well Contractor
☒ Agent (REQUIRES AUTHORIZATION FORM)

FIELD PHONE: Alex Tuveson-925-998-0826

A SITE PLAN MUST BE SUBMITTED WITH EACH APPLICATION.
PERMIT EXPIRES ONE (1) YEAR AFTER DATE APPROVED (UNLESS EXTENDED)

SITE ADDRESS: 8280 ELDER CREEK RD

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)
50629	**B-105**								

Comments:

GPS: _____ **N** _____ **W**

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)
50630	**B-106**								

Comments:

GPS: _____ **N** _____ **W**

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)
50631	**B-107**								

Comments:

GPS: _____ **N** _____ **W**

SITE ADDRESS: 8280 ELDER CREEK RD

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)
50632	**B-108**								

Comments:

GPS: _____ **N** _____ **W**

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)

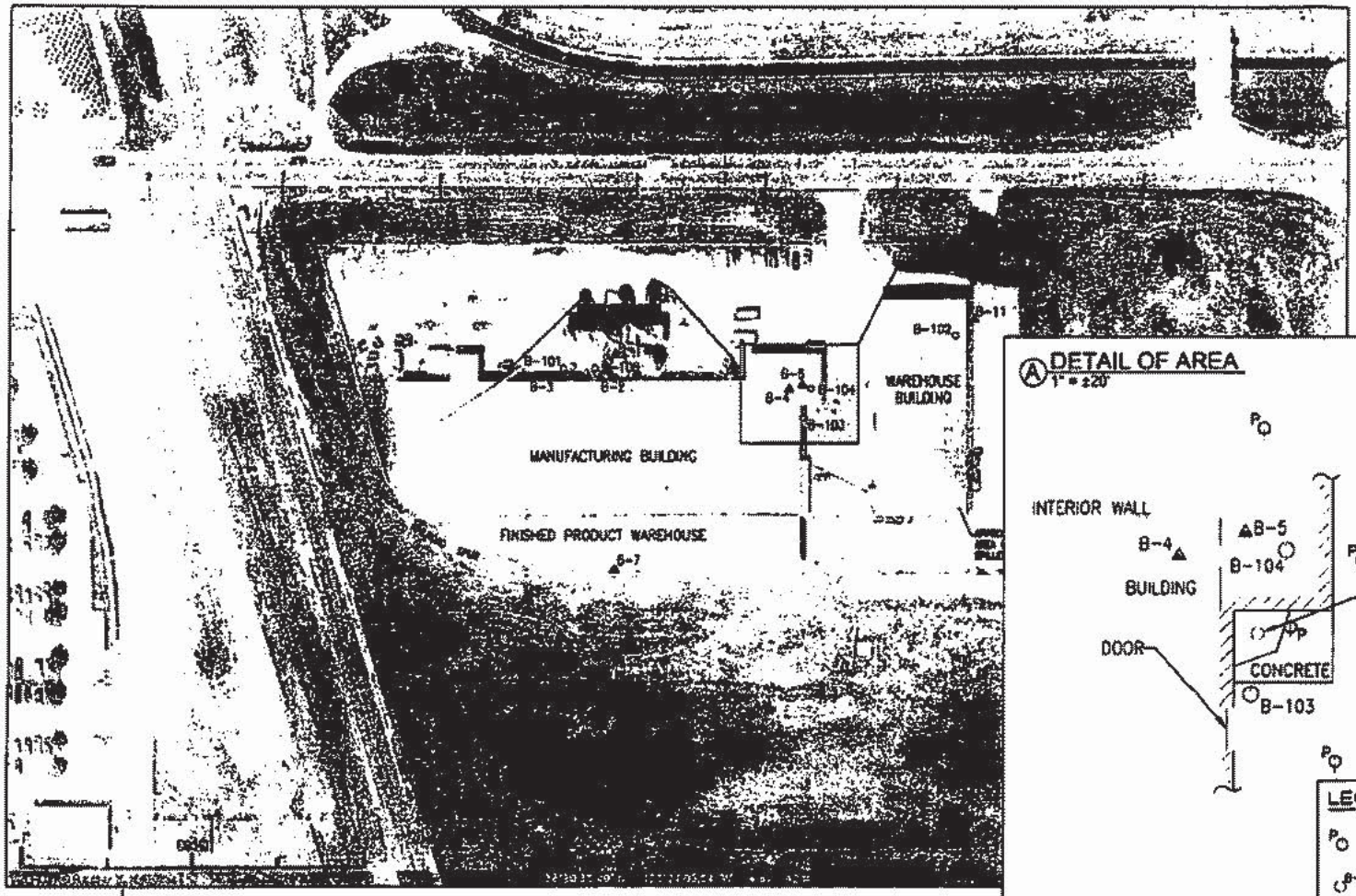
Comments:

GPS: _____ **N** _____ **W**

Permit Number	Boring/well Number	Inspected By	Date	Total Depth (ft)	Depth to Water (ft bgs)	Actual Grout Depth (ft)	Screened Interval (ft)	Filter Pack to: (ft bgs)	Transition Seal to: (ft bgs)

Comments:

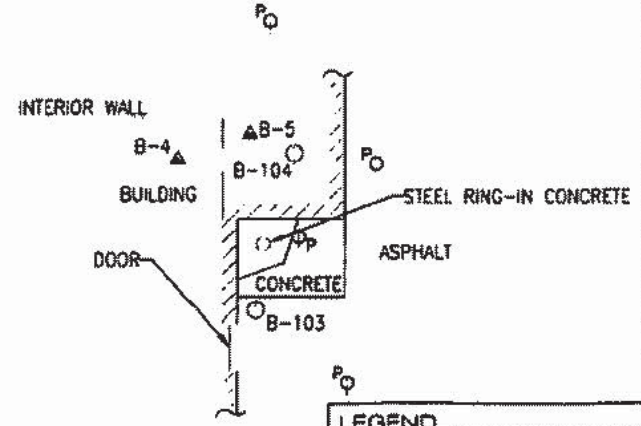
GPS: _____ **N** _____ **W**



SOURCE OF BASE MAP: AERIAL BASED PHOTOGRAPH COURTESY EARTH PROFESSIONAL, 2010
ALL LOCATIONS ARE APPROXIMATE. USE AT YOUR OWN RISK

DETAIL OF AREA

1" = ±20'



LEGEND

P	PROPOSED BORING LOCATION
B-101	PREVIOUS BORING LOCATION
AR-XX-XX	SOIL SAMPLE LOCATION
B-1*	FORMER BORING LOCATION (URS, 2010)

*SAMPLE LOCATIONS ADAPTED FROM "SOIL ANALYTICAL MAP" PROJECT REBORING, SACRAMENTO FACILITY, 8200 FLORIN CREEK ROAD, SACRAMENTO, CALIFORNIA

SHEET TITLE	SITE PLAN WITH PROPOSED BORING LOCATIONS
PROJECT TITLE	MASSONITE LIFETIME DOOR FACILITY 8200 FLORIN CREEK ROAD SACRAMENTO, CALIFORNIA

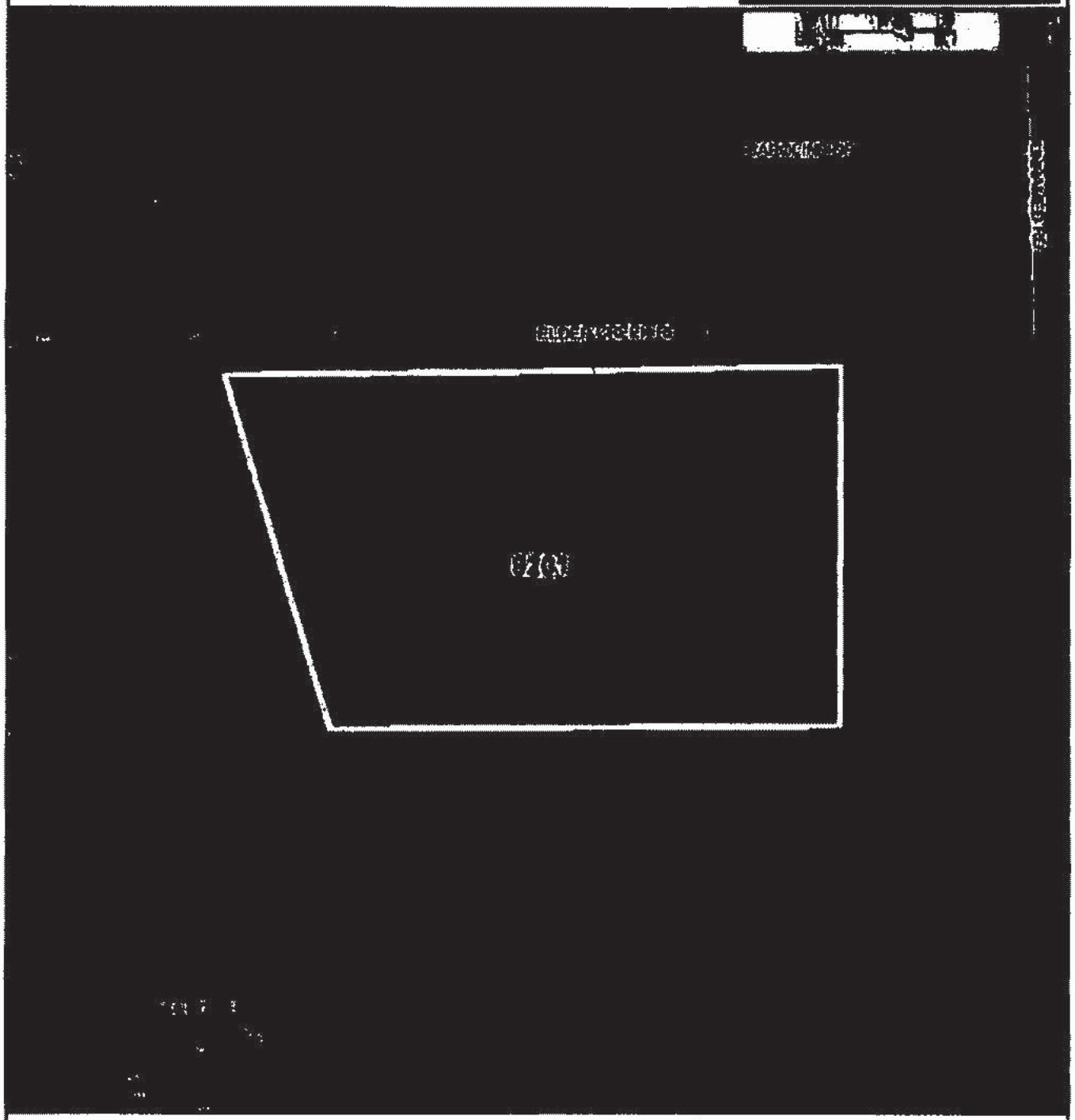
NO.	REVISION	DATE

SCS ENGINEERS

DATE	3/01/12
SCALE	AS SHOWN
DRAWING NO.	2

General Map Viewer

County of Sacramento



Rivers

Ortho - Street Names

Freeways

County Boundary Lines

Major Streets

2010 Census Tracts

Parcel Boundaries

Information For Parcel:
064-0010-028-0000

PROPERTY INFORMATION

APN	06400100280000
Situs Address	8280 ELDER CREEK RD
Postal City/St/Zip	SACRAMENTO, CA 95828
Thomas Bros	318 D 6
Landuse Code	GABC0A
Jurisdiction	SACRAMENTO
Sup. District	1-Phil Serna

OWNERSHIP INFORMATION

Owner	MASONITE INTERIOR DOOR MFG CORPORATION
Owner Mail Address	201 N FRANKLIN ST 300
Owner Mail City/St/Zip	TAMPA FL 33602
Property Transfer Info.	View Property Transfer Data
Deed	View Property Transfer Document
Owner History	View Owner History

PARCEL DETAIL LINKS

General Info	View General Parcel Data
Districts	View District Data
Recorded Map	No maps are available.
Assessor Maps	View Assessor Map
Parcel History	No Parcel History records available.
Assessment Info	View Assessor Data
Building Permits	No Permit record available.
Parcel Notes	No Parcel Notes recorded.
Business Licenses	No Business License Data available.
SHRA Info	View SHRA Data
CUBS Info	View CUBS Data
Refuse Pickup	No Refuse Pickup schedule available.
Water Meters	No Water Meter Data available.

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

PROPERTY OWNER'S AUTHORIZATION LETTER

Site Address	8280 Elder Creek Road		
Well Driller	Clearheart		
Driller's Address	555 B West College Avenue		
Driller's Phone No.	707-588-6095		
C-57 License No.	780357	Exp. Date	6/30/2012

For the sole purpose of procuring permits for the construction, modification, repair, or destruction of wells or soil borings and the installation, repair, or replacement of well pumps at the aforementioned site, I hereby designate the following entity(ies) to act as my authorized representative:

Name(s)	SCS Engineers
Company	SCS Engineers
Address	3117 Fite Circle, Suite 108
City, State, Zip	Sacramento, CA 95827

I understand that as the applicant for permits for activities regulated under Chapter 6.28 of the Sacramento County Code, I am responsible for compliance with all provisions of that Chapter. I further understand that upon written notification to the EMD, I may rescind this authorization.

Signature	[illegible]
Printed	Tom Crawshaw
Title: Property Owner/Officer	Sr. Environmental Engineer
Date:	1/12/12

09/06/2011 gfb W:\Data\FORMSARCHIVE\WP\WELLS\12 PROPERTY OWNER'S AUTHORIZATION.DOC

Department of Consumer Affairs
Contractors State License Board

Contractor's License Detail - License # 780357

DISCLAIMER: A license status check provides information taken from the CSLB license database. Before relying on this information, you should be aware of the following limitations.

CSLB complaint disclosure is restricted by law (B&P 7124.6) If this entity is subject to public complaint disclosure, a link for complaint disclosure will appear below. Click on the link or button to obtain complaint and/or legal action information.

Per B&P 7071.17 , only construction related civil judgments reported to the CSLB are disclosed.

Arbitrations are not listed unless the contractor fails to comply with the terms of the arbitration.

Due to workload, there may be relevant information that has not yet been entered onto the Board's license database.

License Number 780357 **Extract Date:** 1/19/2012

Business Information
CLEAR HEART DRILLING INC
555 B W COLLEGE AVENUE
SANTA ROSA, CA 95401

Business Phone Number:(707) 568-6095

Entity: Corporation
Issue Date 08/16/2000
Expire Date **06/30/2012**
License Status This license is current and active. **All information below should be reviewed.**
Additional Status:

Classifications:

CLASS	DESCRIPTION
A	GENERAL ENGINEERING CONTRACTOR
B	GENERAL BUILDING CONTRACTOR
C57	WELL DRILLING (WATER)

Bonding:

CONTRACTOR'S BOND

This license filed Contractor's Bond number **272450C** in the amount of **$12,500** with the bonding company
DEVELOPERS SURETY AND INDEMNITY COMPANY.

Effective Date: 04/20/2010
Contractor's Bonding History

BOND OF QUALIFYING INDIVIDUAL

1. The Responsible Managing Officer (RMO) SODEN GARY MONROE certified that he/she owns 10 percent or more of the voting stock/equity of the corporation. A bond of qualifying individual is not required.

   Effective Date: 08/16/2000
   BQI's Bonding History

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Chief Deputy County Executive
Val F. Siebal, Department Director

January 25, 2012

Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Dear Mr. Crawshaw:

SUBJECT: LOCAL OVERSIGHT PROGRAM (LOP) SITE NO. G131; RO0001687
LIFETIME DOORS
8280 ELDER CREEK ROAD, SACRAMENTO, CA 95828

I have reviewed SCS Engineers (SCS), January 13, 2012, *Corrective Action Work Plan, Former Lifetime Doors Site, 8280 Elder Creek Road, Sacramento, California.*

SCS proposes to drill four soil borings in the vicinity of the 1,000-gallon UST. Soil samples will be collected from the boring for purposes of delineating the extent of soil impacts. Three of the four boring will be converted to temporary groundwater monitoring wells for purposes of determining if groundwater impacts are present.

The workplan is acceptable, with the following modification: in addition to TPHg, TPHd, and BTEX, laboratory analyses should include MTBE, TAME, DIPE, ETBE, TBA, and 1,2-DCA using EPA Method 8260B; and total lead.

By **April 27, 2012**, you are directed to implement the proposed scope of work, with the above modification, and submit the investigation report to our office. Reporting should be consistent with Central Valley Regional Water Quality Control Board (CVRWQCB), April 16, 2004, *Appendix A - Reports, Tri-Regional Board Staff Recommendation for Preliminary Investigations and Evaluation of Underground Tank Sites.*

Please contact me at (916) 875-8474 if you wish to discuss this further.

Sincerely,

Charley W. Langer
Environmental Specialist III
Site Assessment and Mitigation

CWL:ea

c: Steve Clements – SCS Engineers
Vera Fischer – CVRWQCB

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.LT1.DOC

SCS ENGINEERS

Corrective Action Work Plan

Former Lifetime Doors Site
8280 Elder Creek Road
Sacramento, California

Prepared for:

Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Presented by:

SCS ENGINEERS
3117 Fite Circle, Suite 108
Sacramento, California
(916) 361-1297

January 13, 2012
File No. 01210234.00 Task 1

Offices Nationwide
www.scsengineers.com

Corrective Action Work Plan

Former Lifetime Doors Site
8280 Elder Creek Road
Sacramento, California

Prepared for:

Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Presented by:

SCS ENGINEERS
3117 Fite Circle, Suite 108
Sacramento, California
(916) 361-1297

January 13, 2012
File No. 01210234.00 Task 1

Offices Nationwide
www.scsengineers.com

CERTIFICATION

This *Corrective Action Work Plan, Former Lifetime Doors Site, Sacramento, California* was prepared under my direct supervision. I am a California Professional Geologist, pursuant to Section 7850 of the Business and Professional Code.

PROFESSIONAL GEOLOGIST
STEVEN J. CLEMENTS
No. 6740
exp. 10/12
STATE OF CALIFORNIA

Steve Clements, PG
California Professional Geologist No. 6740

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Figure 1	Site Location Map
Figure 2	Site Plan With Proposed Boring Locations
Figure 3	Temporary Well Constructions Details

1.0 INTRODUCTION

The former Lifetime Doors, Inc. Site (Property or Site) is located at 8280 Elder Creek Road in Sacramento, California. The Property is an approximately 12 acre Site that was improved with the addition of two buildings in 1968. The larger building with 76,000 square feet of floor space was used for manufacturing and contains offices, a manufacturing area, a finished product warehouse, maintenance shop, and a parts room. The smaller building is a two sided warehouse and was used to store raw lumber. The remaining developed portions of the Property consists of paved and unpaved/gravel parking areas, driveways, a railroad spur, and a sawdust collection system. The eastern and southern sides of the Property are undeveloped. Land-use of the immediately adjacent properties is generally industrial and the Sacramento Army Depot is located immediately north of the Property. A channelized segment of Morrison Creek runs along the northern edge of the Property, between Sacramento Army Depot and the Property. A former Southern Pacific Railroad track borders the western boundary of the Property. A Site location map is provided as Figure 1.

Information obtained from previously conducted site assessments indicate that a closed-in-place 1,000-gallon underground storage tank (UST) and a 500-gallon UST are present at the Site. Both USTs are located within two feet of each other near the eastern side of the manufacturing building. SCS Engineers (SCS) conducted a site investigation in 2010 and identified petroleum-impacted soils in the vicinity of the USTs. In response to the petroleum-impacted soil discovered around USTs, the Sacramento County Environmental Management Department, Environmental Management Division (County) requested, in a letter dated October 28, 2011, that a Corrective Action Work Plan (Work Plan) be prepared to propose activities that will delineate the horizontal and vertical extent of soil and groundwater impacts (if any). The purpose of this Work Plan is to propose additional site investigative activities that address the extent of contamination as requested by the County.

2.0 BACKGROUND

2.1 PREVIOUS INVESTIGATIONS

The following environmental assessments have been recently conducted at the Site:

- **Phase I Environmental Site Assessment & Environmental Compliance Review** – URS Corporation, September 7, 2010.
- **Phase II Environmental Site Assessment** – URS Corporation September 13, 2010.
- **Results of Limited Phase II Environmental Site Assessment** – SCS Engineers, February 9, 2011.
- **Results of Due Diligence Environmental Site Assessment** – SCS Engineers, August 2, 2011.

Information from these assessments indicates that a 1,000-gallon regular gasoline UST was installed on-site in 1968 near the northeastern corner of the main manufacturing building. In addition, a Site Plan dated May 1968, depicts a 500-gallon diesel UST located approximately 2 feet south of the 1,000-gallon gasoline UST. The 1,000-gallon gasoline UST was reportedly closed-in-place by filling with concrete slurry in 1986.

SCS conducted a further assessment by physical methods (removal of the floor of the building) to confirm the presence of the USTs. The 1,000-gallon UST was found approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with grout and decommissioned in place, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, a further vertical and horizontal assessment of any impacts beneath the UST could not be made. Subsequently, the area to the south of the 1,000-gallon UST was investigated and loose fill material was encountered to a depth of approximately 5 feet below the ground surface (bgs). After this material was removed, an impression of the former 500-gallon UST was found and a petroleum related impact to soil was observed.

To assess the potential for environmental impacts in this area, SCS drilled Borings B-103 and B-104 in December 2010. For the soil sample from B-104 at 15.0 feet bgs, total petroleum hydrocarbons in the gasoline range (TPH-g) was detected at a concentration of 1,900 milligrams per kilogram (mg/kg), and TPH-diesel (TPH-d) was detected at a concentration of 990 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected at concentrations above the laboratory method reporting limit (MRL) in this boring at this depth. TPH-d was detected at a concentration above the MRL in the soil sample from boring B-104 at 10.0 feet bgs. For the soil sample from B-103 at 15.0 feet bgs, TPH-g and TPH-d were detected at concentrations of 1.7 mg/kg and 1.2 mg/kg, respectively. Ethylbenzene and total xylenes were also detected at concentrations above the MRL in this boring at this depth. Please note that the laboratory noted that the reported B-103 at 15.0 feet bgs and B-104 at 15.0 bgs detections of TPH-d were "hydrocarbons with lower-boiling point than typical diesel fuel".

2.2 SITE GEOLOGY

The Site lies in the Great Central Valley geomorphic province of Northern California. The Great Central Valley is a structural trough filled with a thick sequence of marine and non-marine sediments derived from the Sierra Nevada to the east and the Coast Range to the west (Norris and Webb, 1990). The uppermost strata at the Site were derived from alluvial deposits of clay, silt, sand, and gravel related to former courses of the Sacramento River and the American River during the late Pleistocene into the Holocene. The uppermost formation at the Site is the Victor (Pleistocene age, Old Alluvial Fan Deposits). In the vicinity of the Site, the Victor Formation is composed of 50 to 70 feet of a heterogeneous assemblage of sediments deposited by shifting streams (Shlemon, 1967).

Based on boring logs from previous investigations at the adjacent former Sacramento Army Depot facility (SCA, 2008), the Site is likely underlain by alluvial deposits of clay, silt, sand, and gravel. The groundwater flow direction in the uppermost aquifer is southerly, and depth to first

encountered groundwater is approximately 55 to 70 feet bgs (Plexis, 2010). At the present time, there are no groundwater monitoring wells at the Site, thus, groundwater flow direction at the Site has not yet been established.

3.0 PROPOSED ACTIVITIES

Based on the results of the previous Site investigation, SCS proposes to drill four soil borings in the vicinity of the 1,000-gallon UST. Soil samples will be collected from the boring for purposes of delineating the extent of soil impacts. Three of the four boring will be converted to temporary groundwater monitoring wells for purposes of determining if groundwater impacts are present. The soil boring and temporary wells will be abandoned in accordance with State and County regulations after the samples are collected. The proposed boring locations are shown in Figure 2.

A California Licensed (C-57) drilling subcontractor will be retained by the SCS. An SCS geologist or engineer will be onsite to oversee and document the drilling, well installation, and abandonment activities. SCS personnel will also conduct the soil and groundwater sampling activities. Prior to any drilling activities, required County well permits will be obtained by SCS.

3.1 PRE-DRILLING ACTIVITIES

Prior to drilling activities, SCS will obtain all necessary permits from the County to drill the soil borings and temporary wells proposed in this Work Plan. The approved well permits will be maintained on-site during field activities. The County will be notified at least 48 hours prior to the start of field activities to coordinate inspections, if required.

SCS will mark the proposed drilling locations and notify Underground Services Alert at least 48 hours prior to the start of field activities to locate underground activities. In addition, a private utility locating service will be contracted to conduct a further underground utility survey in the areas of investigation. The location of the boring will be moved with respect to any underground utilities as necessary to comply with the State of California Department of Occupational Safety and Health (CAL-OSHA) and SCS policy.

SCS will prepare a project-specific health and safety plan (HASP) prior to the start of field activities. The HASP will be maintained on site by SCS personnel. All personnel associated with the field investigation will be required to review and sign the HASP prior to the start of field activities. In addition, daily health and safety meetings will be conducted at the start of each day.

3.2 SOIL INVESTIGATION

Four soil borings will be drilled using 8-inch diameter (or other appropriate size) hollow stem augers. Based on the estimated depth to groundwater (55 to 70 feet bgs), it is anticipated that the borings will be drilled to depths of up to 70 feet bgs.

Soil samples will be collected from each boring using a split spoon sampler. Samples will be collected at 5 foot intervals to the total depth of the boring, at major lithological breaks, and as determined appropriate based on field observations. Upon collection soil samples will be characterized using the Unified Soil Classification System (USCS) and field screened for volatiles. Field screening will consist of bagging soil in a Zip-lock type bag, allowing it to sit for approximately 30 minutes in the sun if possible, then analyzing the vapor inside the bag using a portable Photo Ionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene.

Up to five soil samples from each boring will be submitted for laboratory analysis. The soil samples for analysis will be collected in brass or stainless steel sampling sleeves, and the ends will be covered with Teflon® Tape and then sealed with plastic caps. The soil samples will be collected and stored following Standard SCS Sampling Procedures and QA/QC Protocol. Soil sample sleeves will be secured for transport under standard chain of custody documentation in a sealed, chilled cooler and sent under Chain of Custody to a California Department of Public Health certified laboratory for all analyses requested.

3.3 GROUNDWATER INVESTIGATION

In addition to soil sampling, groundwater samples will be collected from three of the four borings using temporary monitoring wells. Temporary wells will be constructed in each borehole using 2-inch diameter schedule 40 PVC casing. The bottom 5-feet of the temporary casing will consist of 0.010-inch machine slotted schedule 40 PVC U-Pack® well screen (or similar pre-packed well screen). The U-Pack® well screen consists of an outer 3-inch diameter well screen and a centralized inner 2-inch diameter well screen. SCS will fill the annular space between the well screens with a filter pack consisting of new washed No. 2/16 sand (or equivalent). A typical well diagram is provided as Figure 3.

The temporary wells will be pumped or bailed until approximately 3 to 5 wetted well casing volumes, or at least 5 gallons of groundwater have been removed. Groundwater samples will then be obtained for laboratory chemical analysis, using a separate, clean, disposable bailer, and transferred to the appropriate containers supplied by the laboratory in accordance with SCS's Standard Sampling Procedures and QA/QC Protocol.

The water generated during development and sampling will be stored at the Site in 55-gallon United Nations/Department of Transportation (UN/DOT) approved drums, pending disposal.

Following collection of groundwater samples the casings and U-Pack® well screen will be removed and each borehole will be backfilled with a neat cement grout mixture. The grout will be mixed at a ratio of one 94-pound sack of cement per 5 to 6 gallons of water, per County regulations. Bentonite can be added to the cement mixture, but cannot exceed 6 percent by weight of cement used. The grout mixture will be placed in each boring using a tremie pipe, which will ensure a bottom to top fill. As the grout accumulates in the boring, the tremie pipe will be withdrawn until the surface of the grout reaches the ground surface. If the grout surface subsides greater than five feet bgs, then additional grout will be added until the grout reaches the ground surface. If the grout subsides less than five feet, then native soil can be used to fill the remaining volume.

3.4 LABORATORY ANALYSES

Up to five soil samples from each boring (20 samples total) and three groundwater samples will be delivered to the laboratory for analysis. All samples will be analyzed for TPH-g, TPH-d, and TPH-mo using EPA Method 8015 and for Volatile Organic Compounds (VOCs), including BTEX, using EPA Method 8260b.

3.5 REPORTING

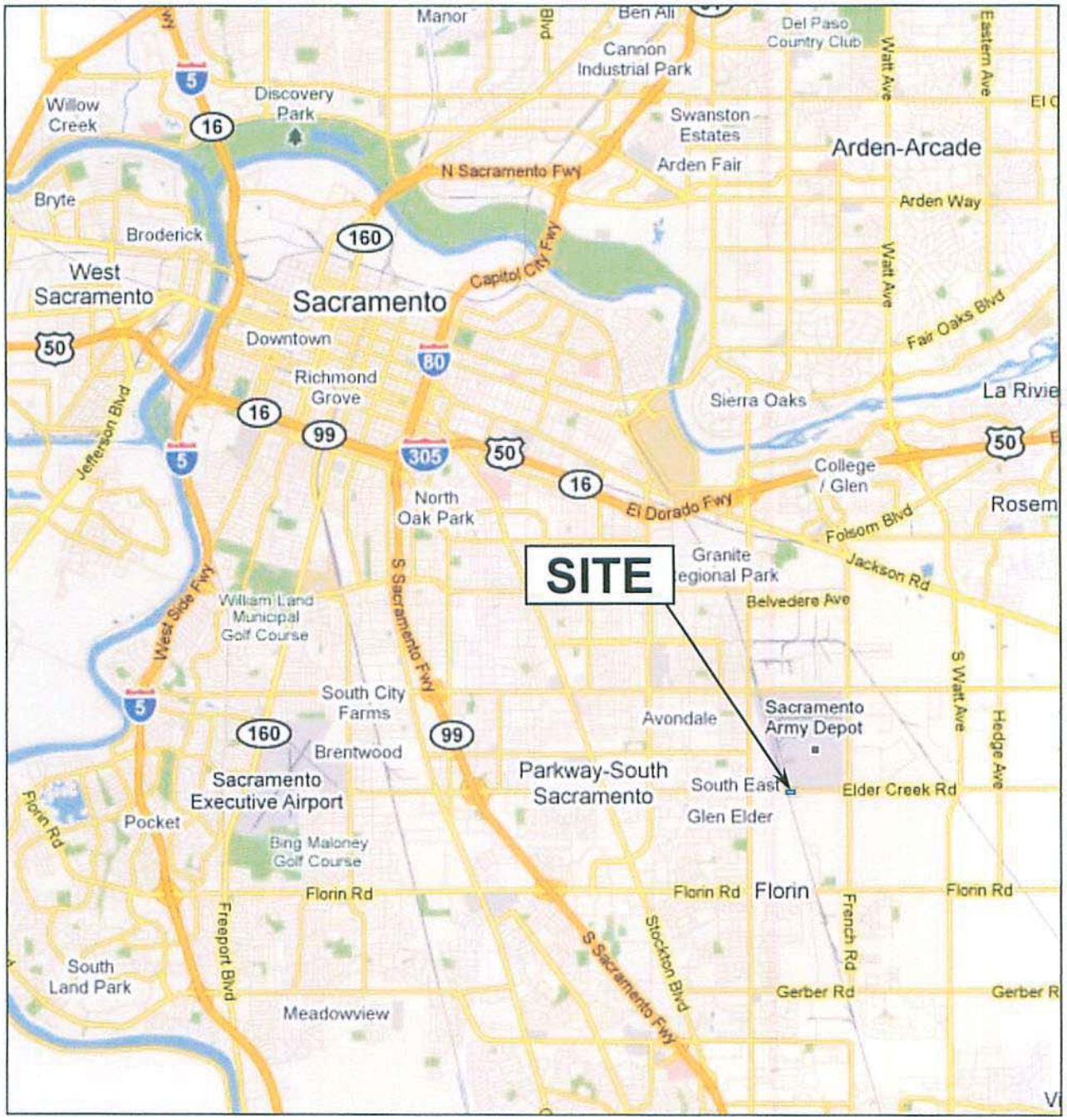
Following completion of field activities and upon receipt of analytical results SCS will prepare a written summary report. The report will include a summary of field activities, sample location maps, analytical data summary tables, boring logs, copies of the drilling permits, copies of analytical reports, and recommendations for further work if appropriate. Analytical results will also be compared to regulatory thresholds to help evaluate the severity of impacts if any.

In the October 2011 County letter, the County stated that in accordance with Title 23, quarterly status reports are to be submitted fifteen days following the end of each calendar quarter. The purpose of this investigation is to delineate the contamination and make recommendations regarding future monitoring and/or remediation. A schedule pertaining to the future activities and associated reporting in accordance with Title 23 will be included with the summary report and submitted to the County at the conclusion of this work.

3.6 SCHEDULE

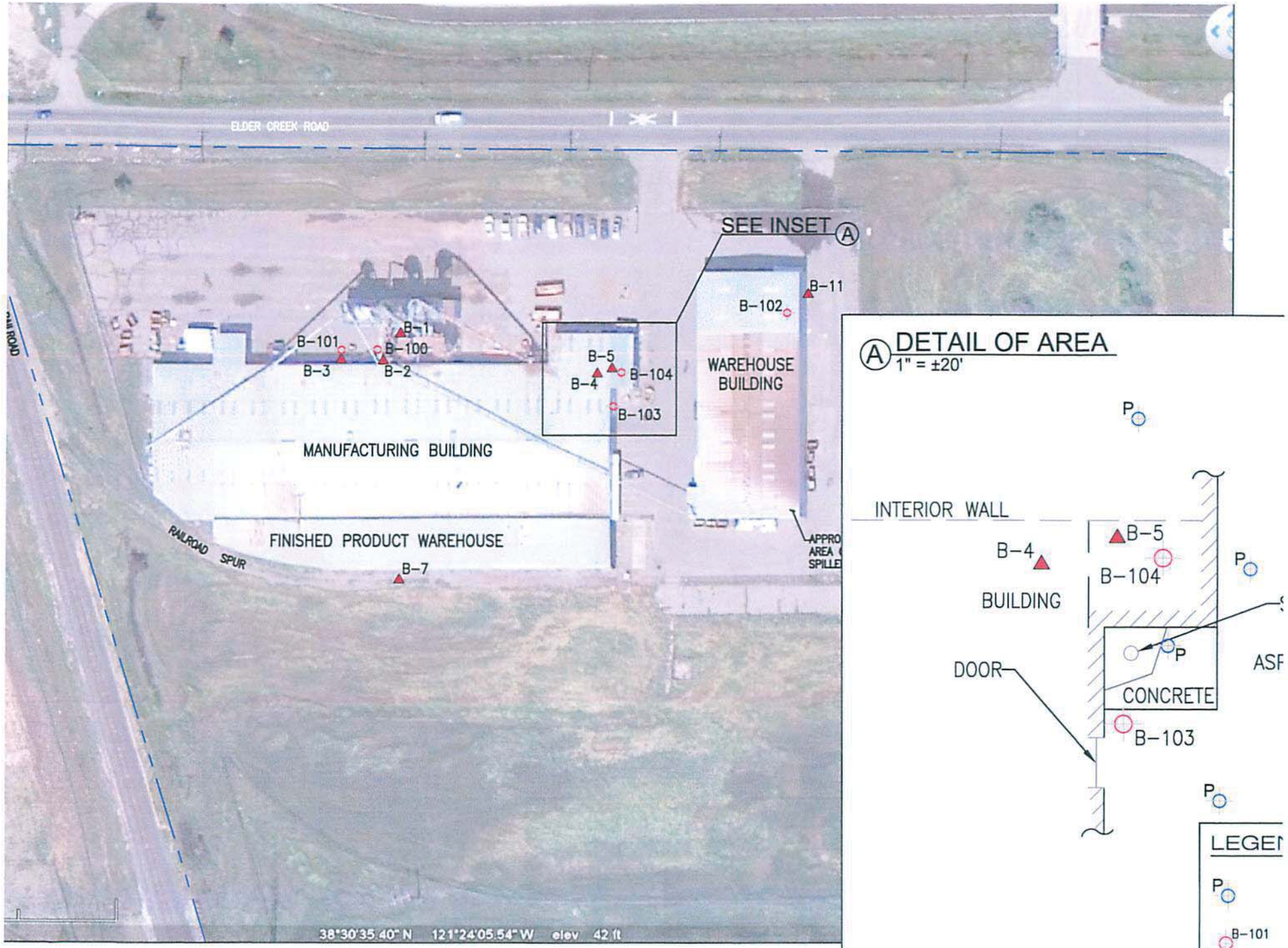
Field activities are scheduled to occur between January 30 and February 2, 2012. Laboratory analytical results will be completed approximately 2 weeks after the conclusion of field activities. The written summary report will be completed approximately 2 weeks after the laboratory results are received. Therefore, the anticipated delivery date of the summary report is March 1, 2012. Masonite, Inc. and the County will be kept apprised of any changes in this schedule.

FIGURES

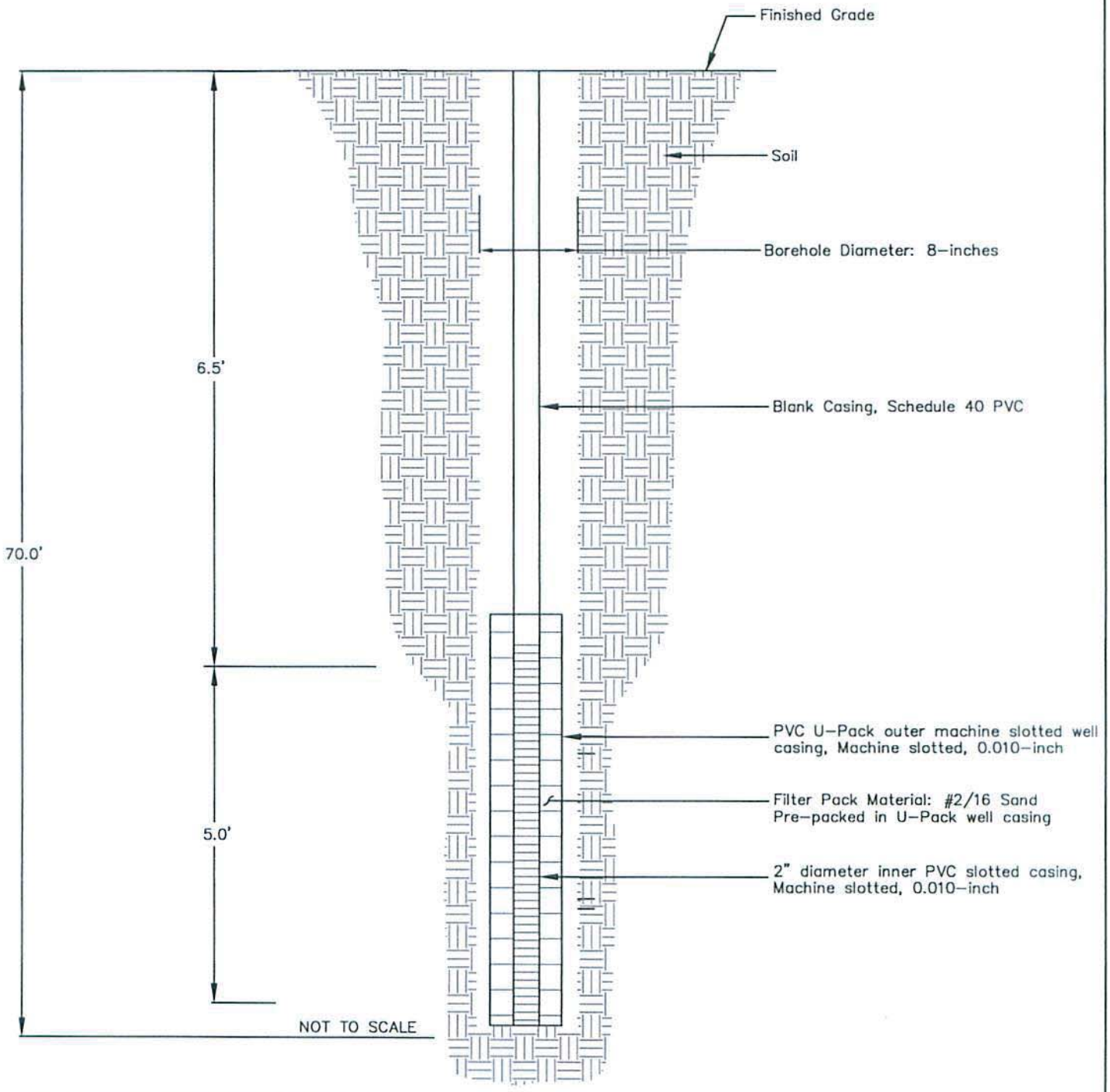


Source of Base Map: GOOGLE PROFESSIONAL 2011®

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS AND CONTRACTORS 3843 BRICKWAY BOULEVARD SUITE 208 SANTA ROSA, CA 95403 PH. (707) 546-9461 FAX (707) 544-5769	SITE LOCATION MAP	APPROX SCALE (MILES) 0 1 2
PROJ. NO: 012010234.00 / SOURCE: GooglePro 2010 / FILE: 10234.00 FIGURE 1	MASONITE LIFETIME DOOR FACILITY 8280 ELDER CREEK ROAD SACRAMENTO, CALIFORNIA	FIGURE 1
DATE: 1/9/12 / CREATED BY: JJM / APP. BY: CH		



SOURCE OF BASE MAP: AERIAL RASTER PHOTOGRAPH, GOOGLE EARTH PROFESSIONAL, 2010.
ALL LOCATIONS ARE APPROXIMATE; NOT A PRODUCT OF



NOTE: ALL DEPTHS ARE BELOW GROUND SURFACE (bgs)

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3843 BROKAW BOULEVARD SUITE 208
SANTA ROSA, CALIFORNIA 95403
PH. (707) 546-9461 FAX (707) 544-5769

PROJ. NO. 01210234.00	DWN. BY: JM	ACAD FILE: 10234.00_TMP-WELL DTL
DATE: 1/12/11	CHK. BY: CH	APP. BY: SJC

SHEET TITLE: PROPOSED TEMPORARY WELL DETAIL

PROJECT TITLE: MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

SCALE: N.T.S.

FIGURE NO. 3

Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

October 28, 2011

Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

CERTIFIED MAIL NO.: 7006 2150 0005 4531 3710

Dear Mr. Crawshaw:

SUBJECT: LOCAL OVERSIGHT PROGRAM (LOP) SITE NO. G131; RO0001687
LIFETIME DOORS
8280 ELDER CREEK ROAD, SACRAMENTO, CA 95828

On December 29, 2010, SCS Engineers (SCS) collected soil samples as part of a Phase II Site Assessment at the referenced facility. Petroleum hydrocarbons were detected in soil beneath a closed-in-place underground storage tank (UST).

I am sending this letter to notify you that this property has been placed into the "Local Oversight Program" (LOP). The LOP is administered in cooperation with the State Water Resources Control Board (SWRCB) and the Central Valley Regional Water Quality Control Board (CVRWQCB). As the owner of the tanks and property at the time of release, and pursuant to the State of California's *Underground Storage Tank Regulations* (California Code of Regulations, Title 23, Division 3, Chapter 6, Article 11, Section 2720), the addressee of this letter has been identified as one of the "Responsible Parties" (RPs) for corrective actions. A copy of the *Underground Storage Tank Regulations*, including the definition of "Responsible Party," is available on the Internet. Enclosed is a *Notice of Responsibility* (NOR) that informs you of your ability to a) petition/appeal any action (or inaction) by this Department; and b) request the designation of an administering agency.

Sections 25297.1 and 25297.15 of Chapter 6.7 of the Health and Safety Code require the primary or active responsible party (RP) to notify all current record owners of fee title to the site of a: cleanup proposal, site closure proposal, or local agency determination that no further action is required. These sections also require the local agency to accommodate responsible landowners' participation in the cleanup or site closure process, and to consider their input and recommendations.

The Health and Safety Code also requires that you submit a *Corrective Action Work Plan*; and Title 23 requires that submittals be no less frequent than once per each three months. <u>You are directed to submit, by **January 31, 2012,** a work plan proposing tasks sufficient to delineate the extent of soil and groundwater contamination, and evaluate the potential that groundwater has been impacted</u>. The workplan should be consistent with Central Valley Regional Water Quality Control Board (CVRWQCB), April 2004,

Appendix A – Reports, Tri-Regional Board Staff Recommendation for Preliminary Investigations and Evaluation of Underground Tank Sites, which is available online. Subsequent quarterly status reports (QSRs) are due **fifteen days following the end of each calendar quarter**.

Senate Bill 2004 created a fund for the reimbursement of costs associated with petroleum hydrocarbon releases from UST sites. The fund will reimburse qualified applicants for costs directly associated with the assessment/remediation which exceed $10,000. Neither the costs associated with upgrading the system nor any potential legal fees are reimbursable. An application package for the State Water Resources Control Board Cleanup Fund may be obtained from the State's Web Page. To complete the application, you may need information that the County maintains (e.g., operating permit). Feel free to contact me if you need assistance.

Please direct any future correspondence and reports to both:

Sacramento County EMD
Environmental Compliance Division
10590 Armstrong Avenue, Suite A
Mather, CA 95655
Attn: Mr. Charley W. Langer
Phone: (916) 875-8474
E-mail: langerc@saccounty.net

Regional Water Quality Control Board
Central Valley Region
10020 Sun Center Dr. #200
Rancho Cordova, CA 95670-6114
Attn: Vera Fischer

Please contact me if you are in need of assistance or have any questions or concerns.

Sincerely,

Charley W. Langer

Charley W. Langer
Environmental Specialist III
Site Assessment and Mitigation

CWL:se

Enclosure: Notice of Responsibility

c: Linda Taverner – SCS Engineers
Jenniffer Jorden – SWRCB
Vera Fischer – CVRWQCB

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Countywide Services Agency

Environmental Management Department

Environmental Compliance Division
Elise Rothschild, Chief

County of Sacramento

Bradley J. Hudson, County Executive
Bruce Wagstaff, Agency Administrator
Val F. Siebal, Department Director

STATE WATER RESOURCES CONTROL BOARD
STANDARD AGREEMENT NO. 11-010-250

NOTICE OF RESPONSIBILITY

Site Code:	G131	**RP Contact:**	Tom Crawshaw	
Site Name:	Lifetime Doors	**RP Entity:**	Masonite Corporation	
Address:	8280 Elder Creek Road	**Address:**	1955 Powis Road	
City/State/Zip:	Sacramento, CA 95828	**City/State/Zip:**	West Chicago, IL 60185	
First Reported:	08/02/2011	**Fed'l ( ) State (x)**	**Substance:**	gasoline

Pursuant to section 25297.1 and 25297.15 of the Health and Safety Code, you are hereby notified that the above site has been placed in the Local Oversight Program and the entity(ies) shown above, or on the attached list, have been identified as the party(ies) responsible for investigation and cleanup of the above site. Section 25297.15 further requires the primary or active Responsible Party to notify all current record owners of fee title before the local agency considers cleanup or site closure proposals or issues a closure letter. For purposes of implementing section 25297.15, this agency has identified BP/ARCO as the primary or active Responsible Party. It is the responsibility of the primary or active Responsible Party to submit a letter to this agency within 20 calendar days of receipt of this notice which identifies all current record owners of fee title. It is also the responsibility of the primary or active Responsible Party to certify to the local agency that the required notifications have been made at the time a cleanup or site closure proposal is made or before the local agency makes a determination that no further action is required. If property ownership changes in the future, you must notify this local agency within 20 calendar days from when you are informed of the change.

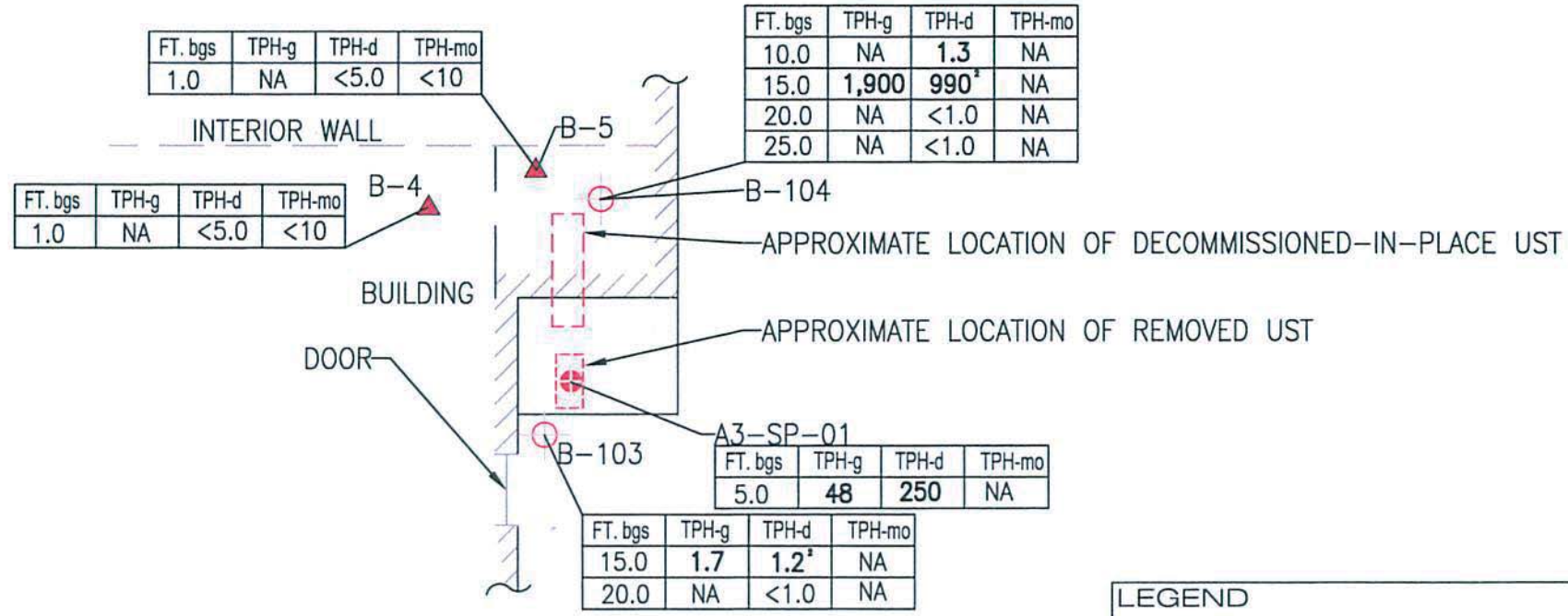
Any action or inaction by this local agency associated with corrective action, including responsible party identification, is subject to petition to the State Water Resources Control Board. Petitions must be filed within 30 days from the date of the action/inaction. To obtain petition procedures, please FAX your request to the State Water Board at (916) 341-5806 or telephone (916) 341-5752.

Pursuant to section 25296.10(c)(6) of the Health and Safety Code, a responsible party may request the designation of an administering agency when required to conduct corrective action. Please contact this office for further information about the site designation process.

Signature	(916) 875-8400 Telephone Number	10/27/11 Date

BIM:CWL:se

W:\DATA\LANGERC\8280 ELDER CREEK\8280 ELDER CREEK.NOR.DOC



FT. bgs	TPH-g	TPH-d	TPH-mo
1.0	NA	<5.0	<10

FT. bgs	TPH-g	TPH-d	TPH-mo
1.0	NA	<5.0	<10

FT. bgs	TPH-g	TPH-d	TPH-mo
10.0	NA	**1.3**	NA
15.0	**1,900**	**990**[2]	NA
20.0	NA	<1.0	NA
25.0	NA	<1.0	NA

FT. bgs	TPH-g	TPH-d	TPH-mo
5.0	**48**	**250**	NA

FT. bgs	TPH-g	TPH-d	TPH-mo
15.0	**1.7**	**1.2**[2]	NA
20.0	NA	<1.0	NA

LEGEND

B-101 — BORING LOCATION

AX-XX-XX — SOIL SAMPLE LOCATION

B-5 — FORMER BORING LOCATION (URS, 2010)

TPH-g, TPH-d & TPH-mo RESULTS, mg/kg			
FT. bgs	TPH-g	TPH-d	TPH-mo
XX	XX	XX	XX

NA = NOT ANALYZED

[1] *HYDROCARBONS ARE HIGHER-BOILING POINT THAN TYPICAL DIESEL FUEL.*
[2] *HYDROCARBONS ARE LOWER-BOILING POINT THAN TYPICAL DIESEL FUEL.*

N

APPROXIMATE SCALE IN FEET

20 0 20

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3843 BRICKWAY BOULEVARD SUITE 208
SANTA ROSA, CALIFORNIA 95403
PH. (707) 546-9461 FAX. (707) 544-5769

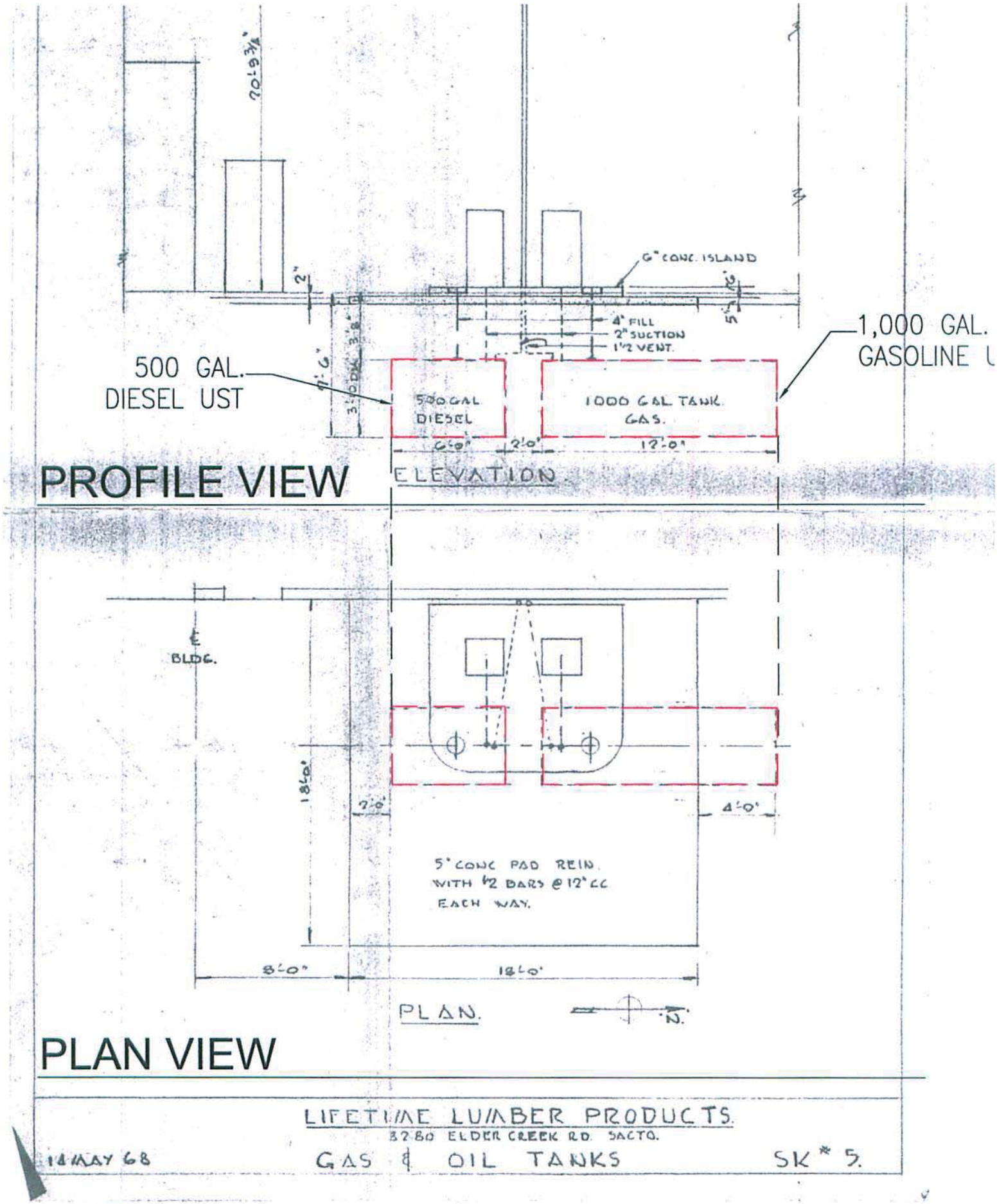
PROJ. NO. 01210234.00	DWN. BY: JM	ACAD FILE: 10234.00_UPDATE 6-27-11
DATE: 6/27/11	CHK. BY: SK	APP. BY: SK

SHEET TITLE: PARTIAL SITE PLAN: AREA 3 WITH TPH RESULTS

PROJECT TITLE: MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

SCALE: (AS SHOWN)

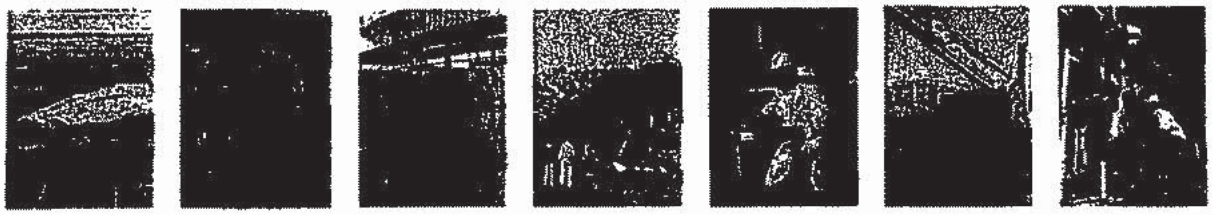
FIGURE NO. 5a



5b HISTORICAL SITE PLAN - AREA 3

ATTACHMENT 7
DUE DILLIGENCE REPORT

SCS ENGINEERS



Results of Due Diligence Environmental Site Assessment

Lifetime Doors, Inc. – California Cut Stock Facility
8280 Elder Creek Road, Sacramento, California
(APN 064-010-028)

Presented to:

Sacramento County Environmental Management Department, Environmental Compliance Division
10590 Armstrong Avenue, Suite A
Mather, CA 95655

Presented by:

SCS ENGINEERS
3843 Brickway Boulevard, Suite 208
Santa Rosa, CA 95403

August 2, 2011
File No. 01210234.00

Offices Nationwide
www.scsengineers.com

Results of Due Diligence Environmental Site Assessment

Prepared for:

Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Prepared by:

SCS ENGINEERS
3843 Brickway Boulevard, Suite 208
Santa Rosa, CA 95403

August 2, 2011
File No. 01210234.00

LIMITATIONS AND DISCLAIMER

This document has been prepared on behalf of the Masonite Corporation with specific application to a due diligence environmental Site assessment for the property located at 8280 Elder Creek Road, Sacramento, California, Sacramento County Assessor's Parcel Number (APN) 064-010-028 (Site). Field activities and sampling were conducted in accordance with the care and skill generally exercised by reputable professionals, under similar circumstances, in this or similar localities. No other warranty, either expressed or implied, is made as to the professional advice presented herein.

Access to the Site and the surrounding area may be limited by buildings, roadways, underground and above-ground utilities and other miscellaneous Site and Site vicinity features. Therefore, the field exploration and points of subsurface observation may have been somewhat restricted.

Changes in Site use and conditions may occur due to variations in rainfall, temperature, water usage, or other factors. Additional information that was not available to the consultant at the time of this investigation or changes that may have occurred on the Site or in the surrounding area may result in modification to the Site that would impact summary presented herein. This document is not a legal opinion.

We look forward to continuing to work with you on this project and trust this document provides the information you require at this time. If you have any questions or need additional information, please call SCS at (707) 546-9461.

Linda Taverner
Vice President

8.2.11
Date

PROFESSIONAL GEOLOGIST
STEPHEN KNUTTEL
No. 7674
CALIFORNIA

Stephen Knuttel, PG 7674
CA registration fees paid through 07/31/13

2. AUG., 2011
Date

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Figure No.

1 Site Location Map
2 Site Plan with Boring Locations
3a Partial Site Plan: Area 1 with Pre-removal TPH Results
3b Partial Site Plan: Area 1 with Post-removal TPH Results
4 Partial Site Plan: Area 2 with TPH Results
5a Partial Site Plan: Area 3 with TPH Results
5b Partial Site Plan: Area 3, Former UST As-built Plan

Table No.

1 Soil Analytical Results - Petroluem Hydrocarbons

Appendices

A Unified Soil Classification System Chart and Boring Log Legend with Boring Logs for B-100 through B-104

B Kiff Analytical LLC, Reports:
Report #75915, dated January 6, 2011
Report #75916, dated January 5, 2011, with Subcontractor Laboratory Report Attachment, Calscience Environmental Laboratories, Inc., Analytical Report, dated January 7, 2011
Report # 77645, dated June 7, 2011
Report # 77646, dated June 6, 2011
Report # 77648, dated June 6, 2011

C UST Documentation
Application for Permit to Operate Underground Storage Tank (Documented UST)
Consolidated Application for Authority to Remove Underground Storage Tank (Documented UST)
Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report

LIST OF ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and xylenes
CDPH	California Department of Public Health
CHHSL	California Health Human Screening Level
COC	chemical of concern
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESLs	Environmental Screening Levels
HREC	Historical Recognized Environmental Condition
Kiff	Kiff Analytical, LLC
mg/kg	milligrams per kilogram
msl	mean sea level
MCL	Maximum Contamination Level
MRL	Method Reporting Limit
MRO	Motor Oil Range Organics
MTBE	methyl tert butyl ether
QA/QC	Quality Assurance/Quality Control
REC	Recognized Environmental Condition
RWQCB	Regional Water Quality Control Board
SAD	Sacramento Army Depot
SCEMD-ECD	Sacramento County Environmental Management Department-Environmental Compliance Division
SCS	SCS Engineers
SVOC	semi-volatile organic compound
TCE	trichloroethene
TPH-d	total petroleum hydrocarbons in the diesel range[1]
TPH-g	total petroleum hydrocarbons in the gasoline range[2]
TPH-mo	total petroleum hydrocarbons in the motor oil range
µg/L	micrograms per liter
UN/DOT	United Nations/Department of Transportation
URS	URS Corporation
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound

[1] Referred to as diesel range organics concentrations (DRO) by URS
[2] Referred to as motor oil range organics concentrations (MRO) by URS

1 INTRODUCTION

SCS Engineers (SCS) is pleased to present the results of a limited Phase II Environmental Assessment at the former Lifetime Doors, Inc. - California Cut Stock Facility. The facility is located at 8280 Elder Creek Road [County Assessor's Parcel Number (APN) 064-010-028] in Sacramento, California (Site). The Site topography is gently southwest sloping (USGS, 1992), at an approximate elevation of 35 feet above mean sea level (msl). The Site is located south of the former Sacramento Army Depot (SAD) and east of the Union Pacific Railroad Tracks. The general setting of the Site is shown on Figure 1; Site specific details are shown on Figure 2.

2 SCOPE OF WORK

The scope of work of this investigation has been grouped into "documented conditions" and "unknown conditions". The scope of work of "documented conditions" was based on information provided to SCS in the Phase I and Phase II Environmental Site Assessment (ESA) reports by URS Corporation (URS), dated September 7 and 13, 2010, respectively (URS, 2010a, 2010b). Additional information can be found in SCS's report "Results of Limited Phase II Environmental Site Assessment" dated February 9, 2011. The scope of work of "unknown conditions" was based upon SCS's subsequent review of agency files and on-Site discovery of a map showing two former underground storage tanks (USTs) near the northwest corner of the Manufacturing Building. This information was not available at the time of the URS Phase II ESA.

These areas of interest are designated as:

Railroad Spur – Documented – Sawdust Clean-up and Capping of Sewer Pipe
Area 1 – Documented – Former Shed Location;
Area 1 – Documented – Former Blower Stand Location;
Area 2 – Documented – Suspected Former UST Location;
Area 3 – Documented – UST, decommissioned in place; and,
Area 3 – Unknown – UST, unknown removal status.

3 BACKGROUND

The former Lifetime Doors Facility is located at 8280 Elder Creek Road in Sacramento, California. The 12 acre Site was improved with the addition of two buildings in 1968. A larger building with 76,000 square feet of floor space was used as a manufacturing building and contains offices, a manufacturing area, a finished product warehouse, a maintenance shop and a parts room. The smaller building is a two sided warehouse to store raw lumber. The remainder of the developed property consists of paved and unpaved / gravel parking areas, driveways, a railroad spur, open undeveloped areas along the east and south sides of the property, and a sawdust collection system. Land-use of the immediately adjacent properties is generally industrial. The SAD is located immediately north of the Site. A channelized segment of

Morrison Creek runs along the northern edge of the Site, between SAD and the Site. A former Southern Pacific Railroad track borders the western boundary of the Site.

Groundwater beneath the SAD site was impacted by its former activities, and is primarily in two localized plumes – a smaller plume beneath in the west central portion of the site, and a larger one beneath the southwest corner of the site. The larger plume, referred to as the South Post Plume, extends off-site, south/southwest of the South Post Burn Pits. Five volatile organic chemicals (VOCs) are considered chemicals of concern (COC), and one, trichloroethene (TCE) was detected in MW-1024 located immediately west of the northwestern edge of the Site, at concentrations of 9.2 and 8.5 micrograms per liter (µg/L) during the Winter 2010 and Spring 2010 sampling events, respectively. The California Code of Regulations Maximum Contaminant Level (MCL) is 5 µg/L (Plexis, 2010).

URS conducted a Phase I ESA (URS, 2010a) and determined potential on-Site and off-Site Recognized Environmental Conditions (RECs) and Historical Recognized Environmental Conditions (HRECs). Based on their findings, a limited Phase II investigation was conducted (URS, 2010b). The approximate location of the drilling and sampling and summary of analytical results are shown on Figure 2 (URS, 2010b). URS concluded that their investigation revealed target analyte concentrations exceeding their respective California Human Health Screening Level (CHHSL) and State of California Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for commercial/industrial soils. URS concluded "the Site appears to have been adversely impacted by the previously identified environmental concerns and remedial activities to remove the impacted soils is warranted at this time" (URS, 2010b).

At the request of Masonite, SCS conducted a Site reconnaissance, reviewed URS Phase I and Phase II documentation, and prepared a proposal for a Limited Phase II ESA to further assess impacts to soil and groundwater, if encountered. Borings B-100, B-101 (Area 1), and B-102 (Area 2) were drilled at locations of "documented conditions". During the SCS Site reconnaissance a drawing was discovered that showed the location of a diesel UST beneath a building addition to the northeastern corner of the Manufacturing Building, and immediately north of the location of a former gasoline UST outside the building footprint. Borings B-103 and B-104 (Area 3) were drilled to assess the "unknown condition". The approximate locations of the borings are shown on Figure 2.

In addition to the findings from SCS's file review, SCS addressed two environmental concerns at the facility. These were to cap an open sewer drain and remove a limited pile of impacted soil identified in URS's boring B-7.

4 SITE GEOLOGY

The Site lies in the Great Central Valley geomorphic province of Northern California. The Great Central Valley is a structural trough filled with a thick sequence of marine and non-marine sediments derived from the Sierra Nevada to the east and the Coast Range to the west (Norris and Webb, 1990). The uppermost strata at the Site were derived from alluvial deposits of clay,

silt, sand, and gravel related to former courses of the Sacramento River and the American River during the late Pleistocene into the Holocene. The uppermost formation at the Site is the Victor (Pleistocene age, Old Alluvial Fan Deposits). In the vicinity of the Site, the Victor Formation is composted of 50 to 70 feet of a heterogeneous assemblage of sediments deposited by shifting streams (Shlemon, 1967).

Based on boring logs from previous investigations at the adjacent former SAD facility (SCA, 2008), the Site is underlain by alluvial deposits of clay, silt, sand, and gravel. The groundwater flow direction in the uppermost aquifer is south-southwest, and depth to first encountered groundwater is approximately 70 feet below ground surface (bgs) (Plexis, 2010). At the present time, there are no groundwater monitoring wells at the Site, thus, groundwater flow direction at the Site has not yet been established.

5 SUBSURFACE INVESTIGATION, DRILLING AND SAMPLING

Prior to drilling, the Site was marked by SCS's technician for USA alert notification. A permit was obtained from Sacramento County Environmental Management Department-Environmental Compliance Division (SCEMD-ECD). On December 29, 2010, Clear Heart Drilling, LLC, of Santa Rosa, California, drilled and sampled five soil borings under the supervision of SCS. The SCS boring and sampling locations, in relationship to URS boring and sampling locations are shown on Figure 2.

The borings were drilled with 4-inch diameter solid stem augers, and drilled to depths ranging from 11.5 to 26.5 feet bgs. Soil samples were collected from each boring using a California split spoon sampler. Subsurface soil samples were collected at a minimum of five feet intervals from borings B-100 through B-104, and select samples were submitted for laboratory analyses. All soil samples were collected in stainless steel sampling sleeves and the ends were covered with Teflon® sheets and then sealed with plastic caps. Copies of the boring logs are presented in Appendix A.

The soil samples were collected following SCS Standard Soil and Groundwater Sampling Procedures and Quality Assurance/Quality Control (QA/QC) Protocol. Soil samples were secured for transport under standard chain of custody documentation in a sealed, chilled cooler and sent to Kiff Analytical, LLC (Kiff), a laboratory certified by the California Department of Public Health (CDPH) for all requested analyses.

After the borings were drilled, they were backfilled with cement-bentonite grout as designated by the C-57 licensed drilling contractor, Clear Heart Drilling and under the supervision of the SCEMD-ECD. The surface expression of the borings were then repaired with asphalt patch and brought back to their original state to the extent feasible.

All drilling-derived soil generated during drilling and drilling-derived water generated during decontamination was stored at the Site in a 55-gallon United Nations/Department of

Transportation (UN/DOT) approved drum. All investigation derived wastes will be disposed of properly in the near future.

6 LABORATORY ANALYSIS

Soil samples were selectively analyzed for the following constituents:

- total petroleum hydrocarbons in the diesel range(TPH-d) and motor oil range (TPH-mo) by EPA Method 8015M with silica gel preparation;
- total petroleum hydrocarbons in the gasoline range (TPH-g), benzene, toluene, ethylbenzene and total xylenes (BTEX), and methyl tert-butyl ether (MTBE) by EPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by EPA Method 8270; and,
- total lead by EPA Method 6010.

7 AREAS OF CONCERN

7.1 RAILROAD SPUR – DOCUMENTED – SAWDUST CLEAN-UP AND CAPPING OF OPEN SEWER PIPE

During the December 29, 2010 investigation, SCS addressed two environmental concerns at the facility. These concerns were to cap an open sewer drain in the southeast corner of the main Manufacturing Building, and to remove a limited pile of impacted soil identified in the URS boring B-7.

With respect to the open sewer drain, SCS's technician removed the concrete around the pipe and cut the end of the sewer pipe below grade. The pipe was then capped and the pipe was covered with concrete.

With respect to the impacted sawdust near URS boring B-7 (Figure 2), SCS's technician hand-shoveled the impacted soil around the boring location into a drum. The drum was sealed and labeled. A confirmation sample (B-07 @ 2.0') was then collected below the removal area. The confirmation soil sample was collected in a stainless steel sampling sleeve and the ends were covered with Teflon® sheets and then sealed with plastic caps. The confirmation sample was secured for transport under standard chain of custody documentation in a sealed, chilled cooler and sent to Kiff for the requested analyses.

7.2 AREA 1 – DOCUMENTED – FORMER SHED LOCATION

URS boring samples (B-3 @ 1.0' and 3.0') contained diesel range organics concentrations, or total petroleum hydrocarbons in the diesel range (TPH-d), ranging from 470 to 640 milligrams per kilogram (mg/kg) and oil range organics concentrations, or total petroleum hydrocarbons in the motor oil range (TPH-mo) ranging from 5,300 to 6,200 mg/kg. SCS boring B-101 was

drilled along the northern side of a small shed on the northern side of the Manufacturing Building to assess the lateral and vertical impacts to soil adjacent to URS boring B-3. The soil samples submitted for laboratory analytical testing from borings B-101 at 2.5' and 5.0' in Area 1 did not contain COCs, (TPH-d and TPH-mo), at or above the laboratory method reporting limits (MRLs). Soil sample locations and their respective results are presented on Figure 3a.

Based on the results from SCS boring B-101 and URS boring B-1, a limited soil impact was documented to a depth of approximately 3.5 feet bgs. These impacted soils were removed from this area by use of a backhoe on June 1, 2011. Visually observed stained soils were removed and soil samples A1-01 though A1-05 were collected as confirmation samples when soil removal activities were deemed complete based on field observations. Visually observed stained soils were, however, noted under the building foundation which could not be removed.

7.3 AREA 1 – DOCUMENTED – FORMER BLOWER STAND LOCATION

URS boring samples B-2 @ 1.0' and 3.0' contained TPH-d[3] concentrations ranging from 170 to 830 mg/kg and TPH-mo[3] concentrations ranging from 1,700 to 13,000 mg/kg. SCS boring B-100 was drilled along the northern side of the blower stand on the north side of the Manufacturing Building to assess the lateral and vertical impacts to soil adjacent to URS boring B-2. SCS soil samples submitted for laboratory analytical testing from B-100 did not contain COCs at or above the method reporting limits (MRL). Soil sample locations and their respective results are presented on Figure 3a.

Based on the results from SCS boring B-100 and URS boring B-2, a limited soil impact was documented to a depth of approximately 3.5 feet bgs. These impacted soils were removed from this area by use on a backhoe on June 1, 2011 Visually observed stained soils were removed and soil samples A1-06 though A1-10 were collected as confirmation samples when soil removal activities were deemed complete based on field observations.

7.4 AREA 2 – DOCUMENTED – SUSPECTED FORMER UST LOCATION

Boring B-102 was drilled at the northeastern portion of the Warehouse Building (Figure 4), at the location of a suspected former UST location, in order to verify anomalous soil impacts noted in URS boring B-11, and to assess potential impact to groundwater, if encountered within 25 feet bgs.

7.5 AREA 3 – DOCUMENTED – UST, DECOMMISSIONED-IN-PLACE

Soil sample locations and their respective results are presented on Figure 5a. SCS Boring B-104 was drilled adjacent to the mapped location of a former UST inside the building footprint. This

3 URS referred to TPH-d as diesel range organics (DRO) and TPH-mo as oil range organics (MRO).

UST was identified as containing gasoline fuel[4] (Figure 5b; Appendix C). Boring B-104 was drilled near URS boring B-4 and B-5 which had been sampled by URS to assess the shallow soils underlying oil stains on the overlying concrete floor. Soil sample B-104 @ 15.0' contained total petroleum hydrocarbons in the gasoline range (TPH-g) at 1,900 mg/kg, and TPH-d at 990 mg/kg, and detections of BTEX.

SCS conducted further assessment by physical methods (removal of the floor of the building) to confirm the presence of the UST. The UST was found approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with grout and decommissioned in place, consistent with its documentation (Appendix C); however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, further vertical and horizontal assessment of an impact under the UST could not be made.

7.6 AREA 3 – UNKNOWN – UST, UNKNOWN REMOVAL STATUS

During the SCS Site reconnaissance a drawing was discovered that showed the location of a UST south of the known UST in the northeastern corner of the Manufacturing Building (Figure 5b). Boring B-103 was drilled to assess the "unknown condition" at the northeastern corner of the Manufacturing Building adjacent to the location of the northern closed-in-place UST inside the building footprint. (Figure 5a) This southern UST was identified as a containing diesel fuel. The soil samples submitted for laboratory analytical testing from B-103 contained COCs above the laboratory MRLs in sample B-103 @ 15.0' which contained TPH-g at 1.7 mg/kg and TPH-d at 1.2 mg/kg. The laboratory footnoted the reported detection of TPH-d as "hydrocarbons with lower-boiling point than typical diesel fuel". The soil samples from B-103 @ 10.0' also contained TPH-d at 1.3 mg/kg. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons with higher boiling point than typical diesel fuel."

Because of the unknown conditions of this southern UST, SCS conducted further assessment by physical methods to confirm the presence or absence of the UST. After the assessment of the known northern UST was completed, the area to the south of the decommissioned-in-place UST was investigated and loose fill material was encountered to a depth of approximately 5 feet bgs. After this material was removed, an impression of a former UST was found and a petroleum related impact to soil was observed.

8 ANALYTICAL RESULTS

The soil sample analytical results from the December 2010 and June 2011 investigations are presented in Figures 3 through 5. Results are summarized in Table 1 and discussed below. Copies of Laboratory analytical reports are presented in Appendix B.

4 On both the UST application and closure permit, "diesel" is crossed out and gasoline is indicated on the forms.

8.1 RAILROAD SPUR – DOCUMENTED – SAWDUST CLEAN-UP AND CAPPING OF OPEN SEWER PIPE

The confirmation soil sample B-7 @ 2.0' (Figure 2) did not contain the COCs which include SVOCs and TPH-mo at or above the laboratory method reporting limit (MRLs) except for TPH-d at 4.1 mg/kg. The laboratory footnoted the reported detection as "hydrocarbons with higher boiling point than typical diesel fuel."

8.2 AREA 1 – DOCUMENTED – FORMER SHED LOCATION

Results of the soil samples from Area 1 after recent soil removal action are indicated on Figure 3b. The soil samples submitted for laboratory analytical testing from A-01 @ 1.5' did not contain COCs at or above the MRL (Table 1). The soil samples submitted for laboratory analytical testing from A-01, A-02, A-04, and A-05 contained TPH-d concentrations ranging from 2.3 to 5,100 mg/kg and oil range organics concentrations ranging from 490 to 11,000 mg/kg.

8.3 AREA 1 – DOCUMENTED – FORMER BLOWER STAND LOCATION

Results of the soil samples from Area 1 after recent soil removal action are indicated on Figure 3b. The soil samples submitted for laboratory analytical testing from A-07 @ 2.0', A-09 @ 2.0' and A-10 @ 2.0' did not contain COCs at or above the MRLs (Table 1). The soil samples submitted for laboratory analytical testing from A-08 @ 2.0' contained only a minor TPH-d concentration of 1.6 mg/kg. The soil samples submitted for laboratory analytical testing from A-06 @ 3.5' contained a TPH-d concentration of 360 mg/kg and a TPH-mo concentration of 1,700 mg/kg.

8.4 AREA 2 – DOCUMENTED – SUSPECTED FORMER UST LOCATION

Previous soil sample locations and their respective results are presented on Figure 4. The soil samples submitted for laboratory analytical testing from B-102 in Area 2 from the December 2010 sampling did not contain COCs at or above the laboratory MRLs, except for 6.3 mg/kg of TPH-d and 17 mg/kg of TPH-mo in B-102 @ 15.0'. The laboratory footnoted the reported detection of TPH-d as "hydrocarbons are higher-boiling point than typical diesel fuel".

8.5 AREA 3 – DOCUMENTED – UST, DECOMMISSIONED-IN-PLACE

Soil sample locations from the December 2010 investigation and their respective results are presented on Figure 5a. Soil sample B-104 @ 15.0' contained TPH-g at 1,900 mg/kg, and TPH-d at 990 mg/kg, and detections of BTEX at 0.89, 8.9, 31, and 180 mg/kg, respectively. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons with higher boiling

point than typical diesel fuel." The other soil samples (B-104 @ 20' and B-104 @ 25') submitted for laboratory analytical testing from B-104 did not contain COCs above the MRLs.

8.6 AREA 3 – UNKNOWN – UST, UNKNOWN REMOVAL STATUS

Soil sample locations from the December 2010 investigation and their respective results are presented on Figure 5a. The soil samples submitted for laboratory analytical testing from B-103 did not contain COCs at or above the laboratory MRLs, except for B-103 @ 15.0' which contained TPH-g at 1.7 mg/kg and TPH-d at 1.2 mg/kg. The laboratory footnoted the reported detection of TPH-d as "hydrocarbons with lower-boiling point than typical diesel fuel". The results from a soil sample collected immediately below the UST impression (A3-SP-01) indicated concentrations of TPH-g at 48 mg/kg and TPH-d at 250 mg/kg. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons are lower-boiling than typical diesel fuel."

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 RAILROAD SPUR – DOCUMENTED – SAWDUST CLEAN-UP AND CAPPING OF OPEN SEWER PIPE

As the confirmation soil sample B-7 @ 2.0' did not contain COCs at or above the laboratory MRL, except for the minor detection of TPH-d at 4.1 mg/kg which was noted as higher boiling point hydrocarbons and is typical of railroad conditions, SCS recommends no further investigation or cleanup in this area. As such, SCS will arrange for proper disposal of the drummed soil that was removed from this area along with soils that were removed during the due diligence cleanup action already started in Area 1.

9.2 AREA 1 – DOCUMENTED – FORMER SHED LOCATION

Results of the post removal soil samples are indicated on Figure 3b. The soil sample results indicated that additional impacted soils are present on the north and south sides of the removal area and at the bottom of the removal areas adjacent to the building. Some additional removal should be conducted in this location. Removed soils have been stockpiled and proper off-Site disposal is pending.

9.3 AREA 1 – DOCUMENTED – FORMER BLOWER STAND LOCATION

Results of the post removal soil samples are indicated on Figure 3b. The soil sample results indicated that additional impacted soils are present at the bottom of the removal area. Some additional removal should be conducted in this location. Removed soils have been stockpiled and proper off-Site disposal is pending.

9.4 AREA 2 – DOCUMENTED – SUSPECTED FORMER UST LOCATION

The soil samples submitted for laboratory analytical testing from B-102 in Area 2 did not contain COC's at or above the laboratory MRLs, except for 6.3 mg/kg of TPH-d and 17 mg/kg of TPH-mo in the sample B-102 @ 15.0'. These detections are just above the laboratory MRLs of 1.0 and 10 mg/kg, respectively (Table 1) and are below the ESLs for TPH (middle distillates) of 180 mg/kg and TPH (residual fuels) of 2,500 mg/kg (SFBRWQCB, 2008). The soil samples submitted from the adjacent slanted URS boring B-11 @ 11.5' and 17.0' (approximate sample depths of 10' and 15', respectively) also contained reported detections of these COCs. Based on the results from this investigation and those of URS (2010b), it appears that there is a minor impact of petroleum hydrocarbons at 15 feet bgs in this location; however, the source of the impact is not clear based on the available information at this time. Given that a documented source has not been identified in this area, and the detected hydrocarbon impact at 15 feet is limited based on the non-detect results at 20 feet bgs, this impact is not likely to contact groundwater. Groundwater is reported to occur at about 70 feet bgs in the Site vicinity and approximately 50 feet of soil are present between the documented impact and groundwater. As such, SCS recommends no further investigation or cleanup in this area.

9.5 AREA 3 – DOCUMENTED – UST, DECOMMISSIONED-IN-PLACE

The soil samples submitted for laboratory analytical testing from boring B-104 (B-104 @ 15.0') contained a TPH-g concentration of 1,900 mg/kg along with other gasoline related COCs. Because of the limited nature of the initial December 2010 investigation, deeper samples were not analyzed for gasoline constituents, however, deeper samples were analyzed for heavier hydrocarbons and both samples at 20 and 25 feet bgs were below laboratory MRLs. A decreased soil impact was also observed during the logging of the borehole (Appendix A).

Because of the documented concentrations of petroleum related hydrocarbons above the ESLs of 180 mg/kg (SFBRWQCB, 2008), SCS recommended further assessment by physical methods (removal of the floor of the building), to confirm the presence of the UST and further assessment of the lateral and vertical extent of soil impacts around B-104, (TPH-g at 1,900 mg/kg at 15 feet bgs). SCS conducted assessment by removal of the floor of the building to confirm the presence of the UST in June 2011. The UST was found approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with grout, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, further vertical and horizontal assessment of an impact under the UST could not be made. Removal of the decommissioned-in-place UST is recommended to further assess and remediate this area.

9.6 AREA 3 – UNKNOWN – UST, UNKNOWN REMOVAL STATUS

Because of the unknown conditions of this southern UST indicated in the available drawing (Figure 5b), SCS conducted further assessment by physical methods. The area to the south of the decommissioned-in-place UST was investigated and loose fill material was encountered to a depth of approximately 5 feet bgs. After this material was removed, an impression of a former UST was found and a petroleum related impact to soil was observed. The results from a soil sample collected immediately below the UST impression (A3-SP-01) indicated concentrations of TPH-g at 48 mg/kg and TPH-d at 250 mg/kg. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons are lower-boiling than typical diesel fuel." As Area 3 contains both the documented northern closed-in-place UST and the undocumented formerly removed southern UST in very close proximity, at this time, it cannot be determined which UST is the source of the impacted soil without the removal of the existing northern closed in-place UST. Therefore, as indicated above, it is recommended to remove the existing decommissioned UST to further assess and remediate this area.

Based on the findings from these investigation activities in Area 3 and discussions with the SCEMD-ECD, the information obtained during the December 2010 drilling activities and June 2011 removal actions are being submitted with this report along with an "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" that is presented in Appendix C.

10 REFERENCES CITED

Norris & Webb, 1990. Geology of California, 2nd Edition, John Wiley & Sons.

SCA, 2008. 2008 Winter Quarter and Semi-Annual Groundwater Monitoring Report, Former Sacramento Army Depot, Sacramento, California.

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URS, 2010b. Phase II Environmental Site Assessment, Lifetime Doors, Inc. – California Cut Stock Facility, 8280 Elder Creek Road, Sacramento, California, September 13.

USGS, 1992. 7.5 minute topographic quadrangle map, Sacramento East, California.

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SCS ENGINEERS

July 14, 2011
File No. 01210234.00

Mr. Tom Crawshaw
Masonite Corporation
1955 Powis Road
West Chicago, IL 60185

Subject: Status update - Environmental Site Assessment, Lifetime Doors, Inc. – California Cut Stock Facility, 8280 Elder Creek Road, Sacramento, California, (APN 064-010-028)

Dear Mr. Crawshaw,

SCS Engineers (SCS) is pleased to present this update letter for the environmental assessment activities at the former Lifetime Doors, Inc. - California Cut Stock Facility. The general setting of the Site is shown on Figure 1; Site specific details and designated site areas of interest are shown on Figure 2.

The scope of work of this investigation has been grouped into "documented conditions" and "unknown conditions". The scope of work of "documented conditions" was based on information provided to SCS in the Phase I and Phase II Environmental Site Assessment (ESA) reports by URS Corporation (URS), dated September 7 and 13, 2010, respectively (URS, 2010a, 2010b). Additional information can be found in SCS's report "Results of Limited Phase II Environmental Site Assessment dated February 9, 2011. These areas of interest are designated as:

Area 1 – Documented – Former Shed Location;
Area 1 – Documented – Former Blower Stand Location;
Area 3 – Documented – underground storage tank (UST), decommissioned in place; and,
Area 3 – Undocumented – UST, unknown status.

A status update for each area and location is provided below

Area 1 – Documented – Former Shed Location (Figure 3)

URS boring samples (B-3 @ 1.0' and 3.0') contained diesel range organics concentrations ranging from 470 to 640 mg/kg and oil range organics concentrations ranging from 5,300 to 6,200 mg/kg. SCS boring B-101 was drilled along the northern side of an small shed on the northern side the Manufacturing Building to assess the lateral and vertical impacts to soil adjacent to URS boring B-3. SCS soil samples submitted for laboratory analytical testing from B-101 did not contain COCs at or above the MRL. Based on the results from SCS boring B-101 and URS boring B-1 a limited soil impact was documented to a depth of approximately 3.5 feet bgs.

Impacted soils were removed from this area on June 1, 2011. Visually observed stained soils were removed and soil samples A1-01 though A1-05 were collected as confirmation samples when soil

removal activities were deemed complete. Visually observed stained soils were, however, noted under the building foundation which could not be removed.

Results of the soil sample are indicated on Figure 3. The soil sample results indicated that additional impacted soils are present on the north and south sides of the removal area. Some additional removal should be conducted in this location. Removed soils have been stockpiled and proper offsite disposal is pending.

Area 1 – Documented – Former Blower Stand Location (Figure 3)

URS boring samples B-2 @ 1.0' and 3.0' contained diesel range organics concentrations ranging from 170 to 830 mg/kg and oil range organics concentrations ranging from 1,700 to 13,000 mg/kg. SCS boring B-100 was drilled along the northern side of the blower stand on the noth side of the Manufacturing Building to assess the lateral and vertical impacts to soil adjacent to URS boring B-2. SCS soil samples submitted for laboratory analytical testing from B-100 did not contain COCs at or above the MRL. Based on the results from SCS boring B-100 and URS boring B-2 a limited soil impact was documented to a depth of approximately 3.5 feet bgs.

Impacted soils were removed from this area on June 1, 2011. Visually stained soils were removed and soil samples A1-06 though A1-10 were collected as confirmation samples when soil removal activities were deemed complete.

Results of the soil sample are indicated on Figure 3. The soil sample results indicated that additional impacted soils are present at the bottom of the removal area. Some additional removal should be conducted in this location. Removed soils have been stockpiles and proper offsite disposal is pending.

Area 3 – Documented –UST, Decommissioned in place (Figure 4)

SCS Boring B-104 was drilled adjacent to the mapped location of a former UST inside the building footprint and near URS boring B-4 and B-5 which had been sampled by URS to assess the shallow soils underlying oil stains on the overlying concrete floor. Soil sample B-104 @ 15.0' contained TPH-g at 1,900 mg/kg, and TPH-d at 990 mg/kg, and detections of BTEX. Soil sample locations and their respective results are presented on Figure 4.

SCS conducted further assessment by physical methods (removal of the floor of the building) to confirm the presence of the UST. The UST was found approximately 2 feet below the floor and was found to be approximately 3.5 feet in diameter and 12.5 feet long extending under the wall of the building to the south. The UST was filled with grout, consistent with its documentation; however, the fill pipe was filled with a fluid that smelled like gasoline. Because of the presence of the UST, further vertical and horizontal assessment of an impact under the UST could not be made. Removal of the UST is recommended to further assess and remediate this area.

Area 3 – Undocumented –UST, Unknown status

During the SCS Site reconnaissance a drawing was discovered that showed the location of an unknown UST in the area of the known UST in the northeastern corner of the Manufacturing Building. Boring B-103 was drilled to assess the "unknown condition" at the northeastern corner

of the Manufacturing Building adjacent to the location of a former gasoline UST outside the building footprint. The soil samples submitted for laboratory analytical testing from B-103 contained COCs above the laboratory MRLs in sample B-103 @ 15.0' which contained TPH-g at 1.7 mg/kg and TPH-d at 1.2 mg/kg. The laboratory footnoted the reported detection of TPH-d as "hydrocarbons with lower-boiling point than typical diesel fuel". The soil samples from B-103 @ 10.0' also contained TPH-d at 1.3 mg/kg. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons with higher boiling point than typical diesel fuel."

Because of the unknown conditions of the second UST, SCS conducted further assessment by physical methods to confirm the presence or absence of the UST. After the assessment of the known UST was completed, the area to the south of the decommissioned-in-place UST was investigated and loose fill material was encountered to a depth of approximately 5 feet bgs. After this material was removed, an impression of a former UST was found and an petroleum related impact to soil was noted. The results from a soil sample collected immediately below the UST impression (A3-SP-01) indicated concentrations of TPH-g at 48 mg/kg and TPH-d at 250 mg/kg. The laboratory footnoted the reported detections of TPH-d as "hydrocarbons are lower-boiling than typical diesel fuel."

Area 3 contains both the documented closed UST and the undocumented formerly removed UST in very close proximity. At this time, it cannot be determined which UST is the source of the impacted soil without the removal of the existing closed in-place UST. As such, as indicated above, it is recommended to remove the existing UST to further assess and remediate this area. Based on the findings from these investigation activities in Area 3 and discussions with the Sacramento County Environmental Management Division, Sacramento County is requesting the submittal of an "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" and submittal of the information obtained during the December 2010 drilling to complete the drilling permit requirements.

We look forward to continuing to work with you on this project and trust this letter provides the information you require at this time. If you have any questions or need additional information, please call SCS at (707) 546-9461.

Sincerely,

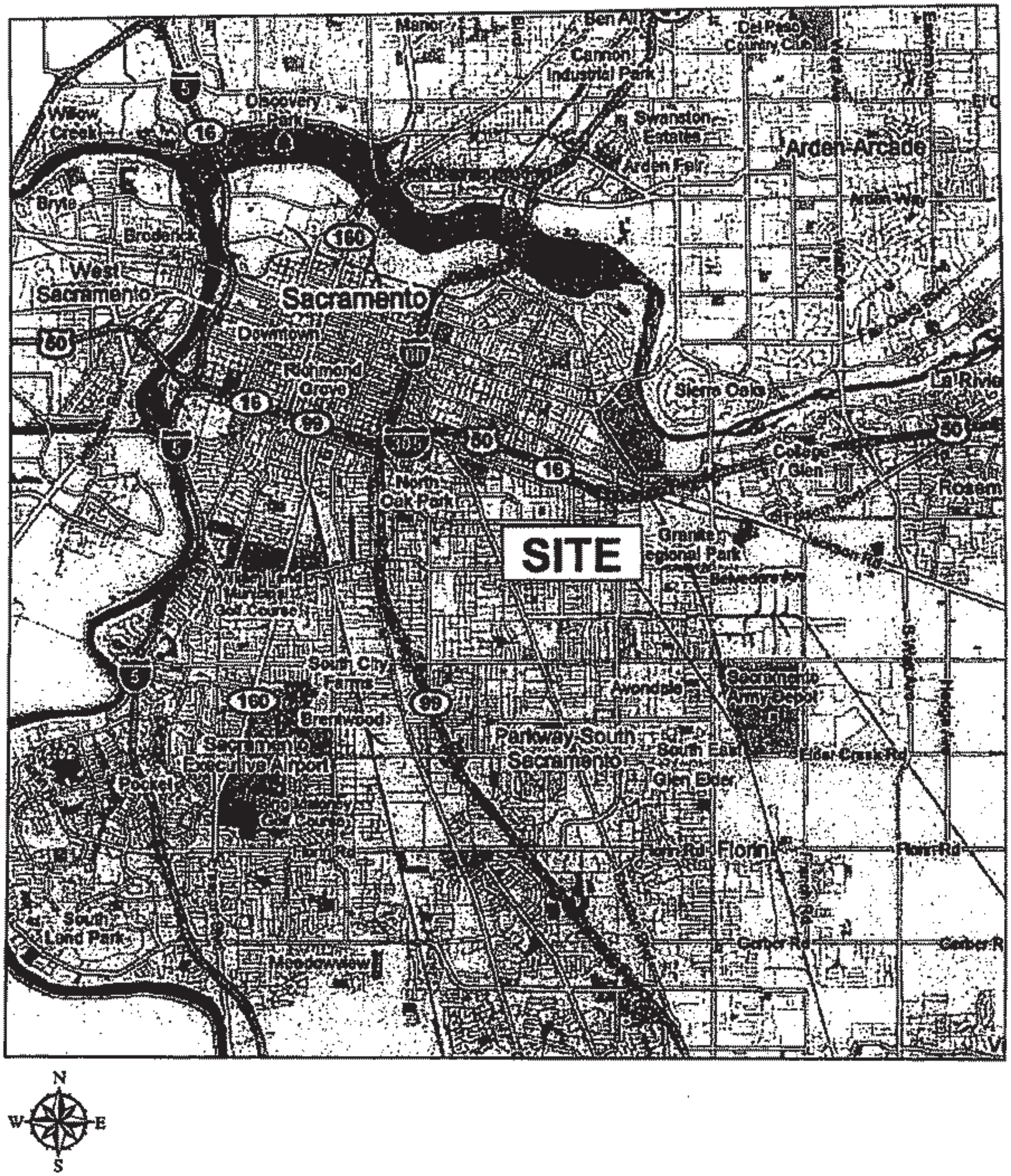
Stephen Knuttel, PG 7674

Attach: Figure 1: Site Location Map
Figure 2: Site Plan with Boring Locations
Figure 3: Partial Site Plan: Area 1 with TPH Results
Figure 4: Partial Site Plan: Area 3 with TPH Results

References Cited

URS, 2010a. Phase I Environmental Site Assessment & Environmental Compliance Review, Lifetime Doors, Incorporated, 8280 Elder Creek Road, Sacramento, California, September 7.

URS, 2010b. Phase II Environmental Site Assessment, Lifetime Doors, Inc. – California Cut Stock Facility, 8280 Elder Creek Road, Sacramento, California, September 13.



Source of Base Map: GOOGLE PROFESSIONAL 2010®

SCS ENGINEERS
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3843 BRICKWAY BOULEVARD SUITE 208
SANTA ROSA, CA 95403
PH. (707) 546-9461 FAX (707) 544-5769

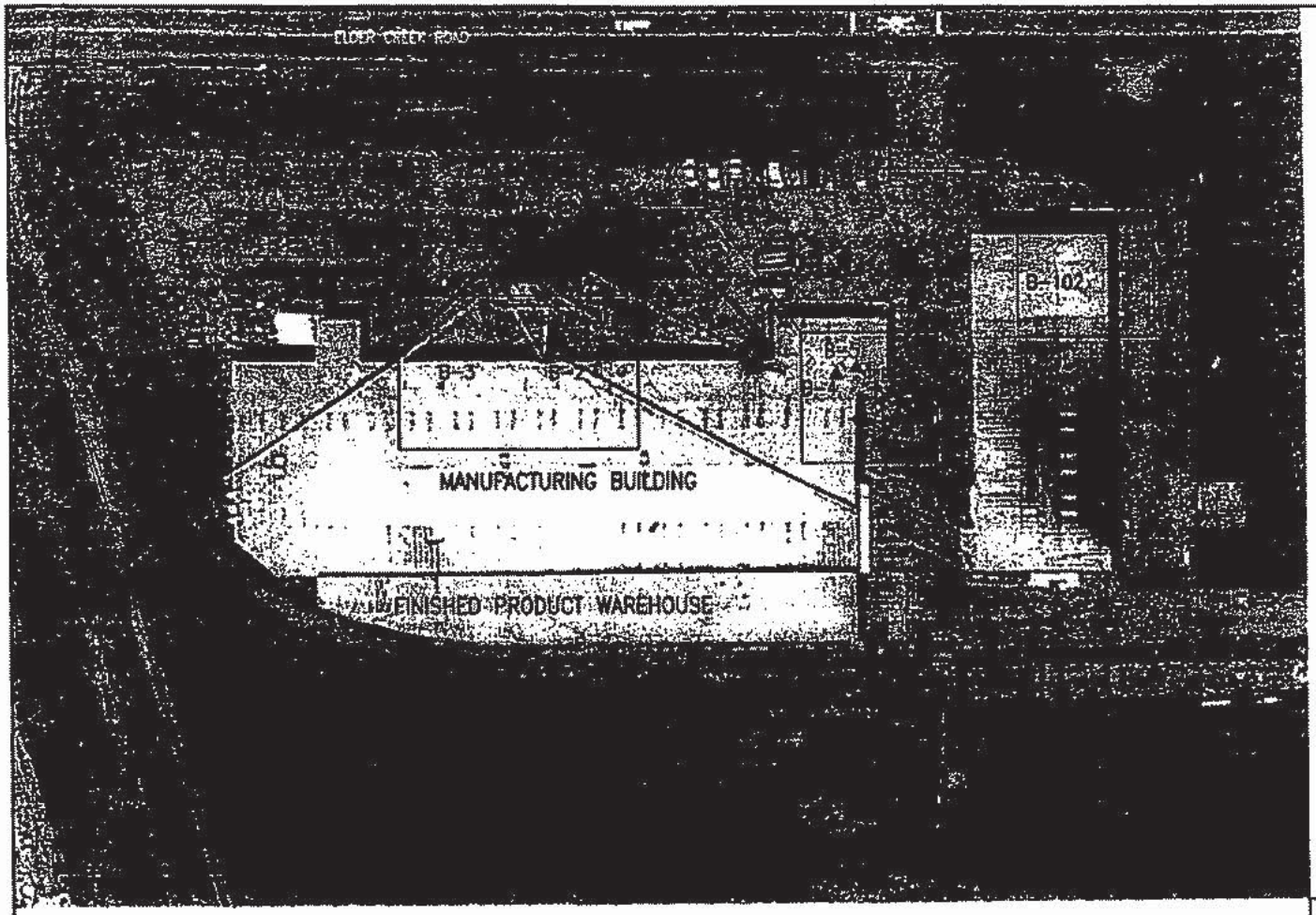
PROJ. NO.	SOURCE:	FILE:
012010234.00	GooglePro 2010	10234.00 FIGURE 1
DATE: 12/9/10	CREATED BY: JJM	APP. BY: SK

SITE LOCATION MAP

PROJECT REDWING
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

APPROX. SCALE (MILES) 0 1 2

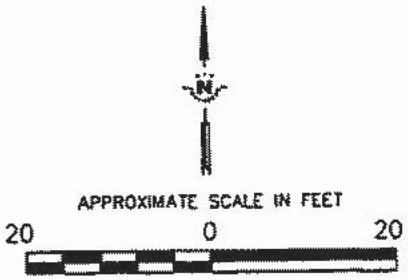
FIGURE: 1

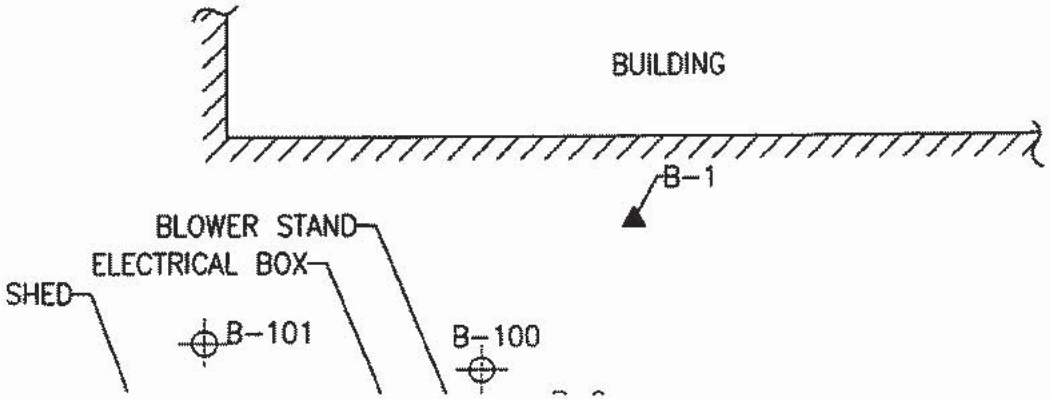


NE CORNER

B

A
COI



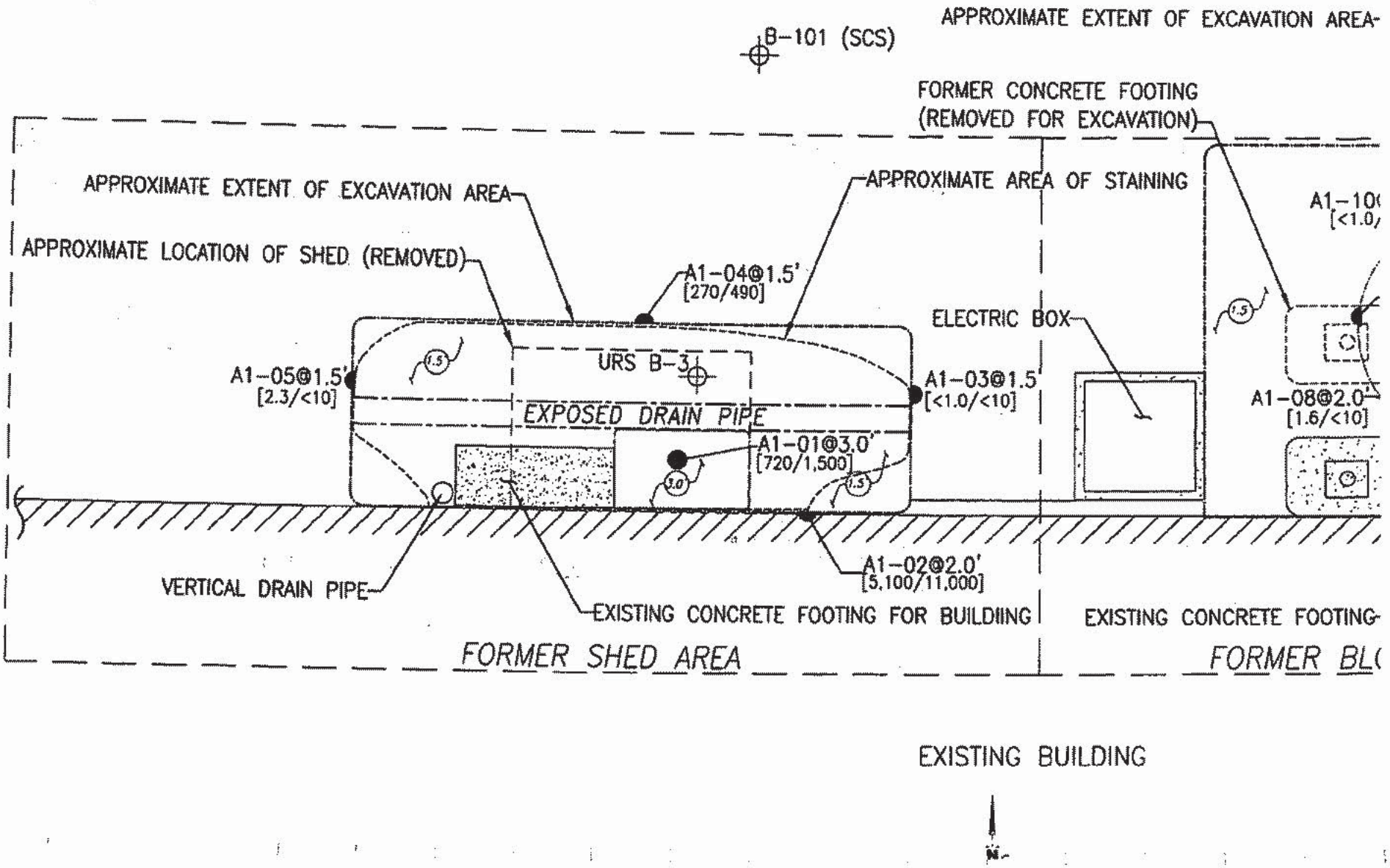


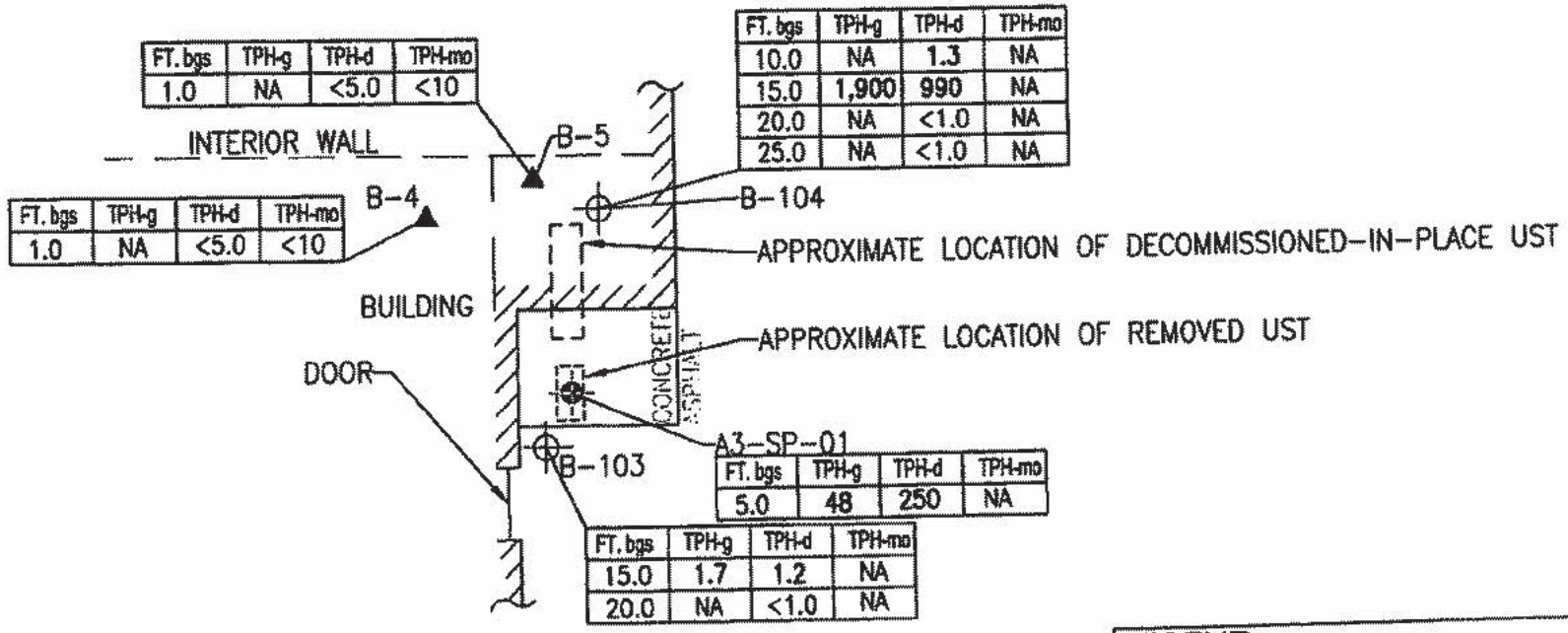
INTERIOR WALL

B-4

BUILDING

DOOR


APPROXIMATE EXTENT OF EXCAVATION AREA
B-101 (SCS)
FORMER CONCRETE FOOTING
(REMOVED FOR EXCAVATION)
APPROXIMATE EXTENT OF EXCAVATION AREA
APPROXIMATE AREA OF STAINING
APPROXIMATE LOCATION OF SHED (REMOVED)
A1-04@1.5'
[270/490]
ELECTRIC BOX
URS B-3
A1-05@1.5'
[2.3/<10]
A1-03@1.5'
[<1.0/<10]
EXPOSED DRAIN PIPE
A1-01@3.0'
[720/1,500]
A1-08@2.0'
[1.6/<10]
A1-02@2.0'
[5,100/11,000]
VERTICAL DRAIN PIPE
EXISTING CONCRETE FOOTING FOR BUILDIING
EXISTING CONCRETE FOOTING
FORMER SHED AREA
EXISTING BUILDING
N



FT. bgs	TPH-g	TPH-d	TPH-mo
1.0	NA	<5.0	<10

FT. bgs	TPH-g	TPH-d	TPH-mo
1.0	NA	<5.0	<10

FT. bgs	TPH-g	TPH-d	TPH-mo
10.0	NA	1.3	NA
15.0	1,900	990	NA
20.0	NA	<1.0	NA
25.0	NA	<1.0	NA

FT. bgs	TPH-g	TPH-d	TPH-mo
5.0	48	250	NA

FT. bgs	TPH-g	TPH-d	TPH-mo
15.0	1.7	1.2	NA
20.0	NA	<1.0	NA

LEGEND

B-101 BORING LOCATION

AX-XX-XX SOIL SAMPLE LOCATION

B-5 FORMER BORING LOCATION (URS, 2010)

TPH-g, TPH-d & TPH-mo RESULTS, mg/kg

FT. bgs	TPH-g	TPH-d	TPH-mo
XX	XX	XX	XX

NA° = NOT ANALYZED

APPROXIMATE SCALE IN FEET

20 0 20

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS

SHEET TITLE: PARTIAL SITE PLAN: AREA 3 WITH TPH RESULTS

PROJECT TITLE: MASONITE LIFETIME DOOR FACILITY
8280 ELDER CREEK ROAD
SACRAMENTO, CALIFORNIA

SCALE: (AS SHOWN)

FIGURE NO. 4

012102.34.00 | 6/27/11 | JM | SK | SK

Apns 064-0010-028 & 064-0010-053
8280 Elder Creek Road
Sacramento, CA 95828

Inquiry Number: 3451774.7
November 14, 2012

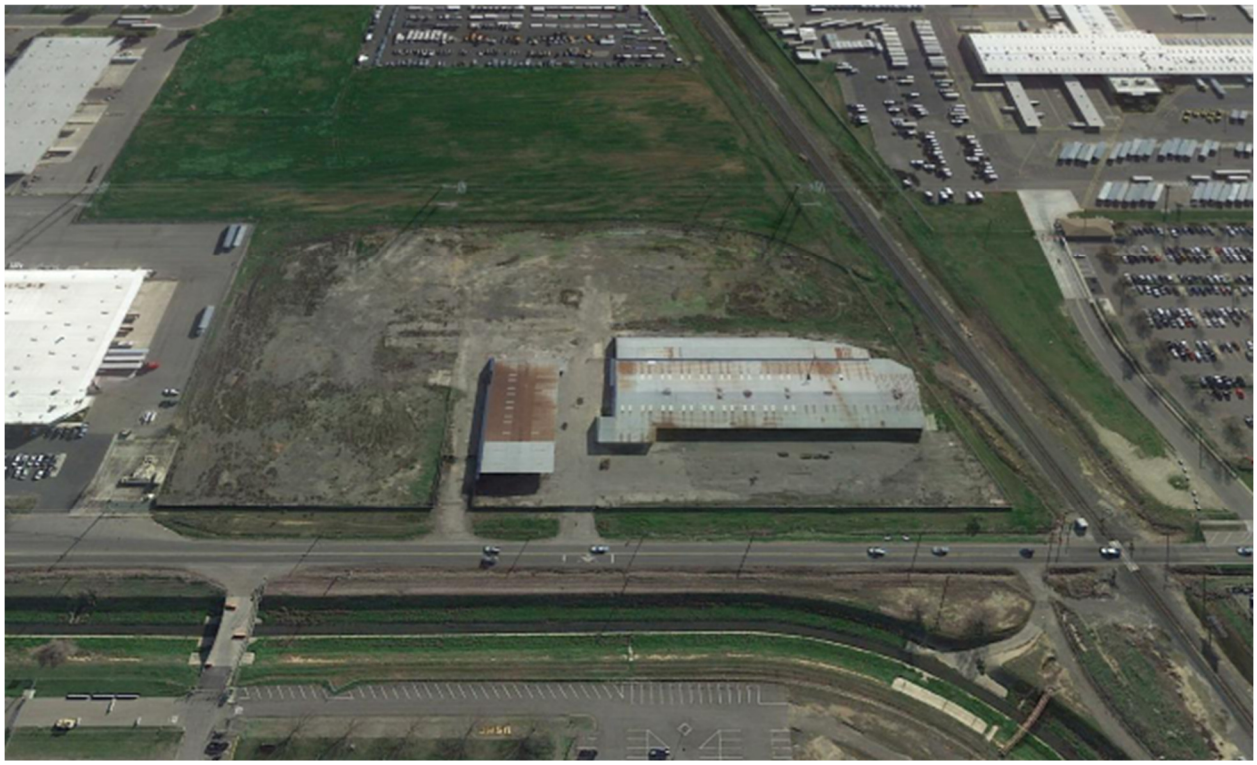
EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

APPENDIX L

Transportation Analysis



Focused Transportation Analysis
Proposed Marijuana Cultivation, Extraction, Distribution, and Delivery-Only Dispensary
8280 Elder Creek Road
Prepared for
City of Sacramento

June 12, 2018

DKS

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Sacramento, California 95628
(916) 368-2000

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INTRODUCTION

This focused transportation analysis addresses transportation and circulation conditions associated with the proposed Marijuana Cultivation, Extraction, Distribution, and Delivery-only Dispensary at 8280 Elder Creek Road. The analysis focuses on the project's relationship to the City street system, the proposed access points, and on-site circulation. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing (2018)
- Existing Plus Project

PROJECT DESCRIPTION

As illustrated in Figure 1, the project is located on a 11.41-acre (approximate) site on the south side of Elder Creek Road in the City of Sacramento. It is bordered to the west by Union Pacific Railroad tracks, to the east by the American Building Supply warehouse, and to the south by vacant land. The U.S. Naval and Marine Corps Center is located across Elder Creek Road.

The site currently has two industrial buildings (56,000 square feet and 15,200 square feet) that have been used for auto / truck repair, storage, and similar commercial uses. The applicant proposes the partial reuse of these buildings, along with the construction of additional structures. The proposed total project size is 265,526 square feet.

Figure 2 illustrates the proposed site plan. Direct driveway access is proposed to Elder Creek Road.

ROADWAY SYSTEM

Elder Creek Road is an east-west arterial roadway. Adjacent to the site, it has one travel lane in each direction. To the east, it extends into unincorporated Sacramento County, and continues to Excelsior Road. To the west, it extends to Stockton Boulevard, where it becomes 47th Avenue. Elder Creek Road is planned to be a four-lane arterial roadway.

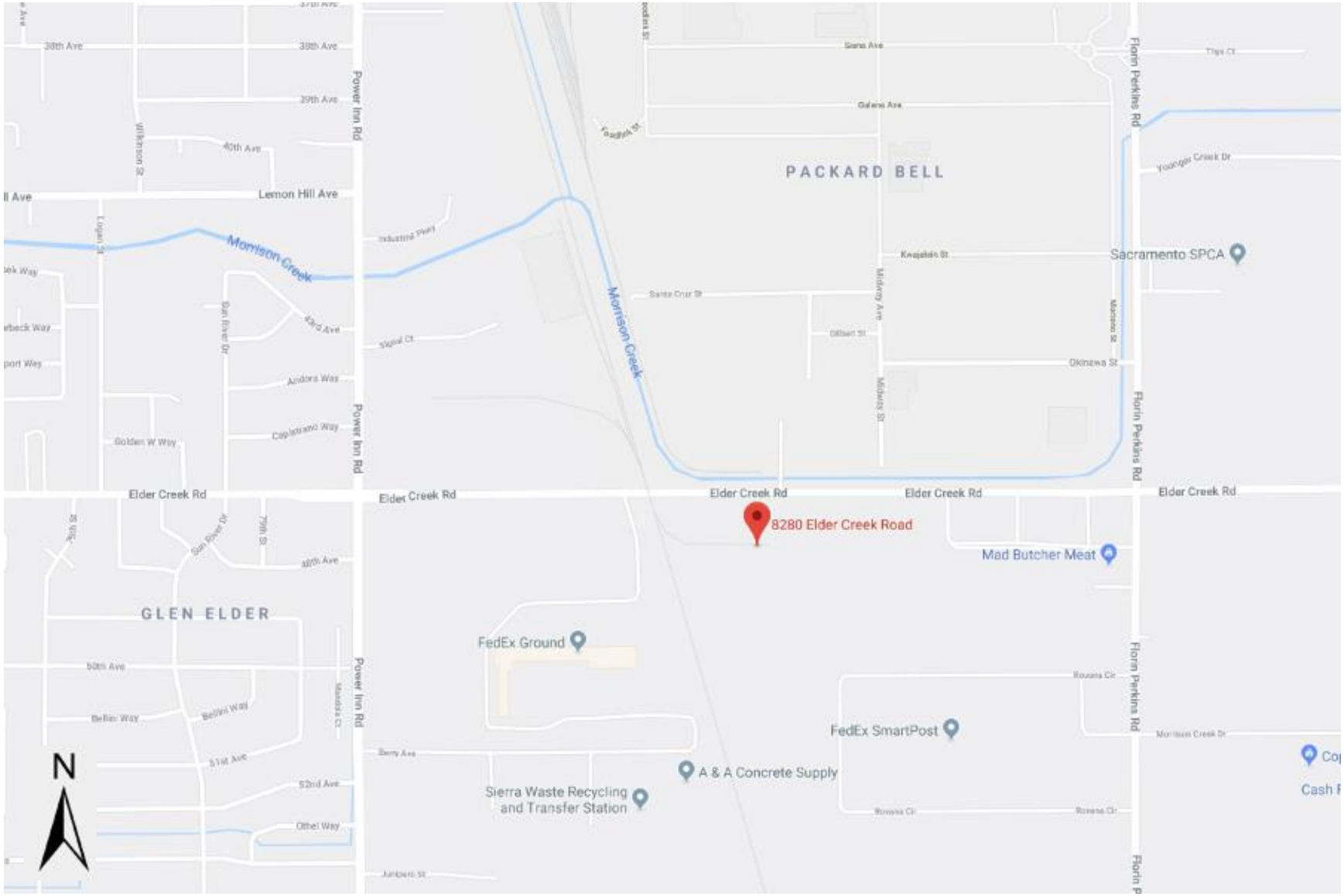
EXISTING TRAFFIC VOLUMES

24-hour traffic counts were conducted on Elder Creek Road near the project site on Tuesday, April 3, 2018. The following volumes were observed:

- a.m. peak hour – 7:15 to 8:15 a.m. – 567 eastbound vehicles, 601 westbound vehicles, 1,168 total vehicles.

- p.m. peak hour – 3:15 to 4:15 p.m. – 498 eastbound vehicles, 776 westbound vehicles, 1,274 total vehicles

- Daily – 7,410 eastbound vehicles, 8,265 westbound vehicles, 15,675 total vehicles.



Base Map Source: Google Maps

Figure 1
Project Location

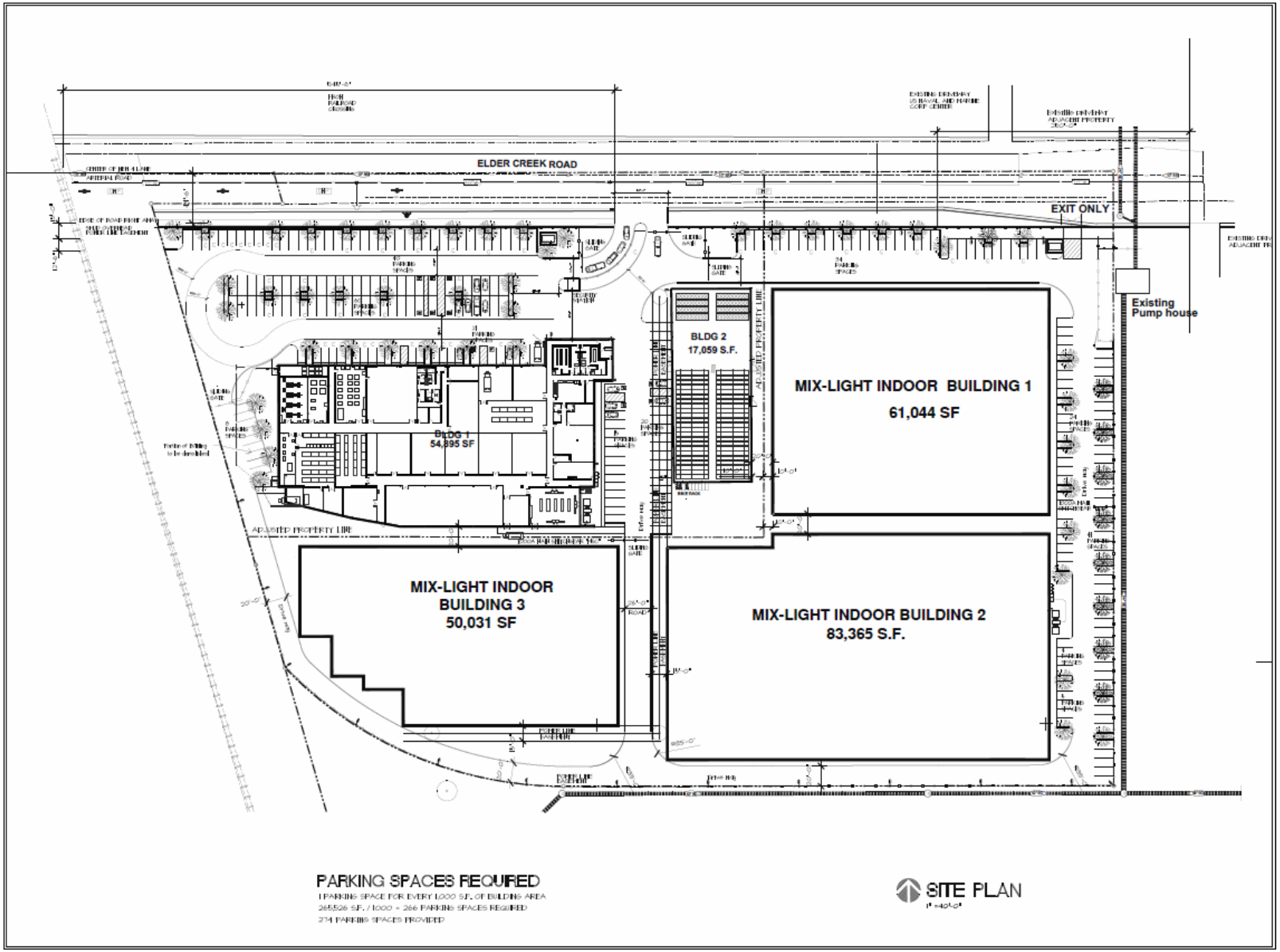


Figure 2
Site Plan

REGULATORY SETTING

City of Sacramento

The Mobility Element of the *Sacramento 2035 General Plan* outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following level of service policy has been used in this study, as amended on January 23, 2018:

> **Policy M 1.2.2 Level of Service (LOS) Standard.** The City shall implement a flexible context sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1:
>
> A. Core Area (Central City Community Plan Area) - LOS F allowed
>
> B. Priority Investment Areas – LOS F allowed
>
> C. LOS E Roadways - LOS E is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.
>
> - 65th Street: Elvas Avenue to 14th Avenue
> - Arden Way: Royal Oaks Drive to I-80 Business
> - Broadway: Stockton Boulevard to 65th Street
> - College Town Drive: Hornet Drive to La Rivera Drive
> - El Camino Avenue: I-80 Business to Howe Avenue
> - Elder Creek Road: Stockton Boulevard to Florin Perkins Road
> - Elder Creek Road: South Watt Avenue to Hedge Avenue
> - Fruitridge Road: Franklin Boulevard to SR 99
> - Fruitridge Road: SR 99 to 44th Street
> - Howe Avenue: El Camino Avenue to Auburn Boulevard
> - Sutterville Road: Riverside Boulevard to Freeport Boulevard
>
> LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of light rail stations.

D. Other LOS F Roadways - LOS F is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.

- 47th Avenue: State Route 99 to Stockton Boulevard
- Arcade Boulevard: Marysville Boulevard to Roseville Road
- Carlson Drive: Moddison Avenue to H Street
- Duckhorn Drive: Arena Boulevard to San Juan Road
- El Camino Avenue: Grove Avenue to Del Paso Boulevard
- Elvas Avenue: J Street to Folsom Boulevard
- Elvas Avenue/56th Street: 52nd Street to H Street
- Florin Road: Havenside Drive to Interstate 5
- Florin Road: Freeport Boulevard to Franklin Boulevard
- Florin Road: Interstate 5 to Freeport Boulevard
- Folsom Boulevard: 47th Street to 65th Street
- Folsom Boulevard: Howe Avenue to Jackson Highway
- Folsom Boulevard: US 50 to Howe Avenue
- Freeport Boulevard: Sutterville Road (North) to Sutterville Road (South)
- Freeport Boulevard: 21st Street to Sutterville Road (North)
- Freeport Boulevard: Broadway to 21st Street
- Garden Highway: Truxel Road to Northgate Boulevard
- H Street: Alhambra Boulevard to 45th Street
- H Street 45th: Street to Carlson Drive
- Hornet Drive: US 50 Westbound On-ramp to Folsom Boulevard
- Howe Avenue: US 50 to Fair Oaks Boulevard
- Howe Avenue: US 50 to 14th Avenue
- Raley Boulevard: Bell Avenue to Interstate 80
- San Juan Road: Duckhorn Drive to Truxel Road
- South Watt Avenue: US 50 to Kiefer Boulevard
- West El Camino Avenue: Northgate Boulevard to Grove Avenue

E. If maintaining the above LOS standards would, in the City's judgment be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be

accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

LEVEL OF SERVICE ANALYSIS AND METHODOLOGY

Field reconnaissance was undertaken to ascertain the traffic control characteristics of the roadway system. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine "levels of service." Levels of service (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of several factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. LOS are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions.

Based upon the City's level of service policy, LOS E was utilized as the appropriate criteria in all study analyses.

Intersection Analysis

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, Highway Capacity Manual 2010 (HCM 2010) (TRB 2010). The methodology utilized is known as "operational analysis." This procedure calculates an average control delay per vehicle at an intersection, and assigns a level of service designation based upon the delay. Table 1 presents the level of service criteria for intersections in accordance with the HCM 2010 methodology.

Roadway Segments

Level of service analyses were conducted for Elder Creek Road based upon daily traffic volumes, number of traffic lanes between intersections, and roadway characteristics. The capacity class categories are based upon the nature of traffic flow along the facility, including number of interruptions due to intersection control and "side-friction" due to driveways and local streets. For each capacity class, relationships were developed between daily traffic volumes and roadway level of service.

Table 2 summarizes the maximum daily traffic volumes associated with each level of service designation and capacity class combination. Although the segment-based level of service calculations are based upon daily traffic volumes, the resultant levels of service are representative of peak hour conditions.

TABLE 1 INTERSECTION LEVEL OF SERVICE CRITERIA		
	Total Delay Per Vehicle (seconds)	
Level of Service (LOS)	**Signalized**	**Unsignalized**
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50
Source: *Highway Capacity Manual 2010, Transportation Research Board.*		

Roadway Segment Operations

Table 3 summarizes the roadway segment operating conditions for Elder Creek Road. The roadway operates at LOS D, which meets the City's goals.

PROJECT TRAVEL CHARACTERISTICS

TRIP GENERATION

Vehicular trip generation estimates of the project are based upon information published by the Institute of Transportation Engineers (ITE). Specifically, the following sources have been utilized:

- Trip Generation, Tenth Edition.
- Trip Generation Handbook, Third Edition.

For conservatism in the analysis, no credit is given for the existing land uses on the site. Similarly, no adjustments have been made for mode choice, as the mode choice in the site environs is predominantly via private automobile.

The ITE data source does not include trip generation information specifically for the proposed use. ITE does include data for a marijuana dispensary, but at a marijuana dispensary, the public directly accesses the dispensary to obtain the products. The proposed use at 8280 Elder Creek Road would not serve the public directly, as no public access is permitted.

Data collection at similar facilities in the State of California is not possible currently for the calculation of trip generation, as mature facilities do not exist. Land uses similar to the proposed project are included in the ITE data source.

TABLE 2
LEVEL OF SERVICE THRESHOLD FOR ROADWAY SEGMENTS

Operational Class	Number of Lanes	ADT Level-of-Service Capacity Threshold				
		A	B	C	D	E
Arterial - Low Access Control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial - Moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial - High Access Control	2	12,000	14,000	16,000	18,000	20,000
	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	43,000	48,000	54,000	60,000
Collector Street - Minor	2	5,250	6,125	7,000	7,875	8,750
Collector Street - Major	2	8,400	9,800	11,200	12,600	14,000
	4	16,800	19,600	22,400	25,200	28,000
Local Street	2	3,000	3,500	4,000	4,500	5,000
Freeway	2	14,000	21,600	30,800	37,200	40,000
	4	28,000	43,200	61,600	74,400	80,000
	6	42,000	64,800	92,400	111,600	120,000
	8	56,000	86,400	123,200	148,800	160,000
	10	70,000	108,000	154,000	186,000	200,000

Facility Type	Stops / Mile	Driveways	Speed
Arterial - Low Access Control	4 +	Frequent	25 – 35 mph
Arterial - Moderate Access Control	2 – 4	Limited	35 – 45 mph
Arterial - High Access Control	1 - 2	None	45 – 55 mph

Source: *Sacramento 2035 General Plan MEIR.*

TABLE 3 EXISTING ROADWAY SEGMENT CONDITIONS						
Roadway	**Segment**	**Operational Class**	**Lanes**	**Daily Volume**	**Volume-to-Capacity Ratio**	**LOS**
Elder Creek Road	Power Inn Road to Florin Perkins Road	Arterial - Moderate Access Control	2	15,675	0.87	D
Source: *DKS Associates, 2018.*						

Table 4 summarizes trip generation for several representative land use types. Codes 110 (General Light Industrial), 130 (Industrial Park), and 140 (Manufacturing) are land use types that are consistent with the proposed use. Code 150 (Warehousing) is presented as it is a permitted use on the site. Additional information on each land use type is included in the technical appendix. For land use types 110, 130, and 140, the predominant vehicle trip type is the work trip (home-to-work and work-to-home), with a smaller number of trips associated with material distribution and service.

For most ITE land uses, the "peak hour of generator" trip generation is higher than "peak hour of adjacent street traffic" trip generation. The peak hour of generator can vary based on the land use type, while the weekday peak hour of adjacent street traffic falls within the a.m. and p.m. commuter periods (typically 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.). For traffic analysis purposes, the combination of existing (background) traffic and trip generation of the project is typically higher during the peak hour of adjacent street traffic. Thus, the adjacent street traffic value is used for conservatism in traffic analysis.

The ITE data source provides average trip rates (trips per unit of development) for all included land use types. For some land use types / time periods, fitted equations are also provided. Fitted equations were used in accordance with the ITE guidance on when to use average trip rates versus fitted equations. The methodology is included in the technical appendix. Table 4 indicates where average trip rates and fitted equations were utilized.

The applicant provided information on the anticipated number of employees. A total of 274 employees are proposed, for the corporate, greenhouse, harvesting, manufacturing, distribution, and distribution uses on site. The employee count is over two shifts, a maximum of 148 employees from 6:00 am to 2:00 p.m. and a maximum of 126 employees from 2:00 p.m. to 10:00 p.m. This is approximately 1.03 employees per 1,000 square feet (KSF).

TABLE 4
ITE REPRESENTATIVE LAND USE TRIP GENERATION

Land Use	ITE Code	Amount	Vehicle Trips Generated (Trip-Ends)[1]													
			Weekday	Peak Hour of Adjacent Street Traffic						Peak Hour of Generator					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
General Light Industrial	110	265.526 KSF[2]	1,064	81	11	92	9	63	72	177	26	203	21	95	116
Industrial Park	130		1,560	86	20	106	22	84	106	95	14	109	22	84	106
Manufacturing	140		999	127	38	165	55	123	178	141	55	196	83	111	194
Warehousing	150		465	44	13	57	16	44	60	38	21	59	15	47	62

1. *Estimated trips based on ITE fitted equations, except land use code 130 for peak hours and land use code 140 for peak hours of adjacent street traffic, where average rates were utilized.*
2. *KSF = 1,000 square feet.*

***Source**: DKS Associates, 2018, ITE Trip Generation, Tenth Edition, 2017.*

The proposed employee density was compared to the ITE data source. ITE also provides information on trip generation per employee for each of the selected land use types. By comparing average daily trip rates per KSF and per employee, the number of employees per KSF was calculated. The values range from 1.02 (manufacturing) to 1.63 (general light industrial). Based upon the applicant's employee information, the proposed use is within the range of the ITE data, when calculated as employees per KSF.

Although the proposed project is a facility related to marijuana uses, the buildings could be used in the future for other uses in the M-2S zone. Therefore, to anticipate this future possibility, it is recommended that the highest trip generation values shown in Table 4 during the peak hours of adjacent street traffic are utilized in the analysis of traffic operations. That is, it is recommended that ITE code 140 (Manufacturing) is used, as shown in Table 5. Based upon this classification, the ITE data predicts 999 daily, 165 a.m. peak commuter hour, and 178 p.m. peak commuter hour trips.

TABLE 5
RECOMMENDED TRIP GENERATION FOR TRAFFIC ANALYSIS

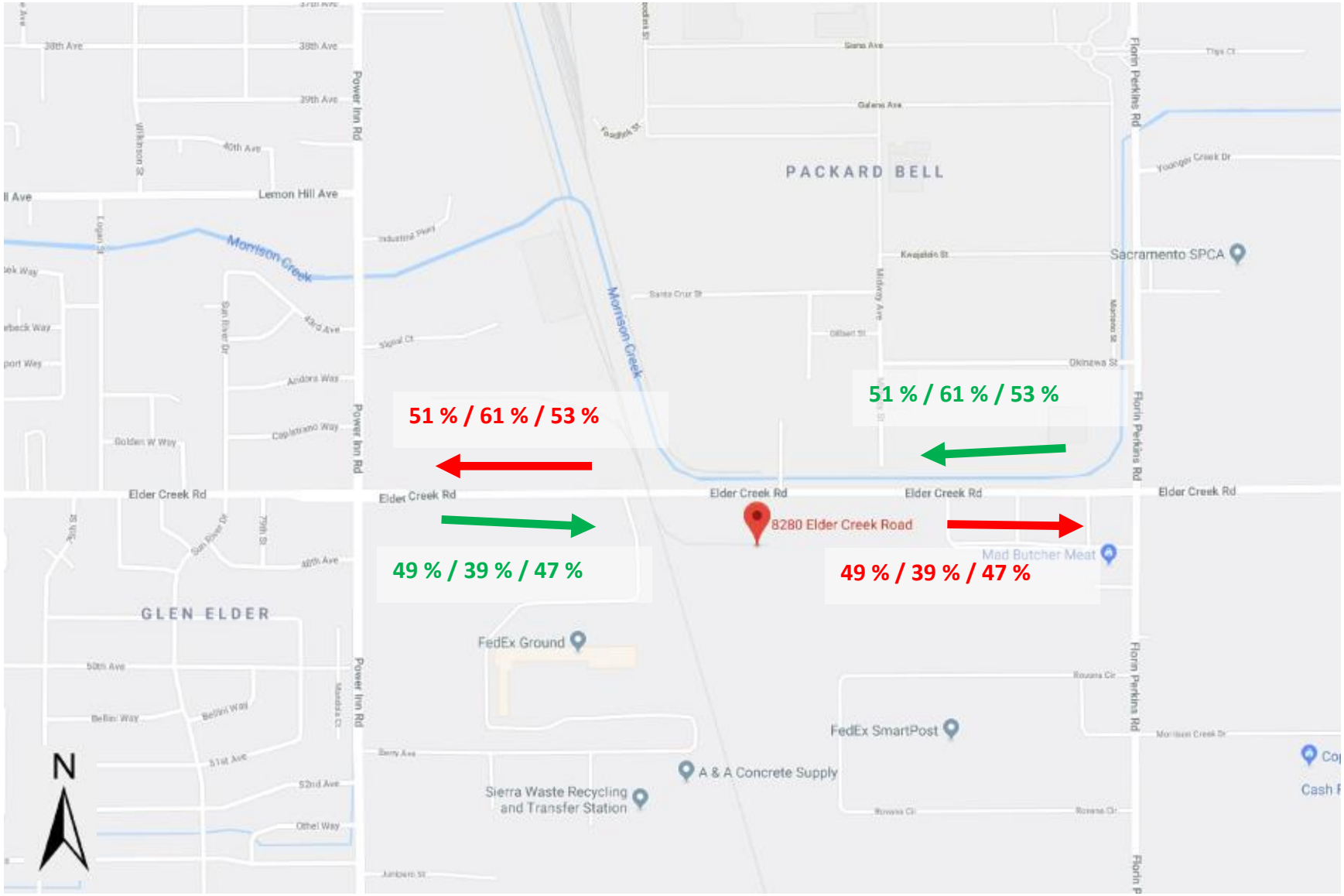
Land Use	ITE Code	Amount	Vehicle Trips Generated (Trip-Ends)[1]						
			Weekday	Peak Hour of Adjacent Street Traffic					
				AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Manufacturing	140	265.526 KSF[2]	999	127	38	165	55	123	178

1. *Estimated trips based on ITE fitted equations.*
2. *KSF = 1,000 square feet.*

***Source**: DKS Associates, 2018, ITE Trip Generation, Tenth Edition, 2017.*

TRIP DISTRIBUTION

The distribution of trips associated with the proposed project was derived from the daily traffic counts, observations of travel patterns near the site, and knowledge of the proposed access locations associated with the site. Trip distribution varies by time of day and direction of travel. Figure 3 illustrates the trip distribution.



Base Map Source: Google Maps

Entering - AM % / PM % / Daily %

Exiting - AM % / PM % / Daily %

Figure 3
Trip Distribution

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, 2035 General Plan policies, and City of Sacramento Traffic Impact Guidelines (1996), a significant impact would occur if the proposed project would:

INTERSECTIONS – CITY OF SACRAMENTO

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.

ROADWAY SEGMENTS – CITY OF SACRAMENTO

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the volume-to-capacity ratio by 0.02 or more.

Note: General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area facilities as follows:

- LOS A-E is to be maintained during peak periods; provided, LOS F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

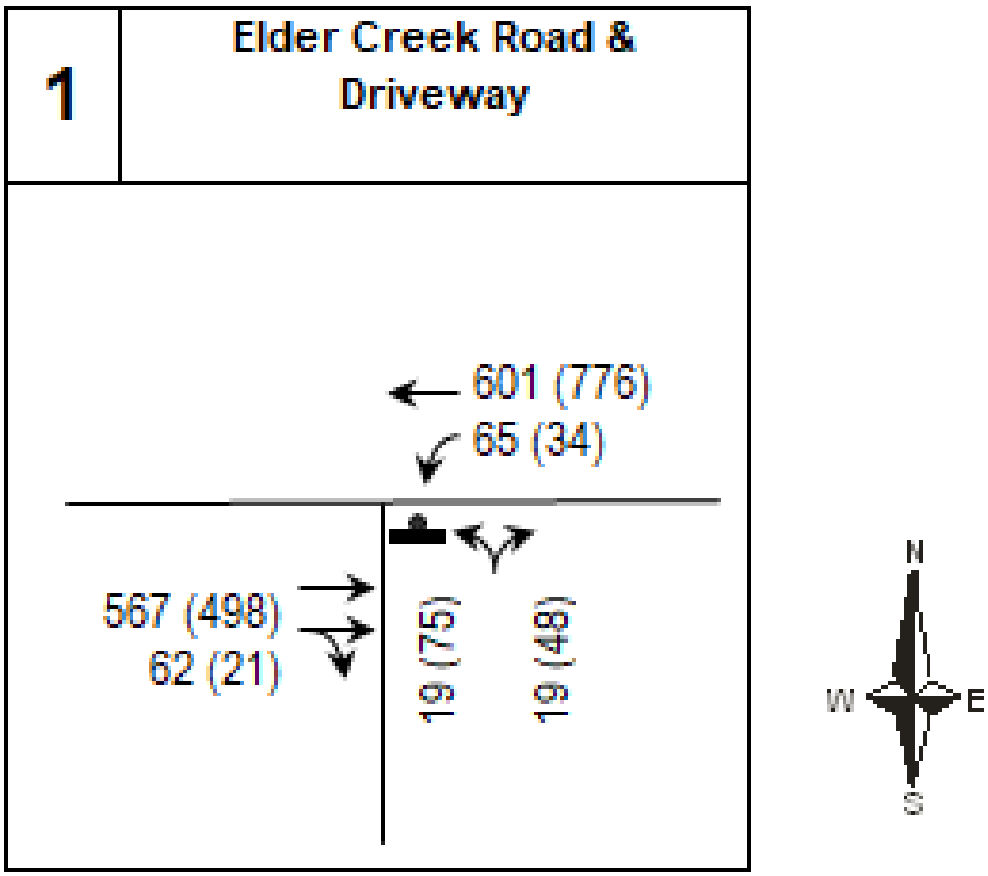
EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Figure 4 illustrates AM peak hour and PM peak hour traffic volumes associated with the existing plus project scenario. The figure also illustrates the intersection geometry of the existing plus project scenario. Table 6 summarizes the results of the existing plus project peak hour intersection analysis. Table 7 summarizes the results of the existing plus project roadway segment analysis.

IMPACTS AND MITIGATION MEASURES

Impact 1: The proposed project could cause potentially significant impacts to study area intersections under the existing plus project scenario. Based on the analysis below the impact is less than significant.

As summarized in Table 6, the project would increase traffic volumes and average delay at the study area intersection. The intersection would operate at LOS A. The analysis assumes the widening of Elder Creek Road along the project frontage in accordance with City Street Design Standards.



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

E St. & N St. = East West street / North South street

Figure 4
Existing Plus Project Peak Hour Traffic Volumes and Geometry

TABLE 6 EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS				
	Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour	
Intersection	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. Elder Creek Road and Driveway (two-way stop control)	0.9	A	2.0	A
- Northbound	*15.4*	*C*	*20.4*	*C*
- Westbound Left Turn	*9.3*	*A*	*8.7*	*A*
Source: *DKS Associates, 2018.*				

TABLE 7 EXISTING PLUS PROJECT ROADWAY SEGMENT CONDITIONS						
Roadway	Segment	Operational Class	Lanes	Daily Volume	Volume-to-Capacity Ratio	LOS
Without Project						
Elder Creek Road	Power Inn Road to Florin Perkins Road	Arterial - Moderate Access Control	2	15,675	0.87	D
With Project						
Elder Creek Road	Power Inn Road to Florin Perkins Road	Arterial - Moderate Access Control	2	16,175	0.90	D
Note: Two lanes (total of both directions) are assumed for conservatism, as westbound Elder Creek Road will remain as one lane in the existing plus project scenario. ***Source:*** *DKS Associates, 2018.*						

Mitigation Measure 1

None required.

Impact 2: The proposed project could cause potentially significant impacts to study area roadway segments under the existing plus project scenario. Based on the analysis below the impact is less than significant.

As summarized in Table 7, the project would increase traffic volumes on Elder Creek Road. The roadway segment would continue to operate at LOS D.

Mitigation Measure 2

None required.

ON-SITE OPERATIONS AND QUEUING

The site plan was reviewed for conformity with accepted traffic engineering principles as well as queueing effects.

FRONTAGE IMPROVEMENTS

In accordance with City practice, the applicant will be required to dedicate additional right-of-way and construct frontage improvements along Elder Creek Road adjacent to the site consistent with City Street Design Standards. The result will be a cross-section similar to the improved roadway immediately east of the site, consisting of:

- One westbound lane
- One center two-way-left-turn-lane (TWLTL)
- Two eastbound lanes
- A planter and sidewalk along the site frontage.

DRIVEWAY LOCATIONS

The site plan proposes two driveways. The primary driveway is located at the approximate locations of the existing western driveway. A secondary driveway, to be utilized only for emergency access, is located near the eastern property boundary.

In the City of Sacramento, the spacing between driveways and the distance from a driveway to an intersection must be approved by the city traffic engineer and shall be based on the City of Sacramento Department of Public Works design and procedures manual, consistent with traffic engineering principles and standards. On a four-lane arterial, the minimum driveway spacing is 250 feet. The proposed primary driveway is more than 250 feet from the two nearest driveways (east and west) located on the opposite side of Elder Creek Road, as well as more than 250 feet from the driveway serving the parcel to the east.

The primary driveway is also located in a location that will permit use of the TWLTL for the westbound left turn movement entering the site.

DRIVEWAY THROAT LENGTH AND ENTRY GATES

The "throat length" of a driveway is defined as the distance from the outer edge of the traveled way of the intersecting roadway to the first point along the driveway at which there are conflicting vehicular traffic movements. Conflicting movements include turning vehicles and vehicles entering / exiting parking stalls. Adequate throat length is critical to ensure that queued exiting vehicles do not interfere with / block entering vehicles, resulting in entering queues extending onto city sidewalks and / or streets. Throat length requirements were determined by the 95th percentile queue of exiting vehicles at each driveway during the a.m. and p.m. peak hours (rounded to the next highest vehicle).

Because entry gates are proposed, throat length must also allow ample space for entering vehicles to be processed through the gates without queuing across sidewalks or onto public streets.

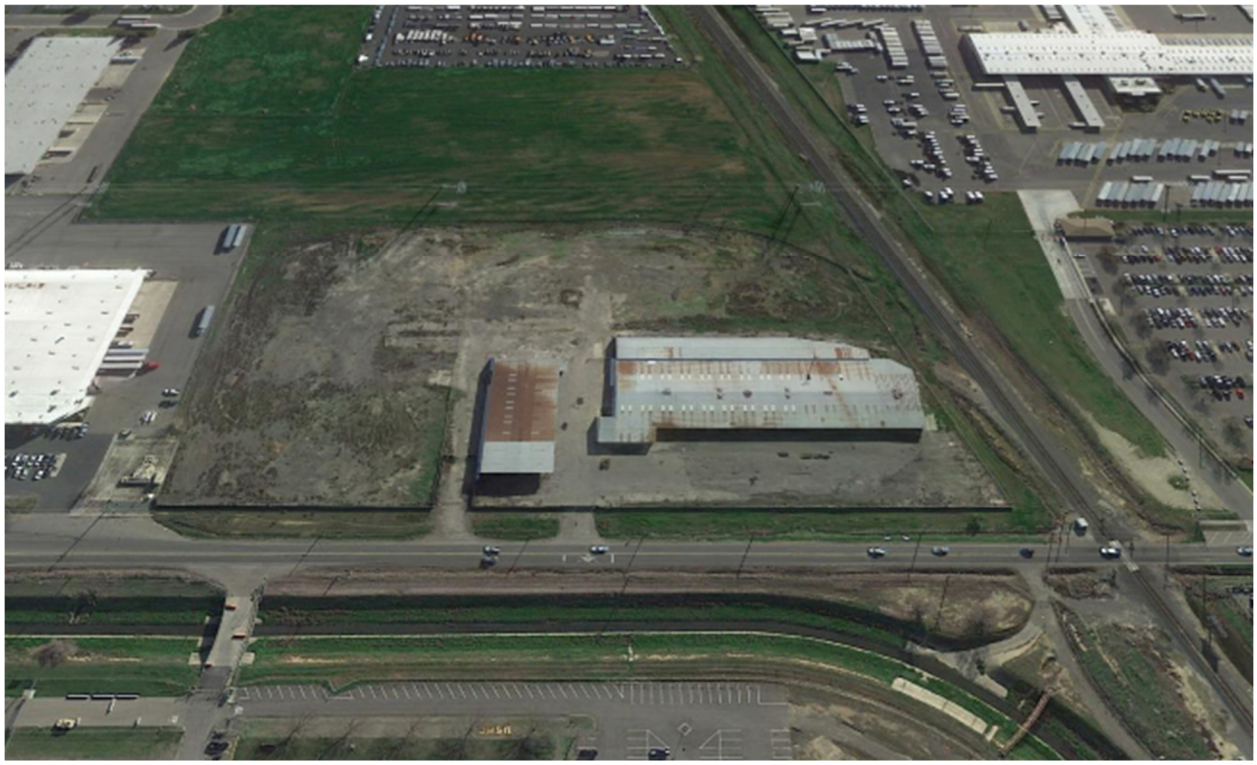
City Code 17.508.070.A prohibits vehicles from backing out into major roadways. Therefore, a driveway turnaround area shall be provided in advance of the security gate. The current plan does not provide a way for denied entering vehicles to turn around in advance of the gate.

It is assumed that the gated entry would operate like entry gates at parking garages. The City of Sacramento typically assumes a 7-second average service time for such gates. Queueing analyses were conducted to review the stacking distance required in advance of the gates. The stacking distance has been calculated based upon the a.m. peak hour entry volume.

Based upon the anticipated exiting vehicle queues (two vehicles) and entering vehicle queues (two vehicles), the proposed design provides an ample throat depth of at least 50 feet.

INTERNAL CIRCULATION

The project applicant should specify the design vehicle for the site (largest regularly anticipated vehicle) and demonstrate that the vehicle can be accommodated with the current site plan, including access to loading / unloading areas without unnecessarily blocking circulation aisles.



Focused Transportation Analysis Appendices
Proposed Marijuana Cultivation, Extraction, Distribution, and Delivery-Only Dispensary
8280 Elder Creek Road

Prepared for

City of Sacramento

June 12, 2018

DKS

8950 Cal Center Drive, Suite 340
Sacramento, California 95628
(916) 368-2000

TRAFFIC COUNTS

Prepared by NDS/ATD

VOLUME

Elder Creek Rd Bet. Power Inn Rd & Florin Perkins Rd(E/O Railroad Tracks)

Day: Tuesday
Date: 4/3/2018

City: Sacramento
Project #: CA18_7091_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,410	8,265	15,675

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			14		15		29		12:00			107		137		244	
00:15			9		18		27		12:15			127		139		266	
00:30			7		15		22		12:30			131		113		244	
00:45			18	48	11	59	29	107	12:45			116	481	104	493	220	974
01:00			8		9		17		13:00			116		137		253	
01:15			11		15		26		13:15			92		117		209	
01:30			9		8		17		13:30			129		164		293	
01:45			8	36	14	46	22	82	13:45			119	456	135	553	254	1009
02:00			6		14		20		14:00			143		110		253	
02:15			7		13		20		14:15			126		125		251	
02:30			12		10		22		14:30			117		213		330	
02:45			16	41	10	47	26	88	14:45			139	525	193	641	332	1166
03:00			15		7		22		15:00			111		187		298	
03:15			16		8		24		15:15			132		142		274	
03:30			26		11		37		15:30			135		203		338	
03:45			20	77	16	42	36	119	15:45			102	480	222	754	324	1234
04:00			21		10		31		16:00			129		209		338	
04:15			27		7		34		16:15			106		157		263	
04:30			53		8		61		16:30			107		210		317	
04:45			75	176	18	43	93	219	16:45			105	447	189	765	294	1212
05:00			54		20		74		17:00			96		200		296	
05:15			80		30		110		17:15			101		186		287	
05:30			159		37		196		17:30			118		160		278	
05:45			191	484	51	138	242	622	17:45			118	433	104	650	222	1083
06:00			116		48		164		18:00			104		152		256	
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06:30			125		79		204		18:30			76		107		183	
06:45			143	526	68	260	211	786	18:45			73	352	112	496	185	848
07:00			141		87		228		19:00			71		94		165	
07:15			139		116		255		19:15			57		78		135	
07:30			124		164		288		19:30			44		76		120	
07:45			173	577	178	545	351	1122	19:45			32	204	67	315	99	519
08:00			131		143		274		20:00			57		61		118	
08:15			107		129		236		20:15			45		54		99	
08:30			99		121		220		20:30			37		57		94	
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11:30			101		125		226		23:30			15		15		30	
11:45			106	405	141	461	247	866	23:45			18	75	21	104	39	179
TOTALS				3524		3039		6563	TOTALS				3886		5226		9112
SPLIT %				53.7%		46.3%		41.9%	SPLIT %				42.6%		57.4%		58.1%

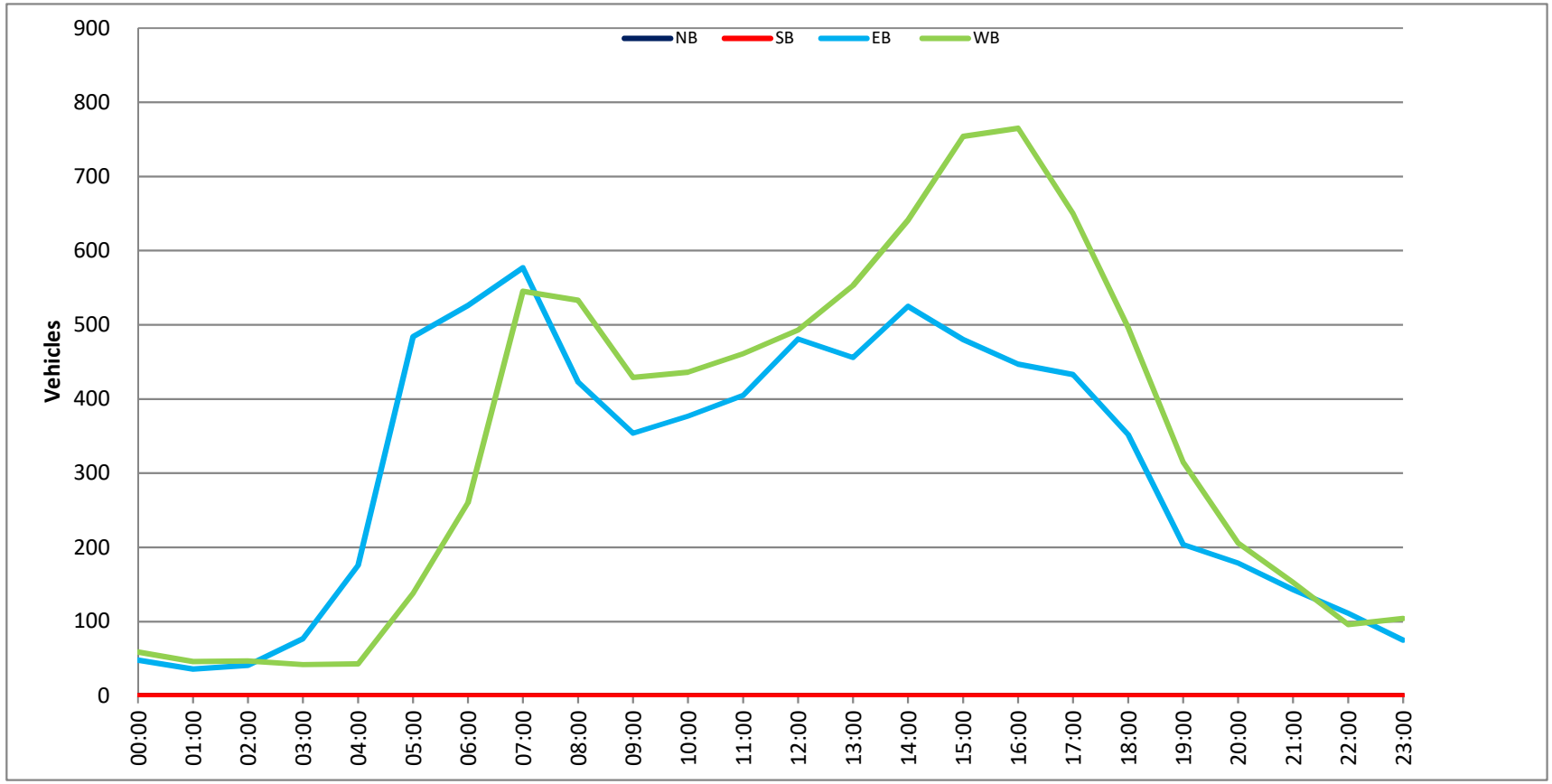
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,410	8,265	15,675

AM Peak Hour			05:30	07:30	07:15	PM Peak Hour			14:00	15:45	15:15
AM Pk Volume			608	614	1168	PM Pk Volume			525	798	1274
Pk Hr Factor			0.796	0.862	0.832	Pk Hr Factor			0.918	0.899	0.942
7 - 9 Volume	0	0	1000	1078	2078	4 - 6 Volume	0	0	880	1415	2295
7 - 9 Peak Hour			07:00	07:30	07:15	4 - 6 Peak Hour			16:00	16:30	16:00
7 - 9 Pk Volume	0	0	577	614	1168	4 - 6 Pk Volume	0	0	447	785	1212
Pk Hr Factor	0.000	0.000	0.834	0.862	0.832	Pk Hr Factor	0.000	0.000	0.866	0.935	0.896

Prepared by NDS/ATD

Project #: CA18_7091_001 **City:** Sacramento

Location: Elder Creek Rd Bet. Power Inn Rd & Florin **Date:** 4/3/2018



SYNCHRO ANALYSIS

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	567	62	65	601	19	19
Future Vol, veh/h	567	62	65	601	19	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	567	62	65	601	19	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	629	0	1329	315
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	731	-
Critical Hdwy	-	-	4.25	-	6.75	7.05
Critical Hdwy Stg 1	-	-	-	-	5.95	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.295	-	3.595	3.395
Pot Cap-1 Maneuver	-	-	906	-	150	661
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	906	-	139	661
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	424	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	384	-	-	906	-
HCM Lane V/C Ratio	0.099	-	-	0.072	-
HCM Control Delay (s)	15.4	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	21	34	776	75	48
Future Vol, veh/h	498	21	34	776	75	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	498	21	34	776	75	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	519	0	1353	260
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	844	-
Critical Hdwy	-	-	4.25	-	6.75	7.05
Critical Hdwy Stg 1	-	-	-	-	5.95	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.295	-	3.595	3.395
Pot Cap-1 Maneuver	-	-	998	-	144	719
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	403	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	998	-	139	719
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	389	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	356	-	-	998	-
HCM Lane V/C Ratio	0.346	-	-	0.034	-
HCM Control Delay (s)	20.4	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

SECURITY GATE QUEUING

8280 Elder Creek Road
Main Entrance
AM Entry

Model 4 (M/M/s Queue):

Multiple servers, Infinite population, Poisson arrival, FCFS, Exponential service time, Unlimited waiting room

Yellow cells need user inputed values

Inputs

Unit of time	hour	
Arrival rate (lambda)	127	customers per hour
Service rate (mu)	514.2857143	customers per hour
Number of identical servers (s)	1	servers

Outputs

Direct outputs from inputs

Mean time between arrivals	0.008	hour
Mean time per service	0.001944444	hour
Traffic intensity	0.246944444	

Summary measures

Average utilization rate of server	24.7%	
Average number of customers waiting in line (Lq)	0.08098	customers
Average number of customers in system (L)	0.32792	customers
Average time waiting in line (Wq)	0.00064	hour
Average time in system (W)	0.00258	hour
Probability of no customers in system (P0)	0.75306	(this is the probability of empty system)
Probability that all servers are busy	24.7%	(this is also the "percentage who wait in queue")
Probability that at least one server is idle	75.3%	(this is also the "percentage who don't wait in queue'

Distribution of number of customers in system

n (customers)	P(n in system)
2	0.045923

Distribution of time in queue

t (time in queue)	P(wait > t)
0.333333333	0.000000

Number in System	Probability	Cumulative
0	75.31%	75.31%
1	18.60%	93.90%
2	4.59%	98.49%
3	1.13%	99.63%
4	0.28%	99.91%
5	0.07%	99.98%
6	0.02%	99.99%
7	0.00%	100.00%
8	0.00%	100.00%
9	0.00%	100.00%
10	0.00%	100.00%
11	0.00%	100.00%
12	0.00%	100.00%
13	0.00%	100.00%
14	0.00%	100.00%
15	0.00%	100.00%
16	0.00%	100.00%
17	0.00%	100.00%
18	0.00%	100.00%
19	0.00%	100.00%
20	0.00%	100.00%
21	0.00%	100.00%
22	0.00%	100.00%
23	0.00%	100.00%
24	0.00%	100.00%
25	0.00%	100.00%
26	0.00%	100.00%
27	0.00%	100.00%
28	0.00%	100.00%
29	0.00%	100.00%
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33	0.00%	100.00%
34	0.00%	100.00%
35	0.00%	100.00%
36	0.00%	100.00%
37	0.00%	100.00%
38	0.00%	100.00%
39	0.00%	100.00%
40	0.00%	100.00%
41	0.00%	100.00%
42	0.00%	100.00%
43	0.00%	100.00%
44	0.00%	100.00%
45	0.00%	100.00%
46	0.00%	100.00%
47	0.00%	100.00%
48	0.00%	100.00%
49	0.00%	100.00%
50	0.00%	100.00%

TRIP GENERATION

DKS *Associates*

TRANSPORTATION SOLUTIONS

MEMORANDUM

TO:	Aelita Milatzo
FROM:	Vic Maslanka
DATE:	12 June 2018
SUBJECT:	8280 Elder Creek Road Vehicular Trip Generation Estimates Marijuana Cultivation, Extraction, Distribution, and Delivery-only Dispensary

P 17042-009

This memorandum summarizes the results of the vehicular trip generation analysis of the proposed Marijuana Cultivation, Extraction, Distribution, and Delivery-only Dispensary at 8280 Elder Creek Road.

Project Description

The 11.41-acre project site is located at 8280 Elder Creek Road. The site currently has two industrial buildings (56,000 square feet and 15,200 square feet) that have been used for auto / truck repair, storage, and similar commercial uses. The applicant proposes the partial reuse of these buildings, along with the construction of additional structures. The proposed total project size is 265,526 square feet.

The project site is located within a heavy industrial (M-2S) zone, and surrounding parcels support industrial and commercial uses.

Trip Generation Estimation

Vehicular trip generation estimates of the project are based upon information published by the Institute of Transportation Engineers (ITE). Specifically, the following sources have been utilized:

- Trip Generation, Tenth Edition.
- Trip Generation Handbook, Third Edition.

For conservatism in the analysis, no credit is given for the existing land uses on the site. Similarly, no adjustments have been made for mode choice, as the mode choice in the site environs is predominantly via private automobile.

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The ITE data source does not include trip generation information specifically for the proposed use. ITE does include data for a marijuana dispensary, but at a marijuana dispensary, the public directly accesses the dispensary to obtain the products. The proposed use at 8280 Elder Creek Road would not serve the public directly, as no public access is permitted.

Data collection at similar facilities in the State of California is not possible currently for the calculation of trip generation, as mature facilities do not exist. Land uses similar to the proposed project are included in the ITE data source. Table 1 summarizes trip generation for several representative land use types. Codes 110 (General Light Industrial), 130 (Industrial Park), and 140 (Manufacturing) are land use types that are consistent with the proposed use. Code 150 (Warehousing) is presented as it is a permitted use on the site. Additional information on each land use type is included in the technical appendix. For land use types 110, 130, and 140, the predominant vehicle trip type is the work trip (home-to-work and work-to-home), with a smaller number of trips associated with material distribution and service.

For most ITE land uses, the "peak hour of generator" trip generation is higher than "peak hour of adjacent street traffic" trip generation. The peak hour of generator can vary based on the land use type, while the weekday peak hour of adjacent street traffic falls within the a.m. and p.m. commuter periods (typically 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.). For traffic analysis purposes, the combination of existing (background) traffic and trip generation of the project is typically higher during the peak hour of adjacent street traffic. Thus, the adjacent street traffic value is used for conservatism in traffic analysis.

The ITE data source provides average trip rates (trips per unit of development) for all included land use types. For some land use types / time periods, fitted equations are also provided. Fitted equations were used in accordance with the ITE guidance on when to use average trip rates versus fitted equations. The methodology is included in the technical appendix. Table 1 indicates where average trip rates and fitted equations were utilized.

The applicant provided information on the anticipated number of employees. A total of 274 employees are proposed on two shifts, for the corporate, greenhouse, harvesting, manufacturing, distribution, and distribution uses on site. This is approximately 1.03 employees per 1,000 square feet (KSF). The first shift (6:00 a.m. to 2:00 p.m.) would not exceed 148 people, while the second shift (2:00 p.m. to 10:00 p.m.) would be a maximum of 126 people.

The proposed employee density was compared to the ITE data source. ITE also provides information on trip generation per employee for each of the selected land use types. By comparing average daily trip rates per KSF and per employee, the number of employees per KSF was calculated. The values range from 1.02 (manufacturing) to 1.63 (general light industrial). Based upon the applicant's employee information, the proposed use is within the range of the ITE data, when calculated as employees per KSF.

TABLE 1
ITE REPRESENTATIVE LAND USE TRIP GENERATION

Land Use	ITE Code	Amount	Vehicle Trips Generated (Trip-Ends)[1]												
			Weekday	Peak Hour of Adjacent Street Traffic						Peak Hour of Generator					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
General Light Industrial	110	265.526 KSF[2]	1,064	81	11	92	9	63	72	177	26	203	21	95	116
Industrial Park	130		1,560	86	20	106	22	84	106	95	14	109	22	84	106
Manufacturing	140		999	127	38	165	55	123	178	141	55	196	83	111	194
Warehousing	150		465	44	13	57	16	44	60	38	21	59	15	47	62

1. *Estimated trips based on ITE fitted equations, except land use code 130 for peak hours and land use code 140 for peak hours of adjacent street traffic, where average rates were utilized.*
2. *KSF = 1,000 square feet.*

***Source**: DKS Associates, 2018, ITE Trip Generation, Tenth Edition, 2017.*

Although the proposed project is a facility related to marijuana uses, the buildings could be used in the future for other uses in the M-2S zone. Therefore, to anticipate this future possibility, it is recommended that the highest trip generation values shown in Table 1 during the peak hours of adjacent street traffic are utilized in the analysis of traffic operations. That is, it is recommended that ITE code 140 (Manufacturing) is used. Based upon this classification, the ITE data predicts 999 daily, 165 a.m. peak commuter hour, and 178 p.m. peak commuter hour trips.

TABLE 2
RECOMMENDED TRIP GENERATION FOR TRAFFIC ANALYSIS

Land Use	ITE Code	Amount	Vehicle Trips Generated (Trip-Ends)[1]						
			Weekday	Peak Hour of Adjacent Street Traffic					
				AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Manufacturing	140	265.526 KSF[2]	999	127	38	165	55	123	178

1. *Estimated trips based on ITE fitted equations.*
2. *KSF = 1,000 square feet.*

***Source**: DKS Associates, 2018, ITE Trip Generation, Tenth Edition, 2017.*

DKS Associates
TRANSPORTATION SOLUTIONS

TECHNICAL APPENDIX

Land Use: 110
General Light Industrial

Description

A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. Typical light industrial activities include printing, material testing, and assembly of data processing equipment. Industrial park (Land Use 130) and manufacturing (Land Use 140) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 30 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:30 and 8:30 a.m. and 4:30 and 5:30 p.m., respectively.

The sites were surveyed in the 1980s, the 2000s, and the 2010s in Colorado, Connecticut, Indiana, New Jersey, New York, Oregon, Pennsylvania, and Texas.

Source Numbers

106, 157, 174, 177, 179, 184, 191, 251, 253, 286, 300, 611, 874, 875, 912

General Light Industrial
(110)

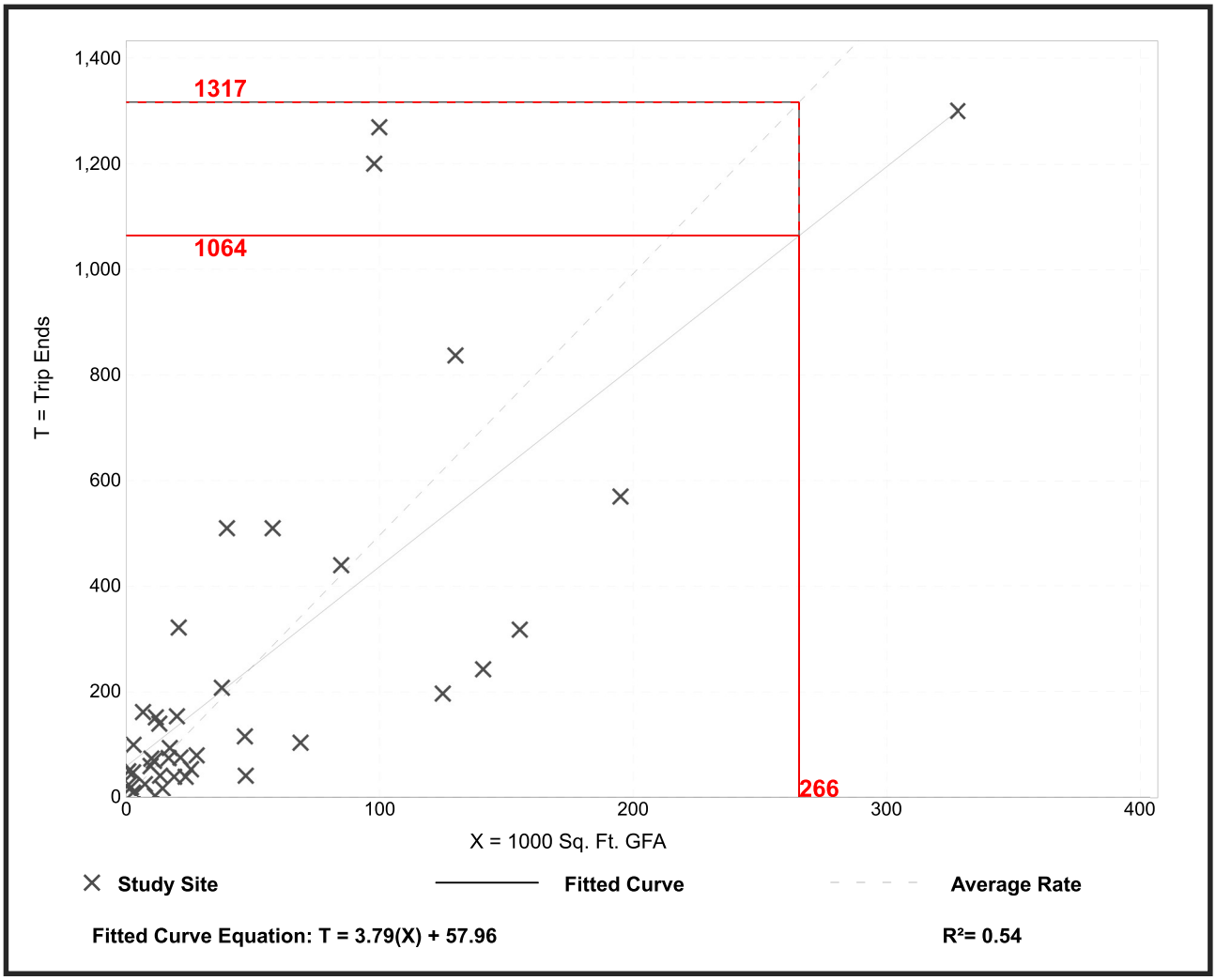
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 40
Avg. 1000 Sq. Ft. GFA: 49
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.96	0.34 - 43.86	4.20

Data Plot and Equation



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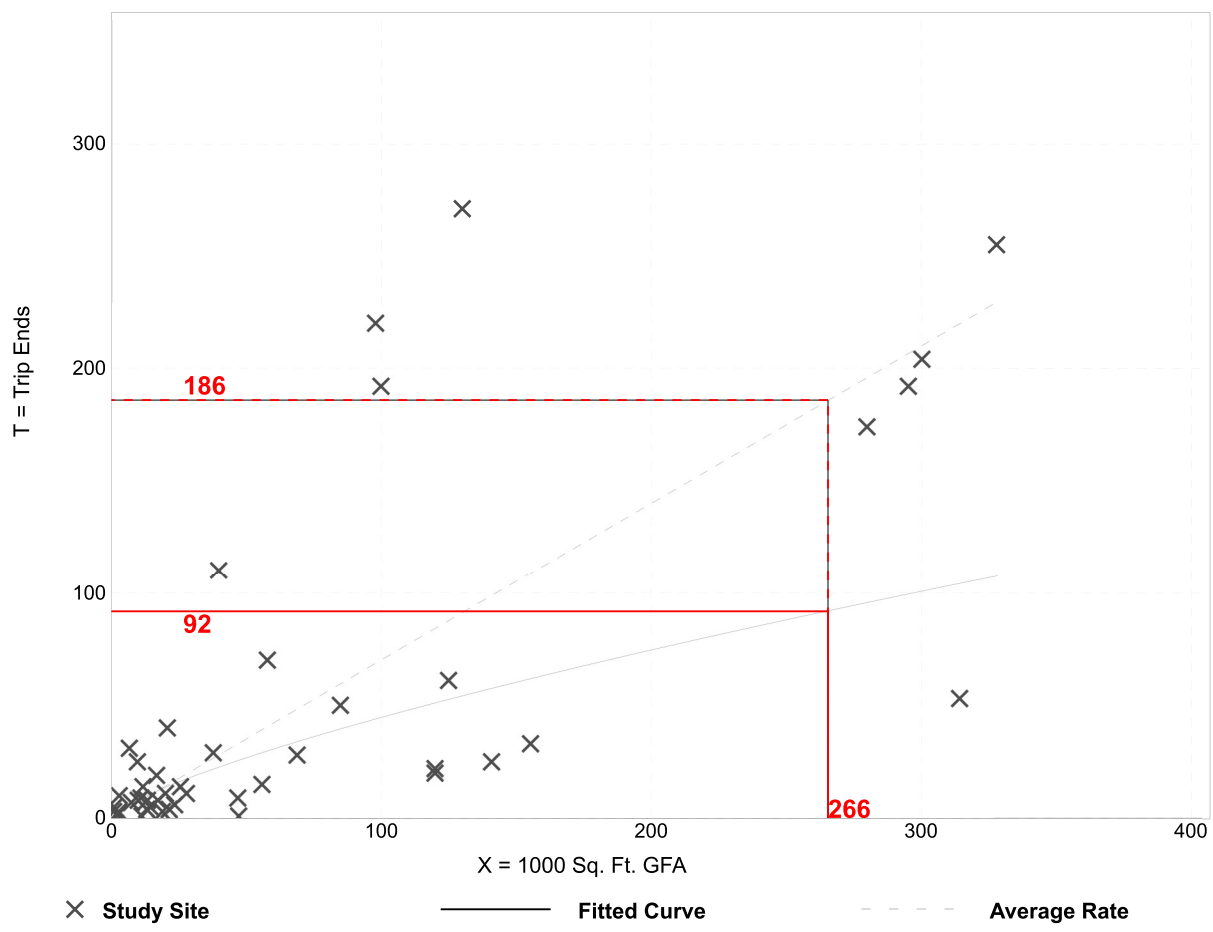
General Light Industrial
(110)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	45
Avg. 1000 Sq. Ft. GFA:	73
Directional Distribution:	88% entering, 12% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.70	0.02 - 4.46	0.65

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.74 Ln(X) + 0.39 **R^2= 0.52**

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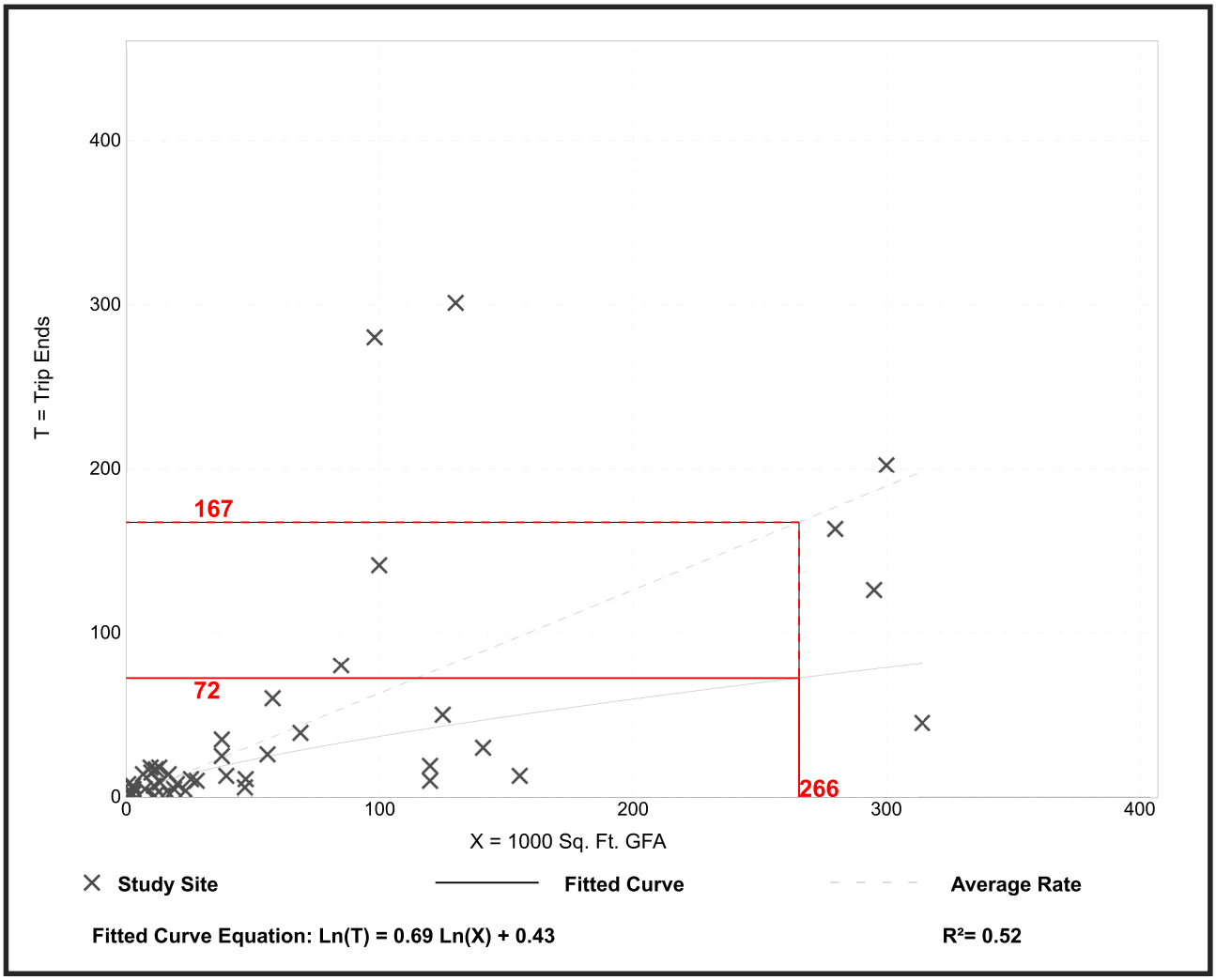
General Light Industrial
(110)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	44
Avg. 1000 Sq. Ft. GFA:	67
Directional Distribution:	13% entering, 87% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.63	0.07 - 7.02	0.68

Data Plot and Equation



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General Light Industrial
(110)

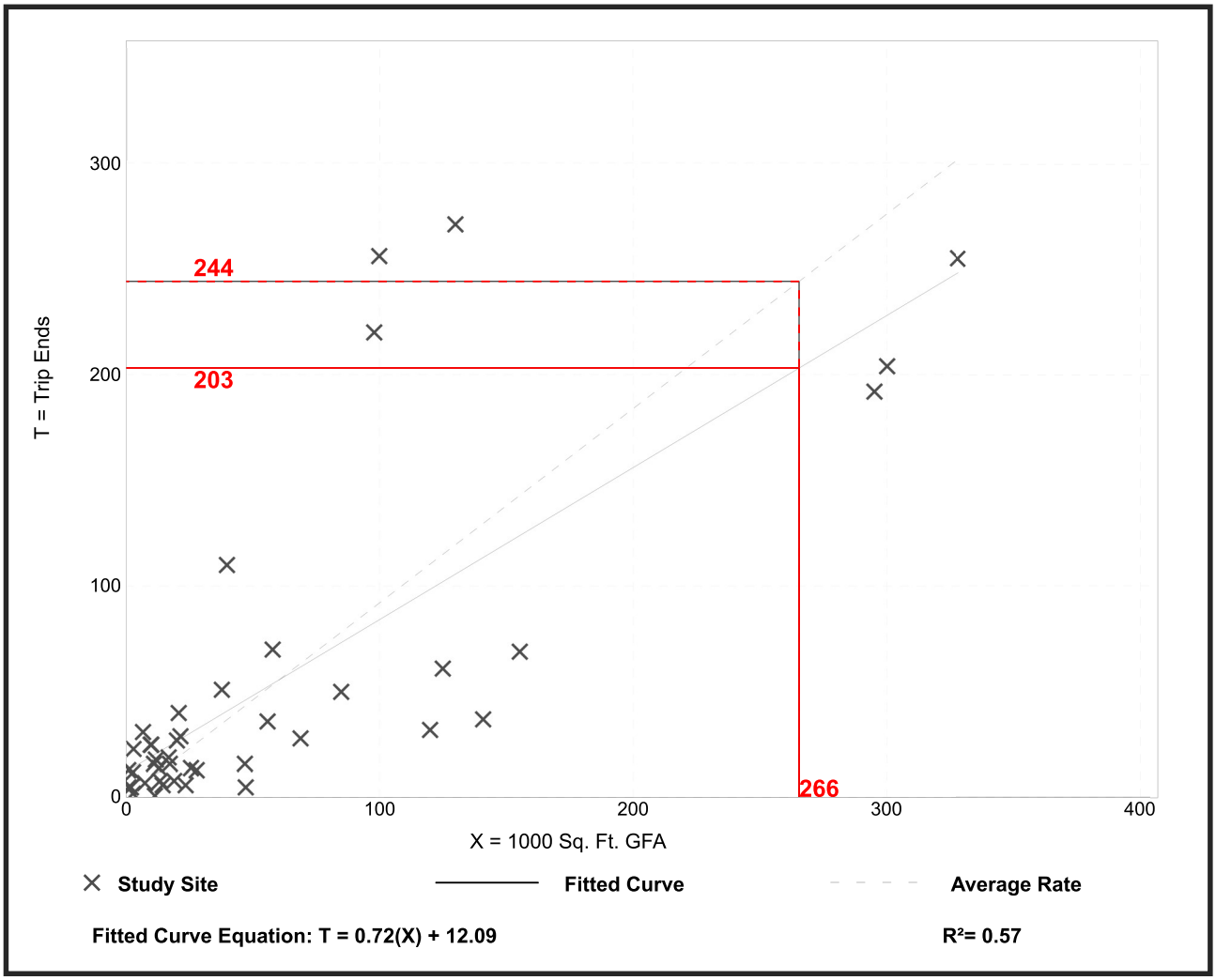
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 43
Avg. 1000 Sq. Ft. GFA: 59
Directional Distribution: 87% entering, 13% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.92	0.09 - 11.40	0.79

Data Plot and Equation



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General Light Industrial
(110)

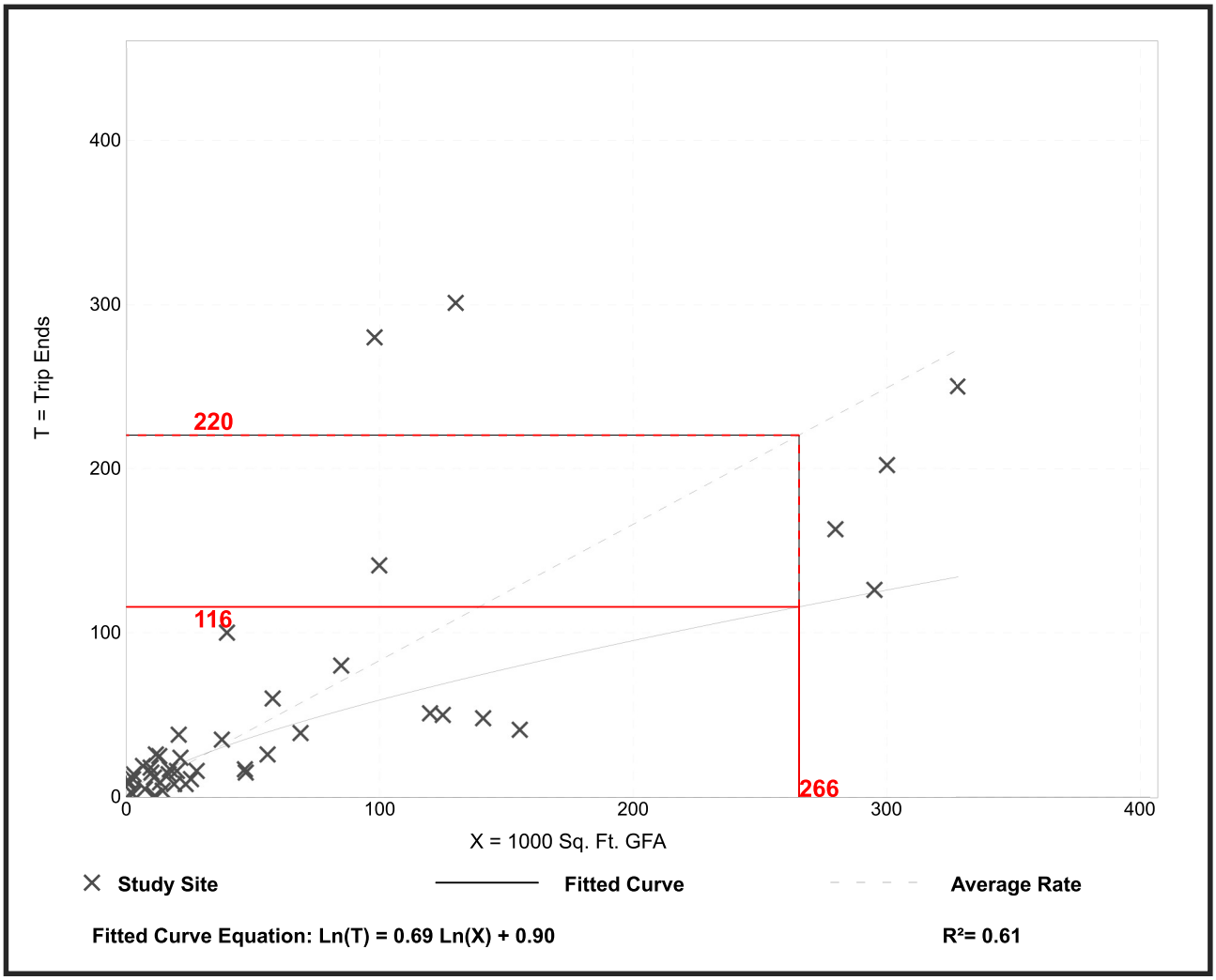
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 44
Avg. 1000 Sq. Ft. GFA: 64
Directional Distribution: 18% entering, 82% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.83	0.09 - 8.77	0.70

Data Plot and Equation



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Land Use: 130
Industrial Park

Description

An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities—some with a large number of small businesses and others with one or two dominant industries. General light industrial (Land Use 110) and manufacturing (Land Use 140) are related uses.

Additional Data

The sites were surveyed in the 1980s, the 2000s, and the 2010s in California, Georgia, New Jersey, New York, Ontario (CAN), and Pennsylvania.

Source Numbers

106, 162, 184, 251, 277, 422, 706, 747, 753, 937

Industrial Park
(130)

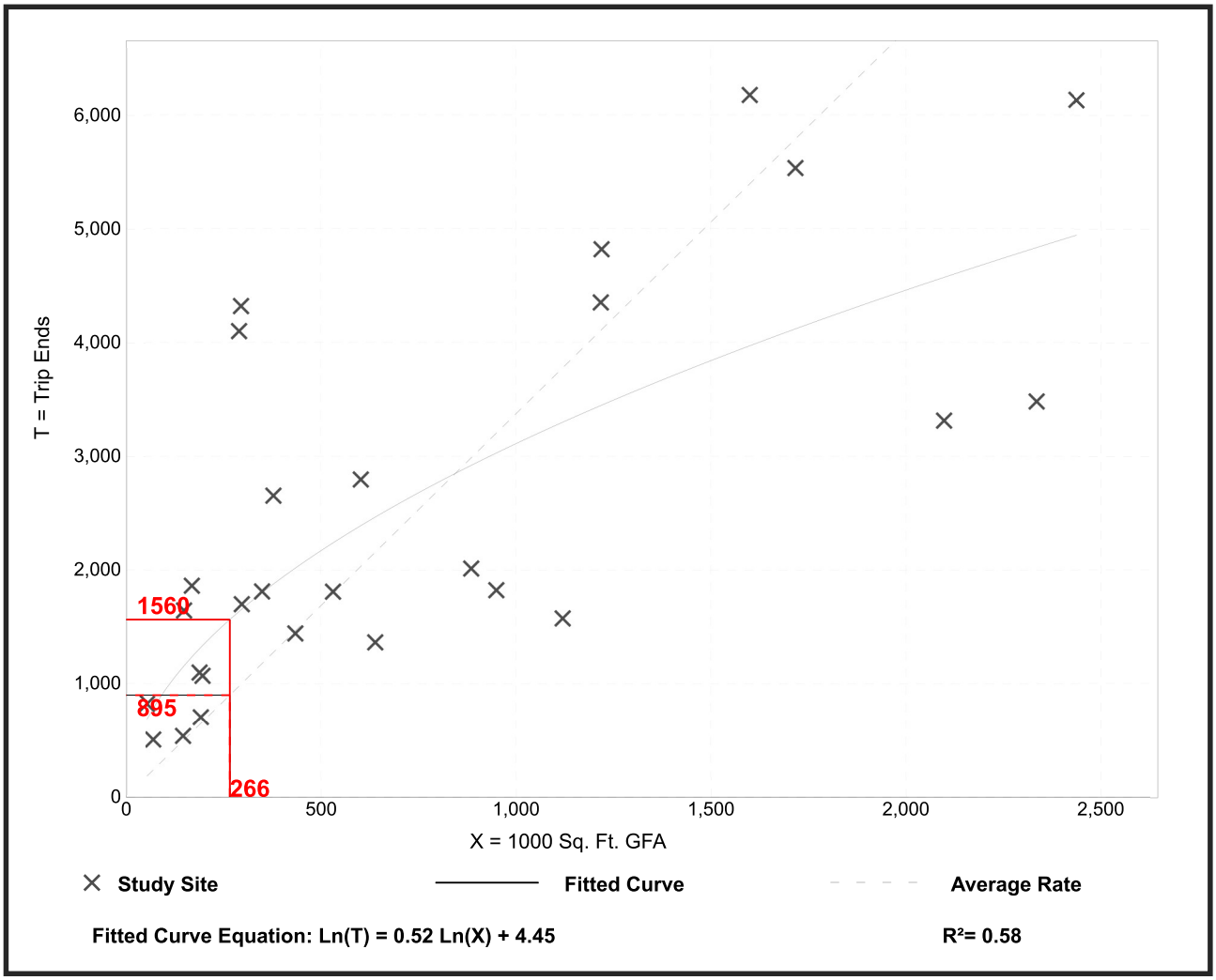
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 27
Avg. 1000 Sq. Ft. GFA: 762
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.37	1.41 - 14.98	2.60

Data Plot and Equation



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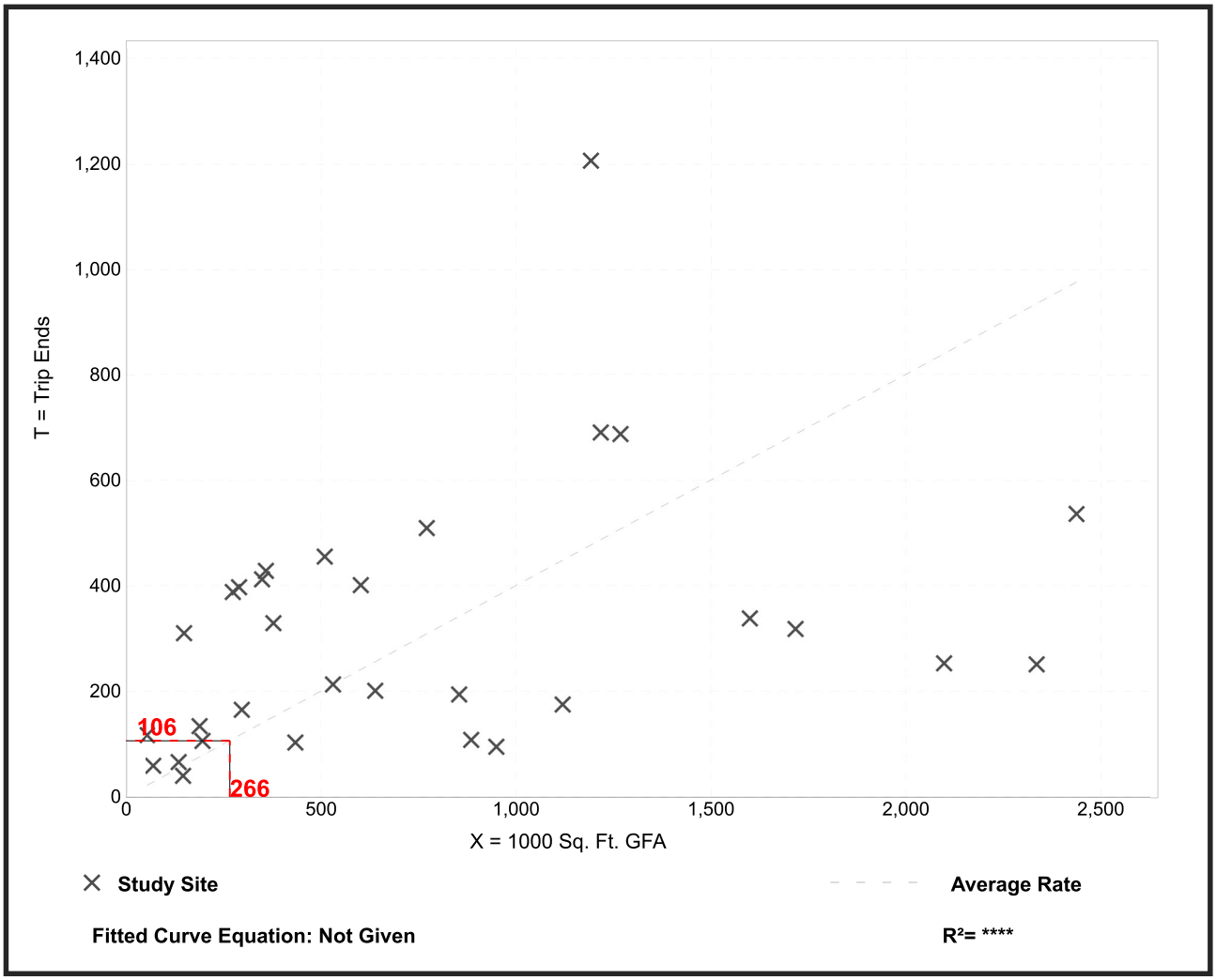
Industrial Park
(130)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	31
Avg. 1000 Sq. Ft. GFA:	776
Directional Distribution:	81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.13	0.37

Data Plot and Equation



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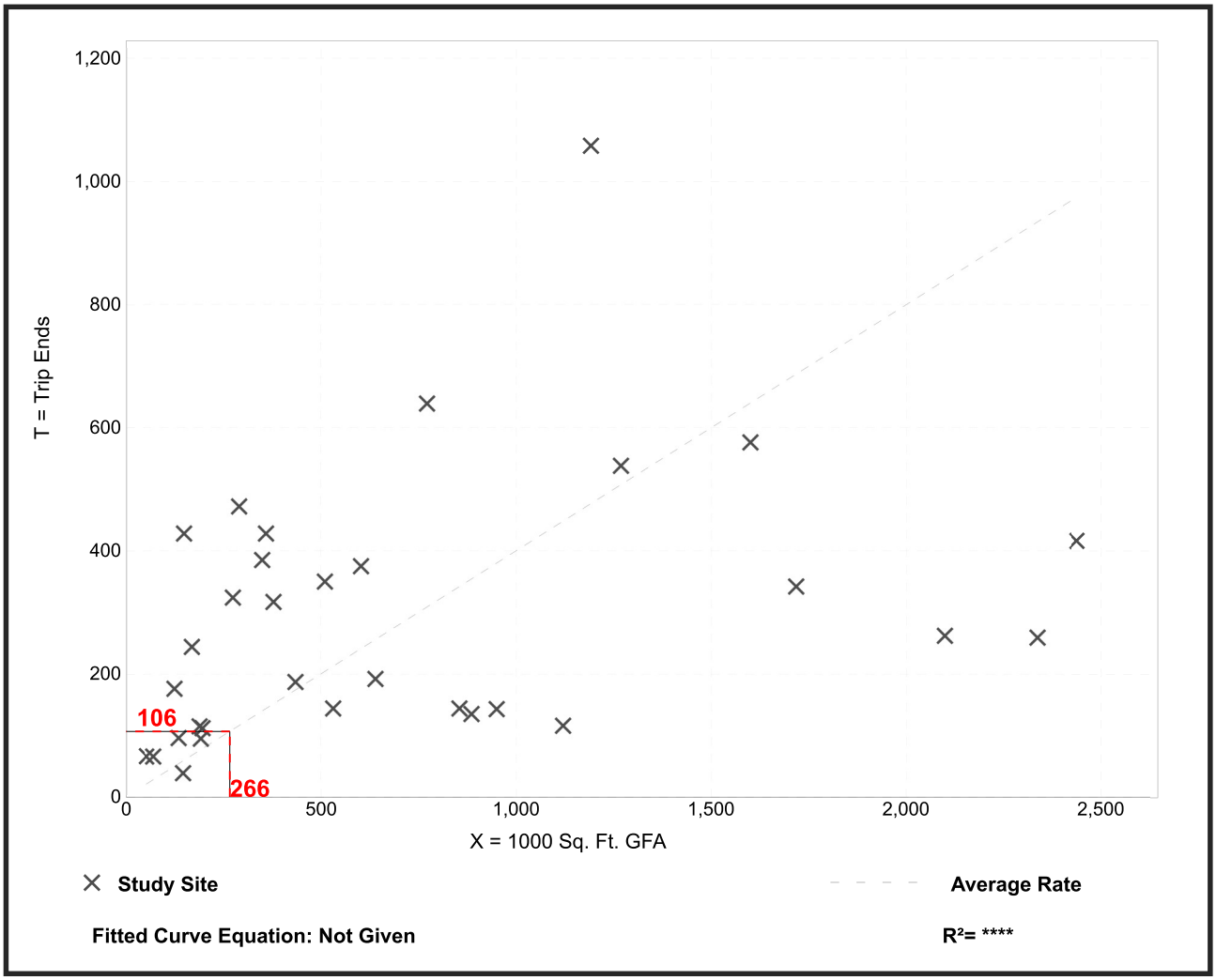
Industrial Park
(130)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	32
Avg. 1000 Sq. Ft. GFA:	720
Directional Distribution:	21% entering, 79% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.85	0.41

Data Plot and Equation



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Industrial Park
(130)

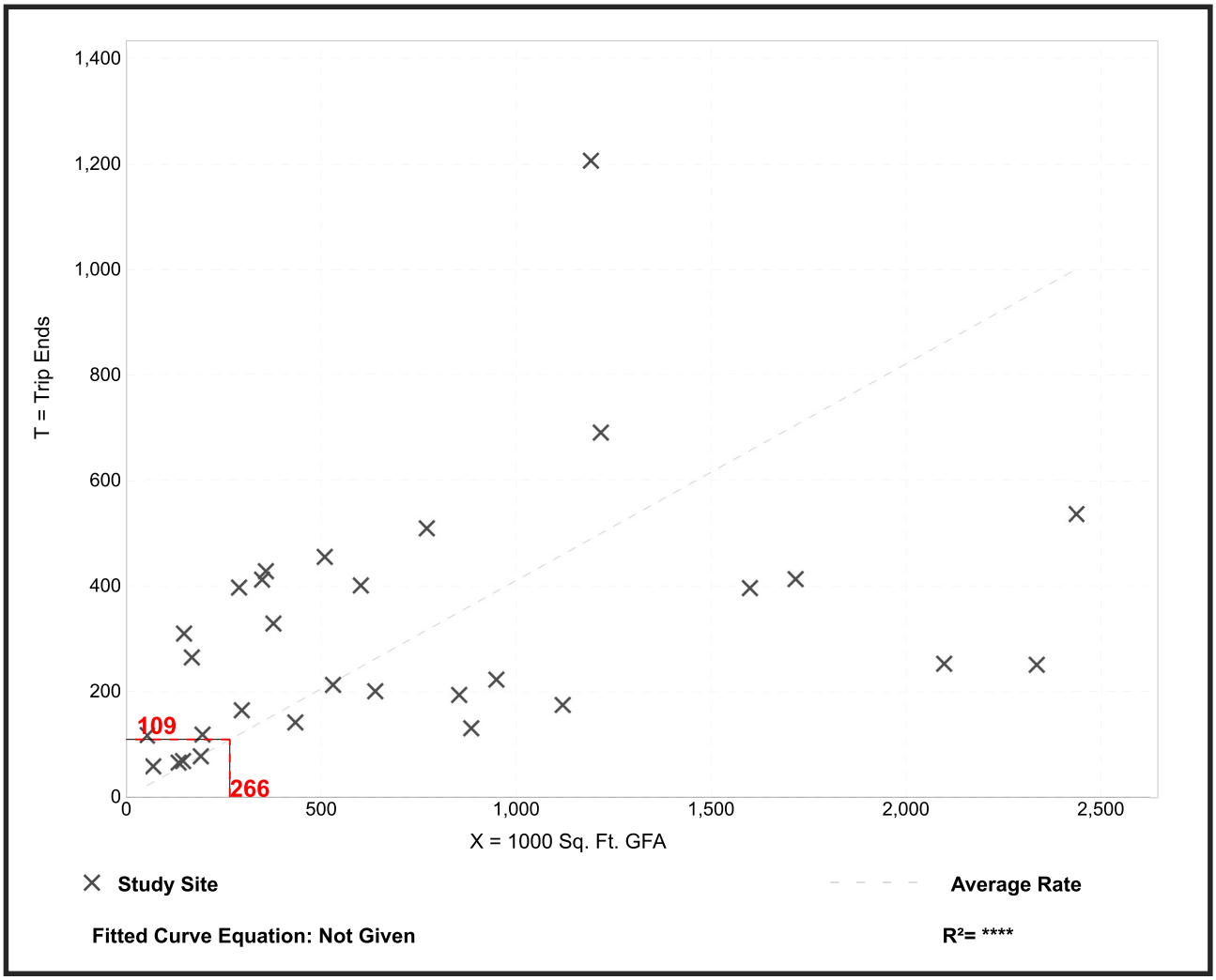
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. 1000 Sq. Ft. GFA: 757
Directional Distribution: 87% entering, 13% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.41	0.11 - 2.13	0.37

Data Plot and Equation



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Industrial Park
(130)

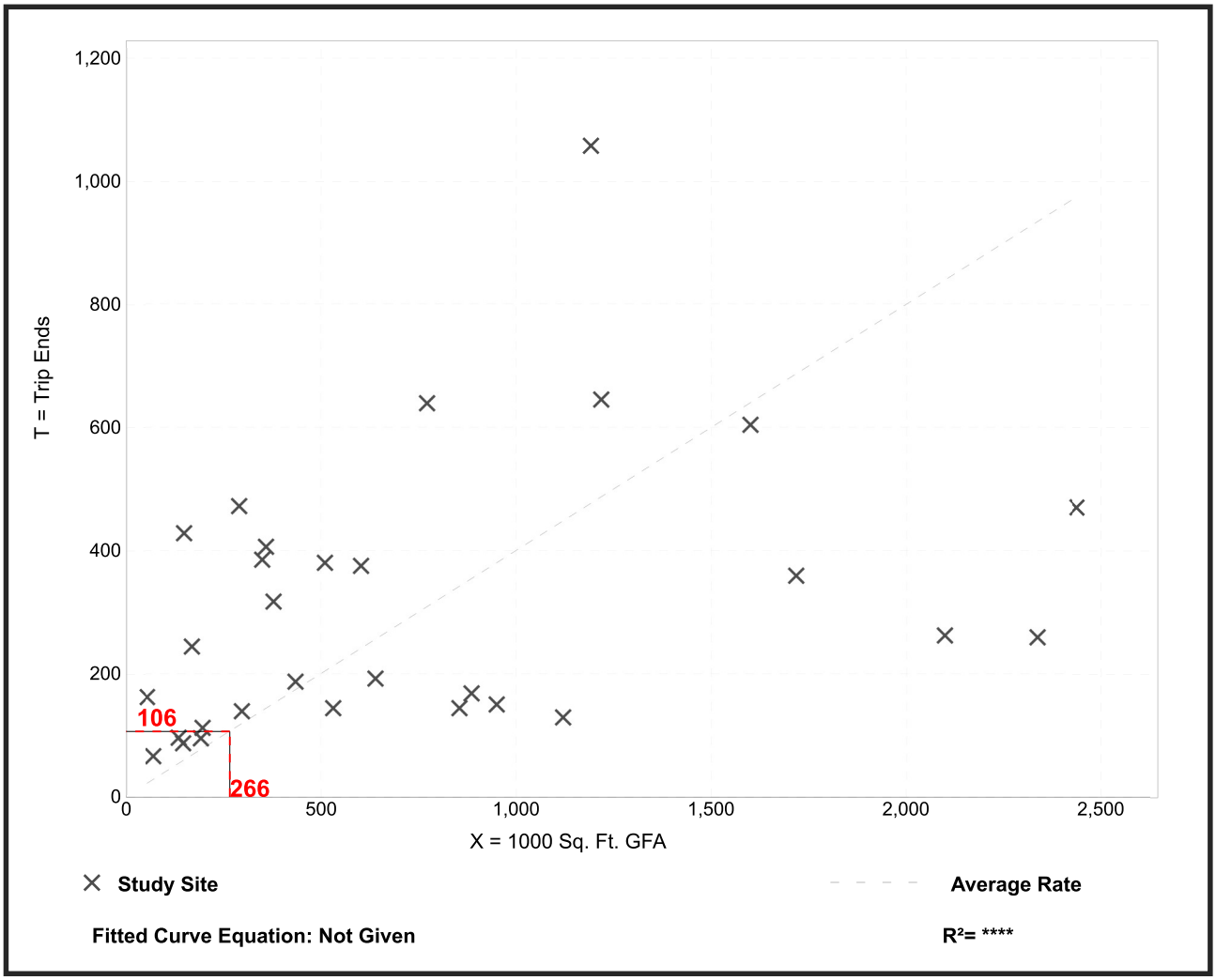
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. 1000 Sq. Ft. GFA: 757
Directional Distribution: 21% entering, 79% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.11 - 2.95	0.41

Data Plot and Equation



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Land Use: 140
Manufacturing

Description

A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, manufacturing facilities generally also have office, warehouse, research, and associated functions. General light industrial (Land Use 110) and industrial park (Land Use 130) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 17 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:30 and 7:30 a.m. and 3:00 and 4:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Minnesota, New Jersey, New York, Oregon, Pennsylvania, South Dakota, Texas, Vermont, and Washington.

Source Numbers

177, 184, 241, 357, 384, 418, 443, 583, 598, 611, 728, 747, 875, 940, 969

Manufacturing
(140)

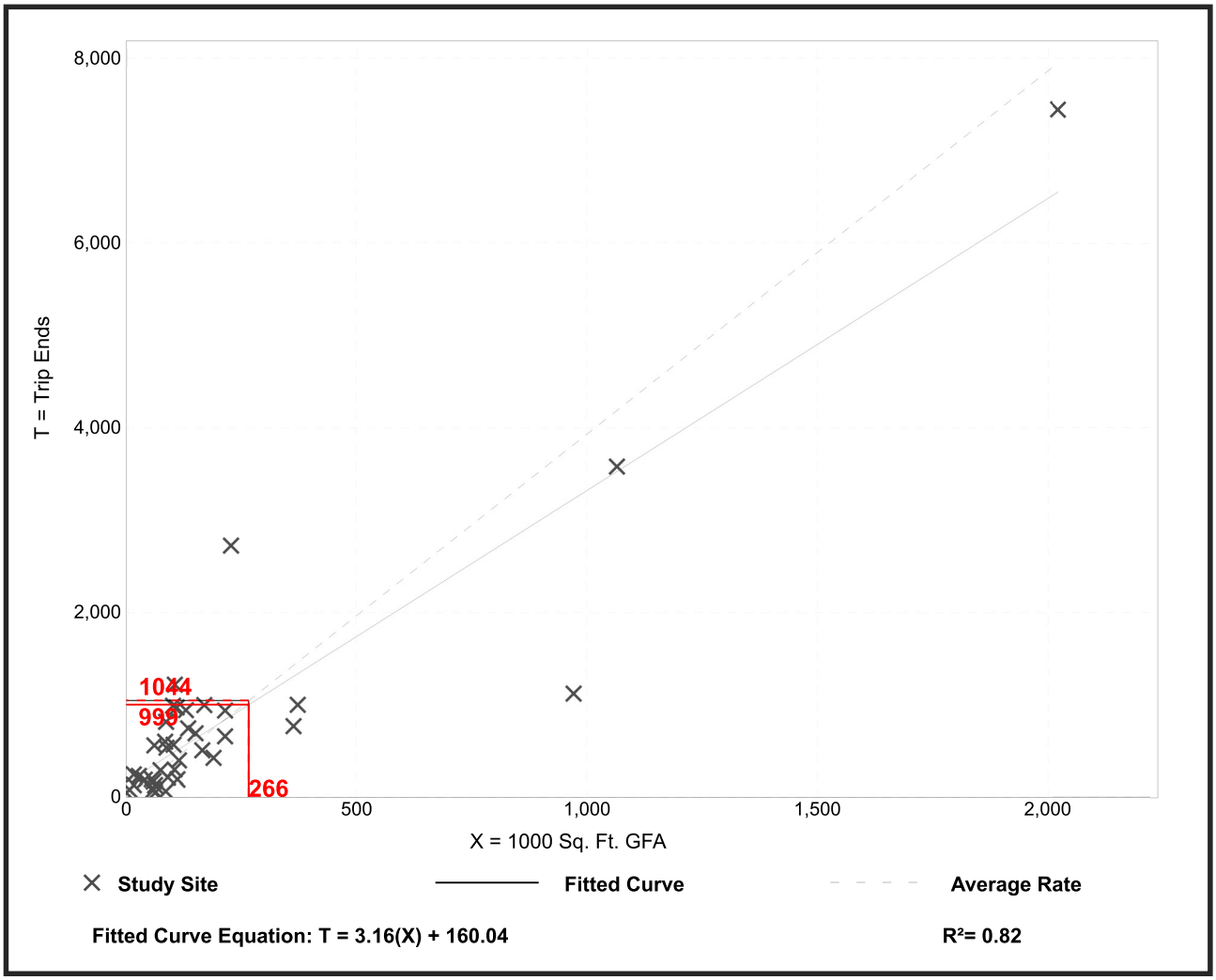
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 39
Avg. 1000 Sq. Ft. GFA: 209
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.83 - 49.50	2.62

Data Plot and Equation



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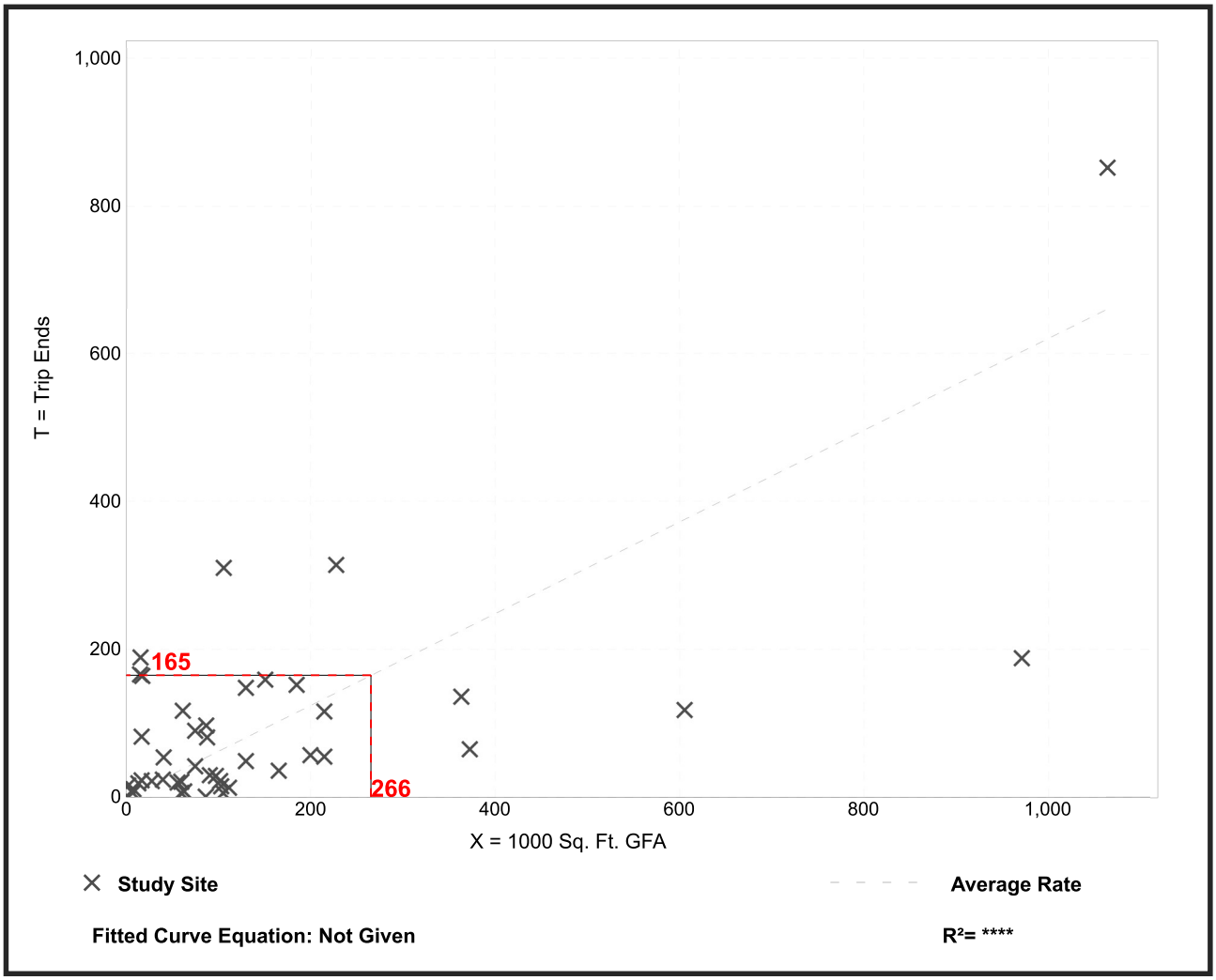
Manufacturing
(140)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	45
Avg. 1000 Sq. Ft. GFA:	149
Directional Distribution:	77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.62	0.01 - 11.93	1.03

Data Plot and Equation



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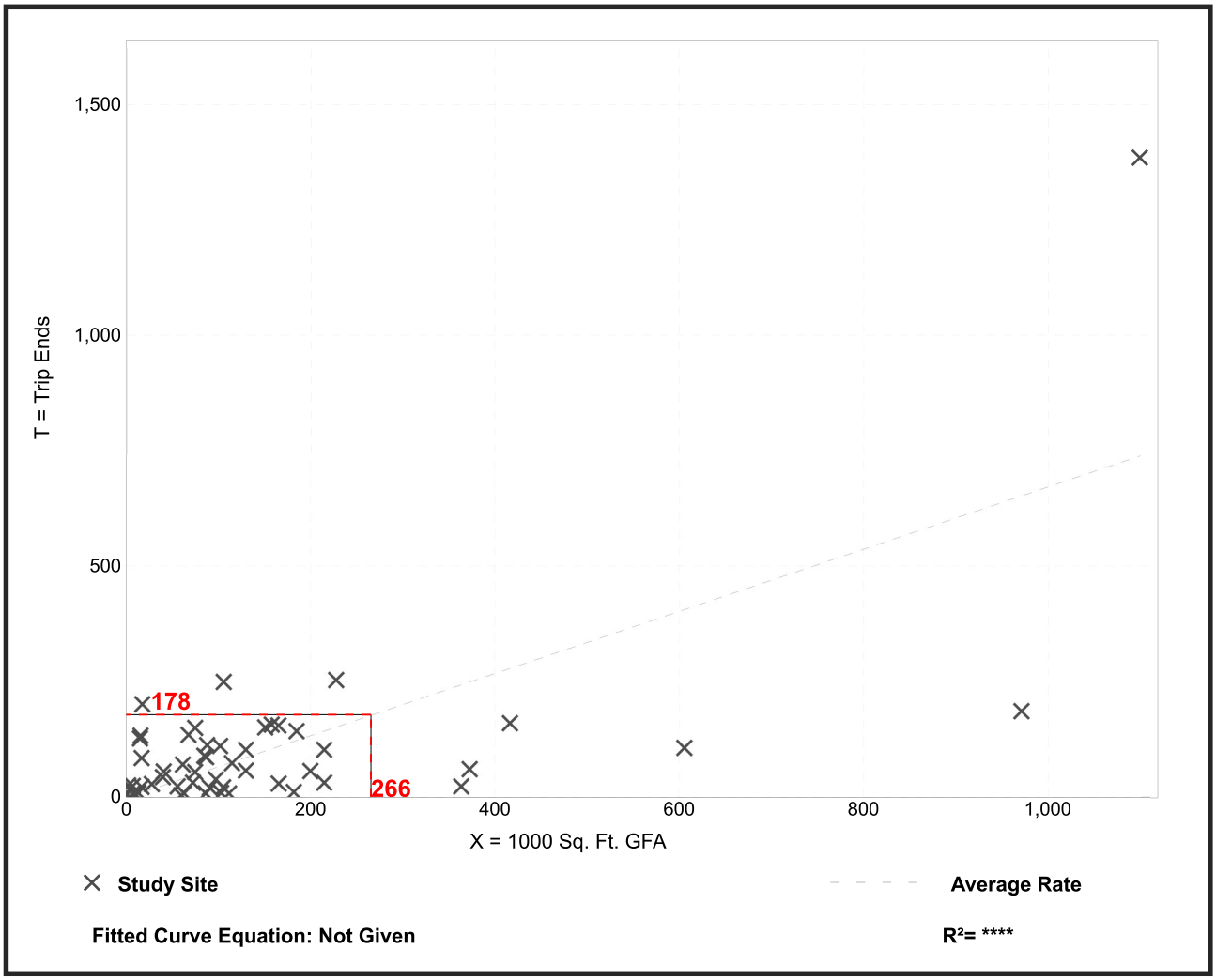
Manufacturing
(140)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	52
Avg. 1000 Sq. Ft. GFA:	152
Directional Distribution:	31% entering, 69% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.67	0.07 - 11.37	0.94

Data Plot and Equation



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Manufacturing
(140)

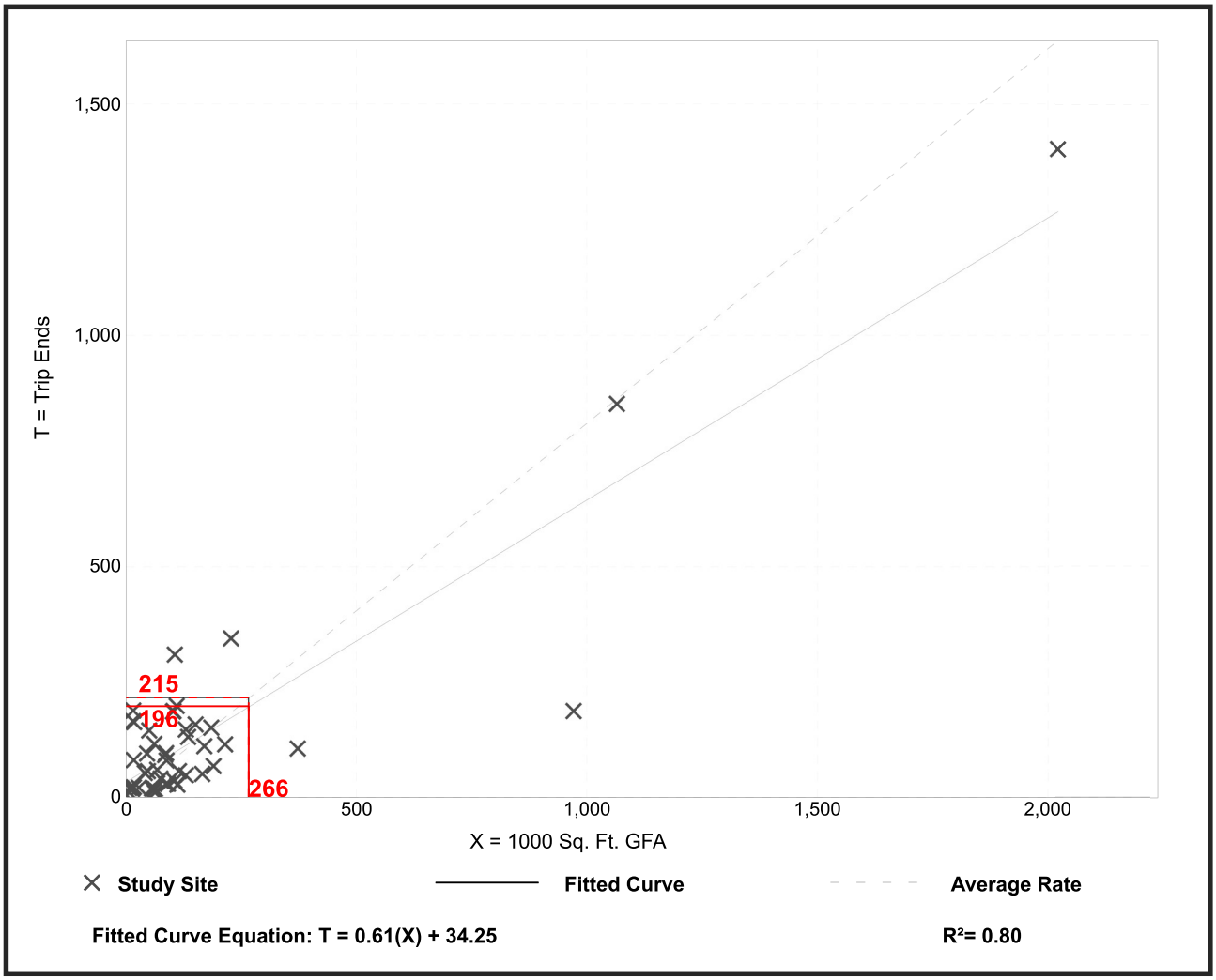
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 48
Avg. 1000 Sq. Ft. GFA: 170
Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.81	0.17 - 11.93	0.96

Data Plot and Equation



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Manufacturing
(140)

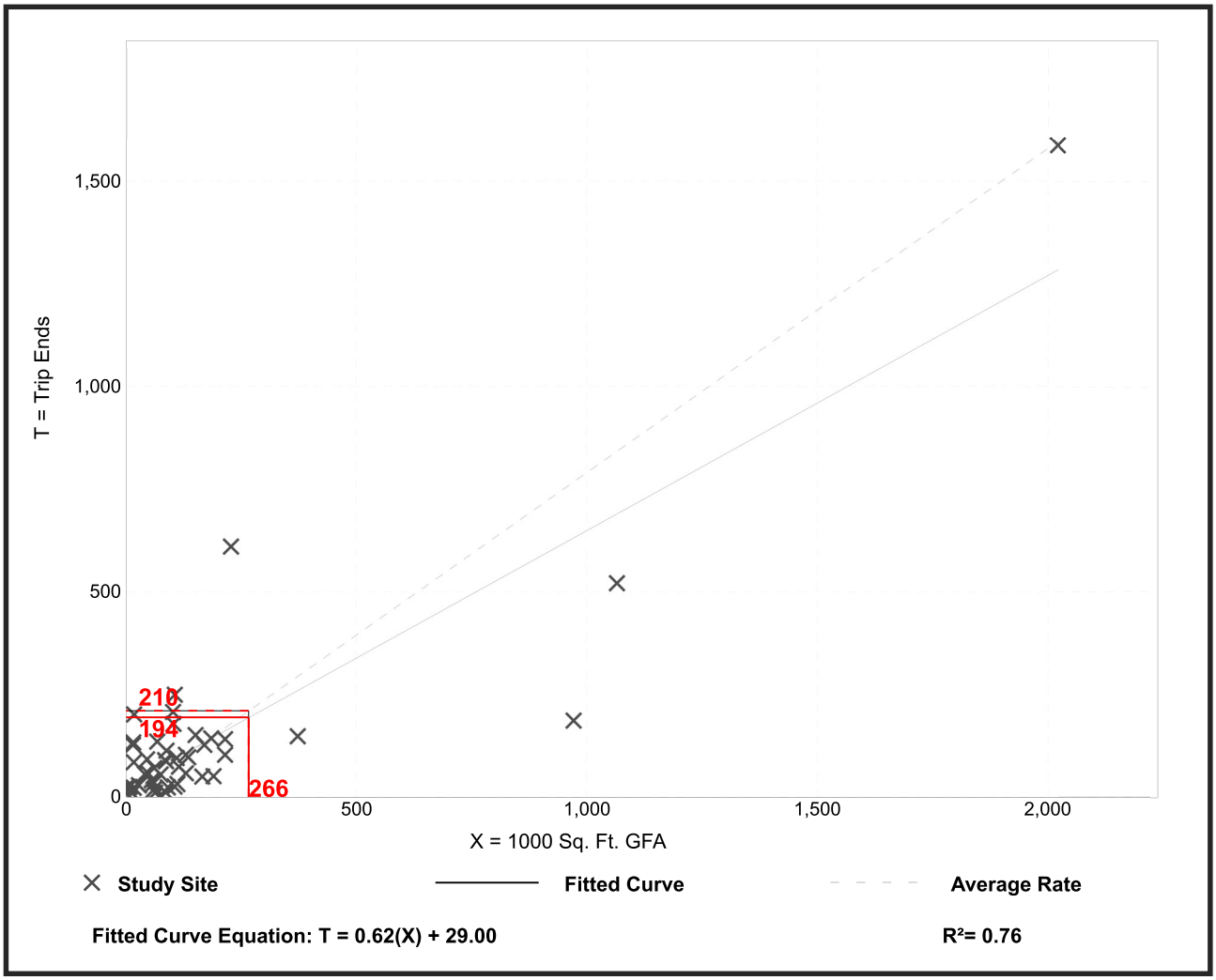
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 48
Avg. 1000 Sq. Ft. GFA: 173
Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.79	0.15 - 11.37	0.92

Data Plot and Equation



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Land Use: 150
Warehousing

Description

A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas. High-cube transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 13 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:30 a.m. and 12:30 p.m. and 3:00 and 4:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Texas.

Source Numbers

184, 331, 406, 411, 443, 579, 583, 596, 598, 611, 619, 642, 752, 869, 875, 876, 914, 940

Warehousing
(150)

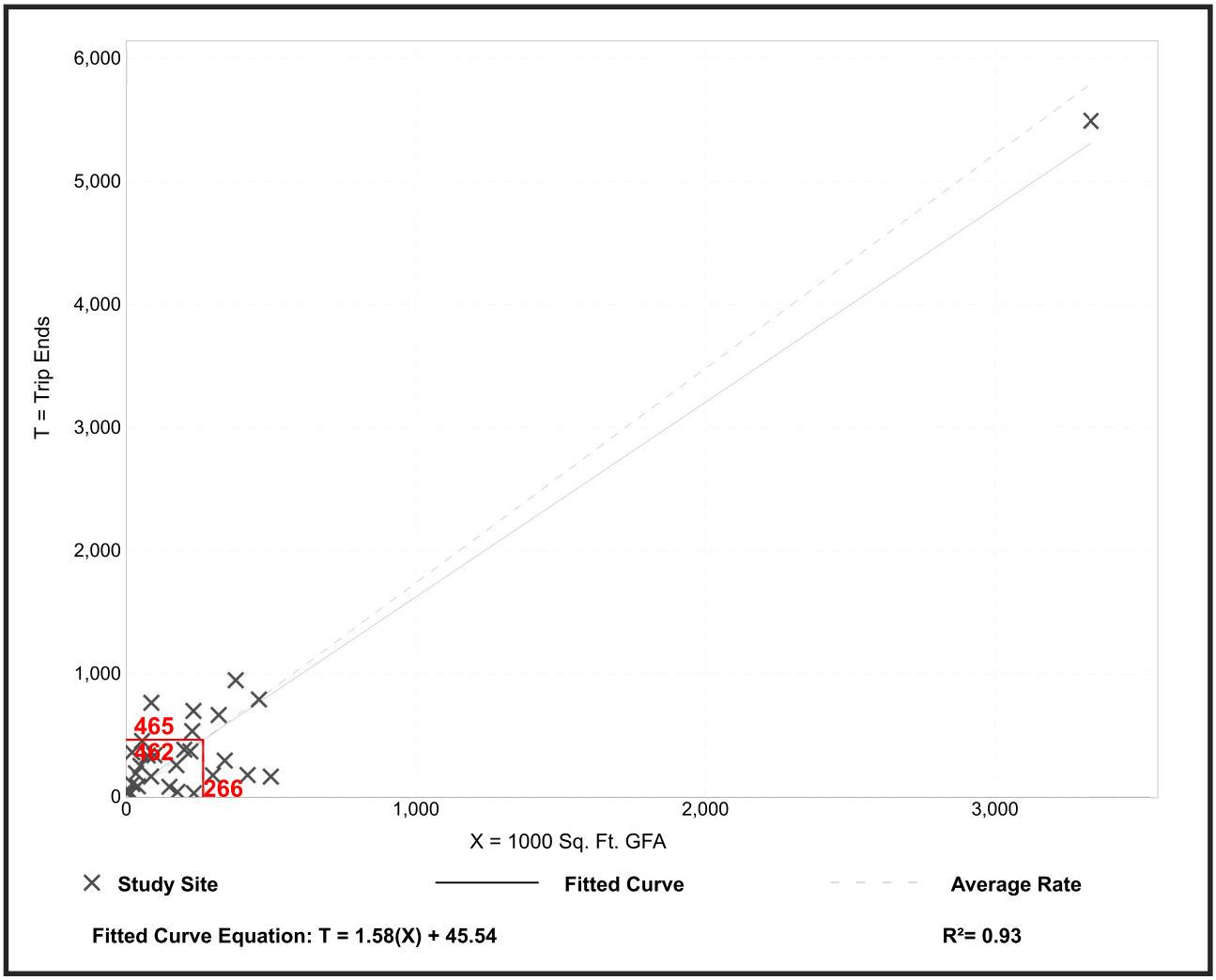
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. 1000 Sq. Ft. GFA: 285
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.74	0.15 - 16.93	1.55

Data Plot and Equation



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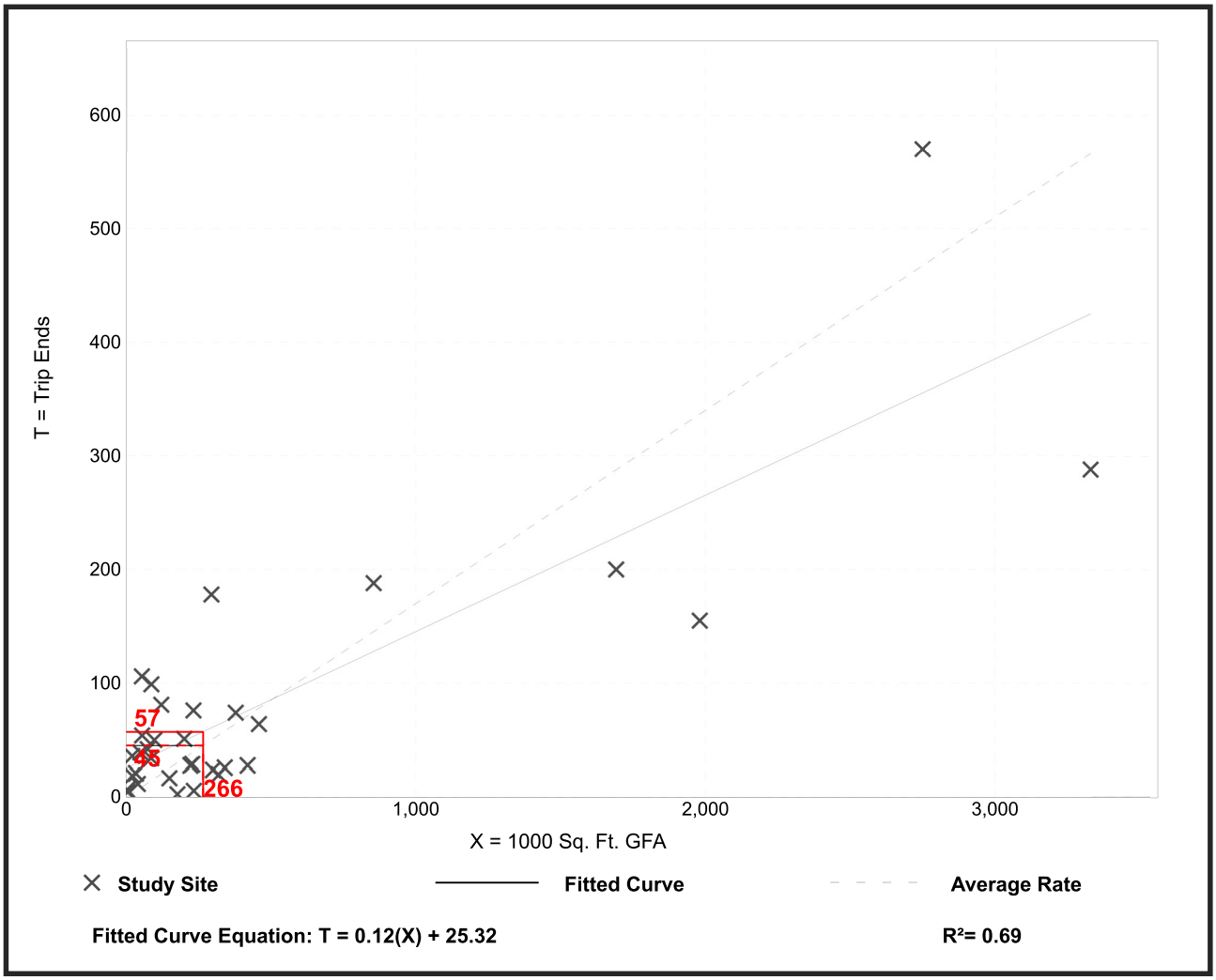
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	34
Avg. 1000 Sq. Ft. GFA:	451
Directional Distribution:	77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



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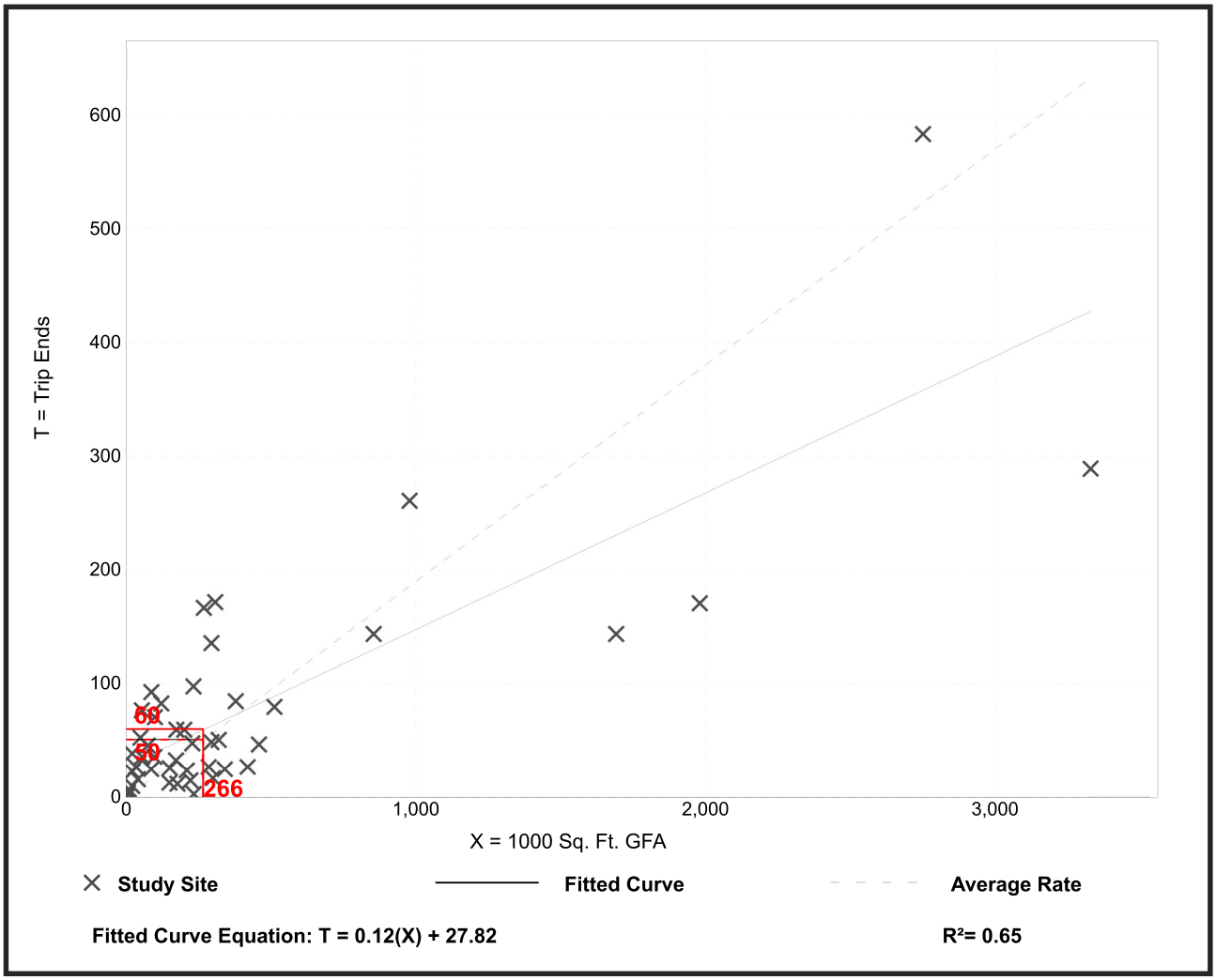
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	47
Avg. 1000 Sq. Ft. GFA:	400
Directional Distribution:	27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation



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Warehousing
(150)

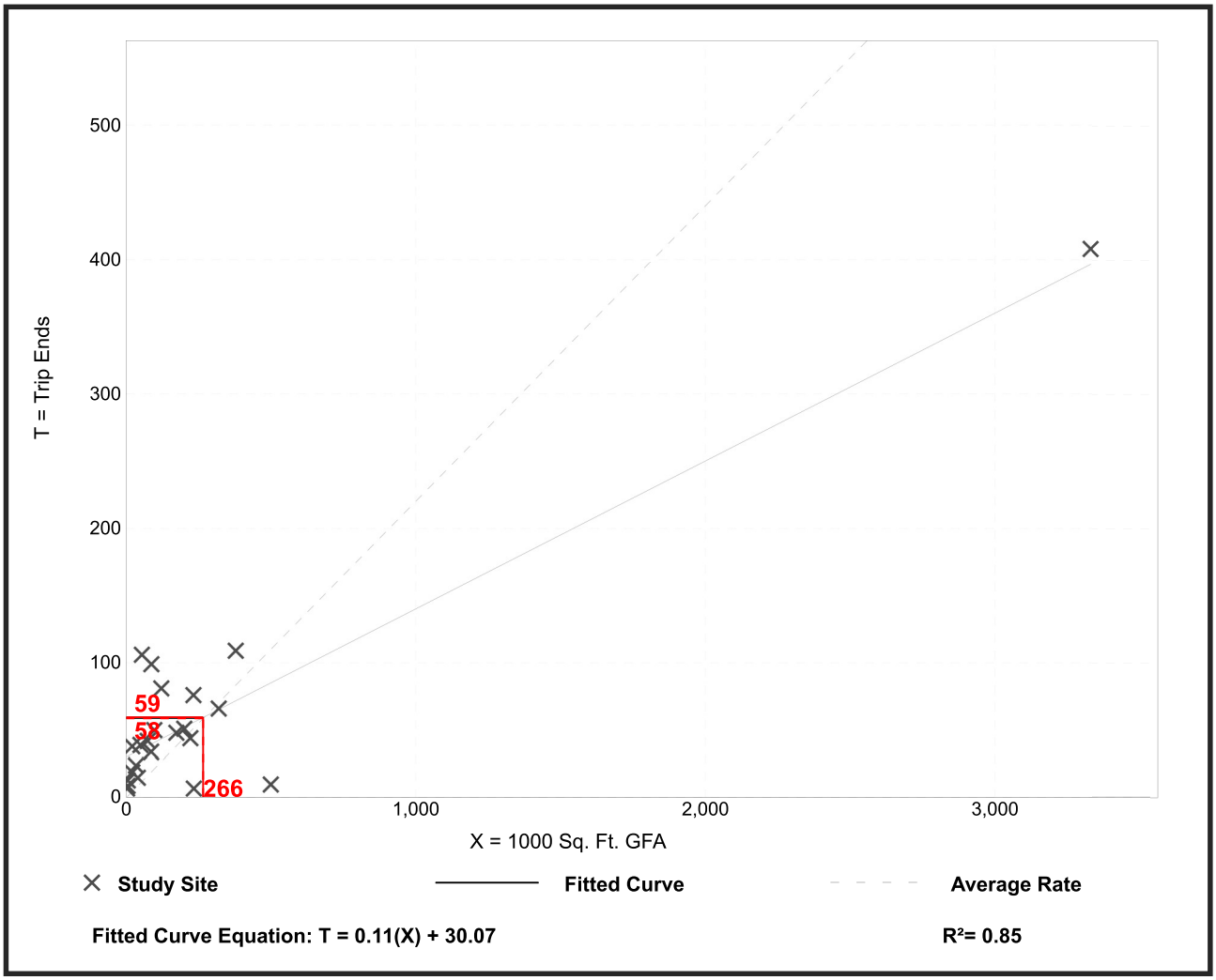
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 23
Avg. 1000 Sq. Ft. GFA: 274
Directional Distribution: 65% entering, 35% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.22	0.02 - 2.08	0.28

Data Plot and Equation



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Warehousing
(150)

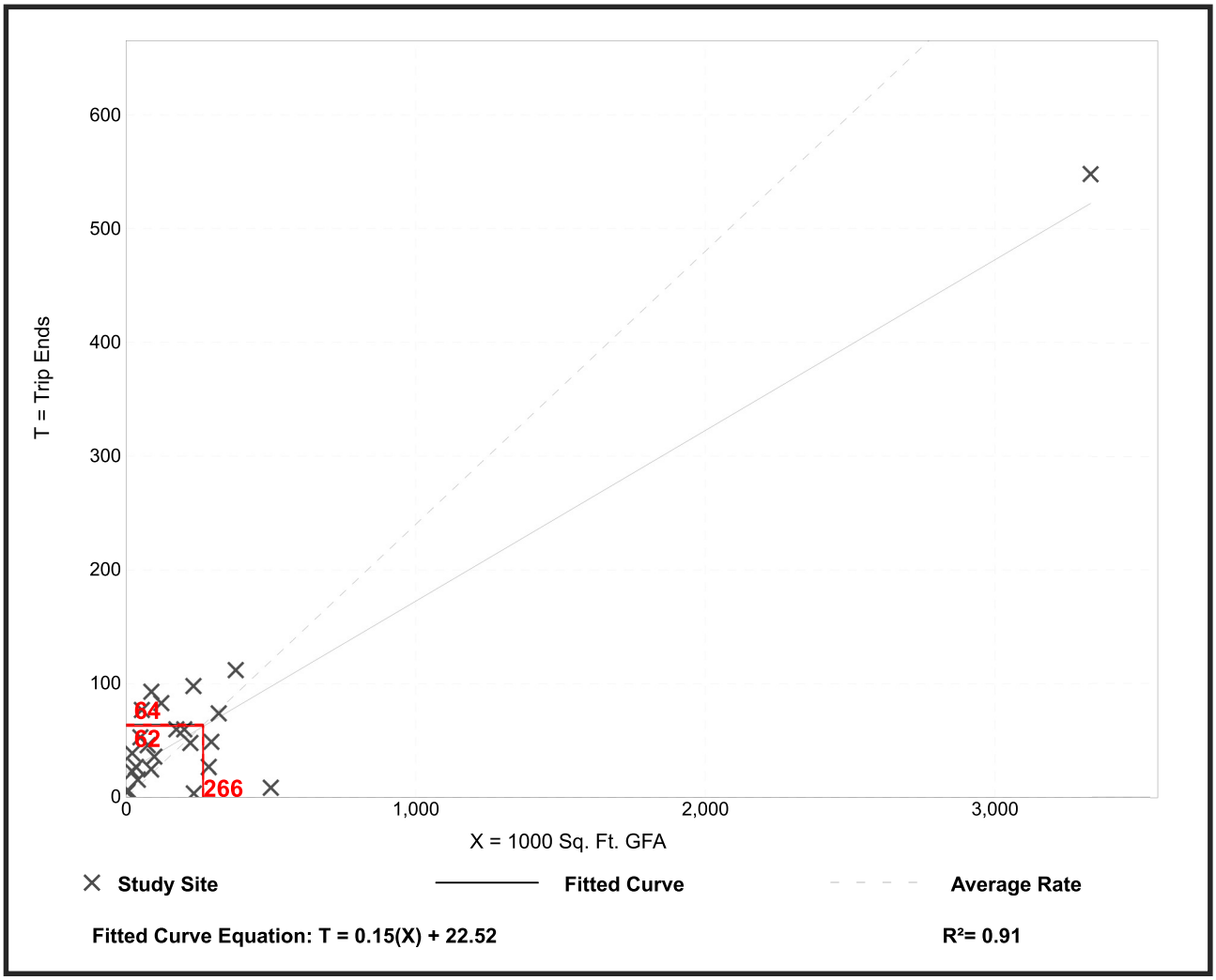
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. 1000 Sq. Ft. GFA: 275
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.24	0.02 - 1.80	0.24

Data Plot and Equation



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Use Fitted Curve Equation when:

- A fitted curve equation is provided and the data plot has at least 20 data points

OR

- A fitted curve equation is provided, the curve has an R^2 of at least 0.75, the fitted curve falls within data cluster, and the weighted standard deviation is more than 55 percent of the weighted average rate.

Use Weighted Average Rate when:

- The data plot has at least three data points (and preferably, six or more);
- The R^2 value for the fitted curve is less than 0.75 or no fitted curve equation is provided;
- The weighted standard deviation for the average rate is less than 55 percent of the weighted average rate; and
- The weighted average rate is within data cluster in plot.

Collect Local Data when:

- Study site is not compatible with ITE Land Use Code definition;
- Data plot has only one or two data points (and preferably, when five or fewer);
- The weighted standard deviation for the average rate is greater than 55 percent of the weighted average rate;
- Independent variable value is not within range of data; or
- Neither weighted average rate line nor fitted curve is within data cluster at size of study site.

APPENDIX M

Biological Resources Query Data

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: June 05, 2018
Consultation Code: 08ESMF00-2018-SLI-2275
Event Code: 08ESMF00-2018-E-06662
Project Name: WeGrow

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-2275

Event Code: 08ESMF00-2018-E-06662

Project Name: WeGrow

Project Type: DEVELOPMENT

Project Description: Indoor Cultivation

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.50969524219107N121.400113928465W

Counties: Sacramento, CA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.