Appendix A

Notice of Preparation and NOP Responses

October 15, 2013

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND SCOPING MEETING

SUBJECT: Notice of preparation of a Draft Environmental Impact Report (EIR) for the **Monterey-Pacific Grove ASBS Stormwater Management Project**. Pursuant to the requirements of the California Environmental Quality Act (CEQA), the City of Pacific Grove (City) will be the Lead Agency and will prepare an EIR for the project. The City of Monterey is a co-sponsor of the project and will be a Responsible Agency under CEQA. The cities would like input from interested agencies and the general public on the scope and content of the environmental analysis.

PROJECT NAME: Monterey-Pacific Grove ASBS Stormwater Management Project

PROJECT LOCATION: The project site is comprised of five associated components located primarily in the City of Pacific Grove, with a portion of one component located in the City of Monterey, California. The five components include: 1) the former David Avenue Reservoir, adjacent to the intersection of David Avenue, Terry Street, and Carmel Avenue; 2) the Pine Avenue right-of-way between 7th Street and 18th Street; 3) the Ocean View Boulevard right-of-way (and vicinity) from Forest Avenue west to the former Pacific Grove Wastewater Treatment Plant at the Point Pinos Lighthouse Reservation; 4) the former Pacific Grove Wastewater Treatment Plant and adjacent Crespi Pond, located on the Pacific Grove Golf Links; and 5) the Ocean View Boulevard right-of-way (and vicinity) from Forest Avenue east to David Avenue. Figure 1 illustrates the regional location of the proposed project. Figure 2 illustrates the five project components within the City of Pacific Grove.

DUE DATE FOR COMMENTS: Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than **November 14, 2013 at 5:00 PM.**

PROJECT OBJECTIVE AND DESCRIPTION: The primary goal of the proposed project is to limit flow and improve stormwater quality discharged into the Area of Special Biological Significance (ASBS) located along the Pacific Grove coastline, as identified in Figure 2.The project includes the diversion of both dry weather and portions of wet weather surface water runoff flows into an upgraded stormwater collection and treatment system from the ASBS watershed area, which includes much of the City of Pacific Grove and a portion of the City of Monterey (refer to Figure 2). These flows would be directed to either a new Point Pinos stormwater treatment plant at the former Pacific Grove Wastewater Treatment Plant (PG WTP) site or the Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Water Treatment Plant in the City of Marina. The objectives of the project are 1) to meet the ASBS Special Protection requirements to implement structural best management practices (BMPs) to achieve up to a 90% reduction in pollutant loading during storm events, if the wet weather discharges are impacting natural water quality to comply with the ASBS water quality standards set by the State Water Resources Control Board, and 2) to conserve potable water by developing dry and wet weather storm system flows as a source of non-potable water for irrigation at the Pacific Grove Golf Links, El Carmelo Cemetery, and other feasible non-potable water demands.

The project includes five components that would collect and treat stormwater flows. These project components are described below.

1. **David Avenue Reservoir**. This component would involve improvements to the former David Avenue Reservoir designed to capture runoff from the portion of the ASBS watershed within the City of Monterey and to release it into the existing City of Pacific Grove storm drain system for conveyance downhill (northward) to Pine Avenue. To facilitate this objective, the following improvements are proposed: a new inlet connection to the Monterey storm drain collection system; a new outlet connection to the Pacific Grove storm drain collection system; and installation of a multi-layer geomembrane liner and sub-drain system within the interior of the former Reservoir to enable water storage behind the existing dam. After construction, the reservoir would have an estimated water storage capacity of 45 acre-feet (AF).
2. **Pine Avenue Conveyance**. This component would involve the installation of approximately 2,760 feet of new storm drain conveyance pipeline and an underground stormwater equalization/storage facility in the vicinity of the Robert Down Elementary School. This conveyance would collect runoff from drainage areas

uphill (southward) of Pine Avenue, including areas from the restored David Avenue Reservoir. A new pump station would be installed between 14th and 15th Street, which would deliver water from the new Pine Avenue conveyance to existing storm drain pipelines northeast down 19th Street. From this point runoff would run via gravity to the intersection of Jewell and Pine Avenues. A new underground storage facility is proposed near the intersection of Jewell Avenue and Caldonia Street.

3. **Ocean View Boulevard Conveyance**. This component would be primarily within the Ocean View Boulevard right-of-way, west of Forest Avenue, and would include: installation of approximately 1,230 feet of new storm drain conveyance pipeline; installation of approximately 8,000 feet of pipe lining within an existing abandoned sewer force main; and installation of three new pump stations (located outside the Ocean View Boulevard right-of-way at Jewell Avenue, Sea Palm Avenue, and southeast of Coral Street). These improvements would serve to convey stormwater from existing facilities at the intersection of Jewell and Pine Avenues to the former PG WTP site.
4. **Point Pinos Stormwater Treatment Facility and Crespi Pond**. This component would include the installation of storm water treatment facilities at the former PG WTP (also referred to as the Point Pinos Stormwater Treatment Facility). Treatment would likely include screening, equalization, multi-stage filtration, and disinfection. Treated stormwater would either be discharged to the Monterey Bay through the existing Crespi Pond outfall or available for reuse as irrigation water. Treated stormwater would be discharged to Crespi Pond and discharged to the Bay through an improved outfall from the pond to the Bay. Unused stormwater could also be discharged to MRWPCA if capacity is available. The proposed facilities would be co-located on the former PG WTP site with the Pacific Grove Local Water Project (a wastewater treatment plant that would supply recycled water to the Pacific Grove Golf Links), which is currently being planned and will undergo separate environmental review
5. **Diversions to MRWPCA**. This component would be primarily within or adjacent to the Ocean View Boulevard right-of-way east of Forest Avenue, and would consist of upgrades to the City of Pacific Grove's existing dry weather urban diversion system. These upgrades would increase the capacity of the system to allow the conveyance of wet weather flows in addition to dry weather flows. This component of the project would capture runoff from approximately 222 acres (23% of the total 950 acre ASBS drainage area) and convey it to the MRWPCA Regional Water Treatment Plant in Marina. Additionally, connections between the stormwater collection system and the MRWPCA are proposed at the existing MRWPCA Coral Street pump station and at the Point Pinos Stormwater Treatment Facility.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services and utilities, and transportation/traffic.

PUBLIC SCOPING MEETING: Pursuant to the public participation goals of the City and of CEQA, the City of Pacific Grove will host an EIR Scoping Meeting to gather additional input on the content and focus of the environmental analysis to be conducted and presented in the EIR. The scoping meeting will be held at the Pacific Grove City Hall, 300 Forest Avenue, Pacific Grove, on **October 24, 2013** at **6 PM**.

COMMENTING ON THE SCOPE OF THE EIR: The City of Pacific Grove welcomes all comments regarding the potential environmental impacts of the proposed project. All comments will be considered in the preparation of the EIR. Written comments must be submitted by **November 14, 2013**.

Please direct your comments to:

Sarah Hardgrave, Environmental Programs Manager
City of Pacific Grove
2100 Sunset Drive
Pacific Grove, California 93950
shardgrave@ci.pg.ca.us

Project Location

USA Land Survey System

Primary Survey Area Type

Donation Land Claims

Indian Lands

Land Grants, Civil Colonies

Military Reservation

Not Part of Public Land Surveys System

Overlapping Land Grants

Private Survey

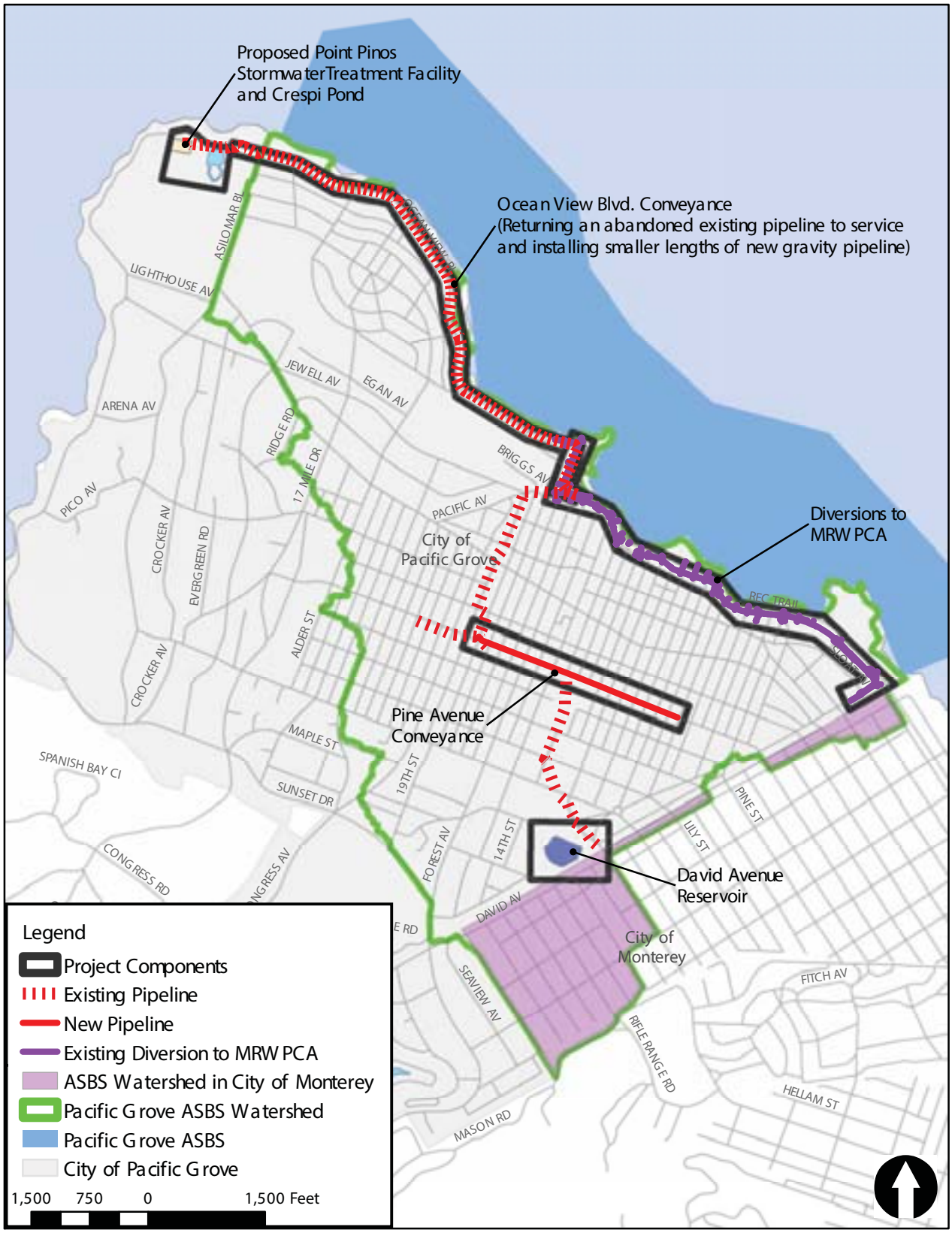
Public Survey

Unsurveyed Area

Water

Regional Location

Figure 1



Project Components

Figure 2

Monterey Regional Water Pollution Control Agency

"Dedicated to meeting the wastewater and reclamation needs of our member agencies, while protecting the environment."

Administration Office:
5 Harris Court, Bldg. D, Monterey, CA 93940-5756
(831) 372-3367 or 422-1001, FAX: (831) 372-6178
Website: www.mrwpca.org

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City of Pacific Grove
Attn Ms Sarah ardgrave, Environmental Programs Manager
21 Sunset Drive
Pacific Grove, CA 3 5

RE Comments on otice of Preparation of a Draft Environmental Impact Report for the Monterey-Pacific Grove ASBS Stormwater Management Program

Dear Sarah,

Monterey Regional Water Pollution Control Agency (MRWPCA) appreciates the opportunity to provide comments regarding the scope of the Environmental Impact Report on this innovative project

In the Project Objective and Description Section of the OP, a statement is made regarding stormwater flows being treated at the new Point Pinos facility or treated at MRWPCA s regional treatment plant MRWPCA re uests that the EIR provide the proposed changes to the annual, monthly, and daily volumes and flow rates of water that would be diverted each year to the RTP under this program, and the percentage of dry weather, wet weather, and municipal wastewater for each of these, if available MRWPCA will need to understand the uantities and types of flows anticipated that will re uire conveyance and treatment by MRWPCA and the assumptions that form the basis of the calculations In addition, please include all relevant water uality monitoring data for the proposed stormwater diversions

The OP indicates that the Project includes five components The last component, Diversions to MRWPCA, mentions upgrades to the e isting dry weather urban diversion systems These upgrades would increase the capacity of the systems to include wet weather flows along with the dry weather diversion flows MRWPCA re uests that the EIR provide the assumptions and analysis of stormwater (wet weather) volumes, flow rates, and uality proposed to be added at the Ocean View/ Forest Avenue diversion point to MRWPCA s e isting sewer conveyance system

This component also suggests that additional volumes of stormwater will be added to the Coral Street Pump Station and also at the new Point Pinos facility. Please provide the assumptions and results of the analysis of existing and proposed accumulated flows at each site being considered to determine the appropriate volume that can enter MRWPCA's system.

MRWPCA is partnering with the Monterey Peninsula Water Management District on the proposed Monterey Peninsula Groundwater Replenishment Project (or GWR Project), the primary objective of which is to replenish the Seaside Groundwater Basin by producing 3,500 AFY of high quality water to replace a portion of California American Water Company's water supply as required by State orders. More information on the GWR Project can be found at: http://www.mpwaterreplenishment.org. MRWPCA is encouraging the Peninsula cities to divert new water flows to the wastewater collection system, in particular during dry times of year (i.e., irrigation season); to augment municipal wastewater flows for the benefit of the GWR Project. Towards this end, MRWPCA respectfully requests that the EIR include in the alternatives section the evaluation of an alternative or alternatives that maximizes opportunities for local stormwater retention and longer-term diversions to the wastewater collection system (outside the wet season).

MRWPCA is very supportive of projects that would help protect water quality and use water resources wisely and efficiently.

Sincerely,

Keith Israel
General Manager

Appendix B

Screening Analysis

Screening Analysis of Project Alternatives

FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resource Engineering and Sciences
Tel. (831) 426-9054 P.O. Box 7894, Santa Cruz, CA 95061 Fax. (831) 426-4932

May 7, 2013

Jeff Krebs
Senior Engineer
City of Monterey Engineering
580 Pacific Street, Room #7
Monterey, CA 93940

Sarah Hardgrave
Environmental Programs Manager
City of Pacific Grove Public Works Department
2100 Sunset Avenue
Pacific Grove, CA 93950

Subject: **Screening Analysis of Project Alternatives**
Cities of Monterey and Pacific Grove ASBS Feasibility Study
of Alternative Management Strategies to comply with ASBS Special Protections

Dear Jeff and Sarah:

Fall Creek Engineering, Inc. (FCE) is pleased to present this screening analysis of alternative storm water management strategies to comply with the ASBS special protections requirements issued by the State Water Resource Control Board (SWRCB).

1. Executive Summary

The purpose of this screening analysis was to evaluate potential stormwater management projects within the Cities of Monterey and Pacific Grove, and identify a preferred and alternate project capable of meeting the SWRCB ASBS requirements. The screening analysis compared six project alternatives based on 16 screening criteria and identified a preferred project whereby both dry and wet-weather flows from Pacific Grove and New Monterey would be treated at a rebuilt Pacific Grove Water Treatment Plant (PGWTP). The alternate project would treat both dry and wet-weather flows from Pacific Grove and New Monterey at the Monterey Regional Water Pollution Control Agency, Regional Water Treatment Plant in Marina. Both proposed projects would utilize storage in a modified David Avenue Reservoir, currently owned and operated by the California American Water Company (CalAm).

In the coming months, these two project concepts will be further developed, and preliminary designs completed to assist with evaluation under the California Environmental Quality Act (CEQA).

FCE in collaboration with Balance Hydrologics, Rincon Consultants, Pacific Geologic and staff from the Cities of Monterey and Pacific Grove reviewed and screened several project alternatives. This technical letter summarizes the review and screening methodology, outcomes and summarizes the two preferred project alternatives.

1. Background

In 2006, the City of Monterey obtained a Proposition 50 planning grant from the State Department of Water Resources to analyze a suite of options to address regulatory restrictions imposed by the State Water Resources Control Board (SWRCB) for storm water discharges to the State's designated "Areas of Special Biological Significance" (ASBS). The ASBS analysis was presented in a study completed in 2006 by MACTEC Engineering and Consulting, Inc. (MACTEC)[1]. The focus of this study was to address storm water discharges to the Pacific Grove and Carmel Bay ASBS's coastal zones. The Pacific Grove ASBS receives runoff from the New Monterey District in the City of Monterey and from the City of Pacific Grove. The MACTEC study identified and analyzed twenty two alternative projects including local projects that collect and treat runoff in Pacific Grove before it is discharged to the Monterey Bay, regional projects that pump runoff to the Monterey Regional Water Pollution Control Agency (MRWPCA), a public owned treatment plant in Monterey, and other potential projects.

Subsequently, in 2009 the City of Pacific Grove retained the engineering firm of Malcolm Pirnie to complete Feasibility and Basis of Design studies to evaluate the feasibility of collecting and recycling storm water within the City of Pacific Grove.[2] These studies evaluated four alternative projects; however, the primary objectives of each project was focused on water recycling and not necessarily protection of the ASBS. As a result, the various projects do not fully address the requirements of the ASBS Special Protection Provisions adopted by the SWRCB.

Over the past few years, the Cities of Monterey and Pacific Grove have been evaluating alternative water supply and storm water management projects to address the ASBS requirements and critical water supply issues on the Monterey Peninsula. Based on these recent efforts, several additional or modified projects were identified and screened in this analysis.

On March 20, 2012, the State Water Resources Control Board (SWRCB) adopted the "General Exception and Special Protections for the California Ocean Plan Waste Discharge Prohibition for Storm Water and Nonpoint Source Discharges" into the ASBS. The "Special Protections" are part of a General Exception to the California Ocean Plan (COP), which states, "Waste shall not be discharged to **areas designated as being of special biological significance**. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas." Generally, the Ocean Plan:

- Is the basis for regulation of wastes discharged in coastal waters and establishes water quality objectives for discharges as measured in the ocean *receiving water*.
- Applies to point (typically outfall pipes) and non-point (typically overland flow) source waste discharges.

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[1]MACTEC. 2006. *Final Alternatives Analysis and Data Acquisition for Pacific Grove and CarmelBay Areas of Special Biological Significance*
[2]Malcom Pirnie, Inc. 2009. *Stormwater Recycling Facility – Basis of Design Report*

The principle requirements in the "General Exception" and "Special Protections" include:

- Elimination of non-storm water urban runoff (e.g. dry weather discharges) into the ASBS;
- Ensuring that wet weather flows do not alter "natural water quality;"
- Ocean receiving water monitoring to ensure marine life and other beneficial uses are protected;
- Best Management Practices (BMPs) to reduce pollutants, debris, and larger particles and,
- Reducing pollutant loads by 90% during wet-weather, if natural water quality is found to be degraded by these discharges and
- Elimination of all trash from outfalls and discharges.

The "Special Protections" and "General Exception" apply statewide in lieu of individual exceptions.

In January 2013, Fall Creek Engineering, Inc. (FCE) was retained by the City of Monterey to complete the *City of Monterey and Pacific Grove ASBS Refined 2006 Feasibility Study of Alternatives Management Plan*. The scope of work in this study is to: (1) refine and select a preferred and alternate project from the broad list of projects identified by MACTEC, (2) select a preferred project alternative, (3) develop conceptual and preliminary plans for the preferred project; prepare the CEQA environmental review document for the preferred and alternative projects; (4) prepare a work plan and grant application for the preferred project.

As the initial task of this project, FCE conducted several meetings with the Cities of Monterey and Pacific Grove, several stakeholders (California American Water (CalAm), MRWPCA, and New Monterey District representatives) to revisit and refine the various project alternatives.

After a cursory review and screening of the twenty two (22) alternatives identified in the 2006 MACTEC Study, six (6) project alternatives were identified and refined with input from the Cities of Monterey and Pacific Grove. These alternatives were then screened by numerical ranking and weighting to select the preferred and alternative projects. This technical letter presents a description of the screening methodology and the results of the analysis.

2. Screening Methodology

A three step screening process was utilized to refine and select the preferred and alternative projects.

<u>Step One – Cursory Project Screening</u>

The first step of screening included a cursory review using three primary criteria:

a. Does the project have the potential to achieve the water quality requirements set forth for the ASBS for both Cities of Pacific Grove and Monterey;

b. Does the project not create regulatory uncertainty by not addressing the requirements of the ASBS Special Provisions that may impact the City of Monterey and/or Pacific Grove if they do not participate in the project; and

c. Is the project financially and technically feasible?

Step Two – Initial Project Ranking and Screening of Alternatives

After the cursory screening of alternatives was completed, four project alternatives were ranked according to fourteen (14) screening criteria by the consulting team. A description of the criteria and ranking methodology is provided. This initial ranking was presented to the Cities of Monterey and Pacific Grove staff, and the matrix was updated to add two additional screening criteria and two alternatives and re-evaluated resulting in the final screening.

Step Three – Final Screening Using Weighted Criteria

To compare each of the selected alternatives, the project team identified sixteen (16) screening criteria and assigned a relative weight, or importance, to each of the criteria. A low priority criteria has a weight of 1 and a high priority criteria has a weight of 5. The four criteria considered the most important, with a weight of 5, were:

- Water Quality Benefits or Ability to Meet ASBS Requirements,
- Impact to Regional Water Treatment Plant (WTP) Capacity,
- Ability for the project to Achieves Multiple Benefits, and
- Access to Potential Funding Opportunities.

Each of the six alternatives (A-F) were then compared to each other and assigned a rank in order from 1 to 6, with 1 being the most favorable and 6 being the least favorable as compared to the other alternatives. A description of each criteria and the factors considered during the ranking is described in the following section.

For each alternative and criteria, the initial ranking was multiplied by the weight and the total for each project is summed at the bottom of the matrix. The summed value was used to determine which projects are preferred and ultimately considered for mitigating stormwater runoff into the ASBS. The alternative with the lowest total is preferred.

The Criteria, Ranking and Weighting

The following is a summary of the 16 screening criteria, in order from the criteria assigned the most important (5) to least important (1).

Weight = 5

1. **Water Quality Benefits/Ability to Meet ASBS Requirements** evaluated the ease with which each alternative could satisfy the ASBS water quality requirements. This may be one or all of the requirements described in Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges. One significant requirement is a

90% reduction in pollutant loading during wet-weather event if natural water quality is found to be degraded by these discharges.

2. **Regional WTP Capacity** evaluateed the impact to the Cities if the discharge to the Monterey Regional Water Pollution Control Authority's Wastewater Treatment Plant is eventually limited due to capacity. By receiving more dry and wet weather flows it could reduce the ability of the MRWPCA WTP to handle additional future wastewater flows and force the Cities to maintain local storm water treatment facilities to comply with the ASBS requirements. Alternatives D and F increase flows to the WTP and therefore rank less favorably than the remaining alternatives which have no additional flows to the WTP.

3. **Potential Funding Opportunities** ranked an alternative's ability to generate funding from grants and additional local support groups.

4. **Achieves Multiple Benefits** ranked the alternative's ability to achieve multiple benefits or objectives, such as water supply, recreational and wildlife benefits in addition to ASBS water quality benefits.

Weight = 4

5. **Capital, Operational and Maintenance (O&M), and Equivalent Annual Costs** evaluated the estimated capital, operational, maintenance and equivalent annual costs for each alternative, with the most expensive alternatives ranking less favorably.

6. **Permitting Requirements and Difficulty** ranked the feasibility of each alternative to be permitted by regulatory agencies. For example, restoring David Avenue Reservoir to its original size would require Division of Safety of Dams (DSOD) approval, which would require additional technical analyses and an extensive permit review process. As a result, Alternative C, which proposes using the David Avenue Reservoir to treat all the flow from Pacific Grove and New Monterey, would be a more difficult project to permit and thus ranks less favorably than the other project alternatives.

7. **Land and/or Facility Availability and Entitlements** evaluated the Cities' ownership of existing land or facilities or the necessity to acquire additional property(s) to support the project. The more land/facilities that would need to be acquired was considered and ranked for each alternative.

8. **Safety and Vector Control** ranked the alternatives safety and vector risks. For example, using David Avenue Reservoir could increase the volume and duration of surface water stored at the site, potentially requiring maintenance measures to manage mosquito populations.

9. **Aesthetic Benefits** ranked the aesthetic benefits each alternative brings to the Cities'. The alternatives that provided a greater opportunity to provide green space and/or parkland ranked higher than alternatives with no significant change or benefit.

10. **Institutional Agreements** evaluated the number of institutional agreements that may be necessary if the alternative is selected. An example of an institutional agreement would be an agreement with the Cities of Monterey, Pacific Grove and California American Water (CalAm) regarding use of the David Avenue Reservoir site for stormwater storage. The alternative with the highest ranking in this category has the least number of institutional agreements required.

Weight = 3

11. **Biotic and Cultural Resource Issues** evaluated, based on a preliminary review of background data, if the environmental impacts associated with the alternative would likely cause impacts requiring mitigation of biotic and cultural resources. The greater the anticipated impact or mitigation required, the less favorable the ranking.

12. **Stakeholder Involvement and Support** ranked the alternatives with the highest stakeholder involvement and support as highest. Stakeholder involvement may include community interest groups or local non-profit organizations who would benefit from the alternatives and have actively participated in the project development and evaluation process to date.

13. **Constructability** ranked the ease of construction of an alternative. Based on information summarized in previous feasibility and background reports, the alternative with the least construction required would rank highest.

14. **Project Complexity and Timing** ranked the alternatives complexity and timing, where the least complex project that can satisfy the SWRCB's within a reasonable time frame is preferred and ranks the highest.

Weight = 2

15. **Geologic, Liquefaction, and Hydrogeologic Issues** evaluated potential site-specific obstacles or hazards that the existing geology may introduce at any land proposed for development. This includes any areas where landslides, liquefaction, or tsunamis may be an issue.

16. **Water Rights Considerations** ranked the Cities' ability to retain water rights to the treated stormwater for other uses. Alternatives D and F send treated water to the MRWPCA, where the Cities' would potentially forfeit the right to use the stormwater in the future and therefore rank below all remaining alternatives that provide the Cities' with the ability to reuse collected stormwater.

3. Alternative Screening Analysis

Step One - Cursory Screening of Alternatives

Employing the methodology described above, FCE determined that only four alternative projects identified by MACTEC met the initial cursory screening criteria described in Step One of Section 2:

a. Does the project have the potential to achieve the water quality requirements set forth for the ASBS for both Cities of Pacific Grove and Monterey;

b. Does the project not create regulatory uncertainty by not addressing the requirements of the ASBS Special Provisions that may impact the City of Monterey and/or Pacific Grove if they do not participate in the project; and

c. Is the project financially and technically feasible?

These project options, as identified in the MACTEC study are:

Option 1 – Collect and treat dry weather flows locally at PGWWTP

Option 3 – Collect and treat dry and wet weather flows locally at PGWWTP and discharge to ASBS for both New Monterey and Pacific Grove.

Option 6 – Collect and treat dry weather flows at the MRWPCA facility.

Option 9 – Collect and treat dry and wet weather flows at the MRWPCA facility.

Step Two – Initial Project Ranking and Screening of Alternatives

In mid-February 2013, after the cursory review was conducted, the consulting team met and conducted an initial project ranking of the four projects as described in more detail below. This initial ranking was completed for the four (4) alternatives and without weighting of the criteria. The following is a description of the initial alternatives.

Alternative A treats both dry and wet weather flows from Pacific Grove and New Monterey at the abandoned Pacific Grove Wastewater Treatment Plant (PGWTP). Treated water is used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery.

Alternative B treats both dry and wet weather flows from Pacific Grove and New Monterey at the PGWTP. Equalization is provided at the David Avenue Reservoir by diverting runoff from Upper New Monterey flows via gravity in David Avenue Reservoir. Stored water can then be released at a lower rate into the modified collection system that pumps storm water to the PGWTP for treatment, reuse or discharge. Treated water is used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery.

Alternative C treats both dry and wet weather flows from Pacific Grove and New Monterey at the David Avenue Reservoir. Flows from Pacific Grove and Lower New

Monterey are pumped up to the reservoir. Treated water is used to irrigate Pacific Grove Golf Links, the El Carmelo Cemetery and two parks in New Monterey close to the Reservoir. This alternative requires the David Avenue Reservoir to be restored to its original size.

Alternative D treats both dry and wet weather flows from Pacific Grove and New Monterey at the Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant (MRWPCA WTP). The storm water is comingled with the domestic wastewater and once treated is either discharged to the ocean during the winter months or recycled for irrigating farmland in North Monterey County. If the groundwater replenishment project proceeds recycled water will also be used for recharging the Seaside Aquifer.

Each alternative was ranked against each other for the different water quality, environmental regulatory, cultural and financial criteria. The results of the initial screening are shown in Table 1. In the initial matrix, the lowest ranking total was considered to the preferred alternative, which is Alternative D. The final ranking is based on weighted criteria, which has been completed based on staff input from the Cities of Monterey and Pacific Grove.

Table 1. Ranking of Initial Four Project Alternatives

Criteria	Alternatives			
	A	B	C	D
Water Quality Benefits/Ability to Meet ASBS Requirements	4	2	2	1
Capital, Operational, and Equivalent Annual Costs	2	3	4	1
Permitting Requirements and Difficulty	3	4	2	1
Project Complexity and Timing	2	3	4	1
Biotic and Cultural Resource Issues	2	3	4	1
Geologic, Liquefaction, and Hydrogeologic Issues	2	3	3	1
Land and/or Facility Availability and Entitlements	2	3	3	1
Stakeholder Involvement and Support	3	2	1	4
WTP Capacity	1	1	1	4
Constructability	2	3	4	1
Safety and Vector Control	2	3	4	1
Potential Funding Opportunities	3	2	4	1
Aesthetic Benefits	3	1	2	4
Water Rights Considerations	1	1	1	4
Total	32	34	39	26

Notes:

These are preliminary ranking, there are no weights associated with the criteria.

A = PG/NM flows to PGWTP to irrigation in PG
B = NM to David Reservoir for equalization and NM/PG flows to PGWTP to irrigation in PG
C = NM/PG to David Reservoir for treatment at reservoir to irrigation in PG
D = NM/PG to MRWPCA WTP

Ranking System: 1 = High, 4 = Low

Step Three – Final Screening Using Weighted Criteria

After the initial ranking of the four alternative projects were presented to the Cities of Monterey and Pacific Grove, additional refinement and two additional project alternatives were considered and added to the list of projects. In total six alternative projects were refined and screened using both ranking and weighted criteria as described above. The following is a description of the two additional projects (Alternative E and F) evaluated along with those described in Step 2 (Alternative A-D).

For reference, Figure 1 includes the location of the sites and facilities considered in these alternatives, specifically the abandoned Pacific Grove Wastewater Treatment Plant site, David Avenue Reservoir and the Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant. Also Figure 2 provides a schematic depicting the flow pathways for each alternative, as well as, for the potential to interconnect the projects to existing storage facilities or future water projects, such as connecting to the Pebble Beach Community Services District Forest Lake reclaimed water reservoir or a Regional Groundwater replenishment project.

Figure 1. Location of Sites Evaluated

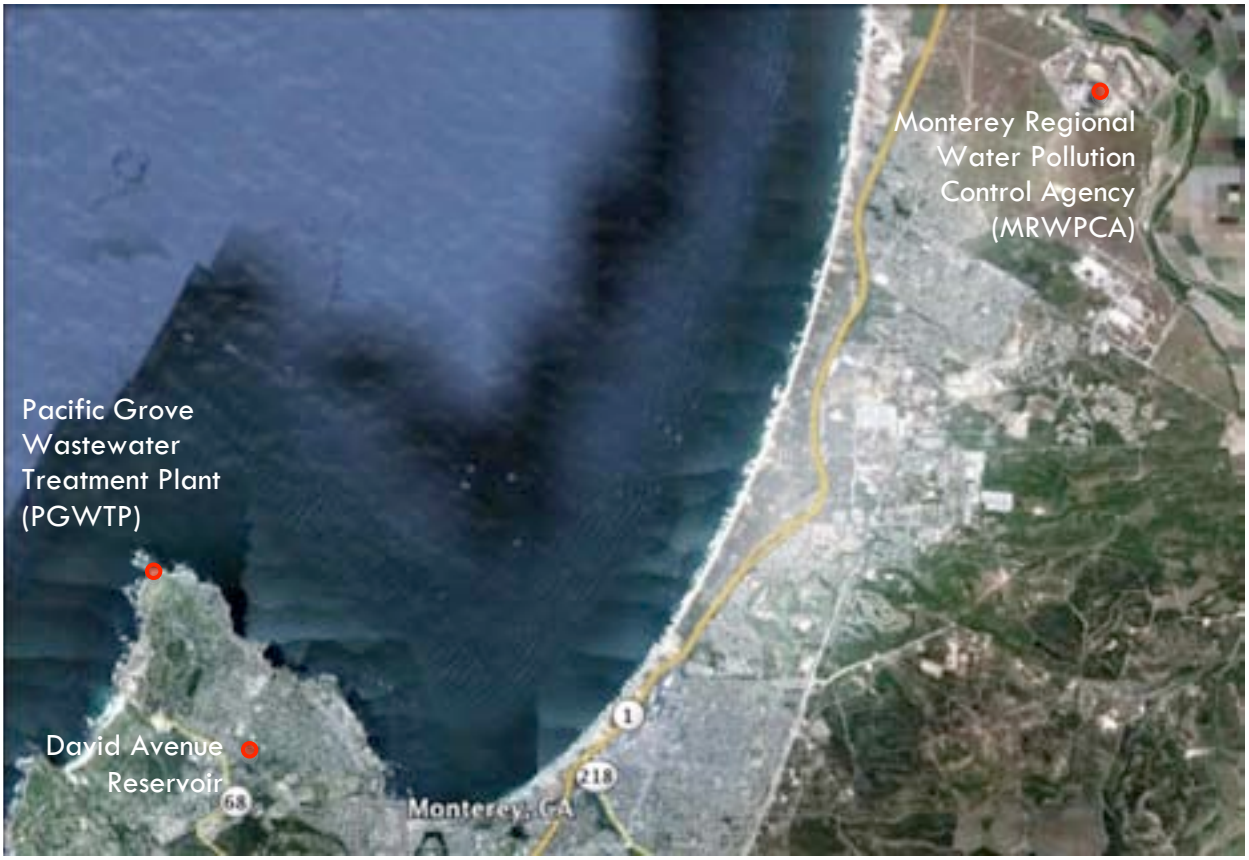


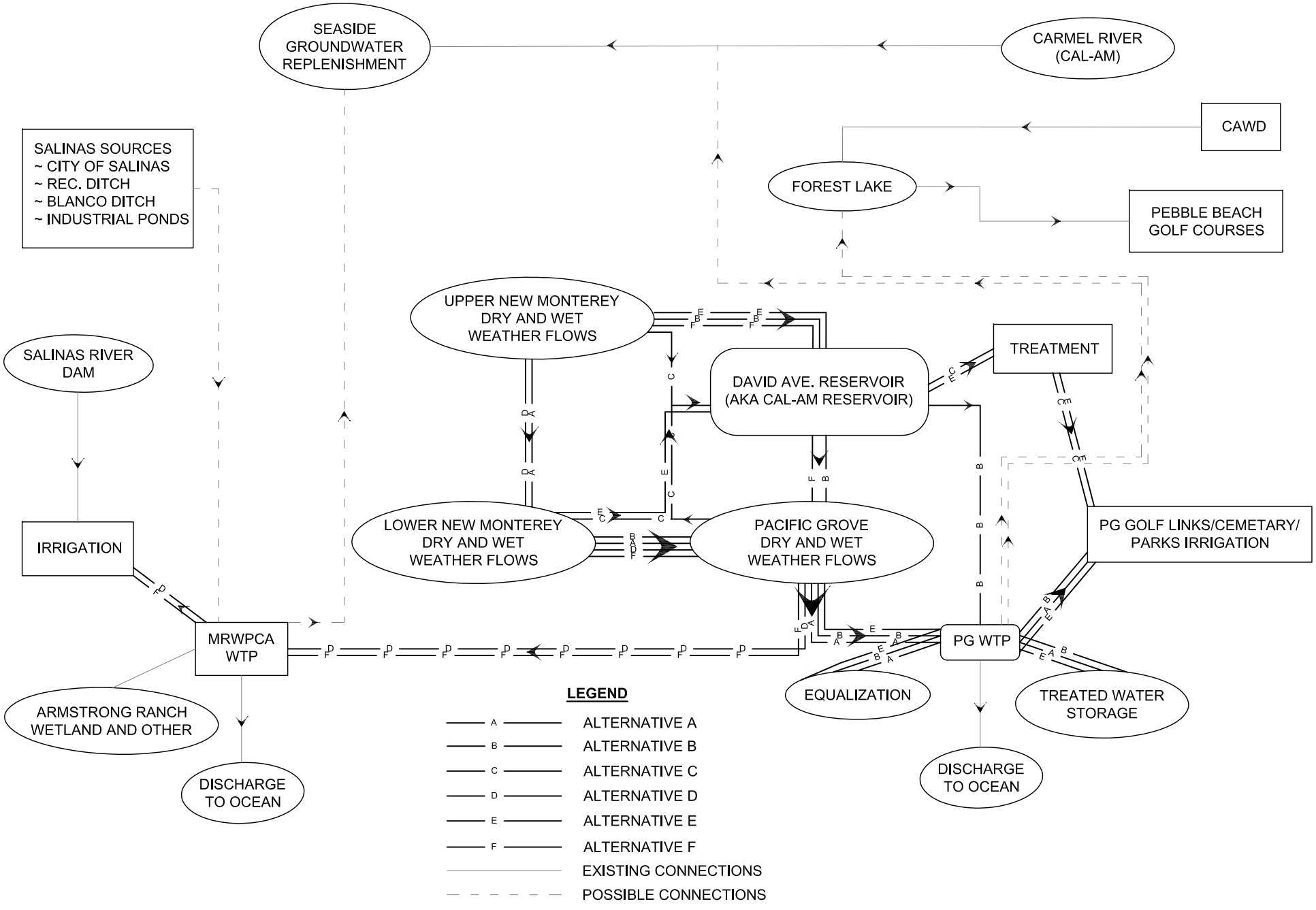
Figure Not To Scale

Alternative E would treat dry and wet weather flows from Pacific Grove at the PGWTP and New Monterey flows at the David Avenue Reservoir site. Treated water from the PGWTP could be used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery and treated water from David Avenue Reservoir could be used to irrigate two parks in New Monterey close to the Reservoir. This alternative would require the construction of two separate collection and treatment facilities.

Alternative F would treat both dry and wet weather flows from Pacific Grove and New Monterey at the MRWPCA WTP, as in Alternative D, with additional detention for runoff from Upper New Monterey at the David Avenue Reservoir. Runoff stored at David Avenue Reservoir would then be released at a lower rate into the modified MRWPCA collection system. As in Alternative D, Pacific Grove and David Avenue Reservoir stormwater would comingle with the domestic wastewater and once treated be discharged to the ocean during the winter months or recycled for irrigating farmland in North Monterey County. If the groundwater replenishment project proceeds recycled water could also be used for recharging the Seaside Aquifer.

<u>The Alternative Screening Matrix</u>

The six project alternatives were screened using the ranking and weighted criteria. The results of the screening calculations are presented in Table 2. A summary of the reasoning behind the most and least favorable alternative for each criteria is included in Table 3.



FALL CREEK ENGINEERING, INC.

Civil • Environmental • Water Resources Engineering

FIGURE 2
UPDATED SCHEMATIC OF ALTERNATIVES
MONTEREY AND PACIFIC GROVE ASBS
UPDATED SCREENING OF ALTERNATIVES

Table 2: Updated Screening of Alternatives
Monterey and Pacific Grove ASBS

Number	Criteria	Weight	Alternatives Ranking						Alternatives Weighting					
			A	B	C	D	E	F	A	B	C	D	E	F
1	Water Quality Benefits/Ability to Meet ASBS Requirements	5	6	3	3	1	5	2	30	15	15	5	25	10
2	Regional WTP Capacity	5	1	1	1	6	1	5	5	5	5	30	5	25
3	Potential Funding Opportunities	5	4	1	5	3	6	2	20	5	25	15	30	10
4	Achieves Multiple Benefits	5	5	2	4	6	1	2	25	10	20	30	5	10
5	Capital, O&M, and Equivalent Annual Costs	4	1	2	5	3	6	4	4	8	20	12	24	16
6	Permitting Requirements and Difficulty	4	4	6	3	1	5	2	16	24	12	4	20	8
7	Land and/or Facility Availability and Entitlements	4	1	4	4	2	6	3	4	16	16	8	24	12
8	Safety and Vector Control	4	2	4	5	1	5	3	8	16	20	4	20	12
9	Aesthetic Benefits	4	4	1	2	5	3	1	16	4	8	20	12	4
10	Institutional Agreements	4	1	2	2	3	2	3	4	8	8	12	8	12
11	Biotic and Cultural Resource Issues	3	2	4	5	1	5	3	6	12	15	3	15	9
12	Stakeholder Involvement and Support	3	5	2	1	6	3	4	15	6	3	18	9	12
13	Constructability	3	2	4	6	1	5	3	6	12	18	3	15	9
14	Project Complexity and Timing	3	2	3	6	1	5	3	6	9	18	3	15	9
15	Geologic, Liquefaction, and Hydrogeologic Issues	2	2	3	6	1	3	3	4	6	12	2	6	6
16	Water Rights Considerations	2	1	1	1	6	1	3	2	2	2	12	2	6
		Totals	**43**	**43**	**59**	**47**	**62**	**46**	**171**	**158**	**217**	**181**	**235**	**170**

Notes:
A = PG/NM flows to PGWTP to irrigation in PG
B = NM to David Reservoir for equalization and NM/PG flows to PGWTP to irrigation in PG
C = NM/PG to David Reservoir for treatment at reservoir to irrigation in PG/NM
D = NM/PG to MRWPCA WTP
E = NM to David Reservoir to irrigation in NM and PG to PGWTP to irrigation in PG
F = NM/PG to MRWPCA WTP with NM to David Reservoir for equalization

Weighting System: 1 = Low, 2 = Moderate Low, 3 = Average, 4 = Moderate High, 5 = High
Ranking System: 1 = More Favorable , 6 = Less Favorable

PG = Pacific Grove Wet and Dry Weather Drainage
NM = New Monterey Wet and Dry Weather Drainage
PGWTP = Pacific Grove Wastewater Treatment Plant (with Wet Pond Storage/Equalization)
MRWPCA WTP = Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant

Table 3: Most and Least Favorable Alternative for Each Criteria
Monterey and Pacific Grove ASBS

Number	Criteria
1	**Water Quality Benefits/Ability to Meet ASBS Requirements**
	Most Favorable: Alternative D because all wet and dry weather flows would be diverted to MRWPCA instead of to the ASBS.
	Least Favorable: Alternative A because level of storage and treatment limited due to site constraints.
2	**Regional WTP Capacity**
	Most Favorable: Alternatives A, B, C, and E because they do not require treatment at the MRWPCA.
	Least Favorable: Alternatives D and F because they require MRWPCA treatment plant capacity.
3	**Potential Funding Opportunities**
	Most Favorable: Alternative B because of ability to leverage local project support and LID components.
	Least Favorable: Alternative E because independent treatment approach reduces regionial coordination.
4	**Achieves Multiple Benefits**
	Most Favorable: Alternative E because maximizes local storage, treatment and reuse opportunities.
	Least Favorable: Alternaive D because minimizes local storage, treatment and reuse opportunities.
5	**Capital, O&M, and Equivalent Annual Costs**
	Most Favorable: Alternative A because it has the lowest cost (no retrofit of David Avenue Reservoir and construction of a single treatment facility).
	Least Favorable: Alternative E because it requires capital costs to construct dual treatment facilities with dual operations and maintenance costs, in addition to the retrofit of David Avenue Reservoir.
6	**Permitting Requirements and Difficulty**
	Most Favorable: Alternative D because delivers stormwater to an existing approved treatment and discharge facility.
	Least Favorable: Alternative B because requires approval of David Avenue Reservoir retrofit, in addition to permitting a new treatment facility and discharge location.
7	**Land and/or Facility Availability and Entitlements**
	Most Favorable: Alternative A because the PGWTP site is owned by the City of Pacific Grove.
	Least Favorable: Alternative E because requires agreement with CalAm for use of David Avenue Reservoir, in addition to agreements with non-City entities to receive and irrigate with treated stormwater.
8	**Safety and Vector Control**
	Most Favorable: Alternative D because no additional surface waters would be constructed.
	Least Favorable: Alternatives C and E because would store water in David Avenue Reservoir.
9	**Aesthetic Benefits**
	Most Favorable: Alternatives B and F because retrofit of David Avenue Reservoir enhances site and neighborhood characteristics.
	Least Favorable: Alternative D because it does not involve site improvements within either City.
10	**Institutional Agreements**
	Most Favorable: Alternative A, fewest agreements required because the City of Pacific Grove currently owns the PGWTP site, El Carmelo Cemetery and Pacific Grove Golf Links.
	Least Favorable: Alternatives D and F because they require MRWPCA treatment plant capacity.
11	**Biotic and Cultural Resource Issues**
	Most Favorable: Alternative D because involves the smallest construction site footprint.
	Least Favorable: Alternatives C and E because requires David Avenue Reservoir expansion and a relatively larger construction footprint.
12	**Stakeholder Involvement and Support**
	Most Favorable: Alternative C because local stakeholders prefer to store, treat and reuse water locally.
	Least Favorable: Alternative D because it minimizes the investment in local resources.
13	**Constructability**
	Most Favorable: Alternative D because it involves the expansion of the existing dry-weather diversion system.
	Least Favorable: Alternative C because it involves new pumping facilities to convey collected stormwater in Pacific Grove up-slope to David Avenue Reservoir.
14	**Project Complexity and Timing**
	Most Favorable: Alternative D because it involves the expansion of the existing dry-weather diversion system.
	Least Favorable: Alternative C because it involves new pumping facilities to convey collected stormwater in Pacific Grove up-slope to David Avenue Reservoir, along with approval from DSOD for the Reservoir retrofit.
15	**Geologic, Liquefaction, and Hydrogeologic Issues**
	Most Favorable: Alternative D because involves the smallest construction site footprint and expands upon an existing conveyance system.
	Least Favorable: Alternative C because it involves a significant expansion of the David Avenue Reservoir, requiring extensive engineering retrofits to protect against earthquake induced hazards.
16	**Water Rights Considerations**
	Most Favorable: Alternatives A, B, C, and E because all collected and treated water is kept local to potentially offset existing water supplies used for irrigation.
	Least Favorable: Alternative D because all collected water is distributed out of the City Boundaries and if treated to recycled water standards by the MRWPCA, would be used outside of the City Boundaries.

Based on the results of the screening criteria evaluation, Alternative B and F have the lowest scores. Based on these results Alternative B is the preferred project and Alternative F is the feasible alternative. Table 4 summarizes the facilities proposed for use in each alternative along with the results of the screening process.

Table 4: Summary of Alternatives Screening

Alternative	Proposed Facility/Site				Total Score	Ranking
	PGWTP	David Ave Reservoir	David Ave WTP	MRWPCA WTP		
A	X				171	3
B	**X**	**X**			**158**	**1**
C		X	X		217	5
D				X	181	4
E	X	X	X		235	6
F		X		X	170	2

4. Conclusions and Recommendations

The following summarizes the results of the alternatives screening analysis for the Cities of Monterey and Pacific Grove Areas of Special Biological Significance.

1. Of the sixteen (16) criteria, four (4) criteria had the highest priority for the Cities and therefore largest weighted value of 5. These criteria are:

    a. Water Quality Benefits or Ability to Meet ASBS Requirements,
    b. Regional Water Treatment Plant (WTP) Capacity,
    c. Ability for the project to Achieves Multiple Benefits, and
    d. Access to Potential Funding Opportunities.

2. The final screening matrix resulted in the following order of alternatives:

    a. Alternative B;
    b. Alternative F;
    c. Alternative A;
    d. Alternative D;
    e. Alternative C; and
    f. Alternative E.

3. The preferred and alternate projects (Alternative B and Alternative F, respectively) will undergo further analysis to refine assumptions and confirm the screening analysis findings.

4. The City of Pacific Grove has also requested that low impact development (LID) strategies be evaluated and incorporated into the preferred and alternate projects to complement and enhance the treatment strategies. LID strategies could include decentralized stormwater best management practices to slow and treat runoff and potentially reduce the necessary capacity of new collection, treatment and reuse facilities.

5. Next Steps

As a result of the alternative screening, Alternatives B and F have been selected for further analysis and project development.

The next steps involved in the study will be to:

1. Complete the analysis of the existing storm water collection infrastructure to determine the improvements and relative costs required to convey wet weather flows to the PGWTP and/or to the MRWPCA;

2. Complete the analysis of David Avenue Reservoir to determine the improvements and related costs required to reuse this facility and to assist the Cities and CalAm to develop an agreement to transfer the use and potential ownership of the reservoir to the cities.

3. Complete planning, preliminary environmental assessment, and a preliminary geotechnical investigation to evaluate the PGWTP, Crespi Pond and other additional water features at the Pacific Grove Golf Links;

4. All project alternatives will likely be designed to treat runoff up to maximum storm event, such as a two (2) year design storm. Runoff resulting from larger storm events will likely discharge to the bay via existing or modified overflow facilities. FCE will need to determine if the overflow will discharge out of the existing outfalls or if the outfalls will require any modifications, and if so, what improvements and related costs will required for these modifications.

5. Identify and screen potential LID projects within New Monterey and Pacific Grove; and

6. Work with the City staff and potential SWRCB to establish the design criteria (size of storms and water quality goals) for the final project configurations.

7. Prepare an updated engineering cost estimate and effectiveness evaluation to comply with the requirements of the ASBS requirements for the two alternative projects.

8. To identify and target potential funding opportunities for the two projects.

This concludes the screening of project alternatives assessment. Thank you for the opportunity to assist you with this project. FCE looks for to the opportunity to review these results and the next steps outlined above to move forward with the project. Please contact me if you have any questions or require any additional information.

Sincerely,

PETER HAASE, M.S., P.E.
Principal Engineer

David Avenue Reservoir Alternatives Screening

Rincon Consultants, Inc.

Environmental Scientists Planners Engineers

MEMORANDUM

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Date: August 16, 2013

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Organization: Fall Creek Engineering, City of Monterey, City of Pacific Grove

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cc: Jeff Krebs, Sarah Hardgrave

Re: Monterey/Pacific Grove ASBS Project David Avenue Reservoir Alternatives Screening Analysis Memorandum

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Introduction. The purpose of this memorandum is to provide a preliminary screening analysis of environmental constraints of four (4) alternative improvements being considered for the David Avenue Reservoir (reservoir) site. Potential environmental impacts are outlined herein for each alternative, followed by a matrix comparison of the four alternatives. This memorandum concludes with a brief overview of findings and the identification of an environmentally superior alternative.

The David Avenue Reservoir, located in Pacific Grove adjacent to the intersection of David and Carmel Avenues, is a key component of the Monterey-Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (the project), located in the cities of Pacific Grove and Monterey. The David Avenue Reservoir was previously used for water storage. However, the reservoir ceased operation in 1989. The project would restore the use of this facility to assist in stormwater management in the ASBS watershed.

This technical memorandum considers the principal environmental categories required for a California Environmental Quality Act (CEQA) review of a selected alternative for the project component. This memorandum is intended to provide initial guidance for the overall design of the project to assist in eventual project construction and implementation. However, this assessment is for preliminary planning purposes alone, as further investigation into the potential impact areas covered in this memorandum would occur once an alternative is selected. CEQA's thresholds of significance have been identified in this memorandum to provide a general overview of potential environmental impacts

on the project site; each threshold will be addressed specifically in the subsequent project CEQA review.

Historical Conditions. Historical information about the David Avenue Reservoir is based upon a *Seismic Safety and Hydrologic Investigation,* dated March 17, 1989, prepared by Converse Consultants Northern California.

The original dam for the reservoir was built in 1882, and an expansion to the downstream (north) side of the dam was added in 1920. According to the 1989 report, the dam is 750 feet long, 30 feet high, has a crest elevation of 240 feet and a crest width of 60 feet. The reservoir retained 56 acre feet of water with a surface water elevation of 235 feet.

The 1989 report concluded the following:

- *The dam and foundation materials were stable under static conditions.*
- *The upstream face of the dam would liquefy during an earthquake resulting in failure of this portion of the dam with movement on the order of five to six feet.*
- *The downstream face of the dam, as well as the foundation of alluvial materials, would be stable under seismic conditions.*
- *The reservoir, spillway and outlet structures are inadequately sized for a design storm situation.*

Safety and stability of a dam is critical due to the consequences of dam failure and the risk to loss of life and property. The safety and stability of a dam is dependent on a number of elements, the most important of which are the stability of the embankment itself, the stability of the foundation materials underneath the dam, and adequate design of the inlet and outlet structures to handle design storm flows. Stability must be evaluated for both the static, long-term conditions, as well as for seismic conditions during a major earthquake. Seepage of water through or underneath a dam is the major cause of dam failures and plays a significant role in dam stability. Based on report conclusions and other considerations, the David Avenue Reservoir stopped being used as a water storage facility in 1989.

Existing Conditions. The David Avenue Reservoir is located adjacent to the intersection of Carmel Avenue and David Avenue in the City of Pacific Grove, near the City of Monterey boundary. The site is located in an urban setting with two houses located directly below the downstream toe (northwest) of the dam. Single-family and multi-family housing and Pacific Grove Middle School are located in the vicinity of the site. The site is owned by California American Water Company (Cal-Am), the local water purveyor. The company uses the site as a maintenance, operations, and materials storage area. The site is restricted with gated entry. Vegetation has grown inside the previously inundated areas of the reservoir since the time the reservoir ceased operating as a water storage facility. Potential impacts to biological resources are further considered in the following sections of this document.

Overview of Alternatives. As identified in the *Draft Engineering Report* (July 1, 2013) prepared by the project engineer, Fall Creek Engineering, the four alternatives under consideration include:

- *Alternative 1*: Rebuilding the dam to the original elevation (dam replacement)
- *Alternative 2*: Rebuilding the dam to a lower elevation (smaller dam)
- *Alternative 3*: Installing a geomembrane liner system within the existing reservoir and modifying the existing spillway
- *Alternative 4*: Installing sheet pile to reinforce the existing dam structure

Each alternative is described in further detail below.

Alternative 1. Alternative 1 would rebuild the existing dam within a similar footprint as the original dam. The crest elevation would be at approximately 243 feet, providing an estimated 60 acre-feet (AF) of storage. The rebuilt dam would include a new clay core and an underdrain system along the toe of the downstream dam face. The upstream slope would be 2.5:1, and the downstream face 2:1 to meet current regulations. This alternative would provide the greatest storage volume and structure longevity; however, the alternative would require the greatest level of disturbance especially to those located near the toe of the existing dam.

Alternative 2. Alternative 2 would rebuild a smaller dam and replace the upstream shell of the existing dam. The crest elevation would be at approximately 238 feet, providing an estimated 36 AF of storage. The rebuilt dam would include a new clay core and an underdrain system along the toe of the downstream dam face. The upstream slope would be 2.5:1, and the downstream face 2:1 to meet current regulations. This alternative would provide less storage volume than Alternative 1; however, this alternative would have longer structure longevity than Alternatives 3 and 4, and less disturbance than Alternative 1.

Alternative 3. Alternative 3 would line the interior of the David Avenue Reservoir with a double liner with a drainage and leak detection system. The crest elevation of would be at approximately 243 feet, providing an estimated 60 AF of storage. All reservoir slopes are assumed to be regraded to 2.5:1. This alternative would have less earthwork and disturbance to nearby properties, though the maintenance costs would potentially be higher. The system would be similar in style to the liner installed at nearby Forest Lake. Though larger, Forest Lake was built at the same time as David Avenue Reservoir.

Alternative 4. Alternative 4 would involve the installation of a sheet pile wall near the toe of the existing dam, with the base of the sheet pile extending down to bedrock. The water surface elevation would be the same as Alternative 2, providing an estimated 36 AF of storage. This alternative requires further analysis related to the longevity and stability of anchoring sheetpile as proposed and providing adequate drainage to maintain system integrity.

Common Elements. Engineering elements common to all four David Avenue Reservoir alternatives include:

- *Inlet*: New connection to the Monterey storm drain collection system near the intersection of David Avenue and Carmel Avenue. The location, size and type of the existing storm drain infrastructure in this vicinity, belonging to both the City of Monterey and the City of Pacific Grove, needs to be field verified. For the purposes of the 15% design plans and preliminary cost estimation, it is assumed that a new approximately 150 foot long, 12-inch diameter pipeline would convey collected water from New Monterey into the David Avenue Reservoir.

- *Outlet*: New connection to the Pacific Grove storm drain collection system near the intersection of David Avenue and Carmel Avenue. The location, size and type of the existing storm drain infrastructure in this vicinity, belonging to both the City of Monterey and the City of Pacific Grove, needs to be field verified. For the purposes of the 15% design and cost estimate, it is assumed that a new approximately 300 foot long, 12-inch diameter outlet pipeline will convey collected water from David Avenue reservoir into the City of Pacific Grove stormwater system.

- *Overflow Spillway*: The overflow spillway is assumed to be a similar size and design as the existing facility; rectangular inlet structure with a 12-inch diameter discharge pipeline, connecting to the Pacific Grove storm drain system.

Preliminary Environmental Assessment of Alternatives. Provided below is a preliminary environmental assessment of existing and potential environmental constraints for each of the four alternatives for the David Avenue Reservoir component of the ASBS project. This section is followed by a comparison of environmental constraints between the four alternatives.

Aesthetics

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse aesthetic impact if the project would:

- *Have a substantial adverse effect on a scenic vista;*
- *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;*
- *Substantially degrade the existing visual character or quality of the site and its surroundings; and/or*
- *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

Setting. As determined during a site visit conducted by Rincon Consultants on July 2, 2013, the majority of the project site is not visible from off-site locations, nor from adjacent roadways (Carmel Avenue and David Avenue). This is primarily due to the presence of existing vegetation, topography, and buildings in the site area. The project site is not located within an area designated for visual sensitivity according to the *City of Pacific Grove General Plan*. State Route (SR) 68 is a State-designated scenic highway for specific segments and passes within the vicinity of the project site. It is located approximately 0.4 miles southeast of the site, but the site is not visible from the highway. Although the site is not generally visible from public roadways or other public viewing areas, it is visible from single-family residences located south of the project site at higher elevations. However, CEQA analyses typically concentrate on viewsheds within the public realm.

Currently the site is used for office facilities and storage for Cal-Am operations. Various buildings and outlying structures are located on the site. Nighttime security lighting is installed on the project site.

Before its termination of active use as reservoir facility, the project site imparted the appearance of a lake to surrounding residents in the community. Lakes and ponds are commonly viewed as pleasant visual features to landscapes, especially in urban and residential areas. Since that time, wetland plants and other vegetation have grown inside the dry reservoir basin. However, due to existing vegetation and topography, the vegetated basin area is not visible from surrounding public viewshed locations.

General Impacts. Each of the four alternatives would result in the removal of some trees related to inlet and outlet connections required to the service storm drain systems. Each alternative would result in the loss of trees and shrubs which have grown in the reservoir basin since its cessation of use as a water storage facility. However, tree removal activity within the basin would be minimal. The overall re-establishment of a water feature at the project site would likely result in a beneficial visual impact for viewers located uphill from the site as contrasted with the materials storage area features that currently characterize the site.

Construction and implementation of the proposed project would result in a change to the visual character of the project site, but the changes would be considered a beneficial change compared to the existing visual character.

While nighttime security lighting can be expected, the site currently has existing night time security lighting and therefore there would not be a substantial change from existing conditions as a result of any of the project component alternatives.

Alternative-Specific Impacts. Because all four alternatives would result in a similar post-construction visual character (transforming the majority of the site from a materials storage area to a pond or water feature), potential impacts to aesthetics and visual resources would be similar between the four alternatives. However, Alternatives 1 and 2 would require the removal of trees on the down slope face of the dam, which could result in significant tree loss from a visual perspective of off-site public viewshed locations. Although it is beyond the scope of this memorandum to quantify the number of trees which would require removal for each of these two alternatives, qualitatively it can be assumed that this would represent a greater impact than for Alternatives 3 and 4. However, aesthetics impacts of the alternatives would be anticipated to be less than significant and/or less than significant with the application of mitigation measures.

Air Quality

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse air quality impact if the project would:

- *Conflict with or obstruct implementation of the applicable air quality plan;*
- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
- *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);*
- *Expose sensitive receptors to substantial pollutant concentrations; and/or*
- *Create objectionable odors affecting a substantial number of people.*

Setting. CEQA Guidelines §15125(b) requires that a project is evaluated for consistency with applicable regional plans, including the Air Quality Management Plan (AQMP). The Monterey Bay Unified Air Pollution Control District (MBUAPCD) 2008 AQMP addresses attainment of the State ozone standard and federal air quality standard. The AQMP accommodates growth by projecting growth in emissions based on population forecasts prepared by the Association of Monterey Bay Area Governments (AMBAG) and other indicators. Consistency determinations are issued for commercial, industrial, residential, and infrastructure related projects that have the potential to induce population growth. A project is considered inconsistent with the AQMP if it has not been accommodated in the forecast projections considered in the AQMP.

General Impacts. None of the proposed alternatives includes any development that would result in a long-term increase in area population or vehicle miles traveled, or otherwise conflict with projections in the AQMP. Construction of any of the alternatives would generate a minor amount of regional and localized air pollutant emissions; however, these emissions would be temporary in nature and would be primarily associated with the use of construction equipment and vehicles. The operational phase of the proposed project would result in negligible long-term pollutant emissions from the project site associated with vehicular travel for site maintenance and electricity consumption to operate the pumps and other facility operations.

Similarly, none of the proposed alternatives would result in any new long-term odor-generating land uses. Odors may result from the short-term operation of equipment on-site during the construction

phase, but impacts associated with these odors would be short-term and would remain less than significant. Overall, general impacts from the proposed alternatives would be less than significant.

Alternative-Specific Impacts. The MBUAPCD 2008 CEQA Air Quality Guidelines contains standards of significance for evaluating potential air quality effects of projects subject to the requirements of CEQA. According to MBUAPCD, a project would violate an air quality standard and/or contribute to an existing or project violation if it would:

- *Emit 137 lbs/day or more of volatile organic compounds (VOC/ROG) or oxides of nitrogen (NO_X);*
- *Directly emit 550 lbs/day of carbon monoxide (CO);*
- *Generate traffic that significantly affects levels of service;*
- *Directly emit 82 lbs/day or more of PM_{10} on site during operation of construction;*
- *Generate traffic on unpaved roads of 82 lb/day or more of PM_{10}; or*
- *Directly emit 150 lbs/day or more of oxides of sulfur (SO_X).*

Criteria pollutant emissions from each alternative were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2. Emissions estimates were based on the anticipated construction schedule, equipment use, and grading volume for each alternative configuration. Fugitive dust and exhaust emissions have the potential to result in short-term impacts to existing air quality. All construction-related emissions would be temporary in nature. The operational phase of the David Avenue Reservoir improvements would result in negligible long-term pollutant emissions from the project site associated with vehicular travel for site maintenance and electricity consumption for facility operations. Estimated emissions from the construction of each alternative are shown in Table 1.

Table 1. Criteria Pollutant Emissions from Project Alternatives

	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_X (lbs/day)	PM_{10} (lbs/day)
Alternative 1	4.9	42.0	29.7	<0.1	39.3
Alternative 2	5.3	44.2	31.1	<0.1	44.3
Alternative 3	4.6	40.2	28.5	<0.1	31.3
Alternative 4	5.8	44.5	33.3	<0.1	43.3
Significance Threshold	*137*	*137*	*550*	*150*	*82*

Source: California Emissions Estimator Model (CalEEMod version 2013.2. Refer to Appendix A for complete model outputs.

Construction activities would result in regional pollutant emissions, regardless of the alternative selected for the site. However, as shown in Table 1, implementation of any of the four alternatives would not result in emissions that would exceed or violate the applicable air quality standards. While each of the four site alternatives would result in less than significant impacts to regional air quality, Alternatives 2 and 4 would have the highest emissions. Alternative 2 proposes to export and import the largest amount of fill from the site. Alternative 4 would require a lower total volume of soil hauling and would have a shorter grading period during the construction schedule. Alternatives 1 and 3 would result in generally lower emissions than Alternatives 2 and 4. However, impacts from all four alternatives would be less than significant.

Biological Resources

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse impact on biological resources if the project would:

- *Have a substantial 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 Game or U.S. Fish and Wildlife Service;*
- *Have a substantial 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 Game or U.S. Fish and Wildlife Service;*
- *Have a substantial 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;*
- *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;*
- *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or*
- *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

Setting. The majority of the project site is currently used for office and equipment and materials storage. A portion of the site includes wetland habitat that has formed in the reservoir bottom. This habitat is dominated by bulrush (*Schoenoplectus* spp.) with cattail (*Typha* spp.), pampas grass (*Cortaderia selloana*), and willow (*Salix* spp.). Riparian habitat is present along the margins of the wetland. The inner slopes and rim of the reservoir are dominated by Monterey pine (*Pinus radiata*), coast live oak (*Quercus agrifolia*) and other mixed hardwood-conifer woodland species. Common wildlife species known or expected to occur on the site include Sierran treefrog (*Pseudacris sierra*), raccoon (*Procyon lotor*), and black-tailed deer (*Odocoileus hemionus*). A wide variety of bird species are expected to occur in the project vicinity, including many that could nest within the project area. Special status species that may have some potential to occur within the project site include the federally threatened California red-legged frog and the western pond turtle (state species of concern). Additionally, the fully protected white-tailed kite (*Elanus leucurus*) and other raptors including the red-shouldered hawk (*Buteo lineatus*) have the potential to nest on the project site. Any other migratory birds that may nest on the site would also be protected under the Migratory Bird Treaty Act (MBTA).

General Impacts. Construction and implementation of any of the four alternatives would result in the loss of the established wetland in the former reservoir area and the loss of vegetation on the project site. Loss of vegetation would include protected trees such as the Monterey pine and potentially coast live oak. However, with mitigation measures to be considered during the project's CEQA review, these impacts would be expected to be less than significant.

Mitigation would likely be required in order to off-set the loss of trees and wetland habitat, which may provide habitat for special-status species such as the federally threatened California red-legged frog and the western pond turtle. Additionally mitigation would be required regarding potential impacts to nesting birds on the project site which may be impacted by project construction activities. Mitigation would include measures for tree-replacement and pre-construction surveys. A single inactive unidentified raptor nest was observed in a Monterey pine on the north side of the reservoir during a site visit conducted by Rincon Consultants on July 2, 2013. A number of native birds could potentially use vegetation on-site for nesting during the nesting season (generally February 1 through August 31). If tree removal (or other vegetation clearing) occurs outside the nesting bird season, no impacts to nesting birds would be expected to occur. If tree removal (or other vegetation clearing) is conducted during the nesting season, mitigation would be required to ensure that impacts to nesting birds would be less than significant.

Alternative-Specific Impacts. Potential impacts to the existing wetland would be roughly equivalent between the four alternatives, since all four would fill the reservoir. However, Alternatives 1 and 2 would require the removal of trees on the down slope face of the dam, thereby increasing impacts related to tree removal and nesting birds, when compared to Alternatives 3 and 4. However, impacts to biological resource are anticipated to be less than significant with mitigation for all four alternatives.

Cultural Resources

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse impact on cultural resources if the project would:

- *Cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5;*
- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or*
- *Disturb any human remains, including those interred outside of formal cemeteries.*

Setting. The site was previously used as a water storage facility and currently is used for office and storage uses. Ground disturbance that occurred in connection with past operations included the initial establishment of the reservoir and the moving (placement) of fill within the reservoir as sedimentation occurred. This included the placement of construction debris in the northwest corner of the site from during construction of a Cannery Row hotel in 2007. The site is not located within a zone categorized as being highly sensitive for cultural resources within the City of Pacific Grove General Plan.

General Impacts. Ground disturbance associated with construction of any of the four alternatives would be limited to within the existing reservoir and dam footprint. The amount of excavated soil would greatly vary between the alternatives. Alternatives 1 and 2 propose substantial export of soils compared to Alternatives 3 and 4, which would involve no export of soils from the site. These soils have been previously disturbed, and as such, disturbance required for all four alternatives would not be expected to uncover substantial previously unrecorded cultural resources. However, conditions would apply to the project requiring the proper notification of City authorities in the event of the uncovering of previously unidentified cultural resources and/or human remains. In addition, the CEQA Initial Study for the proposed project (including the David Avenue Reservoir component) will include a records search to determine the presence of previously-recorded historical or archaeological resources.

Alternative-Specific Impacts. Alternatives 1 and 2 would result in the greatest amount of ground disturbance, and thus would create a greater potential for impacting known or previously unrecorded cultural resources. Alternatives 3 and 4 would have slightly less potential to uncover resources, given they would require less ground disturbing activities. Additionally, there is a difference in the area of inundation proposed on the site between the four alternatives. Alternatives 1 and 3 would involve 60 AF of water storage and Alternative 2 and 4 would result in 36 AF of water storage on the site. The increased amount of inundated area for Alternatives 1 and 3 would therefore result in a greater level of the possibility of impacting potential resources; however, this is not expected to result in a substantial change in potential impacts. Ultimately, all four alternatives would fill the existing reservoir and require improvements to the existing dam, so the differences in impacts to cultural resources would be minor. Potential impacts to cultural resources resulting from the selected alternative will be further considered in the project's CEQA review.

Greenhouse Gas Emissions

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse impact related to greenhouse gas (GHG) emissions if the project would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

Setting. Greenhouse gases (GHGs) are emitted by both natural processes and human activities. Of these gases, carbon dioxide (CO_2) and methane (CH_4) are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Different types of GHGs have varying global warming potentials. The global warming potential of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its global warming potential.

According to the CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). While these potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general, scientific modeling tools are currently unable to precisely predict what impacts would occur locally.

The MBUAPCD does not currently have an adopted threshold of significance for GHG emissions. However, potential GHG emissions for each project component alternative have been calculated and analyzed for purposes of this memorandum.

General Impacts. The proposed project would not conflict with any plan, policies, or regulations adopted for the purpose of reducing greenhouse gas emissions. However, construction and operation of the proposed project would generate a minor amount of GHG emissions. GHG emissions would primarily result from short-term construction activities. The proposed project would result in GHG emissions due to the operation of heavy construction equipment, project-generated construction traffic, and operation of the proposed project. The operational phase of the proposed project would result in negligible long-term GHG emissions from the project site associated with vehicular travel for site maintenance and electricity consumption to operate the pumps and other facility operations.

Alternative-Specific Impacts. The MBUAPCD does not currently have an adopted threshold of significance for GHG emissions. However, MBUAPCD recommends use of the adopted San Luis Obispo Air Pollution Control District (SLOAPCD) quantitative emissions threshold of 1,150 metric tons of carbon dioxide equivalent (MT CO2E) per year for most land use projects.

GHG emissions from each alternative were estimated using CalEEMod version 2013.2. Emissions estimates were based on the anticipated construction schedule, equipment use, and grading volume for each alternative configuration. All construction-related emissions would be temporary in nature, but would be amortized over an assumed 30 year project lifetime, consistent with standard methodologies for assessing short-term construction emissions. The operational phase of the proposed project would

result in negligible long-term pollutant emissions from the project site associated with vehicular travel for site maintenance and electricity consumption to operate the pumps and other facility operations. Estimated emissions from the construction of each alternative are shown in Table 2.

Table 2. GHG Emissions from Project Alternatives

	CO_2 (metric tons)	CH_4 (metric tons)	N_2O (metric tons)	Total CO_2E (metric tons)	Annual CO_2E (metric tons/year)
Alternative 1	340.5	0.1	<0.1	342.4	11.4
Alternative 2	357.6	0.1	<0.1	359.2	12.0
Alternative 3	87.6	<0.1	<0.1	88.0	2.9
Alternative 4	76.4	<0.1	<0.1	76.7	2.6

Source: California Emissions Estimator Model (CalEEMod version 2013.2. Refer to Appendix B for complete model outputs.

Construction activities would result in GHG emissions, regardless of the alternative selected for the site. However, as shown in Table 2, implementation of any of the four alternatives would not result in emissions that would exceed the recommended GHG emission threshold. While each of the four site alternatives would result in less than significant impacts to GHG emissions, Alternative 2 would have the highest emissions, as this alternative proposes to export and import the largest amount of fill from the site. Alternative 4 would have the lowest emissions, followed by Alternative 3. Alternative 1 emissions would be lower than Alternative 2, but negligibly so.

Hydrology & Water Quality

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse impact related to hydrology and water quality if the project would:

- *Violate any water quality standards or waste discharge requirements;*
- *Substantially deplete groundwater supplies or interfere substantially 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);*
- *Substantially 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 which would result in substantial erosion or siltation on- or off-site;*
- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;*
- *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;*
- *Otherwise substantially degrade surface or groundwater quality;*
- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;*
- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows;*
- *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; and/or*
- *Inundation by seiche, tsunami, or mudflow.*

Setting. The Pacific Grove ASBS drainage area has been subdivided into four smaller water management areas. Area 1 includes a significant portion of the New Monterey district of the City of Monterey, and the City of Pacific Grove's upper drainage area, with more than 625 acres. Area 2 includes Pacific Grove's lower drainage area, with a more than 130 acres. Area 3 includes a portion of the Pacific Grove drainage primarily in the vicinity of the Pacific Grove Golf Links golf course, with

more than 75 acres. Area 4 is comprised of more than 44 acres which includes portions in the Cities of Pacific Grove and Monterey. The David Avenue Reservoir is located in Area 1. However, as previously described, the David Avenue Reservoir currently is not used for any water management functions, and is not hydrologically connected to the ASBS watershed at the present time.

General Impacts. The proposed project would improve water quality by reducing the amount of pollutants that enter the Pacific Grove ASBS. No permanent hydrology or water quality impacts are anticipated. There is a potential for minor temporary water quality impacts during trenching and other soil disturbing activities during construction activities of project components, including David Avenue Reservoir improvements. The amount of material that could potentially erode from construction sites of project components during temporary construction activities would be greater than under existing conditions due to the minor loss of vegetation and movement of soils. In addition, construction materials, if not properly stored and protected, could contribute to water quality impacts.

Development as proposed by the alternatives on the site would not involve the construction of housing or any other structures that would place people at a risk for flooding in the event of a 100-year flood. The site is not located within a tsunami inundation area; it would not expose people or structures to a significant risk of loss, injury, or death involving a tsunami. Reuse of the site as a water storage facility, as considered by each alternative, would introduce a potential for flooding to occur over the lifespan of the project in the event of dam failure on the site during seismic events. Redevelopment of the site for water storage purposes as envisioned by each alternative would require adherence with geotechnical considerations in order to ensure dam safety to surrounding areas.

The project area is within the region of the Central Coast Regional Water Quality Control Board (CCRWQCB). The overall ASBS project area, including the David Avenue Reservoir site, is cumulatively greater than one acre. Therefore, the project would be required to adopt a Stormwater Pollution Prevention Plan (SWPPP), which would identify construction BMPs that would be applicable to the David Avenue Reservoir site. Construction BMPs typically require preparation of an erosion and sediment control plan to prevent soil and materials from leaving the site. Construction activities must be scheduled so that soil is not exposed for long periods of time, and key sediment control practices must be installed. These practices may include, but are not limited to: perimeter control (use of gravel bags, silt fences, and straw wattles); construction material storage (covered when not in use); dirt and grading measures (daily watering of dirt and travel mounds, covering during the rainy season [October 15 – April 15]); and storm drain measures (use of perimeter controls). With CCRWQCB requirements/conditions of approval applying to the project, potential impacts would be expected to less than significant, regardless of what alternative is selected.

Alternative-Specific Impacts. For purposes of this memorandum, potential hydrology and water quality impacts would be equivalent between the four alternatives for the David Avenue Reservoir component of the overall project because similar construction activities would be involved for each alternative and the ultimate re-use of the site as a water storage facility represents a similar degree of potential impacts on the site, regardless of the selected alternative and/or overall water storage capacity. Despite the greater storage capacity of Alternatives 1 and 3, downstream flooding potential would be addressed through appropriate geotechnical engineering of the modified dam, which is beyond the scope of this memorandum. For the purpose of this analysis, it is assumed that the potential for flooding is similar among the four alternatives. However, potential impacts will be further considered during the project's CEQA review.

Noise

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse impact on the environment if the project would:

- *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;*
- *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;*
- *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;*
- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;*
- *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; and/or*
- *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.*

Setting. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). For the most sensitive uses, such as single family residential, 60 dBA Day-Night average level (Ldn) is the maximum normally acceptable exterior level. Ldn is the time average of all A-weighted levels for a 24-hour period, with a 10 dB upward adjustment added to those noise levels occurring between 10:00 p.m. and 7:00 a.m. to account for the general increased sensitivity of people to nighttime noise levels. The Community Noise Equivalent Level (CNEL) is similar to the Ldn except that it adds 5 additional dB to evening noise levels (7:00 p.m. to 10:00 p.m.).

The David Avenue Reservoir site is located in the City of Pacific Grove. The City of Pacific Grove regulates noise through the City's General Plan and the City of Pacific Grove municipal code. The City's General Plan Health and Safety Element identifies 60 dBA CNEL as the maximum recommended allowable noise exposure for residences and other noise sensitive land uses. The closest sensitive receptors to the David Avenue Reservoir are single -family residences and the Pacific Grove Middle School near the site, with the nearest sensitive receptors located approximately 100 feet from the project site.

General Impacts. Operational noise would be limited to activities at the reservoir site and would largely be internalized on the site based on size of the site, existing topography and vegetation, surrounding uses, and the limited amount of noise that would be generated from operation of the David Avenue Reservoir.

Construction activities for each alternative would involve ground disturbance/grading and construction of new facilities on the site. Such activities have the potential to generate temporary noise. Table 3 demonstrates the typical noise levels associated with heavy construction equipment.

Table 3. Typical Construction Equipment Noise Levels

Equipment	Acoustical Usage Factor (%)[1]	Measured Lmax (dB at 50 feet)
Augur Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Grader	40	83
Impact/Vibratory Pile Driver	20	101
Pickup Truck	40	75
Pneumatic Tools	50	85
Roller	20	80
Scraper	40	84
Warning Horn	5	83
Welder/Torch	40	74

1: The average fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. Source: FHWA, 2006.

Equipment used during construction of the proposed alternatives would be similar, and would include a bulldozer, pick-up trucks, generator sets, loader, water truck, and dump trucks. Alternatives 1, 2, and 3 would not require pile driving. Therefore, maximum combined noise levels from on-site equipment during construction of those alternatives would not be expected to exceed 83-85 dB at 50 feet from the project site boundary. The maximum noise levels during pile-driving activities would be up to 101 dB at 50 feet from the project site boundary.

Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources such as construction equipment. The nearest residences are located approximately 100 feet from where proposed construction activities would occur. Therefore, temporary noise generated by construction activities associated with Alternatives 1, 2, and 3 at nearby residences could be as high as 79 dBA. Therefore, temporary noise generated by pile-driving activities associated with Alternative 4 at nearby residences could be as high as about 95 dBA. Although temporary, noise that may cause 24-hour noise levels to exceed 60 dBA CNEL at nearby residences is considered substantial. In addition, construction-related traffic could contribute to a temporary increase in noise in the project vicinity. Therefore, mitigation would be required in order to reduce construction-related noise impacts to a less than significant level, regardless of which alternative is selected.

With respect to groundborne vibration, the alternatives would involve standard construction activities such as asphalt removal and excavation activities. In addition, Alternative 4 would involve driving sheet pile. Standard construction activities may result in some vibration that may be felt in the immediate vicinity of the project component sites, as commonly occurs with construction projects. Pile driving would result in more substantial vibration in the project vicinity. Table 4 identifies various vibration velocity levels for the types of construction equipment that would operate at the project site during construction.

Table 4. Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB at 25 Feet	Approximate VdB at 50 Feet	Approximate VdB at 100 Feet
Loaded Trucks	86	80	74
Jackhammer	79	73	67
Small Bulldozer	58	52	46
Pile Driving (impact)	112	103	94
Pile Driving (sonic)	105	96	87

Source: U.S. Department of Transportation, Federal Railroad Administration. High-Speed Ground Transportation Noise and Vibration Impact Assessment, 1998.

According to the Federal Transit Administration (FTA), groundborne vibration impact criteria for residential receptors are 72 vibration decibels (VdB) for frequent events, 75 VdB for occasional events, and 80 VdB for infrequent events[1] (FTA, 2006). As construction would be temporary and infrequent, a threshold of 80 VdB is used for this analysis.

Based on the information presented in Table 4, vibration levels could temporarily and intermittently reach 74 VdB at approximately 100 feet from the site without pile driving, and could reach up to 94 VdB at 100 feet from the site with pile driving. Vibration levels at nearby residences may temporarily exceed the identified threshold of 80 VdB with pile-driving. Mitigation would be required to reduce construction vibration impacts on nearby residences to a less than significant level.

The closest airport is the Monterey Peninsula Airport, which is approximately 10 miles southeast of the project site. Therefore, the project area is not located within the vicinity of an airport or private airstrip and would not be affected by air traffic noise impacts. No impact would occur under any of the alternatives related to noise associated with airports or airstrips.

Alternative-Specific Impacts. While each alternative would result in increased ambient noise levels in the vicinity of the site from construction-related activities and would require mitigation measures, Alternatives 1 and 2 would result in greater intensity and duration of construction noise than Alternatives 3 and 4.

Alternatives 1 and 2 would involve the greatest amount of ground disturbance of the alternatives; this increased amount of ground disturbance would result in a longer duration of construction noise on the site, as well as increased construction traffic to and from the site. Alternative 4 would result in an

[1]" Frequent events" is defined as more than 70 vibration events of the same source per day; "occasional events" is defined as between 30 and 70 vibration events per day, and "infrequent events" is defined as less than 30 vibration events per day (FTA, 2006).

increased amount of construction noise based on the requirement to drive sheetpile on the site, as proposed by the alternative. While these alternatives would result in significant impacts, mitigation measures would reduce potential impacts to a less than significant level for any of the four alternatives.

Transportation & Traffic

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have an adverse transportation impact if the project would:

- *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;*
- *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;*
- *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;*
- *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);*
- *Result in inadequate emergency access; and/or*
- *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.*

Setting. The project site is located adjacent to the intersection of David Avenue and Carmel Avenue, near the City of Pacific Grove's boundary with the City of Monterey. The site is accessed via David Avenue and Carmel Avenue, with the entrance to the site located adjacent to the intersection of these two avenues on Carmel Avenue. Adjacent segments of David Avenue and Forest Avenue are classified as Arterial roadways by the City of Pacific Grove General Plan Transportation Element; Carmel Avenue is classified as a Local Street. David Avenue and Forest Avenue are fed by local streets and collector roadways, providing connections to regional roadways and provide inter-city circulation routes. As a Local Street, Carmel Avenue primarily provides access to properties, including residences, the project site, and a middle school.

Intersection traffic flow operations are evaluated using a level of service (LOS) concept. Intersections are rated based on a grading scale of "LOS A" through "LOS F" with "LOS A" representing free flowing conditions and "LOS F" representing oversaturation where traffic flows exceed design capacity, resulting in long queues and delays. The project site is located approximately 0.5 miles from the intersection of David and Forest Avenue, a primary intersection in the City of Pacific Grove. According to the City's General Plan Transportation Element, this intersection currently operates at LOS D, and is "the most critical intersection in the area." According to the General Plan, LOS D is minimally acceptable.

General Impacts. Operational impacts from implementation of any of the four alternatives would not be expected to result in significant impacts to area roadways or intersections. However, this will be confirmed during the project's CEQA review. The site is currently accessed by Cal-Am employees and during the operational phase of the proposed project any increase in traffic to and from the project site would be negligible.

Construction activities would impact area roadways and intersections, regardless of the alternative selected for the site. Construction traffic to and from the site during the project's construction period would impact David Avenue, Carmel Avenue, and the intersections of David and Carmel Avenue and

David and Forest Avenue. These impacts could be significant; however, are likely to be reduced to less than significant levels with mitigation measures during the project's CEQA review.

Alternative-Specific Impacts. While each of the four alternatives would result in potential impacts to traffic and circulation in the site area, Alternatives 1 and 2 are estimated to have 75 and 100 days, respectively, of export/import activities from the site, compared to Alternatives 3 and 4, which would have 14 and 21 days of imported material days. Alternatives 1 and 2 would, therefore, have greater impacts on area roadways and intersections based on the increased number of trips associated with these alternatives for exporting of soils from and importing soils materials as fill to the project site. Alternative 2 would have the greatest impact, as this alternative proposes to export and import the largest amount of fill from the site; however, the differences between Alternatives 1 and 2 would be marginal compared to the trip generation differences between these two alternatives and Alternatives 3 and 4.

Conclusion and Recommendation. Table 5 compares the identified environmental impacts of the David Avenue Reservoir project alternatives for each of the issue areas addressed above.

Table 5. Preliminary Environmental Impact Comparison

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Aesthetics	+	+	-	-
Air Quality	+	+	-	+
Biological Resources	+	+	-	-
Cultural Resources	+	+	+/-	-
Greenhouse Gas Emissions	+	+	-	-
Hydrology/Water Quality	=	=	=	=
Noise	+	+	-	+
Transportation/Traffic	+	+	-	-
Total "+'s"	**7**	**7**	**0**	**2**

= roughly equivalent impact between alternatives
+ greater impact compared to other alternatives
- less impact compared to other alternatives

When comparing the four project component alternatives, Alternatives 1 and 2 have the greatest potential to result in significant environmental impacts on the site, while Alternative 3 has the least potential to do so. Therefore, the environmentally superior alternative for the David Avenue Reservoir component of the project is Alternative 3.

Alternative 3 is environmentally superior to the other alternatives primarily because it would require less earthwork and associated soil disturbance, thus minimizing impacts to air quality, biological resources, cultural resources, greenhouse gas emissions, noise, and traffic. Although the relatively higher level of inundation, this would not result in substantially greater impacts when compared to alternatives with less water storage.

Alternative 4 would be the environmentally superior alternative among the remaining alternatives, with just two issue areas exceeding the impacts of other alternatives (air quality and noise, based on construction activities associate with installing sheetpile on the site as proposed by the alternative). However, because of less required earthwork and export of soils from the site, this alternative would result in relatively minor impacts to biological resources, greenhouse gas emissions, and traffic.

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Pacific Grove ASBS Refined '06 Feasability Study - Alt 1

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Project Characteristics -

Land Use - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	168.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialExported	0.00	6,960.00
tblGrading	MaterialImported	0.00	29,258.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	3,019.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	4.9295	42.0613	29.7372	0.0429	18.0663	1.9186	18.0663	9.9307	1.7651	9.9307	0.0000	4,481.5353	4,481.5353	0.9854	0.0000	4,502.2294
Total	**4.9295**	**42.0613**	**29.7372**	**0.0429**	**18.0663**	**1.9186**	**18.0663**	**9.9307**	**1.7651**	**9.9307**	**0.0000**	**4,481.5353**	**4,481.5353**	**0.9854**	**0.0000**	**4,502.2294**

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	4.9265	42.0276	29.7163	0.0428	37.3958	1.9170	39.3128	11.0138	1.7636	12.7773	0.0000	4,478.5413	4,478.5413	0.9846	0.0000	4,499.2169
Total	**4.9265**	**42.0276**	**29.7163**	**0.0428**	**37.3958**	**1.9170**	**39.3128**	**11.0138**	**1.7636**	**12.7773**	**0.0000**	**4,478.5413**	**4,478.5413**	**0.9846**	**0.0000**	**4,499.2169**

	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	**0.0609**	**0.0801**	**0.0703**	**0.0700**	**-106.9924**	**0.0870**	**-117.6031**	**-10.9065**	**0.0867**	**-28.6652**	**0.0000**	**0.0668**	**0.0668**	**0.0893**	**0.0000**	**0.0669**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	10/31/2014	5	168	
3	Mechanical/Electrical	Building Construction	11/1/2014	12/12/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Loaders	1	1.20	199	0.36
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	3,019.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					6.0807	0.0000	6.0807	3.3180	0.0000	3.3180			0.0000			0.0000
Off-Road	3.2722	36.7347	22.7940	0.0308		1.8232	1.8232		1.6774	1.6774		3,263.3640	3,263.3640	0.9644		3,283.6156
Total	**3.2722**	**36.7347**	**22.7940**	**0.0308**	**6.0807**	**1.8232**	**7.9039**	**3.3180**	**1.6774**	**4.9954**		**3,263.3640**	**3,263.3640**	**0.9644**		**3,283.6156**

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	1.3709	5.2015	5.6214	0.0105	0.2438	0.0939	0.3377	0.0668	0.0864	0.1531		1,074.5032	1,074.5032	9.7100e-003		1,074.7071
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.6573**	**5.3267**	**6.9431**	**0.0121**	**0.3671**	**0.0954**	**0.4625**	**0.0994**	**0.0877**	**0.1872**		**1,218.1712**	**1,218.1712**	**0.0211**		**1,218.6138**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					6.0807	0.0000	6.0807	3.3180	0.0000	3.3180			0.0000			0.0000
Off-Road	3.2692	36.7010	22.7731	0.0307		1.8215	1.8215		1.6758	1.6758	0.0000	3,260.3701	3,260.3701	0.9635		3,280.6031
Total	**3.2692**	**36.7010**	**22.7731**	**0.0307**	**6.0807**	**1.8215**	**7.9022**	**3.3180**	**1.6758**	**4.9938**	**0.0000**	**3,260.3701**	**3,260.3701**	**0.9635**		**3,280.6031**

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	1.3709	5.2015	5.6214	0.0105	31.1919	0.0939	31.2858	7.6631	0.0864	7.7495		1,074.5032	1,074.5032	9.7100e-003		1,074.7071
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.6573**	**5.3267**	**6.9431**	**0.0121**	**31.3151**	**0.0954**	**31.4105**	**7.6958**	**0.0877**	**7.7835**		**1,218.1712**	**1,218.1712**	**0.0211**		**1,218.6138**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

Pacific Grove ASBS Refined '06 Feasability Study - Alt 2

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	165.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialExported	0.00	15,894.00
tblGrading	MaterialImported	0.00	25,924.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	3,485.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	5.2662	44.2753	31.0748	0.0459	18.0663	1.9794	18.0663	9.9307	1.8210	9.9307	0.0000	4,791.7654	4,791.7654	1.0231	0.0000	4,813.2513
Total	**5.2662**	**44.2753**	**31.0748**	**0.0459**	**18.0663**	**1.9794**	**18.0663**	**9.9307**	**1.8210**	**9.9307**	**0.0000**	**4,791.7654**	**4,791.7654**	**1.0231**	**0.0000**	**4,813.2513**

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	5.2631	44.2404	31.0536	0.0458	42.3275	1.9777	44.3051	12.2582	1.8194	14.0776	0.0000	4,788.6597	4,788.6597	1.0222	0.0000	4,810.1263
Total	**5.2631**	**44.2404**	**31.0536**	**0.0458**	**42.3275**	**1.9777**	**44.3051**	**12.2582**	**1.8194**	**14.0776**	**0.0000**	**4,788.6597**	**4,788.6597**	**1.0222**	**0.0000**	**4,810.1263**

	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	**0.0587**	**0.0788**	**0.0684**	**0.0654**	**-134.2901**	**0.0869**	**-145.2368**	**-23.4375**	**0.0862**	**-41.7583**	**0.0000**	**0.0648**	**0.0648**	**0.0899**	**0.0000**	**0.0649**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	10/28/2014	5	165	
3	Mechanical/Electrical	Building Construction	10/29/2014	12/9/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.70	199	0.36
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	3,485.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					6.1965	0.0000	6.1965	3.3791	0.0000	3.3791			0.0000			0.0000
Off-Road	3.3685	38.0366	23.1460	0.0319		1.8675	1.8675		1.7181	1.7181		3,385.1865	3,385.1865	1.0004		3,406.1940
Total	**3.3685**	**38.0366**	**23.1460**	**0.0319**	**6.1965**	**1.8675**	**8.0640**	**3.3791**	**1.7181**	**5.0972**		**3,385.1865**	**3,385.1865**	**1.0004**		**3,406.1940**

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	1.6113	6.1135	6.6071	0.0123	0.2866	0.1104	0.3970	0.0785	0.1015	0.1800		1,262.9109	1,262.9109	0.0114		1,263.1506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.8977**	**6.2387**	**7.9288**	**0.0140**	**0.4098**	**0.1119**	**0.5217**	**0.1111**	**0.1029**	**0.2140**		**1,406.5790**	**1,406.5790**	**0.0228**		**1,407.0573**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					6.1965	0.0000	6.1965	3.3791	0.0000	3.3791			0.0000			0.0000
Off-Road	3.3655	38.0017	23.1247	0.0319		1.8658	1.8658		1.7165	1.7165	0.0000	3,382.0807	3,382.0807	0.9994		3,403.0690
Total	**3.3655**	**38.0017**	**23.1247**	**0.0319**	**6.1965**	**1.8658**	**8.0623**	**3.3791**	**1.7165**	**5.0956**	**0.0000**	**3,382.0807**	**3,382.0807**	**0.9994**		**3,403.0690**

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	1.6113	6.1135	6.6071	0.0123	36.0077	0.1104	36.1181	8.8464	0.1015	8.9479		1,262.9109	1,262.9109	0.0114		1,263.1506
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.8977**	**6.2387**	**7.9288**	**0.0140**	**36.1310**	**0.1119**	**36.2429**	**8.8791**	**0.1029**	**8.9819**		**1,406.5790**	**1,406.5790**	**0.0228**		**1,407.0573**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Pacific Grove ASBS Refined '06 Feasability Study - Alt 3

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	46.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialImported	0.00	8,332.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	695.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	4.6342	40.1915	28.5605	0.0403	22.4422	1.8683	24.3105	12.1925	1.7188	13.9113	0.0000	4,212.9757	4,212.9757	0.9551	0.0000	4,233.0326
Total	**4.6342**	**40.1915**	**28.5605**	**0.0403**	**22.4422**	**1.8683**	**24.3105**	**12.1925**	**1.7188**	**13.9113**	**0.0000**	**4,212.9757**	**4,212.9757**	**0.9551**	**0.0000**	**4,233.0326**

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	4.6312	40.1588	28.5399	0.0402	29.4535	1.8666	31.3202	13.9135	1.7173	15.6308	0.0000	4,210.0712	4,210.0712	0.9542	0.0000	4,230.1100
Total	**4.6312**	**40.1588**	**28.5399**	**0.0402**	**29.4535**	**1.8666**	**31.3202**	**13.9135**	**1.7173**	**15.6308**	**0.0000**	**4,210.0712**	**4,210.0712**	**0.9542**	**0.0000**	**4,230.1100**

	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	**0.0632**	**0.0815**	**0.0723**	**0.0745**	**-31.2419**	**0.0878**	**-28.8342**	**-14.1150**	**0.0879**	**-12.3602**	**0.0000**	**0.0689**	**0.0689**	**0.0900**	**0.0000**	**0.0690**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	5/14/2014	5	46	
3	Mechanical/Electrical	Building Construction	5/15/2014	6/25/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	695.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					22.1140	0.0000	22.1140	12.1037	0.0000	12.1037			0.0000			0.0000
Off-Road	3.1952	35.6931	22.5125	0.0298		1.7878	1.7878		1.6448	1.6448		3,165.9061	3,165.9061	0.9356		3,185.5529
Total	**3.1952**	**35.6931**	**22.5125**	**0.0298**	**22.1140**	**1.7878**	**23.9018**	**12.1037**	**1.6448**	**13.7485**		**3,165.9061**	**3,165.9061**	**0.9356**		**3,185.5529**

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	1.1526	4.3732	4.7262	8.8200e-003	0.2050	0.0790	0.2840	0.0561	0.0726	0.1287		903.4016	903.4016	8.1600e-003		903.5730
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.4390**	**4.4984**	**6.0480**	**0.0104**	**0.3282**	**0.0805**	**0.4087**	**0.0888**	**0.0740**	**0.1628**		**1,047.0696**	**1,047.0696**	**0.0195**		**1,047.4797**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					22.1140	0.0000	22.1140	12.1037	0.0000	12.1037			0.0000			0.0000
Off-Road	3.1922	35.6604	22.4918	0.0298		1.7862	1.7862		1.6433	1.6433	0.0000	3,163.0016	3,163.0016	0.9347		3,182.6303
Total	**3.1922**	**35.6604**	**22.4918**	**0.0298**	**22.1140**	**1.7862**	**23.9001**	**12.1037**	**1.6433**	**13.7470**	**0.0000**	**3,163.0016**	**3,163.0016**	**0.9347**		**3,182.6303**

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	1.1526	4.3732	4.7262	8.8200e-003	7.2164	0.0790	7.2953	1.7771	0.0726	1.8497		903.4016	903.4016	8.1600e-003		903.5730
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**1.4390**	**4.4984**	**6.0480**	**0.0104**	**7.3396**	**0.0805**	**7.4201**	**1.8098**	**0.0740**	**1.8838**		**1,047.0696**	**1,047.0696**	**0.0195**		**1,047.4797**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Pacific Grove ASBS Refined '06 Feasability Study - Alt 4

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	33.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialImported	0.00	11,980.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	999.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	5.7910	44.5807	33.3041	0.0491	31.3766	1.9475	33.3241	17.0196	1.7916	18.8112	0.0000	5,119.6861	5,119.6861	0.9633	0.0000	5,139.9150
Total	**5.7910**	**44.5807**	**33.3041**	**0.0491**	**31.3766**	**1.9475**	**33.3241**	**17.0196**	**1.7916**	**18.8112**	**0.0000**	**5,119.6861**	**5,119.6861**	**0.9633**	**0.0000**	**5,139.9150**

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	5.7881	44.5480	33.2834	0.0491	41.3666	1.9459	43.3125	19.4717	1.7901	21.2618	0.0000	5,116.7815	5,116.7815	0.9624	0.0000	5,136.9924
Total	**5.7881**	**44.5480**	**33.2834**	**0.0491**	**41.3666**	**1.9459**	**43.3125**	**19.4717**	**1.7901**	**21.2618**	**0.0000**	**5,116.7815**	**5,116.7815**	**0.9624**	**0.0000**	**5,136.9924**

	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	**0.0506**	**0.0735**	**0.0620**	**0.0611**	**-31.8389**	**0.0842**	**-29.9733**	**-14.4075**	**0.0837**	**-13.0272**	**0.0000**	**0.0567**	**0.0567**	**0.0893**	**0.0000**	**0.0569**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	4/25/2014	5	33	
3	Mechanical/Electrical	Building Construction	4/26/2014	6/6/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	999.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Total					**18.0663**	**0.0000**	**18.0663**	**9.9307**	**0.0000**	**9.9307**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					30.8426	0.0000	30.8426	16.8745	0.0000	16.8745			0.0000			0.0000
Off-Road	3.1952	35.6931	22.5125	0.0298		1.7878	1.7878		1.6448	1.6448		3,165.9061	3,165.9061	0.9356		3,185.5529
Total	**3.1952**	**35.6931**	**22.5125**	**0.0298**	**30.8426**	**1.7878**	**32.6304**	**16.8745**	**1.6448**	**18.5192**		**3,165.9061**	**3,165.9061**	**0.9356**		**3,185.5529**

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	2.3094	8.7624	9.4698	0.0177	0.4108	0.1582	0.5690	0.1125	0.1455	0.2579		1,810.1119	1,810.1119	0.0164		1,810.4554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**2.5958**	**8.8876**	**10.7916**	**0.0193**	**0.5340**	**0.1597**	**0.6937**	**0.1451**	**0.1469**	**0.2920**		**1,953.7800**	**1,953.7800**	**0.0277**		**1,954.3621**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					30.8426	0.0000	30.8426	16.8745	0.0000	16.8745			0.0000			0.0000
Off-Road	3.1922	35.6604	22.4918	0.0298		1.7862	1.7862		1.6433	1.6433	0.0000	3,163.0016	3,163.0016	0.9347		3,182.6303
Total	**3.1922**	**35.6604**	**22.4918**	**0.0298**	**30.8426**	**1.7862**	**32.6288**	**16.8745**	**1.6433**	**18.5177**	**0.0000**	**3,163.0016**	**3,163.0016**	**0.9347**		**3,182.6303**

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	2.3094	8.7624	9.4698	0.0177	10.4007	0.1582	10.5589	2.5645	0.1455	2.7100		1,810.1119	1,810.1119	0.0164		1,810.4554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2864	0.1252	1.3218	1.6100e-003	0.1232	1.5200e-003	0.1247	0.0327	1.3800e-003	0.0341		143.6681	143.6681	0.0114		143.9067
Total	**2.5958**	**8.8876**	**10.7916**	**0.0193**	**10.5240**	**0.1597**	**10.6837**	**2.5972**	**0.1469**	**2.7441**		**1,953.7800**	**1,953.7800**	**0.0277**		**1,954.3621**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**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**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Pacific Grove ASBS Refined '06 Feasability Study - Alt 1

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Project Characteristics -

Land Use - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	168.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialExported	0.00	6,960.00
tblGrading	MaterialImported	0.00	29,258.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	3,019.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.4228	3.5531	2.5967	3.5900e-003	0.8117	0.1612	0.9729	0.4358	0.1483	0.5841	0.0000	340.7777	340.7777	0.0751	0.0000	342.3548
Total	**0.4228**	**3.5531**	**2.5967**	**3.5900e-003**	**0.8117**	**0.1612**	**0.9729**	**0.4358**	**0.1483**	**0.5841**	**0.0000**	**340.7777**	**340.7777**	**0.0751**	**0.0000**	**342.3548**

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	0.4225	3.5495	2.5944	3.5900e-003	3.3134	0.1610	3.4744	1.0499	0.1481	1.1980	0.0000	340.4819	340.4819	0.0750	0.0000	342.0571
Total	**0.4225**	**3.5495**	**2.5944**	**3.5900e-003**	**3.3134**	**0.1610**	**3.4744**	**1.0499**	**0.1481**	**1.1980**	**0.0000**	**340.4819**	**340.4819**	**0.0750**	**0.0000**	**342.0571**

	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	**0.0757**	**0.1033**	**0.0878**	**0.0000**	**-308.2126**	**0.1117**	**-257.1305**	**-140.9018**	**0.1079**	**-105.1038**	**0.0000**	**0.0868**	**0.0868**	**0.1198**	**0.0000**	**0.0869**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	10/31/2014	5	168	
3	Mechanical/Electrical	Building Construction	11/1/2014	12/12/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Loaders	1	1.20	199	0.36
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	3,019.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					0.5108	0.0000	0.5108	0.2787	0.0000	0.2787	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2749	3.0857	1.9147	2.5800e-003		0.1532	0.1532		0.1409	0.1409	0.0000	248.6798	248.6798	0.0735	0.0000	250.2231
Total	**0.2749**	**3.0857**	**1.9147**	**2.5800e-003**	**0.5108**	**0.1532**	**0.6639**	**0.2787**	**0.1409**	**0.4196**	**0.0000**	**248.6798**	**248.6798**	**0.0735**	**0.0000**	**250.2231**

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	0.1223	0.4554	0.5731	8.8000e-004	0.0199	7.9000e-003	0.0278	5.4600e-003	7.2700e-003	0.0127	0.0000	81.7775	81.7775	7.4000e-004	0.0000	81.7931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0256	0.0120	0.1089	1.3000e-004	0.0100	1.3000e-004	0.0101	2.6600e-003	1.2000e-004	2.7800e-003	0.0000	10.3204	10.3204	8.7000e-004	0.0000	10.3386
Total	**0.1479**	**0.4674**	**0.6820**	**1.0100e-003**	**0.0299**	**8.0300e-003**	**0.0379**	**8.1200e-003**	**7.3900e-003**	**0.0155**	**0.0000**	**92.0979**	**92.0979**	**1.6100e-003**	**0.0000**	**92.1317**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					0.5108	0.0000	0.5108	0.2787	0.0000	0.2787	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2745	3.0820	1.9124	2.5800e-003		0.1530	0.1530		0.1407	0.1407	0.0000	248.3840	248.3840	0.0734	0.0000	249.9254
Total	**0.2745**	**3.0820**	**1.9124**	**2.5800e-003**	**0.5108**	**0.1530**	**0.6638**	**0.2787**	**0.1407**	**0.4194**	**0.0000**	**248.3840**	**248.3840**	**0.0734**	**0.0000**	**249.9254**

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	0.1223	0.4554	0.5731	8.8000e-004	2.5216	7.9000e-003	2.5295	0.6195	7.2700e-003	0.6268	0.0000	81.7775	81.7775	7.4000e-004	0.0000	81.7931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0256	0.0120	0.1089	1.3000e-004	0.0100	1.3000e-004	0.0101	2.6600e-003	1.2000e-004	2.7800e-003	0.0000	10.3204	10.3204	8.7000e-004	0.0000	10.3386
Total	**0.1479**	**0.4674**	**0.6820**	**1.0100e-003**	**2.5316**	**8.0300e-003**	**2.5396**	**0.6222**	**7.3900e-003**	**0.6296**	**0.0000**	**92.0979**	**92.0979**	**1.6100e-003**	**0.0000**	**92.1317**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Pacific Grove ASBS Refined '06 Feasability Study - Alt 2

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	165.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialExported	0.00	15,894.00
tblGrading	MaterialImported	0.00	25,924.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	3,485.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.4442	3.6755	2.6781	3.7800e-003	0.8150	0.1633	0.9783	0.4367	0.1503	0.5869	0.0000	357.8931	357.8931	0.0766	0.0000	359.5012
Total	**0.4442**	**3.6755**	**2.6781**	**3.7800e-003**	**0.8150**	**0.1633**	**0.9783**	**0.4367**	**0.1503**	**0.5869**	**0.0000**	**357.8931**	**357.8931**	**0.0766**	**0.0000**	**359.5012**

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	0.4439	3.6718	2.6758	3.7700e-003	3.6510	0.1631	3.8141	1.1328	0.1501	1.2828	0.0000	357.5917	357.5917	0.0765	0.0000	359.1980
Total	**0.4439**	**3.6718**	**2.6758**	**3.7700e-003**	**3.6510**	**0.1631**	**3.8141**	**1.1328**	**0.1501**	**1.2828**	**0.0000**	**357.5917**	**357.5917**	**0.0765**	**0.0000**	**359.1980**

	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	**0.0743**	**0.1018**	**0.0851**	**0.2646**	**-347.9675**	**0.1163**	**-289.8643**	**-159.4146**	**0.1131**	**-118.5753**	**0.0000**	**0.0842**	**0.0842**	**0.1175**	**0.0000**	**0.0844**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	10/28/2014	5	165	
3	Mechanical/Electrical	Building Construction	10/29/2014	12/9/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.70	199	0.36
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	3,485.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					0.5112	0.0000	0.5112	0.2788	0.0000	0.2788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2779	3.1380	1.9095	2.6300e-003		0.1541	0.1541		0.1417	0.1417	0.0000	253.3566	253.3566	0.0749	0.0000	254.9289
Total	**0.2779**	**3.1380**	**1.9095**	**2.6300e-003**	**0.5112**	**0.1541**	**0.6653**	**0.2788**	**0.1417**	**0.4205**	**0.0000**	**253.3566**	**253.3566**	**0.0749**	**0.0000**	**254.9289**

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	0.1412	0.5257	0.6616	1.0200e-003	0.0230	9.1200e-003	0.0321	6.3100e-003	8.3900e-003	0.0147	0.0000	94.4003	94.4003	8.6000e-004	0.0000	94.4183
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0252	0.0118	0.1069	1.3000e-004	9.8300e-003	1.3000e-004	9.9600e-003	2.6100e-003	1.1000e-004	2.7300e-003	0.0000	10.1361	10.1361	8.5000e-004	0.0000	10.1540
Total	**0.1663**	**0.5375**	**0.7685**	**1.1500e-003**	**0.0328**	**9.2500e-003**	**0.0421**	**8.9200e-003**	**8.5000e-003**	**0.0174**	**0.0000**	**104.5364**	**104.5364**	**1.7100e-003**	**0.0000**	**104.5723**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					0.5112	0.0000	0.5112	0.2788	0.0000	0.2788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2776	3.1343	1.9073	2.6300e-003		0.1539	0.1539		0.1416	0.1416	0.0000	253.0552	253.0552	0.0748	0.0000	254.6256
Total	**0.2776**	**3.1343**	**1.9073**	**2.6300e-003**	**0.5112**	**0.1539**	**0.6651**	**0.2788**	**0.1416**	**0.4204**	**0.0000**	**253.0552**	**253.0552**	**0.0748**	**0.0000**	**254.6256**

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	0.1412	0.5257	0.6616	1.0200e-003	2.8589	9.1200e-003	2.8681	0.7024	8.3900e-003	0.7108	0.0000	94.4003	94.4003	8.6000e-004	0.0000	94.4183
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0252	0.0118	0.1069	1.3000e-004	9.8300e-003	1.3000e-004	9.9600e-003	2.6100e-003	1.1000e-004	2.7300e-003	0.0000	10.1361	10.1361	8.5000e-004	0.0000	10.1540
Total	**0.1663**	**0.5375**	**0.7685**	**1.1500e-003**	**2.8688**	**9.2500e-003**	**2.8780**	**0.7050**	**8.5000e-003**	**0.7135**	**0.0000**	**104.5364**	**104.5364**	**1.7100e-003**	**0.0000**	**104.5723**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

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

Pacific Grove ASBS Refined '06 Feasability Study - Alt 3

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	46.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialImported	0.00	8,332.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	695.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.1087	0.9291	0.6795	9.2000e-004	0.7869	0.0430	0.8299	0.4293	0.0395	0.4689	0.0000	87.7091	87.7091	0.0199	0.0000	88.1276
Total	**0.1087**	**0.9291**	**0.6795**	**9.2000e-004**	**0.7869**	**0.0430**	**0.8299**	**0.4293**	**0.0395**	**0.4689**	**0.0000**	**87.7091**	**87.7091**	**0.0199**	**0.0000**	**88.1276**

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	0.1086	0.9281	0.6789	9.2000e-004	0.9421	0.0429	0.9851	0.4674	0.0395	0.5069	0.0000	87.6306	87.6306	0.0199	0.0000	88.0486
Total	**0.1086**	**0.9281**	**0.6789**	**9.2000e-004**	**0.9421**	**0.0429**	**0.9851**	**0.4674**	**0.0395**	**0.5069**	**0.0000**	**87.6306**	**87.6306**	**0.0199**	**0.0000**	**88.0486**

	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	**0.0828**	**0.1055**	**0.0912**	**0.0000**	**-19.7194**	**0.0931**	**-18.6936**	**-8.8720**	**0.1265**	**-8.1131**	**0.0000**	**0.0896**	**0.0896**	**0.1004**	**0.0000**	**0.0897**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	5/14/2014	5	46	
3	Mechanical/Electrical	Building Construction	5/15/2014	6/25/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	695.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					0.5086	0.0000	0.5086	0.2784	0.0000	0.2784	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0735	0.8209	0.5178	6.9000e-004		0.0411	0.0411		0.0378	0.0378	0.0000	66.0574	66.0574	0.0195	0.0000	66.4674
Total	**0.0735**	**0.8209**	**0.5178**	**6.9000e-004**	**0.5086**	**0.0411**	**0.5497**	**0.2784**	**0.0378**	**0.3162**	**0.0000**	**66.0574**	**66.0574**	**0.0195**	**0.0000**	**66.4674**

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	0.0282	0.1048	0.1319	2.0000e-004	4.5800e-003	1.8200e-003	6.4000e-003	1.2600e-003	1.6700e-003	2.9300e-003	0.0000	18.8259	18.8259	1.7000e-004	0.0000	18.8295
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0200e-003	3.3000e-003	0.0298	3.0000e-005	2.7400e-003	3.0000e-005	2.7800e-003	7.3000e-004	3.0000e-005	7.6000e-004	0.0000	2.8258	2.8258	2.4000e-004	0.0000	2.8308
Total	**0.0352**	**0.1081**	**0.1618**	**2.3000e-004**	**7.3200e-003**	**1.8500e-003**	**9.1800e-003**	**1.9900e-003**	**1.7000e-003**	**3.6900e-003**	**0.0000**	**21.6517**	**21.6517**	**4.1000e-004**	**0.0000**	**21.6603**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					0.5086	0.0000	0.5086	0.2784	0.0000	0.2784	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0734	0.8200	0.5172	6.9000e-004		0.0411	0.0411		0.0378	0.0378	0.0000	65.9788	65.9788	0.0195	0.0000	66.3883
Total	**0.0734**	**0.8200**	**0.5172**	**6.9000e-004**	**0.5086**	**0.0411**	**0.5497**	**0.2784**	**0.0378**	**0.3162**	**0.0000**	**65.9788**	**65.9788**	**0.0195**	**0.0000**	**66.3883**

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	0.0282	0.1048	0.1319	2.0000e-004	0.1598	1.8200e-003	0.1616	0.0394	1.6700e-003	0.0410	0.0000	18.8259	18.8259	1.7000e-004	0.0000	18.8295
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0200e-003	3.3000e-003	0.0298	3.0000e-005	2.7400e-003	3.0000e-005	2.7800e-003	7.3000e-004	3.0000e-005	7.6000e-004	0.0000	2.8258	2.8258	2.4000e-004	0.0000	2.8308
Total	**0.0352**	**0.1081**	**0.1618**	**2.3000e-004**	**0.1625**	**1.8500e-003**	**0.1644**	**0.0401**	**1.7000e-003**	**0.0418**	**0.0000**	**21.6517**	**21.6517**	**4.1000e-004**	**0.0000**	**21.6603**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

Pacific Grove ASBS Refined '06 Feasability Study - Alt 4

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	3.60	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2014
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 - 3.6 acre area of historic reservoir estimated in Google Earth.

Construction Phase - Phases and phase length provided by project applicant.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment list and operating schedule for grading and offhaul based on applicant-provided info.

Grading - Material import/export provided by applicant. Acreage estimated using Google Earth

Trips and VMT - Haul trip mileage estimated using applicant-provided data and Google Earth. Total haul trips estimated based on 12cy/trip.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	30.00
tblConstructionPhase	NumDays	8.00	33.00
tblConstructionPhase	NumDays	5.00	30.00
tblGrading	AcresOfGrading	84.00	4.00
tblGrading	MaterialImported	0.00	11,980.00
tblLandUse	LotAcreage	0.00	3.60
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	HaulingTripLength	20.00	15.60
tblTripsAndVMT	HaulingTripNumber	4,527.00	999.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.0982	0.7420	0.5825	8.1000e-004	0.7885	0.0321	0.8206	0.4297	0.0296	0.4593	0.0000	76.4768	76.4768	0.0144	0.0000	76.7796
Total	**0.0982**	**0.7420**	**0.5825**	**8.1000e-004**	**0.7885**	**0.0321**	**0.8206**	**0.4297**	**0.0296**	**0.4593**	**0.0000**	**76.4768**	**76.4768**	**0.0144**	**0.0000**	**76.7796**

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	0.0982	0.7413	0.5821	8.1000e-004	0.9471	0.0321	0.9792	0.4687	0.0295	0.4982	0.0000	76.4204	76.4204	0.0144	0.0000	76.7229
Total	**0.0982**	**0.7413**	**0.5821**	**8.1000e-004**	**0.9471**	**0.0321**	**0.9792**	**0.4687**	**0.0295**	**0.4982**	**0.0000**	**76.4204**	**76.4204**	**0.0144**	**0.0000**	**76.7229**

	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	**0.0611**	**0.0943**	**0.0755**	**0.0000**	**-20.1180**	**0.1245**	**-19.3263**	**-9.0594**	**0.1353**	**-8.4696**	**0.0000**	**0.0737**	**0.0737**	**0.1387**	**0.0000**	**0.0739**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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	**0.0000**	**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**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization/Demobilization	Site Preparation	1/29/2014	3/11/2014	5	30	
2	Grading	Grading	3/12/2014	4/25/2014	5	33	
3	Mechanical/Electrical	Building Construction	4/26/2014	6/6/2014	5	30	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rollers	1	8.00	80	0.38
Grading	Skid Steer Loaders	1	8.00	64	0.37
Grading	Off-Highway Trucks	1	8.00	400	0.38

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
Mechanical/Electrical	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization/Demobilization	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	15.00	0.00	999.00	10.80	7.30	15.60	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mobilization/Demobilization - 2014

Unmitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.2 Mobilization/Demobilization - 2014

Mitigated Construction On-Site

Acres of Grading: 0

	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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.2710**	**0.0000**	**0.2710**	**0.1490**	**0.0000**	**0.1490**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

3.3 Grading - 2014

Unmitigated Construction On-Site

Acres of Grading: 4

	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					0.5089	0.0000	0.5089	0.2784	0.0000	0.2784	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0527	0.5889	0.3715	4.9000e-004		0.0295	0.0295		0.0271	0.0271	0.0000	47.3890	47.3890	0.0140	0.0000	47.6831
Total	**0.0527**	**0.5889**	**0.3715**	**4.9000e-004**	**0.5089**	**0.0295**	**0.5384**	**0.2784**	**0.0271**	**0.3056**	**0.0000**	**47.3890**	**47.3890**	**0.0140**	**0.0000**	**47.6831**

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	0.0405	0.1507	0.1897	2.9000e-004	6.5800e-003	2.6200e-003	9.2000e-003	1.8100e-003	2.4100e-003	4.2100e-003	0.0000	27.0605	27.0605	2.5000e-004	0.0000	27.0657
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	2.3700e-003	0.0214	3.0000e-005	1.9700e-003	3.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.5000e-004	0.0000	2.0272	2.0272	1.7000e-004	0.0000	2.0308
Total	**0.0455**	**0.1531**	**0.2110**	**3.2000e-004**	**8.5500e-003**	**2.6500e-003**	**0.0112**	**2.3300e-003**	**2.4300e-003**	**4.7600e-003**	**0.0000**	**29.0877**	**29.0877**	**4.2000e-004**	**0.0000**	**29.0965**

3.3 Grading - 2014

Mitigated Construction On-Site

Acres of Grading: 4

	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					0.5089	0.0000	0.5089	0.2784	0.0000	0.2784	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0527	0.5882	0.3710	4.9000e-004		0.0295	0.0295		0.0271	0.0271	0.0000	47.3326	47.3326	0.0140	0.0000	47.6264
Total	**0.0527**	**0.5882**	**0.3710**	**4.9000e-004**	**0.5089**	**0.0295**	**0.5384**	**0.2784**	**0.0271**	**0.3055**	**0.0000**	**47.3326**	**47.3326**	**0.0140**	**0.0000**	**47.6264**

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	0.0405	0.1507	0.1897	2.9000e-004	0.1652	2.6200e-003	0.1678	0.0407	2.4100e-003	0.0432	0.0000	27.0605	27.0605	2.5000e-004	0.0000	27.0657
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0400e-003	2.3700e-003	0.0214	3.0000e-005	1.9700e-003	3.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.5000e-004	0.0000	2.0272	2.0272	1.7000e-004	0.0000	2.0308
Total	**0.0455**	**0.1531**	**0.2110**	**3.2000e-004**	**0.1672**	**2.6500e-003**	**0.1698**	**0.0413**	**2.4300e-003**	**0.0437**	**0.0000**	**29.0877**	**29.0877**	**4.2000e-004**	**0.0000**	**29.0965**

3.4 Mechanical/Electrical - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	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
Total	**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**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466568	0.040230	0.201875	0.178210	0.051756	0.007394	0.017953	0.018959	0.004316	0.001974	0.007519	0.000975	0.002270

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Appendix C

Air Quality & Greenhouse Gas Data

Monterey-PG ASBS SW Mgmt Project - David Ave Reservoir

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	6.00	User Defined Unit	6.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Six acres of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 22-week total duration, 33 days of grading.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 3,765 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	33.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	3,765.00
tblLandUse	LotAcreage	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	5.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.1725	1.8614	1.2635	1.6500e-003	0.1432	0.0928	0.2360	0.0738	0.0854	0.1592	0.0000	156.2300	156.2300	0.0420	0.0000	157.1120
Total	**0.1725**	**1.8614**	**1.2635**	**1.6500e-003**	**0.1432**	**0.0928**	**0.2360**	**0.0738**	**0.0854**	**0.1592**	**0.0000**	**156.2300**	**156.2300**	**0.0420**	**0.0000**	**157.1120**

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					
2015	0.1725	1.8614	1.2635	1.6500e-003	0.1432	0.0928	0.2360	0.0738	0.0854	0.1592	0.0000	156.2299	156.2299	0.0420	0.0000	157.1119
Total	**0.1725**	**1.8614**	**1.2635**	**1.6500e-003**	**0.1432**	**0.0928**	**0.2360**	**0.0738**	**0.0854**	**0.1592**	**0.0000**	**156.2299**	**156.2299**	**0.0420**	**0.0000**	**157.1119**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/30/2015	5	33	
3	Trenching	Trenching	3/31/2015	6/3/2015	5	47	
4	Paving	Paving	6/4/2015	7/1/2015	5	20	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	10.00	0.00	471.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0333	0.0000	0.0333	0.0169	0.0000	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1700e-003	0.0891	0.0670	6.0000e-005		4.7000e-003	4.7000e-003		4.3200e-003	4.3200e-003	0.0000	5.7217	5.7217	1.7100e-003	0.0000	5.7576
Total	**8.1700e-003**	**0.0891**	**0.0670**	**6.0000e-005**	**0.0333**	**4.7000e-003**	**0.0380**	**0.0169**	**4.3200e-003**	**0.0212**	**0.0000**	**5.7217**	**5.7217**	**1.7100e-003**	**0.0000**	**5.7576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	2.1000e-004	1.9100e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1980	0.1980	2.0000e-005	0.0000	0.1983
Total	**1.4000e-004**	**2.1000e-004**	**1.9100e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1980**	**0.1980**	**2.0000e-005**	**0.0000**	**0.1983**

3.2 Site Preparation - 2015

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					0.0333	0.0000	0.0333	0.0169	0.0000	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1700e-003	0.0891	0.0670	6.0000e-005		4.7000e-003	4.7000e-003		4.3200e-003	4.3200e-003	0.0000	5.7217	5.7217	1.7100e-003	0.0000	5.7576
Total	**8.1700e-003**	**0.0891**	**0.0670**	**6.0000e-005**	**0.0333**	**4.7000e-003**	**0.0380**	**0.0169**	**4.3200e-003**	**0.0212**	**0.0000**	**5.7217**	**5.7217**	**1.7100e-003**	**0.0000**	**5.7576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	2.1000e-004	1.9100e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1980	0.1980	2.0000e-005	0.0000	0.1983
Total	**1.4000e-004**	**2.1000e-004**	**1.9100e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1980**	**0.1980**	**2.0000e-005**	**0.0000**	**0.1983**

3.3 Grading - 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					0.1028	0.0000	0.1028	0.0550	0.0000	0.0550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0684	0.7539	0.4502	6.1000e-004		0.0372	0.0372		0.0342	0.0342	0.0000	57.7325	57.7325	0.0172	0.0000	58.0945
Total	**0.0684**	**0.7539**	**0.4502**	**6.1000e-004**	**0.1028**	**0.0372**	**0.1400**	**0.0550**	**0.0342**	**0.0892**	**0.0000**	**57.7325**	**57.7325**	**0.0172**	**0.0000**	**58.0945**

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	6.7900e-003	0.0628	0.0823	1.4000e-004	3.2400e-003	9.8000e-004	4.2200e-003	8.9000e-004	9.0000e-004	1.7900e-003	0.0000	13.1338	13.1338	1.1000e-004	0.0000	13.1361
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	1.4000e-003	0.0126	2.0000e-005	1.3100e-003	2.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.3068	1.3068	1.0000e-004	0.0000	1.3089
Total	**7.7000e-003**	**0.0642**	**0.0949**	**1.6000e-004**	**4.5500e-003**	**1.0000e-003**	**5.5500e-003**	**1.2400e-003**	**9.1000e-004**	**2.1500e-003**	**0.0000**	**14.4406**	**14.4406**	**2.1000e-004**	**0.0000**	**14.4450**

3.3 Grading - 2015

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					0.1028	0.0000	0.1028	0.0550	0.0000	0.0550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0684	0.7539	0.4502	6.1000e-004		0.0372	0.0372		0.0342	0.0342	0.0000	57.7324	57.7324	0.0172	0.0000	58.0944
Total	**0.0684**	**0.7539**	**0.4502**	**6.1000e-004**	**0.1028**	**0.0372**	**0.1400**	**0.0550**	**0.0342**	**0.0892**	**0.0000**	**57.7324**	**57.7324**	**0.0172**	**0.0000**	**58.0944**

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	6.7900e-003	0.0628	0.0823	1.4000e-004	3.2400e-003	9.8000e-004	4.2200e-003	8.9000e-004	9.0000e-004	1.7900e-003	0.0000	13.1338	13.1338	1.1000e-004	0.0000	13.1361
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	1.4000e-003	0.0126	2.0000e-005	1.3100e-003	2.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.3068	1.3068	1.0000e-004	0.0000	1.3089
Total	**7.7000e-003**	**0.0642**	**0.0949**	**1.6000e-004**	**4.5500e-003**	**1.0000e-003**	**5.5500e-003**	**1.2400e-003**	**9.1000e-004**	**2.1500e-003**	**0.0000**	**14.4406**	**14.4406**	**2.1000e-004**	**0.0000**	**14.4450**

3.4 Trenching - 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	0.0568	0.6121	0.4438	4.7000e-004		0.0336	0.0336		0.0309	0.0309	0.0000	44.6054	44.6054	0.0133	0.0000	44.8850
Total	**0.0568**	**0.6121**	**0.4438**	**4.7000e-004**		**0.0336**	**0.0336**		**0.0309**	**0.0309**	**0.0000**	**44.6054**	**44.6054**	**0.0133**	**0.0000**	**44.8850**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	2.0000e-003	0.0180	2.0000e-005	1.8700e-003	2.0000e-005	1.8900e-003	5.0000e-004	2.0000e-005	5.2000e-004	0.0000	1.8612	1.8612	1.5000e-004	0.0000	1.8642
Total	**1.2900e-003**	**2.0000e-003**	**0.0180**	**2.0000e-005**	**1.8700e-003**	**2.0000e-005**	**1.8900e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**1.8612**	**1.8612**	**1.5000e-004**	**0.0000**	**1.8642**

3.4 Trenching - 2015

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	0.0568	0.6121	0.4438	4.7000e-004		0.0336	0.0336		0.0309	0.0309	0.0000	44.6053	44.6053	0.0133	0.0000	44.8849
Total	**0.0568**	**0.6121**	**0.4438**	**4.7000e-004**		**0.0336**	**0.0336**		**0.0309**	**0.0309**	**0.0000**	**44.6053**	**44.6053**	**0.0133**	**0.0000**	**44.8849**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	2.0000e-003	0.0180	2.0000e-005	1.8700e-003	2.0000e-005	1.8900e-003	5.0000e-004	2.0000e-005	5.2000e-004	0.0000	1.8612	1.8612	1.5000e-004	0.0000	1.8642
Total	**1.2900e-003**	**2.0000e-003**	**0.0180**	**2.0000e-005**	**1.8700e-003**	**2.0000e-005**	**1.8900e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**1.8612**	**1.8612**	**1.5000e-004**	**0.0000**	**1.8642**

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	0.0298	0.3395	0.1840	3.3000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	31.2748	31.2748	9.3400e-003	0.0000	31.4709
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0298**	**0.3395**	**0.1840**	**3.3000e-004**		**0.0163**	**0.0163**		**0.0150**	**0.0150**	**0.0000**	**31.2748**	**31.2748**	**9.3400e-003**	**0.0000**	**31.4709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

3.5 Paving - 2015

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	0.0298	0.3395	0.1840	3.3000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	31.2748	31.2748	9.3400e-003	0.0000	31.4708
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0298**	**0.3395**	**0.1840**	**3.3000e-004**		**0.0163**	**0.0163**		**0.0150**	**0.0150**	**0.0000**	**31.2748**	**31.2748**	**9.3400e-003**	**0.0000**	**31.4708**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Unmitigated	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**1.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**1.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Monterey-PG ASBS SW Mgmt Project - David Ave Reservoir

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	6.00	User Defined Unit	6.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Six acres of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 22-week total duration, 33 days of grading.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 3,765 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	33.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	3,765.00
tblLandUse	LotAcreage	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	5.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.5645	49.4129	32.1053	0.0465	6.6995	2.3147	8.8317	3.4109	2.1295	5.5404	0.0000	4,828.0401	4,828.0401	1.1654	0.0000	4,852.5136
Total	**4.5645**	**49.4129**	**32.1053**	**0.0465**	**6.6995**	**2.3147**	**8.8317**	**3.4109**	**2.1295**	**5.5404**	**0.0000**	**4,828.0401**	**4,828.0401**	**1.1654**	**0.0000**	**4,852.5136**

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					
2015	4.5645	49.4129	32.1053	0.0465	6.6995	2.3147	8.8317	3.4109	2.1295	5.5404	0.0000	4,828.0401	4,828.0401	1.1654	0.0000	4,852.5136
Total	**4.5645**	**49.4129**	**32.1053**	**0.0465**	**6.6995**	**2.3147**	**8.8317**	**3.4109**	**2.1295**	**5.5404**	**0.0000**	**4,828.0401**	**4,828.0401**	**1.1654**	**0.0000**	**4,852.5136**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.3900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.3900e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/30/2015	5	33	
3	Trenching	Trenching	3/31/2015	6/3/2015	5	47	
4	Paving	Paving	6/4/2015	7/1/2015	5	20	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	10.00	0.00	471.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.6584	0.0000	6.6584	3.3789	0.0000	3.3789			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647		1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**6.6584**	**0.9399**	**7.5983**	**3.3789**	**0.8647**	**4.2436**		**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.2 Site Preparation - 2015

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					6.6584	0.0000	6.6584	3.3789	0.0000	3.3789			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647	0.0000	1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**6.6584**	**0.9399**	**7.5983**	**3.3789**	**0.8647**	**4.2436**	**0.0000**	**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.3 Grading - 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					6.2326	0.0000	6.2326	3.3337	0.0000	3.3337			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2326**	**2.2547**	**8.4873**	**3.3337**	**2.0744**	**5.4081**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.3662	3.6482	4.0398	8.6600e-003	0.2024	0.0590	0.2613	0.0554	0.0543	0.1097		878.4947	878.4947	7.1200e-003		878.6442
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.4218**	**3.7225**	**4.8234**	**9.7300e-003**	**0.2845**	**0.0599**	**0.3444**	**0.0772**	**0.0551**	**0.1323**		**971.1197**	**971.1197**	**0.0140**		**971.4127**

3.3 Grading - 2015

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					6.2326	0.0000	6.2326	3.3337	0.0000	3.3337			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2326**	**2.2547**	**8.4873**	**3.3337**	**2.0744**	**5.4081**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.3662	3.6482	4.0398	8.6600e-003	0.2024	0.0590	0.2613	0.0554	0.0543	0.1097		878.4947	878.4947	7.1200e-003		878.6442
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.4218**	**3.7225**	**4.8234**	**9.7300e-003**	**0.2845**	**0.0599**	**0.3444**	**0.0772**	**0.0551**	**0.1323**		**971.1197**	**971.1197**	**0.0140**		**971.4127**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

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	2.9815	33.9518	18.3959	0.0328		1.6279	1.6279		1.4977	1.4977		3,447.4552	3,447.4552	1.0292		3,469.0686
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.9815**	**33.9518**	**18.3959**	**0.0328**		**1.6279**	**1.6279**		**1.4977**	**1.4977**		**3,447.4552**	**3,447.4552**	**1.0292**		**3,469.0686**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9815	33.9518	18.3959	0.0328		1.6279	1.6279		1.4977	1.4977	0.0000	3,447.4552	3,447.4552	1.0292		3,469.0686
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.9815**	**33.9518**	**18.3959**	**0.0328**		**1.6279**	**1.6279**		**1.4977**	**1.4977**	**0.0000**	**3,447.4552**	**3,447.4552**	**1.0292**		**3,469.0686**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Unmitigated	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.3900e-003**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.3900e-003**

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

Monterey-PG ASBS SW Mgmt Project - David Ave Reservoir

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	6.00	User Defined Unit	6.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Six acres of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 22-week total duration, 33 days of grading.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 3,765 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	33.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	3,765.00
tblLandUse	LotAcreage	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	5.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.6638	49.6484	34.1292	0.0464	6.6995	2.3149	8.8320	3.4109	2.1297	5.5406	0.0000	4,819.6722	4,819.6722	1.1655	0.0000	4,844.1479
Total	**4.6638**	**49.6484**	**34.1292**	**0.0464**	**6.6995**	**2.3149**	**8.8320**	**3.4109**	**2.1297**	**5.5406**	**0.0000**	**4,819.6722**	**4,819.6722**	**1.1655**	**0.0000**	**4,844.1479**

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					
2015	4.6638	49.6484	34.1292	0.0464	6.6995	2.3149	8.8320	3.4109	2.1297	5.5406	0.0000	4,819.6722	4,819.6722	1.1655	0.0000	4,844.1479
Total	**4.6638**	**49.6484**	**34.1292**	**0.0464**	**6.6995**	**2.3149**	**8.8320**	**3.4109**	**2.1297**	**5.5406**	**0.0000**	**4,819.6722**	**4,819.6722**	**1.1655**	**0.0000**	**4,844.1479**

	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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.3900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.3900e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/30/2015	5	33	
3	Trenching	Trenching	3/31/2015	6/3/2015	5	47	
4	Paving	Paving	6/4/2015	7/1/2015	5	20	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	10.00	0.00	471.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.6584	0.0000	6.6584	3.3789	0.0000	3.3789			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647		1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**6.6584**	**0.9399**	**7.5983**	**3.3789**	**0.8647**	**4.2436**		**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.2 Site Preparation - 2015

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					6.6584	0.0000	6.6584	3.3789	0.0000	3.3789			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647	0.0000	1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**6.6584**	**0.9399**	**7.5983**	**3.3789**	**0.8647**	**4.2436**	**0.0000**	**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.3 Grading - 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					6.2326	0.0000	6.2326	3.3337	0.0000	3.3337			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2326**	**2.2547**	**8.4873**	**3.3337**	**2.0744**	**5.4081**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.4620	3.8646	6.0345	8.6700e-003	0.2024	0.0593	0.2616	0.0554	0.0545	0.1099		875.9513	875.9513	7.2300e-003		876.1031
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.5212**	**3.9580**	**6.8472**	**9.6800e-003**	**0.2845**	**0.0602**	**0.3447**	**0.0772**	**0.0554**	**0.1326**		**962.7517**	**962.7517**	**0.0141**		**963.0470**

3.3 Grading - 2015

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					6.2326	0.0000	6.2326	3.3337	0.0000	3.3337			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2326**	**2.2547**	**8.4873**	**3.3337**	**2.0744**	**5.4081**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.4620	3.8646	6.0345	8.6700e-003	0.2024	0.0593	0.2616	0.0554	0.0545	0.1099		875.9513	875.9513	7.2300e-003		876.1031
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.5212**	**3.9580**	**6.8472**	**9.6800e-003**	**0.2845**	**0.0602**	**0.3447**	**0.0772**	**0.0554**	**0.1326**		**962.7517**	**962.7517**	**0.0141**		**963.0470**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

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	2.9815	33.9518	18.3959	0.0328		1.6279	1.6279		1.4977	1.4977		3,447.4552	3,447.4552	1.0292		3,469.0686
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.9815**	**33.9518**	**18.3959**	**0.0328**		**1.6279**	**1.6279**		**1.4977**	**1.4977**		**3,447.4552**	**3,447.4552**	**1.0292**		**3,469.0686**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9815	33.9518	18.3959	0.0328		1.6279	1.6279		1.4977	1.4977	0.0000	3,447.4552	3,447.4552	1.0292		3,469.0686
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.9815**	**33.9518**	**18.3959**	**0.0328**		**1.6279**	**1.6279**		**1.4977**	**1.4977**	**0.0000**	**3,447.4552**	**3,447.4552**	**1.0292**		**3,469.0686**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Unmitigated	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.3900e-003**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.3900e-003
Total	**6.0000e-005**	**1.0000e-005**	**6.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.3900e-003**

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

Monterey-PG ASBS SW Mgmt Project - Diversions to MRWPCA

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one acre of disturbance (5,280 ft x 10 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 8-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	5.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	MaterialExported	0.00	500.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0755	0.8102	0.5066	7.4000e-004	0.0492	0.0406	0.0898	0.0257	0.0374	0.0631	0.0000	70.0670	70.0670	0.0198	0.0000	70.4822
Total	**0.0755**	**0.8102**	**0.5066**	**7.4000e-004**	**0.0492**	**0.0406**	**0.0898**	**0.0257**	**0.0374**	**0.0631**	**0.0000**	**70.0670**	**70.0670**	**0.0198**	**0.0000**	**70.4822**

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					
2015	0.0755	0.8102	0.5066	7.4000e-004	0.0492	0.0406	0.0898	0.0257	0.0374	0.0631	0.0000	70.0669	70.0669	0.0198	0.0000	70.4821
Total	**0.0755**	**0.8102**	**0.5066**	**7.4000e-004**	**0.0492**	**0.0406**	**0.0898**	**0.0257**	**0.0374**	**0.0631**	**0.0000**	**70.0669**	**70.0669**	**0.0198**	**0.0000**	**70.4821**

	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**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	3/4/2015	5	10	
4	Paving	Paving	3/5/2015	3/25/2015	5	15	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	63.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0156	0.0000	0.0156	8.3300e-003	0.0000	8.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0717	0.0460	5.0000e-005		3.8800e-003	3.8800e-003		3.5700e-003	3.5700e-003	0.0000	4.3511	4.3511	1.3000e-003	0.0000	4.3783
Total	**6.7400e-003**	**0.0717**	**0.0460**	**5.0000e-005**	**0.0156**	**3.8800e-003**	**0.0195**	**8.3300e-003**	**3.5700e-003**	**0.0119**	**0.0000**	**4.3511**	**4.3511**	**1.3000e-003**	**0.0000**	**4.3783**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.7000e-004	1.5300e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1584	0.1584	1.0000e-005	0.0000	0.1587
Total	**1.1000e-004**	**1.7000e-004**	**1.5300e-003**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1584**	**0.1584**	**1.0000e-005**	**0.0000**	**0.1587**

3.2 Site Preparation - 2015

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					0.0156	0.0000	0.0156	8.3300e-003	0.0000	8.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0717	0.0460	5.0000e-005		3.8800e-003	3.8800e-003		3.5700e-003	3.5700e-003	0.0000	4.3511	4.3511	1.3000e-003	0.0000	4.3783
Total	**6.7400e-003**	**0.0717**	**0.0460**	**5.0000e-005**	**0.0156**	**3.8800e-003**	**0.0195**	**8.3300e-003**	**3.5700e-003**	**0.0119**	**0.0000**	**4.3511**	**4.3511**	**1.3000e-003**	**0.0000**	**4.3783**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.7000e-004	1.5300e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1584	0.1584	1.0000e-005	0.0000	0.1587
Total	**1.1000e-004**	**1.7000e-004**	**1.5300e-003**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1584**	**0.1584**	**1.0000e-005**	**0.0000**	**0.1587**

3.3 Grading - 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					0.0307	0.0000	0.0307	0.0166	0.0000	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2285	0.1364	1.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	17.4947	17.4947	5.2200e-003	0.0000	17.6044
Total	**0.0207**	**0.2285**	**0.1364**	**1.8000e-004**	**0.0307**	**0.0113**	**0.0420**	**0.0166**	**0.0104**	**0.0270**	**0.0000**	**17.4947**	**17.4947**	**5.2200e-003**	**0.0000**	**17.6044**

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	9.5000e-004	9.1700e-003	0.0113	2.0000e-005	4.8000e-004	1.4000e-004	6.2000e-004	1.3000e-004	1.3000e-004	2.6000e-004	0.0000	1.9347	1.9347	2.0000e-005	0.0000	1.9350
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	5.5000e-004	4.9800e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5148	0.5148	4.0000e-005	0.0000	0.5156
Total	**1.3100e-003**	**9.7200e-003**	**0.0163**	**3.0000e-005**	**1.0000e-003**	**1.5000e-004**	**1.1400e-003**	**2.7000e-004**	**1.4000e-004**	**4.0000e-004**	**0.0000**	**2.4495**	**2.4495**	**6.0000e-005**	**0.0000**	**2.4507**

3.3 Grading - 2015

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					0.0307	0.0000	0.0307	0.0166	0.0000	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2285	0.1364	1.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	17.4947	17.4947	5.2200e-003	0.0000	17.6044
Total	**0.0207**	**0.2285**	**0.1364**	**1.8000e-004**	**0.0307**	**0.0113**	**0.0420**	**0.0166**	**0.0104**	**0.0270**	**0.0000**	**17.4947**	**17.4947**	**5.2200e-003**	**0.0000**	**17.6044**

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	9.5000e-004	9.1700e-003	0.0113	2.0000e-005	4.8000e-004	1.4000e-004	6.2000e-004	1.3000e-004	1.3000e-004	2.6000e-004	0.0000	1.9347	1.9347	2.0000e-005	0.0000	1.9350
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	5.5000e-004	4.9800e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5148	0.5148	4.0000e-005	0.0000	0.5156
Total	**1.3100e-003**	**9.7200e-003**	**0.0163**	**3.0000e-005**	**1.0000e-003**	**1.5000e-004**	**1.1400e-003**	**2.7000e-004**	**1.4000e-004**	**4.0000e-004**	**0.0000**	**2.4495**	**2.4495**	**6.0000e-005**	**0.0000**	**2.4507**

3.4 Trenching - 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	0.0121	0.1302	0.0944	1.0000e-004		7.1500e-003	7.1500e-003		6.5800e-003	6.5800e-003	0.0000	9.4905	9.4905	2.8300e-003	0.0000	9.5500
Total	**0.0121**	**0.1302**	**0.0944**	**1.0000e-004**		**7.1500e-003**	**7.1500e-003**		**6.5800e-003**	**6.5800e-003**	**0.0000**	**9.4905**	**9.4905**	**2.8300e-003**	**0.0000**	**9.5500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

3.4 Trenching - 2015

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	0.0121	0.1302	0.0944	1.0000e-004		7.1500e-003	7.1500e-003		6.5800e-003	6.5800e-003	0.0000	9.4905	9.4905	2.8300e-003	0.0000	9.5500
Total	**0.0121**	**0.1302**	**0.0944**	**1.0000e-004**		**7.1500e-003**	**7.1500e-003**		**6.5800e-003**	**6.5800e-003**	**0.0000**	**9.4905**	**9.4905**	**2.8300e-003**	**0.0000**	**9.5500**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

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	0.0333	0.3680	0.1950	3.6000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	34.3607	34.3607	0.0102	0.0000	34.5751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.3680**	**0.1950**	**3.6000e-004**		**0.0182**	**0.0182**		**0.0167**	**0.0167**	**0.0000**	**34.3607**	**34.3607**	**0.0102**	**0.0000**	**34.5751**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	1.4700e-003	0.0132	2.0000e-005	1.3700e-003	2.0000e-005	1.3900e-003	3.6000e-004	1.0000e-005	3.8000e-004	0.0000	1.3662	1.3662	1.1000e-004	0.0000	1.3684
Total	**9.5000e-004**	**1.4700e-003**	**0.0132**	**2.0000e-005**	**1.3700e-003**	**2.0000e-005**	**1.3900e-003**	**3.6000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.3662**	**1.3662**	**1.1000e-004**	**0.0000**	**1.3684**

3.5 Paving - 2015

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	0.0333	0.3680	0.1950	3.6000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	34.3607	34.3607	0.0102	0.0000	34.5750
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.3680**	**0.1950**	**3.6000e-004**		**0.0182**	**0.0182**		**0.0167**	**0.0167**	**0.0000**	**34.3607**	**34.3607**	**0.0102**	**0.0000**	**34.5750**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5000e-004	1.4700e-003	0.0132	2.0000e-005	1.3700e-003	2.0000e-005	1.3900e-003	3.6000e-004	1.0000e-005	3.8000e-004	0.0000	1.3662	1.3662	1.1000e-004	0.0000	1.3684
Total	**9.5000e-004**	**1.4700e-003**	**0.0132**	**2.0000e-005**	**1.3700e-003**	**2.0000e-005**	**1.3900e-003**	**3.6000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.3662**	**1.3662**	**1.1000e-004**	**0.0000**	**1.3684**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Monterey-PG ASBS SW Mgmt Project - Diversions to MRWPCA

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one acre of disturbance (5,280 ft x 10 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 8-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	5.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	MaterialExported	0.00	500.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.5721	49.2352	30.1473	0.0507	6.3413	2.4243	8.6259	3.3782	2.2313	5.4800	0.0000	5,263.1985	5,263.1985	1.5160	0.0000	5,295.0350
Total	**4.5721**	**49.2352**	**30.1473**	**0.0507**	**6.3413**	**2.4243**	**8.6259**	**3.3782**	**2.2313**	**5.4800**	**0.0000**	**5,263.1985**	**5,263.1985**	**1.5160**	**0.0000**	**5,295.0350**

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					
2015	4.5721	49.2352	30.1473	0.0507	6.3413	2.4243	8.6259	3.3782	2.2313	5.4800	0.0000	5,263.1985	5,263.1985	1.5160	0.0000	5,295.0350
Total	**4.5721**	**49.2352**	**30.1473**	**0.0507**	**6.3413**	**2.4243**	**8.6259**	**3.3782**	**2.2313**	**5.4800**	**0.0000**	**5,263.1985**	**5,263.1985**	**1.5160**	**0.0000**	**5,295.0350**

	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**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	3/4/2015	5	10	
4	Paving	Paving	3/5/2015	3/25/2015	5	15	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	63.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.2342	0.0000	6.2342	3.3331	0.0000	3.3331			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.2342**	**1.5510**	**7.7851**	**3.3331**	**1.4269**	**4.7600**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0445	0.0594	0.6269	8.6000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		74.1000	74.1000	5.4700e-003		74.2148
Total	**0.0445**	**0.0594**	**0.6269**	**8.6000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**74.1000**	**74.1000**	**5.4700e-003**		**74.2148**

3.2 Site Preparation - 2015

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					6.2342	0.0000	6.2342	3.3331	0.0000	3.3331			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.2342**	**1.5510**	**7.7851**	**3.3331**	**1.4269**	**4.7600**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0445	0.0594	0.6269	8.6000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		74.1000	74.1000	5.4700e-003		74.2148
Total	**0.0445**	**0.0594**	**0.6269**	**8.6000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**74.1000**	**74.1000**	**5.4700e-003**		**74.2148**

3.3 Grading - 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					6.1359	0.0000	6.1359	3.3229	0.0000	3.3229			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1359**	**2.2547**	**8.3906**	**3.3229**	**2.0744**	**5.3972**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.1692	1.7600	1.8467	4.2100e-003	0.0986	0.0287	0.1273	0.0270	0.0264	0.0534		426.9981	426.9981	3.4300e-003		427.0702
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**0.2416**	**1.8565**	**2.8654**	**5.6100e-003**	**0.2054**	**0.0299**	**0.2353**	**0.0553**	**0.0275**	**0.0828**		**547.4106**	**547.4106**	**0.0123**		**547.6692**

3.3 Grading - 2015

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					6.1359	0.0000	6.1359	3.3229	0.0000	3.3229			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1359**	**2.2547**	**8.3906**	**3.3229**	**2.0744**	**5.3972**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.1692	1.7600	1.8467	4.2100e-003	0.0986	0.0287	0.1273	0.0270	0.0264	0.0534		426.9981	426.9981	3.4300e-003		427.0702
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**0.2416**	**1.8565**	**2.8654**	**5.6100e-003**	**0.2054**	**0.0299**	**0.2353**	**0.0553**	**0.0275**	**0.0828**		**547.4106**	**547.4106**	**0.0123**		**547.6692**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293		5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**		**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1280	0.1708	1.8024	2.4700e-003	0.1889	2.1300e-003	0.1911	0.0501	1.9400e-003	0.0521		213.0375	213.0375	0.0157		213.3675
Total	**0.1280**	**0.1708**	**1.8024**	**2.4700e-003**	**0.1889**	**2.1300e-003**	**0.1911**	**0.0501**	**1.9400e-003**	**0.0521**		**213.0375**	**213.0375**	**0.0157**		**213.3675**

3.5 Paving - 2015

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293	0.0000	5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**	**0.0000**	**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1280	0.1708	1.8024	2.4700e-003	0.1889	2.1300e-003	0.1911	0.0501	1.9400e-003	0.0521		213.0375	213.0375	0.0157		213.3675
Total	**0.1280**	**0.1708**	**1.8024**	**2.4700e-003**	**0.1889**	**2.1300e-003**	**0.1911**	**0.0501**	**1.9400e-003**	**0.0521**		**213.0375**	**213.0375**	**0.0157**		**213.3675**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Diversions to MRWPCA

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one acre of disturbance (5,280 ft x 10 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 8-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	5.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	MaterialExported	0.00	500.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.5804	49.2791	31.0647	0.0506	6.3413	2.4243	8.6261	3.3782	2.2313	5.4801	0.0000	5,249.8020	5,249.8020	1.5160	0.0000	5,281.6385
Total	**4.5804**	**49.2791**	**31.0647**	**0.0506**	**6.3413**	**2.4243**	**8.6261**	**3.3782**	**2.2313**	**5.4801**	**0.0000**	**5,249.8020**	**5,249.8020**	**1.5160**	**0.0000**	**5,281.6385**

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					
2015	4.5804	49.2791	31.0647	0.0506	6.3413	2.4243	8.6261	3.3782	2.2313	5.4801	0.0000	5,249.8020	5,249.8020	1.5160	0.0000	5,281.6385
Total	**4.5804**	**49.2791**	**31.0647**	**0.0506**	**6.3413**	**2.4243**	**8.6261**	**3.3782**	**2.2313**	**5.4801**	**0.0000**	**5,249.8020**	**5,249.8020**	**1.5160**	**0.0000**	**5,281.6385**

	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**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	3/4/2015	5	10	
4	Paving	Paving	3/5/2015	3/25/2015	5	15	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	63.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.2342	0.0000	6.2342	3.3331	0.0000	3.3331			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.2342**	**1.5510**	**7.7851**	**3.3331**	**1.4269**	**4.7600**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0747	0.6502	8.1000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		69.4403	69.4403	5.4700e-003		69.5551
Total	**0.0474**	**0.0747**	**0.6502**	**8.1000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**69.4403**	**69.4403**	**5.4700e-003**		**69.5551**

3.2 Site Preparation - 2015

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					6.2342	0.0000	6.2342	3.3331	0.0000	3.3331			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.2342**	**1.5510**	**7.7851**	**3.3331**	**1.4269**	**4.7600**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0747	0.6502	8.1000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		69.4403	69.4403	5.4700e-003		69.5551
Total	**0.0474**	**0.0747**	**0.6502**	**8.1000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**69.4403**	**69.4403**	**5.4700e-003**		**69.5551**

3.3 Grading - 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					6.1359	0.0000	6.1359	3.3229	0.0000	3.3229			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1359**	**2.2547**	**8.3906**	**3.3229**	**2.0744**	**5.3972**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.2114	1.8647	2.7262	4.2100e-003	0.0986	0.0288	0.1275	0.0270	0.0265	0.0535		425.8755	425.8755	3.4800e-003		425.9486
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**0.2884**	**1.9860**	**3.7827**	**5.5200e-003**	**0.2054**	**0.0300**	**0.2355**	**0.0553**	**0.0276**	**0.0829**		**538.7160**	**538.7160**	**0.0124**		**538.9757**

3.3 Grading - 2015

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					6.1359	0.0000	6.1359	3.3229	0.0000	3.3229			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1359**	**2.2547**	**8.3906**	**3.3229**	**2.0744**	**5.3972**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.2114	1.8647	2.7262	4.2100e-003	0.0986	0.0288	0.1275	0.0270	0.0265	0.0535		425.8755	425.8755	3.4800e-003		425.9486
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**0.2884**	**1.9860**	**3.7827**	**5.5200e-003**	**0.2054**	**0.0300**	**0.2355**	**0.0553**	**0.0276**	**0.0829**		**538.7160**	**538.7160**	**0.0124**		**538.9757**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293		5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**		**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1363	0.2147	1.8692	2.3200e-003	0.1889	2.1300e-003	0.1911	0.0501	1.9400e-003	0.0521		199.6410	199.6410	0.0157		199.9710
Total	**0.1363**	**0.2147**	**1.8692**	**2.3200e-003**	**0.1889**	**2.1300e-003**	**0.1911**	**0.0501**	**1.9400e-003**	**0.0521**		**199.6410**	**199.6410**	**0.0157**		**199.9710**

3.5 Paving - 2015

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293	0.0000	5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**	**0.0000**	**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1363	0.2147	1.8692	2.3200e-003	0.1889	2.1300e-003	0.1911	0.0501	1.9400e-003	0.0521		199.6410	199.6410	0.0157		199.9710
Total	**0.1363**	**0.2147**	**1.8692**	**2.3200e-003**	**0.1889**	**2.1300e-003**	**0.1911**	**0.0501**	**1.9400e-003**	**0.0521**		**199.6410**	**199.6410**	**0.0157**		**199.9710**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Ocean View Blvd Conveyance

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	2.00	User Defined Unit	2.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately two acres of disturbance (10 ft x 1,100 ft plus 10 ft x 8,000 ft plus 80 ft x 80 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 12-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 4,088 CY of export (161 CY plus 2,844 CY plus 1,083 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	AcresOfGrading	2.50	2.00
tblGrading	MaterialExported	0.00	4,088.00
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	23.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.1068	1.1365	0.7819	1.1000e-003	0.0546	0.0560	0.1105	0.0270	0.0515	0.0785	0.0000	103.4196	103.4196	0.0256	0.0000	103.9571
Total	**0.1068**	**1.1365**	**0.7819**	**1.1000e-003**	**0.0546**	**0.0560**	**0.1105**	**0.0270**	**0.0515**	**0.0785**	**0.0000**	**103.4196**	**103.4196**	**0.0256**	**0.0000**	**103.9571**

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					
2015	0.1068	1.1365	0.7819	1.1000e-003	0.0546	0.0560	0.1105	0.0270	0.0515	0.0785	0.0000	103.4195	103.4195	0.0256	0.0000	103.9570
Total	**0.1068**	**1.1365**	**0.7819**	**1.1000e-003**	**0.0546**	**0.0560**	**0.1105**	**0.0270**	**0.0515**	**0.0785**	**0.0000**	**103.4195**	**103.4195**	**0.0256**	**0.0000**	**103.9570**

	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**

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	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	4/1/2015	5	30	
4	Paving	Paving	4/2/2015	4/22/2015	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	511.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0161	0.0000	0.0161	8.3900e-003	0.0000	8.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0717	0.0460	5.0000e-005		3.8800e-003	3.8800e-003		3.5700e-003	3.5700e-003	0.0000	4.3511	4.3511	1.3000e-003	0.0000	4.3783
Total	**6.7400e-003**	**0.0717**	**0.0460**	**5.0000e-005**	**0.0161**	**3.8800e-003**	**0.0200**	**8.3900e-003**	**3.5700e-003**	**0.0120**	**0.0000**	**4.3511**	**4.3511**	**1.3000e-003**	**0.0000**	**4.3783**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.7000e-004	1.5300e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1584	0.1584	1.0000e-005	0.0000	0.1587
Total	**1.1000e-004**	**1.7000e-004**	**1.5300e-003**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1584**	**0.1584**	**1.0000e-005**	**0.0000**	**0.1587**

3.2 Site Preparation - 2015

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					0.0161	0.0000	0.0161	8.3900e-003	0.0000	8.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0717	0.0460	5.0000e-005		3.8800e-003	3.8800e-003		3.5700e-003	3.5700e-003	0.0000	4.3511	4.3511	1.3000e-003	0.0000	4.3783
Total	**6.7400e-003**	**0.0717**	**0.0460**	**5.0000e-005**	**0.0161**	**3.8800e-003**	**0.0200**	**8.3900e-003**	**3.5700e-003**	**0.0120**	**0.0000**	**4.3511**	**4.3511**	**1.3000e-003**	**0.0000**	**4.3783**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.7000e-004	1.5300e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1584	0.1584	1.0000e-005	0.0000	0.1587
Total	**1.1000e-004**	**1.7000e-004**	**1.5300e-003**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1584**	**0.1584**	**1.0000e-005**	**0.0000**	**0.1587**

3.3 Grading - 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					0.0315	0.0000	0.0315	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2285	0.1364	1.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	17.4947	17.4947	5.2200e-003	0.0000	17.6044
Total	**0.0207**	**0.2285**	**0.1364**	**1.8000e-004**	**0.0315**	**0.0113**	**0.0428**	**0.0167**	**0.0104**	**0.0271**	**0.0000**	**17.4947**	**17.4947**	**5.2200e-003**	**0.0000**	**17.6044**

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	7.6700e-003	0.0744	0.0918	1.7000e-004	3.8800e-003	1.1700e-003	5.0500e-003	1.0700e-003	1.0700e-003	2.1400e-003	0.0000	15.6925	15.6925	1.3000e-004	0.0000	15.6952
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	5.5000e-004	4.9800e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5148	0.5148	4.0000e-005	0.0000	0.5156
Total	**8.0300e-003**	**0.0750**	**0.0968**	**1.8000e-004**	**4.4000e-003**	**1.1800e-003**	**5.5700e-003**	**1.2100e-003**	**1.0800e-003**	**2.2800e-003**	**0.0000**	**16.2073**	**16.2073**	**1.7000e-004**	**0.0000**	**16.2108**

3.3 Grading - 2015

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					0.0315	0.0000	0.0315	0.0167	0.0000	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2285	0.1364	1.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	17.4947	17.4947	5.2200e-003	0.0000	17.6044
Total	**0.0207**	**0.2285**	**0.1364**	**1.8000e-004**	**0.0315**	**0.0113**	**0.0428**	**0.0167**	**0.0104**	**0.0271**	**0.0000**	**17.4947**	**17.4947**	**5.2200e-003**	**0.0000**	**17.6044**

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	7.6700e-003	0.0744	0.0918	1.7000e-004	3.8800e-003	1.1700e-003	5.0500e-003	1.0700e-003	1.0700e-003	2.1400e-003	0.0000	15.6925	15.6925	1.3000e-004	0.0000	15.6952
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	5.5000e-004	4.9800e-003	1.0000e-005	5.2000e-004	1.0000e-005	5.2000e-004	1.4000e-004	1.0000e-005	1.4000e-004	0.0000	0.5148	0.5148	4.0000e-005	0.0000	0.5156
Total	**8.0300e-003**	**0.0750**	**0.0968**	**1.8000e-004**	**4.4000e-003**	**1.1800e-003**	**5.5700e-003**	**1.2100e-003**	**1.0800e-003**	**2.2800e-003**	**0.0000**	**16.2073**	**16.2073**	**1.7000e-004**	**0.0000**	**16.2108**

3.4 Trenching - 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	0.0363	0.3907	0.2833	3.0000e-004		0.0215	0.0215		0.0197	0.0197	0.0000	28.4715	28.4715	8.5000e-003	0.0000	28.6500
Total	**0.0363**	**0.3907**	**0.2833**	**3.0000e-004**		**0.0215**	**0.0215**		**0.0197**	**0.0197**	**0.0000**	**28.4715**	**28.4715**	**8.5000e-003**	**0.0000**	**28.6500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

3.4 Trenching - 2015

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	0.0363	0.3907	0.2833	3.0000e-004		0.0215	0.0215		0.0197	0.0197	0.0000	28.4715	28.4715	8.5000e-003	0.0000	28.6500
Total	**0.0363**	**0.3907**	**0.2833**	**3.0000e-004**		**0.0215**	**0.0215**		**0.0197**	**0.0197**	**0.0000**	**28.4715**	**28.4715**	**8.5000e-003**	**0.0000**	**28.6500**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

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	0.0333	0.3680	0.1950	3.6000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	34.3607	34.3607	0.0102	0.0000	34.5751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.3680**	**0.1950**	**3.6000e-004**		**0.0182**	**0.0182**		**0.0167**	**0.0167**	**0.0000**	**34.3607**	**34.3607**	**0.0102**	**0.0000**	**34.5751**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

3.5 Paving - 2015

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	0.0333	0.3680	0.1950	3.6000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	34.3607	34.3607	0.0102	0.0000	34.5750
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.3680**	**0.1950**	**3.6000e-004**		**0.0182**	**0.0182**		**0.0167**	**0.0167**	**0.0000**	**34.3607**	**34.3607**	**0.0102**	**0.0000**	**34.5750**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Monterey-PG ASBS SW Mgmt Project - Ocean View Blvd Conveyance

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	2.00	User Defined Unit	2.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately two acres of disturbance (10 ft x 1,100 ft plus 10 ft x 8,000 ft plus 80 ft x 80 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 12-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 4,088 CY of export (161 CY plus 2,844 CY plus 1,083 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	AcresOfGrading	2.50	2.00
tblGrading	MaterialExported	0.00	4,088.00
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	23.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	5.5873	60.0621	43.2791	0.0722	7.2041	2.4887	9.6929	3.5900	2.2896	5.8796	0.0000	7,440.7619	7,440.7619	1.5140	0.0000	7,472.5553
Total	**5.5873**	**60.0621**	**43.2791**	**0.0722**	**7.2041**	**2.4887**	**9.6929**	**3.5900**	**2.2896**	**5.8796**	**0.0000**	**7,440.7619**	**7,440.7619**	**1.5140**	**0.0000**	**7,472.5553**

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					
2015	5.5873	60.0621	43.2791	0.0722	7.2041	2.4887	9.6929	3.5900	2.2896	5.8796	0.0000	7,440.7619	7,440.7619	1.5140	0.0000	7,472.5553
Total	**5.5873**	**60.0621**	**43.2791**	**0.0722**	**7.2041**	**2.4887**	**9.6929**	**3.5900**	**2.2896**	**5.8796**	**0.0000**	**7,440.7619**	**7,440.7619**	**1.5140**	**0.0000**	**7,472.5553**

	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**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	4/1/2015	5	30	
4	Paving	Paving	4/2/2015	4/22/2015	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	511.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.4463	0.0000	6.4463	3.3560	0.0000	3.3560			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.4463**	**1.5510**	**7.9972**	**3.3560**	**1.4269**	**4.7829**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0445	0.0594	0.6269	8.6000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		74.1000	74.1000	5.4700e-003		74.2148
Total	**0.0445**	**0.0594**	**0.6269**	**8.6000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**74.1000**	**74.1000**	**5.4700e-003**		**74.2148**

3.2 Site Preparation - 2015

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					6.4463	0.0000	6.4463	3.3560	0.0000	3.3560			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.4463**	**1.5510**	**7.9972**	**3.3560**	**1.4269**	**4.7829**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0445	0.0594	0.6269	8.6000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		74.1000	74.1000	5.4700e-003		74.2148
Total	**0.0445**	**0.0594**	**0.6269**	**8.6000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**74.1000**	**74.1000**	**5.4700e-003**		**74.2148**

3.3 Grading - 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					6.2974	0.0000	6.2974	3.3427	0.0000	3.3427			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2974**	**2.2547**	**8.5522**	**3.3427**	**2.0744**	**5.4171**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.3723	14.2752	14.9784	0.0341	0.7999	0.2328	1.0327	0.2190	0.2141	0.4331		3,463.4290	3,463.4290	0.0279		3,464.0140
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**1.4446**	**14.3717**	**15.9971**	**0.0355**	**0.9067**	**0.2340**	**1.1407**	**0.2473**	**0.2152**	**0.4625**		**3,583.8415**	**3,583.8415**	**0.0367**		**3,584.6130**

3.3 Grading - 2015

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					6.2974	0.0000	6.2974	3.3427	0.0000	3.3427			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2974**	**2.2547**	**8.5522**	**3.3427**	**2.0744**	**5.4171**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.3723	14.2752	14.9784	0.0341	0.7999	0.2328	1.0327	0.2190	0.2141	0.4331		3,463.4290	3,463.4290	0.0279		3,464.0140
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**1.4446**	**14.3717**	**15.9971**	**0.0355**	**0.9067**	**0.2340**	**1.1407**	**0.2473**	**0.2152**	**0.4625**		**3,583.8415**	**3,583.8415**	**0.0367**		**3,584.6130**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293		5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**		**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1113	0.1485	1.5673	2.1500e-003	0.1643	1.8600e-003	0.1662	0.0436	1.6900e-003	0.0453		185.2500	185.2500	0.0137		185.5369
Total	**0.1113**	**0.1485**	**1.5673**	**2.1500e-003**	**0.1643**	**1.8600e-003**	**0.1662**	**0.0436**	**1.6900e-003**	**0.0453**		**185.2500**	**185.2500**	**0.0137**		**185.5369**

3.5 Paving - 2015

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293	0.0000	5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**	**0.0000**	**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1113	0.1485	1.5673	2.1500e-003	0.1643	1.8600e-003	0.1662	0.0436	1.6900e-003	0.0453		185.2500	185.2500	0.0137		185.5369
Total	**0.1113**	**0.1485**	**1.5673**	**2.1500e-003**	**0.1643**	**1.8600e-003**	**0.1662**	**0.0436**	**1.6900e-003**	**0.0453**		**185.2500**	**185.2500**	**0.0137**		**185.5369**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Unmitigated	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.6000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.6000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Ocean View Blvd Conveyance

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	2.00	User Defined Unit	2.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately two acres of disturbance (10 ft x 1,100 ft plus 10 ft x 8,000 ft plus 80 ft x 80 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 12-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, delivery trucks, asphalt pavers and roller, and a street sweeper.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 4,088 CY of export (161 CY plus 2,844 CY plus 1,083 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	AcresOfGrading	2.50	2.00
tblGrading	MaterialExported	0.00	4,088.00
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	23.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	5.9344	60.9363	50.4511	0.0722	7.2041	2.4898	9.6939	3.5900	2.2905	5.8805	0.0000	7,424.0840	7,424.0840	1.5140	0.0000	7,455.8774
Total	**5.9344**	**60.9363**	**50.4511**	**0.0722**	**7.2041**	**2.4898**	**9.6939**	**3.5900**	**2.2905**	**5.8805**	**0.0000**	**7,424.0840**	**7,424.0840**	**1.5140**	**0.0000**	**7,455.8774**

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					
2015	5.9344	60.9363	50.4511	0.0722	7.2041	2.4898	9.6939	3.5900	2.2905	5.8805	0.0000	7,424.0840	7,424.0840	1.5140	0.0000	7,455.8774
Total	**5.9344**	**60.9363**	**50.4511**	**0.0722**	**7.2041**	**2.4898**	**9.6939**	**3.5900**	**2.2905**	**5.8805**	**0.0000**	**7,424.0840**	**7,424.0840**	**1.5140**	**0.0000**	**7,455.8774**

	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**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/4/2015	5	5	
2	Grading	Grading	2/5/2015	2/18/2015	5	10	
3	Trenching	Trenching	2/19/2015	4/1/2015	5	30	
4	Paving	Paving	4/2/2015	4/22/2015	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	2	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	511.00	10.80	7.30	18.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.4463	0.0000	6.4463	3.3560	0.0000	3.3560			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.4463**	**1.5510**	**7.9972**	**3.3560**	**1.4269**	**4.7829**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0747	0.6502	8.1000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		69.4403	69.4403	5.4700e-003		69.5551
Total	**0.0474**	**0.0747**	**0.6502**	**8.1000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**69.4403**	**69.4403**	**5.4700e-003**		**69.5551**

3.2 Site Preparation - 2015

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					6.4463	0.0000	6.4463	3.3560	0.0000	3.3560			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.4463**	**1.5510**	**7.9972**	**3.3560**	**1.4269**	**4.7829**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0747	0.6502	8.1000e-004	0.0657	7.4000e-004	0.0665	0.0174	6.8000e-004	0.0181		69.4403	69.4403	5.4700e-003		69.5551
Total	**0.0474**	**0.0747**	**0.6502**	**8.1000e-004**	**0.0657**	**7.4000e-004**	**0.0665**	**0.0174**	**6.8000e-004**	**0.0181**		**69.4403**	**69.4403**	**5.4700e-003**		**69.5551**

3.3 Grading - 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					6.2974	0.0000	6.2974	3.3427	0.0000	3.3427			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2974**	**2.2547**	**8.5522**	**3.3427**	**2.0744**	**5.4171**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.7148	15.1245	22.1127	0.0342	0.7999	0.2339	1.0338	0.2190	0.2151	0.4340		3,454.3231	3,454.3231	0.0282		3,454.9162
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**1.7918**	**15.2459**	**23.1692**	**0.0355**	**0.9067**	**0.2351**	**1.1418**	**0.2473**	**0.2162**	**0.4635**		**3,567.1636**	**3,567.1636**	**0.0371**		**3,567.9433**

3.3 Grading - 2015

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					6.2974	0.0000	6.2974	3.3427	0.0000	3.3427			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.2974**	**2.2547**	**8.5522**	**3.3427**	**2.0744**	**5.4171**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.7148	15.1245	22.1127	0.0342	0.7999	0.2339	1.0338	0.2190	0.2151	0.4340		3,454.3231	3,454.3231	0.0282		3,454.9162
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**1.7918**	**15.2459**	**23.1692**	**0.0355**	**0.9067**	**0.2351**	**1.1418**	**0.2473**	**0.2162**	**0.4635**		**3,567.1636**	**3,567.1636**	**0.0371**		**3,567.9433**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293		5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**		**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1185	0.1867	1.6254	2.0100e-003	0.1643	1.8600e-003	0.1662	0.0436	1.6900e-003	0.0453		173.6009	173.6009	0.0137		173.8878
Total	**0.1185**	**0.1867**	**1.6254**	**2.0100e-003**	**0.1643**	**1.8600e-003**	**0.1662**	**0.0436**	**1.6900e-003**	**0.0453**		**173.6009**	**173.6009**	**0.0137**		**173.8878**

3.5 Paving - 2015

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	4.4441	49.0644	25.9929	0.0483		2.4222	2.4222		2.2293	2.2293	0.0000	5,050.1610	5,050.1610	1.5003		5,081.6675
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.4441**	**49.0644**	**25.9929**	**0.0483**		**2.4222**	**2.4222**		**2.2293**	**2.2293**	**0.0000**	**5,050.1610**	**5,050.1610**	**1.5003**		**5,081.6675**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1185	0.1867	1.6254	2.0100e-003	0.1643	1.8600e-003	0.1662	0.0436	1.6900e-003	0.0453		173.6009	173.6009	0.0137		173.8878
Total	**0.1185**	**0.1867**	**1.6254**	**2.0100e-003**	**0.1643**	**1.8600e-003**	**0.1662**	**0.0436**	**1.6900e-003**	**0.0453**		**173.6009**	**173.6009**	**0.0137**		**173.8878**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Unmitigated	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.6000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Total	**2.0000e-005**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.6000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Pine Ave Conveyance

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately 1 acre of disturbance (10 ft x 2,760 ft plus 80 ft x 180 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 8,036 CY of export (1,636 CY plus 6,400 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblGrading	AcresOfGrading	10.00	1.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	MaterialExported	0.00	8,036.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.60
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.1483	1.5730	1.1189	1.5300e-003	0.1029	0.0766	0.1795	0.0528	0.0705	0.1233	0.0000	143.8244	143.8244	0.0338	0.0000	144.5332
Total	**0.1483**	**1.5730**	**1.1189**	**1.5300e-003**	**0.1029**	**0.0766**	**0.1795**	**0.0528**	**0.0705**	**0.1233**	**0.0000**	**143.8244**	**143.8244**	**0.0338**	**0.0000**	**144.5332**

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					
2015	0.1483	1.5730	1.1189	1.5300e-003	0.1029	0.0766	0.1795	0.0528	0.0705	0.1233	0.0000	143.8243	143.8243	0.0338	0.0000	144.5331
Total	**0.1483**	**1.5730**	**1.1189**	**1.5300e-003**	**0.1029**	**0.0766**	**0.1795**	**0.0528**	**0.0705**	**0.1233**	**0.0000**	**143.8243**	**143.8243**	**0.0338**	**0.0000**	**144.5331**

	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**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/11/2015	5	20	
3	Trenching	Trenching	3/12/2015	4/29/2015	5	35	
4	Paving	Paving	4/30/2015	5/27/2015	5	20	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	1,005.00	10.80	7.30	16.60	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0306	0.0000	0.0306	0.0166	0.0000	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0135	0.1434	0.0919	9.0000e-005		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	8.7021	8.7021	2.6000e-003	0.0000	8.7567
Total	**0.0135**	**0.1434**	**0.0919**	**9.0000e-005**	**0.0306**	**7.7500e-003**	**0.0384**	**0.0166**	**7.1300e-003**	**0.0237**	**0.0000**	**8.7021**	**8.7021**	**2.6000e-003**	**0.0000**	**8.7567**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	2.1000e-004	1.9100e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1980	0.1980	2.0000e-005	0.0000	0.1983
Total	**1.4000e-004**	**2.1000e-004**	**1.9100e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1980**	**0.1980**	**2.0000e-005**	**0.0000**	**0.1983**

3.2 Site Preparation - 2015

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					0.0306	0.0000	0.0306	0.0166	0.0000	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0135	0.1434	0.0919	9.0000e-005		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	8.7021	8.7021	2.6000e-003	0.0000	8.7567
Total	**0.0135**	**0.1434**	**0.0919**	**9.0000e-005**	**0.0306**	**7.7500e-003**	**0.0384**	**0.0166**	**7.1300e-003**	**0.0237**	**0.0000**	**8.7021**	**8.7021**	**2.6000e-003**	**0.0000**	**8.7567**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	2.1000e-004	1.9100e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1980	0.1980	2.0000e-005	0.0000	0.1983
Total	**1.4000e-004**	**2.1000e-004**	**1.9100e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1980**	**0.1980**	**2.0000e-005**	**0.0000**	**0.1983**

3.3 Grading - 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					0.0614	0.0000	0.0614	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0414	0.4569	0.2728	3.7000e-004		0.0226	0.0226		0.0207	0.0207	0.0000	34.9894	34.9894	0.0105	0.0000	35.2088
Total	**0.0414**	**0.4569**	**0.2728**	**3.7000e-004**	**0.0614**	**0.0226**	**0.0839**	**0.0333**	**0.0207**	**0.0540**	**0.0000**	**34.9894**	**34.9894**	**0.0105**	**0.0000**	**35.2088**

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	0.0146	0.1361	0.1764	3.1000e-004	7.0500e-003	2.1200e-003	9.1700e-003	1.9400e-003	1.9500e-003	3.8800e-003	0.0000	28.5253	28.5253	2.3000e-004	0.0000	28.5302
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	1.1100e-003	9.9500e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0500e-003	2.7000e-004	1.0000e-005	2.9000e-004	0.0000	1.0296	1.0296	8.0000e-005	0.0000	1.0313
Total	**0.0153**	**0.1372**	**0.1864**	**3.2000e-004**	**8.0800e-003**	**2.1300e-003**	**0.0102**	**2.2100e-003**	**1.9600e-003**	**4.1700e-003**	**0.0000**	**29.5549**	**29.5549**	**3.1000e-004**	**0.0000**	**29.5614**

3.3 Grading - 2015

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					0.0614	0.0000	0.0614	0.0333	0.0000	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0414	0.4569	0.2728	3.7000e-004		0.0226	0.0226		0.0207	0.0207	0.0000	34.9894	34.9894	0.0105	0.0000	35.2087
Total	**0.0414**	**0.4569**	**0.2728**	**3.7000e-004**	**0.0614**	**0.0226**	**0.0839**	**0.0333**	**0.0207**	**0.0540**	**0.0000**	**34.9894**	**34.9894**	**0.0105**	**0.0000**	**35.2087**

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	0.0146	0.1361	0.1764	3.1000e-004	7.0500e-003	2.1200e-003	9.1700e-003	1.9400e-003	1.9500e-003	3.8800e-003	0.0000	28.5253	28.5253	2.3000e-004	0.0000	28.5302
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	1.1100e-003	9.9500e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0500e-003	2.7000e-004	1.0000e-005	2.9000e-004	0.0000	1.0296	1.0296	8.0000e-005	0.0000	1.0313
Total	**0.0153**	**0.1372**	**0.1864**	**3.2000e-004**	**8.0800e-003**	**2.1300e-003**	**0.0102**	**2.2100e-003**	**1.9600e-003**	**4.1700e-003**	**0.0000**	**29.5549**	**29.5549**	**3.1000e-004**	**0.0000**	**29.5614**

3.4 Trenching - 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	0.0423	0.4558	0.3305	3.5000e-004		0.0250	0.0250		0.0230	0.0230	0.0000	33.2168	33.2168	9.9200e-003	0.0000	33.4250
Total	**0.0423**	**0.4558**	**0.3305**	**3.5000e-004**		**0.0250**	**0.0250**		**0.0230**	**0.0230**	**0.0000**	**33.2168**	**33.2168**	**9.9200e-003**	**0.0000**	**33.4250**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	1.4900e-003	0.0134	2.0000e-005	1.3900e-003	2.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.3860	1.3860	1.1000e-004	0.0000	1.3882
Total	**9.6000e-004**	**1.4900e-003**	**0.0134**	**2.0000e-005**	**1.3900e-003**	**2.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.3860**	**1.3860**	**1.1000e-004**	**0.0000**	**1.3882**

3.4 Trenching - 2015

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	0.0423	0.4558	0.3305	3.5000e-004		0.0250	0.0250		0.0230	0.0230	0.0000	33.2167	33.2167	9.9200e-003	0.0000	33.4250
Total	**0.0423**	**0.4558**	**0.3305**	**3.5000e-004**		**0.0250**	**0.0250**		**0.0230**	**0.0230**	**0.0000**	**33.2167**	**33.2167**	**9.9200e-003**	**0.0000**	**33.4250**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-004	1.4900e-003	0.0134	2.0000e-005	1.3900e-003	2.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.3860	1.3860	1.1000e-004	0.0000	1.3882
Total	**9.6000e-004**	**1.4900e-003**	**0.0134**	**2.0000e-005**	**1.3900e-003**	**2.0000e-005**	**1.4100e-003**	**3.7000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.3860**	**1.3860**	**1.1000e-004**	**0.0000**	**1.3882**

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	0.0339	0.3766	0.2105	3.6000e-004		0.0191	0.0191		0.0176	0.0176	0.0000	34.5894	34.5894	0.0103	0.0000	34.8049
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0339**	**0.3766**	**0.2105**	**3.6000e-004**		**0.0191**	**0.0191**		**0.0176**	**0.0176**	**0.0000**	**34.5894**	**34.5894**	**0.0103**	**0.0000**	**34.8049**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

3.5 Paving - 2015

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	0.0339	0.3766	0.2105	3.6000e-004		0.0191	0.0191		0.0176	0.0176	0.0000	34.5894	34.5894	0.0103	0.0000	34.8048
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0339**	**0.3766**	**0.2105**	**3.6000e-004**		**0.0191**	**0.0191**		**0.0176**	**0.0176**	**0.0000**	**34.5894**	**34.5894**	**0.0103**	**0.0000**	**34.8048**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	1.2800e-003	0.0115	2.0000e-005	1.1900e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1880	1.1880	9.0000e-005	0.0000	1.1899
Total	**8.3000e-004**	**1.2800e-003**	**0.0115**	**2.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1880**	**1.1880**	**9.0000e-005**	**0.0000**	**1.1899**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Monterey-PG ASBS SW Mgmt Project - Pine Ave Conveyance

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately 1 acre of disturbance (10 ft x 2,760 ft plus 80 ft x 180 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 8,036 CY of export (1,636 CY plus 6,400 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblGrading	AcresOfGrading	10.00	1.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	MaterialExported	0.00	8,036.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.60
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	5.5148	58.8419	42.6128	0.0691	6.9696	2.4674	9.4370	3.5523	2.2699	5.8222	0.0000	7,125.4676	7,125.4676	1.1858	0.0000	7,150.3696
Total	**5.5148**	**58.8419**	**42.6128**	**0.0691**	**6.9696**	**2.4674**	**9.4370**	**3.5523**	**2.2699**	**5.8222**	**0.0000**	**7,125.4676**	**7,125.4676**	**1.1858**	**0.0000**	**7,150.3696**

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					
2015	5.5148	58.8419	42.6128	0.0691	6.9696	2.4674	9.4370	3.5523	2.2699	5.8222	0.0000	7,125.4676	7,125.4676	1.1858	0.0000	7,150.3696
Total	**5.5148**	**58.8419**	**42.6128**	**0.0691**	**6.9696**	**2.4674**	**9.4370**	**3.5523**	**2.2699**	**5.8222**	**0.0000**	**7,125.4676**	**7,125.4676**	**1.1858**	**0.0000**	**7,150.3696**

	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**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/11/2015	5	20	
3	Trenching	Trenching	3/12/2015	4/29/2015	5	35	
4	Paving	Paving	4/30/2015	5/27/2015	5	20	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	1,005.00	10.80	7.30	16.60	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.1281	0.0000	6.1281	3.3217	0.0000	3.3217			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.1281**	**1.5510**	**7.6791**	**3.3217**	**1.4269**	**4.7486**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.2 Site Preparation - 2015

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					6.1281	0.0000	6.1281	3.3217	0.0000	3.3217			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.1281**	**1.5510**	**7.6791**	**3.3217**	**1.4269**	**4.7486**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.3 Grading - 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					6.1373	0.0000	6.1373	3.3254	0.0000	3.3254			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1373**	**2.2547**	**8.3920**	**3.3254**	**2.0744**	**5.3997**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.2998	13.0550	14.3121	0.0310	0.7255	0.2115	0.9370	0.1986	0.1945	0.3931		3,148.1347	3,148.1347	0.0255		3,148.6697
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**1.3722**	**13.1515**	**15.3309**	**0.0324**	**0.8323**	**0.2127**	**1.0450**	**0.2269**	**0.1956**	**0.4225**		**3,268.5472**	**3,268.5472**	**0.0344**		**3,269.2687**

3.3 Grading - 2015

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					6.1373	0.0000	6.1373	3.3254	0.0000	3.3254			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1373**	**2.2547**	**8.3920**	**3.3254**	**2.0744**	**5.3997**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.2998	13.0550	14.3121	0.0310	0.7255	0.2115	0.9370	0.1986	0.1945	0.3931		3,148.1347	3,148.1347	0.0255		3,148.6697
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**1.3722**	**13.1515**	**15.3309**	**0.0324**	**0.8323**	**0.2127**	**1.0450**	**0.2269**	**0.1956**	**0.4225**		**3,268.5472**	**3,268.5472**	**0.0344**		**3,269.2687**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

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	3.3861	37.6619	21.0528	0.0365		1.9079	1.9079		1.7562	1.7562		3,812.8301	3,812.8301	1.1309		3,836.5793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3861**	**37.6619**	**21.0528**	**0.0365**		**1.9079**	**1.9079**		**1.7562**	**1.7562**		**3,812.8301**	**3,812.8301**	**1.1309**		**3,836.5793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.1114	1.1755	1.6100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		138.9375	138.9375	0.0103		139.1527
Total	**0.0835**	**0.1114**	**1.1755**	**1.6100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**138.9375**	**138.9375**	**0.0103**		**139.1527**

3.5 Paving - 2015

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	3.3861	37.6619	21.0528	0.0365		1.9079	1.9079		1.7562	1.7562	0.0000	3,812.8301	3,812.8301	1.1309		3,836.5793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3861**	**37.6619**	**21.0528**	**0.0365**		**1.9079**	**1.9079**		**1.7562**	**1.7562**	**0.0000**	**3,812.8301**	**3,812.8301**	**1.1309**		**3,836.5793**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.1114	1.1755	1.6100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		138.9375	138.9375	0.0103		139.1527
Total	**0.0835**	**0.1114**	**1.1755**	**1.6100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**138.9375**	**138.9375**	**0.0103**		**139.1527**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Pine Ave Conveyance

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately 1 acre of disturbance (10 ft x 2,760 ft plus 80 ft x 180 ft), based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, roller, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 8,036 CY of export (1,636 CY plus 6,400 CY), based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblGrading	AcresOfGrading	10.00	1.00
tblGrading	AcresOfGrading	5.00	1.00
tblGrading	MaterialExported	0.00	8,036.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.60
tblTripsAndVMT	WorkerTripNumber	8.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	5.8566	59.6415	49.6722	0.0691	6.9696	2.4684	9.4380	3.5523	2.2709	5.8232	0.0000	7,108.9412	7,108.9412	1.1862	0.0000	7,133.8513
Total	**5.8566**	**59.6415**	**49.6722**	**0.0691**	**6.9696**	**2.4684**	**9.4380**	**3.5523**	**2.2709**	**5.8232**	**0.0000**	**7,108.9412**	**7,108.9412**	**1.1862**	**0.0000**	**7,133.8513**

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					
2015	5.8566	59.6415	49.6722	0.0691	6.9696	2.4684	9.4380	3.5523	2.2709	5.8232	0.0000	7,108.9412	7,108.9412	1.1862	0.0000	7,133.8513
Total	**5.8566**	**59.6415**	**49.6722**	**0.0691**	**6.9696**	**2.4684**	**9.4380**	**3.5523**	**2.2709**	**5.8232**	**0.0000**	**7,108.9412**	**7,108.9412**	**1.1862**	**0.0000**	**7,133.8513**

	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**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/11/2015	5	10	
2	Grading	Grading	2/12/2015	3/11/2015	5	20	
3	Trenching	Trenching	3/12/2015	4/29/2015	5	35	
4	Paving	Paving	4/30/2015	5/27/2015	5	20	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rollers	1	8.00	80	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Site Preparation	3	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	1,005.00	10.80	7.30	16.60	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.1281	0.0000	6.1281	3.3217	0.0000	3.3217			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269		1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.1281**	**1.5510**	**7.6791**	**3.3217**	**1.4269**	**4.7486**		**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.2 Site Preparation - 2015

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					6.1281	0.0000	6.1281	3.3217	0.0000	3.3217			0.0000			0.0000
Off-Road	2.6954	28.6870	18.3827	0.0183		1.5510	1.5510		1.4269	1.4269	0.0000	1,918.4854	1,918.4854	0.5728		1,930.5131
Total	**2.6954**	**28.6870**	**18.3827**	**0.0183**	**6.1281**	**1.5510**	**7.6791**	**3.3217**	**1.4269**	**4.7486**	**0.0000**	**1,918.4854**	**1,918.4854**	**0.5728**		**1,930.5131**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.3 Grading - 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					6.1373	0.0000	6.1373	3.3254	0.0000	3.3254			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1373**	**2.2547**	**8.3920**	**3.3254**	**2.0744**	**5.3997**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.6370	13.8297	21.3338	0.0311	0.7255	0.2125	0.9380	0.1986	0.1954	0.3940		3,139.1802	3,139.1802	0.0259		3,139.7233
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**1.7140**	**13.9510**	**22.3903**	**0.0324**	**0.8323**	**0.2137**	**1.0460**	**0.2269**	**0.1965**	**0.4234**		**3,252.0208**	**3,252.0208**	**0.0347**		**3,252.7504**

3.3 Grading - 2015

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					6.1373	0.0000	6.1373	3.3254	0.0000	3.3254			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**6.1373**	**2.2547**	**8.3920**	**3.3254**	**2.0744**	**5.3997**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	1.6370	13.8297	21.3338	0.0311	0.7255	0.2125	0.9380	0.1986	0.1954	0.3940		3,139.1802	3,139.1802	0.0259		3,139.7233
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**1.7140**	**13.9510**	**22.3903**	**0.0324**	**0.8323**	**0.2137**	**1.0460**	**0.2269**	**0.1965**	**0.4234**		**3,252.0208**	**3,252.0208**	**0.0347**		**3,252.7504**

3.4 Trenching - 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	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162		2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**		**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4165	26.0466	18.8834	0.0199		1.4306	1.4306		1.3162	1.3162	0.0000	2,092.2971	2,092.2971	0.6246		2,105.4145
Total	**2.4165**	**26.0466**	**18.8834**	**0.0199**		**1.4306**	**1.4306**		**1.3162**	**1.3162**	**0.0000**	**2,092.2971**	**2,092.2971**	**0.6246**		**2,105.4145**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

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	3.3861	37.6619	21.0528	0.0365		1.9079	1.9079		1.7562	1.7562		3,812.8301	3,812.8301	1.1309		3,836.5793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3861**	**37.6619**	**21.0528**	**0.0365**		**1.9079**	**1.9079**		**1.7562**	**1.7562**		**3,812.8301**	**3,812.8301**	**1.1309**		**3,836.5793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0889	0.1401	1.2191	1.5100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		130.2006	130.2006	0.0103		130.4159
Total	**0.0889**	**0.1401**	**1.2191**	**1.5100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**130.2006**	**130.2006**	**0.0103**		**130.4159**

3.5 Paving - 2015

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	3.3861	37.6619	21.0528	0.0365		1.9079	1.9079		1.7562	1.7562	0.0000	3,812.8301	3,812.8301	1.1309		3,836.5793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3861**	**37.6619**	**21.0528**	**0.0365**		**1.9079**	**1.9079**		**1.7562**	**1.7562**	**0.0000**	**3,812.8301**	**3,812.8301**	**1.1309**		**3,836.5793**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0889	0.1401	1.2191	1.5100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		130.2006	130.2006	0.0103		130.4159
Total	**0.0889**	**0.1401**	**1.2191**	**1.5100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**130.2006**	**130.2006**	**0.0103**		**130.4159**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Point Pinos SWTF

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	0.50	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one-half acre of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration, 22 days of grading/trenching.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	10.00	20.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	2,000.00
tblLandUse	LotAcreage	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30

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					
2015	0.1130	1.2495	0.8102	1.1900e-003	0.1417	0.0585	0.2001	0.0734	0.0538	0.1272	0.0000	112.5474	112.5474	0.0307	0.0000	113.1922
Total	**0.1130**	**1.2495**	**0.8102**	**1.1900e-003**	**0.1417**	**0.0585**	**0.2001**	**0.0734**	**0.0538**	**0.1272**	**0.0000**	**112.5474**	**112.5474**	**0.0307**	**0.0000**	**113.1922**

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					
2015	0.1130	1.2495	0.8102	1.1900e-003	0.1417	0.0585	0.2001	0.0734	0.0538	0.1272	0.0000	112.5472	112.5472	0.0307	0.0000	113.1921
Total	**0.1130**	**1.2495**	**0.8102**	**1.1900e-003**	**0.1417**	**0.0585**	**0.2001**	**0.0734**	**0.0538**	**0.1272**	**0.0000**	**112.5472**	**112.5472**	**0.0307**	**0.0000**	**113.1921**

	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**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	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
Mobile	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
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/25/2015	5	20	
2	Grading	Grading	2/26/2015	3/12/2015	5	11	
3	Trenching	Trenching	3/13/2015	3/27/2015	5	11	
4	Paving	Paving	3/28/2015	5/27/2015	5	43	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	250.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					0.0333	0.0000	0.0333	0.0169	0.0000	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1782	0.1340	1.2000e-004		9.4000e-003	9.4000e-003		8.6500e-003	8.6500e-003	0.0000	11.4434	11.4434	3.4200e-003	0.0000	11.5151
Total	**0.0163**	**0.1782**	**0.1340**	**1.2000e-004**	**0.0333**	**9.4000e-003**	**0.0427**	**0.0169**	**8.6500e-003**	**0.0255**	**0.0000**	**11.4434**	**11.4434**	**3.4200e-003**	**0.0000**	**11.5151**

3.2 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

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					0.0333	0.0000	0.0333	0.0169	0.0000	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.1782	0.1340	1.2000e-004		9.4000e-003	9.4000e-003		8.6500e-003	8.6500e-003	0.0000	11.4434	11.4434	3.4200e-003	0.0000	11.5151
Total	**0.0163**	**0.1782**	**0.1340**	**1.2000e-004**	**0.0333**	**9.4000e-003**	**0.0427**	**0.0169**	**8.6500e-003**	**0.0255**	**0.0000**	**11.4434**	**11.4434**	**3.4200e-003**	**0.0000**	**11.5151**

3.2 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.3000e-004	3.8300e-003	1.0000e-005	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3960	0.3960	3.0000e-005	0.0000	0.3966
Total	**2.8000e-004**	**4.3000e-004**	**3.8300e-003**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3960**	**0.3960**	**3.0000e-005**	**0.0000**	**0.3966**

3.3 Grading - 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					0.1027	0.0000	0.1027	0.0550	0.0000	0.0550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2513	0.1501	2.0000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	19.2442	19.2442	5.7500e-003	0.0000	19.3648
Total	**0.0228**	**0.2513**	**0.1501**	**2.0000e-004**	**0.1027**	**0.0124**	**0.1151**	**0.0550**	**0.0114**	**0.0664**	**0.0000**	**19.2442**	**19.2442**	**5.7500e-003**	**0.0000**	**19.3648**

3.3 Grading - 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	3.6000e-003	0.0333	0.0437	8.0000e-005	1.7200e-003	5.2000e-004	2.2400e-003	4.7000e-004	4.8000e-004	9.5000e-004	0.0000	6.9712	6.9712	6.0000e-005	0.0000	6.9724
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	6.1000e-004	5.4700e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.5663	0.5663	4.0000e-005	0.0000	0.5672
Total	**3.9900e-003**	**0.0339**	**0.0491**	**9.0000e-005**	**2.2900e-003**	**5.3000e-004**	**2.8100e-003**	**6.2000e-004**	**4.9000e-004**	**1.1100e-003**	**0.0000**	**7.5375**	**7.5375**	**1.0000e-004**	**0.0000**	**7.5396**

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					0.1027	0.0000	0.1027	0.0550	0.0000	0.0550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2513	0.1501	2.0000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	19.2441	19.2441	5.7500e-003	0.0000	19.3648
Total	**0.0228**	**0.2513**	**0.1501**	**2.0000e-004**	**0.1027**	**0.0124**	**0.1151**	**0.0550**	**0.0114**	**0.0664**	**0.0000**	**19.2441**	**19.2441**	**5.7500e-003**	**0.0000**	**19.3648**

3.3 Grading - 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	3.6000e-003	0.0333	0.0437	8.0000e-005	1.7200e-003	5.2000e-004	2.2400e-003	4.7000e-004	4.8000e-004	9.5000e-004	0.0000	6.9712	6.9712	6.0000e-005	0.0000	6.9724
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	6.1000e-004	5.4700e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	0.5663	0.5663	4.0000e-005	0.0000	0.5672
Total	**3.9900e-003**	**0.0339**	**0.0491**	**9.0000e-005**	**2.2900e-003**	**5.3000e-004**	**2.8100e-003**	**6.2000e-004**	**4.9000e-004**	**1.1100e-003**	**0.0000**	**7.5375**	**7.5375**	**1.0000e-004**	**0.0000**	**7.5396**

3.4 Trenching - 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	0.0113	0.1248	0.0926	1.0000e-004		6.4900e-003	6.4900e-003		5.9700e-003	5.9700e-003	0.0000	9.0658	9.0658	2.7100e-003	0.0000	9.1227
Total	**0.0113**	**0.1248**	**0.0926**	**1.0000e-004**		**6.4900e-003**	**6.4900e-003**		**5.9700e-003**	**5.9700e-003**	**0.0000**	**9.0658**	**9.0658**	**2.7100e-003**	**0.0000**	**9.1227**

3.4 Trenching - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	4.7000e-004	4.2100e-003	1.0000e-005	4.4000e-004	1.0000e-005	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4356	0.4356	3.0000e-005	0.0000	0.4363
Total	**3.0000e-004**	**4.7000e-004**	**4.2100e-003**	**1.0000e-005**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4356**	**0.4356**	**3.0000e-005**	**0.0000**	**0.4363**

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	0.0113	0.1248	0.0926	1.0000e-004		6.4900e-003	6.4900e-003		5.9700e-003	5.9700e-003	0.0000	9.0658	9.0658	2.7100e-003	0.0000	9.1227
Total	**0.0113**	**0.1248**	**0.0926**	**1.0000e-004**		**6.4900e-003**	**6.4900e-003**		**5.9700e-003**	**5.9700e-003**	**0.0000**	**9.0658**	**9.0658**	**2.7100e-003**	**0.0000**	**9.1227**

3.4 Trenching - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	4.7000e-004	4.2100e-003	1.0000e-005	4.4000e-004	1.0000e-005	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4356	0.4356	3.0000e-005	0.0000	0.4363
Total	**3.0000e-004**	**4.7000e-004**	**4.2100e-003**	**1.0000e-005**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4356**	**0.4356**	**3.0000e-005**	**0.0000**	**0.4363**

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	0.0562	0.6577	0.3516	6.5000e-004		0.0296	0.0296		0.0272	0.0272	0.0000	61.8708	61.8708	0.0185	0.0000	62.2587
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0562**	**0.6577**	**0.3516**	**6.5000e-004**		**0.0296**	**0.0296**		**0.0272**	**0.0272**	**0.0000**	**61.8708**	**61.8708**	**0.0185**	**0.0000**	**62.2587**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e-003	2.7400e-003	0.0247	3.0000e-005	2.5600e-003	3.0000e-005	2.5900e-003	6.8000e-004	3.0000e-005	7.1000e-004	0.0000	2.5541	2.5541	2.0000e-004	0.0000	2.5583
Total	**1.7800e-003**	**2.7400e-003**	**0.0247**	**3.0000e-005**	**2.5600e-003**	**3.0000e-005**	**2.5900e-003**	**6.8000e-004**	**3.0000e-005**	**7.1000e-004**	**0.0000**	**2.5541**	**2.5541**	**2.0000e-004**	**0.0000**	**2.5583**

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	0.0562	0.6577	0.3516	6.5000e-004		0.0296	0.0296		0.0272	0.0272	0.0000	61.8707	61.8707	0.0185	0.0000	62.2586
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0562**	**0.6577**	**0.3516**	**6.5000e-004**		**0.0296**	**0.0296**		**0.0272**	**0.0272**	**0.0000**	**61.8707**	**61.8707**	**0.0185**	**0.0000**	**62.2586**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e-003	2.7400e-003	0.0247	3.0000e-005	2.5600e-003	3.0000e-005	2.5900e-003	6.8000e-004	3.0000e-005	7.1000e-004	0.0000	2.5541	2.5541	2.0000e-004	0.0000	2.5583
Total	**1.7800e-003**	**2.7400e-003**	**0.0247**	**3.0000e-005**	**2.5600e-003**	**3.0000e-005**	**2.5900e-003**	**6.8000e-004**	**3.0000e-005**	**7.1000e-004**	**0.0000**	**2.5541**	**2.5541**	**2.0000e-004**	**0.0000**	**2.5583**

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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Monterey-PG ASBS SW Mgmt Project - Point Pinos SWTF

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	0.50	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one-half acre of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration, 22 days of grading/trenching.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	10.00	20.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	2,000.00
tblLandUse	LotAcreage	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30

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					
2015	4.7981	51.5962	34.7334	0.0519	19.1019	2.3499	21.4517	10.1139	2.1618	12.2758	0.0000	5,376.2098	5,376.2098	1.1717	0.0000	5,400.8149
Total	**4.7981**	**51.5962**	**34.7334**	**0.0519**	**19.1019**	**2.3499**	**21.4517**	**10.1139**	**2.1618**	**12.2758**	**0.0000**	**5,376.2098**	**5,376.2098**	**1.1717**	**0.0000**	**5,400.8149**

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					
2015	4.7981	51.5962	34.7334	0.0519	19.1019	2.3499	21.4517	10.1139	2.1618	12.2758	0.0000	5,376.2098	5,376.2098	1.1717	0.0000	5,400.8149
Total	**4.7981**	**51.5962**	**34.7334**	**0.0519**	**19.1019**	**2.3499**	**21.4517**	**10.1139**	**2.1618**	**12.2758**	**0.0000**	**5,376.2098**	**5,376.2098**	**1.1717**	**0.0000**	**5,400.8149**

	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**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0000**	**1.2000e-004**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0000**	**1.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/25/2015	5	20	
2	Grading	Grading	2/26/2015	3/12/2015	5	11	
3	Trenching	Trenching	3/13/2015	3/27/2015	5	11	
4	Paving	Paving	3/28/2015	5/27/2015	5	43	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	250.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					3.3292	0.0000	3.3292	1.6895	0.0000	1.6895			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647		1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**3.3292**	**0.9399**	**4.2691**	**1.6895**	**0.8647**	**2.5542**		**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3292	0.0000	3.3292	1.6895	0.0000	1.6895			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647	0.0000	1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**3.3292**	**0.9399**	**4.2691**	**1.6895**	**0.8647**	**2.5542**	**0.0000**	**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0278	0.0371	0.3918	5.4000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		46.3125	46.3125	3.4200e-003		46.3842
Total	**0.0278**	**0.0371**	**0.3918**	**5.4000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**46.3125**	**46.3125**	**3.4200e-003**		**46.3842**

3.3 Grading - 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					18.6729	0.0000	18.6729	9.9974	0.0000	9.9974			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**18.6729**	**2.2547**	**20.9276**	**9.9974**	**2.0744**	**12.0718**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.5831	5.8093	6.4327	0.0138	0.3222	0.0939	0.4162	0.0882	0.0864	0.1746		1,398.8769	1,398.8769	0.0113		1,399.1150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**0.6554**	**5.9058**	**7.4515**	**0.0152**	**0.4290**	**0.0952**	**0.5242**	**0.1165**	**0.0875**	**0.2040**		**1,519.2894**	**1,519.2894**	**0.0202**		**1,519.7140**

3.3 Grading - 2015

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					18.6729	0.0000	18.6729	9.9974	0.0000	9.9974			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**18.6729**	**2.2547**	**20.9276**	**9.9974**	**2.0744**	**12.0718**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.5831	5.8093	6.4327	0.0138	0.3222	0.0939	0.4162	0.0882	0.0864	0.1746		1,398.8769	1,398.8769	0.0113		1,399.1150
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0965	1.0188	1.4000e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		120.4125	120.4125	8.8800e-003		120.5990
Total	**0.6554**	**5.9058**	**7.4515**	**0.0152**	**0.4290**	**0.0952**	**0.5242**	**0.1165**	**0.0875**	**0.2040**		**1,519.2894**	**1,519.2894**	**0.0202**		**1,519.7140**

3.4 Trenching - 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	2.0501	22.6840	16.8412	0.0173		1.1800	1.1800		1.0856	1.0856		1,816.9740	1,816.9740	0.5424		1,828.3653
Total	**2.0501**	**22.6840**	**16.8412**	**0.0173**		**1.1800**	**1.1800**		**1.0856**	**1.0856**		**1,816.9740**	**1,816.9740**	**0.5424**		**1,828.3653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0501	22.6840	16.8412	0.0173		1.1800	1.1800		1.0856	1.0856	0.0000	1,816.9740	1,816.9740	0.5424		1,828.3653
Total	**2.0501**	**22.6840**	**16.8412**	**0.0173**		**1.1800**	**1.1800**		**1.0856**	**1.0856**	**0.0000**	**1,816.9740**	**1,816.9740**	**0.5424**		**1,828.3653**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0557	0.0742	0.7837	1.0700e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		92.6250	92.6250	6.8300e-003		92.7685
Total	**0.0557**	**0.0742**	**0.7837**	**1.0700e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**92.6250**	**92.6250**	**6.8300e-003**		**92.7685**

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	2.6151	30.5893	16.3537	0.0302		1.3773	1.3773		1.2671	1.2671		3,172.1321	3,172.1321	0.9470		3,192.0194
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6151**	**30.5893**	**16.3537**	**0.0302**		**1.3773**	**1.3773**		**1.2671**	**1.2671**		**3,172.1321**	**3,172.1321**	**0.9470**		**3,192.0194**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.1114	1.1755	1.6100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		138.9375	138.9375	0.0103		139.1527
Total	**0.0835**	**0.1114**	**1.1755**	**1.6100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**138.9375**	**138.9375**	**0.0103**		**139.1527**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6151	30.5893	16.3537	0.0302		1.3773	1.3773		1.2671	1.2671	0.0000	3,172.1321	3,172.1321	0.9470		3,192.0194
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6151**	**30.5893**	**16.3537**	**0.0302**		**1.3773**	**1.3773**		**1.2671**	**1.2671**	**0.0000**	**3,172.1321**	**3,172.1321**	**0.9470**		**3,192.0194**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.1114	1.1755	1.6100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		138.9375	138.9375	0.0103		139.1527
Total	**0.0835**	**0.1114**	**1.1755**	**1.6100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**138.9375**	**138.9375**	**0.0103**		**139.1527**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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

Monterey-PG ASBS SW Mgmt Project - Point Pinos SWTF

Monterey County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	0.50	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2015
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 - Approximately one-half acre of disturbance, based on EIR PD.

Construction Phase - Construction schedule estimated based on 17-week total duration, 22 days of grading/trenching.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Off-road Equipment - Based on PD, construction would req: excavator, dozer, front loader, dump truck, water truck, soil compactor, cement truck, and delivery truck.

Trips and VMT - Mileage for hauling trips = distance of Monterey Regional Landfill.

Grading - Soil cut and fill nets to 2,000 CY of export, based on EIR PD.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	10.00	20.00
tblGrading	AcresOfGrading	16.50	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	2,000.00
tblLandUse	LotAcreage	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	16.30

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					
2015	4.9553	51.9656	37.9475	0.0518	19.1019	2.3503	21.4522	10.1139	2.1623	12.2762	0.0000	5,364.5879	5,364.5879	1.1718	0.0000	5,389.1967
Total	**4.9553**	**51.9656**	**37.9475**	**0.0518**	**19.1019**	**2.3503**	**21.4522**	**10.1139**	**2.1623**	**12.2762**	**0.0000**	**5,364.5879**	**5,364.5879**	**1.1718**	**0.0000**	**5,389.1967**

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					
2015	4.9553	51.9656	37.9475	0.0518	19.1019	2.3503	21.4522	10.1139	2.1623	12.2762	0.0000	5,364.5879	5,364.5879	1.1718	0.0000	5,389.1967
Total	**4.9553**	**51.9656**	**37.9475**	**0.0518**	**19.1019**	**2.3503**	**21.4522**	**10.1139**	**2.1623**	**12.2762**	**0.0000**	**5,364.5879**	**5,364.5879**	**1.1718**	**0.0000**	**5,389.1967**

	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**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0000**	**1.2000e-004**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0000**	**1.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	2/25/2015	5	20	
2	Grading	Grading	2/26/2015	3/12/2015	5	11	
3	Trenching	Trenching	3/13/2015	3/27/2015	5	11	
4	Paving	Paving	3/28/2015	5/27/2015	5	43	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	1	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Excavators	1	8.00	162	0.38
Trenching	Rubber Tired Dozers	1	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Off-Highway Trucks	1	8.00	400	0.38
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36

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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	250.00	10.80	7.30	16.30	LD_Mix	HDT_Mix	HHDT
Trenching	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					3.3292	0.0000	3.3292	1.6895	0.0000	1.6895			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647		1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**3.3292**	**0.9399**	**4.2691**	**1.6895**	**0.8647**	**2.5542**		**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3292	0.0000	3.3292	1.6895	0.0000	1.6895			0.0000			0.0000
Off-Road	1.6335	17.8192	13.4021	0.0120		0.9399	0.9399		0.8647	0.8647	0.0000	1,261.4189	1,261.4189	0.3766		1,269.3272
Total	**1.6335**	**17.8192**	**13.4021**	**0.0120**	**3.3292**	**0.9399**	**4.2691**	**1.6895**	**0.8647**	**2.5542**	**0.0000**	**1,261.4189**	**1,261.4189**	**0.3766**		**1,269.3272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0296	0.0467	0.4064	5.0000e-004	0.0411	4.6000e-004	0.0415	0.0109	4.2000e-004	0.0113		43.4002	43.4002	3.4200e-003		43.4720
Total	**0.0296**	**0.0467**	**0.4064**	**5.0000e-004**	**0.0411**	**4.6000e-004**	**0.0415**	**0.0109**	**4.2000e-004**	**0.0113**		**43.4002**	**43.4002**	**3.4200e-003**		**43.4720**

3.3 Grading - 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					18.6729	0.0000	18.6729	9.9974	0.0000	9.9974			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744		3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**18.6729**	**2.2547**	**20.9276**	**9.9974**	**2.0744**	**12.0718**		**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.7356	6.1538	9.6091	0.0138	0.3222	0.0944	0.4166	0.0882	0.0868	0.1750		1,394.8269	1,394.8269	0.0115		1,395.0687
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**0.8126**	**6.2752**	**10.6656**	**0.0151**	**0.4290**	**0.0956**	**0.5246**	**0.1165**	**0.0879**	**0.2045**		**1,507.6675**	**1,507.6675**	**0.0204**		**1,508.0957**

3.3 Grading - 2015

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					18.6729	0.0000	18.6729	9.9974	0.0000	9.9974			0.0000			0.0000
Off-Road	4.1426	45.6904	27.2819	0.0367		2.2547	2.2547		2.0744	2.0744	0.0000	3,856.9204	3,856.9204	1.1515		3,881.1009
Total	**4.1426**	**45.6904**	**27.2819**	**0.0367**	**18.6729**	**2.2547**	**20.9276**	**9.9974**	**2.0744**	**12.0718**	**0.0000**	**3,856.9204**	**3,856.9204**	**1.1515**		**3,881.1009**

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	0.7356	6.1538	9.6091	0.0138	0.3222	0.0944	0.4166	0.0882	0.0868	0.1750		1,394.8269	1,394.8269	0.0115		1,395.0687
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0770	0.1214	1.0565	1.3100e-003	0.1068	1.2100e-003	0.1080	0.0283	1.1000e-003	0.0294		112.8406	112.8406	8.8800e-003		113.0271
Total	**0.8126**	**6.2752**	**10.6656**	**0.0151**	**0.4290**	**0.0956**	**0.5246**	**0.1165**	**0.0879**	**0.2045**		**1,507.6675**	**1,507.6675**	**0.0204**		**1,508.0957**

3.4 Trenching - 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	2.0501	22.6840	16.8412	0.0173		1.1800	1.1800		1.0856	1.0856		1,816.9740	1,816.9740	0.5424		1,828.3653
Total	**2.0501**	**22.6840**	**16.8412**	**0.0173**		**1.1800**	**1.1800**		**1.0856**	**1.0856**		**1,816.9740**	**1,816.9740**	**0.5424**		**1,828.3653**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

3.4 Trenching - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0501	22.6840	16.8412	0.0173		1.1800	1.1800		1.0856	1.0856	0.0000	1,816.9740	1,816.9740	0.5424		1,828.3653
Total	**2.0501**	**22.6840**	**16.8412**	**0.0173**		**1.1800**	**1.1800**		**1.0856**	**1.0856**	**0.0000**	**1,816.9740**	**1,816.9740**	**0.5424**		**1,828.3653**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0593	0.0934	0.8127	1.0100e-003	0.0822	9.3000e-004	0.0831	0.0218	8.4000e-004	0.0226		86.8004	86.8004	6.8300e-003		86.9439
Total	**0.0593**	**0.0934**	**0.8127**	**1.0100e-003**	**0.0822**	**9.3000e-004**	**0.0831**	**0.0218**	**8.4000e-004**	**0.0226**		**86.8004**	**86.8004**	**6.8300e-003**		**86.9439**

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	2.6151	30.5893	16.3537	0.0302		1.3773	1.3773		1.2671	1.2671		3,172.1321	3,172.1321	0.9470		3,192.0194
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6151**	**30.5893**	**16.3537**	**0.0302**		**1.3773**	**1.3773**		**1.2671**	**1.2671**		**3,172.1321**	**3,172.1321**	**0.9470**		**3,192.0194**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0889	0.1401	1.2191	1.5100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		130.2006	130.2006	0.0103		130.4159
Total	**0.0889**	**0.1401**	**1.2191**	**1.5100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**130.2006**	**130.2006**	**0.0103**		**130.4159**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6151	30.5893	16.3537	0.0302		1.3773	1.3773		1.2671	1.2671	0.0000	3,172.1321	3,172.1321	0.9470		3,192.0194
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.6151**	**30.5893**	**16.3537**	**0.0302**		**1.3773**	**1.3773**		**1.2671**	**1.2671**	**0.0000**	**3,172.1321**	**3,172.1321**	**0.9470**		**3,192.0194**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0889	0.1401	1.2191	1.5100e-003	0.1232	1.3900e-003	0.1246	0.0327	1.2700e-003	0.0340		130.2006	130.2006	0.0103		130.4159
Total	**0.0889**	**0.1401**	**1.2191**	**1.5100e-003**	**0.1232**	**1.3900e-003**	**0.1246**	**0.0327**	**1.2700e-003**	**0.0340**		**130.2006**	**130.2006**	**0.0103**		**130.4159**

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	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
Unmitigated	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Parking	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.466903	0.040093	0.201873	0.177249	0.051401	0.007330	0.018379	0.019682	0.004384	0.001957	0.007525	0.000961	0.002264

4.4 Fleet Mix

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**1.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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

Appendix D

Biological Resources

Denise Duffy & Associates, Inc.
PLANNING AND ENVIRONMENTAL CONSULTING

July 23, 2013

James M. Brezack
Brezack & Associates Planning
3000 Citrus Circle, Suite 210
Walnut Creek, CA 94598

RE: Pacific Grove Local Water Project

Dear Mr. Brezack,

DENISE DUFFY & ASSOCIATES, Inc. (DD&A) was contracted by Brezack & Associates Planning perform an initial reconnaissance survey and analysis of existing biological occurrence databases to determine the potential for presence of special-status plants and animals or sensitive habitats within the boundaries of the Pacific Grove Local Water Project (Project). Specifically, the Project site has been defined to include the fenced area located along Ocean View Boulevard in the City of Pacific Grove; adjacent to the Pacific Grove Golf Links and Pt. Pinos (APN 007-011-003) (Figure 1).

The emphasis of this study is to describe the existing biological resources within the Project site, and identify potential constraints that may occur to special-status botanical and wildlife species and sensitive habitats.

METHODS

A biological survey was conducted by DD&A Associate Environmental Scientist, Matthew Johnson, on July 18, 2013. Prior to the site visit, special-status plant and wildlife species occurrence records in the United States Geological Survey (USGS) Monterey quadrangle and four surrounding quadrangles (Marina, Mt. Carmel, Seaside, and Soberanes Pt.) from the California Natural Diversity Data Base (CNDDB) and other materials referenced below were reviewed to create a list of special-status plant and wildlife species known or with the potential to occur in the vicinity of the Project (see attached). Habitats within the Project site were characterized in the field to assess potential project-related impacts to wildlife and wildlife habitats and for potential occurrences of special-status plant and wildlife species.

RESULTS

The Project site is located on a heavily disturbed lot adjacent to the Pacific Grove Golf Links and Ocean View Boulevard. The City of Pacific Grove operates this lot as a corps yard and water facility. Two structures remain from the former Pt. Pinos Wastewater Treatment Plant (a clarifier/administrative office and a sludge digester) and heavily traveled dirt driveways dominate the lot. Construction materials and debris are littered around the driveways and fill material is stockpiled in the northwestern corner of the site. The entire site is surrounded, along the fence line, by Monterey cypress (*Hesperocyparis macrocarpa*). The disturbance associated with the use of the site prohibits vegetation from emerging and therefore a majority of the site is bare ground. Areas of the Project site that are not bare ground would be classified as ruderal/disturbed. This habitat type is dominated by non-native species such as slender oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), yellow star thistle (*Centaurea solstitialis*), iceplant (*Carpobrotus edulis*), and wild radish (*Raphanus sativus*). Additional species present within the Project site include rabbit-foot grass (*Polypogon monspessulana*), coyote bush (*Baccharis pilularis*), poison hemlock (*Conium maculatum*), Pride of Madeira (*Echium candicans*), bull thistle (*Cirsium vulgare*), and

Italian rye grass (*Festuca perennis*). Wildlife species that may inhabit this habitat include those that are adept at surviving in urban environments, including skunks (*Mephitidae* sp.), California ground squirrels (*Otospermophilus beecheyi*), and raccoons (*Procyon lotor*). Black-tailed deer (*Odocoileus hemionus columbianus*) have also been observed frequently at the Project site by City employees. (Avian species may use the Monterey Cypress surrounding the Project site as nesting habitat.

No special-status plant or wildlife species were identified within the Project site. No special-status plant species are expected to occur based on the disturbance/maintenance regime and lack of suitable habitat. Some nesting avian species, including raptors, are afforded protection under the California Department of Fish and Game Code and the Migratory Bird Treaty Act. Monterey cypress surrounding the Project site could provide nesting habitat for avian species. No other special-status wildlife species are expected to occur within the Project site based on the lack of suitable habitat.

CONCLUSION

No special-status wildlife species were observed within the Project site during the field survey. Raptors and other avian species, protected under the MBTA and Fish and Game Code, have the potential to nest within the Monterey cypress surrounding the Project site. Impacts to nesting raptors and migratory birds may result from construction activities and removal of trees, and may be considered a significant impact under the California Environmental Quality Act (CEQA). These impacts can be reduced to a less-than-significant level with the implementation of the mitigation provided below:

> *To avoid and reduce impacts to nesting raptors and other protected nesting avian species, construction activities can be timed to avoid the nesting season period (February 1 to August 31). Alternatively, if avoidance of the nesting period is not feasible, pre-construction surveys shall be conducted for nesting raptors and other protected nesting avian species within and immediately adjacent to proposed construction activities if construction is to be initiated between February 1 and August 31. Pre-construction surveys shall be conducted no more than 30 days prior to the start of construction. If nesting raptors and/or other nesting avian species are identified during the pre-construction surveys an appropriate no-disturbance buffer imposed within which no construction activities or disturbance shall take place (generally 300 feet in all directions) until the young of the year have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.*

No special-status plant species were observed within the Project site during the field survey and none are expected to occur. Therefore, the Project will not result in impacts to special-status plant species.

No sensitive habitats were observed within the Project site during the field survey and none are expected to occur. Therefore, the Project will not result in impacts to sensitive habitats.

If you have any questions of comments please feel free to contact me by phone: (831) 373-4341 or email: mjohnson@ddaplanning.com.

Sincerely,

Matthew Johnson
Associate Environmental Scientist

Title: Pacific Grove Local Water Project Vicinity Map

File: C:\GIS\GIS_Projects\2013-42 PG Local Water\Final Products\Vicinity Map.mxd

Date: 7/18/2013

Scale: 1 inch = 0.02 miles

Project: 2013-42

Monterey | Truckee | San Jose
Denise Duffy and Associates, Inc.
Environmental Consultants Resource Planners
947 Cass Street, Suite 5
Monterey, CA 93940
(831) 373-4341

Figure 1

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE

uad is (Monterey (3612158) or Marina (3612167) or Seaside (3612157) or Mt Carmel (3612147) or Soberanes Point (3612148))

C DDB Element uery Results

Scientific ame	Common ame	ElementCode	OccCount	GlobalRan	StateRan	FederalListingStatus	StateListingStatus	C PSList	OtherStatus	abitat
Agelaius tricolor	tricolored blac bird	ABPB B 2	428	G2G3	S2	one	one		ABC WLBCC-Watch List of Birds of Conservation Concern BLM S-Sensitive CDFW SSC-Species of Special Concern IUC E -Endangered USFWS BCC-Birds of Conservation Concern	Freshwater marsh Marsh swamp Swamp Wetland
Allium hic manii	ic man s onion	PMLIL 214	26	G2	S2	one	one	1B 2	BLM S-Sensitive USFS S-Sensitive	Chaparral Cismontane woodland Closed-cone coniferous forest Coastal scrub Valley foothill grassland
Ambystoma californiense	California tiger salamander	AAAAA 118	1 67	G2G3	S2S3	Threatened	Threatened		CDFW SSC-Species of Special Concern IUC VU-Vulnerable	Cismontane woodland Meadow seep Riparian woodland Valley foothill grassland Vernal pool Wetland
Anniella pulchra nigra	blac legless li ard	ARACC 1 11	3	G3G4T2T3	S2	one	one		CDFW SSC-Species of Special Concern USFS S-Sensitive	Chaparral Coastal dunes Coastal scrub
Anniella pulchra pulchra	silvery legless li ard	ARACC 1 12	1	G3G4T3T4	S3	one	one		CDFW SSC-Species of Special Concern USFS S-Sensitive	Chaparral Coastal dunes Coastal scrub
Arctostaphylos edmundsii	Little Sur man anita	PDERI 426	8	G2	S2 2	one	one	1B 2	USFS S-Sensitive	Chaparral Coastal bluff scrub
Arctostaphylos hoo eri ssp hoo eri	oo ers man anita	PDERI 4 1	18	G3T2	S2	one	one	1B 2	BLM S-Sensitive	Chaparral Cismontane woodland Closed-cone coniferous forest Coastal scrub
Arctostaphylos montereyensis	Toro man anita	PDERI 4 R	15	G2	S2 1	one	one	1B 2	BLM S-Sensitive	Chaparral Cismontane woodland Coastal scrub
Arctostaphylos pajaroensis	Pajaro man anita	PDERI 41	1	G2	S2 1	one	one	1B 1	BLM S-Sensitive	Chaparral
Arctostaphylos pumila	sandmat man anita	PDERI 418	12	G2	S2 2	one	one	1B 2	BLM S-Sensitive	Chaparral Cismontane woodland Closed-cone coniferous forest Coastal dunes Coastal scrub
Astragalus tener var titi	coastal dunes mil -vetch	PDFAB F8R2	6	G1T1	S1	Endangered	Endangered	1B 1		Coastal bluff scrub Coastal

										dunes
Athene cunicularia	burrowing owl	AB SB1 1	1832	G4	S2	one	one		BLM S-Sensitive CDFW SSC-Species of Special Concern IUC LC-Least Concern USFWS BCC-Birds of Conservation Concern	Coastal prairie Coastal scrub Great Basin grassland Great Basin scrub Mojavean desert scrub Sonoran desert scrub Valley foothill grassland
Buteo regalis	ferruginous haw	AB C1 12	6	G4	S3S4	one	one		CDFW WL-Watch List IUC LC-Least Concern USFWS BCC-Birds of Conservation Concern	Great Basin grassland Great Basin scrub Pinon juniper woodlands Valley foothill grassland
Castilleja ambigua var insalutata	pin ohnny-nip	PDSCR D4 3	13	G4T1	S1	one	one	1B 1		Coastal bluff scrub Coastal prairie
Central Dune Scrub	Central Dune Scrub	CTT2132 CA	24	G2	S2 2	one	one			Coastal dunes
Central Maritime Chaparral	Central Maritime Chaparral	CTT37C2 CA	1	G2	S2 2	one	one			Chaparral
Centromadia parryi ssp congdonii	Congdon s tarplant	PDAST4R P1	1	G4T2	S2	one	one	1B 1	BLM S-Sensitive	Valley foothill grassland
Charadrius ale andrinus nivosus	western snowy plover	AB B 3 31	12	G3T3	S2	Threatened	one		ABC WLBCC-Watch List of Birds of Conservation Concern CDFW SSC-Species of Special Concern USFWS BCC-Birds of Conservation Concern	Great Basin standing waters Sand shore Wetland
Chori anthe pungens var pungens	Monterey spineflower	PDPG 4 M2	31	G2T2	S2	Threatened	one	1B 2		Chaparral Cismontane woodland Coastal dunes Coastal scrub
Chori anthe robusta var robusta	robust spineflower	PDPG 4 2	22	G2T1	S1	Endangered	one	1B 1	BLM S-Sensitive	Cismontane woodland Coastal bluff scrub Coastal dunes
Clar ia jolonensis	olon clar ia	PDO A 5 L	21	G2	S2 2	one	one	1B 2	USFS S-Sensitive	Cismontane woodland
Coelus globosus	globose dune beetle	IICOL4A 1	4	G1	S1	one	one		IUC VU-Vulnerable	Coastal dunes
Collinsia multicolor	San Francisco collinsia	PDSCR B	25	G2	S2 2	one	one	1B 2		Closed-cone coniferous forest Coastal scrub
Cordylanthus rigidus ssp littoralis	seaside bird s-bea	PDSCR P2	33	G5T2	S2	one	Endangered	1B 1	BLM S-Sensitive	Chaparral Cismontane woodland Closed-cone coniferous forest Coastal dunes Coastal scrub
Cypseloides niger	blac swift	AB UA 1 1	46	G4	S2	one	one		ABC WLBCC-Watch List of Birds of Conservation Concern CDFW SSC-Species of Special Concern IUC LC-	

									Least Concern USFWS BCC-Birds of Conservation Concern	
Danaus ple ippus	monarch butterfly	IILEPP2 1	334	G5	S3	one	one			Closed-cone coniferous forest
Delphinium californicum ssp interius	ospital Canyon lar spur	PDRA B A2	18	G3T2	S2	one	one	1B 2		Chaparral Cismontane woodland Meadow seep
Delphinium hutchinsoniae	utchinson s lar spur	PDRA B V	23	G2	S2 1	one	one	1B 2	USFS S-Sensitive	Broadleaved upland forest Chaparral Coastal prairie Coastal scrub
Emys marmorata	western pond turtle	ARAAD 2 3	1135	G3G4	S3	one	one		BLM S-Sensitive CDFW SSC-Species of Special Concern IUC VU-Vulnerable USFS S-Sensitive	A uatic Artificial flowing waters lamath/ orth coast flowing waters lamath/ orth coast standing waters Marsh swamp Sacramento/San oa uin flowing waters Sacramento/San oa uin standing waters South coast flowing waters South coast standing waters Wetland
Eremophila alpestris actia	California horned lar	ABPAT 2 11	77	G5T3	S3	one	one		CDFW WL-Watch List IUC LC-Least Concern	Marine intertidal splash one communities Meadow seep
Ericameria fasciculata	Eastwood s goldenbush	PDAST3L 8	17	G2	S2 1	one	one	1B 1	BLM S-Sensitive	Chaparral Closed-cone coniferous forest Coastal dunes Coastal scrub
Eriogonum nortonii	Pinnacles buc wheat	PDPG 847	24	G2	S2 3	one	one	1B 3		Chaparral Valley foothill grassland
Erysimum ammophilum	sand-loving wallflower	PDBRA16 1	22	G2	S2 2	one	one	1B 2	BLM S-Sensitive	Chaparral Coastal dunes Coastal scrub
Erysimum men ies iesii	Men ies wallflower	PDBRA16 R	1	G2	S2	Endangered	Endangered	1B 1		Coastal dunes
Eucyclogobius newberryi	tidewater goby	AFC 4 1	117	G3	S2S3	Endangered	one		AFS E -Endangered CDFW SSC-Species of Special Concern IUC VU-Vulnerable	A uatic lamath/ orth coast flowing waters Sacramento/San oa uin flowing waters South coast flowing waters
Euphilotes enoptes smithi	Smith s blue butterfly	IILEPG2 26	66	G5T1T2	S1S2	Endangered	one		ERCES CI-Critically Imperiled	Coastal dunes Coastal scrub
Fritillaria liliacea	fragrant fritillary	PMLIL V C	6	G2	S2	one	one	1B 2	USFS S-Sensitive	Coastal prairie Coastal scrub Ultramafic Valley foothill grassland
Gilia tenuiflora ssp arenaria	sand gilia	PDPLM 41P2	2	G3G4T2	S2	Endangered	Threatened	1B 2		Chaparral Cismontane woodland Coastal dunes Coastal scrub
esperocyparis goveniana	Gowen cypress	PGCUP 4 31	4	G1	S1	Threatened	one	1B 2		Chaparral Closed-cone coniferous forest

esperocyparis macrocarpa	Monterey cypress	PGCUP 4 6	2	G1	S1	one	one	1B 2		Closed-cone coniferous forest
or elia cuneata var sericea	elloggs hor elia	PDROS W 43	38	G4T2	S2	one	one	1B 1	USFS S-Sensitive	Chaparral Closed-cone coniferous forest Coastal dunes Coastal scrub
Lasiurus cinereus	hoary bat	AMACC 5 3	235	G5	S4	one	one		IUC LC-Least Concern WBWG M-Medium Priority	Broadleaved upland forest Cismontane woodland Lower montane coniferous forest orth coast coniferous forest
Lasthenia conjugens	Contra Costa goldfields	PDAST5L 4	33	G1	S1	Endangered	one	1B 1		Al ali playa Cismontane woodland Valley foothill grassland Vernal pool Wetland
Layia carnosa	beach layia	PDAST5 1	22	G2	S2	Endangered	Endangered	1B 1		Coastal dunes Coastal scrub
Linderiella occidentalis	California linderiella	ICBRA 6 1	382	G3	S2S3	one	one		IUC T- ear Threatened	Vernal pool
Lupinus tidestromii	Tidestrom s lupine	PDFAB2B3	21	G1	S1	Endangered	Endangered	1B 1		Coastal dunes
Malacothamnus palmeri var involucratus	Carmel Valley bush-mallow	PDMAL B1	32	G3T2	S2 2	one	one	1B 2	BLM S-Sensitive USFS S-Sensitive	Chaparral Cismontane woodland Ultramafic
Malacothamnus palmeri var palmeri	Santa Lucia bush-mallow	PDMAL B5		G3T2	S2 2	one	one	1B 2	USFS S-Sensitive	Chaparral
Malacothri sa atilis var arachnoidea	Carmel Valley malacothri	PDAST66 C2	17	G5T2	S2	one	one	1B 2	BLM S-Sensitive USFS S-Sensitive	Chaparral Coastal scrub
Microseris paludosa	marsh microseris	PDAST6E D	31	G2	S2 2	one	one	1B 2		Cismontane woodland Closed-cone coniferous forest Coastal scrub Valley foothill grassland
Monolopia gracilens	woodland woollythreads	PDAST6G 1	45	G2G3	S2S3	one	one	1B 2		Broadleaved upland forest Chaparral Cismontane woodland orth coast coniferous forest Ultramafic Valley foothill grassland
Monterey Cypress Forest	Monterey Cypress Forest	CTT8315 CA	2	G1	S1 2	one	one			Closed-cone coniferous forest
Monterey Pine Forest	Monterey Pine Forest	CTT8313 CA	11	G1	S1 1	one	one			Closed-cone coniferous forest
Monterey Pygmy Cypress Forest	Monterey Pygmy Cypress Forest	CTT83162CA	2	G1	S1 1	one	one			Closed-cone coniferous forest
orthern Bishop Pine Forest	orthern Bishop Pine Forest	CTT83121CA	1	G2	S2 2	one	one			Closed-cone coniferous forest
orthern Coastal Salt Marsh	orthern Coastal Salt Marsh	CTT5211 CA	53	G3	S3 2	one	one			Marsh swamp Wetland
Oceanodroma homochroa	ashy storm-petrel	AB DC 4 3	21	G2	S2	one	one		ABC WLBCC-Watch List of Birds of Conservation Concern BLM S-Sensitive CDFW SSC-Species of Special Concern	Protected deepwater coastal communities

									IUC E - Endangered USFWS BCC- Birds of Conservation Concern	
Oncorhynchus my iss irideus	steelhead - south/central California coast DPS	AFC A 2	32	G5T2	S2	Threatened	one		AFS T - Threatened CDFW SSC- Species of Special Concern	A uatic Sacramento/San oa uin flowing waters South coast flowing waters
Pelecanus occidentalis californicus	California brown pelican	AB FC 1 21	1	G4T3	S1S2	Delisted	Delisted		BLM S- Sensitive CDFW FP- Fully Protected	
Phrynosoma blainvillii	coast horned li ard	ARACF121	677	G4G5	S3S4	one	one		BLM S- Sensitive CDFW SSC- Species of Special Concern IUC LC- Least Concern USFS S- Sensitive	Chaparral Cismontane woodland Coastal bluff scrub Coastal scrub Desert wash Pinon juniper woodlands Riparian scrub Riparian woodland Valley foothill grassland
Pinus radiata	Monterey pine	PGPI 4 V	5	G1	S1	one	one	1B 1		Cismontane woodland Closed-cone coniferous forest
Piperia yadonii	adon s rein orchid	PMORC1 7	2	G2	S2	Endangered	one	1B 1		Chaparral Closed-cone coniferous forest Coastal bluff scrub
Plagiobothrys uncinatus	hoo ed popcornflower	PDBOR V17	14	G2	S2	one	one	1B 2	BLM S- Sensitive USFS S- Sensitive	Chaparral Cismontane woodland Valley foothill grassland
Potentilla hic manii	ic man s cin uefoil	PDROS1B U	5	G1	S1	Endangered	Endangered	1B 1		Closed-cone coniferous forest Coastal bluff scrub Freshwater marsh Marsh swamp Meadow seep Wetland
Rana draytonii	California red-legged frog	AAAB 1 22	1338	G4T2T3	S2S3	Threatened	one		CDFW SSC- Species of Special Concern IUC VU- Vulnerable	A uatic Artificial flowing waters Artificial standing waters Freshwater marsh Marsh swamp Riparian forest Riparian scrub Riparian woodland Sacramento/San oa uin flowing waters Sacramento/San oa uin standing waters South coast flowing waters South coast standing waters Wetland
Reithrodontomys megalotis distichlis	Salinas harvest mouse	AMAFF 2 32	7	G5T1	S1	one	one			Marsh swamp Wetland
Riparia riparia	ban swallow	ABPAU 8 1	282	G5	S2S3	one	Threatened		BLM S- Sensitive IUC LC- Least Concern	Riparian scrub Riparian woodland

Rosa pinetorum	pine rose	PDROS1 W	11	G2	S2 2	one	one	1B 2		Closed-cone coniferous forest
Sidalcea malachroides	maple-leaved chec erbloom	PDMAL11 E	136	G3G4	S3S4 2	one	one	4 2		Broadleaved upland forest Coastal prairie Coastal scrub orth coast coniferous forest
Stebbinsoseris decipiens	Santa Cru microseris	PDAST6E 5	16	G2	S2 2	one	one	1B 2		Broadleaved upland forest Chaparral Closed-cone coniferous forest Coastal prairie Coastal scrub Ultramafic
Ta idea ta us	American badger	AMA F 4 1	47	G5	S4	one	one		CDFW SSC-Species of Special Concern IUC LC-Least Concern	Al ali marsh Al ali playa Alpine Alpine dwarf scrub Bog fen Brac ish marsh Broadleaved upland forest Chaparral Chenopod scrub Cismontane woodland Closed-cone coniferous forest Coastal bluff scrub Coastal dunes Coastal prairie Coastal scrub Desert dunes Desert wash Freshwater marsh Great Basin grassland Great Basin scrub Interior dunes lone formation oshua tree woodland Limestone Lower montane coniferous forest Marsh swamp Meadow seep Mojavean desert scrub Montane dwarf scrub orth coast coniferous forest Oldgrowth Pavement plain Redwood Riparian forest Riparian scrub Riparian woodland Salt marsh Sonoran desert scrub Sonoran thorn woodland Ultramafic Upper montane coniferous forest Upper Sonoran scrub Valley foothill grassland
Tortula californica	California screw moss	BMUS7L	1	G2	S2	one	one	1B 2	BLM S-Sensitive	Chenopod scrub Valley foothill grassland
Trifolium buc westiorum	Santa Cru clover	PDFAB4 2W	23	G2	S2	one	one	1B 1	BLM S-Sensitive	Broadleaved upland forest Cismontane woodland Coastal prairie

Trifolium hydrophilum	saline clover	PDFAB4 R5	44	G2	S2	one	one	1B 2		Marsh swamp Valley foothill grassland Vernal pool Wetland
Trifolium polyodon	Pacific Grove clover	PDFAB4 2	12	G1	S1	one	Rare	1B 1	BLM S-Sensitive	Closed-cone coniferous forest Coastal prairie Meadow seep Valley foothill grassland Wetland
Trifolium trichocaly	Monterey clover	PDFAB4 2	3	G1	S1	Endangered	Endangered	1B 1		Closed-cone coniferous forest
Valley eedlegrass Grassland	Valley eedlegrass Grassland	CTT4211 CA	45	G3	S3 1	one	one			Valley foothill grassland

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Appendix E

Cultural Studies

Preliminary Archaeological Reconnaissance

ARCHAEOLOGICAL CONSULTING

P.O. BOX 3377
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PRELIMINARY ARCHAEOLOGICAL RECONNAISSANCE FOR THE ASBS STORMWATER MANAGEMENT PROJECT, PACIFIC GROVE, MONTEREY COUNTY, CALIFORNIA

by

Mary Doane, B.A., and Gary S. Breschini, Ph.D., RPA

November 13, 2013

Prepared for

Rincon Consultants

SUMMARY: PROJECT 4804
RESULTS: SEE TEXT
LINEAR: ±4,000 FEET
SITES: CA-MNT-111, CA-MNT-113C, CA-MNT-120, CA-MNT-127, NEAR CA-MNT-831
UTMG: DAVID AVE. RESERVOIR 5.9699/40.5220; PINE AVE. SE 5.9744/40.5272 TO NW 5.9665/40.5298, CALEDONIA PARK 5.9670/40.5348; LOVERS POINT PUMP STATION 5.9694/40.5360, SEA PALM PUMP STATION 5.9650/40.5400, CORAL ST. PUMP STATION 5.9620/40.5475, PPWWTF 5.9537/40.5490
MAP: USGS 7.5 MINUTE MONTEREY QUADRANGLE

For Planning Department:		**Yes**	**No**	**N/A**	**See text**
Evidence of:	Sacred/Religious site			X	
	Native American Remains		X		
	Anything of Archaeological Significance				X
	Findings of Historical Significance		X		

INTRODUCTION

In July 2013 Archaeological Consulting was authorized by Steven Svete of Rincon Consultants, Inc. to prepare a Preliminary Archaeological Reconnaissance report for the ASBS Stormwater Management project in Pacific Grove, Monterey County, California.

As part of our methodology in the preparation of this report, we have conducted: 1) a background search of the records at the Northwest Information Center of the California Historical Resources Information System, located at Sonoma State University, Rohnert Park; and 2) a field reconnaissance of the project area. The following report contains the results of these investigations as well as our conclusions and recommendations.

PROJECT LOCATION AND DESCRIPTION

The project includes several areas within the total extent of the project where soil disturbance is proposed, including the David Avenue reservoir site, a 2,750' length of Pine Avenue, three new pump stations along the existing drainage line on Ocean View Boulevard and at the Point Pinos Waste Water Treatment Facility in Pacific Grove, Monterey County, California (see Maps 1 through 7). The Universal Transverse Mercator Grid (UTMG) coordinates for the approximate limits of the project area are as follows: David Avenue Reservoir 5.9699/40.5220; Pine Avenue from 7th Street 5.9744/40.5272 to 18th Street 5.9665/40.5298; Caledonia Park 5.9670/5348; Lovers Point Pump Station 5.9694/40.5360; Sea Palm Pump Station 5.9650/40.5400; Coral Street Pump Station 5.9620/40.5475; Point Pinos Waste Water Treatment Facility (PPWWTF) 5.9537/40.5490 on the USGS 7.5 minute Monterey Quadrangle (1947; photorevised 1983).

The project proposes site improvements at the David Avenue Reservoir, construction of bio-retention swales and new storm drains on Pine Avenue, new underground storage at Caledonia Park, and installation of three new pump stations along the existing line to the PPWWTF. New drain lines will be installed in the existing line using a pipe burst method that does not require excavation through the many archaeological sites located along the existing drainage line.

At the time of the reconnaissance, many parts of the project area were under pavement. Soil in and/or adjacent to the potential impact areas afforded generally fair to good surface visibility. Soil was visible along much of the length of the Pine Avenue improvements. Soil was visible in patches in Caledonia Park was visible in gopher throw, paths and patchy areas in the grass. Soil was visible adjacent to the pump station installation areas. Overall, soil visibility complemented by the results of previous studies was adequate for the purposes of this reconnaissance.

PROJECT METHODOLOGY

The methodology used in the preparation of this report included two primary steps, as follows:

Background Research

The background research for this project included an examination of the archaeological site records, maps, and project files of the Northwest Information Center of the California Historical Resources Information System, located at Sonoma State University, Rohnert Park. In addition, our own extensive files and maps were examined for supplemental information, such as rumors of historic or prehistoric resources in the general area. These literature searches are undertaken to determine the locations of recorded archaeological resources in and near the project area, and the scope and findings of previous archaeological research or reconnaissance projects in the area.

The regional Information Centers, established by the California Office of Historic Preservation, are the local repository for all archaeological reports prepared under cultural resource management regulations. A background literature search at the appropriate Information Center is required by state guidelines and current professional standards. Following completion of a project, a copy of the report must be deposited with that organization.

Field Reconnaissance

The field reconnaissance, completed by Mary Doane between July 31 and October 30, 2013, consisted of a "general surface reconnaissance" of all areas of visible soil in and/or adjacent to the project impact areas that could reasonably be expected to contain visible cultural resources and that could be viewed without major vegetation removal or excavation.

RESULTS OF THE RECONNAISSANCE

Background Research

The background search of the files at the Northwest Information Center and the review of our own records found no recorded cultural resources in or adjacent to the project areas at the David Avenue Reservoir, along Pine Avenue between 7th and 18th Avenues and in Caledonia Park. There are at least twenty-seven recorded archaeological resources located within one kilometer of the impact areas at Caledonia Park, and along Ocean View Boulevard between Lovers Point and the Point Pinos Wastewater Treatment Facility.

Several sites are found in the proposed pump station locations, including CA-MNT-111 at Lovers Point parking lot, CA-MNT-113C at the foot of Sea Palm, CA-MNT-120 at Coral Street Pump Station and CA-MNT-127 at the PPWWTF. A Portion of CA-MNT-831 is located just north of Caledonia Park.

CA-MNT-111 was studied prior to the development of the Pacific Grove-Monterey Consolidation Project of the Regional Sewer System (Dietz and Jackson 1981). One test unit and three mitigation units were excavated in the parking lot where the current project proposes installation of the new pump station. Test unit 3 was placed in the landscaping area on the south side of the parking lot. Three mitigation units were placed within the parking lot. All of these units encountered between 30 to 90 centimeters of intact midden. Three of the units discovered abalone shell concentrations with associated artifacts such as battered and pitted granitic cobbles, whalebone pries and fire-cracked rock typical of hearths. One of the units produced a large amount of sea and land mammal bones as well as fish bones. One unit produced a bone awl fragment. Radiocarbon dating of charcoal from the bottom of a pit feature in Unit 5 yielded an age of 1000±100years BP and a calibrated date of Cal AD 1021. *Haliotis* (abalone) shell recovered at a depth of 70 cm in a sewer trench in the parking lot produced a measured age of 570±50, calibrated to a date of Cal AD 1516. A project south of Ocean View Boulevard produced a calibrated date on *Haliotis* shell recovered from a small abalone feature of Cal AD 1261 with a measured age of 950±60 BP. These are all dates from the Late Period of Prehistoric Occupation on the Monterey Peninsula.

CA-MNT-113C (formerly CA-MNT-115) located east of Sea Palm to Clyte Street was also tested in 1981 for the sewer project. Only one of their units was in close proximity to the proposed Sea Palm pump station. That unit, #6, produced midden at depths between 50-80 centimeters. It did not produce artifacts or evidence of the shell concentrations found in many other, deeper parts of the site. *Haliotis r.* shell from other units closer to Moss Avenue, Units 8 and 10, produced measured ages of 1780±110 and 2140±110 years. With 2 Sigma calibration intercept dates of AD 414 and 13 BC were obtained. These dates are within the Middle Period of Prehistoric Occupation on the Monterey Peninsula, a time period about which little has been determined from the archaeological record due to the scarcity of identified sites.

The CA-MNT-113C midden has been radiocarbon dated during three other projects. Another date on *Haliotis* shell from an excavation near Mermaid and Moss at a depth of 45 cm produced a calibrated date of BC 155. *Mytilus* (mussel) shell fishhooks from excavation units south of Ocean View Boulevard between depths of 20-30 cm and 40-50 cm produced ages of 2060±50, 2260±50 and 2290±50 BP. These ages calibrate to Middle Period dates of AD 95, 130 BC and 166 BC. Bone of northern fur seal (90-100 cm) and sea otter (25-50 cm) produced calibrated radiocarbon dates of AD 79 and 31 BC.

CA-MNT-120 was originally recorded on Lucas Point between Coral Street and Beacon Avenue. It has since been followed eastward past the Esplanade and inland up the Esplanade past Balboa. Dietz and Jackson did extensive testing and mitigation in this site because of the placement of the Coral Street Sewer pump station. Four of their units were placed near the proposed new pump station, test unit 1 and mitigation units 6, 10, and 22. Test Unit 1 produced an abalone shell concentration between 10-40 centimeters. The other three mitigation units also revealed the large areal extent of the abalone feature that was found directly on granitic bedrock. Artifacts from these units include several chert scrapers, a chert graver, chert cores, and a pecked granitic cobble. Three radiocarbon dates have been obtained from single specimen samples of *Haliotis* shell in two areas of the CA-MNT-120 midden. These shells have produced ages of 460±90, 590±90 and 850±60 BP, which calibrate to Cal AD 1652, 1498 and 1334 respectively.

CA-MNT-127 was originally surveyed by Fisher in 1935 and was recorded by Pilling in 1949 on Point Pinos, extending southward to the PPWWTF. A single radiocarbon date obtained during a monitoring project within the site produced a Measured Radiocarbon Age of 920±60 BP. 2 Sigma calibration provides an intercept date of AD 1295, well into the Late Period of Prehistoric Occupation of the Monterey Peninsula.

The project area lies within the currently recognized ethnographic territory of the Costanoan (often called Ohlone) linguistic group. Discussions of this group and their territorial boundaries can be found in Breschini, Haversat, and Hampson (1983), Kroeber (1925), Levy (1978), Margolin (1978), and other sources. In brief, the group followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop. Habitation is considered to have been semi-sedentary and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs. These original sources of water may no longer be present or adequate. Also, resource gathering and processing areas and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group. Factors that may influence the locations of these sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, ecotones, the presence of specific resources (oak groves, marshes, quarries, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas can also be found along ridges or other travel corridors.

Field Research

None of the materials frequently associated with prehistoric cultural resources in this area (dark midden soil, shell fragments, flaked or ground stone, bone fragments, fire-affected rock, etc.) were observed on the surface in or adjacent to the upper parts of the project at the reservoir and along Pine Street. Only two small abalone shell fragments were noted in the extreme northern part of Caledonia Park. Other project impact areas have provided substantial evidence of cultural resources, both on the surface and during previous archaeological projects. Midden and a bedrock mortar are visible in the planting area of Lovers Point parking lot. Midden is also visible at the foot of Sea Palm Avenue, around the Coral Street pump station and near the PPWWTF.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the background research and the field reconnaissance, we have concluded that portions of the project area, which lie partially within the recorded boundaries of archaeological sites CA-MNT-111, CA-MNT-113C, CA-MNT-120 and CA-MNT-127, contain surface evidence of potentially significant cultural resources. Previous radiocarbon dating has placed three of these sites within the Late Period of Prehistoric Occupation. CA-MNT-113C, although a more significant site because of the scarcity of finds from the Middle Period, was found by Dietz and Jackson to be thin and unproductive along its extreme western edge, the current project area.

The current paved environment precludes further examination of the areas of direct project impact within the archaeological site boundaries. Previous sewer and drainage trenching has caused significant previous disturbance in the current project areas. However the proposed pump station excavations may disturb remnants of previously undisturbed midden soil within the identified archaeological sites. Therefore, we make the following recommendations for those areas, as follows:

1. A qualified archaeological monitor should be present during all project excavations for the pump stations within the boundaries of the archaeological sites at Lovers Point, the foot of Sea Palm Avenue and the Coral Street pump station. In addition the monitor should be present for earth disturbance within the PPWWTF grounds. The monitor should document and recover any potentially significant cultural materials that may be found in the excavated soil. Excavated soil may be screened to assist in such data recovery.

2. If, at any time, intact midden containing potentially significant cultural materials or features is encountered, work shall be halted until the monitor and/or the principal archaeologist have evaluated the discovery. If the find is determined to be significant, an appropriate data recovery mitigation should be developed, with the concurrence of the Lead Agency, and implemented.

Because of the possibility of unidentified (e.g., buried) cultural resources being found during any construction, we recommend that the following standard language, or the equivalent, be included in any permits issued for the project area:

- If archaeological resources or human remains are unexpectedly discovered during construction, work shall be halted on the project parcel until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated, with the approval of the lead agency, and implemented.

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Archaeological Assessment for Satellite Recycled Water Treatment Plant

BREZACK & ASSOCIATES PLANNING

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FOR THE
SATELLITE RECYCLED WATER TREATMENT PLANT
AT THE
FORMER POINT PINOS WASTEWATER TREATMENT PLANT

PACIFIC GROVE, CALIFORNIA

AUGUST 2013

ALBION ENVIRONMENTAL, INC.

BREZACK & ASSOCIATES PLANNING

ARCHAEOLOGICAL ASSESSMENT
FOR THE
SATELLITE RECYCLED WATER TREATMENT PLANT
AT THE
FORMER POINT PINOS WASTEWATER TREATMENT PLANT

PACIFIC GROVE, CALIFORNIA

AUGUST 2013

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EXECUTIVE SUMMARY

In July 2013, Mr. James Brezack of Brezack & Associates Planning contracted with Albion Environmental, Inc. (Albion), to conduct an archaeological assessment of the proposed Satellite Recycled Water Treatment Plant (SRWTP) at the former Point Pinos Wastewater Treatment Plant (PPWWTP) in Pacific Grove. Albion's investigation included a background records search at the California Historical Resources Information System Northwest Information Center (NWIC) at Sonoma State University, and a field investigation entailing pedestrian survey and limited shovel testing of the subject parcel. The assessment was designed to adequately identify archaeological resources that may be impacted by the planned project under current CEQA guidelines (Article 5: Section 15064.5). A separate preliminary assessment of built environment resources was conducted by Archives and Architecture, LLC and is provided in Appendix A of this report.

A search of records at the NWIC indicated that the project area has been previously surveyed for cultural recourses. Fourteen sites, including 12 prehistoric and two historic age sites were identified with in a 0.25-mi radius. Two of the prehistoric sites are mapped in close proximity to the project location. CA-MNT-127 (located immediately north of the project boundary) is a rich occupation midden containing abundant shell and bone. CA-MNT-128 is a shell midden located 100 meters to the south. Historic site CA-MNT-676 is located 100 meters to the southwest; the site is reported to have produced at least six "Indian" and one "white" skeleton as well as hundreds of musket balls. Archaeological survey in 1977 (Breschini and Edwards 1977) did not relocate purported site constituents. Historic site CA-MNT-674 is the Point Pinos Lighthouse, located about 220 meters to the south. The structure was built in 1885 and is listed on the National Register of Historic Places (#7700312).

Albion's field investigation confirmed the presence of prehistoric cultural materials likely associated with a previously recorded site CA-MNT-127. Details on the nature, extent, depth, and integrity of the deposit are unknown. The site is located in an area of planned development and will therefore require consideration during the CEQA review process. Additional archaeological work is likely to include resource and impact analysis (Phase II archaeological evaluation), and possibly mitigation planning.

TABLE OF CONTENTS

Executive Summary i

Table of Contents ii

Table of Figures ii

List of Appendices ii

Introduction 1

Project Location and Description 3

Sources Consulted 3

Background 4
- Environment 4
- Prehistoric and Ethnographic Context 4
  - Central Coast Prehistory 4
  - Ethnographic Background 13
- Historic Context 14
  - Spanish-Mexican Period 14
  - American Period 15

Field Work 16

Study Findings and Conclusions 18

References Cited 19

TABLE OF FIGURES

Figure 1. Site location, Pacific Grove, California. 2
Figure 2. Project area and location of shovel tests. 17

LIST OF APPENDICES

Appendix A Preliminary Historic Review Letter (Archives and Architecture, LLC).

INTRODUCTION

This report documents the results of an archaeological assessment for the proposed Satellite Recycled Water Treatment Plant (SRWTP) at the former Point Pinos Waste Water Treatment Plant (PPWWTP) in Pacific Grove (Figure 1). Current plans call for construction of a new recycled water pump station and a MBR treatment and disinfection station, situated adjacent to the existing (non-functioning) sludge digester, clarifier, and administration buildings. The existing structures were built in the early 1950s.

The completed evaluation comprised three tasks including: 1) a review of records from the NWIC; 2) a surface survey of the parcel; and 3) limited subsurface excavation. A separate preliminary assessment of built environment resources was conducted by Archives and Architecture, LLC and is provided in Appendix A of this report.The investigation was designed to address identification of archaeological resources under current California Environmental Quality Act (CEQA) guidelines under Section Article 5: Section 15064.5).

The records search was conducted by Albion archaeologist Jennifer Farquhar in July 2012 (NWIC File No.: 13-0098). The subsequent pedestrian survey and subsurface testing was conducted on July 30, 2013 by Albion staff archaeologist John Ellison, under the supervision of Jennifer M. Farquhar. Ms. Farquhar holds a M.A. in Anthropology, and has worked in California archaeology for over 20 years, the past eight years in a supervisory capacity.

PROJECT LOCATION AND DESCRIPTION

The study area is located just west of Asilomar State Beach in the town of Pacific Grove (Figure 1). The project site is situated on a terrace, just west of the intersection of Asilomar Avenue and Ocean View Boulevard.

The project proposes to provide treatment of Pacific Grove wastewater at a new local SRWTP at the former PPWWTP and deliver recycled water to irrigation sites in the city. To minimize environmental impacts such as odors, noise, vibration, and aesthetic impacts, the SRWTP will be enclosed in structures with adequate ventilation, air scrubbers, and architectural designs compatible with surrounding structures. The SRWTP will make use of the existing structures storage at the former PPWWTP for diurnal and operational storage if feasible. A footprint of approximately 18,000 square feet is needed for the treatment facilities. During the winter, when there is little or no irrigation demand, the SRWTP will continue to operate at a reduced rate to maintain biomass performance.

The area has previously been disturbed by the construction of the Point Pinos WWTP.

SOURCES CONSULTED

In order to determine if cultural resources are recorded within or near the project area, the following sources were conducted as part of the NWIC records search:

- Office of Historic Preservation Properties Directory for Pacific Grove reveals no historic properties located within a 0.25-mile radius.
- California Inventory of Historic Resources for Pacific Grove reveals no historic resources located within a 0.25-mile radius.

A search of records at the Northwest Information Center (NWIC) at Sonoma State University indicated that the project area has been previously surveyed for cultural recourses (Breschini and Edwards 1977). Fourteen sites, including 12 prehistoric and 2 historic age sites were identified within a 0.25-mi radius. Two of the prehistoric sites are mapped in close proximity to the project location. CA-MNT-127 (located immediately north of the project boundary) is a rich occupation midden containing abundant shell and bone. CA-MNT-128 is a shell midden located 100 meters to the south.

In addition, two historic era sites are in close proximity to the project location. Site CA-MNT-676 is a historic site located 100 meters to the southwest; the site is reported to have produced at least six “Indian” and one “white” skeleton as well as hundreds of musket balls. Archaeological survey in 1977 (Breschini and Edwards 1977) did not relocate purported site constituents. Site CA-MNT-674 is the Point Pinos Lighthouse, located about 220 meters to the south. The structure was built in 1885 and is listed on National Register of Historic Places (#7700312).

BACKGROUND

Environment

The project site is located 20 feet above sea level and is situated on the upper beach terrace immediately adjacent the shoreline at Asilomar State Beach.

The area is situated on a Mesozoic-aged granitic substrate that is part of the Salinian Block (Harden 1998:270). This is apparent by outcroppings of granitodiorite and the granite-derived beach sand (Gordon 1996:9). Granite is an intrusive igneous rock that formed while magma slowly cooled underneath the earth's surface. More recently formed Miocene sedimentary rocks are present nearby, demonstrating the "accreted terraine" of the California coast where different types of stone are brought together through tectonic subduction between the Pacific and North American plates (Harden 1998:253; National Oceanic and Atmospheric Administration [NOAA] 1992:II-10). Further, the presence of several faults in the vicinity attests to the presence of tectonic activity (Jennings 1977).

The soils in the area are characterized as Baywood sand, consisting of deep, somewhat excessively drained soils that formed in old sand dunes near the coast (https://soilseries.sc.egov.usda.gov). Presently the climate of the Monterey Bay and the outer coast area in which Asilomar State Beach is located is relatively temperate. On average, Pacific Grove receives 50.8 cm (20 in) of rain a year, most of this falling between November and March (www.weather.com). The low in January and the high in July range from 6.3˚C (43.3˚ F) to 19.9˚C (67.8˚ F), though seasonal variability in temperature is not great (Gordon 1996:15; www.climate.fizber.com). Winter storms cause wave action which transports sand offshore, leaving shoreline cliff edges susceptible to erosion. In the summer, less ocean turbidity carries sand back to the shoreline (Schoenherr 1992:630).

Prehistoric and Ethnographic Context

Central Coast Prehistory

Although the history of archaeological investigation in California spans more than a century, certain areas of the state were largely passed over by researchers until fairly recently. Indeed, it has only been in the last few decades that California's central coast (including Santa Cruz, Monterey, and San Luis Obispo Counties) has witnessed intensive archaeological investigation. This came about primarily as a result in the 1970s of cultural resources management (CRM), which was instituted to enact a series of historic preservation laws and mandates, beginning with the National Historic Preservation Act (NHPA) of 1966. Prior to that, only a handful of archaeological investigations were completed in the region (e.g. Beardsley 1946; Reinman 1961; Clemmer 1962; Pohorecky 1964; Leonard et al. 1968). As Jones et al. (1996:34) have pointed out, the majority of these were generally descriptive in nature and, unfortunately, are of little relevance to contemporary research agendas. Much of the research in the 1970s was undertaken to comply with legally mandated environmental laws and statutes and, as a result, the work was often sporadic and geared toward resource conservation and management rather than problem-oriented research. With the advent of the 1980s, researchers began to practice more problem-oriented research in the region and, perhaps most importantly, to undertake archaeological projects that contributed significantly to understanding local prehistory. This interest continued into the next decade with several long-term research projects (e.g. Cartier 1993a, 1993b; Hylkema 1991; Hildebrandt and Mikkelsen 1993; Jones 1993; Jones et al. 1996; Milliken et al. 1999) that addressed various aspects of central coast prehistory, ranging from its earliest antiquity to the effects of environmental impacts on the area's prehistoric inhabitants.

Partly as a result of early neglect, central coast prehistory was, for many years, interpreted largely through reference to adjoining areas, such as the Santa Barbara Channel and the San Francisco Bay area. The cultural chronology developed by David Banks Rogers (1929), for instance, was routinely applied to prehistoric cultures in the San Luis Obispo region (Carter 1941). Fredrickson's (1973) five-part chronology, likewise, was often used as the basis with which to interpret the prehistoric sequences in Santa Cruz and Monterey counties (Hylkema 1991). However, in recent years, many contemporary archaeologists working along the central coast have adopted the chronological sequence proposed by Jones et al. (1996). This sequence recognizes six major prehistoric periods of cultural adaptation extending beyond the last 10,000 years of human occupancy. The proposed temporal periods emphasize changes in human adaptation over time and focus largely on the shifting significance of coastal vs. terrestrial habitats and the associated artifact assemblages. Jones et al. (2007) present a more recent application of this framework along with a regional overview.

The initial period in this sequence, termed the Paleoindian, originates in the late Pleistocene and continues until approximately 10,000 B.P. This is followed by the Millingstone Period (10,000-5,500 B.P.), and is recognized by increasingly abundant milling equipment (manos and metates) in the archaeological record when populations apparently followed a generalized subsistence pattern that placed an importance on coastal resources, namely shellfish. The ensuing Early Period (5,500-2,600 B.P.) was a time of new subsistence emphases that include a greater reliance on hunting and the initial exploitation of acorns. The Middle Period (2,600-1,000 B.P.) was marked by the intensification of subsistence practices, especially a greater reliance on marine and littoral foods where fish played an important role in the diet. During the Middle/Late Transition (1,000-750 B.P.), populations in central California experienced deteriorating environmental conditions, and apparently underwent major adaptive shifts in both subsistence and settlement. Finally, the Late Period (750 B.P.-Historic) marks the initial appearance of numerous projectile points, including small side-notched (Desert side-notched), triangular (Cottonwood), and leaf-shaped points, representing the introduction of the bow and arrow. There is an apparent shift in settlements to interior settings while the immediate coastal environments appear to have been used for more short term gathering and processing activities.

Indications of prehistoric inhabitation of the central California coast dating to the terminal Pleistocene/early Holocene is limited, with the strongest evidence supporting this argument coming from two fluted points recovered from peri-coastal contexts in San Luis Obispo County (Bertrando 2004; Gibson 1996; Mills et al. 2005). One fluted point fragment near Santa Margarita was recovered in association with two flake knives, a scraper, two cores and sixty-seven pieces of debitage (Gibson 1996). It was fabricated from pale yellow Franciscan chert. The other specimen was found near Nipomo by local rock collectors and is fabricated from Monterey chert (Mills et al. 2005). Later investigation of the area in which it was found failed to identify other archaeological remains, although the location is notable by the local presence of fossilized Pleistocene fauna (Bertrando 2004:101). Unfortunately neither of these finds comes from dated contexts, or with robust assemblages, leaving their antiquity and greater cultural context relatively ambiguous.

Few other components dating to this period have been investigated, and many questions regarding topics such as settlement, subsistence, stone industries, and social organization, remain unanswered. The dearth of sites dating to this antiquity may, in part, be related to progressively rising sea levels that accompanied the end of the Pleistocene and the early Holocene. It is well documented that in the immediate post-Pleistocene period, world sea levels began to rise with the melting of continental ice sheets. At this time, many previously exposed landscapes in California were inundated by rising waters and underwent complex landscape transformation in the vicinities of river mouths (Masters and Aiello 2007). By 10,000 B.P., for example, sea water began to penetrate San Francisco Bay, which previously had comprised a series of broad inland floodplains. Elsewhere in California, based on sediment cores and local landform configurations, marine transgression aided in the creation of

bays, lagoons, and estuaries. Between ca. 10,000 and 8,000 B.P., the Elkhorn Valley was inundated by saltwater and transformed into a high energy tidal channel (Jones et al. 1996:6). At 8,000 years ago, sea level was about 15 m below its present level at Elkhorn Slough (Masters and Aiello 2007:49). Bickle (1978:8) estimates that sea level rise has submerged 20,000 km^2 of land along the California coast. Sea level transgression slowed after about 7,000 years ago, prompting fluvial sedimentation and tectonic uplift. Consequently, coastal sites earlier than 7,000 B.P. may have been inundated by rising waters.

In general, researchers normally divide this early time span into two divisions: the Paleoindian (pre-10,000 B.P) and the Millingstone (10,000–5,500 B.P.). A coastal focused alternative to the large game focused Paleoindian model, the Paleo-Coastal Tradition, was first proposed by Davis et al. (1969) and later expanded upon by Moratto (1984). Although few sites or site components dating from this time period have been investigated and its presence is largely conjectural, some researchers have posited that Paleo-Coastal peoples established residences along estuaries and bay shores. Associated toolkits are suggested to be scrapers, scraper-planes, bifaces, and lack milling equipment (Jones et al. 2002:215). One of the few inland sites in the region that may date to this time period is the Scotts Valley site (CA-SCR-177) (Cartier 1989, 1993b) where radiocarbon assays from the site suggest that the earliest cultural stratum dates to at least 9,000 years. For the same site, G.L. Fenenga (1993:245-254) proposes two pre-8,000 B.C. phases, marked by flake tools, small leaf-shaped and medium lanceolate projectile points and/or knives, hammer stones, and ochre. Jones (1993:19), however, suggests that there are numerous issues compromising interpretations of the site's stratigraphic integrity and dating. In fact, Jones et al. (1996:39) note that "the extent to which these assemblages are constituted to some unknown degree by materials mixed from more recent contexts is indicated by the occurrence of obsidian among strata assigned to these phases since none of the obsidian hydration results equate with a time depth greater than 7000 B.C." As a result, the Paleo-Coastal Tradition is not readily described in the Monterey Bay area.

Farther south, in San Luis Obispo County, Moratto (1984:107–108) includes the lower levels of the Diablo Canyon sites (CA-SLO-2 and CA-SLO-585), which produced dates of ca. 9,320 B.P. (calibrated 10,552 B.P) and 8,410 B.P. (calibrated 8,976 B.P.), respectively, as part of the Paleo-Coastal Tradition. Greenwood (1972), however, indicates that the associated artifacts are typical of Millingstone Period assemblages rather than belonging to an earlier hypothesized Paleoindian occupation. Based on this evidence, she advances the idea that Millingstone Period adaptations may have had a greater time depth than previously conceived.

> The lowest levels at Diablo Canyon verify a Milling Stone base in San Luis Obispo county….However, the dates are earlier than any currently accepted for the Bay, Valley, and Delta manifestations (Greenwood 1972:92).

Broadening the scale of this argument, recent evidence from the Northern Channel Islands has resurrected this idea of a Paleo-Coastal people and led to a reevaluation of early Holocene California coastal adaptations (cf. Erlandson et al. 2007; Rick et al. 2001). This new conception is distinct from the earlier "Paleo-Coastal Tradition" in that it includes the use of ocean going vessels and fishhooks to represent a highly developed maritime focused adaptation that is posited to be potentially related to a second migration of people to North America (Erlandson et al. 2007).

Paleoindian occupations aside, it is apparent that the extended antiquity of the Millingstone Period is supported by the more recent findings at Cross Creek (CA-SLO-1797), a shell midden site with a typical Millingstone assemblage dating to ca. 8350-7700 B.C. (Fitzgerald 2000; Jones et al. 2002), while contexts containing "Paleo-Coastal Tradition" assemblages have remained elusive. Coastal sites attributed to the Millingstone Period (10,000-5,500 B.P.) are best characterized by high density shell

middens—composed primarily of mussel (*Mytilus* spp.)—located adjacent to extant estuaries or near areas where paleo-estuaries once existed as a result of early Holocene sea level rise.

As the name for this period implies, site assemblages generally contain abundant milling stones and hand stones (Meighan 1978; Erlandson 1991, 1994; Fitzgerald and Jones 1999), although this is not always the case (D. Jones et al. 2004; Jones et al. 1996, 2004). A good example of this expression may be drawn from CA-SLO-1797:

> The dominance of the grinding equipment, the presence of hammer stones (used for the manufacture and maintenance of the ground stone), the total absence of mortars and pestles, the 6:1 ratio of milling tools to projectile points and bifaces, and the very low density of debitage recovered per cubic meter soil excavated (ca. 20.0 m^2) are all traits diagnostic of the Millingstone Horizon (Fitzgerald 2000:116).

In addition to milling equipment, Millingstone Period sites are typified by eccentric crescents, long-stemmed projectile points, and cobble/core tools. In general, there is a low incidence of projectile points and other flaked stone. Shell beads from this time period are characterized as thick rectangular (L-series) *Olivella* beads (Glassow 1996). Erlandson (1991, 1994) has suggested that Millingstone Period groups were semi-sedentary, their diets emphasizing shellfish and small seeds. The hunting of large terrestrial game and marine mammals as well as the exploitation of fishes was apparently of minor importance. Other researchers, however, have argued that both coastal and interior habitats were exploited by early Holocene populations targeting small fauna, and a variety of grass seeds, nuts, and other inland plant taxa as well as shellfish (McGuire and Hildebrandt 1994; Jones and Richman 1995; Mikkelsen et al. 1998; Milliken et al. 1999). Jones (2003:218) argues for a more mobile settlement pattern during this time that included the exploitation of marine mammals. A recent study presents paleodietary data derived from stable isotope analysis on human remains excavated from CA-SCR-60/130 at Harkins Slough near the Monterey Bay (Newsome et al. 2004). A Millingstone Period (ca. 7000 B.P) dated population (n=5) presents data suggesting an emphasis on marine resources that includes marine fish, mammals, and shellfish, with considerably less use of terrestrial resources. Terrestrial resources are generally thought to be plant seeds and small mammals.

In Monterey County, other significant sites dating to the Millingstone Period have been investigated (e.g. CA-MNT-229, and CA-MNT-234). CA-MNT-229, also known as the "Vierra Site," is situated at the mouth of the Elkhorn Slough. Radiocarbon-dated to ca. 6200 and 4,000 B.C., the earliest levels of the site are marked by an eccentric crescent, long-stemmed points, and cobble/core tools of chert and quartzite (Jones and Jones 1992). CA-MNT-234, located near Moss Landing, also contains an early component with dates ranging from 8,000 to 6,500 B.P. The site is notable for its high frequency of milling equipment, abundant, diversified estuary shellfish, and terrestrial mammal bone dominated by small game (Milliken et al. 1999).

The next few thousand years (between 5,500 and 2,600 B.P.) are referred to as the Early Period throughout southern and central California. Most notable about prehistoric adaptations at this time are innovations in subsistence technology, especially the initial appearance of mortars and pestles (perhaps signaling acorn use) and an increase in the frequency of large side-notched and contracting-stem projectile points along with flaked stone debris. Shell beads common during this time period include thick rectangular (L-series), end-ground (B-series), and split (C-series) *Olivella* beads. The appearance of eastern California obsidian (mainly Casa Diablo) in Early Period assemblages also implies that long-distance trade and exchange relations developed during this period (Jones 1995). Jones (1995) and Jones and Waugh (1997) posit a decrease in residential mobility, which they attribute to the advent of mortar and pestle use and a clearer delineation of gender roles that accompanied a trend toward greater population circumscription. Jones and Waugh (1997) also

contend that Early Period sites, in contrast to Millingstone Period sites, are found in more diverse settings, including interior, estuary, and outer coast contexts.

In terms of subsistence, mammals and fish increased in importance relative to shellfish. These resources, coupled with the addition of acorns, signified a broadening of the diet breadth. At CA-SCR-60/130, stable isotope analysis on two individuals supports the increased importance of terrestrial resources relative to marine ones (Newsome et al. 2004). They attribute this to limitations of the marine resource base, however, this does not account for the presence of productive fisheries at Elkhorn Slough and the Pajaro River (Jones et al. 2007:143). Glassow (1996:134) has pointed out that this expansion of the diet breadth was accompanied by a significant increase in labor devoted to food processing. Before acorns can be made palatable, the toxic tannic acid must be leached out of the meal, a process not required by hard seeds. Glassow (1996:134) stated, "it is likely, therefore, that people would consume acorns no more than necessary, as insurance against normal fluctuations in food resource productivity from one year to the next." While the introduction of acorns has implications for labor organization and settlement, the peripheral role played by the resource base at this time in prehistory may relate to more of a process of "extensification" (*sensu* Beaton 1991) where new foods are introduced to the diet, rather than "intensification" where greater amounts of labor are focused on the processing of a particular resource, as is more characteristic of later prehistoric times. Acorn macrofossils are recovered in lesser amounts in these early assemblages than in later ones.

The change that occurred from the Millingstone to the Early Period has traditionally been interpreted as an adaptive shift accompanying the arrival of Rogers's (1929) "Hunting Culture." In his original conception, Rogers described Hunting Culture people as a separate ethnic population more reliant upon use of the acorn and on both terrestrial and marine mammals. These Hunting peoples, he hypothesized, entered the central coast and gradually displaced the earlier populations of Millingstone-adapted peoples. This premise, however, has more recently been discounted largely in favor of the idea that observed differences in artifact assemblages are probably more indicative of seasonal or functional variability in site occupations (Glassow 1997; Erlandson 1997). Jones, moreover, views the transition from Millingstone to Hunting technologies largely as the result of population circumscription and economic intensification, an *in situ* development that reflected the shift from an earlier, mobile, more selective adaptive strategy to one emphasizing limited mobility and decreased subsistence efficiency.

Evidence for Early Period occupation along the central California coast is abundant. Jones et al. (1996:40) suggests that the Saunders Site, CA-MNT-391, may provide the best representation of Early Period habitation in the Monterey Bay. This is a large coastal midden site located on the northern end of the Monterey Peninsula, and has been radiocarbon-dated to approximately 3,000 B.C. The assemblage contains numerous L-series, C-series, and B-series *Olivella* beads as well as *Haliotis* square beads. Projectile points include contracting stemmed, Rossi Square-stemmed, and side-notched varietals. Near Fisherman's Wharf, in the city of Monterey, is CA-MNT-108, an Early Period village site with a dense shell midden. Breschini and Haversat (1992a) contend that the site was occupied approximately 4,800 B.P. and that it represents a large residential locale. Based on an analysis of fish otoliths, the authors argue that the site was most likely occupied during the summer months, from perhaps early May through early October.

Farther north, in Santa Cruz County, is CA-SCR-239, another important Early Period site. Located in the Santa Cruz Mountains near the city of Scotts Valley, this site was investigated by Cartier (1993a). He obtained three radiocarbon dates from charcoal samples and was able to date the deposit—a thin midden—between ca. 3,700 and 3,300 B.C. CA-SCR-38/123, the "Wilder Ranch Site," which is located just north of the city of Santa Cruz, also represents an Early Period occupation. Excavated by D. Jones and Hildebrandt (1994), the site consists of dark midden soils with a high density of

shellfish, mortars and pestles, and flaked stone debris. Radiocarbon dates from samples of mussel shell (*Mytilus californianus*) recovered from the subsurface stratum indicate site occupation dating to 3,995 B.P. Consistent with this date are several diagnostic projectile point forms: Año Nuevo Long-stemmed (1,000-4,000 B.P.), large Side-notched (2,800-5,000 B.P., corner/Side-notched (2,000-4,000 B.P.), and Rossi Square-stemmed (2,000-4,000 B.P). Several *Olivella* B-series shell beads were also obtained during the excavation. The nearby site of CA-SCR-10 contains an artifact assemblage very similar to that of CA-SCR-38/123, including large corner/Side-notched points and a contracting stemmed point similar in form to the Año Nuevo series.

Cultural changes marking the transition from the Early to Middle Period (2,600-1,000 B.P.) were much less pronounced than during the Millingstone/Early Period transition. Instead, many of the adaptive traits initiated during the Early Period continued and grew in relative importance. The use of mortars and pestles increased, as did reliance on small schooling fishes (e.g. anchovies, herring, smelt). The use of shellfish, however, appears to have steadily declined. Middle Period populations also began to focus more on the exploitation of smaller, more elusive game; sea otters and rabbits, for instance, were more important than they had been previously. Glassow (1996) and Lambert (1993) place a slightly stronger emphasis on the importance of increasingly maritime adaptations during this time, arguing that fishing and sea mammal hunting were important subsistence pursuits. Artifact assemblages are typified by large-stemmed points, mortars, pestles, handstones, and milling slabs. Shell beads include *Olivella* saucer (G-series) and saddle (F-series) types. Perhaps the most significant change in the artifact assemblage was the introduction of the circular shell fishhook. This artifact class is recovered more commonly on rocky coasts than in protected slough habitats where schooling fishes were likely captured through other means such as baskets, nets, or other trapping methods (Jones et al. 1996:193; Strudwick 1986). Circular shell fishhooks no doubt facilitated an increase in the exploitation of fishes, but, at the same time, may have resulted in a decrease in dietary efficiency (Jones 2003:226; Glassow 1990:89), a pattern that continues throughout the Holocene. Trans-Sierran trade, especially in obsidian, appears to increase during the Middle Period. Casa Diablo obsidian, a source whose origin is east of the Sierra Nevada Mountains was the chief import in the vicinity Monterey Bay, whereas Coso obsidian is more common to the south (Jones et al. 1996:197, 199). Jones (2003:226) also notes a high frequency of sea otter (*Enhydra lutris*) bones at Middle Period sites, which he interprets as evidence of exchange in otter pelts.

It was also during the Middle Period that a few researchers (Breschini 1983; Moratto 1984; Whistler 1977, 1980) have suggested a major shift in population occurred in the Bay Area. This shift is usually viewed within an ethnolinguistic framework, whereby an indigenous Hokan-speaking population merged with or was displaced by a later Penutian-speaking population. Specifically, Breschini (1983) and Breschini and Haversat (1980) contend that ca. 2,500 B.P. a distinct ethnic population speaking a Penutian language expanded into the Monterey Bay area. These new peoples were the precursors of the ethnohistoric Ohlone, or Costanoans. Their settlement-subsistence pattern was characterized by low mobility, logistical organization, and a more specialized subsistence regime based primarily on the exploitation of the acorn. Breschini (1983) dubbed this the “Monterey Pattern,” and stated that it was akin to a “collector” pattern (*sensu* Binford 1980). The prior language group, which Breschini argued had characterized the area since approximately 4,000 years B.P., was organized more around a “forager” pattern. Breschini called this the “Sur Pattern” and argued that it was typified by high mobility and a generalized adaptive pattern geared toward the exploitation of a wide range of resources and environments.

Using this linguistic model as a guide, Dietz and Jackson (1981) excavated 19 sites near the City of Monterey. They concluded that the Monterey Peninsula was first occupied approximately 4,000 years ago. They also claimed to confirm the existence of the two distinct archaeological patterns hypothesized by Breschini. The first occupants, they claimed, were organized around a forager

pattern, which "included seasonal residential moves among a series of resource patches" (Dietz and Jackson 1981:700-701). Resources were gathered on an "encounter" basis within a limited foraging radius and storage was not practiced. Later populations, occupying the area between 2,000 and 1,500 B.P., were logistically organized and practiced food storage (primarily acorns).

However, several researchers have cast this linguistic scenario in considerable doubt. Patch and Jones (1984) concluded from their excavations at Elkhorn Slough that, although two distinct archaeological assemblages were indeed evident, a process of *in situ* intensification rather than an immigration of new people into the area more parsimoniously accounted for the observed changes. Several other archaeological investigations carried out along the central coast (e.g. Hildebrandt 1983; Hildebrandt and Mikkelsen 1993; Dietz, Hildebrandt and Jones 1988) failed to demonstrate the kinds of shifts predicted by the linguistic model. Bouey and Basgall (1991:18) summed up the controversy by concluding:

> If there is one major problem with this model, it relates to the too literal application of the forager-collector dichotomy. In failing to consider the adaptive variability that might be encompassed within either of these strategies, it ignores the possibility that both poses might well be part of a single subsistence-settlement one season, and collector-like traits during another. In view of the productive and diverse environments characteristic of the central California coast, it would be more useful to search for relative variability in logistic organization than force archaeological materials into a rigid dichotomy between extreme foragers and extreme collectors.

While much ink has been spilled over the matter of differences between the Sur and Monterey patterns, the fact that these are based largely on the presence of "shell middens" or "middens with shell", along with radiocarbon dates does not provide much utility in the understanding of past lifeways, nor is it related to any empirically quantifiable evidence that can be used to distinguish between the two (D. Jones 1992). Presently, archaeologists prefer to study artifact assemblages to identify differences in past lifeways, rather than differences in midden characteristics (Jones et al. 2007:138).

Evidence of Middle Period occupation in central California is best represented by the Little Pico Creek Phase II component of CA-SLO-175. This component contains numerous contracting-stemmed projectile points, mortars and pestles, and fishing equipment, including grooved and notched net weights and shell fishhooks. A component of the Vierra Site, CA-MNT-229, and CA-MNT-282, located in southern Monterey County near Cape San Martin, also represent Middle Period occupations. In Santa Cruz County, the Middle Period is best represented by CA-SCR-9, which is located in the Santa Cruz Mountains. Hylkema (1991:141-183) identified a single-component deposit that yielded Año Nuevo Long-stemmed, Rossi Square-stemmed, Contracting-stemmed, side-notched, and concave base projectile points, *Olivella* saucer (G2) beads, mortars and pestles, milling stones and handstones. CA-SCR-7 also contains a Middle Period component that was dated using obsidian hydration to between 1,000 and 2,800 years B.P. (D. Jones and Hildebrandt 1990:69).

The Middle/Late Transition (1,000-750 B.P.) is a short period of time when there appears to have been a time of rapid change in settlement organization. It is represented along the central California coast by Contracting-stemmed and double Side-notched projectile points. Small leaf-shaped points also occur alongside these larger points, though their numbers are few (Jones 2003:221). Several types of *Olivella* shell beads, including split punched (D-series), are also found. Hopper mortars make their first appearance in the archaeological record and are found in tandem with bowl mortars and pestles, as well as handstones and milling slabs. Subsistence regimes during this time demonstrate substantial differences from the previous period. Marine resources, such as fish and marine mammals,

appear to have been largely dropped from native diets. Instead, populations emphasized terrestrial resources, especially small mammals and acorns. This stands in marked contrast to developments along the Santa Barbara Channel where prehistoric populations underwent increasingly progressive maritime adaptations, and fishing was a major subsistence pursuit.

As originally perceived, these changes were largely considered to have resulted from an overexploitation of coastal resources accompanying the increased demographic pressures that were initiated during the Middle Period. However, more recent evidence suggests that other factors, especially environmental degradation, played a more significant role. Coinciding with the Middle/Late Transition (1,000-750 B.P.), California and parts of western North America underwent a dramatic warming trend, known as the "Medieval Climatic Anomaly" (Graumlich 1993; Stine 1990, 1994; Jones et al. 1999). Researchers have identified three major environmental trends during this period: (1) changing sea temperatures (Arnold 1992; Kennett 1998; Kennett and Kennett 2000; Pisias 1978); (2) warmer summer temperatures (Graumlich 1993); and (3) decreased precipitation (Stine 1990, 1994). According to Jones (1995:223), this latter trend had especially serious consequences for prehistoric coastal populations.

Serious drought after A.D. 1000 (950 B.P.) caused such rapid, severe deterioration of the resource base that major subsistence problems developed, causing widespread settlement shifts and resource competition. Unlike the environmental changes of the early and Mid-Holocene, technological innovations could not mitigate the environmental problems, because they developed rapidly and were severe.

In a recent paper, Jones and Ferneau (2002) posit the argument that central coast populations during this time underwent a process of "deintensification." Population growth declined, diet breadth contracted, and interregional exchange systems collapsed. In Monterey County, for example, numerous coastal sites were abandoned and populations relocated to more interior settings (Jones 1995:215). Populations also apparently declined, perhaps as a result of resources stress, and systems of trade and exchange collapsed. Obsidian, for instance, virtually disappears from the archaeological record.

In general, archaeological sites dating to the Middle/Late Transition are poorly represented along the central California coast. In Monterey County, for example, Jones has noted that only a handful of sites in the Big Sur locality (e.g. CA-MNT-1233, CA-MNT-281, and CA-MNT-1754) date to this interval. In San Luis Obispo County, likewise, the sample of archaeological sites is relatively small. Ephemeral deposits are found at the Little Pico Creek site (CA-SLO-175), the Talley Farms site (CA-SLO-1796), and at CA-SLO-165. One exception, however, is CA-SLO-239, a large residential site originally located on the shores of Morro Bay at the current location of a PG&E power plant. The site was originally excavated by Clemmer (1962) who encountered a large sweat lodge, multiple hearth features, several burials, and a rich midden deposit containing stone and bone tools reflecting a wide range of residential activities.

Late Period (750 B.P.-Historic) populations on the central coast apparently rebounded from the environmental stresses that characterized the previous period. However, unlike native groups farther south – such as the Chumash and the Gabrieleño – the inhabitants of the central coast did not undergo increasingly maritime adaptations. Their subsistence practices continued to demonstrate a terrestrial focus. Jones (1995:221), for example, indicates that the consumption of fish and other marine resources was less intensive and the extraction of mussels perhaps more selective than during the previous interval. From his analysis of several sites in Big Sur, Jones (1995:206) suggests that Late Period populations focused their subsistence activities on black-tailed deer (*Odocoileus hemionus*). This view has recently been challenged by the findings from CA-MNT-1942 (Wolgemuth et al.

2002), where fish, including several species of clupeidae (such as anchovies and herrings), constitute significant portions of the overall faunal assemblage.

Nevertheless, it appears that Late Period habitation on the central coast shifted to inland localities (Jones and Ferneau 2002:230), and many coastal sites occupied during the Middle Period were no longer used in the Late Period, or see less intensive use (Jones et al. 1996:196; Milliken et al. 1999:153). Late period midden sites on the interior are often associated with bedrock mortars (Jones et al. 2007:140), and on the coast are more often shellfish processing sites (Jones et al. 1996:41). Population circumscription is suggested by a drop off in the diversity of obsidian sources and its use as a raw material. In fact, a decrease in the presence of Franciscan chert relative to the more locally available Monterey chert has been identified in Late Period contexts, suggesting more restricted mobility (Hylkema 1991; Jones et al. 2007:143). Additionally, sites at interior localities, such as in the Gilroy area (Hildebrandt and Mikkelson 1993) show a significant decrease in coastal resources with a concomitant increase in locally available ones (Jones et al. 1996:41).

Jones (1995, 2003) suggests that central coast sites dating to this time period, excluding habitation sites along productive estuaries, probably represent specialized forays made from large interior settlements. During this time, populations did not undergo transformational changes in social and political organization that led to greater complexity. Instead, human populations in these areas maintained a tribelet system of socio-political organization (Jones 1995:223). Artifact assemblages from this time are marked by contracting-stem, leaf-shaped, and small, triangular-shaped and side-notched projectile points, mortars and pestles, and a variety of late prehistoric bead types, including *Olivella* lipped (E-series) and callus (K-series). Clam shell disk beads and talc schist disk beads are also common during this time. Bifacial bead drills and detritus from *Olivella* bead manufacture are also common at well sampled late period sites, suggesting bead manufacture was common and widespread, though not intensive (Jones et al. 2007:140).

Few Late Period components in San Luis Obispo County have been identified (D. Jones et al. 2002:13; Basgall 2003:15). One of the few well-studied Late Period components is found at CA-SLO-214, and was first identified by Hoover and Sawyer (1977). Located south of Morro Bay, CA-SLO-214 yielded numerous small projectile points (such as small, side-notched and Cottonwood triangular types), and a small collection of ground stone implements (such as handstones, pestles, and milling stones). Several bead types were also recovered during the excavations and included E1, E2, H3, K3, and K1 *Olivella* beads, *Mytilus* disk beads, steatite beads, and clam disk beads. Late Period sites in Monterey County are much more numerous than those in San Luis Obispo County. As reported by Jones (1993), CA-MNT-1223 produced an assemblage of side-notched and Cottonwood triangular points, a mortar hopper, and Class E *Olivella* beads.

In Monterey County, the Late Period is represented by several sites including CA-MNT-1765, the "Moro Cojo" site. This site is located on the western shore of the upper reaches of Moro Cojo Slough, approximately 720 meters southeast of the intersection of Castroville Boulevard and Meridian Road. Based on radiocarbon-dating, Fitzgerald et al. (1995:35) concluded that the site was occupied sometime between A.D. 1450 and 1800, and that it likely functioned as "a combination collection station and field camp." Two other Late Period sites, argued to represent residential activities are found at Rancho San Carlos (CA-MNT-1485/H, CA-MNT-1486/H) in the upper Carmel Valley (Breschini and Haversat 1992b; Jones et al. 1996:41). While these sites have evidence of occupation from late Middle Period times up to Protohistoric ones, the Late Period assemblage includes Desert Side-notched projectile points, various types of *Olivella* beads, *Haliotis* disks, mortars, pestles, handstones, earspools, and a charmstone. Together, these three sites support greater residential use of the interior in Late Period times.

In Santa Cruz County the discontinuity between Middle and Late site locations is not as readily apparent as in Monterey County (Hylkema 1991). Late Period sites include CA-SCR-117, a relatively dense shell midden located one mile north of the town of Davenport. Dating of the site was accomplished with two radiocarbon assays that yielded dates of ca. A.D. 1680 and A.D. 1505. It is likely, however, that the site is probably 100 to 150 years older at its base, setting the occupation of the site approximately from the 15th to the 18th centuries (Fitzgerald and Ruby 1997). The subsistence data indicate that a wide variety of resources were exploited by the site's prehistoric inhabitants. These included a host of shellfish dominated by rocky shore species (primarily *Mytilus californianus*) and a smaller proportion of species that inhabit calmer waters. Fish also played a significant role in the diet as evidenced by the remains of several species, including cabezon (*Scorpaenichthys marmoratus*), lingcod (*Ophiodon elongatus*), steelhead rainbow trout (*Salmo gairdnerii*), rockfish (*Sebastes* sp.), and barracuda (*Sphyraena argentea*). Mammals from both terrestrial and marine contexts are represented in the faunal assemblage as well, though Fitzgerald and Ruby (1997:49) contend that proportionally deer seem to have been the most important source of animal protein.

Drawing upon the archaeology of the greater region may help to identify larger patterns of past lifeways, but it is also important to focus on more localized archaeological efforts to draw conclusions about how specific areas were used. To this end, one may turn to two other sites located along the Asilomar State Beach shoreline have undergone minimal subsurface evaluation (Breschini and Haversat 1994; Schwaderer 2005b). The first, CA-MNT-137, is located approximately 0.4 km north of CA-MNT-143. Two 25 x 25 cm test units were excavated to 10 cm below the surface (Schwaderer 2005b). The first unit, located at the base of the dune contained 15 faunal bone, one chert flake, and fire affected rock. The second unit contained only three bone fragments and some charcoal. At 10 cm, the extent of the cultural deposit appeared to have been reached. One 25 x 25 x 10 cm column sample was removed from the first unit.

The second site, CA-MNT-134, had a 40 x 50 cm column sample removed in 50 cm levels to 150 cm beneath the dune's surface (Breschini and Haversat 1994). Artifacts recovered were restricted to a battered cobble, an abalone shell disc, and what appears to be a whale bone pry bar. The small amount of lithic material is restricted to Monterey Chert. *Haliotis*, *Mytilus*, and *Tegula* were the predominant shellfish recovered. Three radiocarbon dated were recovered from *Haliotis* shell, one from each level, and they ranged between 480±60 and 1140±70 B.P., suggesting that on a gross scale the site retains its vertical stratigraphy.

Though the samples are small, the paucity of artifacts recovered from two sites tested suggests that the rocky coast of Asilomar State Beach is an area that has seen short term use for specific subsistence tasks for little over the past millennia. This is a question that may be tested through the current efforts at CA-MNT-143.

Ethnographic Background

Native American populations living on the Monterey Peninsula at the time of European contact are attributed to the Ohlone. The Ohlone occupied lands from the Monterey peninsula inland to San Juan Bautista, and north to Santa Cruz, the Santa Clara Valley, the Delta, San Francisco Peninsula and the East Bay (Levy 1978). Organized as tribelets, the Ohlone were noted to have lived in approximately 50 autonomous villages (Kroeber 1925). During the course of the year it is likely that families came and went from a particular village depending on the season and important resources available, though winter was a time when families often coalesced and made use of food stores as well as to partake in ceremonial activities (Broadbent 1972; Margolin 1978). From the time of European contact and missionization, the Ohlone populations experienced a rapid decline from the 1770s to the mid-1800s (Cook 1943). Though the population suffered much from disease and discrimination, important

information regarding language, folkways and material culture has been preserved among the few survivors. Likewise other pieces of information have been able to piece together a generalized picture of pre-contact Ohlone culture (Kroeber 1925, Broadbent 1972; Levy 1978; Bean 1994; Milliken 1995).

As the Ohlone inhabited varied coastal and interior environments, their subsistence practices varied depending on where they were. They were hunter-gatherers who supported themselves through the hunting and harvesting of plants and animal. They were noted to rely on acorn as a staple food, though other seeds, berries and roots, as well as kelp were regularly partaken of. Important terrestrial animals included deer, pronghorn and tule elk, though small game including squirrel, woodrats, and mice were also taken (Baumhoff 1963:17; Levy 1978:491).

Shellmounds common to the Bay Area attest to the importance of shellfish to the Ohlone diet. Mussels, abalone, clam and oyster were among important shellfish species eaten. These, in addition to sea lions, seals and sea otters were important coastal resources, along with fish and waterfowl in both coastal and inland contexts (Baumhoff 1963; Levy 1978).

While the Ohlone reportedly inhabited the coastal area where CA-MNT-143 is located, further south in the Carmel River Valley were the Esselen, their neighbors to the south. Little is known of the Esselen, likely due to their territory being largely comprised of thickly wooded mountainous habitats in the Carmel Valley down to Point Lopez (Hester 1978). It is likely that the two groups interacted, and that socio-political boundaries may have shifted at different points in prehistory.

Historic Context

Spanish-Mexican Period

The Carmel Mission
The Carmel River was named *El Rio de Carmelo* by the order of the friars who "discovered" it during Vizcaíno's expedition in 1603. European occupation of Carmel begins with the establishment of the *Misión San Carlos Borroméo de Carmelo*. The Mission, founded by Padre Junípero Serra in 1770, was the 2nd Franciscan mission in *Alta California*. Originally located at the Presidio of Monterey and called *Misión San Carlos Borroméo de Monterey*, it was moved to the Carmel River area a year later and renamed. The Mission church is the final resting place of Padre Serra (Clark 1991).

The Rumsen group of Ohlone inhabited the area at the time of colonization. There were five principal villages known to the missionaries: *Ichxenta*, located somewhere south of the mouth of the Carmel River, *Achasta* located at the current Carmel Mission site, *Tucutnut* located on the Carmel River about three miles from the ocean, *Soccorronda* near the Carmel Valley Village, and *Echilat* on the San Francisquito Flat (Breschini and Haversat 1992b). *Tucutnut* is mentioned in the early records of the Carmel Mission as being near the margins of the Carmel River. Milliken (1990) suggests the site is probably located were Potrero Creek meets the Carmel River and claims the large archaeological site near the Quail Lodge Golf Course is the site of *Tucutnut* (Clark 1991).

After secularization during the formation of the Mexican Republic in 1822, the Roman Catholic Church petitioned for return of Church lands. Nine acres were granted in 1855 and included many structures, cemeteries, vineyards, orchards, and grazing lands. The present Mission church, located on the southwest corner of Lasuen Drive and Rio Road, was built between 1793 and 1797, destroyed in the mid-1800s, restored in 1884 and again in 1920. In 1960, Pope John XXIII elevated the Carmel Mission to the rank of Minor Basilica which implies special historical and religious importance taking precedence over all other churches except cathedrals.

American Period

Pacific Grove

The subject parcel is located on the south side of Ocean View Boulevard, west of its intersection with Asilomar Ave. in the City of Pacific Grove (Figure 1). Pacific Grove is a historically significant area once known as the Methodist Christian Seaside Retreat, established in 1875 by David Jacks (City of Pacific Grove General Plan). The seaside retreat marked the birth of Pacific Grove, one of the few towns in California to be established for primarily religious purposes. Early settlement included small lots in which seasonal visitors pitched tents. Over the next several decades a permanent population began to grow within the area as well as permanent dwellings. Under pressure of overcrowding and lack of utilities Pacific Grove incorporated in 1889.

The proposed project is located at the site of the former Point Pinos Wastewater Treatment Plant (WWTP). The Point Pinos WWTP was formally opened in January of 1953, although architectural plans date back to January 1952, and references in California Bureau of Sanitary Engineering Papers located at the University of California, Riverside, state that Pacific Grove was seeking permission to construct a new municipal sewage system as early as 1947. The Point Pinos WWTP when in operation had a capacity of 2 million gallons per day (mgd). Treated wastewater was discharged through an outfall to the Pacific Ocean. The Point Pinos WWTP was decommissioned in 1980.

FIELD WORK

On July 30, 2013, Albion staff archaeologist John Ellison conducted surface and subsurface archaeological investigations at the subject parcel. The inspection included a delineated Temporary Impact Area as well as a 30 meter buffer around said boundary (Figure 2). Soil visibility was fair to poor due to pavement cover and imported fill. Native soil was observed in a few locations, characterized as a dark brown sand. The surface inspection revealed a sparse scatter of prehistoric artifacts and ecofacts including one ground stone tool, a chert flake, fire affected rock, and marine shell. Materials were located about 20 meters from the north boundary of the Temporary Impact Area (Figure 2).

Following surface inspection, two shovel tests were excavated to check for subsurface cultural deposits (Figure 2). The shovel tests measured approximately 30 cm in diameter; Auger 1 was terminated at about 10 cm, where rock was encountered. Auger 2 was excavated to a depth of 80 cm below current grade. Soils were removed in four 20 cm increments. Excavated soils were screened through $^{1}/_{8}$-inch mesh. The shovel tests were distributed in the northeastern section of the parcel, closest to the nearby recorded archaeological site, CA-MNT-127.

Shovel Test Probe #2 was placed approximately south east of the north entrance to the parcel. Soils in the 0-20 cm level consisted of very dark brown (10YR 2/2) loosely-compacted sand. Ten pieces (2.2g) of fragmented abalone shell and one piece of metal were found in this level. Soils in the second level, 20–40 cm, were similar in color and texture, and produced 1.5g of marine shell. Soils from 40–60 cm were consistent with the previous layer, and produced 6.0 grams of marine shell and two pieces of unidentified mammal bone. No cultural materials were found from 60–80 cm; at 78 cm, soils were lighter in color, identified as dark yellowish brown sand.

The surface reconnaissance and limited subsurface investigation confirmed the presence of a prehistoric archaeological site within the proposed area of development. The types of materials observed, including dietary remains and stone tools/manufacturing debris is consistent with other nearby sites, and are probably associated with nearby CA-MNT-127. Overall integrity of the deposit is unknown. Previous construction and maintenance of the facility has likely damaged the site, however, it is possible that intact portions of the site still exist on the property.

STUDY FINDINGS AND CONCLUSIONS

Albion's investigation confirmed the presence of prehistoric cultural materials likely associated with previously recorded site CA-MNT-127. Surface artifacts include one ground stone tool, a single chert flake, fire altered rock, and marine shell. Dietary remains (marine shell and mammal bone) were observed to a depth of 60cm below current grade. Details on the nature, extent, depth, and integrity of the deposit are unknown; however, the assemblage is consistent with other prehistoric occupation sites in the vicinity.

The archaeological site is located in an area of planned development and will therefore require consideration during the CEQA review process. Additional archaeological work is likely to include resource and impact analysis (Phase II archaeological evaluation), and possibly mitigation planning and execution.

Evaluation will minimally entail assessment of the resource for significance under CEQA, and if needed, will include an assessment of project impacts and recommendations for mitigation measures. Significance assessments should focus on deposit content, extent, and integrity, and therefore should incorporate an appropriate level of sub-surface investigation. In other words, evaluations should not be based solely on examination of surface materials. As part of the Phase II evaluation, any necessary supplemental DPR resources recordation forms should be completed (i.e., Archaeological Record; Building, Structure, Object Record; Linear Feature Record; Milling Station Record; Artifact Record).

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APPENDIX A

PRELIMINARY HISTORIC REVIEW LETTER (ARCHIVES AND ARCHITECTURE, LLC)

A R C H I V E S & A R C H I T E C T U R E , L L C

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C/o Jennifer M. Farquhar, M.A., Principal
Albion Environmental, INc.
1414 Soquel Ave., Suite 205
Santa Cruz, CA 95062

Re: former Point Pinos Wastewater Treatment Plant – Pacific Grove

Dear James and Jennifer:

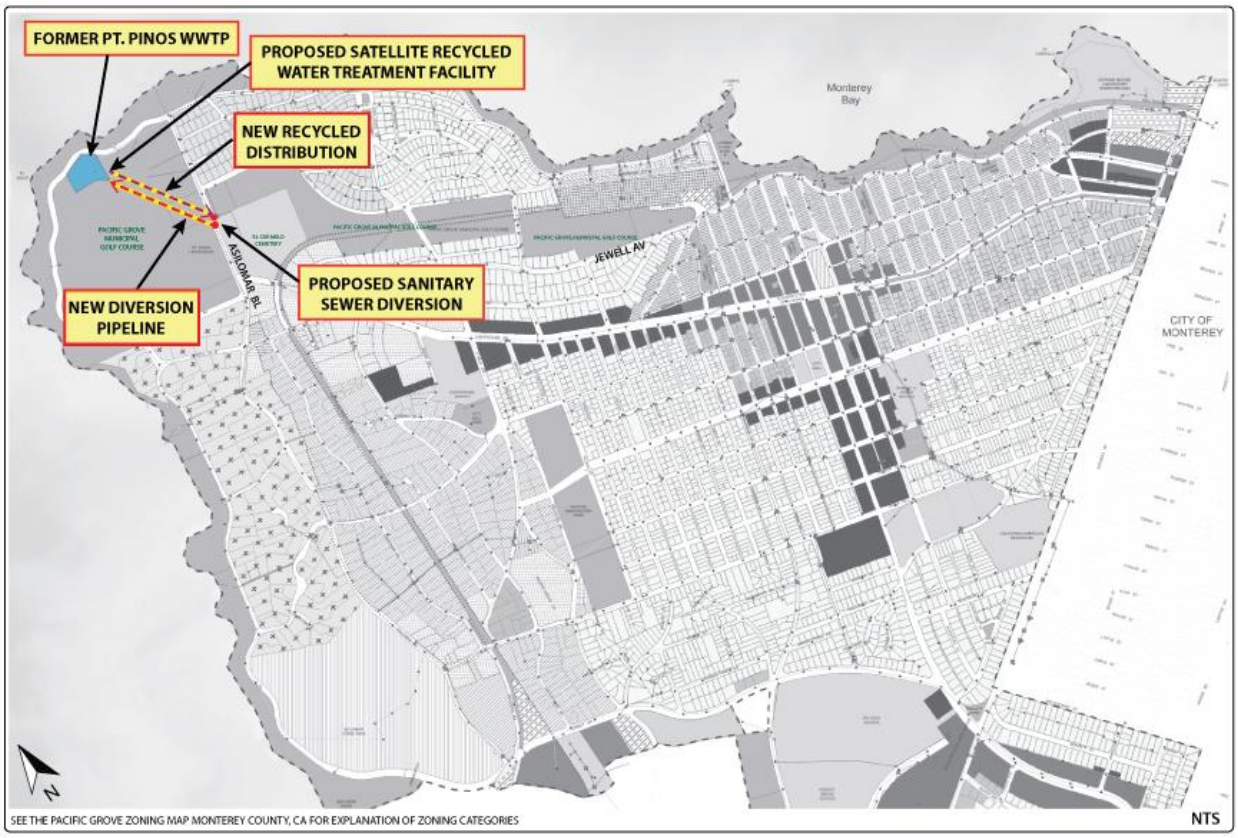
Per your request, we have conducted a preliminary review for potential historic resources (*fatal flaw analysis*) of Pacific Grove's former Point Pinos Wastewater Treatment Plant. Following is a summary of our investigation and findings:

Project Summary: Provide treatment of Pacific Grove wastewater at a new local Satellite Recycled Water Treatment Plant (SRWTP) at the former Point Pinos Wastewater Treatment Plant (WWTP) and deliver recycled water to irrigation sites in the city. To minimize environmental impacts such as odors, noise, vibration, and aesthetic impacts, the SRWTP will be enclosed in structures with adequate ventilation, air scrubbers, and architectural designs compatible with surrounding structures. The SRWTP will make use of the existing structures storage at the former Point Pinos WWTP for diurnal and operational storage if feasible. A footprint of approximately 18,000 square feet is needed for the treatment facilities. During the winter, when there is little or no irrigation demand, the SRWTP will continue to operate at a reduced rate to maintain biomass performance.

Background: Prior to connection to Monterey Regional Water Pollution Control Agency's (MRWPCA) Regional Treatment Plant, wastewater from Pacific Grove was treated at the Point Pinos Wastewater Treatment Plant. The Point Pinos WWTP was formally opened in January of 1953, although architectural plans date back to January 1952, and references in California Bureau of Sanitary Engineering Papers located at the University of California, Riverside, state that Pacific Grove was seeking permission to construct a new municipal sewage system as early as 1947.

The Point Pinos WWTP when in operation had a capacity of 2 million gallons per day (mgd). Treated wastewater was discharged through an outfall to the Pacific Ocean. The Point Pinos WWTP was decommissioned in 1980.

The former Point Pinos WWTP is surrounded by mature vegetation and trees and is screened from visibility from the Golf Links, Oceanview Boulevard, and the Pacific Ocean and Monterey Bay.



Project Details: Source water quality to the SRWTP is expected to be that of typical municipal wastewater. The wastewater to be recycled will be diverted from the collection system, owned by the City. Wastewater that will be diverted from the sewer to the proposed new satellite reclamation plant at Point Pinos will be from residences in the City of Pacific Grove. The reclaimed water that will be produced at Point Pinos will become a new water supply to California American Water (Cal-Am).

The former sewage diversion in Asilomar Drive will be reconstructed with a new controllable diversion valve. The diversion is located at Manhole 802 on Asilomar Drive between Lighthouse Avenue and Del Monte Boulevard. The diversion location is approximately 1,160 feet from the Point Pinos WWTP. Diversion of sanitary sewer flows from Manhole 802 to the Point Pinos WWTP will be accomplished by connecting the existing manhole to a new manhole adjacent to the golf links. A new 8-inch diversion pipeline will be constructed in the alignment of the former wastewater diversion pipeline to the Point Pinos WWTP. The new diversion pipeline will be constructed with pipe bursting technology. Valves will be installed to connect manholes to allow wet weather flows to remain in the Pacific Grove sewer system, while dry weather sanitary flows will be diverted to the SRWTP.

Historic Resources:

In our preliminary review of potential historic resources associated with and that may be potentially affected by the project, we found that the former Point Pinos Wasterwater Treatment Plant may have some historic significance that warrants further investigation.

In the mid-1940s, outbreaks of water-borne diseases, degradation of fishing and recreational waters, coupled with war-time industrial development and population growth prompted a new appraisal of water pollution control in California. Attempts to address and solve new pollution concerns were largely unsuccessful due to the overlap of governmental agencies. Pacific Grove, not immune to the rapid growth brought about by World War II, had unsuccessfully attempted to obtain permission to build a new treatment plant in 1947. By 1949, the California Assembly Committee on Water Pollution recommended sweeping changes in California's approach to water pollution control and water quality, and following their recommendations, the California Legislature enacted the Dickey Water Pollution Act that took effect October 1, 1949. Engineering for the Point Pinos WWTP was underway shortly after the enactment of this legislation, and may be associated in either a primary or secondary way with the significant change in patterns in pollution and water quality management at the state level.

The designer of the Point Pinos WWTP was Sanitary Engineer, Harry N. Jenks. Harry Jenks opened an engineering office in Palo Alto, where he worked from 1933 until his death in 1964. His most significant contribution was the Biofiltration Process, which became an industry standard. Eventually, Harry and his son, John who joined the firm in 1948, designed 23 of the treatment plants in the San Francisco Bay Area as well as numerous plants throughout California. During his lifetime, Jenks patented a number of new processes to treat water and wastewater, including ten new ten new treatment processes. He appears to be a significant personage in California history.

Additional research into the development of this particular treatment plant will clarify its significance within this aspect of regional public works engineering, and will place it in the larger context of Harry N. Jenks' career. Information pertaining to this subject is presently archived with California Bureau of Sanitary Engineering Papers, MS 80/3, Water Resources Collections and Archives at the University of California, Riverside.

Documentation of the Point Pinos WWTP site using California DPR523 series forms, with technical facility description, photographs, historic context, and determination of potential significance using California Register of Historical Resources significance criteria will provide information that can be used by the lead agency for this project to determine if the project involves an historic property that may qualify for the Register, and if so, if the project may affect those resources in an adverse way.

Sincerely,

Franklin Maggi, Architectural Historian

Appendix F

Geotechnical Reports

Converse Seismic Study - 1989

SEISMIC SAFETY AND HYDROLOGIC INVESTIGATION

PACIFIC GROVE DAM AND RESERVOIR PACIFIC GROVE, CALIFORNIA

Prepared for:

California-American Water Company
P.O. Box 951
404 West Franklin Street
Monterey, California 93940

March 17, 1989

CCNC Project No. 88-34-731

FILE 642.3
ITEM # 1
Pacific grove
DATE 3-89

State of California | DEPARTMENT OF WATER RESOURCES | The Resources Agency

MICROFILM FACE SHEET

Document No. _____

DWR File No. _____

Distribution Code No. _____

Reference Reel # 1171

File 251.1

Item # _____

Records dated from 8/17/89 to _____.

Remarks: _____

Subject: Dams in Jurisdiction

Dam: #642-3 Pacific Grove Dam

County: Monterey

Owner: California-American Water Company

General Reports

It. 1: Seismic Safety and Hydrologic Investigation

Pacific Grove Dam & Reservoir

Special Instructions: _____

Disposition of data after microfilming: Return to Record Services Rm. 338

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Photographed by: N.L.

Date: 9-10-95

Remarks: _____

DWR 2349 (REV. 5/79)

1. EXECUTIVE SUMMARY

A seismic safety and hydrologic investigation of Pacific Grove Dam was performed by Converse Consultants Northern California (Converse) for the California-American Water Company (Cal-Am). The work was performed as a result of a directive by the California Division of Safety of Dams (DSOD) as expressed in their January 8, 1988 letter to Cal-Am. The work consisted of the following items:

- Field investigation
- Laboratory testing
- Review of existing data
- Review of geology and seismicity
- Stability analyses of embankment under static and seismic conditions
- Hydrologic and hydraulic analyses of reservoir flood storage capacity
- Report preparation

The field investigation was conducted in September 1988. The investigation consisted of exploratory borings and penetration testing in the embankment and underlying foundation, surveying, installation and measurement of piezometers, and geologic/hydrologic reconnaissance. Laboratory tests were conducted on selected embankment and foundation soil samples to determine size gradations and develop strength parameters for use in subsequent analyses. Published data on historical seismicity and regional geology were compiled and reviewed in order to evaluate the Maximum Credible Earthquake (MCE) and peak ground acceleration recommended by DSOD.

Based on a previous DSOD evaluation, and accepted by Converse, the controlling MCE for Pacific Grove Dam is an M 6.5 event on the Monterey Bay fault, epicentered approximately two miles from the site. This earthquake would likely result in an estimated peak horizontal ground acceleration of 0.6g at the site.

The 30-foot high, zoned earthfill dam was analyzed for stability under (1) critical static conditions (i.e., normal maximum reservoir level) and (2) critical seismic (dynamic) conditions (i.e., MCE loading). Based on the results of slope stability analyses, the dam is judged to be stable under critical static conditions. The results of our analyses indicate that, although deformation of the shell materials will occur, the embankment dam will also be stable under MCE seismic loading. Slight settlement on the order of one to two inches will occur in the downstream portion of the dam as a result of MCE loading. Below the upstream slope, initial liquefaction of the shell material is expected to occur, resulting in settlement (i.e., slumping) on the order of five to six feet in a portion of the upstream shell. The dam crest is sufficiently wide (60 feet), however, so that at least one-half of the crest will remain at existing El. 240, thus maintaining the current storage capacity of the dam.

A hydraulic and hydrologic evaluation of the reservoir and drainage area was performed to evaluate the capability of the spillway to safely pass the design flood. A previous DSOD study had indicated that the spillway size was not adequate, and that dam overtopping would occur. The results of our studies indicate that the existing spillway will safely pass runoff from the design storm provided that flood runoff of the portion of the drainage basin southeast of David Avenue (within Monterey city limits) is diverted away from the reservoir. Such diversion can be accomplished by construction of a floodwall

along a portion of David Avenue bordering the reservoir property. Recommendations are also given for improving the discharge and evacuation capability of the reservoir by (1) enlarging the spillway inlet structure, and (2) increasing the size of the outlet works downstream control valve from a 6-inch diameter butterfly valve to a 12-inch diameter valve.

2. INTRODUCTION

2.1 AUTHORIZATION

Cal-Am authorized Converse to undertake a seismic safety and hydrologic analysis for the Pacific Grove Dam and Reservoir to comply with the January 8, 1988 directive from the DSOD. Initial authorization for the work was given on August 23, 1988.

2.2 PURPOSE AND SCOPE

The basic purpose of this investigation was to evaluate the static and seismic stability of the embankment dam, and the capability of the spillway to pass the design flood. The location of the dam and reservoir is shown on Drawing 2-1. The investigation was directed toward assessing the engineering properties of the embankment and foundation soils, the hydrologic characteristics of the drainage basin, and hydraulic performance of the spillway, outlet works and surface runoff collection systems; and using the results to perform stability analyses on the dam, and a hydraulic evaluation of the reservoir capacity. This report presents the analyses, results, and conclusions of this investigation. The scope of work performed is briefly described as follows.

2.2.1 Data Review

Maps and reports published by the United States Geological Survey (USGS), California Division of Mines and Geology (CDMG), and other agencies were compiled and reviewed to evaluate the regional geology and the closest approach of possible active faults. The data were used to evaluate the MCE, peak horizontal ground acceleration, and duration of intense shaking likely to occur near the reservoir, as determined by the DSOD. In

addition, data from DSOD and Cal-Am files, including various construction plans for the dam or appurtenances, plus geologic or hydrologic reports, were reviewed for use in the subsequent stability and hydraulic/hydrologic evaluations.

2.2.2 Field Investigation

The field investigation performed for this study consisted of exploratory borings, Standard Penetration testing, piezometer installation, surveying, and geologic and hydrologic reconnaissance. A total of four exploratory borings were drilled on the crest and downstream toe (see Drawing 2-2) to assess embankment and foundation materials, perform Standard Penetration testing, and to recover soil samples for laboratory testing. Hydrologic and hydraulic reconnaissance included onsite inspection of spillway and outlet works facilities, the reservoir perimeter runoff collection system, subsurface collection points (inlets and catch basins), and the drainage area outside the reservoir property. Surveying of the dam embankment and of David Avenue at the property boundary was performed in support of our studies. The field investigation is described in greater detail in Section 3.1.

2.2.3 Laboratory Testing

Laboratory tests were performed on foundation and embankment soil samples recovered from the exploratory borings. Tests included two sets of three triaxial compression tests, 11 gradation analyses, and moisture-density determinations. Test results were used to evaluate the engineering properties of the foundation and embankment materials for use in subsequent stability and liquefaction analyses. The testing program is described in greater detail in Section 3.2.

2.2.4 Analyses

2.2.4.1 Embankment Stability: Stability analyses of the embankment under static conditions and of the upstream portion of the embankment under dynamic earthquake loading were performed using the STABL computer program, with engineering properties derived primarily from the laboratory test program. Upstream embankment soils were judged to be susceptible to liquefaction during seismic shaking, with liquefaction potential evaluated using Standard Penetration field test results, and residual strengths of liquefied zones applied in the stability analyses per procedures developed by Seed (Committee on Earthquake Engineering, 1985). The seismic stability of the downstream portion of the dam was evaluated by a vertical deformation (i.e., crest settlement) analysis using procedures proposed by Makdisi and Seed (1977). The analytical methods and results are more fully discussed in Sections 5.4 and 5.5.

2.2.4.2 Hydrologic and Hydraulic Analysis: The evaluation by DSOD on the capability of the existing spillway and surface drainage facilities to adequately pass the design flood was reviewed by Converse. The DSOD study indicated that the spillway capacity was not adequate to pass the design flood, and that overtopping of the dam would occur. As a result of the field hydrologic/hydraulic reconnaissance, mitigation measures were developed to decrease the drainage area (from that used by DSOD) and increase the spillway discharge capacity. Simplified analyses were performed to verify that, upon institution of the mitigation measures,

the spillway would be adequate to pass flows entering the reservoir area from the design flood. Details and results are more fully discussed in Section 6.

2.3 ACKNOWLEDGMENTS

We greatly appreciate the cooperation and assistance of the staff of Cal-Am. In particular, valuable information and assistance were provided by Messrs. Larry D. Foy, Gerald Haas, and Steve Lonhart.

Field investigations for this report were conducted by Messrs. Charles Brown, Supervisory Technician; Sindhu Rudianto, Senior Staff Engineer; and Corey T. Dare, Senior Engineer. The report was prepared by Messrs. Dare, Rudianto and Michael C. Carey, Project Geologist, under the direction of Mr. Kenneth B. King, Principal-in-Charge. Technical review of seismic analysis procedures was provided by Professor H. Bolton Seed of the University of California, Berkeley.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

Exploratory drilling and soil sampling of test borings at Pacific Grove Dam were conducted on September 1 and 2, 1988. A total of four borings were drilled to depths ranging from 21 feet to 50 feet with soil samples generally collected at 5 to 10-foot intervals. The borings represent an aggregate of 167.5 linear feet of drilling performed by Pitcher Drilling Company of Palo Alto, California. Boring locations are shown in Drawing 2-2. Borings were drilled using rotary wash methods by a Failing 1500 drill rig equipped with 4 7/8-inch diameter bits. The borings were continuously logged by our field personnel and classified by visual examination in accordance with the Unified Soil Classification System. The boring log summaries are shown on Drawings 3-1 through 3-10. Drawings 3-11 and 3-12 contain an explanation of the soil classification system, boring symbols, and terminology used on the logs.

Undisturbed samples of representative soils were obtained at selected intervals in the borings. Such samples were recovered by either using a modified Pitcher core barrel sampler with 2.5-inch diameter, 6-inch long brass liners, or by hydraulically pushing a 2.87-inch diameter, 2.5-foot long, thin-walled Shelby tube. Extracted samples were sealed to prevent moisture loss and oxidation during transport to our Concord laboratory.

Standard Penetration Tests (SPTs) were performed at various depths in the borings in both embankment and foundation materials for use in liquefaction evaluations (Sub-sections 5.2.2 and 5.3.2). Tests were performed in accordance with ASTM Test Method

D1586, and entail driving a 2-inch O.D. split-barrel sampler 18 inches into the soil with 140-pound weight (safety hammer) falling 30 inches. Blows for the last 12 inches of penetration are shown in the appropriate column on the boring logs.

Open-tube piezometers were installed in Borings 101 and 103. Subsurface installation details of the piezometers are given in the appropriate boring logs. Each piezometer consists of 2-inch I.D., Schedule 40 PVC pipe with a 5-foot long (Boring 103) or 10-foot long (Boring 101) well screen perforated with 0.010-inch slots at 0.2-inch spacing. Piezometer installation proceeded by thinning the drilling fluid in the boring, setting the PVC pipe under tension to the required depth, backfilling the boring with Lonestar No. 2/12 sand for the desired depth interval, flushing water down through the PVC pipe and up through the sand pack to clean the sand, and then backfilling the remainder of the hole with sandy drill cuttings. The piezometer in Boring 101 was sealed at the surface in a 4-inch diameter steel box with cover. The piezometer in Boring 103 was constructed with a surface bentonite seal surrounding the piezometer pipe. Piezometer details are shown on Drawings 3-13 and 3-14.

3.2 LABORATORY TESTING

A laboratory test program was developed to determine applicable engineering properties of the subsurface soils. All undisturbed soil samples recovered from the test borings were immediately sealed in the field to prevent moisture loss and oxidation, and transported to our Concord laboratory. All samples were examined visually and classified according to the Unified Soil Classification System. Selected samples were then tested to determine the compositional characteristics of the embankment and foundation

materials. Laboratory tests performed included moisture content and dry density determinations, grain-size analysis classification tests, and triaxial strength tests.

3.2.1 Moisture Content - Dry Density Determinations

Field moisture content and dry density (unit weight) were determined for triaxial test specimens. Moisture-density information provides an indication of soil strength and compressibility and is helpful in correlating other soil characteristics. Samples were oven-dried at a temperature of 105°C in accordance with ASTM Test Method D2216-80. The test results are shown in the columns at the right side of the pertinent boring logs (see Drawings 3-1 through 3-10).

3.2.2 Grain-Size Analyses

Grain-size distribution analyses were performed on selected samples from both embankment and foundation materials to determine the proportion and distribution of sand and fines (minus No. 200 U.S. Standard Sieve fraction). Washed screen analyses were performed in accordance with ASTM Test Method D422-63. The results of the analyses on undisturbed and SPT samples are shown on Table 3-1.

3.2.3 Triaxial Strength Tests

Consolidated-undrained triaxial compression tests were performed to determine total and effective stress strength parameters for the embankment and foundation materials. The results were used for stability analyses of the embankment. Tests were performed on two sets of three undisturbed, fairly homogeneous samples from Boring 102 in order to obtain

TABLE 3-1

GRADATION ANALYSIS SUMMARY SHEET

Boring No.	Depth (ft.)	Elevation (ft.)	Moisture Content (percent)	3/8"	4	10	20	40	60	100	140	200	0.005μ	USCS Classification
101	27	213.0	---	85	79	79	65	55	36	24	21	18	0.36	SC
101	35	205.0	---	100	98	95	89	73	35	21	17	14	0.30	SM
102	15	224.7	15.8	100	99	94	84	73	51	36	30	26	0.24	SC
102	16	224.2	13.0	99	94	79	61	48	31	21	18	16	0.46	SP-SC
102	17	223.7	14.0	99	96	85	70	57	37	25	22	19	0.34	SC
102	35	204.7	17.6		100	94	85	70	42	30	27	25	0.28	SC
102	36	204.2	16.5	100	99	93	82	69	39	25	22	20	0.30	SC
102	36.5	203.7	17.5		100	96	81	67	46	37	34	31	0.25	SC
103	6	204		100	100	98	95	76	26	11	8	6	0.31	SP-SM
104	25	215		100	100	98	94	85	47	29	25	21	0.25	SM
104	31	209			100	98	96	86	40	24	21	19	0.27	SC

values of effective and total cohesion and friction angles for the embankment and foundation soils. Pore-water pressures at the end of the samples were recorded in order to determine effective stress values.

Test specimens were prepared by enclosing each specimen in a thin rubber membrane sealed with rubber "O"-rings to cylindrical load caps placed at the top and bottom of the specimen. Special porous plates and drainage ports are built into the load caps to allow water to flow in and out of the specimen and to permit measurement of pore water pressures within the specimen during testing.

The encased specimen was placed in a chamber and confined laterally by pressurized de-aired water. The flow of water to and from the interior of the specimen was controlled to allow for saturation and consolidation prior to testing. After saturation, the specimen was consolidated under a pre-determined pressure allowing drainage from both ends of the specimen. Drainage valves were then closed, and the specimen loaded axially at a constant rate of strain until failure occurred. During the test, elapsed time, axial load, axial strain, and internal pore water pressure were recorded. Test results in the form of stress-path failure envelopes are shown in Drawings 3-15 and 3-16.

DATE DRILLED: 9-1-88

LOG OF BORING NO. 101

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION: 240.7 ± EQUIPMENT: 4-7/8" Ø Rotary Wash

DEPTH m.	DEPTH ft.	SAMPLES SYMBOL						BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
			—	—	—	—	2" ASPHALT, 4" BASE				
			SP-SM	dry	medium dense	light brown to gray	SAND (Embankment Fill) Fine to coarse; trace to little silt				
1											
	5										
		P					cobble at 6 ft	44/6"			
2							some gravels				
3	10										
		P					mixed layers of silty and clayey sands	24			
4							grading to				
	15										
		P	SC	dry	medium dense	grayish brown to brown	CLAYEY SAND (Embakment Fill)	14			
5											
							trace organics in wash				
6	20										

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-1

LOG OF BORING NO. 101 (Cont.)

DATE DRILLED:

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION:

EQUIPMENT:

DEPTH m	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
		T	SC	slightly moist	medium dense	dark gray	CLAYEY SAND (Embankment Fill)	core			
						gray brown					
7		P				light gray		19			
	25						intermixed silty sand layers				
8		T						core			
		P					decreasing clay content	18			ma
9	30	P	SP	slightly moist	medium dense	gray	SAND (Embakment Fill) Fine grained, trace silt	19			
10									11-29-88		
			SP-SM	wet	very dense	gray to tan	SAND Fine-grained, trace silt occasional silty sand lenses				
	35	P						86			ma
11											
12	40										

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-2

LOG OF BORING NO. 101 (Cont.)

DATE DRILLED:

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION:

EQUIPMENT:

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE * DRY WEIGHT	DRY DENSITY LB./CU.FT.	TESTS
		P	SP-SM	wet	very dense	gray to tan	SAND Fine-grained, trace silt Fine to coarse-grained below 43 ft	89			
13	45										
14		P			hard	dark gray	BEDROCK decomposed to highly weathered granodiorite	52/4"			
15	50						Bottom of Boring 50 ft				
16											
17	55										
18	60										

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-3

DATE DRILLED: 9-2-88

LOG OF BORING NO. 102

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION: 240.7 ± EQUIPMENT: 4-7/8" Ø Rotary Wash

DEPTH m.	DEPTH ft.	SAMPLES SYMBOL						BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB/CU.FT.	TESTS
			—	—	—	—	COBBLES (Riprap)				
			SM/ SC	slightly moist	medium dense	brown	SILTY to CLAYEY SAND (Embankment Fill)				
			SC	moist	medium dense	mottled gray rust	CLAYEY SAND (Embankment Fill) Fine to coarse; trace fine gravels; cobbly zone at 4 ft.				
1				wet					9-2-88		
	5					gray					
2											
		P				gray brown	trace organics	11			
3	10										
						gray					
4											
	15										
		T				gray to gray brown		core	15.8 13.0 14.0	112 115 116	tx ma
5											
		P						10			
6	20										

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No. 88-34-731-06

Converse Consultants Northern California

Drawing No. 3-4

LOG OF BORING NO. 102 (Cont.)

DATE DRILLED:

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION:

EQUIPMENT:

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU FT.	TESTS
			SC	wet	medium dense	gray to gray brown	CLAYEY SAND (Embankment Fill) intermixed silty zones				
7											
	25	P				gray to olive	becoming silty	10			
8			SM	wet	medium dense	gray	SILTY SAND (Embankment Fill) trace organics				
9	30	P	SP	wet	dense	gray	SAND Fine to medium; trace silt	45			
10											
	35		SC	wet	medium dense	gray	CLAYEY SAND Fine to medium; trace coarse sand				
11		T						core	17.6 16.5 17.5	115 117 117	tx ma
		P						22			
12	40										

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-5

LOG OF BORING NO. 102 (Cont.)

DATE DRILLED:

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION: EQUIPMENT:

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
		P	SP	wet	very dense	light gray	SAND Fine to coarse; trace silt	71			
13											
	45		SC	wet	very dense	dark gray	CLAYEY SAND				
		P	SP-SM	wet	very dense	gray	SAND Fine to coarse; trace silt	69			
14											
					hard	gray	BEDDROCK Highly weathered granodiorite				
15	50						Bottom of Boring 50 ft				
16											
	55										
17											
18	60										

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-6

LOG OF BORING NO. 103

DATE DRILLED: 9-2-88

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION: 209.5 ± EQUIPMENT: 4-7/8" Ø Rotary Wash

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
		S	SM	dry	loose	light gray	SILTY SAND Fine-grained	push			
1		P	SP	dry	loose	light tan	SAND Fine-grained	8			
	5	P		slightly moist to wet	medium dense			22	11-29-88		ma
2		P			dense	mottled light gray/ dark gray		34			
3	10	P			very dense	light gray	Fine to medium grained	74			
4	15	P			dense		Fine to coarse-grained, trace silt	33			
5			SP-SM			dark gray brown					
6	20				hard	gray brown	BEDROCK Highly weathered granodiorite				

Bottom of Boring 21 ft

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No. 88-34-731-06

Converse Consultants Northern California

Drawing No. 3-7

DATE DRILLED: 9-2-88

LOG OF BORING NO. 104

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED

ELEVATION: 240.9 ± EQUIPMENT: 4-7/8" Ø Rotary Wash

DEPTH m.	DEPTH ft.	SAMPLES SYMBOL						BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
							2" ASPHALT, 4" BASE				
			SP	dry to slightly moist	medium dense	light brown to gray	SAND (Embankment Fill) Fine to coarse; trace silt, fine gravel				
1											
	5										
2											
3	10										
4											
			SC	slightly moist	medium dense	dark gray	CLAYEY SAND (Embankment Fill) Fine to coarse				
	15										
5											
		S						push			
		P						38			
6	20				dense	lt. gray	trace fine gravel at 20 ft				

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No. 88-34-731-06

Converse Consultants Northern California

Drawing No. 3-8

DATE DRILLED: 9-2-88

LOG OF BORING NO. 104 (Cont.)

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION: EQUIPMENT:

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE * DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
		P	SC	slightly moist	dense	gray	CLAYEY SAND (Embankment Fill)				
7											
	25	P	SM	slightly moist	medium dense	gray to black	SILTY SAND (Embankment Fill) pockets of silty clay		17		ma
8											
9											
	30		SP-SC	wet	very dense	mottled gray/ rust	SAND Fine to medium, trace to little clay				
		P							56		ma
10											
	35						Fine to coarse grained				
11						gray to tan					
12											
	40										

(Cont.)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No. 88-34-731-06

Converse Consultants Northern California

Drawing No. 3-9

LOG OF BORING NO. 104 (Cont.)

DATE DRILLED:

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

ELEVATION:

EQUIPMENT:

DEPTH m.	DEPTH ft.	SAMPLES	SYMBOL					BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT.	TESTS
		P	SP-SC	wet	very dense	light gray	SAND Fine to coarse, trace to little clay	50/6"			
13						dark gray brown					
	45				hard	gray brown	BEDROCK Highly weathered granodiorite				
14							Bottom of Boring 46 ft				
15	50										
16											
	55										
17											
18	60										

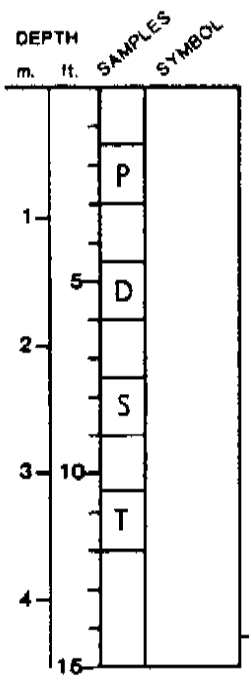
PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants Northern California

Drawing No.
3-10

MAJOR DIVISIONS			SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVELS More than half coarse fraction is larger than No. 4 sieve	Clean gravels with little or no fines	GW	Well graded gravels, gravel - sand mixtures
			GP	Poorly graded gravels, gravel - sand mixtures
		Gravels with over 12% fines	GM	Silty gravels, poorly graded gravel - sand - silt mixtures
			GC	Clayey gravels, poorly graded gravel - sand - clay mixtures
	SANDS More than half coarse fraction is smaller than No. 4 sieve	Clean sands with little or no fines	SW	Well graded sands, gravelly sands
			SP	Poorly graded sands, gravelly sands
		Sands with over 12% fines	SM	Silty sands, poorly graded sand - silt mixtures
			SC	Clayey sands, poorly graded sand - clay mixtures
FINE GRAINED SOILS > half is smaller than No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic clays and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine, sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils



SAMPLE TYPE

DRIVE SAMPLE, 1.38" ID Sampler, driven with 140 lb. weight, 30" drop (Standard Penetration Test).

SHELBY TUBE SAMPLE, 2.87" ID Thin Wall Sampler pushed hydraulically.

MODIFIED PITCHER SAMPLE, 2.5" ID Sampler, with outer rotating cutter barrel.

Water level at time of drilling or as noted.

TEST TYPE

(Results shown on drawings other than boring logs)

	TESTS
CLASSIFICATION	
Plasticity	pi
Grain Size Analysis	ma
Specific Gravity	sg
Shrink/Swell	s/s
STRENGTH	
Direct Shear	ds
Unconfined Compression	uc
Triaxial Compression	tx
Vane Shear	vs
CONSOLIDATION	c
DYNAMIC TESTS	
Cyclic Triaxial Compression	ctx

UNIFIED SOIL CLASSIFICATION SYSTEM AND BORING LOG SYMBOLS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants
Northern California
Consulting Engineers and Geologists

Drawing No.
3-11

Approved by: ____ Date: ____

NOTE: Soil conditions indicated by boring logs apply only at the location of the particular boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at the boring location with the passage of time. Data presented in the logs represent a simplification of the actual conditions encountered.

1. GRAIN SIZE

Material	Fraction	Sieve Size (U.S. Standard)
Boulders		12"+
Cobbles		3" - 12"
Gravel	Coarse	¾" - 3"
	Fine	No. 4 to ¾"
Sand	Coarse	No. 4 to No. 10
	Medium	No. 10 to No. 40
	Fine	No. 40 to No. 200
Fines (Silt and clay)		Passing No. 200

2. COMPONENT FRACTIONS OF COARSE AND FINE-GRAINED SOILS

Descriptive Adjective	Percentage Requirement
Trace	1-10%
Little	10-20%
Some	20-35%
And	35-50%

3. RELATIVE CONSISTENCY OF COARSE AND FINE-GRAINED SOILS

(a) COARSE-GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) clean gravels, (2) silty or clayey gravels, and (3) silty, clayey or gravelly sands. Consistency is rated according to relative density, as determined by laboratory tests. Where applicable test results are not available, consistency terms shown on the boring logs are estimates based on other available data.

Descriptive Term	Relative Density
Very loose	0-15%
Loose	15-40%
Medium Dense	40-70%
Dense	70-85%
Very dense	85-100%

(b) FINE-GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by laboratory strength tests. Where applicable test results are not available, consistency terms shown on the boring logs are estimates based on other available data.

Descriptive Term	Shear Strength (ksf)
Very soft	Less than 0.25
Soft	0.25-0.5
Medium	0.5-1.0
Stiff	1.0-2.0
Very stiff	2.0-4.0
Hard	4.0 and higher

4. STRATIFIED SOILS

Descriptive Term	Thickness
Alternating	
Thick	
Thin	
With	
Parting	0 - 1/16"
Seam	1/16" - 1/2"
Layer	1/2" - 12"
Stratum	Greater than 12"
Varved clay	Alternating seams or layers of sand, silt and clay
Pocket	Small, erratic deposit, usually less than 1 foot
Lens	Lenticular deposit
Occasional	One or less per foot of thickness
Frequent	More than one per foot of thickness

5. RELATIVE MOISTURE TERMINOLOGY

Descriptive Term	Characteristic
Dry	Makes dust
Slightly moist	Below plastic limit
Moist	At plastic limit
Very moist	Above plastic limit
Wet	Free water or saturated

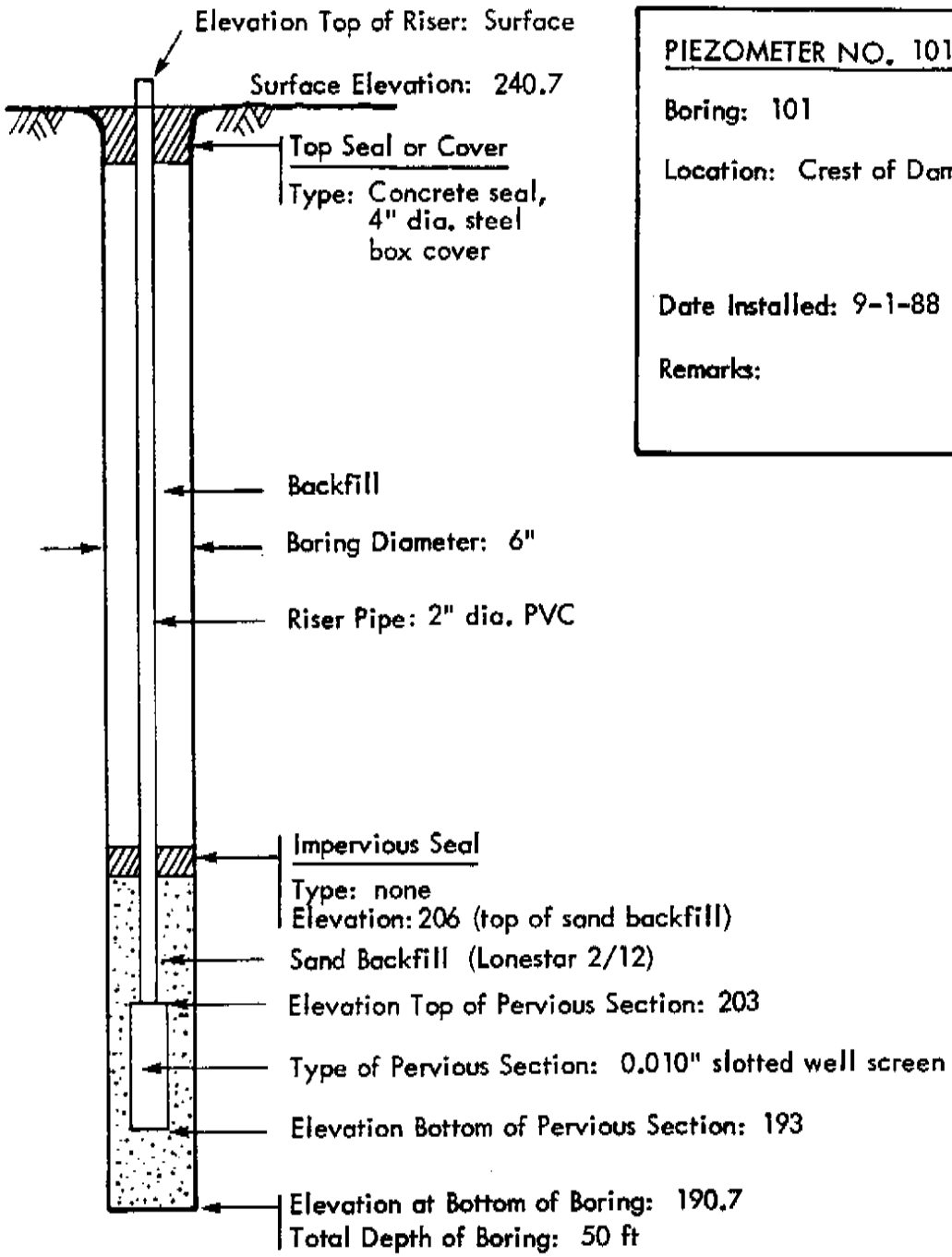
EXPLANATION OF BORING LOG TERMINOLOGY

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No
88-34-731-06

Converse Consultants Northern California

Drawing No
3-12



PIEZOMETER NO. 101

Boring: 101

Location: Crest of Dam

Date Installed: 9-1-88

Remarks:

SECTION THROUGH
PIEZOMETER INSTALLATION
(not to scale)

PIEZOMETER INSTALLATION AND DETAILS

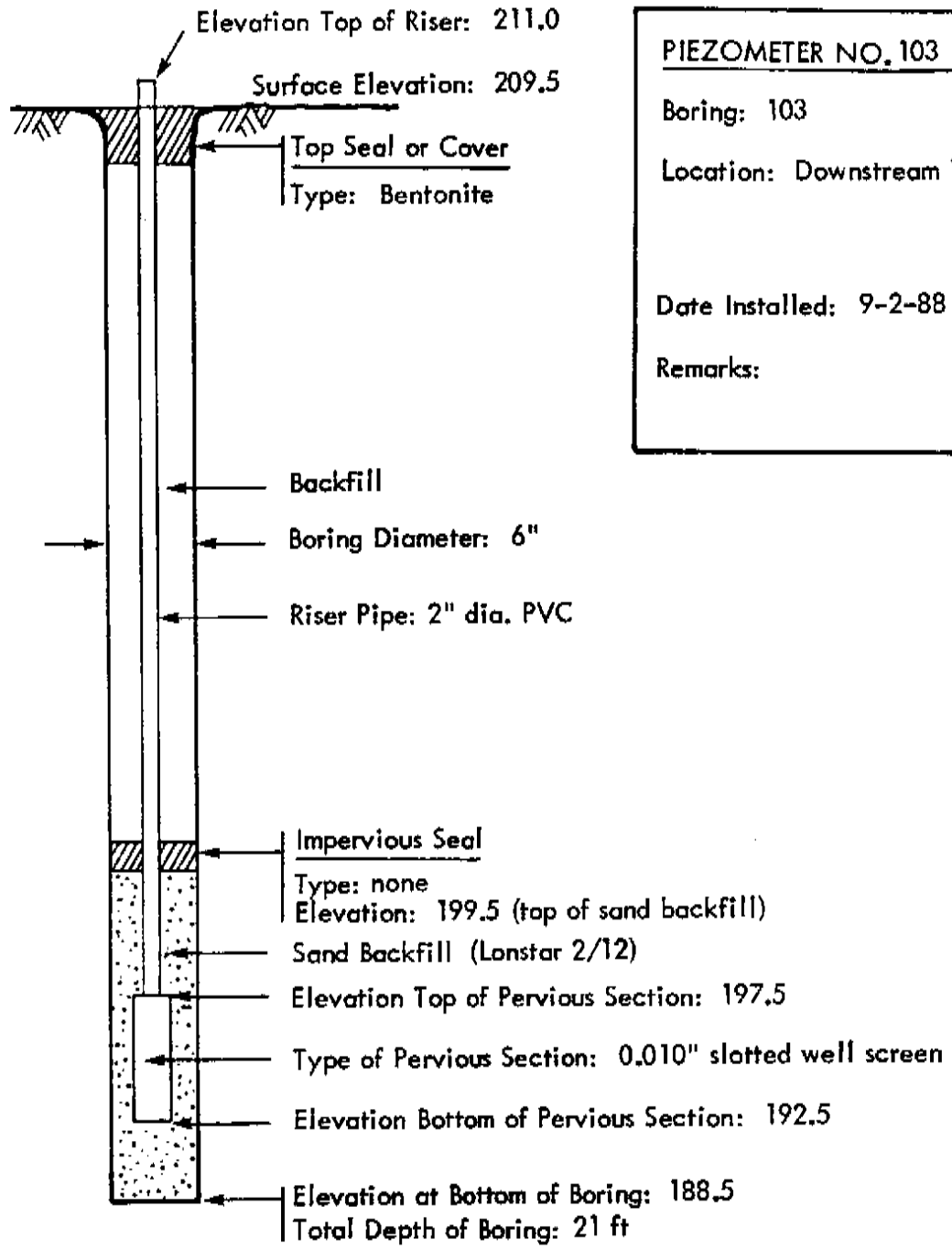
PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Project No.
88-34-731-06

Converse Consultants
Northern California

Consulting Engineers
and Geologists

Drawing No.
3-13



PIEZOMETER NO. 103

Boring: 103

Location: Downstream Toe of Dam

Date Installed: 9-2-88

Remarks:

SECTION THROUGH
PIEZOMETER INSTALLATION
(not to scale)

PIEZOMETER INSTALLATION AND DETAILS

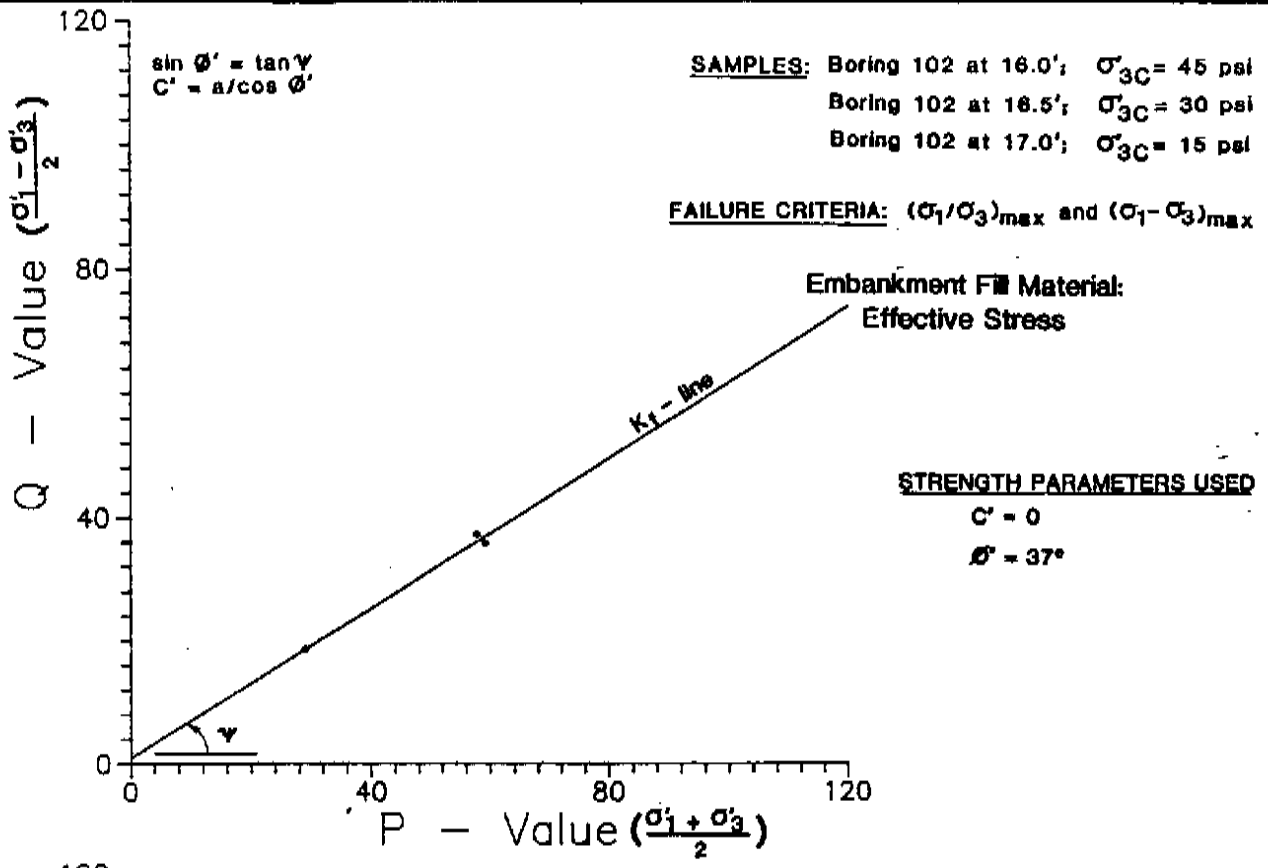
PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

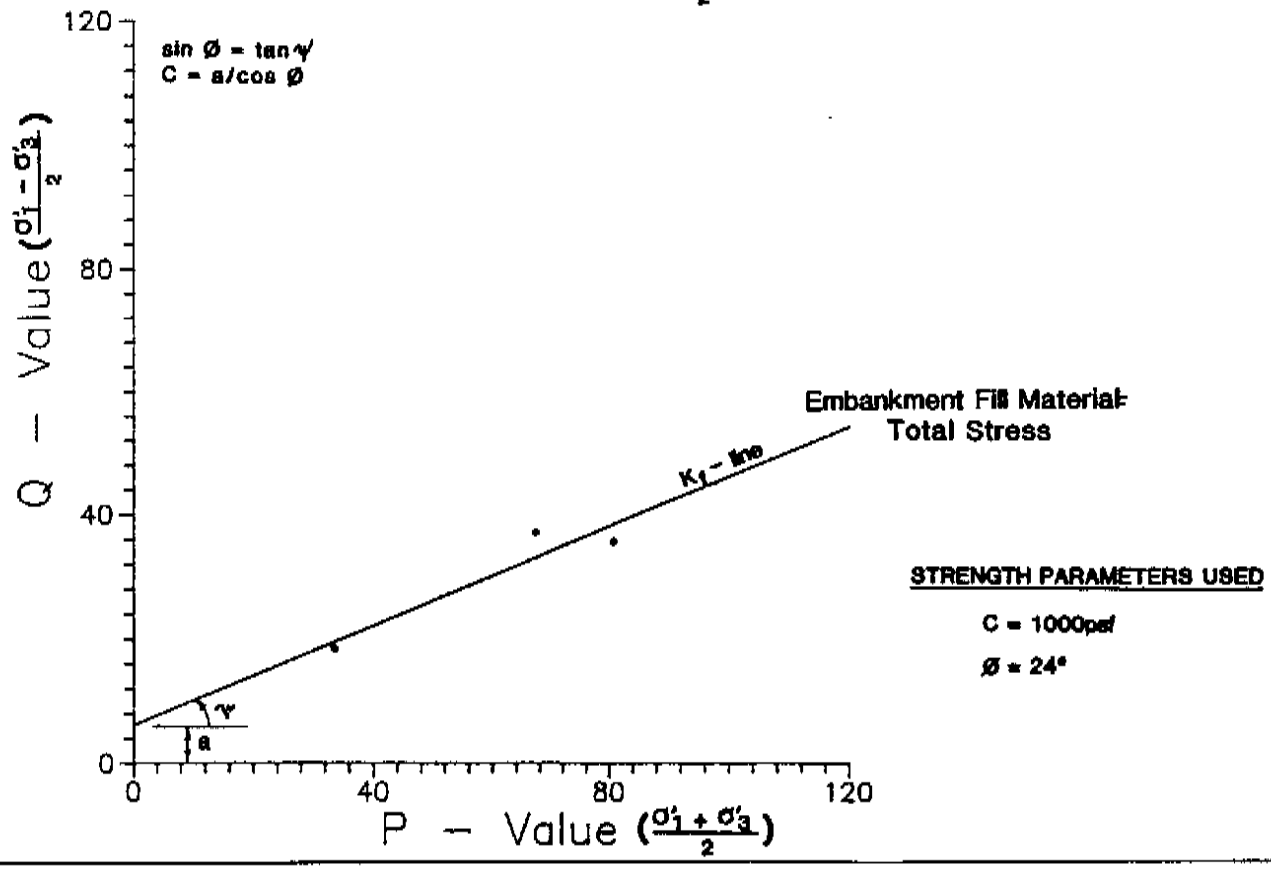
Project No.
88-34-731-06

Converse Consultants
Northern California

Consulting Engineers
and Geologists

Drawing No.
3-14



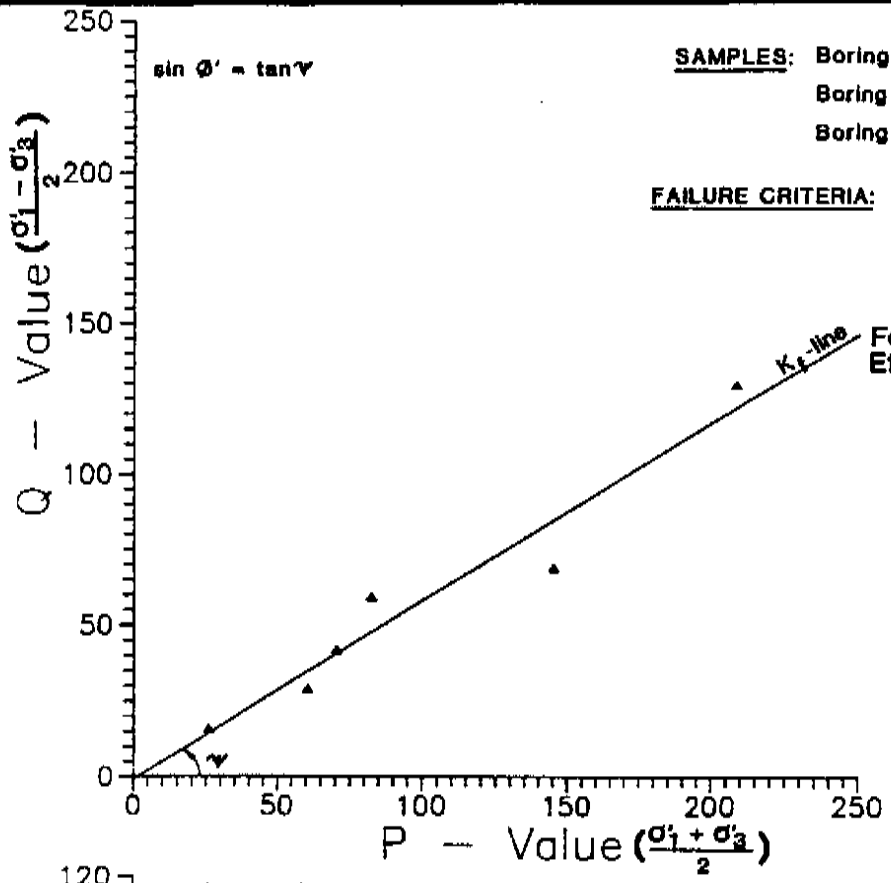


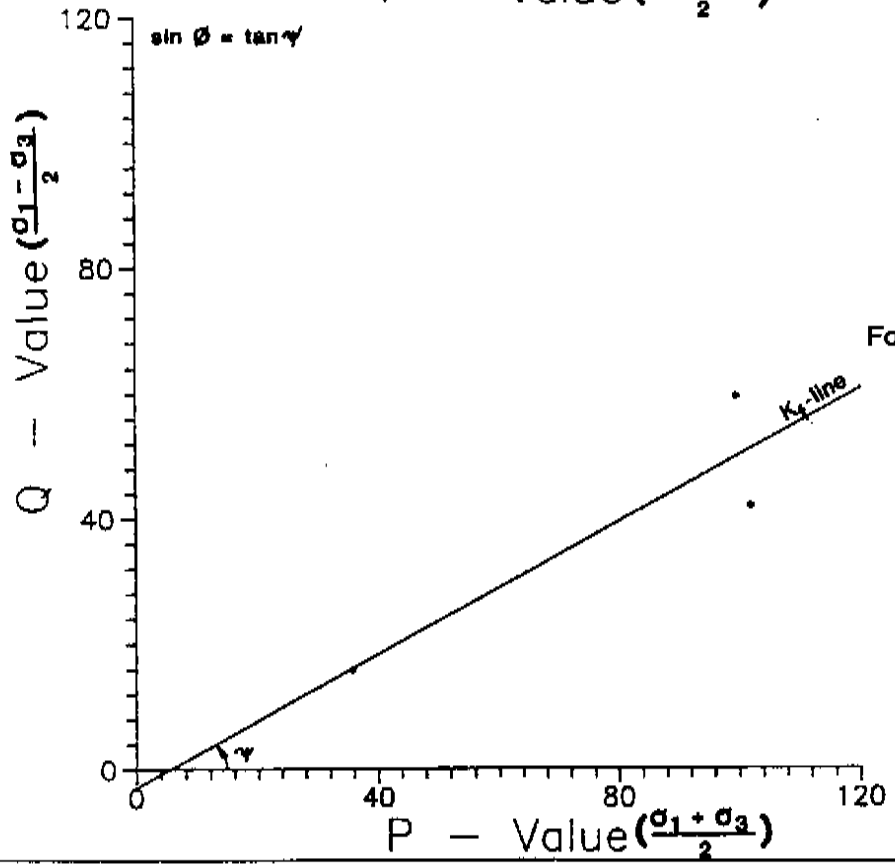
TRANSFORMED STRENGTH ENVELOPE FROM C-U TRIAXIAL COMPRESSION TESTS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale	AS SHOWN	Project No.	88-34-731-06
Prepared by	KGC	Date	1/30/89
Checked by	CTD	Drawing No.	3-15
Approved by	KBK		

Converse Consultants Northern California
Consulting Engineers and Geologists





TRANSFORMED STRENGTH ENVELOPE FROM C-U TRIAXIAL COMPRESSION TESTS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: KGC	Date: 1/30/89
Checked by: CTD	Drawing No.: 3-16
Approved by: KBK	

Converse Consultants
Northern California

Consulting Engineers and Geologists

4. GEOLOGY AND SEISMICITY

4.1 GEOLOGIC SETTING

Bedrock of the Monterey Peninsula consists of porphyritic granodiorite (gdp) overlain by marine sandstone of the Temblor formation (Tus), as shown on the geologic map, Drawing 4-1. The granodiorite is a hard, light gray rock, commonly with large (up to 1.5 inches), square to rectangular feldspar crystals. The granodiorite usually weathers to a dense, sandy soil. These granodiorites, along with their associated metamorphic rocks, are considered to be Mesozoic to Paleozoic in age (older than about 100 million years), and form the "basement" rock of the area.

The overlying marine sandstone was deposited directly upon the granitic basement rock. The sandstone is a medium brown to light gray friable arkosic sandstone, and is considered to be middle Miocene (approximately 10 to 15 million years old) in age. In the geologic past, the Monterey Peninsula was covered by a blanket of Temblor sandstone, and probably by younger rocks as well. Erosion has removed much of the sedimentary cover and has exposed large areas of granodiorite.

The project site is located near the thin, eroding edge of a native sandstone area (Drawing 4-1). Borings drilled at the crest and toe of the embankment indicate that the embankment is underlain by a layer of foundation soils up to 16 feet thick overlying granodioritic bedrock. The foundation soils appear to consist of dense, sandy alluvium, although the lower few feet of this layer may be weathered sandstone.

4.2 FAULTING AND SEISMICITY

The Monterey Peninsula is located in the known seismically active central coast region of California. Numerous active and inactive faults exist in central California, as shown in Drawing 4-2. Known active faults which could cause significant ground shaking at Pacific Grove Dam include the San Andreas fault, the San Gregorio fault and numerous small faults within Monterey Bay (Greene, 1973).

Other minor faults that are geologically young, but inactive also exist in the Monterey area (Hart et al., 1986). These include the Tularcitos fault, The Cypress Point fault, the Navy fault, and the Seaside fault. These are short fractures which are not expected to cause major ground shaking, even if an earthquake should occur on one.

The maximum credible earthquake (MCE) on a fault may be estimated by considering the total length of the fault zone, and using fault rupture length or displacement magnitude relationships from past events. A maximum credible earthquake is the largest earthquake that appears capable of occurring on a given fault. It is a rational and believable event that is in accord with present knowledge. In determining the maximum credible earthquake, there is little regard to its probability of occurrence, except that the likelihood is great enough to be of concern.

Table 4-1 presents a list of the major Monterey area active faults near the project site, their minimum distance from the site, and the estimated MCE of each fault. The distance-attenuation relationships presented by Seed and Idriss (1982) were used to determine the peak ground acceleration at the project site resulting from the MCE developed for each

fault. The data in Table 4-1 is similar, but not identical, to that derived by C. dePolo and T. Dudley of DSOD.

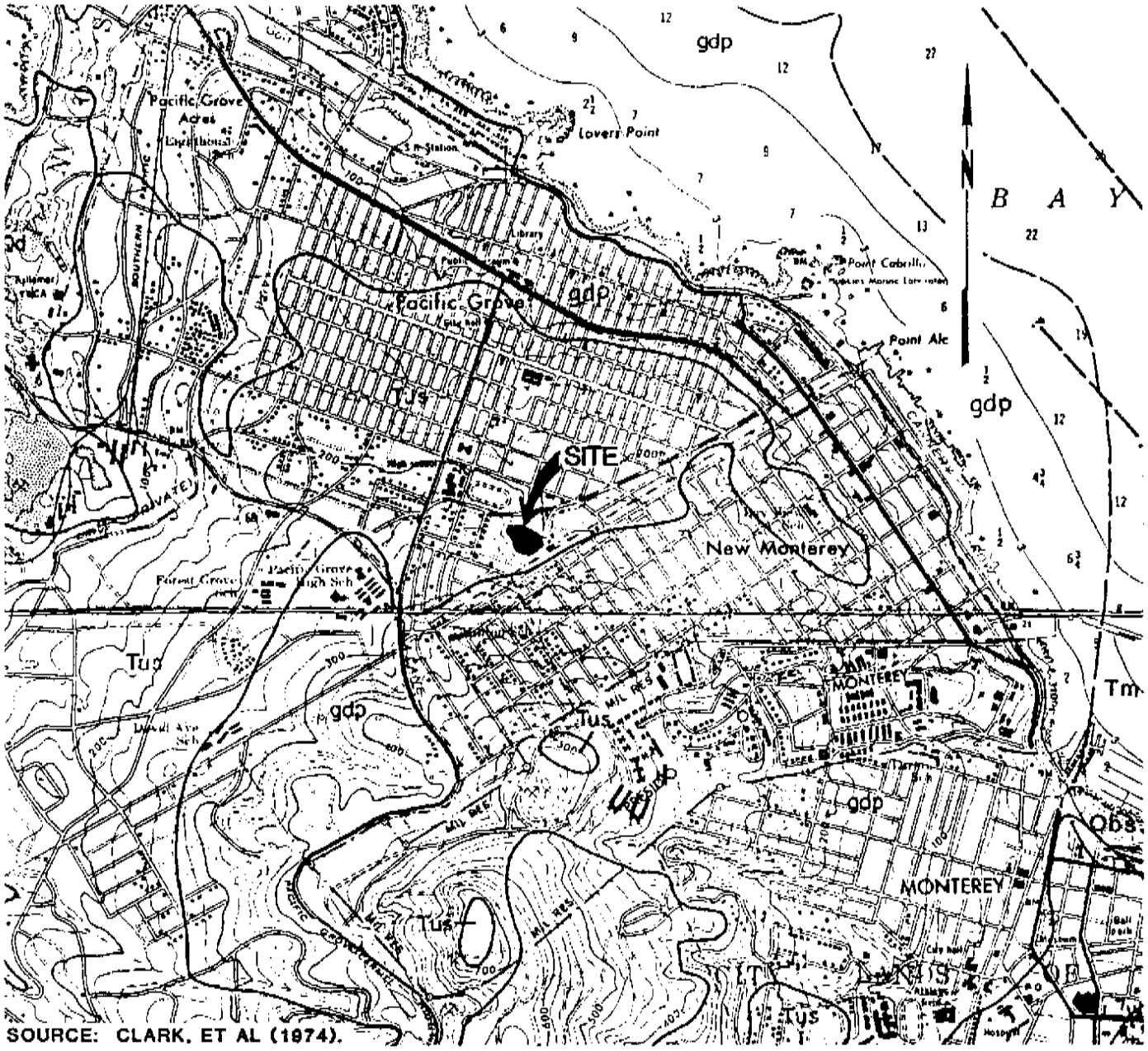
The data shown on Table 4-1 indicates that it is possible that peak horizontal ground accelerations at the site may be as high as 0.6g in the unlikely event of a large (M=6.5) earthquake on the nearby Monterey Bay fault zone. Accelerations caused by more likely earthquakes on the San Gregorio or the San Andreas faults would not be as high, because these faults are further from the site. The 0.6g value agrees with that developed by DSOD, and was selected for use in the seismic stability analysis.

It should be noted that the Pacific Grove Dam has survived the 1906 San Francisco earthquake, which had an estimated magnitude of 8.25. The peak acceleration at the site due to that event has been estimated at about 0.3g.

TABLE 4-1

SUMMARY OF FAULT CHARACTERISTICS

Fault	Distance to Dam	Maximum Credible Earthquake (MCE)	Peak Horizontal Acceleration (g)	Predominant Period	Duration of Shaking
Monterey Bay	2-4 miles	6.5	0.47 - 0.59	0.28 second	11 seconds
San Gregorio	7 miles	7.5	0.47	0.36 second	25 seconds
San Andreas	25 miles	8.5	0.3	0.45	70 seconds



SOURCE: CLARK, ET AL (1974).

GEOLOGIC MAP EXPLANATION

Obs	BEACH SAND	Tus	MONTEREY FORMATION SANDSTONE
Tm	MONTEREY SHALE	gdp	GRANODIORITE

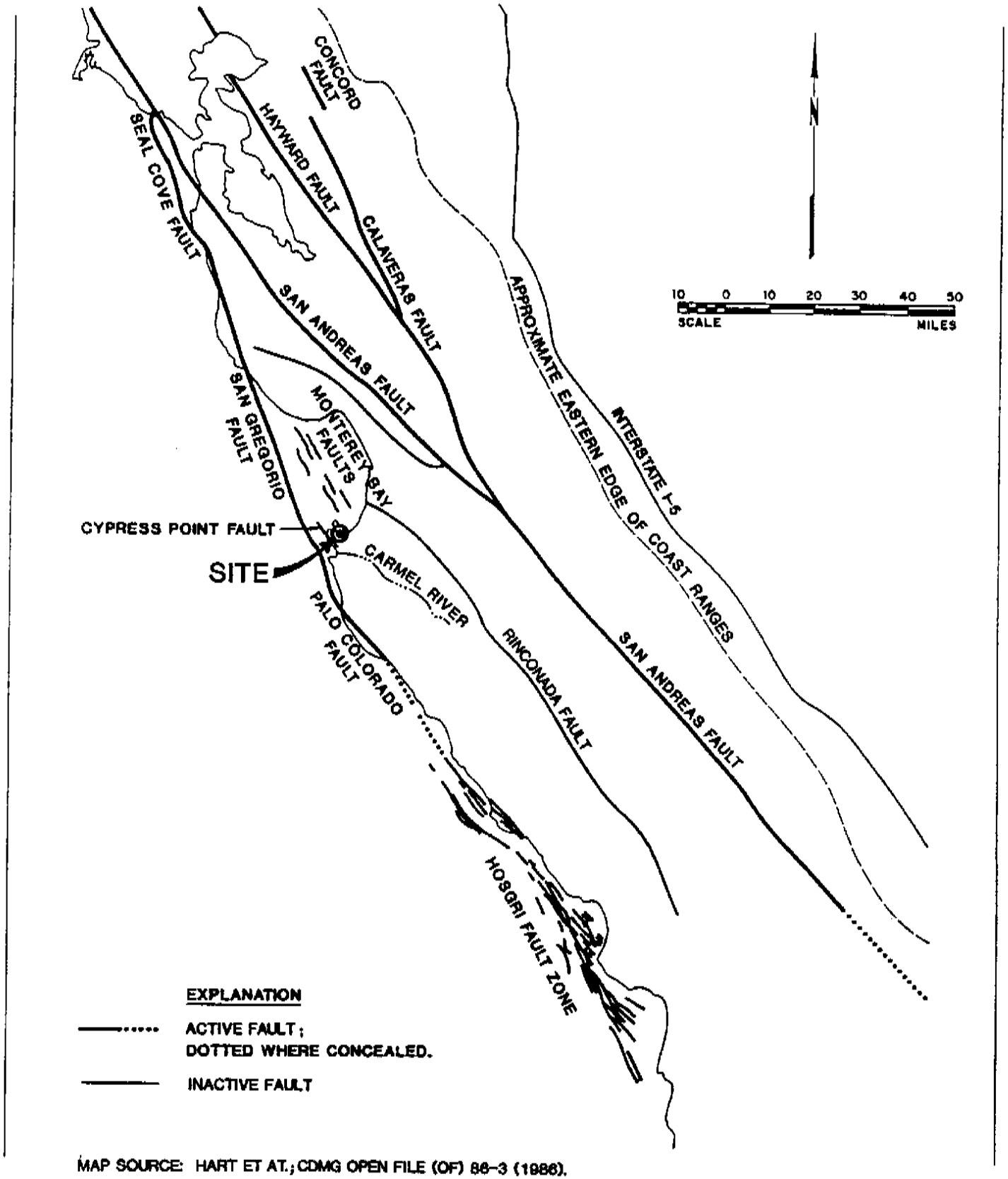
REFERENCE: CLARK, T.C., DIBBLEE, T.W., GREENE, H.G. AND BOWEN, O.E. 1974. PRELIMINARY GEOLOGIC MAP OF THE MONTEREY AND SEASIDE QUADRANGLES, MONTEREY COUNTY, CALIFORNIA U.S. GEOLOGICAL SURVEY MF 577.

GEOLOGIC MAP

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Converse Consultants Northern California
Consulting Engineers and Geologists

Scale 1' = 2000'	Project No. 88-34-731-06
Prepared by KGC	Date 2/3/89
Checked by CTD	Drawing No. 4-1
Approved by KBK	



MAP SOURCE: HART ET AT.; CDMG OPEN FILE (OF) 88-3 (1986).

FAULT MAP OF CENTRAL CALIFORNIA

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: LQL	Date: 1/31/89
Checked by: CTD	Drawing No.: 4-2
Approved by: KBK	

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5. EMBANKMENT STABILITY EVALUATION

5.1 DESCRIPTION AND CONSTRUCTION HISTORY

Pacific Grove Dam is a zoned earthfill dam originally constructed in 1882. The embankment is approximately 750 feet long, with a maximum height of about 30 feet, as measured from the crest to the downstream toe. The dam was constructed to an approximate crest elevation of 240 (NGVD, or National Geodetic Vertical Datum), with a current crest width of about 60 feet. The upstream side of the embankment is sloped at 2.5H:1V (horizontal to vertical). The downstream side is sloped at approximately 1.5H:1V and is covered by trees and a mantle of dead leaves, pine needles, branches, and other vegetative debris. Cross section A-A through the maximum section of the dam is shown on Drawing 5-1.

According to District personnel, the normal maximum reservoir water surface is El. 235.0. The reservoir has a volume of 56 acre-feet at El. 235.0.

The reservoir outlet consists of a 700-foot long, 20-inch diameter pipe extending northward from the gate house adjacent to the reservoir. A 6-inch diameter butterfly valve at Sinex Avenue near Gate Street is installed near the end of this pipe. The valve allows the release of reservoir water into a 200-foot long, 12-inch diameter pipe which discharges into the gutter on Sinex Avenue. Water initially enters the inlet of the 20-inch diameter pipe at El. 215, and exits the 12-inch diameter pipe at approximately El. 110.

The dam spillway is an overflow structure consisting of a rectangular inlet structure leading into a 12-inch diameter metal pipe. The pipe intersects other subsurface drain pipes below the Corporation Yard area. Flows through these pipes ultimately discharge into the City of Pacific Grove storm drain located below Terry Street (see Drawing 2-2).

Available information on the construction of Pacific Grove Dam is scarce. According to an old, undated drawing by Monterey Water Works (the basis for Drawing 5-1), the original crest elevation was the same as present, with a crest width of approximately 18 feet, and upstream and downstream slopes of 2.5H:1V and 2H:1V, respectively. The drawing shows an interior puddle wall core which extends from near the top of the dam to about 20 feet into the foundation. The puddle wall is surrounded on both sides by a transition zone of select compacted materials separating the core from the compacted sandy outer shells. No internal drainage system was shown.

The dam was expanded to its present configuration in 1920 by placement of additional sandy shell material on the downstream side. The source(s) of embankment materials for the original construction and the expansion of the dam is(are) not well documented, but the most likely source is from excavation of the reservoir area. Other than one boring drilled in 1976 by the University of California, Berkeley, no previous studies were performed on the dam which indicate the as-constructed composition or material properties of the embankment or foundation.

5.2 EMBANKMENT MATERIALS

5.2.1 Material and Engineering Properties

Embankment materials were explored by drilling test borings at the locations shown on Drawing 2-2. Borings 101, 102 and 104 were drilled from the dam crest through the downstream or upstream shell of the dam into the underlying foundation soils and granodioritic bedrock. Boring 103 was drilled from the downstream toe of the dam into the underlying foundation materials. In-situ field test results, field classification, and laboratory testing of recovered soil samples from these borings were used to evaluate the engineering properties of the embankment materials.

Soils encountered in the upstream and downstream shells are essentially the same, consisting primarily of brown to gray, medium dense to dense, clayey and silty sands. The dry density of three recovered samples ranged from 112 to 116 pounds per cubic foot (pcf). In-situ moisture contents ranged from 13% to 16% of dry unit weight. SPT blow count values (N values) from tests performed at various intervals in the borings ranged from 10 at one location within the upstream shell, to 45 at another location within the downstream shell.

Consolidated-undrained triaxial shear tests were conducted on three samples of similar embankment material. The results are presented graphically in Drawing 3-15. Based on these results, effective stress strength values of $c' = 0$ psf and $\phi' = 37°$ were used for the upstream, saturated shell materials in the stability analyses.

Water level measurements taken from the standpipe piezometers on November 14, 1988 at Borings 101 and 103 indicated that downstream of the puddle core, the water table was located three to six feet below the elevation of the downstream toe. To represent partially saturated conditions present in the downstream shell materials, total stress strength values of c = 1000 pounds per square foot and ϕ = 24° were used for these materials in the stability analyses.

The puddle wall core was not encountered in any of the borings. This zone did not weigh heavily in the analyses because (1) the core zone occupies a small portion of the embankment compared to the upstream and downstream shells, and (2) the location and vertical orientation of the core makes it unlikely that any more than a very small percentage of a hypothetical slope failure plane will pass through the zone. Boring 102 possibly passes through the transition zone of the dam; however, embankment materials encountered in this boring were very similar in composition to those encountered in the other borings. Thus, for analysis purposes, core, transition zone, and shell materials were considered to be the same.

5.2.2 Liquefaction Potential

As discussed in Subsection 4.4, the liquefaction potential of the embankment materials was evaluated as part of the seismic stability analysis of the embankment. The material was evaluated based on the results of in-situ density testing using correlations between SPT resistance and observed field performance of sand deposits subjected to earthquakes, as developed by Seed and co-workers (Committee on Earthquake Engineering, 1985). The procedures outlined by Seed et al. (1984a) on state-of-the-art use of SPT

resistance in soil liquefaction resistance evaluations were used together with procedures for applying such data to earth dam seismic stability as presented by Seed (1983).

In-situ SPTs were performed in the shell materials encountered in the borings in accordance with the standard procedures proposed by Seed et al. (1984a). SPT blowcounts obtained in the field were subsequently converted to equivalent, normalized SPT N_1 values. Further corrections were applied for variable percentages of fines (silt and clay fraction) in accordance with recommendations by Seed (1987). Based on the field SPT N values, an average N_1 value of 12 was obtained for the clayey sand shell material. This value was corrected to 14 to account for the average 20% fines content.

As discussed in Subsection 5.5.1., the effects of embankment liquefaction were considered only for the saturated upstream shell under full reservoir conditions. Since the downstream shell is not saturated, liquefaction of this zone is not expected to occur. However, minor deformation of the downstream slope is expected to occur during a MCE seismic event, as discussed in Subsection 5.5.3.

5.3 FOUNDATION MATERIALS

5.3.1 Material and Engineering Properties

The foundation materials under the dam as encountered in the borings were found to consist of up to 16 feet of alluvium and possibly weathered sandstone overlying hard, granodioritic bedrock. The thickness and extent of this layer is illustrated in Drawing 5-1. The foundation soils consist of very stiff clays or very dense sands in the upper six to eight feet underlain by very dense sand.

Dry densities of three relatively undisturbed foundation soil samples ranged from 115 to 117 pounds per cubic foot. In-situ moisture contents ranged from 16.5 to 17.5% of dry unit weight. SPT N-values (including U.C. Berkeley data) ranged from 56 to over 100 blows per foot for sandy material, and from 17 to 22 for clayey material.

The strength parameters for the foundation soil were determined based on laboratory consolidated-undrained triaxial shear tests conducted on three similar samples. The results are presented graphically in Drawing 3-16. Based on these results, effective stress strength values of $c' = 0$ and $\phi' = 33°$ were chosen to represent the strength of the upper six feet of foundation soil. Based on a comparison of SPT blow counts, the lower portion of the foundation soil was judged to be stronger than the upper zone. Therefore, in the lower portion of the foundation, effective stress strength values of $c' = 2000$ pounds per square foot and $\phi' = 40°$ were chosen for use in the stability analyses.

5.3.2 Liquefaction Potential

As discussed in Subsection 5.3.1, the foundation alluvium layer consists of either very stiff clay, or very dense sand with high SPT blow counts. According to present knowledge based on observed field performance, these types of materials are not susceptible to liquefaction. Therefore, the liquefaction potential of the alluvium is judged to be minimal.

5.4 STABILITY ANALYSIS: STATIC CONDITION

5.4.1 Analytical Methods and Loading Conditions

The stability of the dam embankment under static loading conditions was analyzed using the computer program STABL (Siegel, 1975). The program determines values of factor

of safety (ratio of available resisting forces to driving forces) for hypothetical failure surfaces of various configurations beneath a given slope.

Static stability was evaluated for the most critical static condition, which was taken to be normal maximum reservoir level; i.e., El. 235. Cross section A-A as shown in Drawing 5-1 represents the typical section of the dam analyzed using the soil properties for embankment and foundation materials as discussed in Subsections 5.2.1 and 5.3.1, respectively. For analysis purposes, the phreatic line through the embankment was developed based on the water table readings at piezometers in Borings 101 and 103 taken on November 29, 1988 when the reservoir elevation was at El. 235. Strength values were used as discussed in Subsections 5.2.1 and 5.3.1. A search for the failure surface with the minimum factor of safety was conducted by using the following options offered by computer program STABL:

1. Random generation search of a shallow failure surface near the upstream and downstream surfaces of the embankment.

2. Random generation search of deep failure surfaces.

5.4.2 Results and Conclusions

Computed factors of safety obtained from the analysis of the options discussed above and corresponding failure surfaces are shown on Drawing 5-2. The minimum factor of safety of the upstream slope was computed to be 2.50 for a deep failure, and 1.90 for a

surficial raveling failure. The minimum factor of safety of the downstream slope was calculated to be 2.23 for all reservoir levels.

These analytical results concur very well with observed field performance, where the dam has been proved to be stable under various loading conditions, with no evidence of instability such as sloughing or crest settlement.

5.5 STABILITY ANALYSIS: SEISMIC CONDITION

The analysis of the seismic stability of Pacific Grove Dam consisted of (1) liquefaction and post-earthquake stability analysis of the upstream slope of the embankment, and (2) permanent deformation analysis of the downstream slope of the embankment. The former analysis was chosen to analyze the upstream embankment slope because the most probable method of slope failure was judged to be through liquefaction of the upstream embankment shell material. The latter method was chosen to analyze the downstream slope since (1) the downstream shell materials are not saturated, and (2) as discussed in Subsection 5.3.2, the foundation soils were judged to be non-liquefiable. Analysis methodology and results are presented in the following subsections.

5.5.1 Liquefaction and Post-Earthquake Stability Analysis

5.5.1.1 Methodology: Using the generated data discussed in Subsection 4.3, the effect of MCE seismic loading on the dam was evaluated by performing a post-earthquake stability analysis. In this analysis, excess pore water pressures below the phreatic line induced by the earthquake are estimated, and input into the static stability analysis. Where initial liquefaction is calculated to occur, residual shear

strengths are substituted using the lower bound curve in Drawing 5-3 which shows the relationship between the normalized SPT N_1 value and residual strength, as developed by Seed (1987).

Susceptibility to liquefaction was evaluated as a Factor of Safety (FS) defined as the ratio of τ_{liq} (cyclic shear stress required for initial liquefaction) to τ_{av} (average cyclic shear stress induced in the deposit by the design earthquake), as follows:

Factor of Safety (FS) = τ_{liq} / τ_{av} ..... (1)

Where if: FS $\geq$ 1, liquefaction will not occur

FS < 1, liquefaction will occur

The average cyclic stress τ_{av} developed during the MCE seismic loading was estimated by performing a one-dimensional dynamic response analysis using the computer program SHAKE, as developed by Schnabel et al. (1972). Analyses were performed at columns 1 and 2, as located on Drawing 5-2, using (1) a modified Pasadena earthquake input motion, and (2) dynamic soil property G_{max} (maximum shear modulus), as determined from the following empirical equations (Seed et al., 1984b):

$G_{max} = 1000\ K_{2max}\ (\sigma_m')^{1/2}$ .....(2)

where: G_{max} = maximum shear modulus (psf)

$K_{2max} = 20\ (N_1)^{1/3}$ .....(3)

σ_m' = mean effective overburden pressure (psf)

The cyclic strength (i.e., cyclic stress ratio required to induce liquefaction for the given magnitude earthquake) was determined using Drawing 5-4 for a M = 6.5 MCE event. After evaluation of N-values obtained from SPTs performed in the upstream shell, an average N_1 value of 12 was selected to represent the upstream shell material. This value was adjusted to a value of 14 in order to account for the average 20% fines content of the shell material per Seed (1987). Cyclic strengths obtained from Drawing 5-4 were subsequently adjusted for confining pressure effect (K_σ) and for loading under initial shear stress (K_α) as proposed by Seed (1983).

In order to determine the initial shear stresses developed in the embankment, a two-dimensional static finite element analysis was performed using computer program FEADAM84 developed by Duncan et al. (1984). This method incorporates the non-linear and stress-history dependent stress-strain and volumetric strain properties of soils using the hyperbolic model developed by Duncan et al. (1980). The initial shear stress ratios obtained from the analysis were then used to obtain values of correction factor K_α. Using these results together with correlation curves proposed by Seed (1983), the adjusted cyclic strengths were obtained, and results shown in Table 5-1.

As indicated in Table 5-1, the upstream shell embankment material would likely liquefy during an MCE event. Based on Drawing 5-3, a minimum residual strength

TABLE 5-1

SUMMARY OF LIQUEFACTION ANALYSIS RESULTS

Sample Elev. (ft, NGVD)	Average Induced Shear Stress τ_{av} (psf)	Effective Overburden Pressure σ'_o (psf)	K_α	τ_{liq} (psf)	Factor of Safety (FS)
Column 1 (near upstream toe of embankment)					
220	137	140	2.0	64	<1
216	347	410	1.8	168	<1
212	517	680	1.7	264	<1
Column 2 (mid-slope, upstream side of embankment)					
229.5	151	170	2.0	78	<1
224.5	404	510	1.9	221	<1
220.0	575	810	1.7	314	<1
216.0	670	1080	1.6	394	<1
212.0	723	1350	1.5	462	<1

of 400 pounds per square foot was anticipated to be developed within the shell material after reaching an axial strain of about 20 to 25%. Based on this residual strength, a post-earthquake stability analysis was performed.

5.5.1.2 Results and Conclusions: The computed factor of safety obtained from the analysis was 1.65, with a corresponding maximum permanent vertical deformation on the order of 5 to 6 feet, as required for the material to develop residual

strength. The hypothetical failure plane is shown on Drawing 5-2. Because of the wide dam crest, settlement of the upstream shell above the failure plane will not reduce the maximum crest elevation of the dam.

Since the normal reservoir level is at El. 235, we judge that a minimal amount of water would initially seep through the downstream shell in the event of such movement. In the event that increased seepage occurs, a significant period of time (in the order of 50 days) would be required to saturate the downstream embankment material completely. It is estimated that one foot of drawdown (from El. 235 to El. 234) would be required to maintain the water level below the impervious core of the dam. In the dam's present condition, the outlet pipe is capable of drawing down one foot of water in approximately nine (9) hours, and therefore prevent saturation of the downstream portion of the dam from occurring.

5.5.2 Permanent Deformation Analysis

5.5.2.1 Methodology: The seismic analysis of the downstream shell was performed using a deformation analysis procedure developed by Makdisi and Seed (1977) for estimating permanent deformation in dams due to earthquake shaking. The method involves the following steps:

1. Determine the maximum crest acceleration and natural period of the embankment.

2. Determine the acceleration at which a potential sliding surface would develop a factor of safety of unity (the yield acceleration).

3. Determine the maximum average acceleration of the same sliding mass.

4. Determine the permanent deformation based on the earthquake magnitude, the natural period, and the average peak and yield accelerations.

The simplified cross section in Drawing 5-2 was used for the seismic stability analysis.

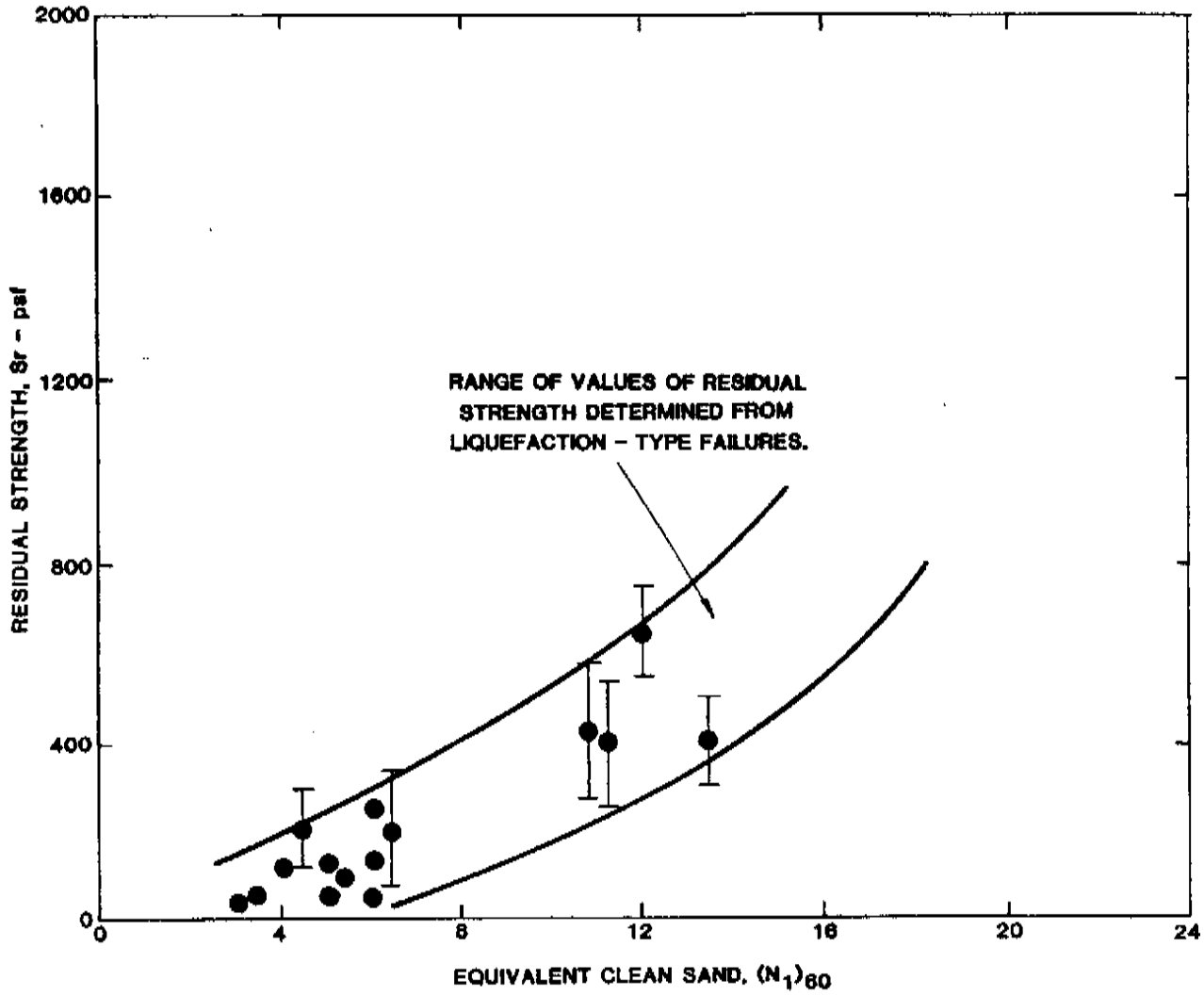
The maximum crest acceleration and the natural period of the embankment were estimated using simplified modal participation procedures as suggested by Makdisi and Seed (1977).

Available published data for sandy material proposed by Seed et al. (1984b) were used to determine shear modulus and damping ratio of embankment and foundation materials. The response spectra at the base of the embankment used in the analysis was generated from a one-dimensional dynamic response analysis utilizing computer program SHAKE, and the results shown in Drawing 5-5. The maximum crest acceleration of the embankment was calculated to be 2.3 g, and the fundamental period to be 0.22 seconds. The calculated shear strain was about 0.19%.

The yield acceleration k_y was determined using computer program STABL (Siegel, 1975), where an earthquake acceleration equal to 0.45 g was found to be required to achieve a factor of safety equal to one (unity).

The maximum average acceleration K_{max} of hypothetical sliding wedges analyzed was determined using a relationship between the maximum crest acceleration, maximum average acceleration, and base depth of a potential sliding wedge as developed by Makdisi and Seed (1977), and shown on Drawing 5-6. Using the fundamental period, maximum average acceleration and yield acceleration values for various hypothetical sliding wedges, estimated permanent crest deformations of wedges through the downstream slope of the embankment were then calculated using the design curve for a M 6.5 earthquake, as developed by Makdisi and Seed (1977), and shown on Drawing 5-7.

5.5.2.2 Results and Conclusions: The analysis results suggest that as a result of an MCE seismic event, maximum vertical displacement of the downstream slope on the order of 1 to 2 inches may be expected. The existing freeboard of 5 feet (El. 240 to El. 235) is adequate to accommodate such displacement. Based on the test data, analysis of downstream slope deformation, and an expected maximum vertical deformation of the upstream slope on the order of 5 to 6 feet, the dam is expected to remain stable due to the large width of the dam crest. In the event of increased seepage into the downstream portion of the embankment, the potential for instability would be decreased through drawdown of the reservoir through the existing outlet works system.



SOURCE: AFTER SEED (1987)

COMPARISON BETWEEN VALUES OF RESIDUAL STRENGTH AND N_1 VALUE

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: KGC	Date: 2/1/89
Checked by: CTD	Drawing No.: 5-3
Approved by: KBK	

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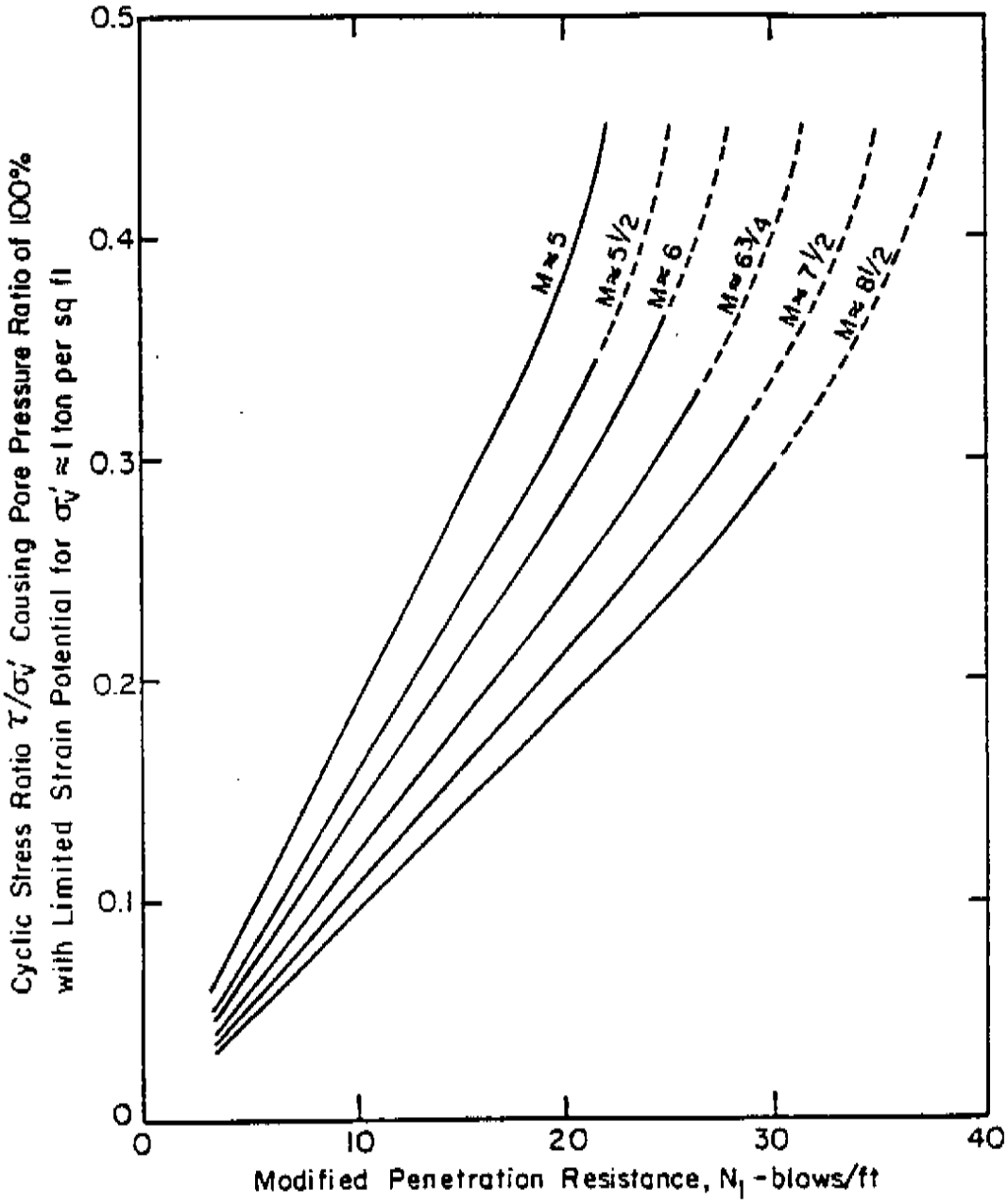

Source: Committee on Earthquake Engineering (1985).

EVALUATION OF LIQUEFACTION POTENTIAL FROM N_1 VALUE

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: LQL	Date: 2/3/89
Checked by: CTD	Drawing No.: 5-4
Approved by: KBK	

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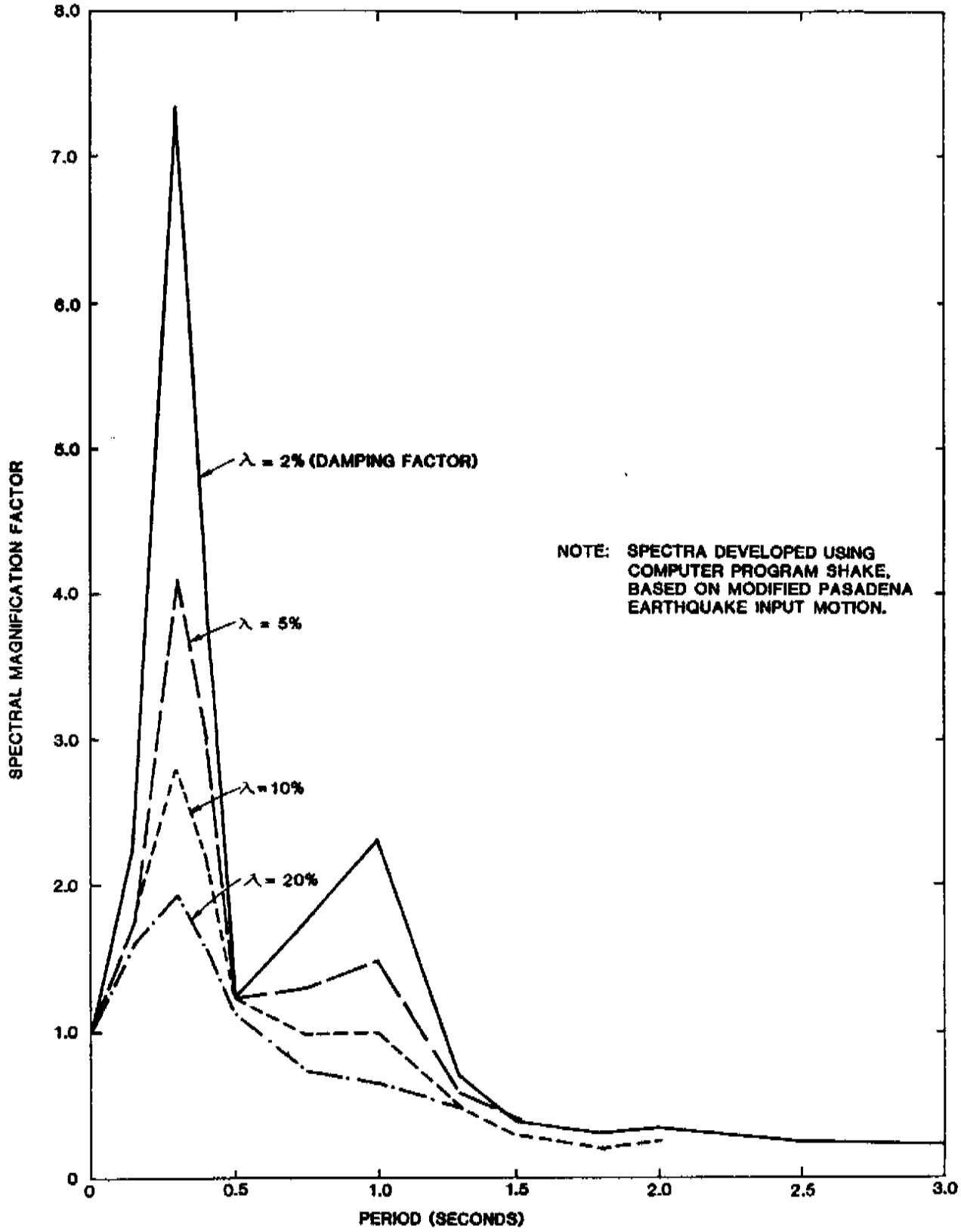

RESPONSE SPECTRA (BASE OF DAM)

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: KGC	Date: 2/2/89
Checked by: CTD	Drawing No.: 5-5
Approved by: KBK	

Converse Consultants Northern California
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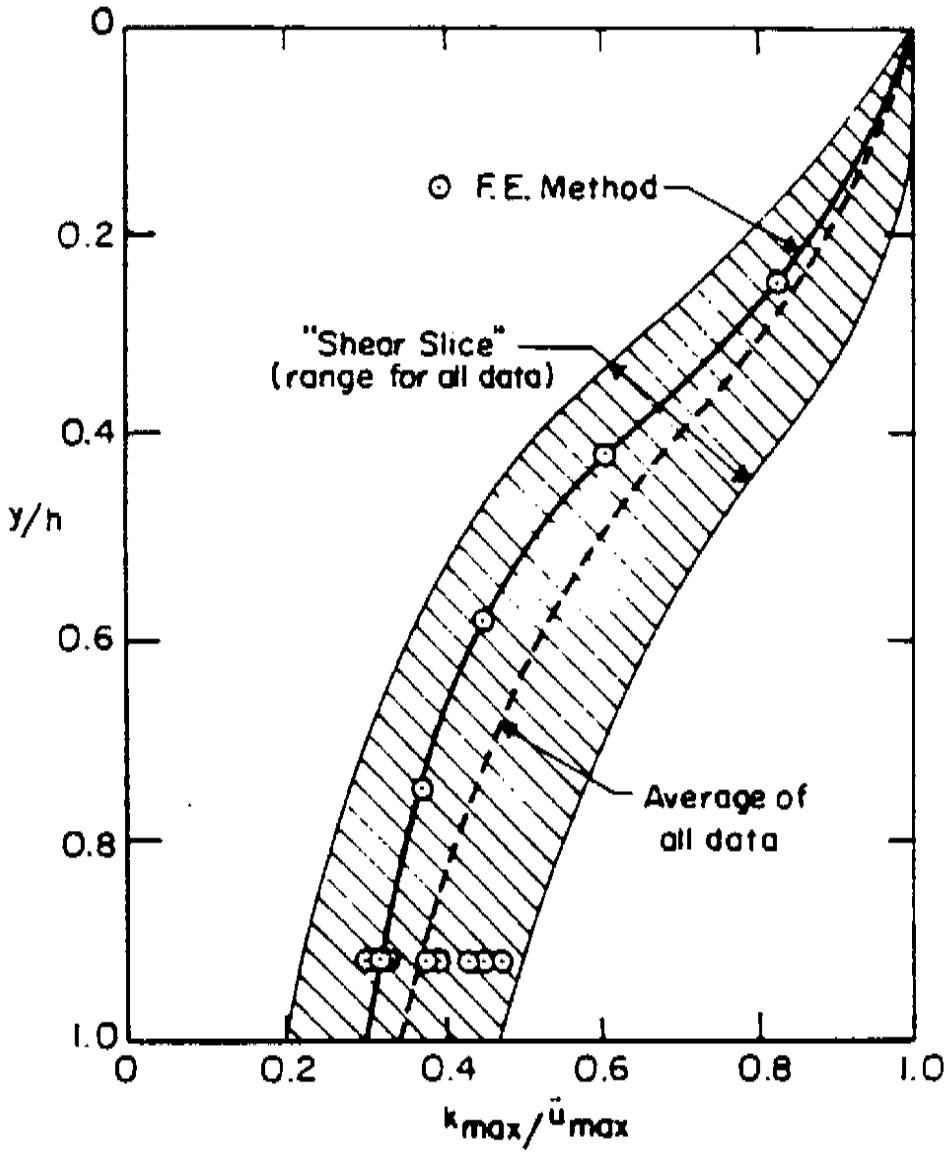


WHERE:

y = HEIGHT OF SLIDING WEDGE

h = HEIGHT OF EMBANKMENT

K_{max} = MAXIMUM AVERAGE ACCELERATION

U_{max} = MAXIMUM CREST ACCELERATION

SOURCE: MAKDISI & SEED (1977).

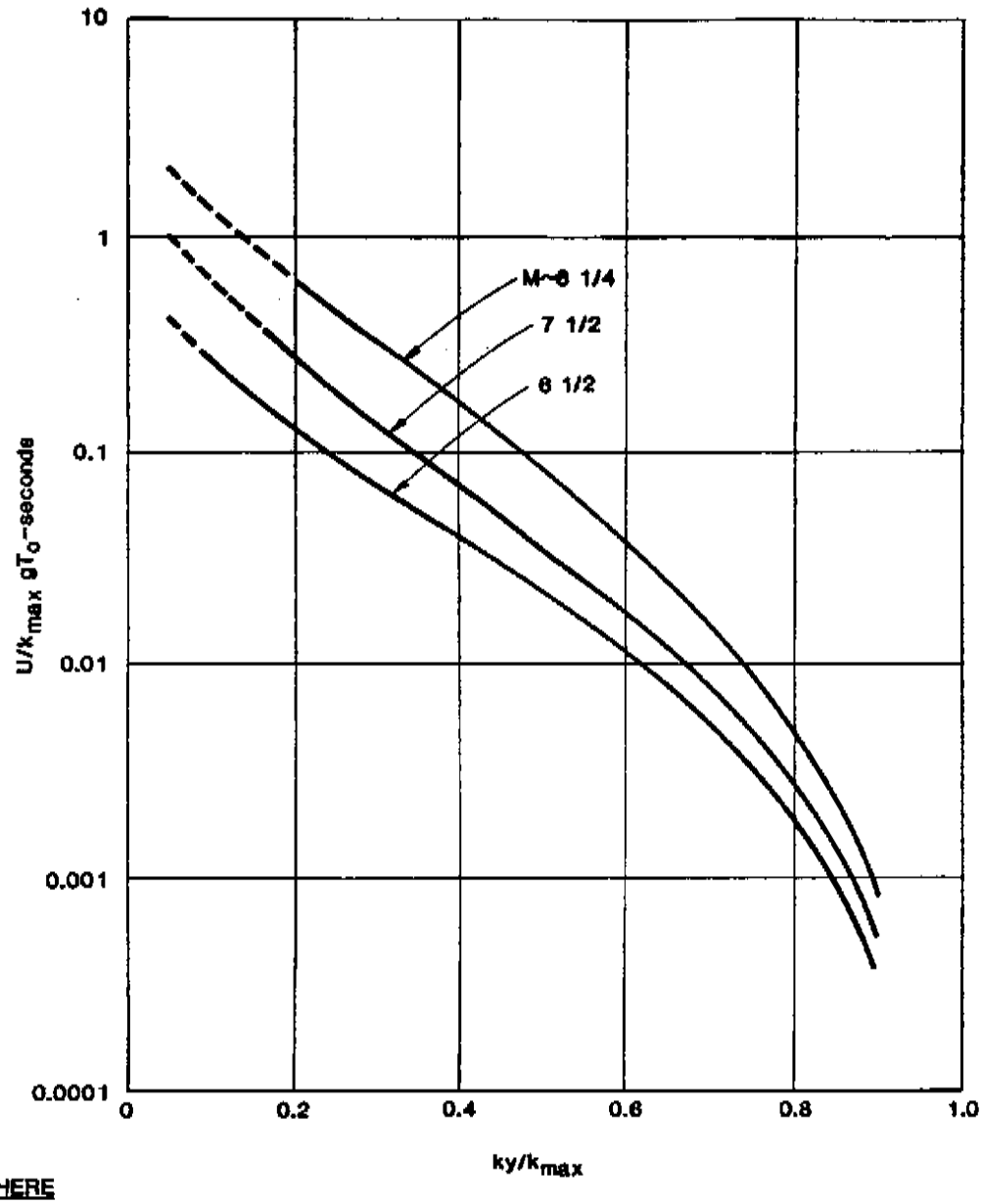
VARIATION OF "MAXIMUM ACCELERATION RATIO" WITH DEPTH OF SLIDING MASS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Converse Consultants
Northern California

Consulting Engineers
and Geologists

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: KGC	Date: 2/2/89
Checked by: CTD	Drawing No.: 5-6
Approved by: KBK	



WHERE

U = DISPLACEMENT

k_{max} = MAXIMUM AVERAGE ACCELERATION OF SLIDING WEDGE

T_O = FIRST NATURAL PERIOD (SEC.)

ky = YIELD ACCELERATION

AFTER MAKDISI & SEED (1977)

VARIATION OF AVERAGE NORMALIZED DISPLACEMENT WITH YEILD ACCELERATION

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale: AS SHOWN	Project No.: 88-34-731-06
Prepared by: KGC	Date: 2/2/89
Checked by: CTD	Drawing No.: 5-7
Approved by: KBK	

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6. HYDROLOGIC AND HYDRAULIC STUDIES

6.1 GENERAL

The scope of hydrologic and hydraulic studies performed for this investigation included (1) an evaluation of the September 11, 1987 Division of Safety of Dams (DSOD) Memorandum of Hydrologic Review (Appendix A), (2) a site inspection of the drainage basin, (3) development of the hydrology of the drainage basin, (4) evaluation of spillway and outlet works capacities, and hydraulics along David Avenue, and (5) development of mitigation measures.

6.2 PREVIOUS STUDIES

The 1987 DSOD Design Memorandum included an evaluation of the return period for the design storm, development of the design flood, and an evaluation of the spillway discharge capacity. The return period for the design storm used by DSOD was 1:750,000 years.

A 72-hour storm, duration interval was selected by the DSOD for analysis. An inflow flood hydrograph was developed using the U.S. Army Corps of Engineers' computer program HEC-1. Results of DSOD's analysis were as follows:

- Peak Inflow (cfs): 137.0
  (csm): 856
- Storm Precipitation (inches): 14.3
  (72-hour storm)
- Runoff (inches): 13.5
- Runoff (acre-feet): 115.2
- Percent Runoff: 94

The 72-hour storm, peak inflow, storm precipitation and runoff values were adopted and used in our analyses.

Flood inflow was subsequently routed by DSOD through the reservoir using HEC-1, assuming discharge through (1) the spillway alone, and (2) the spillway and the surface drainage ditch system around the perimeter of the reservoir. Overtopping of the dam was predicted in each case.

The DSOD analyses assumed a peak outflow through the spillway pipe and ditch system of 25 cfs and 5 cfs, respectively. The 5 cfs ditch flow appears to be conservative. Because of an existing restriction in the inlet structure, we judge the actual peak outflow through the spillway system to be on the order of 3.5 cfs.

As presented in Section 6.5, a reanalysis of the effect of inflow into the reservoir was performed using the existing DSOD study and data generated during this investigation, and also assuming that proposed mitigation measures recommended in Section 7 are adopted.

6.3 HYDROLOGY

6.3.1 Drainage Subareas

The reservoir drainage area was measured to be approximately 68 acres (0.11 square mile). Based on our field inspection, this drainage area was divided into two subareas for evaluation purposes: (1) the 52.5-acre area to the southeast (upslope) of David Avenue (designated as A_D); and (2) the 15.5-acre area northwest (downslope) of David

Avenue, including the reservoir (designated as A_R). These areas are shown on Drawing 6-1. On the basis of site inspection and air photo analysis, the portion of the topographic drainage area within the Presidio of Monterey was omitted from the reservoir drainage area, as flows within this area appear to be intercepted by the surface (street) and subsurface drainage systems within the Presidio which direct flow ultimately toward the east.

6.3.2 Estimated Inflow: David Avenue Subarea

Based on a proportional area relationship, the peak inflow contributed by subarea A_D uphill from David Avenue was estimated to be about 107 cfs (out of a total 137 cfs). This subarea is occupied by residences, lots, and paved streets. All runoff from this subarea was considered to ultimately be collected either on David Avenue, or the City of Monterey storm drain system located below Alice and Withers Streets, and David Avenue. Flows from this subarea would enter the reservoir area only through overtopping of the northwest sidewalk of David Avenue. Based on a 30-inch diameter storm drain below David Avenue at an average slope of 3.7%, a maximum discharge capacity of over 70 cfs was calculated for the storm drain system.

Based on our site reconnaissance, we believe that the storm drain system will be partially, but not completely blocked in the event of the design storm. For evaluation purposes, a storm drain outflow capacity of 20 cfs was used. The remaining 87 cfs outflow was considered to become the maximum flow on David Avenue.

6.3.3 Estimated Inflow: Reservoir Subarea

Runoff collected within the 15.5-acre subarea A_R will drain to (1) the storm drains, (2) the surface drainage ditch that surrounds the reservoir, and (3) the reservoir. In our analysis, we conservatively evaluated the 750,000-year design storm assuming that all of the runoff collected in the drainage area would flow directly into the reservoir.

The normal maximum pool elevation for the reservoir is at approximately El. 235, or five feet below dam crest El. 240. Table 6-1 shows the estimated storage capacities for the reservoir. The available storage between El. 235 and 240 is approximately 25 acre-feet. Our estimate of the total volume of runoff for the 72-hour design storm (for A_R) is approximately 16.6 acre-feet, using a 0.9 coefficient of runoff which we consider to be very conservative. Data in Appendix B shows 0.8 to be the maximum runoff for this type of watershed. These results show that the available storage of 25 acre-feet is about 1½ times the volume of the 72-hour, 750,000-year storm. The available storage is sufficient to contain the design storm with considerable reserve capacity to store antecedent storms. Assuming no contributing flows from subarea A_D, we consider this condition to provide a safe condition for the reservoir so that there would be no overtopping of the dam during the design flood condition of a 750,000-year design storm, and lesser antecedent storms.

TABLE 6-1

ELEVATION-CAPACITY
PACIFIC GROVE RESERVOIR

ELEVATION	ACRE-FEET
240	81.2
239	75.5
238	70.1
237	65.1
236	60.3
235	56.0
243	51.9
233	48.0
232	44.3
231	40.9
230	37.5
225	22.0
220	7.8
218	2.9

For information purposes, the spillway capacity and storage were evaluated assuming a reservoir level of El. 239 (spillway crest, or four feet above normal storage) and the first six hours of the design storm (P = 4.85 inches). The runoff (5.6 acre-feet) from subarea A_R can be stored between El. 239 and El. 240. If the spillway inlet structure was enlarged to increase the current 3.5 cfs maximum spillway discharge to 7 cfs, a maximum reservoir level of approximately El. 239.7 would be obtained. Subsequent flows during the 72-hour storm would have lesser outflow.

6.4 HYDRAULICS

6.4.1 David Avenue

Flows from subarea A_D southeast of David Avenue could possibly enter the reservoir area on the northwest side of David Avenue through a low point near road Sta. 9+40 as shown on Drawing 6-2. To prevent this occurrence, a barrier wall can be constructed along the northwest side of David Avenue. The height of wall that would be required to prevent runoff from entering the reservoir area was then estimated.

As shown on Drawing 6-2, the control point for the flows would be near the highest level near Sta. 10+58. To accommodate a design flow of 87 cfs at Sta. 10+58, a wall extending to El. 263.8 would be required to prevent overtopping of water along the low point near Sta. 9+40.

A wall with the following design features would prevent overflow of runoff from subarea A_D into the reservoir area: (1) top of wall at El. 265.0 from Sta. 8+55 to 10+58, (2) varying top elevation from 265.0 at Sta. 10+58 to El. 264.0 at Sta. 11+10, and (3) end of wall at Sta. 11+10. The profile of the wall is shown on Drawing 6-2.

6.4.2 Outlet Works System

The existing reservoir outlet consists of a 700-foot long, 20-inch diameter pipeline beginning at the gatehouse at the north end of the reservoir (see Drawing 2-1). The outlet pipe extends northward from invert El. 215 at the gatehouse, along Gate Street to a 6-inch diameter butterfly valve (at El. 110) and a 200-foot long 12-inch diameter line on Sinex Street. Flows discharge to a surface street gutter west along Sinex Street.

The discharge line with the existing 6-inch diameter butterfly valve will currently evacuate approximately the upper 8 feet (37 acre-feet) of the existing reservoir in approximately 2.6 days (63 hours) and will draw down the first foot of the reservoir from El. 240 to El. 239 in approximately 9 hours. If the 6-inch valve is replaced with a 12-inch butterfly valve, the upper 8 feet of reservoir water (El. 240 to El. 232) can be drawn down in about 1.9 days, and the first foot of drawdown from El. 240 to El. 239 can be accomplished in approximately 6.5 hours. These release times are estimates and can be confirmed by releases under actual conditions for periods of 2 hours or less.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

Based on the results of our investigation, our conclusions are presented below.

7.1.1 Dam

1. Under critical static loading conditions (i.e., normal maximum reservoir level), the results of our stability analysis indicate that the factors of safety for Pacific Grove Dam are within allowable limits.

2. Under critical seismic loading conditions (i.e., MCE loading), the dam embankment may sustain deformation in the form of settlement. Minor settlement of the downstream portion of the crest on the order of one to two inches may occur. Settlement of a part of the upstream portion of the crest on the order of five to six feet may occur due to initial liquefaction of the saturated portion of the upstream embankment shell. However, the results of our analyses indicate that the dam crest is sufficiently wide (60 feet) so that at least one half of the crest will remain intact, thus maintaining the existing freeboard and storage capacity of the dam. In such an event, drawdown of the reservoir may be necessary to minimize potential saturation of the downstream portion of the embankment.

7.1.2 Hydrologic/Hydraulic Studies

1. The existing reservoir, spillway, and outlet works system is not adequate to pass the 72-hour, 750,000-year design storm from the 68-acre drainage area without

overtopping of the dam. Our studies indicate that the design storm inflows to the reservoir can be significantly reduced by preventing flow from the portion of the drainage area southeast of David Avenue (52.5 acres) from entering the reservoir. The inflow from the remaining 15.5 acres can be stored between the normal reservoir water surface (El. 235) and crest of dam (El. 240).

2. The full hydraulic capacity of the spillway system is not realized due to a constriction at the spillway inlet structure. Widening of the inlet structure will result in enabling the spillway to operate at full hydraulic capacity.

7.2 RECOMMENDATIONS

7.2.1 David Avenue

A floodwall should be erected along the reservoir property boundary at David Avenue in order to prevent flood inflow uphill from David Avenue from entering the reservoir. Figure 6-2 presents preliminary sketches and details of such a wall. Section A-A shows the wall along the existing sidewalk and can be used when an increase in elevation of 1 to 2 feet is required. Another section shows an L-type retaining wall with backfill where a slightly higher section is required from Sta 9+10 to Sta. 9+70. We estimate the construction costs of this mitigation to be on the order of $15,000.

7.2.2 Spillway Inlet Structure

To improve the existing spillway inlet conditions, the inlet structure should be widened from the existing 1.5-foot inlet dimension to approximately 5 feet, as shown in Drawing 7-1. The 12-inch pipe which connects to the storm sewer drainage system should also

be flared at the intake of the pipe. This modification will improve the flow conditions into the spillway from a maximum of approximately 3.5 cfs to 7 cfs. It should be noted that the design capacity of the pipe is approximately 7 cfs, and the estimated discharge capacity of the reservoir perimeter ditch, as estimated by DSOD (and accepted by Converse), is approximately 5 cfs. The total capacity of the spillway/ surface drainage system would therefore be approximately 12 cfs, which our review indicates should sufficiently discharge the reservoir inflows without dam overtopping provided all recommendations are followed.

We estimate the costs to modify the spillway inlet to be approximately $3,000, assuming that the spillway would be modified at approximately the same time the wall along David Avenue is constructed.

7.2.3 Outlet Works System

We recommend that the existing 6-inch diameter outlet butterfly valve be replaced with a 12-inch diameter butterfly valve. This modification will increase the capacity of the outlet and provide for a more rapid drawdown of the reservoir. We anticipate that this construction would be performed by onsite Cal-Am personnel for a cost of less than $2,000.

8. REFERENCES

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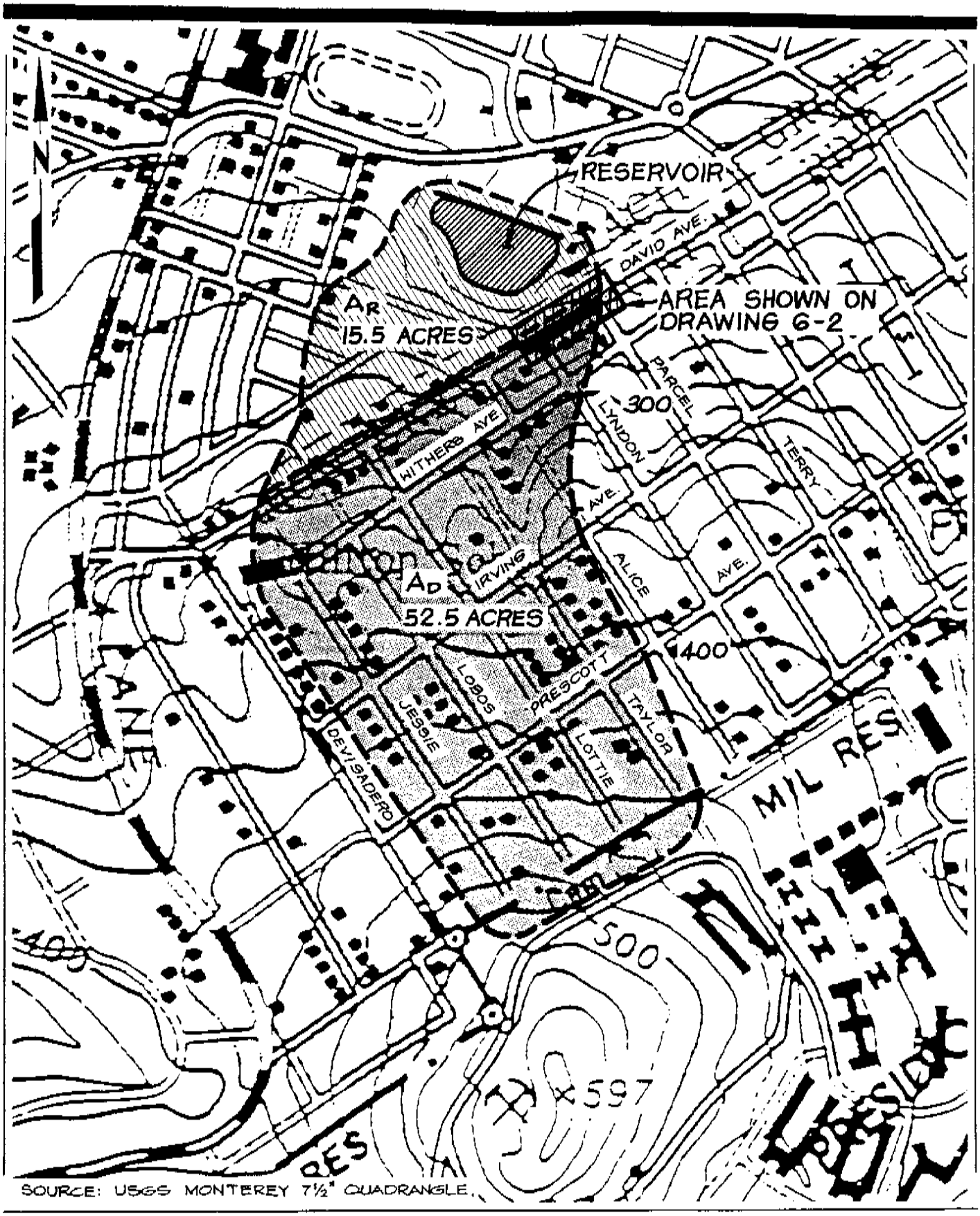


SOURCE: USGS MONTEREY 7½" QUADRANGLE.

RESERVOIR DRAINAGE BASIN AREA

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale 1" = 500'	Project No. 88-34-731-01
Prepared by CCR	Date 1-31-89
Checked by KBK	Drawing No. 6-1
Approved by KBK	

Converse Consultants Northern California

Consulting Engineers and Geologists

APPENDIX A

DSOD MEMORANDUM OF HYDROLOGIC REVIEW

file
642-3

Memorandum of Hydrologic Review

Pacific Grove Dam, No. 642-3

By Penny S. Ross PSR 9/24/87

September 11, 1987

General

The purpose of this hydrologic review was to resolve an action item proposed in the August 8, 1984 Periodic Appraisal. Item D2 of the Periodic Appraisal states:

"A hydrology/spillway study should be prepared on a medium priority basis. The study will include evaluating the bypass ditch and updating the damage potential classification."

The damage potential classification was updated, and two separate hydrologic conditions were evaluated. One evaluation routed inflows through the spillway and the bypass ditch, the other routed inflows only through the spillway. Both evaluations determined that the dam will overtop during the design storm.

Hydrologic Analyses

The drainage area for this dam is 0.16 square miles as planimetered on the USGS 15-minute Monterey quadrangle map. The dam has a Total Class Weight of 24. The watershed is primarily comprised of paved streets, and has a mean annual precipitation (MAP) of 16 inches.

Previous hydrologic analyses assumed that the sewer drain system would intercept the runoff and divert it away from the reservoir. The residential area there is very old and the sewer drain system has a capacity of approximately 1:100 year event. The return period for the design storm is 1:750,000 years. So, the sewer drain system will not be able to channel flows away from the reservoir.

A synthetic Clark unit hydrograph was developed for the drainage area using the procedures outlined in the current DSOD Hydrology Manual. The unitgraph parameters used were:

Time of Concentration (TC) ---- 0.29 hours
Clark's R (R) ---- 0.58 hours

The recurrence interval of 750,000 years corresponds to a kj, standard deviation, of 9.9 and a risk level of 0.0002.

The following precipitation stations were used to develop the rain duration values:

Del Monte Station - Short Duration
Fort Ord - Long Duration

A 72-hour storm duration was selected with 10-minute computation intervals. The precipitation increments were centrally arranged into a bell curve distribution using computer program HEC-1.

The inflow flood hydrograph was computed from the precipitation and unit hydrograph parameters with program HEC-1. A loss rate parameter (STRKR) of 0.15 was used. The results are summarized as follows:

Peak Inflow, cfs	137.0
Peak Inflow, csm	856
Storm Precipitaiton, inches	14.3
Runoff, inches	13.5
Runoff, acre-feet	115.2
Percent Runoff	94

The inflow was routed through the reservoir using Program HEC-1 for two different spillway capacities. The first spillway capacity combined the 12-inch diameter spillway pipe with the bypass ditch that surrounds the reservoir. This ditch is generally filled with pine needles and debris, so it is rarely able to transport its theoretical capacity. The other analysis used only the capacity of the 12-inch diameter spillway pipe. The results are summarized as follows:

	Spillway Pipe and Bypass ditch	Spillway Pipe
Peak Outflow, cfs	30	25
Peak Outflow, csm	188	156
Residual Freeboard, ft.	-0.6	-2.9
Maximum Water Surface Elev. ft.	243.6	245.9

Conclusion

The dam is hydrologically inadequate for the design storm with current embankment conditions.

Recommendation

This analysis did not incorporate any effects that the street grading would have on inflows. The owner may be able to obtain more information and reevaluate the hydrology to determine that the spillway is adequate.

PRoss:ks
9/22/87

Entered 1-12-87

~~1. Statistical File Tech.~~
2. Files

Department of Water Resources
Division of Safety of Dams

FLOOD ESTIMATE AND SPILLWAY ANALYSIS

Name Pacific Grove Dam Type of Dam Earth Dam No. 642-3

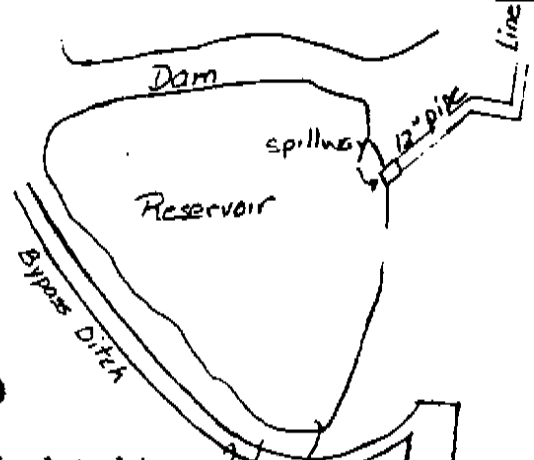
County Monterey Hazard Class 7C Total Class Weight 24

Located On Off stream storage Tributary to —

The dam and/or spillway in this analysis is: proposed / under construction / X as built

I. DRAINAGE BASIN		II. DAM AND RESERVOIR	
1. Drainage Area - Sq. Mi.	0.16	1. Reservoir Area @ S/W-Ac	–
2. Impaired?	no	2. Res. Capac. to S/W-AF	73
3. Mean Elevation - USGS	420	3. Surcharge Storage - AF	0.9
4. Mean Latitude	36°36'15"	4. Spillway Crest El. USGS	240.8
5. Mean Longitude	122°55'	5. Dam Crest El. USGS	243.0
6. Annual Precip. - In.	16	6. Total Freeboard	2.2
Elevation Index	—	7. Operating Freeboard	1.2
8. Cover Factor, C	—	8. Max. Storage Level	241.8
		9. Gating Code	2
		10. Spillway Rating Q	$Q = \frac{2g}{3} L H_1^{3/2} = S_c^{1/2}$ $Q = VA$
		11. Last Construction Completion Date	1953

Sketch of Spillway, according to ~~to~~ File Drawings Date 9/11/87



Calculated by [illegible] Date 9/11/87 Approved by [illegible] Date 12-87

~~Project Engineer~~
Regional Engineer

DWR 852 (Rev. 4/87)

III. FLOOD HYDROLOGY

	S/W Pipe & Bypass Ditch	S/W Pipe			
1. Type Estimate	1:750,000	1:750,000			
2. Storm Precip. - In.	14.3	14.3			
3. a. Precip. Dur. - Hr.	72.0	72.0			
b. K(J) Std. Dev.	9.9	9.9			
c. Risk Level	0.0002	0.0002			
4. Peak Inflow - cfs	137.0	137.0			
5. Peak Inflow - csm	856	856			
6. Runoff - AF	115.2	115.2			
7. Runoff - In.	13.5	13.5			
8. Runoff Coeff.	94	94			
9. Div. Inflow - cfs	NO	NO			
10. Routed?	Yes	Yes			
11. Peak Outflow - cfs	30	25			
12. Peak Outflow - csm	188	156			
13. Resid. Freeboard	-0.6	-2.9			
14. Max. Res. Stage	243.6	245.9			
15. Max. Spill. Cap. - cfs	28.1	13.5			
16. Max. Spill. Cap. - csm	176	84			
17. TC - Hr.	0.29	0.29			
18. R/TC	2	2			
19. a. STRKR	0.15	0.15			
b. Loss Rate	—	—			
20. Check Adopted Flood	✓				

REMARKS:

Computation Sheet

STATE OF CALIFORNIA
RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

Project: Pacific Grove Dam No 642-3 Sheet:

Feature: Hydrology Designed: GC Date: 7/3/87

Item: Spillway Capacity Checked: PSR Date: 9/11/87

$$Q = \frac{1.49}{n} A R_h^{2/3} S_o^{1/2}$$

$$Q = VA$$

$n = 0.014$

$S_o = 0.02$

$S_o^{1/2} = .014$

$$R_h = \frac{A}{P}$$

H	A (ft²)	R_h	V	Q
0	0	0	—	0
0.5	.39 .4	1.57 $R_h^{2/3} = 1.35$	—	2.3
1.0	.8	—	8.5	6.8
1.5	.8	—	12.7	10.2
2.0	.8	—	15.8	12.7
2.2	.8	—	16.9	13.5

1.6 — 2.3
1.4 — 2.0
— 1.5

$$V^2 = \frac{(0.9)(2.9)}{(0.018)(20)}$$

$$V^2 = 2gh$$

Computation Sheet

STATE OF CALIFORNIA
RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

Project: Pacific Grove Dam No 642-3 Sheet:

Feature: Hydrology Designed: G.C. Date: 7/3/87

Item: Spillway Capacity Checked: PSR Date: 9/13/87

Elevation	Surcharge Capacity	Q_{SW}	Q_{TOTAL}
240.8	76	0	14.6
241.3	78	2.3	16.9
241.8	80	6.8	21.4
242.3	82	10.2	24.8
242.8	84	12.7	27.3
243.0	85	13.5	28.1

$Q_{DITCH} = 14.6$ cfs

$Q_{TOTAL} = Q_{SW} + Q_{DITCH}$

Computation Sheet

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

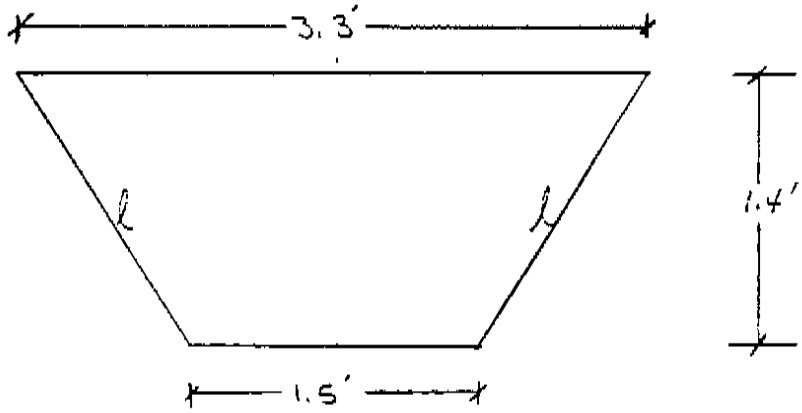
Project Pacific Grove Dam — Sheet

Feature Hydrology — Designed PSR — Date 11/30/87

Item Open Channel capacity — Checked — Date

Reference "Elementary Fluid Mechanics" by Vennard + Street, 1975

Approximate dimensions of open channel bypass ditch



$l = \sqrt{1.4^2 + 1.8^2}$

$l = 2.3$

$P = 2l + 1.5 = 6.1$

approximate slope:

Sand Road (entrance) = elev. 255'

Forest Ave (exit) = elev. 245'

Length ≐ 600 ft

$$Q = \left(\frac{1.49}{n}\right) A R_h^{2/3} S_o^{1/2}$$

$n = 0.035$

$A = (1.4)(1.5)\,ft^2 + \frac{1}{2}(1.8)(1.4)\,ft^2 = 3.4\,ft^2$

$R_h = A/P = 3.4/6.1 = 0.6$ ft.

$S_o = \Delta h/l = 10/600 = 0.02$

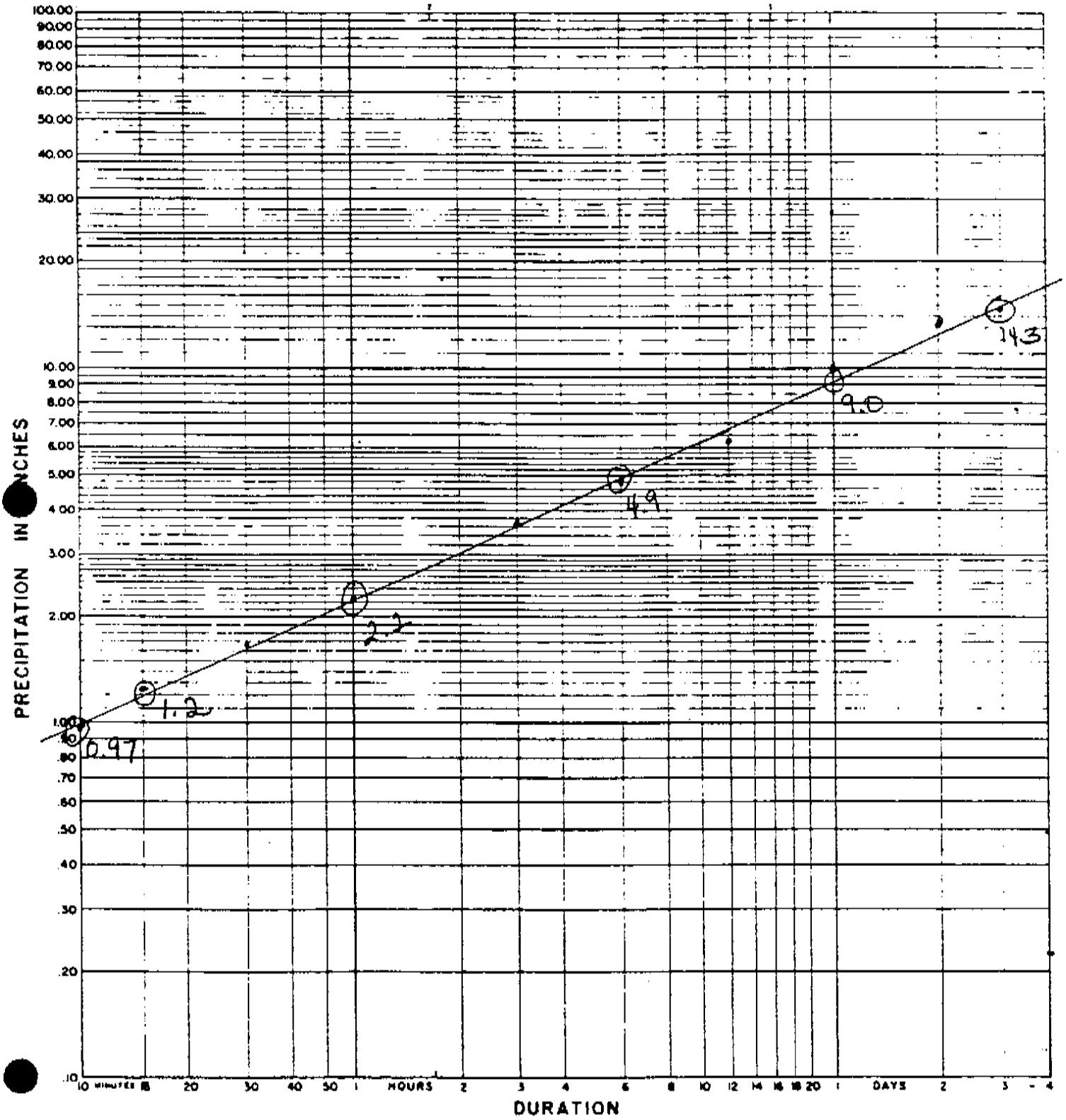
$$Q = \left(\frac{1.49}{0.035}\right)(3.4)(0.6^{2/3})(0.02^{1/2})$$

$= 14.6$ cfs

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

PRECIPITATION DEPTH - DURATION - FREQUENCY CURVE

NAME OF DAM Pacific Grove No 642-3 CALCULATED BY PSR DATE 1/30/87



DWR 3414

Computation Sheet

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

Project Pacific Grove Dam No. 642-3 Sheet
Feature Hydrology Designed BSR Date 1/30/87
Item Precipitation Checked Date

DA = 0.1 mi²

S.L. = 3000 ft = 0.57 mi

TC+R = 1.99 (S.L.)^1.49

R/TC = 2 R = 2TC

STC = 1.99(0.57)^1.49

TC = 0.29 hr = 17 min

MAP = 16 inches

Use Short Duration Carmel Valley Station Lat 36.6° Lng = 121.867
Long Duration Fort Ord Lat 36.683° Lng = 121.767

$$P_{ij} = \frac{Mean}{A} * MAP\left(1 + (K_j * CV_i)\right)$$

SKV = 15
Kj = 9.9 SK = 1.3
Rsk = 0.0002
Return Pd = 7.5*10^5 yr
1 750,000 yr

TIME	Mean/A	CV_i	P_{ij}
5m	0.0082	0.403	0.66
10m	0.0122	0.403	0.97
15m	0.0156	0.403	1.25
30m	0.0205	0.403	1.64
1h	0.0281	0.403	2.24
3h	0.0457	0.403	3.65
6h	0.0607	0.403	4.85
12h	0.0785	0.403	6.27
1d	0.125	0.403	9.98
2d	0.1574	0.430	13.24
3d	0.1697	0.430	14.27

DWR 133-C (4-66)

1

****
FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) - FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
MODIFIED BY CALIFORNIA DIVISION OF SAFETY OF DAMS APRIL 1985
****

Spillway + Bypass ditch

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

1 HEC-1 INPUT PAGE 1

```
      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

*** FREE ***
         1          ID   PACIFIC GROVE DAM NO. 642-3
         2          ID   INLOW HYDROGRAPH
         3          ID   1:750,000 YEAR STORM
         4          IT      10 08DEC87       0     433

         5          KK       1PACIFIC GROVE
         6          KM   INFLOW HYDROGRAPH
         7          BA    0.1
         8          BF      0       0     1.0
         9          PX   0.97     1.2     2.2     4.9     9.0    14.3
        10          PY     10      15      50     360    1440    4320
        11          LE   0.15       0     3.5     0.4      80
        12          UC   0.29    0.58

        13          KK       2PACIFIC GROVE
        14          KM   FLOOD ROUTING
        15          RS      1    ELEV   240.8
        16          SV     76      78      80      82      84      85
        17          SQ   14.6    16.9    21.4    24.8    27.3    28.1
        18          SE  240.8   241.3   241.8   242.3   242.8   243.0
        19          ZZ
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1

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FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) - FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
MODIFIED BY CALIFORNIA DIVISION OF SAFETY OF DAMS APRIL 1985
****

PACIFIC GROVE DAM NO. 642-3
INLOW HYDROGRAPH
1:750,000 YEAR STORM

```
IT        HYDROGRAPH TIME DATA
               NMIN          10  MINUTES IN COMPUTATION INTERVAL
              IDATE      8DEC87  STARTING DATE
              ITIME        0000  STARTING TIME
                 NQ         433  NUMBER OF HYDROGRAPH ORDINATES
             NDDATE     11DEC87  ENDING DATE
             NDTIME        0000  ENDING TIME

         COMPUTATION INTERVAL     .17 HOURS
              TOTAL TIME BASE   72.00 HOURS

    ENGLISH UNITS
```

```
            **************
            *            *
 5 KK       *      1     *     PACIFIC GROVE
            *            *
            **************
                          INFLOW HYDROGRAPH

          SUBBASIN RUNOFF DATA

 7 BA       SUBBASIN CHARACTERISTICS
                 TAREA          .10  SUBBASIN AREA

 8 BF       BASE FLOW CHARACTERISTICS
                 STRTQ          .00  INITIAL FLOW
                 QRCSN          .00  BEGIN BASE FLOW RECESSION
                 RTIOR      1.00000  RECESSION CONSTANT

            PRECIPITATION DATA

                                 DEPTH-DURATION CURVE DATA
 9 PX                DEPTH       .97      1.20      2.20      4.90      9.00     14.30
10 PY              DURATION     10.00     15.00     50.00    350.00   1440.00   4320.00

11 LE       EXPONENTIAL LOSS RATE
                 STRKR          .15  INITIAL VALUE OF LOSS COEFFICIENT
                 DLTKR          .00  INITIAL LOSS
                 RTIOL         3.50  LOSS COEFFICIENT RECESSION CONSTANT
                 ERAIN          .40  EXPONENT OF PRECIPITATION
                 RTIMP        50.00  PERCENT IMPERVIOUS AREA

12 UC       CLARK UNITGRAPH
                    TC          .29  TIME OF CONCENTRATION
                     R          .58  STORAGE COEFFICIENT

            SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

                                                  ***

                                ACCUMULATED PRECIPITATION DEPTH (INCHES) - DURATION (HOURS) VALUES
*   .97    .17 *  5.61  8.17 *  7.57 16.17 *  9.03 24.17 * 10.18 32.17 * 11.18 40.17 * 12.07 48.17 * 12.88 56.17 * 13.62 64.17 *
*  1.25    .33 *  5.66  8.33 *  7.60 16.33 *  9.05 24.33 * 10.20 32.33 * 11.20 40.33 * 12.09 48.33 * 12.89 56.33 * 13.64 64.33 *
*  [illegible]  .50 *  5.71  8.50 *  7.64 16.50 *  9.08 24.50 * 10.23 32.50 * 11.22 40.50 * 12.11 48.50 * 12.91 56.50 * 13.65 64.50 *
*  [illegible]  .67 *  5.76  8.67 *  7.67 16.67 *  9.10 24.67 * 10.25 32.67 * 11.24 40.67 * 12.12 48.67 * 12.93 56.67 * 13.67 64.67 *
*  2.03    .83 *  5.81  8.83 *  7.70 16.83 *  9.13 24.83 * 10.27 32.83 * 11.26 40.83 * 12.14 48.83 * 12.94 56.83 * 13.68 64.83 *
*  2.20   1.00 *  5.85  9.00 *  7.74 17.00 *  9.15 25.00 * 10.29 33.00 * 11.28 41.00 * 12.16 49.00 * 12.96 57.00 * 13.70 65.00 *
*  2.36   1.17 *  5.90  9.17 *  7.77 17.17 *  9.18 25.17 * 10.31 33.17 * 11.30 41.17 * 12.18 49.17 * 12.98 57.17 * 13.71 65.17 *
*  2.50   1.33 *  5.95  9.33 *  7.80 17.33 *  9.21 25.33 * 10.34 33.33 * 11.32 41.33 * 12.19 49.33 * 12.99 57.33 * 13.73 65.33 *
*  2.64   1.50 *  5.99  9.50 *  7.84 17.50 *  9.23 25.50 * 10.36 33.50 * 11.34 41.50 * 12.21 49.50 * 13.01 57.50 * 13.74 65.50 *
*  2.76   1.67 *  6.04  9.67 *  7.87 17.67 *  9.26 25.67 * 10.38 33.67 * 11.36 41.67 * 12.23 49.67 * 13.02 57.67 * 13.75 65.67 *
*  2.88   1.83 *  6.09  9.83 *  7.90 17.83 *  9.28 25.83 * 10.40 33.83 * 11.37 41.83 * 12.25 49.83 * 13.04 57.83 * 13.77 65.83 *
*  3.00   2.00 *  6.13 10.00 *  7.93 18.00 *  9.31 26.00 * 10.42 34.00 * 11.39 42.00 * 12.26 50.00 * 13.05 58.00 * 13.79 66.00 *
*  3.11   2.17 *  6.18 10.17 *  7.97 18.17 *  9.33 26.17 * 10.44 34.17 * 11.41 42.17 * 12.28 50.17 * 13.07 58.17 * 13.80 66.17 *
*  3.21   2.33 *  6.22 10.33 *  8.00 18.33 *  9.36 26.33 * 10.47 34.33 * 11.43 42.33 * 12.30 50.33 * 13.09 58.33 * 13.81 66.33 *
*  3.31   2.50 *  6.26 10.50 *  8.03 18.50 *  9.38 26.50 * 10.49 34.50 * 11.45 42.50 * 12.31 50.50 * 13.10 58.50 * 13.83 66.50 *
*  3.41   2.67 *  6.31 10.67 *  8.06 18.67 *  9.41 26.67 * 10.51 34.67 * 11.47 42.67 * 12.33 50.67 * 13.12 58.67 * 13.84 66.67 *
*  3.50   2.83 *  6.35 10.83 *  8.09 18.83 *  9.43 26.83 * 10.53 34.83 * 11.49 42.83 * 12.35 50.83 * 13.13 58.83 * 13.86 66.83 *
*  3.59   3.00 *  6.39 11.00 *  8.12 19.00 *  9.46 27.00 * 10.55 35.00 * 11.51 43.00 * 12.37 51.00 * 13.15 59.00 * 13.87 67.00 *
*  3.68   3.17 *  6.43 11.17 *  8.15 19.17 *  9.48 27.17 * 10.57 35.17 * 11.53 43.17 * 12.38 51.17 * 13.16 59.17 * 13.89 67.17 *
*  3.77   3.33 *  6.48 11.33 *  8.19 19.33 *  9.51 27.33 * 10.59 35.33 * 11.55 43.33 * 12.40 51.33 * 13.18 59.33 * 13.90 67.33 *
*  3.85   3.50 *  6.52 11.50 *  8.22 19.50 *  9.53 27.50 * 10.61 35.50 * 11.56 43.50 * 12.42 51.50 * 13.20 59.50 * 13.92 67.50 *
*  3.93   3.67 *  6.56 11.67 *  8.25 19.67 *  9.56 27.67 * 10.64 35.67 * 11.58 43.67 * 12.43 51.67 * 13.21 59.67 * 13.93 67.67 *
*  4.01   3.83 *  6.60 11.83 *  8.28 19.83 *  9.58 27.83 * 10.66 35.83 * 11.60 43.83 * 12.45 51.83 * 13.23 59.83 * 13.95 67.83 *
*  4.09   4.00 *  6.64 12.00 *  8.31 20.00 *  9.60 28.00 * 10.68 36.00 * 11.62 44.00 * 12.47 52.00 * 13.24 60.00 * 13.96 68.00 *
*  4.16   4.17 *  6.68 12.17 *  8.34 20.17 *  9.63 28.17 * 10.70 36.17 * 11.64 44.17 * 12.48 52.17 * 13.26 60.17 * 13.97 68.17 *
*  4.24   4.33 *  6.72 12.33 *  8.37 20.33 *  9.65 28.33 * 10.72 36.33 * 11.66 44.33 * 12.50 52.33 * 13.27 60.33 * 13.99 68.33 *
*  4.31   4.50 *  6.76 12.50 *  8.40 20.50 *  9.68 28.50 * 10.74 36.50 * 11.68 44.50 * 12.52 52.50 * 13.29 60.50 * 14.00 68.50 *
*  4.38   4.67 *  6.80 12.67 *  8.43 20.67 *  9.70 28.67 * 10.76 36.67 * 11.69 44.67 * 12.53 52.67 * 13.30 60.67 * 14.02 68.67 *
*  4.45   4.83 *  6.84 12.83 *  8.46 20.83 *  9.72 28.83 * 10.78 36.83 * 11.71 44.83 * 12.55 52.83 * 13.32 60.83 * 14.03 68.83 *
*  4.52   5.00 *  6.88 13.00 *  8.49 21.00 *  9.75 29.00 * 10.80 37.00 * 11.73 45.00 * 12.57 53.00 * 13.33 61.00 * 14.05 69.00 *
*  4.58   5.17 *  6.92 13.17 *  8.52 21.17 *  9.77 29.17 * 10.82 37.17 * 11.75 45.17 * 12.58 53.17 * 13.35 61.17 * 14.06 69.17 *
*  4.65   5.33 *  6.95 13.33 *  8.55 21.33 *  9.79 29.33 * 10.84 37.33 * 11.77 45.33 * 12.60 53.33 * 13.37 61.33 * 14.07 69.33 *
*  4.71   5.50 *  6.99 13.50 *  8.58 21.50 *  9.82 29.50 * 10.86 37.50 * 11.78 45.50 * 12.62 53.50 * 13.38 61.50 * 14.09 69.50 *
*  4.78   5.67 *  7.03 13.67 *  8.61 21.67 *  9.84 29.67 * 10.88 37.67 * 11.80 45.67 * 12.63 53.67 * 13.40 61.67 * 14.10 69.67 *
*  4.84   5.83 *  7.07 13.83 *  8.63 21.83 *  9.86 29.83 * 10.90 37.83 * 11.82 45.83 * 12.65 53.83 * 13.41 61.83 * 14.12 69.83 *
*  4.90   6.00 *  7.11 14.00 *  8.66 22.00 *  9.89 30.00 * 10.92 38.00 * 11.84 46.00 * 12.67 54.00 * 13.43 62.00 * 14.13 70.00 *
*  [illegible]  6.17 *  7.14 14.17 *  8.69 22.17 *  9.91 30.17 * 10.94 38.17 * 11.86 46.17 * 12.68 54.17 * 13.44 62.17 * 14.15 70.17 *
*  5.02   6.33 *  7.18 14.33 *  8.72 22.33 *  9.93 30.33 * 10.96 38.33 * 11.88 46.33 * 12.70 54.33 * 13.46 62.33 * 14.16 70.33 *
*  5.08   6.50 *  7.22 14.50 *  8.75 22.50 *  9.96 30.50 * 10.98 38.50 * 11.89 46.50 * 12.72 54.50 * 13.47 62.50 * 14.17 70.50 *
*  5.13   6.67 *  7.25 14.67 *  8.78 22.67 *  9.98 30.67 * 11.00 38.67 * 11.91 46.67 * 12.73 54.67 * 13.49 62.67 * 14.19 70.67 *
*  5.19   6.83 *  7.29 14.83 *  8.81 22.83 * 10.00 30.83 * 11.02 38.83 * 11.93 46.83 * 12.75 54.83 * 13.50 62.83 * 14.20 70.83 *
*  5.24   7.00 *  7.32 15.00 *  8.83 23.00 * 10.03 31.00 * 11.04 39.00 * 11.95 47.00 * 12.77 55.00 * 13.52 63.00 * 14.22 71.00 *
*  5.30   7.17 *  7.36 15.17 *  8.86 23.17 * 10.05 31.17 * 11.06 39.17 * 11.96 47.17 * 12.78 55.17 * 13.53 63.17 * 14.23 71.17 *
*  5.35   7.33 *  7.39 15.33 *  8.89 23.33 * 10.07 31.33 * 11.08 39.33 * 11.98 47.33 * 12.80 55.33 * 13.55 63.33 * 14.24 71.33 *
*  5.40   7.50 *  7.43 15.50 *  8.92 23.50 * 10.09 31.50 * 11.10 39.50 * 12.00 47.50 * 12.81 55.50 * 13.56 63.50 * 14.26 71.50 *
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UNIT HYDROGRAPH PARAMETERS

CLARK	TC	.29 HR	R	.58 HR
SNYDER	TP	.31 HR	CP	.38

UNIT HYDROGRAPH
20 END-OF-PERIOD ORDINATES

30.	71.	72.	54.	40.	30.	23.	17.	13.	10.
7.	5.	4.	3.	2.	2.	1.	1.	1.	1.

HYDROGRAPH AT STATION 1

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
8	DEC	0000	1	.01	.00	.01	0.	9	DEC	1210	219	.25	.00	.25	135.
8	DEC	0010	2	.01	.00	.01	1.	9	DEC	1220	219	.19	.00	.18	127.
8	DEC	0020	3	.01	.00	.01	2.	9	DEC	1230	220	.15	.00	.15	121.
8	DEC	0030	4	.01	.00	.01	3.	9	DEC	1240	221	.14	.00	.13	106.
8	DEC	0040	5	.01	.00	.01	3.	9	DEC	1250	222	.12	.00	.12	92.
8	DEC	0050	6	.01	.00	.01	4.	9	DEC	1300	223	.11	.00	.11	80.
8	DEC	0100	7	.01	.00	.01	4.	9	DEC	1310	224	.10	.00	.10	70.
8	DEC	0110	8	.01	.00	.01	4.	9	DEC	1320	225	.09	.00	.09	62.
8	DEC	0120	9	.01	.00	.01	4.	9	DEC	1330	226	.09	.00	.09	55.
8	DEC	0130	10	.01	.00	.01	4.	9	DEC	1340	227	.08	.00	.08	50.
8	DEC	0140	11	.01	.00	.01	5.	9	DEC	1350	228	.08	.00	.08	45.
8	DEC	0150	12	.01	.00	.01	5.	9	DEC	1400	229	.08	.00	.07	41.
8	DEC	0200	13	.01	.00	.01	5.	9	DEC	1410	230	.07	.00	.07	38.
8	DEC	0210	14	.01	.00	.01	5.	9	DEC	1420	231	.07	.00	.07	35.
8	DEC	0220	15	.01	.00	.01	5.	9	DEC	1430	232	.07	.00	.06	33.
8	DEC	0230	16	.01	.00	.01	5.	9	DEC	1440	233	.06	.00	.06	31.
8	DEC	0240	17	.01	.00	.01	5.	9	DEC	1450	234	.06	.00	.06	29.
8	DEC	0250	18	.01	.00	.01	5.	9	DEC	1500	235	.06	.00	.06	27.
8	DEC	0300	19	.01	.00	.01	5.	9	DEC	1510	236	.06	.00	.06	25.
8	DEC	0310	20	.01	.00	.01	5.	9	DEC	1520	237	.06	.00	.05	24.
8	DEC	0320	21	.01	.00	.01	5.	9	DEC	1530	238	.05	.00	.05	23.
8	DEC	0330	22	.01	.00	.01	5.	9	DEC	1540	239	.05	.00	.05	22.
8	DEC	0340	23	.01	.00	.01	5.	9	DEC	1550	240	.05	.00	.05	22.
8	DEC	0350	24	.01	.00	.01	5.	9	DEC	1600	241	.05	.00	.05	21.
8	DEC	0400	25	.01	.00	.01	5.	9	DEC	1610	242	.05	.00	.05	20.
8	DEC	0410	26	.01	.00	.01	5.	9	DEC	1620	243	.05	.00	.05	20.
8	DEC	0420	27	.02	.00	.01	5.	9	DEC	1630	244	.05	.00	.05	19.
8	DEC	0430	28	.02	.00	.01	5.	9	DEC	1640	245	.05	.00	.04	19.
8	DEC	0440	29	.02	.00	.01	5.	9	DEC	1650	246	.05	.00	.04	18.
8	DEC	0450	30	.02	.00	.01	5.	9	DEC	1700	247	.04	.00	.04	18.
8	DEC	0500	31	.02	.00	.01	5.	9	DEC	1710	248	.04	.00	.04	17.
8	DEC	0510	32	.02	.00	.01	5.	9	DEC	1720	249	.04	.00	.04	17.
8	DEC	0520	33	.02	.00	.01	5.	9	DEC	1730	250	.04	.00	.04	17.
8	DEC	0530	34	.02	.00	.01	5.	9	DEC	1740	251	.04	.00	.04	16.
8	DEC	0540	35	.02	.00	.01	5.	9	DEC	1750	252	.04	.00	.04	16.
8	DEC	0550	36	.02	.00	.01	5.	9	DEC	1800	253	.04	.00	.04	15.
8	DEC	0600	37	.02	.00	.01	5.	9	DEC	1810	254	.04	.00	.04	16.
8	DEC	0610	38	.02	.00	.01	5.	9	DEC	1820	255	.04	.00	.04	15.
8	DEC	0620	39	.02	.00	.01	5.	9	DEC	1830	256	.04	.00	.04	15.
8	DEC	0630	40	.02	.00	.01	5.	9	DEC	1840	257	.04	.00	.04	15.
8	DEC	0640	41	.02	.00	.01	5.	9	DEC	1850	258	.04	.00	.04	15.
8	DEC	0650	42	.02	.00	.01	5.	9	DEC	1900	259	.04	.00	.04	14.
8	DEC	0700	43	.02	.00	.01	5.	9	DEC	1910	260	.04	.00	.03	14.
8	DEC	0710	44	.02	.00	.01	5.	9	DEC	1920	261	.04	.00	.03	14.
8	DEC	0720	45	.02	.00	.01	5.	9	DEC	1930	262	.04	.00	.03	14.
8	DEC	0730	46	.02	.00	.01	5.	9	DEC	1940	263	.04	.00	.03	14.
8	DEC	0740	47	.02	.00	.01	5.	9	DEC	1950	264	.03	.00	.03	13.
8	DEC	0750	48	.02	.00	.01	5.	9	DEC	2000	265	.03	.00	.03	13.
8	DEC	0800	49	.02	.00	.01	5.	9	DEC	2010	266	.03	.00	.03	13.
8	DEC	0810	50	.02	.00	.01	5.	9	DEC	2020	267	.03	.00	.03	13.
8	DEC	0820	51	.02	.00	.01	5.	9	DEC	2030	268	.03	.00	.03	13.
8	DEC	0830	52	.02	.00	.01	5.	9	DEC	2040	269	.03	.00	.03	13.
8	DEC	0840	53	.02	.00	.01	6.	9	DEC	2050	270	.03	.00	.03	12.
8	DEC	0850	54	.02	.00	.01	6.	9	DEC	2100	271	.03	.00	.03	12.
8	DEC	0900	55	.02	.00	.01	6.	9	DEC	2110	272	.03	.00	.03	12.
8	DEC	0910	56	.02	.00	.01	6.	9	DEC	2120	273	.03	.00	.03	12.
8	DEC	0920	57	.02	.00	.01	6.	9	DEC	2130	274	.03	.00	.03	12.
8	DEC	0930	58	.02	.00	.01	6.	9	DEC	2140	275	.03	.00	.03	12.
8	DEC	0940	59	.02	.00	.01	6.	9	DEC	2150	276	.03	.00	.03	12.
8	DEC	0950	60	.02	.00	.01	6.	9	DEC	2200	277	.03	.00	.03	11.
8	DEC	1000	61	.02	.00	.01	6.	9	DEC	2210	278	.03	.00	.03	11.
8	DEC	1010	62	.02	.00	.02	6.	9	DEC	2220	279	.03	.00	.03	11.
8	DEC	1020	63	.02	.00	.02	6.	9	DEC	2230	280	.03	.00	.03	11.
8	DEC	1030	64	.02	.00	.02	6.	9	DEC	2240	281	.03	.00	.03	11.
8	DEC	1040	65	.02	.00	.02	6.	9	DEC	2250	282	.03	.00	.03	11.
8	DEC	1050	66	.02	.00	.02	6.	9	DEC	2300	283	.03	.00	.03	11.
8	DEC	1100	67	.02	.00	.02	6.	9	DEC	2310	284	.03	.00	.03	11.

8	DEC	1140	71	.02	.00	.02	5.	*	9	DEC	2350	288	.03	.00	.03	10.	
8	DEC	1150	72	.02	.00	[illegible]	6.	*	10	DEC	0000	289	.03	.00	.02	10.	
8	DEC	1200	73	.02	.00	[illegible]	5.	*	10	DEC	0010	290	.03	.00	.02	10.	
8	DEC	1210	74	.02	.00	.02	6.	*	10	DEC	0020	291	.03	.00	.02	10.	
8	DEC	1220	75	.02	.00	.02	5.	*	10	DEC	0030	292	.03	.00	.02	10.	
8	DEC	1230	76	.02	.00	.02	6.	*	10	DEC	0040	293	.03	.00	.02	10.	
8	DEC	1240	77	.02	.00	.02	5.	*	10	DEC	0050	294	.03	.00	.02	10.	
8	DEC	1250	78	.02	.00	.02	6.	*	10	DEC	0100	295	.03	.00	.02	9.	
8	DEC	1300	79	.02	.00	.02	6.	*	10	DEC	0110	296	.02	.00	.02	9.	
8	DEC	1310	80	.02	.00	.02	5.	*	10	DEC	0120	297	.02	.00	.02	9.	
8	DEC	1320	81	.02	.00	.02	6.	*	10	DEC	0130	298	.02	.00	.02	9.	
8	DEC	1330	82	.02	.00	.02	6.	*	10	DEC	0140	299	.02	.00	.02	9.	
8	DEC	1340	83	.02	.00	.02	6.	*	10	DEC	0150	300	.02	.00	.02	9.	
8	DEC	1350	84	.02	.00	.02	6.	*	10	DEC	0200	301	.02	.00	.02	9.	
8	DEC	1400	85	.02	.00	.02	6.	*	10	DEC	0210	302	.02	.00	.02	9.	
8	DEC	1410	86	.02	.00	.02	5.	*	10	DEC	0220	303	.02	.00	.02	9.	
8	DEC	1420	87	.02	.00	.02	5.	*	10	DEC	0230	304	.02	.00	.02	9.	
8	DEC	1430	88	.02	.00	.02	6.	*	10	DEC	0240	305	.02	.00	.02	9.	
8	DEC	1440	89	.02	.00	.02	5.	*	10	DEC	0250	306	.02	.00	.02	9.	
8	DEC	1450	90	.02	.00	.02	6.	*	10	DEC	0300	307	.02	.00	.02	9.	
8	DEC	1500	91	.02	.00	.02	7.	*	10	DEC	0310	308	.02	.00	.02	8.	
8	DEC	1510	92	.02	.00	.02	7.	*	10	DEC	0320	309	.02	.00	.02	8.	
8	DEC	1520	93	.02	.00	.02	7.	*	10	DEC	0330	310	.02	.00	.02	8.	
8	DEC	1530	94	.02	.00	.02	7.	*	10	DEC	0340	311	.02	.00	.02	8.	
8	DEC	1540	95	.02	.00	.02	7.	*	10	DEC	0350	312	.02	.00	.02	8.	
8	DEC	1550	96	.02	.00	.02	7.	*	10	DEC	0400	313	.02	.00	.02	8.	
8	DEC	1600	97	.02	.00	.02	7.	*	10	DEC	0410	314	.02	.00	.02	8.	
8	DEC	1610	98	.02	.00	.02	7.	*	10	DEC	0420	315	.02	.00	.02	8.	
8	DEC	1620	99	.02	.00	.02	7.	*	10	DEC	0430	316	.02	.00	.02	8.	
8	DEC	1630	100	.02	.00	.02	7.	*	10	DEC	0440	317	.02	.00	.02	8.	
8	DEC	1640	101	.02	.00	.02	7.	*	10	DEC	0450	318	.02	.00	.02	8.	
8	DEC	1650	102	.02	.00	.02	7.	*	10	DEC	0500	319	.02	.00	.02	8.	
8	DEC	1700	103	.02	.00	.02	7.	*	10	DEC	0510	320	.02	.00	.02	8.	
8	DEC	1710	104	.02	.00	.02	7.	*	10	DEC	0520	321	.02	.00	.02	8.	
8	DEC	1720	105	.02	.00	.02	7.	*	10	DEC	0530	322	.02	.00	.02	8.	
8	DEC	1730	106	.02	.00	.02	7.	*	10	DEC	0540	323	.02	.00	.02	8.	
8	DEC	1740	107	.02	.00	.02	7.	*	10	DEC	0550	324	.02	.00	.02	8.	
8	DEC	1750	108	.02	.00	.02	7.	*	10	DEC	0600	325	.02	.00	.02	8.	
8	DEC	1800	109	.02	.00	.02	7.	*	10	DEC	0610	326	.02	.00	.02	8.	
8	DEC	1810	110	.02	.00	.02	7.	*	10	DEC	0620	327	.02	.00	.02	8.	
8	DEC	1820	111	.02	.00	.02	7.	*	10	DEC	0630	328	.02	.00	.02	8.	
8	DEC	1830	112	.02	.00	.02	7.	*	10	DEC	0640	329	.02	.00	.02	7.	
8	DEC	1840	113	.02	.00	.02	7.	*	10	DEC	0650	330	.02	.00	.02	7.	
8	DEC	1850	114	.02	.00	.02	7.	*	10	DEC	0700	331	.02	.00	.02	7.	
8	DEC	1900	115	.02	.00	.02	7.	*	10	DEC	0710	332	.02	.00	.02	7.	
8	DEC	1910	116	.02	.00	.02	7.	*	10	DEC	0720	333	.02	.00	.02	7.	
8	DEC	1920	117	.02	.00	.02	7.	*	10	DEC	0730	334	.02	.00	.02	7.	
8	DEC	1930	118	.02	.00	.02	8.	*	10	DEC	0740	335	.02	.00	.02	7.	
8	DEC	1940	119	.02	.00	.02	8.	*	10	DEC	0750	336	.02	.00	.02	7.	
8	DEC	1950	120	.02	.00	.02	8.	*	10	DEC	0800	337	.02	.00	.02	7.	
8	DEC	2000	121	.02	.00	.02	8.	*	10	DEC	0810	338	.02	.00	.02	7.	
8	DEC	2010	122	.02	.00	.02	8.	*	10	DEC	0820	339	.02	.00	.02	7.	
8	DEC	2020	123	.02	.00	.02	8.	*	10	DEC	0830	340	.02	.00	.02	7.	
8	DEC	2030	124	.02	.00	.02	8.	*	10	DEC	0840	341	.02	.00	.02	7.	
8	DEC	2040	125	.02	.00	.02	8.	*	10	DEC	0850	342	.02	.00	.02	7.	
8	DEC	2050	126	.02	.00	.02	8.	*	10	DEC	0900	343	.02	.00	.02	7.	
8	DEC	2100	127	.02	.00	.02	8.	*	10	DEC	0910	344	.02	.00	.02	7.	
8	DEC	2110	128	.02	.00	.02	8.	*	10	DEC	0920	345	.02	.00	.02	7.	
8	DEC	2120	129	.02	.00	.02	8.	*	10	DEC	0930	346	.02	.00	.02	7.	
8	DEC	2130	130	.02	.00	.02	8.	*	10	DEC	0940	347	.02	.00	.02	7.	
8	DEC	2140	131	.02	.00	.02	8.	*	10	DEC	0950	348	.02	.00	.02	7.	
8	DEC	2150	132	.02	.00	.02	8.	*	10	DEC	1000	349	.02	.00	.02	7.	
8	DEC	2200	133	.02	.00	.02	8.	*	10	DEC	1010	350	.02	.00	.02	7.	
8	DEC	2210	134	.02	.00	.02	8.	*	10	DEC	1020	351	.02	.00	.02	7.	
8	DEC	2220	135	.02	.00	.02	8.	*	10	DEC	1030	352	.02	.00	.02	7.	
8	DEC	2230	136	.02	.00	.02	9.	*	10	DEC	1040	353	.02	.00	.02	7.	
8	DEC	2240	137	.02	.00	.02	9.	*	10	DEC	1050	354	.02	.00	.02	7.	
8	DEC	2250	138	.03	.00	.02	9.	*	10	DEC	1100	355	.02	.00	.02	7.	
8	DEC	2300	139	.03	.00	.02	9.	*	10	DEC	1110	356	.02	.00	.02	7.	
8	DEC	2310	140	.03	.00	.02	9.	*	10	DEC	1120	357	.02	.00	.02	7.	
8	DEC	2320	141	.03	.00	.02	9.	*	10	DEC	1130	358	.02	.00	.02	6.	
8	DEC	2330	142	.03	.00	.02	9.	*	10	DEC	1140	359	.02	.00	.02	6.	
8	DEC	2340	143	.03	.00	.02	9.	*	10	DEC	1150	360	.02	.00	.02	6.	
8	DEC	2350	144	.03	.00	.02	9.	*	10	DEC	1200	361	.02	.00	.02	6.	
9	DEC	0000	145	.03	.00	.03	9.	*	10	DEC	1210	362	.02	.00	.02	6.	
9	DEC	0010	146	.03	.00	.03	9.	*	10	DEC	1220	363	.02	.00	.02	6.	
9	DEC	0020	147	.03	.00	.03	9.	*	10	DEC	1230	364	.02	.00	.02	6.	
9	DEC	0030	148	.03	.00	.03	10.	*	10	DEC	1240	365	.02	.00	.02	6.	
9	DEC	0040	149	.03	.00	.03	10.	*	10	DEC	1250	366	.02	.00	.02	6.	
9	DEC	0050	150	.03	.00	.03	10.	*	10	DEC	1300	367	.02	.00	.02	6.	
9	DEC	0100	151	.03	.00	.03	10.	*	10	DEC	1310	368	.02	.00	.02	6.	
9	DEC	0110	152	.03	.00	.03	10.	*	10	DEC	1320	369	.02	.00	.02	6.	
9	DEC	0120	153	.03	.00	.03	10.	*	10	DEC	1330	370	.02	.00	.02	6.	
9	DEC	0130	154	.03	.00	.03	10.	*	10	DEC	1340	371	.02	.00	.02	6.	
9	DEC	0140	155	.03	.00	.03	10.	*	10	DEC	1350	372	.02	.00	.02	6.	

9	DEC	0220	159	.03	.00	.03	11.	*	10	DEC	1430	376	.02	.00	.02	5.
9	DEC	0230	160	.03	.00	[illegible]	11.	*	10	DEC	1440	377	.02	.00	.02	5.
9	DEC	0240	161	.03	.00	[illegible]	11.	*	10	DEC	1450	378	.02	.00	.02	5.
9	DEC	0250	162	.03	.00	.03	11.	*	10	DEC	1500	379	.02	.00	.02	5.
9	DEC	0300	163	.03	.00	.03	11.	*	10	DEC	1510	380	.02	.00	.02	5.
9	DEC	0310	164	.03	.00	.03	11.	*	10	DEC	1520	381	.02	.00	.02	5.
9	DEC	0320	165	.03	.00	.03	11.	*	10	DEC	1530	382	.02	.00	.02	5.
9	DEC	0330	166	.03	.00	.03	12.	*	10	DEC	1540	383	.02	.00	.01	5.
9	DEC	0340	167	.03	.00	.03	12.	*	10	DEC	1550	384	.02	.00	.01	5.
9	DEC	0350	168	.03	.00	.03	12.	*	10	DEC	1600	385	.02	.00	.01	5.
9	DEC	0400	169	.03	.00	.03	12.	*	10	DEC	1610	386	.02	.00	.01	5.
9	DEC	0410	170	.03	.00	.03	12.	*	10	DEC	1620	387	.02	.00	.01	5.
9	DEC	0420	171	.04	.00	.03	12.	*	10	DEC	1630	388	.02	.00	.01	5.
9	DEC	0430	172	.04	.00	.03	12.	*	10	DEC	1640	389	.02	.00	.01	5.
9	DEC	0440	173	.04	.00	.03	13.	*	10	DEC	1650	390	.02	.00	.01	5.
9	DEC	0450	174	.04	.00	.03	13.	*	10	DEC	1700	391	.02	.00	.01	5.
9	DEC	0500	175	.04	.00	.03	13.	*	10	DEC	1710	392	.02	.00	.01	5.
9	DEC	0510	176	.04	.00	.04	13.	*	10	DEC	1720	393	.02	.00	.01	5.
9	DEC	0520	177	.04	.00	.04	13.	*	10	DEC	1730	394	.02	.00	.01	5.
9	DEC	0530	178	.04	.00	.04	12.	*	10	DEC	1740	395	.02	.00	.01	5.
9	DEC	0540	179	.04	.00	.04	14.	*	10	DEC	1750	396	.02	.00	.01	5.
9	DEC	0550	180	.04	.00	.04	14.	*	10	DEC	1800	397	.02	.00	.01	5.
9	DEC	0600	181	.04	.00	.04	14.	*	10	DEC	1810	398	.02	.00	.01	5.
9	DEC	0610	182	.04	.00	.04	14.	*	10	DEC	1820	399	.02	.00	.01	5.
9	DEC	0620	183	.04	.00	.04	14.	*	10	DEC	1830	400	.02	.00	.01	5.
9	DEC	0630	184	.04	.00	.04	15.	*	10	DEC	1840	401	.02	.00	.01	5.
9	DEC	0640	185	.04	.00	.04	15.	*	10	DEC	1850	402	.02	.00	.01	5.
9	DEC	0650	186	.04	.00	.04	15.	*	10	DEC	1900	403	.02	.00	.01	5.
9	DEC	0700	187	.05	.00	.04	15.	*	10	DEC	1910	404	.02	.00	.01	5.
9	DEC	0710	188	.05	.00	.04	16.	*	10	DEC	1920	405	.02	.00	.01	5.
9	DEC	0720	189	.05	.00	.04	16.	*	10	DEC	1930	406	.02	.00	.01	5.
9	DEC	0730	190	.05	.00	.05	16.	*	10	DEC	1940	407	.02	.00	.01	5.
9	DEC	0740	191	.05	.00	.05	17.	*	10	DEC	1950	408	.01	.00	.01	5.
9	DEC	0750	192	.05	.00	.05	17.	*	10	DEC	2000	409	.01	.00	.01	5.
9	DEC	0800	193	.05	.00	.05	17.	*	10	DEC	2010	410	.01	.00	.01	5.
9	DEC	0810	194	.05	.00	.05	18.	*	10	DEC	2020	411	.01	.00	.01	5.
9	DEC	0820	195	.05	.00	.05	18.	*	10	DEC	2030	412	.01	.00	.01	5.
9	DEC	0830	196	.06	.00	.05	19.	*	10	DEC	2040	413	.01	.00	.01	5.
9	DEC	0840	197	.06	.00	.05	19.	*	10	DEC	2050	414	.01	.00	.01	5.
9	DEC	0850	198	.06	.00	.06	19.	*	10	DEC	2100	415	.01	.00	.01	5.
9	DEC	0900	199	.06	.00	.06	20.	*	10	DEC	2110	416	.01	.00	.01	5.
9	DEC	0910	200	.06	.00	.06	21.	*	10	DEC	2120	417	.01	.00	.01	5.
9	DEC	0920	201	.07	.00	.06	21.	*	10	DEC	2130	418	.01	.00	.01	5.
9	DEC	0930	202	.07	.00	.07	22.	*	10	DEC	2140	419	.01	.00	.01	5.
9	DEC	0940	203	.07	.00	.07	23.	*	10	DEC	2150	420	.01	.00	.01	5.
9	DEC	0950	204	.07	.00	.07	24.	*	10	DEC	2200	421	.01	.00	.01	5.
9	DEC	1000	205	.08	.00	.07	25.	*	10	DEC	2210	422	.01	.00	.01	5.
9	DEC	1010	206	.08	.00	.08	26.	*	10	DEC	2220	423	.01	.00	.01	5.
9	DEC	1020	207	.09	.00	.08	27.	*	10	DEC	2230	424	.01	.00	.01	5.
9	DEC	1030	208	.09	.00	.09	28.	*	10	DEC	2240	425	.01	.00	.01	5.
9	DEC	1040	209	.10	.00	.09	30.	*	10	DEC	2250	426	.01	.00	.01	5.
9	DEC	1050	210	.10	.00	.10	31.	*	10	DEC	2300	427	.01	.00	.01	5.
9	DEC	1100	211	.11	.00	.11	34.	*	10	DEC	2310	428	.01	.00	.01	5.
9	DEC	1110	212	.12	.00	.12	36.	*	10	DEC	2320	429	.01	.00	.01	5.
9	DEC	1120	213	.14	.00	.14	39.	*	10	DEC	2330	430	.01	.00	.01	5.
9	DEC	1130	214	.17	.00	.15	44.	*	10	DEC	2340	431	.01	.00	.01	5.
9	DEC	1140	215	.22	.00	.21	50.	*	10	DEC	2350	432	.01	.00	.01	5.
9	DEC	1150	216	.39	.01	.39	62.	*	11	DEC	0000	433	.00	.00	.00	5.
9	DEC	1200	217	.97	.01	.96	98.	*								
								*								

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TOTAL RAINFALL = 14.30, TOTAL LOSS = .81, TOTAL EXCESS = 13.49

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	72.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 137.	36.33		51.	23.	12.	12.
		(INCHES)	4.739	8.618	13.397	13.397
		(AC-FT)	25.	46.	71.	71.

CUMULATIVE AREA = .10 SQ MI

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            *          *
13 MX       *        2 *    PACIFIC GROVE
            *          *
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15 RS STORAGE ROUTING

NSTPS	1	ER OF SUBREACHES
ITYP	ELEV	TYPE OF INITIAL CONDITION
RSVRIC	240.80	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

16 SV	STORAGE	76.0	78.0	80.0	82.0	84.0	85.0
SQ	DISCHARGE	15.	17.	21.	25.	27.	28.
18 SE	ELEVATION	240.80	241.30	241.80	242.30	242.80	243.00

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HYDROGRAPH AT STATION 2

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
8	DEC	0000	1	15.	75.0	240.9	9	DEC	0010	146	8.	70.1	240.8	10	DEC	0020	291	19.	79.1	241.6
8	DEC	0010	2	14.	75.8	240.8	9	DEC	0020	147	8.	70.1	240.8	10	DEC	0030	292	19.	79.0	241.5
8	DEC	0020	3	14.	75.6	240.8	9	DEC	0030	148	8.	70.1	240.8	10	DEC	0040	293	19.	78.9	241.5
8	DEC	0030	4	14.	75.5	240.8	9	DEC	0040	149	8.	70.2	240.8	10	DEC	0050	294	19.	78.7	241.5
8	DEC	0040	5	14.	75.3	240.8	9	DEC	0050	150	8.	70.2	240.8	10	DEC	0100	295	18.	78.6	241.5
8	DEC	0050	6	14.	75.2	240.8	9	DEC	0100	151	8.	70.2	240.8	10	DEC	0110	296	18.	78.5	241.4
8	DEC	0100	7	14.	75.0	240.9	9	DEC	0110	152	8.	70.2	240.8	10	DEC	0120	297	18.	78.4	241.4
8	DEC	0110	8	13.	74.9	240.8	9	DEC	0120	153	8.	70.3	240.8	10	DEC	0130	298	17.	78.3	241.4
8	DEC	0120	9	13.	74.8	240.8	9	DEC	0130	154	8.	70.3	240.8	10	DEC	0140	299	17.	78.2	241.3
8	DEC	0130	10	13.	74.7	240.8	9	DEC	0140	155	8.	70.3	240.8	10	DEC	0150	300	17.	78.0	241.3
8	DEC	0140	11	13.	74.6	240.8	9	DEC	0150	156	8.	70.4	240.8	10	DEC	0200	301	17.	77.9	241.3
8	DEC	0150	12	12.	74.4	240.8	9	DEC	0200	157	8.	70.4	240.8	10	DEC	0210	302	17.	77.8	241.2
8	DEC	0200	13	12.	74.3	240.8	9	DEC	0210	158	8.	70.4	240.8	10	DEC	0220	303	17.	77.7	241.2
8	DEC	0210	14	12.	74.2	240.8	9	DEC	0220	159	8.	70.5	240.8	10	DEC	0230	304	16.	77.6	241.2
8	DEC	0220	15	12.	74.1	240.8	9	DEC	0230	160	8.	70.5	240.8	10	DEC	0240	305	16.	77.5	241.2
8	DEC	0230	16	12.	74.0	240.8	9	DEC	0240	161	8.	70.5	240.8	10	DEC	0250	306	16.	77.4	241.1
8	DEC	0240	17	12.	73.9	240.8	9	DEC	0250	162	8.	70.6	240.8	10	DEC	0300	307	16.	77.3	241.1
8	DEC	0250	18	12.	73.8	240.8	9	DEC	0300	163	8.	70.6	240.8	10	DEC	0310	308	16.	77.2	241.1
8	DEC	0300	19	12.	73.7	240.8	9	DEC	0310	164	8.	70.6	240.8	10	DEC	0320	309	16.	77.1	241.1
8	DEC	0310	20	12.	73.6	240.8	9	DEC	0320	165	8.	70.7	240.8	10	DEC	0330	310	16.	77.0	241.0
8	DEC	0320	21	12.	73.5	240.8	9	DEC	0330	166	9.	70.7	240.8	10	DEC	0340	311	16.	76.9	241.0
8	DEC	0330	22	12.	73.4	240.8	9	DEC	0340	167	9.	70.8	240.8	10	DEC	0350	312	16.	76.8	241.0
8	DEC	0340	23	12.	73.3	240.8	9	DEC	0350	168	9.	70.8	240.8	10	DEC	0400	313	15.	76.7	241.0
8	DEC	0350	24	11.	73.2	240.8	9	DEC	0400	169	9.	70.9	240.8	10	DEC	0410	314	15.	76.6	240.9
8	DEC	0400	25	11.	73.2	240.8	9	DEC	0410	170	9.	70.9	240.8	10	DEC	0420	315	15.	76.5	240.9
8	DEC	0410	26	11.	73.1	240.8	9	DEC	0420	171	9.	70.9	240.8	10	DEC	0430	316	15.	76.4	240.9
8	DEC	0420	27	11.	73.0	240.8	9	DEC	0430	172	9.	71.0	240.8	10	DEC	0440	317	15.	76.3	240.9
8	DEC	0430	28	11.	72.9	240.8	9	DEC	0440	173	9.	71.0	240.8	10	DEC	0450	318	15.	76.2	240.9
8	DEC	0440	29	11.	72.8	240.8	9	DEC	0450	174	9.	71.1	240.8	10	DEC	0500	319	15.	76.1	240.8
8	DEC	0450	30	11.	72.7	240.8	9	DEC	0500	175	9.	71.1	240.8	10	DEC	0510	320	15.	76.0	240.8
8	DEC	0500	31	11.	72.7	240.8	9	DEC	0510	176	9.	71.2	240.8	10	DEC	0520	321	15.	75.9	240.8
8	DEC	0510	32	11.	72.6	240.8	9	DEC	0520	177	9.	71.3	240.8	10	DEC	0530	322	14.	75.8	240.8
8	DEC	0520	33	11.	72.5	240.8	9	DEC	0530	178	9.	71.3	240.8	10	DEC	0540	323	14.	75.7	240.8
8	DEC	0530	34	10.	72.4	240.8	9	DEC	0540	179	9.	71.4	240.8	10	DEC	0550	324	14.	75.6	240.8
8	DEC	0540	35	10.	72.4	240.8	9	DEC	0550	180	9.	71.4	240.8	10	DEC	0600	325	14.	75.6	240.8
8	DEC	0550	36	10.	72.3	240.8	9	DEC	0600	181	9.	71.5	240.8	10	DEC	0610	326	14.	75.5	240.8
8	DEC	0600	37	10.	72.2	240.8	9	DEC	0610	182	9.	71.6	240.8	10	DEC	0620	327	14.	75.4	240.8
8	DEC	0610	38	10.	72.1	240.8	9	DEC	0620	183	10.	71.6	240.8	10	DEC	0630	328	14.	75.3	240.8
8	DEC	0620	39	10.	72.1	240.8	9	DEC	0630	184	10.	71.7	240.8	10	DEC	0640	329	14.	75.2	240.8
8	DEC	0630	40	10.	72.0	240.8	9	DEC	0640	185	10.	71.8	240.8	10	DEC	0650	330	14.	75.1	240.8
8	DEC	0640	41	10.	71.9	240.8	9	DEC	0650	186	10.	71.8	240.8	10	DEC	0700	331	13.	75.0	240.8
8	DEC	0650	42	10.	71.9	240.8	9	DEC	0700	187	10.	71.9	240.8	10	DEC	0710	332	13.	75.0	240.8
8	DEC	0700	43	10.	71.8	240.8	9	DEC	0710	188	10.	72.0	240.8	10	DEC	0720	333	13.	74.9	240.8
8	DEC	0710	44	10.	71.8	240.8	9	DEC	0720	189	10.	72.1	240.8	10	DEC	0730	334	13.	74.8	240.8
8	DEC	0720	45	10.	71.7	240.8	9	DEC	0730	190	10.	72.1	240.8	10	DEC	0740	335	13.	74.7	240.8
8	DEC	0730	46	10.	71.6	240.8	9	DEC	0740	191	10.	72.2	240.8	10	DEC	0750	336	13.	74.6	240.8
8	DEC	0740	47	10.	71.5	240.8	9	DEC	0750	192	10.	72.3	240.8	10	DEC	0800	337	13.	74.5	240.8
8	DEC	0750	48	9.	71.5	240.8	9	DEC	0800	193	10.	72.4	240.8	10	DEC	0810	338	12.	74.5	240.8
8	DEC	0800	49	9.	71.5	240.8	9	DEC	0810	194	11.	72.5	240.8	10	DEC	0820	339	13.	74.4	240.8
8	DEC	0810	50	9.	71.4	240.8	9	DEC	0820	195	11.	72.6	240.8	10	DEC	0830	340	13.	74.3	240.8
8	DEC	0820	51	9.	71.4	240.8	9	DEC	0830	196	11.	72.7	240.8	10	DEC	0840	341	13.	74.2	240.8
8	DEC	0830	52	9.	71.3	240.8	9	DEC	0840	197	11.	72.8	240.8	10	DEC	0850	342	12.	74.2	240.8
8	DEC	0840	53	9.	71.3	240.8	9	DEC	0850	198	11.	72.9	240.8	10	DEC	0900	343	12.	74.1	240.8
8	DEC	0850	54	9.	71.2	240.8	9	DEC	0900	199	11.	73.1	240.8	10	DEC	0910	344	12.	74.0	240.8
8	DEC	0900	55	9.	71.2	240.8	9	DEC	0910	200	11.	73.2	240.8	10	DEC	0920	345	12.	73.9	240.8
8	DEC	0910	56	9.	71.1	240.8	9	DEC	0920	201	12.	73.3	240.8	10	DEC	0930	346	12.	73.9	240.8
8	DEC	0920	57	9.	71.1	240.8	9	DEC	0930	202	12.	73.5	240.8	10	DEC	0940	347	12.	73.8	240.8
8	DEC	0930	58	9.	71.0	240.8	9	DEC	0940	203	12.	73.6	240.8	10	DEC	0950	348	12.	73.7	240.8
8	DEC	0940	59	9.	71.0	240.8	9	DEC	0950	204	12.	73.8	240.8	10	DEC	1000	349	12.	73.6	240.8
8	DEC	0950	60	9.	70.9	240.8	9	DEC	1000	205	12.	73.9	240.8	10	DEC	1010	350	12.	73.6	240.8
8	DEC	1000	61	9.	70.9	240.8	9	DEC	1010	206	12.	74.1	240.8	10	DEC	1020	351	12.	73.5	240.8
8	DEC	1010	62	9.	70.9	240.8	9	DEC	1020	207	13.	74.3	240.8	10	DEC	1030	352	12.	73.4	240.8

8	DEC	1050	66	8.	70.7	240.8	*	9	DEC	1100	211	14.	75.2	240.8	*	10	DEC	1110	356	11.	73.2	240.8
8	DEC	1100	67	8.	70.7	240.8		9	DEC	1110	212	14.	75.5	240.8	*	10	DEC	1120	357	11.	73.1	240.8
8	DEC	1110	68	8.	70.6	240.8		9	DEC	1120	213	14.	75.8	240.8	*	10	DEC	1130	358	11.	73.0	240.8
8	DEC	1120	69	8.	70.6	240.8	*	9	DEC	1130	214	15.	75.2	240.9	*	10	DEC	1140	359	11.	73.0	240.8
8	DEC	1130	70	8.	70.6	240.8	*	9	DEC	1140	215	15.	75.5	241.0	*	10	DEC	1150	360	11.	72.9	240.8
8	DEC	1140	71	8.	70.5	240.8	*	9	DEC	1150	216	15.	77.2	241.1	*	10	DEC	1200	361	11.	72.8	240.8
8	DEC	1150	72	8.	70.5	240.8	*	9	DEC	1200	217	17.	78.1	241.3	*	10	DEC	1210	362	11.	72.8	240.8
8	DEC	1200	73	8.	70.5	240.8	*	9	DEC	1210	218	20.	79.4	241.7	*	10	DEC	1220	363	11.	72.7	240.8
8	DEC	1210	74	8.	70.4	240.8	*	9	DEC	1220	219	23.	81.0	242.0	*	10	DEC	1230	364	11.	72.7	240.8
8	DEC	1220	75	8.	70.4	240.8	*	9	DEC	1230	220	25.	82.4	242.4	*	10	DEC	1240	365	11.	72.6	240.8
8	DEC	1230	76	8.	70.4	240.8	*	9	DEC	1240	221	27.	83.6	242.7	*	10	DEC	1250	366	11.	72.5	240.8
8	DEC	1240	77	8.	70.3	240.8	*	9	DEC	1250	222	28.	84.5	242.9	*	10	DEC	1300	367	11.	72.5	240.8
8	DEC	1250	78	8.	70.3	240.8	*	9	DEC	1300	223	28.	85.4	243.1	*	10	DEC	1310	368	10.	72.4	240.8
8	DEC	1300	79	8.	70.3	240.8	*	9	DEC	1310	224	29.	86.1	243.2	*	10	DEC	1320	369	10.	72.4	240.8
8	DEC	1310	80	8.	70.3	240.8	*	9	DEC	1320	225	29.	86.6	243.3	*	10	DEC	1330	370	10.	72.3	240.8
8	DEC	1320	81	8.	70.2	240.8	*	9	DEC	1330	226	30.	87.0	243.4	*	10	DEC	1340	371	10.	72.2	240.8
8	DEC	1330	82	8.	70.2	240.8	*	9	DEC	1340	227	30.	87.3	243.5	*	10	DEC	1350	372	10.	72.2	240.8
8	DEC	1340	83	8.	70.2	240.8	*	9	DEC	1350	228	30.	87.5	243.5	*	10	DEC	1400	373	10.	72.1	240.8
8	DEC	1350	84	8.	70.2	240.8	*	9	DEC	1400	229	30.	87.7	243.5	*	10	DEC	1410	374	10.	72.1	240.8
8	DEC	1400	85	8.	70.1	240.8	*	9	DEC	1410	230	30.	87.8	243.6	*	10	DEC	1420	375	10.	72.0	240.8
8	DEC	1410	86	8.	70.1	240.8	*	9	DEC	1420	231	30.	87.9	243.6	*	10	DEC	1430	376	10.	72.0	240.8
8	DEC	1420	87	8.	70.1	240.8	*	9	DEC	1430	232	30.	87.9	243.6	*	10	DEC	1440	377	10.	71.9	240.8
8	DEC	1430	88	8.	70.1	240.8	*	9	DEC	1440	233	30.	88.0	243.6	*	10	DEC	1450	378	10.	71.9	240.8
8	DEC	1440	89	8.	70.1	240.8	*	9	DEC	1450	234	30.	88.0	243.6	*	10	DEC	1500	379	10.	71.8	240.8
8	DEC	1450	90	8.	70.1	240.8	*	9	DEC	1500	235	30.	87.9	243.6	*	10	DEC	1510	380	10.	71.8	240.8
8	DEC	1500	91	8.	70.0	240.8	*	9	DEC	1510	236	30.	87.9	243.6	*	10	DEC	1520	381	10.	71.7	240.8
8	DEC	1510	92	8.	70.0	240.8	*	9	DEC	1520	237	30.	87.9	243.6	*	10	DEC	1530	382	10.	71.7	240.8
8	DEC	1520	93	8.	70.0	240.8	*	9	DEC	1530	238	30.	87.7	243.5	*	10	DEC	1540	383	10.	71.6	240.8
8	DEC	1530	94	8.	70.0	240.8	*	9	DEC	1540	239	30.	87.6	243.5	*	10	DEC	1550	384	9.	71.5	240.8
8	DEC	1540	95	8.	70.0	240.8	*	9	DEC	1550	240	30.	87.5	243.5	*	10	DEC	1600	385	9.	71.5	240.8
8	DEC	1550	96	8.	70.0	240.8	*	9	DEC	1600	241	30.	87.4	243.5	*	10	DEC	1610	386	9.	71.5	240.8
8	DEC	1600	97	8.	69.9	240.8	*	9	DEC	1610	242	30.	87.2	243.4	*	10	DEC	1620	387	9.	71.4	240.8
8	DEC	1610	98	8.	69.9	240.8	*	9	DEC	1620	243	30.	87.1	243.4	*	10	DEC	1630	388	9.	71.4	240.8
8	DEC	1620	99	8.	69.9	240.8	*	9	DEC	1630	244	30.	87.0	243.4	*	10	DEC	1640	389	9.	71.3	240.8
8	DEC	1630	100	8.	69.9	240.8	*	9	DEC	1640	245	30.	86.8	243.4	*	10	DEC	1650	390	9.	71.3	240.8
8	DEC	1640	101	8.	69.9	240.8	*	9	DEC	1650	246	29.	86.7	243.3	*	10	DEC	1700	391	9.	71.2	240.8
8	DEC	1650	102	8.	69.9	240.8	*	9	DEC	1700	247	29.	86.5	243.3	*	10	DEC	1710	392	9.	71.2	240.8
8	DEC	1700	103	8.	69.9	240.8	*	9	DEC	1710	248	29.	86.4	243.3	*	10	DEC	1720	393	9.	71.1	240.8
8	DEC	1710	104	8.	69.9	240.8	*	9	DEC	1720	249	29.	86.2	243.2	*	10	DEC	1730	394	9.	71.1	240.8
8	DEC	1720	105	8.	69.9	240.8	*	9	DEC	1730	250	29.	86.0	243.2	*	10	DEC	1740	395	9.	71.0	240.8
8	DEC	1730	106	8.	69.9	240.8	*	9	DEC	1740	251	29.	85.9	243.2	*	10	DEC	1750	396	9.	71.0	240.8
8	DEC	1740	107	8.	69.8	240.8	*	9	DEC	1750	252	29.	85.7	243.1	*	10	DEC	1800	397	9.	70.9	240.8
8	DEC	1750	108	8.	69.8	240.8	*	9	DEC	1800	253	29.	85.5	243.1	*	10	DEC	1810	398	9.	70.9	240.8
8	DEC	1800	109	8.	69.8	240.8	*	9	DEC	1810	254	29.	85.3	243.1	*	10	DEC	1820	399	9.	70.9	240.8
8	DEC	1810	110	8.	69.8	240.8	*	9	DEC	1820	255	28.	85.2	243.0	*	10	DEC	1830	400	9.	70.8	240.8
8	DEC	1820	111	8.	69.8	240.8	*	9	DEC	1830	256	28.	85.0	243.0	*	10	DEC	1840	401	9.	70.8	240.8
8	DEC	1830	112	8.	69.8	240.8	*	9	DEC	1840	257	28.	84.8	243.0	*	10	DEC	1850	402	9.	70.7	240.8
8	DEC	1840	113	7.	69.8	240.8	*	9	DEC	1850	258	28.	84.6	242.9	*	10	DEC	1900	403	8.	70.7	240.8
8	DEC	1850	114	7.	69.8	240.8	*	9	DEC	1900	259	28.	84.4	242.9	*	10	DEC	1910	404	8.	70.6	240.8
8	DEC	1900	115	7.	69.8	240.8	*	9	DEC	1910	260	27.	84.2	242.9	*	10	DEC	1920	405	8.	70.6	240.8
8	DEC	1910	116	7.	69.8	240.8	*	9	DEC	1920	261	27.	84.1	242.9	*	10	DEC	1930	406	8.	70.6	240.8
8	DEC	1920	117	7.	69.8	240.8	*	9	DEC	1930	262	27.	83.9	242.8	*	10	DEC	1940	407	8.	70.5	240.8
8	DEC	1930	118	7.	69.8	240.8	*	9	DEC	1940	263	27.	83.7	242.7	*	10	DEC	1950	408	8.	70.5	240.8
8	DEC	1940	119	7.	69.8	240.8	*	9	DEC	1950	264	27.	83.5	242.7	*	10	DEC	2000	409	8.	70.4	240.8
8	DEC	1950	120	7.	69.8	240.8	*	9	DEC	2000	265	26.	83.3	242.6	*	10	DEC	2010	410	8.	70.4	240.8
8	DEC	2000	121	7.	69.8	240.8	*	9	DEC	2010	266	26.	83.1	242.5	*	10	DEC	2020	411	8.	70.4	240.8
8	DEC	2010	122	8.	69.8	240.8	*	9	DEC	2020	267	26.	83.0	242.5	*	10	DEC	2030	412	8.	70.3	240.8
8	DEC	2020	123	8.	69.8	240.8	*	9	DEC	2030	268	26.	82.8	242.5	*	10	DEC	2040	413	8.	70.3	240.8
8	DEC	2030	124	8.	69.8	240.8	*	9	DEC	2040	269	26.	82.6	242.4	*	10	DEC	2050	414	8.	70.2	240.8
8	DEC	2040	125	8.	69.8	240.8	*	9	DEC	2050	270	25.	82.4	242.4	*	10	DEC	2100	415	8.	70.2	240.8
8	DEC	2050	126	8.	69.8	240.8	*	9	DEC	2100	271	25.	82.2	242.4	*	10	DEC	2110	416	8.	70.2	240.8
8	DEC	2100	127	8.	69.9	240.8	*	9	DEC	2110	272	25.	82.1	242.3	*	10	DEC	2120	417	8.	70.1	240.8
8	DEC	2110	128	8.	69.9	240.8	*	9	DEC	2120	273	25.	81.9	242.3	*	10	DEC	2130	418	8.	70.1	240.8
8	DEC	2120	129	8.	69.9	240.8	*	9	DEC	2130	274	24.	81.7	242.2	*	10	DEC	2140	419	8.	70.1	240.8
8	DEC	2130	130	8.	69.9	240.8	*	9	DEC	2140	275	24.	81.5	242.2	*	10	DEC	2150	420	8.	70.0	240.8
8	DEC	2140	131	8.	69.9	240.8	*	9	DEC	2150	276	24.	81.4	242.1	*	10	DEC	2200	421	8.	70.0	240.8
8	DEC	2150	132	8.	69.9	240.8	*	9	DEC	2200	277	23.	81.2	242.1	*	10	DEC	2210	422	8.	70.0	240.8
8	DEC	2200	133	8.	69.9	240.8	*	9	DEC	2210	278	23.	81.0	242.1	*	10	DEC	2220	423	8.	69.9	240.8
8	DEC	2210	134	8.	69.9	240.8	*	9	DEC	2220	279	23.	80.9	242.0	*	10	DEC	2230	424	8.	69.9	240.8
8	DEC	2220	135	8.	69.9	240.8	*	9	DEC	2230	280	23.	80.7	242.0	*	10	DEC	2240	425	8.	69.9	240.8
8	DEC	2230	136	8.	69.9	240.8	*	9	DEC	2240	281	22.	80.6	241.9	*	10	DEC	2250	426	8.	69.8	240.8
8	DEC	2240	137	8.	69.9	240.8	*	9	DEC	2250	282	22.	80.4	241.9	*	10	DEC	2300	427	7.	69.8	240.8
8	DEC	2250	138	8.	70.0	240.8	*	9	DEC	2300	283	22.	80.3	241.9	*	10	DEC	2310	428	7.	69.8	240.8
8	DEC	2300	139	8.	70.0	240.8	*	9	DEC	2310	284	22.	80.1	241.8	*	10	DEC	2320	429	7.	69.7	240.8
8	DEC	2310	140	8.	70.0	240.8	*	9	DEC	2320	285	21.	80.0	241.8	*	10	DEC	2330	430	7.	69.7	240.8
8	DEC	2320	141	8.	70.0	240.8	*	9	DEC	2330	286	21.	79.8	241.8	*	10	DEC	2340	431	7.	69.7	240.8
8	DEC	2330	142	8.	70.0	240.8	*	9	DEC	2340	287	21.	79.7	241.7	*	10	DEC	2350	432	7.	69.6	240.8
8	DEC	2340	143	8.	70.0	240.8	*	9	DEC	2350	288	20.	79.5	241.7	*	11	DEC	0000	433	7.	69.6	240.8
8	DEC	2350	144	8.	70.1	240.8	*	10	DEC	0000	289	20.	79.4	241.6	*							
9	DEC	0000	145	8.	70.1	240.8	*	10	DEC	0010	290	20.	79.3	241.5	*							

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	72.00-HR

	(AC-FT)	15.	41.	78.	78.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	72.00-HR
98.	38.67	87.	80.	74.	74.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	72.00-HR
243.59	38.67	243.35	241.89	241.15	241.16

CUMULATIVE AREA = .10 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	1	137.	35.33	51.	22.	12.	.10		
ROUTED TO	2	30.	38.67	29.	21.	13.	.10	243.59	38.67

*** NORMAL END OF HEC-1 ***

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                FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) - FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
                 **MODIFIED BY CALIFORNIA DIVISION OF SAFETY OF DAMS APRIL 1985**
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Spillway Only

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

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1                                          HEC-1 INPUT                                          PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

*** FREE ***
         1          ID   PACIFIC GROVE DAM NO. 642-3
         2          ID   INLOW HYDROGRAPH
         3          ID   1:750,000 YEAR STORM
         4          IT      10 08DEC87       0     433

         5          KK       1PACIFIC GROVE
         6          KM   INFLOW HYDROGRAPH
         7          BA     0.1
         8          BF       0       0     1.0
         9          PX    0.97     1.2     2.2     4.9     9.0    14.3
        10          PY      10      15      60     360    1440    4320
        11          LE    0.15       0     3.5     0.4      80
        12          UC    0.29    0.58

        13          KK       2PACIFIC GROVE
        14          KM   FLOOD ROUTING
        15          RS       1    ELEV   240.8
        16          SV      76      78      80      82      84      85
        17          SQ     0.0     2.3     6.8    10.2    12.7    13.5
        18          SE   240.8   241.3   241.8   242.3   242.8   243.0
        19          ZZ
1                                        ****
                FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) - FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
                 **MODIFIED BY CALIFORNIA DIVISION OF SAFETY OF DAMS APRIL 1985**
                                        ****


                 PACIFIC GROVE DAM NO. 642-3
                 INLOW HYDROGRAPH
                 1:750,000 YEAR STORM

  IT        HYDROGRAPH TIME DATA
                 NMIN          10  MINUTES IN COMPUTATION INTERVAL
                IDATE      8DEC87  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ         433  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE     11DEC87  ENDING DATE
               NDTIME        0000  ENDING TIME

          COMPUTATION INTERVAL     .17 HOURS
               TOTAL TIME BASE   72.00 HOURS
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                 *************
                 *           *
 5 KK            *     1     *     PACIFIC GROVE
                 *           *
                 *************
                              INFLOW HYDROGRAPH

            SUBBASIN RUNOFF DATA

 7 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .10  SUBBASIN AREA

 8 BF          BASE FLOW CHARACTERISTICS
                    STRTQ          .00  INITIAL FLOW
                    QRCSN          .00  BEGIN BASE FLOW RECESSION
                    RTIOR      1.00000  RECESSION CONSTANT

               PRECIPITATION DATA

                                   DEPTH-DURATION CURVE DATA
 9 PX                DEPTH        .97      1.20      2.20      4.90      9.00     14.30
10 PY              DURATION      10.00     15.00     60.00    360.00   1440.00   4320.00

11 LE          EXPONENTIAL LOSS RATE
                    STRKR          .15  INITIAL VALUE OF LOSS COEFFICIENT
                    DLTKR          .00  INITIAL LOSS
                    RTIOL         3.50  LOSS COEFFICIENT RECESSION CONSTANT
                    ERAIN          .40  EXPONENT OF PRECIPITATION
                    RTIMP        80.00  PERCENT IMPERVIOUS AREA

12 UC          CLARK UNITGRAPH
                       TC          .29  TIME OF CONCENTRATION
                        R          .58  STORAGE COEFFICIENT

               SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

                                                  ***

                                ACCUMULATED PRECIPITATION DEPTH (INCHES) - DURATION (HOURS) VALUES
*   .97   .17 *  5.61  8.17 *  7.57 16.17 *  9.03 24.17 * 10.18 32.17 * 11.18 40.17 * 12.07 48.17 * 12.88 56.17 * 13.62 64.17 *
*  1.36   .33 *  5.66  8.33 *  7.60 16.33 *  9.05 24.33 * 10.20 32.33 * 11.20 40.33 * 12.09 48.33 * 12.89 56.33 * 13.64 64.33 *
*  1.62   .50 *  5.71  8.50 *  7.64 16.50 *  9.08 24.50 * 10.23 32.50 * 11.22 40.50 * 12.11 48.50 * 12.91 56.50 * 13.65 64.50 *
*  1.84   .67 *  5.76  8.67 *  7.67 16.67 *  9.10 24.67 * 10.25 32.67 * 11.24 40.67 * 12.12 48.67 * 12.93 56.67 * 13.67 64.67 *
*  2.03   .83 *  5.81  8.83 *  7.70 16.83 *  9.13 24.83 * 10.27 32.83 * 11.26 40.83 * 12.14 48.83 * 12.94 56.83 * 13.68 64.83 *
*  2.20  1.00 *  5.85  9.00 *  7.74 17.00 *  9.16 25.00 * 10.29 33.00 * 11.28 41.00 * 12.16 49.00 * 12.96 57.00 * 13.70 65.00 *
*  2.36  1.17 *  5.90  9.17 *  7.77 17.17 *  9.18 25.17 * 10.31 33.17 * 11.30 41.17 * 12.18 49.17 * 12.98 57.17 * 13.71 65.17 *
*  2.50  1.33 *  5.95  9.33 *  7.80 17.33 *  9.21 25.33 * 10.34 33.33 * 11.32 41.33 * 12.19 49.33 * 12.99 57.33 * 13.73 65.33 *
*  2.64  1.50 *  5.99  9.50 *  7.84 17.50 *  9.23 25.50 * 10.36 33.50 * 11.34 41.50 * 12.21 49.50 * 13.01 57.50 * 13.74 65.50 *
*  2.76  1.67 *  6.04  9.67 *  7.87 17.67 *  9.26 25.67 * 10.38 33.67 * 11.36 41.67 * 12.23 49.67 * 13.02 57.67 * 13.76 65.67 *
*  2.88  1.83 *  6.09  9.83 *  7.90 17.83 *  9.28 25.83 * 10.40 33.83 * 11.37 41.83 * 12.25 49.83 * 13.04 57.83 * 13.77 65.83 *
*  3.00  2.00 *  6.13 10.00 *  7.93 18.00 *  9.31 26.00 * 10.42 34.00 * 11.39 42.00 * 12.26 50.00 * 13.05 58.00 * 13.79 66.00 *
*  3.11  2.17 *  6.18 10.17 *  7.97 18.17 *  9.33 26.17 * 10.44 34.17 * 11.41 42.17 * 12.28 50.17 * 13.07 58.17 * 13.80 66.17 *
*  3.21  2.33 *  6.22 10.33 *  8.00 18.33 *  9.36 26.33 * 10.47 34.33 * 11.43 42.33 * 12.30 50.33 * 13.09 58.33 * 13.81 66.33 *
*  3.31  2.50 *  6.26 10.50 *  8.03 18.50 *  9.38 26.50 * 10.49 34.50 * 11.45 42.50 * 12.31 50.50 * 13.10 58.50 * 13.83 66.50 *
*  3.41  2.67 *  6.31 10.67 *  8.06 18.67 *  9.41 26.67 * 10.51 34.67 * 11.47 42.67 * 12.33 50.67 * 13.12 58.67 * 13.84 66.67 *
*  3.50  2.83 *  6.35 10.83 *  8.09 18.83 *  9.43 26.83 * 10.53 34.83 * 11.49 42.83 * 12.35 50.83 * 13.13 58.83 * 13.86 66.83 *
*  3.59  3.00 *  6.39 11.00 *  8.12 19.00 *  9.46 27.00 * 10.55 35.00 * 11.51 43.00 * 12.37 51.00 * 13.15 59.00 * 13.87 67.00 *
*  3.68  3.17 *  6.43 11.17 *  8.15 19.17 *  9.48 27.17 * 10.57 35.17 * 11.53 43.17 * 12.38 51.17 * 13.16 59.17 * 13.89 67.17 *
*  3.77  3.33 *  6.48 11.33 *  8.19 19.33 *  9.51 27.33 * 10.59 35.33 * 11.55 43.33 * 12.40 51.33 * 13.18 59.33 * 13.90 67.33 *
*  3.85  3.50 *  6.52 11.50 *  8.22 19.50 *  9.53 27.50 * 10.61 35.50 * 11.56 43.50 * 12.42 51.50 * 13.20 59.50 * 13.92 67.50 *
*  3.93  3.67 *  6.56 11.67 *  8.25 19.67 *  9.56 27.67 * 10.64 35.67 * 11.58 43.67 * 12.43 51.67 * 13.21 59.67 * 13.93 67.67 *
*  4.01  3.83 *  6.60 11.83 *  8.28 19.83 *  9.58 27.83 * 10.66 35.83 * 11.60 43.83 * 12.45 51.83 * 13.23 59.83 * 13.95 67.83 *
*  4.09  4.00 *  6.64 12.00 *  8.31 20.00 *  9.60 28.00 * 10.68 36.00 * 11.62 44.00 * 12.47 52.00 * 13.24 60.00 * 13.96 68.00 *
*  4.16  4.17 *  6.68 12.17 *  8.34 20.17 *  9.63 28.17 * 10.70 36.17 * 11.64 44.17 * 12.48 52.17 * 13.26 60.17 * 13.97 68.17 *
*  4.24  4.33 *  6.72 12.33 *  8.37 20.33 *  9.65 28.33 * 10.72 36.33 * 11.66 44.33 * 12.50 52.33 * 13.27 60.33 * 13.99 68.33 *
*  4.31  4.50 *  6.76 12.50 *  8.40 20.50 *  9.68 28.50 * 10.74 36.50 * 11.68 44.50 * 12.52 52.50 * 13.29 60.50 * 14.00 68.50 *
*  4.38  4.67 *  6.80 12.67 *  8.43 20.67 *  9.70 28.67 * 10.76 36.67 * 11.69 44.67 * 12.53 52.67 * 13.30 60.67 * 14.02 68.67 *
*  4.45  4.83 *  6.84 12.83 *  8.46 20.83 *  9.72 28.83 * 10.78 36.83 * 11.71 44.83 * 12.55 52.83 * 13.32 60.83 * 14.03 68.83 *
*  4.52  5.00 *  6.88 13.00 *  8.49 21.00 *  9.75 29.00 * 10.80 37.00 * 11.73 45.00 * 12.57 53.00 * 13.33 61.00 * 14.05 69.00 *
*  4.58  5.17 *  6.92 13.17 *  8.52 21.17 *  9.77 29.17 * 10.82 37.17 * 11.75 45.17 * 12.58 53.17 * 13.35 61.17 * 14.06 69.17 *
*  4.65  5.33 *  6.95 13.33 *  8.55 21.33 *  9.79 29.33 * 10.84 37.33 * 11.77 45.33 * 12.60 53.33 * 13.37 61.33 * 14.07 69.33 *
*  4.71  5.50 *  6.99 13.50 *  8.58 21.50 *  9.82 29.50 * 10.86 37.50 * 11.78 45.50 * 12.62 53.50 * 13.38 61.50 * 14.09 69.50 *
*  4.78  5.67 *  7.03 13.67 *  8.61 21.67 *  9.84 29.67 * 10.88 37.67 * 11.80 45.67 * 12.63 53.67 * 13.40 61.67 * 14.10 69.67 *
*  4.84  5.83 *  7.07 13.83 *  8.63 21.83 *  9.86 29.83 * 10.90 37.83 * 11.82 45.83 * 12.65 53.83 * 13.41 61.83 * 14.12 69.83 *
*  4.90  6.00 *  7.11 14.00 *  8.66 22.00 *  9.89 30.00 * 10.92 38.00 * 11.84 46.00 * 12.67 54.00 * 13.43 62.00 * 14.13 70.00 *
*  4.96  6.17 *  7.14 14.17 *  8.69 22.17 *  9.91 30.17 * 10.94 38.17 * 11.86 46.17 * 12.68 54.17 * 13.44 62.17 * 14.15 70.17 *
*  5.02  6.33 *  7.18 14.33 *  8.72 22.33 *  9.93 30.33 * 10.96 38.33 * 11.88 46.33 * 12.70 54.33 * 13.46 62.33 * 14.16 70.33 *
*  5.08  6.50 *  7.22 14.50 *  8.75 22.50 *  9.96 30.50 * 10.98 38.50 * 11.89 46.50 * 12.72 54.50 * 13.47 62.50 * 14.17 70.50 *
*  5.13  6.67 *  7.25 14.67 *  8.78 22.67 *  9.98 30.67 * 11.00 38.67 * 11.91 46.67 * 12.73 54.67 * 13.49 62.67 * 14.19 70.67 *
*  5.19  6.83 *  7.29 14.83 *  8.81 22.83 * 10.00 30.83 * 11.02 38.83 * 11.93 46.83 * 12.75 54.83 * 13.50 62.83 * 14.20 70.83 *
*  5.24  7.00 *  7.32 15.00 *  8.87 23.00 * 10.03 31.00 *
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*	5.40	7.50 *	7.43	15.50 *	8.92	23.50 *	10.09	31.50 *	11.10	39.50 *	12.00	47.50 *	12.81	55.50 *	13.56	63.50 *	14.26	71.50 *
*	5.46	7.67 *	7.46	15.67 *	8.94	23.67 *	12	31.67 *	11.12	39.67 *	12.02	47.67 *	12.8[illegible]	[illegible].67 *	13.58	63.67 *	14.27	71.67 *
*	5.51	7.83 *	7.50	15.83 *	8.97	23.83 *	.14	31.83 *	11.14	39.83 *	12.04	47.83 *	12.6[illegible]	[illegible].83 *	13.59	63.83 *	14.29	71.83 *
*	5.56	8.00 *	7.53	16.00 *	9.00	24.00 *	10.16	32.00 *	11.16	40.00 *	12.05	48.00 *	12.86	56.00 *	13.61	64.00 *	14.30	72.00 *

UNIT HYDROGRAPH PARAMETERS

CLARK	TC	.29 HR	R	.58 HR
SNYDER	TP	.31 HR	CP	.38

UNIT HYDROGRAPH
20 END-OF-PERIOD ORDINATES

30.	71.	72.	54.	40.	30.	23.	17.	13.	10.
7.	5.	4.	3.	2.	2.	1.	1.	1.	1.

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HYDROGRAPH AT STATION 1

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
8	DEC	0000	1	.01	.00	.01	0.	*	9	DEC	1210	218	.26	.00	.26	135.
8	DEC	0010	2	.01	.00	.01	1.	*	9	DEC	1220	219	.19	.00	.18	137.
8	DEC	0020	3	.01	.00	.01	2.	*	9	DEC	1230	220	.16	.00	.15	121.
8	DEC	0030	4	.01	.00	.01	3.	*	9	DEC	1240	221	.14	.00	.13	106.
8	DEC	0040	5	.01	.00	.01	3.	*	9	DEC	1250	222	.12	.00	.12	92.
8	DEC	0050	6	.01	.00	.01	4.	*	9	DEC	1300	223	.11	.00	.11	80.
8	DEC	0100	7	.01	.00	.01	4.	*	9	DEC	1310	224	.10	.00	.10	70.
8	DEC	0110	8	.01	.00	.01	4.	*	9	DEC	1320	225	.09	.00	.09	62.
8	DEC	0120	9	.01	.00	.01	4.	*	9	DEC	1330	226	.09	.00	.09	55.
8	DEC	0130	10	.01	.00	.01	4.	*	9	DEC	1340	227	.08	.00	.08	50.
8	DEC	0140	11	.01	.00	.01	5.	*	9	DEC	1350	228	.08	.00	.08	45.
8	DEC	0150	12	.01	.00	.01	5.	*	9	DEC	1400	229	.08	.00	.07	41.
8	DEC	0200	13	.01	.00	.01	5.	*	9	DEC	1410	230	.07	.00	.07	38.
8	DEC	0210	14	.01	.00	.01	5.	*	9	DEC	1420	231	.07	.00	.07	35.
8	DEC	0220	15	.01	.00	.01	5.	*	9	DEC	1430	232	.07	.00	.06	33.
8	DEC	0230	16	.01	.00	.01	5.	*	9	DEC	1440	233	.06	.00	.06	31.
8	DEC	0240	17	.01	.00	.01	5.	*	9	DEC	1450	234	.06	.00	.06	29.
8	DEC	0250	18	.01	.00	.01	5.	*	9	DEC	1500	235	.06	.00	.06	27.
8	DEC	0300	19	.01	.00	.01	5.	*	9	DEC	1510	236	.06	.00	.06	26.
8	DEC	0310	20	.01	.00	.01	5.	*	9	DEC	1520	237	.06	.00	.05	24.
8	DEC	0320	21	.01	.00	.01	5.	*	9	DEC	1530	238	.05	.00	.05	23.
8	DEC	0330	22	.01	.00	.01	5.	*	9	DEC	1540	239	.05	.00	.05	22.
8	DEC	0340	23	.01	.00	.01	5.	*	9	DEC	1550	240	.05	.00	.05	22.
8	DEC	0350	24	.01	.00	.01	5.	*	9	DEC	1600	241	.05	.00	.05	21.
8	DEC	0400	25	.01	.00	.01	5.	*	9	DEC	1610	242	.05	.00	.05	20.
8	DEC	0410	26	.01	.00	.01	5.	*	9	DEC	1620	243	.05	.00	.05	20.
8	DEC	0420	27	.02	.00	.01	5.	*	9	DEC	1630	244	.05	.00	.05	19.
8	DEC	0430	28	.02	.00	.01	5.	*	9	DEC	1640	245	.05	.00	.04	19.
8	DEC	0440	29	.02	.00	.01	5.	*	9	DEC	1650	246	.05	.00	.04	18.
8	DEC	0450	30	.02	.00	.01	5.	*	9	DEC	1700	247	.04	.00	.04	18.
8	DEC	0500	31	.02	.00	.01	5.	*	9	DEC	1710	248	.04	.00	.04	17.
8	DEC	0510	32	.02	.00	.01	5.	*	9	DEC	1720	249	.04	.00	.04	17.
8	DEC	0520	33	.02	.00	.01	5.	*	9	DEC	1730	250	.04	.00	.04	17.
8	DEC	0530	34	.02	.00	.01	5.	*	9	DEC	1740	251	.04	.00	.04	16.
8	DEC	0540	35	.02	.00	.01	5.	*	9	DEC	1750	252	.04	.00	.04	16.
8	DEC	0550	36	.02	.00	.01	5.	*	9	DEC	1800	253	.04	.00	.04	16.
8	DEC	0600	37	.02	.00	.01	5.	*	9	DEC	1810	254	.04	.00	.04	16.
8	DEC	0610	38	.02	.00	.01	5.	*	9	DEC	1820	255	.04	.00	.04	15.
8	DEC	0620	39	.02	.00	.01	5.	*	9	DEC	1830	256	.04	.00	.04	15.
8	DEC	0630	40	.02	.00	.01	5.	*	9	DEC	1840	257	.04	.00	.04	15.
8	DEC	0640	41	.02	.00	.01	5.	*	9	DEC	1850	258	.04	.00	.04	15.
8	DEC	0650	42	.02	.00	.01	5.	*	9	DEC	1900	259	.04	.00	.04	14.
8	DEC	0700	43	.02	.00	.01	5.	*	9	DEC	1910	260	.04	.00	.03	14.
8	DEC	0710	44	.02	.00	.01	5.	*	9	DEC	1920	261	.04	.00	.03	14.
8	DEC	0720	45	.02	.00	.01	5.	*	9	DEC	1930	262	.04	.00	.03	14.
8	DEC	0730	46	.02	.00	.01	5.	*	9	DEC	1940	263	.04	.00	.03	14.
8	DEC	0740	47	.02	.00	.01	5.	*	9	DEC	1950	264	.03	.00	.03	13.
8	DEC	0750	48	.02	.00	.01	5.	*	9	DEC	2000	265	.03	.00	.03	13.
8	DEC	0800	49	.02	.00	.01	5.	*	9	DEC	2010	266	.03	.00	.03	13.
8	DEC	0810	50	.02	.00	.01	5.	*	9	DEC	2020	267	.03	.00	.03	13.
8	DEC	0820	51	.02	.00	.01	5.	*	9	DEC	2030	268	.03	.00	.03	13.
8	DEC	0830	52	.02	.00	.01	5.	*	9	DEC	2040	269	.03	.00	.03	13.
8	DEC	0840	53	.02	.00	.01	6.	*	9	DEC	2050	270	.03	.00	.03	12.
8	DEC	0850	54	.02	.00	.01	6.	*	9	DEC	2100	271	.03	.00	.03	12.
8	DEC	0900	55	.02	.00	.01	6.	*	9	DEC	2110	272	.03	.00	.03	12.
8	DEC	0910	56	.02	.00	.01	6.	*	9	DEC	2120	273	.03	.00	.03	12.
8	DEC	0920	57	.02	.00	.01	6.	*	9	DEC	2130	274	.03	.00	.03	12.
8	DEC	0930	58	.02	.00	.01	6.	*	9	DEC	2140	275	.03	.00	.03	12.
8	DEC	0940	59	.02	.00	.01	6.	*	9	DEC	2150	276	.03	.00	.03	12.
8	DEC	0950	60	.02	.00	.01	6.	*	9	DEC	2200	277	.03	.00	.03	11.
8	DEC	1000	61	.02	.00	.01	6.	*	9	DEC	2210	278	.03	.00	.03	11.
8	DEC	1010	62	.02	.00	.02	6.	*	9	DEC	2220	279	.03	.00	.03	11.
8	DEC	1020	63	.02	.00	.02	6.	*	9	DEC	2230	280	.03	.00	.03	11.

8	DEC	1110	68	.02	.00	[illegible]	6.	*	9	DEC	2310	284	.03	.00	.03	11.
8	DEC	1120	69	.02	.00	[illegible]	6.	*	9	DEC	2320	285	.03	.00	.03	11.
8	DEC	1130	70	.02	.00	.02	6.	*	9	DEC	2330	286	.03	.00	.03	11.
8	DEC	1140	71	.02	.00	.02	6.	*	9	DEC	2340	287	.03	.00	.03	10.
8	DEC	1150	72	.02	.00	.02	6.	*	9	DEC	2350	288	.03	.00	.03	10.
8	DEC	1200	73	.02	.00	.02	6.	*	10	DEC	0000	289	.03	.00	.02	10.
8	DEC	1210	74	.02	.00	.02	6.	*	10	DEC	0010	290	.03	.00	.02	10.
8	DEC	1220	75	.02	.00	.02	6.	*	10	DEC	0020	291	.03	.00	.02	10.
8	DEC	1230	76	.02	.00	.02	6.	*	10	DEC	0030	292	.03	.00	.02	10.
8	DEC	1240	77	.02	.00	.02	6.	*	10	DEC	0040	293	.03	.00	.02	10.
8	DEC	1250	78	.02	.00	.02	6.	*	10	DEC	0050	294	.03	.00	.02	10.
8	DEC	1300	79	.02	.00	.02	6.	*	10	DEC	0100	295	.03	.00	.02	9.
8	DEC	1310	80	.02	.00	.02	6.	*	10	DEC	0110	296	.02	.00	.02	9.
8	DEC	1320	81	.02	.00	.02	6.	*	10	DEC	0120	297	.02	.00	.02	9.
8	DEC	1330	82	.02	.00	.02	6.	*	10	DEC	0130	298	.02	.00	.02	9.
8	DEC	1340	83	.02	.00	.02	6.	*	10	DEC	0140	299	.02	.00	.02	9.
8	DEC	1350	84	.02	.00	.02	6.	*	10	DEC	0150	300	.02	.00	.02	9.
8	DEC	1400	85	.02	.00	.02	6.	*	10	DEC	0200	301	.02	.00	.02	9.
8	DEC	1410	86	.02	.00	.02	6.	*	10	DEC	0210	302	.02	.00	.02	9.
8	DEC	1420	87	.02	.00	.02	6.	*	10	DEC	0220	303	.02	.00	.02	9.
8	DEC	1430	88	.02	.00	.02	6.	*	10	DEC	0230	304	.02	.00	.02	9.
8	DEC	1440	89	.02	.00	.02	6.	*	10	DEC	0240	305	.02	.00	.02	9.
8	DEC	1450	90	.02	.00	.02	6.	*	10	DEC	0250	306	.02	.00	.02	9.
8	DEC	1500	91	.02	.00	.02	7.	*	10	DEC	0300	307	.02	.00	.02	9.
8	DEC	1510	92	.02	.00	.02	7.	*	10	DEC	0310	308	.02	.00	.02	8.
8	DEC	1520	93	.02	.00	.02	7.	*	10	DEC	0320	309	.02	.00	.02	8.
8	DEC	1530	94	.02	.00	.02	7.	*	10	DEC	0330	310	.02	.00	.02	8.
8	DEC	1540	95	.02	.00	.02	7.	*	10	DEC	0340	311	.02	.00	.02	8.
8	DEC	1550	96	.02	.00	.02	7.	*	10	DEC	0350	312	.02	.00	.02	8.
8	DEC	1600	97	.02	.00	.02	7.	*	10	DEC	0400	313	.02	.00	.02	8.
8	DEC	1610	98	.02	.00	.02	7.	*	10	DEC	0410	314	.02	.00	.02	8.
8	DEC	1620	99	.02	.00	.02	7.	*	10	DEC	0420	315	.02	.00	.02	8.
8	DEC	1630	100	.02	.00	.02	7.	*	10	DEC	0430	316	.02	.00	.02	8.
8	DEC	1640	101	.02	.00	.02	7.	*	10	DEC	0440	317	.02	.00	.02	8.
8	DEC	1650	102	.02	.00	.02	7.	*	10	DEC	0450	318	.02	.00	.02	8.
8	DEC	1700	103	.02	.00	.02	7.	*	10	DEC	0500	319	.02	.00	.02	8.
8	DEC	1710	104	.02	.00	.02	7.	*	10	DEC	0510	320	.02	.00	.02	8.
8	DEC	1720	105	.02	.00	.02	7.	*	10	DEC	0520	321	.02	.00	.02	8.
8	DEC	1730	106	.02	.00	.02	7.	*	10	DEC	0530	322	.02	.00	.02	8.
8	DEC	1740	107	.02	.00	.02	7.	*	10	DEC	0540	323	.02	.00	.02	8.
8	DEC	1750	108	.02	.00	.02	7.	*	10	DEC	0550	324	.02	.00	.02	8.
8	DEC	1800	109	.02	.00	.02	7.	*	10	DEC	0600	325	.02	.00	.02	8.
8	DEC	1810	110	.02	.00	.02	7.	*	10	DEC	0610	326	.02	.00	.02	8.
8	DEC	1820	111	.02	.00	.02	7.	*	10	DEC	0620	327	.02	.00	.02	8.
8	DEC	1830	112	.02	.00	.02	7.	*	10	DEC	0630	328	.02	.00	.02	8.
8	DEC	1840	113	.02	.00	.02	7.	*	10	DEC	0640	329	.02	.00	.02	7.
8	DEC	1850	114	.02	.00	.02	7.	*	10	DEC	0650	330	.02	.00	.02	7.
8	DEC	1900	115	.02	.00	.02	7.	*	10	DEC	0700	331	.02	.00	.02	7.
8	DEC	1910	116	.02	.00	.02	7.	*	10	DEC	0710	332	.02	.00	.02	7.
8	DEC	1920	117	.02	.00	.02	7.	*	10	DEC	0720	333	.02	.00	.02	7.
8	DEC	1930	118	.02	.00	.02	8.	*	10	DEC	0730	334	.02	.00	.02	7.
8	DEC	1940	119	.02	.00	.02	8.	*	10	DEC	0740	335	.02	.00	.02	7.
8	DEC	1950	120	.02	.00	.02	8.	*	10	DEC	0750	336	.02	.00	.02	7.
8	DEC	2000	121	.02	.00	.02	8.	*	10	DEC	0800	337	.02	.00	.02	7.
8	DEC	2010	122	.02	.00	.02	8.	*	10	DEC	0810	338	.02	.00	.02	7.
8	DEC	2020	123	.02	.00	.02	8.	*	10	DEC	0820	339	.02	.00	.02	7.
8	DEC	2030	124	.02	.00	.02	8.	*	10	DEC	0830	340	.02	.00	.02	7.
8	DEC	2040	125	.02	.00	.02	8.	*	10	DEC	0840	341	.02	.00	.02	7.
8	DEC	2050	126	.02	.00	.02	8.	*	10	DEC	0850	342	.02	.00	.02	7.
8	DEC	2100	127	.02	.00	.02	8.	*	10	DEC	0900	343	.02	.00	.02	7.
8	DEC	2110	128	.02	.00	.02	8.	*	10	DEC	0910	344	.02	.00	.02	7.
8	DEC	2120	129	.02	.00	.02	8.	*	10	DEC	0920	345	.02	.00	.02	7.
8	DEC	2130	130	.02	.00	.02	8.	*	10	DEC	0930	346	.02	.00	.02	7.
8	DEC	2140	131	.02	.00	.02	8.	*	10	DEC	0940	347	.02	.00	.02	7.
8	DEC	2150	132	.02	.00	.02	8.	*	10	DEC	0950	348	.02	.00	.02	7.
8	DEC	2200	133	.02	.00	.02	8.	*	10	DEC	1000	349	.02	.00	.02	7.
8	DEC	2210	134	.02	.00	.02	8.	*	10	DEC	1010	350	.02	.00	.02	7.
8	DEC	2220	135	.02	.00	.02	8.	*	10	DEC	1020	351	.02	.00	.02	7.
8	DEC	2230	136	.02	.00	.02	9.	*	10	DEC	1030	352	.02	.00	.02	7.
8	DEC	2240	137	.02	.00	.02	9.	*	10	DEC	1040	353	.02	.00	.02	7.
8	DEC	2250	138	.03	.00	.02	9.	*	10	DEC	1050	354	.02	.00	.02	7.
8	DEC	2300	139	.03	.00	.02	9.	*	10	DEC	1100	355	.02	.00	.02	7.
8	DEC	2310	140	.03	.00	.02	9.	*	10	DEC	1110	356	.02	.00	.02	7.
8	DEC	2320	141	.03	.00	.02	9.	*	10	DEC	1120	357	.02	.00	.02	7.
8	DEC	2330	142	.03	.00	.02	9.	*	10	DEC	1130	358	.02	.00	.02	6.
8	DEC	2340	143	.03	.00	.02	9.	*	10	DEC	1140	359	.02	.00	.02	6.
8	DEC	2350	144	.03	.00	.02	9.	*	10	DEC	1150	360	.02	.00	.02	6.
9	DEC	0000	145	.03	.00	.03	9.	*	10	DEC	1200	361	.02	.00	.02	6.
9	DEC	0010	146	.03	.00	.03	9.	*	10	DEC	1210	362	.02	.00	.02	6.
9	DEC	0020	147	.03	.00	.03	9.	*	10	DEC	1220	363	.02	.00	.02	6.
9	DEC	0030	148	.03	.00	.03	10.	*	10	DEC	1230	364	.02	.00	.02	6.
9	DEC	0040	149	.03	.00	.03	10.	*	10	DEC	1240	365	.02	.00	.02	6.
9	DEC	0050	150	.03	.00	.03	10.	*	10	DEC	1250	366	.02	.00	.02	6.
9	DEC	0100	151	.03	.00	.03	10.	*	10	DEC	1300	367	.02	.00	.02	6.
9	DEC	0110	152	.03	.00	.03	[illegible]	*	10	DEC	1310	368	.02	.00	.02	6.

9	DEC	0140	155	.03	.00	.03	10.	*	10	DEC	1350	372	.02	.00	.02	6.
9	DEC	0150	156	.03	.00	.03	10.	*	10	DEC	1400	373	.02	.00	.02	6.
9	DEC	0200	157	.03	.00	.3	11.	*	10	DEC	1410	374	.02	.00	.02	6.
9	DEC	0210	158	.03	.00	.03	11.	*	10	DEC	1420	375	.02	.00	.02	6.
9	DEC	0220	159	.03	.00	.03	11.	*	10	DEC	1430	376	.02	.00	.02	6.
9	DEC	0230	160	.03	.00	.03	11.	*	10	DEC	1440	377	.02	.00	.02	6.
9	DEC	0240	161	.03	.00	.03	11.	*	10	DEC	1450	378	.02	.00	.02	6.
9	DEC	0250	162	.03	.00	.03	11.	*	10	DEC	1500	379	.02	.00	.02	6.
9	DEC	0300	163	.03	.00	.03	11.	*	10	DEC	1510	380	.02	.00	.02	6.
9	DEC	0310	164	.03	.00	.03	11.	*	10	DEC	1520	381	.02	.00	.02	6.
9	DEC	0320	165	.03	.00	.03	11.	*	10	DEC	1530	382	.02	.00	.02	6.
9	DEC	0330	166	.03	.00	.03	12.	*	10	DEC	1540	383	.02	.00	.01	6.
9	DEC	0340	167	.03	.00	.03	12.	*	10	DEC	1550	384	.02	.00	.01	6.
9	DEC	0350	168	.03	.00	.03	12.	*	10	DEC	1600	385	.02	.00	.01	6.
9	DEC	0400	169	.03	.00	.03	12.	*	10	DEC	1610	386	.02	.00	.01	6.
9	DEC	0410	170	.03	.00	.03	12.	*	10	DEC	1620	387	.02	.00	.01	6.
9	DEC	0420	171	.04	.00	.03	12.	*	10	DEC	1630	388	.02	.00	.01	6.
9	DEC	0430	172	.04	.00	.03	12.	*	10	DEC	1640	389	.02	.00	.01	6.
9	DEC	0440	173	.04	.00	.03	13.	*	10	DEC	1650	390	.02	.00	.01	6.
9	DEC	0450	174	.04	.00	.03	13.	*	10	DEC	1700	391	.02	.00	.01	6.
9	DEC	0500	175	.04	.00	.03	13.	*	10	DEC	1710	392	.02	.00	.01	6.
9	DEC	0510	176	.04	.00	.04	13.	*	10	DEC	1720	393	.02	.00	.01	6.
9	DEC	0520	177	.04	.00	.04	13.	*	10	DEC	1730	394	.02	.00	.01	6.
9	DEC	0530	178	.04	.00	.04	13.	*	10	DEC	1740	395	.02	.00	.01	6.
9	DEC	0540	179	.04	.00	.04	14.	*	10	DEC	1750	396	.02	.00	.01	6.
9	DEC	0550	180	.04	.00	.04	14.	*	10	DEC	1800	397	.02	.00	.01	6.
9	DEC	0600	181	.04	.00	.04	14.	*	10	DEC	1810	398	.02	.00	.01	6.
9	DEC	0610	182	.04	.00	.04	14.	*	10	DEC	1820	399	.02	.00	.01	6.
9	DEC	0620	183	.04	.00	.04	14.	*	10	DEC	1830	400	.02	.00	.01	6.
9	DEC	0630	184	.04	.00	.04	15.	*	10	DEC	1840	401	.02	.00	.01	6.
9	DEC	0640	185	.04	.00	.04	15.	*	10	DEC	1850	402	.02	.00	.01	5.
9	DEC	0650	186	.04	.00	.04	15.	*	10	DEC	1900	403	.02	.00	.01	5.
9	DEC	0700	187	.05	.00	.04	15.	*	10	DEC	1910	404	.02	.00	.01	5.
9	DEC	0710	188	.05	.00	.04	16.	*	10	DEC	1920	405	.02	.00	.01	5.
9	DEC	0720	189	.05	.00	.04	16.	*	10	DEC	1930	406	.02	.00	.01	5.
9	DEC	0730	190	.05	.00	.05	16.	*	10	DEC	1940	407	.02	.00	.01	5.
9	DEC	0740	191	.05	.00	.05	17.	*	10	DEC	1950	408	.01	.00	.01	5.
9	DEC	0750	192	.05	.00	.05	17.	*	10	DEC	2000	409	.01	.00	.01	5.
9	DEC	0800	193	.05	.00	.05	17.	*	10	DEC	2010	410	.01	.00	.01	5.
9	DEC	0810	194	.05	.00	.05	18.	*	10	DEC	2020	411	.01	.00	.01	5.
9	DEC	0820	195	.05	.00	.05	18.	*	10	DEC	2030	412	.01	.00	.01	5.
9	DEC	0830	196	.06	.00	.05	19.	*	10	DEC	2040	413	.01	.00	.01	5.
9	DEC	0840	197	.06	.00	.05	19.	*	10	DEC	2050	414	.01	.00	.01	5.
9	DEC	0850	198	.06	.00	.06	19.	*	10	DEC	2100	415	.01	.00	.01	5.
9	DEC	0900	199	.06	.00	.06	20.	*	10	DEC	2110	416	.01	.00	.01	5.
9	DEC	0910	200	.06	.00	.06	21.	*	10	DEC	2120	417	.01	.00	.01	5.
9	DEC	0920	201	.07	.00	.06	21.	*	10	DEC	2130	418	.01	.00	.01	5.
9	DEC	0930	202	.07	.00	.07	22.	*	10	DEC	2140	419	.01	.00	.01	5.
9	DEC	0940	203	.07	.00	.07	23.	*	10	DEC	2150	420	.01	.00	.01	5.
9	DEC	0950	204	.07	.00	.07	24.	*	10	DEC	2200	421	.01	.00	.01	5.
9	DEC	1000	205	.08	.00	.07	25.	*	10	DEC	2210	422	.01	.00	.01	5.
9	DEC	1010	206	.08	.00	.08	26.	*	10	DEC	2220	423	.01	.00	.01	5.
9	DEC	1020	207	.09	.00	.08	27.	*	10	DEC	2230	424	.01	.00	.01	5.
9	DEC	1030	208	.09	.00	.09	28.	*	10	DEC	2240	425	.01	.00	.01	5.
9	DEC	1040	209	.10	.00	.09	30.	*	10	DEC	2250	426	.01	.00	.01	5.
9	DEC	1050	210	.10	.00	.10	31.	*	10	DEC	2300	427	.01	.00	.01	5.
9	DEC	1100	211	.11	.00	.11	34.	*	10	DEC	2310	428	.01	.00	.01	5.
9	DEC	1110	212	.13	.00	.12	36.	*	10	DEC	2320	429	.01	.00	.01	5.
9	DEC	1120	213	.14	.00	.14	39.	*	10	DEC	2330	430	.01	.00	.01	5.
9	DEC	1130	214	.17	.00	.16	44.	*	10	DEC	2340	431	.01	.00	.01	5.
9	DEC	1140	215	.22	.00	.21	50.	*	10	DEC	2350	432	.01	.00	.01	5.
9	DEC	1150	216	.39	.01	.39	62.	*	11	DEC	0000	433	.00	.00	.00	5.
9	DEC	1200	217	.97	.01	.96	98.	*								
								*								

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TOTAL RAINFALL = 14.30, TOTAL LOSS = .81, TOTAL EXCESS = 13.49

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	72.00-HR
		(CFS)				
137.	36.33		51.	23.	12.	12.
		(INCHES)	4.739	8.618	13.397	13.397
		(AC-FT)	25.	46.	71.	71.

CUMULATIVE AREA = .10 SQ MI

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FLOOD ROUTING

HYDROGRAPH ROUTING DATA

15 RS	STORAGE ROUTING			
	NSTPS	1	NUMBER OF SUBREACHES	
	ITYP	ELEV	TYPE OF INITIAL CONDITION	
	RSVRIC	240.80	INITIAL CONDITION	
	X	.00	WORKING R AND D COEFFICIENT	

16 SV	STORAGE	76.0	78.0	80.0	82.0	84.0	85.0
17 SQ	DISCHARGE	0.	2.	7.	10.	13.	14.
18 SE	ELEVATION	240.80	241.30	241.80	242.30	242.80	243.00

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HYDROGRAPH AT STATION 2

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
8	DEC	0000	1	0.	76.0	240.8	9	DEC	0010	146	7.	80.3	241.9	10	DEC	0020	291	20.	93.1	244.6
8	DEC	0010	2	0.	76.0	240.8	9	DEC	0020	147	7.	80.4	241.9	10	DEC	0030	292	20.	93.0	244.6
8	DEC	0020	3	0.	76.0	240.8	9	DEC	0030	148	7.	80.4	241.9	10	DEC	0040	293	20.	92.8	244.6
8	DEC	0030	4	0.	76.1	240.8	9	DEC	0040	149	8.	80.4	241.9	10	DEC	0050	294	20.	92.7	244.5
8	DEC	0040	5	0.	76.1	240.8	9	DEC	0050	150	8.	80.4	241.9	10	DEC	0100	295	20.	92.6	244.5
8	DEC	0050	6	0.	76.2	240.8	9	DEC	0100	151	8.	80.5	241.9	10	DEC	0110	296	19.	92.4	244.5
8	DEC	0100	7	0.	76.2	240.9	9	DEC	0110	152	8.	80.5	241.9	10	DEC	0120	297	19.	92.3	244.5
8	DEC	0110	8	0.	76.3	240.9	9	DEC	0120	153	8.	80.5	241.9	10	DEC	0130	298	19.	92.1	244.4
8	DEC	0120	9	0.	76.3	240.9	9	DEC	0130	154	8.	80.6	241.9	10	DEC	0140	299	19.	92.0	244.4
8	DEC	0130	10	0.	76.4	240.9	9	DEC	0140	155	8.	80.6	242.0	10	DEC	0150	300	19.	91.9	244.4
8	DEC	0140	11	0.	76.4	240.9	9	DEC	0150	156	8.	80.6	242.0	10	DEC	0200	301	19.	91.7	244.3
8	DEC	0150	12	1.	76.5	240.9	9	DEC	0200	157	8.	80.7	242.0	10	DEC	0210	302	19.	91.6	244.3
8	DEC	0200	13	1.	76.5	240.9	9	DEC	0210	158	8.	80.7	242.0	10	DEC	0220	303	19.	91.5	244.3
8	DEC	0210	14	1.	76.6	240.9	9	DEC	0220	159	8.	80.8	242.0	10	DEC	0230	304	19.	91.3	244.3
8	DEC	0220	15	1.	76.6	241.0	9	DEC	0230	160	8.	80.8	242.0	10	DEC	0240	305	18.	91.2	244.2
8	DEC	0230	16	1.	76.7	241.0	9	DEC	0240	161	8.	80.8	242.0	10	DEC	0250	306	18.	91.0	244.2
8	DEC	0240	17	1.	76.7	241.0	9	DEC	0250	162	8.	80.9	242.0	10	DEC	0300	307	18.	90.9	244.2
8	DEC	0250	18	1.	76.8	241.0	9	DEC	0300	163	8.	80.9	242.0	10	DEC	0310	308	18.	90.8	244.2
8	DEC	0300	19	1.	76.9	241.0	9	DEC	0310	164	8.	80.9	242.0	10	DEC	0320	309	18.	90.6	244.1
8	DEC	0310	20	1.	76.9	241.0	9	DEC	0320	165	8.	81.0	242.0	10	DEC	0330	310	18.	90.5	244.1
8	DEC	0320	21	1.	77.0	241.0	9	DEC	0330	166	9.	81.0	242.1	10	DEC	0340	311	18.	90.4	244.1
8	DEC	0330	22	1.	77.0	241.1	9	DEC	0340	167	9.	81.1	242.1	10	DEC	0350	312	18.	90.3	244.1
8	DEC	0340	23	1.	77.1	241.1	9	DEC	0350	168	9.	81.1	242.1	10	DEC	0400	313	18.	90.1	244.0
8	DEC	0350	24	1.	77.1	241.1	9	DEC	0400	169	9.	81.2	242.1	10	DEC	0410	314	17.	90.0	244.0
8	DEC	0400	25	1.	77.2	241.1	9	DEC	0410	170	9.	81.2	242.1	10	DEC	0420	315	17.	89.9	244.0
8	DEC	0410	26	1.	77.2	241.1	9	DEC	0420	171	9.	81.2	242.1	10	DEC	0430	316	17.	89.7	243.9
8	DEC	0420	27	1.	77.3	241.1	9	DEC	0430	172	9.	81.3	242.1	10	DEC	0440	317	17.	89.6	243.9
8	DEC	0430	28	2.	77.3	241.1	9	DEC	0440	173	9.	81.3	242.1	10	DEC	0450	318	17.	89.5	243.9
8	DEC	0440	29	2.	77.4	241.1	9	DEC	0450	174	9.	81.4	242.1	10	DEC	0500	319	17.	89.4	243.9
8	DEC	0450	30	2.	77.4	241.2	9	DEC	0500	175	9.	81.4	242.2	10	DEC	0510	320	17.	89.2	243.8
8	DEC	0500	31	2.	77.5	241.2	9	DEC	0510	176	9.	81.5	242.2	10	DEC	0520	321	17.	89.1	243.8
8	DEC	0510	32	2.	77.5	241.2	9	DEC	0520	177	9.	81.5	242.2	10	DEC	0530	322	17.	89.0	243.8
8	DEC	0520	33	2.	77.6	241.2	9	DEC	0530	178	9.	81.6	242.2	10	DEC	0540	323	17.	88.9	243.8
8	DEC	0530	34	2.	77.6	241.2	9	DEC	0540	179	10.	81.6	242.2	10	DEC	0550	324	16.	88.7	243.7
8	DEC	0540	35	2.	77.6	241.2	9	DEC	0550	180	10.	81.7	242.2	10	DEC	0600	325	16.	88.6	243.7
8	DEC	0550	36	2.	77.7	241.2	9	DEC	0600	181	10.	81.8	242.2	10	DEC	0610	326	16.	88.5	243.7
8	DEC	0600	37	2.	77.7	241.2	9	DEC	0610	182	10.	81.8	242.3	10	DEC	0620	327	16.	88.4	243.7
8	DEC	0610	38	2.	77.8	241.2	9	DEC	0620	183	10.	81.9	242.3	10	DEC	0630	328	16.	88.3	243.7
8	DEC	0620	39	2.	77.8	241.3	9	DEC	0630	184	10.	81.9	242.3	10	DEC	0640	329	16.	88.1	243.6
8	DEC	0630	40	2.	77.9	241.3	9	DEC	0640	185	10.	82.0	242.3	10	DEC	0650	330	16.	88.0	243.6
8	DEC	0640	41	2.	77.9	241.3	9	DEC	0650	186	10.	82.1	242.3	10	DEC	0700	331	16.	87.9	243.6
8	DEC	0650	42	2.	77.9	241.3	9	DEC	0700	187	10.	82.1	242.3	10	DEC	0710	332	16.	87.8	243.6
8	DEC	0700	43	2.	78.0	241.3	9	DEC	0710	188	10.	82.2	242.4	10	DEC	0720	333	16.	87.7	243.5
8	DEC	0710	44	2.	78.0	241.3	9	DEC	0720	189	11.	82.3	242.4	10	DEC	0730	334	16.	87.6	243.5
8	DEC	0720	45	2.	78.1	241.3	9	DEC	0730	190	11.	82.4	242.4	10	DEC	0740	335	15.	87.5	243.5
8	DEC	0730	46	3.	78.1	241.3	9	DEC	0740	191	11.	82.4	242.4	10	DEC	0750	336	15.	87.3	243.5
8	DEC	0740	47	3.	78.1	241.3	9	DEC	0750	192	11.	82.5	242.4	10	DEC	0800	337	15.	87.2	243.4
8	DEC	0750	48	3.	78.2	241.3	9	DEC	0800	193	11.	82.6	242.4	10	DEC	0810	338	15.	87.1	243.4
8	DEC	0800	49	3.	78.2	241.4	9	DEC	0810	194	11.	82.7	242.5	10	DEC	0820	339	15.	87.0	243.4
8	DEC	0810	50	3.	78.3	241.4	9	DEC	0820	195	11.	82.8	242.5	10	DEC	0830	340	15.	86.9	243.4
8	DEC	0820	51	3.	78.3	241.4	9	DEC	0830	196	11.	82.9	242.5	10	DEC	0840	341	15.	86.8	243.4
8	DEC	0830	52	3.	78.3	241.4	9	DEC	0840	197	11.	83.0	242.5	10	DEC	0850	342	15.	86.7	243.3
8	DEC	0840	53	3.	78.4	241.4	9	DEC	0850	198	12.	83.1	242.6	10	DEC	0900	343	15.	86.6	243.3
8	DEC	0850	54	3.	78.4	241.4	9	DEC	0900	199	12.	83.2	242.6	10	DEC	0910	344	15.	86.5	243.3
8	DEC	0900	55	3.	78.4	241.4	9	DEC	0910	200	12.	83.3	242.6	10	DEC	0920	345	15.	86.4	243.3
8	DEC	0910	56	3.	78.5	241.4	9	DEC	0920	201	12.	83.4	242.7	10	DEC	0930	346	15.	86.3	243.3
8	DEC	0920	57	3.	78.5	241.4	9	DEC	0930	202	12.	83.6	242.7	10	DEC	0940	347	14.	86.1	243.2
8	DEC	0930	58	3.	78.5	241.4	9	DEC	0940	203	12.	83.7	242.7	10	DEC	0950	348	14.	86.0	243.2

8 DEC 1010 62	4.	78.6	241.5 *	9 DEC 1020 207	13.	84.4	242.9 *	10 DEC 1030 352	14.	85.6	243.1
8 DEC 1020 63	4.	78.7	241.5	9 DEC 1030 208	13.	84.6	242.9 *	10 DEC 1040 353	14.	85.5	243.1
8 DEC 1030 64	4.	78.7	241.5	9 DEC 1040 209	13.	84.8	243.0 *	10 DEC 1050 354	14.	85.4	243.1
8 DEC 1040 65	4.	78.7	241.5 *	9 DEC 1050 210	14.	85.0	243.0 *	10 DEC 1100 355	14.	85.3	243.1
8 DEC 1050 66	4.	78.7	241.5 *	9 DEC 1100 211	14.	85.3	243.1 *	10 DEC 1110 356	14.	85.2	243.0
8 DEC 1100 67	4.	78.8	241.5 *	9 DEC 1110 212	14.	85.6	243.1 *	10 DEC 1120 357	14.	85.1	243.0
8 DEC 1110 68	4.	78.8	241.5 *	9 DEC 1120 213	14.	85.9	243.2 *	10 DEC 1130 358	14.	85.0	243.0
8 DEC 1120 69	4.	78.8	241.5 *	9 DEC 1130 214	15.	86.3	243.3 *	10 DEC 1140 359	13.	84.9	243.0
8 DEC 1130 70	4.	78.8	241.5 *	9 DEC 1140 215	15.	86.7	243.3 *	10 DEC 1150 360	13.	84.8	243.0
8 DEC 1140 71	4.	78.9	241.5 *	9 DEC 1150 216	15.	87.3	243.5 *	10 DEC 1200 361	13.	84.7	242.9
8 DEC 1150 72	4.	78.9	241.5 *	9 DEC 1200 217	16.	88.2	243.6 *	10 DEC 1210 362	13.	84.7	242.9
8 DEC 1200 73	4.	78.9	241.5 *	9 DEC 1210 218	17.	89.5	243.9 *	10 DEC 1220 363	13.	84.6	242.9
8 DEC 1210 74	4.	78.9	241.5 *	9 DEC 1220 219	18.	91.2	244.2 *	10 DEC 1230 364	13.	84.5	242.9
8 DEC 1220 75	4.	79.0	241.5 *	9 DEC 1230 220	20.	92.7	244.5 *	10 DEC 1240 365	13.	84.4	242.9
8 DEC 1230 76	4.	79.0	241.5 *	9 DEC 1240 221	21.	94.0	244.8 *	10 DEC 1250 366	13.	84.3	242.9
8 DEC 1240 77	5.	79.0	241.5 *	9 DEC 1250 222	22.	95.1	245.0 *	10 DEC 1300 367	13.	84.2	242.8
8 DEC 1250 78	5.	79.0	241.6 *	9 DEC 1300 223	22.	95.9	245.2 *	10 DEC 1310 368	13.	84.1	242.8
8 DEC 1300 79	5.	79.0	241.6 *	9 DEC 1310 224	23.	96.7	245.3 *	10 DEC 1320 369	13.	84.0	242.8
8 DEC 1310 80	5.	79.1	241.6 *	9 DEC 1320 225	23.	97.3	245.5 *	10 DEC 1330 370	13.	83.9	242.8
8 DEC 1320 81	5.	79.1	241.6 *	9 DEC 1330 226	24.	97.7	245.5 *	10 DEC 1340 371	12.	83.8	242.8
8 DEC 1330 82	5.	79.1	241.6 *	9 DEC 1340 227	24.	98.1	245.6 *	10 DEC 1350 372	12.	83.7	242.7
8 DEC 1340 83	5.	79.1	241.6 *	9 DEC 1350 228	24.	98.5	245.7 *	10 DEC 1400 373	12.	83.7	242.7
8 DEC 1350 84	5.	79.1	241.6 *	9 DEC 1400 229	24.	98.7	245.7 *	10 DEC 1410 374	12.	83.6	242.7
8 DEC 1400 85	5.	79.2	241.6 *	9 DEC 1410 230	25.	98.9	245.8 *	10 DEC 1420 375	12.	83.5	242.7
8 DEC 1410 86	5.	79.2	241.6 *	9 DEC 1420 231	25.	99.1	245.8 *	10 DEC 1430 376	12.	83.4	242.7
8 DEC 1420 87	5.	79.2	241.6 *	9 DEC 1430 232	25.	99.2	245.8 *	10 DEC 1440 377	12.	83.3	242.6
8 DEC 1430 88	5.	79.2	241.6 *	9 DEC 1440 233	25.	99.3	245.9 *	10 DEC 1450 378	12.	83.2	242.6
8 DEC 1440 89	5.	79.2	241.6 *	9 DEC 1450 234	25.	99.3	245.9 *	10 DEC 1500 379	12.	83.2	242.6
8 DEC 1450 90	5.	79.3	241.6 *	9 DEC 1500 235	25.	99.4	245.9 *	10 DEC 1510 380	12.	83.1	242.6
8 DEC 1500 91	5.	79.3	241.6 *	9 DEC 1510 236	25.	99.4	245.9 *	10 DEC 1520 381	11.	83.0	242.6
8 DEC 1510 92	5.	79.3	241.6 *	9 DEC 1520 237	25.	99.4	245.9 *	10 DEC 1530 382	11.	82.9	242.5
8 DEC 1520 93	5.	79.3	241.5 *	9 DEC 1530 238	25.	99.4	245.9 *	10 DEC 1540 383	11.	82.9	242.5
8 DEC 1530 94	5.	79.3	241.6 *	9 DEC 1540 239	25.	99.4	245.9 *	10 DEC 1550 384	11.	82.8	242.5
8 DEC 1540 95	5.	79.3	241.6 *	9 DEC 1550 240	25.	99.3	245.9 *	10 DEC 1600 385	11.	82.7	242.5
8 DEC 1550 96	5.	79.4	241.6 *	9 DEC 1600 241	25.	99.3	245.9 *	10 DEC 1610 386	11.	82.6	242.5
8 DEC 1600 97	5.	79.4	241.6 *	9 DEC 1610 242	25.	99.2	245.8 *	10 DEC 1620 387	11.	82.6	242.4
8 DEC 1610 98	5.	79.4	241.6 *	9 DEC 1620 243	25.	99.1	245.8 *	10 DEC 1630 388	11.	82.5	242.4
8 DEC 1620 99	5.	79.4	241.7 *	9 DEC 1630 244	25.	99.1	245.8 *	10 DEC 1640 389	11.	82.4	242.4
8 DEC 1630 100	6.	79.4	241.7 *	9 DEC 1640 245	25.	99.0	245.8 *	10 DEC 1650 390	11.	82.4	242.4
8 DEC 1640 101	6.	79.5	241.7 *	9 DEC 1650 246	25.	98.9	245.8 *	10 DEC 1700 391	11.	82.3	242.4
8 DEC 1650 102	6.	79.5	241.7 *	9 DEC 1700 247	25.	98.8	245.8 *	10 DEC 1710 392	10.	82.2	242.4
8 DEC 1700 103	6.	79.5	241.7 *	9 DEC 1710 248	24.	98.7	245.7 *	10 DEC 1720 393	10.	82.2	242.3
8 DEC 1710 104	6.	79.5	241.7 *	9 DEC 1720 249	24.	98.6	245.7 *	10 DEC 1730 394	10.	82.1	242.3
8 DEC 1720 105	6.	79.5	241.7 *	9 DEC 1730 250	24.	98.5	245.7 *	10 DEC 1740 395	10.	82.0	242.3
8 DEC 1730 106	6.	79.5	241.7 *	9 DEC 1740 251	24.	98.4	245.7 *	10 DEC 1750 396	10.	82.0	242.3
8 DEC 1740 107	6.	79.6	241.7 *	9 DEC 1750 252	24.	98.3	245.7 *	10 DEC 1800 397	10.	81.9	242.3
8 DEC 1750 108	6.	79.6	241.7 *	9 DEC 1800 253	24.	98.2	245.6 *	10 DEC 1810 398	10.	81.8	242.3
8 DEC 1800 109	6.	79.6	241.7 *	9 DEC 1810 254	24.	98.1	245.6 *	10 DEC 1820 399	10.	81.8	242.2
8 DEC 1810 110	6.	79.6	241.7 *	9 DEC 1820 255	24.	98.0	245.6 *	10 DEC 1830 400	10.	81.7	242.2
8 DEC 1820 111	6.	79.6	241.7 *	9 DEC 1830 256	24.	97.8	245.6 *	10 DEC 1840 401	10.	81.7	242.2
8 DEC 1830 112	6.	79.6	241.7 *	9 DEC 1840 257	24.	97.7	245.5 *	10 DEC 1850 402	10.	81.6	242.2
8 DEC 1840 113	6.	79.7	241.7 *	9 DEC 1850 258	24.	97.6	245.5 *	10 DEC 1900 403	9.	81.6	242.2
8 DEC 1850 114	6.	79.7	241.7 *	9 DEC 1900 259	23.	97.5	245.5 *	10 DEC 1910 404	9.	81.5	242.2
8 DEC 1900 115	6.	79.7	241.7 *	9 DEC 1910 260	23.	97.4	245.5 *	10 DEC 1920 405	9.	81.5	242.2
8 DEC 1910 116	6.	79.7	241.7 *	9 DEC 1920 261	23.	97.2	245.4 *	10 DEC 1930 406	9.	81.4	242.2
8 DEC 1920 117	6.	79.7	241.7 *	9 DEC 1930 262	23.	97.1	245.4 *	10 DEC 1940 407	9.	81.3	242.1
8 DEC 1930 118	6.	79.8	241.7 *	9 DEC 1940 263	23.	97.0	245.4 *	10 DEC 1950 408	9.	81.3	242.1
8 DEC 1940 119	6.	79.8	241.7 *	9 DEC 1950 264	23.	96.8	245.4 *	10 DEC 2000 409	9.	81.2	242.1
8 DEC 1950 120	6.	79.8	241.7 *	9 DEC 2000 265	23.	96.7	245.3 *	10 DEC 2010 410	9.	81.2	242.1
8 DEC 2000 121	6.	79.8	241.8 *	9 DEC 2010 266	23.	96.6	245.3 *	10 DEC 2020 411	9.	81.2	242.1
8 DEC 2010 122	6.	79.8	241.8 *	9 DEC 2020 267	23.	96.4	245.3 *	10 DEC 2030 412	9.	81.1	242.1
8 DEC 2020 123	6.	79.8	241.8 *	9 DEC 2030 268	23.	96.3	245.3 *	10 DEC 2040 413	9.	81.1	242.1
8 DEC 2030 124	6.	79.9	241.8 *	9 DEC 2040 269	22.	96.2	245.2 *	10 DEC 2050 414	9.	81.0	242.1
8 DEC 2040 125	7.	79.9	241.8 *	9 DEC 2050 270	22.	96.0	245.2 *	10 DEC 2100 415	8.	81.0	242.0
8 DEC 2050 126	7.	79.9	241.8 *	9 DEC 2100 271	22.	95.9	245.2 *	10 DEC 2110 416	8.	80.9	242.0
8 DEC 2100 127	7.	79.9	241.8 *	9 DEC 2110 272	22.	95.7	245.1 *	10 DEC 2120 417	8.	80.9	242.0
8 DEC 2110 128	7.	79.9	241.8 *	9 DEC 2120 273	22.	95.6	245.1 *	10 DEC 2130 418	8.	80.8	242.0
8 DEC 2120 129	7.	80.0	241.8 *	9 DEC 2130 274	22.	95.5	245.1 *	10 DEC 2140 419	8.	80.8	242.0
8 DEC 2130 130	7.	80.0	241.8 *	9 DEC 2140 275	22.	95.3	245.1 *	10 DEC 2150 420	8.	80.8	242.0
8 DEC 2140 131	7.	80.0	241.8 *	9 DEC 2150 276	22.	95.2	245.0 *	10 DEC 2200 421	8.	80.7	242.0
8 DEC 2150 132	7.	80.0	241.8 *	9 DEC 2200 277	22.	95.1	245.0 *	10 DEC 2210 422	8.	80.7	242.0
8 DEC 2200 133	7.	80.0	241.8 *	9 DEC 2210 278	21.	94.9	245.0 *	10 DEC 2220 423	8.	80.6	242.0
8 DEC 2210 134	7.	80.1	241.8 *	9 DEC 2220 279	21.	94.8	245.0 *	10 DEC 2230 424	8.	80.6	242.0
8 DEC 2220 135	7.	80.1	241.8 *	9 DEC 2230 280	21.	94.6	244.9 *	10 DEC 2240 425	8.	80.6	241.9
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8 DEC 2300 139	7.	80.2	241.8 *	9 DEC 2310 284	21.	94.1	244.8 *	10 DEC 2320 429	8.	80.4	241.9
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8 DEC 2340 143	7.	80.3	241.9 *	9 DEC 2350 288	20.	93.5	244.7 *	11 DEC 0000 433	7.	80.3	241.9
8 DEC 2350 144	7.	80.3	241.9 *	10 DEC 0000 289	20.	93.4	244.7 *				
9 DEC 0000 145	7.	80.3	241.9 *	10 DEC 0010 290	20.	93.3	244.7 *				

+	25.	39.17	(CFS)	24.	20.	11.	11.
			(INCHES)	2.269	7.351	12.591	12.591
			(AC-FT)	12.	39.	67.	67.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)	6-HR	24-HR	72-HR	72.00-HR
99.	39.17	99.	93.	85.	85.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)	6-HR	24-HR	72-HR	72.00-HR
245.88	39.17	245.73	244.57	242.78	242.78

CUMULATIVE AREA = .10 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	1	137.	36.33	51.	23.	12.	.10		
+	ROUTED TO	2	25.	39.17	24.	20.	11.	.10	245.88	39.17

*** NORMAL END OF HEC-1 ***

APPENDIX B

RUNOFF COEFFICIENTS

(Excerpt from Haan and Barfield,
Hydrology and Sedimentology of Surface Mined Lands)

Table 2.27 Runoff Coefficients.

Urban areas – The use of average coefficients for various surface types, which are assumed not to vary through the duration of the storm, is common. The range of coefficients, classified with respect to the general character of the tributary reported in use is:

Description of area	Runoff coefficients
Business:	
Downtown areas	0.70 to 0.95
Neighborhood areas	0.50 to 0.70
Residential:	
Single-family areas	0.30 to 0.50
Multi-units, detached	0.40 to 0.60
Multi-units, attached	0.60 to 0.75
Residential (suburban)	0.25 to 0.40
Apartment dwelling areas	0.50 to 0.70
Industrial:	
Light areas	0.50 to 0.80
Heavy areas	0.60 to 0.90
Parks, cemeteries	0.10 to 0.25
Playgrounds	0.20 to 0.35
Railroad yard areas	0.20 to 0.35
Unimproved areas	0.10 to 0.30

It is often undesirable to develop a composite runoff coefficient based on the percentage of different types of surface in the drainage area. This procedure is often applied to typical 'sample' blocks as a guide to selection of reasonable values of the coefficient for an entire area. Coefficients with respect to surface type currently in use are:

Character of surface	Runoff coefficients
Streets:	
Asphaltic and concrete	0.70 to 0.95
Brick	0.70 to 0.85
Roofs	0.75 to 0.95
Lawns; sandy soil:	
Flat, 2%	0.05 to 0.10
Average, 2% to 7%	0.10 to 0.15
Steep, 7%	0.15 to 0.20
Lawns; heavy soil:	
Flat, 2%	0.13 to 0.17
Average, 2% to 7%	0.18 to 0.22
Steep, 7%	0.25 to 0.35

The coefficients in these two tabulations are applicable for storms of 5-year to 10-year frequencies. Less frequent higher intensity storms will require the use of higher coefficients because infiltration and other losses have a proportionally smaller effect on runoff. The coefficients are based upon the assumption that the design storm does not occur when the ground surface is frozen.

(continued)

Table 2.27 Runoff Coefficients (continued)

Rural Areas

Topography and Vegetation	Soil Texture: Open Sandy Loam	Clay and Silt Loam	Tight Clay
Woodland			
Flat 0-5% slope	0.10	0.30	0.40
Rolling 5-10% slope	0.25	0.35	0.50
Hilly 10-30% slope	0.30	0.50	0.60
Pasture			
Flat	0.10	0.30	0.40
Rolling	0.16	0.36	0.55
Hilly	0.22	0.42	0.60
Cultivated			
Flat	0.30	0.50	0.60
Rolling	0.40	0.60	0.70
Hilly	0.52	0.72	0.82

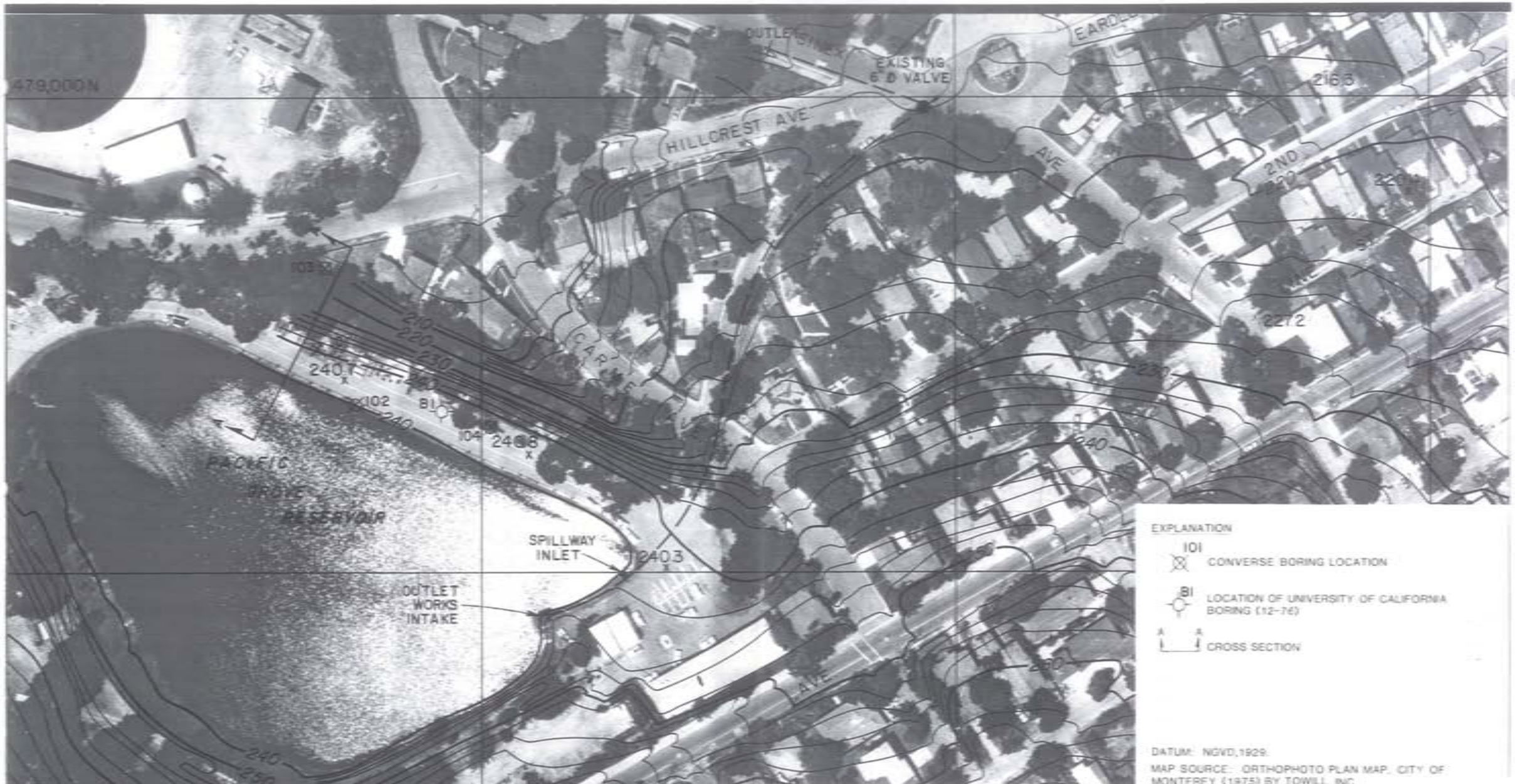
have a higher intensity. The rainfall intensity-duration-frequency curves of Figure 2.17 can be reviewed to see that as the duration increases for a given frequency, the average intensity decreases.

By considering all of the factors in the rational formula, it can be seen that urbanizing can increase peak flows in two ways. First it increases C and second it decreases t_c which in turn increases the i that should be used.

As with any estimation procedure, considerable care should be exercised when applying the rational equation to estimate peak flows. For instance, the location of impervious areas with respect to the point of flow estimation must be carefully considered. If flow from an impervious area has to cross an infiltrating area such as grass, the flows may be greatly reduced. If large impervious areas are present, they should be analyzed as separate units. The reason for this can be seen by considering the situation shown in Figure 2.39. In case A the impervious area is next to the outlet while in case B the grass area is next to the outlet. Straightforward application of Rational equation would result in the same flow estimate for both cases since t_c and the weighted C would be the same.

A closer look at case A, however, shows that it is possible that the peak flow from the impervious area alone could exceed the peak estimated for the whole area based on a weighted C. Using equation 2.57 we have previously estimated a flow time of 85 minutes for the 200 feet of grass. Using a similar procedure, a flow time of only about 5 minutes is estimated for the impervious area. Thus, the total flow time is 90 minutes. A weighted C is

$$\bar{C} = \tfrac{1}{2}(0.9 + 0.2) = 0.55$$



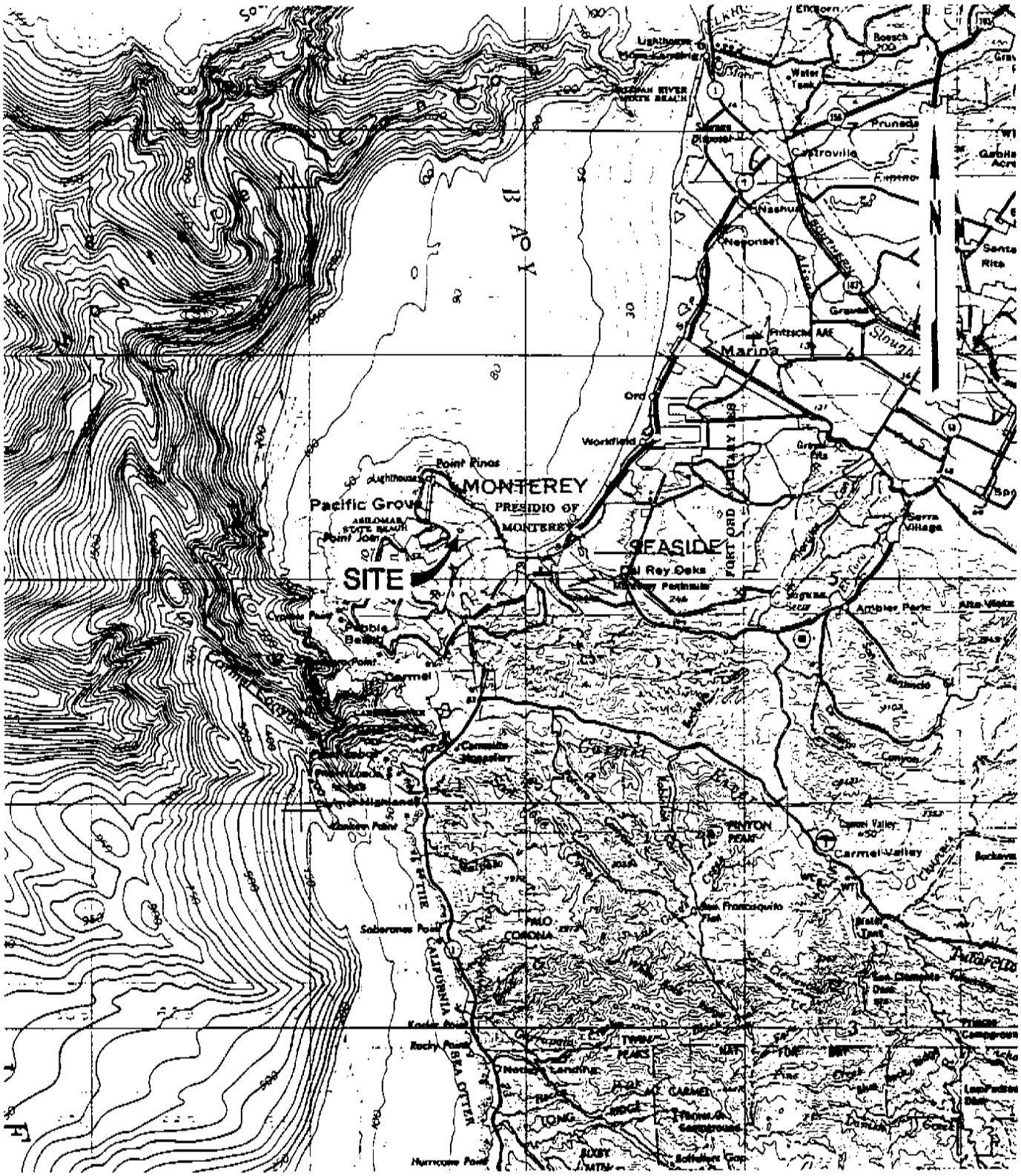
BORING LOCATION PLAN

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale	1" = 100'
Date	2/9/89
Prepared By	KGC
Checked By	CTD
Approved By	KBK
Project No.	88-34-731-06
Drawing No.	2-2

Converse Consultants Northern California

MODERN PASADENA BLUEPRINT



SOURCE: USGS Monterey 1:250,000 Topographic Map (1974).

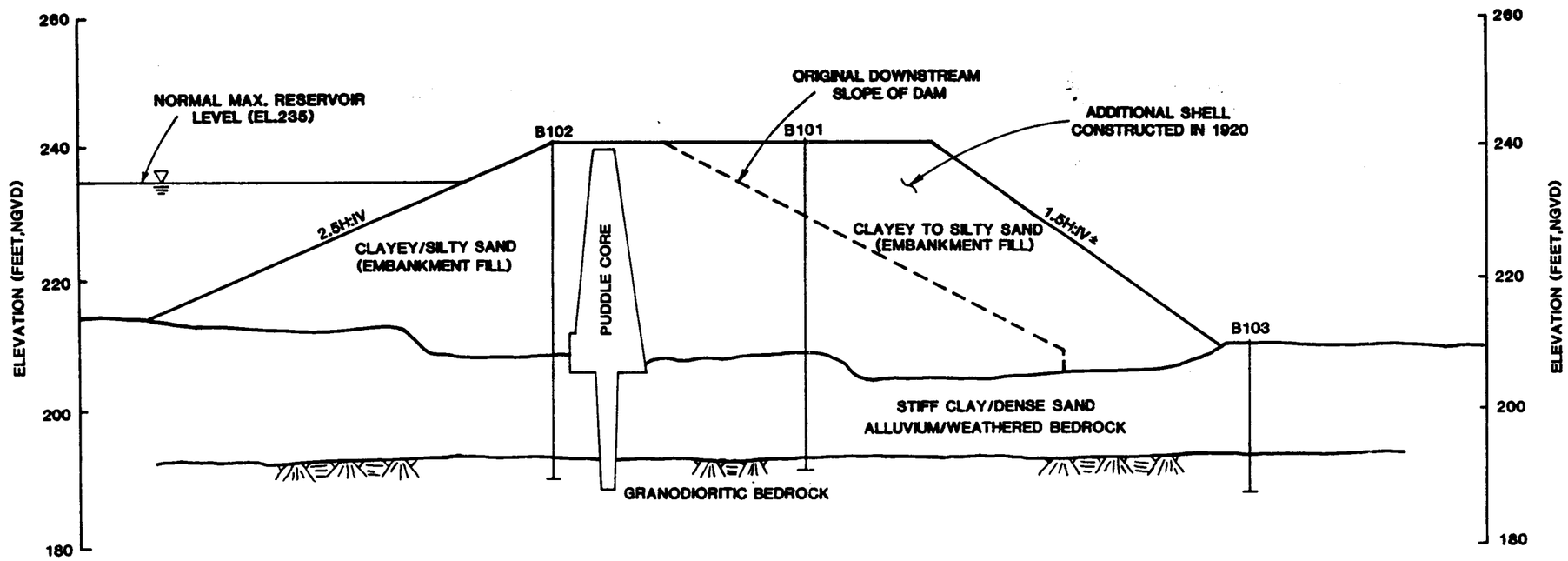
LOCATION MAP

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale 1 : 250,000	Project No. 88-34-731-06
Prepared by LQL	Date 1-31-89
Checked by CTD	Drawing No. 2-1
Approved by KBK	

Converse Consultants Northern California

Consulting Engineers and Geologists



DRAWING IS ADAPTED FROM AN UNDATED PLAN BY MONTEREY WATER WORKS

CROSS SECTION A-A: MAXIMUM SECTION THROUGH DAM

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale	1" - 20'	Project No.	
Date	2/1/89		88-34-731-06
Prepared By	KGC	Drawing No.	
Checked By	CTD		5-1
Approved By	KBK		

Converse Consultants Northern California

MODERN PASADENA BLUEPRINT / 99934

ZONE NO.	MATERIAL	UNIT WEIGHT γ (pcf)	FRICTION ANGLE Ø	COHESION c (psf)
I	EMBANKMENT FILL (Moist)	128	24°	1000
II	EMBANKMENT FILL (Saturated)	132	37°	0
III	FOUNDATION (Clay/Sand)	135	37°	0
IV	FOUNDATION (Dense Sand/ Rock)	140	40°	2000

STATIC STABILITY ANALYSIS RESULTS

UPSTREAM

(1) DEEP FAILURE: FS = 2.50

(2) SHALLOW (SLOPE) FAILURE: FS = 1.90

DOWNSTREAM

(3) DEEP FAILURE: FS = 2.23

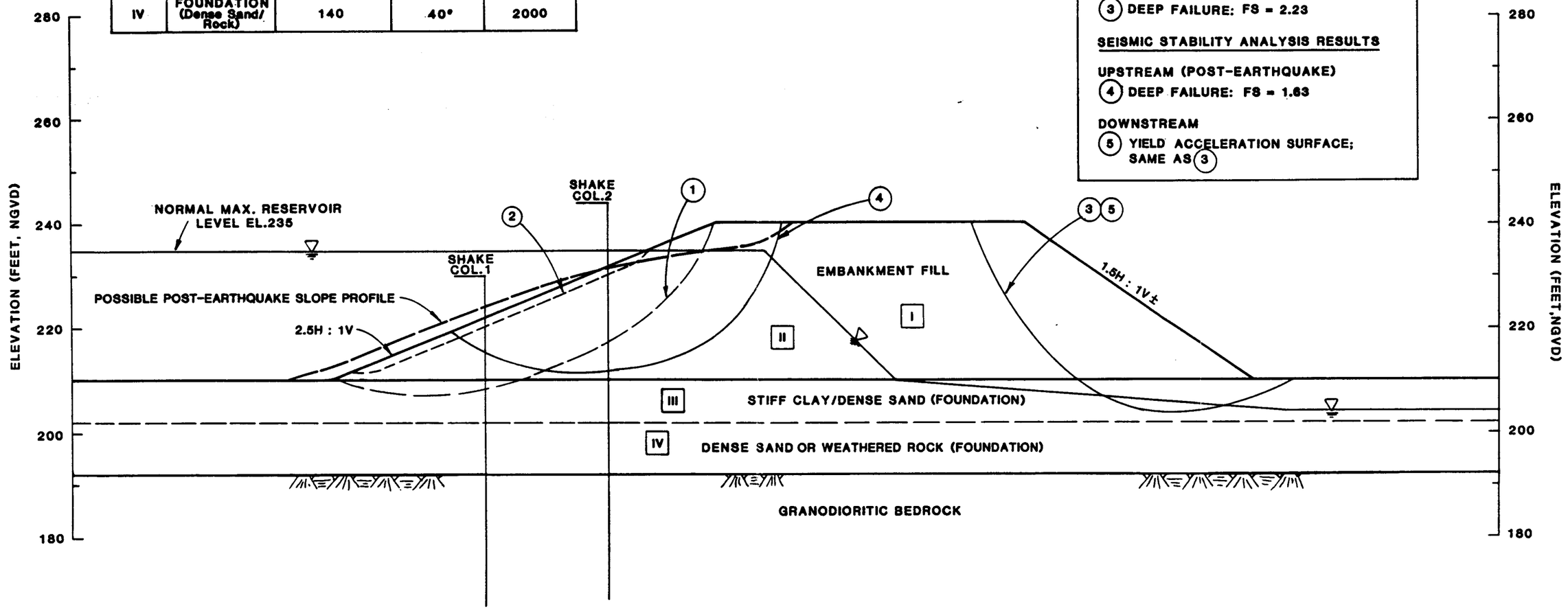
SEISMIC STABILITY ANALYSIS RESULTS

UPSTREAM (POST-EARTHQUAKE)

(4) DEEP FAILURE: FS = 1.63

DOWNSTREAM

(5) YIELD ACCELERATION SURFACE; SAME AS (3)



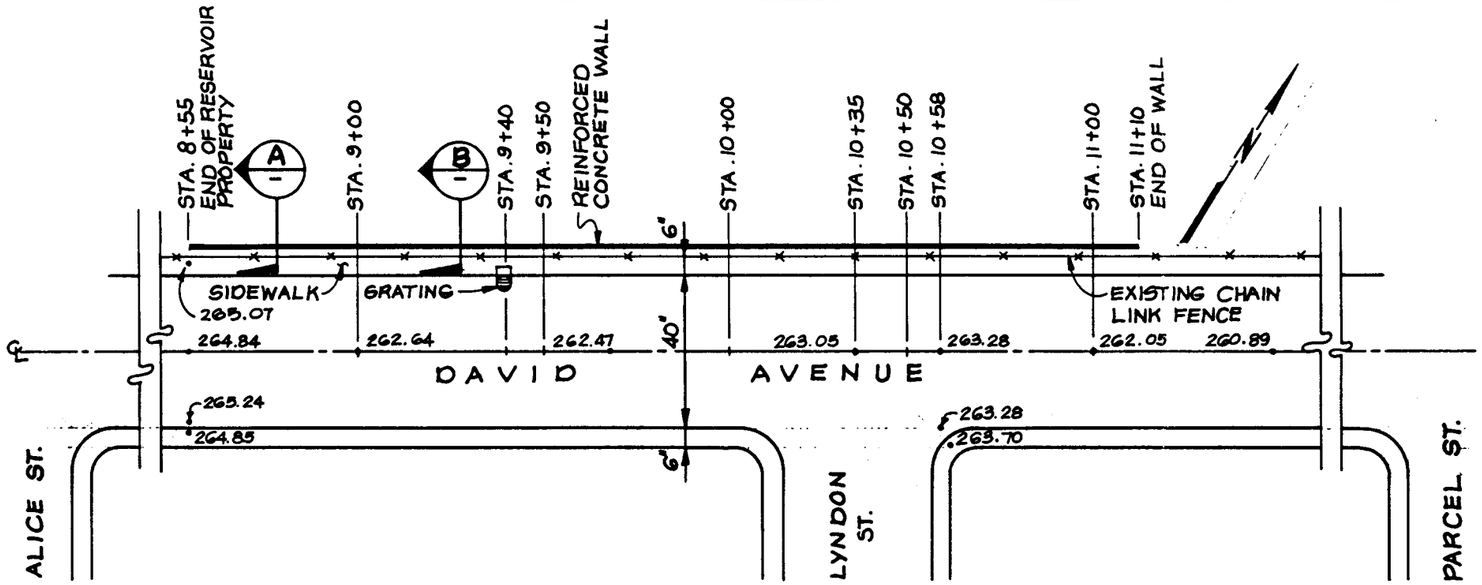
STATIC AND SEISMIC STABILITY ANALYSIS RESULTS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

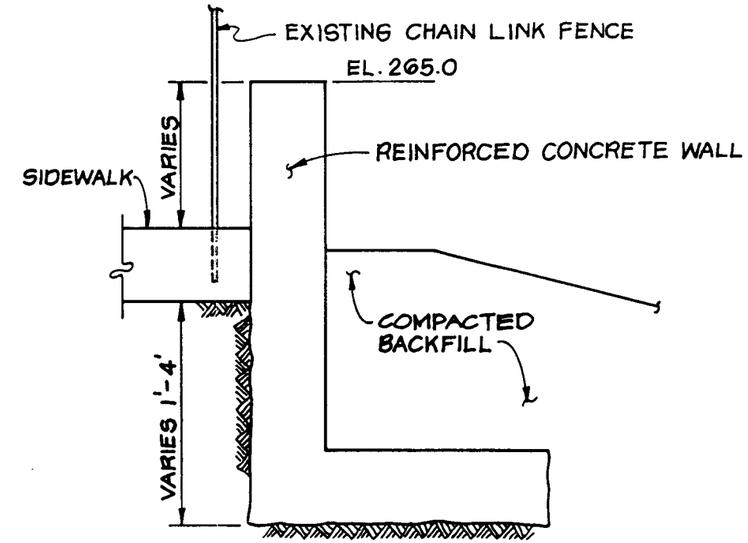
Scale	1" - 20'	Project No.	88-34-731-06
Date	2/1/89		
Prepared By	KGC	Drawing No.	5-2
Checked By	CTD		
Approved By	KBK		

Converse Consultants Northern California

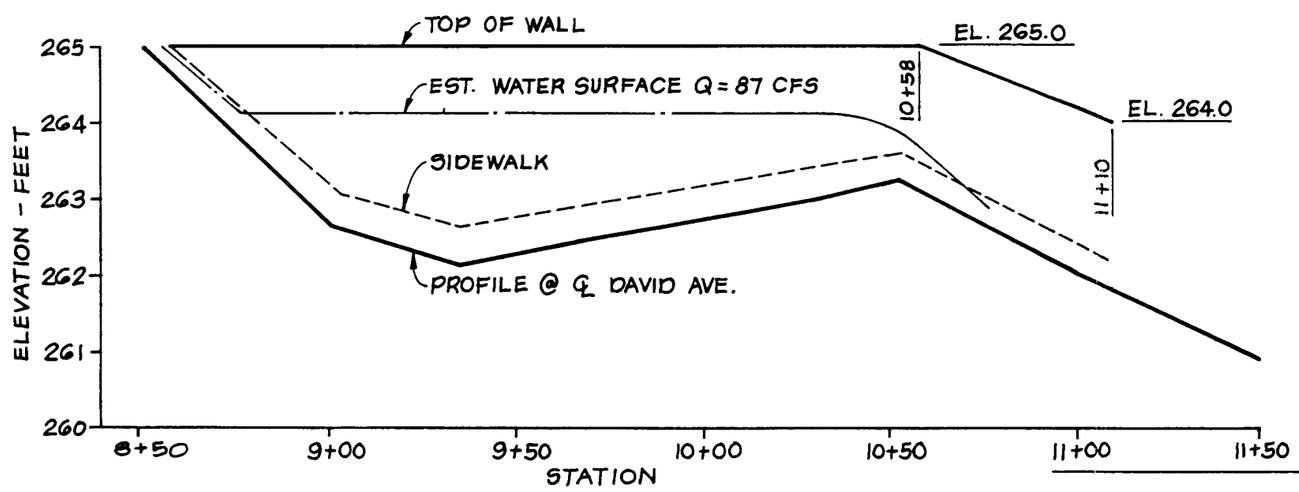
MODERN PASADENA BLUEPRINT / 99934



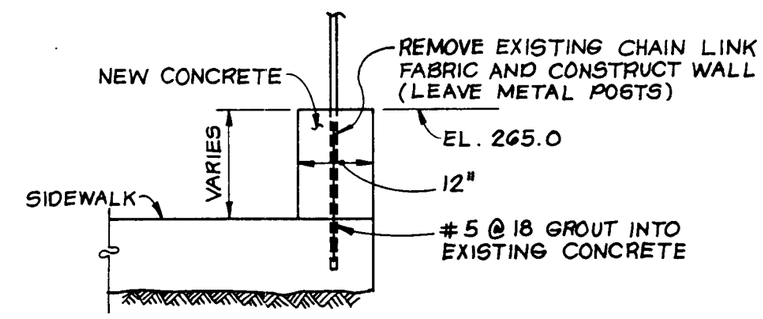
PLAN
SCALE 1" = 40'



SECTION B
SCALE 1" = 2'



PROFILE @ ℄ DAVID AVENUE
VERTICAL SCALE 1" = 2' HORIZONTAL SCALE 1" = 40'



SECTION A
SCALE 1" = 2'

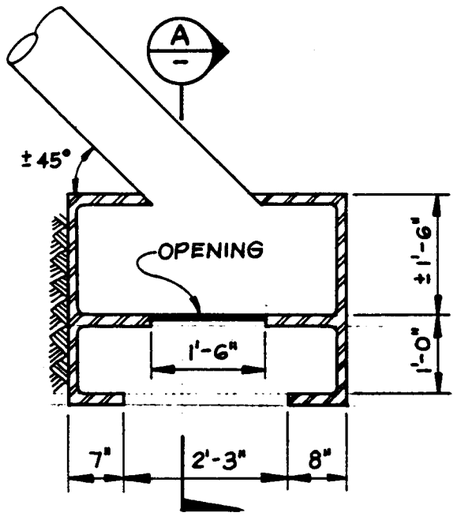
DAVID AVENUE MITIGATION DETAILS

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Converse Consultants Northern California

Scale	AS SHOWN	Project No.	88·34·731·01
Date	1·31·89		
Prepared By	CCR	Drawing No.	6-2
Checked By	KBK		
Approved By	KBK		

MODERN PASADENA BLUEPRINT / 99934



EXISTING PLAN VIEW
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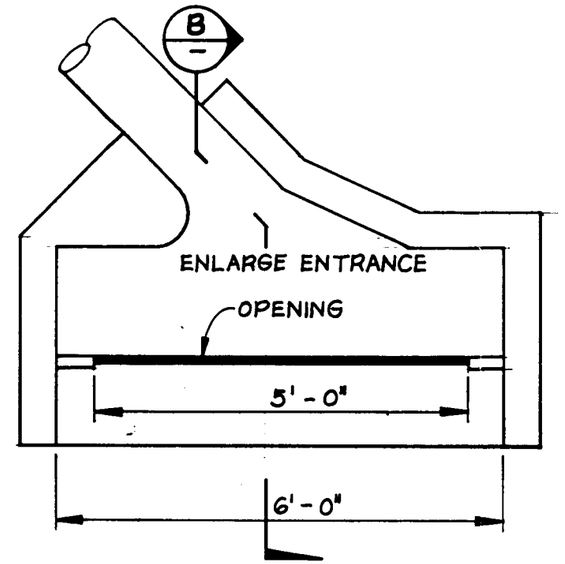
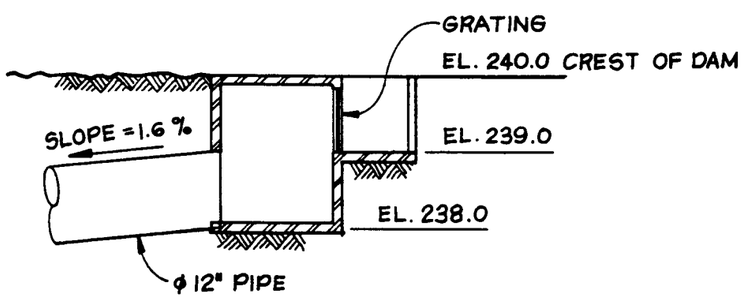


PLAN VIEW
SCALE 1/2" = 1'-0"



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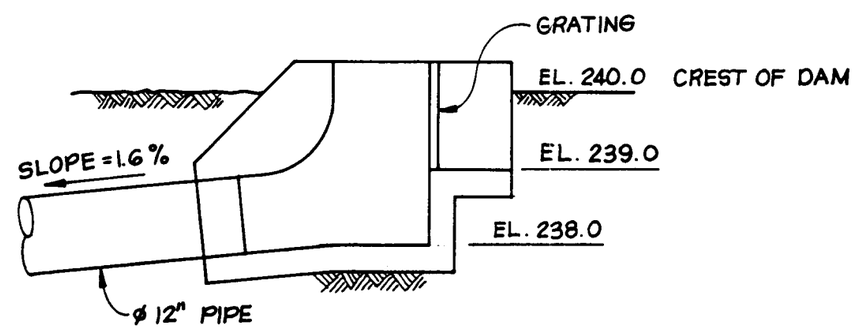

SECTION B
SCALE 1/2" = 1'-0"

SPILLWAY MODIFICATION

PACIFIC GROVE DAM & RESERVOIR
for California-American Water Company

Scale	AS SHOWN
Date	1·31·89
Prepared By	CCR
Checked By	KBK
Approved By	KBK
Project No.	88·34·731·01
Drawing No.	7-1

Converse Consultants Northern California

MODERN PASADENA BLUEPRINT / 99934

INDEX

PACIFIC GROVE DAM

642-3

ITEM 1 SEISMIC SAFETY & HYDROLOGIC INVESTIGATION 8/17/89

Converse Consultants Northern California

Consulting Engineers and Geologists

55 Hawthorne Street, Suite 500
San Francisco, California 94105

Telephone 415 543-2800

March 17, 1989
88-34-731

Mr. Lawrence D. Foy, Manager
California-American Water Company
P.O. Box 951
404 West Franklin Street
Monterey, California 93940

Subject: Seismic Safety and Hydrologic Investigation
Pacific Grove Dam and Reservoir
Pacific Grove, California

Dear Mr. Foy:

Enclosed are five (5) copies of our report transmitting the results of our Seismic Safety and Hydrologic Investigation for Pacific Grove Dam and Reservoir. Our conclusions and recommendations are summarized in Section 1, and are discussed in greater detail in Sections 5 through 7.

We thank you for the opportunity to provide our services on this project. Should you have any questions regarding the conclusions and recommendations presented in this report, please do not hesitate to call.

Very truly yours,

Converse Consultants Northern California

Kenneth B. King

Kenneth B. King
Vice President

Enclosures

TABLE OF CONTENTS

PAGE

1. EXECUTIVE SUMMARY 1

2. INTRODUCTION 4
   2.1 AUTHORIZATION 4
   2.2 PURPOSE AND SCOPE 4
      2.2.1 Data Review 4
      2.2.2 Field Investigation 5
      2.2.3 Laboratory Testing 5
      2.2.4 Analyses 6
         2.2.4.1 Embankment Stability 6
         2.2.4.2 Hydrologic and Hydraulic Analysis 6
   2.3 ACKNOWLEDGMENTS 7

3. FIELD EXPLORATION AND LABORATORY TESTING 8
   3.1 FIELD EXPLORATION 8
   3.2 LABORATORY TESTING 9
      3.2.1 Moisture Content - Dry Density Determinations 10
      3.2.2 Grain-Size Analyses 10
      3.2.3 Triaxial Strength Tests 10

4. GEOLOGY AND SEISMICITY 13
   4.1 GEOLOGIC SETTING 13
   4.2 FAULTING AND SEISMICITY 14

5. EMBANKMENT STABILITY EVALUATION 16
   5.1 DESCRIPTION AND CONSTRUCTION HISTORY 16
   5.2 EMBANKMENT MATERIALS 18
      5.2.1 Material and Engineering Properties 18
      5.2.2 Liquefaction Potential 19
   5.3 FOUNDATION MATERIALS 20
      5.3.1 Material and Engineering Properties 20
      5.3.2 Liquefaction Potential 21
   5.4 STABILITY ANALYSIS: STATIC CONDITION 21
      5.4.1 Analytical Methods and Loading Conditions 21
      5.4.2 Results and Conclusions 22
   5.5 STABILITY ANALYSIS: SEISMIC CONDITION 23
      5.5.1 Liquefaction and Post-Earthquake Stability Analysis 23
         5.5.1.1 Methodology 23
         5.5.1.2 Results and Conclusions 26
      5.5.2 Permanent Deformation Analysis 27
         5.5.2.1 Methodology 27
         5.5.2.2 Results and Conclusions 29

TABLE OF CONTENTS (CONTINUED)

PAGE

6. HYDROLOGIC AND HYDRAULIC STUDIES 30
   6.1 GENERAL 30
   6.2 PREVIOUS STUDIES 30
   6.3 HYDROLOGY 31
      6.3.1 Drainage Subareas 31
      6.3.2 Estimated Inflow: David Avenue Subarea 32
      6.3.3 Estimated Inflow: Reservoir Subarea 33
   6.4 HYDRAULICS 35
      6.4.1 David Avenue 35
      6.4.2 Outlet Works System 35

7. CONCLUSIONS AND RECOMMENDATIONS 37
   7.1 CONCLUSIONS 37
      7.1.1 Dam 37
      7.1.2 Hydrologic/Hydraulic Studies 37
   7.2 RECOMMENDATIONS 38
      7.2.1 David Avenue 38
      7.2.2 Spillway Inlet Structure 38
      7.2.3 Outlet Works System 39

8. REFERENCES 40

LIST OF TABLES

TABLE 3-1 - GRADATION ANALYSIS SUMMARY SHEET 11
TABLE 4-1 - SUMMARY OF FAULT CHARACTERISTICS 15
TABLE 5-1 - SUMMARY OF LIQUEFACTION ANALYSIS RESULTS 26
TABLE 6-1 - ELEVATION-CAPACITY - PACIFIC GROVE RESERVOIR 34

LIST OF APPENDICES

APPENDIX A - DSOD MEMORANDUM OF HYDROLOGIC REVIEW
APPENDIX B - RUNOFF COEFFICIENTS (EXCERPT)

LIST OF DRAWINGS

DRAWING 2-1 - LOCATION MAP
DRAWING 2-2 - BORING LOCATION PLAN
DRAWINGS 3-1 through 3-10 - BORING LOGS
DRAWING 3-11 - UNIFIED SOIL CLASSIFICATION SYSTEM AND BORING LOG SYMBOLS
DRAWING 3-12 - EXPLANATION OF BORING LOG TERMINOLOGY
DRAWINGS 3-13 AND 3-14 - PIEZOMETER INSTALLATION AND DETAILS
DRAWINGS 3-15 AND 3-16 - TRANSFORMED STRENGTH ENVELOPE FROM C-U TRIAXIAL COMPRESSION TESTS

LIST OF DRAWINGS (CONTINUED)

DRAWING 4-1 - GEOLOGIC MAP
DRAWING 4-2 - FAULT MAP OF CENTRAL CALIFORNIA
DRAWING 5-1 - CROSS SECTION A-A: MAXIMUM SECTION THROUGH DAM
DRAWING 5-2 - STATIC AND SEISMIC STABILITY ANALYSIS RESULTS
DRAWING 5-3 - COMPARISON BETWEEN VALUES OF RESIDUAL STRENGTH AND N_1 VALUE
DRAWING 5-4 - EVALUATION OF LIQUEFACTION POTENTIAL FROM N_1 VALUE
DRAWING 5-5 - RESPONSE SPECTRA (BASE OF DAM)
DRAWING 5-6 - VARIATION OF "MAXIMUM ACCELERATION RATIO" WITH DEPTH OF SLIDING MASS
DRAWING 5-7 - VARIATION OF AVERAGE NORMALIZED DISPLACEMENT WITH YIELD ACCELERATION
DRAWING 6-1 - RESERVOIR DRAINAGE BASIN AREA
DRAWING 6-2 - DAVID AVENUE MITIGATION DETAILS
DRAWING 7-1 - SPILLWAY MODIFICATION

Geotechnical Investigation

GEOTECHNICAL INVESTIGATION
PACIFC GROVE ASBS STORMWATER MANAGEMENT PROJECT
CITIES OF MONTEREY AND PACIFIC GROVE, CALIFORNIA

PROJECT 2013.0031

For

Fall Creek Engineering
227 Fern Street
Santa Cruz, California 95060

By

PACIFIC GEOTECHNICAL ENGINEERING
16055 Caputo Drive, Suite D
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August 28, 2013

TABLE OF CONTENTS

1. INTRODUCTION 1
1.1 GENERAL 1
1.2 PROJECT DESCRIPTION 1
1.3 OBJECTIVE AND SCOPE OF INVESTIGATION 1
1.4 INFORMATION PROVIDED 2
2. SITE INVESTIGATION 3
2.1 SUBSURFACE EXPLORATION 3
2.2 LABORATORY TESTING 3
3. FINDINGS 4
3.1 GEOLOGIC SETTING 4
3.2 GEOHAZARDS MAPPING 5
3.3 EARTHQUAKE FAULTING 5
3.4 SEISMICITY 6
3.5 SITE COEFFICIENTS AND SEISMIC GROUND MOTION VALUES 6
3.6 SURFACE CONDITIONS 6
3.6.1 PGWTP Tank Site 7
3.6.2 Crespi Pond and Proposed Wetland Site 7
3.7 SUBSURFACE CONDITIONS 7
3.8 GROUNDWATER 8
3.9 TOP OF BEDROCK SURFACE 8
3.10 VARIATIONS IN SUBSURFACE CONDITIONS 9
4. DISCUSSION AND CONCLUSIONS 10
4.1 GENERAL 10
4.2 SURFACE RUPTURE AND SEISMIC GROUND SHAKING 10
4.3 SHALLOW BEDROCK AND EXCAVATABILTY 10
4.4 LIQUEFACTION AND LATERAL SPREADING 10
4.5 SETTLEMENT OF WATER TANK FOUNDATIONS 11
4.6 EXCAVATIONS AND DEWATERING 12
4.7 EXPANSION POTENTIAL OF NEAR-SURFACE SOILS 12
5. RECOMMENDATIONS 13
5.1 GENERAL 13
5.2 EARTHWORK 13
5.2.1 Clearing and Grubbing 13
5.2.2 Excavations, Shoring and Dewatering 13
5.2.3 Subgrade Preparation 14
5.2.4 Material for Engineered Fill 14
5.2.5 Engineered Fill Placement and Compaction 14
5.2.6 Cut and Fill Slopes 15
5.2.7 Utility Trench Excavation and Backfill 15
5.2.8 Wet Weather Construction 15
5.3 WATER TANK FOUNDATIONS 15
5.4 CONCRETE SLABS-ON-GRADE 16
5.5 SURFACE DRAINAGE 16
6. PLAN REVIEW, EARTHWORK AND FOUNDATION OBSERVATION 17
7. LIMITATIONS 18
8. REFERENCES 19

FIGURES

Figure 1 – Geologic Index Map
Figure 2 - Liquefaction Fault Map
Figure 3 - Tsunami Inundation map
Figure 4 - Overall Site Plan
Figure 5 - PGWTP Site Plan

APPENDIX A

Keys to Soil Classification (Fine and Coarse Grained Soils)
Key to Rock Classification
Log of Exploratory Drill Holes (DH-1 through DH-6)

GEOTECHNICAL INVESTIGATION
PACIFC GROVE ASBS STORMWATER MANAGEMENT PROJECT
CITIES OF MONTEREY AND PACIFIC GROVE, CALIFORNIA

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical investigation for proposed improvements associated with the Pacific Grove ASBS Stormwater Management Project, in Pacific Grove, California. The location of the project is shown on our Geologic Index Map (Figure 1), and features in the project vicinity are shown on the Treatment Plant Site Plan (Figure 5) of this report. For purposes of this report "site" refers to the Pacific Grove Water Treatment Plant (PGWTP), the Crespi Pond area and the area of the proposed wetland.

1.2 PROJECT DESCRIPTION

As outlined in the Draft Engineering Report prepared by Fall Creek Engineering, the Pacific Grove ASBS stormwater management project is designed to improve stormwater quality prior to discharge to the "Area of Special Biological Significance" (ASBS) designated along the Pacific Grove coastline. The goal of the project is to achieve a 90 percent reduction in the pollutants that are discharged into the bay by seasonal stormwater discharges. The portions of the project that are addressed by this geotechnical investigation consist of the following:

- Reuse or reconstruction of the existing two tanks at the abandoned Pacific Grove Water Treatment Plant (PGWTP): the two existing tanks at this site are being evaluated for their structural integrity and are planned for reuse for stormwater storage/treatment.

- Expansion of Crespi Pond: the existing pond will be expanded by deepening it up to 5 feet (it's present maximum depth is about 5 feet and proposed maximum depth is about 10 feet), and by extending it approximately 120 feet south and 40 feet west of its existing limits.

- Creation of wetlands: a wetland is proposed for construction about 750 south of Crespi Pond. This wetland will extend about 5 feet below existing grade.

- Installation of utility lines: stormwater pipes will be installed to connect the new wetland, Crespi Pond and the PGWTP site. Utility trenches proposed in other areas of the site are beyond our present scope of work.

Originally, our scope also included expansion of a cistern near the intersection of Del Monte Boulevard and Egan Avenue. We understand this portion of the project is no longer being pursued.

1.3 OBJECTIVE AND SCOPE OF INVESTIGATION

The objective of this investigation was to explore subsurface conditions in the above mentioned project areas; provide geotechnical information to assist in the preliminary design and

evaluation of the proposed improvements; and to prepare geotechnical recommendations for their design and construction.

The following services were performed for our investigation.

1. Reconnaissance of the project areas to observe surface conditions and mark locations for our subsurface exploration.

2. Coordination of our drilling with Underground Service Alert and the City of Pacific Grove.

3. Research of existing regional geologic information including geologic hazards pertinent to the site.

4. Exploration, sampling, and classification of subsurface soils at selected locations by means of six exploratory drill holes.

5. Laboratory testing of selected soil samples recovered from our drill holes.

6. Engineering analysis of the above field and laboratory data and formulation of conclusions and recommendations for the project.

7. Preparation of this report summarizing our findings, conclusions and recommendations.

1.4 INFORMATION PROVIDED

For this investigation, the following was provided to us and used during our study.

- A 6-page set of plans titled "15% Design Plans, Pacific Grove ASBS," prepared by Fall Creek Engineering and dated June 2013.
- A report titled, "Draft Engineering Report: Preliminary Hydrology Analysis and David Avenue Reservoir Design Alternatives Summary, Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project", prepared by Fall Creek Engineering and dated June 20, 2013.
- Design plans for the existing PGWTP tanks consisting of Sheets 2, 7, 9, 10 and 14 of a 23-page set of plans titled "City of Pacific Grove Sewage Pumping and Treatment Works", prepared by Alfred D. Coons, City Manager and Engineer, dated January 1952.
- Base maps for our Figure 4 and 5 provided by Fall Creek Engineering via email and dated 8/5/13.

2. SITE INVESTIGATION

2.1 SUBSURFACE EXPLORATION

The subsurface exploration program included six drill holes (DH-1 through DH-6). The drill holes were located in the field by referencing to existing site features and pacing; therefore, locations should be considered approximate. The approximate locations of the drill holes are shown on Figure 4, with a more detailed map of the PGWTP tank area in Figure 5.

Drill holes DH-1 through DH-6 were advanced on June 4, 2013, to depths between 9 and 24 feet below the ground surface using a Mobile B-53 drilling rig equipped with an 8-inch diameter hollow stem auger.

In the field, our personnel visually classified the materials encountered in the drill holes and maintained a log of each drill hole. Samples were obtained from the drill holes by driving a 2½-inch inside diameter split spoon or a 2-inch outside diameter (1⅜ inch inside diameter) Standard Penetration Test (SPT) sampler up to a depth of 18 inches into the earth material using a 140-pound hammer falling 30 inches. The number of blows required to drive the samplers was recorded for each 6-inch penetration interval. The number of blows required to drive the sampler the last 12 inches, or the penetration interval indicated on the log where harder material was encountered, was shown as blows per foot on the drill hole logs. The hammer was operated by a hydraulic winch and pulley system.

Soil samples were collected from the drill holes at approximately 5-foot vertical intervals. Soil samples were sealed in the field and transported to our laboratory for further evaluation and testing. Visual classification of soils encountered in our drill holes was made in general accordance with the Unified Soil Classification System (ASTM D2487 and D2488). The laboratory test results were used to refine our field classifications. Two Keys to Soil Classification, one for fine grained soils and one for coarse grained soils, and one key for Rock Classification are included in Appendix A together with the logs of the drill holes.

2.2 LABORATORY TESTING

Laboratory tests were performed on selected soil samples. These tests included water content, dry density and percent passing a No. 200 sieve. The laboratory test results are presented on the drill hole logs at the corresponding sample depths.

3. FINDINGS

3.1 GEOLOGIC SETTING

Regional geologic mapping by Clark, Dupre and Rosenberg (1997; Clark and others hereafter for brevity) provides the best available regional-scale geologic mapping for the project area. Our Geologic Index Map (Figure 1) is an excerpt from Clark and others (1997).

The geology of the site vicinity, broadly speaking, is that of an elevated marine terrace cut across granitic bedrock, overlain with a thin mantle of terrace lag deposits and local dune sands.

As mapped by Clark and others (1997), bedrock in the site vicinity is mapped as "porphyritic granodiorite of Monterey of Ross" (map unit Kgdp), which can be thought of as granitic rock.

As relative sea level dropped, a marine (coastal) terrace was planed across the granitic bedrock, with Pleistocene-age (within the last 2 million years) marine terrace deposits deposited across this surface. These deposits ("Peninsula College coastal terrace deposits;" [map unit Qctp] are preserved on high ground about 1500 feet south of the site (see Fig. 1).

As relative sea level dropped further, another marine terrace was planed across the bedrock, leaving the "Ocean View coastal terrace deposits" (map unit Qcto) mapped as fringing the coastline near the site, and underlying the site. Texturally, these deposits are described as consisting of "semi-consolidated, moderately well-sorted marine sand containing thin, discontinuous gravel-rich layers."

Dune sand deposits of Pleistocene age (map unit Qod1) and Holocene age (map unit Qd) have been deposited by the wind in the areas shown on Figure 1 – generally south of the site. The younger (Holocene, map unit Qd) dune sand deposits are described as "unconsolidated, well-sorted, fine- to medium-grained sand." The older (Pleistocene, map unit Qod1) dune sand deposits are described as texturally the same as the younger deposits, and "weakly consolidated."

Approximately 300 to 500 feet east of the PGWTP tanks, Crespi Pond (see Figure 1 and Figure 4) occupies a topographic swale that is mapped as infilled with younger (Holocene age) alluvium. This map unit (Qal) is described as consisting of "unconsolidated, heterogeneous, moderately sorted silt and sand with discontinuous lenses of clay and silty clay". The topographic swale occupied by Crespi Pond likely marks the location of a now-buried stream course that is incised into the top-of-bedrock surface.

Rosenberg (2001) compiled previous and independent geologic mapping for Monterey County that incorporated the geologic mapping of Clark and others (1997), of which he was a co-author. The linework of this compilation is more generalized than that of Clark and others, due to map scale. No significant differences in geologic mapping as it affects the site vicinity are reflected in Rosenberg (2001).

Wagner and others (2002) prepared a regional geologic compilation map that encompasses the site, also at a more generalized scale than that of Clark and others (1997). Wagner and others (2002) drew on both Clark and others (1997) and Rosenberg (2001), and no significant differences in geologic interpretation are reflected in their mapping.

3.2 GEOHAZARDS MAPPING

Rosenberg (2001) prepared a County-wide map of liquefaction susceptibility, as a derivative map associated with the geologic mapping described above. An excerpt of Rosenberg's Liquefaction Susceptibility Map is presented as our Liquefaction Map (Figure 2). Rosenberg's classification ranged across four liquefaction susceptibility classes (Low, Moderate, and High, with a fourth "variable" class used in areas of significant grading). While this map is necessarily generalized, it maps the older marine terrace deposits (map units Qctp and Qcto underlying the PGWTP tank site and the proposed wetland area) and older dune deposits (map unit Qod1), as having a low liquefaction susceptibility. The younger dune deposits (map unit Qd) mapped south of the PGWTP tank site, and the alluvium filling the topographic swale (underlying Crespi Pond), were considered to have a high liquefaction susceptibility. Bedrock and upland areas are mapped as having a "low" liquefaction susceptibility.

There are no known historic liquefaction sites from the 1906 or 1989 earthquakes in the PGWTP site or vicinity.

The PGWTP site is mapped as lying within a State of California "tsunami inundation area" which fringes the coastline as shown in Figure 3 of this report (State of California Emergency Management Agency, 2009). Both the PGWTP site and Crespi pond are within the designated tsunami inundation area. The shoreward limit of inundation is shown as lying at approximately the southern end of the PGWTP site and Crespi Pond, and runs approximately along contour eastward and westward around the end of Point Pinos.

3.3 EARTHQUAKE FAULTING

No active faults are mapped in the project vicinity (Wagner and others, 2002). Faults associated with the Monterey Bay fault zone are mapped east of the site, and the San Gregorio fault west of the site (see Table 1 of seismic sources below).

The greater San Francisco/Monterey Bay Area is seismically dominated by the active San Andreas Fault system, the tectonic boundary between the northward moving Pacific Plate (west of the fault) and the North American Plate (east of the fault). This movement is distributed across a complex system of generally strike-slip, right-lateral and subparallel faults

Regional faults that have a potential to generate large magnitude earthquakes and significant ground shaking at the site are listed in Table 1. Map distances are derived from the USGS Quaternary Fault and Fold database (http://earthquake.usgs.gov/regional/qfaults/), based on a latitude of 36.636513 and a longtitude of -121.934629.

Table 1. Significant Seismic Sources within Project Vicinity

Fault	Approximate Distance	Direction from Project Site to Fault
Monterey Bay/Tularcitos	2.7 km	Northeast
San Gregorio	10.1 km	West
Reliz	11.7 km	Northeast
Zayante-Vergeles	35.6 km	Northeast
San Andreas	41.5 km	Northeast

3.4 SEISMICITY

The Working Group on California Earthquake Probabilities (WGCEP) estimates the probabilities of major earthquakes are now in their fourth iteration. The greatest changes in approach from the first to the fourth iteration are; 1) the treatment of major faults as either segmented, unsegmented or capable of different rupture scenarios; 2) the progressive consideration of more potential seismic sources, and 3) the use of time-independent versus time-dependent models. Current estimates (WGCEP, 2003, 2008) are most detailed for the greater San Francisco Bay Area; WGCEP (2008) estimated a 63% probability of a large (magnitude 6.7 or greater) earthquake in the San Francisco Bay area as a whole over a 30-year period; this overall probability differed only slightly from the previous (WGCEP, 2003) probability of 62%. The current estimate for the Calaveras fault alone is 7% (revised down from the 11% presented by WGCEP, 2003); for the (northern) San Andreas fault alone, 21%; and for the Hayward fault, 31% (revised upward from the WGCEP (2003) value of 27%).

3.5 SITE COEFFICIENTS AND SEISMIC GROUND MOTION VALUES

The site coefficients and seismic ground motion values in Table 2 were developed using the USGS Seismic Design Maps (http://earthquake.usgs.gov/hazards/designmaps/usdesign.php), incorporating both the ASCE 7-05 and ASCE 7-10 codes, and the project site location (latitude 36.636513N, longitude -121.934629W).

Table 2. Seismic Design Parameters

Parameter	ASCE 7-05 Values	ASCE 7-10 Values
Site Class	B	B
Site Coefficient F_a	1.0	1.0
Site Coefficient F_v	1.0	1.0
S_s	1.473	1.549g
S_1	0.614	0.569g
S_{Ms}	1.473	1.549g
S_{M1}	0.614	0.569g
S_{Ds}	0.982	1.033g
S_{D1}	0.409	0.379g

The design peak ground acceleration (PGA) can be taken as the lesser of the values developed from probabilistic approach and deterministic approach. Using the USGS Seismic Design Maps and incorporating both ASCE 7-05 and ASCE 7-10, the PGA value at the site is 0.62g for the Maximum Considered Earthquake (MCE) and 0.41g for the Design Earthquake (DE). MCE corresponds to a 2% probability of exceedance in a 50-year period. Studies have shown that, for the San Francisco Bay Area, DE roughly corresponds to a 10% probability of exceedance in a 50-year period.

3.6 SURFACE CONDITIONS

The PGWTP and Crespi Pond site is located on Point Pinos, at the northern tip of the City of Pacific Grove. The area includes the Pacific Grove golf Links and is bordered by Sunset Drive

and the Pacific Ocean on the north and west, by Asilomar Avenue to the east and by Lighthouse Avenue to the south.

As mentioned above, the proposed development within the area of DH-6 (near the intersection of Del Monte Boulevard and Egan Avenue) was abandoned and is not addressed in this section.

3.6.1 PGWTP Tank Site

The existing ground surface at the tank site slopes gently towards the north at a gradient of about 10:1 (horizontal:vertical), steepening south of the site, and flattening to the north. Past grading for the tank pad appears to have consisted of cuts of 3 to 5 feet in height on the south and west sides of the tanks. There was no evidence of significant fill in the immediate vicinity of the tanks, although the 1952 project plans indicate general fill placement on the east side of the site.

We understand that the existing tanks are also being evaluated for reuse by a structural engineer, Harper and Associates. Based on the information provided in the 1952 design plans, supplemented by information provided to us from Harper and Associates, both tanks are about 57 feet in diameter, 30 to 33 feet in height and are buried 10 to 16 feet below grade. The "clarifier" on the east side, has a sloping base that extends between 13 to 16.5 feet below grade and the "digester" on the west side, has a flat base that extends about 10 feet below existing grade.

3.6.2 Crespi Pond and Proposed Wetland Site

The dune sands that comprise the majority of the golf course form a subtle, roughly north-south trending ridge which forms the eastern border of the topographic swale that terminates at Crespi Pond. The ground surface on the margins of the pond is level to very slightly sloping towards the north. We understand that the existing depth of the pond is about 5 feet, and the entire pond is bordered by the golf course fairway.

The area about 750 feet south of Crespi Pond that is proposed for a new wetland is also located in the topographic swale that borders the dune sand ridge. This area occupies a topographic low with very mild gradients and is also within the golf course.

3.7 SUBSURFACE CONDITIONS

A brief description of the materials encountered in each boring is presented below. For a more detailed description of the soil conditions encountered in our drill holes, refer to the drill hole logs in Appendix A .

DH-1 and DH-2 were located at the PGWTP tank site and extended between 19.5 and 24 feet below ground surface. These boring encountered dune deposits underlain by granite bedrock. The dune deposits consist of Poorly Graded Sand with Clay and are medium dense in the upper two feet, and variably looser in density at variable intervals between about 3 and 12 feet below ground surface. The density increases below about 9 to 12 feet, with granite bedrock located at about 16 feet below ground surface. The granite is severely weathered in the upper portion and increases in density/strength with depth.

DH-3 and DH-4 were located on the northwest and southwest sides of Crespi Pond in the areas of its proposed expansion. Both encountered dune deposits overlying granite. In this

topographic swale, the dune deposits have greater fine grained material and consist of medium dense to loose Poorly Graded Sand with Clay to Clayey Sand. Peat rich sand was encountered just above the bedrock in DH-4. Granite bedrock was encountered in both borings at 3.5 feet (DH-3) and 7.5 feet (DH-4) below ground surface. In DH-3 the field measured blow counts were high, indicating dense granite bedrock at 5 feet below ground surface. In DH-4 the granite appeared relatively soft in rock hardness from 7.5 to 12 feet below ground surface and then became denser/stronger at 12 feet below ground surface.

DH- 5 was located in the area of the proposed wetland/pond. It encountered 12 feet of Poorly Graded Sand with Clay underlain by granite at 12.5 feet below ground surface, both of which displayed similar composition and to the other drill holes.

DH-6 was located near the intersection of Del Monte Boulevard and Egan Avenue. This drill hole encountered 2 feet of older dune deposits consisting of a medium dense Clayey Sand. Weathered granite was encountered at 2 feet below ground surface and denser granite at 7 feet below ground surface.

3.8 GROUNDWATER

Groundwater was not encountered in any of our borings (DH-1 through DH-6). These conditions likely do not reflect stabilized groundwater depths, and are likely variable. Based on the site geology we interpret that groundwater will locally pond on the granite bedrock surface after heavy rainfall and then drain outwards towards the ocean. In the area of the PGWTP tanks, subsurface drainage is expected to occur relatively quickly and to flow radially outwards as the water is released along the Point Pinos bluffs. In the area around Crespi Pond, subsurface drainage is likely slower and focused northward by the topographic and bedrock swale.

Golf course maintenance personnel report that even in the topographic low areas the fairway is drivable relatively quickly after rains, indicating that drainage of perched water is fairly rapid.

Groundwater depth is subject to fluctuations depending on rainfall, golf course irrigation, pumping in local wells, or other factors that may not be evident at the time of our investigation.

3.9 TOP OF BEDROCK SURFACE

The site is located on a marine terrace surface. Geomorphically, these surfaces are cut by wave action and therefore tend to be quite planar, and nearly level when formed. Our borings are consistent with this, encountering top-of-bedrock at an approximate elevation of 7 feet in DH-2, and an elevation of 5 feet in DH-1, a difference in elevation of 2 feet across a distance of over 100 feet. In general, we expect that most of the top-of-bedrock surface would be similarly planar. Locally incised and buried drainageways may exist (such as that occupied by Crespi Pond), and bedrock would be encountered at greater depths in these areas.

Bedrock encountered at the maximum depth of our drill holes was soft in rock hardness and crumbled to sand size material in the samplers, even when the SPT blow counts were very high. Based on this we infer that material will be excavatable with conventional equipment, but extra time and horsepower will likely be required. Generally speaking, rock quality is expected to improve with depth.

Based on our borings and the topographic maps that were provided, the depth to bedrock, dense bedrock and the elevation of dense bedrock is estimated Table 3. Elevations are based on the datum provided to us by Fall Creek Engineering as shown in Figure 5:

Table 3. Summary of Bedrock Depth and Elevation

Location	Depth Below Ground Surface to Top of Bedrock (feet)	Depth Below Ground Surface to Dense Bedrock (feet)	Elevation of Dense Bedrock (feet)
PGWTP Site (DH-1 and DH-2)	16 to 16.5	16 to 16.5	Elev. 5 to 7
Crespi Pond (DH-3 and DH-4)	3.5 to 7.5	5 to 12	Elev. 10 to 12
Proposed Wetland (DH-5)	12.5	12.5	Elev. 26

3.10 VARIATIONS IN SUBSURFACE CONDITIONS

Our interpretations of soil, bedrock and groundwater conditions, as described in this report, are based on data obtained from subsurface exploration and laboratory testing for this study, and from subsurface data obtained by others. Our conclusions and recommendations are based on these interpretations. The project area has undergone different phases of land usage, with associated grading. Therefore, it is likely that undisclosed variations in subsurface conditions exist within the project area, such as old foundations, abandoned utilities and localized fill deposits of unknown character. Additionally, the hardness of granite bedrock will be locally variable.

We recommend that careful observations be made during construction to verify our interpretations. Should variations from our interpretations be found, we should be notified to evaluate whether any revisions should be made to our recommendations.

4. DISCUSSION AND CONCLUSIONS

4.1 GENERAL

Based on the results of our investigation, we conclude that the site is geotechnically suitable for the proposed improvements, provided the recommendations presented in this report are followed. A review of our conclusions with respect to various hazards is presented below. Detailed recommendations are presented in Section 5.

4.2 SURFACE RUPTURE AND SEISMIC GROUND SHAKING

Because the project area is not located within a State of California Earthquake Fault Zone and no mapped active faults are known to cross the project area, the probability of ground surface rupture at the project area due to displacement along a fault is remote.

The project area is in a region of high seismicity. Based on general knowledge of the local seismicity, it should be anticipated that, during its useful life, the project area will be subject to strong ground shaking. It is also anticipated that the project area will periodically experience small to moderate magnitude earthquakes. Proposed improvements should be designed accordingly.

4.3 SHALLOW BEDROCK AND EXCAVATABILTY

Shallow granite bedrock exists at variable elevations across the site. Granite bedrock, depending on the degree of weathering, may be very difficult to excavate. Approximate depth to dense bedrock as encountered in our borings is summarized in Section 3.9.

Based on DH-3 and DH-4, it appears that hard rock could be encountered at shallow depths below Crespi Pond water elevation and that excavating up to 10 feet below the pond water elevation may be difficult. However, the bedrock surface may dive deeper as one approaches the centerline of the topographic swale in this area, allowing greater excavatability.

Underground contractors should be aware of the presence of shallow bedrock and employ suitable equipment for these conditions. Heavy ripping, jack hammering, and other appropriate means may be required.

4.4 LIQUEFACTION AND LATERAL SPREADING

Soil liquefaction is a phenomenon in which saturated granular soils, and certain fine-grained soils, lose their strength due to the build-up of excess pore water pressure during cyclic loading, such as that induced by earthquakes. Soils most susceptible to liquefaction are saturated, clean, loose, fine-grained sands and non-plastic silts. Certain gravels, plastic silts, and clays are also susceptible to liquefaction. The primary factors affecting soil liquefaction include: 1) intensity and duration of seismic shaking; 2) soil type; 3) relative density of granular soils; 4) moisture content and plasticity of fine-grained soils; 5) overburden pressure; and 6) depth to groundwater.

The regional liquefaction susceptibility mapping reviewed in Section 4.4 considers the marine terrace deposits underlying the PGWTP tank site and the wetland area to have a low liquefaction susceptibility. The alluvial deposits that are mapped to underlay Crespi Pond are mapped as having a high liquefaction potential. Our borings encountered materials we classified as dune deposits, because they are sand-sizes or finer, with fairly uniform grain size, and no large clasts. The dune sand deposits are relatively clean with low fines content and are potentially liquefiable depending on their density and the depth of groundwater. At the PGWTP tank site potentially liquefiable soils were encountered in isolated zones between about 3 and 12 feet below ground surface.

The setting of the PGWTP tank site is such that groundwater generated from rainfall reaches the top of bedrock, and rather than perch on top of the bedrock, it tends to drain away relatively rapidly. This is due to the site being located near the northern end of a bedrock peninsula with virtually no contributing watershed, and the existence of free-draining faces along the bluff margins. None of our borings at the site encountered groundwater during drilling. From the groundwater data we were able to obtain in this investigation (see Section 3.8), we infer that for the majority of the year groundwater does not saturate the 16 feet of soil that mantles the bedrock at the PGWTP site. Therefore, the probability that temporarily perched groundwater would occur at the same time as a major earthquake is low. With this condition, in our opinion the hazard of liquefaction at the site is low.

Because there is a low potential for liquefaction at the PGWTP tanks site, there is a correspondingly a low potential of lateral spreading in this area of the site.

Crespi Pond and the site for a future wetlands are located in a topographic low. Our borings did not encounter ground water in these areas either, but based on the site geology there is a greater likelihood that perched groundwater may remain trapped in these areas for longer periods of time. Also, use of the area as wetlands may result in raising the groundwater elevation. We analyzed the liquefaction potential in these areas based on a PGA value of 0.41g (see Section 3.3), an earthquake moment magnitude of 7.3, and a perched groundwater depth of 5 feet below ground surface.

The results of our liquefaction analysis suggest that the sand layers from 5 to 7 feet in DH-3 and from 5 to 8 feet in DH-4 are potentially liquefiable. Estimated liquefaction-induced ground settlements for these layers are 1/4 inch to 1/3 inch respectively. Case histories have shown that actual liquefaction-induced settlements could be 50 to 200 percent of the estimated values.

4.5 SETTLEMENT OF WATER TANK FOUNDATIONS

Seismic and static settlement of the 0 to 3.5 foot thick soil layer between the bottom of the tanks and the underlying bedrock is a potential issue. During construction of the existing tanks, it is possible that the soil layer that exists between the bottom of the tanks and the bedrock surface was subexcavated and recompacted in place, thus reducing the magnitude of seismic and static settlement of this layer.

The information from our surrounding drill holes may not be representative of the soils beneath the tank foundations, but we judge that they represent a "worst case" condition. Assuming this worst case condition the seismically induced settlement of this area is judged to be less than about ½ inch.

As long as the loads within the tanks (the maximum water level) are similar to the loads they experienced when they were in service, additional static settlement should be minor. Due to the age of the tank it is likely that static settlement occurred years ago.

4.6 EXCAVATIONS AND DEWATERING

Proposed excavations within the Crespi Pond area are planned to be 5 to 10 feet below existing ground surface. Excavation depths for utilities are not presently known. Excavations within the dune sand deposits will encounter cohesionless materials that are subject to collapse and will require shoring or sloping the excavation sidewalls. Detailed recommendations are provided in Section 5.2.

Depending on the time of year of construction, if groundwater is encountered during construction, dewatering may also be required to allow construction to proceed in a "dry" condition.

4.7 EXPANSION POTENTIAL OF NEAR-SURFACE SOILS

The near-surface soils are generally sands with a low percentage of fines. These types of soil generally have low expansion potential.

5. RECOMMENDATIONS

5.1 GENERAL

Recommendations are provided in this section for expansion of the Crespi Pond and the wetland area, for assessment of the existing PGWTP tanks and for construction of utility trenches. General recommendations are provided for other improvements in the area. If new tanks or other improvements are proposed, we request the opportunity to review them to evaluate if our recommendations are suitable.

5.2 EARTHWORK

5.2.1 Clearing and Grubbing

Clearing and grubbing should be performed in areas proposed for earthwork, concrete slabs-on-grade or other development. Clearing and grubbing should include clearing of existing structures, utility lines to be abandoned, deleterious materials, debris, obstructions, and stumps and primary roots of trees and brush (roots over 1 inch in diameter or longer than about 3 feet in length). Depressions, voids and holes that extend below the proposed finish grade should be cleaned and backfilled with engineered fill.

Surface vegetation and organic laden soils should be stripped. Organic laden soils are defined as soils with more than 3 percent by weight of organic content. The required stripping depth should be determined in the field by the Engineer at the time of construction. Stripped material may be stockpiled for use in landscape areas if approved by the project landscape architect, or otherwise removed from the site.

5.2.2 Excavations, Shoring and Dewatering

Excavations up to 10 feet are anticipated for expansion of the Crespi Pond and the new wetland area. Excavations of unknown depth are anticipated for utility lines. Excavations may encounter hard granite bedrock conditions (see Section 3.9 for approximate depth to dense rock encountered in our drill holes). Based on the materials encountered in our borings we infer that excavations can be accomplished with conventional equipment, supplemented by heavy rippers. However, jack hammers in hard granite may be necessary. All underground contractors should be prepared for hard shallow rock conditions.

The contractor is responsible for the design, installation, maintenance and removal of temporary shoring and bracing systems. The presence of nearby existing structures, pavements, and underground utilities must be incorporated in the design of the shoring and bracing systems. The presence of relatively clean sandy soils that are subject to sudden collapse should be taken into consideration in design and construction.

Groundwater was not encountered in any of our drill holes but is expected to seasonally pond on the bedrock surface for short periods of time. Dewatering systems may be necessary. The design, installation, permitting, maintenance and removal of dewatering systems are the responsibility of the contractor.

Excavations adjacent to existing or proposed foundations should be above an imaginary plane having an inclination of 1½:1 (horizontal to vertical) extending down from the top of the

foundations. Otherwise, the effect of the adjacent foundations should be incorporated in the design and construction of the excavations and improvements.

5.2.3 Subgrade Preparation

Subgrade preparation is recommended in areas to receive engineered fill, or to support improvements such as pavements, concrete slabs, etc. Where subgrade preparation is required, the subgrade should be compacted to the recommendations given under Section 5.2.5. "Engineered Fill Placement and Compaction."

Soil with moisture content above optimum value should be anticipated during and shortly after rainy seasons, or for soils below the groundwater level. Where unstable, wet or soft soil is encountered, the soil will require processing before compaction can be achieved. When construction schedule does not allow air-drying, other means such as lime treatment of the soil or excavation and replacement may be considered. Geotextile fabrics may also be used to help stabilize the subgrade. The method to be used should be determined at the time of construction based on the actual site conditions. We recommend obtaining unit prices for subgrade stabilization during the construction bid process.

5.2.4 Material for Engineered Fill

In general, on-site soils with an organic content of less than 3 percent by weight, free of any hazardous or deleterious materials, and meeting the gradation requirements below may be used as general engineered fill to achieve project grades, except when special material is required.

In general, engineered fill material should not contain rocks or lumps larger than 3 inches in greatest dimension, should not contain more than 15 percent of the material larger than 1½ inches, and should contain at least 10 percent passing the No. 200 sieve. In addition to these requirements, import fill should have a low expansion potential as indicated by Plasticity Index of 12 or less, or Expansion Index of less than 20.

All import fills should be approved by the project geotechnical engineer prior to delivery to the site. At least five (5) working days prior to importing to the site, a representative sample of the proposed import fill should be delivered to our laboratory for evaluation.

5.2.5 Engineered Fill Placement and Compaction

Engineered fill should be placed in horizontal lifts each not exceeding 8 inches in thickness, moisture conditioned to the required moisture content, and mechanically compacted. Relative compaction or compaction is defined as the in-place dry density of the compacted soil divided by the laboratory maximum dry density as determined by ASTM Test Method D1557, latest edition, expressed as a percentage.

Moisture conditioning of soils should consist of adding water to the soils if they are too dry and allowing the soils to dry if they are too wet.

Engineered fills consisting of on-site or imported soils should be compacted to a minimum of 90 percent relative compaction. The moisture content of the material should be brought to between 1 and 3 percent above the laboratory optimum value before compaction is performed. In pavement areas, the upper 8 inches of soil should be compacted to a minimum of 95 percent relative compaction.

5.2.6 Cut and Fill Slopes

Generally, cut and fill slopes in sandy soil should be constructed at inclinations no steeper than 2.5:1 (horizontal:vertical). Permanent cut slopes within the metamorphic rock may be constructed at inclinations as steep as 1:1 (horizontal:vertical).

All pavements and concrete slabs-on-grade should be set back at least 5 feet horizontally from the crests of cut or fill slopes.

It may be desirable to lay back cut slopes in sand to as flat as 3:1 on the margins of Crespi Pond and the proposed wetland area. The stability of saturated slopes on the pond margins will be dependent on the percentage of fines within the material and to what degree vegetation is established.

5.2.7 Utility Trench Excavation and Backfill

Trench excavation, bedding and backfill should conform to the City of Pacific Grove Standard Specifications. Construction, shoring, and bracing of excavations should comply with the current CAL-OSHA safety standards and local jurisdiction. The stability and safety of excavations, braced or unbraced, is the responsibility of the contractor.

5.2.8 Wet Weather Construction

If site grading and construction is to be performed during the winter rainy months, the owner and contractors should be fully aware of the potential impact of wet weather. Rainstorms can cause delay to construction and damage to previously completed work by saturating compacted pads or subgrades, or flooding excavations.

Earthwork during rainy months will require extra effort and caution by the contractors. The contractor is solely responsible to protect his work to avoid damage by rainwater. Standing pools of water should be pumped out immediately. Construction during wet weather conditions should be addressed in the project construction bid documents and/or specifications. We recommend the grading contractor submit a wet weather construction plan outlining procedures they will employ to protect their work and to minimize damage to their work by rainstorms.

5.3 WATER TANK FOUNDATIONS

Based on the information provided to us, we understand that the eastern tank (the clarifier) has a base foundation consisting of a 14-inch thick concrete mat that slopes from 13 feet at the edges to 16.5 feet below ground surface at the center. The western tank (the digester) has a flat, 18-inch thick concrete mat that is founded 10 feet below ground surface.

For evaluation of these two tanks we recommend a net allowable bearing capacity of 2500 pounds per square foot on the underlying soils when considering dead plus normal live loading. This allowable foundation soil pressure may be increased by one-third when considering short-term wind or seismic loading. This assumes the existing embedment depths as noted above. Static settlement of the tanks is expected to have already occurred. Total settlement due to seismic shaking may be on the order of ½ inch .

Soil resistance to lateral loads will be provided by a combination of frictional resistance between the bottom of the mat foundations and underlying soils and by passive pressures acting against the embedded sides of the tanks. For frictional resistance at the base of the tanks, an ultimate

coefficient of friction of 0.3 may be used for design. In addition, an allowable passive lateral bearing pressure equal to an equivalent fluid pressure of 300 pounds per cubic foot (pcf) may be used. These values may be used in combination without reduction. This passive pressure can be assumed to act from 2 feet below grade and downward.

The side walls of the tanks should be designed to retain the surrounding soil. We infer that at-rest soil pressures are applicable for the tank walls as they are restrained from deflecting at the top. Assuming drained backfill conditions, the tank walls should be designed to resist an equivalent fluid pressure of 55 pcf.

If the structural engineer wishes to include seismic forces in the design of tank walls, the walls may be evaluated using the above at-rest soil pressure plus a horizontal seismic line force of $10H^2$ pounds per lineal foot (where H is the height of the vertical design plane from the wall base to the ground surface above). The resultant of the seismic force should be applied at 2/3H above the wall base. A reduced factor of safety for overturning and sliding may be used in seismic design as determined by the structural designer.

5.4 CONCRETE SLABS-ON-GRADE

No specific exterior concrete slabs-on-grade are presently proposed. The following recommendations are for exterior slabs in general. Preparation of subgrade soil and placement and compaction of engineered fill for concrete slabs-on-grade should be as outlined in Section 5.2, the "Earthwork" section of this report.

Exterior concrete slabs that are not sensitive to moisture transmission through the slabs, such as exterior flatwork may be constructed directly on properly prepared soil subgrades. Design of reinforcement, joint spacing, etc. is the responsibility of the design engineer.

Exterior concrete slabs-on-grade should be cast free from adjacent foundations or other non-heaving edge restraints. This may be accomplished by using a strip of 1/2-inch asphalt-impregnated felt divider material between the slab edges and the adjacent structure.

5.5 SURFACE DRAINAGE

Engineering design of grading and drainage at the site is the responsibility of the project Civil Engineer. We recommend the following be considered by the project Civil Engineer and incorporated into the project plans where appropriate.

Sufficient surface drainage should be provided to direct runoff away from building foundations, concrete slabs-on-grade and pavements, and towards suitable collection and discharge facilities. Ponding of surface water should be avoided by establishing positive drainage away from all improvements. Water collected from roof downspouts should be discharged into a closed pipe or towards drainage structures, and the water carried to a suitable discharge point.

The dune sand deposits are highly erodible and care should be taken to provide erosion protection where water is discharged and to plant and mulch all disturbed surfaces, establishing vegetation as appropriate, prior to the winter rains.

6. PLAN REVIEW, EARTHWORK AND FOUNDATION OBSERVATION

Post-report geotechnical services by Pacific Geotechnical Engineering (PGE), typically consisting of pre-construction design consultations and reviews, construction observation and testing services, are necessary for PGE to confirm the recommendations contained in this report. This report is based on limited sampling and investigation, and by those constraints may not have discovered local anomalies or other varying conditions that may exist on the project site. Therefore, this report is only preliminary until PGE can confirm that actual conditions in the ground conform to those anticipated in the report. Accordingly, as an integral part of this report, PGE recommends post-report geotechnical services to assist the project team during design and construction of the project. PGE requires that it perform these services if it is to remain as the project geotechnical engineer-of-record.

During design, PGE can provide consultation and supplemental recommendations to assist the project team in design and value engineering, especially if the project design has been modified after completion of our report. It is impossible for us to anticipate every design scenario and use of construction materials during preparation of our report. Therefore, retaining PGE to provide post-report consultation will help address design changes, answer questions and evaluate alternatives proposed by the project designers and contractors.

Prior to issuing project plans and specifications for construction bidding purposes, PGE should review the grading, drainage and foundation plans and the project specifications to determine if the intent of our recommendations has been incorporated in these documents. We have found that such a review process will help reduce the likelihood of misinterpretation of our recommendations which may cause construction delay and additional cost.

Construction phase services can include, among other things, the observation and testing during site clearing, stripping, excavation, mass grading, subgrade preparation, fill placement and compaction, backfill compaction, foundation construction and pavement construction activities.

Pacific Geotechnical Engineering would be pleased to provide cost proposals for follow-up geotechnical services. Post-report geotechnical services may include additional field and laboratory services.

7. LIMITATIONS

In preparing the feasibility-level findings and professional opinions presented in this report, we have endeavored to follow generally accepted principles and practices of the engineering geologic and geotechnical engineering professions in the area and at the time our services were provided. No warranty, express or implied, is provided.

The preliminary recommendations contained in this report are based, in part, on information that has been provided to us. In the event that the general development concept or general location and type of structures are modified, our preliminary conclusions and recommendations shall not be considered valid unless we are retained to review such changes and to make any necessary additions or changes to our recommendations. For Pacific Geotechnical Engineering to remain the geotechnical consultant of record for the proposed project, we must provide supplemental geotechnical services during final design phase, plan review and construction observation services, as outlined above under the Plan Review, Earthwork and Foundation Observation section of this report.

Subsurface exploration is necessarily confined to selected locations and conditions may, and often do, vary between these locations. Should conditions different from those assumed in this report be encountered during project development, additional exploration, testing, and analysis may be required.

Should persons concerned with this project observe geotechnical features or conditions at the site or surrounding areas which are different from those described in this report, those observations should be reported immediately to Pacific Geotechnical Engineering for evaluation.

It is important for project performance that the preliminary recommendations given in this report are made known to the design professionals involved with the project, that they be incorporated into project drawings and documents, and that the preliminary recommendations be validated and/or supplemented by a design level geotechnical investigation.

Report prepared by,

PACIFIC GEOTECHNICAL ENGINEERING

Soma B. Goresky
GE 2252

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CEG 1858

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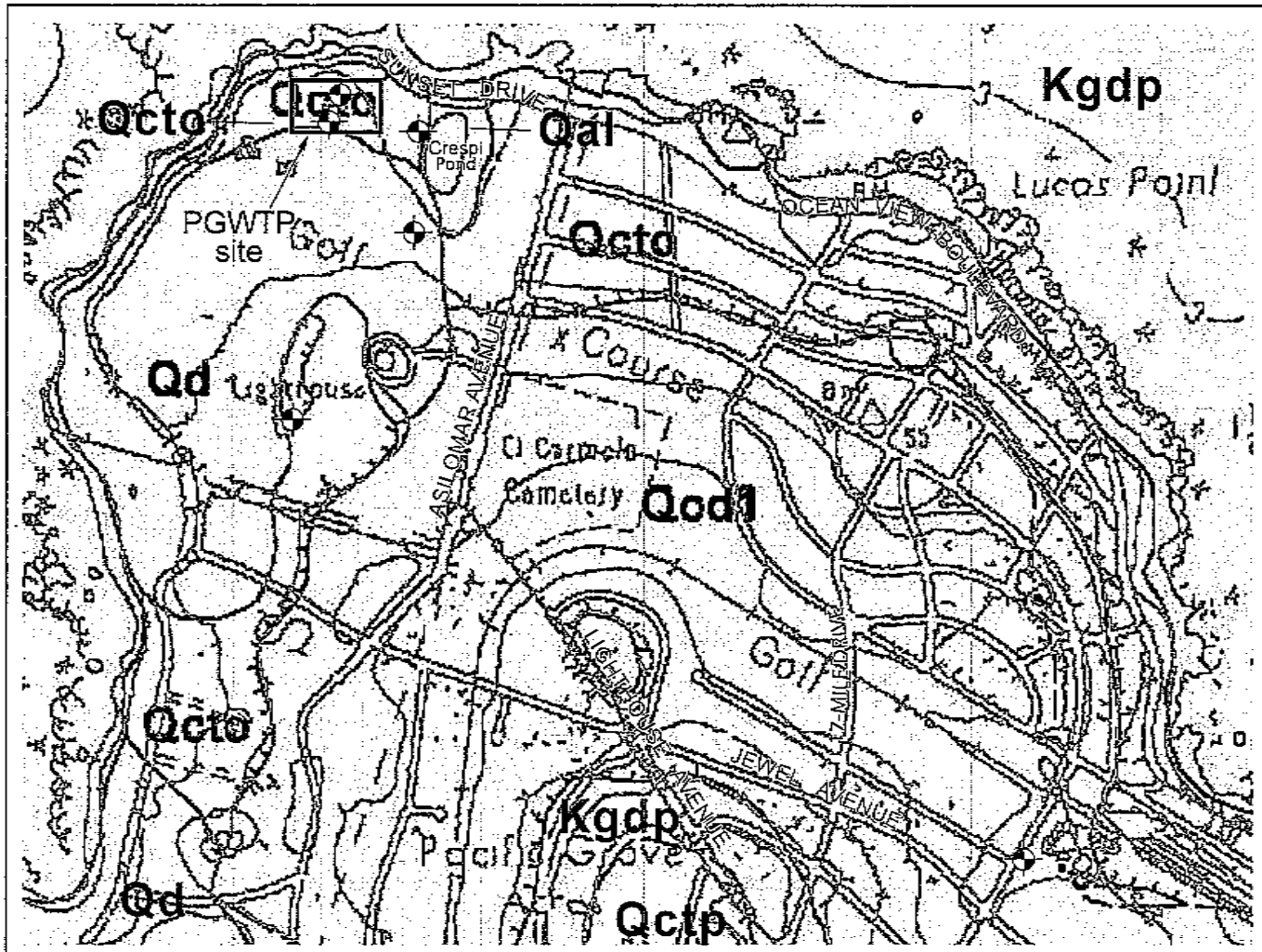
FIGURES



EXPLANATION

Qd	Dune sand deposits (Holocene)
Qal	Alluvial deposits (Holocene)
Qod1	Younger coastal dune deposits (Pleistocene)
Qcto	Ocean view coastal terrace (Pleistocene)
Qctl	Lighthouse coastal terrace (Pleistocene)
Qctp	Peninsula College coastal terrace (Pleistocene)
Kgdp	Porphyritic granodiorite of Monterey of Ross (Cretaceous)
⊕	Drill hole location

N

0 500 ft

NOTES:
1. BASE MAP: Geologic Map of the Monterey and Seaside 7.5-Minute Quadrangles (J.C. Clark and others, 1997).
2. Drill hole locations are shown on this figure to illustrate the overall distribution of exploration. See Figures 4 and 5 for specific locations of drill holes.

PACIFIC GEOTECHNICAL ENGINEERING

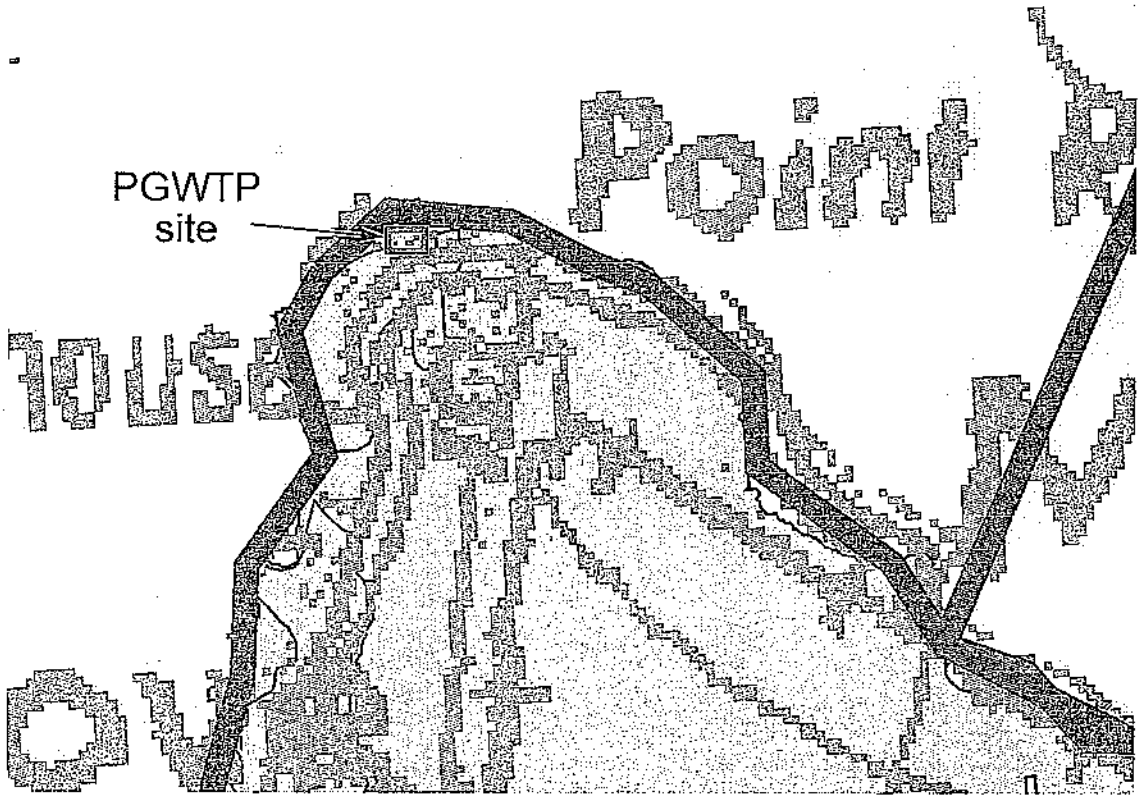
DRAFTED BY:	CSS
DATE:	AUGUST 2013
CHECKED BY:	
REVISION:	

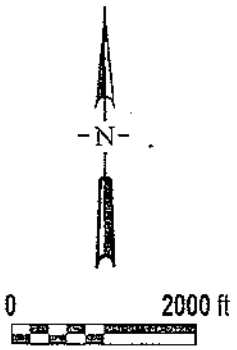
GEOLOGIC INDEX MAP

PACIFIC GROVE ASBS STORMWATER MANAGEMENT PROJECT
MONTEREY and PACIFIC GROVE, CALIFORNIA

FIGURE 1

PROJECT 2013.0031





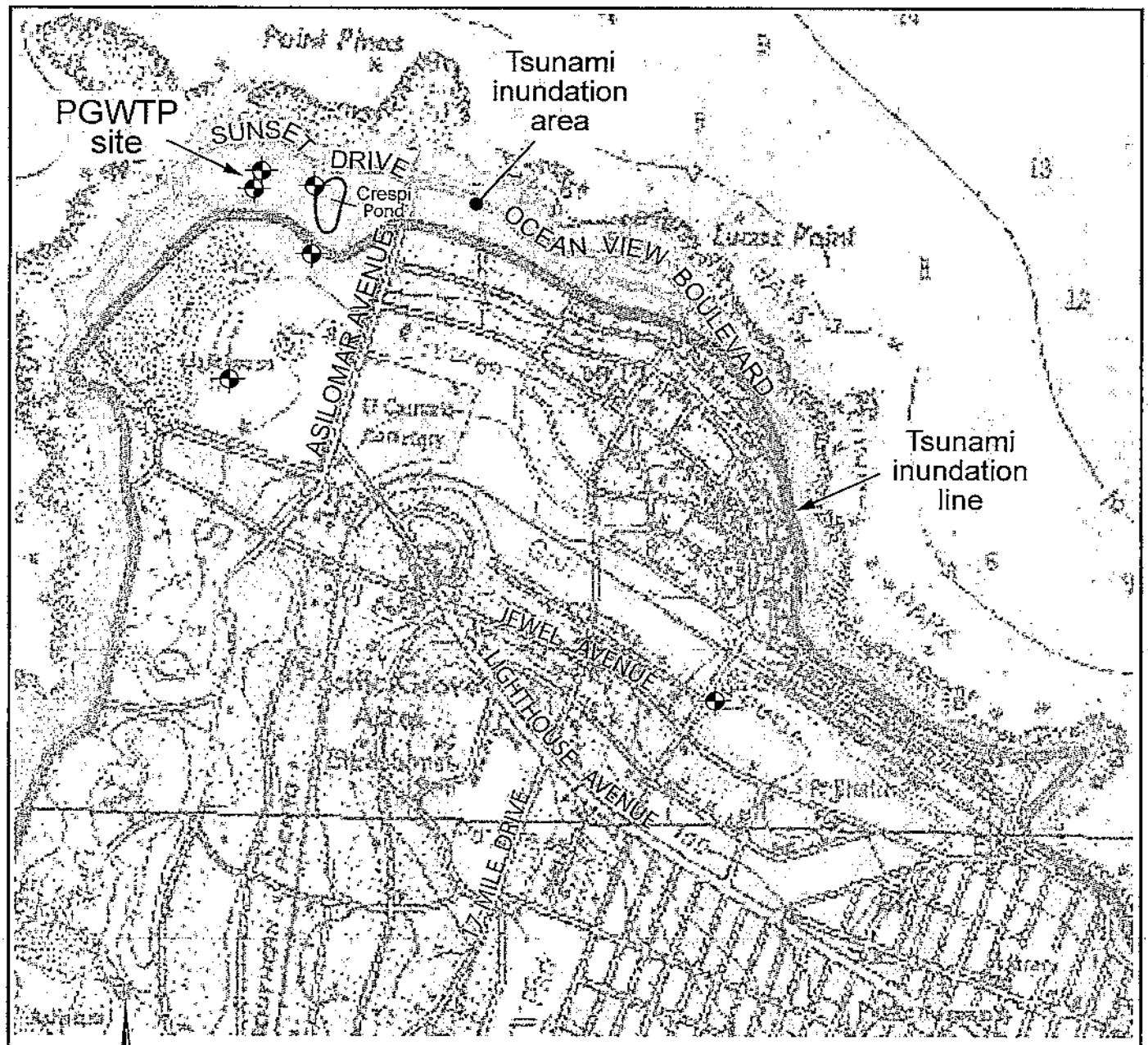
EXPLANATION

High liquefaction susceptibility

Low liquefaction susceptibility

BASE MAP: Digital Map Showing Relative Liquefaction Susceptibility of Monterey County, California (L.I. Rosenberg, 2001).

PACIFIC GEOTECHNICAL ENGINEERING	DRAFTED BY: CSS	**LIQUEFACTION MAP**	**FIGURE** 2
	DATE: AUGUST 2013	**PACIFIC GROVE ASBS STORMWATER MANAGEMENT PROJECT MONTEREY and PACIFIC GROVE, CALIFORNIA**	
	CHECED BY:		**PROJECT** 2013.0031
	REVISION:		



BASE MAP: Tsunami Inundation Map for Emergency Planning, Monterey Quadrangle (California Emergency Management Agency and others, 2009).

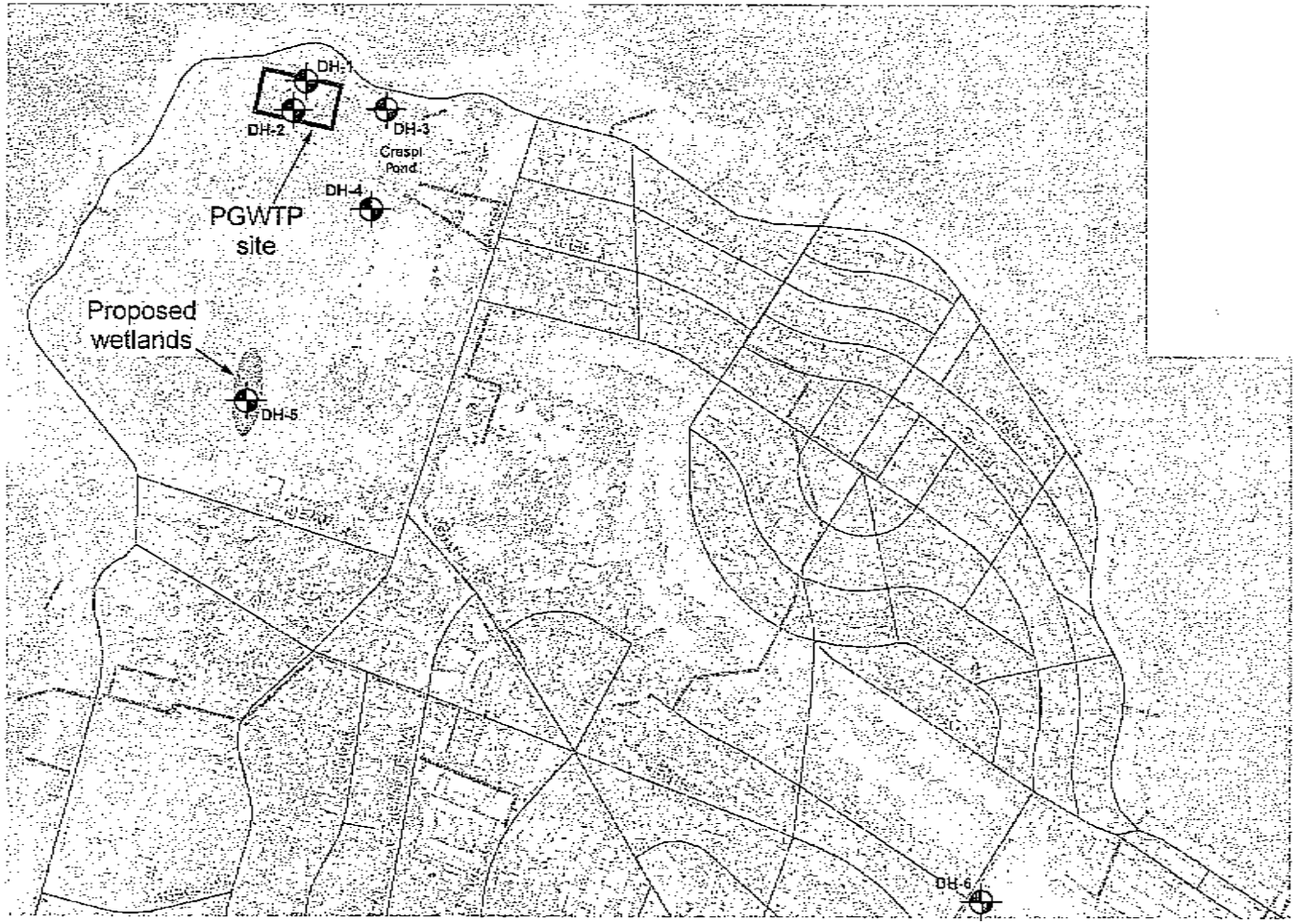
-N-

0 1000 ft

EXPLANATION

Drill hole location

PACIFIC GEOTECHNICAL ENGINEERING	DRAFTED BY: CSS	**TSUNAMI INUNDATION MAP**	**FIGURE** 3
	DATE: AUGUST 2013	**PACIFIC GROVE ASBS STORMWATER MANAGEMENT PROJECT MONTEREY and PACIFIC GROVE, CALIFORNIA**	
	CHECED BY:		**PROJECT** 2013.0031
	REVISION:		



EXPLANATION

DH-6 Drill hole location

Existing storm drain

N

0 600 ft

BASE MAP: "Pacific Grove Water Treatment Plant Vicinity, Pacific Grove ASBS Stormwater Management Plan," by Fall Creek Engineering, Inc., received electronically on 8/5/13.

PACIFIC GEOTECHNICAL ENGINEERING

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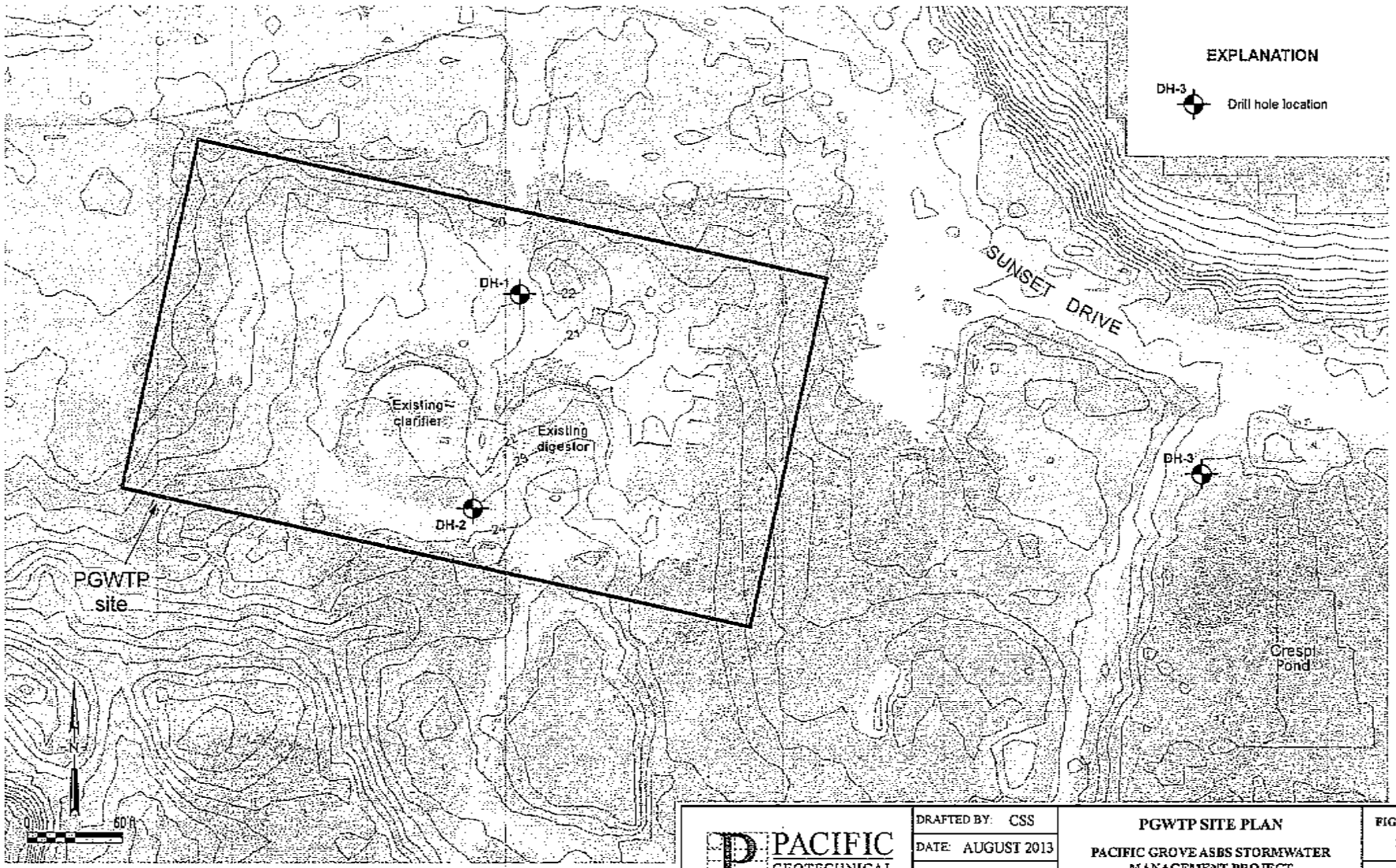
REVISION:	

OVERALL SITE PLAN

PACIFIC GROVE ASBS STORMWATER MANAGEMENT PROJECT
MONTEREY and PACIFIC GROVE, CALIFORNIA

FIGURE 4

PROJECT 2013.0031



BASE MAP: "Pacific Grove Water Treatment Plant Contour Data, Pacific Grove ASBS Stormwater Management Plan," by Fall Creek Engineering, Inc., received electronically on 8/5/13.

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REVISION:	

PGWTP SITE PLAN

PACIFIC GROVE ASBS STORMWATER MANAGEMENT PROJECT
MONTEREY and PACIFIC GROVE, CALIFORNIA

FIGURE 5

PROJECT 2013.0031

APPENDIX A

KEY TO SOIL CLASSIFICATION - FINE GRAINED SOILS

(50% OR MORE IS SMALLER THAN NO. 200 SIEVE SIZE)

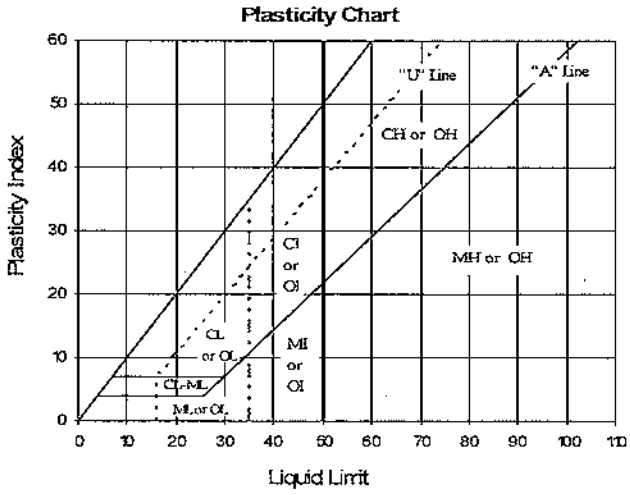
(modified from ASTM D2487 to include fine grained soils with intermediate plasticity)

MAJOR DIVISIONS			GROUP SYMBOLS	GROUP NAMES
SILTS AND CLAYS (Liquid Limit less than 35) Low Plasticity	Inorganic	PI < 4 or plots below "A" line	ML	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CL	Lean Clay, Lean Clay with Sand or Gravel, Sandy or Gravelly Lean Clay, Sandy or Gravelly Lean Clay with Sand or Gravel
	Inorganic	PI between 4 and 7	CL-ML	Silty Clay, Silty Clay with Sand or Gravel, Sandy or Gravelly Silty Clay, Sandy or Gravelly Silty Clay with Sand or Gravel
	Organic	See footnote 3	OL	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) [1,2]
SILTS AND CLAYS (35 ≤ Liquid Limit < 50) Intermediate Plasticity	Inorganic	PI < 4 or plots below "A" line	MI	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CI	Clay, Clay with Sand or Gravel, Sandy or Gravelly Clay, Sandy or Gravelly Clay with Sand or Gravel
	Organic	See footnote 3	OI	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) [1,2]
SILTS AND CLAYS (Liquid Limit 50 or greater) High Plasticity	Inorganic	PI plots below "A" line	MH	Elastic Silt, Elastic Silt with Sand or Gravel, Sandy or Gravelly Elastic Silt, Sandy or Gravelly Elastic Silt with Sand or Gravel
	Inorganic	PI plots on or above "A" line	CH	Fat Clay, Fat Clay with Sand or Gravel, Sandy or Gravelly Fat Clay, Sandy or Gravelly Fat Clay with Sand or Gravel
	Organic	See note 3 below	OH	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) [1,2]

1. If soil contains 15% to 29% plus No. 200 material, include "with sand" or "with gravel" to group name, whichever is predominant.
2. If soil contains ≥30% plus No. 200 material, include "sandy" or "gravelly" to group name, whichever is predominant. If soil contains ≥15% of sand or gravel sized material, add "with sand" or "with gravel" to group name.
3. Ratio of liquid limit of oven dried sample to liquid limit of not dried sample is less than 0.75.

CONSISTENCY	UNCONFINED SHEAR STRENGTH (KSF)	STANDARD PENETRATION (BLOWS/FOOT)
VERY SOFT	< 0.25	< 2
SOFT	0.25 – 0.5	2 – 4
FIRM	0.5 – 1.0	5 – 8
STIFF	1.0 – 2.0	9 – 15
VERY STIFF	2.0 – 4.0	16 – 30
HARD	> 4.0	> 30

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below the water table



PACIFIC GEOTECHNICAL ENGINEERING

KEY TO SOIL CLASSIFICATION – COARSE GRAINED SOILS

(MORE THAN 50% IS LARGER THAN NO. 200 SIEVE SIZE)

(modified from ASTM D2487 to include fines with intermediate plasticity)

MAJOR DIVISIONS			GROUP SYMBOLS	GROUP NAMES[1]
GRAVELS (more than 50% of coarse fraction is larger than No. 4 sieve size)	Gravels with less than 5% fines	Cu ≥ 4 and 1 ≤ Cc ≤ 3	GW	Well Graded Gravel, Well Graded Gravel with Sand
		Cu < 4 and/or 1 > Cc > 3	GP	Poorly Graded Gravel, Poorly Graded Gravel with Sand
	Gravels with 5% to 12% fines	ML, MI or MH fines	GW-GM	Well Graded Gravel with Silt, Well Graded Gravel with Silt and Sand
			GP-GM	Poorly Graded Gravel with Silt, Poorly Graded Gravel with Silt and Sand
		CL, CI or CH fines	GW-GC	Well Graded Gravel with Clay, Well Graded Gravel with Clay and Sand
			GP-GC	Poorly Graded Gravel with Clay, Poorly Graded Gravel with Clay and Sand
	Gravels with more than 12% fines	ML, MI or MH fines	GM	Silty Gravel, Silty Gravel with Sand
		CL, CI or CH fines	GC	Clayey Gravel, Clayey Gravel with Sand
		CL-ML fines	GC-GM	Silty Clayey Gravel; Silty, Clayey Gravel with Sand
SANDS (50% or more of coarse fraction is smaller than No. 4 sieve size)	Sands with less than 5% fines	Cu ≥ 6 and 1 ≤ Cc ≤ 3	SW	Well Graded Sand, Well Graded Sand with Gravel
		Cu < 6 and/or 1 > Cc > 3	SP	Poorly Graded Sand, Poorly Graded Sand with Gravel
	Sands with 5% to 12% fines	ML, MI or MH fines	SW-SM	Well Graded Sand with Silt, Well Graded Sand with Silt and Gravel
			SP-SM	Poorly Graded Sand with Silt, Poorly Graded Sand with Silt and Gravel
		CL, CI or CH fines	SW-SC	Well Graded Sand with Clay, Well Graded Sand with Clay and Gravel
			SP-SC	Poorly Graded Sand with Clay, Poorly Graded Sand with Clay and Gravel
	Sands with more than 12% fines	ML, MI or MH fines	SM	Silty Sand, Silty Sand with Gravel
		CL, CI or CH fines	SC	Clayey Sand, Clayey Sand with Gravel
		CL-ML fines	SC-SM	Silty, Clayey Sand; Silty, Clayey Sand with Gravel

US STANDARD SIEVES	3 Inch	¾ Inch	No. 4	No. 10	No. 40	No. 200
	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES & BOULDERS	GRAVELS		SANDS			SILTS AND CLAYS

RELATIVE DENSITY (SANDS AND GRAVELS)	STANDARD PENETRATION (BLOWS/FOOT)
Very Loose	0 - 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 - 50
Very Dense	50+

1. Add "with sand" to group name if material contains 15% or greater of sand-sized particle. Add "with gravel" to group name if material contains 15% or greater of gravel-sized particle.

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soi is below the water table

PACIFIC GEOTECHNICAL ENGINEERING

ROCK QUALITY DESCRIPTIONS

HARDNESS**

Very Hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of the geologist's pick
Hard	Can be scratched with knife or pick only with difficulty. Hard blow with hammer required to break sample.
Moderately Hard	Can be scratched with knife or pick. Gouges or grooves to ½ inch can be excavated by hard blow of point of a geologist's pick. Hand specimens broken with moderate blow.
Medium	Can be grooved or gouged 1/16 inch deep by firm pressure on knife or pick point. Can be excavated in small chips about 1 inch maximum in dimension by hard blows of the point of a geologist's pick.
Soft	Can be grooved or gouged readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small pieces can be broken by finger pressure,
Very Soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces one inch or more thickness can be broken with finger pressure. Can be scratched readily by finger nail.

WEATHERING**

Fresh or Unweathered	Rock fresh, crystals bright, few joints and fractures may show slight staining. Rock rings under hammer if crystalline.
Very Slight	Rock generally fresh, fractures and joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints and fractures stained, and discoloration extends into rock up to 1 inch. Joints may contain clay. In granitic rock, some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitic rock, most feldspars are dull and discolored; some show clay. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately Severe	All rock except quartz discolored or stained. In granitic rock, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick. Rock goes "clunk" when struck.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitic rock, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very Severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil." Rock "fabric" not discernible or discernible only in small scattered locations. Quartz may be present as dikes or stringers.

FRACTURE DIMENSIONS*

Fracture	Block Size (or Spacing[1])
Crushed	~5 microns to 0.1 ft
Intensely	0.05 to 0.1 ft
Closely	0.1 to 0.5 ft
Moderately	0.5 to 1.0 ft
Slightly	1.0 to 3.0 ft
Massive	3.0 ft and larger

1 Average distance between adjacent fractures
* Source of data unknown
** Source of data: "Subsurface Investigaiton for Design and Constructio of Foundation Buildings," (1976) American Society of Civil Engineers, Manuals and Reports on Engineering Practice – No. 5

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 1

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 21

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: — Final: —

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
DUNE DEPOSITS: POORLY GRADED SAND WITH CLAY: Very dark brown (10YR 2/2), dry to moist, dense upper, medium dense to loose below; fine sand;	SP-SC	1	S D D	58				3		113		
		2										
		3	S D D	23				4		103		
		4										
		5	S I I	8		10		3				
		6										
		7										
POORLY GRADED SAND WITH CLAY: Brown (7.5YR 4/4), wet, medium dense; fine sand	SP-SC	8										
		9	S I I	17		5		18				
		10										
		11										
POORLY GRADED SAND WITH CLAY: Light brownish grey (10YR 6/2), wet, very dense; fine sand	SP-SC	12										
		13	S I I	72/10"				22				
		14										
		15										
- drilling gets abruptly hard at 16 ft.		16										
BEDROCK: GRANITE: Variable brownish yellow, pale brown, light grey, wet, rock mass is soft due to weathering, individual crystal and fragments are very hard, severely weathered; fracture cannot be determined in samples		17										
		18										
		19	S I I	49								
		20										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 1

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 21

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
BEDROCK: GRANITE: as above - by 23 ft. weathered such that rock separates into individual crystals; no oxidation color in sample, light grey, black, white quartz-plagioclase biotite granitoid		21										
		22										
		23										
		24	I	50/4"								
BOTTOM OF HOLE = 24 Feet No Groundwater encountered		25										
		26										
		27										
		28										
		29										
		30										
		31										
		32										
		33										
		34										
		35										
		36										
		37										
		38										
		39										
		40										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 2

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 23

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: — Final: —

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
PAVEMENT SECTION (4" AC, no Baserock)												
DUNE DEPOSITS: POORLY GRADED SAND WITH CLAY to CLAYEY SAND: Dark brown (10YR 3/3), dry to moist, medium dense; fine sand	SP-SC to SC	1	S									
		2	D	40				4		113		
		3	D									
			S	12								
POORLY GRADED SAND WITH CLAY: Black (10YR 2/1), dry, medium dense; fine sand	SP-SC	4										
		5	S									
POORLY GRADED SAND with CLAY and GRAVEL: Dark brown (7.5YR 3/3), moist, medium dense; fine to coarse mostly subangular to angular sand; with fine gravel	SP-SC	6	I	17				20		83		
		7										
		8										
		9	S									
-by 9 ft. dark brown (7.5YR 3/2) - by 9.75 ft. grades to light brownish grey		10	I	12		10		16				
		11										
		12										
		13										
-by 14.5 ft. greenish grey (Gley1 6/10Y)		14	S									
			I	24		8		20				
		15										
BEDROCK: GRANITE: Variably colored, brown overall; wet; rock mass soft due to weathering, crystals are hard; severely weathered to clayey sand, fractures cannot be determined in samples		16										
		17										
		18										
		19	S									
BOTTOM OF HOLE = 19.5 Feet No Groundwater Encountered			I	50/5"								
		20										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 3

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 15

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: — Final: —

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
DUNE DEPOSITS: CLAYEY SAND: Very dark brown (10YR 2/2), dry to moist, loose; fine sand	SC	1	S									
			D									
		2	D	13		31		18		110		
CLAYEY SAND: Very dark brown (10YR 2/2), moist, medium dense; with fine sand	SC		S									
		3	D	15								
BEDROCK: (upper 6 in. completely weathered to clayey sand) GRANITE: multi colored grey, white, black with yellowish brown areas from oxidation; dry; rock mass soft due to weathering, crushes into individual crystals		4	D									
		5										
			S									
		6	D	50/4"		9		9		127		
		7										
		8										
		9	D	50/4"								
BOTTOM OF HOLE = 9 Feet No Groundwater Encountered		10										
		11										
		12										
		13										
		14										
		15										
		16										
		17										
		18										
		19										
		20										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 4

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 23

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
DUNE DEPOSITS: POORLY GRADED SAND WITH CLAY: Greyish brown (10YR 5/2), moist, medium dense; fine sand	SP-SC	1										
		2	S D	30	>4.5	15		6		109		
CLAYEY SAND: Very dark grayish brown (10YR 3/2), moist, medium dense; fine sand	SC	3	D S I I	4								
POORLY GRADED SAND WITH CLAY: Grayish brown (10YR 5/2), dry to moist, loose; fine sand	SP-SC	4										
		5	S I I									
-peat rich layer begins at ≈ 6.2 ft. ends of sample 6.5 ft.		6		5								
		7										
WEATHERED BEDROCK: Weathered to CLAYEY SAND: Dark greenish grey (Gley1 4/5GY), moist, medium dense; mostly fine sand.	SC	8										
		9	S I I	10		22		14				
		10										
		11										
BEDROCK: GRANITE: Variable colors but dark yellowish brown over all; moist, rock mass soft due to weathering; crystals are severely weathered; crumbles		12										
		13										
		14	S I	50/6"								
BOTTOM OF HOLE = 14.5 Feet		15										
		16										
		17										
		18										
		19										
		20										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 5

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 38

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: — Final: —

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
DUNE DEPOSITS: CLAYEY SAND: Greyish brown (10YR 5/2), moist to wet, loose; fine sand	SC	1	S									
		2	D	11								
			D									
-by 3 ft. wet with water in sample liner, medium dense		3	S									
? ? ? ? ? ?		4	D	25		13		16		114		
-No recovery at 5.0-6.5 ft.	SP-SC	5	S									
POORLY GRADED SAND WITH CLAY: Light brown light grey (10YR 6/2), wet, medium dense		6	I	12								
		7										
		8										
		9	S									
			I	26		6		23				
		10										
		11										
-abruptly drilling gets harder		12										
BEDROCK: GRANITE: Variable colored, grey white, black yellowish brown where oxidized; wet; rock mass soft due to weathering; severely weathered rock crumbles into individual rock crystals		13										
		14	S I	50/6"								
		15										
BOTTOM OF HOLE = 14.5 Feet No Groundwater Encountered		16										
		17										
		18										
		19										
		20										

DATE: 6/4/2013	LOG OF EXPLORATORY DRILL HOLE	DH- 6

PROJECT NAME: PGWTP **PROJECT NUMBER:** 2013.0031

DRILL RIG: Mobile B53, 140# downhole hammer & wire winch **LOGGED BY:** CSS

HOLE DIAMETER: 8" hollow stem auger **HOLE ELEVATION:** ± 21

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: — Final: —

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
OLDER DUNE DEPOSITS: CLAYEY SAND: Very dark brown (10YR 2/2), dry to moist, medium dense; fine sand; Grades slightly coarser with depth to fine sand with some medium sand	SC	1	S									
		2	D D	28				4		109		
WEATHERED BEDROCK: WEATHERED to a CLAYEY SAND: Very dark grey (10YR 3/1), mottled with strong brown (7.5Y 4/6), wet, medium dense to very dense; mostly fine sand		3	S									
		4	I I	16				15				
		5	S									
		6	I	50/5"								
BEDROCK: GRANITE: Variably colored white, grey, black with yellowish brown oxidation; moist; rock mass is soft due to weathering; severely weathered, crumbles to individual hard minerals		7										
		8	S									
		9	I	50/4"								
		10										
		11										
		12										
		13										
		14	I	50/4"								
BOTTOM OF HOLE = 14 Feet No Groundwater Encountered		15										
		16										
		17										
		18										
		19										
		20										

Monitoring and Emergency Response Measures

Pacific Geotechnical Engineering

PACIFIC
GEOTECHNICAL
ENGINEERING

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sgoresky@pacific-geotechnical.com

November 25, 2013
Project 2013.0031

Ms. Emily Corwin
Fall Creek Engineering
227 Fern Street
Santa Cruz, California 95060

SUBJECT: Response re Monitoring and Emergency Response Measures
David Avenue Reservoir
Pacific Grove, California

Dear Emily,

Below please find our responses to the four items you requested, to aid in preparation for the draft EIR that is being developed for the David Avenue reservoir. This information was compiled in conjunction with Todd Ramey, a senior project manager in our Grass Valley office who specializes in liner systems design, installation and maintenance and Joe Franzone, a geotechnical engineer in our San Diego office with experience in design and construction of dams.

The responses below are preliminary and largely "generic" in nature, tailored to the double lined pond system which is currently anticipated at the site. Detailed investigations will need to be completed before a site specific monitoring and Emergency Action Plan can be developed for the project.

We understand that the Cities of Monterey and Pacific Grove want the dam to continue to be regulated by the State. Therefore, in preparation of this letter we contacted the Division of Safety of Dams (DSOD) to enquire about their typical requirements for dam monitoring systems. Bill Vogler, Field Engineering Department for the Central Region, is quite familiar with the David Avenue reservoir (referred to as the Pacific Grove Dam No. 642-3 in their files). In our conversation he again stressed several key points:

1) The owner or the owner's representative should contact DSOD directly.
2) There are significant hydraulic issues that need to be addressed for this dam.
3) Coordination with DSOD is required prior to doing any drilling or subsurface investigation at the site

Based on our conversation we encourage FCE or the owner's representative to contact Bill Vogler directly as we move forward with this project (his number is 916 247-3485). DSOD generally recommends applications and associated fees be completed at the 30 percent design stage of a project (see FAQ under DSOD website at http://www.water.ca.gov/damsafety/fees/index.cfm.

We strongly advise that the owner or their representative acquire written conceptual approval from the DSOD regarding the liner alternative for rehabilitation of this dam, prior to any significant investigations or design work being completed.

Below please find our responses to the four items:

Question #1: Recommend some safety engineering measures to help monitor the stability of the dam once it becomes functional again.

Response: Based on the proposed design of the double lined impoundment, we recommend a series of settlement monuments be installed along the crest of the embankment (a minimum of 3, one near the edges of each abutment and one above the highest portion of the embankment) with possible additional settlement monuments near the toe (further evaluated after the investigation has been completed). Considering that the embankment will be double lined, the use of piezometers is typically not required by DSOD. However, based on the age of the structure and geotechnical characteristics of the embankment to be evaluated during the subsurface investigation, piezometers may be recommended. Two vibrating wire piezometers below the liner and two traditional standpipe piezometers located along the crest of the embankment may be recommended, but will be further evaluated based on the results of the investigation and the degree of saturation of the underlying native soils.

Since the pond will be double-lined, a pumping system with automated level controls will be installed to prevent build-up of water on the bottom (secondary) liner. A strobe light and alarm will be installed on the control system panel to indicate if the water within the sump is too high, providing an indication if the pumping system is not functioning properly or if a significant breach of the primary liner has occurred. The pumping system will have a flow meter with a totalizing function to indicate the amount of solution that has been pumped. The controls will be set up to record information at specific intervals on a continuous basis. The controls can also be upgraded to provide real-time monitoring from a remote site, as necessary.

Question #2: Provide some details on the effectiveness of the proposed design in withstanding earthshaking.

Response: The geomembrane liner system should effectively eliminate seepage from the reservoir and into the dam, which is the most significant cause of reduced soil strength and/or liquefaction under dynamic earthquake loading. The flexible nature of the geomembrane provides superior performance during dynamic events and can potentially "bridge" over collapsed/liquefied soil areas allowing the lined containment area, making them less prone to breach or rapid water loss during an earthquake than a traditional earth-lined impoundment.

With the automated level monitoring and pumping system installed, the water that could seep from the pond through leaks from the primary liner will be collected on top of the secondary liner and immediately be pumped back into the pond. This will significantly reduce seepage from the contained water provided the system is properly operated and maintained.

Seismic stability of native materials below the base of the dam and above the underlying bedrock is not addressed by the proposed liner design. The seismic stability of the native materials beneath the dam should be evaluated early in the investigation process.

Question #3: Provide some general best management practice details/or standard requirements regarding inspection frequency, emergency response activities etc.

Response: For planning-level efforts, the settlement monuments and any piezometers (if installed) should be monitored on a weekly basis during the initial filling of the pond or whenever the pond is filled quickly. The sump should initially be checked daily for proper operation and for any leakage. The embankment and pond area should also be inspected weekly during this period.

A month after initial filling, the settlement monuments, piezometers (if installed), and the sump system should be monitored quarterly, thereafter, and immediately after each significant seismic event (site acceleration over 0.1g). In addition, the embankment and lined area should be visually inspected at the same frequency as other instrumentation.

If there are any indications that the embankment or liner system has been compromised, the pond should be drained and the system examined. For general leakage through the primary liner, as long as the leak detection pump is keeping up with the leakage, there is no reason to be alarmed. It is recommended that if the pond leakage from the primary liner exceeds 1,000 gallons per acre (of pond area) per day, the pond should be drained as soon as practical during a dry part of the year, the leak(s) located, and the primary liner repaired.

Question #4: What is the course of action if a deficiency in the dam is found during an inspection?

Response: Each deficiency should be examined for its potential cause and risk level. For high hazards, such as slope failure or liner breach, the municipality should be notified immediately and emergency actions should be taken. For lesser hazards, the municipality should be notified verbally immediately upon completion of the inspection and a formal report filed with recommended actions provided within one week.

A site specific Emergency Action Plan (EAP) should be developed. To aid dam owners in developing a site specific EAP, the Department of Water Resources Division of Safety of Dams (DSOD) provides a sample EAP, appended. This document is specific to the concerns in California and is intended as a preliminary starting point for dam owners.

Please contact us if you have any further questions

Sincerely,

PACIFIC GEOTECHNICAL ENGINEERING

Soma G. Goresky
Geotechnical Engineer

Attachment: DSOD Sample Emergency Action Plan

Introduction

The purpose of this document is to assist dam owners and emergency managers throughout California to complete Emergency Action Plans (EAP) for dams. The Federal Emergency Management Agency (FEMA) has stated that increasing the number of EAPs for dams is a top priority of the National Dam Safety Program. Completion of EAPs is generally the responsibility of local emergency managers and dam owners. This sample EAP was developed by the Department of Water Resources, Division of Safety of Dams (DSOD) with funding provided by FEMA. The document was modeled after the USDA Natural Resources Conservation Service sample EAP for earthen high hazard dams. The NRCS example was modified to include information specific to California.

This document only serves as a sample providing information and formatting consistent with State of California procedures. This document is not intended to meet every need and it is understood that each dam, agency and dam owner is unique and therefore changes are expected to make it useful for any specific dam. This electronic sample may be edited as necessary to adapt the format and content as necessary to meet any local requirements and site specific situations. Items highlighted and blank tables throughout the document are generic and should be filled in specific to the situation.

DSOD can assist dam owners and emergency managers by providing certain information to complete the document.

SAMPLE

Emergency Action Plan (EAP)

DAM NAME

County, California

DSOD North/Central/South Region

Other names associated with facility if applicable

DSOD Dam No. XXXX-XXX
National Inventory Dams (NID) # CAXXXXX

Dam Owner: Name

With assistance from:

Department of Water Resources
Division of Safety of Dams

Date Prepared: XX/XX/20XX

Date Revised: XX/XX/20XX

Emergency Action Plan (EAP)

Dam Name

County, California

DSOD Dam No. XXXX-XXX
NID # CAXXXX

SAMPLE

Copy ___ of ___

Record of Holders of Numbered EAP's for DSOD Dam # XXXXX

Copy No.	Organization	Person Receiving Copy	
1	Local Emergency Management Agency	Region Admin	
2	Cal EMA		
3	County Sheriff's Department		
4	City PD		
5			
6			
7			
8			
9			
10			

* And all other agencies and/or personal listed in EAP Notification Flowcharts

SAMPLE

EAP Revisions

Revision Number	Description	Date
0	EAP Issued	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
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Table of Contents

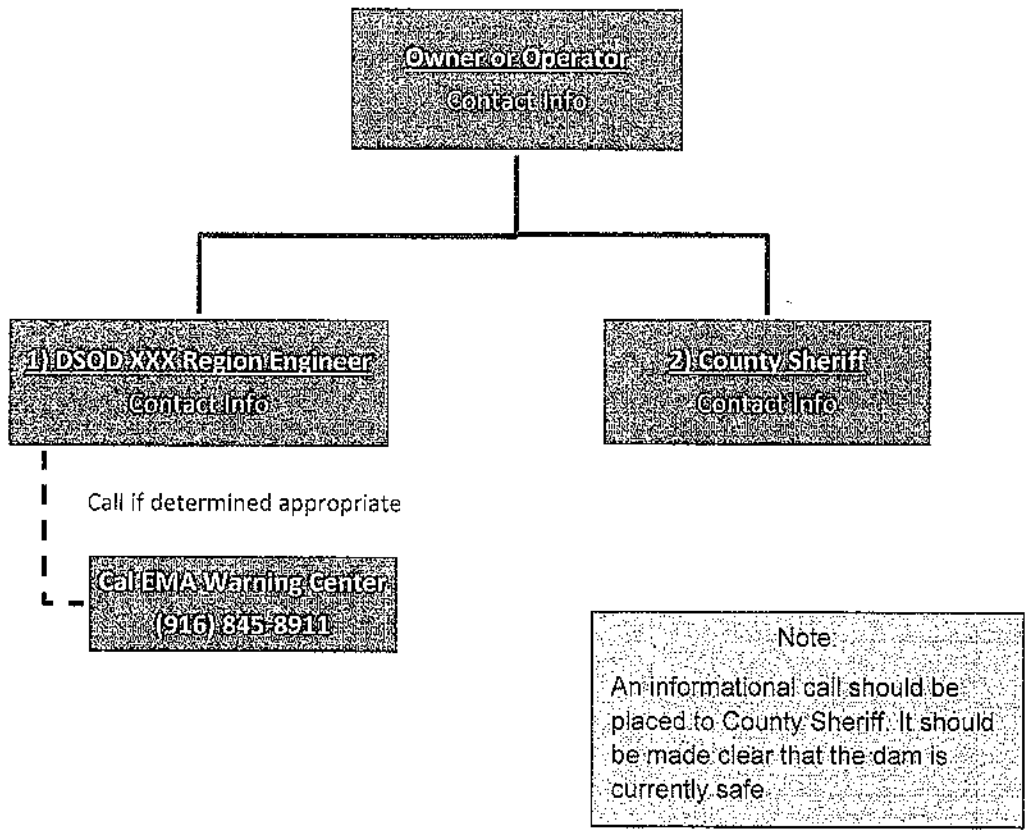
Record of Holders of Numbered EAP's for DWR Dam # XXXXX ii
EAP Revisions iii
Reference 1a – Notification Flowchart for Emergency Level 1 6
Reference 1b – Notification Flowchart for Emergency Level 2 7
Reference 1c – Notification Flowchart for Emergency Level 3 7
Reference 2 – Reporting Form 9
Reference 3 – Events, Emergency Levels, and Expected Actions 10
Reference 4 – Project Fact Sheet 15
I. Introduction 16
a. Statement of Purpose 16
b. NIMS, SEMS, and ICS 16
II. The Five-Step EAP Process 17
a. STEP 1 – DETECTION 17
b. STEP 2 – EMERGENCY LEVEL DETERMINATION 18
c. STEP 3 – NOTIFICATION FLOWCHARTS 18
d. STEP 4 - PREVENTATIVE ACTIONS 18
e. STEP 5 – TERMINATION & FOLLOW-UP 19
III. Roles and Responsibilities 19
a. Dam Owner's Representative 19
b. Incident Commander (Unified Command between appropriate agencies) 20
c. Cal EMA and the Warning Center 20
d. DWR – Division of Safety of Dams (DSOD) 21
IV. EAP Maintenance 21
a. Training 21
b. Annual Review and Exercises 22
c. Revisions 22
d. Distribution 22
APPENDIX A ..... A
Appendix A-1: Contact Check List A-1
Appendix A-2: Actions and Event Progression Log A-2

Appendix A-3: Dam Emergency Situation Report A-3
APPENDIX B ..... B
Appendix B-1: Available Resources B-1
Appendix B-2: Inundation Map B-2
Appendix B-3: Schematic of Dam and Appurtenant Structures B-3
Appendix B-4: Spillway Rating Curve B-4

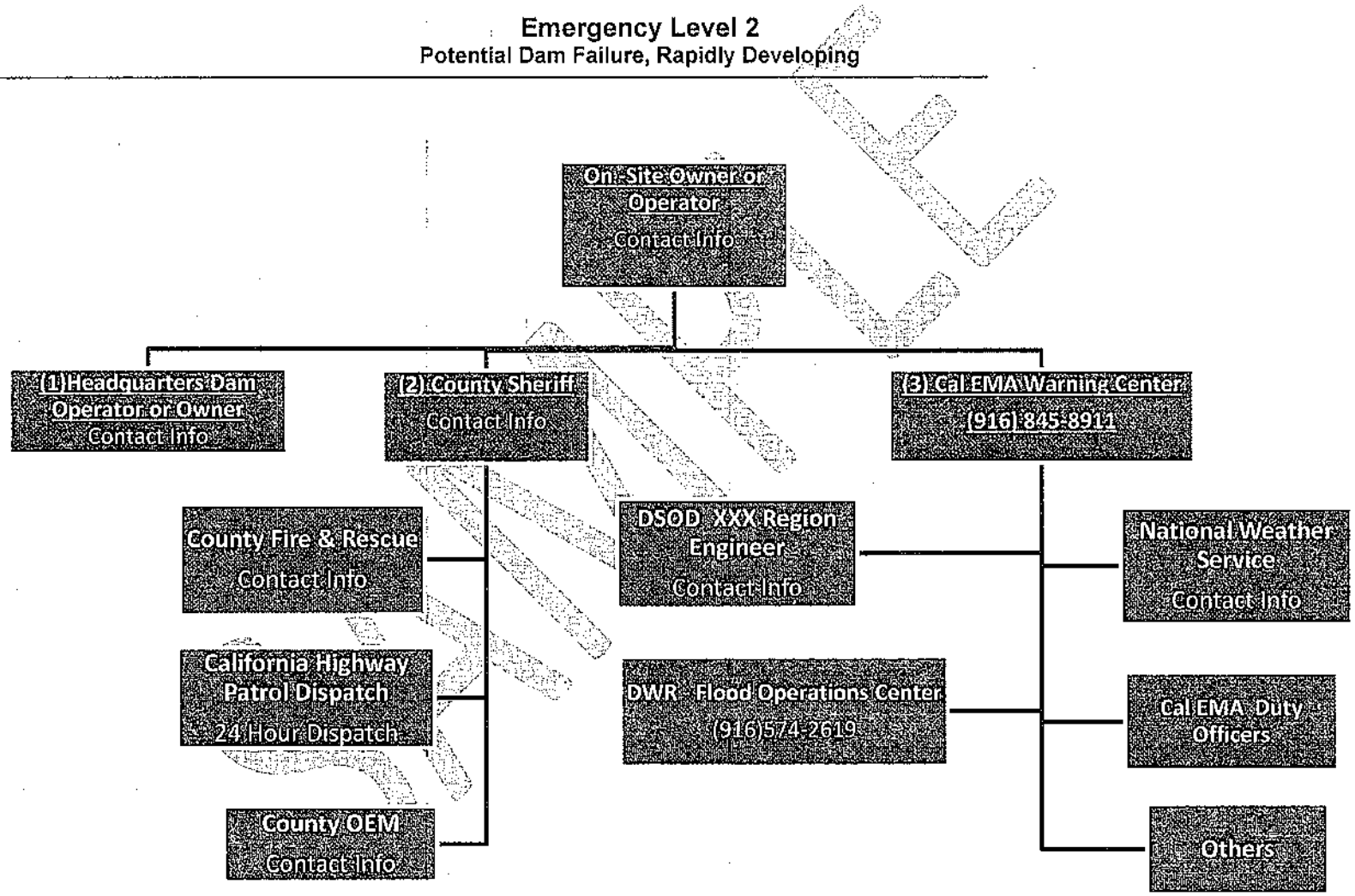
SAMPLE

Reference 1a – Notification Flowchart for Emergency Level 1

Emergency Level 1
Unusual, slowly developing event



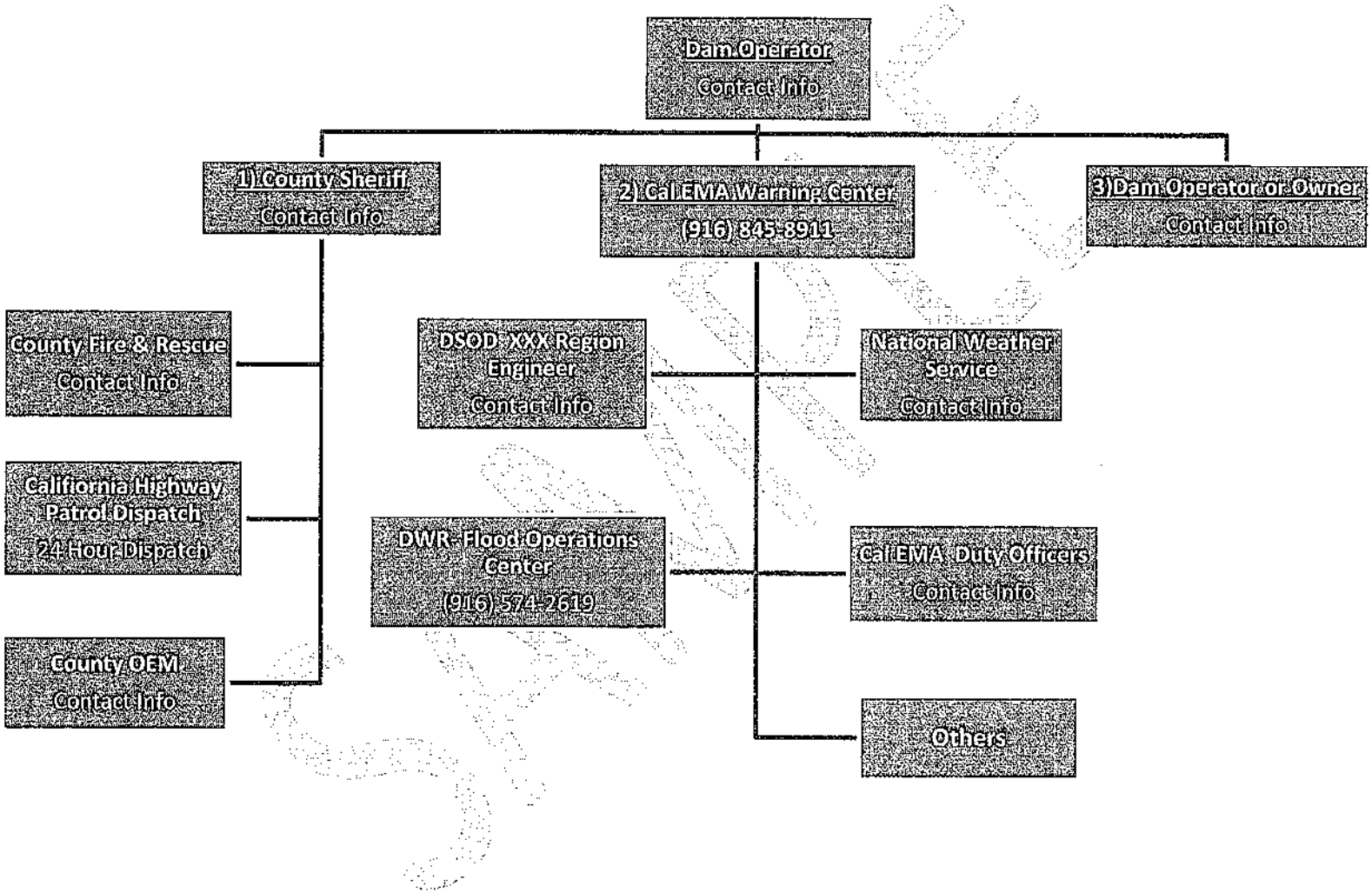
Reference 1b – Notification Flowchart for Emergency Level 2



Reference 1c – Notification Flowchart for Emergency Level 3 Emergency

Level 3

Dam failure appears imminent or is in progress



Reference 2 – Reporting Form

Provide this information to the Warning Center

DATE:	**TIME:**	
CALLER INFORMATION		
NAME/AGENCY:	**Phone Number:**	
ALTERNATE CONTACT:	**Phone Number:**	
DAM INFORMATION		
DAM NAME:	**DWR DAM #:**	**FERC #:**
LOCATION OF DAM		
DSOD REGION: North ☐ Central ☐ South ☐		
PHYSICAL ADDRESS:		
LATITUDE:	**LONGITUDE:**	
COUNTY:	**DOWNSTREAM JURISDICTIONS:**	
NEAREST CITY OR POPULATED AREA:		
NEAREST OR AFFECTED HIGHWAY OR CROSS ROADS:		
RIVER or CREEK THAT FLOWS INTO RESERVOIR:		
SITUATION		
ACTIVATION OF EAP: Yes ☐ No ☐	**EMERGENCY LEVEL:** 1 ☐ 2 ☐ 3 ☐	
EMERGENCY EVENT TYPE:		
Earthquake ☐	Embankement Crackinging or Settlement ☐	Embankement Movement ☐	Erosion of Spillway ☐
Instrumentation Reading (Abnormal) ☐	Outlet System Failure ☐	Sabotage/Vandalism ☐	Sand Boils ☐
Security Threats ☐	Seepage, Springs, Piping ☐	Sinkholes ☐	Storm Event ☐
Other:			
WEATHER CONDITIONS:			
RESERVOIR LEVEL: Full ☐ Partially Full ☐ Empty ☐ Approx. % Full Acre Feet ____			
POTENTIAL OF INCIDENT: Dam Failure ☐ Potential Failure ☐ Unusual Release ☐ Other ☐			
WHEN/HOW EVENT WAS DETECTED:	**Obvserver in Position:** Yes ☐ No ☐		
ADDITIONAL DETAILS:			
NOTIFICATIONS:	County Sheriff : Yes ☐ No ☐	Downstream Jurisdictions: Yes ☐ No ☐	

Reference 3 – Example Situations, Emergency Levels, and Guidance for Possible Actions

Below is a table of example situations, potential emergency levels for those situations and guidance for possible actions. Each dam and situation is unique and therefore judgment is needed when making decisions.

Event	Situation	Emergency Level	Possible Actions
Earthquakes	Measurable earthquake felt or reported within 50 miles of the dam	1	Inspect dam and evaluate the damage sustained and the potential danger of failure. Check for seepage, cracks, displacements, and settlement. Inspect the outlet works and spillways. Evaluate instrumentation. .
	Earthquake resulting in visible damage to the dam or appurtenances	2	
	Earthquake resulting in uncontrolled release of water over the dam or rapidly developing flow through cracks or rapidly developing erosion through increased seepage.	3	
Embankment Cracking or Settlement	New cracks in the embankment greater than 1/4 inch wide without seepage	1	Lower the water level by releasing it through the outlet or by pumping or siphoning. If necessary, restore freeboard. Lower water level in the reservoir to a safe level; continue operating at a reduced level until repairs can be made.
	Cracks in the embankment with seepage	2	
Embankment movement	Visual shallow slippage	1	Lower the water level in the reservoir by opening all gates and valves at a rate, and to an elevation, that is considered safe given the slide condition. If the outlet is damaged or blocked, pumping or siphoning may be required.
	Visual deep seated movement/slippage of the embankment	2	
	Sudden or rapidly proceeding slides of the embankment slope	3	

Reference 3 – Events, Emergency Levels, and Expected Actions (Contd)

Event	Situation	Emergency Level	Possible Actions
Erosion of Spillway	Spillway flowing with active erosion gullies	**2**	Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags. Consider pumps and siphons to help reduce the water level in the reservoir. When inflow subsides, lower the water level in the reservoir to a safe level; continue operating at a lower water level in order to minimize spillway flow.
	Spillway flowing with significant erosion and head cutting advancing rapidly towards reservoir	**3**	
Fire	There is a significant fire in the area that affects access to the dam	**1**	Implement the fire procedures (if applicable)
Instrumentation Reading (Abnormal)	Instrumentation reading beyond predetermined values	**1**	Conduct periodic (at least daily) inspections of the dam to check and record the following: reservoir elevation, rate at which the reservoir is rising, weather conditions (past, current, forecasted), discharge conditions of creeks/rivers downstream, new or changed conditions associated with this event. Evaluate accuracy of instrumentation.
Outlet System Failure	Releases are causing erosion around the outlet works	**1**	Implement temporary measures to protect the damaged structure, such as closing the inlet. Lower the water level in the reservoir to a safe elevation possibly using pumps or siphons. Consider severity of flow through outlet and increased flows in determining emergency level.
	Uncontrolled releases through the outlet	**2 or 3**	

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Reference 3 – Events, Emergency Levels, and Expected Actions (Contd)

Event	Situation	Emergency Level	Possible Actions
Sabotage / Vandalism	Damage to dam or appurtenances with no impacts to the functioning of the dam	1	Contact law enforcement to help evaluate. If the embankment or spillway has been damaged, provide temporary protection in the damaged area. Lower water in reservoir by using outlet or pumps and siphons if necessary. If the water supply has been contaminated, immediately close all inlets to the water supply system and notify appropriate authorities.
	Damage to the dam or appurtenances that could adversely impact the functioning of the dam	2	
	Damage to dam or appurtenances that has resulted in uncontrolled water release or rapidly developing erosion	3	
Sand Boils	New sand boil appears in or near the dam	1	Determine the location and size of affected area. Estimate the discharge rate and nature of discharge (cloudy or clear seepage). Provide temporary protection at point of erosion by placing sandbags around boil area to confine flow. If necessary, lower water level in reservoir to a safe level until permanent repairs can be made.
	New sand boil continues to increase in size and or carrying soil particles	2	
	Sudden and rapid increases in flow through boil	3	

Reference 3 – Events, Emergency Levels, and Expected Actions (Contd)

Event	Situation	Emergency Level	Possible Actions
Security Threats	Unauthorized personnel is seen or reported to be at the dam	1	Contact law enforcement
	Verified bomb threat that, if carried out, could result in damage to the dam	2	
	Detonated bomb that has resulted in damage to the dam or appurtenances	3	
Seepage, Springs, Piping	New wet areas in or near the dam	1	If the leak is originating from within the reservoir or the upstream embankment, plug the flow with whatever material is available (hay bales, bentonite, or plastic sheeting). Lower the water level in the reservoir until the flow decreases to a non-erosive velocity or until it stops. Place an inverted filter (a protective sand and gravel filter) over the exit area to hold materials in place. Continue lowering the water level until a safe elevation is reached; continue operating at a reduced level until repairs are made. Stabilize damaged areas on the downstream slope by weighting the toe area below the slide with additional soil, rock, or gravel.
	New wet areas with active flow and cloudy discharge or increasing flow rate	2	
	Increasing and rapidly developing seepage with cloudy discharge	3	
Sinkholes	Observation of new sinkhole in the reservoir area or on embankment	2	Do an immediate engineering exploration to determine the cause of the sinkhole and evaluate the damage sustained and the potential danger of failure. Determine exit point of flowing water. Implement temporary measures to protect the damaged structure, such as closing the inlet and lowering the water level in the reservoir to a safe level, until permanent repairs can be made.
	Rapidly enlarging sinkhole	3	

Reference 3 – Events, Emergency Levels, and Expected Actions (Contd)

Event	Situation	Emergency Level	Possible Actions
Storm Event	The spillway is flowing causing damage downstream, but dam is not endangered.	**2**	Conduct periodic (at least daily) inspections of the dam to check and record the following: reservoir elevation, rate at which the reservoir is rising, weather conditions (past, current, forecasted), discharge conditions of creeks/rivers downstream, new or changed conditions associated with this event. If heavy spillway flows are expected to cause downstream damage even though dam is not in dangered, take appropriate action for downstream facilities and people.
	The spillway is overcome and flow is over an earth embankment	**3**	

See Section II, a, for more detailed definitions of emergency level classifications.

Reference 4 – Project Fact Sheet

Dam Description and Statistics

Dam Name:				Dam No:		NID No:		
Dam Owner:								
Lat:		Long:		Sec/T/R/ Baseline:				
Stream:			County:					
DSOD Region:	North/ Central/ South							
Type of Dam:			Year Constructed:					
Dam Height:			Dam Length:					
Crest Elev:			Siphon S/W Elev:					
Side Channel S/W Elev:			Emergency S/W Elev:					
Drainage Area:			Federal Hazard Class:					
Total FB:			Storage Capacity:					
Spillway Type:			Peak Outflow:					
Estimated Evacuation (check one):			☐ <10	☐ 10-100	☐ 100-1000	☐ >1000		

Directions to Dam:

Description of Potential Downstream Impacts:

SAMPLE

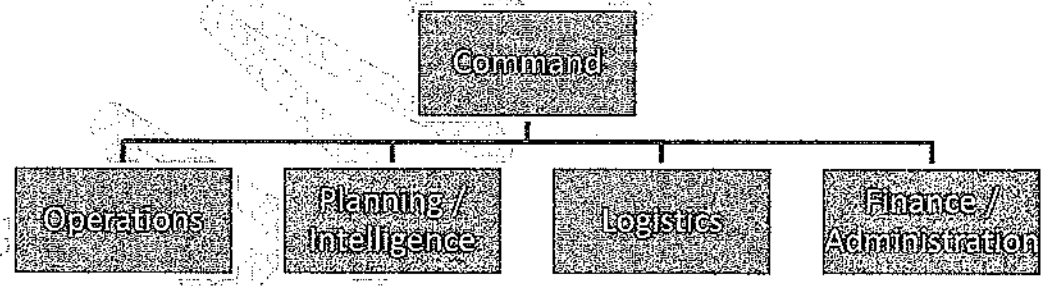
I. Introduction

a. Purpose

The purpose of this plan is to reduce the risk of human life loss and injury and to minimize property damage in the event of an actual or potential emergency situation associated with _____ Dam. These situations include, but are not limited to, dam instability, felt earthquakes, extreme storm events, major spillway releases, overtopping of the dam, outlet system failure, abnormal instrument readings, vandalism or sabotage, spillway gate failures, or failure of the dam. **Reference 4** includes a project description and statistics for the dam, and **Appendix B-1** contains a contact listing for available resources, an inundation map, schematic of the dam and appurtenant structures, and other dam-specific data that could be helpful during an emergency.

b. NIMS, SEMS, and ICS

This plan leverages the National Incident Management System (NIMS), Standardized Emergency Management System (SEMS), and the Incident Command System (ICS) when responding to emergencies. The basic organizational structure is shown below:



NIMS Information - http://www.fema.gov/emergency/nims/

NIMS provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment.

SEMS Guidelines - http://cms.calema.ca.gov/prep_SEMS.aspx

SEMS is an organizational tool used to mobilize resources throughout the State during emergency events. SEMS also helps differing government levels works with one another during emergencies as well as during day to day operations. SEMS was developed using models from ICS, Multi/Inter-Agency Coordination (MAC), Mutual Aid System, and an Operational Area Concept. The organizational levels of SEMS include Field (Incident Command), Local Government (City or Special District, Operational Area (County), Region, and State (Cal EMA's Region and State Operations Centers). SEMS can be scaled to match the magnitude of the event.

ICS is a standardized, on-scene, all-hazard incident management concept. It allows personnel from various agencies to meld into an integrated organizational structure to match the complexities and demands of single or multiple incidents without being hindered by jurisdictional boundaries. ICS promotes the safety of responders and others, the achievement of tactical objectives, and the efficient use of resources.

II. The Five-Step EAP Process

a. STEP 1 – DETECTION

Step 1 involves emergency detection, evaluation, and incident classification. Regular surveillance at the site will be the normal method of detecting potential emergency situations. For conditions beyond the normal range of operations, contact the Division of Safety of Dams (DSOD) for assistance with evaluation.

Each event or situation will be placed in one of the following classifications:

i. Emergency Level 1 - Unusual Event or Slowly Developing Situation

This classification indicates a situation is developing; however, the dam is not in danger of failing. In many of these cases, these unusual events are remedied with no further action required. In some cases flow over spillways could cause unexpected flooding downstream, but the dam is not endangered. In cases of spillway releases, downstream residents may need to be notified if flooding threatens life or property, but it should be made clear the dam is safe.

ii. Emergency Level 2 - Potential Failure

This classification indicates that a situation is developing that could cause the dam to fail. A reasonable amount of time is available for analysis before deciding on evacuation of residents. Emergency

responders in affected areas shall be alerted that an unsafe situation is developing.

iii. Emergency Level 3 - Imminent Failure

This classification indicates dam failure is imminent or very possible which could threaten life and property. When it is determined that there is no longer time available to implement corrective measures to prevent failure, an order for evacuation of residents in potential inundation areas shall be issued by the Incident Commander or emergency responder.

b. STEP 2 – EMERGENCY LEVEL DETERMINATION

Step 2 involves determining the appropriate emergency level for a given event. **Reference 3** provides guidance for determining the emergency level for a variety of events that could develop at the dam.

c. STEP 3 – NOTIFICATION FLOWCHARTS

Notification flowcharts have been prepared to assist personnel during an emergency for the various levels. The charts in **Reference 1a, 1b, and 1c** identify who is responsible for notifying representatives and/or emergency management officials; the prioritized order in which individuals are to be notified; and who is to be notified. **Appendix A-1: Contact Check List** may be used to track the notifications that have been made or attempted. The contacts within the notification flowcharts will be reviewed annually.

d. STEP 4 - PREVENTATIVE ACTIONS

Step 4 provides the Dam Owner's Representative with a set of potential preventative actions and steps to take for each emergency level. This set is not all inclusive of the steps that will need to be taken. **Reference 3** contains preventative action guidelines for specific events that may occur at the dam. **Appendix A-2: Actions and Event Progression Log** may be used during the emergency event to document conditions, actions, and event progression.

i. Emergency Level 1

For an unusual event that is slowly developing, follow the notification chart in **Reference 1a**, and provide the information outlined in **Reference 2**. Then follow the expected actions outlined in **Reference 3**.

ii. Emergency Level 2

For a potential dam failure situation or a rapidly developing situation, make the necessary notifications in **Reference 1b**, and provide the

information outlined in **Reference 2**. Then follow the expected actions outlined in **Reference 3**.

Emergency Level 3

For a dam failure that is in progress or appears to be imminent, make the necessary notifications in **Reference 1c**, and provide the information outlined in **Reference 2**. If dam failure is in progress or appears to be imminent, nothing further can be done to save the dam. Personal safety must take priority.

e. STEP 5 – TERMINATION & FOLLOW-UP

Step 5 involves event termination and follow-up activities. Once conditions indicate that there is no longer an emergency at the dam site, the EAP operations must eventually be terminated and follow-up procedures completed.

The Incident Commander is responsible for terminating the emergency event and relaying this decision.

Prior to the termination of an Emergency Level 3 event that has not caused actual dam failure, DSOD will inspect the dam to determine whether any damage has occurred that could potentially result in loss of life, injury, or property damage. If it is determined that conditions do not pose a threat to people or property, then the Incident Commander will terminate EAP operations as described above.

The Dam Owner's/Operator's Representative shall assure that **Appendix A-3: Dam Emergency Situation Report** is completed to document the emergency event and all actions that were taken. The dam owner shall distribute a copy of the completed report to DSOD. If the event escalates to a level 2 response or greater, the Dam Owner's/Operator's Representative should also be involved with preparing an After Action Report.

III. Roles and Responsibilities

a. Dam Owner's Representative

The Dam Owner's Representative includes both the maintenance personnel and dam owner's safety personnel and executives if applicable.

i. As soon as an emergency event is observed or reported, immediately determine the emergency level:

Emergency Level 1: Unusual event, slowly developing

Emergency Level 2: Potential dam failure situation, rapidly developing

Emergency Level 3: Dam failure appears imminent or is in progress

ii. Immediately notify the personnel in the order shown on the notification chart for the appropriate level.

iii. Provide updates of the situation to the police/sheriff dispatcher to assist them in making timely and accurate decisions regarding warnings and evacuations.

iv. Provide leadership to ensure the EAP is reviewed and updated annually and copies of the revised EAP are distributed to all who received copies of the original EAP.

b. Incident Commander (Unified Command between appropriate agencies)

The command function consists of establishing the Incident Command Post, protecting life and property, controlling personnel and equipment resources, maintaining accountability for responder and public safety, and establishing and maintaining an effective liaison with outside agencies and organizations. Duties may include the following:

i. Establishing command.
ii. Ensuring responder safety.
iii. Assessing incident priorities.
iv. Determining operational objectives.
v. Developing and implementing the Incident Action Plan.
vi. Developing an appropriate organizational structure.
vii. Maintaining a manageable span of control.
viii. Managing incident resources.
ix. Coordinating overall emergency activities.
x. Coordinating the activities of outside agencies.
xi. Authorizing the release of information to the media.
xii. Terminating the emergency.
xiii. Participating in an annual review and update of the EAP.

c. California Emergency Management Agency (Cal EMA) and the Warning Center

Cal EMA plays dual roles in managing an emergency; one at the Regional level and the other at the State level. The Regions include Inland Region, Coastal Region, and Southern Region, while the State level constitutes the Executives and brokers resources between the Regions. The State level also interfaces with the National Response Framework, and informs the Governor, Legislature, and State Emergency Management stake holders. Cal EMA also implements State Level Media Policy, and provides the primary coordination

with the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) at the federal level. Cal EMA Regions will participate in the annual review and update of the EAP as well.

The Warning Center is the link for notifications between State and Federal agencies for this Emergency Action Plan. At the request of the Operational Area Manager or another State Agency, the Warning Center is able to gain rapid response from the proper personnel who would coordinate resources for response.

The **Warning Center** is operated 24/7 and, in extreme conditions, a Dam Operator/Owner may request the Warning Center provide notification to the Sheriff's Office on their behalf as a backup notification plan. The County Sheriff would be the first agency notified if this were to be requested.

Immediate notifications would be provided to:

- DWR - Division of Safety of Dams
- National Weather Service
- Cal EMA Duty Officers
- Flood Operations Center
- State Parks and Recreation and/or
- Others as dictated by the event or required by law

d. DWR – Division of Safety of Dams (DSOD)

DSOD's mission is to protect people against loss of life and property from dam failure. The California Water Code entrusts this regulatory power to the Department of Water Resources which delegates the program to DSOD. In the event of an emergency at the dam, DSOD actions could include, but are not limited to the following:

i. Advise the dam operator of the emergency level determination.
ii. Advise the dam operator of remedial actions to take.
iii. Inspect the dam during the emergency.

IV. EAP Maintenance

a. Training

All people involved in the EAP should be familiar with the elements of the plan, their responsibilities and duties outlined in the plan and, if applicable, the types and availability of equipment. Personnel should be familiar with problem detection and evaluation, and appropriate corrective measures.

b. Annual Review and Exercises

The Dam Owner will review and, if needed, update the EAP at least once annually. This review will include calling all contacts to verify contact names and phone numbers are current. The review will also include calling local available resources to verify current phone numbers, addresses, and services.

The Dam Owner will facilitate a periodic test, either tabletop or full functional exercise, of the EAP. The duration between tests may be determined between the Dam Owner and local responders, i.e. county sheriff, based on the hazard potential of the dam.

c. Revisions

The dam owner is responsible for updating the EAP document. The EAP document held by the dam owner is the master document. When revisions occur, the dam owner will update the revision summary page, found in the preface of this document, and will distribute the revised version to all EAP document holders. The document holders are responsible for replacing the outdated copy of the EAP whenever revisions are received. Outdated EAPs shall be immediately discarded to avoid any confusion with the revisions. The EAP should specify which pages are considered 'confidential information' to ensure proper disposal upon receipt of updates. The Dam owner should consider numbering the EAP Books prior to initial distribution.

d. Distribution

Copies of this Emergency Action Plan will be provided to all individuals or groups who are involved in the notification procedures for this dam. The holders of the copies of this EAP can be found in the preface of this document.

APPENDIX A

SAMPLE

Appendix A-1: Contact Check List

Dam Name: _____ Dam No: _____

Date: _____ County: _____

DSOD Region North Central South FERC # _____

The following contacts should be made immediately after the emergency level is determined. The person making the contacts should initial and record the time of the call and who was notified for each contact made.

Emergency Level 1	Person Contacted	Time Contacted	Contacted By
DSOD			
Sheriff			
Owner			

Emergency Level 2	Person Contacted	Time Contacted	Contacted By
DSOD			
Sheriff			
Owner			

Emergency Level 3	Person Contacted	Time Contacted	Contacted By
DSOD			
Sheriff			
Owner			

Appendix A-2: Actions and Event Progression Log

(To be completed **during** the emergency)

Date	Time	Action/Event Progression	Taken by

Report prepared by: _____ **Date :** _____

CANCELLED

Appendix A-3: Dam Emergency Situation Report

(To be completed **following** the termination of the emergency)

Dam Name: **DWR Dam No.:**

Dam location:

City *County* *Stream/River*

Date : **Time:**

Weather Conditions:

General description of emergency situation:

Area(s) of dam affected:

Extent of damage to dam:

Possible cause(s):

Effect on dam's operation:

Initial reservoir elevation: _____ **Time:** _____

Maximum reservoir elevation: _____ **Time:** _____

Final reservoir elevation: _____ **Time:** _____

Description of area flooded downstream/damages/injuries : _____

Other data and comments:

Observer's name and telephone number : _____

Report prepared by: _____ **Date:** _____

APPENDIX B

SAMPLE

Appendix B-1: Available Resources

Locally available resources include:

Heavy equipment service and rental	Sand and gravel supply	Ready-mix concrete supply
Name	***Name***	***Name***
Address	Address	Address
Telephone Number	Telephone Number	Telephone Number
Name	***Name***	***Name***
Address	Address	Address
Telephone Number	Telephone Number	Telephone Number
Pumps	**Sand bags**	**Road Maintenance**
Name	***Name***	***Name***
Address	Address	Address
Telephone Number	Telephone Number	Telephone Number

Appendix B-2: Inundation Map

SAMPLE

Appendix B-3: Schematic of Dam and Appurtenant Structures

SAMPLE

Appendix B-4: Spillway Rating Curve

SAMPLE

Appendix G

Hydrology Study

FALL CREEK ENGINEERING, INC.
Civil õ Environmental õ Water Resource Engineering and Sciences
Tel. (831) 426-9054 **P.O. Box 7894, Santa Cruz, CA 95061** **Fax. (831) 426-4932**

July 22, 2013

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City of Monterey Engineering
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2100 Sunset Avenue
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Subject: **Revised Draft Engineering Report - Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project Cities of Monterey and Pacific Grove, California**

Dear Jeff and Sarah:

Fall Creek Engineering, Inc., (FCE) is pleased to present this draft engineering letter report that includes proposed stormwater management strategies, a preliminary hydrology analysis, a summary of design alternatives to restore the operation of the David Avenue Reservoir and preliminary cost estimates for the proposed improvements. The findings from the technical studies informed the accompanying 15% Concept Design Plans. The following letter summarizes the recommended management approach for management and treatment improvements in the Pacific Grove ASBS watershed.

1. PROJECT DESCRIPTION

The primary goal of the Pacific Grove ASBS stormwater management project is to improve stormwater quality discharged into the Area of Special Biological Significance (ASBS) located along the Pacific Grove coastline, as identified in Figure 1. The project includes the diversion of both wet weather and dry weather flows into an upgraded stormwater collection and treatment system from both Pacific Grove and New Monterey watershed areas. As proposed, flows would be directed to either new water treatment facilities at Pacific Grove Golf Links and the former Pt. Pinos Wastewater Treatment Plant or to the Monterey Regional Water Pollution Control Agency (MRWPCA) regional wastewater treatment plant in Marina. The objective of the project is to achieve up to a 90% reduction in pollutant loading during storm events to comply with the ASBS water quality standards.

Within each stormwater management area there are additional distributed stormwater best management practices (BMPs) that can be incorporated into the project to improve water quality. A few examples include the installation of rain gardens and bioretention swales on existing parking lots or streets, and the of stormwater treatment units, such as

Contech CDS[1] units, which are designed to screen, separate and trap debris, trash, sediment, and oil from urban stormwater runoff. These systems could be installed at strategic locations throughout the project area to help achieve pollutant reduction targets.

2. DEVELOPMENT OF PROJECT ALTERNATIVES

A screening analysis of project alternatives to manage stormwater flows into the Pacific Grove ASBS was completed by FCE in May 2013 and is included in Attachment A. The purpose of the screening analysis was to evaluate potential stormwater management projects within the Cities of Monterey and Pacific Grove, and to identify a preferred and alternate project capable of meeting the SWRCB ASBS requirements. The screening analysis compared six project alternatives based on 16 screening criteria and identified a preferred project whereby both dry and wet-weather flows from Pacific Grove and New Monterey would be treated at a rebuilt Pacific Grove Water Treatment Plant at Point Pinos. The alternate project would treat both dry and wet-weather flows from Pacific Grove and New Monterey at the Monterey Regional Water Pollution Control Agency (MRWPCA), Regional Water Treatment Plant in Marina. Both proposed projects would utilize storage in a modified David Avenue Reservoir, currently owned and operated by the California American Water Company (CalAm).

As FCE further developed the preferred and alternate project concepts a hybrid project between the two was identified and considered environmentally superior and more cost effective to either project individually. The hybrid project, as described in this engineering report and accompanying 15% concept plans, maximizes the use of existing infrastructure and planned projects within the Cities of Monterey and Pacific Grove. Among the benefits of the preferred and alternate project hybrid is the:

- **Expanded use of the City of Pacific Grove's existing urban runoff dry-weather diversion system**, which currently collects dry weather flows for delivery to the MRWPCA. The proposed hybrid project would upsize a portion of the existing Tabledry weather diversion system to provide capacity for the current system to convey runoff up to the 85% storm event. The system is being expanded in the summer of 2013 to include the northwest coastline of Pacific Grove to the Monterey border. Maximizing the use of this new and existing infrastructure allows the City of Pacific Grove to increase the financial return on this infrastructure investment while reducing the overall environmental impact of the project as compared to installing a new stormwater conveyance system (which would be required in either the preferred or alternate projects).
- **Continued and increased conveyance and delivery of stormwater to the MRWPCA**. As the Monterey Peninsula continues to develop water supply options the expansion of MRWPCA's capacity to produce recycled water could provide a high quality reliable water supply source. Continued collection and delivery of dry-weather flows to the MRWPCA, provides them with a supply for their recycled water treatment facility. Expandingthe existing dry-weather collection system to include the collection and delivery of wet-weather flows provides the MRWPCA with an additional supply for water recycling or the groundwater replenishment project currently being developed.

[1] http://www.conteches.com/Products/Stormwater-Management/Treatment/CDS.aspx

- **Construction of a "backbone" stormwater conveyance pipeline along Pine Avenue in Pacific Grove.** Delineating a stormwater collection cut-off along Pine Avenue reduces flows to the existing dry-weather diversion so that relatively small upgrades of the existing infrastructure will be necessary to expand deliveries to the MRWPCA to include wet-weather diversions. In addition, Pine Avenue has been identified by the City of Pacific Grove as a candidate for retrofit, for both traffic enhancements, a safe route to schools program and as a stormwater Green Street opportunity. If timed correctly, the installation of a new storm drain along Pine Avenue could be incorporated with these other efforts to maximize outside funding opportunities and construction efficiency.
- **Production of treated stormwater at a retrofitted Pacific Grove Water Treatment Plant (PGWTP).** The City of Pacific Grove's Golf Links is one of the Cities best candidates for re-using treated stormwater for irrigation, and by locating the stormwater treatment facility at the PGWTP, treated stormwater could connect directly to the golf course irrigation system. This potentially gives the City of Pacific Grove the ability to develop a local water supply and off-set some of its expensive treated water demand. Additionally, the PGWTP site is well situated for retrofit to include stormwater treatment facilities with additional storage provided by existing and new ponds on the golf course.

The hybrid project provides the Cities with a cost effective and environmentally superior project that incorporates elements from both the "local" preferred project alternative and the alternate, or "regional" project alternative. The remainder of the engineering report provides additional details for the stormwater management and treatment improvements in the Pacific Grove ASBS watershed following this hybrid management approach.

3. STORMWATER MANAGEMENT AREAS

The Pacific Grove ASBS drainage area has been subdivided into four smaller water management area based on the proposed stormwater management approach in each region, as shown in Figure 2.

- Area 1: includes a significant portion of the New Monterey and upper Pacific Grove drainage and redirects runoff from this area to a new storm water treatment facility ("Point Pinos Stormwater Treatment Facility") located at the former waste water treatment plant site.
- Area 2: includes the lower Pacific Grove drainage area and directs runoff to an upgraded dry and wet weather diversion system that pumps runoff to the MRWPCA regional wastewater treatment plant for treat and reuse.
- Area 3: includes a portion of Pacific Grove that is outside and northwest of the existing dry weather diversion system and runoff from this area would be collected in a new diversion system that would convey runoff to the new "Point Pinos Stormwater Treatment Facility".
- Area 4: is a small drainage area that will be connected to the upgraded dry and wet weather diversion and MRWPCA system and combined with Area 1.

The four management Areas shown in Figure 2 are based on sub-basins delineated by a CSUMB environmental studies class under the direction of Assistant Professor Fred Watson during the Fall Semester 2011.[2] These sub-basins were further divided to separate the upper and lower portions, where the upper sub-basins will drain to the Pacific Grove Golf Links for treatment (Area 1) and the lower sub-basins will drain to the MRWPCA through the Existing Dry Weather Diversion System (Area 2).

Table 1 summarizes the size of each area, the proposed management approach and a preliminary estimate of the respective peak discharge (for the 85th percentile, 1-year and 2-year events) and conveyed within each area. When runoff exceeds the design event it is anticipated that discharges would continue to occur at the existing outfalls. For example, when runoff from the Lover's Point Drainage Area exceeds the design capacity, excess runoff off from drainage sub-basins 4, 5, 6, and 23 would discharge to the existing outfall.

Table 1. Treatment Area Summary Characteristics

Area	Treatment Approach	Area (ac)	85% Flow estimate (gpm)	1yr Flow estimate (gpm)	2yr Flow estimate (gpm)
Area 1	To Point Pinos Stormwater Treatment Facility	625	1,782	7,739	13,080
Area 2	To MRWPCA	130	535	2,576	4,330
Area 3	To Point Pinos Stormwater Treatment Facility	75	17	264	496
Area 4	To MRWPCA	44	246	1,171	1,921

Please note the area estimates and corresponding flows are based on delineated drainage basins that did not include a limited number of smaller drainages area that have outfall smaller than 12 inches. The drainage areas and flows will be revised during the 40% design phase to include these additional areas.

At the current design phase, runoff from Areas 3 and 4 could either be collected and directed to the MRWPCA collection system or managed using distributed low impact development (LID) practices. Area 3 could also be connected to the proposed Point Pinos Stormwater Treatment Facility. The management of Areas 3, 4 and the undesignated sub-areas will be evaluated with the Cities and a proposed management approach incorporated into the 40% design submittal.

[2] CSUMB Class ENVS 660: Pugh K, Arenas R, Cubanski P, Lanctot M, Purdy A, Bassett R, Smith J, Hession S, Stoner K, Ashbach R, Alberola G, Jacuzzi N, Watson F. 2011. Stormwater outfall watershed delineation, land cover characteristics, and recommended priorities for monitoring and mitigation in the City of Pacific Grove, California. The Watershed Institute, California State Monterey Bay, Publication No. WI-2011-02, 74 pages.
http://ccows.csumb.edu/pubs/reports/CSUMB_ENVS660_ClassReport_PGStormwater_120306.pdf

3.1 Preliminary Hydrology Analysis

FCE performed a hydrologic (rainfall-runoff) analysis to estimate peak stormwater runoff rates for a range of design storms (85th percentile, 1-year and 2-year).

To determine peak flow for these different design storms, FCE employed Autodesk's *Storm and Sanitary Sewer Analysis* (SSA) software. SSA is a computer model that simulates watershed, pipeline, and water-control structure hydrology and hydraulics and estimates peak discharge (flow) and timing. SSA calculates runoff by computing the volume of water that is intercepted, infiltrated, stored, evaporated or transpired and subtracting it from the precipitation.

The runoff volume computations were conducted employing the SCS Curve Number Loss Method and SCS Unit Hydrograph Model for transformation of direct runoff. The SCS Curve Number Loss Method implements the curve number methodology of incremental losses. The SCS Unit Hydrograph Model is an empirical method, which "transforms" excess precipitation into peak runoff and calculates the volume of runoff over a specified time period. A 24-hour design storm was selected with rainfall volumes of 0.8 inches, 1.42 inches and 1.79 inches for the 85th percentile, 1-yr and 2-yr events, respectively. The 85th percentile design storm depth was obtained from the Central Coast Regional Water Quality Control Board[3] and the 1-yr and 2-yr storm depths were based on NOAA Atlas 14[4] precipitation frequency estimates. A summary of the peak runoff rates within each sub-basin and larger water management area is summarized in Table 2.

[3]California EPA. 2013. Central Coast Joint Effort for LID and Hydromodification Control. Central Coast Regional Water Quality Control Board. http://www.waterboards.ca.gov/centralcoast/water_issues/programs/stormwater/docs/lid/lid_hydromod_charette_index.shtml

[4] NOAA National Weather Service. 2013. NOAA Atlas 14 Points Precipitation Frequency Estimates. http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_pr.html

Table 2. Sub-Basin Peak Runoff Rates

Area	Treatment Approach	Drainage Basin	Watershed Management Approach	Area (ac)	85% Flow estimate (gpm)	1yr Flow estimate (gpm)	2yr Flow estimate (gpm)
Area 1	To Point Pinos Stormwater Treatment Facility	1	To David Avenue Reservoir	87.2	247	1,073	1,921
		2a	To Pine Ave Green St and PGWTP/Crespi	20.8	153	705	1,118
		2b	To Pine Ave Green St and PGWTP/Crespi	3.6	Drains to 2a		
		3	To Pine Ave Green St and PGWTP/Crespi	113.1	377	1,616	2,873
		4	To Pine Ave Green St and PGWTP/Crespi	64.0	278	1,185	1,943
		5	To Pine Ave Green St and PGWTP/Crespi	79.1	350	1,302	2,096
			Subtotal to Pine Ave	367.9	1405	5881	9951
		6	To PGWTP/Crespi	78.0	337	1,418	2,325
		7	To PGWTP/Crespi	28.1	27	171	292
		8	To PGWTP/Crespi	47.3	13	202	373
		9	To PGWTP/Crespi	25.3	-	67	139
		10	To PGWTP/Crespi	78.1	-	-	-
			Total to PGWTP/Crespi	**625**	**1,782**	**7,739**	**13,080**
Area 2	To MRWPCA	11	To (E) Dry Weather Diversion System	2.9	4	27	63
		12	To (E) Dry Weather Diversion System	4.0	-	13	22
		13	To (E) Dry Weather Diversion System	1.5	1	9	13
		14	To (E) Dry Weather Diversion System	1.8	1	9	18
		15	To (E) Dry Weather Diversion System	3.0	9	36	72
		16	To (E) Dry Weather Diversion System	1.4	18	72	112
		17	To (E) Dry Weather Diversion System	7.7	9	49	81
		18	To (E) Dry Weather Diversion System	10.6	31	157	292
		19	To (E) Dry Weather Diversion System	1.9	13	67	108
		20	To (E) Dry Weather Diversion System	13.2	85	431	691
		21	To (E) Dry Weather Diversion System	26.1	171	768	1,216
		22	To (E) Dry Weather Diversion System	40.2	126	579	1,041
		23	To (E) Dry Weather Diversion System	15.2	67	359	601
			Total to Existing Dry Weather System	**129.6**	**535**	**2,576**	**4,330**
Area 3	To Point Pinos Stormwater Treatment Facility	24	Local LID or to PGWTP/Crespi	4.9	4	27	45
		25	Local LID or to PGWTP/Crespi	5.3	4	31	49
		26	Local LID or to PGWTP/Crespi	42.2	-	108	224
		27	Local LID or to PGWTP/Crespi	2.8	-	4	13
		28	Local LID or to PGWTP/Crespi	2.1	-	9	13
		29	Local LID or to PGWTP/Crespi	2.1	2	9	18
		30	Local LID or to PGWTP/Crespi	1.4	-	4	9
		31	Local LID or to PGWTP/Crespi	5.6	4	36	58
		32	Local LID or to PGWTP/Crespi	8.5	3	36	67
			Subtotal	**75**	**17**	**264**	**496**
Area 4	To MRWPCA	33	Dry Weather Diversion System Extension	7.6	22	130	251
		34a	Dry Weather Diversion System Extension	25.0	224	1,041	1,670
		34b	Dry Weather Diversion System Extension	11.8	Drains to 34a		
			Subtotal	**44.4**	**246**	**1,171**	**1,921**

All the rainfall-runoff modeling and runoff estimates are preliminary and will be revised based on design updates. Similarly, all the estimated pipe and pump sizes are preliminary and will be revised, if needed with more detailed hydraulic modeling of the proposed storm system improvements.

4. STORMWATER MANAGEMENT IMPROVEMENTS

4.1 Area 1: To Point Pinos Stormwater Treatment Facility

The stormwater management approach proposed for Area 1 begins with the capture of runoff from Upper New Monterey for storage in a restored David Avenue Reservoir. For the purposes of this report, stormwater improvements proposed for the David Avenue Reservoir are identified as occurring within Zone 1 of Area 1.

From David Avenue Reservoir captured run-off would be released into the existing City of Pacific Grove storm drain system for conveyance down to Pine Avenue. Approximately 2,600 feet of new storm drain pipeline under Pine Avenue would direct runoff northwest along Pine Avenue, collecting runoff from the upper drainage areas where they intersect Pine Avenue. A single new pump station is proposed on Pine Avenue between 14th and 15th Street; the pump station would deliver collected stormwater to 18th Street where a new storm drain would connect to the existing storm drain pipeline conveying runoff northeast down 19th Street, northwest to Laurel Avenue, and northeast down Park Street to the intersection of Jewell and Pacific Avenues. Based on recent inspections by the City of Pacific Grove, this section of existing stormdrain is in need of substantial repairs. For the purposes of this analysis, stormwater modifications along Pine Avenue are identified as occurring within Zone 2 of Area 1.

A new pump station near the intersection of Jewell and Pacific Avenues, in the vicinity of the tee for the 6th Hole on the Pacific Grove Golf Links course, would direct flow into a new, approximately 1,000 foot long, force main that would convey water northwest along the course (perpendicular to holes 5 and 6), before connecting to an existing storm drain located beneath the Monarch Pines Mobile Home Park. This existing storm drain conveys water northeast to the intersection of Clyte Street and Ocean View Boulevard, where flow would connect to an existing force main along Ocean View Boulevard that would be retrofitted to convey stormwater to the Point Pinos Stormwater Treatment Facility. Stormwater modifications at the eastern end of the Pacific Grove Golf Links are identified as occurring within Zone 3 of Area 1.

At Ocean View Boulevard, collected runoff would be diverted into a retrofitted 14" sewer force main conveying runoff northwest approximately 5,600 feet along Ocean View Boulevard towards Asilomar Avenue and a new stormwater treatment facility at Point Pinos. Based on locations identified within the 2006 MACTEC Analysis, it is estimated that three pump stations could be required along Ocean View Boulevard to deliver water northwest towards Point Pinos. These three pump stations are preliminarily located (1) near Sea Palm Avenue, (2) Beach Street, and (3) Coral Street. Stormwater improvements along Ocean View Boulevard are identified as occurring within Zone 4 of Area 1.

At the intersection of Asilomar Avenue and Ocean View Boulevard a new stormwater force main would deliver runoff approximately 1,500 feet southwest along Asilomar

Avenue towards Lighthouse Avenue, before turning northwest near the 10th hole. From the 10th hole the new storm force main would deliver water approximately 900 feet before entering the Point Pinos Stormwater Treatment works. Stormwater management features along Asilomar Avenue and into the new Stormwater Treatment Facility are identified as occurring within Zone 5 of Area 1.

The following sections identify the proposed elements used to develop cost estimates for the proposed project within each of the primary zones where engineering improvements are proposed.

Area 3, as identified on the June 2013 15% concept design plans, has been incorporated into the Area 1.

4.1.1 Zone 1: David Avenue Reservoir

Pacific Geotechnical Engineering provided consultation services to complete a preliminary review of alternatives to restore water storage to the David Avenue Reservoir located near the intersection of Carmel and David Avenues in Pacific Grove. Attachment B includes a summary of existing conditions and geotechnical considerations related to restoring storage to the David Avenue Reservoir site. The following is a summary of four design alternatives considered in this analysis of alternatives:

- Alternative #1: Rebuilding the Dam to the Original Elevation (Dam Replacement)
- Alternative #2: Rebuilding the Dam to a Lower Elevation (Smaller Dam)
- Alternative #3: Installing a geomembrane liner system into the existing reservoir and modifying the existing spillway.
- Alternative #4: Installing sheet pile to reinforce the existing dam structure.

Table 3 summarizes each alternative and includes a description of the benefits and constraints of each option. All of thealternatives assume that fill material placed within the northwest corner of the original reservoir area would be removed. Based on a review of aerial photography, shown in Figure 3, it is believed that CalAm placed fill material within the Reservoir circa 2007 to expand usable area for its operations yard.

Engineering Elements common to all four David Avenue Reservoir alternatives include:

- David Avenue Reservoir Inlet and Outlet Pipelines:
    - Inlet: New connection to the Monterey Storm drain collection system near the intersection of David Avenue and Carmel Avenue. The location, size and type of the existing storm drain infrastructure in this vicinity, belonging to both the City of Monterey and the City of Pacific Grove needs to be field verified. For the purposes of this 15% design plans and preliminary cost estimation, it is assumed that a new approximately 150 foot long, 18-inch diameter pipeline will convey collected water from New Monterey into the David Avenue Reservoir.

Table 3. David Avenue Dam Repair Alternatives
June 2013

Alternatives Considered	Pertinent Features	Pros	Cons
#1 Dam Replacement	Rebuild an equivalent size dam, slightly upstream of existing dam	Provides most positive means of cutting off seepage of water through and under the dam	Large volume of earthwork required
	Roughly 60 acre feet volume	New Dam will not rely on integrity of old dam and be independent	Requires greatest export
		Greatest longevity with less maintenance required than Options #3 and #4	Greatest disturbance to perimeter development
			Import of clay material for core required
#2 Smaller Dam	Build a smaller dam replacing the upstream shell of existing dam	Provides most positive means of cutting off seepage of water through and under the dam	Reduced Storage volume
	Roughly 36 acre feet volume	New Dam will not rely on integrity of old dam and be independent	Significant portion of old dam embankment remains, but is not counted on for support
		Less earthwork than Option #1	Monitoring of portions of old embankment required to verify that pore pressures do not build.
		Less impact on neighboring property during construction than Option #1	Import of clay material for core required
		Greater longevity with less maintenance required than Options #3 and #4	
		Requires less export and decrease import volume of clay material for core	

Table 3. David Avenue Dam Repair Alternatives
June 2013

Alternatives Considered	Pertinent Features	Pros	Cons
#3 Liner	Line the interior of the reservoir with double liner, underlain by drainage and leakage detection system	Less earthwork and impact to neighboring property during construction	Positive cut-off in alluvium not currently included. Systems relies on assumption that ground water infiltration source is from the impounded water only.
	Roughly 60 Acre feet volume		Higher maintenance required and possible reduced lifespan?
			Monitoring of portions of old embankment required to verify that pore pressures do not build.
			Earthwork required to support liner on dam embankments. Depth and extent of earthwork TBD
#4 Sheet Pile	Install Sheet pile near toe of existing dam, extending down to bedrock.	Less earthwork and disturbance during construction	Reduced Storage volume
	Install drainage behind sheet pile and tunnel through existing dam to drain		Question whether sheet pile leakage occurs, compromising the stability of old embankment and difficulty in providing drainage through old embankment
	Roughly 36 acre feet volume		Possible difficulty in driving sheet pile in dense alluvium and variable depth to granite
			Earthwork required behind sheetpile to decrease load on sheet pile and buttress toe of existing dam. Depth and extent of earthwork TBD
			Noise during installation
			Monitoring of portions of old embankment required to verify that pore pressures do not build.

- Outlet: New connection to the Pacific Grove storm drain collection system near the intersection of David Avenue and Carmel Avenue. The location, size and type of the existing storm drain infrastructure in this vicinity, belonging to both the City of Monterey and the City of Pacific Grove needs to be field verified. For the purposes of this 15% design and cost estimate, it is assumed that a new approximately 150 foot long, 18-inch diameter pipeline will convey collected water from David Avenue reservoir into the City of Pacific Grove stormwater system.

- Overflow Spillway: Assumed a similar size and design as the existing facility; rectangular inlet structure with a 12-inch diameter discharge pipeline, connecting to the Pacific Grove storm drain system.

Alternative #1: Rebuilding the Dam to the Original Elevation (Dam Replacement)

Alternative #1 proposes to rebuild the dam at David Avenue Reservoir within a similar footprint as the original dam. The crest elevation would be at approximately 243 feet, providing an estimated 60 acre-feet (AF) of storage. The rebuilt dam would include a new clay core and an underdrain system along the toe of the downstream dam face. The upstream slope would be 2.5:1, and the downstream face 2:1 to meet current regulations. This alternative possibly provides the greatest storage volume and structure longevity; however, it introduces the greatest disturbance to the surrounding homes, especially those located near the toe of the existing dam.

Alternative #2: Rebuilding the Dam to a Lower Elevation (Smaller Dam)

Alternative #2 proposes to build a smaller dam at David Avenue Reservoir by replacing the upstream shell of the existing dam. The crest elevation would be at approximately 238 feet, providing an estimated 36 AF of storage. The rebuilt dam would include a new clay core and an underdrain system along the toe of the downstream dam face. The upstream slope would be 2.5:1, and the downstream face 2:1 to meet current regulations. This alternative possibly provides less storage volume than Alternative #1; however, this option has a longer structure longevity than Alternatives #3 and #4, and less disturbance to the surrounding homes than Alternative #1.

Alternative #3: Existing Dam Structure with Geomembrane Liner

Alternative #3 proposes to line the interior of the David Avenue Reservoir with a double liner with a drainage and leak detection system. The crest elevation of would be at approximately 243 feet, providing an estimated 60 acre-feet (AF) of storage. All reservoir slopes are assumed to be regarded to 2.5:1. This alternative has less earthwork and disturbance to nearby properties, though the maintenance costs are potentially higher.

The system would be similar in style to the liner installed at nearby Forest Lake when it was retrofit for a reclaimed water project. Though larger, Forest Lake was built at the same time as David Avenue Reservoir.

Alternative #4: Existing Dam Structure with Sheet Pile

Alternative #4 proposes to install a sheet pile wall near the toe of the existing dam, with the base of the sheet pile extending down to bedrock. The water surface elevation would be the same as Alternative #2, providing an estimated 36 AF of storage. This alternative has less earthwork then Alternatives #1 and #2, though there are numerous uncertainties related to anchoring the sheetpile and providing adequate drainage to maintain system integrity.

4.1.2 Zone 2: Pine Avenue Stormwater System Improvements

Engineering Elements proposed for stormwater conveyance along Pine Avenue:

- New Storm Drain Conveyance Pipeline:
    - Segment 1 and 2: Approximately 1,500 feet of new pipeline 4-inch pipeline
    - Segment 3: Approximately 1,100 feet of new 6-inch (85% storm) to 10-inch (1-yr storm) pipeline

- New Pump Station at Pine Avenue and 14th Street:

    - Install a new 6 foot diameter by 15 foot deep concrete or fiberglass pump wet well fitted with two submersible propeller pumps sized to convey a peak flow of 780 gpm (85% storm) or 3400 gpm (1-yr storm). One pump providing standby.

4.1.3 Zone 3: Stormwater Conveyance to Ocean View Boulevard

Engineering Elements proposed for stormwater conveyance to Ocean View Boulevard:

- New Pump Station at Jewell and Pacific Avenues:
    - Install a new 6 foot diameter by 15 foot deep concrete or fiberglass pump wet well fitted with two submersible propeller pumps sized to convey a peak flow of 1800 gpm (85% storm) and 7300 gpm (1-yr storm). One pump providing standby.

- New Storm Drain Conveyance Pipeline:
    - Approximately 1,000 feet of new 6-inch (85% storm) to 10-inch (1-yr storm) force main.

4.1.4 Zone 4: Conveyance along Ocean View Boulevard

Engineering Elements proposed for stormwater conveyance along Ocean View Boulevard:

- Pipe lining approximately 5,600 feet of an abandoned 14-inch sewer force main:
    - For the 85% flow: Reline with new 10 or 12-inch PVC force main.

FCE estimates that for the 1-yr flow the pipeline along this road would need to be increased to 24-inches. To replace the existing pipeline would require it to be excavated and removed, which would be costly and potentially result in substantial environmental impacts due to the significant archaeological resources along Oven View Boulevard. As a result, upsizing the Ocean View Boulevard pipeline to convey the 1-yr peak flow is not considered a feasible alternative.

- New Pump Station #1 at Sea Palm Ave:
    - Install a new 6 foot diameter by 15 foot deep concrete or fiberglass pump wet well fitted with two submersible propeller pumps sized to convey a peak flow of 250 gpm (85% storm). One pump providing standby.

- New Pump Station #2 at Beach Street:

    - Install a new 6 foot diameter by 15 foot deep concrete or fiberglass pump wet well fitted with two submersible propeller pumps sized to convey a peak flow of 250 gpm (85% storm). One pump providing standby.

- New Pump Station #3 at Coral Street:
    - Install a new 6 foot diameter by 15 foot deep concrete or fiberglass pump wet well fitted with two submersible propeller pumps sized to convey a peak flow of 250 gpm (85% storm). One pump providing standby.

- New Storm Drain Conveyance Pipeline:
    - Approximately 2,400 feet of new 12-inch (85% storm) force main southwest along Asilomar Avenue to a new stormwater wetland treatment system in the vicinity of Golf Links Holes 11 and 15.

4.1.5 Zone 5: Point Pinos Stormwater Treatment Facility

FCE proposes a multi-staged storm water treatment system to be located at the Point Pinos and as such FCE is referring to the system at the Point Pinot Stormwater Treatment Facility. The proposed stormwater treatment facility is being sized to treat up to the 85th percentile storm and remove 90% of the stormwater pollutants of concerns (sediment, trace metals, oil and grease, and pathogens.

The stormwater treatment system as current planned will consist of the following unit processes:

- A two pond stormwater wetland to be located on the golf links to serve as a water hazard for the golf course;
- An equalization and storage basin (100,000 gallons) fitted with booster pumps and to be located in the 1-acre area of the former PGWTP;
- A direct filtration system using sand and anthracite deep bed filters; and
- A UV disinfection system.

Approximately 1,300 lineal feet of 18-inch pipeline would need to be installed as part of the improvements in this area to provide conveyance through the stormwater treatment facility.

Treated stormwater would be discharged to Crespi Pond for storage, reuse and/or discharge to the ocean. Crespi pond will be enlarged and deepened to increase its storage capacity. Overflow from Crespi Pond will occur in the existing 15 inch overflow line or from a modified and enlarged outfall.

4.2 Area 2: To Existing Dry Weather Diversion System

The stormwater management approach proposed for Area 2 is to continue diversions to the City of Pacific Grove's existing urban runoff diversion system, conveying both dry and additional wet weather (85th percentile flow) to the sanitary sewer diversion system for delivery and treatment of stormwater runoff to the MRWPCA treatment facility in Marina. The current system only receives and treats dry-weather flows; this project would increase deliveries to the MRWPCA from the areas northeast (downslope) from Pine Avenue. (The upper portions of Pine Avenue are captured within Area 1 for treatment at the Point Pinos Stormwater Facility.)

Area 2 has been divided into two Zones: Zone 1 covers the existing dry weather diversion area; whereas, Zone 2 includes an extension of the dry weather diversion system.

The existing dry weather diversion system (Zone 1) is sized to convey 200 gpm to the MRWPCA, includes four pump stations, and approximately 5,700 feet of conveyance pipeline. The four pump stations are located at (1) Lover's Point, (2) Fountain Avenue, (3) Greenwood Park and (4) Berwick Park (9th St.). Flow from Lover's Point is delivered to the Fountain pump station then into the sanitary sewer system. Flow from Berwick Park is delivered to the pump station at Greenwood Park and into the sanitary sewer system.

The preliminary hydrology analysis estimated peak flows to each of the four dry weather diversion pump stations and the results are summarized in Table 4. The predicted 85% flows indicate the existing dry weather diversion system pipelines are adequate for delivery of the 85% event to the MRWPCA, and upgrades will be necessary on two of the pump stations (Greenwood and Berrick). To accommodate the 1-yr event, upgrades to three of the pump stations (Greenwood, Berrick and Fountain) and pipelines will be necessary to adequately convey runoff to the MRWPCA.

Table 4. Pump Station Estimated Peak Flows

Summary 85% Event	**Peak Runoff (gpm)**
Total to Berwick	318
Total to Greenwood	444
Total to Lover's Point	4
Total to Fountain	91
Total to MRWPCA	**535**
Summary 1-Yr Event	**Peak Runoff (gpm)**
Total to Berwick	1495
Total to Greenwood	2074
Total to Lover's Point	40
Total to Fountain	502
Total to MRWPCA	**2576**

The City of Pacific Grove is planning to extend the dry weather diversion system southeast to Eardly Avenue during the summer of 2013. For the 15% design submittal this area was identified as Area 4, and based on comments it has been incorporated into Area 2 as Zone 2. FCE does not currently have the design details for the extension and has not evaluated the improvements potentially needed to accommodate the 85% or 1-yr storm events. Further information about Zone 2 of Area 2 will be provided as part of the 40% design submittal.

4.2.1 Zone 1: Existing Dry-Weather Diversion System Improvements

Engineering Elements proposed to upsize the existing dry weather diversion system include:

- Increasing pump station capacity at the Berwick Pump Station to deliver 320 gpm (85% storm) (or potentially to 1500 gpm (1-yr storm).

- Increasing pump station capacity at the Greenwood Park Pump Station to deliver 450 gpm (85% storm) or potentially to 2080 gpm (1-yr storm).

- Increasing pump station capacity at the Fountain Avenue Pump Station to deliver 470 gpm (1-yr storm).

- To accommodate the 1-year storm event will require that approximately 1,750 feet of 4-inch ductile iron pipeline would need to be replaced with larger diameter (10”-12”) pipe.

4.2.2 Zone 2: Dry-Weather Diversion System Extension

Engineering Elements proposed to upsize the dry weather diversion in this area has not been completed, but will be provided prior to the completion of the 40% design plans.

5. PRELIMINARY CAPITAL COST ESTIMATES

FCE has prepared preliminary engineering costs for the proposed improvements and alternative reservoir projects. A summary of the cost estimates are presented in Table 5 through 9 below. The cost estimates include the material and labor costs, contingency (20%), engineering design (20%), construction management (10%), administrative and legal fees (2.5%) and inflation factor (4%).

Unit costs for earth work, pipelines, paving and other improvements are based on cost provided by the City of Monterey, *Means 2013 Costs Estimates for Heavy Construction* and selected vendors.

Table 5 summarizes the different costs to restore David Avenue reservoir based on the four alternative projects discussed above. A comparison of the capital costs indicate that restoring the reservoir with a geomembrane liner system is the most cost effective method to restore the reservoir to at least 50 acre feet of storage.

Table 5 – Comparison of Capital Costs to Restore David Avenue Reservoir

Project Description	Total Cost
Alternative 1: Rebuild Dam to Original Elevation (Apx 60 AF of Storage)	$3,291,337
Alternative 2: Rebuild Dam to Lower Elevation (Apx 36 AF of Storage)	$3,173,604
Alternative 3: Existing Dam Structure with Geomembrane Liner (Apx 60 AF of Storage)	$1,432,932
Alternative 4: Existing Dam Structure with Sheet Pile (Apx 36 AF of Storage)	$1,146,463

The remaining cost tables present a more detailed breakdown of costs to implement the entire projects in each area and respective zones.

Please note that these are preliminary costs and in some instances additional information and project analysis will be required before the costs are finalized.

6. ACTION ITEMS

- Select a preferred David Avenue Reservoir Alterative for CEQA Review. The FCE consultant team recommends continued evaluation of Alternative 3, as it appears to be the least cost, most environmental feasible alternative at this stage in the design process.

- Evaluate drainage patterns within un-delineated sub-basins (sheet flow and/or discharge to outfalls below the previous delineation threshold).

- Field verify the size and location of existing storm drain pipelines and manholes, particularly in the David Avenue and Pine Avenue vicinities.

- Update rainfall-runoff analysis based on modified drainage areas.

- Build a Hydraulic Model of the proposed storm drain systems to Point Pinos Stormwater Treatment Facility (Area 1) and to the MRWPCA (Areas 1 and 4).

Thank you for the opportunity to assist you with this project. Please contact me if you have any questions or require any additional information.

Sincerely,

PETER HAASE, M.S., P.E.
Principal Engineer

Attachments

Table 6. Project Costs with Alternative 1- David Avenue Reservoir Full Dam Replacement (>50 Acre-Feet)

Description	Unit	Estimated Quantity	Contract Unit Price	Bid Amount
Area 1: To Point Pinos Stormwater Treatment Facility				
Zone 1: David Avenue Reservoir Alternatives				
Alternative 1: Rebuild Dam to Original Elevation (Apx 60 AF of Storage)				
Dam demolition and excavation	CY	100,655	$14	$1,409,170
Backdrain Material and Installation	CY	8,467	$35	$306,545
Clay Core Material and Installation	CY	17,689	$15	$265,335
Engineered Fill	CY	93,695	$9	$852,625
Offhaul	CY	6960	$9	$62,640
Abandon Old Pipes, Install New Pipes, Extensions, and Connections	EA	1	$50,000	$50,000
Reinforced Concrete Pavement and Curbs	SF	416	$95	$39,520
Class 2 Aggregate Base Perimeter Road	CY	3,102	$61	$189,222
Mob/Demob	EA	1	$20,000	$20,000
12-inch PVC Inlet Pipeline	LF	150	$45	$6,750
12-inch PVC Outlet Pipeline	LF	300	$45	$13,500
Inlet/Outlet Structures	LS	1	$35,000	$35,000
Overflow Spillway	LS	1	$7,500	$7,500
Manhole	EA	1	$6,500	$6,500
12-inch PVC Spillway Pipeline	LF	300	$45	$13,500
Trench Excacation and Paving	LF	451	$30	$13,530
			Subtotal	$3,291,337
Zone 2: Pine Avenue Stormwater System Improvements				
4-inch PVC Pipeline	LF	1500	$40	$60,000
8-inch PVC Force Main	LF	1100	$40	$44,000
Trench Excacation and Paving	LF	2600	$30	$78,000
Pump Station,780 GPM	EA	1	$225,000	$225,000
			Subtotal	$407,000
Zone 3: Stormwater Conveyance to Ocean View Boulevard				
Pump Station,1800 GPM	EA	1	$325,000	$325,000
6-inch PVC Force Main	LF	1000	$40	$40,000
Trench Excacation and Paving	LF	1000	$120	$120,000
			Subtotal	$485,000
Zone 4: Conveyance along Ocean View Boulevard to Point Pinos				
Pipe Lining Abandoned 14-inch	LF	5600	$65	$364,000
12-inch PVC Force Main	LF	8000	$40	$320,000
Pump Station, 250 GPM	EA	3	$150,000	$450,000
Trench Excacation and Paving	LF	2400	$120	$288,000
			Subtotal =	$1,422,000
Zone 5: Point Pinos Stormwater Treatment Facility				
Stormwater Wetland Pond 1	LS	1	$75,500	$75,500
Stormwater Wetland Pond 1	LS	1	$45,180	$45,180
Equalization and Storage (2 - 50,000 gallon storage underground tanks)	LS	100000	$3	$300,000
Booster Pump Pack (Duplex 15 HP Pumps)	LS	1	$30,000	$30,000
Direct Filtration System (Rated for 500 gpm)	LS	1	$150,000	$150,000
Expanded Crespi Pond	CY	1	$77,340	$77,340
SCADA Monitoring System	LS	1	$75,000	$75,000
18-inch PVC	LF	1300	$40	$52,000
Trench Excacation and Paving	LF	1300	$30	$39,000
			Subtotal =	$844,020
Area 2: To MRWPCA				
Zone 1: Existing Dry Weather Diversion System				
Upgrade Berrick Pump Station, 320 GPM	EA	1	$130,000	$130,000
Upgrade Greenwood Pump Station, 450 GPM	EA	1	$170,000	$170,000
			Subtotal	$300,000
Zone 2: Existing Dry Weather Diversion System Extension				
TO BE EVALUATED				
TOTAL AMOUNT				**$6,749,357**
Contingency		**20%**		$1,349,871
Engineering Design		20%		$1,349,871
Construction Management		10%		$674,936
Administrative and Legal		2.5%		$168,734
inflation		4%		$269,974
Total Estimated Project Costs				**$10,562,743**

Table 7. Project Costs with Alternative 2 Partial Restoration of David Avenue Dam (36 Acre-Feet)

Description	Unit	Estimated Quantity	Contract Unit Price	Bid Amount
Area 1: To Point Pinos Stormwater Treatment Facility				
Zone 1: David Avenue Reservoir Alternatives				
Alternative 2: Rebuild Dam to Lower Elevation (Apx 36 AF of Storage)				
Dam demolition and excavation	CY	98,878	$14	$1,384,292
Backdrain Material and Installation	CY	7,178	$35	$261,430
Clay Core Material and Installation	CY	15,644	$15	$234,660
Engineered Fill	CY	82,984	$9	$755,154
Offhaul	CY	15894	$9	$143,046
Abandon Old Pipes, Install New Pipes, Extensions, and Connections	EA	1	$50,000	$50,000
Reinforced Concrete Pavement and Curbs	SF	416	$95	$39,520
Class 2 Aggregate Base Perimeter Road	CY	3,102	$61	$189,222
Mob/Demob	EA	1	$20,000	$20,000
12-inch PVC Inlet Pipeline	LF	150	$45	$6,750
12-inch PVC Outlet Pipeline	LF	300	$45	$13,500
Inlet/Outlet Structures	LS	1	$35,000	$35,000
Overflow Spillway	LS	1	$7,500	$7,500
Manhole	EA	1	$6,500	$6,500
12-inch PVC Spillway Pipeline	LF	300	$45	$13,500
Trench Excacation and Paving	LF	451	$30	$13,530
			Subtotal	$3,173,604
Zone 2: Pine Avenue Stormwater System Improvements				
4-inch PVC Pipeline	LF	1500	$40	$60,000
8-inch PVC Force Main	LF	1100	$40	$44,000
Trench Excacation and Paving	LF	2600	$30	$78,000
Pump Station,780 GPM	EA	1	$225,000	$225,000
			Subtotal	$407,000
Zone 3: Stormwater Conveyance to Ocean View Boulevard				
Pump Station,1800 GPM	EA	1	$325,000	$325,000
6-inch PVC Force Main	LF	1000	$40	$40,000
Trench Excacation and Paving	LF	1000	$120	$120,000
			Subtotal	$485,000
Zone 4: Conveyance along Ocean View Boulevard to Point Pinos				
Pipe Lining Abandoned 16-inch	LF	5600	$65	$364,000
12-inch PVC Force Main	LF	8000	$40	$320,000
Pump Station, 250 GPM	EA	3	$150,000	$450,000
Trench Excacation and Paving	LF	2400	$120	$288,000
			Subtotal =	$1,422,000
Zone 5: Point Pinos Stormwater Treatment Facility				
Stormwater Wetland Pond 1	LS	1	$75,500	$75,500
Stormwater Wetland Pond 1	LS	1	$45,180	$45,180
Equalization and Storage (2 - 50,000 gallon storage underground tanks)	LS	100000	$3	$300,000
Booster Pump Pack (Duplex 15 HP Pumps)	LS	1	$30,000	$30,000
Direct Filtration System (Rated for 500 gpm -	LS	1	$150,000	$150,000
Expanded Crespi Pond	CY	1	$77,340	$77,340
SCADA Monitoring System	LS	1	$75,000	$75,000
18-inch PVC	LF	1300	$40	$52,000
Trench Excacation and Paving	LF	1300	$30	$39,000
			Subtotal =	$844,020
Area 2: To MRWPCA				
Zone 1: Existing Dry Weather Diversion System				
Upgrade Berrick Pump Station, 320 GPM	EA	1	$130,000	$130,000
Upgrade Greenwood Pump Station, 450 GPM	EA	1	$170,000	$170,000
			Subtotal	$300,000
Zone 2: Existing Dry Weather Diversion System Extension				
TO BE EVALUATED				
TOTAL AMOUNT				**$6,631,624**
Contingency		**20%**		$1,326,325
Engineering Design		20%		$1,326,325
Construction Management		10%		$663,162
Administrative and Legal		2.5%		$165,791
inflation		4%		$265,265
Total Estimated Project Costs				**$10,378,492**

Table 8. Project Costs with Alternative 3 David Avenue Reservoir with Geomembrane Liner System (>50 Acre-feet)

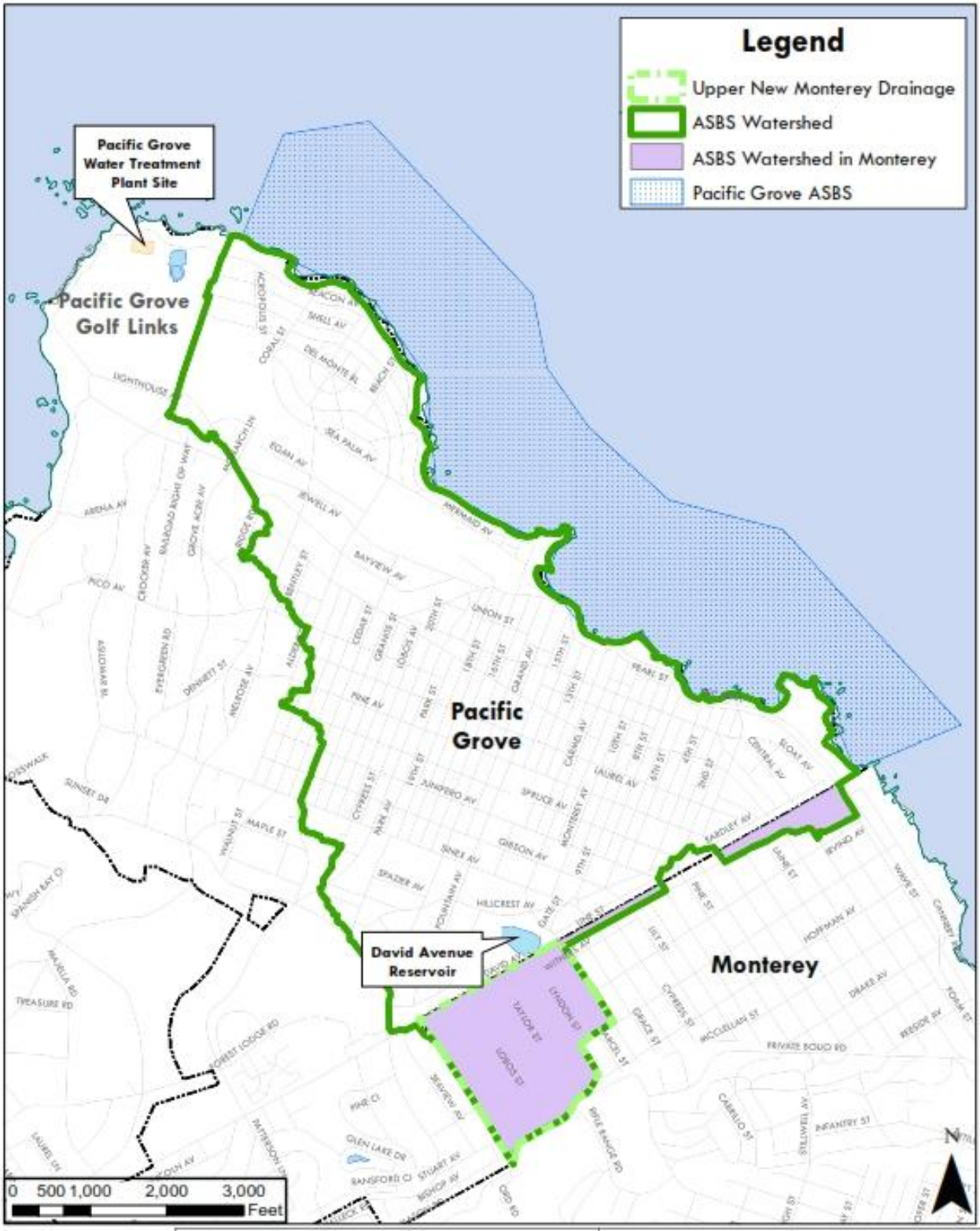
Description	Unit	Estimated Quantity	Contract Unit Price	Bid Amount
Area 1: To Point Pinos Stormwater Treatment Facility				
Zone 1: David Avenue Reservoir Alternatives				
Alternative 3: Existing Dam Structure with Geomembrane Liner (Apx 60 AF of Storage)				
Excavation to Subgrade & Slope Reconditioning	CY	27,550	$5.50	$151,525
Engineered Fill	CY	5,230	$9.10	$47,593
Liner Subgrade Preparation	SF	184,301	$0.18	$33,174
Anchor Trench Excavation and Backfill	LF	1,620	$21.00	$34,020
60-mil Double-Textured HDPE Secondary Geomembrane	SF	190,781	$1.16	$221,306
Double-Sided Geocomposite	SF	190,781	$1.25	$238,476
80-mil Double-Textured HDPE Primary Geomembrane	SF	190,781	$1.45	$276,632
16 oz. Cushion Geotextile for Concrete	SF	7,200	$0.72	$5,184
Abandon Old Pipes, Install New Pipes, Extensions, and Connections	EA	1	$50,000.00	$50,000
Reinforced Concrete Pavement and Curbs	SF	416	$95.00	$39,520
Supply and Install Submersible Pump and Controls	EA	1	$30,000.00	$30,000
Class 2 Aggregate Base Perimeter Road	CY	3,102	$61.00	$189,222
Mob/Demob	EA	1	$20,000	$20,000
12-inch PVC Inlet Pipeline	LF	150	$45	$6,750
12-inch PVC Outlet Pipeline	LF	300	$45	$13,500
Inlet/Outlet Structures	LS	1	$35,000	$35,000
Overflow Spillway	LS	1	$7,500	$7,500
Manhole	EA	1	$6,500	$6,500
12-inch PVC Spillway Pipeline	LF	300	$45	$13,500
Trench Excacation and Paving	LF	451	$30	$13,530
			Subtotal	$1,432,932
Zone 2: Pine Avenue Stormwater System Improvements				
4-inch PVC Pipeline	LF	1500	$40	$60,000
8-inch PVC Force Main	LF	1100	$40	$44,000
Trench Excacation and Paving	LF	2600	$30	$78,000
Pump Station,780 GPM	EA	1	$225,000	$225,000
			Subtotal	$407,000
Zone 3: Stormwater Conveyance to Ocean View Boulevard				
Pump Station,1800 GPM	EA	1	$325,000	$325,000
6-inch PVC Force Main	LF	1000	$40	$40,000
Trench Excacation and Paving	LF	1000	$120	$120,000
			Subtotal	$485,000
Zone 4: Conveyance along Ocean View Boulevard to Point Pinos				
Pipe Lining Abandoned 16-inch	LF	5600	$65	$364,000
12-inch PVC Force Main	LF	8000	$40	$320,000
Pump Station, 250 GPM	EA	3	$150,000	$450,000
Trench Excacation and Paving	LF	2400	$120	$288,000
			Subtotal =	$1,422,000
Zone 5: Point Pinos Stormwater Treatment Facility				
Stormwater Wetland Pond 1	LS	1	$75,500	$75,500
Stormwater Wetland Pond 1	LS	1	$45,180	$45,180
Equalization and Storage (2 - 50,000 gallon storage underground tanks)	LS	100000	$3	$300,000
Booster Pump Pack (Duplex 15 HP Pumps)	LS	1	$30,000	$30,000
Direct Filtration System (Rated for 500 gpm)	LS	1	$150,000	$150,000
Expanded Crespi Pond	CY	1	$77,340	$77,340
SCADA Monitoring System	LS	1	$75,000	$75,000
18-inch PVC	LF	1300	$40	$52,000
Trench Excacation and Paving	LF	1300	$30	$39,000
			Subtotal =	$844,020
Area 2: To MRWPCA				
Zone 1: Existing Dry Weather Diversion System				
Upgrade Berrick Pump Station, 320 GPM	EA	1	$130,000	$130,000
Upgrade Greenwood Pump Station, 450 GPM	EA	1	$170,000	$170,000
			Subtotal	$300,000
Zone 2: Existing Dry Weather Diversion System Extension				
TO BE EVALUATED				
TOTAL AMOUNT				**$4,890,952**
Contingency		20%		$978,190
Engineering Design		20%		$978,190
Construction Management		10%		$489,095
Administrative and Legal		2.5%		$122,274
inflation		4%		$195,638
Total Estimated Project Costs				**$7,654,339**

Table 9 – Project Costs with David Avenue Upgrade with Sheet Piling Wall (< 36 acre-feet of Storage)

Description	Unit	Estimated Quantity	Contract Unit Price	Bid Amount
Area 1: To Point Pinos Stormwater Treatment Facility				
Zone 1: David Avenue Reservoir Alternatives				
Alternative 4: Existing Dam Structure with Sheet Pile (Apx 36 AF of Storage)				
Excavation to Subgrade & Slope Reconditioning	CY	20,000	$6	$110,000
Engineered Fill - Subex/recompact dam face	CY	10,000	$9	$91,000
Sheet Pile Materials	SF	20,140	$23	$460,803
Sheet Pile Install	SF	20,140	$10	$201,400
Cap Sheet Pile	SF	530	$40	$21,200
Install Drains through Dam	LS	1	$25,000	$25,000
Class 2 Aggregate Base Perimeter Road	CY	1,980	$61	$120,780
Mob/Demob	EA	1	$20,000	$20,000
12-inch PVC Inlet Pipeline	LF	150	$45	$6,750
12-inch PVC Outlet Pipeline	LF	300	$45	$13,500
Inlet/Outlet Structures	LS	1	$35,000	$35,000
Overflow Spillway	LS	1	$7,500	$7,500
Manhole	EA	1	$6,500	$6,500
12-inch PVC Spillway Pipeline	LF	300	$45	$13,500
Trench Excacation and Paving	LF	451	$30	$13,530
			Subtotal	$1,146,463
Zone 2: Pine Avenue Stormwater System Improvements				
4-inch PVC Pipeline	LF	1500	$40	$60,000
8-inch PVC Force Main	LF	1100	$40	$44,000
Trench Excacation and Paving	LF	2600	$30	$78,000
Pump Station,780 GPM	EA	1	$225,000	$225,000
			Subtotal	$407,000
Zone 3: Stormwater Conveyance to Ocean View Boulevard				
Pump Station,1800 GPM	EA	1	$325,000	$325,000
6-inch PVC Force Main	LF	1000	$40	$40,000
Trench Excacation and Paving	LF	1000	$120	$120,000
			Subtotal	$485,000
Zone 4: Conveyance along Ocean View Boulevard to Point Pinos				
Pipe Lining Abandoned 16-inch	LF	5600	$65	$364,000
12-inch PVC Force Main	LF	8000	$40	$320,000
Pump Station, 250 GPM	EA	3	$150,000	$450,000
Trench Excacation and Paving	LF	2400	$120	$288,000
			Subtotal =	$1,422,000
Zone 5: Point Pinos Stormwater Treatment Facility				
Stormwater Wetland Pond 1	LS	1	$75,500	$75,500
Stormwater Wetland Pond 1	LS	1	$45,180	$45,180
Equalization and Storage (2 - 50,000 gallon storage underground tanks)	LS	100000	$3	$300,000
Booster Pump Pack (Duplex 15 HP Pumps)	LS	1	$30,000	$30,000
Direct Filtration System (Rated for 500 gpm)	LS	1	$150,000	$150,000
Expanded Crespi Pond	CY	1	$77,340	$77,340
SCADA Monitoring System	LS	1	$75,000	$75,000
18-inch PVC	LF	1300	$40	$52,000
Trench Excacation and Paving	LF	1300	$30	$39,000
			Subtotal =	$844,020
Area 2: To MRWPCA				
Zone 1: Existing Dry Weather Diversion System				
Upgrade Berrick Pump Station, 320 GPM	EA	1	$130,000	$130,000
Upgrade Greenwood Pump Station, 450 GPM	EA	1	$170,000	$170,000
			Subtotal	$300,000
Zone 2: Existing Dry Weather Diversion System Extension				
TO BE EVALUATED				
TOTAL AMOUNT				**$4,604,483**
Contingency		**20%**		$920,897
Engineering Design		20%		$920,897
Construction Management		10%		$460,448
Administrative and Legal		2.5%		$115,112
Inflation		4%		$184,179
Total Estimated Project Costs				**$7,206,016**

ATTACHMENTS

FIGURES



FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resources Engineering

Figure 1. Pacific Grove Area of Special Biological Significance (ASBS)

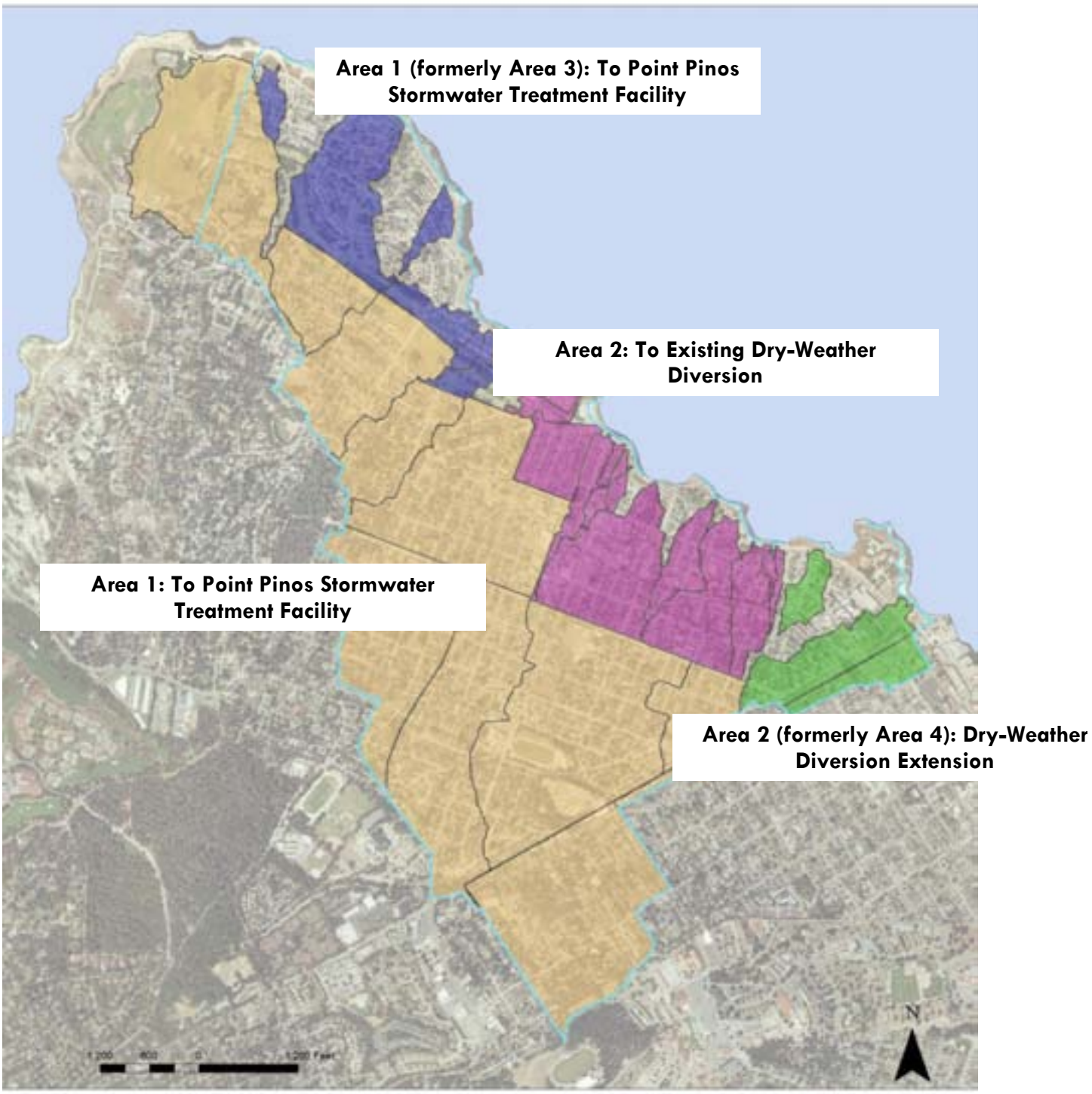


Figure 2. Stormwater Management Areas

Figure 3. Aerial photo history of fill placement within the David Avenue Reservoir. Source: Google Earth

ATTACHMENT A

Screening Analysis of Project Alternatives
May 2013

FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resource Engineering and Sciences
Tel. (831) 426-9054 P.O. Box 7894, Santa Cruz, CA 95061 Fax. (831) 426-4932

May 7, 2013

Jeff Krebs
Senior Engineer
City of Monterey Engineering
580 Pacific Street, Room #7
Monterey, CA 93940

Sarah Hardgrave
Environmental Programs Manager
City of Pacific Grove Public Works Department
2100 Sunset Avenue
Pacific Grove, CA 93950

Subject: **Screening Analysis of Project Alternatives**
Cities of Monterey and Pacific Grove ASBS Feasibility Study
of Alternative Management Strategies to comply with ASBS Special Protections

Dear Jeff and Sarah:

Fall Creek Engineering, Inc. (FCE) is pleased to present this screening analysis of alternative storm water management strategies to comply with the ASBS special protections requirements issued by the State Water Resource Control Board (SWRCB).

1. Executive Summary

The purpose of this screening analysis was to evaluate potential stormwater management projects within the Cities of Monterey and Pacific Grove, and identify a preferred and alternate project capable of meeting the SWRCB ASBS requirements. The screening analysis compared six project alternatives based on 16 screening criteria and identified a preferred project whereby both dry and wet-weather flows from Pacific Grove and New Monterey would be treated at a rebuilt Pacific Grove Water Treatment Plant (PGWTP). The alternate project would treat both dry and wet-weather flows from Pacific Grove and New Monterey at the Monterey Regional Water Pollution Control Agency, Regional Water Treatment Plant in Marina. Both proposed projects would utilize storage in a modified David Avenue Reservoir, currently owned and operated by the California American Water Company (CalAm).

In the coming months, these two project concepts will be further developed, and preliminary designs completed to assist with evaluation under the California Environmental Quality Act (CEQA).

FCE in collaboration with Balance Hydrologics, Rincon Consultants, Pacific Geologic and staff from the Cities of Monterey and Pacific Grove reviewed and screened several project alternatives. This technical letter summarizes the review and screening methodology, outcomes and summarizes the two preferred project alternatives.

1. Background

In 2006, the City of Monterey obtained a Proposition 50 planning grant from the State Department of Water Resources to analyze a suite of options to address regulatory restrictions imposed by the State Water Resources Control Board (SWRCB) for storm water discharges to the State's designated "Areas of Special Biological Significance" (ASBS). The ASBS analysis was presented in a study completed in 2006 by MACTEC Engineering and Consulting, Inc. (MACTEC)[1]. The focus of this study was to address storm water discharges to the Pacific Grove and Carmel Bay ASBS's coastal zones. The Pacific Grove ASBS receives runoff from the New Monterey District in the City of Monterey and from the City of Pacific Grove. The MACTEC study identified and analyzed twenty two alternative projects including local projects that collect and treat runoff in Pacific Grove before it is discharged to the Monterey Bay, regional projects that pump runoff to the Monterey Regional Water Pollution Control Agency (MRWPCA), a public owned treatment plant in Monterey, and other potential projects.

Subsequently, in 2009 the City of Pacific Grove retained the engineering firm of Malcolm Pirnie to complete Feasibility and Basis of Design studies to evaluate the feasibility of collecting and recycling storm water within the City of Pacific Grove.[2] These studies evaluated four alternative projects; however, the primary objectives of each project was focused on water recycling and not necessarily protection of the ASBS. As a result, the various projects do not fully address the requirements of the ASBS Special Protection Provisions adopted by the SWRCB.

Over the past few years, the Cities of Monterey and Pacific Grove have been evaluating alternative water supply and storm water management projects to address the ASBS requirements and critical water supply issues on the Monterey Peninsula. Based on these recent efforts, several additional or modified projects were identified and screened in this analysis.

On March 20, 2012, the State Water Resources Control Board (SWRCB) adopted the "General Exception and Special Protections for the California Ocean Plan Waste Discharge Prohibition for Storm Water and Nonpoint Source Discharges" into the ASBS. The "Special Protections" are part of a General Exception to the California Ocean Plan (COP), which states, "Waste shall not be discharged to **areas designated as being of special biological significance**. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas." Generally, the Ocean Plan:

- Is the basis for regulation of wastes discharged in coastal waters and establishes water quality objectives for discharges as measured in the ocean *receiving water*.
- Applies to point (typically outfall pipes) and non-point (typically overland flow) source waste discharges.

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[1]MACTEC. 2006. *Final Alternatives Analysis and Data Acquisition for Pacific Grove and CarmelBay Areas of Special Biological Significance*
[2]Malcom Pirnie, Inc. 2009. *Stormwater Recycling Facility – Basis of Design Report*

The principle requirements in the "General Exception" and "Special Protections" include:

- Elimination of non-storm water urban runoff (e.g. dry weather discharges) into the ASBS;
- Ensuring that wet weather flows do not alter "natural water quality;"
- Ocean receiving water monitoring to ensure marine life and other beneficial uses are protected;
- Best Management Practices (BMPs) to reduce pollutants, debris, and larger particles and,
- Reducing pollutant loads by 90% during wet-weather, if natural water quality is found to be degraded by these discharges and
- Elimination of all trash from outfalls and discharges.

The "Special Protections" and "General Exception" apply statewide in lieu of individual exceptions.

In January 2013, Fall Creek Engineering, Inc. (FCE) was retained by the City of Monterey to complete the *City of Monterey and Pacific Grove ASBS Refined 2006 Feasibility Study of Alternatives Management Plan*. The scope of work in this study is to: (1) refine and select a preferred and alternate project from the broad list of projects identified by MACTEC, (2) select a preferred project alternative, (3) develop conceptual and preliminary plans for the preferred project; prepare the CEQA environmental review document for the preferred and alternative projects; (4) prepare a work plan and grant application for the preferred project.

As the initial task of this project, FCE conducted several meetings with the Cities of Monterey and Pacific Grove, several stakeholders (California American Water (CalAm), MRWPCA, and New Monterey District representatives) to revisit and refine the various project alternatives.

After a cursory review and screening of the twenty two (22) alternatives identified in the 2006 MACTEC Study, six (6) project alternatives were identified and refined with input from the Cities of Monterey and Pacific Grove. These alternatives were then screened by numerical ranking and weighting to select the preferred and alternative projects. This technical letter presents a description of the screening methodology and the results of the analysis.

2. Screening Methodology

A three step screening process was utilized to refine and select the preferred and alternative projects.

<u>Step One – Cursory Project Screening</u>

The first step of screening included a cursory review using three primary criteria:

a. Does the project have the potential to achieve the water quality requirements set forth for the ASBS for both Cities of Pacific Grove and Monterey;

b. Does the project not create regulatory uncertainty by not addressing the requirements of the ASBS Special Provisions that may impact the City of Monterey and/or Pacific Grove if they do not participate in the project; and

c. Is the project financially and technically feasible?

Step Two – Initial Project Ranking and Screening of Alternatives

After the cursory screening of alternatives was completed, four project alternatives were ranked according to fourteen (14) screening criteria by the consulting team. A description of the criteria and ranking methodology is provided. This initial ranking was presented to the Cities of Monterey and Pacific Grove staff, and the matrix was updated to add two additional screening criteria and two alternatives and re-evaluated resulting in the final screening.

Step Three – Final Screening Using Weighted Criteria

To compare each of the selected alternatives, the project team identified sixteen (16) screening criteria and assigned a relative weight, or importance, to each of the criteria. A low priority criteria has a weight of 1 and a high priority criteria has a weight of 5. The four criteria considered the most important, with a weight of 5, were:

- Water Quality Benefits or Ability to Meet ASBS Requirements,
- Impact to Regional Water Treatment Plant (WTP) Capacity,
- Ability for the project to Achieves Multiple Benefits, and
- Access to Potential Funding Opportunities.

Each of the six alternatives (A-F) were then compared to each other and assigned a rank in order from 1 to 6, with 1 being the most favorable and 6 being the least favorable as compared to the other alternatives. A description of each criteria and the factors considered during the ranking is described in the following section.

For each alternative and criteria, the initial ranking was multiplied by the weight and the total for each project is summed at the bottom of the matrix. The summed value was used to determine which projects are preferred and ultimately considered for mitigating stormwater runoff into the ASBS. The alternative with the lowest total is preferred.

The Criteria, Ranking and Weighting

The following is a summary of the 16 screening criteria, in order from the criteria assigned the most important (5) to least important (1).

Weight = 5

1. **Water Quality Benefits/Ability to Meet ASBS Requirements** evaluated the ease with which each alternative could satisfy the ASBS water quality requirements. This may be one or all of the requirements described in Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges. One significant requirement is a

90% reduction in pollutant loading during wet-weather event if natural water quality is found to be degraded by these discharges.

2. **Regional WTP Capacity** evaluateed the impact to the Cities if the discharge to the Monterey Regional Water Pollution Control Authority's Wastewater Treatment Plant is eventually limited due to capacity. By receiving more dry and wet weather flows it could reduce the ability of the MRWPCA WTP to handle additional future wastewater flows and force the Cities to maintain local storm water treatment facilities to comply with the ASBS requirements. Alternatives D and F increase flows to the WTP and therefore rank less favorably than the remaining alternatives which have no additional flows to the WTP.

3. **Potential Funding Opportunities** ranked an alternative's ability to generate funding from grants and additional local support groups.

4. **Achieves Multiple Benefits** ranked the alternative's ability to achieve multiple benefits or objectives, such as water supply, recreational and wildlife benefits in addition to ASBS water quality benefits.

Weight = 4

5. **Capital, Operational and Maintenance (O&M), and Equivalent Annual Costs** evaluated the estimated capital, operational, maintenance and equivalent annual costs for each alternative, with the most expensive alternatives ranking less favorably.

6. **Permitting Requirements and Difficulty** ranked the feasibility of each alternative to be permitted by regulatory agencies. For example, restoring David Avenue Reservoir to its original size would require Division of Safety of Dams (DSOD) approval, which would require additional technical analyses and an extensive permit review process. As a result, Alternative C, which proposes using the David Avenue Reservoir to treat all the flow from Pacific Grove and New Monterey, would be a more difficult project to permit and thus ranks less favorably than the other project alternatives.

7. **Land and/or Facility Availability and Entitlements** evaluated the Cities' ownership of existing land or facilities or the necessity to acquire additional property(s) to support the project. The more land/facilities that would need to be acquired was considered and ranked for each alternative.

8. **Safety and Vector Control** ranked the alternatives safety and vector risks. For example, using David Avenue Reservoir could increase the volume and duration of surface water stored at the site, potentially requiring maintenance measures to manage mosquito populations.

9. **Aesthetic Benefits** ranked the aesthetic benefits each alternative brings to the Cities'. The alternatives that provided a greater opportunity to provide green space and/or parkland ranked higher than alternatives with no significant change or benefit.

10. **Institutional Agreements** evaluated the number of institutional agreements that may be necessary if the alternative is selected. An example of an institutional agreement would be an agreement with the Cities of Monterey, Pacific Grove and California American Water (CalAm) regarding use of the David Avenue Reservoir site for stormwater storage. The alternative with the highest ranking in this category has the least number of institutional agreements required.

Weight = 3

11. **Biotic and Cultural Resource Issues** evaluated, based on a preliminary review of background data, if the environmental impacts associated with the alternative would likely cause impacts requiring mitigation of biotic and cultural resources. The greater the anticipated impact or mitigation required, the less favorable the ranking.

12. **Stakeholder Involvement and Support** ranked the alternatives with the highest stakeholder involvement and support as highest. Stakeholder involvement may include community interest groups or local non-profit organizations who would benefit from the alternatives and have actively participated in the project development and evaluation process to date.

13. **Constructability** ranked the ease of construction of an alternative. Based on information summarized in previous feasibility and background reports, the alternative with the least construction required would rank highest.

14. **Project Complexity and Timing** ranked the alternatives complexity and timing, where the least complex project that can satisfy the SWRCB's within a reasonable time frame is preferred and ranks the highest.

Weight = 2

15. **Geologic, Liquefaction, and Hydrogeologic Issues** evaluated potential site-specific obstacles or hazards that the existing geology may introduce at any land proposed for development. This includes any areas where landslides, liquefaction, or tsunamis may be an issue.

16. **Water Rights Considerations** ranked the Cities' ability to retain water rights to the treated stormwater for other uses. Alternatives D and F send treated water to the MRWPCA, where the Cities' would potentially forfeit the right to use the stormwater in the future and therefore rank below all remaining alternatives that provide the Cities' with the ability to reuse collected stormwater.

3. Alternative Screening Analysis

Step One - Cursory Screening of Alternatives

Employing the methodology described above, FCE determined that only four alternative projects identified by MACTEC met the initial cursory screening criteria described in Step One of Section 2:

a. Does the project have the potential to achieve the water quality requirements set forth for the ASBS for both Cities of Pacific Grove and Monterey;

b. Does the project not create regulatory uncertainty by not addressing the requirements of the ASBS Special Provisions that may impact the City of Monterey and/or Pacific Grove if they do not participate in the project; and

c. Is the project financially and technically feasible?

These project options, as identified in the MACTEC study are:

Option 1 – Collect and treat dry weather flows locally at PGWWTP

Option 3 – Collect and treat dry and wet weather flows locally at PGWWTP and discharge to ASBS for both New Monterey and Pacific Grove.

Option 6 – Collect and treat dry weather flows at the MRWPCA facility.

Option 9 – Collect and treat dry and wet weather flows at the MRWPCA facility.

Step Two – Initial Project Ranking and Screening of Alternatives

In mid-February 2013, after the cursory review was conducted, the consulting team met and conducted an initial project ranking of the four projects as described in more detail below. This initial ranking was completed for the four (4) alternatives and without weighting of the criteria. The following is a description of the initial alternatives.

Alternative A treats both dry and wet weather flows from Pacific Grove and New Monterey at the abandoned Pacific Grove Wastewater Treatment Plant (PGWTP). Treated water is used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery.

Alternative B treats both dry and wet weather flows from Pacific Grove and New Monterey at the PGWTP. Equalization is provided at the David Avenue Reservoir by diverting runoff from Upper New Monterey flows via gravity in David Avenue Reservoir. Stored water can then be released at a lower rate into the modified collection system that pumps storm water to the PGWTP for treatment, reuse or discharge. Treated water is used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery.

Alternative C treats both dry and wet weather flows from Pacific Grove and New Monterey at the David Avenue Reservoir. Flows from Pacific Grove and Lower New

Monterey are pumped up to the reservoir. Treated water is used to irrigate Pacific Grove Golf Links, the El Carmelo Cemetery and two parks in New Monterey close to the Reservoir. This alternative requires the David Avenue Reservoir to be restored to its original size.

Alternative D treats both dry and wet weather flows from Pacific Grove and New Monterey at the Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant (MRWPCA WTP). The storm water is comingled with the domestic wastewater and once treated is either discharged to the ocean during the winter months or recycled for irrigating farmland in North Monterey County. If the groundwater replenishment project proceeds recycled water will also be used for recharging the Seaside Aquifer.

Each alternative was ranked against each other for the different water quality, environmental regulatory, cultural and financial criteria. The results of the initial screening are shown in Table 1. In the initial matrix, the lowest ranking total was considered to the preferred alternative, which is Alternative D. The final ranking is based on weighted criteria, which has been completed based on staff input from the Cities of Monterey and Pacific Grove.

Table 1. Ranking of Initial Four Project Alternatives

Criteria	Alternatives			
	A	B	C	D
Water Quality Benefits/Ability to Meet ASBS Requirements	4	2	2	1
Capital, Operational, and Equivalent Annual Costs	2	3	4	1
Permitting Requirements and Difficulty	3	4	2	1
Project Complexity and Timing	2	3	4	1
Biotic and Cultural Resource Issues	2	3	4	1
Geologic, Liquefaction, and Hydrogeologic Issues	2	3	3	1
Land and/or Facility Availability and Entitlements	2	3	3	1
Stakeholder Involvement and Support	3	2	1	4
WTP Capacity	1	1	1	4
Constructability	2	3	4	1
Safety and Vector Control	2	3	4	1
Potential Funding Opportunities	3	2	4	1
Aesthetic Benefits	3	1	2	4
Water Rights Considerations	1	1	1	4
Total	32	34	39	26

Notes:

These are preliminary ranking, there are no weights associated with the criteria.

A = PG/NM flows to PGWTP to irrigation in PG
B = NM to David Reservoir for equalization and NM/PG flows to PGWTP to irrigation in PG
C = NM/PG to David Reservoir for treatment at reservoir to irrigation in PG
D = NM/PG to MRWPCA WTP

Ranking System: 1 = High, 4 = Low

Step Three – Final Screening Using Weighted Criteria

After the initial ranking of the four alternative projects were presented to the Cities of Monterey and Pacific Grove, additional refinement and two additional project alternatives were considered and added to the list of projects. In total six alternative projects were refined and screened using both ranking and weighted criteria as described above. The following is a description of the two additional projects (Alternative E and F) evaluated along with those described in Step 2 (Alternative A-D).

For reference, Figure 1 includes the location of the sites and facilities considered in these alternatives, specifically the abandoned Pacific Grove Wastewater Treatment Plant site, David Avenue Reservoir and the Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant. Also Figure 2 provides a schematic depicting the flow pathways for each alternative, as well as, for the potential to interconnect the projects to existing storage facilities or future water projects, such as connecting to the Pebble Beach Community Services District Forest Lake reclaimed water reservoir or a Regional Groundwater replenishment project.

Figure 1. Location of Sites Evaluated

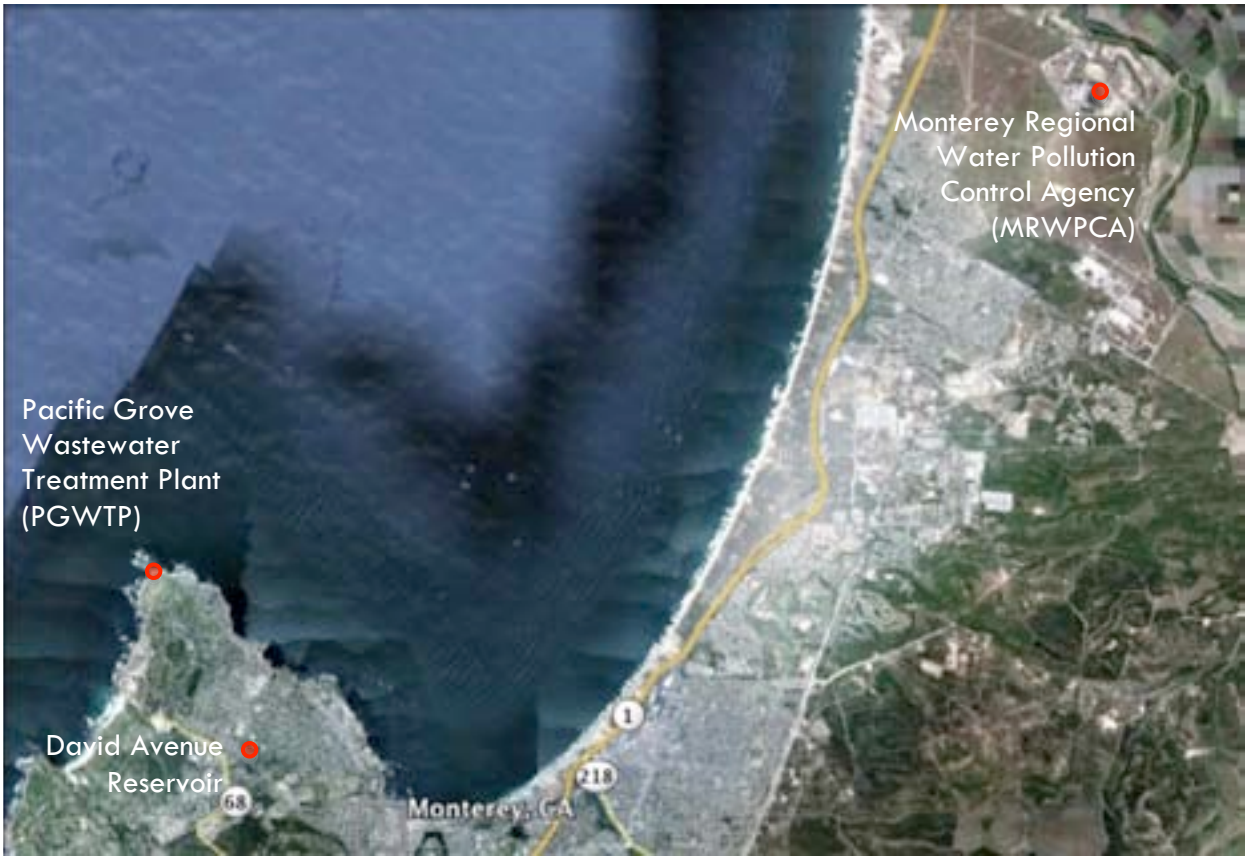

Figure Not To Scale

Alternative E would treat dry and wet weather flows from Pacific Grove at the PGWTP and New Monterey flows at the David Avenue Reservoir site. Treated water from the PGWTP could be used to irrigate Pacific Grove Golf Links and the El Carmelo Cemetery and treated water from David Avenue Reservoir could be used to irrigate two parks in New Monterey close to the Reservoir. This alternative would require the construction of two separate collection and treatment facilities.

Alternative F would treat both dry and wet weather flows from Pacific Grove and New Monterey at the MRWPCA WTP, as in Alternative D, with additional detention for runoff from Upper New Monterey at the David Avenue Reservoir. Runoff stored at David Avenue Reservoir would then be released at a lower rate into the modified MRWPCA collection system. As in Alternative D, Pacific Grove and David Avenue Reservoir stormwater would comingle with the domestic wastewater and once treated be discharged to the ocean during the winter months or recycled for irrigating farmland in North Monterey County. If the groundwater replenishment project proceeds recycled water could also be used for recharging the Seaside Aquifer.

<u>The Alternative Screening Matrix</u>

The six project alternatives were screened using the ranking and weighted criteria. The results of the screening calculations are presented in Table 2. A summary of the reasoning behind the most and least favorable alternative for each criteria is included in Table 3.

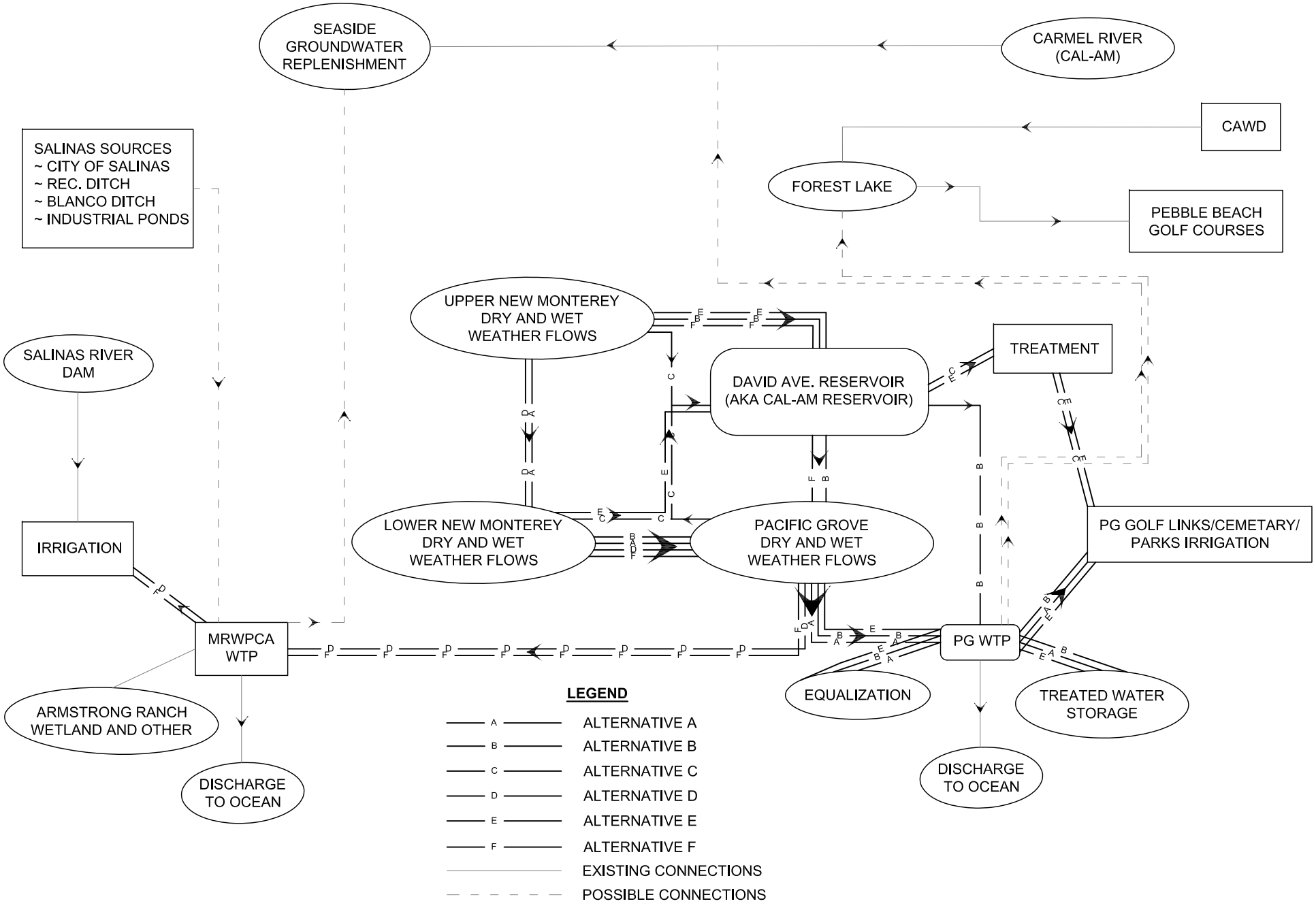

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FIGURE 2
UPDATED SCHEMATIC OF ALTERNATIVES
MONTEREY AND PACIFIC GROVE ASBS
UPDATED SCREENING OF ALTERNATIVES

Table 2: Updated Screening of Alternatives
Monterey and Pacific Grove ASBS

Number	Criteria	Weight	Alternatives Ranking						Alternatives Weighting					
			A	B	C	D	E	F	A	B	C	D	E	F
1	Water Quality Benefits/Ability to Meet ASBS Requirements	5	6	3	3	1	5	2	30	15	15	5	25	10
2	Regional WTP Capacity	5	1	1	1	6	1	5	5	5	5	30	5	25
3	Potential Funding Opportunities	5	4	1	5	3	6	2	20	5	25	15	30	10
4	Achieves Multiple Benefits	5	5	2	4	6	1	2	25	10	20	30	5	10
5	Capital, O&M, and Equivalent Annual Costs	4	1	2	5	3	6	4	4	8	20	12	24	16
6	Permitting Requirements and Difficulty	4	4	6	3	1	5	2	16	24	12	4	20	8
7	Land and/or Facility Availability and Entitlements	4	1	4	4	2	6	3	4	16	16	8	24	12
8	Safety and Vector Control	4	2	4	5	1	5	3	8	16	20	4	20	12
9	Aesthetic Benefits	4	4	1	2	5	3	1	16	4	8	20	12	4
10	Institutional Agreements	4	1	2	2	3	2	3	4	8	8	12	8	12
11	Biotic and Cultural Resource Issues	3	2	4	5	1	5	3	6	12	15	3	15	9
12	Stakeholder Involvement and Support	3	5	2	1	6	3	4	15	6	3	18	9	12
13	Constructability	3	2	4	6	1	5	3	6	12	18	3	15	9
14	Project Complexity and Timing	3	2	3	6	1	5	3	6	9	18	3	15	9
15	Geologic, Liquefaction, and Hydrogeologic Issues	2	2	3	6	1	3	3	4	6	12	2	6	6
16	Water Rights Considerations	2	1	1	1	6	1	3	2	2	2	12	2	6
		Totals	**43**	**43**	**59**	**47**	**62**	**46**	**171**	**158**	**217**	**181**	**235**	**170**

Notes:
A = PG/NM flows to PGWTP to irrigation in PG
B = NM to David Reservoir for equalization and NM/PG flows to PGWTP to irrigation in PG
C = NM/PG to David Reservoir for treatment at reservoir to irrigation in PG/NM
D = NM/PG to MRWPCA WTP
E = NM to David Reservoir to irrigation in NM and PG to PGWTP to irrigation in PG
F = NM/PG to MRWPCA WTP with NM to David Reservoir for equalization

Weighting System: 1 = Low, 2 = Moderate Low, 3 = Average, 4 = Moderate High, 5 = High
Ranking System: 1 = More Favorable , 6 = Less Favorable

PG = Pacific Grove Wet and Dry Weather Drainage
NM = New Monterey Wet and Dry Weather Drainage
PGWTP = Pacific Grove Wastewater Treatment Plant (with Wet Pond Storage/Equalization)
MRWPCA WTP = Monterey Regional Water Pollution Control Authority Wastewater Treatment Plant

Table 3: Most and Least Favorable Alternative for Each Criteria
Monterey and Pacific Grove ASBS

Number	Criteria
1	**Water Quality Benefits/Ability to Meet ASBS Requirements**
	Most Favorable: Alternative D because all wet and dry weather flows would be diverted to MRWPCA instead of to the ASBS.
	Least Favorable: Alternative A because level of storage and treatment limited due to site constraints.
2	**Regional WTP Capacity**
	Most Favorable: Alternatives A, B, C, and E because they do not require treatment at the MRWPCA.
	Least Favorable: Alternatives D and F because they require MRWPCA treatment plant capacity.
3	**Potential Funding Opportunities**
	Most Favorable: Alternative B because of ability to leverage local project support and LID components.
	Least Favorable: Alternative E because independent treatment approach reduces regionial coordination.
4	**Achieves Multiple Benefits**
	Most Favorable: Alternative E because maximizes local storage, treatment and reuse opportunities.
	Least Favorable: Alternaive D because minimizes local storage, treatment and reuse opportunities.
5	**Capital, O&M, and Equivalent Annual Costs**
	Most Favorable: Alternative A because it has the lowest cost (no retrofit of David Avenue Reservoir and construction of a single treatment facility).
	Least Favorable: Alternative E because it requires capital costs to construct dual treatment facilities with dual operations and maintenance costs, in addition to the retrofit of David Avenue Reservoir.
6	**Permitting Requirements and Difficulty**
	Most Favorable: Alternative D because delivers stormwater to an existing approved treatment and discharge facility.
	Least Favorable: Alternative B because requires approval of David Avenue Reservoir retrofit, in addition to permitting a new treatment facility and discharge location.
7	**Land and/or Facility Availability and Entitlements**
	Most Favorable: Alternative A because the PGWTP site is owned by the City of Pacific Grove.
	Least Favorable: Alternative E because requires agreement with CalAm for use of David Avenue Reservoir, in addition to agreements with non-City entities to receive and irrigate with treated stormwater.
8	**Safety and Vector Control**
	Most Favorable: Alternative D because no additional surface waters would be constructed.
	Least Favorable: Alternatives C and E because would store water in David Avenue Reservoir.
9	**Aesthetic Benefits**
	Most Favorable: Alternatives B and F because retrofit of David Avenue Reservoir enhances site and neighborhood characteristics.
	Least Favorable: Alternative D because it does not involve site improvements within either City.
10	**Institutional Agreements**
	Most Favorable: Alternative A, fewest agreements required because the City of Pacific Grove currently owns the PGWTP site, El Carmelo Cemetery and Pacific Grove Golf Links.
	Least Favorable: Alternatives D and F because they require MRWPCA treatment plant capacity.
11	**Biotic and Cultural Resource Issues**
	Most Favorable: Alternative D because involves the smallest construction site footprint.
	Least Favorable: Alternatives C and E because requires David Avenue Reservoir expansion and a relatively larger construction footprint.
12	**Stakeholder Involvement and Support**
	Most Favorable: Alternative C because local stakeholders prefer to store, treat and reuse water locally.
	Least Favorable: Alternative D because it minimizes the investment in local resources.
13	**Constructability**
	Most Favorable: Alternative D because it involves the expansion of the existing dry-weather diversion system.
	Least Favorable: Alternative C because it involves new pumping facilities to convey collected stormwater in Pacific Grove up-slope to David Avenue Reservoir.
14	**Project Complexity and Timing**
	Most Favorable: Alternative D because it involves the expansion of the existing dry-weather diversion system.
	Least Favorable: Alternative C because it involves new pumping facilities to convey collected stormwater in Pacific Grove up-slope to David Avenue Reservoir, along with approval from DSOD for the Reservoir retrofit.
15	**Geologic, Liquefaction, and Hydrogeologic Issues**
	Most Favorable: Alternative D because involves the smallest construction site footprint and expands upon an existing conveyance system.
	Least Favorable: Alternative C because it involves a significant expansion of the David Avenue Reservoir, requiring extensive engineering retrofits to protect against earthquake induced hazards.
16	**Water Rights Considerations**
	Most Favorable: Alternatives A, B, C, and E because all collected and treated water is kept local to potentially offset existing water supplies used for irrigation.
	Least Favorable: Alternative D because all collected water is distributed out of the City Boundaries and if treated to recycled water standards by the MRWPCA, would be used outside of the City Boundaries.

Based on the results of the screening criteria evaluation, Alternative B and F have the lowest scores. Based on these results Alternative B is the preferred project and Alternative F is the feasible alternative. Table 4 summarizes the facilities proposed for use in each alternative along with the results of the screening process.

Table 4: Summary of Alternatives Screening

Alternative	Proposed Facility/Site				Total Score	Ranking
	PGWTP	David Ave Reservoir	David Ave WTP	MRWPCA WTP		
A	X				171	3
B	**X**	**X**			**158**	**1**
C		X	X		217	5
D				X	181	4
E	X	X	X		235	6
F		X		X	170	2

4. Conclusions and Recommendations

The following summarizes the results of the alternatives screening analysis for the Cities of Monterey and Pacific Grove Areas of Special Biological Significance.

1. Of the sixteen (16) criteria, four (4) criteria had the highest priority for the Cities and therefore largest weighted value of 5. These criteria are:

    a. Water Quality Benefits or Ability to Meet ASBS Requirements,
    b. Regional Water Treatment Plant (WTP) Capacity,
    c. Ability for the project to Achieves Multiple Benefits, and
    d. Access to Potential Funding Opportunities.

2. The final screening matrix resulted in the following order of alternatives:

    a. Alternative B;
    b. Alternative F;
    c. Alternative A;
    d. Alternative D;
    e. Alternative C; and
    f. Alternative E.

3. The preferred and alternate projects (Alternative B and Alternative F, respectively) will undergo further analysis to refine assumptions and confirm the screening analysis findings.

4. The City of Pacific Grove has also requested that low impact development (LID) strategies be evaluated and incorporated into the preferred and alternate projects to complement and enhance the treatment strategies. LID strategies could include decentralized stormwater best management practices to slow and treat runoff and potentially reduce the necessary capacity of new collection, treatment and reuse facilities.

5. Next Steps

As a result of the alternative screening, Alternatives B and F have been selected for further analysis and project development.

The next steps involved in the study will be to:

1. Complete the analysis of the existing storm water collection infrastructure to determine the improvements and relative costs required to convey wet weather flows to the PGWTP and/or to the MRWPCA;

2. Complete the analysis of David Avenue Reservoir to determine the improvements and related costs required to reuse this facility and to assist the Cities and CalAm to develop an agreement to transfer the use and potential ownership of the reservoir to the cities.

3. Complete planning, preliminary environmental assessment, and a preliminary geotechnical investigation to evaluate the PGWTP, Crespi Pond and other additional water features at the Pacific Grove Golf Links;

4. All project alternatives will likely be designed to treat runoff up to maximum storm event, such as a two (2) year design storm. Runoff resulting from larger storm events will likely discharge to the bay via existing or modified overflow facilities. FCE will need to determine if the overflow will discharge out of the existing outfalls or if the outfalls will require any modifications, and if so, what improvements and related costs will required for these modifications.

5. Identify and screen potential LID projects within New Monterey and Pacific Grove; and

6. Work with the City staff and potential SWRCB to establish the design criteria (size of storms and water quality goals) for the final project configurations.

7. Prepare an updated engineering cost estimate and effectiveness evaluation to comply with the requirements of the ASBS requirements for the two alternative projects.

8. To identify and target potential funding opportunities for the two projects.

This concludes the screening of project alternatives assessment. Thank you for the opportunity to assist you with this project. FCE looks for to the opportunity to review these results and the next steps outlined above to move forward with the project. Please contact me if you have any questions or require any additional information.

Sincerely,

PETER HAASE, M.S., P.E.
Principal Engineer

ATTACHMENT B

David Avenue Alternatives Analysis:
Background Information and Geotechnical Considerations

A.1 Summary of Existing Conditions

The majority of the information below is based on a preliminary review of the data presented in the "Seismic Safety and Hydrologic Investigation, Pacific Grove Dam and Reservoir," dated March 17, 1989 and prepared by Converse Consultants Northern California (Converse).

The original dam was built in 1882, and an expansion to the downstream side was added in 1920. According to the 1989 Converse report, the dam is 750 feet long, 30 feet high, has a crest elevation of 240 feet and a crest width of 60 feet. The reservoir retains 56 acre feet (DSOD records mention 76 acre feet) with a surface water elevation of 235.0 feet. The Converse report states that the upstream side of the dam has an inclination of 2.5:1 (horizontal:vertical) and the downstream face an inclination of 1.5:1 (horizontal:vertical). Lidar topography indicates that the downstream face is somewhat flatter (closer to a 2:1).

Converse consultants drilled four, 50 feet deep borings, three of them through the crest of the dam and one located at the downstream toe. Piezometers were placed in two of these four borings. Converse's findings regarding the subsurface materials encountered were as follows:

- The dam shell is 30 feet deep and consists of Silty Sand to Silty Sand with Gravel material that likely originated from excavation of the reservoir. The standard penetration blow counts indicate this material is poorly to moderately compacted.
- The foundation material under the dam consists of 12 to 17 feet of alluvium underlain by Granitic Bedrock. The alluvium consists of Sand with Silt, and is medium dense to dense in relative density. The Granitic bedrock is hard and borings only penetrated about 5 feet into the rock.
- A "puddle core" is shown on Figure 5-1 of the Converse report. This structure is intended to prevent seepage through and under the dam. The "puddle core" was not encountered by any of the Converse borings and is inferred to exist based on drawings provided to Converse Consultants by Monterey Bay Waterworks.
  The Converse analysis concluded the following:
- The dam and foundation materials are stable under static conditions.
- The upstream face of the dam will liquefy during an earthquake resulting in failure of this portion of the dam with movement on the order of 5 to 6 feet. This was acceptable according to Converse, because there was a low probability that this amount of deformation could breach the 60-foot crest width in a single event.
- The downstream face of the dam, as well as the foundation of alluvial materials, is stable under seismic conditions.
- The reservoir, spillway and outlet structures are inadequately sized for the design storm.

A.2. Geotechnical Issues to Address to Bring Dam up to Current Standards

The dam is located in a dense urban setting with two houses located directly at the downstream toe of the dam and a subdivision and school located directly downstream. Safety and stability of the dam is critical due to the consequences of dam failure and the risk to loss of life and property. The stability and safety of a dam is dependent on a number of elements, the most important of which are the stability of the embankment itself, the stability of the foundation materials underneath the dam, and adequate design of the inlet and outlet structures to handle design storm flows. Stability must be evaluated for both the static, long-term conditions, as well as for seismic conditions during a major earthquake. Seepage of water through or underneath the dam is the major cause of dam failures and plays a significant role in dam stability.

A.3. Verification of Existing Dam Integrity

It is very difficult to verify that the existing dam structure is stable and not subject to seepage through or under the dam. The Converse borings show that the dam shell is poorly compacted, which is not surprising, given that it was constructed in the 1880's. Additionally, there is no firm evidence that an impermeable ("puddle") core exists in the center of the dam, or that a water cut off that penetrates thought the alluvial materials was constructed under the dam. If a clay core does exist, there is a concern that the last 25 years of in-operation may have dried out and cracked the clay core, leaving it permeable and jeopardizing the stability of the dam.

No matter how extensive a subsurface investigation, the critical elements of the dam would always be in question. The quality and consistency of the earthwork construction of the dam shell materials and the integrity and adequacy of the impermeable clay core cannot be completely proven until they are tested by filling the reservoir or by sustaining a major seismic event. The urban setting and the proximity of structures directly downstream, prohibits the option of testing the dam's performance in this manner.

A.4. Critical Elements of Future Geotechnical Studies

For repair/replacement of the dam, geotechnical studies will need to be undertaken in phases. The exact scope and focus depends on what repair alternative is chosen. The following outlines the most critical aspects of such studies.

1) An initial phase of investigation may consist of a minimum number of exploratory borings and cone penetration tests followed by a seismic analysis, based on current seismic parameters for the site and current code standards. We note that the magnitude earthquake used in the Converse analysis (M = 6.5) is lower than the current estimates for the local Tularcitos fault (M = 7.2). We suggest that a preliminary seismic analysis be completed as the first phase of an investigation of the site. Additionally, in our opinion, the analysis performed in 1989 does not adequately address the liquefaction potential of the native alluvial materials underlying the dam and the stability of these foundation materials is in question. Liquefaction potential of the foundation materials should be reanalyzed using current seismic parameters. This, along with a preliminary seismic analysis will help to determine the critical design considerations and the adequacy of the site for any of the considered repair alternatives.
2) Long term performance of the existing impermeable core of the dam and an underlying "cut-off" wall preventing seepage of water through and under the dam is essential. Since the integrity of the "puddle core" is unknown and difficult to verify, we recommend all repair schemes include design and construction of new structures to provide drainage diversions and reduce pore pressures in and under the dam. If saturation of the existing embankment can be reduced then we believe that stability of the existing embankment, in its current configuration can be verified.
3) An initial scope should include geologic mapping, analysis and subsurface investigation to more closely define the extent of past grading at the site. The areal extent and depth of existing fill material needs to be defined in order to design repair schemes.
4) Hydrologic characteristics of the bedrock and alluvial materials should be evaluated to better understand the groundwater flow regime and how it impacts any proposed repair.
5) After an initial investigation has addressed the liquefaction hazard and seismic setting of the site, subsequent phases of investigation would be geared towards final design of the chosen repair alternative. The size of the reservoir will dictate the jurisdictional agency involved, and they will need to be consulted when determining the scope and requirements for such an investigation. Investigation would be geared towards the final design of the chosen repair and verification of the static and seismic stability as required by the jurisdictional agencies.

Appendix H

Traffic Study

Memorandum

Date: November 22, 2013

To: Megan Jones, Rincon Consultants, Inc.

From: Robert Del Rio, T.E.

Subject: Traffic Operations Analysis Results for the Proposed Lane Closures and Truck Traffic during City of Pacific Grove ASBS Storm Water Management Project

Hexagon Transportation Consultants, Inc. has completed a traffic operations analysis to evaluate construction traffic conditions during the Pacific Grove ASBS storm water management project. The project would temporarily generate additional truck traffic through the Cities of Monterey and Pacific Grove during construction and also would require closing travel lanes on some street segments. The proposed closures would create traffic diversion to other nearby roadways. The purpose of this analysis is to (1) quantify the number of truck trips generated by the project, (2) quantify the amount of traffic diversion to added to nearby streets and intersections, (3) determine whether the increase in truck traffic or traffic diversion would cause any traffic operations issues, and (4) propose measures to reduce the impact of the project (if necessary). For the purposes of this evaluation, the impact of the storm water management project is disaggregated into three "main" elements:

- **David Avenue Reservoir.** Additional truck trips would be generated by the hauling of material during construction. From this site, truck trips would be routed south on David Avenue and proceed east on Highway 68. Trucks would then proceed north on Highway 1 and exit at Del Monte Avenue interchange, where they would unload the material into the landfill area.
- **Pine Avenue Conveyance.** Additional truck trips would be generated by the hauling of material during construction. From this site, truck trips would be routed onto Pine Avenue, Forest Avenue, and Highway 68. In addition, sections and lanes of Pine Avenue will be closed for approximately 14 weeks. Traffic will be detoured to Laurel Avenue during this period.
- **Ocean View Conveyance**. Additional truck trips would be generated by the hauling of material during construction. From this site area, truck trips would be routed onto Ocean View Boulevard, Asilomar Avenue, Lighthouse Avenue, Seventeen Mile Drive, Sunset Drive, Forest Avenue, and Highway 68. In addition, one lane of Ocean View Boulevard will be closed for approximately three and a half weeks. Traffic will be detoured to Mermaid Avenue and Sea Palm Avenue during this period.

Other elements of the project (such as the installation of pump stations and storage facilities) would result in a small increase in the number of truck trips to nearby streets. These are hereafter referred to as "ancillary" elements. At any given time, it is anticipated that each ancillary element of the project would generate up to 6 new truck trips per hour (3 in / 3 out) on nearby streets in the project vicinity. Depending on the ultimate scheduling of the multiple ancillary elements, there could be up to 22 truck trips per hour (11 in / 11 out) at any one time on the roadway network assuming that all ancillary elements were under construction simultaneously. These would be spread

throughout the study area on the streets of David Avenue, Pine Avenue, Forest Avenue, Lighthouse Avenue, Seventeen Mile Drive, and Sunset Avenue. When considering the relatively few number of hourly truck trips from these activities and the likely staggered construction schedule for each area, the truck traffic would not result in any level of service or capacity problems for the streets affected.

In addition, short daytime lane closures (for a period of 10 working days or less) would be necessary to support the ancillary elements of the project. These lane closures would occur during the weekday daytime hours only; roadway openings would be covered for nighttime use by drivers. Only one direction of each affected street would be closed, which will allow for access by adjacent parcels. Short term roadway work is common in the public right of way during the construction season and generally does not warrant detailed study.

> **Recommendation 1:** For ancillary elements of the project, the project administrator should coordinate with City staff regarding the duration and locations of short term traffic diversion. Temporary traffic handling plans should be prepared when necessary to detour traffic to appropriate locations. In addition, the daytime hours of traffic diversion may be restricted to allow for adequate traffic flow at high traffic volume locations during peak commute hours.

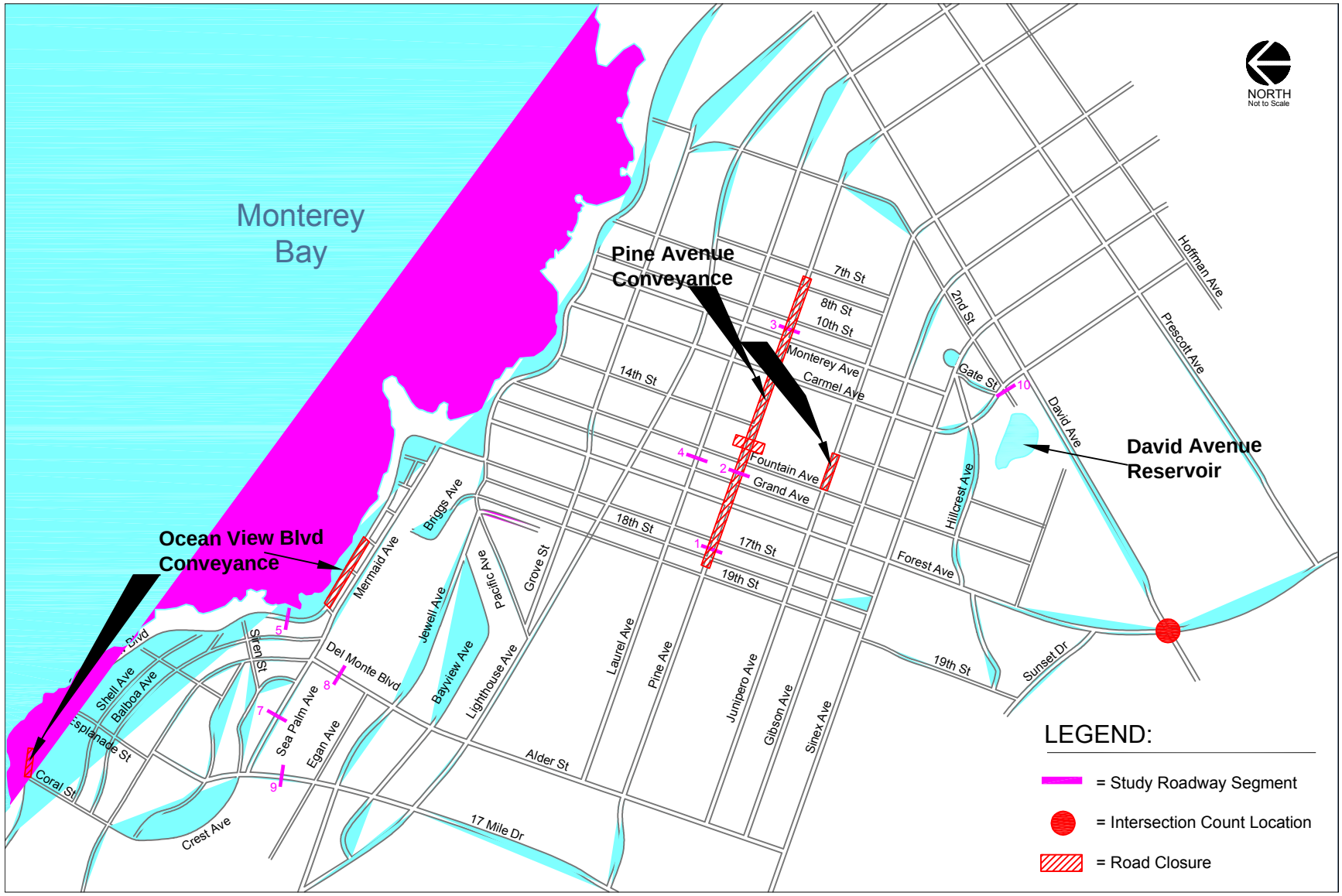
Scope of Study

This traffic operations study includes an analysis of new truck trips and traffic diversion from the "main" elements of the project on the roadways segments in the immediate project area. The study facilities and project area are shown on Figure 1. To quantify the impact of the construction project, 72-hour weekday daily traffic counts were conducted on Tuesday through Thursday the week of October 28th on the following streets in the project vicinity:

1. Pine Avenue, 18th Street to 17th Street
2. Pine Avenue, Grand Avenue to Fountain Avenue
3. Pine Avenue, 10th Street to Monterey Avenue
4. Laurel Avenue, Grand Avenue to Fountain Avenue
5. Ocean View Boulevard, Sea Palm Avenue to Siren Street
6. Ocean View Boulevard, Esplanade Street to Coral Street
7. Sea Palm Avenue, 17-Mile Drive to Del Monte Boulevard
8. Del Monte Boulevard, Sea Palm Avenue to Egan Avenue
9. 17-Mile Drive, Sea Palm Avenue to Egan Avenue
10. David Reservoir Driveway

In addition, the impact of truck traffic was evaluated at the intersection of Forest Avenue/David Avenue during the AM and PM peak hours. Intersection turn movement counts were conducted at this intersection on Tuesday, October 29th between 7:00 AM - 9:00 AM and 4:00 – 6:00 PM. These periods represent the peak periods of traffic congestion for a typical day. The analysis of signalized intersection operations was performed using TRAFFIX software based on the *2000 Highway Capacity Manual (2000 HCM)* methodology. TRAFFIX evaluates signalized intersections operations based on average delay time for all vehicles at the intersection. Where truck traffic was assigned to the subject intersection, a passenger car equivalent (PCE) value of 1.5 was assumed for each truck trip.

Figure 1
Study Area and Count Locations



David Avenue Reservoir

The David Avenue Reservoir is bordered by single family residences to the east and west, Hillcrest Avenue and Pacific Grove Middle School to north, and David Avenue and single and multi-family residences to the south. The project would consist of on-site improvements to restore its use as a reservoir. To accomplish this, grading and material removal would be conducted onsite, resulting in new truck trips to and from the site. The project would require approximately 3,800 cubic yards of material to be hauled to the Del Monte Landfill. It is anticipated that two trucks would operate simultaneously for 6 hours each day, for 16 days, resulting in 24 total daily truck trips with 4 total truck trips per hour (2 in / 2 out). From the site, truck trips would be routed south on David Avenue, east on Highway 68, north on Highway 1 and exit at Del Monte Avenue interchange, where they would unload the material into the landfill area. The site location and haul route are shown on Figure 2.

The site is owned by CalAm, and is currently used a maintenance, operations, and materials storage area. It is not known at this time whether the current operations on-site will cease when the reservoir improvements are complete. However, the traffic generated by the existing storage facility onsite was measured on October 29, 2013 to quantify the trips associated with current site operations. The data show that there are currently 197 daily trips from the site, with 34 trips occurring during the AM peak hour and 31 trips occurring during the PM peak hour (see Table 1).

Table 1
Existing Reservoir Trip Generation

Land Use	Daily Trips	AM Peak Hour Trips In	AM Peak Hour Trips Out	AM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out	PM Peak Hour Trips Total
Existing Storage Yard	197	16	18	34	11	20	31

Data was based on tube counts conducted at David Reservoir's driveway on October 29, 2013.

The project would generate approximately 4 truck trips per hour (2 in / 2 out) during construction. Assuming a PCE of 1.5, this equates to approximately 6 hourly trips. However, it is assumed that no truck trips would occur during the AM or PM peak hours based on the daily truck schedule for the site. Therefore, relative to the existing activities at the David Reservoir site, the number of trips form the site during the peak hours is expected to decrease or remain the same.

The busiest intersection in the project vicinity is Forest Avenue/David Avenue and a detailed description of the impact of truck traffic on this intersection is provided later in the report. It is not anticipated that the truck trips from the David Avenue Reservoir project would result in any significant roadway impacts.

Figure 2
David Avenue Reservoir and Haul Route

Pine Avenue Conveyance

The Pine Avenue conveyance improvements would be located primarily within the Pine Avenue right-of-way between 7th Street and 19th Street. This project component also includes installation of an underground storm water equalization/storage facility in the vicinity of Robert Down Elementary School. To accomplish this, grading and material removal work would be conducted, resulting in new truck trips to and from the area. The site location and haul route are shown on Figure 3.

In total, the Pine Avenue Conveyance would require approximately 7,600 cubic yards of material to be hauled offsite. For the work at Robert Down Elementary, it is anticipated that three trucks would operate simultaneously for 8 hours each day, for approximately 15 days, resulting in 48 total daily truck trips with 6 total truck trips per hour (3 in / 3 out). For the work on Pine Avenue, it is anticipated that one truck would operate for 8 hours each day, for approximately 6 days, resulting in 16 total daily truck trips with 2 total truck trips per hour (1 in / 1 out). Thus, assuming work on both sites would occur simultaneously, there would be a maximum of 8 hourly truck trips (4 in / 4 out). From this site, truck trips would be routed from Pine Avenue to Forest Avenue, and Highway 68. Assuming a PCE of 1.5 for each truck equates to approximately 12 hourly PCE trips (6 in / 6 out). This volume of additional traffic could be accommodated on the proposed haul route. The busiest intersection in the project vicinity is Forest Avenue/David Avenue and a detailed description of the impact of truck traffic on this intersection is provided later in the report. It is not anticipated that the truck trips from the Pine Avenue Conveyance would result in any significant roadway impacts.

In addition to new truck trips, the Pine Avenue Conveyance would require approximately 14 weeks of block closures of Pine Avenue between 7th Street and 19th Street. It is expected that the block closures will begin on 7th Street and progress to 19th Street. Each block would be closed for approximately 4 days. These lane closures would occur during the weekday daytime hours only; roadway openings would be covered for nighttime use by drivers. Pine Avenue is currently a 4-lane roadway with parking on both sides of the street. During construction, 2 lanes are expected to remain open on Pine Avenue (one for each direction of travel). This will allow for access by adjacent parcels. Parking will be prohibited on each block where construction activity is occurring. Based on field observations on Pine Avenue, there is ample parking on adjacent blocks and street segments to accommodate the temporary parking prohibition. After work is completed, the street will be repaved with asphalt. This process is expected to take one to two weeks.

To determine whether one through lane in each direction is adequate to accommodate existing traffic on Pine Avenue, 72-hour traffic counts were conducted on Pine Avenue near 17th Street, Grand Avenue, and 10th Street. A summary of these traffic counts are shown on Table 2. Generally, Pine Avenue has between 3,180 and 4,230 daily trips (both directions). During the peak hours, it experiences peak hour flows of between 265 trips and 425 trips. Typically, each travel lane on an urban street has a capacity of at least 1,200 vehicles per hour when no traffic control devices (such as stop signs, roundabouts, or traffic signals) are present. For this reason, the proposed plan to allow one lane in each direction on Pine Avenue would provide sufficient capacity to accommodate the traffic demand on the street segments planned for construction. The intersection of Pine Avenue/Forest Avenue currently has a traffic signal and the intersection of Pine Avenue/Fountain Avenue has all-way stop control. At these locations, the capacity of a single lane would be reduced by approximately 50% to account for traffic on cross streets. Thus, the expected capacity of a single lane at a controlled intersection would be approximately 800 vehicles per hour. This preliminary analysis indicates that one travel lane in each direction should be sufficient around controlled intersections.

Figure 3
Pine Street Conveyance Area and Haul Route

Table 2
Pine Avenue and Laurel Avenue Existing Traffic Volumes

		Both Directions*		
			Peak-Hour	
No.	Location	Daily	AM	PM
1	Pine Ave between 18th St and 17th St	4227	387	371
2	Pine Ave between Grand Ave and Fountain Ave	4088	424	347
3	Pine Ave between 10th St and Monterey Ave	3180	279	266
4	Laurel Ave between Grand Ave and Fountain Ave	879	77	81
5	Ocean View Blvd between Sea Palm Ave and Siren St	2696	124	249
6	Ocean View Blvd between Esplanade St and Coral St	2534	113	231
7	Sea Palm Ave between 17-Mile Dr and Del Monte Blvd	120	9	11
8	Del Monte Blvd between Sea Palm Ave and Egan Ave	1017	70	91
9	17-Mile Dr between Sea Palm Ave and Egan Ave	904	69	81

*Based the average of 3-day tube counts conducted on 10/29/13, 10/30/13, and 10/31/13

Recommendation 2: Temporary traffic handling plans should be prepared for the planned lane reduction along Pine Avenue. The plans should be prepared in accordance with the latest CA MUTCD and WATCH manual requirements (where appropriate) and contain provisions for handling bike and pedestrian traffic. At the intersection of Pine Avenue/Forest Avenue, a traffic flagger should be utilized to insure that peak hour traffic can be safely accommodated through the intersection during construction. Traffic signals create vehicle platoons that can sometimes result in short term traffic congestion during peak hours. In addition, traffic flaggers should be utilized to handle school/pedestrian traffic crossing if construction is to occur during school hours.

Aside from the lane reduction on Pine Avenue, there will be a period of approximately one and a half weeks where northbound and southbound traffic on Pine Avenue would be detoured to Laurel Avenue to accommodate a pump station installation. The anticipated detour route would include the following roadways: Pine Avenue, Fountain Avenue, Laurel Avenue, and 14th Street. To check the feasibility of this detour route, 72-hour traffic count data was collected on Laurel Avenue near Fountain Avenue. Laurel Avenue is a two lane roadway (one travel land in each direction) with parking on both sides of the street. Existing traffic volumes on Laurel Avenue are very low. It currently serves approximately 900 daily trips and 80 hourly trips. The intersection of Fountain Avenue and Laurel Avenue is currently all way stop controlled. For this reason, a reasonable capacity of the detour route would be approximately 800 directional vehicles per hour. Based on the traffic counts on Pine Avenue, it can be expected that approximately 200 peak hour vehicle trips would utilize this detour route, for a total of approximately 280 directional peak hour trips. This would be well below the expected directional capacity of 800 vehicles per hour. Therefore, this detour route would provide adequate capacity to accommodate the anticipated traffic demand.

Ocean View Conveyance

The Ocean View Conveyance would be primarily within the Ocean View Boulevard right-of-way from Forest Avenue west to the former PGWTP at the Point Pinos Lighthouse Reservation. The two primary work zones on Ocean View Boulevard would be located (1) just east of Coral Street and (2) just east of Sea Palm Avenue (this project also includes various pump stations and storage facilities which were analyzed qualitatively in the introduction in this report). The site location and haul route are shown on Figure 4.

The truck hauling requirements for the primary work zones of the Ocean View Conveyance would be minimal. For the work zone near Coral Street, it is anticipated that one truck would operate continuously for 8 hours, for one day, resulting in 8 total daily truck trips with 2 total truck trips per hour (1 in / 1 out). For the work near Sea Palm Avenue, it is anticipated that one truck would operate for 8 hours each day, for approximately 2 days, resulting in 8 total daily truck trips with 2 total truck trips per hour (1 in / 1 out). Thus, assuming work on both sites would occur simultaneously, there would be a maximum of 4 hourly truck trips (2 in / 2 out). From this site, truck trips would be routed from Ocean View Boulevard, Asilomar Avenue, Lighthouse Avenue, Seventeen Mile Drive, Sunset Drive, Forest Avenue, and Highway 68. Assuming a PCE of 1.5 for each truck equates to approximately 6 hourly PCE trips (3 in / 3 out). This volume of additional traffic could be accommodated on the proposed haul route. As previously stated, the busiest intersection in the project vicinity is Forest Avenue/David Avenue and a detailed description of the impact of truck traffic on this intersection is provided in the following section. It is not anticipated that the truck trips from the Ocean View Conveyance would result in any significant roadway impacts.

In addition to new truck trips, the Ocean Avenue Conveyance would require approximately 2 to 3.5 weeks of block closures of Ocean Avenue between Clyte Street and Coral Street. It is expected that the block closures will begin on 7th Street and progress to 19th Street. Each block would be closed for approximately 9 days. These lane closures would occur during the weekday daytime hours only; roadway openings would be covered for nighttime use by drivers. Ocean Avenue is currently a 2-lane roadway with parking on both sides of the street. During construction, one lane is expected to remain open on Ocean Avenue (traffic breaks with flaggers will control directional travel). This will allow for access by adjacent parcels. Parking will be prohibited on each block where construction activity is occurring. Based on field observations on Ocean Avenue, there is ample parking on adjacent blocks and street segments to accommodate the temporary parking prohibition. After work is completed, the street will be repaved with asphalt. This process is expected to take one to two weeks.
To determine whether one lane is adequate to accommodate existing traffic on Ocean Avenue, 72-hour traffic counts were conducted on Ocean Avenue near Sea Palm Street and Coral Street. A summary of these traffic counts are shown on Table 3. Generally, Ocean Avenue has between 2,500 and 700 daily trips (both directions). During the peak hours, it experiences peak hour flows of between 110 trips and 250 trips. Typically, each travel lane on an urban street has a capacity of at least 1,200 vehicles per hour when no traffic control devices (such as stop signs, roundabouts, or traffic signals) are present. For this reason, the proposed plan to allow one lane in each direction on Ocean Avenue would generally provide sufficient capacity to accommodate the traffic demand on most street segments.

> **Recommendation 3:** Temporary traffic handling plans should be prepared for the planned lane reduction on Ocean Avenue. The plans should be prepared in accordance with the latest CA MUTCD and WATCH manual requirements (where appropriate) and contain provisions for handling bike and pedestrian traffic. At each of the lane closure locations of Ocean Avenue, a traffic flagger should be utilized to insure that traffic can be safely accommodated through the closures during construction.

David Avenue/Forest Avenue Intersection Operations

The impact of construction traffic was evaluated at the intersection of David Avenue and Forest Avenue for the AM and PM peak hours assuming *all* project elements (ancillary and main) with a haul route through the intersection would occur simultaneously. In reality, many of the project elements would occur at different times during the construction process. Because a construction schedule showing when each project element would occur is not available, this analysis will serve as a worst case assessment of potential impacts.

Under worst case conditions, it was estimated that up to 38 hourly truck trips (19 in / 19 out) would occur at the intersection of David Avenue/Forest Avenue during the AM and PM peak hours (see Table 4). Assuming a PCE of 1.5, this equates to approximately 57 PCE hourly trips (28 in / 28 out). The resulting level of service calculations are shown on Table 3. The intersection currently operates at LOS C during the AM and PM peak hours. Under worst case conditions, it is anticipated that the intersection level of service would remain at LOS C and the average vehicular delay would remain the same or decrease slightly. Thus, it is not anticipated that the construction truck activity would create a significant impact at the David Avenue and Forest Avenue intersection.

Table 3
During Construction Level of Service

Study Number	Intersection	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	During Construction Avg. Delay	During Construction LOS
1	David Avenue and Forest Avenue	AM	10/29/13	24.4	C	24.3	C
		PM	10/29/13	25.7	C	25.7	C

Conclusions

The analysis of the estimated construction truck traffic and proposed lane closures show that, with implementation of the recommended measures, the study intersection and roadway segments would provide adequate capacity to serve the estimated truck traffic and detoured traffic volume during the construction of the Pacific Grove ASBS Storm Water Management Project.

Figure 4
Ocean View Conveyance Area and Haul Route

Figure 5
Ancillary Elements Area and Haul Route (Area 1)

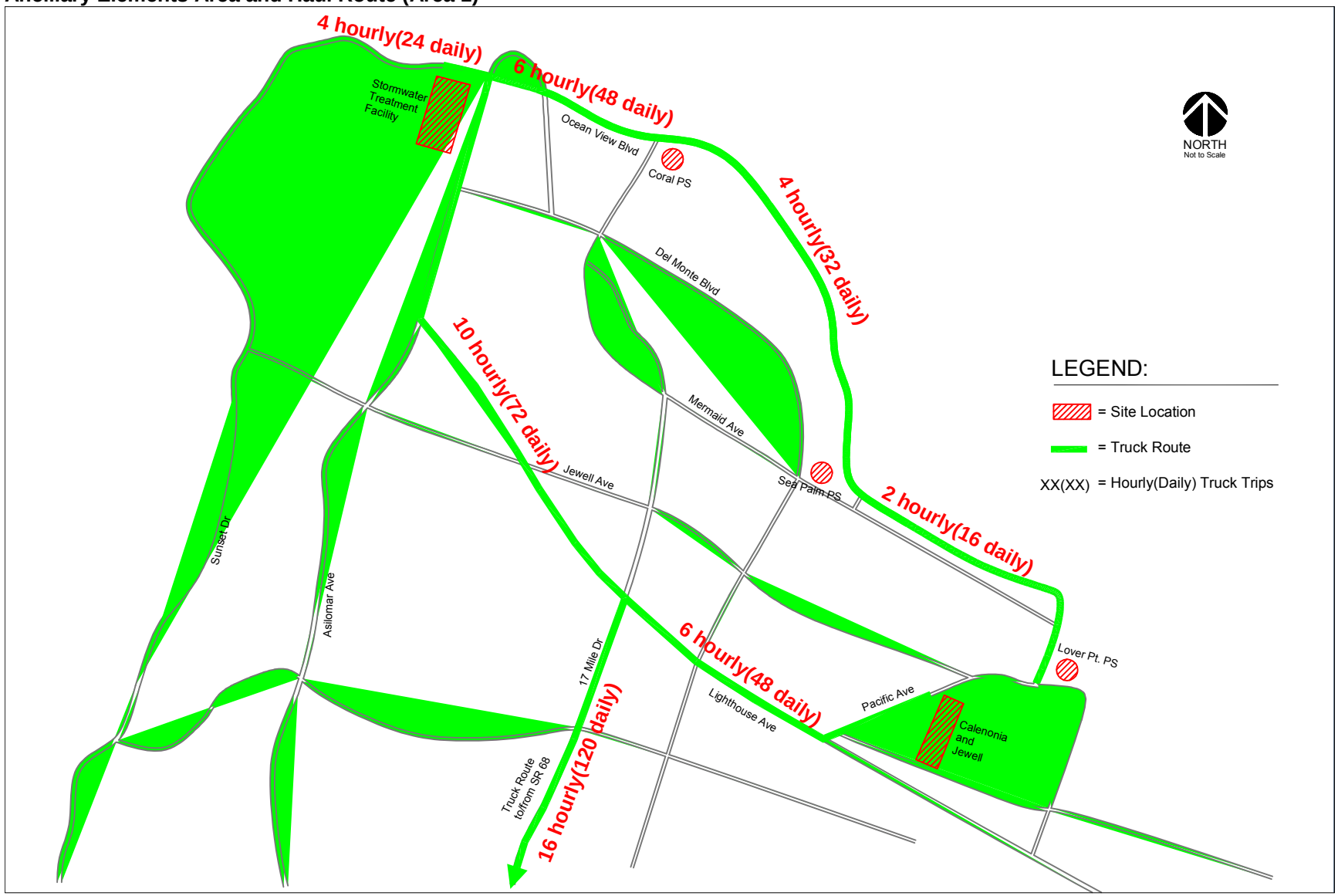


Figure 6
Ancillary Elements Area and Haul Route (Area 2)

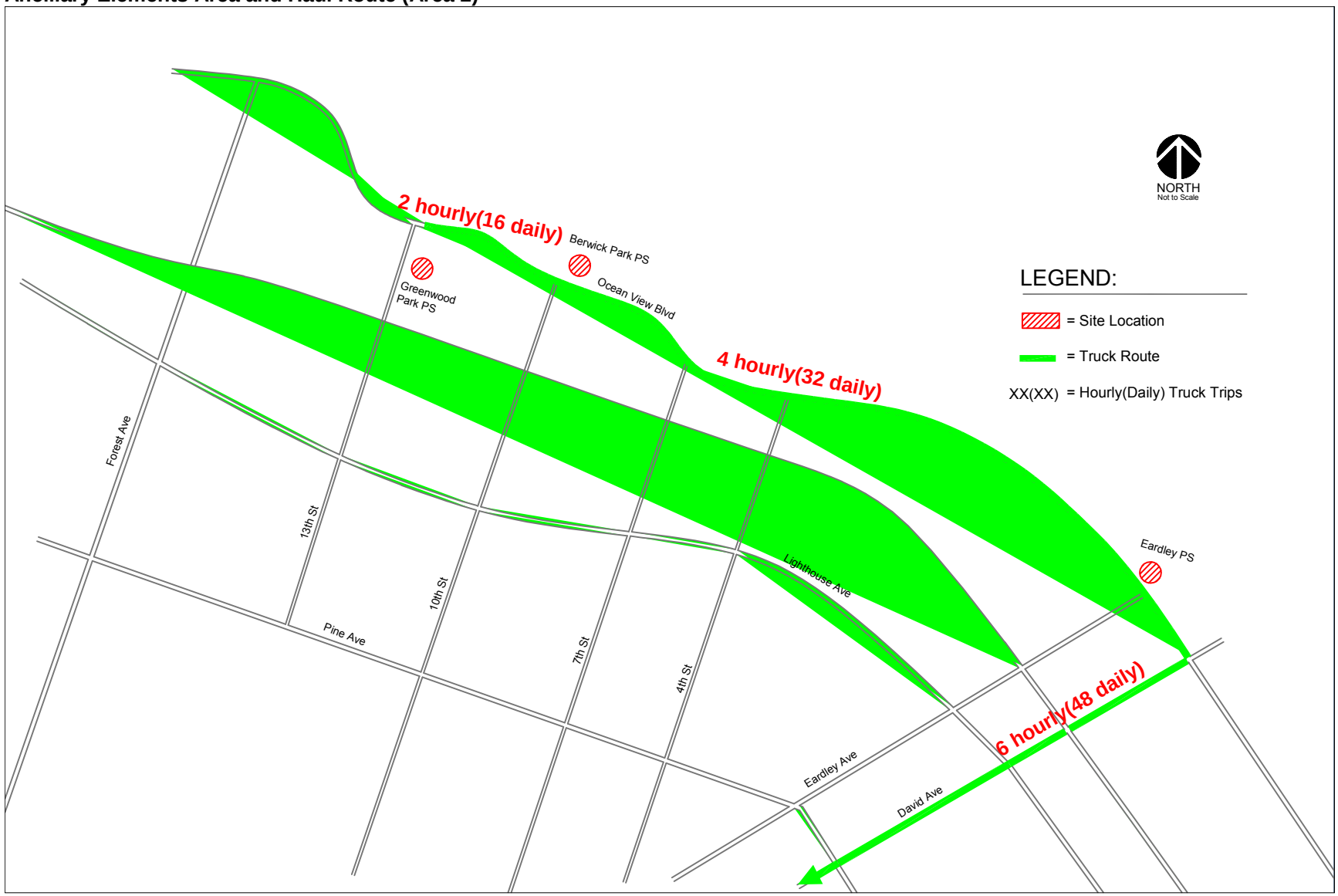


Table 5
Construction Truck Trip Generation Estimates

Time	David Reservoir		Pine Avenue Conveyance				Ocean View Conveyance						All Trips		
			Robert Elementary		Pump Station & CDS Unit		Clyte to Sea Palm		Coral to MRWPCA		Ancillery Elements		In	Out	Both
8:00 AM			3	Arrivals	1	Arrival	1	Arrival	1	Arrival	9	Arrivals	15	15	30
to 9:00 AM			3	Departures	1	Departure	1	Departure	1	Departure	9	Departures			
9:00 AM			3	Arrivals	1	Arrival	1	Arrival	1	Arrival	9	Arrivals	15	15	30
to 10:00 AM			3	Departures	1	Departure	1	Departure	1	Departure	9	Departures			
10:00 AM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 11:00 AM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
11:00 AM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 12:00 PM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
12:00 PM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 1:00 PM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
1:00 PM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 2:00 PM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
2:00 PM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 3:00 PM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
3:00 PM	2	Arrivals	3	Arrivals	1	Arrival	1	Arrival	1	Arrival	11	Arrivals	19	19	38
to 4:00 PM	2	Departures	3	Departures	1	Departure	1	Departure	1	Departure	11	Departures			
													144	144	288
Arrivals	12		24		8		8		8		84				
Departures	12		24		8		8		8		84				
Total	24		48		16		16		16		168				

Source: Traffic projections were derived based on construction information provided by Fall Creek Engineering.