

## **Appendix 9.0**

### **Water Quality Management Plan**

# Project Specific Water Quality Management Plan

*A Template for preparing Project Specific WQMPs for Priority Development Projects located within the **Santa Margarita Region of Riverside County**. This template does not apply to projects in other watersheds within Riverside County. It does not apply to projects in San Diego or Orange County.*



Attention: This submittal package only applies to “Priority Development Projects” and does not apply to “Other Development Projects”. Proceed only if the Applicability Checklist completed for your project categorizes project activities as a “Priority Development Project.”

**Project Title:** FAITH BIBLE CHURCH

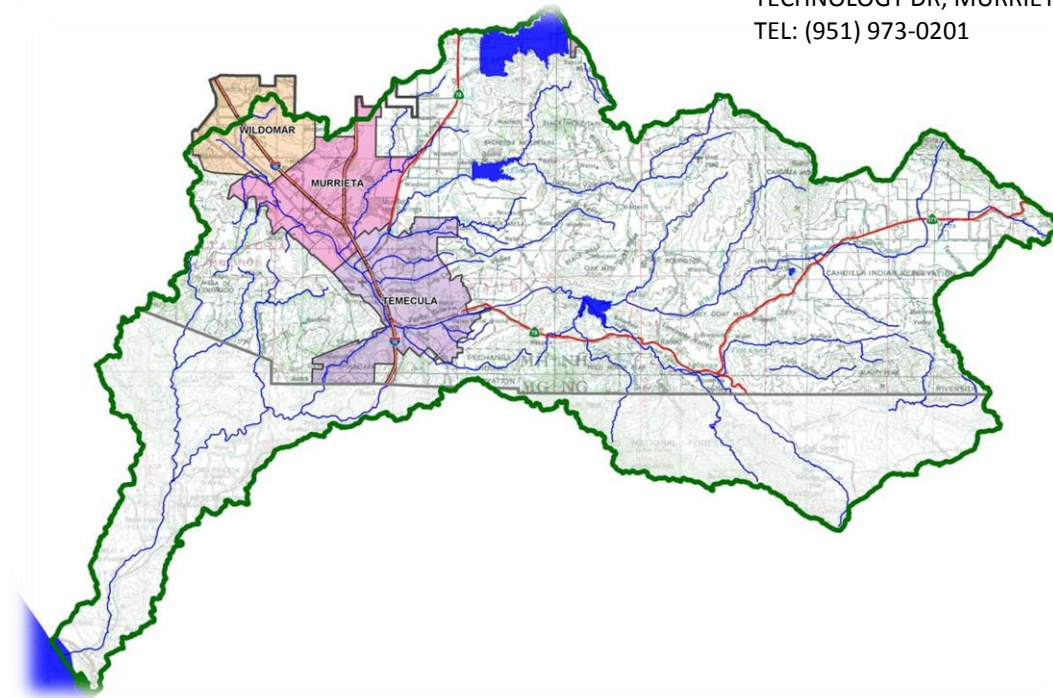
**Development No:** 17-0111

**Design Review/Case No:** Insert text here

**Prepared for:** FAITH BIBLE CHURCH

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☒ Preliminary  
☐ Final

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*Prepared for Compliance with Regional Board Order No. **R9-2013-0001** as amended by Order No. **R9-2015-0001** and Order No. **R9-2015-0100***



## A Brief Introduction

The Regional Municipal Separate Stormwater Sewer System (MS4) Permit<sup>1</sup> requires that a Project-Specific WQMP be prepared for all development projects within the Santa Margarita Region (SMR) that meet the 'Priority Development Project' categories and thresholds listed in the SMR Water Quality Management Plan (WQPM). This Project-Specific WQMP Template for Development Projects in the **Santa Margarita Region** has been prepared to help document compliance and prepare a WQMP submittal. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



<sup>1</sup> Order No. R9-2013-0001 as amended by Order Nos. R9-2015-0001 and R9-2015-0100, NPDES No. CAS0109266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the MS4s Draining the Watersheds within the San Diego Region, California Regional Water Quality Control Board, May 8, 2013.

## OWNER'S CERTIFICATION

This Project-Specific WQMP has been prepared for FAITH BIBLE CHURCH by Francisco Martinez, Jr for the FAITH BIBLE CHURCH WILDOMAR project.

This WQMP is intended to comply with the requirements of CITY OF WILDOMAR for ORDINANCE TITLE 13.12 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater Best Management Practices until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under CITY OF WILDOMAR Water Quality Ordinance (Municipal Code Section 13.12 Stormwater Drainage System Protection).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

\_\_\_\_\_  
Owner's Signature

\_\_\_\_\_  
Date

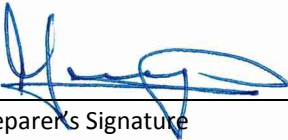
John Pleasnick

\_\_\_\_\_  
Owner's Printed Name

\_\_\_\_\_  
Owner's Title/Position

## PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control Best Management Practices in this plan meet the requirements of Regional Water Quality Control Board Order No. **R9-2013-0001** as amended by Order Nos. **R9-2015-0001** and **R9-2015-0100**."

  
\_\_\_\_\_  
Preparer's Signature

2/7/19

\_\_\_\_\_  
Date

Francisco Martinez Jr. P.E.

\_\_\_\_\_  
Preparer's Printed Name

Principal/Project Manager

\_\_\_\_\_  
Preparer's Title/Position

Preparer's Licensure:

## Table of Contents

Section A: Project and Site Information.....	7
A.1 Maps and Site Plans.....	8
A.2 Identify Receiving Waters.....	8
A.3 Drainage System Susceptibility to Hydromodification .....	9
A.4 Additional Permits/Approvals required for the Project: .....	10
Section B: Optimize Site Utilization (LID Principles) .....	11
Section C: Delineate Drainage Management Areas (DMAs).....	16
Section D: Implement LID BMPs .....	20
D.1 Full Infiltration Applicability .....	20
D.2 Biofiltration Applicability .....	22
D.3 Feasibility Assessment Summaries .....	24
D.4 LID BMP Sizing .....	25
Section E: Implement Hydrologic Control BMPs and Sediment Supply BMPs .....	27
E.1 Hydrologic Control BMP Selection .....	27
E.2 Hydrologic Control BMP Sizing.....	28
E.3 Implement Sediment Supply BMPs.....	28
Section F: Alternative Compliance .....	33
F.1 Identify Pollutants of Concern.....	33
F.2 Treatment Control BMP Selection .....	36
F.3 Sizing Criteria.....	36
F.4 Hydrologic Performance Standard – Alternative Compliance Approach.....	37
Section G: Implement Trash Capture BMPs.....	39
Section H: Source Control BMPs .....	41
Section I: Coordinate Submittal with Other Site Plans .....	44
Section J: Operation, Maintenance and Funding.....	46
Section K: Acronyms, Abbreviations and Definitions .....	47

## List of Tables

Table A.1 Identification of Receiving Waters.....	8
Table A-2 Identification of Susceptibility to Hydromodification .....	9
Table A-3 Other Applicable Permits.....	10
Table C-1 DMA Identification.....	16
Table C-2 Type 'A', Self-Treating Areas.....	17
Table C-3 Type 'B', Self-Retaining Areas .....	18
Table C-4 Type 'C', Areas that Drain to Self-Retaining Areas.....	18
Table C-5 Type 'D', Areas Draining to BMPs .....	19
Table D-1 Infiltration Feasibility.....	21
Table D-2 Geotechnical Concerns for Onsite Infiltration .....	22
Table D-3 Evaluation of Biofiltration BMP Feasibility .....	23
Table D-4 Proprietary BMP Approval Requirement Summary .....	23
Table D-5 LID Prioritization Summary Matrix .....	24
Table D-6 Summary of Infeasibility Documentation.....	24
Table D-7 LID BMP Sizing .....	26
Table E-1 Hydrologic Control BMP Sizing.....	28
Table E-2 Triad Assessment Summary .....	30
Table F-1 Summary of Approved 2010 303(d) listed waterbodies and associated pollutants of concern for the Riverside County SMR Region and downstream waterbodies. ....	34
Table F-2 Potential Pollutants by Land Use Type.....	35
Table F-3 Treatment Control BMP Selection .....	36
Table F-4.1 Treatment Control BMP Sizing.....	36
Table F-5.2 Treatment Control BMP Sizing.....	37
Table F-6 Offsite Hydrologic Control BMP Sizing .....	38
Table G-1.1 Sizing Trash Capture BMPs .....	39
Table G-2.2 Sizing Trash Capture BMPs .....	39
Table G-3.2 Sizing Trash Capture BMPs .....	40
Table G-4 Approximate precipitation depth/intensity values for calculation of the Trash Capture Design Storm.....	40
Table G-5 Trash Capture BMPs .....	40
Table I-1 Construction Plan Cross-reference .....	44
Table I-2 Other Applicable Permits.....	44

## List of Appendices

Appendix 1: Maps and Site Plans.....	54
Appendix 2: Construction Plans .....	55
Appendix 3: Soils Information.....	56

Appendix 4: Historical Site Conditions ..... 57

[Appendix 5: LID Infeasibility](#)..... 59

Appendix 6: BMP Design Details ..... 59

Appendix 7: Hydromodification ..... 60

Appendix 8: Source Control ..... 61

Appendix 9: O&M ..... 62

Appendix 10: Educational Materials ..... 43

## Section A: Project and Site Information

Use the table below to compile and summarize basic site information that will be important for completing subsequent steps. Subsections A.1 through A.4 provide additional detail on documentation of additional project and site information.

PROJECT INFORMATION	
Type of PDP:	Religious
Type of Project:	N/A
Planning Area:	Insert Planning Area if known
Community Name:	Wildomar
Development Name:	Faith Bible Church Wildomar
PROJECT LOCATION	
Latitude & Longitude (DMS):	33.604, -117.2497
Project Watershed and Sub-Watershed:	Santa Margarita River, Murrieta HSA
24-Hour 85 <sup>th</sup> Percentile Storm Depth (inches):	0.694
Is project subject to Hydromodification requirements?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N (Select based on Section A.3)
APN(s):	376-410-024, 376-410-002
Map Book and Page No.:	Book No. 2383, Pg 250 and Book No. 44, Pg. 51 of Parcel Maps
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Religious Institution
Proposed or Potential SIC Code(s)	8661
Existing Impervious Area of Project Footprint (SF)	0 SF
Total area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	460,883 SF
Total Project Area (ac)	24.5 AC
Does the project consist of offsite road improvements?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project exempt from Hydromodification Performance Standards?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Does the project propose the use of Alternative Compliance to satisfy BMP requirements? (note, alternative compliance is not allowed for coarse sediment performance standards)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Has preparation of Project-Specific WQMP included coordination with other site plans?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Is the project located within any Multi-Species Habitat Conservation Plan area (MSHCP Criteria Cell?)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N If "Y" insert Cell Number
Are there any natural hydrologic features on the project site?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Is a Geotechnical Report attached?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If no Geotech. Report, list the Natural Resources Conservation Service (NRCS) soils type(s) present on the site (A, B, C and/or D)	Insert text here.

## A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the Project vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Vicinity and location maps
- Parcel Boundary and Project Footprint
- Existing and Proposed Topography
- Drainage Management Areas (DMAs)
- Proposed Structural Best Management Practices (BMPs)
- Drainage Paths
- Drainage infrastructure, inlets, overflows
- Source Control BMPs
- Site Design BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Pervious Surfaces (i.e. Landscaping)
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Copermitttee plan reviewer must be able to easily analyze your Project utilizing this template and its associated site plans and maps. Complete the checklists in Appendix 1 to verify that all exhibits and components are included.

## A.2 Identify Receiving Waters

Using Table A-1 below, list in order of upstream to downstream, the Receiving Waters that the Project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated Beneficial Uses, and proximity, if any, to a RARE Beneficial Use. Include a map of the Receiving Waters in Appendix 1. This map should identify the path of the stormwater discharged from the site all the way to the outlet of the Santa Margarita River to the Pacific Ocean. Use the most recent 303(d) list available from the State Water Resources Control Board Website.

([http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/basin\\_plan/](http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/))

**Table A.1** Identification of Receiving Waters

Receiving Waters	USEPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Murrieta Creek (HUB No. 2.31, 2.32 & 2.52); 13.8 Mi.	Chlorpyrifos, Copper, Iron, Manganese, Nitrogen, Phosphorus, Toxicity	MUN, AGR, IND, PROC, REC-2, WARM, WILD	None
Santa Margarita River–Upper (HUB No. 2.22, 2.21); 18.1Mi.	Nutrients (Phosphorus), Toxicity (Toxicity)	MUN, AGR, IND, REC-1, REC-2, WARM, COLD, WILD, RARE	12.8 Miles
Santa Margarita River–Lower Portion (HUB No. 2.13, 2.12, 2.11); 12.1 Mi.	Pathogens (Enterococcus, Fecal Coliform), Nutrients (Phosphorus, Total Nitrogen as N)	MUN, AGR, IND, PROC, REC-1, REC-2, WARM, COLD, WILD, RARE	30.9 Miles
Santa Margarita Lagoon; 0.5 Mi.	Nutrients (Eutrophic)	REC-1, REC-2, EST, WILD, RARE, MAR, MIGR, SPWN	43.0 Miles
Pacific Ocean	None	IND, NAV, REC-1, REC-2, COMM, BIOL, WILD, RARE, MAR, AQUA, MIGR, SPWN, SHELL	43.6 Miles

### A.3 Drainage System Susceptibility to Hydromodification

Using Table A-2 below, list in order of the point of discharge at the project site down to the Santa Margarita River<sup>2</sup>, each drainage system or receiving water that the project site is tributary to. Continue to fill each row with the material of the drainage system, and any exemption (if applicable). Based on the results, summarize the applicable hydromodification performance standards that will be documented in Section E. Exempted categories of receiving waters include:

- Existing storm drains that discharge directly to water storage reservoirs, lakes, or enclosed embayments, or
- Conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- Other water bodies identified in an approved WMAA (See Exhibit G to the WQMP)

Include a map exhibiting each drainage system and the associated susceptibility in Appendix 1.

**Table A-2 Identification of Susceptibility to Hydromodification**

Drainage System	Drainage System Material	Hydromodification Exemption	Hydromodification Exempt
Wildomar Valley-Twin Flower Avenue Storm Drain (1593')	RCP Pipes	Engineered, Fully Hardened, and Maintained (EFHM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Wildomar MDP Lateral E (1475')	RCP Pipes	Engineered, Fully Hardened, and Maintained (EFHM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Wildomar MDP Lateral E (1290')	Earth, Rock, RCP & Concrete	Engineered, Fully Hardened, and Maintained (EFHM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Murrieta Creek, Wildomar MDP Lateral E (1200')	Earth, Rock, RCP & Concrete	Engineered, Earthen and Maintained (EEM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Murrieta Creek (7.8 miles)	Natural Earthen	Not Engineered and Earthen	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Murrieta Creek (3.8 miles between Warm Springs Creek to Temecula Creek confluence)	Natural Earthen	Engineered, Earthen and Maintained (EEM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Santa Margarita River (at origin to Pacific Ocean)	Natural Earthen	Engineered, Earthen and Maintained (EEM)	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
<b>Summary of Performance Standards</b>			

<sup>2</sup> Refer to Exhibit G of the WQMP for a map of exempt and potentially exempt areas. These maps are from the Draft SMR WMAA as of January 5, 2018 and will be replaced upon acceptance of the SMR WMAA.



Drainage System	Drainage System Material	Hydromodification Exemption	Hydromodification Exempt
<input type="checkbox"/> <b>Hydromodification Exempt</b> – Select if “Y” is selected in the Hydromodification Exempt column above, project is exempt from hydromodification requirements.			
<input checked="" type="checkbox"/> <b>Not Exempt</b> -Select if “N” is selected in any row of the Hydromodification Exempt column above. Project is subject to hydrologic control requirements and may be subject to sediment supply requirements.			

## A.4 Additional Permits/Approvals required for the Project:

Table A-3 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Other (please list in the space below as required) RCFCD&WCD	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

If yes is answered to any of the questions above, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

## Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for LID Bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your Low Impact Development (LID) design and explain your design decisions to others.

Apply the following LID Principles to the layout of the PDP to the extent they are applicable and feasible. Putting thought upfront about how best to organize the various elements of a site can help to significantly reduce the PDP's potential impact on the environment and reduce the number and size of Structural LID BMPs that must be implemented. Integrate opportunities to accommodate the following LID Principles within the preliminary PDP site layout to maximize implementation of LID Principles.

### Site Optimization

Complete checklist below to determine applicable Site Design BMPs for your site.

Project- Specific WQMP Site Design BMP Checklist	
The following questions below are based upon Section 3.2 of the SMR WQMP will help you determine how to best optimize your site and subsequently identify opportunities and/or constraints, and document compliance.	
SITE DESIGN REQUIREMENTS	
Answer the following questions below by indicating "Yes," "No," or "N/A" (Not Applicable). Justify all "No" and "N/A" answers by inserting a narrative at the end of the section. The narrative should include identification and justification of any constraints that would prevent the use of those categories of LID BMPs. Upon identifying Site Design BMP opportunities, include these on your WQMP Site plan in Appendix 1.	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you identify and preserve existing drainage patterns?</b></p> <p>Integrating existing drainage patterns into the site plan helps to maintain the time of concentration and infiltration rates of runoff, decreasing peak flows, and may also help preserve the contribution of Critical Coarse Sediment (i.e., Bed Sediment Supply) from the PDP to the Receiving Water. Preserve existing drainage patterns by:</p> <ul style="list-style-type: none"> <li>• Minimizing unnecessary site grading that would eliminate small depressions, where appropriate add additional "micro" storage throughout the site landscaping.</li> <li>• Where possible conform the PDP site layout along natural landforms, avoid excessive grading and disturbance of vegetation and soils, preserve or replicate the sites natural drainage features and patterns.</li> <li>• Set back PDP improvements from creeks, wetlands, riparian habitats and any other natural water bodies.</li> <li>• Use existing and proposed site drainage patterns as a natural design element, rather than using expensive impervious conveyance systems. Use depressed landscaped areas, vegetated buffers, and bioretention areas as amenities and focal points within the site and landscape design.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <i>Insert discussion/justification here</i></p>	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you identify and protect existing vegetation?</b></p> <p>Identify any areas containing dense native vegetation or well-established trees, and try to avoid disturbing these areas. Soils with thick, undisturbed vegetation have a much higher capacity to store and infiltrate runoff than do disturbed soils. Reestablishment of a mature vegetative community may take decades. Sensitive areas, such as streams and floodplains should also be avoided.</p> <ul style="list-style-type: none"> <li>• Define the development envelope and protected areas, identifying areas that are most suitable for development and areas that should be left undisturbed.</li> <li>• Establish setbacks and buffer zones surrounding sensitive areas.</li> <li>• Preserve significant trees and other natural vegetation where possible.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <b><i>No dense vegetation is currently established on-site, and during project grading most of the existing vegetation will be removed; however, there are areas designated to remain natural and undisturbed, and sensitive areas such as drainage streams will be avoided and unobstructed.</i></b></p>	

Project- Specific WQMP Site Design BMP Checklist	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you identify and preserve natural infiltration capacity?</b></p> <p>A key component of LID is taking advantage of a site's natural infiltration and storage capacity. A site survey and geotechnical investigation can help define areas with high potential for infiltration and surface storage.</p> <ul style="list-style-type: none"> <li>• Identify opportunities to locate LID Principles and Structural BMPs in highly pervious areas. Doing so will maximize infiltration and limit the amount of runoff generated.</li> <li>• Concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <i>Insert discussion/justification here</i></p>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you minimize impervious area?</b></p> <p>Look for opportunities to limit impervious cover through identification of the smallest possible land area that can be practically impacted or disturbed during site development.</p> <ul style="list-style-type: none"> <li>• Limit overall coverage of paving and roofs. This can be accomplished by designing compact, taller structures, narrower and shorter streets and sidewalks, clustering buildings and sharing driveways, smaller parking lots (fewer stalls, smaller stalls, and more efficient lanes), and indoor or underground parking.</li> <li>• Inventory planned impervious areas on your preliminary site plan. Identify where permeable pavements, or other permeable materials, such as crushed aggregate, turf block, permeable modular blocks, pervious concrete or pervious asphalt could be substituted for impervious concrete or asphalt paving. This will help reduce the amount of Runoff that may need to be addressed through Structural BMPs.</li> <li>• Examine site layout and circulation patterns and identify areas where landscaping can be substituted for pavement, such as for overflow parking.</li> <li>• Consider green roofs. Green roofs are roofing systems that provide a layer of soil/vegetative cover over a waterproofing membrane. A green roof mimics pre-development conditions by filtering, absorbing, and evapotranspiring precipitation to help manage the effects of an otherwise impervious rooftop.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <i>Insert discussion/justification here</i></p>	

Project- Specific WQMP Site Design BMP Checklist	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you identify and disperse runoff to adjacent pervious areas or small collection areas?</b> Look for opportunities to direct runoff from impervious areas to adjacent landscaping, other pervious areas, or small collection areas where such runoff may be retained. This is sometimes referred to as reducing Directly Connected Impervious Areas.</p> <ul style="list-style-type: none"> <li>• Direct roof runoff into landscaped areas such as medians, parking islands, planter boxes, etc., and/or areas of pervious paving. Instead of having landscaped areas raised above the surrounding impervious areas, design them as depressed areas that can receive Runoff from adjacent impervious pavement. For example, a lawn or garden depressed 3"-4" below surrounding walkways or driveways provides a simple but quite functional landscape design element.</li> <li>• Detain and retain runoff throughout the site. On flatter sites, smaller Structural BMPs may be interspersed in landscaped areas among the buildings and paving.</li> <li>• On hillside sites, drainage from upper areas may be collected in conventional catch basins and piped to landscaped areas and LID BMPs and/or Hydrologic Control BMPs in lower areas. Low retaining walls may also be used to create terraces that can accommodate LID BMPs. Wherever possible, direct drainage from landscaped slopes offsite and not to impervious surfaces like parking lots.</li> <li>• Reduce curb maintenance and provide for allowances for curb cuts.</li> <li>• Design landscaped areas or other pervious areas to receive and infiltrate runoff from nearby impervious areas.</li> <li>• Use Tree Wells to intercept, infiltrate, and evapotranspire precipitation and runoff before it reaches structural BMPs. Tree wells can be used to limit the size of Drainage Management Areas that must be treated by structural BMPs. Guidelines for Tree Wells are included in the Tree Well Fact Sheet in the LID BMP Design Handbook.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <i>Insert discussion/justification here</i></p>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you utilize native or drought tolerant species in site landscaping?</b> Wherever possible, use native or drought tolerant species within site landscaping instead of alternatives. These plants are uniquely suited to local soils and climate and can reduce the overall demands for potable water use associated with irrigation.</p>
<p>Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. <i>Insert discussion/justification here</i></p>	

Project- Specific WQMP Site Design BMP Checklist	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did implement harvest and use of runoff?</b></p> <p>Under the Regional MS4 Permit, Harvest and Use BMPs must be employed to reduce runoff on any site where they are applicable and feasible. However, Harvest and Use BMPs are effective for retention of stormwater runoff only when there is adequate demand for non-potable water during the wet season. If demand for non-potable water is not sufficiently large, the actual retention of stormwater runoff will be diminished during larger storms or during back-to-back storms.</p> <p>For the purposes of planning level Harvest and Use BMP feasibility screening, Harvest and Use is only considered to be a feasible if the total average wet season demand for non-potable water is sufficiently large to use the entire DCV within 72 hours. If the average wet season demand for non-potable water is not sufficiently large to use the entire DCV within 72 hours, then Harvest and Use is not considered to be feasible and need not be considered further.</p> <p>The general feasibility and applicability of Harvest and Use BMPs should consider:</p> <ul style="list-style-type: none"> <li>Any downstream impacts related to water rights that could arise from capturing stormwater (not common).</li> <li>Conflicts with recycled water used – where the project is conditioned to use recycled water for irrigation, this should be given priority over stormwater capture as it is a year-round supply of water.</li> <li>Code Compliance - If a particular use of captured stormwater, and/or available methods for storage of captured stormwater would be contrary to building codes in effect at the time of approval of the preliminary Project-Specific WQMP, then an evaluation of harvesting and use for that use would not be required.</li> <li>Wet season demand – the applicant shall demonstrate, to the acceptance of the [Insert Jurisdiction], that there is adequate demand for harvested water during the wet season to drain the system in a reasonable amount of time.</li> </ul>
<p>Discuss how this was included or provide a discussion/justification for “No” or “N/A” answer. <b><i>The wet season demand for non-potable water is not high enough to use the entire DCV within the 72 hours. Additionally, site landscaping will be native and drought tolerant species, thus further decreasing the demand for non-potable irrigation water.</i></b></p>	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<p><b>Did you keep the runoff from sediment producing pervious area hydrologically separate from developed areas that require treatment?</b></p> <p>Pervious area that qualify as self-treating areas or off-site open space should be kept separate from drainage to structural BMPs whenever possible. This helps limit the required size of structural BMPs, helps avoid impacts to sediment supply, and helps reduce clogging risk to BMPs.</p>
<p>Discuss how this was included or provide a discussion/justification for “No” or “N/A” answer. <b><i>The runoff from sediment producing pervious areas was not able to be completely separated from developed or impervious areas.</i></b></p>	

## Section C: Delineate Drainage Management Areas (DMAs)

This section provides streamlined guidance and documentation of the DMA delineation and categorization process, for additional information refer to the procedure in Section 3.3 of the SMR WQMP which discusses the methods of delineating and mapping your project site into individual DMAs. Complete Steps 1 to 4 to successfully delineate and categorize DMAs.

### Step 1: Identify Surface Types and Drainage Pathways

Carefully delineate pervious areas and impervious areas (including roofs) throughout site and identify overland flow paths and above ground and below ground conveyances. Also identify common points (such as BMPs) that these areas drain to.

### Step 2: DMA Delineation

Use the information in Step 1 to divide the entire PDP site into individual, discrete DMAs. Typically, lines delineating DMAs follow grade breaks and roof ridge lines. Where possible, establish separate DMAs for each surface type (e.g., landscaping, pervious paving, or roofs). Assign each DMA a unique code and determine its size in square feet. The total area of your site should total the sum of all of your DMAs (unless water from outside the project limits comingles with water from inside the project limits, i.e. run-on). Complete Table C-1

Table C-1 DMA Identification

DMA Name or Identification	Surface Type(s) <sup>1</sup>	Area (Sq. Ft.)	DMA Type
DMA 1	Roofs, Concrete, Asphalt, DG, Natural, Sand, Turf and Landscaping	566,788	To be Determined in Step 3
DMA 2	Roofs, Concrete, Asphalt, Natural, Sand, and Landscaping	144,000	
DMA 3	Concrete, Natural, Turf and Landscaping	22,021	
DMA 4	Roofs, Concrete, Natural, Landscaping	69,394	
DMA 5	Concrete, DG, Natural, Landscaping	58,273	
DMA 6	Asphalt, Natural	81,516	
DMA 7	Natural	95,958	
DMA 8	Roofs, Asphalt, Natural, Landscaping	31,217	

Add Columns as Needed

### Step 3: DMA Classification

Determine how drainage from each DMA will be handled by using information from Steps 1 and 2 and by completing Steps 3.A to 3.C. Each DMA will be classified as one of the following four types:

- Type 'A': Self-Treating Areas:
- Type 'B': Self-Retaining Areas
- Type 'C': Areas Draining to Self-Retaining Areas
- Type 'D': Areas Draining to BMPs

#### Step 3.A – Identify Type 'A' Self-Treating Area

Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

☒ Yes ☐ No

Area is undisturbed from their natural condition OR restored with Native and/or California Friendly vegetative covers.

☒ Yes ☐ No Area is irrigated, if at all, with appropriate low water use irrigation systems to prevent irrigation runoff.

☒ Yes ☐ No Runoff from the area will not comeingle with runoff from the developed portion of the site, or across other landscaped areas that do not meet the above criteria.

If all answers indicate "Yes," complete Table C-2 to document the DMAs that are classified as Self-Treating Areas.

**Table C-2 Type 'A', Self-Treating Areas**

DMA Name or Identification	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA 3	22,021	Undisturbed Natural, Restored w/native and California Friendly vegetative cover	Partly Irrigation w/partial drip system
DMA 4	69,394	Undisturbed Natural	None
DMA 5	58,273	Undisturbed Natural, California Friendly vegetative covers	Partial Drip Irrigation
DMA 6	81,516	Undisturbed Natural, Restored w/native and/or California Friendly vegetative covers	None
DMA 7	95,958	Undisturbed Natural, Restored w/native and/or California Friendly vegetative covers	None

### Step 3.B – Identify Type 'B' Self-Retaining Area and Type 'C' Areas Draining to Self-Retaining Areas

Type 'B' Self-Retaining Area: A Self-Retaining Area is shallowly depressed 'micro infiltration' areas designed to retain the Design Storm rainfall that reaches the area, without producing any Runoff.

Indicate if the DMAs meet the following criteria by answering "Yes," "No," or "N/A".

- ☐ Yes ☐ No ☒ N/A Slopes will be graded toward the center of the pervious area.
- ☐ Yes ☐ No ☒ N/A Soils will be freely draining to not create vector or nuisance conditions.
- ☐ Yes ☐ No ☒ N/A Inlet elevations of area/overflow drains, if any, should be clearly specified to be three inches or more above the low point to promote ponding.
- ☐ Yes ☐ No ☒ N/A Pervious pavements (e.g., crushed stone, porous asphalt, pervious concrete, or permeable pavers) can be self-retaining when constructed with a gravel base course four or more inches deep below any underdrain discharge elevation.

If all answers indicate "Yes," DMAs may be categorized as Type 'B', proceed to identify Type 'C' Areas Draining to Self-Retaining Areas.



Type 'C' Areas Draining to Self-Retaining Areas: Runoff from impervious or partially pervious areas can be managed by routing it to Self-Retaining Areas consistent with the LID Principle discussed in SMR WQMP Section 3.2.5 for 'Dispersing Runoff to Adjacent Pervious Areas'.

Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

- ☐ Yes ☒ No The drainage from the tributary area must be directed to and dispersed within the Self-Retaining Area.
- ☐ Yes ☒ No Area must be designed to retain the entire Design Storm runoff without flowing offsite.

If all answers indicate "Yes," DMAs may be categorized as Type 'C'.

Complete Table C-3 and Table C-4 to identify Type 'B' Self-Retaining Areas and Type 'C' Areas Draining to Self-Retaining Areas.

Table C-3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C-4=	Required Retention Depth (inches)
		[A]	[B]		[C]	$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$
N/A						

Table C-4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	$[C] = [A] \times [B]$		[D]	$[C]/[D]$
N/A							


*Note:* (See Section 3.3 of SMR WQMP) Ensure that partially pervious areas draining to a Self-Retaining area do not exceed the following ratio:

$$\left( \frac{2}{\text{Impervious Fraction}} \right) : 1$$

(Tributary Area: Self-Retaining Area)

### Step 3.C – Identify Type ‘D’ Areas Draining to BMPs

Areas draining to BMPs are those that could not be fully managed through LID Principles (DMA Types A through C) and will instead drain to a LID BMP and/or a Conventional Treatment BMP designed to manage water quality impacts from that area, and Hydromodification where necessary.

Complete Table C-5 to document which DMAs are classified as Areas Draining to BMPs

**Table C-5 Type ‘D’, Areas Draining to BMPs**

DMA Name or ID	BMP Name or ID Receiving Runoff from DMA
DMA 1	Infiltration Basin 1
DMA 2	Biofiltration 1 & 2
DMA 8	Biofiltration 3

*Note:* More than one DMA may drain to a single LID BMP; however, one DMA may not drain to more than one BMP.

## Section D: Implement LID BMPs

The Regional MS4 Permit requires the use of LID BMPs to provide retention or treatment of the DCV and includes a BMP hierarchy which requires Full Retention BMPs (Priority 1) to be considered before Biofiltration BMPs (Priority 2) and Flow-Through Treatment BMPs and Alternative Compliance BMPs (Priority 3). LID BMP selection must be based on technical feasibility and should be considered early in the site planning and design process. Use this section to document the selection of LID BMPs for each DMA. Note that feasibility is based on the DMA scale and may vary between DMAs based on site conditions.

### D.1 Full Infiltration Applicability

An assessment of the feasibility of utilizing full infiltration BMPs is required for all projects, *except where it can be shown that site design LID principles fully retain the DCV (i.e., all DMAs are Type A, B, or C), or where Harvest and Use BMPs fully retain the DCV. Check the following box if applicable:*

- ☐ Site design LID principles fully retain the DCV (i.e., all DMAs are Type A, B, or C), (Proceed to Section E).

If the above box remains unchecked, perform a site-specific evaluation of the feasibility of Infiltration BMPs using each of the applicable criteria identified in Chapter 2.3.3 of the SMR WQMP and complete the remainder of Section D.1.

### Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Copermittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the SMR WQMP. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

### Infiltration Feasibility

Table D-1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the SMR WQMP in Chapter 2.3.3. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D-1 Infiltration Feasibility

Downstream Impacts (SMR WQMP Section 2.3.3.a)		
Does the project site...	YES	NO
...have any DMAs where infiltration would negatively impact downstream water rights or other Beneficial Uses <sup>3</sup> ?		X
If Yes, list affected DMAs:		
Groundwater Protection (SMR WQMP Section 2.3.3.b)		
Does the project site...	YES	NO
...have any DMAs with industrial, and other land uses that pose a high threat to water quality, which cannot be treated by Bioretention BMPs? Or have DMAs with active industrial process areas?		X
If Yes, list affected DMAs:		
...have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
...have any DMAs located within 100 feet horizontally of a water supply well?		X
If Yes, list affected DMAs:		
...have any DMAs that would restrict BMP locations to within a 2:1 (horizontal: vertical) influence line extending from any septic leach line?		X
If Yes, list affected DMAs:		
...have any DMAs been evaluated by a licensed Geotechnical Engineer, Hydrogeologist, or Environmental Engineer, who has concluded that the soils do not have adequate physical and chemical characteristics for the protection of groundwater, and has treatment provided by amended media layers in Bioretention BMPs been considered in evaluating this factor?		X
If Yes, list affected DMAs:		
Public Safety and Offsite Improvements (SMR WQMP Section 2.3.3.c)		
Does the project site...	YES	NO
...have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
Infiltration Characteristics For LID BMPs (SMR WQMP Section 2.3.3.d)		
Does the project site...	YES	NO
...have factored infiltration rates of less than 0.8 inches / hour? (Note: on a case-by-case basis, the Local Jurisdiction may allow a factor of safety as low as 1.0 to support selection of full infiltration BMPs. Therefore, measured infiltration rates could be as low as 0.8 in/hr to support full infiltration. A higher factor of safety would be required for design in accordance with the LID BMP Design Handbook).		X
If Yes, list affected DMAs:		
Cut/Fill Conditions (SMR WQMP Section 2.3.3.e)		
Does the project site...	YES	NO
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?	X	
If Yes, list affected DMAs: DMA 1,2,8		
Other Site-Specific Factors (SMR WQMP Section 2.3.3.f)		
Does the project site...	YES	NO
...have DMAs where the geotechnical investigation discovered other site-specific factors that would preclude effective and/or safe infiltration?		X
Describe here:		

If you answered “Yes” to any of the questions above for any DMA, Infiltration BMPs that rely solely on infiltration should not be used for those DMAs and you should proceed to the assessment for Biofiltration BMPs below. Biofiltration BMPs that provide partial infiltration may still be feasible and should be

<sup>3</sup> Such a condition must be substantiated by sufficient modeling to demonstrate an impact and would be subject to [Insert Jurisdiction] discretion. There is not a standardized method for assessing this criterion. Water rights evaluations should be site-specific.

assessed in Section D.2. Summarize concerns identified in the Geotechnical Report, if any, that resulted in a “YES” response above in the table below.

**Table D-2** Geotechnical Concerns for Onsite Infiltration

Type of Geotechnical Concern	DMAs Feasible (By Name or ID)	DMAs Infeasible (By Name or ID)
Collapsible Soil		
Expansive Soil		
Slopes		
Liquefaction		
Other		

## D.2 Biofiltration Applicability

This section should document the applicability of biofiltration BMPs for Type D DMAs that are not feasible for full infiltration BMPs. The key decisions to be documented in this section include:

1. Are biofiltration BMPs with partial infiltration feasible?
  - a. Biofiltration BMPs must be designed to maximize incidental infiltration via a partial infiltration design unless it is demonstrated that this design is not feasible.
  - b. These designs can be used at sites with low infiltration rates where other feasibility factors do not preclude incidental infiltration.

Document summary in Table D-3.

2. If not, what are the factors that require the use of biofiltration with no infiltration? This may include:
  - a. Geotechnical hazards
  - b. Water rights issues
  - c. Water balance issues
  - d. Soil contamination or groundwater quality issues
  - e. Very low infiltration rates (factored rates < 0.1 in/hr)
  - f. Other factors, demonstrated to the acceptance of the local jurisdiction

If this applies to any DMAs, then rationale must be documented in Table D-3.

3. Are biofiltration BMPs infeasible?
  - a. If yes, then provide a site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee with jurisdiction over the Project site to discuss this option. Proceed to Section F to document your alternative compliance measures.

**Table D-3 Evaluation of Biofiltration BMP Feasibility**

DMA ID	Is Partial/ Incidental Infiltration Allowable? (Y/N)	Basis for Infeasibility of Partial Infiltration (provide summary and include supporting basis if partial infiltration not feasible)
DMA 2	N	DMA will be in fill condition and infiltration testing cannot be performed at future fill elevation.
DMA 8	N	DMA underlain by Hydrologic Soil Type D.

### Proprietary Biofiltration BMP Approval Criteria

If the project will use proprietary BMPs as biofiltration BMPs, then this section is completed to document that the proprietary BMPs are selected in accordance with Section 2.3.7 of the SMR WQMP. Proprietary Biofiltration BMPs must meet both of the following approval criteria:

1. Approval Criteria for All Proprietary BMPs, and
2. Acceptance Criteria for Proprietary Biofiltration BMPs.

When the use of proprietary biofiltration BMPs is proposed to meet the Pollutant Control performance standards, use Table D-4 to document that appropriate approval criteria have been met for the proposed BMPs. Add additional rows to document approval criteria are met for each type of BMP proposed.

**Table D-4 Proprietary BMP Approval Requirement Summary**

Proposed Proprietary Biofiltration BMP	Approval Criteria	Notes/Comments
Biofiltration Units  Contech Filterra  &  BioClean Modular Wetlands	<input type="checkbox"/> Proposed BMP has an active TAPE GULD Certification for the project pollutants of concern <sup>4</sup> or equivalent 3 <sup>rd</sup> party demonstrated performance.	
	<input checked="" type="checkbox"/> The BMP is used in a manner consistent with manufacturer guidelines and conditions of its third-party certification.	BMP meets state regulatory requirements for pollutant removal under TAPE and TARP testing by third party.
	<input checked="" type="checkbox"/> The BMP includes biological features including vegetation supported by engineered or other growing media.	BMP includes vegetation supported within engineered soil media.
	<input type="checkbox"/> The BMP is designed to maximize infiltration, or supplemental infiltration is provided to achieve retention equivalent to Biofiltration with Partial Infiltration BMPs if factored infiltration rate is between 0.1 and 0.8 inches/hour.	
	<input checked="" type="checkbox"/> The BMP is sized using one of two Biofiltration LID sizing options in Section 2.3.2 of the SMR WQMP.	Flow through treatment sizing will be based on treating the maximum flow rate of runoff produced by the 85 <sup>th</sup> percentile hourly rainfall intensity.

<sup>4</sup> Use Table F-1 and F-2 to identify and document the pollutants of concern and include these tables in Appendix 5.

## D.3 Feasibility Assessment Summaries

From the Infiltration, Biofiltration with Partial Infiltration and Biofiltration with No Infiltration Sections above, complete Table D-5 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

**Table D-5** LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy			No LID (Alternative Compliance)
	1. Infiltration	2. Biofiltration with Partial Infiltration	3. Biofiltration with No Infiltration	
DMA 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMA 2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DMA 8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For those DMAs where LID BMPs are not feasible, provide a narrative in Table D-6 below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section F below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

This is based on the clarification letter titled “San Diego Water Board’s Expectations of Documentation to Support a Determination of Priority Development Project Infiltration Infeasibility” (April 28, 2017, Via email from San Diego Regional Water Quality Control Board to San Diego County Municipal Storm Water Copermittees<sup>5</sup>).

**Table D-6** Summary of Infeasibility Documentation

Question	Narrative Summary (include reference to applicable appendix/attachment/report, as applicable)
a) When in the entitlement process did a geotechnical engineer analyze the site for infiltration feasibility?	
b) When in the entitlement process were other investigations conducted (e.g., groundwater quality, water rights) to evaluate infiltration feasibility?	
c) What was the scope and results of testing, if	

<sup>5</sup> <http://www.projectcleanwater.org/download/pdp-infiltration-infeasibility/>

conducted, or rationale for why testing was not needed to reach findings?	
d) What public health and safety requirements affected infiltration locations?	
e) What were the conclusions and recommendations of the geotechnical engineer and/or other professional responsible for other investigations?	
f) What was the history of design discussions between the permittee and applicant for the proposed project, resulting in the final design determination related locations feasible for infiltration?	
g) What site design alternatives were considered to achieve infiltration or partial infiltration on site?	
h) What physical impairments (i.e., fire road egress, public safety considerations, utilities) and public safety concerns influenced site layout and infiltration feasibility?	
i) What LID Principles (site design BMPs) were included in the project site design?	

## D.4 LID BMP Sizing

Each LID BMP must be designed to ensure that the DCV will be captured by the selected BMPs with no discharge to the storm drain or surface waters during the DCV size storm. Infiltration BMPs must at minimum be sized to capture the DCV to achieve pollutant control requirements.



Biofiltration BMPs must at a minimum be sized to:

- Treat 1.5 times the DCV not reliably retained on site using a volume-base or flow-based sizing method, or
- Include static storage volume, including pore spaces and pre-filter detention volume, at least 0.75 times the portion of the DCV not reliably retained on site.

First, calculate the DCV for each LID BMP using the  $V_{BMP}$  worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required  $V_{BMP}$  using the methods included in Section 3 of the LID BMP Design Handbook. Utilize the worksheets found in the LID BMP Design Handbook or consult with the Copermittee to assist you in correctly sizing your LID BMPs. Use Table D-7 below to document the DCV each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

**Table D-7** DCV Calculations for LID BMPs

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]			
<b>DMA 1</b>	566,788	Mixed	0.68	0.48	272,058	Design Storm Depth (in)	DCV, $V_{BMP}$ (cubic feet)	Proposed Volume on Plans (cubic feet)
	$A_T = \Sigma[A]$ 566,788				$\Sigma = [D]$ 272,058	[E] 0.69	$[F] = \frac{[D] \times [E]}{12}$ 15,643	[G] 19,000

[B], [C] is obtained as described in Section 2.6.1.b of the SMR WQMP

[E] is obtained from Exhibit A in the SMR WQMP

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6.

Complete Table D-8 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. You can add rows to the table as needed. Alternatively, the Santa Margarita Hydrology Model (SMRHM) can be used to size LID BMPs to address the DCV and, if applicable, to size Hydrologic Control BMPs to meet the Hydrologic Performance Standard described in the SMR WQMP, as identified in Section E.

**Table D-8** LID BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	Design Capture Volume (ft <sup>3</sup> )	Proposed Volume (ft <sup>3</sup> )
Infiltration Basin 1	DMA 1	Infiltration Basin/Trench	15,643	19,000

If bioretention will include a capped underdrain, then include sizing calculations demonstrating that the BMP will meet infiltration sizing requirements with the underdrain capped and also meet biofiltration sizing requirements if the underdrain is uncapped.

## Section E: Implement Hydrologic Control BMPs and Sediment Supply BMPs

If a completed Table 1.2 demonstrates that the project is exempt from Hydromodification Performance Standards, specify N/A and **proceed to Section G**.

- ☐ N/A Project is Exempt from Hydromodification Performance Standards.

If a PDP is not exempt from hydromodification requirements than the PDP must satisfy the requirements of the performance standards for hydrologic control BMPs and Sediment Supply BMPs. The PDP may choose to satisfy hydrologic control requirements using onsite or offsite BMPs (i.e. Alternative Compliance). Sediment supply requirements cannot be met via alternative compliance. If N/A is not selected above, select one of the two options below and complete the applicable sections.

- ☒ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control and Sediment Supply BMPs Onsite (complete Section E).
- ☐ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control Requirements using Alternative Compliance (complete Section F). Selection of this option must be approved by the Copermittee.

### E.1 Hydrologic Control BMP Selection

Capture of the DCV and achievement of the Hydrologic Performance Standard may be met by combined and/or separate structural BMPs. The user should consider the full suite of Hydrologic Control BMPs to manage runoff from the post-development condition and meet the Hydrologic Performance Standard identified in this section.

The Hydrologic Performance Standard consists of matching or reducing the flow duration curve of post-development conditions to that of pre-existing, naturally occurring conditions, for the range of geomorphically significant flows (10% of the 2-year runoff event up to the 10-year runoff event). Select each of the hydrologic control BMP types that are applied to meet the above performance standard on the site.

- ☒ LID principles as defined in Section 3.2 of the SMR WQMP.
- ☒ Structural LID BMPs that may be modified or enlarged, if necessary, beyond the DCV.
- ☐ Structural Hydrologic Control BMPs that are distinct from the LID BMPs above. The LID BMP Design Handbook provides information not only on Hydrologic Control BMP design, but also on BMP design to meet the combined LID requirement and Hydrologic Performance Standard. The Handbook specifies the type of BMPs that can be used to meet the Hydrologic Performance Standard.

## E.2 Hydrologic Control BMP Sizing

Hydrologic Control BMPs must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA for the range of geomorphically significant flows. Using SMRHM, (or another acceptable continuous simulation model if approved by the Copermittee) the applicant shall demonstrate that the performance of the Hydrologic Control BMPs complies with the Hydrologic Performance Standard. Complete Table E-1 below and identify, for each DMA, the type of Hydrologic Control BMP, if the SMRHM model confirmed the management (Identified as “passed” in SMRHM), the total volume capacity of the Hydrologic Control BMP, the Hydrologic Control BMP footprint at top floor elevation, and the drawdown time of the Hydrologic Control BMP. SMRHM summary reports should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

**Table E-1 Hydrologic Control BMP Sizing**

BMP Name / ID	DMA No.	BMP Type / Description	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
Basin 1	DMA 1	Infiltration Basin	<input checked="" type="checkbox"/>	1.024	0.259	72
			<input type="checkbox"/>			
			<input type="checkbox"/>			
			<input type="checkbox"/>			

If a bioretention BMP with capped underdrain is used and hydromodification requirements apply, then sizing calculations must demonstrate that the BMP meets flow duration control criteria with the underdrain capped and uncapped. Both calculations must be included.

## E.3 Implement Sediment Supply BMPs

The sediment supply performance standard applies to PDPs for which hydromodification applied that have the potential to impact Potential Critical Coarse Sediment Yield Areas. Refer to Exhibit G of the WQMP to determine if there are onsite Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas. Select one of the two options below and include the Potential Critical Coarse Sediment Yield Area Exhibit showing your project location in Appendix 7.

- ☒ There are no mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site. The Sediment Supply Performance Standard is met with no further action.
- ☐ There are mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site, the Sediment Supply Performance Standard will be met through Option 1 or Option 2 below.

The applicant may refer to Section 3.6.4 of the SMR WQMP for a description of the methodology to meet the Sediment Supply Performance Standard. Select the applicable compliance pathway and complete the appropriate sections to demonstrate compliance with the Sediment Supply Performance Standard if the second box is selected above:

☐ Avoid impacts related to any PDP activities to Potential Critical Coarse Sediment Yield Areas. Proceed to Section E.3.1.

☐ Complete a Site-Specific Critical Coarse Sediment Analysis. Proceed to Section E.3.2.

### **E.3.1 Option 1: Avoid Potential Critical Coarse Sediment Yield Areas and Potential Sediment Source Areas**

The simplest approach for complying with the Sediment Supply Performance Standard is to avoid impacts to areas identified as Potential Critical Coarse Sediment Yield Areas or Potential Sediment Supply Areas. If a portion of PDP is identified as a Potential Critical Coarse Sediment Yield Area or a Potential Sediment Source Area, that PDP may still achieve compliance with the Sediment Supply Performance Standards if Potential Critical Coarse Sediment Yield Areas and Potential Sediment Supply Areas are avoided, i.e. areas are not developed and thereby delivery of Critical Coarse Sediment to the receiving waters is not impeded by site developments.

Provide a narrative describing how the PDP has avoided impacts to Potential Critical Coarse Sediment Yield Areas and/or Potential Sediment Source Areas below.

**N/A**

If it is not feasible to avoid these areas, proceed to Option 2 to complete a Site-Specific Critical Coarse Sediment Analysis.

### **E.3.2 Option 2: Site-Specific Critical Coarse Sediment Analysis**

Perform a stepwise assessment to ensure the maintenance of the pre-project source(s) of Critical Coarse Sediment (i.e., Bed Sediment Supply):

1. Determine whether the site or a portion of the site is a Significant Source of Bed Sediment Supply to the Receiving Channel (i.e., an actual verified Critical Coarse Sediment Yield Area);
2. Avoid areas identified as actual verified Critical Coarse Sediment Yield Areas in the PDP design and maintain pathways for discharge of Bed Sediment Supply from these areas to receiving waters.

**Step 1:** Identify if the site is an actual verified Critical Coarse Sediment Yield Area supplying Bed Sediment Supply to the receiving channel

☐ **Step 1.A** – Is the Bed Sediment of onsite streams similar to that of receiving streams?

Rate the similarity: ☐ High  
☐ Medium  
☐ Low

Results from the geotechnical and sieve analysis to be performed both onsite and in the receiving channel should be documented in Appendix 7. Of particular interest, the results of the sieve analysis, the soil erodibility factor, a description of the topographic relief of the project area, and the lithology of onsite soils should be reported in Appendix 7.

- ☐ **Step 1.B** – Are onsite streams capable of delivering Bed Sediment Supply from the site, if any, to the receiving channel?

Rate the potential:

☐ High

☐ Medium

☐ Low

Results from the analyses of the sediment delivery potential to the receiving channel should be documented in Appendix 7 and identify, at a minimum, the Sediment Source, the distance to the receiving channel, the onsite channel density, the project watershed area, the slope, length, land use, and rainfall intensity.

- ☐ **Step 1.C** – Will the receiving channel adversely respond to a change in Bed Sediment Load?

Rate the need for bed sediment supply:

☐ High

☐ Medium

☐ Low

Results from the in-stream analysis to be performed both onsite should be documented in Appendix 7. The analysis should, at a minimum, quantify the bank stability and the degree of incision, provide a gradation of the Bed Sediment within the receiving channel, and identify if the channel is sediment supply-limited.

- ☐ **Step 1.D** – Summary of Step 1

Summarize in Table E.3 the findings of Step 1 and associate a score (in parenthesis) to each step. The sum of the three individual scores determines if a stream is a significant contributor to the receiving stream.

- Sum is equal to or greater than eight - Site is a significant source of sediment bed material – all on-site streams must be preserved or by-passed within the site plan. The applicant shall proceed to Step 2 for all onsite streams.
- Sum is greater than five but lower than eight. Site is a source of sediment bed material – some of the on-site streams must be preserved (with identified streams noted). The applicant shall proceed to Step 2 for the identified streams only.
- Sum is equal to or lower than five. Site is not a significant source of sediment bed material. The applicant may advance to Section F.

Table E-2 Triad Assessment Summary

Step	Rating			Total Score
1.A	<input type="checkbox"/> High (3)	<input type="checkbox"/> Medium (2)	<input type="checkbox"/> Low (1)	
1.B	<input type="checkbox"/> High (3)	<input type="checkbox"/> Medium (2)	<input type="checkbox"/> Low (1)	

1.C	<input type="checkbox"/> High (3)	<input type="checkbox"/> Medium (2)	<input type="checkbox"/> Low (1)	
Significant Source Rating of Bed Sediment to the receiving channel(s)				

**Step 2:** Avoid Development of Critical Coarse Sediment Yield Areas, Potential Sediment Sources Areas, and Preserve Pathways for Transport of Bed Sediment Supply to Receiving Waters

Onsite streams identified as a actual verified Critical Coarse Sediment Yield Areas should be avoided in the site design and transport pathways for Critical Coarse Sediment should be preserved

*Check those that apply:*

☐ The site design does avoid all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas

*AND*

☐ The drainage design bypasses flow and sediment from onsite upstream drainages identified as actual verified Critical Coarse Sediment Yield Areas to maintain Critical Coarse Sediment supply to receiving waters

*(If both are yes, the applicant may disregard subsequent steps of Section E.3 and directly advance directly to Section G).*

*- Or -*

☐ The site design **does NOT avoid** all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas

*OR*

☐ The project impacts transport pathways of Critical Coarse Sediment from onsite upstream drainages.

*(If either of these are the case, the applicant may proceed with the subsequent steps of Section E.3).*

Provide in Appendix 7 a site map that identifies all onsite channels and highlights those onsite channels that were identified as a Significant Source of Bed Sediment. The site map shall demonstrate, if feasible, that the site design avoids those onsite channels identified as a Significant Source of Bed Sediment. In addition, the applicant shall describe the characteristics of each onsite channel identified as a Significant Source of Bed Sediment. If the design plan cannot avoid the onsite channels, please provide a rationale for each channel individually.

The site map shall demonstrate that the drainage design bypasses those onsite channels that supply Critical Coarse Sediment to the receiving channel(s). In addition, the applicant shall describe the characteristics of each onsite channel identified as an actual verified Critical Coarse Sediment Yield Area.

Identified Channel #1 - Insert narrative description here

Identified Channel #2 - Insert narrative description here

Identified Channel #3 - Insert narrative description here

### **E.3.3 Sediment Supply BMPs to Result in No Net Impact to Downstream Receiving Waters**

If impacts to Critical Coarse Sediment Yield Areas cannot be avoided, sediment supply BMPs must be implemented such there is no net impact to receiving waters. Sediment supply BMPs may consist of approaches that permit flux of bed sediment supply from Critical Coarse Sediment Yield Areas within the project boundary. This approach is subject to acceptance by the [Insert Jurisdiction]. It may require extensive documentation and analysis by qualified professionals to support this demonstration.

Appendix H of the San Diego Model BMP Design Manual provides additional information on site-specific investigation of Critical Coarse Sediment Supply areas.

<http://www.projectcleanwater.org/download/2018-model-bmp-design-manual/>

If applicable, insert narrative description here

Documentation of sediment supply BMPs should be detailed in Appendix 7.

## Section F: Alternative Compliance

Alternative Compliance may be used to achieve compliance with pollutant control and/or hydromodification requirements for a given PDP. Alternative Compliance may be used under two scenarios, check the applicable box if the PDP is proposing to use Alternative Compliance to satisfy all or a portion of the Pollutant Control and/or Hydrologic Control requirements (but not sediment supply requirements)

- ☒ If it is not feasible to fully implement Infiltration or Biofiltration BMPs at a PDP site, Flow-Through Treatment Control BMPs may be used to treat pollutants contained in the portion of DCV not reliably retained on site and Alternative Compliance measures must also be implemented to mitigate for those pollutants in the DCV that are not retained or removed on site prior to discharging to a receiving water.
- ☐ Alternative Compliance is selected to comply with either pollutant control or hydromodification flow control requirements even if complying with these requirements is potentially feasible on-site. If such voluntary Alternative Compliance is implemented, Flow-Through Treatment Control BMPs must still be used to treat those pollutants in the portion of the DCV not reliably retained on site prior to discharging to a receiving water.

Refer to Section 2.7 of the SMR WQMP and consult the Local Jurisdiction for currently available Alternative Compliance pathways. Coordinate with the Copermittee if electing to participate in Alternative Compliance and complete the sections below to document implementation of the Flow-Through BMP component of the program.

### F.1 Identify Pollutants of Concern

The purpose of this section is to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs and to document compliance and.

Utilize Table A-1 from Section A, which noted your project's Receiving Waters, to identify impairments for Receiving Waters (including downstream receiving waters) by completing Table F-1. Table F-1 includes the watersheds identified as impaired in the Approved 2010 303(d) list; check box corresponding with the PDP's receiving water. The most recent 303(d) lists are available from the State Water Resources Control Board website:

[https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)).[https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml).



**Table F-1** Summary of Approved 2010 303(d) listed waterbodies and associated pollutants of concern for the Riverside County SMR Region and downstream waterbodies.

<b>Water Body</b>		<b>Nutrients<sup>1</sup></b>	<b>Metals<sup>2</sup></b>	<b>Toxicity</b>	<b>Bacteria and Pathogens</b>	<b>Pesticides and Herbicides</b>	<b>Sulfate</b>	<b>Total Dissolved Solids</b>
<input type="checkbox"/>	De Luz Creek	X	X				X	
<input type="checkbox"/>	Long Canyon Creek		X		X	X		
<input checked="" type="checkbox"/>	Murrieta Creek	X	X	X		X		
<input type="checkbox"/>	Redhawk Channel	X	X		X	X		X
<input type="checkbox"/>	Santa Gertudis Creek	X	X		X	X		
<input type="checkbox"/>	Santa Margarita Estuary	X						
<input checked="" type="checkbox"/>	Santa Margarita River (Lower)	X			X			
<input checked="" type="checkbox"/>	Santa Margarita River (Upper)	X		X				
<input type="checkbox"/>	Temecula Creek	X	X	X		X		X
<input type="checkbox"/>	Warm Springs Creek	X	X		X	X		

<sup>1</sup> Nutrients include nitrogen, phosphorus and eutrophic conditions caused by excess nutrients.

<sup>2</sup> Metals includes copper, iron, and manganese.

Use Table F-2 to identify the pollutants identified with the project site. Indicate the applicable PDP Categories and/or Project Features by checking the boxes that apply. If the identified General Pollutant Categories are the same as those listed for your Receiving Waters, then these will be your Pollutants of Concern; check the appropriate box or boxes in the last row.

Table F-2 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)		General Pollutant Categories									
		Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease	Total Dissolved Solids	Sulfate
<input checked="" type="checkbox"/>	Detached Residential Development	P	N	P	P	N	P	P	P	N	N
<input type="checkbox"/>	Attached Residential Development	P	N	P	P	N	P	P	P <sup>(2)</sup>	N	N
<input checked="" type="checkbox"/>	Commercial/Industrial Development	P <sup>(3)</sup>	P <sup>(7)</sup>	P <sup>(1)</sup>	P <sup>(1)</sup>	P	P <sup>(1)</sup>	P	P	N	N
<input type="checkbox"/>	Automotive Repair Shops	N	P	N	N	P <sup>(4, 5)</sup>	N	P	P	N	N
<input type="checkbox"/>	Restaurants (>5,000 ft <sup>2</sup> )	P	N	N	P <sup>(1)</sup>	N	N	P	P	N	N
<input type="checkbox"/>	Hillside Development (>5,000 ft <sup>2</sup> )	P	N	P	P	N	P	P	P	N	N
<input checked="" type="checkbox"/>	Parking Lots (>5,000 ft <sup>2</sup> )	P <sup>(6)</sup>	P <sup>(7)</sup>	P <sup>(1)</sup>	P <sup>(1)</sup>	P <sup>(4)</sup>	P	P	P	N	N
<input checked="" type="checkbox"/>	Streets, Highways, and Freeways	P <sup>(6)</sup>	P <sup>(7)</sup>	P <sup>(1)</sup>	P <sup>(1)</sup>	P <sup>(4)</sup>	P	P	P	N	N
<input type="checkbox"/>	Retail Gasoline Outlets	N	P <sup>(7)</sup>	N	N	P <sup>(4)</sup>	N	P	P	N	N
<b>Project Priority Pollutant(s) of Concern</b>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P = Potential

N = Not Potential

<sup>(1)</sup> A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

<sup>(2)</sup> A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

<sup>(3)</sup> A potential Pollutant is land use involving animal waste products; otherwise not expected

<sup>(4)</sup> Including petroleum hydrocarbons

<sup>(5)</sup> Including solvents

<sup>(6)</sup> Bacterial indicators are routinely detected in pavement runoff

<sup>(7)</sup> A potential source of metals, primarily copper and zinc. Iron, magnesium, and aluminum are commonly found in the environment and are commonly associated with soils, but are not primarily of anthropogenic stormwater origin in the municipal environment.

## F.2 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential Pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must be selected to address the Project Priority Pollutants of Concern (identified above) and meet the acceptance criteria described in Section 2.3.7 of the SMR WQMP. Documentation of acceptance criteria must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

**Table F-3 Treatment Control BMP Selection**

Selected Treatment Control BMP Name or ID <sup>1</sup>	Priority Pollutant(s) of Concern to Mitigate <sup>2</sup>	Removal Efficiency Percentage <sup>3</sup>
Biofiltration 1 & 2 BioClean Modular Wetlands System	Nutrients Nitrogen Phosphorus Metals-Copper Toxic Organic Compounds Bacterial & Pathogens Pesticides	45% 64% 50% 95%
Biofiltration-Contech Filterra Bioretention Unit	Nutrients Nitrogen Phosphorus Metals-Copper Toxic Organic Compounds Bacterial & Pathogens Pesticides	34% 70% 55%

<sup>1</sup> Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.

<sup>2</sup> Cross Reference Table E.1 above to populate this column.

<sup>3</sup> As documented in a Copermittee Approved Study and provided in Appendix 6.

## F.3 Sizing Criteria

Utilize Table F-4 below to appropriately size flow-through BMPs to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.1 of the SMR WQMP for further information.

**Table F-4.1 Treatment Control BMP Sizing**

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	<b>Biofiltration 1</b>	
	[A]		[B]	[C]	[A] x [C]		
<b>DMA 2</b>	144,000	Mixed	0.68	0.48	69,120	Design Storm (in)	Design Flow Rate (cfs)
	$A_T = \Sigma[A]$ 144,000				$\Sigma = [D]$ 69,120	[E] 0.2	$[F] = \frac{[D] \times [E]}{[G]}$ $0.3 \times 1.5 = 0.45$

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP  
[E] either 0.2 inches or 2 times the 85th percentile hourly rainfall intensity [G] = 43,560,.

**Table F-5.2 Treatment Control BMP Sizing**

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	<b>Biofiltration 2</b>	
	[A]		[B]	[C]	[A] x [C]		
<b>DMA 8</b>	31,217	Mixed	0.56	0.38	11,862	Design Storm (in)	Design Flow Rate (cfs)
	$A_T = \Sigma[A]$ <b>31,217</b>				$\Sigma = [D]$ <b>11,862</b>	<b>[E]</b> <b>0.02</b>	$[F] = \frac{[D] \times [E]}{[G]}$ <b><math>0.05 \times 1.5 = 0.075</math></b>

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP  
[E] either 0.2 inches or 2 times the 85th percentile hourly rainfall intensity  
[G] = 43,560

## F.4 Hydrologic Performance Standard – Alternative Compliance Approach

Alternative compliance options are only available if the governing Copermittee has acknowledged the infeasibility of onsite Hydrologic Control BMPs and approved an alternative compliance approach. See Section 3.5 and 3.6 of the SMR WQMP.

Select the pursued alternative and describe the specifics of the alternative:

- ☐ Offsite Hydrologic Control Management within the same channel system

Insert narrative description here

- ☐ In-Stream Restoration Project

Insert narrative description here

### **For Offsite Hydrologic Control BMP Option**

Each Hydrologic Control BMP must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period. Using SMRHM, the applicant shall demonstrate that the performance of each designed Hydrologic Control BMP is equivalent with the Hydrologic Performance Standard for onsite conditions. Complete Table F-6 below and identify, for each Hydrologic Control BMP, the equivalent DMA the Hydrologic Control BMP mitigates, that the SMRHM model passed, the total volume capacity of the BMP, the BMP footprint at top floor elevation, and the drawdown time of the BMP.

SMRHM summary reports for the alternative approach should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

**Table F-6 Offsite Hydrologic Control BMP Sizing**

BMP Name / Type	Equivalent DMA (ac)	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
Basin 1	13.0	<input type="checkbox"/>			
		<input type="checkbox"/>			
		<input type="checkbox"/>			
		<input type="checkbox"/>			

**For Instream Restoration Option**

Attach to Appendix 7 the technical report detailing the condition of the receiving channel subject to the proposed hydrologic and sediment regimes. Provide the full design plans for the in-stream restoration project that have been approved by the Copermittee. Utilize the San Diego Regional Water Quality Equivalency Guidance Document.

## Section G: Implement Trash Capture BMPs

The Local Jurisdiction may require full trash capture BMPs to be installed as part of the project. Consult with the Local Jurisdiction to determine applicability.

Trash Capture BMPs may be applicable to Type 'D' DMAs, as defined in Section 2.3.4 of the SMR WQMP. Trash Capture BMPs are designed to treat  $Q_{\text{TRASH}}$ , the runoff flow rate generated during the 1-year 1-hour precipitation depth. Utilize Table G-1 to size Trash Capture BMP. Refer to Table G-4 to determine the Trash Capture Design Storm Intensity (E).

Table G-1.1 Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	<b>Infiltration Basin 1</b>	
	[A]		[B]	[C]	[A] x [C]		
<b>DMA 1</b>	566,788	Mixed	0.68	0.48	272,058	Trash Capture Design Storm Intensity (in)	Trash Capture Design Flow Rate (cubic feet or cfs)
	$\Lambda_T = \Sigma[A]$ <b>566,788</b>				$\Sigma = [D]$ <b>272,058</b>	[E] <b>0.37</b>	$[F] = \frac{[D] \times [E]}{[G]}$ <b>2.31</b>

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP

[G] = 43,560

Table G-2.2 Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	<b>Biofiltration 1 &amp; 2</b>	
	[A]		[B]	[C]	[A] x [C]		
<b>DMA 2</b>	144,000	Mixed	0.68	0.48	69,120	Trash Capture Design Storm Intensity (in)	Trash Capture Design Flow Rate (cubic feet or cfs)
	$\Lambda_T = \Sigma[A]$ <b>144,000</b>				$\Sigma = [D]$ <b>69,120</b>	[E] <b>0.37</b>	$[F] = \frac{[D] \times [E]}{[G]}$ <b>0.59</b>

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP  
[G] = 43,560

Table G-3.2 Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	<b>Biofiltration 3</b>	
	[A]		[B]	[C]	[A] x [C]		
<b>DMA 8</b>	31,217	Mixed	0.56	0.38	11,862	Trash Capture Design Storm Intensity (in)	Trash Capture Design Flow Rate (cubic feet or cfs)
	$A_T = \Sigma[A]$ 31,217				$\Sigma = [D]$ 72,524 11,862	[E] 0.37	$[F] = \frac{[D] \times [E]}{[G]}$ 0.10

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP  
[G] = 43,560

Table G-4 Approximate precipitation depth/intensity values for calculation of the Trash Capture Design Storm

City	1-year 1-hour Precipitation Depth/Intensity (inches/hr)
Murrieta	0.47
Temecula	0.50
Wildomar	0.37

Use Table G-5 to summarize and document the selection and sizing of Trash Capture BMPs.

Table G-5 Trash Capture BMPs

BMP Name / ID	DMA No(s)	BMP Type / Description	Required Trash Capture Flowrate (cfs)	Provided Trash Capture Flowrate (cfs)
Basin 1	1	BioClean Curb Inlet Filter	2.321	2.85
Biofiltration 1	2	BioClean Curb Inlet Filter	0.59	2.85
Biofiltration 2	2	BioClean Curb Inlet Filter	0.59	2.85
Biofiltration 3	8	BioClean Curb Inlet Filter	0.10	2.85

## Section H: Source Control BMPs

Source Control BMPs include permanent, structural features that may be required in your Project plans, such as roofs over and berms around trash and recycling areas, and Operational BMPs, such as regular sweeping and “housekeeping,” that must be implemented by the site’s occupant or user. The Maximum Extent Practicable (MEP) standard typically requires both types of BMPs. In general, Operational Source Control BMPs cannot be substituted for a feasible and effective Structural Source Control BMP. Complete checklist below to determine applicable Source Control BMPs for your site.

Project-Specific WQMP Source Control BMP Checklist		
<p>All development projects must implement Source Control BMPs. Source Control BMPs are used to minimize pollutants that may discharge to the MS4. Refer to Chapter 3 (Section 3.8) of the SMR WQMP for additional information. Complete Steps 1 and 2 below to identify Source Control BMPs for the project site.</p>		
STEP 1: IDENTIFY POLLUTANT SOURCES		
<p>Review project site plans and identify the applicable pollutant sources. “Yes” indicates that the pollutant source is applicable to project site. “No” indicates that the pollutant source is not applicable to project site.</p>		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Storm Drain Inlets <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Floor Drains <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Sump Pumps <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Pest Control/Herbicide Application <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Food Service Areas <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Trash Storage Areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Industrial Processes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Vehicle and Equipment Cleaning and Maintenance/Repair Areas	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Outdoor storage areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Material storage areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Fueling areas <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Loading Docks <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Fire Sprinkler Test/Maintenance water <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Plazas, Sidewalks and Parking Lots <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Pools, Spas, Fountains and other water features	
STEP 2: REQUIRED SOURCE CONTROL BMPs		
<p>List each Pollutant source identified above in column 1 and fill in the corresponding Structural Source Control BMPs and Operational Control BMPs by referring to the Stormwater Pollutant Sources/Source Control Checklist included in Appendix 8. The resulting list of structural and operational source control BMPs must be implemented as long as the associated sources are present on the project site. Add additional rows as needed.</p>		
Pollutant Source	Structural Source Control BMP	Operational Source Control BMP
A. On-site storm drain inlets	<ul style="list-style-type: none"> <li>Mark all inlets with the words “Only Rain Down the Storm drain” or similar. Catch basin markers may be available from Riverside County Flood Control and Water Conservation District, call 951-955-1200 to verify.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain and periodically repaint or replace inlet markings.</li> <li>Provide stormwater pollution prevention information to new site owners, lessees or operators.</li> <li>See applicable operational BMP’s in fact sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>



		<ul style="list-style-type: none"> <li>• Include the following in lease agreements: "Tenants shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."</li> </ul>
D1. Need for future indoor & structural pest control	<ul style="list-style-type: none"> <li>• Note building design features that discourage entry of pests</li> </ul>	Provide Integrated Pest Management information to owners, lessees, and operators.
D2. Landscape/Outdoor Pesticide Use	<p>The final landscape plans will accomplish all of the following.</p> <ul style="list-style-type: none"> <li>• Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.</li> <li>• Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.</li> <li>• Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</li> <li>• Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain landscaping using minimum or no pesticides.</li> <li>• See applicable operational BMPs in "What you should know for landscape and Gardening"</li> <li>• Provide IPM information to new owners, lessees and operators.</li> </ul>
E. Pools, spa, ponds, decorative fountains and other water features	<ul style="list-style-type: none"> <li>• If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi, and Garden Fountain" at <a href="http://www.rcwatershed.org/about/materials-library/#1450469201433-f5f358c9-6008">http://www.rcwatershed.org/about/materials-library/#1450469201433-f5f358c9-6008</a></li> </ul>
G. Refuse Areas	<ul style="list-style-type: none"> <li>• Refuse will be handled utilizing trash bins in covered trash enclosures located on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky</li> </ul>

	<ul style="list-style-type: none"> <li>• Signs will be posted on or near trash bin locations with the words “Do no dump hazardous materials here” or similar.</li> </ul>	<p>receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></p>
M. Loading Docks		<ul style="list-style-type: none"> <li>• Move loaded and unloaded items indoors as soon as possible.</li> <li>• See Fact Sheet C-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>
N. Fire Sprinkler Test Water	<ul style="list-style-type: none"> <li>• Provide means to drain fire sprinkler test water to the sanitary sewer.</li> </ul>	<ul style="list-style-type: none"> <li>• See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>
O. Miscellaneous Drain or Wash Water or Other Sources	<ul style="list-style-type: none"> <li>• Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.</li> <li>• Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</li> <li>• Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and maintain drains and equipment containment areas to prevent blockages and overflow.</li> </ul>

P. Plazas, sidewalks, and parking lots	•	• Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
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## Section I: Coordinate Submittal with Other Site Plans

Populate Table I-1 below to assist the plan checker in an expeditious review of your project. During construction and at completion, **City of Wildomar** inspectors will verify the installation of BMPs against the approved plans. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. ***This table is to be completed with the submittal of your final Project-Specific WQMP.***

**Table I-1 Construction Plan Cross-reference**

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. The Copermittee with jurisdiction over the Project site can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Use Table I-2 to identify other applicable permits that may impact design of the site. If yes is answered to any of the items below, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

**Table I-2 Other Applicable Permits**

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Other <i>(please list in the space below as required)</i> RCFCD&WCD	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

## Section J: Operation, Maintenance and Funding

The Copermittee with jurisdiction over the Project site will periodically verify that BMPs on your Project are maintained and continue to operate as designed. To make this possible, the Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement maintenance of BMPs in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized Operations and Maintenance or inspections but will require typical landscape maintenance as noted in Chapter 5, in the SMR WQMP. Include a brief description of typical landscape maintenance for these areas.

The Copermittee with jurisdiction over the Project site will also require that you prepare and submit a detailed BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a BMP Operation and Maintenance Plan are in Chapter 5 of the SMR WQMP.

**Maintenance Mechanism:** POA

Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☒ Y      ☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

## Section K: Acronyms, Abbreviations and Definitions

<b>Regional MS4 Permit</b>	Order No. R9-2013-0001 as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100 an NPDES Permit issued by the San Diego Regional Water Quality Control Board.
<b>Applicant</b>	Public or private entity seeking the discretionary approval of new or replaced improvements from the Copermittee with jurisdiction over the project site. The Applicant has overall responsibility for the implementation and the approval of a Priority Development Project. The WQMP uses consistently the term “user” to refer to the applicant such as developer or project proponent. The WQMP employs also the designation “user” to identify the Registered Professional Civil Engineer responsible for submitting the Project-Specific WQMP, and designing the required BMPs.
<b>Best Management Practice (BMP)</b>	Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.
<b>BMP Fact Sheets</b>	BMP Fact Sheets are available in the LID BMP Design Handbook. Individual BMP Fact Sheets include siting considerations, and design and sizing guidelines for seven types of structural BMPs (infiltration basin, infiltration trench, permeable pavement, harvest-and-use, bioretention, extended detention basin, and sand filter).
<b>California Stormwater Quality Association (CASQA)</b>	Publisher of the California Stormwater Best Management Practices Handbooks, available at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a> .
<b>Conventional Treatment Control BMP</b>	A type of BMP that provides treatment of stormwater runoff. Conventional treatment control BMPs, while designed to treat particular Pollutants, typically do not provide the same level of volume reduction as LID BMPs, and commonly require more specialized maintenance than LID BMPs. As such, the Regional MS4 Permit and this WQMP require the use of LID BMPs wherever feasible, before Conventional Treatment BMPs can be considered or implemented.
<b>Copermittees</b>	The Regional MS4 Permit identifies the Cities of Murrieta, Temecula, and Wildomar, the County, and the District, as Copermittees for the SMR.

<b>County</b>	The abbreviation refers to the County of Riverside in this document.
<b>CEQA</b>	California Environmental Quality Act - a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.
<b>CIMIS</b>	California Irrigation Management Information System - an integrated network of 118 automated active weather stations all over California managed by the California Department of Water Resources.
<b>CWA</b>	Clean Water Act - is the primary federal law governing water pollution. Passed in 1972, the CWA established the goals of eliminating releases of high amounts of toxic substances into water, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. CWA Section 402(p) is the federal statute requiring NPDES permits for discharges from MS4s.
<b>CWA Section 303(d) Waterbody</b>	Impaired water in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.
<b>Design Storm</b>	The Regional MS4 Permit has established the 85th percentile, 24-hour storm event as the "Design Storm". The applicant may refer to Exhibit A to identify the applicable Design Storm Depth (D85) to the project.
<b>DCV</b>	Design Capture Volume (DCV) is the volume of runoff produced from the Design Storm to be mitigated through LID Retention BMPs, Other LID BMPs and Volume Based Conventional Treatment BMPs, as appropriate.
<b>Design Flow Rate</b>	The design flow rate represents the minimum flow rate capacity that flow-based conventional treatment control BMPs should treat to the MEP, when considered.
<b>DCIA</b>	Directly Connected Impervious Areas - those impervious areas that are hydraulically connected to the MS4 (i.e. street curbs, catch basins, storm drains, etc.) and thence to the structural BMP without flowing over pervious areas.
<b>Discretionary Approval</b>	A decision in which a Copermittee uses its judgment in deciding whether and how to carry out or approve a project.
<b>District</b>	Riverside County Flood Control and Water Conservation District.

<b>DMA</b>	A Drainage Management Area - a delineated portion of a project site that is hydraulically connected to a common structural BMP or conveyance point. The Applicant may refer to Section 3.3 for further guidelines on how to delineate DMAs.
<b>Drawdown Time</b>	Refers to the amount of time the design volume takes to pass through the BMP. The specified or incorporated drawdown times are to ensure that adequate contact or detention time has occurred for treatment, while not creating vector or other nuisance issues. It is important to abide by the drawdown time requirements stated in the fact sheet for each specific BMP.
<b>Effective Area</b>	Area which 1) is suitable for a BMP (for example, if infiltration is potentially feasible for the site based on infeasibility criteria, infiltration must be allowed over this area) and 2) receives runoff from impervious areas.
<b>ESA</b>	An Environmental Sensitive Area (ESA) designates an area "in which plants or animals life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments". (Reference: California Public Resources Code § 30107.5).
<b>ET</b>	Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is also an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity
<b>FAR</b>	The Floor Area Ratio (FAR) is the total square feet of a building divided by the total square feet of the lot the building is located on.
<b>Flow-Based BMP</b>	Flow-based BMPs are conventional treatment control BMPs that are sized to treat the design flow rate.
<b>FPPP</b>	Facility Pollution Prevention Plan
<b>HCOC</b>	Hydrologic Condition of Concern - Exists when the alteration of a site's hydrologic regime caused by development would cause significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects.
<b>HMP</b>	Hydromodification Management Plan - Plan defining Performance Standards for PDPs to manage increases in runoff discharge rates and durations.
<b>Hydrologic Control BMP</b>	BMP to mitigate the increases in runoff discharge rates and durations and meet the Performance Standards set forth in the HMP.
<b>HSG</b>	Hydrologic Soil Groups - soil classification to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSGs are A (very low runoff potential/high infiltration rate), B, C, and D (high runoff potential/very low infiltration rate)



<b>Hydromodification</b>	The Regional MS4 Permit identifies that increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses.
<b>JRMP</b>	A separate Jurisdictional Runoff Management Plan (JRMP) has been developed by each Copermittee and identifies the local programs and activities that the Copermittee is implementing to meet the Regional MS4 Permit requirements.
<b>LID</b>	Low Impact Development (LID) is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff.
<b>LID BMP</b>	A type of stormwater BMP that is based upon Low Impact Development concepts. LID BMPs not only provide highly effective treatment of stormwater runoff, but also yield potentially significant reductions in runoff volume – helping to mimic the pre-project hydrologic regime, and also require less ongoing maintenance than Treatment Control BMPs. The applicant may refer to Chapter 2.
<b>LID BMP Design Handbook</b>	The LID BMP Design Handbook was developed by the Copermittees to provide guidance for the planning, design and maintenance of LID BMPs which may be used to mitigate the water quality impacts of PDPs within the County.
<b>LID Bioretention BMP</b>	LID Bioretention BMPs are bioretention areas are vegetated (i.e., landscaped) shallow depressions that provide storage, infiltration, and evapotranspiration, and provide for pollutant removal (e.g., filtration, adsorption, nutrient uptake) by filtering stormwater through the vegetation and soils. In bioretention areas, pore spaces and organic material in the soils help to retain water in the form of soil moisture and to promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the soil matrix. Plants use soil moisture and promote the drying of the soil through transpiration. The Regional MS4 Permit defines “retain” as to keep or hold in a particular place, condition, or position without discharge to surface waters.
<b>LID Biofiltration BMP</b>	BMPs that reduce stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration, and other biological and chemical processes. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and plants, and collected through an underdrain.

<b>LID Harvest and Reuse BMP</b>	BMPs used to facilitate capturing Stormwater Runoff for later use without negatively impacting downstream water rights or other Beneficial Uses.
<b>LID Infiltration BMP</b>	BMPs to reduce stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Typical LID Infiltration BMPs include infiltration basins, infiltration trenches and pervious pavements.
<b>LID Retention BMP</b>	BMPs to ensure full onsite retention without runoff of the DCV such as infiltration basins, bioretention, chambers, trenches, permeable pavement and pavers, harvest and reuse.
<b>LID Principles</b>	Site design concepts that prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
<b>MEP</b>	Maximum Extent Practicable - standard established by the 1987 amendments to the CWA for the reduction of Pollutant discharges from MS4s. Refer to Attachment C of the Regional MS4 Permit for a complete definition of MEP.
<b>MF</b>	Multi-family - zoning classification for parcels having 2 or more living residential units.
<b>MS4</b>	Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.
<b>New Development Project</b>	Defined by the Regional MS4 Permit as 'Priority Development Projects' if the project, or a component of the project meets the categories and thresholds described in Section 1.1.1.
<b>NPDES</b>	National Pollution Discharge Elimination System - Federal program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.
<b>NRCS</b>	Natural Resources Conservation Service

<b>PDP</b>	Priority Development Project - Includes New Development and Redevelopment project categories listed in Provision E.3.b of the Regional MS4 Permit.
<b>Priority Pollutants of Concern</b>	Pollutants expected to be present on the project site and for which a downstream water body is also listed as Impaired under the CWA Section 303(d) list or by a TMDL.
<b>Project-Specific WQMP</b>	A plan specifying and documenting permanent LID Principles and Stormwater BMPs to control post-construction Pollutants and stormwater runoff for the life of the PDP, and the plans for operation and maintenance of those BMPs for the life of the project.
<b>Receiving Waters</b>	Waters of the United States.
<b>Redevelopment Project</b>	The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing existing roadways; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair. Project that meets the criteria described in Section 1.
<b>Runoff Fund</b>	Runoff Funds have not been established by the Copermitees and are not available to the Applicant. If established, a Runoff Fund will develop regional mitigation projects where PDPs will be able to buy mitigation credits if it is determined that implementing onsite controls is infeasible.
<b>San Diego Regional Board</b>	San Diego Regional Water Quality Control Board - The term "Regional Board", as defined in Water Code section 13050(b), is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200. State agency responsible for managing and regulating water quality in the SMR.
<b>SCCWRP</b>	Southern California Coastal Water Research Project
<b>Site Design BMP</b>	Site design BMPs prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
<b>SF</b>	Parcels with a zoning classification for a single residential unit.
<b>SMC</b>	Southern California Stormwater Monitoring Coalition
<b>SMR</b>	The Santa Margarita Region (SMR) represents the portion of the Santa Margarita Watershed that is included within the County of Riverside.

<b>Source Control BMP</b>	Source Control BMPs land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between Pollutants and runoff.
<b>Structural BMP</b>	Structures designed to remove pollutants from stormwater runoff and mitigate hydromodification impacts.
<b>SWPPP</b>	Storm Water Pollution Prevention Plan
<b>Tentative Tract Map</b>	Tentative Tract Maps are required for all subdivision creating five (5) or more parcels, five (5) or more condominiums as defined in Section 783 of the California Civil Code, a community apartment project containing five (5) or more parcels, or for the conversion of a dwelling to a stock cooperative containing five (5) or more dwelling units.
<b>TMDL</b>	Total Maximum Daily Load - the maximum amount of a Pollutant that can be discharged into a waterbody from all sources (point and non-point) and still maintain Water Quality Standards. Under CWA Section 303(d), TMDLs must be developed for all waterbodies that do not meet Water Quality Standards after application of technology-based controls.
<b>USEPA</b>	United States Environmental Protection Agency
<b>Volume-Based BMP</b>	Volume-Based BMPs applies to BMPs where the primary mode of pollutant removal depends upon the volumetric capacity such as detention, retention, and infiltration systems.
<b>WQMP</b>	Water Quality Management Plan
<b>Wet Season</b>	The Regional MS4 Permit defines the wet season from October 1 through April 30.

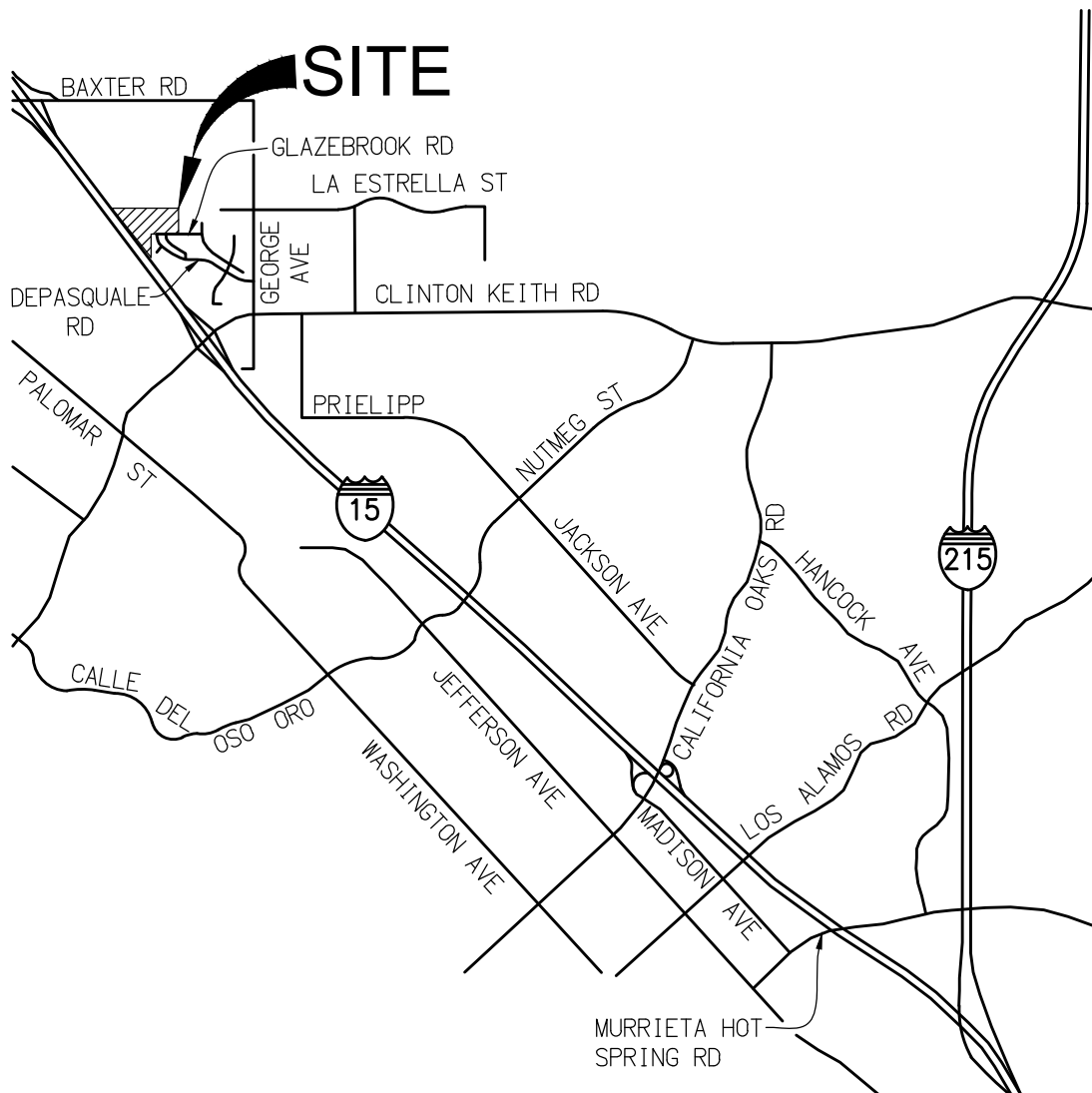
## Appendix 1: Maps and Site Plans

*Location Map, WQMP Site Plan and Receiving Waters Map*

### Map and Site Plan Checklist

Indicate all Maps and Site Plans are included in your Project-Specific WQMP by checking the boxes below.

- ☒ Vicinity and Location Map
- ☐ Existing Site Map (unless exiting conditions are included in WQMP Site Plan)
- ☒ WQMP Site Plan
  - ☒ Parcel Boundary and Project Footprint
  - ☒ Existing and Proposed Topography
  - ☒ Drainage Management Areas (DMAs)
  - ☐ Proposed Structural Best Management Practices (BMPs)
  - ☒ Drainage Paths (Flow patterns)
  - ☒ Drainage infrastructure, inlets, overflows
  - ☒ Source Control BMPs
  - ☒ Site Design BMPs
  - ☒ Buildings, Roof Lines, Downspouts
  - ☒ Impervious Surfaces
  - ☒ Pervious Surfaces (i.e. Landscaping)
  - ☒ Standard Labeling



## VICINITY MAP

T06S, R04W, SEC. 36  
NOT TO SCALE

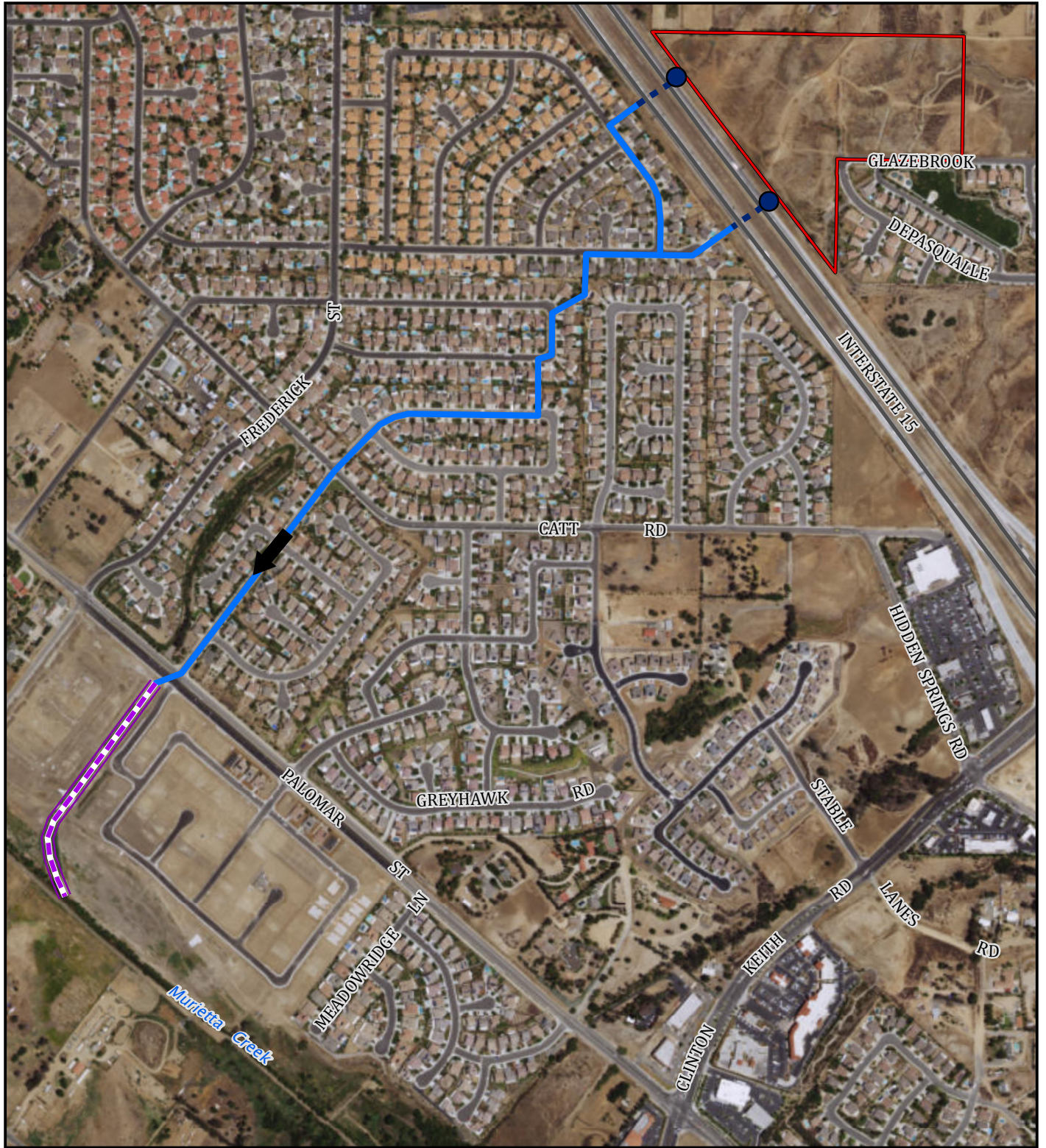
**FMCIVIL**  
ENGINEERS INC.

29995 TECHNOLOGY DRIVE, SUITE 306  
MURRIETA, CA 92563  
951.331.9873 - FMCIVIL.COM

**FAITH BIBLE CHURCH**

VICINITY MAP






Planning Application No. 17 - \_\_\_\_\_


APPLICANT / LANDOWNER:

FAITH BIBLE CHURCH

2381 Washington Ave. #C110-313, Murietta, CA 92562  
(951) 200-3173

 Drain Channel

 Storm Drain

 Storm Drain Culvert  
With Headwall

 Flow Path

 Project Boundary

**FM CIVIL**  
ENGINEERS INC.



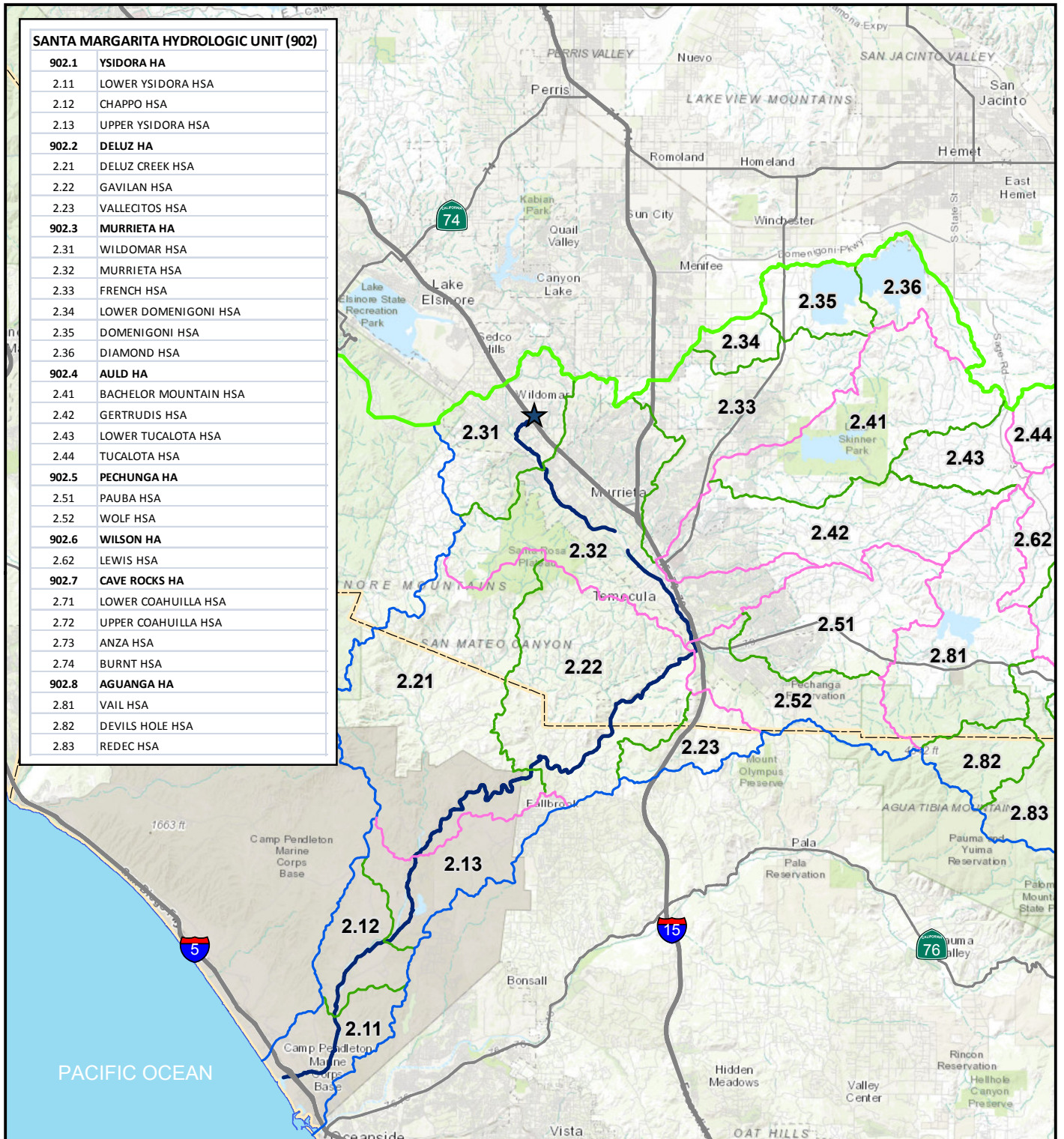
Source: Riverside County, 2017.

**Offsite Drainage**



# SANTA MARGARITA HYDROLOGIC UNIT (902)

902.1	YSIDORA HA
2.11	LOWER YSIDORA HSA
2.12	CHAPPO HSA
2.13	UPPER YSIDORA HSA
902.2	DELUZ HA
2.21	DELUZ CREEK HSA
2.22	GAVILAN HSA
2.23	VALLECITOS HSA
902.3	MURRIETA HA
2.31	WILDOMAR HSA
2.32	MURRIETA HSA
2.33	FRENCH HSA
2.34	LOWER DOMENIGONI HSA
2.35	DOMENIGONI HSA
2.36	DIAMOND HSA
902.4	AULD HA
2.41	BACHELOR MOUNTAIN HSA
2.42	GERTRUDIS HSA
2.43	LOWER TUCALOTA HSA
2.44	TUCALOTA HSA
902.5	PECHUNGA HA
2.51	PAUBA HSA
2.52	WOLF HSA
902.6	WILSON HA
2.62	LEWIS HSA
902.7	CAVE ROCKS HA
2.71	LOWER COAHUILLA HSA
2.72	UPPER COAHUILLA HSA
2.73	ANZA HSA
2.74	BURNT HSA
902.8	AGUANGA HA
2.81	VAIL HSA
2.82	DEVILS HOLE HSA
2.83	REDEC HSA



## Legend

- HYDROLOGIC AREA BOUNDARY (HA)
- HYDROLOGIC SUBAREA BOUNDARY (SA)
- HYDROLOGIC UNIT BOUNDARY (HU)
- REGIONAL BOUNDARY
- FLOW PATH

Planning Application No. 17 - \_\_\_\_\_

APPLICANT / LANDOWNER:

FAITH BIBLE CHURCH

2381 Washington Ave. #C110-313, Murietta, CA 92562  
(951) 200-3173

Receiving Waters Map

**FM CIVIL**  
ENGINEERS INC.



Source: Esri, 2007; USGS, 2009

Exhibit





PREPARED BY:  
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DATE:  
FRANCISCO MARTINEZ JR. R.C.E. #84640

**FAITH BIBLE CHURCH**  
**WQMP SITE MAP**

DATE: 2/7/2019  
1  
OF 1 SHEETS  
PROJECT NO.

17-002-ENR-001-WAMP.DWG CHRIS 2/7/2019 3:34 PM



## Appendix 2: Construction Plans

*Conceptual Grading Plan*







## Appendix 3: Soils Information

*Infiltration Testing Data and USDA Hydrologic Soils Group (HSG) Reports*

Updated soils report will be provided with Final WQMP along with updated infiltration testing.



**ARAGÓN GEOTECHNICAL, INC.**  
Consultants in the Earth & Material Sciences

July 18, 2016  
Project No. 4348-I

**Faith Bible Church**  
**c/o Michael Baker International**  
40810 County Center Drive, Suite 100  
Temecula, California 92591

Attention: Mr. Francisco Martinez, P.E.

Subject: Soil Infiltration Test Results & Stormwater BMP Recommendations  
Proposed Church Complex, APN 376-410-002 and 376-410-024  
City of Wildomar, Riverside County, California.

Mr. Martinez:

In accordance with our proposal dated September 30, 2015, and your authorization, Aragón Geotechnical Inc. (AGI) has completed assessments of soil infiltration potential at the listed project. Field test data are required for purposes of developing a site-specific water quality management plan (WQMP) with the related selection of stormwater best management practices (BMPs). AGI's infiltration study relies in part on subsurface data reported in our *Preliminary Geotechnical Investigation* report and a fault hazard study (both under development as of this writing). Key data from the latter reports such as selected subsurface soil boring logs have been reproduced for this study. AGI's infiltration report is intended to support engineering design and construction of low-impact development (LID), hydromodification, and pollution prevention features for site stormwater runoff as required by the Santa Ana Region (SAR) *Water Quality Management Plan* effective January 1, 2013.

The primary infiltration-related tasks consisted of reviews of the geotechnical data, site reconnaissance observations, field tests of soil absorption rates at three representative test sites on June 7 and 9, 2016, and preparation of this results report. Calculations or recommendations for the design precipitation event, stormwater retention or treatment flow rates, or treatment volumes were not within the scope of AGI's services.

### **Proposed Construction**

AGI was furnished with a pair of civil design exhibits with conceptual site plan alternatives. Differences in the development schemes revolve mostly around an optional substitution of a dual-use turf field for periodic parking uses for a similar area of asphalt-paved surface. Both concepts feature project elements composed of a large sanctuary building with seating for over 1,100 members plus adjoining classrooms, a satellite gym or athletics building, 3 single-family detached residences to house visiting missionaries, member parking lots, and 2 stormwater detention basins on 24.31 total acres gross. The church complex will be served by local collector streets and buried utility infrastructure including municipal sewers. The irregularly shaped limits of the project are circumscribed by rural-residential properties to the north, a vacant parcel and an existing housing tract to the east and southeast, and the Interstate 15 freeway to the southwest.

The various building pads and parking lots will be constructed by normal cut-and-fill mass grading. Both of the elongated water quality basins would be sited in lower-elevation areas next to the Interstate 15 freeway. Inputs exceeding basin capacity would exit over weir-type overflow channels directed toward existing freeway culverts. A small-scale map exhibit was prepared to show the (fully paved) conceptual site development plan, basin sites, infiltration-related soil boring locations, and locations of tests done for this study (Plate No. 1 fold-out in the back of this report).

### **Subsurface Investigation and Permeability Testing**

Site-wide, 9 deep exploratory soil borings were drilled with a truck-mounted hollow-stem auger rig for the project geotechnical investigation. Subsurface borehole data were also augmented by 10 backhoe pits and 4 longer but shallower fault investigation trenches. Two borings were preferentially placed close to, or inside of, proposed basin outlines. Both borings were voluntarily terminated without refusal in a consolidated sandstone formation at depths of 26.5 and 51.0 feet. All geotechnical borings were continuously observed by AGI's engineering geologist and logged for materials classifications, interpreted materials origins, relative density as determined from *in situ* penetration tests, presence of groundwater, and other characteristics that can influence water uptake rates. The soil borings were backfilled with tamped auger cuttings. No wells were created. The Field Boring Logs for the relevant basin borings are included in the accompanying Appendix.

AGI performed testing at three representative sites labeled IN-1, IN-2, and IN-3 on the fold-out map. The test sites were prepared in the bottom of small pits excavated with a standard backhoe to roughly 12 to 24 inches below existing grade, corresponding to the approximate proposed bottom elevations. Disturbed materials were shoveled and hand-scraped to level, smooth natural-soil surfaces in each pit. At-grade conditions consisted of a vacant open field historically used decades ago for dry-farmed grain crops. Ground surfaces were loose and lightly blanketed with dried seasonal annual vegetation. Soil moisture was very low. The test surfaces ranged from rather silty and slightly cohesive soil (IN-1 site) to loose and cohesionless sandy strata (IN-2 and IN-3).

Absorption capability was determined in general conformance with the Double-Ring Infiltrometer Test Standard (ASTM D3385-03). The standard test method consists of driving into the soil surface two concentric open cylinders of heavy steel, one 12 inches in diameter and one 24 inches in diameter and both 20 inches tall. Embedment depths are on the order of a few inches. The rings retain shallow, equal-depth constant heads of water over the soil substrate. The purpose of two rings is to force one-dimensional vertical flow below the inner ring, thus approximating absorption behavior over an infinite planar surface. The lowest inner-ring infiltration velocity (in/hr or cm/hr) is generally taken as the field test rate  $I_f$ . Soil infiltration through the annular space is usually higher due to lateral flow beyond the outer ring.

For this project, a head of 6.0 inches was designated. Excellent ring seals with the soil substrates appeared to be achieved at all test locations. Continuous replenishment of the inner + outer water pools was done via separately controlled feed lines attached via a Y-connector to a supply hose in turn charged either by gravity flow from a plastic tank, or pressurized flow from a municipal source. Per-minute replenishment rates were determined by timed inputs into 500 mL and 2,000 mL laboratory graduated cylinders. Small variations to the desired constant-head condition were corrected by periodic manual additions or subtractions of measured water volumes to the rings. Point gauges set at 6.0 inches provided visual confirmation of water surface heights above the soil. All test preparation, measurements, monitoring, and recording was performed by a qualified licensed professional. Individual test trials consisted of timed-take increments of 20 or 30 minutes. Total test durations ranged between 3 and 4 hours, based on the time needed to achieve consecutive incremental velocities differing by less than 5 percent, considered

to be close to steady-state uptake rates. A typical test result will show incremental velocities asymptotically approaching a minimum value. Tabulated data for the Faith Bible Church infiltration tests are attached.

## **FINDINGS**

### **Local Soil Conditions**

*Northwest Basin (IN-1).* Surface soils in the basin site consist of crudely layered to massive, brown to dark brown-colored and mostly featureless silty sand. The surface unit has been thoroughly “churned” [bioturbated] by cultivation and burrowing fauna. The upper soils are porous and highly compressible. Soils between 3 and 6 feet may exhibit low cohesion and a tendency to ravel in open excavations. From a soil science viewpoint, the National Resources Conservation Service classifies shallow BMP basin soils as Hanford coarse sandy loam HcC. This soil series is assigned to hydrologic soil group A.

An indistinct contact at around 10 feet separates the surface soils from much older, mostly yellowish brown silty sand with traces of clay (Unified Soil Classification System symbol SM). AGI has provisionally correlated this and similar massive and slightly clayey sediments at the project site to the Pleistocene-age Pauba Formation. Although accorded the status of a sedimentary rock unit in the literature, Pauba materials have the appearance and engineering characteristics of typical soil. A regionally distinctive basal gravel and cobble lag deposit is believed present at the infiltration basin locality, based on nearby trench pits; however, the rocky zone was not detected in the basin boring.

Below the extrapolated Pauba cobble lag, a sharp erosional contact occurs with weakly lithified sandstone assigned to the Wildomar sandstone of Kennedy (1977). The Plio-Pleistocene-age unit features very dense, stratified, immature “gritty” fine to coarse-grained sand and occasional pebbles mostly derived from a proximal granitic source. Small and partly rounded fragments of dark volcanic andesite are distinctive and diagnostic. Subaerial weathered exposures of the sandstone at the project tend to be very strongly cemented with clay, carbonate, and probably amorphous silica, but the cemented zone is absent at the basin-specific soil boring site. Minor oxide staining is present near the 22-foot-deep top of the unit. We would predict that intermittent seasonal perched-groundwater conditions might occur in some wetter rainfall years.



Southern Basin (IN-2 and IN-3). Most of the larger southern basin will overlie at least 20 to 25 feet of loose, mostly light brown and low-cohesion silty sand. Geologically the stratified silty sand is considered to represent very young braided-stream alluvium and sheet flood deposits originating from mountainous bedrock watersheds located northeast of the project boundary. Toward the northwestern end of the basin, younger alluvium is believed to shallow to only a few feet thick, with an underlying zone of very dense Wildomar sandstone. Although also classified as Hanford coarse sandy loam HcC (hydrologic soil group A) by Federal soils scientists, the southern basin alluvium is less silty and better drained than the IN-1 site. Both basin sites appear to pass basic requirements for at least 5 feet of permeable material below proposed basin bottoms.

### **Groundwater**

The deep soil boring next to the southeastern basin encountered groundwater at an approximate depth of 43 feet. This was about 21 feet below the erosional contact between Holocene-age surficial alluvium and the Wildomar sandstone formation. All shallower alluvium and sandstone samples from the boring remained free of oxide mottles that might indicate past periodic saturation.

The project site straddles a hydrogeological groundwater divide between the large Elsinore groundwater basin to the northwest and the Temecula Valley groundwater basin to the southeast. Both of these named basins are heavily exploited sources of municipal and agricultural water supplies. Groundwater gradients are interpreted to tilt to the north-northwest, toward the center of a deeply depressed phreatic surface caused by well pumping. There are no nearby historical data for the minimum depth to groundwater at the project site. We hypothesize that the encountered saturated zone is likely a perched-water horizon. Based on topographic relief and known water depths toward the valley axis, we would estimate that permanent and continuous groundwater is more than 100 feet deep. Jurisdictional requirements usually mandate a minimum separation between stormwater BMPs and groundwater of at least 10 feet and up to 40 feet (for very permeable soils). In our judgment, there should be no limitations on BMP design or construction due to groundwater at the project.

### **Infiltration Test Results**

The final measured “steady-state” field test infiltration velocity at site IN-1 was 12.5 cm/hr, or equivalently about 4.9 inches per hour. Test site IN-2 produced a minimum velocity of about 113 cm/hr (~44 in/hr). Infiltration velocity at test site IN-3 slowed to a minimum velocity of about 56 cm/hr (~22 in/hr). Results grossly tracked interpreted silt content. The IN-1 basin is considerably siltier than the coarser and cleaner sediments found near the IN-2 and IN-3 basin outline. Nonetheless, all results are indicative of adequate to very high soil permeability.

### **Conclusions, Recommendations, and Advice**

The SAR *Water Quality Management Plan* explicitly requires any infiltration-based BMP to be clear of water in 72 hours or less after the design storm event. We conclude the designated WQMP site is suitable for a basin or other LID stormwater BMP that would rely solely on surface infiltration. Findings indicate that properly constructed basins, bottomed strictly in native soils, would be capable of draining in only hours if proposed full-pool depths remain under a few feet.

For the northwestern (IN-1) basin, AGI recommends adoption of a field test infiltration velocity  $I_t$  of 4.9 inches per hour when initiating calculations for this BMP. Riverside County guidelines for storm water best management practices require a factor of safety  $FS = 3.0$  when calculating the design infiltration velocity  $I_d$  for an infiltration-type BMP, based on the methods and results of this investigation (Appendix A, Table 1, *Riverside County – Low Impact Development BMP Design Handbook*). The reduced design velocity adds conservatism for test variability, construction practices, introduction of sediments, and degradation from less-than-ideal BMP maintenance. Accordingly, it is our recommendation that civil design for this basin assume a design infiltration velocity  $I_d$  of 1.6 in/hr.

For the southern basin, AGI recommends adoption of the slower of the IN-2 and IN-3 field test velocities for design, i.e.,  $I_t$  of 22 inches per hour, and design infiltration velocity  $I_d$  of 7.3 in/hr with  $FS = 3.0$ . This will provide some extra conservatism given interpreted lesser depths to impermeable sandstone toward the northwestern end of the elongated basin.

It is important to note the test velocities were obtained in carefully prepared test pits as free as practicable of surface sealing and boundary-zone compaction. Field performance of any designed LID improvement could be markedly lower than AGI's achieved results if precautions are not maintained during construction. It will be imperative to devise a construction sequence that minimizes subgrade compaction. Excavations should be made with backhoes, grade-alls, or excavators working from outside the basin outline. An overall goal of preventing heavy equipment from rolling or tracking any excavation bottoms should be understood. Scarifying or deep ripping may be able to partially restore natural infiltration capability.

Loose and compressible alluvium next to the basin outlines will require removal and replacement during future mass grading to render these areas suitable for support of planned improvements. Preliminary recommended geotechnical "removals" next to the basins will range between an estimated 5 to 10 feet deep near the IN-1 test site, and may locally exceed 25 feet close to IN-3. Removal limits will need to encroach partway into the basin outlines to provide for full structural support of pads and roads. Combined with embankment fill construction along the freeway side of each basin, we anticipate that all basin sides will effectively comprise compacted fill. Care must be exercised by the grading contractor to help minimize excessive encroachment into the basin bottom. Staking of the basin outline is suggested in advance of mass grading. The civil designer may credit the fill side-slope areas for storage volume, but should assume zero infiltration capability for engineered fill sidewall or bottom surfaces.

Lastly, AGI concludes from test and exploration findings that the selected site BMP locations should neither cause structural concerns, nor result in significantly increased risks from slope instability, liquefaction, or settlement. Ephemeral basin stormwater inputs, a long historical exposure to subsidence opportunity (Interstate 15), plus the available volume of permeable vadose-zone soils that can accept the water, will in our opinion eliminate chances for significant mounding or create risks for off-site engineered fills. We have also reviewed geotechnical preparation recommendations for the neighboring residential Tract No. 30155. They were of a grossly similar nature as will be recommended for the subject church site. Settlement-susceptible alluvial materials have been removed. Thus, risks from project site BMPs to the adjacent tract should be nil.

### **Investigation Limitations**

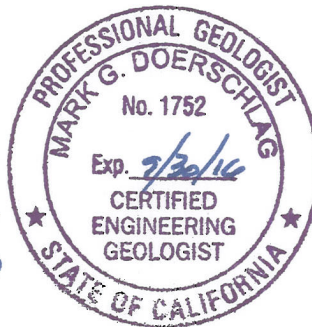
The findings in this report may require modification as a result of later field observations. Our opinions have been based on the results of limited testing within the designated BMP areas combined with extrapolations of soil conditions between or away from the test sites. The nature and extent of variations beyond the test locations may not become evident until construction. Any added infiltration BMPs beyond the currently proposed sites should be independently tested; the reported design velocities are unlikely to be replicated in most localities east of the tested basins. If conditions encountered during construction vary significantly from those indicated by this report, then additional site preparation recommendations (or tests) for stormwater treatment control BMPs may be warranted.

**Closure**

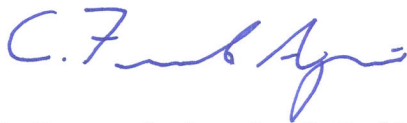
This report was prepared for the use of Michael Baker International as authorized by the project owner Faith Bible Church, and the owner's designates in cooperation with this office. Our findings and recommendations were prepared in accordance with generally accepted professional principles and local practice in the fields of engineering geology and geotechnical engineering. We make no other warranties either expressed or implied. Queries regarding the test results, recommendations, or AGI design advice are invited, and may be made to either of the undersigned professionals at our Riverside office at (951) 776-0345.

Respectfully submitted,

**Aragón Geotechnical, Inc.**



Mark G. Doerschlag, CEG 1752  
Engineering Geologist



C. Fernando Aragón, P.E., M.S.  
Geotechnical Engineer, G.E. 2994

MGD/CFA:mmma

**Attachments: Appendix**

- Field Boring Logs, Borings B-2 and B-4
- Infiltration Test Data Tables
- Plate No. 1, Exploration & Test Location Map

**Distribution:** (2) Addressee  
(2) Faith Bible Church, Attn. Mr. John Pleasnick

**Aragón Geotechnical, Inc.**

## ***APPENDIX***

## **A P P E N D I X**

### **FIGURES AND SUBSURFACE EXPLORATION LOGS**

*The Exploration & Test Location Exhibit (Plate No. 1 fold-out) was prepared based upon information supplied by the civil engineer, or others, along with Aragón Geotechnical's field measurements and observations. Field exploration and infiltration test locations illustrated on the exhibit were derived from taped or pace measurements of distance to existing improvements, and should be considered approximate.*

*The Field Boring Logs for soil borings B-2 and B-4, the two geotechnical borings relevant to proposed BMPs, are reproduced on the following pages. Drill logs schematically depict and describe the subsurface (soil and groundwater) conditions encountered at the specific exploration locations on the date that the explorations were performed. Unit descriptions reflect predominant soil types; actual variability may be much greater. Unit boundaries may be approximate or gradational. Text information often incorporates the field investigator's interpretations of geologic history, origin, diagenesis, and unit identifiers such as formation name or time-stratigraphic group. Additionally, soil conditions between recovered samples are based in part on judgment. Therefore, the logs contain both factual and interpretive information. Subsurface conditions may differ between other exploration locations and within areas of the site that were not explored. The subsurface conditions may also change at any exploration location over the passage of time.*

*The included boring logs are specific to the proposed treatment control BMPs. We have omitted other geotechnical exploration logs for brevity. Other logs may have applicability for BMPs added in future design iterations; please contact AGI for an opinion if other infiltration-type improvements are contemplated. The combined investigation scope and field operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) standard D420-98 entitled "Site Characterization for Engineering Design and Construction Purposes" and/or other relevant specifications. Soil samples were preserved and transported to AGI's Riverside laboratory in general accordance with the procedures recommended by ASTM standard D4220 entitled "Standard Practices for Preserving and Transporting Soil Samples". Brief descriptions of the sampling and testing procedures are presented below:*

#### **Ring-Lined Barrel Sampling – ASTM D 3550-01**

*In this procedure, a thick-walled "California-modified" barrel sampler constructed to receive thin-wall liners (usually a stack of 1-inch-high brass rings) is used to collect "relatively undisturbed" soil samples for classification and laboratory tests. Samples were attempted at selected depths in most geotechnical hollow-stem auger borings encountering alluvium or softer formation sediments. The drilling rig was equipped with a 140-pound mechanically actuated automatic driving hammer operated to fall 30 inches, acting on rods. A 12-inch-long sample barrel fitted with 2.50-inch-diameter rings and tubes plus a waste barrel extension was subsequently driven a distance of 18 inches or to practical refusal (considered to be  $\geq 50$  blows for 6 inches). The raw blow counts for each 6-inch increment*

*of penetration (or fraction thereof) were recorded and are shown on the Field Boring Logs. An asterisk (\*) marks refusal within the initial 6-inch seating interval. The hammer weight of 140 pounds and fall of 30 inches allow rough correlations to be made (via conversion factors that normally range from 0.60 to 0.65 in Southern California practice) to uncorrected Standard Penetration Test N-values, and their correlative descriptions of consistency or relative density. The relatively undisturbed ring samples fit directly into laboratory test instruments without additional handling and disturbance.*

#### **Standard Penetration Tests – ASTM D 1586-11**

*In selected drill holes, Standard Penetration Tests were performed to (1) Recover closely spaced but disturbed samples suitable for classification and stratigraphic interpretations; (2) Screen the site for shallow groundwater; and (3) Help derive a seismic site class. A split-barrel sampler with a 2.0-inch outside diameter is driven by successive blows of a 140-pound hammer with a vertical fall of 30 inches, for a distance of 18 inches at the desired depth. The drill rig used for this investigation was equipped with an automatic trip hammer acting on drilling rods. The total number of blows required to drive the sampler the last 12 inches of the 18-inch sample interval is defined as the Standard Penetration Resistance, or “N-value”. Penetration resistance counts for each 6-inch interval and the raw, uncorrected N-value for each test are shown on the Field Boring Logs. Drive efficiencies for automatic hammers are higher than older rope-and-cathead systems, which have mostly disappeared from practice. Where practical refusal was encountered within a 6-inch interval, defined as penetration resistance  $\geq 50$  blows per 6 inches, the raw blow count was recorded for the noted fractional interval; an asterisk (\*) marks refusal within the initial 6-inch seating interval. N-values are undefined for drives of less than 18 inches, but would normally be greater than 50. The N-value represents an index of the relative density for granular soils or comparative consistency for cohesive soils.*

#### **Bulk Sample**

*A relatively large volume of soil is collected with a shovel or trowel. The sample is transported to the materials laboratory in a sealed plastic bag or bucket.*

#### **Classification of Samples**

*Bulk drill cuttings and discrete soil samples were visually-manually classified, based on texture and plasticity, utilizing the procedures outlined in the ASTM D2487-93 standard. The assignment of a group name to each of the collected samples was performed according to the Unified Soil Classification System (ASTM D2488-93). Where reported, plasticity comments on field logs refer to soil behavior at field moisture content unless noted otherwise. The classifications are reported on the Field Boring Logs.*







# FIELD LOG OF BORING B - 2

Sheet 2 of 3

Project: **FAITH BIBLE CHURCH [APN 376-410-002 & 024]**

Location: **WILDOMAR, RIVERSIDE COUNTY, CA.**

DEPTH (ft.)	ELEVATION (MSL DATUM)	SAMPLE INTERVALS BULK DRIVE TYPE, "N" or (Blows/ft.)	GRAPHIC LOG	USCS	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	WELL COMPLETION	OTHER TESTS
15		RING 6 15 8 (23)		SM	Silty Sand: Becomes brown; medium dense; moist; fine to coarse-grained sand with common fine gravel granules, and one larger rock outside of augers at 15½ feet. Disturbed textures, but not visibly porous at 15-foot sample. [Younger alluvium, Qal]	115.0	9.8		CONSOL
20	1305	RING 6 6 7 (13)		SM	← Silty sand, as above with some fine open pores, continued massive. Abrupt drill rate decrease.	117.9	7.9		CONSOL
25	1300	RING 34 50/5"		SP-SM	Sandstone: Pale yellow; very dense; moist. Comprises medium to coarse immature gritty sand and very fine gravel with some clay films and grain alteration; weakly cemented; friable. Firm, smooth drilling. [Wildomar sandstone, QTss]				
30	1295	SPT 23 27 34 N=61		SP-SM	← Sandstone, as above.	119.0	6.7		
35	1290			SP-SM	← Sandstone, with some fine-grained angular quartz gravel to ~½", also traces of subrounded andesite clasts. Uncemented and low cohesion.				

Continued on following sheet.





## FIELD LOG OF BORING B - 2

Sheet 3 of 3

Project: **FAITH BIBLE CHURCH [APN 376-410-002 & 024]**

Location: **WILDOMAR, RIVERSIDE COUNTY, CA.**

DEPTH (ft.)	ELEVATION (MSL DATUM)	SAMPLE INTERVALS		GRAPHIC LOG	USCS	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	WELL COMPLETION	OTHER TESTS
		BULK DRIVE	TYPE, "N" or (Blows/ft.)							
35			SPT 38 50/3"		SP-SM	Sandstone: Pale yellow; very dense; moist. Comprises medium to coarse immature gritty sand and very fine gravel with sparse, distinctive small volcanic clasts; some grain alteration; essentially uncemented but well-packed texture with 10% or less detrital fines. Faintly stratified. Firm, smooth drilling. [Wildomar sandstone, QTss]				
40	1285		SPT 37 50/5"		SP-SM	← Sandstone, few quartz fragments to 1" across, continued rare volcanic stones, faint thick bedding. Moist.				
45	1280		SPT 41 45 N=92 47		SP-SM	← Sandstone, now variegated light brown and light grayish brown, wet, crumbly and highly altered grains, mostly medium to coarse grained. Traces of andesite.				
50	1275		SPT 45 50/6"		SP-SM	← Sandstone, wet, massive.				

Bottom of boring at 51.0 ft.

Groundwater encountered at approximately 43 feet.

Boring backfilled with compacted soil cuttings.



# FIELD LOG OF BORING B - 4

Sheet 1 of 2

Project: **FAITH BIBLE CHURCH [APN 376-410-002 & 024]**

Location: **WILDOMAR, RIVERSIDE COUNTY, CA.**

Date(s) Drilled: **7/11/16** Logged By: **M. Doerschlag**  
Drilled By: **GP Drilling** Total Depth: **26.5 Ft.**  
Rig Make/Model: **Mobile B-61** Hammer Type: **Automatic trip**  
Drilling Method: **Hollow-Stem Auger** Hammer Weight/Drop: **140 Lb./30 In.**  
Hole Diameter: **8 In.** Surface Elevation: **± 1336.2 Ft. AMSL per site plan**

Comments: Located in proposed WQMP infiltration basin, NW project corner. Basin bot = 1335.0

DEPTH (ft.)	ELEVATION (MSL DATUM)	SAMPLE INTERVALS		GRAPHIC LOG	USCS	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	WELL COMPLETION	OTHER TESTS
		BULK	DRIVE							
		TYPE, "N" or (Blows/ft.)								
0										
1335										
5										
1330										
		SPT								
		5								
		6								
		6	N=12							
10										
1325										
		SPT								
		3								
		4								
		6	N=10							
15										

Continued on following sheet.



# FIELD LOG OF BORING B - 4

Sheet 2 of 2

Project: **FAITH BIBLE CHURCH [APN 376-410-002 & 024]**

Location: **WILDOMAR, RIVERSIDE COUNTY, CA.**

DEPTH (ft.)	ELEVATION (MSL DATUM)	SAMPLE INTERVALS		GRAPHIC LOG	USCS	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	WELL COMPLETION	OTHER TESTS
		BULK	DRIVE							
		TYPE: "N" or (Blows/ft.)								
15		SPT			SM	Silty Sand: Yellowish brown; loose to medium dense; moist; fine to coarse-grained sand with fine gravel granules and noticeable 5-10% clay; appears massive. Not visibly porous at 15-foot sample. [Pauba (?) Fm., Qps]				
	1320	4	3							
			4							
		N=7								
20		SPT			SM	← Silty sand, variegated shades of yellowish brown, mostly fine to medium grained with some fine weathered gravel-size granules. Abrupt drill rate decrease.				
	1315	5	5							
			7							
		N=12								
					SP-SM	Sandstone: Light greenish yellow to light brown; very dense; moist. Comprises fine to coarse immature gritty sand and very fine gravel with some clay films and grain alteration; weakly cemented; friable. Firm, smooth drilling. [Wildomar sandstone, QTss]				
25		SPT								
	1310	29	26		SP-SM					
			26							
		N=52								

Bottom of boring at 26.5 ft.

No groundwater encountered.

Boring backfilled with compacted soil cuttings.



# Aragón Geotechnical Inc. - Record Chart for ASTM D3385-03 (12 & 24 Inch Infiltration Rings)

[www.aragongeo.com](http://www.aragongeo.com)

Project Identification:		Faith Bible Church				Constants		Area (cm <sup>2</sup> )	Depth of Liquid (cm)	Liquid Container Number	Liquid Container Volume Vol/ Chg H (cm <sup>3</sup> /cm)				
Test Location:		Site IN - 1, proposed NW infiltration basin, test depth 22" bgs				Inner Ring		745	15.2	500 mL	17.70				
Liquid Used:		Municipal H2O		pH: n/a		Annular Space		2106	15.2	2000 mL	48.31				
Tested By:		M. Doerschlag				Liquid level maintained using: ( <input checked="" type="checkbox"/> ) Flow Valve ( <input type="checkbox"/> ) Float Valve ( <input type="checkbox"/> ) Mariotte Tubes ( <input checked="" type="checkbox"/> ) Graduated Cylinders									
Depth to water table:		>40' Estimated Historic Minimum				Penetration Depth of Outer Ring: 8 cm									
Trial #	Start / End Test	Date	Time HR:MIN	Elapsed Time Chg/(Total) Min	Flow Readings				Liquid Temp (°F)	Ring Infiltration Rates		Ground Temperature		Remarks	
					Inner Ring Reading (cm)	Inner Ring Flow (cm <sup>3</sup> )	Annular Space Reading (cm)	Annular Space Flow (cm <sup>3</sup> )		Inner Infiltration Rate (cm/hr)	Annular Infiltration Rate (cm/hr)	Ground Temp Depth (cm)	Temp at Depth (°F)	Weather conditions Etc...	
Water Introduced		7/7/2016	13:30												
1	Start Test	7/7/2016	13:56	0:20:00		4,760		15,480	84.0	19.17	22.05	10.0	84.0		
	End Test	7/7/2016	14:16	0:20:00											
2	Start Test	7/7/2016	14:16	0:20:00		4,420		14,380		17.80	20.48	n/a	n/a	Light wind, 77 degrees. Good ring seals. 6" heads.	
	End Test	7/7/2016	14:36	0:40:00											
3	Start Test	7/7/2016	14:36	0:20:00		3,725		13,340		15.00	19.00	n/a	n/a		
	End Test	7/7/2016	14:56	1:00:00											
4	Start Test	7/7/2016	14:56	0:20:00		3,865		12,775		15.56	18.20	n/a	n/a	Refill portable tank	
	End Test	7/7/2016	15:16	1:20:00											
5	Start Test	7/7/2016	16:04	0:20:00		3,400		11,245		13.69	16.02	n/a	n/a		
	End Test	7/7/2016	16:24	2:28:00											
6	Start Test	7/7/2016	16:24	0:20:00		3,285		11,060		13.23	15.75	n/a	n/a		
	End Test	7/7/2016	16:44	2:48:00											
7	Start Test	7/7/2016	16:44	0:20:00		3,265		11,160		13.15	15.90	n/a	n/a		
	End Test	7/7/2016	17:04	3:08:00											
8	Start Test	7/7/2016	17:04	0:20:00		3,115		11,080		12.54	15.78	n/a	n/a		
	End Test	7/7/2016	17:24	3:28:00											
9	Start Test														
	End Test														
10	Start Test														
	End Test														
11	Start Test														
	End Test														
12	Start Test														
	End Test														

Final I<sub>t</sub> = 12.5 cm/hr

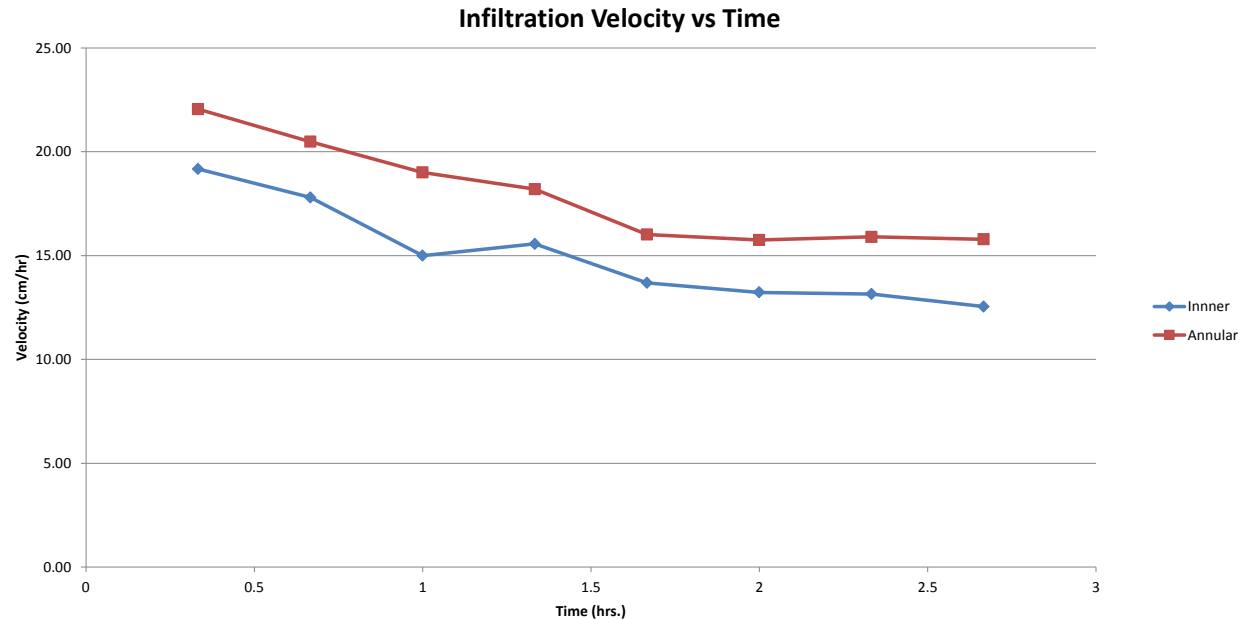


Figure E-1

# Aragón Geotechnical Inc. - Record Chart for ASTM D3385-03 (12 & 24 Inch Infiltration Rings)

www.aragongeo.com

Project Identification:		Faith Bible Church				Constants		Area (cm <sup>2</sup> )	Depth of Liquid (cm)	Liquid Container Number	Liquid Container Volume Vol/ Chg H (cm <sup>3</sup> /cm)			
Test Location:		Site IN - 2, proposed larger western infiltration basin, test depth 12" bgs				Inner Ring	707	15.2	500 mL	17.70				
Liquid Used:		Municipal H2O	pH: n/a			Annular Space	2106	15.2	2000 mL	48.31				
Tested By:		M. Doerschlag				Liquid level maintained using: ( <input checked="" type="checkbox"/> ) Flow Valve ( <input type="checkbox"/> ) Float Valve ( <input type="checkbox"/> ) Mariotte Tubes ( <input checked="" type="checkbox"/> ) Graduated Cylinders								
Depth to water table:		Estimated 20' Historic Minimum (Perched)				Penetration Depth of Outer Ring: 8 cm								
Trial #	Start / End Test	Date	Time HR:MIN	Elapsed Time Chg/(Total) Min	Flow Readings				Liquid Temp (°F)	Ring Infiltration Rates		Ground Temperature		Remarks
					Inner Ring Reading (cm)	Inner Ring Flow (cm <sup>3</sup> )	Annular Space Reading (cm)	Annular Space Flow (cm <sup>3</sup> )		Inner Infiltration Rate (cm/hr)	Annular Infiltration Rate (cm/hr)	Ground Temp Depth (cm)	Temp at Depth (°F)	
Water Introduced		7/9/2016	9:39											
1	Start Test	7/9/2016	10:09	0:20:00					84.0					
	End Test	7/9/2016	10:29	0:20:00		15,355		49,070		65.16	69.90	10.0	74.0	
2	Start Test	7/9/2016	10:29	0:20:00										
	End Test	7/9/2016	10:49	0:40:00		14,965		48,985		63.50	69.78	n/a	n/a	Light wind, 81 degrees. Good ring seals. 6" heads.
3	Start Test	7/9/2016	10:49	0:20:00										
	End Test	7/9/2016	11:09	1:00:00		14,615		49,010		62.02	69.81	n/a	n/a	
4	Start Test	7/9/2016	11:09	0:20:00										
	End Test	7/9/2016	11:29	1:20:00		14,335		47,850		60.83	68.16	n/a	n/a	
5	Start Test	7/9/2016	11:29	0:20:00										
	End Test	7/9/2016	11:49	1:40:00		14,245		47,090		60.45	67.08	n/a	n/a	
6	Start Test	7/9/2016	11:49	0:30:00										
	End Test	7/9/2016	12:19	2:20:00		21,120		70,420		59.75	66.88	n/a	n/a	
7	Start Test	7/9/2016	12:19	0:30:00										
	End Test	7/9/2016	12:49	2:50:00		20,570		69,220		58.19	65.74	n/a	n/a	
8	Start Test	7/9/2016	12:49	0:30:00										
	End Test	7/9/2016	13:19	3:20:00		19,930		67,630		56.38	64.23	n/a	n/a	
9	Start Test													
	End Test													
10	Start Test													
	End Test													
11	Start Test													
	End Test													
12	Start Test													
	End Test													

Final I<sub>t</sub> = 56.4 cm/hr

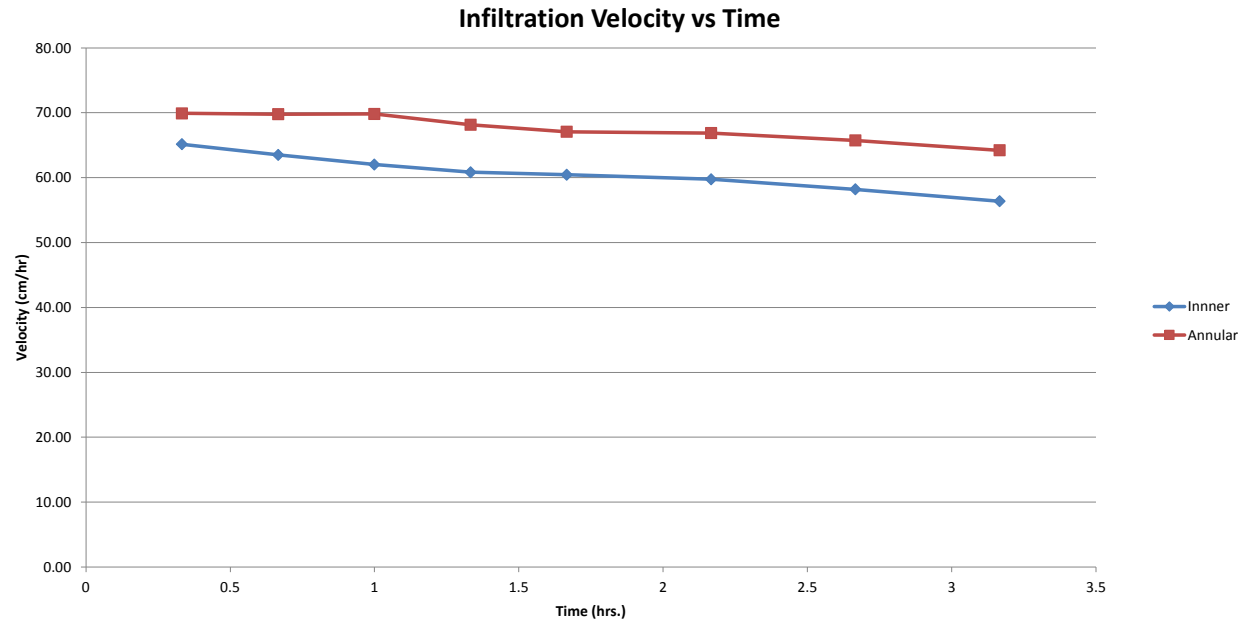


Figure E-2

# Aragón Geotechnical Inc. - Record Chart for ASTM D3385-03 (12 & 24 Inch Infiltration Rings)

www.aragongeo.com

Project Identification:		Faith Bible Church				Constants		Area (cm <sup>2</sup> )	Depth of Liquid (cm)	Liquid Container Number	Liquid Container Volume Vol/ Chg H (cm <sup>3</sup> /cm)				
Test Location:		Site IN - 3, proposed larger western infiltration basin, test depth 24" bgs				Inner Ring	745	15.2	500 mL	17.70					
Liquid Used:		Municipal H2O	pH: n/a			Annular Space	2106	15.2	2000 mL	48.31					
Tested By:		M. Doerschlag				Liquid level maintained using: ( <input checked="" type="checkbox"/> ) Flow Valve (    ) Float Valve (    ) Mariotte Tubes ( <input checked="" type="checkbox"/> ) Graduated Cylinders									
Depth to water table:		Estimated 20' Historic Minimum (Perched)				Penetration Depth of Outer Ring: 8 cm									
Trial #	Start / End Test	Date	Time HR:MIN	Elapsed Time Chg/(Total) Min	Flow Readings				Liquid Temp (°F)	Ring Infiltration Rates		Ground Temperature		Remarks	
					Inner Ring Reading (cm)	Inner Ring Flow (cm <sup>3</sup> )	Annular Space Reading (cm)	Annular Space Flow (cm <sup>3</sup> )		Inner Infiltration Rate (cm/hr)	Annular Infiltration Rate (cm/hr)	Ground Temp Depth (cm)	Temp at Depth (°F)	Weather conditions Etc...	
Water Introduced		7/9/2016	13:25												
1	Start Test	7/9/2016	13:49	0:20:00					84.0	138.74	159.19	n/a	n/a	Light wind, 80 degrees. Good ring seals. 6" heads.	
	End Test	7/9/2016	14:09	0:20:00		34,455									
2	Start Test	7/9/2016	14:09	0:20:00						135.18	157.89	n/a	n/a	Noted outer slowed at 30-minute mark.	
	End Test	7/9/2016	14:29	0:40:00		33,570									
3	Start Test	7/9/2016	14:29	0:20:00						126.64	146.45	n/a	n/a		
	End Test	7/9/2016	14:49	1:00:00		31,450									
4	Start Test	7/9/2016	14:49	0:20:00						127.29	138.62	n/a	n/a		
	End Test	7/9/2016	15:09	1:20:00		31,610									
5	Start Test	7/9/2016	15:09	0:20:00						122.96	134.34	n/a	n/a		
	End Test	7/9/2016	15:29	1:40:00		30,535									
6	Start Test	7/9/2016	15:29	0:20:00						119.90	130.70	n/a	n/a		
	End Test	7/9/2016	15:49	2:00:00		29,775									
7	Start Test	7/9/2016	16:23	0:20:00						121.93	118.23	n/a	n/a		
	End Test	7/9/2016	16:43	2:54:00		30,280									
8	Start Test	7/9/2016	16:43	0:20:00						120.22	114.43	n/a	n/a		
	End Test	7/9/2016	17:03	3:14:00		29,855									
9	Start Test	7/9/2016	17:03	0:20:00						113.11	111.30	n/a	n/a		
	End Test	7/9/2016	17:23	3:34:00		28,090									
10	Start Test														
	End Test														
11	Start Test														
	End Test														
12	Start Test														
	End Test														

Final I<sub>t</sub> = 113 cm/hr

Infiltration Velocity vs Time

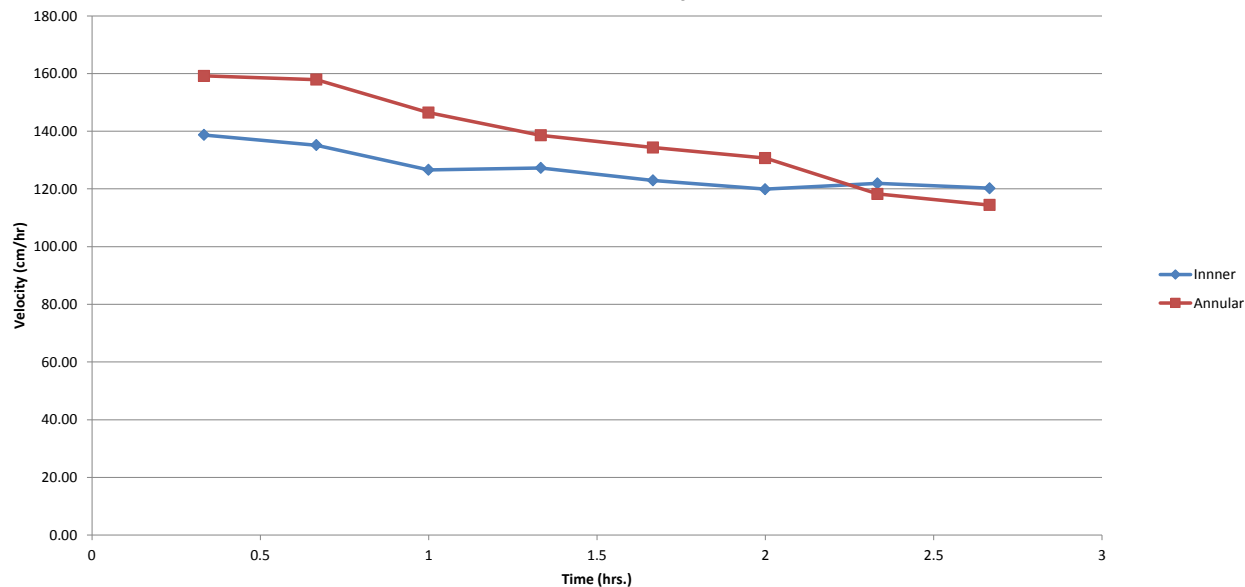
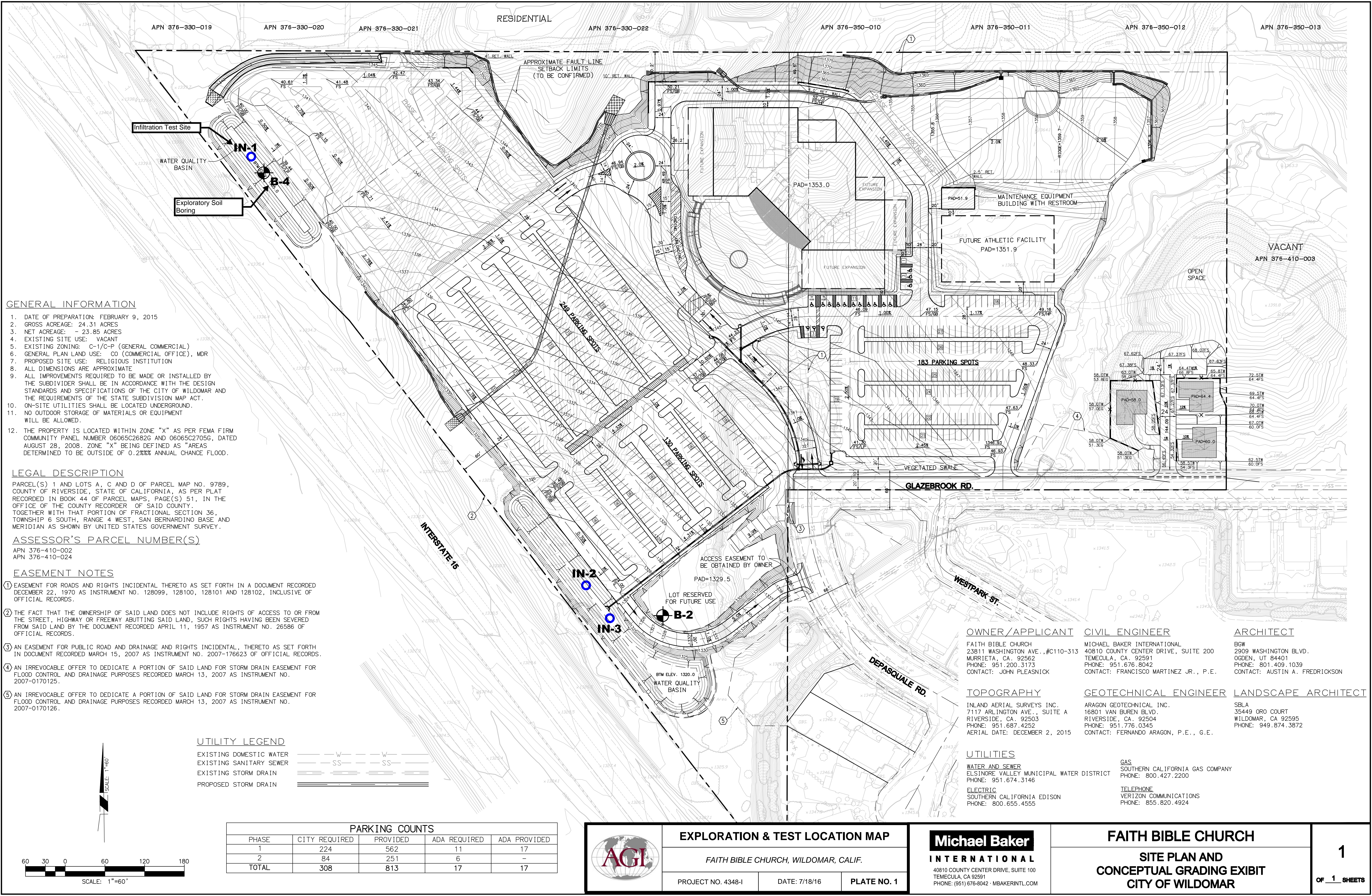


Figure E-3









United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Western Riverside Area, California

**FAITH BIBLE CHURCH  
WILDOMAR**



October 24, 2018

# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Contents

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<b>Preface</b> .....	2
<b>Soil Information for All Uses</b> .....	5
Soil Properties and Qualities.....	5
Soil Qualities and Features.....	5
Hydrologic Soil Group.....	5
<b>References</b> .....	10

# **Soil Information for All Uses**

---

## **Soil Properties and Qualities**

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## **Soil Qualities and Features**

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## **Hydrologic Soil Group**

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 soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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.

## Custom Soil Resource Report

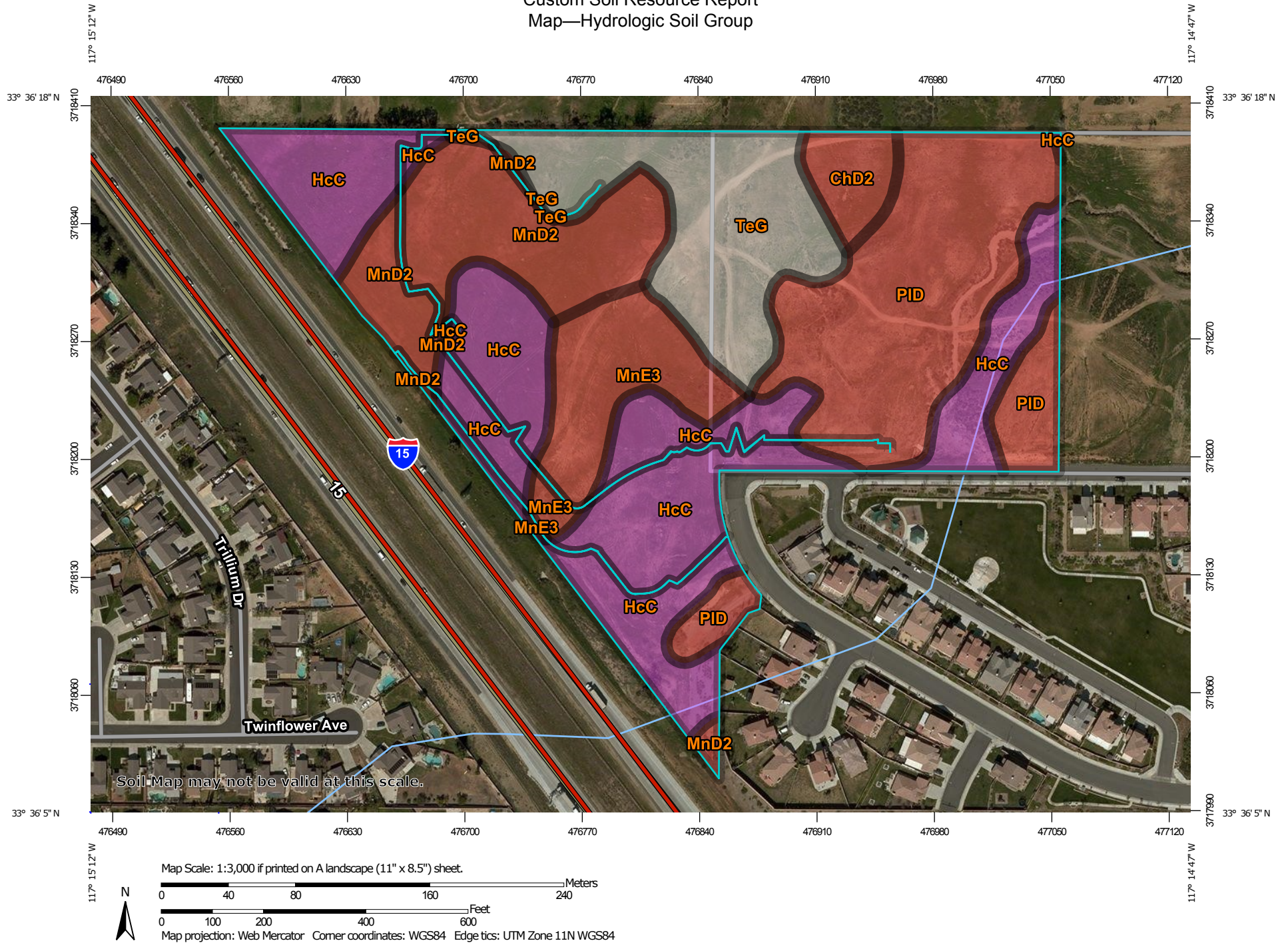
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

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. Only the soils that in their natural condition are in group D are assigned to dual classes.



# Custom Soil Resource Report Map—Hydrologic Soil Group





## Custom Soil Resource Report






### MAP LEGEND

#### Area of Interest (AOI)









 Area of Interest (AOI)

#### Soils

##### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

##### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

##### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available


#### Water Features

 Streams and Canals

#### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

#### Background

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California  
Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 24, 2015—Feb 26, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

**Table—Hydrologic Soil Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ChD2	Cieneba sandy loam, 8 to 15 percent slopes, eroded	D	0.7	3.0%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	8.2	33.3%
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded	D	3.6	14.6%
MnE3	Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded	D	2.2	8.8%
PID	Placentia fine sandy loam, 5 to 15 percent slopes	D	6.1	25.0%
TeG	Terrace escarpments		3.8	15.3%
<b>Totals for Area of Interest</b>			<b>24.5</b>	<b>100.0%</b>

**Rating Options—Hydrologic Soil Group***Aggregation Method:* Dominant Condition*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher

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---

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## Custom Soil Resource Report

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## Appendix 4: Historical Site Conditions

*Phase I Environmental Site Assessment or Other Information on Past Site Use*

August 25, 2017

PHASE I ENVIRONMENTAL SITE ASSESSMENT  
PROPOSED FAITH BIBLE CHURCH  
NEAR INTERSECTION OF GLAZEBROOK RD. & DEPASQUALE RD.,  
WILDOMAR, CALIFORNIA 92595  
Remediation Sciences Project No. 17-0155

Prepared for:

Faith Bible Church  
23811 Washington Avenue, # C110-313  
Murrieta, CA 92562

Prepared by:

Remediation Sciences  
3723 Birch Street, Suite 14  
Newport Beach, California 92660  
Tel. (949) 660-9292 Fax (949) 666-9295

**REMEDIATION SCIENCES**

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 Purpose.....	1
1.2 Detailed Scope-of-Services .....	1
1.3 Significant Assumptions .....	2
1.4 Limitations and Exceptions.....	2
1.5 Limitations and Exceptions.....	3
1.6 User Reliance.....	3
<b>2.0 SITE DESCRIPTION.....</b>	<b>3</b>
2.1 Regional Geologic Setting.....	4
2.2 Local Geologic Conditions.....	4
2.3 Regional Hydrologic Setting .....	4
2.4 Local Hydrogeology.....	4
2.5 Site and Vicinity General Characteristics .....	5
2.6 Current Use of the Subject Property.....	5
2.7 Current Uses of the Adjoining Properties .....	5
<b>3.0 USER PROVIDED INFORMATION .....</b>	<b>5</b>
3.1 Title Records .....	5
3.2 Environmental Liens and Activity and Use Limitations .....	5
3.3 Specialized Knowledge .....	6
3.4 Commonly Known or Reasonably Ascertainable Information.....	6
3.5 Occupant Information .....	6
3.6 Valuation Reduction for Environmental Issues .....	6
3.7 Reason for Performing Phase I ESA .....	6
<b>4.0 RECORDS REVIEW .....</b>	<b>6</b>
4.1 Standard Environmental Record Sources .....	7
4.2 Additional Environmental Record Sources .....	8
4.3 Other Ascertainable Records .....	9
4.4 Other High Risk Environmental Records.....	9
4.5 Review of Additional Environmental Records at Local Governmental Agencies ....	9
4.6 USGS Historical Topographical Maps .....	10
4.7 Historical Aerial Photographs .....	11
4.8 Certified Sanborn® Map Report .....	12
4.9 Historical City Directories .....	12
4.10 EDR Building Permit Report.....	13
4.11 Review of a Geotechnical Investigation Report.....	13
<b>5.0 SITE RECONNAISSANCE .....</b>	<b>13</b>
5.1 Methodology and Limiting Conditions.....	13
5.2 General Site Setting .....	14
5.3 Exterior Observations.....	14
5.4 Interior Observations of Building .....	16
<b>6.0 INTERVIEWS.....</b>	<b>16</b>
6.1 Interview with the Subject Property representative.....	16
6.2 Interview with Occupants .....	18

6.3 Interviews with Local Government Officials .....	19
<b>7.0 FINDINGS .....</b>	<b>19</b>
<b>8.0 OPINIONS.....</b>	<b>20</b>
<b>9.0 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>20</b>
<b>10.0 DEVIATIONS .....</b>	<b>21</b>
<b>11.0 ADDITIONAL SERVICES .....</b>	<b>21</b>
<b>12.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL .....</b>	<b>21</b>
<b>13.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL.....</b>	<b>21</b>
<b>14.0 REFERENCES.....</b>	<b>22</b>

## **LIST OF FIGURES**

**Figure 1** – Site Vicinity Map

**Figure 2** – Site Map

## **LIST OF APPENDICES**

**APPENDIX A** – Photographs

**APPENDIX B** – Environmental User Questionnaire

**APPENDIX C1** – Chain of Title Report

**APPENDIX C2** – EDR Property Tax Map Report

**APPENDIX D** – EDR Environmental Lien and AUL Report

**APPENDIX E** – EDR Radius Map™ Report with GeoCheck®

**APPENDIX F** – EDR Historical Topographic Map Report

**APPENDIX G** – EDR Aerial Photo Decade Package

**APPENDIX H** – Certified Sanborn® Map Report

**APPENDIX I** – EDR City Directory Abstract

**APPENDIX J** – EDR Building Permit Report



## EXECUTIVE SUMMARY

Remediation Sciences (RS) has completed a Phase I Environmental Site Assessment (Phase I ESAs) on behalf of Faith Bible Church for two parcels located in the vicinity of Glazebrook Road and Depasquale Road in Wildomar, California, (the Property or the Site"). The Assessor's Parcel Numbers (APNs) of the Property provided to RS are 376-410-002 and 376-410-024.

The sole purpose of the Phase I ESA was to identify Recognized Environmental Conditions (RECs) for the Subject Property. The Phase I ESA was conducted in accordance with the scope and limitations of the American Society of Testing Materials Standard Practices for ESAs: Designation E1527-13.

According to a chain of title report ordered by RS on behalf of Faith Bible Church, the property is vested in Faith Bible Church - Murrieta, A California Nonprofit Corporation. The title was received from First Citizens Bank and Trust Company in August 2010.

The Site is located in the Peninsular Range province in Southern California. The province is regarded as uplift. The province is underlain chiefly by igneous, meta-sedimentary, and metavolcanic rocks of the Paleozoic and Mesozoic age. The Perris block where Sun City is located is bounded by Elsinore Fault zone to the southeast and San Jacinto Fault zone on the northeast

The topography at the site is uneven with some low lying land and some slopes. The elevation on the Property ranges from about 1,320 to 1,390 feet above mean sea level. the surface material at the Study Site and surrounding properties is Pauba Formation that consists of brown colored and poorly indurated soil like Pleistocene sandstone and siltstone.

Hydrologically the study area comprises the coastal drainage basins of California. It is located in the Temecula Valley groundwater basin. The basin has an area of approximately 150 square miles and it is drained by Murrieta Creek and the Santa Margarita River. The water bearing material in the basin is younger alluvium. Reportedly perched groundwater is found at a depth of about 40 feet but continues groundwater is found in the area at a depth of about 100 feet.

The Site is located in a in a partially developed part of rural Wildomar in Riverside County. The area of the Property is approximately 24.5 acres. Currently the Site is undeveloped land. The Phase I ESA is required by the County of Riverside for building construction purposes.

The Property and the adjoining properties are not listed in any of the standard governmental environmental, additional environmental records, other ascertainable records, or the other high risk environmental Records databases except two sites that are listed in the Envirostor database. These sites are school properties located slightly

more than 0.5 miles from the Subject Site. When properties are developed for school, there is site mitigation conducted at these sites under the oversight of the Department of Toxic Substances Control. The database shows that no specific contaminants were found in the properties. RS did not identify any REC related to the adjacent properties or nearby sites.

None of the adjacent properties and nearby sites are listed in any of the standard governmental environmental, additional environmental records, other ascertainable records, or the other high risk environmental records databases except for two sites that are listed in the Envirostor database. These sites are school properties located slightly more than 0.5 miles from the Subject Site. When properties are developed for school there is for typical site mitigation conducted the DTSC. The database shows that no specific contaminants were found in the properties. RS did not identify any REC related to the adjacent properties or nearby sites.

Based on review and evaluation of the findings identified as a result of this Phase I ESA, RS has formed the opinion that the Subject Property has no known recognized environmental conditions.

## **1.0 INTRODUCTION**

Remediation Sciences (RS) has been retained by Faith Bible Church to conduct a Phase I Environmental Site Assessment (Phase I ESA) for two parcels located in the vicinity of Glazebrook Road and Depasquale Road in Wildomar, California ("Subject Property, Property or the Site. The Assessor's Parcel Numbers (APNs) of the Site provided to RS by Faith Bible Church are 376-410-002 and 376-410-024. Figure 1 shows the vicinity of the Site and Figure 2 shows the Site.

### **1.1 Purpose**

The sole purpose of this environmental assessment is to identify recognized environmental conditions (RECs) for the Subject Property. The Phase I ESA was conducted in accordance with the scope and limitations of the American Society of Testing Materials (ASTM) Standard Practices for ESAs: Designation E1527-13. The Phase I ESA was conducted between July 28, 2017 and August 25, 2017. The ESA was performed in accordance to a RS proposal dated July 26, 2017 that was approved by Faith Bible Church on July 27, 2017.

For the purpose of this report, and as defined by the ASTM, REC is defined as "the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum products into the structure, on the property, or into the ground, groundwater, or surface water of the property."

### **1.2 Detailed Scope-of-Services**

The following scope of work was performed to accomplish the Phase I ESA objectives:

- Visual Inspection - A visual evaluation of the Subject Property was conducted in readily accessible areas to identify RECs. Additionally, visual observations of adjoining properties were made from the vantage point of the Subject Property, as well as from public right-of-ways, to determine the potential impact of these sites on the Subject Property.
- Site Interview –interview the property owner or the representative of the owner.
- Published Database Review - Reviewed published governmental agency databases to identify properties within ASTM-specified radii of the Subject Property with a reported environmental concern or incident. RS subcontracts the government agency database search to Environmental Data Resources, Inc., (EDR), of Shelton, Connecticut.
- Record Review - Available environmental reports, agency records, appropriate permits, Sanborn Maps, historical United States Geological Survey (USGS)

topographic maps, and historical aerial photographs of the Subject Property and surrounding areas were reviewed.

- Agency Document Review - Appropriate regulatory agencies were contacted for information regarding hazardous materials use, storage, and/or releases at the Subject Property. Appropriate permits were reviewed.
- Report Preparation - Prepared a summary report of the environmental assessment findings and conclusions.

### **1.3 Significant Assumptions**

Topics not explicitly discussed within this document should not be assumed to have been investigated, such as physical testing, other than that specifically detailed in this document. The work performed in conjunction with this study and data developed are intended as a description of available information on the dates and at the locations described.

RS has based its assessment on the Subject Property's history on interview, review of available records, and observations on site during a physical site inspection. Some or all of this information has been reported to RS from several sources. RS has relied on this reported information and data without further verification or validation of its accuracy.

### **1.4 Limitations and Exceptions**

The professional opinions contained in this report are based solely on the laws, regulations, and technical data known to RS at the time of preparation of this report. The conclusions of this assessment rely on reasonably obtainable information from site reconnaissance, interviews with onsite personnel and public officials, and public records. No warranty is made regarding the accuracy of the publicly documented information or the opinions of officials or personnel consulted for the study. All known information has been disclosed and a good-faith effort has been made to consult pertinent sources.

- This report does not warrant against future operations or conditions, nor does it warrant against:
- Operations that are not in evidence from visual observations or search of published agency records, or facts that were concealed, withheld, or not fully disclosed at the time the site inspection was conducted or during the interview.
- Conditions that could only be determined by physical sampling or intrusive testing.
- Conditions on locations other than the client-provided Subject Property address and/or legal parcel description.

This report is not intended to address, assess, or otherwise determine whether asbestos-containing building materials; biological agents; cultural and historical resources; ecological resources; endangered species; health and safety; indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment; industrial hygiene; lead based paint; lead in drinking water; mold, radon, regulatory compliance; and wetlands issues exist at the Subject Property. Such determination would require comprehensive subsurface exploration and/or other sampling activities, which were beyond the scope of service for this assessment. Additionally, this report does not serve as a comprehensive wetlands, mining, oil, pipeline, and/or gas well survey.

This report summarizes an environmental investigation conducted for the Subject Property to evaluate concerns with respect to any potential damages or liability in association with onsite hazardous waste or petroleum contamination and migration of contamination from surrounding properties.

Although conditions at neighboring properties may impact the Subject Property and, to the extent that they were identified, they are included in the Subject Property evaluation but this report does not serve as an assessment of the sites other than the Subject Property.

### **1.5 Limitations and Exceptions**

There are no special terms or conditions applicable to the preparation of this Phase I ESA.

### **1.6 User Reliance**

The information herein is for the exclusive use of Faith Bible Church and RS. RS is not responsible for use of this information by other parties. RS is not responsible for the independent conclusions, opinions, or recommendations made by others based on information presented in this report. This report is intended to be used by Faith Bible Church and/or its partners or assignees, and no other person or entity may rely upon the report without the written consent of RS

## **2.0 SITE DESCRIPTION**

The Site has an irregular shape and has an area of approximately 24.5 acres (Figure 2). Photos 1 to 14 show the Site. Photos are included in Appendix A.

The following sections describe the regional settings, site and vicinity general settings, the Subject Property description, current use of the Subject and adjacent properties.

## **2.1 Regional Geologic Setting**

California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. There are eleven provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief and climate. The study area is located within the Peninsular Ranges (State of California Department of Natural Resources, 1954). A series of ranges is separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault (California Geologic Survey, 2002). The province is underlain chiefly by igneous, meta-sedimentary, and metavolcanic rocks of the Paleozoic and Mesozoic age. The Peninsular Ranges extend into Southern California and are bound on the east by the Colorado Desert. The Los Angeles Basin and the island group of Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas islands, together with the surrounding continental shelf are included in this province. The area contains the northwest end of the Ellsinore trough which marks the trace of the Elsinore Fault zone. The entire province is regarded as an uplift and eastward tilted plateau that has been broken into several large, elongated, subparallel blocks of major faults that trend northwest.

## **2.2 Local Geologic Conditions**

The topography at the site is uneven with some low lying land and some slopes. According to a report by Aragon Geotechnical, Inc. (Aragon Geotechnical, Inc., 2016), the surface material at the Study Site and surrounding properties is Pauba Formation that consists of brown colored and poorly indurated soil like Pleistocene sandstone and siltstone. The elevation at the site ranges from about 1,320 feet above mean sea level (amsl) in the western part of the property along Interstate 15 to 1,390 feet amsl along the Property line in the eastern part of the Site (FMCIVIL Engineering Inc., undated figure).

## **2.3 Regional Hydrologic Setting**

The Site is located within the South Coastal Hydrogeologic Study area (California Department of Water Resources, 1975). This study area comprises the coastal drainage basins of California. It is located in the Temecula Valley groundwater basin. The basin has an area of approximately 150 square miles and it is drained by Murrieta Creek and the Santa Margarita River. The water bearing material in the basin is younger alluvium.

## **2.4 Local Hydrogeology**

There is no readily available groundwater flow direction information for the Site. However, Aragon Geotechnical, Inc. indicated that in one of their borings advanced near a proposed southeastern water quality basin what they believed was perched groundwater was encountered at 43 feet (Aragon Geotechnical, Inc., 2016). They indicated that shallower soil were free of oxides mottles that are typically indicator of

soil saturation with water. Aragon Geotechnical, Inc. stated that permanent and continues groundwater at the site is more than 100 feet deep.

## **2.5 Site and Vicinity General Characteristics**

The Site is located in the vicinity of coordinates N 33° 36' 14.76" and W 117° 14' 58.48" within the Riverside, California. It is located in Township 6 South, Range 4 west, Section 36 within Murrieta, California quadrangle of the United States Geological Survey (U. S. Geological Survey, 1953 (photorevised 1979). The Site is undeveloped land. It is uneven and there is approximately about 70 feet difference in elevation between the lowest and highest part of the property.

## **2.6 Current Use of the Subject Property**

It is undeveloped property. Photos 1 to 14 show the Site.

## **2.7 Current Uses of the Adjoining Properties**

Properties to the east, west, south and north are undeveloped land, residential properties, single family dwelling and a freeway (I-15).

## **3.0 USER PROVIDED INFORMATION**

### **3.1 Title Records**

A chain of title for the Site was ordered from EDR by RS on behalf of Faith Bible Church. According to a grant deed recorded in August 27, 2010, the property is vested in Faith Bible Church - Murrieta, A California Nonprofit Corporation. The title was received from First Citizens Bank and Trust Company. The legal description of the Site is shown on Exhibit A of the chain of title. A copy of the chain of title is included in Appendix C1. The previous owners were individuals, partnerships and banks.

A property tax map report provided by Environmental Data Resources (EDR) is included in Appendix C2.

### **3.2 Environmental Liens and Activity and Use Limitations**

RS ordered an environmental lien and AUL search Report from EDR and a copy of this report is included in Appendix D. The report was ordered using APNs 376-410002 and 376-410-024 that was provided to RS by Faith Bible Church. The report indicated that neither environmental lien nor AUL were found for the Property.

RS sent an environmental questionnaire to Faith Bible Church to be completed by a person who knows about the property. The questionnaire was completed by Mr. John Pleasnick with Faith Bible Church and Mr. Pleasnick indicated that they were not aware of any AUL 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 register under federal, tribal, state or local law. A copy of the questionnaire is included in Appendix B.

### **3.3 Specialized Knowledge**

On the aforementioned questionnaire, Mr. John Pleasnick indicated that he had no specialized knowledge of the property or nearby properties.

### **3.4 Commonly Known or Reasonably Ascertainable Information**

In the questionnaire described above Mr. John Pleasnick indicated that he had no commonly known or reasonably ascertainable information about the property.

### **3.5 Occupant Information**

The Property is undeveloped vacant property.

### **3.6 Valuation Reduction for Environmental Issues**

Because Faith Bible Church already owns the property, Mr. Pleasnick responded to the question about whether the purchase price being paid for the property reasonably reflect the fair market value, he replied by saying it does not apply to them.

### **3.7 Reason for Performing Phase I ESA**

Mr. Pleasnick indicated that the Phase I was requested by City of Wildomar as part of building application.

## **4.0 RECORDS REVIEW**

To conduct an investigation of the government environmental databases related to the Subject Property and the nearby areas and to identify potential RECs that may be recorded in government database systems or files RS ordered a report that contains available environmental records from Environmental Data Resources (EDR) of Shelton Connecticut in order to satisfy the search requirements set forth in the EPA's Standards and Practices for All Appropriate Inquiry as set forth in 40 CFR 312, and in accordance with ASTM standard E1527-13.

The complete EDR Radius Map Report with GeoCheck ordered for the Property is included as Appendix E of this report.

The findings of the governmental records that were included in that report are described below:



#### 4.1 Standard Environmental Record Sources

RS reviewed the following databases that are referred to as “Standard Environmental Record Sources”. Any sites listed on any databases are discussed below.

Database	Distance Searched (miles)	Number of Sites Identified
<b>Standard Environmental Record Sources (Federal Databases)</b>		
National Priorities List (NPL)	1.0	0
Proposed NPL	1.0	0
NPL Linens	0.001	0
Delisted NPL	0.5	0
Comprehensive Environmental Response, Compensation, and Liability Information Systems List (CERCLIS) –Federal Facility	0.5	0
(CERCLIS) - SEMS	0.5	0
CERCLIS – No Further Remedial Action Planned (CERCLIS – NFRAP) – SEMS-ARCHIVE	0.5	0
Corrective Action Report (RCRA CORRACTS)	1.0	0
Resource and Recovery Information System – Permitted Treatment and Disposal Facilities, RCRA non-CORRACTS (RCRA – TSD)	0.5	0
Federal RCRA Generators (LQG)	Subj. Pro. & Adjoining Pro.	0
Federal RCRA Generators (SQG)	Subj. Pro. & Adjoining Pro.	0
Federal RCRA Generators (CESQG)	Subj. Pro. & Adjoining Pro.	0
Federal Institutional Control/Engineering Control Registries	Subj. Prop.	0
Federal ERNS list property only	Subj. Prop.	0
<b>State and tribal lists of hazardous waste sites identified for investigation or remediation</b>		
State and tribal leaking storage tank lists (LUST)	0.5	0
State and tribal registered storage tank lists SLIC	0.5	0
INDIAN LUST	0.5	0
State- and tribal-equivalent NPL	1.0	0
State- and tribal-equivalent CERCLIS (ENVIROSTOR)	0.5	2
State and tribal landfill and/or solid waste disposal site lists (SWF/LF)	0.5	0
State and tribal registered storage tank lists (FEMA UST)	0.250	0
State and tribal registered storage tank lists (UST)	0.250	0
State and tribal registered storage tank lists (AST)	0.250	0
State and tribal institutional control/engineering control registries	Subj. Prop.	0
State and tribal voluntary cleanup sites (VCP)	0.5	0
Indian VCP	0.5	0
State and tribal Brownfield sites	0.5	0
Calsites Database (Calsites)	1.0	0

The Subject Property is not identified in any of the standard environmental records.

There are two nearby sites listed in the Envirostor database. These sites were for schools where site mitigation was conducted under the oversight of the California

Department of Toxic Substances Control (DTSC). No specified contaminants were found at these sites.

Overall, review of the standard environmental record does not revile existence of a recognized environmental conduction (REC) at the Site or adjacent properties.

#### 4.2 Additional Environmental Record Sources

In addition to the Standard Environmental Record Sources identified in Section 4.1 above, as part of their report, EDR provided additional databases to further ensure that potential environmental concerns were identified.

Additional Environmental Records		
<b>Local Brownfields Sites</b>		
US Brownfields Lists	0.500	0
<b>Local Landfill/Waste Disposal Sites</b>		
WMUDS/SWAT	0.500	0
SWRCY	0.500	0
Haulers	0.001	0
Indian ODI	0.500	0
ODI	0.500	0
DEBRIS Region 9	0.500	0
HIS OPEN DUMPS	0.500	0
<b>Local Hazardous Waste / Contaminated Sites</b>		
US HIST CDL	0.001	0
HIST Cal-Sites	1.000	0
SHC	0.250	0
CDL	0.001	0
Toxic Pits	1.000	0
US CDL	0.001	0
<b>Local Registered Storage Tanks</b>		
SWEEPS UST	0.250	0
HIST UST	0.250	0
CA FID UST	0.250	0
<b>Local Land Records</b>		
LIENS	0.001	0
LIENS 2	0.001	0
DEED	0.500	0
<b>Records of Emergency Release Reports</b>		
HMIRS	0.001	0
CHMIRS	0.001	0
LDS	0.001	0
MCS	0.001	0
SPILL 90	0.001	0

Neither the Subject Property nor any other nearby properties were listed on the database that contains the additional environmental records. Review of the additional environmental record does not revile existence of a REC at the Site or adjacent properties

#### 4.3 Other Ascertainable Records

EDR provided other ascertainable databases to further ensure that potential environmental concerns were identified.

Other Ascertainable Records		
RCRA NonGen / NLR	0.250	0
HAZNET	0.001	0
CA BOND EXP. Plan	1.000	0
Dry Cleaners	0.250	0
HIS CORTESE	0.500	0
NPDES	0.001	0
FUSRAP	1.000	0
Cortese	0.500	0
Notify 65	1.000	0

Neither the Subject Property nor any other nearby properties were listed on the other ascertainable records database. Review of the additional environmental record does not revile existence of a REC at the Site or adjacent properties

#### 4.4 Other High Risk Environmental Records

EDR also provides other high risk environmental records databases to further ensure that potential environmental concerns were identified. EDR identified two high risk environmental Records.

EDR High Risk Historical Records		
EDR MGP	1.000	0
EDR US Hist Auto Stat	0.250	0
EDR US Hist Cleaners	0.250	0

Neither the Subject Property nor any other nearby properties were listed on the EDR High Risk Historical Records database. Review of the additional environmental record does not revile existence of a REC at the Site or adjacent properties

#### 4.5 Review of Additional Environmental Records at Local Governmental Agencies

Review of the California Regional Water Quality Control Board website GeoTracker and the California Department of Toxic substance Control Board website Envirostor did not list the Subject Property or adjoining properties in their data base.

RS ordered an EDR Building Permit report that would cover the Property and the adjoining properties and a copy of the report is included in Appendix J. Because the site does not have an address only the nearest intersection of the two nearby streets was used as an identifier of the Property. Using this identifier EDR did not find permits for the Subject Site. There were several permits for nearby properties but they were mostly for residential patio construction, electrical work and garden wall construction

related permits. In the listing, there were also request made for public records regarding the properties.

RS did not request for environmental records from the County of Riverside Department of Environmental Health (DEH) Hazardous Material Division because the DEH does not do record search if a property does not have a physical address,

RS requested for records from the from the County of Riverside DEH Land Use and Water Resources Division vial an email dated July 28, 2017. On August 3, 2017 RS received an email from Land Use and Water Resources Division with result of their search. DEH emailed RS information about APN. 367-160-054 regarding an application for surface sewage disposal system dated August 12, 1989. Because the APN of the property for which DEH sent us the information does not match the APN of the Subject Site the information that was sent to RS does not belong the Site. In as much as the property was never developed RS concluded that it is very unlikely that Land Use and Water Resources Division has any files for the Subject Site.

#### 4.6 USGS Historical Topographical Maps

RS contracted EDR to conduct a search of historical USGS topographic maps for the Subject Property. The historical topographic maps are presented as Appendix F.

RS reviewed each of the maps to identify any RECs for the Subject Property. The results of the map review are as follows:

Year	Map	Findings
1901	Elsinore 30-minute	There is no indication that there were any structures on the Subject Property. There was a road or a trail that passes east to west in the central part of the property.
1942	Murrieta 15-minute	Only part of the Site was plotted on this map and where it was mapped the road/trail seen in the 1901 map is not seen and there is no indication of any land development on the Property or adjacent properties.
1943	Murrieta 15-minute	The 1943 map is the same as the 1942 map.
1947	Murrieta 15-minute	The 1947 map is the same as the 1943 map.
1953	<b>TP</b> – Murrieta 1953, 7.5 Minute. <b>Adjacent properties</b> – NE Romoland 1973, 7.5 Minute; SW Wildomar, 1973, 7.5 Minute; NW Elsinore 1933, 7.5 Minute.	There is no indication of any development on the Property or adjacent properties but there is a road/trail that trends north to south similar to the dirt road existing at the Site which is an extension to the current Depasquale Road.
1973, 1978	<b>TP</b> – Murrieta 1973, 7.5 Minute.	The 1979 map is similar to the 1973 map but there are some structures which appear to be the current residential properties

	<b>Adjacent properties</b> – NE Romoland 1953, 7.5 Minute; SW Wildomar, 1953, 7.5 Minute; NW Elsinore 1973, 7.5 Minute, NW Elsinore 1978, 7.5 Minute	constructed to the north and southwest of the Site
1979, 1982	<b>TP</b> – Murrieta 1953, 7.5 Minute. <b>Adjacent properties</b> – NE Romoland 1953, 7.5 Minute; SW Wildomar, 1953, 7.5 Minute; NW Elsinore 1953, 7.5 Minute.	The 1979/1982 map is similar to the 1973/1978 map.
1988	SW Wildomar, 1988, 7.5 Minute; NW Elsinore 1988, 7.5 Minute.	This map only partially covers the approximately 1/3 of the property. The area of the Property seen on this map is similar to the one seen in the 1979/1982 map.
1997	SW Wildomar, 1997, 7.5 Minute; NW Elsinore 1997, 7.5 Minute	This map is similar to the 1988 map.
2012	<b>TP</b> – Murrieta, 2012 7.5 Minute. <b>Adjacent properties</b> – NE Romoland 2012, 7.5 Minute; SW Wildomar, 2012, 7.5 Minute; NW Elsinore 2012, 7.5 Minute.	This map covers the entire Site. There is no indication of any development at the Site. The structures seen on the 1979 to` 1997 photos are not seen on this map indicating they were omitted from the map.

Overall, reviewing historical topographic maps identified no RECs.

#### 4.7 Historical Aerial Photographs

RS contracted EDR to conduct a search of aerial photos for the Subject Property. The historical topographic maps are presented as Appendix G.

RS reviewed each of the aerial photos to identify any RECs for the Subject Property. The results of the map review are as follows:

Year	Aerial Photograph Review Findings
1938	<b>Subject Property-</b> The Subject property was undeveloped. Only limited area was covered by vegetation

	<b>Adjacent/Surrounding Area</b> – All of the adjoining properties are also undeveloped.
1949	The 1949 photo is similar to the 1938 photo.
1953	<b>Subject Property-</b> Most of the Site appears to be graded for what appears to be preparation for agricultural use of the Property. There was a small area in the north central part of the site that looked vegetated with naturally occurring shrubs. <b>Adjacent/Surrounding Area</b> – The adjacent properties to the east, south and west also appears to be graded for the same land use as the Site. the property to the north remained undeveloped and it was not graded.
1961	The Subject Site and adjacent properties to the east, north and south are undeveloped and there is no indication that the properties were used for agricultural purposes. To the west, the existing highway (Interstate 5) was constructed.
1967	The 1967 photo is similar to the 1961 photo.
1978	The 1978 photo is similar to the 1967 photo but the properties to the north are developed with some structures that look to be similar to the current residential homes and there is indication that some of the properties have some of the land used for farming purposes.
1985	The 1985 photo is similar to the 1978 photo.
1989	The 1985 photo is similar to the 1978 photo. except the property west of Interstate 5 was being graded for new housing and some of the lots were built.
1994	The 1994 photo is similar to the 1989 photo.
2005	When compared to the 1994 photo, the 2005 shows that very little vegetation is visible at the Site. It appears that the surface is stripped of its vegetation and in some areas soil filled to level the western part of the Site.
2009	The 2009 photo is similar to current conditions with the properties south and southeast of the Site being developed.
2010	The 2010 photo is similar to current conditions.
2012	The 2012 photo is similar to current conditions.

The Property has never been developed except for some time between around 1953 and 1961. During this time frame the land appears to have been plowed and used for agricultural purposes. There is no historical data that indicate that agricultural plants were grown at the Site. Overall, reviewing historical aerial photos did not conclusively identified REC.

#### 4.8 Certified Sanborn® Map Report

RS contracted with EDR to conduct a search of historical Sanborn Fire Insurance maps for the Subject Property and surrounding areas. EDR indicated that there is no Sanborn Map coverage (unmapped property) for this area. A copy of the letter from EDR that states there is no coverage is included in Appendix H.

#### 4.9 Historical City Directories

RS contracted EDR to conduct a search of historical city directories for the Subject Property and surrounding areas. EDR's City Directory Abstract includes a search and abstract of available business directories including city, cross-reference and telephone directories, when available. A copy of EDR's City Directory Abstract Report is included as Appendix I.

Because there is no physical address for the Property, it was not identified in the report. The listing shows the users of the nearby sites are mostly individual persons or unknown. Based on the review of the city directory no REC was found.

#### **4.10 EDR Building Permit Report**

As stated on Section 4.5, an EDR Building Permit Report was ordered from the EDR. Because the site does not have an address only the nearest intersection of the two nearby streets was used as an identifier of the Property when ordering this report. Using this address EDR did not find permits for the Subject Site. There were several permits for nearby properties but they were mostly for request for residential patio construction, electrical work and garden wall construction related permits. In the list there were some requests for public records. A copy of this report is included in Appendix J. Review of the building permit report did not identify any RECs.

#### **4.11 Review of a Geotechnical Investigation Report**

RS reviewed an August 2016 preliminary geotechnical investigation report for the Subject Site (Aragon Geotechnical, Inc., 2016). The investigation determined that one fairly large fill (import soil) is located in the southern part of the site. They indicated that the fill appears to be relict stockpile left after construction of neighboring tract. They point that some of the import soil is stockpile that partially rests on engineered compacted fill and partly on alluvium. Aragon Geotechnical, Inc. indicated that the fill soil is medium dense, clean with distinctive laminar texture. They also state that the limit of the engineered grading ranged up to 82 feet from Depasquale Road at the point of deepest alluvial stripping.

The surrounding properties were mostly undeveloped until recent. There is no indication that any of the surrounding properties have any environmental conditions where soil at these sites was impacted. If there is soil that was deposited at the subject Site as an import from the nearby sites it is very unlikely that this soil is impacted.

### **5.0 SITE RECONNAISSANCE**

The purpose of the site reconnaissance is to visually and physically observe the site, site structures, and adjoining properties for conditions indicating an existing release, past release, or threatened release of any hazardous substances or petroleum products into structures of the Subject Property, or into soil and/or groundwater beneath the Subject Property. This would include any evidence of contamination, distressed vegetation, petroleum hydrocarbon staining, waste drums, illegal dumping, or improper waste storage/handling. Because of snakes encountered at the site, heavily vegetated areas were only inspected from nearby vegetated areas. RS conducted the reconnaissance along areas that are accessible by dirt road.

#### **5.1 Methodology and Limiting Conditions**

On August 4, 2017, Yonathan Yoseph, a senior hydrogeologist at RS, conducted a site reconnaissance of the Subject Property.



The site reconnaissance was documented in the Site photographs that are included in Appendix A. At the time of the site reconnaissance the weather was clear and mild weather. In addition to a walk on the Property, RS made visual observations of adjacent and surrounding areas by walking and driving along accessible areas near the perimeter of the Subject Property.

## **5.2 General Site Setting**

The Subject Property is an undeveloped land in Wildomar, California. It is located west, north and northeast of the intersection of Glazebrook Road and Depasquale Road. The topography of the Property is variable with some flat areas and some steep topography. Photos 1 to 12 show the Site.

## **5.3 Exterior Observations**

### **Adjacent Property**

The adjacent properties to the Site include:

- To the north are residential properties with large undeveloped land that historical aerial photos show were intermittently used for agricultural purposes (background of Photo 9).
- To the west is Interstate 15 and farther west are residential properties (top part of Photo 2).
- To the south, south of Glazebrook Road, are residential, a water detention ditch/pond and a park (Photos 16, 17 and top part of Photos 11 and 12).
- To the east is undeveloped land (Photo 13)

### **Stressed Vegetation**

The Site has some vegetation and it appears some kind of plant removal was conducted at the site as shown by the marks on the ground by grading equipment (Photos 1 to 3 and 5 to 11). The existing vegetation was brown and dry but rather than the vegetation being distressed due to chemicals it was due to summer dry conditions.

### **Electrical Transformers**

Electrical transformers were not seen at the Site during the site reconnaissance.

### **Sumps/Aboveground Storage Tanks**

There is no indication of a sump or an above ground storage tank.

### **Dry Cleaners**

The property is not developed and dry cleaners were not seen near the Site.



### Landfills

No evidence of landfills was observed on the Site or adjacent properties during the site reconnaissance.

### Surface Disposal

Surface disposal was not seen on the Property during the site reconnaissance.

### Waste Management

There is no need for waste management at the Site as it is not developed.

### Underground Storage Tanks and Related Pipelines

There was no indication of an underground storage tank at the site.

### Stained Soil or Asphalt Patches

The property is unpaved except for a small area that extends from Depasquale Road northwards at the Site and stains were not seen on this little pavement. Stained soil was not seen during the Site visit.

### Chemical Containers/Storage Area

There were no chemical storage containers at the Site.

### Pits, Ponds, or Lagoons

There was no indication of pits, ponds and lagoons at the Site

### Clarifiers

There was no indication of any clarifiers at the site.

### Oil and Water Wells

There was no indication of oil or water wells were at the Site.

### Pesticides/Herbicides

There were no containers that contain pesticides or herbicides on the property.

### Septic Tank

There was no indication of any septic tanks on the Property.

### Automobile Repairs

There was no indication of any automobile repair on the Property.

### Soil Stockpiled Pipes

Stockpiled soil was not seen on the property.

## **5.4 Interior Observations of Building**

The Site is an undeveloped land. There were no structures at the Site during the Site reconnaissance.

## **6.0 INTERVIEWS**

### **6.1 Interview with the Subject Property representative**

In lieu of an onsite interview, RS emailed a questionnaire to Faith Bible Church for a person(s) knowledgeable of the properties to answer. The questionnaire was completed and emailed to RS on March 20, 2017. The questions and responses to the questions are shown below:

**1. Who is the property owner? Please provide address and telephone numbers of the owner?**

Faith Bible Church  
23811 Washington Ave #C110-313  
Murrieta, CA 92562  
951.200.3173

**2. How long has the current owner possessed the property? Who are the previous owners and the dates of ownership?**

Purchased in 2010. First Citizens Bank, bought in foreclosure

**3. Please provide the assessor parcel number(s) for the property.**

APN: 376-410-002, 376-410-024

**4. What is the area of the property?**

24.5 acres

**5. What is the history of the property (e.g. use of the property,)?**

Raw land.

**6. Was the property used for agricultural purposes?**

Don't think so.

**7. If the property is developed, when was it developed?**

N/A.

**8. Was the property ever used for repairs of automobile and other machinery?**

N/A.

**9. What are the surrounding areas? Please describe the adjacent properties to the east, west, south and north.**

Raw land, rural residential, single-family dwellings and freeway.

**10. Why is the Phase I ESA being performed and who is requesting it?**

Requested by City of Wildomar as part of building permit

**11. Was any Phase I or Phase II ESA performed for the property? If yes, please provide what the findings were.**

Yes, back in 2004. Received copy from bank in 20101 during due diligence.

**12. Have any environmental remedial actions conducted on the property?**

No.

**13. Is there or were there any underground or aboveground storage tanks that hold gasoline, diesel, fuel oil, or other chemicals or hazardous wastes in the property? If yes, where the tanks registered and what are their conditions?**

No.

**14. Are there now or have there been any pesticides, insecticides, liquid fertilizers, organic solvents or other chemicals or hazardous wastes used or stored on the property? If yes, what was the material and when and where is/was it stored?**

No.

**15. Has there been any spill of the chemicals mentioned in Question 9?**

No.

**16. Is there or were there any pits, ponds or lagoons on the property?**

No.

**17. Are there any active/abandoned underground septic system(s)?**

No.

**18. Do you have any knowledge if there is/was any groundwater monitoring, groundwater production or oil production wells located on the property? If yes, please describe.**

No.

**19. Have there been or are there any pending federal, state and/or local enforcement actions involving environmental conditions at the property? Is there or was there any environmental lien on the property?**

No.

**20. Who provides potable water to the property?**

N/A.

**21. List the source of wastewater generated from the property? Is/was any of this wastewater discharged directly to the property to the ground, ponds or groundwater?**

N/A.

**22. How is trash disposed off site? Is there or were there any landfills, dumps, wastewater lagoons or other disposal activities on the property?**

N/A.

**23. Has there been any illegal dumping or waste disposal done on the property?**

No.

**24. Are there any electrical equipment such as transformers and capacitors on the property? If yes, do you know if this equipment contains PCBs?**

No.

**25. Is the property designated as natural landmark or archeological resources?**

No.

**26. Are any of structures on the property considered of historically significant?**

No.

**27. What permits regarding to use and storage of chemicals do you have for the property and have there been any violations?**

None.

**28. Has the site been subject to any environmental, health and safety regulatory action?**

No.

**29. Has the site been subject to any environmental, health and safety complaints or lawsuits?**

No.

**30. Where does storm water discharge to?**

No idea.

**31. Does facility discharge air pollutants? Have air pollution controls?**

N/A.

**32. What are the main operations that occur on this site?**

N/A.

**33. Do you know of others who may have knowledge of the property?**

No.

## **6.2 Interview with Occupants**

The property is not occupied; therefore interview with an occupant was not preformed.

### **6.3 Interviews with Local Government Officials**

As previously discussed in section 4.5, because the Site does not have a physical address a file search or an interview was not made by RS with the Riverside County DEH and Hazardous Material Division. When RS requested for files from the DEH Land Use and Water Resources Division they emailed RS information for a property not related to the Subject Site.

## **7.0 FINDINGS**

Based on the site reconnaissance, review of physiographic, historical and regulatory information, RS has made the following findings about the Subject Property and nearby properties:

### **Subject Property**

The Subject Property is located in a partially developed part of rural Wildomar, California. The Property has an area of approximately 24.5 acres and currently is undeveloped land. The Site consists of APNs 376-410-002 and 376-410-024.

Information obtained from the chain of title indicates that the property is currently vested in Faith Bible Church - Murrieta, A California Nonprofit Corporation. The title was received from First Citizens Bank and Trust Company

The Property is not listed in any of the standard governmental environmental, additional environmental records, other ascertainable records, or the other high risk environmental Records databases.

The Property was graded/ploughed sometime in the early 1950s for what RS believes was an agricultural use but there is no definite information it was used to grow vegetation/crops. If it was used to grow agricultural products it may have been for a short period of time. During this time pesticides could have been used. However, as shown on Photos 1 to 3, 5 to 12 some kind of vegetation removal was conducted in most of the Site which has disturbed the top soil that could have been impacted by organochlorine pesticides (OCPs). Since OCPs are generally found on the surface, if it was used at the Site it has most likely been mixed with deeper soil and RS does not believe that OCPs will be found at the Site at elevated concentrations.

RS did not identify REC with the Subject Property.

### **Adjacent / Surrounding Properties**

The adjacent property to the north are residential properties with large undeveloped land that historical aerial photos show were intermittently used for agricultural purposes. To the west is Interstate 15 and farther west are residential properties. To the south is,

Glazebrook Road followed by residential properties, a water detention ditch/pond and a park. To the east is undeveloped land.

None of the adjacent properties and nearby sites are listed in any of the standard governmental environmental, additional environmental records, other ascertainable records, or the other high risk environmental records databases except for two sites that are listed in the Envirostor database. These sites are school properties located slightly more than 0.5 miles from the Subject Site. When properties are developed for school, there is a site mitigation conducted at these properties under the oversight of the DTSC. The database shows that no specific contaminants were found in the properties. RS did not identify any REC related to the adjacent properties or nearby sites.

## **8.0 OPINIONS**

The opinions contained in this report are based solely on the laws, regulations, and technical data known to RS at the time of report preparation. The conclusions of this assessment rely on reasonably obtainable information from site reconnaissance, interviews with onsite personnel and public records. No warranty is made regarding the accuracy of the publicly documented information or the opinions of officials or personnel consulted for the study. All known information has been disclosed and a good-faith effort has been made to consult pertinent sources.

Based on review and evaluation of the findings identified as a result of this Phase I ESA, RS has formed the opinion that the Subject Property has no known RECs.

## **9.0 CONCLUSIONS AND RECOMMENDATIONS**

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice 1527-13 on the undeveloped land (APNs 376-410-002 and 376-410-024) in Wildomar, Riverside County, California. Any exceptions to, or deletions from this practice are described in Section 1.4 of this report. This assessment has revealed no evidence of RECs in connection with the Subject Property.

The surrounding properties were mostly undeveloped until recent times. It is reported that there is some soil at the Site that was imported from adjacent property. It appears that the soil was deposited at the Site when one of the adjacent properties was developed. There is no indication that any of the surrounding properties have any environmental conditions where soil at these sites was impacted. If there is soil that was deposited at the Subject Site from adjacent properties, it is very unlikely that this soil is impacted. However, if any impacted soil related to the import soil is found to be impacted during grading activities RS recommends that this soil be excluded as a fill at the Site and that this condition is discussed with an environmental consultant.

## 10.0 DEVIATIONS

The chain of title provided to RS does not give the detailed historical owners of the Site as the list owners provided to RS in answerers to a questionnaire that was completed by RL. This is considered a deviation. The list of former owners of the Property only goes back to 1998 and there is information about the owners in 1951 found in the chain of title. Based on the names of the owners and the fact that the property was never developed this deviation does not affect the conclusions reached about the Property.

## 11.0 ADDITIONAL SERVICES

No additional services were provided as part of this Phase I ESA.

## 12.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of **Environmental professional** as defined in Section 312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the Subject Property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

A handwritten signature in blue ink that reads "Yonathan Yoseph". The signature is written in a cursive style with a large initial 'Y'.

Yonathan Yoseph, PG, CHG  
Senior hydrogeologist

## 13.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

Yonathan Yoseph is an Environmental Professional with RS. He holds a Bachelor of Science degree in Geological Engineering from University of Missouri - Rolla. Mr. Yoseph has 27 years of experience as an environmental professional. He has conducted hundreds of Phase I Site Assessments for a wide array of industries and associated facilities across the country. Mr. Yoseph has conducted comprehensive environmental assessments at a wide variety of facilities throughout California. Mr. Yoseph is a Professional Geologist and a Certified Hydrogeologist in the State of California.



## **14.0 REFERENCES**

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State of California Department of Natural Resources, 1954, "Geology of Southern California Bulletin 170"

United States Geological Survey, 1953 (photorevised 1979), "Murrieta, Quadrangle, California – 7.5 Minute Series (Topographic Map)"

United States Geological Survey, 2002, "Note 36 – California Geomorphic Provinces".

## FIGURES



Note to Scale

Source: USGS Murrieta, Romoland, Wildomar and Lake Elsinore 2012.

**Remediation Sciences**  
**3723 Birch Street, Suite 14**  
**Newport Beach, CA 92660**

**Site Vicinity Map**  
 Proposed Faith Bible Church  
 Near Intersection of Glazebrook Rd. & Depasquale Rd., Wildomar, CA

**Figure 1**





**Explanation:**

— Approximate Property Line

Source: EDR Aerial Photos (EDR, 2017)

NORTH



Note to Scale

**Remediation Sciences**  
**3723 Birch Street, Suite 14**  
**Newport Beach, CA 92660**

**Site Map**

Proposed Faith Bible Church  
 Near Intersection of Glazebrook Rd. & Depasquale Rd., Wildomar, CA

**Figure 2**

## **APPENDIX A PHOTOGRAPHS**





Photo 1

The Site looking west/southwest from the intersection of Depasquale Rd. and Glazebrook Rd.



Photo 2

The Site looking west from the intersection of Depasquale Rd. and Glazebrook Rd. The background are homes west of Interstate 15. There is a drainage culvert near the Interstate 15.





Photo 3  
The Site looking northwest from the intersection of Depasquale Rd. and Glazebrook Rd.



Photo 4  
The Site looking north from the intersection of Depasquale Rd. and Glazebrook Rd.



Photo 5

Close-up of Photo 4 showing a slightly paved road which is the extension of Depasquale Rd.



Photo 6

The southeastern part of the Site looking east from the intersection of Depasquale Rd. and Glazebrook Rd. The road on the right side of the photo is Glazebrook Rd.





Photo 7

The eastern part of the Site looking north from the intersection of Glazebrook Rd. and Westpark Street.



Photo 8

The southcentral and western part of the Site looking southwest from the central part of the Site. The street in the central part of the photos is the intersection of Glazebrook Rd. and Depasquale Rd..



Photo 9

The northeastern part of the Site looking north from east central part of the Site. The structures in the background are what appear to be residential properties north of the Site..



Photo 10

The eastern part of the Site looking from the southeastern corner of the Property.





Photo 11

The eastern part of the Site looking from the east central part of the Property. Seen is a culvert that drains beneath Glazebrook Rd.



Photo 12

The southeastern part of the Property looking from the central part of the Site. The homes are adjacent properties south of Glazebrook Rd.



Photo 13  
The undeveloped adjacent property east of the Site.



Photo 14  
The northeastern part of the Site looking from the central part of the Site. The hill is undeveloped adjacent property east of the Site.





Photo 15

The adjacent residential properties south of the southwestern part of the Site looking south from the intersection of Depasquale Rd. and Glazebrook Rd.



Photo 16

The adjacent residential property and a detention basin south of the central part of the Site looking southeast from the intersection of Depasquale Rd. and Glazebrook Rd.



Photo 17

A park that appears to be related to the residential properties south and southeastern of the site looking from Glazebrook Rd.



**APPENDIX B**  
**ENVIRONMENTAL USER QUESTIONNAIRE**

## **User Questionnaire**

*In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the user of the Phase I Environmental Site Assessment Report must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete.*

- 1) *Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?*

*Circle Yes or No*

*If yes, please explain in detail.*

- 2) *Are you aware of any activity use limitations (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 under federal, tribal, state or local law?*

*Circle Yes or No*

*If yes, please explain in detail.*

- 3) *As the user of this Environmental Assessment, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current occupants of the property so that you would have specialized knowledge of the chemicals and processes used by this type of business?*

*Circle Yes or No*

*If yes, please explain in detail.*

### **User Questionnaire**

- 4) Does the purchase price being paid for this property reasonably reflect the fair market value of the property?

Circle Yes or No

N/A

*If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?*

Circle Yes or No

*If yes, please explain in detail.*

- 5) Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of release or threatened releases? For example as a user,

- a) Do you know the past uses of the property? Circle Yes or No
- b) Do you know of specific chemicals that are present or once were present at the property?  
Circle Yes or No
- c) Do you know of spills or other chemicals release that have taken place at the property?  
Circle Yes or No
- d) Do you know of any environmental cleanups that have taken place at the property?  
Circle Yes or No

*If any yes, please explain.*

### **User Questionnaire**

- 6) *As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the site?*

*Circle Yes or No*

*If yes, please explain in detail.*

#### **Utilities Provider Information:**

*Natural Gas Provider:* \_\_\_\_\_

*Electricity Provider:* \_\_\_\_\_

*Sewage Treatment Provider:* \_\_\_\_\_

*Drinking Water Provider:* \_\_\_\_\_

*Communications Provider (Telephone/Cable):* \_\_\_\_\_

*Solid Waste Provider (Trash Service):* \_\_\_\_\_

*Solvent Disposal Service (if applicable):* \_\_\_\_\_


**Assessor Parcel Number:** \_\_\_\_\_

*Signed by:* \_\_\_\_\_ *Print Name:* \_\_\_\_\_

*Date:* \_\_\_\_\_



**APPENDIX C1**  
**CHAIN OF TITLE REPORT**



**Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595**

**Inquiry Number: 5006571.14R  
August 16, 2017**

## **The EDR 1940 Chain of Title**

## EDR Chain of Title

The EDR Chain of Title Report tracks a line of successive owners from the present back to 1940 of a particular parcel of property, linked together by recorded transactions which pass title. Available nationwide, this report provides a summary of a property's ownership history and is a valuable source for determining the prior uses of a property

A network of professional abstractors following established procedures, uses client supplied address information to locate:

- Historical Chain of Title research
- Leases and Miscellaneous

**Thank you for your business.**  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EDR Chain of Title

### **TARGET PROPERTY INFORMATION**

#### **ADDRESS**

Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

#### **Research Source**

Source 1: **Riverside County Recorder of Deeds**

Source 2: **Riverside County Assessor**

Examiner's Note: **Public records of Riverside County, California were searched from January 1, 1940 to August 16, 2017, and no other deeds vesting title in the subject property were found of record during the period searched.**

### **PROPERTY DESCRIPTION**

Current Owner: Faith Bible Church – Murrieta, a California Nonprofit Corporation

Legal Description: All that certain piece or parcel of land being Parcel 1 and Lots A, C and D of Parcel Map No. 9789, as per plat recorded in Book 44 of Parcel Maps, Page 51, situate and lying in the County of Riverside, State of California.

Property Identifiers: 376-410-002

Current Owner: Faith Bible Church – Murrieta, a California Nonprofit Corporation

Legal Description: All that certain piece or parcel of land being a portion of the Northeast Quarter of the Southwest Quarter of Fractional – Section 36, Township 6 South, Range 4 West, San Bernardino Base and Meridian, situate and lying in the County of Riverside, State of California.

Property Identifiers: 376-410-024

### **HISTORICAL CHAIN OF TITLE**

See Exhibit "A"

### **LEASES AND MISCELLANEOUS**

See Exhibit "B"



**EDR Chain of Title**

**Chain of Title**

**Exhibit “A”**

## EDR Chain of Title

### HISTORICAL CHAIN OF TITLE

#### PARCEL NO. 376-410-002

##### **Chain 1**

Type of Deed: Deed  
Title is vested in: Theodore Lawson  
Title received from: Ronald M. and Samantha Temple  
Date Recorded: 02/16/1940  
Instrument #: 26041

##### **Chain 2**

Type of Deed: Deed  
Title is vested in: Sidney and Winifred Snyder; Harold W. and Jaclyn Snyder  
Title received from: Theodore Lawson  
Date Recorded: 01/08/1951  
Instrument #: 3017

##### **Chain 3**

Type of Deed: Deed  
Title is vested in: Ida Reid  
Title received from: Sidney and Winifred Snyder; Harold W. and Jaclyn Snyder  
Date Recorded: 12/19/1958  
Book: 2383  
Page: 250

##### **Chain 4**

Type of Deed: Deed  
Title is vested in: Ted Osamu Kobayaski and Tomiko Kobayaski  
Title received from: Ida Reid  
Date Recorded: 12/16/1959  
Instrument #: 659881

##### **Chain 5**

Type of Deed: Individual Grant Deed  
Title is vested in: Yoshio Asari and Setsuyo Asari, husband and wife, as Joint Tenants  
Title received from: Ted Osamu Kobayashi and Tomiko Kobayashi, husband and wife, who acquired title under misspelled names of Ted Osamu Kobayaski and Tomiko Kobayaski  
Date Executed: 02/08/1978  
Date Recorded: 05/15/1978  
Instrument #: 95291

##### **Chain 6**

Type of Deed: Quitclaim Deed  
Title is vested in: Setsuyo Asari, Administratrix of the Estate of Yoshio Asari, also known as John Y. Asari  
Title received from: Setsuyo Asari  
Date Executed: 01/25/1982  
Date Recorded: 02/16/1982  
Instrument #: 26643

**Chain 7**

Type of Deed: Grant Deed  
Title is vested in: Setsuyo Asari (as to an undivided 1/2 interest), Kayo Nakatani (as to an undivided 1/6 interest), Yochi Asari (as to an undivided 1/6 interest) and Shunji Asari (as to an undivided 1/6 interest), all as tenants in common  
Title received from: Setsuyo Asari, Administratrix of the Estate of Yoshio Asari, also known as John Y. Asari  
Date Executed: 11/11/1983  
Date Recorded: 01/03/1984  
Instrument #: 465

**Chain 8**

Type of Deed: Grant Deed  
Title is vested in: Oak Grove Equities, a California limited partnership (as to an undivided 50% interest) and Oak Grove Equities, II, a California limited partnership (as to an undivided 50% interest), as tenants in common  
Title received from: Satsuyo Asari, a widow (as to an undivided 1/2 interest), Kayo Nakatani, a married woman as her sole and separate property (as to an undivided 1/6 interest), Yoichi Asari, a married man, as his sole and separate property (as to an undivided 1/6 interest) and Shunji Asari, an unmarried man (as to an undivided 1/6 interest)  
Date Executed: 01/27/2004  
Date Recorded: 07/07/2004  
Instrument #: 2004-524779

**Chain 9**

Type of Deed: Interspousal Transfer Grant Deed  
Title is vested in: Kayo Nakatani, a Married Woman as her sole and separate property  
Title received from: Lloyd Nakatani, spouse of the Grantee herein  
Date Executed: 10/14/2003  
Date Recorded: 07/07/2004  
Instrument #: 2004-0524780

**Chain 10**

Type of Deed: Interspousal Transfer Grant Deed  
Title is vested in: Yoichi Asari, a Married Man as his sole and separate property  
Title received from: Carolyn Reiko Asari, spouse of the Grantee herein  
Date Executed: 10/14/2003  
Date Recorded: 07/07/2004  
Instrument #: 2004-524781

**Chain 11**

Type of Deed: Grant Deed  
Title is vested in: Wildomar Hub Partners, LLC, a California Limited Liability Company  
Title received from: Oak Grove Equities, a California Limited Partnership  
Date Executed: 12/22/2004  
Date Recorded: 12/22/2004  
Instrument #: 2004-1015142

**Chain 12**

Type of Deed: Grant Deed  
Title is vested in: Wildomar Hub Partners, LLC, a California Limited Liability Company (as to an undivided 50% interest)  
Title received from: Oak Grove Equities, II, a California limited partnership  
Date Executed: 01/31/2005  
Date Recorded: 02/01/2005  
Instrument #: 2005-90514

**Chain 13**

Type of Deed: Correcting Grant Deed  
Title is vested in: Wildomar Hub Partners, LLC, a California Limited Liability Company  
Title received from: Wildomar Hub Partners, LLC, a California Limited Liability Company, erroneously acquired title as Wildomar Hub Properties, LLC, a California Limited Liability Company  
Date Executed: 07/30/2007  
Date Recorded: 08/01/2007  
Instrument #: 2007-496740

**Chain 14**

Type of Deed: Trustee's Deed Upon Sale  
Title is vested in: First-Citizens Bank and Trust Company, as the Successor-in-Interest to Temecula Valley Bank  
Title received from: S.B.S. Trust Deed Network, a California Corporation, as Trustee under Deed of Trust executed by Wildomar Hub Partners, LLC, a California Limited Liability Company  
Date Executed: 05/12/2010  
Date Recorded: 06/08/2010  
Instrument #: 2010-261824

**Chain 15**

Type of Deed: Receiver's Deed  
Title is vested in: First-Citizens Bank and Trust Company  
Title received from: Federal Deposit Insurance Corporation, as Receiver for Temecula Valley Bank  
Date Executed: 07/15/2010  
Date Recorded: 09/10/2010  
Instrument #: 2010-435826

**Chain 16**

Type of Deed: Grant Deed  
Title is vested in: Faith Bible Church – Murrieta, a California Nonprofit Corporation  
Title received from: First-Citizens Bank and Trust Company  
Date Executed: 08/27/2010  
Date Recorded: 09/10/2010  
Instrument #: 2010-435827

**PARCEL NO. 376-410-024****Chain 1**

Type of Deed: Deed  
Title is vested in: Ronald T. Ball  
Title received from: Norman and Leslie Maldonado  
Date Recorded: 03/23/1944  
Instrument #: 26871

**Chain 2**

Type of Deed: Deed  
Title is vested in: Sidney and Winifred Snyder; Harold W. and Jaclyn Snyder  
Title received from: Ronald T. Ball  
Date Recorded: 01/08/1951  
Instrument #: 3016



**Chain 3**

Type of Deed: Deed  
Title is vested in: Yoichi and Carolyn R. Asari  
Title received from: Sidney and Winifred Snyder; Harold W. and Jaclyn Snyder  
Date Recorded: 09/14/1959  
Instrument #: 65981

**Chain 4**

Type of Deed: Grant Deed  
Title is vested in: Oak Grove Equities, a California Limited Partnership (as to an undivided 50% interest), and Oak Grove Equities, II, a California Limited Partnership (as to an undivided 50% interest)  
Title received from: Yoichi John Asari and Carolyn Reiko Asari, husband and wife as Joint Tenants  
Date Executed: 02/03/2004  
Date Recorded: 07/07/2004  
Instrument #: 2004-0524776

**Chain 5**

Type of Deed: Grant Deed  
Title is vested in: Wildomar Hub Partners, LLC, a California Limited Liability Company  
Title received from: Oak Grove Equities, a California Limited Partnership  
Date Executed: 12/22/2004  
Date Recorded: 12/22/2004  
Instrument #: 2004-1015141

**Chain 6**

Type of Deed: Trustee's Deed Upon Sale  
Title is vested in: First-Citizens Bank and Trust Company, as the Successor-in-Interest to Temecula Valley Bank  
Title received from: S.B.S. Trust Deed Network, a California Corporation, as Trustee under Deed of Trust executed by Wildomar Hub Partners, LLC, a California Limited Liability Company  
Date Executed: 05/12/2010  
Date Recorded: 06/08/2010  
Instrument #: 2010-261824

**Chain 7**

Type of Deed: Receiver's Deed  
Title is vested in: First-Citizens Bank and Trust Company  
Title received from: Federal Deposit Insurance Corporation, as Receiver for Temecula Valley Bank  
Date Executed: 07/15/2010  
Date Recorded: 09/10/2010  
Instrument #: 2010-435826

**Chain 8**

Type of Deed: Grant Deed  
Title is vested in: Faith Bible Church – Murrieta, a California Nonprofit Corporation  
Title received from: First-Citizens Bank and Trust Company  
Date Executed: 08/27/2010  
Date Recorded: 09/10/2010  
Instrument #: 2010-435827

**EDR Chain of Title**

**LEASES and MISCELLANEOUS**

**Exhibit “B”**

## EDR Chain of Title

### LEASES and MISCELLANEOUS

**1.** Type of Instrument:

First Party:

Second Party:

Recorded:

Book:

Page:

Document No.:

Comments:

**2.** Type of Instrument:

First Party:

Second Party:

Recorded:

Book:

Page:

Document No.:

Comments:

DOC # 2010-0435827

09/10/2010 08:00A Fee:34.00

Page 1 of 4 Doc T Tax Paid

Recorded in Official Records

County of Riverside

Larry U. Ward

Assessor, County Clerk & Recorder



When Recorded Mail to:

Faith Bible Church - Murrieta  
Attn: John Pleasnick  
33229 Pitman Lane  
Menifee, CA 92584

Title Order # 930020518-U50

Escrow No: 73710006689

APN 376-410-024 & 376-410-002

TRA: 085-007

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### GRANT DEED

The undersigned declares that the documentary transfer tax is as set forth on a separate declaration

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

**First-Citizens Bank & Trust Company**

hereby GRANT(S) to

**Faith Bible Church - Murrieta, a California Nonprofit Corporation**

that certain real property which is completely described on Exhibit "A" attached hereto and incorporated herein.

Dated: August 27, 2010

First-Citizens Bank & Trust Company

By:

Name: JOHN HECKLENBURG

Its: SR VICE PRESIDENT

MAIL TAX STATEMENTS TO ADDRESS ABOVE



State of California  
County of Riverside

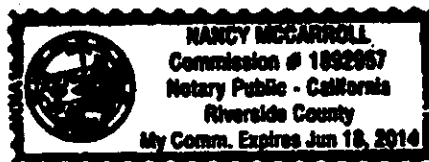
On August 27, 2010, before me Nancy McCarroll a  
Notary Public, personally appeared John Mackenberry

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s)  
is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/they  
executed the same in his/~~her~~/their authorized capacity(ies), and that by his/~~her~~/their  
signature(s) on the instrument the person(s), or the entity upon behalf of which the  
person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that  
the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Nancy McCarroll



Nancy McCarroll  
Comm # 1892957  
Riverside  
Exp 6-18-14

**Exhibit "A"**  
**Legal Description**

PARCEL A-1: APN 376-410-024

THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF FRACTIONAL - SECTION 36, TOWNSHIP 6 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE ALONG THE EAST LINE OF SAID NORTHEAST QUARTER SOUTH 0° 56' 48" WEST, 1,270.44 FEET; THENCE NORTH 36° 52' 00" WEST, 1,085.91 FEET; THENCE NORTH 43° 31' 16" WEST, 60.41 FEET; THENCE NORTH 36° 52' 00" WEST, 464.89 FEET TO THE NORTH LINE OF SAID NORTHEAST QUARTER, DISTANT ALONG SAID NORTH LINE NORTH 89° 10' 45" WEST, 993.10 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTH LINE SOUTH 89° 10' 46" EAST, 993.10 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ONE-HALF OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS BELOW A DEPTH OF 500 FEET FROM THE SURFACE BUT WITHOUT THE RIGHT TO ENTER UPON OR USE THE SURFACE OF SAID REAL PROPERTY AS RESERVED BY SIDNEY SNYDER, ET AL, IN DEED RECORDED DECEMBER 19, 1958, IN BOOK 2383, PAGE 250 OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

PARCEL A-2:

A NON-EXCLUSIVE EASEMENT FOR ROAD PURPOSES OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PORTION OF THE SOUTHEAST QUARTER OF FRACTIONAL SECTION 36, TOWNSHIP 6 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE WEST LINE OF SAID SOUTHEAST QUARTER DISTANT THEREON NORTH 0° 56' 48" EAST, 1,376.10 FEET FROM THE SOUTHWEST CORNER OF SAID SOUTHEAST QUARTER, SAID POINT ALSO BEING THE MOST NORTHERLY POINT OF THE LAND DESCRIBED IN DEED TO THE STATE OF CALIFORNIA RECORDED ON MARCH 26, 1954, AS INSTRUMENT NO. 15304 OFFICIAL RECORDS; THENCE SOUTHEASTERLY ALONG THE NORTHEASTERLY LINE OF SAID LAND DEEDED TO THE STATE OF CALIFORNIA THE FOLLOWING COURSES AND DISTANCES: SOUTH 36° 52' EAST, 464.09 FEET; SOUTH 32° 51' 45" EAST, 100.14 FEET; SOUTH 36° 52' EAST, 1,083.73 FEET SOUTH 66° 16' 42" EAST, 101.82 FEET TO THE NORTH LINE OF CATT ROAD, 60 FEET WIDE AS SAID ROAD WAS ACCEPTED AND DECLARED TO BE A COUNTY HIGHWAY BY RESOLUTION OF THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY, ADOPTED MARCH 4, 1903; SOUTH 36° 52' EAST 37.94 FEET TO THE SOUTH LINE OF SAID NORTHEAST QUARTER; THENCE NORTHEASTERLY AT RIGHT ANGLES, 40 FEET; THENCE PARALLEL WITH THAT CERTAIN COURSE HEREIN ABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST; NORTH 36° 52' WEST TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 20 FEET"; MEASURED AT RIGHT ANGLES FORM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 66° 16' 42" EAST; THENCE NORTH.66° 16' 42" WEST

ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET, MEASURED AT RIGHT ANGLES FROM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST"; THENCE NORTH 36° 52' WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET MEASURED AT RIGHT ANGLES FROM THE CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 32° 51' 45" EAST"; THENCE NORTH 32° 51' 45" WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET, MEASURED AT RIGHT ANGLES FROM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST"; THENCE NORTH 36° 52' WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT EASTERLY 40 FEET MEASURED AT RIGHT ANGLES FROM THE WEST LINE OF SAID SOUTHEAST QUARTER; THENCE NORTH 0° 56' 48" EAST ALONG SAID LAST MENTIONED LINE TO THE SOUTH LINE OF THE NORTHERLY 660 FEET OF SAID SOUTHEAST QUARTER; THENCE WESTERLY AT RIGHT ANGLES TO A POINT IN THE WEST LINE OF SAID SOUTHEAST QUARTER; THENCE SOUTH 0° 56' 48" WEST ALONG SAID WESTERLY LINE TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION IN CATT ROAD.

PARCEL B: APN 376-410-002

PARCEL(S) 1 AND LOTS A, C AND D OF PARCEL MAP NO. 9789, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 44 OF PARCEL MAPS, PAGE(S) 51, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPTING THEREFROM 1/2 OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS BELOW A DEPTH OF 500 FEET FROM THE SURFACE BUT WITHOUT THE RIGHT TO ENTER UPON OR USE THE SURFACE OF SAID REAL PROPERTY AS RESERVED BY SIDNEY SNYDER, ET AL, IN DEED RECORDED DECEMBER 19, 1958 IN BOOK 2383, PAGE 250 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

SIDNEY SYDER, AS TRUSTEE UNDER DECLARATION OF TRUST, DATED FEBRUARY 1, 1968, AS AMENDED BETWEEN SIDNEY SYNDER AND WINIFRED SNYDER, TRUSTORS, AND SIDNEY SNYDER, TRUSTEE AS SUCCESSOR IN INTEREST TO A ONE-FOURTH (1/4) INTEREST IN ALL MINERAL RIGHTS UNDER SAID REAL PROPERTY PURSUANT TO GRANT DEED RECORDED FEBRUARY 17, 1968 AS DOCUMENT NO. 100043 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

AND HAROLD W. SYNDER, AS TRUSTEE UNDER DECLARATION OF TRUST, DATED FEBRUARY 1, 1968 AS AMENDED, BETWEEN HAROLD W. SNYDER, TRUSTOR AND HAROLD W. SNYDER, TRUSTEE, AS SUCCESSOR IN INTEREST TO A ONE-FOURTH (1/4) INTEREST IN ALL MINERAL RIGHTS UNDER SAID REAL PROPERTY PURSUANT TO GRANT DEED RECORDED OCTOBER 23, 1968 AS DOCUMENT NO. 101987 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

**APPENDIX C2**  
**EDR PROPERTY TAX MAP REPORT**



**Proposed Faith Bible Church**

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.6  
July 27, 2017

# The EDR Property Tax Map Report

## EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

***Thank you for your business.***

Please contact EDR at 1-800-352-0050  
with any questions or comments.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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**APPENDIX D**  
**THE EDR ENVIRONMENTAL LIEN AND ACTIVITY USE**  
**LIMITATION SEARCH REPORT**

**Proposed Faith Bible Church**

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.7  
July 28, 2017

## EDR Environmental Lien and AUL Search



## EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

***Thank you for your business.***

Please contact EDR at 1-800-352-0050  
with any questions or comments.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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## EDR Environmental Lien and AUL Search

### TARGET PROPERTY INFORMATION

#### ADDRESS

Glazebrook Rd. & Depasquale Rd.  
Proposed Faith Bible Church  
Wildomar, CA 92595

#### RESEARCH SOURCE

##### **Source 1:**

Riverside County Recorder  
Riverside, CA

### PROPERTY INFORMATION

#### **Deed 1:**

Type of Deed:	Grant Deed
Title is vested in:	Faith Bible Church- Murrieta
Title received from:	First-Citizens Bank & Trust Company
Deed Dated	8/27/2010
Deed Recorded:	9/10/2010
Book:	NA
Page:	NA
Volume:	NA
Instrument:	2010-0435827
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	NA

**Legal Description:** see exhibit

**Legal Current Owner:** Faith Bible Church- Murrieta

**Parcel # / Property Identifier:** 376-410-002, 376-410-024

**Comments:** see exhibit

### ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

### OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

## **Deed Exhibit 1**

RECORDED AT THE REQUEST OF  
CHICAGO TITLE COMPANY  
SUBDIVISION DEPT.

DOC # 2010-0435827

09/10/2010 08:00A Fee:34.00

Page 1 of 4 Doc T Tax Paid

Recorded in Official Records

County of Riverside

Larry W. Ward

Assessor, County Clerk & Recorder



When Recorded Mail to:

Faith Bible Church - Murrieta  
Attn: John Pleasnick  
33229 Pitman Lane  
Menifee, CA 92584

Title Order # 930020518-U50

Escrow No: 73710006689

APN 376-410-024 & 376-410-002

TRA : 025-007

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1			4						
M	A	L	465	426	PCOR	NCOR	SMF	NCHG	EXAM
					T:		CTY	UNI	029

**GRANT DEED**

The undersigned declares that the documentary transfer tax is as set forth on a separate declaration

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

**First-Citizens Bank & Trust Company**

hereby GRANT(S) to

**Faith Bible Church - Murrieta, a California Nonprofit Corporation**

that certain real property which is completely described on Exhibit "A" attached hereto and incorporated herein.

Dated: August 27, 2010

First-Citizens Bank & Trust Company

By: 

Name: JOHN HECKLENBURG

Its: SR VICE PRESIDENT

**MAIL TAX STATEMENTS TO ADDRESS ABOVE**

State of California  
County of Riverside

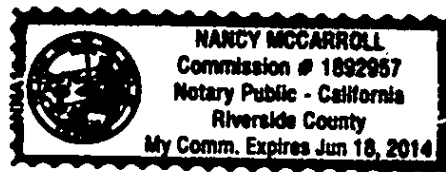
On August 27, 2010, before me Nancy McCarroll a  
Notary Public, personally appeared John Merksenburg

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s)  
is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~  
executed the same in his/~~her~~/~~their~~ authorized capacity(ies), and that by his/~~her~~/~~their~~  
signature(s) on the instrument the person(s), or the entity upon behalf of which the  
person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that  
the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Nancy McCarroll



Nancy McCarroll  
Comm # 1892957  
Riverside  
Exp 6-18-14



**Exhibit "A"**  
**Legal Description**

PARCEL A-1: APN 376-410-024

THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF FRACTIONAL - SECTION 36, TOWNSHIP 6 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE ALONG THE EAST LINE OF SAID NORTHEAST QUARTER SOUTH 0° 56' 48" WEST, 1,270.44 FEET; THENCE NORTH 36° 52' 00" WEST, 1,085.91 FEET; THENCE NORTH 43° 31' 16" WEST, 60.41 FEET; THENCE NORTH 36° 52' 00" WEST, 464.89 FEET TO THE NORTH LINE OF SAID NORTHEAST QUARTER, DISTANT ALONG SAID NORTH LINE NORTH 89° 10' 45" WEST, 993.10 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTH LINE SOUTH 89° 10' 46" EAST, 993.10 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ONE-HALF OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS BELOW A DEPTH OF 500 FEET FROM THE SURFACE BUT WITHOUT THE RIGHT TO ENTER UPON OR USE THE SURFACE OF SAID REAL PROPERTY AS RESERVED BY SIDNEY SNYDER, ET AL, IN DEED RECORDED DECEMBER 19, 1958, IN BOOK 2383, PAGE 250 OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

PARCEL A-2:

A NON-EXCLUSIVE EASEMENT FOR ROAD PURPOSES OVER THE FOLLOWING DESCRIBED PROPERTY:

THAT PORTION OF THE SOUTHEAST QUARTER OF FRACTIONAL SECTION 36, TOWNSHIP 6 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE WEST LINE OF SAID SOUTHEAST QUARTER DISTANT THEREON NORTH 0° 56' 48" EAST, 1,376.10 FEET FROM THE SOUTHWEST CORNER OF SAID SOUTHEAST QUARTER, SAID POINT ALSO BEING THE MOST NORTHERLY POINT OF THE LAND DESCRIBED IN DEED TO THE STATE OF CALIFORNIA RECORDED ON MARCH 26, 1954, AS INSTRUMENT NO. 15304 OFFICIAL RECORDS; THENCE SOUTHEASTERLY ALONG THE NORTHEASTERLY LINE OF SAID LAND DEEDED TO THE STATE OF CALIFORNIA THE FOLLOWING COURSES AND DISTANCES: SOUTH 36° 52' EAST, 464.09 FEET; SOUTH 32° 51' 45" EAST, 100.14 FEET; SOUTH 36° 52' EAST, 1,083.73 FEET SOUTH 66° 16' 42" EAST, 101.82 FEET TO THE NORTH LINE OF CATT ROAD, 60 FEET WIDE AS SAID ROAD WAS ACCEPTED AND DECLARED TO BE A COUNTY HIGHWAY BY RESOLUTION OF THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY, ADOPTED MARCH 4, 1903; SOUTH 36° 52' EAST 37.94 FEET TO THE SOUTH LINE OF SAID NORTHEAST QUARTER; THENCE NORTHEASTERLY AT RIGHT ANGLES, 40 FEET; THENCE PARALLEL WITH THAT CERTAIN COURSE HEREIN ABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST; NORTH 36° 52' WEST TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 20 FEET"; MEASURED AT RIGHT ANGLES FORM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 66° 16' 42" EAST; THENCE NORTH.66° 16' 42" WEST

ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET, MEASURED AT RIGHT ANGLES FROM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST"; THENCE NORTH 36° 52' WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET MEASURED AT RIGHT ANGLES FROM THE CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 32° 51' 45" EAST"; THENCE NORTH 32° 51' 45" WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT NORTHEASTERLY 40 FEET, MEASURED AT RIGHT ANGLES FROM THAT CERTAIN COURSE HEREINABOVE MENTIONED WHICH RECITES "SOUTH 36° 52' EAST"; THENCE NORTH 36° 52' WEST ALONG SAID LAST MENTIONED LINE TO A LINE PARALLEL WITH AND DISTANT EASTERLY 40 FEET MEASURED AT RIGHT ANGLES FROM THE WEST LINE OF SAID SOUTHEAST QUARTER; THENCE NORTH 0° 56' 48" EAST ALONG SAID LAST MENTIONED LINE TO THE SOUTH LINE OF THE NORTHERLY 660 FEET OF SAID SOUTHEAST QUARTER; THENCE WESTERLY AT RIGHT ANGLES TO A POINT IN THE WEST LINE OF SAID SOUTHEAST QUARTER; THENCE SOUTH 0° 56' 48" WEST ALONG SAID WESTERLY LINE TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION IN CATT ROAD.

PARCEL B: APN 376-410-002

PARCEL(S) 1 AND LOTS A, C AND D OF PARCEL MAP NO. 9789, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 44 OF PARCEL MAPS, PAGE(S) 51, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPTING THEREFROM 1/2 OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS BELOW A DEPTH OF 500 FEET FROM THE SURFACE BUT WITHOUT THE RIGHT TO ENTER UPON OR USE THE SURFACE OF SAID REAL PROPERTY AS RESERVED BY SIDNEY SNYDER, ET AL, IN DEED RECORDED DECEMBER 19, 1958 IN BOOK 2383, PAGE 250 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

SIDNEY SYDER, AS TRUSTEE UNDER DECLARATION OF TRUST, DATED FEBRUARY 1, 1968, AS AMENDED BETWEEN SIDNEY SNYDER AND WINIFRED SNYDER, TRUSTORS, AND SIDNEY SNYDER, TRUSTEE AS SUCCESSOR IN INTEREST TO A ONE-FOURTH (1/4) INTEREST IN ALL MINERAL RIGHTS UNDER SAID REAL PROPERTY PURSUANT TO GRANT DEED RECORDED FEBRUARY 17, 1968 AS DOCUMENT NO. 100043 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

AND HAROLD W. SNYDER, AS TRUSTEE UNDER DECLARATION OF TRUST, DATED FEBRUARY 1, 1968 AS AMENDED, BETWEEN HAROLD W. SNYDER, TRUSTOR AND HAROLD W. SNYDER, TRUSTEE, AS SUCCESSOR IN INTEREST TO A ONE-FOURTH (1/4) INTEREST IN ALL MINERAL RIGHTS UNDER SAID REAL PROPERTY PURSUANT TO GRANT DEED RECORDED OCTOBER 23, 1968 AS DOCUMENT NO. 101987 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

**APPENDIX E**  
**EDR RADIUS MAP WITH GEOCHECK**

**Proposed Faith Bible Church**

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 05006571.2r  
July 28, 2017

## The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary .....	ES1
Overview Map .....	2
Detail Map .....	3
Map Findings Summary .....	4
Map Findings .....	8
Orphan Summary .....	14
Government Records Searched/Data Currency Tracking .....	GR-1
 <b><u>GEOCHECK ADDENDUM</u></b>	
Physical Setting Source Addendum .....	A-1
Physical Setting Source Summary .....	A-2
Physical Setting SSURGO Soil Map .....	A-5
Physical Setting Source Map .....	A-18
Physical Setting Source Map Findings .....	A-20
Physical Setting Source Records Searched .....	PSGR-1

***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

GLAZEBROOK RD. & DEPASQUALE RD.  
WILDOMAR, CA 92595

#### COORDINATES

Latitude (North):	33.6041740 - 33° 36' 15.02"
Longitude (West):	117.2495310 - 117° 14' 58.31"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	476849.5
UTM Y (Meters):	3718103.8
Elevation:	1366 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641304 MURRIETA, CA
Version Date:	2012
Southwest Map:	5636487 WILDOMAR, CA
Version Date:	2012

### AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:  
GLAZEBROOK RD. & DÉPASQUALE RD.  
WILDOMAR, CA 92595

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
<a href="#">1</a>	ELEMENTARY SCHOOL NO	LA ESTRELLA ROAD/GEO	ENVIROSTOR, SCH	Higher	1655, 0.313, NNW
<a href="#">2</a>	DONALD GRAHAM MEDICA	35450 FREDERICK STRE	ENVIROSTOR, SCH	Lower	1734, 0.328, WNW

## EXECUTIVE SUMMARY

### TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

### 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***

NPL..... National Priority 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  
SEMS..... Superfund Enterprise Management System

#### ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

#### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

#### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

#### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators  
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

#### ***Federal institutional controls / engineering controls registries***

LUCIS..... Land Use Control Information System  
US ENG CONTROLS..... Engineering Controls Sites List

## EXECUTIVE SUMMARY

US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent NPL***

RESPONSE..... State Response Sites

### ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF..... Solid Waste Information System

### ***State and tribal leaking storage tank lists***

LUST..... Geotracker's Leaking Underground Fuel Tank Report

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

### ***State and tribal voluntary cleanup sites***

INDIAN VCP..... Voluntary Cleanup Priority Listing

VCP..... Voluntary Cleanup Program Properties

### ***State and tribal Brownfields sites***

BROWNFIELDS..... Considered Brownfields 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

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

ODI..... Open Dump Inventory

IHS OPEN DUMPS..... Open Dumps on Indian Land

### ***Local Lists of Hazardous waste / Contaminated Sites***

US HIST CDL..... Delisted National Clandestine Laboratory Register

## EXECUTIVE SUMMARY

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 Lists of Registered Storage Tanks**

SWEEPS UST.....	SWEEPS UST Listing
HIST UST.....	Hazardous Substance Storage Container Database
CA FID UST.....	Facility Inventory Database

### **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
DOD.....	Department of Defense Sites
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR.....	Financial Assurance Information
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
ROD.....	Records Of Decision
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



## EXECUTIVE SUMMARY

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
ABANDONED MINES.....	Abandoned Mines
FINDS.....	Facility Index System/Facility Registry System
UXO.....	Unexploded Ordnance Sites
ECHO.....	Enforcement & Compliance History Information
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings.....	CUPA Resources List
DRYCLEANERS.....	Cleaner Facilities
EMI.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
HAZNET.....	Facility and Manifest Data
ICE.....	ICE
HIST CORTESE.....	Hazardous Waste & Substance Site List
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

### **EDR HIGH RISK HISTORICAL RECORDS**

#### ***EDR Exclusive Records***

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historic Gas Stations
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
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

### **SURROUNDING SITES: SEARCH RESULTS**

Surrounding sites were identified in the following databases.

## EXECUTIVE SUMMARY

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

#### ***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 01/30/2017 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

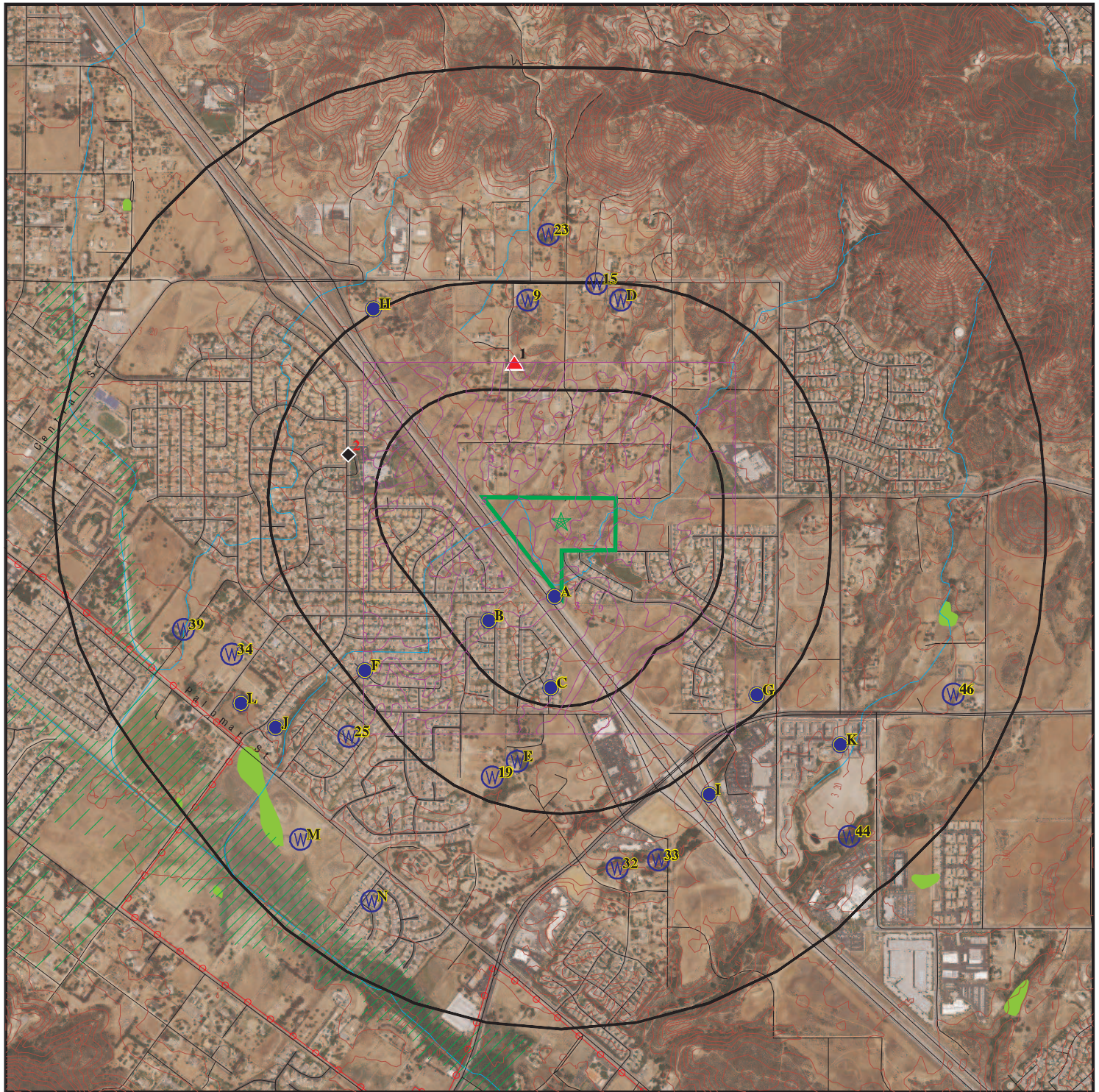
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>ELEMENTARY SCHOOL NO</i></b> Facility Id: 33650001 Status: No Action Required	<b><i>LA ESTRELLA ROAD/GEO</i></b>	<b><i>NNW 1/4 - 1/2 (0.313 mi.)</i></b>	<b><i>1</i></b>	<b><i>8</i></b>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>DONALD GRAHAM MEDICA</i></b> Facility Id: 60000994 Status: No Action Required	<b><i>35450 FREDERICK STRE</i></b>	<b><i>WNW 1/4 - 1/2 (0.328 mi.)</i></b>	<b><i>2</i></b>	<b><i>10</i></b>

## EXECUTIVE SUMMARY

There were no unmapped sites in this report.



# OVERVIEW MAP - 05006571.2R



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

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

Areas of Concern

0 1/4 1/2 1 Miles



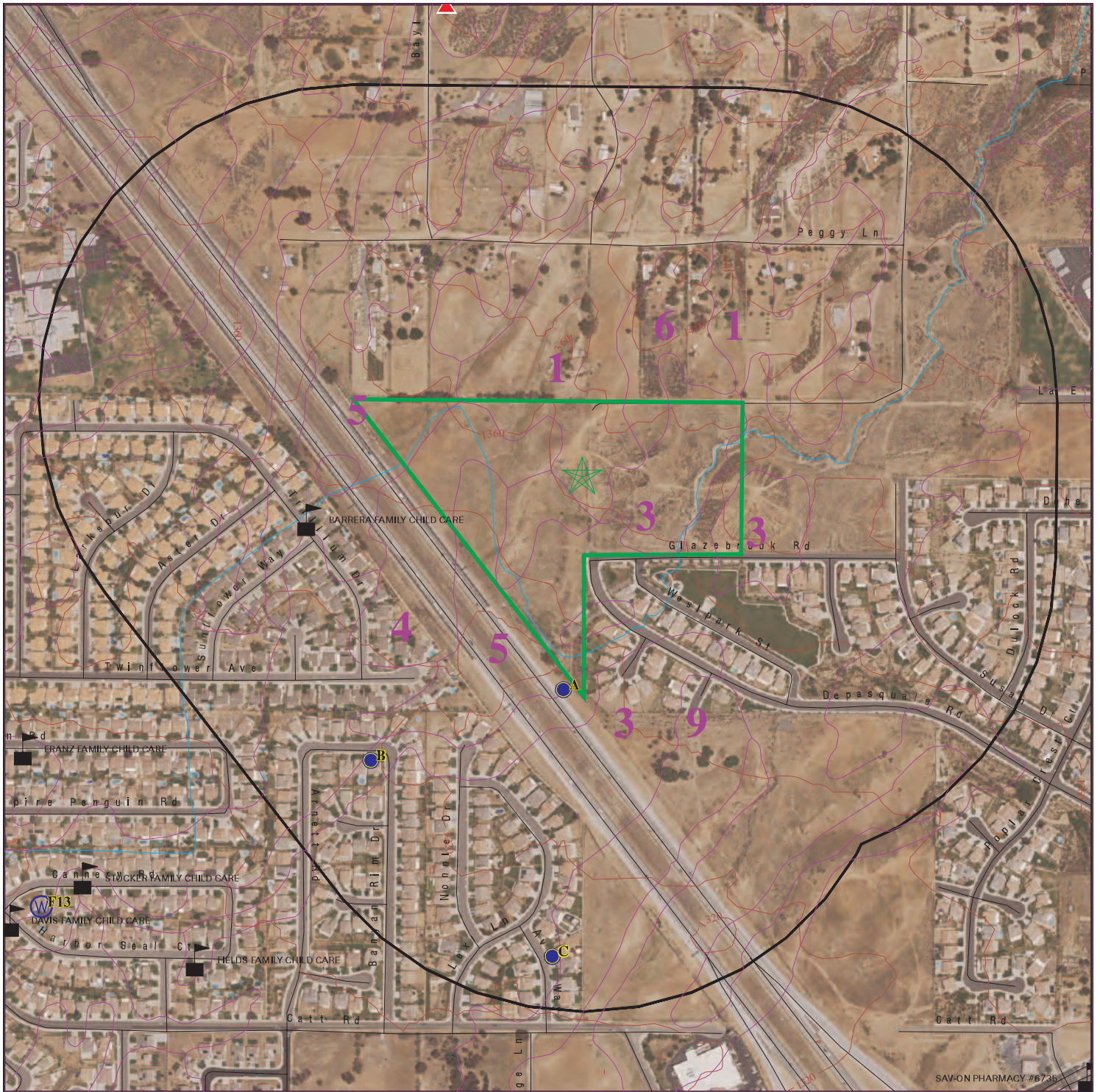
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Proposed Faith Bible Church  
ADDRESS: Glazebrook Rd. & Depasquale Rd.  
Wildomar CA 92595  
LAT/LONG: 33.604174 / 117.249531

CLIENT: Remediation Sciences  
CONTACT: Yonathan Yoseph  
INQUIRY #: 05006571.2r  
DATE: July 28, 2017 8:06 am



# DETAIL MAP - 05006571.2R



- 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
- 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: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar CA 92595  
 LAT/LONG: 33.604174 / 117.249531

CLIENT: Remediation Sciences  
 CONTACT: Yonathan Yoseph  
 INQUIRY #: 05006571.2r  
 DATE: July 28, 2017 8:10 am



## 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
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<b><i>Federal CERCLIS NFRAP site list</i></b>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<b><i>Federal institutional controls / engineering controls registries</i></b>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	0.001		0	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent NPL</i></b>								
RESPONSE	1.000		0	0	0	0	NR	0
<b><i>State- and tribal - equivalent CERCLIS</i></b>								
ENVIROSTOR	1.000		0	0	2	0	NR	2
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500		0	0	0	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
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
<b>State and tribal registered storage tank lists</b>								
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
<b>State and tribal voluntary cleanup sites</b>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
<b>State and tribal Brownfields sites</b>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<b>Local Brownfield lists</b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Landfill / Solid Waste Disposal Sites</b>								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Hazardous waste / Contaminated Sites</b>								
US HIST CDL	0.001		0	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	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
<b>Local Lists of Registered Storage Tanks</b>								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
<b>Local Land Records</b>								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	0.001		0	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	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	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	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	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
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	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	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	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	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0

- Totals --		0	0	0	2	0	0	2
-------------	--	---	---	---	---	---	---	---

#### NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

1  
NNW  
1/4-1/2  
0.313 mi.  
1655 ft.

**ELEMENTARY SCHOOL NO. 15**  
**LA ESTRELLA ROAD/GEORGE PORRAS ROAD**  
**WILDOMAR, CA 92595**

**ENVIROSTOR** **S118756724**  
**SCH** **N/A**

**Relative:**  
**Higher**

ENVIROSTOR:

**Actual:**  
**1423 ft.**

Facility ID: 33650001  
Status: No Action Required  
Status Date: 06/15/2001  
Site Code: 404232  
Site Type: School Investigation  
Site Type Detailed: School  
Acres: 13  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Kamili Siglowide  
Supervisor: Charles Ridenour  
Division Branch: Southern California Schools & Brownfields Outreach  
Assembly: 67  
Senate: 28  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: School District  
Latitude: 33.60958  
Longitude: -117.2514  
APN: NONE SPECIFIED  
Past Use: NONE  
Potential COC: NONE SPECIFIED No Contaminants found  
Confirmed COC: NONE SPECIFIED  
Potential Description: NMA  
Alias Name: ELEMENTARY SCHOOL #15  
Alias Type: Alternate Name  
Alias Name: LAKE ELSINORE USD-ELEMENTARY # 15  
Alias Type: Alternate Name  
Alias Name: 404232  
Alias Type: Project Code (Site Code)  
Alias Name: 33650001  
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 06/27/2001  
Comments: Not reported

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Inspections/Visit (Non LUR)  
Completed Date: 06/13/2001  
Comments: Not reported

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 06/14/2001  
Comments: Not reported



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ELEMENTARY SCHOOL NO. 15 (Continued)**

**S118756724**

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

**SCH:**

Facility ID: 33650001  
Site Type: School Investigation  
Site Type Detail: School  
Site Mgmt. Req.: NONE SPECIFIED  
Acres: 13  
National Priorities List: NO  
Cleanup Oversight Agencies: SMBRP  
Lead Agency: SMBRP  
Lead Agency Description: DTSC - Site Cleanup Program  
Project Manager: Kamili Siglowide  
Supervisor: Charles Ridenour  
Division Branch: Southern California Schools & Brownfields Outreach  
Site Code: 404232  
Assembly: 67  
Senate: 28  
Special Program Status: Not reported  
Status: No Action Required  
Status Date: 06/15/2001  
Restricted Use: NO  
Funding: School District  
Latitude: 33.60958  
Longitude: -117.2514  
APN: NONE SPECIFIED  
Past Use: NONE  
Potential COC: NONE SPECIFIED, No Contaminants found  
Confirmed COC: NONE SPECIFIED  
Potential Description: NMA  
Alias Name: ELEMENTARY SCHOOL #15  
Alias Type: Alternate Name  
Alias Name: LAKE ELSINORE USD-ELEMENTARY # 15  
Alias Type: Alternate Name  
Alias Name: 404232  
Alias Type: Project Code (Site Code)  
Alias Name: 33650001  
Alias Type: Envirostor ID Number

**Completed Info:**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 06/27/2001  
Comments: Not reported

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ELEMENTARY SCHOOL NO. 15 (Continued)**

**S118756724**

Completed Document Type: Site Inspections/Visit (Non LUR)  
Completed Date: 06/13/2001  
Comments: Not reported

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 06/14/2001  
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

**2**  
**WNW**  
**1/4-1/2**  
**0.328 mi.**  
**1734 ft.**

**DONALD GRAHAM MEDICAL THERAPY UNIT**  
**35450 FREDERICK STREET**  
**WILDOMAR, CA 92595**

**ENVIROSTOR** **S118757190**  
**SCH** **N/A**

**Relative:**  
**Lower**

**ENVIROSTOR:**

**Actual:**  
**1324 ft.**

Facility ID: 60000994  
Status: No Action Required  
Status Date: 11/26/2008  
Site Code: 404819  
Site Type: School Investigation  
Site Type Detailed: School  
Acres: 0.4  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Christine Chiu  
Supervisor: Shahir Haddad  
Division Branch: Southern California Schools & Brownfields Outreach  
Assembly: 67  
Senate: 28  
Special Program: Not reported  
Restricted Use: NO  
Site Mgmt Req: NONE SPECIFIED  
Funding: School District  
Latitude: 33.6059  
Longitude: -117.2581  
APN: 376-330-003, 376-330-015, 376-330-016, 376-330-017, 376330003, 376330015, 376330016, 376330017  
  
Past Use: NONE  
Potential COC: NONE SPECIFIED No Contaminants found  
Confirmed COC: No Contaminants found  
Potential Description: NMA  
Alias Name: Donald Graham Elementary School  
Alias Type: Alternate Name  
Alias Name: Lake Elsinore Unified School District  
Alias Type: Alternate Name

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DONALD GRAHAM MEDICAL THERAPY UNIT (Continued)**

**S118757190**

Alias Name: 376-330-003  
Alias Type: APN  
Alias Name: 376-330-015  
Alias Type: APN  
Alias Name: 376-330-016  
Alias Type: APN  
Alias Name: 376-330-017  
Alias Type: APN  
Alias Name: 376330003  
Alias Type: APN  
Alias Name: 376330015  
Alias Type: APN  
Alias Name: 376330016  
Alias Type: APN  
Alias Name: 376330017  
Alias Type: APN  
Alias Name: 404819  
Alias Type: Project Code (Site Code)  
Alias Name: 60000994  
Alias Type: Envirostor ID Number

**Completed Info:**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 11/26/2008  
Comments: DTSC approved the Phase I report with a No Action determination.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Inspections/Visit (Non LUR)  
Completed Date: 11/26/2008  
Comments: DTSC conducted a site visit on November 26, 2008.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 12/01/2008  
Comments: DTSC prepared project close out Cost Recovery Unit Memorandum.

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

**SCH:**

Facility ID: 60000994  
Site Type: School Investigation  
Site Type Detail: School  
Site Mgmt. Req.: NONE SPECIFIED  
Acres: 0.4

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DONALD GRAHAM MEDICAL THERAPY UNIT (Continued)**

**S118757190**

National Priorities List: NO  
Cleanup Oversight Agencies: SMBRP  
Lead Agency: SMBRP  
Lead Agency Description: DTSC - Site Cleanup Program  
Project Manager: Christine Chiu  
Supervisor: Shahir Haddad  
Division Branch: Southern California Schools & Brownfields Outreach  
Site Code: 404819  
Assembly: 67  
Senate: 28  
Special Program Status: Not reported  
Status: No Action Required  
Status Date: 11/26/2008  
Restricted Use: NO  
Funding: School District  
Latitude: 33.6059  
Longitude: -117.2581  
APN: 376-330-003, 376-330-015, 376-330-016, 376-330-017, 376330003, 376330015, 376330016, 376330017  
Past Use: NONE  
Potential COC: NONE SPECIFIED, No Contaminants found  
Confirmed COC: No Contaminants found  
Potential Description: NMA  
Alias Name: Donald Graham Elementary School  
Alias Type: Alternate Name  
Alias Name: Lake Elsinore Unified School District  
Alias Type: Alternate Name  
Alias Name: 376-330-003  
Alias Type: APN  
Alias Name: 376-330-015  
Alias Type: APN  
Alias Name: 376-330-016  
Alias Type: APN  
Alias Name: 376-330-017  
Alias Type: APN  
Alias Name: 376330003  
Alias Type: APN  
Alias Name: 376330015  
Alias Type: APN  
Alias Name: 376330016  
Alias Type: APN  
Alias Name: 376330017  
Alias Type: APN  
Alias Name: 404819  
Alias Type: Project Code (Site Code)  
Alias Name: 60000994  
Alias Type: Envirostor ID Number

**Completed Info:**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Phase 1  
Completed Date: 11/26/2008  
Comments: DTSC approved the Phase I report with a No Action determination.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Inspections/Visit (Non LUR)

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DONALD GRAHAM MEDICAL THERAPY UNIT (Continued)**

**S118757190**

Completed Date: 11/26/2008  
Comments: DTSC conducted a site visit on November 26, 2008.

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Cost Recovery Closeout Memo  
Completed Date: 12/01/2008  
Comments: DTSC prepared project close out Cost Recovery Unit Memorandum.

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



Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NO SITES FOUND					

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### ***Federal Delisted NPL site list***

#### Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Quarterly

### ***Federal CERCLIS list***

#### FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2017	Telephone: 703-603-8704
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 92	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Varies

#### SEMS: Superfund Enterprise Management System

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 known 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.

Date of Government Version: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/21/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Quarterly

### ***Federal CERCLIS NFRAP site list***

#### SEMS-ARCHIVE: Superfund Enterprise Management System Archive

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 06/08/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/31/2017
	Data Release Frequency: Quarterly

### ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/12/2016	Source: EPA
Date Data Arrived at EDR: 12/28/2016	Telephone: 800-424-9346
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

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.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

### ***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

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). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### RCRA-SQG: RCRA - Small Quantity Generators

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.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

### RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

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). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Varies

### ***Federal institutional controls / engineering controls registries***

#### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/28/2016	Source: Department of the Navy
Date Data Arrived at EDR: 01/04/2017	Telephone: 843-820-7326
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 05/15/2017
Number of Days to Update: 93	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Varies

#### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/28/2017	Telephone: 703-603-0695
Date Made Active in Reports: 06/09/2017	Last EDR Contact: 05/31/2017
Number of Days to Update: 101	Next Scheduled EDR Contact: 09/11/2017
	Data Release Frequency: Varies

#### US INST CONTROL: Sites with Institutional Controls

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.

Date of Government Version: 02/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/28/2017	Telephone: 703-603-0695
Date Made Active in Reports: 06/09/2017	Last EDR Contact: 05/31/2017
Number of Days to Update: 101	Next Scheduled EDR Contact: 09/11/2017
	Data Release Frequency: Varies



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal ERNS list***

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016

Date Data Arrived at EDR: 09/29/2016

Date Made Active in Reports: 11/11/2016

Number of Days to Update: 43

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 06/28/2017

Next Scheduled EDR Contact: 10/09/2017

Data Release Frequency: Annually

## ***State- and tribal - equivalent NPL***

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity.

These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/30/2017

Date Data Arrived at EDR: 01/31/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 112

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 05/02/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Quarterly

## ***State- and tribal - equivalent CERCLIS***

ENVIROSTOR: EnviroStor Database

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.

Date of Government Version: 01/30/2017

Date Data Arrived at EDR: 01/31/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 112

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 05/02/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Quarterly

## ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/13/2017

Date Data Arrived at EDR: 02/15/2017

Date Made Active in Reports: 05/02/2017

Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 05/17/2017

Next Scheduled EDR Contact: 08/28/2017

Data Release Frequency: Quarterly

## ***State and tribal leaking storage tank lists***

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017

Date Data Arrived at EDR: 03/14/2017

Date Made Active in Reports: 05/02/2017

Number of Days to Update: 49

Source: State Water Resources Control Board

Telephone: see region list

Last EDR Contact: 06/14/2017

Next Scheduled EDR Contact: 09/25/2017

Data Release Frequency: Quarterly

### LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005

Date Data Arrived at EDR: 06/07/2005

Date Made Active in Reports: 06/29/2005

Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)

Telephone: 760-241-7365

Last EDR Contact: 09/12/2011

Next Scheduled EDR Contact: 12/26/2011

Data Release Frequency: No Update Planned

### LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004

Date Data Arrived at EDR: 09/07/2004

Date Made Active in Reports: 10/12/2004

Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)

Telephone: 213-576-6710

Last EDR Contact: 09/06/2011

Next Scheduled EDR Contact: 12/19/2011

Data Release Frequency: No Update Planned

### LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003

Date Data Arrived at EDR: 05/19/2003

Date Made Active in Reports: 06/02/2003

Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)

Telephone: 805-542-4786

Last EDR Contact: 07/18/2011

Next Scheduled EDR Contact: 10/31/2011

Data Release Frequency: No Update Planned

### LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004

Date Data Arrived at EDR: 10/20/2004

Date Made Active in Reports: 11/19/2004

Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)

Telephone: 510-622-2433

Last EDR Contact: 09/19/2011

Next Scheduled EDR Contact: 01/02/2012

Data Release Frequency: Quarterly

### LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001

Date Data Arrived at EDR: 02/28/2001

Date Made Active in Reports: 03/29/2001

Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)

Telephone: 707-570-3769

Last EDR Contact: 08/01/2011

Next Scheduled EDR Contact: 11/14/2011

Data Release Frequency: No Update Planned

### LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/09/2003  
Date Data Arrived at EDR: 09/10/2003  
Date Made Active in Reports: 10/07/2003  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)  
Telephone: 530-542-5572  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: No Update Planned

### LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008  
Date Data Arrived at EDR: 07/22/2008  
Date Made Active in Reports: 07/31/2008  
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-4834  
Last EDR Contact: 07/01/2011  
Next Scheduled EDR Contact: 10/17/2011  
Data Release Frequency: No Update Planned

### LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004  
Date Data Arrived at EDR: 02/26/2004  
Date Made Active in Reports: 03/24/2004  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)  
Telephone: 760-776-8943  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

### LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 03/28/2005  
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)  
Telephone: 909-782-4496  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: Varies

### LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 09/26/2011  
Next Scheduled EDR Contact: 01/09/2012  
Data Release Frequency: No Update Planned

### INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 11/14/2016  
Date Data Arrived at EDR: 01/26/2017  
Date Made Active in Reports: 05/05/2017  
Number of Days to Update: 99

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 07/27/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016  
Date Data Arrived at EDR: 01/27/2017  
Date Made Active in Reports: 05/05/2017  
Number of Days to Update: 98

Source: EPA Region 4  
Telephone: 404-562-8677  
Last EDR Contact: 04/28/2017  
Next Scheduled EDR Contact: 08/07/2017  
Data Release Frequency: Semi-Annually

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/06/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3372
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-6597
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land  
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/14/2016	Source: EPA, Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-7439
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6271
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003  
Date Data Arrived at EDR: 04/07/2003  
Date Made Active in Reports: 04/25/2003  
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)  
Telephone: 707-576-2220  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

### SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-286-0457  
Last EDR Contact: 09/19/2011  
Next Scheduled EDR Contact: 01/02/2012  
Data Release Frequency: Quarterly

### SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006  
Date Data Arrived at EDR: 05/18/2006  
Date Made Active in Reports: 06/15/2006  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-549-3147  
Last EDR Contact: 07/18/2011  
Next Scheduled EDR Contact: 10/31/2011  
Data Release Frequency: Semi-Annually

### SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004  
Date Data Arrived at EDR: 11/18/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6600  
Last EDR Contact: 07/01/2011  
Next Scheduled EDR Contact: 10/17/2011  
Data Release Frequency: Varies

### SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

### SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: Semi-Annually



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: No Update Planned

### SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

### SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008  
Date Data Arrived at EDR: 04/03/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

### SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007  
Date Data Arrived at EDR: 09/11/2007  
Date Made Active in Reports: 09/28/2007  
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-467-2980  
Last EDR Contact: 08/08/2011  
Next Scheduled EDR Contact: 11/21/2011  
Data Release Frequency: Annually

### ***State and tribal registered storage tank lists***

#### FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010  
Date Data Arrived at EDR: 02/16/2010  
Date Made Active in Reports: 04/12/2010  
Number of Days to Update: 55

Source: FEMA  
Telephone: 202-646-5797  
Last EDR Contact: 07/14/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Varies

#### UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/12/2017  
Date Data Arrived at EDR: 03/16/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 57

Source: SWRCB  
Telephone: 916-341-5851  
Last EDR Contact: 06/14/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Semi-Annually

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 06/21/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

### INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/14/2017	Source: EPA Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-6136
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

### INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-7591
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

### INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

### INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6137
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

### INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/06/2016	Source: EPA Region 9
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3368
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 11/14/2016	Source: EPA, Region 1
Date Data Arrived at EDR: 01/26/2017	Telephone: 617-918-1313
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

### INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016	Source: EPA Region 4
Date Data Arrived at EDR: 01/27/2017	Telephone: 404-562-9424
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Semi-Annually

### INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

### ***State and tribal voluntary cleanup sites***

#### INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 06/27/2017
Number of Days to Update: 142	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Varies

#### INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

#### VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/30/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/31/2017	Telephone: 916-323-3400
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 112	Next Scheduled EDR Contact: 08/14/2017
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***State and tribal Brownfields sites***

### **BROWNFIELDS: Considered Brownfields Sites Listing**

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 01/03/2017  
Date Data Arrived at EDR: 01/04/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 57

Source: State Water Resources Control Board  
Telephone: 916-323-7905  
Last EDR Contact: 06/28/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Varies

## **ADDITIONAL ENVIRONMENTAL RECORDS**

### ***Local Brownfield lists***

#### **US BROWNFIELDS: A Listing of Brownfields Sites**

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/02/2017  
Date Data Arrived at EDR: 03/02/2017  
Date Made Active in Reports: 04/07/2017  
Number of Days to Update: 36

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 06/20/2017  
Next Scheduled EDR Contact: 10/02/2017  
Data Release Frequency: Semi-Annually

### ***Local Lists of Landfill / Solid Waste Disposal Sites***

#### **WMUDS/SWAT: Waste Management Unit Database**

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000  
Date Data Arrived at EDR: 04/10/2000  
Date Made Active in Reports: 05/10/2000  
Number of Days to Update: 30

Source: State Water Resources Control Board  
Telephone: 916-227-4448  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: No Update Planned

#### **SWRCY: Recycler Database**

A listing of recycling facilities in California.

Date of Government Version: 03/13/2017  
Date Data Arrived at EDR: 03/14/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 50

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 06/14/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Quarterly

#### **HAULERS: Registered Waste Tire Haulers Listing**

A listing of registered waste tire haulers.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/13/2017  
Date Data Arrived at EDR: 01/17/2017  
Date Made Active in Reports: 05/31/2017  
Number of Days to Update: 134

Source: Integrated Waste Management Board  
Telephone: 916-341-6422  
Last EDR Contact: 05/15/2017  
Next Scheduled EDR Contact: 08/28/2017  
Data Release Frequency: Varies

### INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 05/01/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Varies

### ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 07/24/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: No Update Planned

### IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014  
Date Data Arrived at EDR: 08/06/2014  
Date Made Active in Reports: 01/29/2015  
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service  
Telephone: 301-443-1452  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Varies

### **Local Lists of Hazardous waste / Contaminated Sites**

#### US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/09/2017  
Date Data Arrived at EDR: 03/08/2017  
Date Made Active in Reports: 06/09/2017  
Number of Days to Update: 93

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 02/28/2017  
Next Scheduled EDR Contact: 06/12/2017  
Data Release Frequency: No Update Planned

#### HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/08/2005  
Date Data Arrived at EDR: 08/03/2006  
Date Made Active in Reports: 08/24/2006  
Number of Days to Update: 21

Source: Department of Toxic Substance Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/23/2009  
Next Scheduled EDR Contact: 05/25/2009  
Data Release Frequency: No Update Planned

### SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/30/2017  
Date Data Arrived at EDR: 01/31/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 112

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 05/02/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Quarterly

### CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2016  
Date Data Arrived at EDR: 03/17/2017  
Date Made Active in Reports: 05/10/2017  
Number of Days to Update: 54

Source: Department of Toxic Substances Control  
Telephone: 916-255-6504  
Last EDR Contact: 07/14/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Varies

### TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995  
Date Data Arrived at EDR: 08/30/1995  
Date Made Active in Reports: 09/26/1995  
Number of Days to Update: 27

Source: State Water Resources Control Board  
Telephone: 916-227-4364  
Last EDR Contact: 01/26/2009  
Next Scheduled EDR Contact: 04/27/2009  
Data Release Frequency: No Update Planned

### US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/09/2017  
Date Data Arrived at EDR: 03/08/2017  
Date Made Active in Reports: 06/09/2017  
Number of Days to Update: 93

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 05/31/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: Quarterly

### **Local Lists of Registered Storage Tanks**

#### SWEEPS UST: SWEEPS UST Listing

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.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/01/1994  
Date Data Arrived at EDR: 07/07/2005  
Date Made Active in Reports: 08/11/2005  
Number of Days to Update: 35

Source: State Water Resources Control Board  
Telephone: N/A  
Last EDR Contact: 06/03/2005  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/09/2017  
Date Data Arrived at EDR: 03/17/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 67

Source: Department of Public Health  
Telephone: 707-463-4466  
Last EDR Contact: 05/24/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: Annually

### HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990  
Date Data Arrived at EDR: 01/25/1991  
Date Made Active in Reports: 02/12/1991  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-341-5851  
Last EDR Contact: 07/26/2001  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994  
Date Data Arrived at EDR: 09/05/1995  
Date Made Active in Reports: 09/29/1995  
Number of Days to Update: 24

Source: California Environmental Protection Agency  
Telephone: 916-341-5851  
Last EDR Contact: 12/28/1998  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### Local Land Records

#### LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/06/2017  
Date Data Arrived at EDR: 03/07/2017  
Date Made Active in Reports: 04/21/2017  
Number of Days to Update: 45

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Varies

#### LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014  
Date Data Arrived at EDR: 03/18/2014  
Date Made Active in Reports: 04/24/2014  
Number of Days to Update: 37

Source: Environmental Protection Agency  
Telephone: 202-564-6023  
Last EDR Contact: 07/26/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

#### DEED: Deed Restriction Listing

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/06/2017	Source: DTSC and SWRCB
Date Data Arrived at EDR: 03/07/2017	Telephone: 916-323-3400
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 06/06/2017
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Semi-Annually

### **Records of Emergency Release Reports**

#### **HMIRS: Hazardous Materials Information Reporting System**

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/28/2016	Telephone: 202-366-4555
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 06/28/2017
Number of Days to Update: 37	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Annually

#### **CHMIRS: California Hazardous Material Incident Report System**

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/06/2016	Source: Office of Emergency Services
Date Data Arrived at EDR: 01/25/2017	Telephone: 916-845-8400
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 07/26/2017
Number of Days to Update: 105	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

#### **LDS: Land Disposal Sites Listing (GEOTRACKER)**

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Quality Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Quarterly

#### **MCS: Military Cleanup Sites Listing (GEOTRACKER)**

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012  
Date Data Arrived at EDR: 01/03/2013  
Date Made Active in Reports: 02/22/2013  
Number of Days to Update: 50

Source: FirstSearch  
Telephone: N/A  
Last EDR Contact: 01/03/2013  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### Other Ascertainable Records

#### RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

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). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/12/2016  
Date Data Arrived at EDR: 12/28/2016  
Date Made Active in Reports: 02/10/2017  
Number of Days to Update: 44

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 06/29/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Varies

#### FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015  
Date Data Arrived at EDR: 07/08/2015  
Date Made Active in Reports: 10/13/2015  
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers  
Telephone: 202-528-4285  
Last EDR Contact: 02/24/2017  
Next Scheduled EDR Contact: 06/05/2017  
Data Release Frequency: Varies

#### DOD: Department of Defense Sites

This data set 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.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 11/10/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 62

Source: USGS  
Telephone: 888-275-8747  
Last EDR Contact: 07/12/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Semi-Annually

#### FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/06/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 339

Source: U.S. Geological Survey  
Telephone: 888-275-8747  
Last EDR Contact: 07/14/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: N/A

#### SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2017  
Date Data Arrived at EDR: 02/03/2017  
Date Made Active in Reports: 04/07/2017  
Number of Days to Update: 63

Source: Environmental Protection Agency  
Telephone: 615-532-8599  
Last EDR Contact: 05/19/2017  
Next Scheduled EDR Contact: 08/28/2017  
Data Release Frequency: Varies

### US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 02/13/2017  
Date Data Arrived at EDR: 02/15/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 86

Source: Environmental Protection Agency  
Telephone: 202-566-1917  
Last EDR Contact: 05/17/2017  
Next Scheduled EDR Contact: 08/28/2017  
Data Release Frequency: Quarterly

### EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013  
Date Data Arrived at EDR: 03/21/2014  
Date Made Active in Reports: 06/17/2014  
Number of Days to Update: 88

Source: Environmental Protection Agency  
Telephone: 617-520-3000  
Last EDR Contact: 05/08/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

### 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013  
Date Data Arrived at EDR: 03/03/2015  
Date Made Active in Reports: 03/09/2015  
Number of Days to Update: 6

Source: Environmental Protection Agency  
Telephone: 703-308-4044  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012  
Date Data Arrived at EDR: 01/15/2015  
Date Made Active in Reports: 01/29/2015  
Number of Days to Update: 14

Source: EPA  
Telephone: 202-260-5521  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/02/2017  
Data Release Frequency: Every 4 Years

### TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 11/24/2015  
Date Made Active in Reports: 04/05/2016  
Number of Days to Update: 133

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 05/26/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Annually

### SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 12/10/2010  
Date Made Active in Reports: 02/25/2011  
Number of Days to Update: 77

Source: EPA  
Telephone: 202-564-4203  
Last EDR Contact: 04/26/2017  
Next Scheduled EDR Contact: 08/07/2017  
Data Release Frequency: Annually

### ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013  
Date Data Arrived at EDR: 12/12/2013  
Date Made Active in Reports: 02/24/2014  
Number of Days to Update: 74

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 06/09/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Annually

### RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2017  
Date Data Arrived at EDR: 02/09/2017  
Date Made Active in Reports: 04/07/2017  
Number of Days to Update: 57

Source: Environmental Protection Agency  
Telephone: 202-564-8600  
Last EDR Contact: 07/24/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995  
Date Data Arrived at EDR: 07/03/1995  
Date Made Active in Reports: 08/07/1995  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4104  
Last EDR Contact: 06/02/2008  
Next Scheduled EDR Contact: 09/01/2008  
Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 06/06/2017
Number of Days to Update: 3	Next Scheduled EDR Contact: 08/21/2017
	Data Release Frequency: Quarterly

### PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016	Source: EPA
Date Data Arrived at EDR: 04/28/2016	Telephone: 202-566-0500
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 04/10/2017
Number of Days to Update: 127	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Annually

### ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 07/24/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/23/2017
	Data Release Frequency: Quarterly

### FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/19/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

### FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/19/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

### MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 05/08/2017
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/21/2017
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 06/05/2017
Number of Days to Update: 76	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Varies

### COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 06/05/2017
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Varies

### PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 04/28/2017
Number of Days to Update: 83	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

### RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/06/2017	Telephone: 202-343-9775
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 07/12/2017
Number of Days to Update: 35	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Quarterly

### HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

### HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2008  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

### DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012  
Date Data Arrived at EDR: 08/07/2012  
Date Made Active in Reports: 09/18/2012  
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety  
Telephone: 202-366-4595  
Last EDR Contact: 05/02/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Varies

### CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016  
Date Data Arrived at EDR: 11/18/2016  
Date Made Active in Reports: 02/03/2017  
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Varies

### BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 02/24/2015  
Date Made Active in Reports: 09/30/2015  
Number of Days to Update: 218

Source: EPA/NTIS  
Telephone: 800-424-9346  
Last EDR Contact: 05/26/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Biennially

### INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 07/14/2015  
Date Made Active in Reports: 01/10/2017  
Number of Days to Update: 546

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 07/11/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Semi-Annually

### FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016  
Date Data Arrived at EDR: 12/27/2016  
Date Made Active in Reports: 02/17/2017  
Number of Days to Update: 52

Source: Department of Energy  
Telephone: 202-586-3559  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010  
Date Data Arrived at EDR: 10/07/2011  
Date Made Active in Reports: 03/01/2012  
Number of Days to Update: 146

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016  
Date Data Arrived at EDR: 01/05/2017  
Date Made Active in Reports: 02/10/2017  
Number of Days to Update: 36

Source: Environmental Protection Agency  
Telephone: 703-603-8787  
Last EDR Contact: 07/07/2017  
Next Scheduled EDR Contact: 10/16/2017  
Data Release Frequency: Varies

### LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001  
Date Data Arrived at EDR: 10/27/2010  
Date Made Active in Reports: 12/02/2010  
Number of Days to Update: 36

Source: American Journal of Public Health  
Telephone: 703-305-6451  
Last EDR Contact: 12/02/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016  
Date Data Arrived at EDR: 10/26/2016  
Date Made Active in Reports: 02/03/2017  
Number of Days to Update: 100

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Annually

### US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016  
Date Data Arrived at EDR: 10/26/2016  
Date Made Active in Reports: 02/03/2017  
Number of Days to Update: 100

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Annually

### US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2017  
Date Data Arrived at EDR: 02/28/2017  
Date Made Active in Reports: 04/07/2017  
Number of Days to Update: 38

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959  
Last EDR Contact: 05/31/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: Semi-Annually

### US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005  
Date Data Arrived at EDR: 02/29/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 49

Source: USGS  
Telephone: 703-648-7709  
Last EDR Contact: 05/31/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: Varies

### US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011  
Date Data Arrived at EDR: 06/08/2011  
Date Made Active in Reports: 09/13/2011  
Number of Days to Update: 97

Source: USGS  
Telephone: 703-648-7709  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: Varies

### ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/14/2017  
Date Data Arrived at EDR: 03/17/2017  
Date Made Active in Reports: 04/07/2017  
Number of Days to Update: 21

Source: Department of Interior  
Telephone: 202-208-2609  
Last EDR Contact: 06/09/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Quarterly

### FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/04/2017  
Date Data Arrived at EDR: 04/07/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 35

Source: EPA  
Telephone: (415) 947-8000  
Last EDR Contact: 06/07/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Quarterly

### ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/19/2017  
Date Data Arrived at EDR: 03/21/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 202-564-2280  
Last EDR Contact: 06/07/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Quarterly

### UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015  
Date Data Arrived at EDR: 01/29/2016  
Date Made Active in Reports: 04/05/2016  
Number of Days to Update: 67

Source: Department of Defense  
Telephone: 571-373-0407  
Last EDR Contact: 07/17/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/03/2016	Telephone: 202-564-0527
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 05/24/2017
Number of Days to Update: 91	Next Scheduled EDR Contact: 09/11/2017
	Data Release Frequency: Varies

### FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/22/2017	Source: EPA
Date Data Arrived at EDR: 02/22/2017	Telephone: 800-385-6164
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 05/24/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

### CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### CORTESE: "Cortese" Hazardous Waste & Substances Sites List

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 (Cal-Sites).

Date of Government Version: 12/28/2016	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 12/28/2016	Telephone: 916-323-3400
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 06/28/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

### DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 03/09/2017	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 04/11/2017	Telephone: 916-327-4498
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 07/13/2017
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Annually

### EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014	Source: California Air Resources Board
Date Data Arrived at EDR: 09/23/2016	Telephone: 916-322-2990
Date Made Active in Reports: 10/24/2016	Last EDR Contact: 06/23/2017
Number of Days to Update: 31	Next Scheduled EDR Contact: 10/02/2017
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/23/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/27/2017	Telephone: 916-445-9379
Date Made Active in Reports: 05/25/2017	Last EDR Contact: 07/19/2017
Number of Days to Update: 118	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

### Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/29/2016	Telephone: 916-255-3628
Date Made Active in Reports: 06/21/2016	Last EDR Contact: 07/21/2017
Number of Days to Update: 53	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Varies

### Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2017	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 02/17/2017	Telephone: 916-341-6066
Date Made Active in Reports: 05/25/2017	Last EDR Contact: 05/15/2017
Number of Days to Update: 97	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Varies

### HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 10/12/2016	Telephone: 916-255-1136
Date Made Active in Reports: 12/15/2016	Last EDR Contact: 07/12/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/23/2017
	Data Release Frequency: Annually

### ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 11/22/2016	Telephone: 877-786-9427
Date Made Active in Reports: 01/23/2017	Last EDR Contact: 05/24/2017
Number of Days to Update: 62	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

### HIST CORTESE: Hazardous Waste & Substance Site List

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.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016  
Date Data Arrived at EDR: 11/22/2016  
Date Made Active in Reports: 01/23/2017  
Number of Days to Update: 62

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 05/24/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Quarterly

### HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/11/2017  
Date Data Arrived at EDR: 04/13/2017  
Date Made Active in Reports: 04/26/2017  
Number of Days to Update: 13

Source: Department of Toxic Substances Control  
Telephone: 916-440-7145  
Last EDR Contact: 07/12/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Quarterly

### MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016  
Date Data Arrived at EDR: 09/14/2016  
Date Made Active in Reports: 10/14/2016  
Number of Days to Update: 30

Source: Department of Conservation  
Telephone: 916-322-1080  
Last EDR Contact: 06/14/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Varies

### MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 12/02/2016  
Date Data Arrived at EDR: 12/06/2016  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 86

Source: Department of Public Health  
Telephone: 916-558-1784  
Last EDR Contact: 06/06/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Varies

### NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016  
Date Data Arrived at EDR: 11/15/2016  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 107

Source: State Water Resources Control Board  
Telephone: 916-445-9379  
Last EDR Contact: 05/17/2017  
Next Scheduled EDR Contact: 08/28/2017  
Data Release Frequency: Quarterly

### PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/06/2016  
Date Data Arrived at EDR: 12/06/2016  
Date Made Active in Reports: 03/03/2017  
Number of Days to Update: 87

Source: Department of Pesticide Regulation  
Telephone: 916-445-4038  
Last EDR Contact: 06/07/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/13/2017  
Date Data Arrived at EDR: 03/14/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 50

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 06/14/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Quarterly

### NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/16/2016  
Date Data Arrived at EDR: 12/22/2016  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 70

Source: State Water Resources Control Board  
Telephone: 916-445-3846  
Last EDR Contact: 06/16/2017  
Next Scheduled EDR Contact: 10/02/2017  
Data Release Frequency: No Update Planned

### UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/20/2017  
Date Data Arrived at EDR: 03/14/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 50

Source: Department of Conservation  
Telephone: 916-445-2408  
Last EDR Contact: 06/14/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Varies

### WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board's review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 04/15/2015  
Date Data Arrived at EDR: 04/17/2015  
Date Made Active in Reports: 06/23/2015  
Number of Days to Update: 67

Source: RWQCB, Central Valley Region  
Telephone: 559-445-5577  
Last EDR Contact: 07/14/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Varies

### WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007  
Date Data Arrived at EDR: 06/20/2007  
Date Made Active in Reports: 06/29/2007  
Number of Days to Update: 9

Source: State Water Resources Control Board  
Telephone: 916-341-5227  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Quarterly

### WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009  
Date Data Arrived at EDR: 07/21/2009  
Date Made Active in Reports: 08/03/2009  
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board  
Telephone: 213-576-6726  
Last EDR Contact: 06/27/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Varies



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## EDR HIGH RISK HISTORICAL RECORDS

### ***EDR Exclusive Records***

#### EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

#### EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR RECOVERED GOVERNMENT ARCHIVES

### ***Exclusive Recovered Govt. Archives***

#### RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/13/2014  
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

### RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 12/30/2013  
Number of Days to Update: 182

Source: State Water Resources Control Board  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

### COUNTY RECORDS

#### ALAMEDA COUNTY:

##### Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/10/2017  
Date Data Arrived at EDR: 04/11/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 31

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 07/07/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Semi-Annually

##### Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/10/2017  
Date Data Arrived at EDR: 04/11/2017  
Date Made Active in Reports: 05/02/2017  
Number of Days to Update: 21

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 07/07/2017  
Next Scheduled EDR Contact: 04/24/2047  
Data Release Frequency: Semi-Annually

#### AMADOR COUNTY:

##### CUPA Facility List

Cupa Facility List

Date of Government Version: 03/06/2017  
Date Data Arrived at EDR: 03/08/2017  
Date Made Active in Reports: 04/14/2017  
Number of Days to Update: 37

Source: Amador County Environmental Health  
Telephone: 209-223-6439  
Last EDR Contact: 06/16/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Varies

#### BUTTE COUNTY:

##### CUPA Facility Listing

Cupa facility list.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/31/2017  
Date Data Arrived at EDR: 02/07/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 94

Source: Public Health Department  
Telephone: 530-538-7149  
Last EDR Contact: 07/19/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: No Update Planned

### CALVERAS COUNTY:

#### CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 01/09/2017  
Date Data Arrived at EDR: 01/11/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 50

Source: Calveras County Environmental Health  
Telephone: 209-754-6399  
Last EDR Contact: 06/27/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Quarterly

### COLUSA COUNTY:

#### CUPA Facility List Cupa facility list.

Date of Government Version: 02/23/2017  
Date Data Arrived at EDR: 02/24/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 77

Source: Health & Human Services  
Telephone: 530-458-0396  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### CONTRA COSTA COUNTY:

#### Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/26/2017  
Date Data Arrived at EDR: 05/30/2017  
Date Made Active in Reports: 07/27/2017  
Number of Days to Update: 58

Source: Contra Costa Health Services Department  
Telephone: 925-646-2286  
Last EDR Contact: 05/01/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Semi-Annually

### DEL NORTE COUNTY:

#### CUPA Facility List Cupa Facility list

Date of Government Version: 01/31/2017  
Date Data Arrived at EDR: 02/03/2017  
Date Made Active in Reports: 04/14/2017  
Number of Days to Update: 70

Source: Del Norte County Environmental Health Division  
Telephone: 707-465-0426  
Last EDR Contact: 07/27/2017  
Next Scheduled EDR Contact: 11/13/2017  
Data Release Frequency: Varies

### EL DORADO COUNTY:

#### CUPA Facility List CUPA facility list.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/24/2017  
Date Data Arrived at EDR: 02/28/2017  
Date Made Active in Reports: 05/12/2017  
Number of Days to Update: 73

Source: El Dorado County Environmental Management Department  
Telephone: 530-621-6623  
Last EDR Contact: 05/01/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Varies

### FRESNO COUNTY:

#### CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/06/2017  
Date Data Arrived at EDR: 04/07/2017  
Date Made Active in Reports: 05/17/2017  
Number of Days to Update: 40

Source: Dept. of Community Health  
Telephone: 559-445-3271  
Last EDR Contact: 06/29/2017  
Next Scheduled EDR Contact: 10/16/2017  
Data Release Frequency: Semi-Annually

### GLENN COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 12/02/2016  
Date Data Arrived at EDR: 02/03/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 111

Source: Glenn County Air Pollution Control District  
Telephone: 830-934-6500  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### HUMBOLDT COUNTY:

#### CUPA Facility List

CUPA facility list.

Date of Government Version: 03/20/2017  
Date Data Arrived at EDR: 03/21/2017  
Date Made Active in Reports: 05/17/2017  
Number of Days to Update: 57

Source: Humboldt County Environmental Health  
Telephone: N/A  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### IMPERIAL COUNTY:

#### CUPA Facility List

Cupa facility list.

Date of Government Version: 01/23/2017  
Date Data Arrived at EDR: 01/25/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 36

Source: San Diego Border Field Office  
Telephone: 760-339-2777  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### INYO COUNTY:

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### CUPA Facility List

Cupa facility list.

Date of Government Version: 03/09/2017  
Date Data Arrived at EDR: 03/09/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 77

Source: Inyo County Environmental Health Services  
Telephone: 760-878-0238  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### KERN COUNTY:

#### Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 02/07/2017  
Date Data Arrived at EDR: 02/10/2017  
Date Made Active in Reports: 05/02/2017  
Number of Days to Update: 81

Source: Kern County Environment Health Services Department  
Telephone: 661-862-8700  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

### KINGS COUNTY:

#### CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/06/2017  
Date Data Arrived at EDR: 03/07/2017  
Date Made Active in Reports: 05/17/2017  
Number of Days to Update: 71

Source: Kings County Department of Public Health  
Telephone: 559-584-1411  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### LAKE COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 01/18/2017  
Date Data Arrived at EDR: 01/20/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 41

Source: Lake County Environmental Health  
Telephone: 707-263-1164  
Last EDR Contact: 07/17/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Varies

### LASSEN COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016  
Date Data Arrived at EDR: 02/03/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 111

Source: Lassen County Environmental Health  
Telephone: 530-251-8528  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### LOS ANGELES COUNTY:

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009  
Date Data Arrived at EDR: 03/31/2009  
Date Made Active in Reports: 10/23/2009  
Number of Days to Update: 206

Source: EPA Region 9  
Telephone: 415-972-3178  
Last EDR Contact: 06/16/2017  
Next Scheduled EDR Contact: 10/02/2017  
Data Release Frequency: No Update Planned

### HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016  
Date Data Arrived at EDR: 11/18/2016  
Date Made Active in Reports: 01/23/2017  
Number of Days to Update: 66

Source: Department of Public Works  
Telephone: 626-458-3517  
Last EDR Contact: 07/07/2017  
Next Scheduled EDR Contact: 10/23/2017  
Data Release Frequency: Semi-Annually

### List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/17/2017  
Date Data Arrived at EDR: 04/18/2017  
Date Made Active in Reports: 05/02/2017  
Number of Days to Update: 14

Source: La County Department of Public Works  
Telephone: 818-458-5185  
Last EDR Contact: 07/18/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Varies

### City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016  
Date Data Arrived at EDR: 01/26/2016  
Date Made Active in Reports: 03/22/2016  
Number of Days to Update: 56

Source: Engineering & Construction Division  
Telephone: 213-473-7869  
Last EDR Contact: 07/13/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Varies

### Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016  
Date Data Arrived at EDR: 04/06/2016  
Date Made Active in Reports: 06/13/2016  
Number of Days to Update: 68

Source: Community Health Services  
Telephone: 323-890-7806  
Last EDR Contact: 07/17/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Annually

### City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/17/2017  
Date Data Arrived at EDR: 01/18/2017  
Date Made Active in Reports: 05/10/2017  
Number of Days to Update: 112

Source: City of El Segundo Fire Department  
Telephone: 310-524-2236  
Last EDR Contact: 07/13/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Semi-Annually

### City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017  
Date Data Arrived at EDR: 03/10/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 54

Source: City of Long Beach Fire Department  
Telephone: 562-570-2563  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Annually



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/10/2017

Date Data Arrived at EDR: 01/13/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 110

Source: City of Torrance Fire Department

Telephone: 310-618-2973

Last EDR Contact: 07/07/2017

Next Scheduled EDR Contact: 10/23/2017

Data Release Frequency: Semi-Annually

### MADERA COUNTY:

#### CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/03/2017

Date Data Arrived at EDR: 03/07/2017

Date Made Active in Reports: 05/17/2017

Number of Days to Update: 71

Source: Madera County Environmental Health

Telephone: 559-675-7823

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

### MARIN COUNTY:

#### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 03/31/2017

Date Data Arrived at EDR: 04/06/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 27

Source: Public Works Department Waste Management

Telephone: 415-473-6647

Last EDR Contact: 06/29/2017

Next Scheduled EDR Contact: 10/16/2017

Data Release Frequency: Semi-Annually

### MERCED COUNTY:

#### CUPA Facility List

CUPA facility list.

Date of Government Version: 02/22/2017

Date Data Arrived at EDR: 02/23/2017

Date Made Active in Reports: 05/17/2017

Number of Days to Update: 83

Source: Merced County Environmental Health

Telephone: 209-381-1094

Last EDR Contact: 07/13/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

### MONO COUNTY:

#### CUPA Facility List

CUPA Facility List

Date of Government Version: 02/21/2017

Date Data Arrived at EDR: 03/02/2017

Date Made Active in Reports: 05/17/2017

Number of Days to Update: 76

Source: Mono County Health Department

Telephone: 760-932-5580

Last EDR Contact: 05/24/2017

Next Scheduled EDR Contact: 09/11/2017

Data Release Frequency: Varies

### MONTEREY COUNTY:

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016  
Date Data Arrived at EDR: 06/27/2016  
Date Made Active in Reports: 08/09/2016  
Number of Days to Update: 43

Source: Monterey County Health Department  
Telephone: 831-796-1297  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### NAPA COUNTY:

#### Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017  
Date Data Arrived at EDR: 01/11/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 50

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 05/24/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: No Update Planned

#### Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 03/15/2017  
Date Data Arrived at EDR: 03/16/2017  
Date Made Active in Reports: 05/09/2017  
Number of Days to Update: 54

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 05/24/2017  
Next Scheduled EDR Contact: 09/11/2017  
Data Release Frequency: No Update Planned

### NEVADA COUNTY:

#### CUPA Facility List

CUPA facility list.

Date of Government Version: 02/09/2017  
Date Data Arrived at EDR: 02/10/2017  
Date Made Active in Reports: 05/17/2017  
Number of Days to Update: 96

Source: Community Development Agency  
Telephone: 530-265-1467  
Last EDR Contact: 07/27/2017  
Next Scheduled EDR Contact: 11/13/2017  
Data Release Frequency: Varies

### ORANGE COUNTY:

#### List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 02/06/2017  
Date Data Arrived at EDR: 02/10/2017  
Date Made Active in Reports: 04/21/2017  
Number of Days to Update: 70

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 05/08/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Annually

#### List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016  
Date Data Arrived at EDR: 11/11/2016  
Date Made Active in Reports: 01/23/2017  
Number of Days to Update: 73

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 05/08/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/06/2017

Date Data Arrived at EDR: 02/07/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 85

Source: Health Care Agency

Telephone: 714-834-3446

Last EDR Contact: 05/09/2017

Next Scheduled EDR Contact: 08/21/2017

Data Release Frequency: Quarterly

### PLACER COUNTY:

#### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016

Date Data Arrived at EDR: 09/06/2016

Date Made Active in Reports: 10/14/2016

Number of Days to Update: 38

Source: Placer County Health and Human Services

Telephone: 530-745-2363

Last EDR Contact: 06/02/2017

Next Scheduled EDR Contact: 09/18/2017

Data Release Frequency: Semi-Annually

### PLUMAS COUNTY:

#### CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 01/31/2017

Date Data Arrived at EDR: 02/03/2017

Date Made Active in Reports: 05/25/2017

Number of Days to Update: 111

Source: Plumas County Environmental Health

Telephone: 530-283-6355

Last EDR Contact: 07/21/2017

Next Scheduled EDR Contact: 11/08/2017

Data Release Frequency: Varies

### RIVERSIDE COUNTY:

#### Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/18/2017

Date Data Arrived at EDR: 04/20/2017

Date Made Active in Reports: 04/21/2017

Number of Days to Update: 1

Source: Department of Environmental Health

Telephone: 951-358-5055

Last EDR Contact: 06/19/2017

Next Scheduled EDR Contact: 10/02/2017

Data Release Frequency: Quarterly

#### Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/19/2017

Date Data Arrived at EDR: 01/25/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 98

Source: Department of Environmental Health

Telephone: 951-358-5055

Last EDR Contact: 06/19/2017

Next Scheduled EDR Contact: 10/02/2017

Data Release Frequency: Quarterly

### SACRAMENTO COUNTY:

#### Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/07/2016  
Date Data Arrived at EDR: 01/05/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 56

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/06/2017  
Next Scheduled EDR Contact: 10/16/2017  
Data Release Frequency: Quarterly

### Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/08/2016  
Date Data Arrived at EDR: 01/05/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 56

Source: Sacramento County Environmental Management  
Telephone: 916-875-8406  
Last EDR Contact: 07/06/2017  
Next Scheduled EDR Contact: 10/16/2017  
Data Release Frequency: Quarterly

### SAN BENITO COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016  
Date Data Arrived at EDR: 02/09/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 105

Source: San Benito County Environmental Health  
Telephone: N/A  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### SAN BERNARDINO COUNTY:

#### Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/09/2016  
Date Data Arrived at EDR: 12/13/2016  
Date Made Active in Reports: 03/03/2017  
Number of Days to Update: 80

Source: San Bernardino County Fire Department Hazardous Materials Division  
Telephone: 909-387-3041  
Last EDR Contact: 05/08/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

### SAN DIEGO COUNTY:

#### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 10/05/2016  
Date Data Arrived at EDR: 12/06/2016  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 86

Source: Hazardous Materials Management Division  
Telephone: 619-338-2268  
Last EDR Contact: 06/07/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015  
Date Data Arrived at EDR: 11/07/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 58

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010  
Date Data Arrived at EDR: 06/15/2010  
Date Made Active in Reports: 07/09/2010  
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health  
Telephone: 619-338-2371  
Last EDR Contact: 06/05/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: No Update Planned

### SAN FRANCISCO COUNTY:

#### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008  
Date Data Arrived at EDR: 09/19/2008  
Date Made Active in Reports: 09/29/2008  
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County  
Telephone: 415-252-3920  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

#### Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/28/2017  
Date Data Arrived at EDR: 03/02/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 62

Source: Department of Public Health  
Telephone: 415-252-3920  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Quarterly

### SAN JOAQUIN COUNTY:

#### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 03/21/2017  
Date Data Arrived at EDR: 03/23/2017  
Date Made Active in Reports: 05/09/2017  
Number of Days to Update: 47

Source: Environmental Health Department  
Telephone: N/A  
Last EDR Contact: 06/16/2017  
Next Scheduled EDR Contact: 10/02/2017  
Data Release Frequency: Semi-Annually

### SAN LUIS OBISPO COUNTY:

#### CUPA Facility List

Cupa Facility List.

Date of Government Version: 02/21/2017  
Date Data Arrived at EDR: 02/21/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 91

Source: San Luis Obispo County Public Health Department  
Telephone: 805-781-5596  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### SAN MATEO COUNTY:

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/15/2017

Date Data Arrived at EDR: 04/07/2017

Date Made Active in Reports: 05/10/2017

Number of Days to Update: 33

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921

Last EDR Contact: 06/09/2017

Next Scheduled EDR Contact: 09/25/2017

Data Release Frequency: Annually

### Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/15/2017

Date Data Arrived at EDR: 04/07/2017

Date Made Active in Reports: 04/21/2017

Number of Days to Update: 14

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921

Last EDR Contact: 06/09/2017

Next Scheduled EDR Contact: 09/25/2017

Data Release Frequency: Semi-Annually

### SANTA BARBARA COUNTY:

#### CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011

Date Data Arrived at EDR: 09/09/2011

Date Made Active in Reports: 10/07/2011

Number of Days to Update: 28

Source: Santa Barbara County Public Health Department

Telephone: 805-686-8167

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

### SANTA CLARA COUNTY:

#### Cupa Facility List

Cupa facility list

Date of Government Version: 02/22/2017

Date Data Arrived at EDR: 02/23/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 89

Source: Department of Environmental Health

Telephone: 408-918-1973

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

#### HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005

Date Data Arrived at EDR: 03/30/2005

Date Made Active in Reports: 04/21/2005

Number of Days to Update: 22

Source: Santa Clara Valley Water District

Telephone: 408-265-2600

Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009

Data Release Frequency: No Update Planned

#### LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014

Date Data Arrived at EDR: 03/05/2014

Date Made Active in Reports: 03/18/2014

Number of Days to Update: 13

Source: Department of Environmental Health

Telephone: 408-918-3417

Last EDR Contact: 05/24/2017

Next Scheduled EDR Contact: 09/11/2017

Data Release Frequency: Annually



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/04/2017  
Date Data Arrived at EDR: 05/08/2017  
Date Made Active in Reports: 07/27/2017  
Number of Days to Update: 80

Source: City of San Jose Fire Department  
Telephone: 408-535-7694  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Annually

### SANTA CRUZ COUNTY:

#### CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017  
Date Data Arrived at EDR: 02/22/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health  
Telephone: 831-464-2761  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### SHASTA COUNTY:

#### CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/14/2017  
Date Data Arrived at EDR: 03/17/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 67

Source: Shasta County Department of Resource Management  
Telephone: 530-225-5789  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Varies

### SOLANO COUNTY:

#### Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016  
Date Data Arrived at EDR: 12/21/2016  
Date Made Active in Reports: 12/22/2016  
Number of Days to Update: 1

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 06/09/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Quarterly

#### Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/15/2017  
Date Data Arrived at EDR: 03/17/2017  
Date Made Active in Reports: 05/03/2017  
Number of Days to Update: 47

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 06/09/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Quarterly

### SONOMA COUNTY:

#### Cupa Facility List

Cupa Facility list

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/01/2017  
Date Data Arrived at EDR: 03/30/2017  
Date Made Active in Reports: 05/23/2017  
Number of Days to Update: 54

Source: County of Sonoma Fire & Emergency Services Department  
Telephone: 707-565-1174  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Varies

### Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2017  
Date Data Arrived at EDR: 01/06/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 55

Source: Department of Health Services  
Telephone: 707-565-6565  
Last EDR Contact: 06/21/2017  
Next Scheduled EDR Contact: 10/09/2017  
Data Release Frequency: Quarterly

### STANISLAUS COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 01/20/2017  
Date Data Arrived at EDR: 01/24/2017  
Date Made Active in Reports: 05/18/2017  
Number of Days to Update: 114

Source: Stanislaus County Department of Environmental Protection  
Telephone: 209-525-6751  
Last EDR Contact: 07/17/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Varies

### SUTTER COUNTY:

#### Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016  
Date Data Arrived at EDR: 12/06/2016  
Date Made Active in Reports: 01/10/2017  
Number of Days to Update: 35

Source: Sutter County Department of Agriculture  
Telephone: 530-822-7500  
Last EDR Contact: 06/02/2017  
Next Scheduled EDR Contact: 09/18/2017  
Data Release Frequency: Semi-Annually

### TEHAMA COUNTY:

#### CUPA Facility List

Cupa facilities

Date of Government Version: 01/05/2017  
Date Data Arrived at EDR: 02/10/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 104

Source: Tehama County Department of Environmental Health  
Telephone: 530-527-8020  
Last EDR Contact: 05/05/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### TRINITY COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 01/23/2017  
Date Data Arrived at EDR: 01/25/2017  
Date Made Active in Reports: 05/18/2017  
Number of Days to Update: 113

Source: Department of Toxic Substances Control  
Telephone: 760-352-0381  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### TULARE COUNTY:

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### CUPA Facility List

Cupa program facilities

Date of Government Version: 01/05/2017  
Date Data Arrived at EDR: 02/10/2017  
Date Made Active in Reports: 05/25/2017  
Number of Days to Update: 104

Source: Tulare County Environmental Health Services Division  
Telephone: 559-624-7400  
Last EDR Contact: 06/29/2017  
Next Scheduled EDR Contact: 08/21/2017  
Data Release Frequency: Varies

### TUOLUMNE COUNTY:

#### CUPA Facility List

Cupa facility list

Date of Government Version: 01/25/2017  
Date Data Arrived at EDR: 01/27/2017  
Date Made Active in Reports: 03/02/2017  
Number of Days to Update: 34

Source: Divison of Environmental Health  
Telephone: 209-533-5633  
Last EDR Contact: 07/21/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Varies

### VENTURA COUNTY:

#### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2016  
Date Data Arrived at EDR: 01/27/2017  
Date Made Active in Reports: 05/10/2017  
Number of Days to Update: 103

Source: Ventura County Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 07/24/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Quarterly

#### Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011  
Date Data Arrived at EDR: 12/01/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 49

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 06/29/2017  
Next Scheduled EDR Contact: 10/16/2017  
Data Release Frequency: Annually

#### Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008  
Date Data Arrived at EDR: 06/24/2008  
Date Made Active in Reports: 07/31/2008  
Number of Days to Update: 37

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 05/15/2017  
Next Scheduled EDR Contact: 08/28/2017  
Data Release Frequency: Quarterly

#### Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016  
Date Data Arrived at EDR: 10/27/2016  
Date Made Active in Reports: 01/24/2017  
Number of Days to Update: 89

Source: Ventura County Resource Management Agency  
Telephone: 805-654-2813  
Last EDR Contact: 07/24/2017  
Next Scheduled EDR Contact: 11/08/2017  
Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2017

Date Data Arrived at EDR: 03/15/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 49

Source: Environmental Health Division

Telephone: 805-654-2813

Last EDR Contact: 06/14/2017

Next Scheduled EDR Contact: 09/25/2017

Data Release Frequency: Quarterly

### YOLO COUNTY:

#### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 03/31/2017

Date Data Arrived at EDR: 04/06/2017

Date Made Active in Reports: 05/03/2017

Number of Days to Update: 27

Source: Yolo County Department of Health

Telephone: 530-666-8646

Last EDR Contact: 06/29/2017

Next Scheduled EDR Contact: 10/16/2017

Data Release Frequency: Annually

### YUBA COUNTY:

#### CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 01/30/2017

Date Data Arrived at EDR: 01/31/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 112

Source: Yuba County Environmental Health Department

Telephone: 530-749-7523

Last EDR Contact: 07/27/2017

Next Scheduled EDR Contact: 11/13/2017

Data Release Frequency: Varies

### OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

#### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013

Date Data Arrived at EDR: 08/19/2013

Date Made Active in Reports: 10/03/2013

Number of Days to Update: 45

Source: Department of Energy & Environmental Protection

Telephone: 860-424-3375

Last EDR Contact: 05/15/2017

Next Scheduled EDR Contact: 08/28/2017

Data Release Frequency: No Update Planned

#### NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016

Date Data Arrived at EDR: 04/11/2017

Date Made Active in Reports: 07/27/2017

Number of Days to Update: 107

Source: Department of Environmental Protection

Telephone: N/A

Last EDR Contact: 07/10/2017

Next Scheduled EDR Contact: 10/23/2017

Data Release Frequency: Annually

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/30/2017  
Date Data Arrived at EDR: 02/01/2017  
Date Made Active in Reports: 02/13/2017  
Number of Days to Update: 12

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 05/03/2017  
Next Scheduled EDR Contact: 08/14/2017  
Data Release Frequency: Annually

### PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015  
Date Data Arrived at EDR: 07/22/2016  
Date Made Active in Reports: 11/22/2016  
Number of Days to Update: 123

Source: Department of Environmental Protection  
Telephone: 717-783-8990  
Last EDR Contact: 07/17/2017  
Next Scheduled EDR Contact: 10/30/2017  
Data Release Frequency: Annually

### RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 06/19/2015  
Date Made Active in Reports: 07/15/2015  
Number of Days to Update: 26

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 05/22/2017  
Next Scheduled EDR Contact: 09/04/2017  
Data Release Frequency: Annually

### WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016  
Date Data Arrived at EDR: 04/13/2017  
Date Made Active in Reports: 07/14/2017  
Number of Days to Update: 92

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 06/12/2017  
Next Scheduled EDR Contact: 09/25/2017  
Data Release Frequency: Annually

### Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

### Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

### AHA Hospitals:

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

### Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services  
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

### Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

### Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

### Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

**Flood Zone Data:** This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

**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

### Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## **STREET AND ADDRESS INFORMATION**

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## **GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM**

### **TARGET PROPERTY ADDRESS**

PROPOSED FAITH BIBLE CHURCH  
GLAZEBROOK RD. & DEPASQUALE RD.  
WILDOMAR, CA 92595

### **TARGET PROPERTY COORDINATES**

Latitude (North):	33.604174 - 33° 36' 15.03"
Longitude (West):	117.249531 - 117° 14' 58.31"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	476849.5
UTM Y (Meters):	3718103.8
Elevation:	1366 ft. above sea level

### **USGS TOPOGRAPHIC MAP**

Target Property Map:	5641304 MURRIETA, CA
Version Date:	2012
Southwest Map:	5636487 WILDOMAR, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

## 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).

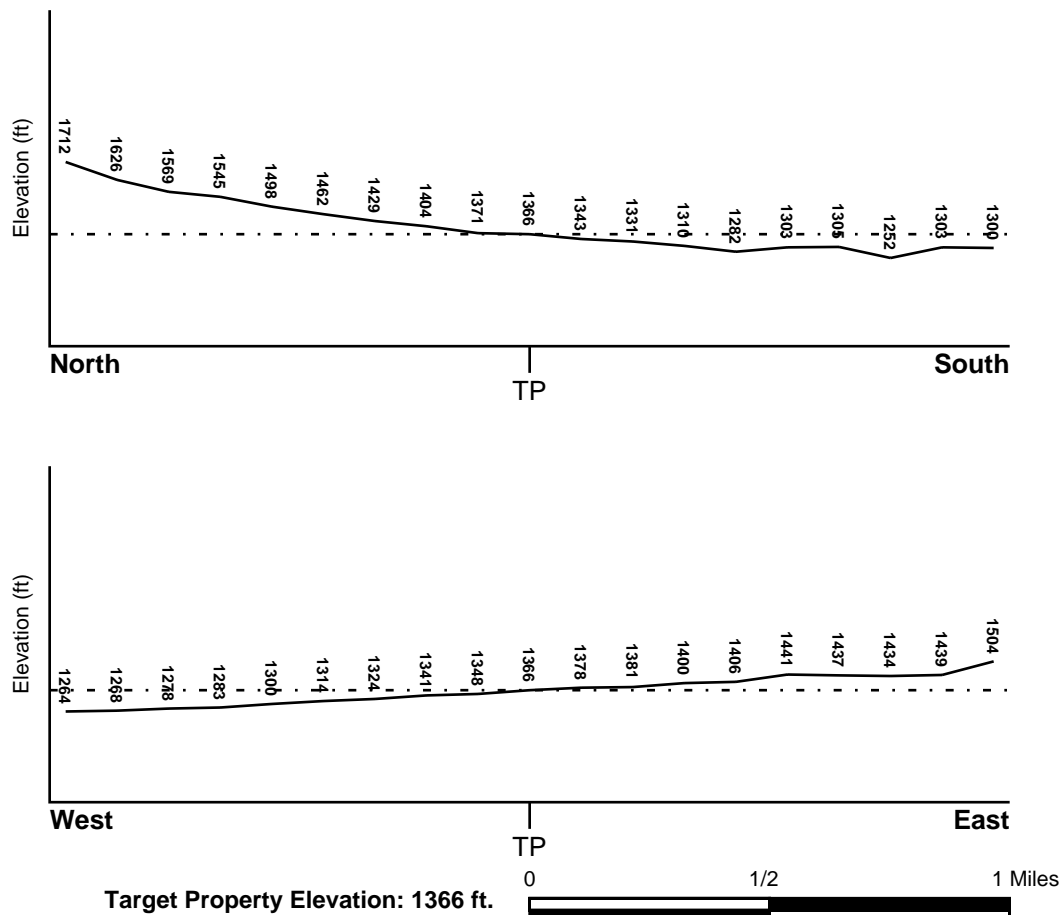
### TOPOGRAPHIC INFORMATION

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 SSW

### SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



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

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06065C2705G	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06065C2682G	FEMA FIRM Flood data
06065C2684G	FEMA FIRM Flood data

### NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
MURRIETA	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.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## **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**

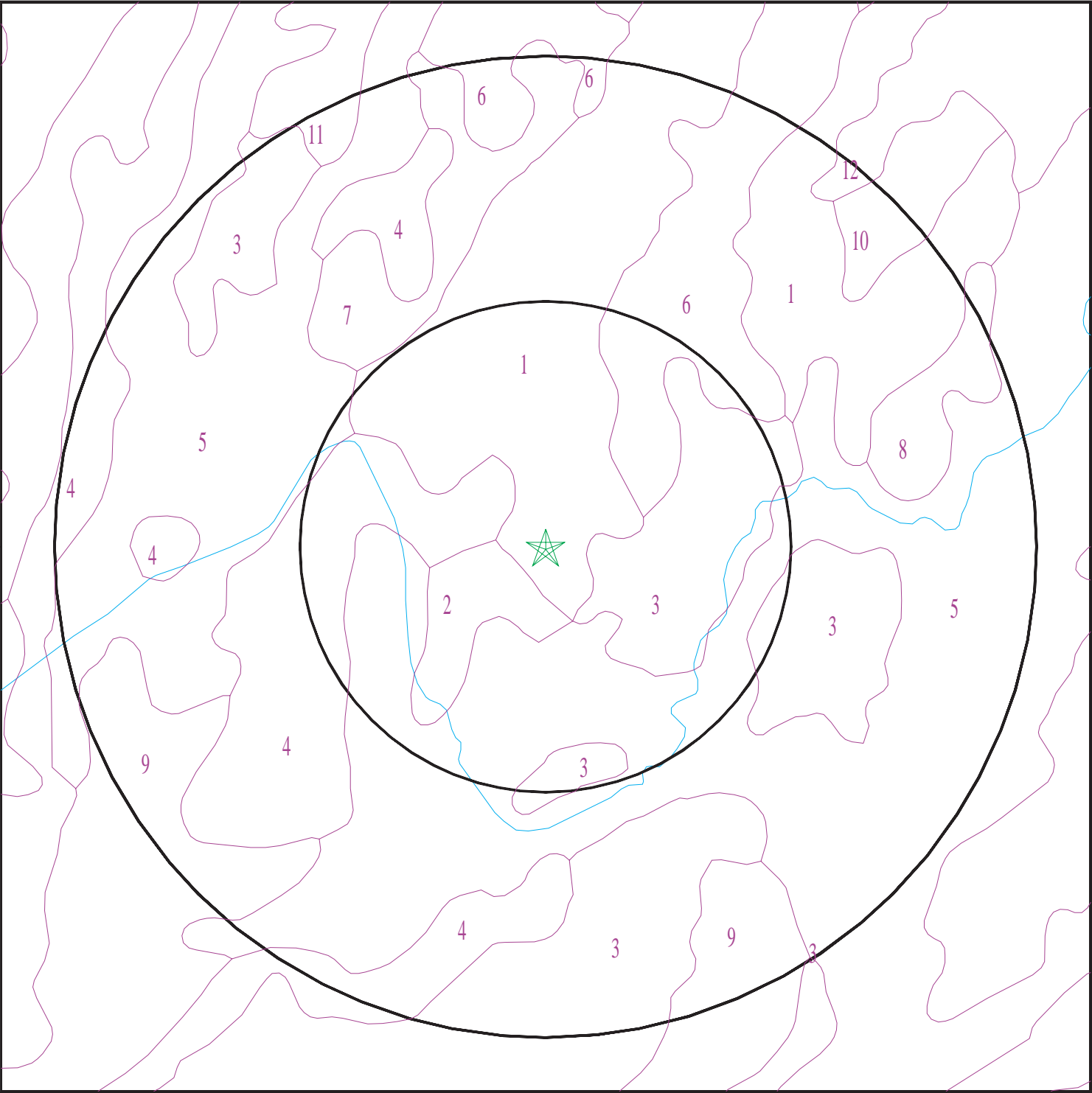
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q (decoded above as Era, System & Series)

#### **GEOLOGIC AGE IDENTIFICATION**

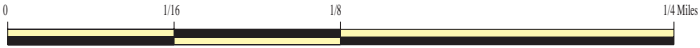
Category: Stratified Sequence

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).

SSURGO SOIL MAP - 05006571.2r



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: Proposed Faith Bible Church  
ADDRESS: Glazebrook Rd. & Depasquale Rd.  
Wildomar CA 92595  
LAT/LONG: 33.604174 / 117.249531

CLIENT: Remediation Sciences  
CONTACT: Yonathan Yoseph  
INQUIRY #: 05006571.2r  
DATE: July 28, 2017 8:12 am

## **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.

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#### **Soil Map ID: 1**

Soil Component Name: Terrace escarpments

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

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#### **Soil Map ID: 2**

Soil Component Name: MONSERATE

Soil Surface Texture: sandy 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	18 inches	sandy 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: 7.3 Min: 6.1
3	18 inches	44 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	44 inches	57 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
5	57 inches	70 inches	loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### Soil Map ID: 3

Soil Component Name: PLACENTIA

Soil Surface Texture: fine sandy 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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 5.6
2	18 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
3	38 inches	57 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: 8.4 Min: 7.4
4	57 inches	59 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9

### Soil Map ID: 4

Soil Component Name: MONSERATE

Soil Surface Texture: sandy 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	18 inches	sandy 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: 7.3 Min: 6.1
3	18 inches	44 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	44 inches	57 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
5	57 inches	70 inches	loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### Soil Map ID: 5

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

### Soil Map ID: 6

Soil Component Name: CIENEBA

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 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: 42 Min: 14	Max: 7.3 Min: 5.1
2	14 inches	22 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

### Soil Map ID: 7

Soil Component Name: PLACENTIA

Soil Surface Texture: fine sandy 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

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 5.6
2	18 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
3	38 inches	57 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: 8.4 Min: 7.4
4	57 inches	59 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9

### Soil Map ID: 8

Soil Component Name: YOKOHL

Soil Surface Texture: 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: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 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: 6.1



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	5 inches	20 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1
3	20 inches	24 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	24 inches	59 inches	stratified sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	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: 8.4 Min: 6.6

### Soil Map ID: 9

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 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: 42 Min: 14	Max: 7.8 Min: 6.1
2	25 inches	42 inches	fine 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: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 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%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
4	59 inches	72 inches	stratified loamy sand to 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: 42 Min: 14	Max: 8.4 Min: 6.6

### Soil Map ID: 10

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
2	9 inches	27 inches	sandy 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: 7.3 Min: 6.1
3	27 inches	44 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	44 inches	57 inches	cemented	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
5	57 inches	70 inches	loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### Soil Map ID: 11

Soil Component Name: CAJALCO

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	12 inches	fine 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: 42 Min: 14	Max: 7.3 Min: 6.1
2	12 inches	18 inches	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: 14 Min: 4	Max: 7.3 Min: 6.6
3	18 inches	61 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

### Soil Map ID: 12

Soil Component Name: CIENEBA

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 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: 42 Min: 14	Max: 7.3 Min: 5.1

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	14 inches	22 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

### 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.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A1	USGS40000135821	1/8 - 1/4 Mile South
A2	USGS40000135822	1/8 - 1/4 Mile South
B4	USGS40000135805	1/4 - 1/2 Mile SSW
C6	USGS40000135776	1/4 - 1/2 Mile South
D8	USGS40000135998	1/2 - 1 Mile NNE
9	USGS40000136005	1/2 - 1 Mile North
E10	USGS40000135746	1/2 - 1 Mile South
D11	USGS40000136004	1/2 - 1 Mile NNE
D12	USGS40000136007	1/2 - 1 Mile NNE
F13	USGS40000135784	1/2 - 1 Mile SW
D14	USGS40000136006	1/2 - 1 Mile NNE
15	USGS40000136011	1/2 - 1 Mile North
E18	USGS40000135733	1/2 - 1 Mile South
G20	USGS40000135771	1/2 - 1 Mile SE
H21	USGS40000135999	1/2 - 1 Mile NW
23	USGS40000136032	1/2 - 1 Mile North
H24	USGS40000136008	1/2 - 1 Mile NW
25	USGS40000135747	1/2 - 1 Mile SW
I28	USGS40000135723	1/2 - 1 Mile SSE
I29	USGS40000135724	1/2 - 1 Mile SSE
J30	USGS40000135749	1/2 - 1 Mile SW

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
32	USGS40000135704	1/2 - 1 Mile South
33	USGS40000135707	1/2 - 1 Mile SSE
34	USGS40000135789	1/2 - 1 Mile WSW
L35	USGS40000135766	1/2 - 1 Mile WSW
K37	USGS40000135745	1/2 - 1 Mile SE
39	USGS40000135799	1/2 - 1 Mile WSW
M40	USGS40000135718	1/2 - 1 Mile SW
M41	USGS40000135714	1/2 - 1 Mile SW
N42	USGS40000135692	1/2 - 1 Mile SSW
N43	USGS40000135687	1/2 - 1 Mile SSW
N45	USGS40000135694	1/2 - 1 Mile SSW

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

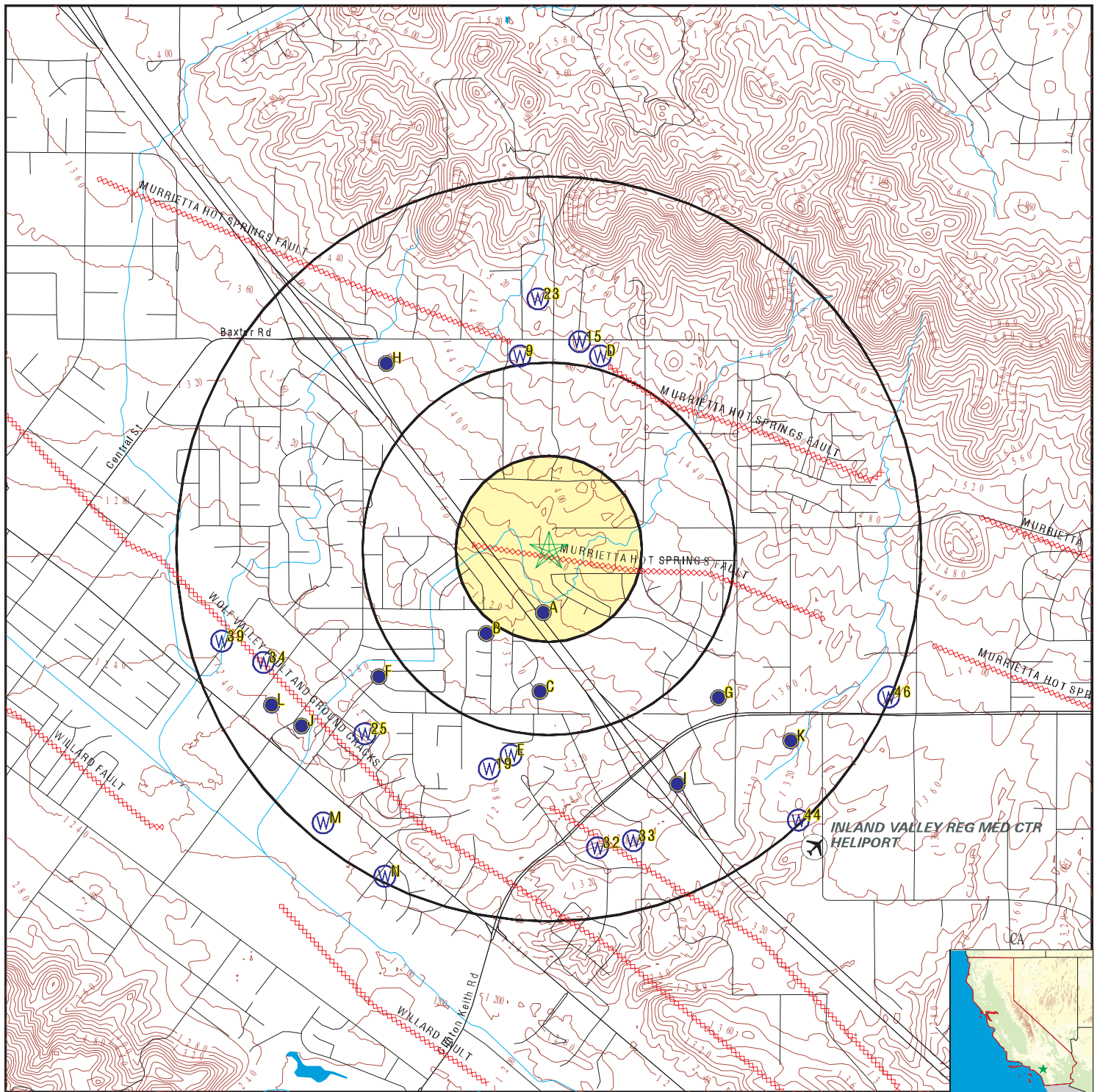
Note: PWS System location is not always the same as well location.

### STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	CADW600000021260	1/8 - 1/4 Mile SSW
B5	CADW600000021878	1/4 - 1/2 Mile SW
C7	CADW600000021261	1/4 - 1/2 Mile South
G16	CADW600000021879	1/2 - 1 Mile SE
F17	CADW600000008667	1/2 - 1 Mile SW
19	CADW600000021577	1/2 - 1 Mile SSW
H22	CADW600000021259	1/2 - 1 Mile NW
I26	CADW600000021576	1/2 - 1 Mile SSE
I27	CADW600000035853	1/2 - 1 Mile SSE
K31	CADW600000027516	1/2 - 1 Mile SE
J36	CADW600000034066	1/2 - 1 Mile SW
L38	CADW600000021258	1/2 - 1 Mile WSW
44	CADW600000027517	1/2 - 1 Mile SE
46	CADW600000023712	1/2 - 1 Mile ESE



# PHYSICAL SETTING SOURCE MAP - 05006571.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar CA 92595  
 LAT/LONG: 33.604174 / 117.249531

CLIENT: Remediation Sciences  
 CONTACT: Yonathan Yoseph  
 INQUIRY #: 05006571.2r  
 DATE: July 28, 2017 8:11 am

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

**A1**  
**South**  
**1/8 - 1/4 Mile**  
**Lower**

**FED USGS USGS40000135821**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333606117145501		
Monloc name:	006S004W36L001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6016905
Longitude:	-117.2494806	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1320.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	65
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	54.00	

**A2**  
**South**  
**1/8 - 1/4 Mile**  
**Lower**

**FED USGS USGS40000135822**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333606117145502		
Monloc name:	006S004W36L002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6016905
Longitude:	-117.2494806	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1320.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	37
Construction date:	Not Reported	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**A3**  
**SSW**  
**1/8 - 1/4 Mile**  
**Lower**

**CA WELLS**      **CADW60000021260**

Objectid:	21260
Latitude:	33.6017
Longitude:	-117.2504
Site code:	336017N1172504W001
State well numbe:	06S04W36L001S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000021260

**B4**  
**SSW**  
**1/4 - 1/2 Mile**  
**Lower**

**FED USGS**      **USGS40000135805**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333603117150401		
Monloc name:	006S004W36P002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6008571
Longitude:	-117.2519807	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1310.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19630101	Welldepth:	309
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	39.00	

**B5**  
**SW**  
**1/4 - 1/2 Mile**  
**Lower**

**CA WELLS**

**CADW60000021878**

Objectid: 21878  
Latitude: 33.6009  
Longitude: -117.2529  
Site code: 336009N1172529W001  
State well numbe: 06S04W36P002S  
Local well name: "  
Well use id: 6  
Well use descrip: Unknown  
County id: 33  
County name: Riverside  
Basin code: '9-5'  
Basin desc: Temecula Valley  
Dwr region id: 80238  
Dwr region: Southern Region Office  
Site id: CADW60000021878

**C6**  
**South**  
**1/4 - 1/2 Mile**  
**Lower**

**FED USGS**

**USGS40000135776**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333555117145501		
Monloc name:	006S004W36P001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.598635
Longitude:	-117.2494806	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1297.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19600101	Welldepth:	79
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	56.00	

**C7**  
**South**  
**1/4 - 1/2 Mile**  
**Lower**

**CA WELLS**      **CADW60000021261**

Objectid:	21261
Latitude:	33.5986
Longitude:	-117.2504
Site code:	335986N1172504W001
State well numbe:	06S04W36P001S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000021261

**D8**  
**NNE**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS**      **USGS40000135998**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333640117144601		
Monloc name:	006S004W36B005S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6111347
Longitude:	-117.2469805	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsyz:	NAD83	Vert measure val:	1460.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsyz:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19630101	Welldepth:	184
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	55.00	

**9**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS USGS40000136005**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333642117150001		
Monloc name:	006S004W36C001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6116902
Longitude:	-117.2508696	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1480.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19530101	Welldepth:	80
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**E10**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135746**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333548117150101		
Monloc name:	007S004W01C001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5966906
Longitude:	-117.2511473	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1300.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	Not Reported
Construction date:	Not Reported	Wellholeddepth:	Not Reported
Welldepth units:	Not Reported		
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**D11**  
**NNE**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS USGS40000136004**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333642117144601		
Monloc name:	006S004W36B003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6116902
Longitude:	-117.2469805	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1460.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19460101	Welldepth:	68
Welldepth units:	ft	Wellholeddepth:	Not Reported
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**D12**  
**NNE**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS USGS40000136007**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333643117144801		
Monloc name:	006S004W36B002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.611968
Longitude:	-117.2475361	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1480.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	73
Construction date:	19560101	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	67.00	

**F13**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135784**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333557117152201		
Monloc name:	006S004W36N001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5991905
Longitude:	-117.2569808	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1270.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19540101	Welldepth:	190
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	44.00	

**D14**  
**NNE**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS USGS40000136006**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333643117144601		
Monloc name:	006S004W36B004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.611968
Longitude:	-117.2469805	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1460.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	74
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1968-03-01	64.00	

**15**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS      USGS40000136011**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333644117145001		
Monloc name:	006S004W36B001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6122458
Longitude:	-117.2480917	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1470.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	80
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**G16**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      CADW60000021879**

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid: 21879  
Latitude: 33.5984  
Longitude: -117.2421  
Site code: 335984N1172421W001  
State well numbe: 06S04W36R001S  
Local well name: "  
Well use id: 6  
Well use descrip: Unknown  
County id: 33  
County name: Riverside  
Basin code: '9-5'  
Basin desc: Temecula Valley  
Dwr region id: 80238  
Dwr region: Southern Region Office  
Site id: CADW60000021879

**F17  
SW  
1/2 - 1 Mile  
Lower**

CA WELLS CADW60000008667

Objectid: 8667  
Latitude: 33.5992  
Longitude: -117.2579  
Site code: 335992N1172579W001  
State well numbe: 06S04W36N001S  
Local well name: "  
Well use id: 6  
Well use descrip: Unknown  
County id: 33  
County name: Riverside  
Basin code: '9-5'  
Basin desc: Temecula Valley  
Dwr region id: 80238  
Dwr region: Southern Region Office  
Site id: CADW60000008667

**E18  
South  
1/2 - 1 Mile  
Lower**

FED USGS USGS40000135733

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333544117150201		
Monloc name:	007S004W01C002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5955795
Longitude:	-117.251425	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1280.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	90
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	15.00	

**19**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS**      **CADW60000021577**

Objectid:	21577
Latitude:	33.5956
Longitude:	-117.2523
Site code:	335956N1172523W001
State well numbe:	07S04W01C002S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000021577

**G20**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS**      **USGS40000135771**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333554117142501		
Monloc name:	006S004W36R001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5983573
Longitude:	-117.2411469	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1328.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19610101	Welldepth:	132
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	37.00	

**H21**  
**NW**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS**

**USGS40000135999**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333640117152101		
Monloc name:	006S004W36D002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6111346
Longitude:	-117.2567031	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1395.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19540101	Welldepth:	289
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	53.00	

**H22**  
**NW**  
**1/2 - 1 Mile**  
**Higher**

**CA WELLS**

**CADW60000021259**



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid: 21259  
 Latitude: 33.6111  
 Longitude: -117.2576  
 Site code: 336111N1172576W001  
 State well numbe: 06S04W36D002S  
 Local well name: "  
 Well use id: 6  
 Well use descrip: Unknown  
 County id: 33  
 County name: Riverside  
 Basin code: '9-5'  
 Basin desc: Temecula Valley  
 Dwr region id: 80238  
 Dwr region: Southern Region Office  
 Site id: CADW60000021259

**23**  
**North**  
**1/2 - 1 Mile**  
**Lower**

FED USGS      USGS40000136032

Org. Identifier: USGS-CA	
Formal name: USGS California Water Science Center	
Monloc Identifier: USGS-333650117145701	
Monloc name: 006S004W25P001S	
Monloc type: Well	
Monloc desc: Not Reported	
Huc code: 18070302	Drainagearea value: Not Reported
Drainagearea Units: Not Reported	Contrib drainagearea: Not Reported
Contrib drainagearea units: Not Reported	Latitude: 33.6139124
Longitude: -117.2500363	Sourcemap scale: Not Reported
Horiz Acc measure: 1	Horiz Acc measure units: seconds
Horiz Collection method: Interpolated from map	
Horiz coord refsys: NAD83	Vert measure val: 1550.00
Vert measure units: feet	Vertacc measure val: 20
Vert accmeasure units: feet	
Vertcollection method: Interpolated from topographic map	
Vert coord refsys: NGVD29	Countrycode: US
Aquifername: Other aquifers	
Formation type: Not Reported	
Aquifer type: Not Reported	
Construction date: 19660101	Welldepth: 200
Welldepth units: ft	Wellholedepth: Not Reported
Wellholedepth units: Not Reported	

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel
-----		
1968-03-01	116.00	

**H24**  
**NW**  
**1/2 - 1 Mile**  
**Higher**

FED USGS      USGS40000136008

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333643117152201		
Monloc name:	006S004W36D001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6119679
Longitude:	-117.2569809	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1405.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	40
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**25**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS**

**USGS40000135747**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333549117152601		
Monloc name:	007S004W02A001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5969683
Longitude:	-117.258092	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1250.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19560101	Welldepth:	133
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database      EDR ID Number

**I26**  
**SSE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      CADW60000021576**

Objectid: 21576  
Latitude: 33.595  
Longitude: -117.244  
Site code: 335950N1172440W001  
State well numbe: 07S04W01A001S  
Local well name: "  
Well use id: 6  
Well use descrip: Unknown  
County id: 33  
County name: Riverside  
Basin code: '9-5'  
Basin desc: Temecula Valley  
Dwr region id: 80238  
Dwr region: Southern Region Office  
Site id: CADW60000021576

**I27**  
**SSE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      CADW60000035853**

Objectid: 35853  
Latitude: 33.595  
Longitude: -117.244  
Site code: 335950N1172440W002  
State well numbe: 07S04W01A002S  
Local well name: "  
Well use id: 6  
Well use descrip: Unknown  
County id: 33  
County name: Riverside  
Basin code: '9-5'  
Basin desc: Temecula Valley  
Dwr region id: 80238  
Dwr region: Southern Region Office  
Site id: CADW60000035853

**I28**  
**SSE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000135723**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333542117143201		
Monloc name:	007S004W01A001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.595024
Longitude:	-117.2430914	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1298.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19490101	Welldepth:	187
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	78.00	

**I29**  
**SSE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135724**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333542117143202		
Monloc name:	007S004W01A002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.595024
Longitude:	-117.2430914	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1298.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19510101	Welldepth:	167
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	79.00	

**J30**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135749**

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333550117153501		
Monloc name:	007S004W02A002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5972461
Longitude:	-117.260592	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1220.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	170
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1968-03-01	12.00	

**K31**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      CADW60000027516**

Objectid:	27516
Latitude:	33.5967
Longitude:	-117.2387
Site code:	335967N1172387W001
State well numbe:	07S03W06D001S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000027516

**32**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000135704**

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333533117144701		
Monloc name:	007S004W01G002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5925241
Longitude:	-117.2472582	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1255.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**33**  
**SSE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000135707**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333534117144101		
Monloc name:	007S004W01G001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5928018
Longitude:	-117.2455915	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1270.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	20
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

**34**  
**WSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135789**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333559117154301		
Monloc name:	006S004W35Q001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.599746
Longitude:	-117.2628144	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1245.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**L35**  
**WSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135766**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333553117154001		
Monloc name:	006S004W35Q002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5980794
Longitude:	-117.261981	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1240.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	80
Construction date:	19530101	Wellholeddepth:	Not Reported
Welldepth units:	ft		
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1968-03-01	25.00	

**J36**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS CADW60000034066**

Objectid:	34066
Latitude:	33.5973
Longitude:	-117.2615
Site code:	335973N1172615W001
State well numbe:	07S04W02A002S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000034066

**K37**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135745**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333548117141301		
Monloc name:	007S003W06D001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5966907
Longitude:	-117.2378134	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1315.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	258
Construction date:	Not Reported	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-02-01	12.00	

**L38**  
**WSW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS**      **CADW60000021258**

Objectid:	21258
Latitude:	33.5981
Longitude:	-117.2629
Site code:	335981N1172629W001
State well numbe:	06S04W35Q002S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000021258

**39**  
**WSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS**      **USGS40000135799**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333602117155001		
Monloc name:	006S004W35Q003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.6005793
Longitude:	-117.2647589	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1240.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	150
Construction date:	19570101	Wellholeddepth:	Not Reported
Welldepth units:	ft		
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**M40**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135718**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333537117153201		
Monloc name:	007S004W02H001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5936351
Longitude:	-117.2597587	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsyz:	NAD83	Vert measure val:	1205.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsyz:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19130101	Welldepth:	46
Welldepth units:	ft	Wellholeddepth:	Not Reported
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**M41**  
**SW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135714**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333536117153401		
Monloc name:	007S004W02H002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5933573
Longitude:	-117.2603142	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsyz:	NAD83	Vert measure val:	1205.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsyz:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	63
Construction date:	Not Reported	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	35.00	

**N42**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135692**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333529117152201		
Monloc name:	007S004W01E002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5914129
Longitude:	-117.2569808	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1205.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19510101	Welldepth:	104
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	34.00	

**N43**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000135687**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333528117152001		
Monloc name:	007S004W01E001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5911352
Longitude:	-117.2564252	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1203.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	123
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-03-01	32.00	

**44**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS**      **CADW60000027517**

Objectid:	27517
Latitude:	33.5936
Longitude:	-117.2379
Site code:	335936N1172379W001
State well numbe:	07S03W06E001S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000027517

**N45**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS**      **USGS40000135694**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-333530117152601		
Monloc name:	007S004W02H004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070302	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.5916907
Longitude:	-117.2580919	Sourcemap scale:	Not Reported

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	1205.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19640101	Welldepth:	125
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1968-03-01	29.00	

**46**  
**ESE**  
**1/2 - 1 Mile**  
**Higher**

**CA WELLS      CADW60000023712**

Objectid:	23712
Latitude:	33.5984
Longitude:	-117.2337
Site code:	335984N1172337W001
State well numbe:	06S03W31P001S
Local well name:	"
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	'9-5'
Basin desc:	Temecula Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000023712



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

### AREA RADON INFORMATION

State Database: CA Radon

#### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92595	5	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level  $\geq 2$  pCi/L and  $\leq 4$  pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

---

#### Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

# 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 was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

**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<sup>R</sup> 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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**APPENDIX F**  
**EDR HISTORICAL TOPOGRAPHIC MAP REPORT**



Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.4  
July 27, 2017

# EDR Historical Topo Map Report

## with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

07/27/17

**Site Name:**

Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale  
Wildomar, CA 92595  
EDR Inquiry # 5006571.4

**Client Name:**

Remediation Sciences  
3822 Campus Drive  
Newport Beach, CA 92660-0000  
Contact: Yonathan Yoseph



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Remediation Sciences were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

<b>P.O.#</b>	17-0154	<b>Latitude:</b>	33.604174 33° 36' 15" North
<b>Project:</b>	Proposed Faith Bible Church	<b>Longitude:</b>	-117.249531 -117° 14' 58" West
		<b>UTM Zone:</b>	Zone 11 North
		<b>UTM X Meters:</b>	476849.99
		<b>UTM Y Meters:</b>	3718296.89
		<b>Elevation:</b>	1364.99' above sea level

**Maps Provided:**

2012	1942
1997	1901
1988	
1979, 1982	
1973, 1978	
1953	
1947	
1943	

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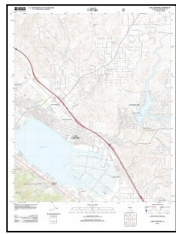
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## Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

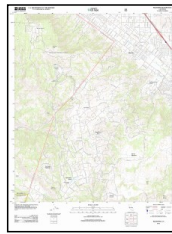
### 2012 Source Sheets



Lake Elsinore  
2012  
7.5-minute, 24000



Romoland  
2012  
7.5-minute, 24000



Wildomar  
2012  
7.5-minute, 24000

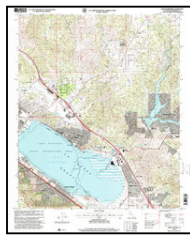


Murrieta  
2012  
7.5-minute, 24000

### 1997 Source Sheets

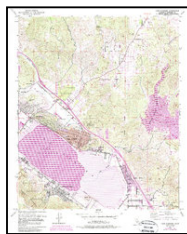


Wildomar  
1997  
7.5-minute, 24000  
Aerial Photo Revised 1994



Lake Elsinore  
1997  
7.5-minute, 24000  
Aerial Photo Revised 1994

### 1988 Source Sheets



Lake Elsinore  
1988  
7.5-minute, 24000  
Aerial Photo Revised 1985



Wildomar  
1988  
7.5-minute, 24000  
Aerial Photo Revised 1985

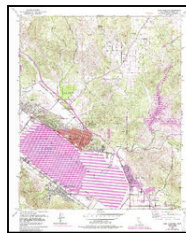
### 1979, 1982 Source Sheets



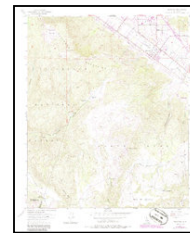
Romoland  
1979  
7.5-minute, 24000  
Aerial Photo Revised 1976



Murrieta  
1979  
7.5-minute, 24000  
Aerial Photo Revised 1976



Lake Elsinore  
1982  
7.5-minute, 24000  
Aerial Photo Revised 1980

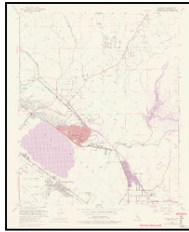


Wildomar  
1982  
7.5-minute, 24000  
Aerial Photo Revised 1980

## Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

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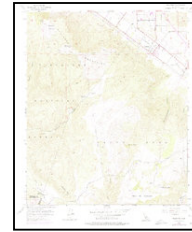
Elsinore  
1973  
7.5-minute, 24000  
Aerial Photo Revised 1973



Murrieta  
1973  
7.5-minute, 24000  
Aerial Photo Revised 1973



Romoland  
1973  
7.5-minute, 24000  
Aerial Photo Revised 1973

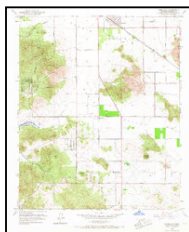


Wildomar  
1973  
7.5-minute, 24000  
Aerial Photo Revised 1973



Lake Elsinore  
1978  
7.5-minute, 24000  
Aerial Photo Revised 1978

### 1953 Source Sheets



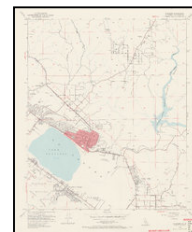
Romoland  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1951



Murrieta  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1951

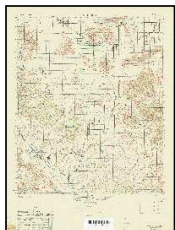


Wildomar  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1951



Elsinore  
1953  
7.5-minute, 24000  
Aerial Photo Revised 1951

### 1947 Source Sheets

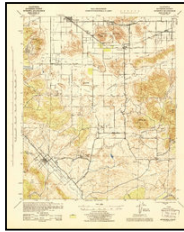


MURRIETA  
1947  
15-minute, 50000

## ***Topo Sheet Key***

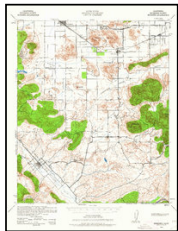
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **1943 Source Sheets**



Murrieta  
1943  
15-minute, 62500  
Aerial Photo Revised 1939

### **1942 Source Sheets**



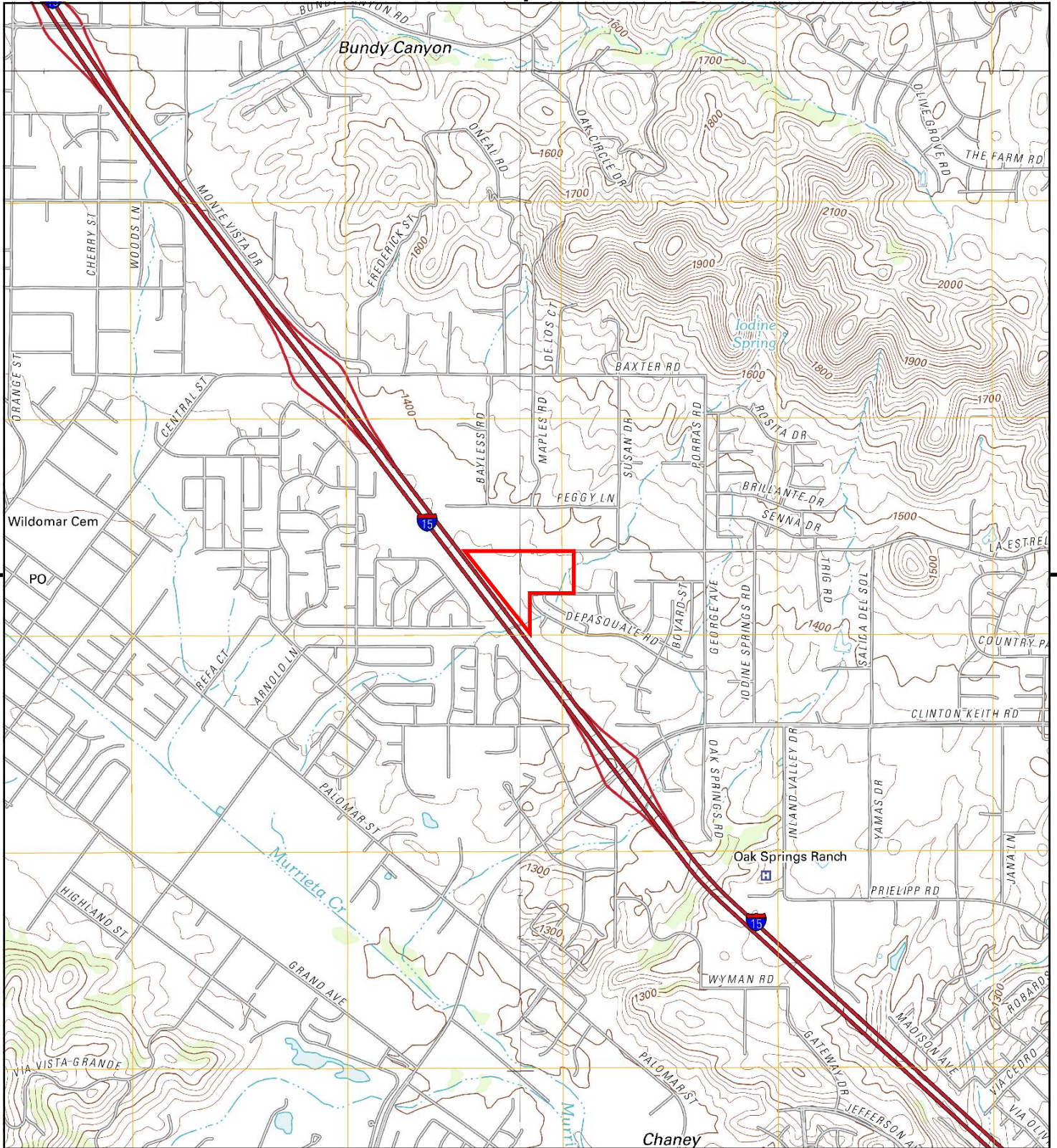
Murrieta  
1942  
15-minute, 62500  
Aerial Photo Revised 1939

### **1901 Source Sheets**

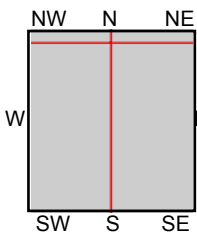


Elsinore  
1901  
30-minute, 125000





This report includes information from the following map sheet(s).

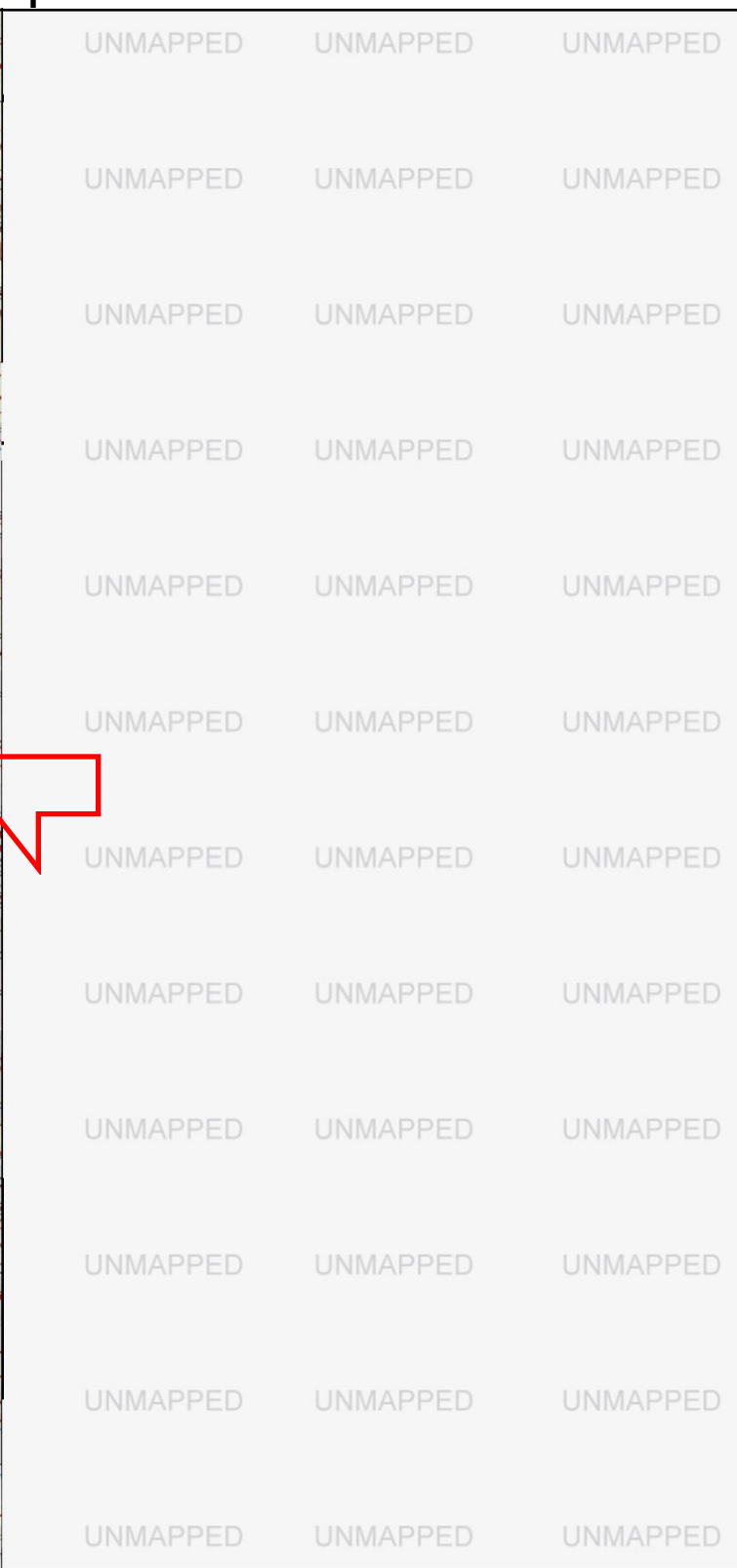


TP, Murrieta, 2012, 7.5-minute  
NE, Romoland, 2012, 7.5-minute  
SW, Wildomar, 2012, 7.5-minute  
NW, Lake Elsinore, 2012, 7.5-minute

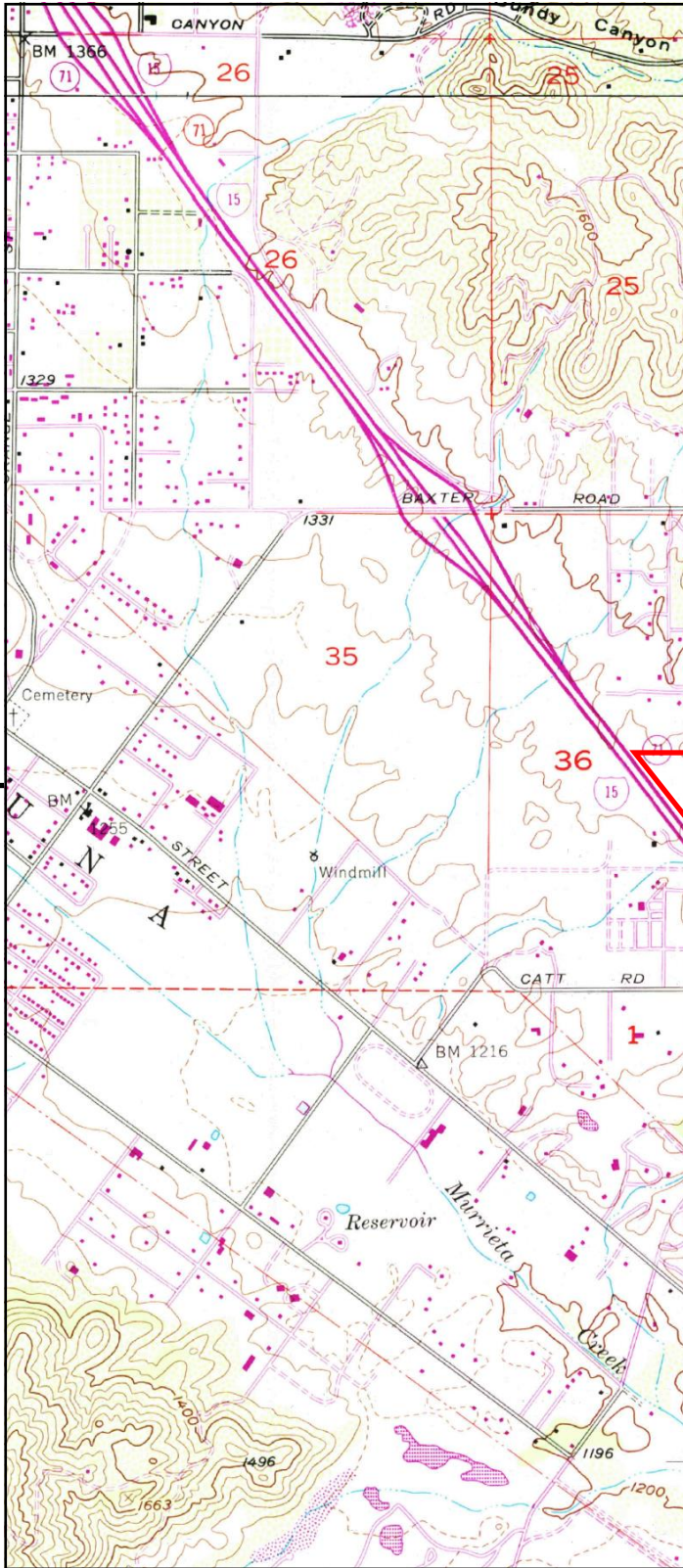
**SITE NAME:** Proposed Faith Bible Church  
**ADDRESS:** Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595  
**CLIENT:** Remediation Sciences



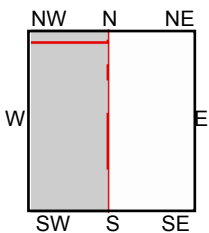
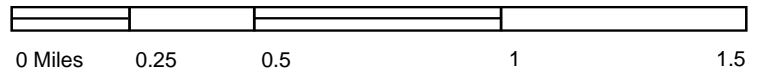








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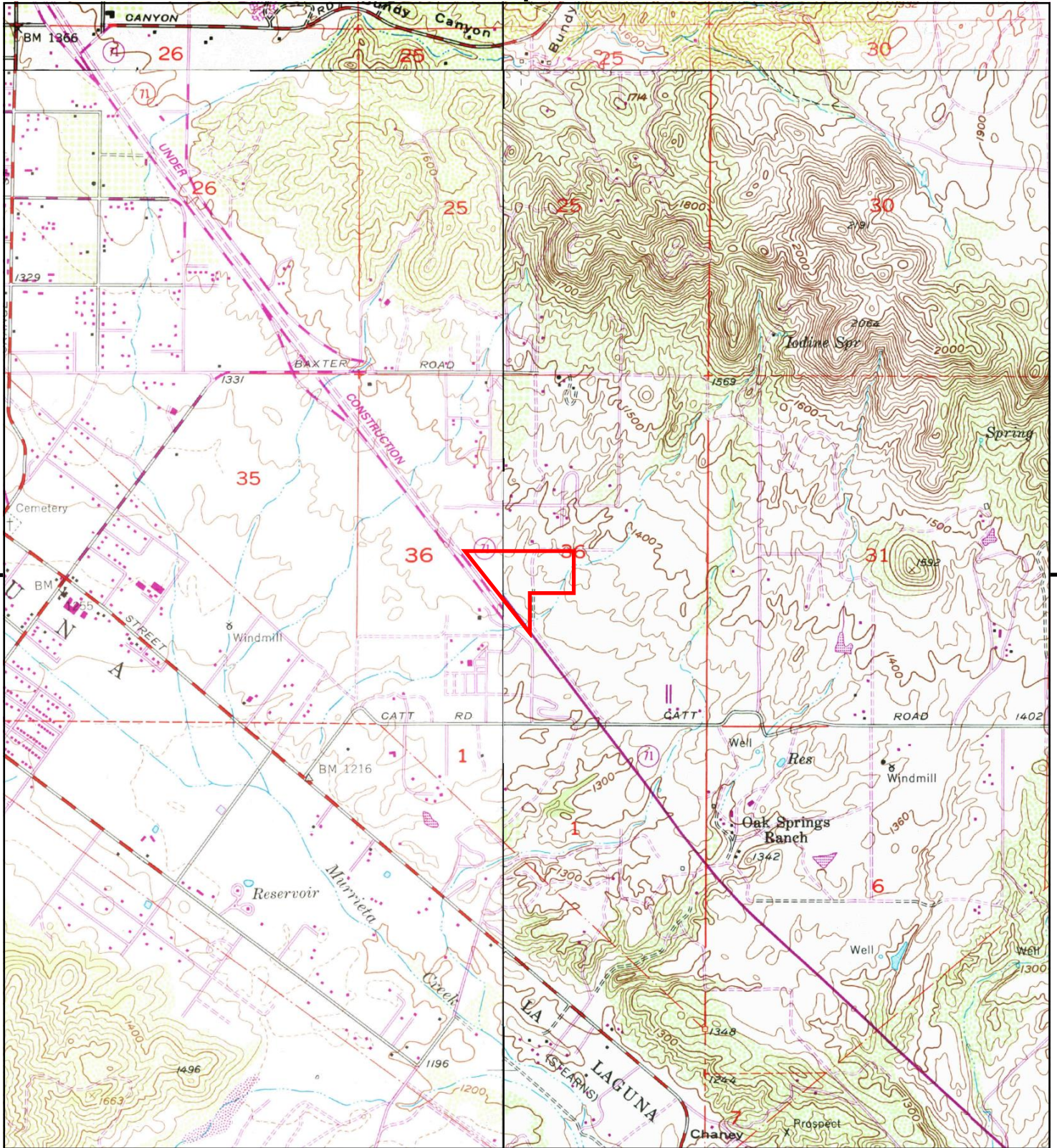


SW, Wildomar, 1988, 7.5-minute  
NW, Lake Elsinore, 1988, 7.5-minute

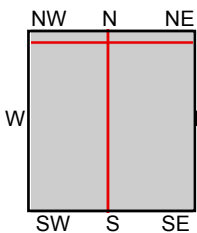
SITE NAME: Proposed Faith Bible Church  
ADDRESS: Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595  
CLIENT: Remediation Sciences







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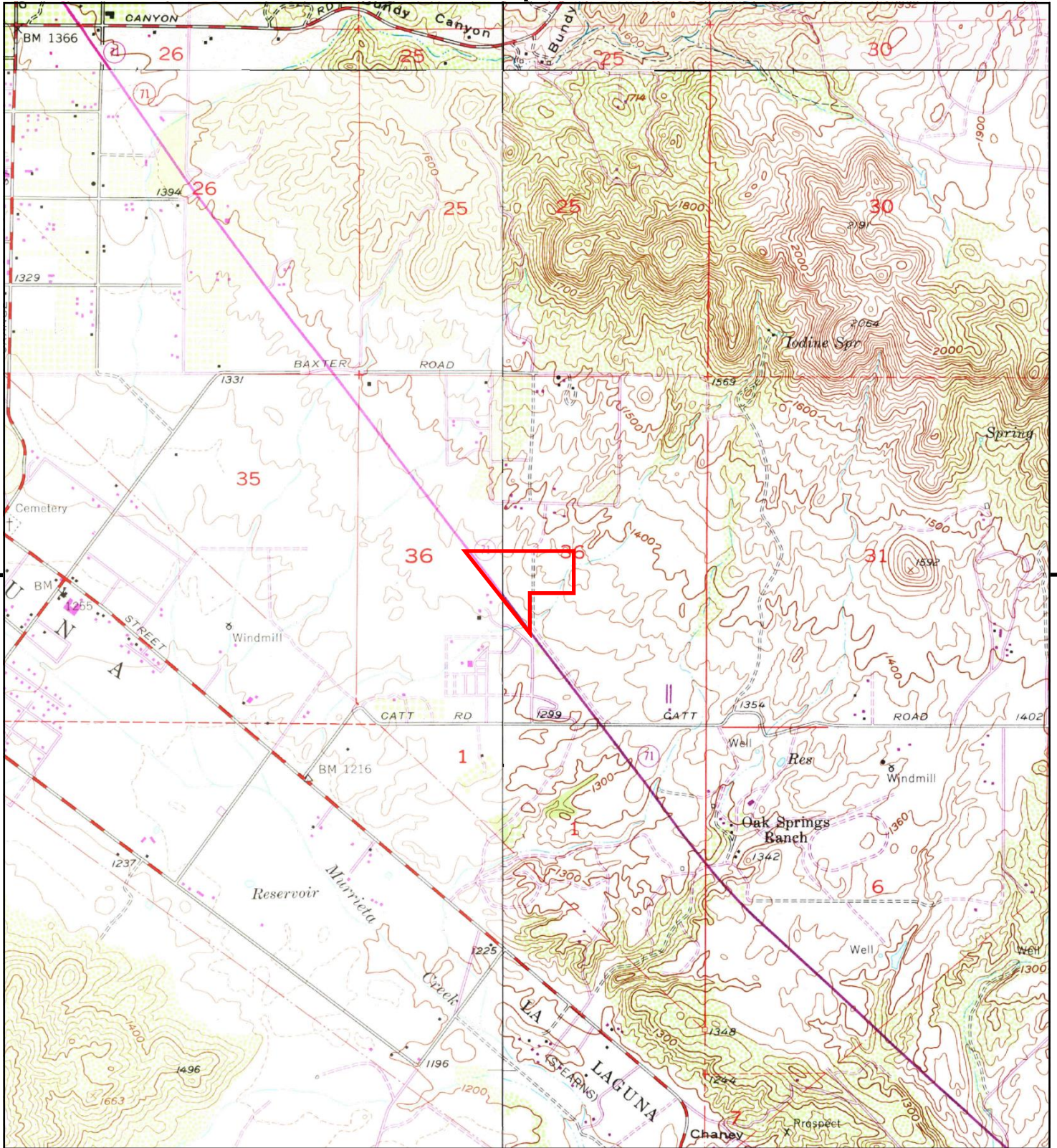


TP, Murrieta, 1979, 7.5-minute  
NE, Romoland, 1979, 7.5-minute  
SW, Wildomar, 1982, 7.5-minute  
NW, Lake Elsinore, 1982, 7.5-minute

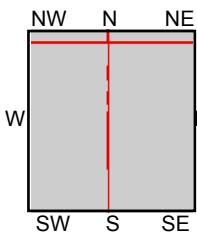
SITE NAME: Proposed Faith Bible Church  
ADDRESS: Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595  
CLIENT: Remediation Sciences







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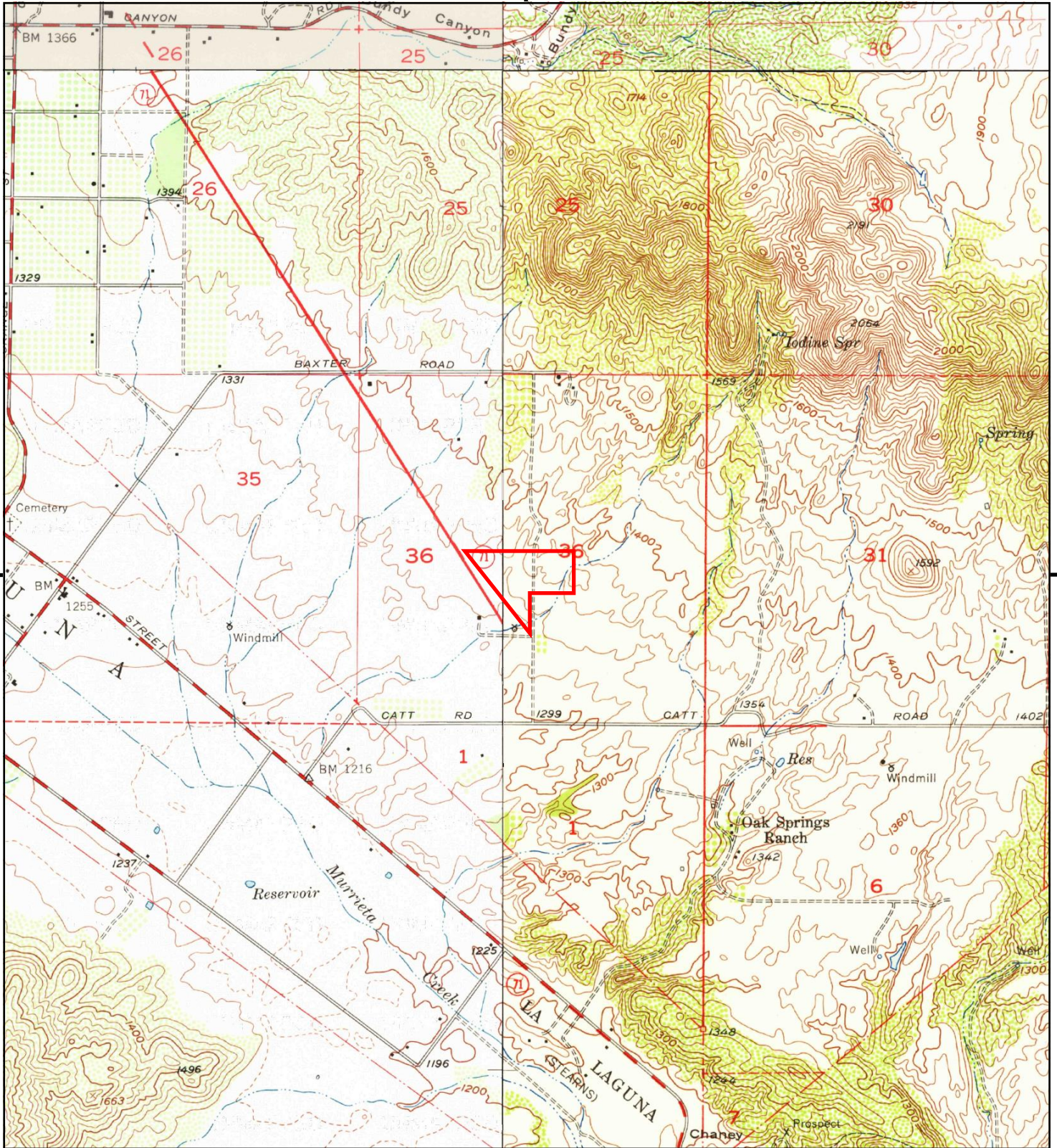


TP, Murrieta, 1973, 7.5-minute  
 NE, Romoland, 1973, 7.5-minute  
 SW, Wildomar, 1973, 7.5-minute  
 NW, Elsinore, 1973, 7.5-minute  
 NW, Lake Elsinore, 1978, 7.5-minute

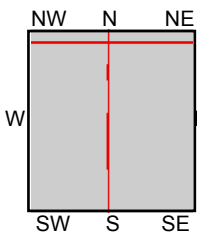
SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar, CA 92595  
 CLIENT: Remediation Sciences







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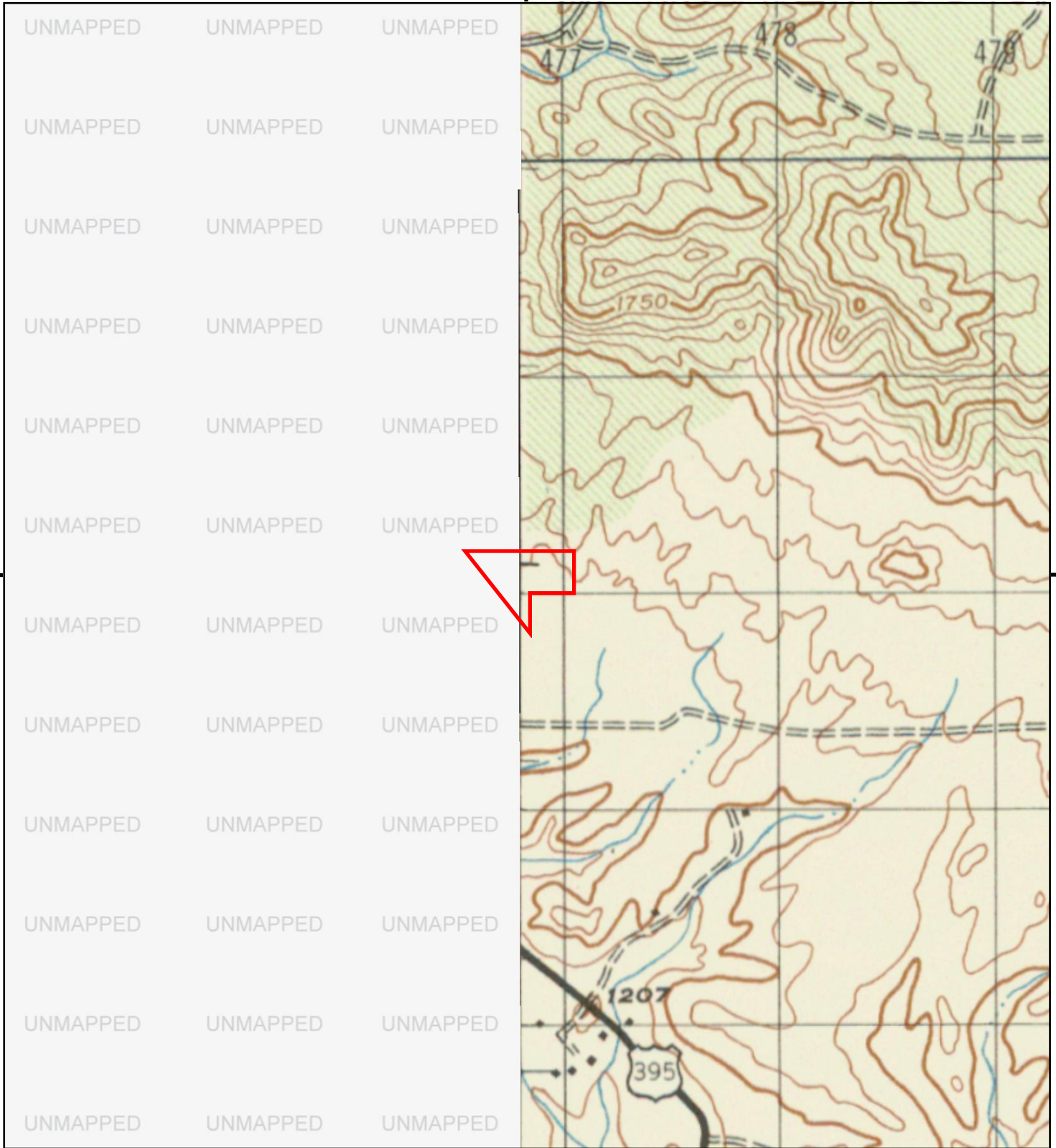


TP, Murrieta, 1953, 7.5-minute  
NE, Romoland, 1953, 7.5-minute  
SW, Wildomar, 1953, 7.5-minute  
NW, Elsinore, 1953, 7.5-minute

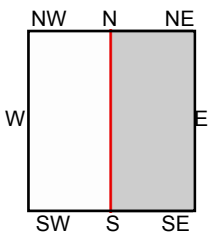
SITE NAME: Proposed Faith Bible Church  
ADDRESS: Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595  
CLIENT: Remediation Sciences







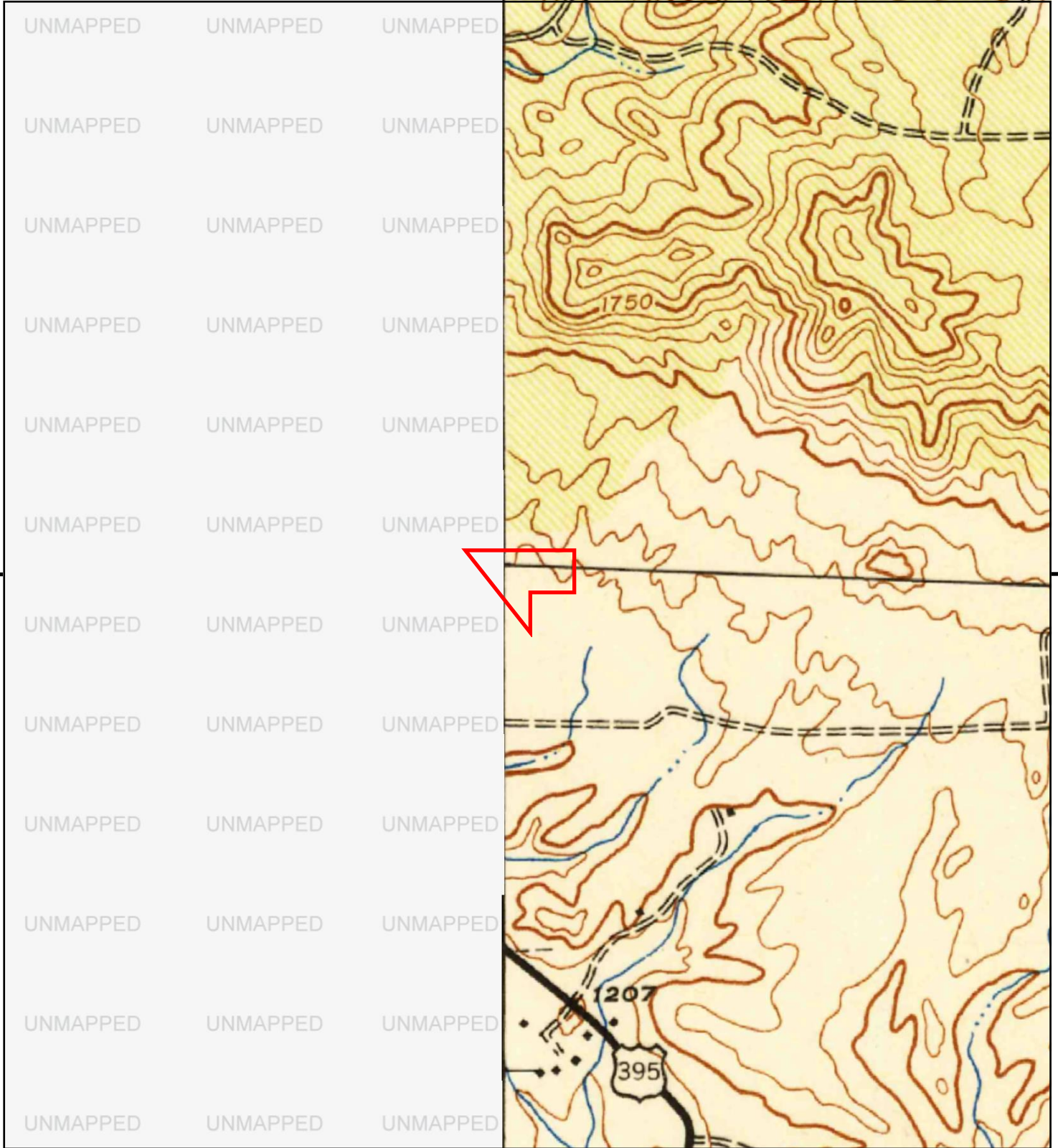
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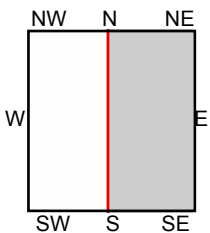
TP, MURRIETA, 1947, 15-minute

SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar, CA 92595  
 CLIENT: Remediation Sciences





This report includes information from the following map sheet(s).

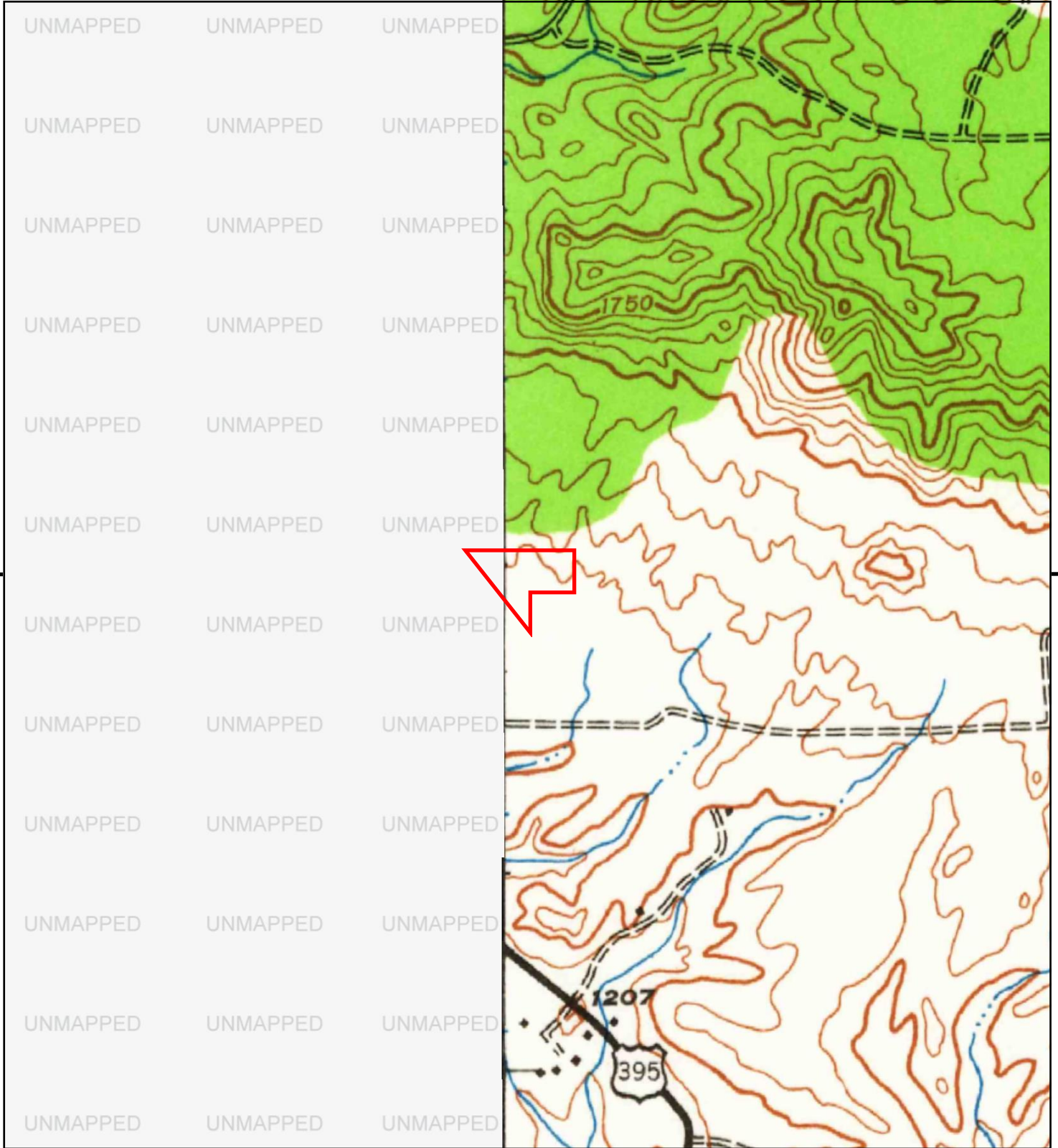


TP, Murrieta, 1943, 15-minute

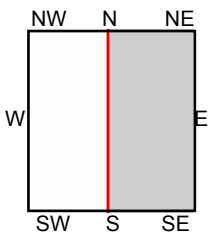
SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar, CA 92595  
 CLIENT: Remediation Sciences







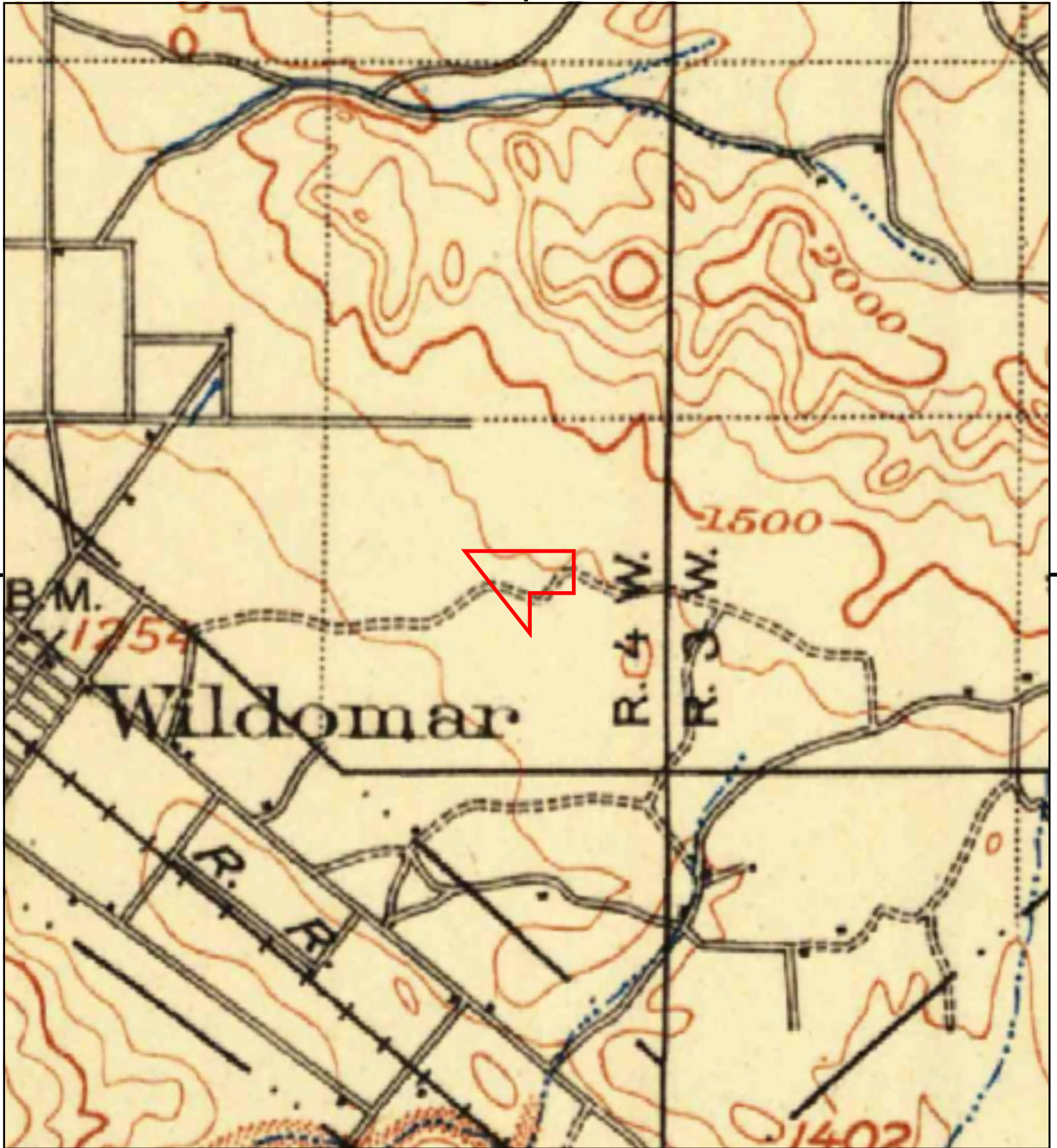
This report includes information from the following map sheet(s).



TP, Murrieta, 1942, 15-minute

SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar, CA 92595  
 CLIENT: Remediation Sciences





This report includes information from the following map sheet(s).




TP, Elsinore, 1901, 30-minute

SITE NAME: Proposed Faith Bible Church  
 ADDRESS: Glazebrook Rd. & Depasquale Rd.  
 Wildomar, CA 92595  
 CLIENT: Remediation Sciences





**APPENDIX G**  
**THE EDR AERIAL PHOTO DECADE PACKAGE**



Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.12

July 28, 2017

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

## EDR Aerial Photo Decade Package

07/28/17

**Site Name:**

Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale  
Wildomar, CA 92595  
EDR Inquiry # 5006571.12

**Client Name:**

Remediation Sciences  
3822 Campus Drive  
Newport Beach, CA 92660-0000  
Contact: Yonathan Yoseph



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1967	1"=500'	Flight Date: May 15, 1967	USDA
1961	1"=500'	Flight Date: July 08, 1961	USDA
1953	1"=500'	Flight Date: August 28, 1953	USDA
1949	1"=500'	Flight Date: May 06, 1949	USDA
1938	1"=500'	Flight Date: June 14, 1938	USDA

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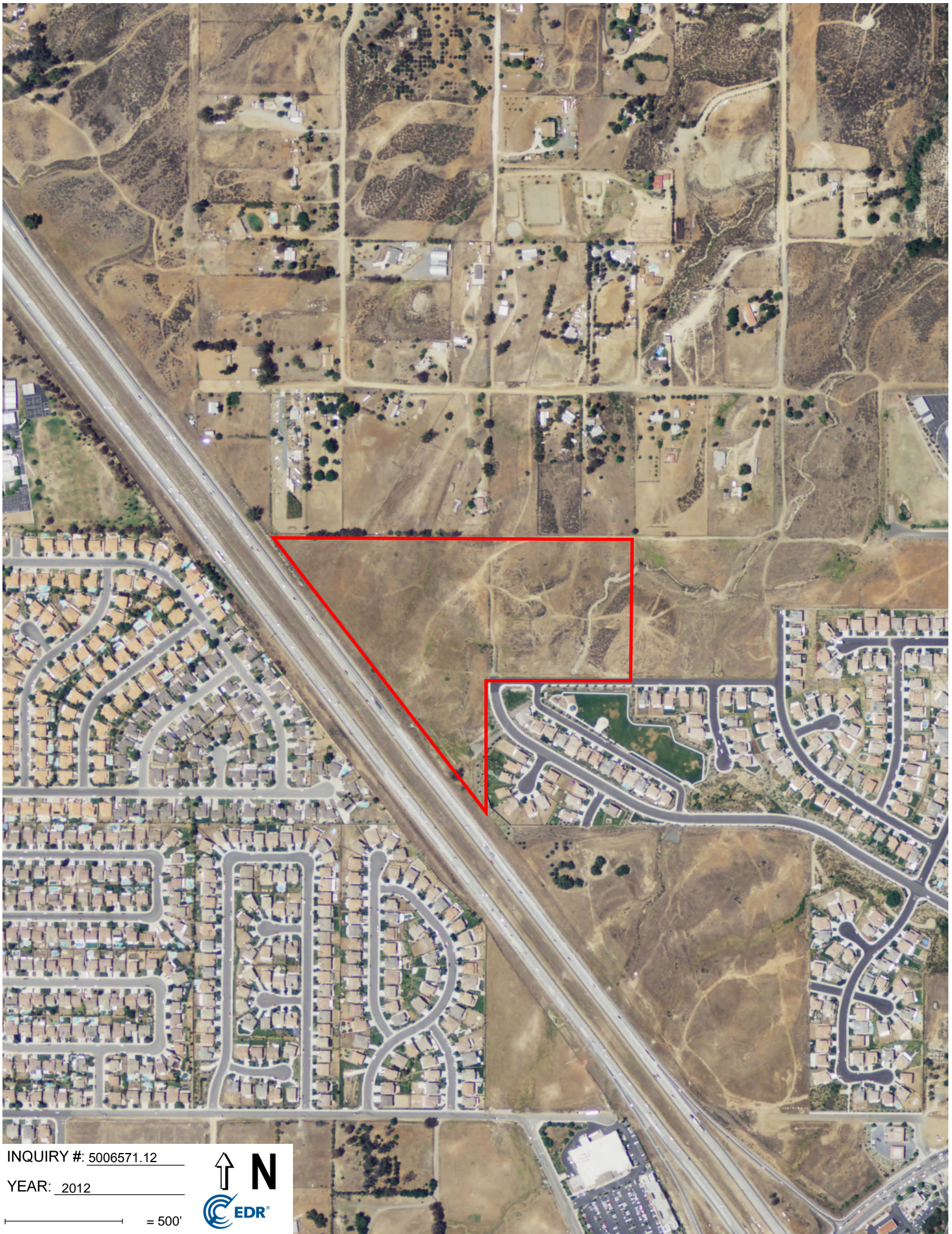
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INQUIRY #: 5006571.12

YEAR: 2012

— = 500'







INQUIRY #: 5006571.12

YEAR: 2010

— = 500'







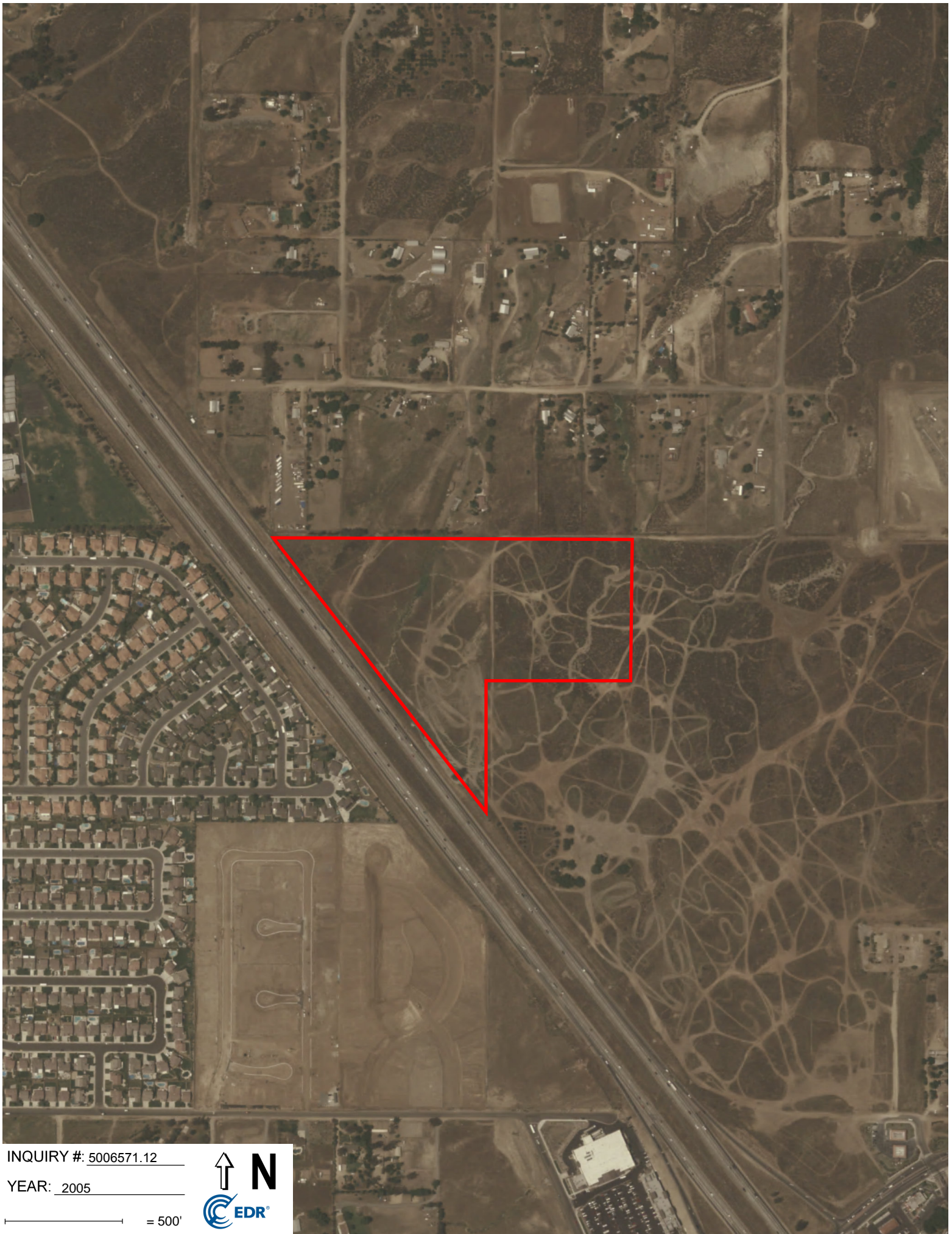
INQUIRY #: 5006571.12

YEAR: 2009

— = 500'







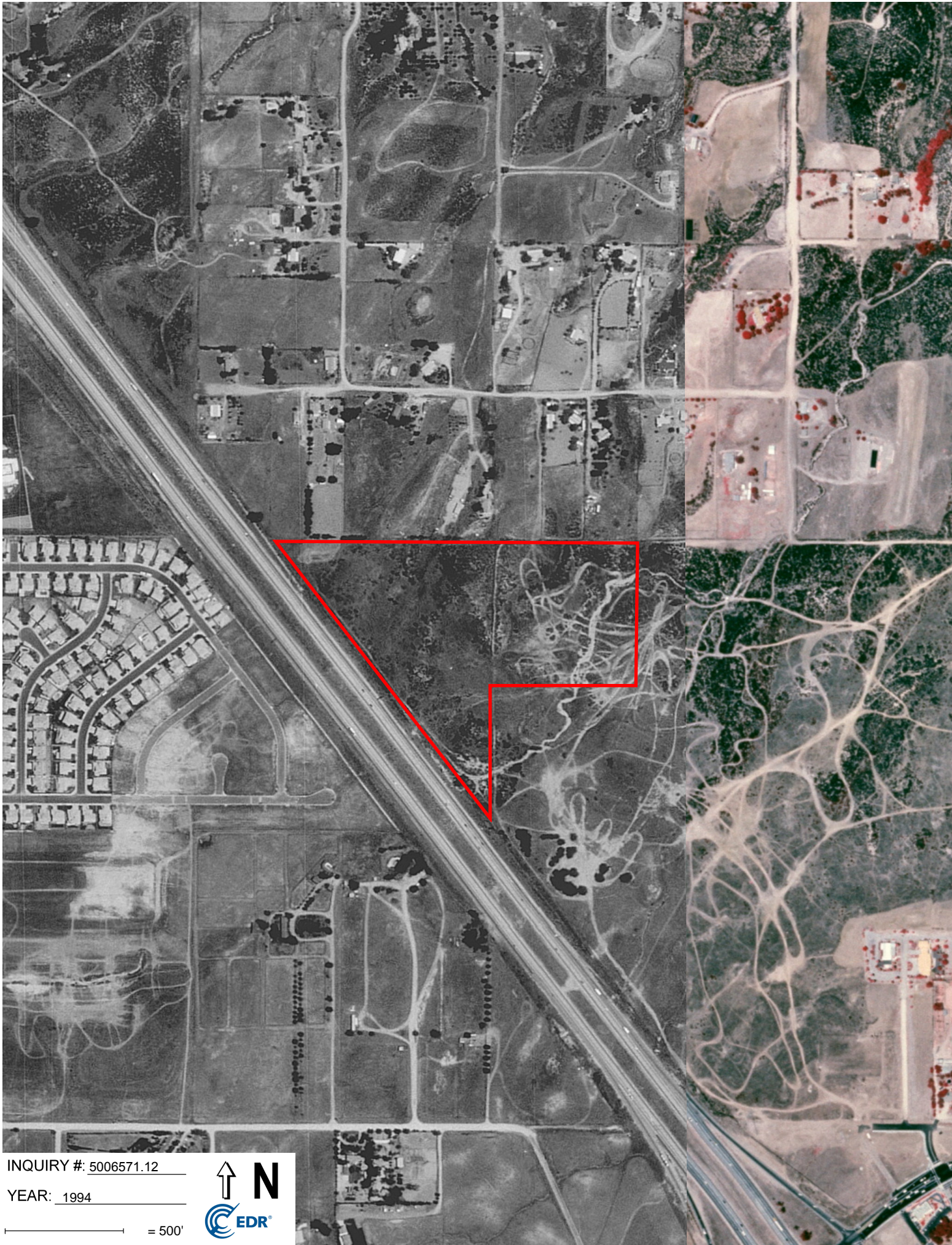
INQUIRY #: 5006571.12

YEAR: 2005

— = 500'







INQUIRY #: 5006571.12

YEAR: 1994

— = 500'







INQUIRY #: 5006571.12

YEAR: 1989

500'







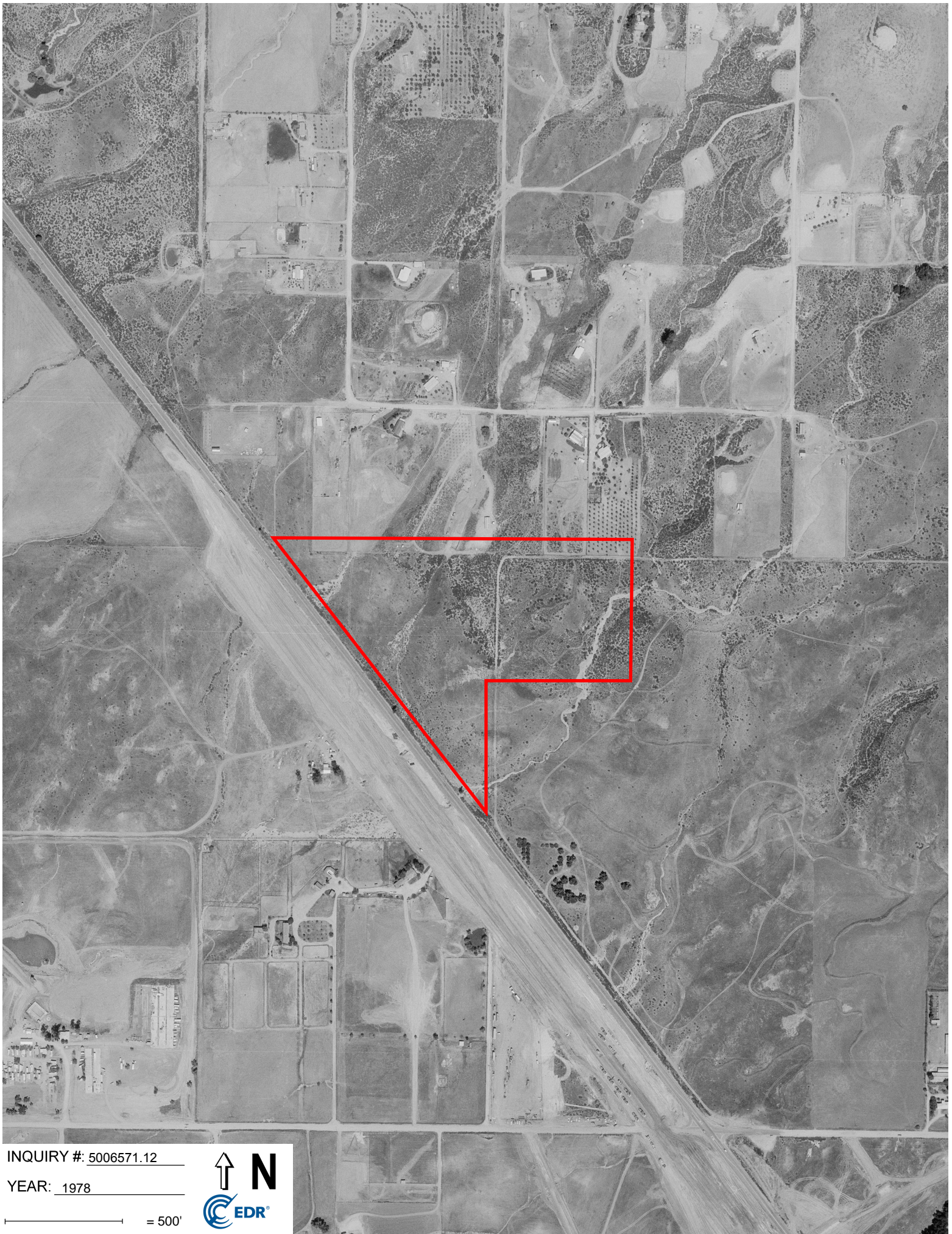
INQUIRY #: 5006571.12

YEAR: 1985

— = 500'







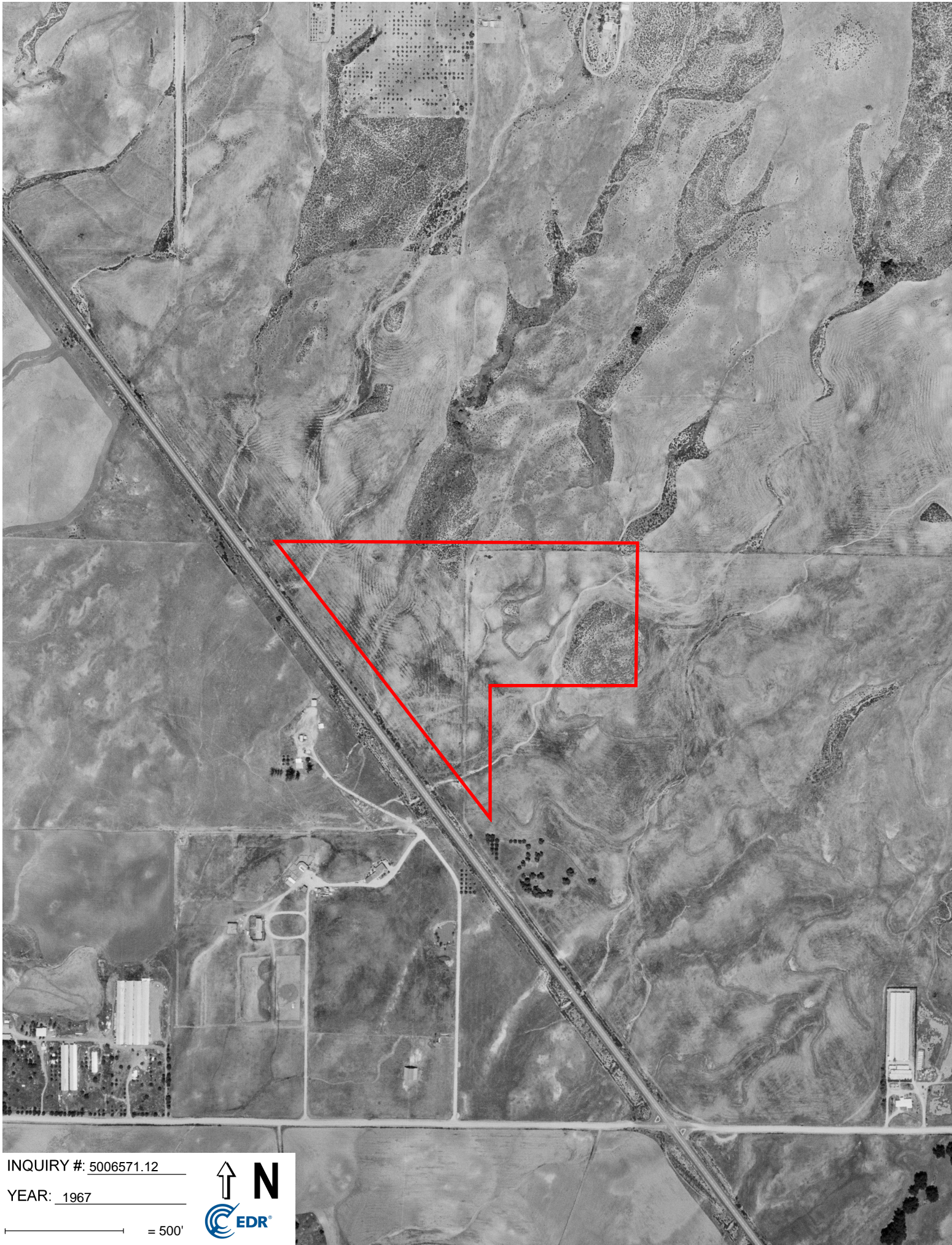
INQUIRY #: 5006571.12

YEAR: 1978

— = 500'







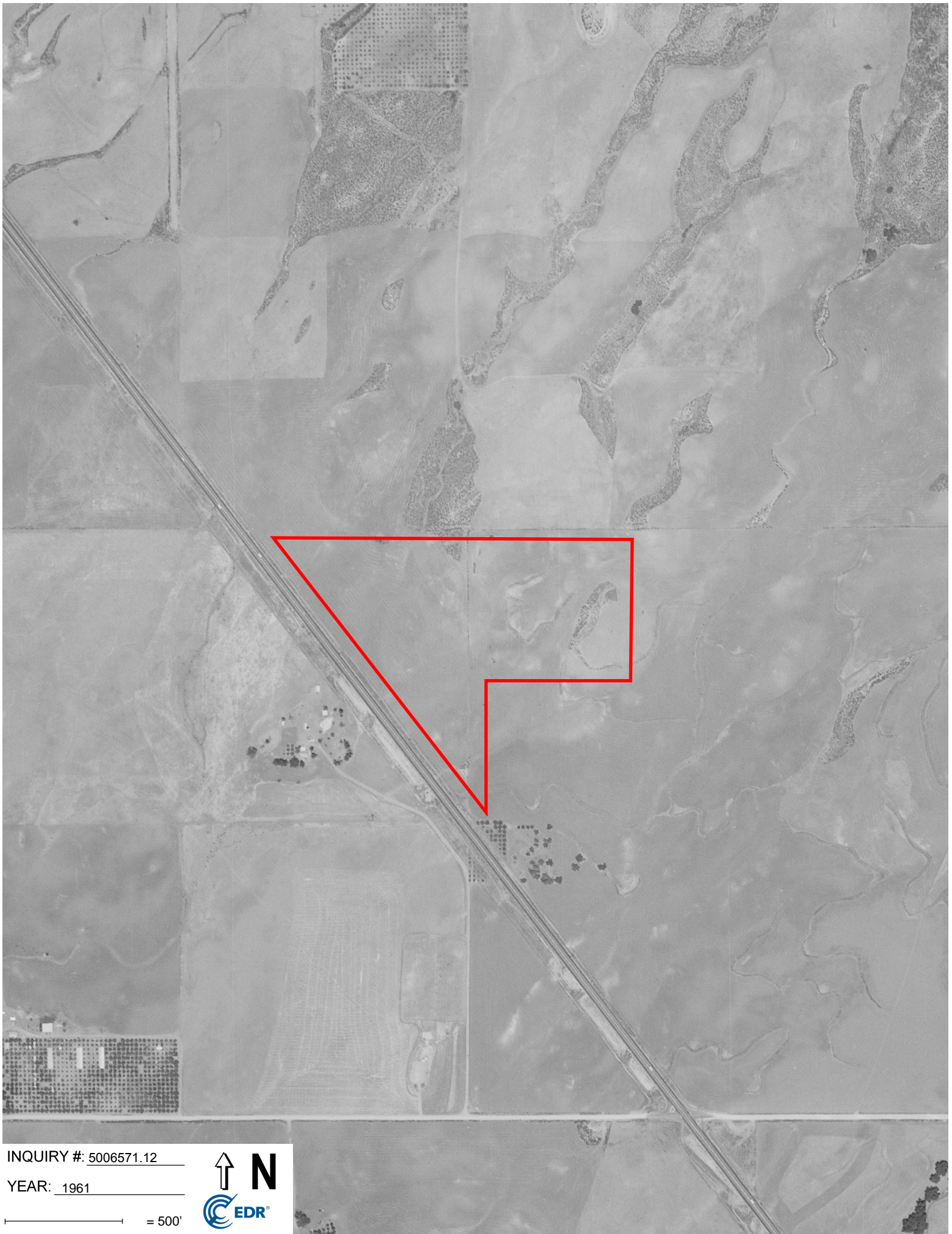
INQUIRY #: 5006571.12

YEAR: 1967

— = 500'







INQUIRY #: 5006571.12

YEAR: 1961

— = 500'







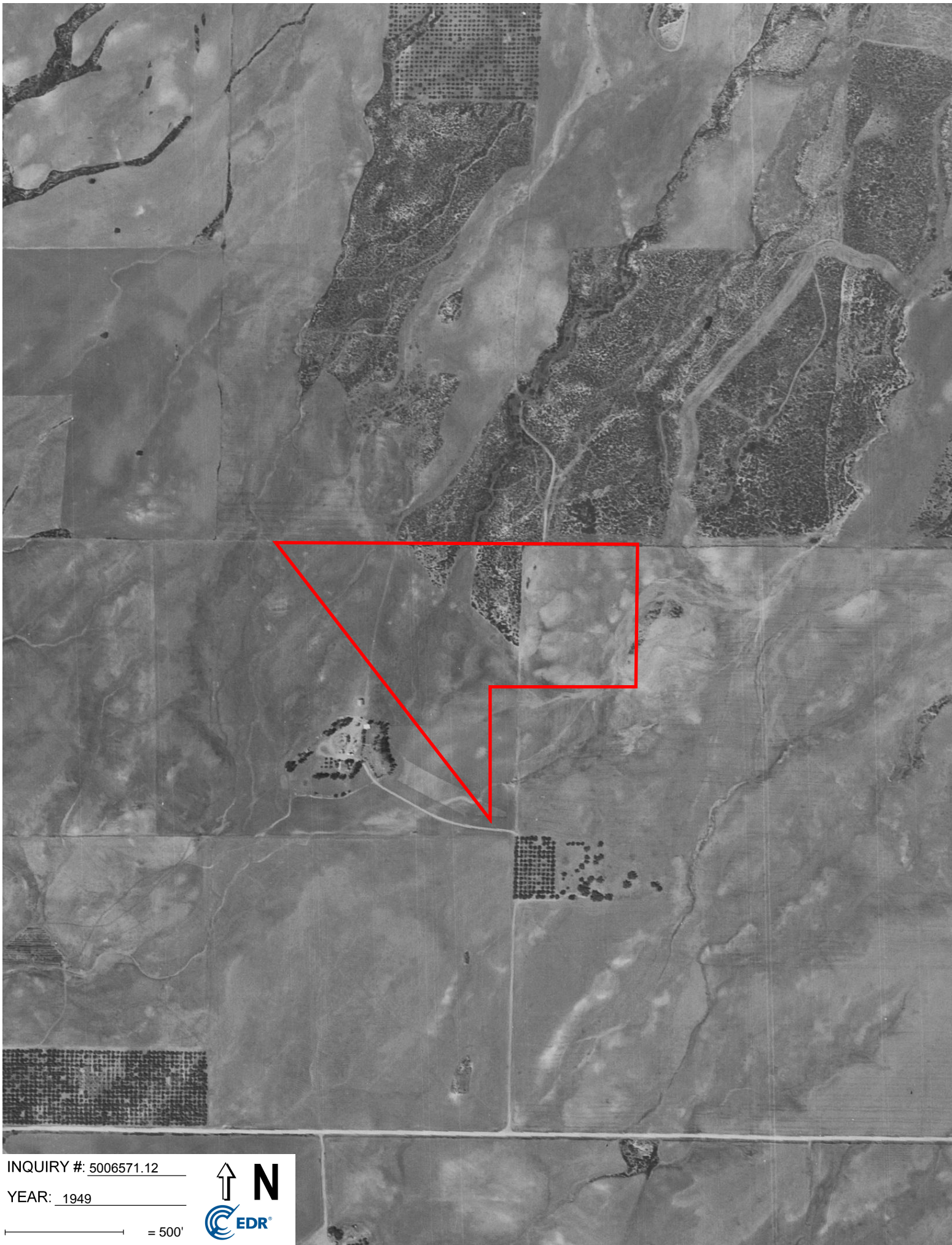
INQUIRY #: 5006571.12

YEAR: 1953

— = 500'





INQUIRY #: 5006571.12

YEAR: 1949



A horizontal line with vertical end caps, representing a scale bar for 500 feet.







INQUIRY #: 5006571.12

YEAR: 1938

— = 500'



**APPENDIX H**  
**CERTIFIED SANBORN MAP REPORT**





Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.3

July 27, 2017

## Certified Sanborn® Map Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

## Certified Sanborn® Map Report

07/27/17

**Site Name:**

Proposed Faith Bible Church  
Glazebrook Rd. & Depasquale  
Wildomar, CA 92595  
EDR Inquiry # 5006571.3

**Client Name:**

Remediation Sciences  
3822 Campus Drive  
Newport Beach, CA 92660-0000  
Contact: Yonathan Yoseph



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Remediation Sciences were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

### Certified Sanborn Results:

**Certification #** 6A7F-4265-A2AC

**PO #** 17-0154

**Project** Proposed Faith Bible Church

### UNMAAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results

Certification #: 6A7F-4265-A2AC

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

*The Sanborn Library LLC Since 1866™*

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**APPENDIX I**  
**EDR CITY DIRECTORY ABSTRACT**

**Proposed Faith Bible Church**

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.5  
July 28, 2017

## The EDR-City Directory Image Report

## TABLE OF CONTENTS

### **SECTION**

**Executive Summary**

**Findings**

**City Directory Images**

***Thank you for your business.***

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1992	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1990	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1975	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

### RECORD SOURCES

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## FINDINGS

### TARGET PROPERTY STREET

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Year

CD Image

Source

### DEPASQUALE RD

2013	-	Cole Information Services	Target and Adjoining not listed in Source
2008	-	Cole Information Services	Target and Adjoining not listed in Source
2003	-	Cole Information Services	Target and Adjoining not listed in Source
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

### GLAZE BROOK RD

2013	pg A1	Cole Information Services	
2008	-	Cole Information Services	Target and Adjoining not listed in Source
2003	-	Cole Information Services	Target and Adjoining not listed in Source
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

**GLAZEBROOK RD 2013**

23643 AMABELLE DIRECTO  
23655 OCCUPANT UNKNOWN  
23667 RICHARD MYATT  
23679 JOHNNY HODGES  
23691 THOMAS DELANEY  
23715 OCCUPANT UNKNOWN  
23727 WILLIAM FRANKLIN



**APPENDIX J**  
**EDR BUILDING PERMIT REPORT**

**Proposed Faith Bible Church**

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

Inquiry Number: 5006571.8  
July 27, 2017

# EDR Building Permit Report

Target Property and Adjoining Properties

## TABLE OF CONTENTS

### **SECTION**

**About This Report**

**Executive Summary**

**Findings**

**Glossary**

***Thank you for your business.***

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# EDR BUILDING PERMIT REPORT

## About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting 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.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

## ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquiries (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

## Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.



## EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

A search of building department records was conducted by Environmental Data Resources, Inc (EDR) on behalf of Remediation Sciences on Jul 27, 2017.

### TARGET PROPERTY

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

### SEARCH METHODS

EDR searches available lists for both the Target Property and Surrounding Properties.

### RESEARCH SUMMARY

Building permits identified: **YES**

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

#### Riverside County

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>
2017	Riverside County, Building and Safety		
2016	Riverside County, Building and Safety		
2015	Riverside County, Building and Safety		
2014	Riverside County, Building and Safety		X
2013	Riverside County, Building and Safety		
2012	Riverside County, Building and Safety		
2011	Riverside County, Building and Safety		
2010	Riverside County, Building and Safety		
2009	Riverside County, Building and Safety		
2008	Riverside County, Building and Safety		
2007	Riverside County, Building and Safety		X
2006	Riverside County, Building and Safety		X
2005	Riverside County, Building and Safety		
2004	Riverside County, Building and Safety		
2003	Riverside County, Building and Safety		
2002	Riverside County, Building and Safety		
2001	Riverside County, Building and Safety		
2000	Riverside County, Building and Safety		
1999	Riverside County, Building and Safety		
1998	Riverside County, Building and Safety		
1997	Riverside County, Building and Safety		
1996	Riverside County, Building and Safety		
1995	Riverside County, Building and Safety		
1994	Riverside County, Building and Safety		
1993	Riverside County, Building and Safety		
1992	Riverside County, Building and Safety		
1991	Riverside County, Building and Safety		
1990	Riverside County, Building and Safety		



## EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>
1989	Riverside County, Building and Safety		
1988	Riverside County, Building and Safety		
1987	Riverside County, Building and Safety		
1986	Riverside County, Building and Safety		
1985	Riverside County, Building and Safety		
1984	Riverside County, Building and Safety		
1983	Riverside County, Building and Safety		
1982	Riverside County, Building and Safety		
1981	Riverside County, Building and Safety		
1980	Riverside County, Building and Safety		
1979	Riverside County, Building and Safety		
1978	Riverside County, Building and Safety		
1977	Riverside County, Building and Safety		
1976	Riverside County, Building and Safety		
1975	Riverside County, Building and Safety		
1974	Riverside County, Building and Safety		
1973	Riverside County, Building and Safety		

### **BUILDING DEPARTMENT RECORDS SEARCHED**

Name: Riverside County  
Years: 1973-2017  
Source: Riverside County, Building and Safety, WILDOMAR, CA  
Phone: (951) 955-6742

Name: Hemet  
Years: 1989-2016  
Source: City of Hemet, Building and Safety, HEMET, CA  
Phone: (951) 765-2475

Name: Lake Elsinore  
Years: 1990-2016  
Source: City of Lake Elsinore, Building and Safety Division, LAKE ELSINORE, CA  
Phone: (909) 674-3124 x226

Name: San Bernardino County  
Years: 2002-2017  
Source: San Bernardino County, Land Use, Building & Safety, FONTANA, CA  
Phone: (909) 387-8311

## TARGET PROPERTY FINDINGS

### TARGET PROPERTY DETAIL

Glazebrook Rd. & Depasquale Rd.  
Wildomar, CA 92595

No Permits Found

## ADJOINING PROPERTY FINDINGS

### ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

#### FINCH CT

##### **35681 FINCH CT**

Date: **4/22/2014**  
Permit Type: **BRI**  
Description: **REQUEST FOR RECORDS**

Permit Description:  
Work Class:  
Proposed Use: BUILDING RECORDS INQUIRY  
Permit Number: BRI140475  
Status: PAID  
Valuation: \$0.00  
Contractor Company:  
Contractor Name: VILLAJIN LINUS

Date: **4/8/2014**  
Permit Type: **BRI**  
Description: **REQUEST FOR RECORDS**

Permit Description:  
Work Class:  
Proposed Use: BUILDING RECORDS INQUIRY  
Permit Number: BRI140399  
Status: PAID  
Valuation: \$0.00  
Contractor Company:  
Contractor Name: VILLAJIN LINUS

## ADJOINING PROPERTY FINDINGS

Date: **3/29/2007**  
Permit Type: **RPAT**  
Description: **12'X 13'FREE STANDING PAITO COVER TR30155 LOT 78**

Permit Description: **RESIDENTIAL PATIO LATTICE**  
Work Class:  
Proposed Use:  
Permit Number: BPT070259  
Status: FINAL  
Valuation: \$1,756.08  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT

Date: **3/29/2007**  
Permit Type: **RPAT**  
Description: **12'X 16'FREE STANDING PATIO COVER TR30155 LOT 79**

Permit Description: **RESIDENTIAL PATIO LATTICE**  
Work Class:  
Proposed Use:  
Permit Number: BPT070260  
Status: FINAL  
Valuation: \$2,081.28  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT

Date: **3/29/2007**  
Permit Type: **ELEC**  
Description: **ELECTRIC FOR PILASTERS TR30155 LOT 78,79,80**

Permit Description: **ELECTRICAL WORK ONLY**  
Work Class:  
Proposed Use:  
Permit Number: BEL070356  
Status: FINAL  
Valuation: \$0.00  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT

## ADJOINING PROPERTY FINDINGS

Date: **3/29/2007**  
Permit Type: **GWAL**  
Description: **(12) LIT PILASTERS FOR MODEL LOTS 78,79,80**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: BXX071097  
Status: FINAL  
Valuation: \$0.00  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT

Date: **9/19/2006**  
Permit Type: **RWAL**  
Description: **RETAINING WALLS TR30155 LOT 1**

Permit Description: **RETAINING WALL PERMIT**  
Work Class:  
Proposed Use:  
Permit Number: BXX067736  
Status: FINAL  
Valuation: \$2,457.00  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 1 10' WALL**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: BXX064869  
Status: FINAL  
Valuation: \$1,360.00  
Contractor Company:  
Contractor Name: VAN DAELE DEVELOPMENT



## ADJOINING PROPERTY FINDINGS

### 35693 FINCH CT

Date: **11/7/2007**  
Permit Type: **RPAT**  
Description: **17'X11' ATTACHED & 11'X5' FREE LATTICE PATIO COVER**

Permit Description: **RESIDENTIAL PATIO LATTICE**  
Work Class:  
Proposed Use:  
Permit Number: **BPT071143**  
Status: **FINAL**  
Valuation: **\$2,623.28**  
Contractor Company:  
Contractor Name: **MOSS TERRI FOR VAN DAELE**

Date: **11/7/2007**  
Permit Type: **OTHR**  
Description: **TEMPORARY SALES OFFICE FOR TR30155**

Permit Description: **OTHER CONSTRUCTION**  
Work Class:  
Proposed Use:  
Permit Number: **BXX072761**  
Status: **FINAL**  
Valuation: **\$11,969.43**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

Date: **10/3/2007**  
Permit Type: **NCC**  
Description: **TEMPORARY SALES OFFICE FOR TR30155**

Permit Description: **NEW COMMERCIAL COACH**  
Work Class:  
Proposed Use:  
Permit Number: **BMN070063**  
Status: **EXPIRED**  
Valuation: **\$1.00**  
Contractor Company:  
Contractor Name: **MOSS TERRI FOR VAN DAELE**

## ADJOINING PROPERTY FINDINGS

Date: **8/24/2007**  
Permit Type: **MODL**  
Description: **DWELLING & ATTACHED GARAGE (MODEL) PLAN 11B**

Permit Description: **MODEL TRACT HOME PERMIT**  
Work Class:  
Proposed Use:  
Permit Number: **BRS057527**  
Status: **FINAL**  
Valuation: **\$89,229.15**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT CORP**

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 2 11'WALL**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064870**  
Status: **FINAL**  
Valuation: **\$1,386.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

### **35705 FINCH CT**

Date: **11/7/2007**  
Permit Type: **RPAT**  
Description: **2 12X18 LATTICE PATIOS,GAS & ELEC TO BBQ**

Permit Description: **RESIDENTIAL PATIO LATTICE**  
Work Class:  
Proposed Use:  
Permit Number: **BPT071144**  
Status: **FINAL**  
Valuation: **\$3,382.08**  
Contractor Company:  
Contractor Name: **MOSS TERRI FOR VAN DAELE**

## ADJOINING PROPERTY FINDINGS

Date: **8/24/2007**  
Permit Type: **MODL**  
Description: **DWELLING & ATTACHED GARAGE (MODEL) PLAN 1CRX**

Permit Description: **MODEL TRACT HOME PERMIT**  
Work Class:  
Proposed Use:  
Permit Number: **BRS057528**  
Status: **FINAL**  
Valuation: **\$95,140.25**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT CORP**

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOTS 1-10**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064718**  
Status: **FINAL**  
Valuation: **\$15,864.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 3 13' WALL**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064871**  
Status: **FINAL**  
Valuation: **\$3,100.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

## ADJOINING PROPERTY FINDINGS

### 35712 FINCH CT

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 6-7**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064874**  
Status: **FINAL**  
Valuation: **\$6,658.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

### 35717 FINCH CT

Date: **11/7/2007**  
Permit Type: **RPAT**  
Description: **11'X2' ARBOR,12'X8' & 13'X7' LATTICE PATIO COVERS**

Permit Description: **RESIDENTIAL PATIO LATTICE**  
Work Class:  
Proposed Use:  
Permit Number: **BPT071142**  
Status: **FINAL**  
Valuation: **\$2,265.56**  
Contractor Company:  
Contractor Name: **MOSS TERRI FOR VAN DAELE**

## ADJOINING PROPERTY FINDINGS

Date: **8/24/2007**  
Permit Type: **MODL**  
Description: **DWELLING & ATTACHED GARAGE (MODEL) PLAN 2ARX**

Permit Description: **MODEL TRACT HOME PERMIT**  
Work Class:  
Proposed Use:  
Permit Number: **BRS057529**  
Status: **FINAL**  
Valuation: **\$107,423.52**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT CORP**

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 4 15' WALL**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064872**  
Status: **FINAL**  
Valuation: **\$3,600.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**

### **35729 FINCH CT**

Date: **6/1/2006**  
Permit Type: **GWAL**  
Description: **GARDEN WALL TR30155 LOT 5 15' WALL**

Permit Description: **GARDEN WALL SINGLE LOT**  
Work Class:  
Proposed Use:  
Permit Number: **BXX064873**  
Status: **FINAL**  
Valuation: **\$4,200.00**  
Contractor Company:  
Contractor Name: **VAN DAELE DEVELOPMENT**



## GLOSSARY

### General Building Department concepts

- **ICC:** The International Code Council. The governing body for the building/development codes used by all jurisdictions who've adopted the ICC guidelines. MOST of the US has done this. Canada, Mexico, and other countries use ICC codes books and guides as well. There are a few states who have added guidelines to the ICC codes to better fit their needs. For example, California has added seismic retrofit requirements for most commercial structures.
- **Building Department (Permitting Authority, Building Codes, Inspections Department, Building and Inspections):** This is the department in a jurisdiction where an owner or contractor goes to obtain permits and inspections for building, tearing down, remodeling, adding to, re-roofing, moving or otherwise making changes to any structure, Residential or Commercial.
- **Jurisdiction:** This is the geographic area representing the properties over which a Permitting Authority has responsibility.
- **GC:** General Contractor. Usually the primary contractor hired for any Residential or Commercial construction work.
- **Sub:** Subordinate contracting companies or subcontractors. Usually a "trades" contractor working for the GC. These contractors generally have an area of expertise in which they are licensed like Plumbing, Electrical, Heating and Air systems, Gas Systems, Pools etc. (called "trades").
- **Journeyman:** Sub contractors who have their own personal licenses in one or more trades and work for different contracting companies, wherever they are needed or there is work.
- **HVAC (Mechanical, Heating & Air companies):** HVAC = Heating, Ventilation, and Air Conditioning.
- **ELEC (Electrical, TempPole, TPole, TPower, Temporary Power, Panel, AMP Change, Power Release):** Electrical permits can be pulled for many reasons. The most common reason is to increase the AMPs of power in an electrical power panel. This requires a permit in almost every jurisdiction. Other common reasons for Electrical permits is to insert a temporary power pole at a new construction site. Construction requires electricity, and in a new development, power has yet to be run to the lot. The temporary power pole is usually the very first permit pulled for new development. The power is released to the home owner when construction is complete and this sometimes takes the form of a Power Release permit or inspection.
- **"Pull" a permit:** To obtain and pay for a building permit.
- **CBO:** Chief Building Official
- **Planning Department:** The department in the development process where the building /structural plans are reviewed for their completeness and compliance with building codes
- **Zoning Department:** The department in the development process where the site plans are reviewed for their compliance with the regulations associated with the zoning district in which they are situated.
- **Zoning District:** A pre-determined geographic boundary within a jurisdiction where certain types of structures are permitted / prohibited. Examples are Residential structure, Commercial/Retail structures, Industrial/Manufacturing structures etc. Each zoning district has regulations associated with it like the sizes of the lots, the density of the structures on the lots, the number of parking spaces required for certain types of structures on the lots etc.
- **PIN (TMS, GIS ID, Parcel#):** Property Identification Number and Tax Map System number.
- **State Card (Business license):** A license card issued to a contractor to conduct business.
- **Building Inspector (Inspector):** The inspector is a building department employee that inspects building construction for compliance to codes.
- **C.O.:** Certificate of Occupancy. This is the end of the construction process and designates that the owners now have permission to occupy a structure after its building is complete. Sometimes also referred to as a Certificate of Compliance.

## GLOSSARY

### Permit Content Definitions

- Permit Number: The alphanumeric designation assigned to a permit for tracking within the building department system. Sometimes the permit number gives clues to its role, e.g. a "PL" prefix may designate a plumbing permit.
- Description: A field on the permit form that allows the building department to give a brief description of the work being done. More often than not, this is the most important field for EP's to find clues to the prior use(s) of the property.
- Permit Type: Generally a brief designation of the type of job being done. For example BLDG-RES, BLDG-COM, ELEC, MECH etc.

### Sample Building Permit Data

Date: Nov 09, 2000  
Permit Type: Bldg -  
New Permit Number: 101000000405  
Status: Valuation: \$1,000,000.00  
Contractor Company: OWNER-BUILDER  
Contractor Name:

Description: New one store retail (SAV-ON) with drive-thru pharmacy. Certificate of Occupancy.

## Appendix 5: LID Feasibility Supplemental Information

*Information that supports or supplements the determination of LID technical feasibility documented in Section D*

## Appendix 6: LID BMP Design Details

*BMP Sizing, Design Details and other Supporting Documentation to supplement Section D*

<b><u>Santa Margarita Watershed</u></b> BMP Design Volume, $V_{BMP}$ (Rev. 03-2012)		Legend:	Required Entries Calculated Cells
(Note this worksheet shall <b>only</b> be used in conjunction with BMP designs from the <b>LID BMP Design Handbook</b> )			
Company Name	FMCIVIL Engineers Inc.	Date	10/24/2018
Designed by	Francisco Martinez	County/City Case No	
Company Project Number/Name			
Drainage Area Number/Name	DMA 1		
Enter the Area Tributary to this Feature	$A_T = 13.01$ acres		
85 <sup>th</sup> Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E			
Site Location	Township	6S	
	Range	4W	
	Section	36	
Enter the 85 <sup>th</sup> Percentile, 24-hour Rainfall Depth	$D_{85} =$	0.69	
Determine the Effective Impervious Fraction			
Type of post-development surface cover (use pull down menu)	Mixed Surface Types		
Effective Impervious Fraction	$I_f =$	0.68	
Calculate the composite Runoff Coefficient, C for the BMP Tributary Area			
Use the following equation based on the WEF/ASCE Method $C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$		$C =$	0.48
Determine Design Storage Volume, $V_{BMP}$			
Calculate $V_U$ , the 85% Unit Storage Volume $V_U = D_{85} \times C$		$V_u =$	0.33 (in*ac)/ac
Calculate the design storage volume of the BMP, $V_{BMP}$ . $V_{BMP} (ft^3) = \frac{V_U (in\text{-}ac/ac) \times A_T (ac) \times 43,560 (ft^2/ac)}{12 (in/ft)}$		$V_{BMP} =$	15,585 ft <sup>3</sup>
Notes:			



Effective Impervious Fraction, If		DMA 1		If
Developed Cover Types	Effective Impervious Fraction	Area, At (sf)	Eff. Area, If * A (sf)	
Roofs	1.00	59,165	59,165	0.68
Asphalt	1.00	244,144	244,144	
Concrete	1.00	53,206	53,206	
Grouted or Gapless Paving Blocks	1.00	0	0	
Compacted Soil (e.g. unpaved parking)	0.40	0	0	
Decomposed Granite	0.40	33,107	13,243	
Permeable Paving Blocks w/ Sand Filled Gap	0.25	0	0	
Class 2 Base	0.30	0	0	
Gravel or Class 2 Permeable Base	0.10	0	0	
Pervious Concrete / Porous Asphalt	0.10	0	0	
Open and Porous Pavers	0.10	0	0	
Turf block	0.10	49,215	4,922	
Ornamental Landscaping	0.10	126,750	12,675	
Natural (A Soil)	0.03	0	0	
Natural (B Soil)	0.15	0	0	
Natural (C Soil)	0.30	0	0	
Natural (D Soil)	0.40	1,201	480	
Sand	0.10	0	0	
Total =		566,788	387,835	
Total, acres=		13.01		

<b><u>Santa Margarita Watershed</u></b> BMP Design Flow Rate, $Q_{BMP}$ (Rev. 03-2012)		Legend:	Required Entries Calculated Cells
Company Name	FMCIVIL Engineers Inc.	Date	2/7/2019
Designed by	Francisco Martinez Jr	County/City Case No	
Company Project Number/Name			
Drainage Area Number/Name	DMA 2		
Enter the Area Tributary to this Feature		$A_T =$	3.54 acres
Determine the Effective Impervious Fraction			
Type of post-development surface cover (use pull down menu)	Mixed Surface Types		
Effective Impervious Fraction	$I_f =$	0.68	
Calculate the composite Runoff Coefficient, C for the BMP Tributary Area			
Use the following equation based on the WEF/ASCE Method			
$C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$		$C =$	0.48
BMP Design Flow Rate			
$Q_{BMP} = C \times I \times A_T$		$Q_{BMP} =$	0.3 ft <sup>3</sup> /s
Notes:			

Effective Impervious Fraction, If		DMA 2		If
Developed Cover Types	Effective Impervious Fraction	Area, At (sf)	Eff. Area, If * A (sf)	
Roofs	1.00	0	0	0.68
Asphalt	1.00	77,697	77,697	
Concrete	1.00	3,987	3,987	
Grouted or Gapless Paving Blocks	1.00	0	0	
Compacted Soil (e.g. unpaved parking)	0.40	0	0	
Decomposed Granite	0.40	50,978	20,391	
Permeable Paving Blocks w/ Sand Filled Gap	0.25	0	0	
Class 2 Base	0.30	0	0	
Gravel or Class 2 Permeable Base	0.10	0	0	
Pervious Concrete / Porous Asphalt	0.10	0	0	
Open and Porous Pavers	0.10	0	0	
Turf block	0.10	0	0	
Ornamental Landscaping	0.10	20,205	2,021	
Natural (A Soil)	0.03	0	0	
Natural (B Soil)	0.15	0	0	
Natural (C Soil)	0.30	0	0	
Natural (D Soil)	0.40	1,440	576	
Sand	0.10	0	0	
Total =		154,307	104,672	
Total, acres=		3.54		

<b><u>Santa Margarita Watershed</u></b> BMP Design Flow Rate, $Q_{BMP}$ (Rev. 03-2012)		Legend:	Required Entries Calculated Cells
Company Name	FMCIVIL Engineers Inc.	Date	10/29/2018
Designed by	Francisco Martinez Jr	County/City Case No	
Company Project Number/Name			
Drainage Area Number/Name	DMA 8		
Enter the Area Tributary to this Feature		$A_T =$	0.72 acres
Determine the Effective Impervious Fraction			
Type of post-development surface cover (use pull down menu)	Mixed Surface Types		
Effective Impervious Fraction	$I_f =$		0.56
Calculate the composite Runoff Coefficient, C for the BMP Tributary Area			
Use the following equation based on the WEF/ASCE Method			
$C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$		$C =$	0.38
BMP Design Flow Rate			
$Q_{BMP} = C \times I \times A_T$		$Q_{BMP} =$	0.1 ft <sup>3</sup> /s
Notes:			

Effective Impervious Fraction, If		DMA 8		If
Developed Cover Types	Effective Impervious Fraction	Area, At (sf)	Eff. Area, If * A (sf)	
Roofs	1.00	6,168	6,168	0.56
Asphalt	1.00	7,216	7,216	
Concrete	1.00		0	
Grouted or Gapless Paving Blocks	1.00	0	0	
Compacted Soil (e.g. unpaved parking)	0.40	0	0	
Decomposed Granite	0.40	0	0	
Permeable Paving Blocks w/ Sand Filled Gap	0.25	0	0	
Class 2 Base	0.30	0	0	
Gravel or Class 2 Permeable Base	0.10	0	0	
Pervious Concrete / Porous Asphalt	0.10	0	0	
Open and Porous Pavers	0.10	0	0	
Turf block	0.10	0	0	
Ornamental Landscaping	0.10	9,688	969	
Natural (A Soil)	0.03	0	0	
Natural (B Soil)	0.15	0	0	
Natural (C Soil)	0.30	0	0	
Natural (D Soil)	0.40	8,145	3,258	
Sand	0.10	0	0	
Total =		31,217	17,611	
Total, acres=		0.72		



Infiltration Basin - Design Procedure (Rev. 03-2012)		BMP ID Basin 1	Legend:	Required Entries Calculated Cells
Company Name:	FMCIVIL Engineers Inc.			Date: 10/29/2018
Designed by:	FM			County/City Case No.:
Design Volume				
a) Tributary area (BMP subarea)		$A_T = 13.01$ acres		
b) Enter $V_{BMP}$ determined from Section 2.1 of this Handbook		$V_{BMP} = 15,585$ ft <sup>3</sup>		
Maximum Depth				
a) Infiltration rate		$I = 22$ in/hr		
b) Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" from this BMP Handbook)		$FS = 3$		
c) Calculate $D_1$		$D_1 = \frac{I \text{ (in/hr)} \times 72 \text{ hrs}}{12 \text{ (in/ft)} \times FS}$ $D_1 = 44.0$ ft		
d) Enter the depth of freeboard (at least 1 ft)		$1$ ft		
e) Enter depth to historic high ground water (measured from <b>top</b> of basin)		$100$ ft		
f) Enter depth to top of bedrock or impermeable layer (measured from <b>top</b> of basin)		$100$ ft		
g) $D_2$ is the smaller of:				
Depth to groundwater - (10 ft + freeboard) and		$D_2 = 89.0$ ft		
Depth to impermeable layer - (5 ft + freeboard)				
h) $D_{MAX}$ is the smaller value of $D_1$ and $D_2$ but shall not exceed 5 feet		$D_{MAX} = 44.0$ ft		
Basin Geometry				
a) Basin side slopes (no steeper than 4:1)		$z = 4 : 1$		
b) Proposed basin depth (excluding freeboard)		$d_B = 2$ ft		
c) Minimum bottom surface area of basin ( $A_S = V_{BMP}/d_B$ )		$A_S = 7793$ ft <sup>2</sup>		
d) Proposed Design Surface Area		$A_D = 9000$ ft <sup>2</sup>		
Forebay				
a) Forebay volume (minimum 0.5% $V_{BMP}$ )		Volume = $78$ ft <sup>3</sup>		
b) Forebay depth (height of berm/splashwall. 1 foot min.)		Depth = $1$ ft		
c) Forebay surface area (minimum)		Area = $78$ ft <sup>2</sup>		
d) Full height notch-type weir		Width (W) = $4.0$ in		
Notes:				

# SPECIFICATIONS

## FLOW-BASED

### DMA 2 - BMP SIZING

The MWS Linear can be used in stand-alone applications to meet treatment flow requirements. Since the MWS Linear is the only biofiltration system that can accept inflow pipes several feet below the surface, it can be used not only in decentralized design applications but also as a large central end-of-the-line application for maximum feasibility.

MODEL #	DIMENSIONS	WETLANDMEDIA SURFACE AREA (sq.ft.)	TREATMENT FLOW RATE (cfs)
MWS-L-4-4	4' x 4'	23	0.052
MWS-L-4-6	4' x 6'	32	0.073
MWS-L-4-8	4' x 8'	50	0.115
MWS-L-4-13	4' x 13'	63	0.144
MWS-L-4-15	4' x 15'	76	0.175
MWS-L-4-17	4' x 17'	90	0.206
MWS-L-4-19	4' x 19'	103	0.237
MWS-L-4-21	4' x 21'	117	0.268
MWS-L-6-8	7' x 9'	64	0.147
MWS-L-8-8	8' x 8'	100	0.230
MWS-L-8-12	8' x 12'	151	0.346
MWS-L-8-16	8' x 16'	201	0.462
MWS-L-8-20	9' x 21'	252	0.577
MWS-L-8-24	9' x 25'	302	0.693

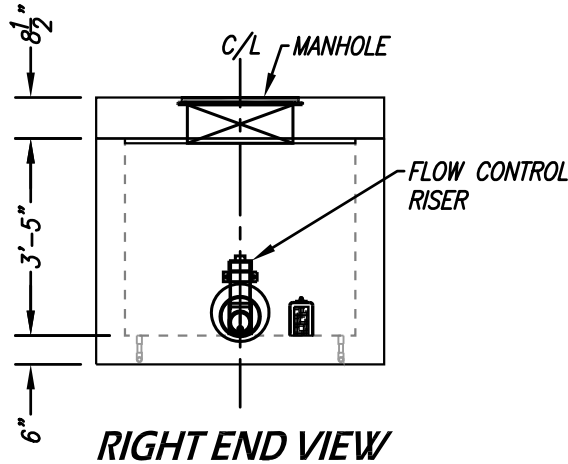
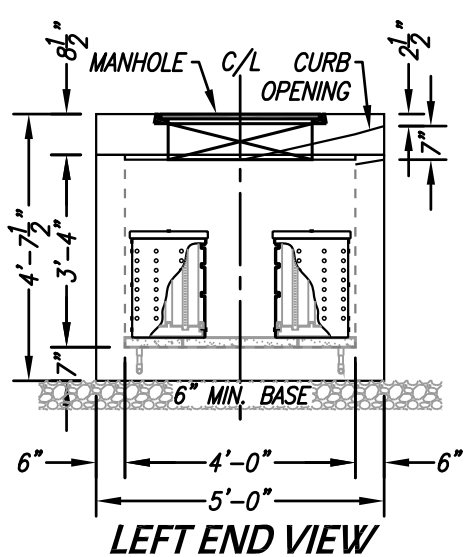
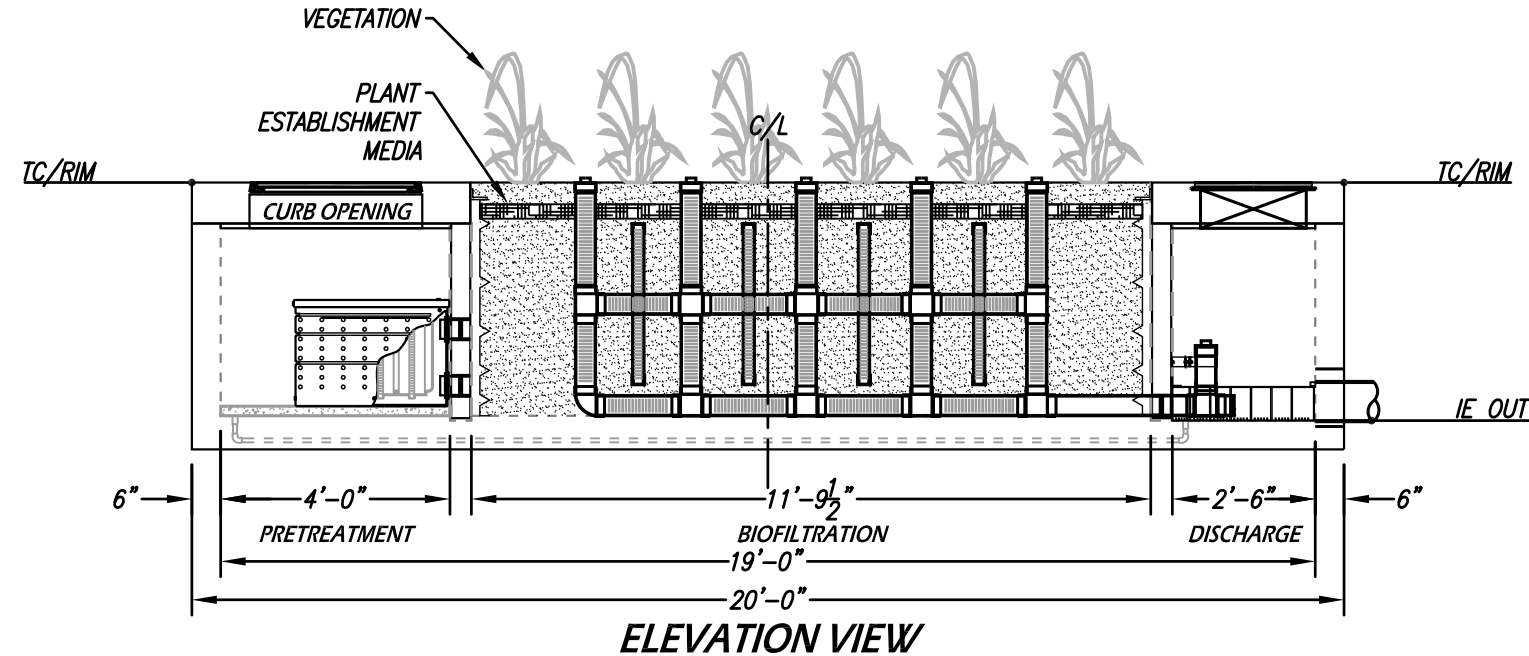
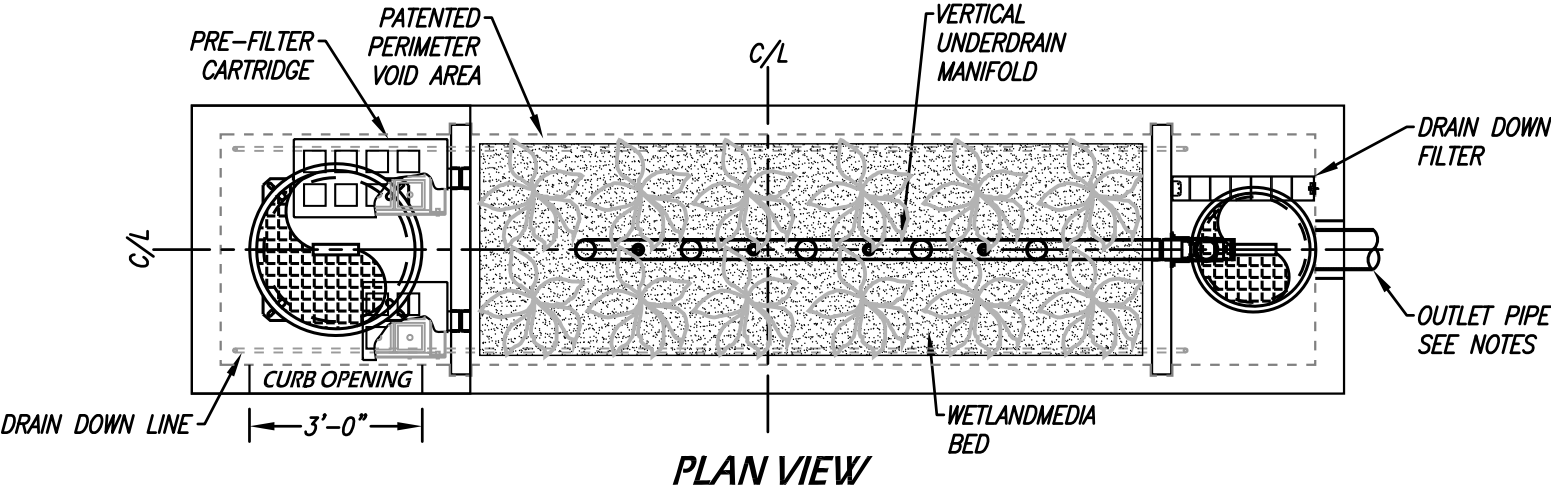
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			6.52
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø2.20"
MAXIMUM PICK WEIGHT (LBS)			40000
NOTES:			

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.



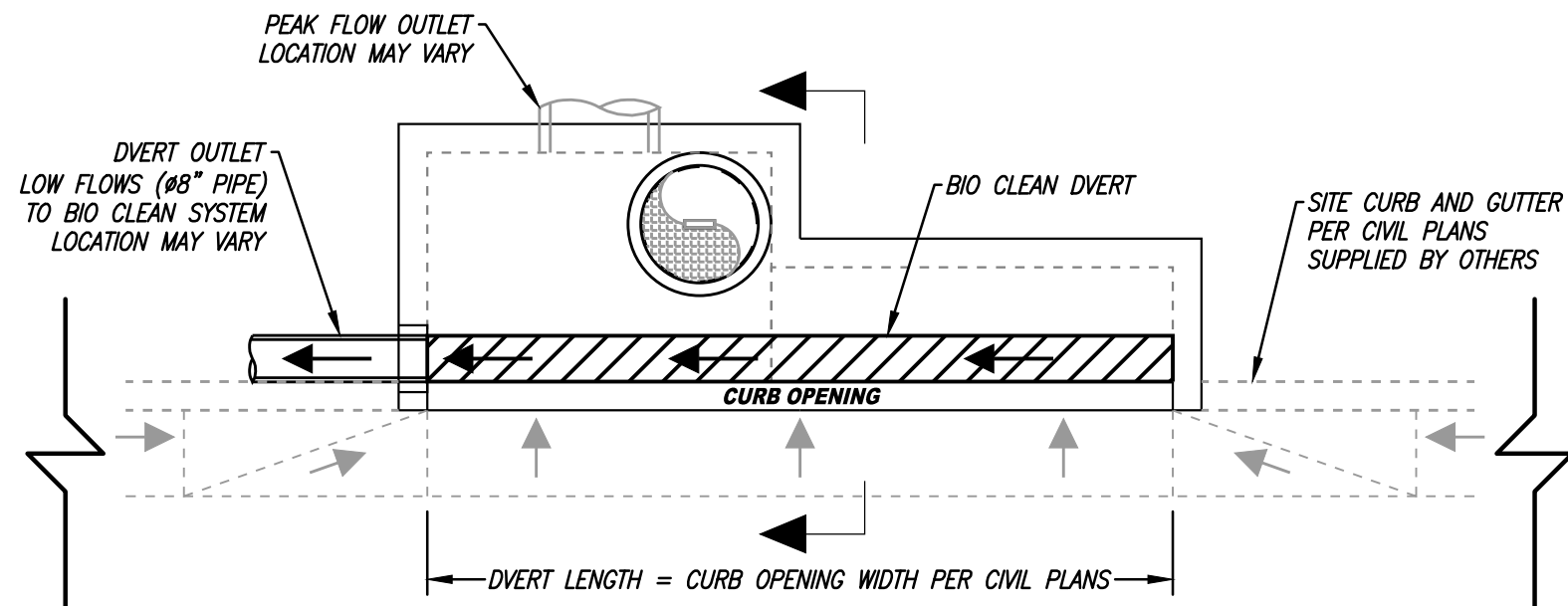
TREATMENT FLOW (CFS)	0.237
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

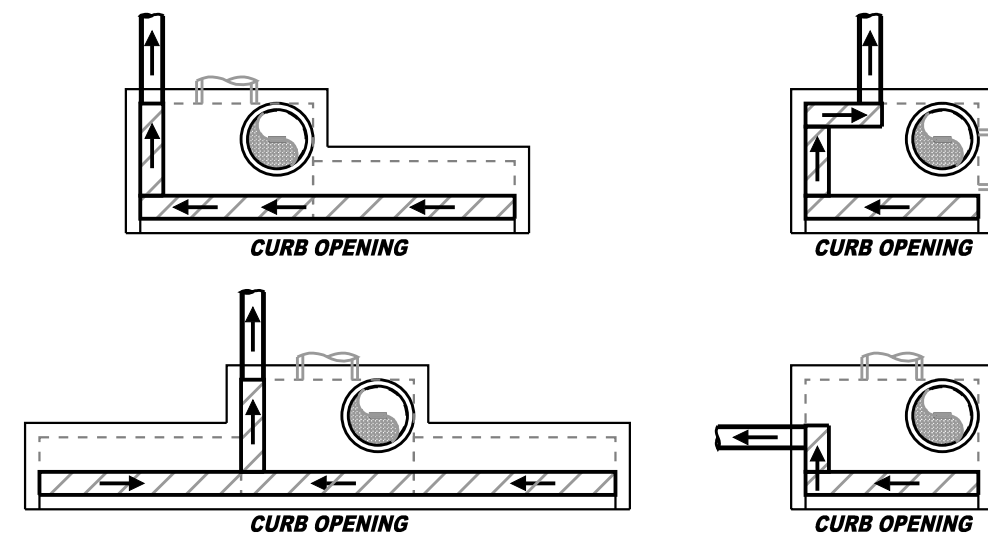
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**MWS-L-4-19-C**  
**STORMWATER BIOFILTRATION SYSTEM**  
**STANDARD DETAIL**

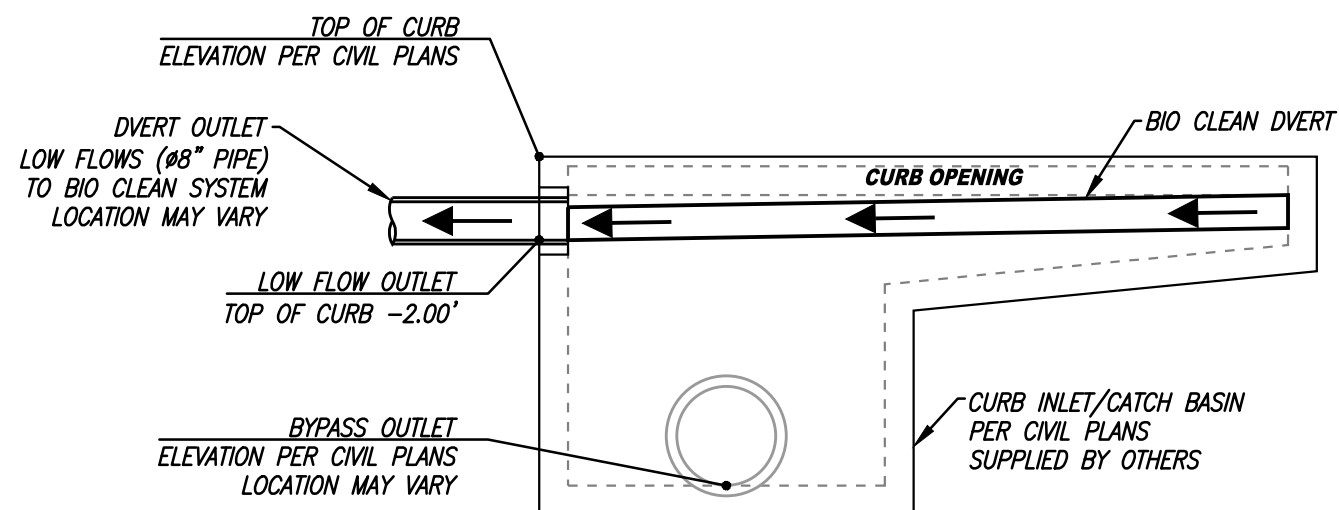


**PLAN VIEW**

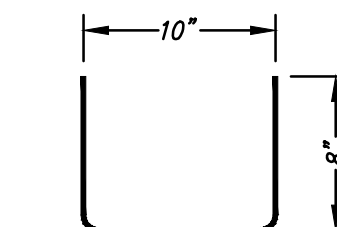


**ALTERNATE CONFIGURATIONS**

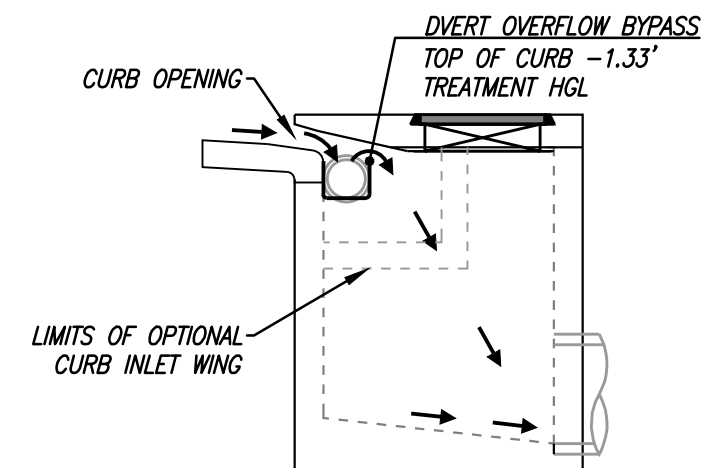
CONTACT BIO CLEAN FOR ADDITIONAL CUSTOM CONFIGURATIONS



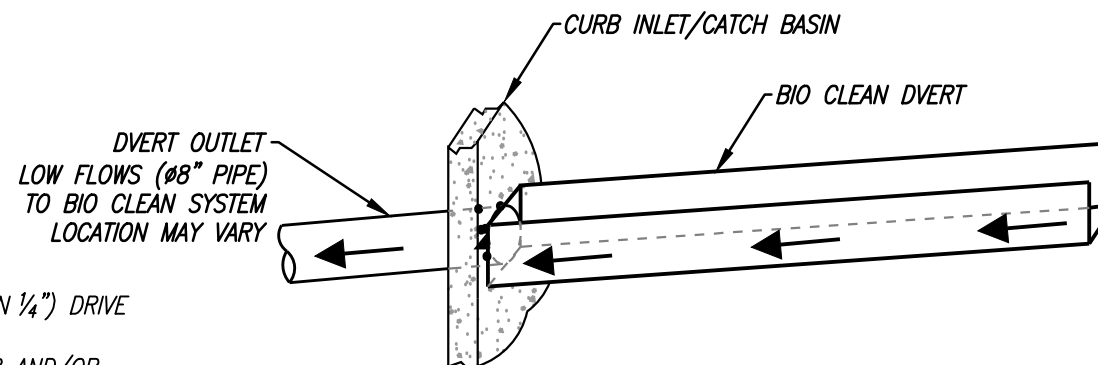
**ELEVATION VIEW**



**DVERT END VIEW**



**SECTION VIEW**



**ISOMETRIC VIEW**

**INSTALLATION NOTES**

1. DVERT TO BE CONNECTED TO CONCRETE BELOW CURB OPENING USING 316 STAINLESS STEEL (MIN 1/4") DRIVE PIN ANCHORS SPACED 12" ON CENTER AND 316 STAINLESS STEEL RIVETS (MIN 3/16").
2. ALL SEAMS BETWEEN DVERT AND CONCRETE SHALL BE FILLED WITH WATERTIGHT CONCRETE FILLER AND/OR SILICONE SEALANT.
3. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH THE FLOWLINE OF THE DVERT. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
4. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURES WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF FORTERRA AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF FORTERRA.



MAXIMUM LOW FLOW DIVERSION (CFS)	0.74
LOW FLOW OUTLET PIPE SIZE (INCHES)	ø8"
STATIC HEAD (INCHES)	8"
SAFETY FACTOR	2

**DVERT DVT-10-8**  
MODULAR TROUGH DIVERSION SYSTEM  
STANDARD DETAIL

# DMA 8 - BMP SIZING



## Filterra Sizing Spreadsheet San Diego Region Uniform Intensity Approach Storm Intensity = 0.20 in/hr

Filterra Infiltration Rate = 100 (in/hr)  
Filterra Flow per Square Foot = 0.0023 (ft<sup>3</sup>/sec/ft<sup>2</sup>)

Filterra Flow Rate, Q = 0.0023 ft<sup>3</sup>/sec x Filterra Surface Area  
Rational Method, Q = C x I x A  
San Diego Multiplier, M = 1.5

OR Site Flowrate, Q = (C x DI x DA x M x 43560) / (12 x 3600)  
DA = (12 x 3600 x Q) / (C x 43560 x DI x M)

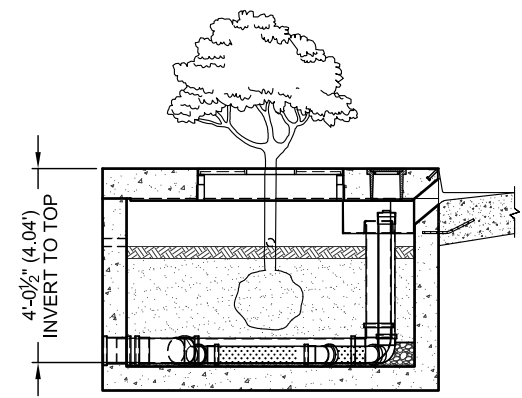
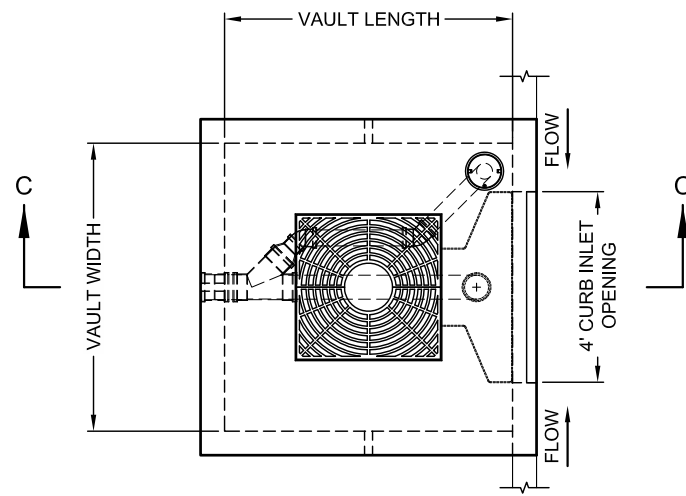
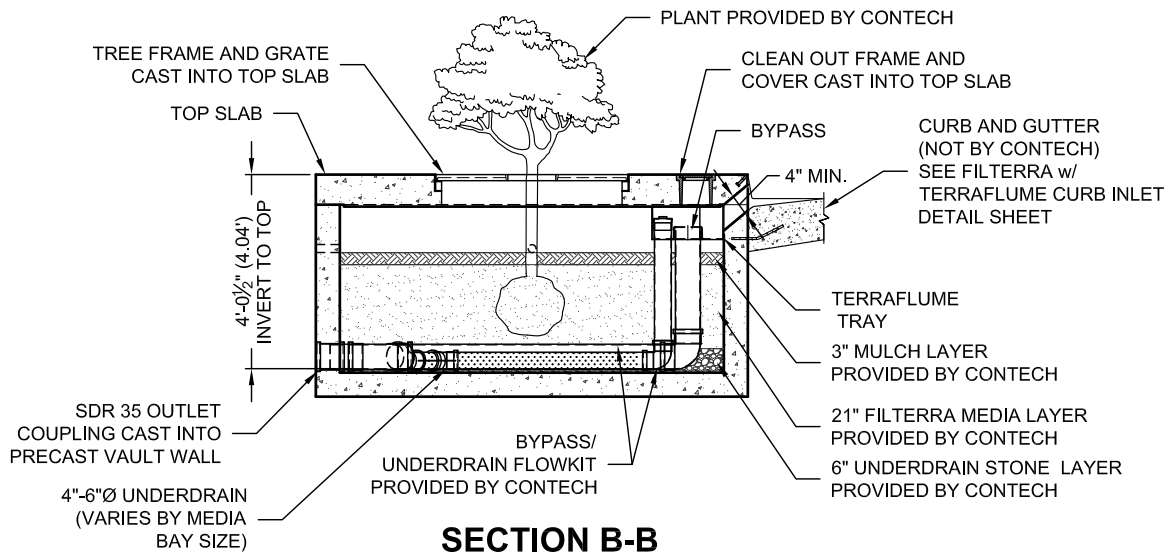
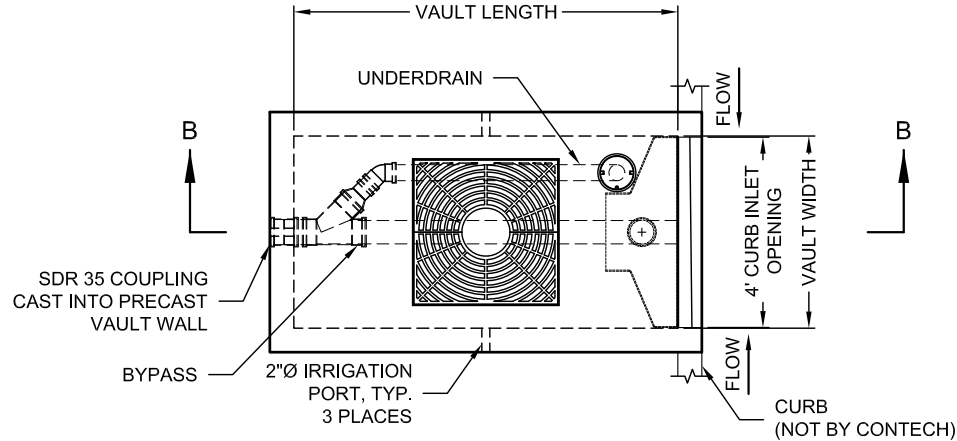
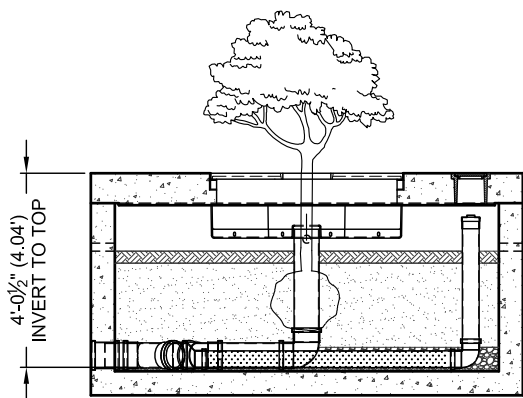
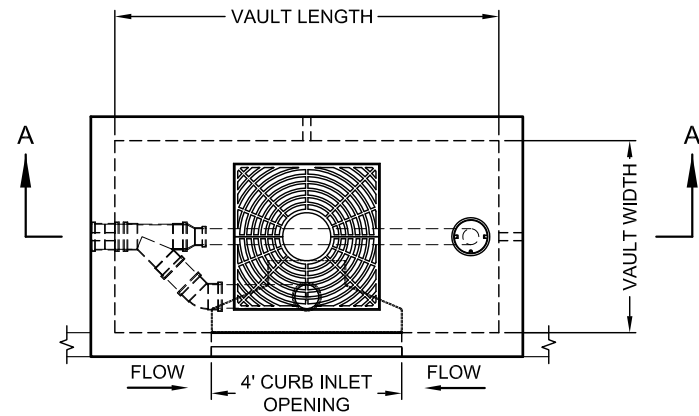
where

Q = Flow (ft<sup>3</sup>/sec)  
DA = Drainage Area (acres)  
DI = Design Intensity (in/hr)  
C = Runoff coefficient (dimensionless)  
M = Multiplier (dimensionless)

			DI 0.2	C 1.00	C 0.85	C 0.50
Available Filterra Box Sizes			Filterra Flow Rate, Q (ft <sup>3</sup> /sec)	100% Imperv. DA (acres)	Commercial max DA (acres)	Residential max DA (acres)
L (ft)	W (ft)	Filterra Surface Area (ft <sup>2</sup> )				
4	4	16	0.0370	0.122	0.144	0.245
6	4	24	0.0556	0.184	0.216	0.367
6.5	4	26	0.0602	0.199	0.234	0.398
8	4	32	0.0741	0.245	0.288	0.490
10	4	40	0.0926	0.306	0.360	0.612
12	4	48	0.1111	0.367	0.432	0.735
6	6	36	0.0833	0.275	0.324	0.551
8	6	48	0.1111	0.367	0.432	0.735
10	6	60	0.1389	0.459	0.540	0.918
12	6	72	0.1667	0.551	0.648	1.102
13	7	91	0.2106	0.696	0.819	1.393



I:\COMMON\CAD\TREATMENT\54 FILTERRA\40 STANDARD DRAWINGS\FTIBC - INTERNAL BYPASS CURB INLET\DETAILS\DWG\FTIBC FILTERRA INTERNAL BYPASS CURB INLET CONFIG DETAIL.DWG 11/9/2017 8:15 AM



FTIBC LONG SIDE CURB INLET

DESIGNATION	AVAIL-ABILITY	MEDIA BAY SIZE	VAULT SIZE (L x W)	MAX. OUTLET/ BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDER-DRAIN PIPE DIA. (PERF)	TREE GRATE QTY. & SIZE
FTIBC0604	N/A CA	6 x 4	6 x 4	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC06504	CA ONLY	6.5 x 4	6.5 x 4	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC078045	MID-ATL ONLY	7.83 x 4.5	7.83 x 4.5	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC0804	N/A MID-ATL	8 x 4	8 x 4	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC0806	ALL	8 x 6	8 x 6	10" SDR 35	2.37	4" SDR 35	(1) 4' x 4'
FTIBC1006	ALL	10 x 6	10 x 6	10" SDR 35	2.37	6" SDR 35	(1) 4' x 4'
FTIBC1206	ALL	12 x 6	12 x 6	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'
FTIBC1307	ALL	13 x 7	13 x 7	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'

N/A = NOT AVAILABLE

FTIBC SHORT SIDE CURB INLET

DESIGNATION	AVAIL-ABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	MAX. OUTLET/ BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDER-DRAIN PIPE DIA. (PERF)	TREE GRATE QTY. & SIZE
FTIBC0406	N/A CA	4 x 6	4 x 6	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC04065	CA ONLY	4 x 6.5	4 x 6.5	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC0408	N/A MID-ATL	4 x 8	4 x 8	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC045078	MID-ATL ONLY	4.5 x 7.83	4.5 x 7.83	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
FTIBC0608	ALL	6 x 8	6 x 8	10" SDR 35	2.37	4" SDR 35	(1) 4' x 4'
FTIBC0610	ALL	6 x 10	6 x 10	10" SDR 35	2.37	6" SDR 35	(1) 4' x 4'
FTIBC0612	ALL	6 x 12	6 x 12	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'
FTIBC0713	ALL	7 x 13	7 x 13	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'

N/A = NOT AVAILABLE

FTIBC SQUARE CURB INLET

DESIGNATION	AVAIL-ABILITY	MEDIA BAY SIZE	VAULT SIZE (L x W)	MAX. OUTLET/ BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDER-DRAIN PIPE DIA. (PERF)	TREE GRATE QTY. & SIZE
FTIBC0404	ALL	4 x 4	4'-0"	6" SDR 35	1.42	4" SDR 35	(1) 3' x 3'
FTIBC0606	ALL	6 x 6	6'-0"	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'

N/A = NOT AVAILABLE

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE.



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FILTERRA INTERNAL BYPASS CURB (FTIBC)  
CONFIGURATION DETAIL

# BIO CLEAN FULL CAPTURE FILTER WITH TROUGH SYSTEM

## FOR USE IN CURB INLETS

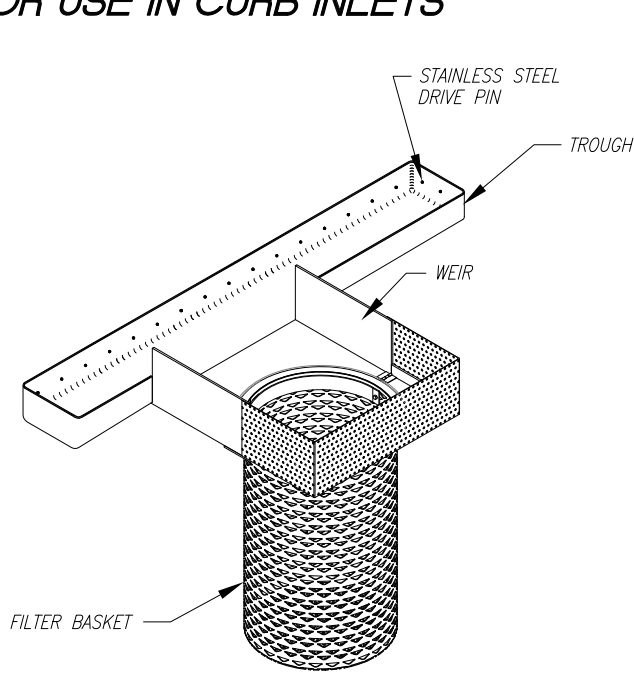


FIGURE 1:  
DETAIL OF PARTS

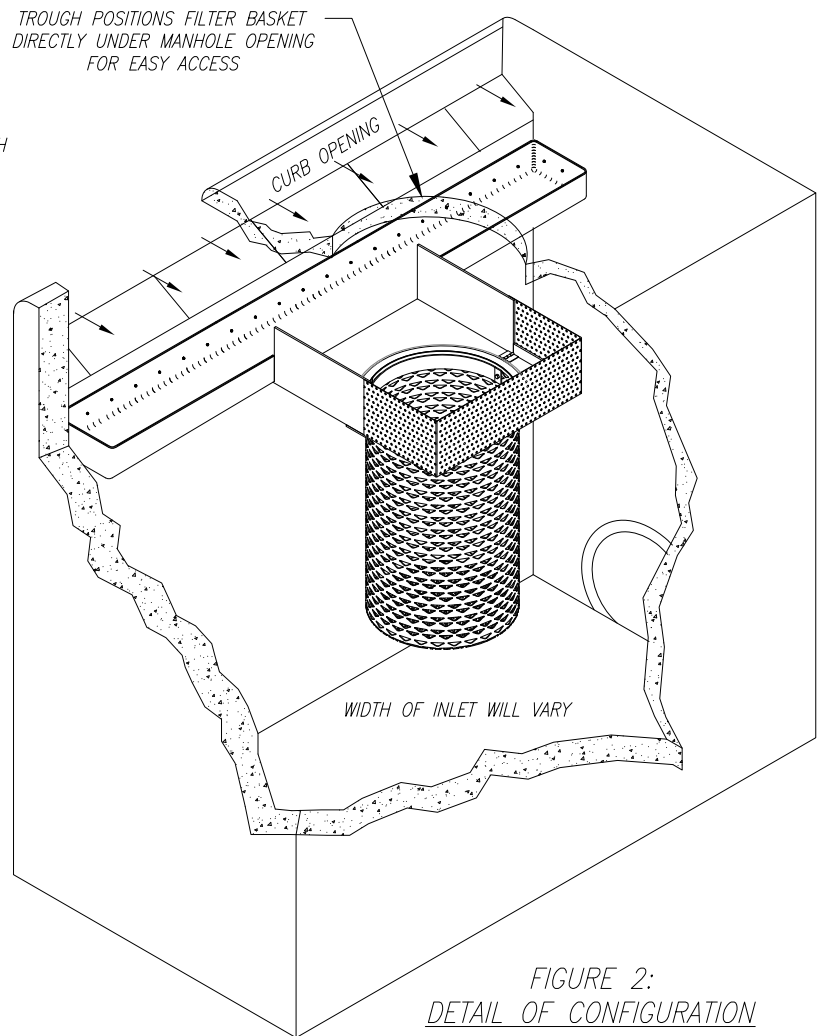


FIGURE 2:  
DETAIL OF CONFIGURATION

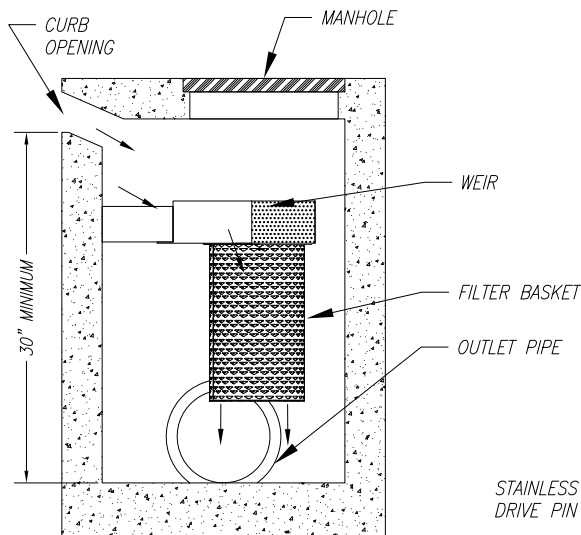


FIGURE 4:  
DETAIL OF PROFILE

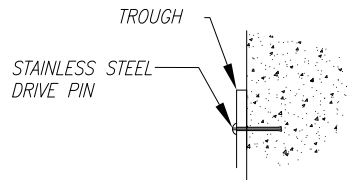


FIGURE 3:  
DETAIL OF MOUNTING

### NOTES:

1. TROUGH SYSTEM PROVIDES FOR ENTIRE COVERAGE OF INLET OPENING SO TO DIVERT ALL FLOW TO FILTER.
2. TROUGH SYSTEM MANUFACTURED FROM MARINE GRADE FIBERGLASS, GEL COATED FOR UV PROTECTION.
3. SYSTEM ATTACHED TO THE CATCH BASIN WITH NON-CORROSIVE HARDWARE.
4. FILTER MANUFACTURED OF 100% STAINLESS STEEL.
5. FILTER MADE OF NON-CLOGGIN SCREEN WITH 4.7 MM OPENINGS AND MEETS FULL CAPTURE REQUIREMENTS.
6. FILTER CAN BE FITTED WITH HYDROCARBON ABSORBENT BOOM
7. FILTER IS LOCATED DIRECTLY UNDER THE MANHOLE FOR EASY REMOVAL AND MAINTENANCE.
8. LENGTH OF TROUGH CAN VARY FROM 2' TO 30'
9. OTHER STANDARD AND CUSTOM MODEL SIZES AVAILABLE - CONTACT BIO CLEAN FOR MORE INFORMATION.
10. CONSIDERS A SAFETY FACTOR OF 2.0
11. BYPASS IS FACILITATED VIA OVERFLOW OF THE TROUGH SYSTEM AND IS EQUAL TO THE CAPACITY OF THE CURB OPENING
12. STORAGE CAPACITY BASED ON THE BASKET HALF FULL.
13. ADDITIONAL TREATMENT AND STORAGE CAPACITY CAN BE ACHIEVED BY UTILIZING MULTIPLE FILTER BASKETS.

MODEL NUMBER	TREATMENT FLOW (cfs)*	SOLIDS STORAGE CAPACITY (cu ft)
BC-CURB-FC-30	2.85	2.21
BC-CURB-FC-24	2.85	1.77
BC-CURB-FC-18	2.85	1.33
BC-CURB-FC-12	2.85	0.88

\*SEE PAGE 2 FOR EXPLANATION OF FLOW RATES

DRAWING: BIO CLEAN CURB INLET FILTER DETAILS

MEETS FULL CAPTURE REQUIREMENTS

TREATMENT FLOW RATE: 2.85 cfs

MODEL #: BC-CURB-FC

WARRANTY: 5 YEAR MANUFACTURERS

PROJECT:

BIO CLEAN ENVIRONMENTAL SERVICES, INC.  
398 VIA EL CENTRO, OCEANSIDE CA 92058  
PHONE: 760-433-7640 FAX: 760-433-3176

REVISIONS:

DATE:

REVISIONS:

DATE:

DATE: 10/12/2017

SCALE: NTS

REVISIONS:

DATE:

DRAFTER: M.C.P.

UNITS = INCHES

REVISIONS:

DATE:

**Bio Clean**  
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# MODEL # BC-CURB-FC FILTER

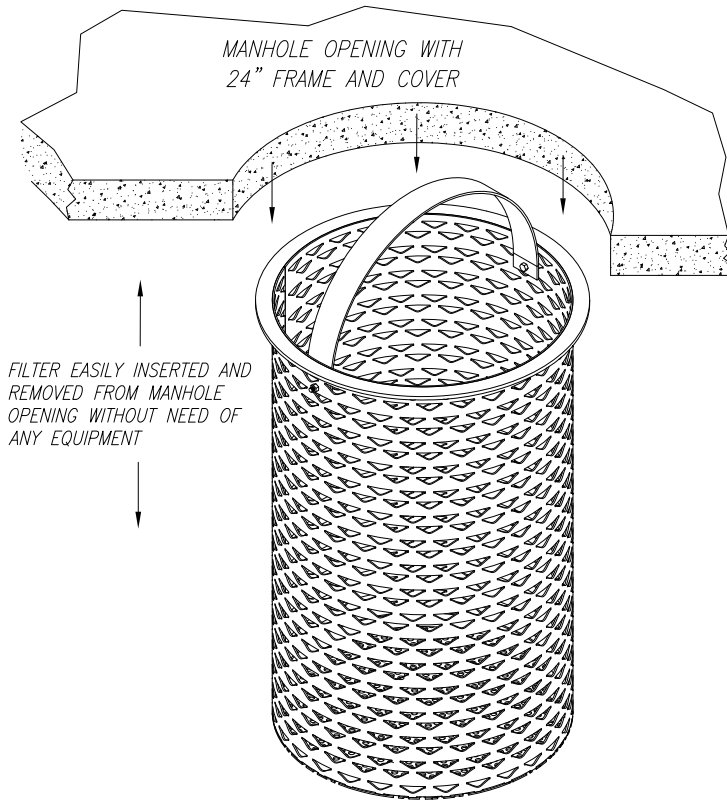


FIGURE 1:  
DETAIL OF INSTALLATION

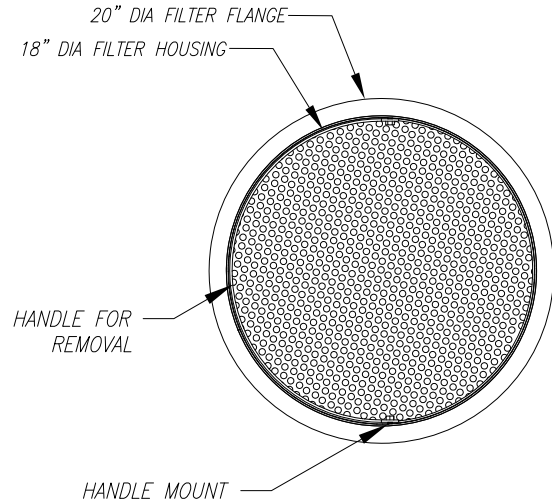


FIGURE 2:  
DETAIL OF DIAMETERS

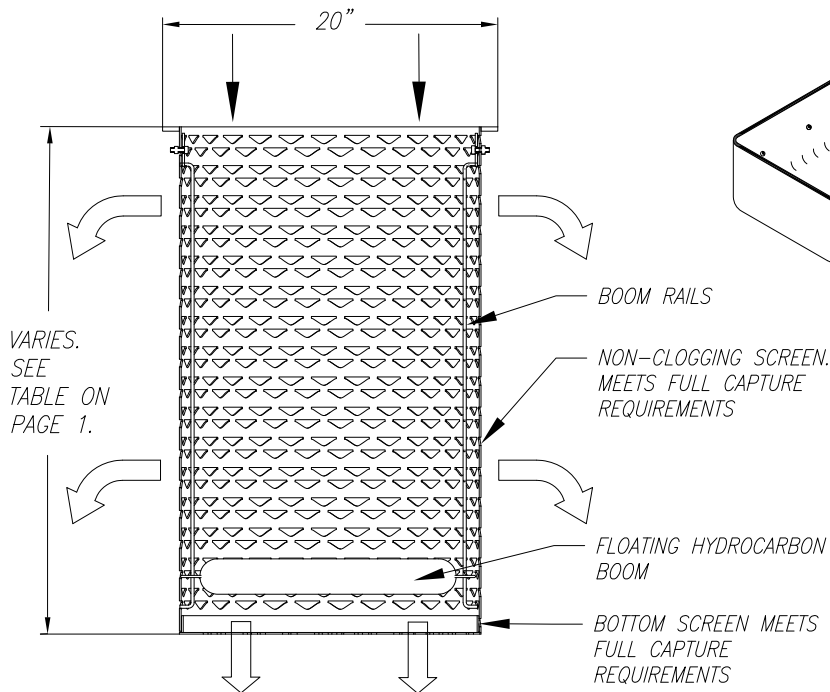


FIGURE 3:  
DETAIL OF PARTS

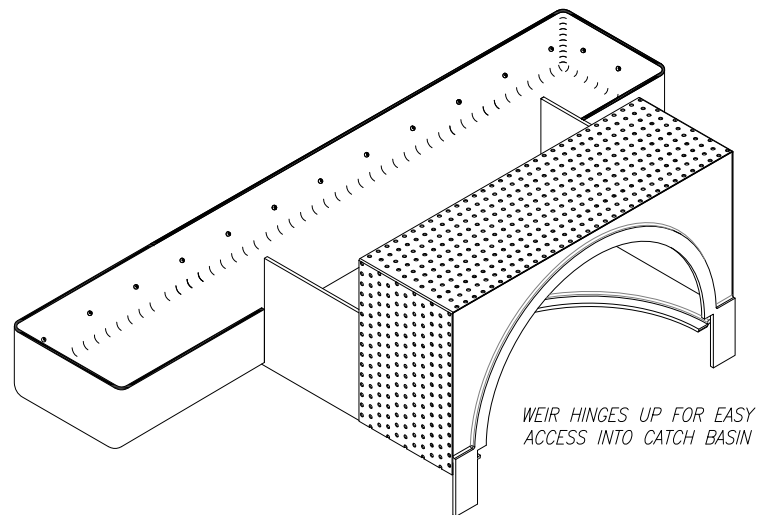


FIGURE 4:  
DETAIL OF WEIR

## FLOW RATES – CURB FILTER

TREATMENT FLOW RATE	2.85 cfs	SAFETY FACTOR OF 2X
*TREATMENT FLOW RATE IS BASED ON THE CRITICAL POINT OF RESTRICTION, WHICH IS EITHER THE WEIR OR THE SCREEN		
		WEIR CAPACITY=2.85 CFS SCREEN CAPACITY=4.82 CFS CAPACITIES.
**FLOW RATES CALCULATED USING THE FOLLOWING EQUATION		
$Q = SO * c_d * A \sqrt{2 * g * h}$		$c_d =$ COEFFICIENT OF DISCHARGE = .62

DRAWING: BC-CURB-FC FILTER	MEETS FULL CAPTURE REQUIREMENTS	SEE PAGE 1 FOR NOTES
TREATMENT FLOW RATE: 2.85 cfs	MODEL #: BC-CURB-FC	
WARRANTY: 5 YEAR MANUFACTURERS	PROJECT:	
BIO CLEAN ENVIRONMENTAL SERVICES, INC. 398 VIA EL CENTRO, OCEANSIDE CA 92058 PHONE: 760-433-7640 FAX: 760-433-3176	REVISIONS:	DATE:
DATE: 10/12/2017	REVISIONS:	DATE:
DRAFTER: M.C.P.	REVISIONS:	DATE:
SCALE: NTS	REVISIONS:	DATE:
UNITS = INCHES	REVISIONS:	DATE:

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# BIO CLEAN FULL CAPTURE FILTER WITH TROUGH SYSTEM

## FOR USE IN CURB INLETS WITH WINGS

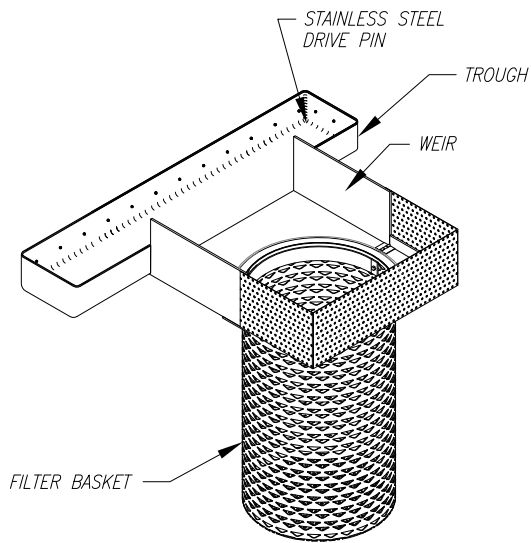


FIGURE 1:  
DETAIL OF PARTS

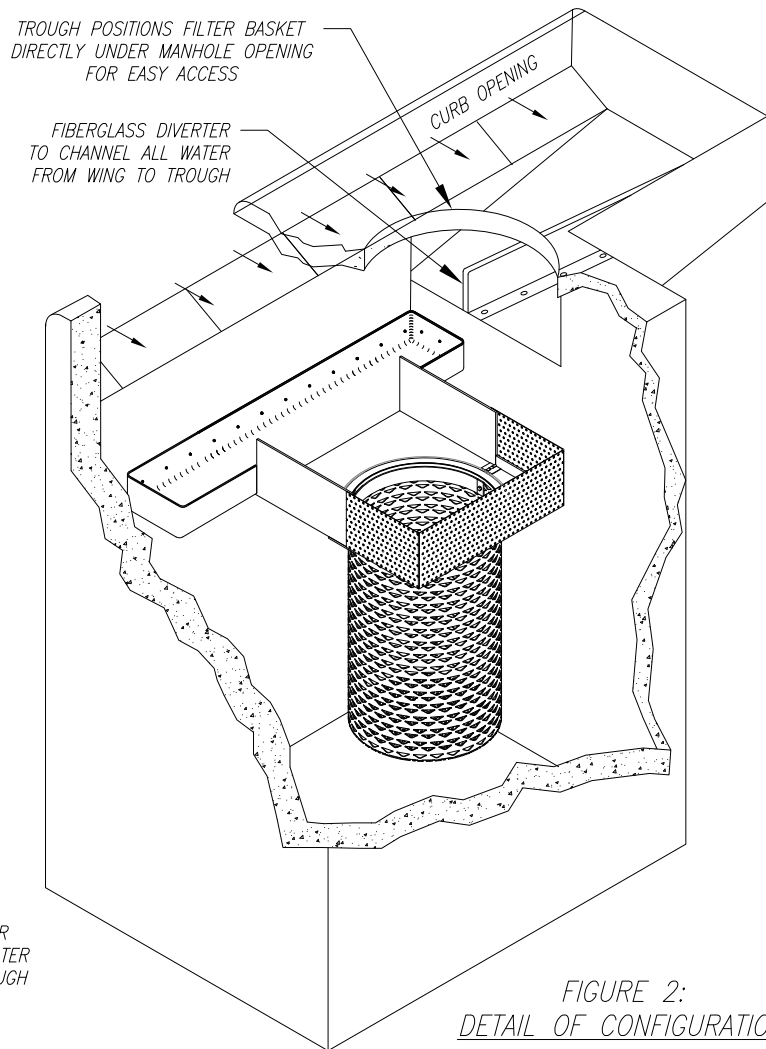


FIGURE 2:  
DETAIL OF CONFIGURATION

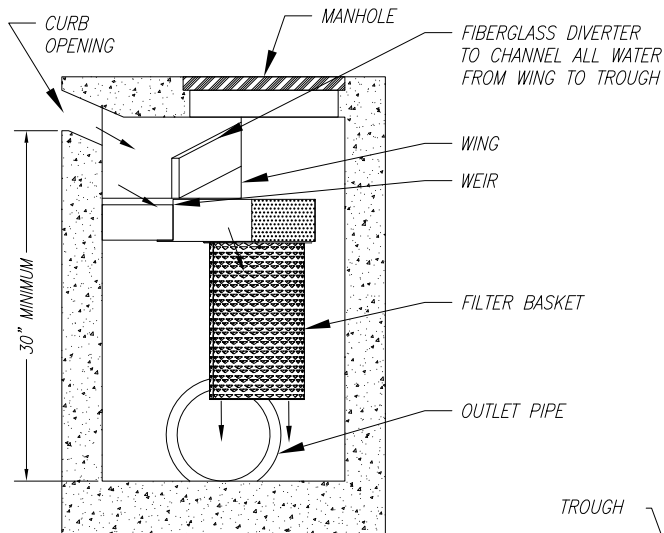


FIGURE 4:  
DETAIL OF PROFILE

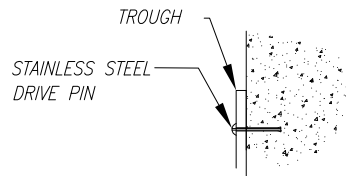


FIGURE 3:  
DETAIL OF MOUNTING

### NOTES:

1. TROUGH SYSTEM PROVIDES FOR ENTIRE COVERAGE OF INLET OPENING SO TO DIVERT ALL FLOW TO FILTER.
2. TROUGH SYSTEM MANUFACTURED FROM MARINE GRADE FIBERGLASS, GEL COATED FOR UV PROTECTION.
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12. STORAGE CAPACITY BASED ON THE BASKET HALF FULL.
13. ADDITIONAL TREATMENT AND STORAGE CAPACITY CAN BE ACHIEVED BY UTILIZING MULTIPLE FILTER BASKETS.

DRAWING: BIO CLEAN CURB INLET FILTER DETAILS

MEETS FULL CAPTURE REQUIREMENTS

TREATMENT FLOW RATE: 2.85 cfs

MODEL #: BC-CURB-FC

WARRANTY: 5 YEAR MANUFACTURERS

PROJECT:

BIO CLEAN ENVIRONMENTAL SERVICES, INC.  
398 VIA AL CENTRO, OCEANSIDE CA 92058  
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DATE:

DRAFTER: M.C.P.

UNITS = INCHES

REVISIONS:

DATE:

**Bio Clean**  
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## WQMP Project Report

### County of Riverside Stormwater Program

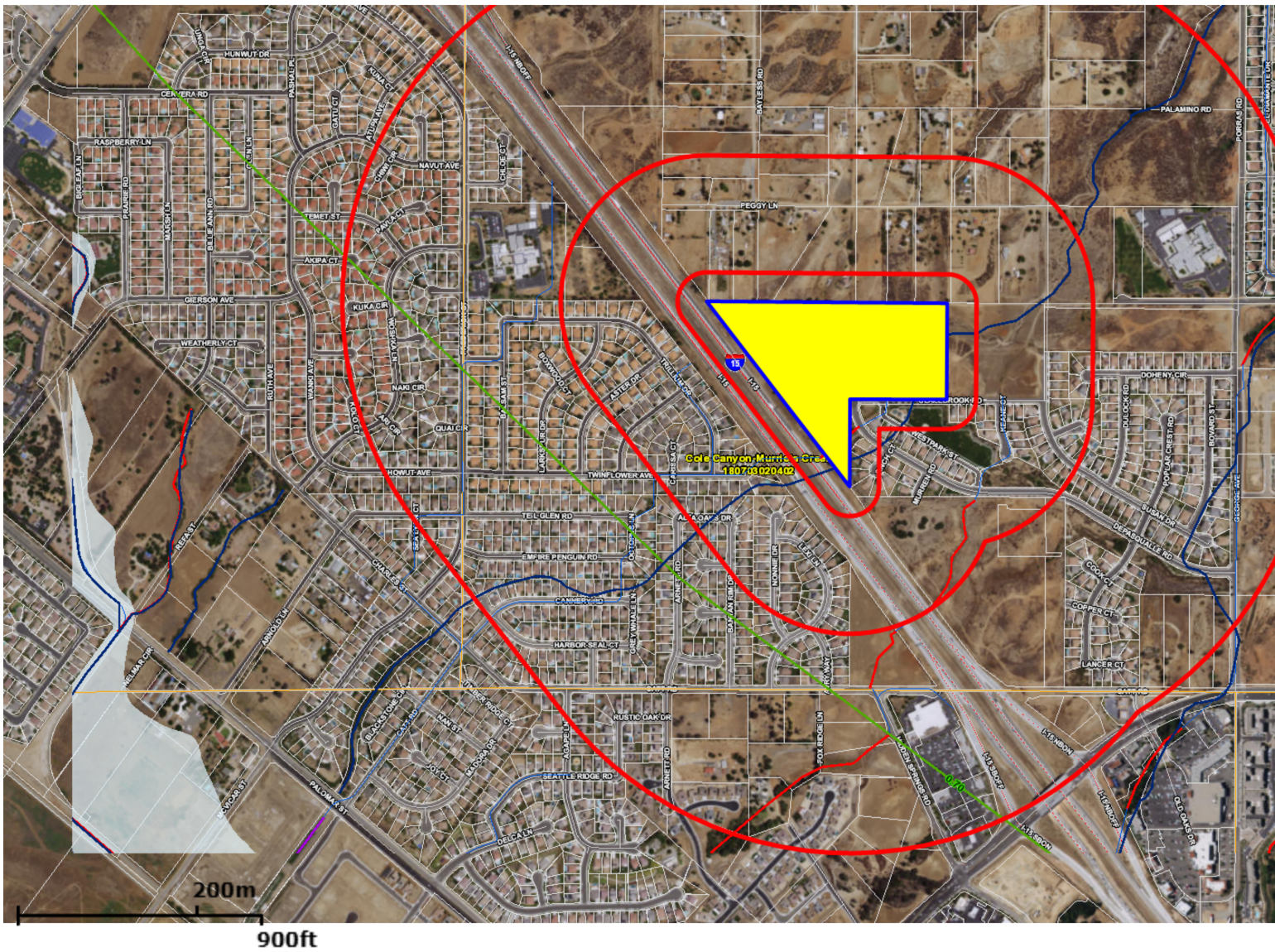
Santa Ana River Watershed Geodatabase

Monday, July 17, 2017

Note: The information provided in this report and on the Stormwater Geodatabase for the County of Riverside Stormwater Program is intended to provide basic guidance in the preparation of the applicant's Water Quality Management Plan (WQMP) and should not be relied upon without independent verification.

<b>Project Site Parcel Number(s):</b>	376410024, 376410003, 376410002
<b>Latitude/Longitude:</b>	33.604, -117.2497
<b>Thomas Brothers Page:</b>	897
<b>Project Site Acreage:</b>	23.98
<b>Watershed(s):</b>	SANTA MARGARITA
<b>This Project Site Resides in the following Hydrologic Unit(s) (HUC):</b>	<b>HUC Name - HUC Number</b> <b>Cole Canyon-Murrieta Creek - 180703020402</b>
<b>The HUCs Contribute stormwater to the following 303d listed water bodies and TMDLs which may include drainage from your proposed Project Site:</b>	<b>WBID Name - WBID Number</b> <b>Santa Margarita River (Lower) - CAR9021100019980911161346</b> <b>Santa Margarita River (Upper) - CAR9022200020011001141050</b> <b>Murrieta Creek - CAR9023200020010924152136</b>
<b>These 303d listed Water bodies and TMDLs have the following Pollutants of Concern (POC):</b>	<b>Bacterial Indicators - Enterococcus, Fecal Coliform</b> <b>Metals/Metalloids - Copper, Iron, Manganese</b> <b>Nutrients - Nitrogen, Phosphorus, Total Nitrogen as N</b> <b>Pesticides - Chlorpyrifos</b> <b>Toxicity - Toxicity</b>
<b>Is the Site subject to Hydromodification:</b>	Yes
<b>Limitations on Infiltration:</b>	<b>Project Site Onsite Soils Group(s) - A, D</b> <b>Known Groundwater Contamination Plumes within 1000' - No</b> <b>Adjacent Water Supply Wells(s) - No</b> information available please contact your local water agency for more information. Your local contact agency is ELSINORE VALLEY M.W.D.. Your local wholesaler contact agency is METROPOLITAN WATER DISTRICT.
<b>Environmentally Sensitive Areas within 200'(Fish and Wildlife Habitat/Species):</b>	None
<b>Environmentally Sensitive Areas within 200'(CVMSHCP):</b>	None
<b>Environmentally Sensitive Areas within 200'(WRMSHCP):</b>	Burrowing Owl Survey Required Area
<b>Groundwater elevation from Mean Sea Level:</b>	No Data
<b>85th Percentile Design Storm Depth (in):</b>	0.694
<b>Groundwater Basin:</b>	TEMECULA VALLEY
<b>MSHCP/CVMSHCP Criteria Cell(s):</b>	No Data
<b>Retention Ordinance Information:</b>	No Data
<b>Studies and Reports Related to Project Site:</b>	<a href="#">IBI Scores - Southern Cal</a> <a href="#">bulletin118_4-sc</a> <a href="#">water_fact_3_7.11</a> <a href="#">Complete Final GWMP_Mar 2005</a> <a href="#">Urban Water Management Plan</a> <a href="#">Wildomar</a> <a href="#">Santa Margarita River Watershed Annual Watermaster</a> <a href="#">Murrieta Creek/Murrieta Valley ADP Map 1</a> <a href="#">Murrieta Creek/Murrieta Valley ADP Map 2</a> <a href="#">Murrieta Creek/Murrieta Valley ADP Report</a> <a href="#">SMR Annual Report 2009-10</a>





Site Address: [rivco.permittrack.com](http://rivco.permittrack.com)

2010 CALIFORNIA 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS

REGION	WATER BODY NAME	WATER BODY TYPE	WBID	INTEGRATED REPORT CATEGORY	USGS CATALOGING UNIT*	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT	POLLUTANT	POLLUTANT CATEGORY	FINAL LISTING DECISION	TMDL REQUIREMENT STATUS**
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Chlorpyrifos	Pesticides	List on 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Copper	Metals/Metalloids	List on 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Iron	Metals/Metalloids	List on 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Manganese	Metals/Metalloids	List on 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Nitrogen	Nutrients	List on 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Phosphorus	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	5A
9	Murrieta Creek	River & Stream	CAR9023200020010924152136	5	18070302	90252000	11.859 Miles		Toxicity	Toxicity	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita Lagoon	Estuary	CAE9021100019990209155924	5	18070302	90211000	27.9095 Acres		Eutrophic	Nutrients	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Lower)	River & Stream	CAR9021100019980911161346	5	18070302	90211000	19.206 Miles		Enterococcus	Pathogens	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Lower)	River & Stream	CAR9021100019980911161346	5	18070302	90211000	19.206 Miles		Fecal Coliform	Pathogens	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Lower)	River & Stream	CAR9021100019980911161346	5	18070302	90211000	19.206 Miles		Phosphorus	Nutrients	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Lower)	River & Stream	CAR9021100019980911161346	5	18070302	90211000	19.206 Miles		Total Nitrogen as N	Nutrients	List on 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Upper)	River & Stream	CAR9022200020011001141050	5	18070302	90222000	18.1389 Miles		Phosphorus	Nutrients	Do Not Delist from 303(d) list (TMDL required list)	5A
9	Santa Margarita River (Upper)	River & Stream	CAR9022200020011001141050	5	18070302	90222000	18.1389 Miles		Toxicity	Toxicity	List on 303(d) list (TMDL required list)	5A

# Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters <sup>1, 2</sup>	Hydrologic Unit Basin Number	BENEFICIAL USE														
		M U N	A G R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N
San Onofre Creek Watershed – continued																
Las Flores Creek	1.52	+	●						●	●		●	●	●	●	
Piedra de Lumbre Canyon	1.52	+	●						●	●		●	●	●	●	
unnamed intermittent coastal streams	1.52	+	●						●	●		●		●		
Aliso Canyon	1.53	+	●						●	●		●	●	●	●	
French Canyon	1.53	+	●						●	●		●		●	●	
Cockleburr Canyon	1.53	+	●						●	●		●		●		
Santa Margarita River Watershed																
Santa Margarita River	2.22	●	●	●					●	●		●	●	●	●	
Murrieta Creek	2.31	●	●	●	●				○	●		●		●		
Bundy Canyon	2.31	●	●	●	●				○	●		●		●		
Slaughterhouse Canyon	2.31	●	●	●	●				○	●		●		●		
Murrieta Creek	2.32	●	●	●	●				○	●		●		●		
Murrieta Creek	2.52	●	●	●	●	●			○	●		●		●		
Cole Canyon	2.32	●	●	●	●				○	●	●	●		●		
Miller Canyon	2.32	●	●	●	●				○	●		●		●		
Warm Springs Creek	2.36	●	●	●	●				○	●		●		●		
Diamond Valley	2.36	●	●	●	●				○	●		●		●		

● Existing Beneficial Use

○ Potential Beneficial Use

⊕ Excepted from MUN (See Text)

<sup>1</sup> Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

<sup>2</sup> Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

# Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters <sup>1, 2</sup>	Hydrologic Unit Basin Number	BENEFICIAL USE															
		M U N	A G R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N	
Santa Margarita River Watershed - continued																	
Santa Gertrudis Creek	2.32	●	●	●	●				○	●		●		●			
Long Canyon	2.32	●	●	●	●				○	●		●		●			
Temecula Creek	2.93	●	●	●	●	●			○	●		●		●			
Kohler Canyon	2.93	●	●	●	●	●			○	●		●	●	●			
Rattlesnake Creek	2.93	●	●	●	●	●			○	●		●	●	●			
Temecula Creek	2.92	●	●	●	●	●			○	●		●		●			
Chihuahua Creek	2.94	●	●	●	●	●			○	●		●		●			
Chihuahua Creek	2.92	●	●	●	●	●			○	●		●		●			
Cooper Canyon	2.92	●	●	●	●	●			○	●		●		●			
Iron Spring Canyon	2.92	●	●	●	●	●			○	●		●		●			
Temecula Creek	2.91	●	●	●	●	●			○	●		●		●			
Culp Valley	2.91	●	●	●	●	●			○	●		●		●			
Temecula Creek	2.84	●	●	●	●	●			●	●		●	●	●		●	
Tule Creek	2.84	●	●	●	●	●			●	●		●	●	●			
Million Dollar Canyon	2.84	●	●	●	●	●			●	●		●	●	●			
Cottonwood Creek	2.84	●	●	●	●	●			●	●		●	●	●		●	
Temecula Creek	2.83	●	●	●	●	●			●	●		●	●	●		●	

● Existing Beneficial Use

○ Potential Beneficial Use

<sup>1</sup> Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

<sup>2</sup> Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

# Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters <sup>1, 2</sup>	Hydrologic Unit Basin Number	BENEFICIAL USE															
		M U N	A G R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N	
Santa Margarita River Watershed - continued																	
Long Canyon	2.83	●	●	●	●	●			●	●		●	●	●		●	
Vail Lake	2.81	See Reservoirs & Lakes – Table 2-4															
Wilson Creek	2.63	●	●	●	●	●			○	●		●		●			
Wilson Creek	2.61	●	●	●	●	●			○	●		●		●			
Cahuilla Creek	2.73	●	●	●	●	●			○	●		●		●			
Hamilton Creek	2.74	●	●	●	●	●			○	●		●		●			
Hamilton Creek	2.73	●	●	●	●	●			○	●		●		●			
Cahuilla Creek	2.72	●	●	●	●	●			○	●		●		●			
Cahuilla Creek	2.71	●	●	●	●	●			○	●		●		●			
Elder Creek	2.71	●	●	●	●	●			○	●		●		●			
Cahuilla Creek	2.61	●	●	●	●	●			○	●		●		●			
Wilson Creek	2.81	●	●	●	●	●			●	●		●	●	●			
Lewis Valley	2.62	●	●	●	●	●			○	●		●		●			
Arroyo Seco Creek	2.81	●	●	●	●	●			●	●		●	●	●			
Arroyo Seco Creek	2.82	●	●	●	●	●			●	●		●	●	●		●	
Kolb Creek	2.81	●	●	●	●	●			●	●		●	●	●			
Temecula Creek	2.81	●	●	●	●	●			●	●		●	●	●		●	

● Existing Beneficial Use

○ Potential Beneficial Use

<sup>1</sup> Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

<sup>2</sup> Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.



# Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters <sup>1, 2</sup>	Hydrologic Unit Basin Number	BENEFICIAL USE														
		MUN	AGR	IND	PROC	GR	FRSH	POW	REC1	REC2	BIO	WARM	COLD	WILD	RARE	SPWN
Santa Margarita River Watershed - continued																
Temecula Creek	2.51	●	●	●	●	●			○	●		●		●		
Temecula Creek	2.52	●	●	●	●	●			○	●		●		●		
Pechanga Creek	2.52	●	●	●	●	●			○	●		●		●		
Rainbow Creek <sup>3</sup>	2.23	●	●	●					●	●		●	●	●		●
Rainbow Creek <sup>3</sup>	2.22	●	●	●					●	●		●	●	●		●
Sandia Canyon	2.22	●	●	●					●	●		●	●	●		●
Walker Basin	2.22	●	●	●					●	●		●	●	●		
Santa Margarita River	2.21	●	●	●					●	●		●	●	●	●	
DeLuz Creek	2.21	●	●	●					●	●		●	●	●	●	●
Cottonwood Creek	2.21	●	●	●					●	●		●	●	●		
Camps Creek	2.21	●	●	●					●	●		●	●	●		●
Fern Creek	2.21	●	●	●					●	●		●	●	●		●
Roblar Creek	2.21	●	●	●					●	●		●	●	●		
O'Neill Lake	2.13	See Reservoirs & Lakes – Table 2-4														
Santa Margarita River	2.13	●	●	●	●				●	●		●	●	●	●	
Wood Canyon	2.13	●	●	●	●				●	●		●		●		
Santa Margarita River	2.12	●	●	●	●				●	●		●	●	●	●	

● Existing Beneficial Use

○ Potential Beneficial Use

<sup>1</sup> Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

<sup>2</sup> Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

<sup>3</sup> Rainbow Creek is designated as an impaired water body for total nitrogen and total phosphorus pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads (TMDLs) have been adopted to address these impairments. See Chapter 3, Water Quality Objectives for Biostimulatory Substances and Chapter 4, Total Maximum Daily Loads.

# Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters <sup>1, 2</sup>	Hydrologic Unit Basin Number	BENEFICIAL USE															
		M U N	A G R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N	
Santa Margarita River Watershed - continued																	
Santa Margarita River	2.11	●	●	●	●				●	●		●	●	●	●		
Pueblitos Canyon	2.11	●	●	●	●				●	●		●		●	●		
Newton Canyon	2.11	●	●	●	●				●	●		●		●			
Santa Margarita Lagoon	2.11	See Coastal Waters – Table 2-3															
San Luis Rey River Watershed																	
San Luis Rey River	3.32	●	●	●			●	●	●	●		●	●	●			
Johnson Canyon	3.32	●	●	●			●	●	●	●		●	●	●			
San Luis Rey River	3.31	●	●	●			●	●	●	●		●	●	●			
Canada Aguanga	3.31	●	●	●			●	●	●	●		●	●	●			
Dark Canyon	3.31	●	●	●			●	●	●	●		●	●	●			
Bear Canyon	3.31	●	●	●			●	●	●	●		●	●	●			
Cow Canyon	3.31	●	●	●			●	●	●	●		●	●	●			
Blue Canyon	3.31	●	●	●			●	●	●	●		●	●	●			
Rock Canyon	3.31	●	●	●			●	●	●	●		●	●	●			
Agua Caliente Creek	3.31	●	●	●			●	●	●	●		●	●	●			
unnamed Tributary	3.31	●	●	●			●	●	●	●		●	●	●		●	
Canada Agua Caliente	3.31	●	●	●			●	●	●	●		●	●	●			

● Existing Beneficial Use

<sup>1</sup> Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

<sup>2</sup> Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

## Table 2-3. BENEFICIAL USES OF COASTAL WATERS

Coastal Waters	Hydrologic Unit Basin Number	BENEFICIAL USE														
		I N D	N A V	R E C 1	R E C 2	C O M M	B I O L	E S T	W I L D	R A R E	M A R	A Q U A	M I G R	S P W N	W A R M	S H E L L
Pacific Ocean		●	●	●	●	●	●		●	●	●	●	●	●		●
Dana Point Harbor		●	●	●	●	●			●	●	●		●	●		●
Del Mar Boat Basin		●	●	●	●	●			●	●	●		●	●		●
Mission Bay		●		●	●	●		●	●	●	●		●	●		●
Oceanside Harbor		●	●	●	●	●			●	●	●		●	●		●
San Diego Bay <sup>1, 3</sup>		●	●	●	●	●	●	●	●	●	●		●	●		●
<b>Coastal Lagoons</b>																
Tijuana River Estuary	11.11			●	●	●	●	●	●	●	●		●	●		●
Mouth of San Diego River	7.11			●	●	●		●	●	●	●		●	●		●
Famosa Slough and Channel	7.11			●	●	●		●	●	●	●		●	●		●
Los Penasquitos Lagoon <sup>2</sup>	6.10			●	●		●	●	●	●	●		●	●		●
San Dieguito Lagoon	5.11			●	●		●	●	●	●	●		●	●		
Batiquitos Lagoon	4.51			●	●		●	●	●	●	●		●	●		
San Elijo Lagoon	4.61			●	●		●	●	●	●	●		●	●		
Agua Hedionda Lagoon	4.31	●		●	●	●	●	●	●	●	●	●	●	●		●

<sup>1</sup> Includes the tidal prisms of the Otay and Sweetwater Rivers.

<sup>2</sup> Fishing from shore or boat permitted, but other water contact recreational (REC-1) uses are prohibited.

<sup>3</sup> The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment. See Chapter 3, Water Quality Objectives for Pesticides, Toxicity and Toxic Pollutants and Chapter 4, Total Maximum Daily Loads.

● Existing Beneficial Use

## Table 2-3. BENEFICIAL USES OF COASTAL WATERS

Coastal Waters	Hydrologic Unit Basin Number	BENEFICIAL USE														
		I N D	N A V	R E C 1	R E C 2	C O M M	B I O L	E S T	W I L D	R A R E	M A R	A Q U A	M I G R	S P W N	W A R M	S H E L L
Coastal Lagoons - continued																
Buena Vista Lagoon <sup>2</sup>	4.21			●	●		●	○	●	●	●				●	
Loma Alta Slough	4.10			●	●			●	●	●	●					
Mouth of San Luis Rey River	3.11			●	●				●	●	●		●			
Santa Margarita Lagoon	2.11			●	●			●	●	●	●		●	●		
Aliso Creek Mouth	1.13			●	●				●	●	●					
San Juan Creek Mouth	1.27			●	●				●	●	●		●			●
San Mateo Creek Mouth	1.40			●	●		●		●	●	●		●	●		
San Onofre Creek Mouth	1.51			●	●				●	●	●		●	●		

<sup>2</sup> Fishing from shore or boat permitted, but other water contact recreational (REC-1) uses are prohibited.

● Existing Beneficial Use

○ Potential Beneficial Use

## Appendix 7: Hydromodification

*Supporting Detail Relating to compliance with the Hydromodification Performance Standards*



**SMRHM**  
**PROJECT REPORT**

## *General Model Information*

Project Name: FBC Wildomar DMA-1\_pond  
Site Name: FBC Wildomar-DMA 1  
Site Address: Glazebrook Rd & Depasqualle Rd  
City: Wildomar  
Report Date: 9/12/2017  
Gage: Wildomar / North Murrieta  
Data Start: 1949/10/01  
Data End: 2011/09/30  
Timestep: 15 Minute  
Precip Scale: 1.000  
Version Date: 2017/07/05

## *POC Thresholds*

---

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

---

## Landuse Basin Data

### Predeveloped Land Use

#### DMA 1

Bypass: No

GroundWater: No

Pervious Land Use	acre
A,Shrub,Flat(0-5%)	2.69
A,Shrub,Mod(5-10%)	0.74
A,Shrub,Stee(10-20%)	0.61
A,Shrub,Very S(>20%)	0.54
C D,Shrub,Flat(0-5%)	1.66
C D,Shrub,Mod(5-10%)	2.65
C D,Shrub,St(10-20%)	4.9
C D,Shrub,Very(>20%)	2.65
Pervious Total	16.44
Impervious Land Use	acre
Impervious Total	0
Basin Total	16.44

#### Element Flows To:

Surface	Interflow	Groundwater
---------	-----------	-------------

## Mitigated Land Use

### DMA 1

Bypass: No

GroundWater: No

Pervious Land Use	acre
A,Urban,Flat(0-5%)	2.13
A,Urban,Very S(>20%)	0.73
C D,Urban,Flat(0-5%)	2.83
A,Urban,Mod(5-10%)	0.15
A,Urban,Stee(10-20%)	0.16
C D,Urban,Mod(5-10%)	0.08
C D,Urban,St(10-20%)	0.08
C D,Urban,Very(>20%)	0.76
A,Grass,Flat(0-5%)	0.2
A,Grass,Mod(5-10%)	0.03
A,Grass,Stee(10-20%)	0.03
C D,Grass,Flat(0-5%)	0.06

Pervious Total 7.24

Impervious Land Use	acre
Roads,Flat(0-5%)	1.82
Roads,Mod(5-10%)	0.2
Roof Area	1.87
Driveways,Flat(0-5%)	0.06
Driveways,Mod(5-10%)	0.11
Sidewalks,Flat(0-5%)	1.01
Parking,Flat(0-5%)	4.13

Impervious Total 9.2

Basin Total 16.44

### Element Flows To:

Surface	Interflow	Groundwater
Infiltration Basin 1	Infiltration Basin 1	

# *Routing Elements*

## *Predeveloped Routing*

## Mitigated Routing

### Infil Basin 1

Bottom Length: 380.00 ft.  
 Bottom Width: 24.00 ft.  
 Depth: 4 ft.  
 Volume at riser head: 1.0239 acre-feet.  
 Infiltration On  
 Infiltration rate: 22  
 Infiltration safety factor: 1  
 Total Volume Infiltrated (ac-ft.): 542.612  
 Total Volume Through Riser (ac-ft.): 0.102  
 Total Volume Through Facility (ac-ft.): 542.714  
 Percent Infiltrated: 99.98  
 Total Precip Applied to Facility: 10.074  
 Total Evap From Facility: 4.052  
 Side slope 1: 4 To 1  
 Side slope 2: 8 To 1  
 Side slope 3: 4 To 1  
 Side slope 4: 4 To 1  
 Discharge Structure  
 Riser Height: 3 ft.  
 Riser Diameter: 18 in.  
 Element Flows To:  
 Outlet 1                      Outlet 2

Pond Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infil(cfs)
0.0000	0.209	0.000	0.000	0.000
0.0444	0.212	0.009	0.000	4.644
0.0889	0.216	0.018	0.000	4.644
0.1333	0.219	0.028	0.000	4.644
0.1778	0.223	0.038	0.000	4.644
0.2222	0.226	0.048	0.000	4.644
0.2667	0.229	0.058	0.000	4.644
0.3111	0.233	0.068	0.000	4.644
0.3556	0.236	0.079	0.000	4.644
0.4000	0.240	0.089	0.000	4.644
0.4444	0.243	0.100	0.000	4.644
0.4889	0.247	0.111	0.000	4.644
0.5333	0.250	0.122	0.000	4.644
0.5778	0.254	0.133	0.000	4.644
0.6222	0.257	0.145	0.000	4.644
0.6667	0.261	0.156	0.000	4.644
0.7111	0.264	0.168	0.000	4.644
0.7556	0.268	0.180	0.000	4.644
0.8000	0.271	0.192	0.000	4.644
0.8444	0.275	0.204	0.000	4.644
0.8889	0.279	0.216	0.000	4.644
0.9333	0.282	0.229	0.000	4.644
0.9778	0.286	0.241	0.000	4.644
1.0222	0.289	0.254	0.000	4.644
1.0667	0.293	0.267	0.000	4.644
1.1111	0.297	0.280	0.000	4.644
1.1556	0.300	0.294	0.000	4.644

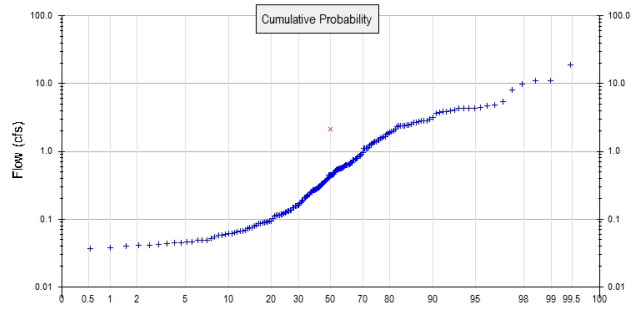
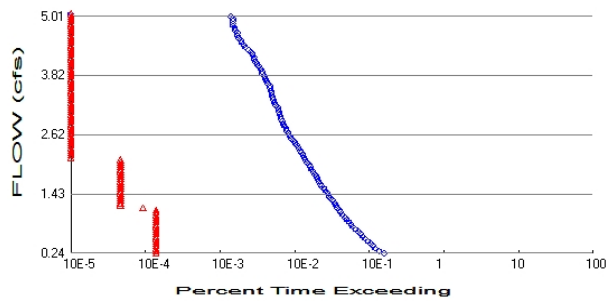


1.2000	0.304	0.307	0.000	4.644
1.2444	0.307	0.321	0.000	4.644
1.2889	0.311	0.334	0.000	4.644
1.3333	0.315	0.348	0.000	4.644
1.3778	0.318	0.362	0.000	4.644
1.4222	0.322	0.377	0.000	4.644
1.4667	0.326	0.391	0.000	4.644
1.5111	0.329	0.406	0.000	4.644
1.5556	0.333	0.420	0.000	4.644
1.6000	0.337	0.435	0.000	4.644
1.6444	0.341	0.450	0.000	4.644
1.6889	0.344	0.466	0.000	4.644
1.7333	0.348	0.481	0.000	4.644
1.7778	0.352	0.497	0.000	4.644
1.8222	0.355	0.512	0.000	4.644
1.8667	0.359	0.528	0.000	4.644
1.9111	0.363	0.544	0.000	4.644
1.9556	0.367	0.561	0.000	4.644
2.0000	0.371	0.577	0.000	4.644
2.0444	0.374	0.594	0.000	4.644
2.0889	0.378	0.610	0.000	4.644
2.1333	0.382	0.627	0.000	4.644
2.1778	0.386	0.644	0.000	4.644
2.2222	0.390	0.662	0.000	4.644
2.2667	0.393	0.679	0.000	4.644
2.3111	0.397	0.697	0.000	4.644
2.3556	0.401	0.714	0.000	4.644
2.4000	0.405	0.732	0.000	4.644
2.4444	0.409	0.750	0.000	4.644
2.4889	0.413	0.769	0.000	4.644
2.5333	0.417	0.787	0.000	4.644
2.5778	0.421	0.806	0.000	4.644
2.6222	0.424	0.824	0.000	4.644
2.6667	0.428	0.843	0.000	4.644
2.7111	0.432	0.863	0.000	4.644
2.7556	0.436	0.882	0.000	4.644
2.8000	0.440	0.901	0.000	4.644
2.8444	0.444	0.921	0.000	4.644
2.8889	0.448	0.941	0.000	4.644
2.9333	0.452	0.961	0.000	4.644
2.9778	0.456	0.981	0.000	4.644
3.0222	0.460	1.001	0.052	4.644
3.0667	0.464	1.022	0.273	4.644
3.1111	0.468	1.043	0.587	4.644
3.1556	0.472	1.064	0.970	4.644
3.2000	0.476	1.085	1.404	4.644
3.2444	0.480	1.106	1.877	4.644
3.2889	0.484	1.127	2.374	4.644
3.3333	0.488	1.149	2.882	4.644
3.3778	0.492	1.171	3.386	4.644
3.4222	0.496	1.193	3.871	4.644
3.4667	0.500	1.215	4.326	4.644
3.5111	0.504	1.237	4.737	4.644
3.5556	0.508	1.260	5.097	4.644
3.6000	0.513	1.283	5.401	4.644
3.6444	0.517	1.306	5.649	4.644
3.6889	0.521	1.329	5.848	4.644
3.7333	0.525	1.352	6.014	4.644

3.7778	0.529	1.375	6.249	4.644
3.8222	0.533	1.399	6.425	4.644
3.8667	0.537	1.423	6.597	4.644
3.9111	0.541	1.447	6.764	4.644
3.9556	0.546	1.471	6.927	4.644
4.0000	0.550	1.495	7.086	4.644
4.0444	0.554	1.520	7.242	4.644

# Analysis Results

## POC 1



+ Predeveloped    x Mitigated

### Predeveloped Landuse Totals for POC #1

Total Pervious Area: 16.44  
Total Impervious Area: 0

### Mitigated Landuse Totals for POC #1

Total Pervious Area: 7.24  
Total Impervious Area: 9.2

Flow Frequency Method: Cunnane

### Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	2.376275
5 year	4.287872
10 year	5.010045
25 year	10.956508

### Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0

## Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.2376	3454	3	0	Pass
0.2858	2917	3	0	Pass
0.3340	2628	3	0	Pass
0.3822	2409	3	0	Pass
0.4305	2250	3	0	Pass
0.4787	2078	3	0	Pass
0.5269	1896	3	0	Pass
0.5751	1764	3	0	Pass
0.6233	1640	3	0	Pass
0.6715	1532	3	0	Pass
0.7197	1420	3	0	Pass
0.7679	1317	3	0	Pass
0.8161	1237	3	0	Pass
0.8643	1158	3	0	Pass
0.9125	1078	3	0	Pass
0.9607	1013	3	0	Pass
1.0089	958	3	0	Pass
1.0571	896	3	0	Pass
1.1053	852	3	0	Pass
1.1535	809	2	0	Pass
1.2018	772	1	0	Pass
1.2500	741	1	0	Pass
1.2982	699	1	0	Pass
1.3464	648	1	0	Pass
1.3946	617	1	0	Pass
1.4428	598	1	0	Pass
1.4910	567	1	0	Pass
1.5392	539	1	0	Pass
1.5874	497	1	0	Pass
1.6356	480	1	0	Pass
1.6838	452	1	0	Pass
1.7320	438	1	0	Pass
1.7802	424	1	0	Pass
1.8284	401	1	0	Pass
1.8766	384	1	0	Pass
1.9248	364	1	0	Pass
1.9731	347	1	0	Pass
2.0213	335	1	0	Pass
2.0695	318	1	0	Pass
2.1177	299	1	0	Pass
2.1659	289	0	0	Pass
2.2141	279	0	0	Pass
2.2623	263	0	0	Pass
2.3105	254	0	0	Pass
2.3587	244	0	0	Pass
2.4069	233	0	0	Pass
2.4551	221	0	0	Pass
2.5033	207	0	0	Pass
2.5515	195	0	0	Pass
2.5997	188	0	0	Pass
2.6479	178	0	0	Pass
2.6961	170	0	0	Pass
2.7444	166	0	0	Pass

2.7926	158	0	0	Pass
2.8408	152	0	0	Pass
2.8890	148	0	0	Pass
2.9372	144	0	0	Pass
2.9854	140	0	0	Pass
3.0336	135	0	0	Pass
3.0818	134	0	0	Pass
3.1300	131	0	0	Pass
3.1782	128	0	0	Pass
3.2264	120	0	0	Pass
3.2746	116	0	0	Pass
3.3228	113	0	0	Pass
3.3710	110	0	0	Pass
3.4192	106	0	0	Pass
3.4674	106	0	0	Pass
3.5157	104	0	0	Pass
3.5639	101	0	0	Pass
3.6121	100	0	0	Pass
3.6603	95	0	0	Pass
3.7085	92	0	0	Pass
3.7567	89	0	0	Pass
3.8049	85	0	0	Pass
3.8531	80	0	0	Pass
3.9013	80	0	0	Pass
3.9495	77	0	0	Pass
3.9977	72	0	0	Pass
4.0459	68	0	0	Pass
4.0941	65	0	0	Pass
4.1423	63	0	0	Pass
4.1905	62	0	0	Pass
4.2387	59	0	0	Pass
4.2870	56	0	0	Pass
4.3352	52	0	0	Pass
4.3834	47	0	0	Pass
4.4316	46	0	0	Pass
4.4798	42	0	0	Pass
4.5280	41	0	0	Pass
4.5762	38	0	0	Pass
4.6244	37	0	0	Pass
4.6726	37	0	0	Pass
4.7208	35	0	0	Pass
4.7690	34	0	0	Pass
4.8172	32	0	0	Pass
4.8654	32	0	0	Pass
4.9136	32	0	0	Pass
4.9618	32	0	0	Pass
5.0100	30	0	0	Pass

## Water Quality

### Drawdown Time Results

Pond: Infilt Basin 1

<b>Days</b>	<b>Stage(feet)</b>	<b>Percent of Total Run Time</b>
1	0.000	1.6550
2	0.001	1.3093
3	0.002	1.1993
4	0.003	1.0857
5	0.004	1.0232

Maximum Stage: 4.000 Drawdown Time: 05 00:00:10



## *Rational Method*

Company Name  
Designed by  
Company Project Number/Name  
Drainage Area Number/Name  
Date  
County/City Case No.

Township  
Range  
Section  
85th Percentile

acre      Cover Type  
             Roofs  
             Concrete or Asphalt  
             Grouted or Gapless Paving Blocks  
             Compacted Soil (e.g. unpaved parking)  
             Decomposed Granite  
             Permeable Paving Blocks w/ Sand Filled Gap  
             Class 2 Base  
             Gravel or Class 2 Permeable Base  
             Pervious Concrete / Porous Asphalt  
             Open and Porous Pavers  
             Turf block  
             Ornamental Landscaping  
             Natural (A Soil)  
             Natural (B Soil)  
             Natural (C Soil)  
             Natural (D Soil)  
             Mixed Surface Types    Fraction = 0.00

### Calculated Values

C            = 0.00  
Vu          = 0.00 (in \* ac)/ac  
Vbmp       = 0 ft<sup>3</sup>  
Qbmp       = 0.0 ft<sup>3</sup>/s

## *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.

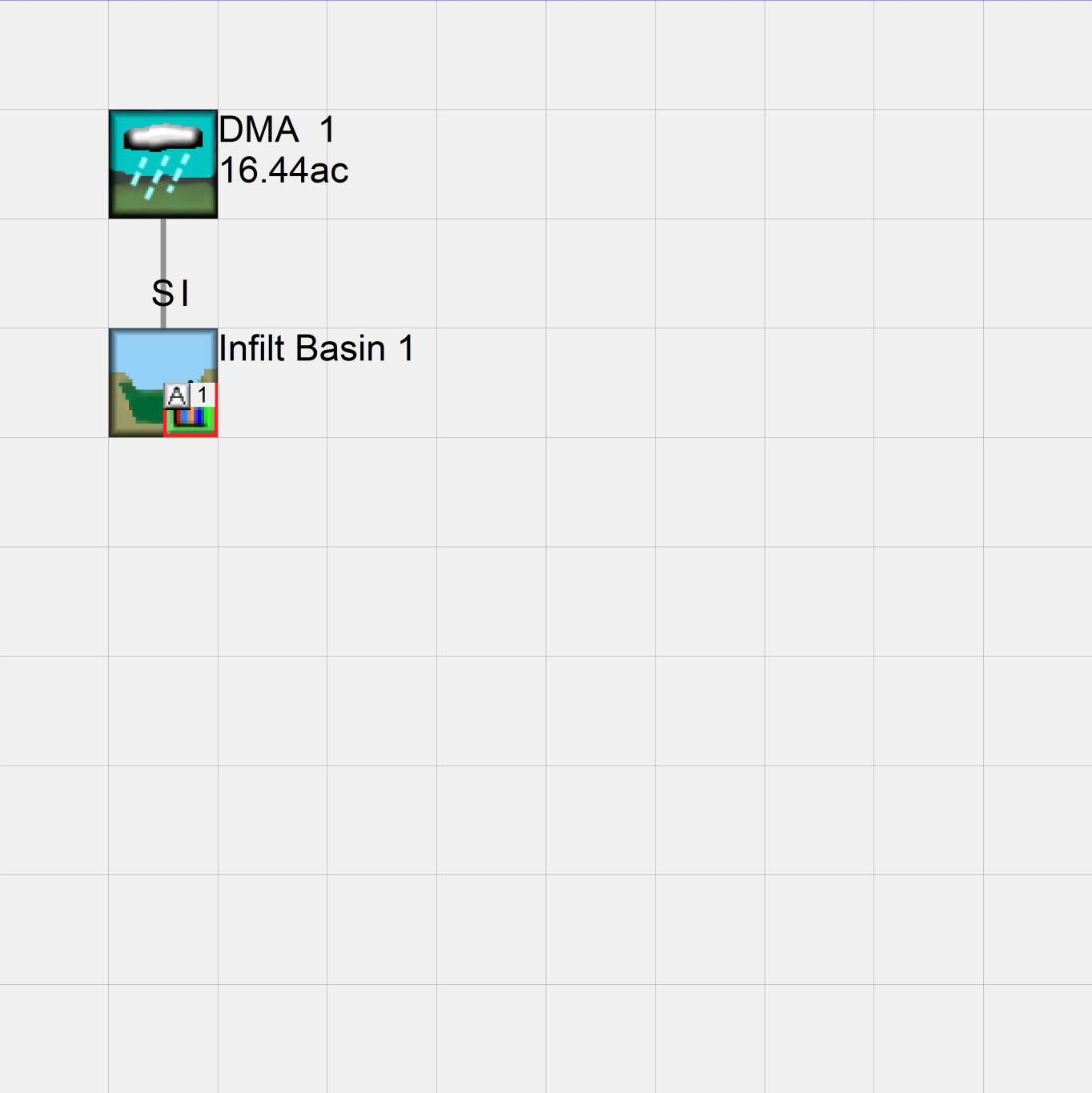
## Appendix

### Predeveloped Schematic



DMA 1  
16.44ac

Mitigated Schematic





## Mitigated UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1949 10 01      END      2011 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     FBC Wildomar DMA-1_pond.wdm
MESSU    25     MitFBC Wildomar DMA-1_pond.MES
          27     MitFBC Wildomar DMA-1_pond.L61
          28     MitFBC Wildomar DMA-1_pond.L62
          30     POCFBC Wildomar DMA-1_pond1.dat
```

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

```
PERLND    13
PERLND    16
PERLND    45
PERLND    14
PERLND    15
PERLND    46
PERLND    47
PERLND    48
PERLND     9
PERLND    10
PERLND    11
PERLND    41
IMPLND     1
IMPLND     2
IMPLND     5
IMPLND     6
IMPLND     7
IMPLND    10
IMPLND    14
RCHRES     1
COPY       1
COPY      501
DISPLY     1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INF01

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Infilt Basin 1      MAX      1      2      30      9
```

END DISPLY-INF01

END DISPLY

COPY

TIMESERIES

```
# - #  NPT  NMN  ***
1      1      1
501     1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      #  OPCODE ***
```

END OPCODE

PARM

```
#      #      K ***
```

END PARM

END GENER

PERLND



```

GEN-INFO
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
                        in      out      ***
13      A,Urban,Flat(0-5%)      1      1      1      1      27      0
16      A,Urban,Very S(>20%)      1      1      1      1      27      0
45      C/D,Urban,Flat(0-5%)      1      1      1      1      27      0
14      A,Urban,Mod(5-10%)      1      1      1      1      27      0
15      A,Urban,Stee(10-20%)      1      1      1      1      27      0
46      C/D,Urban,Mod(5-10%)      1      1      1      1      27      0
47      C/D,Urban,St(10-20%)      1      1      1      1      27      0
48      C/D,Urban,Very(>20%)      1      1      1      1      27      0
9      A,Grass,Flat(0-5%)      1      1      1      1      27      0
10      A,Grass,Mod(5-10%)      1      1      1      1      27      0
11      A,Grass,Stee(10-20%)      1      1      1      1      27      0
41      C/D,Grass,Flat(0-5%)      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 ***
13      0      0      1      0      0      0      0      0      0      0      0      0
16      0      0      1      0      0      0      0      0      0      0      0      0
45      0      0      1      0      0      0      0      0      0      0      0      0
14      0      0      1      0      0      0      0      0      0      0      0      0
15      0      0      1      0      0      0      0      0      0      0      0      0
46      0      0      1      0      0      0      0      0      0      0      0      0
47      0      0      1      0      0      0      0      0      0      0      0      0
48      0      0      1      0      0      0      0      0      0      0      0      0
9      0      0      1      0      0      0      0      0      0      0      0      0
10      0      0      1      0      0      0      0      0      0      0      0      0
11      0      0      1      0      0      0      0      0      0      0      0      0
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 *****
13      0      0      4      0      0      0      0      0      0      0      0      0      1      9
16      0      0      4      0      0      0      0      0      0      0      0      0      1      9
45      0      0      4      0      0      0      0      0      0      0      0      0      1      9
14      0      0      4      0      0      0      0      0      0      0      0      0      1      9
15      0      0      4      0      0      0      0      0      0      0      0      0      1      9
46      0      0      4      0      0      0      0      0      0      0      0      0      1      9
47      0      0      4      0      0      0      0      0      0      0      0      0      1      9
48      0      0      4      0      0      0      0      0      0      0      0      0      1      9
9      0      0      4      0      0      0      0      0      0      0      0      0      1      9
10      0      0      4      0      0      0      0      0      0      0      0      0      1      9
11      0      0      4      0      0      0      0      0      0      0      0      0      1      9
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 ***
13      0      0      0      1      0      0      0      0      1      0      0
16      0      0      0      1      0      0      0      0      1      0      0
45      0      0      0      1      0      0      0      0      1      0      0
14      0      0      0      1      0      0      0      0      1      0      0
15      0      0      0      1      0      0      0      0      1      0      0
46      0      0      0      1      0      0      0      0      1      0      0
47      0      0      0      1      0      0      0      0      1      0      0
48      0      0      0      1      0      0      0      0      1      0      0
9      0      0      0      1      0      0      0      0      1      0      0
10      0      0      0      1      0      0      0      0      1      0      0
11      0      0      0      1      0      0      0      0      1      0      0
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      KVARV      AGWRC
13      0          5      0.06      400      0.05      1.2      0.997
16      0      3.8      0.03      200      0.25      1.2      0.997
45      0      4.6      0.04      400      0.05      3      0.995
14      0      4.6      0.05      350      0.1      1.2      0.997
15      0      4.2      0.04      300      0.15      1.2      0.997
46      0      4.2      0.03      350      0.1      3      0.995
47      0      3.8      0.022      300      0.15      3      0.995
48      0      3.5      0.02      200      0.25      3      0.995
9      0      5.2      0.09      400      0.05      0.8      0.955
10     0      4.8      0.07      350      0.1      0.8      0.955
11     0      4.5      0.045      300      0.15      0.8      0.955
41     0      4.8      0.045      400      0.05      2      0.95
END PWAT-PARM2

```

## PWAT-PARM3

```

<PLS >          PWATER input info: Part 3          ***
# - # ***PETMAX      PETMIN      INFEXP      INFILD      DEEPFR      BASETP      AGWETP
13      40      35      2      2      0.06      0.03      0
16      40      35      2      2      0.06      0.03      0
45      40      35      3      2      0.45      0.15      0
14      40      35      2      2      0.06      0.03      0
15      40      35      2      2      0.06      0.03      0
46      40      35      3      2      0.45      0.15      0
47      40      35      3      2      0.45      0.15      0
48      40      35      3      2      0.45      0.15      0
9      40      35      2      2      0.02      0.03      0
10     40      35      2      2      0.02      0.03      0
11     40      35      2      2      0.02      0.03      0
41     40      35      3      2      0.15      0.15      0
END PWAT-PARM3

```

## PWAT-PARM4

```

<PLS >          PWATER input info: Part 4          ***
# - #      CEPSC      UZSN      NSUR      INTFW      IRC      LZETP      ***
13      0      0.7      0.25      3      0.4      0
16      0      0.3      0.25      1      0.3      0
45      0      0.7      0.25      1      0.4      0
14      0      0.5      0.25      2.4      0.35      0
15      0      0.35      0.25      1.6      0.3      0
46      0      0.5      0.25      0.7      0.35      0
47      0      0.35      0.25      0.5      0.3      0
48      0      0.3      0.25      0.35      0.3      0
9      0      0.8      0.25      4      0.7      0
10     0      0.7      0.25      3.2      0.45      0
11     0      0.55      0.25      2.6      0.4      0
41     0      0.8      0.25      2      0.7      0
END PWAT-PARM4

```

## MON-LZETPARM

```

<PLS >          PWATER input info: Part 3          ***
# - #      JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC      ***
13      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
16      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
45      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
14      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
15      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
46      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
47      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
48      0.5      0.5      0.5      0.6      0.65      0.65      0.65      0.65      0.65      0.65      0.55      0.5
9      0.4      0.4      0.4      0.45      0.5      0.55      0.55      0.55      0.55      0.55      0.45      0.4
10     0.4      0.4      0.4      0.45      0.5      0.55      0.55      0.55      0.55      0.55      0.45      0.4
11     0.4      0.4      0.4      0.45      0.5      0.55      0.55      0.55      0.55      0.55      0.45      0.4
41     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      ***
13      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11
16      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11      0.11

```

```

45      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
14      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
15      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
46      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
47      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
48      0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11
9       0.12 0.12 0.12 0.12 0.11 0.1 0.1 0.1 0.1 0.1 0.1 0.11 0.12
10      0.12 0.12 0.12 0.12 0.11 0.1 0.1 0.1 0.1 0.1 0.1 0.11 0.12
11      0.12 0.12 0.12 0.11 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.11 0.12
41      0.12 0.12 0.12 0.11 0.1 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
13      0          0          0.01      0          3.5      1.5      0.1
16      0          0          0.01      0          3.5      1.5      0.1
45      0          0          0.01      0          3.5      1.7      0.1
14      0          0          0.01      0          3.5      1.5      0.1
15      0          0          0.01      0          3.5      1.5      0.1
46      0          0          0.01      0          3.5      1.7      0.1
47      0          0          0.01      0          3.5      1.7      0.1
48      0          0          0.01      0          3.5      1.7      0.1
9       0          0          0.01      0          0.5      0.3      0.01
10      0          0          0.01      0          0.5      0.3      0.01
11      0          0          0.01      0          0.5      0.3      0.01
41      0          0          0.01      0          0.5      0.3      0.01
END PWAT-STATE1

```

END PERLND

#### IMPLND

##### GEN-INFO

```

<PLS ><-----Name----->      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
          in      out
1      Roads,Flat(0-5%)      1      1      1      27      0
2      Roads,Mod(5-10%)      1      1      1      27      0
5      Roof Area      1      1      1      27      0
6      Driveways,Flat(0-5%)      1      1      1      27      0
7      Driveways,Mod(5-10%)      1      1      1      27      0
10     Sidewalks,Flat(0-5%)      1      1      1      27      0
14     Parking,Flat(0-5%)      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
2      0      0      1      0      0      0
5      0      0      1      0      0      0
6      0      0      1      0      0      0
7      0      0      1      0      0      0
10     0      0      1      0      0      0
14     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
2      0      0      4      0      0      0      1      9
5      0      0      4      0      0      0      1      9
6      0      0      4      0      0      0      1      9
7      0      0      4      0      0      0      1      9
10     0      0      4      0      0      0      1      9
14     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
2 0 0 0 0 0
5 0 0 0 0 0
6 0 0 0 0 0
7 0 0 0 0 0
10 0 0 0 0 0
14 0 0 0 0 0
END IWAT-PARM1

```

```

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
1 100 0.05 0.1 0.1
2 100 0.1 0.1 0.09
5 100 0.05 0.1 0.1
6 100 0.05 0.1 0.1
7 100 0.1 0.1 0.09
10 100 0.05 0.1 0.1
14 100 0.05 0.1 0.1
END IWAT-PARM2

```

```

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # *** PETMAX PETMIN
1 0 0
2 0 0
5 0 0
6 0 0
7 0 0
10 0 0
14 0 0
END IWAT-PARM3

```

```

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
1 0 0
2 0 0
5 0 0
6 0 0
7 0 0
10 0 0
14 0 0
END IWAT-STATE1

```

END IMPLND

```

SCHEMATIC
<-Source->          <--Area-->      <-Target->      MBLK      ***
<Name> #           <-factor->      <Name> #      Tbl#      ***
DMA 1***
PERLND 13           2.13      RCHRES 1        2
PERLND 13           2.13      RCHRES 1        3
PERLND 16           0.73      RCHRES 1        2
PERLND 16           0.73      RCHRES 1        3
PERLND 45           2.83      RCHRES 1        2
PERLND 45           2.83      RCHRES 1        3
PERLND 14           0.15      RCHRES 1        2
PERLND 14           0.15      RCHRES 1        3
PERLND 15           0.16      RCHRES 1        2
PERLND 15           0.16      RCHRES 1        3
PERLND 46           0.08      RCHRES 1        2
PERLND 46           0.08      RCHRES 1        3
PERLND 47           0.08      RCHRES 1        2
PERLND 47           0.08      RCHRES 1        3
PERLND 48           0.76      RCHRES 1        2

```

PERLND	48	0.76	RCHRES	1	3
PERLND	9	0.2	RCHRES	1	2
PERLND	9	0.2	RCHRES	1	3
PERLND	10	0.03	RCHRES	1	2
PERLND	10	0.03	RCHRES	1	3
PERLND	11	0.03	RCHRES	1	2
PERLND	11	0.03	RCHRES	1	3
PERLND	41	0.06	RCHRES	1	2
PERLND	41	0.06	RCHRES	1	3
IMPLND	1	1.82	RCHRES	1	5
IMPLND	2	0.2	RCHRES	1	5
IMPLND	5	1.87	RCHRES	1	5
IMPLND	6	0.06	RCHRES	1	5
IMPLND	7	0.11	RCHRES	1	5
IMPLND	10	1.01	RCHRES	1	5
IMPLND	14	4.13	RCHRES	1	5

\*\*\*\*\*Routing\*\*\*\*\*

PERLND	13	2.13	COPY	1	12
PERLND	16	0.73	COPY	1	12
PERLND	45	2.83	COPY	1	12
PERLND	14	0.15	COPY	1	12
PERLND	15	0.16	COPY	1	12
PERLND	46	0.08	COPY	1	12
PERLND	47	0.08	COPY	1	12
PERLND	48	0.76	COPY	1	12
PERLND	9	0.2	COPY	1	12
PERLND	10	0.03	COPY	1	12
PERLND	11	0.03	COPY	1	12
PERLND	41	0.06	COPY	1	12
IMPLND	1	1.82	COPY	1	15
IMPLND	2	0.2	COPY	1	15
IMPLND	5	1.87	COPY	1	15
IMPLND	6	0.06	COPY	1	15
IMPLND	7	0.11	COPY	1	15
IMPLND	10	1.01	COPY	1	15
IMPLND	14	4.13	COPY	1	15
PERLND	13	2.13	COPY	1	13
PERLND	16	0.73	COPY	1	13
PERLND	45	2.83	COPY	1	13
PERLND	14	0.15	COPY	1	13
PERLND	15	0.16	COPY	1	13
PERLND	46	0.08	COPY	1	13
PERLND	47	0.08	COPY	1	13
PERLND	48	0.76	COPY	1	13
PERLND	9	0.2	COPY	1	13
PERLND	10	0.03	COPY	1	13
PERLND	11	0.03	COPY	1	13
PERLND	41	0.06	COPY	1	13
RCHRES	1	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	48.4	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	
1	Infilt Basin 1	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
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      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
END HYDR-PARM1

HYDR-PARM2
# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***
<-----><-----><-----><-----><-----><-----><----->
1      1      0.07      0.0      0.0      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
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
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  0.209366  0.000000  0.000000  0.000000
0.044444  0.212766  0.009381  0.000000  4.644444
0.088889  0.216175  0.018913  0.000000  4.644444
0.133333  0.219592  0.028596  0.000000  4.644444
0.177778  0.223018  0.038432  0.000000  4.644444
0.222222  0.226453  0.048421  0.000000  4.644444
0.266667  0.229897  0.058562  0.000000  4.644444
0.311111  0.233349  0.068856  0.000000  4.644444
0.355556  0.236810  0.079304  0.000000  4.644444
0.400000  0.240279  0.089906  0.000000  4.644444
0.444444  0.243757  0.100662  0.000000  4.644444
0.488889  0.247244  0.111573  0.000000  4.644444
0.533333  0.250740  0.122640  0.000000  4.644444
0.577778  0.254245  0.133862  0.000000  4.644444
0.622222  0.257758  0.145239  0.000000  4.644444
0.666667  0.261279  0.156774  0.000000  4.644444
0.711111  0.264810  0.168464  0.000000  4.644444
0.755556  0.268349  0.180312  0.000000  4.644444
0.800000  0.271897  0.192318  0.000000  4.644444
0.844444  0.275454  0.204481  0.000000  4.644444
0.888889  0.279019  0.216803  0.000000  4.644444
0.933333  0.282593  0.229283  0.000000  4.644444
0.977778  0.286176  0.241923  0.000000  4.644444
1.022222  0.289767  0.254721  0.000000  4.644444
1.066667  0.293368  0.267680  0.000000  4.644444
1.111111  0.296976  0.280799  0.000000  4.644444
1.155556  0.300594  0.294078  0.000000  4.644444

```



1.200000	0.304220	0.307518	0.000000	4.644444
1.244444	0.307855	0.321120	0.000000	4.644444
1.288889	0.311499	0.334883	0.000000	4.644444
1.333333	0.315152	0.348809	0.000000	4.644444
1.377778	0.318813	0.362897	0.000000	4.644444
1.422222	0.322482	0.377148	0.000000	4.644444
1.466667	0.326161	0.391562	0.000000	4.644444
1.511111	0.329848	0.406140	0.000000	4.644444
1.555556	0.333544	0.420882	0.000000	4.644444
1.600000	0.337249	0.435789	0.000000	4.644444
1.644444	0.340962	0.450860	0.000000	4.644444
1.688889	0.344684	0.466097	0.000000	4.644444
1.733333	0.348415	0.481499	0.000000	4.644444
1.777778	0.352155	0.497067	0.000000	4.644444
1.822222	0.355903	0.512802	0.000000	4.644444
1.866667	0.359660	0.528703	0.000000	4.644444
1.911111	0.363425	0.544772	0.000000	4.644444
1.955556	0.367200	0.561008	0.000000	4.644444
2.000000	0.370983	0.577412	0.000000	4.644444
2.044444	0.374774	0.593984	0.000000	4.644444
2.088889	0.378575	0.610725	0.000000	4.644444
2.133333	0.382384	0.627636	0.000000	4.644444
2.177778	0.386202	0.644715	0.000000	4.644444
2.222222	0.390028	0.661965	0.000000	4.644444
2.266667	0.393863	0.679385	0.000000	4.644444
2.311111	0.397707	0.696975	0.000000	4.644444
2.355556	0.401560	0.714737	0.000000	4.644444
2.400000	0.405421	0.732670	0.000000	4.644444
2.444444	0.409292	0.750774	0.000000	4.644444
2.488889	0.413170	0.769051	0.000000	4.644444
2.533333	0.417058	0.787501	0.000000	4.644444
2.577778	0.420954	0.806123	0.000000	4.644444
2.622222	0.424859	0.824919	0.000000	4.644444
2.666667	0.428773	0.843889	0.000000	4.644444
2.711111	0.432695	0.863032	0.000000	4.644444
2.755556	0.436626	0.882351	0.000000	4.644444
2.800000	0.440566	0.901844	0.000000	4.644444
2.844444	0.444514	0.921512	0.000000	4.644444
2.888889	0.448471	0.941356	0.000000	4.644444
2.933333	0.452437	0.961376	0.000000	4.644444
2.977778	0.456412	0.981573	0.000000	4.644444
3.022222	0.460395	1.001947	0.052737	4.644444
3.066667	0.464387	1.022497	0.273695	4.644444
3.111111	0.468388	1.043226	0.587805	4.644444
3.155556	0.472397	1.064132	0.970000	4.644444
3.200000	0.476415	1.085217	1.404464	4.644444
3.244444	0.480442	1.106480	1.877310	4.644444
3.288889	0.484477	1.127923	2.374724	4.644444
3.333333	0.488522	1.149545	2.882519	4.644444
3.377778	0.492574	1.171347	3.386283	4.644444
3.422222	0.496636	1.193330	3.871856	4.644444
3.466667	0.500706	1.215493	4.326027	4.644444
3.511111	0.504785	1.237837	4.737392	4.644444
3.555556	0.508873	1.260363	5.097354	4.644444
3.600000	0.512970	1.283070	5.401220	4.644444
3.644444	0.517075	1.305960	5.649420	4.644444
3.688889	0.521189	1.329033	5.848795	4.644444
3.733333	0.525311	1.352288	6.013989	4.644444
3.777778	0.529443	1.375727	6.249853	4.644444
3.822222	0.533583	1.399350	6.425940	4.644444
3.866667	0.537731	1.423157	6.597328	4.644444
3.911111	0.541889	1.447149	6.764376	4.644444
3.955556	0.546055	1.471325	6.927396	4.644444
4.000000	0.550230	1.495687	7.086668	4.644444

END FTABLE 1

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member-->	***
<Name>	#	<Name>	#	tem	strg<-factor->	strg	<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	1		PERLND	1	999	EXTNL	PETINP
WDM	1	EVAP	ENGL	1		IMPLND	1	999	EXTNL	PETINP
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	13		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	16		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	45		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	14		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	15		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	46		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	47		EXTNL	SURLI
WDM	22	IRRG	ENGL	0.7	SAME	PERLND	48		EXTNL	SURLI
WDM	2	PREC	ENGL	1		RCHRES	1		EXTNL	PREC
WDM	1	EVAP	ENGL	1		RCHRES	1		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	1	HYDR	RO	1	1	WDM	1008	FLOW	ENGL		REPL
RCHRES	1	HYDR	O	1	1	WDM	1009	FLOW	ENGL		REPL
RCHRES	1	HYDR	O	2	1	WDM	1010	FLOW	ENGL		REPL
RCHRES	1	HYDR	STAGE	1	1	WDM	1011	STAG	ENGL		REPL
COPY	1	OUTPUT	MEAN	1	1	WDM	701	FLOW	ENGL		REPL
COPY	501	OUTPUT	MEAN	1	1	WDM	801	FLOW	ENGL		REPL

END EXT TARGETS

# MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	#<-factor->	<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		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		15					
IMPLND	IWATER	SURO		0.083333	COPY	INPUT	MEAN
END MASS-LINK		15					
MASS-LINK		17					
RCHRES	OFLOW	OVOL	1		COPY	INPUT	MEAN
END MASS-LINK		17					

END MASS-LINK

END RUN



## *Mitigated HSPF Message File*

## *Disclaimer*

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## Appendix 8: Source Control

*Pollutant Sources/Source Control Checklist*



Appendix 8  
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section **H** of the 2018 SMR WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table H.1 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> Mark all inlets with the words “Only Rain Down the Storm Drain” or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	<input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a> <input checked="" type="checkbox"/> Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages		<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.

Appendix 8  
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
<input checked="" type="checkbox"/> D1. Need for future indoor & structural pest control		<input checked="" type="checkbox"/> Note building design features that discourage entry of pests.	<input checked="" type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
<input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use	<input checked="" type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.  <input checked="" type="checkbox"/> Show self-retaining landscape areas, if any.  <input checked="" type="checkbox"/> Show stormwater treatment and hydrograph modification management BMPs.	State that final landscape plans will accomplish all of the following.  <input checked="" type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.  <input checked="" type="checkbox"/> Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.  <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.  <input checked="" type="checkbox"/> Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	<input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides.  <input checked="" type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at: <a href="http://www.rcwatershed.org/about/materials-library/#1450469138395-bb76dd39-d810">http://www.rcwatershed.org/about/materials-library/#1450469138395-bb76dd39-d810</a>  <input checked="" type="checkbox"/> Provide IPM information to new owners, lessees and operators.

Appendix 8  
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

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<input checked="" type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input checked="" type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	<p>If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.</p>	<input checked="" type="checkbox"/> See applicable operational BMPs in “Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain” at: <a href="http://www.rcwatershed.org/about/materials-library/#1450469201433-f5f358c9-6008">http://www.rcwatershed.org/about/materials-library/#1450469201433-f5f358c9-6008</a>
<input type="checkbox"/> F. Food service	<input type="checkbox"/> For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.  <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area.  <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/> See the brochure, “The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries” at <a href="http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9">http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9</a>  Provide this brochure to new site owners, lessees, and operators.
<input checked="" type="checkbox"/> G. Refuse areas	<input checked="" type="checkbox"/> Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.  <input checked="" type="checkbox"/> If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.  <input checked="" type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input checked="" type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans.  <input checked="" type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input checked="" type="checkbox"/> State how the following will be implemented:  Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

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<input type="checkbox"/> H. Industrial processes.	<input type="checkbox"/> Show process area.	<input type="checkbox"/> If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	<input type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>  See the brochure “Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at: <a href="http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9">http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9</a>
<input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	<input type="checkbox"/> Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.  <input type="checkbox"/> Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.  <input type="checkbox"/> Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	<input type="checkbox"/> Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.  Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: <ul style="list-style-type: none"> <li>▪ Hazardous Waste Generation</li> <li>▪ Hazardous Materials Release Response and Inventory</li> <li>▪ California Accidental Release (CalARP)</li> <li>▪ Aboveground Storage Tank</li> <li>▪ Uniform Fire Code Article 80 Section 103(b) &amp; (c) 1991</li> <li>▪ Underground Storage Tank</li> </ul> <a href="http://www.cchealth.org/groups/hazmat/">www.cchealth.org/groups/hazmat/</a>	<input type="checkbox"/> See the Fact Sheets SC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials ” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

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<input type="checkbox"/> J. Vehicle and Equipment Cleaning	<input type="checkbox"/> Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	<input type="checkbox"/> If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	<p>Describe operational measures to implement the following (if applicable):</p> <input type="checkbox"/> Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to “Outdoor Cleaning Activities and Professional Mobile Service Providers” for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at: <a href="http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9">http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9</a> <input type="checkbox"/> Car dealerships and similar may rinse cars with water only.

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<input type="checkbox"/> <b>K. Vehicle/Equipment Repair and Maintenance</b>	<input type="checkbox"/> Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.  <input type="checkbox"/> Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.  <input type="checkbox"/> Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	<input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.  <input type="checkbox"/> State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.  <input type="checkbox"/> State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	<p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <input type="checkbox"/> No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.  <input type="checkbox"/> No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.  <input type="checkbox"/> No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.  <p>Refer to "Automotive Maintenance &amp; Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations; "Outdoor Cleaning Activities;" and "Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants. Brochures can be found at: <a href="http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9">http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9</a></p>



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<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> Fueling areas <sup>6</sup> shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.  <input type="checkbox"/> Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area <sup>1</sup> .] The canopy [or cover] shall not drain onto the fueling area.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> See the Fact Sheet SD-30 , “Fueling Areas” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

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<sup>6</sup> The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

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<input checked="" type="checkbox"/> M. Loading Docks	<input checked="" type="checkbox"/> Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.  <input checked="" type="checkbox"/> Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.  <input checked="" type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input checked="" type="checkbox"/> Move loaded and unloaded items indoors as soon as possible.  <input checked="" type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

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<input checked="" type="checkbox"/> N. Fire Sprinkler Test Water		<input checked="" type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input checked="" type="checkbox"/> See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>
<p>O. Miscellaneous Drain or Wash Water or Other Sources</p> <p><input type="checkbox"/> Boiler drain lines</p> <p><input checked="" type="checkbox"/> Condensate drain lines</p> <p><input checked="" type="checkbox"/> Rooftop equipment</p> <p><input type="checkbox"/> Drainage sumps</p> <p><input checked="" type="checkbox"/> Roofing, gutters, and trim.</p> <p><input type="checkbox"/> Other sources</p>		<p><input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.</p> <p><input checked="" type="checkbox"/> Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.</p> <p><input checked="" type="checkbox"/> Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</p> <p><input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.</p> <p><input checked="" type="checkbox"/> Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.</p> <p><input type="checkbox"/> Include controls for other sources as specified by local reviewer.</p>	

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<input checked="" type="checkbox"/> P. Plazas, sidewalks, and parking lots.			<input checked="" type="checkbox"/> Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

## Appendix 9: O&M

*Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms*

All Operational and Maintenance Plans and Documents of finance will be provided with and as part of the Final WQMP.

## Appendix 10: Educational Materials

*BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information*



# Spill Prevention, Control & Cleanup SC-11



## Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

## Description

Spills and leaks, if not properly controlled, can adversely impact the storm drain system and receiving waters. Due to the type of work or the materials involved, many activities that occur either at a municipal facility or as a part of municipal field programs have the potential for accidental spills and leaks. Proper spill response planning and preparation can enable municipal employees to effectively respond to problems when they occur and minimize the discharge of pollutants to the environment.

## Approach

- An effective spill response and control plan should include:
  - Spill/leak prevention measures;
  - Spill response procedures;
  - Spill cleanup procedures;
  - Reporting; and
  - Training
- A well thought out and implemented plan can prevent pollutants from entering the storm drainage system and can be used as a tool for training personnel to prevent and control future spills as well.

## Pollution Prevention

- Develop and implement a Spill Prevention Control and Response Plan. The plan should include:

## Targeted Constituents

Sediment	
Nutrients	☑
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑



# SC-11 Spill Prevention, Control & Cleanup

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- A description of the facility, the address, activities and materials involved
- Identification of key spill response personnel
- Identification of the potential spill areas or operations prone to spills/leaks
- Identification of which areas should be or are bermed to contain spills/leaks
- Facility map identifying the key locations of areas, activities, materials, structural BMPs, etc.
- Material handling procedures
- Spill response procedures including:
  - Assessment of the site and potential impacts
  - Containment of the material
  - Notification of the proper personnel and evacuation procedures
  - Clean up of the site
  - Disposal of the waste material and
  - Proper record keeping
- Product substitution – use less toxic materials (i.e. use water based paints instead of oil based paints)
- Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of materials that are brought into the facility or into the field.

## ***Suggested Protocols***

### ***Spill/Leak Prevention Measures***

- If possible, move material handling indoors, under cover, or away from storm drains or sensitive water bodies.
- Properly label all containers so that the contents are easily identifiable.
- Berm storage areas so that if a spill or leak occurs, the material is contained.
- Cover outside storage areas either with a permanent structure or with a seasonal one such as a tarp so that rain can not come into contact with the materials.
- Check containers (and any containment sumps) often for leaks and spills. Replace containers that are leaking, corroded, or otherwise deteriorating with containers in good condition. Collect all spilled liquids and properly dispose of them.

# Spill Prevention, Control & Cleanup SC-11

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- Store, contain and transfer liquid materials in such a manner that if the container is ruptured or the contents spilled, they will not discharge, flow or be washed into the storm drainage system, surface waters, or groundwater.
- Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during the filling and unloading of containers. Any collected liquids or soiled absorbent materials should be reused/recycled or properly disposed of.
- For field programs, only transport the minimum amount of material needed for the daily activities and transfer materials between containers at a municipal yard where leaks and spill are easier to control.
- If paved, sweep and clean storage areas monthly, do not use water to hose down the area unless all of the water will be collected and disposed of properly.
- Install a spill control device (such as a tee section) in any catch basins that collect runoff from any storage areas if the materials stored are oil, gas, or other materials that separate from and float on water. This will allow for easier cleanup if a spill occurs.
- If necessary, protect catch basins while conducting field activities so that if a spill occurs, the material will be contained.

## ***Training***

- Educate employees about spill prevention, spill response and cleanup on a routine basis.
- Well-trained employees can reduce human errors that lead to accidental releases or spills:
  - The employees should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.
  - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan if one is available.
- Training of staff from all municipal departments should focus on recognizing and reporting potential or current spills/leaks and who they should contact.
- Employees responsible for aboveground storage tanks and liquid transfers for large bulk containers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.

## ***Spill Response and Prevention***

- Identify key spill response personnel and train employees on who they are.
- Store and maintain appropriate spill cleanup materials in a clearly marked location near storage areas; and train employees to ensure familiarity with the site's spill control plan and/or proper spill cleanup procedures.
- Locate spill cleanup materials, such as absorbents, where they will be readily accessible (e.g. near storage and maintenance areas, on field trucks).

# SC-11 Spill Prevention, Control & Cleanup

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- Follow the Spill Prevention Control and Countermeasure Plan if one is available.
- If a spill occurs, notify the key spill response personnel immediately. If the material is unknown or hazardous, the local fire department may also need to be contacted.
- If safe to do so, attempt to contain the material and block the nearby storm drains so that the area impacted is minimized. If the material is unknown or hazardous wait for properly trained personnel to contain the materials.
- Perform an assessment of the area where the spill occurred and the downstream area that it could impact. Relay this information to the key spill response and clean up personnel.

## *Spill Cleanup Procedures*

- Small non-hazardous spills
  - Use a rag, damp cloth or absorbent materials for general clean up of liquids
  - Use brooms or shovels for the general clean up of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
  - Dispose of any waste materials properly
  - Clean or dispose of any equipment used to clean up the spill properly
- Large non-hazardous spills
  - Use absorbent materials for general clean up of liquids
  - Use brooms, shovels or street sweepers for the general clean up of dry materials
  - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
  - Dispose of any waste materials properly
  - Clean or dispose of any equipment used to clean up the spill properly
- For hazardous or very large spills, a private cleanup company or Hazmat team may need to be contacted to assess the situation and conduct the cleanup and disposal of the materials.
- Chemical cleanups of material can be achieved with the use of absorbents, gels, and foams. Remove the adsorbent materials promptly and dispose of according to regulations.
- If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.

## *Reporting*

- Report any spills immediately to the identified key municipal spill response personnel.

# Spill Prevention, Control & Cleanup SC-11

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- Report spills in accordance with applicable reporting laws. Spills that pose an immediate threat to human health or the environment must be reported immediately to the Office of Emergency Service (OES)
- Spills that pose an immediate threat to human health or the environment may also need to be reported within 24 hours to the Regional Water Quality Control Board.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour)
- After the spill has been contained and cleaned up, a detailed report about the incident should be generated and kept on file (see the section on Reporting below). The incident may also be used in briefing staff about proper procedures

## ***Other Considerations***

- State regulations exist for facilities with a storage capacity of 10,000 gallons or more of petroleum to prepare a Spill Prevention Control and Countermeasure Plan (SPCC) Plan (Health & Safety Code Chapter 6.67).
- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.
- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, if permitted to do so, prohibiting any hard connections to the storm drain.

## **Requirements**

### ***Costs***

- Will vary depending on the size of the facility and the necessary controls.
- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of wastes, contaminated soil and water is very expensive

### ***Maintenance***

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs

## **Supplemental Information**

### ***Further Detail of the BMP***

#### ***Reporting***

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the response and containment of a spill. A good record keeping system helps the municipality minimize incident recurrence, correctly respond with appropriate containment and cleanup activities, and comply with legal requirements.

A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm drain.

# **SC-11 Spill Prevention, Control & Cleanup**

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These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

## ***Examples***

The City of Palo Alto includes spill prevention and control as a major element of its highly effective program for municipal vehicle maintenance shops.

## **References and Resources**

King County Stormwater Pollution Control Manual - <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Orange County Stormwater Program

[http://www.ocwatersheds.com/stormwater/swp\\_introduction.asp](http://www.ocwatersheds.com/stormwater/swp_introduction.asp)

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)

<http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf>



# Parking/Storage Area Maintenance SC-43



## Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

## Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The following protocols are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

## Approach

### ***Pollution Prevention***

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook).
- Keep accurate maintenance logs to evaluate BMP implementation.

### ***Suggested Protocols***

#### *General*

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.

## Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>



# SC-43 Parking/Storage Area Maintenance

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- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

## *Controlling Litter*

- Post “No Littering” signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel and dispose of litter in the trash.

## *Surface cleaning*

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- If water is used follow the procedures below:
  - Block the storm drain or contain runoff.
  - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- When cleaning heavy oily deposits:
  - Use absorbent materials on oily spots prior to sweeping or washing.
  - Dispose of used absorbents appropriately.

## *Surface Repair*

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

# Parking/Storage Area Maintenance SC-43

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- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

## *Inspection*

- Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

## *Training*

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

## *Spill Response and Prevention*

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

## *Other Considerations*

- Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

## **Requirements**

### ***Costs***

Cleaning/sweeping costs can be quite large, construction and maintenance of stormwater structural controls can be quite expensive as well.

### ***Maintenance***

- Sweep parking lot to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

# SC-43 Parking/Storage Area Maintenance

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## Supplemental Information

### ***Further Detail of the BMP***

#### *Surface Repair*

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Use only as much water as necessary for dust control, to avoid runoff.

## References and Resources

<http://www.stormwatercenter.net/>

California's Nonpoint Source Program Plan <http://www.swrcb.ca.gov/nps/index.html>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

#### Orange County Stormwater Program

[http://www.ocwatersheds.com/StormWater/swp\\_introduction.asp](http://www.ocwatersheds.com/StormWater/swp_introduction.asp)

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) <http://www.basma.org>

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)

<http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf>

## Description

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals. Related information is provided in BMP fact sheets SC-11 Spill Prevention, Control & Cleanup and SC-34 Waste Handling & Disposal.

## Approach

### ***Pollution Prevention***

- Purchase only the amount of material that will be needed for foreseeable use. In most cases this will result in cost savings in both purchasing and disposal. See SC-61 Safer Alternative Products for additional information.
- Be aware of new products that may do the same job with less environmental risk and for less or the equivalent cost. Total cost must be used here; this includes purchase price, transportation costs, storage costs, use related costs, clean up costs and disposal costs.

### ***Suggested Protocols***

#### ***General***

- Keep work sites clean and orderly. Remove debris in a timely fashion. Sweep the area.
- Dispose of wash water, sweepings, and sediments, properly.
- Recycle or dispose of fluids properly.
- Establish a daily checklist of office, yard and plant areas to confirm cleanliness and adherence to proper storage and security. Specific employees should be assigned specific inspection responsibilities and given the authority to remedy any problems found.
- Post waste disposal charts in appropriate locations detailing for each waste its hazardous nature (poison, corrosive, flammable), prohibitions on its disposal (dumpster, drain, sewer) and the recommended disposal method (recycle, sewer, burn, storage, landfill).
- Summarize the chosen BMPs applicable to your operation and post them in appropriate conspicuous places.

## Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

## Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>



- Require a signed checklist from every user of any hazardous material detailing amount taken, amount used, amount returned and disposal of spent material.
- Do a before audit of your site to establish baseline conditions and regular subsequent audits to note any changes and whether conditions are improving or deteriorating.
- Keep records of water, air and solid waste quantities and quality tests and their disposition.
- Maintain a mass balance of incoming, outgoing and on hand materials so you know when there are unknown losses that need to be tracked down and accounted for.
- Use and reward employee suggestions related to BMPs, hazards, pollution reduction, work place safety, cost reduction, alternative materials and procedures, recycling and disposal.
- Have, and review regularly, a contingency plan for spills, leaks, weather extremes etc. Make sure all employees know about it and what their role is so that it comes into force automatically.

***Training***

- Train all employees, management, office, yard, manufacturing, field and clerical in BMPs and pollution prevention and make them accountable.
- Train municipal employees who handle potentially harmful materials in good housekeeping practices.
- Train personnel who use pesticides in the proper use of the pesticides. The California Department of Pesticide Regulation license pesticide dealers, certify pesticide applicators and conduct onsite inspections.
- Train employees and contractors in proper techniques for spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.

***Spill Response and Prevention***

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and Countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

***Other Considerations***

- There are no major limitations to this best management practice.
- There are no regulatory requirements to this BMP. Existing regulations already require municipalities to properly store, use, and dispose of hazardous materials



## Requirements

### ***Costs***

- Minimal cost associated with this BMP. Implementation of good housekeeping practices may result in cost savings as these procedures may reduce the need for more costly BMPs.

### ***Maintenance***

- Ongoing maintenance required to keep a clean site. Level of effort is a function of site size and type of activities.

## Supplemental Information

### ***Further Detail of the BMP***

- The California Integrated Waste Management Board's Recycling Hotline, 1-800-553-2962, provides information on household hazardous waste collection programs and facilities.

### ***Examples***

There are a number of communities with effective programs. The most pro-active include Santa Clara County and the City of Palo Alto, the City and County of San Francisco, and the Municipality of Metropolitan Seattle (Metro).

## References and Resources

British Columbia Lake Stewardship Society. Best Management Practices to Protect Water Quality from Non-Point Source Pollution. March 2000.

<http://www.nalms.org/bclss/bmphome.html#bmp>

King County Stormwater Pollution Control Manual - <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities, Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, Revised by California Coastal Commission, February 2002.

Orange County Stormwater Program

[http://www.ocwatersheds.com/stormwater/swp\\_introduction.asp](http://www.ocwatersheds.com/stormwater/swp_introduction.asp)

San Mateo STOPPP - (<http://stoppp.tripod.com/bmp.html>)



## Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

## Approach

### ***Pollution Prevention***

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

## Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

## Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	<input checked="" type="checkbox"/>



- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

***Suggested Protocols******Mowing, Trimming, and Weeding***

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

***Planting***

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

***Waste Management***

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

## ***Irrigation***

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

## ***Fertilizer and Pesticide Management***

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
  - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
  - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
  - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
  - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
  - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
  - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
  - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

### *Inspection*

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

### *Training*

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

## ***Spill Response and Prevention***

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

## ***Other Considerations***

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in “agricultural use” areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

## **Requirements**

### ***Costs***

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

### ***Maintenance***

Not applicable



**Supplemental Information*****Further Detail of the BMP******Waste Management***

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

***Contractors and Other Pesticide Users***

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

**References and Resources**

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Los Angeles County Stormwater Quality Model Programs. Public Agency Activities [http://ladpw.org/wmd/npdes/model\\_links.cfm](http://ladpw.org/wmd/npdes/model_links.cfm)

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Orange County Stormwater Program [http://www.ocwatersheds.com/StormWater/swp\\_introduction.asp](http://www.ocwatersheds.com/StormWater/swp_introduction.asp)

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Landscaping and Lawn Care. Office of Water. Office of Wastewater Management. On-line: [http://www.epa.gov/npdes/menuofbmps/poll\\_8.htm](http://www.epa.gov/npdes/menuofbmps/poll_8.htm)



Photo Credit: Geoff Brosseau

## Objectives

- Contain
- Educate
- Reduce/Minimize

## Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

## Approach

### ***Suggested Protocols***

#### *Catch Basins/Inlet Structures*

- Municipal staff should regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

## Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>



# SC-74      Drainage System Maintenance

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- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

## *Storm Drain Conveyance System*

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

## *Pump Stations*

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

## *Open Channel*

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a stream or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies

(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

## *Illicit Connections and Discharges*

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as “Dump No Waste Drains to Stream” stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

## *Illegal Dumping*

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, “midnight dumping” from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post “No Dumping” signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

***Training***

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

***Spill Response and Prevention***

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

***Other Considerations***

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

## Requirements

### **Costs**

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.
- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from “environmental fees” or special assessment districts to fund their illicit connection elimination programs.

### **Maintenance**

- Two-person teams may be required to clean catch basins with vector trucks.
- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

## Supplemental Information

### **Further Detail of the BMP**

#### *Storm Drain flushing*

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents “plug flow” discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to



cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

### *Flow Management*

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows are allowed to spread out.

### *Stream Corridor Planning*

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for stream alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

# SC-74      Drainage System Maintenance

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When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to be reclaimed.

## ***Examples***

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank and watershed instability and floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

## **References and Resources**

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Orange County Stormwater Program

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[http://www.epa.gov/npdes/menuofbmps/poll\\_7.htm](http://www.epa.gov/npdes/menuofbmps/poll_7.htm)

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Storm Drain System Cleaning. On line:  
[http://www.epa.gov/npdes/menuofbmps/poll\\_16.htm](http://www.epa.gov/npdes/menuofbmps/poll_16.htm)

# Site Design & Landscape Planning SD-10



## Design Objectives

- ☒ Maximize Infiltration
- ☒ Provide Retention
- ☒ Slow Runoff
- ☒ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

## Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

## Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

## Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

## Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.



# SD-10 Site Design & Landscape Planning

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## ***Designing New Installations***

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

## ***Conserve Natural Areas during Landscape Planning***

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

## ***Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit***

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and



# Site Design & Landscape Planning SD-10

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regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

## *Protection of Slopes and Channels during Landscape Design*

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

## ***Redeveloping Existing Installations***

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

# **SD-10 Site Design & Landscape Planning**

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Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

## **Other Resources**

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.



## Design Objectives

- ☒ Maximize Infiltration
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- Collect and Convey

## Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

## Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

## Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

## Design Considerations

### *Designing New Installations*

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.



- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

***Redeveloping Existing Installations***

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

**Other Resources**

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

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## Design Objectives

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## Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

## Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

## Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

## Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

## Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include “NO DUMPING



– DRAINS TO OCEAN” and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

### ***Redeveloping Existing Installations***

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of “redevelopment”, then the requirements stated under “designing new installations” above should be included in all project design plans.

### **Additional Information**

#### ***Maintenance Considerations***

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner’s association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

#### ***Placement***

- Signage on top of curbs tends to weather and fade.
- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

### **Supplemental Information**

#### ***Examples***

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

### **Other Resources**

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

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## Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

## Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

## Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☒ Contain Pollutants
- Collect and Convey

## Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

## Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

## Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.



- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

***Redeveloping Existing Installations***

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

**Additional Information*****Maintenance Considerations***

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

**Other Resources**

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

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## Description

An infiltration basin is a shallow impoundment that is designed to infiltrate stormwater. Infiltration basins use the natural filtering ability of the soil to remove pollutants in stormwater runoff. Infiltration facilities store runoff until it gradually exfiltrates through the soil and eventually into the water table. This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems. Infiltration basins can be challenging to apply on many sites, however, because of soils requirements. In addition, some studies have shown relatively high failure rates compared with other management practices.

## California Experience

Infiltration basins have a long history of use in California, especially in the Central Valley. Basins located in Fresno were among those initially evaluated in the National Urban Runoff Program and were found to be effective at reducing the volume of runoff, while posing little long-term threat to groundwater quality (EPA, 1983; Schroeder, 1995). Proper siting of these devices is crucial as underscored by the experience of Caltrans in siting two basins in Southern California. The basin with marginal separation from groundwater and soil permeability failed immediately and could never be rehabilitated.

## Advantages

- Provides 100% reduction in the load discharged to surface waters.
- The principal benefit of infiltration basins is the approximation of pre-development hydrology during which a

## Design Considerations

- Soil for Infiltration
- Slope
- Aesthetics

## Targeted Constituents

<input checked="" type="checkbox"/>	Sediment	■
<input checked="" type="checkbox"/>	Nutrients	■
<input checked="" type="checkbox"/>	Trash	■
<input checked="" type="checkbox"/>	Metals	■
<input checked="" type="checkbox"/>	Bacteria	■
<input checked="" type="checkbox"/>	Oil and Grease	■
<input checked="" type="checkbox"/>	Organics	■

## Legend (Removal Effectiveness)

- Low
- High
- ▲ Medium



significant portion of the average annual rainfall runoff is infiltrated and evaporated rather than flushed directly to creeks.

- If the water quality volume is adequately sized, infiltration basins can be useful for providing control of channel forming (erosion) and high frequency (generally less than the 2-year) flood events.

**Limitations**

- May not be appropriate for industrial sites or locations where spills may occur.
- Infiltration basins require a minimum soil infiltration rate of 0.5 inches/hour, not appropriate at sites with Hydrologic Soil Types C and D.
- If infiltration rates exceed 2.4 inches/hour, then the runoff should be fully treated prior to infiltration to protect groundwater quality.
- Not suitable on fill sites or steep slopes.
- Risk of groundwater contamination in very coarse soils.
- Upstream drainage area must be completely stabilized before construction.
- Difficult to restore functioning of infiltration basins once clogged.

**Design and Sizing Guidelines**

- Water quality volume determined by local requirements or sized so that 85% of the annual runoff volume is captured.
- Basin sized so that the entire water quality volume is infiltrated within 48 hours.
- Vegetation establishment on the basin floor may help reduce the clogging rate.

**Construction/Inspection Considerations**

- Before construction begins, stabilize the entire area draining to the facility. If impossible, place a diversion berm around the perimeter of the infiltration site to prevent sediment entrance during construction or remove the top 2 inches of soil after the site is stabilized. Stabilize the entire contributing drainage area, including the side slopes, before allowing any runoff to enter once construction is complete.
- Place excavated material such that it can not be washed back into the basin if a storm occurs during construction of the facility.
- Build the basin without driving heavy equipment over the infiltration surface. Any equipment driven on the surface should have extra-wide ("low pressure") tires. Prior to any construction, rope off the infiltration area to stop entrance by unwanted equipment.
- After final grading, till the infiltration surface deeply.
- Use appropriate erosion control seed mix for the specific project and location.



## Performance

As water migrates through porous soil and rock, pollutant attenuation mechanisms include precipitation, sorption, physical filtration, and bacterial degradation. If functioning properly, this approach is presumed to have high removal efficiencies for particulate pollutants and moderate removal of soluble pollutants. Actual pollutant removal in the subsurface would be expected to vary depending upon site-specific soil types. This technology eliminates discharge to surface waters except for the very largest storms; consequently, complete removal of all stormwater constituents can be assumed.

There remain some concerns about the potential for groundwater contamination despite the findings of the NURP and Nightingale (1975; 1987a,b,c; 1989). For instance, a report by Pitt et al. (1994) highlighted the potential for groundwater contamination from intentional and unintentional stormwater infiltration. That report recommends that infiltration facilities not be sited in areas where high concentrations are present or where there is a potential for spills of toxic material. Conversely, Schroeder (1995) reported that there was no evidence of groundwater impacts from an infiltration basin serving a large industrial catchment in Fresno, CA.

## Siting Criteria

The key element in siting infiltration basins is identifying sites with appropriate soil and hydrogeologic properties, which is critical for long term performance. In one study conducted in Prince George's County, Maryland (Galli, 1992), all of the infiltration basins investigated clogged within 2 years. It is believed that these failures were for the most part due to allowing infiltration at sites with rates of less than 0.5 in/hr, basing siting on soil type rather than field infiltration tests, and poor construction practices that resulted in soil compaction of the basin invert.

A study of 23 infiltration basins in the Pacific Northwest showed better long-term performance in an area with highly permeable soils (Hilding, 1996). In this study, few of the infiltration basins had failed after 10 years. Consequently, the following guidelines for identifying appropriate soil and subsurface conditions should be rigorously adhered to.

- Determine soil type (consider RCS soil type 'A, B or C' only) from mapping and consult USDA soil survey tables to review other parameters such as the amount of silt and clay, presence of a restrictive layer or seasonal high water table, and estimated permeability. The soil should not have more than 30% clay or more than 40% of clay and silt combined. Eliminate sites that are clearly unsuitable for infiltration.
- Groundwater separation should be at least 3 m from the basin invert to the measured ground water elevation. There is concern at the state and regional levels of the impact on groundwater quality from infiltrated runoff, especially when the separation between groundwater and the surface is small.
- Location away from buildings, slopes and highway pavement (greater than 6 m) and wells and bridge structures (greater than 30 m). Sites constructed of fill, having a base flow or with a slope greater than 15% should not be considered.
- Ensure that adequate head is available to operate flow splitter structures (to allow the basin to be offline) without ponding in the splitter structure or creating backwater upstream of the splitter.

- Base flow should not be present in the tributary watershed.

## **Secondary Screening Based on Site Geotechnical Investigation**

- At least three in-hole conductivity tests shall be performed using USBR 7300-89 or Bouwer-Rice procedures (the latter if groundwater is encountered within the boring), two tests at different locations within the proposed basin and the third down gradient by no more than approximately 10 m. The tests shall measure permeability in the side slopes and the bed within a depth of 3 m of the invert.
- The minimum acceptable hydraulic conductivity as measured in any of the three required test holes is 13 mm/hr. If any test hole shows less than the minimum value, the site should be disqualified from further consideration.
- Exclude from consideration sites constructed in fill or partially in fill unless no silts or clays are present in the soil boring. Fill tends to be compacted, with clays in a dispersed rather than flocculated state, greatly reducing permeability.
- The geotechnical investigation should be such that a good understanding is gained as to how the stormwater runoff will move in the soil (horizontally or vertically) and if there are any geological conditions that could inhibit the movement of water.

## **Additional Design Guidelines**

- (1) Basin Sizing - The required water quality volume is determined by local regulations or sufficient to capture 85% of the annual runoff.
- (2) Provide pretreatment if sediment loading is a maintenance concern for the basin.
- (3) Include energy dissipation in the inlet design for the basins. Avoid designs that include a permanent pool to reduce opportunity for standing water and associated vector problems.
- (4) Basin invert area should be determined by the equation:

$$A = \frac{WQV}{kt}$$

where A = Basin invert area (m<sup>2</sup>)

WQV = water quality volume (m<sup>3</sup>)

k = 0.5 times the lowest field-measured hydraulic conductivity (m/hr)

t = drawdown time (48 hr)

- (5) The use of vertical piping, either for distribution or infiltration enhancement shall not be allowed to avoid device classification as a Class V injection well per 40 CFR146.5(e)(4).



## Maintenance

Regular maintenance is critical to the successful operation of infiltration basins. Recommended operation and maintenance guidelines include:

- Inspections and maintenance to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 72 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.
- Observe drain time for the design storm after completion or modification of the facility to confirm that the desired drain time has been obtained.
- Schedule semiannual inspections for beginning and end of the wet season to identify potential problems such as erosion of the basin side slopes and invert, standing water, trash and debris, and sediment accumulation.
- Remove accumulated trash and debris in the basin at the start and end of the wet season.
- Inspect for standing water at the end of the wet season.
- Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.
- Remove accumulated sediment and regrade when the accumulated sediment volume exceeds 10% of the basin.
- If erosion is occurring within the basin, revegetate immediately and stabilize with an erosion control mulch or mat until vegetation cover is established.
- To avoid reversing soil development, scarification or other disturbance should only be performed when there are actual signs of clogging, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a very light tractor.

## Cost

Infiltration basins are relatively cost-effective practices because little infrastructure is needed when constructing them. One study estimated the total construction cost at about \$2 per ft (adjusted for inflation) of storage for a 0.25-acre basin (SWRPC, 1991). As with other BMPs, these published cost estimates may deviate greatly from what might be incurred at a specific site. For instance, Caltrans spent about \$18/ft<sup>3</sup> for the two infiltration basins constructed in southern California, each of which had a water quality volume of about 0.34 ac.-ft. Much of the higher cost can be attributed to changes in the storm drain system necessary to route the runoff to the basin locations.

Infiltration basins typically consume about 2 to 3% of the site draining to them, which is relatively small. Additional space may be required for buffer, landscaping, access road, and fencing. Maintenance costs are estimated at 5 to 10% of construction costs.

One cost concern associated with infiltration practices is the maintenance burden and longevity. If improperly maintained, infiltration basins have a high failure rate. Thus, it may be necessary to replace the basin with a different technology after a relatively short period of time.

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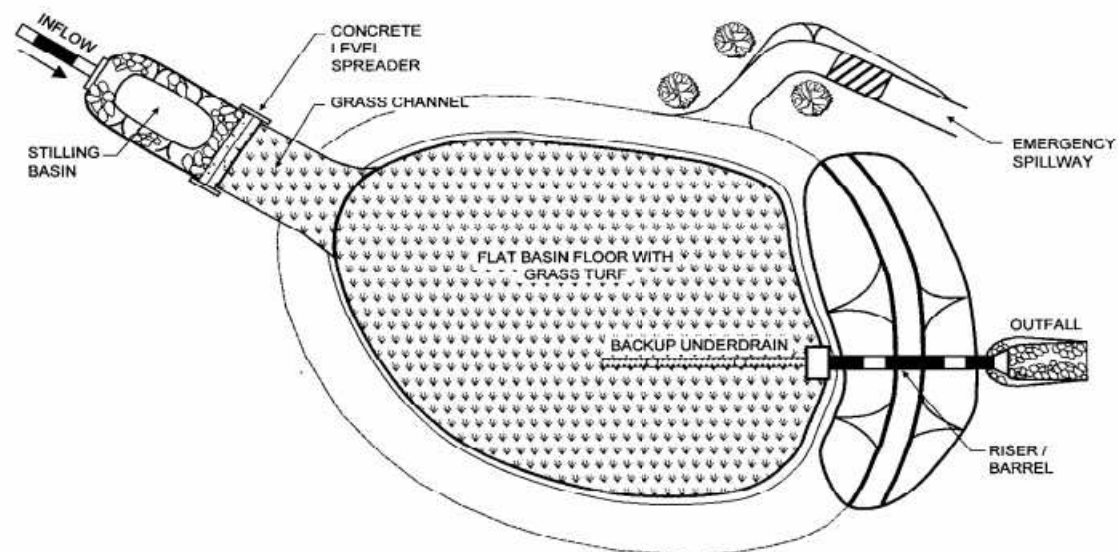
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## **Information Resources**

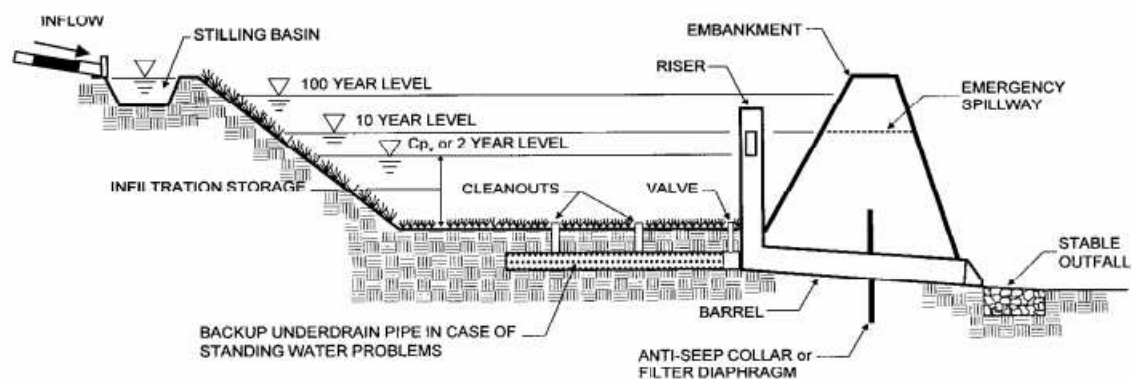
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**PLAN VIEW**



**PROFILE**



## Description

Drain inserts are manufactured filters or fabric placed in a drop inlet to remove sediment and debris. There are a multitude of inserts of various shapes and configurations, typically falling into one of three different groups: socks, boxes, and trays. The sock consists of a fabric, usually constructed of polypropylene. The fabric may be attached to a frame or the grate of the inlet holds the sock. Socks are meant for vertical (drop) inlets. Boxes are constructed of plastic or wire mesh. Typically a polypropylene “bag” is placed in the wire mesh box. The bag takes the form of the box. Most box products are one box; that is, the setting area and filtration through media occur in the same box. Some products consist of one or more trays or mesh grates. The trays may hold different types of media. Filtration media vary by manufacturer. Types include polypropylene, porous polymer, treated cellulose, and activated carbon.

## California Experience

The number of installations is unknown but likely exceeds a thousand. Some users have reported that these systems require considerable maintenance to prevent plugging and bypass.

## Advantages

- Does not require additional space as inserts as the drain inlets are already a component of the standard drainage systems.
- Easy access for inspection and maintenance.
- As there is no standing water, there is little concern for mosquito breeding.
- A relatively inexpensive retrofit option.

## Limitations

Performance is likely significantly less than treatment systems that are located at the end of the drainage system such as ponds and vaults. Usually not suitable for large areas or areas with trash or leaves than can plug the insert.

## Design and Sizing Guidelines

Refer to manufacturer’s guidelines. Drain inserts come any many configurations but can be placed into three general groups: socks, boxes, and trays. The sock consists of a fabric, usually constructed of polypropylene. The fabric may be attached to a frame or the grate of the inlet holds the sock. Socks are meant for vertical (drop) inlets. Boxes are constructed of plastic or wire mesh. Typically a polypropylene “bag” is placed in the wire mesh box. The bag takes the form of the box. Most box products are

## Design Considerations

- Use with other BMPs
- Fit and Seal Capacity within Inlet

## Targeted Constituents

- ☒ Sediment
- ☒ Nutrients
- ☒ Trash
- ☒ Metals
- Bacteria
- ☒ Oil and Grease
- ☒ Organics

### Removal Effectiveness

See New Development and Redevelopment Handbook-Section 5.



one box; that is, the setting area and filtration through media occurs in the same box. One manufacturer has a double-box. Stormwater enters the first box where setting occurs. The stormwater flows into the second box where the filter media is located. Some products consist of one or more trays or mesh grates. The trays can hold different types of media. Filtration media vary with the manufacturer: types include polypropylene, porous polymer, treated cellulose, and activated carbon.

***Construction/Inspection Considerations***

Be certain that installation is done in a manner that makes certain that the stormwater enters the unit and does not leak around the perimeter. Leakage between the frame of the insert and the frame of the drain inlet can easily occur with vertical (drop) inlets.

**Performance**

Few products have performance data collected under field conditions.

**Siting Criteria**

It is recommended that inserts be used only for retrofit situations or as pretreatment where other treatment BMPs presented in this section area used.

**Additional Design Guidelines**

Follow guidelines provided by individual manufacturers.

**Maintenance**

Likely require frequent maintenance, on the order of several times per year.

**Cost**

- The initial cost of individual inserts ranges from less than \$100 to about \$2,000. The cost of using multiple units in curb inlet drains varies with the size of the inlet.
- The low cost of inserts may tend to favor the use of these systems over other, more effective treatment BMPs. However, the low cost of each unit may be offset by the number of units that are required, more frequent maintenance, and the shorter structural life (and therefore replacement).

**References and Sources of Additional Information**

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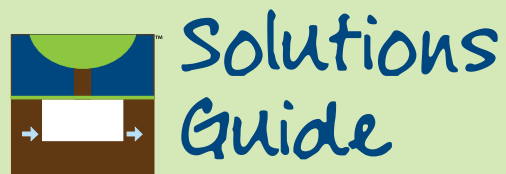
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Woodward Clyde, June 11, 1996, Parking Lot Monitoring Report, Santa Clara Valley Nonpoint Source Pollution Control Program.



# Filterra® Bioretention System

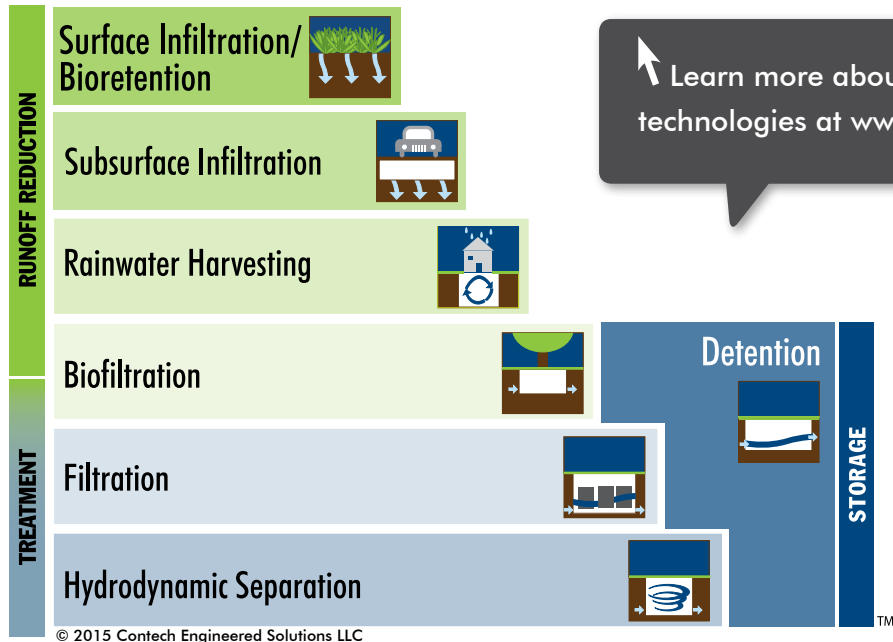


# Stormwater Solutions from Contech



## Selecting the Right Stormwater Solution Just Got Easier...

It's simple to choose the right stormwater solution to achieve your goals with the Contech Stormwater Solutions Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a treatment best management practice (BMP) for the balance. Finally, select a detention system to address any outstanding downstream erosion.



## Low Impact Development Site Planner

The Low Impact Development (LID) Site Planner is a free, web-based tool intended to guide you in preliminary selection of the most effective and likely to be approved stormwater control measures that are technically feasible given known site constraints. To utilize this tool, visit [www.conteches.com/lidsiteplanner](http://www.conteches.com/lidsiteplanner)

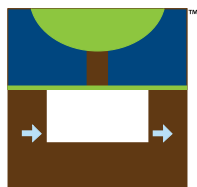
### Benefits of the tool include:

- A fast, easy-to-use tool that follows a Low Impact Development design approach consistent with regulations that prioritize Green Infrastructure.
- Helps minimize the cost and delay of redesigns by prompting users to consider a wide range of common site constraints early in the design process.
- Captures specific site conditions precluding the use of infeasible BMPs.
- Allows flexibility to select flow through treatment controls where runoff reduction is not feasible.
- Provides a summary report with links to design guides, standard details, and specifications for stormwater management approaches that are likely to be feasible and approved on the project.





# Bioretention as a Stormwater Management Strategy



## Filtration and Biological Treatment in One System

Stormwater management regulations such as Low Impact Development (LID) and Green Infrastructure (GI) have proliferated throughout the United States.

Implementing LID and GI in urban environments is challenging, as they often require a large footprint. That doesn't mean LID/GI is not possible, it just means the solution may take a more engineered form. Contech has addressed this need by developing a unique solution – the Filterra Bioretention System.

## What is Filterra?

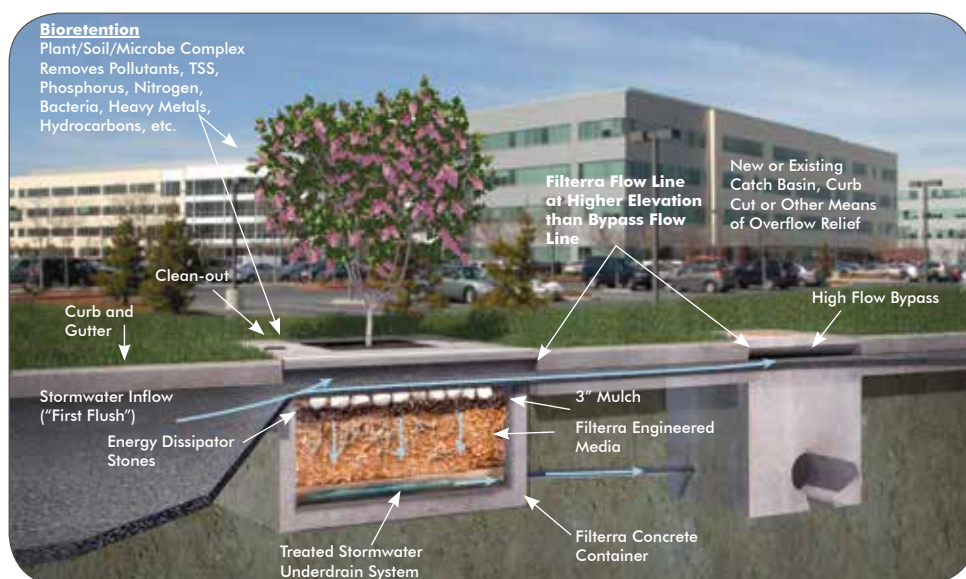
Filterra is an engineered biofiltration device with components that make it similar to bioretention in pollutant removal and application, but has been optimized for high volume/flow treatment in a compact system. Its small footprint allows Filterra to be used on highly developed sites such as commercial parking lots, residential streets, parking lots, and urban streetscapes. Filterra is adaptable and can be used alone or in combination with perforated pipes or chambers to optimize runoff reduction.



## How The Standard Offline Filterra Systems Works

Stormwater runoff enters the Standard Offline Filterra system through a curb-inlet opening and flows through a specially designed filter media mixture contained in a landscaped modular container. The biofiltration media captures and immobilizes pollutants; some of these pollutants are then decomposed, volatilized and incorporated into the biomass of the Filterra system's micro/macro fauna and flora. Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged. The Standard Offline Filterra system utilizes a downstream catch basin or curb inlet for bypass flows allowing for the shallowest profile and most flexible design of any of the Filterra configurations.

In areas where runoff reduction and infiltration are mandated or desirable, Filterra can be paired with other Contech products such as ChamberMaxx or an Urban Green Rainwater Harvesting system to provide even greater alignment with LID/GI goals.



Learn more at [www.ContechES.com/filterra](http://www.ContechES.com/filterra)



# Filterra® Features & Benefits

- **Regulatory Compliance** – Multiple third-party field tests confirmed Filterra meets regulatory requirements for pollutant removal under TAPE, TARP, and NJCAT testing.
- **Value** – Filterra offers a cost effective stormwater treatment system featuring easy installation and simple maintenance.
- **Aesthetics** – Landscaping enhances the appearance of your site making it more attractive while removing pollutants.
- **Flexible** – Multiple sizes and a variety of configurations available to meet site-specific needs.
- **Versatile** – Filterra is ideal for both new construction and urban retrofits, as well as:
  - » Streetscapes
  - » Urban settings
  - » Parking lots
  - » Roof drains
  - » Roadways
  - » Residential subdivisions
- **Easy Installation** – Delivered on-site, ready to lift and place.
- **Activation** – Performed by Contech-certified providers to ensure effective performance from the start.
- **Maintenance** – Simple and safe (no confined space access), and the first year of maintenance is included with the purchase of every system.



Third-party field testing confirmed Filterra meets regulatory requirements for pollutant removal under nationally recognized TAPE, TARP, and NJCAT testing protocols.

# Additional Filterra® Configurations

Filterra is offered in multiple configurations to meet site specific needs. These additional configurations make Filterra a versatile yet effective stormwater BMP with a low life-cycle cost.

## Filterra Internal Bypass – Curb

The Filterra Internal Bypass – Curb incorporates a curb inlet treatment chamber and internal high flow bypass in a single structure. This eliminates the need for a separate bypass structure and enables placement on grade or in a “sag” or “sump” condition.

## Filterra Internal Bypass – Pipe

The Filterra Internal Bypass – Pipe treats stormwater runoff from rooftops or other sub-grade sources such as area drains. Higher flows bypass the biofiltration treatment system via an overflow/bypass pipe.

## Filterra Street Tree

The Filterra Street Tree accommodates trees larger than the standard small-medium-sized trees used in standard Filterra units. These larger trees can provide benefits to site landscape designs on canopy cover, tree count, or percentage of green area.

## Filterra Sedimentation Chamber

The Filterra Sedimentation Chamber includes a pre-treatment chamber that provides settling for debris and sediment, meeting water quality volume temporary hold requirements in some jurisdictions.

## Filterra Bioscape®

The Filterra Bioscape system available with or without the concrete vault provides an option for larger drainage areas where standard Filterra is not feasible. Contech provides activation and maintenance services to ensure quality and ease of Filterra component placement.





# Filterra® Media — Proven Pollutant Removal

At the heart of the Filterra system is Filterra engineered biofiltration media; a specified gradation of washed aggregate and organic material homogeneously blended under strict quality controlled conditions. Using data from independent, third-party studies including the University of Virginia (TARP), Herrera Environmental Consultants (TAPE), Terraphase Engineering (NJCAT), North Carolina State University (TAPE & TARP) and Geosyntec Consultants, the filter media has been optimized to operate under high flow rates while maintaining pollutant removal performance. Filterra media is tested for hydraulic functionality, fertility, and particle size distribution to ensure uniform performance.

Filterra media also supports a vegetation component consisting of grasses, shrubs, or trees that assist with the adsorption of pollutants through biological uptake/storage and pollutant consumption by microbes within the plant root zone.

MEASURED POLLUTANT REMOVAL PERFORMANCE			
Pollutant	Median Removal Efficiency	Median Effluent Concentration (mg/L)	Third Party Reference Studies
Total Suspended Solids	86%	3.3	UVA 2006, Herrera 2009, Herrera 2014, NC State 2015
Total Phosphorus (TAPE)	70%	0.05	Herrera 2014, NC State 2015
Total Nitrogen	34%	0.54	NC State 2015
Total Copper	55%	0.004	UVA 2006, Herrera 2009
Dissolved Copper	43%	0.003	Herrera 2009
Total Zinc	56%	0.04	UVA 2006, Herrera 2009, NC State 2015
Dissolved Zinc	54%	0.1	Herrera 2009
Total Petroleum Hydrocarbons	87%	0.71	Herrera 2009

*Information above is based on results from third party field studies following industry recognized protocols such as TAPE and TARP. Relevant studies are noted for each pollutant, and corresponding data was aggregated to provide realistic and repeatable performance expectations.*

*Some jurisdictions recognize higher removal rates - see your Contech Stormwater Consultant for performance expectations.*



Filterra media has been **optimized** to operate under high flow rates while maintaining pollutant removal performance.

# Filterra® — Regulatory Approvals

Based on more than 20 years of research and development, testing and field monitoring, Filterra's performance has been recognized by some of the nation's most significant regulatory agencies, including the states of Washington, Virginia, Maryland and New Jersey, the District of Columbia, the Texas Commission on Environmental Quality and the Atlanta (GA) Regional Commission, and the City of Portland (OR). Highlights regarding these approvals include:

- Granted ESD (Environmental Site Design) status by the state of Maryland Department of the Environment (MDE).
- GULD-approved for ALL pollutants of concern with the state of Washington Department of Ecology (WA-Ecology) with (2) TAPE field tests.
- Multiple third-party nationally recognized field/lab tests completed: (1) TARP, (2) TAPE, (1) NJCAT and (1) NC-DENR.



## Filterra® — In the Field

We make it easy! The Filterra system is delivered to the job site with all components except vegetation and mulch.

### Filterra – Installation

- Contractor off-loads top and vault separately.
- Set vault to grade on 6" compacted stone, install piping, backfill, set top.
- Leave protective throat plate and tree grate covers in place.

### Filterra – Activation

- Contractor completes and returns Activation Checklist paperwork.
- Vegetation selection guidance based on your climate zone.
- Contech-certified providers conduct on-site activation with installation of mulch and plant vegetation.

### Filterra – Maintenance

- The first year of maintenance is included with every system.
- Maintenance is low-cost, low-tech and simple:
  - » Remove trash, sediment, and mulch.
  - » Replace with a fresh 3" layer of mulch.
  - » Can be completed by landscape contractor.
  - » No confined space entry.



The **first year of maintenance** is included with the purchase of every Filterra system.

Learn more at [www.ContechES.com/filterra](http://www.ContechES.com/filterra)



## Next Steps

### Dig Deeper

Find all the information you need at [www.ContechES.com](http://www.ContechES.com), including field and laboratory test results, approvals, brochures, design guides, standard details and specifications within the product section of our site.

### Connect with Us

We're here to make your job easier – and that includes being able to get in touch with us when you need to. [www.ContechES.com/localresources](http://www.ContechES.com/localresources).

While you're there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

### Start a Project

If you are ready to begin a project, contact your local representative to get started. Or you can check out our design toolbox for all our online resources at [www.ContechES.com/startaproject](http://www.ContechES.com/startaproject).

### Links to Stormwater Design Tools:

To use the Land Value Calculator, visit: [www.ContechES.com/lvc](http://www.ContechES.com/lvc)

To use the Design Your Own Detention System tool, visit: [www.ContechES.com/dyods](http://www.ContechES.com/dyods)

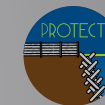
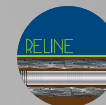
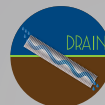
To use the Design Your Own Hydrodynamic Separator tool, visit: [www.ContechES.com/dyohds](http://www.ContechES.com/dyohds)

To use the Rainwater Harvesting Runoff Reduction Calculator tool, visit: [www.ContechES.com/rwh-calculator](http://www.ContechES.com/rwh-calculator)

To use the Low Impact Development Site Planner tool, visit: [www.ContechES.com/lidsiteplanner](http://www.ContechES.com/lidsiteplanner)



## COMPLETE SITE SOLUTIONS



### STORMWATER SOLUTIONS

Helping to satisfy stormwater management requirements on land development projects

- Stormwater Treatment
- Detention/Infiltration
- Rainwater Harvesting
- Biofiltration/Bioretenation

### PIPE SOLUTIONS

Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness

- Corrugated Metal Pipe (CMP)
- Steel Reinforced Polyethylene (SRPE)
- High Density Polyethylene (HDPE)
- Polyvinyl Chloride (PVC)

### STRUCTURES SOLUTIONS

Providing innovative options and support for crossings, culverts, and bridges

- Plate, Precast & Truss bridges
- Hard Armor
- Retaining Walls
- Tunnel Liner Plate

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FSC



# Modular Wetlands System™ Linear

## Biofiltration

# Comprehensive Stormwater Solutions



# OVERVIEW

The Bio Clean Modular Wetlands System™ Linear (MWS Linear) represents a pioneering breakthrough in stormwater technology as the only biofiltration system to utilize patented horizontal flow, allowing for a smaller footprint and higher treatment capacity. While most biofilters use little or no pretreatment, the MWS Linear incorporates an advanced pretreatment chamber that includes separation and pre-filter cartridges. In this chamber, sediment and hydrocarbons are removed from runoff before entering the biofiltration chamber, in turn reducing maintenance costs and improving performance.

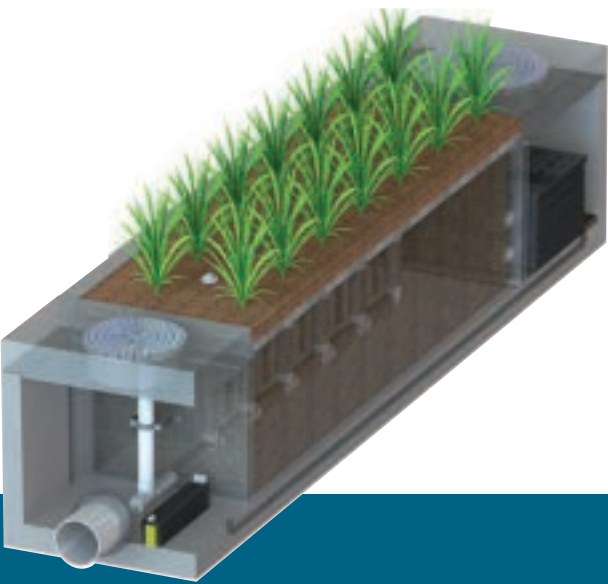
## The Urban Impact

For hundreds of years, natural wetlands surrounding our shores have played an integral role as nature’s stormwater treatment

system. But as our cities grow and develop, these natural wetlands have perished under countless roads, rooftops, and parking lots.

## Plant A Wetland

Without natural wetlands, our cities are deprived of water purification, flood control, and land stability. Modular Wetlands and the MWS Linear re-establish nature’s presence and rejuvenate waterways in urban areas.



# PERFORMANCE

The MWS Linear continues to outperform other treatment methods with superior pollutant removal for TSS, heavy metals, nutrients, hydrocarbons, and bacteria. Since 2007 the MWS Linear has been field tested on numerous sites across the country. With its advanced pretreatment chamber and innovative horizontal flow biofilter, the system is able to effectively remove pollutants through a combination of physical, chemical, and biological filtration processes. With the same biological processes found in natural wetlands, the MWS Linear harnesses nature’s ability to process, transform, and remove even the most harmful pollutants.

66% REMOVAL OF DISSOLVED ZINC	69% REMOVAL OF TOTAL ZINC	38% REMOVAL OF DISSOLVED COPPER	64% REMOVAL OF TOTAL PHOSPHORUS	
45% REMOVAL OF NITROGEN	50% REMOVAL OF TOTAL COPPER	95% REMOVAL OF MOTOR OIL	67% REMOVAL OF ORTHO PHOSPHORUS	85% REMOVAL OF TSS

# APPROVALS

The MWS Linear has successfully met years of challenging technical reviews and testing from some of the most prestigious and demanding agencies in the nation and perhaps the world.



## WASHINGTON STATE TAPE APPROVED

The MWS Linear is approved for General Use Level Designation (GULD) for Basic, Enhanced, and Phosphorus treatment at 1 gpm/ft<sup>2</sup> loading rate. The highest performing BMP on the market for all main pollutant categories.



## DEQ ASSIGNMENT

The Virginia Department of Environmental Quality assigned the MWS Linear, the highest phosphorus removal rating for manufactured treatment devices to meet the new Virginia Stormwater Management Program (VSMP) Regulation technical criteria.



## MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED

Granted Environmental Site Design (ESD) status for new construction, redevelopment, and retrofitting when designed in accordance with the design manual.



## MASTEP EVALUATION

The University of Massachusetts at Amherst – Water Resources Research Center issued a technical evaluation report noting removal rates up to 84% TSS, 70% total phosphorus, 68.5% total zinc, and more.



## RHODE ISLAND DEM APPROVED

Approved as an authorized BMP and noted to achieve the following minimum removal efficiencies: 85% TSS, 60% pathogens, 30% total phosphorus, and 30% total nitrogen.

## ADVANTAGES

- HORIZONTAL FLOW BIOFILTRATION
- GREATER FILTER SURFACE AREA
- PRETREATMENT CHAMBER
- PATENTED PERIMETER VOID AREA
- FLOW CONTROL
- NO DEPRESSED PLANTER AREA
- AUTO DRAINDOWN MEANS NO MOSQUITO VECTOR



# OPERATION

The MWS Linear is the most efficient and versatile biofiltration system on the market, and it is the only system with horizontal flow which improves performance, reduces footprint, and minimizes maintenance. Figure 1 and Figure 2 illustrate the invaluable benefits of horizontal flow and the multiple treatment stages.

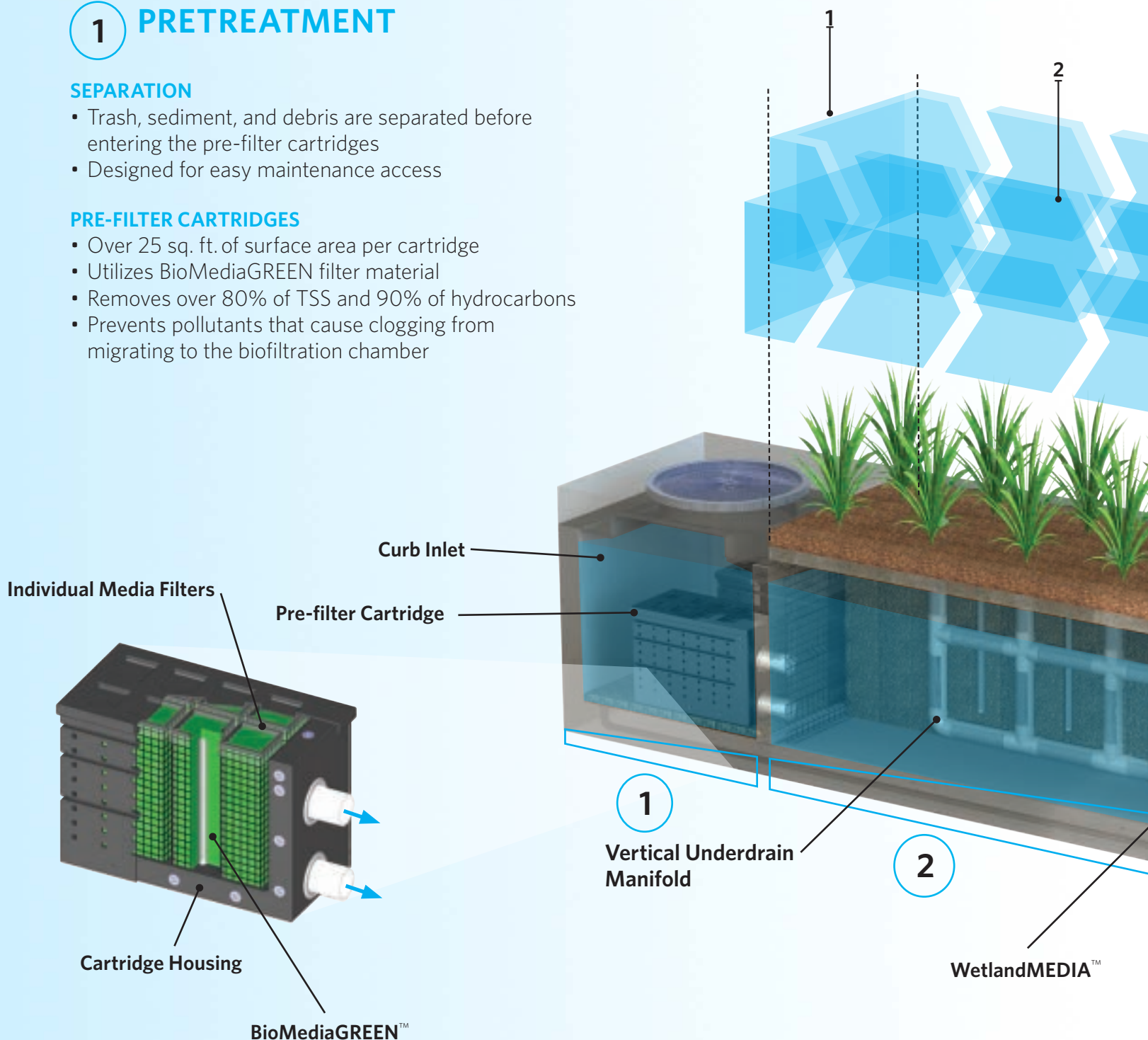
## 1 PRETREATMENT

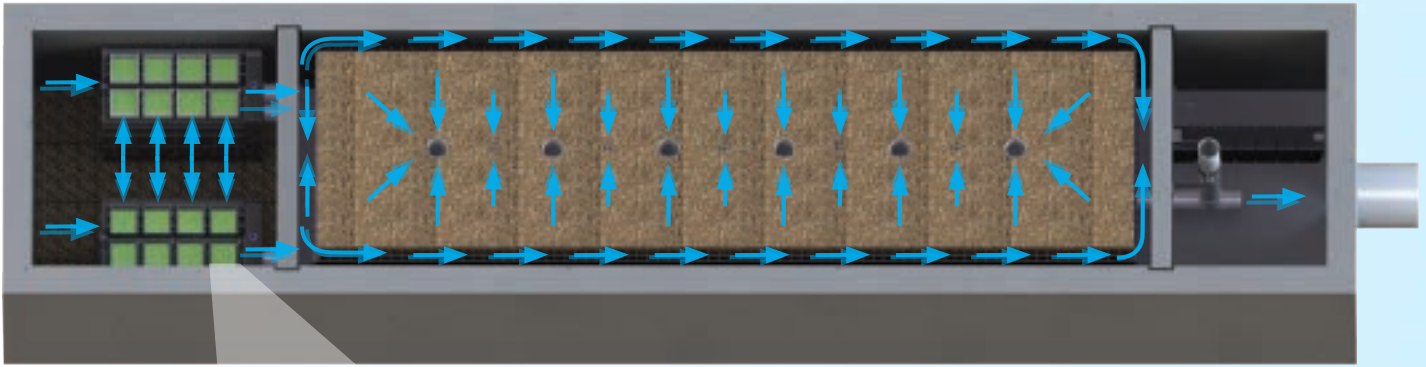
### SEPARATION

- Trash, sediment, and debris are separated before entering the pre-filter cartridges
- Designed for easy maintenance access

### PRE-FILTER CARTRIDGES

- Over 25 sq. ft. of surface area per cartridge
- Utilizes BioMediaGREEN filter material
- Removes over 80% of TSS and 90% of hydrocarbons
- Prevents pollutants that cause clogging from migrating to the biofiltration chamber





**Figure 2,**  
**Top View**

2x to 3x more surface area than traditional downward flow bioretention systems.

**2**

## BIOFILTRATION

### HORIZONTAL FLOW

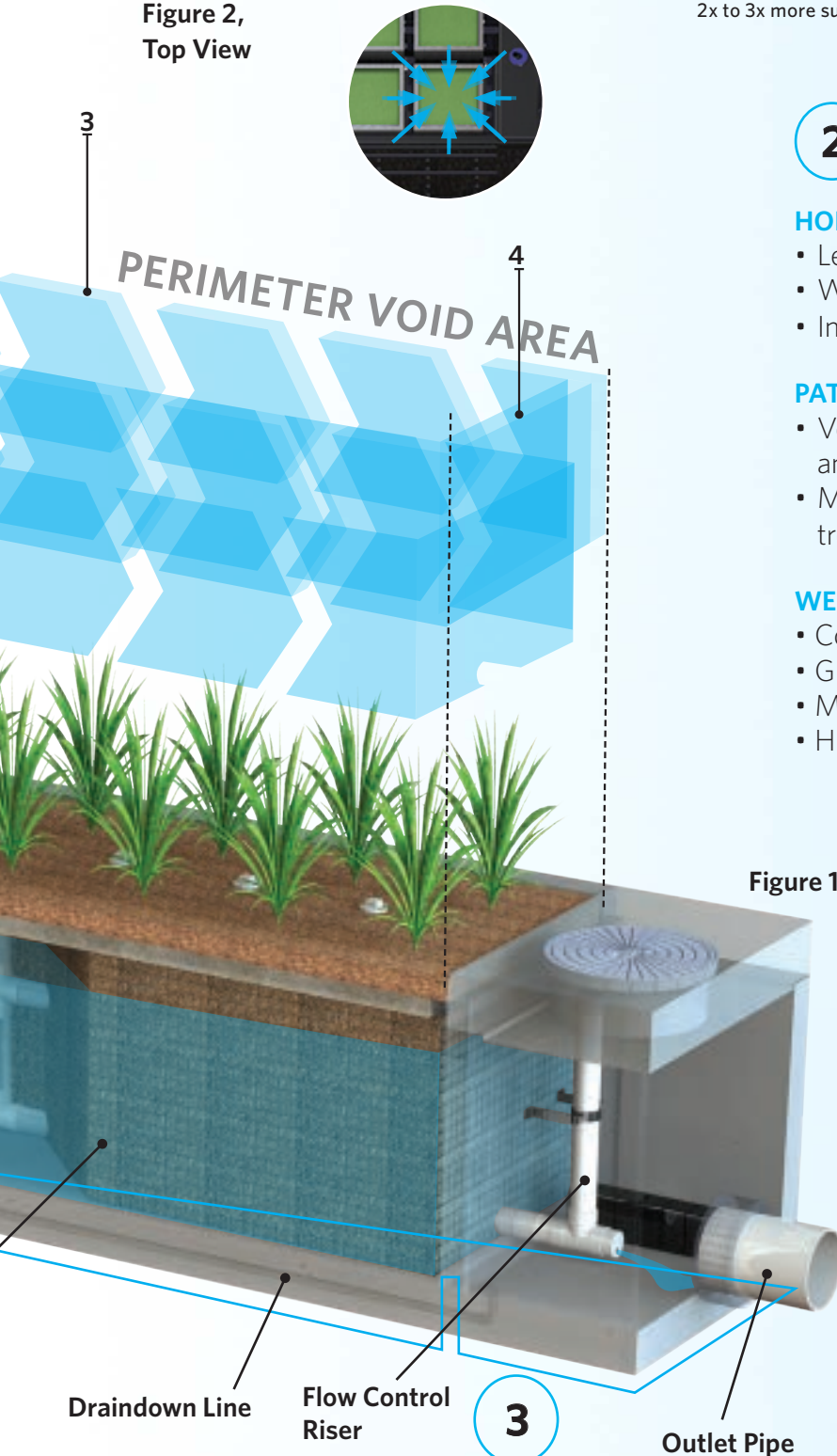
- Less clogging than downward flow biofilters
- Water flow is subsurface
- Improves biological filtration

### PATENTED PERIMETER VOID AREA

- Vertically extends void area between the walls and the WetlandMEDIA on all four sides
- Maximizes surface area of the media for higher treatment capacity

### WETLANDMEDIA

- Contains no organics and removes phosphorus
- Greater surface area and 48% void space
- Maximum evapotranspiration
- High ion exchange capacity and lightweight



**Figure 1**

**3**

## DISCHARGE

### FLOW CONTROL

- Orifice plate controls flow of water through WetlandMEDIA to a level lower than the media's capacity
- Extends the life of the media and improves performance

### DRAINDOWN FILTER

- The draindown is an optional feature that completely drains the pretreatment chamber
- Water that drains from the pretreatment chamber between storm events will be treated



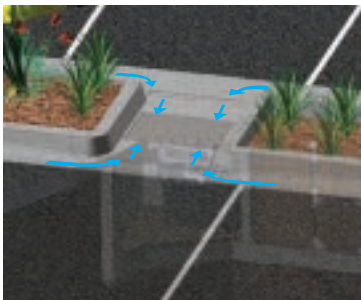
# CONFIGURATIONS

The MWS Linear is the preferred biofiltration system of civil engineers across the country due to its versatile design. This highly versatile system has available “pipe-in” options on most models, along with built-in curb or grated inlets for simple integration into your storm drain design.



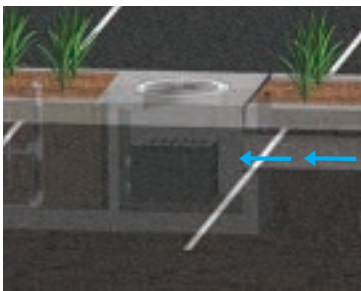
## CURB TYPE

The Curb Type configuration accepts sheet flow through a curb opening and is commonly used along roadways and parking lots. It can be used in sump or flow-by conditions. Length of curb opening varies based on model and size.



## GRATE TYPE

The Grate Type configuration offers the same features and benefits as the Curb Type but with a grated/drop inlet above the systems pretreatment chamber. It has the added benefit of allowing pedestrian access over the inlet. ADA-compliant grates are available to assure easy and safe access. The Grate Type can also be used in scenarios where runoff needs to be intercepted on both sides of landscape islands.



## VAULT TYPE

The system's patented horizontal flow biofilter is able to accept inflow pipes directly into the pretreatment chamber, meaning the MWS Linear can be used in end-of-the-line installations. This greatly improves feasibility over typical decentralized designs that are required with other biofiltration/bioretention systems. Another benefit of the “pipe-in” design is the ability to install the system downstream of underground detention systems to meet water quality volume requirements.



## DOWNSPOUT TYPE

The Downspout Type is a variation of the Vault Type and is designed to accept a vertical downspout pipe from rooftop and podium areas. Some models have the option of utilizing an internal bypass, simplifying the overall design. The system can be installed as a raised planter, and the exterior can be stuccoed or covered with other finishes to match the look of adjacent buildings.



# ORIENTATIONS

## SIDE-BY-SIDE

The Side-By-Side orientation places the pretreatment and discharge chamber adjacent to one another with the biofiltration chamber running parallel on either side. This minimizes the system length, providing a highly compact footprint. It has been proven useful in situations such as streets with directly adjacent sidewalks, as half of the system can be placed under that sidewalk. This orientation also offers internal bypass options as discussed below.



## END-TO-END

The End-To-End orientation places the pretreatment and discharge chambers on opposite ends of the biofiltration chamber, therefore minimizing the width of the system to 5 ft. (outside dimension). This orientation is perfect for linear projects and street retrofits where existing utilities and sidewalks limit the amount of space available for installation. One limitation of this orientation is that bypass must be external.



# BYPASS

## INTERNAL BYPASS WEIR (SIDE-BY-SIDE ONLY)

The Side-By-Side orientation places the pretreatment and discharge chambers adjacent to one another allowing for integration of internal bypass. The wall between these chambers can act as a bypass weir when flows exceed the system's treatment capacity, thus allowing bypass from the pretreatment chamber directly to the discharge chamber.

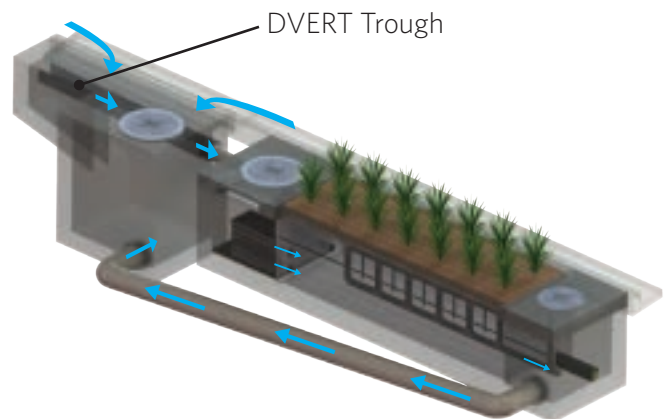
## EXTERNAL DIVERSION WEIR STRUCTURE

This traditional offline diversion method can be used with the MWS Linear in scenarios where runoff is being piped to the system. These simple and effective structures are generally configured with two outflow pipes. The first is a smaller pipe on the upstream side of the diversion weir - to divert low flows over to the MWS Linear for treatment. The second is the main pipe that receives water once the system has exceeded treatment capacity and water flows over the weir.

## FLOW-BY-DESIGN

This method is one in which the system is placed just upstream of a standard curb or grate inlet to intercept the first flush. Higher flows simply pass by the MWS Linear and into the standard inlet downstream.

## DVERT LOW FLOW DIVERSION



This simple yet innovative diversion trough can be installed in existing or new curb and grate inlets to divert the first flush to the MWS Linear via pipe. It works similar to a rain gutter and is installed just below the opening into the inlet. It captures the low flows and channels them over to a connecting pipe exiting out the wall of the inlet and leading to the MWS Linear. The DVERT is perfect for retrofit and green street applications that allow the MWS Linear to be installed anywhere space is available.

# SPECIFICATIONS

## FLOW-BASED

The MWS Linear can be used in stand-alone applications to meet treatment flow requirements. Since the MWS Linear is the only biofiltration system that can accept inflow pipes several feet below the surface, it can be used not only in decentralized design applications but also as a large central end-of-the-line application for maximum feasibility.

MODEL #	DIMENSIONS	WETLANDMEDIA SURFACE AREA (sq.ft.)	TREATMENT FLOW RATE (cfs)
MWS-L-4-4	4' x 4'	23	0.052
MWS-L-4-6	4' x 6'	32	0.073
MWS-L-4-8	4' x 8'	50	0.115
MWS-L-4-13	4' x 13'	63	0.144
MWS-L-4-15	4' x 15'	76	0.175
MWS-L-4-17	4' x 17'	90	0.206
MWS-L-4-19	4' x 19'	103	0.237
MWS-L-4-21	4' x 21'	117	0.268
MWS-L-6-8	7' x 9'	64	0.147
MWS-L-8-8	8' x 8'	100	0.230
MWS-L-8-12	8' x 12'	151	0.346
MWS-L-8-16	8' x 16'	201	0.462
MWS-L-8-20	9' x 21'	252	0.577
MWS-L-8-24	9' x 25'	302	0.693

# SPECIFICATIONS

## VOLUME-BASED

Many states require treatment of a water quality volume and do not offer the option of flow-based design. The MWS Linear and its unique horizontal flow makes it the only biofilter that can be used in volume-based design installed downstream of ponds, detention basins, and underground storage systems.

MODEL #	TREATMENT CAPACITY (cu. ft.) @ 24-HOUR DRAINDOWN	TREATMENT CAPACITY (cu. ft.) @ 48-HOUR DRAINDOWN
MWS-L-4-4	1140	2280
MWS-L-4-6	1600	3200
MWS-L-4-8	2518	5036
MWS-L-4-13	3131	6261
MWS-L-4-15	3811	7623
MWS-L-4-17	4492	8984
MWS-L-4-19	5172	10345
MWS-L-4-21	5853	11706
MWS-L-6-8	3191	6382
MWS-L-8-8	5036	10072
MWS-L-8-12	7554	15109
MWS-L-8-16	10073	20145
MWS-L-8-20	12560	25120
MWS-L-8-24	15108	30216



# APPLICATIONS

The MWS Linear has been successfully used on numerous new construction and retrofit projects. The system's superior versatility makes it beneficial for a wide range of stormwater and waste water applications - treating rooftops, streetscapes, parking lots, and industrial sites.



## INDUSTRIAL

Many states enforce strict regulations for discharges from industrial sites. The MWS Linear has helped various sites meet difficult EPA-mandated effluent limits for dissolved metals and other pollutants.



## RESIDENTIAL

Low to high density developments can benefit from the versatile design of the MWS Linear. The system can be used in both decentralized LID design and cost-effective end-of-the-line configurations.



## STREETS

Street applications can be challenging due to limited space. The MWS Linear is very adaptable, and it offers the smallest footprint to work around the constraints of existing utilities on retrofit projects.



## PARKING LOTS

Parking lots are designed to maximize space and the MWS Linear's 4 ft. standard planter width allows for easy integration into parking lot islands and other landscape medians.



## COMMERCIAL

Compared to bioretention systems, the MWS Linear can treat far more area in less space, meeting treatment and volume control requirements.



## MIXED USE

The MWS Linear can be installed as a raised planter to treat runoff from rooftops or patios, making it perfect for sustainable "live-work" spaces.

### More applications include:

- Agriculture
- Reuse
- Low Impact Development
- Waste Water

# PLANT SELECTION

Abundant plants, trees, and grasses bring value and an aesthetic benefit to any urban setting, but those in the MWS Linear do even more - they increase pollutant removal. What's not seen, but very important, is that below grade, the stormwater runoff/flow is being subjected to nature's secret weapon: a dynamic physical, chemical, and biological process working to break down and remove non-point source pollutants. The flow rate is controlled in the MWS Linear, giving the plants more contact time so that pollutants are more successfully decomposed, volatilized, and incorporated into the biomass of the MWS Linear's micro/macro flora and fauna.



A wide range of plants are suitable for use in the MWS Linear, but selections vary by location and climate. View suitable plants by visiting [biocleanenvironmental.com/plants](http://biocleanenvironmental.com/plants).

## INSTALLATION



The MWS Linear is simple, easy to install, and has a space-efficient design that offers lower excavation and installation costs compared to traditional tree-box type systems. The structure of the system resembles precast catch basin or utility vaults and is installed in a similar fashion.

The system is delivered fully assembled for quick installation. Generally, the structure can be unloaded and set in place in 15 minutes. Our experienced team of field technicians are available to supervise installations and provide technical support.

## MAINTENANCE



Reduce your maintenance costs, man hours, and materials with the MWS Linear. Unlike other biofiltration systems that provide no pretreatment, the MWS Linear is a self-contained treatment train which incorporates simple and effective pretreatment.

Maintenance requirements for the biofilter itself are almost completely eliminated, as the pretreatment chamber removes and isolates trash, sediments, and hydrocarbons. What's left is the simple maintenance of an easily accessible pretreatment chamber that can be cleaned by hand or with a standard vac truck. Only periodic replacement of low-cost media in the pre-filter cartridges is required for long-term operation, and there is absolutely no need to replace expensive biofiltration media.



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# Curb Inlet Filter

Trash Capture

## Comprehensive Stormwater Solutions

Bio  Clean  
A Forterra Company



# OVERVIEW

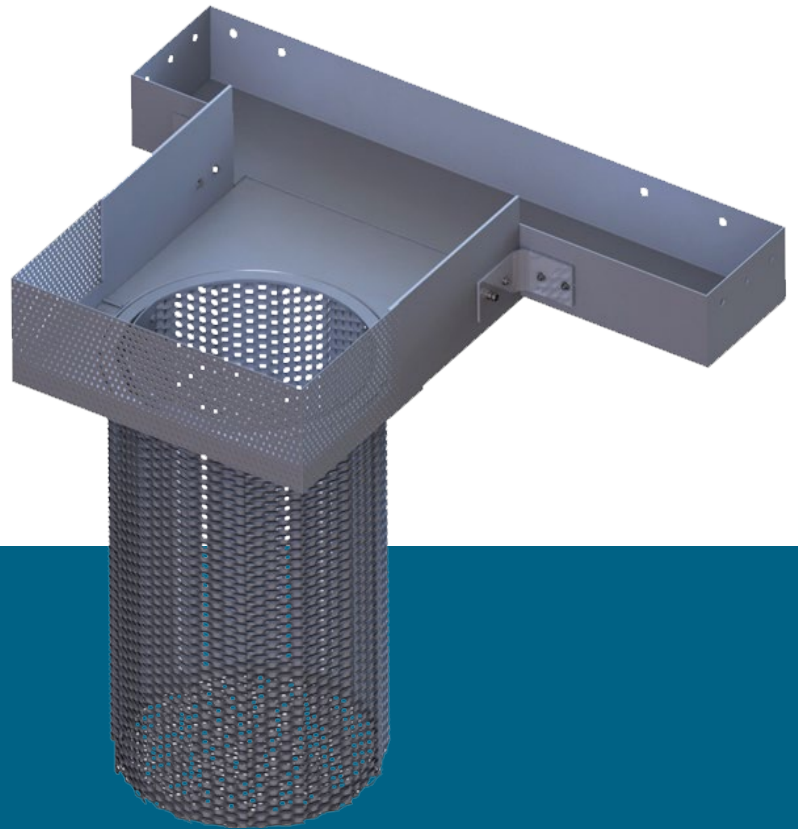
The Bio Clean Curb Inlet Filter is an insertable catch basin filter system designed to capture fine to coarse sediments, floatable trash, debris, and hydrocarbons conveyed in stormwater runoff. The filter system is available in three different model types: Full Trash Capture, Multi-Level Screening (MLS), and the revolutionary Kraken type media filter insert model.

The Curb Inlet Filter is an effective and economical solution to help property owners, developers, and municipalities meet local, state, and federal water quality requirements and regulations.

The expandable trough system is designed to convey water quality design flows through the filter basket while allowing peak flows to bypass over the trough without resuspending captured pollutants. The modular design of the trough system makes it adaptable to any size or type of curb inlet catch basin.

The Curb Inlet Filter provides easy access for maintenance from the surface without having to enter the catch basin. Maintenance service takes about 15 minutes and requires no confined space entry.

This filtration system addresses a wide array of pollutants including trash and debris, sediments, TSS, nutrients, metals, and hydrocarbons.



## FULL TRASH CAPTURE TYPE

### PERFORMANCE

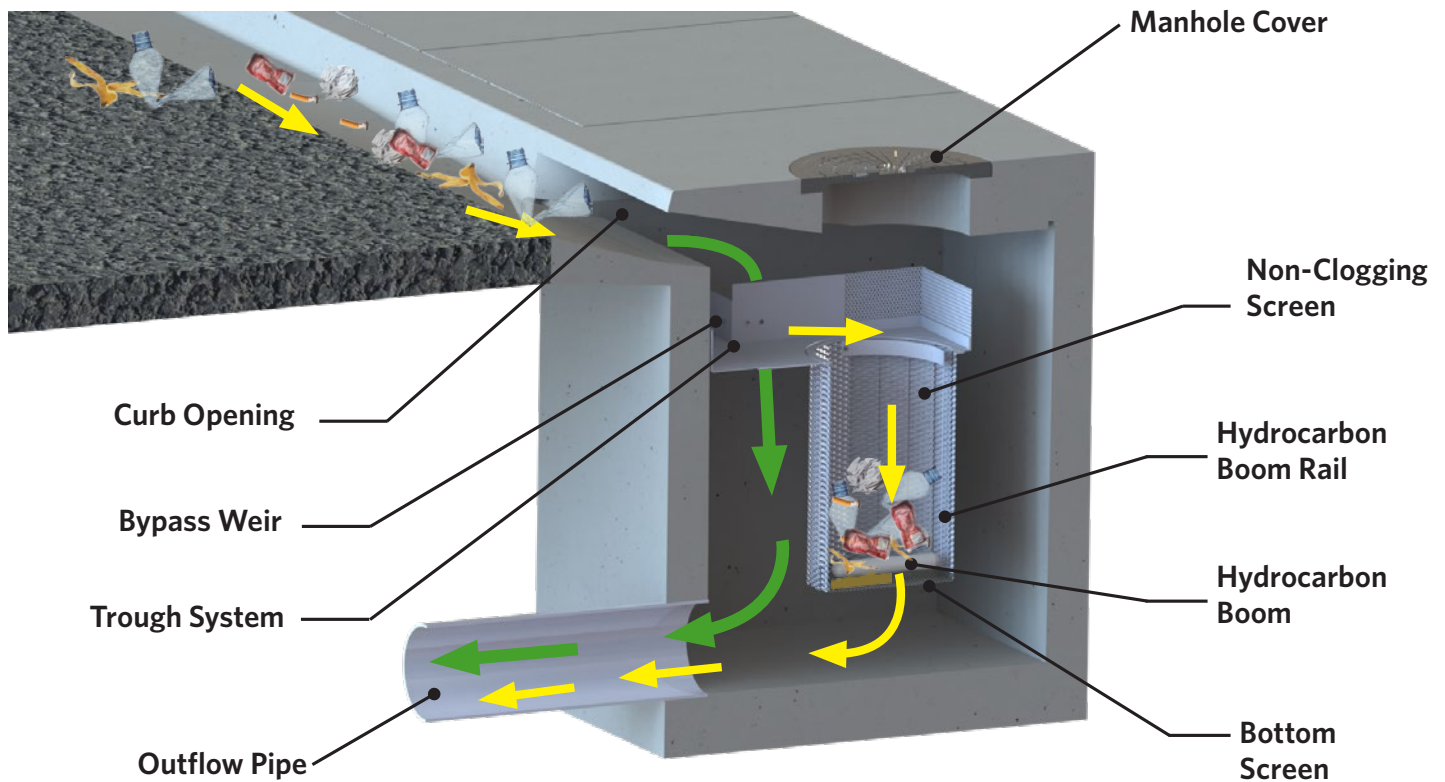
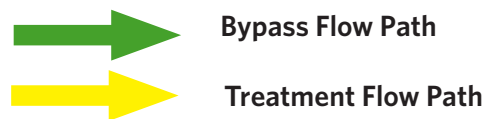
**100%** REMOVAL OF  
TRASH AND  
DEBRIS

- MEETS FULL  
CAPTURE  
REQUIREMENTS

### ADVANTAGES

- 8-YEAR WARRANTY
- WORKS IN ANY SIZE CATCH BASIN
- NO NETS OR GEOFABRICS
- 15+ YEARS USER LIFE
- EASIEST TO MAINTAIN TROUGH  
SYSTEM ALLOWS FOR 15-MINUTE OR  
LESS SERVICE TIME
- STAINLESS STEEL AND FIBERGLASS  
CONSTRUCTION

# OPERATION



## APPLICATIONS

- Parking Lots
- Roadways

## SPECIFICATIONS

MODEL #	TREATMENT FLOW CAPACITY (cfs)	BYPASS FLOW (cfs)
BIO-CURB-FULL	2.85	UNLIMITED

Note: Treatment flow rate limited to the weir capacity - actual flow rates of the filter basket is greater than 2.85 cfs.  
Various depth filter baskets available.



# CURB INLET FILTER

The Bio Clean Multi-Level Screening Curb Inlet Filter is the standard configuration used for more than a decade and provides the best overall performance for all pollutants of concern.

## OPERATION

→ Treatment Flow Path

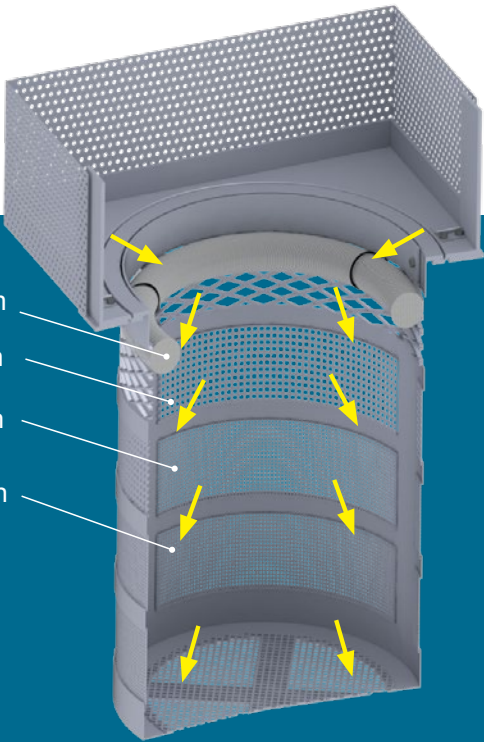
## MULTI-LEVEL SCREENING

### PERFORMANCE

80% REMOVAL OF SEDIMENTS	100% REMOVAL OF TRASH	100% REMOVAL OF FOLIAGE
-----------------------------------	--------------------------------	----------------------------------

- MEDIUM LEVEL REMOVAL FOR PARTICULATE METALS AND NUTRIENTS
- INCLUDES HYDROCARBON BOOM FOR REMOVAL OF OILS AND GREASE

Hydrocarbon Boom  
Coarse Screen  
Medium Screen  
Fine Screen

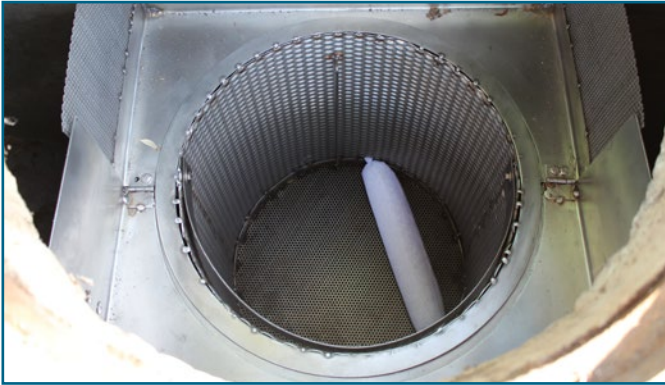


## SPECIFICATIONS

MODEL #	SCREEN TREATMENT FLOW (cfs)	BYPASS FLOW (cfs)
BIO-CURB-MLS	2.85	UNLIMITED

Note: Treatment flow rate limited to the weir capacity - actual flow rates of the filter basket is greater than 2.85 cfs.  
Various depth filter baskets available.

# INSTALLATION

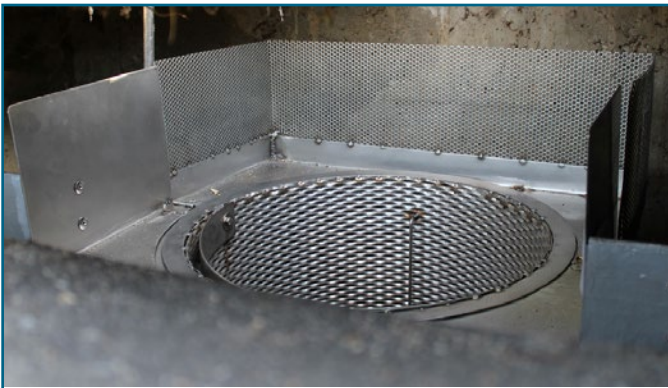


Always positioned under manhole opening.

# MAINTENANCE



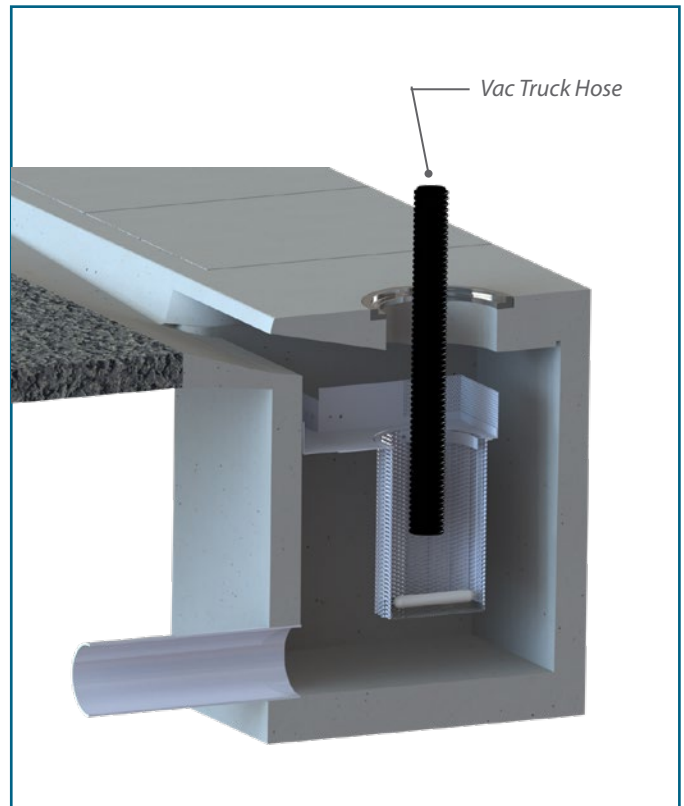
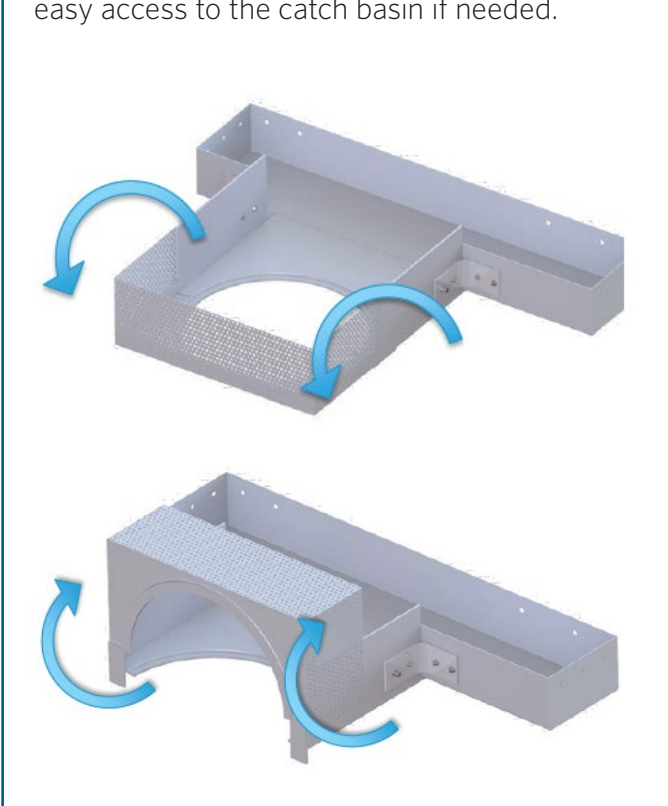
Cleaned easily with vac truck, without catch basin entry, and about 15 minutes is required for service.



The Curb Inlet Filter features a folding weir that hinges up after the basket is removed to allow easy access to the catch basin if needed.



Easily removed without entry into basin.









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