APPENDICES

APPENDIX A

NOP AND SCOPING COMMENTS

NOTICE OF PREPARATION (NOP)

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2013102009

Project Title: Ascension Heights Subdivision Project

Lead Agency: County of San Mateo | Contact Person: James Castañeda, AICP
Mailing Address: 455 County Center, 2nd Floor | Phone: (650) 363-4161
City: Redwood City | Zip: 94063 | County: San Mateo

Project Location: County: San Mateo | City/Nearest Community: Baywood Park Community
Cross Streets: Bel Aire Road and Ascension Drive | Zip Code:
Longitude/Latitude (degrees, minutes and seconds): 37 ° 31 ′ 49.1 ″ N / -122 ° 20 ′ 31.4 ″ W Total Acres: 13.32
Assessor's Parcel No.: 41-111-130,-160,-270,-280,-320,-360 | Section: S6 | Twp.: T5S | Range: R4W | Base: Mt Diablo
Within 2 Miles: State Hwy #: I-280; SR-92 | Waterways: Crystal Spring Reservoir
Airports: none | Railways: none | Schools: College of San Mateo

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ Other: ____

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

RECEIVED
OCT 04 2013
STATE CLEARING HOUSE

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☒ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: County permits

Development Type:

☒ Residential: Units 19 Acres 13.32
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☒ Recreational: 7.8 acres of open space
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☒ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☒ Forest Land/Fire Hazard
☒ Geologic/Seismic
☒ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☐ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

Designated Medium Low Density Residential; Zoned R-1/S-8

Project Description: *(please use a separate page if necessary)*

APNs 041-111-130, -160, -270, -280, -320, -360. The project would subdivide 6 parcels on 13.32 acres into 21 lots for 19 single-family residences with the remaining 2 lots (+/- 7.8 acres) maintained as a conservation area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, 25 of which would have been developed; the previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X	Air Resources Board		Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
X	Caltrans District #4		Public Utilities Commission
	Caltrans Division of Aeronautics	X	Regional WQCB #2
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board		Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
X	Fish & Game Region #3		Tahoe Regional Planning Agency
	Food & Agriculture, Department of		Toxic Substances Control, Department of
X	Forestry and Fire Protection, Department of		Water Resources, Department of
	General Services, Department of		
	Health Services, Department of		Other:
	Housing & Community Development		Other:
	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date October 4, 2013 Ending Date November 4, 2013

Lead Agency (Complete if applicable):

Consulting Firm: Analytical Environmental Services	Applicant: County of San Mateo
Address: 1801 7th Street, Suite 100	Address: 455 County Center, 2nd Floor
City/State/Zip: Sacramento, CA 95811	City/State/Zip: Redwood City, California 94063
Contact: Trent Wilson	Phone: (650) 363-4161
Phone: 916-447-3479	

Signature of Lead Agency Representative: [signature] **Date:** 10/4/13

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

County of San Mateo
Planning & Building Department
455 County Center, 2nd Floor
Redwood City, California 94063
650/363-4161 Fax: 650/363-4849
Mail Drop PLN122
plngbldg@smcgov.org
www.co.sanmateo.ca.us/planning

NOTICE OF EIR PREPARATION
NOTICE OF EIR SCOPING MEETING

To:	Responsible Agencies, Trustee Agencies, and Other Interested Parties
Subject:	**Notice of Preparation of a Draft Environmental Impact Report**
From:	County of San Mateo
Street Address:	455 County Center, 2nd Floor
City/State/Zip:	Redwood City, CA 94063
Contact:	James Castañeda, AICP

The County of San Mateo (County) is the Lead Agency and will prepare an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project identified below in compliance with the California Environmental Quality Act (CEQA). The purpose of this Notice of Preparation (NOP) is to describe the Ascension Heights Subdivision Project and potential environmental effects in order to allow agencies and interested parties to provide input on the scope and content of the EIR.

> Due to the time limits mandated by State Law, your response to this notice must be sent at the earliest possible date, but ***not later than November 4, 2013***.

Please send your response to:

The County of San Mateo
Attention: James Castañeda, AICP
Planning and Building Department
455 County Center, 2nd Floor
Redwood City, CA 94063

Please provide a contact name for your agency, if applicable, with your comments.

Project Title:	Ascension Heights Subdivision Project
Project Applicant:	County of San Mateo
Project Location:	The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92. The College of San Mateo is located approximately 0.25 miles to the northeast of the project site. The City of Redwood City is approximately 7 miles southeast of the project site, and the City of San Francisco is approximately 20 miles to the north.

Proposed Project: The Ascension Heights Subdivision Project (Proposed Project) entails a request by the project proponent for the County of San Mateo (County) to approve subdivision of 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. Development of the 19 subdivided lot into single-family residences would require 40,920 cubic yards of grading, of which 28,270 cubic yards would require exportation from the site. Accordingly, the project applicant also requires a grading permit from the County.

Project Background: The Proposed Project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed. A Draft Environmental Impact Report (Draft EIR) and Final Environmental Impact Report (Final EIR) were prepared for the previously proposed project. In 2009, the San Mateo County Planning Commission (Planning Commission) denied the applications for a Major Subdivision and Grading Permit and declined to certify the Final EIR. Based on an appeal and subsequent submission by the applicant of an alternative concept design plan to address the Planning Commission's concerns raised on the project, the County Board of Supervisors remanded the project back to the Planning Commission.

The applicant and County engaged the community in a discussion of the project and the revised project for reconsideration. County planning staff hosted a series of dialogs between the applicant and members of the community to discuss the topics of concern raised during the environmental review process of the previous project. The project as currently proposed was redesigned as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

Environmental Effects: The County has determined that an EIR is the appropriate environmental document for the project and that the EIR should address, at a minimum, the following issues:

Aesthetics – The EIR will address the potential impacts to the visual character of the project site and surrounding public view areas. Potential impacts to ambient lighting conditions will also be addressed.

Air Quality – The EIR will address the project's potential fugitive dust impacts, odor impacts, and regional air pollutant impacts, including greenhouse gas emissions. Potential impacts to sensitive receptors will also be addressed. The analysis will address both short-term impacts from construction and long-term impacts from operation. A preliminary health risk assessment for diesel particulate matter will be developed in support of the EIR.

Biological Resources – The EIR will analyze the project's short-term (construction) and long-term (operation) impacts on threatened and endangered species, migratory birds, habitats, and other biological resources in light of applicable State and federal regulatory frameworks.

Geology and Soils – The EIR will assess the proposed project's potential for soil erosion during construction and the level of geologic and seismic risks. The level of risk to people and property will be determined based on analysis of the project site's soil properties and seismic hazard potential.

Greenhouse Gas Emissions – The EIR will assess the proposed project's potential for impacts to greenhouse gas emissions in relation to applicable and adopted plans, policies, and regulations.

Hazards – The EIR will evaluate potential impacts from the use of chemicals and practices common to construction of residential areas as well as address the increase is use of residential hazardous substances.

Hydrology and Water Quality – The EIR will analyze the project's impacts to surface and groundwater on a local and regional level. Potential impacts to surface water quality and changes in local hydrological conditions will be addressed.

Land Use, Planning, and Agriculture – The EIR will evaluate the consistency of the proposed project with the adopted plans and policies of County, including but not limited to the respective General Plans and Zoning Ordinances. The EIR will also analyze the proposed project's compatibility with surrounding land uses.

Noise/Vibration – The EIR will evaluate the potential impacts on ambient noise levels from construction-related and operation-related noise. Primary issues include short-term increase in noise and vibration that may impact sensitive receptors and the creation of land use conflicts regarding noise.

Public Services and Utility Systems – The EIR will evaluate the potential impact on public services and utility systems in the surrounding region. The EIR will determine if additional or expanded facilities or utilities are required to meet the needs of the residential units.

Traffic and Circulation – The EIR will address the potential impacts to surrounding roadways resulting from the increase in motor vehicle traffic along roadways during construction (short-term, temporary increase) and operations.

Growth-Inducing and Cumulative Effects – The EIR will analyze potential growth-inducing and cumulative impacts resulting from the proposed project pursuant to CEQA Guidelines 15126(d) and 15130, respectively.

Discussion of Alternatives: CEQA Guideline 15126.6(a) requires that an EIR describe a range of reasonable alternatives for the project. The EIR will evaluate the comparative merits of the alternatives, including the No-Project alternative. The alternatives will be determined, in part, by public input received during the NOP comment period. To ensure that the EIR adequately addresses the full range of issues and alternatives related to the proposed project and that all significant issues are identified, comments and suggestions are invited from all interested parties.

Notice of Scoping Meeting: Pursuant to CEQA Guidelines Section 15082 (Notice of Preparation and Determination of Scope of EIR), the County of San Mateo will conduct a scoping meeting for the purpose of soliciting views of adjacent cities, responsible agencies, agencies with jurisdiction by law, trustee agencies, and interested parties requesting notice, as to the appropriate scope and content of the EIR.

The scoping session will be conducted by the County of San Mateo on October 9, 2013 at 7:00 p.m. (doors will open at 6:15 p.m.) at:

The College of San Mateo Theatre
1700 West Hillsdale Boulevard
San Mateo, CA 94402
650/574-6161

Please contact James Castañeda, AICP, for further information.

James A. Castañeda, AICP

10/4/2013
Date

Telephone: 650/363-1853
FAX: 650/363-4819
E-mail: jcastaneda@co.sanmateo.ca.us

JAC:pac - JACX0677_WPP.DOC

COMMENT LETTERS RECEIVED DURING SCOPING

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Yasamin Givechi Organization: —

Address: 1512 Ascension Dr.

Comment: Enviromental impact on humans but mainly the animals. I have major asthma as it is and cant imagine how it will be impacting me + my family.

Thank you

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.
(Please write legibly)

Name: LUCAS OTTOBONI Organization: RESIDENCE OF NEIGHBORHOOD

Address: 1435 ENCHANTED WAY SAN MATEO, CA

Comment:

- Geology under the development & on downhill Slope to South & west is bedrock overlain w/ Surface Soil. Groundwater is known to travel down Slope along the Soil & rock interface. Water at this interface travels fast & in great quantity. How can you prevent this or at the very least address drainage or mitigate the groundwater that will flow down Slope?
- Global Slope Stability, will it be addressed? ... As all neighbors are down slope of the Same Slope as the development

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

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(Please write legibly)

Name: Ines Malandoni Organization: Coldwell Banker - Broker Associate

Address: 28 Valley View Ct

Comment: ~~These~~ properties in this area built in the 60's were not properly compacted. There was not the technology we have today. Of Valley View Court # 80, 68, 64, 60 and 56 Have all had movement. Needless to say this affects our property values. 1406 Fairfax above the Hollomans Retaining Wall needs a $400K repair. Built in 2000. This is an area of movement

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.
(Please write legibly)

Name: Suzanne Simms Organization: San Mateo Oaks

Address: 1879 Los Altos Dr San Mateo

Comment: Please explain how the county will handle the maintenance of the drainage ditches so that the land doesn't slip. Additionally how will you insure that what is done on Ascension hill doesn't adversely affect the drainage & retaining walls in the San Mateo Oaks HO assoc. We will not pay for problems →

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

caused by changes in drainage resulting from new construction.

More importantly, the scheme of allowing the developer to pass on the responsibility and corresponding liability & cost of maintaining unstable land (that should never be built on) to unsuspecting and potentially first home owners through a HomeOwners assoc. is not an honest way to do business. Is it even legal? Is the county responsible ultimately for approving unstable land to be built on?

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Linda Ottoboni Organization: Homeowner

Address: 1435 Enchanted Way

Comment: I hope that you will reconsider your ~~need~~ building on this hill as the open space currently provided by that space allows people and animals to walk and enjoy the outdoors, as opposed to be endangered by being outdoors. This building project looks unreasonable for that number of units on that steep hill. You cannot easily walk down the side, yet alone on that steep side

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your

A second thought - will the homes that You are building be desirable when they are on top of other peoples home + looking into their bedrooms - are their any plans to sell these units prior to building to make sure the building does not result in empty residence

---

We live on Enchanted Way and were the victims of a slide that was the down from BelAir in our back yard because a tree was removed above us. This is an example of the instability of the area, especially that steep hill - I walk it all the time and there is sliding on the existing hill without construction. Please build responsible as these are the homes of many people and outdoor animals.

WRITTEN COMMENT CARD

Scoping Comments — Ascension Hts.

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Geraldine Landers Organization: Baywood Park H.O. Assn

Address: 1348 Enchanted Way, San Mateo 94402

Comment: Lets not repeat the mistakes of the 1983 landslide on Lakeshore Dr., where homes fell and the builder was long gone. Do not build on fill in the Water Tower homes project. Better yet, do not build at all.
Also, the poor plan has new buildings looking right at the Parrott Drive residents -- plus the numerous other flaws pointed out at the Oct 9, 2013 meeting

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

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2013 OCT 15 A 11:57

SAN MATEO COUNTY
PLANNING AND BUILDING
DEPARTMENT

Geraldine Landers
1348 Enchanted Way
San Mateo, CA 94402-3620

SAN FRANCISCO CA 940
11 OCT 2013 PM 5 L

USA
Freedom
FOREVER

County of San Mateo
Attn: James Casteneda
Planning and Building Dept.
455 County Center - 2nd floor
Redwood City
CA 94063

94063166355

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
111 GRAND AVENUE
P.O. BOX 23660, MS-10
OAKLAND, CA 94623-0660
PHONE (510) 286-6053
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

October 14, 2013

SM092150
SM-092-R9.38
SCH 2013102009

Mr. James Castaneda
County of San Mateo
Planning and Building Division
455 County Center
Redwood City, CA 94063

Dear Mr. Castaneda:

ASCENSION HEIGHTS SUBDIVISION – NOTICE OF PREPARATION

Thank you for including the California Department of Transportation (Caltrans) in the environmental review for the Ascension Heights Subdivision project. As the lead agency, the County of San Mateo (County) is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. Required roadway improvements should be completed prior to issuance of the Certificate of Occupancy.

Traffic Impact Fees
Please identify traffic impact fees. Development plans should require traffic impact fees based on projected traffic and/or based on associated cost estimates for public transportation facilities necessitated by development. Please refer to the California Office of Planning and Research (OPR) *2003 General Plan Guidelines,* page 163, which can be accessed on-line at the following website: http://www.opr.ca.gov/index.php?a=planning/gpg.html

Scheduling and costs associated with planned improvements on the Caltrans ROW should be listed, in addition to identifying viable funding sources correlated to the pace of improvements for roadway improvements, if any. Please refer to the state OPR's *2003 General Plan Guidelines,* page 106.

Traffic Impact Study
Please evaluate the proposed project's impacts on state transportation facilities, specifically to State Route (SR) 92. The following criteria should be used in determining if a traffic analysis for these facilities is warranted:

1. The project would generate over 100 peak hour trips assigned to a state highway facility.

2. The project would generate 50 to 100 peak hour trips assigned to a state highway facility, and the affected highway facilities are experiencing noticeable delay; approaching unstable traffic flow (level of service (LOS) "C" or "D") conditions.

3. The project would generate 1 to 49 peak hour trips assigned to a state highway facility, and the affected highway facilities are experiencing significant delay; unstable or forced traffic flow (LOS "E" or "F") conditions.

We recommend using Caltrans' *"Guide for the Preparation of Traffic Impact Studies"* for determining which scenarios and methodologies to use in the analysis. The guide can be accessed from the following webpage:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

If the proposed project will not generate the amount of trips needed to meet Caltrans' trip generation thresholds, an explanation of how this conclusion was reached must be provided.

Highway Operations
Specific to this project, please include the following information in the Traffic Impact Study (TIS):
1. The TIS needs to detail whether the capacity for the arterials, collectors, and residential streets is for all lanes or per directional lane. Also, include posted or free-flow speed for each roadway facility.

2. The TIS should discuss the project impacts on SR 92 interchanges and ramps at Polhemus Road, De Anza Boulevard, and Hillsdale Boulevard. Accordingly, provide traffic intersection studies for the following intersections: Polhemus Road/Ascension Drive. Ascension Drive/Bel Aire Road, Parrot Drive/College of San Mateo Drive, Hillsdale Boulevard/College of San Mateo Drive, and De Anza Boulevard/Los Altos Drive.

3. Provide geometric plans showing traffic access to the project from Bel Aire Road and Ascension Drive. Plans should clearly show traffic turning movements, number of lanes, and volumes. Discuss traffic control, traffic conditions, and level of service (LOS) for these intersections.

4. The summarized traffic results shown in all the tables should be based on the LOS of the facilities in addition to the Volume/Capacity (V/C) ratio.

Please forward at least one hard copy and one CD of the environmental document, along with the TIS, including Technical Appendices as soon as they are available.

Please feel free to call or email Sandra Finegan at (510) 622-1644 or sandra_finegan@dot.ca.gov with any questions regarding this letter.

Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

November 4, 2013

James Castenada
County of San Mateo
455 County Center, 2nd floor
Redwood City, CA 94063

RE: Public Comments due Novemeber 4, 2013 for Ascension Heights proposal

Dear Mr. Castenada,

We are residents of 1538 Parrott Drive, and live in a home that abuts directly against the proposed development.

1. As a general statement, we believe the county decision making process would benefit from more comprehensive analyses of the various issues (rather than less comprehensive analysis). Given the steepness of the hillside and the various issues identified during the last DEIR process (culminating in the 2009 denial of the DEIR), we recommend that the DEIR process and resultant report err on the side of more data and more analysis rather than less.

2. We request that mitigations be described and mandated for any issues that are identified.

- This would be in contrast to last time (2009), when the DEIR stated for numerous issues that impacts, particularly but not limited to Parrott Drive neighbors adjacent to the site, were "... determined to be significant but unavoidable" and that several were not sufficiently mitigable to reduce impacts below recommended levels. We believe that mitigations may be put in place for nearly any issue or impact, and look forward to the process this time describing and mandating appropriate mitigations that would result in reducing the impact below recommended levels.
- Additionally, we request that mitigations be described with words like "must" rather than "should" or "could". The former (use of "must") defines prescribed mitigations upon which current residents in the neighborhood can depend, while the latter (use of "could") implies that the developer may do what he would like rather than follow through on the mitigation.

3. We request that Reduced Density Alternatives be created and considered thoughtfully. In meetings dating back to ~2008, the developer has repeatedly said that he has no interest in building anything less than ~25 homes on the site (now reduced to 19 homes in his latest proposal given the rejection of his previous proposal in 2009), and that he does not consider any Reduced Density Alternatives as feasible or of

interest to him. That said, the process leading the DEIR must include appropriate Reduced Density Alternatives for the County to consider thoughtfully.

4. Currently, the water tank on top of the hill has a large outlet pipe that runs straight down the hill to Parrott Drive, along an easement between 1538 Parrott (our home) and 1526 Parrott. The development plans for the propose to re-route this pipe between our property and the water tank, inserting four 90-degree turns into the pipe, and running within a few feet of our property line. We have two specific concerns about this planned re-routing of this water pipe.

- First, as context, we have three very large trees in our backyard adjacent to the property line. The diameters for these trees are ~47 inches, ~49 inches, and ~80 inches when measured ~two feet above ground level. Note that the trees spread out in trunk dimension, and so measuring diameters at the more typical "five feet above ground level" would significantly increase the measured diameters.

- We request that the plan be changed to comply with International Arborist standards which strongly recommends avoiding digging in the tree root zone that extends "1 to 1-1/2 feet away from the tree per inch of tree diameter". Given the 47-inch diameter of our smallest tree, the nearest edge of the excavation for the water pipe, or any development digging for that matter, would be 47 feet from that tree. Using the larger "1-1/2 feet per inch" recommendation, excavation should be no closer than 71 feet from this tree.

- Second, we are concerned about the possible impact from the proposed change in pipe design from a straight pipe which allows any water discharge to flow unencumbered through the pipe to the proposed design which incorporates four sharp turns (90 degrees). The increased pressure generated by these angles will lead to faster erosion inside the pipes. We are concerned and request a comparative analysis of the lifespan of the proposed design versus it's current design.

5.As mentioned above, we have three, very large and old trees. Arborists and original neighbors report the trees as being of, at least, 60, possibly 75, years old. As with most plants, over 70% of root activity occurs within the top few inches of soil. This is where the water, air and nutrition are primarily processed. *Architectural Graphic Standards* contains research by James Urban who determined that the critical factor in determining long-term tree health is the volume of root-supporting soil available. (Also mentioned in *Sustainable Landscape Construction* by J. William Thompson and Kim Sorvig.) The rule of thumb for area that must be untouched (to preserve tree health) is one and one-half times the area of the drip line. The International Arborist Society which certifies US arborists uses the guideline mentioned above in comment #1, bullet #2. By untouched, the guidelines specify no parking, storing materials, or changing the grade. Even 6 inches of additional soil against the trunk can cause disease and removing the top soil will disproportionately hurt the trees' ability to thrive. Given these professional guidelines, **it is impossible to insure healthy mature trees <u>and</u> put housing or roads as close as they are proposed.**

While most of the proposed trees are not of the width as ours, it is essential that the same guidelines be used for those remaining trees as well.

6.The Developer has stated that all grading for the hill will be done at once and at the beginning of construction. We are very concerned about the potential for erosion and other damage if various precautions are not taken, including ones to conserve the health of the topsoil. The top soil is where growth happens. It also contains its own active ecology which is crucial for plant development. Ideally, the top soil should be removed and saved before grading the subsoil. Soils scientist, teacher at Harvard's School of Design and author of Urban Soils, Phil Craul, makes the following suggestions for keeping the soil as alive and healthy as possible – make several small piles, not one large; depth of piles should be no more than 4 feet for clay soils; keep the piles moderately damp; protect the soil from wind and water erosion by covering or planting; and handle the soil as little as possible. Caltrans has found that reapplication of the top soil works to improve the growth of post construction plantings. (Claasen, V.P. And R.J. Zaoski, "The Effect of Top Soil Reapplications on Vegetation Re-establishment", California Dept. Of Transportation, 1994.

We request that the same precautions be taken on any development on the hill.

7. The hammerhead turn-around points directly into our back yard and windows, specifically 2 of our children's bedrooms. Both of these could be mitigated, though that might require the developer to drop at least 1-2 lots.

8. The separation between the new development and Parrott homes (in 2002 CT referred to a ~25-foot gap between two separate fences, which is the bare minimum we wanted, along with mature trees in that separation) is vague and the developer is sending very mixed messages now. As one example, his plans don't show the trees or the gap between fences or even declare an easement the length of the deveolpment next to Parrott, but his artistic renderings from 2+ years ago show very mature pine trees in between "them" and "us". The "skinniest" pine trees I could find on the internet still have a branch spread of ~10-feet in radius, which means 20-feet in diameter, which requires more space than he is now showing; and most pine trees are broader than that. We request a definitive plan drawn and an analysis of the ability of any easement or buffer zone to effectively grow healthy trees, given visual and sound privacy, and not drop leaf/needle debris in an amount that would hurt plantings pools and other elements in the Parrott back yards.

9. Given the steep slope of the project and several areas of erosion, we are concerned that a qualified team of landscape architect, soils scientist and native horticulturalist have not been engaged to advise on the best choices for planting in the development. Some sample drawings have should lush grass on open spaces and standard street trees. This is an unlikely and expensive landscape with little chance for success and reminds us of the developer's ignorance of the site.

10. We request that AES survey the site and surrounding area at various times after rainfalls. Residents continue to manage foundation shifts and add drainage piping to their properties. Our yard regularly flooded until we added drainage trenches in three places, plus a catchement on our patio. Our outgoing sewage pipe was bent due to shift soil and our neightbors are currently going through the same process of having to replace the sewage outpipe.

11. Regarding the traffic on Parrott, between CSM and Laurie Drives, Laurel has personally seen 3 accidents where cars left the road and landed in yards. The third accident actually hit the house. In addition, we have lost 2 side mirrors on cars that were parked legally on the street. Finally, a student on the way to CSM claims she was blinded by the sunlight and rear-ended our minivan which was legally parked on the street. The insurance declared the car "totalled." Traffic speeds by regularly and safety is threatened. An analysis and recommendations for improved safety needs to be taken.

12. We have solar panels which provide for all of our annual electric needs. We request compensation for any dust or other blockages that prevent our panels from working to full capacity.

Thank you for your attention,
Laurel and Donald Nagle
1538 Parrott Drive
San Mateo, CA 94402

San Mateo County Planning Department

Baywood Park Homeowners Association Scoping Comments

Ascension Heights Subdivision
November 4, 2013

General Concerns

[Community Expectations for DEIR:

1. **Reduced Density Alternative (CEQA). "…. The assessment of project alternatives will be consistent with this requirement by presenting a sufficient amount of detail necessary to afford decision makers with a reasoned choice." Statement Of Work—AES**

   There are critical impacts of this project that would be substantially reduced and possibly minimized to "less than significant" by adoption of the Reduced Density Alternative. The Decision Makers cannot be afforded a "reasoned choice" without quantitative impact comparisons between the Proposed Project and the Reduced Density Alternative. We have indicated the impacts most sensitive to Density comparisons, which are essential for achievement of a "reasoned choice".
2. *Define who will be responsible for maintaining common areas, Conservation Areas, and subdivision systems (e.g., swales, rainwater control, fugitive dust management, erosion) and who, or what entity, will assume legal liability due to any failures. Specify in the DEIR all Covenants, Conditions and Restrictions (CC&Rs) required for the project and incorporate those CC&Rs in all analyses.*
3. *Describe in one location in the DEIR all impacts on the current homeowners on Parrott Drive adjacent to the proposed development.*
4. *Subdivided, single-family homes to be built are not described. This subdivision is the discretionary permit that would allow a conforming single-family home to be built on each new parcel. The DEIR should analyze the effects of these houses. If the developer is not able to provide information or assumptions of the size and number of stories for these homes, the DEIR should assume the maximum size that could be built on the lots, using the zoning setbacks and 3-story home heights.*
5. *Project Phasing: The initial rough grading of the site has been stated to last about 45 days, followed by a 6-month period to construct the private street. It estimates home build-out to be an additional 5-10 years. Until home construction is completed and replanting and landscaping is complete and survives, the site will undergo erosion of exposed sand stone, excess surface water drainage, and dust pollution. Despite the excessively prolonged construction phase, a stable project site must be ensured by the DEIR.*
6. *Hours of the day for construction and truck traffic as well as days of the week activities must be specified.*
7. *Assess how the Parrott homes will be affected during the construction from dirt, debris, and rocks being pushed down the slope onto the Parrott homes, e,g., fences and backyards. Include what will be done to prevent and to fix and clean up these intrusions as they occur.*

8. *Assess the degree of light pollution shining onto neighboring homes from the site at night, and describe how onsite night-time lighting will be shielded from neighboring homes. The construction activities will persist for 5-10 years and impart yet another significant annoyance. Mitigation should be managed through consultation with impacted residents.*
9. *Formally notify CSM of project proposal.]*

I. Aesthetics (CEQA)

"Would the project:
Have a substantial adverse effect on a scenic vista?
Substantially degrade the existing visual character or quality of the site <u>and its surroundings</u>?" –CEQA

[Community Expectations for DEIR:

1. *Assess impacts of proposed development on the vistas as seen from nearby homes on both sides of the streets (Parrott, Bel Aire, Ascension, CSM Drive), as well as character and quality of these surroundings.*
2. *Assess impacts of proposed development on the vistas as seen from further distances (e.g., from Polhemus, Bunker Hill), as well as character and quality of these surroundings.*
3. *Assess privacy intrusion on Parrott Drive homes and backyards both during construction and from the proposed development on an ongoing basis. Include the ongoing impact of car lights from the hammerhead turnarounds and the new road illuminating specific Parrott neighbors' yards and houses. Include the impact of car traffic and car lights from the new road adjacent to the Parrott home shown as "lot 4" (has a pool in its backyard) on the proposed plans given that the new street appears to come within a couple feet of that Parrott home's backyard.*
4. *In addition, assess the privacy intrusion on Parrott Drive homes given the proximity and slope of the proposed properties.*
5. *Assess effectiveness of visual separation provided by newly planted trees (describing appropriate factors including required tree numbers, sizes (heights and spreads), maturity at planting, time to adequate maturity) (a) in the easement between Parrott homes and the development and (b) on the other boundaries of the development*
6. *Evaluate effectiveness of easement proposed by Developer between Parrott and the proposed development to provide visual privacy and noise reduction for residents in each set of homes. Describe easement width and landscaping plan for providing that visual privacy and noise reduction. Describe location for backyard fences for the Ascension Heights properties on their side of the easement.*
7. *Assess landscape maintenance plan for the trees and foliage within the easement*

between Parrott and the proposed development, including the degree to which the width of the easement will be sufficient for healthy tree growth and maintenance.

8. *Evaluate the open space proposed by Developer, including the appropriateness of planned landscaping and re-grading and its contribution to the vistas in the area.*
9. *Include in the assessment Story Poles, which are essential to adequately assess backyard intrusions due to increased elevation and slope of final graded surface as well as current heavy tree and bush growth, which obscures views.*
10. *Provide detailed assessments for the Reduced Density Alternative]*

II. Agricultural Resources (CEQA)

[Community Expectations for DEIR:

1. *Evaluate "tree replacement" plan proposed by Developer, including numbers and species of trees removed versus numbers and species of trees planted, chance for healthy growth given the conditions on the hill, size (height and spread) and maturity of replacement trees, maintenance plan for continued tree health, and a multi-year plan and guarantee for tree health.*
2. *Evaluate the ecological contribution of proposed Open Space, including the diversity and use of native plants.*
3. *Incorporate the variable conditions on the hill (wind gusts, water, and soil health) on the likelihood of success of the landscape development plans, both during the multi-year build-out period and permanently.*
4. *Propose a specific solution to ensure 5-10 year longevity for all plantings and estimate cost of the plan.]*

III. Air Quality and Greenhouse Gases (CEQA)

[Community Expectations for DEIR:

1. *Identify all specific classes of 'sensitive receptors' including fetuses— reference new study of birth defects secondary to 1st trimester exposures.*
2. *Define assumptions, justifications and expertise used to build the most current URBEMIS model for predicting emission data (e.g., numbers of simultaneously operating equipment, age of diesel engines, type of fuel, exhaust catalyst, etc.) and detail peak and average TAC concentrations for each phase of construction. Include brake lining contaminants if trucks traverse down Laurie, Bel Aire, and Ascension.*
3. *BAAQMD adopted "thresholds of significance" for air quality for Construction-related activities in 2012. Include these thresholds for evaluating the significance of the project's air quality impacts.*
4. *Assess effectiveness in reducing concentrations of PM10 and PM2.5 particles by using new, cleaner diesel fuel and new engines for both 'off-road' and 'on-road' usage.*
5. *Include locally measured wind gusts from the site (measured at multiple times, and in particular late afternoons, during storms, and during seasonal transitional weather periods) in all air quality assessments.*

6. *Determine maximum site activity levels during "spare the air" days and any other conditions leading to unacceptably high TAC concentrations.*
7. *Assess effectiveness of CEQA phase 1 and 2 measures used to control fugitive dust.*
8. *Estimate dust volume deposited on houses and yards as function of distance from the construction site, off-site hauling routes and wind dispersion (possibly 40 – 50 mph).*
9. *Assess pollution impact (e.g., particulate matter, dust) from construction on nearby homes (Parrott Drive, CSM Drive, Bel Aire, and Ascension), as function of distance from the construction site, off-site hauling routs and wind dispersion). Include deposits specifically on solar energy panels (electricity and hot water), swimming pools, and outdoor plants.*
10. *Define necessary processes applicant will use to clean and remove dust from affected residences.*
11. *Since project is projected to last 5 -10 years, compute monthly fugitive dust for entire time hillside may be exposed due to non-planting of any area, estimated erosion rates for such areas, failure of plantings to survive the 10-year build-out, estimated erosion rates in those areas with failed plantings, and disruption of plants in Conservation Area.*
12. *Determine an effective, unbiased monitoring program for containment of all contaminants with power to halt operations when acceptable contaminant limits exceeded or other conditions warrant.*
13. *Include in the assessments impacts from trucks and equipment both on site and in use offsite (e.g., trucks that are idling on neighborhood streets awaiting entry onto the site).*
14. *Provide detailed, quantitative assessments for Air Quality Expectations 2,4,5,6,8 for the Reduced Density Alternative*
15. ***Conduct a comprehensive Health Risk Analysis.*** *Health risks of immediate, short-term (24 hours) exposure to air pollution are significant. The levels estimated in the 2009 Project of PM10 and PM2.5 emissions were sufficiently high to become a direct and immediate risk to the lives of people in the neighborhood and must be adequately evaluated and mitigated for the proposed plan as well as the Reduced Density Alternative. The preponderance of evidence demonstrating* ***immediate death, heart attack, stroke, asthma and COPD exacerbations increase immediately following short-term exposure (24 hours) of PM10 and PM2.5 contaminations.*** *This evidence has grown substantially with over 100 peer-reviewed, scientific studies demonstrating proximate (within 24-48hr) mortality and severe morbidities directly related to increased particle contamination, specifically PM10 and PM2.5. The adverse effects are cumulative and therefore proportional to both the concentration of contaminants and duration of exposure. The American Lung Association states (website, 2009): According to the findings from some of the latest studies,* ***short-term*** *increases in particle pollution have been linked to:*

    i. *Death from respiratory and cardiovascular causes, including strokes;*[21], [22], [23], [24]
    ii. *Increased mortality in infants and young children;*[25]

iii. *Increased numbers of heart attacks, especially among the elderly and in people with heart conditions;*[26]
iv. *Inflammation of lung tissue in young, healthy adults;*[27]
v. *Increased hospitalization for cardiovascular disease, including strokes and congestive heart failure;*[28], [29], [30]
vi. *Increased emergency room visits for patients suffering from acute respiratory ailments;*[31]
vii. *Increased hospitalization for asthma among children;* [32], [33], [34] *and*
viii. *Increased severity of asthma attacks in children.*[35]*]*

IV. Biological Resources (CEQA)

[Community Expectations for DEIR:

1. *The Mission Blue Butterfly question is key to determining the solution to the heavy, extensive erosion that has worsened substantially in the last six years since the 2007 assessment. A full assessment of the possible presence of the Butterfly does need be completed since the last assessment was indeterminate. The solution proposed in 2009 included no erosion remediation; thereby leaving the area "undisturbed and protected" is unacceptable.*
2. *If the new assessment does determine the probable presence of the Butterfly, acceptable erosion control methods must be explored and implemented as part of the mitigation. Appropriate planting might provide adequate erosion control without disturbing the Butterfly habitat.]*

V. Cultural Resources (CEQA)

VI. Geology and Soils (CEQA)

[Community Expectations for DEIR:

1. *The plan conveys many acres into a conservation area, which is steep and has experienced extensive, severe erosion and substantial slides above Bel Aire within the past two years. In 2009 and in subsequent discussions with the developer, there apparently is no intension to repair the erosion. This entire area will require a full assessment and recommendations for repairing and stabilizing the erosion by appropriate experts.*
2. *The time line for project completion is expected by the developer to be 5 – 10 years. Evaluate likelihood of increased and ongoing erosion during the build-out period. Erosion of lots and any unplanted areas awaiting construction completion will require assessment for mitigation solutions and continual monitoring of slope stability.*
3. *Many of the final lot slopes are very steep but don't appear to be determined since the house layouts are not finalized and potentially may be modified by new house owners prior to building. Final, or maximum, slopes of appropriate steepness must be included in the project plans. Describe specific steepness for each proposed lot, and compare with County and City of San Mateo guidelines and current practices.*
4. *Assess impact of the grading proposal and multi-year "build out" period on soil*

health on the hill. Include the "soil health" related credentials of the assessor.

5. *Present likely outcomes of the post-grading landscape plan (e.g., seed spraying) to stabilize the hill after grading and throughout years of the build-out period.*
6. *Use updated analysis and information to assess hill stabilization, including specifically the new slide at the East end of Rainbow Drive on the location of a recently repaired major slide (~2003).*
7. *Provide detailed assessments for the Reduced Density Alternative]*

VII. Hazards and Hazardous Materials (CEQA)

VIII. Hydrology and Water Quality (CEQA)

[Community Expectations for DEIR:

1. *Assess after construction how the Parrott homes will be affected from debris, dirt, and water coming down the slope into their backyards during the initial grading phase, the build-out period, and on an ongoing basis.*
2. *Use a 100-year storm model for all rainwater calculations given the numerous, recent large storms that have exceeded calculated 10 year maximums.*
3. *Describe effectiveness of swales on equally steep hillsides and catchment areas in other developments.*
4. *Assess potential for overflows from the swales onto Parrott Drive homes and down Bel Aire as a function of multiple rain falls over a short time time.*
5. *Calculate the storm water flows down Bel Aire for capacity of curb containment and propensity for overflows at Ascension storm drain and contamination/damage to houses on Ascension and Valley View--include in calculations failures of Ascension storm drain due to debris accumulations.*
6. *Multiple houses on Ascension and CSM Drives with property lines coincident with the project experience underground streams flowing under their houses often requiring sump pumps for water extraction. No assessments have been made to determine the location of these streams and the potential for disruption by the proposed construction. Assessments during the wet season prior to construction must be conducted and if flows increase after construction, necessary diversions constructed.*
7. *Determine responsible party for maintenance of storm water system and legal responsibility for failures of the system.*
8. *Provide detailed assessments for the Reduced Density Alternative]*

IX. Land Use and Planning (CEQA)

X. Noise (CEQA)

[Community Expectations for DEIR:

1. *Assessments of peak sound levels at nearby, off-site homes must be calculated*

with maximum and typical numbers of simultaneously operating engines (note that the noise levels produced by a single diesel engine exceeded thresholds and could not be mitigated according to the 2009 DEIR.). Assess the noise impacts during all phases of construction.

2. *Unacceptable sound levels must be defined with mitigation to include reducing the number of operating engines, improving mufflers, shutting off idling engines, etc.*
3. *Assess truck haul noise levels along residential streets.*
4. *Assess the noise impact from the trucks using compression braking if the route takes them down any steep slopes (e.g., Bel Aire to Ascension Drive).*
5. *Sound levels must be continuously monitored by an independent service with the ability to halt activities as necessary.*
6. *Provide detailed assessments for the Reduced Density Alternative.]*

XI. Population and Housing (CEQA)

XII. Public Services (CEQA)

[Community Expectations for DEIR:

1. *The conservation areas apparently are to remain untouched by the developer. Eight to twelve foot brush is prevalent on the conservation areas. A fire assessment should be made of the potential for this very dry brush to cause a fire.*
2. *The street layout includes two hammerhead turn-arounds and steep streets exceeding standard slopes that may impede access of fire trucks. The street layout needs to be re-assessed for fire safety.*
3. *The entire subdivision has very limited off-street parking capacity, which will result in extensive on-street parking. Assess and describe access for fire trucks in the scenario of maximum used on-street parking from home owners and visitors; compare against current practices considered safe and normal within County and City of San Mateo.*
4. *Describe the parking capacity for the proposed subdivision, to include on-street and off-street parking.*
5. *Provide detailed assessments for the Reduced Density Alternative.]*

XIII. Recreation (CEQA)

XIV. Utilities and Service Systems (CEQA)

XV. Transportation and Traffic (CEQA)

[Community Expectations for DEIR:

1. *Assess safety of large trucks traversing neighborhood streets for blind spots, tight turns, brake failures on hills, heavy traffic; specify carrying capacity and dimensions (length, width, height, empty weight, loaded weight) of the trucks used in all traffic*

assessments.

2. *Assess impact from permanent traffic increase due to the proposed development.*
3. *Specifically assess multiple times throughout the day and early evening, with specific intent to include CSM class-change periods and regular morning and afternoon commuter rush hours (due to the increased parking on CSM western parking lots by businesses located on Clearview and the shuttle buses that now run throughout the day from those parking lots, onto CSM Drive, up to Hillsdale, and then down to Clearview and back again) at the following intersections:*
   a. *– Hillsdale and 92;*
   b. *– Hillsdale and Clearview;*
   c. *– Hillsdale and CSM Drive;*
   d. *– CSM Drive and Parrott;*
   e. *– Parrott and Laurie;*
   f. *– Laurie and Bel Aire;*
   g. *– Bel Aire and the proposed exit from the development;*
   h. *– Bel Aire and Ascension;*
   i. *– Ascension and Polhemus;*
   j. *– Polhemus and DeAnza*
4. *Assess safety impact from construction traffic and permanent traffic on Parrott roughly four to five homes north of the CSM/Parrott intersection (there is a "limited sightline" due to the rapid grade change on Parrott).*
5. *Construction activities will disrupt traffic on Bel Aire, especially CSM student traffic, with impacts on Enchanted way, Rainbow and Starlite, among others. Assessment of these areas must include this additional, displaced traffic when identifying problematic areas such as blind spots and dangerous curves.*
6. *Include a live demonstration of the proposed route for large trucks during construction through all neighborhood intersections from Highway 92 to and from the site. Monitor the speed of the trucks to make sure they will not be slowing down traffic going through the turns. Also have 2 trucks driving by each other in opposite direction to make sure that they can both safely maneuver the roads including turns and parked cars and all intersections, to include but not limited to Hillsdale and CSM Drive. Video this test and notify neighbors and CSM officials so that they can be present during the testing.*
7. *Determine the number of trucks that will need to exit the site to offload the excavated material. Describe the calculation, including truck size (must be the same size used for the demonstration in #6 as well as all traffic assessments), soil aeration estimate (e.g., ¾ cubic yard becomes 1 cubic yard when dumped into a truck), total excavation volume and total return-soil-to-site volume, specific hours per day truck traffic will drive onto and off the site during excavation and grading, Convert the number of trucks into "a truck will enter or leave the site every x minutes during the soil excavation phase".*
8. *Describe where trucks will stand to await entry into the site; assess traffic impact and safety any such standing or slow moving trucks, including describing the temporarily narrowed road widths.*

9. *The exit route from the development entails traffic risks due to an elevation of Bel Aire north of the entrance to the subdivision resulting in a blind spot. A thorough traffic safety analysis must be competed providing acceptably safe solution during construction.*
10. *Traffic safety analysis must provide an acceptably safe solution for home owner traffic traversing this blind corner at the subdivision.*
11. *All street damage must be assessed before and after the majority of heavy truck traffic with cost of repairs for returning the surface back to its initial condition to be paid by developer.*
12. *Provide detailed assessments for the Reduced Density Alternative]*

From: Marie O'Rourke <marieorourke101@gmail.com>
To: <jcastaneda@smcgov.org>
Date: 11/03/2013 17:17
Subject: Fwd: water tank hill

>>
>> From: Marie and Tom O'Rourke To:County of San Mateo Planning and Building Department, James Castaneda
>> 124 CSM Drive
jcastaneda@smcgov.ort
>> San Mateo, CA 94402
>> Subject Line: Scoping Comments, Ascension Heights Subdivision Project
>> Concerns needed addressing in the EIRs:
>>
>> In the past meetings, it was stated by the developer that the area would be graded by this developer for the proposed sites. His company would not be building the homes. Therefore, the sites would be 'abandoned' until sold and developed by individual contractors. Given the economy and the negative publicity surrounding this area, this 'abandonment' could last many years. This alone poses a safety problem as the ground will be moved, ground water/springs will find new paths/erosions, rock strata (varied in this area) will become more unstable and possibly cause slides etc.. When San Mateo Oaks was developed, the ground water was pumped out resulting in extensive damage to homes on Parrott Drive - at the time and later when the water table refilled. The 'bonding' for this damage was non existent and homeowners told me they had to pay for reconstruction out of pocket. Since this area to be developed is far more fragile, the bonding cost for future coverage should be in the millions given the amount of existing homes that could be affected. The homes on Parrott Dr. need to know how close these new homes will be to them, if this closeness and elevation will affect their access to natural light (there is a law on the books regarding this), if there is to be an easement, probably other factors.
>>
>> SPECIFICS need to be included in ALL levels of the EIRs.
>> *Limits on the steepness of the slopes spelled out. This IS a slide prone area. As a side observation, remember the water tank itself had a major event some years ago, sending forceful gushers of water down the slope, taking a southern turn and causing severe erosion between the lots that would become 124 &136 CSM Drive. We have been filling that ravine over the years with soil and plants to forestall any more erosion. If the tank ruptured again, imagine the damage because now there are homes, and you have to consider the lot/home placements if future sites are developed.
>> * Additionally, there are parts of this property that must be included that already have 'issues', of erosion and soil movement, with detailed remedies and maintenance - and WHO will be financially responsible.
>> *Which brings up the access roads and the erosion these may cause, and the visual 'barriers/retaining walls' to be erected to reinforce these roads. How long and under what conditions will these constructions remain intact. This would definitely change the rural, open space, natural environment that presently exists.
>>
>> *AIR QUALITY is of prime concern. We have many residents who are over 55 years old as well as the influx of younger families as the older families move to other homes. The statement that 'significant and unavoidable' limits for air quality is unacceptable. This is a matter of life and death (not an overstatement) for some of the present residents, and they should not have to leave and give up the homes they love to allow a developer to grade and possibly abandon the property near their homes. Many presenters at the various meetings have discussed the SPECIFICS of how many particles suspended in the air are deemed tolerable. Considering the enclosed (by homes) environment to be graded, it was presented that the dust and disturbed earth (which may contain asbestos rocks) would be WELL above the levels for health. This massive land moving may continue unabated for some time, increasing and prolonging the negative health issues.
>>
>> *NOISE IMPACT would be continuous from early morning until evening. Decimal limits

need to be addressed and adhered. Not only would it cause those who work from home (more are telecommuting as part of their career) a severe hardship, but people who work swing/night shifts, babies, retirees and those who enjoy a nap occasionally would now not have the freedom to enjoy their homes' quiet and peace. It has been proven in many scientific studies that noise has serious detrimental health affects on all living things, with prolonged noise causing damage to hearing, memory/focus, heart rhythms and general well-being. The noise continuously from the machinery on the hill and the heavy trucks traveling our streets causes noise coming at us from all sides of our homes.

>>

>> *TRAFFIC IMPACT on streets that are barely wide enough for 2 SUVs to pass each other in opposite directions would be down-right dangerous with huge earth moving trucks/trailers using these existing small, neighborhood streets. If even one of these pieces of equipment should tip, spill its load, hit another vehicle etc., can you imagine the cost, inconvenience and possible bodily injury that can be caused? Please remember that this is a family area that already shares the streets with incoming car/ bus traffic to the College of San Mateo. This college traffic starts before 7:00am and continues until 9:00pm. We also have the lower parking lot used by Solar City and Go Pro cars and shuttles that are in use all day. The study needs to factor in the specifics of all the times of day in use and all the weather conditions/seasons that this endeavor will span with specific restrictions on times of heavy traffic use already in existence.

>> *Has the developer/county determined WHO will shoulder the cost when this massive project develops serious problems ie. law suits?

>>

>> Thank you

>> Sincerely,

>> Marie and Tom O'Rourke

>>

>>

>>

>

>

> Marie

>

>

>

Marie

James Castaneda - EIR Input - 3 key concerns

From: Sheila Shea <sheelshea@yahoo.com>
To: "jcastaneda@smcgov.org" <jcastaneda@smcgov.org>
Date: 11/3/2013 10:37
Subject: EIR Input - 3 key concerns
CC: Sheila Shea <sheelshea@yahoo.com>

Nov 1, 2013

Dear Mr. Castaneda,

I am very concerned about the scope of this project and as a resident of Parrott Drive, my home and my family will be directly impacted by the new homes in this development project. I have many concerns but 3 main concerns I'd like the EIR to address are:

1. Potential of future landslides:
   There is a history of landslides and damaged homes in this area. Yet the present proposal describes slopes averaging 40% and high as 70%. Is it really necessary to have the slopes this steep AND what are the ramifications to neighboring homes below?
2. Traffic impact:
   Currently Parrott drive is a busy thoroughfare for residents and the many CSM students. It's estimated that 1 truck will go to and from the site once every 2 – 3 minutes over the course of 44 days. How will this project impact the local traffic and equally important safety of children coming and going to school, moms with strollers, joggers, and elderly? Many residents often use the street instead of sidewalks because many homes on Parrott simply don't have a sidewalk.
3. Finally I am very concerned about privacy issues given the steepness of the new homes and the close proximity to our backyards. With this development, many of us will have our new neighbors looking directly into backyards and into the back of our homes. Exactly how far will each of the new homes be from existing homes?

Thank you for your time.

Sheila Shea
Resident of Parrott Drive
San Mateo, CA

James Castaneda - Scoping Comments, Ascension Heights Subdivision Project

From: Gail Held <pgheld@aol.com>
To: <jcastaneda@smcgov.org>
Date: 11/3/2013 09:08
Subject: Scoping Comments, Ascension Heights Subdivision Project

Dear Mr. Castaneda,

I am opposed to the proposed development on "Watertank Hill" because I am concerned about future landslides in our neighborhood.

My husband and I have lived at 1417 Rainbow Dr. for almost 30 years and have witnessed numerous slides as a result of the instability of the hillsides in the area. We live across the street from the homes which were directly effected by the major slide in 1997 and unfortunately saw 2 homes red-tagged and one demolished. The impact on the families was devastating. The value of all the properties in the neighborhood has been negatively effected for the long term.

It makes no sense to destabilize a hillside which already shows signs of erosion so that a developer can profit.

Sincerely,

Gail Held
1417 Rainbow Dr.
San Mateo, CA 94402

James Castaneda - Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:

From: Mikulic <mikulic@sbcglobal.net>
To: <jcastaneda@smcgov.org>
Date: 11/3/2013 06:17
Subject: Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:

Sent from my iPhone

Begin forwarded message:

> **From:** Mikulic <mikulic@sbcglobal.net>
> **Date:** October 31, 2013 at 8:37:21 PM PDT
> **Cc:** Barbara Mikulic <mikulic@sbcglobal.net>
> **Subject: Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:**
>
> Sent from my iPad
>
> Begin forwarded message:
>
>> **From:** Mikulic <mikulic@sbcglobal.net>
>> **Date:** October 31, 2013 at 8:34:22 PM PDT
>> **Cc:** Barbara Mikulic <mikulic@sbcglobal.net>
>> **Subject: Water Tank Hill**
>>
>> Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:
>>
>> In the past meetings, it was stated by the developer that the area would be graded by this developer for the proposed sites. His company would not be building the homes. Therefore, the sites would be 'abandoned' until sold and developed by individual contractors. Given the economy and the negative publicity surrounding this area, this 'abandonment' could last many years. This alone poses a safety problem as the ground will be moved, ground water/springs will find new paths/erosions, rock strata (varied in this area) will become more unstable and possibly cause slides etc.. When San Mateo Oaks was developed, the ground water was pumped out resulting in extensive damage to homes on Parrott Drive - at the time and later when the water table refilled. The 'bonding' for this damage was non existent and homeowners told me they had to pay for reconstruction out of pocket. Since this area to be developed is far more fragile, the bonding cost for future coverage should be in the millions given the amount of existing homes that could be affected. The

homes on Parrott Dr. need to know how close these new homes will be to them, if this closeness and elevation will affect their access to natural light (there is a law on the books regarding this), if there is to be an easement, probably other factors.

SPECIFICS need to be included in ALL levels of the EIRs.

*Limits on the steepness of the slopes spelled out. This IS a slide prone area. As a side observation, remember the water tank itself had a major event some years ago, sending forceful gushers of water down the slope, taking a southern turn and causing severe erosion between the lots that would become 124 &136 CSM Drive. We have been filling that ravine over the years with soil and plants to forestall any more erosion. If the tank ruptured again, imagine the damage because now there are homes, and you have to consider the lot/home placements if future sites are developed.

* Additionally, there are parts of this property that must be included that already have 'issues', of erosion and soil movement, with detailed remedies and maintenance - and WHO will be financially responsible.

*Which brings up the access roads and the erosion these may cause, and the visual 'barriers/retaining walls' to be erected to reinforce these roads. How long and under what conditions will these constructions remain intact. This would definitely change the rural, open space, natural environment that presently exists.

*AIR QUALITY is of prime concern. We have many residents who are over 55 years old as well as the influx of younger families as the older families move to other homes. The statement that 'significant and unavoidable' limits for air quality is unacceptable. This is a matter of life and death (not an overstatement) for some of the present residents, and they should not have to leave and give up the homes they love to allow a developer to grade and possibly abandon the property near their homes. Many presenters at the various meetings have discussed the SPECIFICS of how many particles suspended in the air are deemed tolerable. Considering the enclosed (by homes) environment to be graded, it was presented that the dust and disturbed earth (which may contain asbestos rocks) would be WELL above the levels for health. This massive land moving may continue unabated for some time, increasing and prolonging the negative health issues.

*NOISE IMPACT would be continuous from early morning until evening. Not only would it cause those who work from home (more are telecommuting as part of their career) a severe hardship, but people who work swing/night shifts, babies, retirees and those who enjoy a nap occasionally would now not have the freedom to enjoy their homes' quiet and peace. It has been proven in many scientific studies that noise has serious detrimental health affects on all living things, with prolonged noise causing damage to hearing, memory/focus, heart rhythms and general well-being. The noise continuously from the machinery on the hill and the heavy trucks traveling our streets causes noise coming at us from all sides of our homes.

*TRAFFIC IMPACT on streets that are barely wide enough for 2 SUVs to pass each other in opposite directions would be down-right dangerous with huge earth moving trucks/trailers using these existing small, neighborhood streets. If even one of these pieces of equipment should tip, spill its load, hit another vehicle etc., can you imagine the cost, inconvenience and possible bodily injury that can be caused? Please remember that this is a family area that already shares the streets with incoming car/ bus traffic to the College of San Mateo. This college traffic starts before 7:00am and continues until 9:00pm. We also have the lower parking lot used by Solar City and Go Pro cars and shuttles that are in use all day. The study needs to factor in the specifics of all the times of day in use and all the weather conditions/seasons that this endeavor will span.

*Has the developer/county determined WHO will shoulder the cost when this massive project develops serious problems ie. law suits?

Thanks for your consideration,

Dr. And Mrs. Stephen A. Mikulic
132 CSM Drive
650-533-2350

Sent from my iPad

James Castaneda - Scoping Comments, Ascension Heights Subdivision Project

From: Alissa Reindel <alissa_reindel@yahoo.com>
To: "jcastaneda@smcgov.org" <jcastaneda@smcgov.org>
Date: 10/28/2013 21:56
Subject: Scoping Comments, Ascension Heights Subdivision Project

Dear Mr. Castaneda,

Thank you in advance for reviewing the concerns our neighborhood has with the Ascension Heights Subdivision Project. I'm writing to share with you some issues that need to be addressed in the EIR for this proposed project.

1) Hillside stability/Landslides
Stricter limits are needed to prevent building on too steep of a slope. We've had multiple landslides in the area very close to the proposed development.
2) Air Quality
Previous DEIR language of "air quality limits are determined to be significant and unavoidable." Significant air quality impact is unacceptable to my family. I have a two-year old with severe allergies; it is challenging enough just managing his allergies from day to day without having to deal with significant adverse impacts to our local air quality. We are homeowners and don't feel our children's health should take a backseat to an irresponsible development project.
3) Traffic impact
It is estimated that one 20 cu yd truck will travel to or from the site once every 2-3 mins for 44 days. The EIR study needs to factor in all traffic sources including CSM students racing to class in the morning. We have had a number of serious accidents on Parrott Drive due to CSM students recklessly speeding up and down Parrott. Most recently we lost power last week for almost 24 hours when a student clipped a parked car and knocked down a telephone pole.
4) Noise impact
The noise impact was determined to be significant and unavoidable in the previous DEIR.
We will be surrounded by high noise sources from machinery on the hill as well as the trucks hauling away or bringing dirt to the site.
5) Inappropriate proximity
The proposed houses that would border Parrott Drive homes are too close and would pose an invasion of privacy to the families who live in the existing homes.
6) Unacceptably long project timeline
Is it true this project could take up to ten years to complete? That would significantly (and negatively) impact our ability to enjoy being outdoors in our neighborhood for an unacceptable length of time.

Thank you for your time considering this input, and for making sure the EIR addresses these important issues.

Best regards,

Alissa Reindel
1735 Parrott Drive
San Mateo, CA 94402

Topic Summary Report

A topic has closed on San Mateo County SpeakOut

Topic: Water Tank Hill Proposed Subdivision Environmental Concerns

What environmental issues should the environmental review cover regarding the proposed subdivision of Water Tank Hill?

The San Mateo County Planning and Building Department is beginning the environmental review process for the newly proposed 19-lot Ascension Heights subdivision project on Water Tank Hill (corner of Ascension Drive and Bel Aire Road). With the processing of a major subdivision application, there are two inherent parts. The first is review of the proposed subdivision to ensure compliance with County subdivision and zoning regulations. The second is environmental review in the form of an Environmental Impact Report, which to inform decision-makers of any significant environmental effects. These two parts are considered together by the Planning Commission. Community input and participation is both important and essential in these two parts. We need your help to determine what should be the focus of the environmental review. Below, please give us your feedback on what environmental specific topics should be covered environmental document. We've also listed some topics you can vote on and help think of concerns you think need to be examined and covered. For additional information, please visit the project's document page at: http://goo.gl/XUDqLC

Surveys Submitted	9	Comments	2

Survey Results

QUESTION 1

What are specific environmental topics of concern you think need to be covered? Please provide details below.

Open Ended Question (Click to View Responses) 9 Responses

QUESTION 2

Which environmental topics below are the most important to you?

Air Quality & Greenhouse Gases 7

Geology & Soil 6

Traffic 6

Noise 5

Aesthetics 4

Hydrology 2

Biological Resources 1

2% of people participated

(10 of 538 total participants)

64% Less than your average and 60% Less than the MindMixer average

Gender Breakdown

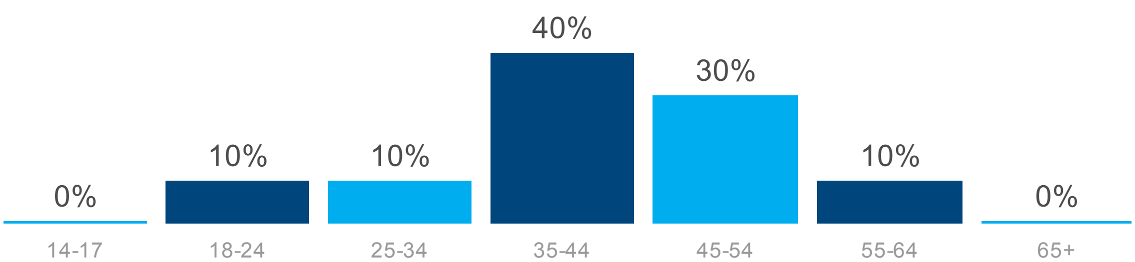
17%
(1 Female)

83%
(5 Males)

Top Postal Codes

94402
94019
94014

Age Breakdown



What’s Next?

Add another Topic

Invite more Participants

Don't forget to spread the news and share these results with your team!

Survey: Water Tank Hill Proposed Subdivision Environmental Concerns

Question: What are specific environmental topics of concern you think need to be covered? Please provide details below.

1). Every previous time this sub-d project has been submitted, the unstable geologic nature of the hill has required massive soil stability mitigation measures; which has meant there will be drastic air quality impacts during construction.
2). Proposed intersection - a driver turning into the proposed sub-d from Westbound Bel Air Rd will obviously need to cross Eastbound Bel Air Rd traffic. However approaching traffic cannot be seen due to the current steep grade of Eastbound Bel Air.

Air quality during construction (in particular during grading) must meet standards set by the BAAQMD. Quantity of particulate matter estimated to be generated during construction must be provided to ensure that they would not be harmful to those who are most susceptible to health impacts (e.g. infants, elderly).

I have to question the wisdom, given plan bay area of what on its face appears to be wholly unsustainable development. Any development that doesn't provide adequate transit access, or walkability can not be considered to have an environmentally sound plan. Turn it into a park and upzone downtown for denser housing.

I'm most concerned about the stability of the hill. We have had mudslides very close to this area and the community has suffered for this.

Maintenance and sustainability of parks, hiking trails, and beaches
Preserving more of native wildlife and providing a healthy environment for native species
Safety concerns in regards to outdoor activities

The hillsides in this area are unstable and not understood by the county as evidenced by recent half a million dollar property loss at 1406 Rainbow where the county rebuilt the hillside and still the property slipped 5" in the last 5 years. Why? What was done wrong in the building of the hillside, construction and materials in the hillsides and the approval to build 1406 Rainbow even though it was not stable. 50 slope failures are documented in

this area. How can this project be better?

The land is eroding and has been known to be unstable. There are many underground springs in our neighborhood. What construction will occur on land adjacent to our homeowners in the San Mateo Oaks subdivision? How will you insure that the construction, new housing runoff, storm drains, etc., won't add to the instability and cause landslides that could spill over into the San Mateo Oaks adjoining properties?

traffic & aesthetics

Why dig up the hillside at all? We really need to keep that hillside an open space. How does that benefit anyone in the area? It will bring more cars in the area, noise, traffic and years of building. Do we really need more housing in this area? I move here because this is an establish neighborhood. I didn't move here because of the new housing development. We have students that are parking their cars on Parrott Drive now. Go take a look at City College of San Francisco and see how bad parking i

Question: Which environmental topics below are the most important to you?

Aesthetics : 4

Air Quality & Greenhouse Gases : 7

Geology & Soil : 6

Noise : 5

Traffic : 6

Biological Resources : 1

Hydrology : 2

Comments

Number of Comments 3

Comment 1: Building on a steep slope in an area with a history of landslides is not responsible. In case the County has forgotten, the 1996 Polhemus Rd. landslide resulted in lawsuits, millions of dollars in repairs, and endangered the water supply to San Francisco and the Peninsula.

Furthermore, Baywood Park's already-inadequate sewer system will be further stressed, costing residents sewer fees that are even more insanely high.

Noise tends to reverberate in the hills which will reduce quality of life for hundreds, if not thousands, of residents in the area for years, which is not acceptable.

Aesthetically, this development will be a permanent blight on the natural beauty of the area, with trees being replaced with tacky McMansions. These houses will stick out like a sore thumb in the neighborhood.
| By Bryan K

Comment 2: 1) 50 documented hillside failures. Major failure resulting in complete house destruction. Other losses to property values. How do we know these properties will not have major problems.

2) This is one of the last open hillsides in the county and city. Do we really need to fill every square foot of land or is it better to have this part of a preserve.

3) The ambient sound level in this area is very low. The last EIR said the sound levels would be up to 50db SPL or considerably louder than the current ambient sound for 4-5 years for a distance of 1/2 mile from the construction site affection more than 1000 people and 360 homes who will have the ambient sound level jarring and higher for most of the day. NOT ACCEPTABLE.

4) Winds in this area are much higher than other areas. The EIR proposed watering the properties 2 times a day to reduce blowing dust and debris. This does not seem reasonable.

5) the density of this housing is too high
| By John M

Comment 3: Why dig up the hillside at all? We really need to keep that hillside an open space. How does that benefit anyone in the area? It will bring more cars in the area, noise, traffic and years of building. Do we really need more housing in this area? I move here because this is an establish neighborhood. I didn't move here because of the new housing development. We have students that are parking their cars on Parrott Drive now. Go take a look at City College of San Francisco and see how bad parking is. Parrott Drive is a main road, so I don't need more cars driving by my house everyday. Neighbor's didn't want the project in 2009 and we don't need it in 2013. | By marvin G

Must be recd by SMC ASAP & no later than Nov. 21, 2013

WRITTEN COMMENT CARD

This should be a larger card!

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

"Scoping Comments Ascension Hgts. Subdivision Comments"

Wednesday, October 9, 2013

Over

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Gerri (Geraldine) Roach Organization: Baywood Park Homeowners Assoc

Address: 1456 BelAire Rd. San Mateo, CA 94402

Comment: I agree the Builder secures a 30 yr. Bond to cover all costs & reserve money for potential soil movement & drainage problems. Will this add to our expensive sewer costs? The plan for 19 residences vs. 25 is still far too many considering its a hilltop, limited access & added traffic with planned road off a dangerous area of BelAire Rd. Its reasonable to assume each will have 2 or 3 cars = 55 cars! Soil Analysis needs deep boring to assure all of us no slide or movement is possible. As a landslide survivor here in 1998-2003 I can attest it can ruin your life! Air Quality Studies need to protect poss. Contaminants for us. → contd

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

There have been additional serious landslides in this area – Rainbow Drive when a house was demolished when there was a disasterous slide. (Another on the other end of Bel Aire Rd. as well.) County records should show those; in fact shortly after building this subdivision two homes were involved in a landslide (Edward & downhill neighbor on Enchanted Way.)

Traffic on Bel Aire from Ascension to Parrott Drive is a concern due to heavy patterns with C.S.M. students using this road as a shortcut from Polhemus and either South 280 or North 280 and downtown San Mateo via Crystal Springs Rd. It has steadily increased as CSM has approx 11,000 students now. Building on this hill will only make it worse. I noticed either traffic monitor or speed monitor on Parrott Drive around Columbus Day (Oct 14th) a few days prior & then gone by 10/16. CSM had a break on 10/14/13.

Please see my attached letter I reprinted to Planning & Building Dept on July 30, 2009 re: draft DEIR for Ascension Heights plan that year. Many of the same concerns still exist. I'm asking that a thorough review of all aspects of the current plan be done. This can have a serious impact on our property values, quality of life and exposure to hazardous air. Thank you

July 30, 2009*
County of San Mateo, Planning & Building Department
Attn: James Castaneda, Project Planner
455 County Center, 2nd Floor
Redwood City, CA. 94063-1662

RECEIVED
2013 NOV -5 A 4:57
SAN MATEO COUNTY PLANNING AND BUILDING DEPARTMENT

RE: San Mateo Co. 6/25/09 Notice of Availability of Draft Environmental Impact Report: Ascension Heights plan for 25-lot subdivision.

Dear Mr. Castaneda,
I have lived on in the 1400 block of Bel Aire Rd since 1970. I'm writing about DEIR that addresses the Impact TRANS-6: Construction Impacts on Bel Aire Rd. traffic**.** An estimated 69 round trip heavy haul trucks (138 trips) daily for soil removal & grading Monday thru Friday during the non-rainy season. The 2008 estimated total truck trips is 3, 036 round trips to complete the project by ~2013. This is only one important item of many concerns.

As Bel Aire Road residents, we will face a "significant and unavoidable daily traffic impact" during the four year construction, and in 2013 an additional estimated 150 vehicles and 70 residents**.** Section IV.I Transportation /Traffic of the report mentions "this project can overlap with other projects" e.g., the Crystal Springs Bypass Tunnel and CSM improvements. "It is possible that heavy trucks required to import and /or export materials to the related project sites could use roads to be used by the soil haul trucks for the proposed projects." As I understand this, then all of the trucks for the Tunnel, Ascension project & CSM could use Bel Aire Road and Laurie Lane. **This would be a nightmare, and prevent us from driving out of our driveways or even being in our yards or opening windows with the constant dirt, noise, and air pollution: elevated lead & carbon monoxide.** What will happen during very warm days or heat waves/ spare the air days? This is a windy area year round and much worse in spring and winter. That hill is prone to erosion and slippage.
We'll be exposed to additional pollution, noise and grime. We won't be able to open our windows. Bel Aire Rd. will be an unhealthy dust bowl. We will be blocked from Polhemus Rd. and predictably, the alternate route, Parrott Dr. to Hwy.92 will be gridlocked.

I called Mr. James Castaneda @ SMC Planning & Building Dept SMC to verify that the **Traffic analysis for Bel Aire was limited to (Tuesday) 5/20/08 x 24 hours only**. This does not give an accurate data for the weekly traffic volume on this block of Bel Aire Rd.
Since 1970 Bel Aire is the main shortcut for CSM traffic to Parrott from north and south Hwy. 92 from Polhemus Rd. or DeAnza Blvd. On Monday, Wednesday, Thursday and Friday there is heavy CSM traffic including every morning, afternoon, weekend, and evening classes. **CSM now has 11.000 students registered each semester.** While some may attend on-line classes, the reality is that Bel Aire/CSM traffic significantly increases during CSM classes late August until the spring sessions end in June (and summer classes) and will only increase in volume each year.

We are asking and deserve an accurate, fair and more extensive traffic analysis from SMC for a five day period of 24 hours from Monday thru Friday during CSM's fall or winter class schedule, (omitting scheduled recess & holidays) The current draft analysis of actual traffic volume data for Bel Aire is very limited and greatly minimizes the true impact on the 1400 block of Bel Aire Rd.

The planned access road to and from the Subdivision leads directly onto the 1400 block of Bel Aire Rd.; this will create even more hazardous traffic congestion at the blind curved and inclined section of Bel Aire Road. This will further impede current residents from safely entering/exiting our driveways. Currently, drivers speed and even pass cars on this block of Bel Aire, crossing over the center divide. This plan will adversely affect an already dangerous stretch of road for residents and drivers. It is far too many planned residences for this hilltop.

I appreciate your assurance on July 30 when I called that all written comments from affected residents will be carefully reviewed. Thanks for your work and time to consider my valid concerns for my home and immediate neighborhood. I recognize that this project has required much work by you and CSM staff.

Sincerely,
Geraldine Roach

Ms. Geraldine Roach
1456 Bel Aire Rd.
San Mateo, CA. 904402

Note my Parcel No. deleted)

*Resubmitting: Oct. 31, 2013: RE: "Scoping Comments Ascension Heights Subdivision Project"
James Castaneda
SMC Planning and Building Dept.
455 County Center
Redwood City, CA. 904063

>>> On 11/21/2013 at 09:19, "Elizabeth Cullinan" <ECullinan@HILLSBOROUGH.NET> wrote:

Hi James - it's my turn to apologize for providing you additional comments on the project and upcoming EIR. In any case, we have the following comments/items for consideration from our Police Chief and DPW Director/City Engineer:

The applicants of the project should contribute towards the I&I reduction as well as regional sewer improvements. This is a condition that should be asked by the District (County) as these additional 19 homes will add flows to the El Cerrito/Crystal Springs line which is scheduled for replacement.

Erosion and slope stability issues should be examined carefully.

Construction and haul routes should be analyzed for impacts to local Hillsborough and other streets.

Project and construction traffic should be analyzed in the Parrot Drive, Sugarhill and Belaire area. Our Police Chief, Mark O'Connor is happy to provide specific areas of potential concern that he would see value in studying.

Thank you again for the opportunity to comment and we appreciate your extended notification area.

Elizabeth S.R. Cullinan AICP
Director of Building and Planning
Town of Hillsborough
Phone: (650) 375-7416
Fax: (650) 375-7415
ecullinan@hillsborough.net
www.hillsborough.net

-----Original Message-----
From: James Castaneda [mailto:jcastaneda@smcgov.org]
Sent: Tuesday, November 19, 2013 9:24 AM
To: Elizabeth Cullinan
Cc: twilson@analyticalcorp.com
Subject: RE: Ascension Heights Subdivision

Good morning Elizabeth, I apologize my response wasn't received last time. For the scoping meeting held on October 9th, we did a 900-foot mailing notice. Property owners with parcels within 900-feet from the project's boundaries were included (addresses provided the County's tax assessor). Our establish notification requirements are 300-feet, in additional to interested parties and adjacent city planning departments.
Given the scope of the project, the director elected to use a 900-foot notification buffer.

That said, I'm not sure how much (if any) of this buffer reached Hillsborough's city limits. I'll have to check with our graphics department to identify any if you require additional information.

As for the Callan Subdivision, Ill pass this along to our Environmental consultants who are currently preparing the draft EIR. Ill keep this on my radar as we approach our hearings next year.

Regards,
JAMES

James A. Castañeda, AICP
Planner III, San Mateo County Planning & Building Department Program Coordinator, SFO Airport/Community Roundtable

455 County Center, 2nd Floor
Redwood City, CA 94063
650.363.1853 | 650.363.4819 FAX
smcplanning.org | sforoundtable.org
>>> "Elizabeth Cullinan" 11/18/13 4:25 PM >>>
Greetings James - Can you review the email below to see if Hillsborough residents were notified of the scoping meeting?

Also, I wanted to make you aware of the following project in
Hillsborough:

http://www.hillsborough.net/depts/building/planning/current_projects/cal
lan_subdivision/default.asp

Thank you.

Elizabeth S.R. Cullinan AICP

Director of Building and Planning

Town of Hillsborough

Phone: (650) 375-7416

Fax: (650) 375-7415

ecullinan@hillsborough.net

www.hillsborough.net

From: Elizabeth Cullinan
Sent: Monday, September 16, 2013 11:09 AM
To: 'jcastaneda@smcgov.org'
Subject: Ascension Heights Subdivision

Greetings James - I hope this email finds you well.

Thank you for including us in your public notice. We will work to develop some possible scoping and comments through the process. I am attaching an old email on the previous subdivision proposal in the event this helps.

Also, I wondered if you have notified neighbors in Hillsborough abutting the proposal of the scoping session. Can you clarify for me?

Thank you.

Elizabeth S.R. Cullinan AICP

Director of Building and Planning

Town of Hillsborough

Phone: (650) 375-7416

Fax: (650) 375-7415

ecullinan@hillsborough.net

www.hillsborough.net

APPENDIX B

INITIAL STUDY

County of San Mateo
Planning and Building Department

INITIAL STUDY
ENVIRONMENTAL EVALUATION CHECKLIST

1.	**Project Title:**	Ascension Heights Subdivision Project
2.	**County File Number:**	PLN2002-00517
3.	**Lead Agency Name and Address:**	San Mateo County Planning and Building Department 455 County Center, 2nd Floor Redwood City, CA 94063
4.	**Contact Person and Phone Number:**	James A. Castaneda, Planner III (650) 363-1853 jcastaneda@smcgov.org

5. Project Location:

The project site consists of approximately 13.32 acres located within the unincorporated community of San Mateo Highlands within San Mateo County (County), at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and northwest of State Route 92. The project site is located approximately 2.5 miles southwest of the City of San Mateo and approximately 17.5 miles south of the City of San Francisco. The project site is largely undeveloped, with the single exception of a paved access roadway that bisects the project site from the north corner to the southeastern edge, connecting Bel Aire Drive to a potable water tank owned by the California Water Service Company (Cal Water) and a cellular transmitter that are surrounded by but are not part of the project site. The project site is predominately situated on a hillside with slopes averaging 40 percent. The area was graded over 40 years ago, which consisted of excavating the sides of the hill for the construction of Ascension Drive and Bel Aire Road. Eight-foot wide benches at 30-foot intervals were created along Ascension Drive as a result. Surface runoff from these benches eroded the hillside over the years. The project site is predominately characterized by grassland, small brush, and trees such as oak, pine, and eucalyptus. A small grove of eucalyptus trees is located on the southeast side of the area, and pine trees have been planted around the water tank facility.

6. Assessor's Parcel Number and Size of Parcel:

The project site includes six Assessor's Parcel Numbers (APNs) (21.13 acres in total):

- APN 041-111-130
- APN 041-111-160
- APN 041-111-270
- APN 041-111-280
- APN 041-111-320
- APN 041-111-360

Note that APN 041-111-020 is within the project site but is not included in the Proposed Project.

7. **Project Sponsor's Name and Address:** San Mateo Real Estate, Inc.
Mr. Dennis Thomas
1777 Boreal Place, Suite 330
San Mateo, CA 94402
(650) 578-0330
info@smrehomes.com

8. **General Plan Designation:**
The general plan designation for the project site is Medium Low Density Residential (2.4 – 6.0 dwelling units/acre).

9. **Zoning:**
The zoning for the project site is R-1/S-8 (single-family residential/7,500 square foot minimum lot size).

10. **Description of the Project:**
The Proposed Project entails the subdivision of six parcels into 21 lots for development of 19 single-family residences and a new access roadway, with a development footprint of approximately 5.5 acres. The remaining 2 lots (approximately 7.8-acres) would be maintained as open space and would include an undisturbed and protected area as well as common areas with foot trails. The Proposed Project is a re-design of a previous project that was denied by the San Mateo County Planning Commission in 2009.

This Initial Study document has been prepared to evaluate compliance of the Proposed Project under the California Environmental Quality Act (CEQA). San Mateo County is the Lead Agency responsible for complying with the provisions of CEQA.

Potable water would be provided by connection to the Bayshore District of Cal Water and wastewater collection would be provided by the Crystal Springs County Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. Development of the 19 subdivided lot into single-family residences would require 40,920 cubic yards of grading, of which 28,270 cubic yards would require exportation from the site. Accordingly, the project applicant also requires a grading permit from the County. Based on the size of the development, a Water Supply Assessment is not required for the Proposed Project. One significant consideration is the Cease and Desist Order (CDO) issued by the San Francisco Bay Regional Water Quality Control Board to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District. The CDO was issued as a result of high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters.

11. **Surrounding Land Uses and Setting:**
The project site is surrounded by single-family residences, including the Baywood Park neighborhood, located to the northeast; the Enchanted Hills neighborhood, located to the southeast and southwest; and the Starlite Heights neighborhood, located to the northwest. Land uses adjacent to the project site consist of single-family residential housing to the northeast and southeast, Ascension Drive to the southwest with single family residences across the street, and Bel Aire Road to the northwest with single family residences across the street. The College of San Mateo is located less than 0.25 miles northeast of the project site off Parrott Drive.

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12. **Public Agencies Whose Approvals May Be Required:**
<u>County Of San Mateo</u>

- Approval of a Vesting Tentative Map to subdivide the project site into 19 single-family residences.
- Permitting associated with grading, structural development, tree removal, etc.
- Certification of the EIR for the Ascension Heights Subdivision Project under the requirements of the California Environmental Quality Act (CEQA), as amended.
- Adoption of a Mitigation Monitoring Plan for the Proposed Project that incorporates the mitigation measures identified in the EIR.

<u>California State Department of Fish and Wildlife (DFW)</u>

- Any impacts to state-listed species such as White-Tailed Kite or Cooper's Hawks will require permitting from DFW.

<u>San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)</u>

- Construction and associated ground disturbance greater than one acre requires the applicant to file for coverage under the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) Construction General Permit.

<u>U.S. Fish and Wildlife Service (USFWS)</u>

- Any impacts to federally-listed species such as the Mission Blue Butterfly will require permitting from DFG.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics	X	Climate Change	X	Population/Housing
	Agricultural and Forest Resources	X	Hazards and Hazardous Materials	X	Public Services
X	Air Quality	X	Hydrology/Water Quality	X	Recreation
X	Biological Resources	X	Land Use/Planning	X	Transportation/Traffic
	Cultural Resources		Mineral Resources	X	Utilities/Service Systems
X	Geology/Soils	X	Noise	X	Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On behalf of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in a earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to the earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Planner's Signature — Date: April 25, 2014

James A. Castañeda, AICP, Planner III
Printed name

County of San Mateo
For

EVALUATION OF ENVIRONMENTAL IMPACTS

Introduction

Pursuant to Section 15063 of the California Environmental Quality Act Guidelines, a brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the projects outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Evaluation Terminology

The following terminology is used to describe the levels of significance for impacts identified for each resource area discussed in the checklist presented in **Section 4.6**.

- A conclusion of no impact is used when it is determined that the Proposed Project would not adversely impact the resource area under evaluation.
- A conclusion of less than significant impact is used when it is determined that the Proposed Project's adverse impacts to a resource area would not exceed established thresholds of significance.
- A conclusion of less than significant impact with mitigation is used when it is determined that mitigation measures would be required to reduce the Proposed Project's adverse impacts below established thresholds of significance.
- A conclusion of potentially significant is used when it is determined that the Proposed Project would cause a substantial, or potentially substantial, adverse impact on the resource area.

1. AESTHETICS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Have a significant adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?		**X**		
Discussion: The project site is not located within the viewshed of a scenic vista, public lands, or water bodies. However, the project site is visible from existing residential areas and roads. The Proposed Project would convert undeveloped open space to single-family homes. This would alter the landscape, with mitigation it would not constitute a significant, adverse effect because all surrounding areas contain single-family homes, and the changes to the landscape would be consistent with the existing, surrounding landscapes. Impacts associated with aesthetics will be analyzed within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
b. Significantly damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		**X**		
Discussion: The project site is not located within viewshed of a scenic corridor of a state scenic highway. Trees and other natural habitat will be removed/altered during development of the Proposed Project. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
c. Significantly degrade the existing visual character or quality of the site and its surroundings, including significant change in topography or ground surface relief features, and/or development on a ridgeline?		**X**		
Discussion: The Proposed Project would result in the development of 19 single-family residences on approximately 13.32 acres of currently undeveloped open space, which would significantly alter the visual character of the project site. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR.				
d. Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?	**X**			

Discussion: The Proposed Project would create a new source of light and glare. Impacts associated with aesthetics will be analyzed within the EIR.				
e. Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?		X		
Discussion: The project site is near to Highway 280 (Father Junipero Serra Freeway), which is a designated Scenic Highway. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
f. If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				X
Discussion: The project site is now within a Design Review District. The project site is designated Medium Low Density Residential (2.4 – 6.0 dwelling units/acre) and is zoned R-1/S-8 (single-family residential/7,500 square foot minimum lot size). The Proposed Project would not conflict with these provisions. **Source**: San Mateo County, 1986a				
g. Visually intrude into an area having natural scenic qualities?				X
Discussion: The project site is surrounded by existing residential development and does not constitute an area having natural scenic qualities.				

2. AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forestland, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on				X

the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				
Discussion: The Proposed Project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use. Further analysis is not required. **Source**: California Department of Conservation, 2011				
b. Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?				**X**
Discussion: The Proposed Project does not conflict with zoning for agricultural use, existing Open Space Easement, or a Williamson Act contract. Further analysis is not required. **Source**: San Mateo County, 1986a; California Department of Conservation, 2012				
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?				**X**
Discussion: The Proposed Project does not involve changes in the existing environment which could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use. Further analysis is not required. **Source**: California Department of Conservation, 2011; California Department of Conservation, 2012; USFS, 2013				
d. For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?				**X**
Discussion: The project site is not within the Coastal Zone. Further analysis is not required. **Source**: San Mateo County, 1996				
e. Result in damage to soil capability or loss of agricultural land?				**X**
Discussion: The project site is not designated for agricultural use and would not result in loss of agricultural land. Further analysis is not required. **Source**: San Mateo County, 2009a				

f. Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Note to reader: This question seeks to address the economic impact of converting forestland to a non-timber harvesting use.*				X

Discussion: There is no forestland on the project site, and the Proposed Project would therefore not conflict with existing zoning for, or cause of rezoning of, forestland, timberland, or timberland zoned Timberland Production. Further analysis is not required.

Source: USFS, 2013

3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Conflict with or obstruct implementation of the applicable air quality plan?	X			

Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may obstruct the implementation of the applicable air quality plan. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.

b. Violate any air quality standard or contribute significantly to an existing or projected air quality violation?	X			

Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may violate an air quality standard or contribute significantly to an existing or projected air quality violation. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may constitute a cumulatively considerable net increase of a criteria pollutant for which the region is non-attainment under an applicable Federal or State ambient air quality standard. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				
d. Expose sensitive receptors to significant pollutant concentrations, as defined by BAAQMD?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may impact sensitive receptors. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				
e. Create objectionable odors affecting a significant number of people?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project could result in air quality emissions that may create objectionable odors. Impacts associated with air quality will be analyzed within the EIR.				
f. Generate pollutants (hydrocarbon, thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality on-site or in the surrounding area?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate pollutants that may violate existing standards of air quality on-site or in the surrounding area. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				

4.	**BIOLOGICAL RESOURCES**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a.	Have a significant adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	**X**			
Discussion: The Proposed Project would destroy natural habitat, which would have an adverse effect on plants and wildlife, including any candidate, sensitive, or special status species if the species inhabits the project site. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.					
b.	Have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	**X**			
Discussion: The project site does not contain and is not adjacent to any riparian habitat. Sensitive natural communities may be present within the project site. Impacts associated with biological resources will be analyzed within the EIR.					
c.	Have a significant adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
Discussion: The project site does not contain and is not adjacent to any wetlands. Further analysis is not required. **Source**: USFWS, 2013					
d.	Interfere significantly with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of			**X**	

<table>
<tr><td>native wildlife nursery sites?</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Discussion: The project site is isolated by surrounding urban and commercial areas, including a network of busy roadways, and likely does not provide linkages or migration corridors among habitat sites. Impacts associated with biological resources will be analyzed within the EIR.</td></tr>
<tr><td>e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?</td><td></td><td>X</td><td></td><td></td></tr>
<tr><td colspan="5">Discussion: The Proposed Project would destroy natural habitat, which includes tree removal, which may conflict with local policies or ordinances protecting biological resources. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.</td></tr>
<tr><td>f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or State habitat conservation plan?</td><td></td><td></td><td></td><td>X</td></tr>
<tr><td colspan="5">Discussion: Neither a habitat conservation plan nor a natural community conservation plan exist within the vicinity of the Proposed Project Area. Further analysis is not required.
Source: San Mateo County, 1986a</td></tr>
<tr><td>g. Be located inside or within 200 feet of a marine or wildlife reserve?</td><td></td><td></td><td></td><td>X</td></tr>
<tr><td colspan="5">Discussion: The project site is not located inside or within 200 feet of a marine or wildlife reserve. Further analysis is not required.
Source: CDFW, 2010; USFWS, 2008</td></tr>
<tr><td>h. Result in loss of oak woodlands or other non-timber woodlands?</td><td>X</td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Discussion: The project site includes the removal of trees, some of which may belong to the coast woodland live oak plant community and would constitute removal of oak woodlands. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.</td></tr>
</table>

5. CULTURAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Cause a significant adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?				**X**
Discussion: There are no significant cultural resources on the project site. Further analysis is not required.				
b. Cause a significant adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?				**X**
Discussion: There are no significant archaeological resources on the project site. Further analysis is not required.				
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				**X**
Discussion: There are no significant paleontological resources or sites or unique geologic feature resources on the project site. Further analysis is not required.				
d. Disturb any human remains, including those interred outside of formal cemeteries?				**X**
Discussion: There are no human remains on the project site. Further analysis is not required.				

6. GEOLOGY AND SOILS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Expose people or structures to potential significant adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake			**X**	

<table>
<tr><th></th><th></th><th></th><th></th><th></th></tr>
<tr><td>Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault?

Note: Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">**Discussion**: The project site is not located within an Alquist-Priolo Fault Zone and is therefore not susceptible to surface fault rupture.

Source: CGS, 2013</td></tr>
<tr><td>ii. Strong seismic ground shaking?</td><td></td><td>**X**</td><td></td><td></td></tr>
<tr><td colspan="5">**Discussion**: The project site is located adjacent to the San Andreas Fault line. Potential impacts associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR.

Source: CGS, 2013</td></tr>
<tr><td>iii. Seismic-related ground failure, including liquefaction and differential settling?</td><td></td><td></td><td></td><td>**X**</td></tr>
<tr><td colspan="5">**Discussion**: The project site is located within an area mapped as very low liquefaction potential by the Association of Bay Area Governments. Further analysis is not required.

Source: ABAG, 2010</td></tr>
<tr><td>iv. Landslides?</td><td></td><td>**X**</td><td></td><td></td></tr>
<tr><td colspan="5">**Discussion**: The project site contains very dense sandstone bedrock with low potential for deep-seated landslides. However, the overlying colluviums are unconsolidated and deep, making shallow-seated landslides a hazard on the project site. Potential impacts associated with landslides will be analyzed and mitigation measures will be identified within the EIR.

Source: Michelucci, 2002</td></tr>
<tr><td>v. Coastal cliff/bluff instability or erosion?

Note to reader: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).</td><td></td><td></td><td></td><td>**X**</td></tr>
<tr><td colspan="5">**Discussion**: The project site is not located on or near a coastal cliff or bluff. Further analysis is not required.</td></tr>
<tr><td>b. Result in significant soil erosion or the loss of topsoil?</td><td></td><td>**X**</td><td></td><td></td></tr>
<tr><td colspan="5">**Discussion**: The Proposed Project would require 40,920 cubic yards of grading, which could have the potential to cause significant soil erosion or loss of topsoil. Potential impacts</td></tr>
</table>

associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR.				
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse?		**X**		
Discussion: The project site contains soils that have the potential to become unstable. Potential impacts associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR. **Source**: NRCS, 2013				
d. Be located on expansive soil, as noted in the 2010 California Building Code, creating significant risks to life or property?				**X**
Discussion: The project site contains soils with moderate shrink-swell potential. Further analysis is not required. **Source**: NRCS, 2013				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				**X**
Discussion: The Proposed Project does not include the use of septic tanks or alternative wastewater treatment systems. Further analysis is not required.				

7. CLIMATE CHANGE. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate greenhouse gas (GHG) emission that could result in potentially				

significant impacts. Potential impacts associated with greenhouse gas emissions will be analyzed and mitigation measures will be identified within the EIR.				
b. Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate greenhouse gas (GHG) emission that could result in potentially significant impacts. Potential impacts associated with greenhouse gas emissions will be analyzed and mitigation measures will be identified within the EIR.				
c. Result in the loss of forestland or conversion of forestland to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce GHG sequestering?				**X**
Discussion: Forestland is not present on the project site. Further analysis is not required. **Source**: USFS, 2013				
d. Expose new or existing structures and/or infrastructure (e.g., leach fields) to accelerated coastal cliff/bluff erosion due to rising sea levels?				**X**
Discussion: The project site is not located on or near a coastal cliff or bluff. Further analysis is not required.				
e. Expose people or structures to a significant risk of loss, injury or death involving sea level rise?				**X**
Discussion: Given the topography of the project site, the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving rising sea levels. Further analysis is not required.				
f. Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
Discussion: The Proposed Project would not place structures within an anticipated 100-year flood hazard area. Further analysis is not required.				

g. Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?				**X**
Discussion: The Proposed Project would not place structures within an anticipated 100-year flood hazard area that would impede or redirect flood flows. Further analysis is not required.				

8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g., pesticides, herbicides, other toxic substances, or radioactive material)?		**X**		
Discussion: Construction, transportation, and operation activities associated with the Proposed Project could result in the transport, use, or disposal of hazardous materials. Potential impacts associated with hazards and hazardous materials will be addressed within the EIR.				
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		**X**		
Discussion: The Proposed Project would have the potential to result in upset or accident conditions that may create a significant hazard to the public or environment. Potential impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR.				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		**X**		
Discussion: Construction, transportation, and operation activities associated with the Proposed Project could result in the emission or handling of hazardous materials, substances, or waste, and the College of San Mateo is located within a quarter mile of the project site. Potential impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR.				

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
Discussion: The project site is not located on a site which is included on a list of hazardous materials sites. Further analysis is not required. **Source**: DTSC, 2007				
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?				**X**
Discussion: The project site is not located within an airport land use plan or within two miles of a public airport. Further analysis is not required. **Source**: San Mateo County, 1986a				
f. For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?				**X**
Discussion: The project site is not located within the vicinity of a private airstrip. Further analysis is not required. **Source**: San Mateo County, 1986a				
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
Discussion: The Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Further analysis is not required. **Source**: San Mateo County, 2011				
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?		**X**		

Discussion: The Proposed Project is located near a very high fire hazard severity zone (VH FHHSZ). An analysis of impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR. **Source**: Cal EMA, 2013				
i. Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
Discussion: The project site is not located within an existing 100-year flood hazard area. Further analysis is not required.				
j. Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?				**X**
Discussion: The Proposed Project would not place structures within an existing 100-year flood hazard area that would impede or redirect flood flows. Further analysis is not required.				
k. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				**X**
Discussion: The Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding. Further analysis is not required.				
l. Inundation by seiche, tsunami, or mudflow?				**X**
Discussion: The project site is not within is reasonable at risk for inundation by seiche, tsunami, or mudflow. Further analysis is not required. **Source**: Cal EMA, 2013				

9. HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Violate any water quality standards or waste discharge requirements (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater		**X**		

pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?				
Discussion: The construction and operation activities associated with the Proposed Project would create the potential to impact water quality. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
b. Significantly deplete groundwater supplies or interfere significantly with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	**X**			
Discussion: Although implementation of the Proposed Project would introduce impervious surfaces that may interfere with groundwater recharge, the project site does not have substantial capacity for groundwater infiltration in its existing capacity, given the slopes and soil qualities on site. Therefore, it is unlikely that increased impervious surfaces as a result of the Proposed Project would substantially decrease groundwater infiltration from the current condition. Potential impacts associated with groundwater recharge will be analyzed within the EIR. **Source**: NRCS, 2013				
c. Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in significant erosion or siltation on- or off-site?		**X**		
Discussion: Implementation of the Proposed Project would alter the existing drainage pattern of the project site. Impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
d. Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or significantly increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?		**X**		

Discussion: Implementation of the Proposed Project would alter the existing drainage pattern of the project site. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide significant additional sources of polluted runoff?		**X**		
Discussion: Implementation of the Proposed Project would contribute runoff water and create additional sources of polluted runoff. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with hydrology and water quality in relation to stormwater drainage systems will be analyzed and mitigation measures will be identified within the EIR.				
f. Significantly degrade surface or groundwater water quality?		**X**		
Discussion: The construction and operation activities associated with the Proposed Project would create the potential to degrade surface and/or groundwater water quality. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
g. Result in increased impervious surfaces and associated increased runoff?		**X**		
Discussion: Implementation of the Proposed Project would introduce impervious surfaces which would result in increased runoff. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				

10. LAND USE AND PLANNING. Would the project:

	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Physically divide an established community?				**X**
Discussion: The Proposed Project would not divide an established community. Further analysis is not required. **Source**: San Mateo County, 1986a				

b. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
Discussion: The applicable land use plans include the San Mateo General Plan, which designates the land as Medium Low Density Residential (2.4 – 6.0 dwelling units/acre), and the San Mateo County Zoning Ordinance, which zones the land as R-1/S-8 (single-family residential/7,500 square foot minimum lot size). The Proposed Project would not conflict with these provisions. Consistencies with land use regulations were identified as an area of controversy during Scoping; therefore, a discussion of land use consistency will be incorporated into the EIR. **Source**: Proposed Project Development Plan; San Mateo County, 1986b; San Mateo County, 2009a				
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**
Discussion: Neither a habitat conservation plan nor a natural community conservation plan exist within the vicinity of the Proposed Project Area. Further analysis is not required. **Source**: San Mateo County, 1986a				
d. Result in the congregating of more than 50 people on a regular basis?				**X**
Discussion: The Proposed Project contains no provisions for public meeting places and would not result in the congregating of more than 50 people on a regular basis. Further analysis is not required. **Source**: Proposed Project Development Plan				
e. Result in the introduction of activities not currently found within the community?				**X**
Discussion: The Proposed Project would result in the development of 19 single-family residences, which is consistent with activities currently found within and designated for the community. Further analysis is not required. **Source**: Proposed Project Development Plan; San Mateo County, 1986b; San Mateo County, 2009a				
f. Serve to encourage off-site development of presently undeveloped areas or increase development				**X**

intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?				
Discussion: The Proposed Project would result in the development of 19 single-family residences and would not encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas. Further analysis is not required.				
g. Create a significant new demand for housing?				**X**
Discussion: The Proposed Project would result in the development of 19 single-family residences and would not create a significant new demand for housing. Further analysis is not required.				

11. MINERAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				**X**
Discussion: No known mineral resources occur on the project site. The Proposed Project would not result in the loss of availability of mineral resource that would be of value to the region or State. Further analysis is not required. **Source**: San Mateo County, 1986a; USGS, 2012				
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**
Discussion: No known mineral resources occur on the project site. The Proposed Project would not result in the loss of availability of mineral resource that would be of local value or importance. Further analysis is not required. **Source**: San Mateo County, 1986a; USGS, 2012				

12. NOISE. Would the project result in:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	**X**			
Discussion: Construction and operation activities of the Proposed Project may result in significant temporary and long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	**X**			
Discussion: Construction and operation activities of the Proposed Project may result in significant temporary and long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
c. A significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	**X**			
Discussion: Operation activities of the Proposed Project may result in significant long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
d. A significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**X**			
Discussion: Construction activities of the Proposed Project may result in significant temporary increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure to people residing or working in the project area to excessive noise levels?				**X**

Discussion: The project site is not within an airport land use plan or within two miles of a public airport. The nearest airport is the San Carlos Airport, which is located five miles to the southeast. Further analysis is not required. **Source**: San Mateo County, 1986a				
f. For a project within the vicinity of a private airstrip, exposure to people residing or working in the project area to excessive noise levels?				**X**
Discussion: The project site is not within the vicinity of a private airstrip. Further analysis is not required. **Source**: San Mateo County, 1986a				

13. POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Induce significant population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	**X**			
Discussion: The Proposed Project would result in the development of 19 single-family residences, which could induce population growth. Potential impacts associated with population and housing will be analyzed within the EIR				
b. Displace existing housing **(including low- or moderate-income housing)**, in an area that is substantially deficient in housing, necessitating the construction of replacement housing elsewhere?				**X**
Discussion: The project site is currently undeveloped open space and thus would not displace existing housing. Further analysis is not required.				

14.	**PUBLIC SERVICES**. Would the project result in significant adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a.	Fire protection?	**X**			
b.	Police protection?	**X**			
c.	Schools?	**X**			
d.	Parks?	**X**			
e.	Other public facilities or utilities (e.g., hospitals, or electrical/natural gas supply systems)?	**X**			

Discussion: The Proposed Project would result in the development of 19 single-family residences on currently undeveloped open space, which could increase the demand for public services, including fire protection, police protection, schools, parks and other public faculties or utilities. Potential impacts associated with public services will be analyzed within the EIR.

15.	**RECREATION**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a.	Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?	**X**			

Discussion: The Proposed Project would result in the development of 19 single-family residences on currently undeveloped open space, which could increase the use and accelerate the physical deterioration of existing parks and recreational facilities. Potential impacts associated with recreation will be analyzed within the EIR.

b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	**X**			
Discussion: The Proposed Project would include approximately 7.8 acres maintained as open space and could require the construction or expansion of recreational facilities given the potential for inducing population growth. Potential impacts associated with recreation will be analyzed within the EIR.				

16. TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	**X**			
Discussion: The Proposed Project would increase the number of vehicle trips on local roadways as well as the number of potential non-motorized and mass transit travelers, which may result in a conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
b. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?	**X**			

Discussion: The Proposed Project would increase traffic both during construction and as a result of the construction of the single-family residences, which may result in conflicts with applicable congestion management programs. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in significant safety risks?				**X**
Discussion: The project site is not located near an airport and would not impact air traffic patterns. Further analysis is not required. **Source**: San Mateo County, 1986a				
d. Significantly increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**X**			
Discussion: The Proposed Project would include development of a new roadway and connection of a new roadway to an existing roadway. Street design within the project site would be accomplished in accordance with State and local design standards, and potential impacts associated with transportation and traffic will be analyzed within the EIR.				
e. Result in inadequate emergency access?	**X**			
Discussion: The Proposed Project would include development of 19 single-family residences on currently undeveloped open space, and adequate emergency access to the residences would need to be developed as well. Emergency access will be developed in accordance with State and local design standards, and potential impacts associated with transportation and traffic will be analyzed within the EIR.				
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	**X**			
Discussion: The Proposed Project would increase traffic both during construction and operation, which may result in conflicts with or a decrease of the performance and/or safety of adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
g. Cause noticeable increase in pedestrian traffic or a change in pedestrian patterns?	**X**			

Discussion: The Proposed Project includes development of 19 single-family residences on currently undeveloped open space which may increase pedestrian traffic or change pedestrian traffic patterns. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
h. Result in inadequate parking capacity?			X	
Discussion: The Proposed Project would include development of 19 single-family residences with parking on the residential lots provided per County guidelines for on-site parking requirements. The new roadway would be wide enough to allow parallel parking on either side. Although the finalized plan for parking on the project site is not available at this stage, the parking available on site will be designed to be adequate for anticipated needs. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				

17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?		X		
Discussion: The Proposed Project has the potential to increase drainage, storm water runoff, and the demands on wastewater treatment. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		X		
Discussion: The Proposed Project would require increased water and wastewater treatment, which could require the construction of new or expansion of existing facilities. The project site will be connected to the Mid-Peninsula Water District and is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with				

utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		X		
Discussion: The Proposed Project would result in an increase in stormwater drainage, which could require the construction of new or expansion of existing facilities. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	X			
Discussion: The Proposed Project would require increased water supplies, which may require new or expanded entitlements. Potential impacts associated with utilities and service systems will be analyzed within the EIR.				
e. Result in a determination by the waste-water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		X		
Discussion: The wastewater produced by the Proposed Project may not exceed the capacity of the existing wastewater treatment provider. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
f. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?	X			

Discussion: The development of 19 single-family residences as a part of the Proposed Project will generate wastes associated with construction and operational activities, including approximately 28,270 cubic yards of grading that will be exported off-site. Potential impacts associated with utilities and service systems, including landfill services, will be analyzed within the EIR.				
g. Comply with Federal, State, and local statutes and regulations related to solid waste?	**X**			
Discussion: Construction and operation of the Proposed Project will generate solid waste. Potential impacts associated with utilities and service systems, including solid waste, will be analyzed within the EIR.				
h. Be sited, oriented, and/or designed to minimize energy consumption, including transportation energy; incorporate water conservation and solid waste reduction measures; and incorporate solar or other alternative energy sources?	**X**			
Discussion: The Proposed Project will incorporate sustainable practices where reasonably feasible. Potential impacts associated with utilities and service systems will be analyzed within the EIR.				
i. Generate any demands that will cause a public facility or utility to reach or exceed its capacity?		**X**		
Discussion: The Proposed Project would result in an increase of demands on public facilities and utilities, which may result in a public facility or utility reaching or exceeding its capacity (i.e. wastewater service). Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				

18. MANDATORY FINDINGS OF SIGNIFICANCE.				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Does the project have the potential to degrade the quality of the environment, significantly reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a	**X**			

rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
Discussion: The Proposed Project has the potential to significantly impact air quality and biological resources. Impacts to air quality and biological resources will be analyzed and mitigation measures will be identified within the EIR.				
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	**X**			
Discussion: The impacts generated by the Proposed Project may be cumulatively considerable. Cumulative impacts will be analyzed in the EIR.				
c. Does the project have environmental effects which will cause significant adverse effects on human beings, either directly or indirectly?	**X**			
Discussion: The Proposed Project has the potential to have a substantial effect on human beings. Impacts to human beings will be analyzed in the EIR.				

RESPONSIBLE AGENCIES. Check what agency has permit authority or other approval for the project.

AGENCY	YES	NO	TYPE OF APPROVAL
U.S. Army Corps of Engineers (CE)		**X**	
State Water Resources Control Board		**X**	
Regional Water Quality Control Board	**X**		
State Department of Public Health		**X**	
San Francisco Bay Conservation and Development Commission (BCDC)		**X**	
U.S. Environmental Protection Agency (EPA)		**X**	
County Airport Land Use Commission (ALUC)		**X**	

AGENCY	YES	NO	TYPE OF APPROVAL
CalTrans		X	
Bay Area Air Quality Management District		X	
U.S. Fish and Wildlife Service	X		
Coastal Commission		X	
City		X	
Sewer/Water District: California Water Service Company (Cal Water) Bayshore District (BSD) and Crystal Springs County Sanitation District (CSCSD)	X		
Other:		X	

<u>MITIGATION MEASURES</u>		
	<u>Yes</u>	<u>No</u>
Mitigation measures have been proposed in project application.	X	
Other mitigation measures are needed.	X	
The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:		

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APPENDIX C

AIR QUALITY MODELING OUTPUT FILES

CALEEMOD OUTPUT FILES

Asencian Heights

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	19.00	Dwelling Unit	6.17	34,200.00	54

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - There will be no demolition needed. It is anticipated that site grading would take 45 days (refer to Section 3 of the EIR). Paving would occur directly after grading and last approximately 6 months (refer to Section 3 of the EIR).

Off-road Equipment - Architectural coating may occur at more than one residential project.

Off-road Equipment - Single family homes would not require a crane.

Off-road Equipment - Grading would occur over 45 days all pieces of equipment would not operate at the same time.

Off-road Equipment - All paving equipment would not operate at the same time.

Off-road Equipment - Site prepartion would occur on individual lots at different times, therefore, it is anticipated that only 50 percent of the normal equipment would operate at once.

Trips and VMT - it is conservitively estimated that trip lenght would be 18 miles.

Vehicle Trips - Trip generation rate is an average based on the Traffic Impact Study provide in the EIR Appendices.

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - The project proponet shall sweep Bel Aire Road three times per day to reduce fugitive PM emissions (refer to Section 5 of the EIR).

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Grading - Total land use is 13.32 acres.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	10
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	361.00
tblConstructionPhase	NumDays	230.00	393.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	20.00	41.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	PhaseEndDate	2/19/2018	10/31/2016
tblConstructionPhase	PhaseEndDate	9/29/2016	9/30/2016
tblConstructionPhase	PhaseEndDate	7/2/2014	12/1/2014
tblConstructionPhase	PhaseEndDate	5/26/2015	3/30/2015
tblConstructionPhase	PhaseEndDate	2/26/2015	3/30/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	6/15/2015
tblConstructionPhase	PhaseStartDate	3/31/2015	4/1/2015
tblConstructionPhase	PhaseStartDate	1/1/2014	6/1/2014
tblConstructionPhase	PhaseStartDate	3/31/2015	2/1/2015
tblConstructionPhase	PhaseStartDate	12/2/2014	1/1/2015
tblGrading	AcresOfGrading	81.88	13.32
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripNumber	5,000.00	4,680.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	2.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblVehicleTrips	ST_TR	10.08	11.99
tblVehicleTrips	SU_TR	8.77	11.99

tblVehicleTrips	WD_TR	9.57	11.99

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	5.8976	44.3380	32.7746	0.0492	6.1381	1.9353	8.0734	2.2804	1.7804	4.0608	0.0000	5,088.2590	5,088.2590	0.6830	0.0000	5,102.6025
2015	7.2017	55.2918	42.1118	0.0451	13.9593	3.0449	17.0043	7.5572	2.8013	10.3585	0.0000	4,659.3875	4,659.3875	1.2664	0.0000	4,685.9809
2016	6.8576	26.7205	21.5246	0.0312	0.1690	2.0357	2.2047	0.0460	1.9427	1.9887	0.0000	3,039.5408	3,039.5408	0.5809	0.0000	3,051.7396
Total	**19.9569**	**126.3503**	**96.4111**	**0.1256**	**20.2664**	**7.0159**	**27.2823**	**9.8836**	**6.5244**	**16.4080**	**0.0000**	**12,787.1873**	**12,787.1873**	**2.5303**	**0.0000**	**12,840.3230**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	3.7891	32.7119	28.6287	0.0492	64.6208	0.5118	65.1326	16.2215	0.4923	16.7139	0.0000	5,086.2547	5,086.2547	0.6824	0.0000	5,100.5858
2015	4.5625	35.0503	28.3522	0.0451	6.5070	0.5314	7.0384	3.4608	0.5306	3.9913	0.0000	4,655.5638	4,655.5638	1.2652	0.0000	4,682.1332
2016	4.5280	24.8817	20.6953	0.0312	0.1690	0.5147	0.6837	0.0460	0.5136	0.5596	0.0000	3,037.0460	3,037.0460	0.5804	0.0000	3,049.2338
Total	**12.8797**	**92.6439**	**77.6761**	**0.1255**	**71.2968**	**1.5579**	**72.8547**	**19.7283**	**1.5365**	**21.2648**	**0.0000**	**12,778.8645**	**12,778.8645**	**2.5280**	**0.0000**	**12,831.9528**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	35.46	26.68	19.43	0.06	-251.80	77.79	-167.04	-99.61	76.45	-29.60	0.00	0.07	0.07	0.09	0.00	0.07

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Energy	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Mobile	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Total	**36.6007**	**1.7017**	**48.3444**	**0.0299**	**2.0002**	**5.8222**	**7.8224**	**0.5145**	**5.8209**	**6.3353**	**600.3590**	**1,709.1452**	**2,309.5043**	**0.5352**	**0.0544**	**2,337.6134**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Energy	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Mobile	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Total	**36.6007**	**1.7017**	**48.3444**	**0.0299**	**2.0002**	**5.8222**	**7.8224**	**0.5145**	**5.8209**	**6.3353**	**600.3590**	**1,709.1452**	**2,309.5043**	**0.5352**	**0.0544**	**2,337.6134**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	12/31/2013	5	0	
2	Grading	Grading	6/1/2014	12/1/2014	5	131	
3	Site Preparation	Site Preparation	1/1/2015	3/30/2015	5	63	
4	Paving	Paving	2/1/2015	3/30/2015	5	41	
5	Building Construction	Building Construction	4/1/2015	9/30/2016	5	393	
6	Architectural Coating	Architectural Coating	6/15/2015	10/31/2016	5	361	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.32

Acres of Paving: 0

Residential Indoor: 69,255; Residential Outdoor: 23,085; Non-Residential Indoor: 0; Non-Residential Outdoor: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	5.00	162	0.38
Grading	Graders	2	5.00	174	0.41
Grading	Rubber Tired Dozers	1	5.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	1.00	4,680.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	3.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	7.00	8.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3087	0.0000	5.3087	2.0553	0.0000	2.0553			0.0000			0.0000
Off-Road	2.8525	30.3226	18.3139	0.0206		1.6928	1.6928		1.5574	1.5574		2,184.6835	2,184.6835	0.6456		2,198.2411
Total	**2.8525**	**30.3226**	**18.3139**	**0.0206**	**5.3087**	**1.6928**	**7.0015**	**2.0553**	**1.5574**	**3.6127**		**2,184.6835**	**2,184.6835**	**0.6456**		**2,198.2411**

3.3 Grading - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6301	13.7579	12.8736	0.0260	0.6175	0.2383	0.8558	0.1688	0.2192	0.3880		2,660.1311	2,660.1311	0.0247		2,660.6494
Vendor	0.0267	0.1297	0.1602	2.3000e-004	6.6100e-003	2.4600e-003	9.0700e-003	1.8800e-003	2.2600e-003	4.1400e-003		23.8664	23.8664	2.5000e-004		23.8716
Worker	0.3882	0.1278	1.4269	2.4300e-003	0.2053	1.7600e-003	0.2070	0.0544	1.6000e-003	0.0560		219.5780	219.5780	0.0125		219.8405
Total	**3.0451**	**14.0154**	**14.4607**	**0.0286**	**0.8294**	**0.2426**	**1.0719**	**0.2251**	**0.2231**	**0.4482**		**2,903.5755**	**2,903.5755**	**0.0374**		**2,904.3615**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3889	0.0000	2.3889	0.9249	0.0000	0.9249			0.0000			0.0000
Off-Road	0.7440	18.6965	14.1679	0.0206		0.2693	0.2693		0.2693	0.2693	0.0000	2,182.6792	2,182.6792	0.6450		2,196.2243
Total	**0.7440**	**18.6965**	**14.1679**	**0.0206**	**2.3889**	**0.2693**	**2.6582**	**0.9249**	**0.2693**	**1.1942**	**0.0000**	**2,182.6792**	**2,182.6792**	**0.6450**		**2,196.2243**

3.3 Grading - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6301	13.7579	12.8736	0.0260	62.0200	0.2383	62.2583	15.2403	0.2192	15.4595		2,660.1311	2,660.1311	0.0247		2,660.6494
Vendor	0.0267	0.1297	0.1602	2.3000e-004	6.6100e-003	2.4600e-003	9.0700e-003	1.8800e-003	2.2600e-003	4.1400e-003		23.8664	23.8664	2.5000e-004		23.8716
Worker	0.3882	0.1278	1.4269	2.4300e-003	0.2053	1.7600e-003	0.2070	0.0544	1.6000e-003	0.0560		219.5780	219.5780	0.0125		219.8405
Total	**3.0451**	**14.0154**	**14.4607**	**0.0286**	**62.2319**	**0.2426**	**62.4744**	**15.2966**	**0.2231**	**15.5197**		**2,903.5755**	**2,903.5755**	**0.0374**		**2,904.3615**

3.4 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5497	0.0000	13.5497	7.4480	0.0000	7.4480			0.0000			0.0000
Off-Road	3.9457	42.6673	31.9738	0.0293		2.3162	2.3162		2.1309	2.1309		3,083.8083	3,083.8083	0.9207		3,103.1418
Total	**3.9457**	**42.6673**	**31.9738**	**0.0293**	**13.5497**	**2.3162**	**15.8659**	**7.4480**	**2.1309**	**9.5789**		**3,083.8083**	**3,083.8083**	**0.9207**		**3,103.1418**

3.4 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.4317	0.1375	1.5370	2.9100e-003	0.2463	1.9500e-003	0.2483	0.0653	1.7900e-003	0.0671		255.2562	255.2562	0.0137		255.5433
Total	**0.4565**	**0.2494**	**1.6867**	**3.1400e-003**	**0.2529**	**3.7400e-003**	**0.2567**	**0.0672**	**3.4400e-003**	**0.0706**		**278.8961**	**278.8961**	**0.0139**		**279.1876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0974	0.0000	6.0974	3.3516	0.0000	3.3516			0.0000			0.0000
Off-Road	0.9216	24.3385	17.5341	0.0293		0.3601	0.3601		0.3601	0.3601	0.0000	3,080.9791	3,080.9791	0.9198		3,100.2949
Total	**0.9216**	**24.3385**	**17.5341**	**0.0293**	**6.0974**	**0.3601**	**6.4574**	**3.3516**	**0.3601**	**3.7117**	**0.0000**	**3,080.9791**	**3,080.9791**	**0.9198**		**3,100.2949**

3.4 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.4317	0.1375	1.5370	2.9100e-003	0.2463	1.9500e-003	0.2483	0.0653	1.7900e-003	0.0671		255.2562	255.2562	0.0137		255.5433
Total	**0.4565**	**0.2494**	**1.6867**	**3.1400e-003**	**0.2529**	**3.7400e-003**	**0.2567**	**0.0672**	**3.4400e-003**	**0.0706**		**278.8961**	**278.8961**	**0.0139**		**279.1876**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1437	11.9629	7.1484	0.0103		0.7185	0.7185		0.6610	0.6610		1,083.9542	1,083.9542	0.3236		1,090.7499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**11.9629**	**7.1484**	**0.0103**		**0.7185**	**0.7185**		**0.6610**	**0.6610**		**1,083.9542**	**1,083.9542**	**0.3236**		**1,090.7499**

3.5 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	0.3359	0.4490	7.0000e-004	0.0199	5.3800e-003	0.0252	5.6600e-003	4.9500e-003	0.0106		70.9199	70.9199	6.2000e-004		70.9330
Worker	0.2398	0.0764	0.8539	1.6200e-003	0.1369	1.0900e-003	0.1379	0.0363	9.9000e-004	0.0373		141.8090	141.8090	7.6000e-003		141.9685
Total	**0.3142**	**0.4123**	**1.3029**	**2.3200e-003**	**0.1567**	**6.4700e-003**	**0.1632**	**0.0420**	**5.9400e-003**	**0.0479**		**212.7289**	**212.7289**	**8.2200e-003**		**212.9015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4342	10.0501	7.8285	0.0103		0.1611	0.1611		0.1611	0.1611	0.0000	1,082.9597	1,082.9597	0.3233		1,089.7492
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4342**	**10.0501**	**7.8285**	**0.0103**		**0.1611**	**0.1611**		**0.1611**	**0.1611**	**0.0000**	**1,082.9597**	**1,082.9597**	**0.3233**		**1,089.7492**

3.5 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	0.3359	0.4490	7.0000e-004	0.0199	5.3800e-003	0.0252	5.6600e-003	4.9500e-003	0.0106		70.9199	70.9199	6.2000e-004		70.9330
Worker	0.2398	0.0764	0.8539	1.6200e-003	0.1369	1.0900e-003	0.1379	0.0363	9.9000e-004	0.0373		141.8090	141.8090	7.6000e-003		141.9685
Total	**0.3142**	**0.4123**	**1.3029**	**2.3200e-003**	**0.1567**	**6.4700e-003**	**0.1632**	**0.0420**	**5.9400e-003**	**0.0479**		**212.7289**	**212.7289**	**8.2200e-003**		**212.9015**

3.6 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0095	22.3212	16.0609	0.0219		1.7648	1.7648		1.6666	1.6666		2,171.2679	2,171.2679	0.5201		2,182.1896
Total	**3.0095**	**22.3212**	**16.0609**	**0.0219**		**1.7648**	**1.7648**		**1.6666**	**1.6666**		**2,171.2679**	**2,171.2679**	**0.5201**		**2,182.1896**

3.6 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1984	0.8957	1.1973	1.8700e-003	0.0529	0.0144	0.0673	0.0151	0.0132	0.0283		189.1198	189.1198	1.6600e-003		189.1547
Worker	0.1679	0.0535	0.5977	1.1300e-003	0.0958	7.6000e-004	0.0966	0.0254	6.9000e-004	0.0261		99.2663	99.2663	5.3200e-003		99.3780
Total	**0.3663**	**0.9492**	**1.7950**	**3.0000e-003**	**0.1487**	**0.0151**	**0.1638**	**0.0405**	**0.0139**	**0.0544**		**288.3861**	**288.3861**	**6.9800e-003**		**288.5326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9559	19.2464	15.1719	0.0219		0.4059	0.4059		0.4059	0.4059	0.0000	2,169.2759	2,169.2759	0.5196		2,180.1876
Total	**0.9559**	**19.2464**	**15.1719**	**0.0219**		**0.4059**	**0.4059**		**0.4059**	**0.4059**	**0.0000**	**2,169.2759**	**2,169.2759**	**0.5196**		**2,180.1876**

3.6 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1984	0.8957	1.1973	1.8700e-003	0.0529	0.0144	0.0673	0.0151	0.0132	0.0283		189.1198	189.1198	1.6600e-003		189.1547
Worker	0.1679	0.0535	0.5977	1.1300e-003	0.0958	7.6000e-004	0.0966	0.0254	6.9000e-004	0.0261		99.2663	99.2663	5.3200e-003		99.3780
Total	**0.3663**	**0.9492**	**1.7950**	**3.0000e-003**	**0.1487**	**0.0151**	**0.1638**	**0.0405**	**0.0139**	**0.0544**		**288.3861**	**288.3861**	**6.9800e-003**		**288.5326**

3.6 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7762	21.0412	15.8949	0.0219		1.6287	1.6287		1.5368	1.5368		2,156.3310	2,156.3310	0.5073		2,166.9844
Total	**2.7762**	**21.0412**	**15.8949**	**0.0219**		**1.6287**	**1.6287**		**1.5368**	**1.5368**		**2,156.3310**	**2,156.3310**	**0.5073**		**2,166.9844**

3.6 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1794	0.7820	1.1067	1.8700e-003	0.0529	0.0115	0.0645	0.0151	0.0106	0.0257		187.1666	187.1666	1.4700e-003		187.1975
Worker	0.1563	0.0482	0.5397	1.1300e-003	0.0958	7.2000e-004	0.0965	0.0254	6.6000e-004	0.0261		96.0323	96.0323	4.8800e-003		96.1348
Total	**0.3358**	**0.8302**	**1.6464**	**3.0000e-003**	**0.1487**	**0.0122**	**0.1610**	**0.0405**	**0.0113**	**0.0518**		**283.1990**	**283.1990**	**6.3500e-003**		**283.3323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9559	19.2464	15.1719	0.0219		0.4059	0.4059		0.4059	0.4059	0.0000	2,154.3527	2,154.3527	0.5068		2,164.9963
Total	**0.9559**	**19.2464**	**15.1719**	**0.0219**		**0.4059**	**0.4059**		**0.4059**	**0.4059**	**0.0000**	**2,154.3527**	**2,154.3527**	**0.5068**		**2,164.9963**

3.6 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1794	0.7820	1.1067	1.8700e-003	0.0529	0.0115	0.0645	0.0151	0.0106	0.0257		187.1666	187.1666	1.4700e-003		187.1975
Worker	0.1563	0.0482	0.5397	1.1300e-003	0.0958	7.2000e-004	0.0965	0.0254	6.6000e-004	0.0261		96.0323	96.0323	4.8800e-003		96.1348
Total	**0.3358**	**0.8302**	**1.6464**	**3.0000e-003**	**0.1487**	**0.0122**	**0.1610**	**0.0405**	**0.0113**	**0.0518**		**283.1990**	**283.1990**	**6.3500e-003**		**283.3323**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8132	5.1407	3.8035	5.9400e-003		0.4418	0.4418		0.4418	0.4418		562.8961	562.8961	0.0733		564.4353
Total	**3.7772**	**5.1407**	**3.8035**	**5.9400e-003**		**0.4418**	**0.4418**		**0.4418**	**0.4418**		**562.8961**	**562.8961**	**0.0733**		**564.4353**

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.0240	7.6400e-003	0.0854	1.6000e-004	0.0137	1.1000e-004	0.0138	3.6300e-003	1.0000e-004	3.7300e-003		14.1809	14.1809	7.6000e-004		14.1969
Total	**0.0488**	**0.1196**	**0.2351**	**3.9000e-004**	**0.0203**	**1.9000e-003**	**0.0222**	**5.5200e-003**	**1.7500e-003**	**7.2600e-003**		**37.8209**	**37.8209**	**9.7000e-004**		**37.8412**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2276	4.7005	3.6615	5.9400e-003		0.0950	0.0950		0.0950	0.0950	0.0000	562.3797	562.3797	0.0732		563.9175
Total	**3.1916**	**4.7005**	**3.6615**	**5.9400e-003**		**0.0950**	**0.0950**		**0.0950**	**0.0950**	**0.0000**	**562.3797**	**562.3797**	**0.0732**		**563.9175**

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.0240	7.6400e-003	0.0854	1.6000e-004	0.0137	1.1000e-004	0.0138	3.6300e-003	1.0000e-004	3.7300e-003		14.1809	14.1809	7.6000e-004		14.1969
Total	**0.0488**	**0.1196**	**0.2351**	**3.9000e-004**	**0.0203**	**1.9000e-003**	**0.0222**	**5.5200e-003**	**1.7500e-003**	**7.2600e-003**		**37.8209**	**37.8209**	**9.7000e-004**		**37.8412**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7369	4.7445	3.7678	5.9400e-003		0.3932	0.3932		0.3932	0.3932		562.8961	562.8961	0.0664		564.2897
Total	**3.7009**	**4.7445**	**3.7678**	**5.9400e-003**		**0.3932**	**0.3932**		**0.3932**	**0.3932**		**562.8961**	**562.8961**	**0.0664**		**564.2897**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0224	0.0978	0.1383	2.3000e-004	6.6200e-003	1.4400e-003	8.0600e-003	1.8900e-003	1.3200e-003	3.2100e-003		23.3958	23.3958	1.8000e-004		23.3997
Worker	0.0223	6.8800e-003	0.0771	1.6000e-004	0.0137	1.0000e-004	0.0138	3.6300e-003	9.0000e-005	3.7200e-003		13.7189	13.7189	7.0000e-004		13.7335
Total	**0.0448**	**0.1046**	**0.2155**	**3.9000e-004**	**0.0203**	**1.5400e-003**	**0.0219**	**5.5200e-003**	**1.4100e-003**	**6.9300e-003**		**37.1147**	**37.1147**	**8.8000e-004**		**37.1332**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2276	4.7005	3.6615	5.9400e-003		0.0950	0.0950		0.0950	0.0950	0.0000	562.3797	562.3797	0.0663		563.7720
Total	**3.1916**	**4.7005**	**3.6615**	**5.9400e-003**		**0.0950**	**0.0950**		**0.0950**	**0.0950**	**0.0000**	**562.3797**	**562.3797**	**0.0663**		**563.7720**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0224	0.0978	0.1383	2.3000e-004	6.6200e-003	1.4400e-003	8.0600e-003	1.8900e-003	1.3200e-003	3.2100e-003		23.3958	23.3958	1.8000e-004		23.3997
Worker	0.0223	6.8800e-003	0.0771	1.6000e-004	0.0137	1.0000e-004	0.0138	3.6300e-003	9.0000e-005	3.7200e-003		13.7189	13.7189	7.0000e-004		13.7335
Total	**0.0448**	**0.1046**	**0.2155**	**3.9000e-004**	**0.0203**	**1.5400e-003**	**0.0219**	**5.5200e-003**	**1.4100e-003**	**6.9300e-003**		**37.1147**	**37.1147**	**8.8000e-004**		**37.1332**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Unmitigated	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	227.81	227.81	227.81	508,555	508,555
Total	227.81	227.81	227.81	508,555	508,555

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579581	0.062616	0.176505	0.113545	0.029546	0.004152	0.015698	0.004192	0.002652	0.003672	0.006635	0.000224	0.000983

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
NaturalGas Unmitigated	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2655.84	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Total		**0.0286**	**0.2448**	**0.1042**	**1.5600e-003**		**0.0198**	**0.0198**		**0.0198**	**0.0198**		**312.4513**	**312.4513**	**5.9900e-003**	**5.7300e-003**	**314.3528**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.65584	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Total		**0.0286**	**0.2448**	**0.1042**	**1.5600e-003**		**0.0198**	**0.0198**		**0.0198**	**0.0198**		**312.4513**	**312.4513**	**5.9900e-003**	**5.7300e-003**	**314.3528**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Unmitigated	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	34.0468	0.4502	41.2578	0.0138		5.7784	5.7784		5.7783	5.7783	600.3590	258.1765	858.5355	0.4825	0.0487	883.7622
Landscaping	0.0482	0.0183	1.5753	8.0000e-005		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003		2.8225	2.8225	2.7700e-003		2.8807
Total	**35.0907**	**0.4684**	**42.8331**	**0.0139**		**5.7871**	**5.7871**		**5.7869**	**5.7869**	**600.3590**	**260.9990**	**861.3580**	**0.4852**	**0.0487**	**886.6429**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	34.0468	0.4502	41.2578	0.0138		5.7784	5.7784		5.7783	5.7783	600.3590	258.1765	858.5355	0.4825	0.0487	883.7622
Landscaping	0.0482	0.0183	1.5753	8.0000e-005		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003		2.8225	2.8225	2.7700e-003		2.8807
Total	**35.0907**	**0.4684**	**42.8331**	**0.0139**		**5.7871**	**5.7871**		**5.7869**	**5.7869**	**600.3590**	**260.9990**	**861.3580**	**0.4852**	**0.0487**	**886.6429**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Asencian Heights

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	19.00	Dwelling Unit	6.17	34,200.00	54

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - There will be no demolition needed. It is anticipated that site grading would take 45 days (refer to Section 3 of the EIR). Paving would occur directly after grading and last approximately 6 months (refer to Section 3 of the EIR).

Off-road Equipment - Architectural coating may occur at more than one residential project.

Off-road Equipment - Single family homes would not require a crane.

Off-road Equipment - Grading would occur over 45 days all pieces of equipment would not operate at the same time.

Off-road Equipment - All paving equipment would not operate at the same time.

Off-road Equipment - Site prepartion would occur on individual lots at different times, therefore, it is anticipated that only 50 percent of the normal equipment would operate at once.

Trips and VMT - it is conservitively estimated that trip lenght would be 18 miles.

Vehicle Trips - Trip generation rate is an average based on the Traffic Impact Study provide in the EIR Appendices.

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - The project proponet shall sweep Bel Aire Road three times per day to reduce fugitive PM emissions (refer to Section 5 of the EIR).

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Grading - Total land use is 13.32 acres.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	10
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	361.00
tblConstructionPhase	NumDays	230.00	393.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	20.00	41.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	PhaseEndDate	2/19/2018	10/31/2016
tblConstructionPhase	PhaseEndDate	9/29/2016	9/30/2016
tblConstructionPhase	PhaseEndDate	7/2/2014	12/1/2014
tblConstructionPhase	PhaseEndDate	5/26/2015	3/30/2015
tblConstructionPhase	PhaseEndDate	2/26/2015	3/30/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	6/15/2015
tblConstructionPhase	PhaseStartDate	3/31/2015	4/1/2015
tblConstructionPhase	PhaseStartDate	1/1/2014	6/1/2014
tblConstructionPhase	PhaseStartDate	3/31/2015	2/1/2015
tblConstructionPhase	PhaseStartDate	12/2/2014	1/1/2015
tblGrading	AcresOfGrading	81.88	13.32
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripNumber	5,000.00	4,680.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	2.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblVehicleTrips	ST_TR	10.08	11.99
tblVehicleTrips	SU_TR	8.77	11.99

tblVehicleTrips	WD_TR	9.57	11.99

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.3971	2.9427	2.2620	3.2100e-003	0.4000	0.1268	0.5268	0.1489	0.1166	0.2655	0.0000	301.4418	301.4418	0.0406	0.0000	302.2943
2015	0.7814	4.2820	3.3111	4.1800e-003	0.4530	0.2952	0.7482	0.2417	0.2784	0.5201	0.0000	378.0471	378.0471	0.0848	0.0000	379.8284
2016	0.7144	2.6735	2.1795	3.1200e-003	0.0161	0.2037	0.2198	4.4100e-003	0.1945	0.1989	0.0000	275.3188	275.3188	0.0523	0.0000	276.4168
Total	**1.8929**	**9.8982**	**7.7525**	**0.0105**	**0.8691**	**0.6257**	**1.4948**	**0.3950**	**0.5896**	**0.9845**	**0.0000**	**954.8077**	**954.8077**	**0.1777**	**0.0000**	**958.5395**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.2590	2.1809	1.9902	3.2100e-003	4.0378	0.0336	4.0713	1.0147	0.0323	1.0469	0.0000	301.2874	301.2874	0.0406	0.0000	302.1389
2015	0.4271	3.3300	2.7717	4.1700e-003	0.2183	0.0633	0.2816	0.1127	0.0632	0.1759	0.0000	377.6437	377.6437	0.0847	0.0000	379.4230
2016	0.4807	2.4922	2.0966	3.1200e-003	0.0161	0.0515	0.0676	4.4100e-003	0.0513	0.0557	0.0000	275.0248	275.0248	0.0522	0.0000	276.1216
Total	**1.1668**	**8.0031**	**6.8584**	**0.0105**	**4.2722**	**0.1483**	**4.4205**	**1.1318**	**0.1468**	**1.2785**	**0.0000**	**953.9560**	**953.9560**	**0.1775**	**0.0000**	**957.6834**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**38.36**	**19.15**	**11.53**	**0.10**	**-391.55**	**76.29**	**-195.73**	**-186.53**	**75.10**	**-29.86**	**0.00**	**0.09**	**0.09**	**0.12**	**0.00**	**0.09**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Energy	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	90.1666	90.1666	2.7300e-003	1.3100e-003	90.6294
Mobile	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Waste						0.0000	0.0000		0.0000	0.0000	4.6038	0.0000	4.6038	0.2721	0.0000	10.3175
Water						0.0000	0.0000		0.0000	0.0000	0.7855	5.4866	6.2720	0.0809	1.9600e-003	8.5779
Total	**0.5862**	**0.2426**	**1.3483**	**2.9700e-003**	**0.3479**	**0.0323**	**0.3802**	**0.0897**	**0.0320**	**0.1217**	**8.0266**	**275.1489**	**283.1755**	**0.3689**	**3.4100e-003**	**291.9774**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Energy	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	90.1666	90.1666	2.7300e-003	1.3100e-003	90.6294
Mobile	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Waste						0.0000	0.0000		0.0000	0.0000	4.6038	0.0000	4.6038	0.2721	0.0000	10.3175
Water						0.0000	0.0000		0.0000	0.0000	0.7855	5.4866	6.2720	0.0809	1.9500e-003	8.5766
Total	**0.5862**	**0.2426**	**1.3483**	**2.9700e-003**	**0.3479**	**0.0323**	**0.3802**	**0.0897**	**0.0320**	**0.1217**	**8.0266**	**275.1489**	**283.1755**	**0.3689**	**3.4000e-003**	**291.9762**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.29**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	0.0000
Vegetation Land Change	-35.5200
Total	**-35.5200**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	12/31/2013	5	0	
2	Grading	Grading	6/1/2014	12/1/2014	5	131	
3	Site Preparation	Site Preparation	1/1/2015	3/30/2015	5	63	
4	Paving	Paving	2/1/2015	3/30/2015	5	41	
5	Building Construction	Building Construction	4/1/2015	9/30/2016	5	393	
6	Architectural Coating	Architectural Coating	6/15/2015	10/31/2016	5	361	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.32

Acres of Paving: 0

Residential Indoor: 69,255; Residential Outdoor: 23,085; Non-Residential Indoor: 0; Non-Residential Outdoor: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	5.00	162	0.38
Grading	Graders	2	5.00	174	0.41
Grading	Rubber Tired Dozers	1	5.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	1.00	4,680.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	3.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	7.00	8.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3477	0.0000	0.3477	0.1346	0.0000	0.1346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1868	1.9861	1.1996	1.3500e-003		0.1109	0.1109		0.1020	0.1020	0.0000	129.8152	129.8152	0.0384	0.0000	130.6208
Total	**0.1868**	**1.9861**	**1.1996**	**1.3500e-003**	**0.3477**	**0.1109**	**0.4586**	**0.1346**	**0.1020**	**0.2366**	**0.0000**	**129.8152**	**129.8152**	**0.0384**	**0.0000**	**130.6208**

3.3 Grading - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1810	0.9383	0.9601	1.7000e-003	0.0390	0.0156	0.0546	0.0107	0.0144	0.0251	0.0000	157.9063	157.9063	1.4700e-003	0.0000	157.9373
Vendor	1.8900e-003	8.8100e-003	0.0129	2.0000e-005	4.2000e-004	1.6000e-004	5.8000e-004	1.2000e-004	1.5000e-004	2.7000e-004	0.0000	1.4136	1.4136	1.0000e-005	0.0000	1.4139
Worker	0.0274	9.5200e-003	0.0895	1.5000e-004	0.0129	1.2000e-004	0.0130	3.4300e-003	1.1000e-004	3.5300e-003	0.0000	12.3068	12.3068	7.4000e-004	0.0000	12.3224
Total	**0.2103**	**0.9566**	**1.0625**	**1.8700e-003**	**0.0523**	**0.0159**	**0.0682**	**0.0142**	**0.0146**	**0.0289**	**0.0000**	**171.6266**	**171.6266**	**2.2200e-003**	**0.0000**	**171.6735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1565	0.0000	0.1565	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0487	1.2243	0.9278	1.3500e-003		0.0176	0.0176		0.0176	0.0176	0.0000	129.6608	129.6608	0.0383	0.0000	130.4654
Total	**0.0487**	**1.2243**	**0.9278**	**1.3500e-003**	**0.1565**	**0.0176**	**0.1741**	**0.0606**	**0.0176**	**0.0782**	**0.0000**	**129.6608**	**129.6608**	**0.0383**	**0.0000**	**130.4654**

3.3 Grading - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1810	0.9383	0.9601	1.7000e-003	3.8680	0.0156	3.8836	0.9505	0.0144	0.9649	0.0000	157.9063	157.9063	1.4700e-003	0.0000	157.9373
Vendor	1.8900e-003	8.8100e-003	0.0129	2.0000e-005	4.2000e-004	1.6000e-004	5.8000e-004	1.2000e-004	1.5000e-004	2.7000e-004	0.0000	1.4136	1.4136	1.0000e-005	0.0000	1.4139
Worker	0.0274	9.5200e-003	0.0895	1.5000e-004	0.0129	1.2000e-004	0.0130	3.4300e-003	1.1000e-004	3.5300e-003	0.0000	12.3068	12.3068	7.4000e-004	0.0000	12.3224
Total	**0.2103**	**0.9566**	**1.0625**	**1.8700e-003**	**3.8813**	**0.0159**	**3.8972**	**0.9541**	**0.0146**	**0.9687**	**0.0000**	**171.6266**	**171.6266**	**2.2200e-003**	**0.0000**	**171.6735**

3.4 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4268	0.0000	0.4268	0.2346	0.0000	0.2346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1243	1.3440	1.0072	9.2000e-004		0.0730	0.0730		0.0671	0.0671	0.0000	88.1239	88.1239	0.0263	0.0000	88.6764
Total	**0.1243**	**1.3440**	**1.0072**	**9.2000e-004**	**0.4268**	**0.0730**	**0.4998**	**0.2346**	**0.0671**	**0.3017**	**0.0000**	**88.1239**	**88.1239**	**0.0263**	**0.0000**	**88.6764**

3.4 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4000e-004	3.6600e-003	5.8400e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.6000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.6733	0.6733	1.0000e-005	0.0000	0.6735
Worker	0.0147	4.9300e-003	0.0461	9.0000e-005	7.4400e-003	6.0000e-005	7.5000e-003	1.9800e-003	6.0000e-005	2.0300e-003	0.0000	6.8799	6.8799	3.9000e-004	0.0000	6.8881
Total	**0.0155**	**8.5900e-003**	**0.0520**	**1.0000e-004**	**7.6400e-003**	**1.2000e-004**	**7.7600e-003**	**2.0400e-003**	**1.1000e-004**	**2.1400e-003**	**0.0000**	**7.5532**	**7.5532**	**4.0000e-004**	**0.0000**	**7.5615**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1921	0.0000	0.1921	0.1056	0.0000	0.1056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0290	0.7665	0.5522	9.2000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	88.0191	88.0191	0.0263	0.0000	88.5709
Total	**0.0290**	**0.7665**	**0.5522**	**9.2000e-004**	**0.1921**	**0.0113**	**0.2034**	**0.1056**	**0.0113**	**0.1169**	**0.0000**	**88.0191**	**88.0191**	**0.0263**	**0.0000**	**88.5709**

3.4 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4000e-004	3.6600e-003	5.8400e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.6000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.6733	0.6733	1.0000e-005	0.0000	0.6735
Worker	0.0147	4.9300e-003	0.0461	9.0000e-005	7.4400e-003	6.0000e-005	7.5000e-003	1.9800e-003	6.0000e-005	2.0300e-003	0.0000	6.8799	6.8799	3.9000e-004	0.0000	6.8881
Total	**0.0155**	**8.5900e-003**	**0.0520**	**1.0000e-004**	**7.6400e-003**	**1.2000e-004**	**7.7600e-003**	**2.0400e-003**	**1.1000e-004**	**2.1400e-003**	**0.0000**	**7.5532**	**7.5532**	**4.0000e-004**	**0.0000**	**7.5615**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0235	0.2452	0.1465	2.1000e-004		0.0147	0.0147		0.0136	0.0136	0.0000	20.1586	20.1586	6.0200e-003	0.0000	20.2850
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0235**	**0.2452**	**0.1465**	**2.1000e-004**		**0.0147**	**0.0147**		**0.0136**	**0.0136**	**0.0000**	**20.1586**	**20.1586**	**6.0200e-003**	**0.0000**	**20.2850**

3.5 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	7.1400e-003	0.0114	1.0000e-005	3.9000e-004	1.1000e-004	5.0000e-004	1.1000e-004	1.0000e-004	2.1000e-004	0.0000	1.3146	1.3146	1.0000e-005	0.0000	1.3149
Worker	5.3000e-003	1.7800e-003	0.0167	3.0000e-005	2.6900e-003	2.0000e-005	2.7100e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4874	2.4874	1.4000e-004	0.0000	2.4904
Total	**6.9500e-003**	**8.9200e-003**	**0.0281**	**4.0000e-005**	**3.0800e-003**	**1.3000e-004**	**3.2100e-003**	**8.3000e-004**	**1.2000e-004**	**9.5000e-004**	**0.0000**	**3.8020**	**3.8020**	**1.5000e-004**	**0.0000**	**3.8052**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.9000e-003	0.2060	0.1604	2.1000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0.0000	20.1346	20.1346	6.0100e-003	0.0000	20.2609
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9000e-003**	**0.2060**	**0.1604**	**2.1000e-004**		**3.3000e-003**	**3.3000e-003**		**3.3000e-003**	**3.3000e-003**	**0.0000**	**20.1346**	**20.1346**	**6.0100e-003**	**0.0000**	**20.2609**

3.5 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	7.1400e-003	0.0114	1.0000e-005	3.9000e-004	1.1000e-004	5.0000e-004	1.1000e-004	1.0000e-004	2.1000e-004	0.0000	1.3146	1.3146	1.0000e-005	0.0000	1.3149
Worker	5.3000e-003	1.7800e-003	0.0167	3.0000e-005	2.6900e-003	2.0000e-005	2.7100e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4874	2.4874	1.4000e-004	0.0000	2.4904
Total	**6.9500e-003**	**8.9200e-003**	**0.0281**	**4.0000e-005**	**3.0800e-003**	**1.3000e-004**	**3.2100e-003**	**8.3000e-004**	**1.2000e-004**	**9.5000e-004**	**0.0000**	**3.8020**	**3.8020**	**1.5000e-004**	**0.0000**	**3.8052**

3.6 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2964	2.1986	1.5820	2.1600e-003		0.1738	0.1738		0.1642	0.1642	0.0000	194.0195	194.0195	0.0465	0.0000	194.9954
Total	**0.2964**	**2.1986**	**1.5820**	**2.1600e-003**		**0.1738**	**0.1738**		**0.1642**	**0.1642**	**0.0000**	**194.0195**	**194.0195**	**0.0465**	**0.0000**	**194.9954**

3.6 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.0915	0.1461	1.8000e-004	5.0300e-003	1.4200e-003	6.4500e-003	1.4400e-003	1.3100e-003	2.7500e-003	0.0000	16.8441	16.8441	1.5000e-004	0.0000	16.8472
Worker	0.0178	5.9900e-003	0.0561	1.1000e-004	9.0400e-003	7.0000e-005	9.1200e-003	2.4100e-003	7.0000e-005	2.4700e-003	0.0000	8.3663	8.3663	4.8000e-004	0.0000	8.3762
Total	**0.0390**	**0.0975**	**0.2022**	**2.9000e-004**	**0.0141**	**1.4900e-003**	**0.0156**	**3.8500e-003**	**1.3800e-003**	**5.2200e-003**	**0.0000**	**25.2103**	**25.2103**	**6.3000e-004**	**0.0000**	**25.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0941	1.8953	1.4940	2.1500e-003		0.0400	0.0400		0.0400	0.0400	0.0000	193.7887	193.7887	0.0464	0.0000	194.7635
Total	**0.0941**	**1.8953**	**1.4940**	**2.1500e-003**		**0.0400**	**0.0400**		**0.0400**	**0.0400**	**0.0000**	**193.7887**	**193.7887**	**0.0464**	**0.0000**	**194.7635**

3.6 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.0915	0.1461	1.8000e-004	5.0300e-003	1.4200e-003	6.4500e-003	1.4400e-003	1.3100e-003	2.7500e-003	0.0000	16.8441	16.8441	1.5000e-004	0.0000	16.8472
Worker	0.0178	5.9900e-003	0.0561	1.1000e-004	9.0400e-003	7.0000e-005	9.1200e-003	2.4100e-003	7.0000e-005	2.4700e-003	0.0000	8.3663	8.3663	4.8000e-004	0.0000	8.3762
Total	**0.0390**	**0.0975**	**0.2022**	**2.9000e-004**	**0.0141**	**1.4900e-003**	**0.0156**	**3.8500e-003**	**1.3800e-003**	**5.2200e-003**	**0.0000**	**25.2103**	**25.2103**	**6.3000e-004**	**0.0000**	**25.2234**

3.6 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2721	2.0620	1.5577	2.1400e-003		0.1596	0.1596		0.1506	0.1506	0.0000	191.7067	191.7067	0.0451	0.0000	192.6538
Total	**0.2721**	**2.0620**	**1.5577**	**2.1400e-003**		**0.1596**	**0.1596**		**0.1506**	**0.1506**	**0.0000**	**191.7067**	**191.7067**	**0.0451**	**0.0000**	**192.6538**

3.6 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0190	0.0795	0.1360	1.8000e-004	5.0100e-003	1.1300e-003	6.1400e-003	1.4300e-003	1.0400e-003	2.4800e-003	0.0000	16.5853	16.5853	1.3000e-004	0.0000	16.5880
Worker	0.0165	5.3800e-003	0.0502	1.0000e-004	9.0000e-003	7.0000e-005	9.0700e-003	2.3900e-003	6.0000e-005	2.4600e-003	0.0000	8.0524	8.0524	4.3000e-004	0.0000	8.0615
Total	**0.0356**	**0.0848**	**0.1862**	**2.8000e-004**	**0.0140**	**1.2000e-003**	**0.0152**	**3.8200e-003**	**1.1000e-003**	**4.9400e-003**	**0.0000**	**24.6376**	**24.6376**	**5.6000e-004**	**0.0000**	**24.6495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0937	1.8856	1.4864	2.1400e-003		0.0398	0.0398		0.0398	0.0398	0.0000	191.4786	191.4786	0.0451	0.0000	192.4246
Total	**0.0937**	**1.8856**	**1.4864**	**2.1400e-003**		**0.0398**	**0.0398**		**0.0398**	**0.0398**	**0.0000**	**191.4786**	**191.4786**	**0.0451**	**0.0000**	**192.4246**

3.6 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0190	0.0795	0.1360	1.8000e-004	5.0100e-003	1.1300e-003	6.1400e-003	1.4300e-003	1.0400e-003	2.4800e-003	0.0000	16.5853	16.5853	1.3000e-004	0.0000	16.5880
Worker	0.0165	5.3800e-003	0.0502	1.0000e-004	9.0000e-003	7.0000e-005	9.0700e-003	2.3900e-003	6.0000e-005	2.4600e-003	0.0000	8.0524	8.0524	4.3000e-004	0.0000	8.0615
Total	**0.0356**	**0.0848**	**0.1862**	**2.8000e-004**	**0.0140**	**1.2000e-003**	**0.0152**	**3.8200e-003**	**1.1000e-003**	**4.9400e-003**	**0.0000**	**24.6376**	**24.6376**	**5.6000e-004**	**0.0000**	**24.6495**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0586	0.3701	0.2739	4.3000e-004		0.0318	0.0318		0.0318	0.0318	0.0000	36.7669	36.7669	4.7900e-003	0.0000	36.8674
Total	**0.2720**	**0.3701**	**0.2739**	**4.3000e-004**		**0.0318**	**0.0318**		**0.0318**	**0.0318**	**0.0000**	**36.7669**	**36.7669**	**4.7900e-003**	**0.0000**	**36.8674**

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	8.3600e-003	0.0134	2.0000e-005	4.6000e-004	1.3000e-004	5.9000e-004	1.3000e-004	1.2000e-004	2.5000e-004	0.0000	1.5391	1.5391	1.0000e-005	0.0000	1.5393
Worker	1.8600e-003	6.3000e-004	5.8600e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8736	0.8736	5.0000e-005	0.0000	0.8747
Total	**3.7900e-003**	**8.9900e-003**	**0.0192**	**3.0000e-005**	**1.4000e-003**	**1.4000e-004**	**1.5400e-003**	**3.8000e-004**	**1.3000e-004**	**5.1000e-004**	**0.0000**	**2.4127**	**2.4127**	**6.0000e-005**	**0.0000**	**2.4140**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0164	0.3384	0.2636	4.3000e-004		6.8400e-003	6.8400e-003		6.8400e-003	6.8400e-003	0.0000	36.7231	36.7231	4.7800e-003	0.0000	36.8235
Total	**0.2298**	**0.3384**	**0.2636**	**4.3000e-004**		**6.8400e-003**	**6.8400e-003**		**6.8400e-003**	**6.8400e-003**	**0.0000**	**36.7231**	**36.7231**	**4.7800e-003**	**0.0000**	**36.8235**

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	8.3600e-003	0.0134	2.0000e-005	4.6000e-004	1.3000e-004	5.9000e-004	1.3000e-004	1.2000e-004	2.5000e-004	0.0000	1.5391	1.5391	1.0000e-005	0.0000	1.5393
Worker	1.8600e-003	6.3000e-004	5.8600e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8736	0.8736	5.0000e-005	0.0000	0.8747
Total	**3.7900e-003**	**8.9900e-003**	**0.0192**	**3.0000e-005**	**1.4000e-003**	**1.4000e-004**	**1.5400e-003**	**3.8000e-004**	**1.3000e-004**	**5.1000e-004**	**0.0000**	**2.4127**	**2.4127**	**6.0000e-005**	**0.0000**	**2.4140**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.5148	0.4088	6.4000e-004		0.0427	0.0427		0.0427	0.0427	0.0000	55.4056	55.4056	6.5300e-003	0.0000	55.5428
Total	**0.4016**	**0.5148**	**0.4088**	**6.4000e-004**		**0.0427**	**0.0427**		**0.0427**	**0.0427**	**0.0000**	**55.4056**	**55.4056**	**6.5300e-003**	**0.0000**	**55.5428**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6300e-003	0.0110	0.0188	3.0000e-005	6.9000e-004	1.6000e-004	8.5000e-004	2.0000e-004	1.4000e-004	3.4000e-004	0.0000	2.2953	2.2953	2.0000e-005	0.0000	2.2957
Worker	2.6100e-003	8.5000e-004	7.9400e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2736	1.2736	7.0000e-005	0.0000	1.2750
Total	**5.2400e-003**	**0.0118**	**0.0268**	**5.0000e-005**	**2.1100e-003**	**1.7000e-004**	**2.2800e-003**	**5.8000e-004**	**1.5000e-004**	**7.3000e-004**	**0.0000**	**3.5689**	**3.5689**	**9.0000e-005**	**0.0000**	**3.5707**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.5099	0.3972	6.4000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	55.3397	55.3397	6.5200e-003	0.0000	55.4767
Total	**0.3463**	**0.5099**	**0.3972**	**6.4000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**55.3397**	**55.3397**	**6.5200e-003**	**0.0000**	**55.4767**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6300e-003	0.0110	0.0188	3.0000e-005	6.9000e-004	1.6000e-004	8.5000e-004	2.0000e-004	1.4000e-004	3.4000e-004	0.0000	2.2953	2.2953	2.0000e-005	0.0000	2.2957
Worker	2.6100e-003	8.5000e-004	7.9400e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2736	1.2736	7.0000e-005	0.0000	1.2750
Total	**5.2400e-003**	**0.0118**	**0.0268**	**5.0000e-005**	**2.1100e-003**	**1.7000e-004**	**2.2800e-003**	**5.8000e-004**	**1.5000e-004**	**7.3000e-004**	**0.0000**	**3.5689**	**3.5689**	**9.0000e-005**	**0.0000**	**3.5707**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Unmitigated	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	227.81	227.81	227.81	508,555	508,555
Total	227.81	227.81	227.81	508,555	508,555

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579581	0.062616	0.176505	0.113545	0.029546	0.004152	0.015698	0.004192	0.002652	0.003672	0.006635	0.000224	0.000983

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.4368	38.4368	1.7400e-003	3.6000e-004	38.5848
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.4368	38.4368	1.7400e-003	3.6000e-004	38.5848
NaturalGas Mitigated	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
NaturalGas Unmitigated	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	969380	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
Total		**5.2300e-003**	**0.0447**	**0.0190**	**2.9000e-004**		**3.6100e-003**	**3.6100e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**51.7298**	**51.7298**	**9.9000e-004**	**9.5000e-004**	**52.0446**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	969380	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
Total		**5.2300e-003**	**0.0447**	**0.0190**	**2.9000e-004**		**3.6100e-003**	**3.6100e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**51.7298**	**51.7298**	**9.9000e-004**	**9.5000e-004**	**52.0446**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	132125	38.4368	1.7400e-003	3.6000e-004	38.5848
Total		**38.4368**	**1.7400e-003**	**3.6000e-004**	**38.5848**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	132125	38.4368	1.7400e-003	3.6000e-004	38.5848
Total		**38.4368**	**1.7400e-003**	**3.6000e-004**	**38.5848**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Unmitigated	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0482					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1117	2.1100e-003	0.1721	1.8000e-004		0.0251	0.0251		0.0251	0.0251	2.6372	0.7366	3.3738	5.7000e-003	1.4000e-004	3.5366
Landscaping	4.3400e-003	1.6400e-003	0.1418	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.3000e-004	0.0000	0.2352
Total	**0.2978**	**3.7500e-003**	**0.3139**	**1.9000e-004**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**2.6372**	**0.9671**	**3.6043**	**5.9300e-003**	**1.4000e-004**	**3.7718**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0482					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1117	2.1100e-003	0.1721	1.8000e-004		0.0251	0.0251		0.0251	0.0251	2.6372	0.7366	3.3738	5.7000e-003	1.4000e-004	3.5366
Landscaping	4.3400e-003	1.6400e-003	0.1418	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.3000e-004	0.0000	0.2352
Total	**0.2978**	**3.7500e-003**	**0.3139**	**1.9000e-004**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**2.6372**	**0.9671**	**3.6043**	**5.9300e-003**	**1.4000e-004**	**3.7718**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.2720	0.0809	1.9500e-003	8.5766
Unmitigated	6.2720	0.0809	1.9600e-003	8.5779

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	6.2720	0.0809	1.9600e-003	8.5779
Total		**6.2720**	**0.0809**	**1.9600e-003**	**8.5779**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	6.2720	0.0809	1.9500e-003	8.5766
Total		**6.2720**	**0.0809**	**1.9500e-003**	**8.5766**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.6038	0.2721	0.0000	10.3175
Unmitigated	4.6038	0.2721	0.0000	10.3175

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.68	4.6038	0.2721	0.0000	10.3175
Total		**4.6038**	**0.2721**	**0.0000**	**10.3175**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.68	4.6038	0.2721	0.0000	10.3175
Total		**4.6038**	**0.2721**	**0.0000**	**10.3175**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-35.5200	0.0000	0.0000	-35.5200

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Trees	13.32 / 13	-35.5200	0.0000	0.0000	-35.5200
Total		**-35.5200**	**0.0000**	**0.0000**	**-35.5200**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Mixed Hardwood	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

DISPERSION MODEL OUTPUT FILES

FILE: c:\HARP\projects\demo\Rep_PMI.txt

EXCEPTION REPORT
(there have been no changes or exceptions)

RECEPTORS WITH HIGHEST CANCER RISK

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10
199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10
139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10

258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

RECEPTORS WITH HIGHEST CHRONIC HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10
199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10

139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

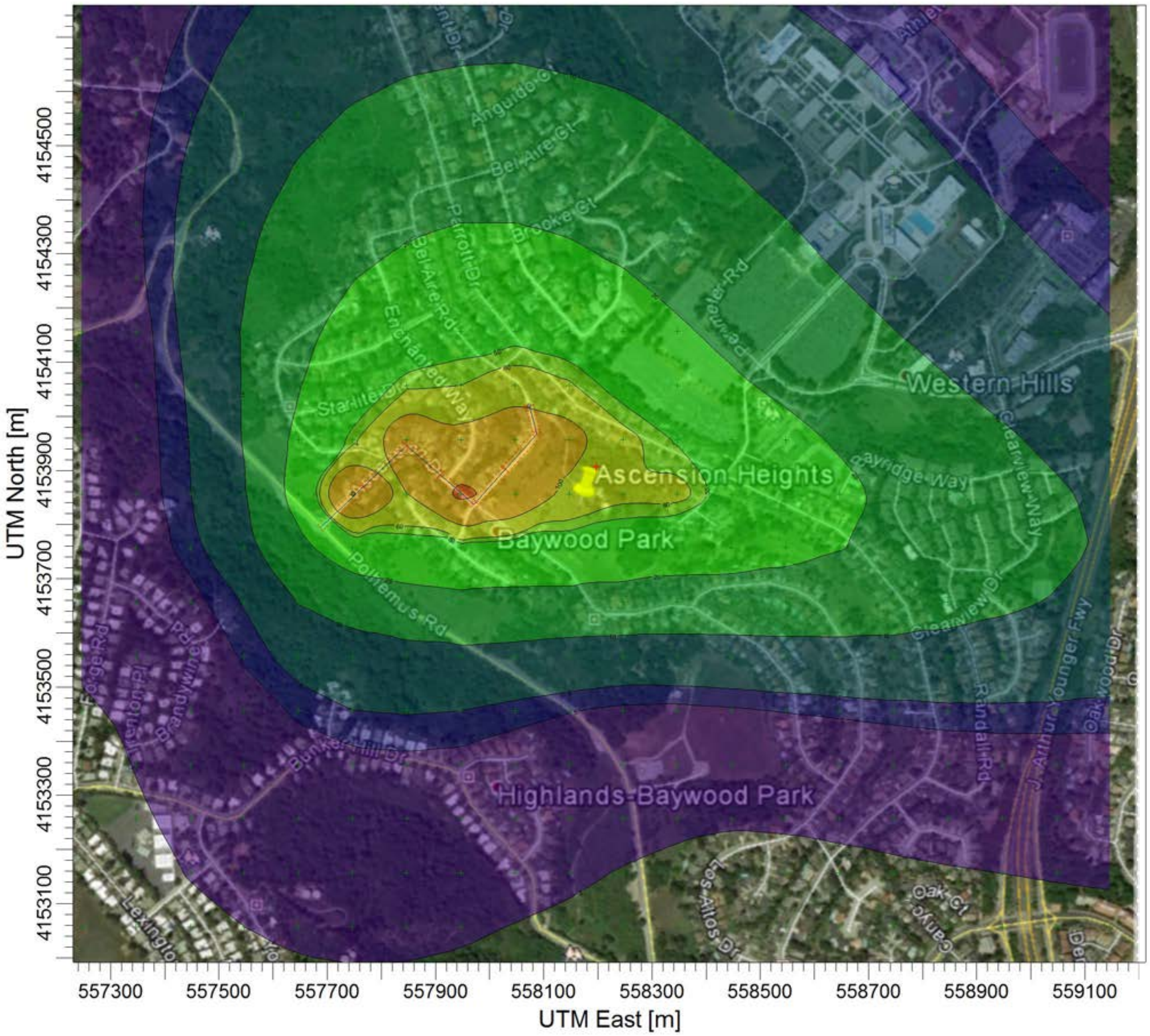
RECEPTORS WITH HIGHEST ACUTE HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10

199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10
139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

PROJECT TITLE:

C:\Lakes\AERMOD View\Ascension Height - SFO\Ascension Height - SFO.i



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL — ug/m^3

2	5	6	10	20	50	60	100	200	225

COMMENTS:	SOURCES:	COMPANY NAME:	
	2		
	RECEPTORS:	MODELER:	
	400		
	OUTPUT TYPE:	SCALE: 1:12,460	
	Concentration	0 — 0.4 km	
	MAX:	DATE:	PROJECT NO.:
	224.96063 ug/m^3	**12/20/2013**	

APPENDIX D

BIOLOGICAL RESOURCES: SPECIAL STATUS SPECIES LISTS

APPENDIX D
REGIONALLY OCCURRING FEDERAL, STATE, AND CNPS LISTED SPECIAL-STATUS SPECIES

PROJECT ELEVATION: 410-610 FEET (124-185 METERS)

HABITAT: COAST OAK WOODLAND, COYOTE BRUSH SCRUB, KNOBCONE PINE FOREST, EUCALYPTUS GROVE, RUDERAL DISTURBED, RUDERAL GRASSLAND

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
PLANTS					
Acanthomintha duttonii San Mateo thorn-mint	FE/CE/1B	Known only to occur in San Mateo County. Known from only two extant natural occurrences and one introduced population (CNPS, 2013).	Found in serpentine soils within chaparral and valley and foothill grassland from 50-300 meters elevation (CNPS, 2013).	April-June	No. Serpentine soils are not found on the project site.
Allium peninsulare var. *franciscanum* Franciscan onion	--/--/1B	Known to occur in Mendocino, Santa Clara, San Mateo, and Sonoma Counties (CNPS, 2013).	Perennial bulbiferous herb found in volcanic, often serpentinite soils of cismontane woodland and valley and foothill grassland/clay from 52-300 meters elevation (CNPS, 2013).	May-July	No. Serpentine soils are not found on the project site.
Amsinckia lunaris Bent-flowered fiddleneck	--/--/1B	Known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo Counties (CNPS, 2013).	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 3-500 meters elevation (CNPS, 2013).	March-June	Yes. Refer to text.
Arctostaphylos andersonii Santa Cruz manzanita	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo Counties. Often confused with other species that have merged with it as varieties (CNPS, 2013).	Perennial evergreen shrub found in openings and edges in broad-leafed upland forest, chaparral, and north coast coniferous forest from 60-730 meters elevation (CNPS, 2013).	November-April	Manzanita species are perennial evergreen shrubs that are identifiable throughout the year. No manzanita was observed within the project site. This species does not have the potential to occur within the project site.
Arctostaphylos montaraensis Montara manzanita	--/--/1B	Known to occur in San Mateo County (CNPS, 2013).	Perennial evergreen shrub found in chaparral (maritime) and coastal scrub from 150-500 meters elevation (CNPS, 2013).	January-March	Manzanita species are perennial evergreen shrubs that are identifiable throughout the year. No manzanita species were observed within the project site. This species does not have the potential to occur within the project site.
Arctostaphylos regismontana Kings Mountain manzanita	--/--/1B	Known to occur in Santa Clara, Santa Cruz and, San Mateo Counties (CNPS, 2013).	Perennial evergreen shrub found on granitic or sandstone soils in broad-leafed upland forest, chaparral, and north coast coniferous forest	January-April	Manzanita species are perennial evergreen shrubs that are identifiable

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
			from 305-730 meters elevation (CNPS, 2013).		throughout the year. No manzanita species were observed within the project site. This species does not have the potential to occur within the project site.
Astragalus pycnostachyus var *pycnostachyus* coastal marsh milk-vetch	--/--/1B	Known to occur in Humboldt, Mendocino, Marin, and San Mateo Counties (CNPS, 2013).	Found in mesic coastal dunes, coastal scrub, and in streamsides and coastal salt marshes and swamps from 0-30 meters elevation (CNPS, 2013).	April-October	No. The project site occurs above the known elevation range for this species
Centromadia parryi ssp. *parryi* pappose tarplant	--/--/1B	Known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), and valley and foothill grassland (vernally mesic)/often alkaline from 2-420 meters elevation (CNPS, 2013).	May-November	The nonnative grassland provides habitat for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period. This species does not occur within the project site.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's beak	--/--/1B	Known to occur in Alameda, Humboldt, Marin, Santa Clara, San Francisco, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in marshes and swamps (coastal salt) from 0-10 meters elevation (CNPS, 2013).	June-October	No. The project site occurs above the known elevation range for this species
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	--/--/1B	Known to occur in Alameda (though may be extirpated), Marin, San Francisco, San Mateo, and Sonoma (uncertain) Counties (CNPS, 2013).	Found in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub/sandy from 3-215 meters elevation (CNPS, 2013).	April-August	No. The project site does not contain suitable habitat for this species.
Cirsium andrewsii Franciscan thistle	--/--/1B	Known to occur in Contra Costa, Marin, San Francisco, San Mateo, and Sonoma (though may be extirpated/uncertain) Counties (CNPS, 2013).	Found in broadleafed upland forest, coastal scrub, coastal prairie, and coastal scrub/mesic, sometimes serpentinite, from 0-150 meters elevation (CNPS, 2013).	March-July	No. The project site does not contain habitat to support this species.
Cirsium fontinale var. *fontinale* Crystal Springs fountain thistle	--/--/1B	Known to occur in San Mateo County (CNPS, 2013).	Found in serpentinite seeps of chaparral (openings), cismontane woodland, and valley and foothill grassland from 45-175 meters elevation (CNPS, 2013).	May-October	No. Serpentine soils are not found on the project site.
Collinsia multicolor San Francisco collinsia	--/--/1B	Known to occur in Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo	Found in closed-cone coniferous forest and coastal scrub/sometimes serpentinite from 30-	March-May	Yes. Refer to text.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		Counties (CNPS, 2013).	250 meters elevation (CNPS, 2013).		
Dirca occidentalis western leatherwood	--/--/1B	Known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland/mesic from 50-395 meters elevation (CNPS, 2013).	January-April	Yes. However, presence is unlikely because the nearest occurrence is located more than 5 miles from the project site.
Eriophyllum latilobum San Mateo wooly sunflower	FE/CE/1B	Known to occur in San Mateo County. Known from only two extant occurrences (CNPS, 2013).	Found in cismontane woodland, often in serpentine soil on roadcuts, from 45-150 meters elevation (CNPS, 2013).	May-June	Yes. Although, presence is unlikely due to elevation constraints.
Fritillaria biflora var. ineziana Hillsborough chocolate lily	--/--/1B	Known to occur in Alameda, Monterey, San Benito, Santa Clara, and Stanislaus Counties (CNPS, 2013).	Found in cismontane woodland and valley and foothill grassland (serpentinite) and has been documented at 300 and 525 meters in elevation (CNPS, 2013).	March-April	No. The project site occurs outside of the known geographic range for this species, nor does the project site provide serpentine soils to support this species.
Fritillaria lanceolata var. *tristulis* Marin checker lily	--/--/1B	Known only to occur in Marin and San Mateo Counties (CNPS, 2013).	Found in coastal bluff scrub, coastal prairie, and coastal scrub from 15-150 meters elevation (CNPS, 2013).	February-May	No. The project site occurs above the known elevation for this species.
Fritillaria liliacea Fragrant fritillary	--/--/1B	Known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands/often serpentinite from 3-410 meters elevation (CNPS, 2013).	February-April	Yes. Refer to text.
Hesperevax sparsiflora var. brevifolia Short-leaved evax	--/--/1B	Known to occur in Del Norte, Humboldt, Mendocino, Marin, Santa Cruz, San Francisco*, San Mateo, and Sonoma Counties in California and Oregon state (CNPS, 2013).	Found in coastal bluff scrub (sandy) and coastal dunes from 0-215 meters elevation (CNPS, 2013).	March-June	No. Habitat to support this species does not occur on the project site.
Hesperolinon congestum Marin western flax	FT/CT/1B	Known to occur in Marin, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in chaparral and valley and foothill grassland/serpentinite from 5-370 meters elevation (CNPS, 2013).	April-July	No. Serpentine soils are not found on the project site.
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	--/--/1B	Known to occur in Alameda (though may be extirpated), Monterey, Marin (though may be extirpated), Santa Barbara, Santa Cruz, San Francisco (though may be extirpated), San Luis Obispo, and San Mateo Counties (CNPS, 2013).	Found in closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub/sandy or gravelly, openings from 10-200 meters elevation (CNPS, 2013).	April-September	No. Habitat to support this species does not occur on the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Horkelia marinensis Point Reyes horkelia	--/--/1B	Known to occur in Mendocino, Marin, Santa Cruz, San Mateo, and Sonoma Counties. Known from fewer than twenty occurrences (CNPS, 2013).	Found in sandy areas of coastal dunes, coastal prairie, and coastal scrub from 5-350 meters elevation (CNPS, 2013).	May-September	No. Habitat to support this species does not occur on the project site.
Leptosiphon croceus coast yellow leptosiphon	--/--/1B	Known to occur in Monterey, Marin, and San Mateo Counties. Now known only from one occurrence near Moss Beach (CNPS, 2013).	Found in coastal bluff scrub and coastal prairie from 10-150 meters elevation (CNPS, 2013).	April-May	No. Habitat to support this species does not occur on the project site.
Leptosiphon rosaceus rose leptosiphon	--/--/1B	Known to occur in Marin, San Francisco (though may be extirpated), San Mateo, and Sonoma (though may be extirpated) Counties (CNPS, 2013).	Found in coastal bluff scrub from 0-100 meters elevation (CNPS, 2013).	April-July	No. The project site occurs above the known elevation range for this species
Lessingia arachnoidea Crystal Springs lessingia	--/--/1B	Known to occur in San Mateo and Sonoma counties (CNPS, 2013).	Found in cismontane woodland, coastal scrub, and valley and foothill grassland, in serpentine soils, often roadsides, from 60-200 meters elevation (CNPS, 2013).	July-October	No. Serpentine soils do not occur on the subject property.
Lilium maritimum Coast lily	--/--/1B	Known to occur in Del Norte and Humboldt Counties in California, and in Oregon (CNPS, 2013).	Found in broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, marshes and swamps, north coast coniferous forest, sometimes roadsides, from 5-475 meters elevation (CNPS, 2013).	May-August	No. The project site occurs outside of the known geographic range for this species. The project site does not provide habitat for this species.
Malacothamnus aboriginum Indian Valley bush mallow	--/--/1B	Known to occur in Fresno, Monterey, San Benito, and San Mateo Counties. Geographical range is limited to the Inner South Coast Range and Peninsular Range regions of the California Floristic Province (CNPS, 2013).	Found in chaparral and cismontane woodland on rocky, granitic soils (often in burned areas from 150-1,700 meters elevation (CNPS, 2013).	April-October	Yes. The chaparral and oak woodland provide habitat for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period.
Malacothamnus arcuatus Arcuate bush mallow	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo Counties (CNPS, 2013).	Found in chaparral and cismontane woodland from 15-355 meters elevation (CNPS, 2013).	April-September	Yes. Woodland present on the subject site provides habitat for this species.
Malacothamnus davidsonii Davidson’s bush-mallow	--/--/1B	Known to occur in Los Angeles, Monterey, Santa Clara, San Luis Obispo, and San Mateo Counties (CNPS, 2013).	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland from 185–855 meters elevation (CNPS, 2013).	June-January	Yes. The project site occurs just below the known elevation range for this species. Although unlikely this species may

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
					occur within the project site.
Malacothamnus hallii Hall's bush-mallow	--/--/1B	Known to occur in Contra Costa, Lake, Mendocino, Merced, Santa Clara, San Mateo and Stanislaus Counties.	Found in chaparral and coastal scrub from 10-760 meters elevation (CNPS, 2013).	May-October	No. The project site does not provide habitat for this species.
Monolopia gracilens Woodland woolythreads	--/--/1B	Known to occur in Alameda, Contra Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo, and San Mateo Counties.	Found in serpentine soils of broadleafed upland forest openings, chaparral openings, cismontane woodland, North Coast coniferous forest openings and valley and foothill grassland from 100-1200 meters elevation (CNPS, 2013).	March-July	No. The project site does not provide serpentine habitat for this species.
Navarretia myersii ssp. myersii pincushion navarretia	--/--/1B	Known from Amador, Calaveras, Merced, Placer, and Sacramento Counties (CNPS, 2013).	Found in vernal pools from 20-330 meters elevation (CNPS, 2013).	April-May	No. The project site occurs outside of the known geographic range for this species.
Pedicularis dudleyi Dudley's lousewort	--/CR/1B	Known to occur in Monterey, Santa Cruz*, San Luis Obispo, and San Mateo Counties.	Found in chaparral, cismontane woodland, North Coast coniferous forests, and valley and foothill grasslands from 60-900 meters (CNPS, 2013).	April-June	Yes. Refer to text.
Pentachaeta bellidiflora white-rayed pentachaeta	FE/CE/1B	Known to occur in Marin (though may be extirpated), Santa Cruz (though may be extirpated), and San Mateo Counties (CNPS, 2013).	Found in cismontane woodland and valley and foothill grassland (often serpentinite), from 35-620 meters elevation (CNPS, 2013).	March-May	Yes. Refer to text.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcorn-flower	--/--/1B	Known to occur in Alameda (though may be extirpated/uncertain), Santa Cruz, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in chaparral, coastal prairie, and coastal scrub/mesic from 15-160 meters elevation (CNPS, 2013).	March-June	No. The project site does not provide habitat for this species.
Polemonium carneum Oregon polemonium	--/--/2	Known to occur in Alameda, Del Norte, Humboldt, Marin, San Francisco, Siskiyou, San Mateo, and Sonoma Counties in California and Oregon and Washington states (CNPS, 2013).	Found in coastal prairie, coastal scrub, and lower montane coniferous forest from 0-1,830 meters elevation (CNPS, 2013).	April-September	No. The project site does not provide habitat for this species.
Potentilla hickmanii Hickman's cinquefoil	FE/CE/1B	Known to occur in Monterey, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in coastal bluff scrub, closed-cone coniferous forest, vernally mesic meadows and seeps, and freshwater marshes and swamps from 10-149 meters elevation (CNPS, 2013).	April-August	No. The project site does not provide habitat for this species.
Silene verecunda ssp. *verecunda* San Francisco campion	--/--/1B	Known to occur in Santa Cruz, San Francisco, San Mateo, and Sutter Counties (CNPS, 2013).	Found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland/sandy from 30-645 meters elevation	March- August	Yes. The nonnative grassland and oak woodland provide habitat

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
			(CNPS, 2013).		for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period.
Trifolium hydrophilum Saline clover	--/--/1B	Known to occur in Alameda, Colusa (uncertain about distribution or identity), Monterey, Napa, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools from 0-300 meters elevation (CNPS, 2013).	April-June	No. The project site does not provide habitat to support this species.
Triphysaria floribunda San Francisco owl's clover	--/--/1B	Known to occur in Marin, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in coastal prairie, coastal scrub, and valley and foothill grassland/usually serpentinite from 10-160 meters elevation (CNPS, 2013).	April-June	No. Serpentine soils are not found on the project site.
Triquetrella californica coastal triquetrella	--/--/1B	Known to occur in Contra Costa, Del Norte, Mendocino, Marin, San Diego, San Francisco, San Mateo, and Sonoma Counties. Also occurs in Oregon (CNPS, 2013).	Found in coastal bluff scrub and coastal scrub/soil from 10-100 meters elevation (CNPS, 2013).	N/A	No. The project site occurs above the known elevation range for this species.
INVERTEBRATES					
Branchinect lynchi Vernal Pool Fairy Shrimp	FT/--/--	Known to occur in many California counties including Monterey and San Luis Obispo Counties (NatureServe, 2013).	Inhabits vernal pools and similar ephemeral wetlands. Common in grass- or mud-bottomed pools and rock outcrop pools (NatureServe, 2013).	Early December-May	No. The project site does not provide habitat for this species.
Callophrys mossii bayensis San Bruno elfin butterfly	FE/--/--	Known to occur in the coastal mountains of the San Francisco Bay. Counties include Contra Costa, Marin, and San Mateo.	Found in coastal mountains within the fog-belt of steep north facing slopes that receive little direct sunlight. Larval food plant is stonecrop (*Sedum spathulifolium*). This low growing succulent food plant occurs in rocky outcrops within 275-330 meters elevation. Adult food plants also include Montara Mountain manzanita (*Arctostaphylos montaraensis*) and huckleberry (*Vaccinium ovatum*).	February-April (mating flight) Wet Season (larvae)	No. The project site does not provide habitat for this species. The project site is below the elevation range of this species.
Euphydryas editha bayensis bay checkerspot butterfly	FT/--/--	Known exclusively to five regions; one on the San Francisco peninsula, one in San	Found in habitats on serpentine soils. Larval host plant is dwarf plantain (*Plantago erecta*).	February-May (mating flight)	No. The project site does not provide habitat for this

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		Mateo County, and four in Santa Clara County.	If dwarf plantain is unavailable, larvae may also use purple owl's clover (*Castilleja densiflora* or *C. exserta*).	Wet Season (larvae)	species. Serpentine soils are absent from the project site.
Haliotis cracherodii Black abalone	FE/--/--	Known to occur in Santa Barbara and Ventura Counties (NatureServe, 2013).	This marine species occurs from the high intertidal zone to 6 meters in depth on a variety of surfaces with cracks and crevices crucial to development (NatureServe, 2013).	Consult Agency.	No. The project site does not provide habitat for this species.
Haliotis sorenseni White abaline	FE/--/--	Known to occur in the Pacific Ocean along the California coastline.	This marine species occurs at depths greater than 26 meters along rocky crevices with kelp.	Consult Agency.	No. The project site does not provide habitat for this species.
Plebejus icarioides missionensis (icaricia Mission blue butterfly	FE/--/--	Known only from a few small populations located at Twin Peaks in San Francisco County, Fort Baker in Marin County, and San Bruno Mountain in San Mateo County.	Found in coastal chaparral and coastal prairie communities, typically within the fog-belt of the coastal range. Larval food plant is lupine (*Lupinus albifrons, L. formosus, and L. variicolor*). Adults feed on lupine, hairy golden aster (*Heterotheca villosa*), blue dicks (*Dichelostemma capitatum*), and buckwheat (*Eriogonum latifolium*). Elevation: 210-360 meters.	March-July (mating flight) Wet Season (larvae)	Yes. Although the project site occurs below the known elevation range of this species, potential host plants have been identified in association with the project site.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/--/--	Current distribution is limited. Known to occur at the Estero de San Antonia in Marin County, south to Bodega Bay in Sonoma County.	Found in coastal dunes, coastal bluff scrub, non-native annual grassland, and coastal prairie habitats. Larval food plant is western dog violet (*Viola adunca*). Adults also feed on gumplant (*Grindelia* sp.), yellow sand verbena (*Abronia latifolia*), monardella (*Monardella* sp.), bull thistle (*Cirsium vulgare*), and seaside daisy (*Erigeron glaucus*). Prefers areas that are protected from onshore winds with ample winter rainfall and frequent fog. Elevations range from 0 to 300 meters. Habitat must be within 3 miles of the coast.	June-September (mating flight) Wet Season (larvae)	No. The project site occurs outside of the known geographic range for this species.
FISH					
Acipenser medirostris green sturgeon	FT/--/--	Adults are known to occur in coastal waters from Mexico to Alaska and have been observed along the west coast of North America. Spawning occurs within the Rogue and Illinois Rivers in Oregon, the Klamath River Basin, the Sacramento River, the Feather River, the Pit River, and	Utilizes both freshwater and saltwater habitats. Spawning occurs in deep pools or holes in large, turbulent, freshwater river mainstems. Eggs are cast over large cobble, clean sand, or bedrock substrates. Cold, clean water is required for development. Adults live in oceanic waters, bays, and estuaries.	Consult Agency	No. The project site does not provide habitat for this species.

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		the McCloud River. Spawning is suspected within the Trinity River, South Fork Trinity, and the Eel River. counties include Butte, Colusa, Glenn, Humboldt, Mendocino, Nevada, Placer, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo, and Yuba.			
Eucyclogobius newberryi tidewater goby	FE/CSC/--	Known to occur in coastal lagoons throughout California from Del Norte County to San Diego County.	Generally found in brackish to freshwater shallow lagoons and slow moving lower stream reaches. Habitat is fairly still, but not stagnant and they will avoid open areas with strong currents and/or wave action. Marshy habitats where they can avoid backwater flood flows.	Consult Agency	No. The project site does not provide habitat for this species.
Hypomesus transpacificus Delta smelt	FT/CT/--	Known to occur almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	No. The project site does not provide habitat for this species.
Mylopharodon conocephalus Hardhead	--/CSC/--	Range is restricted to California, and includes the Sacramento -San Joaquin and Russian River drainages.	Requires deep, rocky and sandy pools of small to large rivers.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus kisutch Coho salmon Central California Coast ESU	FE/CE/--	Known to occur throughout the major rivers and tributaries from the Noyo River, south of Fort Bragg, to the San Lorenzo River, east of Santa Cruz. The distribution includes Marin, Mendocino, San Francisco, San Mateo, Santa Cruz, and Sonoma counties.	Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambeds.	November-February	No. The project site does not provide habitat for this species.
Oncorhynchus mykiss steelhead Central Valley steelhead	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus mykiss irideus steelhead Central California Coast	FT/--/--	Spawn in drainages from the Russian River basin, Sonoma and Mendocino counties, to Soquel Creek, Santa Cruz County	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging	Consult Agency	No. The project site does not provide habitat for this species.

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ESU		(including the San Francisco Bay basin, but not the Sacramento and San Joaquin Rivers or their tributaries).	banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.		
Oncorhynchus tshawytscha Chinook salmon Central Valley spring-run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus tshawytscha Chinook salmon winter-run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	No. The project site does not provide habitat for this species.
Spirinchus thaleichthys Longfin smelt	--/CT/--	Known to occur along the Pacific Coast of North America (NatureServe, 2013).	Occurs in a wide range of salinity conditions in oceans, bays, estuaries, and rivers (Moyle, 2002). Daily migration from deep to shallow water. Swims at depths of at least 150 meters in the ocean (NatureServe, 2013).	Consult Agency	No. The project site does not provide habitat for this species.
AMPHIBIANS AND REPTILES					
Ambystoma californiense California tiger salamander	FT/--/--	Known to occur in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Found in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stockponds, in grassland and oak savannah plant communities; Elevation 3-1054 meters.	November-February (adults) March 15-May15 (larvae)	No. The project site does not provide habitat for this species.
Caretta caretta loggerhead turtle	FT/--/--	Circumglobal species. Occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. In the eastern Pacific range extends north to Alaska and South to Chile. Occasional sightings occur along the coast of Oregon and Washington. Most juvenile sightings are reported along the California coast. The west coast of Mexico and the Baja Peninsula are critical juvenile habitats.	Nests on ocean beaches. Prefers high-energy, narrow, and steeply sloped coarse-grained beaches. Juveniles develop within the oceanic zone until 7-12 years of age, then migrate to nearshore coastal areas within the neritic zone.	Consult Agency	No. The project site does not provide habitat for this species.
Chelonia mydas green turtle	FT/--/--	Globally distributed and generally found in tropical and subtropical waters along continental coasts and islands between 30° North and 30° South. In the eastern North Pacific, occurs from Baja California to	Nests on oceanic beaches, feeds in benthic grounds in coastal areas, and frequents convergence zones in the open ocean.	Consult Agency	No. The project site does not provide habitat for this species.

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		southern Alaska.			
Dermochelys coriacea leatherback turtle	FE/--/--	Nesting grounds occur globally. Sightings have occurred along the entire continental coast of the United States.	Mainly a pelagic species, but will also forage in coastal waters. Tolerant of colder water temperatures. Mating occurs in waters adjacent to nesting beaches and along migratory corridors.	Consult Agency	No. The project site does not provide habitat for this species.
Emys marmorata Western pond turtle	--/CSC/--	Known to occur from the west coast of North America from southern Washington, USA to northern Baja California, Mexico. Many populations have been extirpated and others continue to decline throughout the range, especially in southern California.	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	All year	No. The project site does not provide habitat for this species.
Lepidochelys olivaceae olive ridley sea turtle	FT/--/--	Globally distributed in the tropical regions of the South Atlantic, Pacific, and Indian Oceans. In the Eastern Pacific, they occur from Southern California to Northern Chile	Mainly a pelagic turtle, but has been known to inhabit coastal areas, including bays and estuaries. Migrate annually from pelagic areas to coastal breeding and nesting grounds.	Consult Agency	No. The project site does not provide habitat for this species.
Masticophis (Coluber) lateralis euryxanthus Alameda whipsnake (striped racer)	FT/--/--	Occurs in inner coast range in Contra Costa, Santa Clara, San Joaquin, Stanislaus, and Alameda Counties. Five known populations, none in vicinity of proposed project (NatureServe, 2013).	Occurs in riparian and terrestrial habitats, including grassland, chaparral, mixed or hardwood woodland, and rocky canyons (NatureServe, 2013).	March-November	No. The project site is outside the known range for this species.
Rana draytonii California red-legged frog	FT/CSC/--	Known to occur in Alameda, San Francisco, Placer, Riverside, Santa Barbara, San Luis Obispo, San Mateo, Santa Cruz, Santa Clara, Marin, Sonoma, and Contra Costa counties.	Found in lowlands and foothills in or near permanent sources of deep water with dense shrubby or emergent riparian vegetation.	November-March (breeding) June-August (non-breeding)	No. The project site does not provide habitat for this species.
Thamnophis gigas giant garter snake	FT/CT/--	Endemic to the San Joaquin and Sacramento Valley floors. counties include Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba.	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter).	March-October	No. The project site does not provide habitat for this species.

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			Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant.		
BIRDS					
Asio flammeus short-eared owl	--/CSC/--	Known to breed sparsely in northeast (Klamanth Basin, Modoc Plateau, Great Basin) south to s. Lassen Co.; Uncommon and irregular breeder in s. Sacramento Valley, around San Francisco Bay, and south in interior and coastal valleys to Monterey Co. Some concentration in Solano Co., just north and east of San Francisco. Scarce, local, and possibly extirpated as breeder in s. California	Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests usually located on dry sites with enough vegetation to conceal incubating female.	All Year	No. The project site does not provide habitat for this species.
Athene cunicularia burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year	Yes. Refer to text.
Brachyramphus marmoratus marbled murrelet	FT/CE/--	Known to occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara County. Breeding individuals in California largely concentrated on coastal waters off Del Norte and Humboldt cos. (about 75% of the population), and in lesser numbers off San Mateo and Santa Cruz counties (about 14%).	Partial to coastlines with stands of mature redwood and Douglas fir; uses these trees for nesting and probably roosting. In summer, forages close to shore (within 500 meters) in shallow water, usually less than 30 meters deep. In nonbreeding season, often forages farther from shore.	All Year	No. The project site does not provide habitat for this species.
Charadrius alexandrinus nivosus western snowy plover	FT/CSC/--	Known to occur along the California coast and inland near the Salton Sea, Mono Lake, and alkali lakes.	Most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; can inhabit inland salt ponds and lakes. Require sandy, gravely, or friable soil substrates for nesting. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds. Inland some birds regularly winter at agricultural waste-water ponds in San Joaquin Valley, and at desert saline lakes (particularly Salton Sea) in southern California	All year	No. The project site does not provide habitat for this species.

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Circus cyaneus northern harrier	--/CSC/--	Permanent residents of the northeastern plateau and coastal areas; less common resident of the Central Valley.	Found in coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 meters.	All Year	Yes. The project site provides foraging habitat for this species.
Diomedea albatrus Short-tailed albatross		Occurs globally with extensive oceanic migration. Nesting occurs near Japan and Taiwan. Known in Alaska, California, Hawaii, and Washington state (NatureServe, 2013).	Pelagic bird known to occur in regions of high productivity. Ground level nests on small oceanic islands. Feeds at the water's surface (NatureServe, 2013).	Consult Agency	No. The project site does not provide habitat for this species.
Elanus leucurus white-tailed kite	--/CFP/--	Permanent resident of coastal and valley lowlands.	Habitats include savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Nesting occurs in trees.	All Year	Yes. The oak woodland provides nesting habitat for this species.
Falco columbarius Merlin	--/CSC/--	Known to occur throughout North America with the exception of most southern states. Known to occur in San Mateo and San Luis Obispo Counties (NatureServe, 2013).	Known to occur in herbaceous wetland and tidal flat/shore. Nests in trees and cliff ledges.	Consult Agency.	No. The project site does not provide habitat for this species.
Falco peregrinus anatum American peregrine falcon	FD/CE/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50-90 feet above the ground.	All Year (some migrate)	No. The project site does not provide habitat for this species.
Geothlypis trichas sinnosa Saltmarsh common yellowthroat	--/CSC/--	Known to occur in freshwater marshes and riparian thickets around the San Francisco Bay Area.	Nests in freshwater marshes and riparian thickets.		No. The project site does not provide habitat for this species.
Laterallus jamaicensis coturniculus California black rail	--/CT/--	In coastal California during breeding season, presently found at Bodega Bay, Tomales Bay, Bolinas Lagoon, San Francisco Bay estuary, and Morro Bay. Overwhelming majority of birds in North San Francisco Bay (San Pablo Bay) at relatively few sites. Occurs irregularly south to Baja California. Inland in small numbers in Salton Trough and on lower	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Uses sites with shallower water than other North American rails. Most breeding areas vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges. Sites used in coastal California characterized by taller vegetation, greater coverage and height of alkali heath (*Frankenia*	All Year	No. The project site does not provide habitat for this species.

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		Colorado River from Bill Williams River (historically) to Laguna Dam.	*grandifolia*).		
Melospiza melodia pusillula Alameda song sparrow	--/CSC/--	Known to occur in areas bordering southern and eastern fringes of San Francisco bay.	Commonly found in saltmarsh, brackish marsh, and fringe areas, where marsh vegetation is limited to edges of dikes, land fills, or other margins of high ground bordering salt or brackish water areas.	All Year	No. The project site does not provide habitat for this species.
Pelecanus occidentalis californicus California brown pelican	FE/CE/--	Known to occur in estuarine, marine subtidal, and marine pelagic waters along the California coast.	Nests on coastal islands of small to moderate size, which afford immunity from, attack by ground dwelling predators. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties	All Year	No. The project site does not provide habitat for this species.
Phalacrocorax auritus double-crested cormorant	--/CSC/--	A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters.	Colonial nester on coastal cliffs, offshore islands and along lake margins in the interior of the state. Prefers water less than 9 meters deep with rocky or gravel bottom. Roosts beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or transmission lines. Perching sites must be barren of vegetation.	All Year	No. The project site does not provide habitat for this species.
Rallus longirostris obsoletus California clapper rail	FE/CE/--	Locally common yearlong in coastal wetlands and brackish areas around San Francisco Bay.	Found in saline emergent wetlands, nests mostly in lower zones, where cordgrass is abundant and tidal sloughs are nearby. Builds a platform concealed by a canopy of woven cordgrass stems or pickleweed and gumweed. Also uses dead drift vegetation as platform. In fresh or brackish water, builds nest in dense cattail or bulrush. Forages in higher marsh vegetation, along vegetation and mudflat interface, and along tidal creeks	All year	No. The project site does not provide habitat for this species.
Sternula antillarum browni California least tern	FE/CE/--	Breeding colonies are located along the coast from southern California to San Francisco Bay.	Found along marine and estuarine shores where small fish are abundant. Nest in loose colonies on the ground relatively free of human or predatory disturbance.	April-May	No. The project site does not provide habitat for this species.
MAMMALS					

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Antrozous pallidus pallid bat	--/CSC/SC	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern cos., and the northwestern corner of the state from Del Norte and western Siskiyou cos. to northern Mendocino Co.	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges.	All Year	No. The project site does not provide habitat for this species.
Eumetopias jubatus Stellar sea-lion	FT/--/--	Known to occur throughout the North Pacific Rim from Japan to central California. Breeding occurs along the North Pacific Rim from Ano Nuevo Island in central California to the Kuril Islands North of Japan, with the greatest concentration of rookeries in the Gulf of Alaska and Aleutian Islands.	Tend to remain off shore or haul out in unpopulated areas. Rookeries and haul out sites are typically located on rocky shoreline and wave-cut platforms, occasionally on gravel shore. Rookeries are almost exclusively located on offshore islands and reefs. Can be seen near shore and out to the edge of the continental shelf and beyond.	All Year	No. The project site does not provide habitat for this species.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC/--	Known to occur historically in San Mateo County and the San Francisco Bay watershed.	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees.	Year Round	No. The project site does not provide habitat for this species.
Nyctinomops macrotis big free-tailed bat	--/CSC/--	Rare in California. Records of the species are from urban areas of San Diego Co., and vagrants found in fall and winter. A probable vagrant was collected in Alameda Co., but this record is suspect.	Big free-tailed bats in other areas prefer rugged, rocky terrain. Found to 2500 m (8000 ft) in New Mexico, southern Arizona, and Texas. Roosts in buildings, caves, and occasionally in holes in trees. Also roosts in crevices in high cliffs or rock outcrop. Probably does not breed in California.	May-September	No. The project site does not provide habitat for this species.
Reithrodontomys raviventris salt marsh harvest mouse	FE/CE/--	Known only to occur in the saline emergent wetlands of San Francisco Bay and its tributaries.	Critically dependent on dense cover and their preferred habitat is pickleweed (Salicornia virginica). Seldom found in cordgrass or alkali bulrush. In marshes with an upper zone of peripheral halophytes (salt-tolerant plants), mice use this vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides.	All Year	No. The project site does not provide habitat for this species.
Sorex vagrans halicoetes salt-marsh wandering shrew	--/CSC/--	Known to occur in salt marshes of the south arm of San Francisco bay.	This species prefer a low, dense cover of salicornia.	All Year	No. The project site does not provide habitat for this species.

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Taxidea taxus American badger	--/CSC/--	Known to occur throughout most of California in suitable habitat.	Suitable habitat occurs in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with undisturbed treeless regions, prairies, parklands, and cold desert areas. Cultivated lands have been reported to provide little usable habitat for this species.	All Year	No. The project site does not provide habitat for this species.

FEDERAL: United States Fish and Wildlife Service
FE Federally Endangered
FT Federally Threatened
FC Federal Candidate for Listing

STATE: California Department of Fish and Game
CE California Listed Endangered
CR California Listed Rare
CT California Listed Threatened
CSC California Species of Special Concern
CFP California Fully-Protected

CNPS: California Native Plant Society
List 1A Plants Presumed Extinct in California
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

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U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 131118032433

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
- vernal pool fairy shrimp (T)

Euphydryas editha bayensis
- bay checkerspot butterfly (T)
- Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii
- black abalone (E) (NMFS)

Haliotes sorenseni
- white abalone (E) (NMFS)

Icaricia icarioides missionensis
- mission blue butterfly (E)

Speyeria zerene myrtleae
- Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Eucyclogobius newberryi
- tidewater goby (E)

Hypomesus transpacificus
- delta smelt (T)

Oncorhynchus kisutch
- coho salmon - central CA coast (E) (NMFS)
- Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
- Central California Coastal steelhead (T) (NMFS)
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)
- winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)

Rana draytonii
- California red-legged frog (T)
- Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
Critical habitat, marbled murrelet (X)
marbled murrelet (T)

Charadrius alexandrinus nivosus
Critical habitat, western snowy plover (X)
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Eriophyllum latilobum

San Mateo woolly sunflower (E)

Hesperolinon congestum

Marin dwarf-flax (=western flax) (T)

Pentachaeta bellidiflora

white-rayed pentachaeta (E)

Potentilla hickmanii

Hickman's potentilla (=cinquefoil) (E)

Quads Containing Listed, Proposed or Candidate Species:

WOODSIDE (429A)

HALF MOON BAY (429B)

REDWOOD POINT (447C)

MONTARA MOUNTAIN (448C)

SAN MATEO (448D)

County Lists

San Mateo County

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Euphydryas editha bayensis

bay checkerspot butterfly (T)

Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii

black abalone (E) (NMFS)

Haliotes sorenseni

white abalone (E) (NMFS)

Icaricia icarioides missionensis

mission blue butterfly (E)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Speyeria callippe callippe

callippe silverspot butterfly (E)

Speyeria zerene myrtleae

Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Eucyclogobius newberryi

critical habitat, tidewater goby (X)

tidewater goby (E)

tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
Critical habitat, marbled murrelet (X)
marbled murrelet (T)

Charadrius alexandrinus nivosus
Critical habitat, western snowy plover (X)

Critical habitat, western snowy plover (X)
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Chorizanthe robusta var. robusta
robust spineflower (E)

robust spineflower (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Cupressus abramsiana
Santa Cruz cypress (E)

Eriophyllum latilobum
San Mateo woolly sunflower (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Layia carnosa
beach layia (E)

Lessingia germanorum
San Francisco lessingia (E)

Pentachaeta bellidiflora
white-rayed pentachaeta (E)

Potentilla hickmanii
Hickman's potentilla (=cinquefoil) (E)

Suaeda californica
California sea blite (E)

Trifolium amoenum
showy Indian clover (E)

Proposed Species

Plants

Arctostaphylos Franciscana
Critical Habitat, Franciscan Manzanita (X)

Key:

(E) Endangered - Listed as being in danger of extinction.
(T) Threatened - Listed as likely to become endangered within the foreseeable future.
(P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service.

Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
(C) Candidate - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 16, 2014.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Montara Mountain (3712254) or San Mateo (3712253) or Redwood Point (3712252) or Woodside (3712243) or Half Moon Bay (3712244))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthomintha duttonii San Mateo thorn-mint	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T2	S2.2	1B.2
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2?	S2?	1B.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Arctostaphylos andersonii Anderson's manzanita	PDERI04030	None	None	G2	S2?	1B.2
Arctostaphylos montaraensis Montara manzanita	PDERI042W0	None	None	G2	S2.2	1B.2
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2.2	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2.2	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Calicina minor Edgewood blind harvestman	ILARA13020	None	None	G1	S1	
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T1	S1	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T2	S2.2	1B.2
Circus cyaneus northern harrier	ABNKC11010	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G2	S2.2	1B.2
Cirsium fontinale var. fontinale fountain thistle	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2.2	1B.2
Danaus plexippus monarch butterfly	IILEPP2010	None	None	G5	S3	
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2G3	S2S3	1B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriophyllum latilobum San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S2	FP
Fritillaria biflora var. ineziana Hillsborough chocolate lily	PMLIL0V031	None	None	G1QT1Q	S1	1B.1
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T2	S2	SSC
Grindelia hirsutula var. maritima San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T2T3	S2S3	1B.2
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T2	S2?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2.2	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G1G2	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ischnura gemina San Francisco forktail damselfly	IIODO72010	None	None	G2	S2	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4?	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G4T1	S1	FP
Leptosiphon croceus coast yellow leptosiphon	PDPLM09170	None	None	G1	S1	1B.1
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Lessingia arachnoidea Crystal Springs lessingia	PDAST5S0C0	None	None	G1	S1	1B.2
Lichnanthe ursina bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
Malacothamnus aboriginum Indian Valley bush-mallow	PDMAL0Q020	None	None	G2	S2	1B.2
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2.2	1B.2
Malacothamnus davidsonii Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2?	SSC
Microcina edgewoodensis Edgewood Park micro-blind harvestman	ILARA47010	None	None	G1	S1	
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G2G3	S2S3	1B.2
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S4	
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S3	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S2	SSC
Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2Q	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S3	WL
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2.2	1B.2
Plebejus icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S1	
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G4	S1	2B.2
Potentilla hickmanii Hickman's cinquefoil	PDROS1B0U0	Endangered	Endangered	G1	S1	1B.1
Rallus longirostris obsoletus California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T2	S2.2	1B.2
Sorex vagrans halicoetes salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	None	Threatened	G5	S1	SSC
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	FP
Taxidea taxus American badger	AMAJF04010	None	None	G5	S4	SSC
Thamnophis sirtalis tetrataenia San Francisco garter snake	ARADB3613B	Endangered	Endangered	G5T2	S2	FP
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triphysaria floribunda San Francisco owl's-clover	PDSCR2T010	None	None	G2	S2.2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G1	S1	1B.2
Usnea longissima long-beard lichen	NLLEC5P420	None	None	G4	S4.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Needlegrass Grassland						

Record Count: 83

CNPS California Native Plant So Rare and Endangered Plant Inventory

Plant List

5 matches found. Click on scientific name for details

Search Criteria

Found in Quad 37122D4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	1B.1	S2?	G4T2
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4

Suggested Citation

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The Calflora Database

CNPS California Native Plant So Rare and Endangered Plant Inventory

Plant List

42 matches found. Click on scientific name for details

Search Criteria

Found in Quad 37122E4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	4.3	S3.3?	G3
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus nuttallii var. nuttallii	ocean bluff milk-vetch	Fabaceae	perennial herb	4.2	S3.2	G3T3
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	1B.2	S1	G3T1
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	1B.2	S2.2	G2
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	S3.2	G4
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	1B.1	S1	G1
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3

Fritillaria biflora var. ineziana	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1QT1Q
Fritillaria lanceolata var. tristulis	Marin checker lily	Liliaceae	perennial bulbiferous herb	1B.1	S2	G5T2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	3.2	S1	G5T1Q
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	S2S3	G4T2T3
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	1B.2	S2.2	G2
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	4.2	S3.2	G3
Leptosiphon croceus	coast yellow leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3	G3
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus aboriginum	Indian Valley bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	1B.1	S1	G1
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	1B.2	S2.2	G5T2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	1B.2	S2.2	G2
Triquetrella californica	coastal triquetrella	Pottiaceae	moss	1B.2	S1	G1

Suggested Citation

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02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

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Plant List

2 matches found. Click on scientific name for details

Search Criteria

Found in Quad 37122E2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G4?T2
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1

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Plant List

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Search Criteria

Found in Quad 37122E3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	1B.1	S1	G1
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	1B.1	S1	G2T1
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	1B.1	S1	G1
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3
Fritillaria biflora var. ineziana	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1QT1Q

Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	S2S3	G4T2T3
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	1B.1	S2	G2
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lilium maritimum	coast lily	Liliaceae	perennial bulbiferous herb	1B.1	S2	G2
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3.2	G4
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	1B.2	S2.2	G2

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Plant List

27 matches found. Click on scientific name for details

Search Criteria

Found in Quad 37122D3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	1B.1	S1	G1
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S3.2?	G4
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	1B.1	S1	G2T1
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	S3.2	G4
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	1B.1	S2	G2
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	4.2	S3.2	G3
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3	G3

Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pedicularis dudleyi	Dudley's lousewort	Orobanchaceae	perennial herb	1B.2	S2	G2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3.2	G4
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	1B.2	S2.2	G5T2

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COAST RIDGE ECOLOGY

BIOLOGICAL SURVEYS • MONITORING • PERMITTING • RESEARCH

April 11, 2015

Dennis Thomas
San Mateo Real Estate, Inc.
1777 Borel Place, Suite 330
San Mateo, CA 94402

RE: ***Results of 2015 Rare Plant Surveys and Update on Mission Blue / Pardalis Blue Butterfly Habitat and Nesting Raptor Surveys on the Ascension Heights Subdivision Project Site in San Mateo County, California.***

Dear Mr. Thomas,

Per you request, we conducted rare plant surveys, nesting raptor surveys and assessed Mission blue /Pardalis blue butterfly habitat on the proposed Ascension Heights Subdivision Project in San Mateo County, California. The results are provided herein.

2015 RARE PLANT SURVEYS

These surveys were timed to coincide with the periods when these plants would be the most visible and detectable by botanical surveyors. The approximately 13.3 acre project site is located within the unincorporated community of San Mateo Highlands at the northeast corner of Bel Aire Road and Ascension Drive. The project site is largely undeveloped except for a paved road that runs from the north corner at Bel Aire Drive to near the south eastern edge of the site. The paved road provides access to a water tank and a cellular transmitter tower that are surrounded by, but not a part of the project site. Single family residential neighborhoods are the primary land use bounding the project site. Elevations on the site range from approximately 450 feet at the southern corner of the project site to approximately 620 feet at the water tank.

The *Final Environmental Impact Report San Mateo County Ascension Heights Subdivision Project Volume II – Revised Draft EIR* (2014) identified a list of eleven special-status plant species with the potential to occur on the Ascension Heights Subdivision Project site. Four of the species identified - Indian Valley bush-mallow (*Malacothamnus aboriginum*), Arcuate bush mallow (*M. arcuatus*), Davidson's bush-mallow(*M. davidsonii*) and San Francisco campion (*Silene verecunda ssp. verecunda*) - were eliminated from the potential to occur list based on a botanical survey conducted on the site on July 25, 2013 by Analytical Environmental Services. Because the 2013 survey was conducted outside of the time period when the remaining seven species would be evident and identifiable, additional focused botanical surveys were recommended in order to determine potential project impacts to these species. The seven plant species recommended for additional surveys include bent-flowered fiddleneck (*Amsinckia lunaris*), San Francisco collinsia (*Collinsia multicolor*), western leatherwood (*Dirca occidentalis*), San Mateo woolly sunflower (*Eriophyllum latilobum*), fragrant frillary

(*Fritillaria liliacea*), Dudley's lousewort (*Pedicularis dudleyi*) and white-rayed pentachaeta (*Pentachaeta bellidiflora*).

SURVEY METHODS

Botanical surveys were conducted by botanist Neal Kramer of Kramer Botanical and Patrick Kobernus of Coast Ridge Ecology in spring 2015. Neal Kramer has over 20 years experience conducted botanical and rare plant surveys in the San Francisco Bay Area, and Patrick Kobernus has over 20 years experience conducting rare plant and wildlife surveys within the San Francisco Bay Area. Both Mr. Kramer and Mr. Kobernus have conducted extensive survey work within San Mateo County.

In early March 2015, reference site visits in the vicinity of the proposed project confirmed that western leatherwood, fragrant fritillary and white-rayed pentacheata were evident and identifiable. As a result, a focused survey for these target species was conducted on the project site on March 3, 2015.

In late March 2015, reference site visits within 2 miles of the project site confirmed that bent-flowered fiddleneck, San Francisco collinsia and San Mateo woolly sunflower were evident and identifiable. Although no reference site for Dudley's lousewort was readily accessible in the project vicinity, the closely related warrior's plume (*Pedicularis densiflora*) with similar phenology was observed in full bloom in late March within 3 miles of the project site. Therefore, a second focused survey was conducted on the project site for these four target species on March 27, 2015.

During the March 3rd and March 27th surveys, Kramer Botanical botanist Neal Kramer and Coast Ridge Ecology biologist Patrick Kobernus walked the entire project site looking for the target special-status plant species. Walking transects were chosen to ensure 100% visual coverage of the entire project area. Although target species were a special focus, the surveys were floristic in nature and all plant species identifiable during the surveys were recorded in a field notebook. A complete list of plant species observed on the Ascension Heights Subdivision project site is included at the end of this report.

RESULTS

No rare plants, including western leatherwood, fragrant fritillary, white-rayed pentachaeta, bent-flowered fiddleneck, San Francisco collinsia, San Mateo woolly sunflower or Dudley's lousewort were found on the project site during the two March 2015 rare plant surveys. Based on these results, we conclude that the proposed development project will not adversely impact any of these special-status plant species.

2015 UPDATE ON MISSION BLUE BUTTERFLY HABITAT

Because the rare plant survey also included a floristic survey of the property to document all plant species encountered, locations of the Mission blue/ Pardalis blue butterfly host plant summer lupine (*Lupinus formosus*) were noted. The patches of this plant species were observed to be consistent with host plant locations observed during the mission blue surveys conducted on the property in 2005, 2008 and 2012 by Coast Ridge Ecology.

During the course of our 2015 rare plant surveys of the property we did not detect any summer lupine within the development envelope of the proposed Ascension Heights subdivision project.

It should be noted that the DEIR for the project misquoted the Mission blue/ Pardalis surveys that were conducted by Coast Ridge Ecology on the project site. The DEIR states (on page 4.3-14) that "***Three** biological surveys for the Mission blue butterfly have occurred on the project site in the spring and summer months of 2005, 2008, and 2012, during which 12 adult butterflies were observed*". In actuality, ***twenty-four*** biological surveys were done over the course of three separate years (2005, 2008 and 2012), including host plant mapping. Within each of these years, multiple surveys were done for Mission blue/ Pardalis blue butterflies on the site, with a total of 24 Mission blue/ Pardalis blue surveys conducted overall. During the course of those surveys, no Mission blue/ Pardalis blue butterflies, or their host plants, were detected within the proposed development envelope of the Ascension Heights project site.

2015 NESTING RAPTOR SURVEYS

The property was walked and surveyed for nesting raptors on March 5, 2015 and April 10, 2015 by biologist Patrick Kobernus. Tree groves on adjacent properties were also searched for any potential raptor nests or nesting activity. The surveys were conducted during the raptor breeding season which is typically from February 15 through August 31. The surveys were conducted from approximately 7:30 AM to 10:00 AM during appropriate weather (clear skies, no wind and air temperatures in the low 50's to upper 60's. The site was walked inspected for any raptor nesting activity (e.g. calling, pair bonding behaviors, nest material carries), as well as any raptor nests. No raptor nests or raptor nesting activity was observed on the property.

Most of the trees on site (mostly *Pinus sp.*) do not provide suitable raptor nesting habitat due to wind exposure and lack of large supportive branches that could support raptor nests. The only raptor activity observed on site was one red-tailed hawk that was observed roosting in the top of a pine tree for approximately 30 minutes during the April 10 survey. During botanical surveys of the site during March and April 2015, a few turkey vultures and red-tailed hawks were observed flying over the site.

The eucalyptus grove on the south side of the property (which is outside the proposed building envelope) provides some potential as nesting habitat for raptors such as red-tailed hawk, red-shouldered hawk and great-horned owl. Within this grove, a few crows were observed within a broken top Eucalyptus tree on the April 10 survey, and they may be building a nest in this location. No raptor activity was observed in this grove of trees.

No special status raptors such as burrowing owls, northern harriers or white tailed kites were observed and it is highly unlikely these species would nest on site due to a lack of suitable nesting habitat.

- Burrowing owls nest on the ground within ground squirrel burrows, or manmade holes/ culverts for nesting. No ground squirrel burrows or suitable habitat to support burrowing owls was observed on site.

- Northern harriers nest on the ground, mostly within patches of dense, often tall, vegetation in undisturbed areas (MacWhirter and Bildstein 1996). The property is comprised of primarily open grassland and trees, and does not provide the type of dense cover that would support northern harriers.

- White-tailed kites nest within lowland grasslands, agriculture, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. They typically do not nest on steep hillsides, which is the primary topography on the property.

If you have questions regarding this survey report, please don't hesitate to contact us.

Sincerely,

Patrick Kobernus
Principal and Senior Biologist
Coast Ridge Ecology

Neal Kramer, M.S.
Botanist/Ecologist, Certified arborist
Kramer Botanical

References

Kobernus, Patrick, 2014. RE: 2012 Mission Blue Butterfly Surveys at Ascension Heights Project Area, San Mateo, California. Letter from Patrick Kobernus of Coast Ridge Ecology to Mr. Dennis Thomas on February 6, 2014.

Kobernus, Patrick, 2008. Results of 2008 Mission Blue Butterfly Surveys at Ascension Property San Mateo County, California, Prepared for: San Mateo Real Estate and Construction, Inc., September 12, 2008.

MacWhirter, R. B., and Bildstein, K. L. 1996. Northern Harrier (*Circus cyaneus*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 210. Acad. Nat. Sci., Philadelphia.

San Mateo County, 2014. Draft EIR for the Ascension Heights Subdivision Project, San Mateo, California. San Mateo County Planning and Building Department. Prepared by Analytical Environmental Services, April 2014. https://planning.smcgov.org/sites/planning.smcgov.org/files/PLN2002-00517_FEIR-Vol2_DEIR_0.pdf

Plant Species List for Ascension Heights Subdivision Project Site

The plant species listed below were observed on the project site during surveys conducted by Kramer Botanical botanist Neal Kramer and Coast Ridge Ecology biologist Patrick Kobernus on March 3 and March 27, 2015. Scientific nomenclature follows *The Jepson Manual (*Baldwin 2012).

* Indicates introduced non-native species.

Scientific Name	Common Name
AGAVACEAE - Agave Family	
Chlorogalum pomeridianum	soap plant, amole
AMARYLLIDACEAE - Amaryllis Family	
*Amaryllis belladonna**	naked lady
*Narcissus pseudonarcissus**	daffodil
ANACARDIACEAE - Sumac or Cashew Family	
Toxicodendron diversilobum	poison oak
APIACEAE - Carrot Family	
*Foeniculum vulgare**	sweet fennel
Sanicula bipinnatifida	purple sanicula, shoe buttons
Sanicula crassicaulis	Pacifica sanicula
*Scandix pecten-veneris**	shepherd's needle
ARALIACEAE - Ginseng Family	
*Hedera helix**	English ivy
ASTERACEAE - Sunflower Family	
Achillea millefolium	yarrow
Baccharis pilularis	coyote brush
*Carduus pycnocephalus**	Italian thistle
*Cirsium vulgare**	bull thistle
*Crepis vesicaria ssp. taraxacifolia**	Weedy hawksbeard
Erigeron canadensis	horseweed
Erigeron foliosus var. foliosus	leafy fleabane
Gnaphalium californicum	California cudweed
*Helminthotheca echioides**	bristly ox-tounge
Heterotheca sessiliflora	golden aster
*Hypochaeris glabra**	smooth cat's ear
*Hypochaeris radicata**	rough cat's-ear
*Logfia gallica**	narrow leaved filago
*Pseudognaphalium luteoalbum**	weedy cudweed
*Silybum marianum**	milk thistle
Solidago velutina ssp. californica	California goldenrod
*Soliva sessilis**	common soliva
*Sonchus asper ssp. asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Symphyotrichum chilense	Pacific aster
*Taraxacum officinale**	dandelion
Wyethia angustifolia	narrow-leaved mules ears

BRASSICACEAE - Mustard Family	
Cardamine oligosperma	bitter cress
*Hirschfeldia incana**	summer mustard
CAPRIFOLIACEAE - Honeysuckle Family	
Symphoricarpos mollis	creeping snowberry
CARYOPHYLLACEAE - Pink Family	
*Cerastium glomeratum**	mouse-eared chickweed
*Silene gallica**	common catchfly, windmill pink
CELASTRACEAE - Staff-Tree Family	
*Maytenus boaria**	mayten
CISTACEAE - Rock-Rose Family	
*Cistus incanus**	rock-rose
CONVOLVULACEAE - Morning-Glory or Bindweed Family	
Calystegia subacaulis	stemless/hill morning-glory
CUCURBITACEAE - Gourd Family	
Marah fabaceus	California man-root
CUPRESSACEAE - Cypress Family	
*Hesperocyparis macrocrapa**	Monterey cypress
Sequoia sempervirens	coast redwood
CYPERACEAE - Sedge Family	
Carex spp.	sedge
DIPSACACEAE - Teasel Family	
*Dipsacus sp.**	teasel
DRYOPTERIDACEAE - Wood Fern Family	
Dryopteris arguta	coastal wood fern
EUPHORBIACEAE - Spurge Family	
*Euphorbia peplus**	petty spurge
FABACEAE - Legume Family	
*Acacia longifolia**	Sydney golden wattle
*Acacia dealbata**	silver wattle
Acmispon wrangelianus	calf lotus
*Genista monspessulana**	French broom
*Lotus corniculatus**	bird's foot trefoil
Lupinus bicolor	miniature lupine, Lindley's annual lupine
Lupinus formosus var. formosus	summer lupine
Lupinus succulentus	arroyo lupine
*Medicago polymorpha**	burclover
*Trifolium campestre**	hop clover
*Trifolium subterraneum**	subterraneum clover
Vicia americana var. americana	American vetch
*Vicia sativa**	common vetch
*Vicia villosa**	hairy/winter vetch
FAGACEAE - Oak Family	
Quercus agrifolia	coast live oak
GERANIACEAE - Geranium Family	
*Erodium cicutarium**	red-stemmed filaree
*Erodium botrys**	broad-leaved filaree
*Geranium dissectum**	cut-leaved geranium
IRIDACEAE - Iris Family	
*Freesia refracta**	freesia
Sisyrinchium bellum	blue-eyed-grass

JUNCACEAE - Rush Family	
Juncus occidentalis	Western rush
Juncus patens	common/spreading rush
Luzula comosa	wood rush
LAMIACEAE - Mint Family	
Clinopodium douglasii	yerba buena
*Lavendula sp.**	lavender
*Rosmarinus officinalis**	rosemary
Stachys sp.	hedge nettle
LAURACEAE - Laurel Family	
Umbellularia californica	California bay
LINACEAE - Flax Family	
*Linum bienne**	Narrowleaf flax
MALVACEAE - Mallow Family	
Sidalcea malviflora ssp. laciniata	checker bloom
MONTIACEAE - Miner's Lettuce Family	
Claytonia perfoliata ssp. perfoliata	miner’s lettuce
MYRTACEAE - Myrtle Family	
*Eucalyptus globulus**	blue gum
*Eucalyptus polyanthemos**	silver dollar gum
*Eucalyptus sideroxylon**	red ironbark
ONAGRACEAE - Evening primrose Family	
Taraxia ovata	sun cup
OROBANCHACEAE - Broom-Rape Family	
*Bellardia trixago**	bellardia
OXALIDACEAE - Oxalis Family	
*Oxalis pes-caprae**	Bermuda buttercup
PAPAVERACEAE - Poppy Family	
Eschscholzia californica	California poppy
PINACEAE - Pine Family	
*Pinus halepensis**	Aleppo pine
*Pinus pinea**	Italian stone pine
*Pinus radiata**	Monterey pine
PLANTAGINACEAE - Plantain Family	
*Plantago lanceolata**	English plantain
POACEAE - Grass Family	
*Aira caryophyllea**	silver hair grass
*Avena barbata**	slender wild oat
*Brachypodium distachyon**	Annual false brome
*Briza minor**	little quaking grass
Bromus carinatus var. carinatus	California brome
*Bromus diandrus**	ripgut brome
*Bromus hordeaceus**	soft chess
Bromus laevipes	woodland brome
*Cenchrus echinatus**	southern sandbur
*Cortaderia jubata**	pampas grass
Danthonia californica var. californica	California oatgrass
*Ehrharta erecta**	upright veldtgrass
Elymus glaucus	blue wildrye
*Festuca bromoides**	six-week fescue
*Festuca perennis**	rye grass
*Hordeum marinum ssp. gussoneanum**	Mediterranean barley

*Hordeum murinum ssp. leporinum**	barnyard foxtail, foxtail barley
*Phalaris aquatica**	Harding grass
*Poa annua**	annual bluegrass
Stipa pulchra	purple needlegrass
POLYGONACEAE - Buckwheat Family	
Eriogonum nudum	naked buckwheat
*Rumex acetosella**	sheep sorrel
*Rumex crispus**	curly dock
*Rumex pulcher**	fiddle dock
PROTEACEAE - Protea Family	
*Grevillea rosmarinifolia**	rosemary grevillea
PTERIDACEAE - Brake Family	
Pentagramma triangularis ssp. triangularis	goldback fern
RANUNCULACEAE - Buttercup Family	
Ranunculus californicus	California buttercup
ROSACEAE - Rose Family	
*Chaenomeles sp.**	quince
*Cotoneaster lacteus**	Parney's cotoneaster
*Cotoneaster pannosus**	silverleaf cotoneaster
Heteromeles arbutifolia	toyon, Christmas berry
Horkelia californica	horkelia
*Pyracantha angustifolia**	pyracantha
*Prunus cerasifera**	cherry plum
*Rosa multiflora**	multiflora rose
Rubus ursinus	California blackberry
RUBIACEAE - Madder Family	
Galium aparine	goose grass, bedstraw
*Sherardia arvensis**	field madder
THEMIDACEAE - Brodiaea Family	
Dichelostemma capitatum ssp. capitatum	blue dicks

APPENDIX E

GEOTECHNICAL REPORT

Michelucci & Associates, Inc.
Geotechnical Consultants

Joseph Michelucci, G.E.
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Richard Quarry
rich@michelucci.com

December 5, 2013
Job No. 13-4309

Trenton Wilson
Analytical Environmental Services
1801 7th Street Suite 100
Sacramento, CA 95811

Re: Supplemental Geotechnical Investigation
Proposed Ascension Heights Subdivision
San Mateo County, California

Dear Mr. Wilson:

As authorized, we have completed a supplemental geotechnical investigation at the site of the planned Ascension Heights Subdivision located in San Mateo County, California. During 2002 our firm completed a study for a then planned larger project, the results of which were included in a comprehensive geotechnical report dated December 16, 2002. We have combined many of our findings/recommendations from the 2002 report with this supplemental report.

The purposes of our current study were to further evaluate the current conditions of the property and to determine if the site conditions have changed since the issuance of our 2002 report. As part of this report, we have also provided updated geotechnical recommendations and design criteria for specific items such as changes to the seismic building code.

The accompanying report summarizes our current opinions regarding the site soil and bedrock conditions and provides updated recommendations, as needed.

It is a pleasure working with you on this project. Please contact us with any questions or comments.

Very truly yours,
MICHELUCCI & ASSOCIATES, INC.

Joseph Michelucci
Geotechnical Engineer #593
(Expires 3/31/2015)

REGISTERED PROFESSIONAL ENGINEER
JOSEPH M. MICHELUCCI
No. GE 000593
Exp. 3 31 15
GEOTECHNICAL
STATE OF CALIFORNIA

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

Proposed Ascension Heights Subdivision
San Mateo County
California

Prepared for:

Analytical Environmental Services
Attn: Trenton Wilson

December 5, 2013

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SUPPLEMENTAL GEOTECHNICAL INVESTIGATION
PROPOSED ASCENSION HEIGHTS SUBDIVISION
SAN MATEO COUNTY, CALIFORNIA

INTRODUCTION

Our firm completed a comprehensive "Geotechnical and Engineering Geologic Investigation" of the site and issued a report dated December 16, 2002. The findings and recommendations, the test boring and test pit logs and the other figures of the 2002 report are included in this updated report, and where necessary, modifications have been made to the recommendations and figures (i.e., the Site Plan, Figure 3) to ensure that the most relevant and up to date information is shown as it relates to the currently proposed development.

The purpose of our 2002 study was to evaluate the soil and bedrock conditions that occur at the site, and to provide recommendations and design criteria pertaining to building foundations, site grading, retaining walls, drainage, erosion repair, and other items that relate to the site soil and geologic conditions.

DISCUSSION

This report covers our supplemental investigation of the soil and bedrock conditions that occur at the site of the proposed 13.32 acre residential development located adjacent to Ascension Drive and Bel Aire Road, near San Mateo, in unincorporated San Mateo County, California. The location of the site is shown on the Site Vicinity Map, included as Figure 1. The regional geologic setting is illustrated on Figure 2. An overview of the currently planned development, which includes the locations of test borings and exploration test pits associated with our 2002 study, is depicted on the attached Site Plan/Engineering Geology Map, Figure 3.

DESCRIPTION OF PROJECT

The hillside project site is located along the sides of a knoll and is currently unimproved with the exception of a large cylindrical water tank, which is owned by the California Water Service and a paved road that services the tank. We understand that future plans will call for the development of 19 building lots that will eventually be improved with single-family dwellings. Access to the subdivision will be from Bel Aire Road, as shown on Figure 3. The roadway currently leading to the water tank is to be abandoned, and access to the 0.52 acre Water Service property at the top of the hill will be from a new driveway just west of one of two private streets that are to be constructed, also as shown on Figure 3.

Current plans call for excavating on the order of 46,500 cubic yards of soil and bedrock and the placement of about 20,000 cubic yards of engineered fill. Thus, on the order of 26,500 cubic yards of material will be removed from the site. The project will also feature improvement of site drainage (several retention systems are to allow water to eventually be disposed of in the public storm drains) and the repair of previous erosional features along existing cut slopes associated with the original development of Ascension Drive and Bel Aire Road, between 1955 and 1961.

SCOPE OF SERVICES

Our supplemental study included:

1. A site inspection by members of our staff to evaluate if conditions have changed since our 2002 study;

2. A review of our file that led to our December 16, 2002 study, which included a previous soil investigation of the subject property prepared in 1979 by Terrasearch, Inc., that included the logs of 8 test borings which are appended to the end of this report and a 1981 geotechnical feasibility investigation (with no additional subsurface information) by R. C. Harlan and Associates;

3. A review of information in our files generated after our 2002 study, including notes made during public meetings and hearings regarding the project and a revised environmental impact report prepared by Analytical Environmental Services, title, "County of San Mateo, Ascension Heights Subdivision Project, Revised Environmental Impact Report," dated September 27, 2012;

4. The review of a "Vesting Tentative Subdivision Map" (sheets C-1 through C-7), prepared by Lea & Sung Engineering, Inc., dated July 1, 2013;

5. Discussions with Jim Toby of Lea & Sung Engineering;

6. Review of the current building code requirements regarding seismic recommendations;

7. The performance of geotechnical engineering analysis utilizing the above items; and,

8. The preparation of this report.

FIELD INVESTIGATION AND LABORATORY TESTS

In order to evaluate the geotechnical engineering characteristics of the soil and bedrock layers which underlie the site, 19 borings were drilled in late 2002 at the approximate locations indicated on the attached Site Plan/Engineering Geology Map, Figure 3. The borings were drilled under the supervision of our staff geologist and geotechnical engineer during November and December 2002, with track-mounted, portable "Minuteman", and hand augering equipment. Relatively undisturbed samples were recovered from the borings at selected intervals with free-falling, 70- to 140-pound hammers (with 30-inch drops) and a hydraulic hammer advancing modified California drive and standard penetration samplers 18 inches into the subsurface soil and rock layers.

As the borings were excavated, logs of the materials encountered were prepared based upon an inspection of the recovered samples and auger cuttings. The final Boring Logs, as presented on the attached Figures 4 through 22, are based upon the field logs with occasional modifications made upon further laboratory examinations of the recovered samples and laboratory test results.

Laboratory tests performed in 2002 included the determinations of moisture content, dry density and unconfined compressive strength of selected samples. The results of these tests, along with the resistance to penetration of the sampler, are listed opposite the corresponding sample location on the final Boring Logs, Figures 4 through 22.

We also logged the excavation of 16 test pits in 2002 that were made with a backhoe. Logs of the test pits are included on the attached Figures 23 through 38. The approximate locations of the test pits are also included on Figure 3. We have also included the approximate locations of the 8 test borings excavated by Terrasearch, Inc., as part of their 1979 report on Figure 3 (7 of the 8 the Terrasearch logs have been appended to the end of this report).

In addition, we performed a plasticity index test upon a representative sample of the near surface soils. The results of this test, which are useful in evaluating the shrink-swell characteristics of the material tested, are included on the attached Figure 39.

SITE CONDITIONS

Our recent site visit suggests that the conditions at the property are virtually identical at the present time to what they were in 2002.

The hillside property is located along an elongated knoll; the primary axis of the knoll is in a southeast/northwest direction. A water tank is located at the top of the knoll, and the lands around the tank are owned by the California Water Service, and are not a part of the proposed subdivision.

The topography in the areas to be developed slopes generally downward from the water tank pad at an average inclination that is on the order of 2 horizontal to 1 vertical. The upper portions of the site are more gently sloping than the downhill areas, especially along the existing benched cut slopes along Ascension Drive and Bel Aire Road, which slope at an average of 1.9 horizontal to 1 vertical above Ascension Drive and 1.6 horizontal to 1 vertical above Bel Aire Road.

The maximum site elevation is approximately 714 feet, at the base of the water tank. The lowest elevation is approximately 502 feet, at the intersection of Ascension Drive and Bel Aire Road.

The property is covered with a growth of seasonal grass and bushes, along with scattered pines and a prominent grove of eucalyptus trees. An access road leading to the water tank from Bel Aire Road is paved with asphalt, and a few unpaved roadways and trails exist along the uphill portion of the property. The water tank access road reportedly overlies one of two buried water lines feeding or leading from the tank. The other line is located along a utility easement on the northeast-facing slope of the knoll.

Extensive soil erosion has occurred on portions of the site well away form areas where development is proposed. There are four primary areas where erosion has affected the existing cut/benched slopes above Ascension Drive and Bel Aire Road. These areas are shown on Figure 3. These areas are almost entirely located within the areas of previously excavated cuts, or originate along abandoned bulldozer tracks located at higher elevations. Areas of erosion occur broadly along the excavated slope cuts, and below or along surface drainage channels.

One relatively small, additional, area of erosion is located along the southeastern slope, below the water tank. This area appears to be a natural slope. The erosion reportedly occurred following a sudden large volume release from the water tank in the 1960s. It is not apparent on the 1961 aerial photos, but appears fresh on 1969 photos (see discussion of air photos in subsequent section of this report).

A small abandoned rock quarry is located southeast of the water tank. A few cubic yards of rock was removed from this location at some time in the past. Our recent observations at the site suggest that there has been very little change to the erosion areas during the past 11 years.

SOIL AND BEDROCK CONDITIONS

Our field investigation and testing program was completed in 2002, and as noted, our recent site visit suggests that the site conditions are virtually identical at the present time.

During our 2002 evaluation the surface soil conditions encountered at the site consisted generally of a thin layer of brown to tan brown sandy to silty clay (colluvium/residual soil). This material was commonly less than 3 feet thick, and tested very low in expansion potential (Figure 39).

The surface soil was primarily underlain by dense to very dense tan to yellow brown sandstone bedrock. It should be noted that the sandstone encountered in our exploratory borings and pits generally became less weathered and thus stronger and more cemented with depth. It should also be noted that none of the borings or test pits encountered shale or sheared rocks, which have been mapped elsewhere in the area. (As will be discussed in the "geology" section of this report, it is our opinion that the site is primarily underlain by Franciscan sandstone bedrock).

The sandstone was commonly fractured at shallow depths. Fracture orientations were variable, with no prominent out of slope fracturing. The fractures were observed at the ground surface within the slope cuts, and within test pits, although decreasing in number with depth. We did not observe indications of bedding within test pits or surficial rock exposures.

Groundwater was not encountered in any of the borings at the time of drilling. Groundwater levels, however, tend to fluctuate seasonally, and could rise to the depths explored in the future. Shallow, seasonal "perched" groundwater sometimes occurs in the topsoil layer when the soil is underlain by dense, less pervious, bedrock. We observed groundwater seepage in 2002 from the base of weathered rock and above the less pervious rock along Ascension Drive.

For a more complete description of the soil and bedrock layers encountered in the borings and test pits, refer to the final Boring and final Test Pit Logs, included as Figures 4 through 38.

REGIONAL GEOLOGIC SETTING

The site is located within the central region of the Coast Ranges Geomorphic Province, which extends from the Oregon border south to the Transverse Ranges. The general topography is characterized by subparallel, northwest trending mountain ranges and intervening valleys. The region has undergone a complex geologic history of sedimentation, volcanic activity, folding, faulting, uplift and erosion. The relatively flat-lying, alluviated San Francisco Bay Plain is situated to the east of the site; the uplifted Santa Cruz Mountains are located to the west of the site.

Based on Pampeyan (1981, 1994), the general site vicinity is mapped to be underlain by Cretaceous age Franciscan Complex bedrock (Figure 2, Regional Geology Map). The bedrock in the site vicinity consists of primarily shale, chert, sandstone and greenstone. These rocks are commonly sheared and distorted by past tectonic activity. Based on the geologic references, the site is underlain by the Franciscan "Sheared Rock" unit (often referred to as Franciscan "Melange"), and is described as predominantly sheared shale, siltstone and graywacke sandstone, containing various inclusions of other Franciscan rock types. The bedrock is overlain by younger unconsolidated residual and colluvial soil deposits. The unit commonly erodes to a "badlands-type" topography.

Pampeyan does not identify definitive bedding, shears, faults or landslides in the immediate vicinity.

SITE GEOLOGY

The site has been mapped to be underlain by Franciscan Complex "Sheared Rocks", which on a regional basis primarily consists of sheared shale, siltstone and sandstone. Based on our geologic mapping and the numerous test borings and test pits, the site is primarily underlain by dense to very dense sandstone bedrock.

There are no indications of extensive shearing, although two shear zones are noted by R.C. Harlan and Associates (1981). The locations are not identified within the Harlan report, although they are possibly shown on a site plan, which was absent from the report copy supplied to our office.

There are no indications of deep-seated soil or bedrock landsliding at the site. Shallow soil slumps appear on pre-development air photos, but are of limited extent, and were largely removed by the late 1950s site grading. A relatively broad, shallow bowl-shaped area occurs on the southwest slope (see Figure 3). We placed test pits and exploratory borings within this area, and observed shallow bedrock within a few feet of the ground surface, and no indications of landsliding.

There are no indications on the air photos or during our geologic mapping of debris flow scars or deposits.

The soil on the northeast-facing slope is relatively richer in clay and silt than elsewhere on the property. This has resulted in a thicker soil horizon and increased water content within the soil.

Extensive soil erosion and gullying has occurred above Ascension Drive and Bel Aire Road. Gullies approach 10 feet in depth, although most erosion is on the order of 2 to 3 feet deep. The erosion has occurred in residual soil and in highly weathered sandstone. The deepest gullies are primarily located within former bulldozer tracks and where benches and v-ditches discharge. Some areas of erosion, particularly along the eastern area of the southeast slope above Ascension Drive, appear to have developed in conjunction with shallow soil slumping on the order of one to two feet in depth.

There are no surface features that are indicative of active faulting at the site. The site does not lie within a State of California Earthquake Fault Zone (CDMG, 1974). The closest mapped active fault to the site is the San Andreas located approximately 1.1 miles (1.75 kilometers) to the southwest. The San Andreas, and numerous other active and potentially active Bay Area faults, are capable of producing moderate to major earthquakes that could cause severe ground shaking at the subject site in the future. This hazard is shared in some degree by all land and structures in the San Francisco Bay Area.

In 2002, we conducted a portion of our field investigation shortly following a rainfall period of approximately 2 days with precipitation on the order to 2 to 3 inches. At that time, we observed active seepage of water from the toe of the cut slope adjacent to Ascension Drive and from the base of the weathered rock horizon (overlying less weathered rock) 1 to 2 feet below the ground surface. It appears that the erosion occurs primarily within this zone, and that groundwater, except possibly as relatively slow seepage, does not penetrate to greater depth.

AIR PHOTO INTERPRETATION

As part of our 2002 study, we interpreted 9 sets of air photo stereo pairs, taken from 1946 through 2000. The specific photo pairs are listed in the References section of this report, which includes specific dates and scales. The photos provided a clear indication of the pre- and post-grading conditions of the site.

1946

The 1946 images pre-date grading in the vicinity. Although few of the existing cultural features, including the water tank, are present, the site location is easily discerned. Polhemus Road is the only road in the site vicinity. Random cattle paths and jeep tracks are located across the site and surrounding area. The site is a prominent isolated hill with a steep slope to the southwest and northwest, and lesser slopes in the other directions.

The slope is relatively uniform from the top of the hill to the current Ascension Drive location. The lower half of this slope exhibits apparent shallow soil slumping. The overall appearance of the site is of relatively shallow soil, with indications of near-surface bedrock. There is a broad swale from near the crest of the hill down towards Ascension Drive (see Figure 3). There are no indications of deep-seated landsliding or soil movement within this area or on other portions of the site. However, slopes below Ascension Drive (southwest of the site) are hummocky and have the appearance of landslides (landslides have occurred on these off-site slopes in recent years).

1955

The 1955 images pre-date the extensive subsequent grading in the site vicinity. Parrott Drive and adjacent residences have been constructed. There are erosion gullies on the slopes below Ascension Drive, off-site, but none on the site. This suggests a thicker soil profile downslope of the site.

1961

Ascension Drive and Bel Aire Road have been constructed, in conjunction with grading of the on-site slopes above the roads. Narrow benches have been constructed on the cuts, with v-ditches along the benches. Several ditches and equipment tracks are visible; these subsequently are the locations of soil erosion gullies.

1969

Extensive soil rill erosion is apparent on much of the cut faces. Current (2013), deep erosion gullies are located within or immediately below the dozer trails noted in the 1961 imagery. There is no significant erosion on natural (ungraded) slopes within the site, with the exception of one area southeast of the tank. This is the area of the reported earlier water release from the tank, although there is no apparent continuation of the erosion upslope to the tank in the 1969 images.

1975-2000

The site is effectively unchanged during this 25-year period. Vegetation matures over the years, but there are no indications of landsliding or additional significant erosion areas. The previously noted erosion continues to be evident and on-going, with some areas remaining barren of vegetation."

CONCLUSIONS

In our opinion, the site conditions remain essentially unchanged since our December 16, 2002 geotechnical investigation. Therefore, the recommendations provided in our 2002 report remain applicable and are repeated in the follow sections of this report (with appropriate revisions and supplemental recommendations to support the current building code).

It should be noted that the bedrock that underlies most of the site is extremely dense. Therefore, it is essential that grading equipment capable of excavating very dense rock be used. It will also be necessary to break down the rock if and when it is used as engineered fill.

RECOMMENDATIONS

The following recommendations are contingent upon our firm being retained to review the development plans and to observe the geotechnical aspects of construction.

A. Seismic Criteria Per 2010 CBC

As of January 1, 2011, the 2010 CBC is being utilized for projects in California. This new code is based upon the 2009 International Building Code.

It is our opinion that the subject site can be classified as Site Class "B" (a Rock profile) for the purpose of structural engineering calculations as defined in Section 1613 of the 2010 CBC.

B. Grading

All grading should be performed under the observation of a representative from our firm and in accordance with the attached "Guide Specifications for Engineered Fill". Prior to the commencement of grading, the areas to be graded should be stripped to remove all grass, weeds, and other deleterious materials.

In addition, brush and trees should be removed, along with their root systems. In areas to receive fill where trees are removed, it will be necessary to carefully backfill the stump excavations with engineered fill.

After the site has been stripped to our satisfaction, a key should be excavated at the toe of any planned fill slope. Actual key widths should be determined when grading commences, as it will vary slightly depending upon the width of the compaction equipment used. Generally, a 12 to 15 foot wide key will accommodate most compaction equipment. Fill can then be brought into the key in thin lifts, moistened or aerated as required, mixed, and compacted. All fills should be compacted to a minimum degree of compaction of 95 percent based upon ASTM D1557, latest revision.

As the level of the fill rises, horizontal benches should be excavated into the hillside, so that a strong bond is maintained between the newly placed engineered fill and strong rock.

The downhill side of the key excavation should have a minimum depth of 18 inches into strong bedrock. This will probably require that the keyways have overall depths on the order of 2 to 3 feet measured at the downslope edge of the key. All horizontal benches should remove the surface soil and extend into strong residual soil or dense bedrock as approved by our representative. The maximum finished fill slope inclination should not exceed 2 horizontal to 1 vertical (with the exception of areas where geogrid slope reinforcing material is used. In these areas steeper slopes may be considered).

All fill slopes should be somewhat overbuilt and then trimmed to expose strong compacted soil. Any cut slopes should also not exceed 1-1/2 horizontal to 1 vertical in bedrock, and the upper portion of cuts where any soil is exposed should be trimmed to 2 horizontal to 1 vertical in the upper 2 feet. All cut slopes should be inspected by our engineering geologist. If any unfavorable bedding or joint planes are encountered in the exposed bedrock, additional recommendations may be necessary.

It may be necessary to place subdrainage beneath fills that have a thickness greater than 4 feet, or in areas where seepages are encountered. All subsurface drainage should be constructed in accordance with the attached "Guide Specifications for Subsurface Drains".

The dense nature of the sandstone bedrock will require heavy grading equipment to allow successfully excavation. As noted, the density and cementation of the bedrock was found to increase with depth.

The above recommendations are illustrated in profile view on the attached Figure 40.

C. Repair of Erosional Features

As noted, several areas of erosion have occurred on the existing steep cut slopes above Bel Aire and Ascension Drive. There are a number of options that may be considered to stabilize these erosion features. The borings that we excavated in these areas encountered very strong, resistant sandstone bedrock at relatively shallow depths and this rock may be used as a "foundation" for various repair options.

One option would involve excavation and removal of the material affected by erosion (in areas where the topography allows a cut to "daylight" at acceptable inclinations). This option could be considered in the prominent gully above the Bel Aire/Ascension intersection.

Another option would involve excavation of a "keyway" at the base of the slope in the erosion areas (or in some cases where resistant rock is exposed at the base of the erosion area). The slope could then be rebuilt with compacted and drained engineered fill with a geogrid to allow slope reconstruction at a steep inclination (The manufacturer's specifications could be used to design grid type and grid spacing for various finished slope inclinations). We have included a typical detail for slope reconstruction utilizing geogrid on the attached Figure 41.

A third option would involve construction of structural retaining walls or terrace walls in the erosion areas. Consideration could be given to constructing a wall at the top of the eroded area and then trimming the erosional features away from below the wall.

Whatever options are chosen, it is essential that the finished slopes be planted with erosion resistant vegetation (and lined with a jute type mesh). Improvement of surface drainage above the repair areas and subsurface drainage (if regrading takes place) is important.

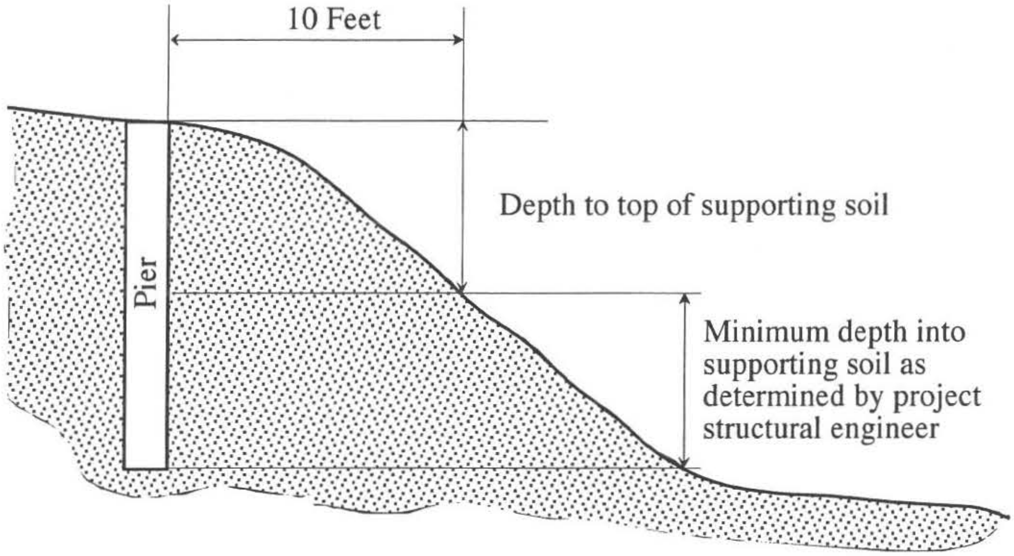
D. <u>Foundations</u>

In our opinion, the proposed residences may be constructed upon drilled, cast-in-place, reinforced concrete pier and grade beam foundations, or spread footings, whichever proves appropriate for the minimum depth criteria presented below. The chosen foundation system should anchor the proposed structures into strong bedrock.

D1. <u>Drilled Piers</u>

The bedrock at the site is very dense and drilling equipment capable of drilling through hard rock should be used. Drilled piers should be designed on the basis of a skin friction value of 500 psf beginning at the top of supporting material. In this case, the top of supporting material should be assumed to begin at a depth of 2 feet, 1 foot below the top of bedrock, or as defined by the "Rule of Ten" criteria illustrated below, whichever is deeper. The depth may be modified by our representative during construction, especially if very dense bedrock areas are encountered.

DRILLED PIER FOUNDATIONS



Pier depths should be based upon actual design loads at each pier location. However, as a minimum, the piers should extend 6 feet below the top of supporting material. Therefore, it is anticipated that average pier depths will be on the order of 8 to 11 feet below existing grades.

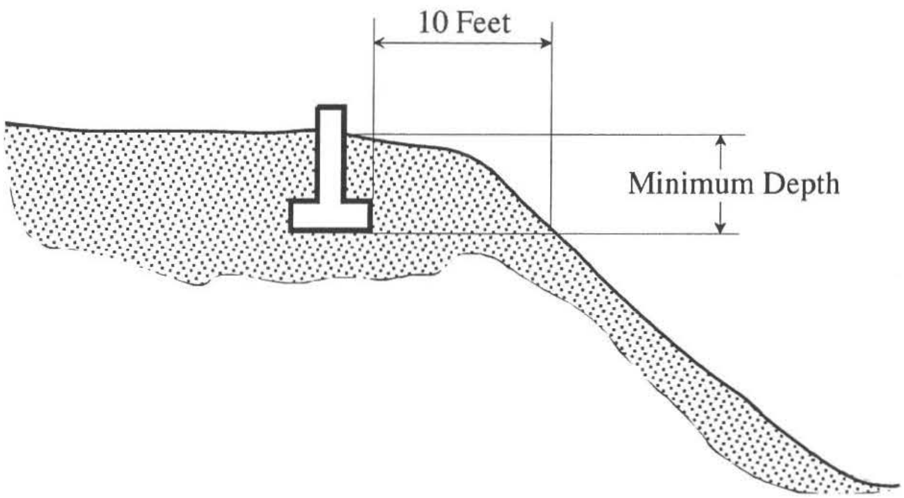
In addition to vertical loading, the piers should be designed to resist a horizontal "creep" load equal to a fluid weighing 50 pounds per cubic foot, which should be projected over 2 1/2 pier diameters. This lateral load should be designed to extend to a depth of 2 feet below finished grade. The piers can resist the lateral load through a passive resistance of 350 pounds per cubic foot, projected over 2 pier diameters. The passive value begins at the top of supporting material, as defined above. The creep load will not apply in areas that the upper few feet of soil has been excavated, or in areas that piers are to extend through engineered fill, as any weak surface soil will have been removed. It is suggested that the structural engineer contact us during the design phase, so that a specific lateral load criteria can be developed for each pier location.

Reinforcing for the piers should be determined by the structural engineer based upon anticipated loading.

D2. Spread Footings

Spread footings may be used if the footings extend to a minimum depth of 18 inches, 12 inches into strong bedrock, or as illustrated by the "Rule of Ten" criteria presented below, whichever is deeper. The "Rule of Ten" takes into account the reduction in bearing capacity that shallow foundations experience when located on or near sloping terrain.

SPREAD FOOTING FOUNDATIONS



At the recommended minimum depth the footings can be designed for an allowable bearing pressure of 3000 psf for dead loads and 3250 for dead plus live loads. This value may be increased by 33 per cent to account for all loads, including wind and seismic.

E. Retaining Walls

Retaining walls should be constructed upon foundations designed in accordance with Section D, above. All retaining walls should be designed to resist the active equivalent fluid pressures tabulated below.

WALL BACKSLOPE INCLINATION (H:V)	EQUIVALENT FLUID PRESSURE (pcf)
Level	35
4h: 1v	40
3h: 1v	45
2h: 1v	50

When walls are to be rigidly restrained from rotation, a uniform surcharge pressure of 75 psf should be added to the design values. Interpolation can be used to determine pressures for intermediate inclinations. In addition to static soil earth pressure as outlined above, retaining walls should be designed to resist short-term seismic loading. The retaining walls should be designed for a seismic loading increment (in pounds per foot) equal to 14 times the height of the wall (in feet) squared. The seismic component, as defined above, should be considered as a line load acting at a point 0.33 times H above the base of the retaining wall, where H is the wall height. It is noted that the seismic component should be added to the static earth pressure loading.

In our opinion, it is acceptable to use a factor of safety of 1.1 for overturning and sliding when considering the combined effect of static and seismic loading.

Passive resistance can begin at the top of supporting material, and can be taken as a value of 350 pcf. If drilled piers are used to support the wall this value can be projected over 2 pier diameters. In areas where spread footings are appropriate, a friction factor of 0.35 can be incorporated into the design.

It is important that adequate subdrainage be constructed behind retaining walls in accordance with the specifications shown on the attached Figure 42.

F. Slab-On-Grade Construction

It is anticipated that the only slab-on-grade construction will be for the garage floors. The slabs should be reinforced with steel bars and cast upon firm natural soil, rock, or engineered fill. It is recommended that some type of moisture retardant be provided beneath the slabs. We have included a minimum, but commonly used treatment on the attached Figure 43.

We also recommend that a network of "finger drains" be constructed in areas to receive slabs to mitigate the potential of water affecting the slabs. Finger drains should be constructed in accordance with Figure 44.

G. Surface Drainage

We recommend that the site be fine-graded to direct surface water to flow away from the building foundations. As a general requirement, storm water should not be allowed to pond or flow in concentrated streams or channels on the site. Such ponding or flows and the resulting saturation can weaken the soils and perhaps cause some minor site erosion.

It is further recommended that all roof downspouts be led into tightline disposal pipes that deposit water well away from building foundations and into a suitable disposal area. Rigid PVC pipe should be used. In no case should corrugated flex type pipe be used.

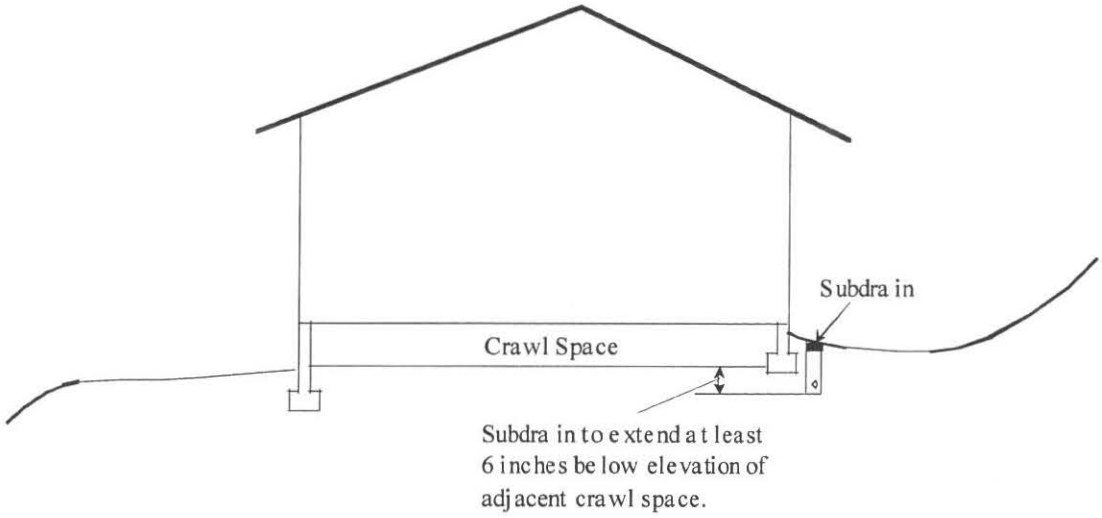
It will also be necessary to construct concrete "v" ditches at strategic locations to protect slopes. The civil engineer should locate such drains and provisions to maintain the drains will be important. Failure of "v" ditches is a common problem at similar sites. Therefore, due to the steep slopes and history of erosion, it is recommended that the design be particularly conservative.

H. Subdrainage

All subdrainage should be constructed in accordance with the attached "Guide Specifications for Subsurface Drains". As noted, subdrainage should be constructed behind retaining walls as illustrated on Figure 42. Subdrains should also be placed beneath engineered fills that have depths greater than 4 feet and in areas where any seepage zones (or potential seepage zones) are encountered.

In order to reduce the potential for water to seep into the building "crawl areas", it is also important that a foundation drain be constructed along the uphill and sidehill sides of the structures as is illustrated below. If the uphill foundation wall is a retaining wall, the wall subdrain will serve this purpose.

FOUNDATION SUBDRAIN AT UPHILL SIDES OF STRUCTURE



The above subdrain should be constructed in accordance with the specifications for retaining wall subdrainage included on Figure 42. In our opinion, it would also be prudent to construct an "outlet" through the footing or grade beam at a low point within the crawl space. Such an outlet would allow any moisture that entered the subfloor area to be dissipated. The crawl space soil or rock surface should be graded to slope to the outlet, with no isolated low areas that could trap water.

I. Pavements

Final pavement design will be dependent upon the anticipated traffic and the materials exposed at the subgrade levels. For preliminary design purposes, a pavement section of 3 inches of asphaltic concrete underlain by 8 inches of Class 2 aggregate base material can be anticipated for the roadways. When traffic indexes (T.I.) become available, we will be able to provide additional input regarding pavements.

J. Review of Plans and Construction Observations

It is recommended that all of the plans related to our recommendations be submitted to our office for review. The purpose of our review will be to verify that our recommendations are understood and reflected on the plans, and to allow us to provide supplemental recommendations, if necessary.

It is important that we be retained to provide observation and testing services during construction. Our observations and tests will allow us to verify that the materials encountered are consistent with those found during our study, and will allow us to provide supplemental, on-site recommendations, as necessary.

LIMITATIONS

The conclusions and opinions expressed in this report are based upon the exploratory borings and trenches that were excavated on the site in 2002 along with our current observations. While in our opinion these borings and trenches adequately disclose the soil conditions across the site, the possibility exists that abnormalities or changes in the soil conditions, which were not discovered by this investigation, could occur between borings.

This study was not intended to disclose the locations of any existing utilities, septic tanks, leaching fields, hazardous wastes, or other buried structures. The contractor or other people should locate these items, if necessary.

The passage of time may result in significant changes in technology, economic conditions, or site variations that could render this report inaccurate. Accordingly, neither Analytical Environmental Services nor any other party shall rely on the information or conclusions contained in this report after 12 months from its date of issuance without the express written consent of Michelucci & Associates, Inc. Reliance on this report after such period of time shall be at the user's sole risk. Should Michelucci & Associates, Inc. be required to review the report after 12 months from its date of issuance, Michelucci & Associates, Inc. shall be entitled to additional compensation at then-existing rates or such other terms as may be agreed upon between Michelucci & Associates, Inc. and Analytical Environmental Services.

This report was prepared to provide engineering opinions and recommendations only. It should not be construed to be any type of guarantee or insurance.

REFERENCES

Aerial Photographs

Pacific Aerial Surveys (PAS) black and white stereo pairs:

Film I.D.	Scale	Date
PAS-AV-9-16-7/8/9	1:23,600	7/29/46*
PAS-AV-170-10-10/11	1:10,000	5/10/55*
PAS-AV-432-10-17/08	1:12,000	6/20/61*
PAS-AV-933-10-06/07	1:12,000	6/30/69*
PAS-AV-1188-08-14/15	1:12,000	5/12/75
PAS-AV-2265-09-06/07	1:12,000	6/6/83
PAS-AV-2670-9-7/8	1:12,000	10/15/85
PAS-AV-4916-309-9/10	1:12,000	9/7/95
PAS-AV-6600-10-7/8	1:12,000	8/16/00*

* These photos were most utilized in interpreting the site geologic conditions.

Plans

Lea & Braze Engineering, Inc. 2013, "Vesting Tentative Subdivision Map, Ascension Heights Subdivision, San Mateo, California (Unincorporated)", Sheets C-1 through C-7, July 1, 2013, Scale 1" = 40'.

Publications

Brabb, E.E, and Pampeyan, E.H, 1972, Preliminary Map of Landslide Deposits in San Mateo County, California: USGS Miscellaneous Field Studies Map MF-344, scale 1:62,500.

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International Conference of Building Officials, June 2010, 2010 California Building Code, Volume 2 Structural Engineering Design Provisions.

Leighton and Associates, 1976, Geotechnical Hazard Synthesis Map of San Mateo County, California: geotechnical consultant's December maps to the County of San Mateo Planning Department, Sheet 2, scale 1:24,000.

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....., 1994, "Geologic Map of the Montara Mountain and San Mateo 7-1/2' Quadrangles, San Mateo County, California", USGS Miscellaneous Investigations Series Map I-2390, Scale 1:24,000.

Unpublished Maps and Reports

Analytical Environmental Services, 2012, "County of San Mateo, Ascension Heights Subdivision Project, Revised Environmental Impact Report", report dated September 27, 2012.

(R.C.) Harlan and Associates, 1981, "Feasibility Geotechnical Investigation, Ascension/Bel Aire P.U.D, San Mateo, California", report dated July 8, 1981.

Terrasearch, Inc, 1979, "Soil Investigation on Proposed Subdivision, Northeast Corner of Ascension Drive and Bel Aire Road, San Mateo County, California", report dated November 12, 1979 revised February 15, 1980.

A. GENERAL

A1. Definition of Terms

FILL...is all soil or soil/rock materials placed to raise the grade of the site or to backfill excavations.

ON-SITE MATERIAL...is that which is obtained from the required excavations on the site.

IMPORT MATERIAL...is that hauled in from off-site areas.

SELECT MATERIAL...is a soil material meeting the requirements set forth in "C(2)" below.

ENGINEERED FILL...is a fill upon which the Geotechnical Engineer has made sufficient tests and observations to enable him to issue a written statement that in his opinion the fill has been placed and compacted in accordance with the specification requirements.

AASHTO SPECIFICATIONS...are the Standard Specifications of the American Association of State Highway Officials, latest revision.

ASTM SPECIFICATIONS...are the Annual Book of ASTM Standards (Part 19), American Society for Testing and Materials, latest revision.

MAXIMUM LABORATORY DENSITY...is the maximum density for a given fill material that can be produced in the laboratory by the Standard procedure ASTM D1557, "Moisture-Density Relations of Soils Using a 10-Pound (4.5 kg) Hammer and an 18-Inch (457 mm) Drop" (AASHTO Test T-180, "Moisture-Density Relations of Soils Using a 10-Pound Hammer and an 18-Inch Drop").

OPTIMUM MOISTURE CONTENT...is the moisture content at which the maximum laboratory density is achieved using the standard compaction procedure ASTM Test Designation D1557 (AASHTO Test T-180).

DEGREE OF COMPACTION... is the ratio, expressed as a percentage, of the dry density of the fill material as compacted in the field to the maximum laboratory dry density for the same material.

A2. Responsibility of the Geotechnical Engineer

The Geotechnical Engineer shall be the Owner's representative to observe the grading operations, both during preparation of the site and compaction of any engineered fill. He shall make enough visits to the site to familiarize himself generally with the progress and quality of the work. He shall make a sufficient number of field observations and tests to enable him to form an opinion regarding the adequacy of the site preparation, the acceptability of the fill material, and the extent to which the degree of compaction meets the specification requirements. Any fill where the site preparation, type of material, or compaction is not approved by the Geotechnical Engineer shall be removed and/or recompacted until the requirements are satisfied.

A3. Soil Conditions

A soil investigation has been performed for the site by Michelucci & Associates, and a report has been prepared. The Contractor shall familiarize himself with the soil conditions on the site, whether covered in the report or not, and shall thoroughly understand all recommendations associated with the grading.

B. SITE PREPARATION

B1. Stripping

Prior to any cutting or filling, the site shall be stripped to a sufficient depth to remove all grass, weeds, roots, and other vegetation. The minimum stripping depth shall be 3 inches. The site shall be stripped to such greater depth as the Geotechnical Engineer in the field may consider necessary to remove materials that in his opinion are unsatisfactory. The stripped material shall either be removed from the site or stockpiled for reuse later as topsoil, but none of this stripped material may be used for engineered fill.

B2. Preparation for Filling

After stripping, the weak soils in areas to be filled shall be overexcavated to the minimum depth called for on the plans or that is required by the Soil Engineer in the field. The overexcavated soils that are clean and free from organic material can be used later as general engineered fill.

After stripping the surface vegetation and overexcavating the weak soils to the required depths, horizontal keyways and benches shall be excavated at least 24 inches below the ground surface or 18 inches into strong bedrock, whichever is deeper. When the required depth has been achieved, the exposed surface shall be scarified to a minimum depth of 6 inches, watered or aerated as necessary to bring the soil to a moisture content that will permit proper compaction, and recompacted to the requirement of engineered fill as specified in "D" below. Prior to placing fill, the Contractor shall obtain the Geotechnical Engineer's approval of the site preparation in the area to be filled. The requirements of this section may be omitted only when approved in writing by the Geotechnical Engineer.

C. MATERIAL USED FOR FILL

C1. Requirements for General Engineered Fill

All fill material must be approved by the Geotechnical Engineer. The material shall be a soil or soil/rock mixture that is free from organic matter or other deleterious substances. The fill material shall not contain rocks or lumps over 6 inches in greatest dimension, and not more that 15% by dry weight. Gravels or rock materials in the soil shall not be larger than 2 1/2 inches in greatest dimension. A portion of or all soils from the site, except the surface strippings, may be suitable for use as fill if they are broken down to size requirements.

C2. Requirements for Select Fill Material

In addition to the requirements of "C(1)" above, select material, when called for on the plans and for use under floor slabs, must conform to the following minimum requirements:

Maximum Plasticity Index 10

In addition to the requirements of "C(1)" above, the select material shall be non-plastic and shall have an "R" value of at least 25. Select material shall be approved by the Geotechnical Engineer.

D. PLACING AND COMPACTING FILL MATERIAL

All fill material shall be compacted as specified below or by other methods, if approved by the Geotechnical Engineer, so as to produce a minimum degree of compaction of 95% (ASTM D1557). Fill material shall be spread in uniform lifts not exceeding 6 inches in thickness. Before compaction begins, the fill shall be brought to a water content that will permit proper compaction by either aerating the material if it is too wet or spraying the material with water if it is too dry. Each lift shall be thoroughly mixed before compaction to ensure a uniform distribution of water content. If any cohesive soils are used within 3 feet of the finished ground surface, they shall be placed and compacted at a moisture content that is 1% to 3% above optimum.

E. EXCAVATION

All excavations shall be carefully made true to the grades and elevations shown on the plans. The excavated surfaces shall be properly graded to provide good drainage during construction and to prevent ponding of water.

F. TREATMENT AFTER COMPLETION OF GRADING

After grading is completed and the Geotechnical Engineer has finished his observation of the work, no further excavation or filling shall be done except with the approval of and under the observation of the Geotechnical Engineer.

It shall be the responsibility of the Grading Contractor to prevent erosion of freshly-graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

A. DESCRIPTION

Subsurface drains are pipes installed beneath the ground surface and which collect and convey subsurface drainrock and water. Unless otherwise directed by the Soil Engineer in the field, the conduit shall be placed in a trench and the trench shall be backfilled with pervious material. The conduit and pervious material shall meet the requirements for the materials given in these specifications. The materials for the subsurface drain and the size of the trench shall be as shown on the plans or as determined by the Soil Engineer in the field.

B. MATERIALS

B1. Subdrain Pipe

Subdrain pipe shall be manufactured in accordance with the following requirements:

a. Perforated corrugated metal pipe shall conform to the specifications of AASHTO Designation M-36. Corrugated steel sheet used in the fabrication of the pipe shall have a protective coating of zinc (galvanizing), aluminum, or aluminum-zinc alloy conforming to ASTM Designation A760.

b. Acrylontrile-Butadiene-Styrene (ABS) plastic pipe shall conform to the specifications for ABS plastic pipe given in ASTM Designation D2282 and ASTM Designation D2751. ABS pipe shall have a minimum pipe stiffness of 45 psi at 5% deflection when measured in accordance with ASTM Method D2412.

c. Polyvinyl chloride (PVC) pipe shall conform to AASHTO Designation M278. PVC pipe shall have a minimum pipe stiffness of 50 psi at 5% deflection when measured in accordance with ASTM Method D2412. Schedule 40 PVC pipe shall be suitable.

B2. Pervious Backfill Material

Pervious materials for use in backfilling trenches shall conform to the requirements of Paragraph C1 of the specifications. Pervious material conforming to the requirements of Paragraph C2 may be used, provided that the backfill is wrapped in a suitable geotextile ("filter fabric") meeting the requirements given in Section D.

C. BACKFILL MATERIAL

C1. Filter Material

Filter material for use in backfilling trenches around and over subdrains pipes and behind retaining walls shall consist of clean coarse sand and gravel or crushed stone conforming to the following requirements:

Sieve Size	% Passing Sieve
2"	100
3/4"	70-100
3/8"	40-100
#4	25-50
#8	15-45
#30	5-25
#50	0-20
#200	0-3

Class 2 "permeable material" conforming to the State of California Department of Transportation Standard Specifications, latest edition, Section 68-1.025 shall be suitable.

C2. Gravel

Gravel for use in pervious blankets and in backfilling trenches or wrapped in filter fabric meeting the requirements of Section D of these specifications shall consist of clean fresh stone conforming to the following grading requirements:

Sieve Size	% Passing Sieve
1"	100
1/2"	50-100
#4	40-100
#8	0-40
#30	0-40
#50	0-5
#200	0-3

Class 1 "permeable material" conforming to the State of California Department of Transportation Standard Specifications Section 68-1.025 shall be suitable.

D. GEOTEXTILE

Geotextiles for use in subdrains or as directed by the Soil Engineer shall be of non woven needle punched construction and consist of long chain polymeric fibers composed of polypropylene, polyethylene, or polyamide. The fibers shall be oriented into a multi-directional stable network. The geotextile shall conform to the physical property requirements listed below:

Physical Property	Test Method	Acceptable Typical Test Results
Tensile Strength, wet, lbs..	ASTM D-1682	90 (minimum)
Elongation, wet, %	ASTM D-1682	40 (minimum)
Coefficient of Water Permeability, cm/sec	Constant Head	0.10 (minimum)
Pore size--EOS, U.S. Corps of Engineers Standard Sieve	CW-02215	40 (maximum)

The geotextile shall be furnished in a protective wrapping which shall protect the fabric from ultraviolet radiation and from abrasion due to shipping and handling.

E. LAYING AND PLACEMENT

The drainpipe and filter material shall be placed as shown on the plans or as determined by the Soil Engineer in the field. Unless otherwise directed by the Soil Engineer, perforated pipe shall be laid with the perforations at the bottom. Corrugated metal pipe sections shall be joined with couplers.

Subsurface drains shall be placed to the depths, lines, and grades shown on the plans and as directed by the Soil Engineer in the field. Subsurface drains shall discharge to a suitable outlet as defined in the field by the Soil Engineer or as shown on the plans.

After excavating the subsurface drain trench but before placing the drainpipe, a minimum of 6 inches of filter material shall be placed on the trench bottom. The filter material shall be rounded to conform to the curvature of the pipe so that the pipe is carefully bedded. The trench shall then be backfilled to the top of the pipe, and the backfill should be tamped or hand-wedged into place to provide firm support at the sides of the pipe. In general, the installation shall follow the guidelines of ASTM Designation D2774, except that compaction of the filter material in the trench shall not be required.

The contractor shall, at his expense, replace pipes damaged during the installation or subsurface drains not placed at the lines and grades called for on the plans or as determined by the Soil Engineer in the field.

The geotextile shall be placed in the manner and at the locations shown on the plans. The surface to receive the fabric and/or the trench into which the fabric is to be placed shall be prepared to a smooth condition free of obstructions and debris.

The geotextile shall be covered with a permeable material within two weeks of its placement. Should the fabric be damaged during the construction, the torn or punctured section shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and to meet the overlap requirement. Adjacent borders of the geotextile shall be overlapped a minimum of twelve (12) inches or sewn. The preceding roll shall overlap the following roll in the direction the material is being placed.

F. CLEANOUTS

At the direction of the Soil Engineer, cleanouts shall be provided at the ends of pipes and at junctions and connections of pipelines. Junction angles should be no steeper than 45 degrees where cleanout pipes connect to the subdrain pipes. Cleanouts should be provided with caps.

APPENDIX F

NOISE MEASUREMENT OUTPUT FILES

Noise Measurement Site 1

10/28/2013

Information Panel

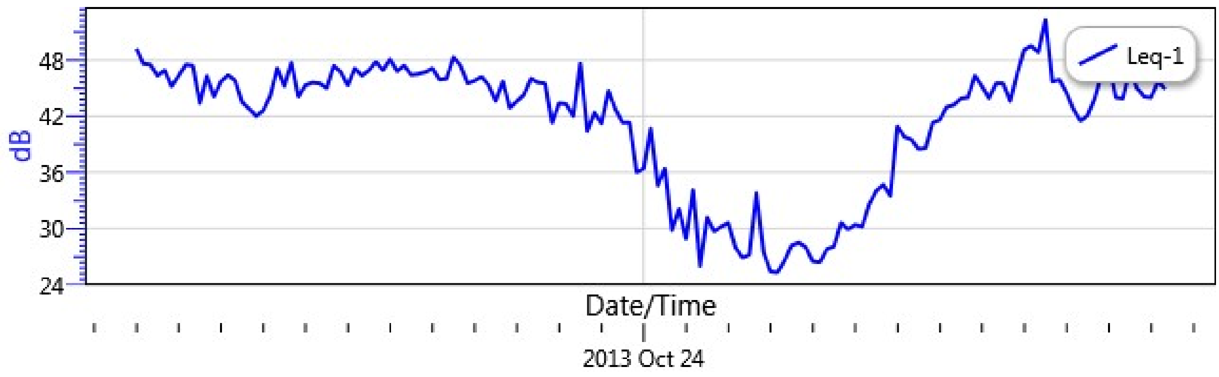
Name	S240_BGH060008_28102013_112543
Start Time	10/23/2013 11:50:03 AM
Stop Time	10/24/2013 12:25:05 PM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	44.6 dB	Lmin	1	22.3 dB
Lmax	1	79.3 dB	LDN	1	47 dB
CNEL	1	47.7 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S240_BGH060008_28102013_112543: Logged Data Chart



Noise Measurement Site 2

10/28/2013

Information Panel

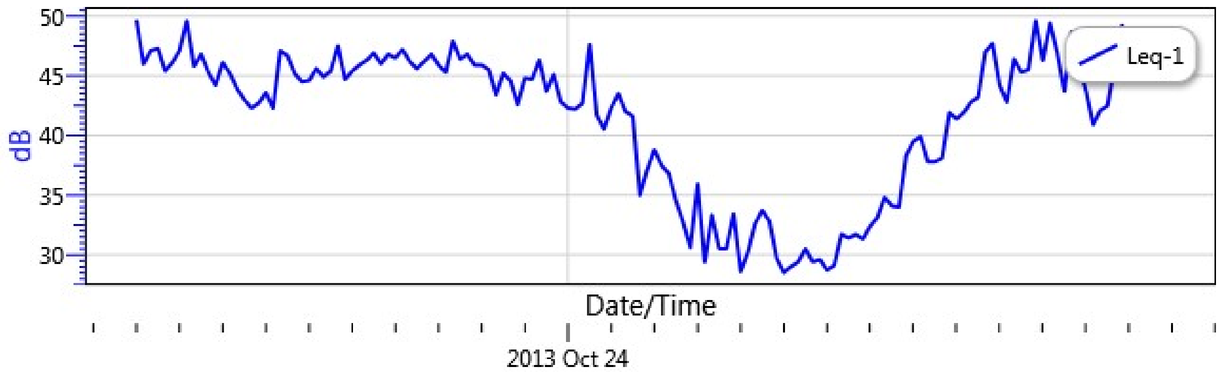
Name	S201_BGH060007_28102013_112032
Start Time	10/23/2013 1:50:08 PM
Stop Time	10/24/2013 1:53:41 PM
Device Name	BGH060007
Model Type	SoundPro DL
Device Firmware Rev	R.13D
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	44.8 dB	Lmax	1	85 dB
Lmin	1	27.6 dB	LDN	1	48.2 dB
CNEL	1	48.9 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S201_BGH060007_28102013_112032: Logged Data Chart



Noise Measurement Site 3

10/28/2013

Information Panel

Name	S141_BGH060008_28102013_124735
Start Time	10/23/2013 12:06:17 PM
Stop Time	10/24/2013 12:07:18 PM
Device Name	BGH060009
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	50 dB	Lmin	1	25.8 dB
Lmax	1	77 dB	LDN	1	51.7 dB
CNEL	1	52.2 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S141_BGH060008_28102013_124735: Logged Data Chart

Noise Measurement Site A

10/28/2013

Information Panel

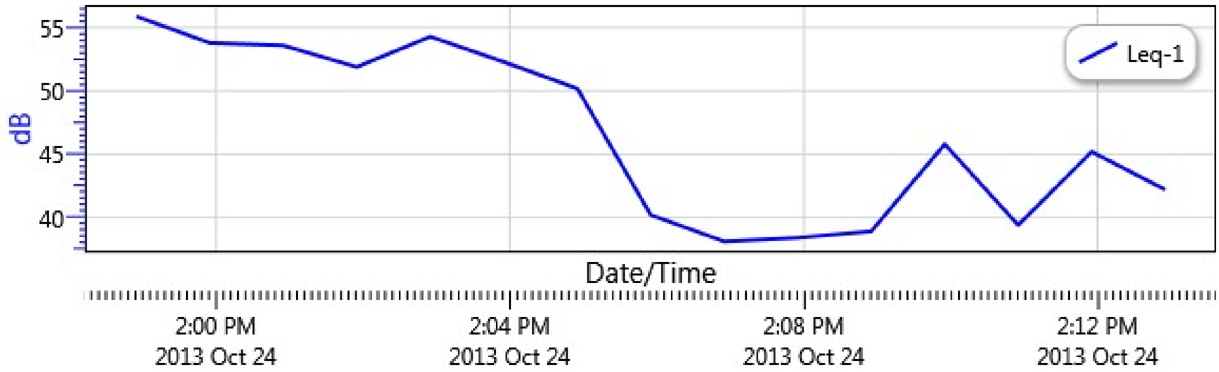
Name	S202_BGH060007_28102013_112031
Start Time	10/24/2013 1:57:55 PM
Stop Time	10/24/2013 2:13:49 PM
Device Name	BGH060007
Model Type	SoundPro DL
Device Firmware Rev	R.13D
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	51 dB	Lmin	1	36.5 dB
Lmax	1	68.2 dB	LDN	1	51 dB
CNEL	1	51 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S202_BGH060007_28102013_112031: Logged Data Chart



Noise Measurement Site B

10/28/2013

Information Panel

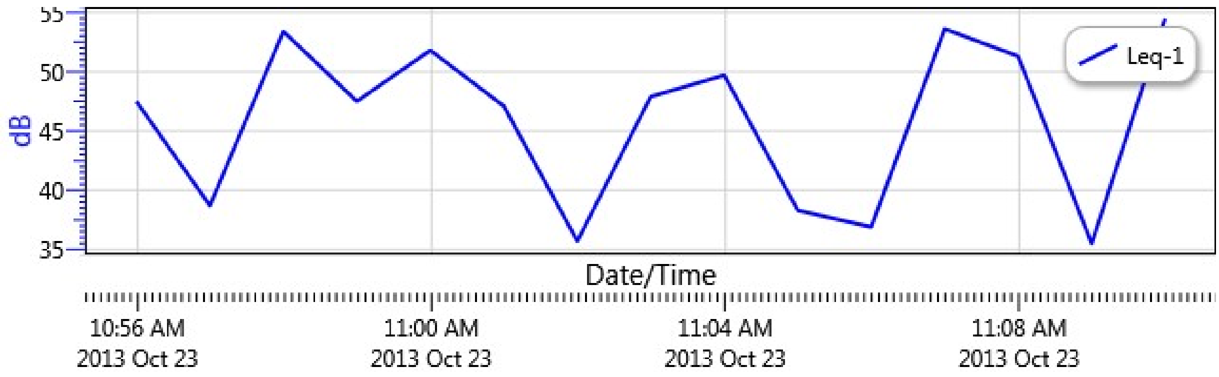
Name	S238_BGH060008_28102013_112544
Start Time	10/23/2013 10:54:59 AM
Stop Time	10/23/2013 11:10:03 AM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.5 dB	LDN	1	49.5 dB
Lmax	1	65.7 dB	Lmin	1	33.7 dB
CNEL	1	49.5 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S238_BGH060008_28102013_112544: Logged Data Chart



Noise Measurement Site C

10/28/2013

Information Panel

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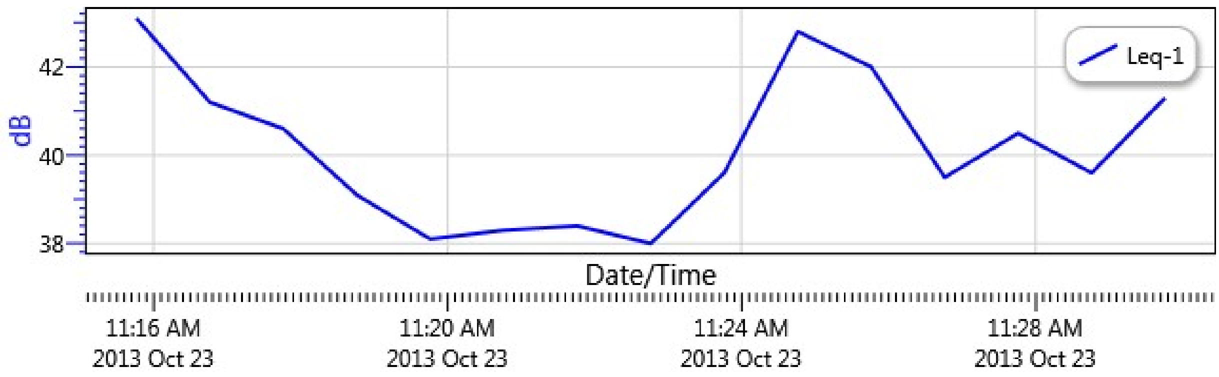
Stop Time	10/23/2013 11:29:48 AM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	40.4 dB	Lmax	1	53.3 dB
Lmin	1	36.7 dB	LDN	1	40.4 dB
CNEL	1	40.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S239_BGH060008_28102013_112543: Logged Data Chart

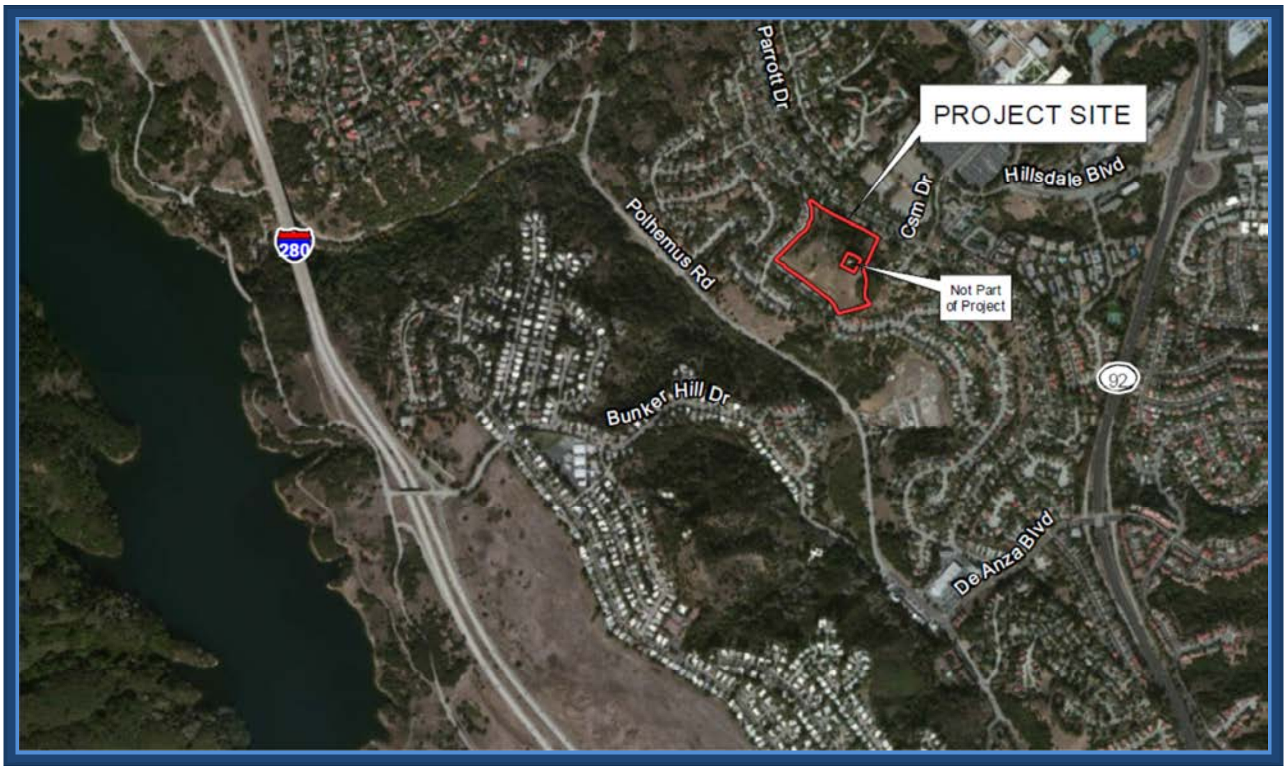


APPENDIX G

ANALYSIS OF WATER AND SEWER UTILITIES

ASCENSION HEIGHTS SUBDIVISION PROJECT ANAYLYSIS OF WATER AND SEWER UTILITIES

TECHNICAL MEMORANDUM



DRAFT

DECEMBER 2013

NV5
BEYOND ENGINEERING

ASCENSION HEIGHTS SUBDIVISION PROJECT
ANALYSIS OF WATER AND SEWER UTILITIES

TECHNICAL MEMORANDUM

DRAFT

DECEMBER 2013

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CONTENTS

ASCENSION HEIGHTS SUBDIVISION PROJECT
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DRAFT

December 2013

1.0 BACKGROUND

The Ascension Heights Subdivision Project (Project) is a proposed residential development located in the unincorporated San Mateo Highlands area of San Mateo County. The proposed development includes 19 single-family residences. In 2009, the same Project was analyzed but it included a total of 25 residential dwelling units. The Environmental Impact Report (EIR) for that Project was declined in 2009 by the San Mateo Planning Commission. The proposed reduction in dwelling units for this Project along with other changes require a re-application and EIR analysis. This technical memorandum (TM) provides a summary of the water and sewer infrastructure analyses and results of the impacts for the Project.

Part of the analysis included reviewing a series a documents relating to the history of this Project. The following documents were reviewed as part of this analysis:

1. Draft Environmental Impact Report, Ascension Heights Subdivision Project, June 2009
2. Vesting Tentative Subdivision Map, Ascension Heights Subdivision, San Mateo, California (Unincorporated), July 2013
3. Cease and Desist Order No. R2-2009-0020, Requiring the City of San Mateo, Town of Hillsborough, Crystal Springs County Sanitation District in San Mateo County to Cease and Desist Discharging Waste from Their Respective Sanitary Sewer Systems in Violation of Requirements in Regional Water Board Order Nos. 01-071 and R2-2007-0075 (NPDES Permit No. CA 0037541), Water Quality Control Plan for the San Francisco Bay Basin, and/or State Water Board Order No. 2009-0003 DWQ, March 2009
4. County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan, August 1999
5. California Water Service Company, 2010 Urban Water Management Plan, Mid-Peninsula District, June 2011

2.0 SEWER

The proposed Project is located in the Crystal Springs County Sanitation District (CSCSD) service area, which is administered by the San Mateo County Department of Public Works. The CSCSD collection system consists of approximately 19 miles of 6-inch to 15-inch diameter sewer pipe and serves a population of approximately 5,600 people [1]. The main trunk sewer in CSCSD is a 10-inch to 15-inch trunk sewer located in Polhemus Road. Wastewater generated in the proposed development will be conveyed in new sewer mains to the existing CSCSD sewer main located on Bel Aire Road. Sewage from CSCSD's collection system flows through the Town of Hillsborough's collection system via the Crystal Springs/El Cerrito Trunk Sewer.

Wastewater in this trunk sewer flows to the San Mateo Wastewater Treatment Plant (SMWTP), where it is treated and disposed per the Sanitary Sewer Agreement with the City of San Mateo [1].

Project Sewer Facilities

The sewer system facilities for the proposed development include: sanitary sewer gravity mains, manholes, and pumps/force mains for 11 of the 19 proposed residential units. The force main from each of the 11 residential units convey wastewater from residences that are located at elevations below the sanitary sewer gravity main. Sewer laterals convey wastewater directly to the sewer main from each lot.

Project Sewer Generation

The CSCSD is administered by the San Mateo County Department of Public Works, which uses a sewer generation rate of 220 gallons per day (gpd) per equivalent residential unit. The proposed Project, with 19 residential units is anticipated to generate approximately 4,180 gpd (0.004 mgd) of wastewater.

Project Sewer Impacts and Mitigation

The SMWTP has an average dry weather design capacity of 15.7 mgd, and a peak wet weather flow capacity of approximately 40 mgd [1]. SMWTP treated and disposed of an average dry weather flow of 12.4 mgd of wastewater, leaving a surplus capacity of 3.3 mgd. The proposed development is anticipated to generate approximately 0.004 mgd of average dry weather flow, which is well within the current surplus capacity at the SMWTP.

Vesting Tentative Subdivision Maps of the proposed development dated July 1, 2013 show the general location of the proposed sewer infrastructure, but do not provide details of the infrastructure size or construction, which is typical at this stage of the project. It is assumed that proposed infrastructure will be designed in compliance with CSCSD and San Mateo County Department of Public Works standards.

The *County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan* [3] completed in August 1999 identified approximately $2.3 million in capital improvement projects within CSCSD. In addition, San Mateo County Public Works Department staff indicated as part of the 2009 Draft EIR that the immediate Project area does not experience any sewer deficiencies [4]. In a letter dated November 8, 2013, the County confirmed that there are no sewer deficiencies in the immediate area of the project; however, downstream sewer pipelines within the Town of Hillsborough and the City of San Mateo have capacity issues during wet weather events [5]. Additional sewer generated by the Project will exacerbate the downstream capacity issues.

In accordance with the Sanitary Sewer Agreement between CSCSD and City of San Mateo, CSCSD is responsible for paying a proportionate share for downstream, out-of-district, capital improvement projects. The Town of Hillsborough completed a pipe replacement project in which CSCSD was responsible for $1.177 million of the cost [1]. The City of San Mateo also completed an improvement project at the SMWTP in which CSCSD was responsible for $1.57 million [1]. In 2007, the CSCSD Board of Supervisors approved a rate increase, which will generate funds to repay the City of Hillsborough, but not the City of San Mateo [1].

In a letter addressed to the San Mateo County from the City of San Mateo Department of Public Works regarding two subdivisions in CSCSD, CSCSD is noted as being in arrears in payments to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement. The City of San Mateo Department of Public Works has a resolution in place to not approve additional flows from new developments in CSCSD service area until the owed payments are made. [4]

In March 2009, the Regional Water Quality Control Board (Regional Board) issued a Cease and Desist Order (CDO) regarding sanitary sewer overflows from the City of San Mateo, Town of Hillsborough, and CSCSD sanitary sewer systems. From December 2004 through May 2008, 22 sanitary sewer overflows occurred from the CSCSD collection system. One of these overflows caused the discharge of 15,000 gallons of wastewater to surface water.

The CSCSD collection system receives high flows during the rainy season due to stormwater inflow and groundwater infiltration (I/I) into the collection system. The CDO requires CSCSD to take specific steps to prevent future sanitary sewer overflows, including the completion of eight capital improvement projects described in the CSCSD Sewer Master Plan [1]. The estimated cost of the eight capital improvement projects is $2,500,000. To comply with the CDO, CSCSD has begun construction cof the eight capital improvement projects described in the Sewer Master Plan with an anticipated completion date in the fall of 2014 [5].

Because the City of San Mateo Department of Public Works will not approve additional flows from new subdivisions within the CSCSD service area, the impacts associated with wastewater conveyance infrastructure for the proposed Project would be **potentially significant**.

The City of San Mateo may consider granting approval for sewer flows associated with the Project if CSCSD pays money due to the City and CSCSD presents an acceptable plan that assures sufficient revenues necessary to meet current and future costs as defined in the Sanitary Sewer Agreement [4].

To alleviate impacts to downstream sewer infrastructure, improvements to the CSCSD sewer system may be constructed to reduce existing inflow and infiltration (I/I). These improvements will offset sewer flows from the Project during wet weather events. This measure is listed as Mitigation Measure UTIL-1 in the 2009 DEIR.

Cumulative Sewer Impacts

The 2009 DEIR lists 22 other projects in addition to the proposed Ascension Heights Subdivision that will be constructed in the area served by the SMWTP. The sewer flow from the 22 other projects is estimated to be 456,386 gpd (0.456 mgd). The combined sewer flow from the proposed other projects listed in the 2009 DEIR and the Ascension Heights Subdivision equal 0.460 mgd, which is less than the SMWTP surplus capacity of 3.3 mgd. Furthermore, of the proposed projects listed it the 2009 DEIR, only two projects are located in CSCSD's service area. The sewer generation from these two projects is 2,420 gpd (0.0024 mgd). Cumulative impacts associated with wastewater treatment capacity would be **less than significant** and no mitigation measurements are required.

Because CSCSD is predominately built-out and is not expected to experience a significant growing demand for sewer service [5], there are no cumulative impacts associated with the Project other than those described in the preceding section.

3.0 WATER

The Project is located in the service area of the Mid-Peninsula District of the California Water Service Company (Cal Water), which is an investor-owned public utility. Cal Water purchases water from the City and County of San Francisco's regional system, which is operated by the San Francisco Public Utilities Commission (SFPUC). The Mid-Peninsula District of Cal Water should not be confused with the neighboring Mid-Peninsula Water District.

SFPUC supply is predominantly from the Sierra Nevada through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from local watersheds and facilities in Alameda and San Mateo Counties.

Water Supply

The business relationship between SFPUC and its wholesale customers is largely defined by the *Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County* (WSA), executed in July 2009. The WSA provides an annual purchased water supply of 35.68 mgd, which is shared among the Bear Gulch, Mid-Peninsula, and South San Francisco Districts of Cal Water [6]. The portion of the annual purchased water supply available to the Mid-Peninsula District is assumed to be equal to the projected normal-year demand in the district, which is summarized in Table 1.

TABLE 1
MID-PENINSULA DISTRICT PLANNED WATER SUPPLIES [6]

Year	Projected Population	Water Supply, ac-ft/yr	Water Supply, mgd
2010 (Actual)	126,850	15,965	14.25
2015	130,382	18,911	16.88
2020	134,004	18,613	16.62
2025	137,824	19,143	17.09
2030	141,853	19,703	17.59
2035	146,101	20,293	18.12
2040	150,580	20,915	18.67

On October 31, 2008, SFPUC imposed an Interim Supply Limitation that limits the volume of water available to wholesale customers while capital improvements are made to the Regional Water System as part of the Water Supply Improvement Program (WSIP). Cal Water's Interim Supply Allocation (ISA) is 35.68 mgd, to be shared amongst Cal Water's Bear Gulch, Mid-Peninsula, and South San Francisco Districts [6].

The Bear Gulch and South San Francisco Districts each have local water supplies available in addition to water supplied by SFPUC. These local supplies are not available to the Mid-Peninsula District. However, the sharing of Cal Water's water supply from SFPUC among the three districts provides operation flexibility to distribute the SFPUC supply as needed in each system depending on the availability of local supplies and conditions within each district.

Because Cal Water can distribute SFPUC supply between the three districts, the source reliability analysis is performed considering the three districts together. Table 2 presents the normal-year supply and demand comparison.

TABLE 2
NORMAL YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

	2015	2020	2025	2030	2035	2040
Supply						
SFPUC	39,967	39,967	39,967	39,967	39,967	39,967
Bear Gulch Surface	1,260	1,260	1,260	1,260	1,260	1,260
South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535	1,535
Total Supply	**42,762**	**42,762**	**42,762**	**42,762**	**42,762**	**42,762**
Demand						
Bear Gulch	13,839	12,622	12,975	13,348	13,743	14,160
Mid-Peninsula	18,911	18,613	19,143	19,703	20,293	20,915
South San Francisco	9,297	8,665	8,928	9,204	9,494	9,799
Total Demand	**42,047**	**39,900**	**41,046**	**42,255**	**43,530**	**44,875**
Difference	**715**	**2,862**	**1,716**	**507**	**-768**	**-2,113**
Difference as % of Supply	1.7%	6.7%	4.0%	1.2%	-1.8%	-4.9%
Difference as % of Demand	1.7%	7.2%	4.2%	1.2%	-1.8%	-4.7%

As seen in Table 2, there will be a deficiency of 768 ac-ft in 2035, and 2,113 ac-ft in 2040.

A comparison of supply and demand during a single dry year is provided in Table 3. A single dry year is assumed to result in a system-wide ten percent reduction in SFPUC supplies, which is anticipated to result in a 17 percent reduction of SFPUC water delivered to Cal Water. Cal Water has observed an increase in water used during single dry years due to the maintenance of landscape and other high water uses that would normally be supplied by precipitation [6]. Project demands are determined by increasing the SBx7-7 target demand projections reported in the Urban Water Management Plan in each year by the percentage observed in historical data [6]. Note these values represent a decrease in water demands presented in Table 2. A decrease in Bear Gulch surface water supplies shown in Table 3 is based on historical data [6].

TABLE 3
SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

	2015	2020	2025	2030	2035	2040
Supply						
SFPUC	33,173	33,173	33,173	33,173	33,173	33,173
Bear Gulch Surface	351	351	351	351	351	351
South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535	1,535
Total Supply	**35,059**	**35,059**	**35,059**	**35,059**	**35,059**	**35,059**
Demand						
Bear Gulch	15,065	13,740	14,125	14,531	14,960	15,415
Mid-Peninsula	17,861	17,580	18,081	18,609	19,167	19,754
South San Francisco	8,819	8,220	8,469	8,731	9,006	9,296
Total Demand	**41,746**	**39,540**	**40,675**	**41,871**	**43,134**	**44,465**
Difference	**-6,687**	**-4,481**	**-5,616**	**-6,813**	**-8,075**	**-9,406**
Difference as % of Supply	-19.1%	-12.8%	-16.0%	-19.4%	-23.0%	-26.8%
Difference as % of Demand	-16.0%	-11.3%	-13.8%	-16.3%	-18.7%	-21.2%

As seen in Table 3, demands are greater than supplies during single dry years. The analysis presented in the Urban Water Management Plan is conservative. Historically, SFPUC supplies have not been reduced as dramatically as presented in Table 3 during the first year of a drought [6]. Under normal circumstances, SFPUC has adequate storage in the Regional Water System to provide an increased level of service in single dry years [6]. If the hydrologic conditions were severe enough, Cal Water would expect SFPUC to request a voluntary reduction in purchases. Cal Water would respond accordingly by requesting additional conservation by its customers, which is expected reduce demands to the level of supplies [6].

A comparison of supply and demand during multiple dry years is provided in Table 4. A SFPUC system-wide reduction of ten percent is projected for the first year of multiple dry years, and twenty percent system-wide reduction in subsequent year. A ten percent reduction in SFPUC water supply results in a 17 percent reduction in SFPUC supplied to Cal Water [6]. A 20 percent reduction in SFPUC water supply results in a 34 percent reduction in SFPUC water supplied to Cal Water [6]. Historical data indicates customer demand in multiple dry years varied between 12 and 18 percent [6].

TABLE 4
MULTIPLE DRY YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

		2015	2020	2025	2030	2035
FIRST YEAR	**Supply**					
	SFPUC	33,173	33,173	33,173	33,173	33,173
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**35,316**	**35,316**	**35,316**	**35,316**	**35,316**
	Demand					
	Bear Gulch	11,329	10,332	10,622	10,927	11,250
	Mid-Peninsula	17,355	17,081	17,568	18,081	18,623
	South San Francisco	8,528	7,648	8,190	8,443	8,709
	Total Demand	**37,212**	**35,362**	**36,379**	**37,451**	**38,582**
	Difference	**-1,895**	**-45**	**-1,063**	**-2,135**	**-3,266**
	Difference as % of Supply	-5.4%	-0.1%	-3.0%	-6.0%	-9.2%
	Difference as % of Demand	-5.1%	-0.1%	-2.9%	-5.7%	-8.5%
SECOND YEAR	**Supply**					
	SFPUC	26,378	26,378	26,378	26,378	26,378
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**28,522**	**28,522**	**28,522**	**28,522**	**28,522**
	Demand					
	Bear Gulch	11,329	10,571	10,869	11,183	11,516
	Mid-Peninsula	16,878	16,685	17,163	17,667	18,198
	South San Francisco	8,232	7,821	8,060	8,310	8,573
	Total Demand	**36,439**	**35,077**	**36,091**	**37,160**	**38,287**
	Difference	**-7,917**	**-6,555**	**-7,569**	**-8,636**	**-9,765**
	Difference as % of Supply	-27.8%	-23.0%	-26.5%	-30.3%	-34.2%
	Difference as % of Demand	-21.7%	-18.7%	-21.0%	-323.2%	-25.5%
THIRD YEAR	**Supply**					
	SFPUC	26,378	26,378	26,378	26,378	26,378
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**28,522**	**28,522**	**28,522**	**28,522**	**28,522**
	Demand					
	Bear Gulch	10,880	10,392	10,686	10,996	11,325
	Mid-Peninsula	16,404	16,288	16,757	17,252	17,774
	South San Francisco	8,120	7,868	8,109	8,361	8,627
	Total Demand	**35,404**	**34,548**	**35,552**	**36,610**	**37,726**
	Difference	**-6,882**	**-6,026**	**-7,030**	**-8,088**	**-9,204**
	Difference as % of Supply	-24.1%	-21.1%	-24.6%	-28.4%	-32.3%
	Difference as % of Demand	-19.4%	-17.4%	-19.8%	-22.1%	-24.4%

As seen in Table 4, there are supply shortfalls in all years of a multiple year drought. These shortfalls would need to be met through a combination of customer demand reductions resulting from the implementation of the Water Shortage Contingency Plan, and the development of alternative supplies [6].

Project Water Facilities

An existing storage tank owned by Cal Water is located within the project site. Water from this existing storage tank will be used to supply the proposed development. A proposed pressure booster pump system will be located at the existing storage tank to pressurize the subdivision water mains. Water is conveyed to the proposed residences through a dead-end water main.

In addition to water infrastructure associated with providing water to the proposed subdivision, two existing water mains will be relocated so that the relocated water mains are located in proposed streets or at the property boundary between lots for ease of maintenance of the water mains.

Project Water Demand

Based on actual 2010 single family accounts and volumes reported in the Urban Water Management Plan, the water demand for single family residences is 260 gpd/du. The average day water demand for the proposed 19 single-family units is approximately 4,940 gpd (0.005 mgd). The maximum day demand for the Project is approximately 8,000 mgd which correlates to a peaking factor of 1.62 [7]. The peak hour demand for the Project is 12,000 mgd which correlates to a maximum day to peak hour peaking factor of 1.50 [7].

Project Water Impacts and Mitigation

Vesting Tentative Subdivision Maps of the proposed development dated July 1, 2013 show the general location of the proposed water infrastructure, but do not provide details of the infrastructure size or construction, which is typical at this stage of the project. It is assumed that proposed infrastructure will be designed in compliance with MPWD and San Mateo County Department of Public Works standards. The increase in population due to the Project is consistent with population projections listed in the Urban Water Management Plan [6].

The Project water demand (0.005 mgd) is approximately 0.038 percent of the 2010 Mid-Peninsula District water demand (13.254 mgd). As seen in Tables 3 and 4, there are significant project water supply shortfalls during single dry and multiple dry years. Because of the projected water shortfalls, water demands associated with the Project are **potentially significant**. The Project water demands may be mitigated through customer demand reductions resulting from customer demand reductions resulting from the implementation of the Water Shortage Contingency Plan.

Cumulative Water Impacts

Cal Water is near buildout conditions and has set boundaries. Increases in water demand will likely be due to infill projects. The 2009 DEIR lists seven proposed projects other than the Ascension Heights Subdivision in the Mid-Peninsula District. Only one of these projects will result in additional water demand equaling 2,781 gpd (0.003 mgd) [4]. The additional water demand of all proposed projects, including the Ascension Heights Subdivision, is approximately 0.008 mgd. Table 5 is a summary of water demand for the district.

TABLE 5
MID-PENINSULA DISTRICT DEMAND SUMMARY

Description	Demand, mgd
2010 Water Demand	13.254
Additional Projects Listed in 2009 DEIR	0.003
Ascension Heights Subdivision Project	0.005
Total Demand	13.262

In summary, the sum of the existing demand and demand of known proposed projects (total demand) is approximately 13.262 mgd.

As described above, significant supply shortfalls are projected during single dry and multiple dry years. Because of the projected water shortfalls, water demands associated with the Project are **potentially significant**. The Project water demands may be mitigated through customer demand reductions resulting from customer demand reductions resulting from the implementation of the Water Shortage Contingency Plan.

4.0 REFERENCES

[1] Regional Water Quality Control Board, *Cease and Desist Order No. R2-2009-0020, Requiring the City of San Mateo, Town of Hillsborough, Crystal Springs County Sanitation District in San Mateo County to Cease and Desist Discharging Waste from Their Respective Sanitary Sewer Systems in Violation of Requirements in Regional Water Board Order Nos. 01-071 and R2-2007-0075 (NPDES Permit No. CA 0037541), Water Quality Control Plan for the San Francisco Bay Basin, and/or State Water Board Order No. 2009-0003 DWQ*, March 2009.

[2] City of San Mateo, *Treatment Process* (webpage), http://www.cityofsanmateo.org/index.aspx?NID=156, accessed December 2, 2013.

[3] Brown and Caldwell, *County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan*, August 1999.

[4] Christopher A. Joseph & Associates, *Draft Environmental Impact Report, Ascension Heights Subdivision Project*, June 2009.

[5] James C. Porter, *Proposed Ascension Heights Subdivision Environmental Impact Report (EIR) – Solid Waste & Sewer Service* (letter), November 8, 2013.

[6] California Water Service Company, *California Water Service Company, 2010 Urban Water Management Plan, Mid-Peninsula District*, June 2011.

[7] Tom Salzano, *RE:Mid-Peninsula District Peaking Factors*(email), December 19, 2013.

APPENDIX H

TRAFFIC IMPACT ANALYSIS

RKH
Civil and Transportation Engineering

TRAFFIC IMPACT ANALYSIS

ASCENSION HEIGHTS SUBDIVISION
UNINCORPORATED SAN MATEO COUNTY, CALIFORNIA

December 10, 2013
Revised October 24, 2014

Prepared for -

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INTRODUCTION
SECTION 1.

STUDY PURPOSE

The purpose of this study is to quantify and analyze the traffic impacts of a proposed subdivision for 19 single family residential units on a 13.32 acre parcel off of Bel Aire Road in unincorporated San Mateo County adjacent to the City of San Mateo. See Figure 1, Location Map, page 2.

ANALYSIS METHODOLOGIES

Six street segments have been designated for analysis in this study. They are –

1) Polhemus Road south of Ascension Drive
2) Ascension Drive, Polhemus Road to Bel Aire Road
3) Bel Aire Road, Ascension Drive to Laurie Lane
4) Laurie Lane
5) Parrott Drive, Laurie Lane to CSM Drive
6) CSM Drive east of Parrott Drive

The six designated street segments have been analyzed according to the T.I.R.E. Index. The TRAFFIX program[1] has been used to generate and distribute the traffic on the street network. The TIRE Index is a way to determine the impact of a project's traffic on the surrounding street system is by use of the TIRE (**T**raffic **I**nfusion on **R**esidential **E**nvironment) index.[2] This index is based on the idea that increases in traffic volume have a greater impact on the residential environment on a lower volume street than along a street with a much higher level of baseline traffic. The TIRE index is a representation of the effects of traffic on safety, pedestrians, bicyclists, children playing near the street and the ability to freely maneuver into and out of driveways. A change in the TIRE index of 0.1 or more would be a noticeable increase in traffic on the street, and, therefore, an impact upon the residential environment. The five levels of the TIRE index are shown in Table A on page 3.

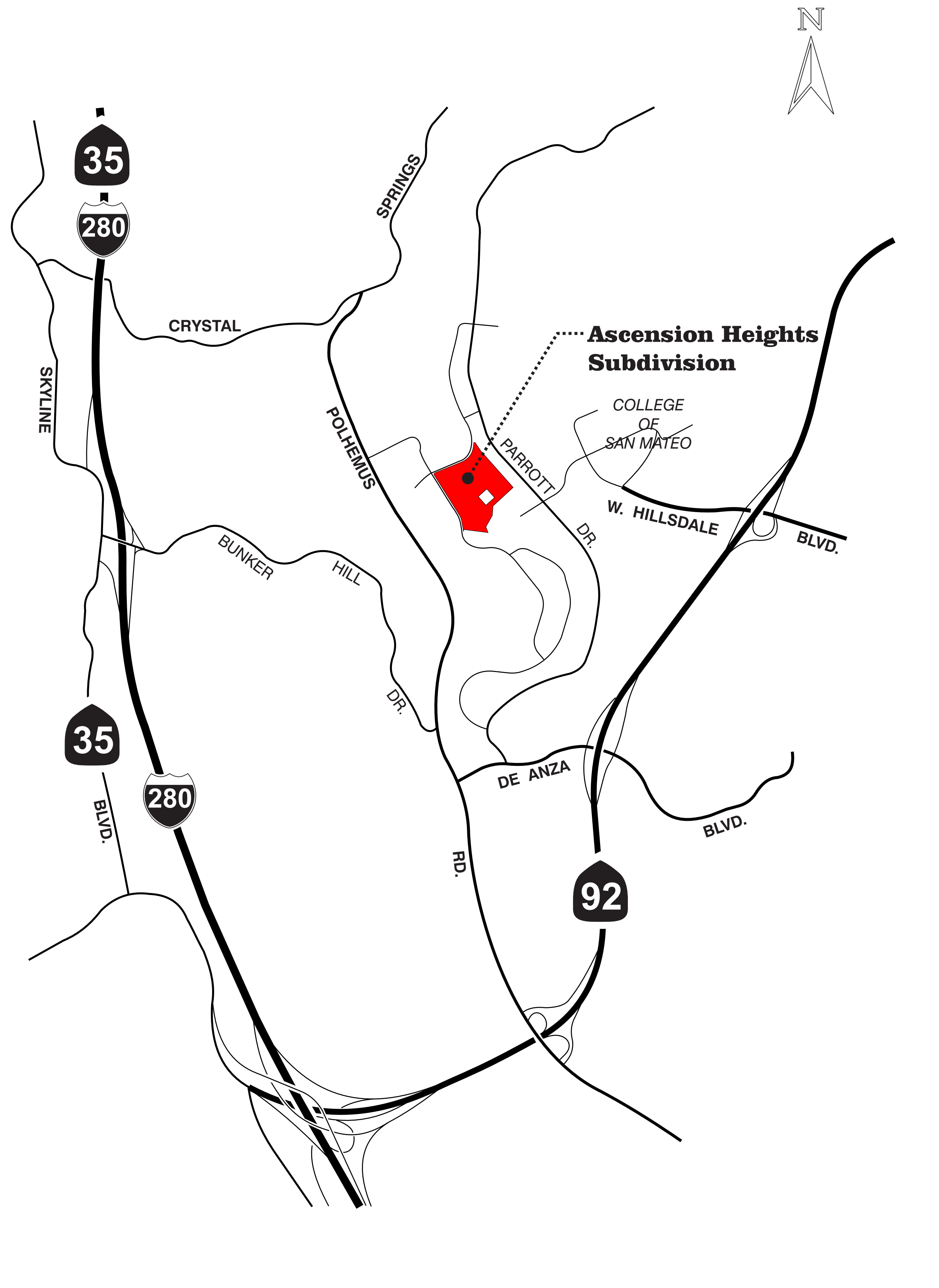
Four intersections are included in the analysis. They are –

1) Polhemus Road & Ascension Drive
2) Ascension Drive & Bel Aire Road
3) Laurie Lane & Parrott Drive
4) Parrott Drive & CSM Drive

These four STOP controlled intersections have been analyzed according to the procedures contained in the 2000 Highway Capacity Manual.

[1] Dowling Associates, TRAFFIX 8.0.0715, ©2008

[2] Goodrich, D.K. and Donald Appleyard, University of California, Berkeley



LOCATION MAP
FIGURE 1

ANALYSIS SCENARIOS

Four scenarios have been developed and analyzed in this study.

1. **Existing Conditions.** Current (2013 and 2014) traffic volumes within the study area.

2. **Background Conditions (Existing + Approved Projects).** Background traffic is that traffic expected to be present at the time the project is ready for occupancy. It consists of existing traffic plus traffic expected to be generated by those developments that are approved but were not built and occupied at the time the traffic counts were taken.

3. **Project Conditions. (Existing + Approved + Project)** Project trips are estimated based on the proposed land use and are then added to Background Conditions traffic in order to obtain the Project Conditions traffic scenario. An Existing+Project scenario is also analyzed in order to comply with a recent Supreme Court ruling.

4. **Year 2030 Cumulative Conditions. (Existing + Approved + Project + Future Development)** Cumulative traffic is that traffic expected to be present within the next five years. It consists of existing traffic plus trips from Approved Projects plus trips from the project plus trips from future development projects within the study area.

Table A: TIRE Index Levels

TIRE INDEX	DAILY TRAFFIC VOLUME	RESIDENTIAL ENVIRONMENT
0	1	
		A cul-de-sac street with one home.
1	10	
		A cul-de-sac street with 2-15 homes.
2	100	
		A 2-lane minor street.
3	1000	
		A 2-lane collector or arterial street.
4	10000	
		A 2 to 6-lane arterial street.
5	100000	

TABLE A1: Levels of Service Definitions for 2-Way and All-Way STOP Controlled Intersections	
Level of Service	Traffic Conditions
A	Very low delay, less than or equal to10.0 seconds of average control delay per vehicle.
B	Average control delay in the range of 10.1 to 15.0 seconds per vehicle
C	Average control delay in the range of 15.1 to 25.0 seconds per vehicle
D	Average control delay in the range of 25.1 to 35.0 seconds per vehicle
E	Average control delay in the range of 35.1 to 50.0 seconds per vehicle
F	Average control delay in excess of 50 seconds per vehicle.

Reference: *Highway Capacity Manual*, Chapter 17, HCM2000.

LEVELS OF SERVICE STANDARDS

The LOS standards are described in the County's General Plan (§II.A.1.d.(2), pg. 12.8-12.10). There is no clearly defined LOS standard for the area in which the project is located, but the County has set a LOS standard of C in other planning areas. For purposes of this analysis a LOS standard of C will be used.

EXISTING CONDITIONS
SECTION 2.

ROADWAY NETWORK

Polhemus Road. This 2-lane road is classified as an arterial highway in the County's General Plan and connects Ralston Avenue to Crystal Springs Road.

Ascension Drive, Bel Aire Road, and Laurie Lane. These 2-lane residential streets serve Ascension Heights residential neighborhood. Parking is generally allowed on either side of the street.

Parrott Drive. This street is an extension of Parrott Drive in the City of San Mateo and connects to De Anza Boulevard in the City of San Mateo. It is a 2-lane street with parking generally allowed on both sides of the street.

CSM Drive. This 2-lane street connects Parrott Drive on the west to W. Hillsdale Boulevard on the east in the College of San Mateo.

EXISTING TRAFFIC VOLUMES

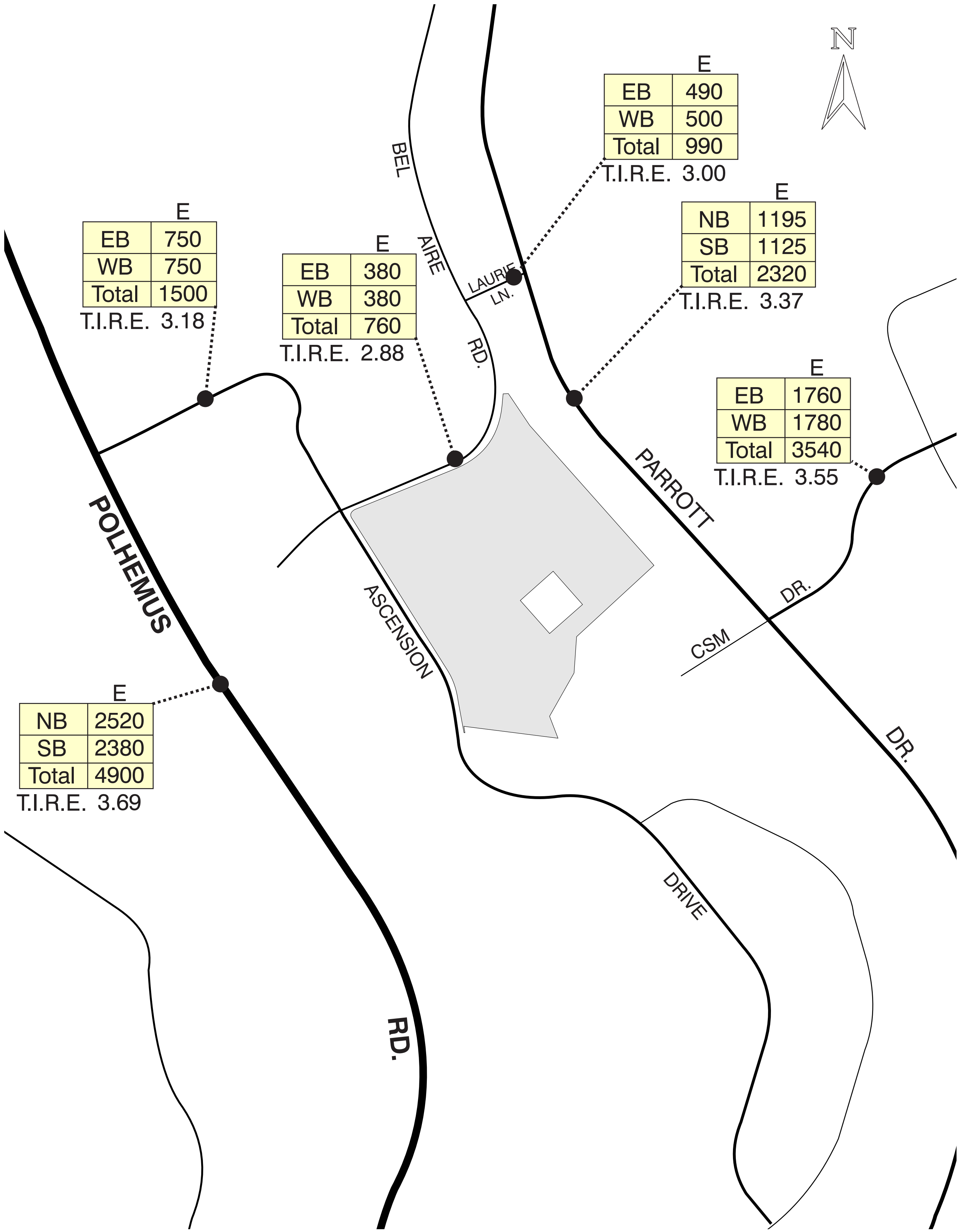
Existing 2013 daily traffic volumes on the study area streets are shown on Figure 2, Existing Daily Traffic Volumes, page 6. The traffic counts were obtained during the month of May, 2013 prior to the close of the spring semester at the College of San Mateo. Turning movement counts at the four study area intersections were collected in September, 2014. See Appendix A for the traffic count data.

Figure 2 also shows the associated TIRE Index for the total daily traffic volumes on the six street segments. With the exception of Bel Aire Road, all of the other street segments are functioning as collector streets. In the case of Polhemus Road it is acting as a minor arterial street.

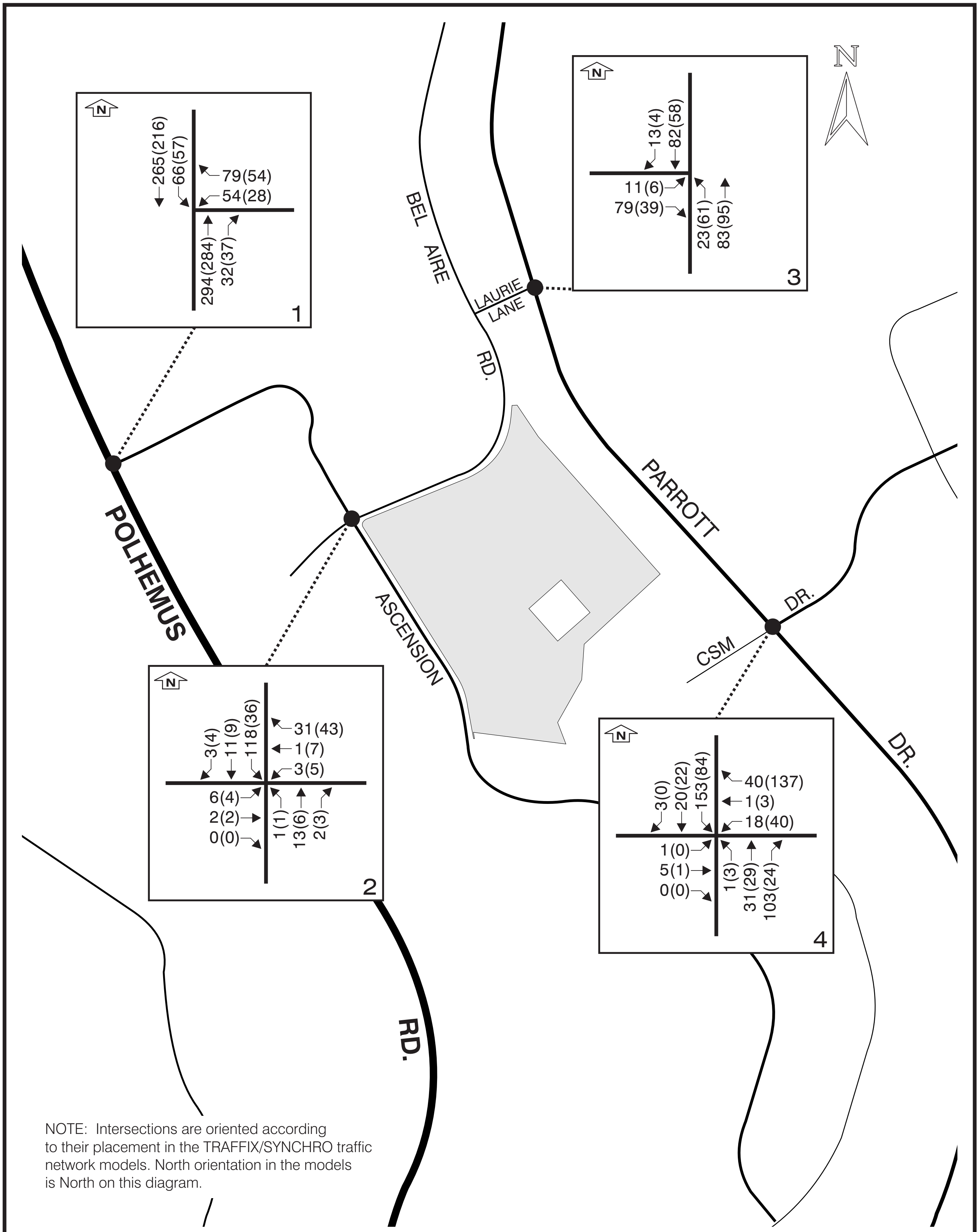
Figure 2A, Existing Intersection Peak Hour Volumes, page 7, shows the volume of traffic during the highest 60 minute period in both the 7-9 a.m. and 4-6 p.m. peak traffic periods.

EXISTING INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the existing conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table B on page 8. The calculation worksheets are provided in Appendix B. The LOS calculations reflect traffic conditions existing in 2014.



EXISTING DAILY TRAFFIC VOLUMES
FIGURE 2



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

EXISTING INTERSECTION PEAK HOUR VOLUMES
FIGURE 2A

RKH

TABLE B: Intersection Levels of Service Existing Conditions				
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	15.2	C
		PM	12.7	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A
		PM	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.7	A
		PM	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.1	A
		PM	8.0	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

BACKGROUND CONDITIONS
SECTION 3.

Background Conditions are those traffic conditions which are expected to occur immediately prior to the completion and occupancy of the proposed subdivision. Traffic from developments that are approved and/or ones that are expected to be completed and occupied prior to the proposed project is added to existing traffic volumes to create this traffic analysis scenario.

APPROVED PROJECTS

There are no approved projects in the study area that will be completed by the time the subdivision is expected to be completed and occupied (2017).

BACKGROUND TRAFFIC GROWTH

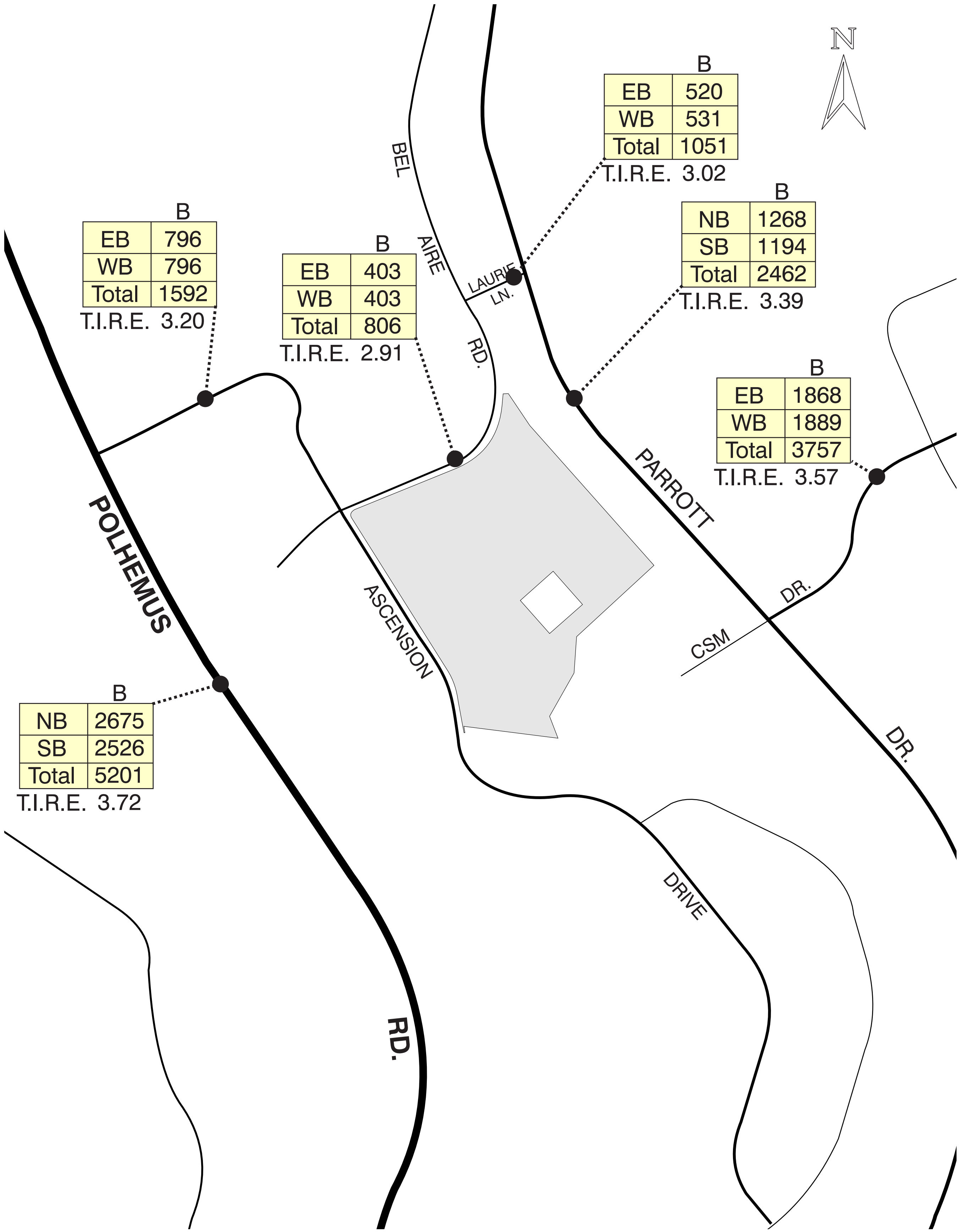
Traffic volumes taken on the same street segments as in this study some years ago have been analyzed to determine the growth in traffic due to general development of the area. An analysis of the growth is provided in Appendix C. For purposes of this study a background growth factor of 1.5% per year is used for all street segments to project traffic to the year 2017.

BACKGROUND CONDITIONS TRAFFIC VOLUMES

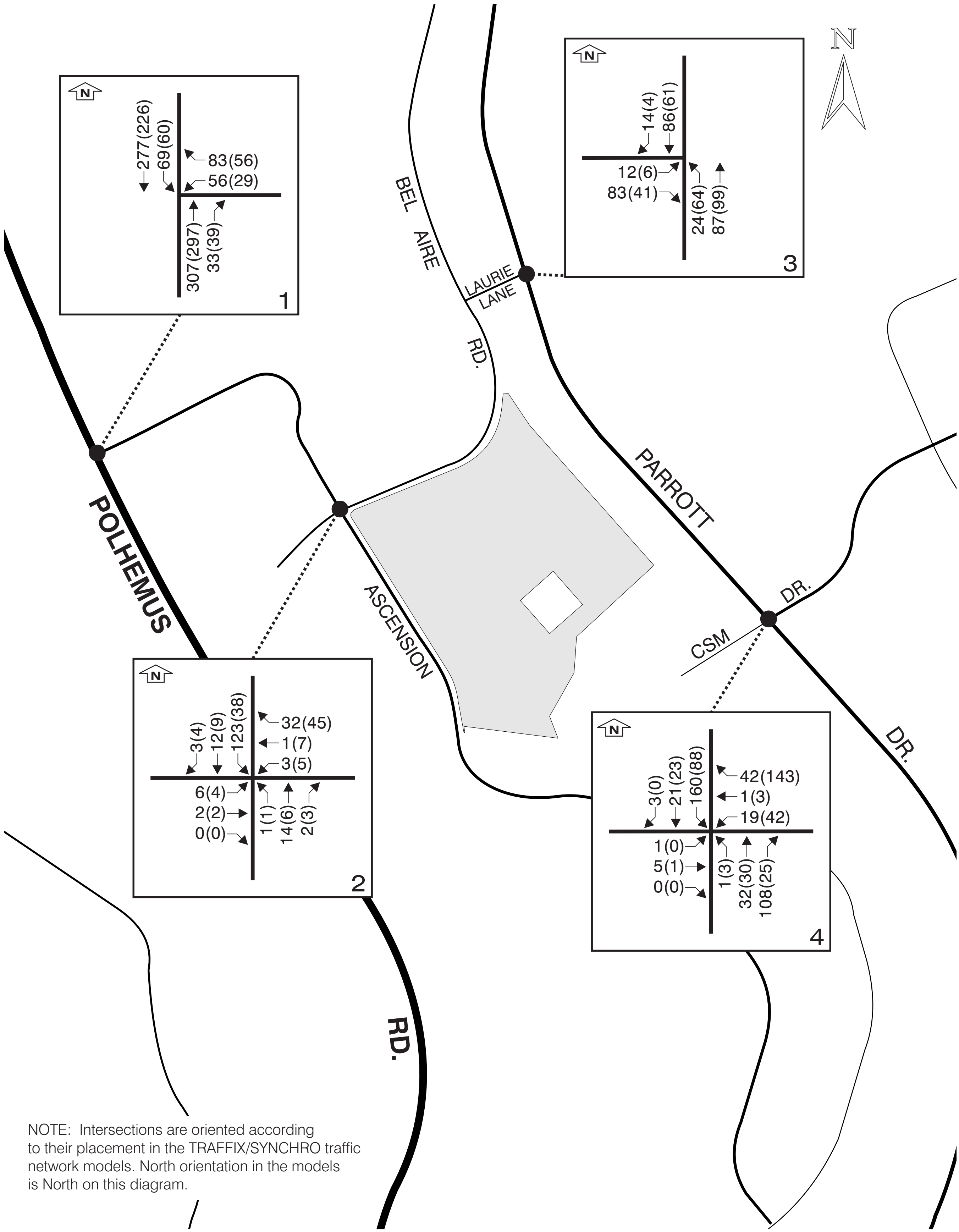
Background Conditions Daily Traffic Volumes are shown in Figure 3, page 10. As can be seen, the TIRE Indices increased slightly from that of Existing Conditions. Background Conditions Peak Hour Traffic Volumes, Figure 3A, are shown on page 11.

BACKGROUND CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the background conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table C on page 12. The calculation worksheets are provided in Appendix B.



BACKGROUND CONDITIONS DAILY TRAFFIC VOLUMES
FIGURE 3



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

BACKGROUND CONDITiONS
PEAK HOUR VOLUMES
FIGURE 3A

TABLE C: Intersection Levels of Service
Background Conditions

STOP Controlled Intersections	Controlled Approach	Peak Hour	Existing Conditions Delay	Existing Conditions LOS	Background Conditions Delay	Background Conditions LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	15.2	C	15.9	C
		PM	12.7	B	13.1	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A	7.8	A
		PM	7.1	A	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.7	A	7.8	A
		PM	7.9	A	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.1	A	8.2	A
		PM	8.0	A	8.1	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

PROJECT CONDITIONS
SECTION 4.

PROJECT DESCRIPTION

The project will construct 19 single family residential units served off of Bel Aire Road by private streets.

PROJECT VEHICLE TRIP GENERATION

The estimate of vehicle trips to be generated by the project is shown in Table D below. The estimate is based on data contained in *Trip Generation.*[3] The AM Street Peak Hour is generally between 7 a.m. and 9 a.m. and the PM Street Peak Hour is generally between 4 p.m. and 6 p.m. A detailed trip generation table can be found in Appendix C.

Table D: Project Vehicle Trip Generation

			AM Street Peak Hour			PM Street Peak Hour			
Land Use	Size	Units	In	Out	Total	In	Out	Total	AWDT
Single-Family Detached Housing	19	DU	16	7	23	15	9	24	228

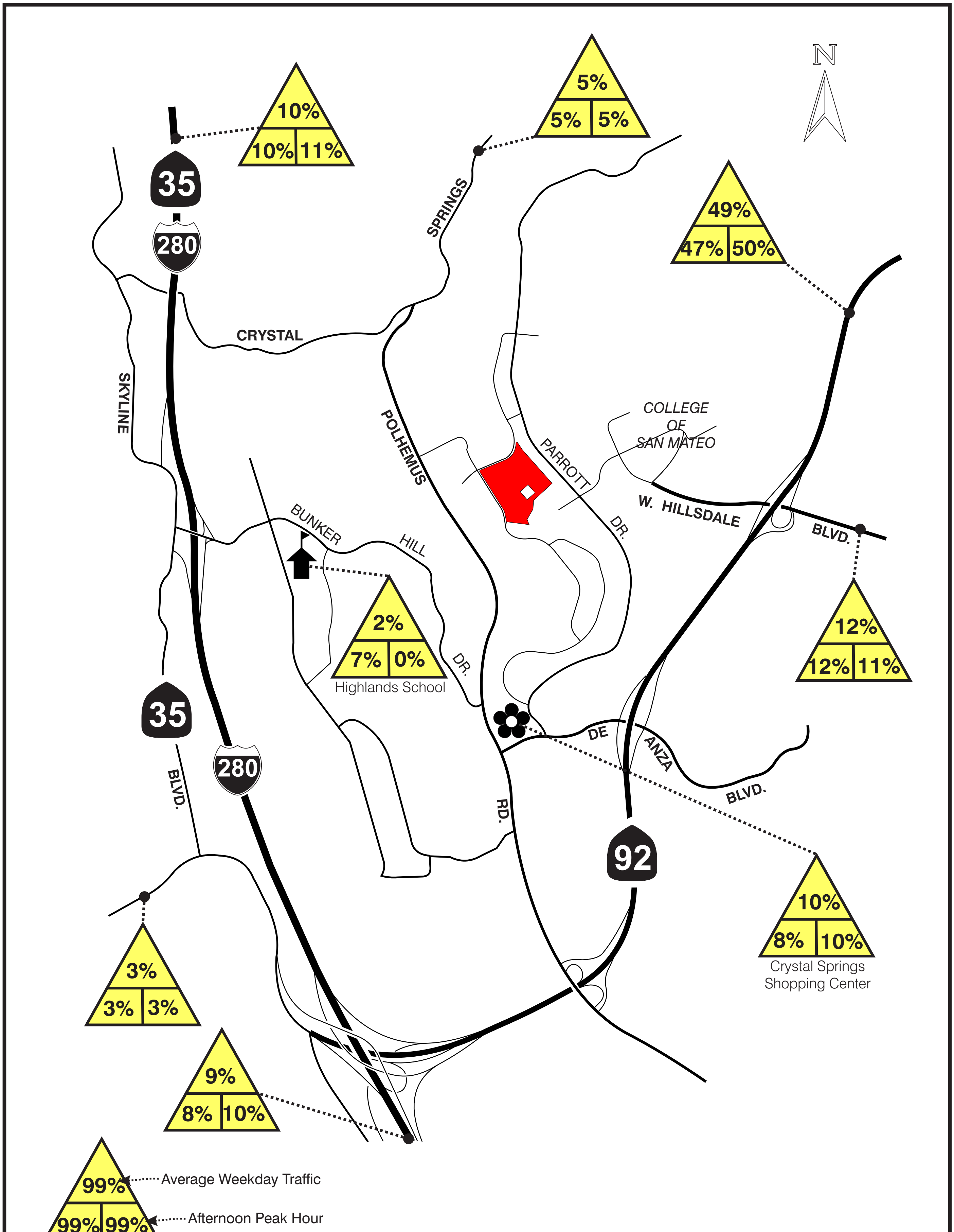
AWDT is Average Weekday Traffic (24-hr. volume)

PROJECT VEHICLE TRIP DISTRIBUTION

Project generated vehicle trips have been distributed on the basis of trip purpose as shown on Table 5 of the 2009 National Household Travel Survey[4] using Google Maps © to determine travel time routes to the trip purpose destinations. The assumed vehicle trip distributions are shown on Figure 4, Vehicle Trip Distribution & Assignment, page 14.

3 Institute of Transportation Engineers, 9th Edition, © 2012.

4 U.S. Department of Transportation, Federal Highway Administration, Publication FHWA-PL-11-022, June 2011



VEHICLE TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 4

PROJECT CONDITIONS TRAFFIC VOLUMES

The Project Conditions (Existing + Approved + Project) daily traffic volumes on the six study area street segments are shown on Figure 5, Project Conditions Daily Traffic Volumes, page 16. Figure 5 shows the Background Conditions daily traffic volumes in comparison with Project Conditions daily traffic and the associated TIRE Indices. The change in TIRE Index on the six street segments as a result of project traffic being added is less than 0.10 on all of the street segments, and, therefore, the addition of project traffic results in a less than significant impact. Project conditions intersection peak hour traffic volumes are shown on Figure 5A, page 17.

EXISTING PLUS PROJECT TRAFFIC VOLUMES

Because of a California State Supreme Court ruling, an Existing + Project Scenario must be evaluated. Figure 6, Existing + Project Conditions Daily Traffic Volumes, page 18, shows the changes in volumes and their associated TIRE Indices from Existing to Existing + Project Conditions. The change in TIRE Index on all of the street segments is less than 0.10. Figure 6A, page 19, shows the intersection peak hour volumes for the Existing + Project scenario.

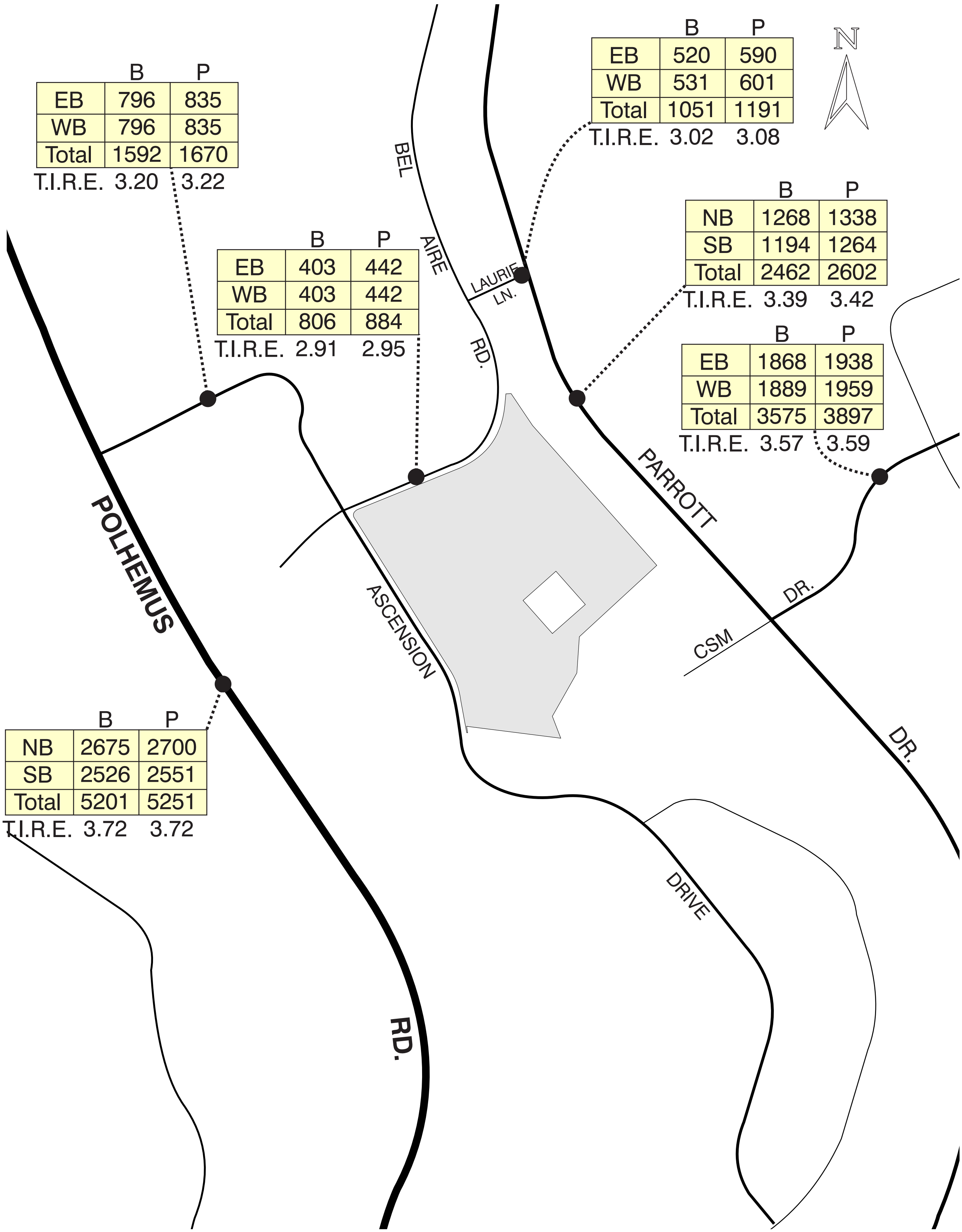
PROJECT CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the project conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table E below. The calculation worksheets are provided in Appendix B.

TABLE E: Intersection Levels of Service
Project Conditions

			Project Conditions		Ex. + Project Conditions	
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	16.3	C	15.5	C
		PM	13.3	B	12.9	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A	7.8	A
		PM	7.2	A	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.8	A	7.8	A
		PM	8.0	A	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.3	A	8.2	A
		PM	8.2	A	8.1	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.



	B	P
EB	796	835
WB	796	835
Total	1592	1670
T.I.R.E.	3.20	3.22

	B	P
EB	403	442
WB	403	442
Total	806	884
T.I.R.E.	2.91	2.95

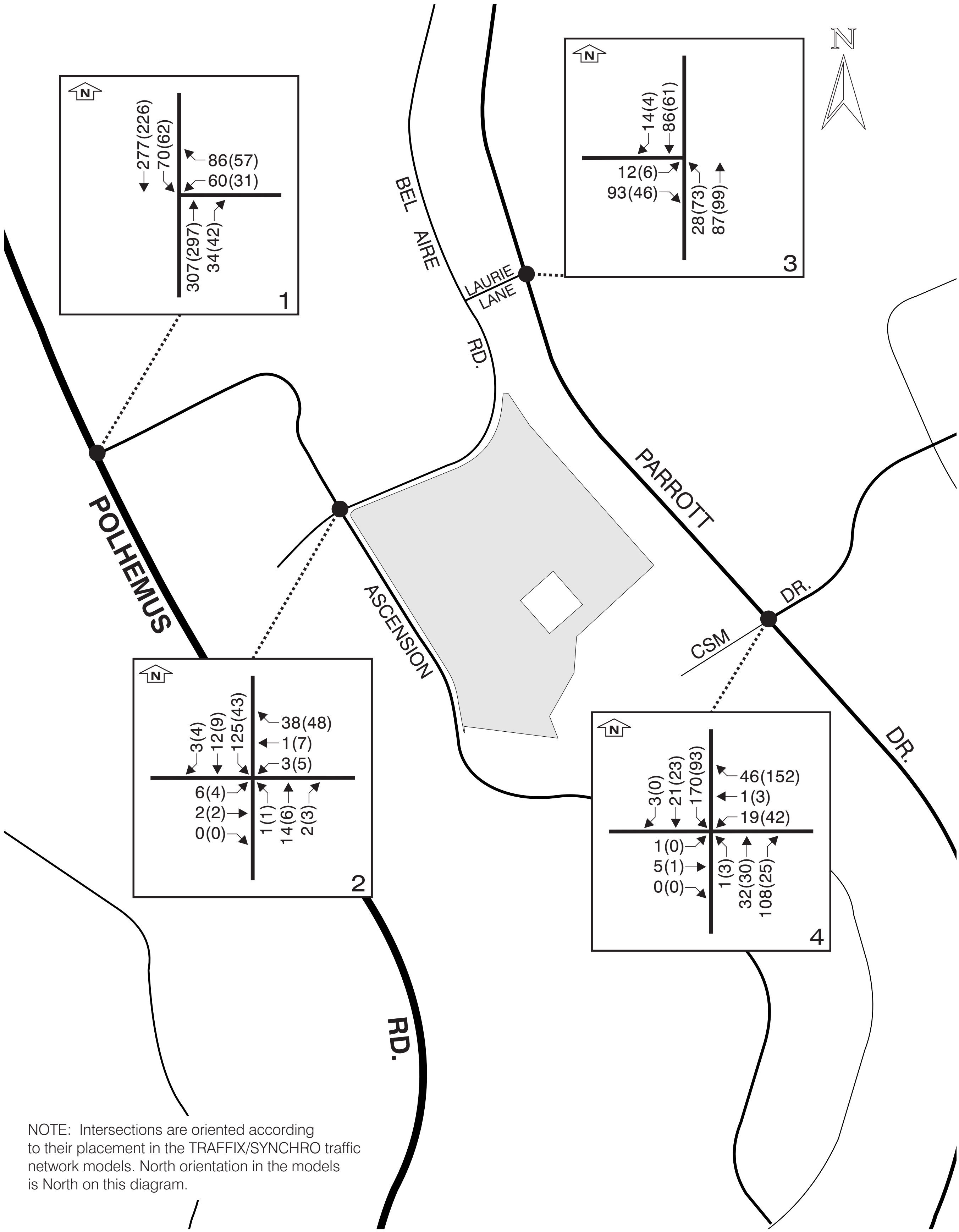
	B	P
EB	520	590
WB	531	601
Total	1051	1191
T.I.R.E.	3.02	3.08

	B	P
NB	1268	1338
SB	1194	1264
Total	2462	2602
T.I.R.E.	3.39	3.42

	B	P
EB	1868	1938
WB	1889	1959
Total	3575	3897
T.I.R.E.	3.57	3.59

	B	P
NB	2675	2700
SB	2526	2551
Total	5201	5251
T.I.R.E.	3.72	3.72

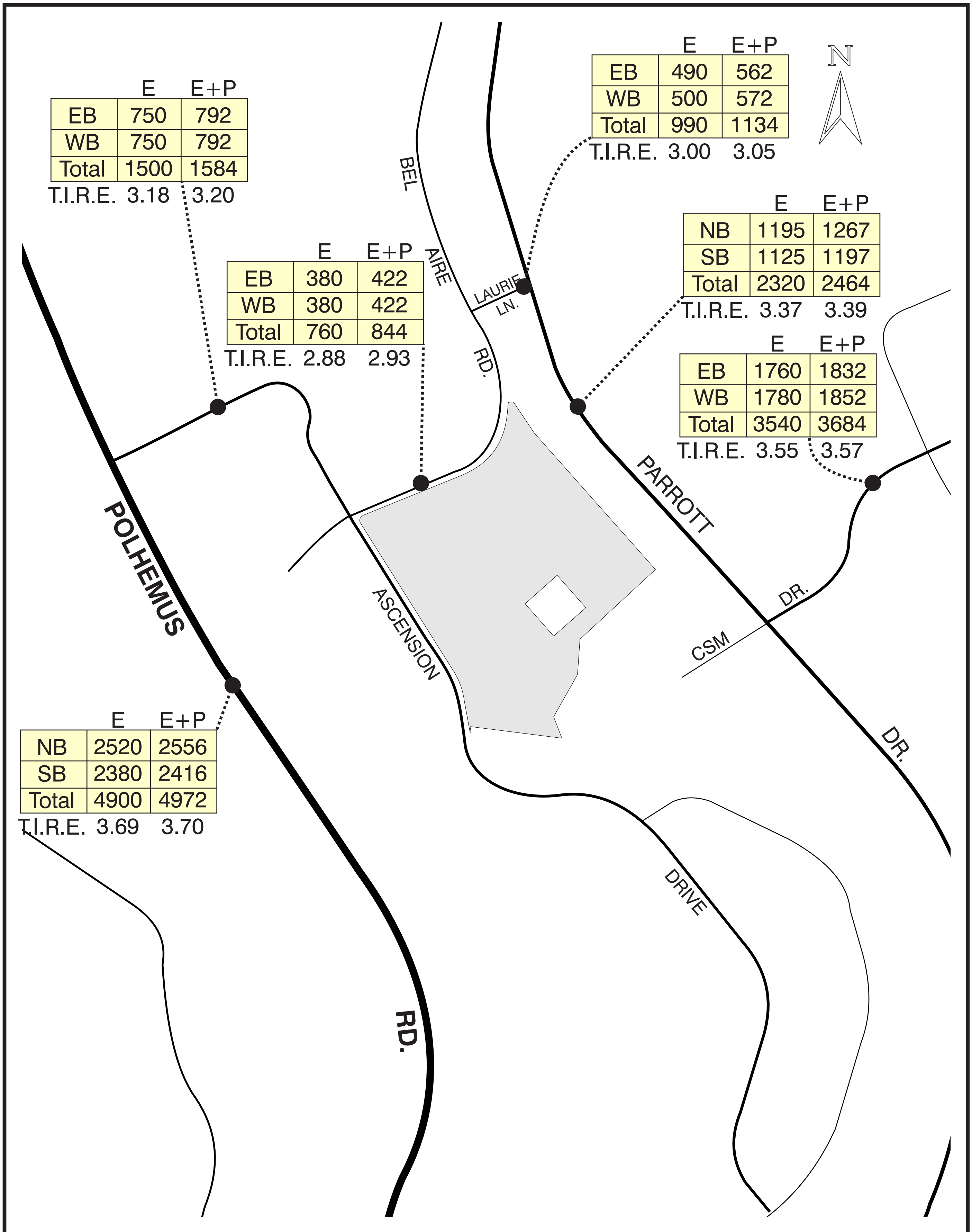
PROJECT CONDITIONS DAILY TRAFFIC VOLUMES
FIGURE 5



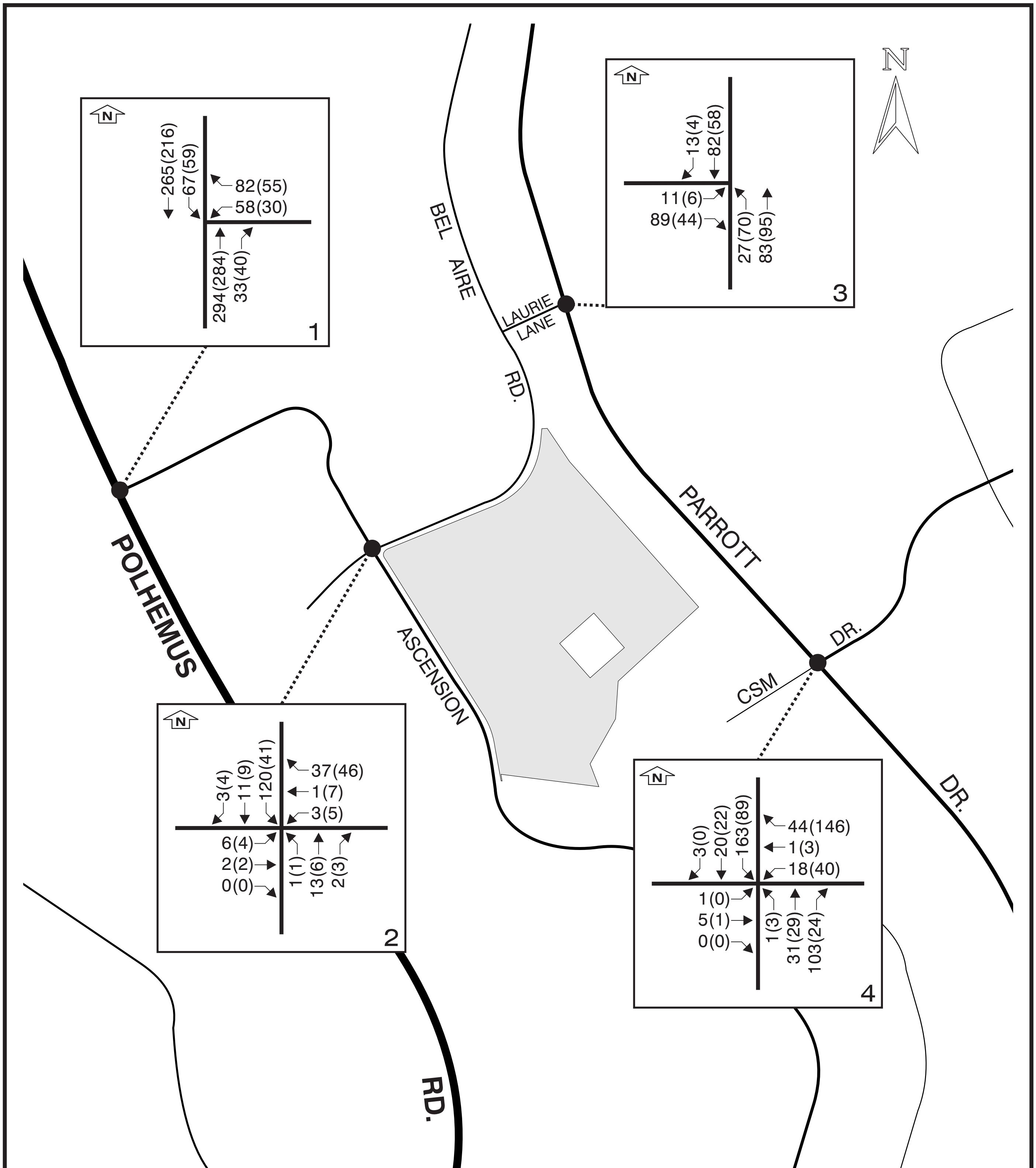
NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

PROJECT CONDITiONS PEAK HOUR VOLUMES
FIGURE 5A



EXISTING +PROJECT CONDITIONS
DAILY TRAFFIC VOLUMES
FIGURE 6



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

EXISTING + PROJECT PEAK HOUR VOLUMES
FIGURE 6A

RKH

YEAR 2030 CUMULATIVE CONDITIONS
SECTION 5.

CUMULATIVE CONDITIONS SCENARIO

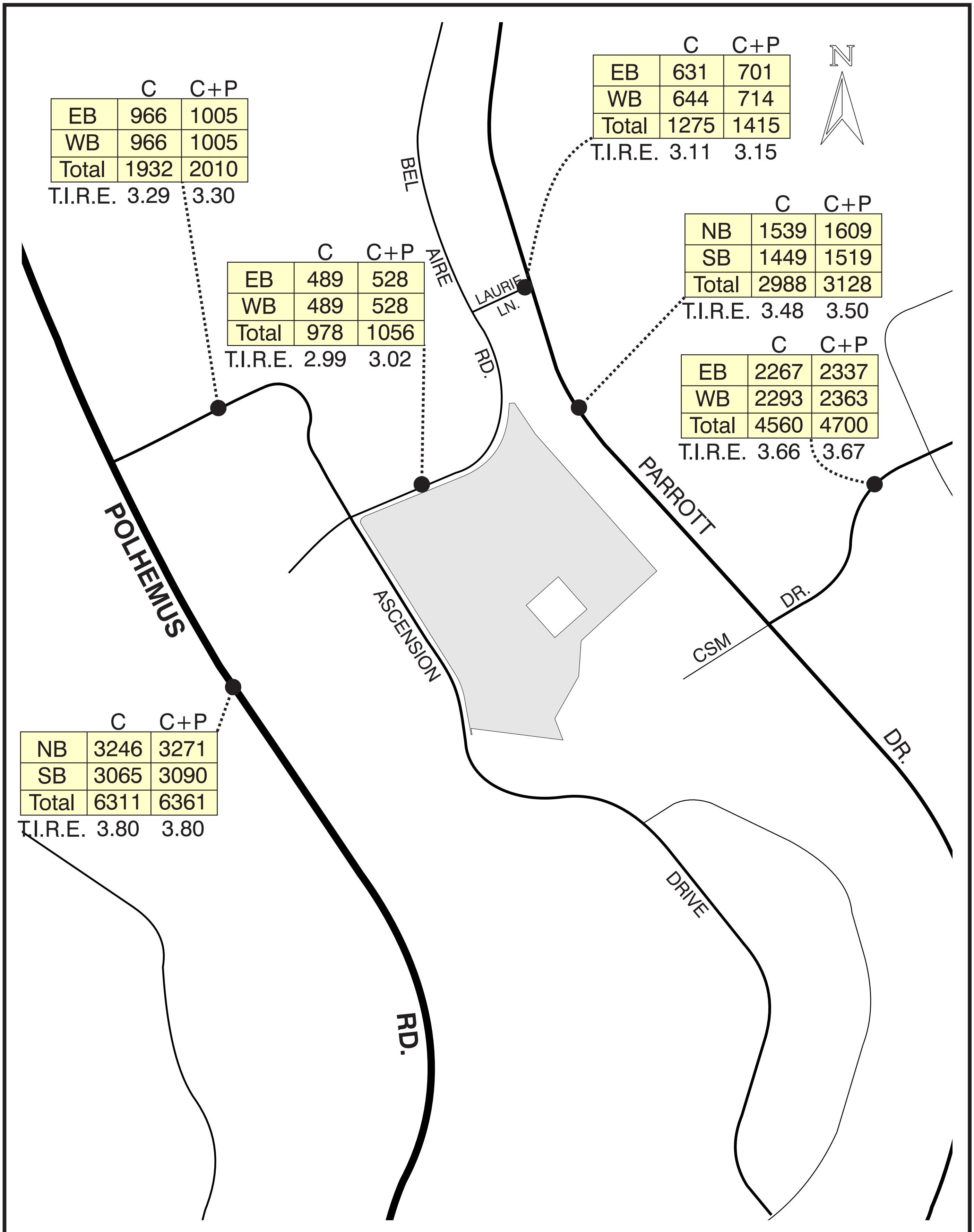
The Cumulative Conditions scenario for purposes of this study are those that are expected by the year 2030. There are no identified future developments that could affect traffic volumes in the project study area. A background growth factor of 1.5% per year has been applied to the existing traffic volumes to extrapolate them to the year 2030.

CUMULATIVE CONDITIONS TRAFFIC VOLUMES

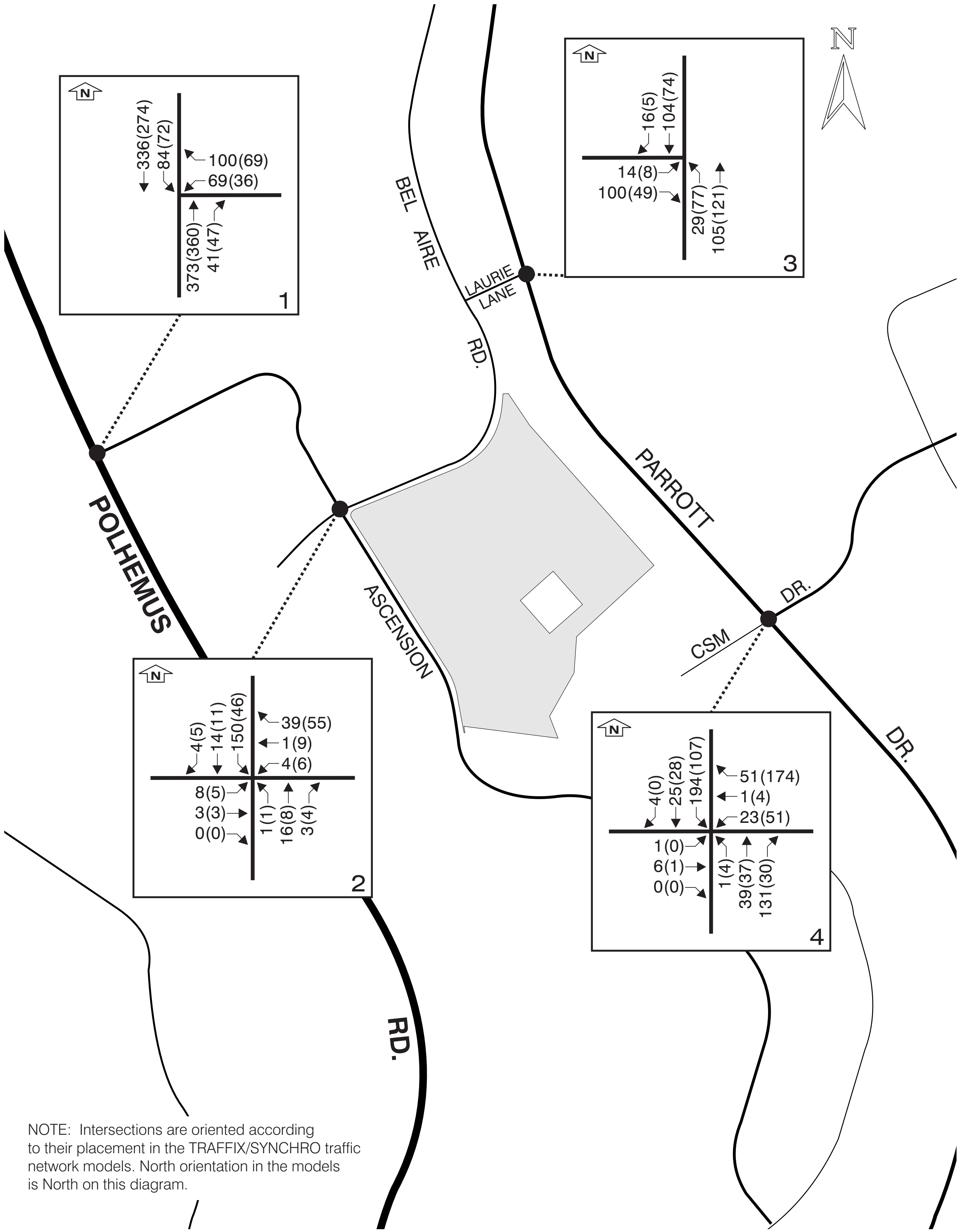
The 2030 cumulative traffic volumes are shown on Figure 7, Cumulative Conditions Daily Traffic Volumes, page 21. Figure 7 also shows and compares the Cumulative + Project daily traffic volumes with the Cumulative Conditions volumes. The associated TIRE Indices show a less than 0.10 change in the index on all street segments, and, therefore, the addition of project generated traffic will not create a significant impact on the surrounding street system. Figure 7A, page 22, shows the intersection peak hour volumes for the cumulative scenario and Figure 7B, page 23, shows the intersection peak hour volumes for the cumulative + project scenario.

CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the cumulative conditions and the cumulative + project scenarios using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table F on page 24. The calculation worksheets are provided in Appendix B.



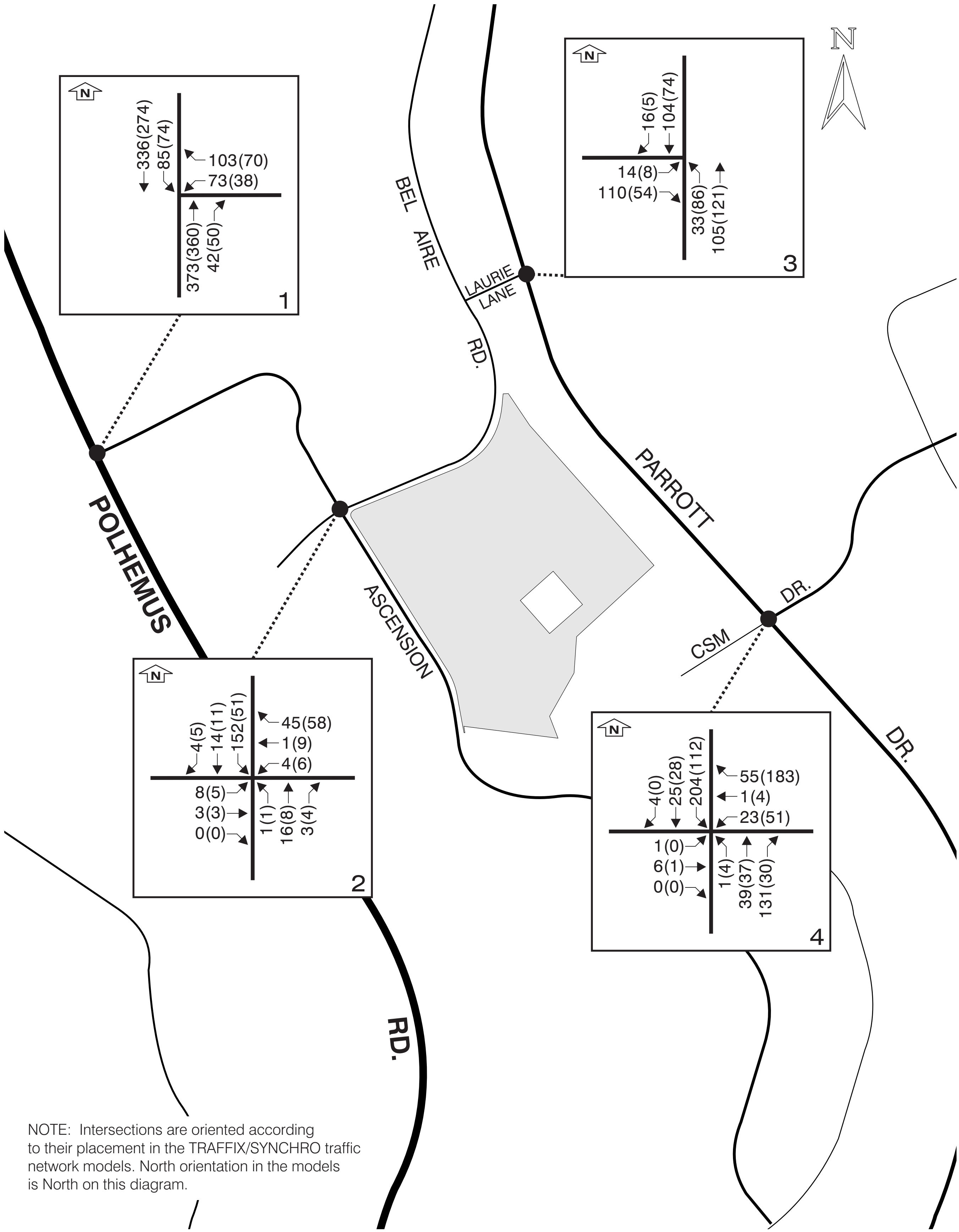
CUMULATIVE CONDITIONS
DAILY TRAFFIC VOLUMES
FIGURE 7



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE CONDITiONS
PEAK HOUR VOLUMES
FIGURE 7A



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE +PROJECT CONDITiONS
PEAK HOUR VOLUMES
FIGURE 7B

RKH

TABLE F: Intersection Levels of Service Cumulative Conditions						
			Cumulative Conditions		C + Project Conditions	
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	21.9	C	22.8	C
		PM	15.4	C	15.7	C
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	8.0	A	8.1	A
		PM	7.2	A	7.3	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	8.1	A	8.1	A
		PM	8.2	A	8.3	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.7	A	8.8	A
		PM	8.6	A	8.7	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

SITE ACCESS, CIRCULATION AND PARKING
SECTION 6.

SITE PLAN

The subdivision plan is shown on Figure 8, Site Plan, page 26. The 19 lots will be served by private residential streets with one intersection on Bel Aire Road.

SITE ACCESS AND CIRCULATION

Access to the site will be from Bel Aire Road via a single private street. Vehicles exiting the site should have adequate corner sight distance when entering Bel Aire Road Corner sight distance is based on the stopping sight distance for vehicles traveling at 30 miles per hour, 5 mile per hour above the prima facie speed limit of 25 miles per hour. The area within the sight triangles should be unobstructed by landscape shrubbery, trees, large signs, or parked vehicles. See Figure 9, Corner Sight Distance, page 27.

The private streets are 36 feet wide, curb-to-curb, within a 50-ft. wide right of way. A 36-ft. wide street allows for two parking lanes each eight feet wide and two travel lanes each 10 feet wide. At the end of each of the two private streets there is a hammerhead cul-de-sac, 20 feet wide by 85 feet long. This end treatment is adequate for autos and single unit delivery trucks. Parking should not be allowed in the cul-de-sac areas.

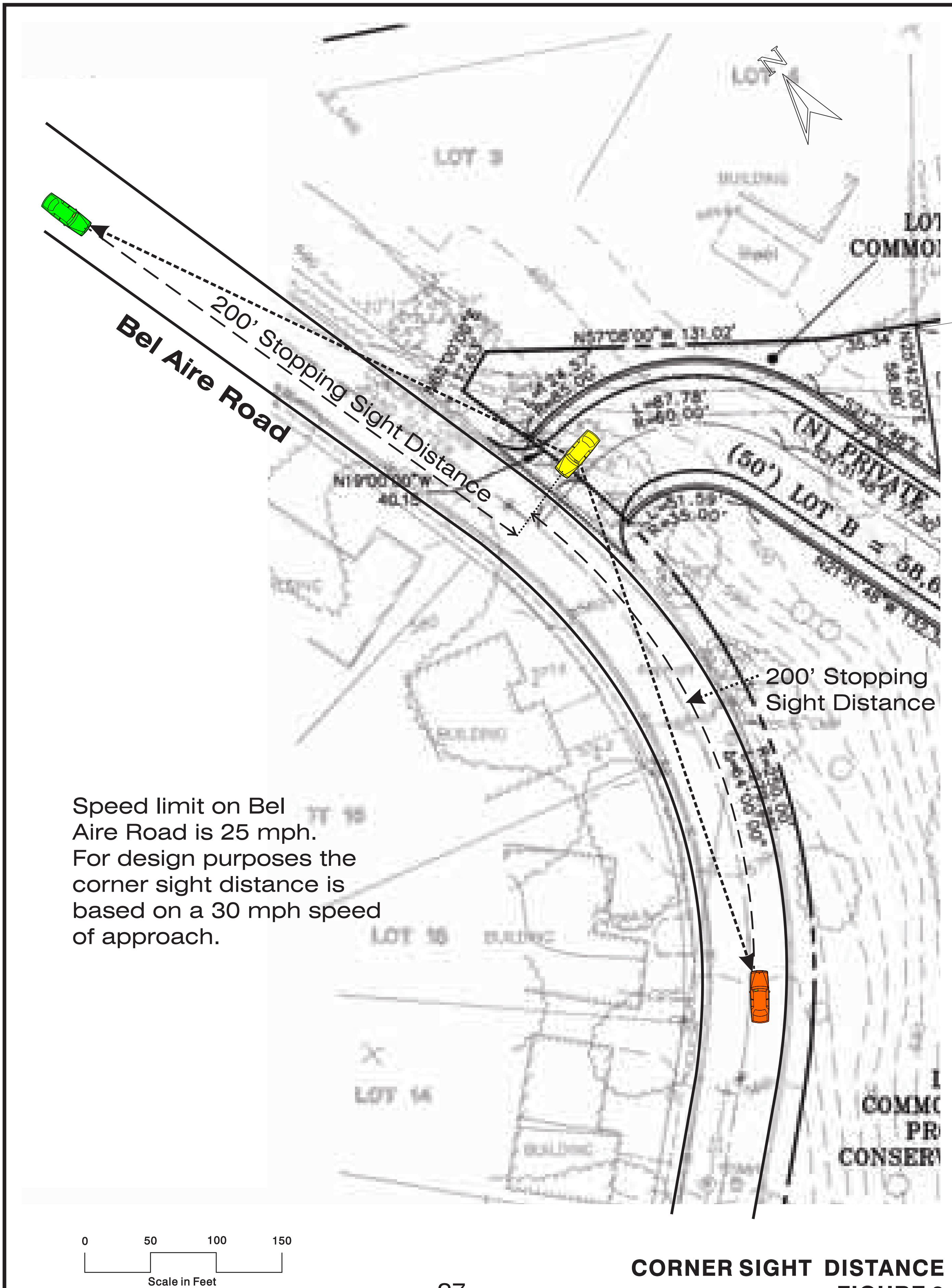
The maximum grade on the private streets is around 19%. This is higher than typically allowed on residential streets (15-17% for mountainous conditions)[5] but the length of the grades is relatively short, under 500 feet.

PARKING

The private streets, like public streets of comparable size allow for parking on both sides of the street. For single family detached housing each unit is typically required to have two garage spaces and, depending on the lot configuration, space on the driveway for two additional vehicles. Street parking will depend on the location and proximity of one driveway to the next. Typically a single family detached house will be able to accommodate up to five vehicles on the site and immediately fronting the lot. Guests should be able to park on the driveways and immediately in front of each house without difficulty.

[5] AASHTO, A Policy on Geometric Design of Highways and Streets, 6th Edition, © 2011

SITE PLAN
FIGURE 8



CORNER SIGHT DISTANCE
FIGURE 9

RKH

PEDESTRIAN AND BICYCLE CIRCULATION

The private streets are to have 5-ft. wide sidewalks on each side of the street. Bel Aire Road has a sidewalk only on the west side of the street and not on the east side where the subdivision is to be constructed. Pedestrians desiring to walk beyond the limits of the developed subdivision will have to cross Bel Aire Road and use the existing sidewalk there to access areas beyond the subdivision. Cyclists will have easy access to the surrounding street system, although there are no designated bike lanes on the surrounding residential streets.

The streets should be illuminated for the safety of pedestrians and cyclists. For a residential street with low pedestrian conflict areas such as on these streets the minimum maintained average illuminance should be 0.4 fc (foot candles) with an average to minimum uniformity ratio of 6.0.[6]

TRANSPORTATION DEMAND MANAGEMENT PLAN

This project does not trigger the need for a Transportation Demand Management (TDM) Plan as mandated by the City-County Association of Governments (C/CAG) Congestion Management Program because it generates less than 100 net new peak hour trips on the CMP network.

CONSTRUCTION TRAFFIC

Construction traffic will most likely access the site via Polhemus Road, Ascension Drive, and Bel Aire Road. Construction worker vehicles could park on the site and should also be able to park on the east side of Bel Aire Road without interfering with adjacent residential parking. An estimated 46,480 cubic yards of earth are to be excavated on the site and 19,970 cubic yards are to be remain on the site as fill. The remaining 26,510 cubic yards are to be off hauled. The off haul equates to about 40,000 bulk cubic yards. An 18 wheel end-dump truck can carry 15 bulk cubic yards, a single or double bottom dump semi-truck can carry 20-23 bulk cubic yards, and a 10 wheel dump truck can carry 10-13 bulk cubic yards. Assuming 30 working days for off haul and an average of 17 bulk cubic yards per truck, the number of truck trips per day into and out of the site will be on the order of 156. These truck trips will likely be on Bel Aire Road and Ascension Drive to Polhemus Road. This added construction traffic will, however, not result in a significant change to the TIRE Index for these two street segments.

[6] Illuminating Engineering Society of North America, American National Standard Practice for Roadway Lighting, Publication RP-8-00, 6/27/2000

CONCLUSIONS AND RECOMMENDATIONS
SECTION 7.

CONCLUSIONS

The Ascension Heights subdivision is estimated to generate 228 new vehicle trips during a typical weekday, 23 trips during the morning peak hour and 24 trips during the afternoon peak hour. Based on the TIRE Index analysis, none of the street segments in this study will experience a noticeable increase in traffic. The all-way STOP controlled intersections operate at LOS A for all scenarios analyzed. The controlled approach of Ascension Drive at Polhemus Road operates at LOS C or better under all scenario conditions. Thus, the project will not create a significant impact.

RECOMMENDATIONS

Off-site:

None.

On-site:

1) Within the corner sight triangles at the new street intersection there should be no walls, fencing, or signs that would obstruct visibility. Trees should be planted so as to not create a “wall” effect when viewed at a shallow angle. The type of shrubbery planted within the triangles should such that it will grow no higher than three feet above the adjacent roadway surface. Trees planted within the sight triangle areas should be large enough that the lowest limbs are at least seven feet above the surface of the adjacent roadway. Street parking should be prohibited within the bounds of the sight triangle.

2) Provide street lighting on the private streets to a level of 0.4 minimum maintained average foot-candles with a uniformity ratio of 6:1, average to minimum.

Richard K Hopper

Richard K. Hopper, P.E., PTOE
Principal

APPENDICES

A. Traffic Count Data
B. Levels of Service Calculation Worksheets
C. Traffic Analysis Worksheets

A. Traffic Count Worksheets

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
POLHEMUS RD. - ASCENSION DR. to BUNKER HILL DR.

Site Code: 1
polhemus1

Start	23-May-13	SB		Hour Totals		NB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		5	33			0	0			5	33
12:15		1	28			0	0			1	28
12:30		3	27			0	0			3	27
12:45		1	30	10	118	0	0	0	0	1	30
01:00		0	27			0	0			0	27
01:15		0	18			0	0			0	18
01:30		0	31			0	0			0	31
01:45		1	36	1	112	0	0	0	0	1	36
02:00		1	46			0	0			1	46
02:15		0	42			0	0			0	42
02:30		1	35			0	0			1	35
02:45		0	47	2	170	0	0	0	0	0	47
03:00		0	63			0	0			0	63
03:15		0	70			0	0			0	70
03:30		0	69			0	0			0	69
03:45		0	57	0	259	0	0	0	0	0	57
04:00		1	61			0	0			1	61
04:15		0	55			0	0			0	55
04:30		1	***78***			0	0			1	***78***
04:45		1	***57***	3	251	0	0	0	0	1	***57***
05:00		1	***71***			0	0			1	***71***
05:15		2	***68***			0	0			2	***68***
05:30		3	56			0	0			3	56
05:45		3	59	9	254	0	0	0	0	3	59
06:00		6	65			0	0			6	65
06:15		6	52			0	0			6	52
06:30		8	53			0	0			8	53
06:45		24	38	44	208	0	0	0	0	24	38
07:00		23	31			0	0			23	31
07:15		21	25			0	0			21	25
07:30		41	19			0	0			41	19
07:45		***74***	22	159	97	0	0	0	0	***74***	22
08:00		***98***	18			0	0			***98***	18
08:15		***61***	22			0	0			***61***	22
08:30		***70***	21			0	0			***70***	21
08:45		55	19	284	80	0	0	0	0	55	19
09:00		43	11			0	0			43	11
09:15		28	6			0	0			28	6
09:30		38	16			0	0			38	16
09:45		36	6	145	39	0	0	0	0	36	6
10:00		34	11			0	0			34	11
10:15		31	6			0	0			31	6
10:30		38	5			0	0			38	5
10:45		37	2	140	24	0	0	0	0	37	2
11:00		25	8			0	0			25	8
11:15		29	3			0	0			29	3
11:30		25	5			0	0			25	5
11:45		32	2	111	18	0	0	0	0	32	2
Total		908	1630			0	0			908	1630
Day Total		2538				0				2538	
Percent		35.8%	64.2%			0.0%	0.0%			35.8%	64.2%
Peak		07:45	04:30							07:45	04:30
Vol.		303	274							303	274
P.H.F.		0.773	0.878							0.773	0.878

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
ASCENSION DR. - POLHEMUS RD. to BEL AIRE RD.

Site Code: 2
ascension2

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		2	12			4	13			6	25
12:15		0	4			0	9			0	13
12:30		0	4			1	8			1	12
12:45		0	11	2	31	0	8	5	38	0	19
01:00		0	6			0	3			0	9
01:15		0	11			0	12			0	23
01:30		0	13			0	8			0	21
01:45		1	6	1	36	0	10	0	33	1	16
02:00		0	9			0	8			0	17
02:15		0	11			0	8			0	19
02:30		0	19			0	6			0	25
02:45		0	14	0	53	0	15	0	37	0	29
03:00		0	15			0	16			0	31
03:15		0	6			0	13			0	19
03:30		0	7			0	20			0	27
03:45		0	11	0	39	0	13	0	62	0	24
04:00		0	16			0	14			0	30
04:15		0	16			0	7			0	23
04:30		0	14			0	20			0	34
04:45		2	12	2	58	0	22	0	63	2	34
05:00		0	14			0	13			0	27
05:15		3	18			2	12			5	30
05:30		5	13			0	***21***			5	34
05:45		1	13	9	58	2	***22***	4	68	3	35
06:00		5	***15***			0	***22***			5	***37***
06:15		2	***13***			2	***21***			4	***34***
06:30		11	***15***			1	18			12	***33***
06:45		8	***21***	26	64	2	16	5	77	10	***37***
07:00		6	6			4	13			10	19
07:15		13	6			4	5			17	11
07:30		22	4			7	5			29	9
07:45		***34***	3	75	19	***20***	16	35	39	***54***	19
08:00		***37***	9			***23***	18			***60***	27
08:15		***17***	3			***23***	12			***40***	15
08:30		***27***	5			***12***	10			***39***	15
08:45		17	6	98	23	11	11	69	51	28	17
09:00		16	4			10	6			26	10
09:15		14	3			9	2			23	5
09:30		9	4			11	8			20	12
09:45		9	1	48	12	15	9	45	25	24	10
10:00		10	6			5	4			15	10
10:15		10	3			10	4			20	7
10:30		17	0			11	1			28	1
10:45		11	0	48	9	11	2	37	11	22	2
11:00		6	2			10	5			16	7
11:15		4	2			9	2			13	4
11:30		8	5			6	3			14	8
11:45		7	1	25	10	8	3	33	13	15	4
Total		334	412			233	517			567	929
Day Total		746				750				1496	
Percent		44.8%	55.2%			31.1%	68.9%			37.9%	62.1%
Peak		07:45	06:00			07:45	05:30			07:45	06:00
Vol.		115	64			78	86			193	141
P.H.F.		0.777	0.762			0.848	0.977			0.804	0.953

MARKS TRAFFIC DATA
mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
BEL AIRE RD. - ASCENSION DR. to LAURIE LN.

Site Code: 3
bel aire3

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	7			1	3			1	10
12:15		1	2			0	5			1	7
12:30		0	1			0	3			0	4
12:45		0	7	1	17	0	6	1	17	0	13
01:00		0	3			0	7			0	10
01:15		0	6			0	4			0	10
01:30		0	8			1	5			1	13
01:45		1	***7***	1	24	0	2	1	18	1	9
02:00		0	***13***			0	3			0	16
02:15		0	***9***			0	4			0	13
02:30		0	***13***			0	4			0	17
02:45		0	7	0	42	0	4	0	15	0	11
03:00		0	9			0	2			0	11
03:15		0	4			0	7			0	11
03:30		0	7			0	6			0	13
03:45		0	9	0	29	0	8	0	23	0	17
04:00		0	9			0	4			0	13
04:15		0	12			0	6			0	18
04:30		0	10			0	8			0	18
04:45		0	6	0	37	0	4	0	22	0	10
05:00		0	6			0	5			0	11
05:15		0	11			1	3			1	14
05:30		0	9			0	5			0	14
05:45		0	10	0	36	3	10	4	23	3	20
06:00		2	7			2	4			4	11
06:15		0	9			2	***16***			2	***25***
06:30		2	7			1	***7***			3	***14***
06:45		1	11	5	34	3	***10***	8	37	4	***21***
07:00		5	5			4	***7***			9	***12***
07:15		1	6			5	3			6	9
07:30		4	1			***13***	3			***17***	4
07:45		***12***	5	22	17	***21***	5	43	18	***33***	10
08:00		***20***	2			***10***	4			***30***	6
08:15		***2***	3			***18***	7			***20***	10
08:30		***9***	2			8	3			17	5
08:45		5	3	36	10	9	1	45	15	14	4
09:00		3	2			6	4			9	6
09:15		5	1			12	1			17	2
09:30		0	3			7	0			7	3
09:45		5	1	13	7	12	3	37	8	17	4
10:00		3	1			2	2			5	3
10:15		7	1			6	4			13	5
10:30		6	2			4	1			10	3
10:45		7	1	23	5	10	0	22	7	17	1
11:00		2	2			2	2			4	4
11:15		1	2			7	0			8	2
11:30		4	3			2	2			6	5
11:45		3	0	10	7	4	0	15	4	7	0
Total		111	265			176	207			287	472
Day Total		376				383				759	
Percent		29.5%	70.5%			46.0%	54.0%			37.8%	62.2%
Peak		07:45	01:45			07:30	06:15			07:30	06:15
Vol.		43	42			62	40			100	72
P.H.F.		0.538	0.808			0.738	0.625			0.758	0.720

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
LAURIE LN.

Site Code: 4
laurie4

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	10			0	5			0	15
12:15		1	5			0	8			1	13
12:30		0	8			0	9			0	17
12:45		0	10	1	33	0	9	0	31	0	19
01:00		0	8			0	8			0	16
01:15		0	10			0	10			0	20
01:30		0	9			0	6			0	15
01:45		1	5	1	32	0	4	0	28	1	9
02:00		0	15			0	7			0	22
02:15		0	10			0	6			0	16
02:30		0	14			0	5			0	19
02:45		0	8	0	47	0	7	0	25	0	15
03:00		0	9			0	7			0	16
03:15		0	9			0	9			0	18
03:30		0	10			0	6			0	16
03:45		0	12	0	40	0	11	0	33	0	23
04:00		0	12			0	5			0	17
04:15		0	12			0	5			0	17
04:30		0	12			0	10			0	22
04:45		0	7	0	43	0	9	0	29	0	16
05:00		0	8			0	9			0	17
05:15		0	10			3	3			3	13
05:30		0	***21***			1	8			1	***29***
05:45		0	***18***	0	57	5	9	9	29	5	***27***
06:00		2	***8***			4	5			6	***13***
06:15		0	***11***			5	***12***			5	***23***
06:30		2	13			2	***7***			4	20
06:45		0	13	4	45	4	***14***	15	38	4	27
07:00		4	8			5	***7***			9	15
07:15		4	8			5	2			9	10
07:30		3	4			***13***	2			***16***	6
07:45		***10***	7	21	27	***24***	5	47	16	***34***	12
08:00		***10***	6			***18***	4			***28***	10
08:15		***4***	7			***19***	7			***23***	14
08:30		***7***	7			6	3			13	10
08:45		5	8	26	28	7	1	50	15	12	9
09:00		6	4			9	3			15	7
09:15		3	5			17	0			20	5
09:30		1	8			14	0			15	8
09:45		3	7	13	24	14	2	54	5	17	9
10:00		3	5			4	2			7	7
10:15		6	4			11	0			17	4
10:30		4	3			6	2			10	5
10:45		9	3	22	15	11	3	32	7	20	6
11:00		3	2			5	2			8	4
11:15		1	1			7	0			8	1
11:30		2	3			6	2			8	5
11:45		7	0	13	6	8	0	26	4	15	0
Total		101	397			233	260			334	657
Day Total		498				493				991	
Percent		20.3%	79.7%			47.3%	52.7%			33.7%	66.3%
Peak		07:45	05:30			07:30	06:15			07:30	05:30
Vol.		31	58			74	40			101	92
P.H.F.		0.775	0.690			0.771	0.714			0.743	0.793

MARKS TRAFFIC DATA
mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
PARROT DR. - LAURIE LN. to CSM DR.

Site Code: 5
parrot5

Start	23-May-13	SB		Hour Totals		NB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	18			3	26			4	44
12:15		1	17			1	21			2	38
12:30		0	20			0	18			0	38
12:45		0	26	2	81	1	15	5	80	1	41
01:00		1	15			0	21			1	36
01:15		1	17			4	13			5	30
01:30		2	23			0	16			2	39
01:45		0	15	4	70	1	12	5	62	1	27
02:00		1	17			0	21			1	38
02:15		0	19			0	25			0	44
02:30		0	22			0	15			0	37
02:45		0	20	1	78	0	27	0	88	0	47
03:00		0	***20***			0	19			0	39
03:15		1	***23***			1	28			2	51
03:30		0	***19***			0	18			0	37
03:45		0	***27***	1	89	0	22	1	87	0	49
04:00		0	20			0	26			0	46
04:15		0	21			1	22			1	43
04:30		0	20			0	21			0	41
04:45		0	14	0	75	0	19	1	88	0	33
05:00		1	16			0	***24***			1	***40***
05:15		5	21			0	***32***			5	***53***
05:30		4	21			2	***43***			6	***64***
05:45		8	24	18	82	0	***28***	2	127	8	***52***
06:00		7	16			2	23			9	39
06:15		8	20			2	33			10	53
06:30		8	13			2	29			10	42
06:45		8	19	31	68	4	22	10	107	12	41
07:00		13	11			4	17			17	28
07:15		12	10			12	16			24	26
07:30		***22***	9			***16***	14			***38***	23
07:45		***30***	10	77	40	***44***	28	76	75	***74***	38
08:00		***42***	12			***17***	17			***59***	29
08:15		***33***	8			***16***	8			***49***	16
08:30		18	7			13	17			31	24
08:45		17	2	110	29	17	17	63	59	34	19
09:00		16	3			15	11			31	14
09:15		22	6			13	11			35	17
09:30		28	1			14	14			42	15
09:45		26	9	92	19	8	13	50	49	34	22
10:00		10	5			12	11			22	16
10:15		19	6			15	9			34	15
10:30		18	5			14	7			32	12
10:45		15	6	62	22	16	8	57	35	31	14
11:00		20	3			12	5			32	8
11:15		18	2			9	6			27	8
11:30		16	3			13	7			29	10
11:45		13	0	67	8	15	3	49	21	28	3
Total		465	661			319	878			784	1539
Day Total		1126				1197				2323	
Percent		41.3%	58.7%			26.6%	73.4%			33.7%	66.3%
Peak		07:30	03:00			07:30	05:00			07:30	05:00
Vol.		127	89			93	127			220	209
P.H.F.		0.756	0.824			0.528	0.738			0.743	0.816

MARKS TRAFFIC DATA
mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
CSM DR. - PARROT DR. to PERIMETER RD.

Site Code: 6
csm6

Start Time	23-May-13 Thu	WB A.M.	WB P.M.	Hour Totals A.M.	Hour Totals P.M.	EB A.M.	EB P.M.	Hour Totals A.M.	Hour Totals P.M.	Both Dir. Total A.M.	Both Dir. Total P.M.
12:00		5	37			1	34			6	71
12:15		1	32			1	32			2	64
12:30		2	32			0	21			2	53
12:45		0	32	8	133	0	32	2	119	0	64
01:00		0	27			2	25			2	52
01:15		4	25			1	21			5	46
01:30		0	26			1	25			1	51
01:45		1	21	5	99	0	25	4	96	1	46
02:00		0	34			0	28			0	62
02:15		0	32			0	27			0	59
02:30		0	19			0	30			0	49
02:45		0	28	0	113	0	25	0	110	0	53
03:00		0	25			0	28			0	53
03:15		1	27			0	33			1	60
03:30		0	26			1	27			1	53
03:45		0	27	1	105	0	34	1	122	0	61
04:00		0	32			0	35			0	67
04:15		0	33			0	36			0	69
04:30		0	28			0	45			0	73
04:45		0	29	0	122	0	***39***	0	155	0	68
05:00		1	***36***			2	***45***			3	***81***
05:15		5	***42***			6	***40***			11	***82***
05:30		5	***42***			6	***51***			11	***93***
05:45		0	***35***	11	155	9	34	23	170	9	***69***
06:00		3	30			8	47			11	77
06:15		0	40			11	35			11	75
06:30		6	30			13	31			19	61
06:45		12	31	21	131	15	31	47	144	27	62
07:00		17	31			20	28			37	59
07:15		18	22			20	21			38	43
07:30		23	20			***37***	19			60	39
07:45		***36***	33	94	106	***39***	13	116	81	***75***	46
08:00		***41***	23			***40***	15			***81***	38
08:15		***38***	22			***30***	16			***68***	38
08:30		***34***	25			32	9			***66***	34
08:45		35	20	148	90	27	4	129	44	62	24
09:00		38	15			22	6			60	21
09:15		25	11			29	9			54	20
09:30		40	16			36	8			76	24
09:45		25	20	128	62	33	6	120	29	58	26
10:00		20	18			21	7			41	25
10:15		16	10			26	5			42	15
10:30		16	13			22	12			38	25
10:45		24	8	76	49	30	5	99	29	54	13
11:00		24	7			30	5			54	12
11:15		20	9			31	2			51	11
11:30		23	10			21	3			44	13
11:45		25	5	92	31	25	4	107	14	50	9
Total		584	1196			648	1113			1232	2309
Day Total		1780				1761				3541	
Percent		32.8%	67.2%			36.8%	63.2%			34.8%	65.2%
Peak		07:45	05:00			07:30	04:45			07:45	05:00
Vol.		149	155			146	175			290	325
P.H.F.		0.909	0.923			0.913	0.858			0.895	0.874

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014

Groups Printed- Unshifted - Bank 1

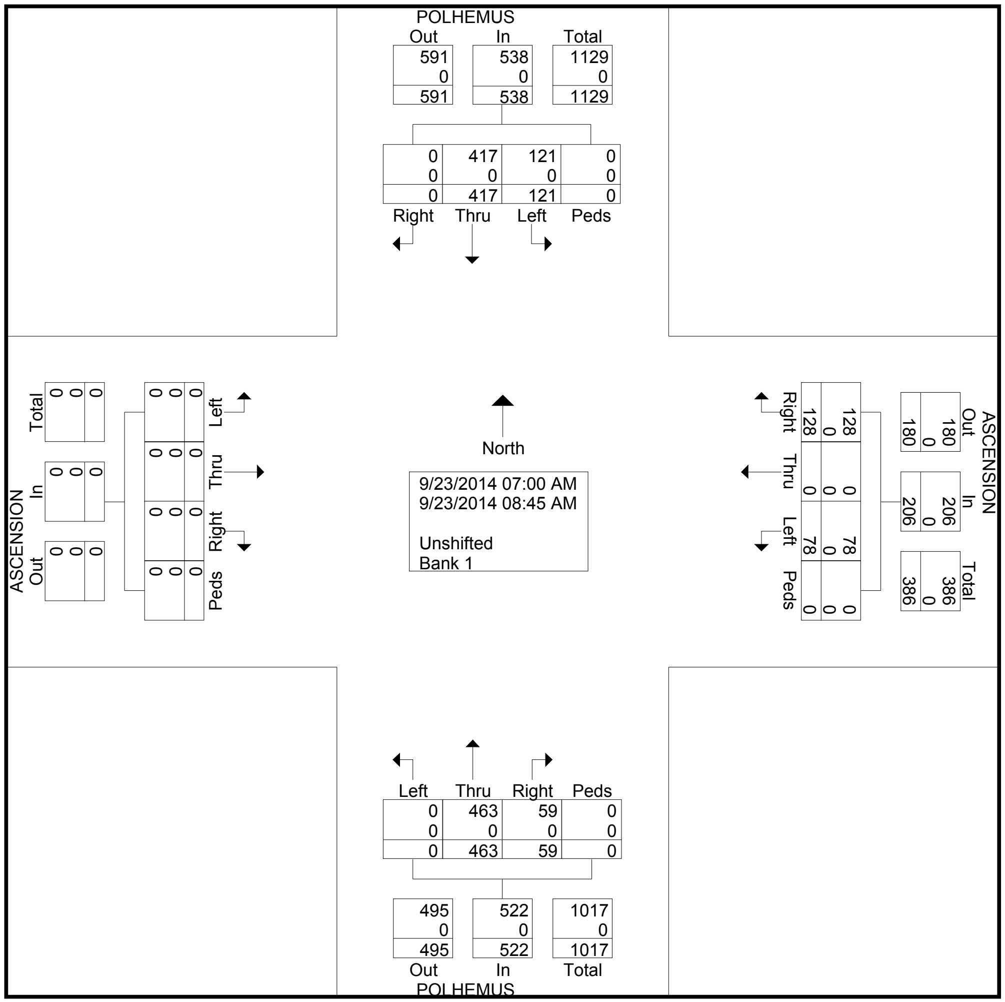
	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	19	3	0	22	8	0	12	0	20	6	21	0	0	27	0	0	0	0	0	69
07:15 AM	0	41	11	0	52	9	0	6	0	15	4	36	0	0	40	0	0	0	0	0	107
07:30 AM	0	40	9	0	49	13	0	12	0	25	7	72	0	0	79	0	0	0	0	0	153
07:45 AM	0	69	19	0	88	24	0	19	0	43	6	88	0	0	94	0	0	0	0	0	225
Total	0	169	42	0	211	54	0	49	0	103	23	217	0	0	240	0	0	0	0	0	554
08:00 AM	0	89	24	0	113	22	0	16	0	38	6	63	0	0	69	0	0	0	0	0	220
08:15 AM	0	67	14	0	81	20	0	7	0	27	13	71	0	0	84	0	0	0	0	0	192
08:30 AM	0	50	18	0	68	13	0	0	0	13	7	55	0	0	62	0	0	0	0	0	143
08:45 AM	0	42	23	0	65	19	0	6	0	25	10	57	0	0	67	0	0	0	0	0	157
Total	0	248	79	0	327	74	0	29	0	103	36	246	0	0	282	0	0	0	0	0	712
Grand Total	0	417	121	0	538	128	0	78	0	206	59	463	0	0	522	0	0	0	0	0	1266
Apprch %	0	77.5	22.5	0		62.1	0	37.9	0		11.3	88.7	0	0		0	0	0	0		
Total %	0	32.9	9.6	0	42.5	10.1	0	6.2	0	16.3	4.7	36.6	0	0	41.2	0	0	0	0	0	
Unshifted	0	417	121	0	538	128	0	78	0	206	59	463	0	0	522	0	0	0	0	0	1266
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 2



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P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014

	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	40	9	0	49	13	0	12	0	25	7	72	0	0	79	0	0	0	0	0	153
07:45 AM	0	69	19	0	88	**24**	0	**19**	0	**43**	6	**88**	0	0	**94**	0	0	0	0	0	**225**
08:00 AM	0	**89**	**24**	0	**113**	22	0	16	0	38	6	63	0	0	69	0	0	0	0	0	220
08:15 AM	0	67	14	0	81	20	0	7	0	27	**13**	71	0	0	84	0	0	0	0	0	192
Total Volume	0	265	66	0	331	79	0	54	0	133	32	294	0	0	326	0	0	0	0	0	790
% App. Total	0	80.1	19.9	0		59.4	0	40.6	0		9.8	90.2	0	0		0	0	0	0		
PHF	.000	.744	.688	.000	.732	.823	.000	.711	.000	.773	.615	.835	.000	.000	.867	.000	.000	.000	.000	.000	.878
Unshifted	0	265	66	0	331	79	0	54	0	133	32	294	0	0	326	0	0	0	0	0	790
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
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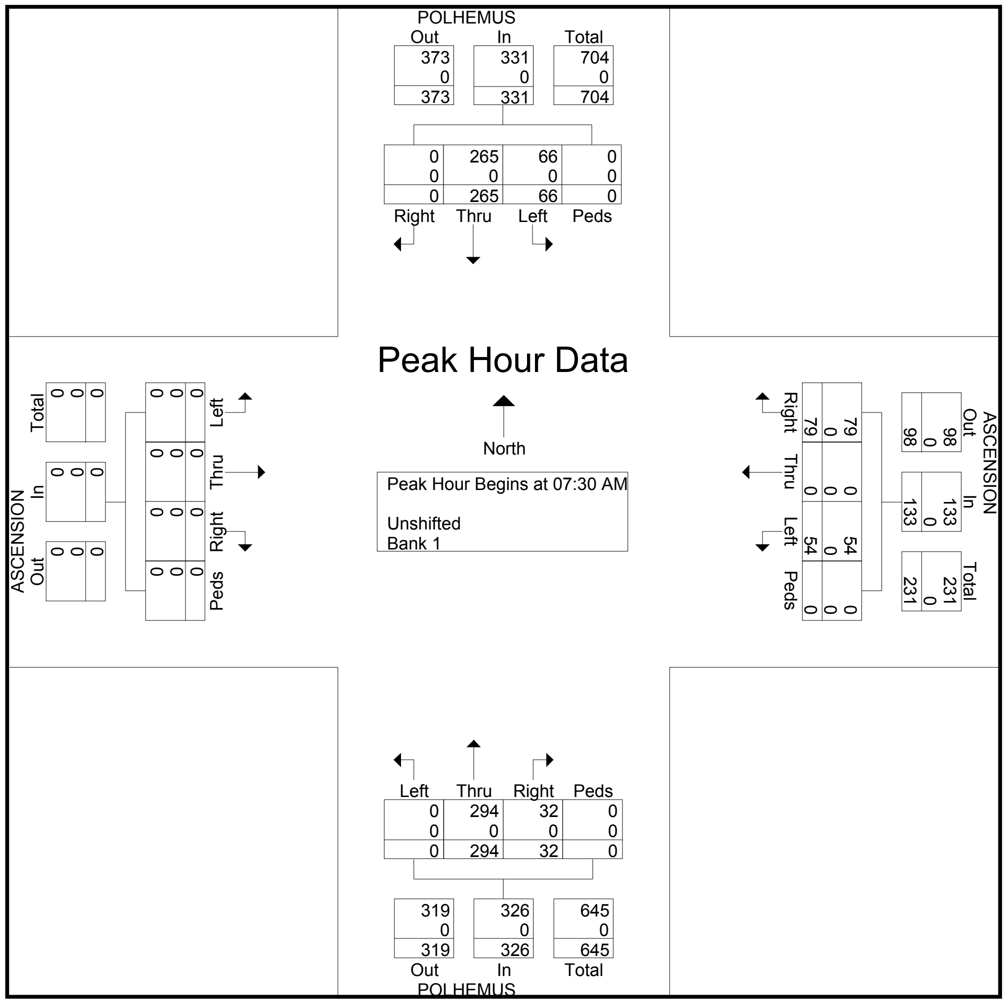

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TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	43	9	0	52	4	0	7	0	11	5	47	0	0	52	0	0	0	0	0	115
04:15 PM	0	43	9	0	52	7	0	5	0	12	10	64	0	0	74	0	0	0	0	0	138
04:30 PM	0	43	7	0	50	9	0	7	0	16	13	61	0	0	74	0	0	0	0	0	140
04:45 PM	0	51	9	0	60	15	0	10	0	25	5	51	0	0	56	0	0	0	0	0	141
Total	0	180	34	0	214	35	0	29	0	64	33	223	0	0	256	0	0	0	0	0	534
05:00 PM	0	55	12	0	67	20	0	8	0	28	10	67	0	0	77	0	0	0	0	0	172
05:15 PM	0	43	20	0	63	15	0	10	0	25	11	61	0	0	72	0	0	0	0	0	160
05:30 PM	0	67	16	0	83	8	0	3	0	11	9	82	0	0	91	0	0	0	0	0	185
05:45 PM	0	51	9	0	60	11	0	7	0	18	7	74	0	0	81	0	0	0	0	0	159
Total	0	216	57	0	273	54	0	28	0	82	37	284	0	0	321	0	0	0	0	0	676
Grand Total	0	396	91	0	487	89	0	57	0	146	70	507	0	0	577	0	0	0	0	0	1210
Apprch %	0	81.3	18.7	0		61	0	39	0		12.1	87.9	0	0		0	0	0	0		
Total %	0	32.7	7.5	0	40.2	7.4	0	4.7	0	12.1	5.8	41.9	0	0	47.7	0	0	0	0	0	
Unshifted	0	396	91	0	487	89	0	57	0	146	70	507	0	0	577	0	0	0	0	0	1210
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
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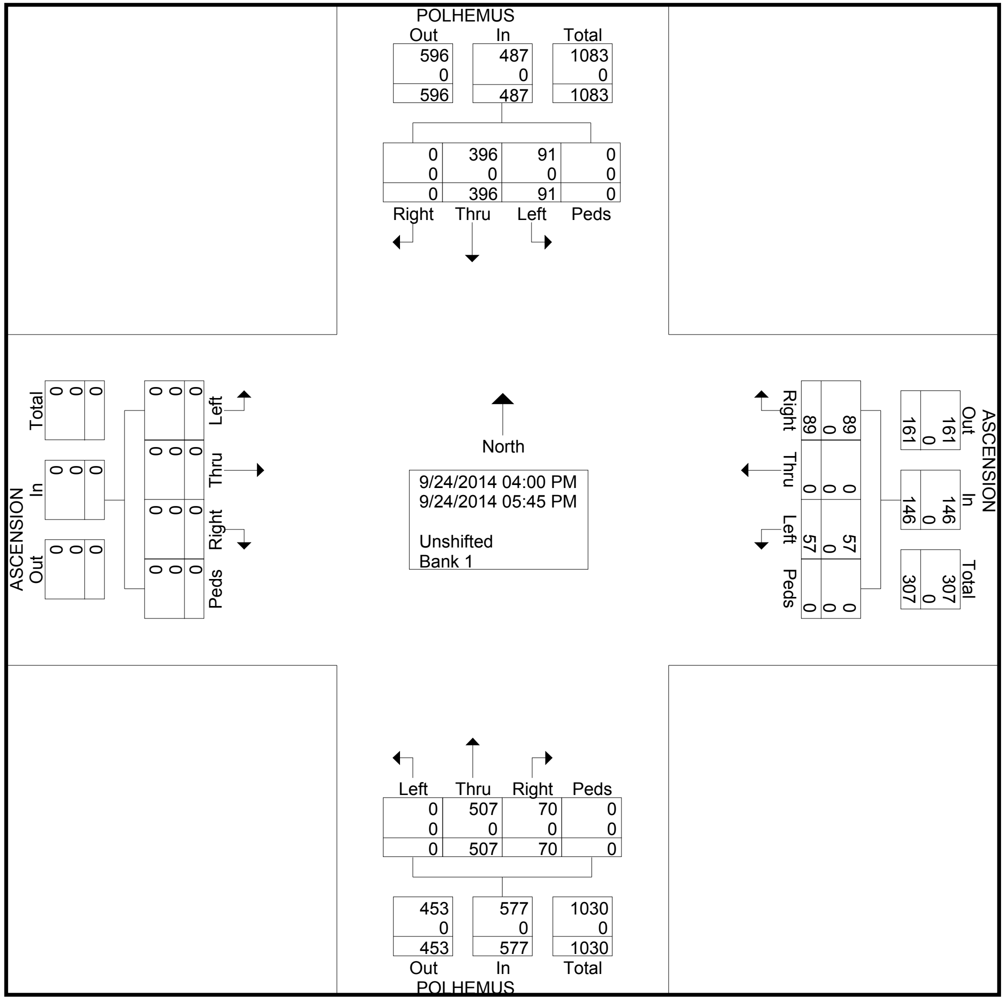

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Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
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	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	55	12	0	67	**20**	0	8	0	**28**	10	67	0	0	77	0	0	0	0	0	172
05:15 PM	0	43	**20**	0	63	15	0	**10**	0	25	**11**	61	0	0	72	0	0	0	0	0	160
05:30 PM	0	**67**	16	0	**83**	8	0	3	0	11	9	**82**	0	0	**91**	0	0	0	0	0	**185**
05:45 PM	0	51	9	0	60	11	0	7	0	18	7	74	0	0	81	0	0	0	0	0	159
Total Volume	0	216	57	0	273	54	0	28	0	82	37	284	0	0	321	0	0	0	0	0	676
% App. Total	0	79.1	20.9	0		65.9	0	34.1	0		11.5	88.5	0	0		0	0	0	0		
PHF	.000	.806	.713	.000	.822	.675	.000	.700	.000	.732	.841	.866	.000	.000	.882	.000	.000	.000	.000	.000	.914

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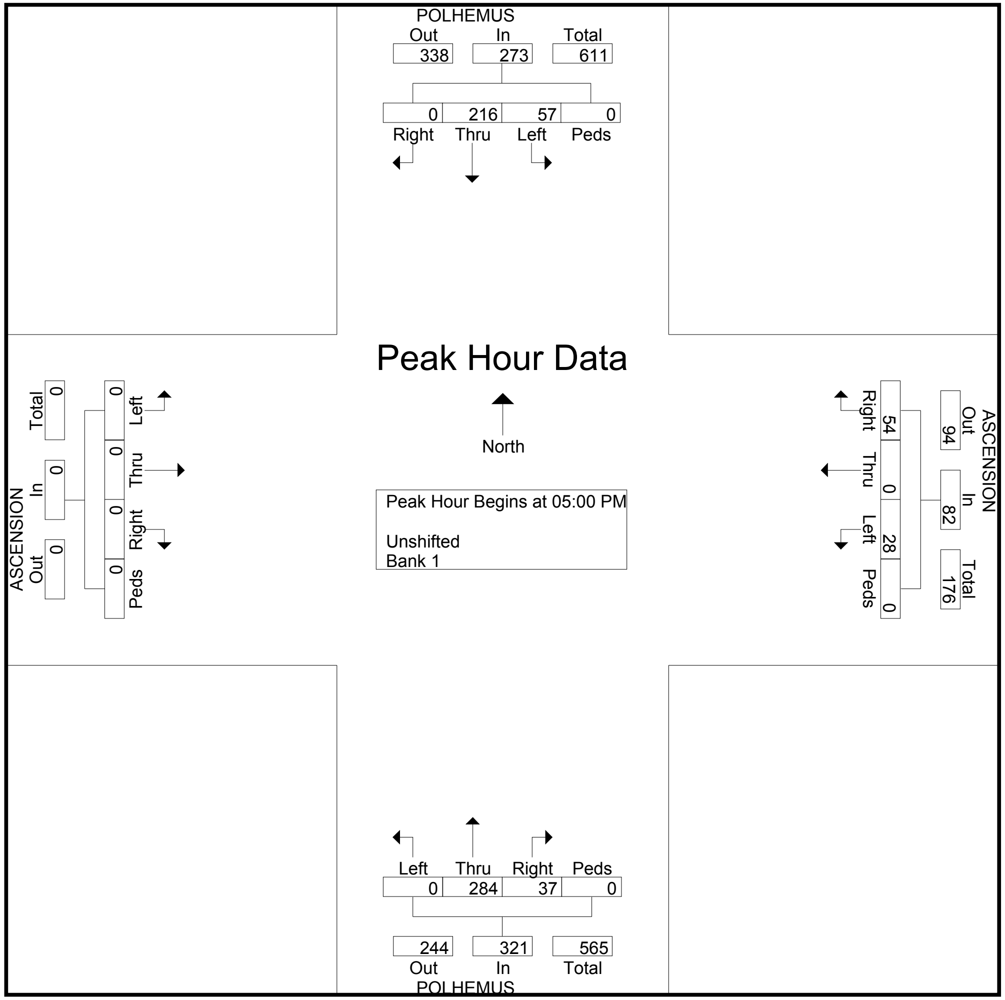

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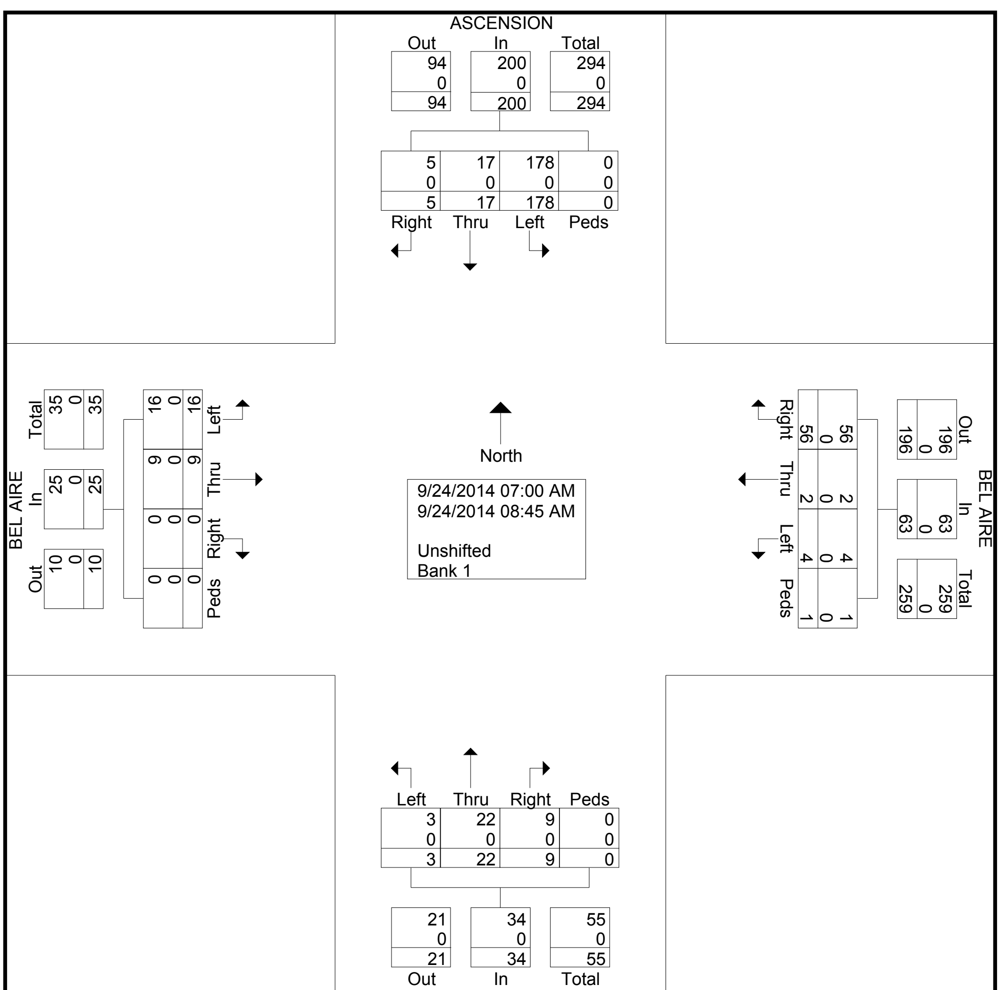
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire AM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	2	5	0	8	1	1	0	1	3	1	0	2	0	3	0	1	3	0	4	18
07:15 AM	0	0	10	0	10	6	0	0	0	6	2	2	0	0	4	0	2	3	0	5	25
07:30 AM	0	1	15	0	16	7	0	0	0	7	2	2	0	0	4	0	1	2	0	3	30
07:45 AM	1	3	30	0	34	11	0	1	0	12	2	5	0	0	7	0	3	2	0	5	58
Total	2	6	60	0	68	25	1	1	1	28	7	9	2	0	18	0	7	10	0	17	131
08:00 AM	1	3	25	0	29	12	0	1	0	13	0	3	0	0	3	0	0	3	0	3	48
08:15 AM	2	1	16	0	19	11	0	1	0	12	0	4	0	0	4	0	1	2	0	3	38
08:30 AM	0	4	29	0	33	2	0	1	0	3	0	4	1	0	5	0	1	1	0	2	43
08:45 AM	0	3	48	0	51	6	1	0	0	7	2	2	0	0	4	0	0	0	0	0	62
Total	3	11	118	0	132	31	1	3	0	35	2	13	1	0	16	0	2	6	0	8	191
Grand Total	5	17	178	0	200	56	2	4	1	63	9	22	3	0	34	0	9	16	0	25	322
Apprch %	2.5	8.5	89	0		88.9	3.2	6.3	1.6		26.5	64.7	8.8	0		0	36	64	0		
Total %	1.6	5.3	55.3	0	62.1	17.4	0.6	1.2	0.3	19.6	2.8	6.8	0.9	0	10.6	0	2.8	5	0	7.8	
Unshifted	5	17	178	0	200	56	2	4	1	63	9	22	3	0	34	0	9	16	0	25	322
% Unshifted	100	100	100	0	100	100	100	100	100	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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TRA Traffic Survey
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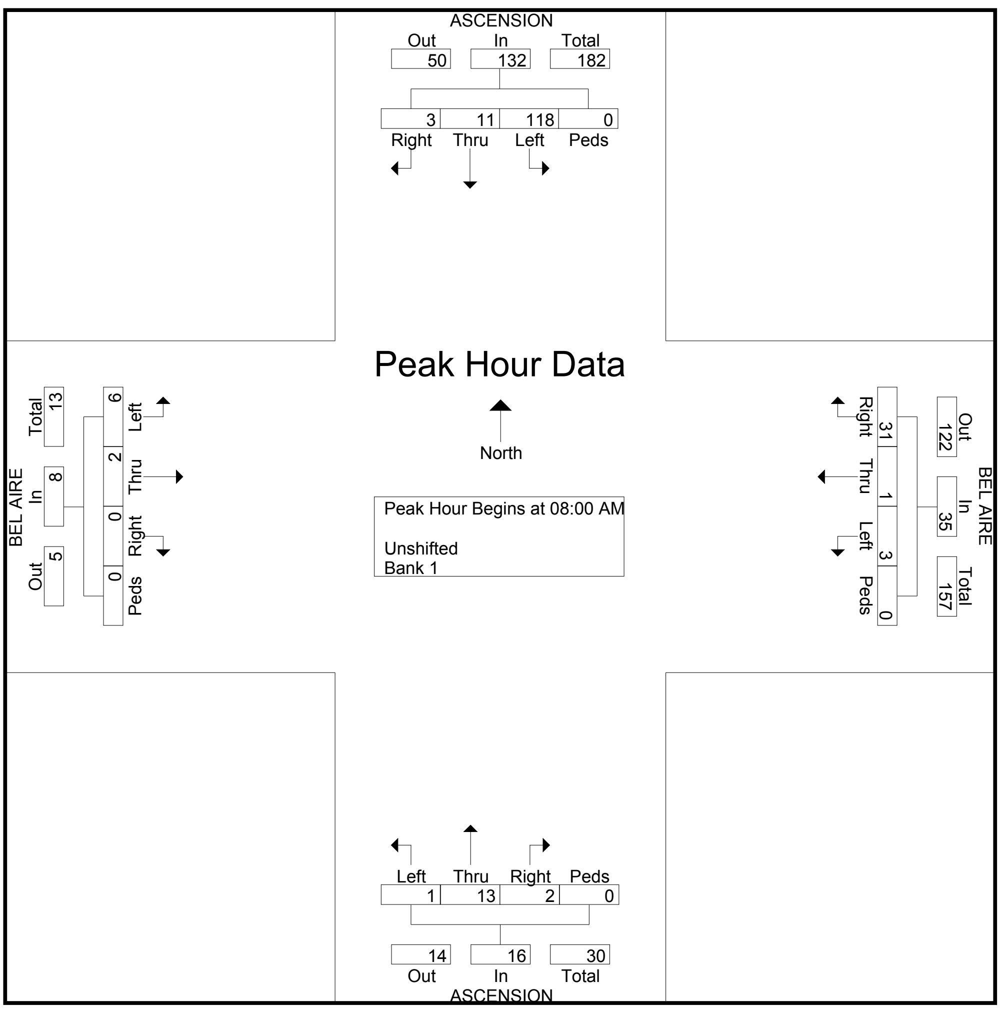
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire AM
Site Code : 00000000
Start Date : 9/24/2014

	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	3	25	0	29	**12**	0	**1**	0	**13**	0	3	0	0	3	0	0	**3**	0	**3**	48
08:15 AM	**2**	1	16	0	19	11	0	1	0	12	0	**4**	0	0	4	0	**1**	2	0	3	38
08:30 AM	0	**4**	29	0	33	2	0	1	0	3	0	4	**1**	0	**5**	0	1	1	0	2	43
08:45 AM	0	3	**48**	0	**51**	6	**1**	0	0	7	**2**	2	0	0	4	0	0	0	0	0	**62**
Total Volume	3	11	118	0	132	31	1	3	0	35	2	13	1	0	16	0	2	6	0	8	191
% App. Total	2.3	8.3	89.4	0		88.6	2.9	8.6	0		12.5	81.2	6.2	0		0	25	75	0		
PHF	.375	.688	.615	.000	.647	.646	.250	.750	.000	.673	.250	.813	.250	.000	.800	.000	.500	.500	.000	.667	.770



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TRA Traffic Survey
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City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	3	4	0	7	7	2	0	0	9	1	1	0	0	2	0	1	2	0	3	21
04:15 PM	1	2	7	0	10	4	0	1	0	5	2	0	0	0	2	0	0	0	0	0	17
04:30 PM	3	4	11	0	18	7	1	2	0	10	1	2	0	0	3	0	0	0	0	0	31
04:45 PM	2	2	8	0	12	2	0	1	0	3	2	2	0	0	4	0	1	1	0	2	21
Total	6	11	30	0	47	20	3	4	0	27	6	5	0	0	11	0	2	3	0	5	90
05:00 PM	2	3	8	0	13	9	2	1	0	12	1	2	0	0	3	0	1	0	0	1	29
05:15 PM	0	0	13	0	13	8	1	1	0	10	1	1	0	0	2	0	0	0	0	0	25
05:30 PM	1	3	7	0	11	17	1	1	0	19	1	2	0	0	3	0	0	2	0	2	35
05:45 PM	1	3	8	0	12	9	3	2	0	14	0	1	1	0	2	0	1	2	0	3	31
Total	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
Grand Total	10	20	66	0	96	63	10	9	0	82	9	11	1	0	21	0	4	7	0	11	210
Apprch %	10.4	20.8	68.8	0		76.8	12.2	11	0		42.9	52.4	4.8	0		0	36.4	63.6	0		
Total %	4.8	9.5	31.4	0	45.7	30	4.8	4.3	0	39	4.3	5.2	0.5	0	10	0	1.9	3.3	0	5.2	
Unshifted	10	20	66	0	96	63	10	9	0	82	9	11	1	0	21	0	4	7	0	11	210
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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TRA Traffic Survey
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City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
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Start Date : 9/25/2014
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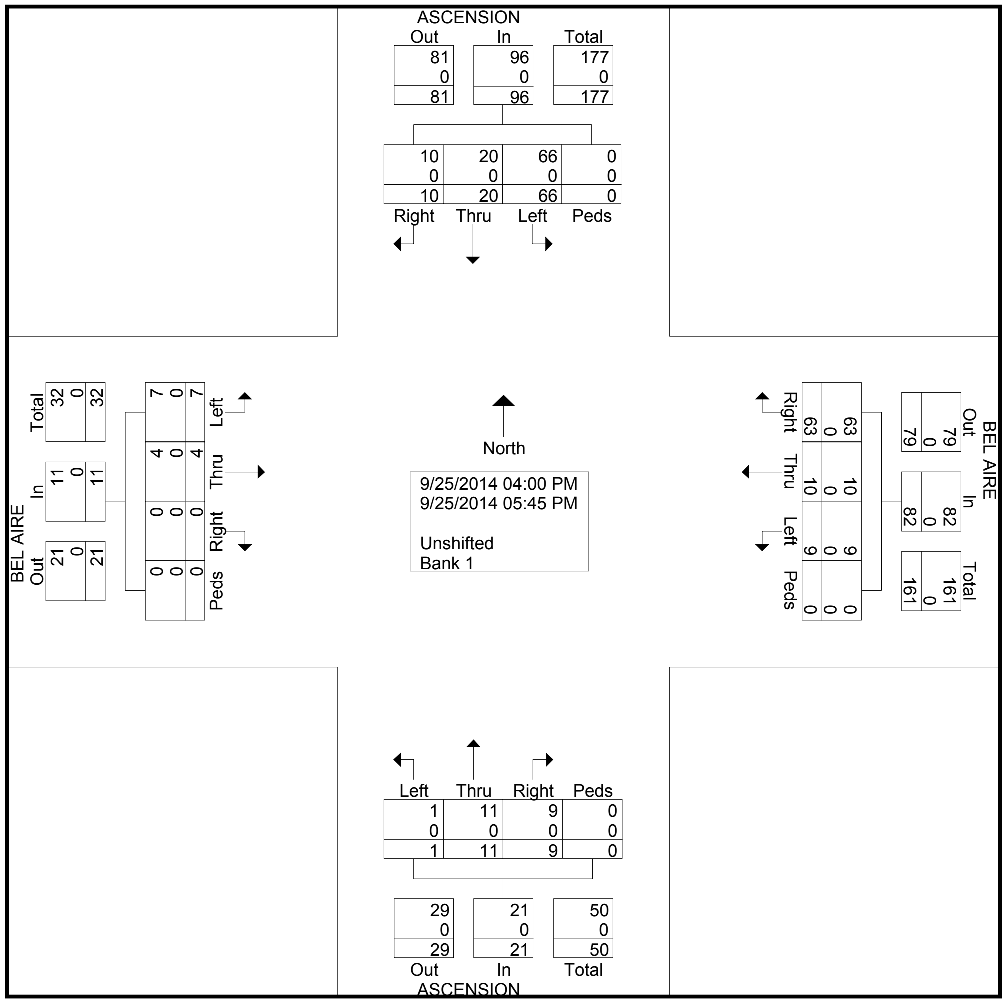

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TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
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	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**2**	**3**	8	0	**13**	9	2	1	0	12	**1**	**2**	0	0	**3**	0	**1**	0	0	1	29
05:15 PM	0	0	**13**	0	13	8	1	1	0	10	1	1	0	0	2	0	0	0	0	0	25
05:30 PM	1	3	7	0	11	**17**	1	1	0	**19**	1	2	0	0	3	0	0	**2**	0	2	**35**
05:45 PM	1	3	8	0	12	9	**3**	**2**	0	14	0	1	**1**	0	2	0	1	2	0	**3**	31
Total Volume	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
% App. Total	8.2	18.4	73.5	0		78.2	12.7	9.1	0		30	60	10	0		0	33.3	66.7	0		
PHF	.500	.750	.692	.000	.942	.632	.583	.625	.000	.724	.750	.750	.250	.000	.833	.000	.500	.500	.000	.500	.857
Unshifted	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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TRA Traffic Survey	File Name : Ascension & Bel Aire PM
RKH Consultants	Site Code : 00000000
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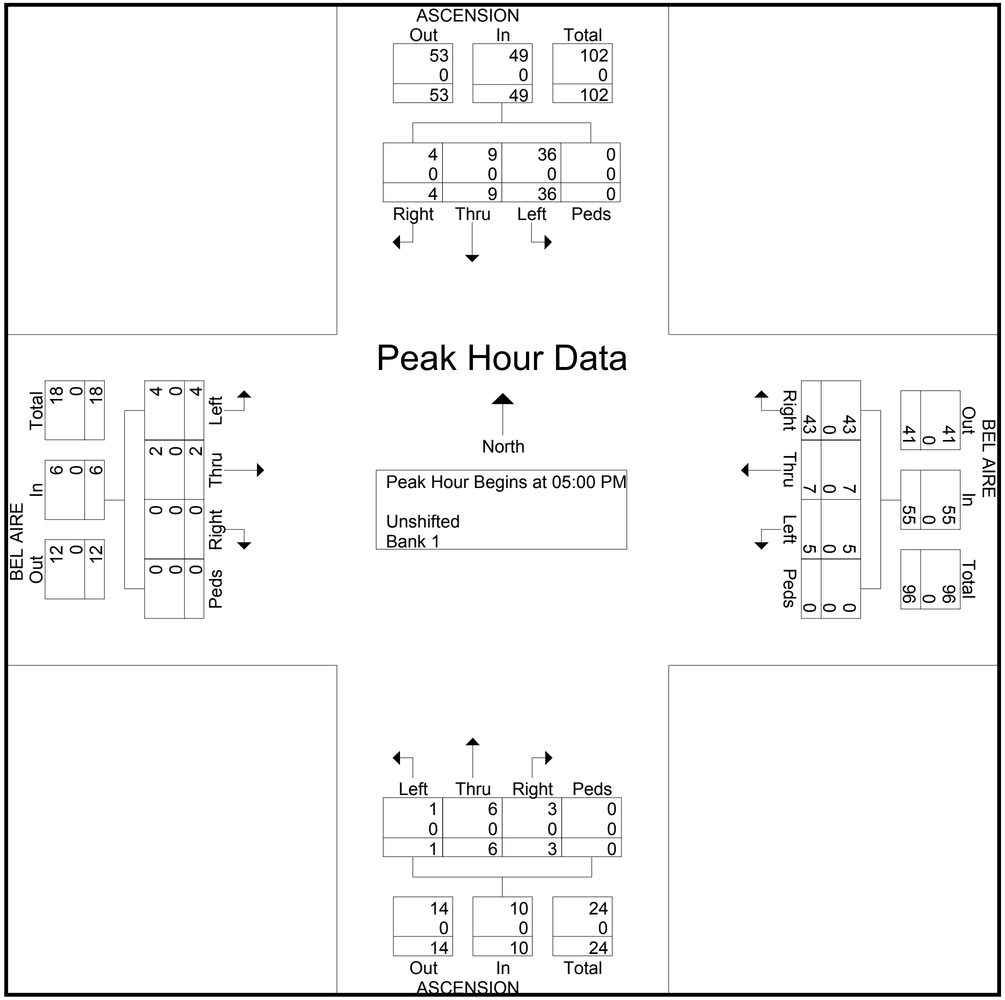

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TRA Traffic Survey
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City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	13	0	0	13	0	0	0	0	0	0	4	1	0	5	8	0	0	0	8	26
07:15 AM	3	24	0	0	27	0	0	0	0	0	0	12	3	0	15	17	0	2	0	19	61
07:30 AM	4	15	0	0	19	0	0	0	0	0	0	46	8	0	54	16	0	3	0	19	92
07:45 AM	4	21	0	0	25	0	0	0	0	0	0	15	8	0	23	24	0	2	0	26	74
Total	11	73	0	0	84	0	0	0	0	0	0	77	20	0	97	65	0	7	0	72	253
08:00 AM	2	22	0	0	24	0	0	0	0	0	0	10	4	0	14	22	0	4	0	26	64
08:15 AM	1	12	0	0	13	0	0	0	0	0	0	12	2	0	14	20	0	1	0	21	48
08:30 AM	1	16	0	0	17	0	0	0	0	0	0	15	2	0	17	29	0	2	0	31	65
08:45 AM	0	17	0	0	17	0	0	0	0	0	0	12	6	0	18	34	0	3	0	37	72
Total	4	67	0	0	71	0	0	0	0	0	0	49	14	0	63	105	0	10	0	115	249
Grand Total	15	140	0	0	155	0	0	0	0	0	0	126	34	0	160	170	0	17	0	187	502
Apprch %	9.7	90.3	0	0		0	0	0	0		0	78.8	21.2	0		90.9	0	9.1	0		
Total %	3	27.9	0	0	30.9	0	0	0	0	0	0	25.1	6.8	0	31.9	33.9	0	3.4	0	37.3	
Unshifted	15	140	0	0	155	0	0	0	0	0	0	126	34	0	160	170	0	17	0	187	502
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
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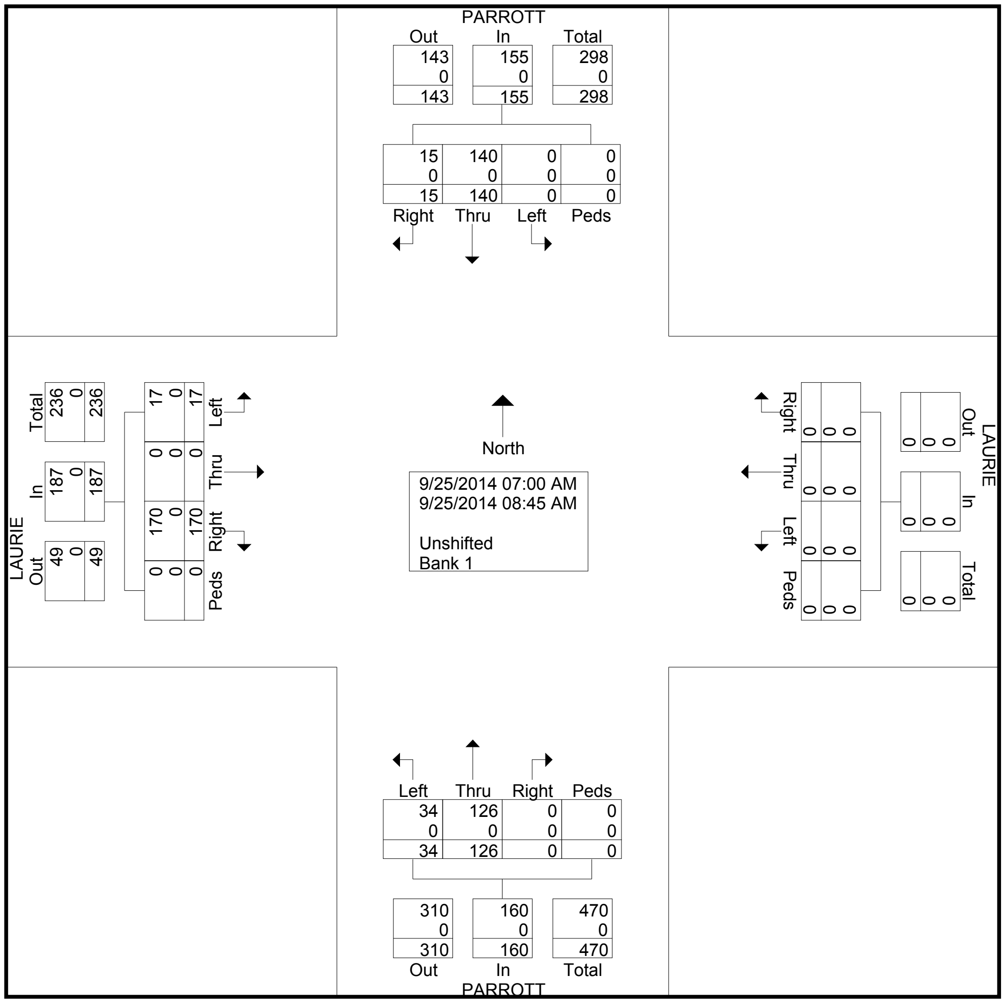

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TRA Traffic Survey
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City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
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	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	3	**24**	0	0	**27**	0	0	0	0	0	0	12	3	0	15	17	0	2	0	19	61
07:30 AM	**4**	15	0	0	19	0	0	0	0	0	0	**46**	**8**	0	**54**	16	0	3	0	19	**92**
07:45 AM	4	21	0	0	25	0	0	0	0	0	0	15	8	0	23	**24**	0	2	0	**26**	74
08:00 AM	2	22	0	0	24	0	0	0	0	0	0	10	4	0	14	22	0	**4**	0	26	64
Total Volume	13	82	0	0	95	0	0	0	0	0	0	83	23	0	106	79	0	11	0	90	291
% App. Total	13.7	86.3	0	0		0	0	0	0		0	78.3	21.7	0		87.8	0	12.2	0		
PHF	.813	.854	.000	.000	.880	.000	.000	.000	.000	.000	.000	.451	.719	.000	.491	.823	.000	.688	.000	.865	.791
Unshifted	13	82	0	0	95	0	0	0	0	0	0	83	23	0	106	79	0	11	0	90	291
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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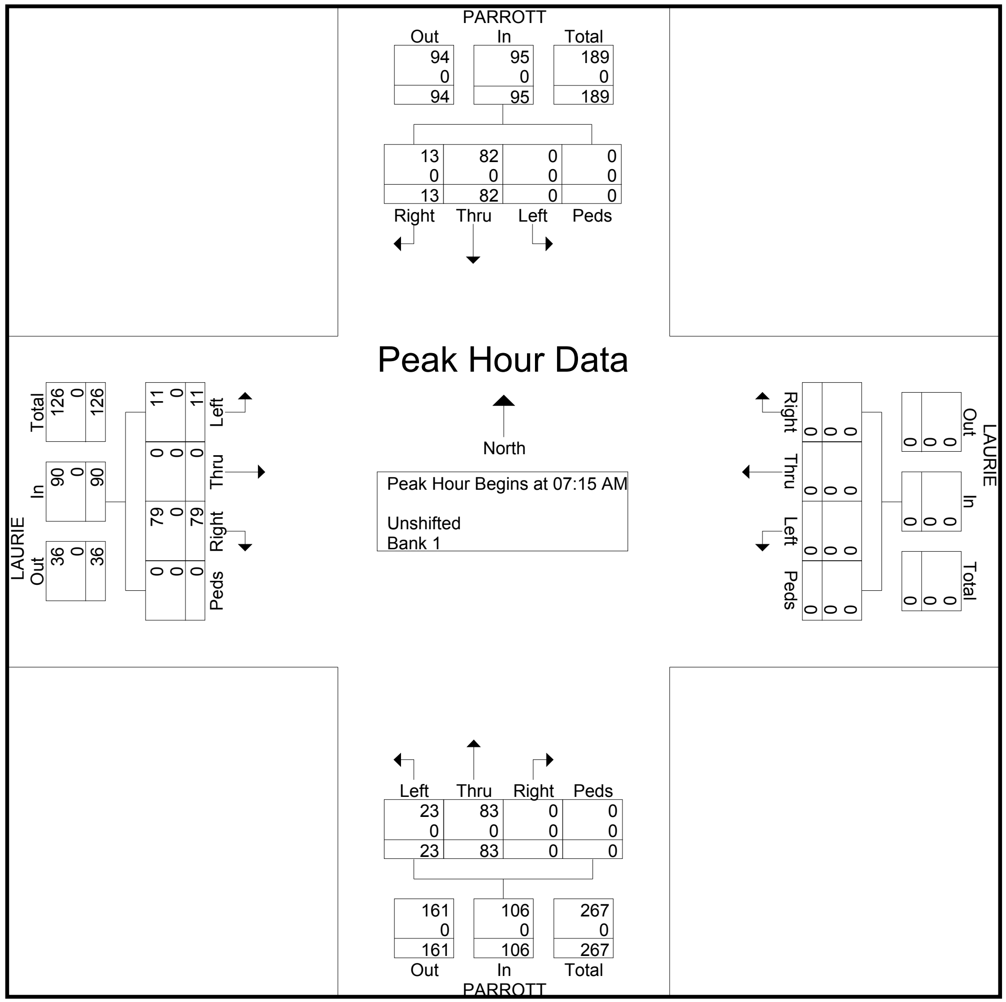
TRA Traffic Survey	File Name : Parrott & Laurie AM
RKH Consultants	Site Code : 00000000
City of San Mateo	Start Date : 9/25/2014
Laurie & Parrott	Page No : 4



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Groups Printed- Unshifted - Bank 1

	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	7	0	0	7	0	0	0	0	0	0	6	6	0	12	6	0	2	0	8	27
04:15 PM	2	15	0	0	17	0	0	0	0	0	0	12	7	0	19	2	0	3	0	5	41
04:30 PM	1	13	0	0	14	0	0	0	0	0	0	20	9	0	29	3	0	4	0	7	50
04:45 PM	1	15	0	0	16	0	0	0	0	0	0	17	16	0	33	12	0	4	0	16	65
Total	4	50	0	0	54	0	0	0	0	0	0	55	38	0	93	23	0	13	0	36	183
05:00 PM	1	10	0	0	11	0	0	0	0	0	0	25	18	0	43	9	0	2	0	11	65
05:15 PM	1	20	0	0	21	0	0	0	0	0	0	31	12	0	43	11	0	0	0	11	75
05:30 PM	1	13	0	0	14	0	0	0	0	0	0	22	15	0	37	7	0	0	0	7	58
05:45 PM	1	10	0	0	11	0	0	0	0	0	0	25	10	0	35	10	0	2	0	12	58
Total	4	53	0	0	57	0	0	0	0	0	0	103	55	0	158	37	0	4	0	41	256
Grand Total	8	103	0	0	111	0	0	0	0	0	0	158	93	0	251	60	0	17	0	77	439
Apprch %	7.2	92.8	0	0		0	0	0	0		0	62.9	37.1	0		77.9	0	22.1	0		
Total %	1.8	23.5	0	0	25.3	0	0	0	0	0	0	36	21.2	0	57.2	13.7	0	3.9	0	17.5	
Unshifted	8	103	0	0	111	0	0	0	0	0	0	158	93	0	251	60	0	17	0	77	439
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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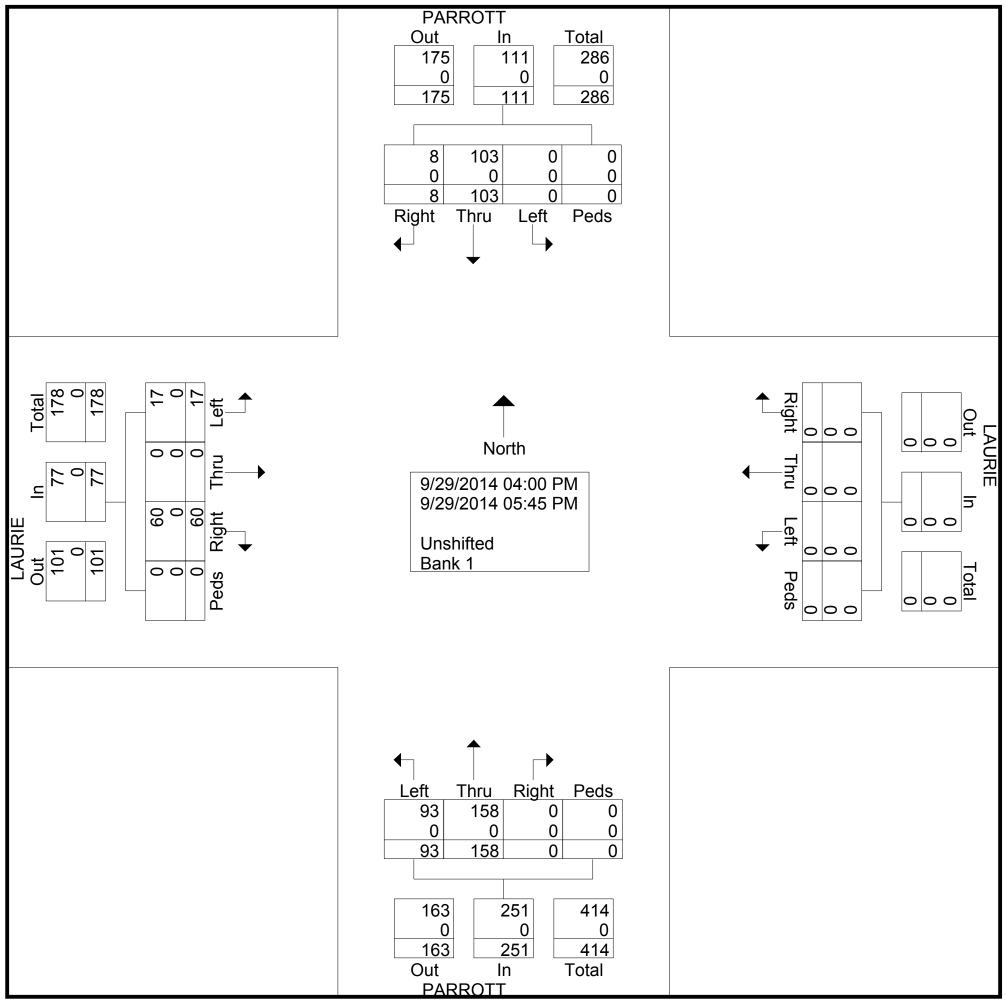

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	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**1**	15	0	0	16	0	0	0	0	0	0	17	16	0	33	**12**	0	**4**	0	**16**	65
05:00 PM	1	10	0	0	11	0	0	0	0	0	0	25	**18**	0	**43**	9	0	2	0	11	65
05:15 PM	1	**20**	0	0	**21**	0	0	0	0	0	0	**31**	12	0	43	11	0	0	0	11	**75**
05:30 PM	1	13	0	0	14	0	0	0	0	0	0	22	15	0	37	7	0	0	0	7	58
Total Volume	4	58	0	0	62	0	0	0	0	0	0	95	61	0	156	39	0	6	0	45	263
% App. Total	6.5	93.5	0	0		0	0	0	0		0	60.9	39.1	0		86.7	0	13.3	0		
PHF	1.00	.725	.000	.000	.738	.000	.000	.000	.000	.000	.000	.766	.847	.000	.907	.813	.000	.375	.000	.703	.877
Unshifted	4	58	0	0	62	0	0	0	0	0	0	95	61	0	156	39	0	6	0	45	263
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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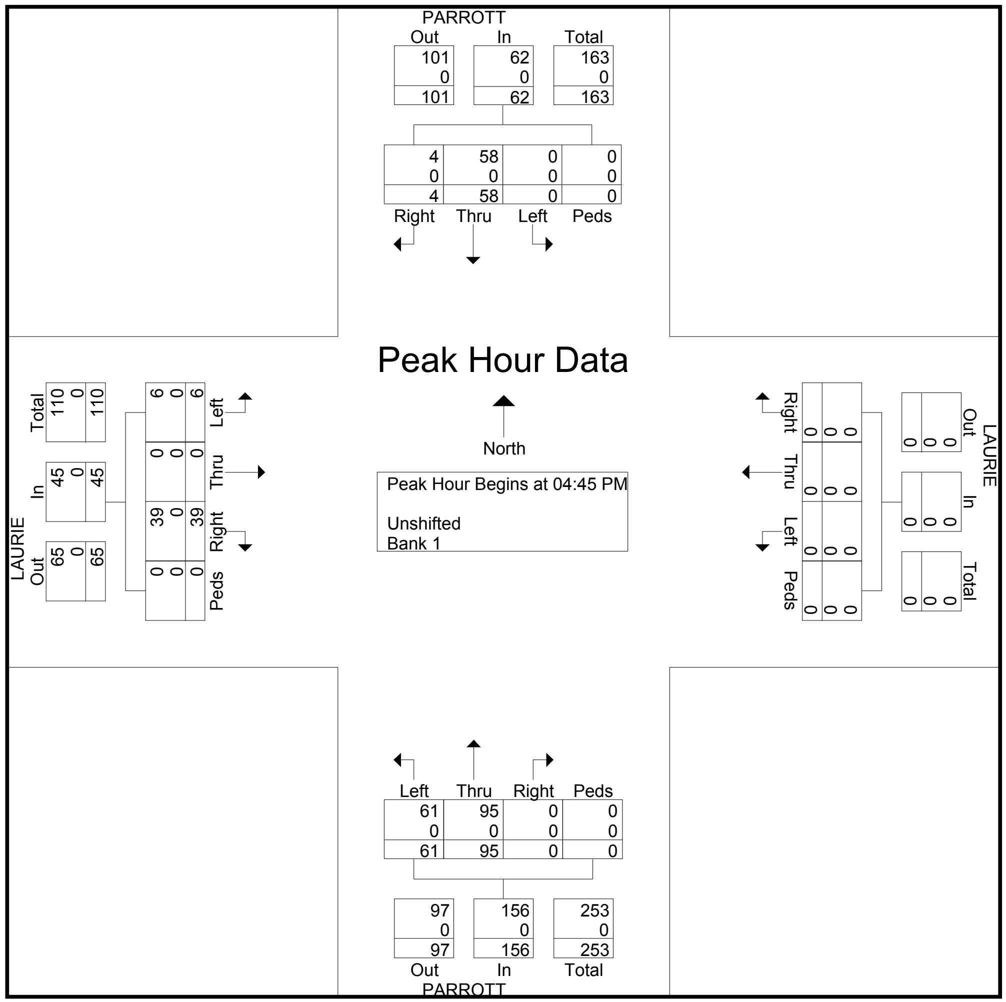

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Groups Printed- Unshifted - Bank 1

	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	2	18	0	21	5	0	4	0	9	3	3	0	0	6	0	0	0	0	0	36
07:15 AM	0	1	20	0	21	5	0	1	0	6	3	2	0	0	5	0	2	0	0	2	34
07:30 AM	0	4	23	0	27	11	0	4	0	15	5	20	1	0	26	1	1	0	0	2	70
07:45 AM	0	15	34	0	49	10	0	4	0	14	10	24	0	0	34	0	1	1	0	2	99
Total	1	22	95	0	118	31	0	13	0	44	21	49	1	0	71	1	4	1	0	6	239
08:00 AM	0	15	34	0	49	9	0	5	0	14	15	7	0	0	22	0	0	1	0	1	86
08:15 AM	0	0	26	0	26	9	0	6	0	15	15	7	0	0	22	0	1	0	0	1	64
08:30 AM	1	3	41	0	45	9	0	2	0	11	30	12	0	0	42	0	2	0	0	2	100
08:45 AM	2	2	52	0	56	13	1	5	0	19	43	5	1	0	49	0	2	0	0	2	126
Total	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
Grand Total	4	42	248	0	294	71	1	31	0	103	124	80	2	0	206	1	9	2	0	12	615
Apprch %	1.4	14.3	84.4	0		68.9	1	30.1	0		60.2	38.8	1	0		8.3	75	16.7	0		
Total %	0.7	6.8	40.3	0	47.8	11.5	0.2	5	0	16.7	20.2	13	0.3	0	33.5	0.2	1.5	0.3	0	2	
Unshifted	4	42	248	0	294	71	1	31	0	103	124	80	2	0	206	1	9	2	0	12	615
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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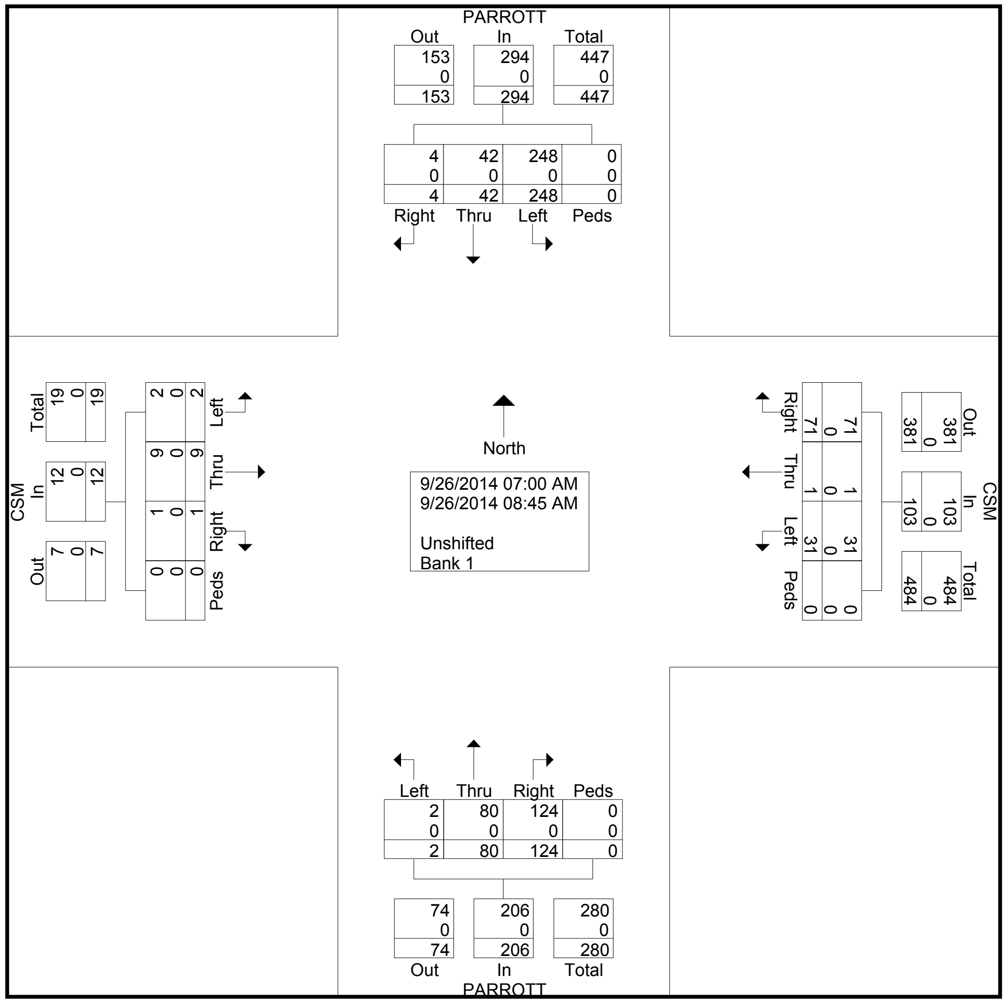

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Start Date : 9/26/2014

	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**15**	34	0	49	9	0	5	0	14	15	7	0	0	22	0	0	**1**	0	1	86
08:15 AM	0	0	26	0	26	9	0	**6**	0	15	15	7	0	0	22	0	1	0	0	1	64
08:30 AM	1	3	41	0	45	9	0	2	0	11	30	**12**	0	0	42	0	**2**	0	0	**2**	100
08:45 AM	**2**	2	**52**	0	**56**	**13**	**1**	5	0	**19**	**43**	5	**1**	0	**49**	0	2	0	0	2	**126**
Total Volume	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
% App. Total	1.7	11.4	86.9	0		67.8	1.7	30.5	0		76.3	23	0.7	0		0	83.3	16.7	0		
PHF	.375	.333	.736	.000	.786	.769	.250	.750	.000	.776	.599	.646	.250	.000	.689	.000	.625	.250	.000	.750	.746
Unshifted	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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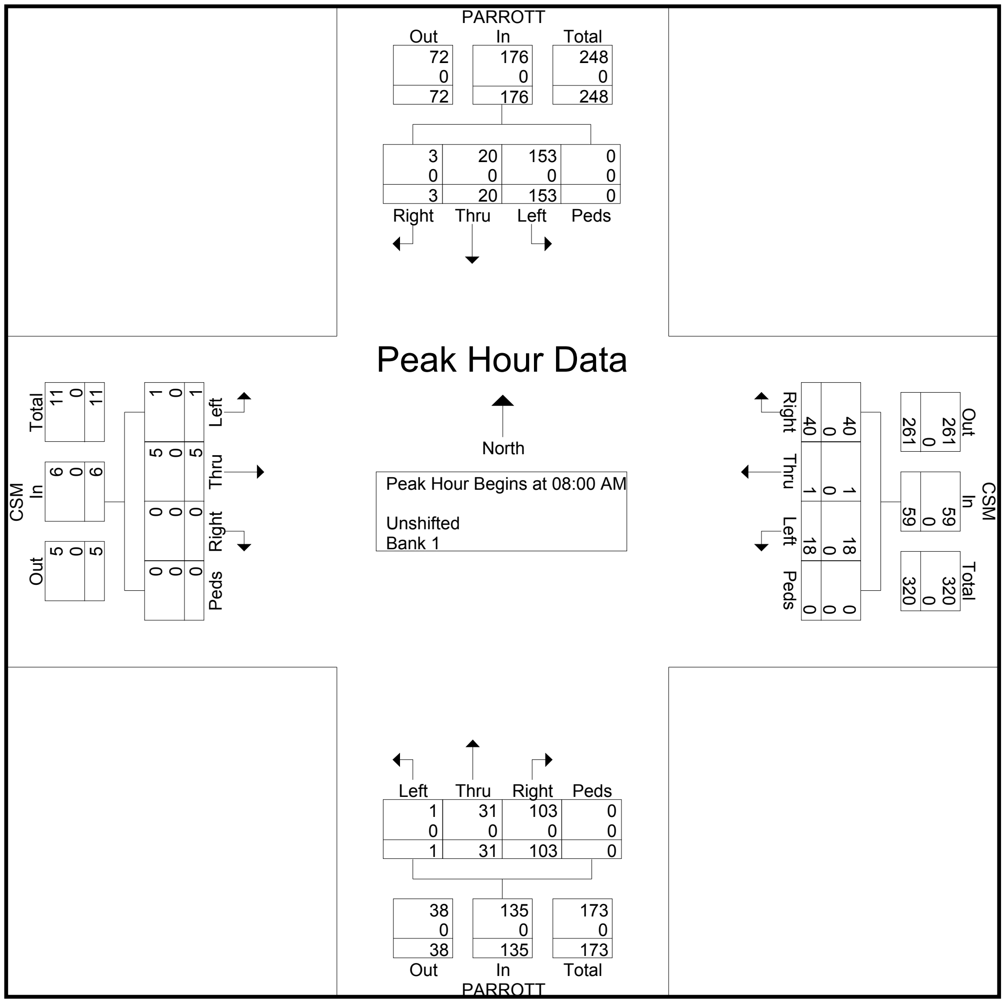

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Groups Printed- Unshifted - Bank 1

	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	7	11	0	18	29	1	13	0	43	8	5	0	0	13	0	0	0	0	0	74
04:15 PM	1	5	15	0	21	17	0	5	0	22	4	7	1	0	12	0	0	0	0	0	55
04:30 PM	0	6	19	0	25	23	2	12	0	37	4	9	0	0	13	1	2	1	0	4	79
04:45 PM	2	6	14	0	22	25	0	7	0	32	4	9	2	0	15	1	1	1	0	3	72
Total	3	24	59	0	86	94	3	37	0	134	20	30	3	0	53	2	3	2	0	7	280
05:00 PM	0	4	20	0	24	38	0	8	0	46	5	7	1	0	13	0	0	0	0	0	83
05:15 PM	0	6	23	0	29	31	0	11	0	42	4	7	1	0	12	0	1	0	0	1	84
05:30 PM	0	6	14	0	20	29	2	8	0	39	5	6	1	0	12	0	0	0	0	0	71
05:45 PM	0	6	27	0	33	39	1	13	0	53	10	9	0	0	19	0	0	0	0	0	105
Total	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
Grand Total	3	46	143	0	192	231	6	77	0	314	44	59	6	0	109	2	4	2	0	8	623
Apprch %	1.6	24	74.5	0		73.6	1.9	24.5	0		40.4	54.1	5.5	0		25	50	25	0		
Total %	0.5	7.4	23	0	30.8	37.1	1	12.4	0	50.4	7.1	9.5	1	0	17.5	0.3	0.6	0.3	0	1.3	
Unshifted	3	46	143	0	192	231	6	77	0	314	44	59	6	0	109	2	4	2	0	8	623
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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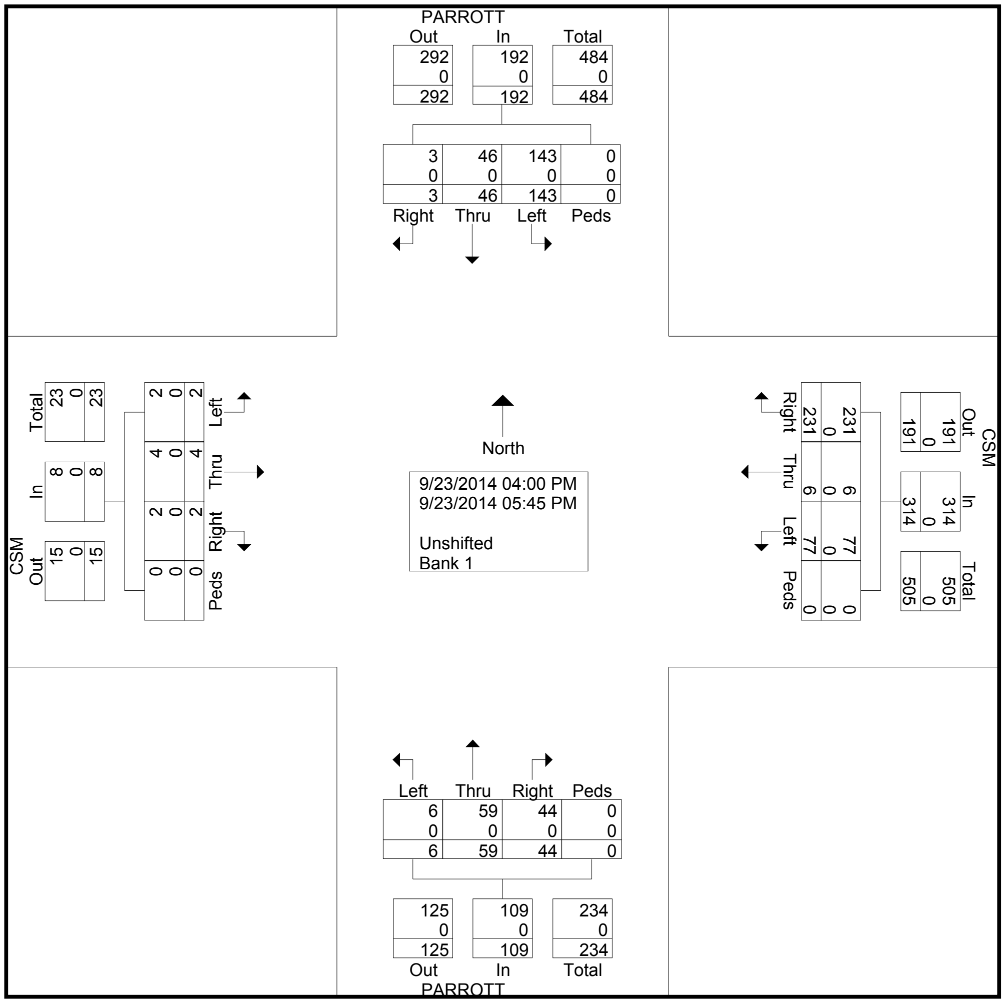

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	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	4	20	0	24	38	0	8	0	46	5	7	**1**	0	13	0	0	0	0	0	83
05:15 PM	0	**6**	23	0	29	31	0	11	0	42	4	7	1	0	12	0	**1**	0	0	**1**	84
05:30 PM	0	6	14	0	20	29	**2**	8	0	39	5	6	1	0	12	0	0	0	0	0	71
05:45 PM	0	6	**27**	0	**33**	**39**	1	**13**	0	**53**	**10**	**9**	0	0	**19**	0	0	0	0	0	**105**
Total Volume	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
% App. Total	0	20.8	79.2	0		76.1	1.7	22.2	0		42.9	51.8	5.4	0		0	100	0	0		
PHF	.000	.917	.778	.000	.803	.878	.375	.769	.000	.849	.600	.806	.750	.000	.737	.000	.250	.000	.000	.250	.817
Unshifted	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
% Unshifted	0	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	0	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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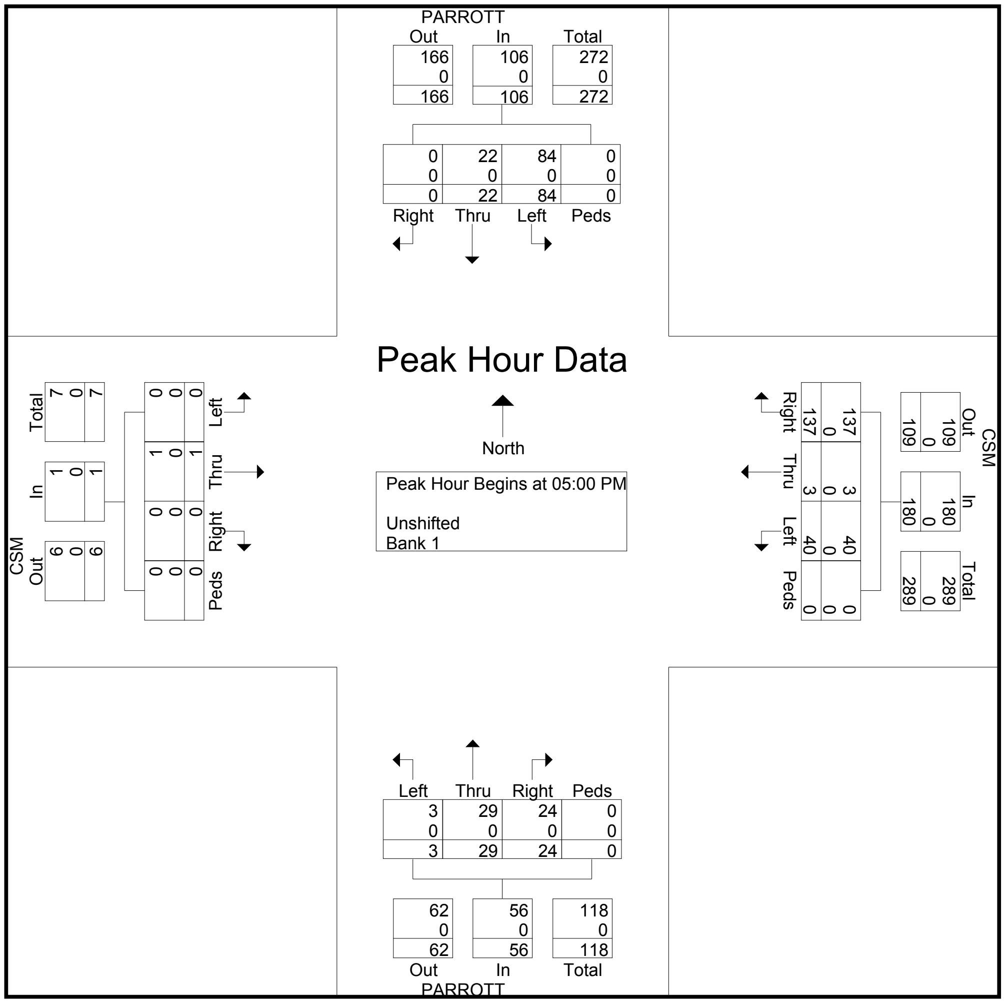

B. Levels of Service Calculation Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	54	79	294	32	66	265
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	86	320	35	72	288
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	768	337			354	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	768	337			354	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	88			94	
cM capacity (veh/h)	348	705			1204	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	145	354	72	288
Volume Left	59	0	72	0
Volume Right	86	35	0	0
cSH	497	1700	1204	1700
Volume to Capacity	0.29	0.21	0.06	0.17
Queue Length 95th (ft)	30	0	5	0
Control Delay (s)	15.2	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.2	0.0	1.6	
Approach LOS	C			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	31	1	13	2	118	11	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	34	1	14	2	128	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	38	17	143
Volume Left (vph)	7	3	1	128
Volume Right (vph)	0	34	2	3
Hadj (s)	0.18	-0.48	-0.03	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.04	0.02	0.17
Capacity (veh/h)	769	907	849	842
Control Delay (s)	7.5	6.9	7.2	8.1
Approach Delay (s)	7.5	6.9	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	11	79	23	83	82	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	86	25	90	89	14

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	98	115	103
Volume Left (vph)	12	25	0
Volume Right (vph)	86	0	14
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.11	0.14	0.12
Capacity (veh/h)	871	811	836
Control Delay (s)	7.4	8.0	7.7
Approach Delay (s)	7.4	8.0	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	18	1	40	1	31	103	153	20	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	20	1	43	1	34	112	166	22	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	64	147	191
Volume Left (vph)	1	20	1	166
Volume Right (vph)	0	43	112	3
Hadj (s)	0.07	-0.31	-0.42	0.20
Departure Headway (s)	4.8	4.3	3.8	4.4
Degree Utilization, x	0.01	0.08	0.16	0.23
Capacity (veh/h)	688	764	904	791
Control Delay (s)	7.8	7.7	7.6	8.7
Approach Delay (s)	7.8	7.7	7.6	8.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	28	54	284	37	57	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	59	309	40	62	235
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	688	329			349	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	688	329			349	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			95	
cM capacity (veh/h)	391	713			1210	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	89	349	62	235
Volume Left	30	0	62	0
Volume Right	59	40	0	0
cSH	557	1700	1210	1700
Volume to Capacity	0.16	0.21	0.05	0.14
Queue Length 95th (ft)	14	0	4	0
Control Delay (s)	12.7	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	12.7	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	43	1	6	3	36	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	47	1	7	3	39	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	60	11	53
Volume Left (vph)	4	5	1	39
Volume Right (vph)	0	47	3	4
Hadj (s)	0.17	-0.42	-0.13	0.13
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	825	970	881	845
Control Delay (s)	7.3	6.9	7.0	7.4
Approach Delay (s)	7.3	6.9	7.0	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	39	61	95	58	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	42	66	103	63	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	49	170	67
Volume Left (vph)	7	66	0
Volume Right (vph)	42	0	4
Hadj (s)	-0.46	0.11	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.05	0.20	0.08
Capacity (veh/h)	856	841	844
Control Delay (s)	7.2	8.2	7.5
Approach Delay (s)	7.2	8.2	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	40	3	137	3	29	24	84	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	43	3	149	3	32	26	91	24	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	196	61	115
Volume Left (vph)	0	43	3	91
Volume Right (vph)	0	149	26	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.5	3.9	4.2	4.6
Degree Utilization, x	0.00	0.21	0.07	0.15
Capacity (veh/h)	747	879	801	744
Control Delay (s)	7.6	8.0	7.6	8.4
Approach Delay (s)	7.6	8.0	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	56	83	307	33	69	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	90	334	36	75	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	803	352			370	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	803	352			370	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	87			94	
cM capacity (veh/h)	331	692			1189	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	151	370	75	301
Volume Left	61	0	75	0
Volume Right	90	36	0	0
cSH	480	1700	1189	1700
Volume to Capacity	0.31	0.22	0.06	0.18
Queue Length 95th (ft)	33	0	5	0
Control Delay (s)	15.9	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.9	0.0	1.6	
Approach LOS	C			

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	32	1	14	2	123	12	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	35	1	15	2	134	13	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	39	18	150
Volume Left (vph)	7	3	1	134
Volume Right (vph)	0	35	2	3
Hadj (s)	0.18	-0.48	-0.02	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.04	0.02	0.18
Capacity (veh/h)	765	902	846	841
Control Delay (s)	7.5	7.0	7.2	8.1
Approach Delay (s)	7.5	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	12	83	24	87	86	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	90	26	95	93	15

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	103	121	109
Volume Left (vph)	13	26	0
Volume Right (vph)	90	0	15
Hadj (s)	-0.46	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.11	0.14	0.13
Capacity (veh/h)	863	806	832
Control Delay (s)	7.4	8.0	7.8
Approach Delay (s)	7.4	8.0	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	19	1	42	1	32	108	160	21	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	21	1	46	1	35	117	174	23	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	67	153	200
Volume Left (vph)	1	21	1	174
Volume Right (vph)	0	46	117	3
Hadj (s)	0.07	-0.31	-0.42	0.20
Departure Headway (s)	4.8	4.4	3.9	4.4
Degree Utilization, x	0.01	0.08	0.16	0.25
Capacity (veh/h)	680	756	900	788
Control Delay (s)	7.9	7.7	7.6	8.8
Approach Delay (s)	7.9	7.7	7.6	8.8
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	29	56	297	39	60	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	61	323	42	65	246
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	720	344			365	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	720	344			365	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			95	
cM capacity (veh/h)	373	699			1193	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	92	365	65	246
Volume Left	32	0	65	0
Volume Right	61	42	0	0
cSH	538	1700	1193	1700
Volume to Capacity	0.17	0.21	0.05	0.14
Queue Length 95th (ft)	15	0	4	0
Control Delay (s)	13.1	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.1	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	45	1	6	3	38	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	49	1	7	3	41	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	62	11	55
Volume Left (vph)	4	5	1	41
Volume Right (vph)	0	49	3	4
Hadj (s)	0.17	-0.42	-0.13	0.14
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	823	969	879	843
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	41	64	99	61	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	45	70	108	66	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	51	177	71
Volume Left (vph)	7	70	0
Volume Right (vph)	45	0	4
Hadj (s)	-0.46	0.11	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.21	0.08
Capacity (veh/h)	850	839	841
Control Delay (s)	7.2	8.3	7.6
Approach Delay (s)	7.2	8.3	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	42	3	143	3	30	25	88	23	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	46	3	155	3	33	27	96	25	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	204	63	121
Volume Left (vph)	0	46	3	96
Volume Right (vph)	0	155	27	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.6	4.0	4.3	4.6
Degree Utilization, x	0.00	0.22	0.07	0.15
Capacity (veh/h)	740	874	795	740
Control Delay (s)	7.6	8.1	7.6	8.4
Approach Delay (s)	7.6	8.1	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	60	86	307	34	70	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	93	334	37	76	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	805	352			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805	352			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	86			94	
cM capacity (veh/h)	329	691			1188	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	159	371	76	301
Volume Left	65	0	76	0
Volume Right	93	37	0	0
cSH	476	1700	1188	1700
Volume to Capacity	0.33	0.22	0.06	0.18
Queue Length 95th (ft)	36	0	5	0
Control Delay (s)	16.3	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	16.3	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	38	1	14	2	125	12	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	41	1	15	2	136	13	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	46	18	152
Volume Left (vph)	7	3	1	136
Volume Right (vph)	0	41	2	3
Hadj (s)	0.18	-0.49	-0.02	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.05	0.02	0.18
Capacity (veh/h)	762	904	841	837
Control Delay (s)	7.6	7.0	7.2	8.1
Approach Delay (s)	7.6	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	12	93	28	87	86	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	101	30	95	93	15

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	114	125	109
Volume Left (vph)	13	30	0
Volume Right (vph)	101	0	15
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.13	0.15	0.13
Capacity (veh/h)	863	800	824
Control Delay (s)	7.5	8.1	7.8
Approach Delay (s)	7.5	8.1	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	19	1	46	1	32	108	170	21	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	21	1	50	1	35	117	185	23	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	72	153	211
Volume Left (vph)	1	21	1	185
Volume Right (vph)	0	50	117	3
Hadj (s)	0.07	-0.33	-0.42	0.20
Departure Headway (s)	4.9	4.4	3.9	4.4
Degree Utilization, x	0.01	0.09	0.17	0.26
Capacity (veh/h)	674	753	893	786
Control Delay (s)	7.9	7.8	7.7	9.0
Approach Delay (s)	7.9	7.8	7.7	9.0
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	31	57	297	42	62	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	62	323	46	67	246
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	726	346			368	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	726	346			368	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	91			94	
cM capacity (veh/h)	369	697			1190	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	96	368	67	246
Volume Left	34	0	67	0
Volume Right	62	46	0	0
cSH	531	1700	1190	1700
Volume to Capacity	0.18	0.22	0.06	0.14
Queue Length 95th (ft)	16	0	4	0
Control Delay (s)	13.3	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.3	0.0	1.8	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	48	1	6	3	43	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	52	1	7	3	47	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	65	11	61
Volume Left (vph)	4	5	1	47
Volume Right (vph)	0	52	3	4
Hadj (s)	0.17	-0.43	-0.13	0.14
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.07	0.01	0.07
Capacity (veh/h)	819	967	875	840
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	46	73	99	61	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	50	79	108	66	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	57	187	71
Volume Left (vph)	7	79	0
Volume Right (vph)	50	0	4
Hadj (s)	-0.47	0.12	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.22	0.08
Capacity (veh/h)	846	835	835
Control Delay (s)	7.3	8.4	7.6
Approach Delay (s)	7.3	8.4	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	42	3	152	3	30	25	93	23	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	46	3	165	3	33	27	101	25	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	214	63	126
Volume Left (vph)	0	46	3	101
Volume Right (vph)	0	165	27	0
Hadj (s)	0.03	-0.39	-0.21	0.19
Departure Headway (s)	4.6	4.0	4.3	4.6
Degree Utilization, x	0.00	0.24	0.08	0.16
Capacity (veh/h)	735	872	788	735
Control Delay (s)	7.6	8.2	7.6	8.5
Approach Delay (s)	7.6	8.2	7.6	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	58	82	294	33	67	265
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	89	320	36	73	288
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	771	338			355	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	771	338			355	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	87			94	
cM capacity (veh/h)	346	705			1203	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	152	355	73	288
Volume Left	63	0	73	0
Volume Right	89	36	0	0
cSH	493	1700	1203	1700
Volume to Capacity	0.31	0.21	0.06	0.17
Queue Length 95th (ft)	33	0	5	0
Control Delay (s)	15.5	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.5	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	37	1	13	2	120	11	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	40	1	14	2	130	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	45	17	146
Volume Left (vph)	7	3	1	130
Volume Right (vph)	0	40	2	3
Hadj (s)	0.18	-0.49	-0.03	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.05	0.02	0.17
Capacity (veh/h)	767	909	844	838
Control Delay (s)	7.5	7.0	7.2	8.1
Approach Delay (s)	7.5	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	11	89	27	83	82	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	97	29	90	89	14

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	109	120	103
Volume Left (vph)	12	29	0
Volume Right (vph)	97	0	14
Hadj (s)	-0.48	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.12	0.14	0.12
Capacity (veh/h)	870	804	829
Control Delay (s)	7.4	8.0	7.8
Approach Delay (s)	7.4	8.0	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	18	1	44	1	31	103	163	20	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	20	1	48	1	34	112	177	22	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	68	147	202
Volume Left (vph)	1	20	1	177
Volume Right (vph)	0	48	112	3
Hadj (s)	0.07	-0.33	-0.42	0.20
Departure Headway (s)	4.8	4.3	3.9	4.4
Degree Utilization, x	0.01	0.08	0.16	0.25
Capacity (veh/h)	682	761	898	789
Control Delay (s)	7.9	7.7	7.6	8.9
Approach Delay (s)	7.9	7.7	7.6	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	30	55	284	40	59	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	60	309	43	64	235
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	693	330			352	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	693	330			352	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			95	
cM capacity (veh/h)	387	711			1207	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	92	352	64	235
Volume Left	33	0	64	0
Volume Right	60	43	0	0
cSH	549	1700	1207	1700
Volume to Capacity	0.17	0.21	0.05	0.14
Queue Length 95th (ft)	15	0	4	0
Control Delay (s)	12.9	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	12.9	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	46	1	6	3	36	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	50	1	7	3	39	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	63	11	53
Volume Left (vph)	4	5	1	39
Volume Right (vph)	0	50	3	4
Hadj (s)	0.17	-0.42	-0.13	0.13
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	824	972	879	843
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	44	70	95	58	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	48	76	103	63	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	54	179	67
Volume Left (vph)	7	76	0
Volume Right (vph)	48	0	4
Hadj (s)	-0.47	0.12	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.21	0.08
Capacity (veh/h)	852	836	838
Control Delay (s)	7.2	8.3	7.5
Approach Delay (s)	7.2	8.3	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	40	3	146	3	29	24	89	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	43	3	159	3	32	26	97	24	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	205	61	121
Volume Left (vph)	0	43	3	97
Volume Right (vph)	0	159	26	0
Hadj (s)	0.03	-0.39	-0.21	0.19
Departure Headway (s)	4.6	3.9	4.3	4.6
Degree Utilization, x	0.00	0.22	0.07	0.15
Capacity (veh/h)	742	877	794	740
Control Delay (s)	7.6	8.1	7.6	8.4
Approach Delay (s)	7.6	8.1	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	69	100	373	41	84	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	109	405	45	91	365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	976	428			450	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	976	428			450	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	71	83			92	
cM capacity (veh/h)	256	627			1110	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	184	450	91	365
Volume Left	75	0	91	0
Volume Right	109	45	0	0
cSH	394	1700	1110	1700
Volume to Capacity	0.47	0.26	0.08	0.21
Queue Length 95th (ft)	60	0	7	0
Control Delay (s)	21.9	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	21.9	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	3	0	4	1	39	1	16	3	150	14	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	3	0	4	1	42	1	17	3	163	15	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	48	22	183
Volume Left (vph)	9	4	1	163
Volume Right (vph)	0	42	3	4
Hadj (s)	0.18	-0.48	-0.05	0.20
Departure Headway (s)	4.6	3.9	4.2	4.2
Degree Utilization, x	0.02	0.05	0.03	0.22
Capacity (veh/h)	745	875	834	834
Control Delay (s)	7.7	7.1	7.3	8.4
Approach Delay (s)	7.7	7.1	7.3	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	100	29	105	104	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	109	32	114	113	17

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	124	146	130
Volume Left (vph)	15	32	0
Volume Right (vph)	109	0	17
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	4.1	4.4	4.3
Degree Utilization, x	0.14	0.18	0.16
Capacity (veh/h)	825	790	803
Control Delay (s)	7.7	8.3	8.1
Approach Delay (s)	7.7	8.3	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	23	1	51	1	39	131	194	25	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	25	1	55	1	42	142	211	27	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	82	186	242
Volume Left (vph)	1	25	1	211
Volume Right (vph)	0	55	142	4
Hadj (s)	0.06	-0.31	-0.42	0.20
Departure Headway (s)	5.0	4.5	4.0	4.5
Degree Utilization, x	0.01	0.10	0.20	0.30
Capacity (veh/h)	643	721	875	774
Control Delay (s)	8.1	8.1	8.0	9.4
Approach Delay (s)	8.1	8.1	8.0	9.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	36	69	360	47	72	274
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	75	391	51	78	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	417			442	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	417			442	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	88			93	
cM capacity (veh/h)	299	636			1118	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	114	442	78	298
Volume Left	39	0	78	0
Volume Right	75	51	0	0
cSH	459	1700	1118	1700
Volume to Capacity	0.25	0.26	0.07	0.18
Queue Length 95th (ft)	24	0	6	0
Control Delay (s)	15.4	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	15.4	0.0	1.8	
Approach LOS	C			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	3	0	6	9	55	1	8	4	46	11	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	3	0	7	10	60	1	9	4	50	12	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	76	14	67
Volume Left (vph)	5	7	1	50
Volume Right (vph)	0	60	4	5
Hadj (s)	0.16	-0.42	-0.14	0.13
Departure Headway (s)	4.3	3.7	4.0	4.2
Degree Utilization, x	0.01	0.08	0.02	0.08
Capacity (veh/h)	812	956	867	833
Control Delay (s)	7.4	7.0	7.1	7.6
Approach Delay (s)	7.4	7.0	7.1	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	8	49	77	121	74	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	53	84	132	80	5

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	62	215	86
Volume Left (vph)	9	84	0
Volume Right (vph)	53	0	5
Hadj (s)	-0.45	0.11	0.00
Departure Headway (s)	4.1	4.2	4.3
Degree Utilization, x	0.07	0.25	0.10
Capacity (veh/h)	806	829	825
Control Delay (s)	7.4	8.7	7.7
Approach Delay (s)	7.4	8.7	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	51	4	174	4	37	30	107	28	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	55	4	189	4	40	33	116	30	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	249	77	147
Volume Left (vph)	0	55	4	116
Volume Right (vph)	0	189	33	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.7	4.1	4.4	4.7
Degree Utilization, x	0.00	0.28	0.09	0.19
Capacity (veh/h)	696	839	761	717
Control Delay (s)	7.8	8.6	7.9	8.9
Approach Delay (s)	7.8	8.6	7.9	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.6		
HCM Level of Service	A		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	73	103	373	42	85	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	112	405	46	92	365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	978	428			451	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978	428			451	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	82			92	
cM capacity (veh/h)	255	627			1109	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	191	451	92	365
Volume Left	79	0	92	0
Volume Right	112	46	0	0
cSH	390	1700	1109	1700
Volume to Capacity	0.49	0.27	0.08	0.21
Queue Length 95th (ft)	65	0	7	0
Control Delay (s)	22.8	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	22.8	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	3	0	4	1	45	1	16	3	152	14	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	3	0	4	1	49	1	17	3	165	15	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	54	22	185
Volume Left (vph)	9	4	1	165
Volume Right (vph)	0	49	3	4
Hadj (s)	0.18	-0.49	-0.05	0.20
Departure Headway (s)	4.6	3.9	4.2	4.3
Degree Utilization, x	0.02	0.06	0.03	0.22
Capacity (veh/h)	742	876	830	830
Control Delay (s)	7.7	7.1	7.3	8.5
Approach Delay (s)	7.7	7.1	7.3	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	110	29	105	104	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	120	32	114	113	17

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	135	146	130
Volume Left (vph)	15	32	0
Volume Right (vph)	120	0	17
Hadj (s)	-0.48	0.08	-0.05
Departure Headway (s)	4.0	4.4	4.3
Degree Utilization, x	0.15	0.18	0.16
Capacity (veh/h)	827	784	797
Control Delay (s)	7.8	8.4	8.1
Approach Delay (s)	7.8	8.4	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	23	1	55	1	39	131	204	25	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	25	1	60	1	42	142	222	27	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	86	186	253
Volume Left (vph)	1	25	1	222
Volume Right (vph)	0	60	142	4
Hadj (s)	0.06	-0.33	-0.42	0.20
Departure Headway (s)	5.1	4.5	4.0	4.5
Degree Utilization, x	0.01	0.11	0.21	0.32
Capacity (veh/h)	637	718	869	771
Control Delay (s)	8.1	8.1	8.0	9.6
Approach Delay (s)	8.1	8.1	8.0	9.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	38	70	360	50	74	274
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	76	391	54	80	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	877	418			446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	877	418			446	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	88			93	
cM capacity (veh/h)	296	635			1115	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	117	446	80	298
Volume Left	41	0	80	0
Volume Right	76	54	0	0
cSH	452	1700	1115	1700
Volume to Capacity	0.26	0.26	0.07	0.18
Queue Length 95th (ft)	26	0	6	0
Control Delay (s)	15.7	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	15.7	0.0	1.8	
Approach LOS	C			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	3	0	6	9	58	1	8	4	51	11	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	3	0	7	10	63	1	9	4	55	12	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	79	14	73
Volume Left (vph)	5	7	1	55
Volume Right (vph)	0	63	4	5
Hadj (s)	0.16	-0.43	-0.14	0.14
Departure Headway (s)	4.3	3.7	4.0	4.2
Degree Utilization, x	0.01	0.08	0.02	0.09
Capacity (veh/h)	808	953	864	830
Control Delay (s)	7.4	7.0	7.1	7.6
Approach Delay (s)	7.4	7.0	7.1	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	8	54	86	121	74	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	59	93	132	80	5

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	67	225	86
Volume Left (vph)	9	93	0
Volume Right (vph)	59	0	5
Hadj (s)	-0.46	0.12	0.00
Departure Headway (s)	4.1	4.3	4.3
Degree Utilization, x	0.08	0.27	0.10
Capacity (veh/h)	802	826	819
Control Delay (s)	7.5	8.8	7.8
Approach Delay (s)	7.5	8.8	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	51	4	183	4	37	30	112	28	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	55	4	199	4	40	33	122	30	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	259	77	152
Volume Left (vph)	0	55	4	122
Volume Right (vph)	0	199	33	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.8	4.1	4.4	4.8
Degree Utilization, x	0.00	0.29	0.10	0.20
Capacity (veh/h)	691	837	755	712
Control Delay (s)	7.8	8.8	7.9	8.9
Approach Delay (s)	7.8	8.8	7.9	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

C. Traffic Analysis Worksheets

Ascension Heights Subdivision
Traffic Volume Data

Street	Location	Average Weekday Traffic 9/2/2003	5/20/2008	5/23/2013	10-yr. change	Annual change
Polhemus Road	S/O Ascension Drive	4030	4300	4900	122%	2.0%
Ascension Drive	E/O Polhemus Road	1420	1430	1500	106%	0.5%
Bel Aire Road	E/O Ascension Drive	700	710	760	109%	0.8%
Laurie Lane		900	950	990	110%	1.0%
Parrott Drive	S/O Laurie Lane	2240	2150	2320	104%	0.4%
CSM Drive	E/O Parrott Drive	2800	2545	3540	126%	2.4%
	Total	12090	12085	14010	116%	1.5%

All counts done by Marks TDS

ASCENSION HEIGHTS SUBDIVISION
VEHICLE TRIP GENERATION
November 6, 2013

TZ		LAND	LU			TRIP GENERATION RATE*							TRIP GENERATION VOLUME						
						A.M. PEAK HOUR			P.M. PEAK HOUR				A.M. PEAK HOUR			P.M. PEAK HOUR			
No.	LOCATION	USE	CODE	SIZE	UNITS	IN	OUT	TOTAL	IN	OUT	TOTAL	AWDT	IN	OUT	TOTAL	IN	OUT	TOTAL	AWDT
1	Ascension Heights Subd.	SFR	210	19	DU	0.30	0.91	1.21	0.78	0.46	1.24	11.99	6	17	23	15	9	24	227.9

* ITE, Trip Generation, 9th Edition, © 2012, using fitted curve equations

Household Travel

Trip Purpose	Person Trips	% Total
To/From Work	541	16%
Work Related Business	106	3%
Shopping	725	21%
Other Family/Personal Errands	748	22%
School/Church	333	10%
Social/Recreational	952	27%
Other	61	2%
Total	3466	100%

Vehicle Trip Distribution - 24 hr. Volume

Trip Purpose	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	4%	1%	1%	10%					16%
Work Related Business	1%	1%		2%					3%
Shopping		2%	1%	7%		5%		5%	21%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	22%
School/Church			1%	5%		1%	2%		10%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	27%
Other				2%					2%
Total	10%	9%	5%	49%	3%	12%	2%	10%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	15%	0%	0%	61%	3%	3%	19%	100%

Vehicle Trip Distribution - AMPH

Trip Purpose	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	4%	1%	1%	10%					16%
Work Related Business	1%	1%		2%					4%
Shopping		1%	0%	5%		4%		3%	13%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	21%
School/Church			2%	5%		2%	7%		16%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	28%
Other				2%					2%
	10%	8%	5%	47%	3%	12%	7%	8%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	15%	0%	0%	59%	2%	2%	22%	100%

Vehicle Trip Distribution - PMPH

Trip Purpose	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	5%	2%	2%	16%					25%
Work Related Business	1%	1%		2%					4%
Shopping		2%	1%	7%		5%		5%	20%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	21%
School/Church			0%	0%		0%	0%		0%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	28%
Other				2%					2%
	11%	10%	5%	50%	3%	11%	0%	10%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	16%	0%	0%	61%	3%	3%	18%	100%

	Avg. Trip Length, mi.
To/From Work	11.8
Work Related Business	20.0
Shopping	6.5
Other Family/Personal Errands	7.0
School/Church	6.3
Social/Recreational	10.7
Other	51.5

Source: Table 5, 2009 National Household Travel Survey

APPENDIX I

RESPONSES TO PUBLIC SERVICES, UTILITIES, AND RECREATION INQUIRY LETTERS

From: Molly Barton [mailto:mbarton@smfc.k12.ca.us]
Sent: Tuesday, October 22, 2013 5:46 PM
To: Stephanie Henderson
Subject: Ascension Heights Subdivision Project

Dear Ms. Henderson,

Dr. Simms has referred your request for information to me. Please see my responses below in red. Please feel free to contact me for any additional information or further clarification.

Sincerely,

Molly Barton

Molly Barton
Assistant Superintendent, Student Services | San Mateo-Foster City School District
Phone: 650.312.7341 | Fax: 650.655.3387 | Website: www.smfc.k12.ca.us

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From: Stephanie Henderson [mailto:shenderson@analyticalcorp.com]
Sent: Wednesday, October 02, 2013 3:19 PM
To: Cynthia Simms
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

October 2, 2013

San Mateo-Foster City School District Office
Cynthia Simms, Ph.D., Superintendent
1170 Chess Drive
Foster City, CA 94404

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Dr. Simms,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to the San Mateo-Foster City School District (SMFCSD) in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

~~1.~~ Please confirm if this is correct or edit as necessary: *The SMFCSD provides a total of 16 elementary serving grades TK (transitional kindergarten) though fifth grade, 4 middle schools serving grades 6 – 8 and one K-8 school* ~~*including 16 schools serving kindergarten through fifth grade and 4 middle schools serving sixth through eighth grade. The SMFCSD provides a total of 20 elementary and middle schools, including 16 schools serving kindergarten through fifth grade and 4 middle schools serving sixth through eighth grade.*~~

~~2.~~

3. Please confirm if this is correct or edit as necessary: *Highlands Elementary School, located at 2320 Newport in the City of San Mateo, and Borel Middle School, located at 425 Barneson in the City of San Mateo, are the SMFCSD schools that serve the project site and surrounding area. Correct*

4. What is the current enrollment at Highlands Elementary (or whichever elementary school that

   serves the project area)? Is enrollment below, above, or at capacity? Current enrollment at Highlands Elementary School is 606 students, TK-5. It is slightly below capacity as they have room for ~650 students.

5. What is the current enrollment at Borel Middle School (or whichever middle school that serves the project area)? Is enrollment below, above, or at capacity? Current enrollment at Borel Middle School is 947 with a capacity of ~1000

   4a. If SMFCSD grammar and middle schools are above capacity, what measures does the District employ to address this issue?

All residents of the neighborhood are served by their neighborhood school unless there is no space. When any school in the District reaches capacity, students are overflowed to the nearest school with space.

6. Are there any current plans to upgrade, improve, and/or expand Highlands Elementary or Borel Middle School (or whichever schools serve the project area)? Would these plans increase capacity?
   The District is currently working on plans to upgrade and renovate our schools to address capacity concerns. How the concerns are addressed will depend on if our construction bond, Measure P, passes in the November election.

7. Based on the above description of the proposed project, will serving the residents of the proposed project have a significant impact on the SMFCSD? Not at Highlands Elementary school, possibly at Borel although using the demographers report of potential impact from this site, unlikely.

8. In addition to addressing project-specific impacts to SMFCSD, the EIR will also address cumulative impacts to SMFCSD. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for SMFCSD associated with the development of these projects in conjunction with the proposed project? Based on our Board adopted 2013 Enrollment Management Plan, all San Mateo-Foster City School District schools are projected to be at or above capacity by fall of 2017. Any projected developments that are built to include school age children should take this into consideration. Having said that, the passage of Measure P will alleviate this concern.

9. Do you have any recommendations that might help reduce any potentially significant impacts to the SMFCSD generated by the proposed project?

10. Please confirm if this is correct or edit as necessary: *As of July 1, 2012, the San Mateo Union High School District will collect School Impact (also known as Developer) Fees for the SMFCSD.* Correct. *The fees are $1.28 per square foot for residential construction.*

Developer Fees Rate for San Mateo-Foster City School District is $1.92 per square foot for residential and $0.31 for commercial.

The SMUHSD gets $1.28 and $0.20 per square foot respectively.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

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Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
www.analyticalcorp.com

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**Molly Barton**
Assistant Superintendent, Student Services | San Mateo-Foster City School District
Phone: 650.312.7341 | Fax: 650.655.3387 | Website: www.smfc.k12.ca.us
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From: Roberta Beeken [mailto:rbeeken@smuhsd.org]
Sent: Friday, October 25, 2013 11:26 AM
To: Stephanie Henderson
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry

Here is the response to EIR questions for the Ascension Heights project. See attached.

--
Roberta Beeken
Administrative Assistant to the Superintendent
San Mateo Union High School District
650 N. Delaware Street
San Mateo, CA 94401
(650) 558-2201

1. Please confirm if this is correct or edit as necessary: Aragon High School, located at 900 Alameda de las Pulgas in the City of San Mateo, serves the project site and surrounding area.

Yes, Aragon High School would be the assigned school.

2. What is the current enrollment at Aragon High School (or whichever high school that serves the project area)? Is enrollment below, above, or at capacity?

The current enrollment at Aragon is 1,444 students. The school is at capacity.

2a. If SMHUSD high schools are above capacity, what measures does the District employ to address this issue?

Below is some of the verbiage for Board Policy 5116-School Attendance Boundaries, which addresses what the Superintendent or designee does every year to review the capacity for the district.

The District Board Policy 5116 states "The Superintendent or designee shall periodically review school attendance boundaries and, as necessary make recommendations to the Board for boundary adjustments. When reviewing school attendance boundaries, the Superintendent or designee may consider the following factors to ensure boundaries align with approved facility capacity. 1) School enrollment data 2) Facility capacity and design, including potential commercial and residential developments 3) School feeder patterns 4) Federal, state, or court mandates 5) Community input 6) Student safety 7) Transportation capacity 8) Community and neighborhood identity 9) Geographic features of the district 10) Educational programs 11) Other factors. In order to alleviate overcrowding, the Superintendent or designee shall place some students in a school outside of their attendance area. Parents/guardians of students who are attending schools outside of their attendance area shall be notified of the school their child will be attending as soon as possible. (To read more on Board Policy 5116-School Attendance Boundaries go to the district website and on the homepage click on "Board Policies."

3. Are there any current plans to upgrade, improve, and/or expand Aragon High School (or whichever high school serves the project area)? Would these plans increase capacity?

Aragon High School, as well as all the district high schools, has had upgrades and improvements. There are no plans to expand Aragon High School.

4. Based on the above description of the proposed project, will serving the residents of the proposed project have a significant impact on the SMUHSD?

No, it will not have significant impact on the San Mateo Union High School District.

5. In addition to addressing project-specific impacts to SMUHSD, the EIR will also address cumulative impacts to SMUHSD. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for SMUHSD associated with the development of these projects in conjunction with the proposed project?

We are seeing severe growth in the southern part of the district and we are anticipating the growth by expanding three high schools, Burlingame High School, Hillsdale High School and San Mateo High School, to accommodate the increase.

6. Do you have any recommendations that might help reduce any potentially significant impacts to the SMUHSD generated by the proposed project?

No, we do not have any recommendations.

7. Please confirm if this is correct or edit as necessary: As of July 1, 2012, the SMUHSD will collect School Impact (also known as Developer) Fees for the San Mateo-Foster City School District. The fees are $1.28 per square foot for residential construction.

Yes, this information is correct. The SMUHSD collects Developer Fees for the San Mateo/Foster City School District at $1.28 per square foot for residential construction.

Stephanie Henderson

From:	Jan Busa [busa@cityofsanmateo.org]
Sent:	Tuesday, November 05, 2013 4:06 PM
To:	Stephanie Henderson
Subject:	RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

Stephanie:

Apologies for the delay in getting this to you. Please see our responses below. Let me know if you have any questions.

Thanks,

Jan

Jan Busa | Management Analyst II | **San Mateo Public Library**
55 W. Third Avenue, San Mateo, CA 94402 | Voice: 650.522.7842 | Fax: 650.522.7801
E-mail: jbusa@cityofsanmateo.org | Website: www.smplibrary.org

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From: Stephanie Henderson [mailto:shenderson@analyticalcorp.com]
Sent: Wednesday, October 02, 2013 3:28 PM
To: Jan Busa
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

October 2, 2013

City of San Mateo Public Library
Jan Busa, Management Analyst

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Ms. Busa,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potentially significant impacts to the City of San Mateo Public Library that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It was determined when the previous EIR was prepared that the Main Library and Hillsdale Library would serve (are located closest to) the project site. Is that still accurate?
   Yes
2. How many full time equivalent staff members work at the Main Library and Hillsdale Library (or other library that serves the project site)?
   Main Library – 40.8 FTE
   Hillsdale Branch Library – 3.9 FTE
3. Is the City of San Mateo Public Library adequately staffed to meet the existing needs of residents?
   Yes
4. Are the existing library facilities in the City of San Mateo Public Library adequate to meet the existing needs of residents?
   Yes
   4a. Is free Internet offered at both the Main Library and Hillsdale Library (or other library that serves the project site)?
   Yes
5. *Will serving the residents of the proposed project have a significant impact on the City of San Mateo Public Library system?*
   No
6. Does the City have any plans to develop new libraries or expand existing libraries in the proposed project area?
   No
7. In addition to addressing project-specific impacts to library services, the EIR will also address cumulative impacts to library services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for library services associated with the development of these projects in conjunction with the proposed project?

   7a. How does the Library address the growing demand for library services?
   The new Main Library project was constructed to address needs of City of San Mateo residents using a 50 year projection into the future. The Needs Assessment study that was conducted addressed population projections with service demand implications. The future residents of this development would be eligible for library services at San Mateo libraries using a County Library card because the development is located in unincorporated San Mateo County.

   7b. Do you have any projections for future demand based on projected growth in the region?
   Information is gathered through needs assessment studies, customer satisfaction surveys, and focus groups. Strategic planning is conducted periodically and in conjunction with the Peninsula Library System consortia of public and community college libraries in San Mateo County.

   7c. What would be needed to meet the cumulative demand for library services?

A corresponding growth in the Library's operating budget to support an increase in services and resources (e.g. staffing, technology and collections).

8. Do you have any recommendations that might help reduce any potentially significant impacts to the City of San Mateo Public Library generated by the proposed project?
   No - see #5 above

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **October 18, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

--
Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
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From:	Colbert, Marc@CALFIRE
To:	Stephanie Henderson
Subject:	RE: Ascension Heights Subdivision Project-Public Services Inquiry Letter
Date:	Tuesday, December 10, 2013 10:14:03 AM
Attachments:	image001.png

Hi Stephanie,

I will answer the questions by number order:

1. Yes

2. Station 17 is a two engine station, E 17 and E 217, with each engine having a minimum of 3 firefighters with one of them having paramedic certification. During fire season, there is an additional state wildland engine, E1771, and a dozer.
2 a, b, c. These meet or exceeded the San Mateo County Fire Chief's Joint Powers Agreement for staffing and response. No ratio has been proposed that I know.
3. About 5 minutes.
4. The impacts have been addressed by an alternate materials and methods request for higher fire sprinkler discharges for all buildings in the development for using the current road design.
5. No
6. No
6b. The closest emergency room is located at San Mateo Medical Center, 222 W 39th Ave San Mateo, CA 94403.
6c. You would need to contact San Mateo County EMS for that answer.
7. The project is in a Very High Fire Hazard Severity Zone, Local Responsibility Area, as determined by CAL FIRE.
8. No
9. Much of the developement would affect the county system wide. You would need to contact the San Mateo County Fire Chief's Assocoiation for an answer.
10. See answer 9.

Marc Colbert
Deputy Fire Marshal
San Mateo County Fire/CAL Fire
(650) 573-3846; fax (650) 573-3850

From: Stephanie Henderson [shenderson@analyticalcorp.com]
Sent: Tuesday, December 03, 2013 3:49 PM
To: Colbert, Marc@CALFIRE
Subject: Ascension Heights Subdivision Project-Public Services Inquiry Letter

Hello Deputy Fire Marshall Colbert,

I work for a consultant company that is contracted by the County of San Mateo to prepare an Environmental Impact Report (EIR) for a subdivision project. As part of our scoping process, we need to assess public services in the vicinity of the proposed subdivision. I contacted Station 17, and they recommended I email you. The following letter (also attached) provides additional information regarding the project and includes questions regarding County of San Mateo Fire services. It would be greatly appreciated if you could please respond to the questions below no later than a week from Friday, December 15, 2013. Please feel free to contact me with any additional questions or concerns.

Thank you,
Stephanie

December 3, 2013

San Mateo Fire Department
Marc Colbert, Deputy Fire Marshall
California Department of Forestry and Fire Protection (CAL FIRE) – San Mateo/Santa Cruz Unit

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Deputy Fire Marshall Colbert,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 55 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to fire protection and emergency services in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It has been determined that the San Mateo City Fire Department's Station 27 would provide initial response to the proposed project. If warranted, County Fire/CAL FIRE Station 17 would provide secondary assistance. Station 17 is located at 320 Paul Scannell

Drive in the City of San Mateo. Are these statements accurate?

2. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for Station 17 (or other station that would serve the proposed project)?

   2a. Are these levels adequate to meet existing needs for fire protection and emergency response?

   2b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department?

   2c. Does the Department have a preferred ratio of fire fighters per population? What is the current ratio?

3. What is the average response distance and time for the stations responding to the project area? Do these statistics meet the desired performance standards of the Department?

4. The proposed project is designed with an access road connecting to Bel Aire Road. An access road forks into two roads to provide access to residences within the proposed project, and emergency vehicle turnarounds are provided at the dead end of each fork of the access road. Will these road designs have a significant impact on response time within the project? If so, can you recommend changes to the road design that would mitigate or avoid these impacts? (Please refer to enclosed **Figure 2**.)

5. Does the Department have plans to develop any new fire stations or make improvements to the staff/equipment levels of stations in the area of the proposed project?

   5a. If so, please describe the specifics of these planned improvements.

6. Does the Department have a preferred response time to calls for emergency service?

   8a. What is the Department's record in meeting this preferred response time?

   8b. What is the distance to the nearest hospital emergency room?

   8c. Is the hospital capable of meeting emergency demand?

7. Is the project site susceptible to wildland fires?

8. Would implementation of the proposed project require the Department to construct new facilities or expand existing facilities to accommodate the increased demand for fire protection services created by the proposed project?

9. In addition to addressing project-specific impacts to fire protection services, the EIR will also address cumulative impacts to fire protection services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved

development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for fire protection services associated with the development of these projects in conjunction with the proposed project?

10. Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **December 13, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

--
Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
www.analyticalcorp.com

COUNTY OF SAN MATEO
PARKS DEPARTMENT

BOARD OF SUPERVISORS
DAVE PINE
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JIM NANTELL
INTERIM DIRECTOR

555 COUNTY CENTER, 5TH FLOOR • REDWOOD CITY • CALIFORNIA 94063-1665 • PHONE (650) 363-4020 • FAX (650) 599-1721

October 24, 2013

Attn: Stephanie Henderson, Technical Analyst/Associate
AES
1801 7th Street, Suite 100
Sacramento, CA 95811

Subject: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

I am writing in response to your request for feedback on the proposed project related to San Mateo County Parks. In summary the project will not impact County Parks or regional trails directly. San Mateo County Parks is in the processing of expanding the nearby multi-use Crystal Springs Regional Trail across the Crystal Springs Dam to South of Highway 92 connecting to the Ralston Trail on Canada Road. I recommend this development be reviewed with the San Mateo Highlands Recreation Area Special District because there is more of a nexus to this development.

If you have additional questions I can be reached at sherzberg@smcgov.or or 650/363-1823.

Sincerely,

Sam Herzberg
Senior Planner

From: Michael "Mike" Keefe [mailto:keefe@cityofsanmateo.org]
Sent: Thursday, October 24, 2013 10:55 AM
To: Stephanie Henderson
Subject: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Ms. Henderson,

Please find the attached document that you have requested regarding the proposed Ascension Heights Subdivision.

Please feel free to contact me with any questions or comments.

Regards,

Mike

Michael Keefe
Fire Chief
Foster City-San Mateo- Belmont FPD
1040 E Hillsdale Blvd
Foster City, CA. 94404
650-286-3358 Office
650-642-1317 Cell
mkeefe@fostercity.org
mkeefe@cityofsanmateo.org

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to fire protection and emergency medical response in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It was determined in the previous EIR the San Mateo City Fire Department's Station 27 would provide initial response to the proposed project. Is this still accurate?

Answer: Yes, E27 is the "first due" resource assigned to that location followed by E17, E15 and E25.

2. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for Station 27 (or other station that would serve the proposed project)?

Answer: Station 27 is staffed with 3 personnel. A Captain and two firefighters and at least one of the three is a paramedic. The station houses a Fire Engine, Brush Engine (used for Wildland areas) and a State of California owned fire engine.

2a. Are these levels adequate to meet existing needs for fire protection and emergency response?

Answer: Yes this is adequate at this time for the proposed project.

2b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department? Does the Department have a preferred ratio of fire fighters per population? 2c. What is the current ratio?

Answer: No additional staffing or equipment is needed at this time. We do not have a ratio of firefighters per population but base our station and apparatus locations on response times.

3. It was determined in the previous EIR the San Mateo County Fire/ CALFIRE Station 17 would provide initial response to the proposed project. Is this still accurate? Any other agencies that would provide mutual aid to the project site and surrounding area?

Answer: The proposed location is within the County of San Mateo's Fire Response Area; however we have a JPA agreement throughout the County to send the closest resources to any address.

The first four resources to the location are E27 (San Mateo), E17 (County of San Mateo), E15 (Belmont Fire Protection District), E25 (San Mateo)

4. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for San Mateo County Fire/ CALFIRE Station 17 (or other station that would serve the proposed project)?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

4a. Are these levels adequate to meet existing needs for fire protection and emergency response?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

4b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department? Does the Department have a preferred ratio of fire fighters per population?

4c. What is the current ratio?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

5. What is the average response distance and time for the stations responding to the project area? Do these statistics meet the desired performance standards of the Department?

Answer: E27 has a median response time of 04:49 and a 90% time of 6:24. These times meet our performance standards. I would expect the same response times for the proposed project

6. The proposed project is designed with an access road connecting to Bel Aire Road. An access road forks into two roads to provide access to residences within the proposed project, and emergency vehicle turnarounds are provided at the dead end of each fork of the access road. Will these road designs have a significant impact on response time within the project? If so, can you recommend changes to the road design that would mitigate or avoid these impacts? (Please refer to enclosed **Figure 2**.)

Answer: Road designs as shown will not affect response times.

7. Does the Department have plans to develop any new fire stations or make improvements to the staff/equipment levels of stations in the area of the proposed project?

Answer: Not at this time.

7a. if so, please describe the specifics of these planned improvements.

8. Does the Department have a preferred response time to calls for emergency service?

Answer: Goal is to respond to 90% of calls in less than 6:59
SMFD Median response time 4:17 and 6:24 for 90% of all incidents

8a. What is the Department's record in meeting this preferred response time?

Answer: SMFD Median response time 4:17 and 6:24 for 90% of all incidents

8b. What is the distance to the nearest hospital emergency room?

Answer: Closest hospitals are San Mateo County General Hospital and Mill Peninsula Hospital

8c. Is the hospital capable of meeting emergency demand?

Answer: Check with local facilities.

9. Is the project site susceptible to wildland fires?

Answer: Check with County Fire for the designated wildland fire risk.

10. Would implementation of the proposed project require the Department to construct new facilities or expand existing facilities to accommodate the increased demand for fire protection services created by the proposed project?

Answer: Not for any San Mateo or Belmont Facilities.

11. In addition to addressing project-specific impacts to fire protection services, the EIR will also address cumulative impacts to fire protection services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for fire protection services associated with the development of these projects in conjunction with the proposed project?

Answer: Yes, San Mateo Fire can accommodate demand.

12. How does your agency address the growing demand for fire protection services?

Answer: We constantly evaluate our responses and our response times. We evaluate our service delivery to our citizens. We look at each project and forecast upcoming projects for impacts.

12a. Do you have any projections for future demand based on projected growth in the region?

Answer: Not at this time, however we are watching the impacts of several large developments in our jurisdiction.

12b. What would be needed to meet the cumulative demand for fire protection services?

Answer: Unknown at this time.

13. Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development.

Answer: Require Fire Sprinklers in all structures.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

CALIFORNIA WATER SERVICE COMPANY
[illegible]
[illegible]

BAYSHORE DISTRICT

November 17, 2013

Ms. Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Report (EIR)

Dear Ms. Henderson,

California Water Service Company has received the plans for the above mentioned project and would like to make the following comments:

1. Make correction - change Mid-Peninsula Water District to California Water Service Company Bayshore District.

2. The proposed access road/private street does not seem to follow the exact alignment of the existing 10" water main in Cal Water easement connecting the tank and the water main on Bel Aire Road. If Cal Water is required to relocate any portion of the 10" water main, the developer is required to fund the relocation work and also provide an easement for installation and maintenance of the water main and ingress/egress to/from Cal Water' tank site.

3. There is an existing 8" water main in a Cal Water easement connecting the tank and the water main on Parrot Drive through Lot 6 & 11 and driveways of Lot 7 & 12. This water main is not shown on the vesting tentative subdivision map. This water main is required to be remained in the same location. The developer is required to work with Cal Water to make sure we have access to the water main for maintenance. No structure should be built on the existing easement.

4. The proposed water main within the above mentioned subdivision is not properly connected to Cal Water's system. The proposed connection to Cal Water's existing water main will not provide adequate pressure to serve the subdivision. Pumping facilities are required to be built to serve the subdivision with adequate pressure and the developer is responsible to fund these facilities. The developer is required to contact Cal Water for design of the water main and other facilities to serve the subdivision. The contact person, who will initiate the project at Cal Water, is Leighton Low. I can be reached at (650) 558-7862.

5. Cal Water would like to review the geotechnical report for the above mentioned project to ensure any construction (cut or fill) of the slope will not negatively impact Cal Water tank site.

CALIFORNIA WATER SERVICE COMPANY

In addition to the above comment, I have attached a letter date September 15, 2008 addressing the EIR planner's questions regarding the above mentioned project. Additional comments were noted on the attached letter. In the September 15, 2008 where it references 2007 Urban Water Management Plan, please now refer to the 2010 Urban Water Management Plan which can be found at Cal Water web site www.calwater.com. Please feel free to contact me at (650) 558-7862 or Ting He at (408) 367-8323 for any further questions.

Sincerely,

Leighton Low
Construction Superintendent
California Water Service Company

Enclosed: Letter dated September 15, 2008 addressing to EIR Planner for the above mentioned project

ANALYTICAL ENVIRONMENTAL SERVICES

October 2, 2013

California Water Service Company
Leighton Low
341 North Delaware Street
San Mateo, CA 94401

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Mr. Low,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the California Water Servic Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to water services in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. In the previous EIR, a map of the existing water lines near the project site was provided and is included with this letter as **Exhibit A**. Have there been any updates or changes in the vicinity of the project site? If so, could you please provide an updated map? NO, Nothing has changed
2. Are there any other existing water service problems/deficiencies in the project area? NO
   There is NO existing water Service Problem in the Area, immediately adjacent to the project

   2a. If yes, how would the project affect these problems/deficiencies?

2b. If yes, what measures could the project incorporate to minimize the affect these water service problems/deficiencies on the project and surrounding uses?

3. In the previous EIR, Cal Water indicated the existing water system could accommodate the water demand for the project site but could not supply adequate pressure to the site. The developer would need to pay for booster facilities to be built at the take site. Is this still accurate? yes

4. Similarly, CAL FIRE standards require hydrants at the project site must deliver 1,000 gpm with residual pressure of 20 psi. What type of updates/new infrastructure would be required to meet these requirements? Water mains and booster facilities
See Question 3

5. Is recycled water within the project area or that could serve the project site? NO

6. In the previous EIR, Cal Water indicated temporary interruption of service to existing customers may happen during tie-ins of new and/or relocated pipelines to the existing water system or tank inlet/outlet. Is this still a possibility with the new project? What would be the estimated length of time of an interruption? yes

7. California Water Service Company has a terminal storage tank that will be bounded on all sides by the proposed project. The existing access road to the tank will be expanded and developed to accommodate the proposed residences. Are there any issues as to access and maintenance of this tank that need to be addressed by the proposed project? See 2008 Letter

8. Please confirm or edit the following statements: *The City of Belmont separates the Cities of San Carlos and San Mateo and divides the Mid Peninsula Water District (MPWD) into two systems, which are considered separate divisions of MPWD. In the MPWD's San Mateo Division, 14.656 million gallons of potable water is contained in 19 tanks, and 5.748 million gallons of potable water are stored in 21 tanks in the San Carlos Division.* California Water Service Company - Bayshore District

9. Because the proposed subdivision is less than 500 units, a water supply assessment report is not required. However, the information contained in such a report would be very useful for planning purposes. Have you recently prepared a water supply assessment report for another purpose, and, if possible, could you send us a copy? NO a Water Supply Assessment has not been done

10. In addition to addressing project-specific impacts to water services, the EIR will also address cumulative impacts to water services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for water services associated with the development of these projects in conjunction with the proposed project? Please see Cal Water 2010 Urban Water Management Plan

10a. How does your agency address the growing demand for water services?
See Cal Water 2010 Urban Water Management Plan

10b. Do you have any projections for future demand based on projected growth in the region?

10c. What would be needed to meet the cumulative demand for water services?

11. In the previous EIR, Cal Water indicated it would submit a water supply assessment report to the lead agency if the development meets SB 610 requirements. Is this still the protocol for conducting water supply assessment for proposed developments such as the proposed project?
yes, the water supply Assessment if required paid by developer

12. Please provide recommendations that could reduce the demand for water services created by the proposed project and cumulative development.
See 2010 Urban Water Management Plan

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on water services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List
Exhibit A: Existing Water Mains (2008)

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

September 15, 2008

Byron Easton
Associate Environmental Planner
Christopher A. Joseph & Associates
179 H Street
Petaluma, CA 94952

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Mr. Easton:

I would like to thank you for the opportunity to provide our comments to the proposed Ascension Heights EIR. I apologize for the late reply due to not receiving your letter prior to your deadline. I hope our answers to your questions below will still be useful to your EIR preparation for the above mentioned project.

1. What is the size and capacity of existing water mains near the project? If possible, please include a map illustrating your discussion.

   Please see below map for location and size of existing water mains near the proposed project.

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

2. Are there any existing water service problems or deficiencies in the area immediately adjacent to the project?

   There is no existing water service problem in the area immediately adjacent to the project.

3. Can the existing water distribution system near the project site accommodate the increased water demand from the project site? If not, what improvements to the system would need to be made?

   The existing water distribution system near the project site can accommodate the water demand from the project site. However, the existing system can not provide the adequate pressure to the project site. The developer needs to pay for booster facilities to be built at the tank site in order to serve the project with adequate pressure.

4. Does Cal Water offer recycled water within the project area, or that could serve the project site?

   No, Cal Water currently does not offer recycled water.

5. What is the current and remaining treatment capacity of the Mid-Peninsula Water District?

   2010
   Please see Cal Water's 2007 Urban Water Management Plan.

6. Does San Mateo County have its own methods or water generation rate?

   2010
   Please see Cal Water's 2007 Urban Water Management Plan.

7. What water treatment plant would serve treated water to the proposed project?

   2010
   Please see Cal Water's 2007 Urban Water Management Plan.

8. In order to meet California Department of Forestry and Fire Protection (CAL FIRE) standards, all hydrants in the proposed project must deliver 1,000 gpm with a residual pressure of 20psi. Is the water supply to the site adequate to meet this standard?

   The existing water system will have not adequate pressure to serve the project. Please see answer to question 3 above for improvements needed to serve the project.

9. Will connection of the proposed project to your system create any temporary interruption of service to existing customers? If the project will disrupt service, can you give us an estimate of how long the interruption would last?

   Temporary interruption of service to existing customers may happen during tie-ins of new and/or relocated pipelines to the existing water system or tank inlet/outlet.

10. California Water Service Company has a terminal storage tank that will be bounded on all sites by the proposed project. A new access road will be constructed to the tank as part of the proposed project. Are there any additional issues as to access and maintenance of this tank that need to be addressed by the proposed project?

    Cal Water would like to review geotechnical report for the project to ensure any construction (cut or fill) of the slope will not negatively impact Cal Water's tank site located at the top of the hill. We would also need to review the design of the access road (i.e. width, turning radius, slope) to ensure big heavy vehicles can access the tank site to maintain the tank and other equipment at the site.

11. In addition to addressing project-specific impacts to water service, the EIR will also address cumulative impacts to water service. We are in the process of compiling a list of reasonably-foreseeable development in the County. Table 1, Related project list includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location (refer to Figure 3, Location of Related Projects). However, additional projects will likely be added to the list as our research continues. Can the District accommodate the demand

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

for water services associated with these projects in conjunction with the proposed project?

Please see Cal Water's 2010 2007 Urban Water Management Plan.

12. What process does the District use for conducting water supply assessments for proposed developments?

    When a development is big enough that meets SB 610 requirements, a water supply assessment report will be prepared upon request of the lead agency on the EIR. Cal Water's Urban Water Management Plan will also analyze growth and supply projection of our water system. Enclosed is a CD of 2007 Urban Water Management Plan for Cal Water's Mid-Peninsula District. 2010

13. Do you have any recommendations that would avoid or mitigate significant impacts on the existing system?

    Recommendations have been made in answers to above questions.

Please feel free to contact me via phone at (408) 367-8323 or via email at the@calwater.com for further questions.

Thank you.

Sincerely,

Ting He, P.E.
Manager of Distribution, Engineering

Enclosed:
2007 Urban Water Management Plan for Cal Water's Mid-Peninsula District in CD

October 14, 2013

Via E-Mail: shenderson@analyticalcorp.com

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Impact Report

Ms. Henderson,

Please accept this correspondence as the response of the San Mateo County Sheriff's Office to your inquiry regarding the proposed Ascension Heights Subdivision dated October 2, 2013.

Question 1: "It was determined in the previous EIR the Headquarters Patrol, Hall of Justice, Redwood City is the sheriff department serving the project site, and the Highland Patrol Area provides office space for report taking. Is this still accurate?"

Response: The San Mateo County Sheriff's Office continues to provide law enforcement services for the site in question. However, the assigned Sheriff's Deputy works out of the Sheriff's Office Millbrae Police Bureau located at 581 Magnolia Avenue in Millbrae, California. The Sheriff's Deputy assigned to this area has access to workspace at the Highlands Recreation Center to prepare reports and complete investigations.

Question 2: "What are the existing staff levels (both sworn and civilian) of the Headquarters Patrol (or other station that would serve the proposed project)?"

Response: There is one dedicated Sheriff's Deputy assigned to the Highlands area from 6am to midnight seven days a week based on a contractual agreement. From midnight through 6am services are included with those provided to additional unincorporated areas in the vicinity. Deputies assigned to this area are supported by an Investigations Bureau, one supervisor, one manager, and one administrative staff member.

Question 2a.: ***"Are these staff level adequate to meet existing needs for the fire protection and emergency response?"***

Response: The existing staff levels are adequate to meet the demand for law enforcement response. (Question refers to fire protection. It is assumed that the intent was to address law enforcement services.)

Question 3: ***"What is the existing equipment inventory at the Headquarters Patrol (or other station that would serve the proposed project)?"***

Response: Patrol vehicles and safety equipment are dedicated to this area to effectively provide law enforcement services. For security purposes a detailed list of law enforcement resources is not available.

Question 3a: ***"Are the equipment levels adequate to meet the project area's current demand for police services?"***

Response: Yes.

Question 4: ***"Is there a target response time for incidents in the proposed project area? Will the proposed project have a significant impact on achieving or maintaining this response time?"***

Response: The target response time for emergency calls for service in this area is under four minutes. It is not anticipated that the proposed project will have a significant impact on achieving or maintaining this response time.

Question 5: ***"Does the Sheriff's Department have a preferred deputy-to-population ratio?"***

Response: No.

Question 5a.: ***"What is the current ratio?"***

Response: Deployment of personnel is based on several variables rather than on population alone. These factors may include crime rates and the structure of the identified community including residential areas, commercial areas, schools, and traffic patterns.

Question 6: ***"Is the current staffing level adequate to meet the current demands for police services in the proposed area?"***

Response: Yes.

Question 7: ***"Included in this letter is the proposed site plan. Does the proposed design conform to the Sheriff' Department requirements for emergency access?"***

Response: Yes.

Question 8: "*It was determined in the previous EIR the project site is within Reporting District 40 Beat. Is this still accurate?"*

Response: Yes.

Question 8a.: ***"Please provide recent statistics for this Reporting District."***

Response: There were five Part One Crimes reported in this area during the last reporting quarter from July 1, 2013 through September 30, 2013. One arrest was made during this time period. There have been nine reported Part One Crimes reported in this area over the last six months with five arrests.

Question 8b.: ***"How does the crime rate near the proposed project compare to the overall crime rate for other unincorporated areas of San Mateo County?"***

Response: The crime rate in this area is generally lower than in other unincorporated areas of San Mateo County.

Question 9: ***"Would the Sheriff's Department need to construct new police facilities or expand existing facilities in order to accommodate the project's demand for poke (sic) services?"***

Response: No.

Question 9a.: ***"Would the project require the Sheriff's Department to hire more deputies or staff?"***

Response: No.

Question 9b.: ***"Would the project require the Sheriff's Department to purchase more equipment?"***

Response: No.

Question 10: ***"Does the Emergency Management Unit still provides (sic) rescue and hazmat response to San Mateo County and its cities? Will the proposed project have a significant impact on services provided by the Emergency Management Unit. (sic)"***

Response: The San Mateo County Sheriff's Office of Emergency Services continues to facilitate rescue and HazMat services to all cities within the county. It is not anticipated that the proposed project have a significant impact on these services.

Question 11: ***"In addition to addressing project-specific impacts to police services, the EIR will also address cumulative impacts to police services. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Project List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues.***

Can the Department accommodate the demand for police services associated with the development of these projects in conjunction with the proposed project?

Response: Yes.

Question 11a.: "*How does your agency address the growing demand for policing services?"*

Response: The Sheriff's Office continually monitors and evaluates the demand for law enforcement services in each of the communities it serves. Should a significant increase in demand be forecasted, the Office works with residents, business owners, and additional stakeholders in order to determine how to best meet an increasing or changing demand.

Question 11b.: "*Do you have any projections for future demand based on the projected growth in the region?"*

Response: An increase in the demand for law enforcement services for the area in question is not anticipated.

Question 11c.: "*What would be needed to meet the cumulative demand for police services?"*

Response: The cumulative demand for police services can be met with existing resources.

Question 12: "*Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development."*

Response: No recommendations. (Question refers to fire protection. It is assumed that the intent was to address law enforcement services.)

Sincerely,

Greg Munks
San Mateo County Sheriff

GAM:eb

COUNTY OF SAN MATEO

BOARD OF SUPERVISORS
DAVE PINE
CAROLE GROOM
DON HORSLEY
WARREN SLOCUM
ADRIENNE J. TISSIER

Department of Public Works

JAMES C. PORTER
DIRECTOR

555 COUNTY CENTER, 5TH FLOOR • REDWOOD CITY • CALIFORNIA 94063-1665 • PHONE (650) 363-4100 • FAX (650) 361-8220

November 8, 2013

Ms. Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR) – Solid Waste & Sewer Service

Dear Ms. Henderson:

We are in receipt of your letter dated October 2, 2013, regarding the above project. We have listed below your questions (Q) and our responses (R) to your questions.

SOLID WASTE SERVICES

Q1. In the previous EIR, it was reported solid waste from the project area is transferred to the South Bayside Integrated Facility Transfer Station (also known as the Shoreway Environmental Center). Is this still accurate?

R1. The current collection service provider for garbage and recyclables for the project site would be Recology San Mateo County (RSMC). The County has a franchise agreement with RSMC to collect solid waste and recycling from the County franchised area (CFA), which is comprised of: Burlingame Hills, San Mateo Highlands and Baywood Park [Crystal Springs area], Harbor Industrial, Devonshire Canyon, Palomar Park, Oak Knoll, Kensington Square, Emerald Lake Hills, Sequoia Tract, Peninsula Golf Club, and Trailer Ranchero. The collected material is transported by RSMC to the Shoreway Environmental Center (SWIS # 41-AA-0016), which is owned by the South Bayside Waste Management Authority where the material is processed and hauled for disposal, recycling, or compost by South Bay Recycling.

Q2. According to the CalRecycle website, the Shoreway Environmental Center is permitted for a maximum throughput of 3,000 tons per day. Is this accurate? What is the average daily throughput at the facility in recent years (2011-2012)?

R2. The Shoreway Environmental Center is permitted for a maximum throughput of 3,000 tons per day. The SBWMA (650-802-3500) or South Bay Recycling (650-802-8355) should be contacted to determine the average daily throughput at the facility in recent years (2011-2012).

Q3. Would the Shoreway Environmental Center have the capacity to serve the proposed project?
R3. The SBWMA or Shoreway Environmental Center should be contacted regarding capacity to process the additional materials from the proposed subdivision. The CalRecycle goal for the County unincorporated areas is for generation rates of 3.0 pounds/per person per day or less. The assumed generation rate and total generation should be determined through the environmental review process.

Q3a. If not, what would be needed to accommodate the project's generation of solid waste?
R3a. Chapter 4.04 – "Solid Waste Collection, Transport, Storage, and Disposal" requires minimum levels of service for properties in the CFA. Review of Ordinance Code may be beneficial to the environmental review.

Q4. Solid waste services for the proposed project area are provided by Republic Services of Half Moon Bay. The primary disposal site is the Ox Mountain Sanitary Landfill. According to the CalRecycle website, this site had an original capacity of 37.9 million cubic yards and has exceeded its permitted capacity by approximately 6.7 million cubic yards. It was determined in the previous EIR that Ox Mountain can continue to accept waste as the landfill gradually settles and new space becomes available. Is this information still accurate?
R4. As stated in R1, solid waste services for the proposed project area are provided by RSMC. The primary disposal site for materials collected by RSMC is the Ox Mountain Landfill. Republic Services is the owner and operator of the Ox Mountain Landfill and they informed the County in September 2013 that they expect the landfill to be at capacity in approximately 26 years.

Q5. In the previous EIR, it was reported the Ox Mountain Sanitary Landfill has a permitted maximum throughput of 3,598 tons per day. Is this still accurate? What is the average throughput per day in recent years (2011-2012)?
R5. Republic Services (650-726-4718) should be contacted to determine the permitted maximum throughput at the Ox Mountain Landfill.

Q6. Would the Ox Mountain Sanitary Landfill have the capacity to serve the proposed project?
R6. As stated in R1 and R2, materials collected from the proposed subdivision are taken to the Shoreway Environmental Center. From there the solid waste is taken to and disposed of at the Ox Mountain Landfill. Contact should be made with the Shoreway Environmental Center regarding the ability to process material from the proposed subdivision. Republic Services may be contacted with additional questions regarding disposal of materials from the propose subdivision.

Q6a. If not, what would be needed to accommodate the project's generation of solid waste?
R6a. The area is required to have a minimum level of garbage service. There are no other options that exist at this time.

Q7. According to the CalRecycle website, the closure date of the Ox Mountain Sanitary Landfill is estimated for 2018. Is this still accurate? What is the plan for future solid waste disposal from the project area?
R7. As stated in R4, Republic Services is the owner and operator of the Ox Mountain Landfill. They may be contacted to verify remaining capacity at the site. Republic Services has provided information to

the County indicating that site capacity will be reached in approximately 26 years.

Q8. What recycling programs are available for the residents of the proposed project?
R8. The residents would receive recycling services provided by RSMC. The standard residential service for this area consists of: one 32 gallon solid waste cart, one 64 gallon single stream recycling cart, and one 96 gallon organics cart. Details of what materials can be collected for recycling can be found at RSMC's website (http://www.recologysanmateocounty.com/)

Q8a. How much diversion of solid waste does the recycling program average?
R8a. The County and CalRecycle measure disposal not diversion. The SBWMA provides information on a regular basis to member agencies regarding tons disposed, recycled, and composted. The SBWMA reported a diversion rate for single family dwellings in the SBWMA service area to be 66.7% for 2012. The SBWMA reported a diversion rate for single family dwellings in the CFA for 2012 of 68.3%.

Q9. A diversion plan will be implemented for all construction debris generated by the proposed project. The plan will follow technical guidelines provided by your Waste Management Section. Are there any suggestions for mitigation of potential construction related impacts to solid waste services?
R9. For detailed information about our Waste Management Plans and process please refer to http://www.recycleworks.org/con_dem/ordinance_condem.html .

Q10. In addition to addressing project-specific impacts to solid waste services, the EIR will also address cumulative impacts to solid waste services. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for solid waste services associated with the development of these projects in conjunction with the proposed project?
R10. As explained in the previous responses, the proposed subdivision is serviced by RSMC under a franchise agreement with the County. Also, as explained above the SBWMA or Shoreway Environmental Center should be contacted regarding the anticipated additional materials generated from the proposed subdivision and the ability to process and dispose of the material.

Q10a. How does your agency address the growing demand for solid waste services, in particular landfill capacity?
R10a. The County reports remaining landfill capacity to CalRecycle each fiscal year. If there is less than 15 years of landfill capacity remaining, the County is required to create a Waste Management Plan in conjunction with the cities in the County to address future disposal. All cities and counties must comply with AB939 on an annual basis and annually report their Source Reduction and Recycling Elements programs to CalRecycle.

Q10b. Do you have any projections for future demand based on projected growth in the region?
R10b. No.

Q10c. What would be needed to meet the cumulative demand for solid waste services?
R10c. Increased recycling services and increased customer participation in recycling services.

Q11. Please provide recommendations that could reduce the demand for solid waste services created by the proposed project and cumulative development.
R11. Residents could utilize the comprehensive curbside recycling and composting services provided by RSMC to the fullest extent possible.

SEWER SERVICES

Q1. In the previous EIR, a map of the existing sewer lines surrounding the project site was provided and is included with this letter as **Exhibit A.** Have there been any updates or changes in the vicinity of the project site? If so, could you please provide an updated map?
R1. No updates or changes have occurred to the existing sewer lines in the vicinity of the project site since 2008.

Q2. On March 11, 2009, Cease and Desist Order No. R2-2008-0065 was issued by the San Francisco Bay Regional Water Quality Control Board and required the City of San Mateo, Town of Hillsborough, and the Crystal Springs County Sanitation District in San Mateo County to address issues related to high flows during rainy season. To date, what projects have been completed or are planned to address these issues?
R2. The Cease and Desist Order (CDO) identified numerous capital improvement projects to be completed by the City of San Mateo (City), Town of Hillsborough (Town) and the Crystal Springs County Sanitation District (District). However, the projects applicable to the District include the eight remaining capital improvement projects within the District as identified in the 1999 Sewer Master Plan, the Town's Crystal Springs/El Cerrito Trunk Sewer Phase II, and the City's El Cerrito Relief Line Project. Both Town's and City's projects are currently in the design phase.

The District awarded the construction contract to D'Arcy and Harte Construction Inc. on October 8, 2013 for the eight remaining capital improvement projects within the District. However, the District is awaiting final approval of a State Revolving Fund Program loan before the Notice to Proceed can be issued to the contractor.

Q3. Are there any other existing sewer service problems/deficiencies in the project area?
R3. There are capacity issues in the sewer lines downstream of the project area within the Town and the City during wet weather events. Both downstream jurisdictions are working on projects to reduce wet weather sewer overflows by increasing capacity of the shared trunk lines, as required by the CDO. Based on the District's agreement with both downstream agencies, a portion of the costs associated with future projects on shared facilities will be paid by the District.

Q3a. How would the project affect these problems/deficiencies?
R3a. The additional sewage generated from the project will exacerbate the downstream capacity problems unless the wet weather issues are resolved.

Q3b. What measures could the project incorporate to minimize the affect these sewer service problems/deficiencies on the project and surrounding uses?

R3b. The project could minimize its impact on the downstream systems by completing capital improvement projects within the District that would reduce inflow and infiltration in an amount equal to the projected sewage discharge amount to the District from the project. This type of mitigation would mitigate the project's effect on downstream pipes by reducing or eliminating wet weather inflow and infiltration from the District to downstream of the project.

Q4. In the previous EIR, the Department indicated an interruption of service to existing customers would not occur during construction of the proposed project as sewer lines affected by the project may require by-pass pumping during construction. Is this still accurate?

R4. Yes.

Q5. Is recycled water within the project area or that could serve the project site?

R5. There is no recycled water within the project area.

Q6. What sewage generation rates does the Department of Public Works use?

R6. The San Mateo County Department of Public Works in its capacity of administering the Crystal Springs County Sanitation District uses the sewage generation rate of 220 gallons per day per equivalent residential unit.

Q7. In addition to addressing project-specific impacts to sewer services, the EIR will also address cumulative impacts to sewer services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for sewer services associated with the development of these projects in conjunction with the proposed project?

R7. All projects listed in Table 1 are located outside of the District boundary and do not affect the District's sewer service demand. However, as indicated in R3 above, the Dale Avenue Pump Station Improvements and the El Cerrito Relief Line Project are improvements to downstream shared facilities that the District is responsible for a portion of the costs associated with these projects.

Q7a. How does your agency address the growing demand for sewer services?

R7a. The District is predominantly built-out and does not experience a growing demand for sewer service.

The District has a Sewer Master Plan prepared by Brown and Caldwell in 1999, which evaluated the District's sewer system using hydraulic modeling. The District upgraded a portion of the Polhemus Road trunk line in 2003 as it was identified in the master plan as being hydraulically deficient to meet peak wet weather flow conditions. The project replaced the existing 10" vitrified clay pipes with 12" to 15" plastic pipes. A copy of the master plan can be obtained on our website at: www.smcgov.org/sewers

The remaining capital improvement projects, as mentioned in R2 above, were identified based on structural deficiencies and maintenance efforts.

Q7b. Do you have any projections for future demand based on projected growth in the region?
R7b. As stated in R7a above, the District is predominantly built-out and does not experience a growing demand for sewer service. We do not have any projections for future demand based on projected growth in the District.

Q7c. What would be needed to meet the cumulative demand for sewer services?
R7c. The developer of the proposed subdivision must demonstrate that the District sewer mains utilized to transport sewage from the subdivision has the peak wet weather capacity for conveying the additional flow to be generated by the 19 residences. If it is determined that the lines are insufficient to convey additional flow, the developer may need to upgrade the sewer lines to accommodate this subdivision. This study and work will not, however, resolve the downstream capacity issues mentioned in R3. A project or projects to reduce inflow and infiltration in the District would be required by the developer to offset any increase in sewage produced by the proposed subdivision during wet weather events.

Q8. Please provide recommendations that could reduce the demand for sewer services created by the proposed project and cumulative development.
R8. See R7c.

If you have any other questions, please contact Lillian Clark at (650) 599-1447 regarding solid waste services, and Mark Chow at (650) 599-1489 regarding sewer services.

Very truly yours,

for James C. Porter
Director of Public Works

JCP:AMS:MC:LC:JY
G:\users\utility\sewers\Districts\Crystal Springs CSD\Property Information\Ascension Heights Subdivision\EIR\Response Letter to AES 2013.11.docx

cc: Ann M. Stillman, Deputy Director, Engineering and Resource Protection
Joe La Mariana, Waste Management and Environmental Services Manager
Mark Chow, Principal Civil Engineer, Utilities-Flood Control-Watershed Protection
Lillian Clark, RecycleWorks Program Manager, Waste Management and Environmental Services
Julie Young, Senior Civil Engineer, Utilities-Flood Control-Watershed Protection

From: Brigitte Shearer [mailto:brigittes@highlandsrec.ca.gov]
Sent: Wednesday, October 02, 2013 6:28 PM
To: Stephanie Henderson
Subject: RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

I've prepared responses to your questions. Please let me know if you need anything further. It's important to understand that the proposed project is not within the Highlands Recreation District boundaries.

Brigitte Shearer
Highlands Recreation District
General Manager
650-341-4251
brigittes@highlandsrec.ca.gov

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1. Does the Highlands Recreation District have any plans to develop new parks or expand existing parks in the project area?

The Highlands Recreation District (HRD) currently operates a 3.45 acre facility on Lexington Avenue. We also oversee programs which take place at Highlands Elementary School and Crystal Springs United Methodist Church on Bunker Hill Drive. In addition, the HRD manages 40 acres of open space at the 'north' end of the Highlands neighborhood. That acreage is not open to the public. There are currently no plans to expand offerings beyond what is described above. However, in the future, the HRD may pursue making the 40 acres of open space accessible to the public or perhaps only HRD residents, for hiking. In addition, it is possible that, the HRD may also be granted additional acreage currently owned by Ticonderoga Partners. This land would be designated as permanent open space under a conservation easement. It is possible that this land might also one day be governed by the HRD and that it may eventually be developed for hiking, if the community so desires and necessary permissions are granted.

2. Would the project significantly affect existing park facilities?

The construction of additional homes would potentially increase patronage of the HRD facility and the nearby Highlands Elementary School. Persons living in the new development would not be Highlands Recreation District Residents, would not contribute property taxes to the HRD, and would therefore pay a higher rate to attend many of the HRD programs. Some programs are at capacity at this time, and would therefore not be available to these new homeowners. Since capacity limitations exist, the impact of this project would not be significant.

2a. If yes, please identify which facilities might be affected, and any anticipated impacts.

3. In addition to addressing project-specific impacts to park and recreational services, the EIR will also address cumulative impacts to park and recreational services. We are in the process of

compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department (**District**?) accommodate the demand for park and recreational services associated with the development of these projects in conjunction with the proposed project?

The District is not obligated to accommodate any additional demand for park and recreational services resulting from increased population outside of the District boundaries.

3a. How does your agency address the growing demand for parks and recreational services?

As stated above, some of the programs offered at the HRD are at capacity and there are no plans in place to add additional capacity at our existing facility. Highlands Recreation District residents have priority in accessing these capacity-limited programs because HRD residents support the facility's operation through property tax contribution. Persons living in the proposed development would not have such priority and would therefore potentially have limited access to certain HRD programs.

3b. Do you have any projections for future demand based on projected growth in the region?

No.

3c. What would be needed to meet the cumulative demand for parks and recreational services?

Additional facilities would be needed to provide space for additional or expanded program offerings. The current HRD site does not have any ability to expand to meet such needs.

4. Please provide any recommendations that might help eliminate or reduce any potential impacts the proposed project would have on parks and recreational services provided by the District.

The proposed project is not located within the boundaries of the District. Patrons from the new project wishing to participate in District programs would add traffic congestion to our facility, as access is currently only available by car. Shuttle bus service from the HRD to the Baywood Park community would be enormously helpful in reducing traffic congestion and CO_2 emissions. In addition, creating public space in or near the new project may also provide an alternative to the HRD facility. At minimum, a playground and tennis court would be very welcome. Ideally, perhaps even a structure which could be used for additional HRD-type programs – enrichment classes, meetings, etc. – would be helpful. The HRD is currently not overseeing any programs in locations outside the HRD boundaries. If such expanded oversight were desired, obtaining permission to do so would be lengthy and cumbersome, as it would require expansion of the HRD boundaries, revisiting the property tax distribution of the Baywood Park residences, and Local Agency Formation Commission approval.

-----Original Message-----
From: Cathi Zammit [mailto:CZammit@cityofsanmateo.org]
Sent: Monday, November 18, 2013 9:52 PM
To: Stephanie Henderson
Cc: Darcy Forsell
Subject: RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

Hi Stephanie,

Sorry this took longer than I originally estimated. Attached are responses to your questions, except for number 5. for which I do not have an updated status. I've also attached a recent report to the Water Board with the status of many of our projects and activities. Let me know if you have any questions. I will be out of the office Tues & Wed this week but returning on Thursday. Thank you,

Cathi Zammit
City of San Mateo
Public Works
(650) 522-7306
czammit@cityofsanmateo.org

Responses to your questions listed below:

1. Please confirm if the following statements are accurate or revise as necessary: *In general, wastewater generated from uses in the surrounding area enters existing sewer infrastructure owned and maintained by Crystal Springs County Sanitation District and flows to sewer infrastructure owned and maintained by the Town of Hillsborough. This wastewater then flows to sewer infrastructure owned and maintained by the City of San Mateo for treatment at the wastewater treatment plant owned and operated by the City of San Mateo located at 2050 Detroit Drive.*

Response: This statement is correct.

2. On March 11, 2009, Cease and Desist Order No. R2-2008-0065 was issued by the San Francisco Bay Regional Water Quality Control Board and required the City of San Mateo, Town of Hillsborough, and the Crystal Springs County Sanitation District in San Mateo County to address issues related to high flows during rainy season. To date, what projects have been completed or are planned to address these issues?

Response: The correct Order No. is R2-2009-0020. Enclosed is the most recent annual report submitted to the RWQCB describing projects completed to date and proposed projects to address wet weather capacity assurance.

3. In the previous EIR, it was reported the City completed an expansion in 1996 that increased the hydraulic capacity of the wastewater treatment plant to 15.7 mgd during the dry months (April 11-October 31) and 60 mgd total primary capacity. Has there been any capacity upgrades since?

Response: No.

4. What is the average daily flow of discharge? Does the City's wastewater treatment plant have the capacity to sever the proposed project?

Response: ADWF received at the Wastewater Treatment Plant in 2012 is 12.4 mgd.

5. In the previous EIR, it was reported that the Crystal Springs County Sanitation District was in arrears in its payments in an amount of $1,274,000 to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement, and the City of San Mateo Department of Public Works therefore could not approve the additional flow that would result from these new subdivisions. Have there been any developments with regards to this?

6. In addition to addressing project-specific impacts to wastewater treatment services, the EIR will also address cumulative impacts to wastewater treatment services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for wastewater treatment services associated with the development of these projects in conjunction with the proposed project?

Response: Please refer to the EIR prepared for the City of San Mateo 2030 General Plan available on-line on the City's website.

6a. How does your agency address the growing demand for wastewater treatment services?

Response: The City is in process of preparing an updated master plan for wet weather capacity assurance improvements at the wastewater treatment plant

6b. Do you have any projections for future demand based on projected growth in the region?

Response: The projected average daily flow is 14.6mgd for year 2020.

6c. What would be needed to meet the cumulative demand for wastewater treatment services?

Response: Please refer to the City of San Mateo 2030 General Plan and Sewer System Management Plan available online on the City's website.

7. Please provide recommendations that could reduce the demand for wastewater treatment services created by the proposed project and cumulative development.

Additional information:

The projected peak wet weather flow under five-year design storm conditions in year 2020 is 88mgd, which exceeds the plant design outfall capacity of 60mgd. The City has developed and is implementing a wet weather capacity assurance capital improvement program for the sanitary sewer conveyance system. The City is in process of preparing an updated master plan for capacity assurance improvements at the wastewater treatment plant and will integrate identified projects into the capital improvement program.

The wastewater generated from the proposed Ascension Heights project will increase the peak wet weather flow in the system. The peak wet weather flow already exceeds collection system and plant capacity during certain wet weather events causing sanitary sewer overflows, thus additional flow cannot be accepted into the system without mitigation. City of San Mateo Waste Water Treatment Plant Expansion development impact fees will apply. In addition, mitigation measures should include construction of improvements to reduce inflow and infiltration to the sanitary sewer system such that the project will result in a "zero net increase" in flow during wet weather events, and complete such construction prior to the start of the construction of the project.

APPENDIX J

ASCENSION HEIGHTS DESIGN HANDBOOK

ASCENSION HEIGHTS

Design Handbook

July 29, 2015

Design Guidelines

Architectural Styles

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com
SDG Architects, Inc.

General Requirements

The following section describes general architectural requirements for the Ascension Heights community. These requirements are encouraged to maintain the overall vision for Ascension Heights. Certain items must be done to comply with restrictions established by the County of San Mateo. It is the responsibility of the homeowner to verify all local jurisdiction requirements. The general requirements are as follows:

Massing:
Regardless of the configuration, home designs shall incorporate stepped building forms to complement the adjacent hillside topography. Using this approach and following required height restrictions (see pages 5-6 ((“Height Standard”)) two-story massing will be minimized, one-story massing will predominate, buildings will appear more understated and the landscape will be more appreciated.

Except for the roof structures, all major building mass components should have a rectangular or square plan. Minor building mass components, such as bay window projections or singular tower elements, may have an octagonal or a round plan. However, all exterior corners in plan should predominantly be 90 degrees.

Building mass components should be combined to create simple, additive compositions. This approach should be used to minimize the appearance of larger homes. For example, second floor massing should be setback from the main level.

To promote indoor-outdoor living and to maximize access to light and ventilation, porches, balconies, loggia courtyards and breezeways are all encouraged.

Detached and semi-detached structures are also encouraged to reduce the appearance of overall building mass. This rural approach to assembling building masses is consistent with the Ascension Heights vision.

To encourage a diversity of built forms throughout the community, special attention should be given to the front/street and rear/hillside elevations. Streetscape and hillscape building profiles should vary from lot to lot. To further this ideal, homeowners are encouraged to utilize a variety of projections to personalize their home elevations such as: balconies, porches, trellis, chimneys, dormers, and bay windows.

Height Requirements:
Overall building height cannot exceed 36' measured from average finish grade to the average height between the highest horizontal plan and the highest point on the roof per County of San Mateo Municipal Code for the R1-S-8 District. In addition, there is a 28' height profile restriction. This profile measurement is to be taken from, and follow the profile of, the adjacent finish grade along the perimeter of the building. Refer to page 5 ("Height Standard").

Maximum Allowable Square Footage:
Maximum Allowable Square Footage is the area described as the footprint of any structure greater than 18" above finish grade and is limited to a maximum of 40% of the lot.

Setback Requirements:
Setback requirements shall are described in the San Mateo County Development Standards for zoning designation R-1-S-8 District.
They are as follow:

Front (ft.)	20
Side (ft.)	5
Rear (ft.)	20

Garages:
Garage doors should complement a regional style and be either wood or wood clad doors. Sectional garage doors must be the types that appear to be a single, or pair of, panel doors.

Roof:
Roof designs should complement the adjacent hillside topography. For this reason, roofs should be predominantly low-profile and pitched. Roof pitch should not exceed 8:12. The only exception shall be for architectural features such as tower elements, dormers and for roofs in the "Cottage" and "American Farmhouse" architectural styles (refer to pages 7-22). To emphasize the low-profile roof pitch and to reduce solar heat gain, roof overhangs should be considered.

Roof designs should consist of intersecting pitched gables, hips, or shed roof forms. Dome and flat roofs are not allowed. Roof designs should be simple, not overly complex. Roof crickets should be minimal or as needed for chimney roof penetrations.

Skylights:
The County of San Mateo may approve skylights with the following requirements:

- Skylights must be equipped with motorized shades. These shades must have a photocell timer/switch to close the shade, automatically, at night.
- Skylights must be installed to be low-profile .
- Skylights must not exceed 30" in width or length and must be rectangular or square.
- Skylight glazing must be flat glass, not mirror reflective and should be a minimum of 70% clear.
- Skylight frames should be of a color to match adjacent roof or flashing material. Domed or "bubble" skylights are not allowed.

Solar and Wind Powered Systems:
Solar photovoltaic (PV) panel systems and solar water heating systems, not visible from the street, may be allowed. Wind powered systems are not allowed. All PV panel installations should be the integrated-flush panel type and cannot be installed within a barrel tile roof.

Mechanical Equipment and Antennae:
Mechanical equipment cannot be installed on a roof, with the exception of those solar systems noted above. Antennae or satellite dishes must be installed so they are not visible to adjacent neighbors or from the street.

Chimneys:
All chimney spark arrestors must be screened with a decorative chimney cap.

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Materials:
The homeowner is encouraged to use natural and sustainable materials whenever possible. If stone or brick is introduced onto the exterior facade, it shall be a natural material, not cultured. The homeowner is also encouraged to specify roof, flashing, gutter, downspout and chimney cap materials as defined for each of the suggested architectural styles (refer to pages 7-22).

Colors:
Building material colors shall be as defined as follow:

"Exterior colors shall be selected to harmonize with the overall hillside and neighborhood landscape setting. The larger scale color palette for homes within specific residential parcels shall be complementary. Bright colors or high sheen finishes shall be avoided. Generally, the color palette for major wall surfaces shall be responsive to the natural colors of the materials being used. Where wood is used, colors shall include tans, browns, taupes and natural weathered colors including the warm greys. Wood colors may also occur in a variety of other tones provided they are applied as a stain and are muted in tone. Stucco or plaster colors shall include, beige and earth tones such as tan, rust, ochre, sienna, umber or brown. Accent and contrasting colors may be used sparingly for fenestration, trim and other special architectural details to add interest and variety."

The imagery presented in this design handbook of styles, color, and details do not represent exactly what is allowed.

Sustainable Architecture:
As noted in the vision statement, homeowners are encouraged to design using sustainable architectural principles. These principles encourage: (1.) conservation of natural resources, (2.) conservation of energy, (3.) conservation and protection of water supplies, (4.) improvement of air quality and (5.) more livable communities. Opportunities to exercise these principles are highlighted throughout this document using green text.

Traditional Interpretation:
Homeowners are encouraged to design their homes within a general framework of historic, regional architectural styles. Examples of these styles are described on pages 7-22. Through the interpretation of these styles, our hope is that the community will develop along similar aesthetic principles while maintaining the Ascension Heights vision.

There are five groups of architectural styles proposed for homeowner consideration: Arts and Crafts, Cottage, Adobe Ranch, American Farmhouse, and Prairie School. The following pages describe these five groups and the various styles within each.

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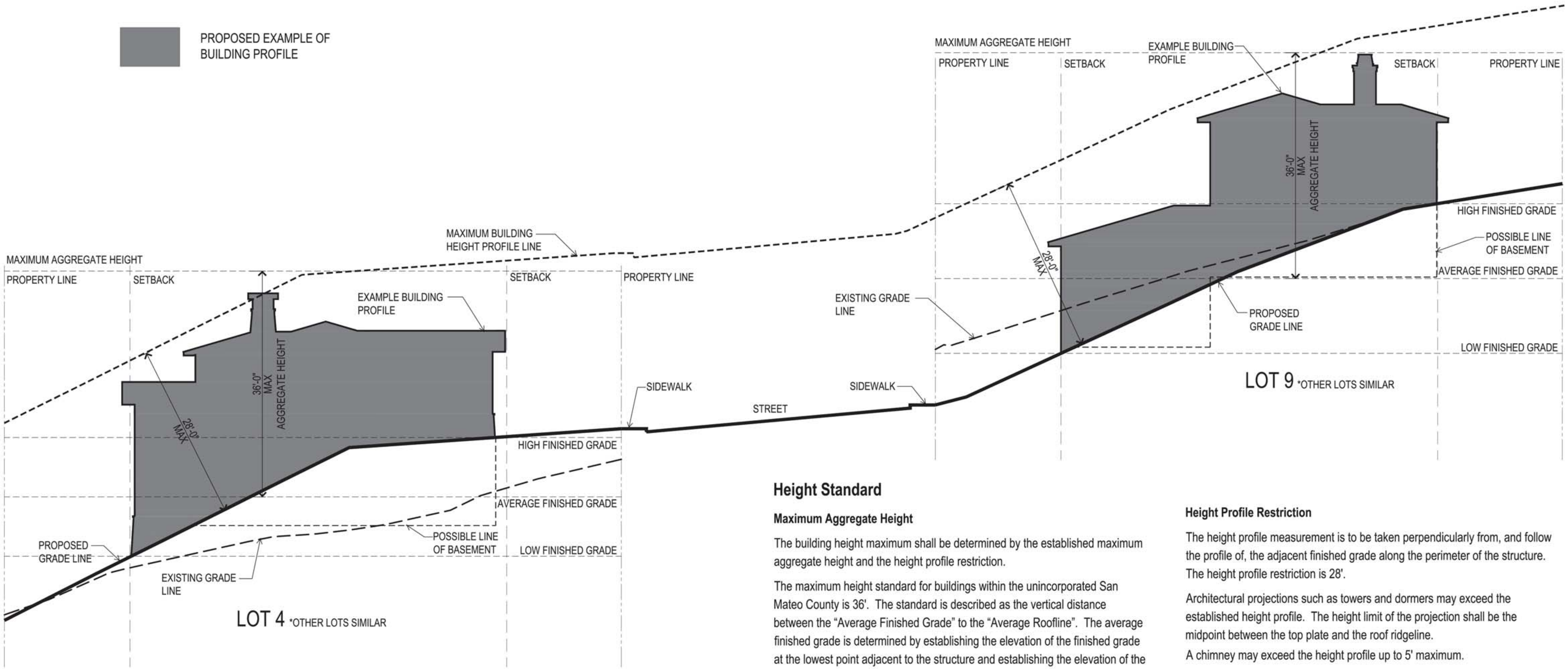

Height Standard

Maximum Aggregate Height

The building height maximum shall be determined by the established maximum aggregate height and the height profile restriction.

The maximum height standard for buildings within the unincorporated San Mateo County is 36'. The standard is described as the vertical distance between the “Average Finished Grade” to the “Average Roofline”. The average finished grade is determined by establishing the elevation of the finished grade at the lowest point adjacent to the structure and establishing the elevation of the finished grade at the highest point adjacent to the structure along the same section then averaging the elevation between the two points. This will establish the “Average Finished Grade”.

The average roofline is determined by establishing the elevation of the highest horizontal plate and the elevation of the highest point on the roof along the same section then averaging the elevation between the two planes. This will establish the “Average Roofline”.

The vertical distance between the “Average Finished Grade” and the “Average Roofline” cannot exceed 36'.

Height Profile Restriction

The height profile measurement is to be taken perpendicularly from, and follow the profile of, the adjacent finished grade along the perimeter of the structure. The height profile restriction is 28'.

Architectural projections such as towers and dormers may exceed the established height profile. The height limit of the projection shall be the midpoint between the top plate and the roof ridgeline.

A chimney may exceed the height profile up to 5' maximum.

Refer to example on page 6.

Height verification, per County of San Mateo procedures, is required for all structures designed within 2' of the maximum height profile limit.

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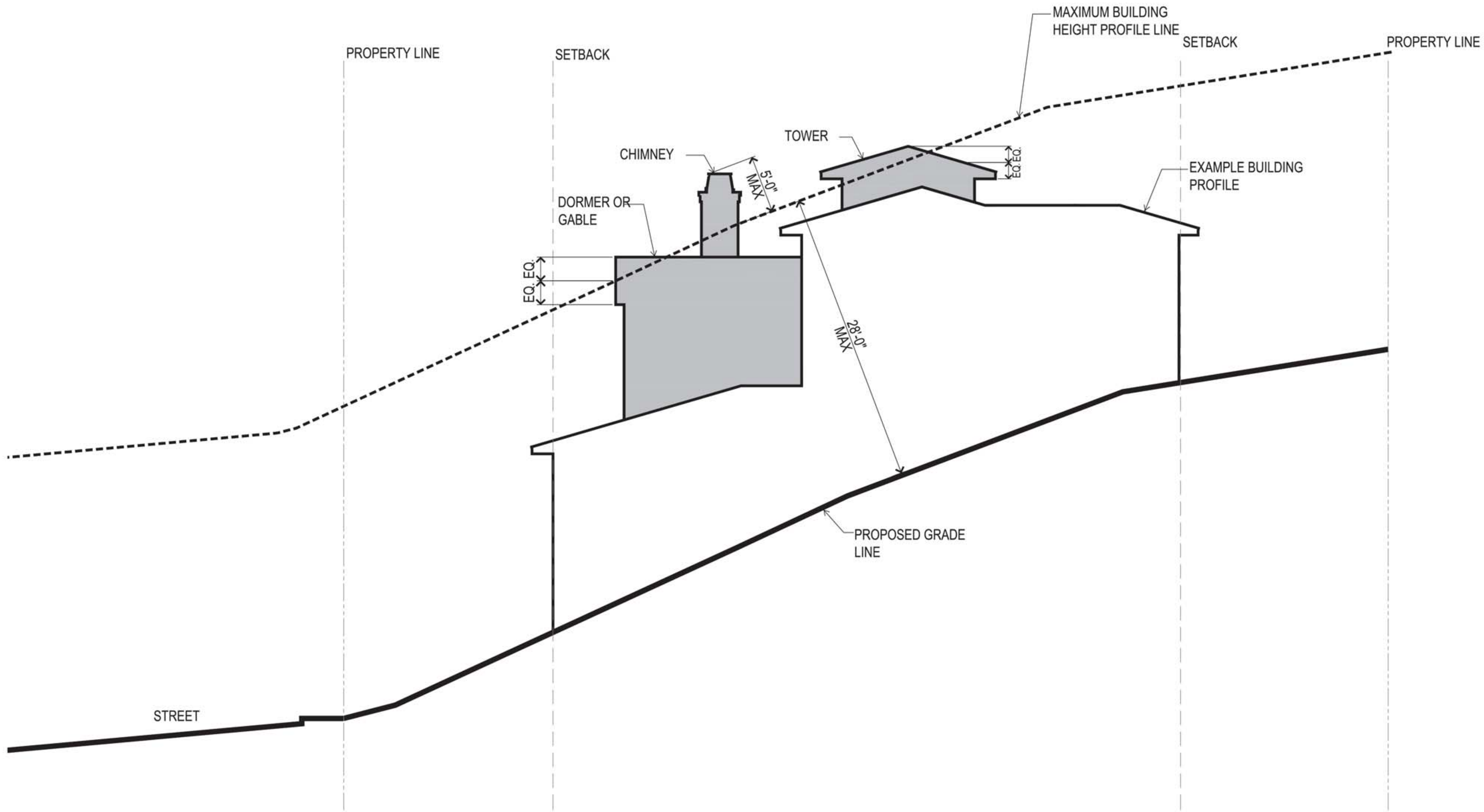

Ascension Heights
July 29, 2015

Architectural Projections

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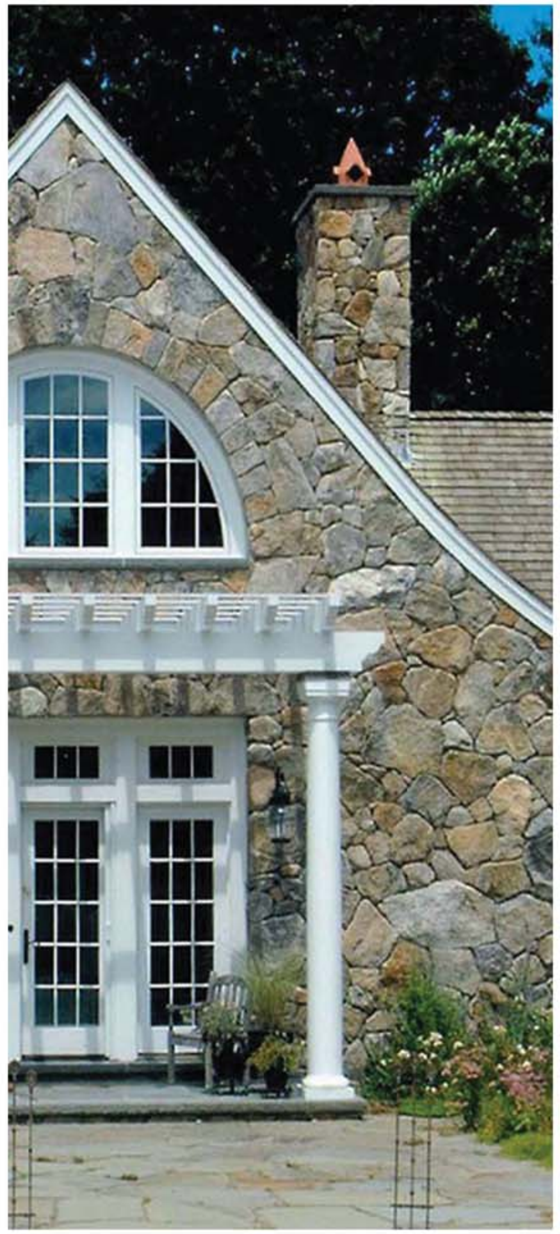
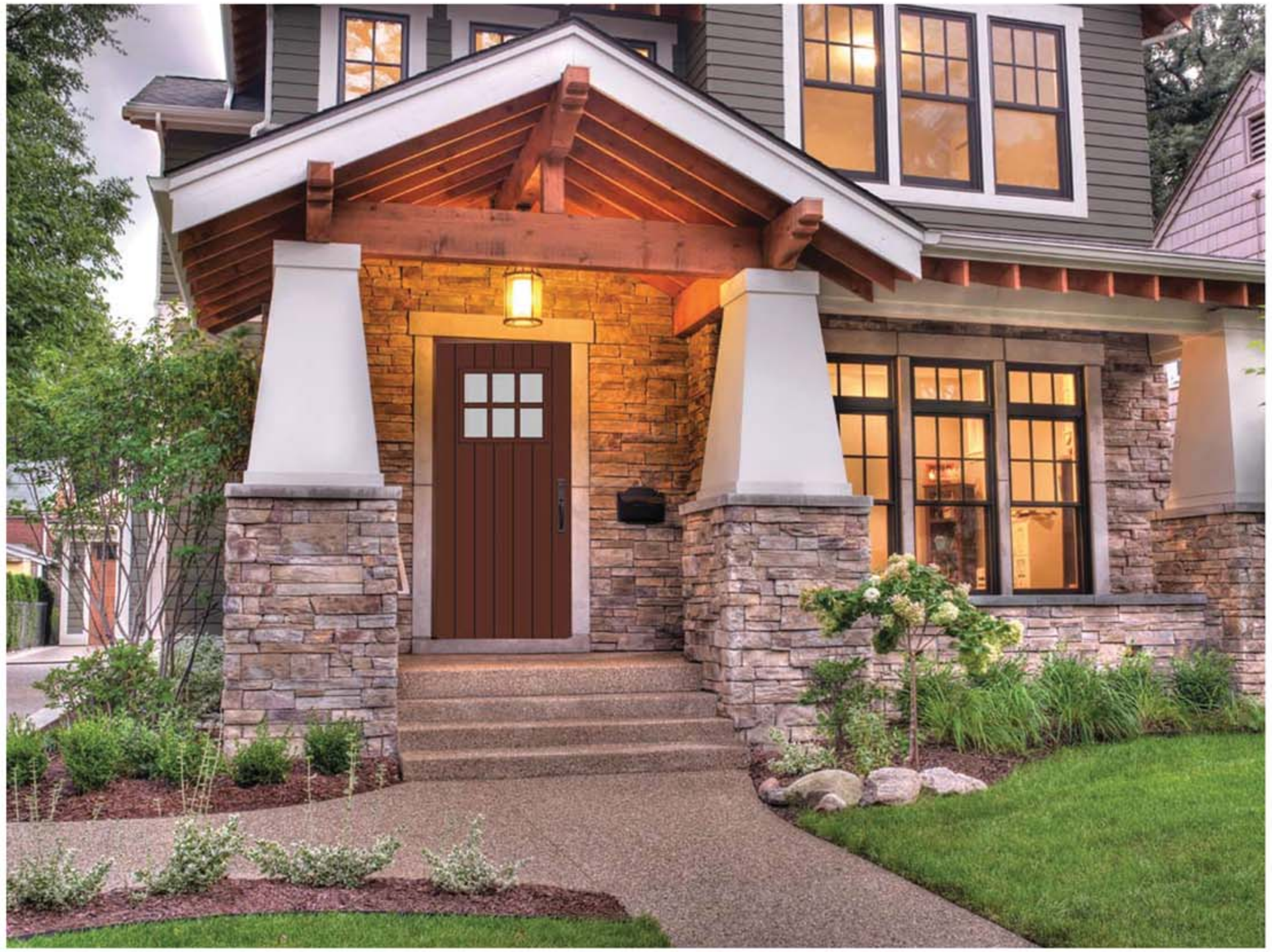



Architecture Styles

The selected architectural styles and their related building forms and details are a product of cultural tastes and values that reflect the vision of Ascension Heights .
The goal is to have a cohesive string of distinct architectural influences while enhancing the natural landscape of San Mateo.
In order to adhere to the principles set by Ascension Heights the styles have been chosen due to their identifying characteristics, indicative detailing and low profile massing. The five styles are: **Arts and Crafts, Cottage, Adobe Ranch, American Farmhouse and Prairie School.**



Arts and Crafts

Arts and Crafts is defined by architecture with an old-world charm and quality that honor the artisans and craftsmen that developed it as a style back in the 1800s. Also known as the Craftsman style, it maintains the tradition of creative detailing and simple understated forms. It has been enhanced by the works of architects such as Bernard Maybeck, Gustav Stickley, Charles and Henry Greene Brothers. As part of the Arts and Crafts movement, Craftsman homes often promote indoor-outdoor living and are best demonstrated with low-profile roofs with deep overhangs, heavy timber detailing, shingle roof and various types of wall treatments such as wood siding, plaster, or painted wood shingle or clapboard siding. Porches, decks, arbors, and trellises are often used to complement the primary building massing.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured mass components (i.e. bay windows, towers) and the roof, building mass components should either be rectangular or square. Featured mass components may be rectangular, square or octagonal. Additive massing composition is encouraged to reduce the perceived size of the building.

Roof Pitch: Roof pitches shall be low profile and not exceed 3.5:12. Short roof spans are also encouraged to reduce the perceived size of the building.

Roof Materials: Roof material shall be Class "A" fire-rated, fire-resistant wood shake roofing. Synthetic wood shake may be acceptable.

Chimney Materials: Chimney walls should be brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: The wall material should be varied between painted wood shingle, clapboard siding or hand-troweled exterior plaster ("stucco"). The primary wall material chosen should cover all exterior wall surfaces with the exception of trim, basement level and/or understory walls and freestanding and/or enclosure walls. When used, the finish stucco texture should appear slightly irregular emphasizing the hand-made quality of the installation. All outside comers should have a minimum 1- inch radius bull nose. Basement level, skirt and understory walls should be of brick or stone.

Doors and Windows: Doors and windows should be wood or clad wood. Windows may be double or single-hung, casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed in typical "Craftsman" layout. Shutters may be allowed for this style.

Detail and Ornament: Details and ornament common to this style include decorative wood trim and detailing, brick and stonework using river rock and clinker brick, "craftsman" motif dark bronze hardware and light fixtures, lap and mortise wood joinery, bronze patina copper flashing, decorative shaped and patterned shingles, decorative ornament and entry door surrounds, painted brick detailing, dormer and transom windows, and tapered and boxed painted wood columns.

Cottage

Cottage architecture is the American Arts and Crafts interpretation of the English cottage style. With a sense of French influence, it denotes a small, often cozy dwelling, and small size that is integral to the style. Quaint detail and an overall minimalism is often seen along with the architectural projections, such as dormers, purlins, rafter tails and posts enhancing the cottage experience. This style is identified by the use of steep pitched roofs, often sweeping over the entry and thick walls to suggest a stucco-coated masonry wall construction. Hand-stacked stone veneer is often used as an accent surface material while plaster walled courtyards are often used to create outdoor rooms. Arched windows and stone trim are also prevalent.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components (i.e. bay windows, towers) and the roof, building massing should either be rectangular or square. Featured massing components may be rectangular, square or octagonal. Additive massing composition is encouraged to reduce the perceived size of the building.

Roof Pitch: Whenever possible, most of the roof pitches shall not exceed 8:12. However, "featured" roof pitches which promote the "European Cottage" aesthetic shall not exceed 12:12. Short roof spans are also encouraged to reduce the perceived size of the building.

Roof Materials: Roof material should be either Class "A" fire-rated, fire-resistant wood shake roofing, slate shingle or dimensional asphalt shingle roofing, per code requirements. Synthetic wood shake or synthetic slate shingle may be acceptable.

Chimney Materials: Chimney walls should be either hand-stacked stone or hand-troweled exterior plaster ("stucco"). All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: The primary wall material should be hand-troweled exterior plaster ("stucco"). This primary wall material should cover most exterior wall surfaces. The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. Secondary "feature" walls should be hand-stacked stone. Basement level, skirt and understory walls should be either hand-stacked stone or hand-troweled exterior plaster.

Doors and Windows: Doors and windows should be steel, wood or clad wood. Windows may be casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed in an orthogonal grid layout. Shutters are allowed for this style.

Detail and Ornamentation: Details common to this style include steep attic roofs with dormer windows, decorative main entry door, transom windows, window boxes, heavy timber detailing, brick or stone wall caps and window sills, use of decorative ironwork.

Adobe Ranch

The “Adobe Ranch" style is representative of simple, adobe courtyard farmhouses of California's Spanish-occupied past. It is far less formal than that of the Spanish Colonial style. Mountainous and rugged terrains often lend itself to this vibrant, yet rustic, Spanish farmhouse interpretation. Adobe characteristics include: low-profile clay-tiled roofs, predominant one-story massing, courtyard plans, hand-troweled stucco over thickened walls and heavy timber porches. Doors and windows typically have simple detailing with no trim boards, heavy-timber headers and lintels, possibly shutters and extended wood sills.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

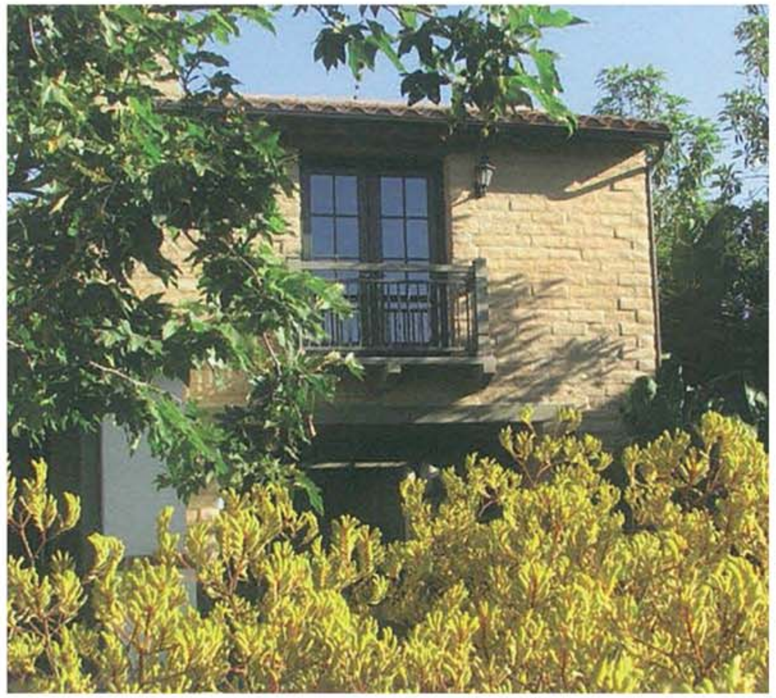
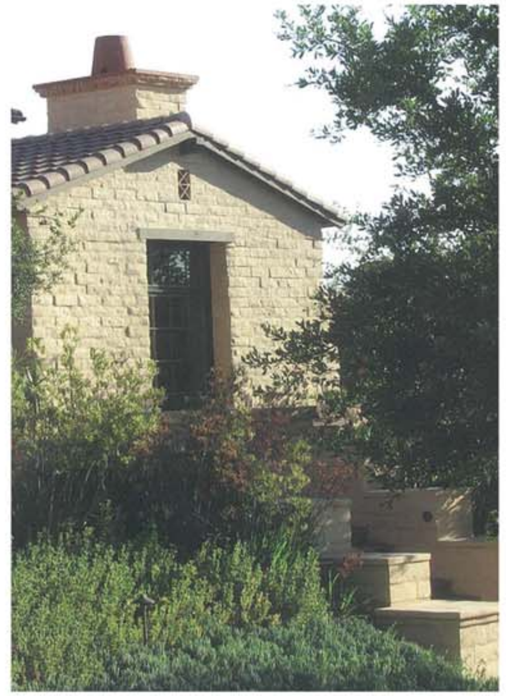
Massing: All massing components, except for the roof, should either be rectangular or square. Featured or projecting massing should also be rectangular or square. Additive massing composition is encouraged to reduce the perceived size of the building.

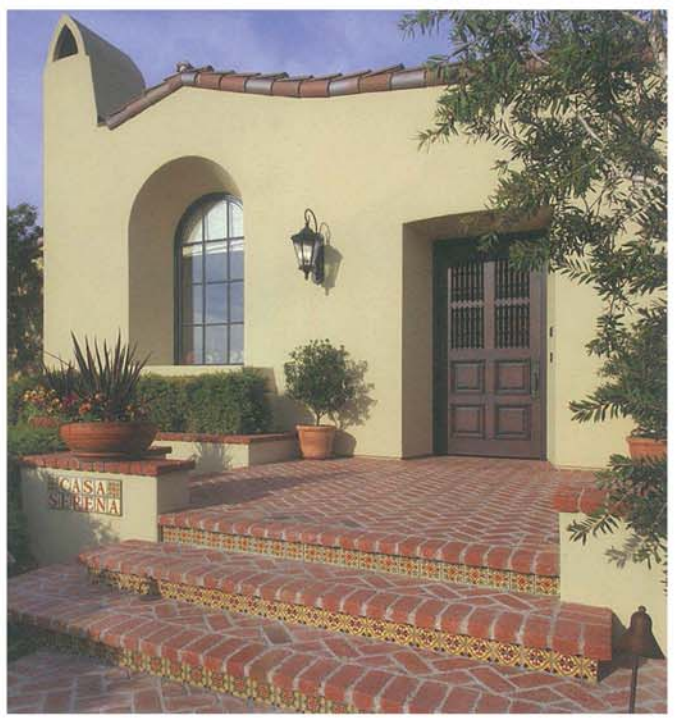
Roof Pitch: Roof pitches shall be low profile and not exceed 3.5: I2. Short roof spans are also encouraged to reduce the perceived size of the building.

Roof Materials: All roofing must be comprised of two-piece clay barrel tiles, per code requirements. Tiles should be specified in a mixture of tile colors. End eave tiles should be boosted while ridge tiles may or may not be boosted. Random roof surface tiles may also be boosted. Mud stops should be installed while decorative stops may be acceptable.

Chimney Materials: Chimney walls should be hand-troweled exterior plaster ("stucco"). The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: The primary wall material should be hand-troweled exterior plaster ("stucco"). Primary wall material should cover all exterior wall surfaces with the exception of wood components (i.e. eave, lintels porch, deck, railing, arbor and trellis). The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. Basement level, skirt and understory walls should also hand-troweled exterior plaster ("stucco").




Doors and Windows: Doors and windows should be steel, wood or clad wood. Doors and windows should be installed "Adobe" style, without any applied wood trim and or surround. Windows may be casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed to have horizontal muntins only. Shutters are allowed for this style.

Detail and Ornamentation: Details common to this style include: "craftsman" motif hardware and light fixtures, lap and mortise wood joinery, precast decorative ornamentation and entry door surrounds, painted brick detailing, transom windows, tapered and boxed painted wood columns.

American Farmhouse

The American farmhouse was a functional home before it was an architectural style. The design of the American farmhouse was initially influenced strictly by function and geography. The farmhouse was always unpretentious, straightforward and functional, shaped by the needs of the farmers, the local climate and the materials available. American colonists built the earliest farmhouses in the early 18th century. Farmhouses were often built of raw logs—in what is considered a log-cabin style—or some combination of rough-hewn logs, native stone or mud. That changed in the mid-19th century, when railroads made it possible to transport manufactured materials across the country. This gave farmers access to many more style possibilities as well as the ability to build with brick, lumber and quarried stone.

The original building method of these homes was one room at a time building; live in one and the additional were built as needed. American farmhouses provide an open floor plan so everything flows. Wood siding is the most common, simple gable roof lines and traditional double hung windows and shutters. There is typically a large porch which acts as an additional living space when weather permits. The interior has traditional but simple details around windows and doors.

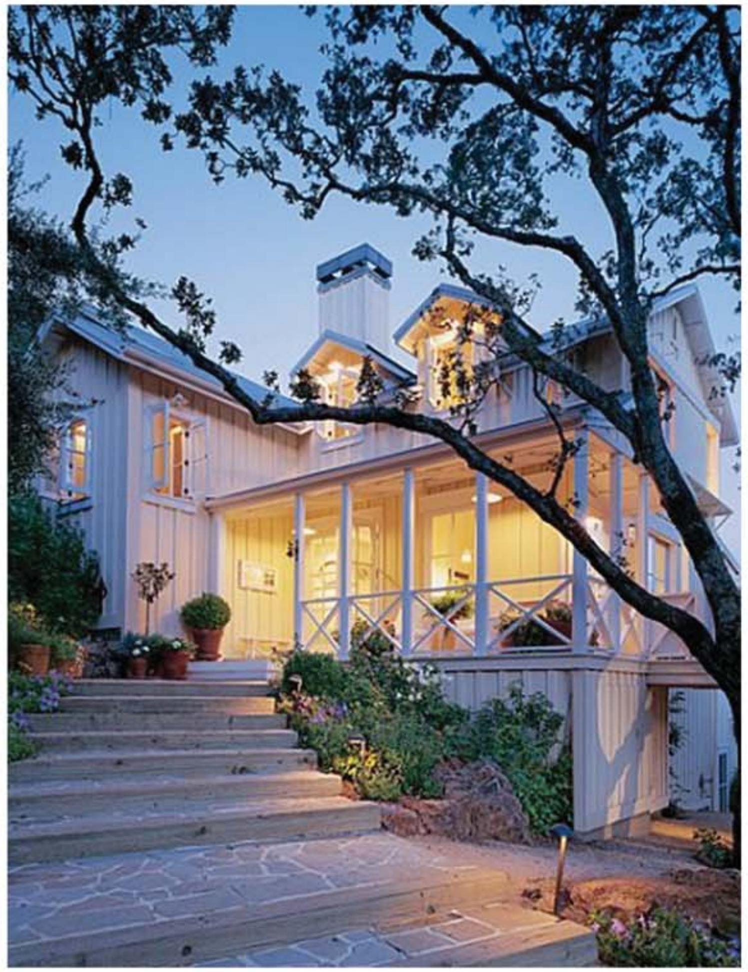



In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components and the roof, the massing should be simple, rectangular or sometimes in a T shape. Straight forward, functional design is the emphasis on houses built to acknowledge the American Farmhouse. The massing is composed of basic asymmetrical shapes to allow for expansion. This style usually incorporates a welcoming wide front porch.

Roof Pitch: Roof pitches shall be a maximum 8:12 often with side and front facing gables. Eaves and rakes are typically very shallow. Roof form should be adequately broken into smaller masses to reduce the perceived size of the building.

Roof Materials: Roof material shall be either Class “A” fire-rated dimensional asphalt shingles, or standing seam metal, most typically a combination of both. The colors should be complimentary to the exterior color of the home.



Chimney Materials: Chimney walls can be either hand-troweled exterior plaster ("stucco"), brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: Primarily wall materials should be a thoughtful composition combining various materials and should include vertical board and batt siding with a contrasting horizontal element of clapboard siding often with accents of stone.

Doors and Windows: Doors and windows should be wood or clad wood. Windows should be fixed or single-hung and small in nature. Avoid groupings of large picture windows. Windows should have a minimal amount of trim detail.

Prairie School

The Prairie School developed in sympathy with the ideals and design aesthetics of the Arts and Crafts Movement begun in the late 19th century in England. Prairie School was an architectural style, most common to the Midwestern United States. The designation Prairie is due to the dominant horizontality of the majority of Prairie School buildings which echoes the wide, flat, treeless expanses of the mid-Western United States. The Prairie School was also an attempt at developing an indigenous North American style of architecture that did not share design elements and aesthetic vocabulary with earlier styles of European classical architecture.

The style is usually marked by its integration with the surrounding landscape, strong horizontal lines, flat or hipped roofs pitched low with broad overhanging eaves which appear to spread out and hug the ground, windows (sometimes with art glass) in geometric shapes placed intricately in horizontal bands, solid construction, craftsmanship, and restraint in the use of ornament. Homes appear to grow out of the ground; very low and close to the terrain. Horizontal lines were thought to evoke and relate to the native prairie landscape. One-story cantilevered projections were typical and the entrances are typically secluded.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components and the roof, the massing should be either rectangular or square. Horizontal is the emphasis on houses built to acknowledge the flat prairie lands. The massing is horizontal, and so are treatments such as porches, banded windows, and belt courses. The plans are generally organized around a central well-detailed chimney massing and are asymmetrical.

Roof Pitch: Roof pitches shall be a maximum 4:12 low-pitched hip roof with deep overhanging eaves, a minimum of 36”. Depending on the design a gable might be considered. Roof form should have a strong balanced horizontal element, roof extension or cantilevered projection at the eaves. Roofs often extend over exterior rooms and/or walkways.

Roof Materials: Roof material shall be either Class “A” fire-rated, fire-resistant wood shake roofing, standing seam metal, or dimensional asphalt shingles. The colors should be black, dark brown or light brown.

Chimney Materials: Chimney walls should be either hand-troweled exterior plaster (“stucco”), brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

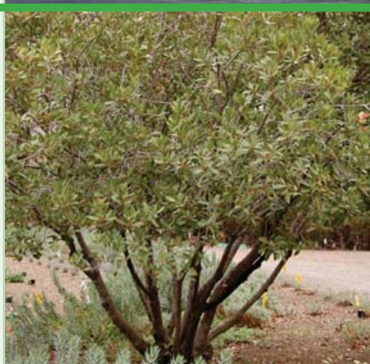
Exterior Wall Materials: Primarily wall materials should be a thoughtful composition combining various materials and may include light, earth colored stucco with a smooth hand-troweled or sand finish, horizontal wood or composition siding, brick and stone.

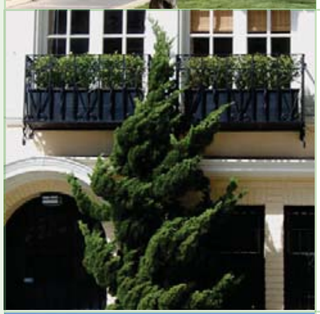
Doors and Windows: Doors and windows should be wood or clad wood. Windows should be fixed or casement and geometrically shaped and in multiply banks, groups or rows. Windows should be kept tight to the soffit.

APPENDIX K

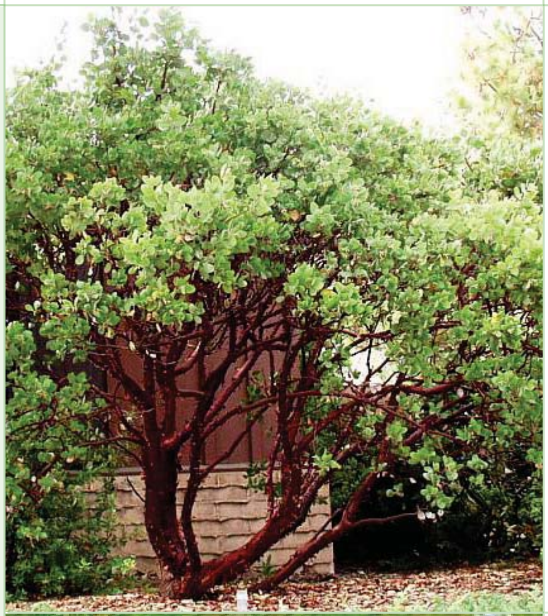
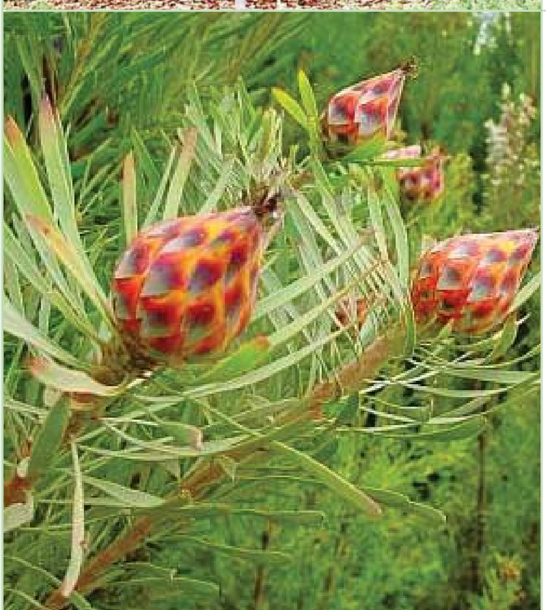
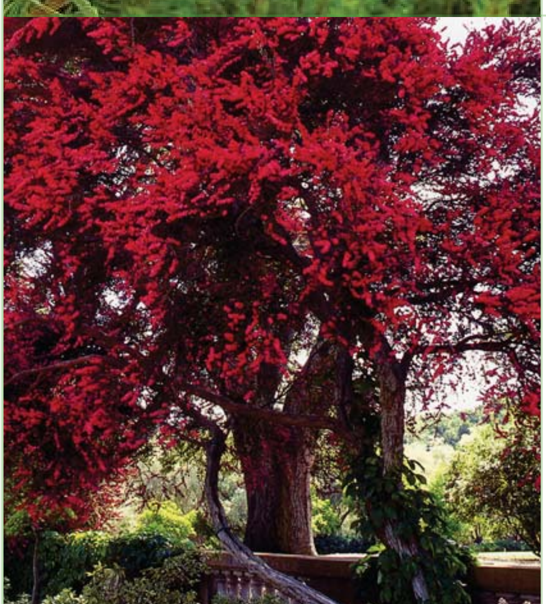
PRELIMINARY PLANT PALETTE

		NAME	CHARACTER
STREET TREES		**Italian Stone Pine** *Pinus pinea*	- Evergreen - Moderate growth rate - 40’ - 80’ tall - 40’ - 80’ wide - Deep green needles - Broad & flat topped - Very thick & full canopy - Very low water use
ENTRY PLANTINGS		**Olive Tree** *Olea europaea*	- Evergreen - Fast growing in youth, then slowing with age - 25’ - 30’ tall - 25’ - 30’ wide - Soft gray-green - Foliage with smooth gray trunks - Very low water use
		**Century Plant** *Agave americana*	- Evergreen - Moderate growth rate - 8’ tall - 12’ wide - Hooked spines along margins - 15’ - 40’ flower stalk after 10+ years - Very low water use

		NAME	CHARACTER
TREES ON SLOPE		**Sydney Golden Wattle** *Acacia longifolia*	- Evergreen - Fast growing - 10’ - 25’ tall - 9’ - 15’ wide - Bright green lance-shaped leaves 3’-6” long - Scented golden yellow flower spike in late winter + early spring - Low water use
		**Coast Live Oak** *Quercus agrifolia*	- Evergreen - Slow growth - 20’ - 70’ tall - 20’ - 70’ wide - Stiff leathery green leaves with sharp teeth - 3/4” - 1 1/2” acorns appear in fall - Smooth gray bark becomes deeply fissure with age - Very low water use
UNDERSTORY PLANTING ON SLOPE		**Toyon** *Heteromelese arbutifolia*	- Evergreen - 8’ - 15’ tall - 25’ wide - 2” - 4” dark green leathery leaves - Edged with bristled pointed teeth - Small white flowers lead to bright red berries - Low water use
		**Matilja Poppy** *Romneya coulteri*	- Perennial - 6’ - 8’ tall - Dies back in late summer - Thick stems with irregular grey-green leaves appear in late winter - 9” white flowers with yellow centers - Very low water use
		**Deer Grass** *Muhlenbergia rigens*	- Evergreen grass - 4’ tall - 4’ wide - Bright green leaves form a dense, tight clump - Low water use

		NAME	CHARACTER
SCREEN PLANTING		**Italian Stone Pine** *Pinus pinea*	- Evergreen - Moderate growth rate - 40’ - 80’ tall - 40’ - 80’ wide - Deep green needles - Broad & flat topped - Very thick & full canopy - Very low water use
		**Olive Tree** *Olea europaea*	- Evergreen - Fast growing in youth, then slowing with age - 25’ - 30’ tall - 25’ - 30’ wide - Soft gray-green - Foliage with smooth gray trunks - Very low water use
		**Hollywood Juniper** *Juniperus chinensus* ‘Torulosa’	- Evergreen - 15’ tall - 10’ wide - Irregular + upright with twisted appearance - Rich green foliage - Low water use
		**White Oleander** *Nerium oleander*	- Evergreen - Moderate to fast growth - 20’ tall - 12’ wide - Narrow dark green leaves - White flowers in late spring to fall
		**Silk Tassel** *Garrya elliptica*	- Evergreen - 5’-10’ tall - 8’-10’ wide - Dark green leathery curled leaves with wavy edges - Long hanging flower catkins extend 3”-8” long - Very low water use
		**Toyon** *Heteromelese arbutifolia*	- Evergreen - 8’ - 15’ tall - 25’ wide - 2” - 4” dark green leathery leaves - Edged with bristled pointed teeth - Small white flowers lead to bright red berries - Low water use

OPEN SPACE PLANTING

	NAME	CHARACTER
	**Manzanita** *Arctostaphylos*	- Evergreen - Moderate growth rate - 8' tall - 6' wide - Tree-like shrubs - White or pink flowers in late winter to early spring - Cinnamon colored bark on twisted trunks - Low water use
	**Conebush** *Leucadendron sp.*	- Evergreen - Moderate growth rate - 8' - 10' tall - 8' wide - Leaf color varies with species from deep green to gray green to red-tinged - Flowers vary from silvery green to pink to yello - Moderate water use
	**New Zealand Tea Tree** *Leptospermum sp.*	- Evergreen - 6' - 10' tall - 6' wide - Small green leaves on fine textured limbs - Abundant tiny 1/2" flowers vary from deep pink to white in spring - Low water use

APPENDIX L

HYDROLOGY STUDY

Hydrology Study

Ascension Heights Subdivision
Ascension Drive at Bel Aire Road
San Mateo, California
(Unincorporated)

Prepared for San Mateo Real Estate & Construction

March 9, 2010
Rev. 1 11-8-2011
Rev. 2 6-20-2012
Rev. 3 11-3-2014
Lea & Braze Job No. 2010135

REGISTERED PROFESSIONAL ENGINEER
JAMES TOBY
No. 63127
Exp. 06-30-16
CIVIL
STATE OF CALIFORNIA
ORIGINAL SIGNATURES IN BLUE INK

June 20, 2012

Dennis Thomas
San Mateo Real Estate & Construction
1777 Borel Place
San Mateo, CA 94402

Subject: **Hydrology Study**
Ascension Heights Subdivision, San Mateo (Unincorporated)
Lea & Braze Job No: 2010135

Dear Dennis:

It is my pleasure to present to you the following hydrology study for an on-site retention system. This study is a detailed analysis of the proposed storm drain retention system that is planned for this project. This report presents our analysis and conclusions on the design of a retention system capable of containing and treating on-site post-development flows and releasing flows at pre-development rates.

The intent of this study is to demonstrate the adequacy of the system to fulfill San Mateo County's C.3 storm water quality requirements for on-site retention and treatment. The purpose of this system is to release the flows into the County storm drain system at or below pre-development rates. The treatment portion of the C.3 requirements will be fulfilled with CDS stormwater hydrodynamic separators and grassy swales. Please feel free to call at any time should you have any questions.

Very truly yours,

Jim Toby, P.E., P.L.S.
Project Manager

Table of Contents

INTRODUCTION

Ascension Heights Subdivision is a new 19 lot subdivision on a moderately steep slope in San Mateo (Unincorporated). The project is surrounded on two sides by developed streets with curb, gutter and sidewalk and is serviced by a traditional storm drain system. The current storm drain system appears to have been installed in the late 1950's when the current subdivision was constructed. The system starts in various locations throughout the neighborhood. All systems then drain into the main line, which follows Ascension Drive from the intersection of Ascension Drive and Bel Aire Road and then flows downhill to a drop inlet at the intersection of Ascension Drive and Polhemus Road. At this point the runoff flows across Polhemus Road and outfalls into Polhemus Creek.

The proposed project includes new private streets with grades up to 20%. Runoff is generally directed to an on-site storm drain system. Each individual lot of this project will have its own bio-retention stormwater treatment area and stormwater retention system which will treat and retain runoff from each lot. four additional bio-retention stormwater treatment areas are proposed to treat runoff from the new streets.

DRAINAGE NARRATIVE

The project has been designed with several permanent "Best Management Practice" (BMP's) for long term treatment of the runoff. Each lot will have its own individual bio-retention stormwater treatment area meeting the requirements of provision C.3, and its own individual stormwater retention system. Runoff from the new roadways will be similarly treated with the use of bio-retention areas.

The premise for the design is grade the site to allow runoff from the lots to flow through the bio-retention treatment area prior to entering the stormwater retention system. Once the runoff leaves the individual retention system, it then enters the subdivision main storm drain system and will be directed to the existing off-site storm drain system.

The sizing of the treatment areas and retention systems was determined by assuming that each lot will be built out to the full extent of the zoning code which states that the maximum hardscape area is 40% of each lot.

C.3 bio-retention sizing for each lot, and the new streets, is calculated using the uniform intensity approach as provided for in the San Mateo Countywide Water Pollution Prevention Program C.3 Stormwater Technical Guidance Handbook by providing a treatment area with no less than 4% of the impervious area to be treated by the bio-retention area.

. The stormwater retention pipe size and length for each lot are specified in the enclosed calculations. The pipe size and length are specified in the enclosed calculations. Lots 1-10, and 12-19 will have 3-24" diameter x 30' long retention pipes. Lot 11 will have 3-24" diameter x 40' long retention pipes. This system will retain stormwater runoff in each lot prior to entering the storm drain system. Then, the runoff will be collected in a common main and conveyed to the adjacent existing storm drain system in either Ascension Drive or Bel Aire Road.

Please note that the bio-retention stormwater treatment areas and retention systems need to have a regular maintenance schedule to perform properly. It is anticipated that any CC&Rs will require a maintenance agreement. It is recommended that a maintenance agreement be made part of any conditions of approval for the tentative map.

The goal of this design is to treat and retain the runoff from the site and release it at predevelopment rates. Our design philosophy is to only have retention on individual lots and not retain the roadway runoff. (We will however treat the roadway runoff in bio-retention areas before it is released off the site.) Therefore, each lot retention system has been oversized in order to compensate for the runoff from the roadway. The total predevelopment runoff from the entire project was 12.42 cfs. The total post development runoff including the roadway was determined to be 16.81 cfs. The net flow rate difference, which is also the amount of runoff that we are required to retain on-site, is 4.39 cfs. The proposed system of oversized retention pipes on each lot can retain a maximum of 4.48 cfs total. Therefore, the system can retain and meter release the flows below the predevelopment rate of 12.42 cfs. The calculations within this report demonstrate that each lot has the ability to retain enough runoff such that collectively, all 19 lots aid in releasing runoff at a predevelopment rate to compensate for all new impervious surfaces resulting from the new private streets. Retention is thereby provided for the runoff resulting from the streets.

NPDES C.3 COMPLIANCE

Two changes occur over the course of this development. First, natural pervious ground cover is converted to impervious areas such as rooftops and roads. Natural soil acts as an absorbent for rainwater and also removes pollutants through purification and filtration. Impervious areas can neither absorb rainwater nor remove pollutants. Due to this increase of impervious area, increase flows and volumes of stormwater will be released from the development which may adversely impact environmentally sensitive areas. Secondly, this development can create new pollution such as oils and trash from the roadway. As rain becomes runoff, it will carry the untreated pollutants over the impervious area to a storm drain system which leads to a body of water. As a result, the goal of the NPDES Provision C.3 is to release the stormwater at pre-development rates and treat the runoff prior to it leaving the site.

In the Ascension Heights Subdivision, great care has been taken to comply with the NPDES Provision C.3. For design and calculation purposes only, each residential lot is assumed to have the maximum of 40% impervious surface area, which leaves 60% of each lot as pervious ground for filtration purposes. Each residential lot will treat runoff from that lot using bio-retention, and store and store the runoff in a series of large diameter retention pipes to meter the stormwater at pre-development rates. Each retention system will be reevaluated for adequacy at the time of construction.

Thus, we are proposing to release runoff at pre-development rates and treat all runoff prior to it leaving the project and entering the County storm drain system.

ASSUMPTIONS AND METHODOLOGY

This section includes data used in calculating the pre-development and post-development runoff volumes, and in calculating the capacity of the existing storm drainage system.

References:

- Topographic Survey by Lea & Braze Engineering, Inc.
- San Mateo County Rainfall Runoff Data Map
- HydroCAD 9.10 UNIT HYDROGRAPH Definitions Copyright (c) 2010 Applied Microcomputer Systems

Project Information:

Project Location:	Ascension Drive at Bel Aire Road San Mateo, California (Unincorporated) APN: 041-111-020, 130, 160, 270, 280, 320, 360

Hydrology Information:

Storm Interval:	10 Year Return, 10 min. rainfall intensity
Rainfall Intensity (I):	2.21 in/hour (Per San Mateo County Rainfall Runoff Data Map) Initial Intensity (10 Minutes)

In performing the hydrological calculations, the Rational Method (Q=C*I*A) was used, as specified in the "San Mateo County, Guidelines for Drainage Review". A 10-year storm event interval was used in the calculations. Per instructions in the guideline and confirmation with Pete Bentley, engineer with the County, the project is outside of any floodplain.

The size, slope, material type and location of the existing system was done in combination with a field survey which located and verified "As-built" conditions of the system and the original improvement plans[1] for the system.

The method used for determining "C" values for areas that include the large areas of undeveloped land that comprise the parcel was determined by a weighted average method of calculating the percentage of each type of surface, whether residential, asphalt streets or open space. This was computed automatically for each of the areas in HydroCAD.

The Time of Concentration (Tc) was determined by assuming an initial Tc at the uppermost inlet of ten minutes. Starting with the initial Tc and adding the pipe flow time, we then computed the actual Tc at each structure. Since multiple storm drain systems connected to the main system, the overall area and the longest Tc value was used for each structure. Thus some structures jump dramatically in time from the upstream inlet because the runoff took longer to get to this inlet via the branch system that connected to it.

The values for the frictional coefficient, "n" were determined by both manufacturers specifications for the new Corrugated HDPE smooth wall pipe and a good condition for the existing reinforced concrete pipe.

Pipe	"n"
HANCOR Hi-Q® PIPE[2]	0.011
Reinforced Concrete Pipe (good condition)[3]	0.013

Hydraulic information was also omitted in this report. Since the slope of the majority of the pipes is in excess of 10% and the new and existing systems are located in a very steep environment, there is negligible chance of having any hydraulic problems. In most instances the hydraulic grade line will simply be the actual water level of the runoff in the pipe section itself. Pete Bentley, engineer for the County of San Mateo, agreed and said that the County would not require any hydraulic calculations.

RESULTS/RECOMMENDATIONS

[1] Improvement Plans – Enchanted Hills Unit No. 2, dated November 1959.
[2] HANCOR Hi-Q® PIPE SPECIFICATION, http://www.hancor.com/product/hiqspecs.html
[3] Drainage Manual, County of Santa Clara, Department of Public Works.

Detailed hydrology calculations for both the existing and proposed systems are shown in Exhibit “A”. The calculations take into account all the information shown in the references sheet, the assumptions and methodology section of this report and good engineering judgment.

EXISTING SYSTEM

The results of the calculations shown in Exhibit “A.1” show that the existing system is able to handle runoff with two pipe run exceptions. Pipe P-6 as shown on the existing hydrology base map is a 15” RCP sloped at 2%. This is primarily due to its flat slope. The outfall pipe, P-12 that crosses Polhemus Road is also over capacity. This is a 30” RCP sloped at 1.3%. This too has capacity problems due to its flat slope. All other pipes exceed the capacity requirements.

PROPOSED SYSTEM

The proposed system is specifically designed to handle a 10 year event. As the calculations shown on “Exhibit A.2” show both Line “N” and Line “S” have been designed to fully handle any anticipated runoff caused by a 10 year event.

HOW THE PROPOSED SYSTEM WILL IMPACT THE EXISTING SYSTEM

The proposed design will have little impact on the existing system. Since the proposed system has a great deal of capacity to it and a long time of concentration, the runoff will be contained in the pipe for some time before it has a chance to severely impact the existing system. The actual system flow is increased with the additional impervious surfaces, however the majority of the pipes in the system are able to handle the additional runoff with no adverse effects. As with the existing system, however, the added runoff has an adverse effect on the same two pipes that posed problems on the existing system.

Should the rainfall from a severe storm exceed that of a 10-year event, or the lines or inlets get clogged, the water does have an overland release via the public streets. Due to the extreme slope of the existing streets, any runoff that is not intercepted by the existing storm drain system will simply drain down Ascension and flow over Polhemus Road and into the creek. Thus it is anticipated that none of the existing houses or neighboring hillsides in the neighborhood would be affected by any flooding as a result of additional runoff imposed by this development. The proposed on-site system does have some low spots to it in the new public street that would prevent overland release via the streets. In this case the pipes have been intentionally oversized to handle as much capacity as possible, even in the event of some blockage.

The analysis incorporated in this report has shown that the existing system can handle the anticipated additional runoff from the proposed development, except for two specific pipes. It is recommended that these pipes be redesigned and upsized to increase their capacity, both for the existing condition and the proposed development.

In the case of pipe P-C7, in which a 15" RCP flowing at 2.0% is crossing Ascension Drive at Enchanted Way, we recommend a new 21" RCP replace the existing pipe. Since the upstream and downstream pipe are of adequate size, it is more reasonable to simply replace the pipe at the same invert locations as is currently in place.

In the case of pipe P-C13, in which a 30" RCP flows at 1.3%, it is feasible to both increase the size of the pipe as well as increase the slope. The upstream invert of this outgoing pipe is several feet lower than the incoming pipe invert, thus the invert can be raised and not affect the upstream pipe. We recommend replacing the existing 30" RCP with a 36" RCP sloped at 2%.

In both cases, the recommendations will allow the entire system to handle the design storm event with a factor of safety built into it. The calculations for the above recommendations are shown in Exhibit A.2.

Using HydroCAD software, we were able to preliminarily size retention systems for each of the proposed lots. The retention systems were oversized to account for the extra runoff contributed by the new roadway, since logistically retention specifically for the roadway would very difficult to design and locate on the steep site. The designed retention systems achieve the desired goal of keeping the post-construction runoff rates at or below the pre-construction runoff rates.

<u>Lots 1, 6 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.20 cfs. The post-construction flow is 0.37 cfs. The net increase due to the construction is 0.17 cfs. The proposed detention system retains and meters release of 0.11 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24" diameter x 30' long solid wall HDPE pipes. The primary outlet pipe is a 2" PVC with an 8" secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lots 2, 7 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.18 cfs. The post-construction flow is 0.33 cfs. The net increase due to the construction is 0.15 cfs. The proposed detention system retains and meters release of 0.10 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24" diameter x 30' long solid wall HDPE pipes. The primary outlet pipe is a 2" PVC with an 8" secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lots 3-5, 16-19 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.15 cfs. The post-construction flow is 0.28 cfs. The net increase due to the construction is 0.13 cfs. The proposed detention system retains and meters release of 0.09 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24" diameter x 30' long solid wall HDPE pipes. The primary outlet pipe is a 2" PVC with an 8" secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lots 8, 9, 13, 14 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.19 cfs. The post-construction flow is 0.35 cfs. The net increase due to the construction is 0.16 cfs. The proposed detention system retains and meters release of 0.10 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24" diameter x 30' long solid wall HDPE pipes. The primary outlet pipe is a 2" PVC with an 8" secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lot 10 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.20 cfs. The post-construction flow is 0.36 cfs. The net increase due to the construction is 0.16 cfs. The proposed detention system retains and meters release of 0.10 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24” diameter x 30’ long solid wall HDPE pipes. The primary outlet pipe is a 2” PVC with an 8” secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lot 11 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.28 cfs. The post-construction flow is 0.52 cfs. The net increase due to the construction is 0.24 cfs. The proposed detention system retains and meters release of 0.12 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24” diameter x 40’ long solid wall HDPE pipes. The primary outlet pipe is a 2” PVC with an 8” secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lot 12 – Retention System:</u>

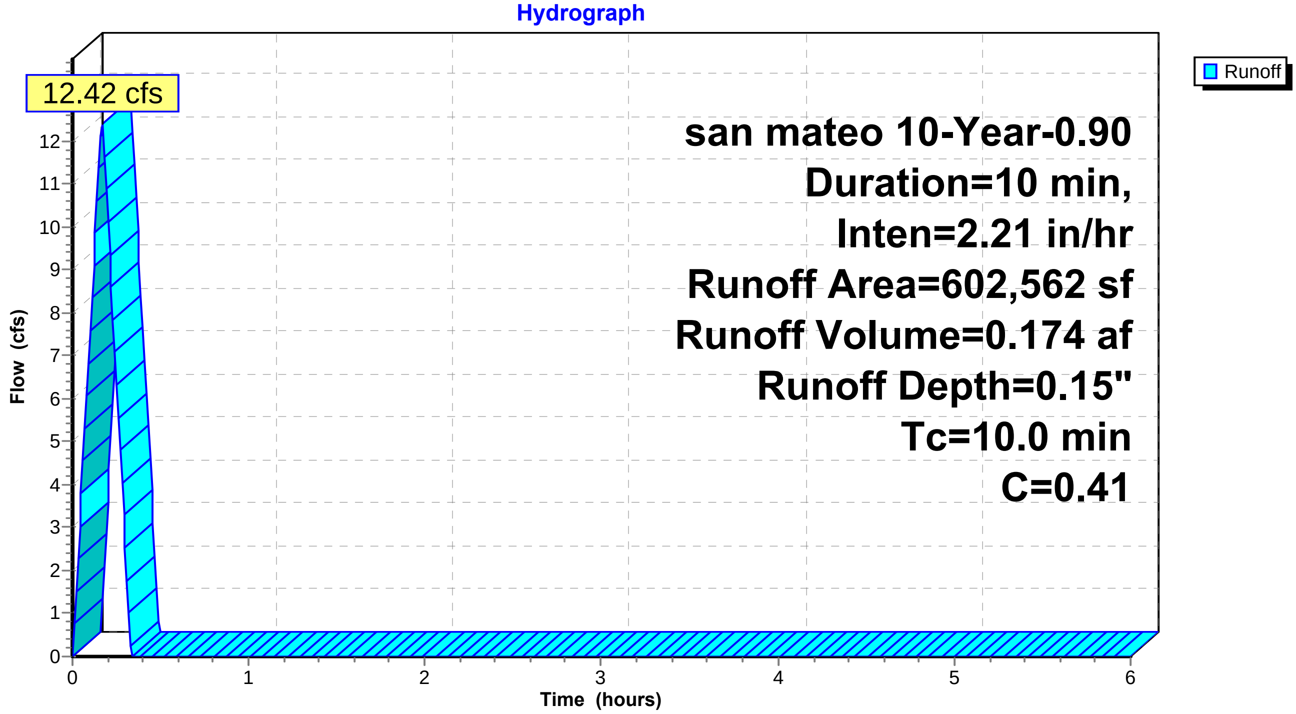
Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.22 cfs. The post-construction flow is 0.40 cfs. The net increase due to the construction is 0.18 cfs. The proposed detention system retains and meters release 0.11 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24” diameter x 30’ long solid wall HDPE pipes. The primary outlet pipe is a 2” PVC with an 8” secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

<u>Lot 15 – Retention System:</u>

Based on our calculations assuming a 40% impervious surface build out, pre-construction flow is 0.17 cfs. The post-construction flow is 0.32 cfs. The net increase due to the construction is 0.15 cfs. The proposed detention system retains and meters release of 0.10 cfs for a 10 year storm. This proposed storm study is for a 10 minute time of concentration. The proposed retention system consists of (3) 24” diameter x 30’ long solid wall HDPE pipes. The primary outlet pipe is a 2” PVC with an 8” secondary emergency overflow pipe. The secondary outlet will not be used for drainage but would be utilized only in an emergency situation. The system slows down the incoming flow and meters the outflow over a 1 (or more) hour time period. This amount of runoff will be held in the retention pipes.

Appendix A

Subcatchment 1S: EXISTING SITE TOTAL PRE

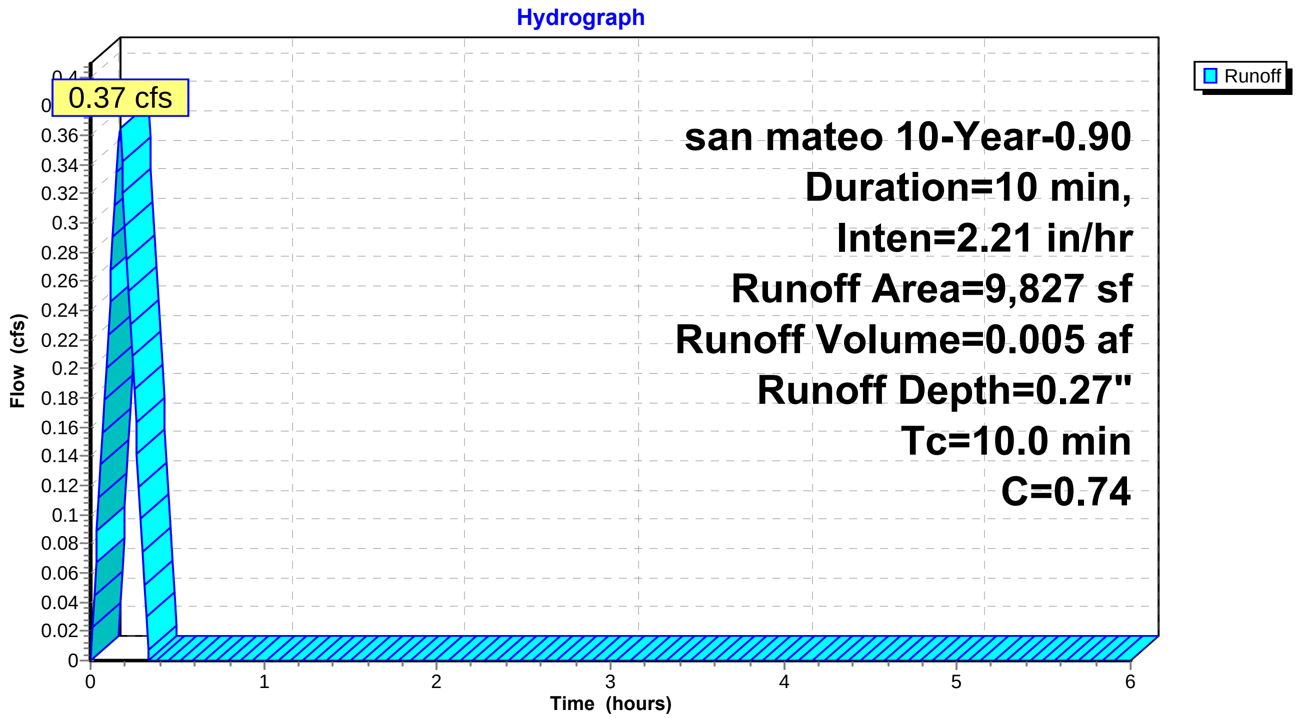


Hydrograph for Subcatchment 1S: EXISTING SITE TOTAL PRE

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	3.79	2.70	0.00	5.35	0.00
0.10	7.58	2.75	0.00	5.40	0.00
0.15	**11.37**	2.80	0.00	5.45	0.00
0.20	**10.11**	2.85	0.00	5.50	0.00
0.25	6.32	2.90	0.00	5.55	0.00
0.30	2.53	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

Appendix B

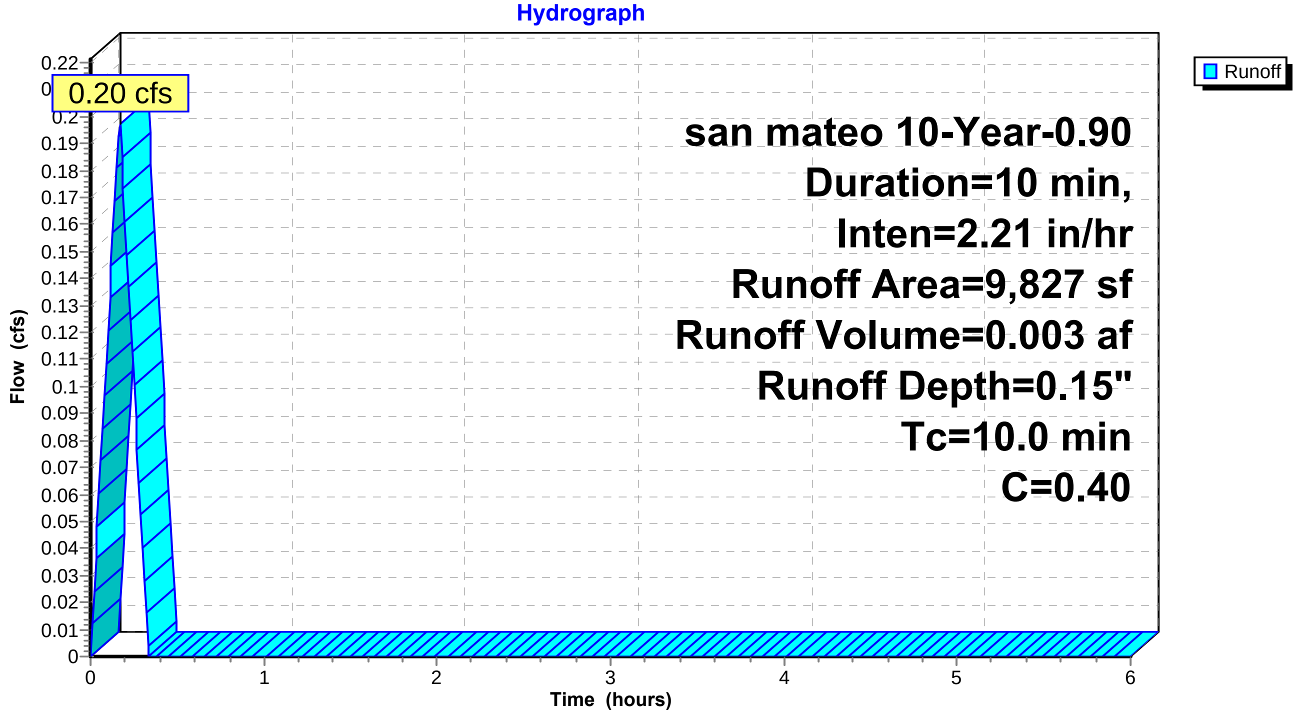
Subcatchment 1S: Lot 1 Post



Hydrograph for Subcatchment 1S: Lot 1 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.11	2.70	0.00	5.35	0.00
0.10	0.22	2.75	0.00	5.40	0.00
0.15	**0.33**	2.80	0.00	5.45	0.00
0.20	**0.30**	2.85	0.00	5.50	0.00
0.25	0.19	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

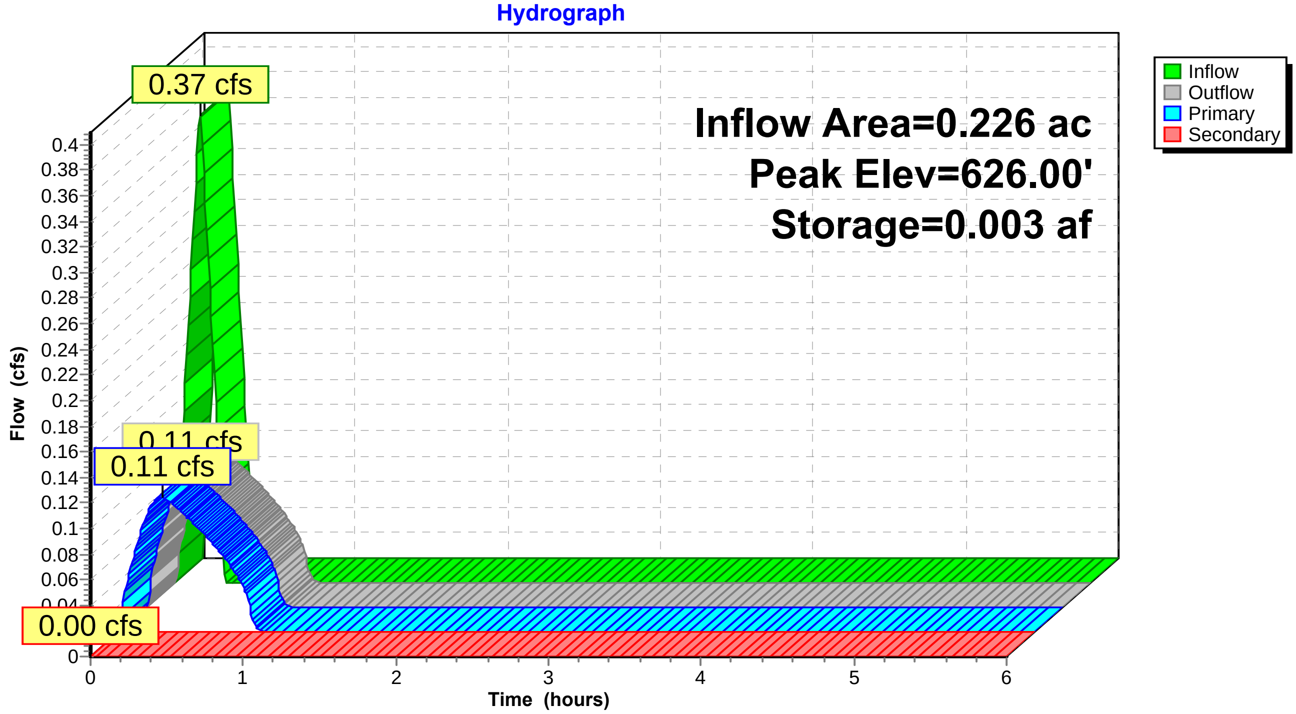
Subcatchment 6S: Lot 1 Pre



Hydrograph for Subcatchment 6S: Lot 1 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.12	2.75	0.00	5.40	0.00
0.15	**0.18**	2.80	0.00	5.45	0.00
0.20	**0.16**	2.85	0.00	5.50	0.00
0.25	0.10	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

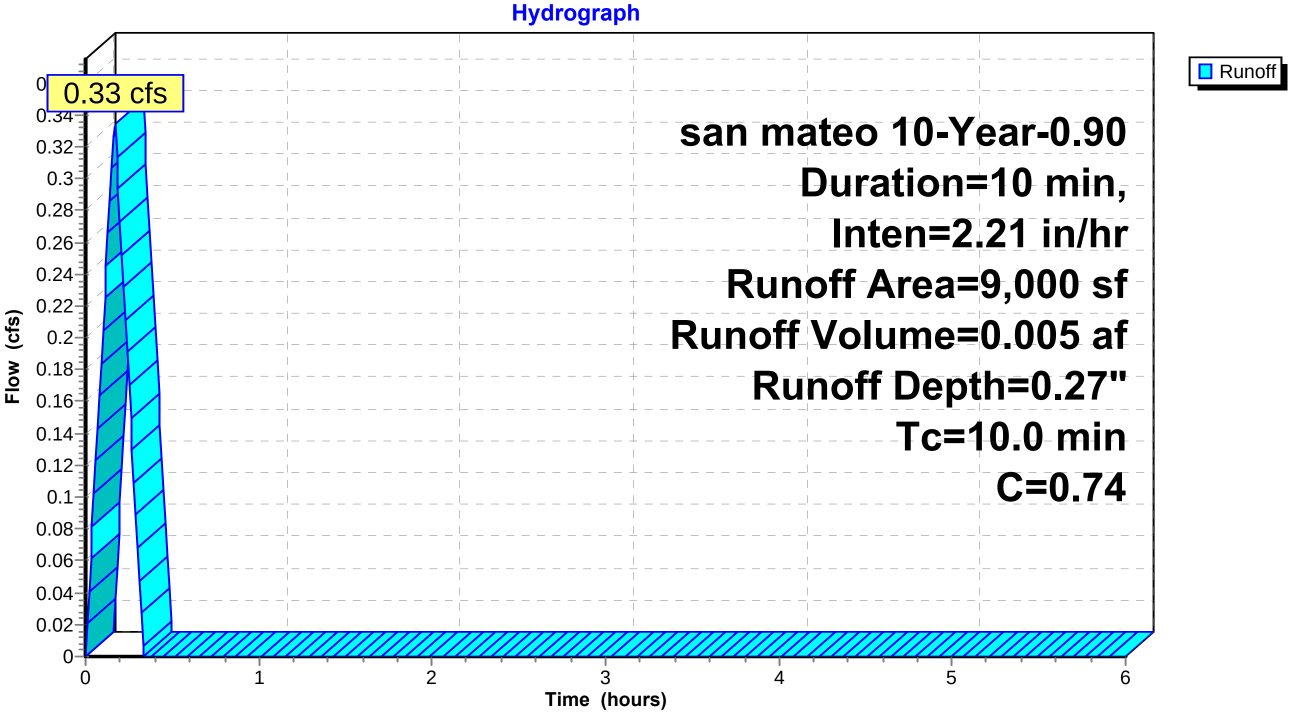
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.30**	**0.003**	**625.83**	**0.10**	**0.10**	0.00
0.40	0.00	**0.003**	**625.82**	**0.10**	**0.10**	0.00
0.60	0.00	0.001	625.46	0.07	0.07	0.00
0.80	0.00	0.000	625.14	0.04	0.04	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

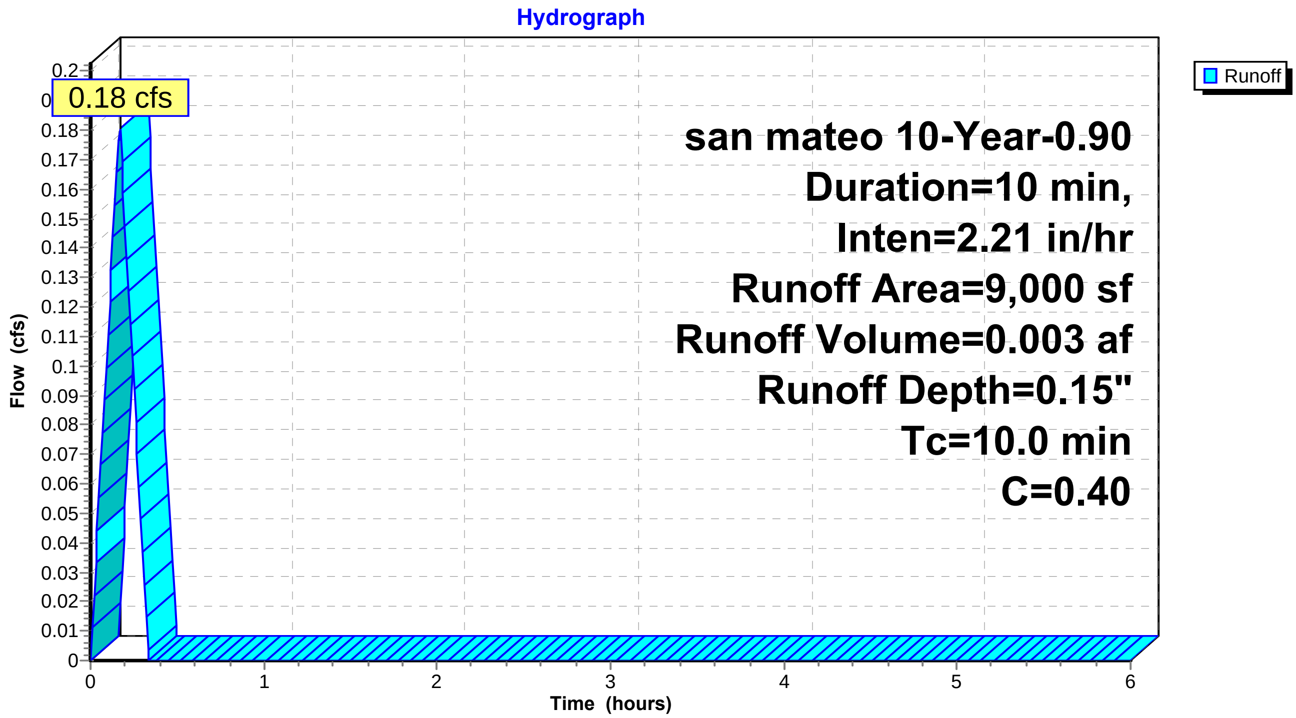
Subcatchment 1S: Lots 2 Post



Hydrograph for Subcatchment 1S: Lots 2 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.10	2.70	0.00	5.35	0.00
0.10	0.20	2.75	0.00	5.40	0.00
0.15	**0.31**	2.80	0.00	5.45	0.00
0.20	**0.27**	2.85	0.00	5.50	0.00
0.25	0.17	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

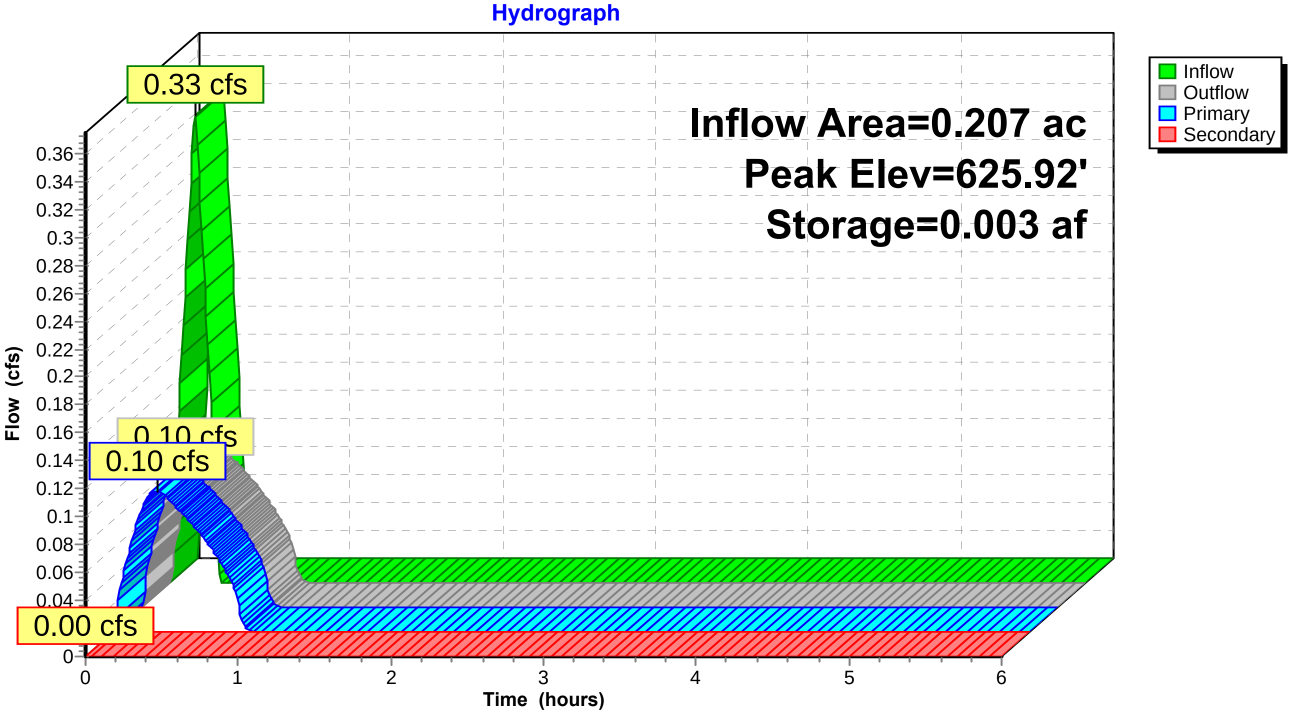
Subcatchment 6S: Lots 2 Pre



Hydrograph for Subcatchment 6S: Lots 2 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.11	2.75	0.00	5.40	0.00
0.15	**0.17**	2.80	0.00	5.45	0.00
0.20	**0.15**	2.85	0.00	5.50	0.00
0.25	0.09	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

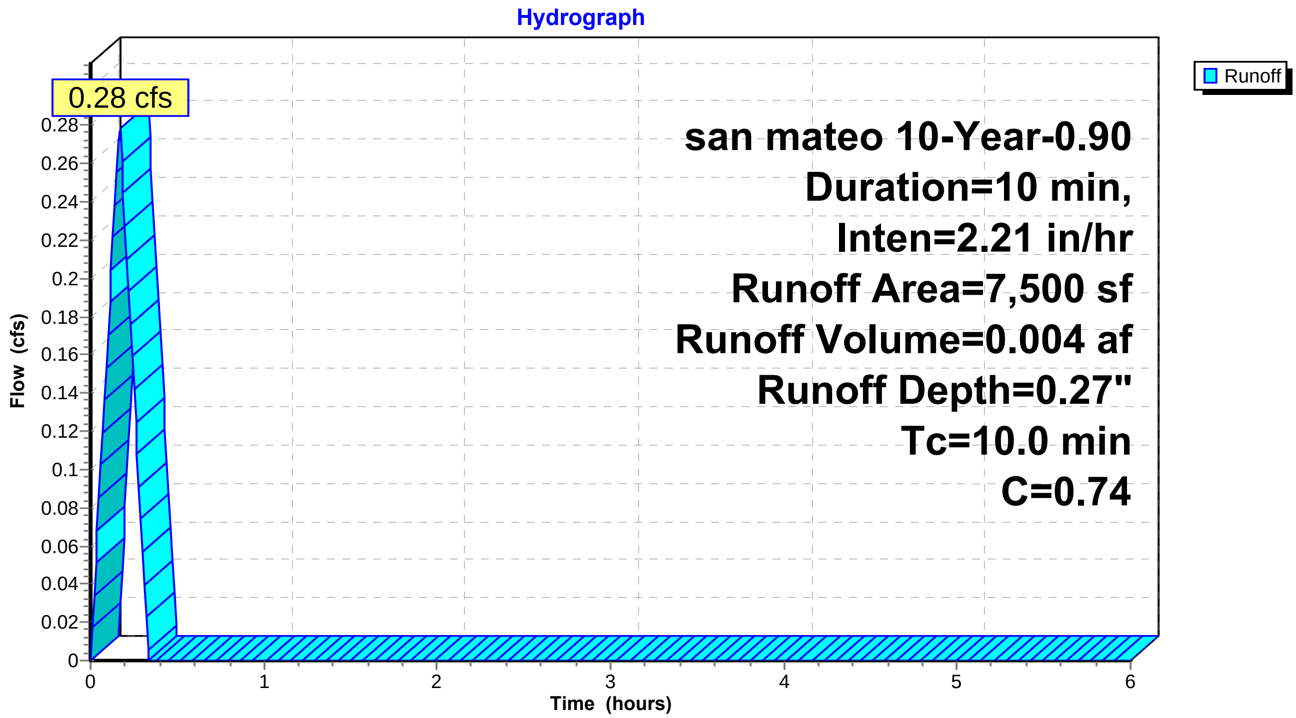
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.27**	**0.002**	**625.77**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.74**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.39	0.07	0.07	0.00
0.80	0.00	0.000	625.08	0.03	0.03	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

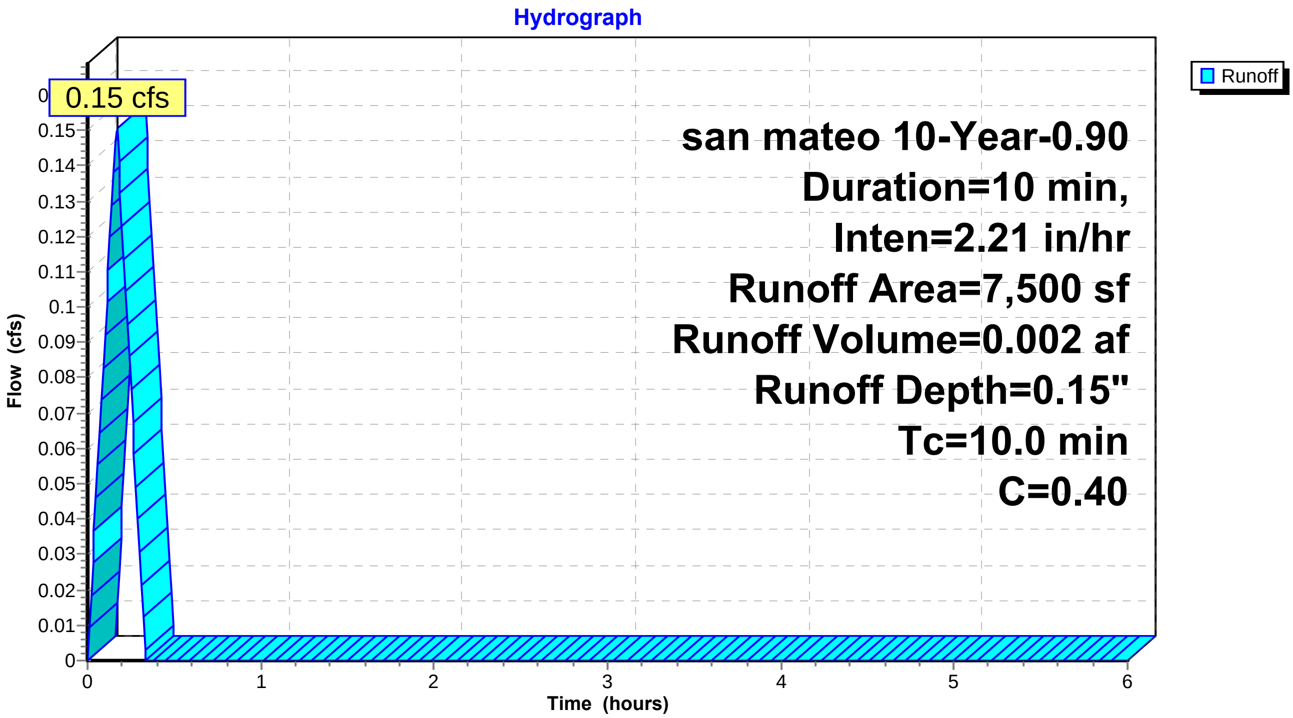
Subcatchment 1S: Lots 3,4,5,18 Post



Hydrograph for Subcatchment 1S: Lots 3,4,5,18 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.09	2.70	0.00	5.35	0.00
0.10	0.17	2.75	0.00	5.40	0.00
0.15	**0.26**	2.80	0.00	5.45	0.00
0.20	**0.23**	2.85	0.00	5.50	0.00
0.25	0.14	2.90	0.00	5.55	0.00
0.30	0.06	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

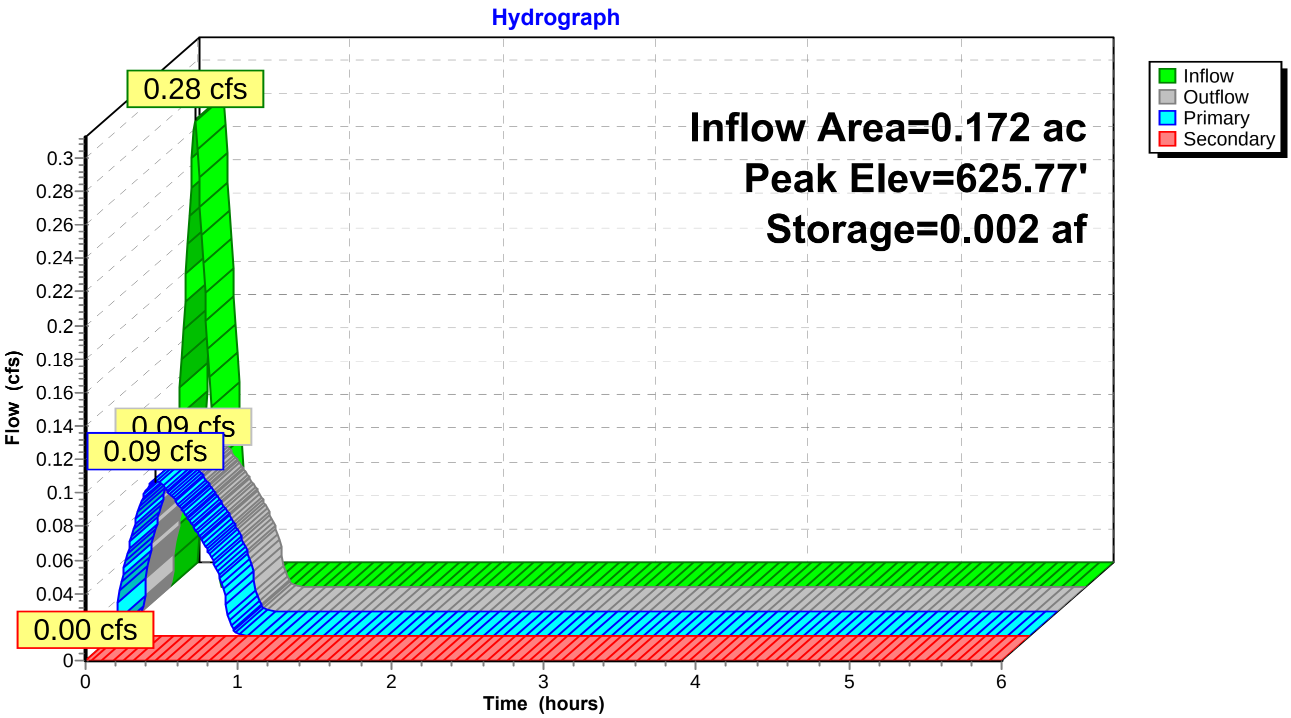
Subcatchment 6S: Lots 3,4,5,18 Pre



Hydrograph for Subcatchment 6S: Lots 3,4,5,18 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.09	2.75	0.00	5.40	0.00
0.15	**0.14**	2.80	0.00	5.45	0.00
0.20	**0.12**	2.85	0.00	5.50	0.00
0.25	0.08	2.90	0.00	5.55	0.00
0.30	0.03	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

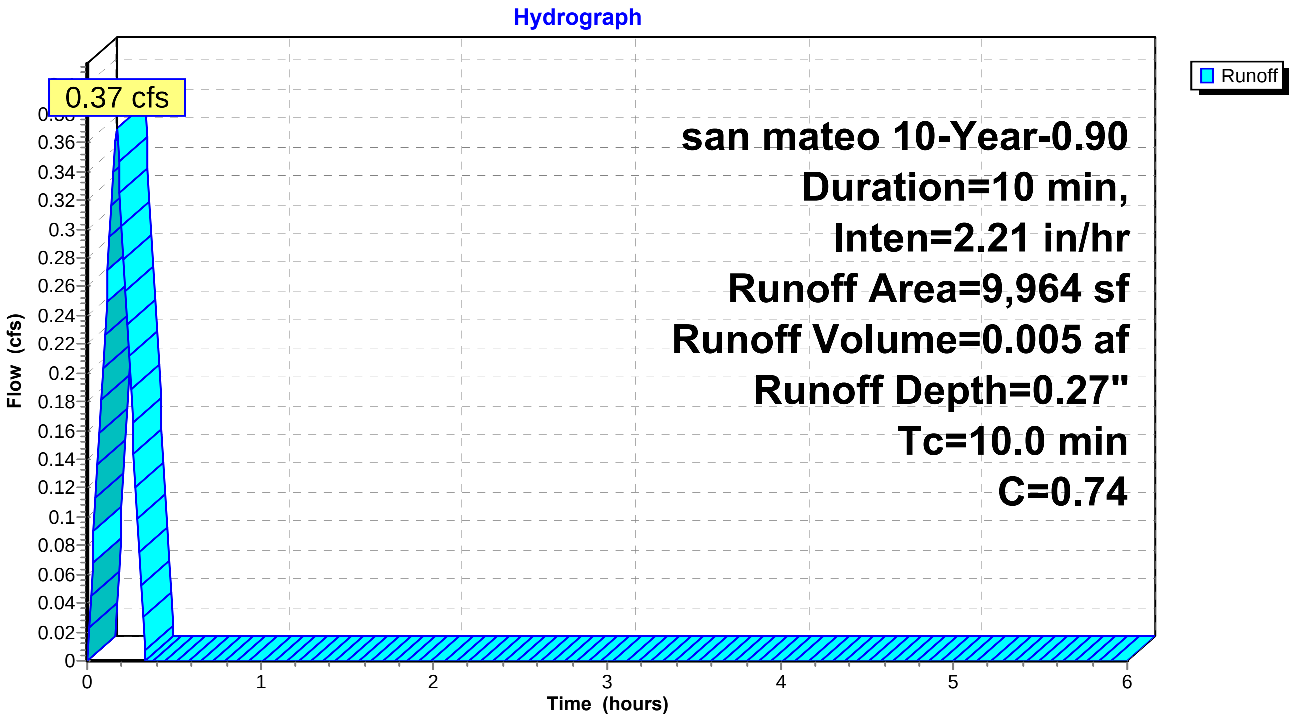
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.23**	**0.002**	**625.65**	**0.08**	**0.08**	0.00
0.40	0.00	**0.002**	**625.60**	**0.08**	**0.08**	0.00
0.60	0.00	0.001	625.26	0.05	0.05	0.00
0.80	0.00	0.000	625.01	0.00	0.00	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

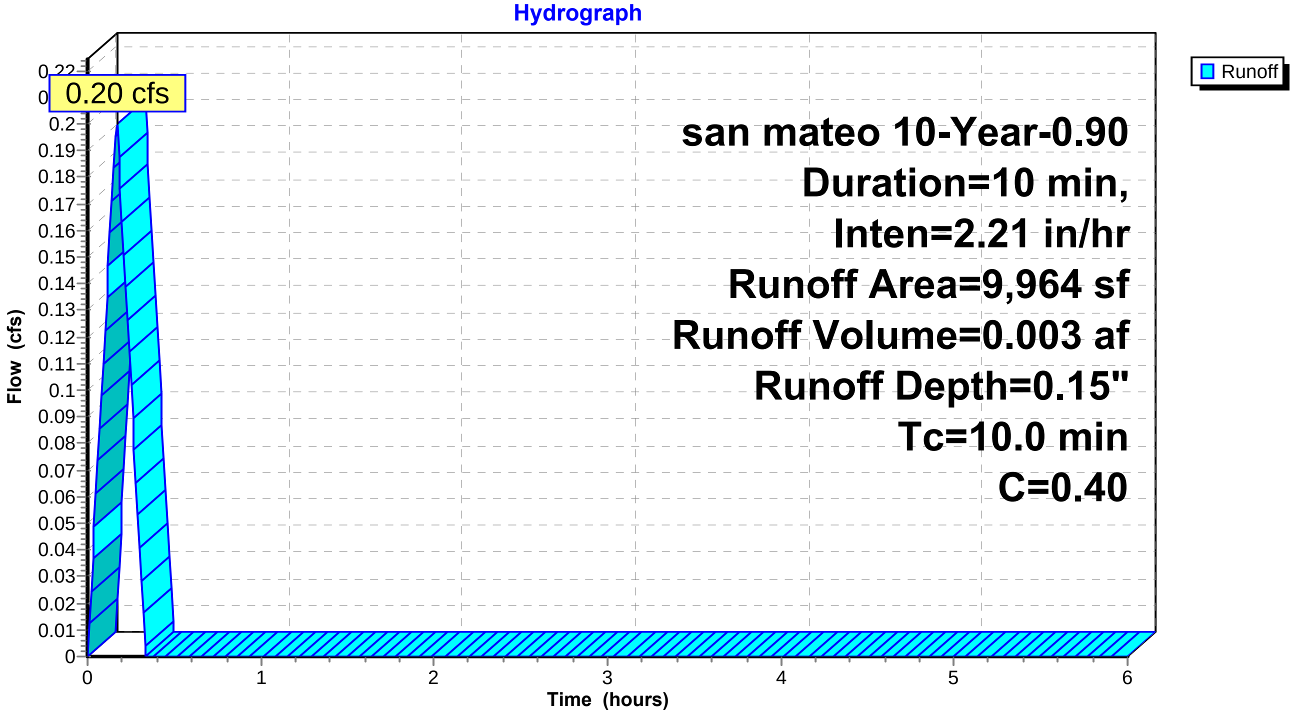
Subcatchment 1S: Lots 6 Post



Hydrograph for Subcatchment 1S: Lots 6 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.11	2.70	0.00	5.35	0.00
0.10	0.23	2.75	0.00	5.40	0.00
0.15	**0.34**	2.80	0.00	5.45	0.00
0.20	**0.30**	2.85	0.00	5.50	0.00
0.25	0.19	2.90	0.00	5.55	0.00
0.30	0.08	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

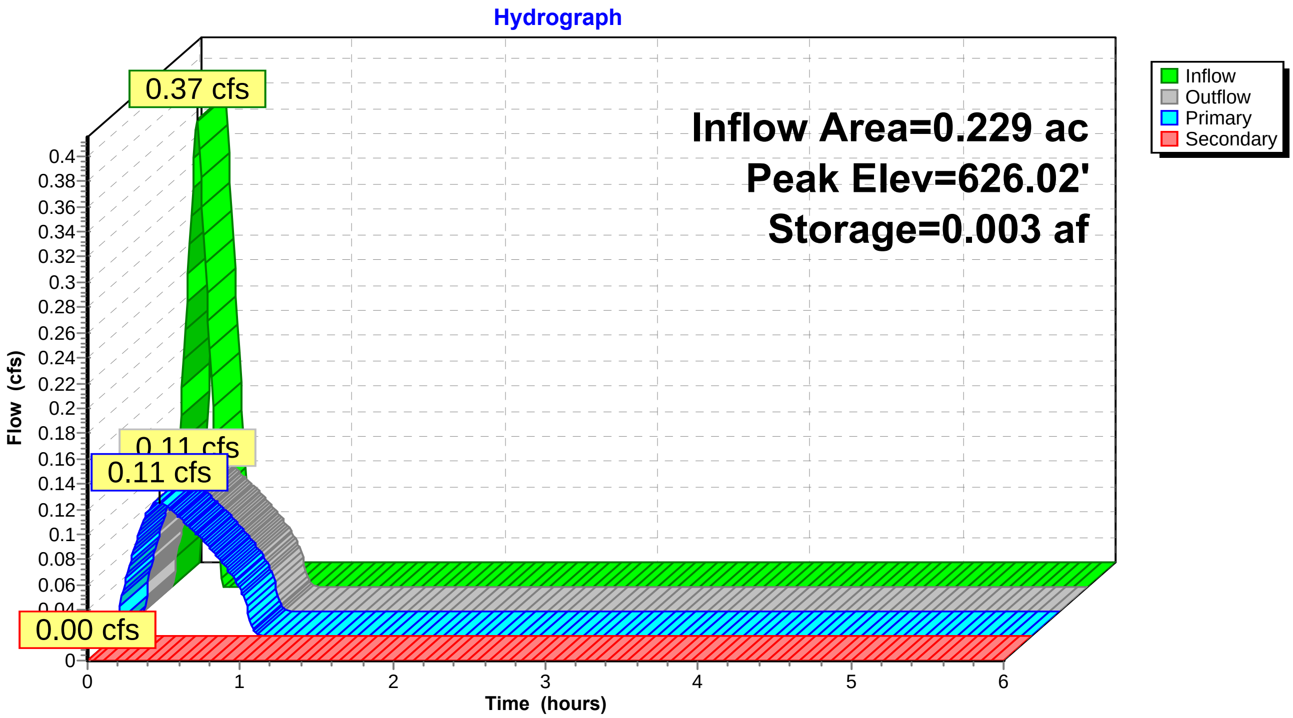
Subcatchment 6S: Lots 6 Pre



Hydrograph for Subcatchment 6S: Lots 6 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.12	2.75	0.00	5.40	0.00
0.15	**0.18**	2.80	0.00	5.45	0.00
0.20	**0.16**	2.85	0.00	5.50	0.00
0.25	0.10	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

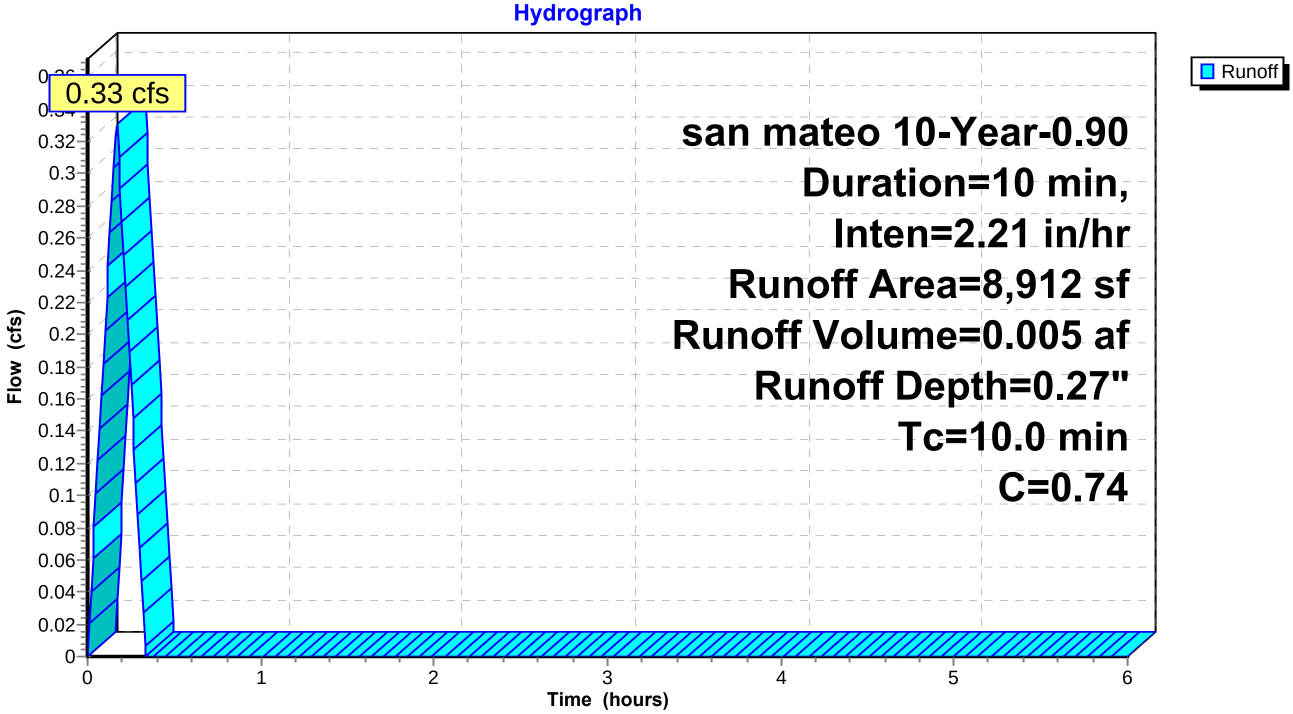
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.30**	**0.003**	**625.84**	**0.10**	**0.10**	0.00
0.40	0.00	**0.003**	**625.84**	**0.10**	**0.10**	0.00
0.60	0.00	0.001	625.47	0.07	0.07	0.00
0.80	0.00	0.000	625.15	0.04	0.04	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

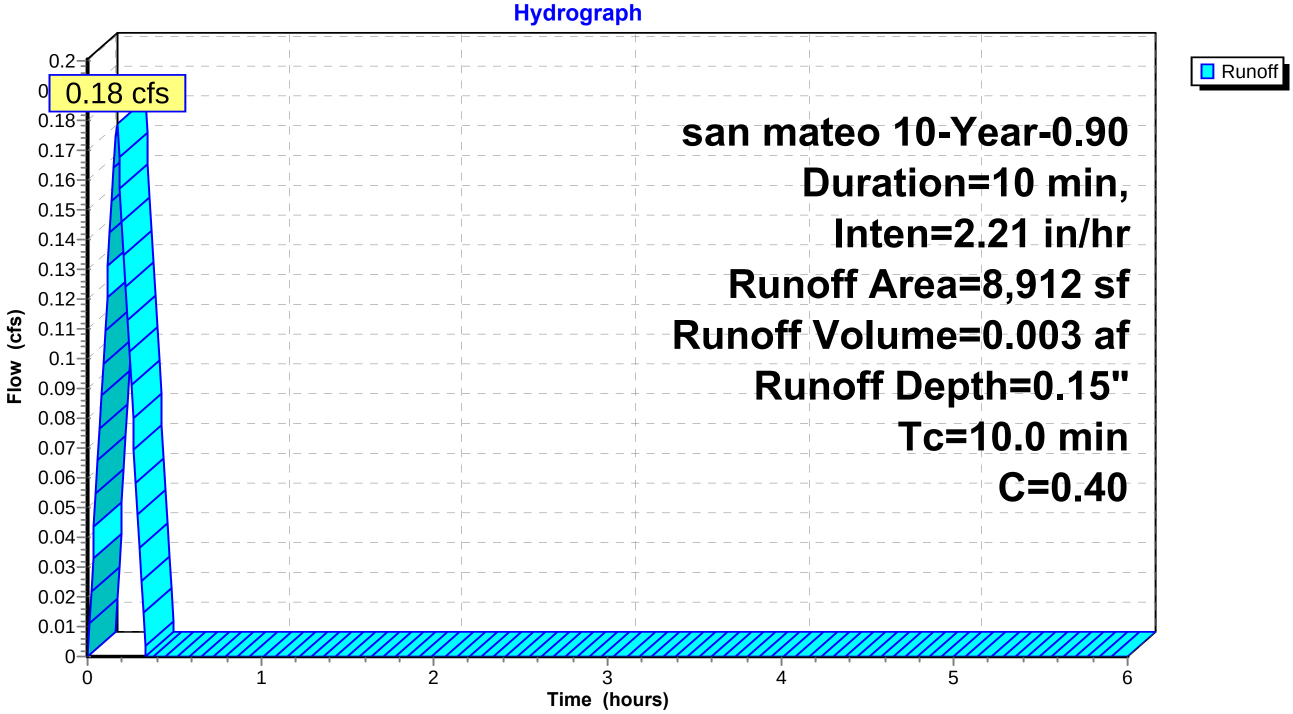
Subcatchment 1S: Lots 7 Post



Hydrograph for Subcatchment 1S: Lots 7 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.10	2.70	0.00	5.35	0.00
0.10	0.20	2.75	0.00	5.40	0.00
0.15	**0.30**	2.80	0.00	5.45	0.00
0.20	**0.27**	2.85	0.00	5.50	0.00
0.25	0.17	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

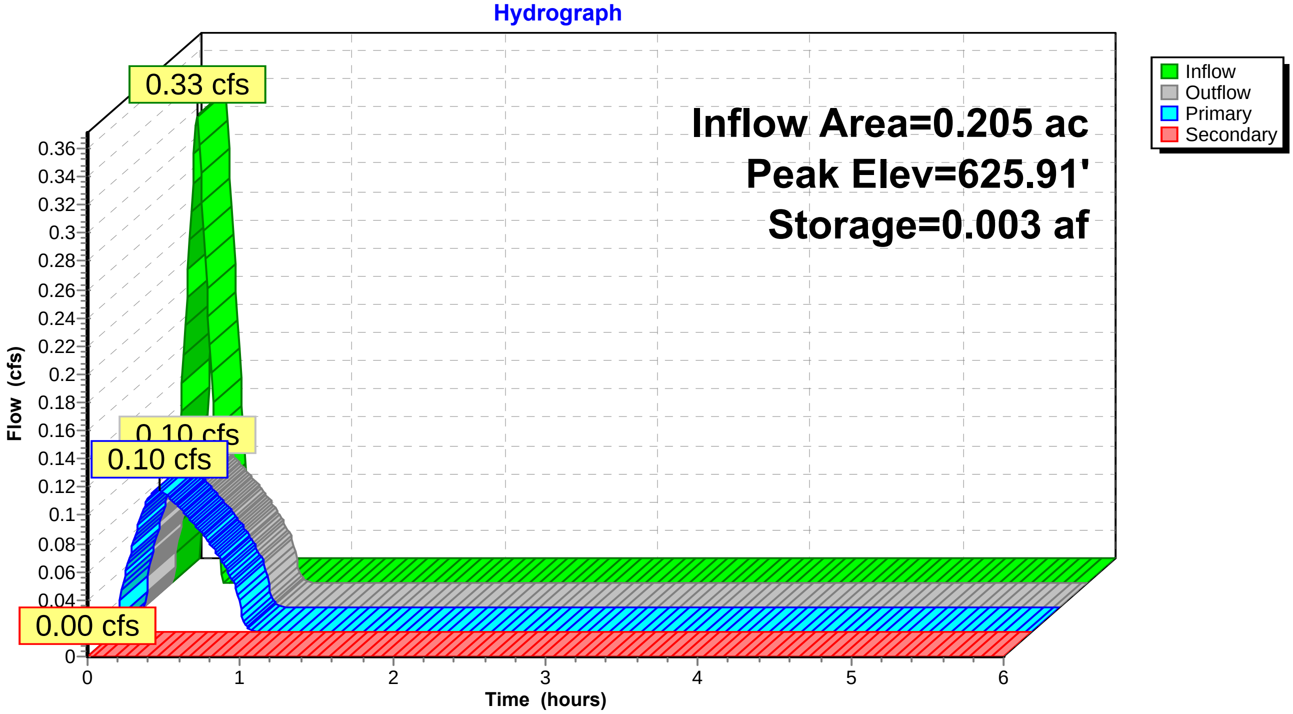
Subcatchment 6S: Lots 7 Pre



Hydrograph for Subcatchment 6S: Lots 7 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.11	2.75	0.00	5.40	0.00
0.15	**0.16**	2.80	0.00	5.45	0.00
0.20	**0.15**	2.85	0.00	5.50	0.00
0.25	0.09	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

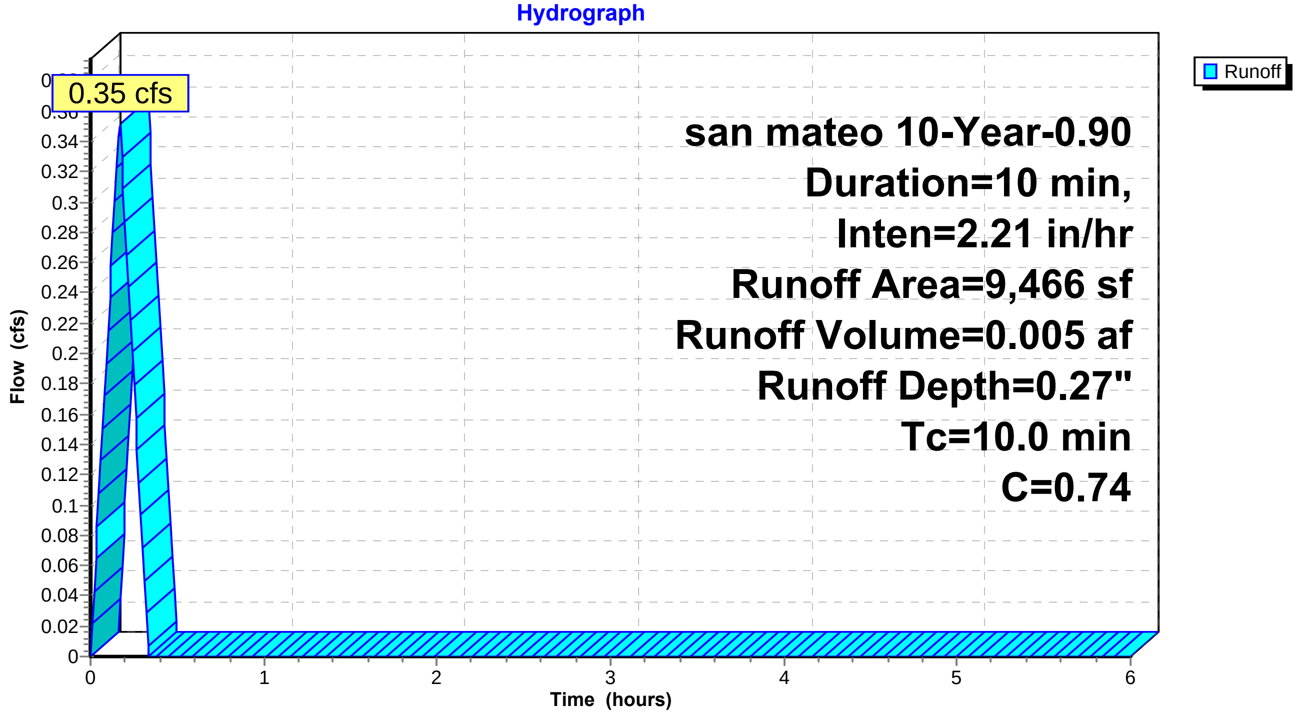
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.27**	**0.002**	**625.76**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.74**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.38	0.07	0.07	0.00
0.80	0.00	0.000	625.07	0.03	0.03	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

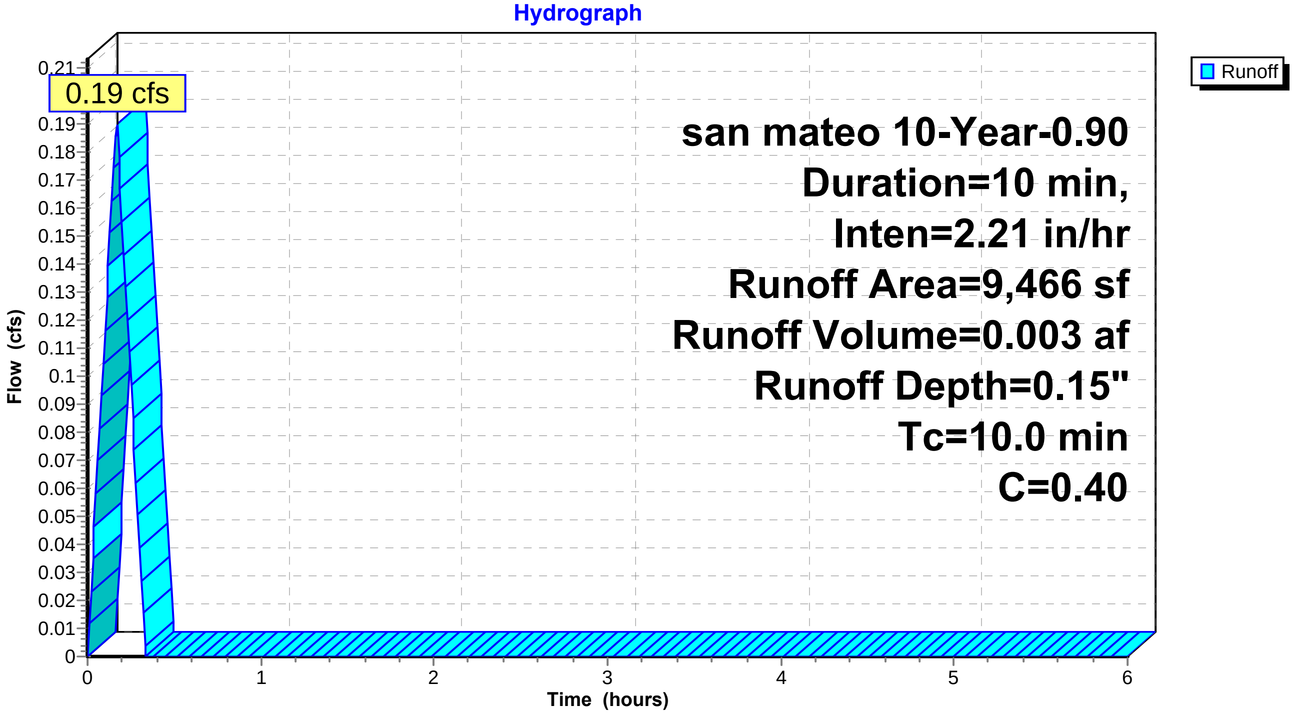
Subcatchment 1S: Lot 8,13 Post



Hydrograph for Subcatchment 1S: Lot 8,13 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.11	2.70	0.00	5.35	0.00
0.10	0.22	2.75	0.00	5.40	0.00
0.15	**0.32**	2.80	0.00	5.45	0.00
0.20	**0.29**	2.85	0.00	5.50	0.00
0.25	0.18	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

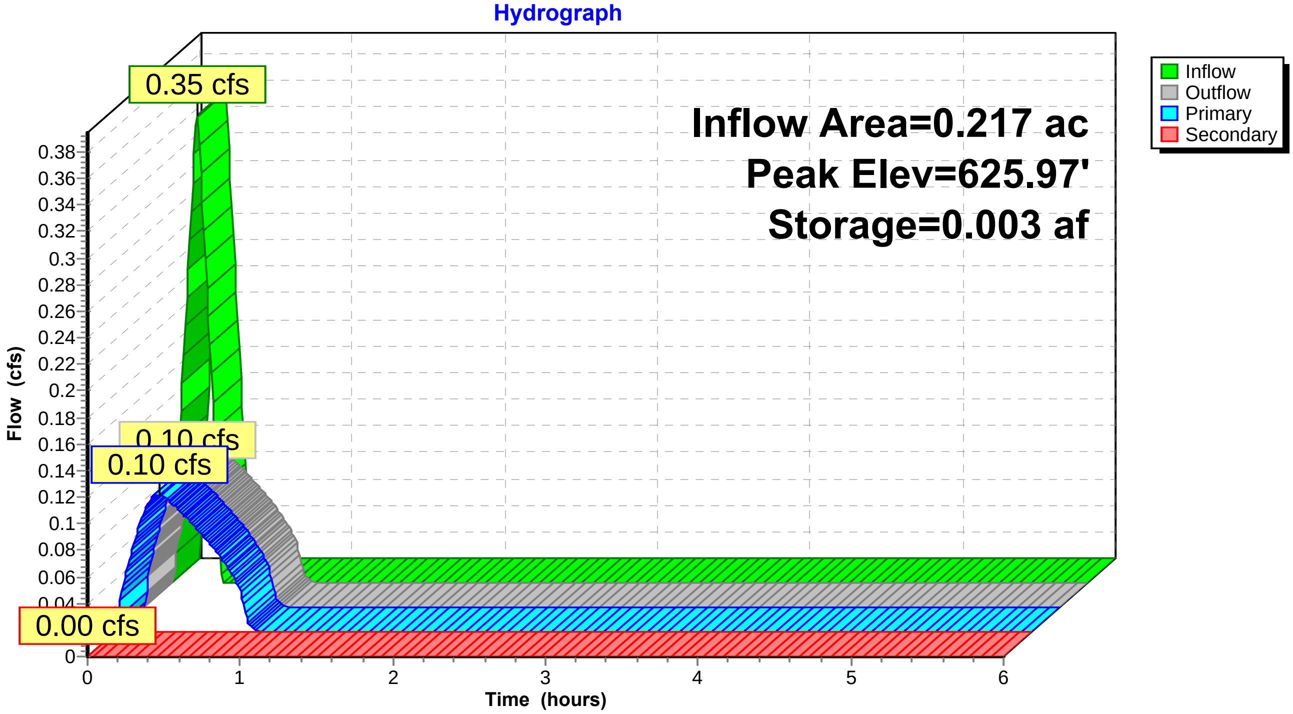
Subcatchment 6S: Lot 8,13 Pre



Hydrograph for Subcatchment 6S: Lot 8,13 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.12	2.75	0.00	5.40	0.00
0.15	**0.17**	2.80	0.00	5.45	0.00
0.20	**0.15**	2.85	0.00	5.50	0.00
0.25	0.10	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

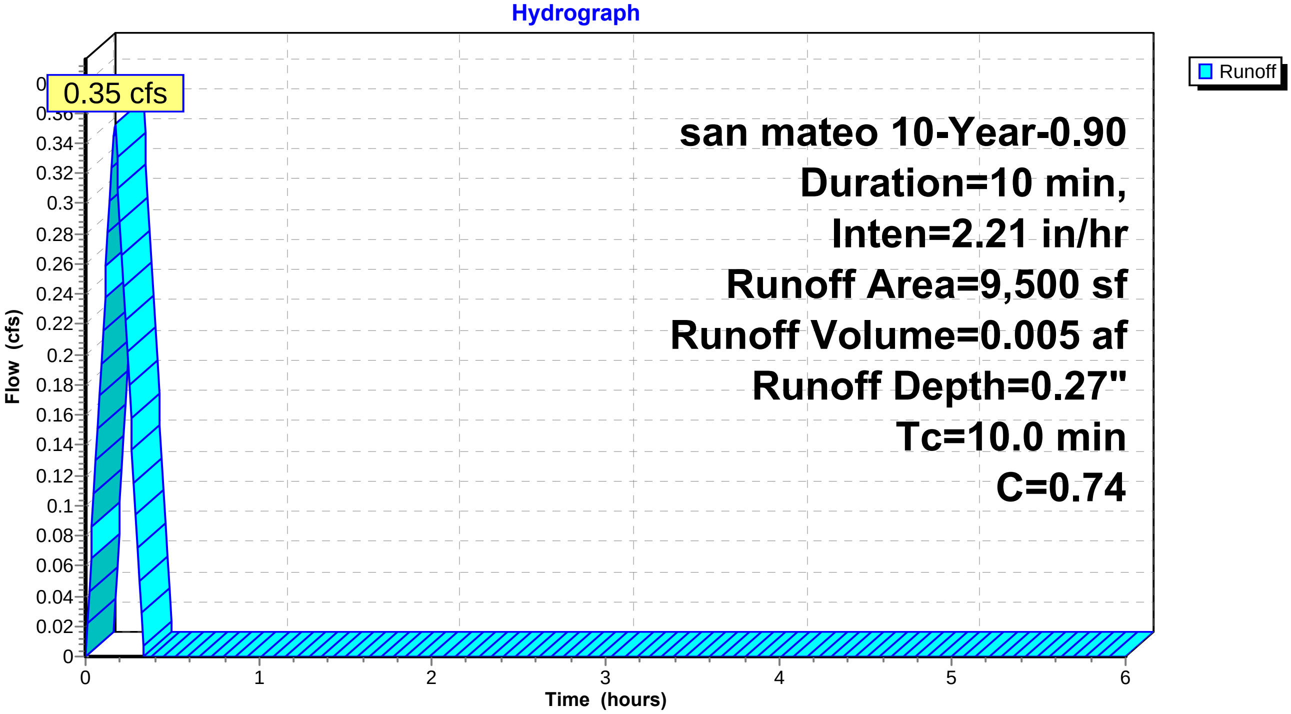
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.29**	**0.002**	**625.81**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.79**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.43	0.07	0.07	0.00
0.80	0.00	0.000	625.11	0.04	0.04	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

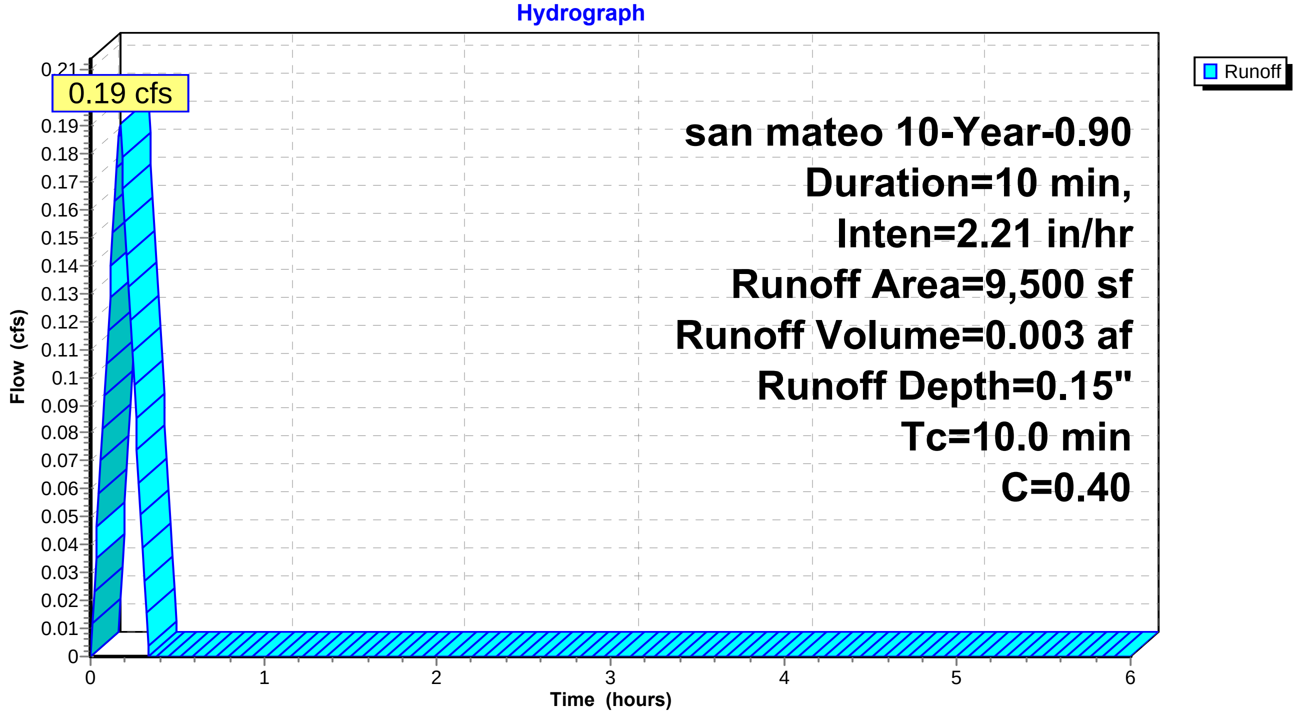
Subcatchment 1S: Lots 9,14 Post



Hydrograph for Subcatchment 1S: Lots 9,14 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.11	2.70	0.00	5.35	0.00
0.10	0.22	2.75	0.00	5.40	0.00
0.15	**0.32**	2.80	0.00	5.45	0.00
0.20	**0.29**	2.85	0.00	5.50	0.00
0.25	0.18	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

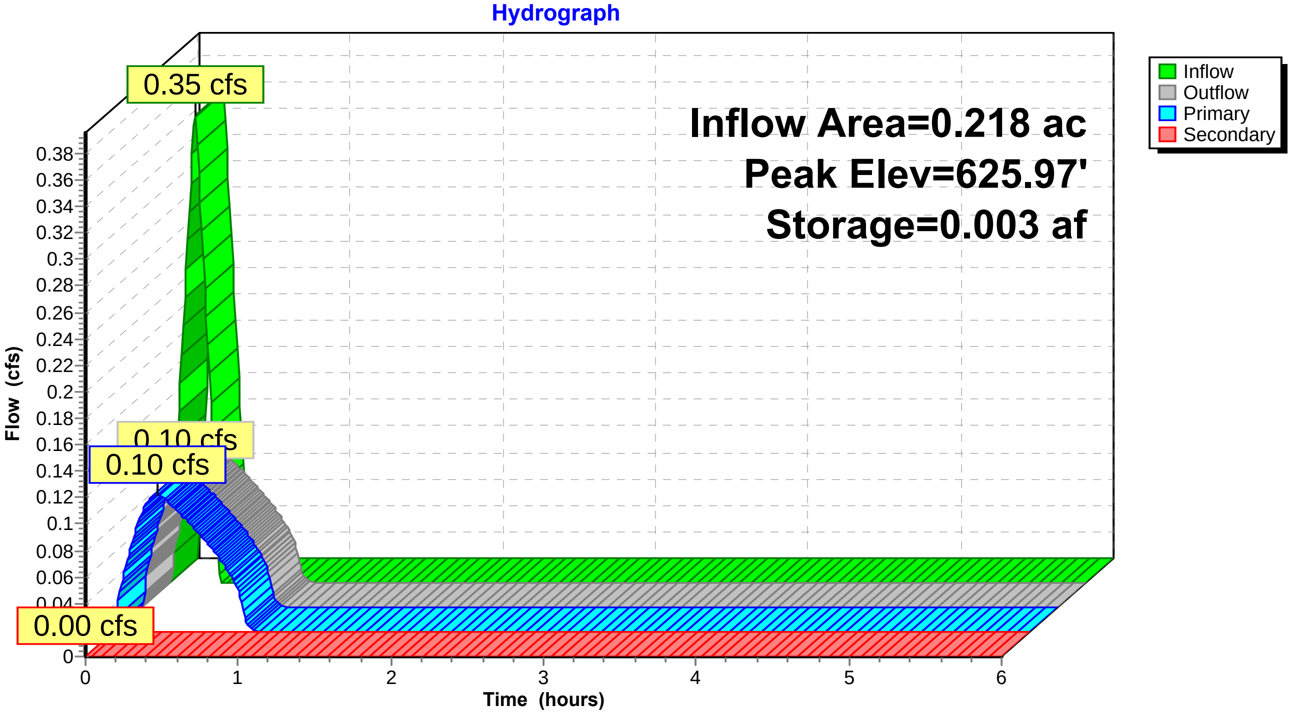
Subcatchment 6S: Lots 9,14 Pre



Hydrograph for Subcatchment 6S: Lots 9,14 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.12	2.75	0.00	5.40	0.00
0.15	**0.17**	2.80	0.00	5.45	0.00
0.20	**0.16**	2.85	0.00	5.50	0.00
0.25	0.10	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

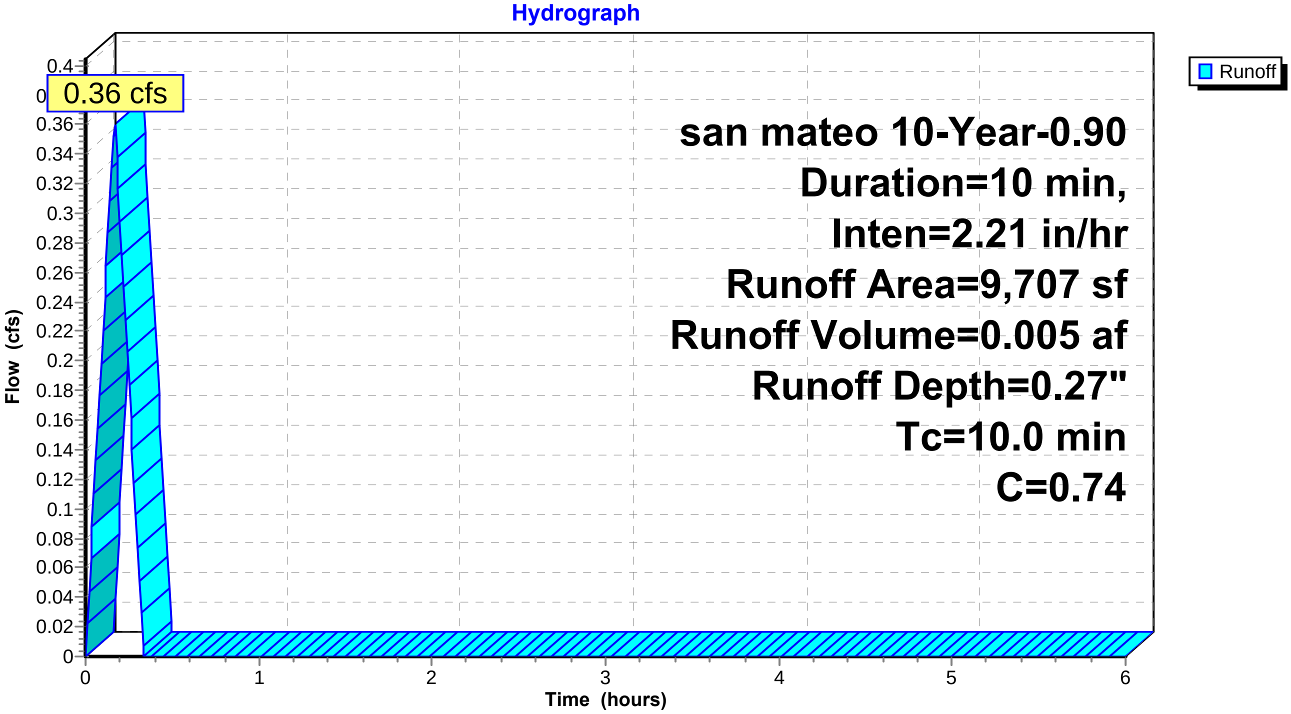
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.29**	**0.002**	**625.81**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.79**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.43	0.07	0.07	0.00
0.80	0.00	0.000	625.11	0.04	0.04	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

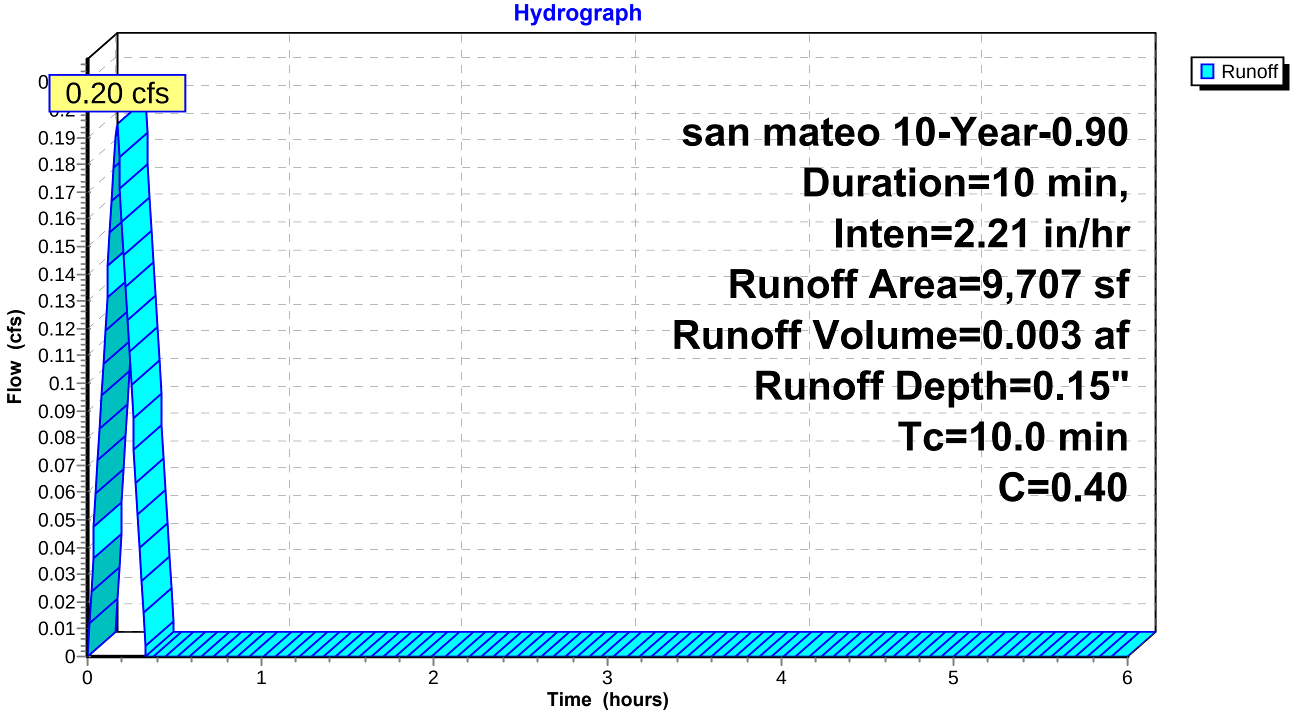
Subcatchment 1S: Lots 10 Post



Hydrograph for Subcatchment 1S: Lots 10 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.11	2.70	0.00	5.35	0.00
0.10	0.22	2.75	0.00	5.40	0.00
0.15	**0.33**	2.80	0.00	5.45	0.00
0.20	**0.29**	2.85	0.00	5.50	0.00
0.25	0.18	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

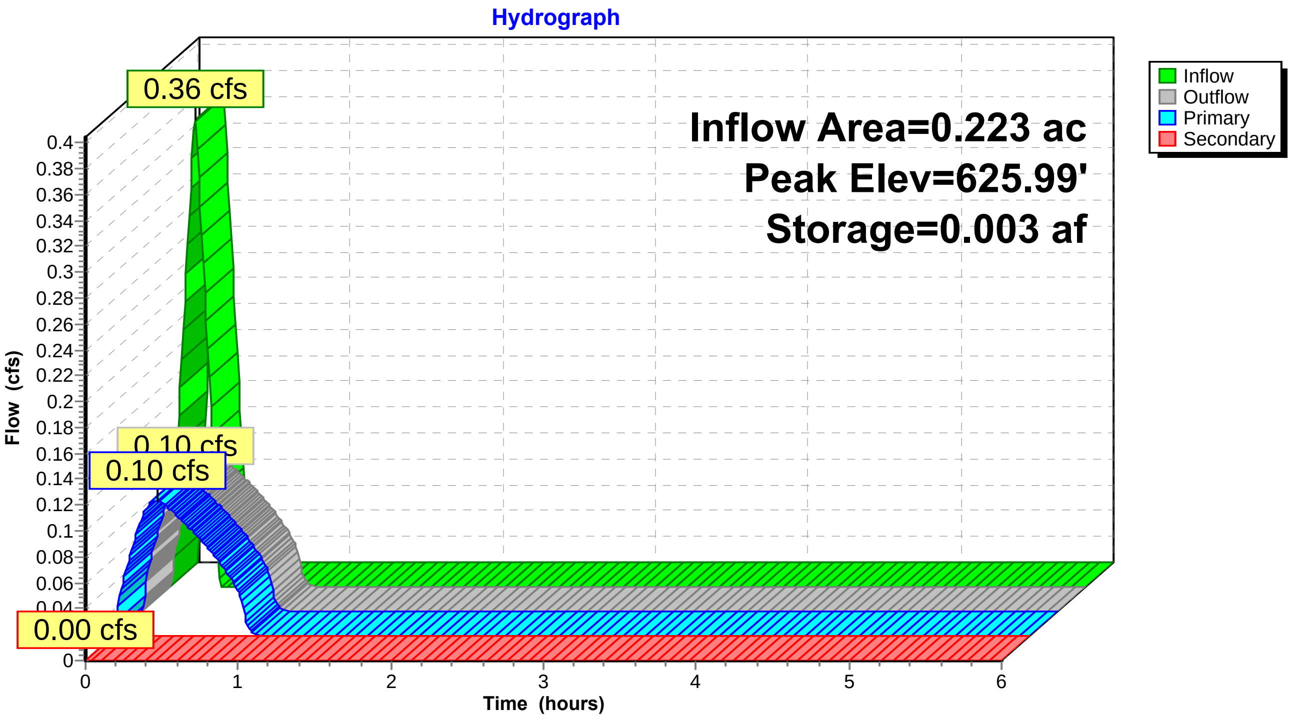
Subcatchment 6S: Lots 10 Pre



Hydrograph for Subcatchment 6S: Lots 10 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.06	2.70	0.00	5.35	0.00
0.10	0.12	2.75	0.00	5.40	0.00
0.15	**0.18**	2.80	0.00	5.45	0.00
0.20	**0.16**	2.85	0.00	5.50	0.00
0.25	0.10	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

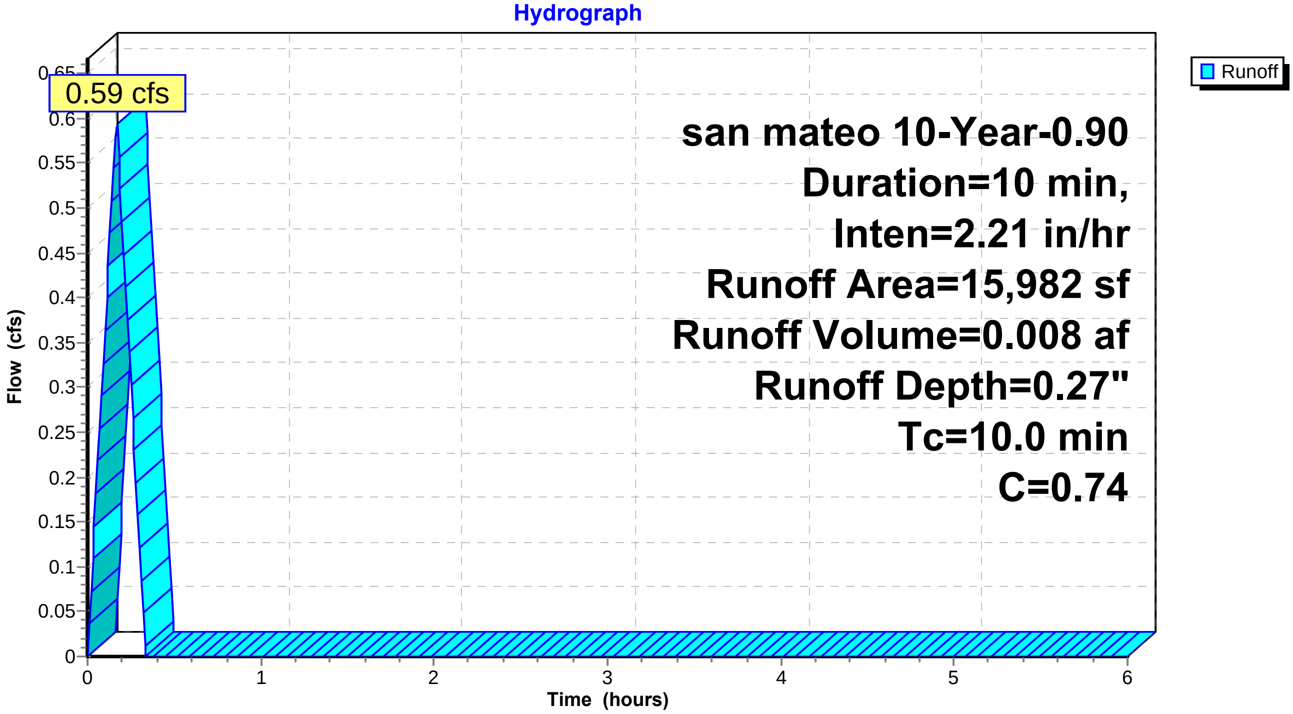
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.29**	**0.003**	**625.82**	**0.10**	**0.10**	0.00
0.40	0.00	**0.002**	**625.81**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.45	0.07	0.07	0.00
0.80	0.00	0.000	625.13	0.04	0.04	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

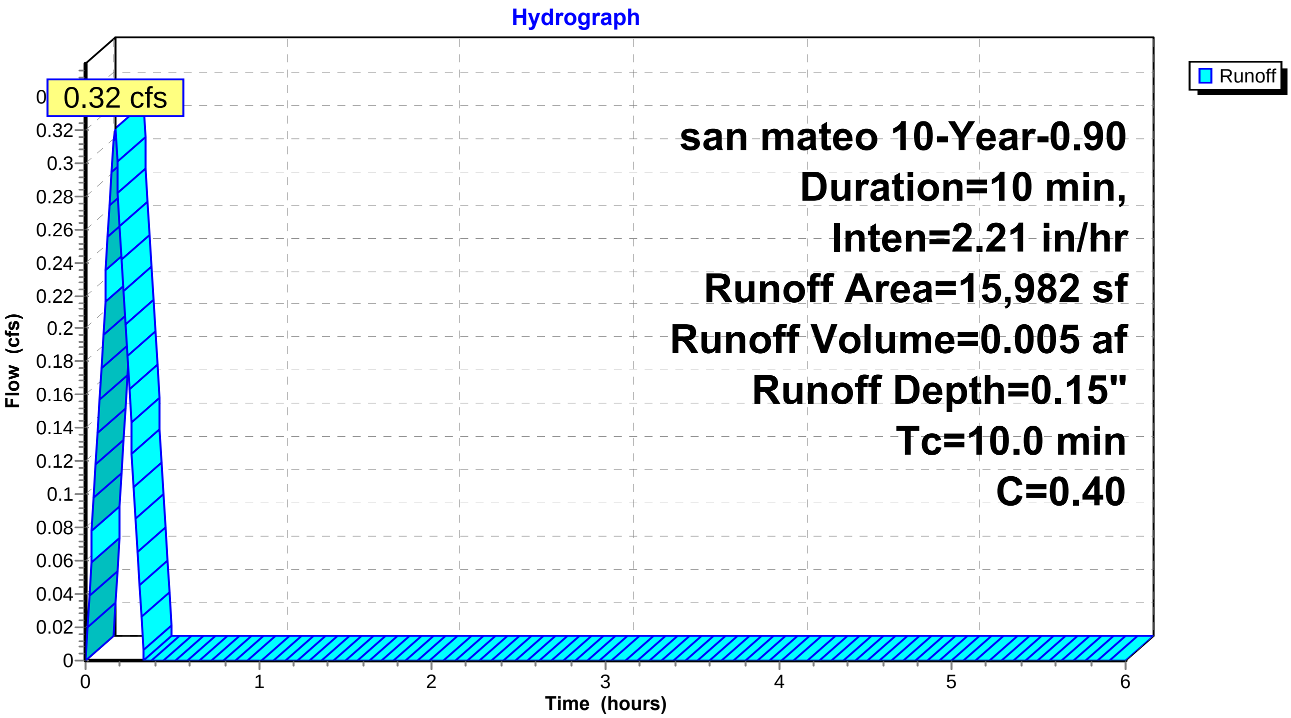
Subcatchment 1S: Lots 11 Post



Hydrograph for Subcatchment 1S: Lots 11 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.18	2.70	0.00	5.35	0.00
0.10	0.36	2.75	0.00	5.40	0.00
0.15	**0.54**	2.80	0.00	5.45	0.00
0.20	**0.48**	2.85	0.00	5.50	0.00
0.25	0.30	2.90	0.00	5.55	0.00
0.30	0.12	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

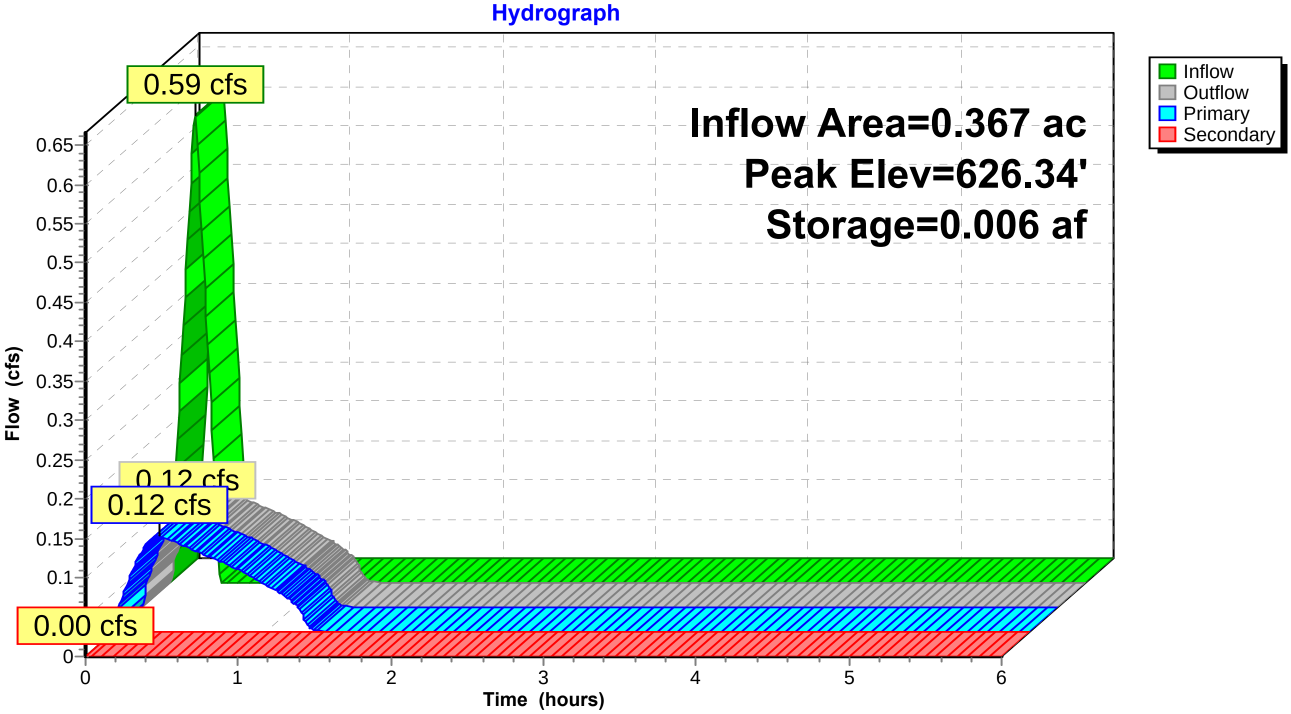
Subcatchment 6S: Lots 11 Pre



Hydrograph for Subcatchment 6S: Lots 11 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.10	2.70	0.00	5.35	0.00
0.10	0.20	2.75	0.00	5.40	0.00
0.15	**0.29**	2.80	0.00	5.45	0.00
0.20	**0.26**	2.85	0.00	5.50	0.00
0.25	0.16	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

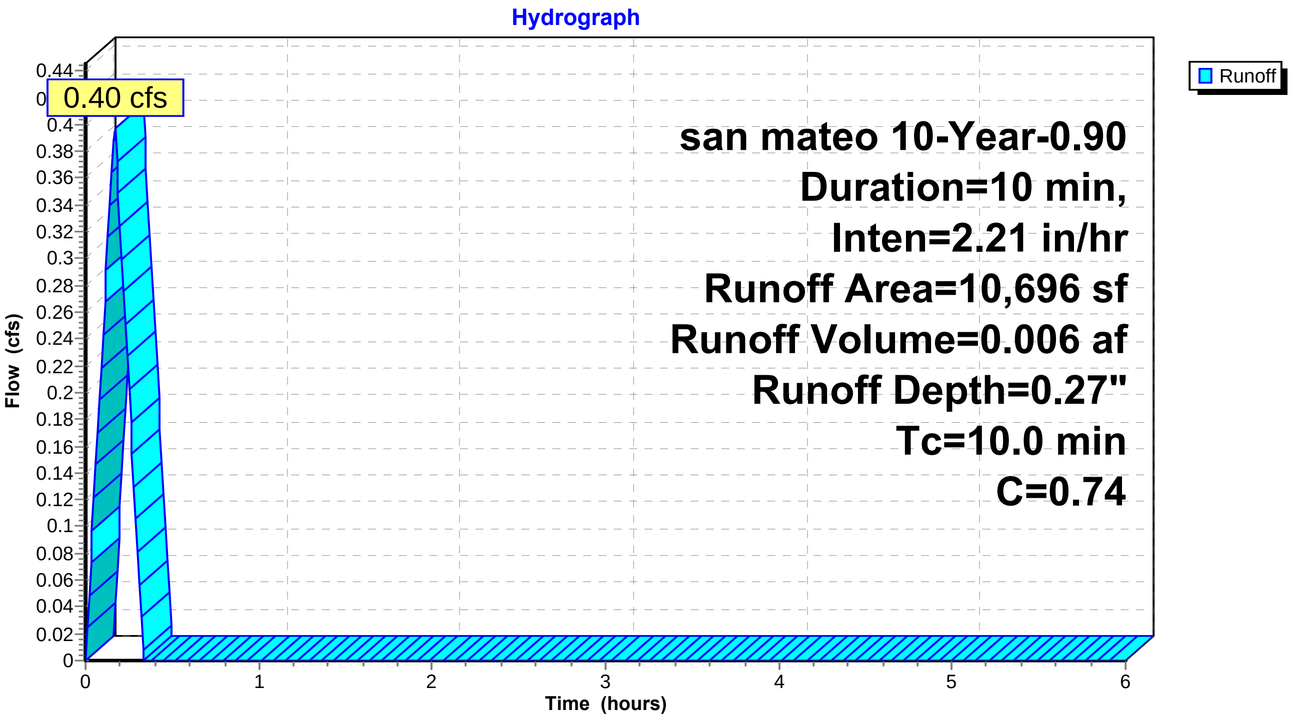
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.48**	**0.005**	**626.05**	**0.11**	**0.11**	0.00
0.40	0.00	**0.005**	**626.19**	**0.11**	**0.11**	0.00
0.60	0.00	0.004	625.87	0.10	0.10	0.00
0.80	0.00	0.002	625.59	0.08	0.08	0.00
1.00	0.00	0.001	625.33	0.06	0.06	0.00
1.20	0.00	0.000	625.10	0.03	0.03	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

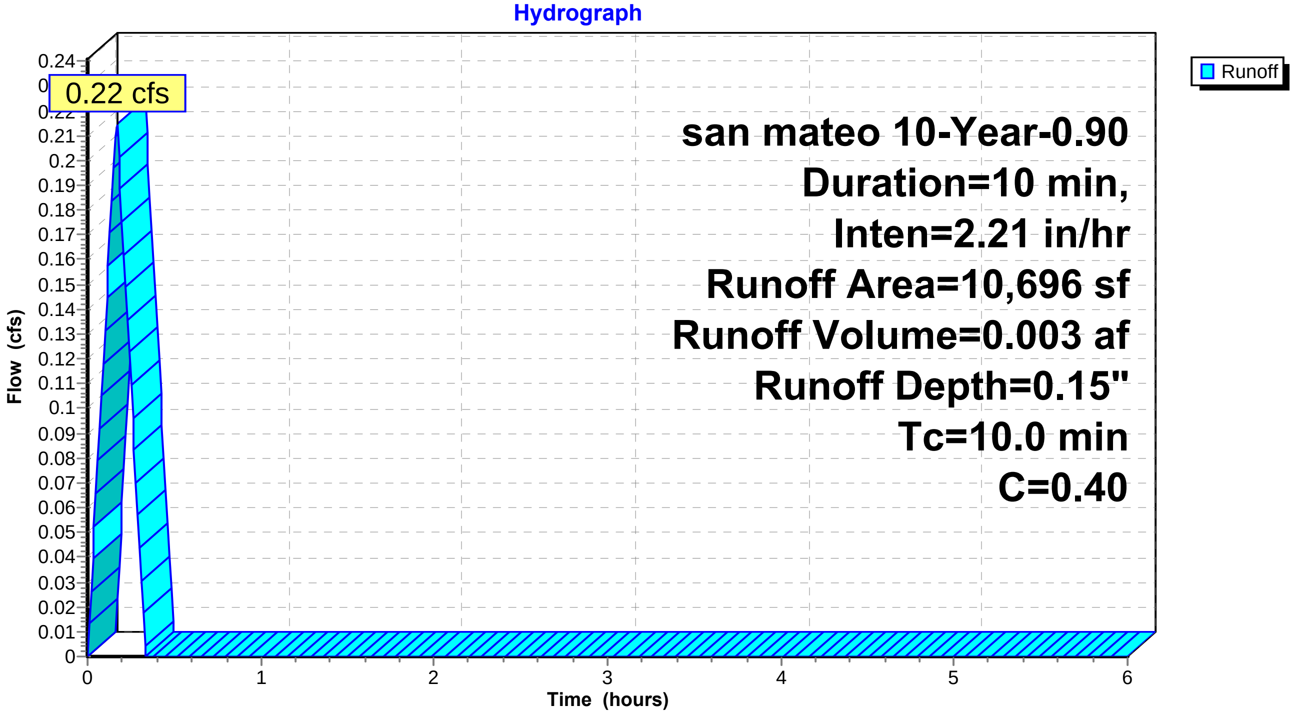
Subcatchment 1S: Lot 12 Post



Hydrograph for Subcatchment 1S: Lot 12 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.12	2.70	0.00	5.35	0.00
0.10	0.24	2.75	0.00	5.40	0.00
0.15	**0.36**	2.80	0.00	5.45	0.00
0.20	**0.32**	2.85	0.00	5.50	0.00
0.25	0.20	2.90	0.00	5.55	0.00
0.30	0.08	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

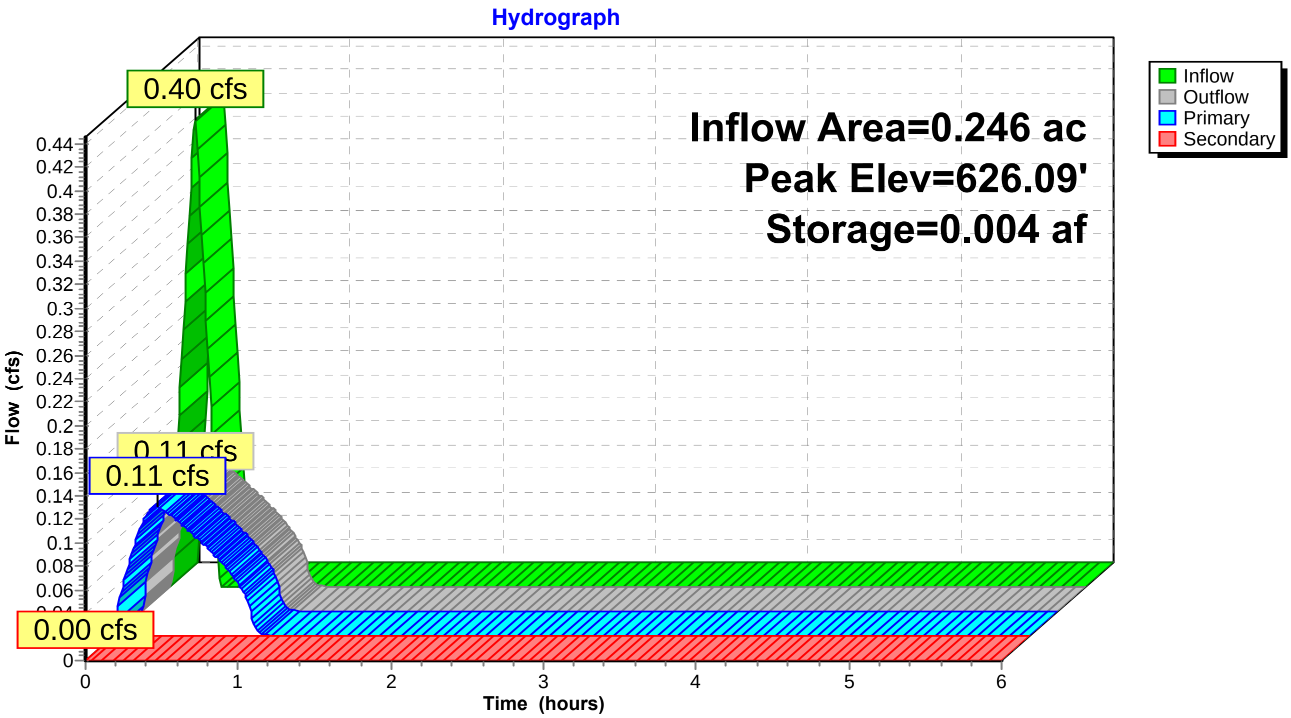
Subcatchment 6S: Lot 12 Pre



Hydrograph for Subcatchment 6S: Lot 12 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.07	2.70	0.00	5.35	0.00
0.10	0.13	2.75	0.00	5.40	0.00
0.15	**0.20**	2.80	0.00	5.45	0.00
0.20	**0.18**	2.85	0.00	5.50	0.00
0.25	0.11	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

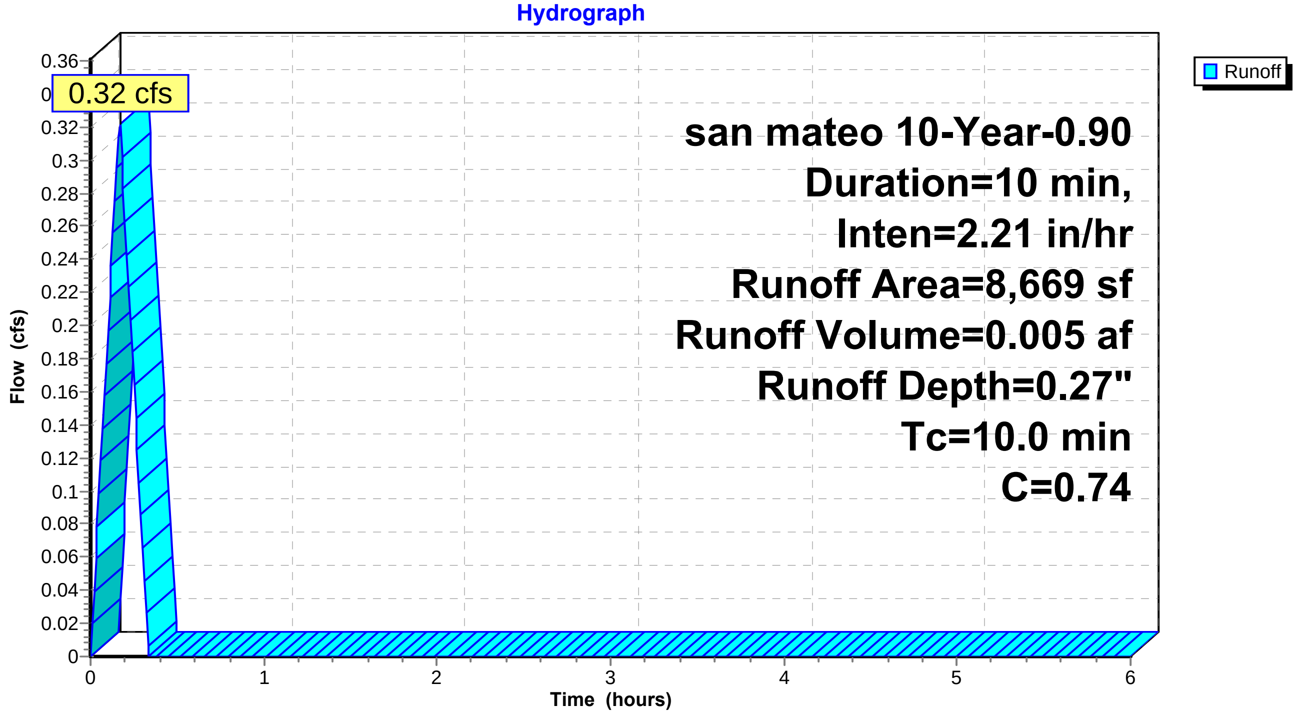
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.32**	**0.003**	**625.90**	**0.10**	**0.10**	0.00
0.40	0.00	**0.003**	**625.91**	**0.10**	**0.10**	0.00
0.60	0.00	0.001	625.54	0.08	0.08	0.00
0.80	0.00	0.000	625.21	0.05	0.05	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

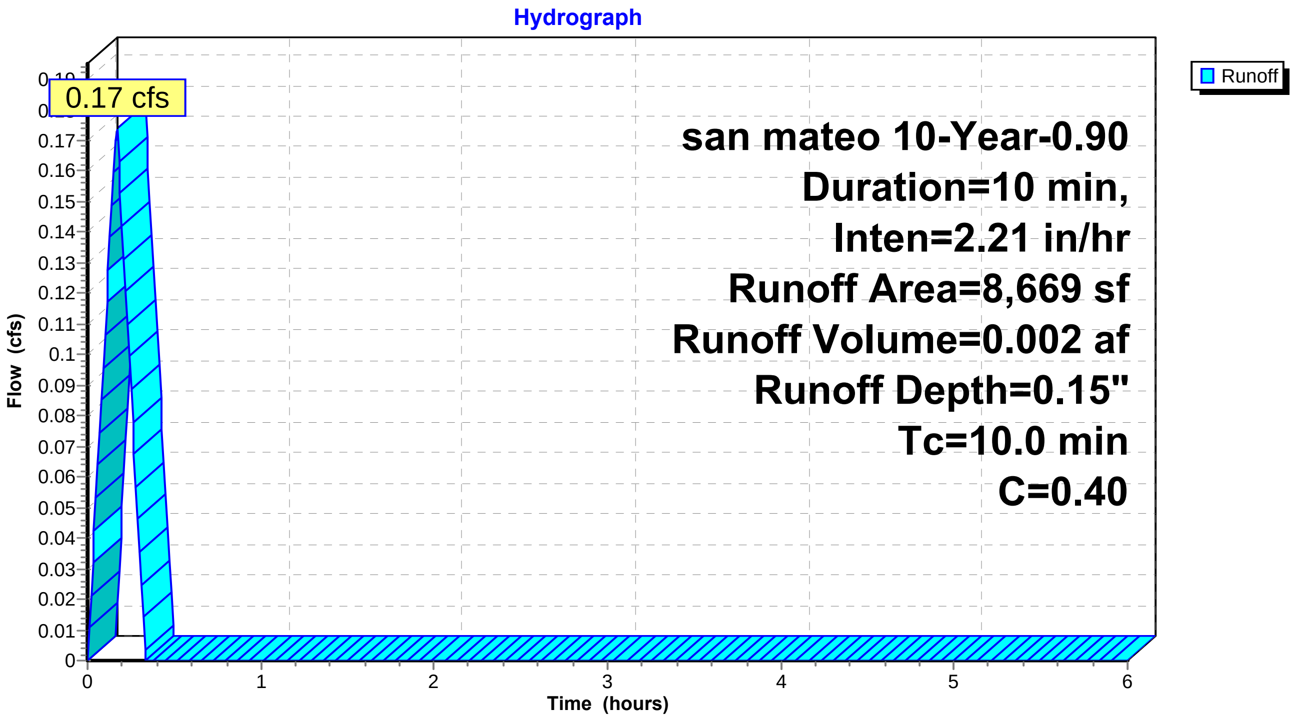
Subcatchment 1S: Lot 15 Post



Hydrograph for Subcatchment 1S: Lot 15 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.10	2.70	0.00	5.35	0.00
0.10	0.20	2.75	0.00	5.40	0.00
0.15	**0.30**	2.80	0.00	5.45	0.00
0.20	**0.26**	2.85	0.00	5.50	0.00
0.25	0.16	2.90	0.00	5.55	0.00
0.30	0.07	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

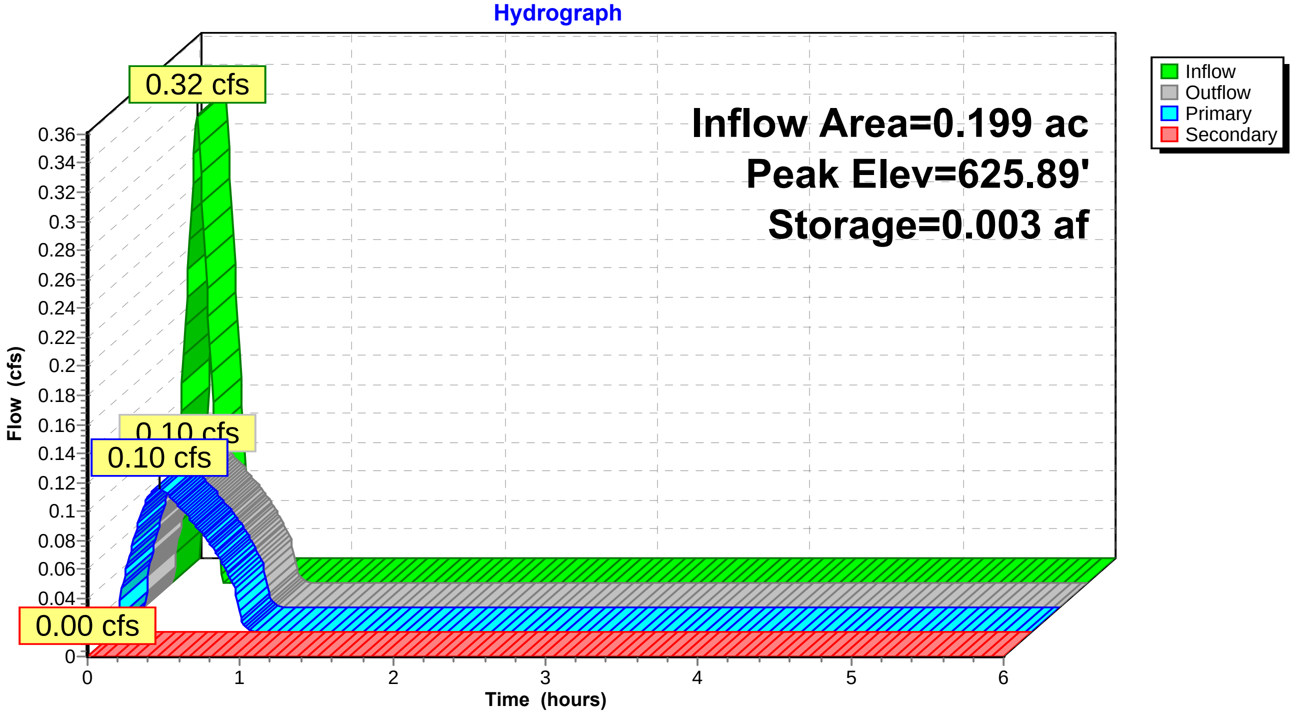
Subcatchment 6S: Lot 15 Pre



Hydrograph for Subcatchment 6S: Lot 15 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.11	2.75	0.00	5.40	0.00
0.15	**0.16**	2.80	0.00	5.45	0.00
0.20	**0.14**	2.85	0.00	5.50	0.00
0.25	0.09	2.90	0.00	5.55	0.00
0.30	0.04	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

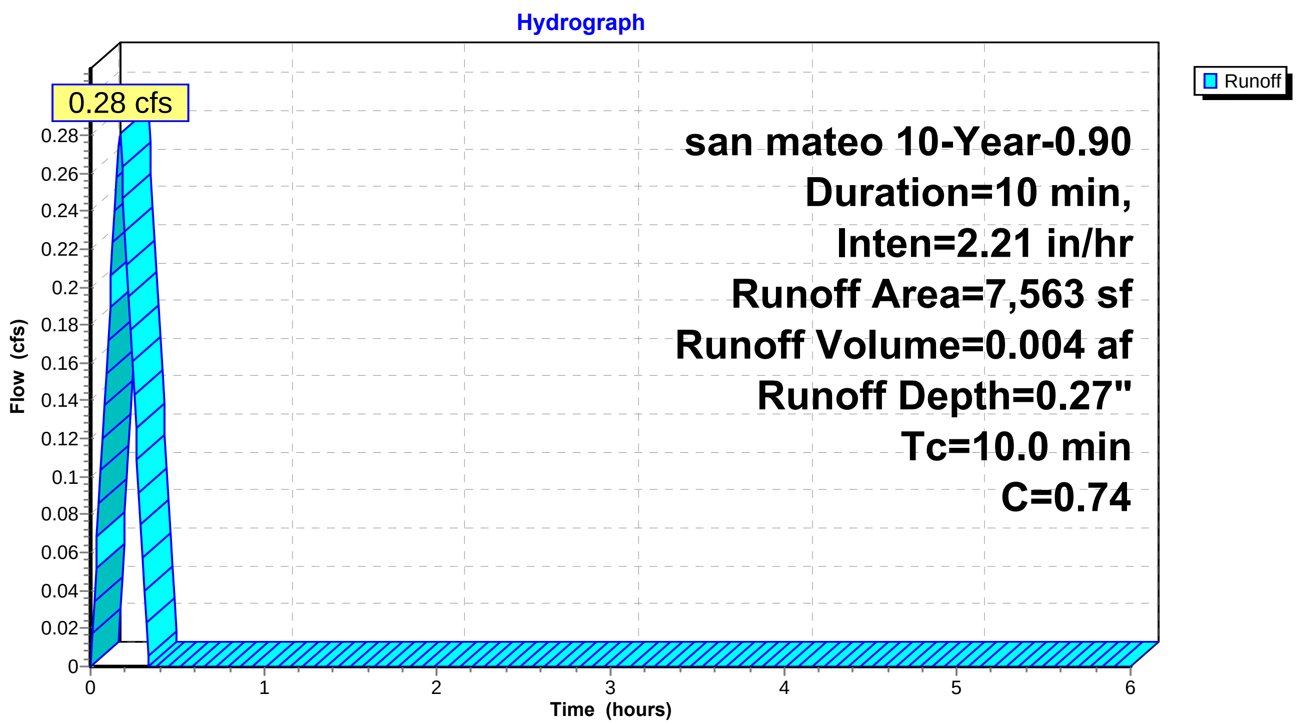
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.26**	**0.002**	**625.74**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.71**	**0.09**	**0.09**	0.00
0.60	0.00	0.001	625.36	0.06	0.06	0.00
0.80	0.00	0.000	625.05	0.02	0.02	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

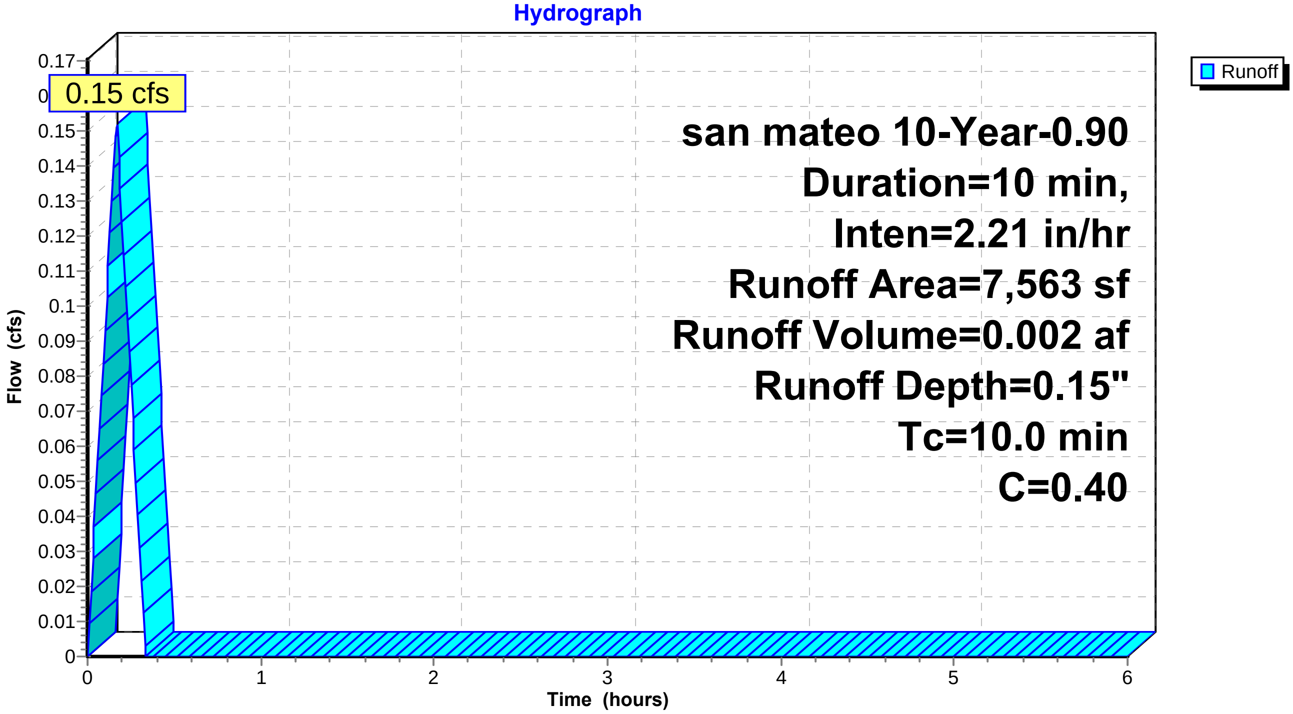
Subcatchment 1S: Lot 16 Post



Hydrograph for Subcatchment 1S: Lot 16 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.09	2.70	0.00	5.35	0.00
0.10	0.17	2.75	0.00	5.40	0.00
0.15	**0.26**	2.80	0.00	5.45	0.00
0.20	**0.23**	2.85	0.00	5.50	0.00
0.25	0.14	2.90	0.00	5.55	0.00
0.30	0.06	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

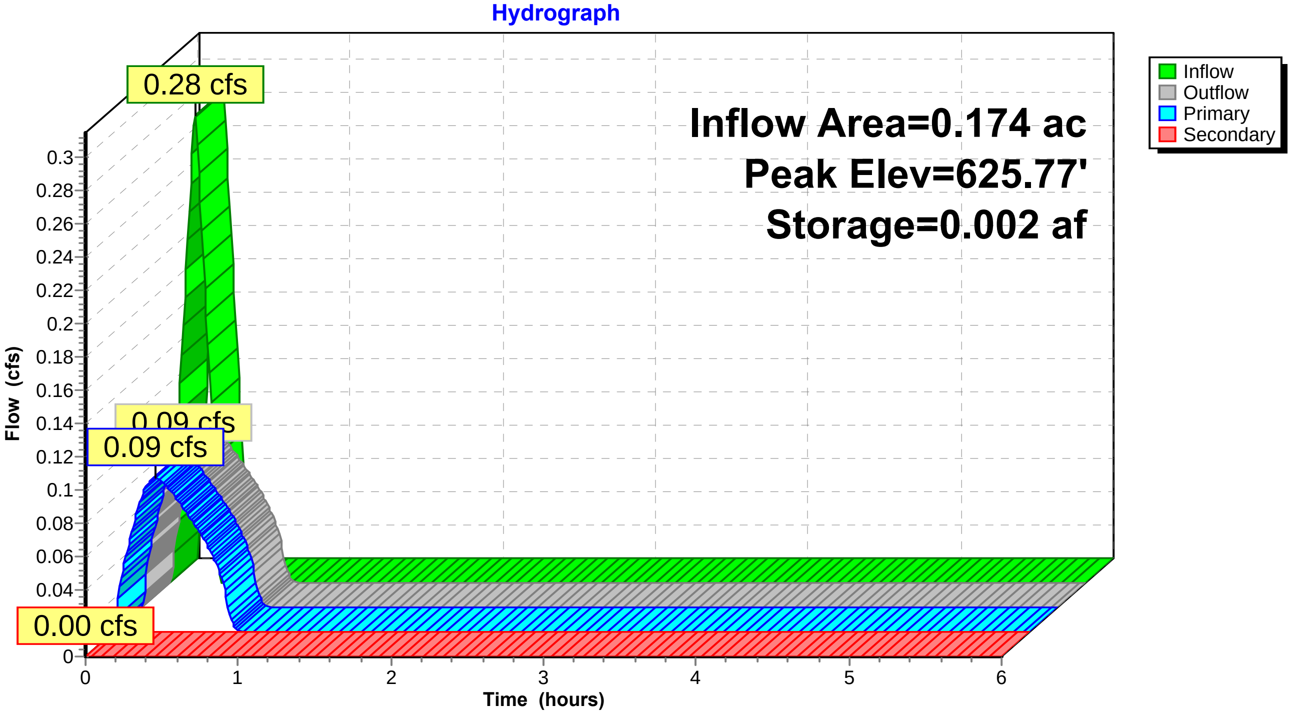
Subcatchment 6S: Lot 16 Pre



Hydrograph for Subcatchment 6S: Lot 16 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.09	2.75	0.00	5.40	0.00
0.15	**0.14**	2.80	0.00	5.45	0.00
0.20	**0.12**	2.85	0.00	5.50	0.00
0.25	0.08	2.90	0.00	5.55	0.00
0.30	0.03	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

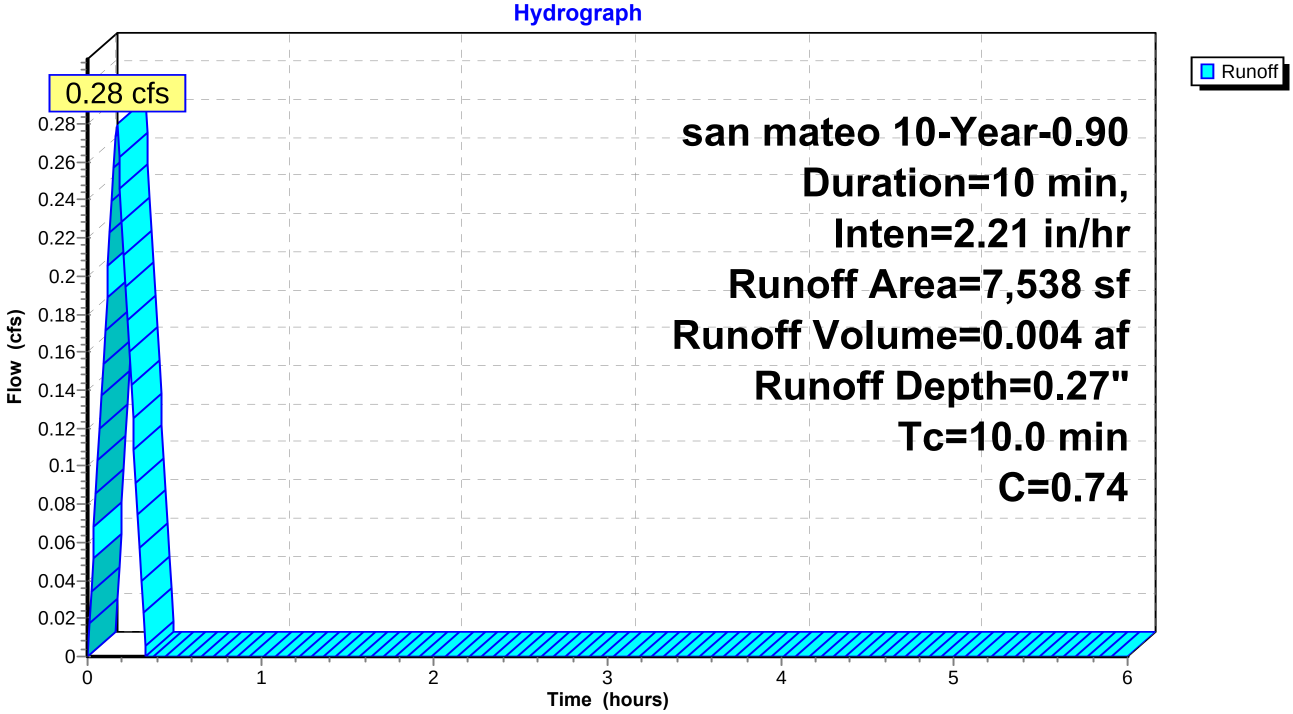
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.23**	**0.002**	**625.66**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.60**	**0.08**	**0.08**	0.00
0.60	0.00	0.001	625.27	0.05	0.05	0.00
0.80	0.00	0.000	625.01	0.00	0.00	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

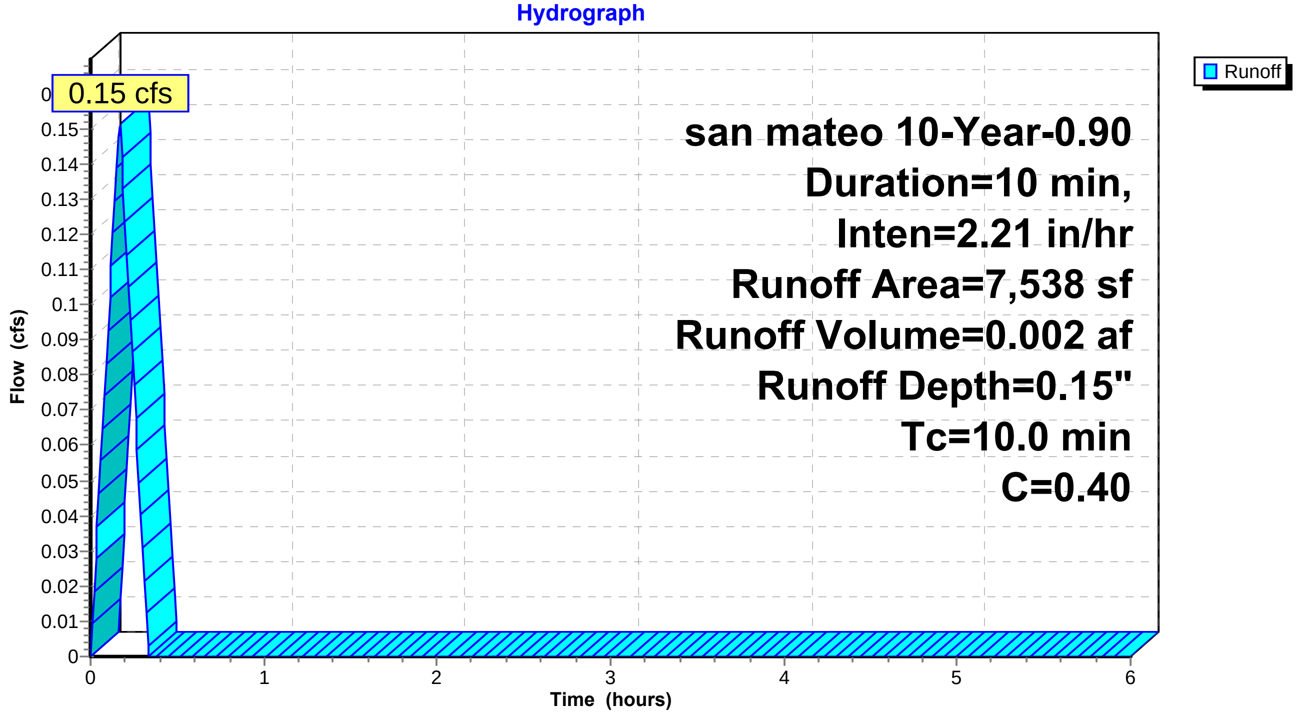
Subcatchment 1S: Lot 17 Post



Hydrograph for Subcatchment 1S: Lot 17 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.09	2.70	0.00	5.35	0.00
0.10	0.17	2.75	0.00	5.40	0.00
0.15	**0.26**	2.80	0.00	5.45	0.00
0.20	**0.23**	2.85	0.00	5.50	0.00
0.25	0.14	2.90	0.00	5.55	0.00
0.30	0.06	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

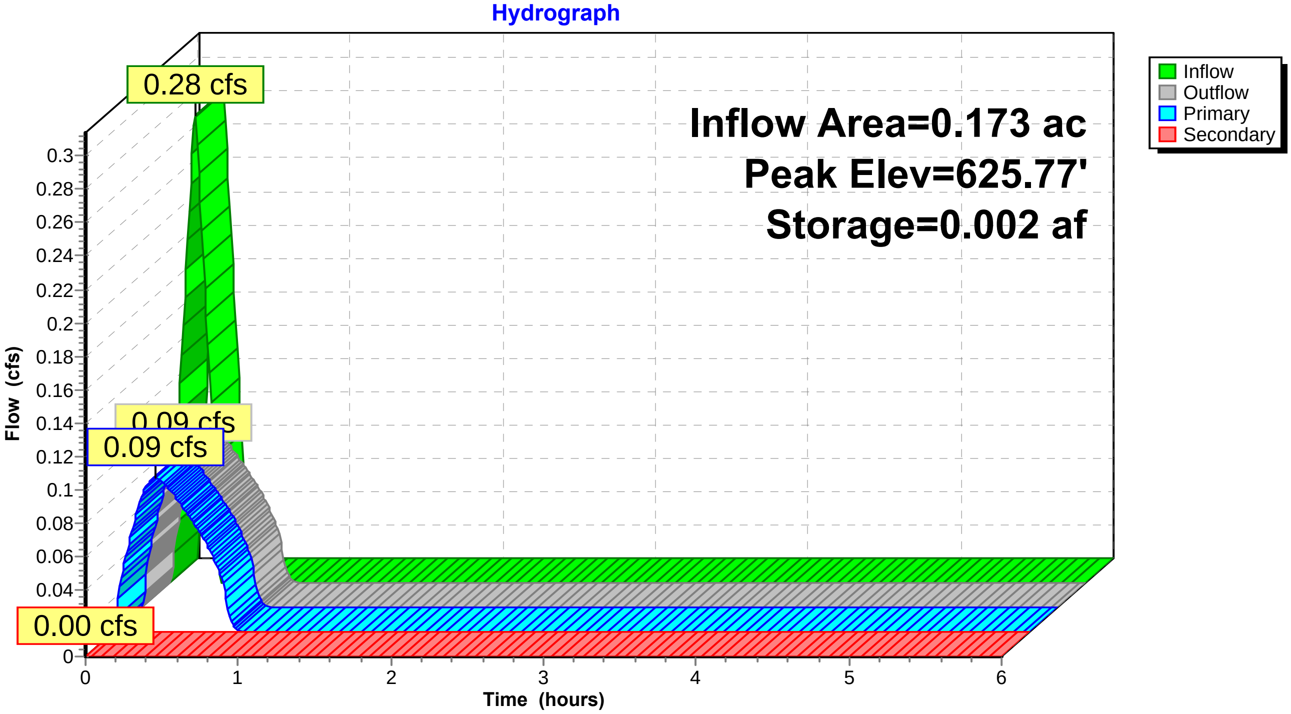
Subcatchment 7S: Lot 17 Pre



Hydrograph for Subcatchment 7S: Lot 17 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.09	2.75	0.00	5.40	0.00
0.15	**0.14**	2.80	0.00	5.45	0.00
0.20	**0.12**	2.85	0.00	5.50	0.00
0.25	0.08	2.90	0.00	5.55	0.00
0.30	0.03	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

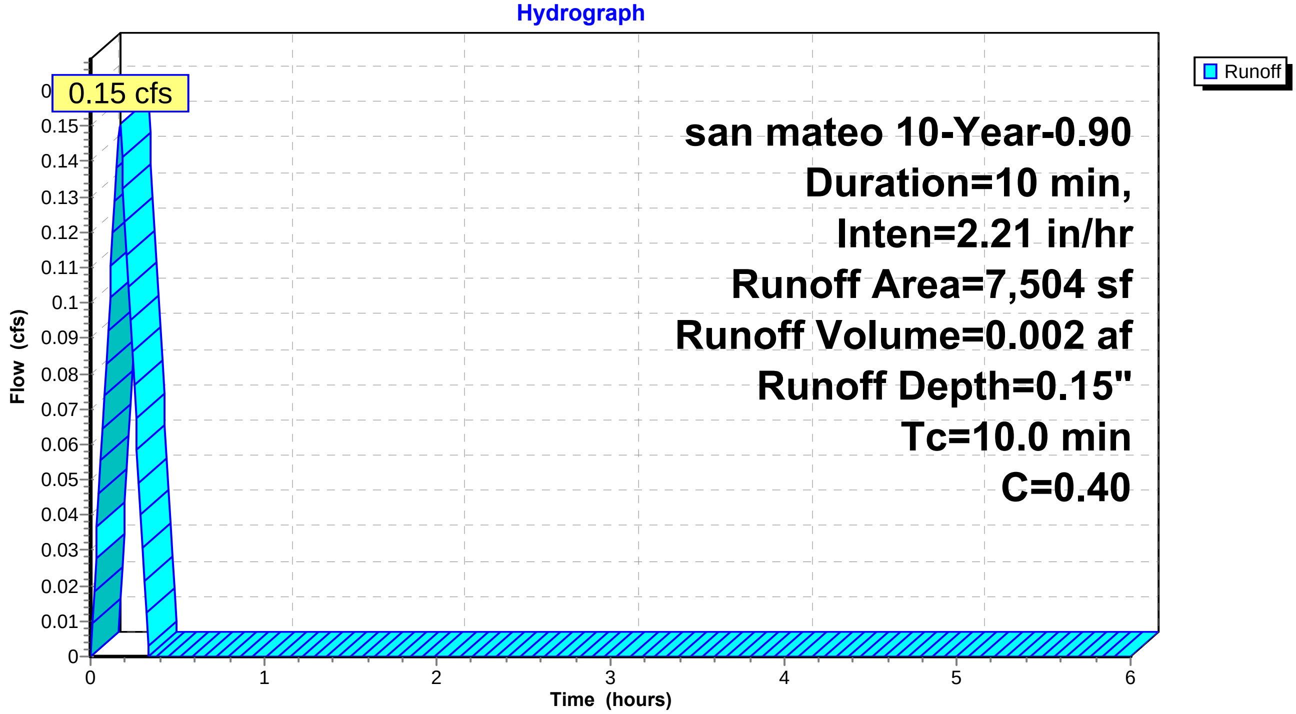
Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.23**	**0.002**	**625.66**	**0.09**	**0.09**	0.00
0.40	0.00	**0.002**	**625.60**	**0.08**	**0.08**	0.00
0.60	0.00	0.001	625.27	0.05	0.05	0.00
0.80	0.00	0.000	625.01	0.00	0.00	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

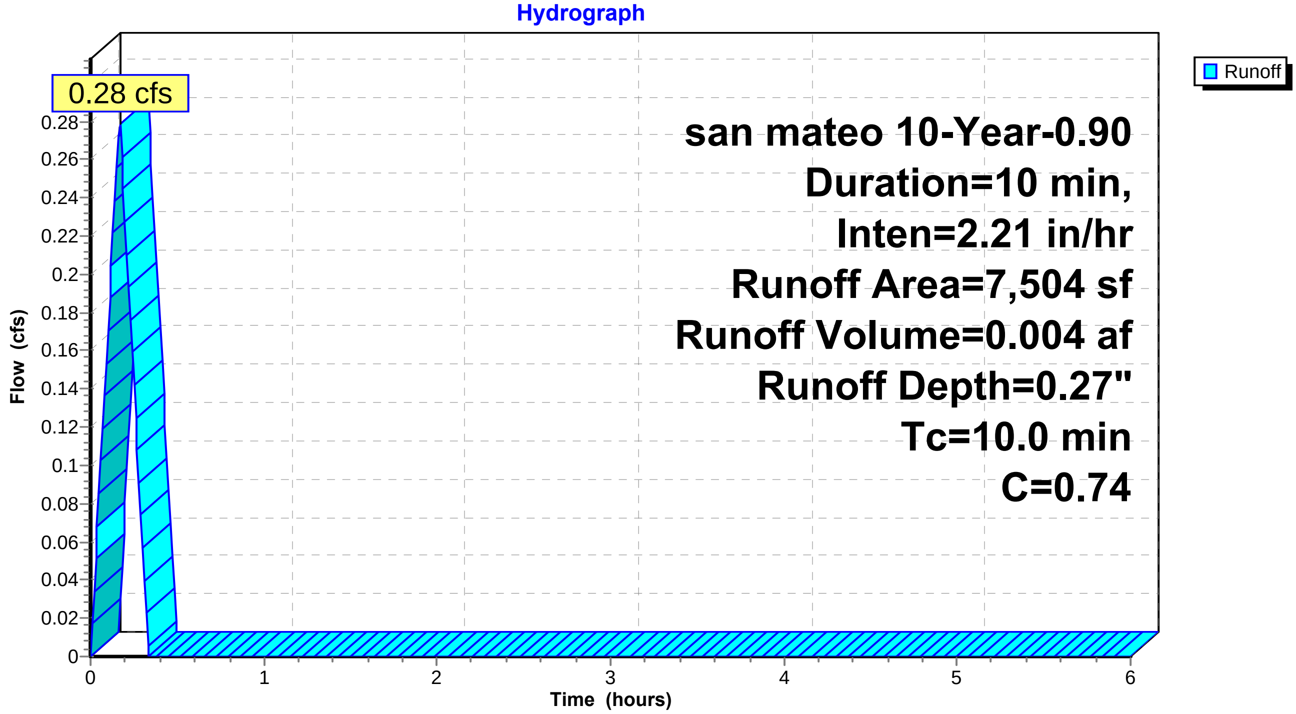
Subcatchment 7S: Lot 19 Pre



Hydrograph for Subcatchment 7S: Lot 19 Pre

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.05	2.70	0.00	5.35	0.00
0.10	0.09	2.75	0.00	5.40	0.00
0.15	**0.14**	2.80	0.00	5.45	0.00
0.20	**0.12**	2.85	0.00	5.50	0.00
0.25	0.08	2.90	0.00	5.55	0.00
0.30	0.03	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

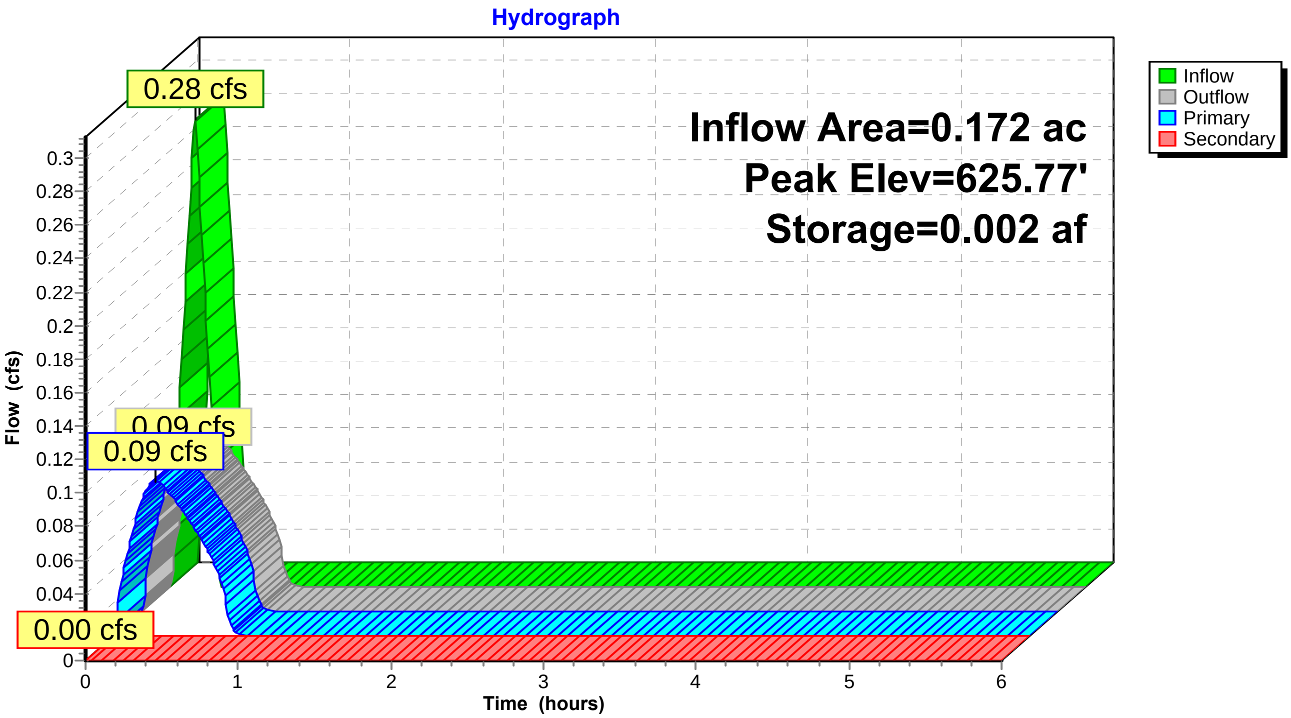
Subcatchment 8S: Lot 19 Post



Hydrograph for Subcatchment 8S: Lot 19 Post

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	2.65	0.00	5.30	0.00
0.05	0.09	2.70	0.00	5.35	0.00
0.10	0.17	2.75	0.00	5.40	0.00
0.15	**0.26**	2.80	0.00	5.45	0.00
0.20	**0.23**	2.85	0.00	5.50	0.00
0.25	0.14	2.90	0.00	5.55	0.00
0.30	0.06	2.95	0.00	5.60	0.00
0.35	0.00	3.00	0.00	5.65	0.00
0.40	0.00	3.05	0.00	5.70	0.00
0.45	0.00	3.10	0.00	5.75	0.00
0.50	0.00	3.15	0.00	5.80	0.00
0.55	0.00	3.20	0.00	5.85	0.00
0.60	0.00	3.25	0.00	5.90	0.00
0.65	0.00	3.30	0.00	5.95	0.00
0.70	0.00	3.35	0.00	6.00	0.00
0.75	0.00	3.40	0.00		
0.80	0.00	3.45	0.00		
0.85	0.00	3.50	0.00		
0.90	0.00	3.55	0.00		
0.95	0.00	3.60	0.00		
1.00	0.00	3.65	0.00		
1.05	0.00	3.70	0.00		
1.10	0.00	3.75	0.00		
1.15	0.00	3.80	0.00		
1.20	0.00	3.85	0.00		
1.25	0.00	3.90	0.00		
1.30	0.00	3.95	0.00		
1.35	0.00	4.00	0.00		
1.40	0.00	4.05	0.00		
1.45	0.00	4.10	0.00		
1.50	0.00	4.15	0.00		
1.55	0.00	4.20	0.00		
1.60	0.00	4.25	0.00		
1.65	0.00	4.30	0.00		
1.70	0.00	4.35	0.00		
1.75	0.00	4.40	0.00		
1.80	0.00	4.45	0.00		
1.85	0.00	4.50	0.00		
1.90	0.00	4.55	0.00		
1.95	0.00	4.60	0.00		
2.00	0.00	4.65	0.00		
2.05	0.00	4.70	0.00		
2.10	0.00	4.75	0.00		
2.15	0.00	4.80	0.00		
2.20	0.00	4.85	0.00		
2.25	0.00	4.90	0.00		
2.30	0.00	4.95	0.00		
2.35	0.00	5.00	0.00		
2.40	0.00	5.05	0.00		
2.45	0.00	5.10	0.00		
2.50	0.00	5.15	0.00		
2.55	0.00	5.20	0.00		
2.60	0.00	5.25	0.00		

Pond 5P: detention basin



Hydrograph for Pond 5P: detention basin

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	**0.00**	0.000	625.00	0.00	0.00	**0.00**
0.20	**0.23**	**0.002**	**625.65**	**0.08**	**0.08**	0.00
0.40	0.00	**0.002**	**625.60**	**0.08**	**0.08**	0.00
0.60	0.00	0.001	625.26	0.05	0.05	0.00
0.80	0.00	0.000	625.01	0.00	0.00	0.00
1.00	0.00	0.000	625.00	0.00	0.00	0.00
1.20	0.00	0.000	625.00	0.00	0.00	0.00
1.40	0.00	0.000	625.00	0.00	0.00	0.00
1.60	0.00	0.000	625.00	0.00	0.00	0.00
1.80	0.00	0.000	625.00	0.00	0.00	0.00
2.00	0.00	0.000	625.00	0.00	0.00	0.00
2.20	0.00	0.000	625.00	0.00	0.00	0.00
2.40	0.00	0.000	625.00	0.00	0.00	0.00
2.60	0.00	0.000	625.00	0.00	0.00	0.00
2.80	0.00	0.000	625.00	0.00	0.00	0.00
3.00	0.00	0.000	625.00	0.00	0.00	0.00
3.20	0.00	0.000	625.00	0.00	0.00	0.00
3.40	0.00	0.000	625.00	0.00	0.00	0.00
3.60	0.00	0.000	625.00	0.00	0.00	0.00
3.80	0.00	0.000	625.00	0.00	0.00	0.00
4.00	0.00	0.000	625.00	0.00	0.00	0.00
4.20	0.00	0.000	625.00	0.00	0.00	0.00
4.40	0.00	0.000	625.00	0.00	0.00	0.00
4.60	0.00	0.000	625.00	0.00	0.00	0.00
4.80	0.00	0.000	625.00	0.00	0.00	0.00
5.00	0.00	0.000	625.00	0.00	0.00	0.00
5.20	0.00	0.000	625.00	0.00	0.00	0.00
5.40	0.00	0.000	625.00	0.00	0.00	0.00
5.60	0.00	0.000	625.00	0.00	0.00	0.00
5.80	0.00	0.000	625.00	0.00	0.00	0.00
6.00	0.00	0.000	625.00	0.00	0.00	0.00

Appendix C

LEA & BRAZE ENGINEERING, INC.
CIVIL ENGINEERS • LAND SURVEYORS
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Hayward, California 94545
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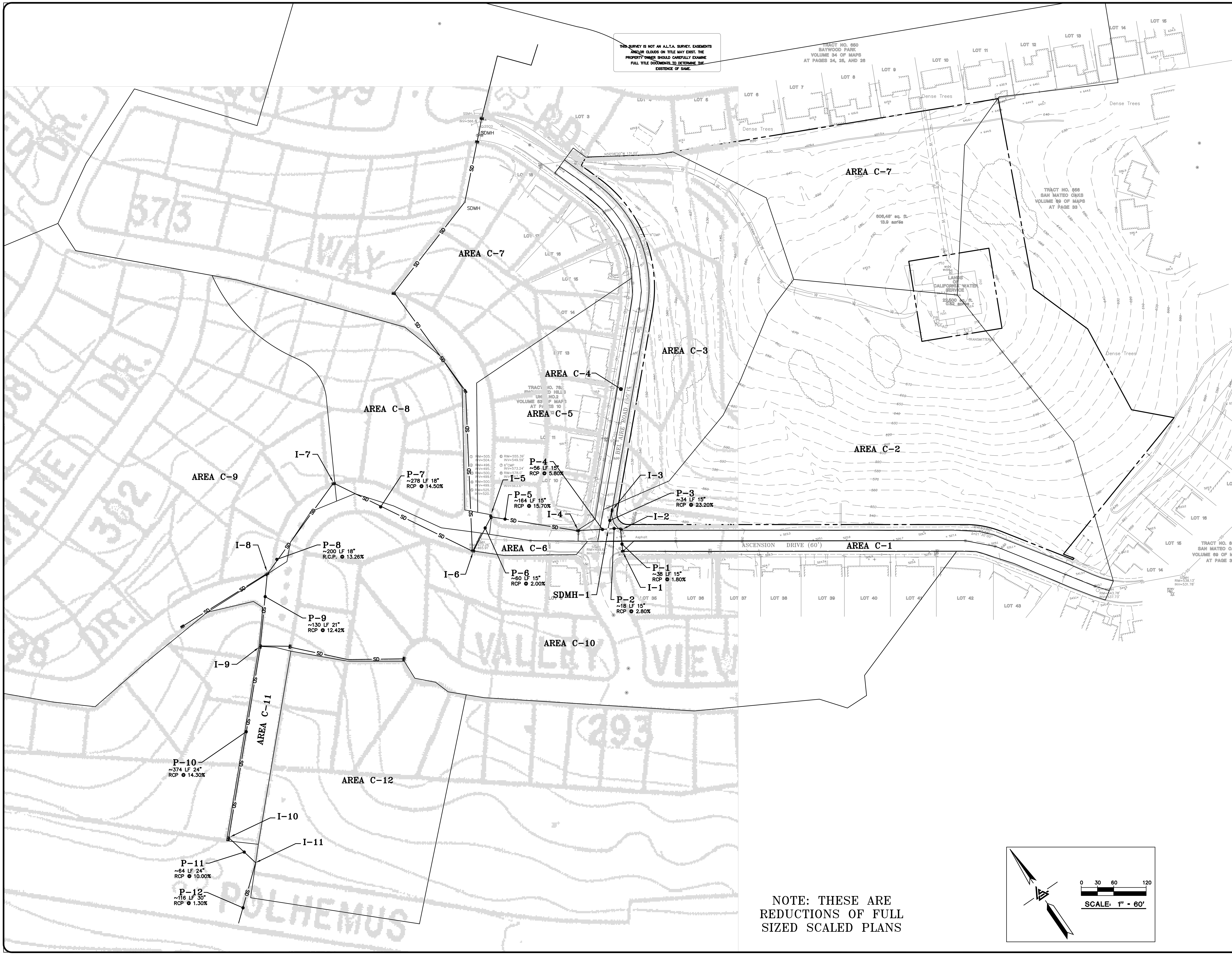
WWW.LEABRAZE.COM

Storm Drain Design by Rational Formula - County of San Mateo
Ascension Heights Subdivision
Ascension Dr and Bel Aire Rd, San Mateo
10 YEAR STORM
County - Line "C" (Existing)
Exhibit A.1

Lea & Braze Job # 2010135

Label	Description	Tc (min)	Local Intensity (in/hr)	Area Designation	Area (acres)	C	System Contributing flow (cfs)	Total System Flow (cfs)	Pipe Size (inches)	Pipe Type	Manning's "n"	Pipe Length (ft)	Pipe Slope (ft/ft)	Average Velocity (ft/s)	Pipe Flow Time (min)	Pipe Capacity (cfs)	Exceeds Capacity
I-1	(E) COUNTY INLET	10.00	2.32	AREA C-1	0.40	0.95	0.88										
P-1								0.88	15	RCP	0.013	38	1.80%	3.171	0.20	8.66	'NO
I-2	(E) COUNTY INLET	10.20	2.24	AREA C-2	5.06	0.40	4.53										
		10.20	2.24	AREA C-2	0.46	0.95	0.98										
P-2								6.39	15	RCP	0.013	17	2.8%	3.955	0.07	10.81	'NO
I-3	(E) COUNTY INLET	10.00	2.32	AREA C-3	1.83	0.40	1.70										
		10.00	2.32	AREA C-3	0.24	0.95	0.53										
P-3								2.23	15	RCP	0.013	34	23.2%	11.385	0.05	31.10	'NO
SDMH-1	(E) COUNTY MANHOLE	10.05	2.13														
P-4								8.62	15	RCP	0.013	26	5.8%	5.693	0.08	15.55	'NO
I-4	(E) COUNTY INLET	10.13	2.13	AREA C-4	0.26	0.95	0.53										
P-5								9.14	15	RCP	0.013	164	15.7%	9.366	0.29	25.59	'NO
I-5	(E) COUNTY INLET	10.42	2.11	AREA C-5	2.12	0.50	2.24										
P-6								11.38	15	RCP	0.013	60	2.0%	3.343	0.30	9.13	'YES
I-6	(E) COUNTY INLET	10.72	2.09	AREA C-6	0.13	0.95	0.26										
		10.72	2.09	AREA C-7	14.92	0.50	15.60										
P-7								27.24	18	RCP	0.013	278	14.5%	12.961	0.36	39.99	'NO
I-7	(E) COUNTY INLET	11.07	2.07	AREA C-8	2.36	0.50	2.44										
P-8								29.69	18	RCP	0.013	200	13.3%	12.414	0.27	38.29	'NO
I-8	(E) COUNTY INLET	11.34	2.06	AREA C-9	15.10	0.50	15.52										
P-9								45.21	21	RCP	0.013	130	12.4%	16.328	0.13	55.82	'NO
I-9	(E) COUNTY INLET	11.48	2.05	AREA C-10	7.61	0.50	7.79										
P-10								53.00	24	RCP	0.013	374	14.3%	22.883	0.27	85.52	'NO
I-10	(E) COUNTY INLET	11.75	2.03	AREA C-11	0.50	0.95	0.97										
P-11								53.96	24	RCP	0.013	64	10.0%	19.136	0.06	71.51	'NO
I-11	(E) COUNTY INLET	11.80	2.03	AREA C-12	3.41	0.5	3.46										
P-12								57.42	30	RCP	0.013	116	1.3%	10.781	0.18	46.75	'YES
OUTLET	POLHEMUS CREEK																



REGISTERED PROFESSIONAL ENGINEER
JAMES TOBY
No. 63127
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA
ORIGINAL SIGNATURES IN BLUE INK

LEA & BRAZE ENGINEERING, INC.
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HAYWARD, CALIFORNIA 94545
(510) 887-4086
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WWW.LEABRAZE.COM

ASCENSION DR. & BEL AIRE RD.
SAN MATEO, CA

SAN MATEO COUNTY

EXHIBIT A.1
EXISTING STORM DRAIN SYSTEM
HYDROLOGY BASE MAP

REVISIONS	BY

JOB NO:	2010135
DATE:	3-9-10
SCALE:	1" = 60'
DRAWN BY:	JT
SHEET NO:	1
OF 1 SHEETS	

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Storm Drain Design by Rational Formula - County of San Mateo
Ascension Heights Subdivision
Ascension Dr and Bel Aire Rd, San Mateo
10 YEAR STORM
North Side - Line "N"
Exhibit A.2

Lea & Braze Job # 2010135

Label	Description	Tc (min)	Local Intensity (in/hr)	Area Designation	Area (sf)	Area (acres)	C	System Contributing flow (cfs)	Total System Flow (cfs)	Pipe Size (inches)	Pipe Type	Manning's "n"	Pipe Length (ft)	Pipe Slope (ft/ft)	Average Velocity (ft/s)	Pipe Flow Time (min)	Pipe Capacity (cfs)	Exceeds Capacity
CB-N1	(N) COUNTY INLET	10.00	2.21	AREA N-16	10130	0.23	0.95	0.49										
P-N1									0.49	12	HDPE	0.011	67	2.00%	2.528	0.44	5.95	'NO
SDMH-N1	(N) COUNTY MANHOLE	10.44	2.17	AREA N-9	15982	0.37		0.12										
				AREA N-9a	4253	0.10	0.50	0.11										
P-N2									0.71	12	HDPE	0.011	96	9.05%	5.379	0.30	12.66	'NO
SDMH-N2	(N) COUNTY MANHOLE	10.74	2.15	AREA N-8	9466	0.22		0.11										
P-N3									0.82	12	HDPE	0.011	107	1.87%	2.445	0.73	5.76	'NO
SDMH-N3	(N) COUNTY MANHOLE	11.47	2.10															
P-N4									0.82	12	HDPE	0.011	586	4.61%	3.839	2.54	9.04	'NO
SDMH-N4	(N) COUNTY MANHOLE	14.01	1.92	AREA N-7	8912	0.20		0.10										
				AREA N-6	9964	0.23		0.11										
				AREA N-5	7500	0.17		0.09										
				AREA N-4	7500	0.17		0.09										
				AREA N-3	7500	0.17		0.09										
				AREA N-2	9000	0.21		0.10										
				AREA N-1	9827	0.23		0.11										
P-N5									1.51	12	HDPE	0.011	66	6.06%	4.401	0.25	10.36	'NO
CB-N2	(N) COUNTY INLET	10.00	2.21	AREA N-10	9707	0.22		0.10										
				AREA N-11	9500	0.22		0.10										
				AREA N-12	9466	0.22		0.10										
				AREA N-17	7898	0.18	0.95	0.38										
P-N6									0.68	12	HDPE	0.011	124	16.13%	7.181	0.29	16.90	'NO
CB-N7	(N) COUNTY INLET	10.29	2.18	AREA N-18	7135	0.16	0.95	0.34										
P-N7									1.02	12	HDPE	0.011	21	1.00%	1.788	0.20	4.21	'NO
CB-N3	(N) COUNTY INLET	10.00	2.21	AREA N-19	6196	0.14	0.5	0.16										
P-N8									0.16	12	HDPE	0.011	43	1.00%	1.788	0.40	4.21	'NO
SDMH-N5	(N) COUNTY MANHOLE	10.40	2.18															
P-N9									0.16	12	HDPE	0.011	140	16.35%	7.229	0.32	17.02	'NO
CB-N4	(N) COUNTY INLET	10.72	2.15	AREA N-20	7114	0.16	0.95	0.33										
P-N10									0.49	12	HDPE	0.011	154	15.62%	7.066	0.36	16.64	'NO
CB-N5	(N) COUNTY INLET	11.09	2.13	AREA N-21	7691	0.18	0.95	0.36										
P-N11									0.85	12	HDPE	0.011	123	16.15%	7.185	0.29	16.92	'NO
CB-N6	(N) COUNTY INLET	11.37	2.11	AREA N-13	9466	0.22	0.95	0.10										
				AREA N-14	9500	0.22	0.95	0.10										
				AREA N-15	8669	0.20	0.95	0.10										
				AREA N-15a	1086	0.02	0.5	0.03										
				AREA N-22	5214	0.12	0.95	0.24										
P-N12									1.41	12	HDPE	0.011	126	12.39%	6.293	0.33	14.82	'NO
CB-N8	(N) COUNTY INLET	10.00	2.21	AREA N-23	6389	0.15	0.95	0.31										
P-N13									0.31	12	HDPE	0.011	38	1.00%	1.788	0.35	4.21	'NO
SDMH-N6	(N) COUNTY MANHOLE	10.29	2.18															
P-N14									2.74	12	HDPE	0.011	72	11.11%	5.959	0.20	14.03	'NO
SDMH-N7	(N) COUNTY MANHOLE	10.49	2.17															
P-N15									4.25	12	HDPE	0.011	110	18.18%	7.623	0.24	17.95	'NO
SDMH-N8	(N) COUNTY MANHOLE	10.73	2.15															
P-N16									4.25	12	HDPE	0.011	42	14.00%	6.690	0.10	15.75	'NO
SDMH-N9	(N) COUNTY MANHOLE	10.83	2.14	AREA N-24	17172	0.39	0.95	0.80										
P-N17									5.06	12	HDPE	0.011	28	7.43%	4.873	0.10	11.47	'NO
SDMH-N10	(N) COUNTY MANHOLE	10.93	2.14															

Label	Description	Tc (min)	Local Intensity (in/hr)	Area Designation	Area (sf)	Area (acres)	C	System Contributing flow (cfs)	Total System Flow (cfs)	Pipe Size (inches)	Pipe Type	Manning's "n"	Pipe Length (ft)	Pipe Slope (ft/ft)	Average Velocity (ft/s)	Pipe Flow Time (min)	Pipe Capacity (cfs)	Exceeds Capacity
P-N18									5.06	12	HDPE	0.011	162	8.23%	5.129	0.53	12.08	'NO
SDMH-N11	(N) COUNTY MANHOLE	11.46	2.10															
P-N19									5.06	12	HDPE	0.011	491	14.05%	6.702	1.22	15.78	'NO
SDMH-C2	(N) COUNTY MANHOLE	11.46	2.10															

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Storm Drain Design by Rational Formula - County of San Mateo
Ascension Heights Subdivision
Ascension Dr and Bel Aire Rd, San Mateo
10 YEAR STORM
South Side - Line "S"
Exhibit A.2

Lea & Braze Job # 2010135

Label	Description	Tc (min)	Local Intensity (in/hr)	Area Designation	Area (sf)	Area (acres)	C	System Contributing flow (cfs)	Total System Flow (cfs)	Pipe Size (inches)	Pipe Type	Manning's "n"	Pipe Length (ft)	Pipe Slope (ft/ft)	Average Velocity (ft/s)	Pipe Flow Time (min)	Pipe Capacity (cfs)	Exceeds Capacity
CB-S1	(N) V-24 CATCH BASIN	10.00	2.21	AREA S-1	7504.00	0.172		0.09										
				AREA S-1a	834.00	0.019	0.4	0.02										
P-S1									0.11	12	HDPE	0.011	93	29.03%	9.633	0.16	22.68	'NO
CB-S2	(N) V-24 CATCH BASIN	10.16	2.19	AREA S-2	7500.00	0.172		0.09										
P-S2									0.20	12	HDPE	0.011	94	17.02%	7.376	0.21	17.36	'NO
CB-S3	(N) V-24 CATCH BASIN	10.37	2.18	AREA S-3	7538.00	0.173		0.09										
P-S3									0.29	12	HDPE	0.011	79	6.67%	4.617	0.29	10.87	'NO
CB-S4	(N) V-24 CATCH BASIN	10.66	2.16	AREA S-4	7563.00	0.174		0.09										
P-S4									0.38	12	HDPE	0.011	214	42.06%	11.595	0.31	27.30	'NO
SDMH-S1	(N) COUNTY MANHOLE	10.97	2.14															
P-S5									0.38	12	HDPE	0.011	42	33.33%	10.322	0.07	24.30	'NO
SDMH-S2	(N) COUNTY MANHOLE	11.03	2.13															
P-S6									0.38	12	HDPE	0.011	160	8.94%	5.346	0.50	12.59	'NO
SDMH-S3	(N) COUNTY MANHOLE	11.53	2.09															
P-S7									0.38	12	HDPE	0.011	88	3.78%	3.476	0.42	8.18	'NO
SDMH-C2	(N) COUNTY MANHOLE	11.95	2.06															

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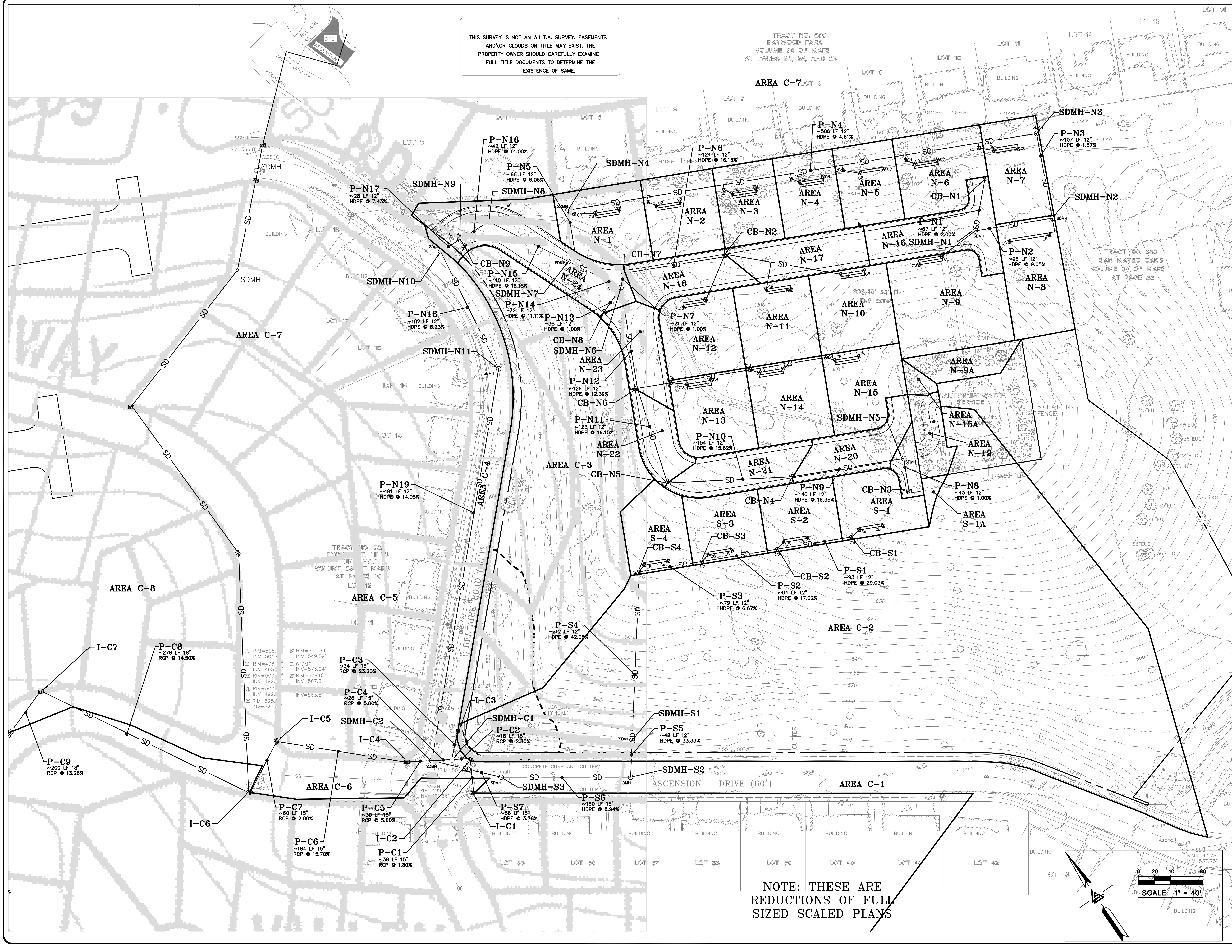
Storm Drain Design by Rational Formula - County of San Mateo
Ascension Heights Subdivision
Ascension Dr and Bel Aire Rd, San Mateo
10 YEAR STORM
County - Line "C"
Exhibit A.2

Lea & Braze Job # 2010135

Label	Description	Tc (min)	Local Intensity (in/hr)	Area Designation	Area (acres)	C	System Contributing flow (cfs)	Total System Flow (cfs)	Pipe Size (inches)	Pipe Type	Manning's "n"	Pipe Length (ft)	Pipe Slope (ft/ft)	Average Velocity (ft/s)	Pipe Flow Time (min)	Pipe Capacity (cfs)	Exceeds Capacity
I-C1	(E) COUNTY INLET	10.00	2.32	AREA C-1	0.40	0.95	0.88										
P-C1								0.88	15	RCP	0.013	38	1.80%	3.171	0.20	8.66	'NO
I-C2	(E) COUNTY INLET	10.20	2.24	AREA C-2	5.06	0.40	4.53										
		10.20	2.24	AREA C-2	0.46	0.95	0.98										
P-C2								6.39	15	RCP	0.013	17	2.8%	3.955	0.07	10.81	'NO
I-C3	(E) COUNTY INLET	10.00	2.32	AREA C-3	1.83	0.40	1.70										
		10.00	2.32	AREA C-3	0.24	0.95	0.53										
P-C3								2.23	15	RCP	0.013	34	23.2%	11.385	0.05	31.10	'NO
SDMH-C1	(E) COUNTY MANHOLE	10.05	2.13														
P-C4								8.62	15	RCP	0.013	26	5.8%	5.693	0.08	15.55	'NO
SDMH-C2	(N) COUNTY MANHOLE	11.46	2.05	NORTH			5.06										
SDMH-C2	(N) COUNTY MANHOLE	11.95	2.02	SOUTH			0.38										
P-C5								14.05	15	RCP	0.013	30	5.8%	5.693	0.09	15.55	'NO
I-C4	(E) COUNTY INLET	12.04	2.02	AREA C-4	0.26	0.95	0.50										
P-C6								14.55	15	RCP	0.013	164	15.7%	9.366	0.29	25.59	'NO
I-C5	(E) COUNTY INLET	12.33	2.00	AREA C-5	2.12	0.50	2.12										
P-C7								16.67	21	RCP	0.013	60	2.0%	6.552	0.15	22.40	'NO
I-C6	(E) COUNTY INLET	12.49	1.99	AREA C-6	0.13	0.95	0.25										
		12.49	1.99	AREA C-7	14.92	0.50	14.84										
P-C8								31.76	18	RCP	0.013	278	14.5%	12.961	0.36	39.99	'NO
I-C7	(E) COUNTY INLET	12.84	1.97	AREA C-8	2.36	0.50	2.32										
P-C9								34.08	18	RCP	0.013	200	13.3%	12.414	0.27	38.29	'NO
I-C8	(E) COUNTY INLET	13.11	1.95	AREA C-9	15.10	0.50	14.75										
P-C10								48.83	21	RCP	0.013	130	12.4%	16.328	0.13	55.82	'NO
I-C9	(E) COUNTY INLET	13.25	1.95	AREA C-10	7.61	0.50	7.40										
P-C11								56.24	24	RCP	0.013	374	14.3%	22.883	0.27	85.52	'NO
I-C10	(E) COUNTY INLET	13.52	1.93	AREA C-11	0.50	0.95	0.92										
P-C12								57.15	24	RCP	0.013	64	10.0%	19.136	0.06	71.51	'NO
I-C11	(E) COUNTY INLET	13.57	1.93	AREA C-12	3.41	0.5	3.29										
P-C13								60.44	36	RCP	0.013	116	1.3%	15.524	0.12	76.02	'NO
OUTLET	POLHEMUS CREEK																



No. 63127
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA
JAMES TOBY

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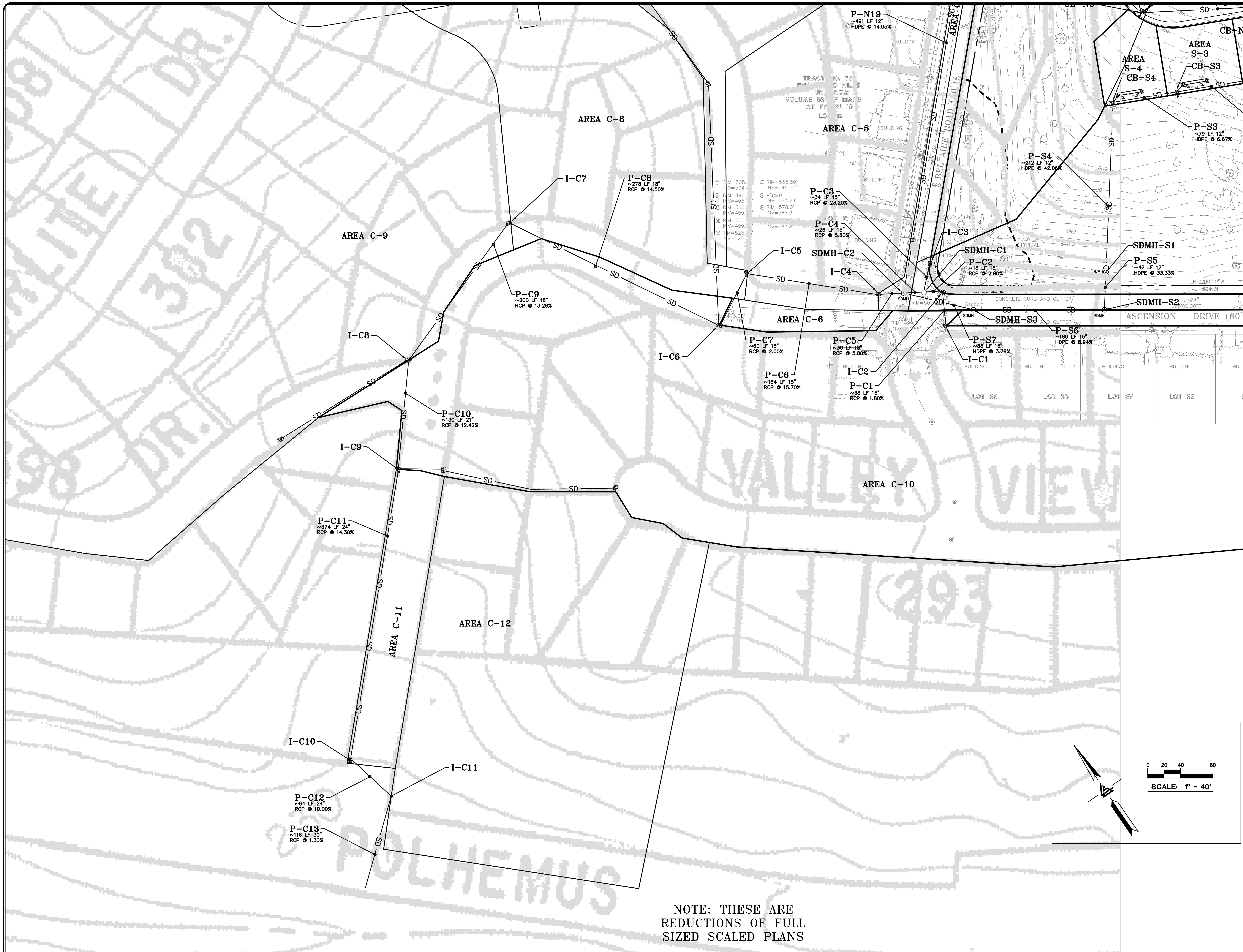
ASCENSION DR. & BEL AIRE RD.
SAN MATEO, CA

SAN MATEO COUNTY

EXHIBIT A.2
PROPOSED STORM DRAIN SYSTEM
HYDRO BASE MAP

REVISIONS	BY
JOB NO:	2010135
DATE:	3-9-10
SCALE:	1" = 40'
DRAWN BY:	PT
SHEET NO:	1
OF 2 SHEETS	



NOTE: THESE ARE
REDUCTIONS OF FULL
SIZED SCALED PLANS

REGISTERED PROFESSIONAL ENGINEER
JAMES TOBY
No. 63127
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA

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ASCENSION DR. & BEL AIRE RD.
SAN MATEO, CA
SAN MATEO COUNTY

EXHIBIT A.2
PROPOSED STORM DRAIN
SYSTEM
HYDRO BASE MAP

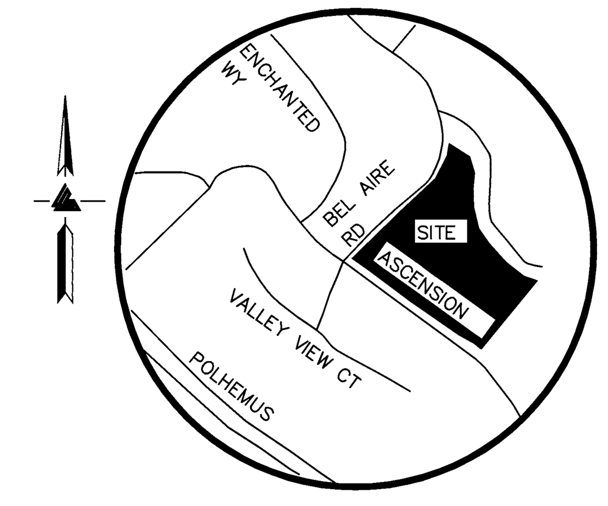
REVISIONS	BY

JOB NO:	2010135
DATE:	3-9-10
SCALE:	1" = 40'
DRAWN BY:	PT
SHEET NO:	

2
OF 2 SHEETS

Appendix D

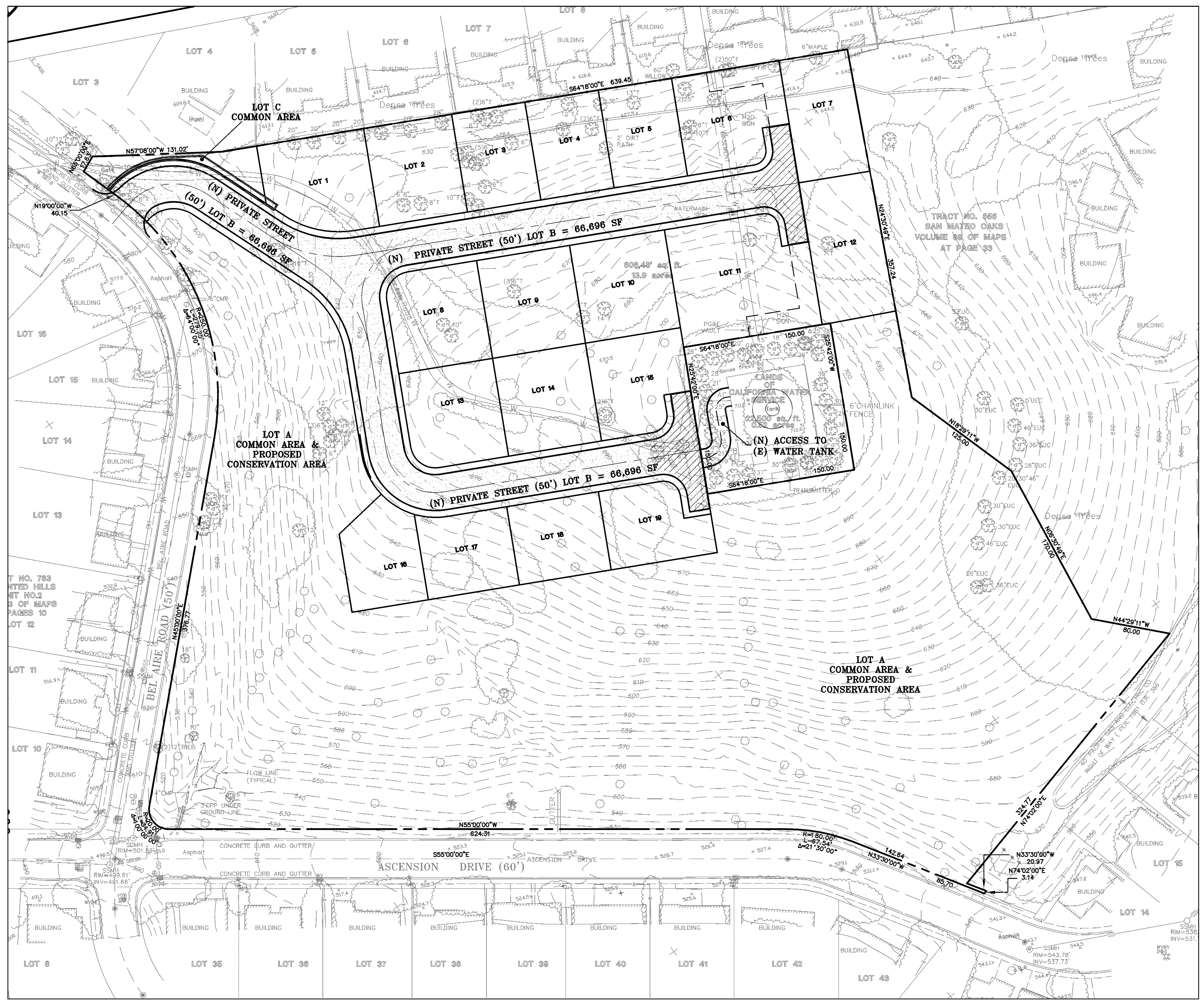
VESTING TENTATIVE SUBDIVISION MAP
ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA
(UNINCORPORATED)



VICINITY MAP
NO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		BOUNDARY
		PROPERTY LINE
	SD	STORM DRAIN LINE
	SS	SANITARY SEWER LINE
	W	WATER LINE
		SET BACK LINE
		FLOW DIRECTION
		RETAINING WALL
		CONCRETE VALLEY GUTTER
		SWALE FLOW DIRECTION
	200	CONTOURS
SSMH	SSMH	SANITARY SEWER MANHOLE
SSCO	SSCO	SANITARY SEWER CLEANOUT
SDMH	SDMH	STORM DRAIN MANHOLE
OH		OVERHEAD UTILITY LINE
	CDS	STORM WATER TREATMENT UNIT
SS		SANITARY SEWER UNDERGROUND LINE
SD		STORM DRAIN UNDERGROUND LINE
		PINE TREE (UNLESS NOTED)
		MISC. UTILITIES
		FIRE HYDRANT
		ELECTRIC POLE
T		TREE
		JOINT POLE
	CB	CATCH BASIN
		CURB INLET
	JB	JUNCTION BOX
		ELECTROLIER
		SMALL SIGN
		LIGHT ON POLE
		GUY ANCHOR
		POST
X		FENCE
		TREE
		DENSE TREE LINE
000.0	123.00 FG	SPOT ELEVATION
NO. 000.0		HORIZONTAL AND VERTICAL CONTROL
		PALM TREE
		CITY MONUMENT
PB		PACIFIC BELL VAULT
PG & E		PG&E VAULT
GA		GUY ANCHOR
AD		AREA DRAIN
	XX" TREE	TREE TO BE REMOVED



KEY MAP
SCALE: 1" = 60'

PROJECT INFORMATION

OWNERS:	JOHN O' ROURKE CHRIS T. JAMES
AREA:	13.32± ACRES
ASSESSOR'S PARCEL NOS.:	1. 041-111-020 2. 041-111-130 3. 041-111-160 4. 041-111-270 5. 041-111-280 6. 041-111-320 7. 041-111-360
CONSULTANTS	
CIVIL ENGINEER/SURVEYOR:	LEA & BRAZE ENGINEERING, INC. 2495 INDUSTRIAL PARKWAY WEST HAYWARD, CA 94545 PH: (510) 887-4086 FAX: (510) 887-3019 CONTACT: JIM TOBY
SUBDIVIDER:	SAN MATEO REAL ESTATE & CONSTRUCTION 1777 BOREL PLACE, SUITE 330 SAN MATEO, CA 94402 PH: (650) 578-0330 CONTACT: DENNIS THOMAS
SUBDIVISION NAME:	ASCENSION HEIGHTS SUBDIVISION
COUNTY/DISTRICT APPROVALS	
ZONING:	R-1/S-8

LOT COVERAGE

		% OF TOTAL BEFORE DEDICATION
INDIVIDUAL LOTS TOTAL:	180,807 S.F.	31%
PRIVATE STREETS:	58,656 S.F.	10%
CONSERVATION/TRAIL/TOT LOT AREA	340,599 S.F.	59%
	TOTAL	

TREES ON SITE:	78
TREES TO BE REMOVED:	43
	EXISTING TREES REMOVED WILL BE REPLANTED WITH NEW NATIVE TREES AT A 3:1 RATIO.
UTILITY SERVICES:	
STORM DRAIN:	SAN MATEO COUNTY
SANITARY SEWER:	CRYSTAL SPRINGS SANITARY DISTRICT
WATER:	CALIFORNIA WATER
FIRE:	CALIFORNIA DEPARTMENT OF FORESTRY
CABLE:	COMCAST
GAS & ELECTRICAL:	PG&E
TELEPHONE:	AT&T
EXISTING USE:	VACANT LOT
PROPOSED USE:	-SINGLE FAMILY, RESIDENTIAL HOUSING WITH PUBLIC STREETS -OPEN SPACE WITH TRAILS

BENCHMARK

IRON PIPE MONUMENT IN HAND HOLE
PER. TRACT NO. 783
ENCHANTED HILL UNIT NO. 2
VOLUME 53 OF MAPS
AT PAGE 10
ELEVATION=583.61'
ASSUMED

SHEET INDEX

REGISTERED PROFESSIONAL ENGINEER
JAMES TOBY
No. 63127
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA

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ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA
(UNINCORPORATED) SAN MATEO COUNTY

VESTING TENTATIVE SUBDIVISION MAP
TITLE SHEET

REVISIONS	BY
JOB NO:	2010135
DATE:	11-08-11
SCALE:	1" = 60'
DESIGN BY:	JT
DRAWN BY:	TB
SHEET NO:	C-1
	OF 5 SHEETS

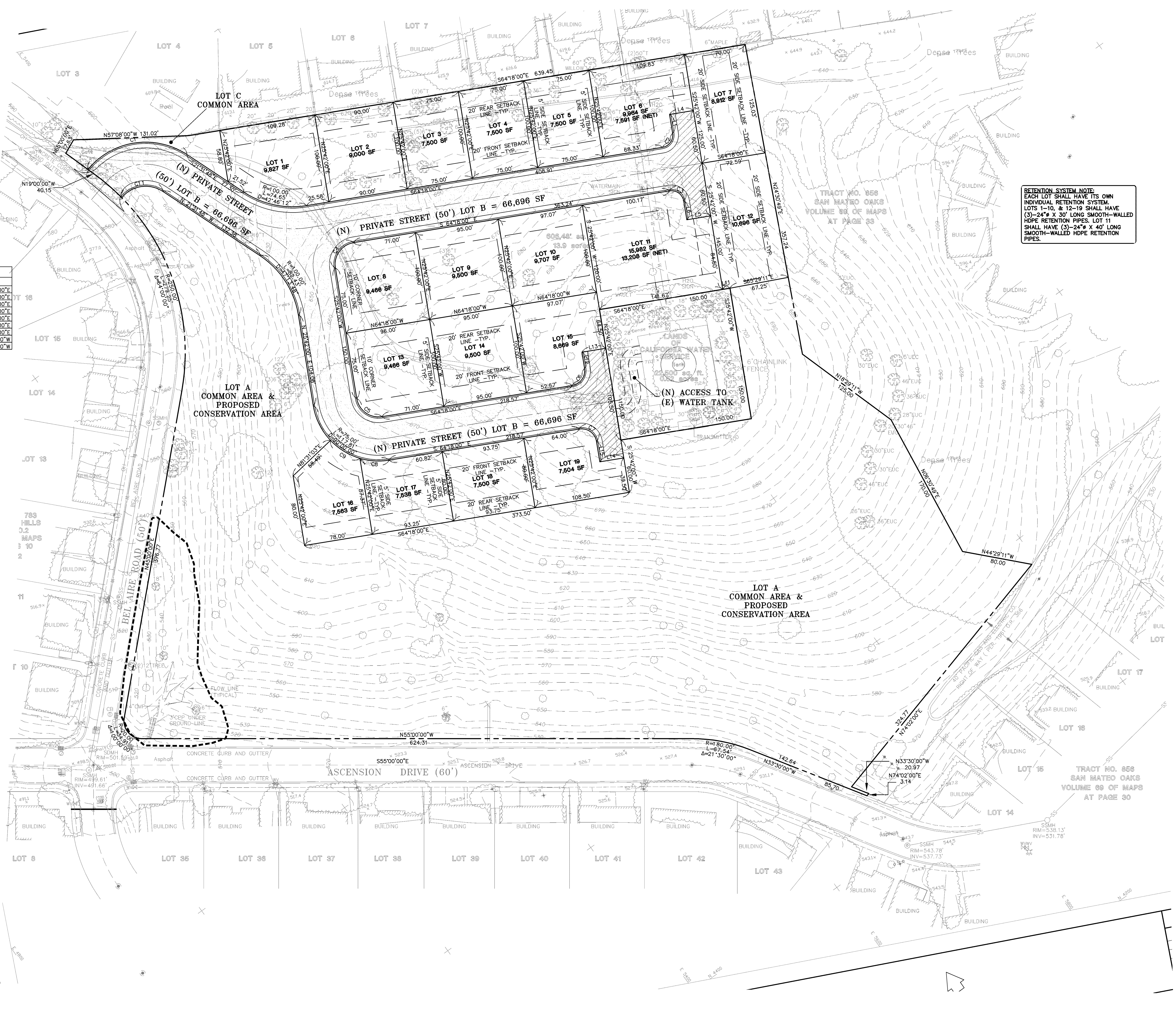
SCALE: 1" = 40'

BENCHMARK

IRON PIPE MONUMENT IN HAND HOLE
PER. TRACT NO. 783
ENCHANTED HILL UNIT NO. 2
VOLUME 53 OF MAPS
AT PAGE 10
ELEVATION=583.61'
ASSUMED

LINE TABLE		
LINE	LENGTH	BEARING
L1	21.50	N25°42'00"E
L4	27.50	S64°18'00"E
L5	27.50	S64°18'00"E
L6	21.50	N25°42'00"E
L11	8.33	S64°18'00"E
L12	18.50	N25°42'00"E
L13	27.50	S64°18'00"E
L14	27.50	N64°18'00"W
L15	23.50	S25°42'00"W

CURVE TABLE		
CURVE	LENGTH	RADIUS
C1	124.57	85.00
C2	21.99	14.00
C3	21.99	14.00
C4	39.27	25.00
C5	39.27	25.00
C6	26.70	17.00
C7	26.70	17.00
C8	33.54	75.00
C9	39.53	75.00
C11	51.59	35.00



RETENTION SYSTEM NOTE:
EACH LOT SHALL HAVE ITS OWN INDIVIDUAL RETENTION SYSTEM. LOTS 1–10, & 12–19 SHALL HAVE (3)–24"ø X 30' LONG SMOOTH–WALLED HDPE RETENTION PIPES. LOT 11 SHALL HAVE (3)–24"ø X 40' LONG SMOOTH–WALLED HDPE RETENTION PIPES.

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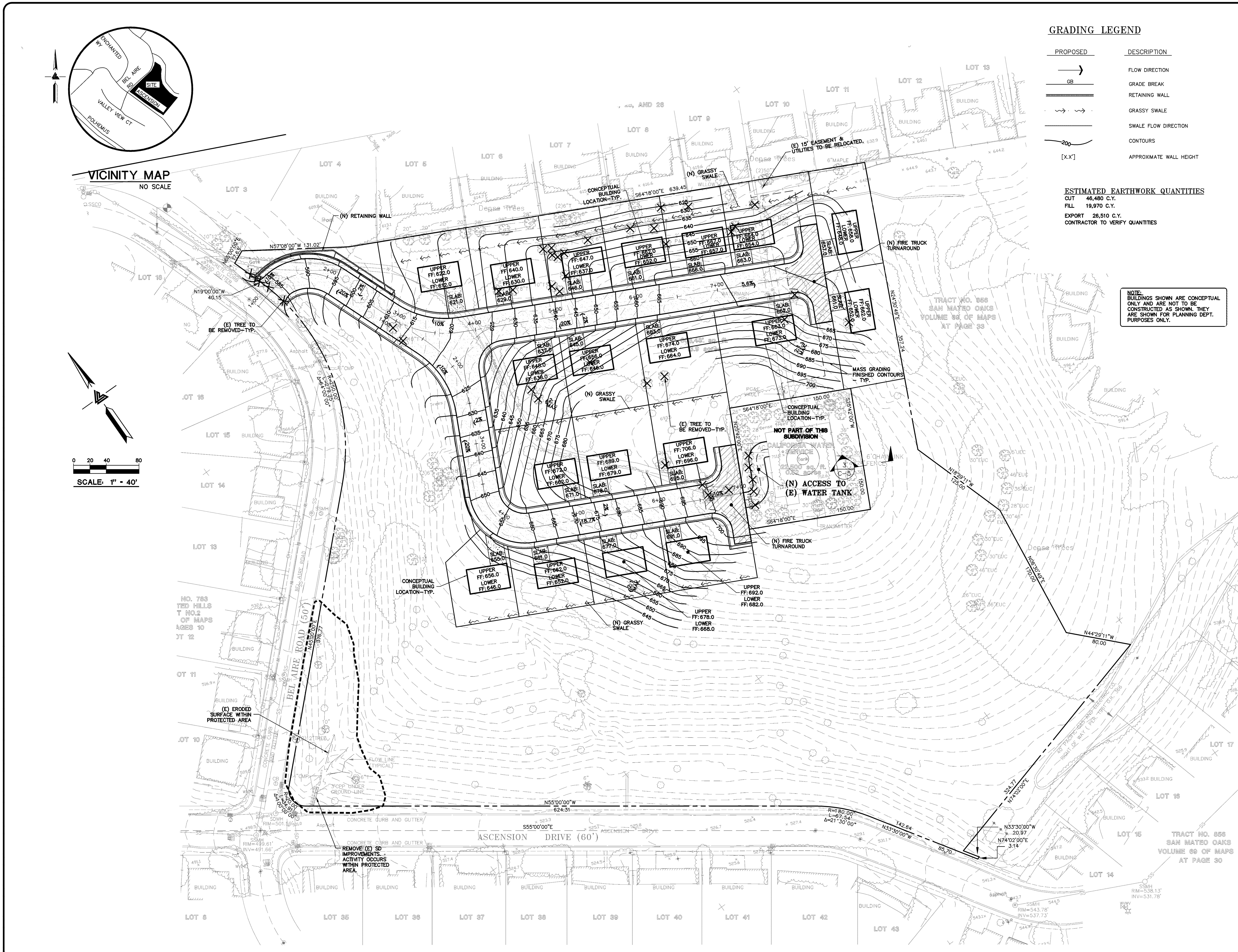
ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA
(UNINCORPORATED) SAN MATEO COUNTY

VESTING TENTATIVE SUBDIVISION MAP LOT LAYOUT PLAN

REVISIONS	BY

JOB NO: 2010135
DATE: 11-08-11
SCALE: 1" = 40'
DESIGN BY: JT
DRAWN BY: TB
SHEET NO:
C-2
OF 5 SHEETS



GRADING LEGEND

PROPOSED	DESCRIPTION
→	FLOW DIRECTION
GB	GRADE BREAK
	RETAINING WALL
	GRASSY SWALE
	SWALE FLOW DIRECTION
200	CONTOURS
[X.X']	APPROXIMATE WALL HEIGHT

ESTIMATED EARTHWORK QUANTITIES

CUT 46,480 C.Y.
FILL 19,970 C.Y.

EXPORT 26,510 C.Y.
CONTRACTOR TO VERIFY QUANTITIES

NOTE:
BUILDINGS SHOWN ARE CONCEPTUAL ONLY AND ARE NOT TO BE CONSTRUCTED AS SHOWN. THEY ARE SHOWN FOR PLANNING DEPT. PURPOSES ONLY.

REGISTERED PROFESSIONAL ENGINEER
JAMES TOBY
No. 63127
Exp. 06-30-12
CIVIL
STATE OF CALIFORNIA

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ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA

(UNINCORPORATED) SAN MATEO COUNTY

VESTING TENTATIVE SUBDIVISION MAP PRELIMINARY GRADING AND DRAINAGE PLAN

REVISIONS	BY

JOB NO:	2010135
DATE:	11-08-11
SCALE:	1" = 40'
DESIGN BY:	JT
DRAWN BY:	TB
SHEET NO:	C-3

OF 5 SHEETS

UTILITY LEGEND

PROPOSED	DESCRIPTION
SD	STORM DRAIN LINE
SS	SANITARY SEWER LINE
W	WATER LINE
SSMH	SANITARY SEWER MANHOLE
SSCO	SANITARY SEWER CLEAN OUT
SDMH	STORM DRAIN MANHOLE
	FIRE HYDRANT
CB	CATCH BASIN
	CURB INLET
JB	JUNCTION BOX

REGISTERED PROFESSIONAL ENGINEER JAMES TOBY No. 63127 Exp. 06-30-12 CIVIL STATE OF CALIFORNIA

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ASCENSION HEIGHTS SUBDIVISION
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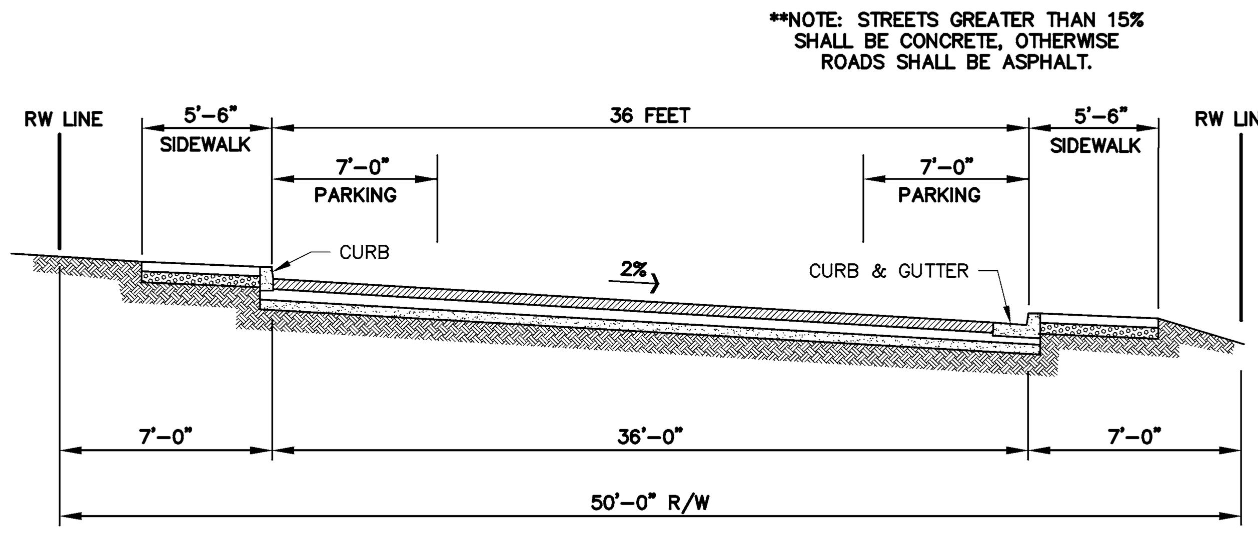
VESTING TENTATIVE SUBDIVISION MAP PRELIMINARY UTILITY COMPOSITE PLAN

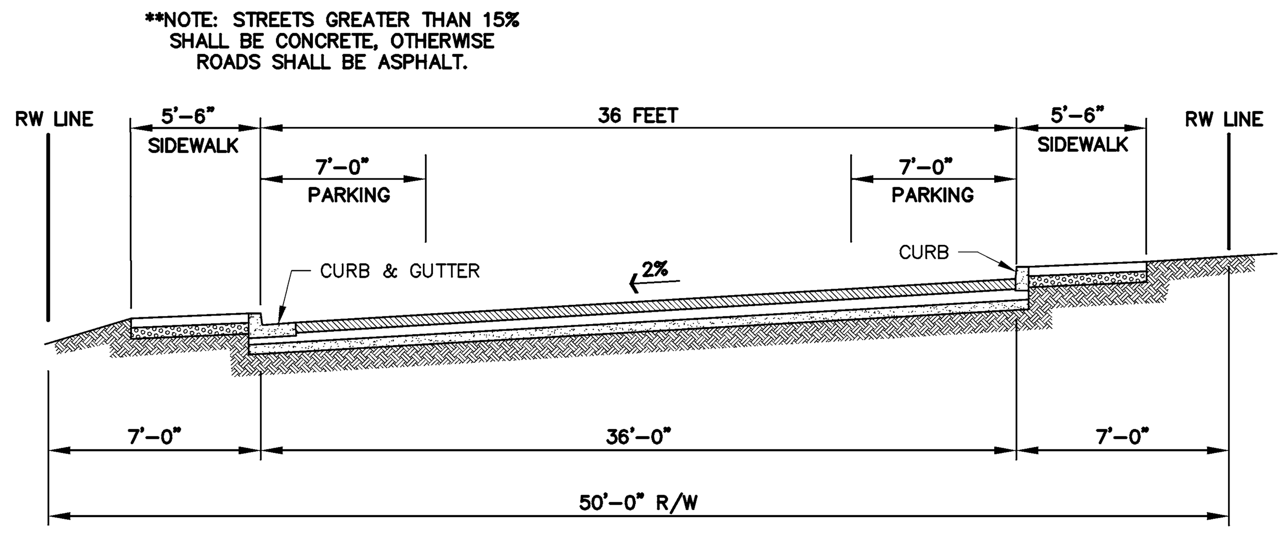
REVISIONS	BY
JOB NO:	2010135
DATE:	11-08-11
SCALE:	1" = 40'
DESIGN BY:	JT
DRAWN BY:	TB
SHEET NO:	

C-4

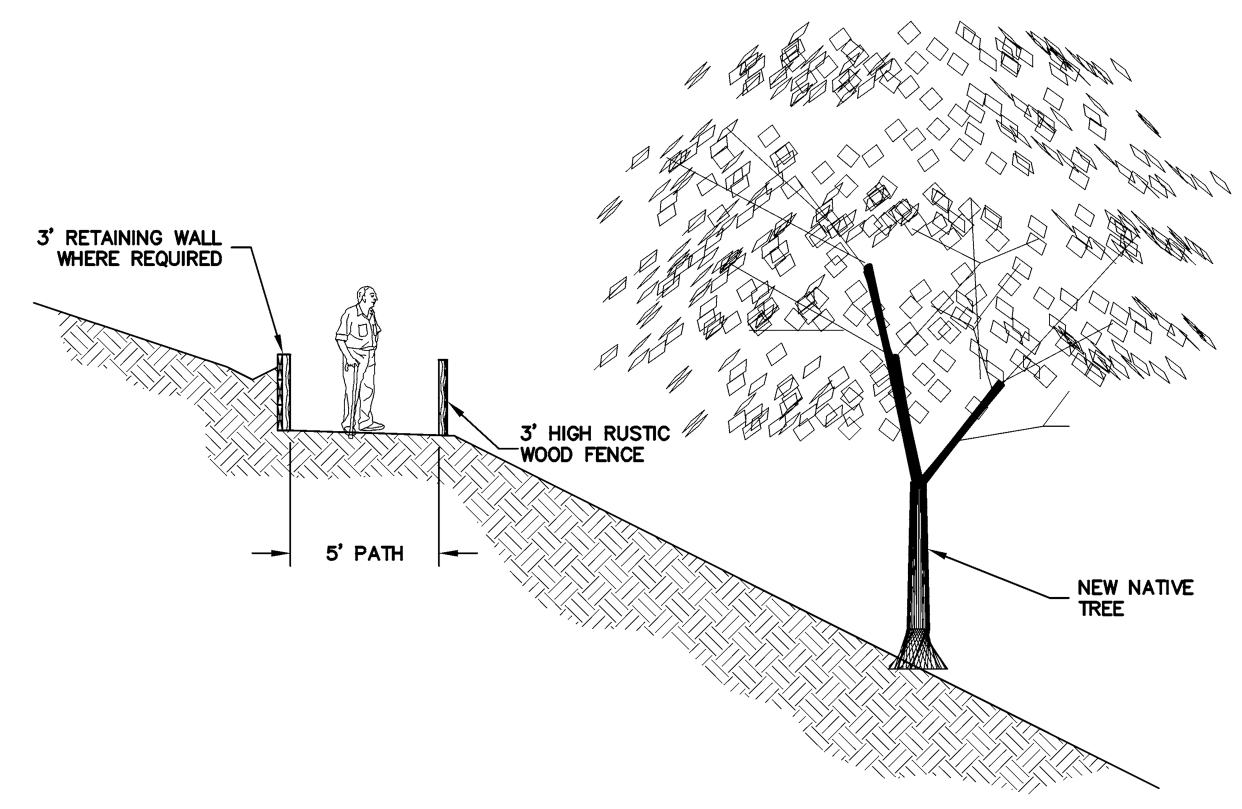
OF 5 SHEETS



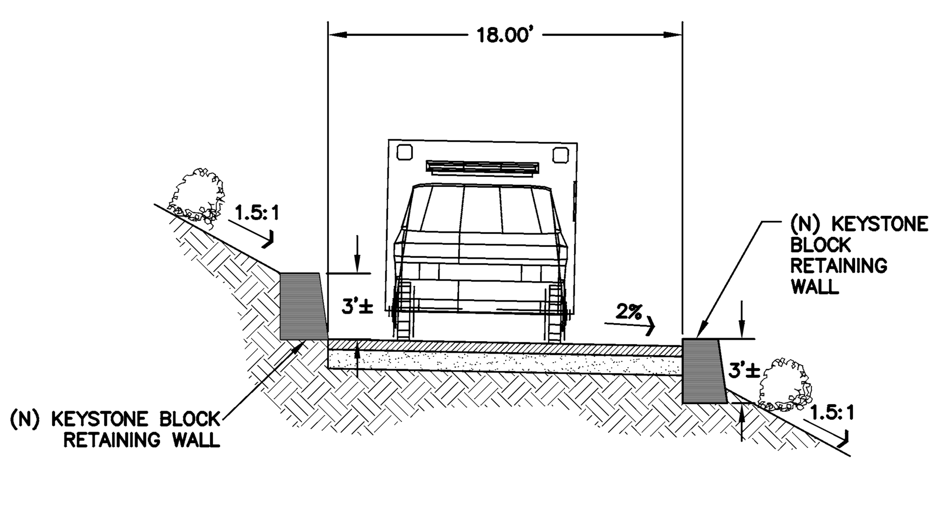
PRIVATE STREET CROSS SECTION (1/C-5)
N.T.S.



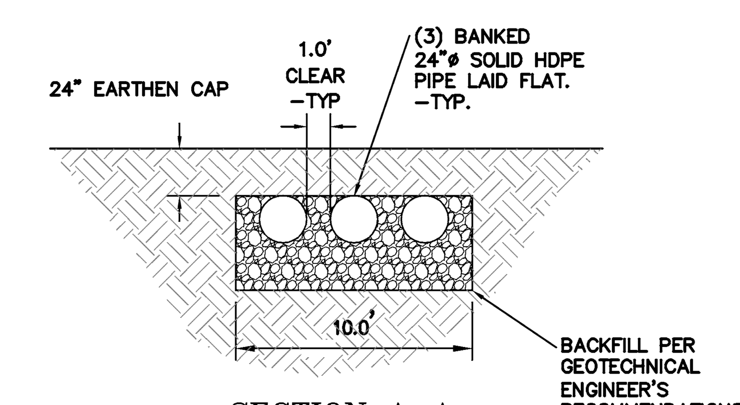
PRIVATE STREET CROSS SECTION (2/C-5)
N.T.S.



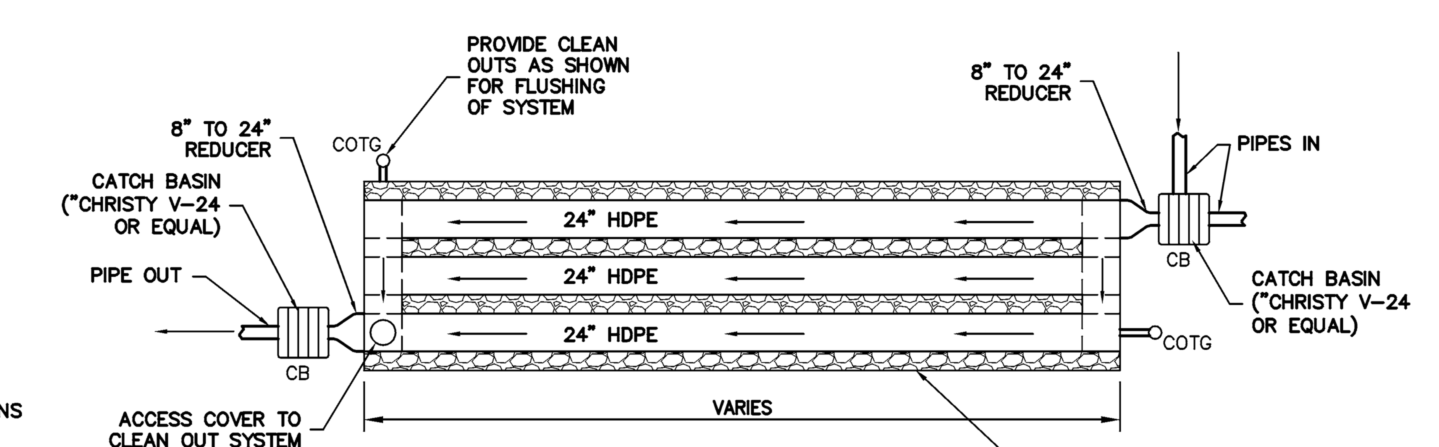
CONCEPTUAL TRAIL CROSS SECTION (3/C-5)
N.T.S.



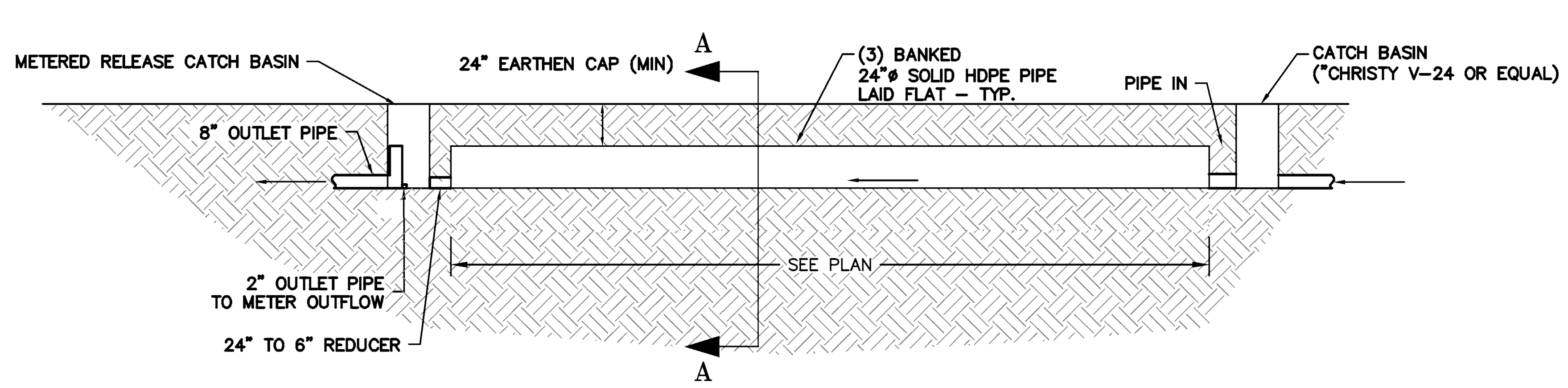
WATER ACCESS ROAD SECTION (5/C-5)
N.T.S.



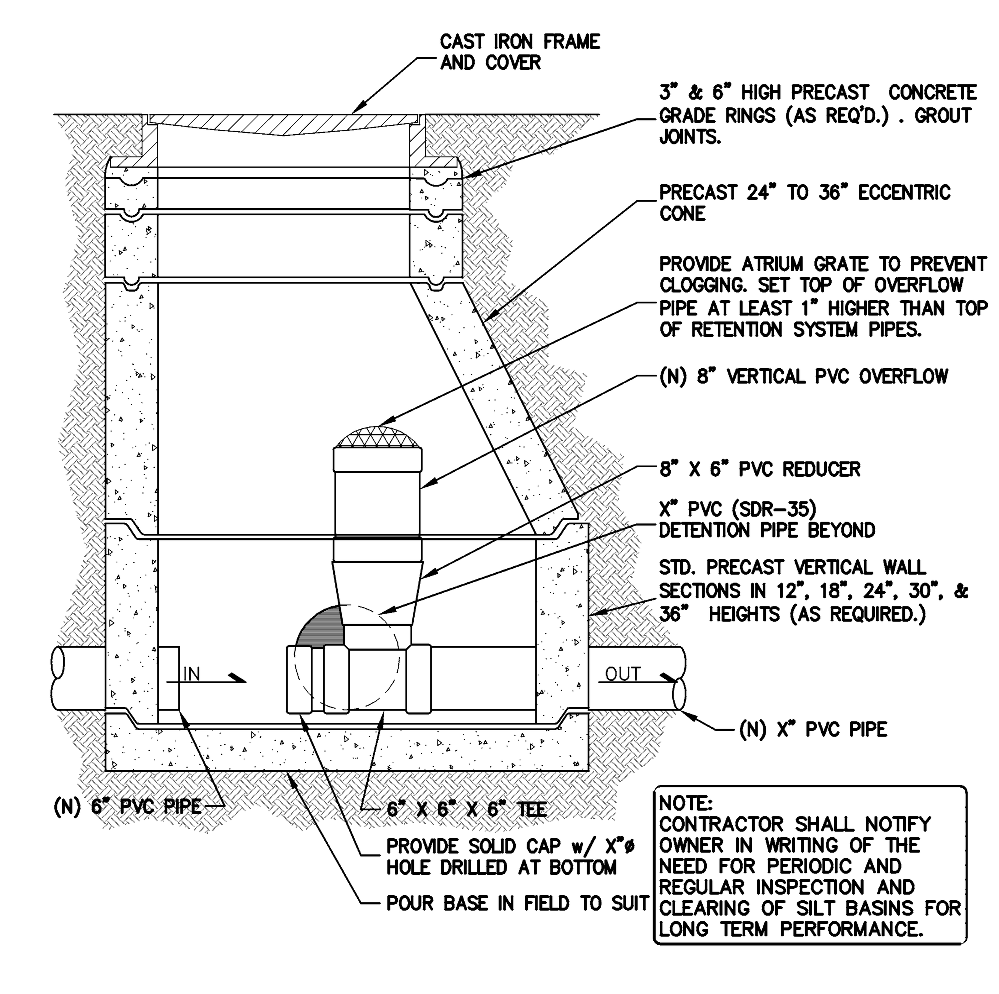
SECTION A–A



PLAN VIEW



RETENTION/DISSIPATOR STRUCTURE
NOT TO SCALE



METERED RELEASE OUTLET
NOT TO SCALE

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ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA
(UNINCORPORATED) SAN MATEO COUNTY

VESTING TENTATIVE SUBDIVISION MAP
CONCEPTUAL DETAILS

REVISIONS	BY
JOB NO:	2010135
DATE:	11-08-11
SCALE:	AS NOTED
DESIGN BY:	JT
DRAWN BY:	TB
SHEET NO:	

C-5
OF 5 SHEETS

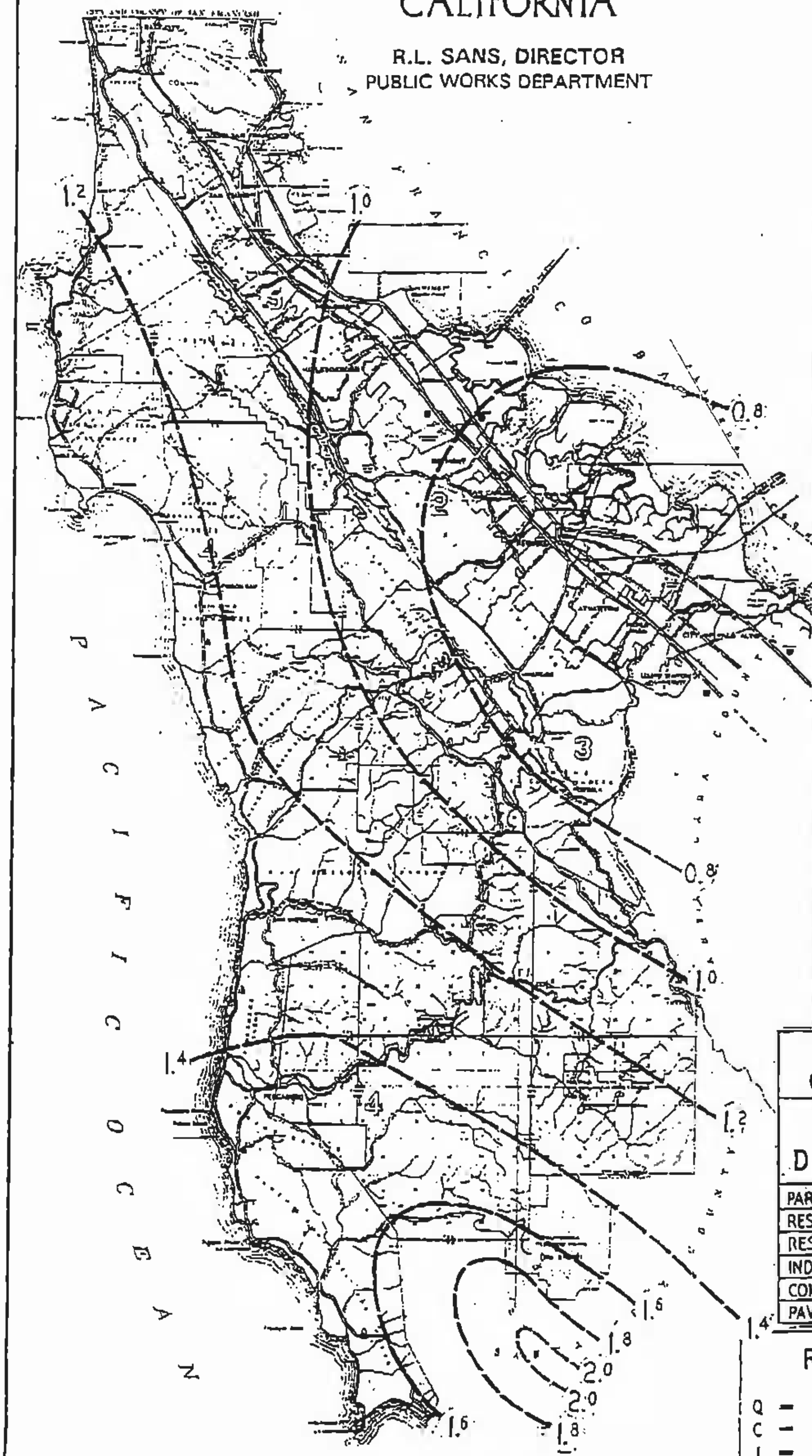
Appendix E

RAINFALL RUNOFF DATA

SAN MATEO COUNTY

CALIFORNIA

R.L. SANS, DIRECTOR
PUBLIC WORKS DEPARTMENT



RAINFALL			
TIME OF CONCENTRATION		INTENSITY INCHES PER HOUR	
HRS.	MIN.	10 YR.	100 YR.
0	10	2.45	3.60
0	15	2.05	3.00
0	20	1.73	2.55
0	25	1.50	2.22
0	30	1.33	1.95
0	35	1.20	1.75
0	40	1.10	1.61
0	45	1.02	1.49
0	50	0.95	1.37
0	55	0.90	1.28
1	00	0.86	1.21
1	15	0.75	1.07
1	30	0.67	0.95
1	45	0.61	0.87
2	00	0.56	0.80
2	30	0.49	0.70
3	00	0.44	0.63
3	30	0.40	0.57
4	00	0.37	0.53
4	30	0.34	0.49
5	00	0.32	0.45
6	00	0.29	0.41
7	00	0.26	0.38
8	00	0.24	0.35
9	00	0.23	0.33
10	00	0.21	0.30
12	00	0.19	0.27
24	00	0.13	0.18

RUNOFF COEFFICIENTS	
TYPE OF DEVELOPMENT	COEF.
PARKS AND CEMETERIES	0.30
RESIDENTIAL - ACRES	0.40
RESIDENTIAL - REGULAR	0.50
INDUSTRIAL	0.65
COMMERCIAL	0.75
PAVED AREAS	0.85

RATIONAL FORMULA

$Q = C.I.A.F.$

- Q — RUNOFF - CUBIC FEET PER SECOND
- C — RUNOFF COEFFICIENT - PERCENT
- I — RAINFALL INTENSITY - INCHES PER HOUR
- A — DRAINAGE AREA - ACRES
- F — INTENSITY FACTOR (FROM MAP)

Dr. 22-1846

APPENDIX M

C.3 TREATMENT CALCULATIONS

LEA & BRAZE ENGINEERING, INC.
CIVIL ENGINEERS | LAND SURVEYORS

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Hayward, CA 94545
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www.leabraze.com

C.3 Treatment Calculations

ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA

June 24, 2013

James Toby, P.E.
Civil Engineer

C.3 Treatment Calculation

ASCENSION HEIGHTS SUBDIVISION
SAN MATEO, CALIFORNIA

June 24, 2013

Project Information

The 13.25-acre project site is located at the eastern corner of Bel Aire Road and Ascension Drive. The proposed site will be a 19 unit single family residential development constructed on a large, mostly vacant lot.

Challenges and Constraints

Due to the natural steep topography of the land, one of the biggest challenges is the layout of the bioretention areas. Grading plus the addition of retaining walls is proposed in order to create leveled treatment areas for the proposed treatments.

C.3 Treatment Calculations

BMP Methods

The BMP method for this site is the use of bioretention areas.

Bioretention Areas

The best opportunity for storm water control for the onsite areas is by using several bioretention areas incorporated into the landscaping for each lot and for the street. Each lot is its own separate drainage management area (DMA). The new private street was also divided into four DMAs. The bioretention areas are sized by taking the impervious area in each DMA and multiplying the area by 4%. Because the design of the future house is still conceptual, a 25% safety factor has been added to the house areas in order to account for future expansion.

AREA DESCRIPTION (DMA)	TREATMENT CONTROL MEASURE	IMPERVIOUS AREA (sf)	IMPERVIOUS AREA WITH 25% SAFETY FACTOR	BMP SIZING	REQUIRED TREATMENT (sf)	PROPOSED TREATMENT (sf)
DMA 1	TCM 1	2147	2684	4%	107	110
DMA 2	TCM 2	1900	2375	4%	95	100
DMA 3	TCM 3	1900	2375	4%	95	100
DMA 4	TCM 4	1900	2375	4%	95	100
DMA 5	TCM 5	1900	2375	4%	95	100
DMA 6	TCM 6	1900	2375	4%	95	100
DMA 7	TCM 7	1900	2375	4%	95	105
DMA 8	TCM 8	1900	2375	4%	95	100
DMA 9	TCM 9	1900	2375	4%	95	100
DMA 10	TCM 10	1900	2375	4%	95	100
DMA 11	TCM 11	1900	2375	4%	95	100
DMA 12	TCM 12	1900	2375	4%	95	105
DMA 13	TCM 13	1900	2375	4%	95	100
DMA 14	TCM 14	1900	2375	4%	95	100
DMA 15	TCM 15	1900	2375	4%	95	100
DMA 16	TCM 16	1900	2375	4%	95	100
DMA 17	TCM 17	1900	2375	4%	95	100
DMA 18	TCM 18	1900	2375	4%	95	100
DMA 19	TCM 19	2100	2625	4%	105	110
DMA 20	TCM 20	13900		4%	556	607
DMA 21	TCM 21	9774		4%	391	396
DMA 22	TCM 22	26248		4%	1050	1056
DMA 23	TCM 23	12738		4%	510	518

General Characteristics

The bioretention areas will be of varying shapes and sizes to accommodate the different Drainage Management Areas (DMA). They will each have an overflow catch basin grate 6 inches above the soil as shown on the plans. The lower 6 inches of water will filter through 18 inches of treatment soil and into a perforated subdrain as directed to the San Mateo County storm drain system.

C.3 Treatment Maintenance

Bioretention Area Maintenance

- Irrigate vegetation as required for the first two years after installation. At that point irrigation for grass area can be turned off. Mowing is not recommended. Grasses will reach 18” to 20” tall. Grass will become dormant during dry summer months.
- Remove obstructions and trash from the bioretention areas.
- The planter walls shall be inspected annually for cracks and leaks. Repairs shall be performed immediately.
- The use of pesticides and quick-release synthetic fertilizers shall be minimized, and the principles of integrated pest management (IPM) followed. Check with the local jurisdiction for any local policies regarding the use of pesticides and fertilizers.
- Bioretention areas shall be inspected and maintained monthly to review:
    - Obstructions and trash.
    - Ponded flow is drained within five days after a rainfall event.
    - Condition of vegetation.
    - If ponding is observed, grading will be required to restore positive drainage.
    - If significant sedimentation occurs, blocking flows in the treatment area, sedimentation shall be removed and disposed of properly.