



Referral Early Consultation

Date: December 10, 2015
To: Distribution List (See Attachment A)
From: Planning and Community Development
Subject: USE PERMIT APPLICATION NO. PLN2015-0097 – ART SILVA DAIRY
Respond By: December 28, 2015

******PLEASE REVIEW REFERRAL PROCESS POLICY******

The Stanislaus County Department of Planning and Community Development is soliciting comments from responsible agencies under the Early Consultation process to determine: a) whether or not the project is subject to CEQA and b) if specific conditions should be placed upon project approval.

Therefore, please contact this office by the response date if you have any comments pertaining to the proposal. Comments made identifying potential impacts should be as specific as possible and should be based on supporting data (e.g., traffic counts, expected pollutant levels, etc.). Your comments should emphasize potential impacts in areas which your agency has expertise and/or jurisdictional responsibilities.

These comments will assist our Department in preparing a staff report to present to the Planning Commission. Those reports will contain our recommendations for approval or denial. They will also contain recommended conditions to be required should the project be approved. Therefore, please list any conditions that you wish to have included for presentation to the Commission as well as any other comments you may have. Please return all comments and/or conditions as soon as possible or no later than the response date referenced above.

Thank you for your cooperation. Please call (209) 525-6330 if you have any questions.

Applicant: Art Silva
Project Location: 5201 Milnes Road, east of Dewitt Road, west of Langworth Road, in the Modesto area.
APN: 014-015-003
Williamson Act Contract: Not Applicable
General Plan: Agriculture
Current Zoning: A-2-40 (General Agriculture)

Project Description: Request to increase the milk/dry cows at this facility by 928 head. The facility currently houses 583 milk cows, 60 dry cows, and 390 heifers. After the proposed increase the totals will be 920 milk cows, 180 dry cows, and 861 heifers. The proposed increase will require construction of an approximately 53,000 square foot freestall barn within an existing exercise pen area. As per the amended Waste Water Management Plan (WMP), the Lagoons are sufficiently sized to contain the increased waste water.

Full document with attachments available for viewing at:

<http://www.stancounty.com/planning/pl/act-projects.shtm>

I:\Planning\Staff Reports\UP\2015\UP PLN2015-0097 - ART SILVA DAIRY\Early Consultation Referral\EARLY CONSULTATION.doc

USE PERMIT APPLICATION NO. PLN2015-0097 – ART SILVA DAIRY

Attachment A

Distribution List

X	CA DEPT OF CONSERVATION Land Resources		STAN CO ALUC
X	CA DEPT OF FISH & WILDLIFE		STAN CO ANIMAL SERVICES
	CA DEPT OF FORESTRY (CAL FIRE)	X	STAN CO BUILDING PERMITS DIVISION
	CA DEPT OF TRANSPORTATION DIST 10	X	STAN CO CEO
X	CA OPR STATE CLEARINGHOUSE		STAN CO CSA
X	CA RWQCB CENTRAL VALLEY REGION	X	STAN CO DER
	CA STATE LANDS COMMISSION	X	STAN CO ERC
	CEMETERY DISTRICT	X	STAN CO FARM BUREAU
	CENTRAL VALLEY FLOOD PROTECTION	X	STAN CO HAZARDOUS MATERIALS
X	CITY OF: MODESTO		STAN CO PARKS & RECREATION
	COMMUNITY SERVICES/SANITARY DIST	X	STAN CO PUBLIC WORKS
X	COOPERATIVE EXTENSION		STAN CO RISK MANAGEMENT
	COUNTY OF:	X	STAN CO SHERIFF
X	FIRE PROTECTION DIST: Stanislaus Consolidated	X	STAN CO SUPERVISOR DIST 1: O'Brien
X	HOSPITAL DIST: Oak Valley Hospital	X	STAN COUNTY COUNSEL
X	IRRIGATION DIST: MODESTO		StanCOG
X	MOSQUITO DIST: Eastside	X	STANISLAUS FIRE PREVENTION BUREAU
X	MOUNTIAN VALLEY EMERGENCY MEDICAL SERVICES	X	STANISLAUS LAFCO
	MUNICIPAL ADVISORY COUNCIL:		SURROUNDING LAND OWNERS (on file w/the Clerk to the Board of Supervisors)
X	PACIFIC GAS & ELECTRIC	X	TELEPHONE COMPANY: AT&T/FRONTIER
	POSTMASTER:		TRIBAL CONTACTS (CA Government Code §65352.3)
X	RAILROAD: Burlington Northern Santa Fe		TUOLUMNE RIVER TRUST
X	SAN JOAQUIN VALLEY APCD	X	US ARMY CORPS OF ENGINEERS
X	SCHOOL DIST 1: Riverbank Unified	X	US FISH & WILDLIFE
	SCHOOL DIST 2:		US MILITARY (SB 1462) (5 agencies)
	STAN ALLIANCE	X	USDA NRCS
X	STAN CO AG COMMISSIONER		WATER DIST:

**STANISLAUS COUNTY
CEQA REFERRAL RESPONSE FORM**

TO: Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

FROM: _____

SUBJECT: USE PERMIT APPLICATION NO. PLN2015-0097 – ART SILVA DAIRY

Based on this agencies particular field(s) of expertise, it is our position the above described project:

- _____ Will not have a significant effect on the environment.
- _____ May have a significant effect on the environment.
- _____ No Comments.

Listed below are specific impacts which support our determination (e.g., traffic general, carrying capacity, soil types, air quality, etc.) – (attach additional sheet if necessary)

- 1.
- 2.
- 3.
- 4.

Listed below are possible mitigation measures for the above-listed impacts: *PLEASE BE SURE TO INCLUDE WHEN THE MITIGATION OR CONDITION NEEDS TO BE IMPLEMENTED (PRIOR TO RECORDING A MAP, PRIOR TO ISSUANCE OF A BUILDING PERMIT, ETC.):*

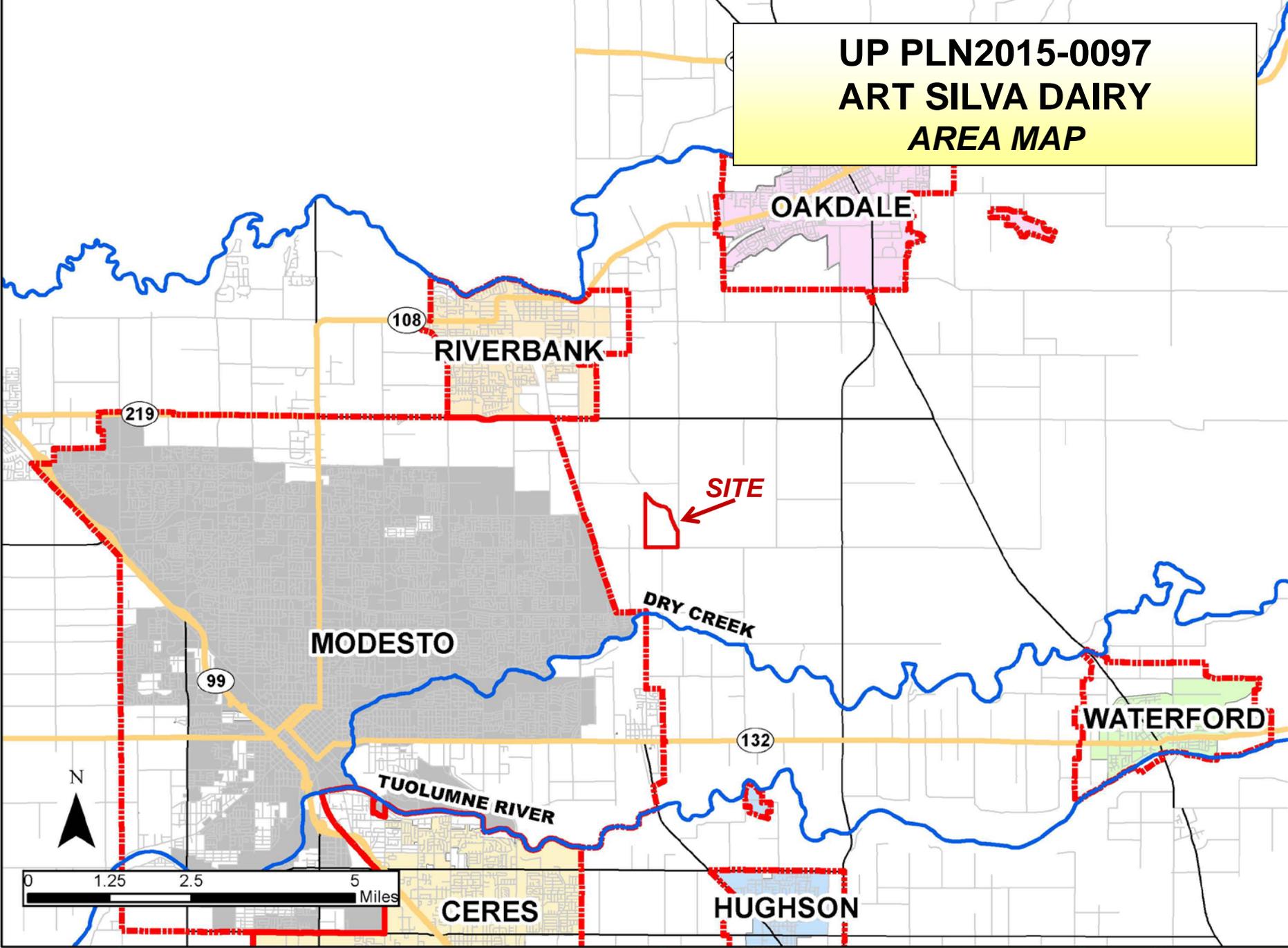
- 1.
- 2.
- 3.
- 4.

In addition, our agency has the following comments (attach additional sheets if necessary).

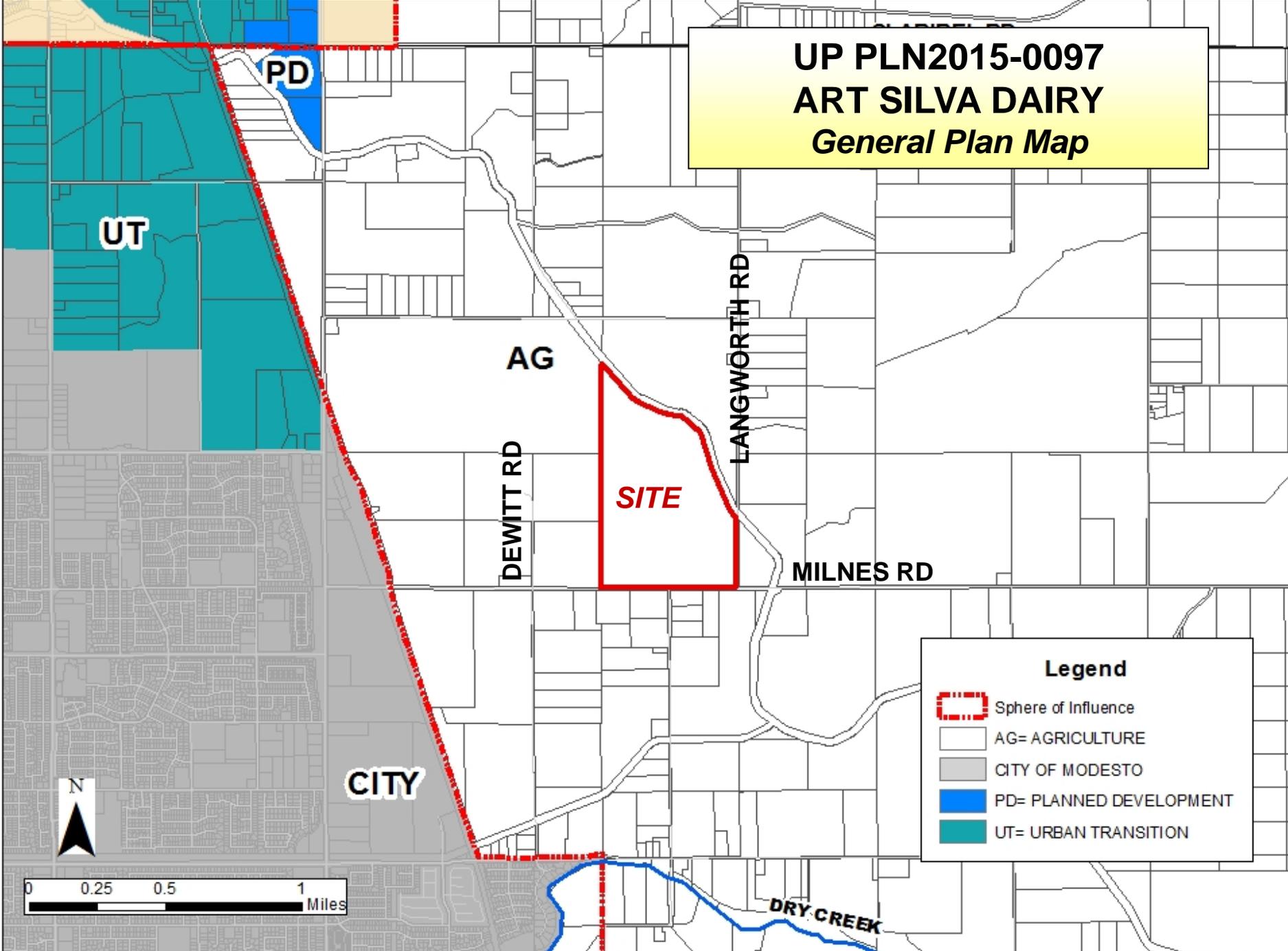
Response prepared by:

Name	Title	Date
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**UP PLN2015-0097
ART SILVA DAIRY
AREA MAP**



UP PLN2015-0097
ART SILVA DAIRY
General Plan Map



AG

UT

PD

SITE

DEWITT RD

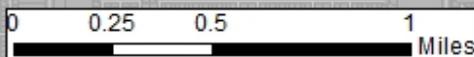
LANGWORTH RD

MILNES RD

CITY

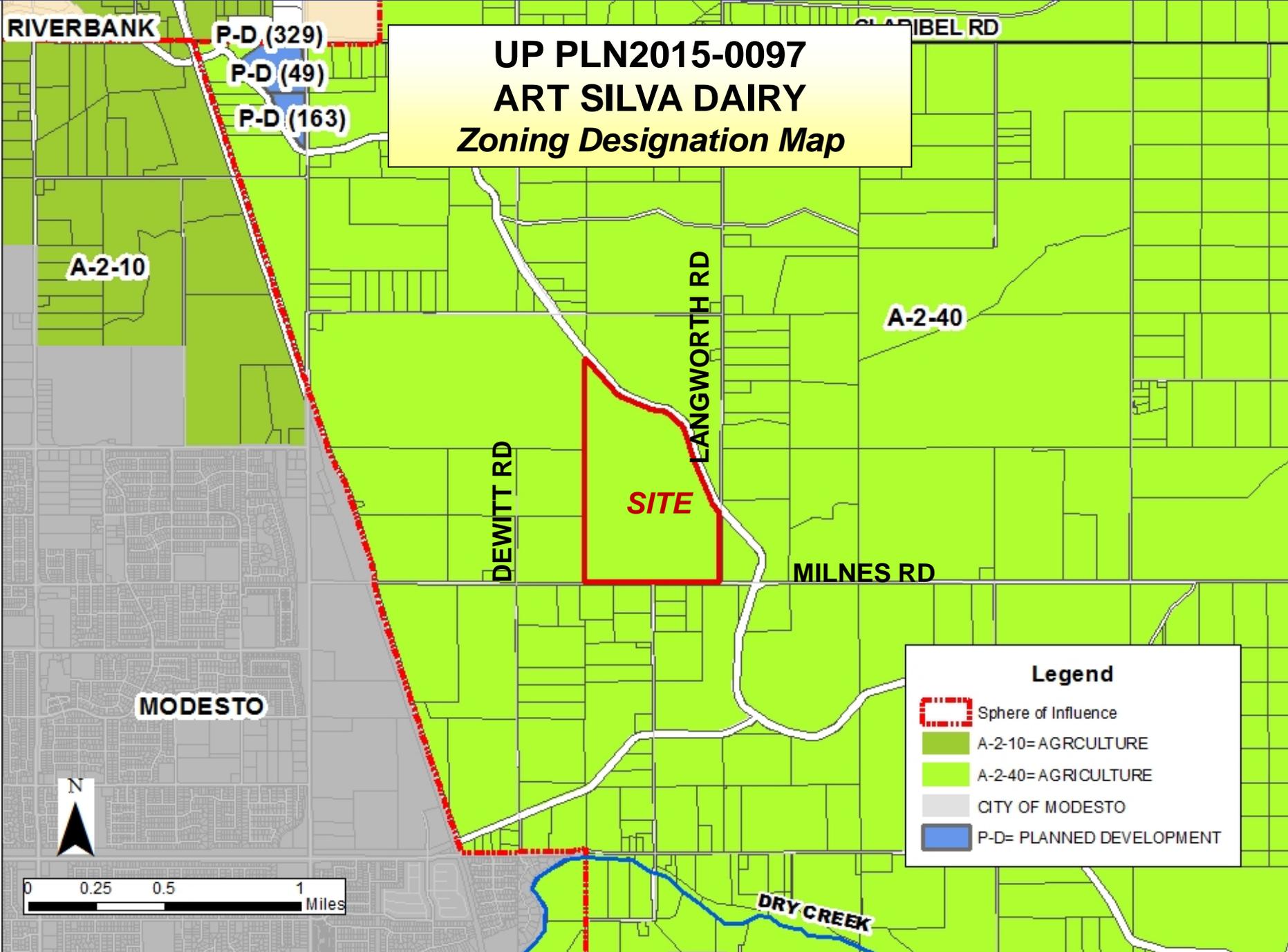
Legend

-  Sphere of Influence
-  AG= AGRICULTURE
-  CITY OF MODESTO
-  PD= PLANNED DEVELOPMENT
-  UT= URBAN TRANSITION

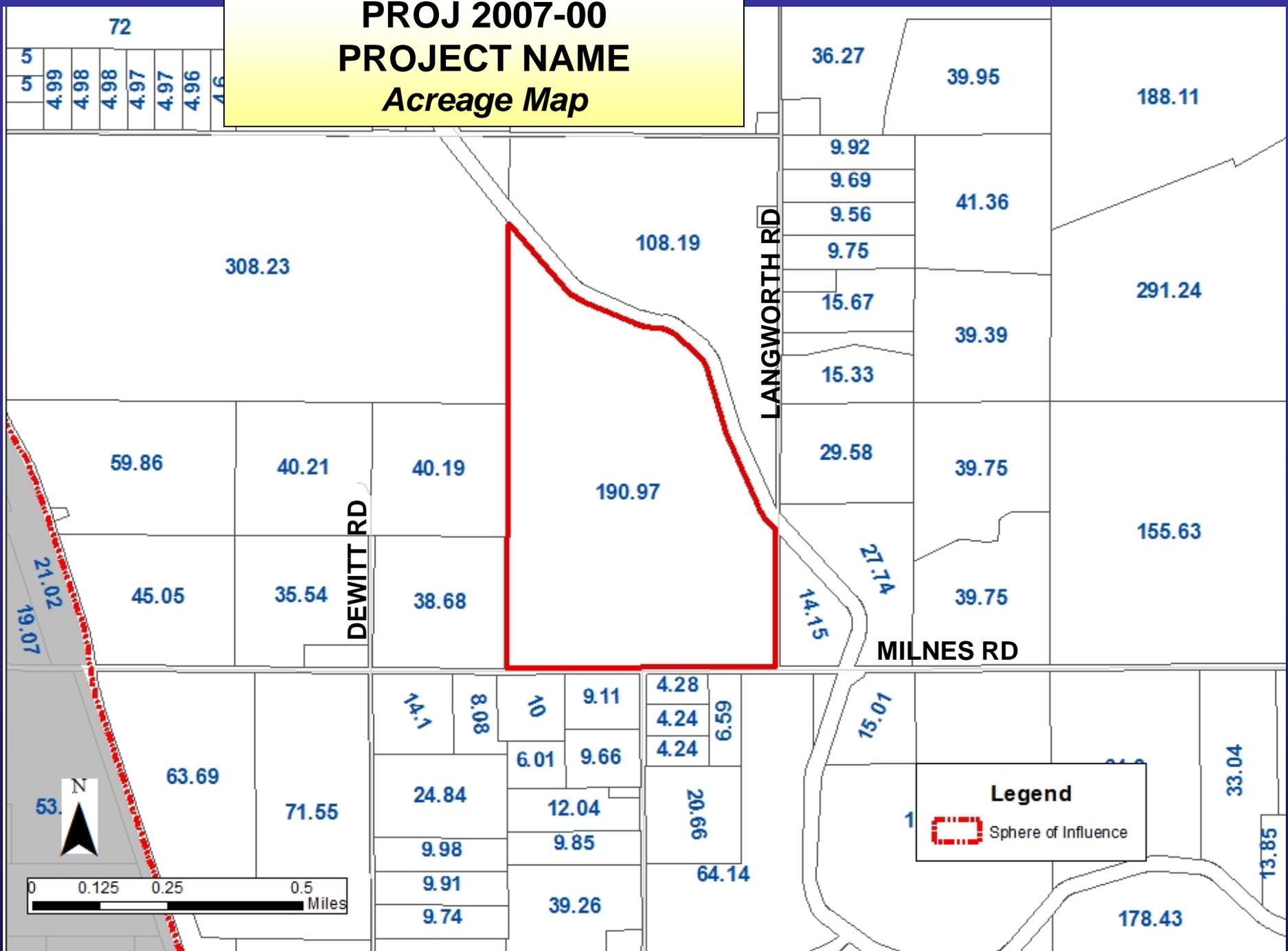


DRY CREEK

UPPLN2015-0097 ART SILVA DAIRY Zoning Designation Map

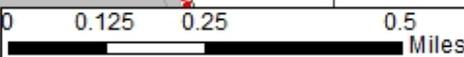


PROJ 2007-00
PROJECT NAME
Acreage Map

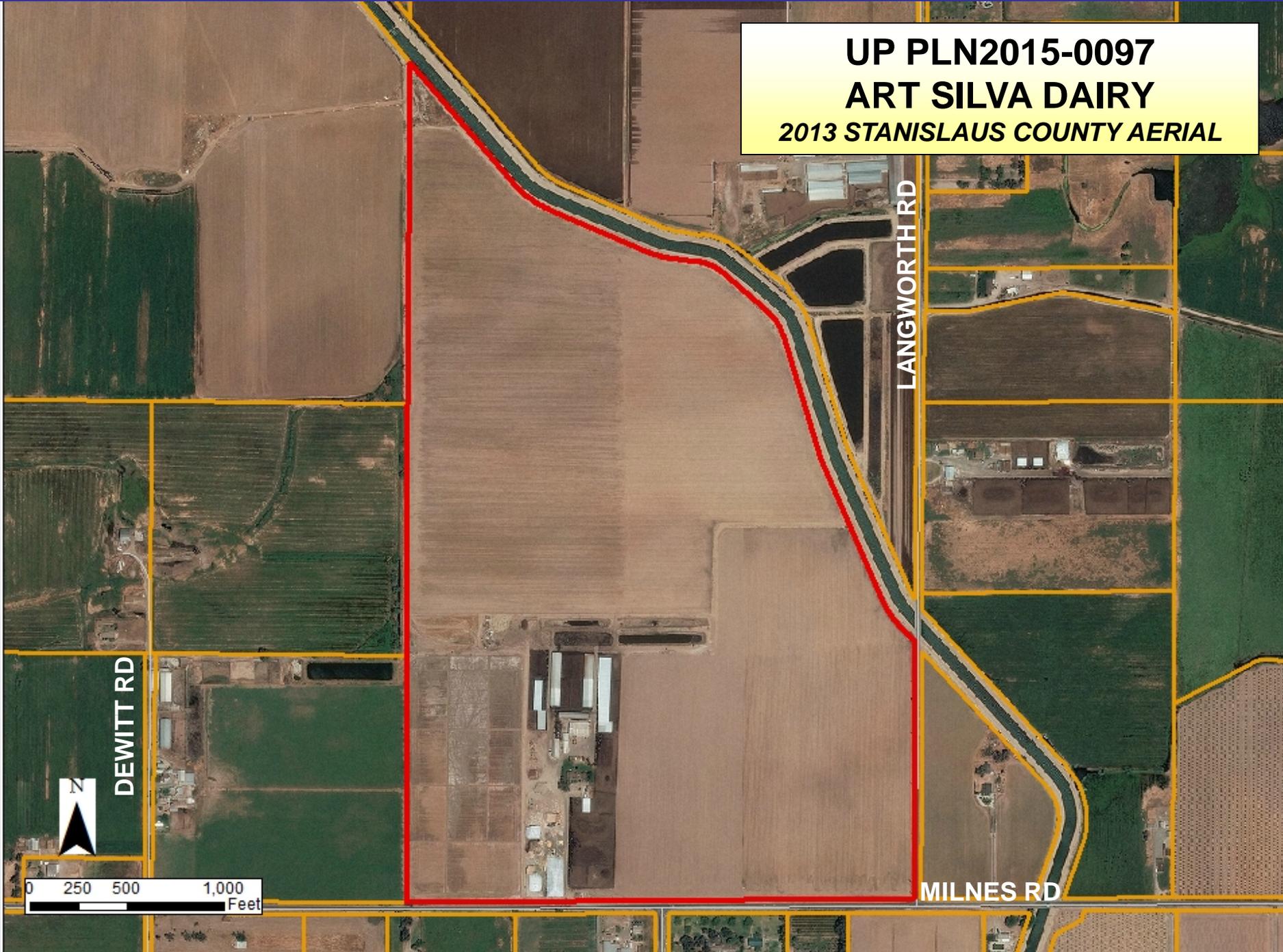


Legend

1  Sphere of Influence



UP PLN2015-0097
ART SILVA DAIRY
2013 STANISLAUS COUNTY AERIAL



LANGWORTH RD

DEWITT RD

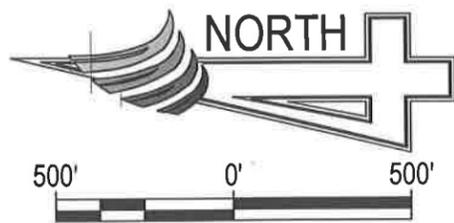
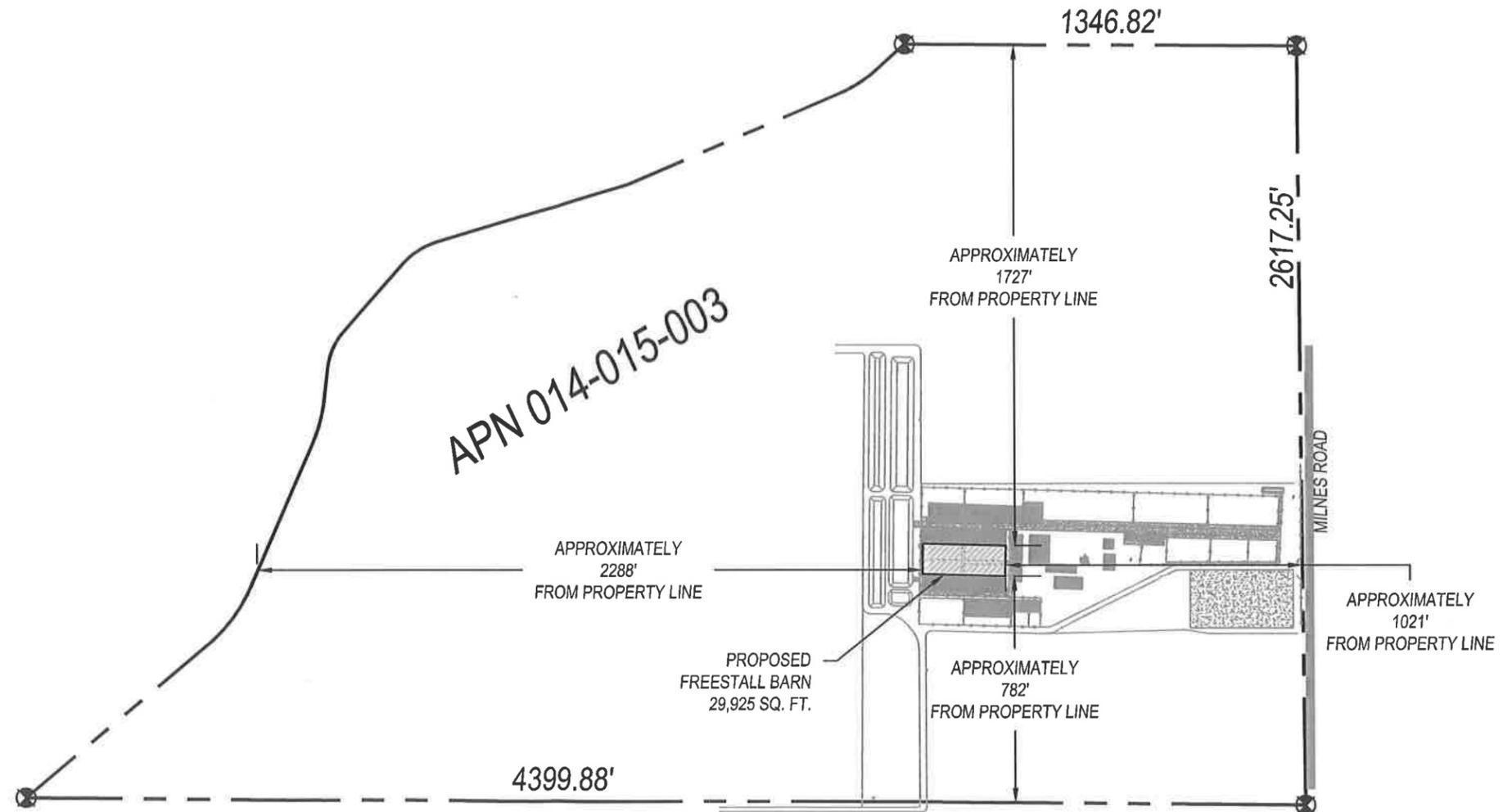
MILNES RD



0 250 500 1,000
Feet

OWNER/OPERATOR ART SILVA
 PROPERTY ADDRESS 5201 MILNES ROAD
 MODESTO, CA 95357
 MAILING ADDRESS P.O. BOX 885
 RIVERBANK, CA 95367
 COUNTY STANISLAUS COUNTY

APN: 014 - 015 - 003



LEGEND

-  EXISTING FENCELINE
-  EXISTING CONCRETE
-  EXISTING SHADE/STRUCTURE
-  PROPOSED SHADE/STRUCTURE
-  PARCEL LINE

15275
 PLOT PLAN
 10/22/2015
 1" = 500'

PLOT PLAN
 ART SILVA DAIRY
 STANISLAUS COUNTY, CA

324 S. Santa Fe, Ste. A
 Visalia, CA 93292
 (559) 802-3052
 www.4-creeks.com





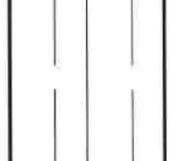
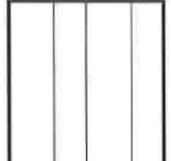
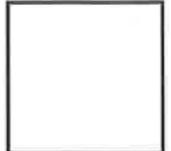
LEGEND

	PROPERTY LINE
	EXISTING FENCELINE
	EXISTING CONCRETE
	EXISTING ACCESS ROAD
	EXISTING SHADE/STRUCTURE
	PROPOSED SHADE/STRUCTURE



APN: 014-015-003

REVISIONS	DATE	BY	DESCRIPTION



2929 W. MAIN ST., STE. A
 P.O. BOX 7950
 VISALIA, CA 93291
 TEL: 559.735.8875
 FAX: 559.882.8675

4CREEKS

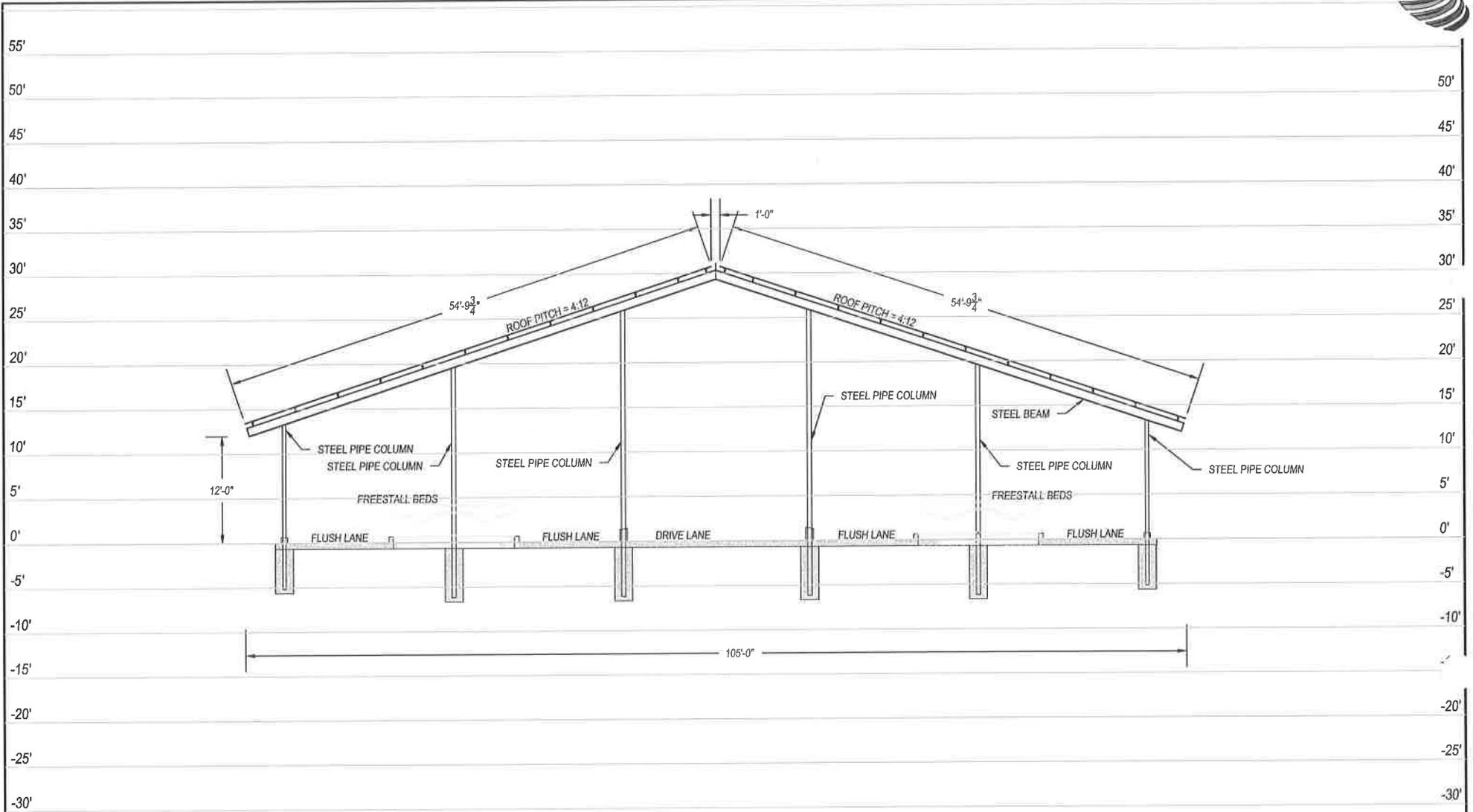
PREPARED BY: **4CREEKS**

DRW BY: MDR CHK BY: **4CREEKS**

IMPROVEMENT PLAN FOR:
ART SILVA DAIRY
 8201 MILNES ROAD
 AGRESTO, CA

SITE PLAN
 DAIRY FACILITY MODIFICATIONS

PLOT DATE: Oct 22, 2015
JOB NO.: 15275
FILE NAME: 15275-SITE PLAN
SCALE: 1"=80'
SHEET NO.: 1 OF 1



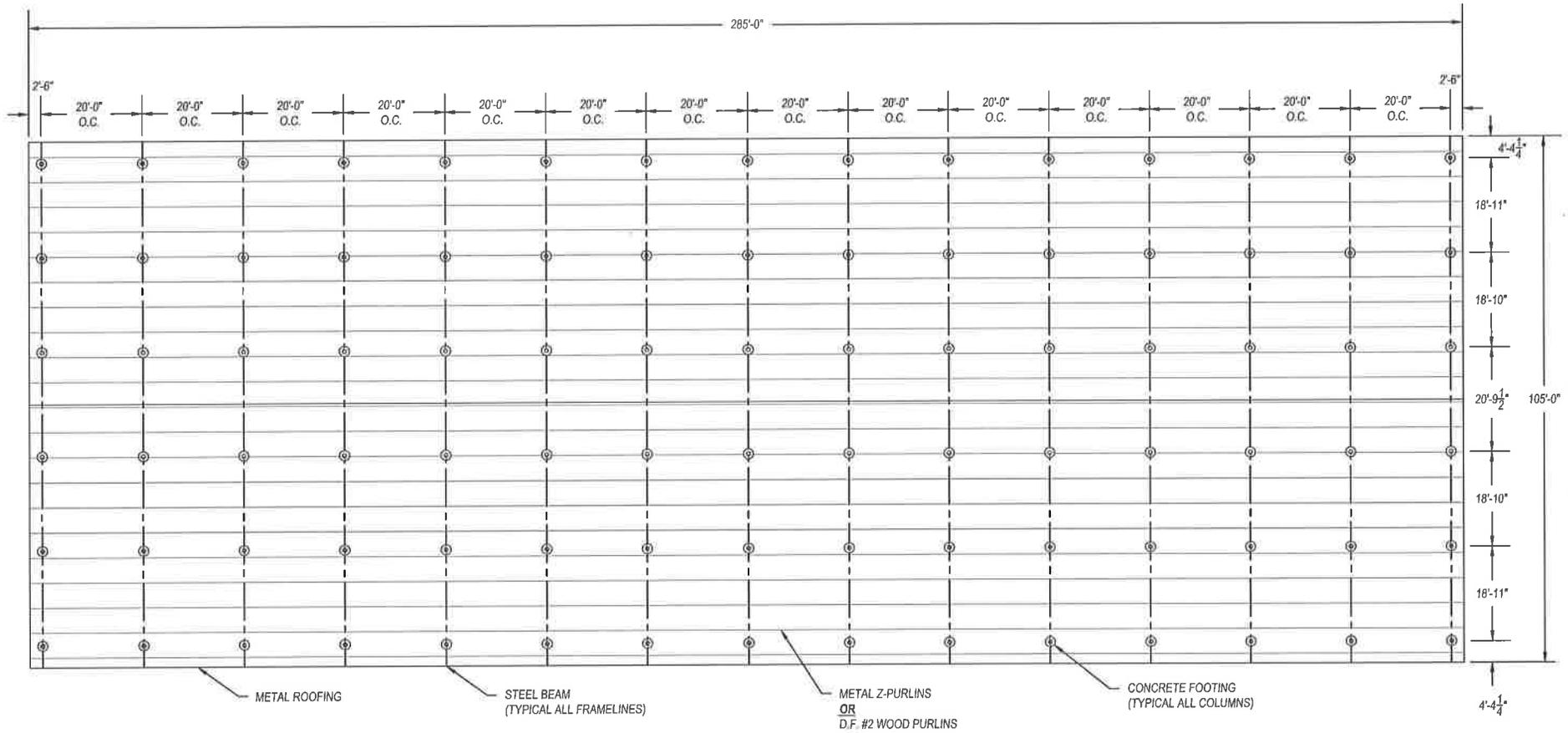
VIEW: LOOKING NORTH/SOUTH



324 S. Santa Fe, Ste. A
Visalia, CA 93292
(559) 802-3052
www.4-creeks.com

PROPOSED FREESTALL BARN - ELEVATION SHEET
ART SILVA DAIRY
STANISLAUS COUNTY, CA

PLOT DATE:	8/23/2015
JOB NO.:	15275
FILE NAME:	15275-FRSTL
SCALE:	1" = 10'



324 E. Santa Fe, Ste. A
Visalia, CA 93292
(559) 802-3052
www.4-creeks.com

PROPOSED FREESTALL BARN - PLAN VIEW
ART SILVA DAIRY
STANISLAUS COUNTY, CA

PLOT DATE:	8/23/2015
JOB NO.:	15275
FILE NAME:	15275-FRSTL
SCALE:	1" = 20'



APPLICATION QUESTIONNAIRE

<p>Please Check all applicable boxes APPLICATION FOR: <i>Staff is available to assist you with determining which applications are necessary</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> General Plan Amendment <input type="checkbox"/> Rezone <input checked="" type="checkbox"/> Use Permit <input type="checkbox"/> Variance <input type="checkbox"/> Historic Site Permit </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Subdivision Map <input type="checkbox"/> Parcel Map <input type="checkbox"/> Exception <input type="checkbox"/> Williamson Act Cancellation <input type="checkbox"/> Other _____ </td> </tr> </table>	<input type="checkbox"/> General Plan Amendment <input type="checkbox"/> Rezone <input checked="" type="checkbox"/> Use Permit <input type="checkbox"/> Variance <input type="checkbox"/> Historic Site Permit	<input type="checkbox"/> Subdivision Map <input type="checkbox"/> Parcel Map <input type="checkbox"/> Exception <input type="checkbox"/> Williamson Act Cancellation <input type="checkbox"/> Other _____	<p>PLANNING STAFF USE ONLY:</p> <p>Application No(s): _____ Date: <u>9-29-15</u> S <u>8</u> T <u>3</u> R <u>10</u> GP Designation: <u>AG</u> Zoning: <u>A-2-40</u> Fee: <u>\$3152</u> Receipt No. <u>529044</u> Received By: _____ Notes: _____</p>
<input type="checkbox"/> General Plan Amendment <input type="checkbox"/> Rezone <input checked="" type="checkbox"/> Use Permit <input type="checkbox"/> Variance <input type="checkbox"/> Historic Site Permit	<input type="checkbox"/> Subdivision Map <input type="checkbox"/> Parcel Map <input type="checkbox"/> Exception <input type="checkbox"/> Williamson Act Cancellation <input type="checkbox"/> Other _____		

In order for your application to be considered COMPLETE, please answer all applicable questions on the following pages, and provide all applicable information listed on the checklist on pages i – v. Under State law, upon receipt of this application, staff has 30 days to determine if the application is complete. We typically do not take the full 30 days. It may be necessary for you to provide additional information and/or meet with staff to discuss the application. Pre-application meetings are not required, but are highly recommended. An incomplete application will be placed on hold until all the necessary information is provided to the satisfaction of the requesting agency. An application will not be accepted without all the information identified on the checklist.

Please contact staff at (209) 525-6330 to discuss any questions you may have. Staff will attempt to help you in any way we can.

PROJECT INFORMATION

PROJECT DESCRIPTION: (Describe the project in detail, including physical features of the site, proposed improvements, proposed uses or business, operating hours, number of employees, anticipated customers, etc. – Attach additional sheets as necessary)

**Please note: A detailed project description is essential to the reviewing process of this request. In order to approve a project, the Planning Commission or the Board of Supervisors must decide whether there is enough information available to be able to make very specific statements about the project. These statements are called "Findings". It is your responsibility as an applicant to provide enough information about the proposed project, so that staff can recommend that the Commission or the Board make the required Findings. Specific project Findings are shown on pages 17 – 19 and can be used as a guide for preparing your project description. (If you are applying for a Variance or Exception, please contact staff to discuss special requirements).*

This application is a request to increase the milk/dry cows at this facility by 928 head . The facility currently houses

 583 milk cows, 60 dry cows, and 390 total heifers. After the proposed increase, the totals will be 920 milk, 180 dry

 861 heifers. The proposed project requires the construction of approximately 53,000 SF freestall barn within an

 existing exercise pen area. As shown in the amended Waste Water Management Plan (WMP), the Lagoons will be

 able to contain the increase of waste water, without expanding.

PROJECT SITE INFORMATION

Complete and accurate information saves time and is vital to project review and assessment. Please complete each section entirely. If a question is not applicable to your project, please indicated this to show that each question has been carefully considered. Contact the Planning & Community Development Department Staff, 1010 10th Street – 3rd Floor, (209) 525-6330, if you have any questions. Pre-application meetings are highly recommended.

ASSESSOR'S PARCEL NUMBER(S): Book 014 Page 015 Parcel 003

Additional parcel numbers: None

Project Site Address
or Physical Location: 5201 Milnes Rd

Modesto, CA 95357

Property Area: Acres: 189.4 or Square feet: _____

Current and Previous Land Use: (Explain existing and previous land use(s) of site for the last ten years)

Dairy Facility

List any known previous projects approved for this site, such as a Use Permit, Parcel Map, etc.: (Please identify project name, type of project, and date of approval)

N/A

Existing General Plan & Zoning: A-2-40

Proposed General Plan & Zoning: AG - Agriculture
(if applicable)

ADJACENT LAND USE: (Describe adjacent land uses within 1,320 feet (1/4 mile) and/or two parcels in each direction of the project site)

East: Agriculture

West: Agriculture

North: Agriculture

South: Agriculture

WILLIAMSON ACT CONTRACT:

Yes No

Is the property currently under a Williamson Act Contract?
Contract Number: _____

If yes, has a Notice of Non-Renewal been filed?

Date Filed: _____

Yes No

Do you propose to cancel any portion of the Contract?

Yes No

Are there any agriculture, conservation, open space or similar easements affecting the use of the project site. (Such easements do not include Williamson Act Contracts)

If yes, please list and provide a recorded copy: _____

SITE CHARACTERISTICS: (Check one or more) Flat Rolling Steep

VEGETATION: What kind of plants are growing on your property? (Check one or more)

Field crops Orchard Pasture/Grassland Scattered trees

Shrubs Woodland River/Riparian Other

Explain Other: _____

Yes No

Do you plan to remove any trees? (If yes, please show location of trees planned for removal on plot plan and provide information regarding transplanting or replanting.)

GRADING:

Yes No

Do you plan to do any grading? (If yes, please indicate how many cubic yards and acres to be disturbed. Please show areas to be graded on plot plan.) _____

STREAMS, LAKES, & PONDS:

Yes No

Are there any streams, lakes, ponds or other watercourses on the property? (If yes, please show on plot plan)

Yes No

Will the project change any drainage patterns? (If yes, please explain – provide additional sheet if needed) _____

Yes No

Are there any gullies or areas of soil erosion? (If yes, please show on plot plan)

Yes No

Do you plan to grade, disturb, or in any way change swales, drainages, ditches, gullies, ponds, low lying areas, seeps, springs, streams, creeks, river banks, or other area on the site that carries or holds water for any amount of time during the year? (If yes, please show areas to be graded on plot plan)

Please note: If the answer above is yes, you may be required to obtain authorization from other agencies such as the Corps of Engineers or California Department of Fish and Game.

STRUCTURES:

Yes No Are there structures on the site? (If yes, please show on plot plan. Show a relationship to property lines and other features of the site.)

Yes No Will structures be moved or demolished? (If yes, indicate on plot plan.)

Yes No Do you plan to build new structures? (If yes, show location and size on plot plan.)

Yes No Are there buildings of possible Historical significance? (If yes, please explain and show location and size on plot plan.) _____

PROJECT SITE COVERAGE:

Existing Building Coverage: 87,500 Sq. Ft. Landscaped Area: N/A Sq. Ft.

Proposed Building Coverage: 53,000 Sq. Ft. Paved Surface Area: N/A Sq. Ft.

BUILDING CHARACTERISTICS:

Size of new structure(s) or building addition(s) in gross sq. ft.: (Provide additional sheets if necessary) New approximately 53,000 SF Freestall Barn

Number of floors for each building: 1 Floor

Building height in feet (measured from ground to highest point): (Provide additional sheets if necessary) N/A

Height of other appurtenances, excluding buildings, measured from ground to highest point (i.e., antennas, mechanical equipment, light poles, etc.): (Provide additional sheets if necessary) N/A

Proposed surface material for parking area: (Provide information addressing dust control measures if non-asphalt/concrete material to be used) N/A

UTILITIES AND IRRIGATION FACILITIES:

Yes No Are there existing public or private utilities on the site? Includes telephone, power, water, etc. (If yes, show location and size on plot plan)

Who provides, or will provide the following services to the property?

Electrical: MID Sewer*: Septic and waste water Lagoons

Telephone: AT&T Gas/Propane: Suburban Propane

Water**: Well Irrigation: MID

***Please Note: A "will serve" letter is required if the sewer service will be provided by City, Sanitary District, Community Services District, etc.**

****Please Note: A "will serve" letter is required if the water source is a City, Irrigation District, Water District, etc., and the water purveyor may be required to provide verification through an Urban Water Management Plan that an adequate water supply exists to service your proposed development.**

Will any special or unique sewage wastes be generated by this development other than that normally associated with resident or employee restrooms? Industrial, chemical, manufacturing, animal wastes? (Please describe:)

The operation generates and will continue to generate animal waste. The operation also generates and will continue to generate process waste water from cleaning of the Milk Barn

Please Note: Should any waste be generated by the proposed project other than that normally associated with a single family residence, it is likely that Waste Discharge Requirements will be required by the Regional Water Quality Control Board. Detailed descriptions of quantities, quality, treatment, and disposal may be required.

Yes No Are there existing irrigation, telephone, or power company easements on the property? (If yes, show location and size on plot plan.)

Yes No Do the existing utilities, including irrigation facilities, need to be moved? (If yes, show location and size on plot plan.)

Yes No Does the project require extension of utilities? (If yes, show location and size on plot plan.)

AFFORDABLE HOUSING/SENIOR:

Yes No Will the project include affordable or senior housing provisions? (If yes, please explain)

RESIDENTIAL PROJECTS: (Please complete if applicable – Attach additional sheets if necessary)

Total No. Lots:	<u> N/A </u>	Total Dwelling Units:	<u> N/A </u>	Total Acreage:	<u> N/A </u>
Net Density per Acre:	<u> N/A </u>	Gross Density per Acre:	<u> N/A </u>		
<i>(complete if applicable)</i>	Single Family	Two Family Duplex	Multi-Family Apartments	Multi-Family Condominium/Townhouse	
Number of Units:	<u> N/A </u>	<u> N/A </u>	<u> N/A </u>	<u> N/A </u>	
Acreage:	<u> N/A </u>	<u> N/A </u>	<u> N/A </u>	<u> N/A </u>	

COMMERCIAL, INDUSTRIAL, MANUFACTURING, RETAIL, USE PERMIT, OR OTHER PROJECTS: (Please complete if applicable – Attach additional sheets if necessary)

Square footage of each existing or proposed building(s): 87,500 SF existing / approximately 53,000 SF proposed

Type of use(s): Typical Dairy Structure

Days and hours of operation: 24 Hours Day / 7 Days a week

Seasonal operation (i.e., packing shed, huller, etc.) months and hours of operation: N/A

Occupancy/capacity of building: N/A

Number of employees: (Maximum Shift): 10 (Minimum Shift): _____

Estimated number of daily customers/visitors on site at peak time: 2

Other occupants: _____

Estimated number of truck deliveries/loadings per day: 2

Estimated hours of truck deliveries/loadings per day: 2

Estimated percentage of traffic to be generated by trucks: 25%

Estimated number of railroad deliveries/loadings per day: None

Square footage of:

Office area: N/A

Warehouse area: N/A

Sales area: N/A

Storage area: N/A

Loading area: N/A

Manufacturing area: N/A

Other: (explain type of area) _____

Yes No Will the proposed use involve toxic or hazardous materials or waste? (Please explain)

ROAD AND ACCESS INFORMATION:

What County road(s) will provide the project's main access? (Please show all existing and proposed driveways on the plot plan)

Milnes Road

Yes No Are there private or public road or access easements on the property now? (If yes, show location and size on plot plan)

Yes No Do you require a private road or easement to access the property? (If yes, show location and size on plot plan)

Yes No Do you require security gates and fencing on the access? (If yes, show location and size on plot plan)

Please Note: Parcels that do not front on a County-maintained road or require special access may require approval of an Exception to the Subdivision Ordinance. Please contact staff to determine if an exception is needed and to discuss the necessary Findings.

STORM DRAINAGE:

How will your project handle storm water runoff? (Check one) Drainage Basin Direct Discharge Overland

Other: (please explain) Existing Waste Water Lagoons

If direct discharge is proposed, what specific waterway are you proposing to discharge to? N/A

Please Note: If direct discharge is proposed, you will be required to obtain a NPDES permit from the Regional Water Quality Control Board, and must provide evidence that you have contacted them regarding this proposal with your application.

EROSION CONTROL:

If you plan on grading any portion of the site, please provide a description of erosion control measures you propose to implement.

N/A

Please note: You may be required to obtain an NPDES Storm Water Permit from the Regional Water Quality Control Board and prepare a Storm Water Pollution Prevention Plan.

ADDITIONAL INFORMATION:

Please use this space to provide any other information you feel is appropriate for the County to consider during review of your application. (Attach extra sheets if necessary)



September 23, 2015

Charlene Herbst
Central Valley Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

RE: Art Silva Dairy Revised Waste Management Plan

Dear Ms. Herbst,

Art Silva Dairy, located at 5201 Milnes Road, Modesto, CA, submitted a Waste Management Plan completed by Sousa Engineering in March 2010. The Waste Management Plan (WMP) was submitted as part of the Comprehensive Nutrient Management Plan (Section 10.4 – Appendix B), summarizing that the dairy facility contained adequate storage for all wastewater and storm water run-off onsite at the time of completion. Art Silva Dairy has since hired 4Creeks, Inc. to update the original WMP to include an additional freestall barn along with an increase in herd size and ensure the facility still complies with General Order No. R5-2013-0122.

The herd increase consists of an additional 337 milk cows, 120 dry cows, and 471 additional young stock. In regards to the young stock, all 861 animals are to be heifers 15-24 mo. of age, as Art Silva Dairy may raise calves up to 14 months at another facility in the future. Converting all young stock to this age group constitutes a conservative approach in regards to lagoon capacity. Additionally, the 105' x 285' proposed freestall barn (**See Site Plan attached**) increases the facilities impervious area by 29,925 sq. ft.

According to the calculations completed by Sousa Engineering, Art Silva Dairy has a required wastewater storage capacity of 4,323,757 gallons for the 120 day required storage period (November 1st – February 28). Based on the values from **Appendix B – ASABE Manure Production and Characteristics**, the added animals will increase manure production by 2,000 gal/day (See **Appendix A – Wastewater Retention Pond Volume Analysis Summary**). To compute milk barn water usage for the additional 337 milk cows, 35 gal/day for the barn water use of each cow is assumed. This value is typical of milk barn water use on a facility this size with a similar barn orientation. These calculations show an additional milk barn wastewater output of 11,795 gallons/day.

Using the Rational Method and the runoff coefficients attached in **Appendix C – Storm Drain Run-Off Coefficient Data**, the additional wastewater created due to the freestall impervious area increase during a 25 year 24 hour storm event is 41,040 gallons. Similarly, the added normal precipitation and run-off is 54,984 gallons (166,002 gallons with the 1.5 factor) during the 120 day period. These values were calculated using precipitation and storm data provided in the 2010 WMP.



Visalia Office
2929 W. Main St. Suite A
Visalia, California 93291
P: (559) 802.3052
F: (559) 802.3215

Porterville Office
881 W. Morton Ave., Suite D
Porterville, California 93257
P: (559) 781. 0102
F: (559) 781.6840

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In total, the added animals and proposed freestall will increase the required wastewater retention storage pond volume by 1,862,480 gallons with the 1.5 precipitation factor (See **Appendix A – Wastewater Retention Pond Volume Analysis Summary**). The available wastewater storage capacity for the facility is 6,187,803 as reported in the Sousa Engineering WMP from March 2010. This gives the facility a total excess wastewater retention pond capacity of **1,566 gallons**.

In summary, as required in General Order Number R5-2013-0122, the determination of the required storage capacity for the wastewater retention ponds must reflect run-off due to normal precipitation times a factor of one and a half. The calculation results in **Appendix A** show that the retention pond capacity is adequate under these circumstances. Based on this summary, no additional modifications to the dairy facility are required and the existing storage capacity meets the requirements of the General Order.

Art Silva Dairy shall continue follow the Operations and Maintenance Plan as outlined in the March 2010 WMP.

Sincerely,

A handwritten signature in blue ink, appearing to read "Matthew Razor", is written over a blue horizontal line.

Matthew Razor, PE #81897

Cc: Jason Pausma, Innovative Ag Services, LLC

Attachments:

- Exhibit A – Site Plan
- Appendix A – Wastewater Retention Pond Volume Analysis Summary
- Appendix B – Animal Output Data – ASAE D384.2 MAR2005 Manure Production and Characteristics
- Appendix C – Storm Drain Run-Off Coefficient Data

References:

- California Regional Water Quality Control Board - Central Valley Region – Order Number R5-2013-0122
"Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies"
- Waste Management Plan for Art Silva Dairy Stanislaus County, CA – Sousa Engineering, March 2010

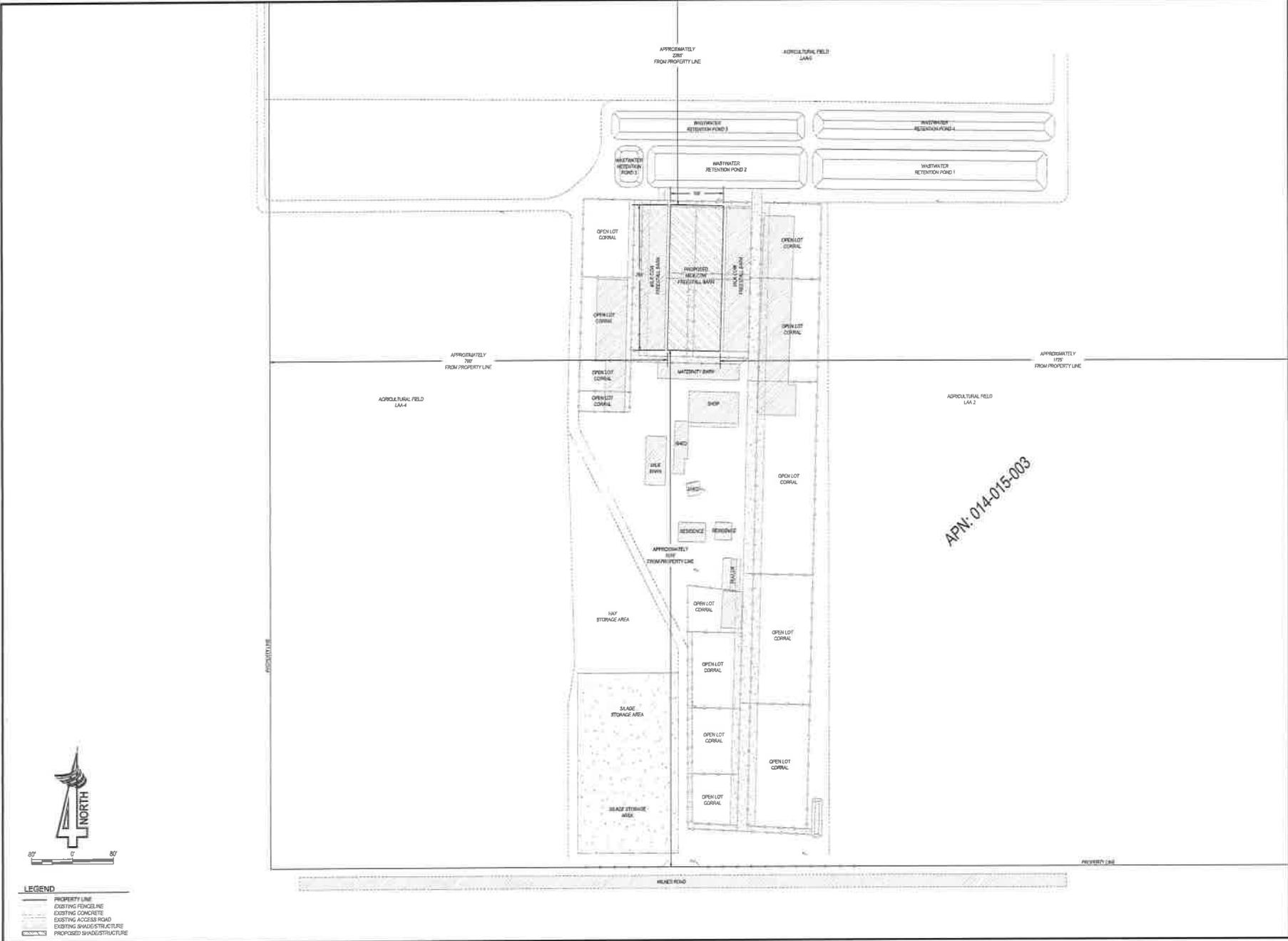
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APN: 014-015-003

LEGEND

	PROPERTY LINE
	EXISTING FENCELINE
	EXISTING CONCRETE
	EXISTING ACCESS ROAD
	EXISTING SHADESTRUCTURE
	PROPOSED SHADESTRUCTURE

DATE	BY	DESCRIPTION

PREPARED BY: 4CREEKS

DATE: 09/21/2015

PROJECT: ART SILVA DAIRY

PROJECT: ART SILVA DAIRY

PROJECT ADDRESS: 10000 JAMES ST. CA

SITE PLAN

DAIRY FACILITY MODIFICATIONS

PLAT DATE: Sep 21, 2015
JOB NO: 10079
FILE NAME: 10079-SITE PLAN
SCALE: 1"=50'
SHEET NO: 1 OF 1

APPENDIX A

WASTEWATER RETENTION POND VOLUME ANALYSIS SUMMARY





Calculations Completed By: MDR
 Calculations Checked By:
 Date: 9/23/2015

Wastewater Retention Pond Volume Analysis ART SILVA DAIRY

A. EXISTING STORAGE VOLUME ASSESSMENT

SUMMARY (See Waste Management Plan from Sousa Engineering - March, 2010)

Storage Period:	120	days
Barn Wastewater, Fresh Flush Water, and Tailwater:	1,536,240	gallons/storage period
Manure and Bedding Sent To Pond:	398,316	gallons/storage period
Precipitation Onto Pond:	861,233	gallons/storage period
Precipitation Runoff:	1,434,193	gallons/storage period
25 Year/24 Hour Storm Onto Pond:	181,465	gallons/storage period
25 Year/24 Hour Storm Runoff:	483,185	gallons/storage period
Residual Solids After Liquids Have Been Removed (Liquid Equivalent):	35,154	gallons/storage period
Total Process Wastewater Removed Due to Evaporation:	570,874	gallons/storage period
Total Required Capacity:	4,323,757	gallons/storage period
Total Existing Capacity:	6,187,803	gallons/storage period
Existing Capacity Meets Estimated Storage Needs:	Yes	

B. ADDITIONAL STORAGE VOLUME ANALYSIS

Additional Animal and Milk Barn Output

Age of Animal & Housing Type	Current Max. # of Animals	Max. # of Animals from 2010 WMP	Total # of Animals Increase
Milking Cows (Freestall)	920	583	337
Dry Cows (Open Lot)	180	60	120
Heifers: 15-24 mo. (Open Lot)	861	125	736
Heifers: 7-14 mo. (Open Lot)	0	125	-125
Heifers: 4 - 6 mo. (Open Lot)	0	100	-100
Calves: up to 3 mo.	0	40	-40
Total :			928

Age of Animal & Housing Type	Total Difference in # of Animals	Waste Produced - Urine & Manure (ft ³ /day) (ASABE 384.2)	Hours/Day on Flush Surface	Combined Manure Solids Separation Efficiency	Total (gal/day)
Milking Cows (Freestall)	337	2.4	12	45%	1,664
Dry Cows (Open Lot)	120	1.3	4	45%	107
Heifers: 15-24 mo. (Open Lot-Vacuumed)	736	0.78	3	45%	295
Heifers: 7-14 mo. (Open Lot-Vacuumed)	-125	0.78	3	45%	-50
Heifers: 4 - 6 mo. (Open Lot-Vacuumed)	-100	0.3	3	45%	-15
Total :					2,000

Summary:

Wastewater Source	Volume (gal./day)	Total Volume Accumulated in 120 day period (gal.)
Additional Milk Barn Wastewater Output:	11,795	1,415,400
Additional Animal Output (Urine & Manure):	2,000	240,038
Total Additional Process Wastewater Volume From Operations:	13,795	1,655,438

*Assumes additional cows @ 35 gal/day/cow

Additional Storm Water Run-Off

Rainfall Run-off from Production Area (Exhibit A)

Total Additional Production Tributary Area	0	ft ²
	0.00	acres

Run-off Coefficients (Appendix B)

Normal Precipitation Runoff Coefficient for Impervious:	0.75
Normal Precipitation Runoff Coefficient for Pervious:	0.31
25 Yr. 24 Hr. Storm Runoff Coefficient for Impervious:	0.88
25 Yr. 24 Hr. Storm Runoff Coefficient for Pervious:	0.40

Production Area Subdivision Summary

Area Description	Run-off Area (ft ²)
Additional Wastewater Retention Pond Area	0
Additional Total Impervious Area	29,925
Additional Total Pervious Area	0
Total Additional Production Area	29,925

(assumes 285' x 105'-0" additional freestall)

Conversion Factor: 0.623377
(7.48051941 gal/ft³ x 1 ft/12 in)

Additional Storm Water From 25 Year/24 Hour Rainfall Event

Source: Art Silva Dairy 2010 WMP

Area Description	Rainfall (in.)	Run-off Coefficient	Weighted Run-off Area (ft ²)	Total Volume Accumulated (gal)
Additional Wastewater Retention Pond Area	2.50	1.00	0	0
Additional Total Impervious Area	2.50	0.88	26,334	41,040
Additional Total Pervious Area	2.50	0.40	0	0
Total Additional Production Area			26,334	41,040

Additional Storm Water From Normal Precipitation & Run-off

Source: Art Silva Dairy 2010 WMP

Area Description	Rainfall (in./Storage Period)	Run-off Coefficient	Weighted Run-off Area (ft ²)	Total Volume Accumulated (gal)
Additional Wastewater Retention Pond Area	3.93	1.00	0	0
Additional Total Impervious Area	3.93	0.75	22,444	54,984
Additional Total Pervious Area	3.93	0.31	0	0
Total Additional Production Area			22,444	54,984

Additional Storm Water From Normal Precipitation & Run-off times a factor of 1.5

Area Description	Rainfall (in./Storage Period)	Run-off Coefficient	Weighted Run-off Area (ft ²)	Total Volume Accumulated (gal)
Additional Wastewater Retention Pond Area	11.87	1.00	0	0
Additional Total Impervious Area	11.87	0.75	22,444	166,002
Additional Total Pervious Area	11.87	0.31	0	0
Total Additional Production Area			22,444	166,002

Evaporation from Wastewater Basin

No pond area was added to the 2010 WMP, therefore no additional evaporation occurs.

C. SUMMARY OF ADDITIONAL REQUIRED WASTEWATER RETENTION POND STORAGE VOLUME:

1.5 PRECIPITATION FACTOR

Volume Description	Total Volume In 120 Day Period (gal.)
Wastewater from Operations	1,655,438
Wastewater Accumulated From Normal Precipitation w/ 1.5 Factor	166,002
Wastewater Accumulated From 25 Year, 24 Hour Event	41,040
Less: Evaporation from Wastewater Retention Ponds	0
Net Additional Required Wastewater Retention Pond Storage Volume	1,862,480
Net Existing Required Wastewater Retention Pond Storage Volume	4,323,757
Less: Net Existing Wastewater Retention Ponds Storage Volume	6,187,803
Excess Wastewater Retention Pond Capacity	1,566

1.5 PRECIPITATION FACTOR NOT INCLUDED

Volume Description	Total Volume in 120 Day Period (gal.)
Wastewater from Operations	1,655,438
Wastewater Accumulated From Normal Precipitation w/ 1.5 Factor	54,984
Wastewater Accumulated From 25 Year, 24 Hour Event	41,040
Less: Evaporation from Wastewater Retention Ponds	0
Net Additional Required Wastewater Retention Pond Storage Volume	1,751,463
Net Existing Required Wastewater Retention Pond Storage Volume	4,323,757
Less: Net Existing Wastewater Retention Ponds Storage Volume	6,187,803
Excess Wastewater Retention Pond Capacity	112,583

Total Available Retention Days of Storage (1.5 factor): 120.0

Total Available Retention Days of Storage (Normal): 122.2

APPENDIX B

ANIMAL OUTPUT DATA



ASAE D384.2 MAR2005
Manure Production and Characteristics



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Agricultural and Biological Engineers**

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Table 1.b – Section 3 – All other livestock and poultry. Diet based numbers are in BOLD. See footnotes 2 and 3 for source of non-bold values.

Animal Type and Production Grouping	Total solids ³	Volatile solids ³	COD ^{3,4}	BOD ^{3,4}	Nitrogen	P	K	Ca	Mg	Total Manure ⁵		Moisture ⁶
	kg / day-animal (d-a)									kg / (d-a)	liter / d-a.	% w.b.
Beef - Cow (confinement) ^{7,10}	6.6	5.9	6.2	1.4	0.19	0.044	0.14	0.089		-	-	88
Beef - Growing Calf (confinement)	2.7	2.3	2.3	0.52	0.13	0.025	0.085	0.040		22	22	88
Dairy - Lactating cow	8.9	7.5	8.1	1.30	0.45	0.078	0.103			68	68	87
Dairy - Dry cow	4.9	4.2	4.4	0.626	0.23	0.03	0.148			38	3	87
Dairy - Milk fed calves					0.0079							
Dairy - Calf-150 kg	1.4				0.063					8.5	8.5	83
Dairy - Heifer-440 kg	3.7	3.2	3.4	0.54	0.12	0.020				22	22	83
Dairy - Veal-118 kg	0.12				0.015	0.0045	0.0199			3.5	3.5	96
Horse - Sedentary-500 kg ⁸	3.8	3.0		0.48	0.089	0.013	0.027	0.023	0.009	25	25	85
Horse - Intense exercise -500 kg ⁸	3.9	3.1		0.49	0.15	0.033	0.095	0.069	0.018	26	26	85
Layer	0.022	0.016	0.018	0.0050	0.0016	0.00048	0.00058	0.0022		0.088	0.088	75
Swine - Gestating sow-200 kg	0.50	0.45	0.47	0.17	0.032	0.009	0.022			5.0	5.0	90
Swine - Lactating sow ⁹ -192 kg	1.2	1.0	1.1	0.38	0.085	0.025	.053			12	12	90
Swine - Boar-200 kg	0.38	0.34	0.27	0.13	0.028	0.0097	.0176			3.8	3.8	90
	lb / day-animal (d-a)									lb / d-a.	ft ³ / d-a.	% w.b.
Beef - Cow (confinement) ^{7,10}	15	13	14	3.0	0.42	0.097	0.30	0.20		-	-	88
Beef - Growing Calf (confinement)	6.0	5.0	5.2	1.1	0.29	0.055	0.19	0.088		50	0.81	88
Dairy - Lactating cow	20	17	18	2.9	0.99	0.17	0.23			150	2.4	87
Dairy - Dry cow	11	9.2	9.7	1.4	0.50	0.066	0.33			83	1.3	87
Dairy - Milk fed calves					0.017							
Dairy - Calf-330lb	3.2				0.14					19	0.30	83
Dairy - Heifer-970 lb	8.2	7.1	7.5	1.2	0.26	0.044				48	0.78	83
Dairy - Veal-260 lb	0.27				0.033	0.0099	0.044			7.8	0.12	96
Horse - Sedentary-1,100 lb ⁸	8.4	6.6		1.1	0.20	0.029	0.060	0.051	0.020	56	0.90	85
Horse - Intense exercise -1,100 lb ⁸	8.6	6.8		1.1	0.34	0.073	0.21	0.15	0.040	57	0.92	85
Layer	0.049	0.038	0.039	0.011	0.0035	0.0011	0.0013	0.0048		0.19	0.0031	75
Swine - Gestating sow-440 lb	1.1	0.99	1.0	0.37	0.071	0.020	0.048			11	0.18	90
Swine - Lactating sow ⁹ 423 lb	2.5	2.3	2.4	0.84	0.19	0.055	0.12			25	0.41	90
Swine - Boar-440 lb	0.84	0.75	0.60	0.29	0.061	0.021	0.039			8.4	0.13	90

¹ Prior to any changes due to dilution water addition, drying, volatilization or other physical, chemical or biological processes.

² Non-bold table numbers indicate that predictive equations were not available from Sections 4 – 9 for estimating this characteristic. These numbers are average values taken from MWPS-18 Section 1, NRCS Agricultural Waste Management Field Handbook, and the previous version ASAE D384.1 or calculated based upon procedures used in footnote 3.

³ Total Solids (TS) is estimated for most animal groups by equations in Sections 4 – 9. For beef cattle, volatile solids is also based upon equations. For all other species, volatile solids are calculated from TS and literature values of the ratio of VS to TS. Similarly, BOD and COD values are calculated using VS and the literature values of the ratio of BOD and COD to VS. Literature values are taken from MWPS-18 Section 1, NRCS Agricultural Waste Management Field Handbook, and the previous version ASAE D384.1.

⁴ BOD – Biochemical oxygen demand, 5-day, COD – Chemical oxygen demand.

⁵ Total manure is calculated from Total Solids and manure moisture content.

⁶ As-excreted manure moisture contents range from 75 to 90 percent. At these moisture levels as-excreted manure has a density nearly equal to that of water, and a specific gravity of 1.0 was assumed in calculation of manure volume.

⁷ Solids estimates (TS, VS, COD, and BOD) do not include solids in urine.

⁸ These values apply to horses 18 months of age or older that are not pregnant or lactating. The representative number applies to 500 kg horses and the range represents horses from 400 to 600 kg. "Sedentary" would apply to horses not receiving any imposed exercise. Dietary inputs are based on minimum nutrient requirements specified in "Nutrient Requirements of Horses" (NRC, 1989). "Intense" represents horses used for competitive activities such as racing. Dietary inputs are based on a survey of race horse feeding practices (Gallagher et al, 1992) and typical feed compositions (forage = 50% alfalfa, 50% timothy; concentrate = 30% oats, 70% mixed performance horse concentrate).

⁹ Bold values include contribution of nursing pigs.

¹⁰ Beef cows values are representative of animals during non-lactating period and first six months of gestation.

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APPENDIX C

STORM DRAIN RUN-OFF COEFFICIENT DATA



15.2.2 Rational Method Design

From an engineering viewpoint the design can be divided into two main aspects: runoff predictions and pipe sizing. The rational method, which can be traced back to the mid-nineteenth century, is still probably the most popular method used for the design of storm sewers (Yen and Akan, 1999). Although criticisms have been raised of its adequacy, and several other more advanced methods have been proposed, the rational method, because of its simplicity, is still in continued use for sewer design when high accuracy of runoff rate is not essential.

Using the rational method, the storm runoff peak is estimated by the rational formula $Q=KCiA$ (15.2.1) where the peak runoff rate Q is in ft^3/s (m^3/s), K is 1.0 in U.S. customary units (0.28 for SI units), C is the runoff coefficient (Table 15.2.3), i is the average rainfall intensity in in/hr (mm/hr) from intensity-duration frequency relationships for a specific return period and duration t_c in min, and A is the area of the tributary drainage area in acres (km^2). The duration is taken as the time of the concentration t_c of the drainage area.

Runoff Coefficients for Use in the Rational Method

Character of Surface	Return Period (years)						
	2	5	10	25	50	100	500
Developed							
Asphaltic	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Concrete/roof	0.75	0.80	0.83	0.88	0.92	0.97	1.00
Grass Areas (lawns, parks, etc.)							
<i>Poor condition (grass cover less than 50% of the area)</i>							
Flat, 0-2%	0.32	0.34	0.37	0.40	0.44	0.47	0.58
Average, 2-7%	0.37	0.40	0.43	0.46	0.49	0.53	0.61
Steep, over 7%	0.40	0.43	0.45	0.49	0.52	0.55	0.62
<i>Fair condition (grass cover 50% to 75% of the area)</i>							
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41	0.53
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49	0.58
Steep, over 7%	0.37	0.40	0.42	0.46	0.49	0.53	0.60
<i>Good condition (grass cover larger than 75% of the area)</i>							
Flat, 0-2%	0.20	0.23	0.25	0.29	0.32	0.36	0.49
Average, 2-7%	0.29	0.32	0.35	0.39	0.42	0.46	0.56
Steep, over 7%	0.34	0.37	0.40	0.44	0.47	0.51	0.58
Undeveloped							
Cultivated land							
Flat, 0-2%	0.31	0.34	0.36	0.40	0.43	0.47	0.57
Average, 2-7%	0.35	0.38	0.41	0.44	0.48	0.51	0.60
Steep, over 7%	0.39	0.42	0.44	0.48	0.51	0.54	0.61
Pasture/range							
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41	0.53
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49	0.58
Steep, over 7%	0.37	0.40	0.42	0.46	0.49	0.53	0.60
Forest/woodlands							
Flat, 0-2%	0.20	0.25	0.25	0.31	0.35	0.39	0.48
Average, 2-7%	0.31	0.34	0.26	0.40	0.43	0.47	0.56
Steep, over 7%	0.35	0.39	0.41	0.45	0.48	0.52	0.58

Note: The values in the table are the standards used by the City of Austin, Texas.

Source: Chow, Maidment, and Mays (1988).

Nutrient Budget

Art Silva Dairy 2015

General Nutrient Production and Balance Analysis

Animal	Head	Housing Type	Nitrogen			
			Liquid		Solid	
			Net Available for Application*	Acres Required **	Net Available for Application*	Acres Required **
Milk Cows	920	Freestalls	141,620.29	252.9	57,844.91	103.3
Dry Cows	180	Flushed Lanes	4,139.10	7.4	15,570.90	27.8
Heifers (15-24)	861	Flushed Lanes	15,047.01	26.9	56,605.41	101.1
	1,961		160,806.40	287.2	130,021.22	232.2

Total Liquids & Solids		
Capture	Available	Required
484,712.70	290,827.62	519.3

* Atmospheric Loss of 40% nitrogen used to calculate Net Available for Application

** Nitrogen Extraction Levels: 400lbs/acre (To meet a 1.4 ratio)

Animal	Head	Housing Type	Phosphorus		Potassium	
			Net Available for Application	Acres Required	Net Available for Application	Acres Required
				Extraction		Extraction
Milk Cows	920	Freestalls	57,086.00	951.4	77,234.00	154.5
Dry Cows	180	Flushed Lanes	4,599.00	76.6	21,681.00	43.4
Heifers (15-24)	861	Flushed Lanes	18,855.90	314.3	56,567.70	113.1
	1,961		80,540.90	1,342.3	155,482.70	311.0

Phosphorus Extraction Levels: 60lbs/acre (To meet a 1.0 ratio)

Potassium(K) Extraction Levels: 500lbs/acre (To meet a 1.0 ratio)

No atmospheric losses computed and capture rates between liquid and solid forms are unknown

Excretion factors from ASAE D.384.2 March 2005, Table 1b, Page 2. Potassium excretion values for heifers and calves are not available in this study and were extrapolated based upon weight.

Art Silva Dairy 2015 General Salt Production and Loading Analysis

Estimated Crop Acre Requirements

Animal	Head	Housing Type	Liquid Salts	Solid Salts	Total Salts
			lbs / year	lbs / year	lbs / year
Milk Cows	920	Freestalls	307,559	125,623	433,182
Dry Cows	180	Flushed Lanes	8,692	32,699	41,391
Heifers (15-24)	861	Flushed Lanes	41,577	156,410	197,987
	1,961		357,829	314,731	672,560
		Single Crop Acres Required	179	157	336
		Double Crop Acres Required	119	105	224

Salt excretion values for milk cows and dry cows were derived from: Committee of Experts on Dairy Manure Management, 2005 and ASABE 384.2, 2005, Chapter 7 pages 54 and 65 (Excretion values for heifers and calves are not addressed in this study. Excretion values for these animals were extrapolated based upon animal weight.)

Acre requirements based on 2,000 lbs of salt per single crop and 3,000 lbs of salt per double crop

Art Silva Dairy 2016 Waste Application Summary

Field	Acres	N Waste Applied	Total N Applied	N Removed	N Ratio	P Applied	P Removed	P Ratio	K Applied	K Removed	K Ratio
1	90	60,067.80	61,065.00	43,595.10	1.40	10,926.90	6,416.10	1.70	111,922.20	46,655.10	2.40
2	51	25,900.86	26,465.94	18,877.65	1.40	4,711.38	3,573.06	1.32	48,259.26	30,842.76	1.56
3	14	7,637.98	7,789.74	5,576.06	1.40	1,383.34	1,330.00	1.04	12,367.18	8,753.08	1.41
4	14	6,981.24	7,126.84	5,090.68	1.40	2,072.56	1,004.08	2.06	9,792.16	6,811.42	1.44
Totals:	169	100,587.88	102,447.52	73,139.49	1.40	19,094.18	12,323.24	1.55	182,340.80	93,062.36	1.96
Total Available For Application:		290,827.62	290,827.62			80,540.90			155,482.70		
Excess (Deficient) Available:		190,239.74	188,380.10			61,446.72			(26,858.10)		

Pounds of Nitrogen to be Exported Annually: **190,239.74**
Whole Farm Balance: **1.40**
Whole Farm Balance withouth Recommended Exports: **3.98**

Art Silva Dairy 2015 Nutrient Applications

Field Name: 1

Acres: 90

Field Summary (in lbs/acre)					
	Nitrogen		Nitrogen	Phosphorus	Potassium
Process Wastewater Applied	667.42	Total Nutrients Applied	678.50	121.41	1,243.58
Solid Manure Applied		Total Nutrients Harvested	(484.39)	(71.29)	(518.39)
		Nutrient Ratio	1.40	1.70	2.40

Crop 1: Wheat (North Valley) **Variety:** Wheat (North Valley) - General **Plant Date:** November 2014 **Acres Planted:** 90

Date	Application	Quantity		N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
		(per Acre)	Units							
11/01/2014	Waste Water	1.00	Acre Inches	339.18	mg/L	76.72		76.72	13.95	142.94
11/01/2014	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
12/01/2014	Surface Water	3.00	Acre Inches	1.00	mg/L			0.68	0.00	0.00
12/01/2014	Waste Water	1.18	Acre Inches	339.14	mg/L	90.52		90.52	16.47	168.67
03/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
03/01/2015	Waste Water	1.20	Acre Inches	339.16	mg/L	92.06		92.06	16.75	171.53
05/01/2015	Harvest	16.00	Tons	0.58	%			(186.69)	(23.39)	(172.35)
						259.30		75.55	23.78	310.79

Total Nutrients Applied	262.24	47.17	483.14
Total Nutrients Harvested	(186.69)	(23.39)	(172.35)
Nutrient Ratio	1.40	2.02	2.80

Art Silva Dairy 2015 Nutrient Applications

Field Name: 1

Acres: 90

Crop 2: Corn (Silage) **Variety:** Corn (Silage) - General **Plant Date:** June 2015 **Acres Planted:** 90

Date	Application	Quantity (per Acre)	Units	N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
05/01/2015	Surface Water	6.00	Acre Inches	1.00	mg/L			1.36	0.00	0.00
06/01/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
06/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
07/13/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/14/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/02/2015	Harvest	30.00	Tons	0.50	%			(297.70)	(47.90)	(346.04)

	408.12	118.56	26.34	414.40
Total Nutrients Applied	416.26	74.24	760.44	
Total Nutrients Harvested	(297.70)	(47.90)	(346.04)	
Nutrient Ratio	1.40	1.55	2.20	

Art Silva Dairy 2015 Nutrient Applications

Field Name: 2

Acres: 51

Field Summary (in lbs/acre)					
	Nitrogen		Nitrogen	Phosphorus	Potassium
Process Wastewater Applied	507.86	Total Nutrients Applied	518.94	92.38	946.26
Solid Manure Applied		Total Nutrients Harvested	(370.15)	(70.06)	(604.76)
		Nutrient Ratio	1.40	1.32	1.56

Crop 1: Wheat (North Valley) **Variety:** Wheat (North Valley) - General **Plant Date:** November 2014 **Acres Planted:** 51

Date	Application	Quantity		N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
		(per Acre)	Units							
11/01/2014	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
11/01/2014	Waste Water	1.00	Acre Inches	339.18	mg/L		76.72	76.72	13.95	142.94
12/01/2014	Waste Water	0.84	Acre Inches	339.15	mg/L		64.44	64.44	11.72	120.07
12/01/2014	Surface Water	3.00	Acre Inches	1.00	mg/L			0.68	0.00	0.00
03/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
03/01/2015	Waste Water	0.92	Acre Inches	339.16	mg/L		70.58	70.58	12.84	131.50
05/01/2015	Harvest	16.00	Tons	0.48	%			(153.25)	(23.87)	(259.74)
						211.74		61.43	14.64	134.77

Total Nutrients Applied	214.68	38.51	394.51
Total Nutrients Harvested	(153.25)	(23.87)	(259.74)
Nutrient Ratio	1.40	1.61	1.52

Art Silva Dairy 2015 Nutrient Applications

Field Name: 2

Acres: 51

Crop 2: Corn (Silage) **Variety:** Corn (Silage) - General **Plant Date:** June 2015 **Acres Planted:** 51

Date	Application	Quantity (per Acre)	Units	N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
05/01/2015	Surface Water	6.00	Acre Inches	1.00	mg/L			1.36	0.00	0.00
06/01/2015	Waste Water	1.20	Acre Inches	339.16	mg/L	92.06		92.06	16.75	171.53
06/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Waste Water	1.33	Acre Inches	339.15	mg/L	102.03		102.03	18.56	190.11
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/02/2015	Harvest	29.00	Tons	0.37	%			(216.90)	(46.19)	(345.02)

	296.12	87.36	7.68	206.73
Total Nutrients Applied	304.26	53.87	551.75	
Total Nutrients Harvested	(216.90)	(46.19)	(345.02)	
Nutrient Ratio	1.40	1.17	1.60	

Art Silva Dairy 2015 Nutrient Applications

Field Name: 3

Acres: 14

Field Summary (in lbs/acre)					
	Nitrogen		Nitrogen	Phosphorus	Potassium
Process Wastewater Applied	545.57	Total Nutrients Applied	556.41	98.81	883.37
Solid Manure Applied		Total Nutrients Harvested	(398.29)	(95.00)	(625.22)
		Nutrient Ratio	1.40	1.04	1.41

Crop 1: Rye Grass (Silage) **Variety:** Rye Grass (Silage) - General **Plant Date:** November 2014 **Acres Planted:** 14

Date	Application	Quantity		N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
		(per Acre)	Units							
11/01/2014	Waste Water	1.12	Acre Inches	330.86	mg/L			83.82	15.18	135.72
11/01/2014	Surface Water	4.00	Acre Inches	0.99	mg/L			0.90	0.00	0.00
02/15/2015	Surface Water	4.00	Acre Inches	0.99	mg/L			0.90	0.00	0.00
02/15/2015	Waste Water	1.25	Acre Inches	330.86	mg/L		93.55	93.55	16.94	151.47
03/15/2015	Waste Water	1.25	Acre Inches	330.86	mg/L		93.55	93.55	16.94	151.47
03/15/2015	Surface Water	4.00	Acre Inches	0.99	mg/L			0.90	0.00	0.00
05/01/2015	Harvest	21.00	Tons	0.47	%			(196.14)	(45.09)	(348.33)

270.92	77.48	3.97	90.33
Total Nutrients Applied	273.62	49.06	438.66
Total Nutrients Harvested	(196.14)	(45.09)	(348.33)
Nutrient Ratio	1.40	1.09	1.26

Art Silva Dairy 2015 Nutrient Applications

Field Name: 3

Acres: 14

Crop 2: Corn (Silage) **Variety:** Corn (Silage) - General **Plant Date:** June 2015 **Acres Planted:** 14

Date	Application	Quantity (per Acre)	Units	N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
05/01/2015	Surface Water	6.00	Acre Inches	1.00	mg/L			1.36	0.00	0.00
06/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
06/01/2015	Waste Water	1.15	Acre Inches	330.84	mg/L	86.06		86.06	15.59	139.35
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Waste Water	1.27	Acre Inches	330.84	mg/L	95.04		95.04	17.22	153.89
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Waste Water	1.25	Acre Inches	330.86	mg/L	93.55		93.55	16.94	151.47
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/02/2015	Harvest	29.50	Tons	0.34	%			(202.15)	(49.91)	(276.89)

274.65	80.64	(0.16)	167.82
Total Nutrients Applied	282.79	49.75	444.71
Total Nutrients Harvested	(202.15)	(49.91)	(276.89)
Nutrient Ratio	1.40	1.00	1.61

Art Silva Dairy 2015 Nutrient Applications

Field Name: 4

Acres: 14

Field Summary (in lbs/acre)					
	Nitrogen		Nitrogen	Phosphorus	Potassium
Process Wastewater Applied		Total Nutrients Applied	509.06	148.04	699.44
Solid Manure Applied	498.66	Total Nutrients Harvested	(363.62)	(71.72)	(486.53)
		Nutrient Ratio	1.40	2.06	1.44

Crop 1: Wheat (North Valley) **Variety:** Wheat (North Valley) - General **Plant Date:** November 2014 **Acres Planted:** 14

Date	Application	Quantity		N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
		(per Acre)	Units							
10/15/2014	Corral Solids	10.10	Tons	1.28	%		258.65	258.65	80.55	359.82
11/15/2014	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
03/15/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
05/10/2015	Harvest	18.00	Tons	0.52	%			(186.55)	(24.85)	(271.27)
							258.65	74.36	55.70	88.55

Total Nutrients Applied	260.91	80.55	359.82
Total Nutrients Harvested	(186.55)	(24.85)	(271.27)
Nutrient Ratio	1.40	3.24	1.33

Art Silva Dairy 2015 Nutrient Applications

Field Name: 4

Acres: 14

Crop 2: Corn (Silage) **Variety:** Corn (Silage) - General **Plant Date:** June 2015 **Acres Planted:** 14

Date	Application	Quantity (per Acre)	Units	N Value	Units	Nitrogen from Process Wastewater	Nitrogen from Solid Manure	Nitrogen (lbs per acre)	Phosphorus (lbs per acre)	Potassium (lbs per acre)
05/01/2015	Surface Water	6.00	Acre Inches	1.00	mg/L			1.36	0.00	0.00
05/01/2015	Corral Solids	9.85	Tons	1.22	%		240.01	240.01	67.49	339.62
06/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
07/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
08/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/01/2015	Surface Water	5.00	Acre Inches	1.00	mg/L			1.13	0.00	0.00
09/02/2015	Harvest	28.00	Tons	0.32	%			(177.07)	(46.87)	(215.26)

	240.01	71.08	20.62	124.36
Total Nutrients Applied	248.15	67.49	339.62	
Total Nutrients Harvested	(177.07)	(46.87)	(215.26)	
Nutrient Ratio	1.40	1.44	1.58	

Art Silva Dairy 2015
Nutrient Budget Certification



Signature of Certified Nutrient Management Plan Specialist

CCA 9/24/15

Title and Date

