SKYPARK AT SANTA'S VILLAGE

FINAL ENVIRONMENTAL IMPACT REPORT

SCH No. 2015091001

Lead Agency

County of San Bernardino

San Bernardino County Land Use and Services Department

Planning Division

385 North Arrowhead Avenue, First Floor,

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TABLE OF CONTENTS

INTRODUCTION

The SkyPark at Santa's Village Project Draft Environmental Impact Report (Draft EIR) was circulated for a minimum 45-day public review period beginning June 7, 2016, and ending July 22, 2016, as assigned by the State of California Governor's Office of Planning and Research, State Clearinghouse, and consistent with the California Environmental Quality Act Guidelines (CEQA Guidelines). Copies of the document were distributed to federal, state, regional, and local government agencies, as well as organizations and individuals, for their review and comment.

Section 15088(a) of the State CEQA Guidelines states that:

> "The lead agency shall evaluate comments on environmental issues received from persons who reviewed the Draft EIR and shall prepare a written response. The lead agency shall respond to comments received during the noticed comment period and any extension and may respond to late comments."

In accordance with Section 15088(a) of the State CEQA Guidelines, the County of San Bernardino (County), as the lead agency, has evaluated the comments received on the Draft EIR for the SkyPark at Santa's Village Project (the Project) and has prepared written responses to the comments received.

All comments on the Draft EIR, and the responses thereto, are presented in this document. Section 2 (Responses to Comments) provides all comment letters and responses to comments that were submitted on the Draft EIR during the public review period. The comments are organized into the following three categories:

- Agency Comments
- General Public and Organizations Comments

State CEQA Guidelines Section 15088 requires that lead agencies evaluate and respond to all comments on the Draft EIR that regard an environmental issue. The written response must address the significant environmental issue raised and provide a detailed response, especially when specific comments or suggestions (e.g., additional mitigation measures) are not accepted. In addition, the written response must be a good faith and reasoned analysis. However, lead agencies need only to respond to significant environmental issues associated with the project and do not need to provide all the

information requested by the commenter, as long as a good faith effort at full disclosure is made in the EIR (CEQA Guidelines Section 15204).

State CEQA Guidelines Section 15204 recommends that commenters provide detailed comments that focus on the sufficiency of the Draft EIR in identifying and analyzing the possible environmental impacts of the project and ways to avoid or mitigate the significant effects of the project, and that commenters provide evidence supporting their comments. Pursuant to State CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence. State CEQA Guidelines Section 15088 also recommends that revisions to the Draft EIR be noted as a revision in the Draft EIR or as a separate section of the Final EIR.

Section 3 (Errata) identifies text and/or graphical revisions to Draft EIR as a result of comments received, as well as staff-initiated text and/or graphical revisions. Text additions are indicated by underlining the text (underline) and deleted text is indicated by a line through it (~~strikethrough~~). It is important to note that none of the text revisions in Section 3 present significant new information that would result in new significant environmental impacts or a substantial increase in the severity of environmental impacts identified in the Draft EIR. Rather, they merely provide clarification or make minor modifications to an adequate EIR. Therefore, recirculation of the Draft EIR is not required pursuant to CEQA Guidelines Section 15088.5(b).

1.2 CONTENTS OF THE FINAL EIR

Consistent with Section 15132 of the State CEQA Guidelines, this Final EIR consists of the following:

- The Draft EIR
- A list of persons, organizations, and public agencies that commented on the Draft EIR
- All comments and recommendations received on the Draft EIR
- Written responses to each comment provided on the Draft EIR
- Revisions to Draft EIR resulting from written and/or verbal comments received.

1.3 CERTIFICATION OF FINAL EIR AND APPROVAL PROCESS

In furtherance of Section 15088(b) of the State CEQA Guidelines, for a period of at least ten days prior to any public hearing during which a lead agency will take action to certify an EIR, the Final EIR must be made available to, any public agency that provided comments on the Draft EIR. Pursuant to Section 15090(a) of the State CEQA Guidelines, the Final EIR must be certified before the lead agency can take action on the Project.

Following Final EIR certification, but prior to taking action on a project, the lead agency must prepare a Mitigation Monitoring and Reporting Program (MMRP). Before approving (or conditionally approving) the project, the lead agency must also prepare written CEQA Findings for each significant impact identified for the project, accompanied by a brief explanation of the rationale for the finding, in accordance with Section 15091 of the State CEQA Guidelines. If significant environmental impacts that cannot be reduced to a less than significant level are identified for the project, the lead agency must prepare a Statement of Overriding Considerations, pursuant to Section 15093 of the State CEQA Guidelines. As outlined in the Draft EIR, implementation of the proposed Project would not result in significant and unavoidable impacts.

Certification of a Final EIR may occur at a public hearing independent of project approval or during the same hearing. Prior to approval of a project, the lead agency must adopt the CEQA Findings and MMRP. Certification of the Final EIR must be the first in this sequence of approvals.

RESPONSES TO COMMENTS

Section A: Agency and Organization Comment Letters

Comment Letter A1 – California Department of Fish and Wildlife, Inland Deserts Region

State of California - Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
(909) 484-0459
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EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

July 25, 2016

Mr. Kevin White
Senior Planner
County of San Bernardino
Land Use Services Department Planning Division
385 North Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0187

Subject: Draft Environmental Impact Report
SkyPark at Santa's Village Project
State Clearinghouse No. 2015091001

Dear Mr. White:

The Department of Fish and Wildlife (Department) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the SkyPark at Santa's Village Project (project) [State Clearinghouse No. 2015091001]. The Department is responding to the DEIR as a Trustee Agency for fish and wildlife resources (California Fish and Game Code Sections 711.7 and 1802, and the California Environmental Quality Act [CEQA] Guidelines Section 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 *et seq.*) and/or a California Endangered Species Act (CESA) Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (California Fish and Game Code Sections 2080 and 2080.1). A1.1

The Department reviewed the Notice of Preparation (NOP) and provided specific comments and recommendations to the County of San Bernardino, Land Use Services Department (County; the CEQA lead agency) in a letter dated September 30, 2015. The Department appreciates that some of the comments and recommendations raised by the Department in its September 30, 2015, comment letter were addressed in the DEIR, however the Department is concerned that the DEIR is inadequate in its assessment of impacts to biological resources and in the adequacy and enforceability of avoidance, minimization, and mitigation measures proposed by the County.

Conserving California's Wildlife Since 1870

Draft Environmental Impact Report
SkyPark at Santa's Village Project
SCH No. 2015091001
Page 2 of 4

Comments and Recommendations

Following review of the Biological Resources section of the DEIR, the Department offers the comments and recommendations listed below to assist the County in adequately identifying and/or mitigating the project's significant, or potentially significant, impacts on biological resources. These comments and recommendations are based on the requirement for the environmental document to include the following information:

A description of feasible mitigation measures to avoid potentially significant impacts, and/or mitigate significant impacts, of the proposed project on the environment (CEQA Guidelines, §§ 15021, 15063, 15071, 15126.2, 15126.4 & 15370).

A1.1 *cont'd*

Special-Status Plant Species

CEQA requires public agencies in California to analyze and disclose potential environmental impacts associated with a project that the agency will carry out, fund, or approve. Any potentially significant impact must be mitigated to the extent feasible.

The DEIR identifies the moderate to high potential for three special-status plant species to occur within the project site: silver-haired ivesia, Parish's yampah, and Laguna Mountains jewelflower. Despite the moderate to high potential for these species to occur within the project site, the Habitat Assessment states that field surveys were general in nature, and none "…were conducted during the suitable blooming period for most sensitive plant species." Further, the Habitat Assessment notes that "because focused sensitive plant surveys have not yet been conducted on this project site, it is unknown if any sensitive plants are present and thus the project is unable to avoid any areas that may have sensitive plants."

The Habitat Assessment details that potential impacts to special-status plant species will be minimized through reducing vegetation removal and disturbance, but concedes that impacts may also occur through the introduction and spread of non-native plant species, trampling, and collection; all of which may occur during construction and post-construction during long-term project operation.

Mitigation Measures (MM) BIO-1 through BIO-6 were formulated by the County to reduce impacts to special-status plant species to a level less than significant. Given that the Habitat Assessment states that the project is unable avoid areas that may have sensitive plants, and identifies additional potential impacts to sensitive plant species during project operation, the Department queries the defensibility of the County's assertion that impacts will be reduced to a level less than significant with the implementation of MMs BIO-1 through BIO-6. Further,

A1.2

Draft Environmental Impact Report
SkyPark at Santa's Village Project
SCH No. 2015091001
Page 3 of 4

should the avoidance of sensitive plant species be infeasible, the DEIR fails to include a detailed and enforceable mitigation plan to offset impacts, and instead implies that development of such a plan would occur at a later date, after public review: MM BIO-1 states "If in the unlikely event that avoidance is not feasible, the project applicant shall discuss potential relocation strategies with applicable regulatory agencies and obtain approval prior to activities that result in impacts."

Because the DEIR fails to include a detailed and enforceable mitigation plan to offset the impacts to the potential loss special status plant species, the Department is unable to determine whether the impacts would be mitigated, and cannot, without further information from the County concur that impacts to special status plant species would be mitigated to less than significant levels through the implementation of MMs BIO-1 through BIO-6. The Department recommends that the County condition a new Mitigation Measure that details specific and enforceable compensatory mitigation strategies that will be implemented should impacts to special status plant species occur.

A1.2 *cont'd*

Southern Rubber Boa

The Habitat Assessment identifies potential impacts to southern rubber boa during both project construction and operations, but the DEIR fails to include a specific and enforceable mitigation plan to offset potential impacts to this species. Instead the DEIR infers that the development of a mitigation plan would occur at a later date, after public review: MM BIO-7 states that "If avoidance is not feasible, the project applicant shall consult with CDFW on potential relocation strategies that shall be approved by CDFW prior to initiation of the construction activities that result in impacts. Relocation or any other disturbance to southern rubber boa shall require obtaining CESA Section 2081 Incidental Take Permit from CDFW which will outline conditions to ensure impacts are minimized and fully mitigated."

Because the DEIR fails to include a detailed and enforceable mitigation plan to offset potential impacts to southern rubber boa, the Department is unable to determine whether the impacts would be mitigated, and cannot, without further information from the County concur that impacts to would in fact be mitigated to less than significant levels through the implementation of MM BIO-7. Given that the Habitat Assessment identifies areas of moderate and high quality habitat, and suitable refugia habitat for southern rubber boa with the project site, the Department recommends that the County condition a new Mitigation Measure that details specific and enforceable compensatory mitigation strategies that will be implemented for impacts to southern rubber boa. The Department also recommends that the County apply for CESA Incidental Take Permit (ITP) to reduce the potential for project delays should a southern rubber boa be discovered onsite.

A1.3

Draft Environmental Impact Report
SkyPark at Santa's Village Project
SCH No. 2015091001
Page 4 of 4

Mitigation Deferral

Please note that CEQA Guidelines §15126.4, subdivision (a)(1)(8) states formulation of feasible mitigation measures should not be deferred until some future date. The Court of Appeal in *San Joaquin Raptor Rescue Center* v. *County* of *Merced* (2007) 149 Cal.App.4th 645 struck down mitigation measures which required formulating management plans developed in consultation with State and Federal wildlife agencies after Project approval. Courts have also repeatedly not supported conclusions that impacts are mitigable when essential studies, and therefore impact assessments, are incomplete *(Sundstrom* v. *County* of *Mendocino* (1988) 202 Cal. App. 3d. 296; *Gentry* v. *City* of *Murrieta (1995)* 36 Cal. App. 4th 1359; *Endangered Habitat League, Inc.* v. *County* of *Orange* (2005) 131 Cal. App. 4th 777). A1.4

Department Conclusions and Further Coordination

The Department appreciates the opportunity to comment on the DEIR for the SkyPark at Santa's Village Project (SCH No. 2015091001) and recommends that the County condition new, detailed and enforceable mitigation measures for special status plant species and southern rubber boa in the DEIR. If you should have any questions pertaining to the comments provided in this letter, please contact Joanna Gibson at (909) 987-7449 or at Joanna.Gibson@wildlife.ca.gov. A1.5

Sincerely,

Leslie MacNair
Regional Manager

Response A1
Leslie MacNair, Regional Manager

A1.1: The County appreciates the California Department of Fish and Wildlife's (CDFW) review of and input on the SkyPark EIR. The County received and considered CDFW's comments on the Notice of Preparation and an effort was made to address all of them. As outlined in Responses to Comments A1.2 through A1.5, mitigation measures in the EIR were revised in response to CDFW's comments on the DEIR. The mitigation measures, as revised are adequate and enforceable to ensure avoidance and minimization to the greatest extent feasible and the compensatory mitigation strategy to offset the potential impacts that cannot be avoided, such that potential impacts to sensitive biological resources remain less than significant.

A1.2: As outlined in the Habitat Assessment, contained in Appendix D of the DEIR, silver-haired ivesia, Parish's yampah, and Laguna Mountains jewelflower were determined to have a moderate potential to occur in the undeveloped areas of the site. None of these plant species are expected to occur on-site in areas that have already been disturbed or developed. The undeveloped areas of the site are located northwest of the existing developed Santa's Village attraction and parking lots, the meadow area, and the pond. These sensitive plant species are not listed as threatened or endangered under the federal or California Endangered Species Acts. The silver-haired ivesia is however designated by the California Native Plant Society (CNPS) as Rare Plant Rank 1B.2, the Parish's yampah is designated by the CNPS as Rare Plant Rank 2B.2, and the Laguna Mountains jewelflower is designated by the CNPS as Rare Plant Rank 4.3.

Construction activities are limited to the already disturbed and developed areas (campground site, Hencks Meadow, Santa's Village attraction/Amusement Park Zone), with the exception of light construction for new trails. Only one new hiking trail and one new biking trail are proposed in undeveloped areas with the potential for these plants to occur, as shown in Trail Plan Exhibit 3.0-5 of DEIR. All other trails already exist. As outlined in Section 3.0 Project Description, page 3.0-30, construction of hiking and mountain bike trails is by hand, using hand tools such as shovels, rakes, and McClouds. Mitigation Measure MM BIO-1 was specifically developed and included in the DEIR to reduce potential direct and indirect impacts on sensitive plant species from new trail construction and visitor use of existing and new trails to less than significant levels. In response to CDFW comments, this mitigation measure was revised to add measures that would further reduce the potential for impacts and include more specific compensatory mitigation strategies if all impacts cannot be avoided. As revised, with

implementation of Mitigation Measure MM BIO-1 potential direct impacts to sensitive plant species is reduced to less than significant levels.

Mitigation Measure MM BIO-1 was revised as follows (new text is underlined and deleted text has ~~strikethrough~~):

MM BIO-1: A qualified biologist or botanist shall conduct a pre-construction clearance survey for special-status plant species on the project site during the appropriate blooming period prior to trail creation or construction in new areas. If present, any special-status plants shall be clearly flagged for avoidance with a suitable buffer zone of a minimum of 50 feet, during construction by the qualified biologist/botanist. Physical barriers (e.g., logs, boulders, segments of split rail fence) shall be strategically placed along one side or both sides of the trail as directed by the biologist/botanist where the trail occurs within 500 feet of any identified special-status plant species, to control hiking and mountain biking trail users from leaving the trail. A letter report summarizing the results of the pre-construction plant survey and any placement of physical barriers to protect special-status plants shall be prepared by the biologist/botanist and be submitted to the San Bernardino County Land Use Services Department. ~~If in the unlikely event that avoidance is not feasible, the project applicant shall discuss potential relocation strategies with applicable regulatory agencies and obtain approval prior to activities that result in impacts.~~

If all impacts to special-status plant species cannot be avoided, then prior to issuance of a grading permit, or any other permit by the County, impacts to special-status plant species shall be mitigated through translocation and seed collection with propagation to an on-site or off-site preserved property acceptable to the CDFW. The property shall be composed of habitat characteristics suitable to support the special-status plant species, including but not limited to: appropriate soils, elevation, hydrology, and habitat. The suitability of the proposed preservation site shall be verified by a CDFW-approved special-status plant species expert. The property shall be conserved via recordation of a deed restriction or a conservation easement in favor of a California Department of Fish and Wildlife (CDFW)-due diligence approved local conservation entity to protect the special-status plant species on the property in perpetuity. Alternatively, the land may be transferred in fee title to a CDFW-approved local conservation entity. Except for uses

appropriate to habitat conservation, the public shall not have access to the mitigation area(s), and no activities shall be permitted within the site, except maintenance of habitat, including the removal of nonnative plant species, trash, and debris, and the installation of native plant materials.

Prior to any ground disturbance that would impact sensitive plant species, the Applicant shall prepare a special-status plant species planting plan (Plan). The Plan shall require a replacement ratio of no less than 1:1 by area, and ensure a minimum 90 percent survivorship at the end of a five-year monitoring period, which shall be verified by the monitoring biologist (minimum qualifications of the monitoring biologist are specified below). At a minimum, the five-year plan shall include the following information:

1. A description of the existing conditions of the receiver site(s), characterizing the suitability of the site(s) for the special-status plant species, and documenting the acreage of the site.
2. A description of how the site will be preserved in perpetuity, i.e., conservation easement, and the name of the CDFW-approved due diligence entity that will hold the easement.
3. Qualifications of the monitoring biologist. At a minimum, the monitoring biologist will possess a minimum of five-year's experience conducting habitat restoration projects in mountain meadow communities in San Bernardino County, California.
4. Receiver site preparation for transplanting.
5. Goals for success.
6. Schedule.
7. Propagation techniques.
8. Transplant and seedling installation methods.
9. Plant spacing.
10. Performance criteria for success, including provision for control of non-native and invasive species.
11. Monitoring and reporting procedures for each of the five years of the monitoring period.
12. Adaptive management strategies, including a contingency plan should the site fail to meet the specified success criteria.
13. Maintenance requirements that will be reviewed and approved by the CDFW.

Mitigation Measure MM BIO-6 was specifically developed and included in the DEIR to reduce potential indirect impacts to sensitive plant and wildlife species from visitor use of both new and existing trails. In response to CDFW comments, this mitigation measure was revised to provide more specific requirements related to the use of signage and barriers as well as enforcement actions. As revised, with implementation of Mitigation Measure MM BIO-6 potential indirect impacts to sensitive plant and wildlife species is reduced to less than significant levels.

Mitigation Measure MM BIO-6 was revised as follows (new text is underlined and deleted text has ~~strikethrough~~):

MM BIO-6: All trails shall be kept in a maintained state sufficient to clearly determine where the trail lies. Where trails are located within and adjacent to sensitive habitat areas, signs and physical barriers shall be strategically placed along one side or both sides of the trail, under direction of a qualified biologist, ~~discouraging~~ to prevent guests from wandering outside of the trail boundaries and to inform them off-trail use of the park is strictly prohibited and enforced and will result in ejection from the park without a refund of any entry fees.

Mitigation Measures MM BIO-2, MM BIO-3, MM BIO-4, and MM BIO-5 were all developed and included in the DEIR to minimize impacts to natural biological resources, including mixed conifer forest and chaparral plant communities, from construction and maintenance to the greatest extent feasible. These mitigation measures are not necessary to reduce potential impacts to sensitive plants and wildlife to less than significant levels, but shall still be implemented.

A1.3: Mitigation Measure MM BIO-7 was specifically developed and included in the DEIR to reduce potential direct impacts on sensitive wildlife species (California spotted owl and San Bernardino flying squirrel) from new trail construction to less than significant levels. In response to CDFW comments, this mitigation measure was revised to further clarify how potential impacts to these species from construction of trails will be reduced to less than significant levels. As revised, with implementation of Mitigation Measure MM BIO-7 potential direct impacts to sensitive wildlife species (California spotted owl and San Bernardino flying squirrel) is reduced to less than significant levels. Mitigation Measure MM BIO-8 and MM BIO-9 outlined below related specifically to the southern rubber boa.

Mitigation Measure MM BIO-7 was revised as follows (new text is underlined and deleted text has ~~strikethrough~~):

MM BIO-7: A qualified biologist shall conduct a pre-construction clearance survey for special-status wildlife species (including California spotted owl and San Bernardino flying squirrel~~, and southern rubber boa~~) on the project site immediately prior to trail creation or construction in new areas. Special-status wildlife if found foraging in an area shall be avoided by waiting for them to leave an area before working in it. If suitable nesting habitat for either species is found in an area it shall be avoided with a suitable buffer zone of a minimum of 200 feet, as identified by the qualified biologist. A letter report summarizing the results of the pre-construction clearance survey for special-status wildlife species shall be prepared by the biologist and be submitted to the San Bernardino County Land Use Services Department. ~~If avoidance is not feasible, the project applicant shall consult with CDFW on potential relocation strategies that shall be approved by CDFW prior to initiation of the construction activities that result in impacts. Relocation or any other disturbance to southern rubber boa shall require obtaining a CESA Section 2081 Incidental Take Permit from CDFW which will outline conditions to ensure impacts are minimized and fully mitigated.~~

The impact analysis included in *Section 4.4 Biological Resources* of the Draft EIR for southern rubber boa remains valid. However, a more detailed breakdown of potential impacts related to new trail construction and commercial use and maintenance of existing trails and the new trail was prepared in response to CDFW comments and for the Section 2081 Incidental Take Permit Application for the southern rubber boa and this project.

The southern rubber boa was State listed as threatened in 1971. It is only known to occur in the San Bernardino and San Jacinto Mountains at elevations between 5,050 and 8,070 feet, with over 40 known locations in the San Bernardino Mountains and eight known locations in the San Jacinto Mountains. Twenty-six of the 40 known locations in the San Bernardino Mountains occur in a ten-mile strip between Twin Peaks (west) and Green Valley (east), an area which encompasses the project site. Estimating the overall population size or population trends is extremely difficult because of the highly-secretive nature of the species. Although the habitat in the northern-most portion of the project site provides high quality habitat for southern rubber boa, it has not been documented as occurring onsite.

For purposes of this analysis, it is assumed that southern rubber boa occurs within the north end of the project site.

Historically detrimental impacts to southern rubber boa has included unauthorized fuelwood gathering and off-highway vehicle (OHV) use. The recent drought conditions may also have resulted in reduction of southern rubber boa habitat over the last ten years. It should be noted, that most of the suitable habitat is on public lands, primarily within the San Bernardino National Forest.

All existing on-site trails have been built and have been in use for decades and no new impact is expected from their continued use. Three (3) new trails are proposed as part of this project. Of these three proposed trails, two are located in unsuitable or low-quality boa habitat, with the third trail, a proposed hiking trail, located in moderate-quality habitat (Exhibit 4.4-4, *Existing and Proposed Trails in Southern Rubber Boa Habitat*). Most of the existing trails on the project site are in low-quality or unsuitable habitat. While there are some existing mountain bike trails partially located in high-quality habitat, there are no new proposed trails in high-quality southern rubber boa habitat. Site use that is restricted to existing trails is unlikely to have a detrimental effect on this species. The designation of a new hiking trail and new bike trail will be carefully sited to avoid any impacts to habitat features used by southern rubber boa, thereby minimizing any potential impacts.

The proposed project is not expected to result in direct but could result in minor indirect impacts to southern rubber boa habitat. The existing road and trails are maintained and have been in continuous use for several decades. They occur on heavily compacted soils, without leaf litter, downed trees or, decaying logs. The proposed new bike and hiking trail will be developed in low to moderate quality southern rubber boa habitat, on 0.14 acre of moderate-quality southern rubber boa habitat and 0.16 acre of low quality southern rubber boa habitat.

The construction of new trails, while limited to 0.3 acre, could have a temporary negative effect on southern rubber boa habitat at the time that they are created. The extent of continued use of the existing access road and trails, as well as the proposed new trails are summarized below in Table 4.4-2 and are shown in Exhibit 4.4-4, *Existing and Proposed Trails in Southern Rubber Boa Habitat*.

Table 4.4-2: Existing and Proposed Trails in Southern Rubber Boa Habitat Categories

Trails	High	Moderate-High	Moderate	Low	Not Expected
Existing					
Existing Access Road (2.04 Acres)	0.13	0.1	0.34	0.88	0.59
Existing Hiking Trail (0.21 Acre)	0	0	0	0.13	0.08
Existing Single Track Bike Trail (0.82 Acre)	0.1	0.15	0.19	0.29	0.09
Existing Double Track Bike Trail (2.70 Acres)	0.02	0.01	0.14	1.63	0.9
Proposed					
Proposed New Hiking Trail (0.15 Acre)	0	0	0.14	0	0.01
Proposed New Bike Trail (0.12 Acre)	0	0	0	0.08	0.04
Proposed New Multi-Use Trail (0.25 Acre)	0	0	0	0.08	0.17
Totals	**0.25**	**0.26**	**0.81**	**3.09**	**1.88**

The use of the existing and new roads and trails would generally not be expected to have any effect on southern rubber boa, which is a semi-fossorial, nocturnal or crepuscular species that is rarely encountered even in suitable habitat. However, "black diamond" trails of increased difficulty do contain course obstacles that use naturally occurring environmental features such as rock piles, log piles, or log ramps that could feasibly provide marginal habitat for southern rubber boa. If one of these course obstacles (log ramps or log piles) were used by southern rubber boa, an individual boa could be harmed during trail use. Careful course inspections of these features prior to recreational use would reduce, if not eliminate, the small potential for impacts.

Although strictly forbidden, off-trail excursions could result in direct but temporary impacts to the habitat. Impacts to the species itself, which emerges from hibernation in April and typically remains in deep crevices in large rock outcrops is unlikely. Because southern rubber boa may venture into cooler, moister forest and riparian habitats until as late as October, before hibernating, guests venturing off the established trails in the spring, and early fall could encounter a southern rubber boa. However, they are typically not active during the day and are very unlikely to be encountered as hiking and mountain biking is

only allowed during daylight hours (for guest safety). Inspections of these trails by course marshals prior to use and doing use will reduce or avoid such limited but potential impacts.

Sufficient mitigation and conservation measures, as presented below in Mitigation Measures MM BIO-25 and MM BIO-26, will be implemented to fully mitigate any potential loss of southern rubber boa habitat and individuals. Because most of the paths, trails, and roads on the project site are already pre-existing, and only one proposed additional hiking trail is in moderate-quality habitat and is expected only to result in 0.14 acre of habitat loss, while a second proposed trails will be located un low-quality southern rubber boa habitat and is expected to result in 0.16 acre of habitat loss, the project would not jeopardize the continued existence of southern rubber boa within its range.

Mitigation measures were added, Mitigation Measures MM BIO-25 and MM BIO-26, to outline in much greater detail the avoidance and minimization measures to be used onsite during construction and maintenance of trails and the compensatory mitigation strategy to offset the potential impacts that cannot be avoided. With implementation of Mitigation Measures MM BIO-25 and MM BIO-26, potential impacts to southern rubber boa from the construction of new trails and commercial use of all trails are reduced to less than significant levels.

Mitigation Measures MM BIO-25 and MM BIO-26 were added as follows (new text is underlined):

MM BIO-25: Prior to any new work (e.g. clearing for trail construction or maintenance) that are conducted in suitable habitat for southern rubber boa, all duff, debris, and downed logs in proposed work areas shall be examined for southern rubber boa by a biologist no more than 5 days prior to disturbance; the biologist conducting this survey must hold a Memorandum of Understanding from the CDFW allowing take of southern rubber boa. During construction or maintenance a qualified biologist familiar with southern rubber boa ecology and identification shall be on-site at all times to monitor for southern rubber boa in the work area(s). Any incidences of injuring or killing an individual southern rubber boa shall be reported immediately to SkyPark Management who shall notify CDFW within 24 hours.

The qualified biologist shall be responsible for submitting daily construction or maintenance monitoring reports, noting specifically if any southern rubber boa refugia (e.g., downed logs,

boulders) were disturbed during construction or maintenance and/or if any southern rubber boa were found, and if so, the quantity of each and its condition at the time that the construction or maintenance site was left for the day. In addition, a final monitoring summary will be written upon completion of the monitored work and submitted to CDFW within 30 calendar days of construction or maintenance completion. The report shall include start and end dates of the monitored work, known project effects on southern rubber boa, occurrences of incidental take of southern rubber boa, and other pertinent information regarding the success or failure of the monitoring in protecting southern rubber boa.

MM BIO-26: Approximately twenty acres (20.2 acres) of high quality southern rubber boa habitat in the northernmost extent of the project site will be set aside as mitigation lands for the project. A restrictive covenant will be placed over these 20.2 acres and will provide for conservation of that property in perpetuity (refer to Exhibit 4.4-5, *Conservation Area*).

The conservation area will not undergo any new development of any kind. Some maintenance of the existing road and biking trail segments located in the conservation area may be necessary after severe weather events. Any new, illegal trails into this area will be immediately closed off with a berm, rocks, or a similar method to discourage guests from using them and will be restored to original conditions.

To protect the mitigation area, SkyPark Management shall place appropriate fencing and/or natural barriers and signage around the perimeter of conservation area. Except for existing trails in the conservation area (portions of existing single track bike trail and existing access road), the public shall not have access to the mitigation area, and no activities shall be permitted within the site, except maintenance of habitat, including the removal of nonnative plant species, trash, and debris, and the installation of native plant materials.

A1.4: As outlined in responses to CDFW comments A1.2 and A1.3 above, mitigation measures were revised to include the potential for impacts, avoidance and minimization and compensatory mitigation strategies for impacts that cannot be

avoided, and a CESA Section 2081 Incidental Take Permit from CDFW. The mitigation measures as revised, require avoidance to the greatest extent feasible and provide adequate detail that they can be monitored and enforced. The mitigation measures, as revised, do not include deferral of any studies, consultation with State and Federal wildlife agencies or formulation of management plans.

A1.5: As outlined in responses to CDFW comments A1.2 and A1.3 above, mitigation measures were revised in response to CDFW's specific comments on mitigation. As revised, the mitigation measures for special status plant species and southern rubber boa are detailed, adequate, and enforceable.

Comment Letter A2 – Lahontan Regional Water Quality Control Board

Water Boards

Lahontan Regional Water Quality Control Board

July 21, 2016

File: Environmental Doc Review
San Bernardino County

Kevin White, Senior Planner
County of San Bernardino
Land Use Services Department – Planning Division
385 North Arrowhead, First Floor
San Bernardino, CA 92415-0187
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Comments on the Draft Environmental Impact Report for the Sky Park at Santa's Village Project, San Bernardino County, State Clearinghouse Number 2015091001

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received the Draft Environmental Impact Report (DEIR) for the above-referenced project (Project) on June 7, 2016. The DEIR was prepared by the San Bernardino County Land Use Services Department (County) and circulated for public comment in compliance with provisions of the California Environmental Quality Act (CEQA). Water Board staff, acting as a responsible agency, are providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations, title 14, section 15096. Based on our review of the proposed Project, we recommend that additional analysis of the existing septic system be performed to evaluate potential impacts to water quality. We commend the County and Project proponent for integrating both meadow restoration and educational components into the Project. Our comments on the Project are outlined below. A2.1

SPECIFIC COMMENTS ON THE ENVIRONMENTAL REVIEW

Our specific comments on the Project and environmental review, as they pertain to water quality and hydrology, are outlined below. Because the Project site falls within the jurisdiction of two Regional Water Boards, the Lahontan and Santa Ana Water Boards, our comments are germane only to those areas of the Project within the Lahontan Region, unless otherwise specified.

1. **Section 4.17, Utilities** – Page 4.17-3 discusses the existing and proposed wastewater treatment systems for the Project. The portion of the Project north of State Route 18 (i.e. in the Lahontan Region) will be serviced by an existing septic system; the portion of the Project south of State Route 18 (i.e. in the Santa Ana Region) will be serviced by a new septic system to consist of a holding tank and leach lines. Water Board staff are aware that septic systems, if not properly

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constructed and maintained, have the potential to significantly degrade water quality.

a. The DEIR did not contain sufficient details describing the existing system nor was there an evaluation of the potential impacts the existing system may have on the quality of groundwater or surface water. We request that the DEIR be revised to include (1) a description of the components of the existing septic system, including a map showing the location of system components with respect to proximity to surface water resources, and (2) an evaluation of the existing septic system with respect to potential impacts to water quality. The evaluation should consider the age and capacity of the system and its ability to handle proposed flow rates, location of the system with respect to Hooks Creek and the onsite water supply wells, confirmation that the required minimum 5-foot separation between the bottom of the leach lines and the seasonal high groundwater elevation will be maintained throughout the life of the Project, and a discussion as to whether any upgrades or maintenance of the existing system is needed in order for it to perform as necessary for Project implementation.

b. The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) prohibits the discharge of waste from "new" leaching or percolation systems in the Deep Creek watershed at elevations greater than 3,200 feet above mean sea level. In the context of this prohibition, "new" is defined as any system installed after May 15, 1975. However, "new" may also include systems older than May 15, 1975, that have been or are upgraded or significantly modified after May 15, 1975. For these systems, Water Board staff would consider a "new" determination on a case-by-case basis. An exemption to this prohibition may be granted whenever the Water Board's Executive Officer finds that the operation of septic tanks or other means of waste disposal in a particular area will not, individually or collectively, directly or indirectly, adversely affect water quality or beneficial uses, and that the sewering of such an area would have a damaging effect upon the environment. The evaluation of the existing septic system, as requested in Comment No. 1.a above, is necessary in order for Water Board staff to determine whether the system qualifies as a "new" leaching or percolation system and, if so, whether an exemption to the prohibition may be warranted.

c. The new leaching system to service the proposed campground will be constructed south of State Route 18. Though not in the Lahontan Region, we recommend that this proposed onsite wastewater treatment system be thoroughly evaluated with respect to geology, soils, and seismicity, particularly since this portion of the site is identified as having a moderate- to high-landslide susceptibility and due to the proximity to Holocene-active faults. We recommend that staff with the Santa Ana Water Board be consulted early on regarding the design and siting of the onsite wastewater treatment system for this portion of the Project.

A2.1 *cont'd*

2. **Appendix D.3, Conservation Plan for Hencks Meadow and Hooks Creek** – The Conservation Plan included in Appendix D.3 of the DEIR describes a variety of conservation practices that will be implemented to restore Hencks Meadow and reconstruct Hooks Creek, including "lined waterway or outlet," "streambank and shoreline protection," and "water and sediment control basin" type practices. However, details regarding the installation and construction of these types of practices were minimal in the Conservation Plan, with the plan referencing back to "approved plans" and specifications for a particular practice type, which were not included as attachments to the plan. While limited construction details may be sufficient for the purposes of evaluation in the DEIR, any conservation or habitat restoration plan submitted to the Water Board in conjunction with a request for Water Quality Certification under section 401 of the Clean Water Act will need to be a standalone document that includes copies of all plans and construction specifications referenced in that plan. A2.2

3. **Appendix D.2, Jurisdictional Delineation** – The Jurisdictional Delineation Report included in Appendix D.2 of the DEIR describes the type and extent of surface water resources on the Project site. The report concludes that there are no wetlands present, but provides no basis for that conclusion or supporting documentation (i.e. field data sheets). Based on a review of the photographs provided in the Jurisdictional Delineation Report and on Water Board staff's knowledge of the site, at least two of the three required wetland parameters are present on the site: hydrology and indicator plant species. We request that the presence or absence of hydric soils on the Project site be verified in the field and a revised Jurisdictional Delineation Report prepared. The revised report must include the field data sheets that record site conditions and observations at the time the field work was conducted. A2.3

4. **Mitigation Measure HYDRO-1** – Mitigation Measure HYDRO-1 requires the development and implementation of a groundwater and surface water monitoring and reporting plan to monitor the potential impacts that groundwater pumping may have on surface water flow in Hooks Creek. We support this mitigation measure and request that thresholds of significance be identified and adaptive management strategies be incorporated into the monitoring program. A2.4

GENERAL COMMENTS AND RECOMMENDATIONS

Our general comments and recommendations, as they pertain to development projects within the Lahontan Region, are outlined below.

5. The Water Board requires that impacts to water resources be avoided where feasible and minimized to the extent practical. Compensatory mitigation will be required for all unavoidable permanent impacts to ensure no net loss of beneficial use and wetlands function and value. Water Board staff coordinate all mitigation requirements with staff from other federal and state regulatory agencies, including the United States Army Corps of Engineers (USACE) and the California Department of Fish and Wildlife. In determining appropriate mitigation ratios for impacts to waters of the State, Water Board staff considers Basin Plan requirements (minimum 1.5:1 mitigation ratio for impacts to wetlands) and utilizes A2.5

12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios, published December 2012 by the USACE, South Pacific Division. A2.5 cont'd

6. Equipment staging areas, excavated soil stockpiles, and hazardous materials (i.e. oils and fuels) should be sited in upland areas outside surface waters and adjacent flood plain areas. We recommend that a comprehensive Spill Prevention and Response Plan be prepared that outlines the site-specific monitoring requirements and lists the BMPs necessary to prevent hazardous material spills or to contain and cleanup a hazardous material spill, should one occur. A2.6

7. Buffer areas should be identified and exclusion fencing used to protect water resources and to prevent unauthorized vehicles or equipment from entering or otherwise disturbing the surface waters. Equipment should use existing roadways to the extent feasible. A2.7

PERMITTING REQUIREMENTS

A number of activities associated with the proposed Project have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Resources Control Board (State Water Board) or Lahontan Water Board. The required permits may include the following. A2.8

8. Streambed alteration and/or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or dredge and fill waste discharge requirements for impacts to non-federal waters, both issued by the Lahontan Water Board.

9. Land disturbance of more than 1 acre may require a CWA, section 402(p) storm water permit, including a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, Water Quality Order (WQO) 2009-0009-DWQ, obtained from the State Water Board, or individual storm water permit obtained from the Lahontan Water Board. A2.9

10. Water diversion and/or dewatering activities may be subject to discharge and monitoring requirements under either NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2014-0049, or General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality, WQO-2003-0003, both issued by the Lahontan Water Board. A2.10

Please be advised of the permits that may be required for the proposed Project, as outlined above. The Project proponent should consult with Water Board staff early on should Project implementation result in activities that trigger these permitting actions. Information regarding these permits, including application forms, can be downloaded from our web site at http://www.waterboards.ca.gov/lahontan/.

Thank you for the opportunity to comment on the DEIR. If you have any questions regarding this letter, please contact me at (760) 241-7376, jan.zimmerman@waterboards.ca.gov or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404, patrice.copeland@waterboards.ca.gov. Please send all future correspondence regarding this Project to the Water Board's email address at Lahontan@waterboards.ca.gov and be sure to include the State Clearinghouse No. and Project name in the subject line.

A2.10 *cont'd*

Patrice J. Copeland

pc: Jan M. Zimmerman, PG
Engineering Geologist

cc: State Clearinghouse (SCH 2015091001) (state.clearinghouse@opr.ca.gov)
Jeff Brandt, CA Dept. of Fish and Wildlife (Jeff.Brandt@wildlife.ca.gov)
Wanda Cross, Santa Ana Water Board (wanda.cross@waterboards.ca.gov)
Bill Johnson, Sky Park (bill@skyparksantasvillage.com)

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Response A2
Jan M. Zimmerman, PG, Engineering Geologist

A2.1: The County appreciates Lahontan Regional Water Quality Control Board's review of and input on the SkyPark EIR.

a. RWM & Associates, LLC is an engineering consultant for the project and prepared an analysis of the existing septic systems for the project. Appendix J, Existing Septic System Details, has been added to the EIR Appendices and shows the components of the existing septic system and their locations. The analysis states the existing septic systems has no added impact to the existing quality of groundwater. The minimum 5-feet of separation from the closest functioning well is met with no issues. The existing five leach lines have the following lengths of separation between the bottom of the leach field and the historical groundwater elevation: 8.8 feet (buildings #1 & 15); 14.8 feet (buildings #3, 4, 5 & 6); 40.8 feet (building #18); 50.8 feet (building #14); 29.8 (buildings #7 & 8). The systems have been maintained and upgraded over the years and are currently in great running condition for project implementation. Future maintenance and/or upgrades will be permitted accordingly.

b. The existing septic systems were in place prior to May 15, 1975 and over the years it has had septic certifications completed and the systems have undergone minor upgrades not considered to be substantially significant. Should additional analysis or considerations need to be addressed, the project owner will file changes through the County's Environmental Health Services.

c. Appendix F, Engineers Septic System Memo, is a technical memo prepared by a Professional Engineer and Professional Geologist that indicates no geological hazards were observed and that the installation of the proposed septic system would not adversely affect the stability of the area and would not have any negative effect on the surrounding environment. Additionally, during installation, all engineering recommendations will be followed.

A2.2: For the onsite restoration of Hencks Meadow and Hooks Creek the USDA Natural Resources Conservation Service did prepare Drawings and Specifications for the Lined Waterways or Outlet and Water & Sediment Control Basins which include Detail Plans for the Water & Sediment Control Basins and Lined Waterways. Both of these documents have been added to the EIR Appendices, in Appendix K, Drawings and Specifications, in response to comments on the DEIR to allow for public and agency review of these documents. The Drawings and Specifications include Practice Standards, Job Classification, Design Calculations, Utility Check Sheet, Engineer's Cost Estimate, Operation & Maintenance Requirements, Practice Specifications, Practice Requirements, and Construction Drawings. The

construction drawings or detail plans include the overall plan view, plan view and profile views of the three sediment basins (south, middle, and north), and section views of the rock lined waterways (south, middle and north).

The County and the Applicant have conducted additional consultation with the Lahontan Regional Water Quality Control Board on the meadow restoration and the 401 Water Quality Certification since circulation of the Draft EIR in June 2016 (including a site visit, conference calls, and meetings). The Lahontan Regional Board has provided input on design features they recommend be incorporated into the meadow restoration. One design feature includes the addition of earthen berms or water bars throughout the meadow to increase the retention and infiltration of stormwater and snowmelt runoff in the meadow. An Earthen Berm Detail plan sheet has been added to Appendix K.

As the plan to restore Hencks Meadow was developed by the NRCS under one of their grant programs, plan implementation is conducted under NRCS purview. Under this program SkyPark is reimbursed for construction costs once the improvements are completed and as long as completed in accordance with the plans and specs. The objective of the plan is to restore and enhance the meadow within forestland. The conservation practices in the plan will promote wildlife by providing cover, food and water. SkyPark management plans to complete the restoration of Hencks meadow regardless of whether or not the proposed Conditional Use Permit or general plan amendments are approved by the County.

As outlined in the DEIR Project Description (Section 3.0) the meadow was previously used as a storage for lumber following the western pine bark beetle epidemics that affected the San Bernardino National Forest in multiple droughts over the past several decades. The initial cleanup of the meadow was completed by SkyPark management in the summer of 2016. The initial cleanup was substantial and included multiple truck loads to remove the thick layer of wood debris to get to the underlying native soils. Construction of the sediment control basins and lined waterways were constructed by the property owner in the fall of 2016. In addition, over the past 2 years, SkyPark management has been collecting native seeds for use in the replanting of the meadow. The seed collection and storage has been under the direction of Gina Richmond, a botanist and mountain region expert. The meadow work commenced and was completed with the exception of the earthen berms recommended by Lahontan and the replanting.

A2.3: The field data sheets were inadvertently omitted from the Jurisdictional Delineation report that was included in Appendix D.2 of the DEIR. The Jurisdictional Delineation contained in Appendix D.2 has been amended to include the field data sheets, which are included in this report's Appendix C, Documentation. As shown in these field data sheets, soils were evaluated at 5 different soil pits. Hydric soils were not observed at 4 of 5 of the soil pits. Hydric soils were found at sampling point SP-4 located on the fringe of the existing pond. Water levels fluctuate within the pond and this area is frequently under water. The location of soil pits SP-1 through SP-5 are show on Exhibit 8, *Corps Jurisdictional Areas* within the Jurisdictional Delineation report. The results of the Jurisdictional Delineation related to waters of the US remain unchanged. The proposed Project will not result in adverse impacts to wetland waters of the US.

In response to additional input from the Lahontan Regional Water Quality Control Board the Jurisdictional Delineation Report was revised to expand waters of the State under jurisdiction of the Regional Board to include Hencks Meadow, in addition to Hooks Creek and Drainages 1-3. The revised Jurisdictional Delineation Report is included in Appendix D.2.

Page 4.4-45 and 4.4-46 of the Draft EIR were revised as follows (new text is underlined and deleted text has ~~strikethrough~~) to reflect the updated Jurisdictional Delineation Report:

> **Impact 4.4-2 Implementation of the Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. This impact would be *less than significant*.**
>
> As per the Jurisdictional Delineation Report (JD), approximately 1.49 acres of USACE jurisdiction (non-wetland waters) is located within the boundaries of the Project site. Approximately ~~2.8~~ 5.7 acres of Regional Board jurisdiction and California Department of Fish and Wildlife streambed is located within the boundaries of the Project site. There is a total of four drainage features present on the project site; Hooks Creek and three unnamed ephemeral drainage features (Drainages 1-3). Due to historic on-site land uses (timber farm), the upstream portions of Hooks Creek are heavily disturbed and covered with remnant debris from the processing and staging of timber.
>
> In agreement between SkyPark and the NRCS, the proposed project includes the rehabilitation of Hencks Meadow (restoration and improvement of the upstream portions of Hook Creek). Since there is an

established agreement between SkyPark and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Clean Water Act Section 404 permit is not required from USACE.

~~Based on the preliminary design plans, the proposed Project improvements and meadow restoration will result in 0.18 acre of temporary impacts to waters of the US under the jurisdiction authority of USACE and the Regional Board~~.

The proposed Project improvements will result in ~~0.05~~ 0.29 acre of permanent and ~~0.35~~ 0.53 acre of temporary impacts to Regional Board and CDFW jurisdiction. The meadow rehabilitation project will realign, expand, and restore the upstream portions of Hooks Creek and will include removal of the wood chips and other debris that were left behind from previous activities. The meadow rehabilitation project will also entail constructing a lined waterway along the length of the meadow, periodically split by new water/sediment control basins, to connect to an onsite pond. Exotic vegetation and large obstructions will be removed throughout the meadow, and new hedgerows will be planted along its perimeter. Wildlife structures including nest boxes, downed wood, and rock piles will be strategically located at different locations along or near to the new waterway.

Although the proposed Project will result in ~~0.18 acre of temporary impacts to waters of the US and~~ ~~0.05~~ 0.29 acre of permanent and ~~0.35~~ 0.53 acre of temporary impacts to Regional Board and CDFW jurisdiction, the restoration of Hooks Creek and Hencks Meadow in accordance with the NRCS Conservation Plan, impacts are reduced to less than significant levels. In addition, a CDFW Section 1602 SAA permit for impacts to Hooks Creek will be required. CDFW will include in the SAA permit any conditions to be followed during construction, operation and maintenance of the restored Hooks Creek and meadow, to ensure potential impacts remain less than significant.

Although the extent of jurisdictional waters of the State under the Regional Boards jurisdiction was increased, and the temporary and permanent impacts also have increased, implementation of the restoration plan will have an overall beneficial impact on Hencks Meadow and Hooks Creek. The meadow restoration is intended to restore the meadow to its natural condition prior to being degraded from use as a storage facility for wood material infested by bark beetles. The meadow restoration will result in an increase in the meadow's biological and hydrological

functions and values and beneficial uses and improve water quality for downstream receiving waterbodies. Although waters of the State will be permanently (0.29 acre) and temporarily (0.53 acre) impacted, with restoration of Hencks Meadow and Hooks Creek in accordance with the NRCS Conservation Plan and additional design features recommended by the Lahontan Regional Water Quality Control Board, potential impacts are reduced to less than significant levels. Although the revised Jurisdictional Delineation report and this Final EIR identify an increase in permanent and temporary impacts to waters of the US, this increase does not constitute a substantial increase in the severity of the impact. Potential impacts were determined less than significant in the Draft EIR, and remain less than significant with implementation of the NRCS Conservation Plan.

A2.4: As outlined in the Hydrogeologic Evaluation Technical Memo (Appendix G of the DEIR), groundwater in the Project Area occurs in the complex rock fractures that are recharged through percolation of precipitation and surface runoff. It is not known if the groundwater in the Project Area is directly connected to the surface water of Hooks Creek. However, it was assumed for the purposes of the DEIR and analysis of potential impacts to groundwater and surface waters, that they could be connected. Mitigation Measure MM HYDRO-1 was developed and included in the DEIR based on the assumption that they are directly connected and that pumping of the groundwater could have an effect on surface water in Hooks Creek. Mitigation Measure MM HYDRO-1 has been expanded in response to Lahontan Regional Water Quality Control Board's comments to include additional steps and clarification to confirm if the groundwater and the surface water of Hooks Creek are in fact directly connected. If initial testing by a qualified hydrogeologist determines that groundwater pumping could result in reduced surface water flow in Hooks Creek that is considered significant, then appropriate thresholds and adaptive management actions will be incorporated into a groundwater and surface water management plan.

The mitigation measure MM HYDRO-1 was revised as follows (new text is underlined and deleted text has ~~strikethrough~~):

MM HYDRO – 1 Hydrogeological testing shall be conducted by a qualified hydrogeologist to confirm the assumption used in this EIR analysis that the groundwater at SkyPark is directly connected to the surface water of Hooks Creek. The results of this testing shall be submitted to the San Bernardino County Land Use Services Department and the Lahontan Regional Water Quality Control Board.

If the results of the hydrogeological testing confirms the assumption used in this EIR analysis, that there is connectivity between the groundwater source for SkyPark's wells and the surface water flow in Hooks Creek, a groundwater and surface water monitoring plan shall be developed and implemented and shall include:

- Installation of a stream gage on Hooks Creek, or other monitoring mechanism if Hooks Creek is ephemeral and only flows during storm events, at a location downstream of the Project boundary.

- Installation of an inline flowmeter on all Project pumping wells in order to record instantaneous and cumulative groundwater production.

- Baseline monitoring of groundwater levels ~~and Hooks Creek streamflow rates~~ at a minimum of three months prior to opening day ~~before the Project improvements are constructed~~. Groundwater monitoring shall be conducted on a monthly basis. ~~Stream gage measurements shall be collected continuously using recording equipment that is downloaded quarterly.~~

- On-going monitoring of groundwater levels and Hooks Creek streamflow rates to provide the data necessary to assess the role of Project pumping on changes in stream flow rates (if any).

- Baseline and on-going monitoring of groundwater levels and Hooks Creek streamflow rates will be submitted to the Lahontan Regional Water Quality Control Board on an annual basis.

- Within one year of opening day the threshold for change (reduction) in the streamflow rate that warrants implementation of adaptive management steps shall be established by a qualified hydrogeologist in coordination with Lahontan Regional Water Quality Control Board.

- The adaptive management steps that shall be implemented if the threshold for change in Hooks Creek is exceeded include one or more of the following until such time that monitoring data shows the threshold is no longer exceeded for two consecutive months:

- Reduce or eliminate use of on-site groundwater for irrigation;
- Reduce or eliminate use of on-site groundwater for potable/operational uses;
- Increase delivery and use of water from Skyforest Mutual Water Company for potable/operational uses.

However, if the results of the hydrogeological testing negate the assumption used in this EIR analysis, that there is connectivity between the groundwater source for SkyPark's wells and the surface water flow in Hooks Creek, a groundwater and surface water monitoring plan would not be required. This is because without connectivity, pumping of groundwater would not have an impact on the Hooks Creek streamflow.

A2.5: Comment Noted. The applicant will obtain all applicable permits for impacts to waters of the US from US Army Corps of Engineers and waters of the State from California Department of Fish and Wildlife and/or the Lahontan Regional Water Quality Control Board. The amount of compensatory mitigation, will be determined as applicable by each agency through processing of the permits, either in accordance with requirements of the Basin Plan or other policies developed and followed by each agency.

A2.6: Commented Noted. As recommended, a comprehensive Spill Prevention and Response Plan will be prepared that outlines the site-specific monitoring requirements and lists the BMPs necessary to prevent hazardous material spill or to contain and cleanup a hazardous material spill, should one occur. This has been added as a mitigation measure in the Final EIR, MM HAZ-3.

The new mitigation measure MM HAZ-3 was added as follows (new text is underlined):

MM HAZ – 3 A comprehensive Spill Prevention and Response Plan shall be prepared that outlines the site-specific monitoring requirements and lists the BMPs necessary to prevent hazardous material spill and to contain and clean up a hazardous material spill, should one occur.

This comment does not raise any new environmental issue. Mitigation Measure MM HAZ-3 is added to the EIR to implement best practices and is not required to reduce a potentially significant impact to less than significant levels.

A2.7: Physical barriers will be utilized and strategically placed to restrict visitor pedestrian access off of trails and operation and maintenance vehicles on designated roads/trails from entering surface waters and restored areas of Hencks Meadow. Exclusion fencing could restrict wildlife movement. It would only be used if the size, length, design, and location were deemed acceptable by a qualified wildlife biologist to not hinder wildlife movement. A key objective of the project is to restore the existing meadow onsite through implementation of the conservation plan developed by the US Department of Agriculture, Natural Resources Conservation Service and promote the importance of wildlife and habitat education through eco-tourism. Preservation of on-site water and habitat resources is critical to sustaining these long-term objectives of the project and continuing to draw visitors for education and eco-tourism.

A2.8: Comment noted. The applicant will obtain a Clean Water Act Section 401 Water Quality Certification for any impacts to waters of the US, or dredge and fill waste discharge requirements for any impacts to non-federal waters, as required.

A2.9: Comment noted. The applicant will obtain a Section 401(p) storm water permit, including a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, Water Quality Order (WQO) 2009-0009-DWQ, from the State Water Board, or an individual storm water permit from the Lahontan Water Board.

A2.10: If water diversion and/or dewatering activities are required for construction and the proposed project improvements, then the applicant will contact the Lahontan Water Board to determine if discharge and monitoring requirements under either NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2014-0049, or General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality, WQO-2003-0003, is required and if so will be processed and obtained from the Lahontan Water Board.

The applicant has conducted early consultation with the following regulatory agencies: US Army Corps of Engineers, Lahontan and Santa Ana Regional Water Quality Control Boards, and California Department of Fish and Wildlife. Early consultation included site visits/meetings, conference calls, telephone calls and/or emails. During early consultation valuable input was provided to the applicant by the respective regulatory agencies regarding what would be expected to be included in the CEQA documentation as well as permit submittal and processing requirements.

Section B: General Public and Organizations Comment Letters

Comment Letter B1 – Chris Del Ross-Risher, AICP

Chris Del Ross-Risher, AICP
PO. Box 3302
Lake Arrowhead, CA 92352
delrossrisher.chris@gmail.com

July 21, 2016

County of San Bernardino
Land Use Services-Planning Department
Attn: Kevin White
385 North Arrowhead Avenue
San Bernardino, Ca 92514

Re: SkyPark At Santa's Village
Draft Environmental Impact Report SCH# 2015091001

Dear Mr. White,

I am a 25-year resident of the Lake Arrowhead community and am a certified land use and environmental planner. After reviewing the Draft Environmental Impact Report (DEIR) for the proposed SkyPark project proposed for the reestablishment of an Outdoor Commercial Entertainment Center in the old Santa's Village site I have several concerns about the project.

Transportation/Circulation
The project description -Section 3.0 within the DEIR states the proposed project (SkyPark) will require an amendment to the Lake Arrowhead Community Plan Policy LA/CI 1.14 and the Circulation Element of the San Bernardino County General Plan. The purpose of this proposed amendment is "to provide additional clarification and specificity for implementation while retaining the initial intent of the policy".

I believe the purpose of Lake Arrowhead Community Plan Policy LA/CI 1.14 is to provide good traffic circulation and a safe evacuation route for many residents in the Lake Arrowhead and Cedar Glen area utilizing Cumberland Road to exit to State Highway 18. Currently, if development is proposed in the project area, Cumberland Road must be be extended to provide for circulation and evacuation/public safety. B1.1

The SkyPark proponent wishes to amend the policy so that the extension would happen only if there is a proposed residential subdivision project approved in this area. It is unknown when or if that would happen. The proposed SkyPark project amendment to the Community Plan and Circulation Element would mean SkyPark could be built and more than 2000 + additional visitors, staff and campers a day would come to the area without the project's development condition of extending Cumberland Road. The Cumberland Dr. extension is important for safe traffic circulation and for emergency evacuation if the proposed SkyPark project is built.

Currently Cumberland Rd. is designated a Mountain Secondary road with a 60 foot right-of-way. This is a suitable size designation and width for a critical route for traffic and emergency evacuations. The proposed amendment would downsize the road to 40-foot Local Road. This is inadequate for safe traffic circulation and in the event of emergency evacuation. The proposed amendment to the Lake Arrowhead Community Plan is unwise as the mountain area maybe vulnerable to a catastrophic fire

due to continued drought conditions and this proposed diminishment of the local circulation system should not be allowed. The SkyPark project should be conditioned to extend Cumberland Road as required in the Lake Arrowhead Community Plan. The extension of Cumberland Road is critical in an emergency. The DEIR states there is no mitigation necessary for evacuation (Emergency Evacuation Plan 4.8 -7), I believe a concentration of new visitors and staff in this area as the SkyPark project proposes requires an Emergency Plan and mitigation for a significant environmental impact to public safety.

B1.1 *cont'd*

Greenhouse Gas Emission (GHG)/Climate Change/Air Quality

The Greenhouse Gas emissions section of the DEIR (Section 4.7) only utilizes vehicle trip rates and project specific data to calculate emissions. I do not see addition of the project related exhaust of cars arriving and departing from SkyPark. As vehicles idle due to high traffic volumes entering from or exiting onto Highway 18 or within the parking lot areas, this would affect the calculated GHG emissions and air quality data. Currently the DEIR reflects a total project related emission level of 2,900.48 MTCO/yr in Table 4.7 -1 "Estimated Greenhouse Gas Emissions". If the total project related emissions included the idling emissions, this revised emission level could exceed the 3,000 MTCO/yr limit. Exceeding this limit indicates a significant environmental impact due to GHG and mitigation for GHG would be required.

B1.2

Alternatives to the proposed SkyPark

The Alternatives portion of the DEIR (Section 8.0) is required by CEQA to analyze a range of alternatives to the proposed project. The DEIR analysis only looked at the "No Project" and a "Residential Project". A residential proposal of the size and scale of the SkyPark project would have greater environmental impacts and skews the analysis resulting in a finding that this alternative is not is not an Environmentally Superior Alternative. No residential projects have been proposed in this project area and this seems problematical. However, why was there was no "Reduced size/scale Outdoor Commercial Entertainment Center" alternative reviewed? Given the large scale of the proposed SkyPark project, this might be more feasible and would be the Environmentally Superior Alternative. The Alternatives to the project should add a "Reduced Project" alternative to complete a better range of project impacts.

There seems to be an overall diminishment of impacts in this DEIR of a very large scale development. Although SkyPark offers many economic development benefits I am very concerned that the project as proposed has many detrimental environmental impacts. Thank you for the opportunity to review the SkyPark DEIR and please keep me on the contact list for this project.

B1.3

Christine A. Del Ross-Risher, AICP

Response B1
Chris Del Ross-Risher, AICP

B1.1: As outlined in the Project Description of the DEIR, Section 3.0, page 3.0-24, "An amendment to the Lake Arrowhead Community Plan Policy LA/CI 1.14 is proposed to provide additional clarification and specificity for implementation while retaining the initial intent of the policy."

The intent of the policy is to provide for an additional connection and evacuation route for residents in the Cedar Glen area to State Highway 18. The proposed amendment is intended to provide additional clarification and specificity while retaining the initial intent of the policy. The proposed amendment was developed based on extensive coordination and collaboration between the San Bernardino County Land Use Services -Planning Department, the Department of Public Works (that oversees transportation planning in the County), the Fire Department Chief, and County Counsel. The intent of this policy is to provide access for any additional residences if developed in the area between the existing southern terminus of Cumberland Drive and SR-18. This is clearly spelled out in Section 4.10, Land Use of the DEIR, page 4.10-15,

"The intent of the existing Lake Arrowhead Community Plan Policy LA/CI 1.14 is to ensure that any new development projects that will increase the number of residents in the Cedar Glen/Sky Forest area, will have adequate access to evacuation routes, including SR-173 and SR-18, in the event of a fire or other emergency. Currently Cumberland Drive only connects to SR-173 in the north and residents in the Cedar Glen area north and northwest of the Project site would need to utilize Cumberland Drive north to SR-173 to evacuate, further burdening Cumberland Drive and SR-173 in Cedar Glen and Lake Arrowhead. From SR-173 they could continue on SR-173 to evacuate to the north, or take SR-173 to the southwest to connect to SR-18 to evacuate to the southwest or southeast from the mountains. A future extension of Cumberland Drive from its existing southern terminus further south to connect with SR-18 would provide a shorter and more direct connection to SR-18 for existing and any new residents in the area north of the Project site, south to SR-18."

"The proposed amendment to LA/CI 1.14 provides additional clarification on what type of development and more specificity on the location of development that this policy is to be applied. New residential development would result in an increase in the number of people that would need to utilize the local roadway network to access evacuation routes from the mountain in the event of a fire or other emergency. If one or more new residential developments were to be completed without the extension of Cumberland Drive to SR-18 to the south, it would result in additional residents having to drive north on Cumberland Drive

to SR-173 to SR-18 as compared to direct access to SR-18 with the extension. The proposed Project would result in an increase in visitors to the mountains, the number of which will vary depending on the time of year and the time of day, however, it will not result in a significant increase in the population residing in the mountains. The Project site currently has immediate access to SR-18, a key evacuation route, and no extension of Cumberland Drive is needed for the SkyPark visitors and employees to directly access SR-18. Therefore, the proposed amendment to Policy LA/CI 1.14 retains the initial intent of the policy and only adds additional clarification on the type of developments and specificity on the location of developments in which the policy is to be applied to."

The proposed amendment to the Circulation Element is to change the designation of Cumberland Drive from Mountain Secondary to Local Road (40-foot right-of-way). However, this amendment will not affect its ability to provide an adequate emergency evacuation route as was outlined in the DEIR, Section 4.8 Hazards and Hazardous Materials, pages 4.8-17 and 4.8-18:

"Currently Cumberland Drive is designated as a Mountain Secondary (60-foot right-of-way) in the County's General Plan Circulation Element, as shown on Figure CI-2, *Major Roads and Freeways – Mountain Region*. The proposed amendment to the Circulation Element is to change the designation of Cumberland Drive from Mountain Secondary to Local Road (40-foot right-of-way). Cumberland Drive, as currently identified as a Secondary Street in Figure CI-2, *Major Roads and Freeways – Mountain Region* of the Circulation Element, would be removed from this figure as local streets are not shown on it."

"The change in classification from Mountain Secondary to Local Roadway will not adversely affect the ability of the existing segment of Cumberland Drive to continue to serve as a local connector to SR-173. The existing segment of Cumberland Drive north of the project between SR-173 and Bald Eagle Ridge Road is a two lane road with a painted center divider. The change in classification will not change the number of lanes, it will continue to be a two lane road, with one lane in each direction. The fire department requires that local roads are paved to a minimum width of 26-feet. A local roadway classification requires a two lane, 26-foot paved road with one lane in each direction. Cumberland Drive, with a local roadway classification will continue to provide the same level of access and evacuation capacity."

The SkyPark project was not conditioned by the County to extend Cumberland Drive. This is because only a portion of the total extension of Cumberland Drive could be located within the SkyPark property boundary. The SkyPark site cannot provide a complete connection from its existing terminus northwest of the SkyPark property boundary south to SR-18. This can be seen in Exhibit 3.0-9,

Surrounding Roadway Network of the DEIR. Additional segments of Cumberland Drive northwest of the SkyPark property would need to be constructed on other adjacent undeveloped private properties in order to provide a complete connection to SR 18.

Although the SkyPark project could not provide a complete connection for the existing southern terminus of Cumberland Drive to SR-18 the County is conditioning the project to dedicate right-of-way to the County as a contribution for the potential future extension of Cumberland Drive. This is outlined in the DEIR in Section 4.10 Land Use, page 4.10-16:

"The County of San Bernardino will require as a condition of approval of the proposed Project, a 20-foot wide right-of-way to be dedicated to the County, along the northwest boundary of the site, as a potential future contribution for the extension of Cumberland Drive. The extension of Cumberland Drive is expected to be constructed at some time in the future. In order for the Cumberland Drive extension to occur the following would have to occur:

- Property owners to the north of the Project site submit applications to the County for planned residential development;
- An alignment study is completed and reviewed and approved by the County Public Works Department to identify the exact location of the roadway;
- Future residential development or developments north of the Project site design and construct the extension of Cumberland Drive to SR-18 as a condition of approval, in accordance with the location identified in the alignment study.

As such, it cannot be determined at this time if the dedication as a part of the proposed Project will actually be used for an extension of Cumberland Drive. However, the dedication of right-of-way within the Project site ensures that the property will be retained for that purpose, if the road is to be constructed and in that location. Therefore, the proposed Project will not conflict with the potential future implementation of Lake Arrowhead Community Plan Policy LA/CI 1.14. Compliance with CEQA will be required for any future extension of Cumberland Drive prior to initiation of any construction activities."

Cumberland Drive is not required for emergency evacuation of SkyPark visitors and staff as the site already has direct access to SR-18 without the need to construct any new portions of Cumberland Drive. An Emergency Evacuation Plan was developed by the applicant for Project and was summarized and referenced in Section 4.8, Hazards and Hazardous Materials of the DEIR, page 4.8-14 as follows:

"In addition, the property owner has developed an Emergency Evacuation Plan specifically for the proposed Project. The *SkyPark at Santa's Village Emergency Evacuation Plan* includes the following:

- Communicating and working with emergency service authorities to insure adequate traffic flows in evacuating mountain residents on SR-18;
- A designated responsible official (highest management position) onsite shall monitor evacuation flow with Emergency Zone Management and assume liaison duties with external San Bernardino County emergency service authorities;
- A 15 to 20 emergency personnel staff consisting of onsite park managers, assistant managers will assume emergency zone management positions (five Zone Management Teams of three to four persons) and perform the following duties: Activate emergency sound alarms located in strategic areas in the park (Old Homestead Site, Water Tower, and Main Village Area); Wear reflective emergency vests to be immediately recognizable to the Public and gather supplemental evacuation backpacks carrying flashlights and first aid equipment. Vehicle evacuation will commence if safe to do so in an orderly and calm fashion, being directed by Management Teams. The Top of The World Upline road, which starts at the Good Witch Bakery/ Upper Village Gate and traverses the Bike Trails area, and eventually exits onto SR-18, West of Heaps Peak, may be utilized as an additional vehicle exit point. Furthermore, if mountain transportation corridors are severely impacted, Zone Management Teams will direct visitors and employees to shelter in the Campground, North and South Parking Lots, whilst keeping helicopter landing zone free and clear at all times until Emergency Services notification is provided."

B1.2: Greenhouse Gas (GHG) emissions were analyzed based on the results of the Traffic Impact Analysis (contained in Appendix I of the DEIR) and provides the public with clarity on the relation of GHG impacts and traffic impacts. Thus, to efficiently address the comment, the data from the Traffic Impact Analysis must first be addressed and then compared to the GHG emission impacts. The Traffic Impact Analysis goes through several steps as part of the traffic forecasting process and conservatively estimated the trip generation related to the project's land use for the DEIR analysis, "which estimates the total arriving and departing trips generated by the Project on a peak hour basis by applying the appropriate vehicle trip generation equations, or rates, to the size and land use designation of the Project development" (Traffic Impact Analysis, page 33). Also, the Traffic Impact Analysis "used the busiest hours of the day (9:00 to 10:00 AM and 3:00 to 4:00 PM), when the Project traffic generates the highest level of traffic. In addition, this analysis is based on the Design Day, which happens only on summer and

December weekends. All other days of the year will experience much less Project traffic than a Design Day." (Traffic Impact Analysis, page 35)

As outlined in Section 4.7, Greenhouse Gas Emissions of the DEIR, page 4.7-18, "For GHG modeling purposes, the weekend/peak day total of 2,600 daily trips was conservatively modeled for weekends, and the summer weekday total of 562 trips was modeled for the weekday. These values represent the most conservative number of daily trips provided in the Traffic Impact Analysis, and reflect a worst-case scenario.

The emissions from vehicles (exhaust from cars) for each trip to and from the project site are estimated using the California Emissions Estimator Model (CalEEMod), which was developed by the South Coast Air Management District (SCAQMD) and is recommended by the SCAQMD to estimate emissions generated by each project (from all sources including vehicles, construction equipment, electricity consumption, water demand, and solid waste generation). CalEEMod is a complex model with various equations utilized to create the most accurate outputs. This includes modeling for GHG emissions which take into account running, startup, and idling of vehicles. As the GHG emissions were based on conservative daily trips identified in the Traffic Impact Analysis the estimated GHG emissions from project also represent a worst-case-scenario and are more likely to be overstated than underestimated.

B1.3: As outlined in Section 8.0, Alternatives to the Proposed Project,

"Per Section 15126.6(a) of the CEQA Guidelines, the discussion of alternatives must include several different issues. The discussion of alternatives must focus on alternatives to the Project, or to the Project location, which will avoid or substantially reduce any significant effects of the Project, even if the alternatives would be more costly or hinder to some degree the attainment of the Project objectives. The "No Project" alternative must also be evaluated. The "No Project" analysis must discuss the existing conditions and what would reasonably be expected to occur in the foreseeable future if the Project was not approved. The range of alternatives required is governed by a "rule of reason." Therefore, the EIR must only evaluate those alternatives necessary to permit a reasoned choice. The alternatives must be limited to only ones that would avoid or substantially lessen any of the significant effects of the Project."

The "No Project" Alternative assumes that no development would occur on the Project site, and existing Santa's Village attraction buildings and parking lot and disturbed Hencks Meadow and area south of SR-18 would remain in its current state. The Santa's Village attraction would continue to be closed to the public. As outlined in the DEIR, Section 8.0, Table 8.0-2 Project Objectives Consistency

Analysis, this alternative does not meet any of the project objectives with the exception of providing adequate traffic access and adequate parking. This is because the current traffic access and parking is adequate for the existing use, as personal office space for the current property owner.

A residential alternative was not chosen in order to "skew the analysis," rather, it was selected as a reasonable alternative because it is what would reasonably be expected to occur in the foreseeable future if the Project was not approved. A portion of the Project site is designated as Lake Arrowhead/Single Residential-14,000 Square Foot Minimum lot size (LA/RS-14M). Areas to the north and west of the Project site are also designated as LA/RS-14 and include existing residential lots/homes. If the proposed Project were not to be implemented it is anticipated that the site may be developed as residential, consistent with the residential community to the north and west with a minimum lot sizes of 14,000 square foot.

A reduced size/scale outdoor commercial entertainment center was not evaluated as an alternative because the proposed Project already represents a small size/scale development of the Project site.

As outlined in Section 3.0 Project Description of the DEIR, page 3.0-23,

"The majority of the Project site is undeveloped, consisting of naturally occurring forest. Dirt fire access roads traverse the Project site. The developed portions of the Project site include buildings and infrastructure associated with the Santa's Village Amusement Park that opened in 1955. The various buildings associated with the amusement park have remained intact since the park's closure in 1998. After the park's closure, the parking lot on the north side of SR-18 (western portion of the project site) and the overflow parking lot south of SR-18 (southern portion of the Project site) provided a staging area for bark beetle infested lumber. Although the lumber has been removed from the Project site, however there are still wood chips throughout the meadow area north of the northern parking lot as well as the southern parking lot and proposed campground area."

The proposed Project does not include development of the entire site, rather re-use of the existing developed areas and a relatively small expansion of recreational facilities (hiking and mountain biking trails, zip-line, etc.), while retaining and preserving a large portion of the project site as natural forest, meadow (Hencks Meadow), and stream (Hooks Creek) which provides habitat for sensitive wildlife species. The proposed campground is proposed on an area that is disturbed and without natural forest or other vegetation due to the Old Fire and prior use as a staging area for lumber. The proposed Project includes only a minor development footprint than already exists on the site. The project objectives (page 3.0-35 of DEIR), including:

- "Provide the opportunity to become a role model for future sustainable, conservation-based recreation parks in the State;
- Promote the importance of wildlife and habitat education through eco-tourism;" are consistent with and further support the proposed small scale/size development footprint of the site and large scale preservation of natural forest land and habitat for wildlife.

Another alternative to the proposed Project is an amusement park or commercial development of a much larger footprint that includes more amusement park rides, restaurants, gift shops, etc. However, this type of alternative would increase the impacts to natural forest and streambed habitats and the sensitive wildlife species that they support. This type of alternative would be expected to be closer in proximity to existing residences to the west and north and US Forest Service land to the east. As located in closer proximity to adjacent residences and forest service land indirect impacts from noise and lighting would be expected to be increased at adjacent existing uses.

As outlined in the analysis contained in the DEIR, all environmental issue areas and threshold questions outlined in the CEQA Guidelines, Appendix G: Environmental Checklist Form were thoroughly evaluated in the DEIR. All environmental issue areas were determined to be less than significant or less than significant after implementation of mitigation measures.

Comment Letter B2 – Robert Sherman

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July 14, 2016

County of San Bernardino
San Bernardino County Land Use and Services Department
Planning Division
385 North Arrowhead Avenue, First Floor,
San Bernardino, California 92415

SKYPARK AT SANTA'S VILLAGE
Draft ENVIRONMENTAL IMPACT REPORT
SCH No. 2015091001

Dear Land Use and Services, Planning Division:

I am writing these comments as an individual. They focus around the SkyPark Conservation/Meadow Restoration Plan, as put forth by the NRCS and other aspects of said plan, as they relate to the content of the DEIR.

Let me first state that I have experience with the issues relative to the restoration plan. As my (attached) resume indicates, for sixteen years (prior to moving to Lake Arrowhead in 2006) I worked in the profession of Conservation Agent for the Town of Mashpee (on Cape Cod) in MA. One of my chief responsibilities in that role was evaluating natural-resource remediation plans similar to the one that the NRCS has prepared on behalf of SkyPark. I have a B.S. in Wildlife Management and was (during my professional career as Conservation Agent) a Professional Wetland Scientist (as certified by the Society of Wetland Scientists). I also completed graduate level courses in wetland plants and soils (given at the University of Massachusetts). B2.1

Further, in my professional career, I had extensive involvement with NRCS. They prepared Conservation Plans (for town-owned land) on behalf of my employer, the Town of Mashpee Conservation Commission. They also designed, helped fund and assisted in the implementation of a storm-water water- and sediment control basin/pollution- attenuation (natural wetland "filter) structure on town land subject to the jurisdiction of said Commission. And on many other occasions, they provided analysis and valuable insight on private land (subject to State and Town Bylaw jurisdiction) and on other parcels under the care and management of the Commission I worked for.

I thus can state that I am pleased that the developers of SkyPark have utilized NRCS services. As a matter of fact, I had recommended to Bill Johnson, almost a year ago, that he contact NRCS and take advantage of their expertise.

I think it's important to note two aspects related to the Conservation Plan that merit further scrutiny: B2.2

(A) While it has valuable aims and seems to contain many worthwhile features, the level of detail available for any meaningful assessment of its potential for achieving the stated goals in the DEIR* was meager. In particular, numbered "Specifications" as cited in the Conservation Plan were not published within the Conservation Plan as provided in the DEIR appendices [1]

*** Meadow Restoration**

The project also includes the removal of waste from the site and restoration of Hencks Meadow. Previously, the project site was used as a storage site for wood material infested by the bark beetle and has left the site with debris, woodchips, firewood, bark and trash. A Conservation Plan for the meadow was developed by the US Department of Agriculture, Natural Resources Conservation Service which includes construction of water & sediment control basins and a streambank protected waterway that conveys flows between them. The Conservation Plan also includes planting of native species, installation of structures for wildlife, and on-going herbaceous weed control. Refer to Exhibit 3.0-7, *Meadow Conservation Plan*. Ultimately, improvements to the health beauty and natural resources of the project area would serve as a balanced ecosystem that would be created for education, recreation and wildlife." (from 1.0-13 of the DEIR)

B2.2 *cont'd*

[1]*following(telephone and email) conversations with Kim Lary of the NRCS, a link was provided to access more details. Though that link did further expand upon details, it was still generic, and did not describe specifics to this particular project. Further, I was told that more details beyond what the link would provide would require requests through the Federal Freedom of Information Act.* ***I hardly think that these protocols reflect the openness that the CEQA process should manifest.*** *(Note- I do not wish to impugn Ms. Lary's interactions with me. Throughout, she was open, frank, insightful and helpful.)*

(B) The meadow (currently containing wetland areas, or not[2]; it most certainly did before it's filling) represents a significantly rare and valuable habitat/ecotone in our mountain area. The details concerning restoration plans thusly warrants a closer examination of the issues that I raise in my comments herein. While it is true that (as explained to me in conversations with NRCS) that the plan is, in fact, an agreement between SkyPark and NRCS, there also remains the vital issue of public involvement/the legitimate rights of the public, via the CEQA process, to address/have input into, as cited below:

"The significance criteria listed below are from the Environmental Checklist form in Appendix G of the CEQA guidelines. They are used to determine whether the proposed project would result in significant impacts to biological resources. Impacts would be significant if the project would:

- ***Criterion BR1****: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by CDFW or USFWS;*

- ***Criterion BR2:*** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;*

B2.3

- ***Criterion BR3:*** *Have a substantial adverse effect on federally protected wetlands as defined by Section 404, of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;*

- ***Criterion BR4:*** *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or*

- ***Criterion BR5:*** *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

B2.3 *cont'd*

Corresponding to the above (criteria) I would like to raise the following issues (including citations from Appendix 2_Jurisdictional Delineation and other sections of the DEIR):

(1) It is not understood why the NRCS Conservation Plan does not seem to reference Code (Spec)643- **Restoration and Management of Rare and Declining Habitats** ***which would seem to be the very objective of the plan***. Within the provisions of the Code (Spec) are specific criteria that would seem to mandate protocols that relate to coordination between the parties involved in the meadow restoration:

- All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the restoration.
- Confer with other agencies and organizations to develop guidelines and specifications to conserve declining habitats.
- Habitat conditions should be evaluated and compared to reference conditions on a regular basis to adapt the conservation plan and schedule maintenance to ensure the desired habitat condition.

B2.4

Pursuant to the points I raise in these comments herein, it would seem that significant "loose ends need to be tied up" to provide for successful implementation of a restoration plan that achieves articulated goals (stated in passages below..). I would contend that the DEIR falls short in terms of articulating coordination/concurrence between the restoration to be done and the agencies/ parties Involved.

(2) Pursuant to (1) above, in particular, more detail (and larger scale plans) are necessary information related to the Meadow Restoration Plans**. More specifics would be essential if the outcome of the restoration is to reflect concerns raised by CA Fish and Wildlife in their letter of September 30, 2015. Critical and fundamental would be delineations of pre-restoration conditions versus proposed finished conditions , including (but not limited to): plantings, existing habitat type onsite (including vegetated communities)** and concomitant infrastructure designs, including (proposed) stream course, lined Waterway or outlet, streambank and shoreline Protection, water and sediment control basins, hedgerow plantings (living fence of shrubs, and/or trees that will ".. delineate field boundaries, serve as fences, establish contour guidelines"...). (Note: as noted above, the links provided to me, re Codes/Specs,by NRCS, were all still quite generalized/ "cookie-cutter".)

B2.5

From the September 30, 2015 letter by CA Fish and Wildlife: "An assessment of the various habitat types located within the project footprint, and a map that identifies the location of each habitat type. The Department recommends that floristic, alliance- and/or association based mapping and assessment be completed ..... Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions..... A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the project. " (From P. 2)

B2.6

(Note – the entire letter from CA Fish & Wildlife, dated September 30, 2015 is attached to these comments.)

(3) A clearer understanding how the NRCS Conservation Plan interfaces with protocols for the CDFW section 1602 Streambed Alteration Permits needs to be articulated. On p. 20 of the DEIR, it states "**Instead, CDFW's jurisdictional limit is based on the topography or elevation of land that confines surface water to a definite course when the surface water rises to its highest point. *Further, the CDFW's jurisdictional limit extends to include any habitat (e.g. Riversidean alluvial fan sage scrub, riparian, riverine), including wetlands[2], supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions*."** *(emphasis mine- RS)*

[2]The DEIR states, "no wetland features occur on the project site" (p. 28 of the Appendix,2_Jurisdictional Delineation)..In my conversations with Ms. Lary, she stated that NRCS did, in fact, dig soil pits to substantiate this (as one of the three criteria, hydrology, wetland plants and hydric soils). It would have been appropriate to have noted that in the DEIR, and to have provided details regarding NRCS's findings in that regard, especially in light of the fact that the CA Fish & Wildife letter and the DEIR itself mention wetlands. And, as documented in the paragraph above, CA Fish and Wildlife jurisdictional limit for review does include habitats and/or wetlands NOT defined by soil parameters.

(From 4.4-23 of the DEIR Environmental Analysis- Biological Resources): "The CDFW, through provisions of the California Fish and Game Code (Sections 1601-1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. The CDFW typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFW jurisdiction."

On p. 27 of Appendix 2_Jursdictional Delineation, it states "These areas are vegetated with isolated stands of **riparian vegetation** including arroyo willow (*Salix lasiolepis*), mulefat (*Baccharis salicifolia*), fragrant everlasting (*Pseudognaphalium beneolens*), slender leaved sedge (*Carex athrostachya*), Pacific rush (*Juncus effuses* ssp. *pacificus*), and cattail (*Typha* sp.). Further downstream, Hooks Creek becomes more densely vegetated and supports a southern willow scrub plant community. Plant species observed within this community include arroyo willow, stinging nettle (*Urtica dioica*), sticktight (*Bidens frondosa*), northern water plantain (*Alisma triviale*), horehound (*Marrubium vulgare*), and watercress (*Nasturtium officinale*)." (Note, all the above-mentioned plants, except fragrant everlasting (Pseudognaphalium beneolens), are USDA recognized wetland indicator plants.)

B2.7

From the September 30 letter by CA Fish and Wildlife:

"Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; .... c) a schematic depicting the mitigation area.....(h) a detailed monitoring program.... Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate." (From P. 6)

In summary, It is very unclear at this time whether or not the Conservation Plan identifies "vegetated ... isolated stands of riparian vegetation" as cited in the DEIR Jurisdictional Delineation, and, also, whether or not it provides for buffers to protect these areas. B2.8

> *** SEE Exec Summary pp. 1.0-26 – "MM BIO-5: For Class II streams, defined as those supporting aquatic life other than fish, a buffer of 75 feet (23 meters) on either side of the stream (measured from the high water mark) will be flagged and avoided. For Class III streams, defined as those not supporting aquatic life, a buffer of 25 feet (8 meters) on either side of the stream (measured from the high water mark) will be flagged and avoided. On-site streams are expected to be classified as a combination of Class II and Class III streams."**

(4) Another significant problem (and intrinsically related to the above) is the lack of appropriately scaled plans from which to render this (and other ecologically significant parameters needing substantiation).

> The DEIR states "The analysis presented in this report is supported by field surveys and verification of site conditions conducted on November 20, 2014 and September 23, 2015. Michael Baker biologists Travis J. McGill, Ryan S. Winkleman, and Thomas C. Millington conducted a site investigation to determine the jurisdictional limits of "waters of the United States" and "waters of the State" (including potential wetlands and vernal pools), located within the boundaries of the project site. While in the field, jurisdictional features were recorded on a base map at a scale of 1" = 50' using topographic contours and visible landmarks as guidelines." B2.9

I could not locate said plan within the DEIR and its myriad of appendices.. (and from my years of experience in assessing a significant number of wetland restoration plans, a 1" = 50' scale was too often inadequate for a definitive analysis...1"= 20' or 1" = 30' was significantly more appropriate.) Finally, maintaining buffers* was cited in other sections of the DEIR. My professional experience has been that if such are not explicitly depicted on a Plan of Record, they are not useful for analysis, nor do they provide for any meaningful protection for specific/important habitats!

(5) The Executive Summary for the DEIR refers to "construction of water & sediment control basins and a streambank protected waterway that conveys flows between them." **Will not construction of this waterway eventually yield emergence of "new" wetland areas. How will this be monitored, fostered,** B2.10

and integrated into the professed (DEIR- Executive Summary) goal, whereby : "Ultimately, improvements to the health beauty and natural resources of the project area would serve as a balanced ecosystem that would be created for education, recreation and wildlife."(p. 1.0-13)

B2.10 *cont'd*

(6) It is also unclear if there will be an adequate amount well/water supply for water-course and associated riparian features? <u>This needs to be clearly articulated and demonstrated .</u>

1.0-43..- "MM HYDRO-1 Prior to pumping of groundwater to support operational use of SkyPark at Santa's Village, a groundwater and surface water monitoring plan shall be developed and implemented and shall include:

- Installation of a stream gauge on Hooks Creek at a location downstream of the Project boundary.
- Baseline monitoring of groundwater levels and Hooks Creek streamflow rates before the Project improvements are constructed. Groundwater monitoring shall be conducted on a monthly basis. Stream gauge measurements shall be collected continuously using recording equipment that is downloaded quarterly.
- On-going monitoring of groundwater levels and Hooks Creek streamflow rates to provide the data necessary to assess the role of Project pumping on changes in stream flow rates (if any).
- Baseline and on-going monitoring of groundwater levels and Hooks Creek streamflow rates will be submitted to the Lahontan Regional Water Quality Control Board on an annual basis.

B2.11

In summary, it is laudable that the developers, consultants and agencies involved with the meadow-restoration seem committed to recreating a functional ecosystem and associated ecotones. **However, I believe that the points I have raised herein demonstrate the need for more comprehensive and consolidated clarification of all components relative to <u>concurrence between the NRCS Conservation Plan, the CA Fish & Wildlife Streambed Alteration Agreement (and process thereto) and DEIR narratives dealing with construction methodologies, timetables, monitoring protocols and designations of responsibilities for the multi-level phases of work</u>. These constitute deficiencies that should be definitively addressed in the FEIR.**

Lastly, I would be remiss if I did not emphasize that what I detail above is reminiscent of what I have seen in previous reviews I have done regarding other projects that have gone before the County Planning Agency. "Details to be determined later" seems to an all-too-prevalent modus operandi. The adage here is the old "the devil is in the details". And it is our already beleaguered environmental resources of rare and special value that suffer the consequences.

B2.12

Attachments:

Resume
CA Fish & Wildlife Letter, DATED September 30, 2015

Response B2
Robert Sherman

B2.1: Comment noted. Your professional expertise and experience is acknowledged and appreciated.

B2.2: Additional information on the NRCS restoration of Hencks meadow was summarized and referenced in the DEIR, Section 4.4 Biological Resources, page 4.4-45 and referenced in the DEIR in Section 9.0, References, page 9.0-6, "U.S. Department of Agriculture, Natural Resources Conservation Service, Detail Plans for the Water & Sediment Control Basin and Lined Waterway for SkyPark Santa's Village LLC and Drawings and Specifications, October 2015. Available at the San Bernardino County Land Use Services Department." These plans are available upon request by either visiting or calling the San Bernardino County Land Use Services Department. NRCS does not release information on projects they are involved in on private property. However, the private property owner can choose to release project information at their discretion.

As outlined above in Response to Comment A2.2, both of these documents have been added to the EIR Appendices, in Appendix K, Drawings and Specifications, in response to comments on the DEIR to allow for public and agency review of these documents. The Drawings and Specifications include Practice Standards, Job Classification, Design Calculations, Environmental Assessment, Utility Check Sheet, Engineer's Cost Estimate, Operation & Maintenance Requirements, Practice Specifications, Practice Requirements, and Construction Drawings. The construction drawings or detail plans include the overall plan view, plan view and profile views of the three sediment basins (south, middle, and north), and section views of the rock lined waterways (south, middle and north).

B2.3: Throughout the DEIR, the meadow, also known as Hencks Meadow, is recognized as a valuable habitat ecotone in the mountain area. The commenter's recommendation to utilize NRCS and their expertise related to restoration of the meadow was followed. As outlined above in Response to Comment A2.2 and B2.2, the Detail Plans for the Water & Sediment Control Basin and Lined Waterway for SkyPark Santa's Village LLC and Drawings and Specifications have been added to the EIR Appendices, in Appendix K, Drawings and Specifications, in response to comments on the DEIR to allow for public and agency review of these documents.

As outlined in the analysis contained in the DEIR, all environmental issue areas and threshold questions outlined in the CEQA Guidelines, Appendix G: Environmental Checklist Form were thoroughly evaluated in the DEIR. All environmental issue areas were determined to be less than significant or less than significant after implementation of mitigation measures. Therefore, the public has

had full disclosure of potential impacts and the opportunity to review and comment on these threshold questions or significance criteria.

B2.4: The Natural Resources Conservation Service Conservation Practice Standard, Restoration and Management of Rare or Declining Habitats, Code 643, NRCS, CA April 2007 is available online at https://efotg.sc.egov.usda.gov/references/Delete/2012-4-7/643std-04-07.pdf.
The first two bullets in this comment are listed under the "Considerations" subheading of the referenced NRCS document. As outlined above in Response to Comment A2.5, the applicant will obtain all applicable permits for impacts to waters of the US from US Army Corps of Engineers and waters of the State from California Department of Fish and Wildlife and/or the Lahontan Regional Water Quality Control Board. It is anticipated that in developing the restoration plan for the meadow that NRCS staff if appropriate/applicable NRCS staff conferred with other agencies and organizations to develop the specifications for conserving declining habitats. As indicated in comment B2.1, NRCS has expertise in this matter, and the County defers to NRCS on what is appropriate in terms of coordination with other agencies and organizations in developing the restoration plan.

The third bullet in this comment is listed under the "Operation and Maintenance" subheading of the referenced NRCS document. The long term operation and maintenance of the meadow will include the evaluation of habitat conditions on a regular basis to adapt the conservation plan and schedule maintenance to ensure the desired habitat condition.

B2.5: As outlined above in Response to Comment A2.2 and B2.2, the *Detail Plans for the Water & Sediment Control Basin and Lined Waterway for SkyPark Santa's Village LLC and Drawings and Specifications* have been added to the EIR Appendices, in Appendix K, Drawings and Specifications, in response to comments on the DEIR to allow for public and agency review of these documents.

As outlined in Response to Comment A2.10, the applicant has conducted early consultation with the following regulatory agencies: US Army Corps of Engineers, Lahontan and Santa Ana Regional Water Quality Control Boards, and California Department of Fish and Wildlife. Early consultation included site visits/meetings, conference calls, telephone calls and/or emails. During early consultation valuable input was provided to the applicant by the respective regulatory agencies regarding what would be expected to be included in the CEQA documentation as well as permit submittal and processing requirements. Further, it should be noted that the CDFW comment letter on the DEIR (Comment Letter A1) did not contain any comments related to the NRCS restoration plan.

The County and the Applicant have conducted additional consultation with the Lahontan Regional Water Quality Control Board on the meadow restoration and the 401 Water Quality Certification since circulation of the Draft EIR in June 2016. The Lahontan Regional Board has provided input on design features they recommend be incorporated into the meadow restoration. One design feature includes the addition of earthen berms or water bars throughout the meadow to increase the retention and infiltration of stormwater and snowmelt runoff in the meadow. An Earthen Berm Detail plan sheet has been added to Appendix K.

B2.6: A very detailed and thorough Habitat Assessment was included in the DEIR as Appendix D.1. The Habitat Assessment included an evaluation, classification, and mapping of habitat type or plant communities. Per Section 2.4 Plant Communities of this report, "Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evans (2009) and Holland (1986), delineated on an aerial photograph, and then digitized into GIS Arcview." According to the California Native Plant Society website (http://www.cnps.org/cnps/vegetation/manual_2ed.php) A Manual of California Vegetation, Second Edition (Sawyer, Keeler-Wolf and Evans, 2009) has been adopted as the standard vegetation classification by state and federal agencies such as the California Department of Fish and Game, US Forest Service, National Park Service, and US Geological Survey. It also has become the standard reference for vegetation used by consulting firms and planners. The manual contains descriptions for vegetation types down to the alliance and associations levels. Therefore, the EIR analysis was based on habitat mapping at the alliance and association level. The Habitat Assessment also included a thorough inventory of fish, amphibian, reptile, bird, and mammal species that have been documented historically in the region, have the potential to occur in the project area, and were observed during on-site evaluations.

B2.7: As outlined in Response to Comment A2.3, the field data sheets were inadvertently omitted from the Jurisdictional Delineation report that was included in Appendix D.2 of the DEIR. The Jurisdictional Delineation contained in Appendix D.2 has been amended to include the field data sheets, which are included in this report's Appendix C, Documentation. As shown in these field data sheets, soils were evaluated at 5 different soil pits. Hydric soils were not observed at 4 of 5 of the soil pits. Hydric soils were found at sampling point SP-4 located on the fringe of the existing pond. Water levels fluctuate within the pond and this area is frequently under water. The location of soil pits SP-1 through SP-5 are show on Exhibit 8, Jurisdictional Areas within the Jurisdictional Delineation report. The results of the Jurisdictional Delineation remain unchanged. The proposed Project will not result in adverse impacts to wetlands.

B2.8: Refer to Response to Comment B2.5 above.

B2.9: Refer to Response to Comment B2.2 above.

B2.10: The restored Hencks Meadow in accordance with the NRCS plan, including the basins and streambank protected waterway to convey flows between them are anticipated to be considered lakes or streambeds by the California Department of Fish and Wildlife and waters of the US by US Army Corps of Engineers and the Lahontan Regional Water Quality Control Board. As such, future maintenance of these areas, regardless of whether or not they develop the three wetland parameters of hydrophytic vegetation, hydrology, and hydric soils, will require permits and approvals from the regulatory agencies.

B2.11: Refer to Response to Comment A2.4 and A2.10 above.

B2.12: Refer to Response to Comment A2.2 above.

Comment Letter B3 – Save Our Forest Association, Inc.

Save Our Forest Association, Inc.
Post Office Box 126 • Rim Forest, California 92378

21 July 2016 by e mail : Kevin.White@lus.sbcounty.gov

Mr. Kevin White, Senior Planner
County of San Bernardino
Land Use Services - Planning Division
385 No. Arrowhead Ave, First Floor
San Bernardino, CA 92415-0187

Sub : Public Review of Draft Environmental Impact Report : Project #P201500051

The Save Our Forest Association, Inc. (SOFA) appreciates the opportunity to respond to the completed Draft EIR for the SkyPark at Santa's Village Project. SOFA is the largest grass roots environmental organization in the San Bernardino Mountains focused on quality of life issues. SOFA has been engaged in analyzing and responding to projects in our communities since its inception in 1987.

Our Board is encouraged by the significant effort that has led to a rigorous draft EIR addressing many of the concerns raised in our 24 September 2015, letter responding to the notice of preparation. There remain several areas of concern that should be evaluated with preparation of the final EIR.

SOFA supports the proposed amendment to the Lake Arrowhead Community Plan, Policy LA/CI 1.14, and the Circulation Element of the County of San Bernardino General Plan. The proposal to require the extension of Cumberland Drive from Cedar Glen to State Hwy 18 as a condition of development of any new residential subdivision is a pragmatic amendment that would address increased residential density, while providing an emergency access for local traffic and first responders. The right-of-way dedication commits a specific route for potential future extension of Cumberland Drive. The extension of Cumberland Drive at this time would further increase project site noise, light pollution, greenhouse gas emissions, and degradation of a portion of the wildlife corridor, while being detrimental to the project's non-motorized recreational focus.

B3.1

Appendix D.1 Habitat assessment includes Section 6 Recommendations : 6.1 Pre-construction sensitive plant clearance surveys be conducted with the appropriate blooming season prior to trail installation, and 6.2 Portions of the project site that contain suitable moderate and high quality habitat for SRB, SBFS and CASO remain undeveloped. SOFA supports the above recommendations and further notes that existing fire access roads and trails should not be expanded in these sensitive habitat areas.

B3.2

A review of Appendix G. Hydrogeologic Evaluation 5.0 Conclusions and Recommendations leads us to support the recommendation to develop a groundwater and surface water monitoring plan as part of the Project. The extensive Henck's Meadow rehabilitation plan has as its goal stated in the DEIR Executive Summary to create "ultimately, improvements to the health, beauty and natural resources of the project area would serve as a balanced ecosystem that would be created for education, recreation and wildlife." The July 14, 2016, comments by Mr. Robert Sherman raise specific questions about how this goal is to be achieved and to the interaction and coordination between multiple agencies responsible in working with the project manager.

The Final EIR should have additional details regarding the meadow restoration and the challenges that this key element of the project raises. There is an opportunity here to demonstrate a dramatic positive environmental outcome with the appropriate planning.

B3.3

The 70 site campground is mentioned in several areas of the draft EIR including Section 4.12 Noise. Since it is intended to have self-contained RV's in the campground there is the likely use of generators to provide on-board electricity for those RV's staying overnight, particularly since there is no mention of full-service "hook-ups" being part of the campground facilities. Generator noise can be a particularly bothersome aspect of RV camping, especially to those tent camping nearby, and in our local mountains where sound can travel extremely long distances. Development of guidelines/policies for generator use, particularly at night, should be included in the final EIR to minimize/eliminate noise pollution to those enjoying the typically quiet mountain evenings, and for those neighbors in Skyforest.

B3.4

The County of San Bernardino Conservation Element Goal : M/CO 5 is concerned with preserving the dark night sky as a natural resource in the mountain region communities. Lighting is commented on relative to the campground, primarily on the lack of impact to the adjacent Hwy 18 where it is anticipated to have no adverse affect. The bathroom/shower/laundry facility for the campground will have "soft lights for ground illumination" for camper guidance and safety. Presumably there will not be additional campground lighting that would make the campground facility more visible from the valley below, or other sight lines along Hwy 18.

B3.5

Section 4.16 Transportation and Circulation noted that there are no existing bicycle facilities nearby the proposed project. Cyclists travelling through the area must use Hwy 18 with minimal shoulder and higher speed vehicle traffic creating a hazardous situation. The project site is in extremely close proximity to the community of Skyforest and Sycamore Drive, which parallels Hwy 18, and terminates practically at the project site. Consideration of a Class I or II Bikeway providing off highway access from the project site to the community of Skyforest and Kuffel Canyon Road would create opportunities for bike-centered events in the local community and increased recognition for SkyPark as the most bike-friendly destination in our area.

B3.6

Additional Transportation and Circulation observations include Impact 4.16-1. "...taking into account all modes of transportation, including mass transit and non-motorized travel..." Only signalization is mentioned as a mitigation measure, with no consideration for a greater role of Mountain Area Regional Transit in providing transportation for project employees, and visitors. Impact 4.7-27 refers to a Transportation Demand Management Program and the recommendation that "...if available, mass transit facilities shall be provided (e.g. bus stop bench/shelter). Additionally, Impact 4.16-6 states that implementation of the project would not conflict with adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities...or otherwise decrease the performance or safety of such facilities. The more positive question would be : How can the SkyPark project facilities build on and enhance our local transportation options and facilities ? Greater communication with the Mountain Area Regional Transit System could provide benefits for SkyPark visitors and local residents, while potentially lowering vehicle trips and on site parking demand.

B3.7

The Save Our Forest Association is enthusiastic about the very positive potential for this project continuing to move forward and supports having the final EIR completed as efficiently and thoroughly as possible.

Thank you for the opportunity to comment on SkyPark at Santa's Village,

Hugh A. Bialecki, DMD
President, SOFA

Response B3
Hugh A. Bialecki, DMD

B3.1: Comment noted regarding support of the proposed amendment to the Lake Arrowhead Community Plan, Policy LA/CI 1.14, and the Circulation Element of the County of Sand Bernardino General Plan.

B3.2: Comment noted. Only minimal extension of trails into habitat for SRB, SBFS and CASO is proposed with the majority of these habitats that occur onsite being avoided and preserved. As proposed these areas will continue to remain undeveloped and the expansion of fire access roads are not proposed within these areas.

B3.3: As outlined in response to comment A2.2 above, for the onsite restoration of Hencks Meadow and Hooks Creek the USDA Natural Resources Conservation Service did prepare Drawings and Specifications for the Lined Waterways or Outlet and Water & Sediment Control Basins which include Detail Plans for the Water & Sediment Control Basins and Lined Waterways. Both of these documents have been added to the EIR Appendices, in Appendix G, in response to comments on the DEIR to allow for public and agency review of these documents. The Drawings and Specifications include Practice Standards, Job Classification, Design Calculations, Environmental Assessment, Utility Check Sheet, Engineer's Cost Estimate, Operation & Maintenance Requirements, Practice Specifications, Practice Requirements, and Construction Drawings. The construction drawings or detail plans include the overall plan view, plan view and profile views of the three sediment basins (south, middle, and north), and section views of the rock lined waterways (south, middle and north).

Also, as outlined in Response to Comment A2.10 above, early consultation regarding the proposed project and meadow restoration was conducted with the appropriate regulatory agencies, including the US Army Corps of Engineers, the Lahontan Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

B3.4: Rules and Regulations that will be implemented at the campground by the operator includes a restriction on generator use – generators may only be operated between the hours of 10 a.m. and 8 p.m. This restriction is consistent with rules and regulations at most California State Parks. Implementation of this campground rule will minimize nighttime noise generation.

B3.5: Only low lighting (shielded downward) will be installed and used at the campground. Low lighting will be used at the bathroom/shower/laundry facilities for camper guidance and safety.

B3.6: The only off-highway access from the site to the community of Skyforest and Kuffel Canyon Road would require access and connection across private, currently undeveloped property directly west of the SkyPark property. In addition, there is a steep grade between the SkyPark site parking lot and the nearest public road in Skyforest to the west, Sycamore Drive. For these reasons it is not feasible or practicable to provide an off-highway bikeway from the project site, west to Skyforest at this time.

B3.7: The project proponent has coordinated with Mountain Area Regional Transit (MART). MART plans to add a new route from the Lake Arrowhead Resort, located northwest of the Project site in Lake Arrowhead, California, to the Project site. A bus stop/shelter is not planned to be provided along SkyPark's frontage on SR-18 because MART buses are planned to enter into the SkyPark property to allow riders to get on and off.

Comment Letter B4 – Sierra Club, San Gorgonio Chapter

SIERRA CLUB
FOUNDED 1892

San Bernardino Mountains Group
San Gorgonio Chapter

P.O. Box 651
Blue Jay, CA 92317

July 22, 2016

Kevin White, Senior Planner
Planning Division County of San Bernardino Land Use Services
385 N. Arrowhead Ave., First Floor
San Bernardino, CA 92415-0187
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Re: **Project No. P201500051/CF; Draft EIR Availability; Skypark at Santa's Village**

Dear Mr. White,

The San Bernardino Mountains Group of the San Gorgonio Chapter of the Sierra Club (Mtns Group) is based in the western region of the San Bernardino National Forest (SBNF). Our local 200 members are proud to identify with Sierra Club, our nation's largest and most effective environmental grassroots organization. We are familiar with the area of the proposed Skypark project and appreciate this opportunity to comment on the released Draft EIR for Skypark at Santa's Village.

B4.1

As we expressed in our letter responding to the Notice of Preparation, we hereby repeat several of our concerns about the potential impacts of the project to the value and vitality of the immediate and surrounding community and natural ecosystems. The Draft EIR appears to have made several omissions, errors in evaluations, and erroneously assumed that acknowledgement and assurances for future mitigation definitions and their particulars adequately provide the public disclosure requirements mandated by the California Environmental Quality Act (or CEQA).

Also, there was some confusion in your notice of availability letter (which is notably missing from the County website listing the history of public notices for the Skypark project (see: http://cms.sbcounty.gov/lus/Planning/Environmental/Mountain.aspx screen shot pasted at end of this letter). The letter we received indicated comments were due on Monday, July 22. July 22, 2016 is not a Monday. We also hope that the email provided for Kevin White is accurate, as it appears to have changed since last year. (Kwhite@, from Kevin.white@). Without an online copy of the availability notice, it is not possible for the average citizen to determine a due date for comments, or even the current contact information (new since the Notice of Preparation) for Mr. White.

B4.2

In no particular order, we make the following comments:

The project analysis does not appear to accurately mirror the project description. Discrepancies between the purported and intended uses and facilities of the project and the environmental analysis assumptions of various elements are frequently in conflict, or simply missing.

Examples are:

1) The project description includes winter sports such as sledding, an ice rink, etc, yet the DEIR does not evaluate the impacts or describe the location and/or facilities of said recreation.
2) Literature for the project, and the intended uses for the project as described by the CUP applicant include special events for the local community. The capacity and character of those local events are not described or evaluated in the DEIR. In particular, the only possible reference to an analysis of local events found, was in the traffic impact analysis where it was assumed that there would be a single special event per year, that it would only occur at night, and that it would only generate about 50 vehicle trips. This conflicts with one of the intended purposes of the project identified in Section 8 (Alternatives): "provide a venue for local community events" In the past, special events held at the Skypark location (such as concerts in the meadow) have attracted a great deal more attendance than is being analyzed. True traffic impacts as well as other venue considerations need to be disclosed in a revised DEIR
3) Campfire pits are identified in the DEIR text, but are not located on the project description map. The extension of gas lines across State Hwy 18 to the fire pits is referred to in the DEIR, but not located or evaluated for safety. There has been conflicting information regarding the consideration/inclusion of Recreational Vehicles in the southern camping area. Several references to RV's can be found in the document, but the environmental effects and required mitigations for the support of RV's (lights, noise, generators and their potential emissions, etc)
4) Expected attendees, seem to be divided into two or three major groupings: Santa's Village park revelers, outdoorsy folk - mountain bike enthusiasts and the like, and campers. However, estimates about the numbers of those groups were either missing or very hard to find. This is an important element in determining the expected project impacts because the numbers determine the likely amount and characteristics of activity in the separate areas of Skypark. As an example, how consistent during the day, and how frequent bikes will be traversing the majority of the park. If constant or even very frequent, the impacts to habitat is high, especially to nesting activity. The habitat assessment identifies Feb to Aug as a no-activity period for at least the spotted owl, but the mitigation/condition requirements for that are not discernable in the DEIR.
5) A zipline facility is planned to be added to the current set of existing structures according to the DEIR. However, it was not at all clear where that will occur, and how it will be operated during habitat-sensitive seasons.

It is unfortunate for the public that the CUP project application, with its own description, and currently proposed conditions were not available to the public in this review to assist in evaluating the adequacy of the Draft EIR. An accurate understanding of the details of the project is inevitably critical to the full appreciation of the project's potential impacts.

B4.3

The EIR should have analyzed a down-sized alternative project. The project goals could easily be satisfied with a smaller footprint/impact project. The CEQA Alternatives section is

B4.4

inadequate. Are the bicycle trails needed? Are the impacts of the project without the trails, environmentally superior? B4.4 cont'd

It is unclear in the project description what the policy for animals will be at the park. During winter play, and perhaps with the camping attendees as well as the bicycle enthusiasts, welcoming pets to the park (especially dogs) will be an attractive feature of the park. Yet the presence of pets and animals in habitat areas brings its own set of challenges and impacts. The DEIR appears to be silent with respect to its policies towards animals at Skypark and its various activities. Clarity is needed, before the public or the County can act in an informed way. B4.5

One of the fundamental concerns of the Mountains Group is the viability of the very important north-south wildlife corridor that the proposed project sits squarely within. Although the DEIR acknowledges the impact, it unfairly and without reasonable justification, dismisses the impact as minimal since the identified corridor extends beyond the project location. What is missed in the DEIR analysis, is the critical importance of the actual site. The presence of the current and long-standing watercourse, pond, and wetlands area of the Skypark site, especially when considered with the natural path up the mountain, in the ravine and cover immediately below the proposed camping area, and the corridor destination of proceeding north within the Hook Creek riparian area, the most favored, and historically frequent corridor path is through the proposed park property. Water and green vegetation is key to safe wildlife movement , and yet the meadows, stream and pond of Skypark, leading directly to Hook Creek, Deep Creek and beyond, is the primary, if not the only wet path in the apex of the identified corridor. To dismiss this as insignificant is inappropriate. B4.6

Related to this, and not mentioned in the DEIR, is the upgraded fencing that now lines the Skypark property along Highway 18 on the north side. Fencing this corridor area with this new, imposing, and restricting structure has created another disturbing diminution of the corridor's viability. In evaluating the impacts of the proposed project, the DEIR needs to also consider the impacts of the fencing in of the project parcel, beyond just the impacts of the major activity near the camp, parking lots and watercourse. We ask the County to not only require an analysis of the impacts of the fence, but also ask for a review of the permitting status of the fence. There is a concern that assumptions were made about the legality of its installation. B4.7

We refer the County and project planner to a helpful Caltrans document about understanding and effecting wildlife crossings: It is called Wildlife Crossings Guidance Manual, produced by Caltrans. B4.8

The Draft EIR appears to use Skypark's conservation plans and coordination with NRCS for the creation/restoration of the Meadow, stream and pond areas as the mitigation and management for several environmental factors. For example, the runoff impacts from several hundred cars and the recreating public on the headwaters to Hook Creek specifically and the quality of habitat in the lowland area just north of the parking lot in general. However, there is no specificity to any of it, simply a general statement of intent and of the issues. Statements like the 3 holding ponds of the planned reconstituted stream "will eliminate" any pollution concerns. This is not adequate for CEQA'S .purposes. B4.9

In that same vein of unacceptable "assurances" without adequate supporting detail, we observe that we could not find any hydrological study for the project area and the surrounding watershed that feeds into the project area, stream, pond , Hook Creek and ultimately Deep Creek, a wild B4.10

and scenic watercourse. In order to provide assurances to the public that the runoff, pollution, detritus, and flows can be managed by the proposed project infrastructure, a hydrologic study should be available to establish stormwater flows for the area, for both average, and 10-, 50- and likely 100- year events. What is often clearly articulated in the DEIR is a recitation of the challenges and requirements for environmental mitigations. Bald statements without clear numbers and supporting documentation that proposed solutions will be adequate is not adequate for CEQA requirements.

B4.10 *cont'd*

Here is the only Hydrological evaluation we can find in the DEIR:

> There are no known active or inactive stream gages on Hooks Creek (USGS, 2015). Accordingly, the surface flow of the creek is unknown. Area-weighted average annual precipitation in the subunit is 36.5 inches/year, which is equivalent to approximately 3,585 acre-ft/yr of annual precipitation over the entire 1,195-acre subunit (Geoscience, 2005).
> Average annual surface runoff in Hook's Creek Subunit has been estimated by Geoscience (2005) to be approximately 960 acre-ft/yr. It is assumed for this analysis that this is approximately equivalent to the long-term average annual flow in Hooks Creek.

B4.11

This is inadequate information to determine if the planned pond and stream contrivances are adequate to handle a storm event. As is commonly joked about, one can drown in a lake with an average depth of only 1-inch. Similarly, citing only average precipitation in the area is not sufficient to describe possibilities. It is not rare to see 10 or more inches of precipitation fall in a 24-hour period in our mountains. If the pond is typically being maintained close to full, what will happen in such a storm?

We have several concerns about the adequacy and accuracy of the traffic study and its conclusions.

First, although the study identified peak summer and Christmas weekends as the peak trip flows to be analyzed, the traffic counts were taken on a non-holiday weekend in Dec, which is definitely not a peak traffic season currently in the area. Though Skypark may anticipate December and Xmas attendance peaks, impacts on similar summer peak days will occur simultaneous to the area's summer peak traffic. Traffic counts need to reflect realistic peak situations. Compared to previous studies done for the Church of the Woods project, as well as for the 2007 San Bernardino General Plan, recognize higher counts than are being used for Skypark's study. This should be corrected. National Weather Service records show that on Dec 13 (one of the days traffic counts were taken) had a high of 45/low of 32 and mild precipitation. This would not be a good example of a peak traffic situation. As I understand the traffic study scoping, the study was to assume good weather, which this was not. In contrast to that, as most mountain residents know, one of the likeliest negative effects on traffic will be on inclement weather days. Especially if sledding and/or other winter recreational activities are being planned for the park. Snow on the roads in our mountains create very dangerous situations. Traffic snarls due to inexperienced drivers on ice and in fog, is compounded by unsafe recreation along the highway. The Draft EIR should examine the potential impacts of increased traffic during our very consistent, very frequent and very reliable "bad days" on the mountain. If Skypark expects to bring 2500 new people onto Highway 18 during the Christmas and winter holiday weekends, traffic and safety impacts need to be carefully revisited and mitigations considered. This should include possible closure policies for the project during inclement weather.

B4.12

For an example of the kind of snarls we endure on our highways during true peak flow periods, see the screen print below from Google satellite maps of Highway 330 trying to access our mountain resorts. As it happens, this particular view isn't even during bad weather, but is instead just a normal busy weekend. The Traffic study for Skypark is inadequately analyzing our circulation characteristics.

B4.12 cont'd

Furthermore, the Skypark traffic study did not evaluate the cumulative impacts of another large project in the area that the County has been aware of for many years, is still an active project, and has already acknowledged future significant traffic impacts on the roads and intersections evaluated for the Skypark DEIR. To fully disclose all reasonably foreseeable impacts of the Skypark project, the DEIR should reevaluate the project's impacts in concert with the anticipated and already well-established plans and mitigation requirements of the Church of the Woods project (located at the intersection of Daley Canyon and highway 18 (one of the evaluated locations in the Skypark DEIR).

Peak traffic and peak times for the Church of the Woods project (supporting event attendance projections equivalent and sometimes more than the planned attendance of the Skypark facility) will coincide with the projections for Skypark's vehicle traffic. This needs to be considered as the combination of simultaneous peak trips from both projects will greatly reduce local circulation flow, and may require signalization requirements top support Skypark's trip contributions at several intersections. As background, the Church of the Woods Final EIR traffic mitigation requirements triggered several signalization requirements. By reference here, please include the currently still posted (as of July 21, 2017) environmental documents for the Church of the Woods project located on the San Bernardino County Land Use Services website at http://cms.sbcounty.gov/lus/Planning/Environmental/Mountain.aspx

To make this clear, here is an excerpt describing the projected trip generation of the church's project:

B4.13

> The Sunday peak hour trip generation was calculated based on estimated church attendance. The church will have two Sunday services: 8:30 to 10:00 a.m. and 11:00 a.m. to 12:30 p.m. There will be one hour between services, during which time the attendees from the first service will depart and the attendees of the second service will arrive. Based on current attendance and future projections, it is expected that each service will have 500 attendees by 2009 and 1,200 attendees by 2013. Attendees will arrive and depart via automobiles with an average occupancy of three persons per vehicle. Based on these assumptions, the church is projected to generate 334 trips during the Sunday peak hour in 2009 and 800 trips during the Sunday peak hour in 2013 and 2030.

While it is understood that only a portion of those trips will be generate over highway 18 past the proposed Skypark location, there will certainly be enough to trigger the CEQA requirement for further analysis of the cumulative effects, generating possible new mitigations for future traffic controls. It should also be obvious from the two project descriptions that they share peak traffic hours which will certainly exacerbate the situation on Highway 18. More importantly, when local events are taken into consideration, (planned for both projects according to their respective project goals), the assumed distribution of vehicle trips will be markedly different than the apportionment used in the current Skypark analysis. The Skypark study assumes only 15% or less of the average trips to the park will be from the local communities (north of Highway 18). For popular local events, that percentage would change dramatically, and the trip volume effects on secondary intersections at and north of Highway 18 will be significant, indeed.

The traffic impact evaluation for Skypark is surprisingly bad. It needs to be redone and the Draft EIR revised and recirculated. B4.14

Regarding traffic, SANBAG's (San Bernardino Association of Governments), acting as the responsible party for our region's Congestion Management Program, has identified and highlights the intersection at Hwys 173/18 as a problem in their Mountain Area Transportation Study. Note immediately below, from their MATS website tool, MATS clearly identifies this intersection will be problematic with increased traffic flow. With the addition of the majority of Skypark trips relying on this intersection to access the project (all attendees not coming from Running Springs or up from Highway 330 – a longer circuitous route from the Valley - and combined with the significant additions of the pending Church of the Woods project, it is undeniable that Skypark's Draft EIR's conclusion that further analysis on this intersect is unneeded, is simply and egregiously wrong. B4.15

MATS Project Sites:

Description SR-173 at SR-18

Notes Poor traffic control, and confusing intersection. Will become more of an issue with additional development

Type Operational

As layman in the traffic analysis area, we hope that the County will provide its expertise in explaining if a CMP should be required for this project. Unable to find an articulation of the County's policy that expressly defines the requirement for doing a CMP study, it may still be the case that the TIA may not be sufficient based on the number of anticipated trips on highway 18. As the justification for not doing a CMP for Skypark was no CMP monitored intersection was identified, and the justification for the Church of the Woods not doing a CMP was not reaching a trip threshold, we are admittedly confused, and respectfully request clarification of the requirement and its triggering conditions. B4.16

Regarding hazards, we see the following statement in the EIR:

Impact 4.8-8 Implementation of the Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires with Mitigation Incorporated.

Based off the California Department of Forestry and Fire Protection (Cal Fire), the Project is not located within a Very High Hazard Severity Zone. The list of areas in San Bernardino County with a Very High Hazard Severity Zone does not include Lake Arrowhead or the Skyforest community. B4.17

THIS IS NOT TRUE maps of currently defined Very High Hazard Serverity Zones can be found here: http://www.fire.ca.gov/fire_prevention/fhsz_maps_sanbernardinosw

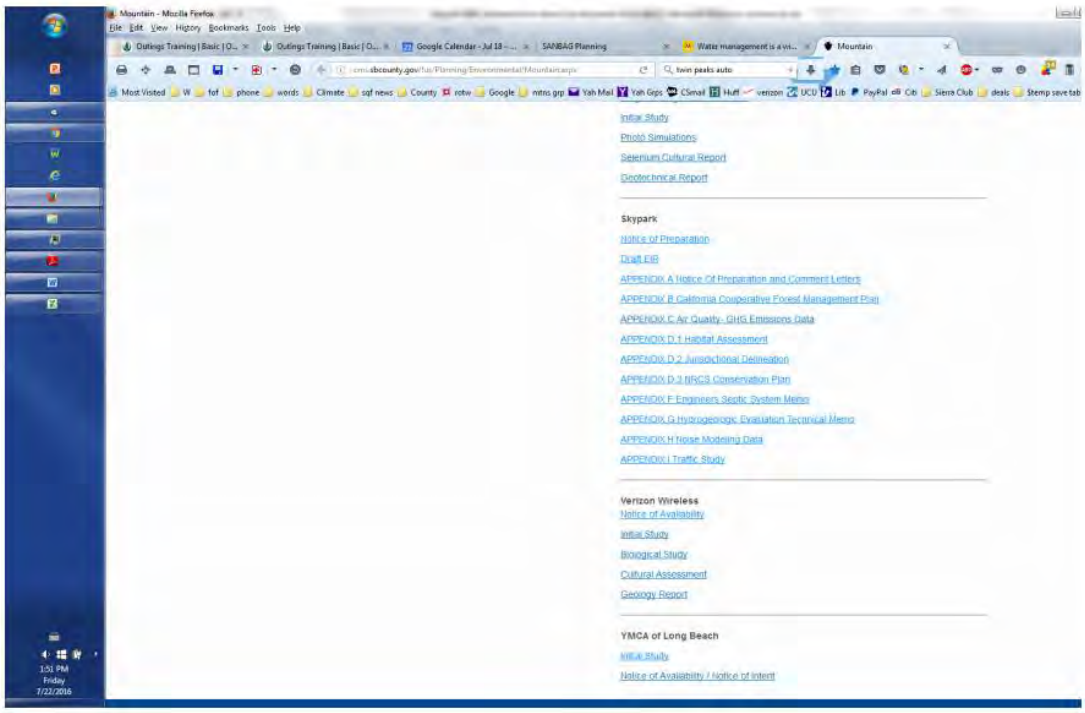
Maps clearly show the project area is fully within a VHFHSZ. Fire Hazard exposure mandates extreme caution with the facilities proposed, and the development of a generic Emergency Evacuation Plan for the purposes of this DEIR is inadequate. Furthermore, once again, the DEIR simply promises the creation of an adequate emergency and evacuation plan, rather than provide it for public review. A full description of the plan should be made available for comments prior to approval.

B4.17
cont'd

Thank you again for your attention,

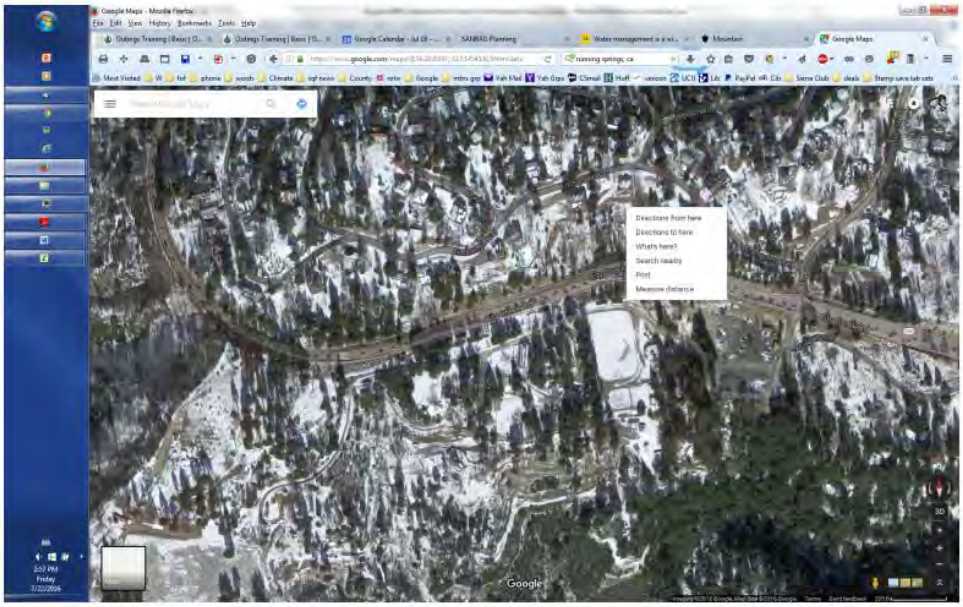
Steven Farrell
Conservation Chair
San Bernardino Mountains Group – Sierra Club

No online notice of availability:



Current (July 22, 2016) Google map view of highway 330 at Live Oak.

Although this is a snapshot of only a small section of the road, traffic has jammed several miles below this site near Running Springs. This is a very common event during holiday peak travel times. This is exactly when Skypark is forecasting its own peak attendance with (from its TIA study), approximately 40% of vehicle trips to Skypark passing this intersection at Live Oak. The traffic analysis inadequately evaluates peak flows, and therefore the County cannot appropriately justify proper mitigations.



Response B4
Steven Farrell, Conservation Chair

B4.1: The DEIR does not contain omissions or errors or make erroneously assumptions in the impact analysis as outlined in further detail in Responses to Comment B4.2 through B4.17 below.

B4.2: The following is the information that was provided in the Notice of Availability related to the public comment period:

"Public Comment Period: The DEIR and its technical studies are available for the CEQA required 45-day public review and comment period from June 7, 2016 through July 22, 2016. Written comments on the Draft EIR and technical studies must be received no later than 4:30 pm on Monday July 22, 2016."

The comment correctly identifies an error in the Notice of Availability that was sent out to agencies, organizations and the public at the release of the public review Draft EIR on June 7, 2016. The error is that the notice indicated that the comments on the DEIR were due on "Monday" July 22, however, July 22 in the year 2016 falls on a Friday. However, the notice clearly states that the CEQA required 45-day public review and comment period is from June 7, 2016 through July 22, 2016. If anyone was confused about the deadline for comments to be submitted to the County for this project, contact information for Kevin White the project planner, was also provided in the notice including a telephone number. Anyone from the public could have called, written an email or letter, or gone to the County building to get clarification related to the deadline for comments. All contact information for Kevin White, the project planner, was correctly provided in the Notice of Availability. The email that was provided in the notice for the County Planner Kevin White "kwhite@lusd.sbcounty.gov" is correct and was correct at the time the Notice of Availability was issued.

B4.3: The analysis contained in the DEIR in Section 4.0-4.17 Environmental Analysis, Section 5.1-5.5 Other CEQA Required Topics, Section 6.0 Effects Found Not to be Significant, Section 7.0 Growth Inducing Impacts, and Section 8.0 Alternatives were all based on the detailed project description contained in Section 3.0.

Section 3.0 of the Project Description does identify snow play activities under the Amusement Park Zone description on page 3.0-28 and under the Santa's Village/ Winter Attractions description on page 3.0-32. The general location of the Amusement Park Zone is provided here. However, the location of the Amusement Park Zone was added to Exhibit 3.0-3, *SkyPark at Santa's Village Site Plan,* to provide further clarification. The proposed activities in the Amusement Park Zone and this location was analyzed as part of the proposed Project throughout the DEIR. The

project description in the DEIR also included a description of the campground Site (page 3.0-33) and the camp fire rings. The exact location of the camp fire rings is not known at this time and was not included on the site plan. Campfire safety and the potential of wildfires was analyzed in the DEIR in Section 4.8 Hazards and Hazardous Materials (page 4.8-19-4.8-21).

The proposed project in the Conditional Use Permit (CUP) application are superseded by the project description in the DEIR. The project description in the DEIR was refined after the CUP application was submitted to the County. The analysis in the DEIR is based on the project description of the DEIR which is the current proposed project. Although special events, such as concerts in the meadow, were held in the past they are not currently proposed. The DEIR project description describes the current proposed project and activities.

Lighting from the campground where the RV's would be located is analyzed in Section 4.1 Aesthetics, Light and Glare, the vehicle exhaust emissions from RV's is accounted for in the trips to and from SkyPark identified in the Traffic Impact Analysis (Appendix I) and the air quality and greenhouse gas emissions modeling (Appendix C). An evaluation of the noise generated by the project, including the campground, is included in Section 4.12 Noise of the DEIR.

Section 3.0 Project Description of the DEIR described the total number of visitors expected in the winter and summer seasons. Per page 3.0-33,

"Peak season for the proposed project is anticipated to be November and December (approximately 2,000 visitors per day). Low season is anticipated to be during spring and early fall. Summer is anticipated to have an average of 1,000 visitors per day. Operating hours are proposed to be 8AM to 10PM. The project is proposed to be fully operational year round, with no planned closures."

The potential impacts to sensitive wildlife species is analyzed in the DEIR, Section 4.4 Biological Resources. This section also includes 25 mitigation measures to reduce potential impacts to biological resources.

The proposed zipline is described in Section 3.0, Project Description, page 3.0-31. However, the location of the ziplines were added to Exhibit 3.0-3, *SkyPark at Santa's Village Site Plan,* to provide further clarification.

B4.4: Refer to Response to Comment B1.3 above.

B4.5: Dogs may be allowed at SkyPark. However, if allowed, they will be required to be on a leash at all times in accordance with the San Bernardino County leash law.

B4.6: The analysis contained in the DEIR identifies the importance of wildlife corridors and indicates that the project is located entirely within a wildlife corridor designated in the San Bernardino County General Plan Open Space Element. As outlined in the DEIR, Section 4.4 Biological Resources, page 4.4-21,

"Habitat linkages provide links between larger undeveloped habitat areas that are separated by development. Wildlife corridors are similar to linkages, but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species but inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

The project site is surrounded by natural plant communities and forest and is located entirely within a wildlife movement corridor, as designated by the San Bernardino County General Plan Open Space Element (Exhibit 8, *Wildlife Corridors* in the HA). The site is located within an area designated simply as "Dispersion Corridor," which provides movement opportunities primarily between the Deep Creek and City Creek designated corridors. The dispersion corridor essentially allows wildlife an area to utilize for traversing the San Bernardino Mountains from the north (Deep Creek) end to the south (City Creek), and vice versa."

The conclusion in the DEIR that the project will not interfere substantially with wildlife movement was based on the fact that the proposed improvements will largely be confined to existing developed/disturbed areas and the undeveloped forest surrounding the existing buildings and infrastructure has the potential to support the movement of muledeer, bobcat, coyote, and black bear through and around the site.

The proposed improvements do not include large structures or perimeter fencing that would impede wildlife movement across the site. The proposed location of the campground is open and largely devoid of vegetative cover due to past fires, use as staging area, and existing paved parking lot. As outlined above, adequate cover is essential for a corridor to function as a wildlife movement area. Thus, the existing camping site area does not provide adequate cover for a wildlife cover. Wildlife moving along the corridor are anticipated to move in a north-south direction on either the east or west side of the open campground area. Therefore, construction of the campground and use of the campground is not expected to interfere substantially with wildlife movement.

As outlined the DEIR, Section 4.4 Biological Resources, page 4.4-45,

"The meadow rehabilitation project will realign, expand, and restore the upstream portions of Hooks Creek and will include removal of the wood chips and other debris that were left behind from previous activities. The meadow rehabilitation project will also entail constructing a lined waterway along the length of the meadow, periodically split by new water/sediment control basins, to connect to an onsite pond. Exotic vegetation and large obstructions will be removed throughout the meadow, and new hedgerows will be planted along its perimeter. Wildlife structures including nest boxes, downed wood, and rock piles will be strategically located at different locations along or near to the new waterway."

Restoration of Hencks meadow includes enhancements that will also improve its habitat function and value for wildlife movement. As outlined in Mitigation Measure MM BIO-6, trails signs and physical barriers shall be strategically placed along the trail, under direction of a qualified biologist, to prevent guests from wandering outside of the trail boundaries. The qualified biologist will ensure that use of physical barriers will not prohibit wildlife movement. Hooks Creek north of and downstream of the existing pond, will not be impacted and will be preserved within the site. Therefore, within the Project site the existing wildlife corridor along Hencks Meadow, the pond, and Hooks Creek will be preserved and enhanced and will continue to provide for unobstructed wildlife movement.

B4.7: The Project site in the past has had more fencing. The previous owners had animals on the site and had perimeter fencing on the site to contain the animals. The current owner has removed this fencing, an estimated 3 miles of it. Currently the site contains no more than a total of approximately 500 linear feet of fencing at two different locations. Two segments of approximately 100 feet of fencing occurs at the driveway of Santa's Village on SR-18 and on the west side of the property along SR-18 where there is a dirt road access for CLAWA easement. These segments of fencing are to control unauthorized access to the site by people. Because the existing fencing is only in short discontinuous segments it is not an impediment to wildlife movement.

B4.8: The Caltrans Wildlife Crossings Guidance Manual is available online at https://roadecology.ucdavis.edu/files/content/projects/CA_Wildlife%20Crossings%20Guidance_Manual.pdf

As outlined in the Manual, Section 1.1.2 Who Should Use the Manual, page 2,

"The intended primary audience for this manual is Caltrans biologists and other technical staff at the agency. It may also be useful to other transportation experts involved in planning, program management, or maintenance that need to know

how roads may affect wildlife and ecological systems in California. "… "Transportation planning decisions have both a regulatory and an ecological context, and the manual seeks to integrate both to provide guidance, in the form of a process illustrated schematically in Figure 1, to those with responsibilities for identifying and mitigating wildlife crossing, listed species, habitat connectivity, and public safety conflicts."

The manual is intended to assist Caltrans and any other agencies planning for new or expanded transportation facilities and avoiding, minimizing, and/or mitigating impacts of those facilities on existing wildlife corridors. The project will construct a new signalized intersection along SR-18 at the modified driveways/entrance in order to provide for safe entrance and exit to the park and campground for both visitors and other drivers using SR-18. The project does not include construction of a new roadway or expanded roadway. Although the Manual provides helpful information, guidance and tools related to crossings of wildlife corridors, it is not directly applicable to the proposed Project.

B4.9: As outlined in Response to Comment A2.2 (from the Lahontan Regional Water Control Board), for the onsite restoration of Hencks Meadow and Hooks Creek the USDA Natural Resources Conservation Service did prepare Drawings and Specifications for the Lined Waterways or Outlet and Water & Sediment Control Basins which include Detail Plans for the Water & Sediment Control Basins and Lined Waterways. Both of these documents have been added to the EIR Appendices, in Appendix K, Drawings and Specifications, in response to comments on the DEIR to allow for public and agency review of these documents. The Drawings and Specifications include Practice Standards, Job Classification, Design Calculations, Environmental Assessment, Utility Check Sheet, Engineer's Cost Estimate, Operation & Maintenance Requirements, Practice Specifications, Practice Requirements, and Construction Drawings. The construction drawings or detail plans include the overall plan view, plan view and profile views of the three sediment basins (south, middle, and north), and section views of the rock lined waterways (south, middle and north).

The existing hydrology of the site is outlined in the DEIR, Section 4.9 Hydrology and Water Quality, page 4.9-1 to 4.9-2,

"The entire Santa's Village attraction area between attractions/buildings was paved with asphalt. Stormwater runoff from the developed park area and surrounding forested area to the park area and parking lot are conveyed via sheet flow downslope to the park area and into v-ditches and corrugated pipes to the northern portion of the developed site and end of paved parking lot to the disturbed grassy meadow. Stormwater runoff is conveyed in a northern direction through the disturbed meadow in a small incised channel to a manmade pond."…

"Stormwater runoff originating north of SR-18 sheet flows for approximately 700 feet across the existing paved parking lot of Santa's village before flowing into the grassland meadow. Hooks Creek extends through Hencks Meadow for approximately 530 feet before it continues for approximately 420 feet through the area previously disturbed when it was used as a storage yard and staging area for the bark beetle infested lumber. Hencks Meadow is a natural, narrow meadow located northeast of the existing parking lot north of SR-18, along the property's eastern boundary. Per a 1953 USGS topographic map, Hooks Creek was mapped as intermittent in the Hencks Meadow area and perennial downstream of Hencks Meadow. After the disturbed area, Hooks Creek extends through a southern willow scrub plant community for approximately 1,200 feet before exiting the property."

Currently stormwater runoff from the Santa's Village attraction and the existing parking lot sheet flow to the meadow. In storm events that are large enough to generate flows from the existing developed area of Santa's Village and the parking lot, storm water runoff would be expected to pick up sediment and debris (bark chips) and convey them to the meadow and incised channel of Hook's Creek. Sediment and debris are deposited in the meadow and in the pond.

Per the NRCS Drawings and Specifications for the Lined Waterways or Outlet and Water & Sediment Control Basins a water and sediment control basin will be constructed directly south of the existing parking lot. The outflows from this basin will be conveyed via a rock lined waterway to two additional water and sediment basins, in series, before outletting to the existing pond. All stormwater runoff from the developed areas of SkyPark south of SR-18 will be directed to the series of debris basins. Sediment, trash, and debris that are conveyed in stormwater runoff from the developed areas of SkyPark will settle out in this basin and will be removed from the basin through regular maintenance of the basin.

As outlined in the NRCS' Drawings and Specifications, the purpose of the water and sediment basins is to be applied as part of a resource management system for one or more of the following: to reduce watercourse and gully erosion; to trap sediment; to reduce and manage onsite and downstream runoff. The lined waterway and water and sediment control basins were designed by a qualified NRCS engineer in accordance with NRCS standards and guidelines. The lined waterway and water and sediment control basins will provide stormwater runoff control and water quality treatment for the stormwater runoff from the developed areas of SkyPark (north of SR-18) prior to discharge to the undisturbed portion of Hooks Creek onsite (downstream of the pond) and offsite.

B4.10: Refer to Response to Comment B4.9 above.

B4.11: Refer to Response to Comment B4.9 above.

B4.12: Peak hour trips used in traffic analyses are not intended to represent the greatest number of all vehicles on a roadway at a given time or the greatest traffic congestion. Peak hours, as used in the Traffic Impact Analysis, are the days and times when the greatest number of trips are generated from a project. For the SkyPark project, it was determined with consultation with Caltrans and the County that intersection traffic impacts would be evaluated for Saturday and Sunday during the morning peak hours (9:00 am to 11:00 am) when the highest number of park guests will be arriving and afternoon peak hours (2:30 pm to 4:30 pm) when the highest number of park guests will be departing. Therefore, peak hour trips are specific to the days and times when the Project generates the greatest number of trips.

Traffic counts are taken to determine the existing intersection traffic volumes, or existing conditions. For the purposes of the Traffic Impact Analysis the peak hour trips generated by a given project are added to the existing intersection conditions to determine impacts from that project on the condition of various intersections. The traffic counts were taken on a Saturday and Sunday during the morning and afternoon peak hour timeframes for the SkyPark project.

As outlined in the Traffic Impact Analysis, Appendix I of the DEIR, page 1 "The methodology and assumptions used in this analysis were established in conjunction with the interim *Traffic Impact Study Guidelines* (County of San Bernardino Department of Public Works Traffic Division, April 2014) as well as with the California Department of Transportation (Caltrans). The analysis presented in this traffic study incorporates all previous response to comments from Caltrans and the County of San Bernardino staff on earlier draft reports; specific comments are available in the appendices." The Traffic Impact Analysis, including traffic counts, was prepared in accordance with State and local standards.

It is acknowledged that bad weather, such as snow or ice on the roads, dense fog, and/or heavy rain creates dangerous driving conditions and can adversely affect traffic. It is anticipated that when the weather is bad less visitors would travel to the mountains and to SkyPark. Therefore, bad weather would be anticipated to result in less trips to and from the Project not an increase in trips.

B4.13: The Skypark traffic analysis did include a Year 2035 cumulative analysis that reviewed the SANBAG long-range computer model that projects traffic to represent buildout conditions. To the extent that the Church of the Woods project does proceed, the land use assumptions in the long-range model would include development on that site.

Church of the Woods is a proposed future project however it has not been approved by the County. A Notice of Preparation of Environmental Impact Report for the Church of the Woods Project for a tentative parcel map and conditional use permit was posted on the County's website February 10, 2005. A Notice of Availability of the Draft Environmental Impact report for the Church of the Woods Project was posted on the County's website for a public review comment period from April 19, 2010 until June 3, 2010. The Church of the Woods project proponents have informed the County that the proposed project is being revised. As the Church of the Woods project is not an approved project, the County cannot require it to be analyzed in the SkyPark Traffic Impact Analysis and DEIR. Further, since the proposed Church of the Woods project is being revised it would be speculative to try to identify the actual trips generated from the revised Church project to include in a cumulative analysis for the SkyPark project.

However, it was the applicant's decision to have the traffic consultant conduct a cumulative analysis including the SkyPark and the Church of the Woods project, using the information contained in the Church of the Woods Traffic Study for the 2010 DEIR which is still available on the County's website (http://cms.sbcounty.gov/lus/Planning/Environmental/Mountain.aspx). The following paragraph is an excerpt from the make this clear, here is an excerpt describing the projected trip generation of the Church of the Woods traffic impact analysis:

"The Sunday peak hour trip generation was calculated based on estimated church attendance. The church will have two Sunday services: 8:30 to 10:00 a.m. and 11:00 a.m. to 12:30 p.m. There will be one hour between services, during which time the attendees from the first service will depart and the attendees of the second service will arrive. Based on current attendance and future projections, it is expected that each service will have 500 attendees by 2009 and 1,200 attendees by 2013. Attendees will arrive and depart via automobiles with an average occupancy of three persons per vehicle. Based on these assumptions, the church is projected to generate 334 trips during the Sunday peak hour in 2009 and 800 trips during the Sunday peak hour in 2013 and 2030."

The projected traffic from the previous Church of the Woods traffic analysis has been added to the cumulative analysis conducted for the Skypark project, added to the DEIR as Appendix L, Cumulative Traffic Analysis with Church of the Woods. Full build-out plus project conditions (Year 2035) with Church of the Woods Project was evaluated for Saturday peak hour levels of service as well as Sunday peak hour levels of service. Even with the Church of the Woods added to the Sunday morning long-range cumulative analysis, no intersections are

projected to operate at Level of Service E or F and therefore the conclusions of the Skypark EIR are still valid.

B4.14: No evidence is provided in this comment that relates to the adequacy of the traffic analysis contained in the Traffic Impact Analysis or the DEIR. The traffic analysis contained in the Traffic Impact Analysis and DEIR for the SkyPark project is thorough, adequate pursuant to CEQA, and does not need to be recirculated.

B4.15: According to SANBAG's website on the Mountain Area Transportation Study (http://www.sanbag.ca.gov/planning2/study_mtn-area-transport.html) the study is to identify and analyze the major and secondary arterials and intersections that provide access to, from, and within the San Bernardino Mountain communities. The primary goal of the effort is development of a sub-regional transportation improvement plan that identifies key projects that address both existing and forecast deficiencies during both peak summer and winter seasons. The study recommendations would not include costly new roadway facilities or realignments but would rather include operations-type capacity improvements that could then be prioritized and funded by local agencies and Caltrans. The focus is primarily on the identification of traffic bottlenecks and potential improvement options with recommendations and implementation plans.

While it is true the SR-173 at SR-18 will become more of an issue with additional development, the SkyPark Traffic Impact Study included analysis for this intersection throughout the document as one of six intersections analyzed, including pages 10, 18, 19, 25, 26, 31, 32, 44, 45, 54, and 55 among other areas of the study. The analysis contained in the Draft EIR included the project's impacts on the SR-173 at SR-18 intersection and conveyed the trips generated by the project and the impact of those additional trips on the affected roadway network per the SkyPark Traffic Impact Study results. Thus, the Traffic Impact Analysis and DEIR evaluated the intersection of SR-173 and SR-18 and found no significant project impact under Existing + Project, Opening Year + Project, and Year 2035 Cumulative + Project.

B4.16: According to SANBAG's website on the San Bernardino County CMP, 2016 Update (http://www.sanbag.ca.gov/planning2/cmp/CMP16-Complete-061416.pdf), a Congestion Management Program (CMP), under Proposition 111, is required within each county with an urbanized area having a population of 50,000 or more, to be developed and adopted by a designated Congestion Management Agency (CMA). In 1990 SANBAG was designated the San Bernardino County CMA by the County Board of Supervisors and a majority of the cities representing a majority of the incorporated population. While this interjurisdictional approach provides political and technical consistency for future development within the County, the CMP is only a mechanism to be used to guide efforts in a more efficient

manner. It is not to be considered a replacement to the Regional Transportation Plan (RTP). As such, a CMP would not be a document completed by a project applicant, but rather by a CMA, or SANBAG in this context. Because there are no CMP arterial monitoring intersections in the project vicinity, no CMP analysis for compliance is required for this project. In addition, per the CMP guidelines only projects that generate greater than 250 peak hour trips require this analysis.

B4.17: It is correct that Lake Arrowhead and the Skyforest community is not located within the list of areas with a Very High Fire Hazard Severity Zone as stated in the DEIR, Section 4.8 Hazards and Hazardous Materials, page 4.8-19, as accessed on the Cal Fire website, as identified in the Section 9.0 References of the DEIR. It is also correct that the maps referenced in the comment do show the project is within a Very High Fire Hazard Severity Zone on the maps. So there is a discrepancy between the two different maps referenced. However, the DEIR analysis was based on the recognized increased fire risk of the Project site and the surrounding forested areas.

The property owner partnered with the National Resources Conservation Service (NRCS) to prepare and implement a California Cooperative Forest Management Plan (CCFMP) for the project site. The plan objective is to increase the forest's defense against fire, as well as maintain a healthy forest for recreational purposes by managing areas with overgrown chaparral and shade tolerant trees. The CCFMP also includes creation of sheltered fuel breaks along roads and near structures for future fire prevention or spread. Thus, the CCFMP is a key component in reducing the rate of spread and intensity of potential wildfires by removing, thinning, or pruning flammable vegetation to obtain a vertical and horizontal separation of fuels in the Project site. Although, the commenter identified a discrepancy in identification of the Project site within a "Very High Hazard Severity Zone," this does not change the analysis or findings in the DEIR, as the analysis contained in the DEIR already took into consideration that the Project site is in a high fire hazard area and identified mitigation measures to ensure potential impacts associated with fire risks are reduced to less than significant levels.

Comment Letter B5 – Steve Loe

From: **Steve Loe** steveloe01@gmail.com
Subject: SkyPark DEIR Comments
Date: July 22, 2016 at 3:08 PM
To: kevin.White@lus.sbcounty.gov
Cc: Hugh Bialecki habialeckidmd@gmail.com, Steven Farrell mr_sql@yahoo.com, Bob Sherman silabob@gmail.com

Thank you for the opportunity to comment.

1. There needs to be more recognition of the potential adverse effect on wildlife movement if the project is not carefully controlled. There needs to be specified lighting that will best protect the undeveloped open space from the adverse effects of lighting. B5.1

2. Noise needs to be controlled with no loud music etc., especially at dusk or after dark. B5.2

3. Use needs to be pulled back to the developed core area an hour or so before dark except for excursions specifically designed to watch wildlife and study nature. Use of perimeter trails at this time should be very controlled as to reduce disturbance of the wildlife corridor/linkage. B5.3

4. There needs to be a mechanism to prevent the creep of additional development on site as the years go by to keep the open space and suitable habitat from shrinking. New permissions should be required for any substantial change to the proposed use. B5.4

5. The determination that much of the property is not suitable for southern rubber boa appears to be in error. Habitat toward the ridge seems to have been considered unsuitable. Ridgetops are some of the most consistently occupied areas in the mountains. I would have to see what the authors based their conclusion on. It is not described. B5.5

The project has great potential to be good for the community, but the continued use of this important area for wildlife is also very important to the community. We need to be careful in our use.

Steve Loe
Certified Wildlife Biologist
33832 Nebraska St.
Yucaipa, CA 92399

Response B5
Steve Loe, Certified Wildlife Biologist

B5.1: As outlined in Response to Comment B4.6 above, the analysis contained in the DEIR identifies the importance of wildlife corridors, indicates that the project is located within a wildlife corridor, and includes an analysis of the potential impacts from the Project on the wildlife corridor (DEIR, Section 4.4 Biological Resources, page 4.4-21 to 4.4-50). Also a detailed discussion of potential lighting impacts is included in Section 4.1 Aesthetics, Light and Glare and mitigation measures were incorporated to ensure potential impacts from light are reduced to less than significant levels.

B5.2: As outlined in the DEIR Section 4.12 Noise, the potential noise impacts from the project, including those from construction, traffic generated by the project, operations (including PA system, live music, crowd noise, campground, and parking lot noise) were thoroughly analyzed. Mitigation measures were incorporated to ensure potential impacts from noise are reduced to less than significant levels.

B5.3: All trails are closed down one hour prior to dark for the safety of park visitors. The only exception is the Fantasy Forest Trail which has lighting, all other trails do not have lighting. The trails are closed down one hour prior to dark so that visitors using the trails have ample time to exit the trails and return to the Amusement Park Zone before it gets dark.

B5.4: The DEIR, Section 3.0 Project Description, page 3.0-28 outlines the additional uses and amenities that may be added to the Amusement Park Zone in the future. No other expansion of uses or additional development is allowed outside of this area without a request to the County to amend the Conditional Use Permit and without subsequent CEQA review by the County.

B5.5: A Biological Assessment for Southern Rubber Boa was conducted for the SkyPark at Santa's Village project site and was included in Appendix D of the Draft EIR. As outlined on the 2nd page of this report, "Habitat for rubber boa includes mixed conifer-oak forest and woodland habitats at higher elevations in the San Bernardino and San Jacinto Mountains, at elevations between approximately 5,000 to 8,000 feet (Stewart 1988, 1991). In the San Bernardino Mountains, most of the records occur in roughly 10-mile stretch of habitat between Twin Peaks on the west and Green Valley on the east, including the Running Springs and Lake Arrowhead areas (Stewart 1988, 1991). Populations appear to be isolated, with tracts of apparently suitable habitat unoccupied. Dominant trees in occupied areas include Jeffrey pine (Pinus jeffreyi), ponderosa pine (Pinus ponderosa), sugar pine (Pinus lambertiana), white fir (Abies concolor), incense cedar (Calocedrus decurrents),

and black oak (Quercus kelloggi) (Stewart 1988). In a multi-year study of the southern rubber boa in the San Bernardino Mountains, Hoyer and Stewart (2000a) found southern rubber boas in a variety of vegetation types and slope aspects, but all collection sites were on or around small to large rock outcrops, which are apparently important as hibernacula (Keasler 1982, Stewart 1988). In all habitat types, rock outcrops, rotten logs and a thick litter/duff layer are considered important habitat components because they provide cover and mountain soil moisture (Loe 1985)."

"Stewart (1988) suggests that rock outcrops on southern exposures tend to be favored in the spring and that as the weather becomes warmer and dryer the snakes may move into cooler and moister habitats such as riparian areas and forest, but acknowledges that there is practically no data on their seasonal movements. Later, Hoyer and Stewart's (2000a) 5-year study produced evidence of high site fidelity by boas, with 19 of 21 recaptures being within 26 feet of their original capture location, and the two farthest recaptures being approximately 231-247 feet from their original capture location. One southern rubber boa is reported as moving up to 300 yards in a single season (Loe 1985)."

The description of suitable habitat outlined above, as described in the Biological Assessment for Southern Rubber Boa, was based on the following: publications in the Journal of Herpetology (Hoyer and Stewart 2000a) and Southwestern Herpetologists Society (Stewart 1988), a report prepared for the US Fish and Wildlife Service on the status of the southern rubber boa (Stewart 1991), a southern rubber boa survey report prepared for the US Department of Agriculture, Forest Service, San Bernardino National Forest (Keasler 1982), and a habitat management guide for the southern rubber boa on the San Bernardino National Forest (LOE 1985).

As outlined in the Conclusions section of the Biological Assessment for Southern Rubber Boa, "Suitable habitat occurs for the southern rubber boa in the mixed conifer forest at the north end of the site in association with the rock outcrops, rotten logs, leaf litter, and the mesic habitat along Hooks Creek north of the reservoir. Suitable habitat also occurs on the slopes southeast of the reservoir where numerous fallen trees, and rotten logs, and leaf litter were observed. Based on these conditions, the potential occurrence of the southern rubber boa is high to moderate-high in those areas, respectively. Moderately suitable habitat occurs in the mixed conifer forest north and east of the reservoir where rotten logs, leaf litter, and mesic conditions occur but no rock outcrops were observed. The mixed conifer forest habitat south of the reservoir is essentially devoid of rock outcrops and most of the downed trees and logs have been removed from the site, although mesic conditions exist under the canopy in some areas. The potential occurrence of the

southern rubber boa is low in that area. South of State Route 18, most of the habitat is disturbed or dominated by annual grasslands and montane chaparral where conditions are relatively dry. Southern rubber boas are no expected in this area, or in the open meadows, disturbed habitats, and developed portion of the site north of State Route 18. An estimate of the extent and quality of suitable habitat is provided in Exhibit 4." [Exhibit 4 of the Biological Assessment for Southern Rubber Boa, Appendix D of the DEIR].

Comment Letter B6 – Susan V. Walker

Susan V. Walker

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July 11, 2016

County of San Bernardino
San Bernardino County Land Use and Services Department
Planning Division
385 North Arrowhead Avenue, First Floor,
San Bernardino, California 92415

SKYPARK AT SANTA'S VILLAGE
Draft ENVIRONMENTAL IMPACT REPORT
SCH No. 2015091001

Dear Land Use and Services, Planning Division:

In the SkyPark DEIR Project Description 3.0 on page 24, it is stated that an amendment to the Lake Arrowhead Community Plan Policy LA/CI 1.14 will be sought. The purpose of the amendment according to the applicant is "to provide additional clarification and specificity for implementation while retaining the initial intent of the policy". I disagree with the purpose of their amendment and also disagree that it retains the initial intent of the policy.

The purpose of Lake Arrowhead Community Plan Policy LA/CI 1.14 is to provide a safe evacuation route for hundreds of residents on Cumberland Rd. It is currently a condition if there is development in the adjacent area that Cumberland Rd. be extended. It was this policy that was fundamental to the successful court case against Hawardan's plans for the Blue Ridge area.

The applicant wants to amend the policy, so that the extension would only happen if there is a new residential subdivision. This means SkyPark would be built and would bring up to over 1,000 cars a day to the area. The Cumberland Dr. extension is all the more important for the free flow of traffic and for emergency evacuation, if SkyPark is built. The amendment to the Lake Arrowhead Community Plan should not be allowed.

Currently Cumberland Rd. is a Mountain Secondary road with a 60 ft. right away. This is a suitable designation and width for an important road for traffic flow and emergency evacuations. This is found in the County's General Plan Circulation Element, as shown on Figure CI-2, *Major Roads and Freeways – Mountain Region.* The applicant wants to downgrade the road to 40 ft. width, so that it becomes a Local Road. Local Roads aren't even listed in the County's General Plan Circulation Element, as shown on Figure CI-2, *Major Roads and Freeways – Mountain Region.* The extension would only be built if a new residential subdivision was granted approval. There is an unknown amount of time

B6.1

that there would be no emergency access for Cumberland Rd. residents. Cedar Glen residents would also benefit from the extension.

I have attended both Lake Arrowhead Community Plan 2016 meetings. No one has requested such an amendment for the future community plan. This amendment is for the sole purpose of saving SkyPark money and it is to the detriment of the residents of Cumberland Rd and the Cedar Glen area. Safety has to come before profits.

Later in the DEIR (4.16 – 60) it is stated: "Therefore the proposed Project will not conflict with the potential future implementation of the Lake Arrowhead Community Plan Policy LA/CI 1.14." But that is only if the LA Plan is amended and I am against that amendment. The Cumberland Rd. should be extended for safety. Then the DEIR says that the Local Road will still allow the same access to fire equipment. BUT that is only if it is built. The Applicant wants to change the extension to be dependent on new residential development. It is unknown when or if that will happen. SkyPark should extend Cumberland Rd. as required in the Lake Arrowhead Plan.

B6.1 *cont'd*

The Final EIR should include another alternative: a reduced size project. It may be the Environmentally Superior Alternative.

B6.2

The Environmental Impact Summary (4.3 - 2) does not include the exhaust of cars arriving and departing. Cars will idle as families look for parking spaces or are delayed by congestion. This will affect Air Quality and Greenhouse Gas Emissions. Those two sections should be revised to reflect the exhaust from vehicles. Such a revision will undoubtedly change the 2,900.48 MTCO/yr in Table 4.7 -1 "Estimated Greenhouse Gas Emissions" to over the 3,000 MTCO/yr limit. Going over that limit means that the Final EIR will have to deal with mitigation for Greenhouse Gas Emissions. In my remarks for the Scoping session, I mentioned mass transit. I don't see any effort to utilize mass transit to bring people to the park. If a Mountain Transit bus stop is needed then SkyPark should build the stop.

B6.3

The Emergency Evacuation Plan 4.8 -7 is incomplete. The extension of Cumberland Rd. will be pivotal in an emergency. The applicant says there is no mitigation necessary for evacuation. SkyPark should have an Emergency Plan for Wildfires and Earthquakes.

B6.4

In section 4.16 Transportation & Circulation there is the use of "Lake Forest" twice. It appears to be an error.

B6.5

On 4.16 – 14 the Applicant states that Mt. Transit's existing routes are M – F, so no further transit analysis was done. This is incorrect. Please check: http://mountaintransit.org/route/rim-off-the-mountain/#schedules The schedule provides on/off the mountain routes connecting with Big Bear and even Los Angeles via San Bernardino. Mt. Transit should be approached about extending its weekend service to SkyPark. Bill Priest, active with SkyPark, is on the Mt. Transit Board. I'm sure he can be very helpful. The Final EIR needs a more thorough Transit Analysis. This will help Air Quality and Greenhouse Gas Emissions

B6.6

San Bernardino County General Plan Transportation Goals (4.16 – 21) aims for shuttle service from residents to recreation areas. (M/CI 1.11) Shuttle service is a great idea for the Final EIR. It also wants new development to be consistent with road capacity. (M/CI 1.16). If SkyPark overwhelms the capacity of the road systems then we will have delays, air quality problems and an increase in Greenhouse Gas Emissions.

B6.6 *cont'd*

The Trip Generation Handbook doesn't have a land use category for SkyPark (4.16 – 27/28) This lack of information does call into question the accuracy of trip generation numbers in the DEIR. It also influences the Level of Service designations.

B6.7

It is good under Transportation Demand Management (4.7 – 27) that there will be efforts for employee ride sharing. Mountain Transit should be approached to reduce employee cars commuting.

B6.8

Thank you for the opportunity to submit my comments.

Sincerely,

Susan V. Walker
Sierra Club Member

Response B6
Susan V. Walker, Sierra Club Member

B6.1: Refer to Response to Comment B1.1 above.

B6.2: Refer to Comment B1.3 above.

B6.3: Refer to Response to Comment B1.2 above related to GHG analysis. Refer to Response to Comment B3.7 regarding Mountain Area Regional Transit and a new stop at SkyPark.

B6.4: Refer to Response to Comment B.1.1 above. An Emergency Evacuation Plan was prepared for the SkyPark project.

B6.5: Comment noted. The use of "Lake Forest" is incorrect and should have been "Skyforest." This is corrected in the Errata to the DEIR.

B6.6: Mountain Transit currently provides a route that operates on Saturday with two stops as part of its Rim Off-the-Mountain route. As outlined above in Response to Comment B3.7 regarding Mountain Area Regional Transit plans to add a new stop at SkyPark. The vehicle emissions from visitor trips to SkyPark assumed no public transportation. When Mountain Area Regional Transit includes a new stop at SkyPark and visitors utilize this public transportation service, the total trips to SkyPark, and associated vehicle emissions would decrease.

B6.7: Attachment A of the SkyPark Traffic Impact Study, states, "The Institute of Transportation Engineers Trip Generation Manual, 9th Edition does not contain a land use category that accurately describes the potential development at Skypark at Santa's Village. Therefore, as described in the ITE Trip Generation Handbook, a trip generation estimate was developed from known data about the land use.

The Project trip generation is based on the Peak, Design, and Average Day visitor attendance levels for the Project as supplied by the Project Applicant. These visitor attendance levels were based on historical activity levels at the Project and represent a conservative estimate of the likely usage patterns for the Project.

Southern California theme park/visitor attraction mode split and vehicular average vehicular ridership (AVR) levels were used to convert the daily attendance levels to vehicle trips. Hourly travel patterns from theme parks and major visitor attractions were used to identify the likely peak hours of operation for vehicular traffic entering and leaving the Project. Weekday vs. weekend activity levels were reviewed with the Project Applicant and compared to theme park/visitor attraction patterns. The trip generation estimates were based on the above assumptions and developed using a trip generation model that was

developed by GTC for use in theme park and visitor attraction land uses. The model has been applied to Disneyland, Universal Studios Hollywood, LEGOland Carlsbad, Arizona Cardinals Football Stadium, Dodger Stadium, Angels Stadium, STAPLES Center, Honda Center Anaheim, and dozens of international theme park projects. Finally, the entire trip generation package was reviewed with San Bernardino County and Caltrans staff to gain their approval prior to commencing with the traffic impact study.

It was determined that the trip generation assumptions and results appeared reasonable and the Design Day estimates were approved for use in the traffic impact study. The Design Day Saturday conditions were selected as the most appropriate time frame for the study as this represent the greatest combination of background and Project traffic levels.

B6.8: Refer to Response to Comment B3.7 above.

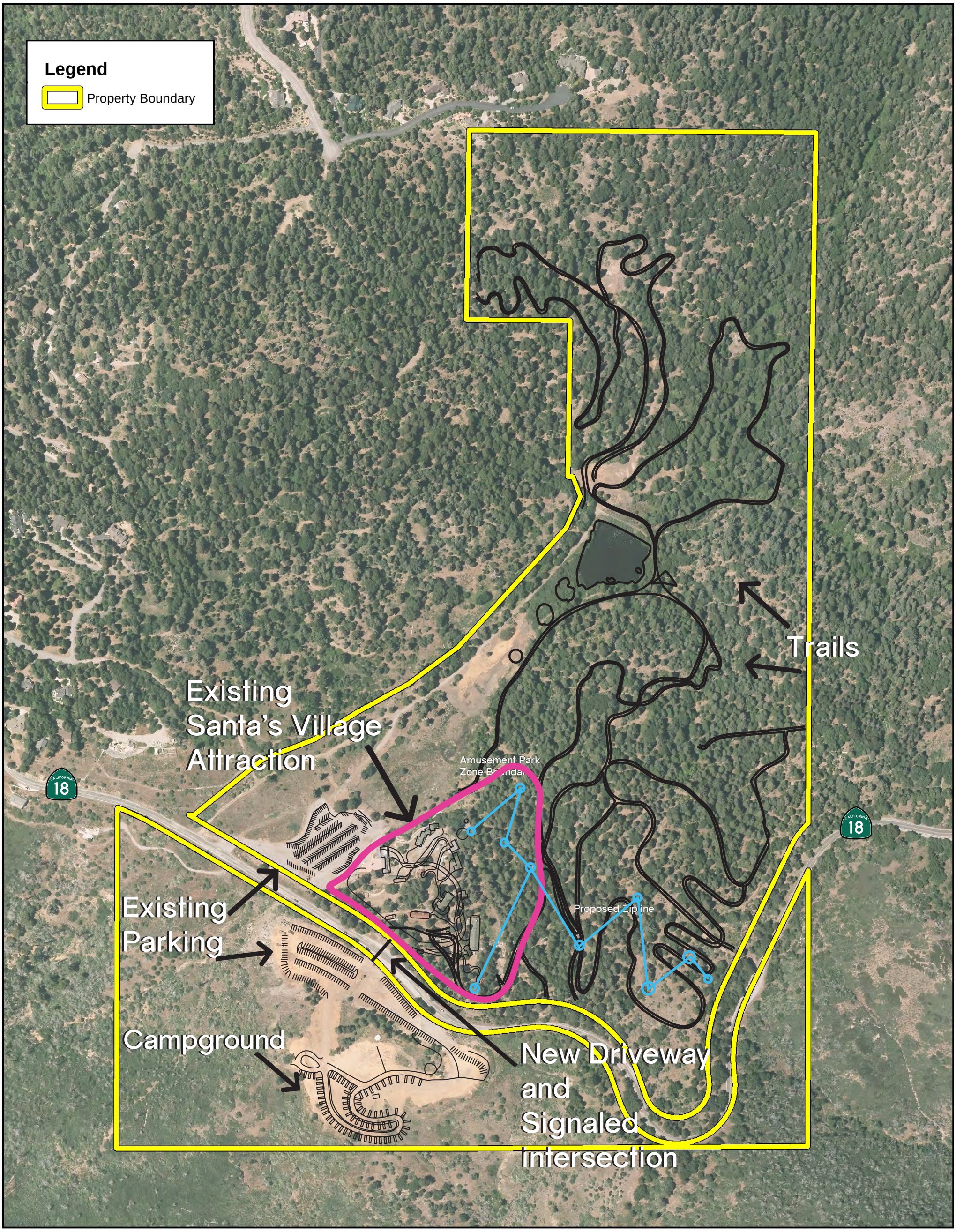
ERRATA

DRAFT PROJECT EIR TEXT

Changes to the Draft EIR are noted below. Underlining indicates additions to the text; striking indicates deletions to the text. The changes to the Draft EIR do not affect the overall conclusions of the environmental document. These errata reflect minor County staff and agency initiated technical questions to the Draft EIR. These clarifications and modifications are not considered to result in any new or more severe impacts than identified in the Draft EIR, and are not otherwise deemed to warrant Draft EIR recirculation pursuant to *CEQA Guidelines* §15088.5. Changes are listed by page and where appropriate by paragraph. Added or modified text is shown by underlining (<u>example)</u> while deleted text is shown by striking (~~example~~).

Chapter 3.0 Project Description, page 3.0-7

Revised Exhibit 3.0-3, SkyPark at Santa's Village Site Plan



SKYPARK AT SANTA'S VILLAGE PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

RVA

Michael Baker INTERNATIONAL

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Source: San Bernardino County, Eagle Aerial 2013

SkyPark at Santa's Village Site Plan

Exhibit 3.0-3

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Chapter 4.4 Biological Resources, page 4.4-29

MM BIO-1: A qualified biologist or botanist shall conduct a pre-construction clearance survey for special-status plant species on the project site during the appropriate blooming period prior to trail creation or construction in new areas. If present, any special-status plants shall be clearly flagged for avoidance with a suitable buffer zone during construction by the qualified biologist/botanist. Physical barriers shall be strategically placed as directed by the biologist/botanist around any identified special-status plant species, preventing guests from entering these areas. A letter report summarizing the results of the pre-construction plant survey and any placement of physical barriers to protect special-status plants shall be prepared by the biologist/botanist and be submitted to the San Bernardino County Land Use Services Department. ~~If in the unlikely event that avoidance is not feasible, the project applicant shall discuss potential relocation strategies with applicable regulatory agencies and obtain approval prior to activities that result in impacts.~~

Chapter 4.4 Biological Resources, page 4.4-31

MM BIO-6: All trails shall be kept in a maintained state sufficient to clearly determine where the trail lies. Where trails are located within and adjacent to sensitive habitat areas, signs and physical barriers shall be strategically placed along the trail, under direction of a qualified biologist, ~~discouraging~~ to prevent guests from wandering outside of the trail boundaries and to inform them off-trail use of the park is strictly prohibited and enforced and will result in ejection from the park without a refund of any entry fees.

Chapter 4.4 Biological Resources, page 4.4-32

MM BIO-7: A qualified biologist shall conduct a pre-construction clearance survey for special-status wildlife species (including California spotted owl, San Bernardino flying squirrel, and southern rubber boa) on the project site immediately prior to trail creation or construction in new areas. Special-status wildlife shall be avoided by waiting for them to leave an area before working in it. A letter report summarizing the results of the pre-construction clearance survey for special-status wildlife species shall be prepared by the biologist and be submitted to the San Bernardino County Land Use Services Department. ~~If avoidance is not feasible, the project applicant shall consult with CDFW on potential relocation strategies that shall be approved by CDFW prior to~~

~~initiation of the construction activities that result in impacts. Relocation or any other disturbance to southern rubber boa shall require obtaining a CESA Section 2081 Incidental Take Permit from CDFW which will outline conditions to ensure impacts are minimized and fully mitigated.~~

Chapter 4.4 Biological Resources, page 4.4-44

MM BIO-25: Prior to any new work (e.g. clearing for trail construction or maintenance) that are conducted in suitable habitat for southern rubber boa, all duff, debris, and downed logs in proposed work areas shall be examined for southern rubber boa by a biologist no more than 5 days prior to disturbance; the biologist conducting this survey must hold a Memorandum of Understanding from the CDFW allowing take of southern rubber boa. During construction or maintenance, a qualified biologist familiar with southern rubber boa ecology and identification shall be on-site at all times to monitor for southern rubber boa in the work area(s). Any incidences of injuring or killing an individual southern rubber boa shall be reported immediately to SkyPark Management who shall notify CDFW within 24 hours.

The qualified biologist shall be responsible for submitting daily construction or maintenance monitoring reports, noting specifically if any southern rubber boa refugia (e.g., downed logs, boulders) were disturbed during construction or maintenance and/or if any southern rubber boa were found, and if so, the quantity of each and its condition at the time that the construction or maintenance site was left for the day. In addition, a final monitoring summary will be written upon completion of the monitored work and submitted to CDFW within 30 calendar days of construction or maintenance completion. The report shall include start and end dates of the monitored work, known project effects on southern rubber boa, occurrences of incidental take of southern rubber boa, and other pertinent information regarding the success or failure of the monitoring in protecting southern rubber boa.

MM BIO-26: Approximately twenty acres (20.2 acres) of high quality southern rubber boa habitat in the northernmost extent of the project site will be set aside as mitigation lands for the project. A restrictive covenant will be placed over these 20.2 acres and will provide for

conservation of that property in perpetuity (refer to Exhibit 4.4-5, *Conservation Area*).

The conservation area will not undergo any new development of any kind. Some maintenance of the existing road and biking trail segments located in the conservation area may be necessary after severe weather events. Any new, illegal trails into this area will be immediately closed off with a berm, rocks, or a similar method to discourage guests from using them and will be restored to original conditions.

To protect the mitigation area, SkyPark Management shall place appropriate fencing and/or natural barriers and signage around the perimeter of conservation area. Except for existing trails in the conservation area (portions of existing single track bike trail and existing access road), the public shall not have access to the mitigation area, and no activities shall be permitted within the site, except maintenance of habitat, including the removal of nonnative plant species, trash, and debris, and the installation of native plant materials.

Chapter 4.4 Biological Resources, pages 4.4-45 and 4.4-46

Impact 4.4-2 Implementation of the Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. This impact would be *less than significant*.

As per the Jurisdictional Delineation Report (JD), approximately 1.49 acres of USACE jurisdiction (non-wetland waters) is located within the boundaries of the Project site. Approximately ~~2.8~~ 5.7 acres of Regional Board jurisdiction and California Department of Fish and Wildlife streambed is located within the boundaries of the Project site. There is a total of four drainage features present on the project site; Hooks Creek and three unnamed ephemeral drainage features (Drainages 1-3). Due to historic on-site land uses (timber farm), the upstream portions of Hooks Creek are heavily disturbed and covered with remnant debris from the processing and staging of timber.

In agreement between SkyPark and the NRCS, the proposed project includes the rehabilitation of Hencks Meadow (restoration and improvement of the upstream portions of Hook Creek). Since there is an established agreement between SkyPark and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Clean Water Act Section 404 permit is not required from USACE.

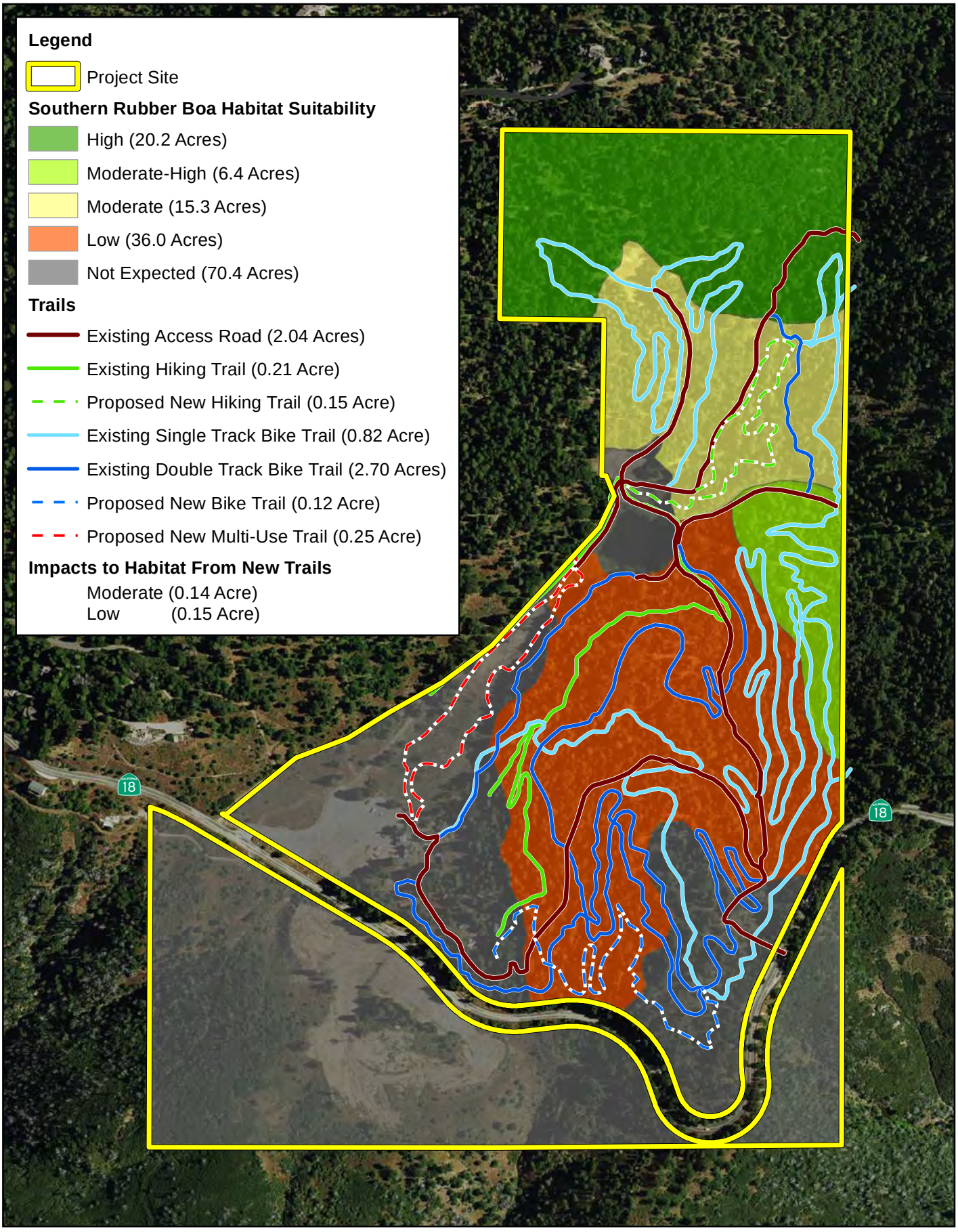
~~Based on the preliminary design plans, the proposed Project improvements and meadow restoration will result in 0.18 acre of temporary impacts to waters of the US under the jurisdiction authority of USACE and the Regional Board.~~

The proposed Project improvements will result in ~~0.05~~ 0.29 acre of permanent and ~~0.35~~ 0.53 acre of temporary impacts to Regional Board and CDFW jurisdiction. The meadow rehabilitation project will realign, expand, and restore the upstream portions of Hooks Creek and will include removal of the wood chips and other debris that were left behind from previous activities. The meadow rehabilitation project will also entail constructing a lined waterway along the length of the meadow, periodically split by new water/sediment control basins, to connect to an onsite pond. Exotic vegetation and large obstructions will be removed throughout the meadow, and new hedgerows will be planted along its perimeter. Wildlife structures including nest boxes, downed wood, and rock piles will be strategically located at different locations along or near to the new waterway.

Although the proposed Project will result in ~~0.18 acre of temporary impacts to waters of the US and 0.05~~ 0.29 acre of permanent and ~~0.35~~ 0.53 acre of temporary impacts to Regional Board and CDFW jurisdiction, the restoration of Hooks Creek and Hencks Meadow in accordance with the NRCS Conservation Plan, impacts are reduced to less than significant levels. In addition, a CDFW Section 1602 SAA permit for impacts to Hooks Creek will be required. CDFW will include in the SAA permit any conditions to be followed during construction, operation and maintenance of the restored Hooks Creek and meadow, to ensure potential impacts remain less than significant.

New Exhibit 4.4-4, Existing and Proposed Trails in Southern Rubber Boa Habitat

New Exhibit 4.4-5, Conservation Area



SKYPARK AT SANTA'S VILLAGE PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

RVA | Michael Baker INTERNATIONAL

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Source: San Bernardino County, ESRI World Imagery Basemap

Existing and Proposed Trails in Southern Boa Habitat

Exhibit 4.4-4

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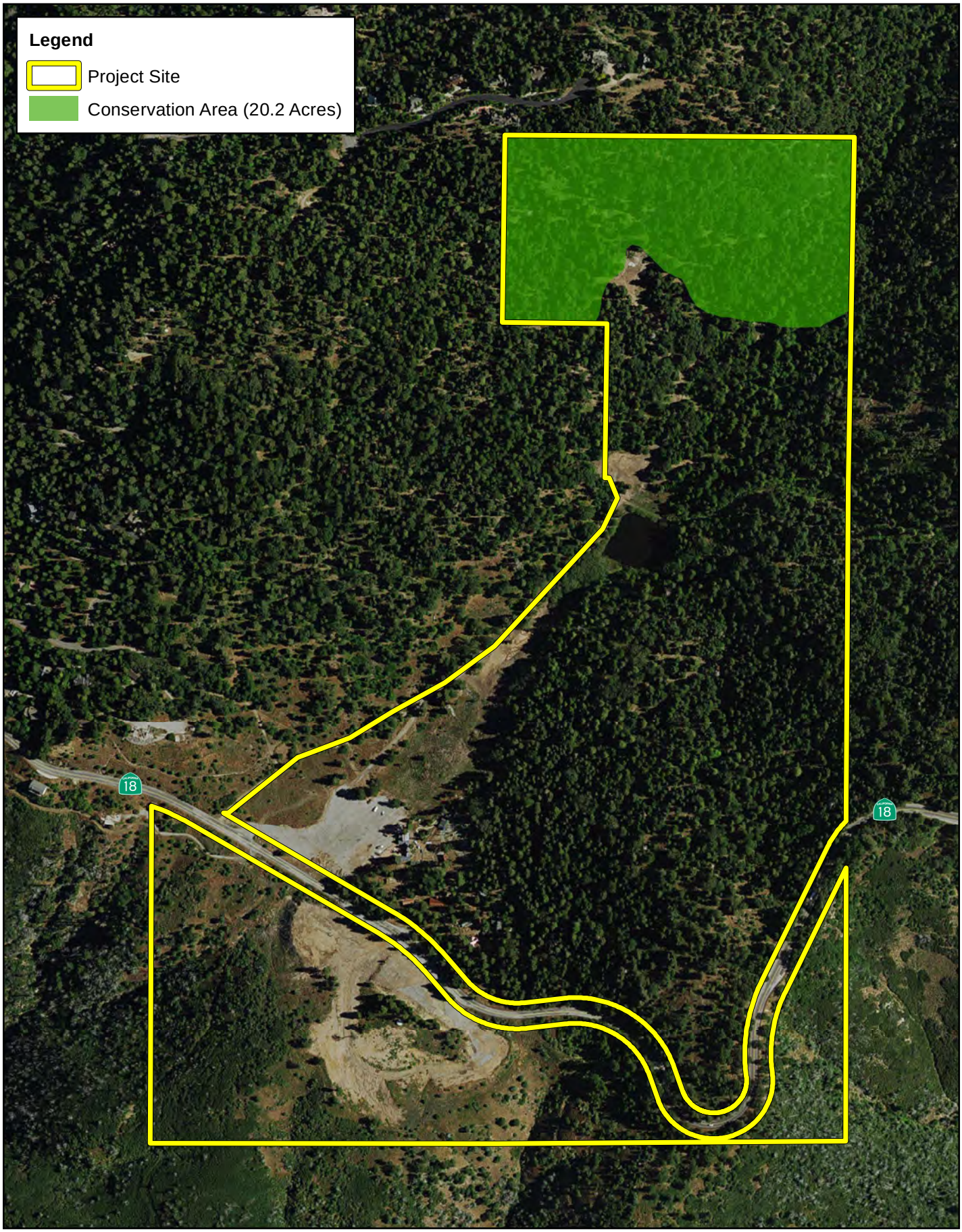

SKYPARK AT SANTA'S VILLAGE PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

RVA

Michael Baker INTERNATIONAL

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Source: San Bernardino County, Trail Map, ESRI World Imagery Basemap

Conservation Area

Exhibit 4.4-5

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Chapter 4.8 Hazards and Hazardous Materials, page 4.8-20

MM HAZ–3: A comprehensive Spill Prevention and Response Plan shall be prepared that outlines the site-specific monitoring requirements and lists the BMPs necessary to prevent hazardous material spill and to contain and clean up a hazardous material spill, should one occur.

Chapter 4.9 Hydrology and Water Quality, page 4.9-23

MM HYDRO–1: Hydrogeological testing shall be conducted by a qualified hydrogeologist to confirm the assumption used in this EIR analysis that the groundwater at SkyPark is directly connected to the surface water of Hooks Creek. The results of this testing shall be submitted to the San Bernardino County Land Use Services Department and the Lahontan Regional Water Quality Control Board.

If the results of the hydrogeological testing confirms the assumption used in this EIR analysis, that there is connectivity between the groundwater source for SkyPark's wells and the surface water flow in Hooks Creek, a groundwater and surface water monitoring plan shall be developed and implemented and shall include:

- Installation of a stream gage on Hooks Creek, or other monitoring mechanism if Hooks Creek is ephemeral and only flows during storm events, at a location downstream of the Project boundary.
- Installation of an inline flowmeter on all Project pumping wells in order to record instantaneous and cumulative groundwater production.
- Baseline monitoring of groundwater levels ~~and Hooks Creek streamflow rates~~ at a minimum of three months prior to opening day ~~before the Project improvements are constructed~~. Groundwater monitoring shall be conducted on a monthly basis. ~~Stream gage measurements shall be collected continuously using recording equipment that is downloaded quarterly.~~
- On-going monitoring of groundwater levels and Hooks Creek streamflow rates to provide the data necessary to assess the role of Project pumping on changes in stream flow rates (if any).
- Baseline and on-going monitoring of groundwater levels and Hooks Creek streamflow rates will be submitted to the Lahontan Regional Water Quality Control Board on an annual basis.

- Within one year of opening day the threshold for change (reduction) in the streamflow rate that warrants implementation of adaptive management steps shall be established by a qualified hydrogeologist in coordination with Lahontan Regional Water Quality Control Board.

- The adaptive management steps that shall be implemented if the threshold for change in Hooks Creek is exceeded include one or more of the following until such time that monitoring data shows the threshold is no longer exceeded for two consecutive months:

    - Reduce or eliminate use of on-site groundwater for irrigation;

    - Reduce or eliminate use of on-site groundwater for potable/operational uses;

    - Increase delivery and use of water from Skyforest Mutual Water Company for potable/operational uses.

Appendix D.2: Jurisdictional Delineation

SKYPARK AT SANTA'S VILLAGE

UNINCORPORATED COMMUNITY OF SKYFOREST, SAN BERNARDINO COUNTY, CALIFORNIA

Delineation of State and Federal Jurisdictional Waters Report

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Prepared For:

Skypark at Santa's Village, LLC
28950 State Highway 18
P.O. Box 369
Skyforest, California 92385
Contact: *Bill Johnson*

Prepared By:

Michael Baker International
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Ontario, California 91764
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909.974.4907

January 2016
Updated March 2017
JN: 144067

SKYPARK AT SANTA'S VILLAGE

UNINCORPORATED COMMUNITY OF SKYFOREST, SAN BERNARDINO COUNTY, CALIFORNIA

Delineation of State and Federal Jurisdictional Waters

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional "waters of the United States" (including wetlands) and "waters of the State" determination for the above-referenced project.

Travis J. McGill
Biologist
Natural Resources

Thomas J. McGill, Ph.D.
Vice President
Natural Resources

January 2016
Updated March 2017

Executive Summary

Michael Baker International (Michael Baker) has prepared this Delineation of State and Federal Jurisdictional Waters for the Skypark at Santa's Village project (Project) located in the Unincorporated Community of Skyforest, San Bernardino County, California. The delineation documents the regulatory authority of the United States Army Corps of Engineers (Corps), the Regional Water Quality Control Board (Regional Board), and the California Department of Fish and Wildlife Inland Deserts Region (CDFW) pursuant to Section 401 and 404 of the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act, and Section 1600 *et. seq.* of the California Fish and Game Code.[1]

Four (4) drainage features were observed within the boundaries of the project site; Hencks Meadow, Hooks Creek, and three (3) unnamed ephemeral drainage features (Drainages 1-3). Hooks Creek and Drainage 1 are tributary to Deep Creek (Relatively Permanent Water) and ultimately the Mojave River (Traditional Navigable Water). Whereas, Drainage 2 and 3 flow into City Creek which is tributary to the Santa Ana River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water). As a result, Hencks Meadow, Hooks Creek and Drainages 1-3 all qualify as waters of the United States and fall under the regulatory authority of the Corps, Regional Board, and CDFW. Refer to Table ES-1 for a summary of jurisdictional areas and anticipated project impacts.

Table 1: Jurisdictional Areas and Impact Summary

Jurisdictional Feature	Corps (NRCS) Waters of the United States		CDFW Streambed / Regional Board Waters of the State			
	On-Site Jurisdiction		On-Site Jurisdiction		Jurisdictional Impact	
	Acres	Feet	Acres	Feet	Permanent	Temporary
Hencks Meadow	0.08	530	2.55	530	0.15	0.40
Hook's Creek	1.25	2,584	2.56	2,584	0.14	0.13
Drainage 1 (D-1)	0.06	756	0.06	756	0.0	0.0
Drainage 2 (D-2)	0.06	786	0.06	786	0.0	0.0
Drainage 3 (D-3)	0.04	614	0.04	614	0.0	0.0
TOTALS	**1.49**	**5,270**	**5.27**	**5,270**	**0.29**	**0.53**

[1] The project site was surveyed on November 20, 2014 and September 23, 2015 pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008); the Practices for Documenting Jurisdiction under Section 404 of the CWA Regional Guidance Letter (Corps 2007); and Minimum Standards for Acceptance of Preliminary Wetland Delineations (Corps 2001); the MESA Field Guide (CDFW 2014); and a Review of Stream Processes and Forms in Dryland Watersheds (CDFW 2010).

No impacts to Hooks Creek, or Drainages 1-3 are anticipated from installation of the proposed trials, except within the meadow area. Construction of proposed new trails outside of the meadow, but within the project site, will avoid impacts to jurisdictional waters. The existing trials within the project site will generally be left in a "rough" state, unpaved and with brush cleared and overhanging vegetation trimmed. No dredging or fill material will be placed in any of the jurisdictional features outside of the meadow area on-site. Any proposed trail crossings adjacent to or over jurisdictional features will occur outside of the jurisdictional limits of Corps, Regional Board, and CDFW. In particular, proposed trails will be installed over the drainage feature, outside of the top of bank. Additionally, an elevated trail will be installed within the temporarily disturbed portions of Hencks Meadow and Hooks Creek as part of the meadow rehabilitation project. Since the trail will be elevated, plants will be able to grow under the trail, and impacts to Hencks Meadow and Hooks Creek, as part of the meadow rehabilitation project, have been accounted for in the temporary impact analysis in this report.

In agreement with between Skypark and the Natural Resources Conservation Service (NRCS), the proposed project includes the rehabilitation of Henck's Meadow (restoration and improvement of the upstream portions of Hook Creek). Since there is an established agreement between Skypak and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Corps CWA Section 404 permit will not be required from the Corps for the meadow rehabilitation project.

Based on a review of site conditions and preliminary design plans, the project applicant will need to obtain the following regulatory approvals for any impacts to Hencks Meadow and Hooks Creek associated with the meadow rehabilitation project: Regional Board Report of Waste Discharge and CDFW Section 1602 Streambed Alteration Agreement (SAA).

Refer to Sections 1-7 for a detailed analysis of site conditions and recommendations.

Table of Contents

TABLES

EXHIBITS

APPENDIX

LIST OF ACRONYMS

CDFW	California Department of Fish and Wildlife
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative Vegetation
FACU	Facultative Upland Vegetation
FACW	Facultative Wetland Vegetation
Michael Baker	Michael Baker International
NRCS	Natural Resources Conservation Service
OBL	Obligate Wetland Vegetation
OHWM	Ordinary High Water Mark
Regional Board	Regional Water Quality Control Board
RPW	Relatively Permanent Waters
Skypark	Skypark at Santa's Village, LLC
SWANCC	Solid Waste Agency of Northern Cook County
TNW	Traditional Navigable Water
UPL	Obligate Upland Vegetation
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Section 1 Introduction and Purpose

This delineation has been prepared for the Skypark at Santa's Village, LLC (Skypark), in order to document the jurisdictional authority of the U.S. Army Corps of Engineers' (Corps), the Lahontan Regional Water Quality Control Board (Regional Board), and the California Department of Fish and Wildlife (CDFW) pursuant to Section 401 and 404 of the Federal Clean Water Act (CWA), the California Porter-Cologne Water Quality Control Act, and Section 1600 *et seq.* of the Fish and Game Code. The analysis presented in this report is supported by field surveys and verification of site conditions conducted on November 20, 2014 and September 22, 2015.

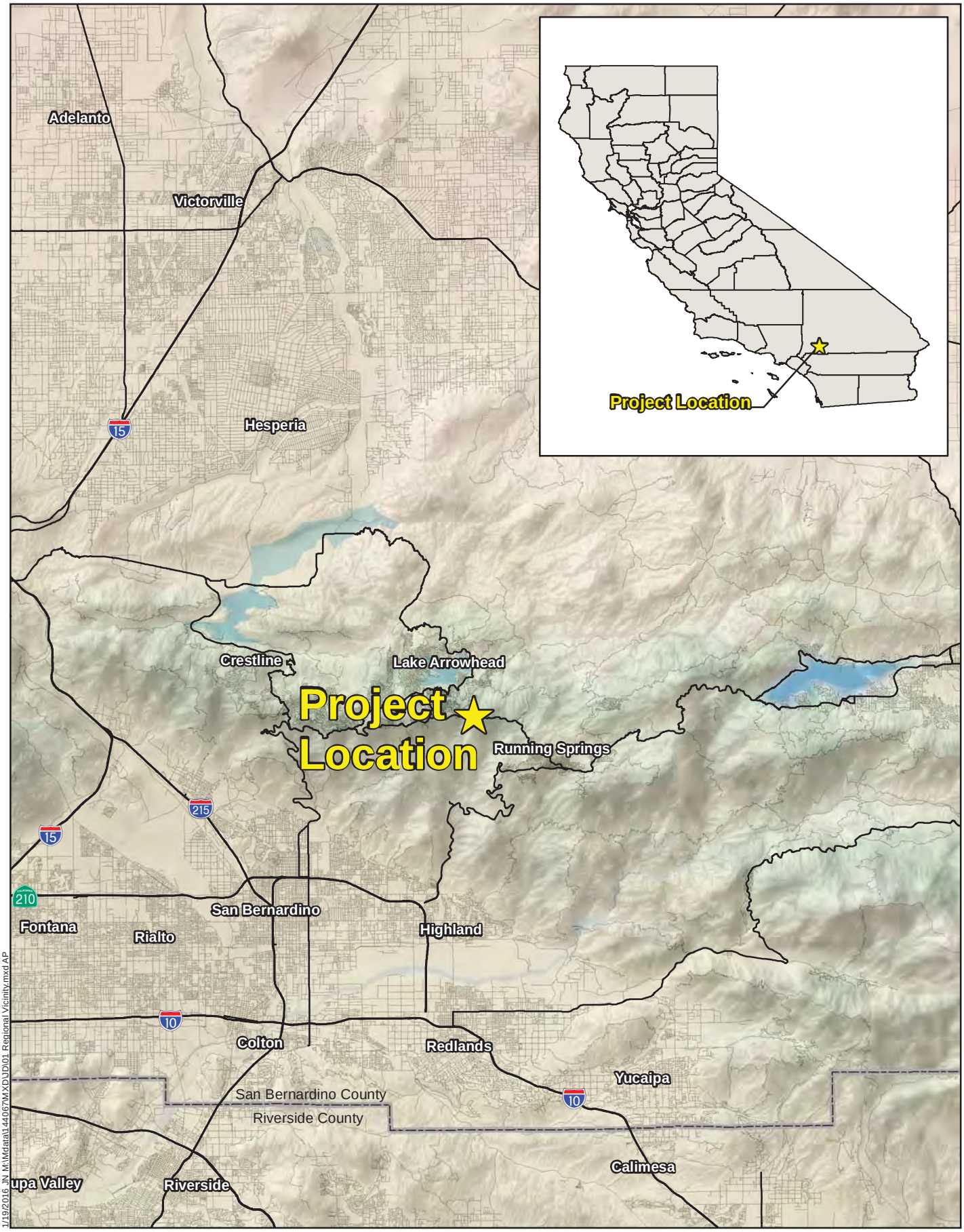
This delineation explains the methodology undertaken by Michael Baker to define the jurisdictional authority of the regulatory agencies, and documents the findings made by Michael Baker. This report presents our best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. Ultimately, the regulatory agencies make the final determination of jurisdictional boundaries.

1.1 PROJECT LOCATION

The project site is located in the San Bernardino Mountains south of Lake Arrowhead in the unincorporated community of Skyforest, San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The project site is depicted on the Harrison Mountain quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series in Section 26 of Township 2 north, Range 3 west (Exhibit 2, *Site Vicinity*). Specifically, the project site is located north and south of State Route 18 (SR-18) and west of Sycamore Drive in the San Bernardino National Forest (Exhibit 3, *Project Site*).

1.2 PROJECT DESCRIPTION

The proposed project includes a General Plan Amendment to change the Official Land Use District from Lake Arrowhead/Special Development- Residential (LA/SD-RES) & Lake Arrowhead/Single Residential-14,000 Square Foot Minimum lot size (LA/RS-14M) to Lake Arrowhead/Rural Commercial (LA/CR) on 152.92 acres. The proposed project requires a Conditional Use Permit to re-establish an Outdoor Commercial Entertainment Center which includes an Amusement Park, Campground, Meadow Rehabilitation, Restaurants, Bar, Wedding & Reception Facility, Retail, Trails, Recreational Activities and other Accessory Uses on 152.92 acres.



1/19/2016 JN M:\Mdata\144067MXD\JD\01 Regional Vicinity.mxd AP

SKYPARK AT SANTA'S VILLAGE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

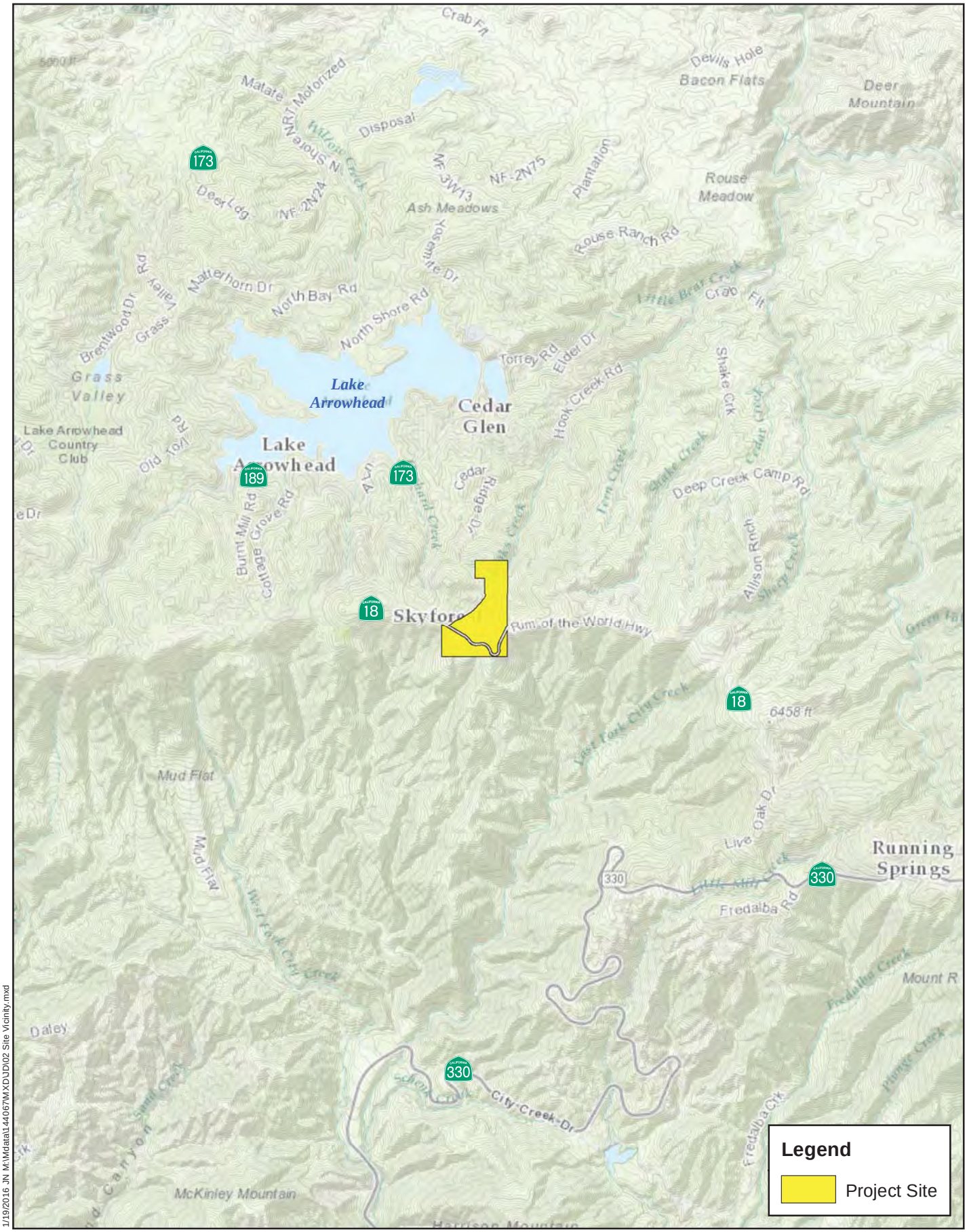
Regional Vicinity

Michael Baker INTERNATIONAL

0 2.5 5 10 Miles

Source: ESRI Relief Map, National Highway Planning Network

Exhibit 1



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SKYPARK AT SANTA'S VILLAGE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

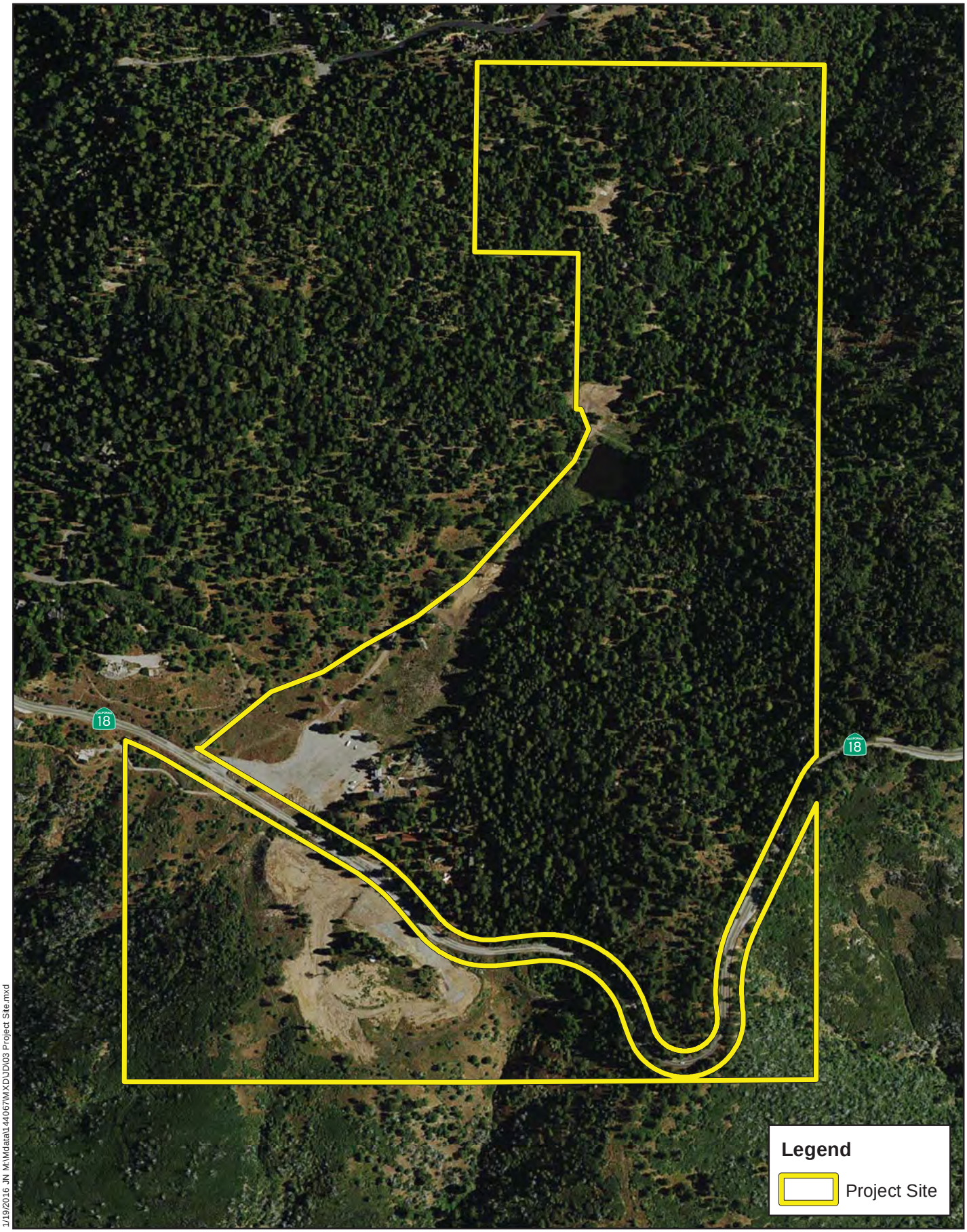
Site Vicinity

Michael Baker INTERNATIONAL

0 0.5 1 2 Miles

Source: San Bernardino County, USGS, ESRI World Topographic Map

Exhibit 2



1/19/2016 JN M:\Mdata\144067\MXD\JD\03 Project Site.mxd

SKYPARK AT SANTA'S VILLAGE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Michael Baker INTERNATIONAL

0 250 500 1,000
Feet

Source: San Bernardino County, ESRI World Imagery Basemap

Project Site

Exhibit 3

The proposed project includes the redevelopment and re-use of the existing Santa's Village attraction. The proposed project also includes the development of a mixed-use adventure park that would include a variety of activities and services. Nineteen original buildings exist on the project site totaling 23,389 square feet. It is intended that the exteriors of these original buildings would not be significantly altered. Rather, the exterior of the buildings will be rehabilitated (re-painted, repaired). The interiors will be redeveloped in order to fulfill a variety of uses. All existing buildings will remain. No buildings are proposed to be demolished. The existing buildings that are being rehabilitated are identified on Exhibit 4, *Depiction of Proposed Project*, and are listed in Table 1 below.

Improvements to Santa's Village attraction will also include the repair of hardscaping and landscaping. The asphalt pavement between the buildings will be replaced with concrete and rock and other hardscaping to improve on site drainage. The attraction is located within and includes native forest trees and native shrubs. The proposed improvements include only minimal landscaping which may include native and drought tolerant shrubs and annuals/flower beds commonly used in landscaping. The site currently has minimal landscaping and will continue to have minimal landscaping as the site does not have a formal irrigation system. Existing forest trees are supported by natural rainfall and snow. Existing understory landscaping is supported by natural rainfall and snow and is only supplemented by hand watering.

Additional recreational and entertainment amenities will be constructed as a part of the proposed project and are outlined below.

Amusement Park Zone

The Amusement Park Zone is an area within the property boundary where more concentrated amusement park use will occur. The zone is identified as the area of historic commercial use, previously impacted by the original development of Santa's Village. In order for SkyPark at Santa's Village to retain repeat visitors, to remain competitive in the Adventure and Amusement Park Industry, and to continue to promote tourism in the mountain community, replacement of attractions and/or amenities with new attractions and amenities will be necessary and will occur in the Amusement Park Zone over time. The types of new attractions and amenities in the Amusement Park Zone that are predicted at this time (but not limited to) could include implementation of the original car ride, playground amenities, climbing walls, additional zip lines, snow play activities, and small support structures, such as storage sheds or concessions or other attractions that its primary function is entertainment or recreation. The attractions or features will be similar to the proposed project components outlined below and will not require extensive grading or vegetation clearing or result in a greater generation of noise or light These future attractions will not exceed 40 feet in height, using the existing 40-foot monorail as the baseline of existing improvements in the

PARKING ANAYSIS:

BUILDING & LEGEND NUMBER	USE	SQARE FEET	FORMULA
1. WELCOME BUILDING	OFFICE	1003	1003 / 250 = 4 SPACES
	RETAIL	2122	2122 / 250 = 8 SPACES
2. SANTA'S HOUSE	AMUSEMENT	288	288 / 7 = 41 PERSONS = 10 SPACES
3. BILLYZ PATIO RESTAURANT	RESTAURANT	1856	1856 / 250 = 7 SPACES
4. PEDDLE PUB / TAVERN	BAR/TAVERN	888	888 / 100 = 9 SPACES
5. K's KANDYSHOP	RESTAURANT	905	905 / 250 = 4 SPACES
6. THE GATHERING HOUSE & EVENTS	RESTAURANT	1328	1328 / 250 = 5 SPACES
7. COFFEE & TEA HOUSE	RESTAURANT	756	756 / 250 = 3 USE 4 MIN.
8. SKY PARK ACTIVITY CNTR.	RETAIL	2148	2148 / 250 = 9 SPACES
9. STONE'S THROW GAZEBO	RETAIL	756	756 / 250 = 3 USE 4 MIN.
10. SKY TRADING COMPANY	RETAIL	2952	2952 / 250 = 12 SPACES
11. SKY PAVILLION	DANCE HALL	1723	1723 / 20 SQ. FT. = 86 PEOPLE = 28 SPACES
12. REINDEER BARN	RETAIL	1950	1950 /250 = 8 SPACES
13. BOULDERING ROOM	AMUSEMENT	720	720 /MAX CAPACITY 24 PERSONS = 6 SPACES
14. RESTROOMS		750	0
15. RESTROOMS		750	0
16. PEBBLE MINE MUSEUM	AMUSEMENT	192	192 /7 = 27 PERSONS /4=7 SPACES
17. CHAPEL OF THE LITTLE SHEPHERD	WORSHIP	272	MAX SEATS 12/3 = 4 SPACES
18. GOOD WITCH'S BAKERY	RETAIL	990	990 /250 = 4 SPACES
19. WEDDING RECEPTION SITE		500 PERSONS	500 / 3 =167 SPACES
20. WEDDING CEREMONY SITE		MEETING HALL	
21. SKATING RINK	AMUSEMENT		MAX 200/3 =67 SPACES
22. BOULDERING & CLIMBING WALL	AMUSEMENT		MAX CAP 12 /4= 3 SPACES
23. SPYDER BOUNCE	AMUSEMENT		MAX CAP 3/ 4= 1 SPACE
24. JOHNSON DUMP TRUCK777 PLAYSCAPE			MAX CAP 20/4 = 5 SPACES
25. MAINTENANCE BLDG.	STORAGE		0
26. SKYBIKE MONORAIL	AMUSEMENT		MAX CAP 50 /4 = 13 SPACES
27. AERIAL ADVENTURE	AMUSEMENT		MAX CAP 16/ 4 =4 SPACES
28. TRAIL SYSTEM			
29. WATER FEATURE			
29. LADY BUG POND			
30. TREEHOUSE AERIAL ADVENTURE & PLAYSCAPE			MAX CAP 28/ 4= 7 SPACES
31. COASTERS BIKE PATH & CAR RIDE			MAX CAP 20 / 4=5 SPACES

BUILDING

STANDARD SPACES NEEDED	405
DISABLED	8
LOADING SPACES	4
TOTAL SPACES REQUIRED	417
MAIN "NORTH LOT" SPACES	285
CAMP GROUND	70
OVERFLOW "SOUTH PARKING LOT"	200
TOTAL SPACES AVAILABLE	555

UTILITIES

POWER: SO CAL EDISON, P.O. BOX 96, RIM FOREST, CA 92378, (909) 337-2564

TELEPHONE: CHARTER CABLE, P.O. BOX 9, RIM FOREST CA, 92378

WATER: SKY FOREST MUTUAL WATER CO., P.O. BOX 3, SKY FOREST CA, 92385, (909) 336-0851

NATURAL GAS: THE GAS CO., P.O. BOX 3003, REDLANDS CA, 92373, (909) 798-7789

SEWER: ONSITE SEPTIC SYSTEM

CABLE: CHARTER CABLE, P.O. BOX 9, RIM FOREST CA, 92378

UTILITIES

C-1 OVERALL SITE PLAN
C-1.1 ENLARGED SITE PLAN

SHEET INDEX

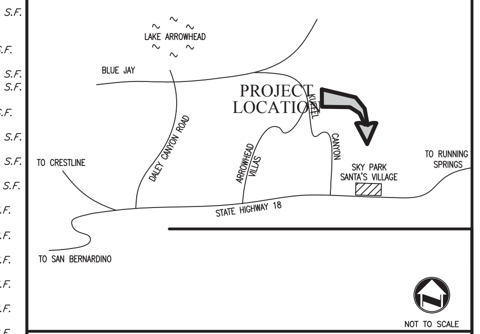
SITE LEGEND

19. RECEPTION SITE (PROPOSED USE)
20. WEDDING CEREMONY SITE (PROPOSED USE)
21. SKATING RINK (PROPOSED USE)
22. BOULDERING&CLIMBING WALL (PROPOSED USE)
23. SPIDER JUMP / AMUSEMENT (PROPOSED USE)
24. PLAYGROUND 777 (PROPOSED USE)
26. MONORAIL (EXISTING)
27. AERIAL ADVENTURE (PROPOSED USE)
28. TRAIL SYSTEM (EXISTING WITH PROPOSED ADDITION)
29. WATER FEATURES–SILVER SLIPPER POND & LADYBUG POND (EXISTING)
30. TREEHOUSE AERIAL ADVENTURE / PLAYSCAPE PROPOSED USE
31. COASTER BIKE PLAY AREA (PROPOSED USE)

BUILDING LEGEND

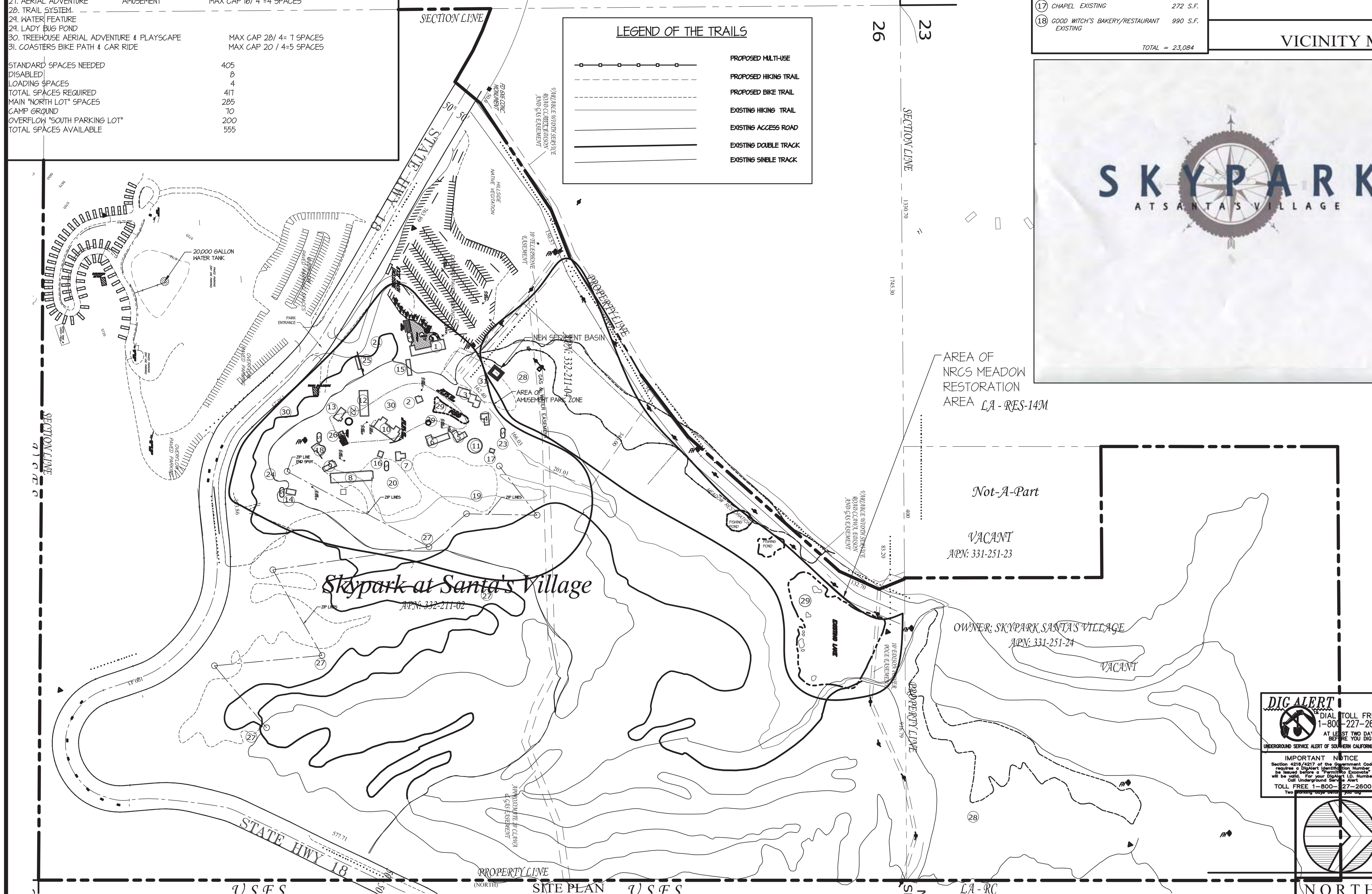
No.	Building	Area
1	WELCOME HOUSE & GIFT SHOP RETAIL 2,122 S.F. EXISTING OFFICES 1,531 S.F. EXISTING	3,633 S.F.
2	SANTAS HOUSE EXISTING	288 S.F.
3	BILLIE'S PATIO RESTAURANT EXISTING	1,856 S.F.
4	PEDAL PUB / TAVERN EXISTING	688 S.F.
5	K' CANDY SHOP EXISTING	905 S.F.
6	THE GATHERING HOUSE EXISTING	1,328 S.F.
7	COFFEE & TEA HOUSE EXISTING	756 S.F.
8	SKYPARK ACTIVITY CENTER SECURITY OFFICE EXISTING	2,148 S.F. 1,227 S.F.
9	STONES THROW GAZEBO EXISTING	756 S.F.
10	SKY TRADING COMPANY EXISTING	2,952 S.F.
11	SKY PAVILLION EXISTING	1,723 S.F.
12	REINDEER BARN/RETAIL & CRAFTS EXISTING	1,950 S.F.
13	BOULDERING ROOM EXISTING	720 S.F.
14	MENS & WOMENS RESTROOM EXISTING	750 S.F.
15	MENS & WOMENS RESTROOM EXISTING	272 S.F.
16	PEBBLE MINE EXISTING	192 S.F.
17	CHAPEL EXISTING	272 S.F.
18	GOOD WITCH'S BAKERY/RESTAURANT EXISTING	990 S.F.
	TOTAL	= 23,084

FOR OFFICIAL USE ONLY



VICINITY MAP

SKYPARK AT SANTA'S VILLAGE



SITE PLAN
SCALE 1" = 200'-0"

DIG ALERT
DIAL TOLL FREE 1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

IMPORTANT NOTICE
Section 4216/4217 of the Government Code requires a DigAlert Identification Number be issued before a "Permit to Excavate" will be valid. For your DigAlert I.D. Number Call Underground Service Alert
TOLL FREE 1-800-227-2600
Two working days before you dig

NORTH

ASSESSOR'S PARCEL NUMBERS: 332-211-02, 04; 332-212-02; 331-251-24
APPLICANT: SKYPARK AT SANTA'S VILLAGE

ATTN: BILL JOHNSON
P.O. BOX 369
SKY FOREST, CA 92385
(951) 288-8762

A CUP FOR: SKYPARK AT SANTA'S VILLAGE
LEGAL DESCRIPTION

BEING A PORTION OF NW 1/4 SECTION 26, T2N, R3W, LYING NORTH OF STATE HIGHWAY EXCEPTING AS FOLLOWS:

COMMENCE AT NW CORNER NW 1/4, THENCE EAST ALONG NORTH LINE SAID SECTION 1745.3 FEET TO NWLY LINE 40 FEET RD, THENCE S22°06'E 83.2 FEET, THENCE S24°23'W 132.7 FEET, THENCE S41°40'W 615.6 FEET, THENCE S52°40'W 164.85 FEET, THENCE S50°46'E 346 FEET, THENCE S33°29'W 201.01 FEET THENCE S53°43'W 166.03 FEET, THENCE S46°51'W 162.40 FEET, THENCE N50°46'W 492.44 FEET, THENCE S68°36'W 150.57 FEET, THENCE S56°32'W 390.8 FEET TO NORTHERLY LINE STATE HIGHWAY, THENCE N59°28'W ALONG SAID NORTHERLY LINE HIGHWAY 50.9 FEET, THEN CONTINUE ALONG SAID NORTHERLY LINE HIGHWAY TO INTERSECTION WITH EAST LINE LOT 19 BLOCK 10 ARROWHEAD LAKE VIEW FOREST THENCE NORTH TO POINT OF BEGINNING.

(SEE TITLE REPORT FOR FULL LEGAL DESCRIPTION)

GENERAL INFORMATION

1. NO NEW BUILDINGS ARE PROPOSED TO BE ADDED TO THIS EXISTING AMUSEMENT PARK ESTABLISHED IN 1955 WITH THE EXCEPTION OF A REATROOM BUILDING AT THE PROPOSED CAMPGROUND SITE ON THE SOUTH SIDE OF PROJECT. THERE ARE 19 EXISTING BUILDINGS (SEE BUILDING LEGEND). EXISTING PAVED PARKING LOTS, UTILITES, AND LANDSCAPING TO REMAIN 85% OF PROPERTY TO REMAIN UNDISTURBED OPEN SPACES.
2. LOT COVERAGE: BUILDINGS .69%; LANDSCAPING 9.31%; PAVING 10%; OPEN SPACE 80%; TOTAL 100.0%
3. NO TREES SHALL BE REMOVED IN THIS PROJECT. NO ENDANGERED OR PROTECTED PLANTS EXIST ONSITE.
4. FIRE SAFETY OVERLAY IS FR 2.
5. EXISTING GENERAL PLAN LAND USE DISTRICT, SPECIAL DEVELOPMENT–RES (SD–RES), & A SMALL PORTION LAKE ARROWHEAD RESIDENTIAL 14M (LA/RS–14M) PROPOSED LAND DISTRICT, RURAL COMMERCIAL (CR).

   PARKING FORMULA: AMUSEMENT PARK/RECREATION
   SEE PARKING ANAYSIS (ABOVE LEFT)
7. ALL EASEMENTS OF RECORD SHALL BE HONORED OR RELOCATED AS NECESSARY. NO SEE TITLE REORT FOR ALL EASEMENT OF RECORD.
8. SITE HAS NO DRAINAGE PROBLEMS
6.
9. THERE IS NO GRADING PROPOSED IN THIS PROJECT.
10. EXISTING NATURAL LANDSCAPING TO REMAIN
11. (S) DENOTES EXISTING SEPTIC TANK LOCATION
13. FH DENOTES FIRE HYDRANT
14. SIGNAGE UNDER SEPARATE SUBMITTAL AND PERMIT. HOURS OF OPERATION 8 AM–10 PM

SITE DATA

REVISIONS

DATE:	BY:

JONATHAN L. ZANE ARCHITECTURE
JONATHAN L. ZANE, ARCHITECT - CA. LIC. #C-11,046
958 NORTH LA CADENA DRIVE
COLTON, CA 92324 (909) 825-7500

LICENSED ARCHITECT JONATHAN L. ZANE NO.-C11,046 REN.8-31-15 STATE OF CALIFORNIA

DATE : plot date

A PROJECT FOR:
SKYPARK AT SANTA'S VILLAGE
LOCATED AT:
SKY FORREST, CA. 92385
PROJECT MANAGER: BILL JOHNSON

APPLICABLE CODES: Model Code:	State Code:
2012 I.B.C.	2013 C.B.C.
2012 I.R.C.	2013 C.R.C.
2012 U.M.C.	2013 C.M.C.
2012 U.P.C.	2013 C.P.C.
2011 N.E.C.	2013 C.E.C.
2012 I.F.C.	2013 C.F.C.

2013 Cal. Green Building Code
2010 California Energy Code
All new work shall comply with listed codes and all current local and state ammendments.

DATE : --
SCALE : 1" = 100'-0"
DRAWN : Kenneth
JOB : --
SHEET : C-1

Amusement Park Zone. The existing 40-foot monorail does not extend higher than existing old growth forest. This height restriction will ensure the visual setting of the forest will be retained.

Trails

Existing and proposed trails are described below and are depicted on Exhibit 5, *Existing and Proposed Trails*.

Fantasy Forest Trail

The Fantasy Forest Trail is an existing trail that was used as a nature trail during the parks original years of operation. The trail cuts across the back of the park and is depicted as an existing hiking trail on the trail map. It is within the boundary of the Amusement Park Zone as it will be open during the operating hours of the park and lit as a nightime forest walk. It would be the only trail available after sun down and is very limited in its proximity to the park and distance. The trail distance is approximately 1/4 mile and is an interactive lighting attraction at night.

Improvement to the Fantasy Forest Trail includes clearing as needed for a width of 36-48-inch wide and sections of up to 100 feet in length will be elevated on a plank walkway. Un-elevated segments of the trail will be surfaced with decomposed granite.

Multi-Use Trail

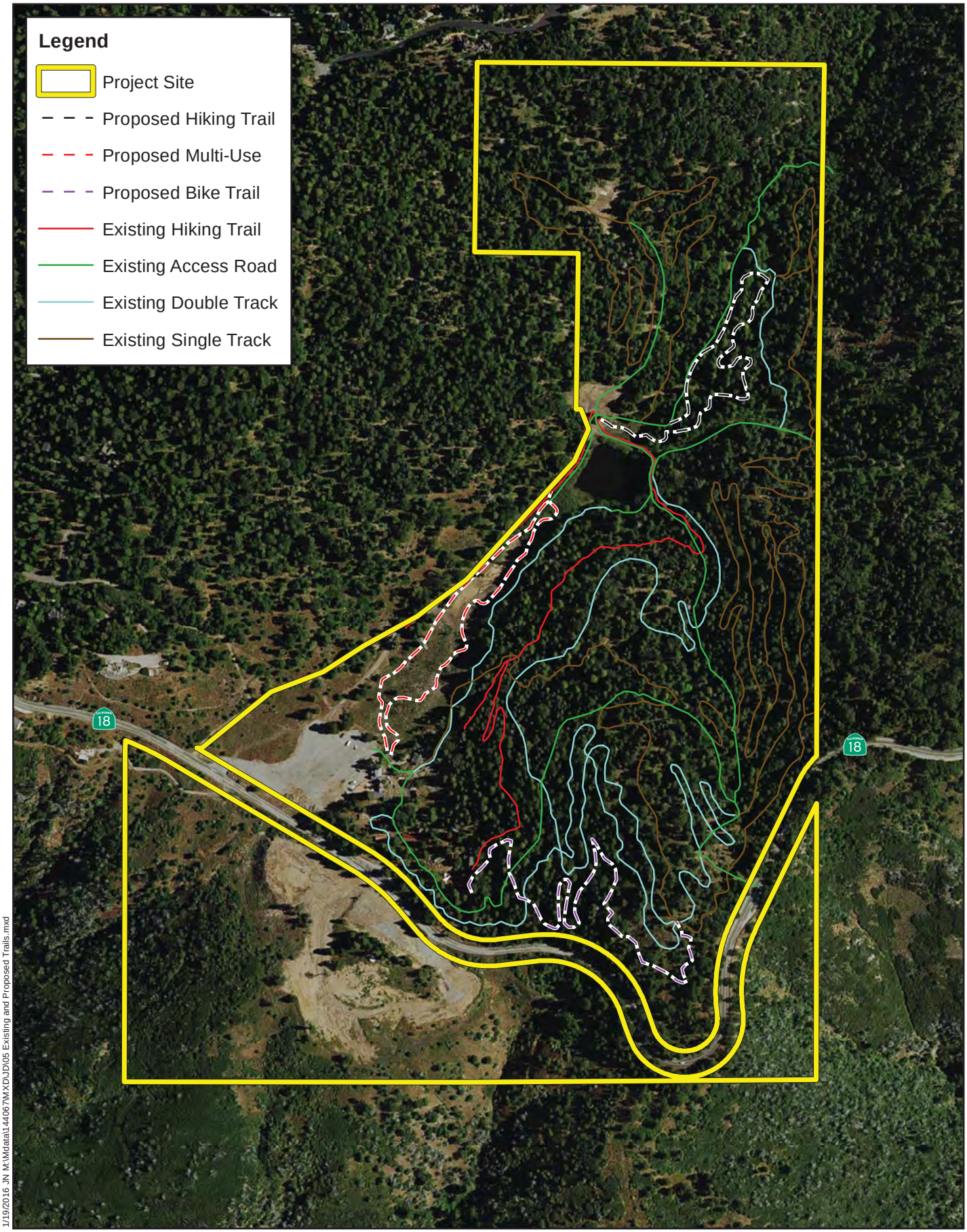
This is open for bicycle, wheel chair, pedal assist, and pedestrian traffic. This trail is specifically designed to accommodate special needs. It does not include motorized vehicles with the exception of electric assist vehicles for special needs. Construction techniques may include light weight track vehicles which include small backhoe and skid steer. It will be 5 feet to 8 feet maximum width, and surfaced with decomposed granite.

Hiking Trails

This is a special-use trail designed for hiking only. It is a single track trail not to exceed 36 inches in width. It will be used primarily for recreation; however, signage, fencing, and other forms of structures and materials will be used for educational purposes. The surface is the natural forest floor with the possible use of elevated walkways to prohibit soil disturbance in very wet conditions. Construction of these trails will be by hand tools and will McLeods, shovels, and rakes.

Mountain Bike Trail

This is a special-use trail for bicycles only. This trail is a single track trail designed for "one way" directional use. No double, side-by-side axle vehicles are allowed. Construction of these trails will be by hand tools and will include McLeods, shovels, and rakes. Special features are implemented, including log crossings, water bars for slope erosion, safety rail,



1/19/2016 JN M:\Mdata\144067\MXD\JD\05 Existing and Proposed Trails.mxd

SKYPARK AT SANTA'S VILLAGE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Existing and Proposed Trails

Michael Baker INTERNATIONAL

0 250 500 1,000 Feet

Source: San Bernardino County, Trail Map, ESRI World Imagery Basemap

Exhibit 5

and riding features such as protective berms and wood features.

Access Roads
This is a multi-use road for the continued purpose of accessing utility easements throughout the park. The road is a double wheel, side-by-side, 4-wheel drive roadway accessible to park guest, utility companies, and emergency vehicles. Most roads are dirt with the exception of some existing paved surfaces in the park and within property boundaries.

Existing Double Track
This is capable of holding a 4-wheel vehicle. Historically used for lumbering, emergency access and recreation. Existing double track trails have signage depicting their categorical use, many being multi-use trails including hiking, bicycle and emergency access use.

Existing Single Track
This is a special-use trail for bicycle use only. The trail system is "one way" directional traffic only. The width of the trail is closer to 24-inch and is constructed with hand tools to include McLeods, shovels, and rakes.

All of the trails will be maintained by hand tools. Techniques established by the U.S. Department of Agriculture, Forest Service (USFS) and the International Mountain Biking Association are implemented to reduce impacts to soils erosion, noise, off trail access and responsible forest practices.

Wilderness Adventure/Zipline and Aerial Park

This feature would include ziplines, rope courses, adventure swings, climbing walls, balance features, log crossings, and exploration trails. The Forest Zipline and tree house is estimated to be an average of 30 feet in height and approximately 1,200 feet in length; however the final designs would determine ultimate measurements. The tree house would have a zipline that is proposed to be approximately 16 feet high. A small children's zipline is proposed that would be approximately 8 feet high and 30 feet long. The tree house would be an engineered structure built among the trees. The final tree house platforms would either be constructed using a tree as the base or a standalone structure. Final design would be dependent on County approval.

Fly Fishing Lake and Stream

Fly-fishing clinics, guides and lessons, and fly-fishing instruction would be offered at the site's improved and existing reservoir/pond system. The on-site ponds and steam, Silver Slipper Pond and Lady Bug Pond within the rehabilitated meadow, would be stocked with fish per the California Department of Fish & Wildlife as permitted. Historically the pond has been stocked with trout. Trout fishing would be provided for catch and keep, or release as the guest wishes.

Hiking and Tours

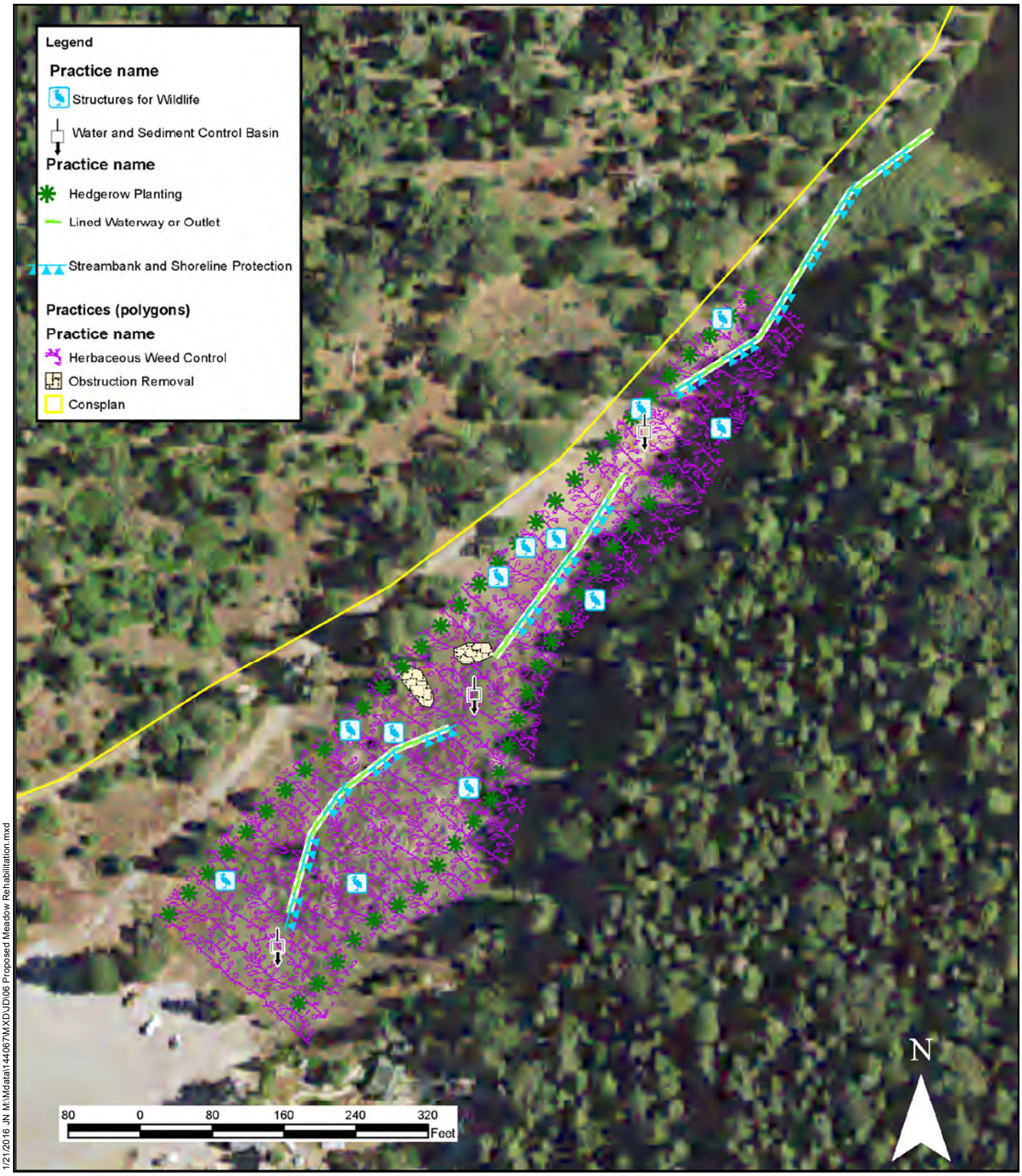
Eco-tours, education, and wildlife viewing will be offered. The project will promote wildlife and habitat education. Job skills will be introduced through "Pathways," an ongoing Regional Occupational Program through local school districts. Ecotourism involving bird watching blinds, trails, and assisted programs will be implemented to educate the public and students on the importance of wildlife preservation.

Campground Site

A campground is proposed to be located south of SR-18. Minor grading will be required to improve the existing dirt road to provide access to and create 70 RV sites and approximately 35 tent campsites within the 20-acre campground. A restroom will be constructed on the campground site and will utilize a septic system that will be sized per restroom requirements and will have a tank with a leach field in the same design standards as the existing septic systems in the Santa's Village site. The chambers that separate the solids are pumped out periodically as needed. The proposed campground restroom building will be approximately 1,450-1,500 square feet. It will include 2 laundry units, 2 urinals, 8 toilets, 6 showers (4 standard and 2 handicap), and 8 wash basins/sinks.

Meadow Rehabilitation

The project also includes the removal of waste from the site as well as the restoration and improvement of the upstream portions of Hook Creek (Exhibit 6, *Proposed Meadow Rehabilitation*). Previously, the project site was used as a storage site for wood material infested by bark beetles, which left the site with debris, woodchips, firewood, bark, and trash. The project would include restoring the watercourse that would allow for expansion and preservation of the meadow by a water aeration system controlled daily by the use of a solar array and water pumps. Ultimately, improvements to the health, beauty, and natural resources of the project area will be guided by the NRCS in cooperation with CDFW and the Lahontan Regional Board, and will result in a balanced ecosystem that will be created for education, recreation, and wildlife.



1/21/2016 JN M:\Mdata\144067\MXD\JD\06 Proposed Meadow Rehabilitation.mxd

SKYPARK AT SANTA'S VILLAGE PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Proposed Meadow Rehabilitation

Michael Baker INTERNATIONAL

Source: San Bernardino County, United States Department of Agriculture

Exhibit 6

Section 2 Regulations

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Division regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA), Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. The Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates activities under the Sections 1600 *et seq*. of the Fish and Game Code.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the discharge of dredged or fill material into waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." The terms *waters of the United States* and *wetlands* are defined under CWA Regulations 33 Code of Federal Regulations (CFR) §328.3 (a) through (b) and within Appendix B of this report.

2.2 NATURAL RESOURCES CONSERVATION SERVICE

The Highly Erodible Land Conservation and Wetland Conservation Compliance provisions (Swampbuster) were introduced in the 1985 Farm Bill, with amendments in 1990, 1996 and 2002. The purpose of the provisions is to remove certain incentives to produce agricultural commodities on converted wetlands or highly erodible land, unless the highly erodible land is protected from excessive soil erosion.

In order to determine compliance with the swampbuster provisions, the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) will determine if a producer's land has wetlands that are subject to the provisions. The agency maintains a list of the plants and combinations of soils and plants found in wetlands and uses these technical tools, along with the hydrology of the area, to conduct determinations. These determinations stay in effect as long as the land is used for agricultural purposes or until the producer requests a review.

Swampbuster helps preserve the environmental functions of wetlands, such as flood control, sediment control, groundwater recharge, water quality, wildlife habitat, recreation, and esthetics.

Grant funding is available through the Wetlands Reserve Enhancement Program administered by the USDA NRCS. The purpose of the program is to restore and protect wetland habitat through cooperative agreements with partner organizations. Nongovernmental organizations, American Indian tribes, and state and local governments are eligible to apply for grants on a competitive basis. The Wetlands Reserve Program provides financial assistance to landowners for restoring wetlands converted to agricultural production back to wetland habitat. Landowners can also sell long-term or permanent development rights to the restored wetlands to the USDA. Wetlands provide valuable wildlife habitat and help improve water quality among other conservation benefits.

2.3 REGIONAL WATER QUALITY CONTROL BOARD

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Boards that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

Additionally, the California Porter-Cologne Water Quality Control Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Water Quality Control Act has become an important tool post *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*[2] and *Rapanos v. United States*[3] (Rapanos) court cases with respect to the State's authority over isolated and insignificant waters. Generally, any applicant proposing to discharge waste into a water body must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include discharge of dredged and fill material into water bodies.

2 Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)
3 Rapanos v. United States, 547 U.S. 715 (2006)

2.4 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Section 1600 *et seq*. of the Fish and Game Code establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided. Pursuant to Section 1602 of the Fish and Game Code, a notification must be submitted to the CDFW for any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream or use material from a streambed. This includes activities taking place within rivers or streams that flow perennially or episodically and that are defined by the area in which surface water currently flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical and biological indicators.

Section 3 Methodology

The analysis presented in this report is supported by field surveys and verification of site conditions conducted on November 20, 2014 and September 23, 2015. Michael Baker biologists Travis J. McGill, Ryan S. Winkleman, and Thomas C. Millington conducted a site investigation to determine the jurisdictional limits of "waters of the United States" and "waters of the State" (including potential wetlands and vernal pools), located within the boundaries of the project site. While in the field, jurisdictional features were recorded on a base map at a scale of 1" = 50' using topographic contours and visible landmarks as guidelines. A Garmin Map62 Global Positioning System was used to record and identify specific widths/lengths of ordinary high water mark (OHWM) indicators and the locations of photograph points, soil pits, and other pertinent jurisdictional features, if present. This data were then transferred as a .shp file and added to the Project's jurisdictional exhibit. The jurisdictional exhibit was prepared using ESRI ArcInfo Version 10 software.

3.1 WATERS OF THE UNITED STATES

In the absence of adjacent wetlands, the limits of the Corps' jurisdiction in non-tidal waters extend to the OHWM, which is defined as " . . . *that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*"[4] Indicators of an OHWM are defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008). An OHWM can be determined by the observation of a natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; presence of litter and debris; wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and/or change in plant community. The Regional Board shares the Corps' jurisdictional methodology, unless SWANCC or Rapanos conditions are present. In the latter case, the Regional Board considers such drainage features to be jurisdictional waters of the State.

Pursuant to the Corps Wetland Delineation Manual (Corps 1987), the identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. In order to qualify as a wetland, a feature must exhibit at least minimal characteristics within each of these three parameters. It should also be noted that both the Regional Board and CDFW follow the methods utilized by the Corps to indentify wetlands. For this project location, Corps jurisdictional wetlands are delineated using the methods

[4] CWA regulations 33 CFR §328.3(e).

outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2* (Corps 2008).

3.2 WATERS OF THE STATE

3.2.1 REGIONAL WATER QUALITY CONTROL BOARD

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Boards that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

Additionally, the California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Water Quality Control Act has become an important tool post *Solid Waste Agency of Northern Cook County vs. United States Corps of Engineers*[5] (SWANCC) and *Rapanos v. United States*[6] (Rapanos) court cases with respect to the State's regulatory authority over isolated and insignificant waters. The Regional Board shares the Corps' methodlogy for delineating the limits of jurisdiction based on the identification of an OHWM and utilizing the three parameter approach for wetlands. Generally, any applicant proposing to discharge waste into a water body must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include discharge of dredged and fill material into water bodies.

3.2.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Section 1600 *et seq*. of the Fish and Game Code applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. Generally, the CDFW's jurisdictional limit is not defined by a specific flow event, nor by the presence of OHWM indicators or the path of surface water as this path might vary seasonally. Instead, CDFW's jurisdictional limit is based on the topography or elevation of land that confines surface water to a definite course

5 Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)
6 Rapanos v. United States, 547 U.S. 715 (2006)

when the surface water rises to its highest point. Further, the CDFW's jurisdictional limit extends to include any habitat (e.g. Riversidean alluvial fan sage scrub, riparian, riverine), including wetlands, supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. For this project location, CDFW jurisdictional limits were delineated using the methods outlined in the *MESA Field Guide* (CDFW 2014) and *A Review of Stream Processes and Forms in Dryland Watersheds* (CDFW 2010), which were developed to provide guidance on the methods utilized to describe and delineate episodic streams within the inland deserts region of southern California.

Section 4 Literature Review

Michael Baker conducted a thorough review of relevant literature and materials to preliminarily identify areas that may fall under the jurisdiction of the regulatory agencies. A summary of materials utilized during Michael Baker's literature review is provided below and in Appendix C. In addition, refer to Section 8 for a complete list of references used throughout the course of this delineation.

4.1 WATERSHED REVIEW

4.1.1 MOJAVE WATERSHED

Hooks Creek and Drainage 1 are located within the Mojave River Watershed (Hydrologic Unit Code 18090208) which encompasses approximately 4,500 square miles and is located entirely within the County of San Bernardino. The watershed is divided into five sub-basins: (1) Headwaters – tributaries above the Mojave Forks Dam; (2) Upper Basin – Mojave Forks Dam to the Lower Narrows at Victorville; (3) Middle Basin – Lower Narrows to the Waterman Fault at Barstow; (4) Lower Basin – Waterman Fault to Afton Canyon; and (5) Tailwater – Afton Canyon to Silver Dry Lake. The primary surface hydrologic feature of the watershed is the Mojave River which originates at its headwaters in the San Bernardino Mountains and flows north for approximately 120 miles until it terminates at Silver Dry Lake near the community of Baker. The Mojave River is typically dry downstream of the Mojave Forks Dam with water quickly percolating into the porous sands of the riverbed. As a result, groundwater is the primary source of water supply.

4.1.2 SANTA ANA RIVER WATERSHED

Drainages 2 and 3 are located within the Santa Ana River Watershed (HUC 18070203). The Santa Ana River watershed is located in southern California, south and east of the city of Los Angeles. The watershed includes much of Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The watershed is bounded on the south by the Santa Margarita watershed, on the east by the Salton Sea and Southern Mojave watersheds, and on the north/west by the Mojave and San Gabriel watersheds. The watershed is approximately 2,800 square miles in area.

The Santa Ana River watershed is located in the Peninsular Ranges and Transverse Ranges Geomorphic Provinces of Southern California (California Geological Survey Note 36). The highest elevations (upper reaches) of the watershed occur in the San Bernardino Mountains (San Gorgonio Peak – 11,485 feet in elevation), eastern San Gabriel Mountains (Transverse Ranges Province; Mt. Baldy – 10,080 feet in elevation), and San Jacinto Mountains (Peninsular

Ranges Province, Mt. San Jacinto – 10,804 feet in elevation). Further downstream, the Santa Ana Mountains and the Chino Hills form a topographic high before the river flows into the Coastal Plain (in Orange County) and into the Pacific Ocean. Primary slope direction is northeast to southwest, with secondary slopes controlled by local topography.

This watershed is in an arid region, and therefore has little natural perennial surface water. Surface waters start in the upper erosion zone of the watershed, primarily in the San Bernardino and San Gabriel Mountains. This upper zone has the highest gradient and soils/geology that do not allow large quantities of percolation of surface water into the ground. Flows consist mainly of snowmelt and storm runoff from the lightly developed San Bernardino National Forest; this water is generally high quality at this point. In this zone, the Santa Ana River is generally confined in its lateral movement, contained by the slope in the mountainous regions. In the upper valley, flows from the Seven Oaks dam to the city of San Bernardino consist mainly of storm flows, flows from the San Timoteo Creek, and groundwater that is rising due to local geological conditions. From the City of San Bernardino to the City of Riverside, the river flows perennially, and it includes treated discharges from wastewater treatment plants. From the City of Riverside to the recharge basins below Imperial Highway, river flow consists of highly treated wastewater discharges, urban runoff, irrigation runoff, and groundwater forced to the surface by shallow/rising bedrock. Near Corona, the river cuts through the Santa Ana Mountains and the Puente-Chino Hills. The river then flows into the Orange County Coastal Plain; the channel lessens and the gradient decreases. In a natural environment, a river in this area would have a much wider channel, increased meandering, and increased sediment build-up. However, much of the Santa Ana River channel in this area has been contained in concrete-lined channels, which modifies the flow regime and sediment deposition environment. The only major tributary of the Santa Ana River in Orange County is Santiago Creek, which joins the river in the City of Santa Ana. There is only one natural freshwater lake of any size – Lake Elsinore. A variety of water storage reservoirs (Lake Perris, Lake Mathews, and Big Bear Lake) and Flood Control areas (Prado Dam area and Seven Oaks Dam area) have been created to hold surface water.

4.2 LOCAL CLIMATE

San Bernardino County features a somewhat cooler version of a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Relative to other areas in southern California, winters are colder with frost and with chilly to cold morning temperatures common. Climatological data obtained from nearby weather stations indicates the annual precipitation averages 16.4 inches per year. Almost all of the precipitation in the form of rain occurs in the months between October and April, with hardly any occurring between the months of May and September. The wettest month is February, with a monthly average total precipitation of 3.7 inches. The average maximum and minimum temperatures for the region are 80.1 and 51.2 degrees Fahrenheit (°F) respectively with July and August

(monthly average 96°F) being the hottest months and December (monthly average 41°F) being the coldest.

4.3 USGS TOPOGRAPHIC QUADRANGLE

The project site is located within the Harrison Mountain quadrangle of the USGS 7.5-minute topographic map series in Sections 26 of Township 2 north, Range 3 west. Surface elevations within the project site ranges from approximately 5,660 to 5,730 feet above mean sea level and generally slopes to the northeast. The southern portion of the project site, south of SR 18, abuts the steep south-facing mountain face of the San Bernardino Mountains. According to the topographic map, the project site is comprised of multiple structure and vacant/undeveloped land within the San Bernardino National Forest. Hooks Creek is depicted as a blue-line stream and generally runs south to north. Two (2) ponds and Hencks Meadow is located on the central portion of the project site. Additionally, two (2) ephemeral drainage features are depicted within the project site, south of SR 18 (Drainage 2 and Drainage 3).

4.4 AERIAL PHOTOGRAPHS

Prior to the field visit, Michael Baker reviewed current and historical aerial photographs (1994-2015) of the project site as available from Google Earth Pro Imaging (Version 7.1.2.2041). Aerial photographs can be useful during the delineation process, as the photographs often indicate the presence of drainage features, ponded areas, and variations in plant communities, if any.

1994 – 2015: According to the 1996 through 2015 aerial photographs, the project site appears to consist of the Santa's Village theme park and vacant/undeveloped land within the San Bernardino National Forest. Surrounding land uses consist of single-family residential lots, roadways, and vacant/undeveloped land.

4.5 SOIL SURVEY

Soils within and adjacent to the project site were researched prior to the field visit using the U.S. Department of Agriculture (USDA), Soil Conservation Service, the NRCS, and Custom Soil Resource Report for the San Bernardino National Forest Area. The presence of hydric soils is initially investigated by comparing the mapped soil series for the site to the County list of hydric soils. Data from soil surveys is used to create soil maps and interpretations that were originally used to provide technical assistance to farmers and ranchers; to guide other decisions about soil selection, use, and management; and to assist in planning, research, and ultimately disseminating the results of the research. In addition, soil surveys are now heavily utilized in order to obtain soil information with respect to potential wetland environments and

jurisdictional areas (e.g. soil characteristics, drainage, and color). According to the Custom Soil Resource Report, the project site is underlain by the following soil units: Morical-Wind River Families Complex (15 to 30 percent slopes); Morical-Wind River Families Complex (30 to 50 percent slopes); and Springdale Family-Lithic Xerorthents Association, dry (50 to 75 percent slopes). Refer to Exhibit 7, *Soils*.

4.6 HYDRIC SOILS LIST OF CALIFORNIA

Michael Baker reviewed the National Hydric Soils List for the State of California (NRCS 2015), in an effort to verify whether or not on-site soils are considered to be hydric. It should be noted that lists of hydric soils and soil survey maps provide off-site ancillary tools to assist with wetland determinations, but are not a substitute for on-site investigations. According to the hydric soils list, none of the on-site soil types have been listed as hydric in the State of California.

4.7 NATIONAL WETLANDS INVENTORY

Michael Baker reviewed the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory maps. Three (3) freshwater ponds have been documented within the project site. No additional features are listed as occurring on-site. Refer to Appendix C, *Documentation*.

4.8 FLOOD ZONE

Michael Baker searched the Federal Emergency Management Agency website for flood data for the project site. Based on the Flood Insurance Rate Map No. 06071C7956H, the project site is within Zone X, or areas outside of the 1% (100-year) flood plain. Refer to Appendix C, *Documentation*.

Legend

- Project Site
- MbE — Morical-Wind River families complex, 15 to 30 percent slopes
- MbF — Morical-Wind River families complex, 30 to 50 percent slopes
- FLG — Springdale family-Lithic Xerorthents association,dry, 50 to 75 percent slopes

1/21/2016 JN M:\Mdata\144067\MXD\JD\07 Soils.mxd

SKYPARK AT SANTA'S VILLAGE PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Michael Baker INTERNATIONAL

0 275 550 1,100 Feet

Source: San Bernardino County, NRCS Soils Data Mart-CA777, Eagle Aerial 2013

Soils

Exhibit 7

Section 5 Site Conditions

Michael Baker biologists Thomas C. Millington and Travis J. McGill conducted a field investigation of the project site on November 20, 2014 and September 22, 2015 to verify existing site conditions and document potential jurisdictional areas. Michael Baker field staff encountered no limitations during the site visits. Exhibits 8 and 9 depict the mapped jurisdictional features on-site. Refer to Appendix A for representative photographs taken throughout the project site.

The majority of the project site is undeveloped, consisting of naturally occurring habitats which will continue to remain undeveloped. Dirt fire access roads traverse the site. These existing dirt access roads are proposed to be used for various mountain biking/hiking trail activities. The developed portions of the project site include existing buildings and infrastructure associated with the Santa's Village Amusement Park that opened in 1955. The various buildings associated with the amusement park have remained intact since the park's closure in 1998. The proposed new land use will renovate these existing buildings.

After the park's closure, the parking lot on the north side of SR-18 (western portion of the project site) and the overflow parking lot south of SR-18 (southern portion of the project site) provided a storage yard and staging area for bark beetle infested lumber. The infested wood was chipped and spread out over the paved parking lots.

5.1 DRAINAGE FEATURES

5.1.1 HENCKS MEADOW AND HOOKS CREEK

Hooks Creek is the primary hydrogeomorphic feature found on-site and generally flows in a southwest to northeast direction. Hooks Creek originates at SR-18 near the southwestern corner of the property and extends along the western boundary of the site before it exists near the northeastern corner of the property. From its origin at SR-18 Hooks Creek sheet flows for approximately 700 feet across the existing paved parking lot of Santa's village before flowing into Hencks Meadow at the uppermost reach of Hooks Creek, where Hooks Creek then becomes an earthern drainage feature. Hooks Creek extends through Hencks Meadow for approximately 530 feet before it continues for approximately 420 feet through the area previously disturbed when it was used as a storage yard and staging area for the bark beetle infested lumber. After the disturbed area, Hooks Creek extends through a southern willow scrub plant community for approximately 270 feet before entering into the existing pond created by the previous owner for water storage. The pond is approximately 1 acre in size. Downstream (north) of the pond, the creek runs through a mixed conifer forest and varies

between being generally open and covered in vegetation for approximately 1,300 feet before exiting the property.

Following significant storm events, surface flows collected within the pond and are anticipated permeate downstream within Hooks Creek via the high water table and then continue downstream to Deep Creek.

Generally, the ordinary high water mark (OHWM) ranged from 2 to 8 feet in width and was documented through the observation of the following indicators: flow patterns; drift deposits; saturation; and substrate characteristics. Due to historic on-site land uses (timber farm), the upstream portions of Hooks Creek are heavily disturbed and covered with remnant debris from the processing and staging of timber. Within Hencks Meadow is vegetated with fragmented patches of riparian vegetation including arroyo willow (*Salix lasiolepis*; FACW), mulefat (*Baccharis salicifolia*; FAC), fragrant everlasting (*Pseudognaphalium beneolens*; UPL), slender leaved sedge (*Carex athrostachya*; FACW), Pacific rush (*Juncus effuses* ssp. *pacificus*; FACW), and cattail (*Typha lytafolia*; OBL). Further downstream, immediately upstream (south) of the existing on-site pond, Hooks Creek becomes more densely vegetated and supports a southern willow scrub plant community. Plant species observed within this community include arroyo willow, stinging nettle (*Urtica dioica*; FAC), sticktight (*Bidens frondosa*; FACW), northern water plantain (*Alisma triviale*; OBL), horehound (*Marrubium vulgare*; FACU), and watercress (*Nasturtium officinale*; OBL).

Hooks Creek and tributary to Deep Creek (Relatively Permanent Water) and ultimately the Mojave River (Traditional Navigable Water) and falls under the regulatory authority of the Corps, Regional Board, and CDFW. Portions of Hencks Meadow and the southern (upper) reach of Hooks Creek, north of the existing on-site poind, will be impacted from the meadow rehabilitation activities. These impacts are further described in Section 6 below.

5.1.2 DRAINAGE 1 (D-1)

Drainage 1 is an earthern drainage feature that generally flows from southeast to northwest from the project's northeastern boundary for approximately 450 feet before converging into Hooks Creek. The OHWM ranged from 2 to 6 feet in width and was documented through the observation of the following indicators: flow patterns; drift deposits; saturation; and substrate characteristics. Drainage 1 flows through the mixed conifer forest and varies between being generally open and covered in vegetation. No impacts to Drainage 1 will occur as a result of installation of the proposed trials.

5.1.3 DRAINAGE 2 (D-2)

Drainage 2 is an earthern drainage feature located on the northwest portion of the property south of SR-18 west of the proposed campground. Drainage 2 generally flows in a northeast to southwest direction from SR-18 for approximately 850 feet down the south-facing slope of the San Bernardino Mountains via topography and is depicted as a blueline stream on USGS topographic maps. The OHWM ranged from 1 to 4 feet in width and was documented through the observation of the following indicators: flow patterns; drift deposits; saturation; and substrate characteristics. Drainage 2 flows through the chaparral plant community.

Drainage 2 flows south into City Creek which is tributary to the Santa Ana River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water) and falls under the regulatory authority of the Corps, Regional Board, and CDFW. No impacts to Drainage 2 will occur as a result of installation of the proposed campground south of SR-18.

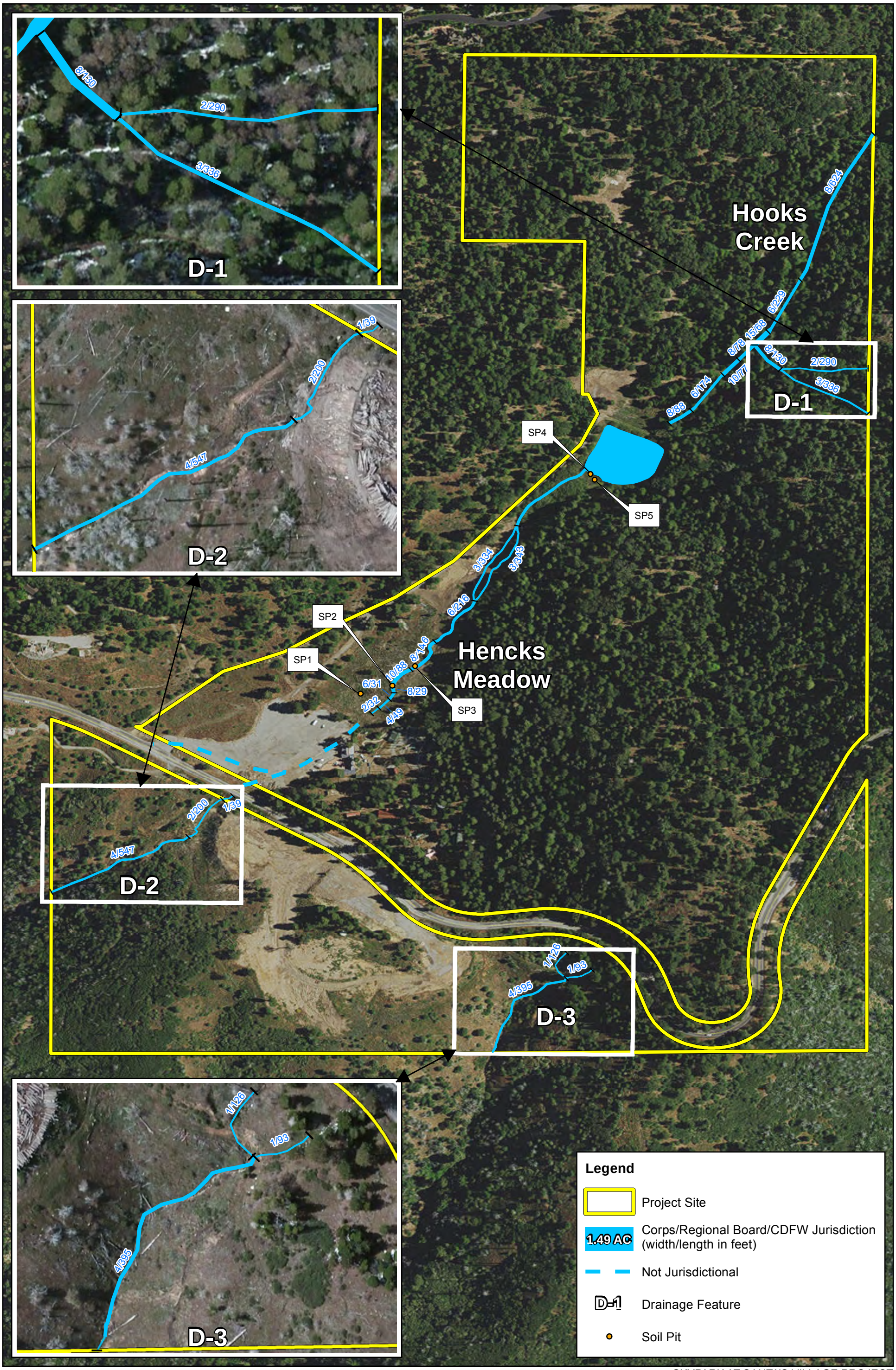
5.1.4 DRAINAGE 3 (D-3)

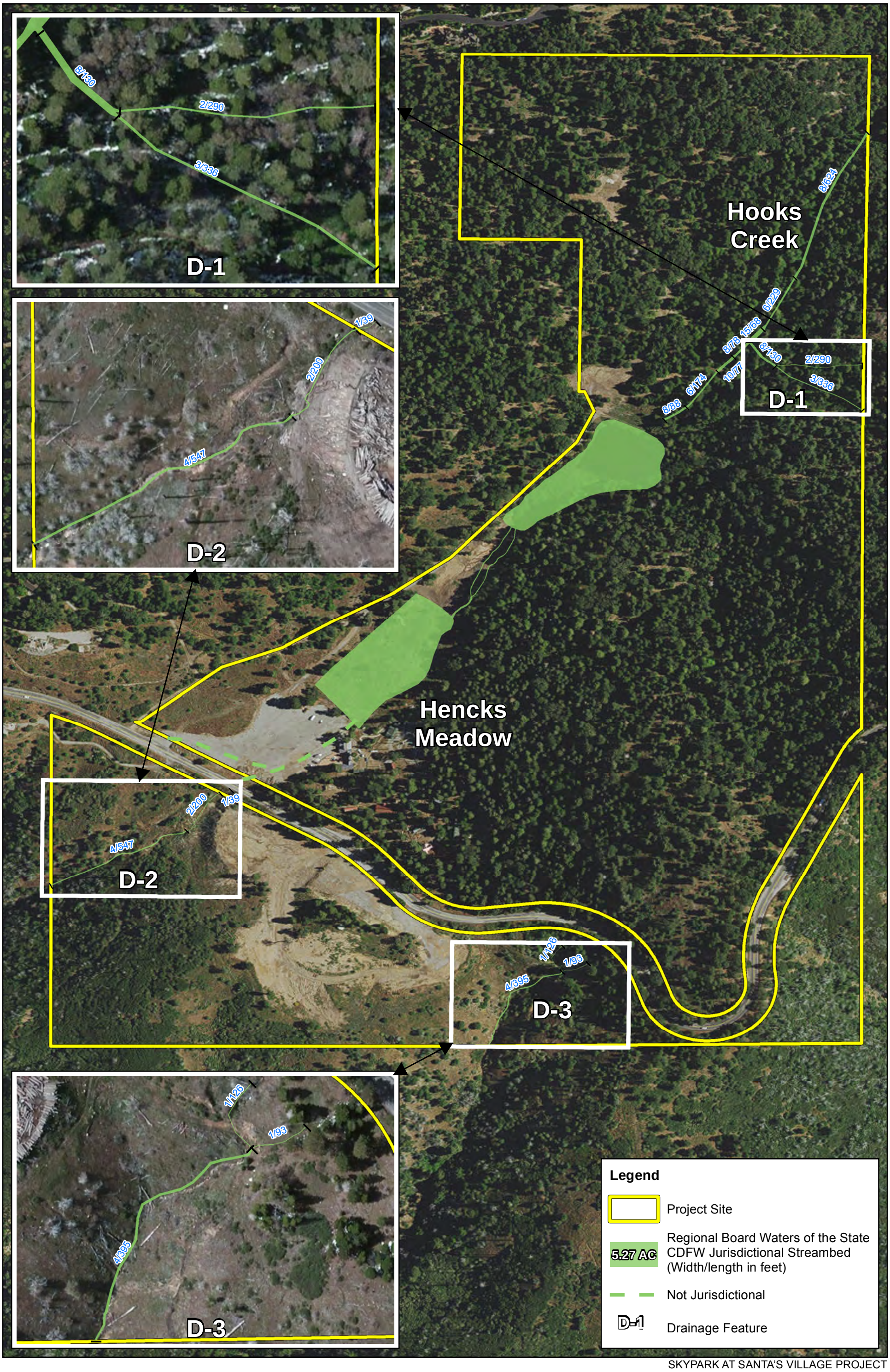
Drainage 3 is an earthern drainage feature located on the southeast portion of the property south of SR-18 east of the proposed campground. Drainage 3 generally flows in a north to south direction from SR-18 for approximately 500 feet down the south-facing slope of the San Bernardino Mountains via topography and is depicted as a blueline stream on USGS topographic maps. The OHWM ranged from 1 to 4 feet in width and was documented through the observation of the following indicators: flow patterns; drift deposits; saturation; and substrate characteristics. Drainage 2 flows through the chaparral plant community.

Drainage 3 flows south into City Creek which is tributary to the Santa Ana River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water) and falls under the regulatory authority of the Corps, Regional Board, and CDFW. No impacts to Drainage 3 will occur as a result of installation of the proposed campground.

5.2 WETLAND FEATURES

In order to qualify as a federal wetland, a feature must exhibit at least minimal characteristics within each of the three wetland parameters described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008). Based on the results of the field investigation and soil pit data the only area that met all three wetland parameters is a small fringe wetland on the southern border of the existing on-site pond. When water levels are low in the pond, hydrophytic vegetation is able to establish on the banks of the on-site pond, and anaerobic soil conditions form resulting in a wetland on the boundary of the on-site pond. No impacts to this area will occur from project implementation.


D-1
8/130
2/290
3/336
D-2
1/39
2/200
4/547
D-3
1/126
1/93
4/395
Hooks Creek
8/624
6/229
15/68
8/78
10/77
6/174
8/88
SP4
SP5
3/334
3/343
6/216
SP2
SP1
SP3
Hencks Meadow
10/88
8/146
6/31
8/29
2/32
4/49
Legend
Project Site
1.49 AC
Corps/Regional Board/CDFW Jurisdiction (width/length in feet)
Not Jurisdictional
Drainage Feature
Soil Pit
0
175
350
700
Feet
Source: San Bernardino County, ESRI World Imagery
Michael Baker INTERNATIONAL
3/8/2017 JN M:\Mdata\144067\MXD\JD\08 JDv4.mxd
SKYPARK AT SANTA'S VILLAGE PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS
Corps Jurisdictional Areas
Exhibit 8



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Michael Baker INTERNATIONAL

0 175 350 700 Feet

Source: San Bernardino County, ESRI World Imagery

SKYPARK AT SANTA'S VILLAGE PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Regional Board/CDFW Jurisdictional Areas

Exhibit 9

Section 6 Findings

This delineation has been prepared for the proposed project in order to document the jurisdictional authority of the Corps, Regional Board, and CDFW within the boundaries of the project site. This report presents Michael Baker's best effort at determining the extent of jurisdictional features using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. Ultimately the regulatory agencies make the final determination of jurisdictional boundaries.

No impacts to Hooks Creek, or Drainages 1-3 are anticipated from installation of the proposed trials, except within the meadow area. Construction of proposed new trails outside of the meadow, but within the project site, will avoid impacts to jurisdictional waters. The existing trials within the project site will generally be left in a "rough" state, unpaved and with brush cleared and overhanging vegetation trimmed. No dredging or fill material will be placed in any of the jurisdictional features outside of the meadow area on-site. Any proposed trail crossings adjacent to or over jurisdictional features will occur outside of the jurisdictional limits of Corps, Regional Board, and CDFW. In particular, proposed trails will be installed over the drainage feature, outside of the top of bank. Additionally, an elevated trail will be installed within the temporarily disturbed portions of Hencks Meadow and Hooks Creek as part of the meadow rehabilitation project. Since the trail will be elevated, plants will be able to grow under the trail, and impacts to Hencks Meadow and Hooks Creek, as part of the meadow rehabilitation project, have been accounted for in the temporary impact analysis below.

6.1 U.S. ARMY CORPS OF ENGINEERS

Hooks Creek and Drainage 1 are tributary to Deep Creek (Relatively Permanent Water) and ultimately the Mojave River (Traditional Navigable Water). Whereas, Drainage 2 and 3 flow into City Creek which is tributary to the Santa Ana River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water). As a result, Hooks Creek and Drainages 1-3 all qualify as waters of the United States and fall under the regulatory authority of the Corps. Approximately 1.49 acres (5,270 linear feet) of Corps jurisdiction (non-wetland waters) is located within the boundaries of the project site. Refer to Exhibit 8, *Corps Jurisdictional Areas*, for an illustration of Corps jurisdictional areas.

In agreement with between Skypark and the NRCS, the proposed project includes the rehabilitation of Henck's Meadow (restoration and improvement of the upstream portions of Hook Creek). Since there is an established agreement between Skypak and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Corps CWA Section 404 permit will not be required from the Corps for the meadow rehabilitation project.

6.2 REGIONAL WATER QUALITY CONTROL BOARD

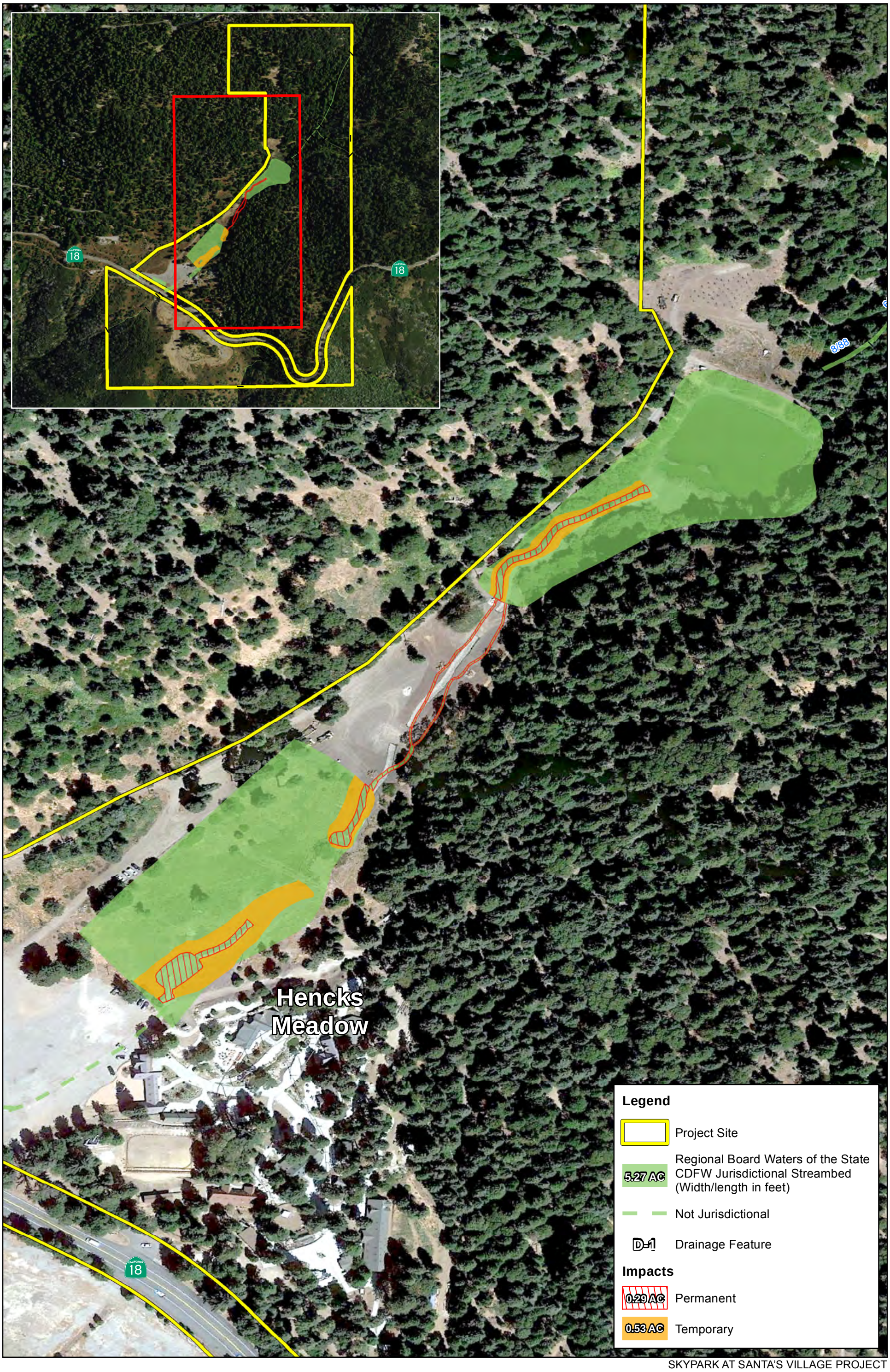
Hooks Creek, including Hencks Meadow, and Drainages 1-3 exhibit characteristics consistent with the Regional Board's methodology and would be considered "waters of the State". Approximately 5.27 acres (5,270 linear feet) of Regional Board jurisdiction is located within boundaries of the project site. Refer to Exhibit 9, *Regional Board/CDFW Jurisdictional Area*, for an illustration of Regional Board jurisdictional areas.

Based on a review of design plans for the meadow rehabilitation project provided by the NRCS, approximately 0.82 acre of impacts will occur to Regional Baord jurisdictional areas as a result from the rehabilitation project. Of the 0.82 acre of impacts, 0.29 acre of permanent impacts will occur from the installation of riprap and the sediment basins, and 0.53 acre of temporary impacts will occur from construction activities. In addition, maintenance of the rehabilitated meadow will result in minor impacts to Regional Board jurisdictional areas from removal of sediment from the created basins. These impacts will be addressed during the Report of Waste Discharge permit process since a defined amount of impact cannot be calculated at this time. The other drainage features within the boundaries of the project site will not be impacted. Refer to Exhibit 10, *Jurisdictional Impacts*.

6.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Hooks Creek, including Hencks Meadow, and Drainages 1-3 exhibit characteristics consistent with CDFW's methodology and would be considered CDFW streambed. Approximately 5.27 acres (5,270 linear feet) of CDFW jurisdiction is located within boundaries of the project site. Refer to Exhibit 9, *Regional Board/CDFW Jurisdictional Area*, for an illustration of CDFW jurisdictional areas.

Based on a review of design plans for the meadow rehabilitation project provided by the NRCS, approximately 0.82 acre of impacts will occur to CDFW jurisdictional areas as a result from the rehabilitation project. Of the 0.82 acre of impacts, 0.29 acre of permanent impacts will occur from the installation of riprap and the sediment basins, and 0.53 acre of temporary impacts will occur from construction activities. In addition, maintenance of the rehabilitated meadow will result in minor impacts to CDFW jurisdictional areas from removal of sediment from the created basins. These impacts will be addressed during the 1602 permit process since a defined amount of impact cannot be calculated at this time. The other drainage features within the boundaries of the project site will not be impacted. Refer to Exhibit 10, *Jurisdictional Impacts*.



3/6/2017 JN M:\Mdata\144067\MXD\JD\10 Jurisdictional Impacts v2.mxd

Michael Baker INTERNATIONAL

0 100 200 400 Feet

Source: San Bernardino County, Google Imagery, Esri Imagery

SKYPARK AT SANTA'S VILLAGE PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Regional Board/CDFW Jurisdictional Impacts

Exhibit 10

Section 7 Regulatory Approval Process

The following is a summary of the various permits, certifications, and agreements that may be necessary prior to construction and/or alteration within jurisdictional areas.

7.1 UNTED STATES ARMY CORPS OF ENGINEERS

In agreement with between Skypark and the NRCS, NRCS has developed plans or a program to rehabilitate Henck's Meadow (restoration and improvement of the upstream portions of Hook Creek). Since the NRCS has planned and will manage the rehabilitation of the meadow, the Corps will not require a CWA Section 404 permit for this project.

7.2 NATURAL RESOURCES CONSERVATION SERVICE

Specific Nationwide Permits do not require a pre-construction notification to the Corps if one of the following two situations applies:

a) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the USFWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies.

b) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards.

Both of these conditions apply to this program developed by the NRCS. Therefore, since there is an established agreement between Skypak and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Corps CWA Section 404 permit will not be required.

7.3 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Board regulates discharges to surface waters pursuant to Section 401 of the CWA and the California *Porter-Cologne Water Quality Control Act*. Since there is an established agreement between Skypak and the NRCS, and the meadow rehabilitation is a planned NRCS activity, a Corps CWA Section 404 permit will not be required from the Corps for the meadow rehabilitation project. As a result, a Corps CWA Section 404 permit will not be issued for the meadow rehabilitation project. Therefore, it will be necessary for Skypark to acquire a Report of Waste Discharge from the Regional Board for impacts occurring within Regional Board jurisdictional areas.

7.4 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Pursuant to Section 1602 of the Fish and Game Code, CDFW regulates any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream. Therefore, it will be necessary for Skypark to acquire a Section 1602 Streambed Alteration Agreement for impacts occurring within CDFW jurisdictional areas.

7.5 RECOMMENDATIONS

It is recommended that this delineation be forwarded to the regulatory agencies listed in this report for their concurrence. The concurrence/receipt would be valid up to five years and would solidify findings noted within this report.

Section 8 References

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Appendix A Site Photographs

Photograph 1: Looking southwest at Hooks Creek on the central portion of the project site.

Photograph 2: Looking northeast at Hooks Creek on the central portion of the project site.

Photograph 3: View of stands of arroyo willow (*Salix lasiolepis*) associated with upstream portions of Hooks Creek.

Photograph 4: View of meadow adjacent to the headwaters of Hooks Creek on the southern portion of the project site.

Photograph 5: Looking northeast at existing detention basin on the northern portion of the project site.

Photograph 6: View of proposed parking lot location and disturbances associated with the on-site staging and processing of timber resources.

Photograph 7: View of proposed parking lot location and disturbances associated with the on-site staging and processing of timber resources.

Appendix B Methodology

WATERS OF THE UNITED STATES

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S.", including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." The term "*waters of the United States*" is defined as follows:

(i) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(ii) All interstate waters, including interstate wetlands[7].

(iii) The territorial seas.

(iv) All impoundments of waters otherwise defined as watres of the United States under the definition.

(v) All tributaries[8] of waters identified in paragraphs (i) through (iii) mentioned above.

(vi) All waters adjacent[9] to a water identified in paragraphs (i) through (v) mentioned above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

(vii) All prairie potholes, Carolina bays and Delmarva bays, Pocosins, western vernals pools, Texas coastal prairie wetlands, where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (i) through (iii) meantioned above.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) mentioned above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) mentioned above, where they are determined on a case-specific basis to have a

---

7 The term *wetlands* means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

8 The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (iv) mentioned above), to a water identified in paragraphs (i) through (iii) mentioned above, that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark.

9 The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (i) through (v) mentioned above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like.

significant nexus to a waters identified in paragraphs (i) through (iii) mentioned above.

The following features are not defined as "waters of the United States" even when they meet the terms of paragraphs (iv) through (viii) mentioned above:

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requriements of the Clean Water Act.

(ii) Prior converted cropland.

(iii) The following ditches:

- (A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
- (B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
- (C) Ditches that do not flow, either directly or through another water, into a water of the United States as identified in paragraphs (i) through (iii) of the previous section.

(iv) The following features:

- (A) Artificially irrigated areas that would rever to dry land should application of water that area cease;
- (B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
- (C) Artificial reflecting pools or swimming pools created in dry land;
- (D) Small ornamental waters created in dry land;
- (E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
- (F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways; and
- (G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

WETLANDS

For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps, 2008). This document is one of a series of Regional Supplements to the Corps Wetland Delineation Manual (Corps 1987). The identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three (3) parameters. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. In the field, vegetation, soils, and evidence of hydrology have been examined using the methodology listed below and documented on Corps' wetland data sheets, when applicable. It should be noted that both the Regional Board and the CDFW jurisdictional wetlands encompass those of the Corps.

Vegetation

Nearly 5,000 plant types in the United States may occur in wetlands. These plants, often referred to as hydrophytic vegetation, are listed in regional publications by the U.S. Fish and Wildlife Service (USFWS). In general, hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during growing season. Hydrophytic vegetation decisions are based on the assemblage of plant species growing on a site, rather than the presence or absence of particular indicator species. Vegetation strata are sampled separately when evaluating indicators of hydrophytic vegetation. A stratum for sampling purposes is defined as having 5 percent or more total plant cover. The following vegetation strata are recommended for use across the Arid West:

- *Tree Stratum:* Consists of woody plants 3 inches or more in diameter at breast height (DBH), regardless of height;
- *Sapling/shrub stratum:* Consists of woody plants less than 3 inches DBH, regardless of height;
- *Herb stratum:* Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size; and,
- *Woody vines:* Consists of all woody vines, regardless of size.

The following indicator is applied per the test method below.[10] Hydrophytic vegetation is present if any of the indicators are satisfied.

Indicator 1 – Dominance Test

Cover of vegetation is estimated and is ranked according to their dominance. Species that contribute to a cumulative total of 50% of the total dominant coverage, plus any species that comprise at least 20% (also known as the "50/20 rule") of the total dominant coverage, are recorded on a wetland data sheet. Wetland indicator status in California (Region 0) is assigned to each species using the *National Wetland Plant List, version 2.4.0* (Corps 2012). If greater than 50% of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation is considered to be met. Plant indicator status categories are described below:

- *Obligate Wetland (OBL):* Plants that almost always occur in wetlands;
- *Facultative Wetland (FACW):* Plants that usually occur in wetlands, but may occur in non-wetlands;
- *Facultative (FAC):* Plants that occur in wetlands and non-wetlands;
- *Facultative Upland (FACU):* Plants that usually occur in non-wetlands, but may occur in wetlands; and,
- *Obligate Upland (UPL):* Plants that almost never occur in wetlands.

Hydrology

Wetland hydrology indicators are presented in four (4) groups, which include:

Group A – Observation of Surface Water or Saturated Soils

Group A is based on the direct observation of surface water or groundwater during the site visit.

Group B – Evidence of Recent Inundation

[10] Although the Dominance Test is utilized in the majority of wetland delineations, other indicator tests may be employed. If one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present, then the Prevalence Test (Indicator 2) may be performed. If the plant community satisfies the Prevalence Test, then the vegetation is hydric. If the Prevalence Test fails, then the Morphological Adaptation Test may be performed, where the delineator analyzes the vegetation for potential morphological features.

Group B consists of evidence that the site is subject to flooding or ponding, although it may not be inundated currently. These indicators include water marks, drift deposits, sediment deposits, and similar features.

Group C – Evidence of Recent Soil Saturation

Group C consists of indirect evidence that the soil was saturated recently. Some of these indicators, such as oxidized rhizopheres surrounding living roots and the presence of reduced iron or sulfur in the soil profile, indicate that the soil has been saturated for an extended period.

Group D – Evidence from Other Site Conditions or Data

Group D consists of vegetation and soil features that indicate contemporary rather than historical wet conditions, and include shallow aquitard and the FAC-neutral test.

If wetland vegetation criteria is met, the presence of wetland hydrology is evaluated at each transect by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil test pits. The lateral extent of the hydrology indicators are used as a guide for locating soil pits for evaluation of hydric soils and jurisdictional areas. In portions of the stream where the flow is divided by multiple channels with intermediate sand bars, the entire area between the channels is considered within the OHWM and the wetland hydrology indicator is considered met for the entire area.

Soils

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper 16-20 inches.[11] The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. It should also be noted that the limits of wetland hydrology indicators are used as a guide for locating soil pits. If any hydric soil features are located, progressive pits are dug moving laterally away from the active channel until hydric features are no longer present within the top 20 inches of the soil profile.

Once in the field, soil characteristics are verified by digging soil pits along each transect to an excavation depth of 20 inches; in areas of high sediment deposition, soil pit depth may be increased. Soil pit locations are usually placed within the drainage invert or within adjoining vegetation. At each soil pit, the soil texture and color are recorded by comparison with standard

[11] According to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008), growing season dates are determined through on-site observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature.

plates within a *Munsell Soil Chart* (2009). Munsell Soil Charts aid in designating color labels to soils, based by degrees of three simple variables – hue, value, and chroma. Any indicators of hydric soils, such as organic accumulation, iron reduction, translocation, and accumulation, and sulfate reduction, are also recorded.

Hydric soil indicators are present in three groups, which include:

All Soils

"All soils" refers to soils with any United States Department of Agriculture (USDA) soil texture. Hydric soil indicators within this group include histosol, histic epipedon, black histic, hydrogen sulfide, stratified layers, 1 cm muck, depleted below dark surface, and thick dark surface.

Sandy Soils

"Sandy soils" refers to soil materials with a USDA soil texture of loamy fine sand and coarser. Hydric soil indicators within this group include sandy mucky mineral, sandy gleyed matrix, sandy redox, and stripped matrix.

Loamy and Clayey Soils

"Loamy and clayey soils" refers to soil materials with a USDA soil texture of loamy very fine sand and finer. Hydric soil indicators within this group include loamy mucky mineral, loamy gleyed matrix, depleted matrix, redox dark surface, depleted dark surface, redox depressions, and vernal pools.

SWANCC WATERS

The term "isolated waters" is generally applied to waters/wetlands that are not connected by surface water to a river, lake, ocean, or other body of water. In the presence of isolated conditions, the Regional Board and CDFW take jurisdiction through the application of the OHWM/streambed and/or the 3 parameter wetland methodology utilized by the Corps.

RAPANOS WATERS

The Corps will assert jurisdiction over non-navigable, not relatively permanent tributaries and their adjacent wetlands where such tributaries and wetlands have a significant nexus to a TNW. The flow characteristics and functions of the tributary itself, in combination with the functions performed by any wetlands adjacent to the tributary, determine if these waters/wetlands significantly affect the chemical, physical, and biological integrity of the TNWs. Factors considered in the significant nexus evaluation include:

(1) The consideration of hydrologic factors including, but not limited to, the following:

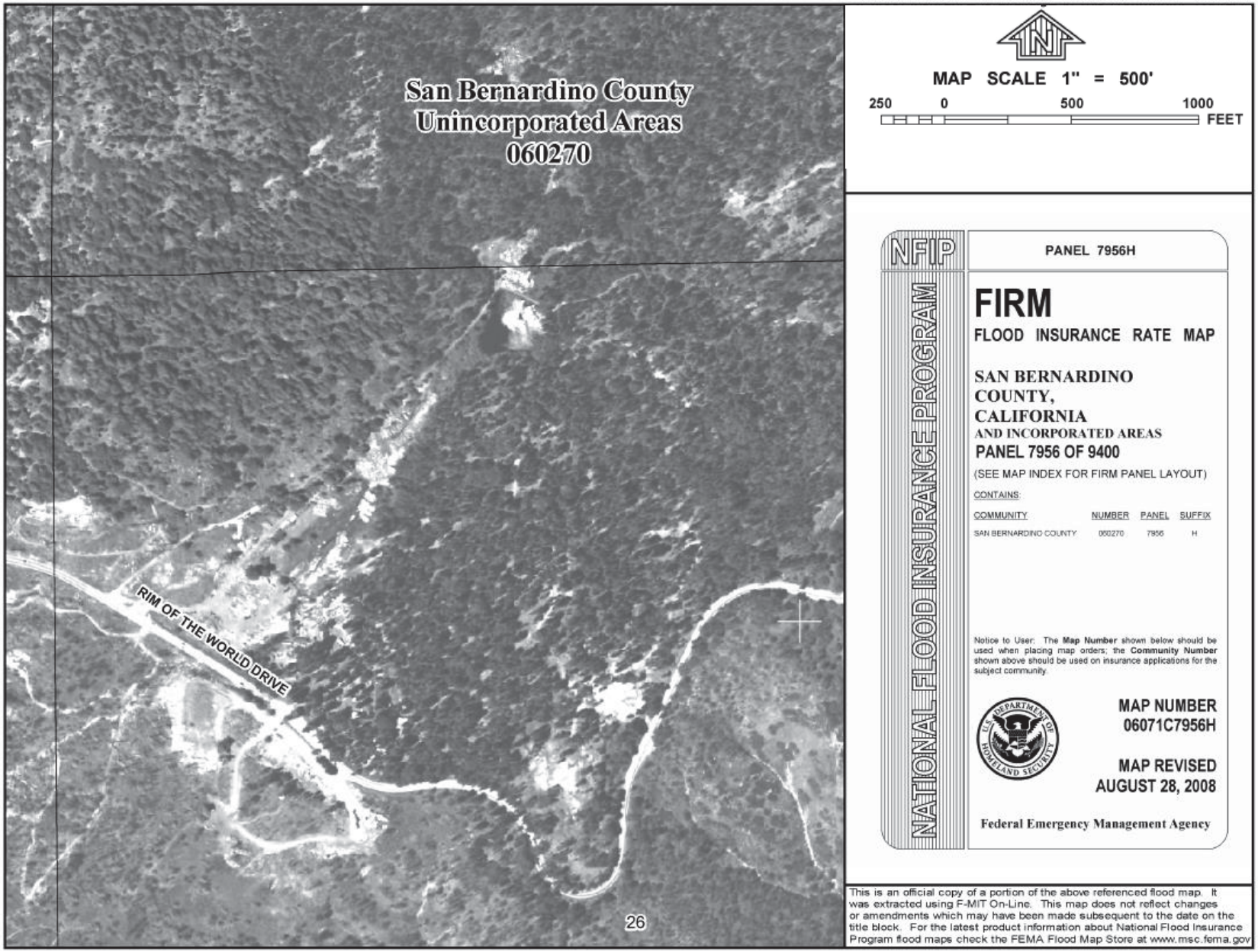
- volume, duration, and frequency of flow, including consideration of certain physical characteristics of the tributary
- proximity to the TNW
- size of the watershed average annual rainfall
- average annual winter snow pack

(2) The consideration of ecologic factors including, but not limited to, the following:

- the ability for tributaries to carry pollutants and flood waters to TNWs
- the ability of a tributary to provide aquatic habitat that supports a TNW
- the ability of wetlands to trap and filter pollutants or store flood waters
- maintenance of water quality

Appendix C Documentation


U.S. Fish and Wildlife Service
National Wetlands Inventory
SKYPARK AT SANTA'S VILLAGE PROJECT
Wetlands
Freshwater Emergent
Freshwater Forested/Shrub
Estuarine and Marine Deepwater
Estuarine and Marine
Freshwater Pond
Lake
Riverine
Other
Skyforest
San Bernardino National Forest
500 m
2000 ft
POWERED BY esri
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.


San Bernardino County
Unincorporated Areas
060270
RIM OF THE WORLD DRIVE
26
MAP SCALE 1" = 500'
250 0 500 1000
FEET
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 7956H
FIRM
FLOOD INSURANCE RATE MAP
SAN BERNARDINO COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 7956 OF 9400
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
SAN BERNARDINO COUNTY 060270 7956 H
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
06071C7956H
MAP REVISED
AUGUST 28, 2008
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix D Soil Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Skypark at Santa's Village City/County: Skyforest / San Bernardino Sampling Date: 11/20/2014

Applicant/Owner: Skypark at Santa's Village State: CA Sampling Point: SP-1

Investigator(s): Travis J. McGill, Thomas C. Millington Section, Township, Range: Section 26, Township 2 North, Range 3 West

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat Slope (%): 0 - 5%

Subregion (LRR): C - Mediterranean Lat: 34.233643 Long: -117.169468 Datum: NAD 83

Soil Map Unit Name: (MbF) Morical-Wind River Families Complex, 30 to 50 Percent Slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Slender leaved sedge (Carex athrostachya)	50	Yes	FACW
2. Pacific rush (Juncus effusus ssp. pacificus)	10	No	FACW
3. Stinging nettle (Urtica dioica)	2	No	FAC
4.			
5.			
6.			
7.			
8.			
	62 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 38 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species 60	x 2 =	120
FAC species 2	x 3 =	6
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 62 (A)		126 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 18 "	10 YR 2 / 1	100	-	-	-	-	Silty Clay	Loam
18 " =	Bottom of pit							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Not applicable

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil sample comprised entirely of one layer with no visible redoximorphic features or hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✓ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 4 inches

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water present adjacent to soil point. Saturation present within sample.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Skypark at Santa's Village City/County: Skyforest / San Bernardino Sampling Date: 11/20/2014

Applicant/Owner: Skypark at Santa's Village State: CA Sampling Point: SP-2

Investigator(s): Travis J. McGill, Thomas C. Millington Section, Township, Range: Section 26, Township 2 North, Range 3 West

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1 - 2%

Subregion (LRR): C - Mediterranean Lat: 34.233730 Long: -117.169128 Datum: NAD 83

Soil Map Unit Name: (MbF) Morical-Wind River Families Complex, 30 to 50 Percent Slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Arroyo willow (Salix lasiolepis)	25	Yes	FACW
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Slender leaved sedge (Carex athrostachya)	50	Yes	FACW
2. Broadleaved cattail (Typha latifolia)	20	Yes	OBL
3. Everlasting (Pseudognaphalium beneolens)	20	Yes	FACU
4. Pacific rush (Juncus effusus ssp. pacificus)	10	No	FACW
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	85	x 2 =	170
FAC species		x 3 =	
FACU species	20	x 4 =	80
UPL species		x 5 =	
Column Totals:	125 (A)		270 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 20 "	10 YR 2 / 2	100	-	-	-	-	Loamy	Sand
20 " =	Bottom of pit							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Not applicable

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil sample comprised entirely of one layer with no visible redoximorphic features or hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Skypark at Santa's Village City/County: Skyforest / San Bernardino Sampling Date: 11/20/2014

Applicant/Owner: Skypark at Santa's Village State: CA Sampling Point: SP-3

Investigator(s): Travis J. McGill, Thomas C. Millington Section, Township, Range: Section 26, Township 2 North, Range 3 West

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1 - 2%

Subregion (LRR): C - Mediterranean Lat: 34.233946 Long: -117.168881 Datum: NAD 83

Soil Map Unit Name: (MbF) Morical-Wind River Families Complex, 30 to 50 Percent Slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Broadleaved cattail (Typha latifolia)	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 100	x 1 = 100
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 100 (A)	100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 -18 "	10 YR 2 / 2	100	-	-	-	-	Loamy	Sand
18 " =	Bottom of pit							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Not applicable

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

Soil sample comprised entirely of one layer with no visible redoximorphic features or hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Skypark at Santa's Village City/County: Skyforest / San Bernardino Sampling Date: 11/20/2014

Applicant/Owner: Skypark at Santa's Village State: CA Sampling Point: SP-4

Investigator(s): Travis J. McGill, Thomas C. Millington Section, Township, Range: Section 26, Township 2 North, Range 3 West

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1 - 2%

Subregion (LRR): C - Mediterranean Lat: 34.236008 Long: -117.166993 Datum: NAD 83

Soil Map Unit Name: (MbF) Morical-Wind River Families Complex, 30 to 50 Percent Slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Northern water plantain (Alisma triviale)	90	Yes	FACW
2. Water cress (Nasturtium officinale)	2	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	90	x 2 =	180
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	92 (A)		182 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 2 "	10 YR 2 / 1	100	-	-	-	-	Silty Clay	Loam
2 - 4 "	7.5 YR 2.5 / 2	100	-	-	-	-	Sand	
4 - 18"	10 YR 2/1	100	-	-	-	-	Silty Clay	Loam
18 " =	Bottom of pit							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Not applicable

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Hydric soils found on the fringe of the existing pond. Water levels fluctuate within the pond and this area is frequently under water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Skypark at Santa's Village City/County: Skyforest / San Bernardino Sampling Date: 11/20/2014

Applicant/Owner: Skypark at Santa's Village State: CA Sampling Point: SP-5

Investigator(s): Travis J. McGill, Thomas C. Millington Section, Township, Range: Section 26, Township 2 North, Range 3 West

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1 - 2%

Subregion (LRR): C - Mediterranean Lat: 34.235948 Long: -117.166947 Datum: NAD 83

Soil Map Unit Name: (MbF) Morical-Wind River Families Complex, 30 to 50 Percent Slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Watercress (Nasturtium officinale)	25	Yes	OBL
2. Northern water plantain (Alisma triviale)	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 25	x 1 = 25
FACW species 25	x 2 = 50
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 50 (A)	75 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18 "	10 YR 2 / 1	100	-	-	-	-	Silty Clay	Loam
18 " =	Bottom of pit							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Not applicable

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix J: Existing Septic System Details

RWM & ASSOCIATES, LLC
Civil Engineering, Land Surveying and Building Design

P.O. Box 520, Twin Peaks, CA 92391
(909) 337-3058

Kevin White, Senior Planner
County of San Bernardino
Land Use Services Department – Planning Division
385 North Arrowhead, First Floor
San Bernardino, Ca. 92415-0187
Email: Kwhite@lus.sbcounty.gov

9-Aug-16

Attn: Lahontan Regional Water Board

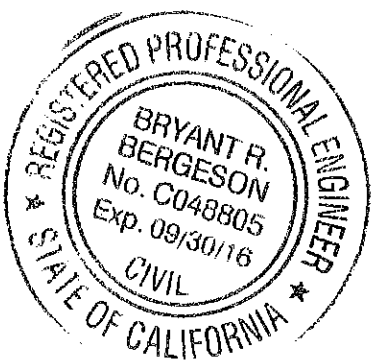
This is in part a response to the draft review dated July 21, 2016 Re: Environmental doc review, San Bernardino County – Sky Park at Santa's Village Clearinghouse #201509100. These comments are germane only to the Lahontan Regional Boards comments.

The existing septic systems based on my review and design analysis has no added impact to the existing quality of ground water see attached maps and reports in regards to the existing septic system, it also shows the components of the existing septic system. The project does not have any new systems proposed inside this boards region of the project. The map also shows location and elevations and distances in regards to the closet functioning well. The minimum 5' separation is met with no problem. The systems have been maintained and upgraded over the years and are great running condition today and future upgrades and maintenance will be through proper permitting through the county.

In regards to existing systems installed, it was all in place prior to May 15, 1975 and over the years it has had septic certs done and the systems have undergone minor upgrades nothing to significant, but if this occurs we will file the changes through environmental health. Also in regards to this project affecting the deep creek water shed it is my professional opinion that there is no significant impact at this present time with the proposed project as designed. Please review the map and reports if there is any questions please let me know.

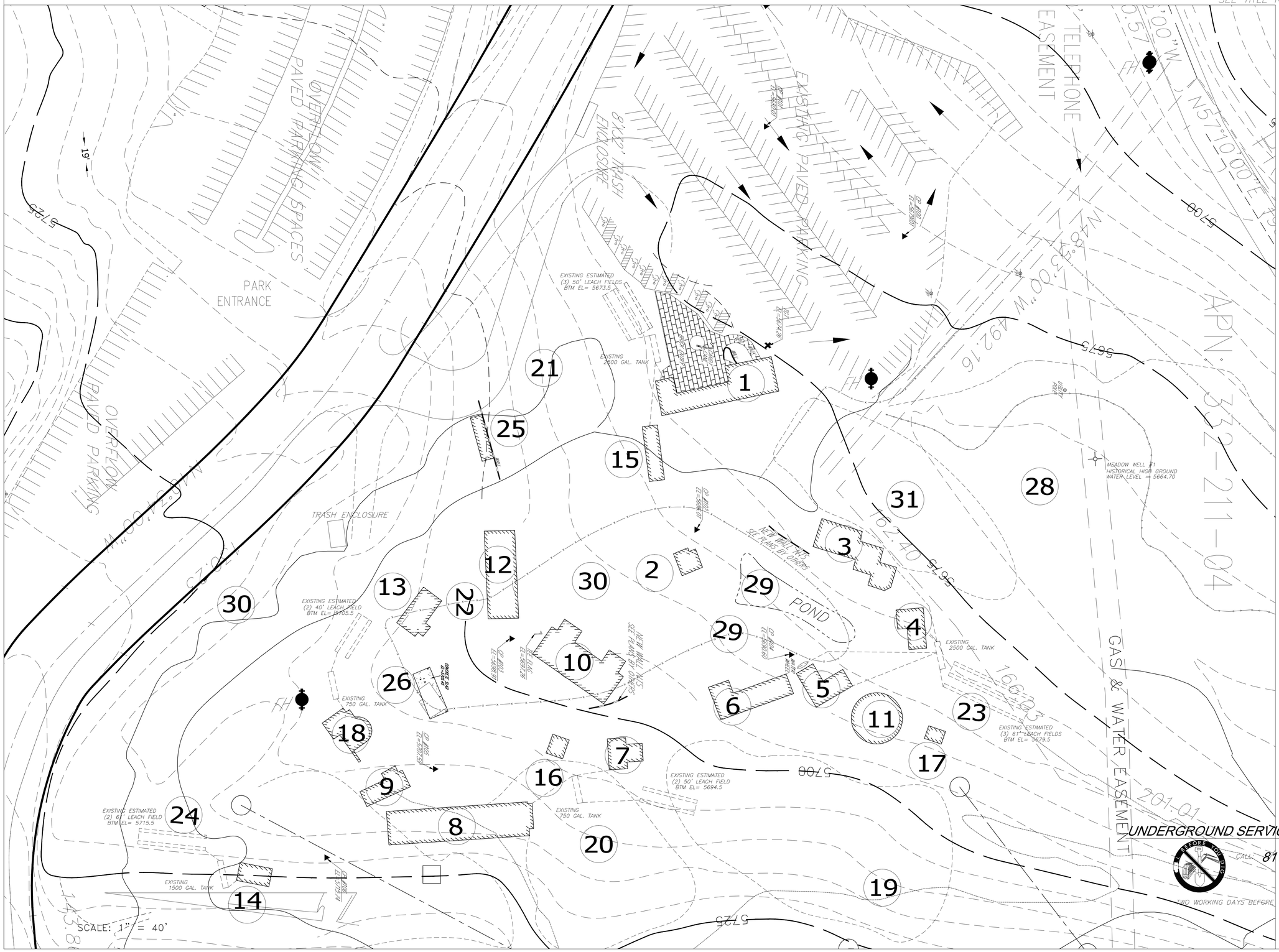
Sincerely,

Bryant Bergeson, P.E.



EXISTING PERC SYTEM LAYOUT MAP

SEE TITLE REPORT APN# 332-211-02

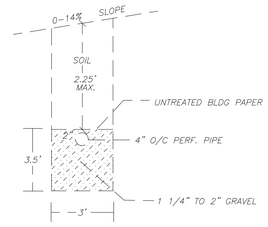


ENGINEER'S NOTICE TO CONTRACTOR

THE EXISTING AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE ON THESE PLANS. THE REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING THE SAFTEY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO REGULAR WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE COUNTY, THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY , REAL OR ALLEDGED, IN CONECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING OF LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE COUNTY, THE OWNER OR THE ENGINEER.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY/COUNTY.



LEACH LINE CROSS SECTION

NOTES:

1. ⊙ = TEST HOLE LOCATION
2. — — = EXISTING CONTOURS (APPROX.)
4. SEE CORNER RECORD SURVEY FOR SURVEY DATA.
5. WORK TO BE DONE IN ACCORDANCE W/ CURRENT U.P.C.
6. OWNER TO VERIFY SEPERATION AND SET BACK LINES.
7. ANY LARGE ROCK FOUND IN AREA OF SYSTEM TO BE REMOVED.

UNDERGROUND SERVICE ALERT

CALL 811

TWO WORKING DAYS BEFORE YOU DIG!

PERC LAYOUT PLAN

SKY PARK / SANTAS VILLAGE
P.O. BOX 420
LAKE ARROWHEAD CA. 92352
28950 STATE HWY #18
SKY FOREST CA. 92385
SEE TITLE REPORT APN# 332-211-02

RWM & ASSOCIATES, LLC.
CIVIL ENGINEERING – LAND SURVEYING
ARCHITECTURAL DESIGN
26748 HWY# 189, TWIN PEAKS CA. 92391
P.O.B. 520,
TWIN PEAKS, CA., 92391
(909) 337-3058
RWMCDONALDII@GMAIL..COM

ENGINEER	
DESIGNER	DRAFTSMAN
LAND SURVEYOR	
SHEET 1	

RWM & ASSOCIATES, LLC
Civil Engineering, Land Surveying and Building Design

P.O. Box 520, Twin Peaks, CA 92391
(909) 337-3058

San Bernardino County
Environmental Improvement Agency
Environmental Health Services
385 N. Arrowhead Avenue
San Bernardino, CA 92415

January 12, 2014

Attn: REHS
Re: Existing System Design
Sky Park - Santa's Village
APN: 340-271-06 BUILDING #1 & #15
28950 Hwy # 18, Sky Forest Ca.

Dear Sirs,

The following is the summary of the percolation test and the resulting design for the existing private sewage system for the subject property, followed by a field certification by C-42 license.

1. **Description of Site and Proposal:**
   - **1.1** Prepared for: Sky Park / Santa's Village
     C/O RWM & ASSOCITES, LLC.
   - **1.2** Location of Land: See attached Map.
   - **1.3** Proposed Development:
     a. Proposed Development: bathroom facility
     b. See Attached Map
     c. An existing 2500 gallon septic Tank and leach lines.
     d. See attached map.
   - **1.4** a. Topography / site plan: See attached map.
     b. Drainage from site is sheet flow to the north.
     c. Vegetation: Dry grasses and brush with Pine and Oak Trees.
     d. There are several existing structures on the site. There is existing structures on the adjacent parcel to the north. There is existing 20,000 water tank on site
     e. There are no known wells within 100' of the proposed system. There are no streams within 50' of the proposed system. Historical well/ground water is 5.3' from well top of ground, therefore total separation between bottom of leech field and historical high ground water is 8.8' and leech field distance to well head is 414' to the northeast.
     f. See attached drawings.
     g. No ground water was encountered in any excavation.
     h. No other features, which would affect the system, were observed at the site.
     i. Leach lines and expansion areas will be located on natural ground as shown on the attached system layout.

2. Equipment:

2.1 Backhoe with a 24" bucket, manual posthole digger and tape measure.

3. Methodology and Procedures

3.1 Location of Borings: Random, See attached map.

3.2 Four holes were dug to a depth of six feet below original ground and one exploratory hole was dug to a depth of thirteen feet below original ground. The soils data developed as a result of the exploratory and test holes should be representative of the area where the system is to be constructed. However, additional data developed during system construction could result in relocation of the system or necessitate the use of a holding tank in lieu of the septic system. Any large rock encountered in the system area will be removed as necessary for construction.

3.3 Test holes were prepared and tests were performed in accordance with the simplified standard test procedures. See attached test sheet. Six-inch diameter holes were used.

4. Results:

4.1 Hole locations are shown on the attached map.
Hole #1 through #4
0 - 3' dark Brown Top Soil
3 – 6' dark Brown Soil with Light Tan D.G. intermixed.
Hole #5
0 - 3' dark Brown Top Soil
3' – 6' dark Brown Top with Light Tan D.G. intermixed.
6' – 13' dark Brown Soil with Light Tan D.G. intermixed
No unusual moisture was encountered in any excavation.

4.2.1 Design rate = 11.89 minutes per inch. Referring to the DEHS chart, 1.2 square foot per gallon was used. Therefore, 1.2(900)/7 x 1.0 = 155 lineal feet of leach line using 3' X 3' gravel.

5. Discussion of Results:

5.1 Tests were fairly uniform, ranging from 6.35 to 10.88 with a design rate of 11.89 minutes per inch.

5.2 NA

6. Design:

6.1 Based on the above, the rate of 11.89 minutes per inch was used. See section 4.2.1.

6.2 See section 4.2.1 and the attached map

7. **Plot:** See attached Map.

8. Calculations

GENERAL BUILDING

Facilities	Quantity	"Units"	Total Units
Urinals	2	2	4
Water Closet	2	6	12
Wash Basin	4	2	8
			24

Summary

General building Per UPC, Table I-2, 51 Units = 1200

Flow: 1200/ .75 = (900)

Volume = 900

9. General Discussion:

9.1 By topography map the slope in area of leach lines is measured at approx. >10 %.

9.2 Based on all of the above data, it is my professional opinion that existing system with the certifications is and has sufficient area to handle the liquid wastes without creating a nuisance or contaminating the ground water and the system will meet the requirements of the Lahaton Regional Water Quality Control Board.

If you have any questions concerning this design review, please call.

Sincerely,

Bryant Bergeson, P.E.

PERCOLATION TEST SHEET A
PARCEL 1

Project:SKYPARK Job No.SEE TITLE REPORT

APN #332-211-02 Date:12/2014

By: R2-R3

Hole No.: *1 - 4* Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Soil Type: *See Report*

Hole No.	Time 1	H1 (Inches)	Time 2	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:00:00	*8"*	*1:08:14*	*7"*	8:14	*1"*	8.23
No. 2	1:01:36	*8"*	*1:12:28*	*7"*	10:52	*1"*	10.87
No. 3	1:02:28	*8"*	*1:07:05*	*7"*	4:37	*1"*	4.61
No. 4	1:04:06	*8"*	*1:07:55*	*7"*	3:49	*1"*	3.82
No. 1	1:08:15	*8"*	*1:12:30*	*7"*	4:15	*1"*	4.25
No. 2	1:13:28	*8"*	*1:21:57*	*7"*	8:37	*1"*	8.62
No. 3	1:07:17	*8"*	*1:22:13*	*7"*	14:56	*1"*	14.93
No. 4	1:08:30	*8"*	*1:12:22*	*7"*	3:52	*1"*	3.87

PERCOLATION TEST SHEET B
PARCEL 1

Project: SAME AS ABOVE _____ Job No. _____

_____ Date: _____

_____ By: _____

_____ Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Hole No.: *1 - 4*

Soil Type: *See Report*

Hole No.	Time 3	H1 (Inches)	Time 4	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:12:32	*8"*	*1:18:50*	*7"*	6:21	*1"*	6.35
No. 2	1:21:57	*8"*	*1:32:50*	*7"*	10:53	*1"*	10.88
No. 3	1:22:15	*8"*	*1:31:37*	*7"*	9:22	*1"*	9.37
No. 4	1:12:22	*8"*	*1:19:30*	*7"*	7:07	*1"*	7.13
No. 1	1:19:45	*8"*	*1:28:10*	*7'*	8:25	*1"*	8.42
No. 2	1:32:59	*8"*	*1:42:33*	*7"*	9:34	*1"*	9.57
No. 3	1:32:20	*8"*	*1:42:35*	*7"*	3:36	*1"*	10.25
No. 4	1:19:55	*8"*	*1:28:47*	*7"*	8:52	*1"*	8.87

Percolation Rate: 8.85 min./inch

(avg. + high) / 2 = 8.85 + 14.93 / 2 = 11.89

Adjusted Percolation Rate: 11.89 min./ inch

Pacific Surveys

a full service geophysical well logging company

Video Survey Report

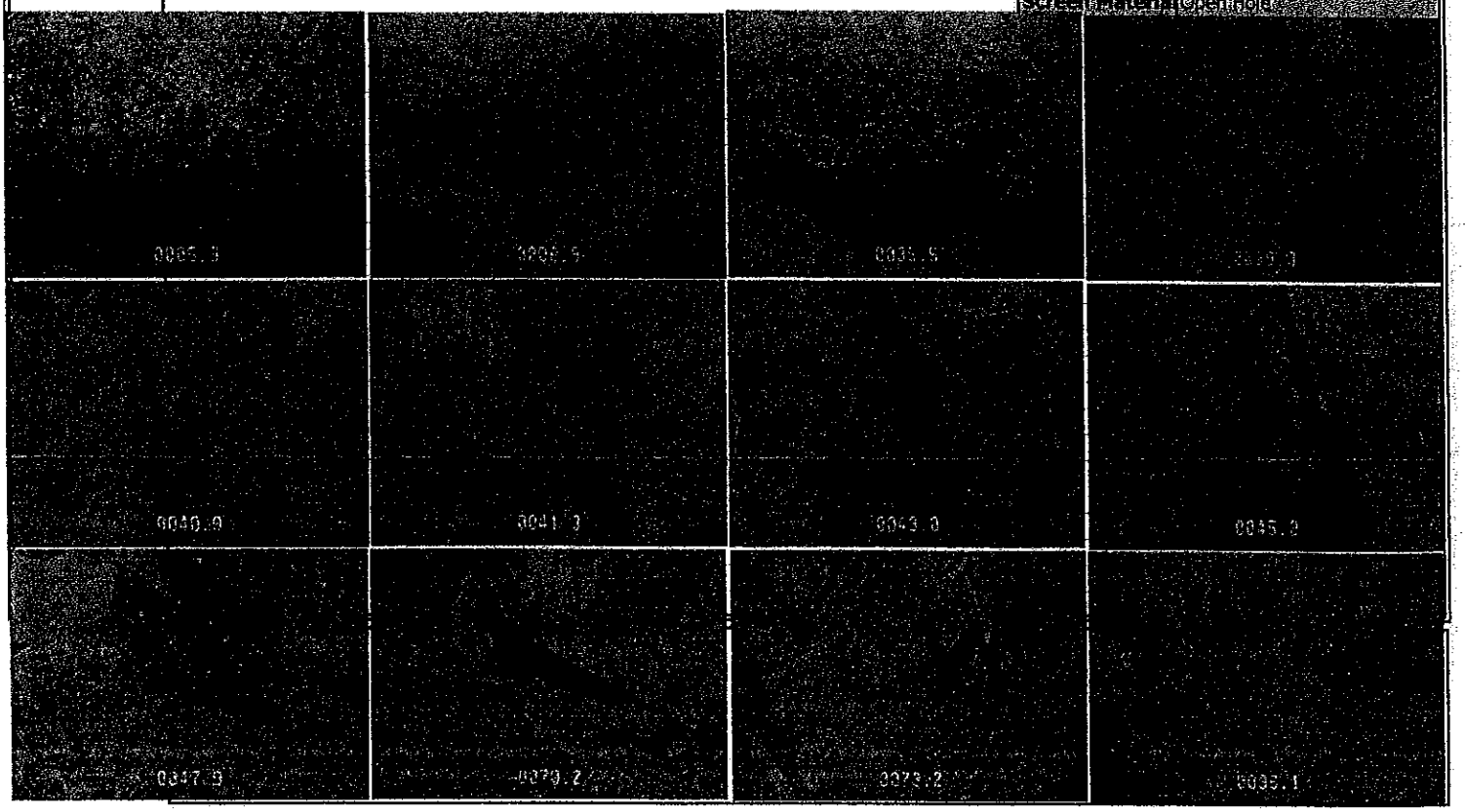
Company:	Harich Enterprises	**Date:**	04-Aug-14		
Well:	Meadow well 1	**Run No.**	One	**Truck**	PS-6
Field:	Skyforest	**Job Ticket:**	18613		
State:	California	**Total Depth:**	96 ft		
		Water Level:	5 ft	SWL	
Location:	Santa's Village	**Oil on Water:**	No	**Amount:**	0 ft
	GPS N34o14.023' W117o10.163'	**Operator:**	Nelson		
Zero Datum:	Top of CSG	**Tool Zero:**	Side-Scan	**Dead Space**	2.00 ft
Reason for Survey:	General Inspection	**Guides Set @**	7.00 in		

Depth	Observations
0.0 ft	Start survey at top of survey.
5.3 ft	SWL; water cloudy, visibility poor.
8.9 ft	Heavy scale on casing.
35.5 ft	End of casing open hole.
39.3 ft	Fractured zone.
40.9 ft	Fractured zone with possible water production zone.
43.0 ft	Fractured zone with possible water production zone.
45.0 ft	Large fractured with possible water production zone.
47.9 ft	Break out fractured zone.
70.2 ft	Fractured zone.
73.2 ft	Large break out.
96.1 ft	Fill; end survey.

Perforation:	From Survey
Open Hole	N/A

Casing Size:	From Survey
8.00 in	0.00 ft to 35.50ft
Open Hole	35.50 ft to 96.10ft

CSG Material:	PVC
Screen Material:	Open Hole



800.919.7555
909.625.6262

4456 via st. ambrose
claremont ca 91711
www.pacificsurveys.com

fax: 909.399.3180

BUILDING # 1 # 15

County of San Bernardino • Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

www.sbcounty.gov/dehs

PRIVATE SEWAGE DISPOSAL SYSTEM CERTIFICATION

Applicant shall complete top 3 lines only. Certification shall be completed, on both sides, by a licensed contractor (A ,B, or C-42) or other qualified professional (R.P.E., C.E.G., R.E.H.S., etc.) Use n/a where necessary. For information, please call 909-387-4666.

Property Owner: SKY PARK, SANTA'S VILLAGE	Applicant Name:
Property Address: 28950 HWY 18	APN: 0332-211-02, 0332-212-02
Type of Project (Specify) TR, PM, CUP, DR, LUR, etc:	File Index Number:

Number of Units	Garbage Disposal Y ☐ N ☒	Tank Last Pumped (mo. / yr.) 6/14
Bedrooms 0	Vacant Y ☒ N ☐ How Long (yrs.) N/A	Tank Age (yrs.) N/A
Bathrooms 0	Basement Y ☐ N ☒	Disposal Area Age (yrs.) N/A

Commercial Development	Type of Fixtures (per UPC) *Indicate type and number of each* ENTER BUILDING	
	Total Number of Fixture Units ☒ 24	Grease Interceptor ☐ Clarifier ☐ None ☒

Type of Septic Tank (Specify) CEMENT		Dimensions (L x W x D) (ft.) 25'x5'x5'
Type of Cover (Specify) DIRT	Tank Capacity (Gallons) 2500	No. of Compartments 2
Specify Any Damage or Defects Observed: NONE		

Type of Disposal Area Seepage Pit ☐ Leachlines ☒ Other ☐ (Specify)		
Distance From Well N/A ft.	Distance from Foundation N/A ft.	Distance from Nearest Lot Line ☐ Front ☐ Side ☐ Rear
Specify Any Damage or Defects Observed:		

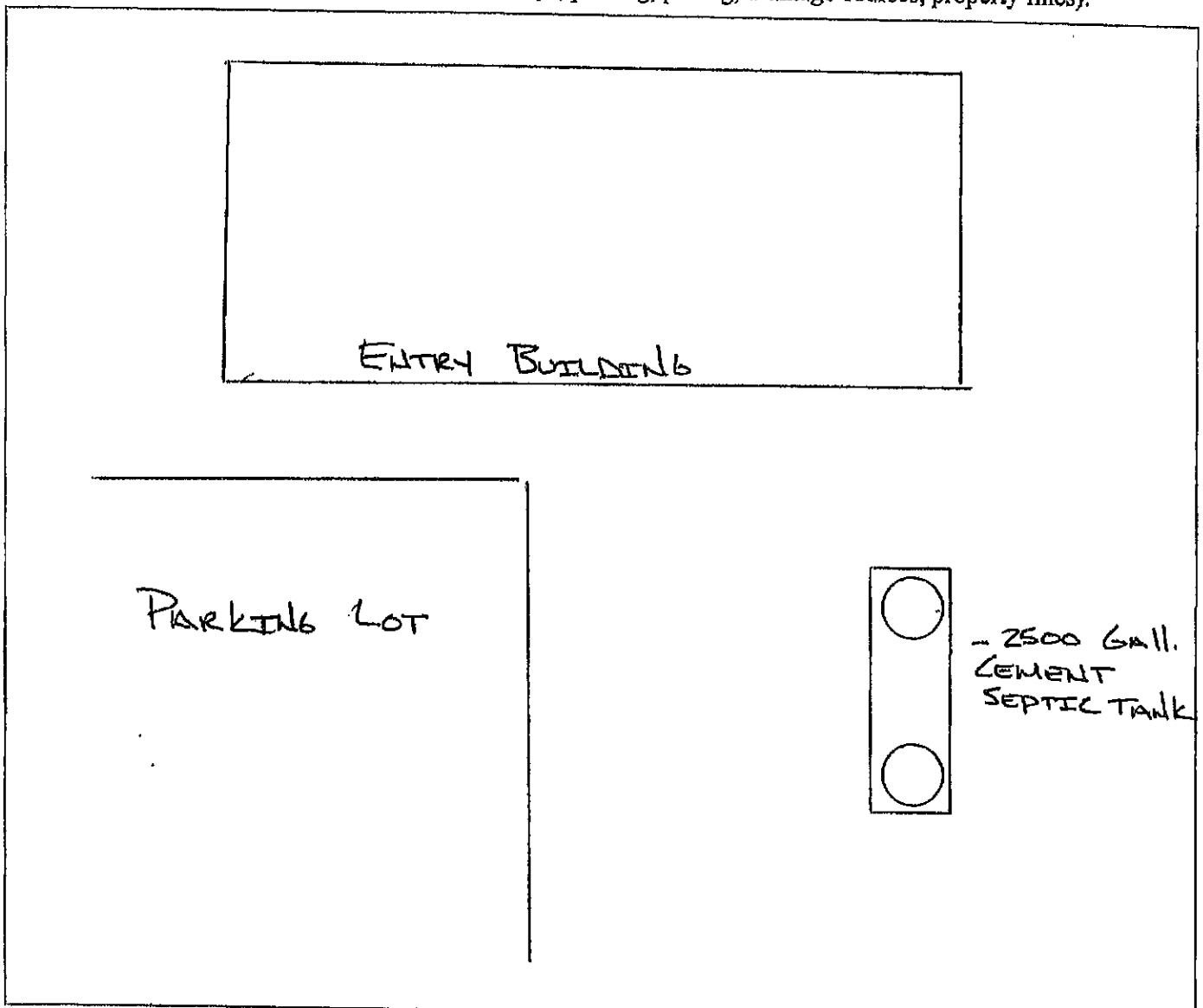
Seepage Pits	Number of Pits	Outside Diameter (ft.)	Depth (ft.)
	Depth of Pit Below Inlet (ft.)	Lining Material (Specify)	

Leachlines N/A	Number of Lines	Trench Width (in.)	Average Length of Lines (ft.)
	Total Absorption Area (sq. ft.) *Bottom of Trenches*		Depth (in.) *Finish Grade to Top of Line*
	Distance Between Lines (ft.)		Type of Filter Material Beneath Line (in.)
	Depth of Material Above Line (in.)		Depth of Material Beneath Line (in.)

Specify Indications of Previous System Failures (Odors, Seepage, etc.): *Use Additional paper if necessary*		
Dye Test Y ☐ N ☒	Hydraulic Test Y ☒ N ☐	NOTE: Attach test results and copies of building permits.

Tank & Disposal Area Information

In the space provided, show the location of the septic tank and disposal area in relation to the buildings and other landmarks (i.e. wells, trees, shrubs, driveways, parking, paving, drainage courses, property lines).



It is the opinion of the certifier that this sewage disposal system, ☐ Meets current code, ☒ Can be expected to function satisfactorily and is not likely to create any unsanitary conditions. OR ☐ Cannot be expected to function satisfactorily.

Date:	Signature:	Type of License:	Reg. Number:	Expiration:
7-24-14		C-42	363126	7/16

Name of Certifier:	Address:
SEAN BENNETT	P.O Box 1520, 92325

For DEHS Use Only

Reviewed By:	Date:
☐ Approved	☐ Not Approved - Reason

RWM & ASSOCIATES, LLC
Civil Engineering, Land Surveying and Building Design

P.O. Box 520, Twin Peaks, CA 92391
(909) 337-3058

San Bernardino County
Environmental Improvement Agency
Environmental Health Services
385 N. Arrowhead Avenue
San Bernardino, CA 92415

January 12, 2014

Attn: REHS
Re: Existing System Design
Sky Park - Santa's Village
APN: 340-271-06 BUILDING #3, #4, #5 & #6
28950 Hwy # 18, Sky Forest Ca.
Dear Sirs,

The following is the summary of the percolation test and the resulting design for the existing private sewage system for the subject property, followed by a field certification by C-42 license.

1. **Description of Site and Proposal:**
   - **1.1** Prepared for: Sky Park / Santa's Village
     C/O RWM & ASSOCITES, LLC.
   - **1.2** Location of Land: See attached Map.
   - **1.3** Proposed Development:
     a. Proposed Development: bathroom facility
     b. See Attached Map
     c. An existing 2500 gallon septic Tank and leach lines.
     d. See attached map.
   - **1.4** a. Topography / site plan: See attached map.
     b. Drainage from site is sheet flow to the north.
     c. Vegetation: Dry grasses and brush with Pine and Oak Trees.
     d. There are several existing structures on the site. There is existing structures on the adjacent parcel to the north. There is existing 20,000 water tank on site
     e. There are no known wells within 100' of the proposed system. There are no streams within 50' of the proposed system. Historical well/ground water is 5.3' from well top of ground, therefore total separation between bottom of leach field and historical high ground water is 14.8' and leach field distance to well head is 222' to the southwest.
     f. See attached drawings.
     g. No ground water was encountered in any excavation.
     h. No other features, which would affect the system, were observed at the site.
     i. Leach lines and expansion areas will be located on natural ground as shown on the attached system layout.

2. Equipment:

2.1 Backhoe with a 24" bucket, manual posthole digger and tape measure.

3. Methodology and Procedures

3.1 Location of Borings: Random, See attached map.

3.2 Four holes were dug to a depth of six feet below original ground and one exploratory hole was dug to a depth of thirteen feet below original ground. The soils data developed as a result of the exploratory and test holes should be representative of the area where the system is to be constructed. However, additional data developed during system construction could result in relocation of the system or necessitate the use of a holding tank in lieu of the septic system. Any large rock encountered in the system area will be removed as necessary for construction.

3.3 Test holes were prepared and tests were performed in accordance with the simplified standard test procedures. See attached test sheet. Six-inch diameter holes were used.

4. Results:

4.1 Hole locations are shown on the attached map.
Hole #1 through #4
0 - 3' dark Brown Top Soil
3 – 6' dark Brown Soil with Light Tan D.G. intermixed.
Hole #5
0 - 3' dark Brown Top Soil
3' – 6' dark Brown Top with Light Tan D.G. intermixed.
6' – 13' dark Brown Soil with Light Tan D.G. intermixed
No unusual moisture was encountered in any excavation.

4.2.1 Design rate = 11.89 minutes per inch. Referring to the DEHS chart, 1.22 square foot per gallon was used. Therefore, 1.22(1050)/7 x 1.0 = 183 lineal feet of leach line using 3' X 3' gravel.

5. Discussion of Results:

5.1 Tests were fairly uniform, ranging from 6.35 to 10.88 with a design rate of 11.89 minutes per inch.

5.2 NA

6. Design:

6.1 Based on the above, the rate of 11.89 minutes per inch was used. See section 4.2.1.

6.2 See section 4.2.1 and the attached map

7. Plot: See attached Map.

8. Calculations

GENERAL BUILDING

Facilities	Quantity	"Units"	Total Units
Urinals	4	2	4
Water Closet	2	6	12
Wash Basin	4	2	8
			28

Summary

General building Per UPC, Table I-2, 51 Units = 1400

Flow: 1400/ .75 = (1050)

Volume = 1050

9. General Discussion:

9.1 By topography map the slope in area of leach lines is measured at approx. >10 %.

9.2 Based on all of the above data, it is my professional opinion that existing system with the certifications is and has sufficient area to handle the liquid wastes without creating a nuisance or contaminating the ground water and the system will meet the requirements of the Lahaton Regional Water Quality Control Board.

If you have any questions concerning this design review, please call.

Sincerely,

Bryant Bergeson, P.E.

PERCOLATION TEST SHEET A
PARCEL 1

Project:SKYPARK Job No.SEE TITLE REPORT

APN #332-211-02 Date:12/2014

By: R2-R3

Hole No.: *1 - 4* Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Soil Type: *See Report*

Hole No.	Time 1	H1 (Inches)	Time 2	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:00:00	*8"*	*1:08:14*	*7"*	8:14	*1"*	8.23
No. 2	1:01:36	*8"*	*1:12:28*	*7"*	10:52	*1"*	10.87
No. 3	1:02:28	*8"*	*1:07:05*	*7"*	4:37	*1"*	4.61
No. 4	1:04:06	*8"*	*1:07:55*	*7"*	3:49	*1"*	3.82
No. 1	1:08:15	*8"*	*1:12:30*	*7"*	4:15	*1"*	4.25
No. 2	1:13:28	*8"*	*1:21:57*	*7"*	8:37	*1"*	8.62
No. 3	1:07:17	*8"*	*1:22:13*	*7"*	14:56	*1"*	14.93
No. 4	1:08:30	*8"*	*1:12:22*	*7"*	3:52	*1"*	3.87

PERCOLATION TEST SHEET B
PARCEL 1

Project: SAME AS ABOVE Job No.

Date:

By:

Diameter: 6" Type: Hand Dug Depth: 8"

Hole No.: 1 - 4

Soil Type: See Report

Hole No.	Time 3	H1 (Inches)	Time 4	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:12:32	8"	1:18:50	7"	6:21	1"	6.35
No. 2	1:21:57	8"	1:32:50	7"	10:53	1"	10.88
No. 3	1:22:15	8"	1:31:37	7"	9:22	1"	9.37
No. 4	1:12:22	8"	1:19:30	7"	7:07	1"	7.13
No. 1	1:19:45	8"	1:28:10	7'	8:25	1"	8.42
No. 2	1:32:59	8"	1:42:33	7"	9:34	1"	9.57
No. 3	1:32:20	8"	1:42:35	7"	3:36	1"	10.25
No. 4	1:19:55	8"	1:28:47	7"	8:52	1"	8.87

Percolation Rate: 8.85 min./inch

(avg. + high) / 2 = 8.85 + 14.93 / 2 = 11.89

Adjusted Percolation Rate: 11.89 min./ inch

Pacific Surveys

a full service geophysical well logging company

Video Survey Report

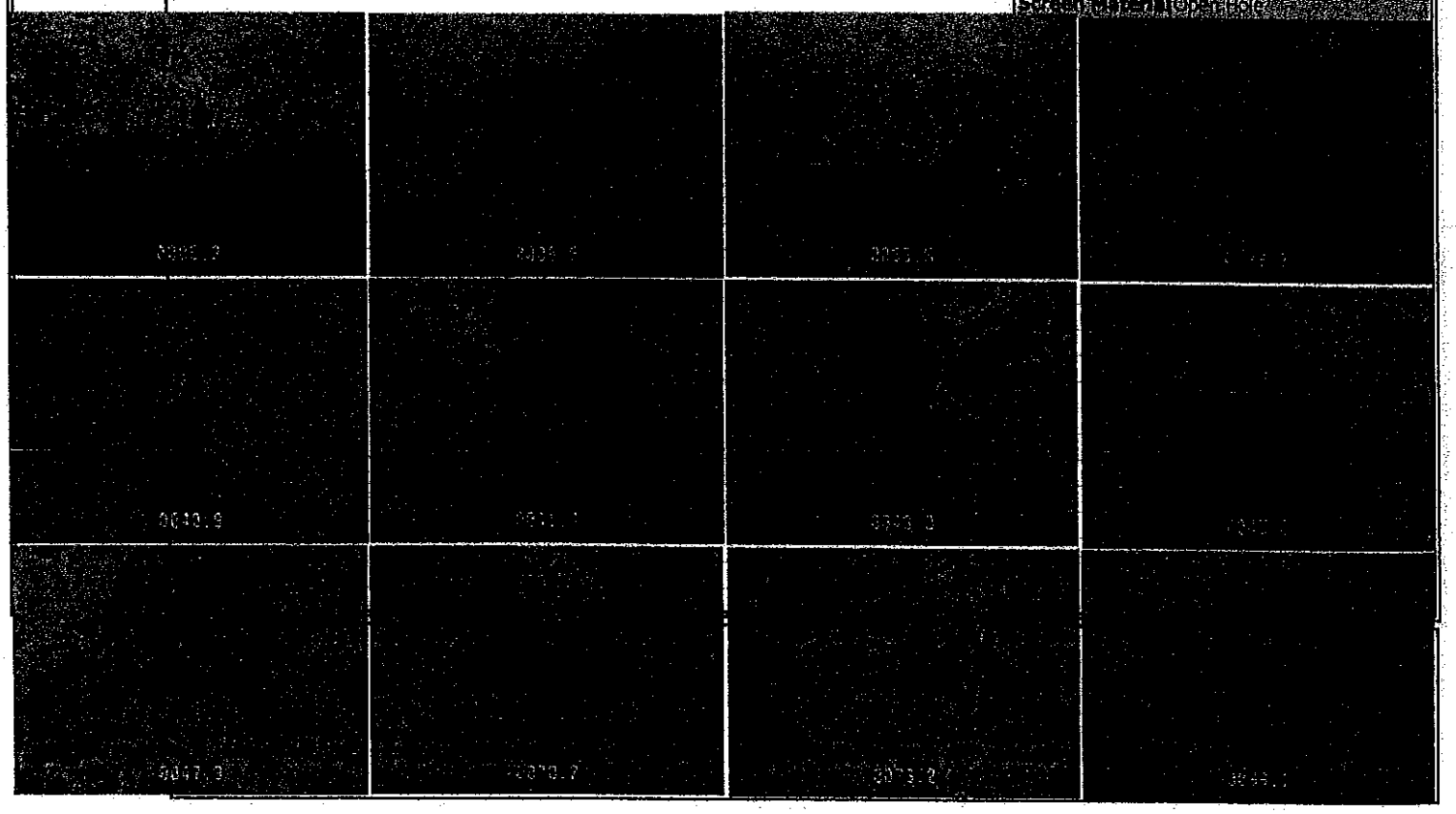
Company:	Harich Enterprises	**Date:**	04-Aug-14		
Well:	Meadow well 1	**Run No.**	One	**Truck**	PS-6
Field:	Skyforest	**Job Ticket:**	18613		
State:	Callfornia	**Total Depth:**	96 ft		
		Water Level:	5 ft	SWL	
Location:	Santa's Village	**Oil on Water:**	No	**Amount:**	0 ft
	GPS N34o14.023' W117o10.163'	**Operator:**	Nelson		
Zero Datum:	Top of CSG **Tool Zero:**	Side-Scan		**Dead Space**	2.00 ft
Reason for Survey:	General Inspection	**Guides Set @**	7.00 in		

Depth	Observations
0.0 ft	Start survey at top of survey.
5.3 ft	SWL; water cloudy, visibility poor.
8.9 ft	Heavy scale on casing.
35.5 ft	End of casing open hole.
39.3 ft	Fractured zone.
40.9 ft	Fractured zone with possible water production zone.
43.0 ft	Fractured zone with possible water production zone.
45.0 ft	Large fractured with possible water production zone.
47.9 ft	Break out fractured zone.
70.2 ft	Fractured zone.
73.2 ft	Large break out.
96.1 ft	Fill; end survey.

Perforation	From Survey
Open Hole	N/A

Casing Size	From Survey
8.00 in	0.00 ft to 35.50 ft
Open Hole	35.50 ft to 96.10 ft

Casing Material	Type
Steel	Open Hole



800.919.7555
909.625.6262

4456 via st. ambrose
claremont ca 91711
www.pacificsurveys.com

fax: 909.399.3180

BUILDINGS #3 #4 #5 #6

County of San Bernardino • Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

www.sbcounty.gov/dehe

PRIVATE SEWAGE DISPOSAL SYSTEM CERTIFICATION

Applicant shall complete top 3 lines only. Certification shall be completed, on both sides, by a licensed contractor (A ,B, or C-42) or other qualified professional (R.P.E., C.E.G., R.E.H.S., etc.) Use n/a where necessary. For information, please call 909-387-4666.

Property Owner: SKY PARK SANTA'S VILLAGE	Applicant Name:
Property Address: 28950 HWY. 18	APN: 0332-211-02, 0332-212-02
Type of Project (Specify) TR, PM, CUP, DR, LUR, etc:	File Index Number:

Number of Units	Garbage Disposal Y ☒ N ☐	Tank Last Pumped (mo. / yr.) 6/14
Bedrooms 0	Vacant Y ☒ N ☐ How Long (yrs.) N/A	Tank Age (yrs.) N/A
Bathrooms 0	Basement Y ☐ N ☒	Disposal Area Age (yrs.) N/A

Commercial Development	Type of Fixtures (per UPC) *Indicate type and number of each* BILLY'S PATIO	
	Total Number of Fixture Units ☒ 28	Grease Interceptor ☐ Clarifier ☐ None ☒

Type of Septic Tank (Specify) CEMENT		Dimensions (L x W x D) (ft.) 25'x5'x5'
Type of Cover (Specify) DIRT	Tank Capacity (Gallons) 2500	No. of Compartments 2
Specify Any Damage or Defects Observed: NONE		

Type of Disposal Area Seepage Pit ☐ Leachlines ☒ Other ☐ (Specify)		
Distance From Well N/A ft.	Distance from Foundation N/A ft.	Distance from Nearest Lot Line ☐ Front ☐ Side ☐ Rear
Specify Any Damage or Defects Observed:		

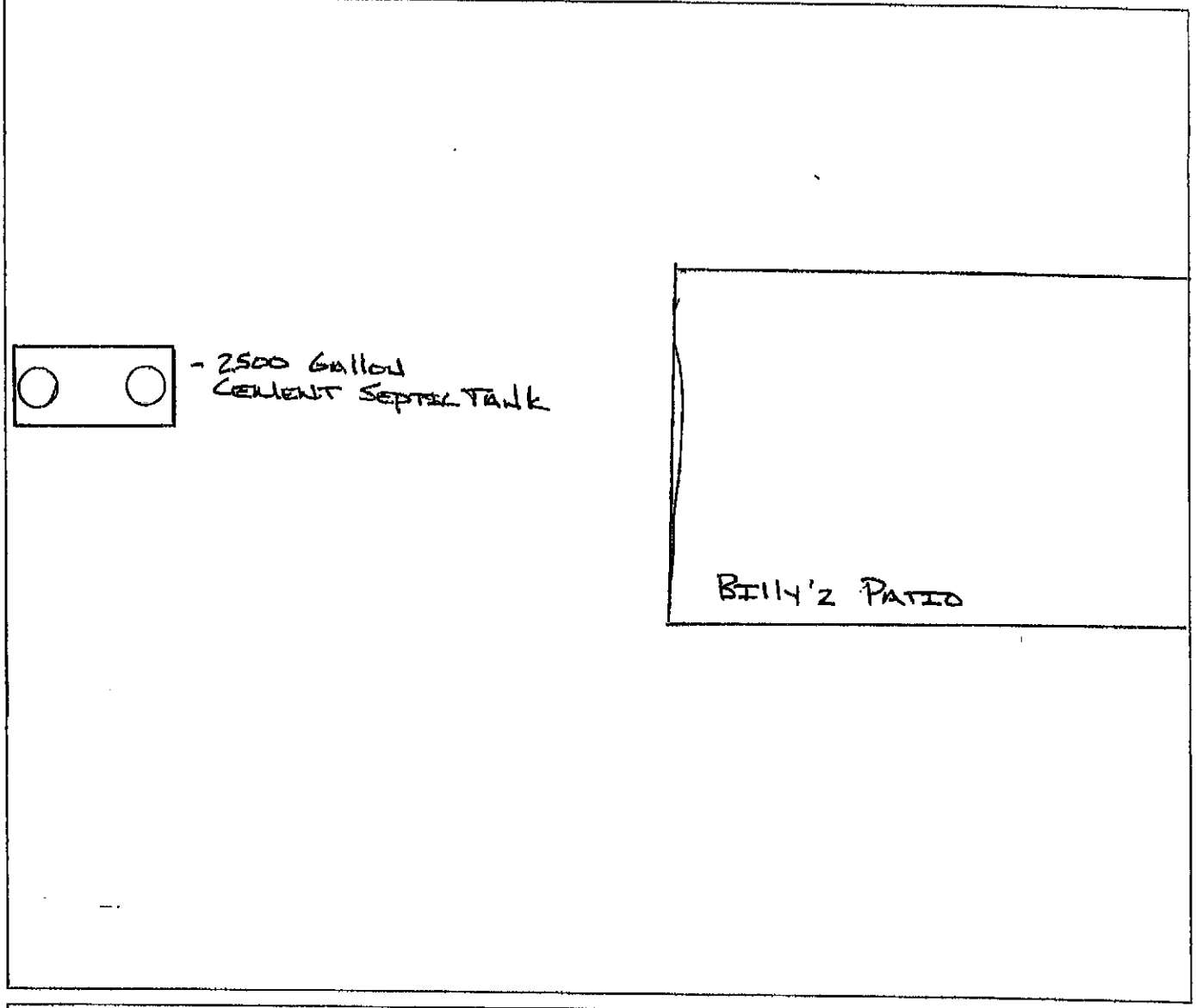
Seepage Pits	Number of Pits	Outside Diameter (ft.)	Depth (ft.)
	Depth of Pit Below Inlet (ft.)	Lining Material (Specify)	

Leachlines N/A	Number of Lines	Trench Width (in.)	Average Length of Lines (ft.)
	Total Absorption Area (sq. ft.) *Bottom of Trenches*		Depth (in.) *Finish Grade to Top of Line*
	Distance Between Lines (ft.)	Type of Filter Material Beneath Line (in.)	
	Depth of Material Above Line (in.)	Depth of Material Beneath Line (in.)	

Specify Indications of Previous System Failures (Odors, Seepage, etc.): *Use Additional paper if necessary*		
Dye Test Y ☐ N ☒	Hydraulic Test Y ☒ N ☐	NOTE: Attach test results and copies of building permits.

Tank & Disposal Area Information

In the space provided, show the location of the septic tank and disposal area in relation to the buildings and other landmarks (i.e. wells, trees, shrubs, driveways, parking, paving, drainage courses, property lines).



It is the opinion of the certifier that this sewage disposal system, ☐ Meets current code, ☒ Can be expected to function satisfactorily and is not likely to create any unsanitary conditions, OR ☐ Cannot be expected to function satisfactorily.

Date:	Signature:	Type of License:	Reg. Number:	Expiration:
7-24-14		C-42	363126	7/16

Name of Certifier:	Address:
Sean Bennett	P.O Box 1520, 92325

For DEHS Use Only

Reviewed By:	Date:
☐ Approved	☐ Not Approved - Reason

RWM & ASSOCIATES, LLC
Civil Engineering, Land Surveying and Building Design

P.O. Box 520, Twin Peaks, CA 92391
(909) 337-3058

San Bernardino County
Environmental Improvement Agency
Environmental Health Services
385 N. Arrowhead Avenue
San Bernardino, CA 92415

January 12, 2014

Attn: REHS
Re: Existing System Design
Sky Park - Santa's Village
APN: 340-271-06 BUILDING #18
28950 Hwy # 18, Sky Forest Ca.
Dear Sirs,

The following is the summary of the percolation test and the resulting design for the existing private sewage system for the subject property, followed by a field certification by C-42 license.

1. **Description of Site and Proposal:**
   - **1.1** Prepared for: Sky Park / Santa's Village
     C/O RWM & ASSOCITES, LLC.
   - **1.2** Location of Land: See attached Map.
   - **1.3** Proposed Development:
     - a. Proposed Development: bathroom facility
     - b. See Attached Map
     - c. An existing 750 gallon septic Tank and leach lines.
     - d. See attached map.
   - **1.4**
     - a. Topography / site plan: See attached map.
     - b. Drainage from site is sheet flow to the north.
     - c. Vegetation: Dry grasses and brush with Pine and Oak Trees.
     - d. There are several existing structures on the site. There is existing structures on the adjacent parcel to the north. There is existing 20,000 water tank on site
     - e. There are no known wells within 100' of the proposed system. There are no streams within 50' of the proposed system. Historical well/ground water is 5.3' from well top of ground, therefore total separation between bottom of leach field and historical high ground water is 40.8' and leach field distance to well head is 618' to the northwest.
     - f. See attached drawings.
     - g. No ground water was encountered in any excavation.
     - h. No other features, which would affect the system, were observed at the site.
     - i. Leach lines and expansion areas will be located on natural ground as shown on the attached system layout.

2. Equipment:

2.1 Backhoe with a 24" bucket, manual posthole digger and tape measure.

3. Methodology and Procedures

3.1 Location of Borings: Random, See attached map.

3.2 Four holes were dug to a depth of six feet below original ground and one exploratory hole was dug to a depth of thirteen feet below original ground. The soils data developed as a result of the exploratory and test holes should be representative of the area where the system is to be constructed. However, additional data developed during system construction could result in relocation of the system or necessitate the use of a holding tank in lieu of the septic system. Any large rock encountered in the system area will be removed as necessary for construction.

3.3 Test holes were prepared and tests were performed in accordance with the simplified standard test procedures. See attached test sheet. Six-inch diameter holes were used.

4. Results:

4.1 Hole locations are shown on the attached map.
Hole #1 through #4
0 - 3' dark Brown Top Soil
3 – 6' dark Brown Soil with Light Tan D.G. intermixed.
Hole #5
0 - 3' dark Brown Top Soil
3' – 6' dark Brown Top with Light Tan D.G. intermixed.
6' – 13' dark Brown Soil with Light Tan D.G. intermixed
No unusual moisture was encountered in any excavation.

4.2.1 Design rate = 11.89 minutes per inch. Referring to the DEHS chart, .84 square foot per gallon was used. Therefore, .84(300)/7 x 1.0 = 40 lineal feet of leach line using 3' X 3' gravel.

5. Discussion of Results:

5.1 Tests were fairly uniform, ranging from 6.35 to 10.88 with a design rate of 11.89 minutes per inch.

5.2 NA

6. Design:

6.1 Based on the above, the rate of 11.89 minutes per inch was used. See section 4.2.1.

6.2 See section 4.2.1 and the attached map

7. Plot: See attached Map.

8. Calculations

GENERAL BUILDING

Facilities	Quantity	"Units"	Total Units
Urinals	3	2	6
Wash Basin	1.5	2	3
			9

Summary

General building Per UPC, Table I-2, 51 Units = 600

Flow: 400/ .75 = (300)

Volume = 300

9. General Discussion:

9.1 By topography map the slope in area of leach lines is measured at approx. >10 %.

9.2 Based on all of the above data, it is my professional opinion that existing system with the certifications is and has sufficient area to handle the liquid wastes without creating a nuisance or contaminating the ground water and the system will meet the requirements of the Lahaton Regional Water Quality Control Board.

If you have any questions concerning this design review, please call.

Sincerely,

Bryant Bergeson, P.E.

PERCOLATION TEST SHEET A
PARCEL 1

Project:SKYPARK Job No.SEE TITLE REPORT

APN #332-211-02 Date:12/2014

By: R2-R3

Hole No.: *1 - 4* Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Soil Type: *See Report*

Hole No.	Time 1	H1 (Inches)	Time 2	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:00:00	*8"*	*1:08:14*	*7"*	8:14	*1"*	8.23
No. 2	1:01:36	*8"*	*1:12:28*	*7"*	10:52	*1"*	10.87
No. 3	1:02:28	*8"*	*1:07:05*	*7"*	4:37	*1"*	4.61
No. 4	1:04:06	*8"*	*1:07:55*	*7"*	3:49	*1"*	3.82
No. 1	1:08:15	*8"*	*1:12:30*	*7"*	4:15	*1"*	4.25
No. 2	1:13:28	*8"*	*1:21:57*	*7"*	8:37	*1"*	8.62
No. 3	1:07:17	*8"*	*1:22:13*	*7"*	14:56	*1"*	14.93
No. 4	1:08:30	*8"*	*1:12:22*	*7"*	3:52	*1"*	3.87

PERCOLATION TEST SHEET B
PARCEL 1

Project: SAME AS ABOVE _____ Job No. _____

_____ Date: _____

_____ By: _____

_____ Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Hole No.: *1 - 4*

Soil Type: *See Report*

Hole No.	Time 3	H1 (Inches)	Time 4	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:12:32	*8"*	*1:18:50*	*7"*	6:21	*1"*	6.35
No. 2	1:21:57	*8"*	*1:32:50*	*7"*	10:53	*1"*	10.88
No. 3	1:22:15	*8"*	*1:31:37*	*7"*	9:22	*1"*	9.37
No. 4	1:12:22	*8"*	*1:19:30*	*7"*	7:07	*1"*	7.13
No. 1	1:19:45	*8"*	*1:28:10*	*7'*	8:25	*1"*	8.42
No. 2	1:32:59	*8"*	*1:42:33*	*7"*	9:34	*1"*	9.57
No. 3	1:32:20	*8"*	*1:42:35*	*7"*	3:36	*1"*	10.25
No. 4	1:19:55	*8"*	*1:28:47*	*7"*	8:52	*1"*	8.87

Percolation Rate: 8.85 min./inch

(avg. + high) / 2 = 8.85 + 14.93 / 2 = 11.89

Adjusted Percolation Rate: 11.89 min./ inch

Pacific Surveys

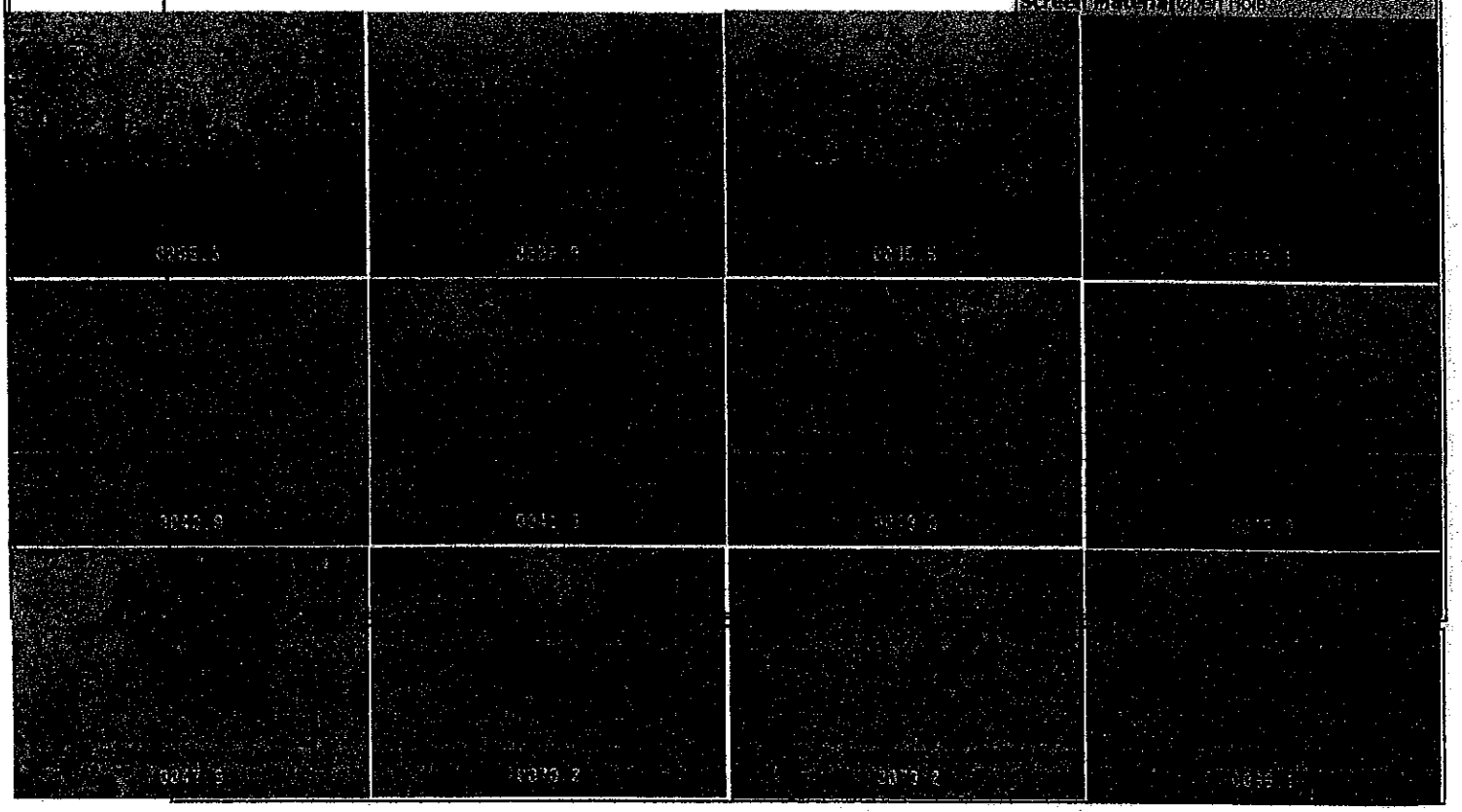
a full service geophysical well logging company

Video Survey Report

Company:	Harich Enterprises	**Date:**	04-Aug-14		
Well:	Meadow well 1	**Run No.**	One	**Truck**	PS-6
Field:	Skyforest	**Job Ticket:**	18613		
State:	California	**Total Depth:**	96 ft		
		Water Level:	5 ft	SWL	
Location:	Santa's Village	**Oil on Water:**	No	**Amount:**	0 ft
	GPS N34o14.023' W117o10.163'	**Operator:**	Nelson		
Zero Datum:	Top of CSG	**Tool Zero:**	Side-Scan	**Dead Space**	2.00 ft
Reason for Survey:	General Inspection	**Guides Set @**	7.00 in		

Depth	Observations
0.0 ft	Start survey at top of survey.
5.3 ft	SWL; water cloudy, visibility poor.
8.9 ft	Heavy scale on casing.
35.5 ft	End of casing open hole.
39.3 ft	Fractured zone.
40.9 ft	Fractured zone with possible water production zone.
43.0 ft	Fractured zone with possible water production zone.
45.0 ft	Large fractured with possible water production zone.
47.9 ft	Break out fractured zone.
70.2 ft	Fractured zone.
73.2 ft	Large break out.
96.1 ft	Fill; end survey.

Perforation:	**From Survey**
Open Hole:	N/A
Casing Size	**From Survey**
8.00 in:	0.00 ft to 35.50 ft
Open Hole:	35.50 ft to 96.10 ft
CSG Material	PVC
Screen Material:	Open Hole



800.919.7555
909.625.6262

4456 via st. ambrose
claremont ca 91711
www.pacificsurveys.com

fax: 909.399.3180

BUILDING #18

County of San Bernardino • Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

www.sbcounty.gov/dehs

PRIVATE SEWAGE DISPOSAL SYSTEM CERTIFICATION

Applicant shall complete top 3 lines only. Certification shall be completed, on both sides, by a licensed contractor (A ,B, or C-42) or other qualified professional (R.P.E., C.E.G., R.E.H.S., etc.) Use n/a where necessary. For information, please call 909-387-4666.

Property Owner: SKY PARK, SANTA'S VILLAGE	Applicant Name:
Property Address: 28950 HWY 18	APN: 0332-211-02, 0332-212-02
Type of Project (Specify) TR, PM, CUP, DR, LUR, etc:	File Index Number:

Number of Units	Garbage Disposal Y ☒ N ☐	Tank Last Pumped (mo. / yr.) 6/14
Bedrooms 0	Vacant Y ☒ N ☐ How Long (yrs.) N/A	Tank Age (yrs.) N/A
Bathrooms 0	Basement Y ☐ N ☒	Disposal Area Age (yrs.) N/A

Commercial Development	Type of Fixtures (per UPC) *Indicate type and number of each* BAKERY	
	Total Number of Fixture Units ☒ 9	Grease Interceptor ☐ Clarifier ☐ None ☒

Type of Septic Tank (Specify) CEMENT		Dimensions (L x W x D) (ft.) 8' x 5' x 5'
Type of Cover (Specify) DIRT	Tank Capacity (Gallons) 750	No. of Compartments 2
Specify Any Damage or Defects Observed: NONE		

Type of Disposal Area Seepage Pit ☐ Leachlines ☒ Other ☐ (Specify)		
Distance From Well N/A ft.	Distance from Foundation N/A ft.	Distance from Nearest Lot Line ☐ Front ☐ Side ☐ Rear
Specify Any Damage or Defects Observed:		

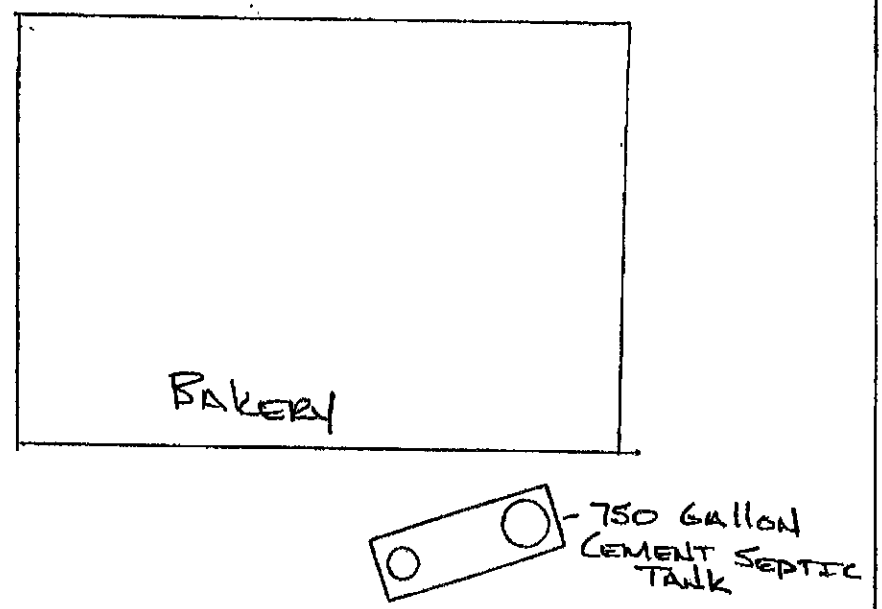
Seepage Pits	Number of Pits	Outside Diameter (ft.)	Depth (ft.)
	Depth of Pit Below Inlet (ft.)		Lining Material (Specify)

Leachlines N/A	Number of Lines	Trench Width (in.)	Average Length of Lines (ft.)
	Total Absorption Area (sq. ft.) *Bottom of Trenches*		Depth (in.) *Finish Grade to Top of Line*
	Distance Between Lines (ft.)		Type of Filter Material Beneath Line (in.)
	Depth of Material Above Line (in.)		Depth of Material Beneath Line (in.)

Specify Indications of Previous System Failures (Odors, Seepage, etc.): *Use Additional paper if necessary*		
Dye Test Y ☐ N ☒	Hydraulic Test Y ☒ N ☐	NOTE: Attach test results and copies of building permits.

Tank & Disposal Area Information

In the space provided, show the location of the septic tank and disposal area in relation to the buildings and other landmarks (i.e. wells, trees, shrubs, driveways, parking, paving, drainage courses, property lines).



It is the opinion of the certifier that this sewage disposal system, ☐ Meets current code, ☒ Can be expected to function satisfactorily and is not likely to create any unsanitary conditions. OR ☐ Cannot be expected to function satisfactorily.

Date:	Signature:	Type of License:	Reg. Number:	Expiration:
7-24-14		C-42	363126	7/16

Name of Certifier:	Address:
SEAN BENNETT	P.O BOX 1520, 92375

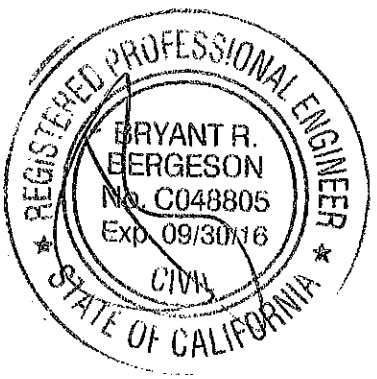
For DEHS Use Only

Reviewed By:	Date:
☐ Approved	☐ Not Approved - Reason

RWM & ASSOCIATES, LLC
Civil Engineering, Land Surveying and Building Design
P.O. Box 520, Twin Peaks, CA 92391
(909) 337-3058

San Bernardino County
Environmental Improvement Agency
Environmental Health Services
385 N. Arrowhead Avenue
San Bernardino, CA 92415

January 12, 2014



Attn: REHS
Re: Existing System Design
Sky Park - Santa's Village
APN: 340-271-06 BUILDING #14
28950 Hwy # 18, Sky Forest Ca.
Dear Sirs,

The following is the summary of the percolation test and the resulting design for the existing private sewage system for the subject property, followed by a field certification by C-42 license.

1. **Description of Site and Proposal:**
   - **1.1** Prepared for: Sky Park / Santa's Village
     C/O RWM & ASSOCITES, LLC.
   - **1.2** Location of Land: See attached Map.
   - **1.3** Proposed Development:
     a. Proposed Development: bathroom facility
     b. See Attached Map
     c. An existing 1500 gallon septic Tank and leach lines.
     d. See attached map.
   - **1.4** a. Topography / site plan: See attached map.
     b. Drainage from site is sheet flow to the north.
     c. Vegetation: Dry grasses and brush with Pine and Oak Trees.
     d. There are several existing structures on the site. There is existing structures on the adjacent parcel to the north. There is existing 20,000 water tank on site
     e. There are no known wells within 100' of the proposed system. There are no streams within 50' of the proposed system. Historical well/ground water is 5.3' from well top of ground, therefore total separation between bottom of leach field and historical high ground water is 50.8' and leach field distance to well head is 866' to the northwest.
     f. See attached drawings.
     g. No ground water was encountered in any excavation.
     h. No other features, which would affect the system, were observed at the site.
     i. Leach lines and expansion areas will be located on natural ground as shown on the attached system layout.

2. Equipment:

2.1 Backhoe with a 24" bucket, manual posthole digger and tape measure.

3. Methodology and Procedures

3.1 Location of Borings: Random, See attached map.

3.2 Four holes were dug to a depth of six feet below original ground and one exploratory hole was dug to a depth of thirteen feet below original ground. The soils data developed as a result of the exploratory and test holes should be representative of the area where the system is to be constructed. However, additional data developed during system construction could result in relocation of the system or necessitate the use of a holding tank in lieu of the septic system. Any large rock encountered in the system area will be removed as necessary for construction.

3.3 Test holes were prepared and tests were performed in accordance with the simplified standard test procedures. See attached test sheet. Six-inch diameter holes were used.

4. Results:

4.1 Hole locations are shown on the attached map.
Hole #1 through #4
0 - 3' dark Brown Top Soil
3 – 6' dark Brown Soil with Light Tan D.G. intermixed.
Hole #5
0 - 3' dark Brown Top Soil
3' – 6' dark Brown Top with Light Tan D.G. intermixed.
6' – 13' dark Brown Soil with Light Tan D.G. intermixed
No unusual moisture was encountered in any excavation.

4.2.1 Design rate = 11.89 minutes per inch. Referring to the DEHS chart, .95 square foot per gallon was used. Therefore, .95(450)/7 x 1.0 = 61 lineal feet of leach line using 3' X 3' gravel.

5. Discussion of Results:

5.1 Tests were fairly uniform, ranging from 6.35 to 10.88 with a design rate of 11.89 minutes per inch.

5.2 NA

6. Design:

6.1 Based on the above, the rate of 11.89 minutes per inch was used. See section 4.2.1.

6.2 See section 4.2.1 and the attached map

7. Plot: See attached Map.

8. Calculations

GENERAL BUILDING

Facilities	Quantity	"Units"	Total Units
Urinals	4	2	4
Water Closet	1	6	6
Wash Basin	1	2	2
			12

Summary

General building Per UPC, Table I-2, 51 Units = 600

Flow: 600/ .75 = (450)

Volume = 450

9. General Discussion:

9.1 By topography map the slope in area of leach lines is measured at approx. >10 %.

9.2 Based on all of the above data, it is my professional opinion that existing system with the certifications is and has sufficient area to handle the liquid wastes without creating a nuisance or contaminating the ground water and the system will meet the requirements of the Lahaton Regional Water Quality Control Board.

If you have any questions concerning this design review, please call.

Sincerely,

Bryant Bergeson, P.E.

PERCOLATION TEST SHEET A
PARCEL 1

Project:SKYPARK Job No.SEE TITLE REPORT

APN #332-211-02 Date:12/2014

By: R2-R3

Hole No.: *1 - 4* Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Soil Type: *See Report*

Hole No.	Time 1	H1 (Inches)	Time 2	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:00:00	*8"*	*1:08:14*	*7"*	8:14	*1"*	8.23
No. 2	1:01:36	*8"*	*1:12:28*	*7"*	10:52	*1"*	10.87
No. 3	1:02:28	*8"*	*1:07:05*	*7"*	4:37	*1"*	4.61
No. 4	1:04:06	*8"*	*1:07:55*	*7"*	3:49	*1"*	3.82
No. 1	1:08:15	*8"*	*1:12:30*	*7"*	4:15	*1"*	4.25
No. 2	1:13:28	*8"*	*1:21:57*	*7"*	8:37	*1"*	8.62
No. 3	1:07:17	*8"*	*1:22:13*	*7"*	14:56	*1"*	14.93
No. 4	1:08:30	*8"*	*1:12:22*	*7"*	3:52	*1"*	3.87

PERCOLATION TEST SHEET B
PARCEL 1

Project: SAME AS ABOVE _____ Job No. _____

_____ Date: _____

_____ By: _____

_____ Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Hole No.: *1 - 4*

Soil Type: *See Report*

Hole No.	Time 3	H1 (Inches)	Time 4	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:12:32	*8"*	*1:18:50*	*7"*	6:21	*1"*	6.35
No. 2	1:21:57	*8"*	*1:32:50*	*7"*	10:53	*1"*	10.88
No. 3	1:22:15	*8"*	*1:31:37*	*7"*	9:22	*1"*	9.37
No. 4	1:12:22	*8"*	*1:19:30*	*7"*	7:07	*1"*	7.13
No. 1	1:19:45	*8"*	*1:28:10*	*7'*	8:25	*1"*	8.42
No. 2	1:32:59	*8"*	*1:42:33*	*7"*	9:34	*1"*	9.57
No. 3	1:32:20	*8"*	*1:42:35*	*7"*	3:36	*1"*	10.25
No. 4	1:19:55	*8"*	*1:28:47*	*7"*	8:52	*1"*	8.87

Percolation Rate: 8.85 min./inch

(avg. + high) / 2 = 8.85 + 14.93 / 2 = 11.89

Adjusted Percolation Rate: 11.89 min./ inch

Pacific Surveys

a full service geophysical well logging company

Video Survey Report

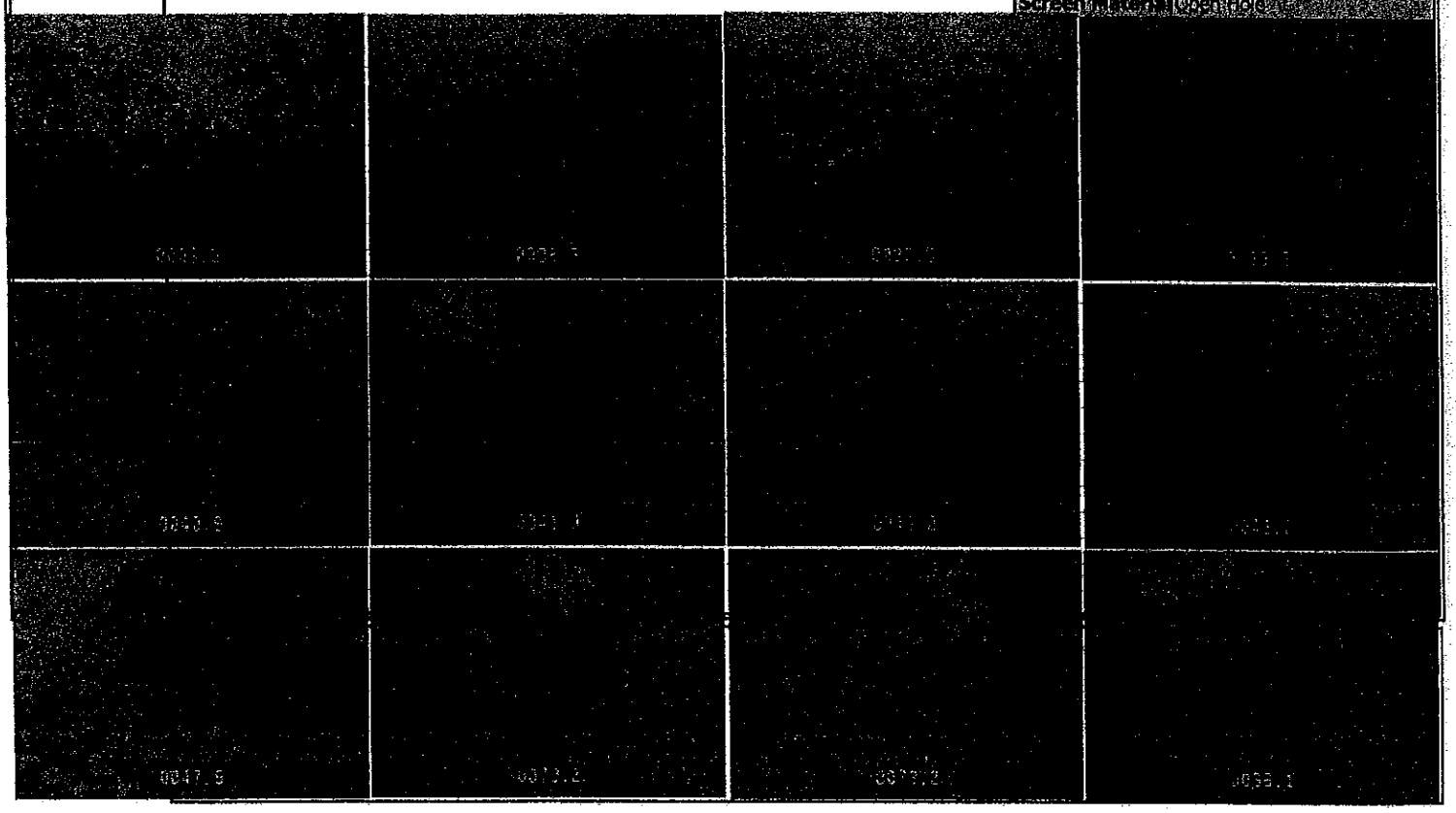
Company:	Harich Enterprises	**Date:**	04-Aug-14		
Well:	Meadow well 1	**Run No.**	One	**Truck**	PS-6
Field:	Skyforest	**Job Ticket:**	18613		
State:	California	**Total Depth:**	96 ft		
		Water Level:	5 ft	SWL	
Location:	Santa's Village	**Oil on Water:**	No	**Amount:**	0 ft
	GPS N34o14.023' W117o10.163'	**Operator:**	Nelson		
Zero Datum:	Top of CSG	**Tool Zero:**	Side-Scan	**Dead Space**	2.00 ft
Reason for Survey:	General Inspection	**Guides Set @**	7.00 in		

Depth	Observations
0.0 ft	Start survey at top of survey.
5.3 ft	SWL; water cloudy, visibility poor.
8.9 ft	Heavy scale on casing.
35.5 ft	End of casing open hole.
39.3 ft	Fractured zone.
40.9 ft	Fractured zone with possible water production zone.
43.0 ft	Fractured zone with possible water production zone.
45.0 ft	Large fractured with possible water production zone.
47.9 ft	Break out fractured zone.
70.2 ft	Fractured zone.
73.2 ft	Large break out.
96.1 ft	Fill; end survey.

Perforation	From Survey
Open Hole	N/A

Casing Size	From Survey
8.00 in	0.00 ft to 35.50 ft
Open Hole	35.50 ft to 96.10 ft

CSG Material	PVC
Screen Material	Open Hole



800.919.7555
909.625.6262

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claremont ca 91711
www.pacificsurveys.com

fax: 909.399.3180

BUILDING #14

County of San Bernardino • Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

www.sbcounty.gov/dehs

PRIVATE SEWAGE DISPOSAL SYSTEM CERTIFICATION

Applicant shall complete top 3 lines only. Certification shall be completed, on both sides, by a licensed contractor (A ,B, or C-42) or other qualified professional (R.P.E., C.E.G., R.E.H.S., etc.) Use n/a where necessary. For information, please call 909-387-4666.

Property Owner: SKY PARK, SANTA'S VILLAGE	Applicant Name:
Property Address: 28950 HWY 18	APN: 0332-211-02, 0332-212-02
Type of Project (Specify) TR, PM, CUP, DR, LUR, etc:	File Index Number:

Number of Units	Garbage Disposal Y ☐ N ☒		Tank Last Pumped (mo. / yr.) 6/14
Bedrooms 0	Vacant Y ☒ N ☐ How Long (yrs.) N/A		Tank Age (yrs.) N/A
Bathrooms 0	Basement Y ☐ N ☒		Disposal Area Age (yrs.) N/A

Commercial Development	Type of Fixtures (per UPC) *Indicate type and number of each* UPPER BATHROOM	
	Total Number of Fixture Units ☒ 12	Grease Interceptor ☐ Clarifier ☐ None ☒

Type of Septic Tank (Specify) STEEL		Dimensions (L x W x D) (ft.) 15' x 5' x 5'
Type of Cover (Specify) DIRT	Tank Capacity (Gallons) 1500	No. of Compartments 2
Specify Any Damage or Defects Observed: NONE		

Type of Disposal Area Seepage Pit ☐ Leachlines ☒ Other ☐ (Specify)		
Distance From Well N/A ft.	Distance from Foundation N/A ft.	Distance from Nearest Lot Line ☐ Front ☐ Side ☐ Rear
Specify Any Damage or Defects Observed:		

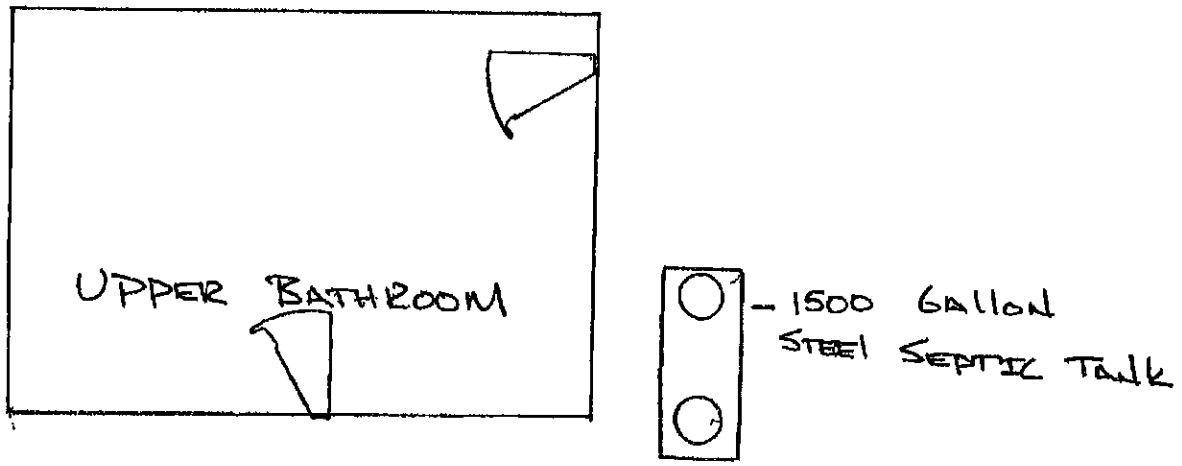
Seepage Pits	Number of Pits	Outside Diameter (ft.)	Depth (ft.)
	Depth of Pit Below Inlet (ft.)	Lining Material (Specify)	

Leachlines N/A	Number of Lines	Trench Width (in.)	Average Length of Lines (ft.)
	Total Absorption Area (sq. ft.) *Bottom of Trenches*		Depth (in.) *Finish Grade to Top of Line*
	Distance Between Lines (ft.)	Type of Filter Material Beneath Line (in.)	
	Depth of Material Above Line (in.)	Depth of Material Beneath Line (in.)	

Specify Indications of Previous System Failures (Odors, Seepage, etc.): *Use Additional paper if necessary*		
Dye Test Y ☐ N ☒	Hydraulic Test Y ☒ N ☐	NOTE: Attach test results and copies of building permits.

Tank & Disposal Area Information

In the space provided, show the location of the septic tank and disposal area in relation to the buildings and other landmarks (i.e. wells, trees, shrubs, driveways, parking, paving, drainage courses, property lines).



It is the opinion of the certifier that this sewage disposal system, ☐ Meets current code, ☒ Can be expected to function satisfactorily and is not likely to create any unsanitary conditions. OR ☐ Cannot be expected to function satisfactorily.

Date:	Signature:	Type of License:	Reg. Number:	Expiration:
7-24-14		C-42	363126	7/16

Name of Certifier:	Address:
SEAN BENNETT	P.O BOX 1520, 92325

For DEHS Use Only

Reviewed By:	Date:
☐ Approved	☐ Not Approved - Reason

RWM & ASSOCIATES, LLC P.O. Box 520, Twin Peaks, CA 92391
Civil Engineering, Land Surveying and Building Design (909) 337-3058

San Bernardino County
Environmental Improvement Agency
Environmental Health Services
385 N. Arrowhead Avenue
San Bernardino, CA 92415

January 12, 2014

Attn: REHS
Re: Existing System Design
Sky Park - Santa's Village
APN: 340-271-06 BUILDING #7 & #8
28950 Hwy # 18, Sky Forest Ca.

Dear Sirs,

The following is the summary of the percolation test and the resulting design for the existing private sewage system for the subject property, followed by a field certification by C-42 license.

1. **Description of Site and Proposal:**
   - **1.1** Prepared for: Sky Park / Santa's Village
     C/O RWM & ASSOCITES, LLC.
   - **1.2** Location of Land: See attached Map.
   - **1.3** Proposed Development:
     a. Proposed Development: bathroom facility
     b. See Attached Map
     c. An existing 750 gallon septic Tank and leach lines.
     d. See attached map.
   - **1.4** a. Topography / site plan: See attached map.
     b. Drainage from site is sheet flow to the north.
     c. Vegetation: Dry grasses and brush with Pine and Oak Trees.
     d. There are several existing structures on the site. There is existing structures on the adjacent parcel to the north. There is existing 20,000 water tank on site
     e. There are no known wells within 100' of the proposed system. There are no streams within 50' of the proposed system. Historical well/ground water is 5.3' from well top of ground, therefore total separation between bottom of leach field and historical high ground water is 29.8' and leach field distance to well head is 438' to the southwest.
     f. See attached drawings.
     g. No ground water was encountered in any excavation.
     h. No other features, which would affect the system, were observed at the site.
     i. Leach lines and expansion areas will be located on natural ground as shown on the attached system layout.

2. Equipment:

2.1 Backhoe with a 24" bucket, manual posthole digger and tape measure.

3. Methodology and Procedures

3.1 Location of Borings: Random, See attached map.

3.2 Four holes were dug to a depth of six feet below original ground and one exploratory hole was dug to a depth of thirteen feet below original ground. The soils data developed as a result of the exploratory and test holes should be representative of the area where the system is to be constructed. However, additional data developed during system construction could result in relocation of the system or necessitate the use of a holding tank in lieu of the septic system. Any large rock encountered in the system area will be removed as necessary for construction.

3.3 Test holes were prepared and tests were performed in accordance with the simplified standard test procedures. See attached test sheet. Six-inch diameter holes were used.

4. Results:

4.1 Hole locations are shown on the attached map.
Hole #1 through #4
0 - 3' dark Brown Top Soil
3 – 6' dark Brown Soil with Light Tan D.G. intermixed.
Hole #5
0 - 3' dark Brown Top Soil
3' – 6' dark Brown Top with Light Tan D.G. intermixed.
6' – 13' dark Brown Soil with Light Tan D.G. intermixed
No unusual moisture was encountered in any excavation.

4.2.1 Design rate = 11.89 minutes per inch. Referring to the DEHS chart, .7 square foot per gallon was used. Therefore, .7(150)/7 x 1.0 = 25 min. lineal feet of leach line using 3' X 3' gravel.

5. Discussion of Results:

5.1 Tests were fairly uniform, ranging from 6.35 to 10.88 with a design rate of 11.89 minutes per inch.

5.2 NA

6. Design:

6.1 Based on the above, the rate of 11.89 minutes per inch was used. See section 4.2.1.

6.2 See section 4.2.1 and the attached map

7. Plot: See attached Map.

8. Calculations

GENERAL BUILDING

Facilities	Quantity	"Units"	Total Units
Urinals	4	2	4
			4

Summary

General building Per UPC, Table I-2, 51 Units = 200

Flow: 200/ .75 = (150)

Volume = 150

9. General Discussion:

9.1 By topography map the slope in area of leach lines is measured at approx. >10 %.

9.2 Based on all of the above data, it is my professional opinion that existing system with the certifications is and has sufficient area to handle the liquid wastes without creating a nuisance or contaminating the ground water and the system will meet the requirements of the Lahaton Regional Water Quality Control Board.

If you have any questions concerning this design review, please call.

Sincerely,

Bryant Bergeson, P.E.

PERCOLATION TEST SHEET A
PARCEL 1

Project:SKYPARK Job No.SEE TITLE REPORT

APN #332-211-02 Date:12/2014

By: R2-R3

Hole No.: *1 - 4* Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Soil Type: *See Report*

Hole No.	Time 1	H1 (Inches)	Time 2	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:00:00	*8"*	*1:08:14*	*7"*	8:14	*1"*	8.23
No. 2	1:01:36	*8"*	*1:12:28*	*7"*	10:52	*1"*	10.87
No. 3	1:02:28	*8"*	*1:07:05*	*7"*	4:37	*1"*	4.61
No. 4	1:04:06	*8"*	*1:07:55*	*7"*	3:49	*1"*	3.82
No. 1	1:08:15	*8"*	*1:12:30*	*7"*	4:15	*1"*	4.25
No. 2	1:13:28	*8"*	*1:21:57*	*7"*	8:37	*1"*	8.62
No. 3	1:07:17	*8"*	*1:22:13*	*7"*	14:56	*1"*	14.93
No. 4	1:08:30	*8"*	*1:12:22*	*7"*	3:52	*1"*	3.87

PERCOLATION TEST SHEET B
PARCEL 1

Project: SAME AS ABOVE _____ Job No. _____

_____ Date: _____

_____ By: _____

_____ Diameter: *6"* Type: *Hand Dug* Depth: *8"*

Hole No.: *1 - 4*

Soil Type: *See Report*

Hole No.	Time 3	H1 (Inches)	Time 4	H2 (Inches)	Δt (minutes)	ΔH (inches)	R Min. / Inch
No. 1	1:12:32	*8"*	*1:18:50*	*7"*	6:21	*1"*	6.35
No. 2	1:21:57	*8"*	*1:32:50*	*7"*	10:53	*1"*	10.88
No. 3	1:22:15	*8"*	*1:31:37*	*7"*	9:22	*1"*	9.37
No. 4	1:12:22	*8"*	*1:19:30*	*7"*	7:07	*1"*	7.13
No. 1	1:19:45	*8"*	*1:28:10*	*7'*	8:25	*1"*	8.42
No. 2	1:32:59	*8"*	*1:42:33*	*7"*	9:34	*1"*	9.57
No. 3	1:32:20	*8"*	*1:42:35*	*7"*	3:36	*1"*	10.25
No. 4	1:19:55	*8"*	*1:28:47*	*7"*	8:52	*1"*	8.87

Percolation Rate: 8.85 min./inch

(avg. + high) / 2 = 8.85 + 14.93 / 2 = 11.89

Adjusted Percolation Rate: 11.89 min./ inch

Pacific Surveys

A full service Geophysical well logging company

Video Survey Report

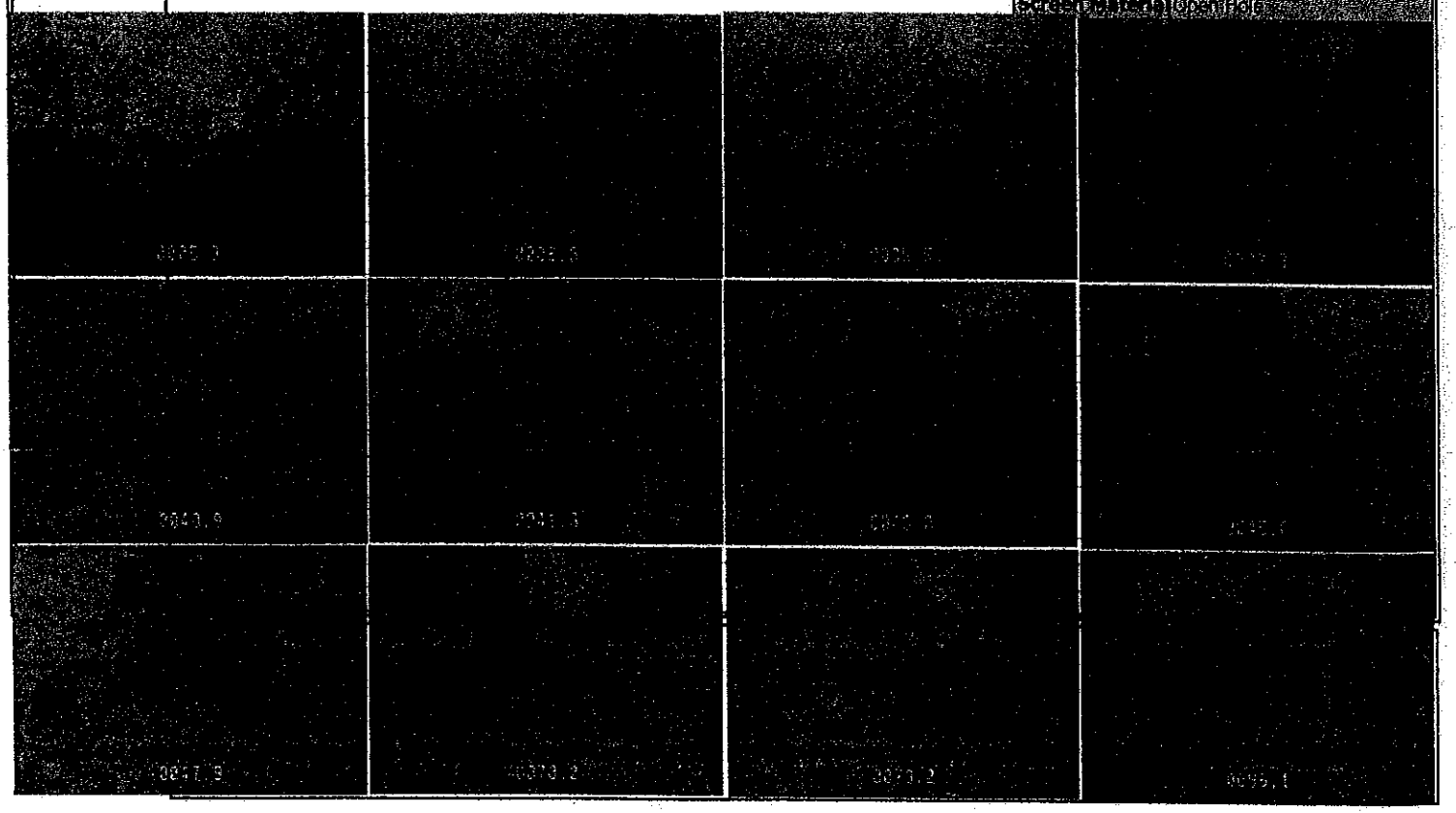
Company:	Harlch Enterprises	**Date:**	04-Aug-14		
Well:	Meadow well 1	**Run No.**	One	**Truck**	PS-6
Field:	Skyforest	**Job Ticket:**	18613		
State:	California	**Total Depth:**	96 ft		
		Water Level:	5 ft	SWL	
Location:	Santa's Village	**Oil on Water:**	No	**Amount:**	0 ft
	GPS N34o14.023' W117o10.163'	**Operator:**	Nelson		
Zero Datum:	Top of CSG **Tool Zero:**	Side-Scan		**Dead Space**	2.00 ft
Reason for Survey:	General Inspection	**Guides Set @**	7.00 in		

Depth	Observations
0.0 ft	Start survey at top of survey.
5.3 ft	SWL; water cloudy, visibility poor.
8.9 ft	Heavy scale on casing.
35.5 ft	End of casing open hole.
39.3 ft	Fractured zone.
40.9 ft	Fractured zone with possible water production zone.
43.0 ft	Fractured zone with possible water production zone.
45.0 ft	Large fractured with possible water production zone.
47.9 ft	Break out fractured zone.
70.2 ft	Fractured zone.
73.2 ft	Large break out.
96.1 ft	Fill; end survey.

Perforation:	From Survey
Open Hole	N/A

Casing Size	From Survey
8.00 in	0.00 ft to 35.50ft
Open Hole	35.50 ft to 96.10ft

CSG Material	PVC
Extra Material	Open Hole



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909.625.6262

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claremont ca 91711
www.pacificsurveys.com

fax: 909.399.3180

BUILDING #8 #7

County of San Bernardino • Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

www.sbcounty.gov/dehs

PRIVATE SEWAGE DISPOSAL SYSTEM CERTIFICATION

Applicant shall complete top 3 lines only. Certification shall be completed, on both sides, by a licensed contractor (A ,B, or C-42) or other qualified professional (R.P.E., C.E.G., R.E.H.S., etc.) Use n/a where necessary. For information, please call 909-387-4666.

Property Owner: SKY PARK, SANTA'S VILLAGE	Applicant Name:
Property Address: 28950 HWY 18	APN: 0332-211-02, 0332-212-02
Type of Project (Specify) TR, PM, CUP, DR, LUR, etc:	File Index Number:

Number of Units	Garbage Disposal Y ☐ N ☒	Tank Last Pumped (mo. / yr.) 6/14
Bedrooms 0	Vacant Y ☒ N ☐ How Long (yrs.) N/A	Tank Age (yrs.) N/A
Bathrooms 0	Basement Y ☐ N ☒	Disposal Area Age (yrs.) N/A

Commercial Development	Type of Fixtures (per UPC) *Indicate type and number of each* UPPER RETAIL BUILDING	
	Total Number of Fixture Units ☒ 4	Grease Interceptor ☐ Clarifier ☐ None ☒

Type of Septic Tank (Specify) CEMENT		Dimensions (L x W x D) (ft.) 8'x5'x5'
Type of Cover (Specify) DIRT	Tank Capacity (Gallons) 750	No. of Compartments 2
Specify Any Damage or Defects Observed: NONE		

Type of Disposal Area Seepage Pit ☐ Leachlines ☒ Other ☐ (Specify)		
Distance From Well N/A ft.	Distance from Foundation N/A ft.	Distance from Nearest Lot Line ☐ Front ☐ Side ☐ Rear
Specify Any Damage or Defects Observed:		

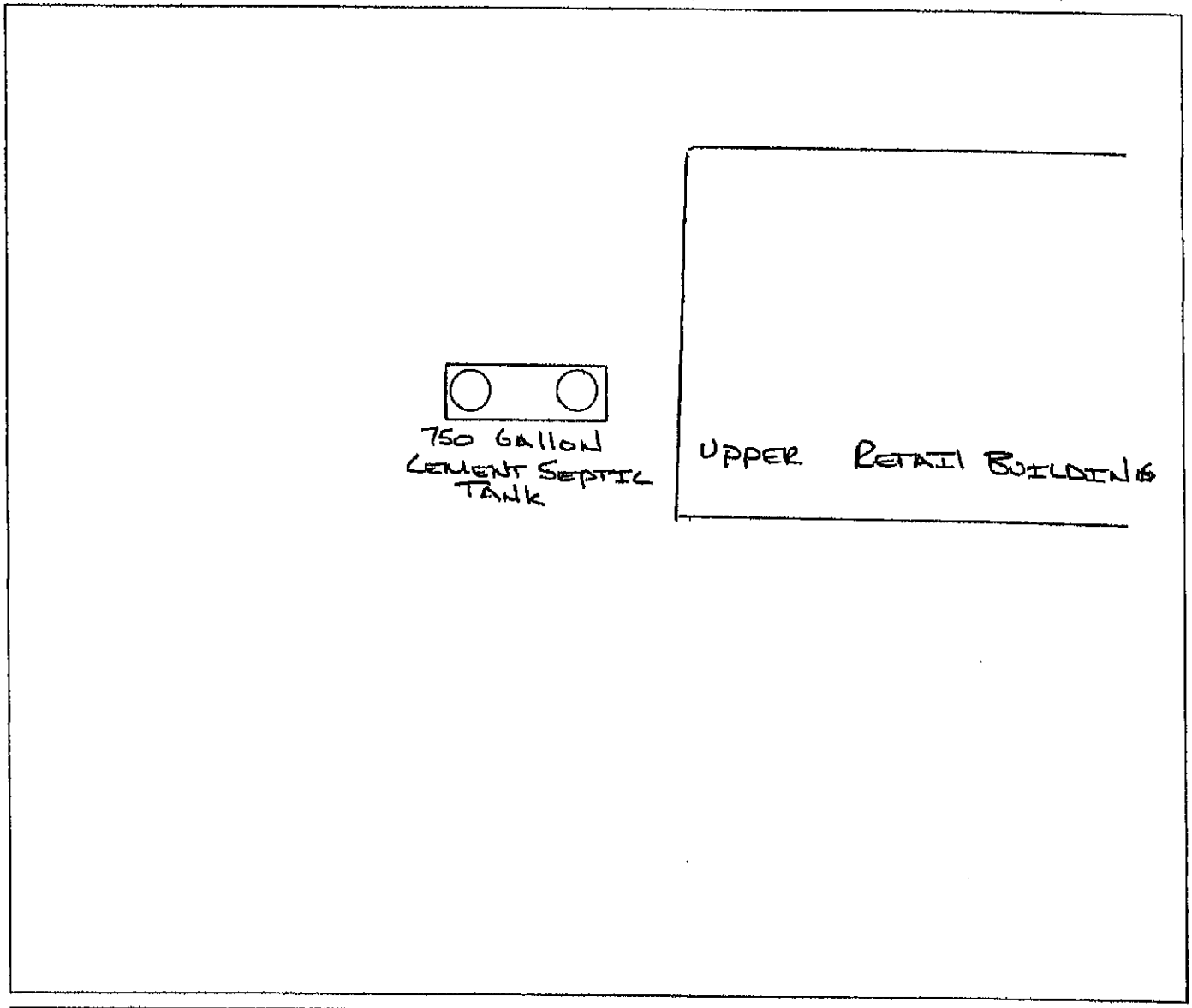
Seepage Pits	Number of Pits	Outside Diameter (ft.)	Depth (ft.)
	Depth of Pit Below Inlet (ft.)	Lining Material (Specify)	

Leachlines N/A	Number of Lines	Trench Width (in.)	Average Length of Lines (ft.)
	Total Absorption Area (sq. ft.) *Bottom of Trenches*		Depth (in.) *Finish Grade to Top of Line*
	Distance Between Lines (ft.)	Type of Filter Material Beneath Line (in.)	
	Depth of Material Above Line (in.)	Depth of Material Beneath Line (in.)	

Specify Indications of Previous System Failures (Odors, Seepage, etc.): *Use Additional paper if necessary*		
Dye Test Y ☐ N ☒	Hydraulic Test Y ☒ N ☐	NOTE: Attach test results and copies of building permits.

Tank & Disposal Area Information

In the space provided, show the location of the septic tank and disposal area in relation to the buildings and other landmarks (i.e. wells, trees, shrubs, driveways, parking, paving, drainage courses, property lines).



It is the opinion of the certifier that this sewage disposal system, ☐ Meets current code, ☒ Can be expected to function satisfactorily and is not likely to create any unsanitary conditions. OR ☐ Cannot be expected to function satisfactorily.

Date:	Signature:	Type of License:	Reg. Number:	Expiration:
7-24-14		C-42	363126	7/16

Name of Certifier:	Address:
SEAN BENNETT	P.O Box 1520, 92325

For DEHS Use Only

Reviewed By:	Date:
☐ Approved	☐ Not Approved - Reason

Appendix K: Drawings and Specifications

USDA

DRAWINGS AND SPECIFICATIONS

ENGINEERING DOCKET

SKYPARK SANTA'S VILLAGE LLC

Lined Waterway or Outlet

Water & Sediment Control Basin

Job Code: 468, 638
Farm No. : 1113
Tract No. : 18064
Engineering Class: V, II

Prepared by:
Haejin Lee
Area 4 Team Engineer
Oxnard Service Center
Ventura County

October 2015

CALIFORNIA

NATURAL RESOURCES CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
REDLANDS, CALIFORNIA

TABLE OF CONTENTS

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Date: October 27, 2015

ENGINEERING JOB CLASSIFICATION

No.	Practice	Limiting Factor	(Units)	Job Class
468	Lined Waterway or Outlet	1. Drainage Area 2. Capacity	89.5 (acre) 59 (cfs)	V

Prepared by : Haejin Lee Date: 10/27/2015

Approved by: Date: 10/29/ 2015
Area Engineer

No.	Practice	Limiting Factor	(Units)	Job Class
638	Water & Sediment Control Basin	1. Storage 2. Height of fill	0.33 (ac-ft) 0 ft	II

Approved by: ___Haejin Lee_____ Date: _10/27/2015_
Team Engineer

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

LINED WATERWAY OR OUTLET

(Ft.)

CODE 468

DEFINITION

A waterway or outlet having an erosion-resistant lining of concrete, stone, synthetic turf reinforcement fabrics, or other permanent material.

PURPOSE

This practice may be applied as part of a resource management system to support one or more of the following purposes:

- Provide for safe conveyance of runoff from conservation structures or other water concentrations without causing erosion or flooding
- Stabilize existing and prevent future gully erosion
- Protect and improve water quality

CONDITIONS WHERE PRACTICE APPLIES

This practice applies if the following or similar conditions exist:

1. Concentrated runoff, steep grades, wetness, prolonged base flow, seepage, or piping is such that a lining is needed to control erosion
2. Use by people or animals precludes vegetation as suitable cover.
3. Limited space is available for design width, which requires higher velocities and lining.
4. Soils are highly erosive or other soil or climatic conditions preclude using vegetation only.

CRITERIA

General Criteria Applicable to All Purposes:

Capacity. The maximum capacity of the waterway flowing at designed depth shall not exceed 200 ft^3/s. The minimum capacity shall be adequate to carry the peak rate of runoff from a 10-year, 24-hour frequency storm. Velocity shall be computed by using Manning's Formula with a coefficient of roughness "n" as follows:

Lining	"n" Value
Concrete	
Trowel finish	0.011– 0.015
Float finish	0.013 - 0.016
Shotcrete	0.016 – 0.025
Flagstone	0.020 – 0.025
1/ Riprap - (Angular Rock)	$n = 0.047(D_{50}\,S)^{0.147}$
Synthetic Turf Reinforcement Fabrics and Grid Pavers	Manufacturer's recommendations

1/ Applies on slopes between 2 and 40% with a rock mantle thickness of 2 x D_{50}

where:

D_{50} = median rock diameter (in.),
S = lined section slope (ft./ft.) ($.02 \leq S \leq 0.4$)

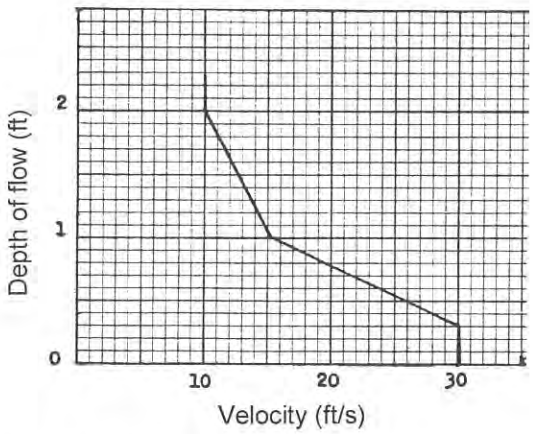


Figure 2. Maximum velocity versus depth of flow for concrete-lined channels

Velocity. Maximum design velocity and rock gradation limits for rock riprap-lined channel sections shall be determined using National Engineering Handbook (NEH), Part 650, Engineering Field Handbook, Chapter 16, Appendix 16A, or NEH 654.14C, unless a detailed design analysis appropriate to the specific slope, flow depth and hydraulic conditions indicate that a higher velocity is acceptable.

Maximum design velocity for concrete-lined sections should not exceed those using Figure 2.

Maximum design velocity for synthetic turf reinforcement fabrics and grid pavers shall not exceed manufacturer's recommendations.

Stable rock sizes and flow depths for rock-lined channels having gradients between 2 percent and 40 percent may be determined using the following detailed design process. This design process is from **Design of Rock Chutes** by Robinson, Rice, and Kadavy.

For channel slopes between 2% and 10%:

$$D_{50} = [q\,(S)^{1.5}/4.75(10)^{-3}]^{0.53}$$

For channel slopes between 10% and 40%:

$$D_{50} = [q\,(S)^{0.58}/3.93(10)^{-2}]^{0.53}$$

$$z = [n(q)/1.486(S)^{0.50}]^{0.6}$$

where:

D_{50} = Particle size for which 50% (by weight) of the sample is finer, in.

S = Bed slope, ft./ft.

z = Flow depth, ft.

n=Manning's roughness coefficient

q = Unit discharge, $ft^3/s/ft$

Avoid channel slopes between 0.7 and 1.3 of the critical slope except for short transition sections. Supercritical flow shall be restricted to straight reaches. Design guidance on the use of this equation is available in NEH 654.14C

Waterways or outlets with supercritical flow shall discharge into an energy dissipator to reduce discharge velocity to less than critical.

Side slope. The steepest permissible side slopes, horizontal to vertical, shall be:

Nonreinforced concrete:
- Hand-placed, formed concrete
  - Height of lining, 1.5 ft or less .....Vertical
- Hand-placed screeded concrete or mortared in place flagstone
  - Height of lining, less that 2 ft .....1 to 1
  - Height of lining, more than 2 ft .....2 to 1

Slip form concrete:
- Height of lining, less than 3 ft .....1 to 1

Rock riprap .....2 to 1
Synthetic Turf Reinforcement Fabrics ...2 to 1
Grid Pavers.....1 to 1

Cross section. The cross section shall be triangular, parabolic, or trapezoidal. Cross section made of monolithic concrete may be rectangular.

Freeboard. The minimum freeboard for lined waterways or outlets shall be 0.25 ft above design high water in areas where erosion-resistant vegetation cannot be grown adjacent to the paved or reinforced side slopes. No freeboard is required if vegetation can be grown and maintained.

Lining thickness. Minimum lining thickness shall be:

Concrete.....4 in. (minimum thickness shall be 5 in. if the liner is reinforced).

Rock riprap.....Maximum stone size plus thickness of filter or bedding

Flagstone.....4 in., including mortar bed

Synthetic Turf
Reinforcement Fabrics
and Grid Pavers..... Manufacturer's
Recommendations

Lining Durability. Use of non-reinforced concrete or mortared flagstone linings shall be made only on low shrink-swell soils that are well drained or where subgrade drainage facilities are installed.

Related structures. Side inlets, drop structures, and energy dissipators shall meet the hydraulic and structural requirements for the site.

Outlets. All lined waterways and outlets shall have a stable outlet with adequate capacity to prevent erosion and flooding damages.

Geotextiles. Geotextiles shall be used where appropriate as a separator between rock, flagstone, or concrete linings and soil to prevent migration of soil particles from the subgrade, through the lining material. Geotextiles shall be designed according to AASHTO M288, Section 7.3., NEH 654.14D,or NRCS Design Note 24, Guide for the Use of Geotextiles.

Filters or bedding. Filters or bedding shall be used where appropriate to prevent piping. Drains shall be used to reduce uplift pressure and to collect water, as required. Filters, bedding, and drains shall be designed according to NEH Part 633, Chapter 26. Weep holes may be used with drains if needed.

Concrete. Concrete used for lining shall be proportioned so that it is plastic enough for thorough consolidation and stiff enough to stay in place on side slopes. A dense durable product shall be required. Specify a mix that can be certified as suitable to produce a minimum strength of 3,000 pounds per square inch.

Contraction joints. Contraction joints in concrete linings, if required, shall be formed transversely to a depth of about one-third the thickness of the lining at a uniform spacing in the range of 8 to 15 feet. Provide steel reinforcement or other uniform support to the joint to prevent unequal settlement.

Site and Subgrade Preparation. Proper site preparation is necessary to provide a stable, uniform foundation for the waterway lining. The site should be graded to remove any rutting or uneven surfaces and to provide good surface drainage throughout the construction period and the design life of the waterway or outlet. Proof rolling can be used to identify soft pockets of soil, additional rutting, or other soil conditions that require removal, and replacement by compacted soil to provide a uniform surface for base, subbase, or concrete liner.

CONSIDERATIONS

Streambank Soil Bioengineering. Trees, shrubs, forbs and grasses can be incorporated into or adjacent to the lined portions of the channel. This may improve aesthetics and habitat benefits as well as reduce erosion potential. Plantings are especially beneficial where the channel transitions to natural ground. However, such plantings are not appropriate in all circumstances. Guidance on the use of plantings is available in NEH 654.14I and NEH 654.14K.

Fish and Wildlife Resources. This practice may impact important fish and wildlife habitats such as streams, creeks, riparian areas, floodplains, and wetlands.

Aquatic organism passage concerns (e.g., velocity, depth, slope, air entrainment, screening, etc.) should be evaluated to minimize negative impacts. Swimming and leaping performance for target species should be considered.

Important fish and wildlife habitat, such as woody cover or wetlands, should be avoided or protected if possible when siting the lined waterway. If trees and shrubs are incorporated, they should be retained or planted in the periphery of the grassed portion of the lined waterways so they do not interfere with hydraulic functions and roots do not damage the lined portion of the waterway. Mid- or tall bunch grasses and perennial forbs may also be planted along waterway margins to improve wildlife habitat.

Plant selections that benefit pollinators should be incorporated into the design. Waterways with these wildlife features are more beneficial when connecting other habitat types: e.g., riparian areas, wooded tracts, and wetlands.

Other Considerations.

Filter strips established on each side of the waterway may improve water quality.

Consideration should be given to livestock and vehicular crossings as necessary to prevent damage to the waterway. Crossing design shall not interfere with design flow capacity.

Reinforcement of concrete liners should be considered where high pore water pressures exist in the subgrade, movement of the subgrade may occur, or in reaches where failure would endanger public safety or property.

Cultural Resources and Endangered Species

This practice is likely to occur in areas where Cultural Resources or Endangered Species habitat may be found. Follow NRCS Planning Policy to address these concerns.

PLANS AND SPECIFICATIONS

Plans and specifications for lined waterways or outlets shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s).

As a minimum the plans and specifications shall include:

- A plan view of the layout of the lined waterway or outlet.
- Typical cross section of the lined waterway or outlet.
- Profile of the lined waterway or outlet.
- Disposal requirements for excess soil material.
- Site specific construction specifications that describe the installation of the lined waterway or outlet. Include specification for control of concentrated flow during construction.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be provided to and reviewed with the landowner. The plan shall include the following items and others as appropriate.

A maintenance program shall be established to maintain waterway capacity and outlet stability.

Lining damaged by machinery or erosion must be repaired promptly.

Inspect lined waterways regularly, especially following heavy rains. Damaged areas shall be repaired immediately. Remove sediment deposits to maintain capacity of lined waterways.

Landowners should be advised to avoid areas where forbs have been established when applying herbicides. Avoid using waterways as turn-rows during tillage and cultivation operations. Prescribed burning and mowing may be appropriate to enhance wildlife values, but must be conducted to avoid peak nesting seasons and reduced winter cover. Control noxious weeds. Do not use as a field road. Avoid crossing with heavy equipment.

REFERENCES

AASHTO M288. Standard Specification for Geotextile Specification for Highway Applications.

National Engineering Handbook, Part 654, Stream Restoration Design, August 2007.

National Engineering Handbook, Part 650, Engineering Field Handbook: Chapter 16, Streambank and Shoreline Protection.

National Engineering Handbook, Part 633, Soil Engineering: Chapter 26 – Gradation Design of Sand and Gravel Filers.

Robinson, K.M., C.E. Rice, and K.C. Kadavy. 1998. Design of Rock Chutes.Transactions of ASAE, Vol. 41(3): 621-626.

USDA, NRCS Guide for the Use of Geotextiles. Design Note 24 (210-VI-DN-24, 1991).

USDA, NRCS, Pollinator Conservation. http://www.plant-materials.nrcs.usda.gov/news/features/pollinatorconservation.html (accessed August 20, 2009.)

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WATER AND SEDIMENT CONTROL BASIN

(No.)

CODE 638

DEFINITION

An earth embankment or a combination ridge and channel constructed across the slope of minor watercourses to form a sediment trap and water detention basin with a stable outlet.

PURPOSE

This practice may be applied as part of a resource management system for one or more of the following purposes:

- To reduce watercourse and gully erosion
- To trap sediment
- To reduce and manage onsite and downstream runoff

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to sites where:

1. The topography is generally irregular.
2. Watercourse or gully erosion is a problem.
3. Sheet and rill erosion is controlled by other conservation practices.
4. Runoff and sediment damages land and works of improvements.

Adequate outlets can be provided. Do not use this standard in place of terraces. Where the ridge and/or channel extends beyond the detention basin or level embankment, use Conservation Practice Standard (600), Terrace or (362) Diversion as appropriate.

CRITERIA

General Criteria Applicable to All Purposes

Install Water and Sediment Control Basins as part of a conservation system that adequately addresses resource concerns both above and below the basin. Where land ownership or physical conditions preclude treatment of the upper portion of a slope, a Water and Sediment Control Basin may be used to separate this area from, and permit treatment of the lower slope.

Location. Locate Water and Sediment Control Basins to control erosion in drainage ways. Basins may be installed singly or in series as part of system. Adjust the location to fit the topography, maximize storage and accommodate farm equipment and farming operations.

Earth embankment. Minimum top widths are given in Table 1. Construct embankments at least 5% greater than design height to allow for settlement. Measured from natural ground at the centerline of the embankment, the maximum settled height of the embankment must be 15 feet or less. The minimum width for vehicular traffic should be 12 feet.

Table 1. Minimum Top Width of Embankments

Fill Height (feet)	Top Width (feet)
0 – 5	3
5 - 10	6
10 –15	8

Design embankment slopes no steeper than 2 horizontal to 1 vertical. The sum of the horizontal components of the upstream and downstream slopes of the embankment must be 5 or greater. Design all slopes to be farmed no steeper than those on which farm equipment can be operated safely.

Foundation cutoff and seepage control.

Portions of basin ridges designed to impound more than a 3-foot depth of water must include foundation cutoff and if conditions warrant, seepage control. Refer to Conservation Practice Standard (378), Pond for criteria for foundation cutoff and seepage control.

Capacity. As a minimum, design Water and Sediment Control Basins with sufficient capacity to control the runoff from a 10-year frequency, 24-hour duration storm using a combination of flood storage and discharge through the outlet. Where basins are used for flood control or to protect other works of improvement, if warranted, use larger design storms appropriate to the risk.

In addition to the above storage, Water and Sediment Control Basins must have the capacity to store at least the anticipated 10-year sediment accumulation, or periodic sediment removal is required in the Operation and Maintenance Plan to maintain the required capacity.

Outlets. A Water and Sediment Control Basin must have an adequate outlet. The outlet must convey runoff water to a point where it will not cause damage. Outlets can be underground outlets, pipe drop structures, soil infiltration, stabilized channels or a combination of outlet types.

If the basin is cropped, design the outlet so that the flow release time does not exceed the inundation tolerance of the planned crops. If sediment retention is a primary design goal, adjust the release rate according to sediment particle size so that sediment is retained in the basin. Refer to Conservation Practice Standard (620), Underground Outlet for design criteria for underground outlets.

Outlets can include auxiliary spillways above the primary storage to handle large storm flows. If an auxiliary spillway is used, add freeboard to the design height of the embankment to provide for the safe operation of the spillway. The freeboard shall be at least 0.5 ft. above the design flow depth through the auxiliary spillway. Auxiliary spillways must not contribute runoff to lower Water and Sediment Control Basins unless they are designed to handle the runoff. Refer to Conservation Practice Standard (378), Pond for criteria to design auxiliary spillways.

Topsoil. Where necessary to restore or maintain productivity, spread topsoil over areas disturbed by construction. Topsoil can be salvaged and stockpiled from the site of the Water and Sediment Control Basin prior to construction.

Vegetation. After construction of the Water and Sediment Control Basin, revegetate disturbed areas that will not be cropped as soon as possible. In non-cropland settings other erosion protection such as gravel or organic mulches can also be used.

Refer to Conservation Practice Standard (342), Critical Area Planting for criteria on seed selection, seedbed preparation, fertilizing and seeding.

Additional Criteria for when the effective height exceeds 6 feet.

For effective heights greater than six feet, the water and sediment control basin shall be designed to meet the requirements of standard (378) Pond, (410) Grade Stabilization or TR-60 according to the class and type of structure.

CONSIDERATIONS

Water and Sediment Control Basins can be spaced at intervals down a slope, similar to terraces, in order to control erosion. Refer to Conservation Practice Standard (600), Terraces for methods to determine spacing. Additional conservation measures may be needed in the water course between basins to prevent erosion.

When choosing the location of a Water and Sediment Control Basin be sure to consider the extent of ponding that will occur from the basin. If the basin will cause water to pond near or across property lines both land owners should agree in writing on the elevation and expected duration of ponding.

The soil survey can be a valuable resource when planning and designing water and sediment control basins. The soil survey can identify potential problems such as the presence of limiting layers to plant growth in the soil profile. Field investigations can then identify problem areas to avoid such as shallow bedrock or dense, acid or saline layers that will adversely affect plant growth if construction brings them into the root zone.

Sediment retention within the basin can be enhanced by using flow deflectors, inlet and outlet selection, and by increasing the length to width ratio of the basin.

For cropped fields, embankment orientation and crop row direction should be approximately perpendicular to the land slope to support contour farming. The design should support farmability by limiting short point rows or sharp curves. Field boundaries and row lengths should also be considered in planning basin location and row direction.

Underground outlets from Water and Sediment Control Basins can provide a direct conduit to receiving waters for contaminated runoff from crop land. To reduce the impact of this runoff, Water and Sediment Control Basins should be installed as part of a conservation system that includes such practices as grassed waterways, contouring, a conservation cropping system, conservation tillage, nutrient and pest management, crop residue management and filter areas to reduce or mitigate contaminated runoff.

Seasonal water sources can be very important for migratory waterfowl and other wildlife. Partially blocking the outlet of a basin during non-cropping times of the year will allow water to pond in the basin to provide water for wildlife. Refer to Conservation Practice Standard (646) Shallow Water Development and Management for information on managing seasonal water sources for wildlife.

The construction of a Water and Sediment Control Basin can disturb large areas and potentially affect cultural resources. Be sure to follow state cultural resource protection policies before construction begins.

The construction of Water and Sediment Control Basins can introduce steep and potentially dangerous slopes into crop fields. When designing Water and Sediment Control Basins that will be farmed, choose flat slopes that will be safe for operating farm equipment. Where steep slopes are unavoidable, make sure that the farmer is aware of the location of the basin and the potential danger.

Cultural Resources

NRCS policy is to avoid any effect to cultural resources and protect them in their original location. Determine if installation of this practice or associated practices in the plan could have an effect on cultural resources. The National Historic Preservation Act may require consultation with the California State Historic Preservation Officer.

http://www.nrcs.usda.gov/technical/cultural.html is the primary website for cultural resources information. The California Environmental Handbook and the California Environmental Assessment Worksheet also provide guidance on how the NRCS must account for cultural resources. The e-Field Office Technical Guide, Section II contains general information, with Web sites for additional information.

Document any specific considerations for cultural resources in the design docket and the Practice Requirements worksheet.

Endangered Species

If during the Environmental Assessment NRCS determines that installation of this practice, along with any others proposed, will have an effect on any federal or state listed Rare, Threatened or Endangered species or their habitat, NRCS will advise the client of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the client selects one of the alternative conservation treatments for installation; or with concurrence of the client, NRCS initiates consultations concerning the listed species with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for Water and Sediment Control Basins that describe the requirements for applying the practice according to this standard. As a minimum the plans and specifications shall include:

1. A plan view of the layout of the Water and Sediment Control Basin system.
2. Typical cross sections of the basin(s).
3. Profile(s) of the basin(s).

4. Details of the outlet system.
5. For underground outlets, details of the inlet and profile(s) of the underground outlet.
6. Seeding requirements if needed.
7. Construction specifications that describe in writing site specific installation requirements of the Water and Sediment Control Basin system.

OPERATION AND MAINTENANCE

Prepare an operation and maintenance plan for the operator. The minimum requirements to be addressed in the operation and maintenance plan are:

1. Periodic inspections, especially immediately following significant runoff events.
2. Prompt repair or replacement of damaged components.
3. Maintenance of basin ridge height and outlet elevations.
4. Removal of sediment that has accumulated in the basin to maintain capacity and grade.
5. Regular cleaning of inlets for underground outlets. Repair or replacement of inlets damaged by farm equipment. Removal of sediment around inlets to ensure that the inlet remains the lowest spot in the basin.
6. Where vegetation is specified, regular mowing and control of trees and brush. Vegetative disturbance should be scheduled to avoid the peak nesting season.
7. Notification of hazards about steep slopes on the basin.

REFERENCES

USDA, NRCS. National Engineering Handbook, Part 650 Engineering Field Handbook, Chapters 6, 8, 14.

NOAA Atlas 14, Volume 6, Version 2
Location name: Skyforest, California, US*
Latitude: 34.2340°, Longitude: -117.1691°
Elevation: 5669 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.235 (0.195–0.286)	0.309 (0.256–0.376)	0.411 (0.339–0.502)	0.498 (0.408–0.614)	0.624 (0.494–0.795)	0.726 (0.563–0.946)	0.835 (0.632–1.12)	0.953 (0.701–1.31)	1.12 (0.793–1.61)	1.27 (0.861–1.88)
10-min	0.336 (0.279–0.410)	0.442 (0.366–0.539)	0.588 (0.486–0.719)	0.714 (0.585–0.880)	0.894 (0.708–1.14)	1.04 (0.807–1.36)	1.20 (0.906–1.60)	1.37 (1.01–1.88)	1.61 (1.14–2.31)	1.81 (1.24–2.69)
15-min	0.407 (0.337–0.495)	0.535 (0.443–0.652)	0.712 (0.588–0.870)	0.863 (0.707–1.06)	1.08 (0.857–1.38)	1.26 (0.976–1.64)	1.45 (1.10–1.93)	1.65 (1.22–2.27)	1.95 (1.37–2.79)	2.19 (1.49–3.25)
30-min	0.582 (0.483–0.709)	0.765 (0.634–0.933)	1.02 (0.841–1.25)	1.24 (1.01–1.52)	1.55 (1.23–1.97)	1.80 (1.40–2.35)	2.07 (1.57–2.77)	2.37 (1.74–3.25)	2.79 (1.97–3.99)	3.14 (2.14–4.65)
60-min	0.829 (0.687–1.01)	1.09 (0.903–1.33)	1.45 (1.20–1.77)	1.76 (1.44–2.17)	2.20 (1.75–2.81)	2.56 (1.99–3.34)	2.95 (2.23–3.94)	3.37 (2.48–4.62)	3.97 (2.80–5.68)	4.47 (3.04–6.62)
2-hr	1.21 (1.01–1.48)	1.59 (1.31–1.93)	2.10 (1.74–2.57)	2.55 (2.09–3.14)	3.19 (2.53–4.07)	3.71 (2.88–4.83)	4.27 (3.23–5.69)	4.87 (3.58–6.69)	5.74 (4.05–8.22)	6.46 (4.40–9.58)
3-hr	1.53 (1.27–1.87)	2.00 (1.66–2.44)	2.64 (2.18–3.23)	3.19 (2.62–3.94)	3.99 (3.16–5.08)	4.63 (3.59–6.03)	5.32 (4.02–7.10)	6.06 (4.46–8.33)	7.14 (5.03–10.2)	8.02 (5.47–11.9)
6-hr	2.26 (1.88–2.75)	2.95 (2.44–3.60)	3.89 (3.22–4.76)	4.70 (3.85–5.79)	5.84 (4.63–7.45)	6.77 (5.25–8.82)	7.75 (5.86–10.3)	8.81 (6.48–12.1)	10.3 (7.27–14.8)	11.5 (7.87–17.1)
12-hr	3.18 (2.64–3.88)	4.24 (3.52–5.17)	5.67 (4.69–6.93)	6.87 (5.63–8.46)	8.54 (6.76–10.9)	9.86 (7.65–12.8)	11.2 (8.51–15.0)	12.7 (9.35–17.4)	14.8 (10.4–21.1)	16.4 (11.2–24.3)
24-hr	4.59 (4.07–5.29)	6.30 (5.58–7.27)	8.58 (7.58–9.92)	10.5 (9.17–12.2)	13.1 (11.1–15.8)	15.1 (12.6–18.6)	17.3 (14.0–21.7)	19.5 (15.4–25.2)	22.6 (17.1–30.4)	25.0 (18.3–34.9)
2-day	6.06 (5.37–6.98)	8.46 (7.49–9.76)	11.7 (10.3–13.5)	14.4 (12.6–16.8)	18.2 (15.5–22.0)	21.3 (17.7–26.2)	24.5 (19.8–30.8)	27.8 (21.9–36.0)	32.6 (24.7–44.0)	36.4 (26.6–50.8)
3-day	6.77 (6.00–7.80)	9.52 (8.43–11.0)	13.3 (11.7–15.4)	16.5 (14.4–19.2)	21.0 (17.8–25.3)	24.7 (20.5–30.3)	28.6 (23.1–36.0)	32.7 (25.8–42.4)	38.6 (29.2–52.1)	43.4 (31.8–60.6)
4-day	7.35 (6.51–8.47)	10.4 (9.19–12.0)	14.5 (12.8–16.8)	18.1 (15.9–21.1)	23.2 (19.7–28.0)	27.4 (22.7–33.6)	31.8 (25.7–40.0)	36.5 (28.8–47.3)	43.3 (32.8–58.5)	48.9 (35.8–68.3)
7-day	8.46 (7.49–9.74)	11.9 (10.5–13.7)	16.7 (14.7–19.3)	20.8 (18.2–24.3)	26.8 (22.7–32.3)	31.8 (26.4–39.1)	37.1 (30.1–46.7)	42.9 (33.8–55.5)	51.3 (38.8–69.2)	58.3 (42.7–81.4)
10-day	9.13 (8.09–10.5)	12.8 (11.4–14.8)	18.0 (15.9–20.8)	22.5 (19.7–26.2)	29.1 (24.6–35.0)	34.5 (28.6–42.4)	40.3 (32.7–50.8)	46.8 (36.9–60.5)	56.1 (42.5–75.7)	64.0 (46.8–89.3)
20-day	10.9 (9.62–12.5)	15.4 (13.6–17.7)	21.7 (19.1–25.1)	27.1 (23.8–31.6)	35.1 (29.7–42.3)	41.7 (34.6–51.2)	48.8 (39.5–61.4)	56.6 (44.6–73.3)	68.0 (51.4–91.7)	77.6 (56.7–108)
30-day	12.7 (11.2–14.6)	18.0 (15.9–20.7)	25.4 (22.4–29.3)	31.7 (27.8–37.0)	40.9 (34.7–49.3)	48.5 (40.2–59.6)	56.6 (45.9–71.3)	65.5 (51.6–84.8)	78.5 (59.4–106)	89.3 (65.3–125)
45-day	15.2 (13.4–17.5)	21.4 (18.9–24.7)	30.0 (26.5–34.7)	37.3 (32.7–43.5)	47.8 (40.5–57.6)	56.3 (46.7–69.2)	65.4 (53.0–82.4)	75.3 (59.4–97.5)	89.6 (67.8–121)	101 (74.2–142)
60-day	17.8 (15.7–20.4)	24.8 (21.9–28.6)	34.4 (30.3–39.7)	42.5 (37.2–49.5)	54.0 (45.7–65.0)	63.2 (52.5–77.8)	73.0 (59.2–92.0)	83.6 (65.9–108)	98.8 (74.7–133)	111 (81.4–155)

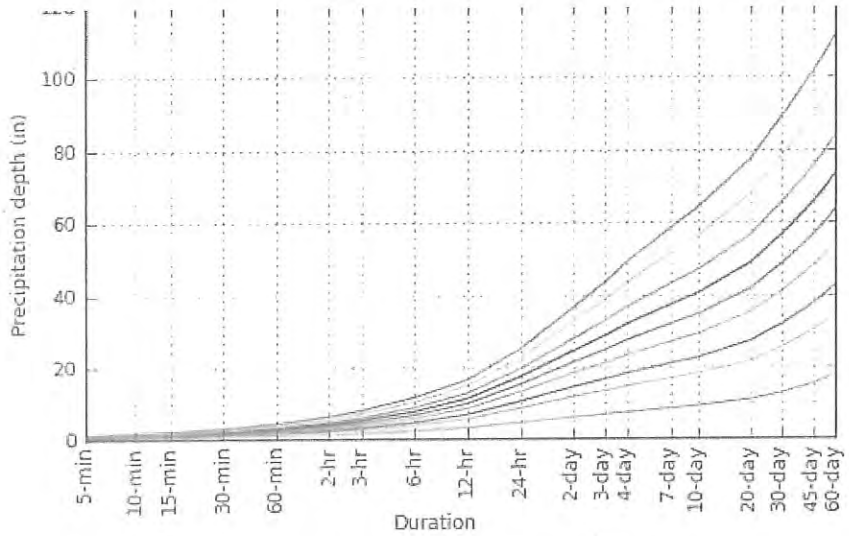
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

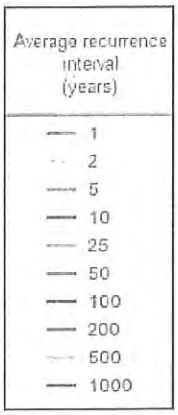
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

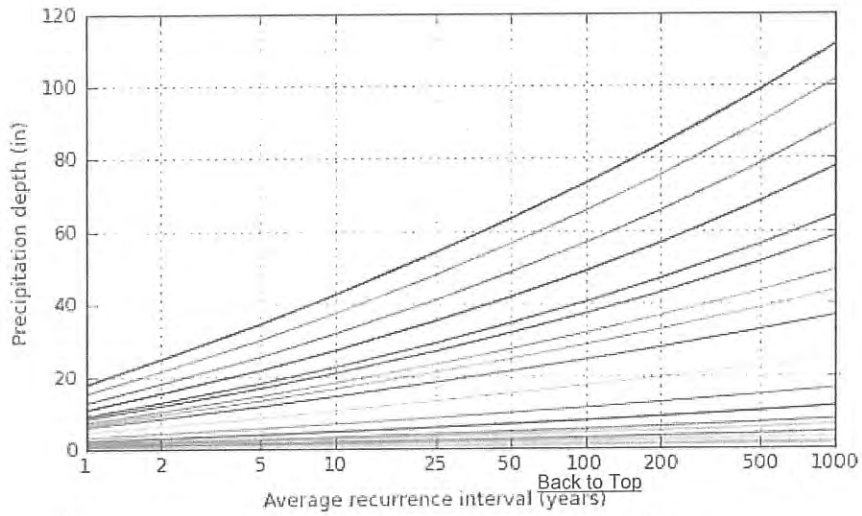
Please refer to NOAA Atlas 14 document for more information.

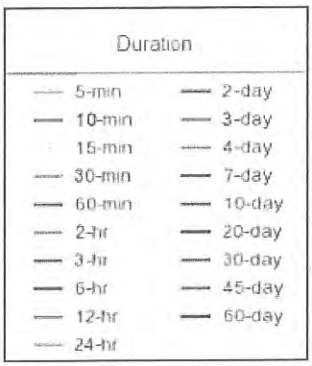
Back to Top

PF graphical









Back to Top

Maps & aerials

NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Wed Oct 7 23:19:20 2015

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial

Back to Top

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National Weather Service
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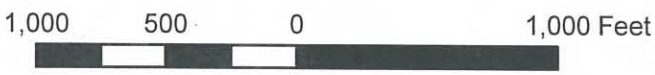
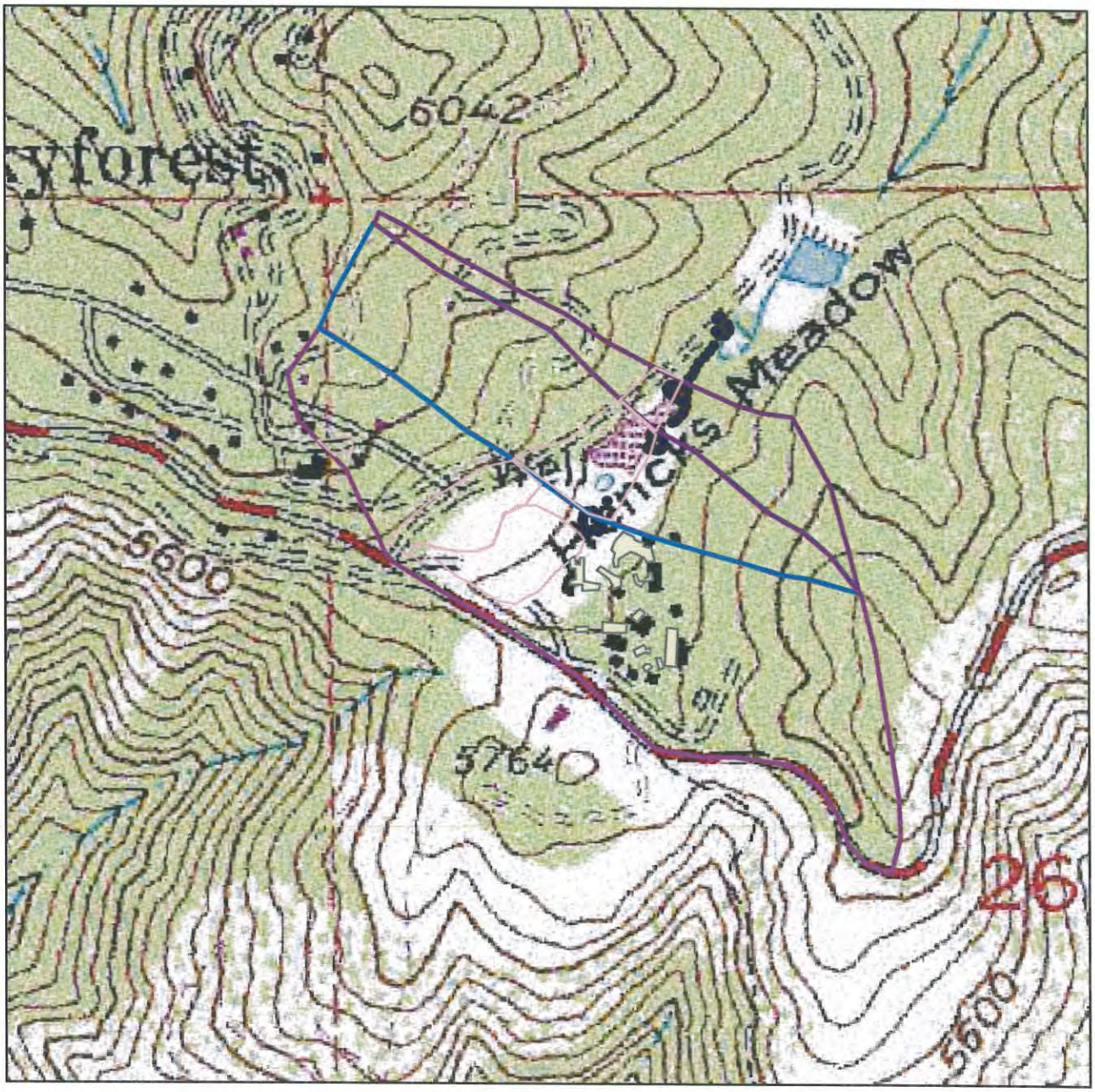
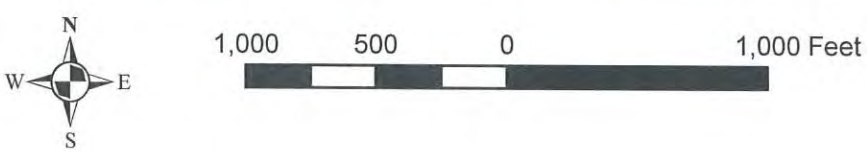
Disclaimer

Soil Map



Topo Map





NRCS-CA-ENG-6
Rev February 1999

US Department of Agriculture
Natural Resources Conservation Service

UTILITY CHECK SHEET

Farm Name/Owner: Skypark Santa's Village LLC._____

Project: ____Lined Waterway and Water & Sediment Control Basin_____

Location: _____

Utilities Involved and Location: __Gas line and Water line _____

It shall be the responsibility of the landowner to notify the Contractor or persons doing the above stated construction of the presence of utilities on the site and to see that the Utility Companies are notified.

Land Owner or Operator Notified: _____ By Whom: __Haejin Lee_____
(Contact Name)

How Notified: _____ Date: __ _/2015__

Work to be Done: ___Replace as needed_____ When: ___during construction__

Utility Company Notified: _____ By Whom: _____
(Contact Name)

How notified: _____ Date: ____/____/____

Request to locate utility: _____
(Utilities to be located and marked on site by utility company)

Utilities to be relocated: _____
(Work to be done)

Utilities to be relocated by: _____ When: _____

Request utility company representative be present on site during construction: _____

Response: _____

Contractor Notified: _____ By whom: _____
(Contact Name)

How: _____ Date: ____/____/____

Type of Utility: _____ Location: _____

Location in relation to work -- Vertical: _____ Horizontal: _____

Contractor shown utility location markings and/or stakes: _____

Utility location shown on drawings: _____

Remarks: Landowner/Contractor shall notify Dig Alert (800 - 227 – 2600 or 811) at least two working days prior to Construction.

Prepared by: ___Haejin Lee_____ **Accepted by**: _____
(Signature) (Landowner Signature)

ENGINEERING COST ESTIMATE:

Skypark Santa's Village LLC

by Haejin Lee

Date: 10/27 /2015

Lined Waterway (468)

Water & Sediment Control Basin (638)

Item No.	Description of Work	Spec. No.	Estimated Quantity	Unit	Unit Price	Amount
1	Mobilization		1.0	EA	$3,000.00	$3,000.00
2	Earthwork (Cut)_Sediment Basin	903	1,883.0	CY	$15.00	$28,245.00
3	Earthwork (Cut)_Lined Waterway	903	751.0	CY	$15.00	$11,265.00
4	Rock Lined Waterway_South (D_{100}=12")	907	220.0	CY	$80.00	$17,600.00
5	Rock Lined Waterway_Middle (D_{100}=18")	907	55.0	CY	$100.00	$5,500.00
6	Rock Lined Waterway_North (D_{100}=24")	907	86.0	CY	$120.00	$10,320.00
7	Geotextile Fabric	905	1,500.0	SY	$3.00	$4,500.00
8	Labor for installation of rock & fabric			EA		
					Total	$80,430.00

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

468 – LINED WATERWAY OR OUTLET

OPERATION AND MAINTENANCE

Sponsor/Land user: Skypark Santa's Village LLC Date: 10 /2015

Address: Somis, CA

Location GPS Coordinates Map Datum: _____ E _____ N _____

Quad Sheet Name _____ SEC _____ T _____ R _____

A properly operated and maintained lined waterway or outlet is an asset to the farm. This lining facility was designed and installed to provide erosion protection for the waterway or outlet. The estimated life span of this installation is at least 15 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program:

GENERAL RECOMMENDATIONS

- Maintain adequate drainage of foundations.
- Maintain widths of soil berms or banks. Avoid use of tillage equipment that accelerates soil removal.
- Drain all lined waterways or outlets when not being used. Immediately repair any cracks or breaks in the lining, and if settlement is present, investigate cause before repair.
- If livestock are present, prevent their access to linings and provide other drinking water facilities.
- Remove any blockage (sediments, debris, foreign material etc.) that restrict flow capacity.
- Immediately repair any vandalism, vehicular or livestock damage.
- Inspect for damage from rodents or burrowing animals. Repair any damage. Take appropriate corrective actions to alleviate further damage.
- Remove woody vegetation and perennials from areas adjacent to lining,
- Repair spalls, cracks and weathered areas in concrete surfaces.
- Repair or replace rusted or damaged metal and paint and apply paint as a protective coating.
- Avoid crossings of equipment or vehicles except at designated areas.

SPECIFIC RECOMMENDATIONS FOR YOUR LINED WATERWAY OR OUTLET

CONTACT YOUR LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE FOR ANY ADDITIONAL TECHNICAL ASSISTANCE YOU MIGHT NEED FOR IMPLEMENTATION OF THIS OPERATION AND MAINTENANCE PLAN FOR YOUR LINED WATERWAY OR OUTLET.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

638 – WATER AND SEDIMENT CONTROL BASIN

OPERATION AND MAINTENANCE

Sponsor/Land user: **Skypark Santa's Village LLC** Date: **10/2015**

Address: _____

_____

Location GPS Coordinates Map Datum: _____ E _____ N _____

Quad Sheet Name _____ SEC _____ T _____ R _____

A properly operated and maintained Water and Sediment Control Basin is an asset to your farm. This sediment basin was designed and installed to remove, collect and provide temporary storage of sediment and water. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation to maintain satisfactory performance. Additional permits may be required to perform this work. Here are some recommendations to help you develop a good operation and maintenance program.

GENERAL RECOMMENDATIONS

- Periodic removal of sediment is necessary to maintain the effectiveness of this installation. The cleanout intervals may vary depending upon the volume of sediment that has accumulated. As a general rule the basin will lose its effectiveness when about 50 percent of the design volume is filled with sediment.
- Periodically inspect the spillways and control gates for proper functioning for their ability to maintain the water level to design elevations. Immediately remove any blockage or obstructions in spillways.
- Maintain vigorous growth of vegetative coverings. This includes reseeding, fertilization, and application of herbicides when necessary. Periodic mowing may also be needed to control height.
- If fences are installed, they shall be maintained to prevent unauthorized or livestock entry.
- Immediately repair any vandalism, vehicular, or livestock damage to any earthfills, spillways, outlets or other appurtenance.
- Removal of debris that may accumulate at the pond and immediately upstream or downstream from the basin.
- Make sure all structure drains are functional and soil is not being transported through the drainage system. The screens and/or rodent guards shall also be kept in place.

- Repair spells, cracks and weathered areas in concrete surfaces.
- Repair or replace rusted or damaged metal and apply paint as a protective coating.
- Inspect for damage from rodents or burrowing animals. Repair any damage. Take appropriate corrective actions to alleviate further damage.
- Remove woody vegetation from embankments.
- Avoid excessive travel on any portion of the system that will harm or destroy the vegetative cover.

SPECIFIC RECOMMENDATIONS FOR WATER AND SEDIMENT CONTROL BASIN

CONTACT YOUR LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE FOR ANY ADDITIONAL TECHNICAL ASSISTANCE YOU MIGHT NEED FOR IMPLEMENTATION OF THIS OPERATION AND MAINTENANCE FOR YOUR WATER AND SEDIMENT CONTROL BASIN.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION

468 - LINED WATERWAY OR OUTLET

I. SCOPE

The work shall consist of grading and shaping a waterway to the lines and grades as shown on the drawings, and includes furnishing and placing a lining of the type and thickness as specified.

II. MATERIALS

Concrete, when specified, will be placed in conformance with the requirements of Construction Specification 900 – Concrete (3000 psi).

Rock riprap, when specified, rock will be placed in conformance with the requirements of Construction Specification 907 - Rock Riprap.

Other materials, when specified other materials will be placed in conformance with the requirements of Special Construction Specifications to be attached to the drawings.

Geotextile fabric, when specified will conform to the required of Construction Specification 905 - Geotextile Fabric.

III. SITE PREPARATION

The foundation area shall be cleared of all trees, stumps, roots, brush, boulders, sod, debris, and other objectionable materials. All topsoil shall be removed and stockpiled until the needed for spreading over areas requiring vegetative cover. Removal operations shall be done in such a manner as to avoid damage to other trees and property.

IV. FOUNDATION

To shape the required cross-section, excavation shall be to the lines and grades as shown on the drawings, or as staked in the field. Subgrade shall be firm and free of water. Any earthfill required to bring subgrade to grade, shall be placed in layers not exceeding 8-inches, and compacted to the same density as the adjacent undisturbed material.

V. PLACEMENT

Placement of the lining materials shall be conformance of the Construction Specification as shown on the Practice Requirement sheet, and as shown on the drawings.

VI. VEGETATIVE COVER

Unless otherwise specified, a protective cover of vegetation shall be established on the disturbed area. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

VII. SPECIAL MEASURES

Measures and construction methods shall be incorporated as needed and practical, that enhance fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food and den trees.

VIII. CONSTRUCTION OPERATIONS

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION CONSTRUCTION SPECIFICATION

903 – EARTHFILL

I. SCOPE

The work shall consist of borrow excavation, hauling, placing and compacting earthfills required to construct the earthfills as shown on the drawings, or as staked in the field.

II. SUBGRADE PREPARATION

Subgrades for earthfill shall be stripped to remove vegetation and other unsuitable materials. The subgrade surfaces shall be graded to remove surface irregularities and shall be scarified parallel to the axis of the fill and loosened to a minimum depth of 2 inches. The moisture content of the loosened material shall be controlled as specified for the earthfill, and the surface materials of the subgrade shall be compacted and bonded with the first layer of earthfill.

Earth abutment surfaces shall be free of loose, uncompacted earth in excess of two inches in depth normal to the slope and shall be at such a moisture content that the earthfill can be compacted against them to ensure a good bond between the fill and the abutments. Subgrade and abutment surfaces shall not steeper than 1 horizontal to 1 vertical.

The sites of the borrow area shall be stripped to sufficient depth to remove all vegetation, roots, brush, sod and other objectionable material. Clearing and disposal methods shall be in accordance with applicable state and county laws with due regards to the safety of persons and property.

III. EXCAVATION

Excavated Material

To the extent they are needed, all suitable materials from the specified excavations shall be used in the construction of required permanent earthfill. The suitability of materials for specific purposes will be determined by an Engineer.

All surplus or unsuitable excavated materials will be designated as waste and shall be disposed of at the locations shown on the drawings or at sites remote from the project.

Borrow Excavation

When the quantities of suitable materials obtained from specified excavations are insufficient to construct the specified fills, additional materials shall be obtained from the designated borrow areas. The extent and depth of borrow pits within the limits of the designated borrow areas shall be as shown on the drawings.

Borrow pits shall be excavated and finally dressed in manner to eliminate steep or unstable side slopes or other hazardous or unsightly conditions, and shall be free draining of any water ponding.

Bracing and Shoring

Excavated surfaces too steep to be safe and stable if unsupported shall be supported as necessary to safeguard the work and workmen, to prevent sliding or settling of the adjacent ground, and to avoid damaging existing improvements. The width of the excavation shall be increased if necessary to provide space for sheeting, bracing, shoring, and other supporting installations.

Structure or Trench Excavation

Structure or trenched excavation shall be completed to the specified elevations and to sufficient length and width to include allowance for forms, bracing and supports, as necessary, before any concrete or earthfill is placed or any piles are driven within the limits of the excavation.

IV. PLACEMENT

Material

All material shall be obtained from selected areas as shown on the drawings. Fill materials shall contain no sod, brush, roots, or other perishable or unsuitable material. Cobbles and rock fragments over 3 inches in diameter shall be removed from the material prior to compaction and be disposed of or placed in areas designated.

Fill shall not be placed until the required excavation and subgrade preparation has been completed. Fill shall not be placed upon a frozen surface, nor shall snow, ice, or frozen material be incorporated in the fill.

Fill shall be placed in approximately horizontal layers. The thickness of each layer before compaction shall not exceed 8-inches. Materials placed by dumping in piles or windows shall be spread uniformly to not more than the specified thickness before being compacted. If the surface of any layer becomes too hard and smooth for proper bond with the succeeding layer, it shall be scarified parallel to the axis of the fill to a depth of not less than 2 inches before the next layer is placed.

Fill placed around structures will be brought up at approximately uniform height on all sides of the structure.

The distribution and gradation of materials throughout the fill shall have no lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material. If zoned fills of substantially differing materials are specified; the zones shall be placed according to lines and grades shown on the drawings.

V. CONTROL OF MOISTURE CONTENT

During placement and compaction of fill, the moisture content of the materials being placed shall be moist so the material will maintain a ball shape when squeezed in the hand. When specified, the moisture shall be maintained within 2 percentage points of optimum as determined by ASTM D-698, and as specified on the "Practice Requirements" sheet.

The application of water to the fill materials shall be accomplished at the borrow areas insofar as practicable. Uniform moisture distribution shall be obtained by disking. Material that is too wet when deposited on the fill shall either be removed or be dried to the desired moisture content prior to compaction.

If the top surface of the preceding layer of compacted fill or a subgrade or abutment surface in the zone of contact with the fill becomes too dry to permit suitable bond, it shall either be removed or scarified and moistened to an acceptable moisture content prior to placement of the next layer of fill.

The proper moisture content for compaction will be determined by inspection during the placement operation.

VI. COMPACTION

Construction equipment shall be operated over each layer of fill to ensure that the required compaction is obtained. Special equipment shall be used if needed to obtain the required compaction. Compaction shall meet the requirements of the method specified on the "Practice Requirements" sheet and as described below:

1. Sheepsfoot roller - The roller shall have staggered, uniform spaced tamping feet and be equipped with suitable cleaners. The weight of the roller shall not be less than 2,500 pounds per foot of width. The maximum speed shall be less than 3 miles per hour. The entire surface of each layer placed shall receive 4 passes of this equipment.
2. Pneumatically tired equipment. A loaded scraper shall be considered a pneumatic roller. The entire surface of each layer shall receive 6 passes of this equipment.
3. Track Laying Equipment (bulldozer). The entire surface of each layer shall receive 8 passes of this equipment.
4. Compaction shall result in densities equal to or greater than 95 percent of the maximum obtained by laboratory compaction at optimum moisture of like soils in accordance with the procedures given in ASTM D-698, Method A.
5. Compaction shall result in densities equal to or greater than 90 percent of the maximum obtained by laboratory compaction at optimum moisture of like soils in accordance with the procedure given ASTM D-1557, Method A.

Heavy compaction equipment shall not be operated within 2 feet of any structure. The passage of heavy equipment will not be allowed:

(1) Over cast-in-place conduits within 14-days after placement of the concrete
(2) Over cradled or bedded precast conduits within 7 days after placement of the concrete cradle or bedding
(3) Over any type of conduit until the backfill has been placed above the top surface of the structure to a height equal to one-half the clear span width of the structure or pipe or 2 feet, whichever is greater, except as may be specified in the "Practice Requirements sheet

Fill adjacent to structures, pipe, conduits, and anti-seep collars shall be compacted to a density equivalent to that of the surrounding fill by means of hand tampers or plate vibrators. Hand directed tampers or compactors shall be used on areas not accessible to heavy compaction equipment, fills compacted in this manner shall be placed in layers not greater than 4 inches in thickness before compaction, and shall meet the same density requirement as for the adjacent area.

Compaction of backfill adjacent to structures shall not be started until after the expiration of the following minimum time interval after placement of the concrete:

Counterforts, vertical or near-vertical walls with earth loading on one side only	14 days
Walls and counterforts, backfilled on both sides simultaneously	7 days
Anti-seep, collars, conduits, and cantilever outlet bents	3 days

VII. TESTING

During the course of the work, tests may be made to identify materials, to determine compaction characteristics, to determine moisture content, and to determine density of fill in place. These test results will be used to verify that the fills conform to the requirements of the specifications. Such tests are not intended to provide information required for the proper execution of the work and shall not relieve the landowner or their contractor of the necessity to perform tests for quality control.

Fill not meeting the specified requirements shall be reworked or removed and replaced with acceptable fill.

VIII. FINISH

After the placement of the earthfills, and spoils the sides and top shall be dressed by final passage of compaction equipment or by dragging to give a smooth surface. The surface area shall be graded to provide surface drainage to flow to desired locations.

IX. VEGETATIVE COVER

Unless otherwise specified, on the "Practice Requirements" sheet, a protective cover of vegetation shall be established on all disturbed areas. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

X. SPECIAL MEASURES

Measures and construction methods shall be incorporated as needed and practical that enhances fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food, and den trees.

XI. CONSTRUCTION OPERATIONS

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION CONSTRUCTION SPECIFICATION

905 - GEOTEXTILE FABRIC

I. SCOPE

The work shall consist of furnishing and installing geotextile fabric at the locations shown on the drawings.

II. MATERIALS

Geotextile fabrics shall consist of commercial grade of woven or nonwoven synthetic polymeric filament fibers that are formed into a stable network. They shall be resistant to soil chemicals, mildew, rodents and insects. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet light. Fabrics are classified according to the following types:

1a - Woven Monofilament

1a - Non-Woven Bonded

2a - Non-Woven Needle punched

The type of fabric required and the specific physical properties shall be as indicated on the "Practice Requirements" sheet.

The physical properties of the fabric shall conform to the requirements listed in Table 1, for Woven Geotextiles and Table 2 for Non-woven geotextiles. The fabric shall be protected from deterioration by ultraviolet light.

Securing Pins used to secure the filter fabric in place shall be steel or fiberglass. Each pin shall be formed as an "U", "L", or "T" shapes or contain "ears" to prevent total penetration. Grommets or steel washers with an outside diameter of 1½ inches shall be provided for all but "U" shaped securing pins.

III. Installation

The surface on which the geotextile is to be placed shall be graded to the neat lines and grades as shown on the drawings. The surface shall be reasonably smooth and free of loose rock and clods, holes, depressions, projections, muddy conditions and standing or flowing water. The fabric shall be placed and loosely laid over the surface smoothly.

The fabric panels shall be overlapped a minimum of 18 inches for vertical laps and 24 inches for horizontal laps. The fabric shall be placed parallel to the direction of flow. It shall be placed so that the upstream end or higher panel will be placed under the downstream or lower panel.

When the fabric is used in application for wave action, the panel should be placed up and down the slope.

At vertical laps, securing pins shall be inserted through both layers along a line through the approximate midpoint of the overlap. At horizontal laps, securing pins shall be inserted through the bottom layer only. The pins shall be placed at not greater than 12-foot intervals. Securing pins shall be placed along a line approximately 2 inches in from the edge of the outer limits of the completed filter cloth area at intervals not greater than 12 feet. Additional pins shall be installed as necessary to prevent any slippage of the fabric, regardless of location.

Fabric damaged or displaced before or during installation or during placement of overlying layers of riprap shall be replaced or repaired to the original design and as approved by the Engineer, the fabric shall not be placed unless the riprap or other material can be used to cover it within the same working day.

When riprap is to be placed on the fabric, stones shall not be dropped from a height greater than the following:

A. For stones up to 100 pounds in weight, the drop shall not be more than 3 feet.

B. For stones between 100 and 500 pounds in weight, the drop shall not be more than 1 foot.

C. For stones over 500 pounds in weight; the stone shall be placed on the cloth, not dropped.

D. Pushing or rolling rocks over the fabric will not be allowed.

TABLE 1. REQUIREMENTS FOR WOVEN GEOTEXTILES

Property	Test Method	Class I	Class II & III	Class IV
Tensile Strength (pounds) 1/	ASTM D 4632 Grab Test	200 minimum in principal direction	120 minimum in any principal direction	180 min. in any principal direction
Elongation at Failure (percent) 1/	ASTM D 4632 Grab Test	<50	<50	<50
Puncture (pounds) 1/	ASTM D 4833	90 minimum	60 minimum	60 minimum
Ultraviolet Light (percent residual tensile strength)	ASTM D 4355 150-hours exposure	70 minimum	70 minimum	70 minimum
Apparent Opening Size – (AOS)	ASTM D 4751	As specified or a minimum-#70 2/	As specified or a minimum #70 2/	As specified or minimum #70 2/
Percent Open Area 3/ (percent)	TM5-818-8 4/	4.0 minimum	4.0 minimum	1.0 minimum
Permittivity sec^{-1}	ASTM D 4491	0.10 minimum	0.10 minimum	0.10 minimum

1/ Minimum average roll value (weakest principal direction).

2/ U. S. Standard Sieve Size.

3/ If Percent Open Area information is not available, the geotextile should be rated for filtration. Consult the manufacturer for the soils that the fabric is rated for.

4/ NOTE: TM5-818-8 is an Army Technical Manual

TABLE 2. REQUIREMENTS FOR NON-WOVEN GEOTEXTILES

Property	Test Method	Class I	Class II	Class III	Class IV 3/
Tensile Strength (pounds) 1/	ASTM D 4632 Grab Test	180 minimum	120 minimum	90 minimum	115 min.
Elongation at Failure (percent) 1/	ASTM D 4632	≥50	≥50	≥50	≥50
Puncture (pounds)	ASTM D 4833	80 minimum	60 minimum	40 minimum	40 minimum
Ultraviolet Light (percent residual tensile strength)	ASTM D 4355 150-hours exposure	70 minimum	70 minimum	70 minimum	70 minimum
Apparent Opening Size – (AOS)	ASTM D 4751	As specified max. # 40 2/	As specified max. # 40 2/	As specified max. # 40 2/	As specified max. # 40 2/
Permittivity sec^{-1}	ASTM D 4491	0.70 minimum	0.70 minimum	0.70 minimum	0.10 min.

1/ Minimum average roll value (weakest principal direction)

2/ U. S. Standard Sieve Size.

3/ Heat-bonded or resin-bonded geotextile may be used for Class III and IV. They are particularly well suited for Class IV. Needle-punched geotextiles are required for all other classes.

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION CONSTRUCTION SPECIFICATION

907 - ROCK RIPRAP

I. SCOPE

The work shall consist of furnishing and installing loose rock riprap at the locations and to the lines, grades, elevations, and cross-sections as shown on the drawings.

II. MATERIALS

Rock

Rock shall be sound, dense, and durable with a bulk specific gravity of not less than 2.5. Rock shall be angular to subrounded in shape with the greatest dimension not greater than 2 times the least dimension. The rock shall conform to the grading limits given below unless otherwise specified on the Practice Requirements sheet.

Size, Inches	Percent Passing
24	100
12	50
6	20
3	10

Filter or Bedding

When filter or bedding material is shown on the drawings, the material shall be composed of clean, hard and durable mineral particles free from organic matter, clay balls or other deleterious substances.

Bedding may be pit run material of sand, gravel, crushed stone or a mixture thereof.

Filter material shall conform to the gradation given in the Special Requirements listed on the "Practice Requirements" sheet.

III. SUBGRADE PREPARATION

The subgrade surfaces on which the riprap, bedding, filter, or geotextile is to be placed shall be cleared and graded prior to placement of bedding, geotextile, or rock.

When fill to subgrade lines is required, it shall consist of approved materials and shall conform to the requirements of appropriate sections of Conservation Construction Specification 903, Earthfill. Subgrade surfaces shall not steeper than 1.5 horizontal to 1 vertical.

IV. PLACEMENT

Equipment Placed Rock Riprap

The riprap shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of the underlying materials. The rock shall be delivered and placed in a manner that will insure that the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks.

Riprap shall be placed in a manner to prevent damage to structures. Hand placing will be required to the extent necessary to prevent damage to the permanent works and to achieve the finished surface placement.

Hand Placed Riprap

Rocks shall be securely bedded firmly in contact one to another. Spaces between the larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a for substitute larger rock. Flat slab rock shall be laid on edge.

Filter Layers or Bedding

When specified, the filter, bedding, or geotextile beneath the rock shall be placed on the prepared subgrade as specified in the Special Requirements listed on the "Practice Requirements" sheet. Compaction of filter layers or bedding will not be required, but the surface of such material shall be finished reasonably free of mounds, dips, or windrows.

V. VEGETATIVE COVER

Unless otherwise specified in the "Practice Requirements" sheet, a protective cover of vegetation shall be established on the area disturbed area. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

VI. SPECIAL MEASURES

Measures and construction methods shall be incorporated as needed and practical that enhances fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food and den trees.

VII. CONSTRUCTION OPERATIONS

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

U.S DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
CALIFORNIA

PRACTICE REQUIREMENTS
FOR
468 - LINED WATERWAY OR OUTLET

638 – WATER AND SEDIMENT CONTROL BASIN

For: Business Name Skypark Santa's Village LLC.

Job Location

County San Bernardino RCD Farm/Tract No. 1113/18064

Referral No. Prepared By Haejin Lee Date 10/27/2015

IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. RC15-02

2. Practice Specifications , 468, 903,905,907 ,

3. Type of Lining Rock Riprap Thickness 12 to 24 (inches)

4. Earthfill Compaction by Method:

5. Special Requirements:

Water and Sediment Control Basin (638): Inside side slope 3 horizontal: 1 vertical.

Earthfill (903): All surplus excavated materials will be designated as waste and shall be disposed of at sites remote from the project.

Geotextile Fabric (905): 8 oz/sy Non -Woven needle punched Geotextile, Class I

Rock Riprap (907): Please see the rock grading in the construction drawing

6. Special Maintenance Requirements: Refer to "Operation and Maintenance"

PRACTICE APPROVAL:

Job Classification for Lined Waterway (468): (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class ___V_____

Limiting elements:		Units
Drainage area	89.5	acres
Capacity	59	cfs

Design Approved by: Elizabeth K. Mc... Date: 10/29/15

Job Classification for Water & Sediment Control Basin (638): (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class ____II_____

Limiting elements:		Units
Storage	0.33	ac-ft
Height of fill	0	ft

Design Approved by: Haejin Lee Date: 10/27/2015

LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:

The landowner/operator acknowledges that:

a. He/she has received a copy of the construction drawings and specification, and that he/she has an understanding of the contents, and the requirements.

b. He/she has obtained all the necessary permits.

c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.

d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by:_____ Date:_____

PRACTICE COMPLETION:

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/_____ Date _____

NATURAL RESOURCES CONSERVATION SERVICE
DETAIL PLANS FOR

WATER & SEDIMENT CONTROL BASIN and LINED WATERWAY FOR SKYPARK SANTA'S VILLAGE LLC.

INDEX OF DRAWINGS

General Notes:

1. *All construction shall be in accordance with these drawings and attached specifications: Water and Sediment Control Basin (638), Lined Waterway(468), Earthfill(903), Geotextile Fabric (905), and Rock Riprap (907). No changes are to be made without the prior approval of the NRCS Technician/Engineer.*

2. *Landowner shall be responsible for obtaining any needed permits, easements, and/or right–of–ways, and meeting all legal requirements.*

3. *Landowner shall be responsible for locating and protecting all utilities. Special safety precautions are be taken when working in the vicinity of gas, oil or electrical lines. Underground Service Alert(USA) shall be notified a minimum of two working days at 1–800–227–2600 before any excavation or trenching.*

4. *Cal –OSHA safety requirements shall be in effect during all construction.*

5. *All lines and grades shown on these drawings are approximate. Exact location of the structures shall be staked in the field by the NRCS engineer/technician.*

6. *Contact the Natural Resources Conservation Service at least 7 days prior to construction at 909–799–7407.*

Designed Haejin Lee Date 10/2015
Drawn # HL #
Checked # EKM #
Approved #

Elizabeth K Mueller
Area Engineer
10/29/15

San Bernardino County, CA

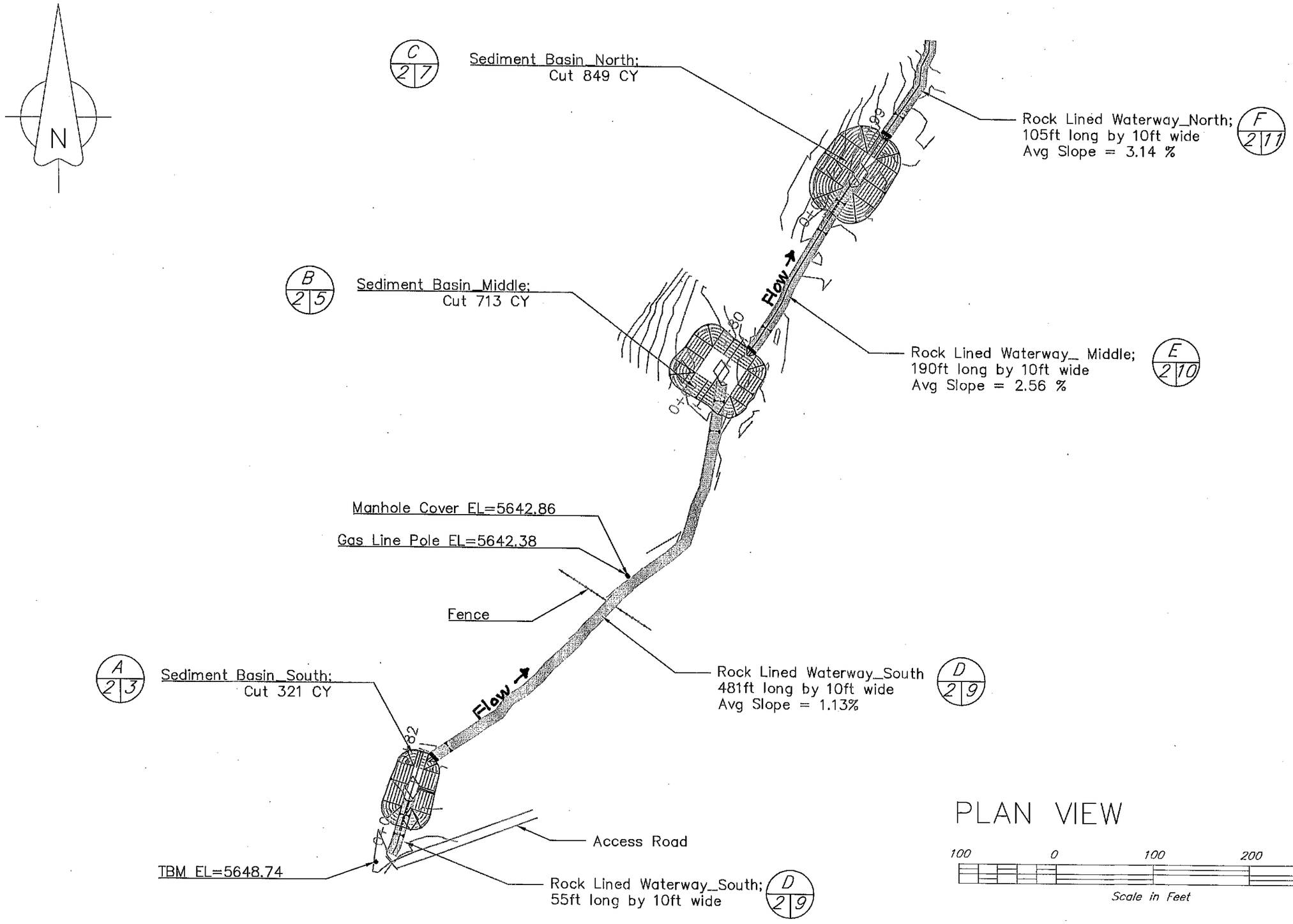
COVER
Skypark Santa's Village LLC.

USDA United States Department of Agriculture
Natural Resources Conservation Service

File No. santasvillage_plan.dwg

Drawing No. RC15–02

10/23/15 5:30 PM
Sheet 1 of 11



PLAN VIEW

100 0 100 200 300

Scale in Feet

Date 10/2015

Designed Haejin Lee

Drawn #

Checked #

Approved

PLAN VIEW
Skypark Santa's Village LLC

San Bernardino County, CA

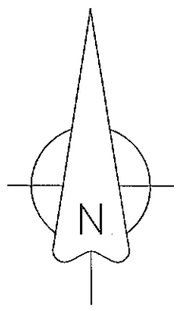
United States Department of Agriculture
Natural Resources Conservation Service

File No. santavillage_plan.dwg

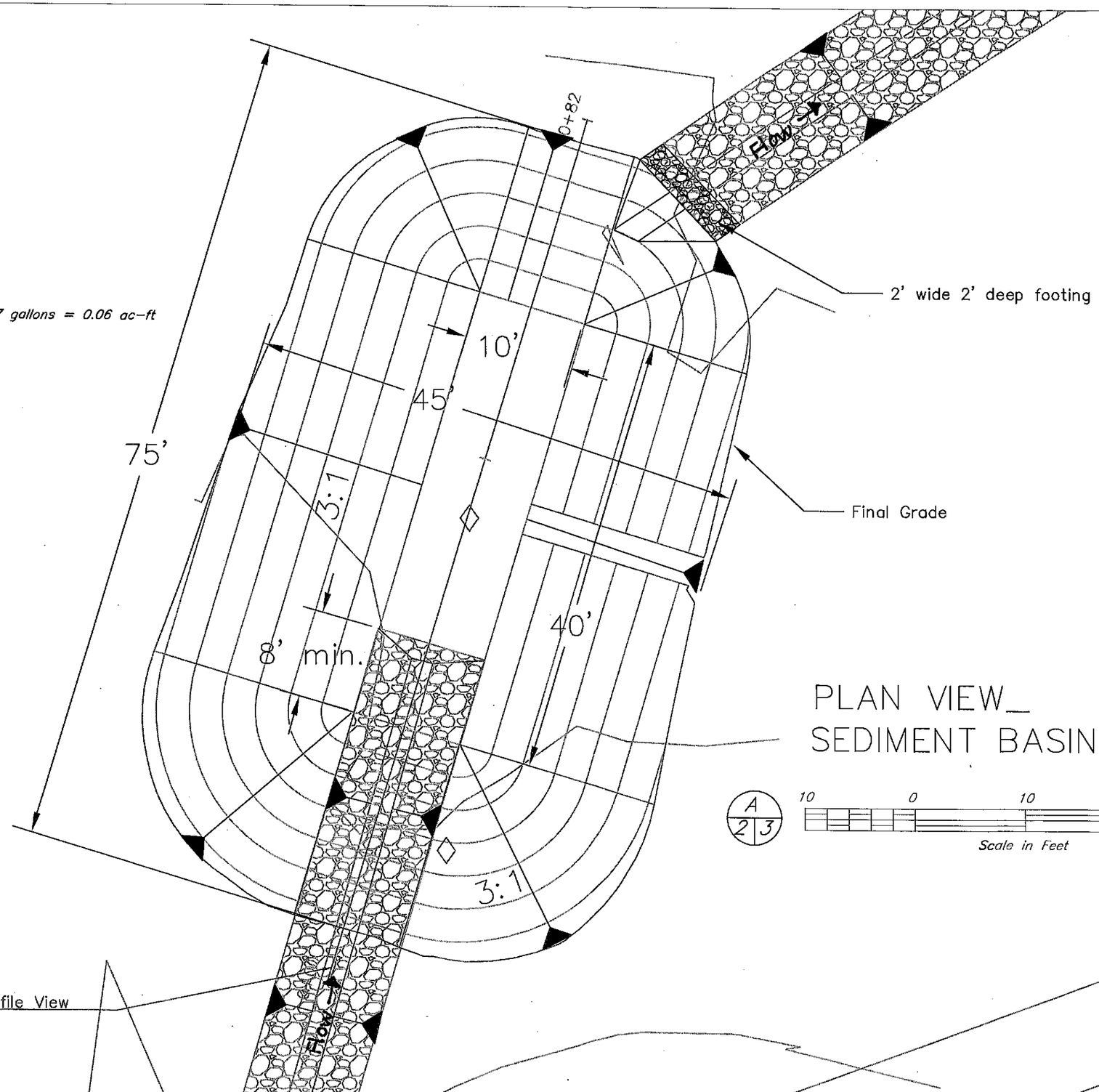
Drawing No. RC15-02

10/23/15 5:30 PM

Sheet 2 of 11



Pond Storage Capacity: 2,874 CF = 21,497 gallons = 0.06 ac-ft
Earth Work Volume : Cut 321 CY



PLAN VIEW_
SEDIMENT BASIN SOUTH

A 2|3

10 0 10 20 30
Scale in Feet

G 3|4 Profile View

Designed	Haejin Lee
Drawn	#
Checked	#
Approved	
Date	10/2015

PLAN VIEW_SEDIMENT BASIN SOUTH
Skypark Santa's Village LLC

San Bernardino County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No.
santaclvillage_plan.dwg

Drawing No.
RC15-02

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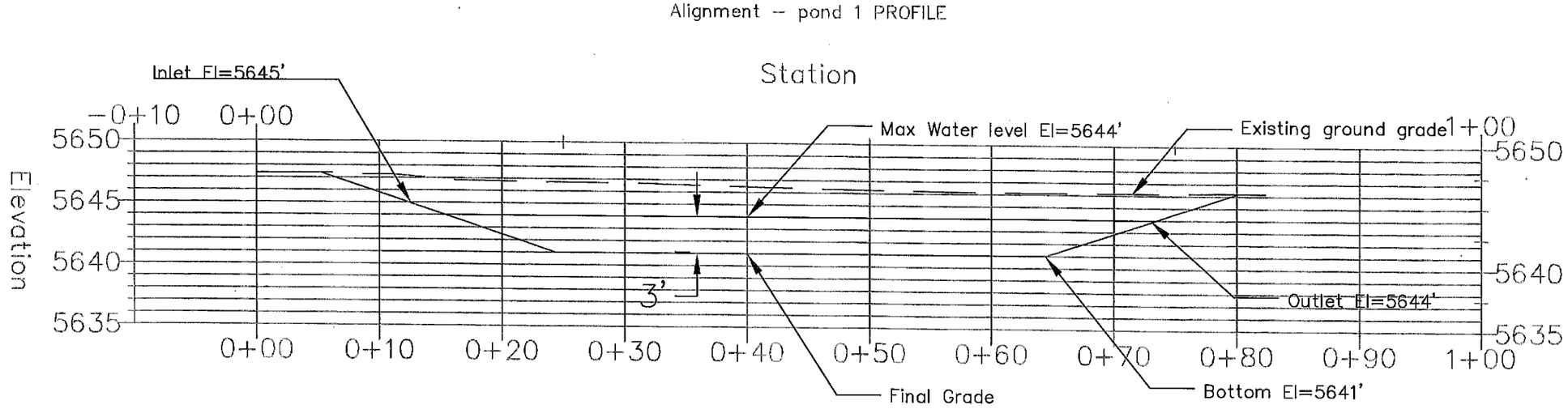
Sheet *3* of *11*



G 3|4 PROFILE VIEW_SEDIMENT BASIN SOUTH

10 0 10 20 30

Scale in Feet

PROFILE VIEW_SEDIMENT BASIN SOUTH
Skypark Santa's Village LLC

San Bernardino County, CA

Designed Haejin Lee Date 10/2015
Drawn # #
Checked # #
Approved

United States Department of Agriculture
Natural Resources Conservation Service

File No. santavillage_plan.dwg

Drawing No. RC15-02

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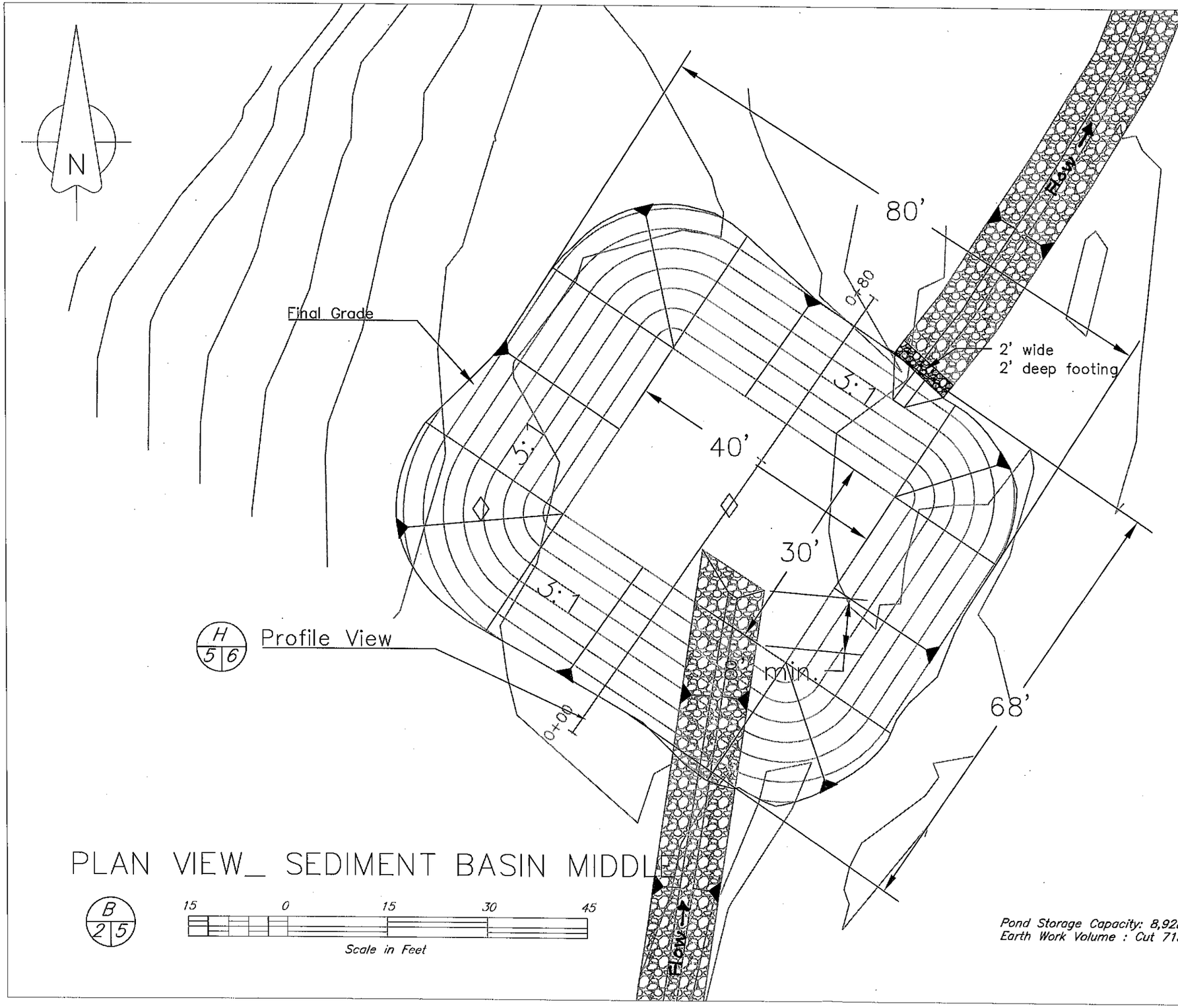
Sheet 4 of 11



PLAN VIEW_ SEDIMENT BASIN MIDDLE

B
2 5

15 0 15 30 45

Scale in Feet

Pond Storage Capacity: 8,928 CF = 66,781 gallons = 0.2 ac-ft
Earth Work Volume : Cut 713 CY

PLAN VEIW_SEDIMENT BASIN MIDDLE
Skypark Santa's Village LLC

Designed Haejin Lee Date 10/2015
Drawn # #
Checked # #
Approved

San Bernardino County, CA

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File No. santalvillage_plan.dwg

Drawing No. RC15-02

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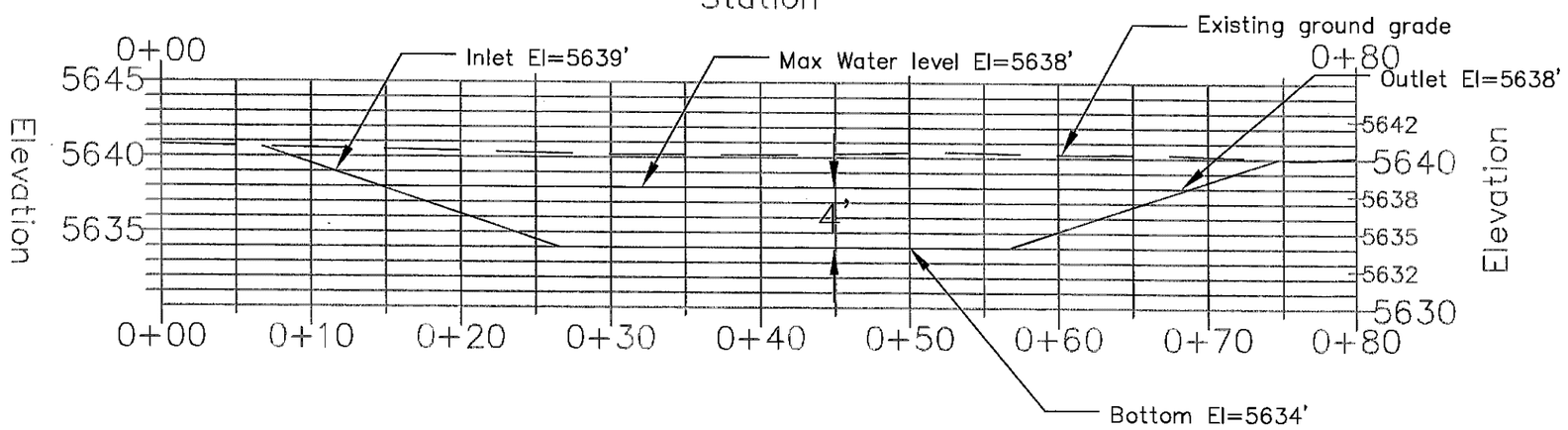
Sheet 5 of 11

Alignment – pond 2 PROFILE



H 5 6 PROFILE VIEW_SEDIMENT BASIN MIDDLE

10 0 10 20 30

Scale in Feet

Designed Haejin Lee Date 10/2015
Drawn #
Checked #
Approved

PROFILE VIEW_SEDIMENT BASIN MIDDLE
Skypark Santa's Village LLC
San Bernardino County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No. santasvillage_plan.dwg

Drawing No. RC15-02

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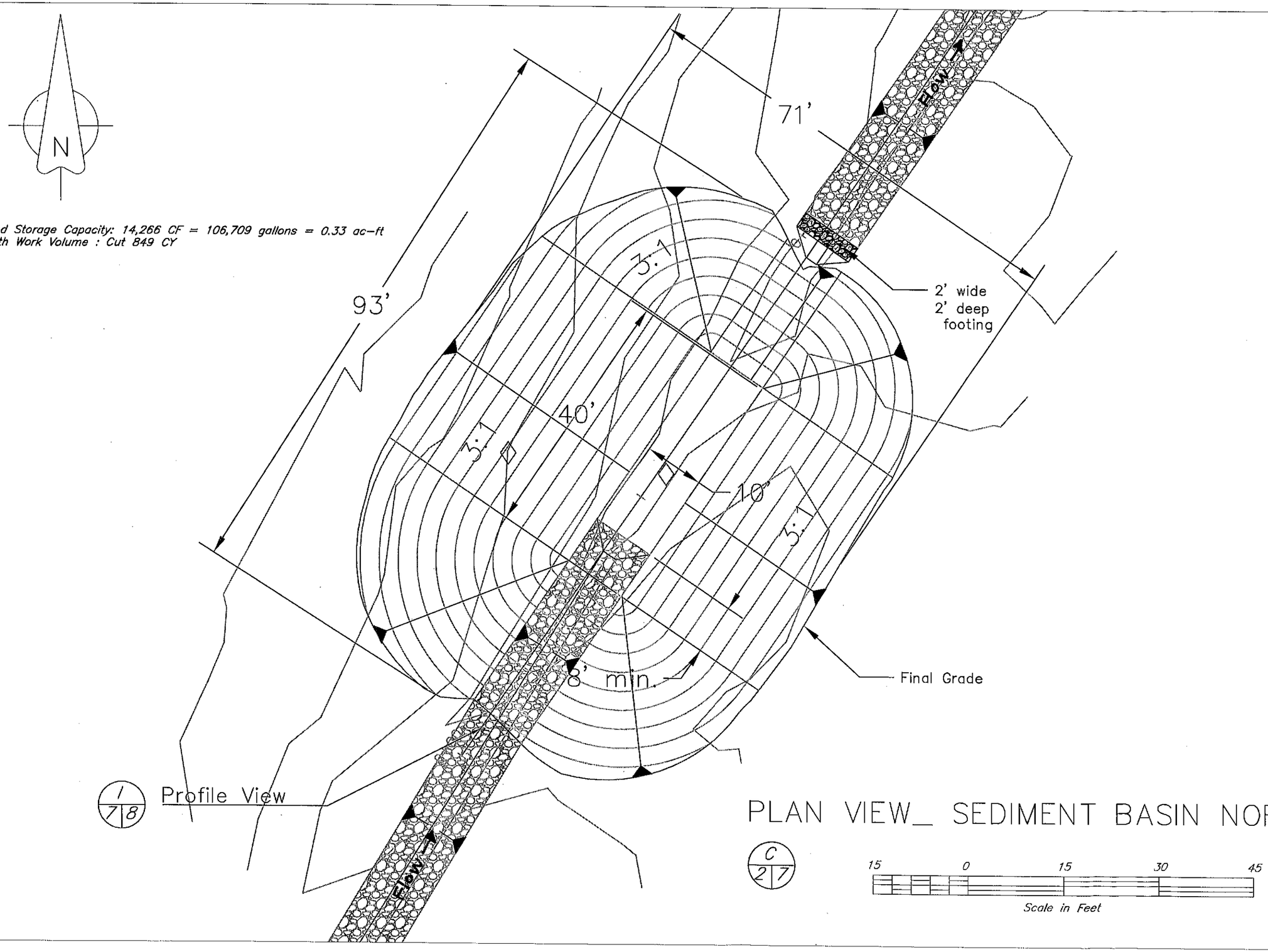
Sheet 6 of 11



Designed Haejin Lee Date 10/2015
Drawn # #
Checked # #
Approved

PLAN VIEW_SEDIMENT BASIN NORTH
Skypark Santa's Village LLC
San Bernardino County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No. santaivillage_plan.dwg

Drawing No. RC15-02

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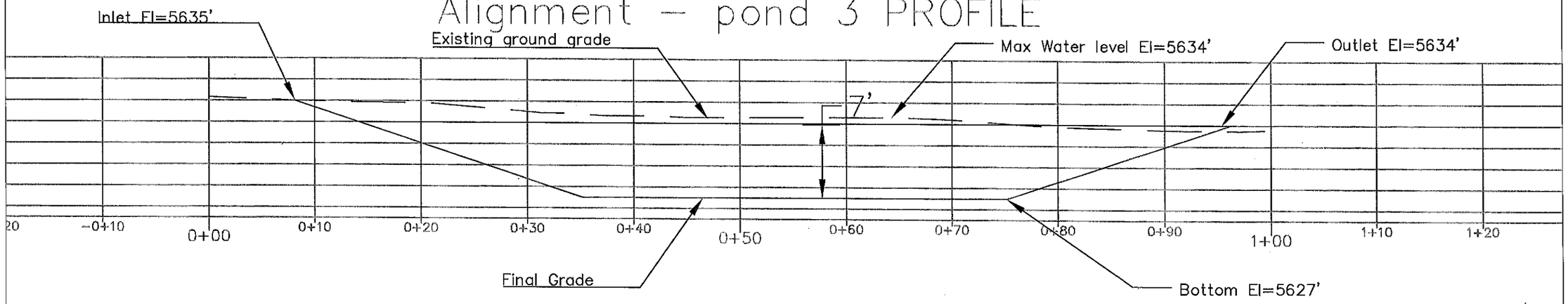
Sheet 7 of 11



1/18 PROFILE VIEW_SEDIMENT BASIN NORTH

10 0 10 20 30

Scale in Feet

Designed Haejin Lee Date 10/2015
Drawn # #
Checked # #
Approved

PROFILE VIEW_SEDIMENT BASIN NORTH
Skypark Santa's Village LLC
San Bernardino County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No. santavillage_plan.dwg

Drawing No. RC15-02

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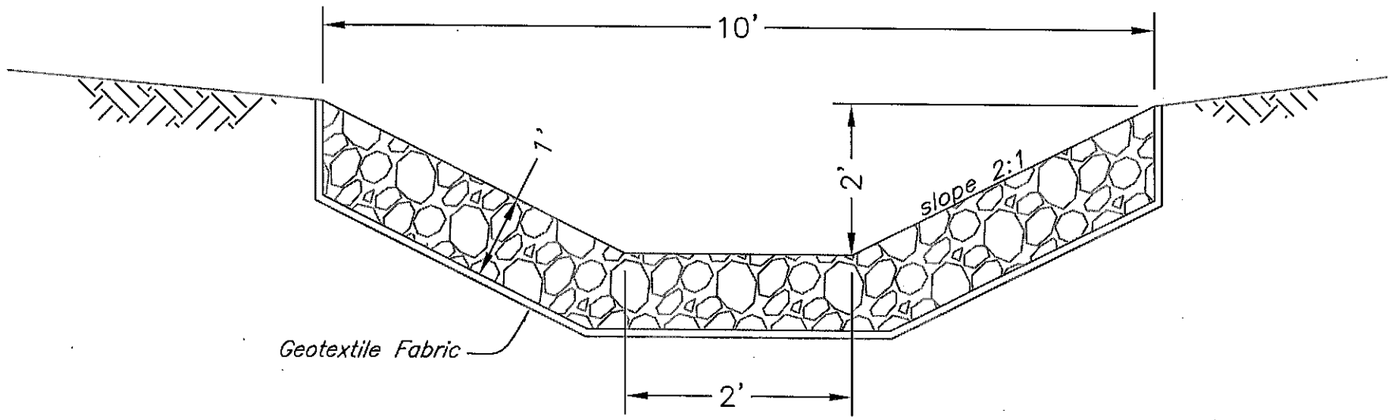
Sheet 8 of 11



NOTES:

All construction shall be in accordance with NRCS Standard and Specification 468. Lined Waterway or Outlet.

Rock Riprap Installation:
Rock shall be sound, dense, and durable with a bulk specific gravity of not less than 2.5. Rock shall be angular to subangular. See NRCS Specificatian 907. Rock Riprap. Riprap shall be placed, not dropped in a uniform gradation throughout.

The rock shall conform to the grading limits given below:

Size, inches	Percent Passing
12	100
6	50
3	20

Geotextile Fabric Installation:

1. Geotextile fabric is to be typed 2a, non-woven needle punched 8 oz/sy. See NRCS Specification 905. Geotextile Fabric.
2. The surface on which the geotextile is to be placed shall be graded to neat lines and be free of roots and sharp rocks that may puncture the fabric.
3. The fabric panels shall be overlapped a minimum of 18 inches for vertical laps and 24 inches for horizontal laps. The fabric shall be installed in according to manufacturer's recommendations. The fabric shall be pinned in place prior to rock placement.

D/2/9 SECTION VIEW_ROCK LINED WATERWAY SOUTH (NOT TO SCALE)

Designed Haejin Lee Date 10/2015
Drawn # #
Checked # #
Approved

SECTION VIEW_ROCK LINED WATERWAY SOUTH
Skypark Santa's Village LLC
San Bernardino County, CA

USDA United States Department of Agriculture
Natural Resources Conservation Service

File No. santasvillage_plan.dwg
Drawing No. RC15-02
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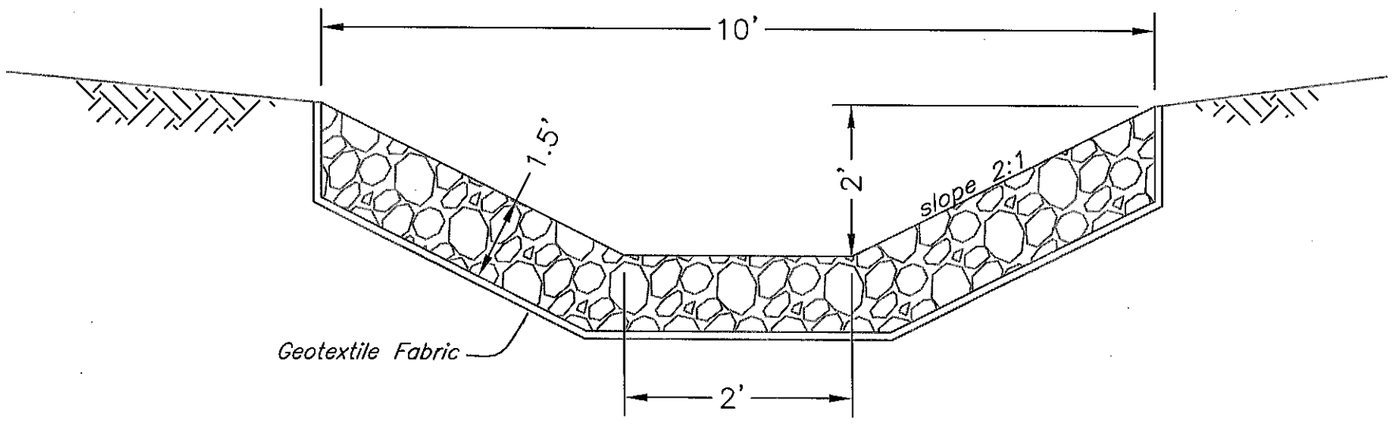
Sheet 9 of 11



NOTES:

All construction shall be in accordance with NRCS Standard and Specification 468. Lined Waterway or Outlet.

Rock Riprap Installation:
Rock shall be sound, dense, and durable with a bulk specific gravity of not less than 2.5. Rock shall be angular to subangular. See NRCS Specification 907. Rock Riprap. Riprap shall be placed, not dropped in a uniform gradation throughout.

The rock shall conform to the grading limits given below:

Size, inches	Percent Passing
18	100
9	50
6	20
3	10

Geotextile Fabric Installation:

1. Geotextile fabric is to be typed 2a, non-woven needle punched 8 oz/sy. See NRCS Specification 905. Geotextile Fabric.
2. The surface on which the geotextile is to be placed shall be graded to neat lines and be free of roots and sharp rocks that may puncture the fabric.
3. The fabric panels shall be overlapped a minimum of 18 inches for vertical laps and 24 inches for horizontal laps. The fabric shall be installed in according to manufacturer's recommendations. The fabric shall be pinned in place prior to rock placement.

E 2|10 SECTION VIEW_ROCK LINED WATERWAY MIDDLE (NOT TO SCALE)

Designed Haejin Lee Date 10/2015
Drawn # Checked #
Approved

SECTION VIEW_ROCK LINED WATERWAY MIDDLE
Skypark Santa's Village LLC
San Bernardino County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No. santaVillage_plan.dwg

Drawing No. RC15-02

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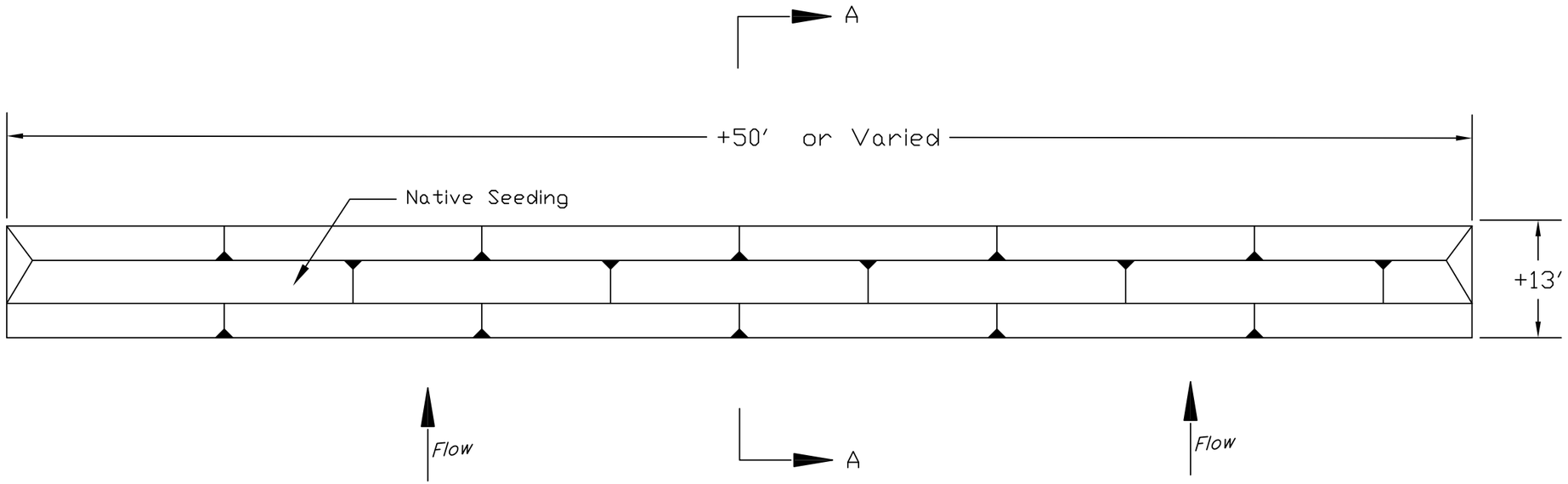
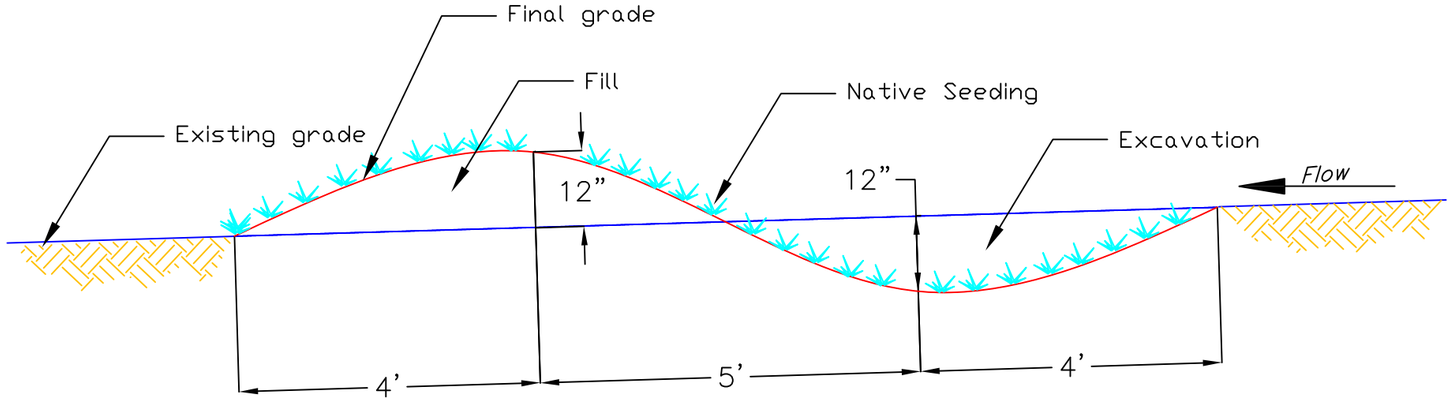
Sheet 10 of 11



TOP VIEW _ EARTHEN BERM (NTS)

NOTES:

All Earthen Berms(Water Bars) shall be angled at 90 degrees from a line drawn perpendicular to the direction of flow.



SECTION A-A (NTS)

Designed Haejin Lee. Date 2/17/2017.
Drawn . .
Checked . .
Approved . .

SKYPARK SANTA'S VILLAGE LLC
Earthen Berm Detail
Page 2 of 2

Riverside County, CA

United States Department of Agriculture
Natural Resources Conservation Service

File No.
EarthenBerm_SantaVilla

Drawing No.
RC-02----

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Sheet 2 of 2.

Appendix L: Cumulative Traffic Analysis with Church of the Woods

TABLE 1

FULL BUILD-OUT PLUS PROJECT CONDITIONS (YEAR 2035) - WITH CHURCH OF THE WOODS PROJECT

SATURDAY PEAK HOUR LEVELS OF SERVICE

No	Intersection	Peak Hour	Full Build-Out (Year 2035)		Full Build-Out Plus Project (Year 2035)		Change in Delay (sec)	Impact [b]
			Delay (sec)	LOS [a]	Delay (sec)	LOS [a]		
1.	State Route 189 & State Route 18 [c]	A.M.	15.3	B	15.3	B	0.0	NO
2.	Daley Canyon Road & State Route 18 [d]	A.M.	15.8	C	15.9	C	0.1	NO
3.	State Route 173 & State Route 18 [d]	A.M.	15.5	C	17.3	C	1.8	NO

Notes:

[a] All locations analyzed using HCM methodology

[b] Significant Impact determined using County of San Bernardino methodology

[c] Signalized intersection

[d] Unsignalized intersection

TABLE 2

FULL BUILD-OUT PLUS PROJECT CONDITIONS (YEAR 2035) - WITH CHURCH OF THE WOODS PROJECT

SUNDAY PEAK HOUR LEVELS OF SERVICE

No	Intersection	Peak Hour	Full Build-Out (Year 2035)		Full Build-Out Plus Project (Year 2035)		Change in Delay (sec)	Impact [b]
			Delay (sec)	LOS [a]	Delay (sec)	LOS [a]		
1.	State Route 189 & State Route 18 [c]	A.M.	17.9	B	18.9	B	1.0	NO
2.	Daley Canyon Road & State Route 18 [d]	A.M.	20.3	C	21.3	C	1.0	NO
3.	State Route 173 & State Route 18 [d]	A.M.	22.7	C	27.1	D	4.4	NO

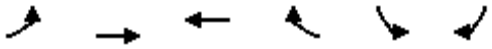
Notes:

[a] All locations analyzed using HCM methodology

[b] Significant Impact determined using County of San Bernardino methodology

[c] Signalized intersection

[d] Unsignalized intersection



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	49	332	399	87	164	95
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1765	1765	1765	1667	1765
Adj Flow Rate, veh/h	49	332	399	87	164	95
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	716	482	410	508	480
Arrive On Green	0.00	0.41	0.27	0.27	0.32	0.32
Sat Flow, veh/h	1587	1765	1765	1500	1587	1500
Grp Volume(v), veh/h	49	332	399	87	164	95
Grp Sat Flow(s),veh/h/ln	1587	1765	1765	1500	1587	1500
Q Serve(g_s), s	0.1	6.0	9.3	2.0	3.4	2.0
Cycle Q Clear(g_c), s	0.1	6.0	9.3	2.0	3.4	2.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	218	716	482	410	508	480
V/C Ratio(X)	0.23	0.46	0.83	0.21	0.32	0.20
Avail Cap(c_a), veh/h	287	968	645	549	508	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	9.5	14.9	12.3	11.3	10.8
Incr Delay (d2), s/veh	0.5	0.5	6.6	0.3	1.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.6	3.0	5.3	0.8	1.7	2.0
LnGrp Delay(d),s/veh	20.0	10.0	21.5	12.5	13.0	11.7
LnGrp LOS	C	A	C	B	B	B
Approach Vol, veh/h		381	486		259	
Approach Delay, s/veh		11.3	19.9		12.5	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				23.7		20.0	5.8	18.0
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				26.0		16.0	4.0	18.0
Max Q Clear Time (g_c+I1), s				8.0		5.4	2.1	11.3
Green Ext Time (p_c), s				4.7		0.6	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	204	433	330	2	15	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	433	330	2	15	267

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	332	0	-	0	1172	331
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	841	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1227	-	-	-	213	711
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	423	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1227	-	-	-	178	711
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	353	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1227	-	-	-	613
HCM Lane V/C Ratio	0.166	-	-	-	0.46
HCM Control Delay (s)	8.5	-	-	-	15.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	2.4

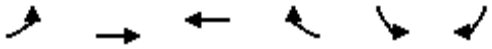
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	37	169	215	178	138	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	169	215	178	138	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	393	0	-	0	547	304
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	243	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1166	-	-	-	498	736
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1166	-	-	-	482	736
Mov Cap-2 Maneuver	-	-	-	-	482	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	538
HCM Lane V/C Ratio	0.032	-	-	-	0.368
HCM Control Delay (s)	8.2	-	-	-	15.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.7



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	49	386	406	87	166	95
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1765	1765	1765	1667	1765
Adj Flow Rate, veh/h	49	386	406	87	166	95
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	725	492	419	504	476
Arrive On Green	0.00	0.41	0.28	0.28	0.32	0.32
Sat Flow, veh/h	1587	1765	1765	1500	1587	1500
Grp Volume(v), veh/h	49	386	406	87	166	95
Grp Sat Flow(s),veh/h/ln	1587	1765	1765	1500	1587	1500
Q Serve(g_s), s	0.1	7.3	9.5	2.0	3.5	2.0
Cycle Q Clear(g_c), s	0.1	7.3	9.5	2.0	3.5	2.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	218	725	492	419	504	476
V/C Ratio(X)	0.22	0.53	0.82	0.21	0.33	0.20
Avail Cap(c_a), veh/h	286	960	640	544	504	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	9.8	14.9	12.2	11.5	11.0
Incr Delay (d2), s/veh	0.5	0.6	6.7	0.2	1.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.6	3.6	5.5	0.8	1.8	2.1
LnGrp Delay(d),s/veh	20.1	10.4	21.6	12.4	13.2	11.9
LnGrp LOS	C	B	C	B	B	B
Approach Vol, veh/h		435	493		261	
Approach Delay, s/veh		11.5	20.0		12.8	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.1		20.0	5.8	18.3
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				26.0		16.0	4.0	18.0
Max Q Clear Time (g_c+I1), s				9.3		5.5	2.1	11.5
Green Ext Time (p_c), s				4.9		0.6	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	204	490	338	2	5	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	224	538	371	2	5	293

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	374	0	-	0	1360	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	987	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1184	-	-	-	164	673
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1184	-	-	-	133	673
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	293	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1184	-	-	-	626
HCM Lane V/C Ratio	0.189	-	-	-	0.477
HCM Control Delay (s)	8.7	-	-	-	15.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	2.6

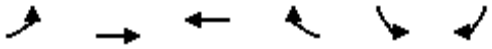
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	37	227	223	179	146	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	227	223	179	146	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	402	0	-	0	614	313
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	301	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1157	-	-	-	455	727
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	751	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1157	-	-	-	440	727
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	727	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1157	-	-	-	497
HCM Lane V/C Ratio	0.032	-	-	-	0.414
HCM Control Delay (s)	8.2	-	-	-	17.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	61	312	478	162	194	163
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1765	1765	1765	1667	1765
Adj Flow Rate, veh/h	61	312	478	162	194	163
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	198	780	545	464	477	451
Arrive On Green	0.00	0.44	0.31	0.31	0.30	0.30
Sat Flow, veh/h	1587	1765	1765	1500	1587	1500
Grp Volume(v), veh/h	61	312	478	162	194	163
Grp Sat Flow(s),veh/h/ln	1587	1765	1765	1500	1587	1500
Q Serve(g_s), s	0.2	5.6	12.0	3.9	4.5	4.0
Cycle Q Clear(g_c), s	0.2	5.6	12.0	3.9	4.5	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	198	780	545	464	477	451
V/C Ratio(X)	0.31	0.40	0.88	0.35	0.41	0.36
Avail Cap(c_a), veh/h	396	1099	644	547	477	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	8.8	15.2	12.5	13.0	12.8
Incr Delay (d2), s/veh	0.9	0.3	11.6	0.5	2.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.7	2.8	7.5	1.6	2.3	3.8
LnGrp Delay(d),s/veh	21.7	9.1	26.8	12.9	15.5	15.0
LnGrp LOS	C	A	C	B	B	B
Approach Vol, veh/h		373	640		357	
Approach Delay, s/veh		11.2	23.3		15.3	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.6		20.0	6.2	20.4
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				31.0		16.0	8.0	19.0
Max Q Clear Time (g_c+I1), s				7.6		6.5	2.2	14.0
Green Ext Time (p_c), s				5.9		0.8	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	17.9
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	281	447	455	0	0	377
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	281	447	455	0	0	377

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	455	0	-	0	1464	455
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	1009	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1106	-	-	-	141	605
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	352	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1106	-	-	-	105	605
Mov Cap-2 Maneuver	-	-	-	-	105	-
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	263	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	20.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1106	-	-	-	605
HCM Lane V/C Ratio	0.254	-	-	-	0.623
HCM Control Delay (s)	9.4	-	-	-	20.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	1	-	-	-	4.3

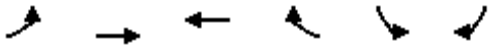
Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	144	198	177	162	140	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	198	177	162	140	115

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	339	0	-	0	744	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	486	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1220	-	-	-	382	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1220	-	-	-	337	781
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	545	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	22.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1220	-	-	-	453
HCM Lane V/C Ratio	0.118	-	-	-	0.563
HCM Control Delay (s)	8.3	-	-	-	22.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	3.4



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	61	366	485	162	196	163
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1765	1765	1765	1667	1765
Adj Flow Rate, veh/h	61	366	485	162	196	163
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	192	776	542	460	479	452
Arrive On Green	0.00	0.44	0.31	0.31	0.30	0.30
Sat Flow, veh/h	1587	1765	1765	1500	1587	1500
Grp Volume(v), veh/h	61	366	485	162	196	163
Grp Sat Flow(s),veh/h/ln	1587	1765	1765	1500	1587	1500
Q Serve(g_s), s	0.2	6.8	12.2	3.9	4.6	4.0
Cycle Q Clear(g_c), s	0.2	6.8	12.2	3.9	4.6	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	192	776	542	460	479	452
V/C Ratio(X)	0.32	0.47	0.90	0.35	0.41	0.36
Avail Cap(c_a), veh/h	425	1102	608	517	479	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	9.2	15.4	12.5	12.9	12.7
Incr Delay (d2), s/veh	0.9	0.4	14.8	0.5	2.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.8	3.3	8.2	1.6	2.3	3.8
LnGrp Delay(d),s/veh	22.0	9.6	30.2	13.0	15.5	14.9
LnGrp LOS	C	A	C	B	B	B
Approach Vol, veh/h		427	647		359	
Approach Delay, s/veh		11.4	25.9		15.2	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.4		20.0	6.2	20.2
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				31.0		16.0	9.0	18.0
Max Q Clear Time (g_c+I1), s				8.8		6.6	2.2	14.2
Green Ext Time (p_c), s				6.3		0.8	0.1	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	281	504	463	0	1	377
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	281	504	463	0	1	377

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	463	0	-	0	1529	463
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	1066	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1098	-	-	-	129	599
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	331	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1098	-	-	-	96	599
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	246	-

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	21.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1098	-	-	-	591
HCM Lane V/C Ratio	0.256	-	-	-	0.64
HCM Control Delay (s)	9.4	-	-	-	21.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	1	-	-	-	4.5

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	144	256	185	163	148	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	256	185	163	148	115

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	348	0	-	0	811	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	544	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1211	-	-	-	349	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	582	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	308	772
Mov Cap-2 Maneuver	-	-	-	-	308	-
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	27.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	418
HCM Lane V/C Ratio	0.119	-	-	-	0.629
HCM Control Delay (s)	8.4	-	-	-	27.1
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.4	-	-	-	4.2