Staff Report to the Zoning Administrator

Application Number: 131153

Applicant: Ifland Engineers
Owner: Twin Lakes Church
APN: 037-251-19

Agenda Date: June 6, 2014
Agenda Item #: 1
Time: After 9:00 a.m.

Project Description: Proposal to modify an approved Master Plan for a religious and educational facility, including removal of existing modular buildings, construction of a new education building in place of previously approved classroom buildings, construction of a new chapel building, construction of a new college outreach building, and increased student enrollment from 325 students to 511 students (pre-school and grades K through 8) on property located within the PF zone district.

Requires an amendment to Master Plan D-71-3-15, and subsequent amendments 76-1363-U, 76-1806-U, 77-05-U, 81-245-U, 82-127-U, 82-423-U, 86-968, 89-0981, 93-0264, 95-0246, 04-0135, and a Variance to increase the maximum building height from 35 feet to about 40 feet for the new education building.

Location: Property located on the west side of Cabrillo College Drive, approximately 1,500 feet south of Soquel Drive in Aptos.

Supervisorial District: 2nd District (District Supervisor: Zach Friend)

Permits Required: Master Plan Amendment, Variance
Technical Reviews: Preliminary Grading Review, Soils Report Review

Staff Recommendation:

- ~~Adopt the Mitigated Negative Declaration (Exhibit A) per the requirements of the~~ California Environmental Quality Act.
- Approval of Application 131153, based on the attached findings and conditions.

Exhibits

A.	Mitigated Negative Declaration (CEQA Determination) Attachments: 1) Assessor's, Location, Zoning and General Plan Maps; 2) Reduced project plans	B.	Findings
		C.	Conditions
		D.	Project plans
		E.	Comments & Correspondence

Parcel Information

Parcel Size:	15.5 acres
Existing Land Use - Parcel:	Church and associated improvements
Existing Land Use - Surrounding:	Cabrillo College, Highway 1, Porter Gulch
Project Access:	Cabrillo College Drive
Planning Area:	Aptos
Land Use Designation:	P (Public & Community Facilities) O-U (Urban Open Space)
Zone District:	PF (Public & Community Facilities)
Coastal Zone:	__ Inside _X_ Outside

Environmental Information

An Initial Study has been prepared (Exhibit A) that addresses the environmental concerns associated with this application.

Services Information

Urban/Rural Services Line:	_X_ Inside __ Outside
Water Supply:	Soquel Creek Water District
Sewage Disposal:	Santa Cruz County Sanitation District
Fire District:	Aptos/La Selva Fire Protection District
Drainage District:	Zone 5 Flood Control District

Project Setting & Background

The subject property is approximately 15.5 acres and is located north of Highway One in the Aptos planning area. Cabrillo College is located to the north and east of the property, Highway One to the south, and Porter Gulch to the west. The site is accessed via Cabrillo College Drive, which bounds the south and east sides of the property. The property is developed as a church campus, including multiple buildings, parking areas, playgrounds, an athletic field, and associated landscaping. The developed area of the site is located above Cabrillo College Drive and the slope leading up to the developed area is vegetated with oaks and shrubs. The west side of the property slopes down to Porter Gulch and is covered with trees and riparian vegetation.

The existing church campus was originally approved under Master Plan D-71-3-15. Amendments to this plan followed as the campus was developed over time (including the following approvals: 76-1363-U, 76-1806-U, 77-05-U, 81-245-U, 82-127-U, 82-423-U, 86-968, 89-0981, 93-0264, 95-0246, 04-0135). The Master Plan, and subsequent amendments, allowed for the existing buildings that have been constructed (auditorium, fellowship hall, nursery, pre-school, administration, recreation building, caretaker's quarters, temporary classrooms, and associated structures). Buildings approved in the Master Plan that have not been constructed include a chapel, a college building, and three classroom buildings.

Master Plan

The subject property is located in the PF (Public & Community Facilities) zone district, consistent with the (P) Public & Community Facilities General Plan designation. The property also contains the (O-U) Urban Open Space General Plan designation to indicate the presence of Porter Gulch on the west side of the parcel. The existing church campus and private school is a permitted use within the zone district and the existing school use is consistent with the previous Master Plan approvals.

The current proposal is to amend the existing Master Plan approval by re-organizing the layout of approved structures and uses on the church property. In the next phase of the Master Plan, the construction of a single education building is proposed in place of three previously approved classroom buildings and the existing athletic field is proposed to be expanded. Later stages of the Master Plan are proposed, including a modified location and layout of the chapel, college building, and site improvements.

The total area of the three classroom buildings approved in the Master Plan that were not built is approximately 39,550 square feet. The proposed education building that would replace these classrooms would be approximately 39,675 square feet. The revised design of the chapel building would be approximately 7,700 square feet (originally approved at 3,000 square feet), and this is due to a substantial increase in the church's congregation over the past 40 years. The revised design of the college building would be approximately 5,300 square feet (originally approved at 4,225 square feet).

This amendment also seeks to authorize increased enrollment at the existing school facilities from 325 students to 511 students (total for pre-school and grades K through 8). The increase in student enrollment is proposed as a potential future maximum, similar to the current approved maximum. It would take some time for the student enrollment to increase to the higher level as enrollment fluctuates from year to year and the school has not operated at maximum capacity in the past.

Circulation and Parking

A traffic study was prepared by Pinnacle Traffic Engineering that evaluated the traffic that would be generated by the proposed development, including the construction of new structures and the increased student enrollment at the church campus. The traffic study assessed the potential impact of the project plus cumulative development at traffic intersections in the project vicinity. According to the traffic study, the proposed project is anticipated to add approximately 626 daily trips (with 178 trips during the AM peak hour and 82 trips during the PM peak hour). The traffic study determined that this incremental increase in traffic resulting from the project would be less than significant, in that it would not reduce operations at any of the study intersections to an unacceptable level of service.

The traffic study included a parking analysis of the existing and proposed church facilities and the shared parking arrangement with Cabrillo College adjacent to the project site. According to the parking analysis, the existing parking lot on the church campus provides 484 marked stalls

and 60 unimproved spaces. The proposed development would result in a net reduction of 37 stalls on the project site (including the removal of existing marked and unmarked spaces, as well as the creation of additional marked stalls). This would result in a total of 507 parking spaces available on the project site, with additional overflow parking in the existing Cabrillo College parking areas. Parking survey data indicates that Cabrillo College students currently park approximately 180-200 vehicles on the church site during times of peak college use. Based on time of use, the Cabrillo College parking demand does not conflict with the peak demand from the existing or proposed church uses. During large church events, the Cabrillo College lots are available for overflow church parking, as part of the shared parking agreement. The parking analysis concluded that there would be sufficient parking on the project site for the existing and proposed church uses, with additional capacity on the project site for Cabrillo College overflow parking when needed for large church events.

Variance

This application includes a request for a variance to increase the maximum building height from 35 feet to 40 feet for the proposed education building. The new education building is proposed to be built along a slope, in line with other campus buildings in the location where two of the previously approved classroom building would have been located. The education building is proposed to be three stories in height (which is allowed in the PF zone district) and the selected location will allow the building to be cut into the slope, thereby reducing the visible height of the structure. The request for a variance will allow the mechanical equipment to be properly screened from view behind a mansard roof and parapet wall that exceeds the 35 foot height requirement. The total height of the structure (including roof, parapet wall, and mechanical equipment) would be no taller than 40 feet in height, and this would be at the west (rear) side of the proposed building.

Given the slope in the area of proposed construction, and the location of the proposed new education building relative to the existing structures and site improvements on the church campus, the proposed education building would be consistent with the pattern of development on the church campus and the adjacent college campus. The existing auditorium building on the church campus and other buildings on the adjacent college campus are built in excess of the 35 foot maximum height.

Due to the presence of existing buildings of similar height, and the slope to the rear of the building site, the variance request is considered as reasonable and appropriate. The variance will allow the construction of a building that is similar in height and design to other existing structures on the church campus and the project vicinity. The approval of a variance for the proposed education building will not result in a grant of special privilege.

Scenic Resources & Design Review

The subject property is located adjacent to the Highway 1 scenic corridor, which is a designated scenic resource. Views from Highway 1 are protected and all development is required to be screened or designed in a manner to reduce visual impacts to the scenic corridor. The existing church campus is screened from Highway 1 by the slopes below the campus and the presence of

existing vegetation. The retaining wall that is proposed below the expanded athletic field was evaluated with photo simulations to determine if it would be visible from Highway 1. Due to the presence of existing topography and vegetation, no impact to scenic resources is anticipated as a result of this project.

The proposed Master Plan amendment complies with the requirements of the County Design Review Ordinance, in that designs have been provided for the first phase of the project that include appropriate site and architectural design features to blend with the existing campus facilities and to reduce the visual impact of the proposed development on surrounding land uses and the natural landscape. To ensure that later phases will also be compatible with the existing campus buildings and infrastructure, a Design Review approval (processed as a Level 4 - Administrative Review with Public Notice) will be required for structures built after the new classroom building. Although the current application would establish the approximate size and location of these structures, the exterior design and appearance of the structures will be subject to Design Review.

Grading & Utilities

The education building is proposed to be constructed first, with other buildings to follow. The education building would be cut into the slope on the west side of the property, in the location of two of the previously approved classroom buildings. Grading for the education building would include approximately 4,400 cubic yards (cut) and 250 cubic yards (fill). Approximately 1,400 cubic yards of the material cut from the education building site is proposed to be placed at the east end of the existing athletic field to extend the existing soccer field. A retaining wall up to 9.5 feet in height is proposed to support the fill material on the slope below.

All utilities are available to serve the proposed project. Water and sanitary sewer will serve letters, indicating service availability, have been provided.

Environmental Review

Environmental review has been required for the proposed project per the requirements of the California Environmental Quality Act (CEQA). The project was reviewed by the County's Environmental Coordinator on May 5, 2014. A preliminary determination to issue a Negative Declaration with Mitigations (Exhibit A) was made on May 9, 2014. The Initial Study was circulated on May 14, 2014 and the mandatory public comment period ends on June 2, 2014.

The environmental review process focused on the potential impacts of the project in the areas of biotic resources, visual resources, and transportation/traffic. The environmental review process generated mitigation measures that will reduce potential impacts from the proposed development and adequately addresses these issues.

Conclusion

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete

listing of findings and evidence related to the above discussion.

Staff Recommendation

- Adopt the Mitigated Negative Declaration (Exhibit A) per the requirements of the California Environmental Quality Act.

- **APPROVAL** of Application Number **131153,** based on the attached findings and conditions.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.co.santa-cruz.ca.us

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Exhibit A

Mitigated Negative Declaration (CEQA Determination)

Application Number 131153
Zoning Administrator Hearing

Attachment 1: Location, Assessor's, Zoning and General Plan Maps

Attachment 2: Reduced Project Plans

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
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KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR
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MITIGATED NEGATIVE DECLARATION

Project: Twin Lakes Church **APN(S): 037-251-19**

Project Description: Proposal to modify an approved Master Plan for a religious and educational facility, including removal of existing modular buildings, construction of a new education building in place of previously approved classroom buildings, construction of a new chapel building, construction of a new college outreach building, and increased student enrollment from 325 students to 511 students (pre-school and grades K through 8).

Project Location: The project is located on the west side of Cabrillo College Drive, approximately 1,500 feet south of Soquel Drive in Aptos.

Owner: Twin Lakes Church

Applicant: Ifland Engineers

Staff Planner: Randall Adams, (831) 454-3218

Email: Randall.Adams@santacruzcounty.us

This project will be considered a public hearing by the Zoning Administrator. The date, time and location have not yet been set. When scheduling does occur, these items will be included in all public hearing notices for the project.

California Environmental Quality Act Mitigated Negative Declaration Findings:

Find, that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period; and, that revisions in the project plans or proposals made by or agreed to by the project applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and, on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project as revised will have a significant effect on the environment. The expected environmental impacts of the project are documented in the attached Initial Study on file with the County of Santa Cruz Clerk of the Board located at 701 Ocean Street, 5th Floor, Santa Cruz, California.

Review Period Ends: June 2, 2014

Note: This Document is considered Draft until it is Adopted by the Appropriate County of Santa Cruz Decision-Making Body

Date: 5/14/14

TODD SEXAUER, Environmental Coordinator
(831) 454-3511

County of Santa Cruz

PLANNING DEPARTMENT
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KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

MITIGATION MONITORING AND REPORTING PROGRAM for Application No. 131153, May 5, 2014

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
Biological Resources					
BIO-1	Produce nighttime lighting that would substantially illuminate wildlife habitats?	All new outdoor and building lighting shall be directed downward and away from the riparian area.	Applicant	Compliance monitored by the County Planning Department	To be implemented during project design, construction and operations

County of Santa Cruz

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CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ENVIRONMENTAL REVIEW INITIAL STUDY

Date: May 5, 2014 **Application Number:** 131153

Staff Planner: Randall Adams

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Ifland Engineers **APN(s)**: 037-251-19

OWNER: Twin Lakes Church **SUPERVISORAL DISTRICT**: 2

PROJECT LOCATION: Property located on the west side of Cabrillo College Drive, approximately 1,500 feet south of Soquel Drive in Aptos. (Attachment 1)

SUMMARY PROJECT DESCRIPTION: Proposal to modify an approved Master Plan for a religious and educational facility, including removal of existing modular buildings, construction of a new education building in place of previously approved classroom buildings, construction of a new chapel building, construction of a new college outreach building, and increased student enrollment from 325 students to 511 students (pre-school and grades K through 8).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.

- ☐ Geology/Soils
- ☐ Hydrology/Water Supply/Water Quality
- ☒ Biological Resources
- ☐ Agriculture and Forestry Resources
- ☐ Mineral Resources
- ☒ Visual Resources & Aesthetics
- ☐ Cultural Resources
- ☐ Hazards & Hazardous Materials
- ☒ Transportation/Traffic
- ☐ Noise
- ☐ Air Quality
- ☐ Greenhouse Gas Emissions
- ☐ Public Services
- ☐ Recreation
- ☐ Utilities & Service Systems
- ☐ Land Use and Planning
- ☐ Population and Housing
- ☐ Mandatory Findings of Significance

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

- ☐ General Plan Amendment
- ☐ Land Division
- ☐ Rezoning
- ☒ Development Permit
- ☐ Coastal Development Permit
- ☒ Grading Permit
- ☐ Riparian Exception
- ☒ Variance

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations: None

DETERMINATION: (To be completed by the lead agency)
On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Todd Sexauer
Environmental Coordinator

5/9/14
Date

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: 15.5 acres
Existing Land Use: Church and associated improvements
Vegetation: Landscaping, turf areas, and riparian vegetation.
Slope in area affected by project: ☒ 0 - 30% ☐ 31 – 100%
Nearby Watercourse: Porter/Tannery Gulch
Distance To: 60 feet (to classroom building)

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Water Supply Watershed: Not mapped
Groundwater Recharge: Porter Gulch
Timber or Mineral: Not mapped
Agricultural Resource: None
Biologically Sensitive Habitat: Porter Gulch
Fire Hazard: Not mapped
Floodplain: Not mapped
Erosion: Low potential
Landslide: None
Liquefaction: Low potential

Fault Zone: Not mapped
Scenic Corridor: Hwy 1 Scenic Corridor
Historic: Not designated
Archaeology: Not mapped
Noise Constraint: None
Electric Power Lines: No
Solar Access: Adequate
Solar Orientation: Level
Hazardous Materials: None

SERVICES

Fire Protection: Central Fire District
School District: Soquel ESD, SC HSD
Sewage Disposal: County Sanitation District

Drainage District: Zone 5
Project Access: Cabrillo College Drive
Water Supply: Soquel Creek Water District

PLANNING POLICIES

Zone District: PF (Public Facilities)
Special Designation: None
General Plan: P (Public Facilities), O-U (Urban Open Space)

Urban Services Line:	☒ Inside	☐ Outside
Coastal Zone:	☐ Inside	☒ Outside

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

The subject property is approximately 15.5 acres and is located north of Highway One in the Soquel planning area. Cabrillo College is located to the north and east of the property, Highway One to the south, and Porter Gulch to the west. The site is accessed via Cabrillo College Drive, which bounds the south and east sides of the property.

The property is developed with a church campus, including multiple buildings, parking areas, playgrounds, an athletic field, and landscaping. The developed area of the site is located above Cabrillo College Drive and the slope leading up to the developed area is vegetated with oaks and shrubs. The rear (west) side of the property slopes down to Porter Gulch and is covered with trees and riparian vegetation.

PROJECT BACKGROUND:

The existing church campus was originally approved under Master Plan D-71-3-15. Amendments to this plan followed as the campus was developed over time (including the following approvals: 76-1363-U, 76-1806-U, 77-05-U, 81-245-U, 82-127-U, 82-423-U, 86-968, 89-0981, 93-0264, 95-0246, 04-0135). The Master Plan, and subsequent amendments, allowed for the existing buildings that have been constructed (auditorium, fellowship hall, nursery, pre-school, administration, recreation building, caretaker's quarters, temporary classrooms, and associated structures). Buildings approved in the Master Plan that have not been constructed include a chapel, a college building, and three classroom buildings.

This current application is a proposal to amend the Master Plan to construct one education building in place of the three classroom buildings, to modify the location and layout of the chapel, college building, and site improvements, and to authorize increased enrollment at the existing school facilities (pre-school and K-8).

DETAILED PROJECT DESCRIPTION:

This application is a proposal to modify an approved Master Plan for a religious and educational facility, including removal of existing modular buildings, construction of a new education building in place of previously approved classroom buildings, construction of a new chapel building, construction of a new college outreach building, and increased student enrollment from 325 students to 511 students (pre-school and grades K through 8). (Attachment 2)

The total area of the three classroom buildings approved in the Master Plan that were not built is approximately 39,550 square feet. The proposed education building that would replace these classrooms would be approximately 39,675 square feet. The revised design of the chapel building would be approximately 7,700 square feet (originally approved at 3,000 square feet), and this is due to a substantial increase in the church's congregation over the past 40 years. The revised design of the college building would be approximately 5,300 square feet (originally approved at 4,225 square feet).

The education building is proposed to be constructed first, with other buildings to follow. The education building would be cut into the slope on the west side of the property, in the location of two of the previously approved classroom buildings. Grading for the education building would include approximately 4,400 cubic yards (cut) and 250 cubic yards (fill). Approximately 1,400 cubic yards of the material cut from the education building site is proposed to be placed at the east end of the existing athletic field to extend the existing soccer field. A retaining wall up to 9.5 feet in height is proposed to support the fill material on the slope below.

This proposal requires an amendment to Master Plan D-71-3-15, and subsequent amendments 76-1363-U, 76-1806-U, 77-05-U, 81-245-U, 82-127-U, 82-423-U, 86-968, 89-0981, 93-0264, 95-0246, 04-0135, a Variance to increase the maximum building height from 35 feet to about 40 feet for the new education building, and a soils report review.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

III. ENVIRONMENTAL REVIEW CHECKLIST

A. GEOLOGY AND SOILS

Would the project:

1.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
	B. Strong seismic ground shaking?	☐	☐	☒	☐
	C. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
	D. Landslides?	☐	☐	☒	☐

***Discussion (A through D)*:** The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone (County of Santa Cruz GIS Mapping, California Division of Mines and Geology, 2001). However, the project site is located within the Corralitos Fault Complex and in an area of moderate to high seismic activity (mapped ~~County Fault Zone). A geotechnical investigation was performed by Haro, Kasunich,~~ and Associates, dated 8/11, with an update in 5/13 (Attachments 3 & 4).

The report has been reviewed and accepted by the Environmental Planning Section of the Planning Department (Attachment 5). The report concludes that fault rupture does not pose a significant threat to the proposed development, and that seismic shaking can be managed by following the recommendations in the geotechnical report referenced above and the requirements of the California Building Code.

2.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading,	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

subsidence, liquefaction, or collapse?

Discussion: The geotechnical reports cited above did not identify a significant potential for damage caused by any of these hazards.

3. Develop land with a slope exceeding 30%? ☐ ☐ ☐ ☒

Discussion: There are slopes that exceed 30% on the property. However, no improvements are proposed on slopes in excess of 30%.

4. Result in substantial soil erosion or the loss of topsoil? ☐ ☐ ☒ ☐

Discussion: Some potential for erosion exists during the construction phase of the project, however, this potential is minimal because all slope cuts would be properly retained and standard erosion controls are a required condition of the project. Prior to approval of a grading or building permit, the project must have an approved Erosion Control Plan (per County Code section 16.22.060), which would specify detailed erosion and sedimentation control measures. The plan would include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

5. Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007), creating substantial risks to life or property? ☐ ☐ ☒ ☐

Discussion: The geotechnical report for the project did not identify any elevated risk associated with expansive soils.

6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems where sewers are not available? ☐ ☐ ☒ ☐

Discussion: No septic systems are proposed. The project would connect to the Santa Cruz County Sanitation District.

7. Result in coastal cliff erosion? ☐ ☐ ☒ ☐

Discussion: The proposed project is not located in the vicinity of a coastal cliff or bluff; and therefore, would not contribute to coastal cliff erosion.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

B. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Would the project:

1.	Place development within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated May 16, 2012, no portion of the project site lies within a 100-year flood hazard area.

2.	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐

Discussion: According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated May 16, 2012, no portion of the project site lies within a 100-year flood hazard area.

3.	Be inundated by a seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion: The property is not located in a tsunami inundation area on the Tsunami Coastal Inundation Map dated January 21, 2009.

4.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐

Discussion: The existing church campus is served by the Soquel Creek Water District. Although the project would incrementally increase water demand, the Soquel Creek Water District requires a water demand offset for new development. The water demand created by the new development would be offset through removal of turf areas, the use of low flow fixtures in new development, and retrofitting existing development with low flow fixtures, in consultation with the Water District. All construction would comply with the California Building Code and local ordinances regarding the conservation and use of water. Although portions of the subject property are located within a mapped groundwater recharge area, the project site is not located

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

in a mapped groundwater recharge area.

5.	Substantially degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).	☐	☐	☒	☐

Discussion: The project would not discharge runoff either directly or indirectly into a public or private water supply. However, no commercial or industrial activities are proposed that would generate a substantial amount of contaminants. Potential siltation from the proposed project would be addressed through implementation of erosion control BMPs.

6.	Degrade septic system functioning?	☐	☐	☐	☒

Discussion: There are no known septic systems in the vicinity.

7.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding, on- or off-site?	☐	☐	☒	☐

Discussion: The proposed project would not alter the existing overall drainage pattern of the site. Department of Public Works Drainage Section staff has reviewed and accepted the proposed drainage for the Master Plan and development of the education building proposed in the first phase. Department of Public Works Drainage Section staff would review detailed drainage plans for each later stage as they are initiated.

8.	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

Discussion: Drainage Calculations (Attachment 6) prepared by Ifland Engineers, dated 8/6/13, have been reviewed for potential drainage impacts and accepted by the Department of Public Works (DPW) Drainage Section staff. The runoff rate from the property would be controlled by existing and proposed on-site drainage facilities and sufficient area exists for the construction of new drainage facilities to treat the structures and improvements proposed in each phase. DPW staff have determined that the existing and proposed storm water facilities are adequate to handle the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

increase in drainage associated with the project. Refer to response B-5 for discussion of urban contaminants and/or other polluting runoff.

9.	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

Discussion: There are no levees or dams in the project vicinity

10.	Otherwise substantially degrade water quality?	☐	☐	☐	☒

Discussion: See response B-5 above

C. BIOLOGICAL RESOURCES
Would the project:

1.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

Discussion: According to the California Natural Diversity Data Base (CNDDB), maintained by the California Department of Fish and Game, there are no known special status plant or animal species in the site vicinity, and there were no special status species observed in the project area.

2.	Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

Discussion: Porter Gulch is located on the west side of the subject property and this area is mapped as a riparian woodland. The proposed education building has been designed to maintain the required riparian buffer setback (of 50 feet) and the construction setback (of 10 feet) from the edge of the riparian area. The buffer area

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

closest to the proposed education building is currently developed with an existing access road (to remain) and lawn area (to be replaced by a patio below the proposed education building). All proposed structures would comply with riparian buffer setback requirements and a riparian exception is not required for the proposed patio area due to the presence of existing disturbance in this area. No impacts to the riparian area are anticipated, as all future development and activities would not encroach on the riparian area beyond the existing access road.

3.	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 or migratory wildlife nursery sites?	☐	☐	☒	☐

Discussion: The proposed project does not involve any activities that would interfere with the movements or migrations of fish or wildlife, or impede use of a known wildlife nursery site.

4.	Produce nighttime lighting that would substantially illuminate wildlife habitats?	☐	☒	☐	☐

Discussion: The development area is adjacent to a riparian corridor, which could be adversely affected by a new or additional source of light that is not adequately deflected or minimized. The following mitigation measures will be added to the project, such that any potential impact will be reduced to a less than significant level:

(BIO-1) All new outdoor and building lighting shall be directed downward and away from the riparian area.

5.	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?	☐	☐	☐	☒

Discussion: The project will not include activities that would have an adverse effect on any federally protected wetlands.

6.	Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)?

Discussion: The project would not conflict with any local policies or ordinances protecting biological resources.

7.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion: The proposed project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

D. AGRICULTURE AND FOREST RESOURCES

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

1.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

Discussion: The project site does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. In addition, the project does not contain Farmland of Local Importance. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide or Farmland of Local Importance would be converted to a non-agricultural use. No impact would occur from project implementation.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Discussion: The project site is not considered to be an agricultural zone. Additionally, the project site's land is not under a Williamson Act Contract. Therefore, the project does not conflict with existing zoning for agricultural use, or a Williamson Act Contract. No impact is anticipated.

3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

Discussion: There are no mapped Timber Resources in the project vicinity. No impact is anticipated.

4. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion: No forest land occurs on the project site or in the immediate vicinity. No impact is anticipated.

5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion: The project site is located within the Urban Services Line and there are no protected farmland or forest resources in the project vicinity. Therefore, no impacts are anticipated.

E. MINERAL RESOURCES

Would the project:

1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

Discussion: The site does not contain any known mineral resources that would be of value to the region and the residents of the state. Therefore, no impact is anticipated

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

from project implementation.

2.	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion: The project site is not considered to be an Extractive Use Zone (M-3) nor does it have a Land Use Designation with a Quarry Designation Overlay (Q) (County of Santa Cruz 1994). Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project.

F. VISUAL RESOURCES AND AESTHETICS

Would the project:

1.	Have an adverse effect on a scenic vista?	☐	☐	☒	☐

Discussion: The subject property is located adjacent to the Highway 1 scenic corridor, which is a public scenic resource, as designated in the County's General Plan (1994). Views from Highway 1 are protected and all development is required to be designed in a manner to reduce visual impacts to the scenic corridor. This project is a Master Plan amendment for an existing church campus located within the Urban Services Line (USL). Requirements for development visible from urban scenic roadways are specified in General Plan policy 5.10.12, which requires that new discretionary development use site and architectural design, landscaping, and appropriate signage to prevent impacts to views from scenic roads.

The existing campus (including the areas where structures are proposed) is screened from Highway 1 by the slopes below the campus (along the south and east sides of the property fronting on Cabrillo College Drive) and the presence of existing vegetation (oak trees and shrubs). The retaining wall that is proposed below the expanded athletic field was evaluated with photo simulations (Attachment 7) to determine if it would be visible from Highway 1. From review of the photo simulations it appears that the presence of existing vegetation, in combination with the proposed colors and materials, would adequately screen the proposed wall and fencing from view. Due to the presence of existing topography and vegetation, no impact to scenic resources is anticipated as a result of this project.

2.	Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: See response F-1 above.

3.	Substantially degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridgeline?	☐	☐	☒	☐

Discussion: The existing visual setting is an existing church campus adjacent to a community college campus. The proposed project is designed and landscaped so as to fit into this setting.

4.	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion: The project would create an incremental increase in night lighting. However, this increase would be small, and would be similar in character to the lighting associated with the surrounding existing uses.

G. CULTURAL RESOURCES

Would the project:

1.	Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	☐	☐	☐	☒

Discussion: The existing structures on the property are not designated as a historic resource on any federal, state or local inventory.

2.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☒	☐

Discussion: No archeological resources are known to occur or have been identified in the project area. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

3.	Disturb any human remains, including	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

those interred outside of formal cemeteries?

Discussion: No archeological resources are known to occur or have been identified in the project area. Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

4.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Discussion: There are no known paleontological resources or unique geologic features on the project site.

H. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

1.	Create a significant hazard to the public or the environment as a result of the routine transport, use or disposal of hazardous materials?	☐	☐	☐	☒

Discussion: The proposal would not result in the routine transportation, use or disposal of hazardous materials.

2.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

Discussion: Hazardous materials are not known to exist on the subject property. Small amounts of hazardous chemicals may be used during construction (related to construction equipment, adhesives, etc.) but these would be used according to established codes and protocols and would not cause a reasonably foreseeable hazard to the public.

3.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

one-quarter mile of an existing or proposed school?

Discussion: The proposal would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. An existing school is located on the subject property.

4.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Discussion: The project site is not included on the 4/4/14 list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

5.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Discussion: The project site is not located within an airport land use plan area.

6.	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

Discussion: The project site is not located within the vicinity of a private airstrip.

7.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Discussion: The proposed development is not expected to interfere with an adopted emergency response or evacuation plan. The project has been conditioned to meet all requirements of the local fire district.

8.	Expose people to electro-magnetic fields associated with electrical transmission lines?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The proposed development would not involve the construction of electrical transmission lines and no lines are known to exist on the subject property.

9.	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion: The project is not located in the vicinity of wildland areas and the project design incorporates all applicable fire safety requirements of the local fire agency.

I. TRANSPORTATION/TRAFFIC

Would the project:

1.	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

Discussion: The project would create an incremental increase in traffic on nearby roads and intersections. According to the traffic study performed by Pinnacle Traffic Engineering, dated 1/24/14 & updated 3/19/14 (Attachments 8 & 9), the proposed project is anticipated to add approximately 626 daily trips (with 178 trips during the AM peak hour and 82 trips during the PM peak hour). The traffic study assessed the potential impact of the project plus cumulative development at the following intersection(s): Soquel Drive & Park Avenue, Soquel Drive & North Perimeter Road, Soquel Drive & Cabrillo College Drive, Park Avenue & Cabrillo College Drive. The traffic study determined that the incremental increase in traffic would be less than significant, in that it would not reduce operations at any of the study intersections to a level of service below D.

2.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project location is not within an existing airport land use clear zone therefore no change to air traffic patterns is expected.

3.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

Discussion: The project does not include design features that would result in dangerous design features or other transportation hazards.

4.	Result in inadequate emergency access?	☐	☐	☐	☒

Discussion: The project's road access meets County standards and has been approved by the local fire agency.

5.	Cause an increase in parking demand which cannot be accommodated by existing parking facilities?	☐	☐	☒	☐

Discussion: Traffic study performed by Pinnacle Traffic Engineering, dated 1/24/14 (Attachment 8), included a parking analysis of the existing and proposed church facilities and the shared parking arrangement with Cabrillo College adjacent to the project site. According to the parking analysis, the existing parking lot on the church campus provides 484 marked stalls and 60 unimproved spaces. The proposed development would result in a net reduction of 37 stalls on the project site (including the removal of existing marked and unmarked spaces, as well as the creation of additional marked stalls). This would result in a total of 507 parking spaces available on the project site, with additional overflow parking in the existing Cabrillo College parking areas. Parking survey data indicates that Cabrillo College students currently park approximately 180-200 vehicles on the church site during times of peak college use. Based on time of use, the Cabrillo College parking demand does not conflict with the peak demand from the existing or proposed church uses (which utilize up to 68% of the on-site parking). During infrequent (or once per year) large church events, the Cabrillo College lots are available for overflow church parking, as part of the shared parking agreement. The parking analysis concluded that there would be sufficient parking on the project site for the existing and proposed church uses, with additional capacity on the project site for Cabrillo College overflow parking when needed for infrequent (or once per year) large events.

6.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

or safety of such facilities?

Discussion: The proposed project would comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians.

7.	Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the County General Plan for designated intersections, roads or highways?	☐	☐	☒	☐

Discussion: See response I-1 above.

J. NOISE

Would the project result in:

1.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Discussion: The project would create an incremental increase in the existing noise environment. However, this increase would be small, and would be similar in character to noise generated by the existing church campus and surrounding land uses.

2.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Discussion: Ground vibrations generated during construction or grading activities may temporarily increase the groundborne noise levels for adjoining areas. Construction would be temporary, however, and given the limited duration of this impact it is considered to be less than significant.

3.	Exposure of persons to or generation of noise levels in excess of standards established in the General Plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Discussion: Per County policy, average hourly noise levels shall not exceed the General Plan threshold of 50 Leq during the day and 45 Leq during the nighttime. Impulsive noise levels shall not exceed 65 db during the day or 60 db at night. The proposed project would not generate noise in excess of these levels or expose individuals to noise in excess of the established thresholds.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Discussion: Noise generated during construction would increase the ambient noise levels for adjoining areas. Construction would be temporary, however, and given the limited duration of this impact it is considered to be less than significant.

5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: The project location is not within an existing airport land use clear zone or within two miles of a public airport.

6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: There are no private airstrips within the vicinity of the project.

K. AIR QUALITY

Where available, the significance criteria established by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) may be relied upon to make the following determinations. Would the project:

1. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

Discussion: The North Central Coast Air Basin does not meet state standards for ozone and particulate matter (PM_{10}). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NO_x]), and PM_{10}.

Given the limited amount of new traffic that would be generated by the project there is no indication that new emissions of VOCs or NO_x would exceed MBUAPCD thresholds for these pollutants and therefore there would not be a significant contribution to an existing air quality violation.

Project construction may result in a short-term, localized decrease in air quality due to generation of dust. However, standard dust control best management practices, such

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

as periodic watering, would be implemented during construction to avoid impacts.

2.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Discussion: The project would not conflict with or obstruct implementation of the regional air quality plan. See K-1 above.

3.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒

Discussion: The proposal would result in the construction of additional buildings at an existing church facility, a use that is not expected to result in an cumulative increase in air pollutants, pollutant concentrations or objectionable odors, therefore no impact is anticipated.

4.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒

Discussion: See response K-3 above.

5.	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion: See response K-3 above.

L. GREENHOUSE GAS EMISSIONS

Would the project:

1.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Discussion: The proposed project, like all development, would be responsible for an incremental increase in green house gas emissions by usage of fossil fuels during the site grading and construction. Santa Cruz County has recently adopted a Climate Action Strategy (CAS) intended to establish specific emission reduction goals and necessary actions to reduce greenhouse gas levels to pre-1990 levels as required under AB 32 legislation. The strategy intends to reduce greenhouse gas emissions and energy consumption by implementing measures such as reducing vehicle miles traveled through the County and regional long range planning efforts and increasing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

energy efficiency in new and existing buildings and facilities. All project construction equipment would be required to comply with the Regional Air Quality Control Board emissions requirements for construction equipment. As a result, impacts associated with the temporary increase in green house gas emissions are expected to be less than significant.

2.	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion: See the discussion under L-1 above. No impacts are anticipated.

M. PUBLIC SERVICES

Would the project:

1.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
	a. Fire protection?	☐	☐	☐	☒
	b. Police protection?	☐	☐	☐	☒
	c. Schools?	☐	☐	☐	☒
	d. Parks or other recreational activities?	☐	☐	☐	☒
	e. Other public facilities; including the maintenance of roads?	☐	☐	☐	☒

Discussion (a through e): While the project represents an incremental contribution to the need for services, the increase would be minimal. Moreover, the project meets all of the standards and requirements identified by the local fire agency; and school, park, and transportation fees to be paid by the applicant would be used to offset the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

incremental increase in demand for school and recreational facilities and public roads.

N. RECREATION

Would the project:

1.	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

Discussion: See response M-1 above.

2.	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion: The project includes the expansion of a soccer field on the church campus. The field expansion would allow grading material cut to prepare the education building site to remain on the subject property, reducing truck trips associated with earth moving. The compacted fill material would be properly retained by a new retaining wall at the east end of the athletic field, and standard erosion control BMPs would be utilized. Existing topography and vegetation would screen the wall and any associated fencing from the Highway 1 scenic corridor. For these reasons, any environmental impacts from the proposed athletic field expansion are anticipated to be less than significant.

O. UTILITIES AND SERVICE SYSTEMS

Would the project:

1.	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Discussion: See response B-8 above.

2.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Discussion: The project would connect to an existing municipal water supply (Soquel

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Creek Water District). See response B-4 above.

Municipal sewer service is available to serve the project, as reflected in the attached letter from the Santa Cruz County Sanitation District (Attachment 10).

3.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

Discussion: The project's wastewater flows would not violate any wastewater treatment standards.

4.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐

Discussion: See response B-4 above.

5.	Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

Discussion: See the discussion under O-2 above. Due to the small incremental increase in demand for services, the impact would not be significant.

6.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒

Discussion: Due to the small incremental increase in solid waste generation, the impact would not be significant.

7.	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion: The project would comply with all federal, state, and local statutes and regulations related to solid waste disposal.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

P. LAND USE AND PLANNING

Would the project:

1.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion: The proposed project does not conflict with any regulations or policies adopted for the purpose of avoiding or mitigating an environmental effect.

2.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion: There are no habitat conservation plans or natural community conservation plans applicable to the project site.

3.	Physically divide an established community?	☐	☐	☐	☒

Discussion: The project would not include any element that would physically divide an established community.

Q. POPULATION AND HOUSING

Would the project:

1.	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Discussion: The proposed project is an update to an existing approved Master Plan. The update includes modifying the locations and sizes of structures and improvements on the property and an increase in student enrollment (from 325 students to 511 students). This is a modest expansion in student enrollment, when compared to the adjacent community college, and the maximum number may not be reached depending on actual enrollment demand over time. The project does not involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served, and no new residential units are proposed. Consequently, the project is not expected to have a significant growth-inducing effect.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion: The proposed project would not displace any existing housing or result in the removal of any existing housing units.

3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion: See response Q-2 above.

R. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Discussion: The potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in Section III of this Initial Study. Resources that have been evaluated as significant would be potentially impacted by the project, particularly biotic resources. However, mitigation has been included that clearly reduces these effects to a level below significance. This mitigation includes specific recommendations to reduce fugitive light from affecting the adjacent riparian woodland of Porter Gulch. As a result of this evaluation, there is no substantial evidence that significant effects associated with this project would result. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
2. Does the project have impacts that are individually limited, but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐

Discussion: In addition to project specific impacts, this evaluation considered the projects potential for incremental effects that are cumulatively considerable. As a result of this evaluation, no potentially significant cumulative impacts were identified. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

		Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
3.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts to human beings were considered in the response to specific questions in Section III. As a result of this evaluation, there were determined to be no potentially significant effects to human beings. As a result of this evaluation, there is no substantial evidence that, there are adverse effects to human beings associated with this project. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. REFERENCES USED IN THE COMPLETION OF THIS ENVIRONMENTAL REVIEW INITIAL STUDY

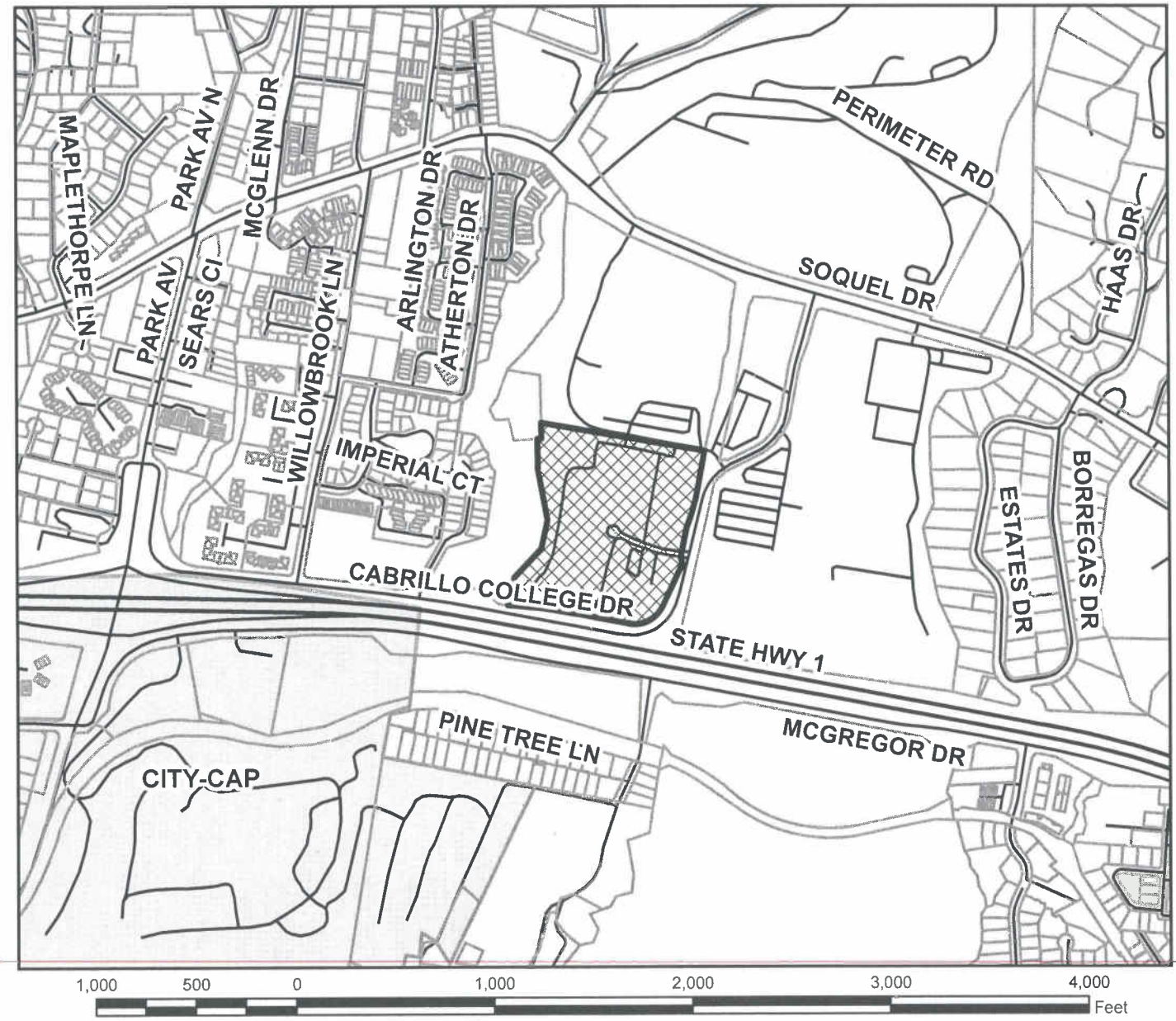
County of Santa Cruz 1994.
1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Adopted by the Board of Supervisors on May 24, 1994, and certified by the California Coastal Commission on December 15, 1994.

County of Santa Cruz Geographic Information System
Maps indicating presence of resources, constraints, hazards, and distances from existing uses and the subject property.

V. ATTACHMENTS

1. *Vicinity Map, Map of Zoning Districts; Map of General Plan Designations; and Assessors Parcel Map.*
2. *Project Plans, prepared by Ifland Engineers, revised 8/15/13*
3. *Geotechnical Investigation (Conclusions and Recommendations), prepared by Haro, Kasunich, and Associates, dated 8/11*
4. *Geotechnical Update Letter, prepared by Haro, Kasunich, and Associates, dated 5/13*
5. *Geotechnical Review Letter, prepared by Carolyn Banti, dated 12/5/13*
6. *Drainage Calculations, prepared by Ifland Engineers, dated 8/6/13*
7. *Visual Analysis of Retaining Wall, prepared by Ifland Engineers, dated 8/13*
8. *Traffic Study (Conclusions and Recommendations)*, prepared by Pinnacle Traffic Engineering, dated 1/24/14
9. *Traffic Update Letter*, prepared by Pinnacle Traffic Engineering, 3/19/14
10. *Letter from Santa Cruz County Sanitation District, dated 5/20/13*
11. *Letter from Soquel Creek Water District, dated 5/5/14*

Location Map



LEGEND

- APN: 037-251-19
- Assessors Parcels
- Streets
- State Highways
- CAPITOLA

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Map Created by
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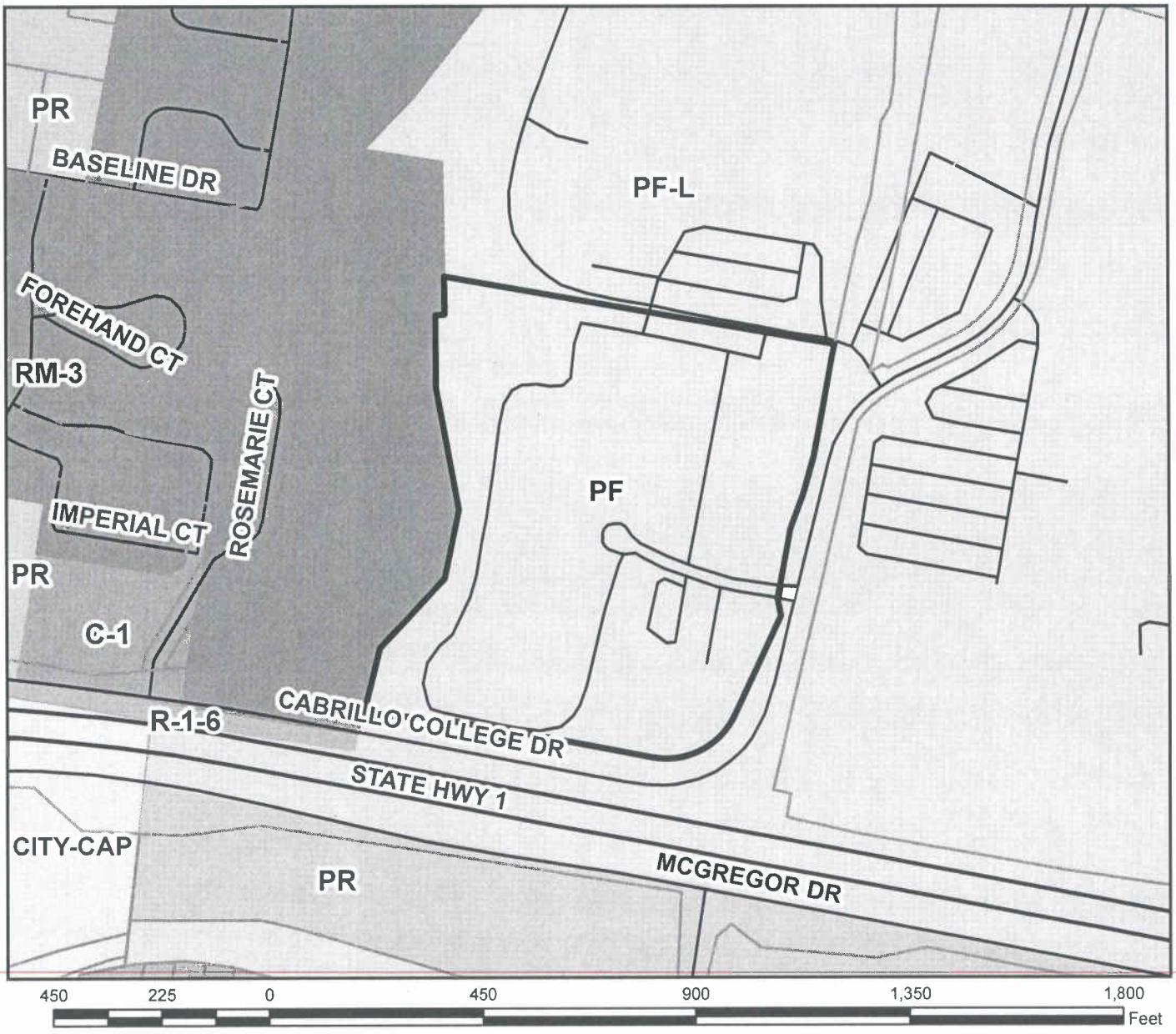
Planning Department
June 2013

ATTACHMENT 1

Zoning Map



LEGEND

- APN: 037-251-19
- Assessors Parcels
- Streets
- State Highways
- CAPITOLA
- PUBLIC FACILITY
- PARK
- RESIDENTIAL-SINGLE FAMILY
- COMMERCIAL-NEIGHBORHOOD
- RESIDENTIAL-MULTI FAMILY

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Map Created by
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General Plan Designation Map

LEGEND

- APN: 037-251-19
- Assessors Parcels
- Streets
- State Highways
- CAPITOLA
- Public Facilites
- Urban Open Space
- Parks and Recreation
- Commercial-Neighborhood
- Residential - Urban High Density
- Residential - Urban Low Density

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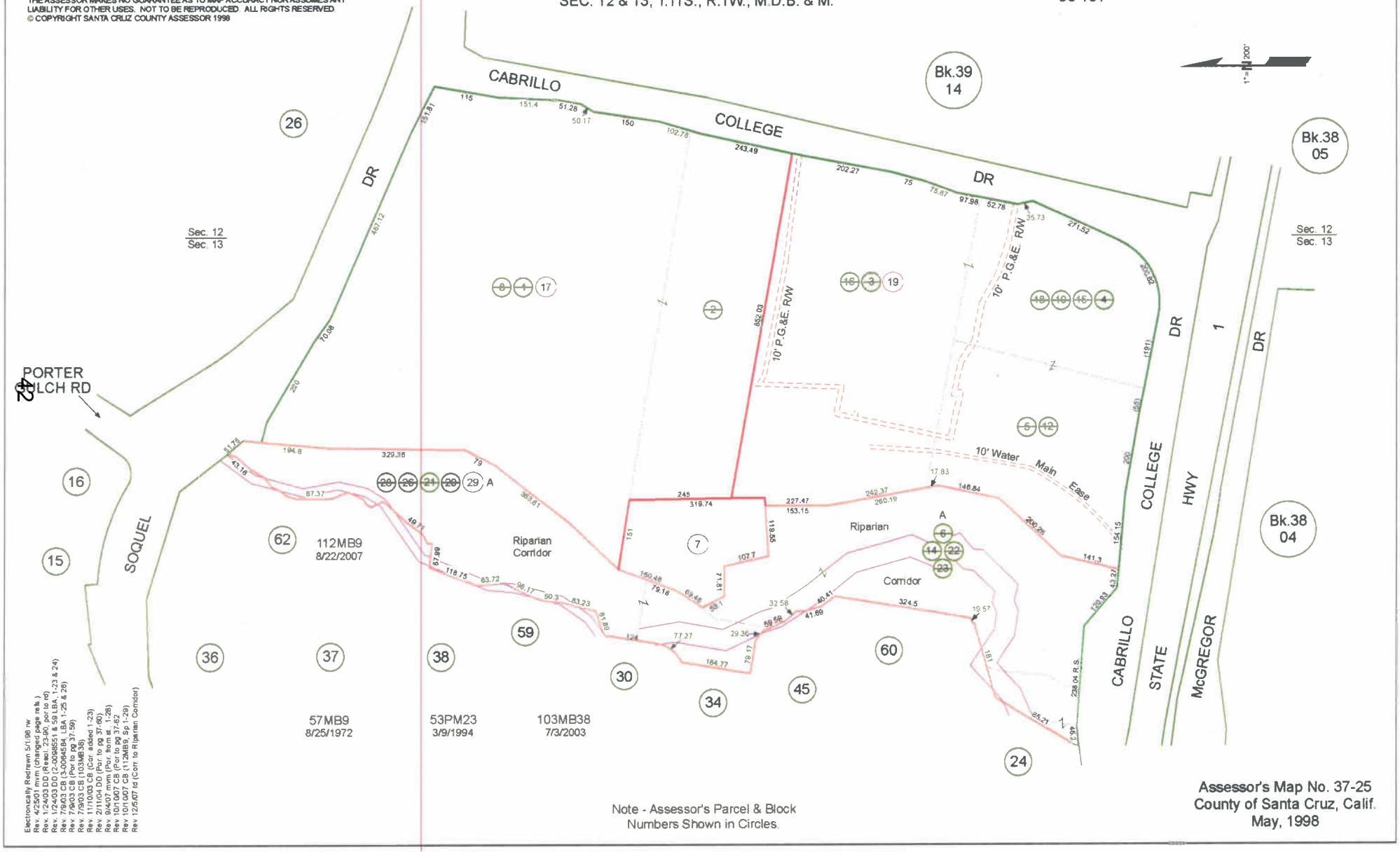
Map Created by
County of Santa Cruz
Planning Department
June 2013

FOR TAX PURPOSES ONLY

POR. SOQUEL RANCHO
SEC. 12 & 13, T.11S., R.1W., M.D.B. & M.

Tax Area Code
96-101

37-25



Note - Assessor's Parcel & Block Numbers Shown in Circles.

Assessor's Map No. 37-25
County of Santa Cruz, Calif.
May, 1998

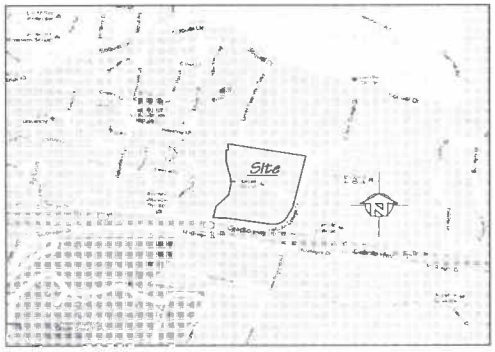
Electronically Redrawn 5/1/96 rw
Rev. 4/2/501 mvm (changed page refs.)
Rev. 1/24/03 DD (Recd. 23-90 por to rd)
Rev. 1/24/03 DD (2-0098551 & 59 LBA 1-23 & 24)
Rev. 7/9/03 CB (3-0084584, LBA 1-25 & 26)
Rev. 7/9/03 CB (Por to pg 37-59)
Rev. 7/9/03 CB (103MB38)
Rev. 11/10/03 CB (Cor. added 1-23)
Rev. 2/11/04 DD (Por. to pg 37-60)
Rev. 9/4/07 mvm (Por. from st. 1-28)
Rev. 10/1/07 CB (Por. to pg 37-52)
Rev. 10/1/907 CB (112MB9, Sp 1-29)
Rev 12/5/07 td (Corr to Riparian Corridor)

Commercial Development Permit Plan Set
for

Master Plan Amendment and New Education Building

Twin Lakes Church
Aptos, California

Vicinity Map



Index of Sheets

SHEET NO.	DESCRIPTION
C0	COVER SHEET
C1	OVERALL SITE PLAN
C2	PRELIMINARY SITE GRADING & DRAINAGE AND UTILITY PLANS
C3	PRELIMINARY SITE ACCESSIBILITY PLAN
C4	PRELIMINARY SITE EROSION CONTROL PLAN
FH1	FIRE HYDRANT LOCATION PLAN
A1	BUILDING FLOOR PLAN - FIRST FLOOR
A2	BUILDING FLOOR PLAN - SECOND FLOOR
A3	BUILDING FLOOR PLAN - THIRD FLOOR
A4	BUILDING ELEVATIONS
A5	BUILDING ELEVATIONS
A6	BUILDING SECTION
A7	COMPOSITE BUILDING ELEVATIONS EXHIBIT
L1	PRELIMINARY LANDSCAPE PLAN

For Plan Check Only

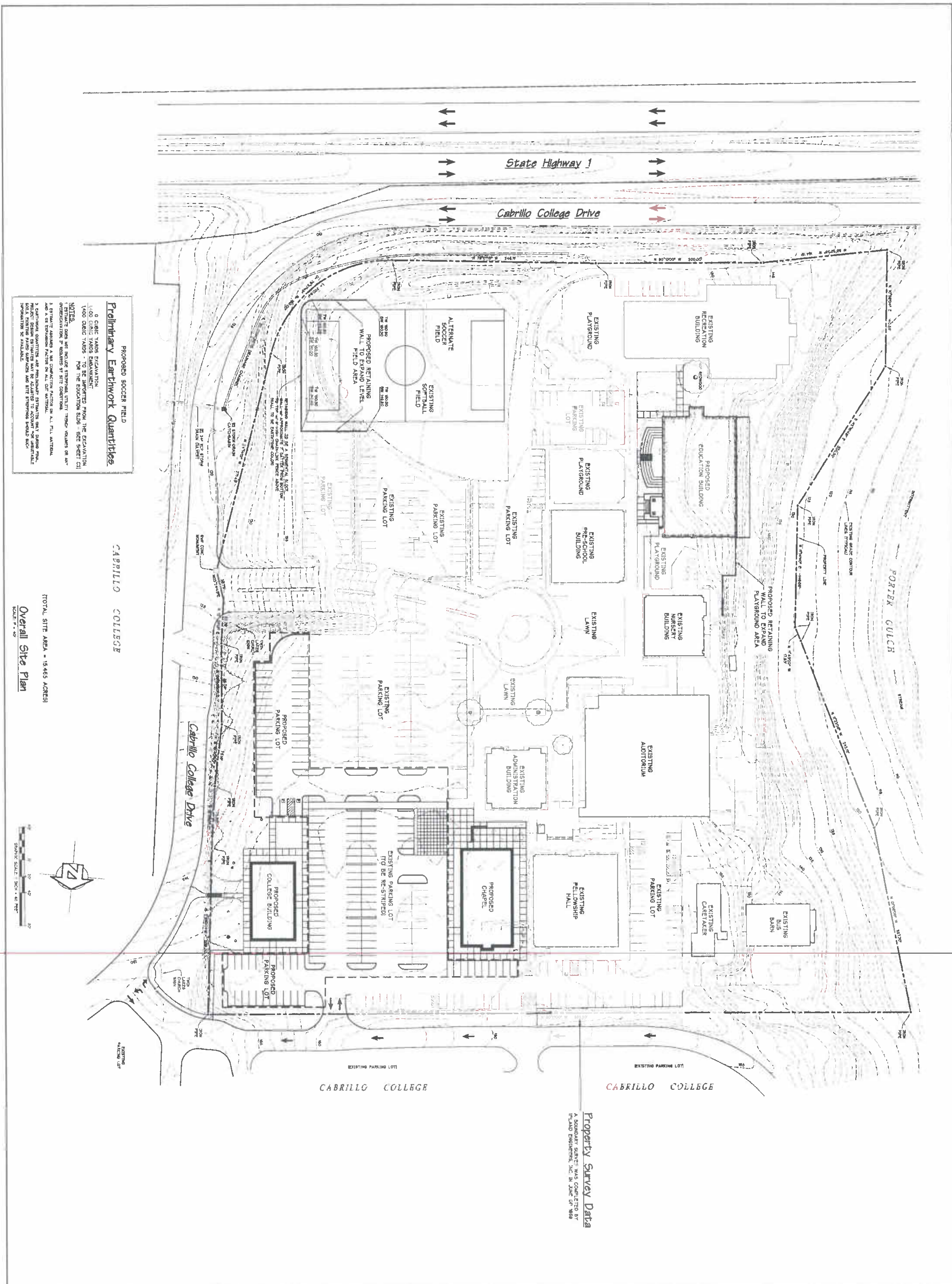
ASSESSORS PARCEL NUMBER 037-251-19

Cover Sheet
Twin Lakes Church
2701 Cabrillo College Drive, Aptos, California

SHEET C0

JOB NO. 08066

ATTACHMENT 2



SHEET	ASSESSOR'S PARCEL NUMBER			Overall Site Plan
C1	037-251-19			Twin Lakes Church
JOB NO. 03066	DATE 03/06/03	DESIGN GHI	DRAWN JAI	2701 Cabrillo College Drive, Aptos, California

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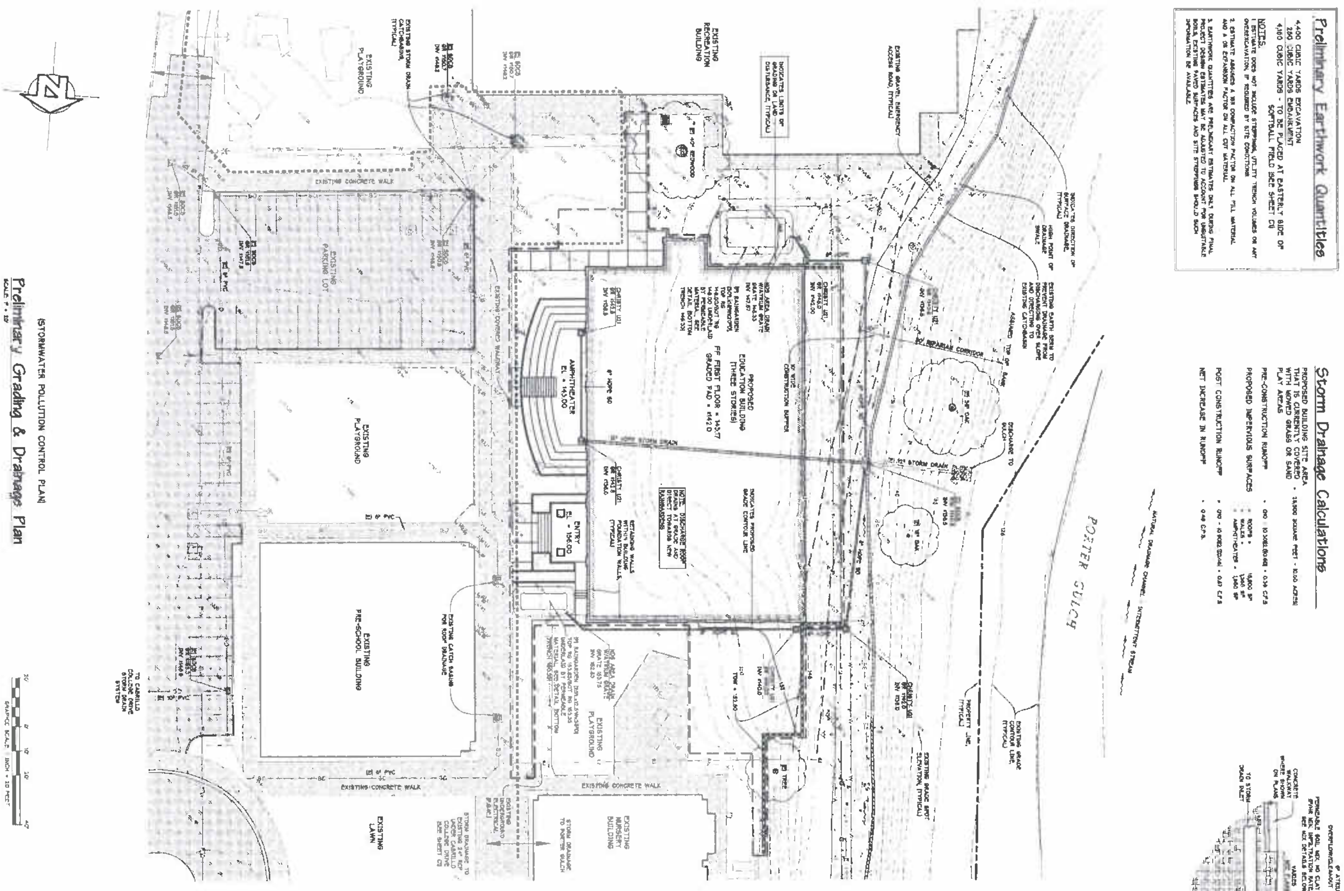

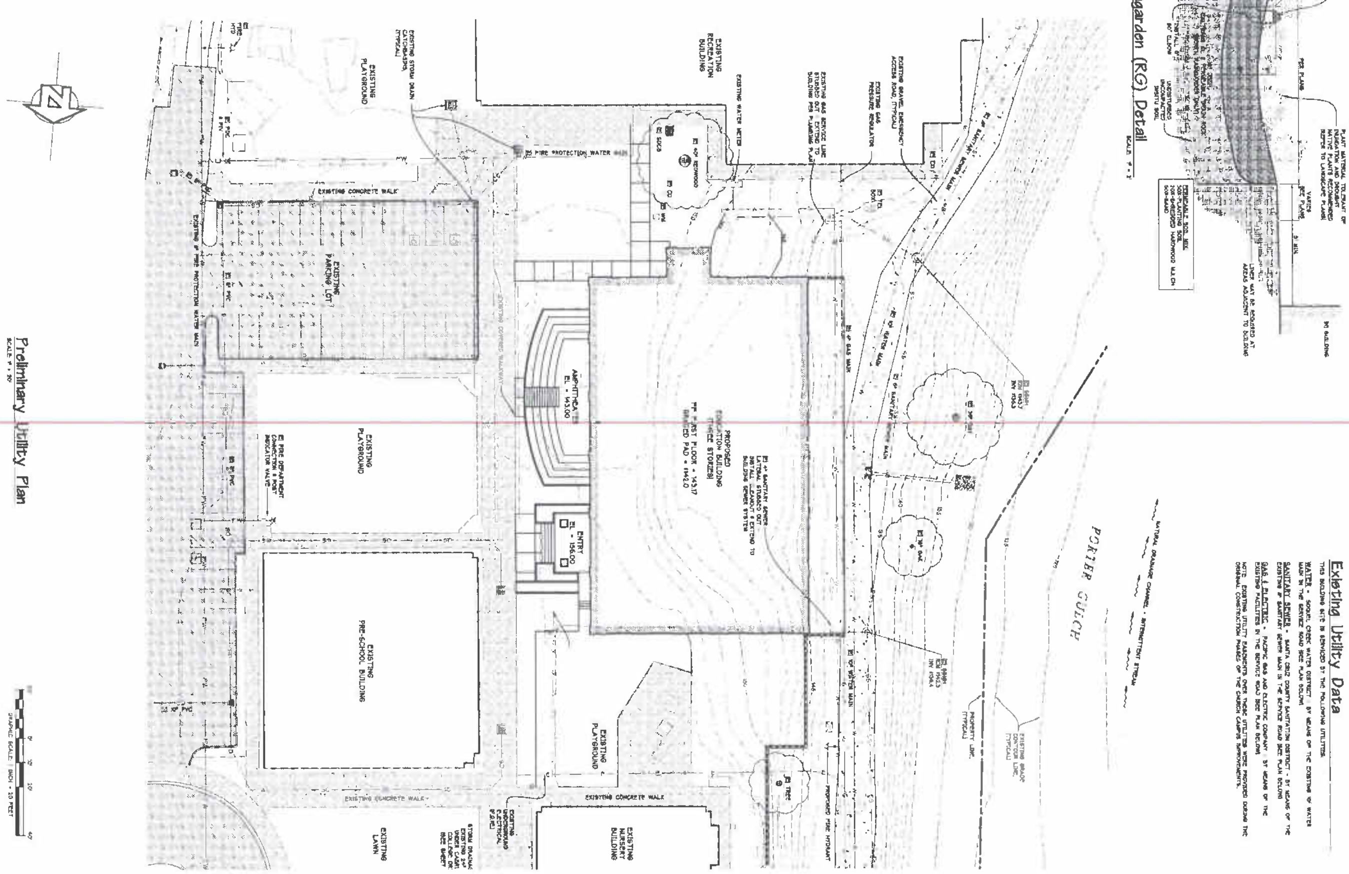

ASSESSOR'S PARCEL NUMBER		
037-251-18		
DATE 08/06/13	DESIGN GHI	DRAWN JAI

SHEET C2

JOB NO. 08086

Preliminary Grading & Drainage and Utility Plans

Twin Lakes Church

2701 Cabrillo College Drive, Aptos, California

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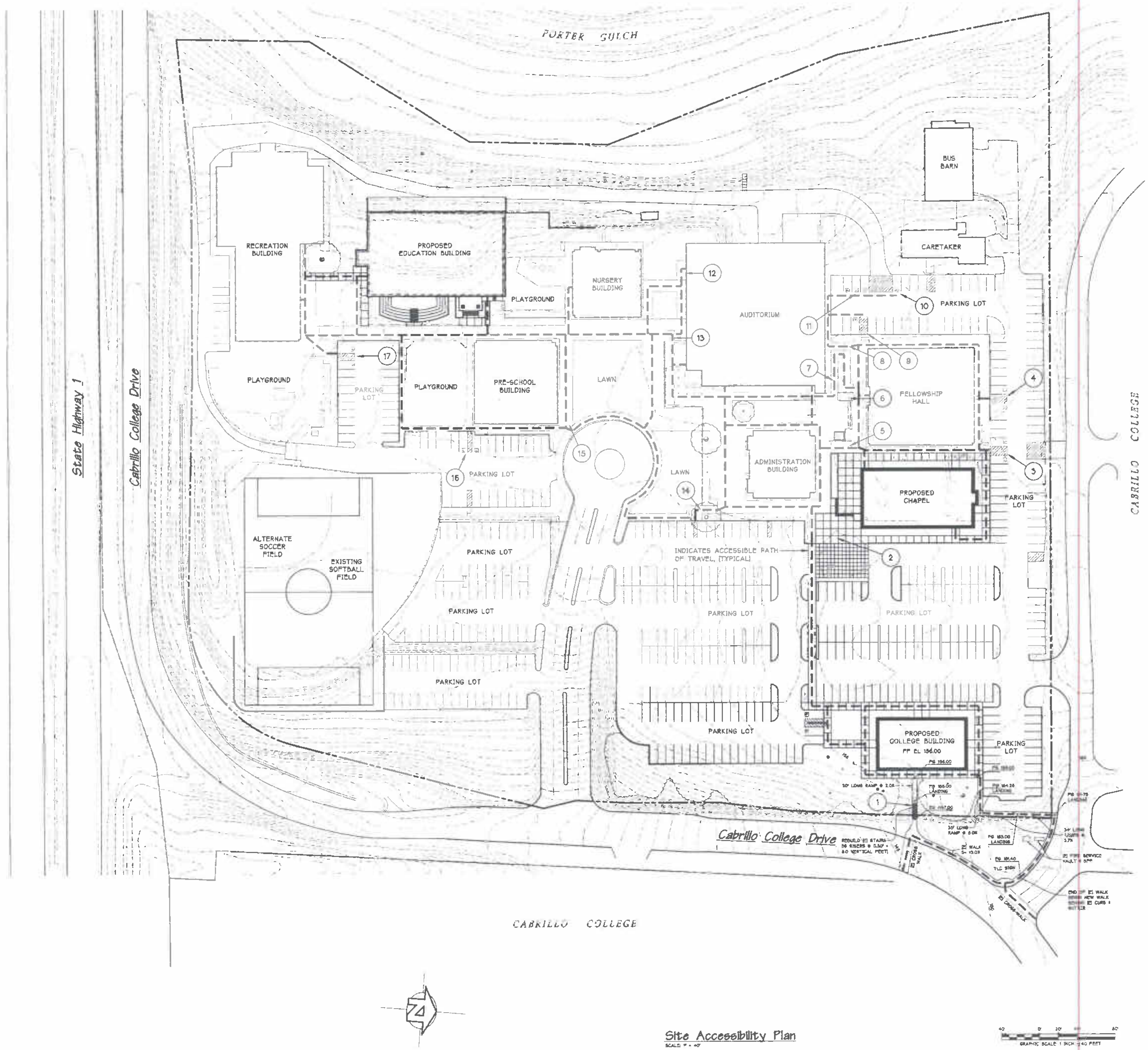

Site Accessibility Plan

SCALE 1" = 40'

GRAPHIC SCALE 1 INCH = 40 FEET

Twin Lakes Church - Accessibility

SITE NO.	EXISTING CONDITIONS & SITE IMPROVEMENTS
1.	EXISTING STAIRWAY FROM CABRILLO COLLEGE DRIVE. THE EXISTING SIDEWALK IS OK. THE STAIRS NEED TO BE REBUILT AND A NEW WALK CONSTRUCTED BEHIND THE CURB OF THE EXISTING SECONDARY ENTRANCE DRIVE. THE CROSS-WALK DOES NOT HAVE CURB RAMPS. HOWEVER, THIS WOULD PROBABLY NOT NEED TO BE PROVIDED BY THE CHURCH
2.	TWO EXISTING PARKING SPACES. NON-CONFORMING. EXISTING AC DIKE ACROSS FRONT. (THESE TWO SPACES WILL BE ELIMINATED WITH THE PROPOSED NEW CONSTRUCTION)
3.	TWO EXISTING PARKING SPACES. CONSTRUCTED SEVERAL YEARS AGO. OK.
4.	TWO EXISTING PARKING SPACES. NON-CONFORMING. EXISTING AC DIKE ACROSS FRONT. REMOVE DIKE. NEED RAMP TO EXISTING CONCRETE SIDEWALK.
5.	EXISTING RAMP. SLOPES AT 6.4%. HAS HAND-RAILS BOTH SIDES. NEEDS GRIPS ADDED
6.	EXISTING RAMP. HAS HAND-RAILS BOTH SIDES. NEEDS GRIPS ADDED.
7.	EXISTING SWITCH-BACK RAMP. BUILT SEVERAL YEARS AGO TO REPLACE ADJACENT NON-CONFORMING RAMP. OK AS IS
8.	EXISTING RAMP. SLOPES 7.2%. HAS HAND-RAILS BOTH SIDES. NEED GRIPS ADDED
9.	TWO EXISTING PARKING SPACES. THE PARKING SPACE ON THE RIGHT SIDE IS OK. THE PARKING SPACE ON THE LEFT SIDE HAS AN AC DIKE IN FRONT. THERE IS NO ACCESS AISLE IN BETWEEN SPACES. REMOVE DIKE. ADD ACCESS AISLE
10.	ONE EXISTING PARKING SPACE. NON-CONFORMING. HAS AC DIKE ACROSS FRONT. REMOVE DIKE.
11.	THREE EXISTING PARKING SPACES. NON-CONFORMING. HAS AC DIKE ACROSS FRONT. REMOVE DIKE. NEEDS WALK AND RAMP ADDED TO FRONT OF SPACES.
12.	EXISTING RAMP. SLOPES AT 8.3%. HAS HAND-RAILS BOTH SIDES. NEEDS GRIPS ADDED
13.	EXISTING NON-CONFORMING RAMP. SLOPES AT 10.0%. THIS RAMP SHOULD BE REMOVED. OR POST SIGN THAT IT IS NOT TO BE USED BY A HANDICAPPED INDIVIDUAL.
14.	EXISTING RAMP. SLOPES AT 6.4%. HAS HAND-RAILS BOTH SIDES. NEEDS GRIPS ADDED
15.	EXISTING CURB RAMP. OTHER THAN THE NEED TO ADD WARNING DETECTION ON RAMP AND GROOVED STRIPS AT BACK OF RAMP, THIS RAMP IS OK
16.	ONE EXISTING PARKING SPACE. NON-CONFORMING. HAS AC DIKE ACROSS FRONT. REMOVE DIKE. NEEDS RAMP TO EXISTING CONCRETE SIDEWALK IN FRONT
17.	TWO EXISTING PARKING SPACES. BOTH SPACES ARE OK AS IS

CODE REQUIRES THAT 2% OF THE TOTAL NUMBER OF PARKING SPACES ARE TO BE ADA COMPLIANT

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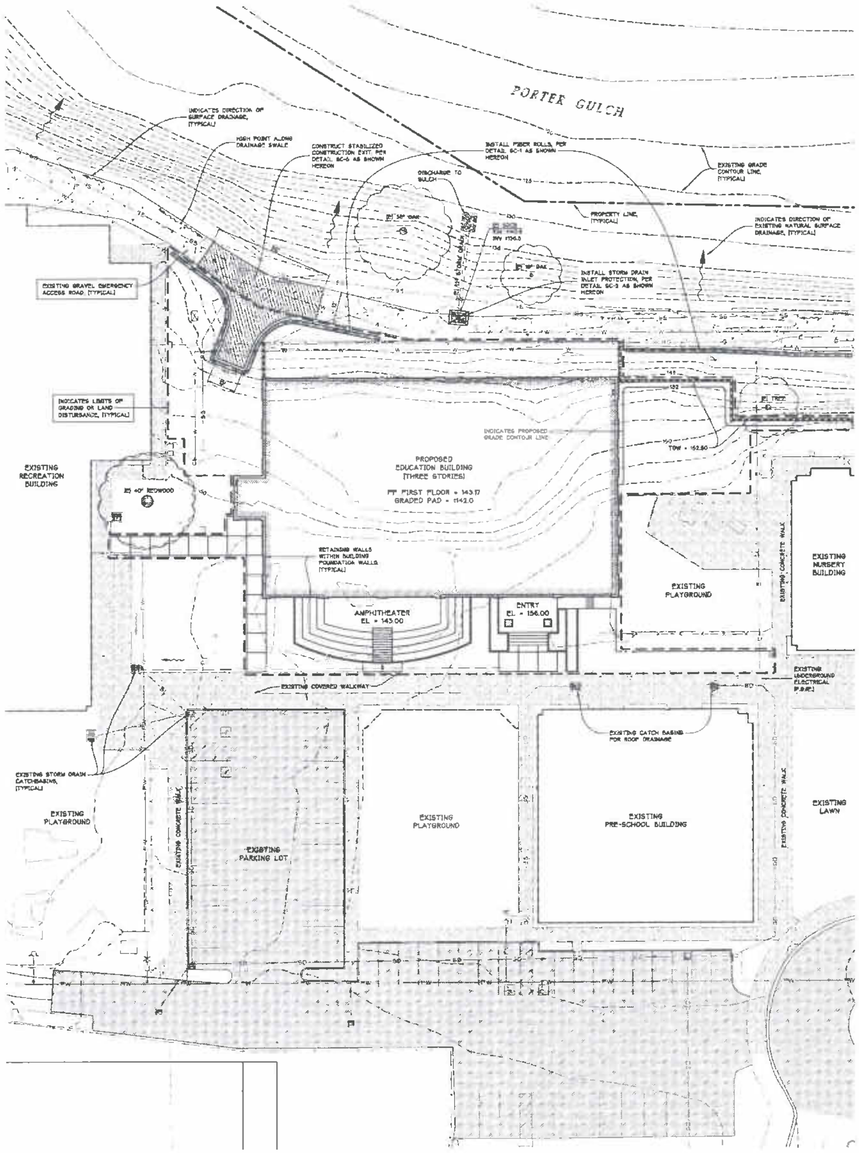
Site Accessibility Plan
Twin Lakes Church
2701 Cabrillo College Drive, Aptos, California

ASSESSOR'S PARCEL NUMBER
037-251-19

DATE	DESIGN	DRAWN
05/06/15	GHI	JAT

SHEET C3

JOB NO. 08066



PROPOSED CONSTRUCTION SCHEDULE

START CONSTRUCTION = APRIL 15, 2014
INSTALL ALL EROSION CONTROL MEASURES = OCTOBER 15, 2014
COMPLETE ALL CONSTRUCTION = SEPTEMBER, 2015

NOTE: THERE ARE NO SEPTIC TANKS OR LEACH FIELDS ON THIS SITE

Preliminary Site Erosion Control Plan
SCALE: 1" = 20'

GRAPHIC SCALE: 1 INCH = 20 FEET

Figure SC-1 Fiber Rolls

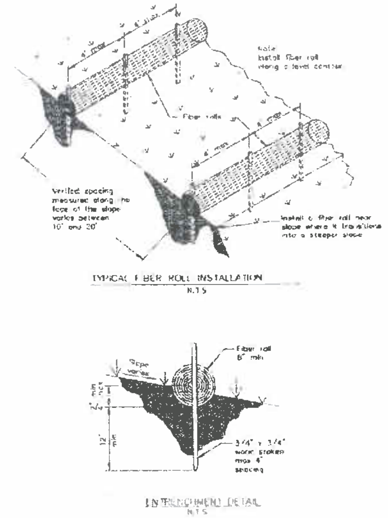
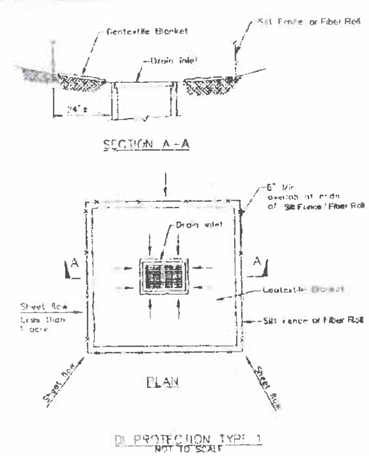
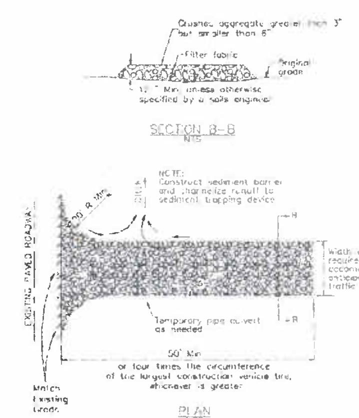


Figure SC-3 Storm Drain Inlet Protection



NOTES:
1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

Figure SC-5 Stabilized Construction Exit



County Standard Stormwater Pollution Control Details
NOT TO SCALE

Santa Cruz County Stormwater Pollution Control Site Housekeeping Requirements

CONSTRUCTION MATERIALS
- ALL LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (i.e. SOIL, SPOILS, AGGREGATE, FLY-ASH, STUCCO, HYDRATED LIME, ETC.) SHALL BE COVERED AND BERMED.
- ALL CHEMICALS SHALL BE STORED IN WATERTIGHT CONTAINERS (WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT ANY SPILLAGE OR LEAKAGE) OR IN A STORAGE SHED (COMPLETELY ENCLOSED).
- EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION SHALL BE MINIMIZED. THIS DOES NOT INCLUDE MATERIALS AND EQUIPMENT THAT ARE DESIGNED TO BE OUTDOORS AND EXPOSED TO ENVIRONMENTAL CONDITIONS (i.e. POLES, EQUIPMENT PADS, CABINETS, CONDUCTORS, INSULATORS, BRICKS, ETC.)
- BEST MANAGEMENT PRACTICES TO PREVENT THE OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS SHALL BE IMPLEMENTED.

WASTE MANAGEMENT
- DISPOSAL OF ANY RINSE OR WASH WATERS OR MATERIALS ON IMPERVIOUS OR PERVIOUS SITE SURFACES OR INTO THE STORM DRAIN SYSTEM SHALL BE PREVENTED.
- SANITATION FACILITIES SHALL BE CONTAINED (e.g. PORTABLE TOILETS) TO PREVENT DISCHARGES OF POLLUTANTS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER, AND SHALL BE LOCATED A MINIMUM OF 20 FEET AWAY FROM AN INLET, STREET OR DRIVEWAY, STREAM, RIPARIAN AREA OR OTHER DRAINAGE FACILITY.
- SANITATION FACILITIES SHALL BE INSPECTED REGULARLY FOR LEAKS AND SPILLS AND CLEANED OR REPLACED AS NECESSARY.
- COVER WASTE DISPOSAL CONTAINERS AT THE END OF EVERY BUSINESS DAY AND DURING A RAIN EVENT.
- DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER SHALL BE PREVENTED.
- STOCKPILED WASTE MATERIAL SHALL BE CONTAINED AND SECURELY PROTECTED FROM WIND AND RAIN AT ALL TIMES UNLESS ACTIVELY BEING USED.
- PROCEDURES THAT EFFECTIVELY ADDRESS HAZARDOUS AND NON-HAZARDOUS SPILLS SHALL BE IMPLEMENTED.
- EQUIPMENT AND MATERIALS FOR CLEANUP OF SPILLS SHALL BE AVAILABLE ON SITE AND THAT SPILLS AND LEAKS SHALL BE CLEANED UP IMMEDIATELY AND DISPOSED OF PROPERLY; AND
- CONCRETE WASHOUT AREAS AND OTHER WASHOUT AREAS THAT MAY CONTAIN ADDITIONAL POLLUTANTS SHALL BE CONTAINED SO THERE IS NO DISCHARGE INTO THE UNDERLYING SOIL AND ONTO THE SURROUNDING AREAS.

VEHICLE STORAGE AND MAINTENANCE
- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK IN TO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ONSITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMPs.

LANDSCAPE MATERIALS
- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED.
- CONTAIN FERTILIZERS AND OTHER LANDSCAPE MATERIALS WHEN THEY ARE NOT ACTIVELY BEING USED.
- DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN 2 DAYS BEFORE A FORECASTED RAIN EVEN OR DURING PERIODS OF PRECIPITATION.
- APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURE RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL.
- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.

ASSESSOR'S PARCEL NUMBER 037-251-19
DATE 08/08/13 | DESGN GHI | DRAWN JAI

Preliminary Site Erosion Control Plan, Notes & Details
Twin Lakes Church
2701 Cabrillo College Drive, Aptos, California

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APPROVED
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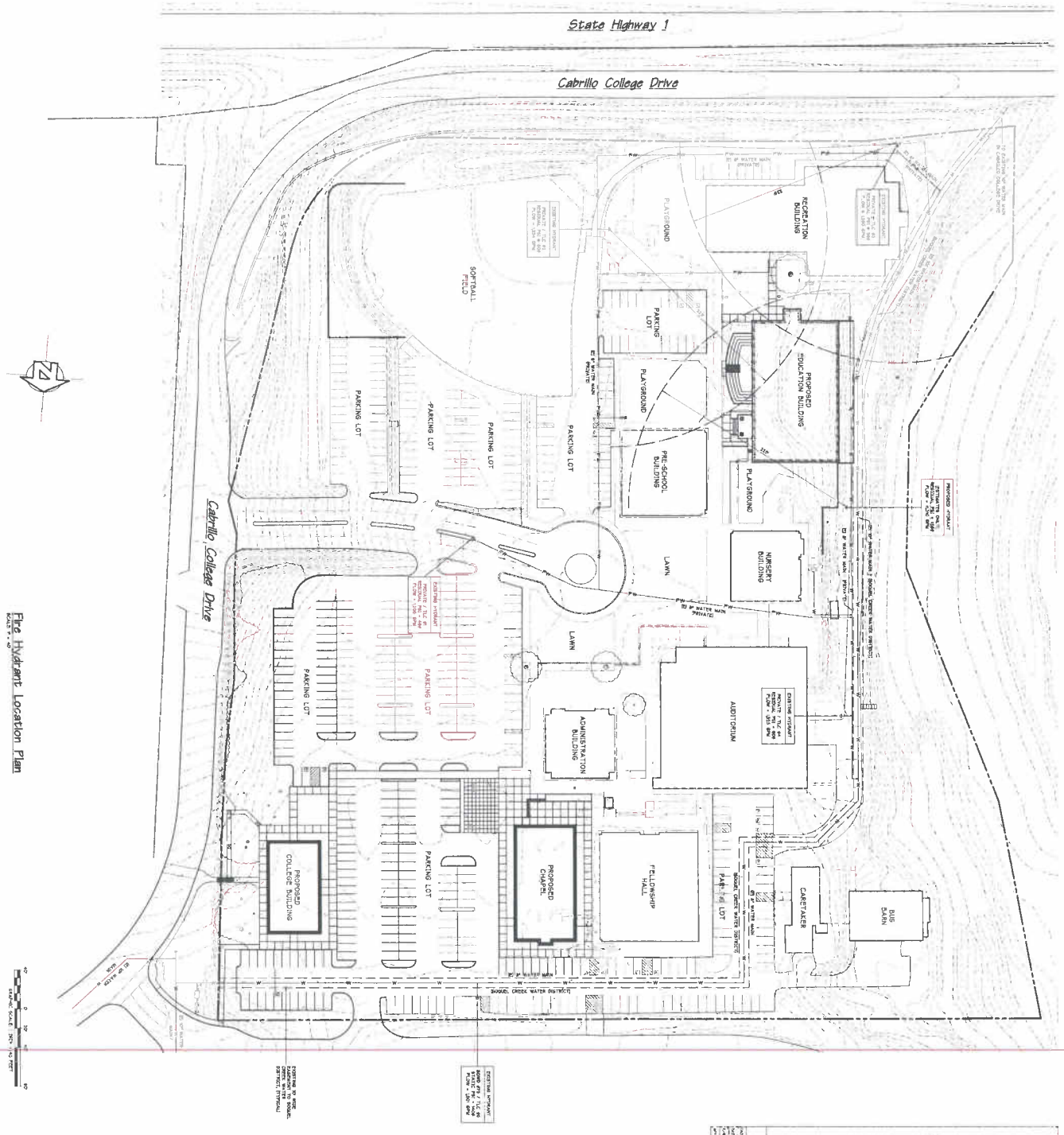
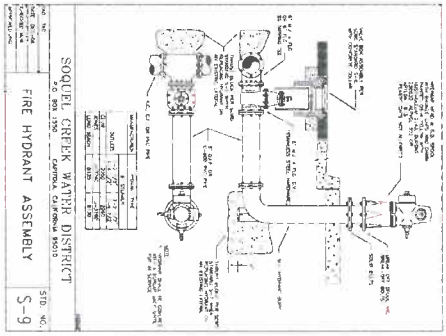
SHEET C4
JOB NO. 08066



Fire Hydrant Location Plan



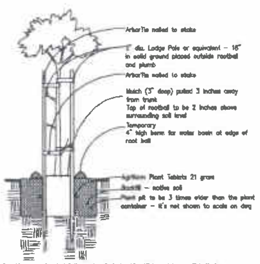
FH1	ASSESSOR'S PARCEL NUMBER 037-251-19	Fire Hydrant Location Plan Twin Lakes Church 2701 Cabrillo College Drive, Aptos, California	IFLAND ENGINEERS CIVIL ENGINEERING • LAND PLANNING • STRUCTURAL DESIGN 5200 SOQUEL AVE, STE 101 SANTA CRUZ, CA 95062 TEL (831) 426-5313 FAX (831) 426-1763 www.ifandengineers.com
DATE 06/06/13	DESIGN RHI	DRAWN JAS	For Plan Check Only

Plant List

KEY	SIZE	BOTANICAL NAME	COMMON NAME
TREES			
SS	15	Sequoia sempervirens	Coast Redwood
PC	15	Pistacia chinensis	Chinese Pistache
BP	15	Transplant Ex. Birch Trees or replace with 15 gal. size	Birch
SHRUBS			
DV	5	Dietes vegeta	Fortnight Lily
RP	2	Flower Carpet Rose - Bright Pink	
RAIN GARDEN			
JP	plug	Juncus patens 2' O.C. in rain garden areas	Rush

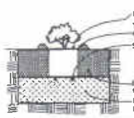
Plant Notes

1) Final construction plans to include irrigation plan that meets the requirements of the County and Soquel Creek Water District Landscape Water Conservation Rules
2) Install a 3 inch layer of top dress mulch in all planting areas. Bid dark brown mahogany colored Wonder Mulch from Vision Recycling in Watsonville. Pull mulch 3" from shrub and tree stems and trunks.



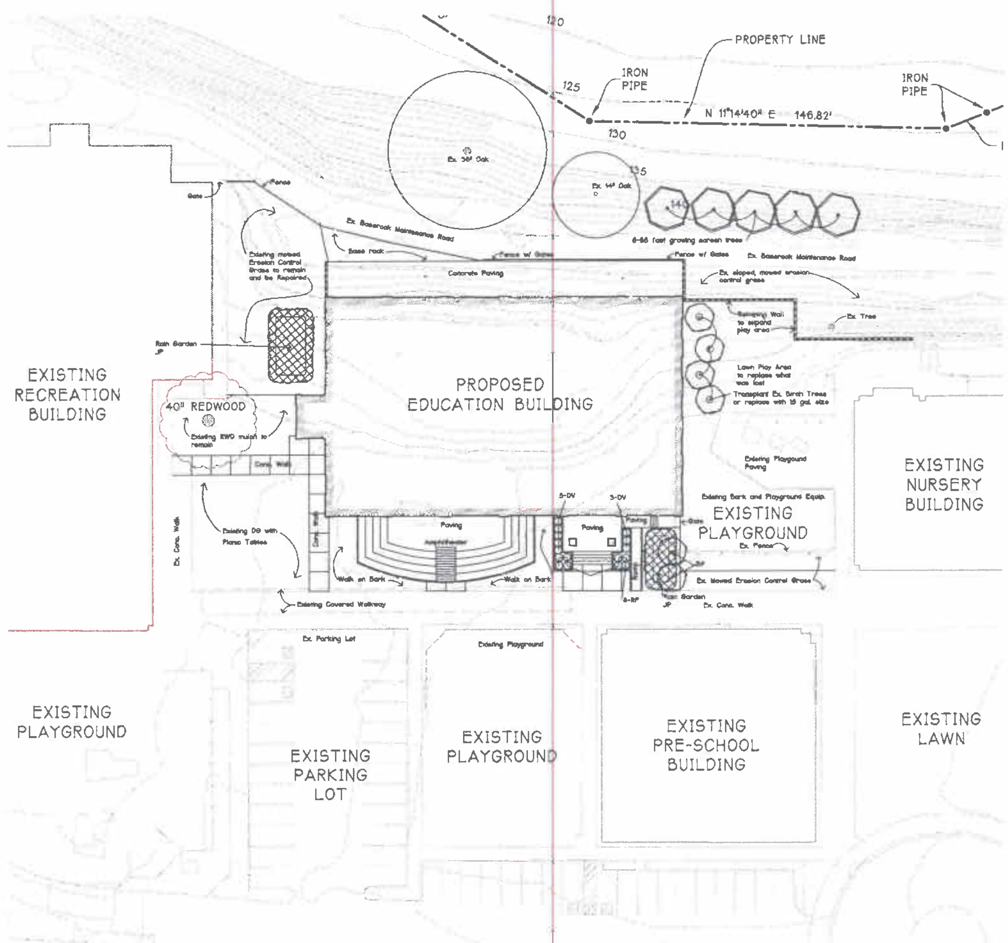
1) 8 - 12 hours before installation, water all plants while still in containers sufficiently to thoroughly wet root balls
2) Dig hole at least 2" less deep than the container and 3 times wider than the diameter of the container the plants were delivered in.
3) Gouge holes in the side of the plant pit - 2 holes per sq. ft. of soil surface
4) Remove rootball carefully from container with support from below. Sever any circling roots (3/16" dia. or greater) with sharp knife. Do not pull roots apart. The severing of large roots will encourage new roots at the cuts. Install enough backfill under root ball so top of rootball ends up 2" above grade of surrounding soil when it settles. Install some of fertilizer packets under root ball.
5) Fill around rootball with backfill mix to 1/2 its height and pack soil as you fill with shovel handle or feet being careful not to disturb root ball
6) Put Agriform Plant Tablet fertilizer at this level adjacent to rootball and at bottom of hole (5 tablets per 15 gal. or 5 tablets per 1 inch of caliper width. Fill the remainder of the hole with backfill and pack it.
7) Water tree thoroughly by filling the basin and allowing the water to percolate in, doing this 3 times or more until root ball and backfill is wet
8) Install stakes such that the stakes and the tree ties won't damage the tree and the stakes won't lean toward each other. Cut off tops of stakes if necessary to lower below branches that could be rubbed by stakes. Install stakes so they are straight up and don't lean in to each other

Tree Planting
No Scale



1) 8 - 12 hours before installation, water all plants while still in containers sufficiently to thoroughly wet root balls
2) Dig the plant hole at least 3 times the dia. and 2 times the depth of the plant container
3) Replace this mixture in bottom half of hole and walk on it. The level of it should be such that when the plant is installed and settled it will be slightly above grade of existing soil. Fill hole with water
4) Remove rootball carefully from container by tapping out, not pulling out by the stem. Scarify rootball walls in 3 vertical cuts and bottom to 1/2" deep, or by cutting roots of 1/2" or larger with shears. Do not pull roots apart.
5) Install fertilizer packets under rootball of plant. Set rootball on prepared surface and fill hole to 1/2 the depth, tamping soil around rootball. Fill hole with water.
6) Fill the remainder of the hole with backfill and pack it but do not tamp rootball.
7) Make the water basin.
8) Water shrub thoroughly within 1 hour of planting by filling the basin and allowing the water to percolate in, doing this 3 times or more until root ball and backfill is wet
9) Install mulch

Shrub Planting
No Scale



Landscape Plan
SCALE: 1" = 10'

GRAPHIC SCALE: 1 INCH = 10 FEET

For Plan Check Only

GREGORY LEWIS LANDSCAPE ARCHITECT #2176
136 Park Way Santa Cruz, CA 95060 (831) 425-4747

Conceptual Site Plan

Twin Lakes Church

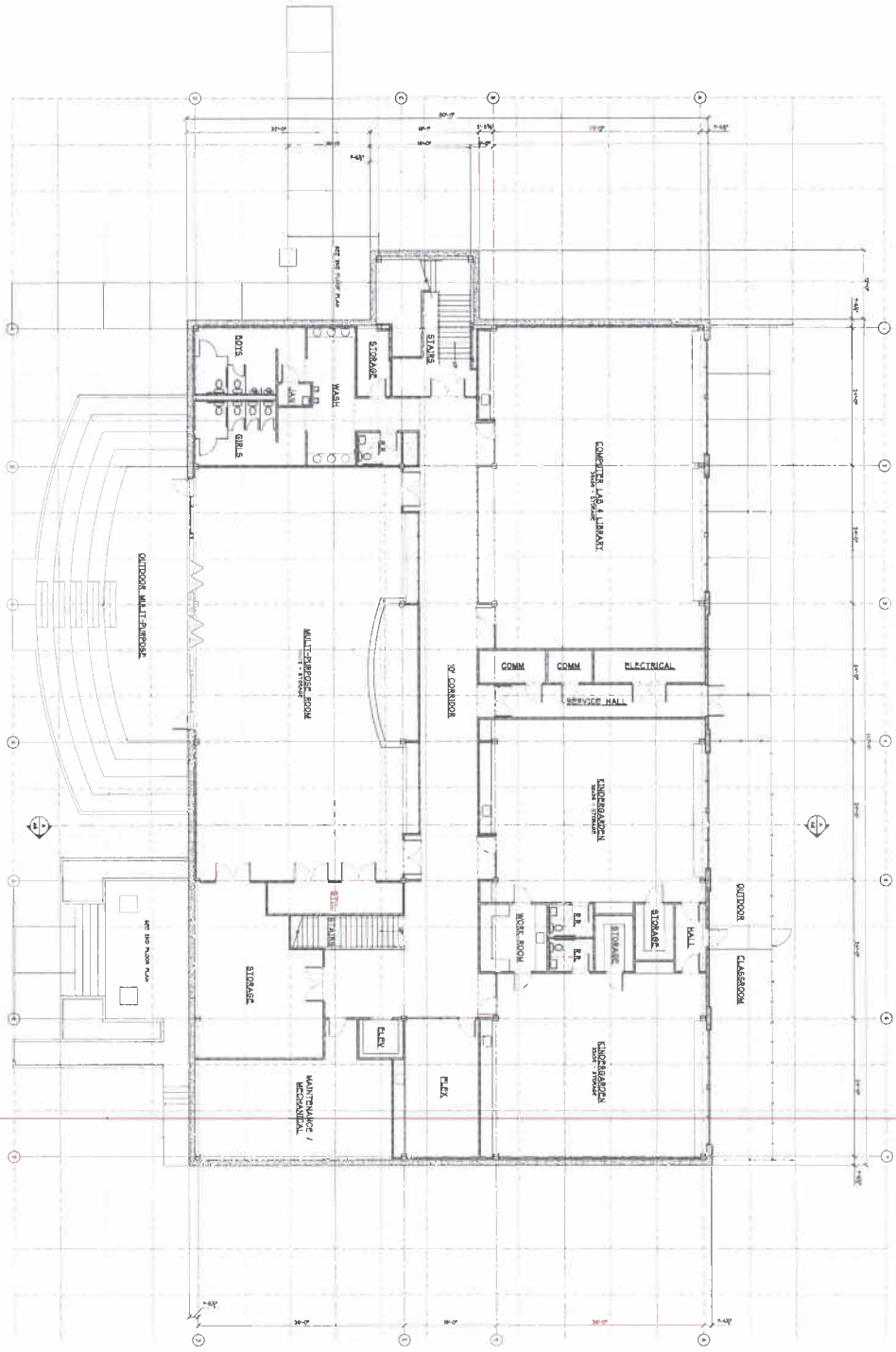
2701 Cabrillo College Drive, Aptos, California

ASSESSOR'S PARCEL NUMBER 037-251-19

DATE 06/06/13 | DESIGN GL | DRAWN GL

SHEET L1

JOB NO. 08066



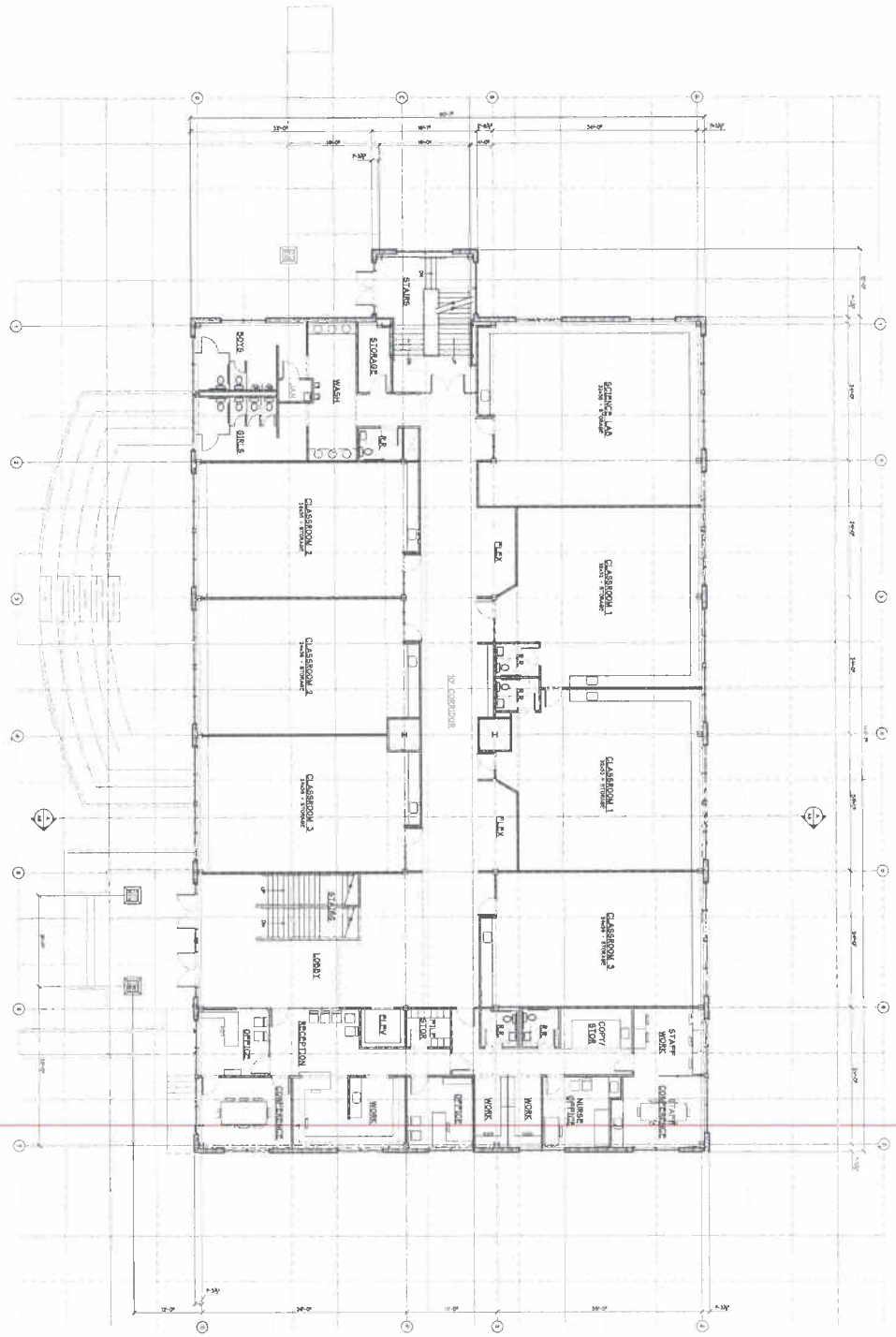
1st Floor - Floor Plan

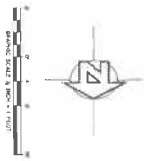
SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

A1	ASSESSOR'S PARCEL NUMBER 037-251-19	1st Floor - Floor Plan Twin Lakes Church 2701 Cabrillo College Drive, Aptos, California	IFLAND ENGINEERS CIVIL ENGINEERING • LAND PLANNING • STRUCTURAL DESIGN 5200 SOQUEL AVE, STE 101 SANTA CRUZ, CA 95062 TEL (831) 426-5313 FAX (831) 426-1763 www.ifandengineers.com
DATE 06/06/13	DESIGN RT	DRAWN DD	03 FOR PLAN CHECK REVIEW COMMENTS 08/15/13 For Plan Check Only

2nd Floor - Floor Plan





SHEET A2	ASSESSOR'S PARCEL NUMBER 037-251-19	2nd Floor - Floor Plan	
	DATE 08/08/13	DESIGN RJ	DRAWN DD
		Twin Lakes Church	
		2701 Cabrillo College Drive, Aptos, California	

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3nd Floor - Floor Plan

SHEET	ASSESSOR'S PARCEL NUMBER		
A3	037-251-19		
	DATE	DESIGN	DRAWN
	06/06/13	RI	DD

3rd Floor - Floor Plan

Twin Lakes Church

2701 Cabrillo College Drive, Aptos, California

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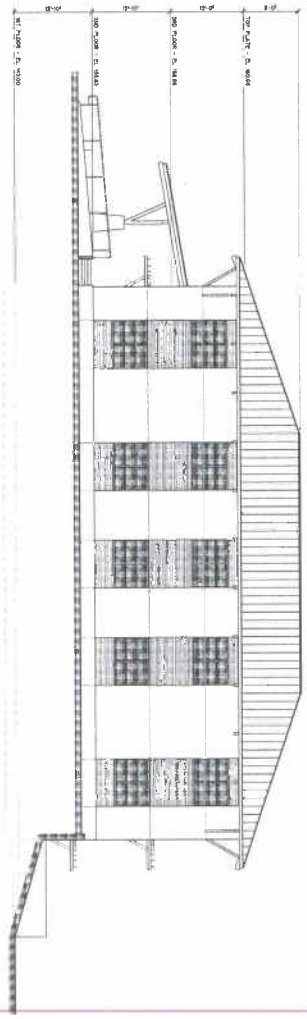
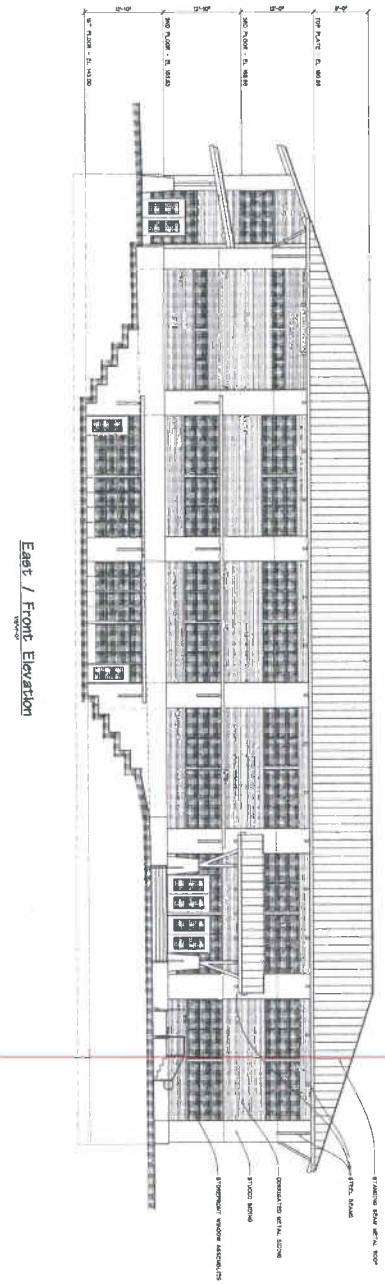


North / Side Elevation



East / Front Elevation

ASSESSOR'S PARCEL NUMBER: 037-251-19			Exterior Elevations
			Twin Lakes Church
DATE: 09/06/13	DESIGN: RE	DRAWN: DD	2701 Cabrillo College Drive, Aptos, California

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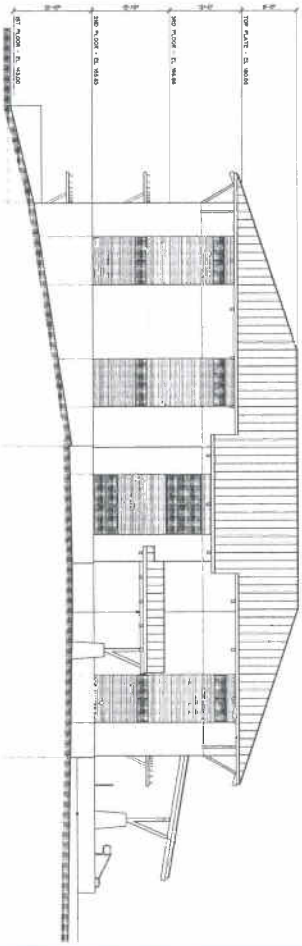

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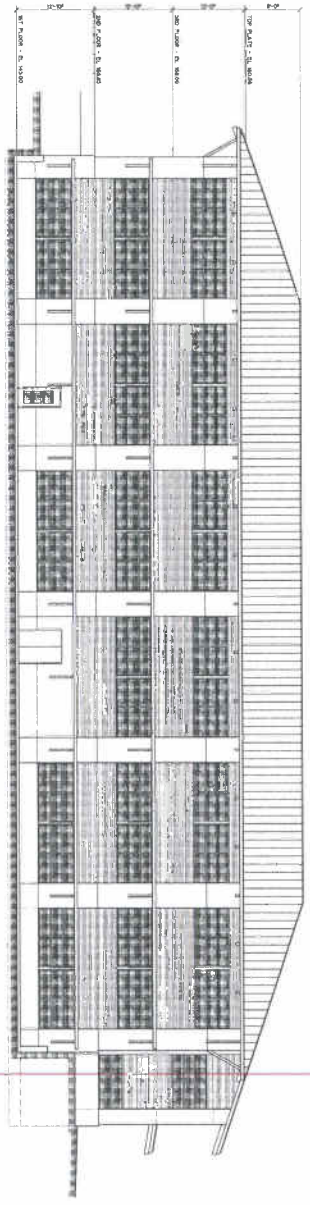

West / Rear Elevation

A5

ASSESSOR'S PARCEL NUMBER
037-251-19

DATE 06/06/13 | REVISION RJ | DRAWN DD

Exterior Elevations

Twin Lakes Church

2701 Cabrillo College Drive, Aptos, California

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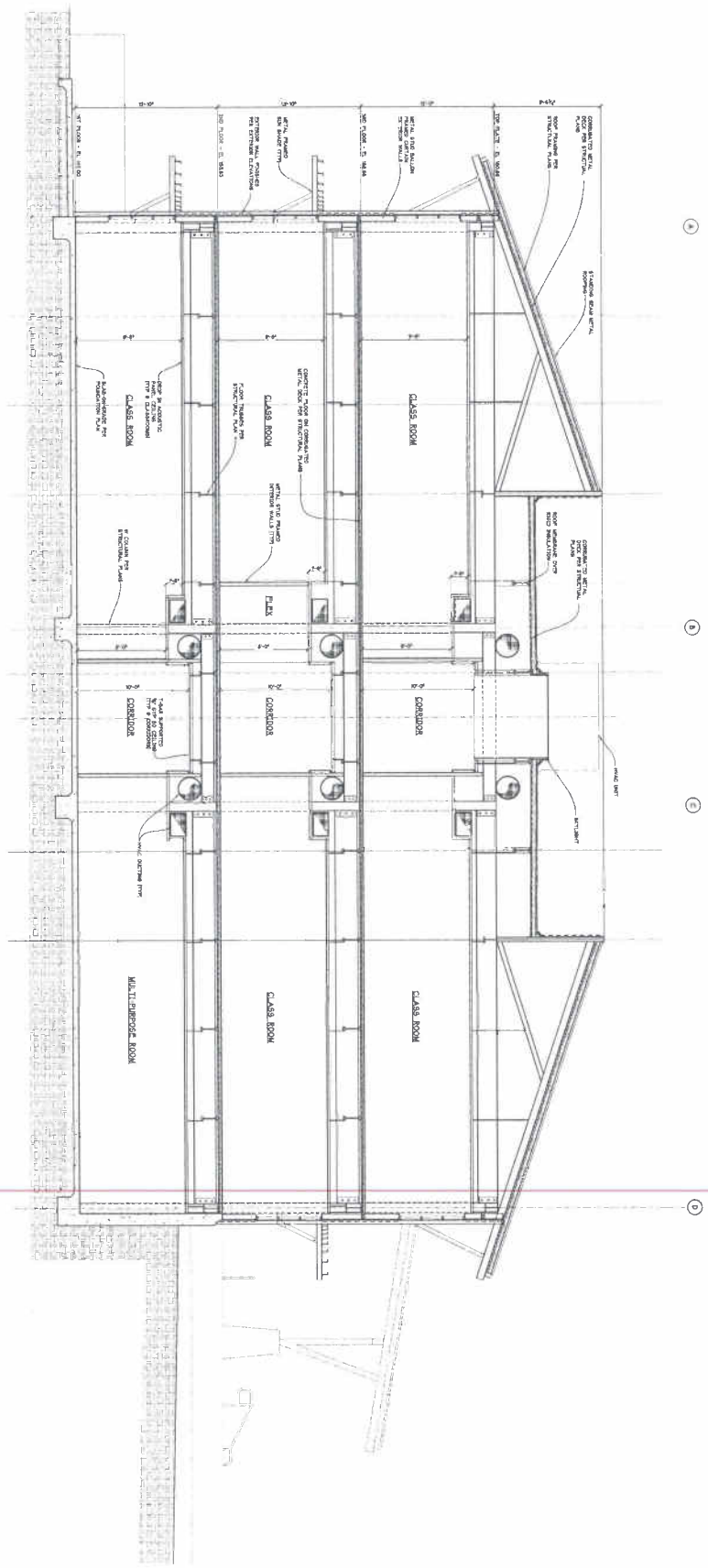

Building Section A

ASSESSOR'S PARCEL NUMBER
037-251-19

Sections

Twin Lakes Church

2701 Cabrillo College Drive, Aptos, California

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Composite Elevation - West
A7.0

Composite Elevation - East
A7.0

Education Building Height
A7.0

GEOTECHNICAL INVESTIGATION
FOR
TWIN LAKES CHURCH
CAMPUS BUILDING ADDITIONS
2701 CABRILLO COLLEGE DRIVE
APTOS, CALIFORNIA

For
Twin Lakes Church

By
HARO, KASUNICH & ASSOCIATES, INC.
Geotechnical & Coastal Engineers
Project No. SC10149
August 2011

ATTACHMENT 3

HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project No. SC10149
9 August 2011

PASTOR MARK SPURLOCK, EXECUTIVE PASTOR
Twin Lakes Church
2701 Cabrillo College Drive
Aptos, California 95003

Subject: Geotechnical Investigation

Reference: Twin Lakes Church
Campus Building Addition
2701 Cabrillo College Drive
Aptos, California

Dear Pastor Spurlock:

In accordance with your authorization, we have performed a geotechnical investigation for the referenced project located at 2701 Cabrillo College Drive, Aptos, California. This study was performed in general accordance with our proposal No. P10-105, revised date 19 April 2011.

The accompanying report presents the results of our investigation for the proposed improvements at the referenced property. This report presents the results of our investigation, the geotechnical-related design criteria, and the recommendations for design and construction of the building additions to the campus. We are providing design criteria for conventional spread footing foundation system as a means to support the structures.

We appreciate being of service to you in the geotechnical engineering phase of this project, and are prepared to assist you during the design development and construction phases as well. Given design details and loading conditions have not been developed, additional engineering analyses are required and may require additional exploration and testing services as well.

If you have any questions concerning the results, conclusions or recommendations presented in this report, please contact our office.

Respectfully Submitted,

HARO, KASUNICH AND ASSOCIATES, INC.

Joseph A. Haro
C.E. 28506

JAH/sr
Copies: 2 to Addressee
3 to Ifland Engineers, Inc. (also via e-mail)
1 to Robert Corbett Architect

Project No. SC10149
9 August 2011

TABLE OF CONTENTS

TABLE OF CONTENTS' CONTINUED

Project No. SC10149
9 August 2011

GEOTECHNICAL INVESTIGATION
1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed building additions to the Twin Lakes Church campus improvements at 2701 Cabrillo College Drive, Aptos, California (Figure 1). Although no final improvement plans had been prepared at the time of this study, Haro, Kasunich and Associates (HKA) understands, based on a conceptual plan, the project will entail construction of the following structures and the parking lot expansion:

- Single story student outreach center;
- Two story administration building;
- High single story chapel;
- Two story youth education building; and
- Parking lot expansion and upgrade.

Details and location are discussed in the following paragraph.

The focus area of our investigation is shown on Figure No. 4 which depicts the respective proposed building sites within the campus. We were provided a topographic map (Figure 5) of the site prepared by Ifland Engineers, Inc. and a proposed building plot plan (Figure 4) depicting proposed improvement building site areas prepared by Robert Corbett, Architect. Geotechnical Cross Section A-A' (Figure 6 in Appendix A) was prepared by our

staff with the aide of the topographic map prepared for the project site. The Cross Section is for illustrative purposes to provide an estimation of lateral earth pressures at different locations along the cross-section line. The locations of the landmarks and exploratory borings were not surveyed under Haro, Kasunich and Associates (HKA) contract. Therefore, the cross section should not be relied upon for locating the exact locations of the proposed improvements and existing site features.

The above project description is based on conceptual information provided to HKA. If the actual project differs from that described by HKA, HKA should be contacted to review those plan changes and in particular proposed grading, and to see if our preliminary conclusions and recommendations are still appropriate and/or to present modifications to address the final project development proposed.

1.1 Project Description

Haro, Kasunich and Associates understands the project in concept will be similar to existing development and structure elements. The proposed buildings range from single to two stories in height. The parking area along the northeastern side of the property (nearest the Youth Outreach Center) will be extended.

1.2 Purpose and Scope

The purpose of this investigation was to determine the nature and engineering properties of the subsurface soils and to provide preliminary recommendations regarding general site grading and foundation design and construction. The information herein is preliminary and although can be used for design of the project, further review and evaluation by HKA is considered necessary as the project unfolds. The final grading plan should be reviewed for compliance with the earthwork recommendations.

To evaluate the geotechnical considerations for the project, we performed the following scope of work:

1. Site reconnaissance to evaluate the surficial site conditions of the respective building sites and to outline the geotechnical requirements. Review available data in our files regarding the site and vicinity. Premarked test boring site locations and notifying USA Underground, a service alert company, of the field exploration. Discussions about the proposed project with Bob Corbett, the Project Architect and Jon Ifland of Ifland Engineers, Inc.

2. Field exploration program consisting of logging and interval sampling of ten (10) test bore holes that encompass the footprints of the three proposed structures to determine the subsurface profile and the strength characteristics of the

underlying soils. Test bore holes were drilled to depths of 18.0 to 41.5 feet. The soil samples obtained were sealed and returned to the laboratory for testing.

3. Preparation of one (1) geotechnical cross section for illustrative purposes in explaining subsurface conditions across the area of proposed Education building. The geotechnical cross section was developed using the topographic map and subsurface information obtained during the field drilling operation. The cross-section ground surface profile was extended down to Porter Gulch drainage channel.

4. Representative samples of the site soils were tested in the laboratory to aid in the soil classification and to evaluate relevant engineering properties of the site soils. These tests include:

- Classification of soils (USC) (ASTM Standard D2488)
- In situ moisture contents and dry densities (ASTM Standard D2216)
- Grain size distribution (ASTM Standard D422)
- Direct Shear (ASTM Standard D3080)
- Plasticity Index Test (ASTM Standard D4318)

5. Engineering analysis and evaluation of field and laboratory data to develop lateral earth pressures and foundation design criteria. A slope stability screening analysis of the hillside subsurface to the Education building site was also performed.

6. Preparation of this report summarizing the data obtained and test results for the site, and our preliminary conclusions and recommendations regarding;

- USGS Geologic Map description;
- Soil and groundwater conditions encountered;
- Potential for the project site area to be impacted by geologic hazards such as seismic shaking, fault rupture, liquefaction, landsliding, or slope instability;
- Anticipated site grading and foundation support for the improvements; and
- Construction considerations.

1.3 Site Location and Conditions

The Twin Lakes Church campus is located at 2701 Cabrillo College Drive in Aptos, California (see Figure No. 1 in the Appendix). The church property based on the Ifland site plan is an approximately 15 acre parcel with existing structures and ancillary

improvements. The overall topographic relief of the area ranges from elevation 150 feet to elevation 155 feet within the campus grounds with moderate to steep slopes descending towards Cabrillo College Drive and Porter Gulch to the south, east and west respectively. Under the previous development, it is likely a near level cut/fill graded area was constructed.

The existing church campus consists of six (6) permanent buildings and four (4) modular buildings, playground areas and parking facilities. The modular buildings are to be relocated making way for the chapel. The existing parking area has paved access driveway along the east side of the property with frontage on Cabrillo College Drive. We understand existing structures are supported by conventional spread footings embedded approximately 1.5 feet bgs.

2.0 SITE EXPLORATION PROCEDURES

The scope of the services performed for this project included site reconnaissance by a field engineer, a subsurface exploration program, laboratory testing and engineering analysis.

2.1 Field Exploration

The field exploration program was modified from our proposed scope of work because of site access and accessibility considerations. Therefore, instead of one day drilling

operation with a truck mounted rig we had to return with a tractor mounted drill rig to complete the field work.

Subsurface conditions were investigated on the 19th and 23rd day of May 2011. Ten (10) test bore holes were advanced; four at the Student Outreach Center building; three at the Chapel/Administration building and three at the Education building. The borings were advanced using a continuous flight drill rig mounted on a truck and on a tractor equipped rig.

The borings were located in the field by measuring or stepping off from the existing site features and/or improvements based upon the provided Site Plan. The accuracy of the boring locations should only be assumed to the level implied by the methods used. The approximate locations of the test borings are indicated on the Boring Site Plan (see Figure 5 in the Appendix A).

Logs of Borings were recorded by the field engineer during the drilling operations. The soil encountered in the borings was continuously logged in the field and described in accordance with the Unified Soil Classification System. The Logs of Test Borings are included in the Appendix of this report (Figures 8 to 18).

Representative soil samples were obtained from the exploratory borings at selected depths, or at major strata changes. These samples were recovered using either a 3.0 inch outside diameter (O.D.) Modified California Sampler (L) or a 2.0 inch O.D. Standard Penetration (Terzaghi) Sampler (T). Penetration resistance measurement noted on the boring logs were obtained as the sampler was dynamically driven into the in situ soil. The process was performed by dropping a 140-pound hammer from a 30-inch free fall distance, driving the sampler up to 18 inches, and recording the number of blows for each 6-inch penetration interval. The blows recorded on the boring logs represent the accumulated number of blows that were required to drive the sampler the last 12 inches. The penetration resistance value is a useful index to the consistency, relative density or hardness of the earth materials encountered.

The Boring Logs denote subsurface conditions at the locations and time observed, and it is not warranted that they are representative of subsurface conditions at other locations or times. Stratification lines shown on the logs represent the approximate boundaries between soil types; actual transitions may be gradual.

As part of the field study, a geotechnical cross section was constructed using topographic information provided to HKA. Section A-A' slices through the Education Building and the descending slope at Porter Gulch. Information from our test bore holes were inputted into

the cross section to provide a profile view of soil stratums. Our cross section is intended to provide an illustration of the subsurface soil stratums and surface profile.

2.2 Laboratory Testing

The laboratory testing program was directed toward a determination of the physical and engineering properties of the soil underlying the site. Moisture content and dry density tests were performed on representative undisturbed soil samples to determine the consistency of the soil and the moisture variation throughout the explored soil profile. Grain size analysis tests were performed to aid in soil classification.

The strength parameters of the underlying earth materials were developed from field Standard Penetration Tests (SPT) performed during soil sampling. The results of the field tests and most of the laboratory testing appear on the "Logs of Test Boring" opposite the sample tested.

Following the completion of the laboratory testing, the field descriptions were confirmed or modified as necessary, and Logs of Borings were finalized. Select laboratory test results were included in the logs or are independently presented (graphically) in Appendix A. These results together with the field in situ testing were used for the geotechnical engineering analysis and the development of foundation and earthwork recommendations.

3.0 SITE CONDITIONS

3.1 Geology

Surficial geologic conditions at the site, mapped by the U.S. Geological Survey (USGS) depict the area of Twin Lakes Church as being underlain by Coastal Terrace deposits. These coastal terrace deposits are underlain by Purisima Formation siltstone and sandstone. Regional geology of the area is shown on Figure 2 in the Appendix. The Cooper-Clark Landslide Map of Santa Cruz County (Cooper-Clark and Associates, 1975) indicate there are no mapped landslides crossing the Twin Lakes Church property, (see Figure 3 in Appendix A).

3.2 Subsurface Conditions

The soil and groundwater conditions were characterized for the preliminary study based on the results of the field exploration program and laboratory testing program. The location of the explorations are shown on the Boring Site Plan, Figure 5. Logs of the test borings (Figures 8 to 18) are presented in Appendix A.

Purisima Formation and Coastal Terrace deposits are mapped at the site. The terrace deposits cover most if not all of the campus property and is underlain by Purisima Formation. The terrace deposits are said to range from 5 to 20 feet thick and can be up to 40 feet thick (USGS, Geologic Map of Santa Cruz County, California 1997), Figure 2.

Unclassified manmade fill was encountered in Borings B-2 and B-10 and generally consist of loose, silty to clayey sand. The unclassified fill is likely comprised of reused native on-site soils. Overall, the loose soils are 4 feet thick below portions of the proposed Student Outreach Center and the Education buildings footprints. Below the loose soil stratum, medium dense clayey sand and stiff clay was encountered to depths between 7 to 16 feet below the surface. Below the medium dense stratum, medium dense to dense silty sand and sand was encountered to the total depths explored.

3.2.1 Soil Erosion

Severe erosion is not uncommon in very loose soils or loose unclassified fill like that encountered within the upper 1 to 4 feet of test bore holes B-2, and B-10. It can be severe where there are steep slopes and uncontrolled runoff, particularly where the natural drainage is modified by the works of man and not properly controlled. Typically, once the upper surface of the soil is breached by a rill or a gully, erosion proceeds at an accelerated rate, and the rills and gullies deepen and migrate headward (upslope). This process may significantly impact the overall stability of the unclassified fill (Soil #1) if rills and gullies are not mitigated (fixed), and if any of the proposed drainage controls are not adequately designed, constructed and maintained.

3.3 Groundwater Conditions

Groundwater was not encountered in our test borings. The results of moisture density tests indicate the soil encountered in our test bore holes had moisture content ranging from 10.1 percent to 28.0 percent. On average the moisture content is 19 percent. The loose soils and those in the lawn area were very moist. Medium dense soils were moist to very moist and dense soils were moist.

The lack of groundwater noted above reflects the condition at the time of this study. Fluctuations in the location of groundwater tables or the presence of perched water tables can occur as a result of seasonal variations in evaporation, precipitation, surface water runoff, and other factors. As discussed the subsoils were found to be moist to wet but water levels were not recorded. Therefore, water levels at future times could be different from those noted in the borings.

3.4 Flooding

Based on the review of National Flood Insurance Rate Maps, the site is within Zone C an unloaded area determined to be outside the 0.2% annual chance flood plain (FIRM, 2008), or of minimal flooding potential.

3.5 Soil Properties

In general the slope profiles models were simplified into four predominant soil types; loose unclassified fill, loose native silty sands or sand with silt, medium dense clayey sand, clay or sand with clay, and dense silty sand or sand. Based on laboratory test results, field penetration tests, and engineering judgment design values have been assigned to each soil stratum of the geotechnical cross section (Figure 34). These soil parameters are intended for use by design professionals and are presented in Table 1.

Table 1: Geotechnical Design Values

Soil Stratum	γ_t (lbs/ft^3)	ϕ (degrees)	Cohesion (lbs/ft^2)
Soil #1: Very Loose Unclassified Fill	125	24	0
Soil #2: Clayey Sand, Sand with Clay	130	30	200
Soil #3: Stiff to very stiff Sandy Clay to Clay	130	30	575
Soil #4: Dense Silty Sand and Sand	130	35	0

4.0 GEOLOGIC HAZARDS

The following geologic hazard assessment is based on review of published information regarding regional and local geologic conditions. Moreover, we include comments based on observations made during our site visits.

4.1 Seismicity and Strong Ground Motion

The project site is located within a seismically active region of Central California that is prone to moderate to larger scale earthquakes. The southern Santa Cruz Mountains and bay area was impacted by the 6 October 1989 magnitude 7.1 earthquake that occurred in the Santa Cruz Mountains. The earthquake known as The Loma Prieta Earthquake, is said to have occurred on the San Andreas Fault zone.

4.1.2 Peak Ground Acceleration Determination

In terms of seismic hazard evaluation for the site, the peak ground acceleration was evaluated using the USGS NSHMP and java calculator to estimate the peak ground acceleration. On this basis the peak ground acceleration of 0.38g was determined.

4.2 Surface Fault Rupture

Based on the available geologic data, the site is not within a designated Alquist-Priolo Earthquake Fault zone. The nearest designated State of California Alquist-Priolo

Earthquake Fault zone are associated with the San Andreas Fault, approximately 11 miles to the northeast and the Zayante Fault, approximately 6 miles to the northeast.

The potential of surface rupture at the site due to fault plane displacement propagating to the ground surface during the design like of the project is considered low.

4.3 Liquefaction, Seismic Settlement, and Lateral Spreads

Liquefaction, lateral spreading and differential compaction tend to occur in saturated, loose, poorly graded, sandy and unconsolidated soils. The coastal terrace deposits are considered to be semi-consolidated generally well-sorted sand. The data from the field explorations indicate these soils are generally medium dense and can be dense to very dense. These underlying soils also were not found to support a groundwater regime, thus the potential for liquefaction and lateral spread to occur are low. Dynamic (differential compaction) may occur but is considered a remote possibility.

4.3 Landsliding/Slope Instability

During our site reconnaissance, we did not observe evidence of landsliding along Porter Gulch. However, at the Student Outreach Center the very steep cut bank adjacent to Cabrillo College Drive likely undergoes unraveling and there are signs at other cutbank locations of thin soil sloughs basically 1 to 2 feet thick that have occurred.

We could not walk the slope at the Porter Gulch end of the property. We could not discern if landsliding has occurred. We note from the topographic information the gulch side bank is moderate in steepness. Moreover, the Cooper-Clark map does not identify landsliding along this portion of Porter Gulch.

4.4 Erosion

As described above, erosion was observed on the cut bank fronting Cabrillo College Drive. Graded cut and fill slopes associated with the site development will be subject to sheet and rill erosion. Erosion of soils can be accelerated where soils are exposed directly to runoff and/or areas of concentrated/storm runoff, such as culvert outlets. Site drainage and landscape improvements can be designed to reduce the potential for soil erosion.

4.5 Geotechnical Related Seismicity

The project site is situated in a seismically active region. As is the case for most areas of Central California, ground shaking may occur resulting from earthquakes associated with nearby and distance faults. During the life of the project, seismic activity associated with active faults in the area may generate moderate to strong ground shaking at the site.

The proposed structures should be designed in conformance with the most current California Building Code (2007 CBC) and ASCE 7-05 Standard (ASCE, 2005). For seismic

design, the soil properties at the site are classified as **Site Class "D"** based on definitions presented in Table 1613.5.2 in the 2007 CBC. The longitude and latitude were determined using a satellite image generated by Google Earth. These coordinates were taken from the middle of the area of the proposed improvements.

The coordinates listed in the table were used as input in the Java Ground Motion Parameter Calculator created by the USGS to determine the ground motion associated with the maximum considered earthquake (MCE) SM and the reduced ground motion for design SD. The results are presented in Table 1 above:

TABLE 1 CBC SEISMIC DESIGN PARAMETERS

Site Coordinates	North Latitude - 36°. 59' – 6" West Longitude – 121°. 55" – 40"
Site Class	D
0.2 Second Short Period Spectral Response, S_s	1.5
1.0 Second Spectral Response, S_1	0.638
Site Coefficients, F_a	1.0
Site Coefficient, F_v	1.5
Short Period Spectral Response, SD_S	1.0
1.0 Second Spectral Response, SD_1	0.638

4.6 Geotechnical Considerations

Geotechnical considerations at the site include the potential for strong seismic shaking, adequate foundation support for the proposed improvements, proper keying and benching of engineered fill embankment, as well as control of surface runoff.

The selection of the most appropriate foundation system, or systems, should include the consideration of several factors, including anticipated loading conditions, acceptable settlements, lateral loading conditions (soil creep), construction adjacent to existing structures, construction schedule, budget constraints, etc. We note though that fully supported (deep foundations) elements would likely be adequately supported structural improvements. However, a conventional spread footing foundation system with appropriate soil modifications can also be adequate to support structural improvements. This report has focused on the latter conventional foundation type of construction, consistent with existing foundation construction.

5.0 EARTHWORK

5.1 General Considerations

This section contains the general recommendations regarding earthquake and site grading for the proposed site development. These recommendations are based on the field exploration, laboratory testing, and data evaluation as presented in the proceeding

sections. These recommendations may need to be modified based on observation of the actual field conditions during grading.

Prior to start of any earthwork, the respective building sites should be cleared of vegetation, debris, underground utilities and existing structures.

The final bottom surfaces of excavations should be observed by the project geotechnical engineer and/or field representative prior to placing any fill and/or structures. Some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

The following presents recommendations for site preparation excavation, subgrade preparation and placement of engineering fills on the project. The recommendations in this report are applicable to conventional construction during the late spring through fall season. Should construction be performed during the winter months, when the site will likely receive significant rainfall, modified or additional recommendations may be required.

The earthwork on the project should be observed and evaluated by HKA. The evaluation of earthwork should include observation and testing of engineered fill, overexcvation

operations (if performed), subgrade preparation, foundation bearing soils, and other conditions exposed during construction of the project.

The geotechnical engineer should be notified **at least four (4) working days prior to any grading or foundation excavating** so the work in the field can be coordinated with the grading contractor and arrangements for testing and observation can be made. The recommendations of this report are based on the assumption that the geotechnical engineer will perform the required testing and observation during grading and construction.

It is the owner's responsibility to make the necessary arrangements for these required services.

5.2 Site Preparation

Areas to be graded should be cleared of obstructions, ***including existing foundations and structures***, trees not designated to remain, existing stumps and other unsuitable material. ***Disturbed soil as a result of demolition operations should be completely cleared from within the proposed building footprint and***, if suitable may be incorporated in the engineered fill. Existing depressions or voids created during site clearing should be backfilled with engineered fill. It is anticipated that excavations for the proposed construction can be accomplished with conventional earth moving equipment.

Strip and remove vegetation and other deleterious materials (organic-laden topsoil) from the proposed building areas and pavement areas. Stripping depth is anticipated to be from 2 to 4 inches. Actual depth of stripping should be determined in the field by the geotechnical engineer. Strippings should be wasted off-site or stockpiled for use in landscaped areas if desired. All exposed surface areas slated for improvements should be free of mounds of depressions, which could prevent uniform compaction.

5.3 Subgrade Preparation

The sub-grade beneath **exterior slabs and pavements** should be scarified, moisture conditioned (or allowed to dry as necessary) to produce a moisture content within 2 percent of the laboratory optimum value, and uniformly compacted to a minimum of 95 percent relative compaction based on ASTM Test D1557. The recommended depth of subgrade processing will depend upon the time of year that earthwork is being performed and will need to be evaluated in the field by the engineer during grading; however, we anticipate subgrade processing depths of about 12 inches, or depth to competent underlying soil, whichever is greater.

Engineered fill should be placed in thin lifts not exceeding 8 inches in loose thickness; moisture conditioned, and compacted to at least 90 percent relative compaction. The upper 12 inches of pavement subgrades should be compacted to at least 95 percent

relative compaction. Aggregate base below pavements should likewise be compacted to at least 95 percent relative compaction.

5.4 Over-Excavation/Removal for Proposed Structures

As a minimum, the upper 2 feet of surficial soils within the building footprint plus 5 feet horizontally in all directions should be excavated. The exposed subgrade should be scarified (8 inches minimum); moisture conditioned as necessary, and compacted as engineered fill. The actual depth of over-excavation should be determined to provide required minimum amount of engineered fill under footings as follows:

- Removal of unclassified fill, which may range 2 to 4 plus feet;
- Support footing elements upon 2 feet of engineered fill compacted to 95 percent of the maximum dry density in accordance with ASTM Standard D1557;
- At grade slabs should be founded on at least 2 feet of compacted fill;
- Over-excavation should provide at a minimum 2 feet of structural fill below the bottom of slab-on-grade.

5.5 Structural Fill

At a minimum, the upper 12 inches of surficial soils over the entire parking expansion area should be scarified, moisture conditioned, and compacted to at least 95 percent of the

maximum dry density (ASTM D1557 Method) to produce a firm surface. In areas beyond the building footprint, i.e. sidewalks, patio slabs and other areas which require grade changes should also be processed as above and compacted to at least 90 percent of the maximum dry density.

Structural/fill should be placed on competent, scarified and compacted native materials as determined by the project soils engineer and in accordance with the specifications presented in this section.

Excavated site soils, free of deleterious materials and rock particles larger than 3 inches in largest dimensions, should be suitable for placement as compacted fill except where non-expansive soils are specified. Should fat clay materials be encountered these materials are to be removed and not incorporated will acceptable fill material.

Prior to compaction, fill material should be thoroughly mixed and moisture conditioned where necessary, to within 3 percent of optimum moisture content for sandy soils at or above optimum for fine-grained soils. Fill should be compacted to at least 90 percent of the laboratory maximum density (ASTM D1557 Method), except for the upper 2 feet (minimum) under footings and slabs which should be compacted to at least 95 percent. We note, unclassified man-made fill within the development areas is to be removed down

to in-situ undisturbed earth materials. Based on the test boring data this may be approximately 4 feet in some areas of the project.

5.6 Import Fill

The imported fill, if needed, should be non-expansive (plasticity limits less than 15 for plasticity index, PI, and 30 for liquid Limit, LL) but should contain sufficient binder (fines) so as to provide stable subgrade when compacted. The proposed import materials should be tested for conformance prior to being brought on-site.

Imported soils (if required) should conform to the following:

	Percent finer by weight (ASTM C136)
Gradation	
3"	70 – 100
No. 4 Sieve	50 – 100
No. 200 Sieve	10 – 20
*Liquid Limit	30 (max)
Plasticity Index	15 (max)
Maximum expansive potential (%)*	1.0

5.7 Excavation and Temporary Slopes

With the exception of basement excavation, where excavations are deeper than about 4 feet, the sides of the excavations should be sloped back at 1.5H:1V or shored for safety. Unshored excavations should not extent below a plane drawn at 1.5H:1V extending downward from adjacent existing footings. All applicable safety requirements and regulations, including OSHA regulations should be met.

5.8 Basement Excavation

Excavation associated with basement construction of a basement should be performed in accordance with OSHA regulations. Unshored cutback bank should be laid back on a slope gradient of 2H:1V for excavations greater than 4 feet. Steeper cut banks are to be appropriately shored as necessary. The contractor is to retain a shoring engineer to provide shoring plans and specifications.

5.9 Fill Slopes

Compacted fill slopes should be constructed at a slope gradient not steeper than 2:1 horizontal to vertical. Fill slopes with the recommended gradient may require periodic maintenance to remove minor soil sloughing.

Fill slopes with gradients in excess of 6:1 (horizontal to vertical) are to be adequately keyed and benched into competent material. The toe key should be at least 10 feet wide and should extend at least 2 feet into firm soil as recommended by a representative from HKA. The bottom of the toe key should be sloped downward at about 2 percent toward the inboard side of the key.

There should be a minimum of 5 feet horizontal separation between the bottom of all footing elements and the surface of a fill slope or the base of a cut slope.

In order to maintain stable slopes at the recommended gradients, it is important that seepage forces and accompanying hydrostatic pressure be relieved by adequate drainage. Adequate backdrains in keyways and benches should be provided. The locations of backdrains and outlets should be determined by the geotechnical engineer in the field during grading. This requires the contractor to work with the Owner and the Engineer to bring attention of same and point out encountered seeps during mass grading operations. Following grading, exposed soil should be planted as soon as possible with erosion-resistant vegetation.

5.10 Site Drainage

As discussed previously, strict control of surface drainage is an important part of this project. Under no circumstances should surface runoff be allowed to flow uncontrolled or concentrate onto the slopes around the building sites. Surface flow should be collected into closed conduits and directed to a suitable outlet location or storm drain. Exposed soil should be landscaped as soon as possible after grading to reduce erosion. All slopes should be permanently protected against erosion in accordance with recommendations of a landscape erosion control expert.

Surface runoff should **not** be allowed to flow onto graded or natural slopes in an uncontrolled manner. Consideration should be given to catch basins, berms, concrete v-ditches, or drainage swales at the top of all slopes to intercept runoff and direct it to a suitable discharge point.

Irrigation activities at the site should be done in a controlled and reasonable manner. Planter areas should not be sited adjacent to walls; otherwise, measures should be implemented to contain irrigation water and prevent it from seeping into walls and under foundations.

The migration of water or spread of extensive root systems below foundations, slabs, or pavements may cause undesirable differential movements and subsequent damage to these structures. Landscaping should be planned accordingly.

5.11 Erosion Control

The soil at this site is considered highly susceptible to erosion by concentrated runoff when exposed or stripped of vegetation. Therefore surface runoff should be collected and conveyed to an appropriate discharge point where the impact due to concentrated runoff can be minimized. Collected runoff should not be discharged in a manner that will erode soils or create damage to properties down slope. The Civil Engineer preparing the grading and drainage plans needs to take into consideration minimizing the potential for erosion where at all possible.

The surficial soil at the project site has a high potential for erosion. We recommend the following provisions be incorporated into the project plans.

A. All grading and soil disturbances shall be kept to a minimum.

B. No eroded soil should be allowed to leave the site.

C. Following removal of backfill material, bare soil must be planted prior to the rainy season with a suitable erosion control seed mixture.

D. For temporary measures bare soil should be covered with alfalfa a minimum of 2 inches thick prior to the rainy season.

E. Final landscaping should include erosion resistant vegetation on bare slopes.

6.0 DESIGN AND CONSTRUCTION RECOMMENDATIONS

6.1 General Evaluation

The various design recommendations provided in this section are based on the assumption that the earthwork and grading recommendations will be implemented in preparing the respective project sites to meet the proposed improvements.

6.2 Shallow Spread Footing Parameters

Spread footing foundations are considered an appropriate foundation system. Continuous and isolated shallow spread footings should be at least 18 to 24 inches wide, respectively, and embedded at least 12 inches below lowest adjacent subgrade elevation.

Footings should be founded upon at least 2 feet of granular structural fill below the bottom of the footings, compacted as recommended in the grading section and extended at least 3 feet beyond the edge of the footings. An allowable net vertical bearing pressure for 18 inch

wide footing embedded 12 inches below adjacent subgrade in 2,000 pounds square footing (psf).

The net allowable bearing value indicated above is for dead loads and frequently applied live loads and was obtained by applying a factor of safety of at least 3.0 to the net ultimate bearing capacity. If normal code requirements are applied for design, the above vertical bearing value may be increased by 33 percent for short duration loading conditions which include wind and seismic induced forces.

6.3 Lateral Earth Pressures and Resistance

The earth pressures depend primarily on allowable movement, type of backfill materials, backfill slopes, wall inclination, surcharge, and any hydrostatic pressure. The following equivalent fluid pressures are recommended for vertical walls with level backfill, no hydrostatic pressure and no surcharge loading.

TABLE LATERAL EARTH PRESSURE

Wall Condition	Equivalent Fluid Pressure (PCF)
Active (Flexible wall)	45
At –Rest (Restrained	60

The lateral resistance can be calculated based on passive resistance of 200 psf per foot of depth and friction coefficient between concrete soil of 0.35.

Retaining walls designed using code tabulated values shall meet the following conditions:

- Fill materials behind the retaining walls shall be fully drained of water and other fluids by means of subdrain, weep holes and/or other approved method at least equivalent to Figure No. 44, attached.
- All superimposed loads, other than retained earth, shall be considered surcharges and accounted for in design. Uniformly distributed loads may be considered as equivalent added depth of retained earth. Surcharge loads due to continuous or isolated footings shall be determined by equivalent methods acceptable to the Building Official.
- Loads applied within a horizontal distance equal to the wall steam height, measured from the back of face of wall shall be considered as a surcharge force.
- Retaining walls greater than exempt heights for seismic considerations, shall be designed for seismic lateral forces in addition to horizontal and vertical loads.
- Ground motion during earthquakes tends to increase the earth pressure above static levels. Therefore, retaining walls, which are not considered exempt, should be designed to resist a dynamic active lateral force increase of $15H^2$ pounds per

lineal foot of wall, which acts at a height of 0.6 H above the base of the wall where H is the wall height. The dynamic lateral force increase should be used in addition to the (static) active earth pressure.

- Because seismic forces are considered short-term loading it is common to allow for a one-third increase in the bearing pressure and passive resistance under the earthquake analysis. Moreover, under the earthquake analysis a lower factor of safety is usually acceptable and in Santa Cruz County a factor of safety equal to 1.2 under the combined static and earthquake loadings is considered acceptable.

6.4 Concrete Slabs-on-Grade

Some movement of a slab-on-grade system is possible given the loose condition of the unclassified fill and native surficial soils. Therefore, structural floors are recommended. Slabs-on-grade should be considered only if movement can be tolerated. The slabs-on-grade should be designed in accordance with ACI 302.1R-04. The project design professional should determine the appropriate slab reinforcing and thickness, in accordance with the anticipated use and loading of the slab. However, we recommend that consideration be given to a minimum slab thickness of 4 inches and steel reinforcement necessary to address temperature and shrinkage considerations. It is recommended that rebar in lieu of wire mesh be used for slab reinforcement. The steel reinforcement should

be held firmly in the vertical center of the slab during placement and finishing of the concrete with pre-cast concrete dobies.

6.5 Roof Drainage Collection and Disposal

We recommend that full gutters be used along roof eaves to collect storm runoff water and channel it through closed rigid conduits to a suitable discharge point.

Water must not be allowed to pond adjacent to structural foundations or on the paved areas. Final grades should be provided with positive gradient away from foundations in order to provide rapid removal of the surface water from the foundations to an adequate discharge point. Concentrations of surface water runoff should be handled by providing necessary structures, such as paved ditches, catch basins, etc.

6.6 Flexible Pavements

Asphaltic concrete, aggregate base and subbase, and preparation of the subgrade should conform to and be placed in accordance with the Caltrans Standard Specifications latest edition, except that the test methods for compaction should be determined by ASTM D1557-78.

To have the selected pavement sections perform to their greatest efficiency, it is very important that the following items be considered:

a. Scarify and moisture condition the top eight inches (8") of subgrade and compact to a minimum relative compaction of 95 percent, at a moisture content which is about 2 to 4 percent above laboratory optimum value.

b. Provide sufficient gradient to prevent ponding of water.

c. Use only quality materials of the type and thickness (minimum) specified. All baserock (R=78 minimum) must meet CALTRANS Standard Specifications for Class 2 Untreated Aggregate Base (Section 26). All subbase (R=50 minimum) must meet CALTRANS Standard Specifications for Class 2 Untreated Aggregate Subbase, (Section 25).

d. Compact the baserock and subbase uniformly to a minimum relative compaction of 95 percent.

e. Place the asphaltic concrete only during periods of fair weather when the free air temperature is within prescribed limits.

f. Maintenance should be undertaken on a routine basis.

g. Pavement thickness and traffic index should be determined by a civil engineer with experience in pavement design.

Project No. SC10149.1
3 May 2013

TWIN LAKES CHURCH
c/o Ifland Engineers, Inc.
5200 Soquel Avenue, Suite 100
Santa Cruz, California 95062

Attention: Mr. Jon Ifland

Subject: Education Building

Reference: Twin Lakes Church
Campus Building Project
2701 Cabrillo College Drive
Aptos, California

Dear Mr. Ifland:

Per your request, we have looked at the proposed changes to the Education Building and grade elevations relative to the current geotechnical data. We present herein comments for the three story proposed structure.

In the initial field study and project concepts, we understood the Education Building was going to be a two(2) story structure. That now has been changed to include an additional story for a total of three(3) stories. We have reviewed the Logs of Test Borings in relation to the proposed pad elevation (~142 feet) as shown on Civil Sheet C2 prepared by Ifland Engineers. On the basis of the Grading & Drainage Plan (Sheet C2) the projected cuts range from 5 to 10 feet deep. Thus, in much of the building area most of the sandy clay will be removed. We hasten to note, however, that the underlying soils are medium dense at best. Therefore, soil preparation will likely be required. At the time of foundation plan reviews, HKA will provide more specific soil preparation recommendations. For the three story foundation system, the footing embedment should be at least 24-inches below subgrade elevation (pad elevation :142 feet).

The recommendations of the geotechnical report entitled "Geotechnical Investigation for Twin Lakes Church Campus Building Additions, 2701 Cabrillo College Drive, Aptos, California" dated 8 August 2011 should be used as a guide for design of geotechnical-related elements, i.e. foundation elements, retaining walls, slabs, and etc.

We trust this update meets with your needs. If you require additional information, please call or email me.

Very truly yours,

HARO, KASUNICH AND ASSOCIATES, INC.

Joseph A. Haro
C.E. 28506

JAH/dk
Copies: 1 to Addressee
3 to Ifland Engineers

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

December 5, 2013

Ifland Engineers
5200 Soquel Ave., Ste.102
Santa Cruz, CA 95062

Subject: Review of Geotechnical Investigation by Haro, Kasunich and Associates, Inc. Dated August 9, 2011: Project: SC10149
APN 037-251-19, Application #: REV131058

Dear Applicant,

The purpose of this letter is to inform you that the Planning Department has accepted the subject report and the following items shall be required:

1. All construction shall comply with the recommendations of the report.

2. Final plans shall reference the report and include a statement that the project shall conform to the report's recommendations.

Please submit the following *with your building permit application*:

3. The current scope of the soils report does not include the vicinity of the proposed field expansion and associated retaining walls. Please submit an addendum to the report that provides recommendations for this work.

4. The report states that overexcavation and recompaction beneath the structures should extend 5 feet horizontally on page 22, but the recommendations on page 29 require only 3 feet beyond footings. Please clarify.

5. After plans are prepared that are acceptable to all reviewing agencies, please submit a signed and stamped *Soils (Geotechnical) Engineer Plan Review Form* to Environmental Planning. *Please note that the plan review form must reference the final plan set by last revision date.* Any updates to report recommendations necessary to address conflicts between the report and plans must be provided via a separate addendum to the soils report.

   The author of the report shall sign and stamp the completed form. An electronic copy of this form may be found on our website: www.sccoplanning.com, under "Environmental", "Geology & Soils", "Assistance & Forms", "Soils Engineer Plan Review Form".

(over)

ATTACHMENT 5

After building permit issuance the soils engineer *must remain involved with the project* during construction. Please review the *Notice to Permits Holders* (attached). Please note: Electronic copies of all forms required to be completed by the Geotechnical Engineer may be found on our website: www.sccoplanning.com, under "Environmental", "Geology & Soils", "Assistance & Forms".

Our acceptance of the report is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please note that this determination may be appealed within 14 calendar days of the date of service. Additional information regarding the appeals process may be found online at: http://www.sccoplanning.com/html/devrev/plnappeal_bldg.htm

Please call the undersigned at (831) 454-5121 if we can be of any further assistance.

Sincerely,

Carolyn Burke
Civil Engineer

Cc: Randall Adams, Environmental Planning
Haro, Kasunich and Associates, Inc.
Twin Lakes Church, Attn: Mark Spurlock
Environmental Planning File

Drainage Calculations

FOR

Twin Lakes Church Master Plan Amendment and New Education Building

2701 Cabrillo College Drive
Aptos, California

August 6th, 2013

Job #08066

IFLAND ENGINEERS
Civil Engineering ▪ Structural Design ▪ Land Development

5200 Soquel Avenue Suite 102
Santa Cruz, CA 95062
(831) 426-5313 FAX (831) 426-1763
www.iflandengineers.com

ATTACHMENT 6

Introduction:

Twin Lakes Church is located on Cabrillo College Drive in Aptos California just north of Highway 1. The proposed project consist of expanding on the overall Mater Plan of the Church with a new educational building located near the southwest corner of the subject parcel. The total new impervious surface proposed is approximately 19, 415 square feet (approximately 2.8% of the total site area) and includes the building footprint and new concrete walkways/ amphitheater. The new impervious surfaces will be mitigated per the County of Santa Cruz Design Criteria, 2yr-2hr retention and 10yr-15min detention requirements. See below calculations. BMP's will include disconnected roof drains and raingardens to capture surface runoff.

According to the NRCS Web Soil Survey the soils are made up of Elkorn sandy loam, which has a hydrologic soils rating of "B". B group soils are described as having moderate infiltration rates. The Web Soil Survey displays a Saturated Hydraulic Conductivity of approximately 3.0 inches per hour for a depth of 12"-24" below ground.

The following page demonstrates the required retention and detention volumes as well as the required controlled release rate. (The Runoff Retention by the Storage Percolation Method spreadsheet which is based off the County of Santa Cruz Figure 24 and the Runoff Detention by the Modified Rational Method, County of Santa Cruz Figure 24, respectively).

County Figures SWM-2 &SWM-3 were used to calculate Rainfall Intensity for the project area. See values below.

P_{60} = 1.50
I_{10pre} = 1.78 in/hr
I_{10post} = 2.11 in/hr

Retention System Calculations:

→For the below calculations (including detention calculations), the total impervious area has been divided in two to represent the northern and southern roof areas. Each ½ roof area is approximately 9,708 sf which includes the areas of new walkways adjacent to the roof drain discharge points.

Per modified Figure 24 (2-yr design storm with no release rate)
Total Required Retention Volume (north) = 309 cubic feet (cf)
Total Required Retention Volume (south) = 275 cubic feet (cf)

The proposed Retention/Detention System consist of 2 raingardens. The southern raingarden will be 18' wide x 30' long x 20" deep and the Northerly raingarden will be 12.5' wide x 25' long x 3' deep. An overflow drain will be installed at the slope of each raingarden and directed to an outfall point via 6" storm drain pipe. An outlet control structure will be installed at the junction of both rain gardens and discharge runoff offsite at a 10yr pre-development rate.

Total Retention Volume provided (north utilizing bottom 2.5' of trench) = 313cf
Drawdown Time = 3.6 hours

Total Retention Volume provided (south utilizing bottom 16"' of trench) = 287cf
Drawdown Time = 2.4 hours

Total Retention Volume Provided = **600 cf** >584 cf Required

PROJECT: Twin Lake Church North Roof Area **Calc by:** DMR **Date:** 8/6/2013

RUNOFF RETENTION BY THE STORAGE PERCOLATION METHOD

Data Entry: PRESS TAB KEY & ENTER DESIGN VALUES

SS Ver:1.0

Site Location P60 Isopleth:	1.50	Fig. SWM-2
Rational Coefficients Cpre:	0.30	
Cpost:	0.90	
Impervious Area:	9708	ft^2
Saturated Soil Permeability:	3.00	in/hr

Notes & Limitations on Use:

Saturated soil permeability values may be used conservatively from the USDA-NRCS soil survey, or use actual test values.

Site selection and design shall give proper consideration to the path for excess flows downstream of the designated retention area.

Retention site location on, or immediately above, slopes exceeding 15% will require consulting a geotechnical engineer.

Gravel packed structures shall use washed, angular, uniformly graded aggregate providing not less than 35% void space.

Refer to the County of Santa Cruz Design Criteria, Stormwater Management - Section H, for complete method criteria.

2 - YEAR DESIGN STORM				RETENTION @ 120 MIN.		DETENTION @ 60 MIN.	
Storm Duration (min)	2 - Year Intensity (in/hr)	Qpre (cfs)	Qpost (cfs)	Retention Rate To Storage (cfs)	Specified Retained Volume (cf)	Detention Rate To Storage (cfs)	Specified Detained Volume (cf)
1440	0.16	0.011	0.033	0.001	-1853	-0.009	-811
1200	0.18	0.012	0.036	0.004	-1345	-0.007	-483
960	0.20	0.013	0.039	0.008	-864	-0.003	-181
720	0.22	0.015	0.045	0.013	-419	0.002	85
480	0.26	0.018	0.053	0.021	-29	0.010	298
360	0.30	0.020	0.060	0.028	132	0.017	372
240	0.35	0.024	0.071	0.039	255	0.028	410
180	0.40	0.027	0.080	0.049	294	0.038	407
120	0.47	**0.032**	0.095	0.064	**309**	0.053	380
90	0.53	0.036	0.108	0.076	301	0.065	351
60	0.63	0.043	0.128	0.096	276	0.085	307
45	0.71	0.048	0.145	0.113	253	0.102	275
30	0.85	0.057	0.172	0.140	219	0.129	232
20	1.01	0.068	0.204	0.172	186	0.161	193
15	1.14	0.077	0.230	0.198	164	0.188	169
10	1.35	0.091	0.273	0.242	136	0.231	138
5	1.81	0.122	**0.367**	0.335	97	0.324	97

STRUCTURE DIMENSIONS FOR RETENTION

309 ft^3 storage volume calculated

40 % void space assumed

771 ft^3 excavated volume needed

Structure Ratios	Length	Width*	Depth*#
	25.00	12.50	2.50
Dimen. (ft)	**24.90**	**12.45**	**2.49**

496 ft^2 internal surface area

347 ft^2 effective surface area

3.6 hrs estimated structure drainage time

* For pipe, use the square root of the sectional area.

\# If cell values displayed are corrupted, enter zero for depth, then re-enter a positive numeric value within allowed range.

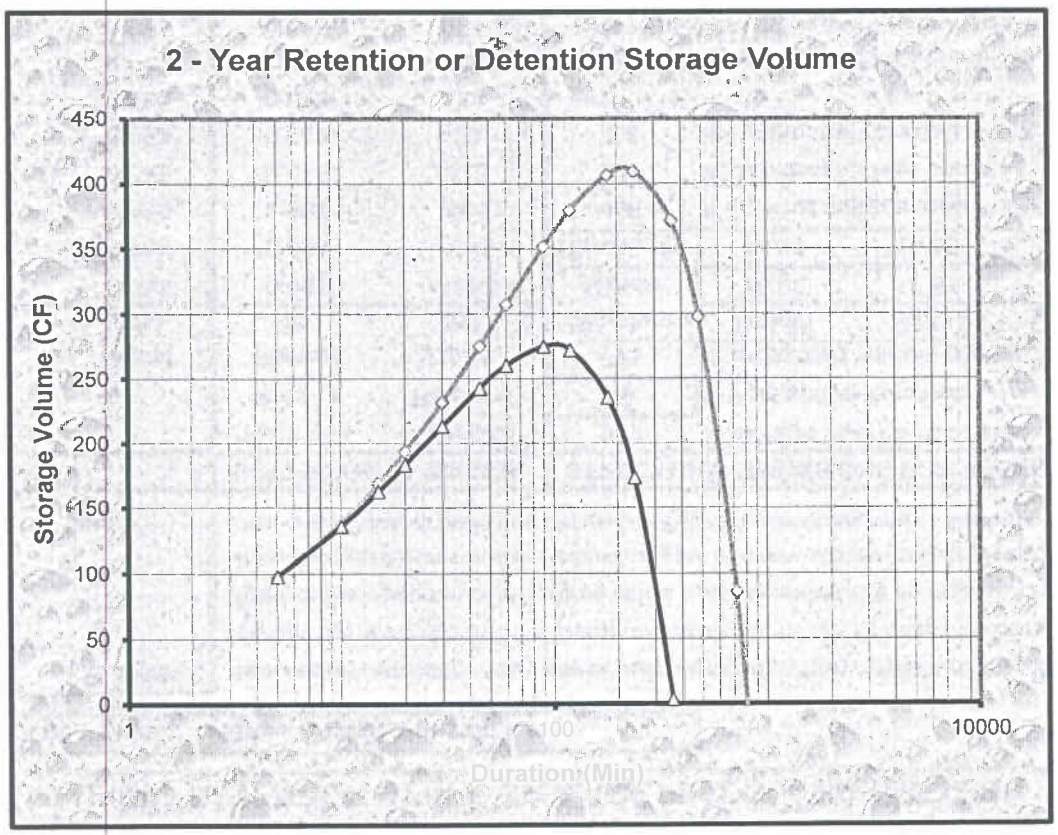
STRUCTURE DIMENSIONS FOR DETENTION

410 ft^3 storage volume calculated

40 % void space assumed

1024 ft^3 excavated volume needed

Structure Ratios	Length	Width*	Depth*
	25.00	12.50	3.33
Dimen. (ft)	**24.87**	**12.43**	**3.31**


2 - Year Retention or Detention Storage Volume
Storage Volume (CF)
450
400
350
300
250
200
150
100
50
0
1
100
10000
Duration (Min)

PROJECT: Twin Lakes Church (North 1/2 roof area) **Calc by:** DMR **Date:** 8/6/2013

RUNOFF DETENTION BY THE MODIFIED RATIONAL METHOD

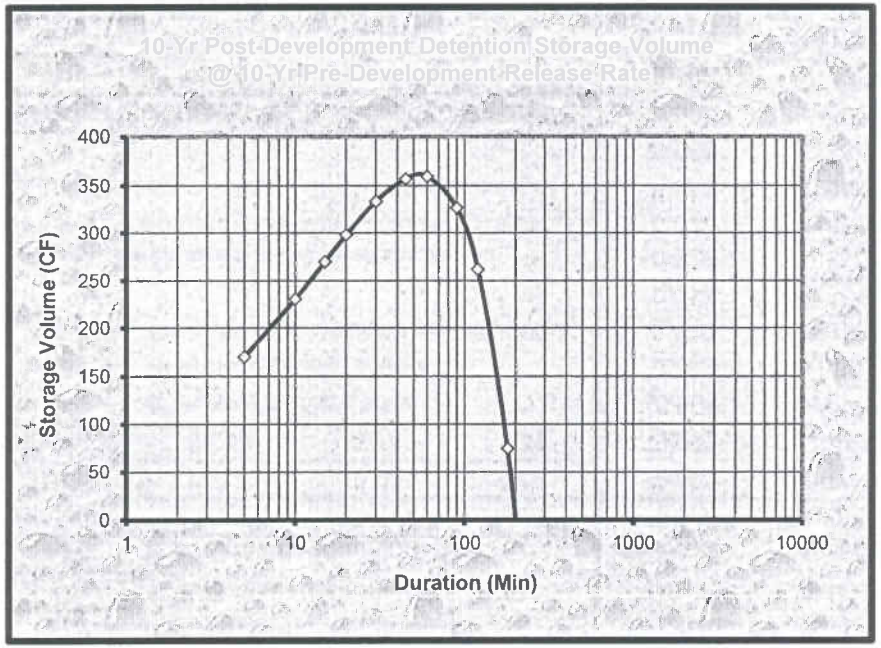
Data Entry: PRESS TAB & ENTER DESIGN VALUES SS Ver: 1.0

Site Location P60 Isopleth:	1.50		Fig. SWM-2 in County Design Criteria
Rational Coefficients Cpre:	0.30		See note # 2
Cpost:	0.90		See note # 2
Impervious Area:	9708	ft^2	See note # 2 and # 4

STRUCTURE DIMENSIONS FOR DETENTION

360	ft^3 storage volume calculated			
40	% void space assumed			
900	ft^3 excavated volume needed			
Structure	Length	Width*	Depth*	*For pipe, use the square
Ratios	25.00	12.50	3.00	root of the sectional area
Dimen. (ft)	**24.66**	**12.33**	**2.96**	

10 - YEAR DESIGN STORM				DETENTION @ 15 MIN.	
Storm Duration (min)	10 - Year Intensity (in/hr)	10 - Yr. Release Qpre (cfs)	10 - Year Qpost (cfs)	Detention Rate To Storage (cfs)	Specified Storage Volume (cf)
1440	0.26	0.017	0.052	-0.068	-7340
1200	0.28	0.019	0.056	-0.064	-5741
960	0.31	0.021	0.062	-0.058	-4192
720	0.34	0.023	0.070	-0.050	-2711
480	0.41	0.028	0.083	-0.037	-1337
360	0.46	0.031	0.094	-0.026	-713
240	0.55	0.037	0.111	-0.009	-159
180	0.62	0.042	0.125	0.006	75
120	0.74	0.050	0.149	0.029	262
90	0.83	0.056	0.168	0.048	327
60	0.99	0.067	0.200	0.080	**360**
45	1.12	0.075	0.226	0.106	357
30	1.33	0.089	0.268	0.148	334
20	1.57	0.106	0.318	0.199	298
15	1.78	**0.120**	0.360	0.240	270
10	2.11	0.142	0.427	0.307	231
5	2.83	0.191	**0.573**	0.453	170



Notes & Limitations on Use:

1) The modified rational method, and therefore the standard calculations are applicable in watersheds up to 20 acres in size.
2) Required detention volume determinations shall be based on all net new impervious area both on and off-site, resulting from the proposed project. Pervious areas shall not be included in detention volume sizing; an exception may be made for incidental pervious areas less than 10% of the total area.
3) Gravel packed detention chambers shall specify on the plans, aggregate that is washed, angular, and uniformly graded (of single size), assuring void space not less than 35%.
4) A map showing boundaries of both regulated impervious areas and actual drainage areas routed to the hydraulic control structure of the detention facility is to be provided, clearly distinguishing between the two areas, and noting the square footage.
5) The EPA defines a class V injection well as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system. Such storm water drainage wells are "authorized by rule". For more information on these rules, contact the EPA. A web site link is provided from the County DPW Stormwater Management web page.
6) Refer to the County of Santa Cruz Design Criteria, for complete method criteria.

PROJECT: Twin Lake Church South 1/2 roof area **Calc by:** DMR **Date:** 8/6/2013

RUNOFF RETENTION BY THE STORAGE PERCOLATION METHOD

Data Entry: PRESS TAB KEY & ENTER DESIGN VALUES

SS Ver:1.0

Site Location P60 Isopleth:	1.50	Fig. SWM-2
Rational Coefficients Cpre:	0.30	
Cpost:	0.90	
Impervious Area:	9708	ft^2
Saturated Soil Permeability:	3.00	in/hr

Notes & Limitations on Use:

Saturated soil permeability values may be used conservatively from the USDA-NRCS soil survey, or use actual test values.
Site selection and design shall give proper consideration to the path for excess flows downstream of the designated retention area.
Retention site location on, or immediately above, slopes exceeding 15% will require consulting a geotechnical engineer.
Gravel packed structures shall use washed, angular, uniformly graded aggregate providing not less than 35% void space.
Refer to the County of Santa Cruz Design Criteria, Stormwater Management - Section H, for complete method criteria.

2 - YEAR DESIGN STORM				RETENTION @ 120 MIN.		DETENTION @ 60 MIN.	
Storm Duration (min)	2 - Year Intensity (in/hr)	Qpre (cfs)	Qpost (cfs)	Retention Rate To Storage (cfs)	Specified Retained Volume (cf)	Detention Rate To Storage (cfs)	Specified Detained Volume (cf)
1440	0.16	0.011	0.033	0.001	-2423	-0.009	-811
1200	0.18	0.012	0.036	0.004	-1815	-0.007	-483
960	0.20	0.013	0.039	0.008	-1235	-0.003	-181
720	0.22	0.015	0.045	0.013	-691	0.002	85
480	0.26	0.018	0.053	0.021	-205	0.010	298
360	0.30	0.020	0.060	0.028	3	0.017	372
240	0.35	0.024	0.071	0.039	174	0.028	410
180	0.40	0.027	0.080	0.049	236	0.038	407
120	0.47	**0.032**	0.095	0.064	272	0.053	380
90	0.53	0.036	0.108	0.076	**275**	0.065	351
60	0.63	**0.043**	0.128	0.096	260	0.085	307
45	0.71	0.048	0.145	0.113	243	0.102	275
30	0.85	0.057	0.172	0.140	214	0.129	232
20	1.01	0.068	0.204	0.172	183	0.161	193
15	1.14	0.077	0.230	0.198	163	0.188	169
10	1.35	0.091	0.273	0.242	136	0.231	138
5	1.81	0.122	**0.367**	0.335	98	0.324	97

STRUCTURE DIMENSIONS FOR RETENTION

275 ft^3 storage volume calculated
40 % void space assumed
687 ft^3 excavated volume needed

Structure Ratios	Length	Width*	Depth*#
	30.00	18.00	1.33
Dimen. (ft)	**29.56**	**17.74**	**1.31**

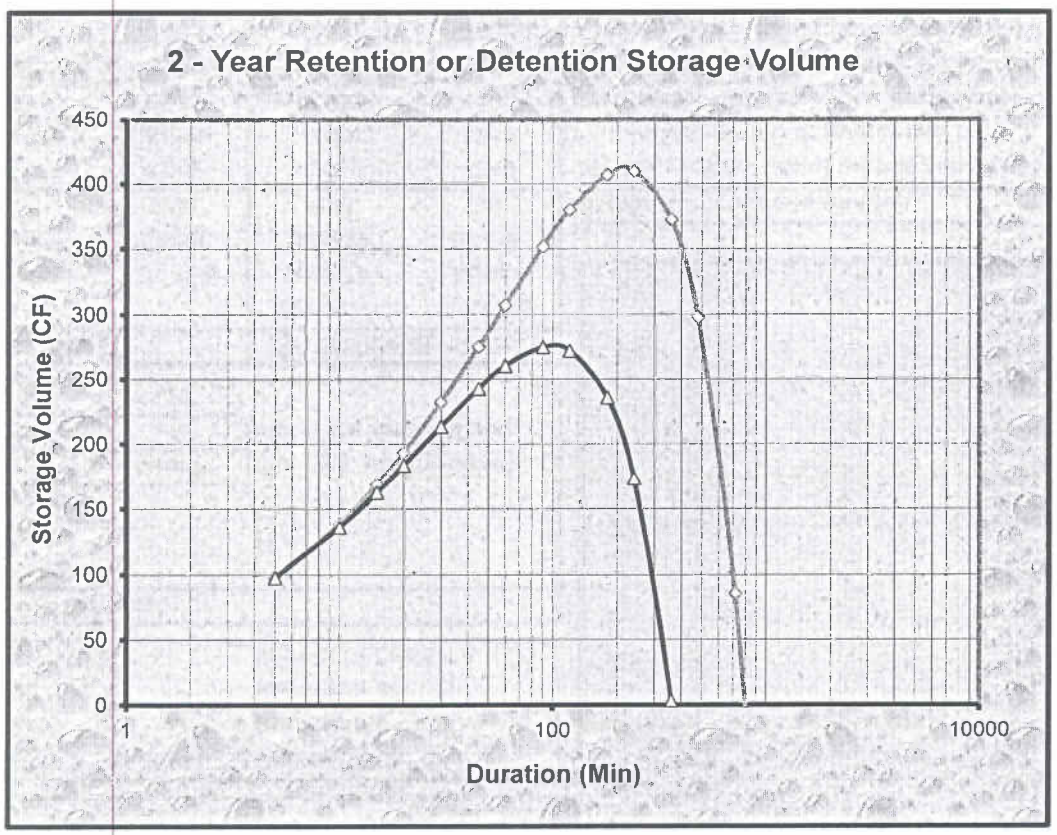
648 ft^2 internal surface area
454 ft^2 effective surface area
2.4 hrs estimated structure drainage time

* For pipe, use the square root of the sectional area.
\# If cell values displayed are corrupted, enter zero for depth, then re-enter a positive numeric value within allowed range.

STRUCTURE DIMENSIONS FOR DETENTION

410 ft^3 storage volume calculated
40 % void space assumed
1024 ft^3 excavated volume needed

Structure Ratios	Length	Width*	Depth*
	30.00	18.00	2.00
Dimen. (ft)	**29.47**	**17.68**	**1.96**


2 - Year Retention or Detention Storage Volume
Storage Volume (CF)
450
400
350
300
250
200
150
100
50
0
1
100
10000
Duration (Min)

PROJECT: Twin Lakes Church (South 1/2 roof area) **Calc by:** DMR **Date:** 8/6/2013

RUNOFF DETENTION BY THE MODIFIED RATIONAL METHOD

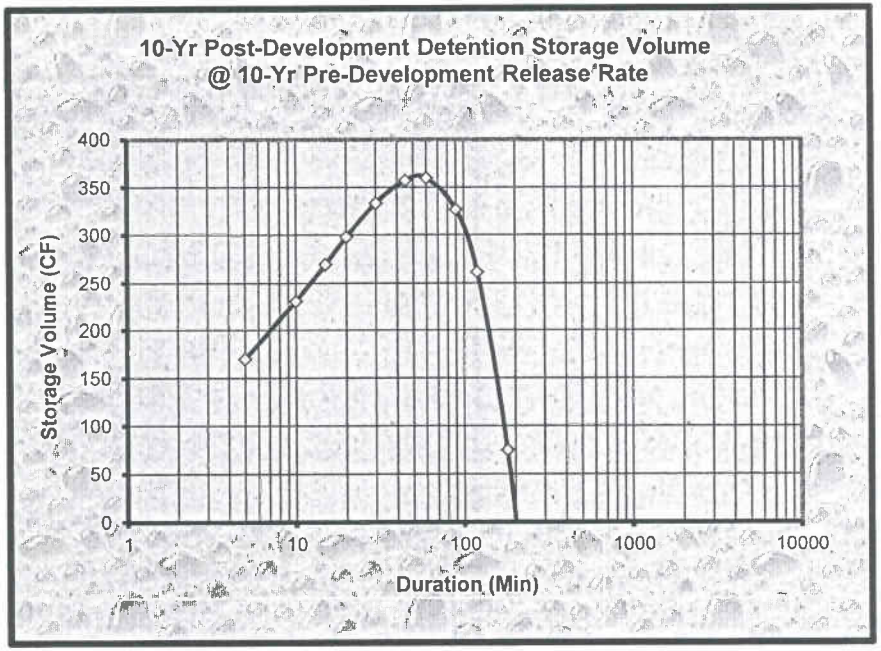
Data Entry: PRESS TAB & ENTER DESIGN VALUES SS Ver: 1.0

Site Location P60 Isopleth:	1.50		Fig. SWM-2 in County Design Criteria
Rational Coefficients Cpre:	0.30		See note # 2
Cpost:	0.90		See note # 2
Impervious Area:	9708	ft^2	See note # 2 and # 4

STRUCTURE DIMENSIONS FOR DETENTION

360	ft^3 storage volume calculated			
40	% void space assumed			
900	ft^3 excavated volume needed			
Structure	Length	Width*	Depth*	*For pipe, use the square
Ratios	30.00	18.00	1.67	root of the sectional area
Dimen. (ft)	**29.98**	**17.99**	**1.67**	

10 - YEAR DESIGN STORM				DETENTION @ 15 MIN.	
Storm Duration (min)	10 - Year Intensity (in/hr)	10 - Yr. Release Qpre (cfs)	10 - Year Qpost (cfs)	Detention Rate To Storage (cfs)	Specified Storage Volume (cf)
1440	0.26	0.017	0.052	-0.068	-7340
1200	0.28	0.019	0.056	-0.064	-5741
960	0.31	0.021	0.062	-0.058	-4192
720	0.34	0.023	0.070	-0.050	-2711
480	0.41	0.028	0.083	-0.037	-1337
360	0.46	0.031	0.094	-0.026	-713
240	0.55	0.037	0.111	-0.009	-159
180	0.62	0.042	0.125	0.006	75
120	0.74	0.050	0.149	0.029	262
90	0.83	0.056	0.168	0.048	327
60	0.99	0.067	0.200	0.080	**360**
45	1.12	0.075	0.226	0.106	357
30	1.33	0.089	0.268	0.148	334
20	1.57	0.106	0.318	0.199	298
15	1.78	**0.120**	0.360	0.240	270
10	2.11	0.142	0.427	0.307	231
5	2.83	0.191	**0.573**	0.453	170



Notes & Limitations on Use:

1) The modified rational method, and therefore the standard calculations are applicable in watersheds up to 20 acres in size.
2) Required detention volume determinations shall be based on all net new impervious area both on and off-site, resulting from the proposed project. Pervious areas shall not be included in detention volume sizing; an exception may be made for incidental pervious areas less than 10% of the total area.
3) Gravel packed detention chambers shall specify on the plans, aggregate that is washed, angular, and uniformly graded (of single size), assuring void space not less than 35%.
4) A map showing boundaries of both regulated impervious areas and actual drainage areas routed to the hydraulic control structure of the detention facility is to be provided, clearly distinguishing between the two areas, and noting the square footage.
5) The EPA defines a class V injection well as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system. Such storm water drainage wells are "authorized by rule". For more information on these rules, contact the EPA. A web site link is provided from the County DPW Stormwater Management web page.
6) Refer to the County of Santa Cruz Design Criteria, for complete method criteria.

Detention System Calculations:

Per Figure 17 (10-yr design storm with 10-yr release rate)

Total New Impervious Area = 19,415 sf
Required Detention Volume = 720 cf
Required Release Rate = 0.240 cfs

Total Detention Volume provided (north utilizing full trench depth) = 360 cf

Total Detention Volume provided (south utilizing full trench depth) = 360 cf

Total Detention Volume Provided = **720 cf** ≥720 cf Required

Outlet Control Calculator:

Given Input Data:	Computed Results:
Solving for .....Diameter Flowrate ..... 0.2400 cfs Coefficient ..... 0.6100 Headwater .....0.3300 ft Tailwater ..... 0.0000 ft	**Diameter ..... 0.3297 ft** Velocity ..... 2.8110 fps Construct drain inlet with outlet control weir and orifice downstream of rain gardens. Restrict flow using a 3.5" drilled hole in weir plate. *Flowrate = 0.186 cfs < 0.240 cfs*

Conclusion:

These calculations demonstrate that the proposed system is sufficient to mitigate the proposed increase in impervious surface. The system is designed to fully retain a 2-year storm event and detain a 10-year storm event while discharging runoff at a 10-year pre-development release rate. The system will capture, treat and infiltrate runoff prior to releasing off-site. The drainage system is designed with 2 separate BMP measures to treat runoff. The first, pre-treatment measure will be to discharge roof drains at grade through splash blocks and landscaping, runoff will filter through the vegetation prior to entering the raingarden and infiltrating through the bio-retention soil mixture.

The orifice will mitigate runoff to a 10-yr pre-development condition for a 10-yr storm event. Safe overflow release points for storms greater than a 10-yr event have been designed within the system by utilizing extra capacity within the raingardens and surface runoff towards the west end of site.

Saturated Hydraulic Conductivity (Ksat), Standard Classes—Santa Cruz County, California
(Twin Lakes Church)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Soil Rating Lines
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Soil Rating Points
- Very Low (0.0 - 0.01)
- Low (0.01 - 0.1)
- Moderately Low (0.1 - 1)
- Moderately High (1 - 10)
- High (10 - 100)
- Very High (100 - 705)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Santa Cruz County, California
Survey Area Data: Version 6, Jul 27, 2010

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

Date(s) aerial images were photographed: May 12, 2010—Sep 17, 2011

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

Saturated Hydraulic Conductivity (Ksat), Standard Classes

Saturated Hydraulic Conductivity (Ksat), Standard Classes— Summary by Map Unit — Santa Cruz County, California (CA087)				
Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
133	Elkhorn sandy loam, 2 to 9 percent slopes	28.0000=3.9 in/hr	1.0	91.0%
174	Tierra-Watsonville complex, 15 to 30 percent slopes	3.5094	0.1	9.0%
Totals for Area of Interest			1.1	100.0%

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits. The classes are:

Very low: 0.00 to 0.01

Low: 0.01 to 0.1

Moderately low: 0.1 to 1.0

Moderately high: 1 to 10

High: 10 to 100

Very high: 100 to 705

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 12

Bottom Depth: 18

Units of Measure: Inches

Visual Analysis

of

Athletic Field Retaining Wall

August, 2013

ATTACHMENT 7

Photo 1 – from northbound Highway 1; field obscured by trees

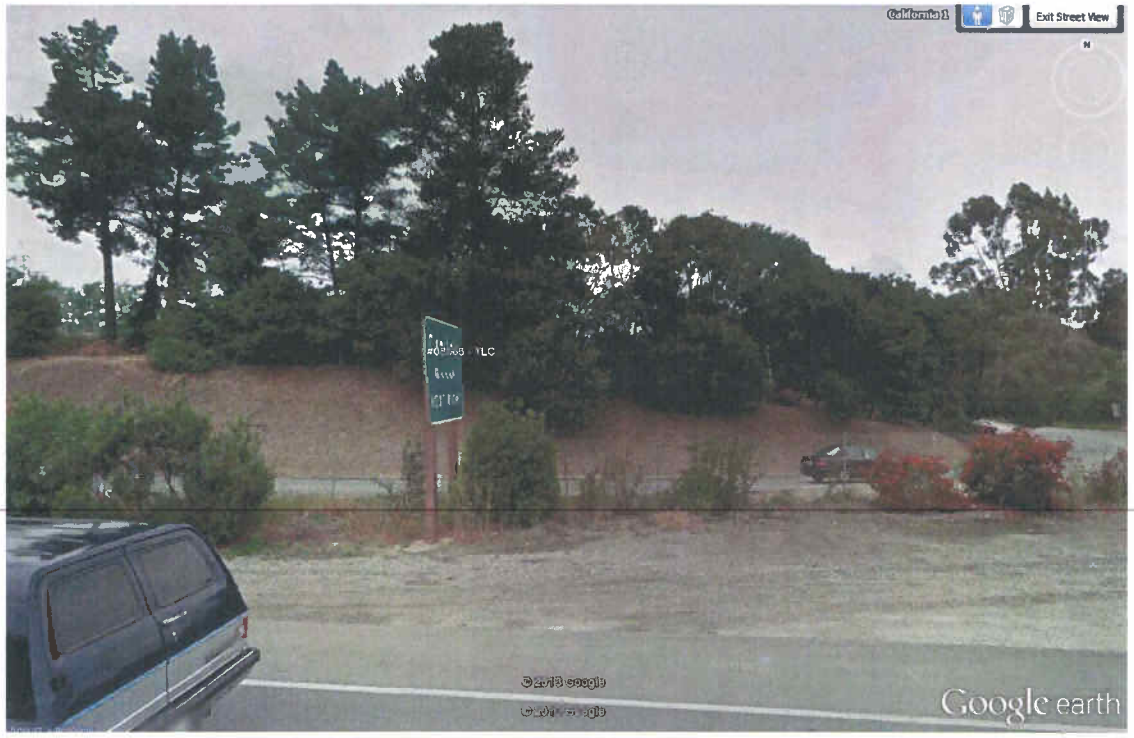


Photo 2 – from northbound Highway 1; field obscured by trees

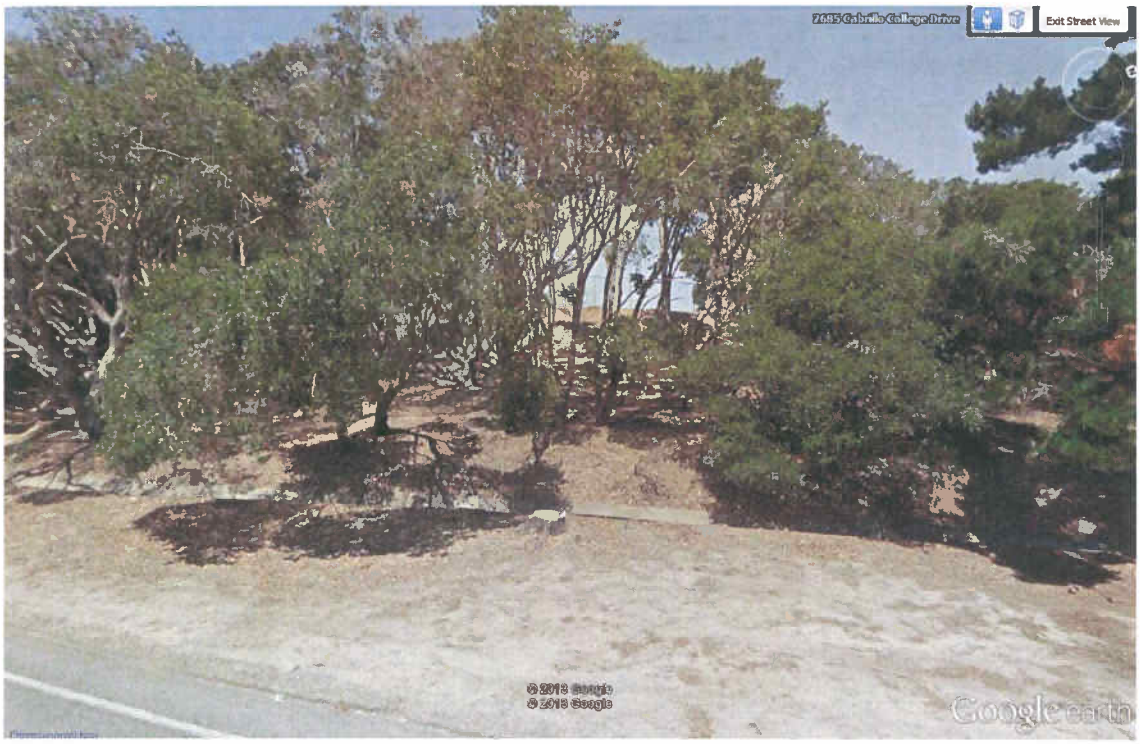


Photo 3 – from northbound Cabrillo College Drive; field barely visible through trees but this view can only be seen if standing in the road looking directly at the field, a view that would never be seen by a driver passing by as their attention would be focused on the curving roadway and oncoming traffic

Photo 4 – from southbound Cabrillo College Drive; field barely visible through trees but this view can only be seen if standing in the road looking directly at the field, a view that would never be seen by a driver passing by as their attention would be focused on the curving roadway and oncoming traffic

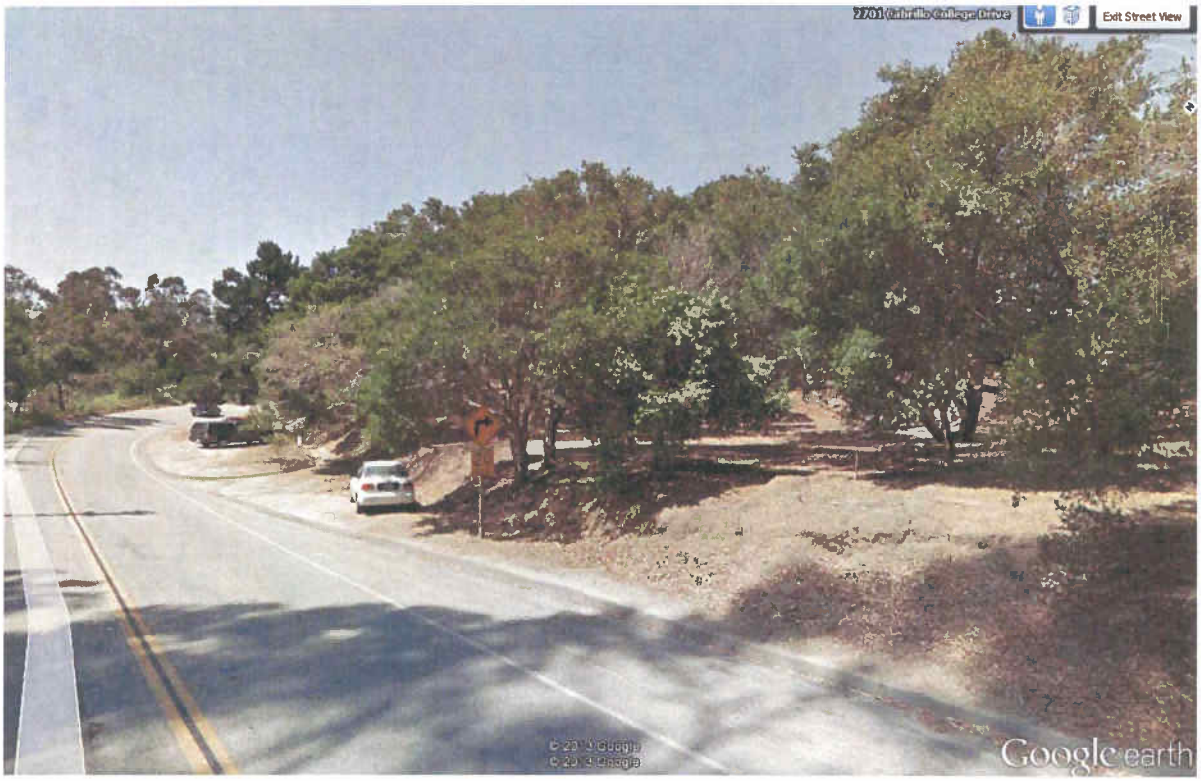


Photo 5 – view from Cabrillo College Drive heading south toward Highway One immediately south of entrance to TLC property

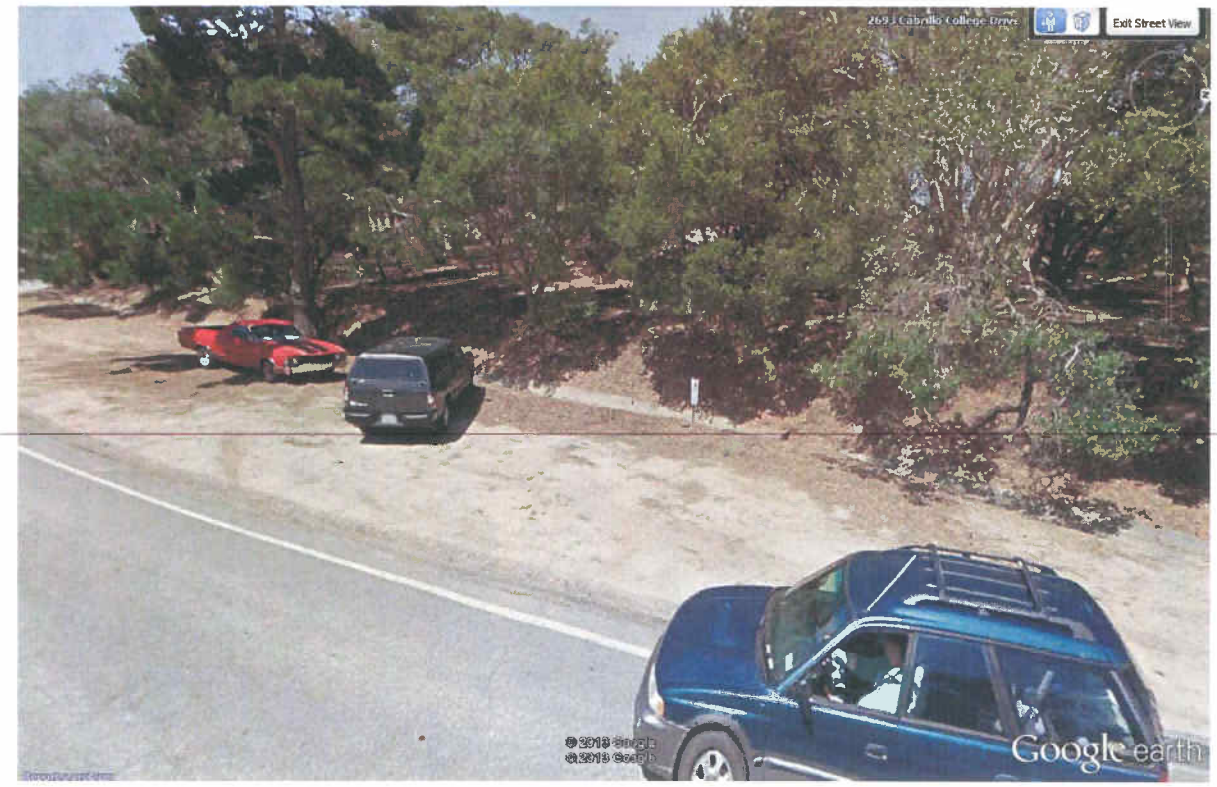


Photo 6 - view from Cabrillo College Drive heading south toward Highway One approximately 200 feet south of entrance to TLC property

TWIN LAKES CHRISTIAN SCHOOL
- Santa Cruz County -

Traffic Impact Analysis

Prepared for:
Twin Lakes Church
2701 Cabrillo College Drive
Aptos, CA 95003-3103

Larry D. Hail, CE, TE, PTOE
PINNACLE TRAFFIC ENGINEERING
831 C Street
Hollister, California 95023
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PinnacleTE.com

January 24, 2014

ATTACHMENT 8

EXECUTIVE SUMMARY

The traffic impact analysis (TIA) presents an evaluation of the potential impacts associated with the proposed project in the unincorporated Aptos area of Santa Cruz County. The existing Twin Lakes Church (TLC) campus is located at 2701 Cabrillo College Drive and includes various facilities (preschool, education facilities, administration building, fellowship hall, auditorium, nursery, gym, etc). A variety of activities occur at the TLC campus on weekdays and weekend days. Seasonal and holiday events also occur throughout the year.

The project will modify the approved TLC Master Plan (increase buildout of the campus by approximately 6,700 SF). The existing education buildings (modular) will be removed and new facilities constructed. The project will construct a new education building, chapel building and college outreach building. The existing softball field will be upgraded to accommodate a new multi-purpose recreation field for both softball and soccer activities. The project also proposes to increase the allowable number of students at the Twin Lakes Christian School (TLCS) and Children's Enrichment Center (CEC). The TLCS would have a maximum capacity for 403 students (net increase of 163) and the CEC would have a maximum capacity for 108 students (net increase of 28). A summary of the project components and daily operations are presented in the body of the TIA report. The proposed project and on-site improvements will essentially allow the TLCS to consolidate a majority of their classrooms into the new education building.

The project trip generation estimates were derived using data in the Institute of Transportation Engineers (ITE) Trip Generation Manual (9^{th} Edition). The data in Table 6 indicates that the project will generate approximately 626 daily trips, with 178 trips during the AM peak hour and 82 trips during the PM peak hour. The assignment of project trips to the local street was based on information provided by the TLC staff. A detailed description of the derivation of project trip generation estimates is presented in the body of the TIA report.

The scope of the project TIA was developed in consultation with County Planning and Public Works Department staff. The TIA presents a detailed evaluation of the potential project impacts on local traffic operations during typical weekday morning (7:00-9:00 AM) and afternoon (4:00-6:00 PM) peak commuter periods. The potential project impacts were analyzed at the following 4 study intersections:

1. Soquel Drive / Park Avenue (Signalized)
2. Soquel Drive / North Perimeter Road (Signalized)
3. Soquel Drive / Cabrillo College Drive (Signalized)
4. Park Avenue / Cabrillo College Drive (Signalized)

The TLC driveway intersection with Cabrillo College Drive was also analyzed. The TLC currently has a reciprocal parking agreement with Cabrillo College. County staff also requested that the project TIA provide an analysis of the potential parking impacts (post project conditions).

An evaluation of existing conditions was performed using new turning movement traffic count data collected at the study intersections. The County General Plan states that "level of service" (LOS) C is considered the objective, while establishing LOS D as the lower limit for acceptable operations where improvement costs, R/W, or environmental impacts could be excessive. The LOS analysis indicates that average delays at the study intersections are within acceptable limits during both the AM and PM peak hour periods (LOS D or better).

The project TIA provides an evaluation of the "approved projects" scenario, which is an analysis of traffic operations resulting from the development of already approved projects. Information regarding local approved projects was obtained from the County's Planning and Public Works Departments (5 known local approved projects). The Cabrillo College master plan documents were also reviewed to identify any future facilities that may generate significant amounts of new traffic. The approved projects are estimated to generate approximately 4,830 daily trips; with 162 trips during the AM peak hour and 427 trips during the PM peak hour. The analysis of the "existing plus approved projects" traffic volumes indicates that average delays at the study intersections will remain within acceptable limits during typical weekday AM and PM peak hour periods (LOS D or better). The evaluation of potential project impacts includes an analysis of the "existing plus approved projects plus project" traffic conditions. The analysis demonstrates that average vehicle delays at the study intersections will remain within acceptable limits with the addition of project traffic.

On-site parking is currently provided in various surface lots (484 stalls) and an unpaved overflow area (parking for another +/-60 vehicles). The construction of new buildings will eliminate some surface lot parking and the overflow parking area. A portion of the existing overflow area will be paved and striped to provide additional marked stalls. The parking analysis provides an evaluation of "post" conditions. The TLC reciprocal parking agreement with Cabrillo College allows each party to utilize parking on both properties. A parking survey was conducted to document existing demands under average weekday conditions. There are approximately 1,377 vehicles in the six (6) areas included in the survey (including lots on Cabrillo College campus). The peak demands in all lots occupied approximately 58-59% of the available parking (12:00-12:30 PM). Peak demands on the TLC campus utilized 65% of the total on-site parking (average of 2 days). Based on observations and information provided by the TLC staff, Cabrillo College students park approximately +/-180-200 vehicles in the TLC surface lots and overflow area during peak periods.

The construction of new buildings will eliminate 115 marked parking stalls on the TLC campus and the unpaved overflow parking area. The project improvements will result in a net reduction of 37 stalls on the TLC campus. Peak parking demands on average weekdays will continue to occur during class periods at the TCLS and Cabrillo College. The additional TLCS and CEC students will increase mid-day demands on average weekdays. Peak demands on selected Sundays will increase as a result of the new chapel building. To evaluate the TLC and TLCS parking requirements the project components were divided into church and school related uses. The "post" project conditions analysis for a typical weekday and weekend day (Sunday) was based on parking requirements in the County's Zoning Regulations and parking generation rates in the ITE Parking Generation Manual (3rd Edition). The required number of parking stalls for the TLC and TLCS project were derived for each component. The parking analysis concluded that there will be sufficient parking on-site available to accommodate average weekday and Sundays demands. The parking analysis also provides an evaluation of demands associated with the seasonal and holiday events that occur on the TLC campus (selected days throughout the year). The analysis concluded that sufficient parking will be available on the TLC campus to adequately accommodate "post" project conditions.

The cumulative traffic conditions analysis represents a 20 year study scenario. The base-line cumulative traffic volumes (no project) were derived using a 1.3% per year background growth rate. The analysis of the base-line cumulative traffic volumes indicates that average delays at the

study intersections will remain within acceptable limits during typical weekday AM and PM peak hour periods (LOS D or better). The evaluation of potential project impacts demonstrates that average delays at the study intersections will remain within acceptable limits during typical weekday AM and PM peak hour with the "cumulative plus project" traffic volumes. Based on the defined "level of significance" criteria, the project traffic will not significantly impact cumulative peak hour traffic operations at the study intersections.

The project TIA documents existing traffic conditions and analyzes the potential project impacts on existing and cumulative traffic conditions. The analyses demonstrate that the project traffic will not significantly impact existing or cumulative peak hour traffic operations at the study intersections. The project may be subject to County development fees adopted for the Aptos area. The fees are described in the County's Service & Capital Improvements Fees schedule (July 1, 2013) published by the Public Works Department. Payment of fee(s) provides a fair-share project contribution towards the funding of future needed improvements and serves to mitigate any potential long-range impacts. Again, it is noted that the proposed TLC Master Plan and TLCS project will only increase the buildout of the campus by approximately 6,700 SF (above the existing approved Master Plan). Any subject fee(s) should be directly related to the actual scope and timing of improvements to be constructed on the TLC campus.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX MATERIAL

1.0 INTRODUCTION

The following report presents an evaluation of the potential traffic impacts associated with the proposed project in the unincorporated Aptos area of Santa Cruz County (2701 Cabrillo College Drive). The existing Twin Lakes Church (TLC) campus includes various facilities (preschool building, modular education buildings, administration building, fellowship hall, an auditorium, nursery building, recreation building, bus barn, etc). A variety of activities occur at the TLC campus on weekdays and weekend days. Seasonal and holiday events also occur throughout the year. The project will modify the approved TLC Master Plan. The existing education buildings (modular) will be removed and a new education building constructed. A new chapel building and new college outreach building will also be constructed. The existing softball field will be upgraded to accommodate a new multi-purpose recreation field. The project will also allow an increase in the total number of students at the TLCS and Children's Enrichment Center (CEC). On-site parking is provided in various surface lots and an unpaved overflow area. Access to the TLC campus is currently provided via the existing driveways on Cabrillo College Drive and the Lower Perimeter Road. The general location of the TLC is shown on Figure 1.

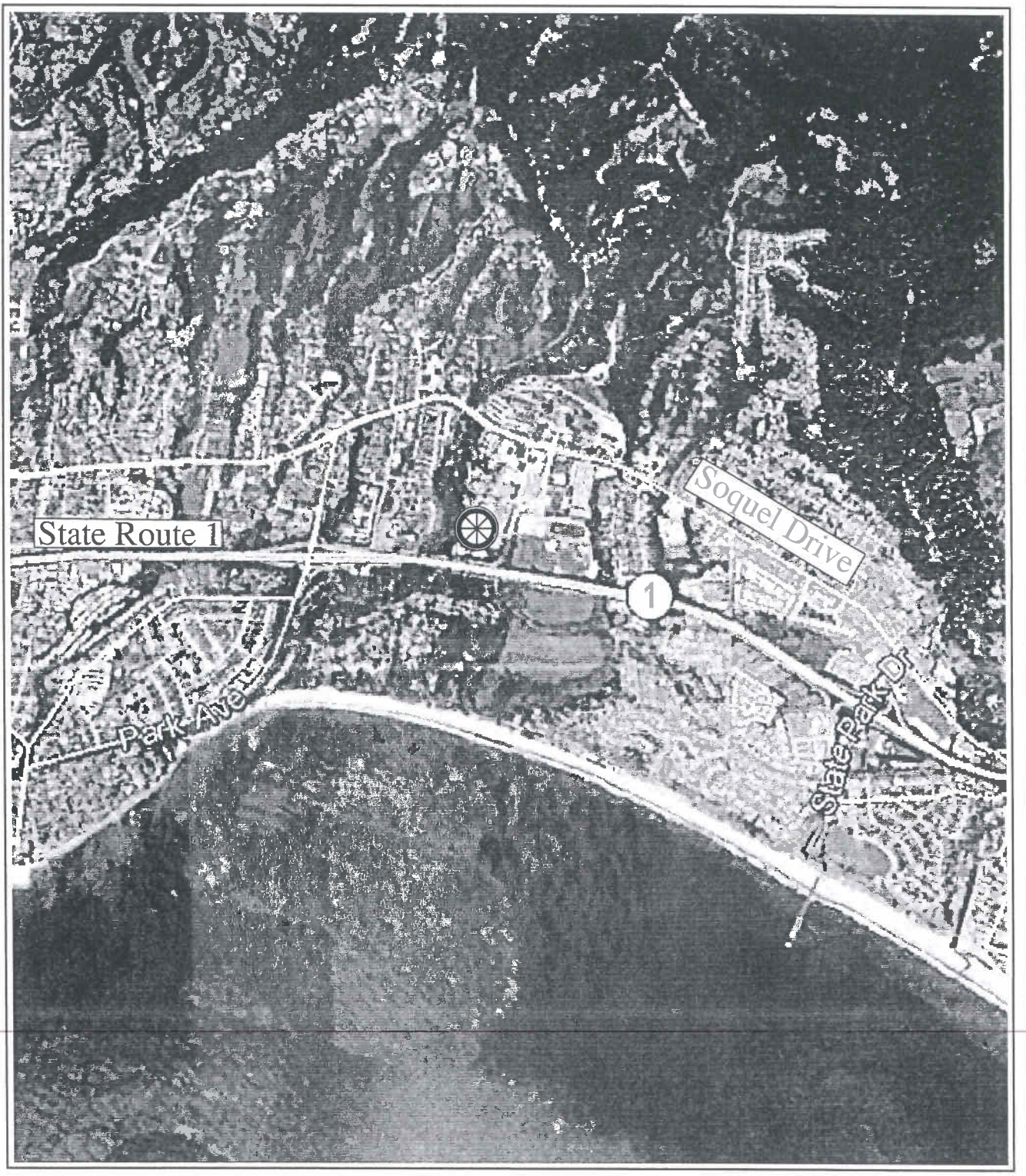
The scope of the project traffic impact analysis (TIA) was developed in consultation with County Planning and Public Works Department staff. The project TIA presents a detailed evaluation of the potential project impacts on local traffic operations during typical weekday morning (7:00-9:00 AM) and afternoon (4:00-6:00 PM) peak commuter periods. The potential project impacts are analyzed at the following 4 study intersections:

1. Soquel Drive / Park Avenue (Signalized)
2. Soquel Drive / North Perimeter Road (Signalized)
3. Soquel Drive / Cabrillo College Drive (Signalized)
4. Park Avenue / Cabrillo College Drive (Signalized)

The project TIA scope also includes an evaluation of the potential impacts on parking. The TLC currently has a reciprocal parking agreement with Cabrillo College. County staff requested an analysis to evaluate "post" project parking conditions. The analysis documents existing parking demands during average weekday conditions and analyzes the on-site parking requirements per the County's Zoning Regulations.

The project TIA was conducted according to the Guide for the Preparation of Traffic Impact Studies published by Caltrans (December 2002). Information in the following documents was reviewed during the course of conducting the project TIA:

- Santa Cruz County 1994 General Plan (Chapter 3 - Circulation)
- Santa Cruz County 2008 Traffic and Engineering Report
- Santa Cruz County 2010 Regional Transportation Plan (RTP)
- Santa Cruz County 2012 Regional Transportation Improvement Program (RTIP)
- Santa Cruz County 2012/13 Capital Improvement Program
- 2013/14 Santa Cruz Co. Service & Capital Improvement Fees Report (July 1, 2013)
- Aptos Village Plan (Feb. 23, 2010)



LEGEND

NORTH

= General Project Location

PINNACLE TRAFFIC ENGINEERING

TWIN LAKES CHRISTIAN SCHOOL
(APTOS, CA)
- TRAFFIC IMPACT ANALYSIS -

FIGURE 1
PROJECT
LOCATION MAP

2.0 EXISTING CONDITIONS

The street system serving the project site includes State Route 1, Soquel Drive, Park Avenue, Cabrillo College Drive and the Lower Perimeter Road. The following is a description of the local street system, an overview of existing conditions and an analysis of existing peak hour traffic operations.

Network Description

State Route 1 (SR 1) provides regional access through Santa Cruz County along the coast. SR 1 also provides local access for the various Cities and communities within the County. SR 1 extends north of Monterey County as a four-lane freeway. SR 1 has is a six-lane freeway section in the City of Santa Cruz and south of the SR 17. West of Santa Cruz, SR 1 is a conventional highway following the coast to San Francisco. Near the Aptos community, there are grade separated interchanges at Freedom Boulevard, Rio Del Mar Boulevard, State Park Drive, Park Avenue, Porter Street and 41st Avenue.

Soquel Drive through Aptos is a four-lane east-west arterial north of SR 1. Soquel Drive extends west from Freedom Boulevard to the SR 1 interchange at Soquel Avenue. The majority of Soquel Drive has Class II bike lanes, with a posted speed limit of 35 miles per hour (mph). Near the project site, Soquel Drive is signalized at Park Avenue, North Perimeter Road and Cabrillo College Drive.

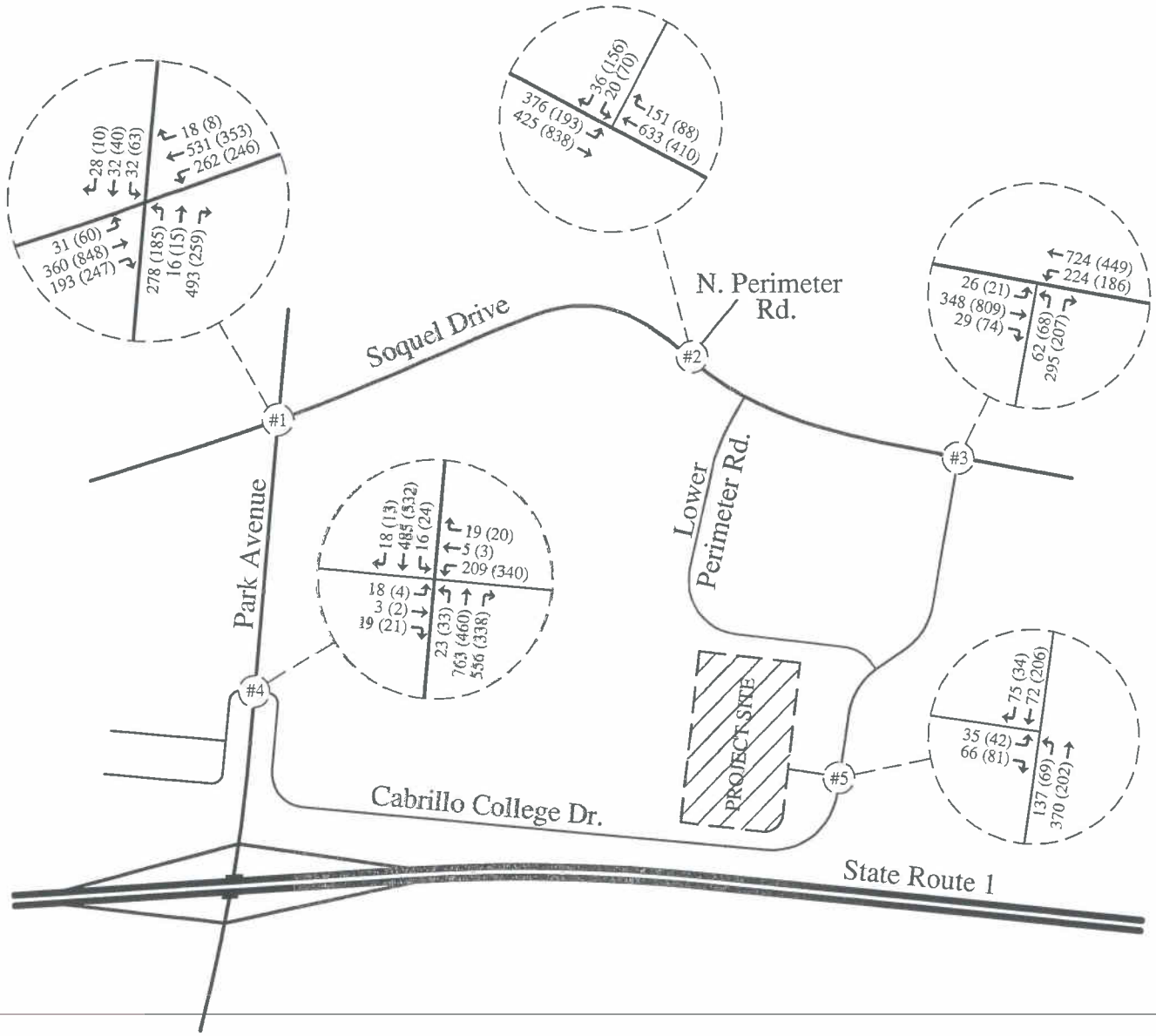
Park Avenue is a 2-lane north-south arterial between Soquel Drive to SR 1. This section of Park Avenue has Class II bike lanes and a 35 mph speed limit. North of Soquel Drive, Park Avenue is a collector street that provides access for local residences. Park Avenue extends south of SR 1 to Monterey Avenue. Park Avenue is signalized at Soquel Drive, Cabrillo College Drive and the SR 1 interchange.

Cabrillo College Drive is a collector street extending between Soquel Drive and Park Avenue. The section south of Soquel Drive adjacent to Cabrillo College and TLC is posted with a 30 mph speed limit. This collector street provides access to both the Cabrillo College and TLC campuses, and local residences west of the TLC. Cabrillo College Drive is signalized at Soquel Drive and Park Avenue.

Lower Perimeter Road serves as a collector street between Soquel Drive and Cabrillo College Drive. This collector street provides access to both the Cabrillo College and TLC campuses. The majority of Lower Perimeter Road is restricted to one-way traffic (southbound), while the segment south of Soquel Drive (150') and west of Cabrillo College Drive (500') allows two-way traffic.

Traffic Volumes

To document existing conditions new turning movement traffic count data was collected at the 4 study intersections during a typical weekday morning (7:00-9:00AM) and afternoon (4:00-6:00 PM) peak period (Oct. 29, 2013). New traffic count data was also collected at the TLC driveway on Cabrillo College Drive. The existing traffic volumes are shown on Figure 2. A copy of the new traffic count data is included with the Appendix Material.



LEGEND

← 00 (00) = AM (PM) PM Peak Hour Volume

NORTH

PINNACLE TRAFFIC ENGINEERING	TWIN LAKES CHRISTIAN SCHOOL (APTOS, CA) - TRAFFIC IMPACT ANALYSIS -	FIGURE 2 EXISTING TRAFFIC VOLUMES

Level of Service Analysis

Various "level of service" (LOS) analyses methodologies are used to evaluate traffic operations. Operating conditions range from LOS "A" (free-flowing) to LOS "F" (forced-flow). LOS values for intersection operations are evaluated using estimated vehicle delays (number of seconds per vehicle). Vehicle delays are reported for the overall intersection operations as an "average" and for each "critical" movement (ie: stop sign controlled approaches on minor street, main line left turn, etc). During peak commuter periods operations can be constrained at local intersections. Therefore, an analysis of peak hour intersection operations is a good method for measuring the potential impact associated with a specific project. The County General Plan indicates that LOS C should be considered the objective, while establishing LOS D as the lower limit for acceptable traffic operations (where costs, R/W requirements, or environmental impacts of maintaining LOS under the policy are excessive, capacity enhancements may be considered infeasible). A brief description of the LOS values and the LOS-to-delay relationship data are included with the Appendix Material.

The analysis of intersection operations was performed using the LOS methodologies outlined in the Highway Capacity Manual (HCM2000). The Synchro 8 software was used to evaluate the AM and PM peak hour traffic operations at the study intersections. The existing signal timing parameters and peak hour factors (PHF) were used to reflect actual operations. The existing delay and LOS data are also provided for the Cabrillo College Drive and TLC driveway intersection. The results of the existing peak hour LOS analysis are presented in Table 1. Copies of the LOS worksheets are included in the Appendix Material.

Table 1 - Existing Peak Hour Intersection LOS Analysis

Study Intersection	Vehicle Delay - LOS	
	AM Pk. Hr.	PM Pk. Hr.
#1 - Soquel Ave. / Park Ave.	34.0 - C	34.9 - C
#2 - Soquel Ave. / N. Perimeter Rd.	31.7 - C	16.1 - B
#3 - Soquel Ave. / Cabrillo College Dr.	15.3 - B	22.7 - C
#4 - Park Ave. / Cabrillo College Dr.	18.8 - B	24.6 - C
#5 - Cabrillo College Dr. / TLC Driveway	3.9 - A	3.4 - A

The data in Table 1 indicates that average delays at the study intersections and the TLC driveway are within the LOS A-C range during both peak hour periods. Estimated delays on the TLC driveway approach (stop sign controlled) to Cabrillo College Drive are within the LOS B range. Based on the County's LOS standard, peak hour operations are within acceptable limits. Observations of actual operations at the study intersections confirmed that overall conditions are within the acceptable limits during both peak periods.

Existing traffic volumes at the Cabrillo College Drive and TLC Driveway intersection do not exceed the minimum "peak hour" volume signal warrant criteria presented in the 2012 California Manual on Uniform Traffic Control Devices (MUTCD), Warrant #3. A copy of the California MUTCD signal warrant graph is included with the Appendix Material.

3.0 APPROVED PROJECTS CONDITIONS

An evaluation of the "approved projects" scenario is an analysis of traffic operations resulting from the development of already approved projects in this portion of the County. Information regarding local approved projects was obtained from the County's Planning and Public Works Departments, and discussions with the actual project developers. These projects have received development entitlements from the County, and therefore, could be built and occupied prior to the approval of the TLCS project. An evaluation of the approved projects scenario presents an analysis of the existing plus approved projects traffic conditions.

The Cabrillo College master plan documents were also reviewed to identify any future facilities that may generate significant amounts of new traffic. The 2013 Educational Master Plan states that the Aptos Campus is well positioned to meet the facility needs for academic spaces for the foreseeable future. The 2013 Facility Master Plan also indicates that the campus has the capacity to meet the 2025 space allocation for academic purposes. The master plan documents do not propose any new facilities, just the utilization of inactive space and/or alteration-conversion of existing space. Though enrollment growth may occur over time the increase in local traffic should be minimal since no new facilities are proposed. Therefore, any potential incremental increase in future enrollment at the Aptos campus could be considered a component of future background traffic growth. The general locations of the approved projects analyzed in the project TIA are illustrated on Figure 3.

Trip Generation Estimates

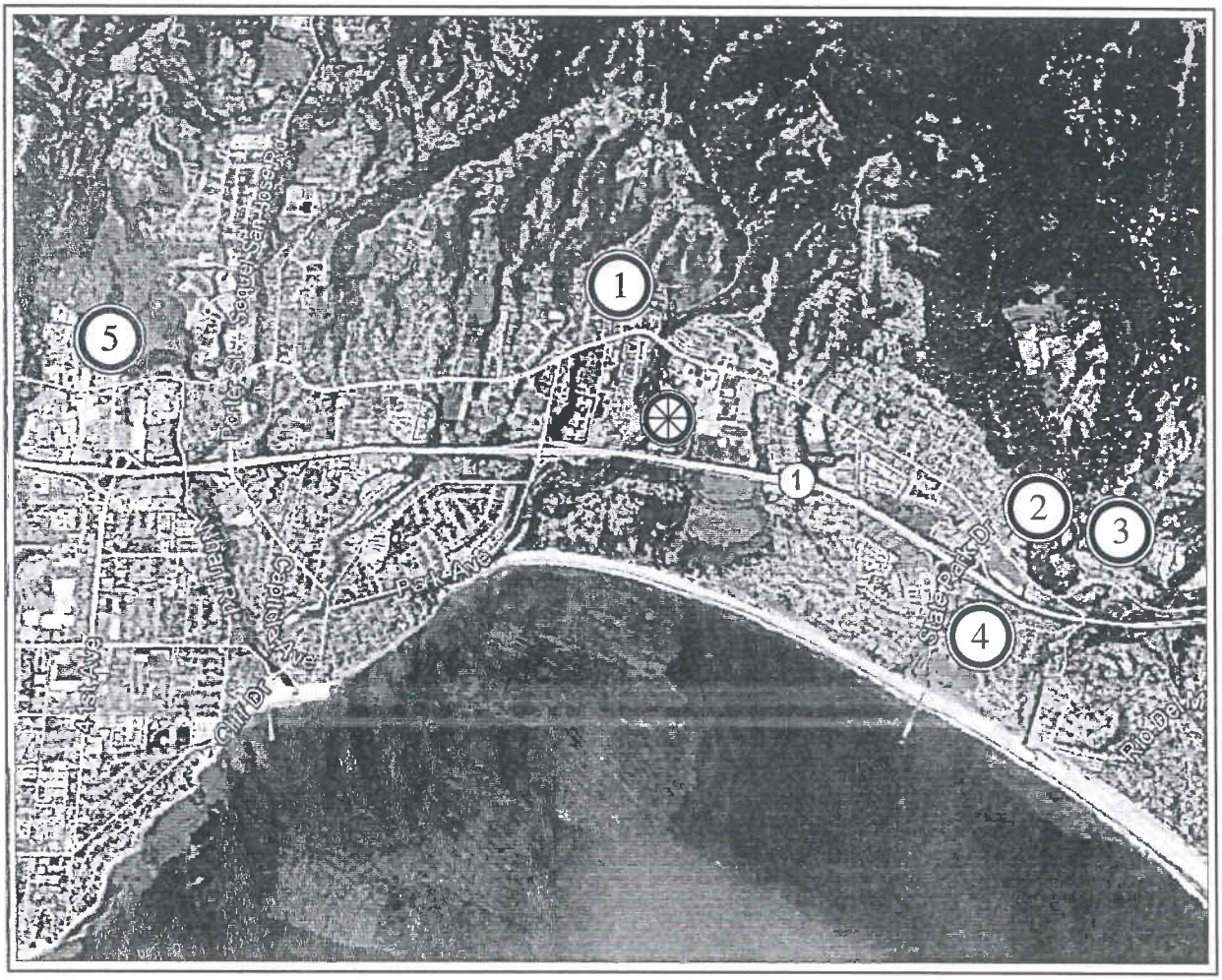
The trip generation estimates associated with the local approved projects were derived using data contained in the ITE Trip Generation Manual (9th Edition). Data from other project TIA reports is also referenced when applicable. The applicable ITE trip generation rates for the approved projects are displayed in Table 2.

Table 2 - ITE Trip Generation Rates (Approved Projects)

ITE Code - Land Use	Number of Vehicle Trips				
	AM Peak Hour		PM Peak Hour		Daily
	In	Out	In	Out	
#220 - Residential Apartment (a)	0.10	0.41	0.40	0.22	6.65
#230 - Residential Condominium (a)	0.07	0.37	0.35	0.17	5.81
#820 - Shopping Center (b)	0.60	0.36	1.78	1.93	42.70

(a) Number of vehicle trips per residential dwelling unit.
(b) Number of vehicle trips per 1,000 square feet.

The approved projects trip generation estimates were derived using the ITE trip generation rate data presented in Table 2 and data presented in other project TIA. The approved projects trip generation estimates are displayed in Table 3.



LEGEND

0 = Approved Project No. (See Table 3)

= General Project Location

NORTH

PINNACLE TRAFFIC ENGINEERING	TWIN LAKES CHRISTIAN SCHOOL (APTOS, CA) - TRAFFIC IMPACT ANALYSIS -	FIGURE 3 APPROVED PROJECTS LOCATION MAP

Table 3 - Approved Projects Trip Generation Estimates

Project No.	Land Use Description	Number of Vehicle Trips				
		AM Pk. Hr.		PM Pk. Hr.		Daily
		In	Out	In	Out	
1	Silver Oaks Homes - 17 Condo Units (a)	1	6	6	3	98
2	Aptos Blue - 40 Apartment Unit	4	16	16	9	266
3	Aptos Village (b)	52	61	162	160	3,650
4	Seacliff Village (b)	5	4	12	7	226
5	Soquel Towers Place - 13,800 SF (c)	8	5	25	27	590
	Total Approved Projects Trips:	70	92	221	206	4,830

(a) Total of 28 condo units, 16 built and 11 occupied (17 to be built & occupied).
(b) Data obtained from the Aptos Village TIA (TJKM - Nov. 2009).
(c) Total of 15,000 SF Commercial Retail (100% built and 1,200 SF occupied).

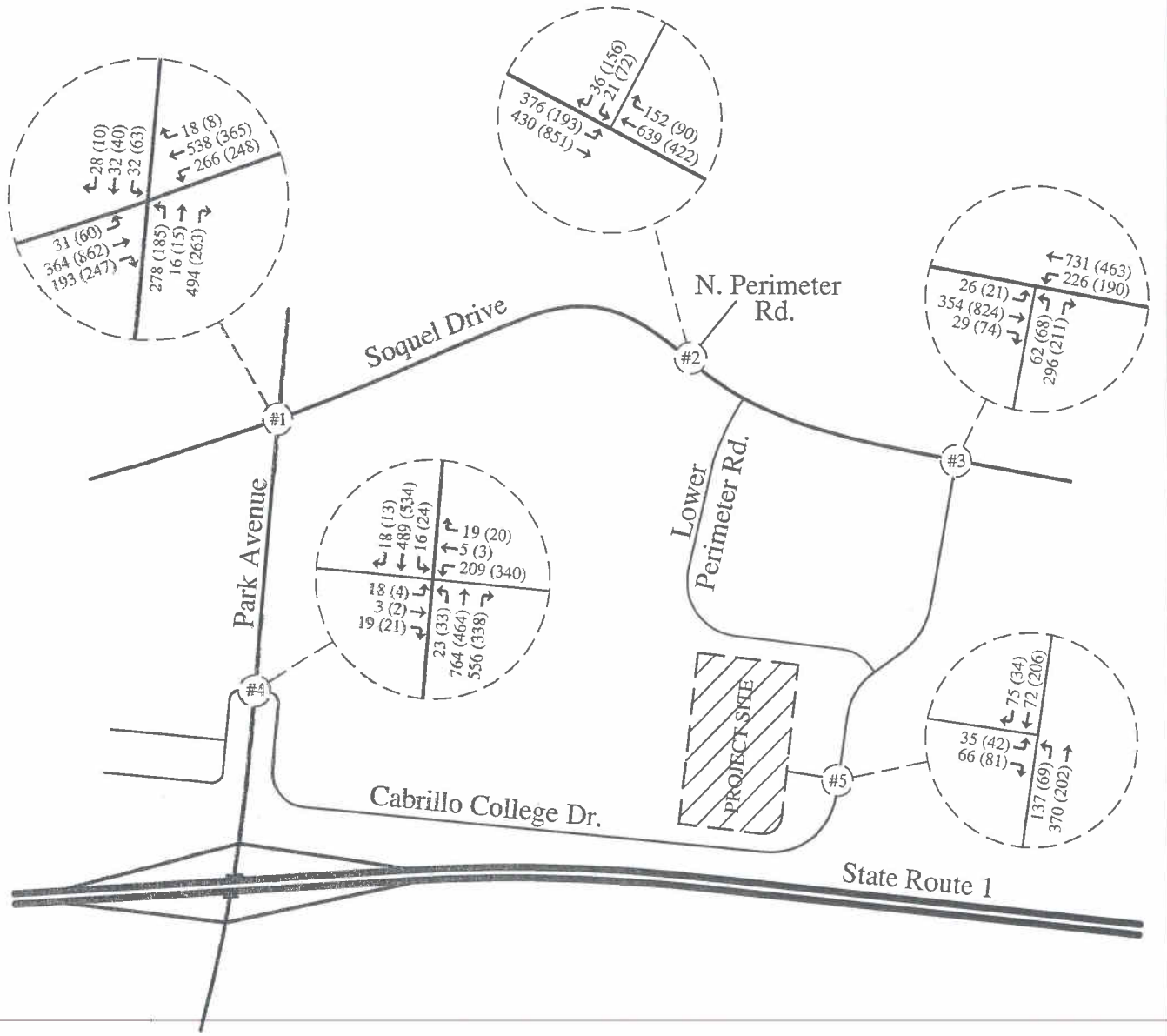
The data in Table 3 indicates that the approved projects will generate approximately 4,830 daily trips (two-way trip ends); with 162 vehicle trips during the AM peak hour (70 inbound and 92 outbound) and 427 vehicle trips during the PM peak hour (221 inbound and 206 outbound). Data in the ITE Trip Generation Handbook (2nd Edition) indicates that a portion of retail related trips are "pass-by" and/or "diverted-link" trips. These trips come from existing traffic already on the adjacent street system. Therefore, a portion of the total trips associated with the Aptos Village (#3) and Soquel Towers Place (#5) projects will be "pass-by" and "diverted-link" trips. The trips generated by the approved projects were assigned to the local street based a review of existing peak hour travel patterns and data presented in the individual TIA (where appropriate).

Existing Plus Approved Projects Traffic Volumes

As previously stated, an evaluation of the approved projects scenario presents an analysis of the existing plus approved projects conditions. The existing plus approved projects traffic demands at the study intersections were derived by adding the trips associated with the approved projects to the existing traffic volumes on Figure 2. The existing plus approved projects traffic volumes are illustrated on Figure 4.

Level of Service Analysis

Similar to the LOS analysis conducted for existing conditions, the LOS values for the study intersections were again estimated using the Synchro 8 software and the existing plus approved projects volumes on Figure 4. The results of the existing plus approved projects intersection LOS analysis are provided in Table 4. The existing vehicle delay data and LOS values are also provided for comparison purposes. Copies of the existing plus approved projects LOS analysis worksheets are included with the Appendix Material.



LEGEND

← 00 (00) = AM (PM) PM Peak Hour Volume

NORTH

PINNACLE TRAFFIC ENGINEERING	TWIN LAKES CHRISTIAN SCHOOL (APTOS, CA) - TRAFFIC IMPACT ANALYSIS -	FIGURE 4 EXISTING PLUS APPROVED PROJECTS TRAFFIC VOLUMES

Table 4 - Existing Plus Approved Projects Peak Hour Intersection LOS Analysis

Study Intersection	Peak Hour	Vehicle Delay - LOS	
		Existing	Existing + App. Projects
#1 - Soquel Ave. / Park Ave.	AM	34.0 - C	34.0 - C
	PM	34.9 - C	35.0 - C
#2 - Soquel Ave. / N. Perimeter Rd.	AM	31.7 - C	31.9 - C
	PM	16.1 - B	16.1 - B
#3 - Soquel Ave. / Cabrillo College Dr.	AM	15.3 - B	15.4 - B
	PM	22.7 - C	23.2 - C
#4 - Park Ave. / Cabrillo College Dr.	AM	18.8 - B	18.8 - B
	PM	24.6 - C	24.7 - C
#5 - Cabrillo College Dr. / TLC Driveway	AM	3.9 - A	3.9 - A
	PM	3.4 - A	3.4 - A

The LOS analysis indicates that average delays at the study intersections and the TLC driveway will remain within acceptable limits during typical weekday AM and PM peak hour periods. Delays on the TLC driveway approach (stop sign controlled) to Cabrillo College Drive will remain within the LOS B range.

4.0 PROJECT CONDITIONS

The following is a description of the proposed project, an estimate of the project trip generation quantities, an assignment of the project trips to the local street system, and an evaluation of the potential traffic and parking impacts.

Description

As stated in the Introduction, the project will modify the existing TLC Master Plan. The existing education buildings will be removed and new facilities constructed. The project will construct a new education building, chapel building and college outreach building. The existing softball field will be upgraded to accommodate a new multi-purpose recreation field for both softball and soccer activities. The following is a summary of the existing and proposed project components:

Existing Twin Lakes Church (TLC) Facilities (89,192 SF):
- Recreational Building (Gym) - 21,888 SF (church and school activities)
- Nursery Building - 5,184 SF (church and school activities)
- Administration Building - 4,624 SF (church and school activities)
- Auditorium - 42,296 SF / 1,200 Seats (church and school activities)
- Fellowship Hall - 11,648 SF (church activities)
- Bus Barn - 3,552 SF (church activities)

Existing Twin Lakes Christian School (TLCS) Facilities (13,504 SF / 320 Students):
- Pre-School Building - 7,744 SF / 80 students (school activities)
- Modular Education Buildings - 5,760 SF / 240 students (school activities)

Proposed New Twin Lakes Church (TLC) Facilities (13,120 SF):
- New Chapel Building - 7,744 SF / 300 Seats (church activities)
- New College Outreach Building - 5,376 SF (church activities)

Proposed New Twin Lakes Christian School (TLCS) Facilities (40,560 SF / 511 Students):
- New Education Building - 40,560 SF (school activities)

The TLC campus currently has approximately 102,696 SF of on-site facilities (89,192+13,504). The proposed project will remove the existing modular education buildings (-5,760 SF) and construct approximately 53,680 SF of new facilities (13,120+40,560). The proposed TLC Master Plan will now include a total of 150,616 SF of facilities (102,696-5,760+13,120+40,560). Information provided by the TLC indicates that the existing approved TLC Master Plan includes a buildout of approximately 144,000 SF. Therefore, the proposed TLC Master Plan modification and TLCS project will only increase the buildout of the campus by about 6,700 SF. The project also proposes to increase the allowable number of students at the TLCS (K-8) and CEC (preschool). The TLCS currently has approximately 240 students, which will increase up to a maximum of 403 students (a net increase of 163 students). The CEC currently has 80 students and will increase to a maximum of 108 students (a net increase of 28 students).

As previously stated, on-site parking is currently provided in various surface lots and an unpaved overflow area. The construction of new buildings will eliminate some surface lot parking stalls and the overflow parking area. A portion of the existing unpaved overflow parking area will be paved and striped to provide additional marked stalls. An analysis of parking and the potential

project impacts is provided in the "Parking Analysis" sub-section. Access to the TLC campus will continue to be provided via the existing driveways on Cabrillo College Drive and the Lower Perimeter Road. A copy of the project site plan is shown on Figure 5.

Daily Operations

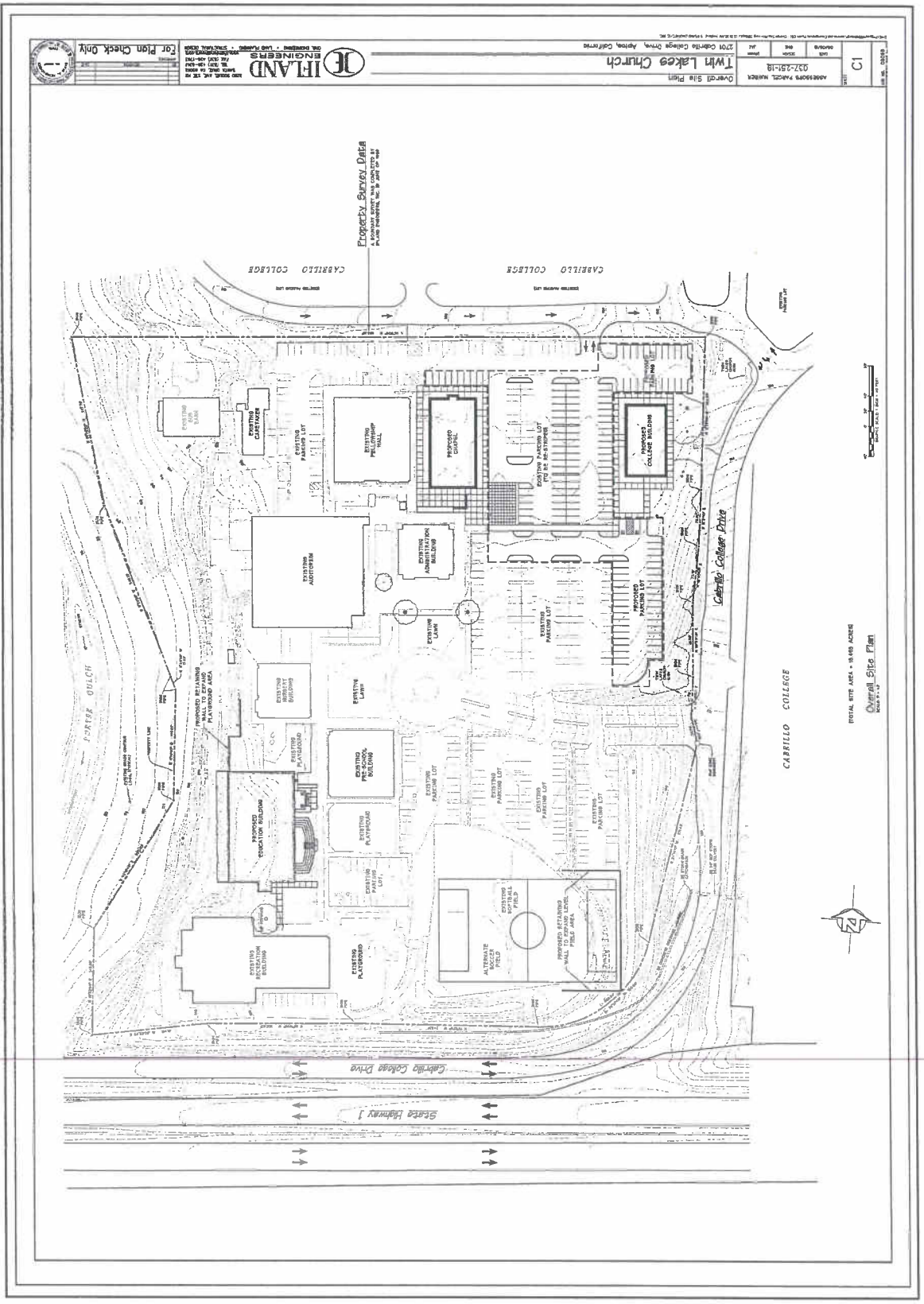
Information regarding operations on the TLC campus was obtained from the Campus Usage chart, which presents the scheduling of activities for each day of the week. Preschool and K-8 classes occur at the TLCS during fall and spring sessions (late August through early June). A variety of activities also occur at the TLC on selected weekdays during and after school hours (ie: bible studies, grief counseling, choir practice, zumba classes, people's pantry, Under the Stars, etc). On average weekend days operations also include typical functions (ie: bible studies, sporting activities, memorial/wedding services, and church services). Throughout the year there are seasonal and holiday events that occur on campus (summer camp, music/drama camp, adult softball during the summer, holiday church services, Christmas concert, Christmas candlelight service, etc). The existing soft-ball field is currently used by TLCS students during daily activities and during the summer months by the adult softball team (June-August).

The proposed project and on-site improvements will essentially allow the TLCS to consolidate a majority of their classrooms into the new education building. The new chapel will be used exclusively for church activities and provide 300 new seats for church services. The new college outreach building will primarily be used for church functions on weekends. On weekdays the church will provide staff and allow Cabrillo College students to use the facility between classes in lieu of leaving and returning. This will also give church staff an opportunity to interact with Cabrillo College students. The new multi-purpose recreation field (upgraded existing softball field) will continue to be used by the TLCS students on a daily basis and the adult softball team (June-August). It is anticipated that the new field will be used occasionally for after school for soccer games (approximately 1 per week during soccer season).

Trip Generation Estimates

The project trip generation estimates have been derived using data in the ITE Trip Generation Manual (9th Edition). As stated in the Introduction (Section 1.0), the project TIA presents an analysis of the potential impacts on operations during typical weekday commuter peak periods (highest hour between 7:00-9:00 AM and 4:00-6:00 PM). Trip generation rates associated with various school and church related categories were reviewed to determine the most appropriate rates to utilize for the project trip generation estimates. The number of trips associated with the new chapel building (7,744 SF / 300 seats) and college outreach building (5,376 SF) has been estimated using the church category (#560). The new college outreach build will have 2-3 staff from the church on a typical weekday. It is anticipated that the college outreach building could actually reduce the amount of existing vehicular traffic as Cabrillo College students will be able to use the facility and relax between classes in lieu of leaving and returning (similar to a library or student union). The new trips associated with the proposed increase in TLCS students has been estimated using the appropriate school category.

The ITE Trip Generation Manual does not contain PM "peak hour of adjacent street system" or daily trip rate data for the Private School (K-8) category (#534). Therefore, the PM "peak hour



PINNACLE TRAFFIC ENGINEERING

TWIN LAKES CHRISTIAN SCHOOL
(APTOS, CA)
- TRAFFIC IMPACT ANALYSIS -

FIGURE 5
PROJECT
SITE PLAN

of adjacent street system" trip rates were estimated using the relationship between the PM "peak hour of generator" and PM "peak hour of adjacent street system" rates associated with the Elementary School category (#520). In a similar manner, the daily trip rate was estimated using the relationship between the (#536) Private School (K-12) and (#530) High School daily rates. The private school (K-12) use generates about 45% more daily traffic than the traditional "public" high school use. The daily trip rate for the (#534) Private School (K-8) category was then derived by multiplying the (#522) Middle School by 1.45. The applicable ITE trip generation rates are displayed in Table 5.

Table 5 - ITE Trip Generation Rates (Project)

ITE Code - Land Use	Unit	Number of Vehicle Trips Per Unit				
		AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
#520 - Elementary School (a)	Student	0.25	0.20	0.07	0.08	1.29
#522 - Middle School (b)	Student	0.30	0.24	0.08	0.08	1.62
#534 - Private School (K-8)	Student	0.49	0.41	0.15 (c)	0.17 (c)	2.35 (d)
#560 - Church	1,000 SF	0.35	0.21	0.26	0.29	9.11
#565 - Day Care Center	Student	0.42	0.38	0.38	0.43	4.38

(a) PM peak hour on adjacent street system is 54% of afternoon peak hour of generation.
(b) PM peak hour on adjacent street system is 53% of afternoon peak hour of generation.
(c) PM peak hour on adjacent street system estimated at 54% of afternoon peak hour generation (0.60).
(d) Daily trip rate estimated at 1.45 (#536-2.48 / #530-1.71) times the middle school daily rate.

The project trip generation estimates were derived for each component using the applicable ITE trip generation rates in Table 5. The project trip generation estimates are presented in Table 6.

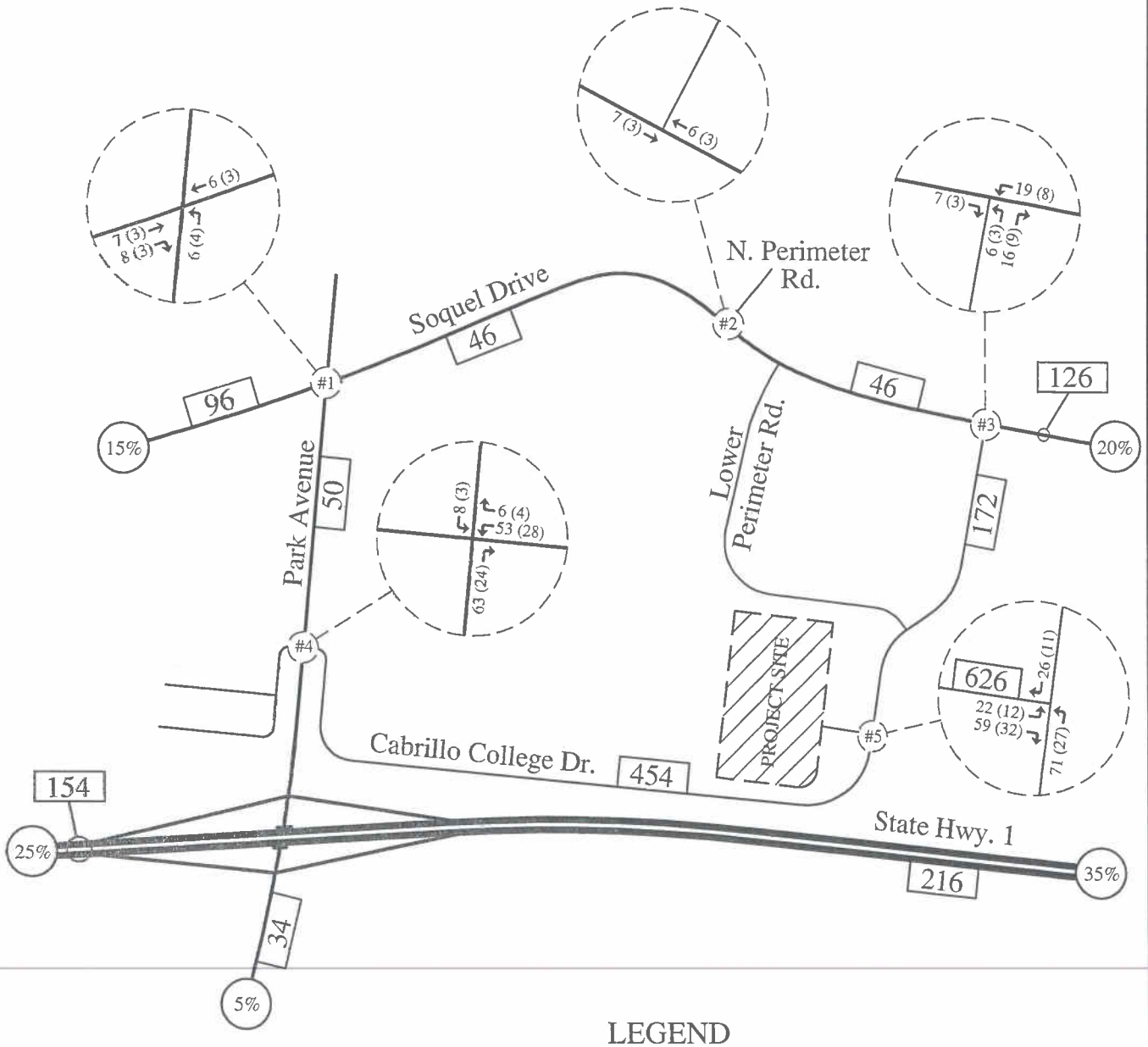
Table 6 - Project Site Trip Generation Estimates

Project Components	Number of Vehicle Trips				
	AM Peak Hour		PM Peak Hour		Daily
	In	Out	In	Out	
Private School (K-8), + 163 Students	80	67	24	28	384
Day Care Center, +28 Students	12	11	11	12	122
New Church Facilities, +13,120 SF	5	3	3	4	120
Total Project Trip Generation:	97	81	38	44	626

The data in Table 6 indicates that the project will generate approximately 626 daily trips (two-way trip ends), with 178 trips during the AM peak hour (97 inbound & 81 outbound) and 82 trips during the PM peak hour (38 inbound & 44 outbound).

Assignment of Trips

The assignment of project trips to the local street was based on information provided by the TLC, which accounts for the geographic location of the student body. It is estimated that approximately 60% will be oriented to and from SR 1 (25% north and 35% south), 35% to and from Soquel Drive (15% west and 20% east), and 5% to and from the Park Avenue south of SR 1. The project traffic volumes are illustrated on Figure 6.



LEGEND

← 00 (00) = AM (PM) PM Peak Hour Volume

000 = Average Daily Traffic (ADT) Volume

XX% = Distribution Assignment Percentage

NORTH

PINNACLE TRAFFIC ENGINEERING

TWIN LAKES CHRISTIAN SCHOOL
(APTOS, CA)
- TRAFFIC IMPACT ANALYSIS -

FIGURE 6
PROJECT
TRAFFIC VOLUMES

Level of Significance Criteria

As discussed in the Existing Conditions section, the County General Plan states that LOS C is considered the objective, while establishing LOS D as the lower limit for acceptable operations where improvement costs, R/W requirements, or environmental impacts for maintaining LOS C are excessive and capacity enhancements may be considered infeasible. Since costs of roadway improvements, additional R/W or mitigation of environmental impacts along Soquel Drive and Park Drive would be excessive, the LOS D threshold is used as the lower limit for acceptable operations when evaluating the potential impacts associated with the TLCS project.

Existing Plus Approved Projects Plus Project Level of Service Analysis

Similar to the LOS analysis conducted for the existing and approved projects scenarios, the LOS values for the study intersections were estimated using the Synchro 8 software. The project volumes illustrated on Figure 6 were added to the existing plus approved projects traffic volumes on Figure 4. The results of the existing plus approved projects plus project intersection LOS analysis are presented in Table 7. The existing and existing plus approved projects data are also provided for comparison purposes. Copies of the existing plus approved projects plus project LOS analysis worksheets are included with the Appendix Material.

Table 7 - Existing Plus Approved Projects Plus Project
Peak Hour Intersection LOS Analysis

Study Intersection	Peak Hour	Vehicle Delay - LOS		
		Existing	Existing + App. Projects	Existing + App. Projects + Project
#1 - Soquel Ave. / Park Ave.	AM	34.0 - C	34.0 - C	34.2 - C
	PM	34.9 - C	35.0 - C	35.0 - C
#2 - Soquel Ave. / N. Perimeter Rd.	AM	31.7 - C	31.9 - C	32.1 - C
	PM	16.1 - B	16.1 - B	16.1 - B
#3 - Soquel Ave. / Cabrillo College Dr.	AM	15.3 - B	15.4 - B	15.8 - B
	PM	22.7 - C	23.2 - C	24.1 - C
#4 - Park Ave. / Cabrillo College Dr.	AM	18.8 - B	18.8 - B	25.7 - C
	PM	24.6 - C	24.7 - C	26.9 - C
#5 - Cabrillo College Dr. / TLC Dwy.	AM	3.9 – A	3.9 - A	6.1 - A
	PM	3.4 – A	3.4 - A	4.4 - A

The data in Table 7 demonstrates that average vehicle delays at the study intersections and the TLC driveway will remain within acceptable limits during typical weekday AM and PM peak hour periods (LOS D or better), with the addition of project traffic. Delays on the TLC driveway approach (stop sign controlled) to Cabrillo College Drive will be in the LOS B-C range. Based on the defined "level of significance" criteria, the project traffic will not significantly impact peak hour traffic operations at the study intersections. The existing plus approved projects plus project traffic volumes at the Cabrillo College Drive and TLC Driveway intersection will not exceed the minimum "peak hour" volume signal warrant criteria (2012 California MUTCD, Warrant #3). A copy of the California MUTCD signal warrant graph is included with the Appendix Material.

Parking Analysis

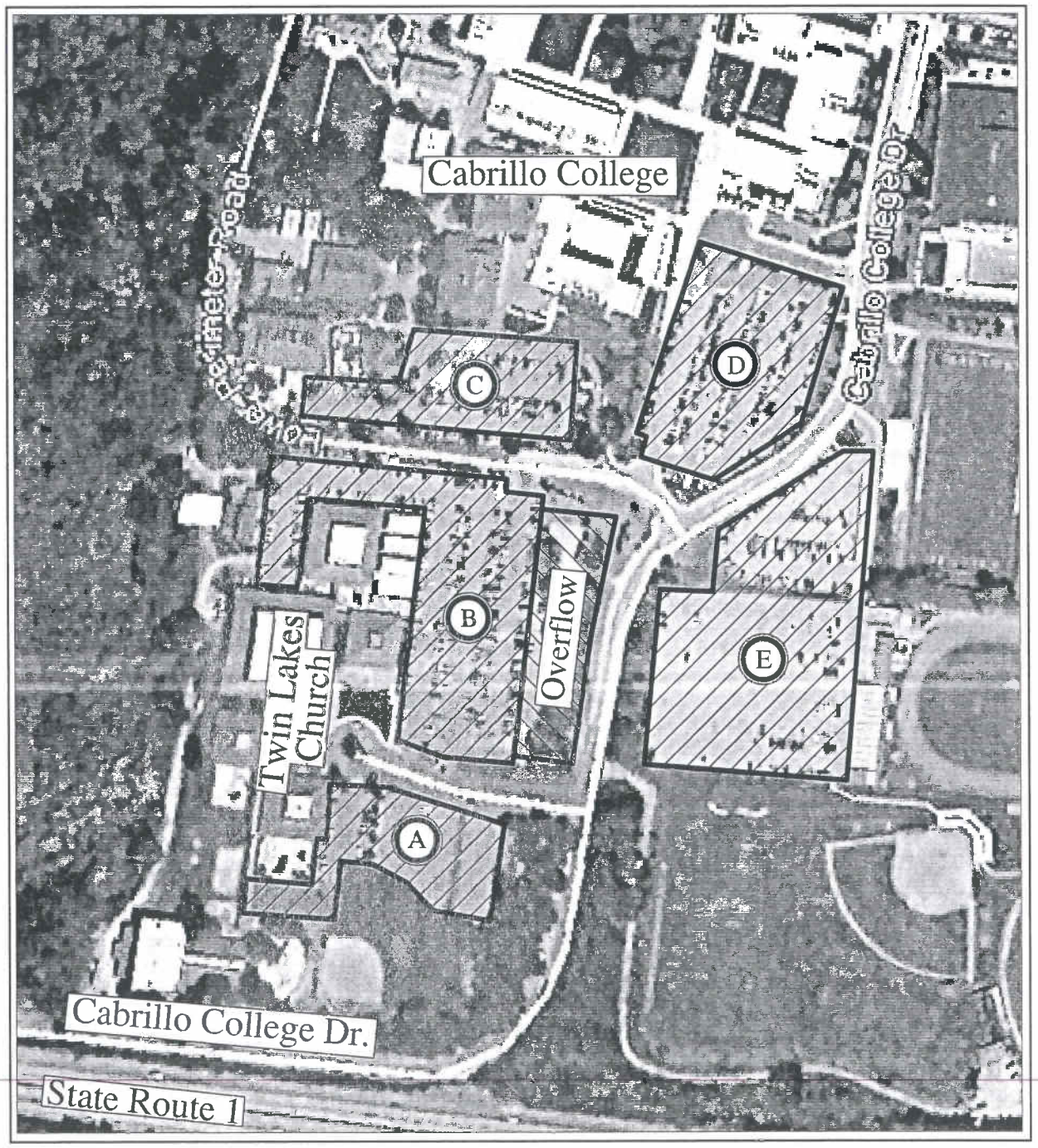
The parking analysis provides an evaluation of "post" project conditions. As previously stated, the TLC has a reciprocal parking agreement with Cabrillo College. The agreement allows each party to utilize parking on both properties. Peak demands associated with classes at the TLCS and Cabrillo College typically occur during weekday daytime hours when fall and spring classes are in session. Peak demands at the TLC also occur on Sundays during regular church services and throughout the year during selected seasonal and holiday events.

There are currently 484 marked parking stalls on the TLC campus, with overflow parking provided for another +/-60 vehicles. During weekdays Cabrillo College students utilize a portion of the surface lot parking stalls and overflow parking area adjacent to Cabrillo College Drive (northeast corner of TLC campus). To document existing average weekday conditions a parking survey was conducted on a typical Wednesday (Nov. 6, 2013) and Thursday (Nov. 7, 2013). The survey boundaries included all on-site parking on the TLC campus and the 3 Cabrillo College surface lots immediately adjacent to the TLC campus (2 north of Lower Perimeter Road and 1 east of Cabrillo College Drive). The parking survey boundaries are illustrated on Figure 7. The total amount of on-site parking was confirmed and the actual number of parked vehicles was recorded every 30 minutes between 8:00 AM and 6:00 PM. A summary of the peak parking survey data is presented in Table 8. Copies of the parking survey data sheets for each area are provided with the Appendix Material.

Table 8 - Peak Parking Survey Data Summary

Peak Times	Capacity	Survey Area - Number of Parked Vehicles						Totals:	Percent Occupied
		A	B	Overflow	C	D	E		
		137	347	60	161	247	425	1,377	
Wednesday (11/6/13)									
12:00-12:30 PM	Parked Cars	31	299	42	132	219	90	813	59%
Thursday (11/7/13)									
12:00-12:30 PM	Parked Cars	24	263	45	128	216	116	792	58%

The data in Table 8 demonstrates that there is parking available for approximately 1,377 vehicles in the six (6) areas included in the survey boundaries. On both days the peak demands occupied approximately 58-59% of the available parking. Peak demands on the TLC campus utilized 68% (372/544) of the total on-site parking on Wednesday and 61% (332/544) on Thursday (Areas A, B and overflow). It is noted that during typical weekdays the two (2) surface lots on the east end of Area "A" (adjacent to the sports field) are closed and not used (85 parking stalls). Therefore, peak demands on Wednesday utilized 81% (372/(544-85)) of the available parking and 72% (332/(544-85)) on Thursday. These lots are open for use during the seasonal and holiday events at the TLC. Based on observations conducted during the survey and information provided by the TLC staff, Cabrillo College students use approximately 35-40% of the available parking in Area "B" and the overflow area (parking for a total of +/-180-200 vehicles). Therefore, peak weekday demands associated with the TLC and TLCS operations only use about 40-45% ((372-180)/544-85) of the available on-site parking on the TLC campus.



LEGEND

= Parking Area Boundary

(X) = Parking Area Designation

NORTH

PINNACLE TRAFFIC ENGINEERING

TWIN LAKES CHRISTIAN SCHOOL
(APTOS, CA)
- TRAFFIC IMPACT ANALYSIS -

FIGURE 7
PARKING SURVEY BOUNDARIES

The construction of new buildings will eliminate 115 marked parking stalls in Area "B" and the unpaved overflow parking area (60 stalls) adjacent to Cabrillo College Drive. The surface lot (Area B) between the new chapel and college outreach buildings will be restriped and a new surface lot will be constructed in the existing overflow area (total of 138 new stalls). The project improvements will result in a total of 507 marked stalls for on-site parking (544-115-60+138), which is a net reduction of 37 stalls (544-507).

The evaluation of "post" project conditions presents an analysis of the potential parking impacts on the TLC campus. Peak parking demands on average weekdays will continue to occur during class periods at the TCLS and Cabrillo College. The additional K-8 students (+163) at the TLCS and preschool students (+28) at the CEC will increase mid-day demands on average weekdays. Peak demands on selected Sundays throughout the year will increase as a result of the new chapel building (typically won't be needed for regular Sunday church services). To determine the parking requirements associated with the TLC and TLCS project the components were divided into church and school related uses. The following is a breakdown of the components used for the parking analysis:

Twin Lakes Church (TLC) and Twin Lake Christian School (TLCS) Facilities:
Ex. Rec. Building (Gym) - 21,888 SF (considered part of the church and school uses)
Ex. Nursery Building - 5,184 SF (considered part of the church and school uses)
Ex. Administration Building - 4,624 SF (to be treated as general office space)
Ex. Auditorium - 42,296 SF / 1,200 Seats (to be treated as church use)
New Chapel Building - 7,744 SF / 300 Seats (to be treated as church use)
Ex. Fellowship Hall - 11,648 SF (considered part of the church use)
Ex. Pre-School Building - 7,744 SF / 108 students (to be treated as day care use)
New Education Building - 40,560 SF / 403 K-8 students (to be treated as school use)
New College Outreach Building - 5,376 SF (to be treated as general office space)
Ex. Bus Barn - 3,552 SF (considered part of the church use)

The "post" project conditions analysis for a typical weekday and weekend day (Sunday) is based on parking requirements in the County's Zoning Regulations and parking generation rates in the ITE Parking Generation Manual (3rd Edition). The applicable County parking requirements and ITE rates are presented in Table 9.

Table 9 - County Parking Requirements and ITE Parking Generation Rates

Land Use	Number of Stalls Per Unit	
	Santa Cruz Co.	ITE Rate
Elementary School (Weekday)	0.3 / Employee	N/A
	N/A	0.28 / Student
Day Care Center (Weekday)	1 / 5 Students	0.24 / Student
Business Office (Weekday)	1 / 300 SF	2.84 / 1,000 SF
Church (Sunday)	0.25 / Seat	0.16 / Seat

The required number of parking stalls for the TLC and TLCS project were derived for each component using the applicable requirements and rates in Table 9. The requirements were estimated for both typical weekday and weekend day (Sunday) periods. The TLC and TLCS parking requirements are presented in Table 10.

Table 10 - TLS and TLCS Parking Requirements

Land Use	Number of Parking Stalls	
	Weekday	Weekend Day (Sunday)
TLCS - 403 K-8 Students (a)	113 Stalls	N/A
CEC - 108 Day Care Students (b)	22 Stalls	N/A
Ex. Admin. Building - 4,624 SF (b)	16 Stalls	N/A
Ex. Auditorium - 1,200 Seats (b)	N/A	300 Stalls
New Chapel Building - 300 Seats (b)	N/A	75 Stalls (c)
New College Outreach Bldg. - 5,376 SF (b)	18 Stalls	N/A
Totals:	169 Stalls	375 Stalls

(a) Parking requirement based on ITE parking generation rate.
(b) Parking requirement based on Santa Cruz County Zoning Regulation.
(c) Used on selected Sundays throughout the year.

As previously stated, the project improvements will result in a total of 507 marked stalls for on-site parking. Assuming that the Cabrillo College student demand utilizes 180-200 stalls during typical weekday conditions, approximately 307 stalls will be available to accommodate demands associated with the TLC and TLCS daily operations. Therefore, it is concluded that there will be sufficient parking on-site to accommodate average weekday conditions. The data in Table 10 also demonstrates that sufficient parking will be available on the TLC campus to accommodate regular Sunday services, when there is no demand associated with Cabrillo College students.

The TLC Campus Usage chart provides a detailed description of daily activities throughout the year. A variety of activities occur on selected weekdays during and after school hours. The usage chart indicates that on an average Tuesday morning (8:00-10:30 AM) there are zumba (25 people) and bible study (140 people) classes, a women's bible study leaders meeting (20 people). Tuesday mornings tend to be the busiest for activities not directed related to school or church operations. If it is assumed that the vehicle occupancy rate is about 2.0 persons per vehicle an additional +/-95 parking stalls is required to accommodate the additional demand. A review of the parking survey data sheets demonstrates that average on-site demands around 11:00 AM utilize approximately 53% of the total on-site parking (287/544). This will increase to 57% under "post" project conditions (287/507). Therefore, it is concluded that sufficient parking will be available on-site to accommodate the Tuesday morning activities (95 < 507-287).

The TLC usage chart also indicates that on Wednesday afternoons (2:30-5:30 PM) the church hosts a "people's pantry" function that provides donated food for local families in need (150 people spread over a 3 hour period). Wednesday afternoons tend to be the busiest for activities not directed related to school or church operations. The parking demands associated with the "people's pantry" function are included in the parking survey data, as this function did occur on November 6, 2013 (when the parking survey was conducted). A review of the parking survey data sheets demonstrates that average demands around 3:00 PM utilize about 46% of the total on-site parking (249/544). This will increase to 49% under "post" project conditions (249/507). Therefore, it is concluded that sufficient parking will continue to be available to accommodate Wednesday afternoon activities.

Typical night time activities (starting at 6:00 PM or later) that occur throughout the week include share his care (70 people), bible study (40 people), recovery group (75 people), men's leadership meeting (20 people), Junior High (120 people), College Group (40 people), and worship team and bands (15 people). A review of the parking survey data sheets demonstrates that average demands at 6:00 PM only utilize approximately 34% of the total on-site parking (185/544). This will increase to 36% under "post" project conditions (185/507). It should be noted that demands in the Cabrillo College parking lots (Areas C, D and E) only occupy about 22% of the available parking at 6:00 PM. Sufficient parking will continue to be available to accommodate weekly night time activities on the TLC campus.

As previously described, throughout the year there are seasonal and holiday events that occur on the TLC campus. Summer Camp provides activities between June and August (950 kids) and Music/Drama Camp occurs the first week of August (200 kids). In addition, during the summer months (June-August) the adult softball team has activities (practice or games) that typically occur after 5:30 PM. Parking demands associated with the summer month events are easily accommodated on-site since classes at the TLCS are on summer break and there are significantly fewer Cabrillo College classes and students during the summer.

The TLC campus usage chart also describes various infrequent and once a year events. These include Standards Under the Stars (100 people), a back to school night (300 people), Christmas Concerts (1,927 people), Christmas Candle Light Services (1,050 people), Women's Christmas Tea (400 people), and Music/Drama Camp performance (500 people), TLCS Auction/Dinner (250 people), and TLCS movie night (100 people). These events only occur on selected days and are not scheduled on the same days as other weekly functions. The majority of these events during the week begin after 6:30-7:00 PM, when typical parking demands on the TLC campus and in the Cabrillo College parking lots are low (less than 36% on TLC campus and 22% in the Cabrillo College parking lots). Though a detailed analysis of weekend day parking demands was not conducted, it is reasonable to deduce that peak demands associated with the TLC operations can easily be accommodated on-site and in the adjacent Cabrillo College parking lots. Based on the parking survey data and evaluation of on-site parking demands, it is concluded that sufficient parking will be available to adequately accommodate "post" project conditions.

5.0 CUMULATIVE CONDITIONS

The scope of the project TIA included an evaluation of future cumulative traffic conditions. The cumulative conditions traffic volumes were developed in consultation with County staff. The cumulative conditions represent a 20 year study scenario.

Base-Line Cumulative Traffic Volumes

The base-line cumulative traffic volumes were derived using a 1.3% per year background growth rate. The existing AM and PM peak hour traffic volumes were multiplied by a 1.26 factor. The factored existing traffic volumes were then added to the trips generated by the approved projects. The base-line Cumulative (without project) traffic volumes are illustrated on Figure 8.

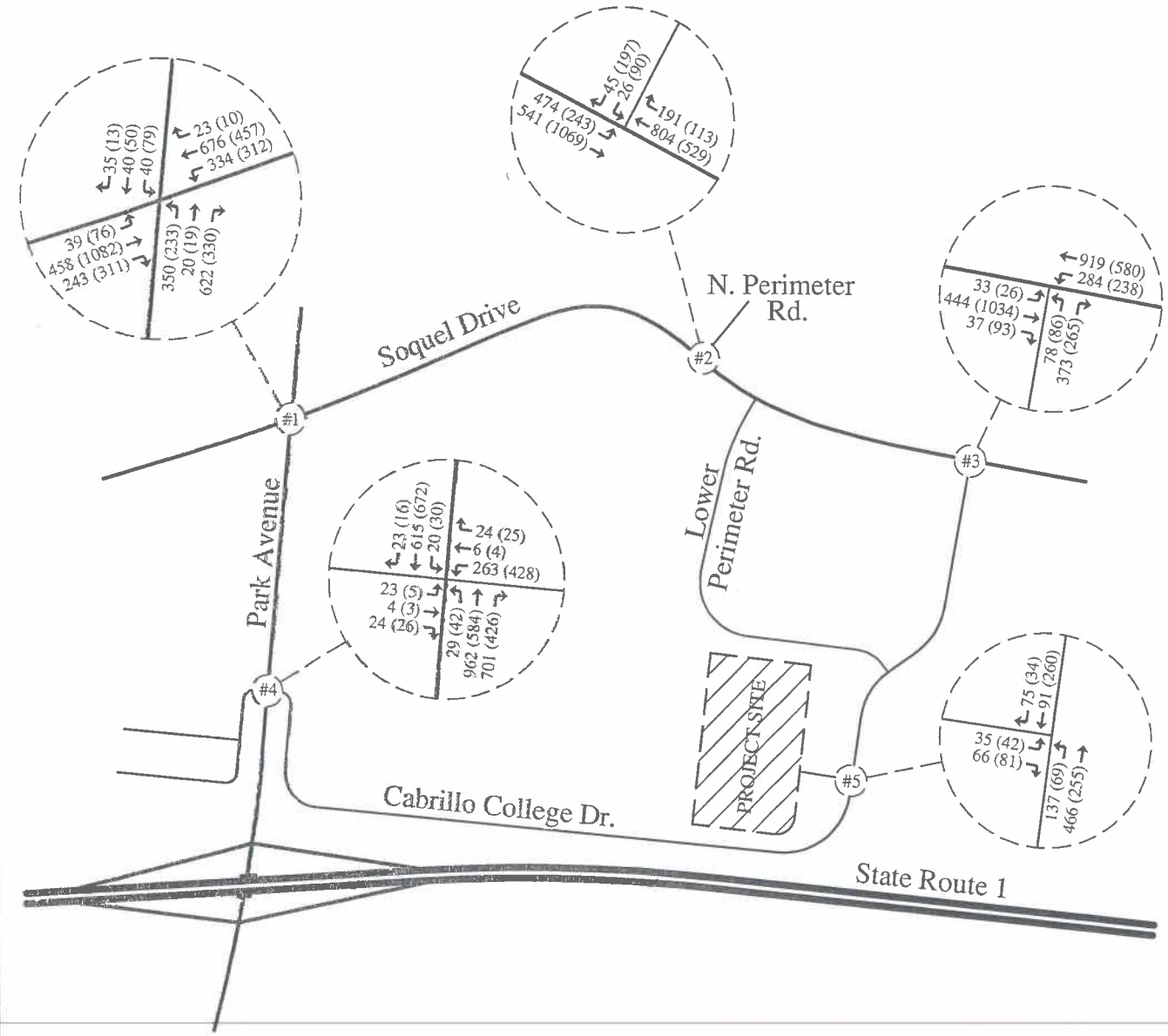
Level of Service Analysis

Similar to the LOS analysis conducted for the previous study scenarios, the LOS values for the study intersections were estimated using the Synchro 8 software. The analysis was conducted for the base-line cumulative (without project) traffic conditions. To evaluate the potential project impacts the LOS analysis was also conducted using the base-line cumulative plus project traffic volumes (base-line cumulative volumes on Figure 8 plus the project volume on Figure 6). The results of the base-line cumulative and base-line cumulative plus project intersection LOS analysis are presented in Table 11. Copies of the LOS analysis worksheets are included with the Appendix Material.

Table 11 - Cumulative Base-Line and Cumulative Plus Project
Peak Hour Intersection LOS Analysis

Study Intersection	Peak Hour	Vehicle Delay - LOS	
		Cumulative Base-Line	Cumulative + Project
#1 - Soquel Ave. / Park Ave.	AM	35.7 - D	35.9 - D
	PM	37.3 - D	37.7 - D
#2 - Soquel Ave. / N. Perimeter Rd.	AM	38.1 - D	38.4 - D
	PM	15.8 - B	15.8 - B
#3 - Soquel Ave. / Cabrillo College Dr.	AM	17.0 - B	17.5 - B
	PM	27.1 - C	27.6 - C
#4 - Park Ave. / Cabrillo College Dr.	AM	27.0 - C	35.2 - D
	PM	36.7 - D	40.8 - D
#5 - Cabrillo College Dr. / TLC Dwy.	AM	3.6 - A	5.8 - A
	PM	3.0 - A	3.9 - A

The data in Table 11 demonstrates that average vehicle delays at the study intersections and the TLC driveway will remain within acceptable limits during typical weekday AM and PM peak hour periods (LOS D or better), with the addition of project traffic. Delays on the TLC driveway approach (stop sign controlled) to Cabrillo College Drive will be in the LOS B-C range. Based on the defined "level of significance" criteria, the project traffic will not significantly impact cumulative peak hour traffic operations at the study intersections.



LEGEND

← 00 (00) = AM (PM) PM Peak Hour Volume

NORTH

PINNACLE TRAFFIC ENGINEERING	TWIN LAKES CHRISTIAN SCHOOL (APTOS, CA) - TRAFFIC IMPACT ANALYSIS -	FIGURE 8 CUMULATIVE (WITHOUT PROJECT) TRAFFIC VOLUMES

The base-line cumulative and cumulative plus project traffic volumes at the Cabrillo College Drive and TLC Driveway intersection will not exceed the minimum "peak hour" volume signal warrant criteria (2012 California MUTCD, Warrant #3). A copy of the California MUTCD signal warrant graph is included with the Appendix Material.

The project TIA documents existing traffic conditions and analyzes the potential project impacts on existing and cumulative traffic conditions. The analyses demonstrate that the project traffic will not significantly impact existing or cumulative peak hour traffic operations at the selected study intersections. However, the project may be subject to County development fees adopted for the Aptos area (Roadside Improvement Fee=$300/daily trip and Transportation Improvement Fee=$300/daily trip). The fees are described in the County's Service & Capital Improvements Fees schedule (July 1, 2013) published by the Public Works Department. Payment of fee(s) provides a fair-share project contribution towards the funding of future needed improvements (as defined in the County's CIP) and serves to mitigate any potential long-range impacts. Again, it should be noted that the proposed TLC Master Plan modification and TLCS project will only increase the buildout of the campus by approximately 6,700 SF (above what is included in the existing approved Master Plan). Any subject fee(s) should be directly related to the actual scope and timing of improvements to be constructed on the TLC campus.

END

PINNACLE TRAFFIC ENGINEERING
831 C Street
Hollister, California 95023
(831) 638-9260 • (805) 644-9260
PinnacleTE.com

March 19, 2014

Rodolfo Rivas
Santa Cruz County Public Works
701 Ocean Street, Room 410
Santa Cruz, CA 95060

RE: Twin Lakes Church Project (Application #: 131153); Santa Cruz Co. (Aptos), California
Project Traffic Impact Analysis (TIA) - Response to Comment Material

Dear Rodolfo,

The following material is provided in response to the comments received from the Public Works Department (Feb. 26, 2014). A brief summary and response has been prepared for each comment.

Comment #1: County staff commented that the October 2013 traffic count data collected at the Soquel Drive and Park Avenue intersection appears lower than the historical count data at this intersection. To determine if the October 2013 count data was potentially affected by the County Water District's construction project the intersection was recounted during the PM peak period (4:00-6:00 PM) on March 5, 2014 (Wednesday). A review of the new data indicates that the March 2014 data (intersection total) is about 4% higher (2427/2334) than the October 2013 data. An increase of this magnitude is within the typical fluctuation of daily traffic volumes (+/-10%). While directional volumes on the north and westbound approaches were slightly higher, volumes on the east and southbound approaches were slightly lower. The intersection LOS values were recalculated to evaluate the potential affect of the new March 2014 count data. A comparison of the existing and cumulative + TLCS project traffic conditions is presented in Table 1. Copies of the traffic count data and LOS analysis worksheets are attached.

Table 1 - Intersection LOS Analysis Comparison
(Soquel Drive and Park Avenue - PM Peak Hour)

Study Intersection	Vehicle Delay - LOS	
	Oct. 2013 Data (a)	March 2014 Data (b)
Existing Traffic Conditions	34.9 - C	34.8 - C
Cumulative + TLCS Project Conditions	37.7 - D	39.4 - D

(a) Data published in the Project TIA (Jan. 24, 2014)
(b) Delay & LOS based on new count data

ATTACHMENT 9

The data in Table 1 demonstrates that average vehicle delays and the LOS under existing traffic conditions are essentially identical. Delays under the cumulative + TLCS project conditions are slightly higher, but the LOS value does not change. Therefore, it is concluded that the new data collected in March 2014 will not change the analysis presented in the January 2014 project TIA.

Comment #2: County staff requested an explanation regarding the project trip generation for the new College Outreach building. A summary of the project components is provided on Page 11, which indicates the new Chapel building (7,744 SF) and new College Outreach building (5,376 SF) will have a combined square footage of 13,120 SF. The daily operations discussion on Page 12 indicates that on weekdays the church will provide staff (2-3) in the College Outreach building and allow Cabrillo College students to use the facility between classes in lieu of leaving and returning. It is anticipated that the College Outreach building may actually reduce existing traffic. The trip generation discussion on Page 12 states that the number of trips associated with the new chapel and college outreach buildings were estimated using the church category (#560). Table 6 on Page 14 presents the project trips associated with both the new Chapel building and new College Outreach building.

Comment #3: County staff requested information regarding the phasing and construction of the building improvements in order to assess the related Transportation Improvement Area fees. The project TIA discusses the applicable fees adopted for the Aptos area (Roadside Improvement Fee=$300/daily trip and Transportation Improvement Fee=$300/daily trip). The initial project phase will include the construction of the new education building followed by the removal of the existing modular education buildings (a copy of the project site plan is attached). Information provided by the Twin Lakes Church (TLC) staff indicates that the 5-year average growth for the TLCS is approximately 6% per year. They anticipate that the TLCS would potentially reach capacity (403 students) by the 2020-2021 school year. However, based on current enrollment and waiting list for the CEC they anticipate reaching capacity (108 students) by January 2016. Based on consultation with the TLC staff and project design team, the new chapel and college outreach buildings will not be constructed until 2019-2020 (+/-5 years after the new education building). Table 1 provides a summary of the project trip generation estimates presented in the project TIA.

Table 1 - Project Site Trip Generation Estimates (Table 6 in Project TIA)

Project Components	Number of Vehicle Trips				
	AM Peak Hour		PM Peak Hour		Daily
	In	Out	In	Out	
Private School (K-8), + 163 Students	80	67	24	28	384
Day Care Center, +28 Students	12	11	11	12	122
New Church Facilities, +13,120 SF	5	3	3	4	120
Total Project Trip Generation:	97	81	38	44	626

As previously stated, the initial project phase will include the construction of the new education building. Therefore, payment of the applicable fees associated with the educational components of the project should be paid prior to the issuance of the building permit for the new education building. However, since the TLCS won't reach capacity until 2020-2021 the TLC proposes to defer payment of 50% of the fee until the new chapel and college outreach buildings are

constructed. Subsequently, payment of the applicable fees for the new chapel and college outreach buildings should be paid prior to the construction of those facilities (2019/2020). The following is a summary of the project Transportation Improvement Area fees (Roadside Improvement Fee=$300 per daily trip and Transportation Improvement Fee=$300 per daily trip).

Education Bldg. (2014-2015) = (192 + 122) x $600 / ADT = $188,400

Chapel & College Outreach Bldg. (2019-2020) = (192 + 120) x $600 / ADT = $187,200

Total Project Transportation Improvement Area fees = $375,600 (626 x $600 per ADT)

The response to comment material has been prepared based on discussions with the County's Public Works staff and additional project phasing information provided by the TLC staff.

Please contact my office with any questions regarding the response to comment material.

Pinnacle Traffic Engineering

Larry D. Hail, CE, TE, PTOE
President

ldh:msw

attachments: October 2013 Traffic Count Data (Soquel Drive and Park Avenue)
Existing Conditions LOS Worksheet (contained in Project TIA)
Cumulative + TLCS Project LOS Worksheet (contained in Project TIA)
March 2014 Traffic Count Data (Soquel Drive and Park Avenue)
Existing Conditions LOS Worksheet (based on March 2014 data)
Cumulative + TLCS Project LOS Worksheet (based on March 2014 data)
Project Site Plan

Santa Cruz County Sanitation District

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060-4073
(831) 454-2160 FAX (831) 454-2089 TDD: (831) 454-2123

JOHN J PRESLEIGH, DISTRICT ENGINEER

MAY 20, 2013

JOHN IFLAND
IFLAND ENGINEERS
5200 SOQUEL AVE. SUITE 101
SANTA CRUZ CA 95062

SUBJECT: SEWER AVAILABILITY AND DISTRICT'S CONDITIONS OF SERVICE FOR THE FOLLOWING PROPOSED DEVELOPMENT:

APN: 037-251-19
APPLICATION NO.: N/A (PRE-APPLICATION; SITE PLAN SUBMITTED)
PARCEL ADDRESS: 2701 CABRILLO COLLEGE DRIVE
PROJECT DESCRIPTION: AMENDMENT TO MASTER PLAN AND PROPOSED CONSTRUCTION OF ONE NEW BUILDING

Sewer service is available for the subject development upon completion of the following conditions. This notice is effective for one year from the issuance date to allow the applicant the time to receive tentative map, development or other discretionary permit approval. If after this time frame this project has not received approval from the Planning Department, a new sewer service availability letter must be obtained by the applicant. Once a tentative map is approved this letter shall apply until the tentative map approval expires.

Proposed location of on-site sewer lateral(s), clean-out(s), and connection(s) to existing public sewer must be shown on the plot plan of the building permit application.

Department of Public Works and District approval shall be obtained for an engineered sewer improvement plan, showing on-site and off-site sewers needed to provide service to each lot or unit proposed, before sewer connection permits can be issued. The improvement plan shall conform to the County's "Design Criteria" and shall also show any roads and easements. Existing and proposed easements shall be shown on any required Final Map. If a Final Map is not required, proof of recordation of existing or proposed easement is required.

Water use data (actual and/or projected), and other information as may be required for this project, must be submitted to the District for review and use in fee determination and waste pretreatment requirements before sewer connection permits can be approved. Domestic water use shall be metered on all new buildings and provided to District for sewer service charges.

Show all existing and proposed plumbing fixtures on floor plans of building application.

ATTACHMENT 10

In accordance with Sanitation District Code section 7.04.375 Private Sanitary Sewer System Repair, of Title 7, prior to building permit submittal the applicant/owner is required to televise all on-site sewer laterals and make repairs to any damaged or leaking pipes that might be shown. This includes root intrusion, open joints, cracks or breaks, sags, damaged or defective cleanout, inflow and infiltration of extraneous water, older pipe materials that are known to be inadequate, inadequate lift or pump stations, inadequate alarm systems for overflows, and inadequate maintenance of lift stations. Color video results (tape or dvd), of a sufficient quality to observe interior pipe condition, joints, sags among other items, shall be made available to the District for review, along with District certification form completed by plumber, and the District shall review results within 10 working days of submittal to the District. Repairs, as required by the District, shall be made within 90 working days of receipt of video result review. Applicant/owner shall obtain a sewer repair permit (no charge) from the District and shall have repairs inspected by the District inspector prior to backfilling of pipe or structure.

Yours truly,

JOHN J. PRESLEIGH
District Engineer

By: Rachél Lather

Rachél Lather
Sanitation Engineer

DR:tlp/383

c: Planning Department; Attn: Randall Adams
Property Owner: Twin Lakes Baptist Church
Mark Spurlock
2701 Cabrillo College Dr.
Aptos, CA 95003

SAkey2 (REV. 10/12)

SOQUEL CREEK WATER DISTRICT

May 5, 2014

John Ifland
5200 Soquel Avenue, Suite 101
Santa Cruz, CA 95062

SUBJECT: Conditional Water Service Application for Commercial Development at 2701 Cabrillo College Drive, APN 037-251-19

Dear Mr. Ifland:

In response to the subject application, the Board of Directors of the Soquel Creek Water District (SqCWD) at their special meeting of April 29, 2014 voted to grant you a Conditional Will Serve Letter for the proposed commercial development to be located at 2701 Cabrillo College Drive, so that you may proceed through the appropriate land use planning entity. In addition, the Board approved your request for variance to install individual District meters, however, private sub-meters must be installed to each building and irrigation use.

After you have received a building permit from the land use planning agency, you will be required to meet all applicable SqCWD requirements defined in the attached Requirements Checklist before your application can be considered for final Board approval. If you meet all of the applicable requirements (*including possible future requirements that arise prior to development approval of your project*), and final Board approval is granted, you will be issued an Unconditional Will Serve Letter which would secure your water service.

This conditional approval of water service for your project is valid for two years from the date of this letter; however, it should not be taken as a guarantee that service will be available to the project in the future or that additional conditions, not otherwise listed in this letter, will not be imposed by the District prior to granting water service. Instead, this present indication to serve is intended to acknowledge that, under existing conditions, water service would be available on the condition that the developer agrees to meet all of the requirements without cost to the District.

Future conditions which negatively affect the District's ability to serve the proposed development include, but are not limited to, a determination by the District that existing and anticipated water supplies are insufficient to continue adequate and reliable service to existing and/or new customers. In that case, service may be denied.

ATTACHMENT 11

The Board of Directors of the SqCWD also reserves the right to adopt additional policies to mitigate the impact of new development on the local groundwater basins, which are currently the District's only source of supply. Such actions would be in response to concerns about existing conditions that threaten the groundwater basins and the lack of a supplemental supply source that would restore and maintain the aquifers. The subject project would be subject to any applicable conditions of service that the District may adopt prior to granting water service.

As new policies and/or requirements are developed, the information will be made available by the SqCWD.

Sincerely,
SOQUEL CREEK WATER DISTRICT

Taj A. Dufour, P.E.
Engineering Manager/Chief Engineer

Attachment: Requirements Checklist for APN 037-251-19

Enclosures - Yellow (for Commercial, Industrial and Public Development):

1. Overview of the SqCWD Water Use Efficiency Requirements for Tier II Single Family Residential, Multi-Family Residential, Commercial, Industrial & Public Development
2. Indoor Water Use Efficiency Checklist
3. Landscape Project Application Submittal Requirements Package
4. Go Green Program/Water Demand Offset Commercial Green Credits Fact Sheet and Application

Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, in that the project is located in an area designated for public facilities uses on a site that is improved with an existing church campus and associated facilities. Construction will comply with prevailing building technology, the California Building Code, and the County Building ordinance to insure the optimum in safety and the conservation of energy and resources.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that the proposed master plan amendment allows the continued use and operation of the existing church facilities and private school. The conditions under which the existing church and school would be operated and maintained will be consistent with prior approvals and all pertinent County ordinances. The existing church and private school is a permitted use within PF (Public & Community Facilities) zone districts.

The proposed project is consistent with the requirements of County Code section 13.10.552 (parking) & 13.10.553 (Alternate Parking Requirements), in that County Code section 13.10.553(A) allows the applicant to provide a parking plan with specific detailed parking information to replace standard parking requirements. The traffic study included a parking analysis of the existing and proposed church facilities and the shared parking arrangement with Cabrillo College adjacent to the project site. According to the parking analysis, the existing parking lot on the church campus provides 484 marked stalls and 60 unimproved spaces. The proposed development would result in a net reduction of 37 stalls on the project site (including the removal of existing marked and unmarked spaces, as well as the creation of additional marked stalls). This would result in a total of 507 parking spaces available on the project site, with additional overflow parking in the existing Cabrillo College parking areas. The parking analysis concluded that there would be sufficient parking on the project site for the existing and proposed church uses, with additional capacity on the project site for Cabrillo College overflow parking when needed for large church events.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the existing church and private school use is consistent with the use and density requirements specified for the Public & Community Facilities (P) land use designations in the County General Plan.

The project complies with the requirements of General Plan policies 5.10.2 (Development within

Visual Resource Areas) & 5.10.12 (Development Visible from Urban Scenic Roads), in that the existing campus is screened from Highway 1 by the slopes below the campus and the presence of existing vegetation. The retaining wall that is proposed below the expanded athletic field was evaluated with photo simulations to determine if it would be visible from Highway 1. From review of the photo simulations it appears that the presence of existing vegetation, in combination with the proposed colors and materials, would adequately screen the proposed wall and fencing from view. Due to the presence of existing topography and vegetation, no impact to scenic resources is anticipated as a result of this project.

A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that the proposed master plan amendment and increase in student enrollment will result in an incremental increase in traffic, but this increase will not result in a reduction in the level of service at traffic intersections in the project vicinity per the approved traffic study. The expected level of traffic generated by the proposed master plan amendment and increased student enrollment will not reduce traffic operations at any of the study intersections to an unacceptable level of service and the developer will be required to pay Transportation Improvement Area (TIA) fees for the proposed development to fund roadway improvements in the project area.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed structures and uses are sited and designed to be compatible with the existing church facilities and improvements on the adjacent college campus. The existing church campus is located adjacent to an existing college campus within the urban services line, and the proposed master plan amendment is consistent with the existing land use on the project site and the land use intensity of the surrounding neighborhood.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed structures and uses will be of an appropriate scale and type of design that will be compatible with the existing church campus facilities, and improvements on the adjacent college campus, and will not reduce or visually impact available open space in the surrounding area.

Application #: 131153
APN: 037-251-19
Owner: Twin Lakes Church

Variance Findings

1. That because of special circumstances applicable to the property, including size, shape, topography, location, and surrounding existing structures, the strict application of the Zoning Ordinance deprives such property of privileges enjoyed by other property in the vicinity and under identical zoning classification.

This finding can be made, in that the increase of the maximum allowed building height from 35 feet to 40 feet is recommended in order to allow the continued implementation of a master plan for the existing church campus on the subject property. The slope in the area of proposed construction, and the location of the proposed new education building relative to the existing structures and site improvements on the church campus, are the special circumstances affecting the subject property.

2. That the granting of the variance will be in harmony with the general intent and purpose of zoning objectives and will not be materially detrimental to public health, safety, or welfare or injurious to property or improvements in the vicinity.

This finding can be made, in that the variance will allow the continued implementation of a master plan for an existing church campus on a parcel zoned for public and community facilities and the structure will be adequately separated from improvements on surrounding properties, and not significantly taller than neighboring homes.

3. That the granting of such variances shall not constitute a grant of special privileges inconsistent with the limitations upon other properties in the vicinity and zone in which such is situated.

This finding can be made, in that other structures on the subject property and the adjacent college campus are developed with structures of similar height to the structure that is proposed. Therefore, it would not be grant of a special privilege for the structure to be constructed on the property and the proposed education building would be consistent with the pattern of development on the church campus and the adjacent college campus.

Conditions of Approval

Exhibit D: Project Plans "Master Plan Amendment and New Education Building", prepared by Ifland Engineers, revised 8/15/13.

I. This permit authorizes the amendment of the Master Plan for Twin Lakes Christian Church (approved under D-71-3-15 and later amended by: 76-1363-U, 76-1806-U, 77-05-U, 81-245-U, 82-127-U, 82-423-U, 86-968, 89-0981, 93-0264, 95-0246, 04-0135) as indicated on the approved Exhibit "D" for this permit. All required conditions of approval for Master Plan approval D-71-3-15 (and subsequent amendments) are hereby incorporated into these conditions of approval by reference, with the following additional requirements:

II. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:

A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.

B. Pay the required fee to the Clerk of the Board of the County of Santa Cruz for posting the Mitigated Negative Declaration as required by the California Department of Fish and Game mitigation fees program.

C. Obtain Demolition, Building, and/or Grading Permit(s) for each phase of the project (as required) from the Santa Cruz County Building Official.

1. Any outstanding balance due to the Planning Department must be paid prior to making a Demolition, Building, and/or Grading Permit application. Application(s) for permit(s) will not be accepted or processed while there is an outstanding balance due.

D. Obtain an Encroachment Permit from the Department of Public Works for any off-site work performed in the County road right-of-way.

E. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder) within 30 days from the effective date of this permit.

III. Prior to issuance of a Building Permit the applicant/owner shall:

A. Submit final architectural plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "D" on file with the Planning Department. Any changes from the approved Exhibit "D" for this development permit on the plans submitted for the Building Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out and labeled will not be authorized by any Building Permit that is issued for the

proposed development. The final plans shall include the following additional information:

1. One elevation shall indicate materials and colors as they were approved by this Discretionary Application. For later phases of the project and for all Design Review approvals, in addition to showing the materials and colors on the elevation, the applicant shall supply a color and material sheet in 8.5" x 11" format (no thicker than 1/16 inch) for Planning Department review and approval.

2. Grading, drainage, and erosion control plans prepared by a licensed civil engineer.

3. Elevations and details of proposed retaining walls and fencing around the expanded athletic field.

    a. The retaining wall shall be colored and textured to reduce visibility from Cabrillo College Drive and the Highway 1 scenic corridor.

    b. Open fencing materials shall be selected that minimize the visibility of the fencing from Cabrillo College Drive and the Highway 1 scenic corridor

4. Landscape plans for any new or replacement landscaping.

    a. Replacement trees shall be planted on site as specified in the Preliminary Tree Resource Analysis, prepared by James P. Allen and Associates. Replacement oak and/or redwood trees are recommended to be planted in the area between the proposed expanded athletic field and Cabrillo College Drive, as space allows.

5. Lighting: (BIO-1) All new outdoor and building lighting shall be directed downward and away from the riparian area.

6. Details showing compliance with accessibility requirements.

7. Details showing compliance with fire department requirements.

B. Submit four copies of the approved Discretionary Permit with the Conditions of Approval attached. The Conditions of Approval shall be recorded prior to submittal, if applicable.

C. Meet all requirements of and pay Zone 5 drainage fees to the County Department of Public Works, Stormwater Management Services. Drainage fees will be assessed on the net increase in impervious area.

D. Meet all requirements of and pay applicable fees to the Santa Cruz County Sanitation District.

E. Meet all requirements of the Environmental Planning section of the County Planning Department.

F. Prior to any building permit issuance or ground disturbance, a detailed erosion control plan shall be reviewed and approved by the Department of Public Works and the Planning Department. Earthwork between October 15 and April 15 requires a separate winter grading approval from Environmental Planning that may or may not be granted. The erosion control plans shall identify the type of erosion control practices to be used and shall include the following:

1. Silt and grease traps shall be installed according to the approved improvement plans.

2. An effective sediment barrier placed along the perimeter of the disturbance area and maintenance of the barrier.

3. Spoils management that prevents loose material from clearing, excavation, and other activities from entering any drainage channel or water body.

G. In order to ensure that the one hour air quality threshold for the pollutant acrolein is not exceeded during demolition, paving, and construction, prior to the issuance of the grading permit, the applicant shall modify the grading plans to include notes incorporating the construction conditions given by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) as follows:

1. All pre-1994 diesel equipment shall be retrofitted with EPA certified diesel oxidation catalysts or all such equipment shall be fueled with B99 diesel fuel;

2. Applicant shall retain receipts for purchases of catalysts or B99 diesel fuel until completion of the project;

3. Applicant shall allow MBUAPCD to inspect receipts and equipment throughout the project.

4. Alternatively, the applicant may submit a health risk assessment to the MBUAPCD for review and approval. Any recommendations and requirements of the MBUAPCD will become conditions of constructing the project.

H. Meet all requirements and pay any applicable plan check fee of the Aptos/La Selva Fire Protection District.

I. Submit plan review letters for each phase of the project prepared and stamped by

the project geotechnical engineer.

J. Pay the current (Category I) fees for Child Care mitigation for the increase in total building square footage, for applicable buildings. Buildings used solely for child care, pre-school or education purposes (up to 12th grade) are exempt from this requirement (as specified in County Code section 15.04.050(B)).

K. Pay the current fees for Roadside and Transportation improvements for the increase in trip generation, as specified in the approved traffic study and the Discretionary Application Comments from Department of Public Works, Road Engineering.

1. This project is subject to Aptos Transportation Improvement (TIA) fees at a current combined rate of $600 ($300 for roadside improvement fees + $300 for transportation improvement fees) per daily trip generated by the proposed development.

   a. The TIA fees for this project are based on a total of 626 trips, as determined by the traffic study, which results in a total of $375,600 (as calculated with current TIA fees).

2. TIA fees are required to be paid prior to the issuance of a Building Permit for the proposed development. However, the TIA fees may be paid over time if all of the following conditions can be met:

   a. Any deferral or phasing of TIA fees must be agreed upon by the Department of Public Works and the property owner in writing (including an established payment method and plan), prior to issuance of a Building Permit for the new education building.

   b. A minimum of one half of the TIA fees shall be paid at the time of Building Permit issuance.

   c. The remaining one half of the TIA fees shall be paid annually in five equal amounts over a five year period following the date of Building Permit issuance. The first annual payment shall be made no later than one year following Building Permit issuance. The fifth (and final) annual payment shall be made no later than five years following Building Permit issuance.

L. Submit a written statement signed by an authorized representative of the school district in which the project is located confirming payment in full of all applicable developer fees and other requirements lawfully imposed by the school district.

IV. Construction and Site Development

A. Prior to any site disturbance or physical construction on the subject property the

following condition(s) shall be met:

1. In order to ensure that the mitigation measures are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property, the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: the applicant, grading contractor supervisor, and Santa Cruz County Environmental Planning staff. Temporary construction fencing demarcating the disturbance envelope and silt fencing will be inspected at that time.

B. All construction within the property approved under this permit shall meet the following conditions:

1. No land disturbance shall take place prior to issuance of building permits (except the minimum required to provide access for County required tests or to carry out work required by another of these conditions).

2. No land clearing, grading or excavating shall take place between October 15 and April 15 unless the Planning Director approves a separate winter erosion-control plan that may or may not be granted.

3. Landfill receipts indicating proper disposal of all grading material removed from the project site shall be provided to Environmental Planning staff for review. Alternatively, adequate documentation of another approved construction site that will use the grading material as fill may be considered.

4. To minimize noise, dust and nuisance impacts of surrounding properties to insignificant levels during construction, the applicant shall or shall have the project contractor, comply with the following measures during all construction work:

   a. Limit all construction to the time between 8:00 am and 5:00 pm weekdays unless a temporary exception to this time restriction is approved in advance by County Planning to address an emergency situation.

   b. Each day it does not rain, wet all exposed soil frequently enough to prevent significant amounts of dust from leaving the site.

   c. The applicant shall designate a disturbance coordinator and a 24-hour contact number shall be conspicuously posted on the job site. The disturbance coordinator shall record the name, phone number, and nature of all complaints received regarding the construction site. The disturbance coordinator shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry.

5. Pursuant to Sections 16.40.040 and 16.42.080 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.080, shall be observed.

V. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:

A. All site improvements shown on the final approved Building Permit plans shall be installed.

B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.

C. The project must comply with all recommendations of the approved soils reports.

VI. Operational Conditions

A. Phased construction is allowed, as indicated in the approved Exhibit "D" for this permit.

1. This Master Plan amendment includes Design Review approval of structures and site improvements for the following phases of the project: the new education building, the expansion of the existing athletic field (including associated retaining walls and fencing).

2. A Level IV (Administrative Review with Public Notice) Design Review approval is required to evaluate structure and site designs for later phases of the project, including the following: chapel and college buildings.

3. Building and/or grading permits (as applicable) are required for the each phase, in addition to the Level IV Design Review approval(s) specified above.

B. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

VII. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.

A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.

B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:

1. COUNTY bears its own attorney's fees and costs; and

2. COUNTY defends the action in good faith.

C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

VIII. Mitigation Monitoring & Reporting Program

The mitigation measures listed under this heading have been incorporated in the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. As required by Section 21081.6 of the California Public Resources Code, a monitoring and reporting program for the above mitigation is hereby adopted as a condition of approval for this project. This program is specifically described following each mitigation measure listed below. The purpose of this monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to section 18.10.136 of the Santa Cruz County Code.

A. Mitigation Measures (see attached document)

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires three years from the effective date listed below unless a building permit is obtained for the first phase of the project consisting of one of the primary structures described in the development permit (does not include demolition, temporary power pole or other site preparation permits, or accessory structures unless these are the primary subject of the development permit). Failure to exercise the building permit and to complete all of the construction under the building permit, resulting in the expiration of the building permit, will void the development permit, unless there are special circumstances as determined by the Planning Director.

Approval Date: _____

Effective Date: _____

Expiration Date: _____

Wanda Williams
Deputy Zoning Administrator

Randall Adams
Project Planner

Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.

County of Santa Cruz

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

MITIGATION MONITORING AND REPORTING PROGRAM for Application No. 131153, May 5, 2014

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
Biological Resources					
BIO-1	Produce nighttime lighting that would substantially illuminate wildlife habitats?	All new outdoor and building lighting shall be directed downward and away from the riparian area.	Applicant	Compliance monitored by the County Planning Department	To be implemented during project design, construction and operations

EXHIBIT C

Exhibit D

Project Plans
(Reduced project plans included in staff report as Attachment 2 to Exhibit A)

Application Number 131153
Zoning Administrator Hearing

IFLAND ENGINEERS
Civil Engineering | Structural Design | Development Planning

April 30, 2013

Randall Adams, Senior Planner
County of Santa Cruz, Planning Department
701 Ocean Street, 4th Floor
Santa Cruz, CA 95060

RE: Program Statement for Twin Lakes Church
Commercial Development Permit Application
Master Plan Modifications and Education Building Design
2701 Cabrillo College Drive, Aptos

Dear Randall:

Following is a Program Statement describing the purpose of the Commercial Development Permit application that Twin Lakes Church (TLC) has submitted to the County of Santa Cruz for modifications to its approved Master Plan and Design Review for a new, multi-story education building.

PROGRAM STATEMENT

Twin Lakes Church is located at 2701 Cabrillo College Drive in Aptos on approximately 15.5 acres. The site is surrounded by Cabrillo College/Sesnon House to the north, Cabrillo College Drive (CCD) and Cabrillo College athletic facilities to the east, CCD and Highway One to the south and a greenbelt to the west with residential development beyond the greenbelt.

The church campus was developed at its present site following the approval of a Master Plan in 1971 (Application No. D-71-3-15) which allowed for the construction of an auditorium, fellowship hall, administration building, chapel, college building, nursery building, 4 classroom buildings, a gymnasium and an area set aside for a future retirement residence. The campus was designed with the adult areas (auditorium, administration, fellowship hall and chapel) at the north half of the property and the children areas on the south half (nursery, preschool, grades K-12, gymnasium and outdoor play areas).

Over the years many of these approved buildings have been designed and constructed with the exception of a chapel, college outreach building and 3 classroom buildings at the southwest corner of the site near the gymnasium.

Several amendments to the Commercial Development Permit and Use Permits have been approved subsequent to the approval of the Master Plan resulting in the installation of 4 modular classroom buildings on the site of the approved chapel, a caretaker's residence, modifications to the gym to include meeting rooms, a bus barn and a softball field.

The present use of the chapel site for the modular classrooms was supposed to be a temporary fix and never intended to be permanent. There are numerous problems with this "temporary" use such as

EXHIBIT E

security, lost classroom time moving children between classrooms and outdoor areas, disruption of the adult areas, etc. Moving these classrooms back to where they belong will be consistent with the approved master plan.

The master plan included 6 buildings south of the main auditorium, 3 one-story classroom buildings, 2 two-story classroom buildings and the gymnasium. Presently just 3 exist; the nursery, preschool and gymnasium which includes some classrooms not shown on the master plan but approved by the County in the early 1980's (Use Permits 81-245-U and 82-243-U). The proposed Education Building combines the 2 two-story buildings and the largest one-story classroom building which will never be built as the area is presently a playground and parking lot.

The combined square footage of the three classroom buildings that were approved but never constructed is approximately 39,550 SF. The new Education Building that replaces these structures is proposed to be 39,675 SF.

Currently, TLC wishes to embark on a long range plan to complete the remaining structures with some modifications as further described herein.

Chapel

The chapel would be located generally as shown on the approved Master Plan, however, the footprint, pedestrian circulation, drop-off area and accessibility considerations would require adjustments to the parking lot immediately adjacent. The footprint included in the Master Plan was approximately 3,000 square feet (SF). The chapel envisioned as part of this application is approximately 7,700 SF and reflects the considerable growth in the church's congregation over the past 40 years. Even for the types of smaller events envisioned for the chapel, more space is needed than originally conceived. In 1986 an amendment to the CDP was approved for an 8,672 SF two-story office/administration building which was designed but never constructed.

The chapel and perimeter walkway would extend into what is now the first row of parking spaces east of the building site. These spaces would be relocated to the bluff above CCD. In addition, modifications to the parking lot would be made to provide improved circulation, a passenger dropoff zone and pedestrian connection to the future College Building on the bluff (described below) and public sidewalk along CCD.

College Building

The college building would be located on the bluff above CCD generally as shown on the approved Master Plan. The footprint included in the Master Plan was approximately 4,225 SF. The college building envisioned as part of this application is approximately 5,300 SF. New parking would be provided north of the building as shown on the conceptual site plan accompanying this application. There is an existing easement to Soquel Creek Water District running through this area and the new parking has been arranged so that the drive aisle/backing space would be centered over the easement.

Education Building

TLC wishes to construct a single, 3-story building to replace the three approved but unconstructed classroom buildings near the gym. The terrain in this area slopes downward to the west and a fire access road that runs along the perimeter of the church campus. Given the sloping terrain, the new building has been designed such that the ground floor is "cut into" the hillside so that from an easterly vantage point the building will appear slightly higher than a two story building, which is less than the main auditorium. The full 3-story height of the building would be visible only from the west but the overall height would still be less than the main auditorium which would remain as the most prominent

EXHIBIT E

building on the site. A section through this area of the campus shows the relative height of the new building to the existing buildings along the west side of the site.

The master plan required the design to be compatible with the design of Cabrillo College, i.e., masonry walls and pitched roofs. While some of the recent Cabrillo expansion north of Soquel Drive is somewhat similar to the original buildings, all buildings south of Soquel Drive (and closest to TLC) are very different architecture, utilizing structural steel framing and metal studs, the same as proposed for this new building.

The existing church buildings are square or rectangular wood-framed structures with masonry exterior walls and 4/12 pitched tile roofs with exposed wood beams at 8 feet on center. The proposed building is rectangular, structural steel framed, metal studs, 4/12 pitched metal roof with exposed steel beams at 8 feet on center. Exterior curtain walls would be insulated metal studs wrapped with rigid insulation, horizontal metal siding above and below windows. The existing auditorium and gymnasium buildings have vertical concrete columns between the masonry panels. The proposed building would have stucco columns between the windows. The existing buildings use a limited amount of glass. The proposed building would have considerably more glass and skylights for daylighting and connecting the outdoor views and space with the interior classrooms. Studies show this is one of the important factors in student learning.

Exterior colors will be earth tone and compatible with the existing buildings.

Per the property's PF zoning there is a height limit of 35 feet on new buildings and a 3.5 foot parapet is allowed for screening mechanical equipment mounted on the roof. The church is requesting a variance to allow the building as proposed with a height of 40 feet, consistent with that allowed within the Commercial and Industrial districts pending a design review approval. The reasons for this are several.

1. The mechanical equipment necessary for a building the size being proposed will not be adequately screened with just a 3.5 foot parapet. It is proposed to screen the equipment with a roof pitch that is consistent with the other existing buildings on site in order to maintain visual compatibility.

2. In order to replace the approved but never constructed classroom space as described below within the available land area a three-story building is required. This application includes some compelling information that addresses the reason for 9.5 foot ceilings as proposed (see enclosures).

3. By combining the approved 3 separate buildings into one it reduces the impervious footprint consistent with the County's General Plan and Stormwater Management objectives (24,480 approved vs. 13,225 proposed).

4. The main auditorium height exceeds 35 feet and will remain the dominant structure on the site even after construction of the Education Building. See the enclosed sections through this area of the site.

5. At least one new building at Cabrillo College immediately north of TLC far exceeds 35 feet in height and is far more intrusive of visual sightlines than the Education Building will ever be given its location at the back of the TLC property.

6. The variance is from code requirements but because there are already buildings in the area that exceed the height limit, this building would not vary from what has already been built.

EXHIBIT E

7. The building design utilizes the existing sloping terrain to the best available advantage to reduce overall building height relative to adjacent buildings.

8. The building as designed would be less high than a 35 foot tall structure located entirely on the upper terrace of the building site.

9. A two-story building with the same footprint would not provide sufficient space to eliminate the modular structures which is very much a key component of this application.

A playground area serving the existing classroom building north of this area would be pushed slightly further west toward the perimeter fire road and leveled which will require fill material taken from the building pad excavation and the construction of a retaining wall.

Accessibility

All new construction will be designed to meet accessibility requirements mandated by the California Building Code. In addition, modifications to existing paths of travel between buildings on campus will be made as necessary to provide code compliant paths of travel between buildings and from accessible parking spaces to all buildings.

There are bus stops located along Soquel Drive fronting Cabrillo College. The eastbound stop is located just east of the intersection with Cabrillo College Drive. The westbound stop is located just west of the same intersection. Accessible paths of travel exist from both stops via crosswalks at the intersection and a public sidewalk along the westerly side of Cabrillo College Drive to the church campus. However, presently there is no accessible connection from the sidewalk to the campus. As a result, a new accessible pathway would be constructed from Cabrillo College Drive along the bluff east and south of the new College Building to an existing walkway bisecting the parking lot. Please refer to the site plan accompanying this application.

Parking

The campus currently has 483 parking spaces, including 14 accessible spaces. A reciprocal parking agreement with Cabrillo College, recorded in 2000 and made a part of this application, allows TLC and Cabrillo to use each other's parking facilities for certain, unspecified events. For many years TLC has allowed Cabrillo to use portions of its parking lots during weekdays for student parking. In return, Cabrillo allows TLC to use the parking lots north of Sesnon Drive and southeast of the Performing Arts Center for special events such as Easter Sunday, Christmas concerts, etc. The two parties have worked collegially in this regard for many years and wish to continue doing so.

Many of the accessible spaces and loading zones currently on campus do not comply with current codes so modifications are necessary. Those areas have been identified and described on the site plan accompanying this application. TLC understands code compliant spaces, loading zones and paths of travel will be necessary as part of the approval of any building permits.

Weekly Campus Schedule

TLC staff has compiled a detailed schedule of weekly campus activities including parking diagrams and that information is incorporated into this application. Given the detail of the work we are intentionally not summarizing it here but instead refer County staff to the enclosed materials for further information.

Circulation

The campus' main entrance/exit is off of Cabrillo College Drive toward the south end of the property. Vehicles entering the campus proceed up the hill toward a circular drop off area. Prior to reaching that point they can choose to turn right into the primary parking lot serving the Administration Building,

EXHIBIT E

Auditorium, Fellowship Hall and modular classroom buildings located on the approved site for the chapel. Alternatively, vehicles may turn left into two smaller parking lots situated behind the softball field or proceed to the circle where they can either pick up/drop off passengers or proceed around the circle to parking lots adjacent to the nursery building and gymnasium.

A secondary access point is off of Sesnon Drive north of the campus. Although most of Sesnon Drive is one-way heading east, a short two-way section near Cabrillo College Drive allows TLC patrons to enter the main church parking lot from this location. Cars exiting the main parking lot onto Sesnon Drive then head east to Cabrillo College Drive.

From either exit, once vehicles reach Cabrillo College Drive they can proceed in either direction toward Soquel Drive or Park Avenue.

Athletic Field

In 1976 a Use Permit for a softball field was approved (76-1206-U and 76-1363-U). At that time soccer was never conceived as a need or desire. Nowadays, soccer is an important sport for schools. Therefore, there is a need and desire to expand the field to accommodate a small soccer field. This would require construction of a gravity dry stack retaining wall and filling the area at the southeast corner of the property. The church would like to use material excavated for the foundation of the Education Building as part of the fill required to expand the playing field. The fence around the field would be relocated to the top of the new wall and extended as needed to connect back to existing fencing along the softball field.

I trust this information is sufficient for your review of the application. Should you have questions or need additional information please don't hesitate to contact me.

Sincerely,

IFLAND ENGINEERS, INC.

Jon Ifland, President

EXHIBIT E