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Formerly Tracer Environmental Sciences & Technologies, Inc., now a part of SCS Engineers.

December 2, 2021

Santa Barbara County Board of Supervisors
Planning & Development Department
123 East Anapamu Street
Santa Barbara, CA 93013

Subject: Cresco/SLO Cultivation Cannabis Project
18CDH-00031; 20RVP-0058; 21CUP-00006

To the Board of Supervisors:

On behalf of Cresco California (Cresco or Applicant), SCS Engineers (SCS) would like to thank you in advance for your time and consideration of the proposed Cresco Carpinteria Cannabis Facility (Project). Our team, in cooperation with County staff have spent over two years refining the Project and are proud of the final iteration reaching your Board of Supervisors review this week. Additionally, our Applicant and consulting team have carefully reviewed the appeal submitted by Maureen Claffey on behalf of herself, Foley Family Farm and a group referred to as Save Arroyo Paredon Watershed (collectively Appellant) on September 13, 2021 (Claffey Appeal). We would like to respectfully note that the majority of the overall appeal package (approximately 730 out of 740 pages) consist of two letters produced by Cossart-Daly Law (Cossart) on behalf of Ms. Claffey, dated August 2, 2021 and August 20, 2021, which were submitted to the Planning Commission prior to its consideration and unanimous approval of this Project. The information and issues within these voluminous letters were carefully reviewed by the Applicant and SCS and responded to in-depth in our respective correspondence dated August 9, 2021 and presentations to the Planning Commission all of which are part of the record and included in your Board packet. Therefore, we have elected to narrow our focus to the four specific requests presented in the Claffey Appeal.

Appellant Request 1: *Implement biological expert David Magney's recommendations, outlined on pages eight and nine of the August 2nd Cossart letter and in Mr. Magney's Correspondence, appended to the August 2nd Cossart letter.*

Applicant Response: The Project was evaluated by qualified biologists with Sage Institute (Sage), Principal Biologist Jason Kirschenstein and Principal Ecologist David Wolff. Sage conducted in-depth site reconnaissance of the Project Site on April 24, 2020, during which relevant species data, habitat locations, Environmentally Sensitive Habitat (ESH) limits, and the Arroyo Paredon Creek top-of-bank were verified. Subsequent digital mapping using geographic information systems (GIS) created the approximate extent of the 100-foot ESH buffer area and other pertinent environmental conditions. Based on this data and analysis of the proposed Project scope, Sage established the factual existing conditions of the Project Site and produced three (3) biologically related reports including the: Biological Resources Assessment (BRA), Wildlife Movement Plan (WMP), and Tree Protection Plan (TPP). These reports contain the necessary impact analysis and protection measures to ensure the Project complies with the County's Cannabis Land Use Ordinance and Licensing Program Environmental Impact Report SCH No. 2017071016 (Cannabis PEIR) and minimizes biological impacts to the maximum extent feasible. The reports were prepared in

accordance with County guidelines, meet all County expectations and industry standards, and were peer reviewed by the County's independent biological experts.

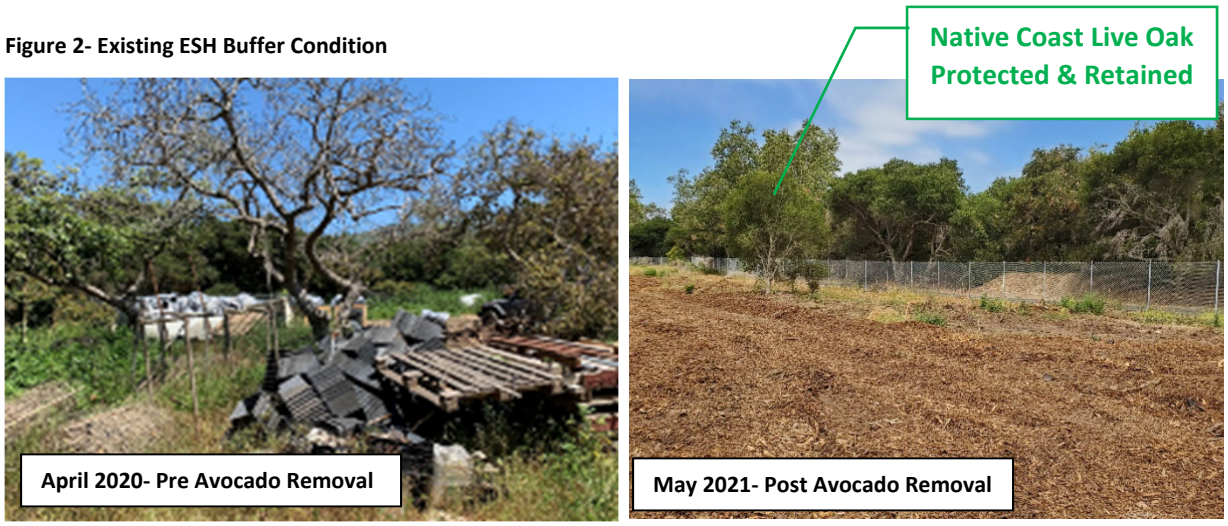
No ground disturbance, vegetation, sensitive species, or habitat impacts are proposed within the jurisdictional boundaries of Arroyo Paredon Creek or the adjacent ESH riparian corridor. The existing paved access road (utilized by an adjacent parcel to the West) and chain-link fence provide an affirmative separation between the proposed cannabis project and the ESH corridor. All native oak trees and complementary native species which constitute the ESH riparian corridor will remain undisturbed by proposed Project activities.

Figure 1- Road and Fence Separating Project Activities from Riparian Corridor (to Remain)

Additionally, Cresco, in cooperation with the landowner Ocean Breeze, removed a degraded avocado orchard (see Figure 2) and proposes to restore the ESH buffer area with a carefully selected native plant pallete, including:

- Coast Live Oak (*Quercus agrifolia*)
- Mulefat (*Baccharis salicifolia*)
- California coffeeberry (*Frangula californica)*
- Toyon (*Heteromeles arbutifolia*)
- Creeping Wild Rye (*Elymus triticoides*)

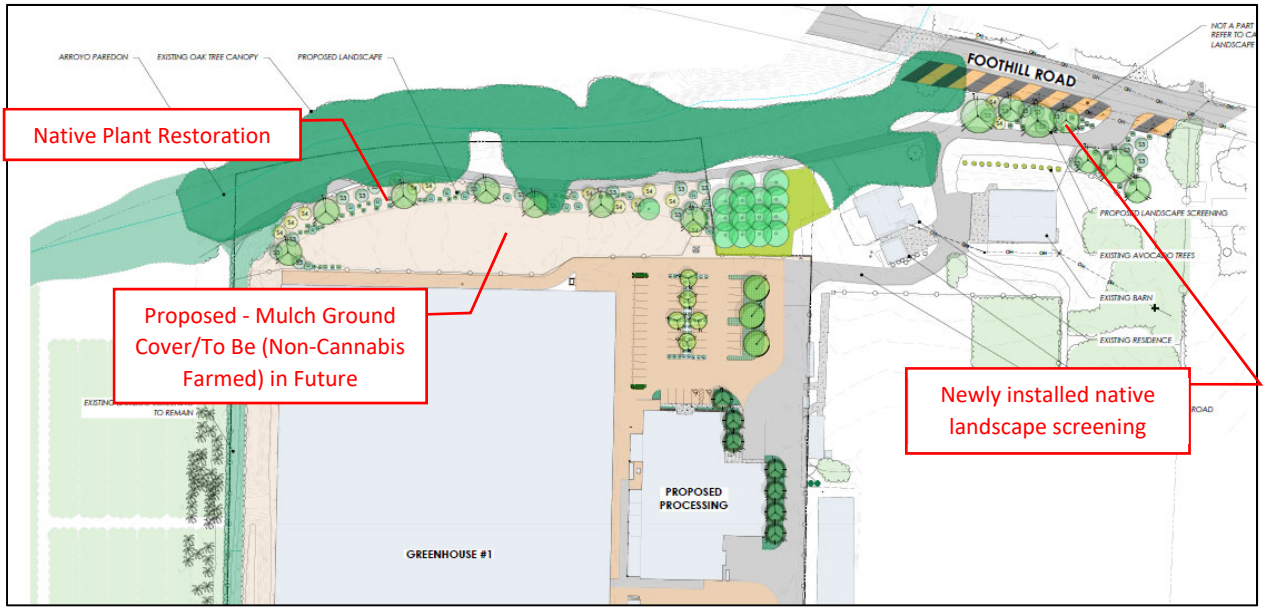
Figure 2- Existing ESH Buffer Condition



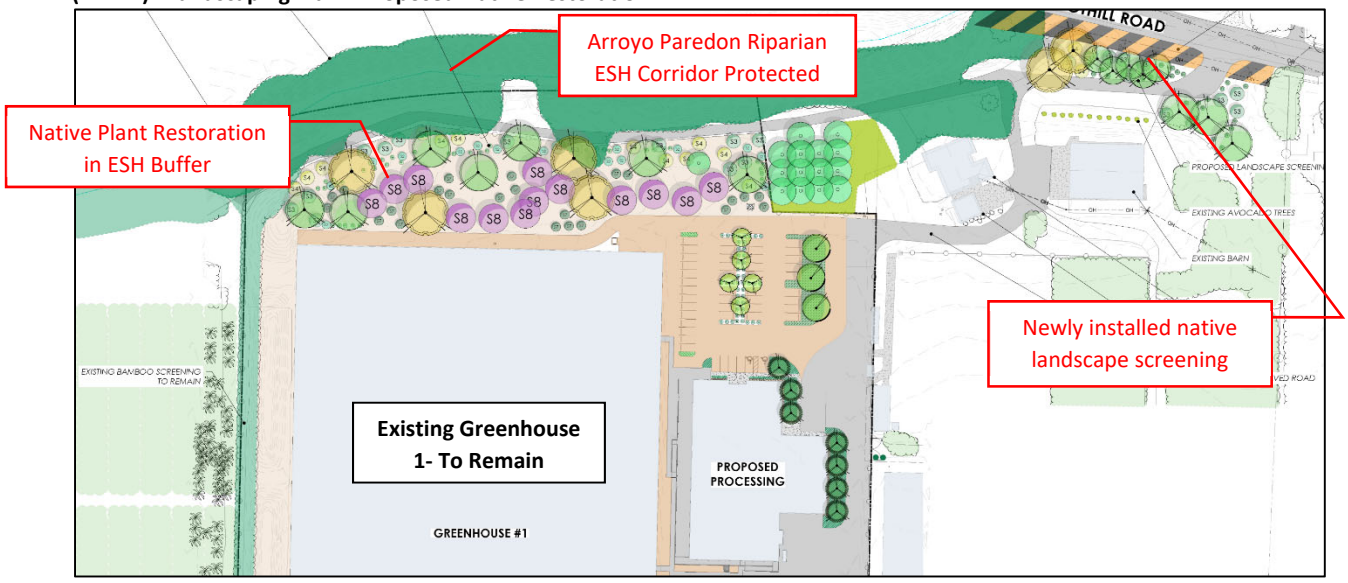
At the time of Planning Commission consideration and Project approval, the proposed scope of restoration work included the installation of approximately 23,500 square feet (0.54 acres) of native trees and understory and the retention of approximately 25,500 square feet (0.59 acres) for the resumption of Ocean Breeze's farming activities (Figure 3 (Before)). However, in an act of goodwill towards addressing Appellant's concerns, Cresco now proposes to eliminate this remaining open field farming and restore the full 49,000 square feet (1.1 acres) with native vegetation, as illustrated in Figure 3 (After) below.

Figure 3- Proposed ESH Buffer Revegetation

(BEFORE) Landscaping Plan – Approved by the Planning Commission



(AFTER) - Landscaping Plan – Proposed Native Restoration



All existing riparian habitat within the Project area will be protected, and the proposed native plant restoration will enhance and protect adjacent riparian habitat. Accordingly, the project will not result in any significant project or cumulative impacts to biological resources or ESH. Therefore, requests to implement Mr. Magney and the Appellant's recommendations for further evaluation of impacts to Arroyo Paredon are unnecessary and should be rejected. Please refer to Exhibit 1 of this memorandum for further detailed responses to Mr. Magney's recommendations on a point-by-point basis.

Appellant Request 2: *Prepare a Habitat Protection Plan for the environmentally sensitive habitat and rare and endangered species in and surrounding the Project.*

Applicant Response: Cresco agrees that protection and restoration of the Arroyo Paredon Creek corridor and associated ESH is a critical planning imperative. That is why the Project design includes two significant elements:

- The Project will not disturb any portion of Arroyo Paredon Creek or its surrounding ESH Riparian Corridor; no native trees or other native vegetation associated with riparian corridor would be removed or trimmed as a part of the proposed Project.
- Agricultural activity including avocado orchards, employee parking, and material storage historically occupying the 100-foot ESH buffer will be replaced by the installation and ongoing maintenance of approximately 49,000 square feet of native plant restoration along the northern extent of the facility (see Figure 2 and Figure 3).

In conformance with County policy and the Cannabis PEIR, the Project application included three (3) biological resources related reports: a BRA, TPP, and WMP. The BRA adequately recognizes the presence of the primary Arroyo Paredon ESH area as well as the associated 100-foot buffer and confirms that the Project proposes:

- No impact to the primary ESH riparian corridor.
- An enhancement to the ESH buffer through the removal of agricultural activities (avocado orchard, storage, etc.) and replacement with native revegetation.

The Project proposes an enhancement to, rather than degradation of the ESH related resources, therefore the combination of a BRA, TPP, and WMP were deemed sufficient to analyze and mitigate potential biological impacts and a Habitat Protection Plan (HPP) was not required as a component of the Project's *Complete Application,* as determined and reiterated by County staff throughout the application process. The Cannabis PEIR states pursuant to MM Bio-1b that a HPP is only required for, "Applicants who apply for a cannabis license for a site that would involve clearing of native vegetation or other sensitive vegetation." The Project proposes to protect in-place all native vegetation located in the Arroyo Pardon ESH, as well as, the single native Coast Live Oak tree located south of the existing facility fence line. Thus, a HPP was deemed unnecessary.

Nevertheless, though not required, in an act of good faith response to the Appellant's concerns, Cresco has voluntarily prepared a HPP and submitted the new plan to staff on October 15th, 2021 attached hereto as Exhibit 2. The contents of the HPP will be incorporated into the overall Project approval, development, and future operations. The purpose of the HPP is to document existing conditions of the project site and to evaluate the potential for any significant direct or indirect impacts to the clearing of native or other sensitive vegetation in an area that has been identified as being an environmentally sensitive habitat. Based on the findings detailed within the HPP, establishing the existing conditions of habitat resources within the Project parcel and applicant proposed site modifications for native plant restoration and fencing modifications; the implementation of the Project should positively benefit habitats in the region. As such, direct and indirect project impacts on habitat resources would be at a less than significant level as follows:

- The small Project Site of 1.16-acres of fallow orchard habitat only impacts avocado trees and ruderal species in an historical agricultural setting from pre-existing man-made disturbance.

- Avoidance and minimization measures have been proposed to ensure no direct impacts occur to special-status species or natural communities of special concern.
- Project timing avoids impacts on nesting/breeding behaviors of resident and migratory birds.
- A net benefit to the Arroyo Paredon Creek riparian corridor and 100-ft. ESH buffer would result from the proposed project (refer to Appendix D for details).
- The project's existing structures, proposed detention basin expansion, and new parking area are located outside of the core ESH area (i.e. the limits of the riparian canopy) associated with Arroyo Paredon Creek. All native vegetation within the ESH area will remain undisturbed.

Appellant Request 3: *Prohibit the use of vapor phase odor management systems at the Project in order to protect ESH.*

Applicant Response: Consistent with the Project's Odor Management Plan, as soon as commercially available and no later than twelve (12) months after the commencement of full-scale cultivation of cannabis Cresco has committed to the installation of internal greenhouse odor scrubbers/filters which utilize Regenerative Carbon Scrubbing System (RCSS) or equivalent means of odor control technology. Consequently, upon installation and testing of the internal scrubber/filtration system, Cresco will also reduce or eliminate the use of vapor-phase neutralizing systems to the maximum extent feasible based upon the ability to prevent fugitive odors from reaching residentially zoned receptors. The vapor phase system will remain onsite and in-use as a fail-safe odor control redundancy until such time it is determined the vapor phase system can be decommissioned and removed from the Project Site entirely.

The Planning Commission acknowledged the benefits of having the secondary vapor-phase BACT system in place while testing and evaluation of full-scale RCSS equipment. Cresco is committed to the removal of the vapor-phase system after a responsible and successful transition period to newer technologies; this transition period would prevent offsite odor episodes as the RCSS scrubbers are installed and tested.

Further, vapor-phase odor neutralizer systems, including the distribution of Ecosorb CNB 100/107, have been in widespread use in the Carpinteria region and the Project Site specifically for over two (2) years with no evidence of or apparent detrimental effect on the condition of native plants or wildlife on or in proximity to the Cresco parcel. Appellants have provided no evidence to demonstrate otherwise. In addition, SCS' VOC sampling conducted on the Project (refer to Exhibit 3) illustrates that the Ecosorb is released at such a minimal rate that VOCs remain at non-detectable levels. Please refer to Exhibit 1, Section 2.0 of this memorandum for further evidence of the efficacy and safety of Ecosorb.

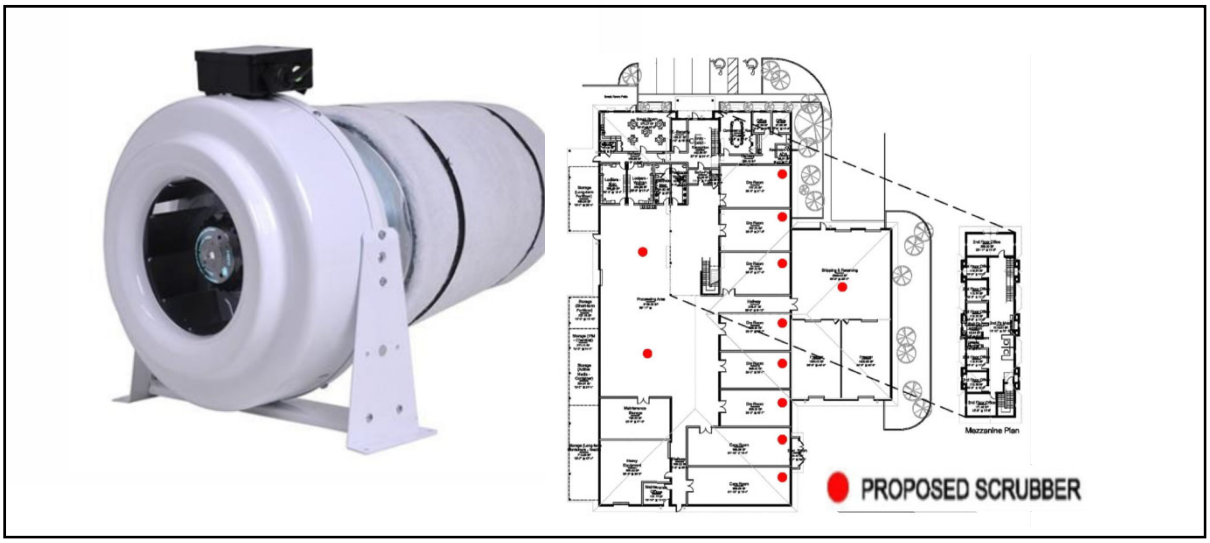
Appellant Request 4: *Implement a carbon filtration system, such as the system proposed by Dr. Paul Rosenfeld in Exhibit I to the August 2nd Cossart letter, to control odor and air emissions for all aspects of the Project, including Greenhouse 1.*

Applicant Response: County policy and the Cannabis PEIR require the implementation of the Best Available Control Technology (BACT) needed to prevent significant odor impacts from reaching residentially zoned properties.

The proposed Project includes the development of a new state-of-the-art, purpose-built cannabis processing facility which incorporates carbon filtration and negative pressure odor control systems. For smaller, fully enclosed structures such as the processing building this is a proven, effective and widely commercially available odor mitigation BACT. Thus, consistent with the ordinance requirements and

community request, carbon scrubbers will be utilized in the processing portion of the Project (see Figure 4).

Figure 4- Carbon Scrubbers for Processing Building



The Project Odor Management Plan proposes the use of a complex vapor-phase odor neutralizing system which is the best odor control technology currently commercially available for use in treating odors from a passively vented greenhouse such as existing Greenhouse 1 and comparable facilities existing throughout Carpinteria Valley. This system will only be used until it can be replaced by the RCSS scrubbers discussed below. As provided in our previous letters to the Planning Commission, SCS has conducted site specific odor sampling to verify that the vapor-phase system is effective in mitigating odors from Cresco's current non-conforming operations. As provided in Exhibits 3 and 4, multiple studies have also been conducted to verify that the use of Ecosorb CNB 100/107 odor neutralizer is safe.

Through the financial and organizational support of CARP Growers, including Cresco, next generation scrubbers are expected to prove effective for use in greenhouses and reduce or eliminate the industry's reliance on vapor-phase neutralizers systems. As documented in the Project's Odor Management Plan, initial testing of RCSS found them to be effective at reducing interior greenhouse odor levels by 65-87%, with and average odor reduction level of 81%. Results of that initial testing and recommendations for performance improvements were provided to the RCSS manufacturer (Envinity Group) and an improved variant of the RCSS is currently being manufactured and prepared for shipment.

Figure 5- Envinity Regenerative Carbon Scrubbing System (RCSS)

In response to previous feedback provided by the community (including the Appellant) and the Planning Commission, Cresco's Odor Management Plan requires that within twelve (12) months of commencing full operations, odor control systems on the Project Site shall transition away from vapor-phase and utilize RCSS scrubbers, or equivalent internal filtration.

Cresco has carefully reviewed the Appellant's request, including correspondence from Dr. Paul Rosenfeld, to utilize conventional bulk carbon treatment systems such as those outlined by the associated vendor Envent. Cresco's engineers have made a good-faith effort to understand the potential use of a traditional bulk carbon system and exchanged communication with representatives of Envent to verify various design and operating parameters of their system at the scale required for Cresco's proposed facility. Based on that due diligence, Cresco and SCS remain concerned that 1) the use of traditional bulk carbon systems for large-scale, passively vented greenhouses have shown a tendency to rapidly degrade the carbon's odor mitigating adsorption capability and result in odor breakthrough, and 2) solving this carbon breakthrough weakness necessitates scaling up the volume of carbon media such that the system would require approximately ten times the electrical power consumption (for blowers to push air through such an expansive carbon bed) and carbon by weight (90,000 pounds) when compared to the RCSS technology. Please refer to Exhibit 1, Section 2 for further analysis of the efficacy and safety of the vapor-phase neutralizer as well as carbon system suggestions made by Dr. Rosenfeld.

Cresco remains committed to the use of RCSS as the all-around environmentally superior technology. However, it is also important to acknowledge that the Project's Odor Management Plan includes a commitment to the use of BACT, efficacy testing, and adaptive management throughout the operating life of the facility. Therefore, Cresco will always be required to monitor its ability to successfully abate odors and adopt new technologies if/when they are necessary to limit offsite odor impacts.

In summation, our team has made it a priority to listen to and incorporate, where reasonable, community, County, and Appellant feedback and support the associated public dialogue. In nearly all respects, the Project has been revised and improved over time to create a superior result which satisfies

many of the community imperatives and represents a flagship example for meeting the elevated operational standards expected of legalized cannabis cultivation in Santa Barbara County. In a good faith effort to further address the Appellant's specific concerns, Cresco has: 1) expanded the area of native plant restoration proximal to Arroyo Paredon Creek, 2) submitted a Habitat Protection Plan, and 3) incorporated an Odor Management Plan which commits to the transition away from vapor-phase odor control in favor of RCSS scrubbers and future BACT technologies. As such, we believe it is entirely appropriate to deny the appeal and uphold the Planning Commission's unanimous approval of the Cresco Project.

Feel free to contact me with additional questions and thank you for your valuable time in consideration of this matter.

Sincerely,

Christopher Petro, MSCE, EIT
Project Manager

Exhibits

Exhibit 1- Detailed Issue Response
Exhibit 2- Habitat Protection Plan
Exhibit 3- Cresco Carpinteria Odor Mitigation & VOC Site Study
Exhibit 4- Ecosorb Health & Safety Evaluations

Exhibit 1- Detailed Issue Response

Detailed Environmental Issues Response

Cresco Carpinteria Cannabis Project

Section 1.0: Biological Resources & Arroyo Paredon Environmentally Sensitive Habitat (ESH)

General Biological Reconnaissance and Reporting: As further illustrated in Biological Resources Memorandum provided Sage Institute and dated August 8, 2021, the Project Site was intensively surveyed by County approved biological specialists. Subsequently three separate biologically related reports were produced for the Project:

- Biological Resources Assessment
- Tree Protection Plan
- Wildlife Movement Plan

No ground disturbance, vegetation, sensitive species, or habitat impacts are proposed within the jurisdictional boundaries of Arroyo Paredon Creek or the adjacent ESH riparian corridor. The existing paved access road (utilized by an adjacent parcel to the West) and chain-link fence provide an affirmative separation between the proposed cannabis project and the ESH corridor. All native oak trees and complementary native species which constitute the ESH riparian corridor will remain undisturbed by proposed Project activities.

The completion of a wetlands impact analysis through the use of the *South Coast Riverine Wetlands HGM Model*, or equivalent means, was not necessary because there are no impacts proposed within the ESH or any jurisdictional waters of the U.S./State. As such there would be no change in any ecosystem variables or functions within the creek and ESH. Further demonstrating the inapplicability of the HGM for this project:

- The HGM approach is also not particularly useful for assessing very small areas. Since it is designed to measure ecosystem functions, the area being examined must be large enough or exist within a large enough framework that examination of functions at scale can occur.
- The HGM models included within the Guidebook rely upon the use of 28 variables (HGM Table 5.2 & Chapter 6) that are used in different combinations to define 15 ecosystem functions (HGM Table 5.1). All but two variables are all metrics which occur <u>within</u> the creek/riparian/ESH area that are not a part of the Project's proposed disturbance or operational area. The two variables outside of the creek channel are: Land Use and Patch analysis. The Land Use variable is at a 1:24,000 scale context not relevant to the small project site and the Patch variable analysis only extends to the edge of riparian vegetation. As stated above, no work or impacts are proposed within the ESH, and therefore HGM model is not relevant for this Project.
- The proposed scope of work does not include the deposition of fill within a jurisdictional waterbody and therefore no permit from or consultation with the Army Corps of Engineers was warranted pursuant to Clean Water Act Section 404.

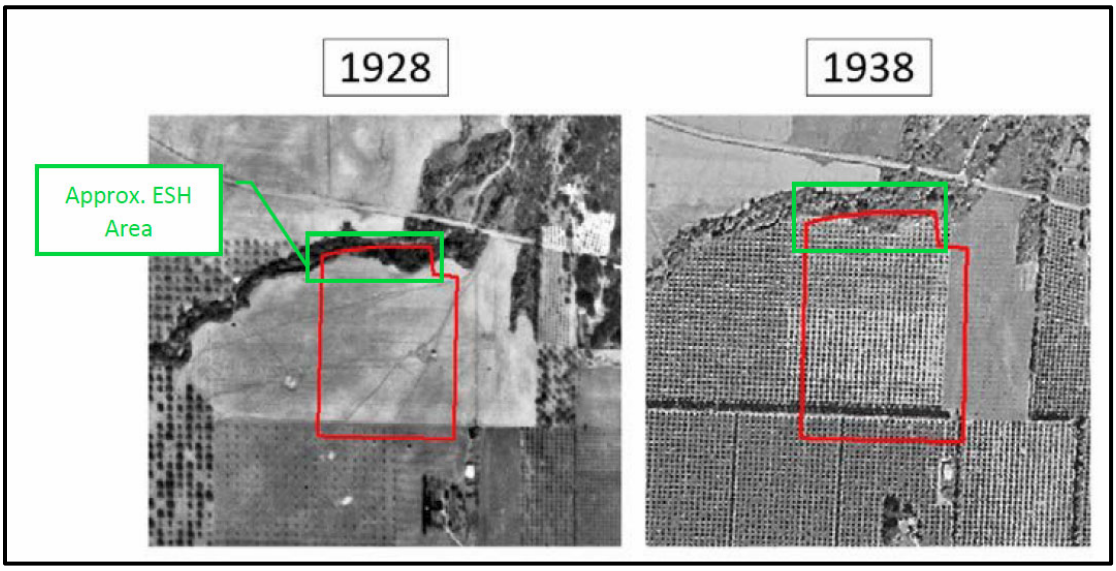
Arroyo Paredon supports southern California walnut (*Juglans californica*); Any reference to *J. hinsii* in the BRA was a typographical error. Although *J. californica* has a CNPS Rank of 4.2, no impacts are proposed to this species. Furthermore, riparian habitat within the study area will be protected and the proposed vegetated buffer will enhance and protect adjacent riparian habitat. The Rare Plants of Santa

Barbara County (Wilken 2021) was reviewed in response to the Magney comment letter. Other than the *J. californica* that is proposed for protection, no special-status plant species are expected to occur on the highly disturbed site. *Haplotrema caelatum* and *Helminthoglypta phlyctaena* are not included in the July 2021 CDFW Special Animals List and are not reported to occur anywhere in California per the CNDDB. *H. traskii* has a rank of G1 / S1 but is not considered a Species of Special Concern by CDFW and is not a locally protected species per the County of Santa Barbara. Furthermore, it is highly speculative to assume this wide-ranging species (see range maps per Magney letter) could occupy highly disturbed / developed areas of the Project site. Virtually all undisturbed portions of the Project site will be protected.

Avocado Orchard Removal: At the time of biological survey, the 100-foot ESH buffer was occupied with a mixture of avocado orchard, agricultural employee parking, and miscellaneous agricultural material storage. With the exception of a single coast live oak tree (*Quercus agrifolia*), the ESH buffer area south of the existing paved road within the fenced facility was devoid of sensitive species and lacked any significant biological resource value. Development existing within the ESH buffer, limited to the northwest corner of Greenhouse 1, the existing private road, and existing property boundary fence are to remain in-place with no modification or expansion. All such existing improvements were previously identified and approved via the County's issuance of a Development Plan on February 4th, 2014. At that time, these Project elements were discussed in the context of ESH policies and deemed acceptable.

In the intervening period of time since the commencement of County permitting, the land owner and farmer (Ocean Breeze) elected to remove the existing avocado trees (reported as occurring on January 14, 2021) due to their diseased state and failing utility for commercial agriculture. Toro Canyon Community Plan Policy Bio-TC-16, states that "Existing, legally established agricultural uses shall be allowed to continue" within the ESH buffer. Based on historic aerial review, agricultural cultivation of this area commenced on or before 1938 (refer to Figure 1) whereas the Local Coastal Program was adopted in 1982. Therefore, the property owner is allowed to continue with agricultural activities within the ESH buffer as long as the commencement of such activity preceded the adoption of the Local Coastal Program. These ongoing agricultural activities include the periodic removal and replacement of agricultural crop production such as the aging avocado orchard.

Figure 1- Historical Aerial Confirmation of Agricultural Disturbance in ESH Buffer Area



Upon notification by Ocean Breeze of its intent to remove the existing avocado trees, Cresco's consulting team offered the following recommendations: 1) retain the existing native coast live oak tree identified in the biological survey, and 2) complete the tree removal process outside of the potential bird nesting season (February 1st to September 15th). Both of those recommendations were accepted and implemented by Ocean Breeze. The avocado orchard area was highly disturbed by decades of cultivation and ancillary activities. Per the proposed Project, this area will be replaced with native vegetation that could theoretically support terrestrial mollusks which in-turn enhances the overall habitat value of the region.

Protection & Enhancement of ESH: The Project's long-term cannabis operations will not negatively impact the Arroyo Paredon ESH but will in fact enhance and further protect ESH.

The Project does not propose to enlarge or modify the northern extent of existing Greenhouse 1, including the small portion thereof potentially located within the 100-foot ESH buffer. This is an existing structure whose location and presence in proximity to the ESH was previously analyzed and approved by the County via issuance of Development Plan 10DVP-00010 in February 2014.

However, the Cresco project does propose the cessation and removal of a portion of agricultural activity which has occurred within the ESH buffer since circa 1938 and relocation of facility activities such as employee parking to areas outside of the ESH buffer. Additionally, Cresco's proposal includes the restoration of approximately 49,000 square feet within the 100-foot ESH buffer with the planting of a native species palette along the northern extent of the former avocado orchard. The proposed native species include:

- Coast Live Oak (*Quercus agrifolia*)
- Mulefat (*Baccharis salicifolia*)
- California coffeeberry (*Frangula californica)*
- Toyon (*Heteromeles arbutifolia*)
  Creeping Wild Rye (*Elymus triticoides*)

As currently proposed this would result in the enhancement in biological resource value of approximately 49,000 square feet of the ESH buffer extent. The purpose of the proposed plantings is to provide a native vegetated buffer adjacent to the creek, not to develop a dense, species-rich, or forested type habitat. In fact, sparse and / or open habitats adjacent to denser riparian habitat provides an ecotone that is generally beneficial to a variety of common wildlife.

Further, due in part to the proposed demolition of the existing 40,700 square foot Greenhouse 2 and its replacement with a combination of ornamental landscaping and permeable parking area, the Project will result in a net reduction of approximately 38,953 square feet of structural development and an approximate 10% reduction in impermeable surface area versus the existing conditions. Further, the proposed Project will bring the entire Project Site up to current stormwater detention, Project Clean Water, and Flood Control standards. Through the planned expansion of the existing stormwater detention system, the Project Site will be able to retain all planned runoff from a 25-year storm event, treat that stormwater using bioswales or equivalent water quality methods, and is designed to discharge any overflow in a southwesterly direction approximately 750-feet away from the nearest portion of Arroyo Paredon Creek. The proposed construction of the processing building will provide a "flood-proof" design capable of sheltering the enclosed chemical and material storage from up to 25-year storm events. These planned elements in combination with California's strict regulations which limit the use of

pesticides in cannabis cultivation in a far stricter manner versus the decorative flower cultivation that has historically occurred on the Project Site will result in a net reduction of contaminate run-off to Arroyo Paredon Creek.

Wildlife Agency & Army Corps Consultation: Necessary consultation and/or permitting has occurred with the California Department of Fish and Wildlife (CDFW) and United States Army Corps of Engineers.

In relation to CDFW, the following engagement related to the proposed Project Site has occurred:

- In compliance with the requirements set forth in Fish and Game Code Section 1600 *et. seq* (Streambed Alteration Agreements), Cresco submitted its required notification to CDFW, via the EPMIS System, regarding its existing/non-conforming cannabis activities. The CDFW responded with its approval of Cresco's activities on August 10th, 2018 (Notification Number: EPIMS-02104-R5).
- County Planning and Development staff referred Cresco's permit application to CDFW and CDFW responded with a Pre-consultation Letter dated March 23, 2021 with various recommendations regarding the proposed Project.
- Cresco subsequently incorporated all of CDFW's recommendations into the Project design, Project Description, and/or Biological Resources Assessment. On behalf of Cresco, SCS emailed CDFW staff members Brock Warmuth and Randy Rodriguez (listed points of contact on the aforementioned Pre-Consultation Letter) on April 16, 2021 with summary information and exhibits related to the Project and point-by-point responses to CDFW's Letter. SCS and Sage requested CDFW's feedback and/or need for further consultation. To-date, SCS has not received any response from the CDFW or requests for further consultation or permit issuance.
- The Project does not require the take of state listed endangered plants or animals and therefore the issuance of a Take Permit from CDFW was not required pursuant to Fish and Game Code CESA Section 2081.

Additionally, the Project does not propose any disturbance to the riparian corridor surrounding Arroyo Paredon or disturbance within or proximal to the jurisdictional boundaries of Arroyo Creek. The proposed scope of work does not include the deposition of fill within a jurisdictional waterbody and therefore no permit from or consultation with the Army Corps of Engineers was warranted pursuant to Clean Water Act Section 404.

Section 2.0: Air Quality and Odor Mitigation Methods

Efficacy of Vapor-Phase Neutralizer: The Cossart letter includes review of the Project's Odor Management Plan by Dr. Paul Rosenfeld with Soil Water Air Protection Enterprise, LLC. Dr. Rosenfeld questions the overall efficacy of the proposed odor abatement system design which the applicant and SCS address below.

Ecosorb Neutralizer vs Masking Agent: Dr. Rosenfeld provides no factual evidence or scientific reference for the assertion that Ecosorb CNB 100/107 should be classified as a masking agent rather than a neutralizer. In its odor and air quality study conducted at the proposed Cresco Project Site (refer to Exhibit 3), SCS conducted a series of odor grab bag samples through two sampling sessions which were evaluated by a third-party independent odor panel. The odor panel provided both odor intensity and character descriptors for the thirty-three (33) total samples taken. Amongst the odor panel's character descriptors for the thirty-three (33) odor samples taken, there is only one (1)

reference to a "lemon" character and that sample point was an upwind control point from the facility (refer to sample point 1-U in OS&E's analytical lab report dated July 10, 2019 appended to Exhibit 3). If Ecosorb was being used as a masking agent its signature odor character would presumably appear persistently in onsite odor grab samples, but the evidence does not support that assertion.

Vapor-phase Efficacy: Dr. Rosenfeld asserts that the combination of Ecosorb CNB 100/107 and the Byer's Vapor-phase Distribution System will not be effective at mitigating the Project's malodors. Dr. Rosenfeld fails to provide any factual evidence or scientific reference to support this conclusion, especially as it relates to the proposed Project Site and related facility. In contrast, as illustrated in Exhibit 3, SCS conducted three (3) days of intensive odor grab sampling at the specific Cresco project site where approximately 2-acres of adult-cannabis cultivation was present and a combination of Byer's distribution system and Ecosorb 100 were being utilized to provide odor mitigation. As confirmed with review by an independent odor panel, the odor intensity from greenhouse cannabis emissions at the Project Site were being successfully reduced from a high of 1,950 D/T odor concentration within the greenhouses, to a maximum net increase of 8 D/T in proximity to the nearest agriculturally zoned receptor and 3 D/T in proximity to the nearest residentially zoned receptor. In this Project Site specific study, the independent scientific data indicated that the Project's existing odor control system was effectively reducing odors by 97% or greater when wind conditions reach speeds and directions expected to transport odors to these proximal receptors.

Safety of Vapor-Phase Neutralizer: The proposed Project would utilize a proprietary odor neutralizer formula, Ecosorb 100 or 107, produced by OMI Industries. The safety of this neutralizer has been reviewed and disclosed to the public and/or regulatory agencies with the following methods:

- The completion of a Screening Health Assessment of Odor Control at Cannabis Greenhouses by CPF Associates, LLC., dated January 8, 2020 (included as Exhibit 4). This study analyzes the potential for acute or chronic inhalation health impacts based upon the dispersal of Ecosorb CNB 100/107 by a vapor-phase system. The study concluded that "Ecosorb CNB 107 would not be expected to pose public health concerns" with air concentrations remaining below applicable health screening criteria even when using evaluation methods which are "conservative (i.e., health protective)".
- The complete proprietary Ecosorb CNB formula was provided, under condition of confidentiality, to qualified staff at the Santa Barbara County Air Pollution Control District (SB APCD). SB APCD staff reviewed the contents of the formula and affirmed that Ecosorb CNB does not contain Toxic Air Contaminants (TACs) as defined under California state law.
- SCS, as a complement to its odor abatement efficacy testing, also sampled for the presence of Volatile Organic Compounds (VOCs) either being released in harmful quantities by cannabis cultivation, distribution of vapor-phase Ecosorb, and/or a combination of the two potential emissions sources (refer to Exhibit 3). The testing results indicated that the presence of VOCs were either so low as to be undetectable or a minute fraction of the Permissible Exposure Levels (PELs).

Alternative Use of Carbon Scrubbers in Greenhouses: Dr. Rosenfeld asserts that it is possible to build cannabis cultivation facilities, such as greenhouses, with air-tight or nearly air-tight functionality. While it is true that cannabis cultivation can occur in facilities without passive ventilation, this largely defeats the purpose and benefit of locating greenhouses in temperate coastal climates such as Carpinteria Valley. The use of passive ventilation in existing greenhouses throughout Carpinteria, significantly reduces the overall energy consumption needed to heat air (boiler gas consumption), cool air (electrical

demand for wet-wall fans or air conditioning compressors), and/or excess artificial lighting (electrical demand) associated with indoor cultivation facilities or actively conditioned greenhouses.[1]

Additionally, Dr. Rosenfeld attempts to support the potential use of conventional carbon scrubbers for greenhouses through the provision of a theoretical scrubbing system sized to provide a one exchange per hour treatment of an approximately 3,000,000 cubic foot air-tight cultivation facility. Based on these assumptions, the requested vendor Envent Corporation, specified ten (10) total treatment systems each powered by a 5,000 SCFM blower and vessels containing 4,000 pounds of carbon media. In total, this would require a sum total of 40,000 pounds (20 tons) of carbon media at a time.

Even with this immense quantity of carbon media, the proposed Envent system would still be significantly undersized for the proposed Project. Dr. Rosenfeld's volume assumptions were based on a 300,000 square foot greenhouse with an average height of 10 feet, equating to the 3,000,000 cubic foot total volume. This fails to account for the fact that Cresco's existing and proposed greenhouses are 17-feet in height, creating a larger initial structural volume and the passive venting means an additional 40% of that volume in fresh air passes into the greenhouse per hour. Cresco's proposed facility includes approximately 322,896 square feet with 17-foot arched roof lines equating to approximately 4,359,096 cubic feet. With a 40% fresh air exchange rate during passive venting this equates to an additional 1,743,638 cubic feet of air per hour needing carbon scrubbing; summing to approximately 6,102,734 cubic feet of total air volume. As a result, the Envent system is less than 50% of the necessary capacity needed to treat the proposed Greenhouse if it continues to be passively ventilated. If the greenhouse was converted to a sealed and mechanically ventilated structure, Cresco's engineering team estimates that maintaining proper humidity control would require approximately 90,000 cubic feet per minute of total air exchange capacity. In either scenario, the Envent system would need to be scaled up to approximately 72-80,000 pounds (36-40 tons) of carbon media and eighteen to twenty (18-20) 5,000 SCFM blowers. The total electrical consumption of this system would equate to 2-4 times more power versus the proposed Byer's vapor-phase system. More importantly, Envent's specified carbon is coal-based, a non-renewable media that would create 36-40 tons of environmental waste per year.

Ultimately, Cresco and other responsible cannabis producers must balance the need for adequate odor control versus other potential environmental impacts such as the facility's relative carbon intensity, total electrical demand placed on the State's overburdened electrical capacity, the cumulative noise associated with twenty (20) high-flow blowers, and waste associated with spent carbon disposal and/or carbon production. In comparison, the vapor-phase system has proven efficacy for the proposed Project Site at a fraction of the total electrical consumption. Additionally, Cresco, as stated in the Project's Odor Management Plan, remains committed to advancing the state of odor control technology and potential adoption of Regenerative Carbon Scrubbing Systems which upon further research and development, may eventually achieve the same internal scrubbing benefit with dramatically smaller environmental footprint. For example, the prototype Regenerative Carbon Scrubbers provided for prior testing by Envinity Corporation, utilized advanced pre-filters and in-situ carbon regeneration to create a system that utilizes a fraction of the carbon mass when compared to the Envent method and Envinity estimates their CFS-3000 carbon bed will last a minimum of 5-years.

[1] United State Department of Agriculture, Natural Resources Conservation Service, *Conserving Energy in Greenhouse Operations*.

Exhibit 2- Habitat Protection Plan

SLO CULTIVATION - CARPINTERIA

3861 FOOTHILL ROAD, CARPINTERIA, CA
APN: 005-310-024

HABITAT PROTECTION PLAN

Prepared for:

SLO Cultivation, Inc.
3861 Foothill Road
Carpinteria, CA 93103

SCS Engineers
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Santa Maria, CA 93455

October 15, 2021

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TABLE OF CONTENTS

APPENDIX A – EXHIBITS

APPENDIX B

1.0 INTRODUCTION AND PURPOSE

SLO Cultivation, Inc. (Applicant), dba as Cresco California, requests approval of a Coastal Development Permit- With Hearing (CDH), Minor Conditional Use Permit, and a Revision to an existing Development Plan (10DVP-00000-00010) to authorize the development and operation of a cannabis cultivation facility (project) in an unincorporated portion of Santa Barbara County near the city of Carpinteria, California. The subject property (project site) is located at 3861 Foothill Road (APN: 005-310-024).

The purpose of this Habitat Protection Plan (HPP) is to document existing conditions of the project site and to evaluate the potential for any significant direct or indirect impacts to the clearing of native or other sensitive vegetation in an area that has been identified as being an environmentally sensitive habitat. This report is intended to document satisfactory compliance with the *Santa Barbara County Article II Coastal Zoning Ordinance* land use permit process, and environmental review factors detailed in the *Cannabis Land Use Ordinance and Licensing Program, Final Environmental Impact Report (PEIR)*, Section 3.4 Biological Resources.

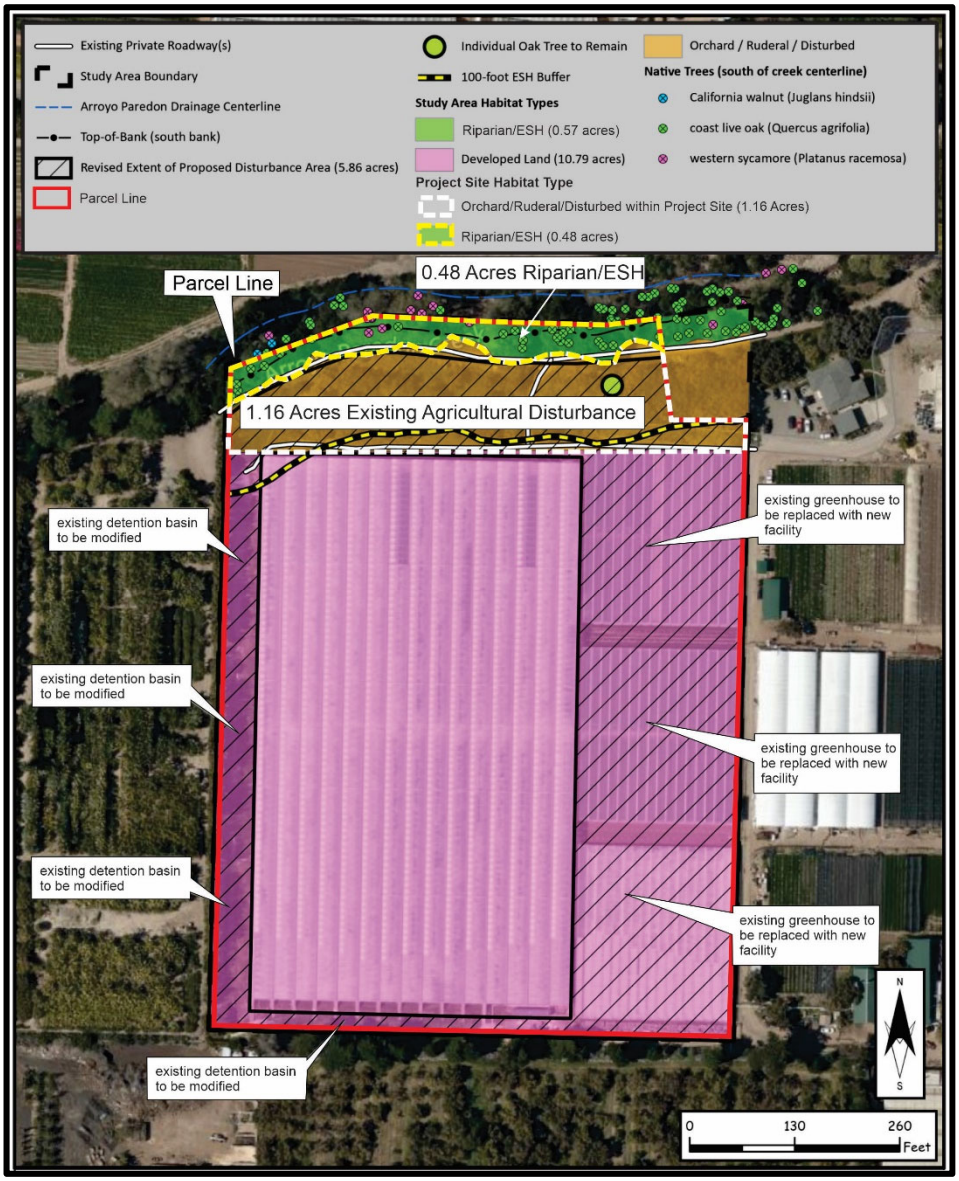
1.1 PROJECT LOCATION AND EXISTING DEVELOPMENT & USES

The Project Site is located at 3861 Foothill Road (APN 005-310-024) in an unincorporated region of Santa Barbara County (County) approximately one (1) mile west of the City of Carpinteria and approximately seven (7) miles east of the City of Santa Barbara. The project site is located within the Agricultural I (AG-I-10) zone district within the First Supervisorial District. The project site is approximately 13.66 acres in size and is primarily accessed via a private driveway from Foothill Road. The Project Site is primarily level land (elevations ranging from approximately 55 to 75 feet above mean sea level). Surrounding land uses are predominantly agricultural operations including greenhouses, hoop houses, orchards, and annually cultivated fields. Low density residential development is interspersed mostly north of Foothill Road in this predominately agricultural area.

The project site and associated existing greenhouses have been historically used to cultivate non-cannabis products such as cut flowers (gerbera daisies) and avocados. Since on or about October 2015 the project site has been used to cultivate cannabis. Primary access to the project site is provided via a shared access agreement with the adjacent property known as APN 005-310-021. The private access road is approximately 400 linear feet in length, 20 feet wide, and paved with asphalt.

The project site is composed of approximately 10.79 acres of developed uses including four (4) existing greenhouse structures and twelve (12) prefabricated supporting structures, containers used for agricultural storage and other supporting uses such as stormwater detention basins. The existing greenhouse structural development and associated agricultural uses were approved by the County via 10DVP-00000-00010 and 11CDP-00000-00009. At the time of baseline biological surveys in April and July 2020, the northern portion of the project site was occupied by approximately 1.16 acres of fallow avocado orchard and agricultural materials stockpile. Outside the fenced project site but within the parcel is a private road and 7-foot tall chain link security fence that separates approximately 0.48 acres of riparian canopy and channel associated with Arroyo Paredon Creek from the rest of the developed site.

Figure 1- Baseline Project Site Conditions



1.2 PROJECT DESCRIPTION

The proposed Project would allow for:

1. Utilization of existing **Greenhouse 1 (GH1),** approximately 264,500 square feet in size, for mature mixed-light cannabis cultivation.
2. Demolition of three (3) existing greenhouses, known as **Greenhouse 2 (GH2)**, **Greenhouse (GH3**), and **Greenhouse 4 (GH4),** which are approximately 40,700 square foot each.
3. Development and operation of a 61,840 square foot addition to **GH1** for nursery/juvenile mixed-light cannabis cultivation.
4. Development of a new 24,751 square foot pack house which will be utilized for cannabis processing (bucking, drying, and packaging).

5. The development of sixty-five (65) onsite parking spaces.
6. Expansion of the Project Site's stormwater detention basin system.
7. Minor ancillary improvements to the Project Site including installation of security cameras and lighting, installation and use of irrigation recycling and fertigation equipment, septic waste disposal systems, and placement of cannabis waste storage containers.
8. Removal of twelve (12) pre-fabricated containers, totaling 1,920 square feet, historically used for agricultural and cannabis support activities.
9. Removal of approximately 1.16 acres of historic orchard/agricultural operations and restoration of the ESH buffer with native plant species.

Site disturbance of non-structurally developed areas are restricted to the proposed physical expansion of the site's existing storm water detention system and proposed native plant restoration (Appendix B). All other proposed project elements consist of using existing structures, demolishing old structures and developing new structures in their previously disturbed footprint, or installing mechanical equipment in previously developed areas, thus no native habitat impacts are anticipated. In order to provide superior visual screening of the Project Site and enhance the overall biological condition of the ESH buffer, the historic avocado orchard/agricultural operations will be removed and the northern portion of the project site will be planted with appropriate native riparian and transitional upland vegetation per the landscape plans provided in Appendix B.

No work is proposed beyond the existing fence line and access road on the northern edge of the parcel. No disturbance or project related activities will occur in the Arroyo Paredon Creek riparian corridor. The single native oak tree located south of the existing project security fence will be retained in-place. Therefore, removal or pruning of native trees will not be required. No alteration to stream channels or banks are proposed. Proposed maintenance within the stormwater detention basins will be minimal and is anticipated to occur every 5 to 10 years during the dry season, depending on annual rainfall and surface runoff amounts. These maintenance activities will include minor / as-needed sediment removal and vegetation trimming to ensure proper function of the basin(s).

2.0 EXISTING HABITAT DESCRIPTION

2.1 BIOLOGICAL ASSESSMENT METHODS

SII conducted a review of available background information including the proposed Project information, local soils survey, multiple years of aerial photographs, and a search and review of the current California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB) within a 10-mile radius of the proposed Project site. The CNDDB provided a list and mapped locations of special-status plant and wildlife species, and natural communities of special concern, that have been recorded in the region of the Project site. The CNDDB records help to focus the field survey efforts and evaluation of potential Project effects on specific species or habitats. It is noted that the CNDDB does not necessarily include all potential special-status species potentially occurring onsite, but rather only those that have been recorded by the CNDDB. Other species may occur as determined by field surveys of the Project site. In addition, U.S. Fish and Wildlife Service (USFWS) critical habitat data was reviewed.

Santa Barbara County Article II Coastal Zoning Ordinance Section 35-144U (C.)(8) and the Cannabis Land Use Ordinance and Licensing Program, Final Environmental Impact Report were also used for the evaluation of potential effects of the proposed project.

SII Principal Biologist Jason Kirschenstein conducted a field reconnaissance walking survey of the proposed project site in April and July, 2020. The overall purpose and objectives of the field survey was to document existing baseline conditions in terms of habitat for plants and wildlife species, and to evaluate the potential for the site to support suitable habitat for special-status species. Plant and wildlife species observed in the field were recorded. The onsite habitat types were described by the aggregation of plants and wildlife based on the composition and structure of the dominant vegetation observed at the time field reconnaissance was conducted. Mr. Kirschenstein is the primary author and principal in charge of this study and report preparation. The survey data collected on plant and wildlife species and conclusions presented in this biological assessment are based on the methods and field reconnaissance conducted for the Project site as described above.

All native trees south of the centerline of Arroyo Paredon creek with a minimum diameter at breast height (DBH) of 4-inches were mapped in the field using ESRI Collector GPS field data collection software. One native coast live oak tree is rooted south of the existing access road that separates the existing riparian corridor from proposed project activities. Tree height ranged from approximately 10 to 70 feet. The location of the southern top-of-bank of Arroyo Paredon Creek and limits of Environmentally Sensitive Habitat (ESH), defined as the TOB or outer limit of the riparian corridor (whichever is more protective), were also recorded using GPS.

2.2 PLANT COMMUNITIES AND VEGETATION

Plant communities are generally described by the assemblages of plant species that occur together in the same area forming habitat types. Native plant community alliance and alliance codes used in this report follow *A Manual of California Vegetation, Second Edition* (online). Plant names used in this report follow *The Jepson Manual, Vascular Plants of California, Second Edition Thoroughly Revised and Expanded* (Baldwin et al. 2012). Plant communities within the study area consist of Orchard/Ruderal/Disturbed, and California Sycamore Woodland riparian habitat, and Developed Land (existing greenhouses). Figure 5 provides a plant community map of the study area. Figure 6 provides a set of representative photographs of the study area plant communities. The following provides a description of the plant community composition observed with in the study area.

ORCHARD / RUDERAL / DISTURBED habitat within the study area include the 1.16 acres of fallow/senescent avocado orchard that is currently being utilized for temporary agriculture supply storage and the associated access road(s). This area includes approximately 43 remnant mature avocado trees (*Persea americana*) that are no longer being managed for agricultural production purposes. Ruderal non-native annual grasses and herbaceous broadleaf plant species dominate the understory. This area was observed to be relatively low in species diversity and dominated by non-native weedy species that are typical of ruderal/disturbed areas. Dominant plant species observed in the understory included rip gut brome *(Bromus diandrus*) and filarees (*Erodium botrys* and *E. cicutarium*), soft chess (*Bromus hordeaceus*), wild oats (*Avena barbata*), telegraph weed (*Heterotheca grandiflora*), and cheeseweed (*Malva parviflora*).

DEVELOPED LAND within the project site includes the 10.79 acres of the existing four greenhouses and appurtenant facilities and roads lacking any sensitive biological resource values.

***PLATANUS RACEMOSA* WOODLAND ALLIANCE (CALIFORNIA SYCAMORE WOODLANDS; CNPS 61.310.00)** along the Arroyo Paredon riparian corridor includes California sycamore (*Platanus racemose*) as the dominant or

co-dominant species in the tree canopy with California walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Trees are generally less than 30 meters tall and the canopy is open to intermittent. The shrub layer is mostly lacking with an open understory of patchy willow thickets and dominated by mats of non-native Cape ivy (*Delairea odorata*), Nasturtium (*Tropaeolum* sp.), English ivy (*Hedera helix*), and castor bean (*Ricinus communis*). Native understory species observed include, California blackberry (*Rubus ursinus*), California sunflower (*Helianthus californicus*), poison oak (*Toxicodendron diversilobum*), California mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica* sp.), and blue elderberry (*Sambucus nigra*). The riparian habitat within the study area is in a somewhat degraded condition restricted to a narrow corridor due to its proximity to historic agricultural uses, residential development, and the highly travelled Foothill Road State Highway 192. Approximately 0.48 acres of riparian habitat are mapped within the project site parcel.

2.3 WILDLIFE

The Orchard/Ruderal/Disturbed habitat type within the project site provides only limited habitat values for resident and migratory wildlife species typical in the predominantly agricultural land uses in the region such as raccoon (*Procyon lotor*) and Virginia opossum (*Didelphis virginiana*). The ruderal / disturbed habitat onsite supports limited habitat for native and non-native wildlife species. Common reptiles such as western fence lizard and alligator lizard are expected to frequent this area. Due to the relatively "fallow" nature of the orchard, limited habitat is available for nesting birds, including ground nesting species. This is also likely is used by common mammal species such as Botta's pocket gopher, racoon, and opossum. Inspection of the project site and surrounding trees during April 2020 surveys did not reveal any raptor nesting on or around the project site.

Riparian habitats can provide high quality habitat for a large variety of wildlife species. They also contribute woody debris to the duff in the woodland understory which provides foraging areas for small mammals and microclimates suitable for amphibians and reptiles. Acorns are a valuable food source for many animal species, including acorn woodpecker (*Melanerpes formicivorus*), western bluebird (*Sialia mexicana*) western scrub jay (*Aphelocoma corulescens*), yellow-billed magpie (*Pica nuttalli*), American crow (*Corvus brachyrhynchos*), great horned owl (*Bubo virginianus*), western gray squirrel (*Scirus griseus*), big-eared woodrat (*Neotoma macrotis macrotis*), racoon (*Procyon lotor*), and black-tailed deer (*Odocoieus emionus*). Riparian habitat provides nesting habitat for numerous passerine birds as well as for raptors. Common passerines observed in riparian habitats include pacific slope flycatcher, Bewick's wren (*Thryomanes bewickii*), hummingbirds (*Calypte* spp.), and song sparrows. Raptors, such as red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), American kestrel (*Falco sparverius*) and red-shouldered hawk (*Buteo lineatus*), may use open riparian areas for foraging and nesting purposes.

Riparian habitats can be expected to support mammals such as raccoon (*Procyon lotor*) and Virginia opossum (*Didelphis virginiana*). Lizards such as western fence lizard (*Sceloporus occidentalis*) and alligator lizard (*Elgaria multicarinata*) are expected to occur in the study area where suitable soils and food resources occur. Other reptiles such as western skink (*Plestiodon skiltonianus*), northern pacific rattlesnake (*Crotalus oreganus*), gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis*) are expected to occur in this habitat type within the study area.

Direct observations (or evidence) of the following wildlife species were observed within the riparian corridor during field reconnaissance: California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), pacific slope flycatcher (*Empidonax difficilis*), song sparrow (*Melospiza melodia*), brewers blackbird (*Euphagus cyanocephalus*), wrentit (*Chamaea fasciata*), Western

scrubjay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), and house finch (*Haemorhous mexicanus*).

2.4 WATERS OF THE U.S., WATERS OF THE STATE & WETLANDS

There are no waters of the U.S./State within the proposed project footprint. Although Arroyo Paredon Creek is considered a jurisdictional waters of the U.S./State as a tributary to a navigable water, no project work or impacts are proposed in the riparian corridor that would trigger regulatory compliance or permitting from the Army Corps of Engineers (Corps), California Department of Fish and Wildlife (CDFW), or Regional Water Quality Control Board (RWQCB).

2.5 SPECIAL-STATUS SPECIES AND NATURAL COMMUNITIES OF SPECIAL CONCERN

Special-status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (FESA); those considered "species of concern" by the USFWS; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern" by the CDFW; and plants occurring on lists 1B, 2, and 4 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California.* Natural Communities of Special Concern are habitat types considered rare and worthy of tracking in the CNDDB by the CDFW because of their limited distribution or historic loss over time.

The search and review of the CNDDB revealed 18 special-status plant species, 35 special-status wildlife species, and one natural community of special concern with recorded occurrences within the 10-mile search radius of the study area. Figure 1 provides a map of the CNDDB plant and wildlife special-status species recorded occurrences respectively within 10 miles of the study area. None of the CNDDB occurrences fall within the study area. The following briefly describes or summarizes the special-status species issues and potential for occurrence within the study area.

2.5.1 Special-Status Botanical Resources

The CNDDB 10-mile radius search revealed observations or the recorded occurrences of 18 special-status plant species and one natural communities of special concern within a 10-mile radius of the study area. The special-status plant species occurrences recorded in the CNDDB are commonly associated with natural habitats, a specific soil type, habitat, and/or elevation range that dictates the range or microhabitat of the species. SII observations of plant growth in April 2020 suggest the habitat is low in species diversity and is typical southern California disturbed riparian and ruderal habitats.

There is no southern coastal salt marsh habitat within the study area and there were no observations of perennial woody special-status plants like the Nuttall's scrub oak (*Quercus dumosa*) or Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*). Further there were no observations of mesa horkelia (*Horkelia cuneata* ssp. *puberula*) or black-flowered figwort (*Scrophularia atrata*) that would have been observable during the April 2020 site visit.

There is no suitable habitat within the study area for specialized wetland/marsh species such as the Santa Barbara morning-glory (*Calystegia sepium* ssp. *binghamiae*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Gambel's water cress

(*Nasturtium gambelii*), or Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis)*. As such, these species are not expected to occur onsite lacking wetland habitat and will not be impacted by project activities.

Miles' milk vetch (*Astragalus didymocarpus* var. *milesianus*), Coulter's saltbush (*Atriplex coulteri*), late-flowered mariposa-lily (*Calochortus fimbriatus*), Palmer's mariposa-lily (*Calochortus palmeri* var. *palmeri*), umbrella larkspur (*Delphinium umbraculorum*), Ojai fritillary (*Fritillaria ojaiensis*), white-veined monardella (*Monardella hypoleuca* ssp. *hypoleuca*), chaparral nolina (*Nolina cismontana*), and southern jewelflower (*Streptanthus campestris*) are associated with native habitats and specialized soils in predominantly scrub, chaparral, and lower montane woodlands that are absent from the site. As such, these species are also not expected to occur onsite or be impacted by project activities.

Although not reported by the CNDDB, riparian habitat associated with Arroyo Paredon Creek is considered to be a Natural Community of Special Concern by CDFW and is mapped as Environmentally Sensitive Habitat Overlay (ESH) for Santa Barbara county.

The SII field observations and desktop review stand as definitive negative findings for potential special-status plant species potentially occurring within the proposed project area, and no additional surveys are recommended.

2.5.2 Special-Status Wildlife

The CNDDB search revealed the recorded occurrences of 35 special-status wildlife species within the 10-mile search radius of the Project site. None of the CNDDB mapped recorded occurrences are within the study area/project site. Special-status wildlife species known from the region evaluated for this study are discussed by groups or based upon habitat preferences, specific habitat use requirements (i.e. terrestrial or aquatic), mobility, and seasonal migratory patterns. In summary, no special-status wildlife species were observed in the study area, and the project area developed, orchard/ruderal/disturbed habitats lack any suitability for special-status wildlife. No project activities will occur in the Arroyo Paredon Creek riparian habitat.

Invertebrates – The CNDDB has recorded occurrences for the monarch butterfly within the 10-mile search range. No monarch butterflies were observed during SII field surveys of the study area and no suitable winter roosting habitat is present. No habitat for the vernal pool fairy shrimp occurs within the study area. The Crotch bumble bee requires grassland and flowering plants with occurrences recorded by the CNDDB are historic (circa 1972) and are located over nine miles from the site to the west. Typical grassland habitat and suitable host plants do not occur onsite for this species. The sandy beach tiger beetle (*Cicindela hirticollis gravida*), globose dune beetle (*Coelus globosus*), and wandering (=saltmarsh) skipper (*Panoquina errans*) all required highly specialized soil and vegetation conditions such as dry light-colored sand, dune vegetation, and salt marsh that do not occur on the project site. The SII field observations and desktop review stand as definitive negative findings for potential special-status invertebrates potentially occurring within the proposed project area, and no additional surveys are recommended.

Aquatic Species – The CNDDB has recorded occurrence in different watersheds for the arroyo toad (*Anaxyrus californicus*) that requires large river floodplains that is not present in Arroyo Paredon Creek. The foothill yellow-legged frog (*Rana boylii*) occurrences are historic records and not from the watershed of the project site. The coast range newt (*Taricha torosa*) needs native woodland uplands for most of its lifecyle that are absent from the areas surrounding the creek and is not expected to occur. All

these species are closely associated with permanent and seasonal aquatic habitats of streams, ponds, and seasonal pools. These species require perennial or seasonal aquatic habitats for reproduction but may also move overland between areas of suitable aquatic habitat and for foraging / sheltering purposes. However, the surrounding developed and agricultural uses precludes overland movement.

The CNDDB has a 2008 recorded occurrence of one juvenile California red-legged frog (*Rana draytonii;* CRLF) in Arroyo Paredon Creek 0.5 mile upstream of Hwy 192 crossing. While upstream and downstream movement through the creek riparian corridor is possible, there are no other creeks or suitable aquatic habitat in the immediate project vicinity to prompt upland dispersal. Santa Monica Creek also supports a recorded 2005 CRLF occurrence approximately 1.5 miles northeast of the site at the outer limits of potential CRLF upland movement, and is separated by significant geographical, agricultural, and urban barriers making migration between the two creeks highly constrained. In addition, the existing developed and long-standing historic intensive agricultural uses surrounding the site are likely to constrain CRLF movements to available "undeveloped" areas along the creek corridor.

The two-striped gartersnake (*Thamnophis hammondii*) is highly aquatic, found in or near permanent fresh water often along streams with rocky beds and riparian growth. The western pond turtle (*Emys marmorata*) is a thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. This species requires basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying. No suitable upland habitat occurs for either species within the project site or surrounding developed and agricultural land uses.

The tidewater goby (*Eucyclogobius newberryi*) occurs in brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels. The CNDDB occurrence is at the confluence of Arroyo Paredon Creek and the Pacific Ocean and does not near the project parcel creek and riparian area.

The steelhead (*Oncorhynchus mykiss irideus*); southern California distinct population segment refers to populations from Santa Maria River to the southern extent of range (San Mateo Creek in San Diego County). Southern California steelhead likely have greater physiological tolerances to warmer water and more variable conditions than other DPS. Arroyo Paredon Creek is designated as critical habitat for the species but there are no CNDDB recorded occurrences in this creek. The designation of critical habitat affects only Federal agency actions and does not increase or decrease the current restrictions on private property concerning take of steelhead. Based on the April SII field survey, it appears that the project parcel reach of Arroyo Paredon Creek would serve only as a freshwater migration corridor during periods of sufficient flows. There are only a few exposed shallow pools (12"to <36" deep) with little to no undercut banks or other areas for escaping predation further reducing suitability for steelhead along the project reach.

Reptiles – The coast patch-nosed snake (*Salvadora hexalepis virgultea*) typically inhabits brushy or shrubby vegetation in coastal Southern California where it utilizes small mammal burrows for refuge and overwintering sites. The northern California (silvery) legless lizard (*Anniella pulchra*), California legless lizard (*Anniella* spp.), and coast horned lizard (*Phrynosoma blainvillii*) are mostly associated with sandy soils in grassland, coastal sage scrub or chaparral habitats. None of these reptiles were observed during SII field surveys of the project site does not support suitable habitat for these species.

Birds – The CNDDB includes the wide-ranging Cooper's hawk and other raptors such as sharp-shinned hawk, red-shouldered hawk, red-tailed hawk, and short-eared owl that could utilize mature trees within Arroyo Paredon Creek riparian corridor for nesting purposes although habitat quality and foraging opportunities are severely reduced due to the narrow riparian corrido restricted by the ongoing urban and agricultural operations surrounding the site.

The California condor (*Gymnogyps californianus*) requires vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. No suitable nesting or foraging habitat is available for this species within the study area.

The CNDDB includes the following bird species that require highly specialized coastal and/or marshland habitats that are lacking from the study area: western snowy plover (*Charadrius alexandrinus nivosus*), yellow rail (*Coturnicops noveboracensis*), California black rail (*Laterallus jamaicensis coturniculus*), black-crowned night heron (*Nycticorax nycticorax*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), California brown pelican (*Pelecanus occidentalis californicus*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), and California least tern (*Sternula antillarum browni*). The snowy egret (*Egretta thula*) is mostly a coastal and estuary species and colonial nesting near suitable foraging areas not observed in the project parcel.

The bank swallow (*Riparia riparia*) is colonial nester; nests primarily in riparian and other lowland habitats west of the desert. It requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig a nesting hole. Suitable habitat for this species is not located within the project parcel riparian area. No CNDDB recorded occurrences are in the Arroyo Paredon Creek watershed.

The southwestern willow flycatcher (*Empidonax traillii extimus),* yellow warbler (*Setophaga petechia*), and least Bell's vireo (*Vireo bellii pusillus*) are breeding season migrants that typically nest in well-developed riparian areas with dense understory vegetation with perennial or semi-perennial water sources. Due to its degraded condition, lack of developed dense native understory, and narrow corridor restricted by agricultural and urban development, these species are not expected to occur in the project parcel riparian area. No CNDDB recorded occurrences are in the Arroyo Paredon Creek watershed.

Mammals – The CNDDB has two species of bats recorded from the region. The Townsend's big-eared bat (*Corynorhinus townsendii*) is typically associated with caves, crevices, and buildings for roosting. The Big free-tailed bat (*Nyctinomops macrotis*) needs high cliffs or rocky outcrops for roosting sites and feeds principally on large moths. No suitable habitat is present within the project parcel for these bat species.

San Diego desert woodrat (*Neotoma lepida intermedia*) inhabits Coastal scrub of Southern California from San Diego County to San Luis Obispo County. This species requires moderate to dense canopies and they are particularly abundant in rock outcrops, rocky cliffs, and south-facing slopes. No suitable habitat is present for this species within the project parcel.

3.0 PROJECT-SPECIFIC BIOLOGICAL & HABITAT RESOURCES IMPACT ANALYSIS

Developed Lands- Based on evaluation of the baseline site conditions, the majority of the project site (approximately 10.79 acres) is already occupied with structural development, regularly maintained stormwater detention basins, and/or intensive agricultural material storage and human activity. Therefore, these portions of the property represent no significant habitat value and thus structural development and operations in these area would not be expected to result in new significant biological impacts.

Riparian/Wetland/California Sycamore Woodlands- Approximately 0.48 acres of the project parcel encompass riparian vegetation, predominantly California sycamore woodlands, and the adjacent Arroyo Paredon streambed. This area of the parcel has significant habitat value and was thus identified as ESH. This ESH area is separated from the proposed project activities by an existing 7-foot chainlink security fence and intervening 20-foot wide paved private road. Both the road and fence will remain in-place throughout project construction and operations, acting as a positive barrier between proposed development activities and the riparian corridor. As such, no ground disturbance, vegetation/tree removal, or pruning is proposed in this habitat area. Any native tree canopy that hangs over the existing fence line will be avoided during native plant installation activities. The proposed project is not proposing any long-term maintenance (including pruning) to any trees associated with Arroyo Paredon Creek. Recommended avoidance and minimization measures are provided below to ensure impacts are avoided to native trees during construction. Per county Standards, an applicant for a land use entitlement for a commercial cannabis activity that would involve pruning, damage, or removal of a native tree, shall prepare and submit to the Department a Tree Protection Plan prepared by a Department-approved arborist designed to determine whether avoidance, minimization, or compensatory measures are necessary. Consistent with Exhibit 4, all construction staging will be prohibited within 200-feet of ESH and all ground disturbance and/or vegetation removal within 200-feet of ESH will be monitored by a County approved biologist. All night lighting is shielded to prohibit offsite light pollution and is motion activated to further limit light pollution. As result, no significant impacts will occur within this native riparian habitat area.

Agricultural/Ruderal Lands & ESH Buffer Restoration- Implementation of the proposed Project would result in the conversion of approximately 1.16 acres of fallow/ruderal/disturbed avocado orchard (formerly occupied by approximately 43 senescent avocado trees) to a mosaic of native oaks, shrubs, and ground cover species selected for their compatibility with the proximal Arroyo Paredon riparian corridor; approximately 1.13 acres of this area lies inside the ESH 100-foot buffer. The single native oak tree located within this restoration area will remain in-place subject to all the measures noted in the project's Tree Protection Plan. The applicant proposes to conduct any further clearing, grubbing, and/or excavation of the restoration area between September 1st and February 1st, outside the nesting season for birds. As such, the proposed project would avoid any potential impacts on nesting/breeding of resident or migratory birds, both common and special-status species. The removal of the historical avocado orchard and agricultural activities and revegetation conducted with a carefully selected suite of native species is expected to result in a net biological, habitat and water quality benefit to the area as it removes agricultural disturbance/operations and restores it to natural vegetation consistent with Arroyo Paredon Creek to the north.

Short-term Construction- Although unlikely to occur based on the highly disturbed and historically maintained nature of the site, special-status amphibians or reptiles could be present in upland areas adjacent to the creek during the winter months. As such, avoidance and minimization measures have been provided to ensure direct impacts to special-status reptiles and amphibians are avoided during the construction phase.

Long-term Operations- Long-term operational activities have the potential to injure or kill terrestrial wildlife as a result of vehicle strikes, excavation/grading, and maintenance of the facilities. Potential indirect impacts could result from noise, vibration, lighting, or from unintended hazardous waste runoff into Arroyo Paredon Creek / trash from construction and operational uses (including vehicles and equipment). However, all these potential impacts are currently, and have historically occurred onsite as part of the existing agricultural operations and thus are part of the baseline environmental setting. Post-project conditions would include significantly enhanced stormwater runoff protection and filtration for Arroyo Paredon Creek, as well as, the removal of agricultural operations closest to the riparian corridor and replacement with native vegetation. No increase in noise, lighting, or vibration towards Arroyo Paredon Creek would result from proposed activities, and as such, potential indirect impacts to the creek and wildlife utilizing the creek would not increase as a result of the project. Furthermore, the proposed native restoration have been designed to enhance the ESH buffer along the creek with the intent to further separate agricultural activities from the creek corridor. Therefore the removal of the historical avocado orchard and agricultural activities and revegetation conducted with a carefully selected suite of native species is expected to result in a net biological, habitat and water quality benefit to the area as it removes agricultural disturbance/operations and restores it to natural vegetation consistent with Arroyo Paredon Creek to the north.

Proposed maintenance activities, such as sediment removal, could result in impacts to wildlife sheltering in the basins during wet seasons. As such, recommendations have been provided in Section 4.0 to ensure such maintenance activities are limited to the dry-season.

Figure 2- Proposed Project Site Conditions

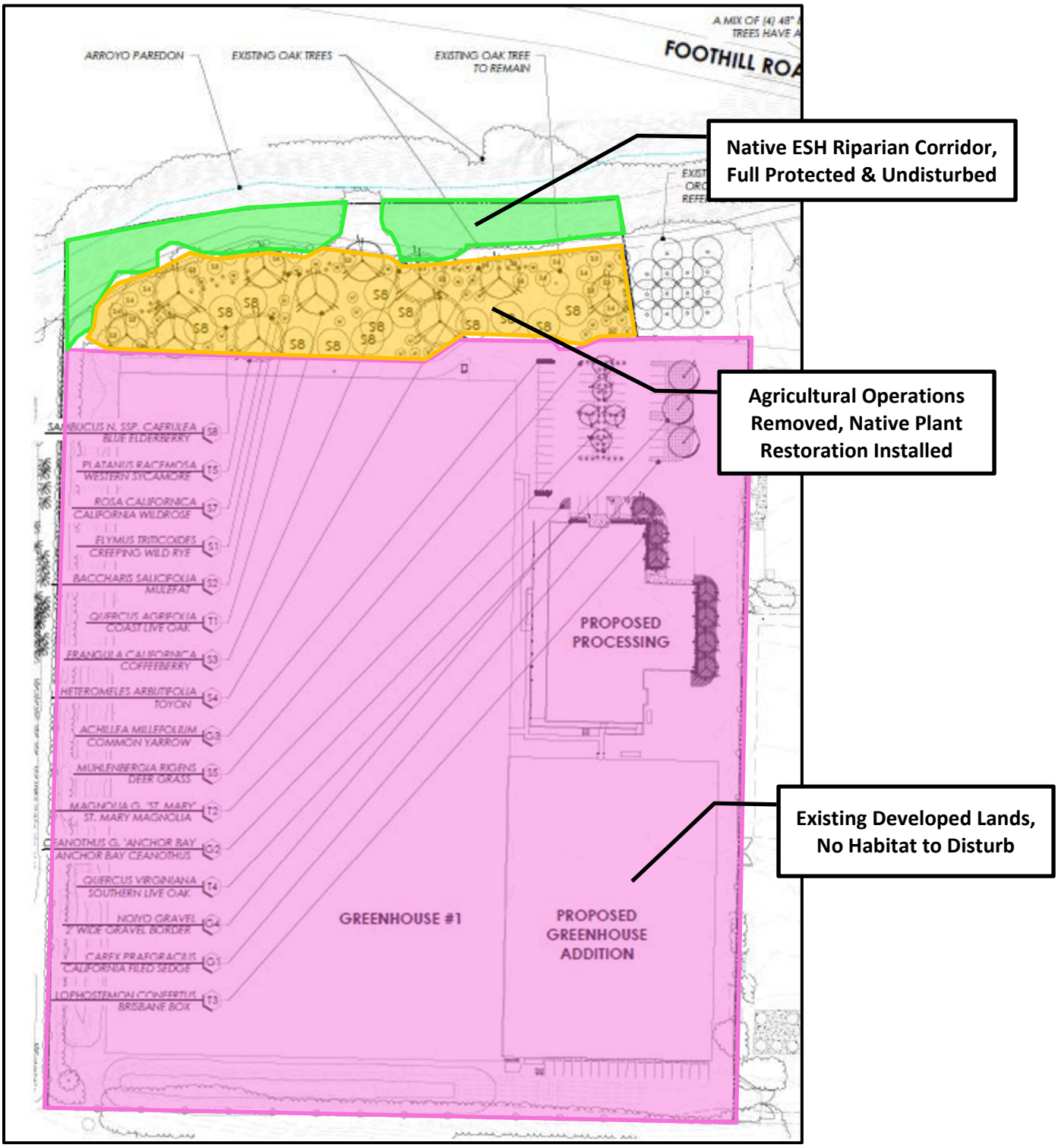


TABLE 1 – PEIR IMPACT AND MITIGATION ANALYSIS SUMMARY		
PEIR POTENTIAL IMPACTS	PROJECT IMPACTS	MITIGATION REQUIREMENT
Impact BIO-2. Cannabis activities could have adverse effects on habitats or sensitive natural communities.	No native habitat(s) or sensitive natural communities will be impacted or adversely effected by the project. Project will result in NET benefit to natural communities.	No mitigation required.
Impact BIO-4. Cannabis activities may conflict with adopted local plans, policies, or ordinances oriented towards the protection and conservation of biological resources.	All project activities are greater than 50 feet from the top of bank of Arroyo Paredon Creek. Although activities will encroach into the 100' ESH buffer, the project will result in a NET benefit to the ESH via replacing existing fallow avocado with native riparian and upland transition plant species.	No mitigation required.

4.0 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

According to Santa Barbara County Thresholds of Significance, the proposed project impacts are at an insignificant level as it is a small Project Site, impacts only avocado trees and ruderal species in a historical agricultural setting from pre-existing man-made disturbance, and project timing avoids impacts on nesting/breeding behaviors of resident and migratory birds. No impacts on Arroyo Paredon Creek riparian corridor would result from the proposed project. Therefore, all project impacts would be at a less than significant level. Consistent with the primary Biological Assessment, Tree Protection Plan, Wildlife Movement Plan the following avoidance and minimization measures will be implemented to further ensure less than significant impacts to habitat have been reduced to the maximum extent feasible.

1) **Landscape Restoration:** Implement the proposed landscape improvements, including use of native species restoration, in conformance with the proposed Landscape Plans as included in Appendix B of this Report.

2) **Tailgate Education Training:** To ensure all onsite workers are aware of potential special-status species associated with Arroyo Paredon Creek, a County-approved biologist shall provide a tailgate education training session for all onsite workers. The purpose of this training shall be to familiarize all workers with the potential biological resources occurring onsite and required avoidance and minimization measures. Penalties and procedures for non-compliance will also be reviewed. All training recipients will be required to sign-in documenting they have attended the training, and a copy of the sigh-in sheet will be provided to the County.

3) **Construction Protection: Within the Project parcel,** temporary construction fencing/signage will be established at a perimeter buffer of 200 feet from the ESH boundary (i.e. edge of riparian corridor. No staging of construction materials or heavy equipment storage will be allowed within this buffer. Any significant ground disturbing activities within this buffer must be proceeded by a pre-construction survey as detail in item 4 below. See Exhibit 4 in Appendix A for more detail.

4) **Special-status Wildlife Pre-construction Surveys:** Within 48 hours of initial disturbance activities, the authorized biologist shall conduct a pre-construction survey in all upland areas of the site and within Arroyo Paredon Creek for the purposes of identifying any CRLF, two striped garter snake, steelhead, or other special-status species that may be present within or adjacent to project

activities. Special focus shall be taken in potential upland refuges such as debris piles. The County-approved monitoring biologist shall move out of harm's way any non-listed wildlife species encountered during initial ground disturbing activities to the extent feasible.

5) **Post-construction Monitoring Report:** A post-construction monitoring report will be provided to the County detailing any unintended impacts to native trees or other biological resources during construction and any additional mitigation measures implemented at the direction of the authorized biologist.

6) **Detention Basin Maintenance:** The timing of detention basin maintenance shall be limited to between September 1st to February 1st to ensure activities occur outside the nesting season for birds. If deemed to be required by the County, the applicant shall submit a Habitat Protection Plan for county review and approval at a minimum of 60 days prior to initiating any maintenance activity.

5.0 CONCLUSIONS

In conclusion, based on the findings described above establishing the existing conditions of habitat resources within the Project parcel and applicant proposed site modifications for native plant restoration and fencing modifications; the implementation of the Project should positively benefit habitats in the region. As such, direct and indirect project impacts on habitat resources would be at a less than significant level as follows:

- The small Project Site of 1.16-acres of fallow orchard habitat only impacts avocado trees and ruderal species in an historical agricultural setting from pre-existing man-made disturbance.
- Avoidance and minimization measures have been proposed to ensure no direct impacts occur to special-status species or natural communities of special concern.
- Project timing avoids impacts on nesting/breeding behaviors of resident and migratory birds.
- A net benefit to the Arroyo Paredon Creek riparian corridor and 100-ft. ESH buffer would result from the proposed project (refer to Appendix D for details).
- The project's existing structures, proposed detention basin expansion, and new parking area are located outside of the core ESH area (i.e. the limits of the riparian canopy) associated with Arroyo Paredon Creek. All native vegetation within the ESH area will remain undisturbed.

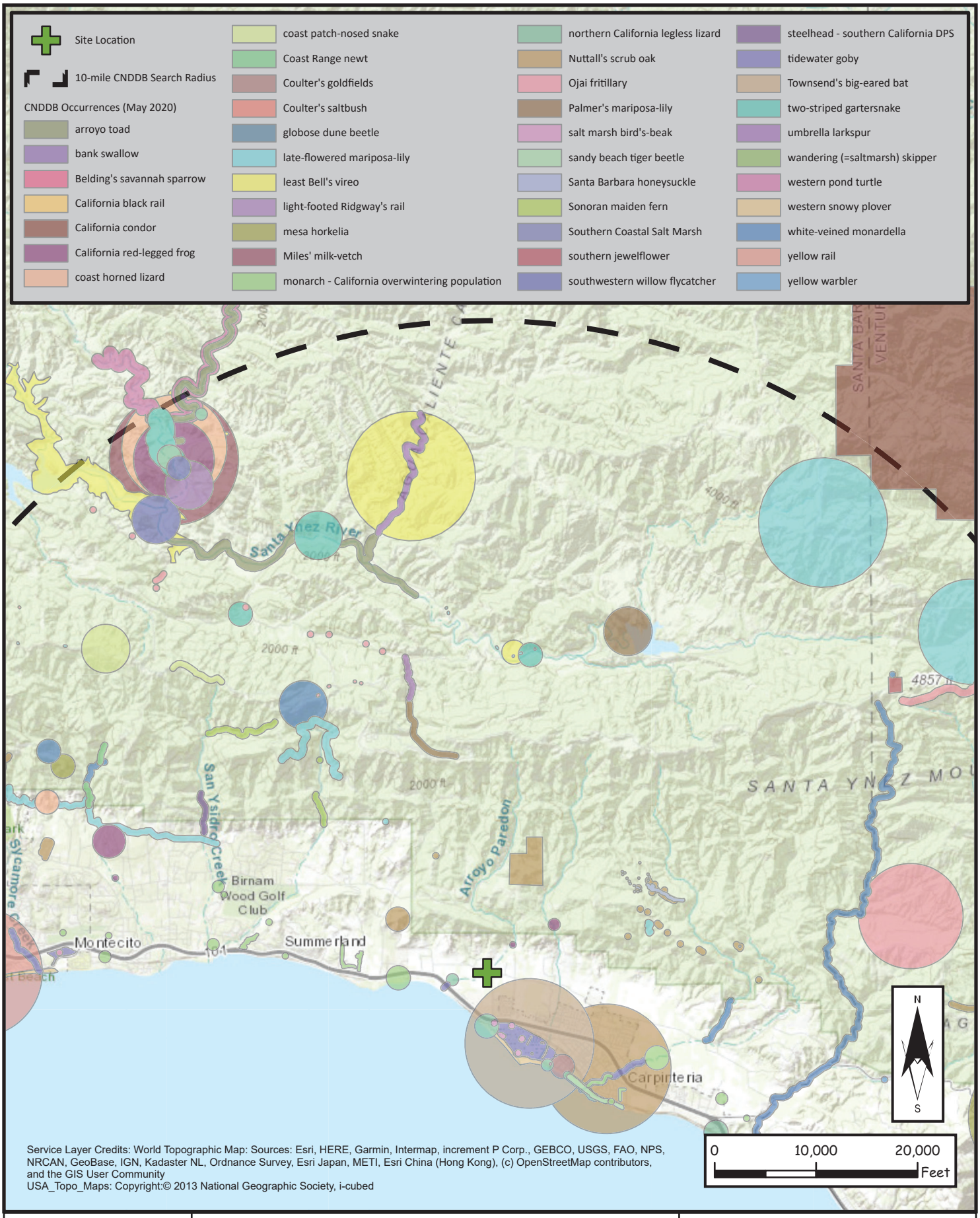
REFERENCES

1) Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T.J. Rosatti, Ed. 2012. *The Jepson Manual, Vascular Plants of California, Second Edition Thoroughly Revised and Expanded*. University of California Press.
2) Calflora: Information on California plants for education, research and conservation. [web 8 application]. 2012. Berkeley, California: The Calflora Database (a non-profit 9 organization). Available: http://www.calflora.org/. Accessed: November 2018.
3) Cal-IPC. 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available: www.cal-ipc.org
4) Mayer, W. and W. Laudenslayer, Editors. 1988. *A Guide to Wildlife Habitats of California*. California Department of Forestry and Fire Protection.
5) Santa Barbara County Planning and Development. 2008. *Environmental Thresholds and Guidelines Manual*. Revised September 2008, Published October 2008.

6) Santa Barbara County. 2017. Cannabis Land Use Ordinance and licensing Program, Final Environmental Impact Report. Section 3.4 Biological Resources. December 2017.
7) Santa Barbara County. 2019. Santa Barbra Count Article II Coastal Zoning Ordinance. Updated June 2019
8) Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, 2nd Edition*. California Native Plant Society, Sacramento, CA.
9) Sawyer, J. & T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. Web version provided by the California Native Plant Society.

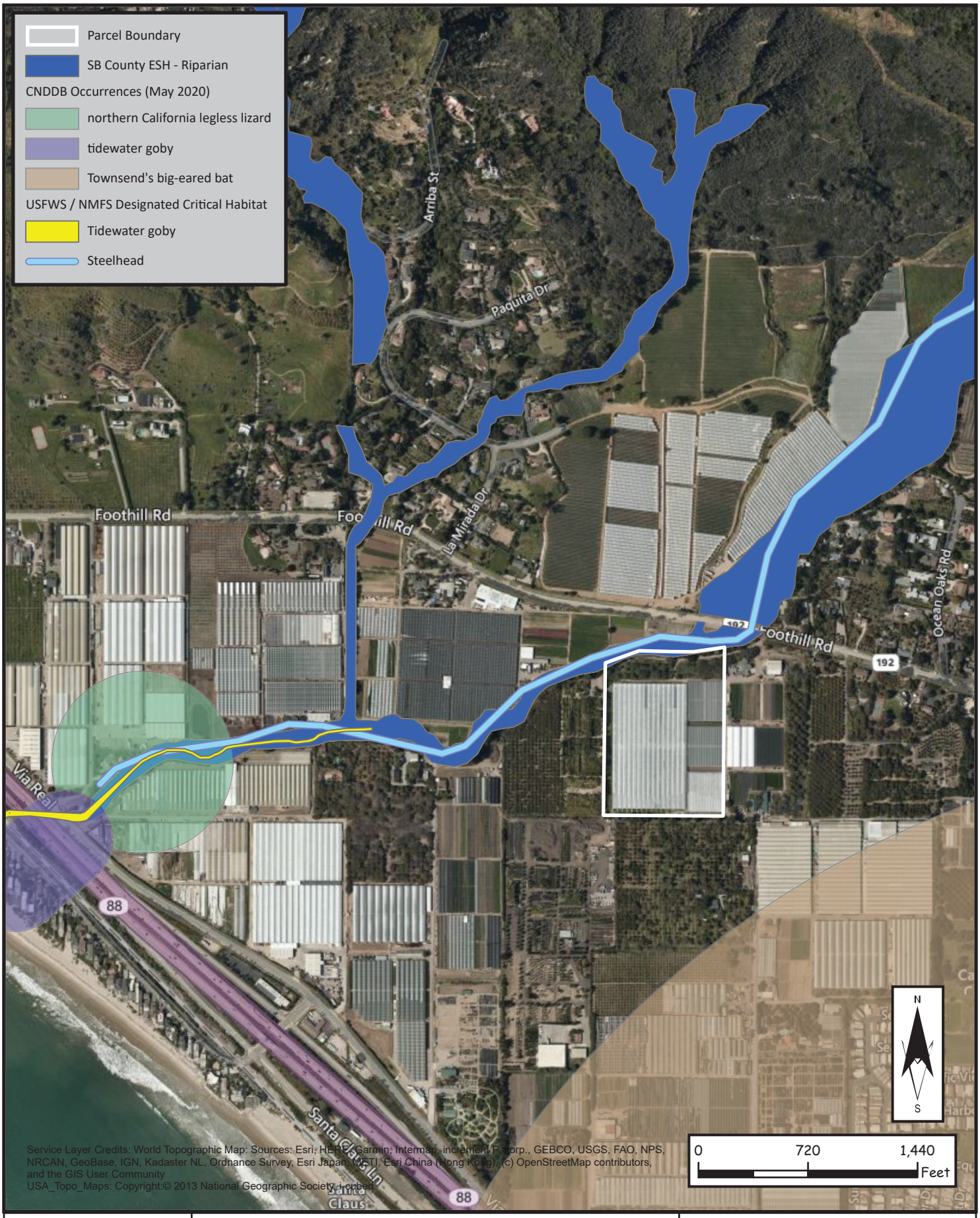
APPENDIX A

Exhibit 1: Regional Location and CNDDB Occurrences Map
Exhibit 2: Aerial Overview
Exhibit 3: Revised Habitat Map (July 2020)
Exhibit 4: Construction Staging, Storage and Parking Plan

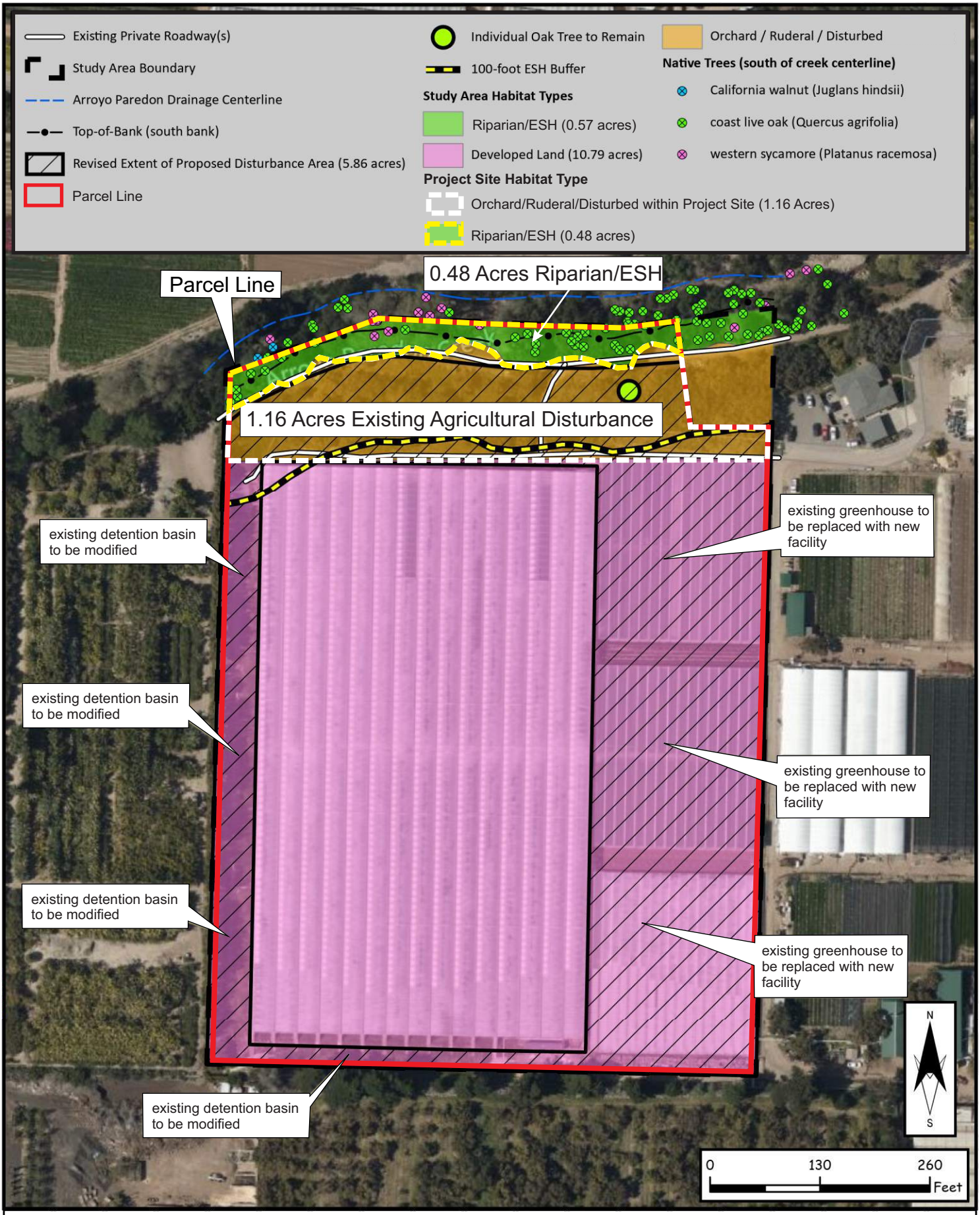


Service Layer Credits: World Topographic Map: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
USA_Topo_Maps: Copyright:© 2013 National Geographic Society, i-cubed

sage institute inc updated May 27, 2020	SLO Cultivation - Carpinteria	**Figure 1**
	APN# 005-310-024, 3861 Foothill Road	**Regional Location / CNDDB Map**



sage institute INC updated May 27, 2020	SLO Cultivation - Carpinteria	**Figure 3**
	APN# 005-310-024, 3861 Foothill Road	**Aerial Overview**

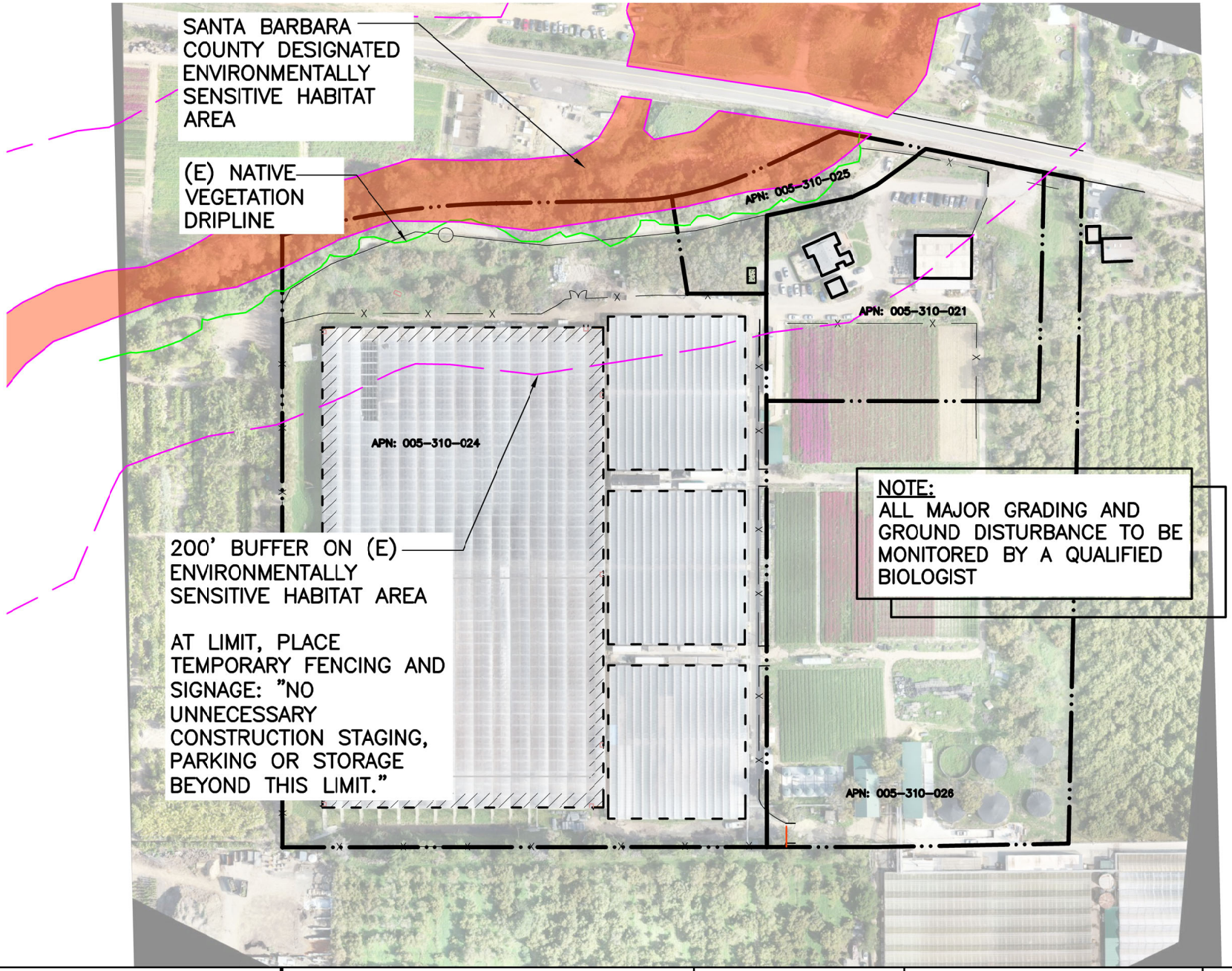


sage institute
updated January 14, 2021

SLO Cultivation - Carpinteria

APN# 005-310-024, 3861 Foothill Road

Figure 5
Habitat Map



OCEAN BREEZE FARMS

N

SCALE: 1"= 200'-0"

0 400'

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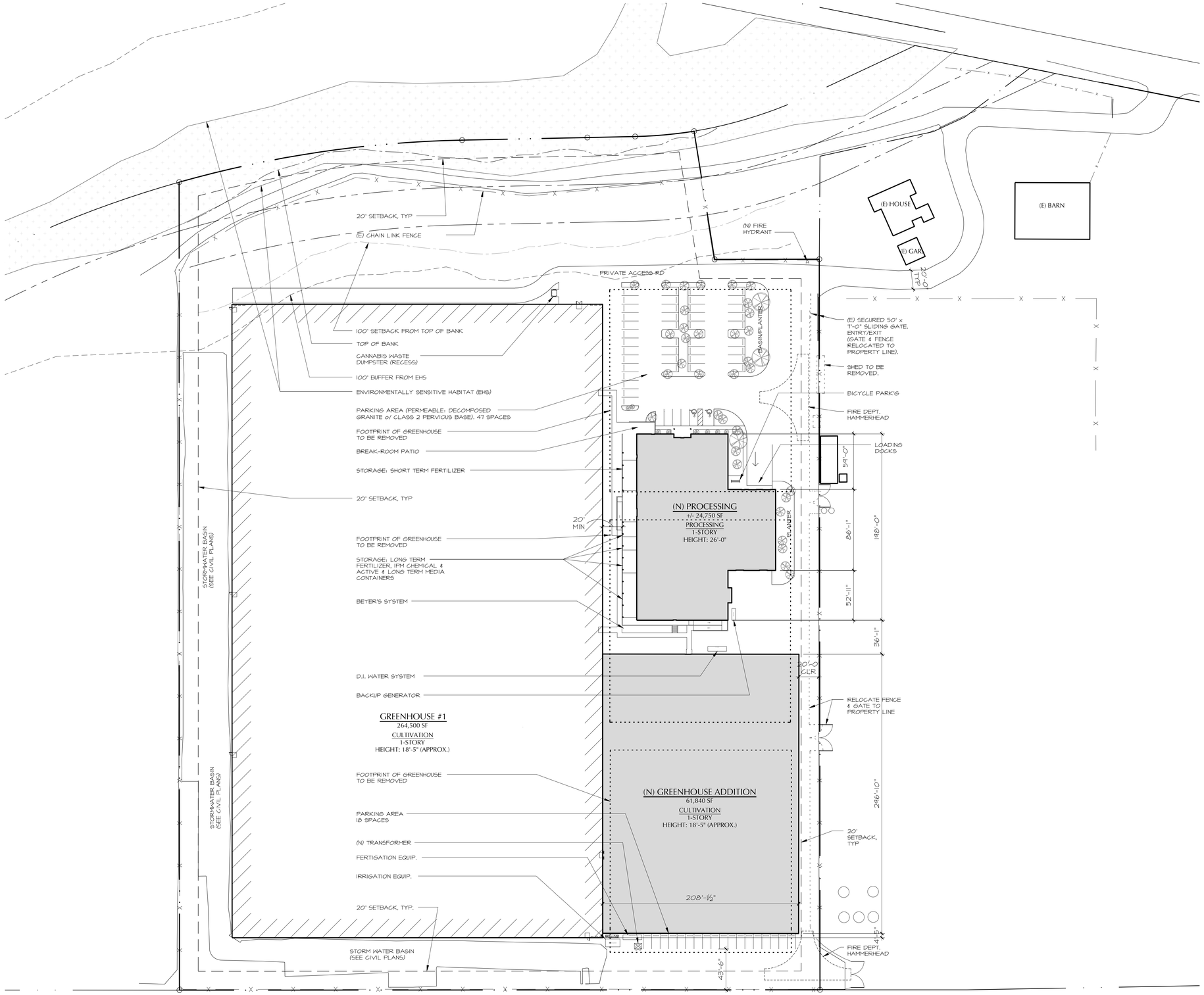
3861 FOOTHILL RD.
CARPINTERIA, CA 93103

CONSTRUCTION STAGING, STORAGE AND PARKING PLAN

APPENDIX B

Exhibit 5: Design Documents, Fencing and Landscape Plans



SITE PLAN

1"=50'

SITE PLAN GENERAL NOTES:

1. This plan is for architectural reference. See civil plans for specific grading and drainage information.
2. Positive drainage shall be provided away from the structure at a minimum slope of 5% for 10 feet.
3. Contractor shall verify location of all underground utilities prior to excavation.
4. Rain gutters and downspouts shall collect and discharge roof rain water run-off through an approved storm drain system. See civil plans for additional information.
5. Verify depth & separation of utilities within trenches w/ governing jurisdiction and comply w/ all applicable codes. Architect to be notified of any conflicts.

BBP
ARCHITECTURE
924 anacapa st
suite: 2-U
santa barbara, ca
93101
805.564.6074

SLO CULTIVATION
3861 Foothill Rd
Carpinteria, CA

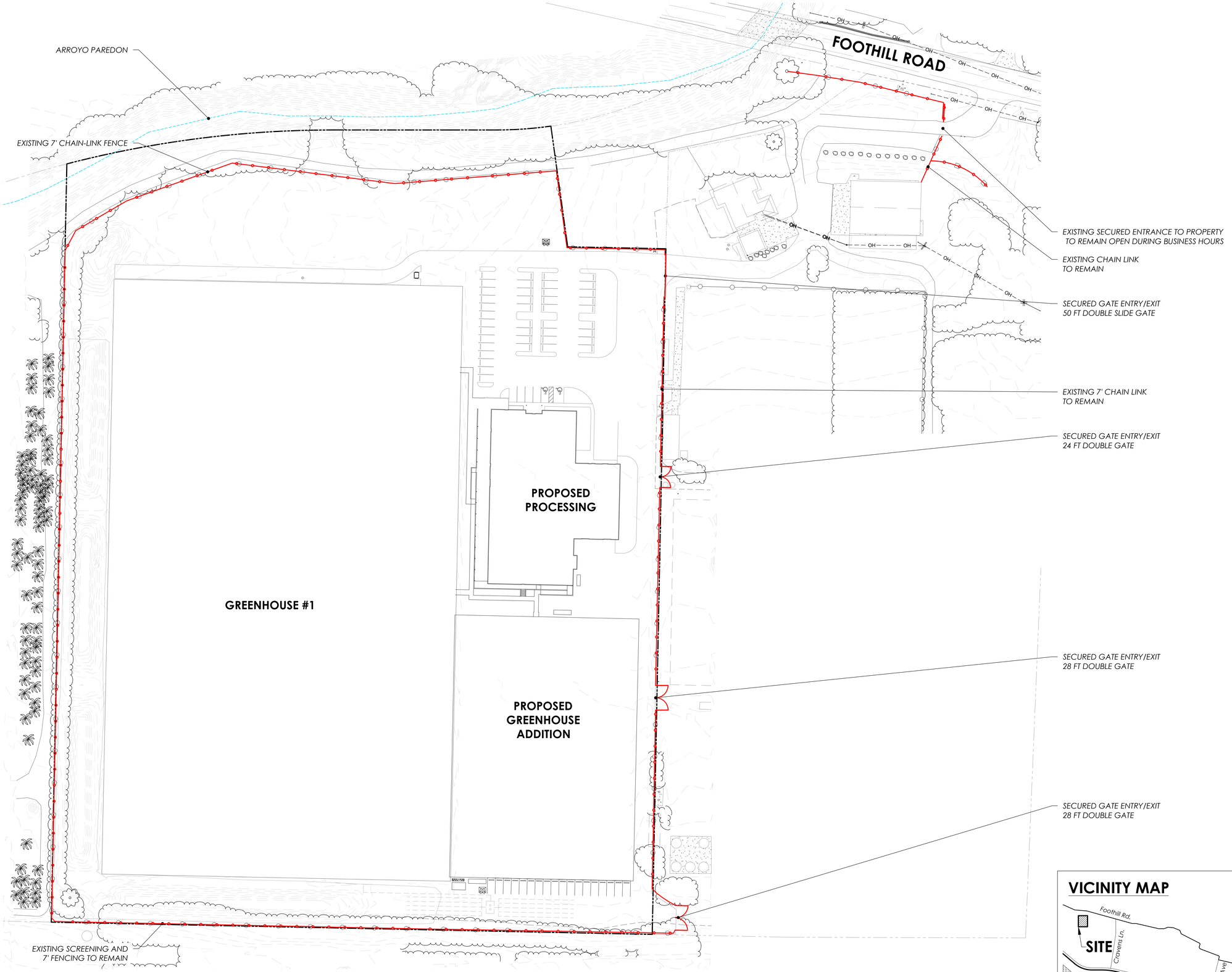
LICENSED ARCHITECT
HEIDI A. BURNELL
NO. C-20626
REN. 05/21
STATE OF CALIFORNIA

sheet description
SITE PLAN

date:
8-7-2020
8-20-2020
8-28-2020
9-3-2020
9-9-2020
9-17-2020
12-9-2020
12-18-2020
12-29-2020
1-13-2021
2-3-2021
2-9-2021
2-10-2021
2-18-2021
4-27-2021
6-1-2021
7-6-2021
9-15-2021
10-1-2021

sheet no:
A-1

Preliminary: NOT FOR CONSTRUCTION



❑ FENCING & SECURITY PLAN

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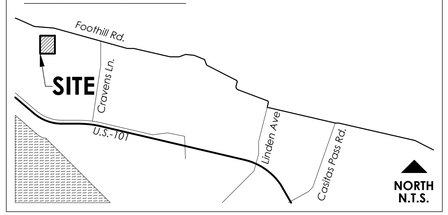
SCALE : 1" = 50'-0"
NORTH

VICINITY MAP



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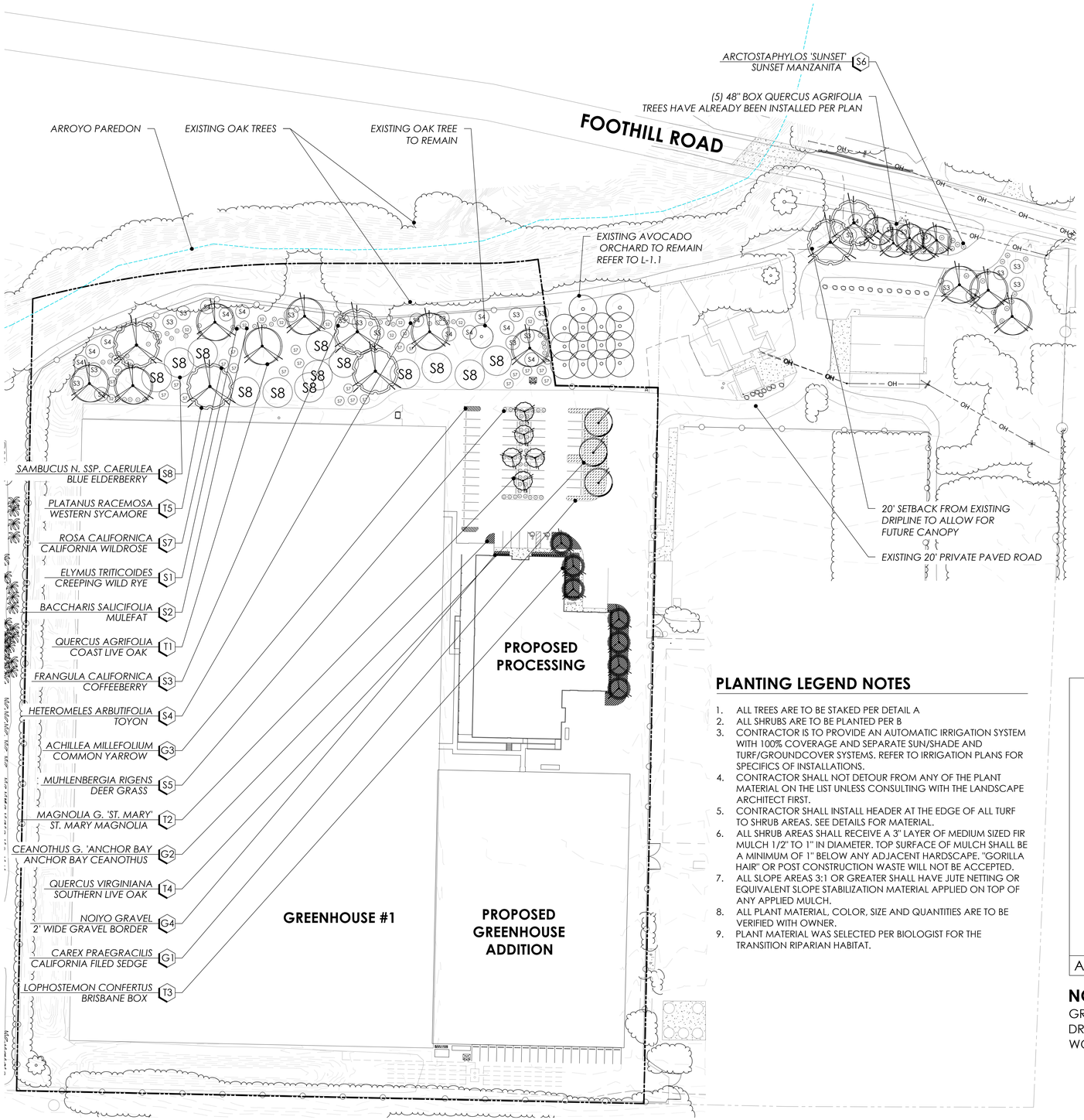
SLO CULTIVATION

3889 FOOTHILL ROAD // CARPINTERIA, CALIFORNIA 93013

SHEET TITLE

FENCING & SECURITY PLAN

OWNER	Cresco California
	P.O. Box 183
	Carpinteria, California 93014
DATE	2021.10.12
	21839
SHEET NO.	L-1.0



PLANTING LEGEND NOTES

1. ALL TREES ARE TO BE STAKED PER DETAIL A
2. ALL SHRUBS ARE TO BE PLANTED PER B
3. CONTRACTOR IS TO PROVIDE AN AUTOMATIC IRRIGATION SYSTEM WITH 100% COVERAGE AND SEPARATE SUN/SHADE AND TURF/GROUNDCOVER SYSTEMS. REFER TO IRRIGATION PLANS FOR SPECIFICS OF INSTALLATIONS.
4. CONTRACTOR SHALL NOT DETOUR FROM ANY OF THE PLANT MATERIAL ON THE LIST UNLESS CONSULTING WITH THE LANDSCAPE ARCHITECT FIRST.
5. CONTRACTOR SHALL INSTALL HEADER AT THE EDGE OF ALL TURF TO SHRUB AREAS. SEE DETAILS FOR MATERIAL.
6. ALL SHRUB AREAS SHALL RECEIVE A 3" LAYER OF MEDIUM SIZED FIR MULCH 1/2" TO 1" IN DIAMETER. TOP SURFACE OF MULCH SHALL BE A MINIMUM OF 1" BELOW ANY ADJACENT HARDSCAPE. "GORILLA HAIR" OR POST CONSTRUCTION WASTE WILL NOT BE ACCEPTED.
7. ALL SLOPE AREAS 3:1 OR GREATER SHALL HAVE JUTE NETTING OR EQUIVALENT SLOPE STABILIZATION MATERIAL APPLIED ON TOP OF ANY APPLIED MULCH.
8. ALL PLANT MATERIAL, COLOR, SIZE AND QUANTITIES ARE TO BE VERIFIED WITH OWNER.
9. PLANT MATERIAL WAS SELECTED PER BIOLOGIST FOR THE TRANSITION RIPARIAN HABITAT.

❑ LANDSCAPE SCREENING PLAN - DETENTION BASIN ENLARGEMENT

0 30 60 120
SCALE : 1" = 60'-0"
NORTH

PLANT LEGEND

TREES

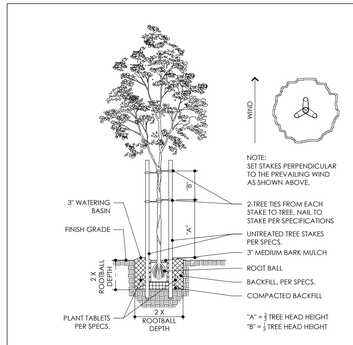
SYMBOL		NAME	COMMENTS	SIZE	WUCOLS	QTY.
	T1	*QUERCUS AGRIFOLIA* COAST LIVE OAK	PLANT PER DETAIL A	48" BOX	V. LOW	15
	T2	*MAGNOLIA GRANDIFLORA 'ST. MARY'* ST. MARY MAGNOLIA	PLANT PER DETAIL A	24" BOX	MED	5
	T3	*LOPHOSTEMON CONFERTUS* BRISBANE BOX	PLANT PER DETAIL A	36" BOX	MED	7
	T4	*QUERCUS VIRGINIANA* SOUTHERN LIVE OAK	PLANT PER DETAIL A	36" BOX	MED	3
	T5	*PLATANUS RACEMOSA* WESTERN SYCAMORE	PLANT PER DETAIL A REFER TO PLANT LEGEND NOTE #9	36" BOX	MED	6

SHRUBS

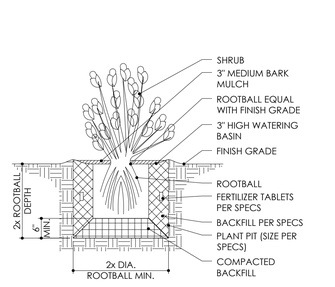
SYMBOL		NAME	COMMENTS	SIZE	WUCOLS	QTY.
S1	S1	*ELYMUS TRITICOIDES* CREEPING WILD RYE	PLANT PER DETAIL B	1 GAL.	LOW	38
S2	S2	*BACCHARIS SALICIFOLIA* MULEFAT	PLANT PER DETAIL B	1 GAL.	LOW	15
S3	S3	*FRANGULA CALIFORNICA* COFFEE BERRY	PLANT PER DETAIL B	5 GAL.	V. LOW	26
S4	S4	*HETEROMELES ARBUTIFOLIA* TOYON	PLANT PER DETAIL B	5 GAL.	V. LOW	14
S5	S5	*MUHLENBERGIA RIGENS* DEER GRASS	PLANT PER DETAIL B	5 GAL.	LOW	46
S6	S6	*ARCTOSTAPHYLOS 'SUNSET'* SUNSET MANZANITA	PLANT PER DETAIL B	5 GAL.	LOW	23
S7	S7	*ROSA CALIFORNICA* CALIFORNIA WILDROSE	PLANT PER DETAIL B REFER TO PLANT LEGEND NOTE #9	5 GAL.	LOW	23
S8	S8	*SAMBUCUS NIGRA SSP. CAERULEA* BLUE ELDERBERRY	PLANT PER DETAIL B REFER TO PLANT LEGEND NOTE #9	5 GAL.	LOW	13

GROUNDCOVERS

SYMBOL		NAME	COMMENTS	SIZE	WUCOLS	QTY.
	G1	*CAREX PRAEGRACILIS* CALIFORNIA FIELD SEDGE	PLANT PER DETAIL B 36" O.C.	4" POTS	LOW	19
	G2	*CEANOTHUS GLORIOSUS 'ANCHOR BAY'* ANCHOR BAY CEANOTHUS	PLANT PER DETAIL B 72" O.C.	5 GAL.	LOW	92
	G3	*ACHILLEA MILLEFOLIUM* COMMON YARROW	PLANT PER DETAIL B 24" O.C.	1 GAL.	LOW	43
	G4	*NOIYO GRAVEL* GRAVEL BORDER	2 FOOT WIDE BORDER SURROUNDING THE BUILDING	2"-4"	N/A	423 SQ. FT.



A | TREE PLANTING

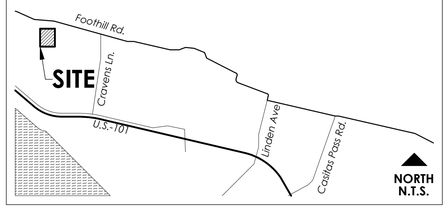


B | SHRUB PLANTING

NOTE:

GRADING AND SITE DISTURBANCE SHALL REMAIN AT LEAST 6 FEET OUTSIDE OF THE EXISTING OAK'S DRIPLINE WHENEVER FEASIBLE. IF GRADING MUST ENCROACH WITHIN THAT PROTECTED AREA, ALL SUCH WORK SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE LANDSCAPE ARCHITECT/ARBORIST

VICINITY MAP



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SHEET TITLE

LANDSCAPE SCREENING PLAN

OWNER	*Cresco California*
	P.O. Box 183
	Carpinteria, California 93014
DATE	*2021.10.12*
	21839
SHEET NO.	

L-1.2

❑ EXISTING RENDERED SITE PLAN

0 25 50 100
SCALE : 1" = 50'-0"
NORTH

VICINITY MAP

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SHEET TITLE

EXISTING RENDERED SITE PLAN

OWNER	Cresco California P.O. Box 183 Carpinteria, California 93014
DATE	2021.10.12 21839
SHEET NO.	L-1.3

ARROYO PAREDON

EXISTING OAK TREE CANOPY

PROPOSED LANDSCAPE

NOT A PART
REFER TO CAL-TRANS
LANDSCAPE PLANS

FOOTHILL ROAD

PROPOSED LANDSCAPE SCREENING

EXISTING AVOCADO TREES

EXISTING BARN

EXISTING RESIDENCE

EXISTING GARAGE

EXISTING 20' WIDE PAVED ROAD

EXISTING BAMBOO SCREENING
TO REMAIN

PROPOSED
PROCESSING

GREENHOUSE #1

PROPOSED
GREENHOUSE
ADDITION

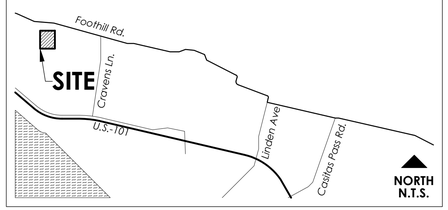
EXISTING PINUS SPP.
TO REMAIN

0 25 50 100
SCALE : 1" = 50'-0"

NORTH

❑ PROPOSED RENDERED SITE PLAN

VICINITY MAP



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SHEET TITLE

PROPOSED RENDERED SITE PLAN

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	P.O. Box 183
	Carpinteria, California 93014
DATE	2021.10.12
	21839
SHEET NO.	L-1.4

Exhibit 3- Cresco Carpinteria Odor Mitigation & VOC Site Study

Environmental Consultants
and Contractors

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Suite 101
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SCS ENGINEERS

Formerly Tracer Environmental Sciences & Technologies, Inc., now a part of SCS Engineers.

August 9, 2021

Santa Barbara County Planning Commission
Planning & Development Department
123 East Anapamu Street
Santa Barbara, CA 93013

Subject: Cresco/SLO Cultivation Cannabis Project
Odor and Volatile Organic Compound Sampling Study

To Planning Commissioners:

SCS Engineers (SCS) was retained by Cresco California/SLO Cultivation to conduct a series of odor and Volatile Organic Compound (VOC) sampling at their operational, legal, non-conforming farm located at 3861 Foothill Road, in Carpinteria, California (also known as APN 005-310-024). This sampling study was intended to accomplish three goals:

1. Verify the efficacy of the existing vapor-phase odor neutralizing system.
2. Make recommendations to improve the performance of the odor abatement system and odor control best management practices.
3. Verify that the odor control system and other operations on the Project Site were not producing harmful amounts of VOCs.

Project Site Conditions: At the time of the study, the Project Site included approximately two (2) acres of adult-flowering cannabis cultivation occurring in passively vented greenhouses, one (1) acre of juvenile/nursery cannabis cultivation occurring in passively vented greenhouses, and ancillary harvesting/processing activities. The Project was equipped with one (1) Byers vapor-phase unit and approximately 2,600 linear feet of distribution piping. The Byers system was supplied with a continuous flow of Ecosorb CNB 100.

Odor Sampling Methodology: The sampling study was preceded by analyzing average annual meteorological data associated with the Santa Barbara Air Pollution Control District air monitoring station located in Carpinteria Valley east of the Cresco facility. From this annual meteorological data, three time periods were identified during which meteorological conditions (wind speed and direction) follow consistent different patterns:

1. Early Morning Hours
2. Late Morning Hours
3. Afternoon Hours

Given the probability that the Byers system's performance would be potentially affected by these varying wind patterns, sampling times and procedures were established to capture odor samples throughout each differing time period. The odor samples were taken using a specially designed air displacement sampler consisting of a vacuum pump system and Tedlar sample bags. These samples

were then shipped to an independent third-party laboratory (Odor Science and Engineering, Inc. (OS&E) in Bloomfield, Connecticut) for analysis. The OS&E laboratory has an expert odor panel which conducts blind evaluations of the odor samples (the panel is not informed of the potential type or source of the samples). The odor panel provides a character (e.g., sour, skunk, exhaust, garbage), and a concentration for each odor sample. The concentration of odor is quantified as a dilution to threshold ratio (D/T) with higher numbers reflecting stronger odors. For example, the baseline odors present in most communities range from 8-12 D/T. Eight (8) D/T represents eight (8) parts of clean, purified air for each unit of odor sample. The specially trained and qualified odor panelists can often detect a net increase of 3-5 D/T over this baseline condition. Members of the general public can typically detect a net increase of 5-10 D/T. As a result, SCS typically considers a persistent net increase of odor concentration of seven (7) D/T or greater above baseline to be a potential nuisance odor detectable by the public.

Odor Sampling Event 1 Results: On July 1st and 2nd, 2019, SCS collected a set of twenty-one (21) total odor samples at strategically appropriate times and locations in an effort to capture potential maximum odors during calm winds (early morning), transitional winds (late morning), and steady winds (afternoon), with the Project Facilities' roof vents open, and with active cannabis processing occurring. These sample collections included upwind locations to determine an odor baseline for the region without cannabis, samples taken inside the greenhouse to reflect unmitigated odor released from cannabis cultivation or processing, and samples taken outside the greenhouse, downwind to capture odor conditions after the application of the odor neutralizing vapor.

Baseline Conditions: Results from Sampling Event 1 indicated that the upwind/baseline odor present in Carpinteria had a concentration of nine (9) D/T with a character commonly including odor descriptors such as: sour, stale, plastic, and vegetation. Samples of unmitigated cannabis odors within the Project Site's greenhouse ranged from a net increase in odor concentration of 117 D/T to 140 D/T with a character commonly including odor descriptors such as: skunk, mercaptan, and sour.

Samples Mitigated by Byers/Ecosorb System:

Early Morning/Calm Winds: Samples taken outside the Project Site's greenhouse with odor mitigation from the neutralizing vapor had a net increase ranging from 1 D/T to 32 D/T with character descriptors indicative of cannabis (i.e., skunk, sour, and mercaptan) in 5 of the 6 samples. Cannabis odors remained detectable, although the odorous air mass also remained in close proximity to or within the Project and Ocean Breeze parcels. No nuisance level odors were detected in proximity to offsite receptors.

Late Morning/Transitional Winds: Samples taken outside the Project Site's greenhouse with odor mitigation from the neutralizing vapor had a net increase ranging from 1 D/T to 26 D/T with character descriptors indicative of cannabis (i.e., skunk, sour, and mercaptan) only present within 1 of the 6 samples. Increasing wind movement and turbulence appears to provide superior mixing with the only sample point exceeding nuisance levels and having cannabis character was within 50-feet of the greenhouse on an Ocean Breeze parcel.

Afternoon/Steady Winds: Samples taken outside the Project Site's greenhouse with odor mitigation from the neutralizing vapor had a net increase ranging from 0 D/T to 29 D/T with character descriptors indicative of cannabis (i.e., skunk, sour, and mercaptan) only present within 1 of the 6 samples. Increasing wind movement and turbulence appears to provide superior mixing with the only sample point exceeding nuisance levels and having cannabis character was within 20-feet of the greenhouse on an Ocean Breeze parcel.

Initial Conclusions/Recommendations: The Byers/Ecosorb System is achieving the desired effect. Odor samples exceeding nuisance intensities with cannabis character were limited to areas on the Cresco and Ocean Breeze parcels at short distances generally within 50-feet of the cannabis activity. The system seems more challenged to provide efficient mixing during no/low wind states. Consider improving the performance of the site by strategically timing the lowering of the side wall ventilation curtains to coincide with increasing winds speeds and install carbon scrubbers to provide supplemental odor control for processing areas.

Odor Sampling Event 2 Results: Cresco implemented multiple recommendations for improved facility odor control recommended by SCS staff. After these recommended actions were implemented, SCS collected an additional set of twelve (12) total odor samples on September 25, 2019 during calm winds (early morning), steady winds (afternoons), with the Project Facilities' roof vents open, and with active cannabis processing occurring. These sample collections included upwind locations to determine an odor baseline for the region without cannabis, samples taken inside the greenhouse to reflect unmitigated odor released from cannabis cultivation or processing, and samples taken outside the greenhouse, downwind to capture odor conditions after the application of the odor neutralizing vapor.

Baseline Conditions: Results from the Sampling Event 1 indicated that the upwind/baseline odor present in Carpinteria had a concentration of nine (9) D/T with a character commonly including odor descriptors such as: musty, stale, plastic, and vegetation. Samples of unmitigated cannabis odors within the Project Site's greenhouse ranged from a net increase in odor concentration of 521 D/T to 1,941 D/T with a character commonly including odor descriptors such as: skunk, weed/pot, and exhaust.

Samples Mitigated by Byers/Ecosorb System:

Early Morning/Calm Winds: Samples taken outside the Project Site's greenhouse with odor mitigation from the neutralizing vapor had a net increase ranging from 0 D/T to 23 D/T with character descriptors indicative of cannabis (i.e., skunk, weed/pot, and mercaptan) in only 2 of the 5 samples one of which only had borderline 7 D/T concentration. Cannabis odors inside the greenhouse were substantially elevated compared to prior Event 1/Early Morning test results presumably due to delaying drop of wall ventilation; however, the desired effect of reduced odors outside greenhouse has also been achieved and odor levels proximal to offsite receptors are essentially back to baseline.

Afternoon/Steady Winds: Samples taken outside the Project Site's greenhouse with odor mitigation from the neutralizing vapor had a net increase ranging from 1 D/T to 2 D/T with no definitive character descriptors indicative of cannabis (i.e., skunk, pot, mercaptan) found in any of the four downwind samples. Increasing wind movement and turbulence appears to provide superior mixing and the system is functioning very well in achieving the desired odor mitigation.

VOC Testing Summary: During the odor sampling exercise, SCS also captured coincidental VOC samples in real-time utilizing a handheld MiniRae 3000 Photo-Ionization Detector (PID) throughout the greenhouse cultivation spaces, surrounding property, and at targeted locations in proximity to Byer's equipment with the potential to create elevated VOC levels. Additionally, during the July odor sampling event SCS captured a series of seven (7) air samples utilizing SUMMA vacuum canisters. These canisters were sent to an independent laboratory operated by Atmospheric Analysis & Consulting, Inc. for analysis in accordance with EPA Method TO-15 for VOCs.

Table 1- VOC Measurements

	Inside Greenhouse	Byers Output	Inside Greenhouse	Sample Taken Outside Greenhouses				Reg. Thresholds	
Sample ID	**VOC-1**	**VOC-2**	**VOC-3**	**VOC-4**	**VOC-5**	**VOC-6**	**VOC-7**	**NIOSH REL**	**OSHA PEL**
Ethanol	13.7	ND	2.74	ND	7.02	ND	ND		**1,000,000**
2-Methylbutane	0.57	ND	ND	ND	2.22	ND	ND	**120,000**	**1,000,000**
1-Propanol	ND	ND	ND	ND	1.93	ND	ND	**200,000**	**200,000**
2-Methylpentane	ND	ND	ND	ND	1.33	ND	ND	**100,000**	**-**
3-Methylpentane	ND	ND	ND	ND	0.75	ND	ND	**100,000**	**-**
Methylcyclopentane	ND	ND	ND	ND	0.69	ND	ND	**400,000**	**500,000**
alpha-Pinene	4.04	95.5	1.6	ND	ND	ND	ND		**100,000**

***All units listed are parts per billion (ppb).**

Final Conclusions/Recommendations: Based upon this Cresco Project Site Case Study, SCS' findings conclude that the odor neutralizing vapor system was:

- Upon initial testing the system was struggling to provide sufficient odor neutralizing effect during early-morning calm wind periods, presumably due to a lack of air turbulence to drive proper mixing between the odorous mass and surrounding vapor. However, due to the lack of air movement there was also insufficient wind speed need to drive the remaining odors to offsite receptors.
- In transitional and steady wind states in both rounds of testing, the system adequately demonstrated an ability to mitigate odors prior to reaching offsite, downwind receptors.
- Implementation of SCS' recommendations for adjustments in greenhouse venting timing/methodology and installation of carbon scrubbers to assist in odor control at processing areas appears to have assisted the performance of the overall system.
- Testing in the second round (September 25th) showed consistent performance of the system and its ability to mitigate odors back to baseline levels before reaching offsite receptors.
- The percentage of odor mitigation beyond 200-feet from the cannabis odor source ranged from 89% to 97% in the first round of testing and improved to 99% in the second round of

testing after Cresco implemented the recommended facility adjustments. Given that offsite receptors are a minimum of 350-feet from the Project facilities, the combination of the Byers/Ecosorb System and the remaining distance allowed for dispersion and dilution make for a consistent and effective odor mitigation solution for this Project Site.

- Based on the multitude of VOC samples taken, most results had such negligible presence of VOCs the lab analytical testing could not reach the detectable levels. In the single sample which did register VOCs, the VOCs detected do not appear to be related to cannabis operations or the Byer's System as no other samples taken much closer to those sources registered those same compounds. Regardless of the source, these detected VOCs were orders of magnitudes below the Permissible Exposure Levels (PELs). Based on this testing, there is no evidence that the Ecosorb vapor, cannabis cultivation, or combination of onsite activities are capable of producing hazardous levels of VOCs.

SCS will continue to work with the cannabis industry to implement environmental solutions, including evolving odor management technology. Our staff are available as a resource should the Commission have additional questions and concerns regarding odor management in the region. We have appended a complimentary slide deck to this memorandum for a graphical illustration of this case study analysis.

Sincerely,

Nathan Eady
Land Use Planner/Project Director

Paul Schafer
Air Quality Specialist/Project Director

Attachments

Attachment 1- Odor Sampling Exhibit Summary
Attachment 2- Laboratory Analytical Data

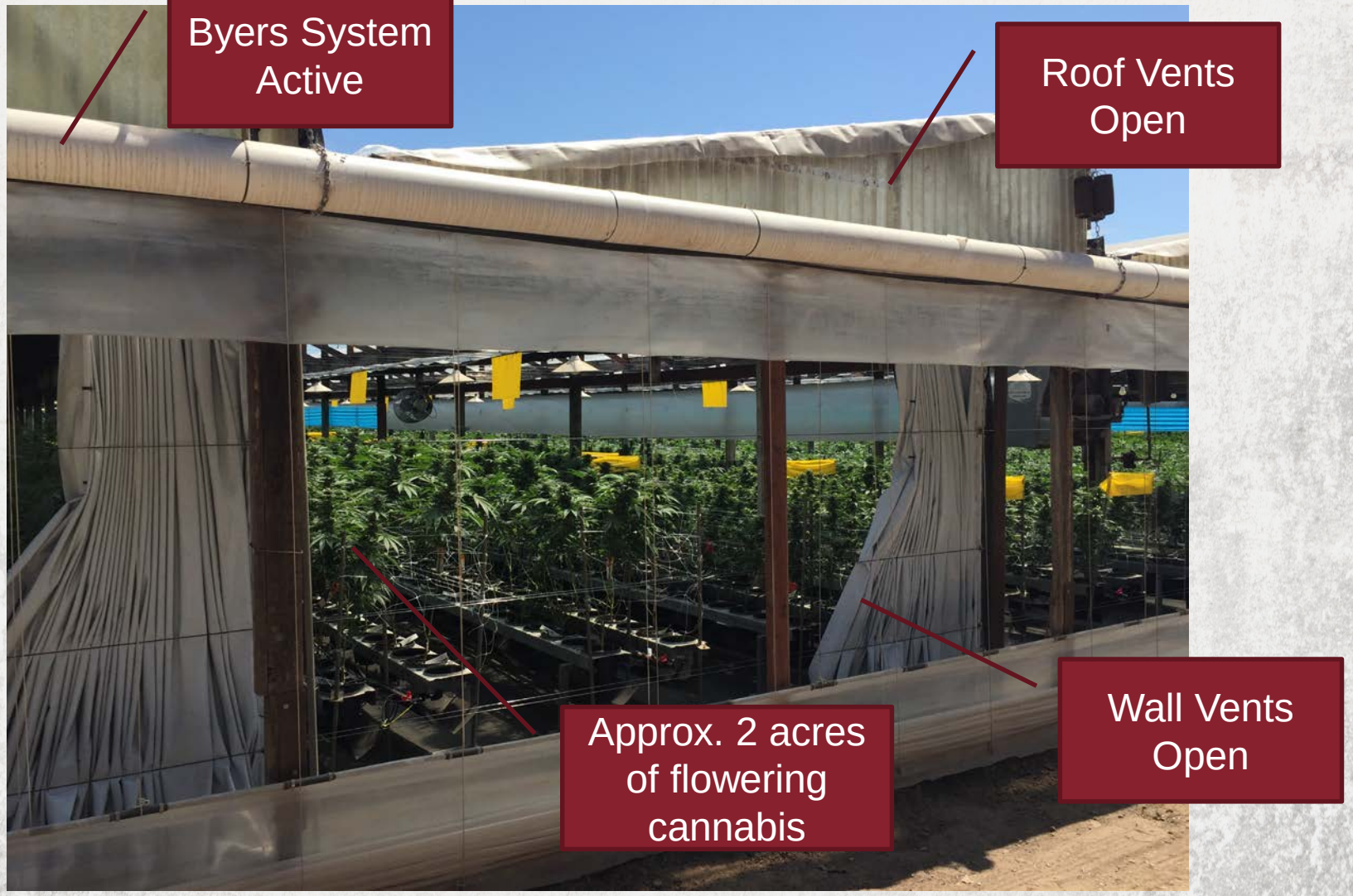
Attachment 1- Odor Sampling Exhibit Summary

CRESCO AIR QUALITY SAMPLING
METHODOLOGY & RESULTS

SCS TRACER ENVIRONMENTAL

September 2019

METHODOLOGY
SAMPLING CONDITIONS ON-SITE



METHODOLOGY

SAMPLING CONDITIONS ON-SITE

Upwind

Long-Range

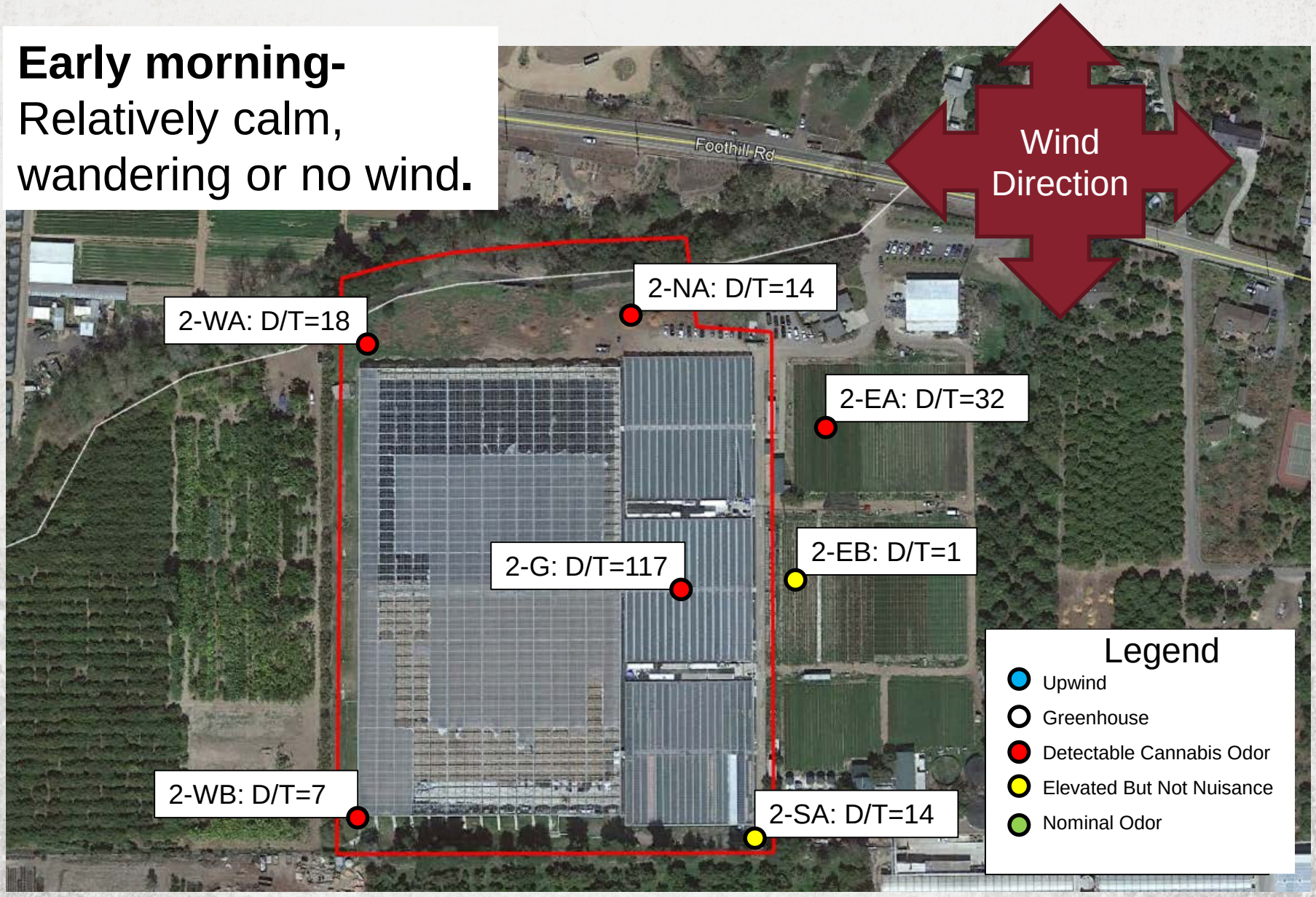
Medium-Range

PHASE 1 TESTING
JULY 2ND & 5TH, 2019
RESULTS PRIOR TO RECOMMENDATIONS

AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/2/2019

Early morning-
Relatively calm, wandering or no wind.



AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/2/2019

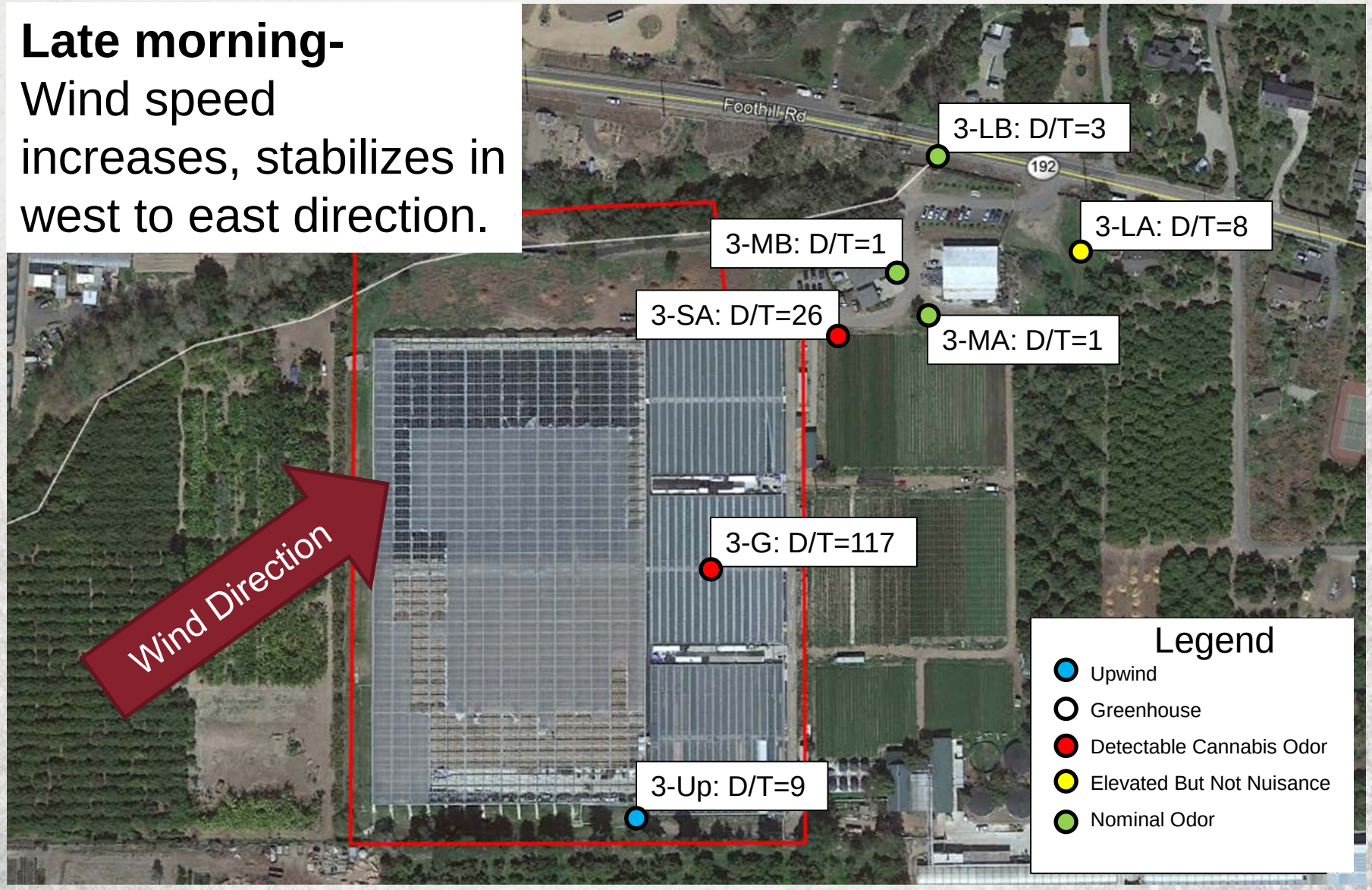
Early morning-
Relatively calm, wandering or no wind.

In Greenhouse Net Concentration & Character (Inferred 9 D/T Baseline)	Short-Range (less than 20-50 feet) Net Concentration & Character (Inferred 9 D/T Baseline)		Long-Range (Approx. 400 feet) Net Concentration & Character (Inferred 9 D/T Baseline)
117 Skunk, mercaptan	**1** Sour, mercaptan, skunk, stale, plastic, exhaust	**32** Sour, manure, skunk, mercaptan, rotten cabbage, garbage, oniony, garlic, rubber band, plastic, exhaust	**18** Sour, rotten garbage, skunk, mercaptan, sewage, plastic, exhaust
	14 Sour, rotten grass, mercaptan, skunk, rotten vegetables, manure, burnt rubber, plastic, exhaust	**14** Sour, wet paper, rotten vegetables, green leaves, wet grass, watermelon rind, plastic	**7** Sour, skunk, mercaptan, sulfur, sewage, rubber, vegetation, sour milk, plastic, exhaust

AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/2/2019

Late morning-
Wind speed increases, stabilizes in west to east direction.



AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/2/2019

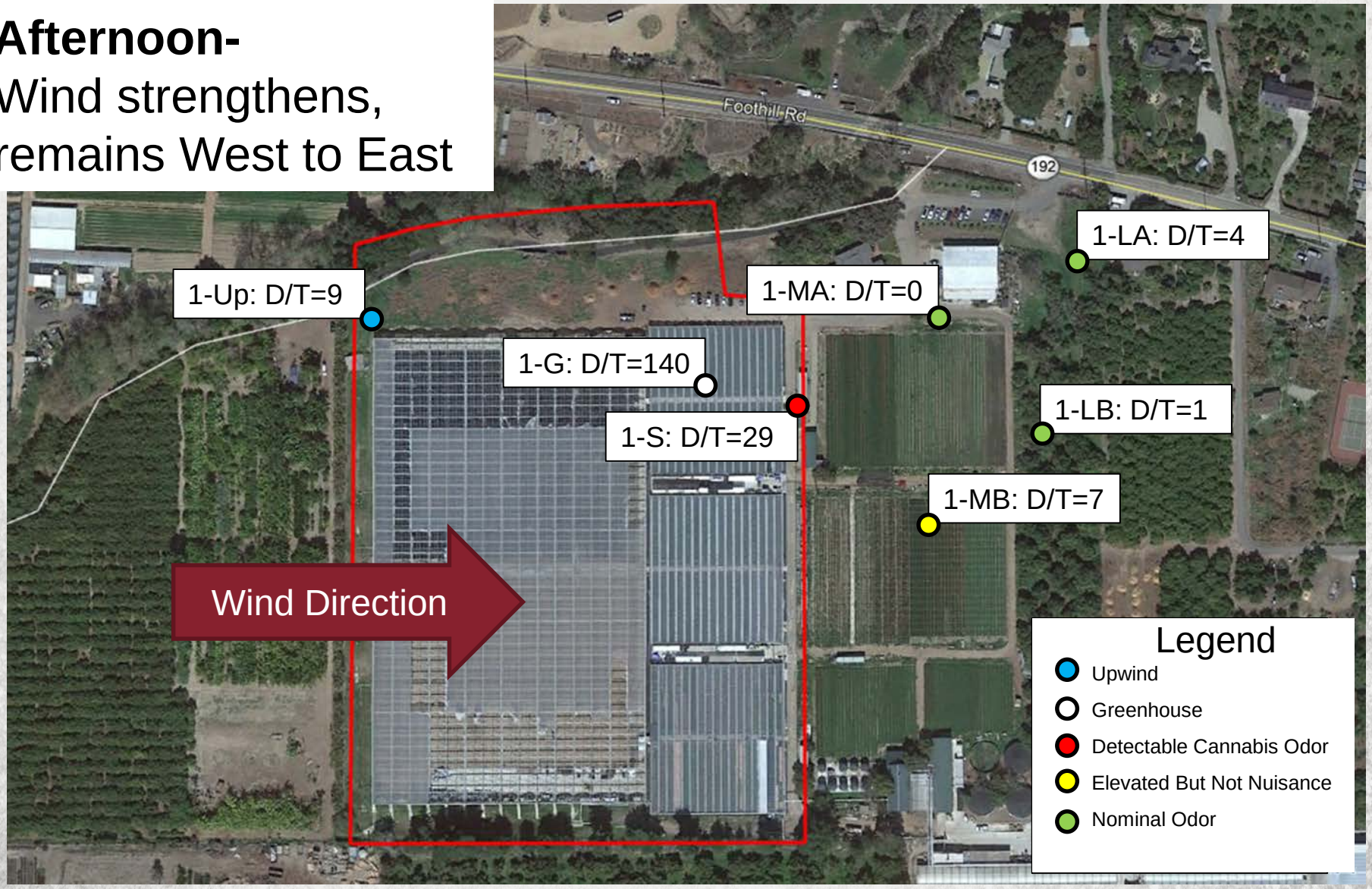
Late morning-
Wind speed increases, stabilizes in west to east direction.

Baseline/Upwind Concentration & Character	In Greenhouse Net Concentration Increase & Character	Short-Range (50 feet) Net Concentration Increase & Character	Medium-Range (Approx. 200 feet) Net Concentration Increase & Character	Long-Range (Approx. 400-500 feet) Net Concentration Increase & Character
9 Sour, stale, cardboard, vegetation, oily, plastic, exhaust	**117** Sour sewage, mercaptan, skunk, burnt coffee grounds, burnt rubber, plastic	**26** Sour, sewage, mercaptan, skunk, vegetation, milky, plastic	**1** Sour, plastic, mercaptan, rubber, milky, exhaust	**8** Sour, stale, wet cardboard, paper, garbage, vegetation, milk, plastic, exhaust
			1 Sour, plastic, sewage, mercaptan, rubber, milky, exhaust	**3** Sour, plastic, sulfur, burnt match, gasoline, propane, milky, exhaust, vegetation, garbage, plastic, wet cardboard

AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/1/2019

Afternoon-
Wind strengthens, remains West to East



AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
7/1/2019

Afternoon-
Wind strengthens, remains West to East

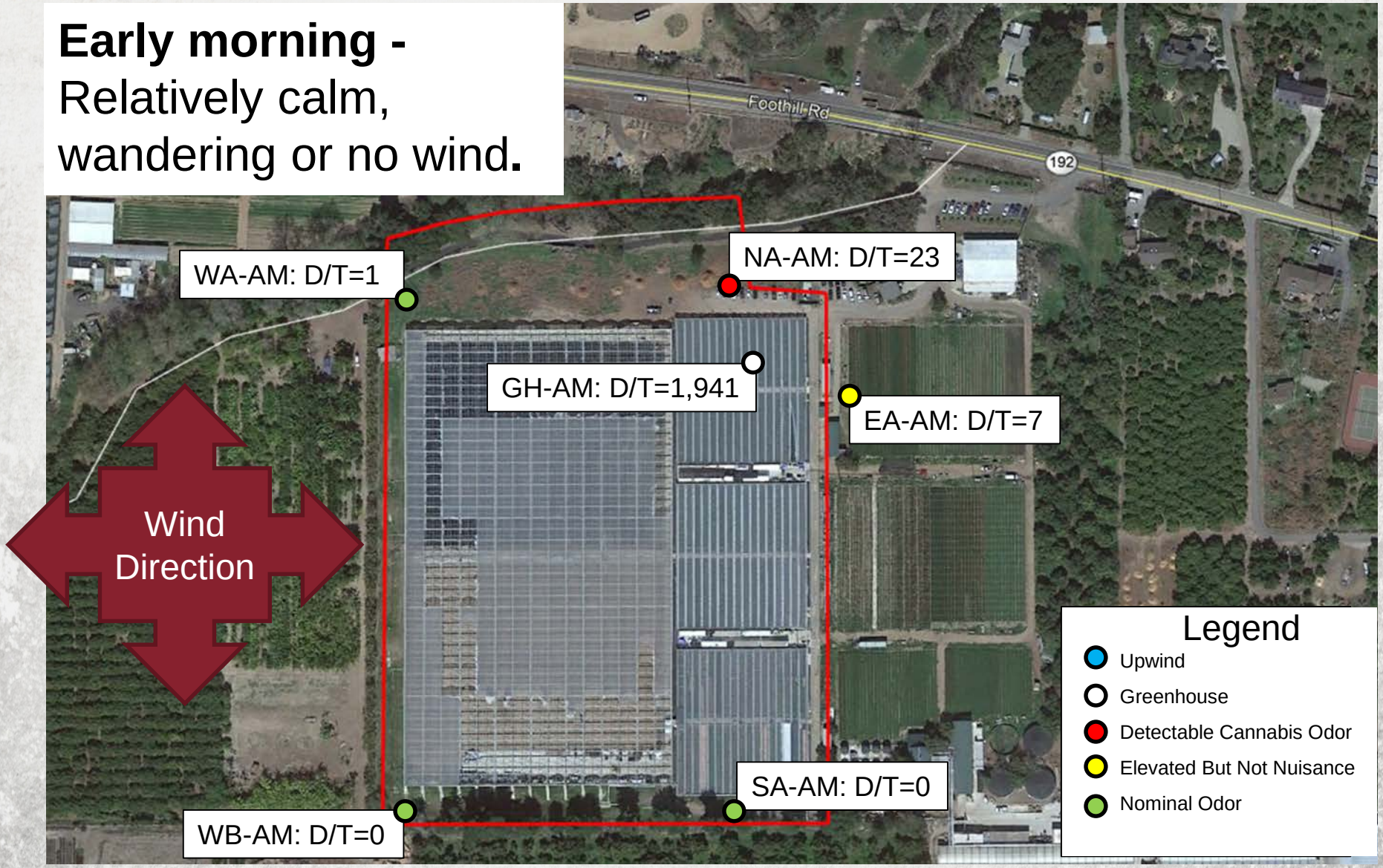
Baseline/Upwind Concentration and Character	In Greenhouse Net Concentration & Character	Short-Range (less than 20 feet) Net Concentration & Character	Medium-Range (Approx. 200 feet) Net Concentration & Character	Long-Range (Approx. 500 feet) Net Concentration & Character
9 Sour, stale, plastic, sweet, milky, rubber, vegetation, lemon	**140** Rotten cabbage, mercaptin, oniony, skunky, sour garbage, earthy	**29** Sour, stagnant water, mercaptin, rotten cabbage, skunk, garbage, milk, plastic	**0** Sour, rotten garbage, plastic, burnt, rubber, milky, exhaust	**4** Stale, plastic, vegetation, sweet, milky, rubber, sewage
			7 Sour, sewage, plastic, burnt, rubber, sweet, milk, vegetation, exhaust	**1** Sour, stale, plastic, milky, vegetation, rubber, exhaust

PHASE 2 TESTING
SEPTEMBER 25, 2019
RESULTS AFTER RECOMMENDATIONS IMPLEMENTED

AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
9/25/2019

Early morning -
Relatively calm, wandering or no wind.



AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
9/25/2019

Early morning-
Relatively calm, wandering or no wind.

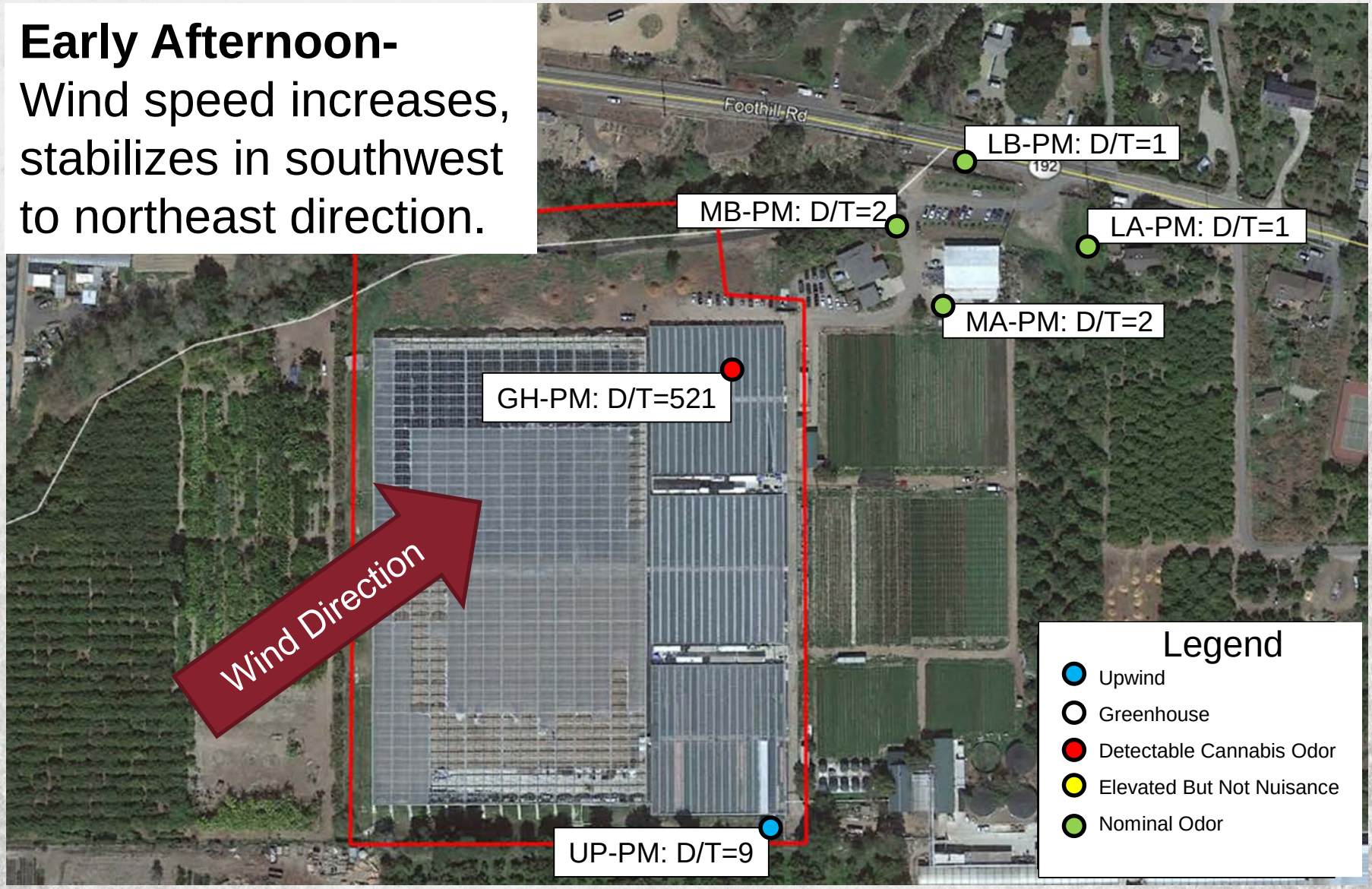
Baseline = 9 (based off afternoon wind)

In Greenhouse Net Concentration & Character	Short-Range (31 feet and 55 feet) Net Concentration & Character	Medium Range (Approximately 275 feet) Net Concentration & Character	Long-Range (415 feet and 473) Net Concentration & Character
1,941 skunk, “weed/pot”, sour, exhaust	**23** skunk, burnt, “weed/pot”, manure-like, burnt rubber, mercaptan, oily, stale, plastic	**0** sour, wet/dry cardboard, printing paper, dead grass, stale, vegetation, glue, plastic	**0** sour, wet cardboard, swampy, oily, vegetation, glue, stale, plastic, exhaust
	7 burnt skunk/rubber, skunk-like, mercaptan, oily, stale food, wet cardboard, exhaust		**1** sour, stale, cardboard, inner tube, swampy, rubber tires, oily, sour vegetation, plastic

AIR SAMPLING RESULTS
ODOR CONCENTRATION AND CHARACTER

Sampled:
9/25/2019

Early Afternoon-
Wind speed increases, stabilizes in southwest to northeast direction.



AIR SAMPLING RESULTS

ODOR CONCENTRATION AND CHARACTER

Sampled:
9/25/2019

Early Afternoon -
Wind speed increases, stabilizes in west to east direction.

Baseline/Upwind Concentration & Character	In Greenhouse Net Concentration Increase & Character	Medium-Range (Approx. 198 feet and 232 feet) Net Concentration Increase & Character	Long-Range (Approx. 325 feet and 465 feet) Net Concentration Increase & Character
9 musty, stale, wet cardboard, plastic, exhaust	**521** skunk, “weed/pot”, burnt “weed”, exhaust	**2** sour, cardboard, swampy, stale, vegetation, fresh grass, oily, plastic, exhaust	**1** sour, cardboard, vegetation, stale, plastic, exhaust
		2 sour, wet/dry cardboard, wet paper, stale, vegetation, glue, plastic, exhaust	**1** sour, musty, stale, vegetation, glue, plastic, exhaust

AIR SAMPLING RESULTS

VOC SUMMARY

All Units are Parts Per Billion (PPB)

	Inside Greenhouse	Beyers Output	Inside Greenhouse						
Sample ID	**VOC-1**	**VOC-2**	**VOC-3**	**VOC-4**	**VOC-5**	**VOC-6**	**VOC-7**	**NIOSH REL**	**OSHA PEL**
Ethanol	13.7	ND	2.74	ND	7.02	ND	ND	**1,000,000**	
2-Methylbutane	0.57	ND	ND	ND	2.22	ND	ND	**120,000**	**1,000,000**
1-Propanol	ND	ND	ND	ND	1.93	ND	ND	**200,000**	**200,000**
2-Methylpentane	ND	ND	ND	ND	1.33	ND	ND	**100,000**	**-**
3-Methylpentane	ND	ND	ND	ND	0.75	ND	ND	**100,000**	**-**
Methylcyclopentane	ND	ND	ND	ND	0.69	ND	ND	**400,000**	**500,000**
alpha-Pinene	4.04	95.5	1.6	ND	ND	ND	ND	**100,000**	

AIR SAMPLING RESULTS

VOLUME OF VOCS AND HEALTH/ENVIRONMENTAL IMPACTS

All Units are Parts Per Billion (PPB)

Sample ID	Inside Greenhouse	Beyers Output	Inside Greenhouse	VOC-4	VOC-5	VOC-6	VOC-7
alpha-Pinene	4.04	95.5	1.6	ND	ND	ND	ND
beta-Myrcene	27.7	28.8	14.6	1.73	ND	ND	ND
1-Methyl-4-(1-methylethyl)-7-oxabicyclo[2.2.1]heptane	ND	22.6	ND	ND	ND	ND	ND
1-Methyl-(1-methylethyl)-benzene	ND	63.1	0.75	ND	ND	ND	ND
D-Limonene	7.34	189	2.84	0.53	ND	ND	ND
1-Methyl-4-(1-methylethylidene)-cyclohexene	12.9	60.3	5.45	0.49	ND	ND	ND
Total Non-Methane Hydro Carbons (TNMHC)	**196**	**171**	**146**	**29.3**	**65.3**	**10.2**	**10.4**

Formaldehyde- OSHA
Permissible Exposure Level (PEL) of 750 ppb; Action Level of 500 ppb

Attachment 2- Laboratory Analytical Data

Odor Science & Engineering, Inc.
105 Filley Street, Bloomfield, CT 06002
(860) 243-9380 Fax: (860) 243-9431
www.odorscience.com

July 10, 2019

Paul Schafer
SCS Tracer Environmental
5963 LaPlace Court
Suite 207
Carlsbad, CA 92008

PSchafer@scsengineers.com

RE: Odor Panel Analysis – July 2nd & 5th, 2019
OS&E Project No. 2116-M-00
SCS Tracer Sampling Site: CARP

Dear Paul:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for SCS Tracer Environmental. A total of twenty one (21) odor emission samples were collected over a two-day period (July 1st & 2nd, 2019) by on-site SCS personnel. The odor samples were collected into preconditioned Tedlar gas sampling bags provided by OS&E. Each day following sample collection, the sample bags were shipped via UPS Overnight to OS&E's Olfactory Laboratory in Bloomfield, CT for sensory analysis the next day. The first set (7 samples) were collected on Monday, July 1st and arrived for analysis on Tuesday, July 2nd. Due to a shipping error the samples collected on Tuesday, July2nd did not arrive to OS&E until Friday July 3rd (due to the July 4th holiday). **These samples were beyond the normal 30 hour hold time, but were analyzed upon delivery per authorization from SCS**. Each day the samples arrived intact with a chain of custody requesting sensory analysis attached.

Upon arrival the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-04 and E-544-10, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Tables 1and 2.

We appreciate the opportunity to be of continued service to SCS Tracer Environmental. Please feel free to call Martha O'Brien or me if you have any questions concerning these results.

Sincerely,
ODOR SCIENCE & ENGINEERING, INC.

Gary K. Grumley
Associate Scientist

Table 1. Results of dynamic dilution olfactometry analysis – July 2nd, 2019
SCS Tracer Environmental – Sampling Site: CARP
OS&E Project No. 2116-M-00

Date	Time	Sample ID	Odor Conc. D/T[1]	Stevens' Law Constants[2] a	Stevens' Law Constants[2] b	Odor Character[3]
7/01/2019	15:00	1-MB	16	--	--	sour, sewage, H_2S, plastic, burnt, rubber, sweet, milk, vegetation, exhaust
7/01/2019	15:16	1-MA	9	--	--	sour, rotten garbage/vegetation, plastic, burnt, rubber, milky, exhaust
7/01/2019	15:12	1-G	149	.48	.65	rotten cabbage/mercaptan, oniony, skunky, sour garbage, earthy
7/01/2019	15:07	1-S	38	.62	.68	sour, stagnant water, mercaptan, rotten greens/cabbage, skunk, garbage, milk, plastic
7/01/2019	15:00	1-U	9	--	--	sour, stale, plastic, sweet, milky, rubber, vegetation, lemon
7/01/2019	15:17	1-LA	13	--	--	stale, plastic, vegetation, sweet, milky, rubber, sewage
7/01/2019	15:00	1-LB	10	--	--	sour, stale plastic, milky, vegetation, rubber, exhaust

1. D/T = dilutions-to-threshold
2. Stevens' Law correlates odor concentration (C) and odor intensity (I): $I = aC^b$. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
3. Summary of all odor character descriptors used by the odor panelists at varying dilution levels.

-- Sample D/T too low for dose response calculations

Odor Science & Engineering, Inc. 105 Filley Street Bloomfield, CT 06002
Phone (860) 243-9380 Fax (860) 243-9431 www.odorscience.com

Table 2. Results of dynamic dilution olfactometry analysis – July 5th, 2019
SCS Tracer Environmental – Sampling Site: CARP
OS&E Project No. 2116-M-00

Date	Time	Sample ID	Odor Conc. D/T[1]*	Stevens' Law Constants[2] a	b	Odor Character[3]
7/02/19	10:35	3-M-A	10	--	--	sour, plastic, mercaptan, rubber, milky, exhaust
7/02/19	10:38	3-M-B	10	--	--	sour, plastic, sewage, mercaptan, rubber, milky, exhaust
7/02/19	10:43	3-LB	12	--	--	sour, plastic, sulfur, burnt match, gasoline, propane, milky, exhaust, vegetation, garbage, plastic, wet cardboard, exhaust
7/02/19	07:45	2-E-A	41	.41	.71	sour, manure, skunk, mercaptan, rotten cabbage/garbage, oniony, garlic, rubber band, plastic, exhaust
7/02/19	07:51	2-E-B	10	--	--	sour, mercaptan, skunk, stale, plastic, exhaust
7/02/19	07:56	2-SA	23	.55	.85	sour, wet paper magazine, rotten vegetables, green leaves, wet grass, watermelon rind, plastic
7/02/19	07:58	2-G	126	.53	.89	skunk, mercaptan
7/02/19	07:45	2-WA	27	.48	.79	sour, rotten garbage, skunk, mercaptan, sewage, plastic, exhaust
7/02/19	07:51	2-N-A	23	.37	.82	sour, rotten grass, mercaptan, skunk, rotten vegetables, manure, burnt rubber, plastic, exhaust
7/02/19	07:45	2-W-B	16	--	--	sour, skunk, mercaptan, sulfur, sewage, rubber, vegetation, sour milk, plastic, exhaust
7/02/19	10:43	3-L-A	17	--	--	sour, stale, wet cardboard, paper, garbage, vegetation, milk, plastic, exhaust
7/02/19	10:35	3-UP	9	--	--	sour, stale, cardboard, vegetation, oily, plastic, exhaust
7/02/19	10:43	3-G	126	.45	.77	sour sewage, mercaptan, skunk, burnt coffee grounds, burnt rubber, plastic
7/02/19	10:35	3-S-A	35	.39	.83	sour, sewage, mercaptan, skunk, vegetation, milky, plastic

1. D/T = dilutions-to-threshold
2. Stevens' Law correlates odor concentration (C) and odor intensity (I): $I = aC^b$. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
3. Summary of all odor character descriptors used by the odor panelists at varying dilution levels.

-- Sample D/T too low for dose response calculations

***** Samples over the normal 30 hour hold time

O S&E
www.odorscience.com

Odor Science & Engineering, Inc.
~~105 Filley Street, Bloomfield, CT 06002~~ 1350 Blue Hills Ave
(860) 243-9380 Fax: (860) 243-9431 Bloomfield, CT 06002

Chain of Custody Record

Project Name	Project Number	Project No.
CARP ODOR		

Project Location	Client Project No.
CARP	

Contact Person	Sampler (Signature)	P.O. No.
Martha OBrien		

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	ANALYSES: E-679-04	ANALYSES: E-544-10					Expected Turnaround Time	Remarks
1-MB	07/01	1500		Air	x	x						
1-MB	"	1516		"	x	x						
1-G	"	1512		"	x	x						
1-S	"	1507		"	x	x						
1-U	"	1500		"	x	x						
1-LA	"	1517		"	x	x						
1-LB	"	1500		"	x	x						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	07/01	1528		7/2/19	11:39
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Disposal Method	Comments:
Disposed by: (Signature)	Date / Time

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Odor Science & Engineering, Inc.
105 Filley Street, Bloomfield, CT 06002
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Chain of Custody Record

Project Name	Project Number	Project No.
CARP ODOR		

Project Location	Client Project No.
CARP	CARP ODOR

Contact Person	Sampler (Signature)	P.O. No.
Martha O'Brien		

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	ANALYSES: ASTM E-679-04	ASTM E-544-10					Expected Turnaround Time	Remarks
3-M-A	07/02	1035		air	x	x						
3-M-B	"	1038		"	x	x						
3-LB	"	1043		"	x	x						
2-E-A	"	0745		"	x	x						
2-E-B	"	0751		"	x	x						
2-SA	"	0756		"	x	x						
2-G	"	0758		"	x	x						
2-WA	"	0745		"	x	x						
2-N-A	"	0751		"	x	x						
2-W-B	"	0745		"	x	x						
3-L-A	"	1043		"	x	x						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	07/02	1353		7/5/19	10:06
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Disposal Method			Comments:		
Disposed by: (Signature)	Date	Time			

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Chain of Custody Record

Project Name	Project Number	Project No.
CARP ODOR		

Project Location	Client Project No.
CARP	CARP ODOR

Contact Person	Sampler (Signature)	P.O. No.
Martha OBrien	OM	

Sample Identification No.	Date	Time	Lab Sample No.	Type of Sample	ANALYSES: ASTM E-679-04	ASTM E-544-10					Expected Turnaround Time	Remarks
.3-UP	07/02	10:35		air	x	x						
.3-G	07/02	10:43		air	x	x						
.3-S-A	07/02	10:35		air	x	x						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
OM	07/02	1353		7/5/19	10:06
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Disposal Method	Comments:
Disposed by: (Signature)	Date / Time

ATTACHMENT A
Odor Science & Engineering, Inc.
Odor Panel Methodology

Measurement of Odor Levels by Dynamic Dilution Olfactometry
Odor concentration is defined as the dilution of an odor sample with odor-free air, at which only a specified percent of an odor panel, typically 50%, will detect the odor. This point represents odor threshold and is expressed in terms of "dilutions-to-threshold" (D/T).

Odor concentration was determined by means of OS&E's forced choice dynamic dilution olfactometer. The members of the panel who have been screened for their olfactory sensitivity and their ability to match odor intensities, have participated in on-going olfactory research at OS&E for a number of years.

In olfactometry, known dilutions of the odor sample were prepared by mixing a stream of odor-free air with a stream of the odor sample. The odor-free air is generated in-situ by passing the air from a compressor pump through a bed of activated charcoal and a potassium permanganate medium for purification. A portion of the odor free air is diverted into two sniff ports for direct presentation to a panelist who compares them with the diluted odor sample.

Another portion of the odor-free air is mixed in a known ratio with the odor from the sample bag and is then introduced into the third sniff port. A panelist is thus presented with three identical sniff ports, two of which provide a stream of odor-free air and the third one a known dilution of the odor sample. Unaware of which is which, the panelist is asked to identify the sniff port which is different from the other two, i.e., which contains the odor. The flow rate at all three nose cups is maintained at 3 liters per minute.

The analysis starts at high odor dilutions. Odor concentration in each subsequent evaluation is increased by a factor of 2. Initially a panelist is unlikely to correctly identify the sniff port which contains an odor. As the concentration increases, the likelihood of error is reduced and at one point the response at every subsequently higher concentration becomes consistently correct. The lowest odor concentration at which this consistency is first noticed, represents the **detection odor threshold** for that panelist.

As the odor concentration is increased further in the subsequent steps, the panelist becomes aware of the odor character, i.e. becomes able to differentiate the analyzed odor from other odors. The lowest odor concentration at which odor differentiation first becomes possible, represent the **recognition odor threshold** for the panelist. Essentially all of OS&E's work is done with recognition odor threshold. By definition the threshold odor is equal to 1 D/T (i.e. the volume of odorous air after dilution divided by the volume before dilution equals one).

The panelists typically arrive at threshold values at different concentrations. To interpret the data statistically, the geometric mean of the individual panelist's thresholds is calculated.

The olfactometer and the odor presentation procedure meet the recommendations of ASTM Standard Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series of Limits (ASTM E679-04). The analysis was carried out in the OS&E Olfactory Laboratory in Bloomfield, Connecticut.

Odor Intensity

Odor intensity is determined using reference sample method with n-butanol as the reference compound (ASTM Method E-544-10). The n-butanol odor intensity scale is based on n-butanol vapor as odorant at eight concentrations. The concentration increases by a factor of two at each intensity step, starting with approximately 15 ppm at step 1.

Odors of widely different types can be compared on that scale just like the intensities of the lights of different colors can be compared to the intensity of standard, e.g. white light. Odor character and hedonic tone are ignored in that comparison. Odor intensities are routinely measured as part of the dynamic dilution olfactometry measurements. The n-butanol vapor samples are presented to the panelists in closed jars containing the standard solutions of n-butanol in distilled water. The vapor pressure above the butanol solutions corresponds to the steps on the n-butanol scale. To observe the odor intensity, a panelist opens the jar and sniffs the air above the liquid. The panelist then closes the jar so that the equilibrium vapor pressure of butanol can be re-established before the next panelist uses the jar. The odor in the jar is compared with unknown odor present at the olfactometer sniff port.

The relationship between odor concentration and intensity can be expressed as a psychophysical power function also known as Steven's law (Dose-Response Function). The function is of the form:

$$I = aC^b$$

where:

I = odor intensity on the butanol scale
C = the odor level in dilution-to-threshold ratio (D/T)
a,b = constants specific for each odor

The major significance of the dose-response function in odor control work is that it determines the rate at which odor intensity decreases as the odor concentration is reduced (either by atmospheric dispersion or by an odor control device).

Odor emissions are used as input to an odor dispersion model, which predicts odor impacts downwind under a variety of meteorological conditions. Whether or not an odor is judged objectionable depends primarily in its intensity. The dose-response constants are used to convert predicted ambient odor concentration to intensity levels. OS&E experience has shown that odors are almost universally considered objectionable when their intensity is 3 or higher on the 8-point n-butanol scale. In general, the lower the intensity, the lower the probability of complaints.

Odor Character Description

Odor character refers to our ability to recognize the similarity of odors. It allows us to distinguish odors of different substances on the basis of experience. We use three types of descriptors, general such as “sweet”, “pungent”, “acrid”, etc. or specific references to its source such as “orange”, “skunk”, “paint”, “sewage”, etc., or to a specific chemical, e.g. “methyl mercaptan”, “butyric acid”, or “cyclohexane”. In the course of the dynamic dilution olfactometry measurements, the odor panelists are asked to describe the character of the odors they detect.

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www.odorscience.com

October 1, 2019

Paul Schafer
SCS Engineers
5963 LaPlace Court
Suite 207
Carlsbad, CA 92008

PSchafer@scsengineers.com

RE: Odor Panel Analysis – September 26, 2019
OS&E Project No. 2160-M-00
SCS Sampling Site: CARP

Dear Paul:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for SCS Engineers. A total of twelve (12) odor emission samples were collected on September 25th, 2019 by on-site SCS personnel. The odor samples were collected into Tedlar gas sampling bags provided by OS&E. Following sample collection, the sample bags were shipped via UPS Overnight to OS&E's Olfactory Laboratory in Bloomfield, CT for sensory analysis the next day. The samples arrived intact with a chain of custody requesting sensory analysis attached.

Upon arrival the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-04 and E-544-10, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Table.

We appreciate the opportunity to be of continued service to SCS Engineers. Please feel free to call Martha O'Brien or me if you have any questions concerning these results.

Sincerely,
ODOR SCIENCE & ENGINEERING, INC.

Gary K. Grumley
Associate Scientist

Table 1. Results of dynamic dilution olfactometry analysis – September 26th, 2019
SCS Engineers – Sampling Site: CARP
OS&E Project No. 2160-M-00

Date	Time	Sample ID	Odor Conc. D/T[1]	Stevens' Law Constants[2] a	b	Odor Character[3]
9/25/2019	08:29	GH-AM	1,950	.54	.78	skunk, "weed/pot", sour, exhaust
9/25/2019	08:20	WA-AM	10	--	--	sour, stale, cardboard, inner tube, swampy, rubber tires, oily, sour vegetation, plastic
9/25/2019	08:35	NA-AM	32	.42	.80	skunk, burnt, "weed/pot", manure-like, burnt rubber, mercaptan, oily, stale, plastic
9/25/2019	08:36	EA-AM	16	--	--	burnt skunk/rubber, skunk-like, mercaptan, oily, stale food, wet cardboard, exhaust
9/25/2019	08:27	SA-AM	9	--	--	sour, wet/dry cardboard, printing paper, dead grass, stale, vegetation, glue, plastic
9/25/2019	08:20	WB-AM	9	--	--	sour, wet cardboard, swampy, oily, vegetation, glue, stale, plastic, exhaust
9/25/2019	13:17	GH-PM	539	.53	.73	skunk, "weed/pot", burnt "weed", exhaust
9/25/2019	13:10	UP-PM	9	--	--	musty, stale, wet cardboard, plastic, exhaust
9/25/2019	13:14	LB-PM	10	--	--	sour, cardboard, vegetation, stale, plastic, exhaust
9/25/2019	13:21	LA-PM	10	--	--	sour, musty, stale, vegetation, glue, plastic, exhaust
9/25/2019	13:10	MB-PM	11	--	--	sour, cardboard, swampy, stale, vegetation, fresh grass, oily, plastic, exhaust
9/25/2019	13:23	MA-PM	11	--	--	sour, wet/dry cardboard, wet paper, stale, vegetation, glue, plastic, exhaust

1. D/T = dilutions-to-threshold
2. Stevens' Law correlates odor concentration (C) and odor intensity (I): $I = aC^b$. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
3. Summary of all odor character descriptors used by the odor panelists at varying dilution levels.

-- Sample D/T too low for dose response calculations

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Atmospheric Analysis & Consulting, Inc.

CLIENT : SCS Engineers
PROJECT NAME : Carp Odor
AAC PROJECT NO. : 191056
REPORT DATE : 07/10/2019

On July 3, 2019, Atmospheric Analysis & Consulting, Inc. received seven (7) Six-Liter Summa Canisters for Volatile Organic Compounds and TICs analysis by EPA method TO-15. Upon receipt, each sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID	Return Pressure (mmHga)
VOC-1	191056-119909	760.0
VOC-2	191056-119910	751.4
VOC-3	191056-119911	751.9
VOC-4	191056-119912	722.6
VOC-5	191056-119913	672.0
VOC-6	191056-119914	682.9
VOC-7	191056-119915	653.5

This analysis is accredited under the laboratory's ISO/IEC 17025:2005 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1908. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples.

The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data contained in this hardcopy report.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 28 pages.

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-1			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-2			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119909				191056-119910				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.34				1.35				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Propene	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
Dichlorodifluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloromethane	0.67		1.0	0.7	0.69		1.0	0.7	0.5
Dichlorotetrafluoroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Vinyl Chloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methanol	72.9		1.0	6.7	10.4		1.0	6.8	5.0
1,3-Butadiene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Bromomethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Dichlorofluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethanol	13.7		1.0	2.7	<SRL	U	1.0	2.7	2.0
Vinyl Bromide	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Acetone	7.76		1.0	2.7	6.98		1.0	2.7	2.0
Trichlorofluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2-Propanol (IPA)	7.78		1.0	2.7	28.6		1.0	2.7	2.0
Acrylonitrile	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
1,1-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methylene Chloride (DCM)	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
Allyl Chloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Carbon Disulfide	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Trichlorotrifluoroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
trans-1,2-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1-Dichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methyl Tert Butyl Ether (MTBE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Vinyl Acetate	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
2-Butanone (MEK)	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
cis-1,2-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Hexane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloroform	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethyl Acetate	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Tetrahydrofuran	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,1-Trichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-1			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-2			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119909				191056-119910				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.34				1.35				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Benzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Carbon Tetrachloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Cyclohexane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichloropropane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Bromodichloromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,4-Dioxane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Trichloroethene (TCE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2,2,4-Trimethylpentane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Heptane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
cis-1,3-Dichloropropene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
4-Methyl-2-pentanone (MiBK)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
trans-1,3-Dichloropropene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,2-Trichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Toluene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2-Hexanone (MBK)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Dibromochloromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dibromoethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Tetrachloroethene (PCE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
m & p-Xylenes	<SRL	U	1.0	1.3	<SRL	U	1.0	1.4	1.0
Bromoform	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Styrene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,2,2-Tetrachloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
o-Xylene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
4-Ethyltoluene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,3,5-Trimethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2,4-Trimethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,3-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,4-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2,4-Trichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Hexachlorobutadiene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
BFB-Surrogate Std. % Recovery	96%				97%				70-130%

U - Compound was analyzed for, but was not detected at or above the SRL.

Sucha Parmar, Ph.D.
Technical Director

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Laboratory Analysis Report

CLIENT	**: SCS Engineers**	**DATE RECEIVED**	**: 07/03/2019**
PROJECT NO	**: 191056**	**DATE REPORTED**	**: 07/10/2019**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-1	
AAC ID	191056-119909	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.34	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Acetaldehyde	1.07	83
Unknown Hydrocarbon	0.73	NA
2-Methylbutane	0.57	83
Pentane	0.59	86
1,3-Pentadiene	0.47	72
.alpha.-Pinene	4.04	94
Camphene	0.44	91
.beta.-Myrcene	27.7	91
.alpha.-Phellandrene	0.60	90
3-Carene	0.56	97
D-Limonene	7.34	95
3,7-Dimethyl-1,3,6-octatriene	3.42	92
1-Methyl-4-(1-methylethylidene)-cyclohexene	12.9	98
BFB-Surrogate Std. % Recovery	96%	

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-2	
AAC ID	191056-119910	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.35	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
.alpha.-Pinene	95.5	94
.beta.-Myrcene	28.8	90
.alpha.-Phellandrene	3.47	91
1-Methyl-4-(1-methylethyl)-7-oxabicyclo[2.2.1]heptane	22.6	96
1-Methyl-(1-methylethyl)-benzene	63.1	95
D-Limonene	189	94
1-Methyl-4-(1-methylethyl)-1,4-cyclohexadiene	11.3	94
1-Methyl-(1-methylethenyl)-benzene	5.29	95
1-Methyl-4-(1-methylethylidene)-cyclohexene	60.3	98
1,3,3-Trimethylbicyclo[2.2.1]heptan-2-ol	3.78	96
1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one	4.95	98
Isoborneol	1.94	86
BFB-Surrogate Std. % Recovery	97%	

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-3			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-4			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119911				191056-119912				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.36				1.40				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Propene	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
Dichlorodifluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Dichlorotetrafluoroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Vinyl Chloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methanol	<SRL	U	1.0	6.8	<SRL	U	1.0	7.0	5.0
1,3-Butadiene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Bromomethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Dichlorofluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethanol	2.74		1.0	2.7	<SRL	U	1.0	2.8	2.0
Vinyl Bromide	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Acetone	7.83		1.0	2.7	3.62		1.0	2.8	2.0
Trichlorofluoromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2-Propanol (IPA)	5.41		1.0	2.7	<SRL	U	1.0	2.8	2.0
Acrylonitrile	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
1,1-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methylene Chloride (DCM)	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
Allyl Chloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Carbon Disulfide	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Trichlorotrifluoroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
trans-1,2-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1-Dichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Methyl Tert Butyl Ether (MTBE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Vinyl Acetate	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
2-Butanone (MEK)	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
cis-1,2-Dichloroethene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Hexane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chloroform	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethyl Acetate	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Tetrahydrofuran	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,1-Trichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-3			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-4			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119911				191056-119912				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.36				1.40				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Benzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Carbon Tetrachloride	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Cyclohexane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichloropropane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Bromodichloromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,4-Dioxane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Trichloroethene (TCE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2,2,4-Trimethylpentane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Heptane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
cis-1,3-Dichloropropene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
4-Methyl-2-pentanone (MiBK)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
trans-1,3-Dichloropropene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,2-Trichloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Toluene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
2-Hexanone (MBK)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Dibromochloromethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dibromoethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Tetrachloroethene (PCE)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Chlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Ethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
m & p-Xylenes	<SRL	U	1.0	1.4	<SRL	U	1.0	1.4	1.0
Bromoform	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Styrene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,1,2,2-Tetrachloroethane	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
o-Xylene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
4-Ethyltoluene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,3,5-Trimethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2,4-Trimethylbenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,3-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,4-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2-Dichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
1,2,4-Trichlorobenzene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
Hexachlorobutadiene	<SRL	U	1.0	0.7	<SRL	U	1.0	0.7	0.5
BFB-Surrogate Std. % Recovery	100%				90%				70-130%

U - Compound was analyzed for, but was not detected at or above the SRL.

Sucha Parmar, Ph.D.
Technical Director

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Laboratory Analysis Report

CLIENT	**: SCS Engineers**	**DATE RECEIVED**	**: 07/03/2019**
PROJECT NO	**: 191056**	**DATE REPORTED**	**: 07/10/2019**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-3	
AAC ID	191056-119911	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.36	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Unknown Hydrocarbon #1	1.14	NA
.alpha.-Pinene	1.60	95
Unknown Hydrocarbon #2	1.10	NA
Unknown Hydrocarbon #3	0.99	NA
.beta.-Myrcene	14.6	91
.alpha.-Phellandrene	0.90	68
1-Methyl-(1-methylethyl)-benzene	0.75	94
D-Limonene	2.84	95
3,7-Dimethyl-1,3,6-octatriene	2.08	93
1-Methyl-4-(1-methylethylidene)-cyclohexene	5.45	97
BFB-Surrogate Std. % Recovery	100%	

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-4	
AAC ID	191056-119912	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.40	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Acetaldehyde	1.12	83
.beta.-Myrcene	1.73	95
Limonene	0.53	91
1-Methyl-4-(1-methylethylidene)-cyclohexene	0.49	96
BFB-Surrogate Std. % Recovery	90%	

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-5			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-6			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119913				191056-119914				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.51				1.51				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Propene	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
Dichlorodifluoromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Chloromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Dichlorotetrafluoroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Vinyl Chloride	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Methanol	<SRL	U	1.0	7.6	<SRL	U	1.0	7.5	5.0
1,3-Butadiene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Bromomethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Chloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Dichlorofluoromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Ethanol	7.02		1.0	3.0	<SRL	U	1.0	3.0	2.0
Vinyl Bromide	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Acetone	<SRL	U	1.0	3.0	<SRL	U	1.0	3.0	2.0
Trichlorofluoromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
2-Propanol (IPA)	<SRL	U	1.0	3.0	<SRL	U	1.0	3.0	2.0
Acrylonitrile	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
1,1-Dichloroethene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Methylene Chloride (DCM)	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
Allyl Chloride	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Carbon Disulfide	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Trichlorotrifluoroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
trans-1,2-Dichloroethene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,1-Dichloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Methyl Tert Butyl Ether (MTBE)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Vinyl Acetate	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
2-Butanone (MEK)	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
cis-1,2-Dichloroethene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Hexane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Chloroform	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Ethyl Acetate	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Tetrahydrofuran	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2-Dichloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,1,1-Trichloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-5			Sample Reporting Limit (SRL) (MRLxDF's)	VOC-6			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119913				191056-119914				
Date Sampled	07/02/2019				07/02/2019				
Date Analyzed	07/05/2019				07/05/2019				
Can Dilution Factor	1.51				1.51				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Benzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Carbon Tetrachloride	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Cyclohexane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2-Dichloropropane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Bromodichloromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,4-Dioxane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Trichloroethene (TCE)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
2,2,4-Trimethylpentane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Heptane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
cis-1,3-Dichloropropene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
4-Methyl-2-pentanone (MiBK)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
trans-1,3-Dichloropropene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,1,2-Trichloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Toluene	0.95		1.0	0.8	<SRL	U	1.0	0.8	0.5
2-Hexanone (MBK)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Dibromochloromethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2-Dibromoethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Tetrachloroethene (PCE)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Chlorobenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Ethylbenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
m & p-Xylenes	<SRL	U	1.0	1.5	<SRL	U	1.0	1.5	1.0
Bromoform	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Styrene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,1,2,2-Tetrachloroethane	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
o-Xylene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
4-Ethyltoluene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,3,5-Trimethylbenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2,4-Trimethylbenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,3-Dichlorobenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,4-Dichlorobenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2-Dichlorobenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
1,2,4-Trichlorobenzene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
Hexachlorobutadiene	<SRL	U	1.0	0.8	<SRL	U	1.0	0.8	0.5
BFB-Surrogate Std. % Recovery	94%				92%				70-130%

U - Compound was analyzed for, but was not detected at or above the SRL.

Sucha Parmar, Ph.D.
Technical Director

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Laboratory Analysis Report

CLIENT	: SCS Engineers	DATE RECEIVED	: 07/03/2019
PROJECT NO	: 191056	DATE REPORTED	: 07/10/2019
MATRIX	: AIR		
UNITS	: PPB (v/v)		

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-5	
AAC ID	191056-119913	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.51	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Acetaldehyde	0.89	83
2-Methylbutane	2.22	91
Pentane	1.66	59
1-Propanol	1.93	59
2-Methylpentane	1.33	91
3-Methylpentane	0.75	74
Methylcyclopentane	0.69	91
2-Methylhexane	0.47	91
3-Methylhexane	0.41	90
BFB-Surrogate Std. % Recovery	94%	

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-6	
AAC ID	191056-119914	
Date Sampled	07/02/2019	
Date Analyzed	07/05/2019	
Can Dilution Factor	1.51	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Unknown Hydrocarbon #1	0.86	NA
Acetaldehyde	0.83	83
Unknown Hydrocarbon #2	0.68	NA
BFB-Surrogate Std. % Recovery	92%	

Sucha Parmar, Ph.D.
Technical Director

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Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-7			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119915				
Date Sampled	07/02/2019				
Date Analyzed	07/08/2019				
Can Dilution Factor	1.56				
	Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	1.0	0.8	0.5
Propene	<SRL	U	1.0	1.6	1.0
Dichlorodifluoromethane	<SRL	U	1.0	0.8	0.5
Chloromethane	<SRL	U	1.0	0.8	0.5
Dichlorotetrafluoroethane	<SRL	U	1.0	0.8	0.5
Vinyl Chloride	<SRL	U	1.0	0.8	0.5
Methanol	<SRL	U	1.0	7.8	5.0
1,3-Butadiene	<SRL	U	1.0	0.8	0.5
Bromomethane	<SRL	U	1.0	0.8	0.5
Chloroethane	<SRL	U	1.0	0.8	0.5
Dichlorofluoromethane	<SRL	U	1.0	0.8	0.5
Ethanol	<SRL	U	1.0	3.1	2.0
Vinyl Bromide	<SRL	U	1.0	0.8	0.5
Acetone	<SRL	U	1.0	3.1	2.0
Trichlorofluoromethane	<SRL	U	1.0	0.8	0.5
2-Propanol (IPA)	<SRL	U	1.0	3.1	2.0
Acrylonitrile	<SRL	U	1.0	1.6	1.0
1,1-Dichloroethene	<SRL	U	1.0	0.8	0.5
Methylene Chloride (DCM)	<SRL	U	1.0	1.6	1.0
Allyl Chloride	<SRL	U	1.0	0.8	0.5
Carbon Disulfide	<SRL	U	1.0	0.8	0.5
Trichlorotrifluoroethane	<SRL	U	1.0	0.8	0.5
trans-1,2-Dichloroethene	<SRL	U	1.0	0.8	0.5
1,1-Dichloroethane	<SRL	U	1.0	0.8	0.5
Methyl Tert Butyl Ether (MTBE)	<SRL	U	1.0	0.8	0.5
Vinyl Acetate	<SRL	U	1.0	1.6	1.0
2-Butanone (MEK)	<SRL	U	1.0	1.6	1.0
cis-1,2-Dichloroethene	<SRL	U	1.0	0.8	0.5
Hexane	<SRL	U	1.0	0.8	0.5
Chloroform	<SRL	U	1.0	0.8	0.5
Ethyl Acetate	<SRL	U	1.0	0.8	0.5
Tetrahydrofuran	<SRL	U	1.0	0.8	0.5
1,2-Dichloroethane	<SRL	U	1.0	0.8	0.5
1,1,1-Trichloroethane	<SRL	U	1.0	0.8	0.5

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Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO : 191056
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 07/03/2019
DATE REPORTED : 07/10/2019

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	VOC-7			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	191056-119915				
Date Sampled	07/02/2019				
Date Analyzed	07/08/2019				
Can Dilution Factor	1.56				
	Result	Qualifier	Analysis DF		
Benzene	<SRL	U	1.0	0.8	0.5
Carbon Tetrachloride	<SRL	U	1.0	0.8	0.5
Cyclohexane	<SRL	U	1.0	0.8	0.5
1,2-Dichloropropane	<SRL	U	1.0	0.8	0.5
Bromodichloromethane	<SRL	U	1.0	0.8	0.5
1,4-Dioxane	<SRL	U	1.0	0.8	0.5
Trichloroethene (TCE)	<SRL	U	1.0	0.8	0.5
2,2,4-Trimethylpentane	<SRL	U	1.0	0.8	0.5
Heptane	<SRL	U	1.0	0.8	0.5
cis-1,3-Dichloropropene	<SRL	U	1.0	0.8	0.5
4-Methyl-2-pentanone (MiBK)	<SRL	U	1.0	0.8	0.5
trans-1,3-Dichloropropene	<SRL	U	1.0	0.8	0.5
1,1,2-Trichloroethane	<SRL	U	1.0	0.8	0.5
Toluene	<SRL	U	1.0	0.8	0.5
2-Hexanone (MBK)	<SRL	U	1.0	0.8	0.5
Dibromochloromethane	<SRL	U	1.0	0.8	0.5
1,2-Dibromoethane	<SRL	U	1.0	0.8	0.5
Tetrachloroethene (PCE)	<SRL	U	1.0	0.8	0.5
Chlorobenzene	<SRL	U	1.0	0.8	0.5
Ethylbenzene	<SRL	U	1.0	0.8	0.5
m & p-Xylenes	<SRL	U	1.0	1.6	1.0
Bromoform	<SRL	U	1.0	0.8	0.5
Styrene	<SRL	U	1.0	0.8	0.5
1,1,2,2-Tetrachloroethane	<SRL	U	1.0	0.8	0.5
o-Xylene	<SRL	U	1.0	0.8	0.5
4-Ethyltoluene	<SRL	U	1.0	0.8	0.5
1,3,5-Trimethylbenzene	<SRL	U	1.0	0.8	0.5
1,2,4-Trimethylbenzene	<SRL	U	1.0	0.8	0.5
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	1.0	0.8	0.5
1,3-Dichlorobenzene	<SRL	U	1.0	0.8	0.5
1,4-Dichlorobenzene	<SRL	U	1.0	0.8	0.5
1,2-Dichlorobenzene	<SRL	U	1.0	0.8	0.5
1,2,4-Trichlorobenzene	<SRL	U	1.0	0.8	0.5
Hexachlorobutadiene	<SRL	U	1.0	0.8	0.5
BFB-Surrogate Std. % Recovery	91%				70-130%

U - Compound was analyzed for, but was not detected at or above the SRL.

Sucha Parmar, Ph.D.
Technical Director

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Laboratory Analysis Report

CLIENT	**: SCS Engineers**	**DATE RECEIVED**	**: 07/03/2019**
PROJECT NO	**: 191056**	**DATE REPORTED**	**: 07/10/2019**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

TENTATIVELY IDENTIFIED COMPOUNDS

Client ID	VOC-7	
AAC ID	191056-119915	
Date Sampled	07/02/2019	
Date Analyzed	07/08/2019	
Can Dilution Factor	1.56	
Compound	*PPB(V/V)*	*Spectra Identification Quality*
Acetaldehyde	1.51	83
BFB-Surrogate Std. % Recovery	91%	

Sucha Parmar, Ph.D.
Technical Director

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ANALYSIS DATE : 07/05/2019 **INSTRUMENT ID** : GC/MS-02
ANALYST : JJG **CALIBRATION STD ID** : PS041919-05

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15
Continuing Calibration Verification of the 06/25/2019 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC**
4-BFB (surrogate standard)	10.00	9.79	98
Chlorodifluoromethane	10.80	11.23	104
Propene	11.00	12.75	116
Dichlorodifluoromethane	10.20	10.63	104
Chloromethane	10.60	11.28	106
Dichlorotetrafluoroethane	11.00	11.55	105
Vinyl Chloride	10.40	10.84	104
Methanol	22.50	24.14	107
1,3-Butadiene	10.90	12.29	113
Bromomethane	10.30	10.69	104
Chloroethane	10.10	12.95	128
Dichlorofluoromethane	10.80	11.45	106
Ethanol	11.00	12.31	112
Vinyl Bromide	10.70	10.99	103
Acetone	10.90	11.95	110
Trichlorofluoromethane	10.10	10.17	101
2-Propanol (IPA)	11.00	11.33	103
Acrylonitrile	11.50	12.52	109
1,1-Dichloroethene	10.70	11.14	104
Methylene Chloride (DCM)	10.60	11.26	106
Allyl Chloride	10.70	11.45	107
Carbon Disulfide	10.50	11.68	111
Trichlorotrifluoroethane	10.60	11.29	107
trans-1,2-Dichloroethene	10.30	11.37	110
1,1-Dichloroethane	10.50	11.26	107
Methyl Tert Butyl Ether (MTBE)	10.80	12.21	113
Vinyl Acetate	10.90	12.01	110
2-Butanone (MEK)	10.90	11.91	109
cis-1,2-Dichloroethene	10.90	12.09	111
Hexane	10.70	11.68	109
Chloroform	10.90	11.30	104
Ethyl Acetate	10.90	11.87	109
Tetrahydrofuran	10.20	11.67	114
1,2-Dichloroethane	10.80	11.82	109
1,1,1-Trichloroethane	10.80	11.42	106

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ANALYSIS DATE : 07/05/2019 **INSTRUMENT ID** : GC/MS-02
ANALYST : JJG **CALIBRATION STD ID** : PS041919-05

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15
Continuing Calibration Verification of the 06/25/2019 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC**
Benzene	10.90	11.41	105
Carbon Tetrachloride	10.60	10.99	104
Cyclohexane	10.90	12.15	111
1,2-Dichloropropane	10.80	11.43	106
Bromodichloromethane	10.90	11.64	107
1,4-Dioxane	10.90	11.29	104
Trichloroethene (TCE)	10.90	11.85	109
2,2,4-Trimethylpentane	10.70	11.54	108
Heptane	10.80	12.52	116
cis-1,3-Dichloropropene	10.60	11.30	107
4-Methyl-2-pentanone (MiBK)	10.60	11.32	107
trans-1,3-Dichloropropene	10.20	11.09	109
1,1,2-Trichloroethane	10.90	11.24	103
Toluene	11.00	11.32	103
2-Hexanone (MBK)	10.80	11.70	108
Dibromochloromethane	10.30	10.54	102
1,2-Dibromoethane	10.90	11.24	103
Tetrachloroethene (PCE)	10.90	11.26	103
Chlorobenzene	11.00	11.81	107
Ethylbenzene	10.90	11.95	110
m & p-Xylenes	21.00	23.49	112
Bromoform	10.50	11.24	107
Styrene	10.80	11.91	110
1,1,2,2-Tetrachloroethane	10.70	11.77	110
o-Xylene	10.70	12.06	113
4-Ethyltoluene	10.30	11.60	113
1,3,5-Trimethylbenzene	10.40	11.63	112
1,2,4-Trimethylbenzene	10.40	11.68	112
Benzyl Chloride (a-Chlorotoluene)	9.70	10.61	109
1,3-Dichlorobenzene	10.10	10.46	104
1,4-Dichlorobenzene	10.20	11.13	109
1,2-Dichlorobenzene	10.20	10.83	106
1,2,4-Trichlorobenzene	9.70	11.58	119
Hexachlorobutadiene	10.00	11.23	112

* - %REC should be 70-130%

Sucha Parmar, PhD
Technical Director

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Quality Control/Quality Assurance Report

CLIENT ID	**: Laboratory Control Spike**	**DATE ANALYZED**	**: 07/05/2019**
AAC ID	**: LCS/LCSD**	**DATE REPORTED**	**: 07/05/2019**
MEDIA	**: Air**	**UNITS**	**: ppbv**

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.70	11.14	10.67	104	100	4.3
Methylene Chloride (DCM)	0.0	10.60	11.26	11.06	106	104	1.8
Benzene	0.0	10.90	11.41	11.18	105	103	2.0
Trichloroethene (TCE)	0.0	10.90	11.85	11.35	109	104	4.3
Toluene	0.0	11.00	11.32	11.08	103	101	2.1
Tetrachloroethene (PCE)	0.0	10.90	11.26	10.86	103	100	3.6
Chlorobenzene	0.0	11.00	11.81	11.99	107	109	1.5
Ethylbenzene	0.0	10.90	11.95	11.92	110	109	0.3
m & p-Xylenes	0.0	21.00	23.49	23.58	112	112	0.4
o-Xylene	0.0	10.70	12.06	12.20	113	114	1.2

* Must be 70-130%

** Must be < 25%

Sucha Parmar, PhD
Technical Director

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Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 07/05/2019**
UNITS	**: ppbv**	**REPORT DATE**	**: 07/05/2019**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / *AAC ID*	Method Blank MB 070519	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 07/05/2019**
UNITS	**: ppbv**	**REPORT DATE**	**: 07/05/2019**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / *AAC ID*	Method Blank MB 070519	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	93%	--

RL - Reporting Limit

Sucha Parmar, PhD
Technical Director

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Quality Control/Quality Assurance Report

AAC ID	**: 191056-119909**	**DATE ANALYZED**	**: 07/05/2019**
MATRIX	**: Air**	**DATE REPORTED**	**: 07/05/2019**
		UNITS	**: ppbv**

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	<SRL	<SRL	0.0
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	0.67	0.68	1.5
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	72.9	76.3	4.6
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	13.7	13.3	3.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	7.76	8.22	5.8
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	7.78	7.95	2.2
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	<SRL	<SRL	0.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	<SRL	<SRL	0.0
Trichlorotrifluoroethane	<SRL	<SRL	0.0
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	<SRL	<SRL	0.0
Chloroform	<SRL	<SRL	0.0
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Quality Control/Quality Assurance Report

AAC ID	**: 191056-119909**	**DATE ANALYZED**	**: 07/05/2019**
MATRIX	**: Air**	**DATE REPORTED**	**: 07/05/2019**
		UNITS	**: ppbv**

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	<SRL	<SRL	0.0
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	<SRL	<SRL	0.0
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	<SRL	<SRL	0.0
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	<SRL	<SRL	0.0
m & p-Xylenes	<SRL	<SRL	0.0
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	<SRL	<SRL	0.0
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	<SRL	<SRL	0.0
1,2,4-Trimethylbenzene	<SRL	<SRL	0.0
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	96%	96%	0.3

SRL - Sample Reporting Limit

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ANALYSIS DATE : 07/08/2019 **INSTRUMENT ID** : GC/MS-02
ANALYST : JJG **CALIBRATION STD ID** : PS041919-05

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 06/25/2019 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC**
4-BFB (surrogate standard)	10.00	9.60	96
Chlorodifluoromethane	10.80	11.78	109
Propene	11.00	13.02	118
Dichlorodifluoromethane	10.20	10.92	107
Chloromethane	10.60	11.55	109
Dichlorotetrafluoroethane	11.00	11.71	106
Vinyl Chloride	10.40	10.96	105
Methanol	22.50	26.02	116
1,3-Butadiene	10.90	12.16	112
Bromomethane	10.30	10.83	105
Chloroethane	10.10	10.19	101
Dichlorofluoromethane	10.80	11.23	104
Ethanol	11.00	12.24	111
Vinyl Bromide	10.70	10.91	102
Acetone	10.90	10.92	100
Trichlorofluoromethane	10.10	10.38	103
2-Propanol (IPA)	11.00	11.93	108
Acrylonitrile	11.50	12.59	109
1,1-Dichloroethene	10.70	10.64	99
Methylene Chloride (DCM)	10.60	11.43	108
Allyl Chloride	10.70	11.35	106
Carbon Disulfide	10.50	10.91	104
Trichlorotrifluoroethane	10.60	10.99	104
trans-1,2-Dichloroethene	10.30	11.11	108
1,1-Dichloroethane	10.50	11.32	108
Methyl Tert Butyl Ether (MTBE)	10.80	11.27	104
Vinyl Acetate	10.90	11.84	109
2-Butanone (MEK)	10.90	11.67	107
cis-1,2-Dichloroethene	10.90	11.72	108
Hexane	10.70	11.79	110
Chloroform	10.90	11.34	104
Ethyl Acetate	10.90	11.92	109
Tetrahydrofuran	10.20	11.04	108
1,2-Dichloroethane	10.80	11.99	111
1,1,1-Trichloroethane	10.80	11.34	105

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ANALYSIS DATE : 07/08/2019 **INSTRUMENT ID** : GC/MS-02
ANALYST : JJG **CALIBRATION STD ID** : PS041919-05

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15
Continuing Calibration Verification of the 06/25/2019 Calibration

Compounds	Conc	Daily Conc	%REC*
Benzene	10.90	11.65	107
Carbon Tetrachloride	10.60	11.29	107
Cyclohexane	10.90	12.02	110
1,2-Dichloropropane	10.80	11.63	108
Bromodichloromethane	10.90	11.84	109
1,4-Dioxane	10.90	11.10	102
Trichloroethene (TCE)	10.90	11.49	105
2,2,4-Trimethylpentane	10.70	11.95	112
Heptane	10.80	12.41	115
cis-1,3-Dichloropropene	10.60	11.33	107
4-Methyl-2-pentanone (MiBK)	10.60	11.73	111
trans-1,3-Dichloropropene	10.20	10.96	107
1,1,2-Trichloroethane	10.90	11.65	107
Toluene	11.00	11.72	107
2-Hexanone (MBK)	10.80	11.99	111
Dibromochloromethane	10.30	10.59	103
1,2-Dibromoethane	10.90	11.08	102
Tetrachloroethene (PCE)	10.90	11.48	105
Chlorobenzene	11.00	12.25	111
Ethylbenzene	10.90	12.29	113
m & p-Xylenes	21.00	23.36	111
Bromoform	10.50	11.22	107
Styrene	10.80	11.68	108
1,1,2,2-Tetrachloroethane	10.70	11.86	111
o-Xylene	10.70	12.19	114
4-Ethyltoluene	10.30	11.59	113
1,3,5-Trimethylbenzene	10.40	11.72	113
1,2,4-Trimethylbenzene	10.40	11.95	115
Benzyl Chloride (a-Chlorotoluene)	9.70	11.26	116
1,3-Dichlorobenzene	10.10	11.25	111
1,4-Dichlorobenzene	10.20	11.02	108
1,2-Dichlorobenzene	10.20	11.08	109
1,2,4-Trichlorobenzene	9.70	11.43	118
Hexachlorobutadiene	10.00	11.22	112

* - %REC should be 70-130%

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Quality Control/Quality Assurance Report

CLIENT ID	**: Laboratory Control Spike**	**DATE ANALYZED**	**: 07/08/2019**
AAC ID	**: LCS/LCSD**	**DATE REPORTED**	**: 07/08/2019**
MEDIA	**: Air**	**UNITS**	**: ppbv**

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.70	10.64	11.10	99	104	4.2
Methylene Chloride (DCM)	0.0	10.60	11.43	11.43	108	108	0.0
Benzene	0.0	10.90	11.65	11.43	107	105	1.9
Trichloroethene (TCE)	0.0	10.90	11.49	11.92	105	109	3.7
Toluene	0.0	11.00	11.72	12.05	107	110	2.8
Tetrachloroethene (PCE)	0.0	10.90	11.48	11.60	105	106	1.0
Chlorobenzene	0.0	11.00	12.25	12.04	111	109	1.7
Ethylbenzene	0.0	10.90	12.29	12.31	113	113	0.2
m & p-Xylenes	0.0	21.00	23.36	23.41	111	111	0.2
o-Xylene	0.0	10.70	12.19	12.26	114	115	0.6

* Must be 70-130%

** Must be < 25%

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Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 07/08/2019**
UNITS	**: ppbv**	**REPORT DATE**	**: 07/08/2019**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / *AAC ID*	Method Blank MB 070819	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 07/08/2019**
UNITS	**: ppbv**	**REPORT DATE**	**: 07/08/2019**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / *AAC ID*	Method Blank MB 070819	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	94%	--

RL - Reporting Limit

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Quality Control/Quality Assurance Report

AAC ID	**: 190958-119507**	**DATE ANALYZED**	**: 07/08/2019**
MATRIX	**: Air**	**DATE REPORTED**	**: 07/08/2019**
		UNITS	**: ppbv**

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	2160	2160	0.0
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	<SRL	<SRL	0.0
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	<SRL	<SRL	0.0
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	<SRL	<SRL	0.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	<SRL	<SRL	0.0
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	<SRL	<SRL	0.0
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	<SRL	<SRL	0.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	<SRL	<SRL	0.0
Trichlorotrifluoroethane	<SRL	<SRL	0.0
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	<SRL	<SRL	0.0
Chloroform	<SRL	<SRL	0.0
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Quality Control/Quality Assurance Report

AAC ID	**: 190958-119507**	**DATE ANALYZED**	**: 07/08/2019**
MATRIX	**: Air**	**DATE REPORTED**	**: 07/08/2019**
		UNITS	**: ppbv**

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	<SRL	<SRL	0.0
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	<SRL	<SRL	0.0
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	<SRL	<SRL	0.0
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	<SRL	<SRL	0.0
m & p-Xylenes	<SRL	<SRL	0.0
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	<SRL	<SRL	0.0
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	<SRL	<SRL	0.0
1,2,4-Trimethylbenzene	<SRL	<SRL	0.0
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	93%	96%	3.2

SRL - Sample Reporting Limit

Sucha Parmar, PhD
Technical Director

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ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. 191056 Page ____ of ____

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: SCS
Project Name: CARP ODOR
Project Mgr (Print Name): Paul Schafer
Project Number: CARP ODOR
Sampler's Name (Print Name): Eva Lau
Sampler's Signature:

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	EPA TO-15 SCAN VOC's + TICs	EPA PAMS (TO-12 C2-C12 Hydrocarbons) TNMHC				
119909	07/02	0851	air	VOC-1 (can ID 836)	Summa 1	X	X				
119910	"	0914	"	VOC-2 (can ID 845)	Summa 1	X	X				
119911	"	0922	"	VOC-3 (can ID 835)	Summa 1	X	X				
119912	"	0927	"	VOC-4 (can ID 828)	Summa 1	X	X				
119913	"	1040	"	VOC-5 (can ID 832)	Summa 1	X	X				
119914	"	1045	"	VOC-6 (can ID 826)	Summa 1	X	X				
119915	"	1035	"	VOC-7 (can ID 849)	Summa 1	X	X				

Analysis Requested

Send report:
pschafer@scs-engineers.com
Attn: Paul Schafer
Phone#: 619-823-5333
Fax#:

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:
3-4 day TAT for:
[redacted] VOC-1
VOC-2

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
	Eva Lau	07/02 1414		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
			Rudy S	7/3/19 1120

UPS

7x cans, no flows

Exhibit 4- Ecosorb Health & Safety Evaluation

CPF Associates, LLC

Environmental and Public Health Sciences

MEMORANDUM

TO: **Laura Haupert, OMI**
FROM: **Sarah Foster, CPF Associates, LLC**
DATE: **January 8, 2020**
RE: **Screening Health Assessment of Odor Control at Cannabis Greenhouses**

INTRODUCTION AND SUMMARY

OMI Industries manufactures odor control products which can be used to help mitigate odor issues, including odor issues associated with cannabis greenhouses and related facilities.

In December 2017, CPF Associates, LLC prepared a health assessment that evaluated the use of an OMI product, Ecosorb® CNB 100, in a waterless vapor phase odor control technology developed by Byers Scientific & Manufacturing. The Byers' technology produces a controlled release of the product in the vapor phase. The CPF health assessment was a screening-level evaluation that relied on conservative, health-protective assumptions to investigate the potential air impacts of CNB 100 relative to acute, short-term inhalation criteria derived to be protective of public health. The assessment showed that operation of the defined application scenario would not be expected to pose public health concerns. Potential air concentrations calculated using a screening-level model in the immediate vicinity of the distribution pipe were below available health-protective acute inhalation criteria.

Recently, OMI requested CPF Associates, LLC to conduct a follow-up health assessment of a similar product, Ecosorb® CNB 107, used in the Byers' odor control technology system. The application scenario was based on system configurations at several cannabis greenhouses in Santa Barbara County, CA. It assumed that Ecosorb® CNB 107 would be input at 7 gallons/day into the odor control technology and, once volatilized into a vapor, would be mixed with air from a 300 ft^3/min air blower through a 3,115-foot (949 m) distribution pipe encircling a greenhouse at a height of 10-15 feet (3.0-4.6 m). The product would then be released from upward-facing holes spaced at nine-foot intervals along the length of the pipe at an exit velocity of roughly 105 mph (154 ft/sec). The assessment evaluated emissions along the longest length of pipe on any one side of the building (1,113 feet or 339 m). The composition of CNB 107 was provided to CPF by OMI Industries, under the understanding that this is confidential business information.

The follow-up health assessment evaluated potential air impacts relative to chronic and acute inhalation criteria derived to be protective of public health. The assessment was a screening-level evaluation that relied on conservative, health-protective assumptions. These assumptions are expected to overestimate potential air concentrations, exposures and risks associated with the evaluated scenario.

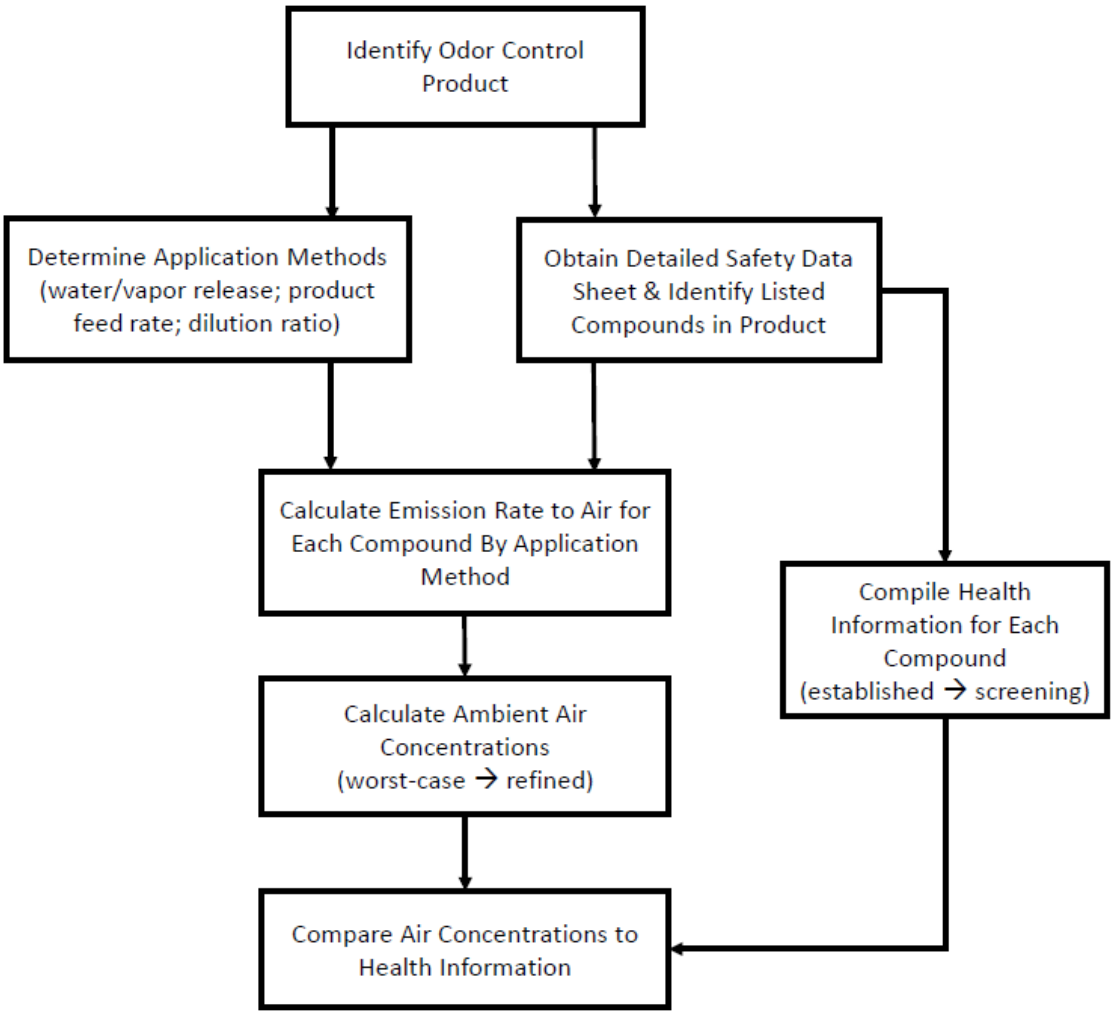
The assessment showed that, based on the methods and assumptions used, operation of the evaluated application scenario would not be expected to pose public health concerns. Potential air concentrations calculated using a screening-level model in the immediate vicinity of the distribution pipe were below available health-protective acute and chronic inhalation criteria.

SCREENING HEALTH ASSESSMENT

Methodology

CPF has developed a methodology to evaluate odor control product use at landfills and other potentially odiferous facilities. This methodology is based on well-accepted health risk assessment principles and has been used to objectively assess more than two dozen odor control products delivered using a variety of application systems. A flow chart of the methodology is provided in Figure 1. Broadly defined, the methodology combines information about odor control product composition, odor control application methods, health effects information and modeled ambient air concentrations to evaluate the potential for public health concerns via inhalation.

Figure 1
Overview of Odor Control Product Health Assessment Methodology



Consistent with standard health risk assessment practice, the methodology can be applied in a stepwise fashion of increasing refinement, as warranted. The initial screening-level evaluation employs conservative, health-protective assumptions which are intended to overestimate potential air concentrations, exposures and potential risks. If the screening-level results do not show a potential health concern, then no further assessment is needed. If not, more refined evaluations can be performed to further evaluate an odor control system under more realistic conditions.

Assessment of Vapor Phase Odor Control System

Application Scenario

This screening-level assessment addressed an application scenario based on actual system configurations at several cannabis greenhouses in Santa Barbara County, CA. The configurations at greenhouses were provided to CPF by Byers Scientific. It was assumed that Ecosorb® CNB 107 would be fed into the vapor phase odor control technology at a rate of 7 gallons per day and, once volatilized, would be distributed as a vapor through a distribution pipe encircling a greenhouse. Air flow through the pipe would be generated by a fan set at 300 standard cubic feet per minute (8.5 m^3/min) and the product would be released from upward-facing holes, each roughly 1/8" in diameter (3.2 mm), spaced at nine-foot (2.7 m) intervals along the length of the pipe. Due to the pressure created by the fan, the vapor is expected to be emitted at a velocity of roughly 105 mph (154 ft/sec or 47 m/sec) from each hole. The pipe would be placed around the outside perimeter of the building at a height of 10-15 feet (3.0-4.6 m). The total pipe length encircling the building was assumed to be 3,115 feet (949 m). The assessment evaluated emissions along the longest length of pipe on any one side of the building (1,113 feet or 339 m).

Odor Control Product

The odor control product evaluated was Ecosorb® CNB 107, the latest cannabis specific odor neutralizing formula. Its composition was provided to CPF by its manufacturer, OMI Industries, under the understanding that this is confidential business information. The detailed composition of the product used in this assessment was based on an analysis of Ecosorb® CNB 107 using a Gas Chromatography-Mass Spectrometer (GCMS) which allowed for a complete identification of all substances present in the product. The detailed GCMS analysis identified 27 compounds which were all carried through this assessment. [1] A review of the ingredients in a similar odor control product, Ecosorb® CNB 100, by the Santa Barbara County Air Pollution Control District (APCD) confirmed that none are considered toxic air contaminants (TACs) as identified by the State of California.[2] The CNB 107 formula has also been provided under terms of confidentiality to the Santa Barbara County APCD which is currently conducting its own independent review. In general, the product is comprised of two polysorbate surfactants and a blend of plant oils with the remainder being water. Both polysorbate surfactants are widely used in hundreds of industrial, consumer, medicinal and personal care products. The Safety Data Sheet (SDS) for CNB 107 is provided in Attachment A. This

[1] The composition of Ecosorb CNB 107 is a proprietary trade secret, however, the GCMS results were provided to CPF for the purposes of this analysis. In accordance with a Confidentiality Agreement, this composition data is not specifically provided in this memo.

[2] Santa Barbara County Air Pollution Control District (SBCAPCD). 2091. APCD Incompleteness Items for Casitas Greenhouse LLC. Letter from D. Ho, Air Quality Specialist to M. Esparza, Santa Barbara County Planning and Development. June 25, 2019.

SDS includes information about the product, its hazards and instructions for handling, disposal, transport, first-aid, fire-fighting and exposure control measures.

Emission Rates into Air

Emission rates into air for the product as a whole and its individual constituents were calculated based on the application setup described above and the Ecosorb® CNB 107 composition. The method for calculating emission rates was designed to ensure that potential air impacts would be overestimated in the interest of health protectiveness. First, it was assumed that 100% of the product would be volatilized in the odor control technology and transported down the distribution pipe. Second, the calculated emission rates from all holes along the longest length of pipe on any one side of the building (124 holes along a 1,113-foot length of pipe) were summed and the resulting cumulative emission rate was then assumed to be released from one concentrated location, rather than dispersed along the long distribution pipe. These assumptions are expected to overestimate potential emission rates, and thus also air concentrations.

Ambient Air Concentrations

Potential air concentrations were calculated in the immediate vicinity of the distribution pipe using a screening method called a box model. This approach assumes that emissions are completely mixed in a box having a specified width and height through which wind is blowing.[3] It is generally considered more likely to overestimate than underestimate concentrations because the model does not take into account air mixing and dispersion outside the box, atmospheric reactions or settling (deposition). All of these processes, which naturally occur in the outdoor environment, would result in lower concentrations than those modeled. Moreover, the simple box model does not take into account the upward-facing, high velocity of the emissions (i.e., roughly 154 ft/sec), which would result in enhanced mixing and dispersion in air. As a result, the air concentrations due to emissions are expected to be overestimated.

For this assessment, the box was defined to conservatively estimate potential air concentrations that might occur in the immediate vicinity of the distribution pipe (i.e., within roughly 15 feet). It was assumed to extend outward 15 feet (4.57 m) from the side of the building and upwards to a building height of 15 feet (4.57 m), with air flowing through this cross-section at a velocity of 1 mile per hour (0.447 m/sec), representative of a calm wind speed. Air concentrations would be lower if a larger box and higher wind speed were used.[4]

Health Criteria for Odor Control Product

The next step in the assessment involved compilation of available health criteria for the constituents in the product. These criteria reflect concentrations in air (in mg/m^3) or acceptable daily intakes (in mg/kg body weight/day) that are protective of public health. They are developed by regulatory agencies and public health scientists based on scientific information about the toxicity of chemical

[3] American Society for Testing and Materials (ASTM). 1994. Emergency Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. Philadelphia, PA. ES 38-94.

[4] The equation for calculating air concentrations in the simple well-mixed box model is: $Ca = (ER*1{,}000)/(H*W*V)$, where Ca = Air concentration (mg/m^3), ER = Emission rate (g/sec), 1,000 = Conversion factor (1,000 mg/g), H = Box height (5.5 m), W = Box width (4.57 m), and V = Air velocity through box (0.447 m/sec).

substances. When these values are derived, safety factors are generally incorporated to ensure that they are protective of human health.

Numerous information sources were searched to identify available health effects criteria.[5] Identifying health criteria for the constituents in CNB 107 was, however, challenging because the compounds are common flavorings, food additives or surfactants that are widely present in industrial, consumer, medicinal and personal care products and none of the compounds are included in traditional US databases relied on for inhalation health assessments.[6] Chronic inhalation criteria were able to be identified for all but two of the constituents in Ecosorb® CNB 107 - either for the listed compound itself, a chemical class representative of the compound, or for a structurally similar compound. These chronic, long-term inhalation health criteria were derived no effect levels (DNELs) for inhalation exposure for the general public from the European Chemicals Agency (ECHA). The DNELs are defined as safe exposure levels (i.e., the level of exposure above which a human should not be exposed to a substance), and they are developed following guidance provided by ECHA which requires incorporation of adjustment (safety) factors to ensure the DNELs are protective of public health.[7] Chronic health criteria for two constituents (the surfactants) were available only as oral acceptable daily intakes (i.e., doses in mg/kg/day rather than air concentrations in mg/m^3). Acute, short-term inhalation criteria were able to be identified for most but not all of the constituents, again either for the listed compound itself, a chemical class representative of the compound, or for a structurally similar compound. Most of the acute, short-term inhalation criteria were Temporary Emergency Exposure Limits (TEELs) derived by the Department of Energy's Subcommittee on Consequence Assessment and Protective Actions (SCAPA), as no values were provided in two other more commonly used databases.[8] The TEELs reflect the airborne concentration of a substance below which the general population, including susceptible individuals, is not expected to experience adverse effects from a one-hour or more inhalation exposure (e.g., mild, transient effects such as irritation).[9]

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[5] Information sources searched included: California Environmental Protection Agency (CALEPA) Reference Exposure Levels (RELs), US Environmental Protection Agency's (USEPA) Integrated Risk Information System (IRIS) and Risk-Based Screening Levels (RSLs), Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs), USEPA's Acute Exposure Guideline Levels (AEGLs), American Industrial Hygiene Association's Emergency Response Planning Guidelines (ERPGs), Temporary Emergency Exposure Limits (TEELs) developed by the DOE Office of Emergency Management, US National Library of Medicine PubChem databases, derived no effect levels (DNELs) for inhalation exposure for the general public from the European Chemicals Agency (ECHA), European Food Safety Authority (EFSA) assessments on food additives, Safety Assessments prepared by the Research Institute For Fragrance Materials and by Cosmetic Ingredient Review Expert Panels, and Japan Food Safety Commission reports on food additives.

[6] None of the constituents in CNB 107 are included in the California Environmental Protection Agency (CALEPA) list of Reference Exposure Levels (RELs), the US Environmental Protection Agency's (USEPA) Integrated Risk Information System (IRIS), USEPA's Risk-Based Screening Levels (RSLs) tables or the Agency for Toxic Substances and Disease Registry (ATSDR) list of Minimum Risk Levels (MRLs).

[7] European Chemicals Agency (ECHA). 2012. Guidance on information requirements and chemical safety assessment. Chapter R.8: Characterization of dose [concentration]-response for human health; and European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC). 2010. Guidance on Assessment Factors to Derive a DNEL. ECETOC Technical Report No. 110. October 2010.

[8] None of the constituents in CNB 107 are included in USEPA's Acute Exposure Guideline Levels (AEGLs) database or the American Industrial Hygiene Association's Emergency Response Planning Guidelines (ERPGs).

[9] https://www.energy.gov/ehss/protective-action-criteria-pac-aegls-erpgs-teels-rev-29-chemicals-concern-may-2016

In addition to identifying criteria for constituents in Ecosorb® CNB 107, the results from acute inhalation toxicity studies were used to derive an acute inhalation criterion for the product as a whole. Acute inhalation toxicity studies have been conducted for two Ecosorb® products that are very similar to CNB 107 (Ecosorb® 606 and Ecosorb® 206). The acute inhalation toxicity studies examined the occurrence of adverse effects on rats exposed to each product for four hours at a high concentration in aerosolized form (2,220 mg/m^3 for Ecosorb® 606 and 2,080 mg/m^3 for Ecosorb® 206). Observations of the test animals for 12 different health endpoints were tabulated during the exposure period and for 14 days after the exposure ceased, and no adverse effects were observed at either tested air concentration. [10] The lowest of the two no observed adverse effect levels (NOAELs) was divided by an uncertainty factor of 100 to derive the acute inhalation criterion for this assessment (21 mg/m^3). [11] This criterion is likely to overstate potential risks because the actual NOAEL may be much higher than the single tested exposure level.

Compare Air Concentrations to Health Criteria

The potential for a health concern was evaluated by comparing the calculated air concentrations to the health criteria. If the calculated air concentration for a compound or odor control product is lower than the corresponding inhalation health criterion, adverse public health effects would not be expected to occur under the assumed odor control application scenario. If an air concentration exceeds its criterion, this does not mean that adverse effects would occur among the general public because of the conservative assumptions included in both the derivation of the criterion and the calculation of air concentrations. Rather it indicates that further investigation may be warranted, using more refined and realistic assumptions, to help determine whether or not levels in air may present a potential public health concern.

The potential air concentrations calculated in the immediate vicinity of the distribution pipe were all below the available health-protective criteria. As noted above, the air concentrations were calculated using a screening-level box model, assuming emissions from 124 holes along a 1,113-foot length distribution pipe would all be released from one concentrated location on the side of a building. The calculated air concentrations of the individual constituents in CNB 107 were 10 to more than 33,000 times lower than their respective chronic criteria, and 148 to more than 89,000 times lower than their acute inhalation criteria. The calculated air concentration of the product as a whole was 1.8 times lower than its acute inhalation criterion.

Discussion of Uncertainties

The results of health assessments inherently reflect some uncertainty because of the complexities involved in the analysis. In accordance with standard practice, key uncertainties affecting this assessment are discussed here. In general, uncertainties in health assessments, including this one,

[10] The acute inhalation toxicity tests were conducted by Tox Monitor Laboratories, Inc. (Oak Park, IL) according to guidelines from the US Environmental Protection Agency (Health Effects Test Guidelines, OPPTS 870.1300, Acute Inhalation Toxicity, August 1998) and the Organization for Economic Cooperation and Development (OECD Guidelines for the Testing of Chemicals, Test No. 403: Acute Inhalation Toxicity, September 2009). These guidelines include monitoring tested animals for a wide variety of effects including, for example, changes in eyes and mucous membranes, respiratory and nervous systems effects, and behavior patterns.

[11] Consistent with screening-level methods for deriving reference air concentrations, the uncertainty factor of 100 incorporated one factor of 10 for animal to human extrapolation and another factor of 10 for human variability.

are addressed by using conservative (i.e., health protective) assumptions which collectively produce results much more likely to be overestimated than underestimated. This adds a margin of safety to the results.

There were several very conservative assumptions used in this assessment that will overestimate air concentrations and thus health impact results. Emissions from 124 holes spread out along a long 1,113-foot distribution pipe were summed, and this cumulative emission was then assumed to be released from a concentrated single location. It was also assumed that each constituent would be completely (100%) volatilized in the odor technology system. Small dimensions (i.e., 15 feet by 15 feet) were assigned to the simple box model and a very low wind speed was used for mixing in the box. The box model does not take into account air mixing and dispersion outside the box, atmospheric reactions or deposition, or the high velocity of the emissions, all processes that would tend to lower air concentrations.

The health criteria used to evaluate the calculated air concentrations were obtained from a variety of public health and research organization data sources. Each criterion incorporated adjustment factors in its derivation to help ensure protection of public health. Acute inhalation criteria were not able to be identified for some of the constituents identified in the GCMS analysis, however, this limitation was offset by the availability of an acute inhalation criterion derived for the product as a whole based on a NOAEL from an acute inhalation toxicity study. The calculated air concentration for the product as a whole in the immediate vicinity of the distribution pipe was 1.8 times lower than its acute inhalation criterion indicating that, even with the many conservative assumptions noted above, potential short-term exposure would be below a level of concern. And this result is likely to be further overestimated because the acute toxicity study evaluated only one exposure level at which there were no adverse effects, meaning that the actual NOAEL, and thus the health criterion, could be much higher.

Some uncertainties could not be explicitly addressed in this study, such as whether the form of emissions might vary in sub-freezing temperatures (e.g., vapor versus aerosols), whether the composition of volatilized constituents might vary after long periods of operation and the effect of buildings on dispersion and mixing of emissions. Potential air concentrations were, however, calculated along one side of a long building using a simple screening-level box model with very conservative input assumptions; more refined calculations of potential air concentrations could be estimated using more sophisticated methods (e.g., refined air dispersion modeling, wind tunnel modeling or computational fluid dynamic modeling). Overall, these uncertainties are not expected to change the conclusions of this assessment.

This assessment addressed only the inhalation route of exposure with a focus on the general public. Not considering other exposure routes (e.g., dermal) is appropriate given that the general public would not be expected to come into contact with the odor control product in any manner other than through the air. With respect to occupational situations, which were not addressed here, this product should only be used in accordance with its SDS, any label instructions, and regulatory requirements of Cal/OSHA.

Conclusions

Based on the methods and assumptions used, this screening-level assessment showed that the evaluated application scenario of the Byers' odor control technology system using Ecosorb® CNB 107 would not be expected to pose public health concerns. Potential air concentrations calculated using a screening-level model in the immediate vicinity of a distribution pipe were below available health-protective chronic and acute inhalation criteria. The calculated air concentrations of the individual constituents in CNB 107 were 10 to more than 33,000 times lower than their respective chronic criteria, and 148 to more than 89,000 times lower than their acute inhalation criteria. The calculated air concentration of the product as a whole was 1.8 times lower than its acute inhalation criterion. In general, the methods and assumptions used in this analysis were conservative (i.e., health protective) and, therefore, the results are much more likely to be overestimated than underestimated.

ABOUT CPF ASSOCIATES, LLC

CPF Associates, LLC is an independent Maryland-based scientific and research consulting firm with in-depth experience and expertise in the health and environmental evaluation of air emission sources, waste management technologies, industrial facilities and waste sites. The principal investigator was Ms. Sarah Foster, Founder of CPF Associates, LLC. CPF applies well-accepted scientific tools to address public health and environmental issues. In over 35 years of professional consulting, Ms. Foster has conducted dozens of projects for energy-from-waste (EfW) facilities, landfills, hazardous waste incinerators, medical waste incinerators, biosolids management facilities, recycling plants, transfer stations and hazardous waste sites. She has also conducted odor control product health assessments for over two dozen different products and application scenarios. Previous to CPF Associates, LLC, Ms. Foster was a Principal and Founding Partner of CPF Associates, Inc., a Senior Consultant with The Weinberg Group, a Project Manager with Clement Associates/ICF Consulting, a Data Reviewer for the Six Cities Study at Harvard School of Public Health, and an Environmental Protection Specialist at the US Environmental Protection Agency.

ATTACHMENT A

SAFETY DATA SHEET

ECOSORB CNB 107

Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 04/04/2019 Revision date: 12/23/2019 Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Product name : ECOSORB CNB 107

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Odor Neutralizer

Recommended use : Odor Neutralizer

Restrictions on use : None known

1.3. Supplier

Manufacturer
OMI Industries
1300 Barbour Way
Rising Sun, IN 47040 - U.S.A
T 1-847-304-9111

1.4. Emergency telephone number

Emergency number : 1-800-662-6367, Monday - Friday 8 am to 5 pm CST

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification
Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling
No labeling applicable

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions. Keep out of reach of children.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Move to fresh air if necessary.

First-aid measures after skin contact : Wash skin with plenty of water.

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : No other effects known.

Expected Symptoms/Effects, Acute and Delayed : No known effects from this product.

Symptoms/effects : None under normal use.

Symptoms/effects after inhalation : No effects known.

Symptoms/effects after skin contact : No effects known.

Symptoms/effects after eye contact : No effects known.

Symptoms/effects after ingestion : No effects known.

Symptoms/effects upon intravenous administration : No other effects known.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Specific hazards arising from the chemical

Fire hazard : Not flammable.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so.

6.1.1. For non-emergency personnel

Protective equipment : Gloves and safety glasses recommended.

Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent liquid from entering sewers, watercourses, underground or low areas.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up	: Take up liquid spill into absorbent material.
Other information	: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Does not require any specific or particular technical measures.
Storage conditions	: Store in a well-ventilated place. Keep cool.
Incompatible products	: Oxidizing agent. Strong acids.
Incompatible materials	: Keep away from strong acids and strong oxidizers.
Storage temperature	: 4 - 29 °C 40°F and 85°F Allowing product to freeze may cause layering.
Heat-ignition	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Information on mixed storage	: KEEP SUBSTANCE AWAY FROM: (strong) acids. oxidizing agents.
Storage area	: Keep container in a well-ventilated place. Store in a cool area. Keep out of direct sunlight. Store in a well-ventilated place.
Special rules on packaging	: Keep only in original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves and safety glasses recommended.

Hand protection:

Protective gloves. Recommended

Eye protection:

Safety glasses. Recommended

Skin and body protection:

None under normal use

Respiratory protection:

Respiratory protection not required in normal conditions

Thermal hazard protection:

Not applicable.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: White liquid.
Color	: White
Odor	: Characteristic odour
Odor threshold	: No data available
pH	: 5 - 8.5
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: ≈ 99 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: ≈ 0.99
Solubility	: Soluble in water.
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: ≈ 1.1 cSt
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing agent. Strong acids.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified pH: 5 - 8.5
Serious eye damage/irritation	: Not classified pH: 5 - 8.5
Respiratory or skin sensitization	: Not classified.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: ≈ 1.1 cSt
Likely routes of exposure	: Inhalation. Dermal.
Potential Adverse human health effects and symptoms	: No other effects known.
Expected Symptoms/Effects, Acute and Delayed	: No known effects from this product.
Symptoms/effects	: None under normal use.
Symptoms/effects after inhalation	: No effects known.
Symptoms/effects after skin contact	: No effects known.
Symptoms/effects after eye contact	: No effects known.
Symptoms/effects after ingestion	: No effects known.
Symptoms/effects upon intravenous administration	: No other effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

ECOSORB CNB 107	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

ECOSORB CNB 107	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

ECOSORB CNB 107	
Ecology - soil	The product is predicted to have high mobility in soil. Soluble in water.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Avoid release to the environment.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not applicable

Transportation of Dangerous Goods

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

CANADA

ECOSORB CNB 107
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

ECOSORB CNB 107
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

ECOSORB CNB 107
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 12/23/2019

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Other information : None.

Abbreviations and acronyms:		
	ATE	Acute Toxicity Estimate
	BCF	Bioconcentration factor
	IATA	International Air Transport Association
	IMDG	International Maritime Dangerous Goods
	LC50	Median lethal concentration
	IARC	International Agency for Research on Cancer
	OECD	Organisation for Economic Co-operation and Development
	LD50	Median lethal dose
	SDS	Safety Data Sheet
	STP	Sewage treatment plant

Hazard Rating

Health : 0 Minimal Hazard - No significant risk to health

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : B

B - Safety glasses, Gloves

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.