

Peninsula Township
Application for Winery-Chateau for
Mari Vineyards

Submitted as a Special Use in the Agricultural District



Mansfield
Land Use Consultants

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March 2016

submitted to Township Board



Project Team

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March 7, 2016

Peninsula Township
Michelle Reardon, Director of Planning and Zoning
13235 Center Road
Traverse City, MI 49686

Dear Peninsula Township Board Members,

On behalf of the Lagina family, Mansfield Land Use Consultants is pleased to present the Peninsula Township Board with the following application for a Winery-Chateau Special Use Permit at Mari Vineyards along Center Road.

The Mari Vineyards winery site was approved as a use-by-right Farm Processing Facility in February 2014. The current application for Winery-Chateau does not propose to make any changes to the winery building and related site design as approved and currently under construction based on Farm Processing Land Use Permit #5221. Requested additions to the project as a Special-Use Winery-Chateau include:

- Guest Accommodations (a future 9 room Guest House per ordinance standards)
- Five single family home sites
- A managers residence (as required for Winery-Chateau use)
- Existing outbuildings including three existing barns, a bio fuel boiler room, a tensile storage structure, and existing farm stand.
- And the ability to host guest activity uses

The Lagina family owns over 500 acres of land on the Old Mission Peninsula, one half of which is in active agriculture. In fact, they are one of the largest wine grape producers within the Old Mission Peninsula (AVA) American Viticultural Area. Since 1999, when the family planted their first vineyard, the Laginas have planted over 50 acres of wine grape vineyards, with the potential to produce over 140 tons of wine grapes annually. Not to mention numerous other fruit crops and agricultural products that will be grown to produce wine and other craft beverages. Through the development of the Mari Vineyards Chateau, the Mari Vineyards brand will finally have a physical presence for guests to visit on the Old Mission Peninsula.

I look forward to the opportunity to present this project to you. Please feel free to contact me with any comments or questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Mansfield', written over a white background.

Doug Mansfield, President

Supplemental Information

It is the Applicants intent to maintain a good relationship with his neighbors. Public input was taken very seriously and resulted in some significant site plan modifications.

The following documents are a record of information and site plan modifications which occurred during the Site Plan Review and Public Hearing phase at the Township Planning Commission.



February 8, 2016

Supplemental Information

I'd like to submit the following few new items of information and updates to the application for Mari Vineyards Winery-Chateau land use. The following modifications to the plan are a direct and thoughtful response to comments received from our neighbors during the January 11th Public Hearing. New materials include, an updated Wine Crop Area Calculations drawing (2/5/2016), an Overall Area Map (2/3/2016), and Standards for the Future Development of Guest Accommodations (2/5-2016). The following is a list of changes presented in the attached documents:

1. The proposed solar array has been removed from the plan and the application.
(please refer to the updated Wine Crop Area Calculations drawing)
2. The foot path north of the Winery connecting to Underwood Farms has been removed from the plan and the application.
(please refer to the updated Wine Crop Area Calculations drawing)
3. The location of the sugar shack for processing maple syrup has been relocated from a proposed new structure to the existing green barn along Center Road.
(please refer to the updated Wine Crop Area Calculations drawing)
4. The Guest House use has been relocated to the center of the main winery parcel, 700 feet east of Underwood Ridge Road, 180 feet south of the northern property boundary, and 500 feet north of the southern property boundary.
(please refer to the updated Wine Crop Area Calculations drawing, and the Overall Area Map)
5. The density of the Guest House use has been reduced from 12 guest bedrooms to 9 guest bedrooms.
(please refer to the Standards for the Future Development of Guest Accommodations)
6. Standards for the development of guest accommodations in the future has been provided. The standard provided include descriptions of the location, configuration, architectural style, size, density, amenities, and rules for the development of on-site guest accommodations.
(please refer to the Standards for the Future Development of Guest Accommodations)
7. One additional single family lot has been added along Underwood Ridge Road.
(please refer to the updated Wine Crop Area Calculations drawing)
8. Farm lane access across Underwood Ridge Road has been relocated to the center of the road ROW along the Mari Vineyards parcel boundary.
(please refer to the updated Wine Crop Area Calculations drawing)

9. Updates to the 'Area Equivalents' calculations of Section 8.5.2(10)(f) resulting from the reduction of guest room density and the addition of one single family home lot is as follows:

Use Area Equivalents	original submittal	current submittal
Winery including parking (5 acres)	5 acres	5 acres
Manager's Residence (5 acres)	5 acres	5 acres
Single Family Residences (5 acres per)	20 acres (4 single family lots)	25 acres (5 lots)
<u>Guest Rooms (5 acres per each 3 rooms)</u>	<u>20 acres (12 guest rooms)</u>	<u>15 acres (9 rooms)</u>
(50 acres minimum)	50 acres	50 acres

10. For your reference, please find attached a scaled aerial photo map indicating the location of the Guest House amenities and the distance to existing neighboring structures.
(please refer to the Overall Area Map)

END

December 30, 2015

Supplemental Information

I'd like to submit the following few additional items of information, clarifications and updates to the application for Winery-Chateau originally submitted to the Township.

1. Please find attached an updated map of Wine Crop Area Calculations indicating that 75% installed wine crop coverage will be achieved during the 2016 planting season.
 - Winemaker Sean Okeefe was able to locate and purchase suitable wine grape stock for 2016 planting within the winery-chateau boundary area.
 - ✓ Area B will be planted with Pinot Grigio variety.
 - ✓ Area I will be planted with Teroldego and Refosco varieties.
 - ✓ Area H will be planted with Raspberries and Blackberries.
 - As a result, 2016 planted wine crop coverage within the winery-chateau boundary will be 76.06%.
2. Please find attached an updated spreadsheet of all harvested grape tonnage from Lagina family owned OMP vineyards since 2004. The spreadsheet has been modified to include the 2015 harvest tonnage (*which was another devastating year*), as well as planned future vineyard installations.
 - The six year average of existing grape tonnage produced by the Lagina family on OMP would allow for 50 additional guest activity use occupants.
 - 59 additional occupants based on a five year average of normal tonnage.
 - 84 additional occupants based on the 2013 peak tonnage.Also please consider this information as a solid testament to the Lagina family's longstanding commitment to farming and preserving agricultural character on the Old Mission Peninsula.
3. Mari Vineyard wines are currently being processed at Irish Vineyards, a farm processing facility also owned by the Lagina Family located at the end of Old Mission Peninsula. It is the applicant's intent to move the wine in its raw state to the Mari Vineyard facility as soon as certificate of occupancy is achieved, therefore we anticipate meeting the requirement of having wines processed on-site for the 2016 season.
4. A clarification of the proposed future Guest House use. This use has not been designed, and will most likely be the last element of the winery-chateau to be completed. The site plan indicates a general box reserving the area of a future guest house structure. Four additional areas are indicated as potential alternatives for the possibility of underground cave guest rooms within the forested hillsides. The underground cave rooms are just a fun idea the applicant may or may not pursue but would like to reserve the right to under this SUP for ease of implementation in the future. The total number of guest suites regardless of configuration will not exceed the 12 as allowed per the winery-chateau use.

All accessory facilities for registered guests will be located in the main guest house, and all registered guest related structures will comply with the required setbacks from property lines.

5. A wood fired furnace, along with other green technologies implemented in the Mari Vineyards winery building is part of the overall goal of creating a carbon neutral facility. It has been estimated that the Lagina family currently has nine years' worth of wood fuel collected as a result of routine forestry management and cleaning up recent storm damage and damage from the emerald ash borer in the family's woodlots.

The wood fired furnace was approved as part of a 2015 amendment to the Mari Vineyard Farm Processing Land Use Permit #5221 (*located in Tab 10 of the submittal binder*).

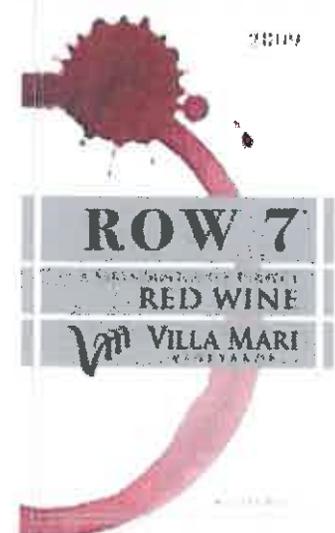
The Tram wood fired furnace unit is a world leader in high efficiency wood boiler systems, attached please find architectural drawings for the structure housing the furnace and the technical data sheet for the furnace unit.

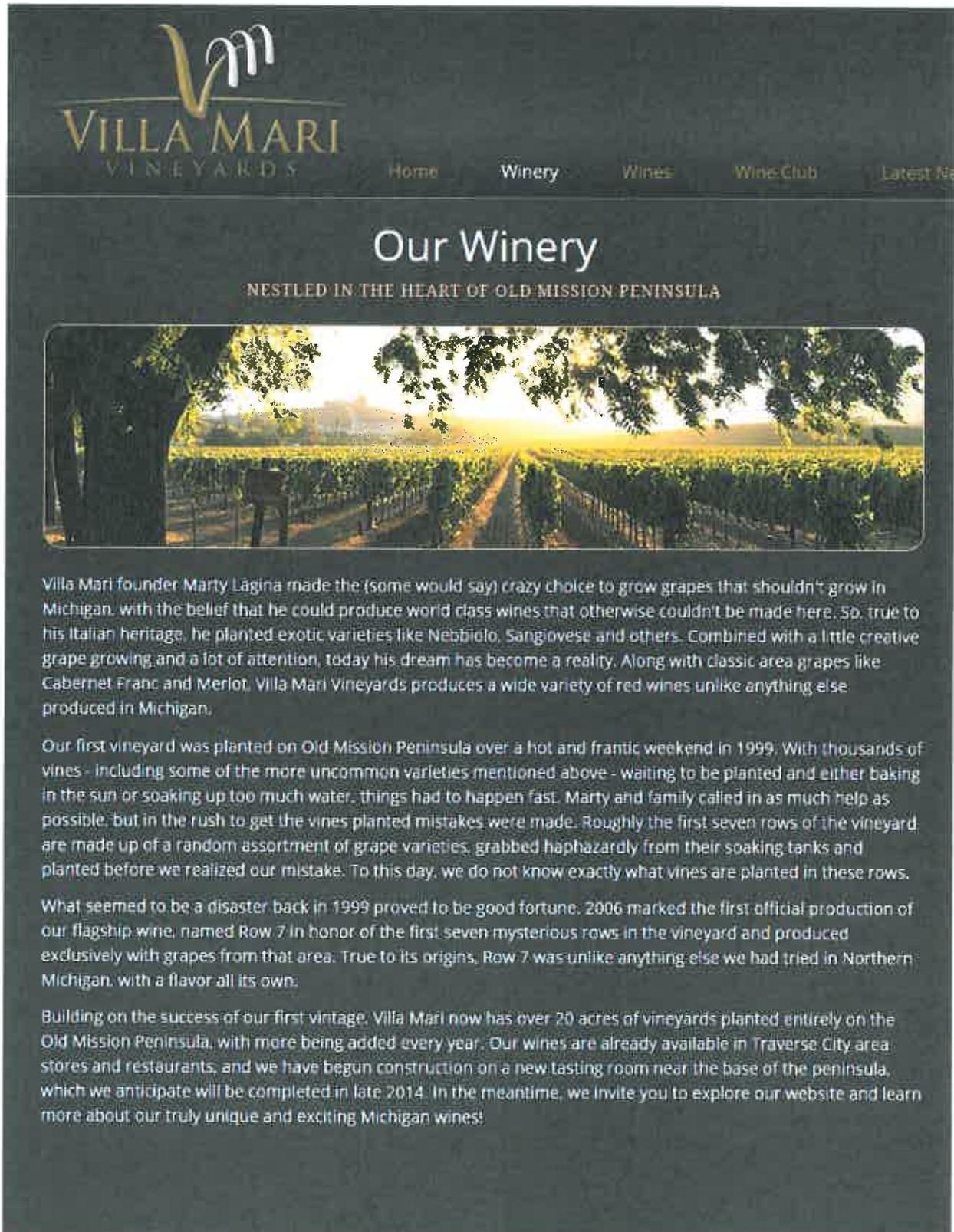
END



The Lagina family created the Villa Mari wine label to showcase their efforts in implementing innovative wine grape growing techniques with the intent of producing an outstanding Michigan red wine. These wines are currently available at a few select locations.

The proposed Villa Mari winery and tasting room will be the first chance for many of us to experience this wine in the setting in which it is grown. The winery will showcase the wine making process, including a gravity flow crush pad, allowing the pressed grape juice to flow to fermentation tanks without the use of pumps, a public viewing mezzanine in the production area, and wine barrels aged in caves where the climate is controlled naturally by the earth. The intent in finalizing the building plans is to implement creative alternative energy strategies to create a carbon neutral facility.





VILLA MARI
VINEYARDS

Home Winery Wines Wine Club Latest News

Our Winery

NESTLED IN THE HEART OF OLD MISSION PENINSULA



Villa Mari founder Marty Lagina made the (some would say) crazy choice to grow grapes that shouldn't grow in Michigan, with the belief that he could produce world class wines that otherwise couldn't be made here. So, true to his Italian heritage, he planted exotic varieties like Nebbiolo, Sangiovese and others. Combined with a little creative grape growing and a lot of attention, today his dream has become a reality. Along with classic area grapes like Cabernet Franc and Merlot, Villa Mari Vineyards produces a wide variety of red wines unlike anything else produced in Michigan.

Our first vineyard was planted on Old Mission Peninsula over a hot and frantic weekend in 1999. With thousands of vines - including some of the more uncommon varieties mentioned above - waiting to be planted and either baking in the sun or soaking up too much water, things had to happen fast. Marty and family called in as much help as possible, but in the rush to get the vines planted mistakes were made. Roughly the first seven rows of the vineyard are made up of a random assortment of grape varieties, grabbed haphazardly from their soaking tanks and planted before we realized our mistake. To this day, we do not know exactly what vines are planted in these rows.

What seemed to be a disaster back in 1999 proved to be good fortune. 2006 marked the first official production of our flagship wine, named Row 7 in honor of the first seven mysterious rows in the vineyard and produced exclusively with grapes from that area. True to its origins, Row 7 was unlike anything else we had tried in Northern Michigan, with a flavor all its own.

Building on the success of our first vintage, Villa Mari now has over 20 acres of vineyards planted entirely on the Old Mission Peninsula, with more being added every year. Our wines are already available in Traverse City area stores and restaurants, and we have begun construction on a new tasting room near the base of the peninsula, which we anticipate will be completed in late 2014. In the meantime, we invite you to explore our website and learn more about our truly unique and exciting Michigan wines!



Home

Winery

Wines

Wine Club

Latest N

The Vineyards

GROWN EXCLUSIVELY ON THE 45TH PARALLEL.



At Villa Mari Vineyards, all of our wines come from some of the best vineyard locations on Traverse City's Old Mission Peninsula. Each location was specially cultivated to produce grapes for our red wines and have been expanded to prepare for our upcoming line of white wines. Starting from a small vineyard to grow our flagship wine Row 7, we have expanded to over 20 acres of vineyards exclusively on Old Mission Peninsula.

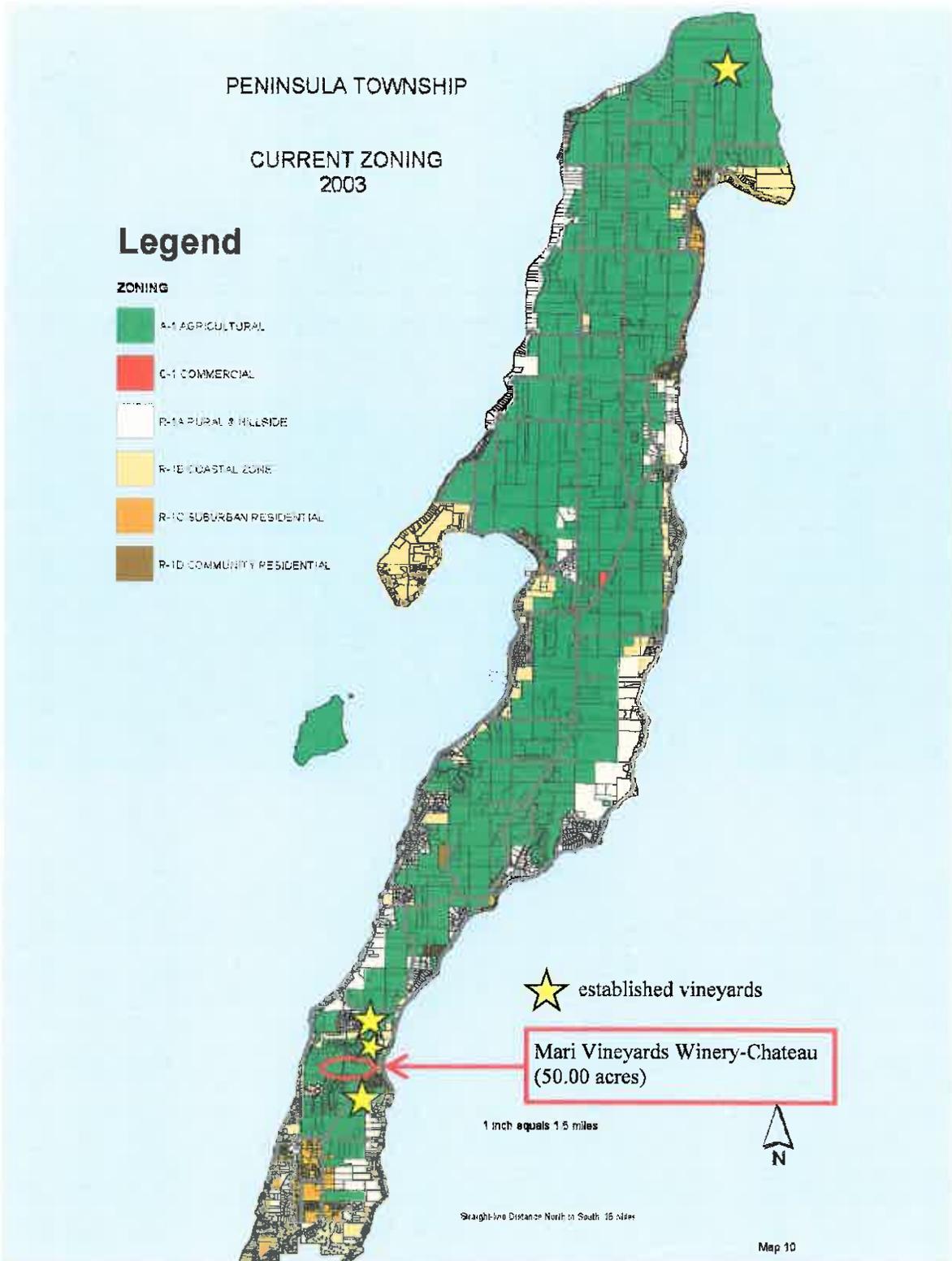
One of the most revolutionizing features of our vineyards comes from our Nellaserra growing technique that allows for the ripest grapes possible when creating our wines. By setting up temporary greenhouses or "hoop-houses" over select rows of our vineyards, we are able to add approximately four weeks to the growth and development of our grapes. This leads to well ripened grapes that are able to preserve their refreshing acidity. You can learn more about our Nellaserra wines and purchase them through our website by visiting our Nellaserra page.

NELLASERRA HOOP-HOUSES



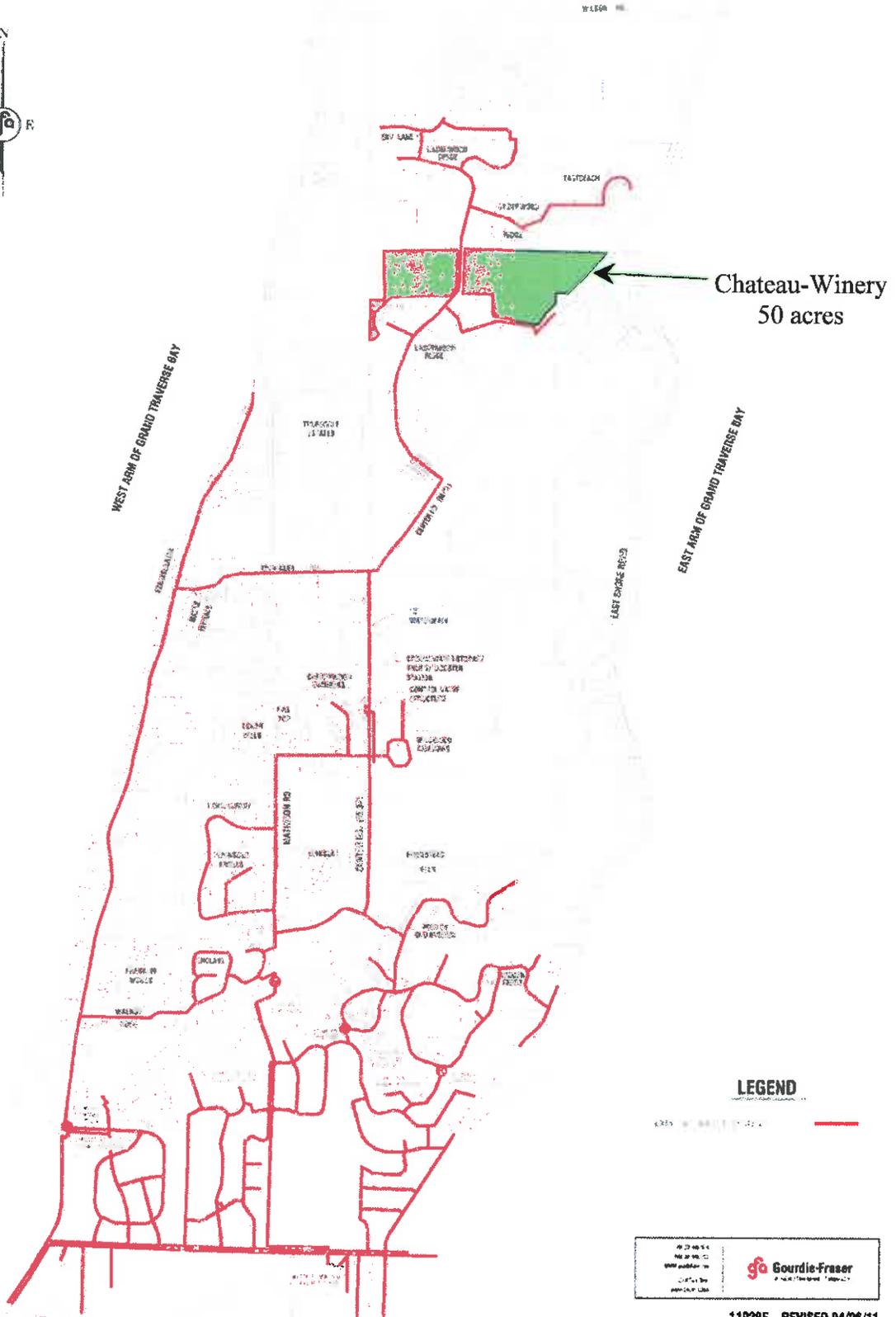








Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AeD	Alpena-East Lake gravelly loamy sands, 12 to 18 percent slopes	0.7	1.5%
Em4	East Lake-Mancelona loamy sands, 0 to 2 percent slopes	0.8	1.6%
EyB	Emmet sandy loam, 2 to 6 percent slopes	17.7	35.3%
EyC2	Emmet sandy loam, 6 to 12 percent slopes, moderately eroded	0.5	1.0%
L1F	Lecelanau-Kalkaska loamy sands, 25 to 45 percent slopes	5.5	11.8%
LkF2	Lecelanau-Kalkaska loamy sands, 25 to 45 percent slopes, moderately eroded	16.9	33.6%
RcA	Richter loams, 0 to 2 percent slopes, overwash	2.4	4.7%
UnB	Uby-Nester complex, 2 to 6 percent slopes	5.3	10.5%
Totals for Area of Interest		50.2	100.0%



11D29E REVISED 04/06/11

PROPOSAL REGULATIONS SUMMARY

Existing Land Use:

Under construction –approved as a use-by-right under farm processing, winery tasting room, production facility and cave barrel storage. Land Use Permit Number #5221

Proposed Land Use:

Mari Vineyards Winery-Chateau

Parcel Acreage Computations:

	per GIS (gross)	per survey (gross)
Tax ID 28-11-019-011-01 (existing primary winery parcel)	20.93 acres	19.09 acres
Tax ID 28-11-019-011-02 (proposed guest rooms)	7.62 acres	7.62 acres
Tax ID 28-11-019-010-00 (existing managers residence)	8.58 acres	8.58 acres
Tax ID 28-11-324-040-11 (proposed single family homes)	5.00 acres	5.00 acres
Tax ID 28-11-324-040-13 (proposed single family homes)	20.37 acres	20.37 acres
Tax ID 28-11-324-040-12 (proposed single family homes)	5.00 acres	5.00 acres
	67.50 acres	65.66 acres

There is a 1.84 acre difference between the GIS and Surveyed area calculations

The Winery-Chateau Boundary Area is depicted on the plan as a blue boundary line having a net area of 50.61 acres within the parcels listed above.

Zoning:

A-1, Agricultural

Parking:

	required	provided
1 per 150sqft of retail	1,800sqft	12 spaces
gravel and grass overflow parking		25 spaces
1 per employee	19 employee, peak time	none
3 bus spaces		22 spaces
9 guest rooms		19 spaces
		use grass spaces
		3 buses
		3 buses
		9 spaces
		15 spaces
		43 spaces
		65 spaces

Use Area Equivalent

	required	provided
Winery including parking	5 acres	5 acres
Manager's Residence	5 acres	5 acres
Single Family Residences	5 acres per	25 acres (5 single family lots)
Guest Rooms	5 acres per each 3 rooms	15 acres (9 guest rooms)
	50 acres minimum	50 acres

Frontage on a State Road

Minimum 200 feet required

1,500 feet provided along M-37 Center Road

Existing Structures:

Winery Building (LU Permit #5221)		
ground floor level and second story level (tasting room and offices)	6,500	sqft
below ground level (wine processing, storage and wine cave)	22,400	sqft
Home along Center Road (manager's residence) approximately	2,500	sqft
Detached Garage at existing home approximately	580	sqft
Barn along Center Road approximately (converted to Sugar Shack)	960	sqft
Farm Stand along Center Road approximately	170	sqft
Barn west of existing home approximately	540	sqft
Tensile Structure in woodlot west of power line approximately	1,650	sqft
Barn west of Underwood Ridge Road approximately	4,700	sqft
Housing for Biomass Furnace / Dumpster Enclosure	300	sqft

Proposed Structures:

- Single-Family Home Sites
 - 5 homes, size to be determined, not to exceed ordinance standards
- Guest Rooms and associated amenities
 - 9 guest bedrooms, size to be determined, not to exceed ordinance standards

Well and Septic

Winery	The winery building is serviced by a private septic system, and municipal water. Wine processing and irrigation is serviced by a private well to avoid chlorine which is detrimental to the wine making process.
Managers Residence	The manager's residence is an existing structure and will continue to be serviced by existing private well and septic systems.
Single Family Homes	Proposed single family homes will be serviced by municipal water and a private septic system.
Guest Rooms	Proposed guest room facilities will be serviced by municipal water and a private septic system.

Fire safety

The winery building currently under construction (tasting, processing and storage) includes the placement of 5 total fire hydrants on site with 1 hydrant between the structure and the parking lot, as well as an interior fire suppression system throughout connected to municipal water service.

Future structures would be built to building code and local Fire Department standards for fire safety.

Capacity for Guest Activity Uses per Ordinance -not to exceed 111 guests

Based on Room Provided for Guest Activities

Wine Cave Level:	<i>1,500 square feet</i>	100	guests
Wine Processing Level:	<i>0 square feet</i>	0	guests
Mezzanine Level:	<i>1,120 square feet</i>	74	guests
Wine Tasting Level:	<i>1,870 square feet indoors</i>	124	guests
Business Level:	<i>460 square feet indoors</i>	30	guests
		328	guests

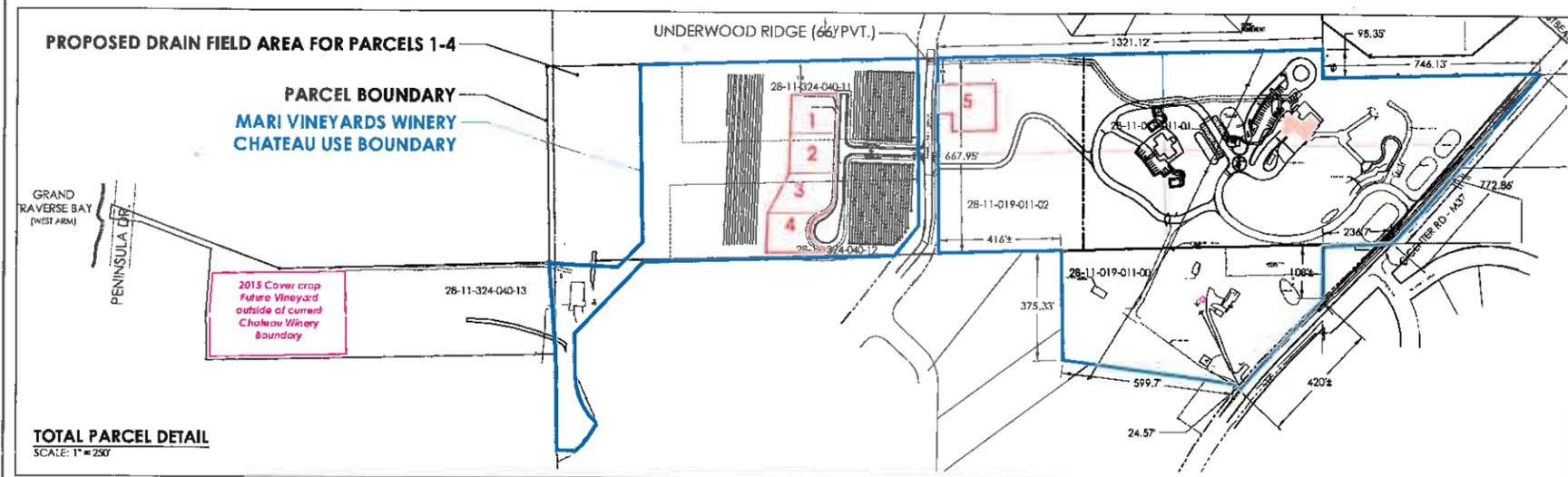
Based on Peninsula Township grapes grown off the Chateau-Winery site (2009-2014 average)

Jamieson Vineyard	35	tons
Bella Vista Vineyard	12	tons
Mckian Vineyard	2	tons
Grishaw Vineyard	14	tons
	63	tons
	$\div 1.25 = 50$ guests	

(Per ordinance, not to exceed 111 guests)

Winery Occupancy based on 2009 Michigan Building Code

Wine Cave Level One:	S-2 Areas	35	occupants
Wine Processing Level Two:	S-2 Area	6	occupants
	F-2 Area	37	occupants
Mezzanine Level Three:	F-2 Area	2	occupants
	A-2 Sitting Areas	49	occupants
Wine Tasting Level Four:	M Areas	9	occupants
	S-2 Areas	1	occupants
	K Areas	4	occupants
	A-2 Standing Areas	23	occupants
Business Level Five:	A-2 Sitting Areas	104	occupants
	B areas	20	occupants
Outdoor Terrace	A-2 Sitting Areas	16	occupants
		40	occupants
		346	occupants



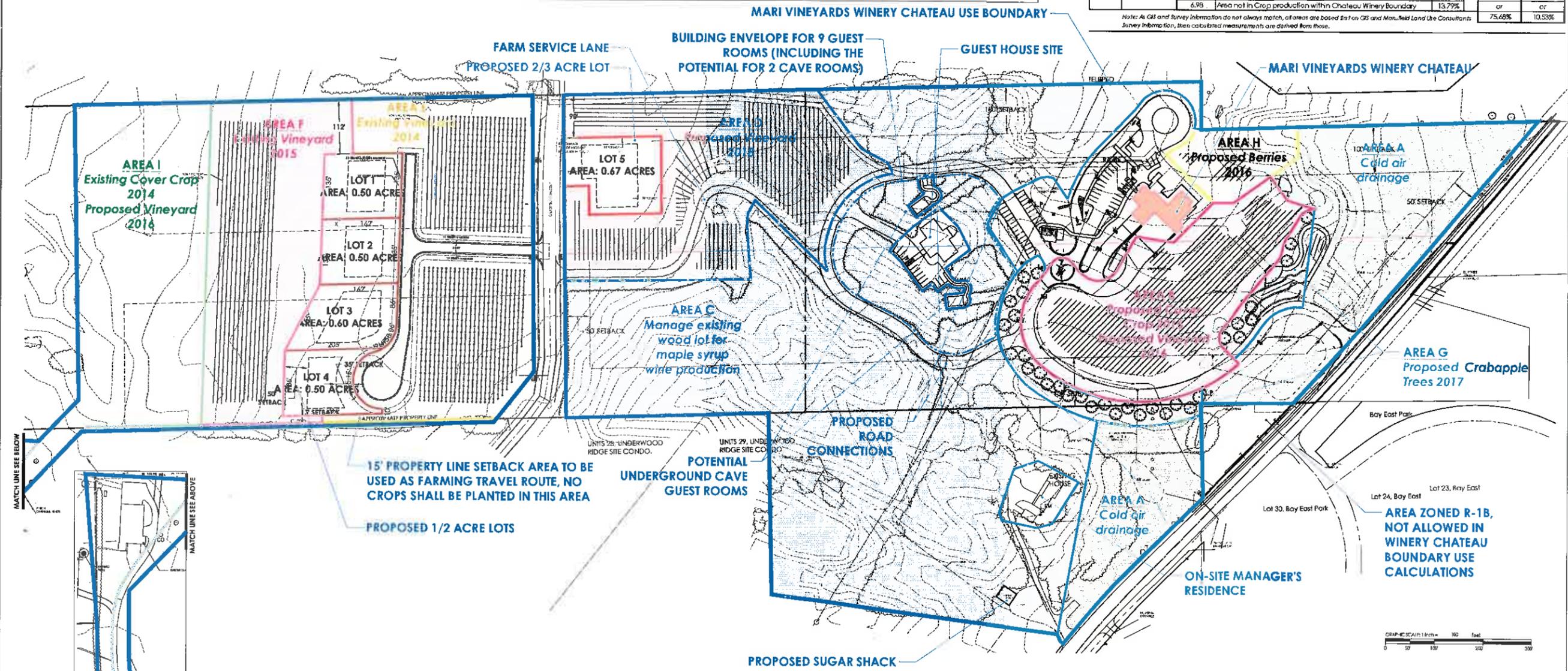
TOTAL PARCEL DETAIL
SCALE: 1" = 200'

Wine Crop Area Calculations Within The Winery Chateau Boundary

Tax ID	Total Acres per GIS	Per	Total Acres per GIS & Mansfield Survey	Per	Total Chateau Winery Use Area Acres	
28-11-019-01-00	8.58	GIS	8.58	GIS	8.16	existing manager's residence and wine crops
28-11-019-01-01	20.93	GIS	19.07	SVY	18.50	existing primary winery parcel and wine crops
28-11-019-01-02	7.62	GIS	7.62	SVY	7.62	proposed guest house and wine crops
28-11-324-040-11	5.00	GIS	5.00	GIS	5.00	proposed single family homes and wine crops
28-11-324-040-12	5.00	GIS	5.00	GIS	5.00	proposed single family homes and wine crops
28-11-324-040-13	20.37	GIS	20.37	GIS	6.23	proposed single family homes and wine crops
	67.50		66.66		50.61	

Crop Areas	Crop Production Acres		Acres in Active Agriculture by 2016	Acres in Future Agriculture Planting
Area A	5.50	Cold air drainage area	5.50	
Area B	3.38	Proposed Cover Crop 2015, Proposed Vineyard 2016	3.38	
Area C	15.78	Manage existing wood lot managed for maple syrup wine production	15.78	
Area D	4.14	Proposed Vineyard 2018		4.14
Area E	4.74	Existing Vineyard 2014	4.74	
Area F	3.48	Existing Vineyard 2015	3.48	
Area G	1.19	Proposed Crabapple trees 2017		1.19
Area H	0.68	Proposed Berries 2016	0.68	
Area I	4.75	Existing Cover Crop 2014, Proposed Vineyard 2016	4.75	
	43.03	Area in Crop production within Chateau Winery Boundary	64.21%	38.30
	6.98	Area not in Crop production within Chateau Winery Boundary	13.79%	or
			75.68%	10.53%

Notes: As GIS and Survey information do not always match, all areas are based first on GIS and Mansfield Land Use Consultants Survey information, then calculated measurements are derived from those.



NOTES:
 1. Wine crops as identified on this plan may change and vary to other wine crops over time based on the viability of the crop and the market demand for the crop.
 2. The configuration of the Guest House elements may change as part of the final design and approval of the use. However, basic area calculations will be upheld to maintain the required 75% wine crop coverage calculation.

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 info@mansfield.com

Mansfield
 Land Use Consultants

DATE: 03/15/15
 BY: JRM
 CHECKED: JRM
 PROJECT: Mari Vineyards Winery Chateau
 SHEET: WINE CROP AREA CALCULATIONS
 SCALE: 1" = 200'

Craft, LLC
Mari Vineyards
WINE CROP AREA CALCULATIONS
 Section 19, Town 28 North, Range 10 West
 Peninsula Township, Grand Traverse County, Michigan

PRELIMINARY
 13099

Section 8.1 General Standards and Requirements

Section 8.1.3 Basis for Determinations: Before making recommendation on a special use permit application, the Town Board shall establish that the following general standards, as well as the specific standards outlined in each section of this Article, shall be satisfied.

(1) General Standards: The Town Board shall review each application for the purpose of determining that each proposed use meets the following standards, and in addition, shall find adequate evidence that each use on the proposed location will:

- (a) Be designed, constructed, operated and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such a use will not change the essential character of the area in which it is proposed.

The Mari Vineyards site is surrounded by the Underwood Farms residential development. Like Underwood Farms, the area of frontage along Center Road (M-37) will be planted with an agricultural crop. Also like the residential buildings of Underwood Farms, the winery building is set back over 400 feet from Center Road and located along the hill. At 6,000 square feet of above ground structure, the winery building is in scale with many of the surrounding residential homes. The winery parking area is located behind the building and tucked into a valley for minimal visual impression from the public view corridor. The surrounding wine crop uses as required per the Winery-Chateau special use will further buffer the facility from surrounding uses. Currently proposed wine crops include vineyard, orchard and stands of hardwoods to be managed as a sugar bush for maple syrup production.

In this way, the site design of the Mari Vineyards Winery-Chateau is similar in character to and harmonious with the existing surrounding properties.

- (b) Not be hazardous or disturbing to existing or future uses in the same general vicinity and will be a substantial improvement to property in the immediate vicinity and to the community as a whole.

The Mari Vineyards Winery-Chateau use as it has been designed will not be hazardous or disturbing to existing or future uses in the vicinity.

- (c) Be served adequately by essential facilities and services, such as highways, streets, police, fire protection, drainage structures, refuse disposal, water and sewage facilities, or schools.

The Mari Vineyards site has good access along State Highway Center Road (M-37), on-site municipal water, a Fire Department across the street, 5 fire hydrants on-site, fire suppression installed inside the structure, and an established storm drainage infrastructure which has proven effective over the last year.

- (d) Not create excessive additional requirements at public cost for public facilities and services.

Uses proposed as part of this application do not create any excessive requirement for public services.

- (e) Not involve uses, activities, processes, materials, and equipment or conditions of operation that will be detrimental to any persons, property, or the general welfare by fumes, glare or odors.

The wine making process happens almost completely inside the processing facility. The short window of harvest time in the fall brings the excitement of delivering the year's harvest to the winery for processing.

The winemaking process does not result in fumes, glare or odors.

(2) Conditions and Safeguards: The Town Board may impose such additional conditions and safeguards deemed necessary for the general welfare, for the protection of individual property rights, and for insuring that the intent and objectives of this Ordinance will be observed. The breach of any condition, safeguard or requirement shall automatically invalidate the permit granted.

(3) Specific Requirements: In reviewing an impact assessment and site plan, the Town Board and the Planning Commission shall consider the following standards:

- (a) That the applicant may legally apply for site plan review.

The applicant is the legal owner of all parcels included as part of the project site. See attached County GIS maps for the following parcels.

Tax ID 28-11-019-011-01 (existing primary winery parcel)

Tax ID 28-11-019-011-02 (proposed guest rooms)

Tax ID 28-11-019-010-00 (existing managers residence)

Tax ID 28-11-324-040-11 (proposed single family homes)

Tax ID 28-11-324-040-13 part of (proposed single family homes)

Tax ID 28-11-324-040-12 (proposed single family homes)

- (b) That all required information has been provided.

The applicant believes that all required information is provided as part of this application.

- (c) That the proposed development conforms to all regulations of the zoning district in which it is located.

All structures, activities and uses proposed as part of this application are allowed through the Winery-Chateau special use in the Agricultural Zoning district.

- (d) That the plan meets the requirements of Peninsula Township for fire and police protection, water supply, sewage disposal or treatment, storm drainage and other public facilities and services.

The winery building currently under construction has obtained required regulatory agency reviews as part of Township Land Use Permitting and County Building permitting.

Additional uses proposed as part of this application for Winery-Chateau use will be serviced by both municipal water and private wells, and private septic systems meeting the requirements of the Grand Traverse County Health Department. Stormwater management has been engineered per the Peninsula Township Stormwater Control Ordinance and reviewed for compliance by Township Engineer.

- (e) That the plan meets the standards of other governmental agencies where applicable, and that the approval of these agencies has been obtained or is assured.

The proposed site plans will be submitted to the required regulatory agencies for their review. Resulting correspondence will be provided to the Township.

- (f) That natural resources will be preserved to a maximum feasible extent, and that areas to be left undisturbed during construction shall be so located on the site plan and at the site per se.

The most significant natural resource on the site is a maple woodlot. By treating the woodlot as a sugar bush for maple syrup production, the applicant is able to maintain this natural feature while still allowing for the minimum 75% lot coverage in wine crop agriculture as required for the Winery-Chateau use.

- (g) That the proposed development property respects floodways and flood plains on or in the vicinity of the subject property.

There are no flood ways or flood plains in the vicinity of this site.

- (h) That the soil conditions are suitable for excavation and site preparation, and that organic, wet or other soils which are not suitable for development will either be undisturbed or modified in an acceptable manner.

Site soils are suitable for the uses proposed. See the attached USDA soils maps.

- (i) That the proposed development will not cause soil erosion or sedimentation problems.

The winery building and related infrastructure currently under construction has obtained all required permitting and is under the review and observation of the Grand Traverse County Soil Erosion Control office.

Soil erosion prevention measures standard to the industry will be provided for the additional elements of this proposed site design related to the winery-chateau use. No

graded areas will exceed 1 on 4 slopes, and all disturbed areas will be seeded promptly upon the completion of construction work.

The County Building inspectors will review the applicant's compliance with standard County Soil Erosion measures.

- (j) That the drainage plan for the proposed development is adequate to handle anticipated stormwater runoff, and will not cause undue runoff onto neighboring property or overloading of water courses in the area.

The winery building and related infrastructure currently under construction was reviewed for compliance with the Townships Stormwater Ordinance by the Township engineer.

Implementation of the remaining elements of the Special Use will be reviewed and permitted through the Land Use Permitting process.

- (k) That grading or filling will not destroy the character of the property or the surrounding area, and will not adversely affect the adjacent or neighboring properties.

The remaining grading beyond the current construction of the winery will be as minimally required in order to construct the remaining driveway extension to the guest house at the winery parking lot, and the driveways along Underwood Ridge to access the five proposed single family home sites.

The proposed grading fits in with the existing character of the landscape and will not impact neighboring properties.

- (l) That structures, landscaping, landfills or other land uses will not disrupt air drainage systems necessary for agricultural uses.

Underwood Ridge Road is the high point of the project area. The project site slopes 120 vertical feet from Underwood Ridge to Center Road to the east. Cold air drainage will continue to follow the natural swales along the north and south boundaries of the primary vineyard parcel.

Development of the four single-family residential lots west of Underwood Ridge will not change the elevation of the ground and will not affect air drainage.

- (m) That phases of development are in a logical sequence, so that any one phase will not depend upon a subsequent phase for adequate access, public utility service, drainage or erosion control.

Phase one includes the winery, currently under construction as a Farm Processing use-by-right, and the on-site managers residence, an existing home. The drive and parking lot constructed as part of the phase one work is designed to extend to the proposed future guest house.

The five single family home sites are accessed from Underwood Ridge Road.

- (n) That the plan provides for the proper expansion of existing facilities such as public streets, drainage systems and water sewage facilities.

There are no public streets, drainage systems or sewage facilities proposed on this site.

- (o) That landscaping, fences or walls may be required by the Town Board and Planning Commission in pursuance of the objectives of this Ordinance.

- (p) That parking layout will not adversely affect the flow of traffic within the site, or to and from the adjacent streets.

The proposed parking areas within the winery-chateau portion of this site meet the design and dimensional standards of the industry. Driveways within the winery-chateau portion of this site do not connect to adjacent streets. All winery and guest activity use traffic enters and exits directly onto Michigan State Highway 37 (Center Road) via a permitted commercial driveway approach (construction permit reference number 20649), and will not adversely affect the flow of traffic on adjacent streets.

Five residential lots associated with the winery-chateau, four of which will share a common private driveway, will be accessed via Underwood Ridge within the Underwood Farms residential development. Underwood Farms is a 65 unit residential development, the proposed five additional residential units will not affect the traffic flow within the development.

- (q) That vehicular and pedestrian traffic within the site, and in relation to streets and sidewalks serving the site, shall be safe and convenient.

The chateau-winery site is accessed by a private dead end road. Guest parking areas are located within close proximity to their related structures, and are accessible by pedestrian sidewalks.

- (r) That outdoor storage of garbage and refuse is contained, screened from view and located so as not to be a nuisance to the subject property or neighboring properties.

Refuse containment at the winery and guest house will meet the township standards for screening.

Single family home owners will be responsible for their own garbage disposal service.

- (s) That the proposed site is in accord with the spirit and purpose of this Ordinance and not inconsistent with, or contrary to, the objectives sought to be accomplished by this Ordinance and the principles of sound planning.

The proposed Mari Vineyards site complies with the specified conditions as allowed by a Winery-Chateau Special Use in the Agricultural Zoning District.

Section 8.5 Food Processing Plants in A-1 Districts:

Section 8.5.2 Required Information: The following information shall be submitted as a basis for judging the suitability of the proposed operation:

- (1) A site plan of the property showing the location of all present and proposed buildings, drives, parking areas, waste disposal fields, landscaping, plant materials, screening fences or walls, and other construction features which shall be proposed.

See attached site plans.

- (2) A description of the operations proposed in sufficient detail to indicate the effects of those operations in producing traffic congestion, noise, glare, air pollution, fire or safety hazards, or the emission of any potentially harmful or obnoxious matter or radiation.

The proposed winery-chateau use does not produce any glare, air pollution, water pollution, fire or safety hazards, harmful emissions or radiation.

Three quarters of the 30,000 square foot winery and tasting room facility is located below ground resulting in a minimal visual impact of the operations as viewed from the surrounding area as well as the excellent natural insulative benefits of being below ground. Also, the wine making process is almost entirely conducted indoors, therefore not effecting surrounding properties. Visitors to the facility will primarily be at the tasting room facility which is set back 100 feet from the adjacent property line during normal commercial business hours.

It is expected that the proposed winery-chateau use and its associated wine crop plantings will be an enhancement to the agricultural landscape of the general area.

- (3) Engineering and Architectural Plans for:

See attached engineering plans.

- (a) The treatment and disposal of sewage and industrial waste or unusable by-products.

Sewage generated on-site is treated in County regulated and permitted septic treatment systems.

Winery grey water disposal will be regulated through a new State permitting process which has not yet been finalized. Winery grey water will be transported to the County waste water treatment plant until State permitting for on-site treatment is finalized.

- (b) The proposed handling of any excess traffic congestion, noise, glare, air pollution, water pollution, fire or safety hazards, or emission of potentially harmful or obnoxious matter or radiation.

The winery and tasting room use will not produce any glare, air pollution, water pollution, fire or safety hazards, harmful emissions or radiation.

The wine making process is almost entirely conducted indoors and does not create any noise. The sound produced by tasting room visitors enjoying outdoors spaces will be negligible as provided for by the 100 foot building setback to the property line.

The wine making process does not generate any measurable volume of traffic. Traffic related to wine tasting and chateau guests enter and exit directly onto Michigan State Highway M-37 (Center Road) via a permitted commercial driveway approach (construction permit reference number 20649) and will not impact traffic congestion.

- (4) The proposed number of shifts to be worked and the maximum number of employees on each shift.

	<i>Normal Operation</i>	<i>During Peak Times</i>
<i>Office/Tasting Room (two shifts)</i>	6	15
<i>Winery Processing (one shift/ as needed)</i>	3	4
	9	19

Section 8.7 Miscellaneous Special Uses:

Section 8.7.2 Special Uses that May be Permitted: The following land and structure uses may be permitted within the particular zone districts cited, PROVIDED that requirements specified in Section 8.1 and the applicable specified conditions established herein can be complied with:

(11) Winery-Chateau in the Agricultural District.

Section 8.7.3 Site Development Requirements: A special use permit shall not be issued for the occupancy or use of a structure or parcel of land, or for the erection, reconstruction or alteration of a structure unless complying with the following site development requirements.

(10) Winery-Chateau

(a) It is the intent of this section to permit construction and use of a winery, guest rooms, and single family residences as a part of a single site subject to the provisions of this ordinance. The developed site must maintain the agricultural environment, be harmonious with the character of the surrounding land and uses, and shall not create undue traffic congestion, noise, or other conflict with the surrounding properties.

The Mari Vineyards site is surrounded by the Underwood Farms residential development. Like Underwood Farms, the area of frontage along Center Road (M-37) will be planted with an agricultural crop. Also like Underwood Farms residential buildings, the winery building is located along the hill over 400 feet from Center Road. At 6,000 square feet of above ground structure, the winery building is in scale with, and even smaller than many of the surrounding residential homes. The winery parking area is located behind the building and tucked into a valley, for minimal visual impression from the public view corridor. The surrounding wine crop uses as required per the Winery-Chateau special use will further buffer the facility from surrounding uses. Currently proposed wine crops include vineyard, orchard, berries and stands of hardwoods to be managed as a sugar bush for maple syrup production. Future guest rooms are proposed in a separate Guest House located on a wooded knoll at the center of the site. The Applicant worked extensively with the residents of neighboring Underwood Farms to locate the Guest House and Single-Family home sites of the project. Five single family home sites are located along Underwood Ridge Drive. Four sites are tucked behind an existing block of vineyard west of Underwood Ridge Drive and one site located east of Underwood Ridge Drive.

In this way, the site design of the Mari Vineyards Winery-Chateau is similar to and harmonious with the existing surrounding properties.

(b) The use shall be subject to all requirements of Article VIII, Section 8.5, Food Processing Plants in A-1 Districts and the contents of this subsection. Data specified in Section 8.5.2, Required Information, shall be submitted as a basis for judging the suitability of the proposed plan. Each of the principal uses shall be subject to the terms and conditions of this ordinance except as specifically set forth herein.

The existing winery, entrance drive and parking area elements located at Mari Vineyards were approved through Peninsula Township Land Use Permit #5221 for a use-by-right Farm Processing facility issued on February 24, 2014.

- (c) The minimum site shall be fifty (50) acres which shall be planned and developed as an integrated whole. All of the principal and accessory uses shall be set forth on the approved site plan.

The six adjacent parcels of land presented for this proposal equal to a total of 67.50 acres. At 50.61 acres net, the winery-chateau use boundary as identified on the site plan meets the minimum required 50 acres for winery-chateau use.

- (d) The principal use permitted upon the site shall be a winery. Guest rooms, manager's residence, and single family residences shall be allowed as support uses on the same property as the winery.

The winery is the principal use upon the site. The Lagina family has over 50 acres of planted vineyard on the Old Mission Peninsula yielding an average of 140 tons of grapes annually (a six year average, 2009-2014), the winery and tasting room will be the showcase for the wine produced by the Lagina family and will be the principal use on the site.

The winery and tasting room, currently under construction, is scheduled for spring 2016 completion.

Proposed support uses as allowed under the Winery-Chateau special use include the managers residence (an existing home and farm stand located on the site), three existing farm storage barns, an existing tensile storage structure, a proposed sugar shack, a free standing bio fuel furnace room, a Guest House totaling 9 rooms (with potentially two of the rooms as individual subterranean caves), and five single-family (1/2+ acre) residential lots.

1. In addition to the principal and support uses, accessory uses for each such use shall be permitted provided, that all such accessory uses shall be no greater in extent than those reasonably necessary to serve the principal use.
 2. Sales of wine by the glass in the tasting room is allowed pursuant to the minimum requirements of the Michigan Liquor Control Commission rules and related Michigan Department of Agriculture permits regarding the sales of food for on-premises consumption. The Liquor Control Commission and the Michigan Department of Agriculture shall control licenses and compliance. **(REVISED BY AMENDMENT 181)**
- (e) For purposes of computation, the principal and each support use identified in sub-section (d) above shall be assigned an "area equivalent" as set forth herein. The total "area equivalent" assigned to the principal uses shall not exceed the actual area of the site.

Winery	= 5 acres
Managers Residence	= 5 acres
Single Family Residential lots (5 total, 1/2+ acre lots)	=25 acres
9 guest rooms	=15 acres
<u>Total Area Equivalent</u>	=50 acres required / 50.61 acres provided

(f) "Area equivalents" shall be calculated as follows:

Winery:	five (5) acres or the actual area to be occupied by the winery including parking, whichever is greater;	<i>Winery =5 acres</i>
Manager's Residence:	five (5) acres;	<i>Managers Residence =5 acres</i>
Single Family Residences:	five (5) acres;	<i>Single Family Residential lots (5 total, 1/2+ acre lots) =25 acres</i>
Guest Rooms:	five (5) acres for each 3 rooms, not to exceed a total of twelve (12) guest rooms.	<i>9 guest rooms =15 acres</i>
		<i>Total Area Equivalent =50 acres</i>

(g) The number of single family residences shall not exceed six (6). The manager's residence shall not contain or be used for rental guest rooms. The number of guest rooms shall not exceed twelve (12).

Five single family residences are proposed east and west of Underwood Ridge Drive.

An existing home located in the southeast corner of the property with a separate driveway onto Center Road will be used as the manager's residence.

Future guest rooms are proposed in a 2.3 acre area on a wooded knoll at the center of the site. The Applicant worked extensively with the residents of neighboring Underwood Farms to locate the Guest House element. In addition to meeting the standards of the ordinance, the Applicant has provided specific standards for the future development of guest accommodations at Mari Vineyards.

(h) Not less than seventy-five (75%) percent of the site shall be used for the active production of crops that can be used for wine production, such as fruit growing on vines or trees.

Over 75% of the site is proposed for use in wine crops including grapes, fruiting trees, shrubs and maple syrup.

(i) The facility shall have at least two hundred (200) feet of frontage on a state or county road.

The project site has 1,500 lineal feet of frontage along Center Road (M-37).

(j) The winery-chateau shall be the principal building on the site and shall have an on-site resident manager.

The winery building currently under construction will be the principal building on the site. The on-site manager will be housed in an existing home located at the southeast corner of the site.

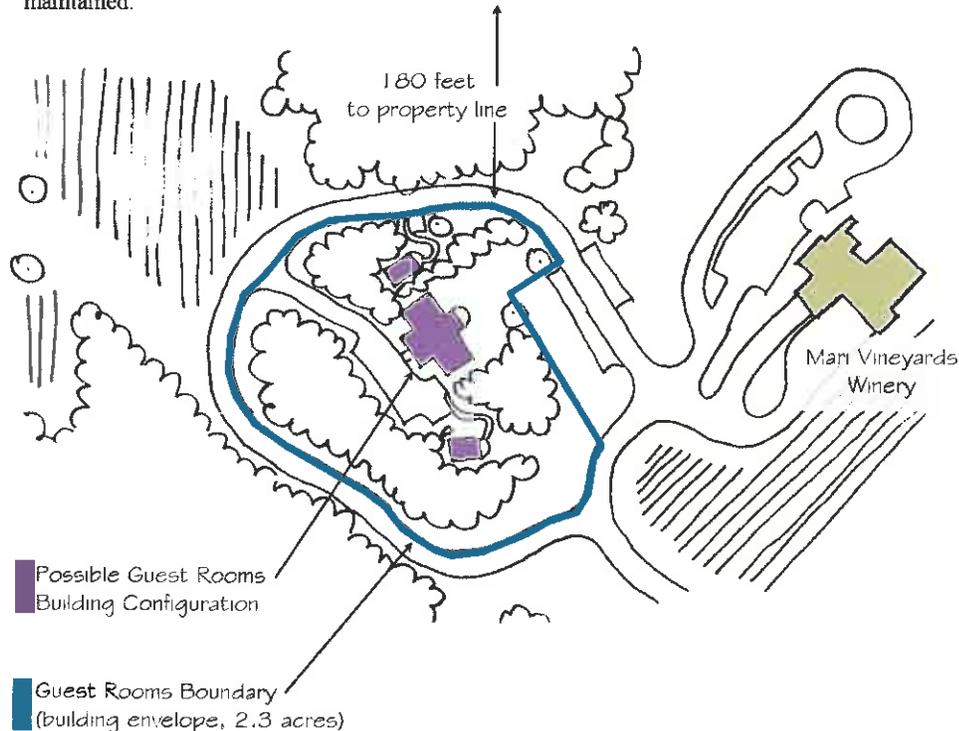
- (k) All guest rooms shall have floor areas greater than two hundred fifty (250) square feet. Maximum occupancy shall be limited to five (5) persons per unit. No time sharing shall be permitted.

Future guest rooms are proposed in a 2.3 acre area on a wooded knoll at the center of the site. The Applicant worked extensively with the residents of neighboring Underwood Farms to locate the Guest House element. In addition to meeting the standards of the ordinance, the Applicant has provided specific standards for the future development of guest accommodations at Mari Vineyards.

Standards for the Future Development of Guest Accommodations

Guest Rooms are an allowed support use to a Winery Chateau. The applicant is proposing to include 9 guest rooms as part of the Mari Vineyards Chateau. The applicant anticipates beginning work on implementation of the guest rooms in 2017, including final site planning, architectural drawings, Township Land Use, and other regulatory agency permitting.

Because the actual **Guest House** structure(s) have not yet been designed, the applicant is offering the following standards for implementation of the structure. The current concept (*shown in purple*) is to have a main Guest House with seven guest rooms and two stand alone cave type guest rooms. However, the applicant would like to reserve the right to modify the configuration of the guest room use within the building envelope provided (*shown in blue*) given that the following standards outlined herein are maintained. This flexibility will allow for the flexibility to create a thoughtful design relevant to the future demands of the market, while providing the Township and neighbors the assurance that certain standards of scale and design will be maintained.



Standards for the Future Development of Guest Accommodations (continued)

Guest Rooms Building(s) Envelope

All structures related to the Guest Rooms Use will be placed within the 2.3 acre area located within the central loop road -**Building Envelope**- as indicated on the site plan. The area designated for guest rooms is located on a forested hill in the middle of the Chateau site, 180 feet front the nearest property line.

A Total of 9 Guest Rooms may be located within the building envelope.

The total structural footprint of all Guest Room and related accessory uses within the building envelope **will not exceed a total of 14,000 square feet** (not including parking, sidewalks on grade patios and decks), **and will not exceed 35 feet in height.**

Architectural design style and building materials will be harmonious and **compatible with the existing winery building.** Proposed uses and relating standards for each future element is as follows:

Guest Accommodations are not to exceed a total of 9 total guest bedrooms
Each guest unit will not exceed 800 square feet and may include:

bedrooms (*minimum bedroom size 250sf*),
bathrooms,
kitchenette/wet bar,
and a living room area.

Maximum occupancy of each guest unit is 5 people

Total registered guest occupancy shall not exceed 45 people total

Anticipated Accessory Use Spaces

Reception area, office, meeting room(s), service kitchen, lounge area, breakfast room, recreation/game room, hall ways, stairs/elevators, storage. The accessory uses shall not be greater in size or number than those reasonably required for the use of 45 registered guests. Use of Accessory Use Spaces will be limited to registered guests only and comply with all standards of the ordinance.

Parking minimum one space per guest room within 200 feet of the facility

Lighting per township dark sky requirements

Guest Room Rental Rules DRAFT

- Registered guests will sign a guest registry
- Rental of Guest Rooms will be nightly
- Quiet Hours will begin at 9:30 pm
- Smoking is prohibited on the Winery Chateau site and in all building
- Pets, with the exception of service animals, will not be permitted
- Guests will be allowed to enjoy the grounds within the Chateau Boundary, maps will be provided, and trespass upon neighboring properties will be deterred through signage and vegetative buffers

- (l) All lighting shall conform to the requirements of Section 7.14. **(REVISED BY AMENDMENT 175B)**

See attached lighting plan.

- (m) Accessory uses such as facilities, meeting rooms, and food and beverage services shall be for registered guests only. These uses shall be located on the same site as the principal use to which they are accessory and are included on the approved Site Plan. Facilities for accessory uses shall not be greater in size or number than those reasonably required for the use of registered guests.

Accommodations for registered guests is proposed as a future phase of this application for Winery-Chateau use. Accessory uses to the facilities for registered guests will be designed to meet the intent of this ordinance.

- (n) Well and septic system: Proof of evaluation of the well and septic system by the Health Department and conformance to that agency's requirements shall be supplied by the owner.

The winery building under construction will be served by municipal water for fire suppression and general interior plumbing. Water for the wine production process and irrigation will be supplied by a private well to avoid chemicals in the water from the municipal treatment plant which can be detrimental to the winemaking process. A private septic system and drain field located at the northeast corner of the site will service the winery's domestic needs (wine processing water is permitted through the State separately).

The five single family residential lots will be serviced by a private septic system and municipal water.

The guest house will be serviced by a private septic system municipal water.

The existing home, manager's residence is currently serviced by private well and private septic system.

- (o) Fire safety:

1. All transient lodging facilities shall conform to the Michigan State Construction Code section regulating fire safety.
2. An on-site water supply shall be available and meet the uniform published standards of the Peninsula Township Fire Department.

The winery building includes a fire suppression system and a fire hydrant on municipal water is located in front of the building.

3. A floor plan drawn to an architectural scale of not less than 1/8" = 1 foot shall be on file with the Fire Department.
4. Each operator of a transient lodging facility shall keep a guest registry which shall be available for inspection by the Zoning Administrator and police and fire officials at any time.
5. Master keys for all rooms shall be available at all times.

- (p) Fencing or Planting Buffer: In the event that the Township Board determines that noise generation may be disturbing to neighbors or that the establishment is in an area where trespass onto adjacent properties is likely to occur, then the Township Board may require that fencing or a planting buffer be constructed and maintained.

- (q) Rental of Recreation Equipment: Rental of snowmobiles, ATVs or similar vehicles, boats and other marine equipment in conjunction with the operation of the establishment shall be prohibited.

- (r) Activities and Outdoor Gatherings: Activities made available to registered guests shall be on the site used for the facility or on lands under the direct control of the operator either by ownership or lease. Outdoor activities shall be permitted if conducted at such hours and in such manner as to not be disruptive to neighboring properties.
- (s) Signs as allowed by Section 7.11.
- (t) A two hundred (200) foot setback shall be maintained between guest accommodations and facilities and agricultural crops, unless it is demonstrated that a lesser setback can be maintained which will provide for an equal level of protection from agricultural activities to residents, visitors and guests of the winery-chateau. Upon such demonstration, the Township Board may permit a lesser setback.

The applicant requests a lesser on-site agricultural setback from guest accommodations. Crops adjacent to that use include an existing maple woodlot that will be managed for maple syrup production, vineyards and low growing fruit crops. Management of crops in these areas will be done using low impact and sustainable techniques (low impact viticulture -no spray/low spray and ozone) and scheduled to accommodate guests and their activities.

- (u) Guest Activity Uses. The Township Board may approve Guest Activity Uses (Activities by persons who may or may not be registered guests) as an additional Support Use, subject to the following: **(ADDED BY AMENDMENT 141)**

1. Intent

- (a) The current Winery-Chateau section of the ordinance requires 75% of the site to be used for the active production of crops that can be used for wine production such as fruit growing on vines or trees, but does not require that any of the wine produced on the site be made from wine fruit grown on Old Mission Peninsula. To assure that, in addition to the minimum parcel size required for a Winery-Chateau, there is additional farm land in wine fruit production in Peninsula Township if Guest Activity Uses are allowed to take place at a Winery-Chateau facility.

The Lagina family currently owns and manages over 50 acres of active vineyard on the OMP providing average yields of 140 tons of grapes annually.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (b) Guest Activity Uses are intended to help in the promotion of Peninsula agriculture by:
 - a) identifying “Peninsula Produced” food or beverage for consumption by the attendees;

Guest Activities at the winery will comply with the requirements of this ordinance.

- b) providing “Peninsula Agriculture” promotional brochures, maps and awards; and/or

Guest Activities at the winery will comply with the requirements of this ordinance.

c) including tours through the winery and/or other Peninsula agriculture locations.

Guest Activities at the winery will comply with the requirements of this ordinance.

(c) Guest Activity Uses are limited to (2) below.

Guest Activities at the winery will comply with the requirements of this ordinance.

(d) Guest Activity Uses do not include wine tasting and such related promotional activities as political rallies, winery tours and free entertainment (Example - "Jazz at Sunset") which are limited to the tasting room and for which no fee or donation of any kind is received.

Guest Activities at the winery will comply with the requirements of this ordinance.

(e) Guest Activity Uses are in addition to accessory uses for registered guests that are otherwise allowed.

Guest Activities at the winery will comply with the requirements of this ordinance.

(f) Overnight stays at the Winery-Chateau are not required for these Guest Activity Uses.

Guest Activities at the winery will comply with the requirements of this ordinance.

(g) Fees may be charged for these Guest Activity Uses.

Guest Activities at the winery will comply with the requirements of this ordinance.

2. Uses Allowed Notwithstanding Section 8.7.3 (10) (m); The following Guest Activity Uses may be approved with a Special Use Permit by the Township Board:

(a) Wine and food seminars and cooking classes that are scheduled at least thirty days in advance with notice provided to the Zoning Administrator. Attendees may consume food prepared in the class.

Guest Activities at the winery will comply with the requirements of this ordinance.

(b) Meetings of 501- (C)(3) non-profit groups within Grand Traverse County. These activities are not intended to be or resemble a bar or restaurant use and therefore full course meals are not allowed, however light lunch or buffet may be served.

Guest Activities at the winery will comply with the requirements of this ordinance.

(c) Meetings of Agricultural Related Groups that have a direct relationship to agricultural production, provided that:

- i. The meetings are scheduled at least one month in advance with the Zoning Administrator given adequate advance notice of the scheduling so that the Zoning Administrator can give prior approval;

Guest Activities at the winery will comply with the requirements of this ordinance.

- ii. The Zoning Administrator shall use the following types of Agricultural Related Groups as a guide for determining “direct relationship to agricultural production”;

- (a) Food/wine educational demonstrations;
- (b) Cooking show showcasing Peninsula produce and wine;
- (c) Farmer’s conferences;
- (d) Regional farm producers;
- (e) Cherry Marketing Institute and Wine Industry Conference
- (f) Farm Bureau Conference
- (g) Future Farmers of America and 4-H;
- (h) Michigan State University/agricultural industry seminars.

- iii. These meetings may include full course meals to demonstrate connections between wine and other foods.

Guest Activities at the winery will comply with the requirements of this ordinance.

- iv. An appeal of the Zoning Administrators determination can be made to the Township Board.

- (d) Guest Activity Uses do not include entertainment, weddings, wedding receptions, family reunions or sale of wine by the glass.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (e) No food service other than as allowed above or as allowed for wine tasting may be provided by the Winery-Chateau. If wine is served, it shall only be served with food and shall be limited to Old Mission Peninsula appellation wine produced at the Winery, except as allowed by Section 6. below.

Guest Activities at the winery will comply with the requirements of this ordinance.

3. Relation to Agricultural Production in Peninsula Township. In order to offer Guest Activity Uses, the owner of the Winery-Chateau shall, in addition to the agricultural production on the minimum acreage required for the Winery-Chateau, grow in Peninsula Township or purchase grapes grown in Peninsula Township for the previous growing season equal to 1.25 tons of grapes for each person allowed to participate in Guest Activity Uses up to the maximum number approved by the Township Board in a Special Use Permit. If the amount of grapes cannot be documented by the Zoning Administrator,

the numbers of persons allowed to participate in Guest Activity Uses shall be reduced proportionally.

Documentation of historical grape tonnage harvested by the Lagina family since 2004 is provided as part of Section 8.7.3(10)(u)(7)(a).

4. The number of persons allowed to participate in Guest Activity Uses shall be determined as follows:

(a) The Township Board as part of the Special Use Permit approval process shall determine the room(s) provided and a maximum number of attendees for Guest Activity Uses.

i. The maximum number of attendees shall not exceed one attendee for each fifteen (15) square feet of the room or rooms provided for Guest Activity Uses. These rooms shall exclude guest rooms, rest rooms, hallways, stairways, entries, spaces used in the normal operation of wine making and storage, out of doors areas and any other spaces not usual for guest assembly. In no case will the number exceed one hundred-eleven (111) or the Fire Marshall maximum occupancy, whichever is less.

Rooms for guest activity uses at the winery building currently under construction have been noted and highlighted on a set of architectural floor plans included in this submittal.

Based on the architectural drawings included, 4,950 square feet of room is available for guest activity uses. The resulting calculation for allowable attendees exceeds the maximum of 111 guests allowed. Guest Activity uses will not exceed 111 attendees as allowed per this ordinance.

ii. The maximum number of attendees may be less than, but not more than, the maximum number described in (i) above at the discretion of the Township Board based on possible adverse impacts on adjacent properties, lack of parking spaces or other site specific conditions.

The Winery use at Mari Vineyards includes 25 paved parking spaces, 3 paved bus parking spaces, and 22 gravel parking spaces. Additional temporary parking in grassed areas may be added as needed for specific functions.

iii. A building floor plan showing spaces for all approved uses including the maximum capacity of each shall be attached to the site plan.

See the attached architectural plans for the winery use.

5. Requirements for Guest Activity Uses

- (a) All Guest Activity Uses shall include Agricultural Production Promotion as part of the activity as follows:
- i. Identify “Peninsula Produced” food or beverage that is consumed by the attendees;
 - ii. Provide “Peninsula Agriculture” promotional materials;
 - ii. Include tours through the winery and/or other Peninsula agricultural locations.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (b) Hours of operation for Guest Activity Uses shall be as determined by the Town Board, but no later than 9:30 PM daily.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (c) No alcoholic beverages, except those produced on the site, are allowed with Guest Activity Uses.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (d) Sales of wine by the glass or sales of bottles of wine for ON PREMISES consumption are NOT ALLOWED except as provided in Section 2 (e) above.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (e) No outdoor food, beverages or temporary structures are allowed except as allowed by 8 (c) below.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (f) No sounds related to the guest activity shall be discernable at the property lines.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (g) No amplified instrumental music is allowed, however amplified voice and recorded background music is allowed, provided the amplification level is no greater than normal conversation at the edge of the area designated within the building for guest purposes.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (h) No outdoor displays of merchandise, equipment or signs are allowed.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (i) Kitchen facilities may be used for on-site food service related to Guest Activity Uses but not for off-site catering.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (j) No lighting, except the minimum required for safety and sign lighting as allowed by the ordinance.

Guest Activities at the winery will comply with the requirements of this ordinance.

- (k) The Township Board may consider seasonal weighting of the frequency and/or a maximum number of Guest Activity Uses during the year.

Guest Activities at the winery will comply with the requirements of this ordinance.

6. If crop conditions or natural disaster result in a shortage of locally-grown fruit for a particular year; the Township Board may reduce the requirement for the amount of grapes for that particular year, provided that verification of such conditions are presented to the Township Board by a public organization representing the fruit growers of northwest Michigan that is duly recognized by the Township Board.

7. Documentation The owner of the Winery-Chateau shall provide data and records on an annual basis to the Zoning Administrator showing that:

- (a) In addition to the agricultural production on the minimum acreage required for the Winery-Chateau, the winery has grown grapes in Peninsula Township or purchased grapes grown in Peninsula Township equal to 1.25 tons of grapes for each person allowed to participate in Guest Activity Uses.

The Lagina family planted their first vineyard on the Peninsula in 1999. To date the Lagina's have 50 acres of vineyard in addition to other orchard crops. The family plans to install an additional 7 acres of vineyard during the 2015-2016 seasons.

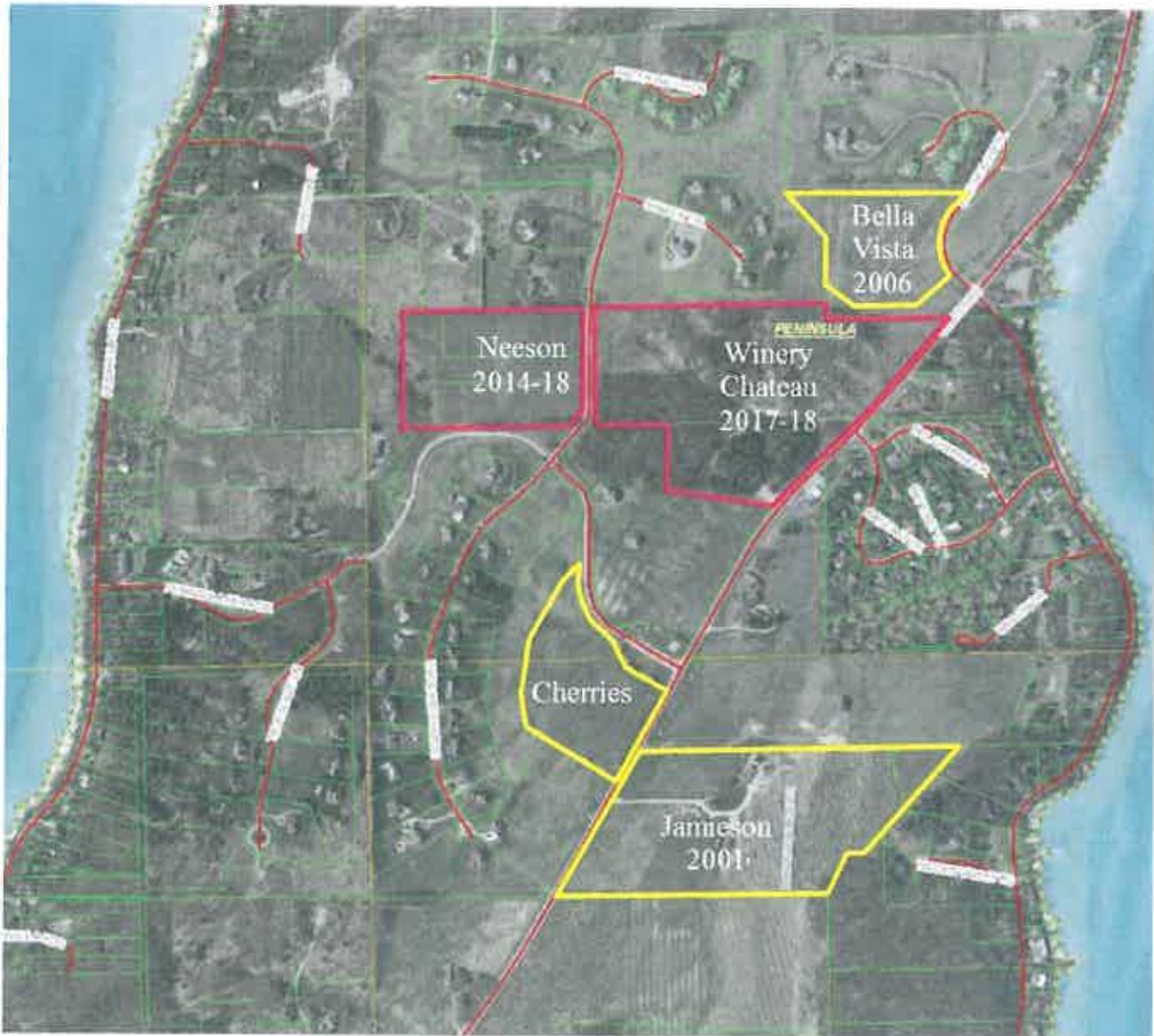
The following grape tonnage records are available for use in determining the number of additional participants allowed in Guest Activities.

Also see the attached map exhibits showing the location, size and yield of each vineyard block in TAB 9.

Based on a six year average between 2009 and 2014 of the Jamieson, Bella Vista, McKian and Grishaw Vineyards, Mari Vineyards has the capacity to harvest an average of 63 tons of OMP grapes annually, which translates to 50 additional people allowed to participate in Guest Activity Uses based solely on additional off-site vineyard production on the Old Mission Peninsula. This harvest tonnage number will increase as the Grishaw Vineyard matures into fruit production.

The ordinance allows a maximum of 111 Guest Activity use participants total.

Approximate Tonnage by variety and location												
Location	Variety	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Irish Tunnels	Cabernet Sauvignon	0.243	2.1	2.068	1.612	0.311	0.46	-	-	-	-	-
Irish Tunnels	Syrah	0	0.75	2.0495	1.46	0.2765	0.077	-	-	-	-	-
Irish Tunnels	Merlot	0	1.5	1.4765	1.2325	0	0	-	-	-	-	-
Irish Tunnels	Nebbiolo	0	2.04	1.3095	1.006	0.367	0	-	-	-	-	-
Irish Tunnels	Sanglovese	0.28	1.2	1.148	0.6725	0.326	0.24	-	-	-	-	-
Irish Tunnels	Malbec	0	0.89	0.5365	0.193	0.056	0.24	-	-	-	-	-
Irish Tunnels	Refosco	0.06	0	0	-	-	-	-	-	-	-	-
Irish Tunnels	Teroldego	0.223	0	0	-	-	-	-	-	-	-	-
Irish Tunnels	Schloppetto	0.0085	0	0	-	-	-	-	-	-	-	-
Irish Tunnels	Petit Verdot	0.03	0.22	0	0	-	-	-	-	-	-	-
Irish	Riesling	1.9	29.74	23.296	30.632	5.76	0	0	-	-	-	-
Jamieson Tunnels	Cabernet Franc	0.85	3.08	1.712	2.24	2.99	1.39	-	1.14	-	-	-
Jamieson Tunnels	Merlot	0.11	1.6	1.102	1.028	2.01	0.62	-	0.56	-	-	-
Jamieson	Chardonnay	0.81	8.56	5.716	6.416	2.84	0	0	-	-	-	-
Jamieson	Cab Franc	0.64	12.5	6.347	5.7085	1.22	3.26	13.38	6.67	5.6	3.72	3.18
Jamieson	Merlot	0.2	6.92	7.788	6.8755	1.83	4.67	0	2.59	6.21	5.98	2.86
Jamieson	Riesling	3.8	25.3	19.549	26.439	14.38	18.15	16.29	0	0	-	-
Bella Vista	Pinot Noir	0.27	7.19	4.671	4.275	3.14	1.36	0.32	0	0	-	-
Bella Vista	Pinot Gris	0.3	12.8	13.663	14.11	1.34	8.11	2.18	0	0	-	-
McKian	Gewürztraminer	0	3.872	3.118	3.411	1.45	1.57	0	0	-	-	-
Grishaw	Pinot Noir	0.54	7.32	5.183	6.416	3.1	5.77	2.5	-	-	-	-
Grishaw	Riesling	1.9	13.01	9.547	12.2725	8.3	8.85	10.59	3.68	6.97	5.85	4.7
Grishaw	Gruner Veltliner	0	3.08	0	0	-	-	-	-	-	-	-
Grishaw	Sauv. Blanc	0	0	-	-	-	-	-	-	-	-	-
Grishaw	Merlot	0	0	0	-	-	-	-	-	-	-	-
Neeson	Pinot Blanc	0	-	-	-	-	-	-	-	-	-	-
Neeson	Malvasia Bianca	0	-	-	-	-	-	-	-	-	-	-
		12.1645	143.642	110.28	125.9995	49.697	54.7665	45.26	14.64	18.78	15.55	10.74



 Mari Vineyards Winery-Chateau site boundary

 Active Vineyards of Mari Vineyards

Bella Vista Vineyard	10.30 acres	19.99 tons harvested in 2013
Jamieson Vineyard	29.58 acres	57.96 tons harvested in 2013



 Active Vineyards of Mari Vineyards

Irish Vineyard	40.00 acres	38.41 tons harvested in 2013
Grishaw Vineyard	19.98 acres	23.41 tons harvested in 2013
Mckian Vineyard	22.43 acres	3.87 tons harvested in 2013

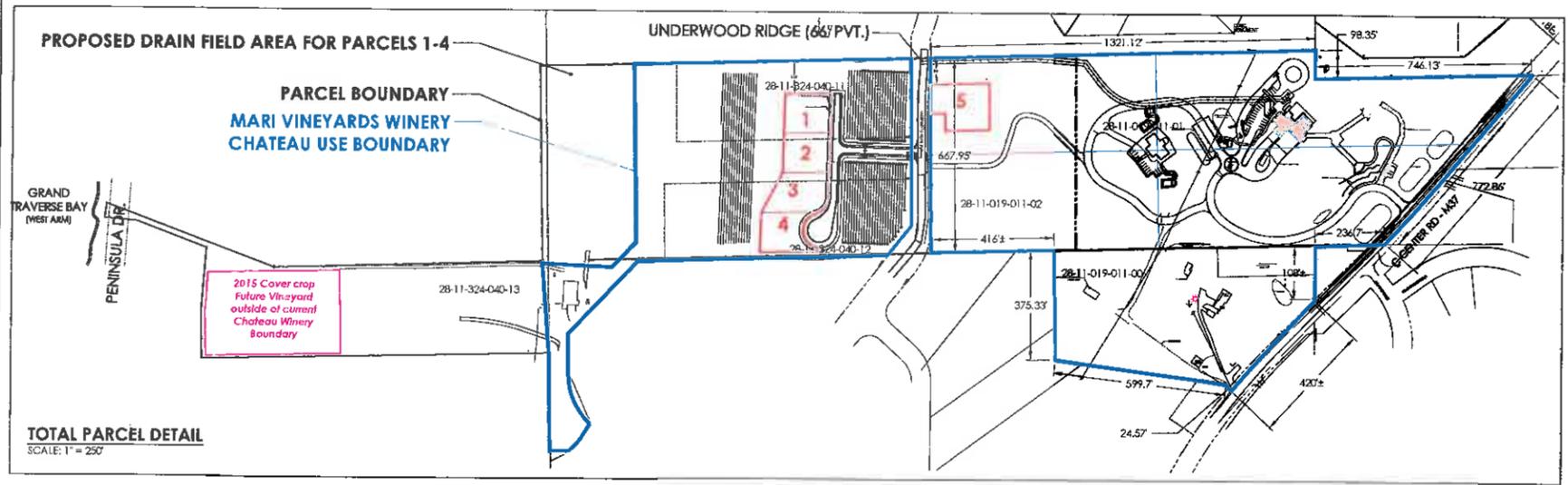
- (b) That all the grapes from (a) above plus the production on the minimum acreage required for the Winery-Chateau have been processed in the winery.

All Mari Vineyards Wines will be processed in the new facility starting with the 2016 harvest.

Mari Vineyards wines are currently processed at Chateau Grand Traverse and the Irish Vineyard Farm Processing facility located on Murray Road.

8. Additional Conditions

- (a) Special Use Permits approved under this section may list any number of restrictions or requirements approved by the Township Board such as additional set back requirements, days of the week restrictions, number of guest activity days per year or other requirements deemed beneficial to the township or its residents.
- (b) Nothing in this section shall prohibit the Township Board from approving a larger special community event such as Blessing of the Blossoms, harvest days or other community event for which no fee is charged the participants, except as specifically approved by the Township Board and is open to the public.
- (c) No temporary structures including tents or canopies are allowed except that the Township Board may approve the reasonable use of temporary structures tents or canopies in conjunction with community events approved in (b) above.
- (d) Any violation of the Special Use Permit issued for this use shall, in addition to the provisions of Section 4.2.1 Violations and Penalties, serve as grounds for closing the Guest Activity Uses use by the Township Board. In the event any such alleged violation is made in writing to the Township Board, the Township shall give written notice of such alleged violation to the Applicant at the last address furnished to the Township by the Applicant. The notice shall state that unless the violation is corrected or resolved to the satisfaction of the Township Board within 30 days from the date of the notice, the Township Board shall require the Owner to close all Guest Activity Uses on the premises, after hearing, until such time as the Township Board removes the restriction. In the event a hearing becomes necessary, the Township Board shall establish the notice requirements and such other conditions with respect to the hearing as the Township Board shall deem appropriate.

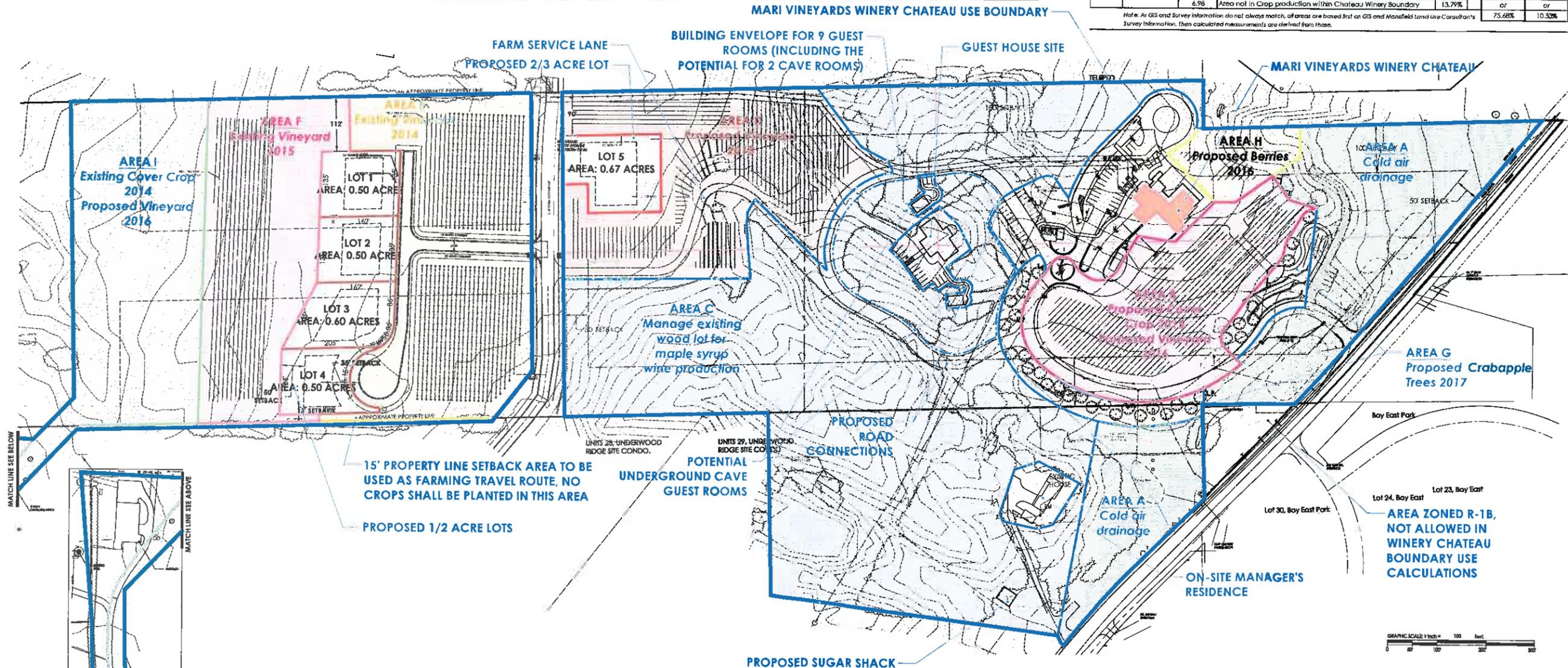


Wine Crop Area Calculations Within The Winery Chateau Boundary

Tax ID	Total Acres per GIS	Total Acres per GIS & Mansfield Survey	Total Chateau Winery Use Acres	Notes
28-11-019-01-00	8.58	8.58	8.16	existing manager's residence and wine crops
28-11-019-01-01	20.93	19.09	18.50	existing primary winery parcel and wine crops
28-11-019-01-02	7.62	7.62	7.62	proposed guest house and wine crops
28-11-324-040-11	5.00	5.00	5.00	proposed single family homes and wine crops
28-11-324-040-12	5.00	5.00	5.00	proposed single family homes and wine crops
28-11-324-040-13	20.37	20.37	6.33	proposed single family homes and wine crops
	67.50	65.66	50.61	

Crop Areas	Crop Production Area	Notes	Acres in Active Agriculture by 2016	Acres in Future Agriculture Planning
Area A	5.50	Cold air drainage area	5.50	
Area B	3.38	Proposed Cover Crop 2015, Proposed Vineyard 2016	3.38	
Area C	15.78	Manage existing wood lot managed for maple syrup wine production	15.78	
Area D	4.14	Proposed Vineyard 2018		4.14
Area E	4.74	Existing Vineyard 2014	4.74	
Area F	3.48	Existing Vineyard 2015	3.48	
Area G	1.19	Proposed Crabapple Trees 2017		1.19
Area H	0.68	Proposed Berries 2016	0.68	
Area I	4.75	Existing Cover Crop 2014, Proposed Vineyard 2016	4.75	
	43.63	Area in Crop production within Chateau Winery Boundary	86.21%	30.30
	6.98	Area not in Crop production within Chateau Winery Boundary	13.79%	or
			75.68%	10.50%

Note: As GIS and Survey information do not always match, all areas are based first on GIS and Mansfield Land Use Consultant's Survey information. Then calculated measurements are derived from those.



NOTES:

1. Wine crops as identified on this plan may change and vary to other wine crops over time based on the viability of the crop and the market scenarios for the crop.
2. The configuration of the Guest House elements may change as part of the final design and approval of the use. However, basic area calculations will be upheld to maintain the required 75% wine crop coverage calculation.

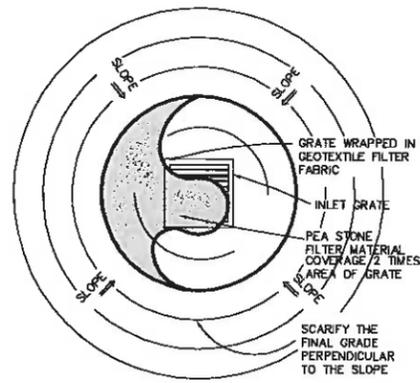
830 Congress Dr., Ste. 201
P.O. Box 4015
Troy, MI 48063
Phone: 248-346-9510
info@mansfield.com

Mansfield
Land Use Consultants

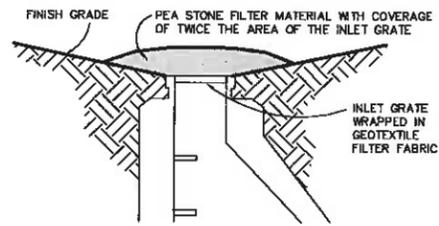
REV	DATE	BY	CHK	DESCRIPTION
04	12/21/15	pkh	pkh	Release Cave Guest Room & Crop Planning Revisions
05	12/21/15	pkh	pkh	Update 2018 to Vineyard 2018
06	12/21/15	pkh	pkh	Update for Township Submittal
07	01/20/16	pkh	pkh	Update for Township Submittal
08	01/27/16	pkh	pkh	Update for Township Submittal
09	01/27/16	pkh	pkh	Revise 6 min to 5 min
10	02/16/16	pkh	pkh	Release Sugar Shack
11	02/24/16	pkh	pkh	Final Submittal

Craft, LLC.
Mari Vineyards
WINE CROP AREA CALCULATIONS
Section 19, Town 28 North, Range 10 West
Peninsula Township, Grand Traverse County, Michigan

PRELIMINARY
13099



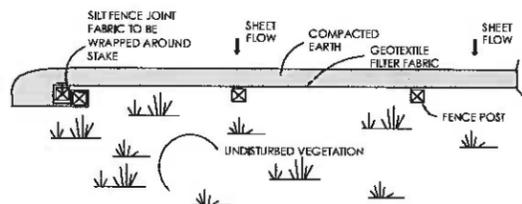
PLAN VIEW



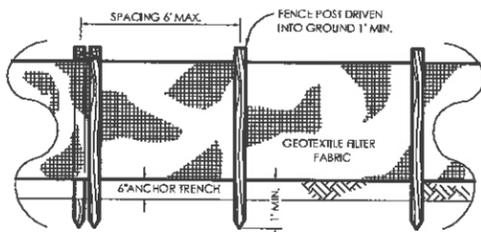
PROFILE VIEW

LOW POINT INLET FILTER

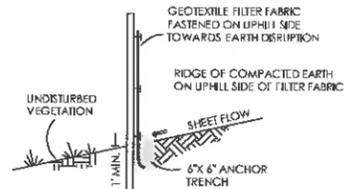
NO SCALE



PLAN VIEW



FRONT ELEVATION

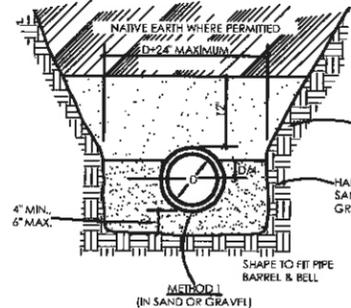


SECTION VIEW

SILT FENCE DETAILS

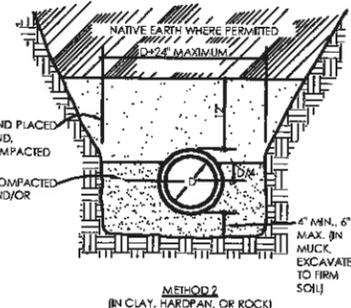
NO SCALE

NOTE:
ALL BACKFILL MATERIAL SHALL CONFORM TO ASTM D2321 STANDARDS
SEE PAVING DETAIL - BITUMINOUS FOR TRENCHES UNDER THE INFLUENCE OF PAVEMENT.



METHOD 1
(IN SAND OR GRAVEL)

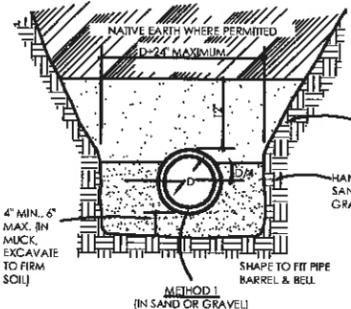
NOTE:
SANITARY SEWER TRENCHES NEED TO PROVIDE A MINIMUM WIDTH OF PIPE DIAMETER PLUS 16 INCHES FOR 8 INCH TO 18 INCH DIAMETER PLASTIC/FLEXIBLE PIPE MATERIALS. FOR 18 INCH AND LARGER PIPE DIAMETERS, THE MINIMUM TRENCH WIDTH IS 1.25 TIMES THE PIPE DIAMETER PLUS 12 INCHES FOR PLASTIC/FLEXIBLE PIPE MATERIALS.



METHOD 2
(IN CLAY, HARDPAN, OR ROCK)

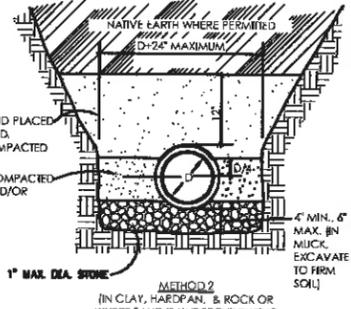
PIPE BEDDING - CLASS A DETAIL

NOTE:
ALL BACKFILL MATERIAL SHALL CONFORM TO ASTM D2321 STANDARDS
SEE PAVING DETAIL - BITUMINOUS FOR TRENCHES UNDER THE INFLUENCE OF PAVEMENT.



METHOD 1
(IN SAND OR GRAVEL)

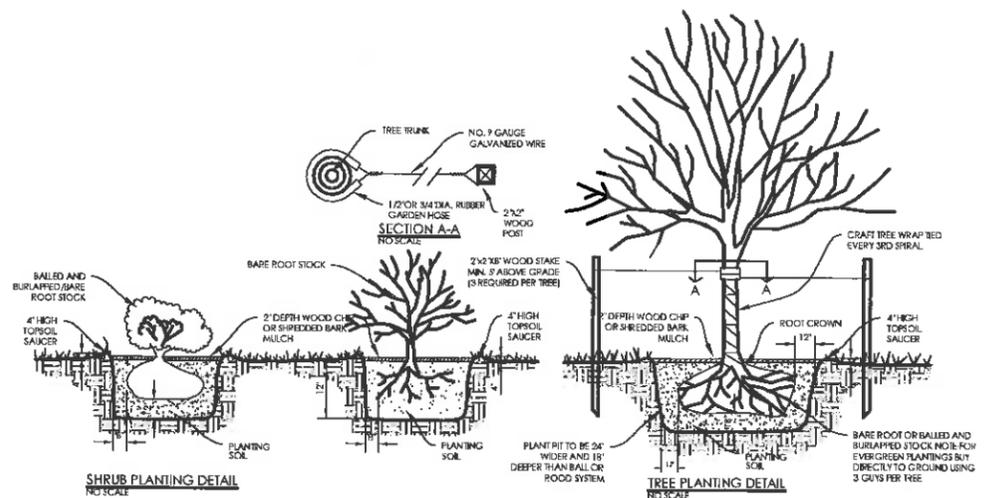
NOTE:
SANITARY SEWER TRENCHES NEED TO PROVIDE A MINIMUM WIDTH OF PIPE DIAMETER PLUS 14 INCHES FOR 8 INCH TO 18 INCH DIAMETER PLASTIC/FLEXIBLE PIPE MATERIALS. FOR 18 INCH AND LARGER PIPE DIAMETERS, THE MINIMUM TRENCH WIDTH IS 1.25 TIMES THE PIPE DIAMETER PLUS 12 INCHES FOR PLASTIC/FLEXIBLE PIPE MATERIALS.



METHOD 2
(IN CLAY, HARDPAN, & ROCK OR WHERE SAND IS UNDERCUT DURING EXCAVATION)

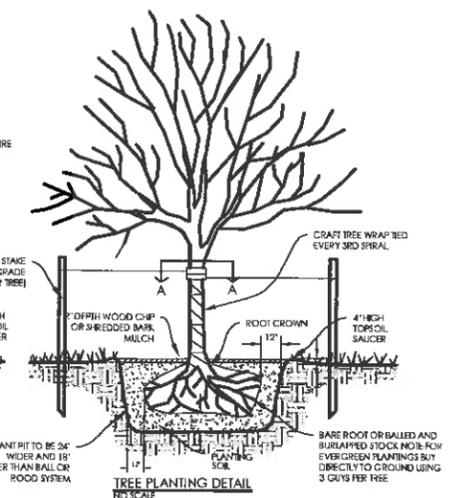
PIPE BEDDING - CLASS B DETAIL

NO SCALE



SHRUB PLANTING DETAIL

NO SCALE



TREE PLANTING DETAIL

NO SCALE

330 Cottageview Dr., Ste. 201
P.O. Box 4015
Troy, MI 48065
Phone: 231-946-9310
www.mansfield.com
info@mansfield.com

Mansfield
— OR —
Land Use Consultants

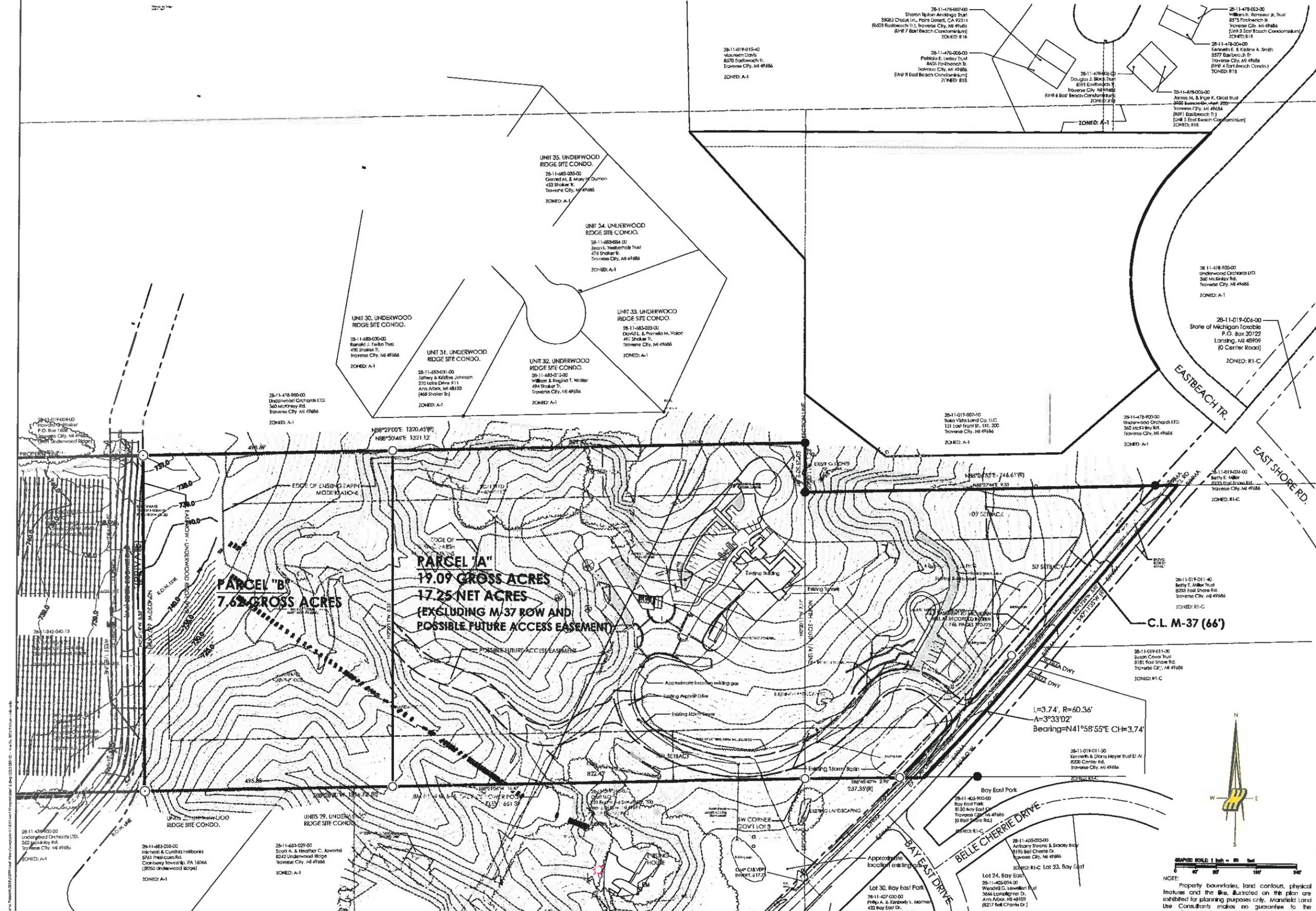
NO.	DATE	DESCRIPTION
1	08/14/14	Issue for Review
2	08/14/14	Issue for Review
3	08/14/14	Issue for Review
4	08/14/14	Issue for Review
5	08/14/14	Issue for Review
6	08/14/14	Issue for Review
7	08/14/14	Issue for Review
8	08/14/14	Issue for Review
9	08/14/14	Issue for Review
10	08/14/14	Issue for Review
11	08/14/14	Issue for Review
12	08/14/14	Issue for Review
13	08/14/14	Issue for Review

Craft, LLC.
Mari Vineyards
DETAIL SHEET

Section 19, Town 28 North, Range 10 West
Peninsula Township, Grand Traverse County, Michigan

CONSTRUCTION

DATE: 8.11.14
DRAWING NO: 13099
SHEET NO: C1.2



PARCEL "B"
7.62 GROSS ACRES

PARCEL "A"
19.09 GROSS ACRES
17.25 NET ACRES
(EXCLUDING M-37 ROW AND
POSSIBLE FUTURE ACCESS EASEMENT)

830 Conger Ave., Ste. 201
P.O. Box 4015
Traverse City, MI 49685
Phone: 231-946-9310
www.mansfield.com
info@mansfield.com

Mansfield

Land Use Consultants

NO.	DATE	DESCRIPTION
1	10/10/13	Initial Design
2	10/10/13	Submittal Drawings
3	10/14/13	When Changes Application
4	10/25/13	Plan, Section
5	11/01/13	Plan, Section
6	11/01/13	Plan, Section
7	11/01/13	Plan, Section
8	11/01/13	Plan, Section
9	11/01/13	Plan, Section
10	11/01/13	Plan, Section
11	11/01/13	Plan, Section
12	11/01/13	Plan, Section
13	11/01/13	Plan, Section

Craft, LLC
Mari Vineyards
EXISTING CONDITIONS & DEMOLITION PLAN
Section 19, Town 28 North, Range 10 West
Peninsula Township, Grand Traverse County, Michigan

CONSTRUCTION

DATE: 11/14

SCALE: 1" = 100'

PROJECT NO: 13099

NOTE: Properly boundaries, land contours, physical features and the like, illustrated on the plan are exhibited for planning purposes only. Mansfield Land Use Consultants makes no guarantee to the correctness nor the completeness of the information.

GENERAL CONSTRUCTION NOTES:

- FINAL GRADING SHALL PROVIDE POSITIVE DRAINAGE ACROSS THE ENTIRE SITE AND AWAY FROM THE NEW BUILDING EXCEPT AT BUILDING ENTRANCES AND CONCRETE APPROACH SLABS. THE GRADE ADJACENT TO THE BUILDING FOOTPRINT SHALL BE 6" BELOW THE FIRST FLOOR ELEVATION. AT BUILDING ENTRANCES AND CONCRETE APPROACH SLABS, THE GRADE SHOULD BE 3/4" BELOW THE FIRST FLOOR ELEVATION. RESTORATION SHALL INCLUDE FURNISHING AND PLACING 4" OF TOPSOIL AND HYDRO-SEEDING THE SITE TO THE EXTENS OF THE PROJECT LIMITS.
- THE FINAL GRADES ADJACENT TO ALL SIDEWALK APRONS SHALL MATCH THE TOP OF CONCRETE WITH NO STEP DOWN.
- STORM SEWER SHALL BE SMOOTH-LINED HDPE PIPE OR REINFORCED CONCRETE PIPE IN ACCORDANCE WITH MDOOT STANDARD SPECIFICATIONS. CONNECTIONS OF STORM SEWER TO STRUCTURES SHALL HAVE RESISTENT CONNECTORS.
- CULVERTS SHALL BE SMOOTH-LINED HDPE PIPE, REINFORCED CONCRETE PIPE OR CORRUGATED STEEL PIPE IN ACCORDANCE WITH MDOOT STANDARD SPECIFICATIONS.
- ALL INLETS/CAIC/H BASINS ARE 2' DIAMETER PRECAST MANHOLES WITH 3' SUMP.
- ALL SLOPES STEEPER THAN 3:1 REQUIRE MULCH BLANKETS FOR RESTORATION.

CONSTRUCTION SCHEDULE:

1. PAVED & CURBED ENTRANCE DRIVE PAVED ENTRANCE ROAD GRADED AND GRAVELED PARKING LOT	COMPLETED FALL 2013
2. EXCAVATION FOR BUILDING FOUNDATION	7/7/14 - 11/30/14
3. SUBSTANTIAL BUILDING COMPLETION	9/30/15
4. PAVE PARKING LOT	9/30/15
5. FINAL RESTORATION	9/30/15

HMA SPILLWAY AND 10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC (TYP.)

66 LF 15" STORM SEWER @ 7.0% WITH END SECTION.

15" NE = 665.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

FIELD RT PROPOSED SIDEWALK, 5% GRADE PREFERRED, BUT NOT TO EXCEED 8%.

7 PROPOSED GUEST ROOMS (INCLUDING THE POTENTIAL FOR 2 CAME ROOMS)

PROPOSED FUTURE ROAD EXTENSION

INSTALL SILT FENCE

BM #1: NAIL IN STAKE OF POWER POLE OSCILLATING

ELEV. 661.89

STC#7
RIM= 650.20
15" NE = 645.70

113 LF 15" STORM SEWER @ 5.31%

STC#8
RIM= 657.00
15" NE = 652.50

STC#6
RIM= 644.20
15" E = 639.70

STC#4
RIM= 634.85
15" SE = 630.35

STC#5
RIM= 633.50
15" SE = 627.75

STC#1
RIM= 620.33
15" N = 615.58

103 LF 15" STORM SEWER @ 1.94% WITH END SECTION.

15" NE = 613.00, 15" SW = 615.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

STC#2
RIM= 620.89
15" SW = 616.14

52 LF 15" STORM SEWER @ 2.19% WITH END SECTION.

15" NE = 615.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

STC#3 (BEEHIVE)
RIM= 619.00
15" NE = 615.50
4" SW = 615.67
[615.50 @ POND]

132 LF 15" STORM SEWER @ 9.44% WITH END SECTION.

15" NW = 615.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

NOTE: THE PROPERTY OWNER AND THE STAFF OF THE VILLA MAIR WINERY, AND/OR THEIR DESIGNATED CONTRACTOR, WILL BE RESPONSIBLE FOR MAINTAINING THE STORM WATER CONTROL FACILITIES UPON COMPLETION.

INSTALL SILT FENCE FOR STOCKPILE AREA

TRANSITION THE AGGREGATE SHOULDER FROM THE EXISTING WIDTH DOWN TO 7' OVER THE LENGTH OF THE TAPE.

56 LF 15" STORM SEWER @ 4.61% WITH END SECTION.

15" E = 618.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

52 LF 15" STORM SEWER @ 2.19% WITH END SECTION.

15" NE = 615.00

10 SYDS OF HEAVY RIPRAP ON GEOTEXTILE FABRIC

20 LF 15" STORM SEWER @ 13.00%

INSTALL SILT FENCE FOR STOCKPILE AREA

NOTE: Property boundaries, lot contours, physical features and the like, illustrated on this plan are exhibited for planning purposes only. Mansfield Land Use Consultants makes no guarantee as to the correctness nor the completeness of this information.

Lot 23, Bay East

830 Cottageview Dr., Ste. 201
P.O. Box 4015
Traverse City, MI 49685
Phone: 231-946-9310
www.mansfield.com
info@mansfield.com

Mansfield
Land Use Consultants

Submitted Drawings

NO.	DATE	BY	CHK	APP	DESCRIPTION
1	12/15/13	JM	DM	DM	Final Plan
2	12/15/13	JM	DM	DM	Final Plan
3	12/15/13	JM	DM	DM	Final Plan
4	12/15/13	JM	DM	DM	Final Plan
5	12/15/13	JM	DM	DM	Final Plan
6	12/15/13	JM	DM	DM	Final Plan
7	12/15/13	JM	DM	DM	Final Plan
8	12/15/13	JM	DM	DM	Final Plan
9	12/15/13	JM	DM	DM	Final Plan
10	12/15/13	JM	DM	DM	Final Plan
11	12/15/13	JM	DM	DM	Final Plan
12	12/15/13	JM	DM	DM	Final Plan
13	12/15/13	JM	DM	DM	Final Plan

Craft, LLC
Mari Vineyards
GRADING & STORM PLAN
Section 19, Town 28 North, Range 10 West
Peninsula Township, Grand Traverse County, Michigan

CONSTRUCTION

NO.	DATE	BY	CHK	APP	DESCRIPTION
1	12/15/13	JM	DM	DM	Final Plan
2	12/15/13	JM	DM	DM	Final Plan
3	12/15/13	JM	DM	DM	Final Plan
4	12/15/13	JM	DM	DM	Final Plan
5	12/15/13	JM	DM	DM	Final Plan
6	12/15/13	JM	DM	DM	Final Plan
7	12/15/13	JM	DM	DM	Final Plan
8	12/15/13	JM	DM	DM	Final Plan
9	12/15/13	JM	DM	DM	Final Plan
10	12/15/13	JM	DM	DM	Final Plan
11	12/15/13	JM	DM	DM	Final Plan
12	12/15/13	JM	DM	DM	Final Plan
13	12/15/13	JM	DM	DM	Final Plan

13099
C4.0

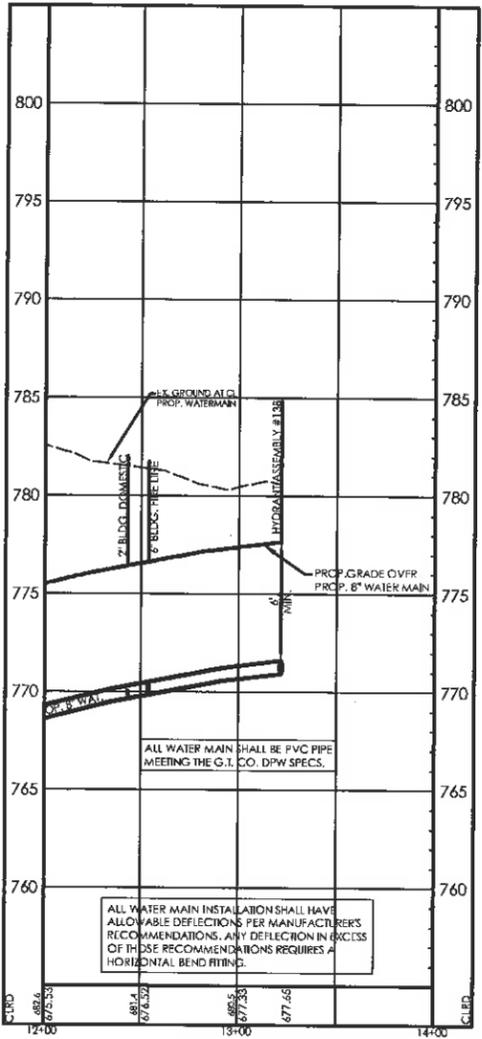


WATER SERVICE NOTES:

1. THE GROUNDWATER WELL WILL SUPPLY THE WINE-MAKING PRODUCTION PROCESS WATER. THE MUNICIPAL WATER SERVICE WILL SUPPLY THE DOMESTIC WATER, THE FIRE SUPPRESSION AND THE IRRIGATION AROUND THE BUILDING PERIMETER.
2. THE MUNICIPAL WATER SERVICE WILL SUPPLY THE DOMESTIC WATER, THE FIRE SUPPRESSION AND THE IRRIGATION AROUND THE BUILDING PERIMETER.

GENERAL CONSTRUCTION NOTES:

1. ALL WATER MAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT G.T. CO. DPW TECHNICAL SPECIFICATIONS AND DETAILS AND THE APPROVED DPW PERMIT.
2. THE 8" WATER SERVICE SHALL BE CLASS 2 (MIN.) DUCTILE IRON.
3. MAINTAIN A 6" MINIMUM OF COVER OVER THE WATER SERVICE.
4. NO CROSS CONNECTIONS ARE ALLOWED BETWEEN THE MUNICIPAL WATER SERVICE AND THE GROUNDWATER WELL SUPPLY. PIPING SHALL BE COLOR COORDINATED AND LABELED IN ACCORDANCE WITH THE PENINSULA TOWNSHIP WATER SERVICE AND USE ORDINANCE NO. 25.
5. THE COUNTY DPW WILL SUPPLY THE REQUIRED METERS AND REMOTES.
6. A DETECTOR CHECK METER IS REQUIRED FOR THE FIRE PROTECTION SPRINKLER SYSTEM.
7. ALL ELEVATIONS SHALL BE BASED ON USGS OR NGVD DATUM.
8. DETAILS OF PIPE BEDDING, THRUST BLOCKS, HYDRANT, VALVES, VALVE MANHOLES, AND ALL APPURTENANCES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION DETAILS.
9. EACH PUBLIC UTILITY SHALL BE WITHIN ITS OWN 20'-WIDE EASEMENT CENTERED ON THE UTILITY.
10. THE DOMESTIC WATER AND FIRE PROTECTION SERVICES ARE SEPARATE CONNECTIONS TO THE BUILDING.
11. SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DETAILS OF THE UTILITY CONNECTIONS AT THE BUILDING.
12. THE CONTRACTOR SHALL FOLLOW ALL STATE REGULATIONS FOR CONFINED SPACE ENTRY.
13. COORDINATE WORK WITH THE GRAND TRAVERSE COUNTY DPW AND PROVIDE 48 HOURS NOTICE PRIOR TO BEGINNING CONSTRUCTION.
14. ALL WATER MAINS SHALL MAINTAIN A MINIMUM OF 10' HORIZONTAL SEPARATION AND 1.5' VERTICAL SEPARATION FROM SANITARY AND STORM SEWERS.



2" TYPE K-COPPER WATER SERVICE FROM WELL TO THE PROPOSED BUILDING. COORDINATE EXACT LOCATION WITH BUILDING PLANS. THIS WORK IS PERMITTED BY THE G.T. CO. HEALTH DEPARTMENT.

9 PROPOSED GUEST ROOMS (INCLUDING THE POTENTIAL FOR 2 CAVE ROOMS)

830 Congress Dr., Ste. 201
P.O. Box 4015
Traverse City, MI 49685
Phone: 231-946-9310
www.mansfield.com
info@mansfield.com

Mansfield
Land Use Consultants

NO.	DATE	BY	CHK	DESCRIPTION
1	08/15/11	JM	GM	Submitted Drawings
2	08/15/11	JM	GM	Review Ordinance Application
3	08/15/11	JM	GM	Per USGS
4	08/15/11	JM	GM	Per USGS
5	08/15/11	JM	GM	Per USGS
6	08/15/11	JM	GM	Per USGS
7	08/15/11	JM	GM	Per USGS
8	08/15/11	JM	GM	Per USGS
9	08/15/11	JM	GM	Per USGS
10	08/15/11	JM	GM	Per USGS
11	08/15/11	JM	GM	Per USGS
12	08/15/11	JM	GM	Per USGS
13	08/15/11	JM	GM	Per USGS

Craft, L.L.C.
Mari Vineyards
WATERMAIN - PLAN & PROFILE
Section 19, Town 28 North, Range 10 West
Peninsula Township, Grand Traverse County, Michigan

CONSTRUCTION

SCALE: 1" = 40'

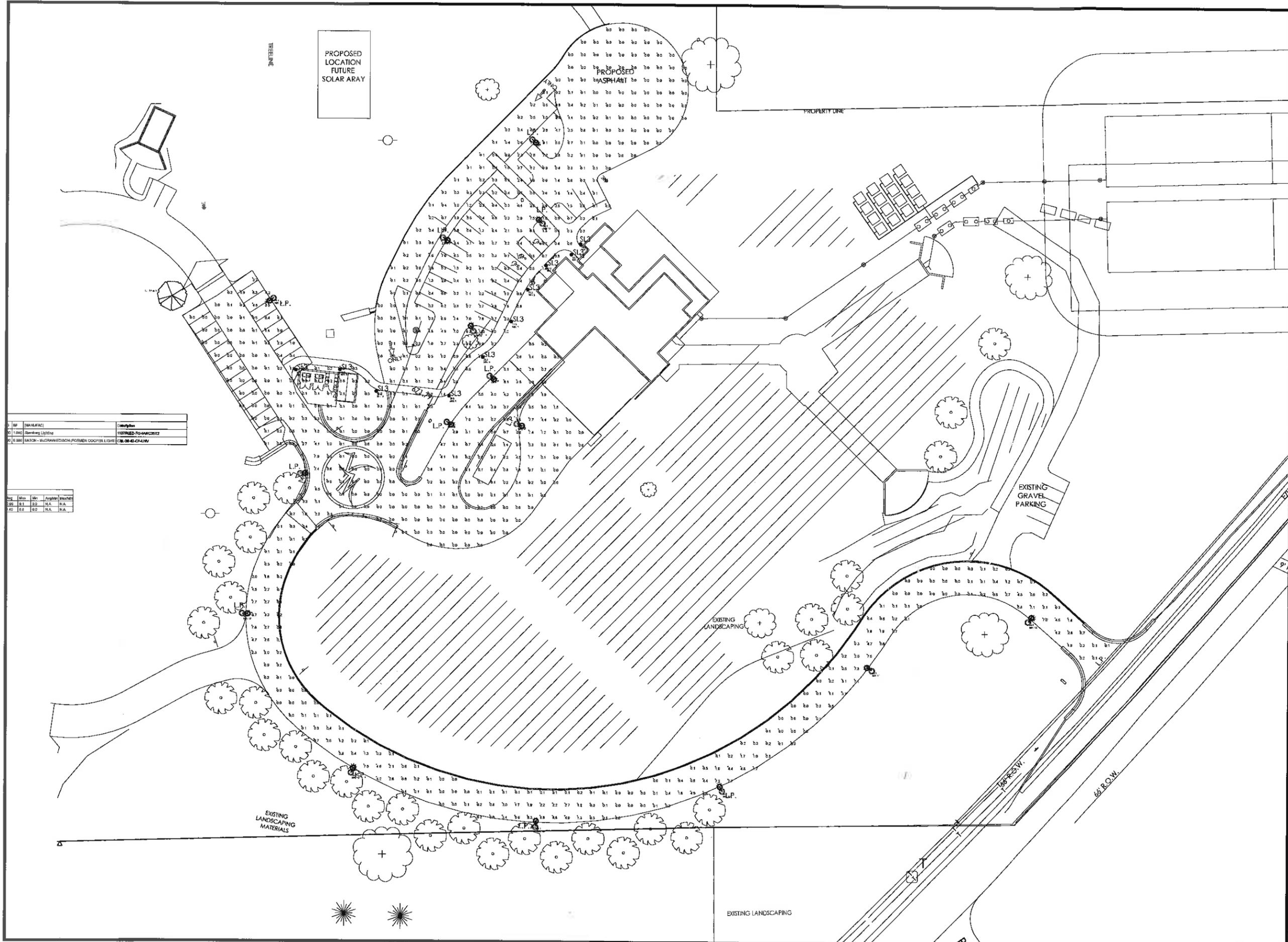
DATE: 8/11/14

PROJECT: 13099

CLIENT: C5.2

1	SP	(MANUFACT)	Manufacturer
2	1,000	Zenith Lighting	1577 RFD FARM RD 12
3	6,000	SALON - METALWORKS (FORMER DOOPER LIGHT)	36-38-42 CHANN

Max	Min	Min	Angle	Min/Max
20	0.1	0.0	N.A.	N.A.
40	0.0	0.0	N.A.	N.A.



PROPOSED
LOCATION
FUTURE
SOLAR ARRAY

PROPOSED
ASPHALT

PROPERTY LINE

EXISTING
GRAVEL
PARKING

EXISTING
LANDSCAPING

EXISTING
LANDSCAPING
MATERIALS

EXISTING LANDSCAPING

64 R.O.W.

64 R.O.W.

Crites, Tidey & Assoc., Inc.
908C West River Center Dr
Comstock Park MI 49321
PH: 616-647-2400
www.critsidey.com



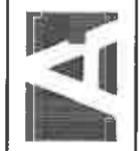
DISCLAIMER
Illumination results shown on this lighting design are based on project parameters provided to Crites, Tidey & Assoc. used in conjunction with luminaires that procedure calculated under laboratory conditions. Actual project conditions differ from laboratory conditions. The designer is not responsible for any errors or omissions in the design or construction of the lighting system. The designer is not responsible for any changes to the room reflectance and/or energy codes. Any changes to the room reflectance and/or energy codes not noted will alter the light levels. Please verify the construction to ensure the accuracy of the report. Values represent an approximation. Footcandle Levels are considered at the end of the life of the lamp and ballast.

VILLA MARI

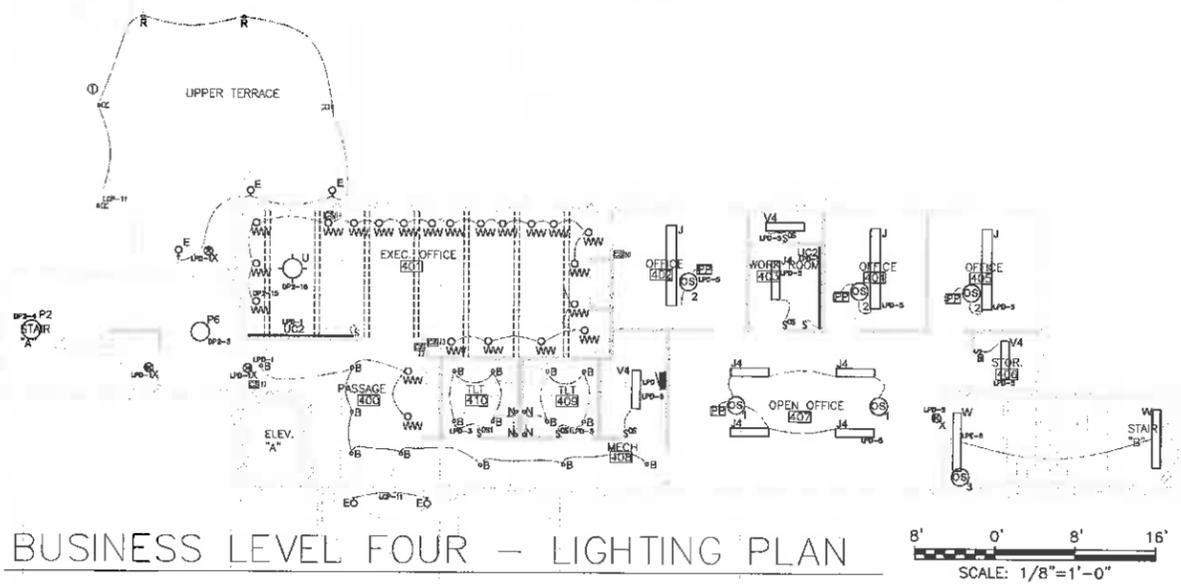
Issued Date
10.15.15
Revisions

Drawn by
Alan Searcy
Sheet

EL1

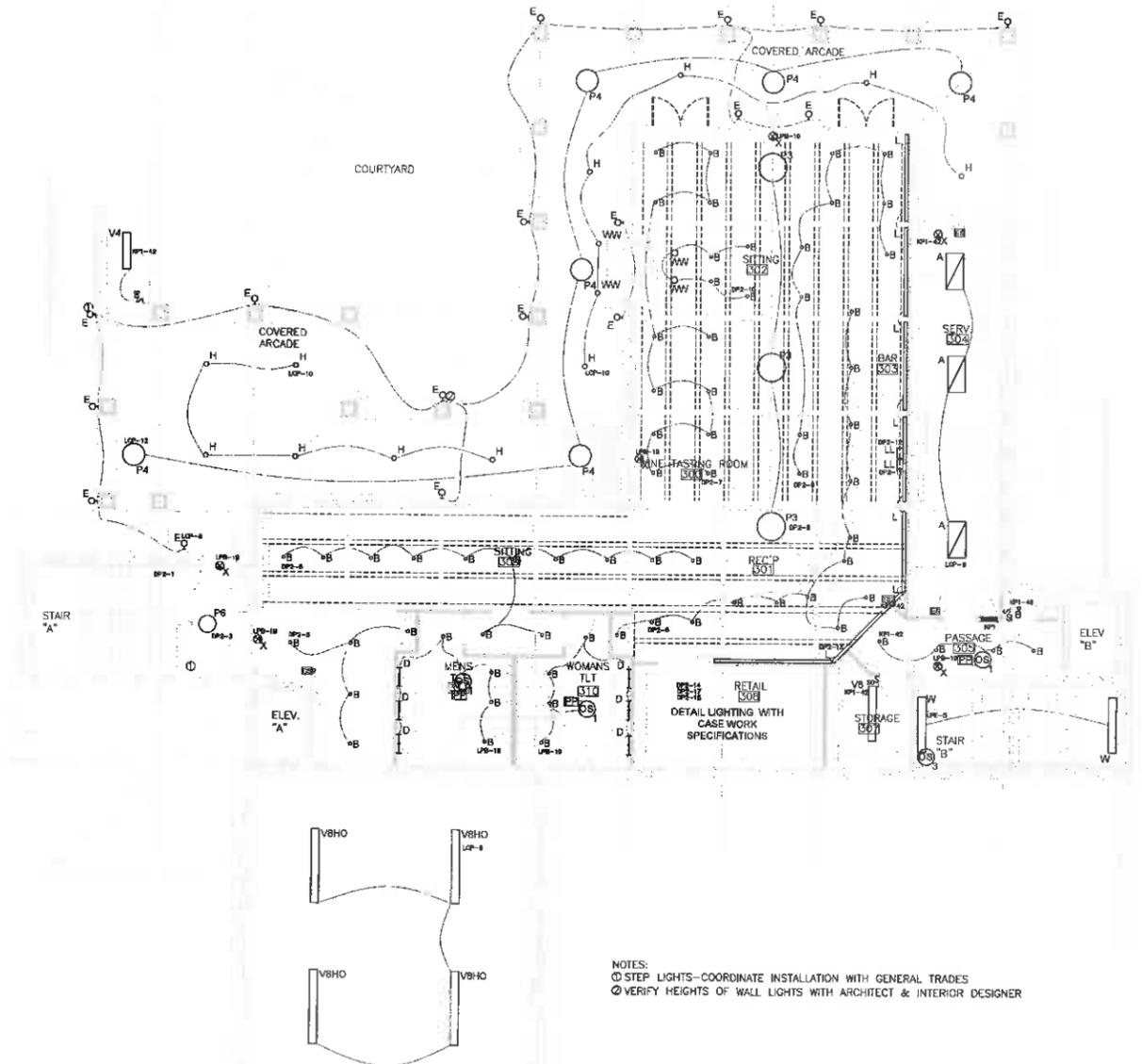


<input checked="" type="checkbox"/>	PRELIMINARY
<input type="checkbox"/>	CONSTRUCTION
<input type="checkbox"/>	FINAL RECORD
DRAWING HISTORY	
DATE:	DESCRIPTION:
8.2.14	PLAN REVIEW
8.11.14	REVISION 1
10.28.14	REVISION 2
DRAWN BY: JME	
CHECKED BY: RJ	
DATE:	9.2.14
JOB NO.:	20114-0064
SHEET #	E2.4



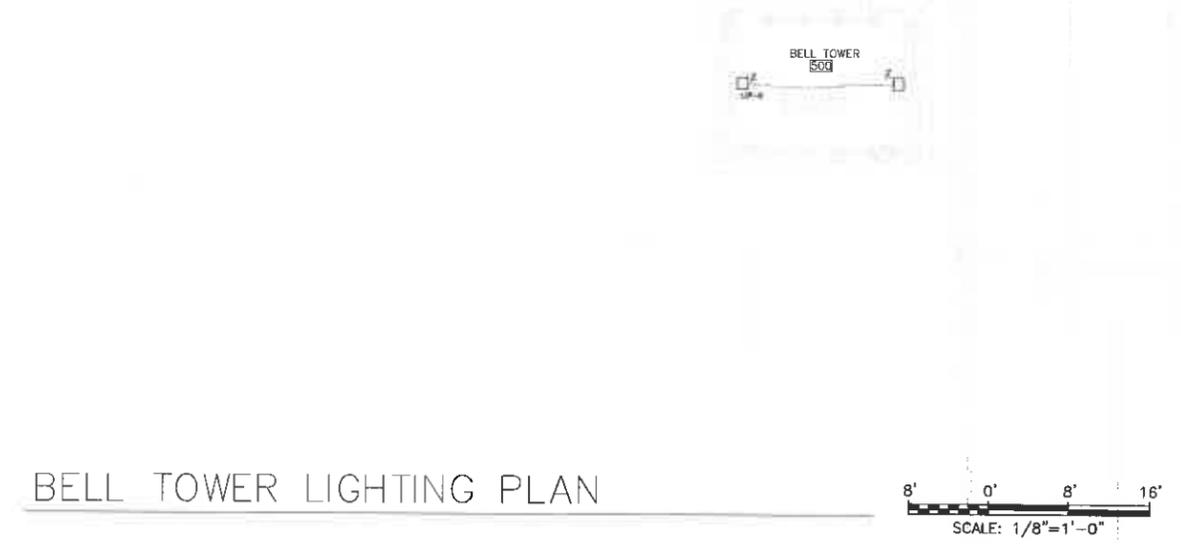
BUSINESS LEVEL FOUR - LIGHTING PLAN

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



WINE TASTING LEVEL THREE - LIGHTING PLAN

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



BELL TOWER LIGHTING PLAN

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

NOTES:
 1. STEP LIGHTS—COORDINATE INSTALLATION WITH GENERAL TRADES
 2. VERIFY HEIGHTS OF WALL LIGHTS WITH ARCHITECT & INTERIOR DESIGNER

TYPE: E

BRAXTON SCONCE - WEATHERED ZINC

\$169 - \$229

Our contemporary Braxton sconce combines ribbed glass in a frame of bronze-plated steel with white-painted interiors.

[Show product details...](#)

DIMENSIONS

Small Sconce: 6¼"W x 4¼"D x 12"H

Large Sconce: 8½"W x 5½"D x 16½"H



Finish Options



Shown in weathered zinc.



BRAXTON SCONCE - WEATHERED ZINC
\$169 - \$229

SIZE FINISH

PRICE QUANTITY



ECO HALOGEN EDISON FROST BULB (SET OF 2) - 4\"/>
\$5

[See all product details.](#)

WATTAGE

PRICE QUANTITY



T10 INCANDESCENT EDISON FROST BULB 60W
\$4 ITEM# 68360078 BULB

[See all product details.](#)

AVAILABILITY & DELIVERY
Expect delivery on or before 02/22/15.
[Standard Delivery Shipping](#)

PRICE QUANTITY

[BOOKMARK & SHARE](#) [Tweet](#)

INTRODUCING RH FINANCING
 SPEND \$3000 OR MORE, PAY AS LITTLE AS \$44 PER MONTH*
 3.95% APR FOR 24 MONTHS**
 APPLY NOW OR IN OUR GALLERIES. DETAILS >

© 2014 RH and Restoration Hardware, Inc.

DESCRIPTION

The McGraw-Edison BSL / BRL Bollard Series, available in heights from 24" to 42", has crisp, clean lines which blend with any architectural setting. Constructed of seamless, heavy-duty aluminum and finished with a tough polyester powder coat finish, the McGraw-Edison Louvered Bollard Series is gasketed to seal out external contaminants. U.L. 1598 listed and CSA certified for wet locations.

Bollards are designed for walkways, entranceways, drives and other small-area lighting applications where low mounting heights are desirable.

SPECIFICATION FEATURES

Construction

TOP: Rugged, minimum 5/32" thick cast aluminum top cap secured via a concealed stainless steel allen screw with twist removal mechanism for lamp access. Flow through ventilation assure cool to the touch top. **LOUVERS:** Cast Aluminum Louver blades provide sharp cutoff delivering no direct light above 90°. Louvers are secured to the shaft via tamper stainless steel rods and fasteners. **LOWER HOUSING:** Nominal 1/8" thick aluminum extruded housing. Bollard housing is secured to the base with flathead, counter-sunk screws for smooth, uncluttered appearance. **BASE:** Rugged cast aluminum. Completely concealed.

Electrical

HID High Power Factor ballast for - 20°F starting. CFL Electronic ballast for 0°F starting. Product is factory mounted to the base. Quick disconnects provided between lamp and electrical assembly. Metal Halide and High Pressure Sodium lamp sources up to 100W and up to 42W Compact Fluorescent sources.

Optical

LAMP ENCLOSURE: One piece tempered glass with internal flutes for even disbursement of illumination. Decorative colored glass optional. Globe is fully gasketed via EPDM material. Socket is porcelain, medium-base for HID lamp sources and

polycarbonate/PBT GX24q-3/q-4 base for compact fluorescent lamps.

Mounting

Base mounts onto foundation with three (3) 1/2" x 12 1/2" anchor bolts on a 5" Dia. bolt circle (a centrally located 2 7/8" x 3 1/2" wire entrance opening provided).

Finish

Premium fade and abrasion resistant, TGIC Polyester Powder Coat Finish. Standard colors are Black, Grey, Bronze, White, Dark Platinum and Graphite Metallic. Other finish colors available including all RAL matches.

Catalog #	BRL-36-42-CF-UNV-BK-L	Type	SL3
Project	VILLA MARI	Date	
Comments			
Prepared by	JESSE		



BSL/BRL BOLLARD

26 - 100W

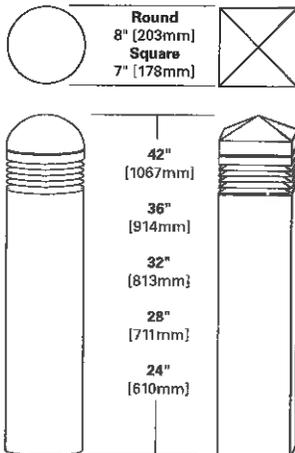
- Pulse Start Metal Halide
- High Pressure Sodium
- Compact Fluorescent
- Incandescent

PATHWAY LUMINAIRE



NOTE: In select finishes only.

DIMENSIONS



WATTAGE TABLE

Lamp Type	Wattage
Pulse Start Metal Halide (MP)	50, 70, 100W
High Pressure Sodium (HPS)	35, 50, 70, 100W
Compact Fluorescent (CF)	(1) 26, (1) 32, (1) 42W
Incandescent (IN)	100W

Energy Data

Reactor Ballast Input Watts
35W HPS NPF (46 Watts)

High Reactance Ballast input Watts

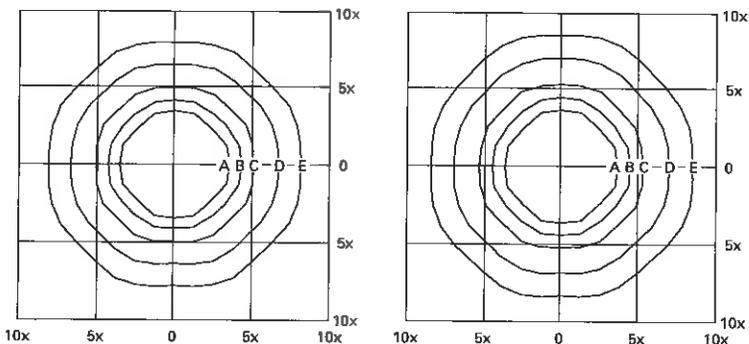
- 50W HPS HPF (62 Watts)
- 50W MP HPF (69 Watts)
- 70W HPS HPF (86 Watts)
- 70W MP HPF (94 Watts)
- 100W HPS HPF (115 Watts)
- 100W MP HPF (129 Watts)
- 150W HPS HPF (170 Watts)
- 150W MP HPF (185 Watts)

SHIPPING DATA

Approximate Net Weight:
26 lbs. (12 kgs.)

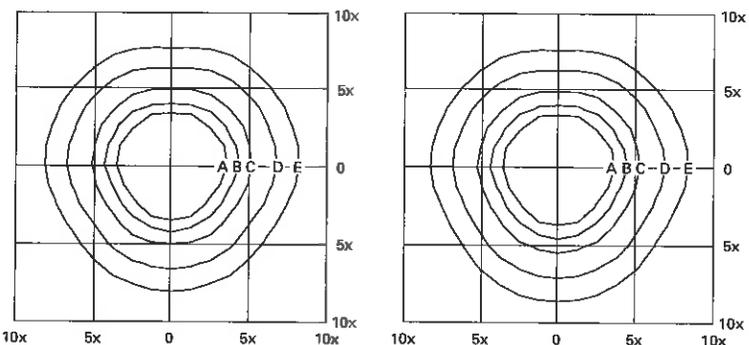


PHOTOMETRICS



BSL-36-100-MP
100-Watt MP
7,900-Lumen Lamp (Coated ED-17)

BSL-36-100-HPS
100-Watt HPS
8,800-Lumen Lamp (Coated ED-17)



BRL-36-100-MP
100-Watt MP
7,900-Lumen Lamp (Coated ED-17)

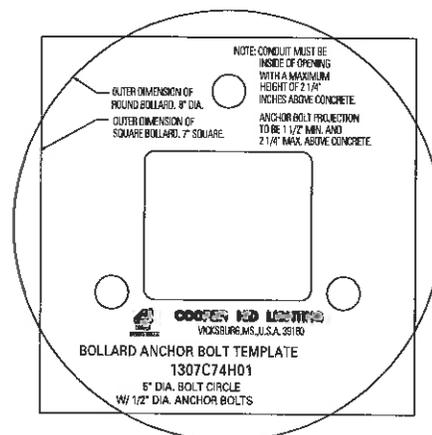
BRL-36-100-HPS
100-Watt HPS
8,800-Lumen Lamp (Coated ED-17)

Footcandle Table

Select mounting height and read across for footcandle values of each Isofootcandle line. Distance in units of mounting height.

Mounting Height	Footcandle Values for Isofootcandle Lines				
	A	B	C	D	E
42"	1.20	0.60	0.30	0.12	0.06
36"	2.00	1.00	0.50	0.20	0.10
32"	2.40	1.20	0.60	0.24	0.12
28"	3.20	1.60	0.80	0.32	0.16
24"	4.40	2.20	1.10	0.44	0.22

ANCHOR BOLT TEMPLATE (NOT TO SCALE)

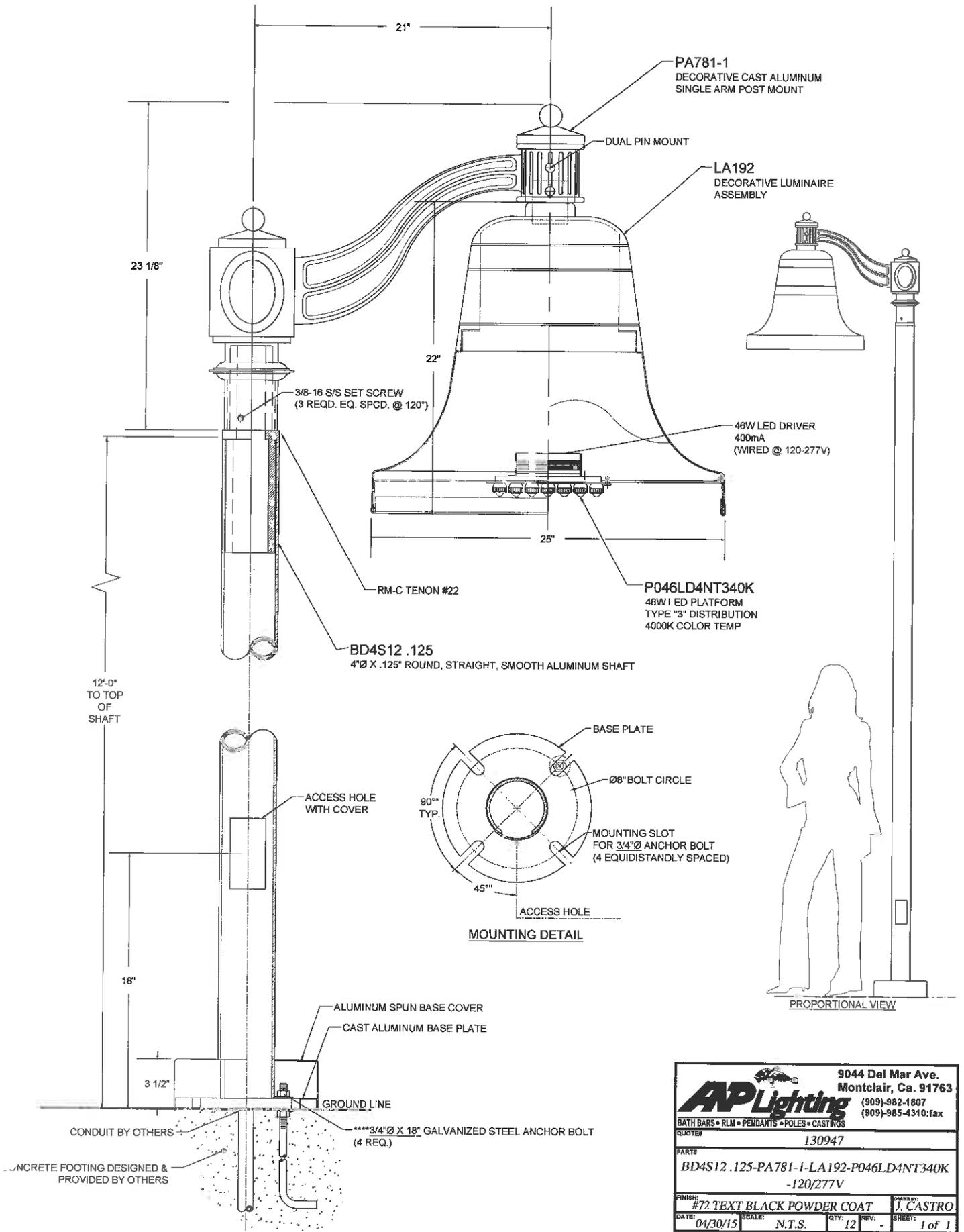


ORDERING INFORMATION

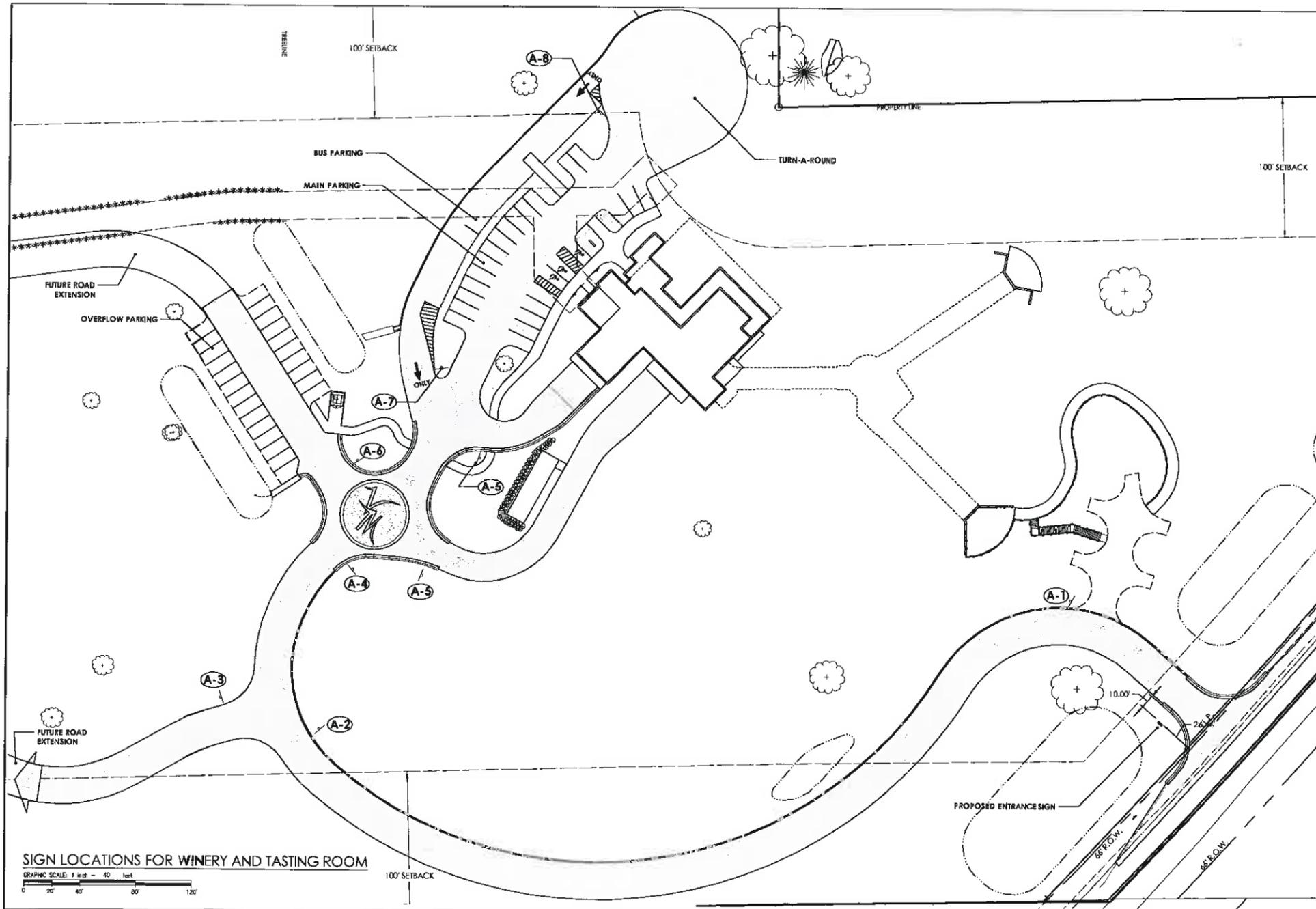
Sample Number: BSL-36-100-MH-MT-BK

Product Family	Fixture Height	Lamp Wattage	Lamp Type	Voltage	Color	Options
BSL =Square Bollard with Stacked Louvers and Pyramidal Top	24 =24" 28 =28" 32 =32" 36 =36" 42 =42"	MP 50 =50W 70 =70W 100 =100W HPS 35 =35W ¹ 50 =50W 70 =70W 100 =100W CF 26 =(1) 26W 32 =(1) 32W 42 =(1) 42W IC 100 =100W	MP =Pulse Start Metal Halide HPS =High Pressure Sodium CF =Compact Fluorescent IC =Incandescent	120 =120V 208 =208V 240 =240V 277 =277V 347 =347V MT =Multi-Tap ⁴ TT =Triple-Tap ⁴ UNV =Universal ⁵ 120-277V	AP =Grey BZ =Bronze BK =Black WH =White DP =Dark Platinum GM =Graphite Metallic	F =Single Fuse (120, 277 or 347V) FF =Double Fuse (208, 240 or 480V) L =Lamp Included ⁶ R1 =Provisional cut for GFI Receptacle ⁹ R2 =Installed GFI Receptacle ⁹ CF/EM =Emergency Battery Pack ¹⁰ AB =Aqua Marine Blue Glass Jar HG =Hunter Green Glass Jar OR =Orange Glass Jar RB =Royal Blue Glass Jar RE =Red Glass Jar

- Notes: 1 HID lamps are medium base. 175W MH is available for non-U.S. markets only.
 2 35W HPS available in 120V only.
 3 Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
 4 Multi-Tap ballast is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V.
 5 Compact Fluorescent only Electronic ballast universal voltage 120-277V.
 6 Other finish colors available, including a full line of RAL color matches. Consult your Cooper Lighting Representative.
 7 Add as suffix in the order shown.
 8 Coated lamp standard. Must specify clear lamp if desired.
 9 Location of R1 and R2 option on housing subject to height of luminaire.
 10 CF lamps only, rated minimum operating temperature 32° F (0° C).

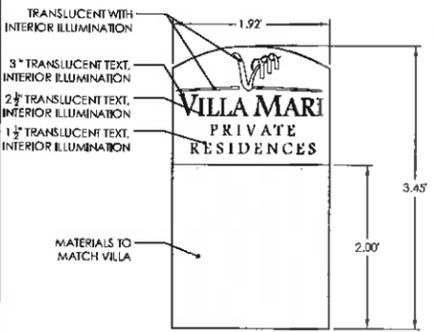
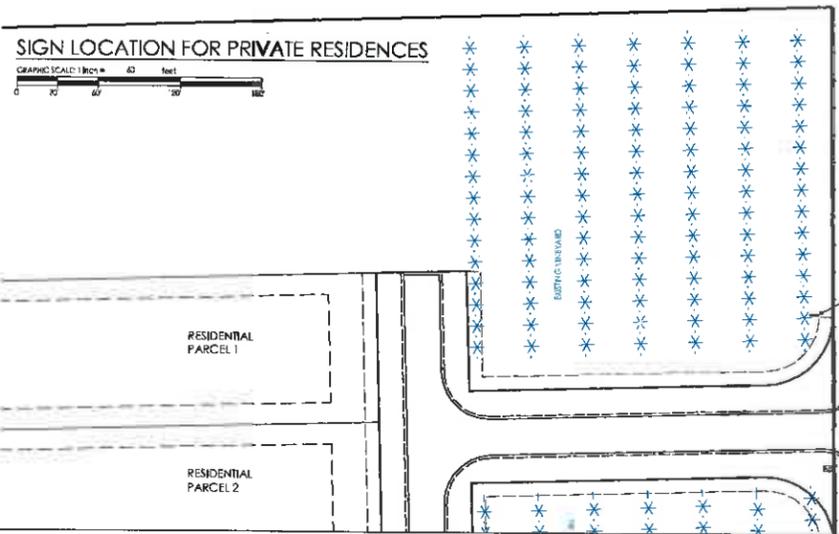


		9044 Del Mar Ave. Montclair, Ca. 91763 (909)-982-1807 (909)-985-4310:fax	
		BATH BARS • RLM • PENDANTS • POLES • CASTINGS	
QUANTITY	130947		
PART	BD4S12 .125-PA781-1-LA192-P046LD4NT340K -120/277V		
FINISH	#72 TEXT BLACK POWDER COAT	DESIGNED BY	J. CASTRO
DATE	04/30/15	SCALE	N.T.S.
QTY	12	REV.	
			SHEET: 1 of 1

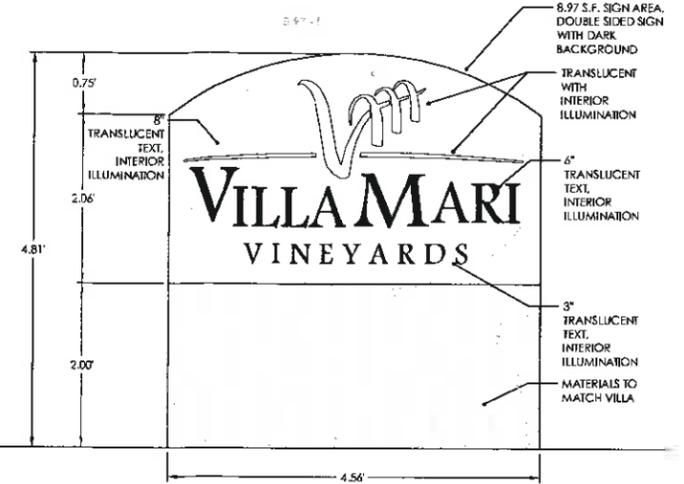


SIGN LOCATIONS FOR WINERY AND TASTING ROOM
 GRAPHIC SCALE: 1 inch = 40 feet

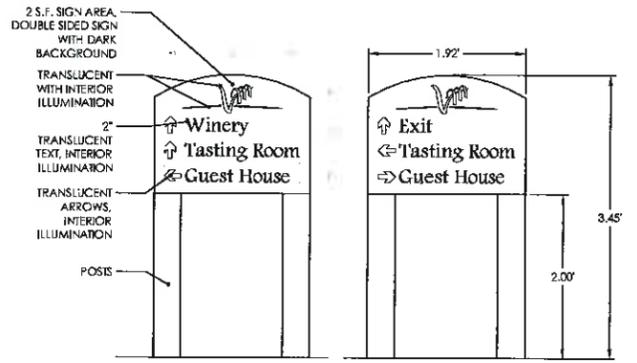
SIGN LOCATION FOR PRIVATE RESIDENCES
 GRAPHIC SCALE: 1 inch = 40 feet



A-9 RESIDENTIAL ENTRANCE SIGN DETAIL
 NO SCALE



ENTRANCE SIGN DETAIL
 NO SCALE



Example: Front Example: Back

A-2 INTERIOR DIRECTIONAL SIGN DETAIL
 NO SCALE

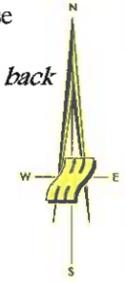
- | | |
|---|---|
| A-1 Front: ↑ Winery
↑ Tasting Room
↑ Guest House | Back: A Presto |
| A-2 Front: ↑ Winery
↑ Tasting Room
↔ Guest House | Back: ↑ Exit
↔ Tasting Room
⇒ Guest House |
| A-3 Front: ⇒ Winery
⇒ Tasting Room
↑ Guest House | Back: ⇒ Exit
↔ Winery
↔ Tasting Room |
| A-4 Front: ↑ Winery
↑ Tasting Room
↔ Guest House | Back: ↑ Exit
⇒ Guest House |
| A-5 Front: ↑ Staff and Deliveries Only | Back: ↔ Exit |
| A-6 Front: ↔ Exit
↑ Guest House | Back: ⇒ Exit
↔ Winery
↔ Tasting Room |
| A-7 Front: One Way Do Not Enter | Back: ⇒ Exit
⇒ Guest House |
| A-8 Front: ↑ Bus Parking
One Way | Back: No Text or lighting on back |

830 Congersview Dr., Ste. 201
 P.O. Box 4015
 Traverse City, MI 49685
 Phone: 231-946-9310
 www.mansfield.com
 info@mansfield.com

Mansfield
 &
 Land Use Consultants

DATE	BY	CHK	APP	REV	DESCRIPTION
01	5/25/15	dlm	mmh	dlm	Original design
02	5/25/15	dlm	mmh	dlm	Update sign details and locations

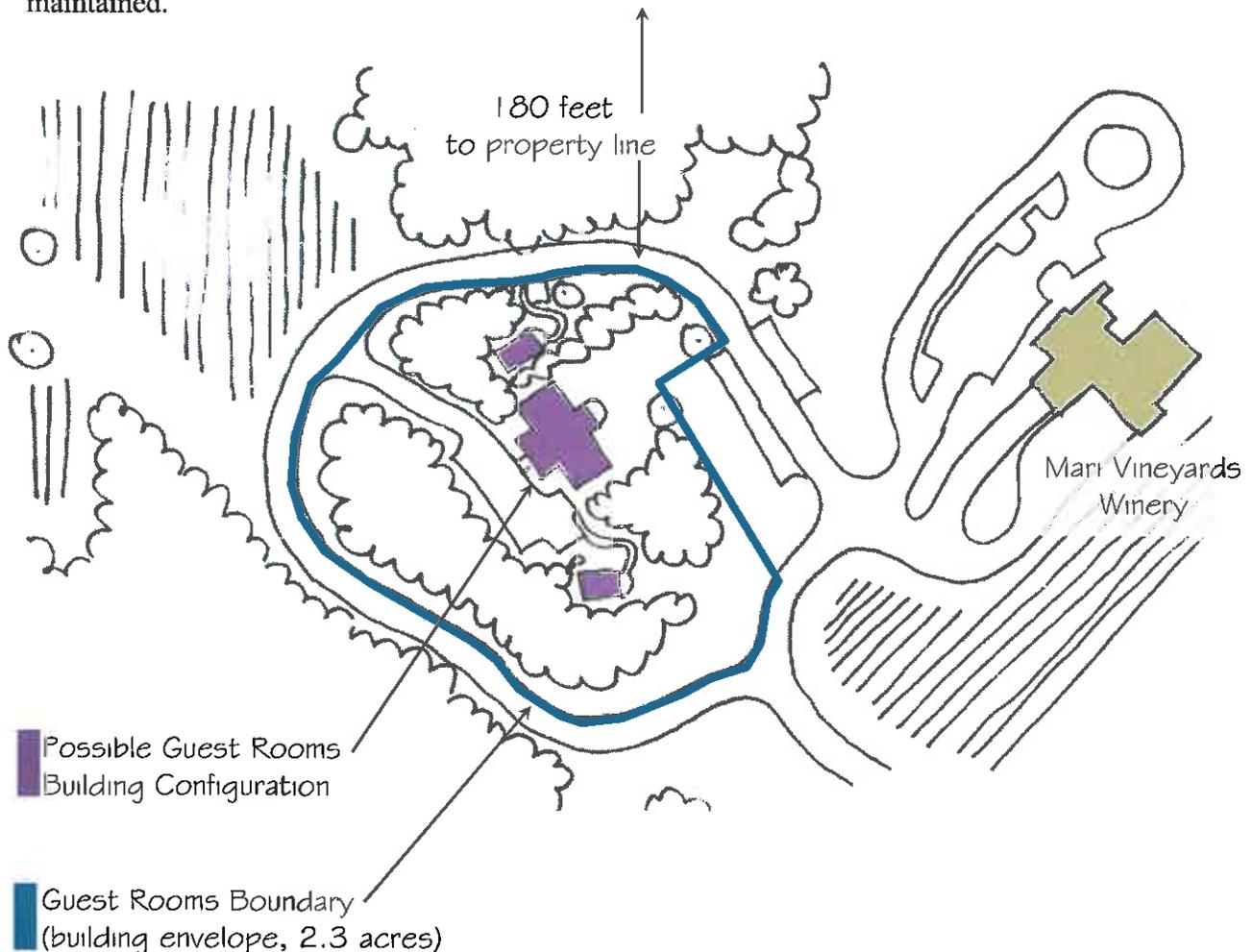
CROFT LLC
Proposed Winery Chateau - Villa Mari
 Sign Plan
 Section 19, Town 28 North, Range 10 West
 Peninsula Twp., Grand Traverse County, Michigan



Standards for the Future Development of Guest Accommodations

Guest Rooms are an allowed support use to a Winery Chateau. The applicant is proposing to include 9 guest rooms as part of the Mari Vineyards Chateau. The applicant anticipates beginning work on implementation of the guest rooms in 2017, including final site planning, architectural drawings, Township Land Use, and other regulatory agency permitting.

Because the actual **Guest House** structure(s) have not yet been designed, the applicant is offering the following standards for implementation of the structure. The current concept (*shown in purple*) is to have a main Guest House with seven guest rooms and two stand alone cave type guest rooms. However, the applicant would like to reserve the right to modify the configuration of the guest room use within the building envelope provided (*shown in blue*) given that the following standards outlined herein are maintained. This flexibility will allow for the flexibility to create a thoughtful design relevant to the future demands of the market, while providing the Township and neighbors the assurance that certain standards of scale and design will be maintained.



Standards for the Future Development of Guest Accommodations (continued)

Guest Rooms Building(s) Envelope

All structures related to the Guest Rooms Use will be placed within the 2.3 acre area located within the central loop road -**Building Envelope**- as indicated on the site plan. The area designated for guest rooms is located on a forested hill in the middle of the Chateau site, 180 feet front the nearest property line.

A Total of 9 Guest Rooms may be located within the building envelope.

The total structural footprint of all Guest Room and related accessory uses within the building envelope **will not exceed a total of 14,000 square feet** (not including parking, sidewalks on grade patios and decks), **and will not exceed 35 feet in height.**

Architectural design style and building materials will be harmonious and **compatible with the existing winery building.** Proposed uses and relating standards for each future element is as follows:

Guest Accommodations are not to exceed a total of 9 total guest bedrooms

Each guest unit will not exceed 800 square feet and may include:

- bedrooms (*minimum bedroom size 250sf*),
- bathrooms,
- kitchenette/wet bar,
- and a living room area.

Maximum occupancy of each guest unit is 5 people

Total registered guest occupancy shall not exceed 45 people total

Anticipated Accessory Use Spaces

Reception area, office, meeting room(s), service kitchen, lounge area, breakfast room, recreation/game room, hall ways, stairs/elevators, storage. The accessory uses shall not be greater in size or number than those reasonably required for the use of 45 registered guests. Use of Accessory Use Spaces will be limited to registered guests only and comply with all standards of the ordinance.

Parking minimum one space per guest room within 200 feet of the facility

Lighting per township dark sky requirements

Guest Room Rental Rules **DRAFT**

- Registered guests will sign a guest registry
- Rental of Guest Rooms will be nightly
- Quiet Hours will begin at 9:30 pm
- Smoking is prohibited on the Winery Chateau site and in all building
- Pets, with the exception of service animals, will not be permitted
- Guests will be allowed to enjoy the grounds within the Chateau Boundary, maps will be provided, and trespass upon neighboring properties will be deterred through signage and vegetative buffers

NEW WINE PROCESSING/ TASTING FACILITY VILLA MARI WINERY

8175 CENTER ROAD
TRAVERSE CITY, MI 49686

ARCHITECT STRUCTURAL ENGINEER MECHANICAL/ ELECTRICAL SITE ENGINEERING

TRaverse ARCHITECTURE GROUP
880 COTTAGEVIEW DRIVE, SUITE 201
P.O. BOX 405
TRAVERSE CITY, MI 49684
PH: (231) 946-4940
FAX: (231) 946-6428

AVANTI ENGINEERING, INC.
ANGELO VOZZA, P.E.
5180 RAGGLET CLUB DR., SUITE 2
TRAVERSE CITY, MI 49685
PH: (231) 939-0150
FAX: (231) 939-0151

RHOADES ENGINEERING, INC.
1781 BARLOW STREET
TRAVERSE CITY, MI 49686
PH: (231) 947-1107

MANSFIELD LAND USE CONSULTANTS
880 COTTAGEVIEW DRIVE, SUITE 201
P.O. BOX 405
TRAVERSE CITY, MI 49684
PH: (231) 946-4910
FAX: (231) 946-6428

GENERAL NOTES

- THE AIA DOCUMENT A201-2007 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION SHALL BE ADOPTED. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED.
- ELECTRICAL CONTRACTOR SHALL VERIFY LOCATIONS, OPENINGS & FUTURES WITH THE OWNER & ARCHITECT PRIOR TO INSTALLATION. ARRANGE FOR RUSH-IN FOR TELEPHONE, CABLE TV/DATA (IF APPLICABLE) & SECURITY SYSTEM FUTURES. VERIFY THE EXISTING LOCATIONS OF MECHANICAL CONTRACTOR. PROVIDE DIRECT WIRE SMOKE DETECTORS PER CODE - VERIFY LOCATIONS.
- ALL SUBCONTRACTORS SHALL VISIT THE SITE TO EXAMINE & VERIFY CONDITIONS UNDER WHICH THEIR WORK WILL BE CONDUCTED.
- CALL 800-386 BEFORE EXCAVATION. 800-386-3777 WHERE UTILITY CUTTING, CAPPING OR PLUMBING IS REQUIRED. FURNISH SUCH WORK IN ACCORDANCE WITH REQUIREMENT OF UTILITY COMPANY OR GOVERNMENT AGENCY HAVING JURISDICTION.
- TRUCKS, STAMPS, ROOTS, CONSTRUCTION DEBRIS, TRASH AND BRUSH TO BE DISPOSED OF OFF SITE. DO NOT STONE OR HEAVY DEBRIS TO ACCUMULATE ON SITE.
- FRESH GRADE - 6" MIN. BLACK DIRT TOPSOIL. HAND BAKED, READY FOR LANDSCAPING.

DESIGN CRITERIA:

BASED ON 2001 MICHIGAN BUILDING CODE

1) CONSTRUCTION TYPE: TYPE IIIA CONSTRUCTION - 4 STORIES PLUS MEZZANINE LEVEL

2) USE GROUPS: A-2, ASSEMBLY, N, MERCANTILE, B, BUSINESS, S-2, STORAGE, & F-2 FACTORY, NON SEPARATED MIXED USES

3) BUILDING SQUARE FOOTAGES (H BRG) SQ. FT.
 A. FINE CAVE LEVEL ONE: 12151 SQ. FT.
 B. FINE PROCESSING LEVEL TWO: 10254 SQ. FT.
 C. MEZZANINE LEVEL THREE: 1178 SQ. FT.
 D. FINE TASTING LEVEL FOUR: 4588 SQ. FT.
 E. BUSINESS LEVEL FIVE: 3500 SQ. FT.
 F. BELL TOWER PLATFORM: 500 SQ. FT.
 TOTAL: 32184 SQ. FT.

4) EXISTING FACILITY INSTALLED W/ AUTOMATIC FIRE SUPPRESSION SYSTEM PER 1099A IS

5) OCCUPANT LOAD PER SECTION 1004.1.2 TABLE 1004.1 - FINE CAVE LEVEL ONE
 S-2 AREAS: 30 OCCUPANTS

FINE PROCESSING LEVEL TWO
 S-2 AREAS: 8 OCCUPANTS
 F-2 AREAS: 21 OCCUPANTS
 45 OCCUPANTS

MEZZANINE LEVEL THREE
 F-2 AREAS: 3 OCCUPANTS
 A-2 SITTING AREAS: 45 OCCUPANTS
 51 OCCUPANTS

FINE TASTING LEVEL FOUR
 M AREAS: 4 OCCUPANTS
 S-2 AREAS: 1 OCCUPANT
 K AREAS: 1 OCCUPANT
 A-2 STANDING AREAS: 28 OCCUPANTS
 A-2 SITTING AREAS: 124 OCCUPANTS
 141 OCCUPANTS

BUSINESS LEVEL FIVE
 B AREAS: 10 OCCUPANTS
 A-2 SITTING AREAS: 18 OCCUPANTS
 28 OCCUPANTS

OUTDOOR TERRACE
 TOTAL LEVEL FIVE: 10 OCCUPANTS

Occupancy per Building Code

WALL AND CEILING TYPES/ FIRE RATED ASSEMBLIES

- EXTERIOR HORIZONTAL WALLS (ABOVE GRADE)**
 1) 4" STONE VENEER
 2) 4" MIN. AIR SPACE
 3) 1/2" R-5 RIGID INSULATION
 4) WATERPROOFING MEMBRANE ON 6" CMU (6"X) W/ R-7 FOAM INSULATION IN CORES
 5) EXTERIOR 5/8" SYSTEM BOARD W/ 6" ML VAPOR BARRIER ON 1/2" METAL FURRING CHANNELS @ 16" O.C.
- INTERIOR HORIZONTAL WALLS**
 1) 5/8" GYP. BOARD BOTH SIDES (FIRE RATED MEZZANINE & PROCESSING LEVELS W/ WATER RESISTANT GYP. BOARD U.L.O.)
 2) 4" LIGHT GAUGE METAL STUDS @ 16" O.C.
 3) 5/8" RIGID ATTENUATION BATT INS. IN STUD SPACES
- TYPICAL FLOOR ASSEMBLY - 1 HR. FIRE RATED ASSEMBLY PER U.L. 180A**
 1) 2" MIN. CONCRETE TOPPING ON 6" AND/ OR 10" PRE-CAST CONCRETE PLANK FLOOR
- ROOF CEILING ASSEMBLY**
 ONE HR. FIRE RATED ASSEMBLY PER U.L. 180A PER U.L. 2002
 1) TWO LAYERS 5/8" GYP. BOARD TYPE "X" INSTALLED TO THE BOTTOM CHORD OF THE PRE-ENG. ROOF ROOF TRUSSES ABOVE.
 2) WOOD TRUSSES SUPPORTING MIN. 1/2" ROOF STRUCTURAL PANELS
- ROOF CEILING ASSEMBLY - STAIR AND ELEVATOR SHAFT PLATFORMS**
 ONE HR. FIRE RATED ASSEMBLY PER U.L. 2002 TABLE 12.2.1
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 1) 4" MIN. AIR SPACE
 2) 1/2" R-5 RIGID INSULATION W/ WATERPROOFING MEMBRANE ON EXTERIOR WALL
 3) 1/2" METAL FURRING CHANNELS @ 16" O.C.
- 1 HOUR FIRE RATED ATTIC ACCESS PANELS**
 1) INTERIOR LAMINATED ACCESS PANELS
 2) EXTERIOR 5/8" GYP. BOARD TYPE "X" ON 1 1/2" STEEL STUDS/ RANGER CHANNELS W/ METAL CORNER BEADS ALL CORNERS
 3) VERIFY EXACT LOCATION (S) INDICATED

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C1.1	GENERAL NOTE SHEET
C1.2	DETAIL SHEET
C1.3	DETAIL SHEET
C2.0	EXISTING CONDITIONS & DEMOLITION PLAN
C3.0	SITE & DIMENSION PLAN
C4.0	BRADING & STORM PLAN
C5.0	UTILITY PLAN
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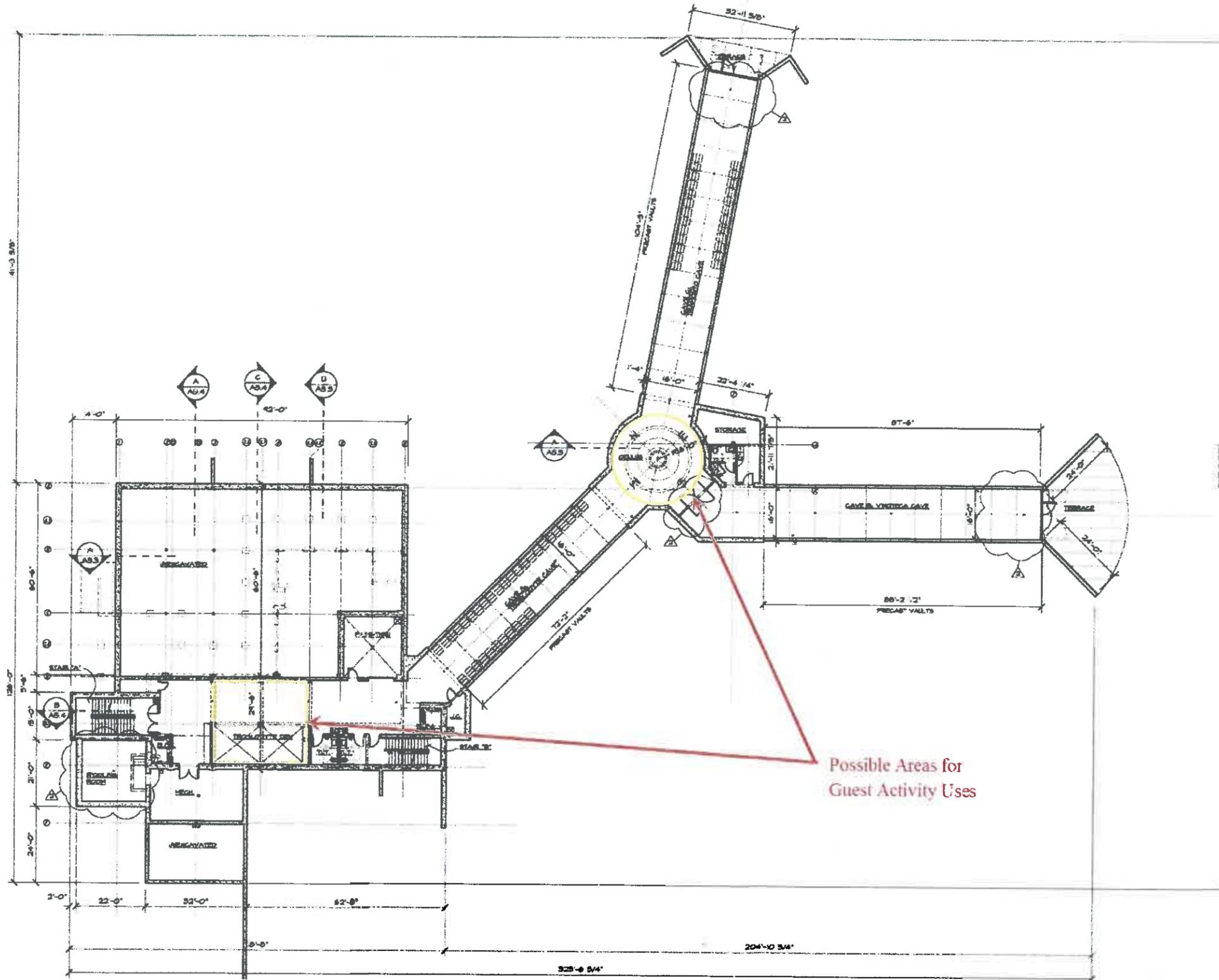
ELECTRICAL

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E2.1	FINE CAVE LEVEL ONE- PARTIAL POWER PLAN
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E2.1	ELECTRICAL PANELS
E2.0	LEGENDS
E2.1	LEGENDS

TRAVERSE ARCHITECT GROUP
880 Cottageview Dr., Ste. 201
P.O. Box 405
Traverse City, MI 49684
PH: (231) 946-4940 Fax: (231) 946-6428

COVER SHEET
NEW WINE PROCESSING/ TASTING FACILITY
VILLA MARI WINERY
VILLA MARI L.L.C.
8175 CENTER ROAD
TRAVERSE CITY, MI 49686

PROJECT: []
 DRAWN BY: []
 CHECKED BY: []
 DATE: []
 SHEET #
A1.0



WINE CAVE LEVEL ONE- COMPOSITE PLAN

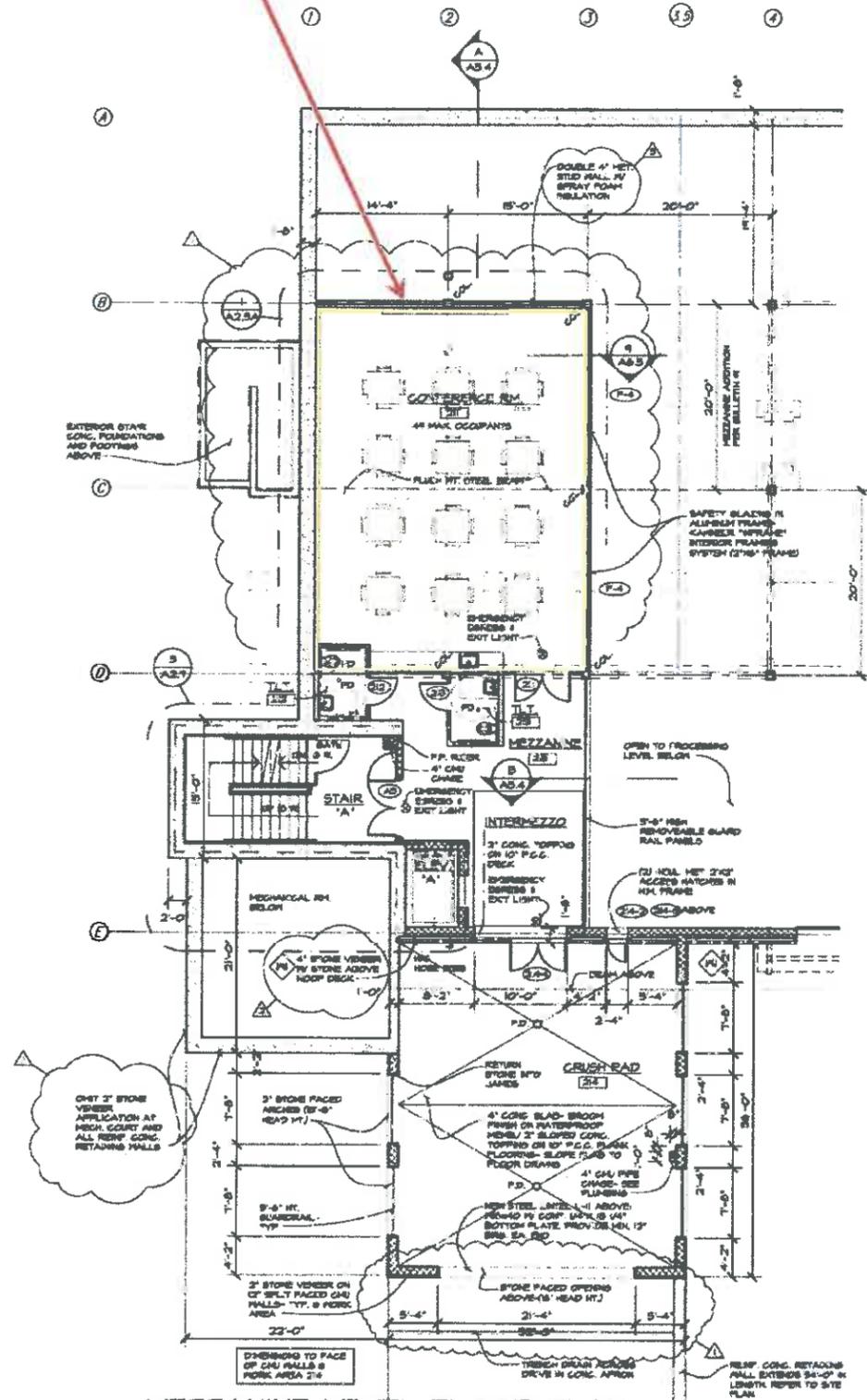
SCALE: 1/8" = 1'-0"
 NET SQ. FT. = 4,800 SQ. FT.
 GROSS SQ. FT. = 10,451 SQ. FT.



- PRELIMINARY
- CONSTRUCTION
- FINAL RECORD

DATE	DESCRIPTION
10/21/14	10 SHEETS
10/21/14	10 SHEETS
10/21/14	10 SHEETS

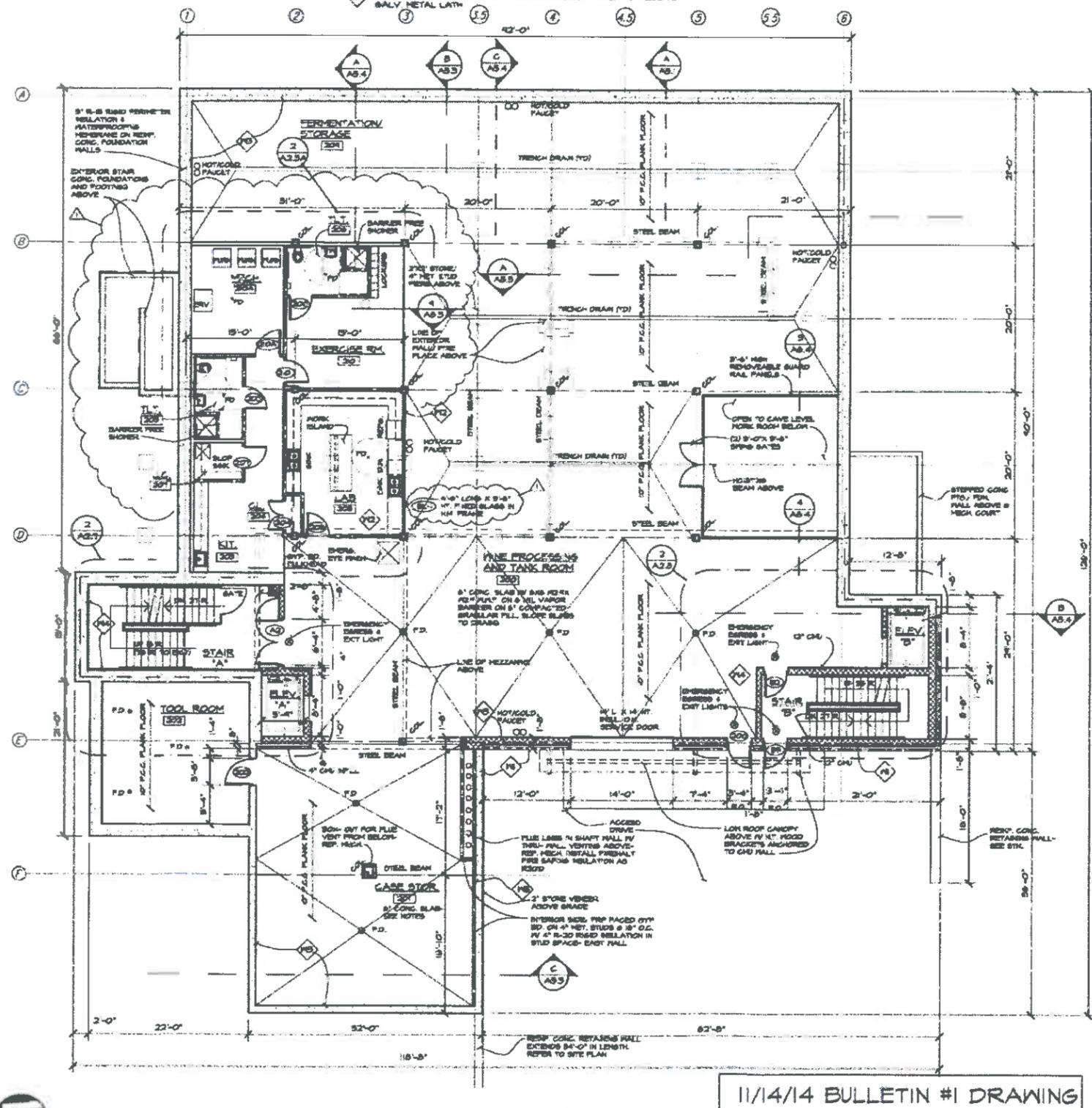
Possible Areas for Guest Activity Uses



MEZZANINE LEVEL FLOOR PLAN
 SCALE: 1/8" = 1'-0"
 NET SQ. FT. = 1,175 SQ. FT.

WALL TYPES

- EXTERIOR MASONRY WALLS (ABOVE GRADE):
 TWO HOUR FIRE RATED PER I.C. DESIGN
 - 4" STONE VENEER
 - 1" MIN. AIR SPACE
 - 3" R-5 RIGID INSULATION
 - DAMPPROOFING MEMBRANE ON 8" CMU (MIN.) W/ R-7 FOAM INSULATION IN CORERS
 - INTERIOR 5/8" GYPSUM BOARD W/ 5 MIL VAPOR BARRIER ON 1 1/2" METAL FURRING CHANNELS @ 16" O.C.
- INTERIOR NON-BEARING WALLS:
 - 5/8" GYP. BOARD BOTH SIDES (PPR BOARD MEZZANINE & PROCESSING LEVELS W/ WATER RESISTANT GYP. BOARD I.N.O.)
 - 4" LIGHT GAGE METAL STUDS @ 16" O.C.
 - 3 1/2" SOUND ATTENUATION BATTIS IN STUD SPACES
- INTERIOR CMU WALLS:
 EXPOSED CMU AND REINFORCED CONCRETE
 - SEAL OR PAINT- REFER TO FINISH SCHEDULE
 - LEVEL ONE CAVE WALLS- U.N.O. ACCT'G STUCCO FINISH ON CMU STRIKE JOINTS FLUSH
 - 1/2" CMU, ED. ON 1/2" MET. FURRING STUCCO FINISH TO RECEIVE BALV. METAL LATH
- INTERIOR GYM WALLS & STAIRWELLS:
 TWO HOUR FIRE RATED PER I.C. DESIGN
 FINISH STAIR WELLS (WHERE INDICATED):
 - 5/8" GYP. BOARD ON 5 MIL VAPOR BARRIER (EXTERIOR WALL)
 - 1 1/2" METAL FURRING CHANNELS @ 16" O.C.
- EXTERIOR FOUNDATION WALL:
 REINFORCED CONCRETE WALL (THICKNESS PER STRUCTURAL)
 - 3/4" R-5 RIGID INSULATION W/ WATERPROOF MEMBRANE ON EXTERIOR WALL



WINE PROCESSING LEVEL TWO- FLOOR PLAN
 SCALE: 1/8" = 1'-0"
 NET SQ. FT. = 9,587 SQ. FT.
 GROSS SQ. FT. = 10,264 SQ. FT.

11/14/14 BULLETIN #1 DRAWING

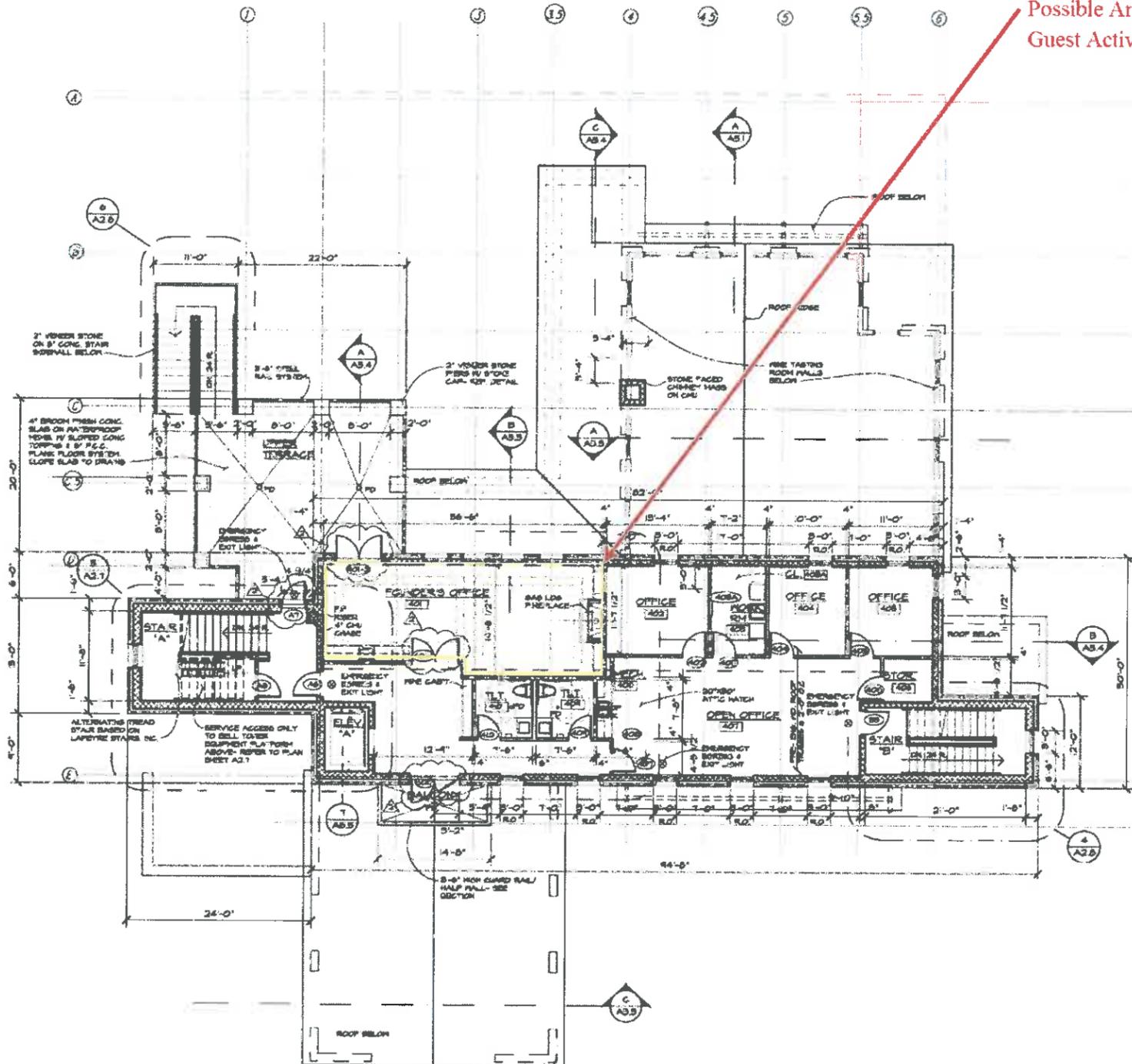
TRAVERSE ARCHITECT GROUP
 830 Colgate Dr. Ste 201
 P.O. Box 4916
 Traverse City, MI 49785
 Ph: 231.946.8800 Fax: 231.946.8808



WINE PROCESSING LEVEL TWO
 MEZZ / CRUSH RM. LEVEL THREE
 FLOOR PLANS

NEAR WINE PROCESSING/ TASTING FACILITY
 VILLA MARI MINERY
 VILLA MARI LLC.
 875 CENTER ROAD
 TRAVERSE CITY, MI 49785

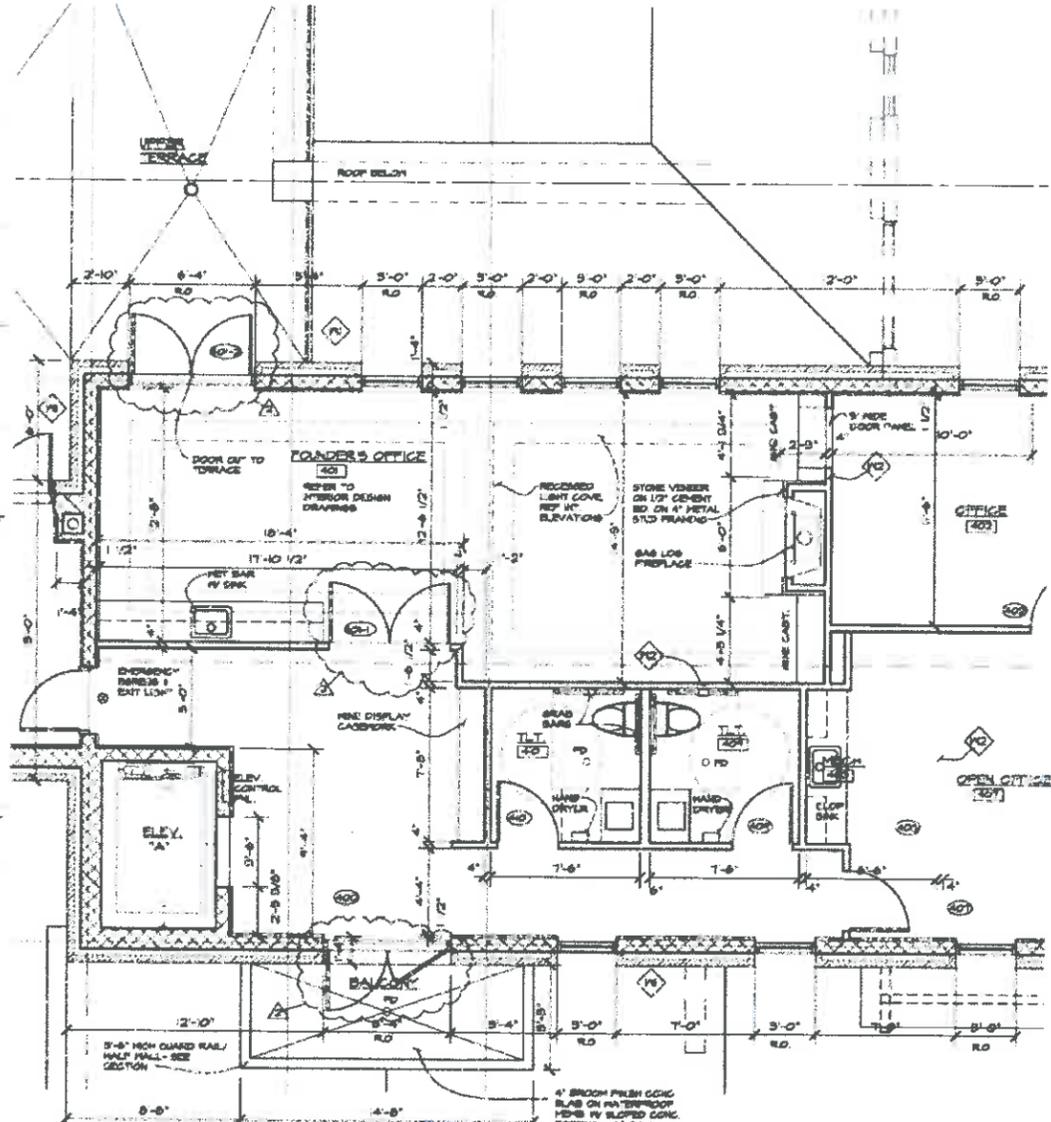
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<input type="checkbox"/>	CRUSH PAD



BUSINESS LEVEL FOUR- FLOOR PLAN

SCALE: 1/8" = 1'-0"
 NET SQ. FT. = 2,404 SQ. FT.
 GROSS SQ. FT. = 2,820 SQ. FT.

Possible Area for
 Guest Activity Uses



ENLARGED PLAN

SCALE: 1/4" = 1'-0"

WALL TYPES

- ◆ EXTERIOR MASONRY WALLS (ABOVE GRADE)
 TWO HOUR FIRE RATED PER U. DES. 308
 - 4" STONE VENEER
 - 1" MIN. AIR SPACE
 - 8" R-13 R.G.D. INSULATION
 - DAMPROOFING MEMBRANE ON 8" CMU (MU) W/ R-7 FOAM INSULATION IN CORES
 - INTERIOR 5/8" GYP/SM BOARD W/ 8" HL VAPOR BARRIER ON 1/2" METAL Furring CHANNELS @ 8" O.C.
- ◆ EXTERIOR NON-BEARING WALLS
 - 5/8" GYP BOARD BOTH SIDES (FIR BOARD MEZZANINE & PROCESSING LEVELS W/ WATER RESISTANT GYP. BOARD U/L/O)
 - 4" LIGHT GAUGE METAL STUDS @ 8" O.C.
 - 3/2" SOUND ATTENUATION BATS IN STUD SPACES
- ◆ INTERIOR CMU WALLS
 - EXPOSED CMU AND REINFORCED CONCRETE
 - SEAL OR PAINT- REFER TO FINISH SCHEDULE
 - LEVEL ONE GAVE WALLS: UND. ACRYL.C STUCCO FINISH ON CMU STRIKE JOINT'S FLUSH
 - 1/2" GEM. BD ON 1/2" MET FURRING. STUCCO FINISH TO RECEIVE GALV. METAL LATH
- ◆ INTERIOR CMU WALLS @ STAIRWELLS
 TWO HOUR FIRE RATED PER U. DES. 308
 FINISHED STAIR WELLS (W/ FIRE INDICATED)
 - 5/8" GYP BOARD ON 8" HL VAPOR BARRIER (EXTERIOR WALL)
 - 1/2" METAL FURRING CHANNELS @ 8" O.C.
- ◆ EXTERIOR FOUNDATION WALL
 - REINFORCED CONCRETE WALL, THICKNESS PER STRUCTURAL
 - 3" R-5 R.G.D. INSULATION W/ WATERPROOF MEMBRANE ON EXTERIOR WALL

TRAVERSE
 ARCHITECT
 GROUP
 830 Collegeview Dr., Ste. 201
 P.O. Box 4018
 Florence, NY, NY 14066
 PH: 201 948 9540 F: 201 948 9541



**BUSINESS LEVEL FIVE
 FLOOR PLAN**

NEW WINE PROCESSING/ TASTING FACILITY
 VILLA MARI WINERY
 VILLA MARI, L.L.C.
 875 CENTER ROAD
 TRAVERSE CITY, MI 49686

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<input type="checkbox"/>	FINAL RECORD

DATE	DESCRIPTION
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2/25/15	102 BULLETIN
5/8/15	103 BULLETIN

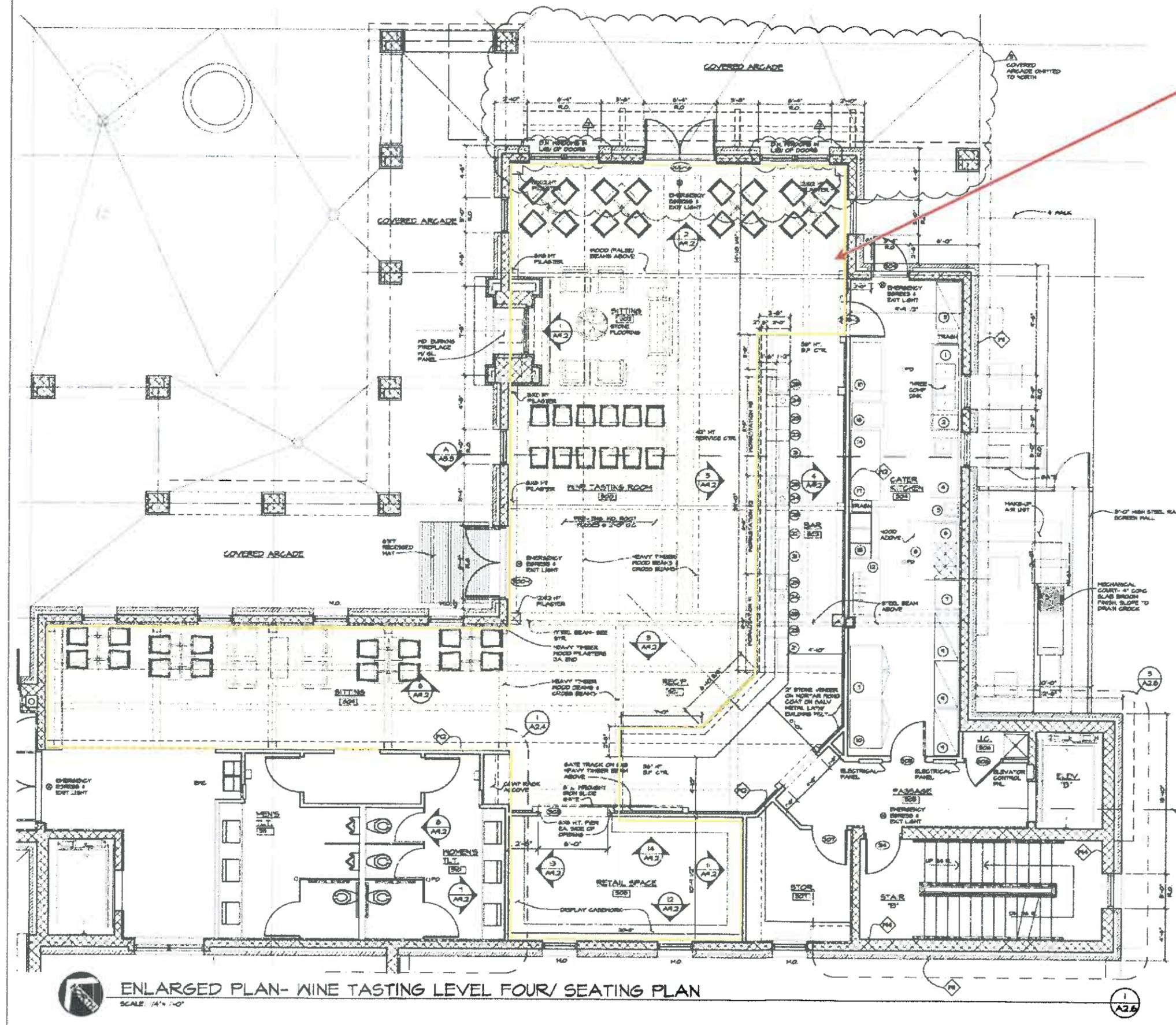
DESIGNED BY: DLS
 CHECKED BY: CLS/ST
 DATE: 5/8/15
 JOB NO.: 1004
 SHEET #

A2.5



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REVISIONS:	
DATE	DESCRIPTION
02/14/14	4 BULLETIN
3/28/14	12 BULLETIN
5/6/14	13 BULLETIN
DRAWN BY: PLS	
CHECKED BY: CLEST	
DATE:	5/6/14
NO.:	3041
SHEET #	A2.6

Possible Areas for Guest Activity Uses



FOOD SERVICE EQUIPMENT

- FOOD SERVICE CONSULTANT TO ISSUE SHOP DRAWINGS FOR APPROVAL.
- 1 THREE COMPARTMENT SINK- 40" X 21-1/2"
 - 2 UNDERCOUNTER DISHWASHER- 24" X 26-3/4"
 - 3 WIRE SHELVING UNIT- 48" X 34"
 - 4 WORK TABLE WITH SINK- 80" X 30"
 - 5 HAND SINK- 6" X 9"
 - 6 RANGE- 6 BURNERS 24" GRIDDLE- 60" X 34-3/4"
 - 7 CONVECTION OVEN- 30" X 28-1/2"
 - 8 8'-0" HOOD VENTILATION SYSTEM
 - 9 WIRE SHELVING UNIT- 48" X 34"
 - 10 REACH-IN FREEZER, 2 SECTIONS- 51" X 52-3/4"
 - 11 REACH-IN REFRIGERATOR, 2 SECTIONS- 51" X 52-3/4"
 - 12 REFRIGERATED SANDWICH UNIT- 60" X 51-1/2"
 - 13 HOT FOOD SERVING COUNTER- 48" X 30-1/2"
 - 14 WORK TABLE- 72" X 30"
 - 15 WORK TABLE- 60" X 30"
 - 16 REACH-IN REFRIGERATOR, 1 SECTION- 25-1/2" X 52-3/4"
 - 17 MICROWAVE OVEN- 30" X 18-1/2"
 - 18 UNDERBAR GLASS FROSTER SLIDE TOP COOLER- 36" X 24"
 - 19 UNDERBAR BOTTLE DISPLAY- 12" X 24"
 - 20 UNDERBAR DRABOARD GLASS RACK- 24" X 24"
 - 21 UNDERBAR TRASH UNIT- 12" X 24"
 - 22 UNDERBAR HAND SINK UNIT- 18" X 24"

WALL TYPES

- 101 EXTERIOR MASONRY WALLS (ABOVE GRADE):
 120 HOUR FIRE RATED PER U.L. DES U206
 -4" STONE VENEER
 -1" MIN. AIR SPACE
 -3" R-5 RIGID INSULATION
 -DAMP-PROOFING MEMBRANE ON 8" CMU (MRL) W/ R-7 POLE INSULATION IN CORES
 -EXTERIOR 5/8" GYP BOARD UNO.
 -5 MIL VAPOR BARRIER ON 1 1/2" METAL FURRING CHANNELS @ 16" O.C.
- 102 EXTERIOR NON-READING WALLS:
 5/8" GYP. BOARD BOTH SIDES (TPR BOARD MEZZANINE & PROCESSING LEVELS W/ WATER RESISTANT GYP BOARD UNO.)
 -1" LIGHT GAUGE METAL STUDS @ 16" O.C.
 -3 1/2" SOUND ATTENUATION BATTIS IN STUD SPACES
- 103 INTERIOR CMU WALLS:
 REINFORCED CMU AND REINFORCED CONCRETE
 -SEAL OR PAINT- REFER TO FINISH SCHEDULE
 -LEVEL ONE CAVE WALLS UNO. ACRYLIC STUCCO FINISH ON CMU STRIKE JOINTS FLASH
 -1/2" CON. ED. ON 1 1/2" MET. FURRING STUCCO FINISH TO RECEIVE GALV. METAL LATH
- 104 INTERIOR CMU WALLS @ STAIRWELLS:
 120 HOUR FIRE RATED PER U.L. DES U206
 FINISHED STAIR WELLS (WHERE INDICATED)
 -5/8" GYP. BOARD ON 5 MIL VAPOR BARRIER (EXTERIOR WALL)
 -1 1/2" METAL FURRING CHANNELS @ 16" O.C.
- 105 EXTERIOR FOUNDATION WALL:
 REINFORCED CONCRETE WALL (THICKNESS PER STRUCTURAL)
 -3/4" R-5 RIGID INSULATION W/ WATERPROOF MEMBRANE ON EXTERIOR WALL

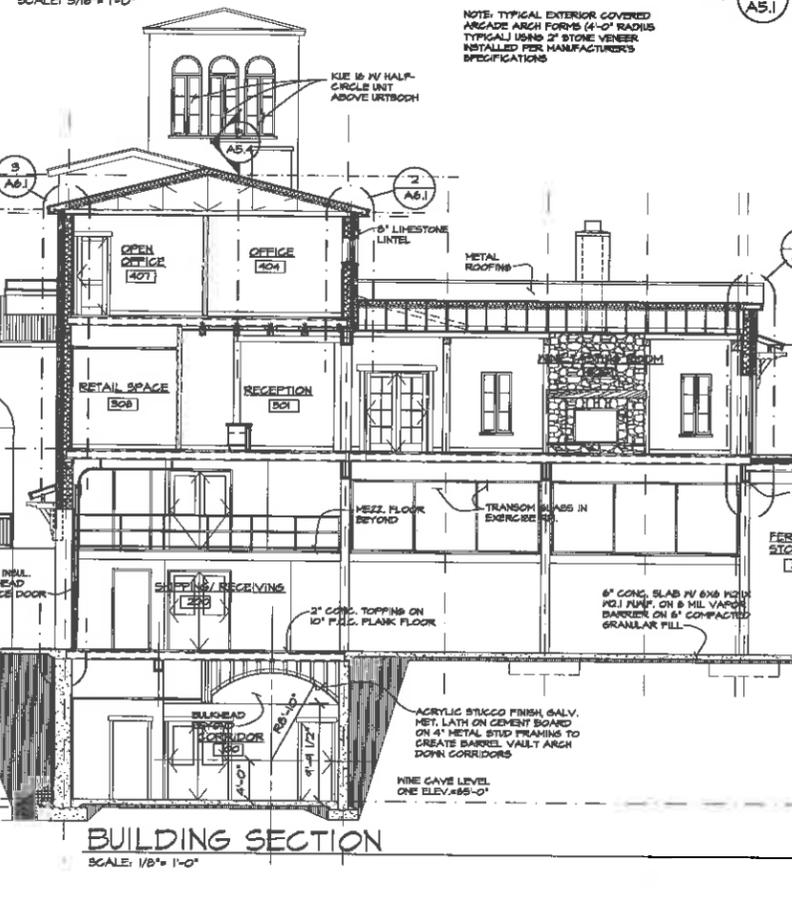
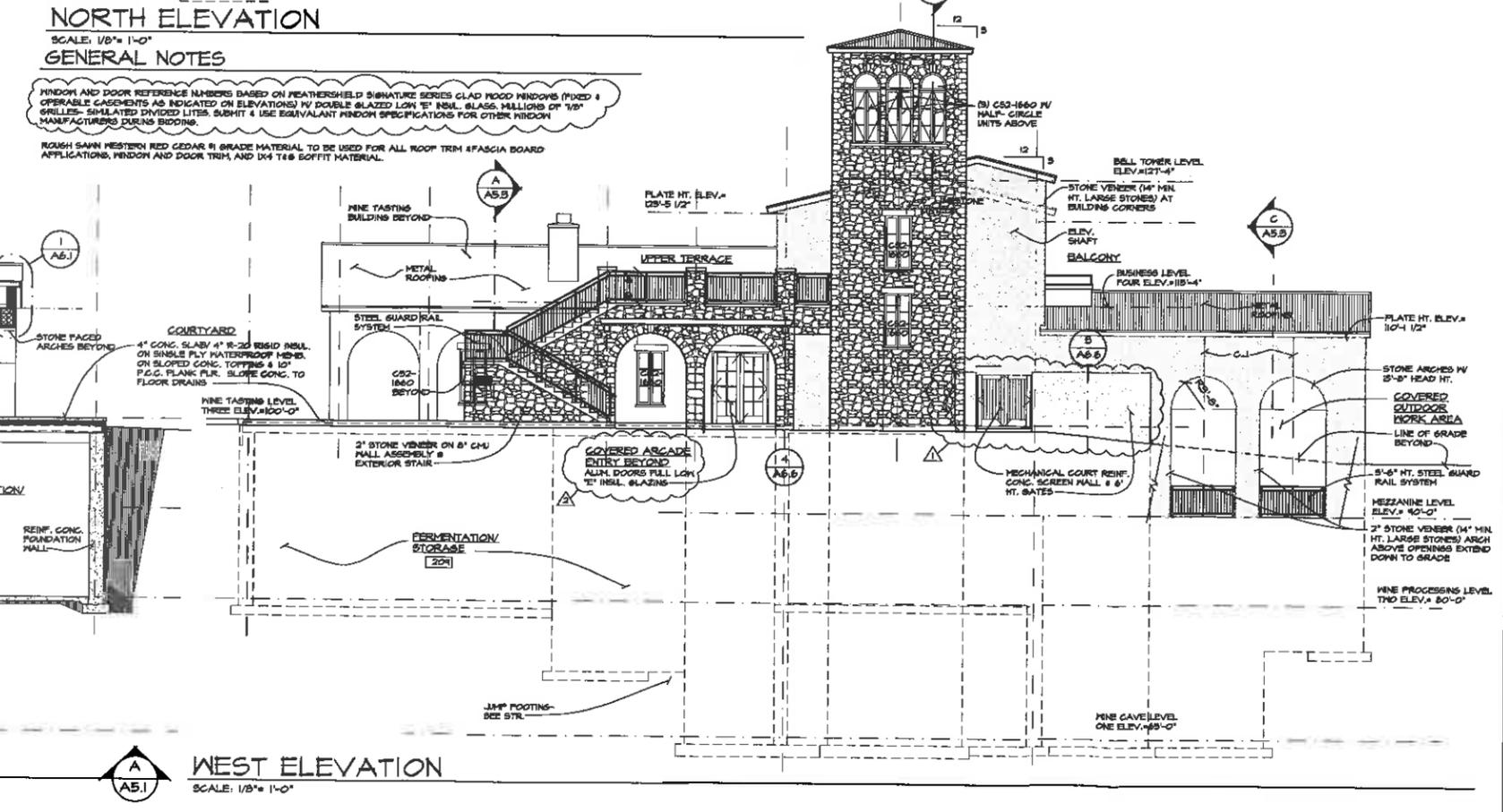
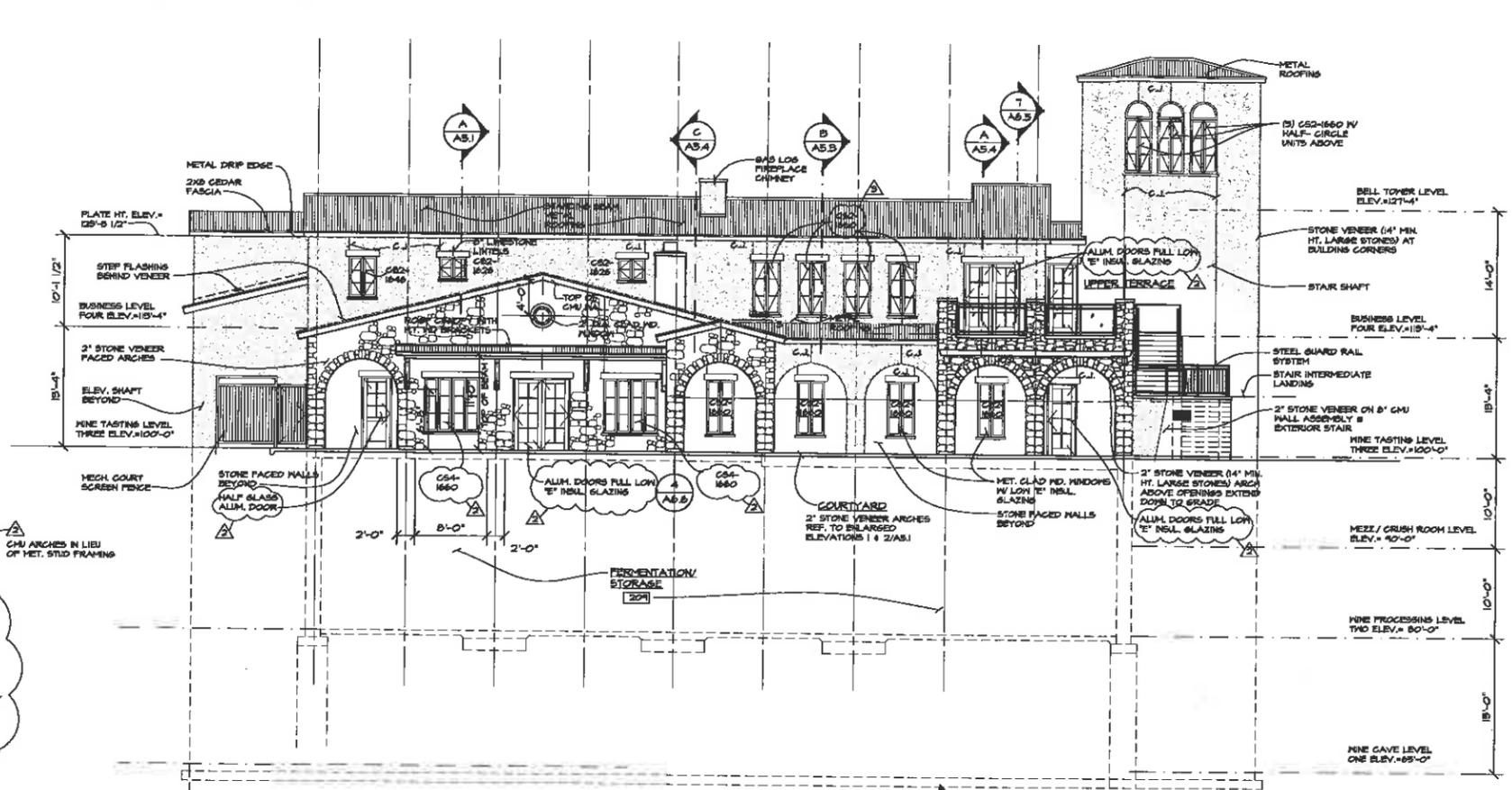
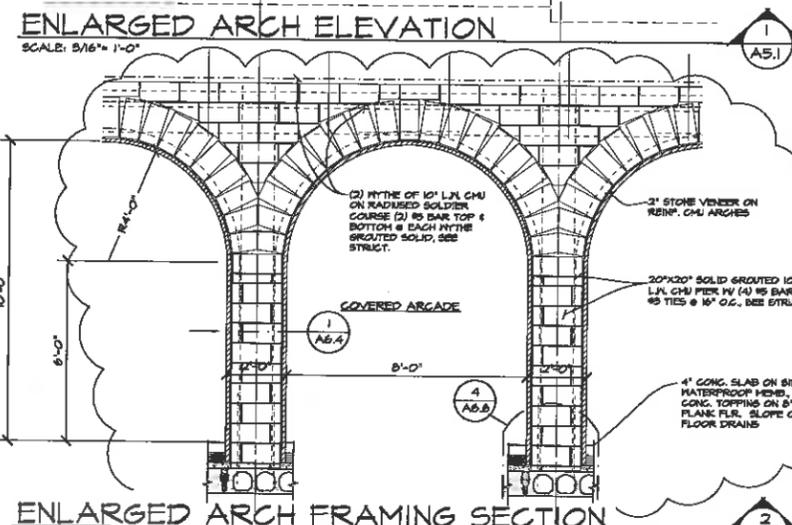
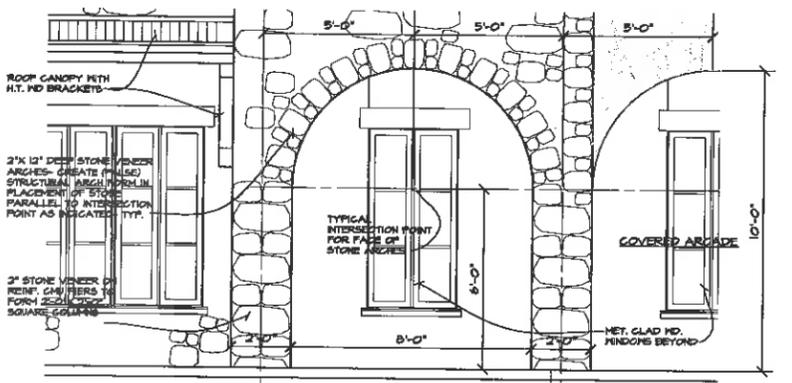
ENLARGED PLAN- WINE TASTING LEVEL FOUR/ SEATING PLAN
 SCALE: 1/4" = 1'-0"



EXTERIOR ELEVATIONS

NEW WINE PROCESSING/TASTING FACILITY
 VILLA MARI WINERY
 VILLA MARI, LLC.
 815 CENTER ROAD
 TRAVERSE CITY, MI 49806

<input type="checkbox"/>	PRELIMINARY
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DATE	DESCRIPTION
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2/25/19	40 BULLETIN
5/5/19	45 BULLETIN
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CHECKED BY: CLIENT	
DATE: 5/5/19	
JOB NO.: 18094	
SHEET #	
A5.1	

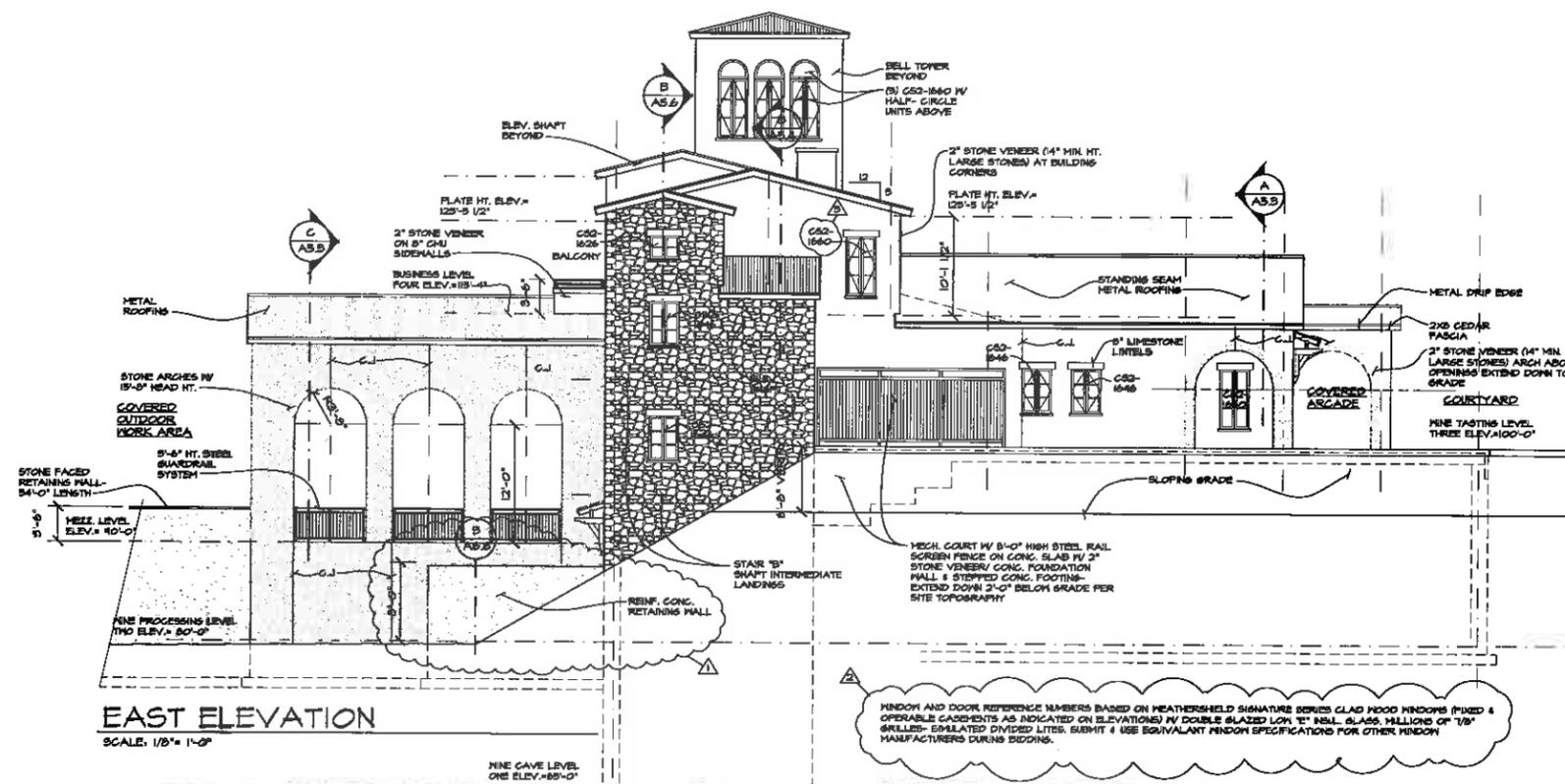


GENERAL NOTES

WINDOW AND DOOR REFERENCE NUMBERS BASED ON FEATHERSHIELD SIGNATURE SERIES CLAD WOOD WINDOWS (FIXED & OPERABLE CASSEMENTS AS INDICATED ON ELEVATIONS) W/ DOUBLE GLAZED LOW 1" INSL. GLASS, HALLIGNS OF 1/8" GRILLES - SIMULATED DIVIDED LITES. SUBMIT & USE EQUIVALENT WINDOW SPECIFICATIONS FOR OTHER WINDOW MANUFACTURERS DURING BIDDING.

ROUGH SAWN WESTERN RED CEDAR #1 GRADE MATERIAL TO BE USED FOR ALL ROOF TRIM & FASCIA BOARD APPLICATIONS, WINDOW AND DOOR TRIM, AND 1/4" T&B SOFFIT MATERIAL.

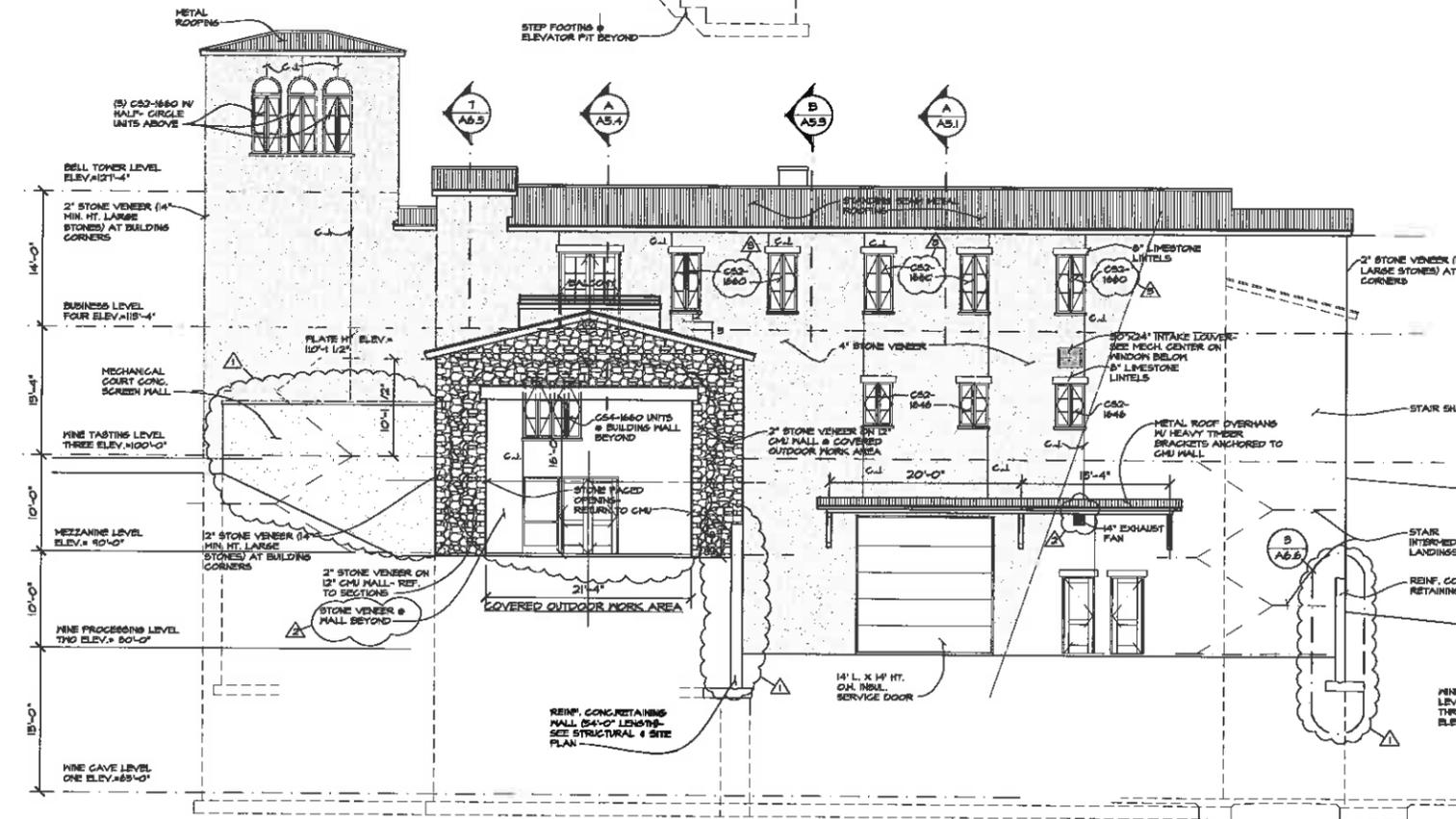
NOTE: TYPICAL EXTERIOR COVERED ARCADE ARCH FORMS (4'-0" RADIUS) TYPICAL USING 2" STONE VENEER INSTALLED PER MANUFACTURER'S SPECIFICATIONS



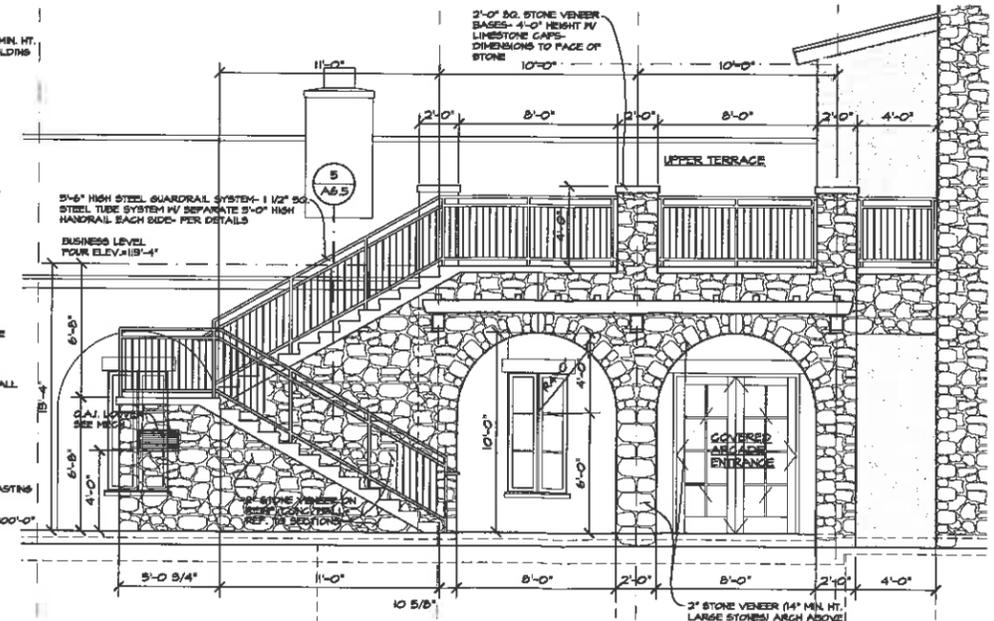
EAST ELEVATION
SCALE: 1/8" = 1'-0"



ENLARGED PARTIAL NORTH ELEVATION @ UPPER TERRACE
SCALE: 1/4" = 1'-0"



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



ENLARGED PARTIAL WEST ELEVATION @ UPPER TERRACE
SCALE: 1/4" = 1'-0"

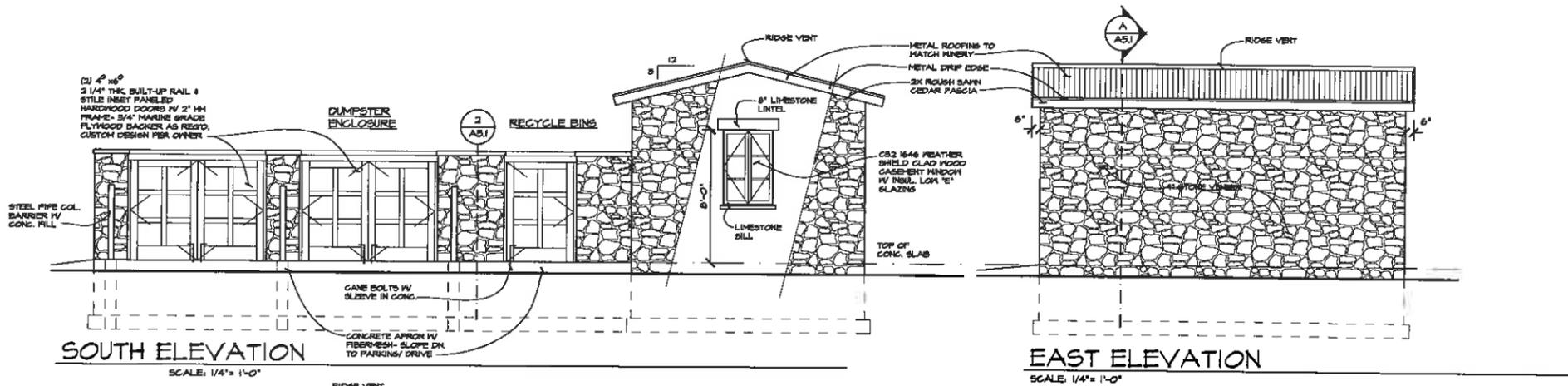
TRaverse ARCHITECT GROUP
830 Cottageview Dr., Ste. 201
P.O. Box 40715
Traverse City, MI 49885
Ph: 231-946-9940 Fax: 231-946-9926



EXTERIOR ELEVATIONS

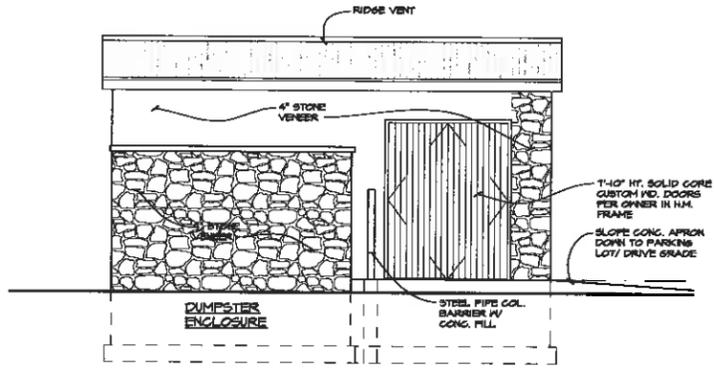
NEA WINE PROCESSING / TASTING FACILITY
VILLA MARI MINERY
VILLA MARI, L.L.C.
6175 CENTER ROAD
TRaverse CITY, MI 49686

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<input type="checkbox"/>	FINAL RECORD
REVISION HISTORY:	
NO. / DATE	DESCRIPTION
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002 / 05	W. BILLETIN
003 / 05	W. BILLETIN
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CHECKED BY: CLIENT	
DATE: 5/6/15	
JOB NO.: 15041	
SHEET #	
A5.2	

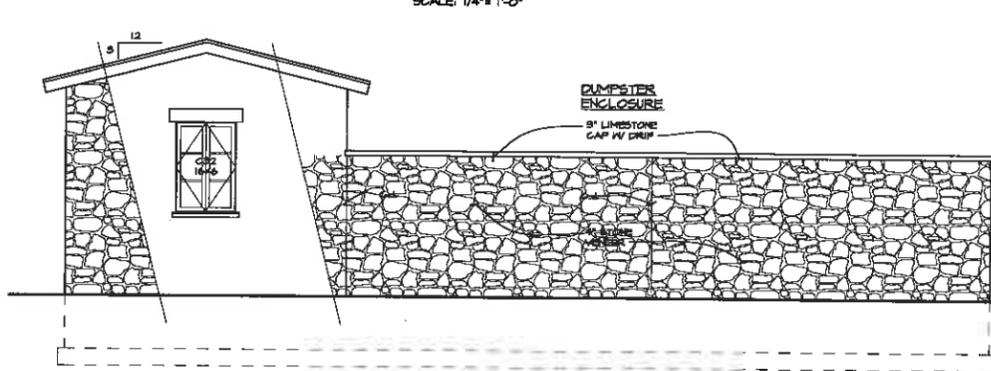


SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

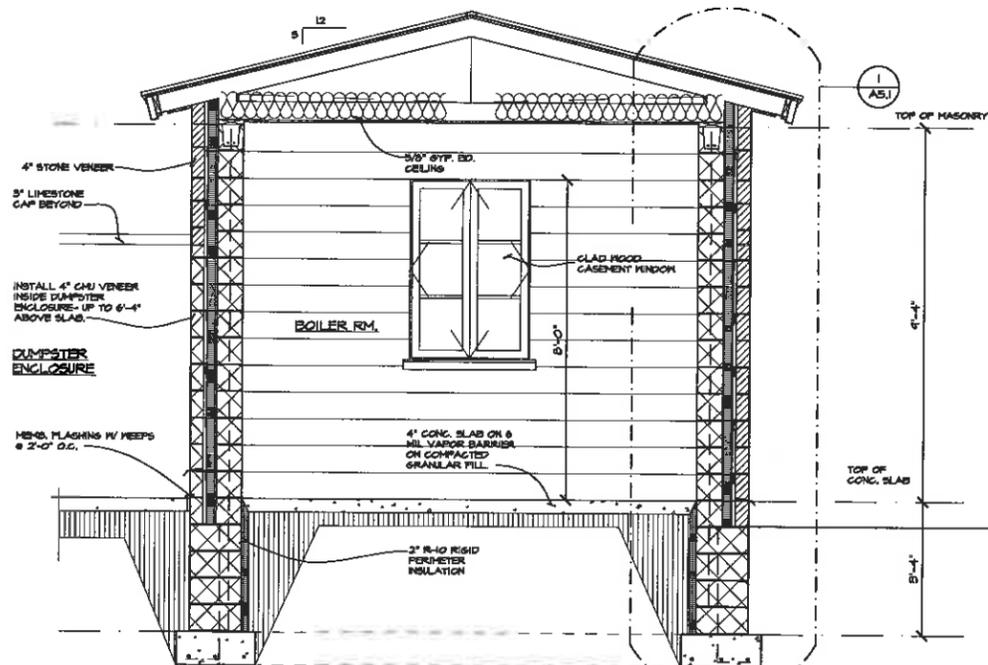
EAST ELEVATION
SCALE: 1/4" = 1'-0"



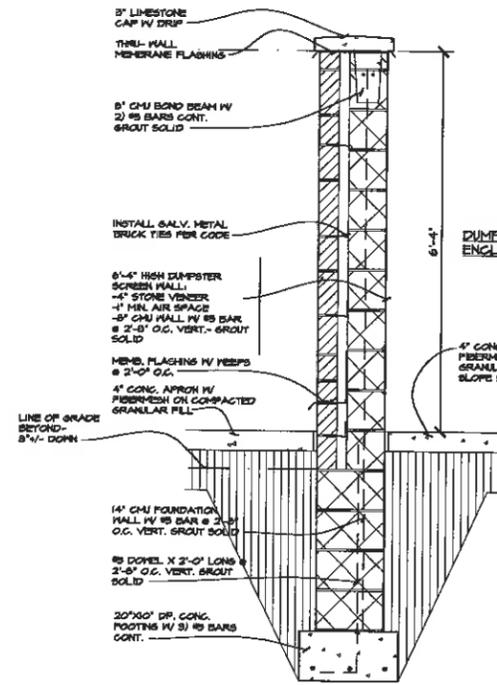
WEST ELEVATION
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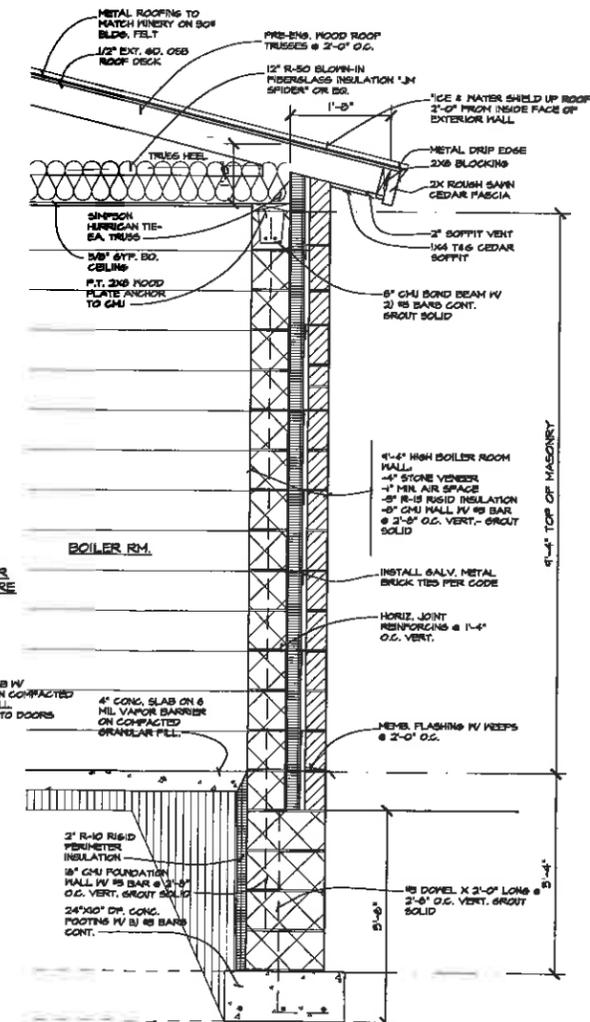
NORTH ELEVATION
SCALE: 1/4" = 1'-0"



BUILDING SECTION
SCALE: 1/2" = 1'-0"



WALL SECTION
SCALE: 3/4" = 1'-0"



WALL SECTION
SCALE: 3/4" = 1'-0"

TRAVERSE ARCHITECT GROUP
830 CottageView Dr., Ste. 201
P.O. Box 4015
Traverse City, MI 49685
Ph: 231-946-9640 Fax: 231-946-9826



EXTERIOR ELEVATIONS
BUILDING SECTIONS
WALL SECTIONS

NEW WINE PROCESSING/ TASTING FACILITY
VILLA MARI WINERY
VILLA MARI L.L.C.
615 CENTER ROAD
TRAVERSE CITY, MI 49686

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5/15/15	R3 BULLETIN
10/15/15	R4 BULLETIN
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CHECKED BY: CLIENT	
DATE: 10/15/15	
JOB NO.: 1504	
SHEET #	
A5.1	

BOILER ROOM/ DUMPSTER ENCLOSURE FOR VILLA MARI WINERY

8175 CENTER ROAD
TRAVERSE CITY, MI 49686

GENERAL NOTES

- THE A.I.A. DOCUMENT A201-2007 "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" SHALL BE ADOPTED. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED.
- CALL MISS DIG BEFORE EXCAVATION 1-800-482-7171 WHERE UTILITY CUTTING, CAPPING OR PLUMBING IS REQUIRED. PERFORM SUCH WORK IN ACCORDANCE WITH REQUIREMENT OF UTILITY COMPANY OR GOVERNMENT AGENCY HAVING JURISDICTION.
- THE MECHANICAL & ELECTRICAL PORTIONS OF THE WORK SHALL BE CONSTRUCTED ON A DESIGN/BUILD BASIS.
- ELECTRICAL CONTRACTOR SHALL VERIFY LOCATIONS, OPENINGS & FIXTURES WITH THE OWNER & ARCHITECT PRIOR TO INSTALLATION. VERIFY THERMOSTAT LOCATIONS W/ MECHANICAL CONTRACTOR. PROVIDE DIRECT WIRE SMOKE DETECTORS PER CODE.
- THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME OF LOADS ARE IMPOSED.
- THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACINGS AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

FOUNDATIONS

- ALL FOOTINGS ARE DESIGNED USING AN ALLOWABLE SOIL CONTACT PRESSURE OF 2500 PSF IF MATERIAL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATION INDICATED. FOOTINGS SHALL BE SPREAD OR LOWERED AT THE DISCRETION OF THE ENGINEER.
- FILL SHALL BE SPREAD IN SHALLOW LIFTS 6" TO 8" MAXIMUM AND COMPACTED TO 95 HIGHERED PROCTOR DENSITY (ASTM D-1587)
- GENERAL CONTRACTOR SHALL VERIFY LOCATION OF ALL MECHANICAL LINES BEFORE CASTING FOUNDATIONS AND PROVIDE BLEEDERS, LOWER FOUNDATIONS OR CAST PROTECTION AROUND LINES AS REQUIRED.

CONCRETE

- ALL CONCRETE SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH f_c OF 3000 psi (UNO.) ALL C.J.P. CONCRETE SHALL BE NORMAL WEIGHT.
- REINFORCEMENT FOR CONCRETE SHALL CONFORM TO THE FOLLOWING:
DEFORMED BARS SHALL BE ASTM A63 GRADE 60, UNO.
WELDED WIRE FABRIC SHALL BE ASTM A63 AND SHALL HAVE A MINIMUM END AND SIDE LAP OF 6".

MASONRY

- ALL CONCRETE MASONRY UNITS IN WALLS SHALL BE LIGHTWEIGHT AND CONFORM TO ASTM C-90, GRADE N. (7th = 2000psi FOR ALL WALLS) UNO.
- MORTAR AND GROUT FOR USE IN CONCRETE MASONRY BEARING WALLS SHALL CONFORM TO ASTM C-270 TYPE II (2500 psi).
- VERTICAL WALL REINFORCING, 1-# EACH SIDE OF MASONRY OPENINGS, CONTROL JOINTS, AT ALL CORNERS, AND AT 40" O.C. UNO. LOCATE AT CENTER OF CMU UNO. AND HOLD IN POSITION WHILE GROUTING. MAXIMUM GROUT LIFTS SHALL BE 48".
- MASONRY CONTRACTOR SHALL COORDINATE WALL OPENINGS REQUIRED FOR MECHANICAL AND ELECTRICAL SERVICE WITH RESPECTIVE CONTRACTORS.

WOOD FRAMING

- WOOD REQUIREMENTS FOR VARIOUS USES SHALL BE AS FOLLOWS:
a. STRUCTURAL FRAMING LUMBER: # 2 OR BETTER SPRUCE-PINE-FIR
 $F_b = 875$ psi (1000 psi REPEITATIVE IN BENDING)
 $F_v = 70$ psi IN SHEAR PARALLEL TO GRAIN
 $F_c = 425$ psi IN COMPRESSION PERPENDICULAR TO GRAIN (TOP AND BOTTOM)
 $F_c = 1000$ psi IN COMPRESSION PARALLEL TO GRAIN
 $E = 1,400,000$ psi IN MODULUS OF ELASTICITY
b. LAMINATED VENEER LUMBER (LVL)
LVL BEAMS SHALL HAVE DESIGN STRESSES AS FOLLOWS:
 $F_b = 2500$ psi BENDING
 $F_v = 225$ psi HORIZONTAL SHEAR
 $F_c = 700$ psi COMPRESSION PERPENDICULAR TO GRAIN
 $E = 1,800,000$ psi MODULUS OF ELASTICITY
- ALL ROUGH FRAMING SHALL BE EXECUTED IN ACCORDANCE WITH ACCEPTED PRACTICE AND LAID OUT AS CALLED FOR IN THE DRAWINGS.
- ALL WORK SHALL BE CUT AND FITTED AS NECESSITATED BY CONDITIONS ENCOUNTERED AND SHALL BE PLUMBED, LEVELED, AND BRACED WITH SUFFICIENT NAILS, SPIKES, BOLTS AND OTHER FASTENERS TO ENSURE RIGIDITY.
- MASHERS SHALL BE USED IN CONTACT WITH ALL BOLT HEADS AND NUTS THAT WOULD OTHERWISE BE IN CONTACT WITH WOOD.
- INSTALL SHEAR HURRICANE ANCHORS AT BEARING POINTS OF ALL ROOF RAFTERS. ANCHORS ARE TO BE SIZED TO RESIST ROOF TRUSS UPLIFT LOAD. ALIGN WITH STUD AT ANCHOR LOCATIONS WHERE APPLICABLE.
- NOTCHES IN EXTERIOR WALLS OR INTERIOR BEARING WALL STUDS ARE NOT TO EXCEED A 1/4 OF THE STUD WIDTH, AND NO HOLES ARE TO BE BORED GREATER THAN 40% OF THE STUD WIDTH.
- SPECIFIED LUMBER DIMENSIONS ARE NOMINAL. ACTUAL DIMENSIONS SHALL CONFORM TO PS-20
- ALL EXPOSED LUMBER OR LUMBER IN CONTACT WITH THE GROUND SHALL BE TREATED POLYMERIZED NATURAL SELECT
- ALL ROOF SHEATHING SHALL BE APA RATED SHEATHING, EXPOSURE 1 WITH A MINIMUM THICKNESS AS INDICATED ON THE DRAWINGS AND A SPAN RATING MEETING OR EXCEEDING THAT REQUIRED FOR THE DESIGN LOADS AND SPACING OF SUPPORTS.
- ALL SHEATHING SHALL BE INSTALLED CONTINUOUS OVER TWO OR MORE SPANS WITH FACE GRAIN ACROSS SUPPORTS. SHEATHING SHALL BE NAILED AT 6" O.C. ALONG EDGES AND AT 12" O.C. ALONG INTERMEDIATE SUPPORTS WITH 8d COMMON NAILS UNO. ALLOW 1/8" GAP AT PANEL EDGES AND ENDS.
- COORDINATE FRAMING LOCATIONS FOR OPENINGS REQUIRED BY THE MECHANICAL TRADES. WHEN OPENING SIZES REQUIRE SPACING OF FRAMING GREATER THAN THAT SHOWN ON THE DRAWINGS PROVIDE DOUBLE MEMBERS ON EACH SIDE OF THE OPENING AND PROPERLY HEADER THE ENDS OF THE OPENING TO SUPPORT THE INTERMEDIATE MEMBERS. NOTIFY AND CONSULT THE ENGINEER IF SPECIAL FRAMING IS REQUIRED.
- STRUCTURAL FRAMING MEMBERS SHALL BE ADEQUATELY BRIDGED TO ENSURE BEAM STABILITY AS CALLED FOR IN SECTION 4-AJ OF THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS).
- ALL BILL PLATES, BLOCKING AND NAILERS THAT ARE IN DIRECT CONTACT WITH CONCRETE SHALL BE MOISTURE RESISTANT TREATED. ALL JOISTS AND BEAM ENDS IN BEARING ROCKETS SHALL BE PROTECTED AND PHYSICALLY SEPARATED FROM THE ADJACENT CONCRETE.

DRAWING INDEX

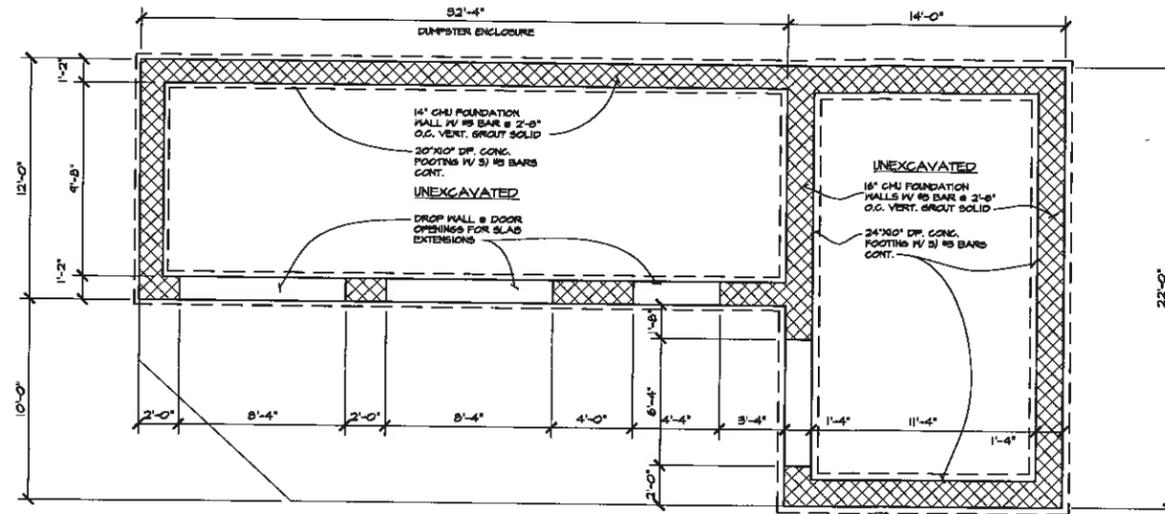
- A21: GENERAL NOTES, DESIGN CRITERIA, FOUNDATION PLAN, FLOOR PLAN
A21: EXTERIOR ELEVATIONS, BUILDING SECTION, WALL SECTIONS

DESIGN CRITERIA:

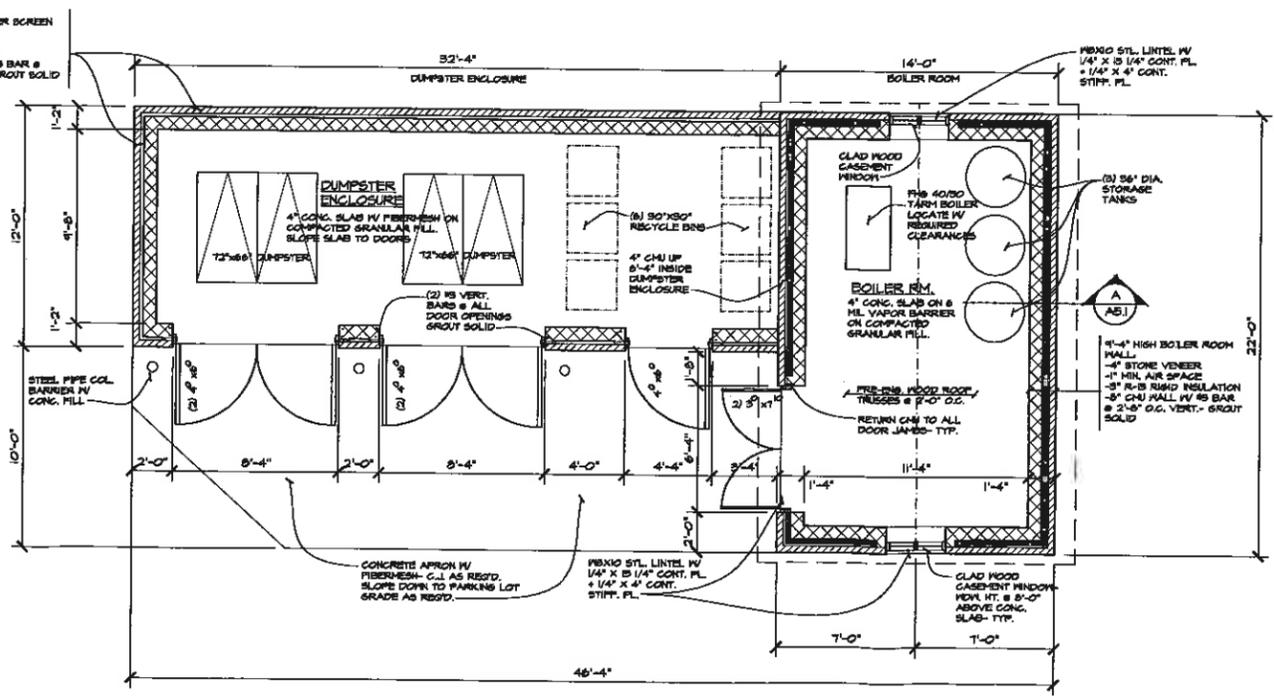
- BASED ON 2012 MICHIGAN BUILDING CODE
- CONSTRUCTION TYPE: TYPE VIB CONSTRUCTION
 - USE GROUPS: U- UTILITY BUILDING
 - BUILDING SQUARE FOOTAGE: 808 GROSS SQ. FT.
DUMPSTER ENCLOSURE: 246 GROSS SQ. FT.
 - OCCUPANT LOAD: 2 OCCUPANTS
 - SNOW: BASED ON 60 PSF GROUND SNOW LOAD
SNOW EXPOSURE FACTOR $C_e = 1.0$
THERMAL FACTOR $C_{t1} = 1.0$
IMPORTANCE FACTOR $I = 1.0$
DRAFTS ON LOWER ROOFS IN ACCORDANCE WITH SECTION 1606.1 OF M-BC
 - WIND LOADS:
WIND SPEED = 90 MPH (BASED ON A 3 SECOND GUST)
EXPOSURE C - FULLY EXPOSED
IMPORTANCE FACTOR $I = 1.0$

METAL PLATE CONNECTED WOOD TRUSSES

- PREFABRICATED WOOD ROOF TRUSS COMPONENTS, INCLUDING TEMPORARY AND PERMANENT LATERAL BRACINGS, SHALL BE DESIGNED BY THE TRUSS SUPPLIER UNDER THE DIRECT SUPERVISION OF A STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE TRUSSES ARE FABRICATED AND IN THE STATE OF MICHIGAN.
- TRUSS MANUF. SHALL PROVIDE SHOP DRAWINGS SEALED BY A LICENSED STATE OF MICHIGAN ENGINEER. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING MINIMUM REQUIREMENTS:
a. TRUSS CONFIGURATION
b. DESIGN LOADS AND LOAD COMBINATIONS
c. END REACTION FORCE
d. LUMBER SIZE, SPECIES AND GRADE FOR EACH MEMBER
e. METAL PLATE CONNECTOR SIZE
f. CONNECTION REQUIREMENTS FOR TRUSS TO GIRDER, TRUSS PLY TO PLY AND FIELD
g. PERMANENT LATERAL BRACINGS/BRIDGING REQUIREMENTS FOR TRUSS COMPONENTS
h. TRUSS DEFLECTION
- TRUSSES SHALL BE DESIGNED AND FABRICATED PER TRUSS PLATE INSTITUTE, INC. SPECS.
- TRUSS LOADINGS: SEE DESIGN LOADS
- THE CONTRACTOR SHALL PROVIDE PERMANENT LATERAL BRACINGS/BRIDGING THAT IS DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF MICHIGAN. THE DESIGN SHALL BE BASED ON THE TRUSS MANUFACTURER'S REQUIREMENTS AND IS REQUIRED TO TRANSFER ALL LATERAL LOADS TO THE TRUSS BEARING LOCATIONS. PERMANENT LATERAL BRACINGS SHALL INCLUDE THE FOLLOWING AS A MINIMUM REQUIREMENT:
a. CONTINUOUS LATERAL BRACINGS (CLB) AS SPECIFIED ON THE TRUSS DESIGN DRAWINGS SHALL BE INSTALLED WITH DIAGONAL BRACINGS, SPACED AT 20'-0" MAXIMUM INTERVALS.
b. TRUSS KEELS AT SUPPORT BEARING LOCATIONS SHALL BE LATERALLY BLOCKED/BRACED TO TRANSFER LATERAL LOADS AND STABILIZE THE TRUSS CHORDS.
c. BOTTOM CHORD LATERAL BRACINGS (CLB) SHALL BE INSTALLED AT 10'-0" MAXIMUM INTERVALS. BOTTOM CHORD CLB SHALL INCLUDE DIAGONAL BRACINGS AT 20'-0" MAXIMUM INTERVALS. LOCATE BOTTOM CHORD CLB ADJACENT TO TRUSS WEB CLB.
d. CONTINUOUS LATERAL BRACINGS (CLB) SHALL BE INSTALLED AND CONNECTED TO EACH TRUSS WITH MINIMUM (2) 1/2" NAILS. LAP CLB A MINIMUM OF ONE TRUSS SPACE.
e. DIAGONAL BRACINGS SHALL BE INSTALLED AND CONNECTED TO EACH TRUSS WITH MINIMUM (2) 1/2" NAILS.
f. BRACING MEMBER SHALL BE MINIMUM 2x4 SPP #2 OR BETTER
- WOOD TRUSSES AND/OR STRUCTURAL FRAMING ARE SHOWN AS A GENERAL LAYOUT ONLY AND THE EXACT PLACEMENT SHALL BE FIELD VERIFIED. HOWEVER FRAMING PLACEMENT SHALL NOT EXCEED THE DRAWING REQUIREMENTS.



FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



FLOOR PLAN
SCALE: 1/4" = 1'-0"

INSTALL CONCRETE SLAB CONTROL JOINTS AT DOOR & BUILDING INTERSECTIONS & AS REQUIRED PER CODE.

TRAVERSE ARCHITECT GROUP
830 Cottageview Dr., Ste. 201
P.O. Box 4015
Traverse City, MI 49686
Ph: 231-946-9900 Fax: 231-946-9920



GENERAL NOTES
FOUNDATION PLAN
FLOOR PLAN

NEW WINE PROCESSING/ TASTING FACILITY
VILLA MARI WINERY
VILLA MARI L.L.C.
8175 CENTER ROAD
TRAVERSE CITY, MI 49686

<input type="checkbox"/>	PRELIMINARY
<input checked="" type="checkbox"/>	CONSTRUCTION
<input type="checkbox"/>	FINAL RECORD
DRAWING HISTORY:	
DATE	DESCRIPTION
10/21/14	#1 BULLETIN
12/28/15	#2 BULLETIN
3/8/17	#3 BULLETIN
10/15/18	BOILER RM.
DRAWN BY: DLS	
CHECKED BY: CLIENT	
DATE:	10/15/18
JOB NO.:	13044
SHEET #	
A2.1	



FHG-L

Models 20, 30, 40, and 50

Technical Datasheet



Frothing FHG-L

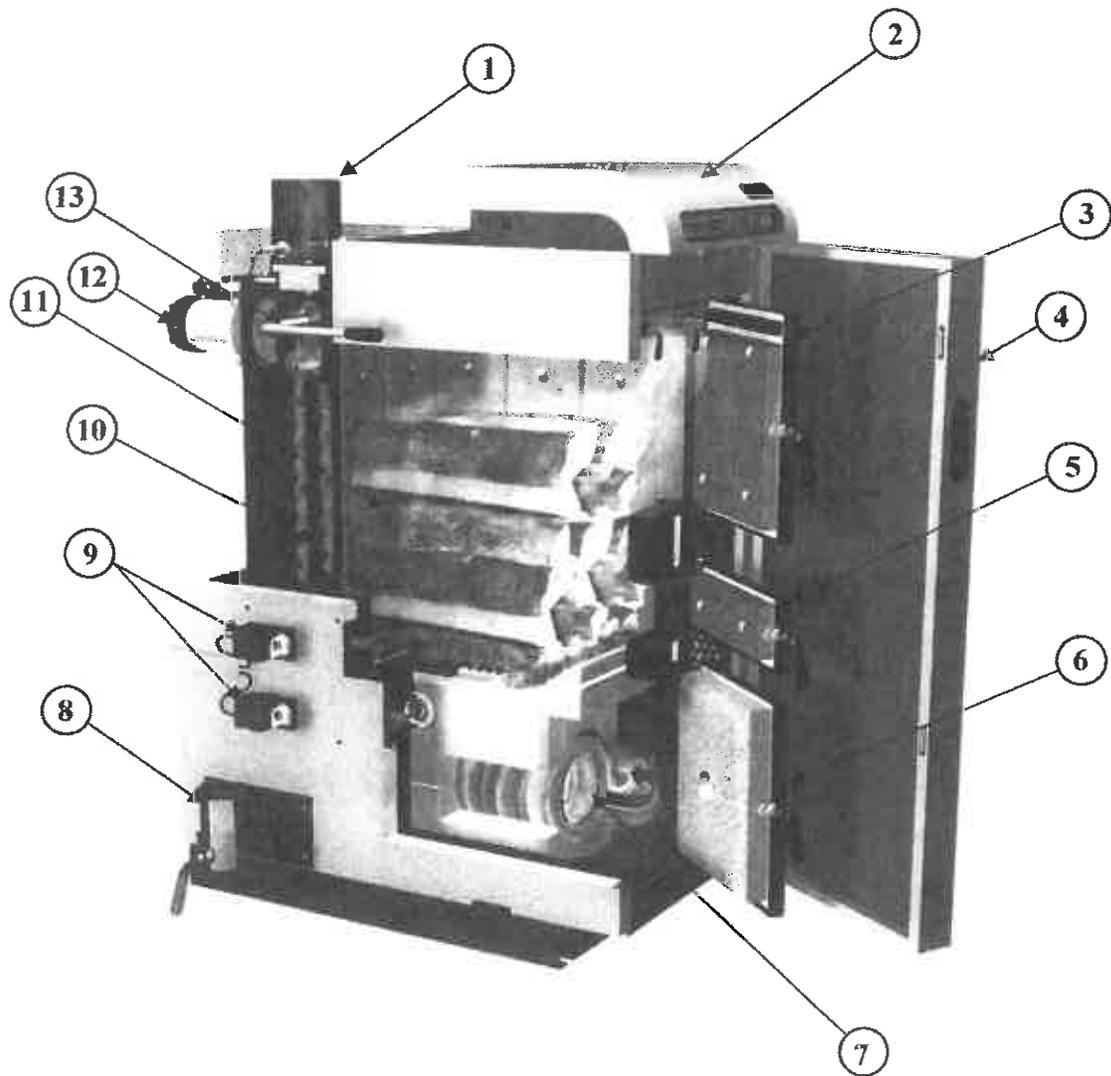
The FHG-L is a patented, wood-fired gasification boiler available in two sizes with outputs from 70,000-170,700 Btu/hr.



Benefits at a Glance:

- Add on to your existing fossil-fuel-fired or electric heating system
- Can be used with hot water baseboard, radiant floor, or hot air systems.
- Overall efficiencies of over 80%.
- Clean burn with virtually no smoke or creosote.
- Large easily accessible firebox.
- Smoke-free loading.
- Easy to clean manual; turbulators for heat exchanger tubes.
- Covered by a 20-year limited warranty.

Boiler Information
Boiler Overview

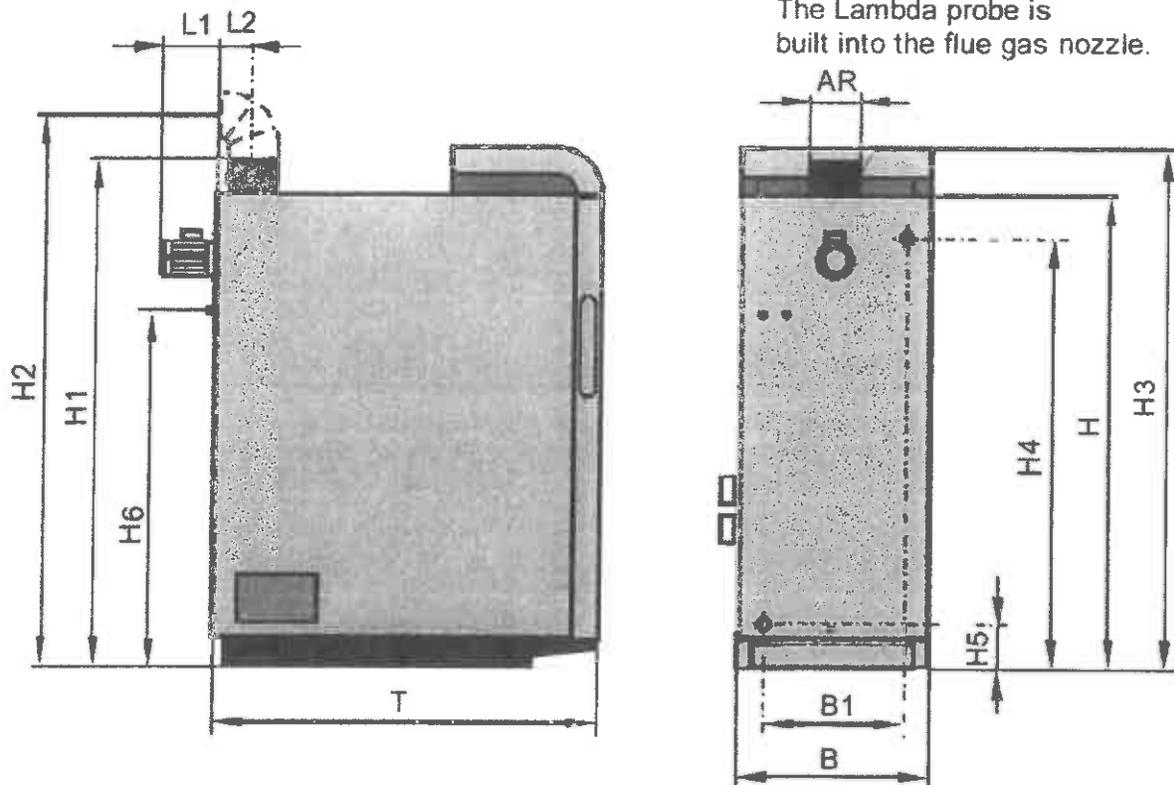


- | | |
|---|--|
| 1. Exhaust Stack | 8. Side cleaning port door |
| 2. Lambdatronic S 3200 control | 9. Server-controlled primary and secondary air dampers |
| 3. Fuel loading door | 10. Heat Exchangers |
| 4. Insulating door for reduced heat radiation | 11. Firebox |
| 5. Pre-heating chamber | 12. Draft Fan |
| 6. Combustion chamber door | 13. Lever for heat exchanger cleaning system |
| 7. Combustion chamber | |

Specification Data

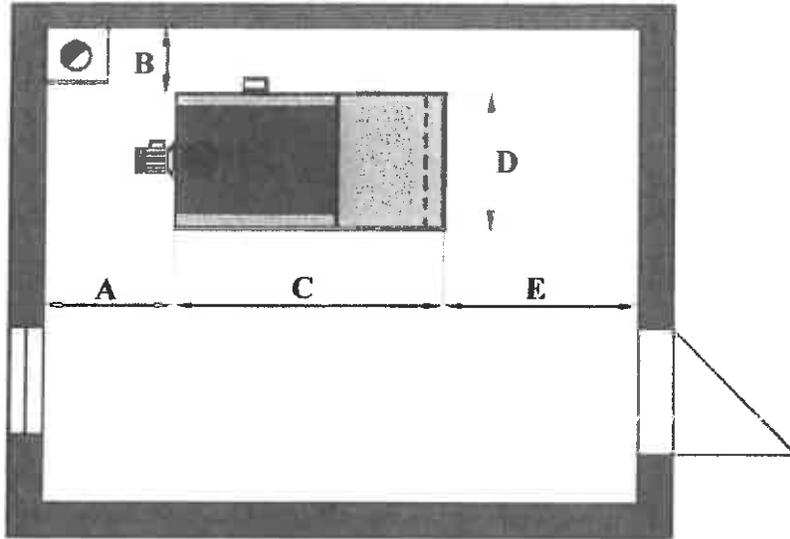
Component	Units	FHG 20	FHG 30	FHG 40	FHG 50
Depth-Boiler-Total	inches	45.25	45.5	49.5	49.5
Width-Boiler-Total	inches	22.75	22.75	22.75	22.75
Height-Boiler-Total	inches	61.75	62	65.75	65.75
Flue Collar Diameter	inches	6	6	6	6
Rated Heat Output	Btu/Hr	70,000	102,500	136,560	170,700
Heating Efficiency Range	Btu/Hr	35,000-70,000	51,250-102,000	68,280-136,560	85,350-170,700
Electrical Connection	V/Hz	240/60	240/60	240/60	240/60
Electrical Consumption	W	180	180	180	180
Output Temperature Range	°F	158-194	158-194	158-194	159-194
Boiler Weight	Pounds	1150	1150	1345	1345
Loading Door	inches	13 X 14½	13 X 14½	13 X 14½	13 X 14½
Firebox Volume	Cu Ft	5	5	7.4	7.4
Wood Length	inches	21	21	21	21
Water Contents	Gallons	32	32	50	50
Upstream Resistance	Psi	.042	.094	.157	.245
Minimum Return Feed Temperature	°F	131	131	131	131
Maximum Operating Temperature	°F	203	203	203	203
Maximum Operating Pressure	Psi	43.5	43.5	43.5	43.5
Permitted Fuel		Firewood	Firewood/Coarse Waste-Wood	Firewood/Coarse Waste-Wood	Firewood/Coarse Waste-Wood
Boiler Test Pressure	Psi	65	65	65	65
Flue Gas Temperature Rated Load/Partial Load	°F	303/203	329/212	311/214	253/223
Minimum Draft Required Rated Load/Partial Load	Inch WC	-0.060/-0.028	-0.060/-0.040	-0.072/-0.040	-0.072/-0.040

Specification Data



Description	Units	FHG20/30	FHG40/50
H- Total Height of Boiler	inches	56	60
H1-Height of Flue Gas Pipe Connection	inches	60¼	64
H2-Height of Flue Gas Pipe Connection Including an Elbow	inches	69	72¼
H3-Total Height of the Boiler Including the Controller	inches	61¼	65¼
H4-Height of Supply Feed Connection	inches	50¼	54
H5-Height of Return Feed Connection	inches	5	5
B-Total Width of Boiler	inches	22¼	26¼
B1-Width Between Supply and Return Feed Connections	inches	14	18
T-Boiler Total Depth	inches	45½	50¼
L1-Length of Induced Draft Fan	inches	7	7
L2-Distance between center of Flue Pipe and Back of Boiler	inches	4¼	4¼

Boiler Clearances



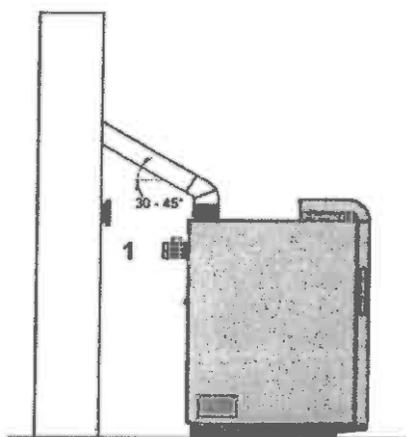
Clearances to Combustibles			
Measurement	Units	FHG 20/30	FHG 40/50
A-Backwall to Appliance	inches	21	21
B-Sidewall to Appliance	inches	12-20	12-20
C-Boiler Depth	inches	45½	50¼
D-Boiler Width	inches	22½	27
E-Distance in Front of Boiler	inches	32	32
Combustibles to Flue Pipe	inches	18	18

System Design Considerations

Sizing

It is critical to size the boiler properly. A proper, up to date heat load calculation is advised. An accurate history of building fuel usage over several years can help to calculate the proper size boiler. Be wary of using simple techniques based only on square footage. The heat load of a home can vary widely depending on age and type of heating system and location of the home. Boiler sizing is the responsibility of the installer. Tarm Biomass bears no responsibility for boiler sizing, but can provide sizing input.

Chimney



The chimney is the most critical factors in the successful operation of any solid fuel heater, including the FHG-L boiler. A good chimney will provide a continuous and dependable draft to pull the exhaust gasses out of the building. The boiler must be connected to a tile-lined masonry chimney or to a Factory-Built Type UL 103 HT (ULC S629 in Canada) approved chimney. The chimney must be in good condition. If the boiler is connected to a dirty or inadequate chimney, it can present a serious fire hazard. All chimney connections must conform to NFPA standard #211. No other appliance should be con-

nected to this flue unless allowed by the local code authority. Consult your local inspector for chimney requirements and install the boiler in accordance with all applicable codes.

The installation of a barometric damper (1) is recommended. The barometric damper should be mounted under the mouth of the flue gas pipe, since an under-pressure condition can always be found there.

Outside Combustion Air

Provision for outside combustion air may be necessary to ensure that fuel-burning appliances do not discharge products of combustion into the house. Guidelines to determine the need for additional combustion air may not be adequate for every situation. If in doubt, it is advisable to provide additional air.

The FHG-L boiler is not suitable for direct connection to outside air. Outside air should be ducted to no closer than 12" from the boiler.

The boiler must not be installed in an area or room where there are flammable liquids or combustibles. Examples include, refrigerants, paint, thinner, bleach, etc.

Boiler Location

The boiler is not suitable for outdoor installation. It must be located in a weather-tight, protected space. The boiler must be placed on a level, non-combustible floor, such as a concrete slab on earth. If the boiler is placed near inhabited rooms, so that the flue gas can easily penetrate into these rooms, a carbon monoxide alarm must be installed that can give a warning regarding possible escapes of carbon monoxide into the inhabited rooms.

Electrical

For the FHG-L boiler a 240 VAC, 60 hertz, 4 wire power supply is required. This electrical connection should be from a dedicated 15 amp. circuit breaker. A master service switch for the boiler, mounted on the wall in the proximity of the boiler, is recommended. Locally enforced electrical codes must be followed.

Water Quality

If water quality is poor, water treatment should be considered. Boiler system pH should be 8.0-8.6.

An anti-freeze can be utilized in areas where freezing could occur. Automotive or silicate-based anti-freeze cannot be used. Use only anti-freeze approved for heating systems. Using anti-freeze can cause a loss in heating efficiency and some heating components within the system could be negatively impacted.

System Plumbing

For the heating system piping, it is possible to use either copper or iron piping materials. The supply and return pipe should be insulated to avoid heat loss.

In systems where plastic tubing is used, it must have an oxygen diffuser barrier. If non-oxygen barrier tubing is used, the boiler must be separated from the tubing by a heat exchanger.

A thermostatic mixing valve, set to open at 140 °F (60 °C), is required to temper return water to prevent cold return water from reaching the boiler. This valve helps prevent boiler corrosion.

Boiler Accessories

- Termovar Mixing Valve
- Termovar Loading Unit
- Aquastats
- Thermal Storage Systems



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Fröling FHG 40/50 Wood Boiler | High Efficiency Wood Boiler with Advanced Lambda Gasification Technology

SKU:KFHGL40/50WOOD

Brand:Fröling



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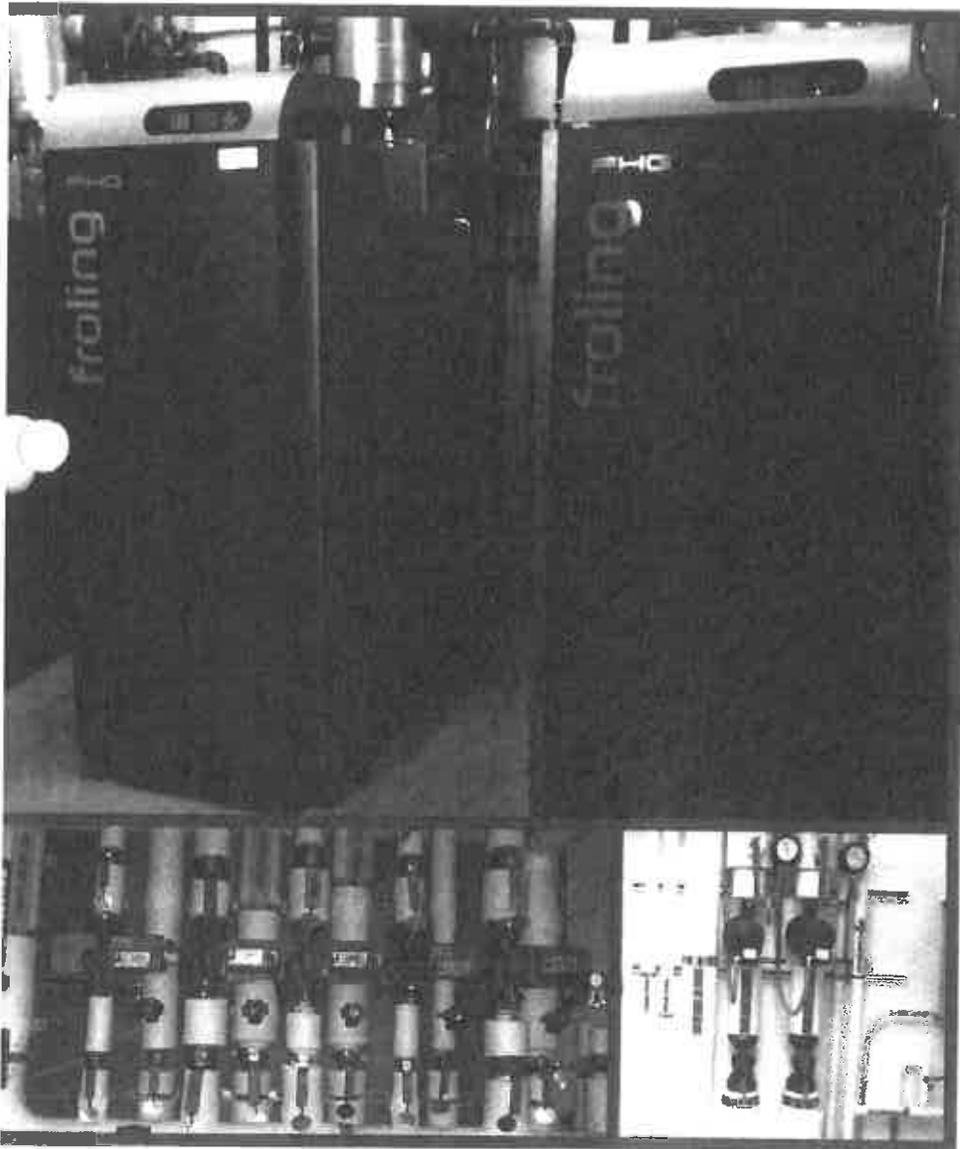
Description	Unit	40'	50'
Rated Heat Output	Btu/Hr	136,560	170,700
Heating Efficiency Range	Btu/Hr	66,200	85,350
		136,560	170,700
Electrical Connection	V/Hz	240/60	240/60
Electrical Consumption	W	180	180
Output Temperature Range	°F	158-194	158-194
Boiler Weight	Pounds	1600	1600
Fuel Loading Chamber Door	inches	13 x 14.50	12 x 14.50
Fuel Loading Chamber Capacity	Cu Ft	7.4	7.4
Wood Length	inches	21	21
Water Contents	Gallons	50	50
Upstream Resistance	Psi	0.157	0.245
Minimum Return Feed Temperature	°F	131	131
Maximum Operating Temperature	°F	203	203
Maximum Operating Pressure	Psi	43.5	43.5
Permitted Fuel		Firewood/ Course wood waste	Firewood/ Course wood waste
Boiler test Pressure	Psi	65	65
Flue Gas Temperature	°F	311	253
		214	223
Minimum Draft Required	Inch WC	-0.072	-0.072
		-0.040	-0.040

* Hydraulic Module required

HEATING WITH WOOD

Wood Boiler Planning Guide

- Boiler Planning
- Plumbing Layouts
- Thermal Storage
- Clearances
- Wiring



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Wood

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Wood Boiler
Planning Guide

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Design and chimney information....	5
Boiler clearances.....	7
Plumbing schematics.....	8
System design.....	14
Wiring.....	17
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Tarm Biomass® - Improving the way you live!

Dear Valued Tarm Biomass® Customer

At Tarm Biomass® we want to make your installation go as smooth as possible. This document includes important design criteria including clearances, chimney requirements, thermal storage sizing, system concept diagrams, and wiring.

The system concepts shown in this guide are only examples and they should not substitute for complete system planning.

We reserve the right to make technical changes without prior notice.

If more information is needed, please contact your local Tarm Biomass® dealer or call us directly at 1-800-782-9927.

Thank You,

Tarm Biomass®

About
Tarm Biomass®

Tarm Biomass® is a third-generation, family-owned business that has pioneered the sales and service of high efficiency biomass boilers in North America for over 30 years.

Tarm Biomass® primary objective is to offer innovative heating solutions, paired with a significant commitment to consumer education and environmental awareness. Exclusive partnerships with ISO 9001 certified manufacturers allows Tarm Biomass® to offer products with reliability and very high overall efficiency, all while promoting the utilization of carbon-cycle biomass that is critical to the lowering of net greenhouse gas emissions.

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Boiler Sizing

Sizing a boiler properly is critical for ensuring a problem-free installation. A boiler must not only be large enough to meet the heating needs of the building, but also meet the demands of those who tend it. A boiler that is too small may not keep up with a heating load or even if it can keep up, may still demand too much tending and too many fillings. A boiler that supplies more heat than the heating load demands will require a larger thermal storage tank to perform properly. While proper sizing of a boiler requires the heat loss analysis of a skilled installer, there are rules of thumb and other information that can help guide a sizing decision such as historical fuel usage, building size, type of heating system, any new or future building improvements, and/or the number of linear feet of radiant tubing or baseboard radiators. Installation of thermal storage significantly improves the likelihood that an over-sized wood boiler will meet heating loads while not operating inefficiently or in a way that will damage the boiler. The installer bears responsibility for proper boiler sizing.

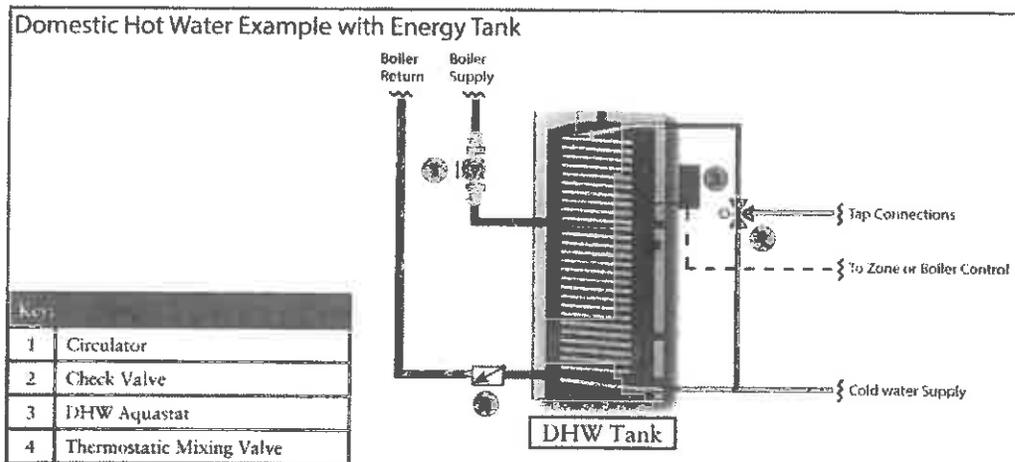
Thermal Storage Tank Sizing

All wood boilers benefit from thermal storage. The most advanced and efficient wood boilers available are designed for use with thermal storage and will not perform to their design capability without thermal storage. For that reason all Tarm Biomass® wood boilers require thermal storage and it is important to size the storage tanks properly. A volume of 75-85 gallons of thermal storage per 10,000 Btu's of boiler output is ideal, though sometimes smaller volumes provide perfectly satisfactory operation. More thermal storage volume is almost always better. Added storage volume increases the number of hours or days between re-firing a boiler while allowing for less discretion about how much wood to load in the firebox each firing. Other factors to consider are boiler combustion chamber size, house characteristics, summer/shoulder season use, and lifestyle. At Tarm Biomass® we prefer pressurized thermal storage, but offer pressurized and unpressurized thermal storage options. For your convenience, there is a chart below that can be used to determine proper thermal storage sizing.

Tank Sizing (Minimum-Ided)	
Boiler Model	Volume (gals)
Bonus Plus 30	300-600
Solo Innova 30	400-850
Solo Innova 50	600-1500
Froling 20/30	400-850
Froling 40/50	600-1500

Domestic Hot Water Production

Domestic hot water can be produced at the same time that building heat is provided by using an indirect hot water heater. A smaller tank than those used for thermal storage, an indirect hot water heater, is connected to your heating system like a heating zone. The wood boiler system or your back-up boiler heats potable water through a heat exchanger within the tank. This is a very energy efficient and effective way of producing hot water using renewable energy. At Tarm Biomass® we offer indirect hot water heating options with very large heat exchangers. These heaters provide instantaneous potable hot water at lower boiler water or thermal storage tank temperatures.



The Chimney

The chimney is one of the most critical factors in the successful operation of any wood boiler. A good chimney will provide a continuous and dependable draft to pull the exhaust gasses out of the appliance.

Flue gas exhaust temperature can be low enough to cause condensation in chimneys. Condensation will over time, damage a masonry chimney. Accordingly, installation of a stainless steel chimney liner (made with 304, 316, or 321 alloys) inside the chimney flue is worth considering. Chimneys located outside the warm envelope of a building are especially susceptible to down-drafting and condensation. "Outside" chimneys often benefit greatly from insulated stainless steel chimney liners.

The chimney draft must be stable. The top of the chimney must be 3 feet above the roof and 2 feet above any structure within 10 feet measured horizontally. Please refer to NFPA 211.

Boiler data for planning the flue gas system

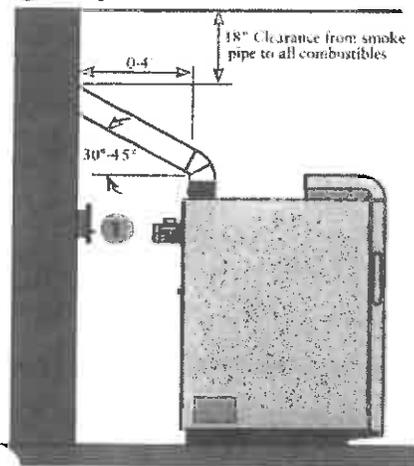
Chimney Data	Unit	Boiler Model				
		Bonus 30	Solo Innova 30	Solo Innova 50	FHG 20/30	FHG 40/50
Flue Gas Temperature at Nominal Load	°F	363	330	305	300-340	300-340
Minimum Draft	inches WC	.04	.04	.04	.03	.03
Maximum Draft	inches WC	.06	.10	.10	.10	.10
Flue Pipe Diameter	inches	5-6*	6*	6*	6*	6*
Distance to center of flue	inches	28	45¼**	45¼**	69***	72¼***

*flue collar adaptor required. **flue connector in horizontal position. ***includes a 90° connecting elbow.

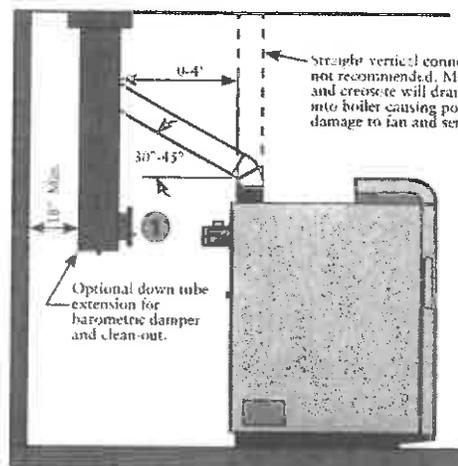
Chimney Connection

The smoke pipe connecting the boiler to the chimney flue must be black or stainless steel, have a minimum thickness of 24 gauge, and rise a minimum of ¼" per foot of run toward the chimney. Smoke pipe sections must be attached to one another with a minimum of three sheer metal screws and sealed with a high-temperature sealant such as high temperature silicone. The smoke pipe should not contain more than two 90° elbows (45° elbows are preferred over 90° elbows).

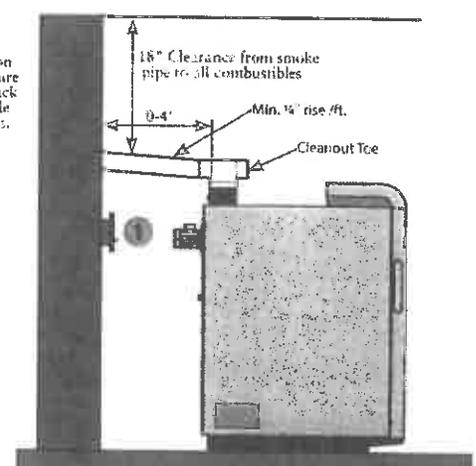
A barometric draft regulator is installed only when there is the presence of excessive or irregular draft. A strong natural draft can cause the boiler to continue burning when the draft fan is off. This is highly unlikely with boilers connected to a thermal storage system because the draft fan should rarely be off. If however, an irregular draft is present a barometric draft regulator can be installed. Boilers with an induced draft fan must have a sealed chimney connection to prevent ash and dust from penetrating into the room. A barometric draft regulator should be installed in position 1 as shown in the images below. With the barometric draft regulator installed below the flue connection it is not in the air flow path of the boiler and is on the negative pressure side of the connection.



Boiler connected to chimney with connecting flue at 30-45° to help prevent ash build-up in flue.



Boiler connected to manufactured chimney.



Boiler connected to chimney with minimum ¼" rise per foot. A cleanout tee is recommended for easy ash cleanout.

Outside Combustion Air

Provision for outside combustion air may be necessary to ensure that the wood burning appliance does not discharge products of combustion into the building. Guidelines to determine the need for additional combustion air may not be adequate for every situation. If in doubt, it is advisable to provide additional air. The Canadian ANSI/NFPA requirement is 1 in², per 1,000 Btu/hr. The European ÖNORM H 5170 standard states that all fan-assisted boilers need a supply cross section of 2 cm² per kW (.3 in² per 3412 Btu/hr) of rated output. Please follow all applicable local codes.

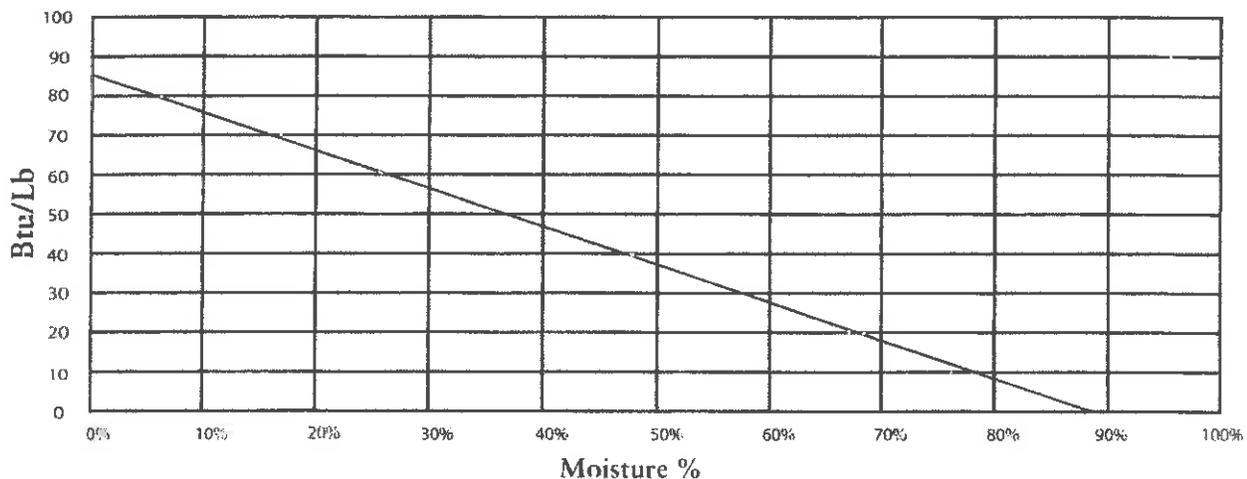
Electrical Connection

The HS Tarm Bonus Plus 30 requires a 120 VAC, 60 Hertz, 3-wire power supply. The electrical connection should be from a dedicated 15 amp circuit breaker.

The HS Tarm Solo Innova and Fröling FHG both require a 240 VAC, 4-wire power supply. The electrical connection should be from a dedicated 15 amp circuit breaker.

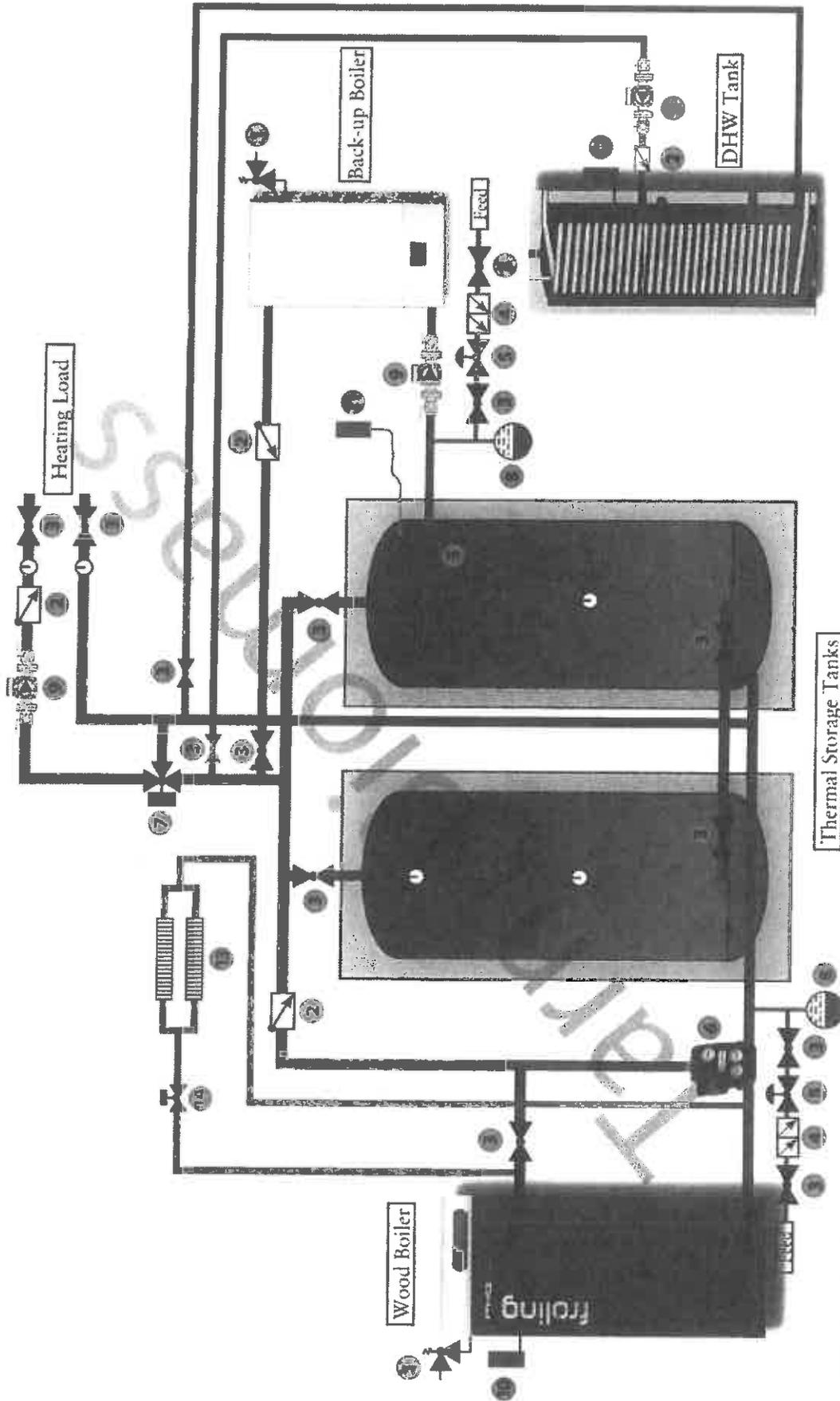
Wood Fuel

Preparing firewood properly is very important. A common mistake is acquiring firewood too late to allow adequate time for proper drying. A drying time of one to two years is required to properly dry firewood, especially for dense wood species like oak and maple. Tarm Biomass[®] wood boilers are designed to burn clean, dry cord wood. They can burn any species that is cut and split into pieces not larger than 4-6" thick with lengths between 18-20". Oak ideally is not burned as the only source of wood for long periods because of its high tannic acid content. When oak is the predominant species available, try to mix it with other species. The wood must be dry, with a moisture content between 15-25% (15-18% being ideal). In addition to increasing the likelihood of generating creosote in the boiler and chimney, burning wet wood uses a substantial amount of available energy in the wood to evaporate the water present in the wood, reducing the available energy for heat (see the chart below). Properly preparing, stacking, and covering firewood will result in much less labor in the long run.



Wood System Example 1

This is only a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



Thermal Storage Tanks

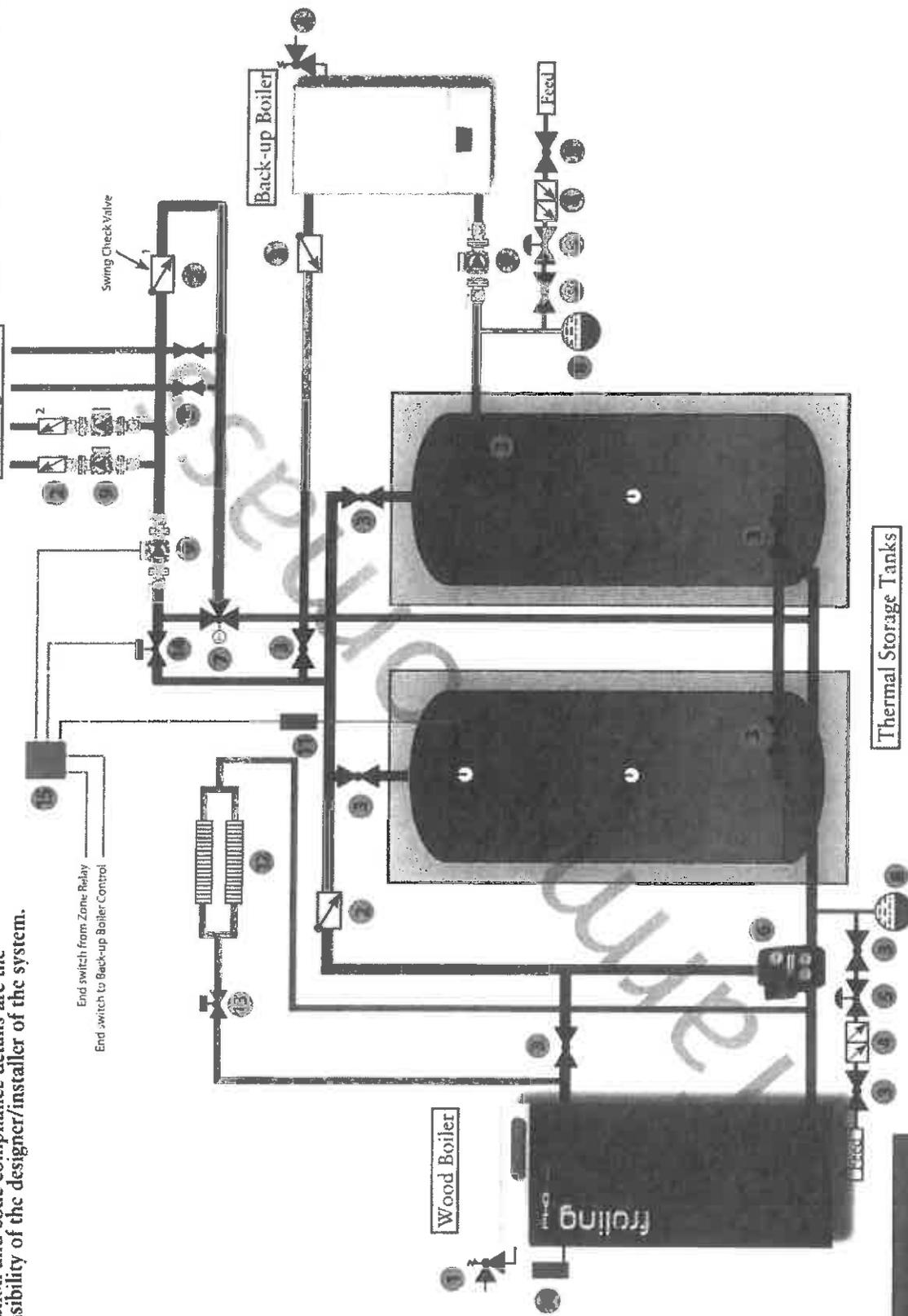
TARM BIOMASS
 Innovative Leaders in Alternative Heating Solutions

Drawing Name: PTS	Date: 10-20-2014
Drawn by: TSP	
Notes: * Items available at Tarm Biomass.	

Key	5	Pressure Reducing Valve	10	Aquastat-Overheat*	
1	Pressure Relief Valve	6	LK 810 Loading Unit*	11	Aquastat-Back-up Control*
2	Check Valve	7	Smart Comfort Mixing Valve*	12	Aquastat-DHW Control*
3	Isolation Valve	8	Expansion Tank*	13	Emergency Gravity Loop
4	Back-flow Preventer	9	Circulator*	14	AutoMag Zone Valve*

Wood System Example 2

This is only a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



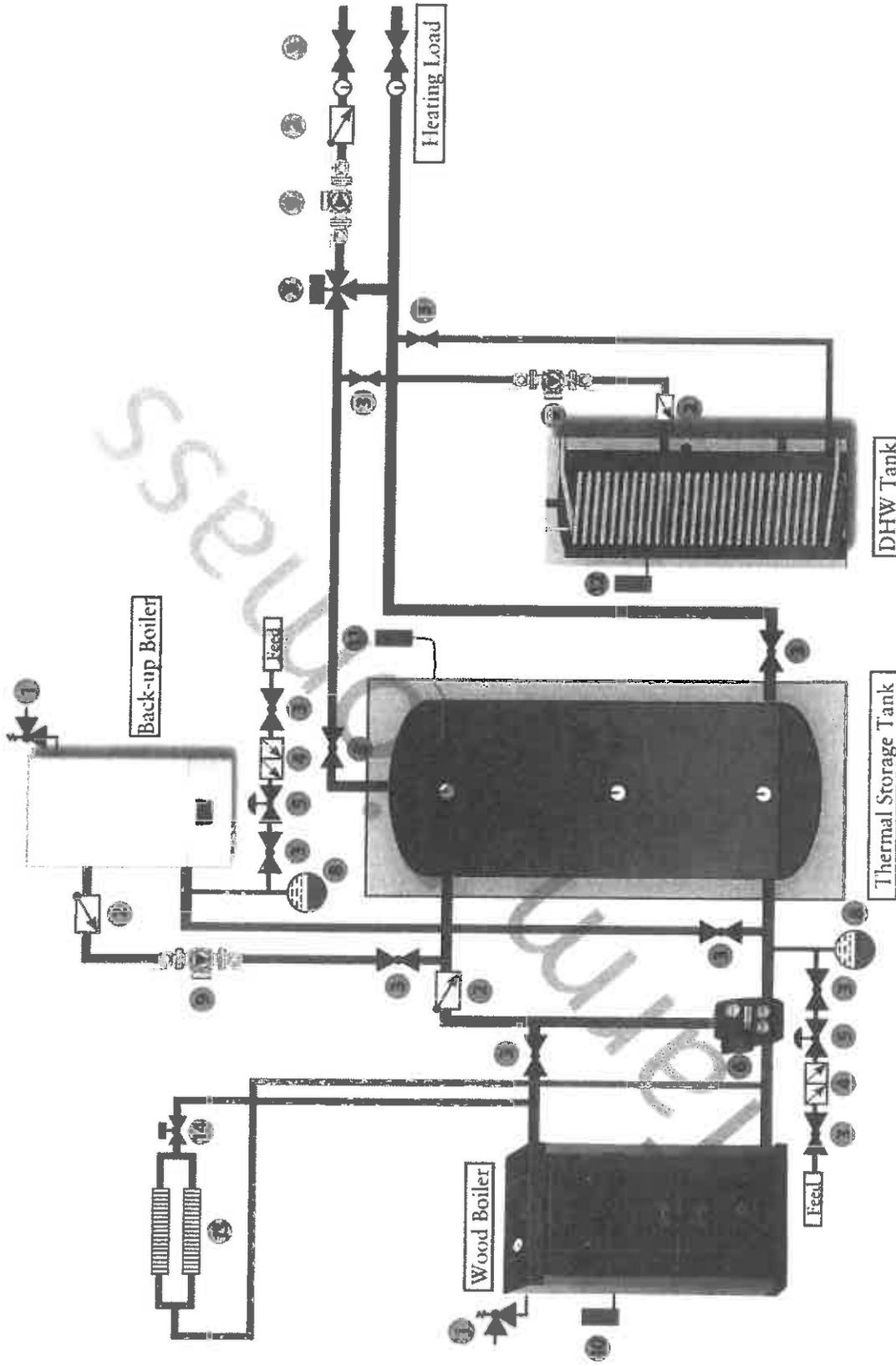
End switch from Zone Relay
End switch to Back-up Boiler Control

Thermal Storage Tanks

Drawing Name: PT6					
Drawn by: TSP	Date: 10-20-2014				
Notes: 1 Must be a swing check valve. : Check Valves Shown Vertically (Conceptual). *Items Available at Tarm Biomass					
1	Pressure Relief Valve	6	LK 810 Loading Unit*	11	AquaStat-Back-up Control*
2	Check Valve	7	IK 821 Diverter Valve*	12	Emergency Gravity Loop
3	Isolation Valve	8	Expansion Tank*	13	AutoMag Zone Valve*
4	Back-flow Preventer	9	Circulator*	14	ZV-1 Full Port Zone Valve*
5	Pressure Reducing Valve	10	AquaStat-Overheat*	15	Tarm BLT Switch Control*

Wood System Example 3

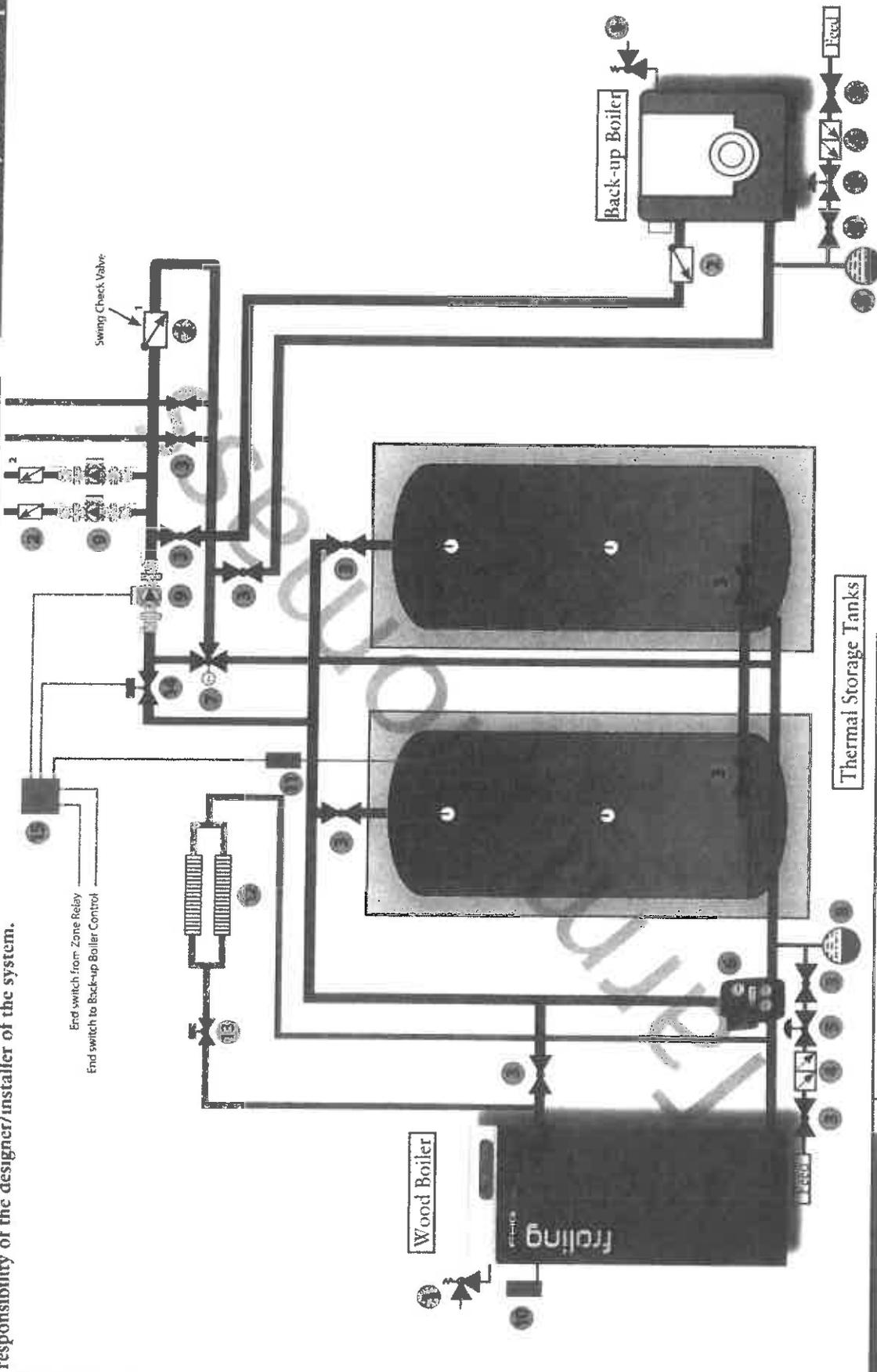
This is only a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



Drawing Name: PT8	
Drawn by: TSP	Date: 10-20-2014
Notes: * Available at Tarm Biomass	
1	Pressure Relief Valve
2	Check Valve
3	Isolation Valve
4	Back-flow Preventer
5	Pressure Reducing Valve
6	LK 810 Loading Unit
7	Smart Comfort Mixing Valve*
8	Expansion Tank*
9	Circulator*
10	Aquastat-Overheat*
11	Aquastat-Back-up Control*
12	Aquastat-DHW Control*
13	Emergency Gravity Loop
14	AutoMag Zone Valve*

Wood System Example 4

This is only a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



Thermal Storage Tanks

Key	6	LK 810 Loading Unit*	12	Emergency Gravity Loop	
1	Pressure Relief Valve	7	LK 821 Diverter Valve*	13	AutoMag Zone Valve*
2	Check Valve	8	Expansion Tank†	14	ZV-1 Full Port Zone Valve*
3	Isolation Valve	9	Circulator*	15	Tarm BLT Switch Control†
4	Back-flow Preventer	10	Aquastat-Overheat*		
5	Pressure Reducing Valve	11	AquaStat-Back up Control†		

Drawing Name: PT3

Drawn by: TSP Date: 10-20-2014

Notes: † Must be a swing check valve.

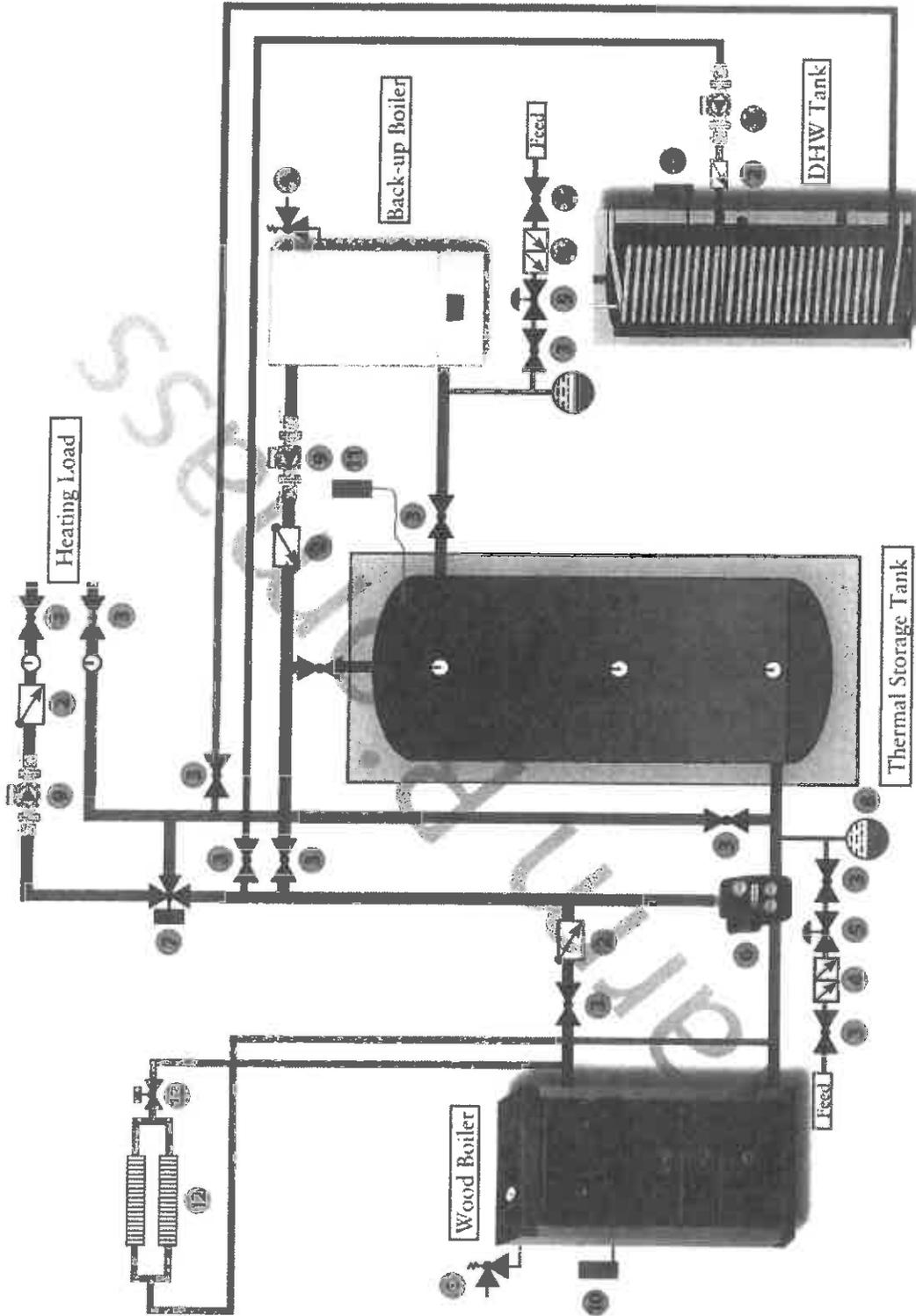
‡ Check Valves Shown Vertically (Conceptual).

* Items Available at Tarm Biomass



Wood System Example 5

This is only a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



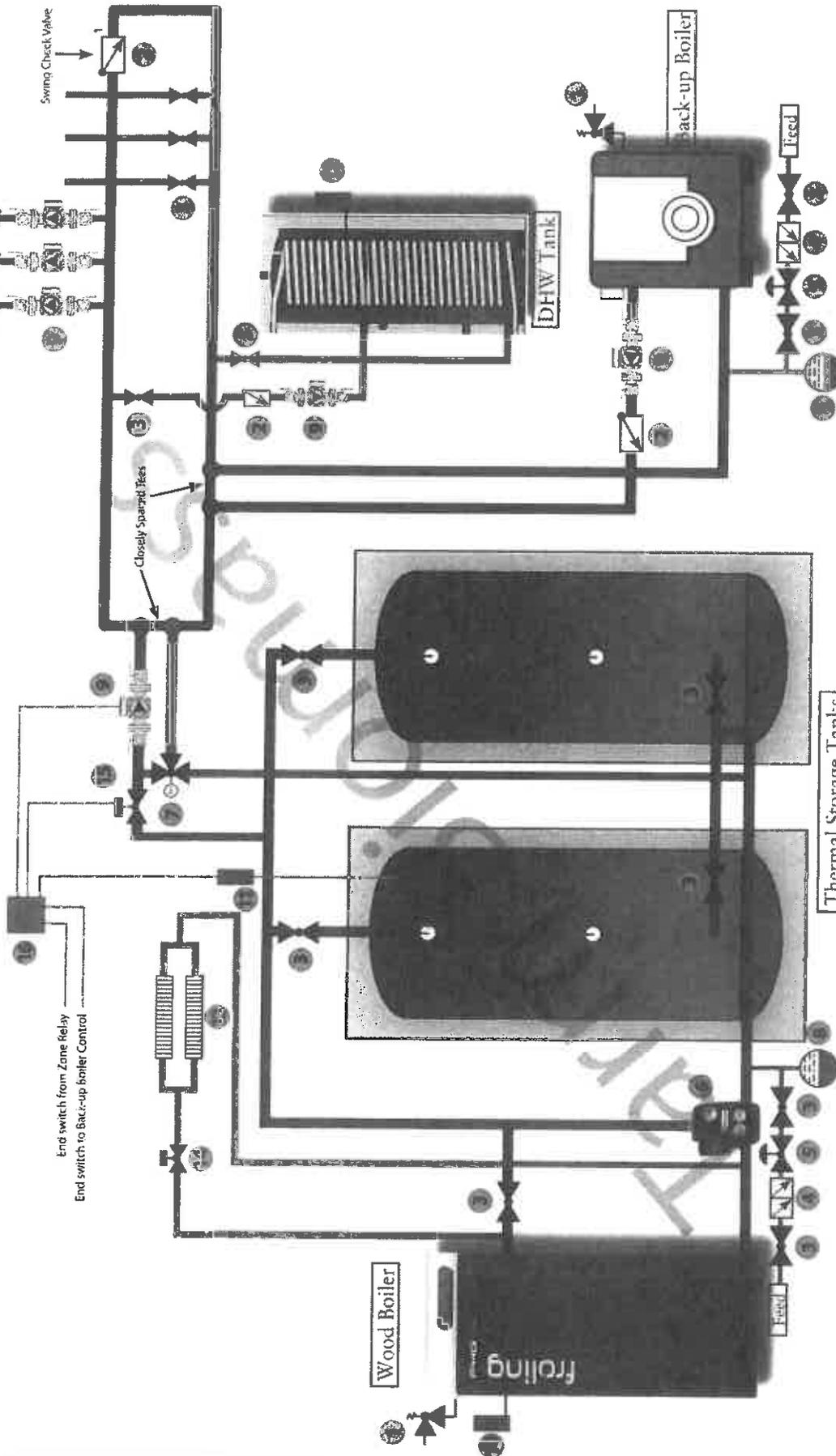
Drawing Name: PT7
 Drawn by: TSP Date: 10-20-2014
 Notes: * Items available at Tarm Biomass



Qty	5	Pressure Reducing Valve*	10	Aquastat-Overheat*	
1	Pressure Relief Valve	6	IK 810 Loading Unit*	11	Aquastat-Back-up Control*
2	Check Valve	7	Smart Comfort Mixing Valve*	12	Emergency Gravity Loop
3	Isolation Valve	8	Expansion Tank*	13	AutoMag Zone Valve*
4	Back-flow Preventer	9	Circulator*		

Wood System Example 6

This is a concept drawing. Final design, installation and code compliance details are the responsibility of the designer/installer of the system.



Thermal Storage Tanks

Key	6	LK 810 Loading Unit*	12	AquaStat-DHW Control*	
1	Pressure Relief Valve	7	L.K. 821 Diverter Valve*	13	Emergency Gravity Lowp
2	Check Valve	8	Expansion Tank*	14	AutoMag Zone Valve*
3	Isolation Valve	9	Circulator*	15	ZV-1 Full Port Zone Valve*
4	Back-flow Preventer	10	AquaStat-Overheat*	16	Tarm BLT Switch Control*
5	Pressure Reducing Valve	11	AquaStat-Back-up Control*		

Drawing Name: PT6

Drawn by: TSP Date: 10-20-2014

Notes: * Must be a swing check valve.

: Check Valves Shown Vertically (Conceptual).

*Items Available at Tarm Biomass

TARM BIOMASS
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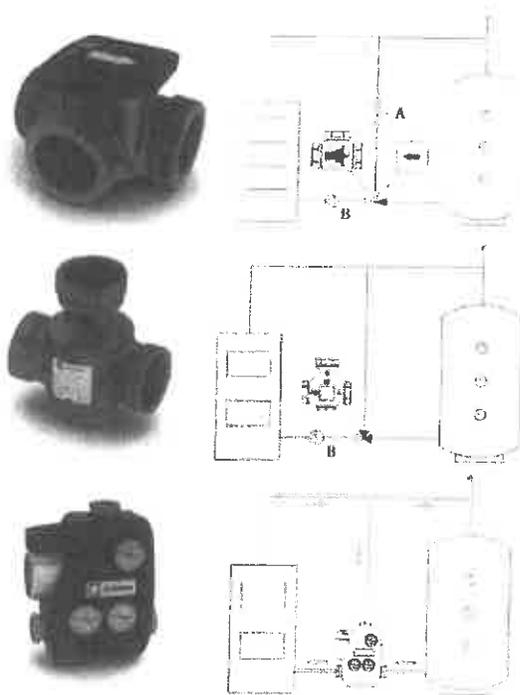
Thermostatic Loading Valve/Unit

A thermostatic loading valve/unit must be incorporated into every wood/pellet storage tank installation. The loading valve/unit is installed to ensure optimal temperature stratification in the thermal storage system and a high return temperature back to the boiler. This increases the efficiency of the boiler system and prevents condensation and creosote within the boiler, which helps prolong the life of the boiler.

Installation and Function

The thermostatic element in the loading valve/unit prevents return of cold return water to the boiler. When the boiler reaches operating temperature, return flow from the system is allowed. As the boiler reaches temperatures above 160° F, the valve/loading unit gradually opens, blending hot boiler water with the cold return water. Once system temperature equalizes (approximately 176° F), the Termovar opens fully to allow flow to and from the heating load (the building and/ or storage tank system).

Three Solutions Available



LK 820 ThermoVar Mixing Valve

Our most economical option. The LK 820 must be installed with a balancing valve (A) and boiler circulator (B). The valve regulates the return port. A balancing or ball valve must be installed at (A) and should be set at half open. The circulator (B) is controlled by the boiler's control or by temperature with an aquastat.

LK 823 ThermoVar Mixing Valve

Unlike the LK 820, the LK 823 regulates two ports. A balancing valve is not required. When the valve exceeds the nominal opening temperature by 10° C the supply port closes ensuring optimal flow rate through the valve. A circulator (B) must be installed controlled by the boiler or by temperature with an aquastat.

LK 810 ThermoMat Loading Unit

The easiest to install option. The LK 810 loading unit combines all the features of the LK 823 with the boiler's circulator. It saves time and space with installation and also includes insulation and temperature gauges on all three ports.

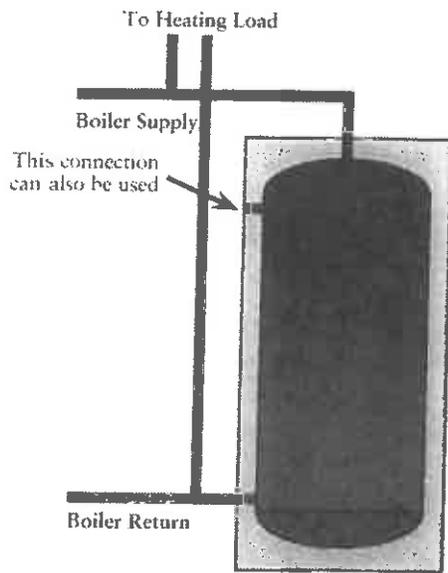
Pipe Sizing

It is crucial to install the proper size pipe between the wood boiler and the thermal storage tank system. Most residential systems are designed for a 20° F temperature drop. In a wood system the temperature drop between the supply and return can range between 10-40° F based on the temperature of the thermal storage tank. The thermostatic mixing valve will guarantee at least a return temperature of 135° F. As the thermal storage tank temperature gets closer to boiler operating temperature the the temperature drop will decrease. Use the chart below to properly size the pipe size.

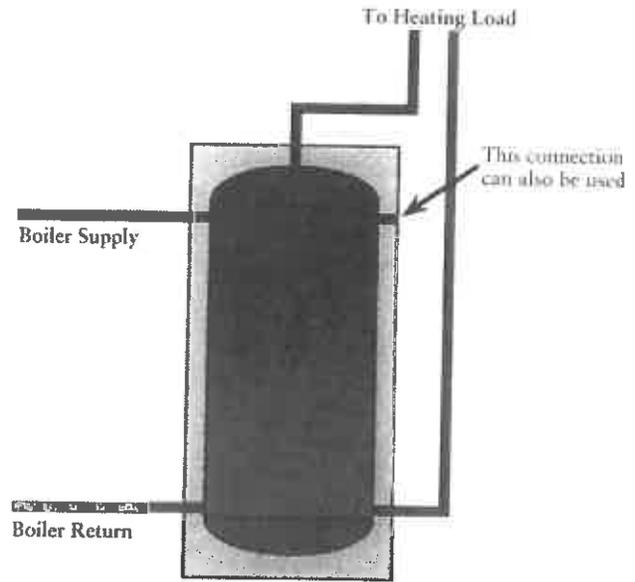
Pipe Flow Rates (Based on Copper Piping)					
Pipe Size (inches)	Maximum Flow Rate (GPM)	Maximum BTU/Hr at a Temperature Drop of:			
		10° F	20° F	30° F	40° F
1"	9	45,000	90,000	135,000	180,000
1¼"	15	75,000	150,000	225,000	300,000
1½"	20	100,000	200,000	300,000	400,000
2"	35	175,000	350,000	525,000	700,000

Pipe Connections at the Thermal Storage Tank

Single Tank Connections



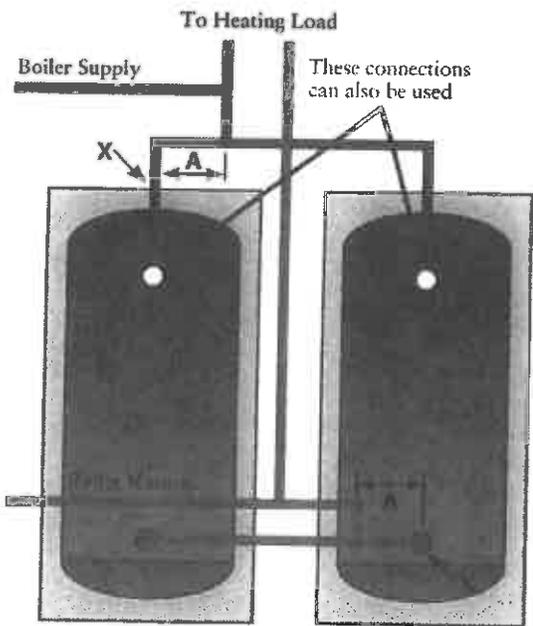
Example A



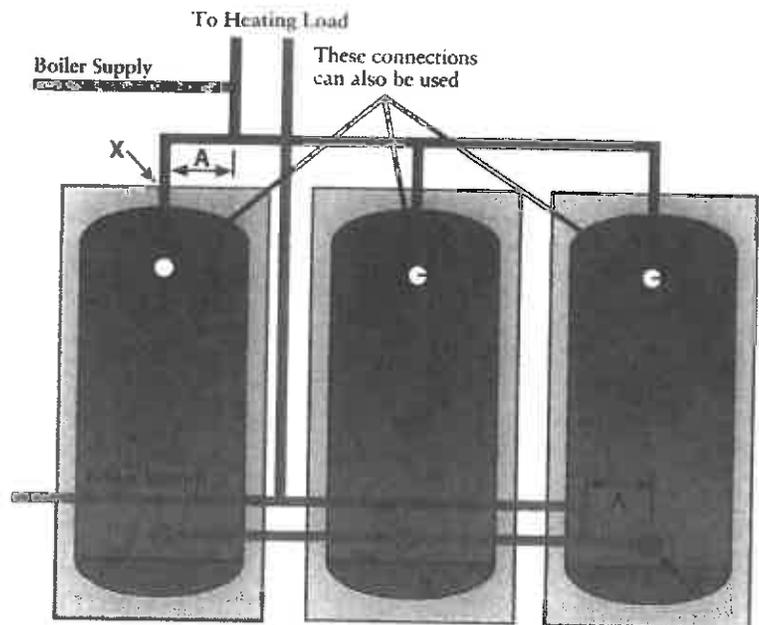
Example B

The above examples represent the best ways to pipe to a single pressurized thermal storage tank. Example A is piped to two connections on the tank. Supply and return connections to the heating load are pulled off before the tank. In example B, the wood boiler is piped to one side of the tank and the heating load is piped on the other side. The tank now acts as a large hydraulic separator. The advantage of this design is that each side of the tank works independently.

Multiple Tank Connections



Note: "A" distance must be equal
Example C



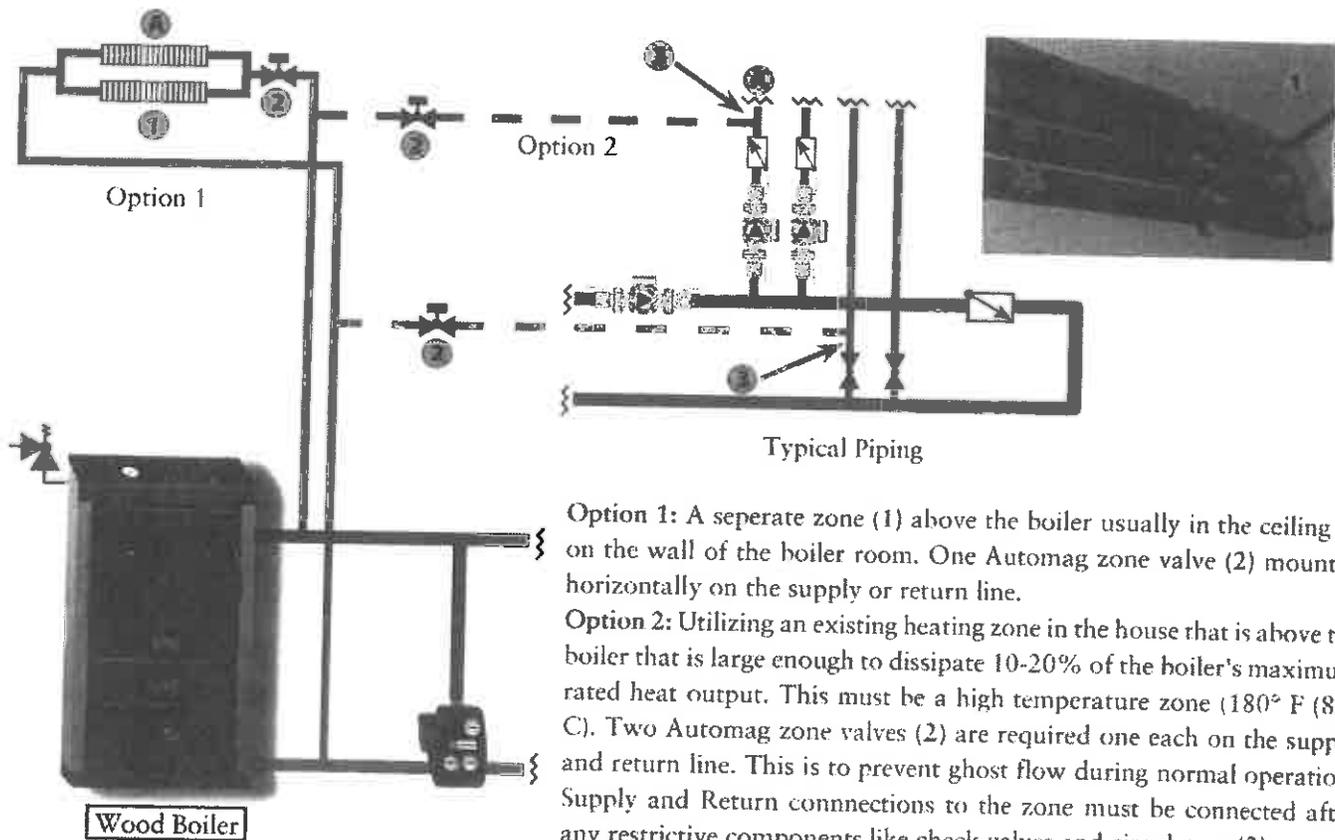
Note: "A" distance must be equal
Example D

The above examples show multiple tank connections. The tanks are manifolded together. To guarantee equal flow through the tanks, it is important to use approximately the same pipe length to the tanks. This is accomplished by connecting to the tanks zonally (X-X). When piped this way the tanks act as one. Sometimes this is called reverse return piping.

Overheat Loop with Loss of Power

The piping and controls must be connected to the boiler in such a way that in the event of a power failure there is at least one loop of radiation available for gravity circulation. This loop must not be obstructed by any valves or other fittings which could prevent gravity circulation during a power failure. The piping is plumbed in such a way that excessive pressure will not be developed in any portion of the boiler or system. The loop must be large enough to dissipate 10-20% of the boiler's maximum rated heat output, assuming an ambient temperature of 65° F (18° C) and a mean water boiler temperature of 180° F (82° C).

The minimum pipe size for this loop is 3/4" (1" is recommended) and if possible, the loop should be located and pitched to maximize natural thermal convection of the water. The loop must be positioned above the boiler. The design of the loop must be such that it can be made inoperative only in a deliberate manual action. If large enough, an existing heating radiation zone may be used for the over-heat loop. The loop must be equipped with a zone valve which will open automatically during a power failure. We recommend AutoMag Zone Valves for this application (offered as an accessory).



Option 1: A separate zone (1) above the boiler usually in the ceiling or on the wall of the boiler room. One Automag zone valve (2) mounted horizontally on the supply or return line.

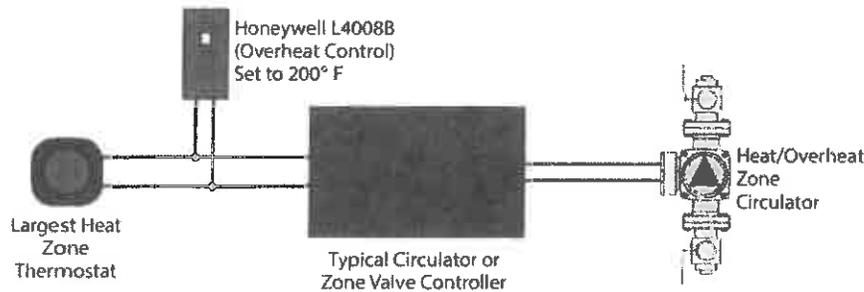
Option 2: Utilizing an existing heating zone in the house that is above the boiler that is large enough to dissipate 10-20% of the boiler's maximum rated heat output. This must be a high temperature zone (180° F (82° C)). Two Automag zone valves (2) are required one each on the supply and return line. This is to prevent ghost flow during normal operation. Supply and Return connections to the zone must be connected after any restrictive components like check valves and circulators (3).

Suggested Minimum Baseboard Length ¹	
Boiler Output	Length
30kW (100,000 BTU/Hr)	20*
50kW (172,000 BTU/Hr)	30*

¹ These are only suggested lengths, the installer is responsible for final specifications. The overheat loop should be tested periodically, especially if the system has been serviced.

Overheat Aquastat Wiring Connections

All wood boiler installations require the control of a heating zone in the event of a boiler overheating. The zone must be able to take hot water and must not be controlled by a mixing valve (i.e. radiant floor zone). A HONEYWELL L4008b close-on-rise or equivalent aquastat installed in one of the wells on the woodboiler, must be wired in parallel with the thermostat on the zone with the most heating capacity in the main living area (dump zone). Upon reaching the aquastat set point (200° F), the dump zone will be activated, pulling heat away from the boiler. The home owner is alerted to a potential problem with the boiler by an overly warm living space. Use the wiring diagram below for a typical installation.

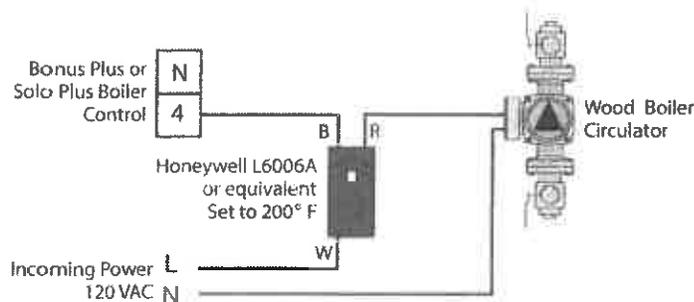


Boiler Circulator Wiring Connections

A wood boiler requires a circulator installed to properly remove heat away from the boiler. For the HS Tarm Bonus Plus, Solo Plus, and older boiler models, use the wiring examples below.

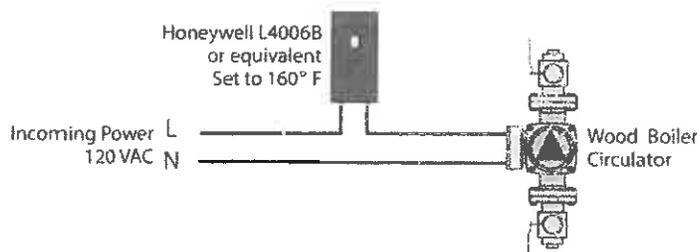
Option 1

This option is for HS Tarm wood boilers with a control panel. The circulator is controlled by the boiler's control panel and will shut-off as soon as the boiler's lo-limit aquastat indicates the boiler is out of fuel. The HONEYWELL L6006A dual acting (PDT) aquastat or equivalent must be installed in case of a power failure or increase in boiler temperature, after the lo-limit aquastat has dropped out. This aquastat is set to 200° F.



Option 2

For older boilers without a control panel or if a dual acting aquastat is not available, the example below can be used. A HONEYWELL L4006B close-on-rise aquastat or equivalent can be used to turn on and off the wood boiler circulator. The aquastat is installed in either a well on the boiler or in a tee on the supply line within 6" to the boiler. A strap-on type aquastat could also be used. The recommended aquastat setting is 160° F.



.etc:

Wood boilers like the Fröling FHG and the HS Tarm Solo Innova have the boiler circulator wired directly to the boiler's control system.

Understanding System Integration Options

It is important to have the correct system integration components to have an efficient and seamless operating wood boiler system. We offer two options that will work with any existing heating system.

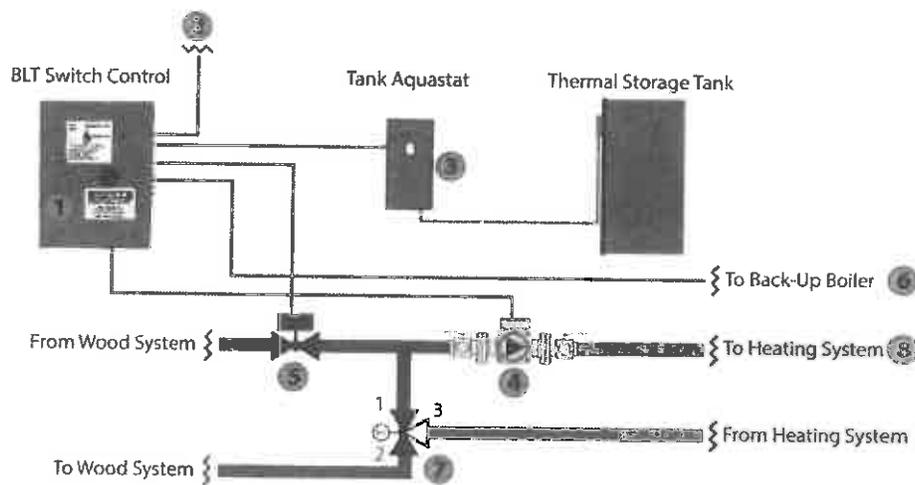
Boiler Tank Control System

This is the perfect option for integrating into an existing heating system or for heating systems that require high temperature water like heat exchangers used in forced hot air systems. The heart of the system is the BLT Switch control with three mode operation: automatic back-up, back-up only, or wood only modes.

How it works:

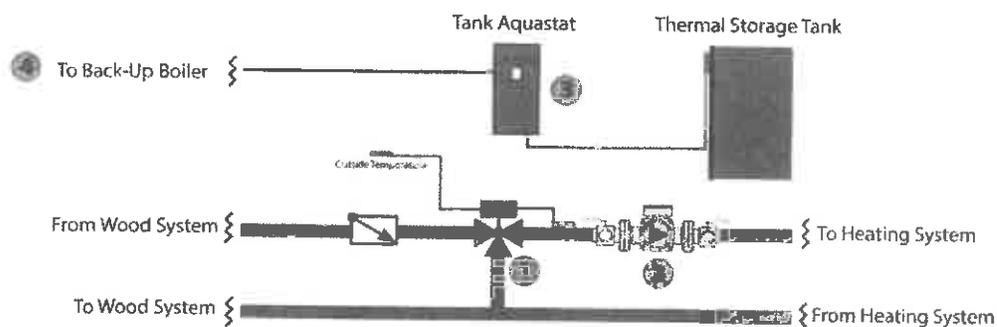
The BLT Switch control (1) takes input from a zone relay control (thermostat call) (2) and determines based on thermal storage tank temperature (tank aquastat) (3) whether to pull heat from the storage tank system/woodboiler or the back-up boiler (6). Return water passes into the bottom of the thermal storage tank and exits the top of the tank, re-heated by the thermal storage tank system, and moves to the supply manifold. If the wood boiler is heating, the return water is re-heated by the boiler. If however, upon a call for heat, the temperature in the thermal storage tank is below the tank aquastat set point, the circulator (4) will cease operation. The zone valve (5) will close. The back-up boiler will be energized through the BLT Switch control to meet the heat demand (8).

The diverter valve (7). Port 3 of the valve receives water from the return manifold. Port 1 is connected to the supply manifold and Port 2 is connected to the return of the boiler and the thermal storage tank system. When the thermostatic valve senses water above 165° F and above, it shunts water from Port 2 to Port 1. The result is both the heating zones and the thermal storage tank receive hot water from the boiler. This prevents short-cycling of the boiler and an overall more efficient system and responsive heating system.



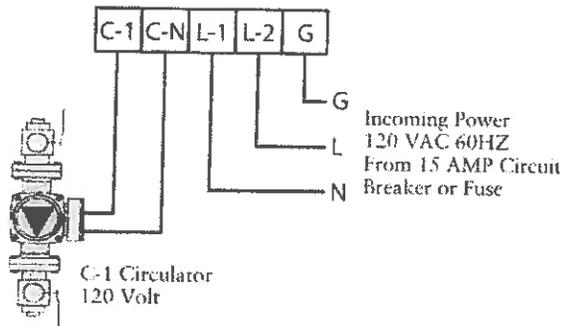
Smart Comfort Control System

Smart Comfort is a simple, patent pending, energy efficient option that replaces the diverter valve with a mixing valve and an active temperature controller (1) with outdoor reset capabilities. The Smart Comfort valve responds to outdoor or indoor temperature to send the proper water temperature to the heating zones. Minimum and maximum temperatures along a curve can be set. An energy efficient circulator (2) can also be utilized providing the correct flow. The Smart Comfort extends the energy capacity of the thermal storage tank system while making the house more comfortable. An aquastat (3) responding to tank temperature can be used to control a back-up boiler (4).

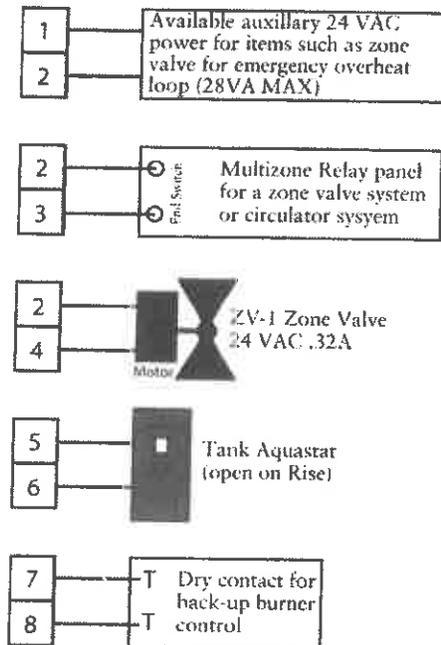


Appendix A. Tarm BLTCONTROL Wiring

120 Volt Terminal Strip (In Panel)



Low Voltage Connections (Outside of Box)



Note:

All wiring must comply with current National Electrical Code and any other applicable codes. Refer to schematic included with panel. 120 volt line voltage wiring shall be a code-approved type 14 gauge minimum. Low voltage wiring shall be 18 or 20 gauge thermostat wire.

Appendix B. Boiler Specifications

Specification Data		Boiler Model				
Measurements	Unit	Bonus 30	Solo Imveca 30	Solo Imveca 50	FHG 20/30	FHG 40/50
Depth-Boiler-Total	inches	43	46¾	46¾	45½	50¾
Width-Boiler-Total	inches	23	23	27¾	22¾	26¾
Height-Boiler-Total	inches	45	54¾	54¾	61¾	65¾
Height to Chimney Connection	inches	28	45¾	45¾	69	72¾
Flue Collar Outside Diameter	inches	5	6	6	6	6
Weight-Empty	lbs	825	1113	1213	1150	1345
Water Contents	gals	31.7	34	48	32	50
Loading Door	inches	13¾X12	14X12	14X12	13X14½	13X14½
Combustion Chamber Volume	cubic ft.	3.2	4.8	6.5	5	7.4
Recommended Wood Length	inches	18-20	18-20	18-20	18-21	18-21
Operating Data						
Operating Temperature-Water	F°	180-190	180-190	180-190	180-194	180-194
Nominal Output	BTU/hr	102,000	102,000	171,000	102,500	170,700
Flue Gas Temperature at Nominal Output	F°	363	330	305	300-340	300-340
Required Draft	inch WC	-.025 to -.05	-.025 to -.05	-.025 to -.05	-.03 to -.10	-.03 to -.10
Electrical Data						
Boiler Power Requirement	-	120V-60Hz/15A	240V-60Hz/15A	240V-60Hz/15A	240V-60Hz/15A	240V-60Hz/15A
Electrical consumption	W	70	240	240	180	180
Piping Data						
Boiler Test Pressure	psi	65	65	65	65	65
Boiler Relief Valve Setting	psi	30	30	30	30	30
Supply and Return Pipe Stub Size	inches	1	1¼	1¼	1½	1¼
Minimum Boiler Loop Size	inches	1¼	1¼	1¼	1¼	1¼
Fill/Drain Valve Size	inches	½	½	½	½	½
Minimum Return Water Temperature	F°	140	140	140	131	131

Boiler Installation Examples



Please visit www.tarmbiomass.com for our downloadable specification sheets and plumbing diagrams.
While you are there, please visit our blog <http://blog.woodboilers.com/>!



TARM BIOMASS
Innovative Leaders in Alternative Heating Solutions

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info@tarmbiomass.com | www.tarmbiomass.com

Mari Vineyards Winery-Chateau site



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11-019-011-02

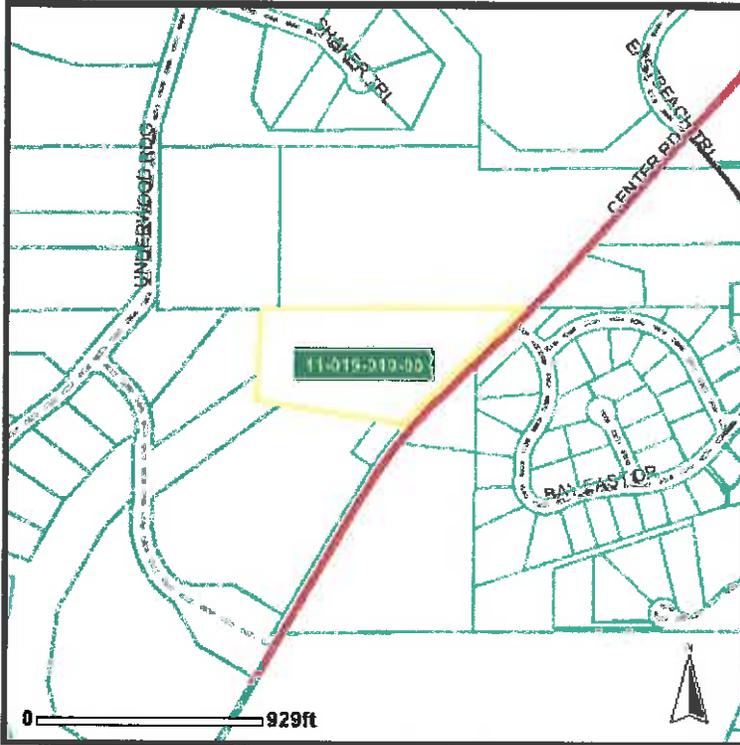
PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-019-011-02	Current Assesment	\$115,100
Site Address	0 UNDERWOOD RDG TRAVERSE CITY, MI 49686	Previous Assesment	\$0
School District	28010	Equalized Value	\$115,100
App. Acreage	7.62	Taxable Value	\$72,525
		Previous Year's Taxes	\$0
OWNER INFORMATION		Class (Previous/Current)	888 / 400
Owner Name	CROFT LLC	P.R.E./QUALIFIED AG. INFORMATION	
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	PRE/QA Portion	0%
		PRE/QA Year	0
TAXPAYER INFORMATION		TRANSFER INFORMATION	
Taxpayer Name	CROFT LLC	Instrument ID	2014R-01206
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	Instrument Type	
		Instrument Date	
		Instrument Amount	\$0

TAX DESCRIPTION

PARCEL "B" PART OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4, SECTION 19, TOWN 28 NORTH, RANGE 10 WEST, PENINSULA TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN, MORE FULLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH QUARTER CORNER OF SAID S

END

Mari Vineyards Winery-Chateau site



This map is based on digital databases prepared by Grand Traverse County. Grand Traverse County does not warrant, expressly or impliedly, or accept any responsibility for any errors, omissions, or that the information contained in the map or the digital databases is currently or positionally accurate.



11-019-010-00

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-019-010-00	Current Assesment	\$151,100
Site Address	8169 CENTER RD	Previous Assesment	\$165,700
	TRAVERSE CITY, MI 49686	Equalized Value	\$151,100
School District	28010	Taxable Value	\$151,100
App. Acreage	8.58	Previous Year's Taxes	\$7,051
		Class (Previous/Current)	400 / 400
OWNER INFORMATION		P.R.E./QUALIFIED AG. INFORMATION	
Owner Name	CROFT LLC	P.R.E./Q.A. Portion	0%
Owner Address	121 E FRONT ST STE 200	P.R.E. /Q.A. Year	2001
	TRAVERSE CITY MI 49684		
TAXPAYER INFORMATION		TRANSFER INFORMATION	
Taxpayer Name	CROFT LLC	Instrument ID	1510/58
Taxpayer Address	121 E FRONT ST STE 200	Instrument Type	WD
	TRAVERSE CITY MI 49684	Instrument Date	May 10, 2001
		Instrument Amount	\$369,000

TAX DESCRIPTION

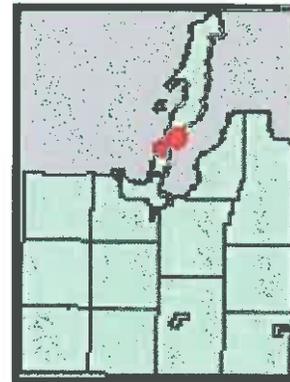
COM NE COR OF SE 1/4 OF SW 1/4 & POB TH W 900 FT TH S 375.33 FT TH S 82 DEG 04'10" E 599.70 FT TH S 22 DEG 36' 40" E 24.57 FT TO WLY R/W M-37 TH NELY 238.11 FT ALG CURVE TO RT RADIUS EQUALS 1943.00 FT LONG CHORD BEARS N 43 DEG 15' 22" E 237.96 FT TH N 46

END

Mari Vineyards Winery-Chateau site



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11-324-040-11

PROPERTY INFORMATION	ASSESSMENT INFORMATION
----------------------	------------------------

PIN: 11-324-040-11 Site Address: 0 UNDERWOOD RDG TRAVERSE CITY, MI 49686 School District: 28010 App. Acreage: 5.00	Current Assesment: \$105,500 Previous Assesment: \$105,500 Equalized Value: \$105,500 Taxable Value: \$16,863 Previous Year's Taxes: \$462 Class (Previous/Current): 400 / 400
--	---

OWNER INFORMATION	P.R.E./QUALIFIED AG. INFORMATION
-------------------	----------------------------------

Owner Name: CROFT LLC Owner Address: 121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./Q.A. Portion: 100% P.R.E./Q.A. Year: 2005
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TAXPAYER INFORMATION	TRANSFER INFORMATION
----------------------	----------------------

Taxpayer Name: CROFT LLC Taxpayer Address: 121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	Instrument ID: 1610/631 Instrument Type: Instrument Date: Instrument Amount: \$0
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TAX DESCRIPTION

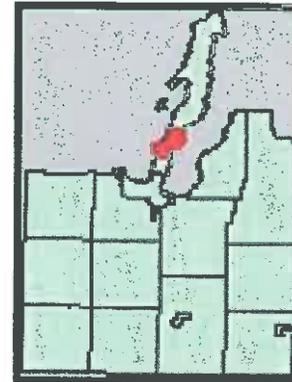
P/O THE SW 1/4 OF SEC 19, T28N-R10W; DESC AS COM AT W 1/4 COR; TH S 00 DEG W, 668 FT ALG W LI; TH N 89 DEG E, 446.31 TO POB...TH CONT N 89 DEG E, 806.77 FT; TH S 00 DEG W, 270 FT; TH S 89 DEG W, 806.77 FT TH N 00 DEG E, 270 FT TO POB. CONT 5 ACRES. BE

END

Mari Vineyards Winery-Chateau site, part of



This map is based on digital databases prepared by Grand Traverse County. Grand Traverse County does not warrant, expressly or impliedly, or accept any responsibility for any errors, omissions, or that the information contained in the map or the digital databases is currently or positionally accurate.



11-324-040-13

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-324-040-13	Current Assesment	\$454,800
Site Address	8241 UNDERWOOD RDG TRAVERSE CITY, MI 49686	Previous Assesment	\$415,700
School District	28010	Equalized Value	\$454,800
App. Acreage	20.37	Taxable Value	\$112,806
OWNER INFORMATION		Previous Year's Taxes	\$3,094
Owner Name	CROFT LLC	Class (Previous/Current)	400 / 400
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./QUALIFIED AG. INFORMATION	
TAXPAYER INFORMATION		P.R.E./Q.A. Portion	100%
Taxpayer Name	CROFT LLC	P.R.E. /Q.A. Year	2005
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	TRANSFER INFORMATION	
		Instrument ID	1610/631
		Instrument Type	
		Instrument Date	
		Instrument Amount	\$0

TAX DESCRIPTION

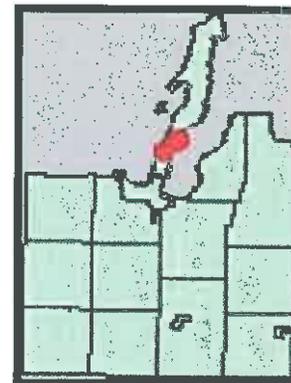
P/O THE SW 1/4 OF SEC 19, T28N-R10W; DESC AS COM AT W 1/4 COR; TH S 00 DEG W, 668 FT ALG W LI TO POB...TH N 89 DEG E, 446.30 FT; TH S 00 DEG W 270.00 FT; TH N 89 DEG E, 806.77 FT; TH S 00 DEG W, 143 FT TH S 89 DEG W, 849.68 FT; TH S 00 DEG W, 261.32 FT;

END

Mari Vineyards Winey-Chateau site



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11-324-040-12

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-324-040-12	Current Assesment	\$105,500
Site Address	0 UNDERWOOD RDG TRAVERSE CITY, MI 49686	Previous Assesment	\$105,500
School District	28010	Equalized Value	\$105,500
App. Acreage	5.00	Taxable Value	\$16,863
		Previous Year's Taxes	\$462
		Class (Previous/Current)	400 / 400
OWNER INFORMATION		P.R.E./QUALIFIED AG. INFORMATION	
Owner Name	CROFT LLC	P.R.E./Q.A. Portion	100%
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./Q.A. Year	2005
TAXPAYER INFORMATION		TRANSFER INFORMATION	
Taxpayer Name	CROFT LLC	Instrument ID	1610/631
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	Instrument Type	
		Instrument Date	
		Instrument Amount	\$0

TAX DESCRIPTION

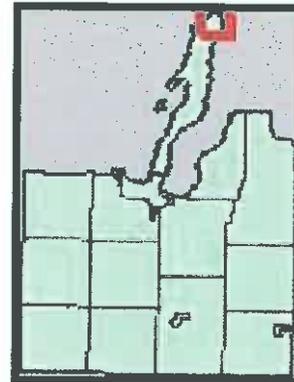
P/O THE SW 1/4 OF SEC 19, T28N-R10W; DESC AS COM AT W 1/4 COR; TH S 00 DEG W, 668 FT ALG W LI; TH N 89 DEG E, 1253.08 FT; TH S 00 DEG W, 413 FT TO POB...TH CONT S 00 DEG W, 159.22 FT; TH S 39 DEG W, 132.26 FT; TH S 89 DEG W, 767.24 FT; TH N 00 DEG E, 261.

END

Irish Vineyard –established off-site vineyard
38.41 tons of grapes harvested in 2013



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11-223-010-00

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-223-010-00	Current Assesment	\$311,600
Site Address	4595 MURRAY RD TRAVERSE CITY, MI 49686	Previous Assesment	\$272,500
School District	28010	Equalized Value	\$311,600
App. Acreage	40.00	Taxable Value	\$213,530
		Previous Year's Taxes	\$5,856
OWNER INFORMATION		Class (Previous/Current)	460 / 460
Owner Name	CROFT LLC	P.R.E./QUALIFIED AG. INFORMATION	
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./Q.A. Portion	100%
		P.R.E./Q.A. Year	2010
TAXPAYER INFORMATION		TRANSFER INFORMATION	
Taxpayer Name	CROFT LLC	Instrument ID	1377/85
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	Instrument Type	WD
		Instrument Date	Dec 10, 1999
		Instrument Amount	\$289,900

TAX DESCRIPTION

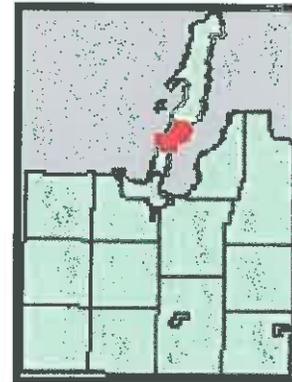
CONSERVATION EASEMENT...SW 1/4 OF SE 1/4 SEC 23 T30N R10W 40 A

END

Grishaw Vineyard –established off-site vineyard
23.41 tons of grapes harvested in 2013



This map is based on digital databases prepared by Grand Traverse County. Grand Traverse County does not warrant, expressly or impliedly, or accept any responsibility for any errors, omissions, or that the information contained in the map or the digital databases is currently or positionally accurate.



11-019-029-00

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-019-029-00	Current Assessment	\$90,900
Site Address	566 WILSON RD TRAVERSE CITY, MI 49686	Previous Assessment	\$69,900
School District	28010	Equalized Value	\$90,900
App. Acreage	19.98	Taxable Value	\$40,601
OWNER INFORMATION		Previous Year's Taxes	\$1,113
Owner Name	CROFT LLC	Class (Previous/Current)	460 / 460
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./QUALIFIED A.G. INFORMATION	
TAXPAYER INFORMATION		P.R.E./Q.A. Portion	100%
Taxpayer Name	CROFT LLC	P.R.E./Q.A. Year	2004
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	TRANSFER INFORMATION	
TAX DESCRIPTION		Instrument ID	2005R-19728
CONSERVATION EASEMENT...PDR PROGRAM (RECORDED @ 2005R-19728)...WEST 655.3' OF GOV LOT 1 20 A SEC 19 T28N R10W. BUILDING RESTRICTIONS @ 2005R-19728		Instrument Type	WD
		Instrument Date	Sep 08, 1999
		Instrument Amount	\$256,000

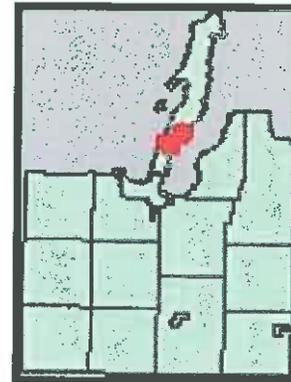
END

Mckian Vineyard –established off-site vineyard

3.87 tons of grapes harvested in 2013



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11-019-013-05

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-019-013-05	Current Assessment	\$288,900
Site Address	0 CENTER RD TRAVERSE CITY, MI 49686	Previous Assessment	\$269,000
School District	28010	Equalized Value	\$288,900
App. Acreage	22.43	Taxable Value	\$153,084
OWNER INFORMATION		Previous Year's Taxes	\$4,198
Owner Name	CROFT LLC	Class (Previous/Current)	400 / 400
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49604	P.R.E./Q.A. INFORMATION	
TAXPAYER INFORMATION		P.R.E./Q.A. Portion	100%
Taxpayer Name	CROFT LLC	P.R.E./Q.A. Year	2010
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	TRANSFER INFORMATION	
		Instrument ID	1651759
		Instrument Type	
		Instrument Date	
		Instrument Amount	\$0

TAX DESCRIPTION

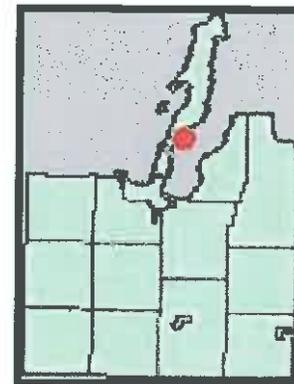
P/O N ½ SEC 19, T28N-R10W, DESC AS COM AT N ¼ COR SD SEC; TH S 00 DEG E, 1329.30 FT ALG N/S ¼ LI OF SD SEC 19 TO PT ON N 1/8 LI SD SEC AND POB...TH S 88 DEG W, 200.00 FT, ALG N 1/8 LI; TH S 00 DEG E, 451.32 FT; TH S 88 DEG E, 200.00 FT; TH S 00 DEG E, 52.

END

Bella Vista Vineyard –established off-site vineyard
19.99 tons of grapes harvested in 2013



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11-019-007-10

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-019-007-10	Current Assessment	\$155,500
Site Address	8383 EASTBEACH TRL TRAVERSE CITY, MI 49686	Previous Assessment	\$143,400
School District	28010	Equalized Value	\$155,500
App. Acreage	10.30	Taxable Value	\$107,915
OWNER INFORMATION		Previous Year's Taxes	\$2,959
Owner Name	BELLA VISTA LAND COMPANY LLC	Class (Previous/Current)	400 / 400
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./QUALIFIED AG. INFORMATION	
TAXPAYER INFORMATION		P.R.E./QA Portion	100%
Taxpayer Name	BELLA VISTA LAND COMPANY LLC	P.R.E./QA Year	2010
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	TRANSFER INFORMATION	
		Instrument ID	2004R-07351
		Instrument Type	WD
		Instrument Date	Jun 11, 2004
		Instrument Amount	\$220,000

TAX DESCRIPTION

COUNTRY ESTATE 4 PART OF SEC 19, T 28N-R10W, DESC AS COM W 1/4 COR SED 19; TH N 89 DEG E, 2648.13 FT, ALG EW 1/4 LI SD SEC; TH S 00 DEG W, 296.81 FT, ALG N/S 1/4 LI SD SEC TO POB; TH N 41 DEG W, 342.29 FT; TH S 89 DEG E, 1041.96 FT; TH S 44 DEG W, 100.6

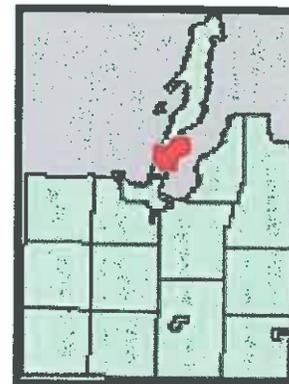
END

Jamieson Vineyard –established off-site vineyard

57.96 tons of grapes harvested in 2013



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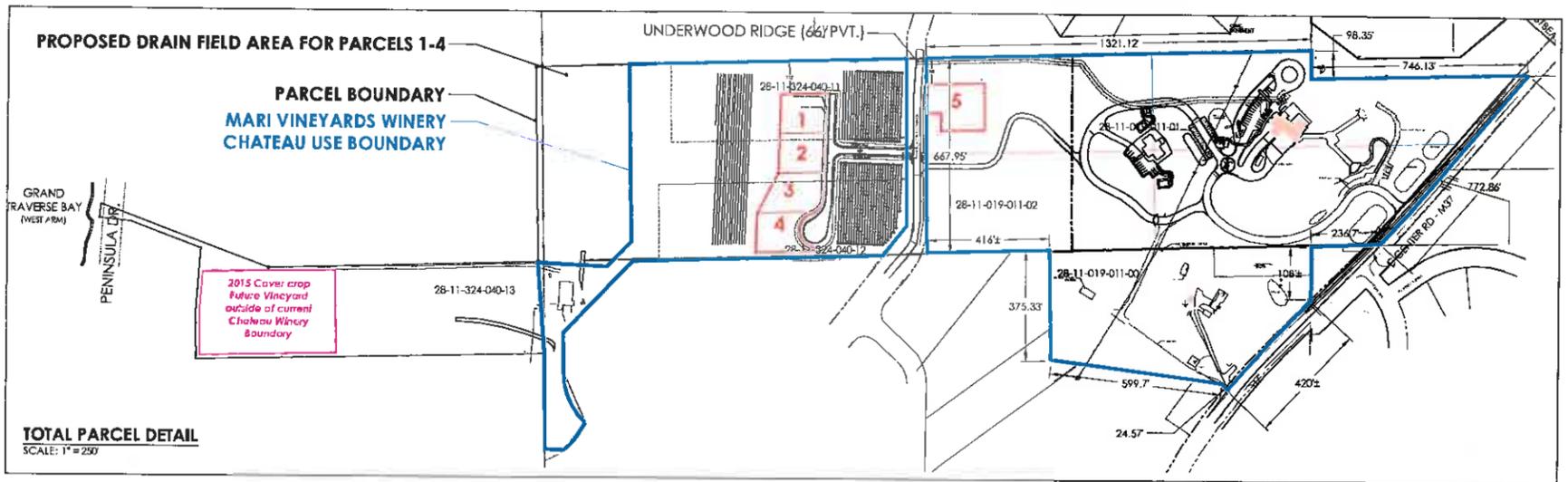
11-030-013-01

PROPERTY INFORMATION		ASSESSMENT INFORMATION	
PIN:	11-030-013-01	Current Assessment	\$316,600
Site Address	7768 CENTER RD TRAVERSE CITY, MI 49686	Previous Assesment	\$290,300
School District	28010	Equalized Value	\$316,600
App. Acreage	29.58	Taxable Value	\$219,038
OWNER INFORMATION		Previous Year's Taxes	\$6,007
Owner Name	CROFT LLC	Class (Previous/Current)	160 / 160
Owner Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	P.R.E./QUALIFIED AG. INFORMATION	
TAXPAYER INFORMATION		PRE/OA Portion	100%
Taxpayer Name	CROFT LLC	P.R.E./O.A Year	2009
Taxpayer Address	121 E FRONT ST STE 200 TRAVERSE CITY MI 49684	TRANSFER INFORMATION	
		Instrument ID	1402/12
		Instrument Type	
		Instrument Date	
		Instrument Amount	\$0

TAX DESCRIPTION

GRAND TRAVERSE REGIONAL CONSERVATION EASEMENT (LIBER 1402 PAGE 14)...P/O NW 1/4 SEC 30 AND P/O GOVT LOT 1 OF SEC 30 T28N R10W, DESC AS COM AT THE N 1/4 COR OF SD SEC 30; TH S 00 DEG E, 524.84 FT, ALG N/S 1/4 LI SD SEC; TH N 89 DEG E, 367.37 FT; TO POB...T

END

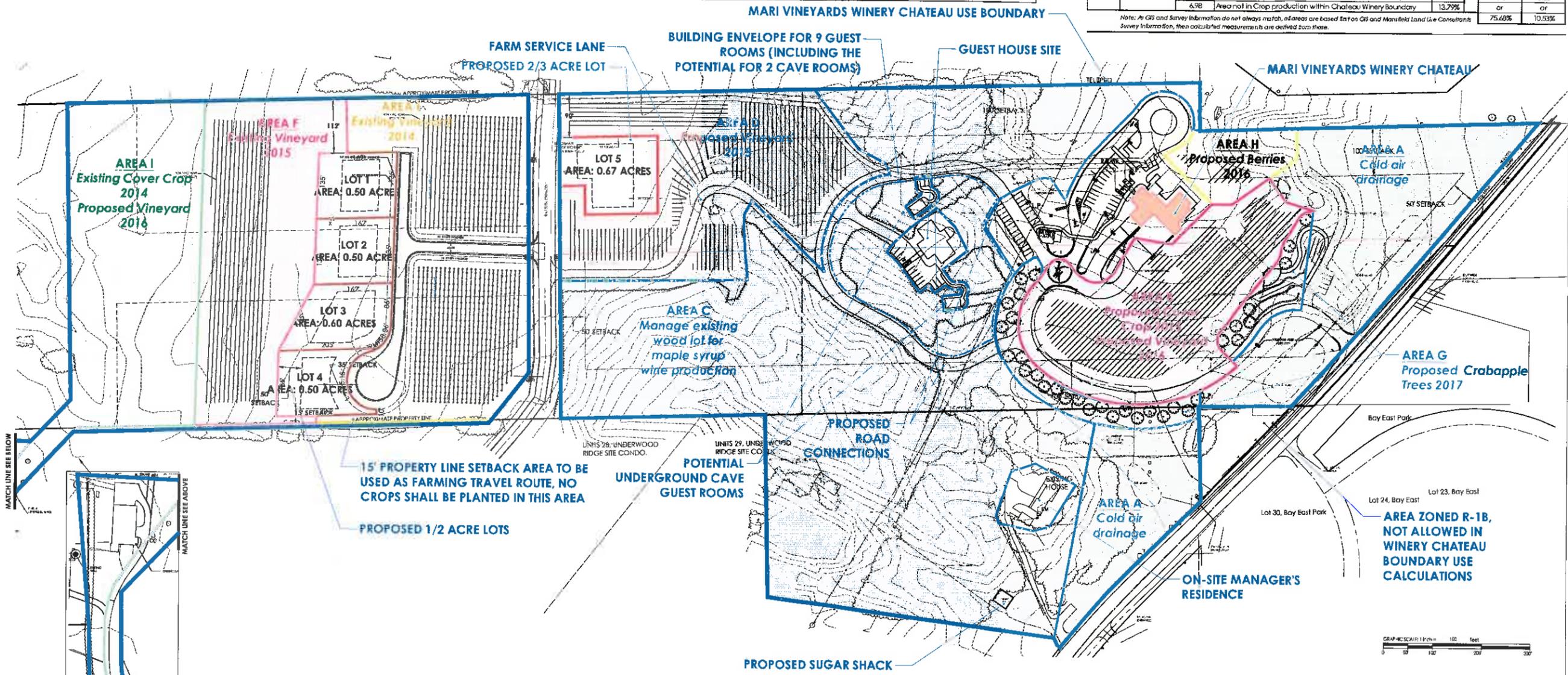


Wine Crop Area Calculations Within The Winery Chateau Boundary

Tax ID	Total Parcels Acres per GIS	Per	Total Parcels Acres per GIS & Mansfield Survey	Per	Total Chateau Winery Use Area Acres	
28-11-019-010-00	8.58	GIS	8.58	GIS	8.16	Existing managers residence and wine crop
28-11-019-011-01	20.79	GIS	19.09	SVI	18.50	Existing primary winery parcel and wine crop
28-11-019-011-02	7.62	GIS	7.62	SVI	7.62	Proposed guest house and wine crop
28-11-324-040-11	5.00	GIS	5.00	GIS	5.00	Proposed single family homes and wine crop
28-11-324-040-12	5.00	GIS	5.00	GIS	5.00	Proposed single family homes and wine crop
28-11-324-040-13	20.37	GIS	20.37	GIS	6.33	Proposed single family homes and wine crop
	67.30		65.66		70.61	

Crop Areas	Crop Production Acres		Acres in Active Agriculture by 2016	Acres in Future Agriculture Flooding
Area A	5.50	Cold air drainage area	5.50	
Area B	3.36	Proposed Cover Crop 2015, Proposed Vineyard 2016	3.36	
Area C	15.78	Manage existing wood lot managed for maple syrup wine production	15.78	
Area D	4.14	Proposed Vineyard 2016		4.14
Area E	4.74	Existing Vineyard 2014	4.74	
Area F	3.48	Existing Vineyard 2015	3.48	
Area G	1.19	Proposed Crabapple trees 2017		1.19
Area H	0.68	Proposed Berries 2016	0.68	
Area I	4.75	Existing Cover Crop 2014, Proposed Vineyard 2016	4.75	
	43.63	Area in Crop production within Chateau Winery Boundary	66.21%	38.30
	6.98	Area not in Crop production within Chateau Winery Boundary	13.79%	or
			75.68%	10.53%

Note: As GIS and Survey Information do not always match, all areas are based first on GIS and Mansfield Land Use Correlation Survey Information, then calculated measurements are derived from these.



NOTES:
 1. Wine crops as identified on this plan may change and vary to other wine crops over time based on the viability of the crop and the market demand for the crop.
 2. The configuration of the Guest House elements may change as part of the final design and approval of the use. However, basic area calculations will be upheld to maintain the required 75% wine crop coverage calculation.

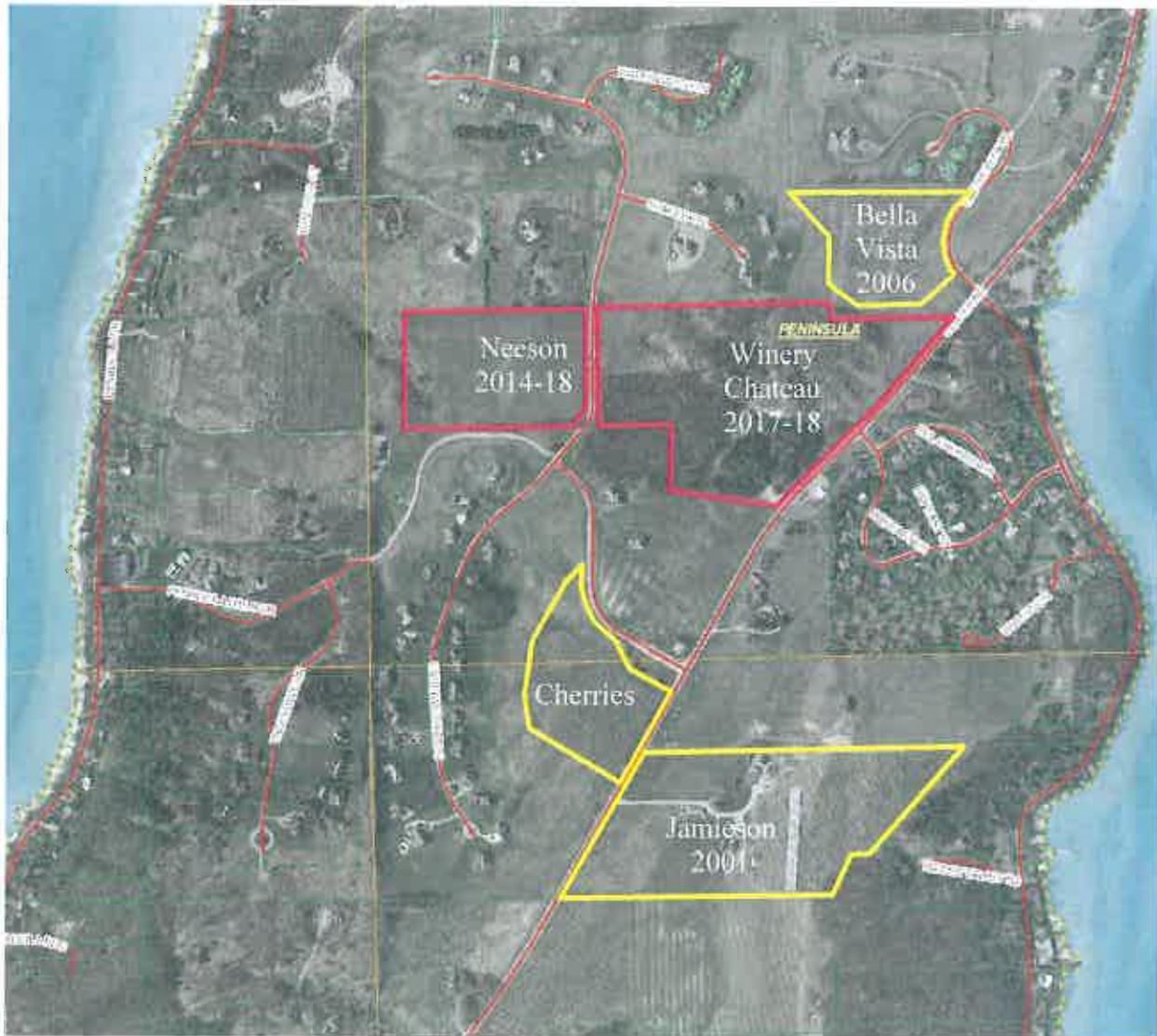
830 Cottageview Dr., Ste. 201
 P.O. Box 4015
 Traverse City, MI 49985
 Phone: 231-946-9310
 www.mansfield.com
 info@mansfield.com

Mansfield
 Land Use Consultants

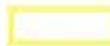
DATE: 08/15/15
 DRAWN: JRM
 CHECKED: JRM
 DATE: 12/01/15
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 CHECKED: JRM
 DATE: 12/21/15
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 CHECKED: JRM
 DATE: 01/20/16
 DRAWN: JRM
 CHECKED: JRM
 DATE: 03/22/16
 DRAWN: JRM
 CHECKED: JRM
 DATE: 05/10/16
 DRAWN: JRM
 CHECKED: JRM
 DATE: 06/07/16
 DRAWN: JRM
 CHECKED: JRM

Craft, LLC.
Mari Vineyards
 WINE CROP AREA CALCULATIONS
 Section 19, Town 28 North, Range 10 West
 Peninsula Township, Grand Traverse County, Michigan

PRELIMINARY
 13099



 Mari Vineyards Winery-Chateau site boundary

 Active Vineyards of Mari Vineyards

Bella Vista Vineyard	10.30 acres	19.99 tons harvested in 2013
Jamieson Vineyard	29.58 acres	57.96 tons harvested in 2013



 Active Vineyards of Mari Vineyards

Irish Vineyard	40.00 acres	38.41 tons harvested in 2013
Grishaw Vineyard	19.98 acres	23.41 tons harvested in 2013
Mckian Vineyard	22.43 acres	3.87 tons harvested in 2013

Lagina Vineyards Approximate Tonnage by variety and location 12-30-2015

Location	Variety	future vineyard	devastating year		devastating year											
			2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004		
*Irish Tunnels	Cabernet Sauvignon			0.243	2.1	2.068	1.612	0.311	0.46	0	0	0	0	0	0	0
*Irish Tunnels	Syrzh			0	0.75	2.0495	1.46	0.2765	0.077	0	0	0	0	0	0	0
*Irish Tunnels	Merlot			0	1.5	1.4765	1.2325	0	0	0	0	0	0	0	0	0
*Irish Tunnels	Nebbiolo			0	2.04	1.3095	1.006	0.367	0	0	0	0	0	0	0	0
*Irish Tunnels	Sangiovese			0.28	1.2	1.148	0.6725	0.326	0.24	0	0	0	0	0	0	0
*Irish Tunnels	Malbec			0	0.89	0.5365	0.193	0.056	0.24	0	0	0	0	0	0	0
*Irish Tunnels	Refosco			0.06	0	0	0	0	0	0	0	0	0	0	0	0
*Irish Tunnels	Teroldego			0.223	0	0	0	0	0	0	0	0	0	0	0	0
*Irish Tunnels	Schioppetto			0.0085	0	0	0	0	0	0	0	0	0	0	0	0
*Irish Tunnels	Petit Verdot			0.03	0.22	0	0	0	0	0	0	0	0	0	0	0
*Irish	Riesling			1.9	29.71	23.296	30.632	5.76	0	0	0	0	0	0	0	0
*Irish	Glera	2018 installation		-	-	-	-	-	-	-	-	-	-	-	-	-
Jamieson Tunnels	Cabernet Franc			0.85	3.08	1.712	2.24	2.99	1.39	-	-	-	-	-	-	-
Jamieson Tunnels	Merlot			0.11	1.6	1.102	1.028	2.01	0.62	1.14	0	0	0	0	0	0
Jamieson	Chardonnay			0.81	8.56	5.716	6.416	2.84	0	0.56	0	0	0	0	0	0
Jamieson	Cab Franc			0.64	12.5	6.347	5.7085	1.22	3.26	13.38	6.67	5.6	3.72	3.18	3.18	3.18
Jamieson	Merlot			0.2	6.92	7.788	6.8755	1.83	4.67	0	2.59	6.21	5.98	2.86	2.86	2.86
Jamieson	Riesling			3.8	25.3	19.549	26.439	14.38	18.15	16.29	0	0	0	0	0	0
Jamieson	Gamay Noir	2016 installation		0.27	7.19	4.671	4.275	3.14	1.36	0.32	0	0	0	0	0	0
Bella Vista	Pinot Noir			0.3	12.8	13.663	14.11	1.34	8.11	2.18	0	0	0	0	0	0
Bella Vista	Pinot Gris			0	3.872	3.118	3.411	1.45	1.57	0	0	0	0	0	0	0
Mckian	Gewürztraminer			0.54	7.32	5.183	6.416	3.1	5.77	2.5	0	0	0	0	0	0
Grishaw	Pinot Noir			1.9	13.01	9.547	12.2725	8.3	8.85	10.59	3.68	6.97	5.85	4.7	4.7	4.7
Grishaw	Riesling			0	3.08	0	0	0	0	0	0	0	0	0	0	0
Grishaw	Gruener Veltliner			0	0	0	0	0	0	0	0	0	0	0	0	0
Grishaw	Sauv. Blanc			0	0	0	0	0	0	0	0	0	0	0	0	0
Grishaw	Merlot			0	0	0	0	0	0	0	0	0	0	0	0	0
**MV Neeson (area E)	Pinot Blanc			0	0	0	0	0	0	0	0	0	0	0	0	0
**MV Neeson (area F)	Malvasia Bianca			0	0	0	0	0	0	0	0	0	0	0	0	0
**MV Neeson (area I)	Refosco	2016 installation		0	0	0	0	0	0	0	0	0	0	0	0	0
**MV Neeson (area I)	Teroldego	2016 installation		0	0	0	0	0	0	0	0	0	0	0	0	0
**MV Neeson (area I)	Teroldego	2017 installation		0	0	0	0	0	0	0	0	0	0	0	0	0
**Mari Vineyard (area B)	Pinot Gris	2016 installation		0	0	0	0	0	0	0	0	0	0	0	0	0

about

12.00 12.16 143.64 110.28 126.00 49.70 54.77 45.26 14.64 18.78 15.55 10.74

The six year average of existing grape tonnage produced by the Lagina family on OMP would allow for 50 additional guest activity use occupants. (59 occupants based on a five year average of normal tonnage) (84 occupants based on the 2013 peak tonnage)

9.42 105.23 78.40 89.19 42.60 53.75

63.10 six year average
73.83 five year average

* Township staff has determined that Irish Vineyard tonnage may not count towards additional guest activity use occupants because the grapes are produced on an existing farm processing facility.

** Vineyard tonnage from within the Winery-Chateau boundary is not included in the count towards additional guest activity use occupants.



Schillinger
FORESTRY, LLC

5138 HIDDEN GLEN DRIVE
TRAVERSE CITY MI, 49684
WWW.MICHIGANFORESTER.NET

January 26, 2015

Croft LLC
121 East Front Street, Suite 200
Traverse City, MI 49684

Re: Sugar Bush Establishment, Section 19, Peninsula Township (South), Grand Traverse County

Dear Mr. Lagina,

The woodlot adjoining the new winery is poised to be managed into a sugar bush for the production of maple syrup. With exotic pests plaguing this stand already sugar maple will be the most dominant species in the coming decades and it is a good idea to consider this option for management.

30% of the trees sampled were sugar maple and those trees represent an estimated 204 trees per acre. 17 of these trees per acre were 12" in diameter (the minimum size to begin tapping a maple tree) or larger showing that in the next few decades maple will be the dominant canopy species. In addition emerald ash borer has killed all the ash and beech bark disease is present too naturally forcing both species out of the future species mix.

While there are large maple trees to begin tapping immediately, you should execute the following to enhance future maple sap production since this stand is in need of a thinning anyway.

1) Remove the dead ash (you are already working on this) 2) Remove the beech bark disease affected and rough bark beech trees across the whole woodlot. 3) Perform a "crop tree release" thinning around any well-formed, healthy maple trees focusing on removing the beech first, then aspen, then ironwood then red oak if needed.

Considering the above along with its use and location, using this woodlot as a sugar bush will likely exceed income produced if it were managed for perpetual timber income. Therefore, it is recommended this stand be managed as a sugar bush.

Thank you for the opportunity to work for you.

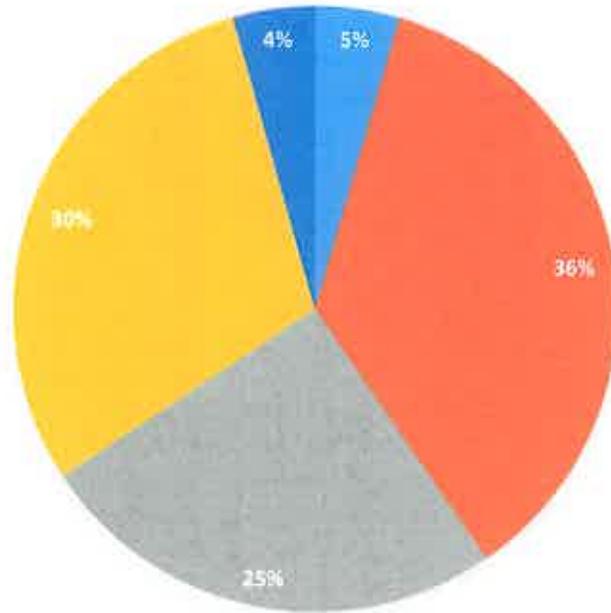
Sincerely,

Daniel Schillinger

Certified Arborist
Registered Forester

(231) 633-8733
schillingerforestry@gmail.com

Croft Syrup Species Mix



■ Aspen ■ Beech ■ Red Oak ■ Sugar Maple ■ White Ash





Mari Vineyards Sugar Shack

Physical Address: 8169 Center Rd. Traverse City, MI 49686

aka John's Garage

Maple Syrup Production

License: A.2 Limited Wholesale Food Processor

A wholesale food processor (see B.2) that has \$25,000 or less in annual gross wholesale sales made or business done in wholesale sales in the preceding licensing year, or \$25,000 or less of the food is reasonably anticipated to be sold for the current licensing year. Only the food sales from the wholesale food processor operation are used in computing the annual gross sales. Examples may include a small maple syrup operation, a small apple cider mill, a small honey processor, and a small poultry or rabbit slaughterer.

Intent: Mari Vineyards intends to produce maple syrup for the purposes of manufacturing the finished maple syrup into wine.

The Site & Building: Surrounding the winery are 17 acres of beautiful hardwoods that will be managed as a sugar bush. We have renovated an existing garage for the syrup making activities. "John's garage" is located within in close proximity to the winery and our "Jamieson" farm, where our Farm Management Company, Mutual Farm Management, is housed. There is a lease agreement between Croft LLC (Landlord) and Villa Mari LLC (Tenant) for the use of the building for maple syrup production and storage. There is electricity and proper ventilation in the garage. Restrooms and hand washing stations are available in the winery and at the Jamieson Farm, which are within walking distance. There is water adjacent to the building, however it is currently winterized.

The Plan: In 2016, we plan to tap 100 trees. The sap will be collected and properly stored between syrup runs in food grade plastic holding tanks. We have recently purchased new equipment. Sap will be evaporated until it is shelf stable and then packed into mid-sized food grade buckets with lids at 180 F. It will not be filtered at this point. We intent to store the finished syrup in the maple garage until the winery is complete. Once all applicable permits are received for the winey building, the syrup will be moved into the winery, where the winemaking team may possibly add water or acid to adjust the sugar and acidity of the syrup before we add yeast to ferment it into wine. The latter is subject to all applicable Federal, State and Local permits (currently in process). Proper sanitation, record keeping, and standard operating procedures will be followed in the maple garage and the winery. Chlorine alternatives, such as potassium hydroxide and quat-san will be used for sanitizing. Retail sales of maple syrup wine are not expected to commence until 2017 and will be subject to the approval of the TTB.

LEASE AGREEMENT

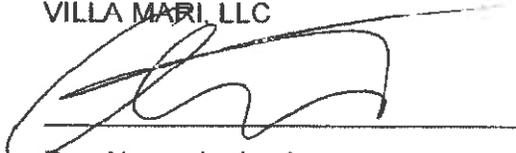
**Maple Syrup Shack Lease
8169 Center Rd. – aka Wildfong Garage
Traverse City, MI 49686**

This Lease Agreement is made on this 1st day of March 2016, effective March 1, 2016 between **Croft, LLC** Traverse City, Michigan, 49684 ("Landlord") and **VILLA MARI, LLC** of 121 East Front Street, Suite 200, Traverse City, Michigan 49684 ("Tenant") upon the following terms and conditions:

1. **Description of the Premises.** Landlord leases to Tenant and Tenant hires from Landlord the premises located at 8169 Center Rd., Traverse City, Michigan 49686.
2. **Term.** This lease shall be for the term one year commencing March 1, 2016, ("commencement date") and ending on February 28, 2017, at 11:59 p.m.
3. **Use.** Tenant shall use and occupy the premises for the production and storage of maple syrup, and for no other purpose without the prior written consent of Landlord. Tenant shall not intentionally and knowingly use the premises for any purpose.
4. **Access to Premises.** The Landlord shall have the right to enter the premises at all reasonable times, with notice to Tenant and at all times for emergencies.

TENANT:

VILLA MARI, LLC

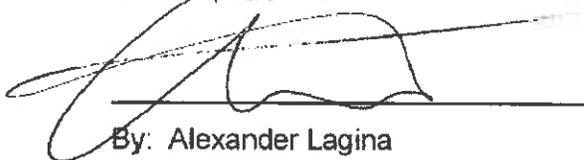


By: Alexander Lagina
Its: Manager

3-2-2016

LANDLORD:

CROFT, LLC



By: Alexander Lagina
Its: Authorized Agent

3-2-2016



Sugar Bush Supplies Co.
11 Okemos Rd.
Traverse City MI 48854
United States

Mutual Farm Management
Traverse City MI
United States

Invoicing and shipping address:

Mutual Farm Management
Traverse City MI
United States
☎ 231-933-7190

Quotation # SO1060

Quotation Date: 01/25/2016 15:27:48
Salesperson: Rick Fogle

Description	Quantity	Unit Price	Taxes	Price
[10-7024-6-NS] Leader Wood Arch 2x6 NS	1.000 Each	1,850.000	6%	\$ 1,850.00
[11-0001-H] Fire Brick--Split 1.25x4.5x9	96.000 Each	1.800	6%	\$ 172.80
[11-0001] Fire Brick 2.5" x 4.5 "x 9"	3.000 Each	1.850	6%	\$ 5.55
[11-0005] Board Insulation (1900) 1'x3'	30.000 /SF	3.150	6%	\$ 94.50
[11-0002-A] Heat Stop Dry Mix-Gal	1.000 GAL	24.500	6%	\$ 24.50
[9-0000] Shop Labor/Repair	3.000 Hour	50.000	Exempt Service	\$ 150.00
[10-2404-WSE] WSE Flue Pan 2 x 4	1.000 Each	2,330.000	6%	\$ 2,330.00
[10-2402-WSE] WSE Syrup Pan 2 x 2 LD	1.000 Each	795.000	6%	\$ 795.00
[40-0560-M] Marcland Max Draw-Off	1.000 Each	785.000	6%	\$ 785.00
[20-0202] Soule Hookless Spiles AL 7/16	100.000 Each	2.850	6%	\$ 285.00
[20-0300-H] Sap Sac Holder	100.000 Each	3.900	6%	\$ 390.00
[20-0300-B-CS] Blue Sap Sacs (Case 250)	1.000 Unit(s)	58.000	6%	\$ 58.00

Total Without Taxes	\$ 6,940.35
Taxes	\$ 407.42
Total	\$ 7,347.77

DATE 2/24/14 10/22/2015

PERMIT NO. 5221

LAND USE PERMIT

This Permit Must Be Displayed on the Premises
Any person willfully destroying this permit will
be punished to the fullest extent of the law.

CONSTRUCTION MUST BE COMPLETED BEFORE PERMIT EXPIRES AND PERMIT
HOLDER SHALL NOTIFY THE ZONING ADMINISTRATOR WHEN COMPLETED FOR A
FINAL INSPECTION OF BUILDING BEFORE OCCUPANCY MAY BE PERMITTED

This permit is issued for the Preliminary Farm-Processing Permit
for construction of new facility

Location: 9175 Center Rd

Fee \$ 1000.00 10/22/2016

PENINSULA TOWNSHIP

This Permit Expires 2/24/15 By EMCA

Preliminary Farm Processing Facility Land Use Permit-Peninsula Township

Parcel IDs: A) 28-11-019-011-00 B) 28-11-019-007-10 C) 28-11-227-020-00
 Permit # 5221 Zoned: A-1
 Owner: Croff LLC
 Address: 121 E Front Street, Suite 200, Traverse City, MI 49685

Parcel A Section: 19 Town: 28N Range: 10W
 Address: 8175 Center Road
 Use 1: Farm-Processing Facility

Parcel B Section: 19 Town: 28N Range: 10W
 Address: 8383 Eastbeach Trail
 Use 1: Support acreage

Parcel C Section: 27 Town: 30N Range: 10W
 Address: Center Road
 Use 1: Support acreage

Proof of Ownership: Y Site: Y HD Permit: 36221 Survey: Y
 Driveway: Y DNR: Y Soil Erosion: 22684 Stormwater: Y
 Conforming: Y

<u>Parcel</u>	<u>Parcel A</u>	<u>Parcel B</u>	<u>Parcel C</u>	<u>Boiler Room</u>	<u>Required</u>
Width:	668	424	517	n/a	330
Depth:					***
Square feet:	26.61 ac.	10.3 ac.	19 ac.		40 ac.

Setbacks

Front:	210	n/a	n/a	823	35
OHWL:	n/a			n/a	60
Rear:	370+			390	50
Side 1:	240			343	50
Side 2:	120			300	50

Structure

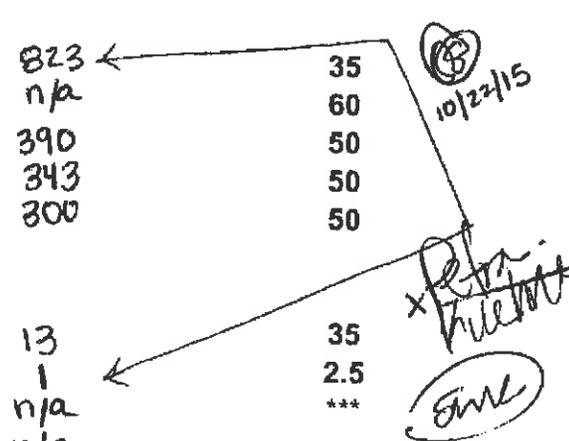
Height:	30	n/a	n/a	13	35
Stories:	2.5			1	2.5
Existing Area:	0			n/a	***
Proposed Area:				n/a	

Floor Area: 5864
 Retail Space: 235

Total Area: 7505

6000 sf or 0.5% of parcel size, lesser
 500 sf or 25% of floor area, greater
 Section 6.7.2(19)(6)

Percent of lot coverage: 0.65% Max: N/A



Preliminary Farm Processing Facility Land Use Permit-Peninsula Township

Comments:

Preliminary Farm Processing Permit

1. No processing or sales of product shall take place until final farm processing permit is issued.
2. Said final permit will not be issued until such time as the Zoning Administrator verifies that all of the requirements of the Zoning Ordinance have been met and all required permits have been submitted.
3. All exterior lighting must comply with Peninsula Township lighting standards.
4. All signage must comply with Peninsula Township signage standards.
5. All parking must comply with Peninsula Township parking standards.
6. The cupola shall be constructed for storage purposes only.

Check #5208, Villa Mari LLC, \$75.00

Construction of new Farm-Processing Facility at 8175 Center Road.

(12) **Date Approved: 02/24/2014**

Expires: 02/24/2015 (13)

10/22/2016

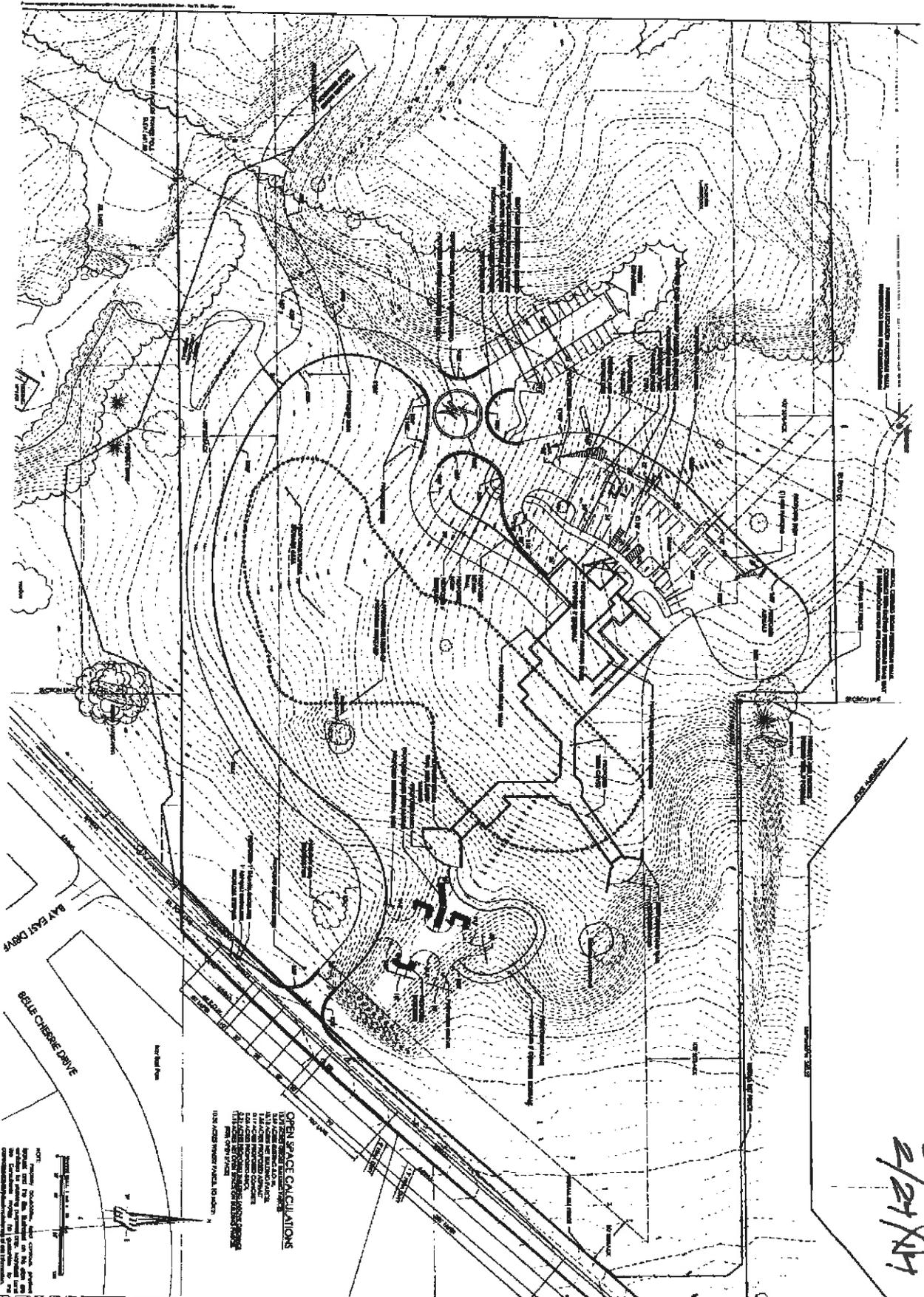
10/22/2016

Zoning Administrator:

Elise Crafts
Elise Crafts

Owner/Agent Signature:

[Signature] / *[Signature]* *EMC*



OPEN SPACE CALCULATIONS

ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 1. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 2. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 3. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 4. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 5. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 6. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 7. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 8. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 9. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:
 10. ALL OPEN SPACE SHALL BE CALCULATED AS FOLLOWS:

NOTES:

1. ALL DIMENSIONS ARE IN FEET AND INCHES.
2. ALL DIMENSIONS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS ARE TO THE EXTERIOR UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE TO THE INTERIOR UNLESS OTHERWISE NOTED.
5. ALL DIMENSIONS ARE TO THE FACE UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE TO THE EXTERIOR UNLESS OTHERWISE NOTED.
8. ALL DIMENSIONS ARE TO THE INTERIOR UNLESS OTHERWISE NOTED.
9. ALL DIMENSIONS ARE TO THE FACE UNLESS OTHERWISE NOTED.
10. ALL DIMENSIONS ARE TO THE CENTERLINE UNLESS OTHERWISE NOTED.

Handwritten:
 S. C. [unclear]
 2/24/14

30 A 31
 13099

CROFT LLC
Proposed Winery - Villa Mar
 Site and Dimension Plan
 Section 19, Town 28 North, Range 10 West
 Peninsula Twp., Grand Traverse County, Michigan

NO.	DATE	DESCRIPTION

Mansfield
 Land Use Consultants

333 Cottageville Dr., Box 271
 P.O. Box 4515
 Traverse City, MI 49785
 Phone 231-944-6310
 www.mansfieldinc.com
 info@mansfieldinc.com

November 8, 2013

Michelle Reardon
Director of Planning & Zoning
Peninsula Township
13235 Center Road
Traverse City, MI 49686

Re: Villa Mari Storm Water Review
GFA #: 13451

Michelle,

I have reviewed the Grading and Storm Water Plan (dated 11/7/13) and accompanying calculations (dated 11/7/13) for the proposed Villa Mari Winery project as requested by staff for conformance to the Peninsula Township Storm Water Control Ordinance and generally accepted best management practices.

The existing site conditions indicate heavily rolling terrain that generally slopes towards the south and east of the property.

The proposed drainage plan is broken up into multiple districts with basins associated with each district. The calculations include an assumed infiltration rate of 1"/hour and the storm water system is sized for a back-to-back 100 year, 24-hour storm event.

The plan consists of extensive steep slope areas that will require stabilization to ensure that sediment is not transported off-site or into the proposed basins. Details of the slope stabilization have not been provided.

Silt fencing is shown on the submitted plans and appears appropriate for quantity and location.

The plans submitted for review are generally acceptable and soil investigations have been completed by the applicant.

Respectfully,
Gourdie-Fraser, Inc.



Brian D. Rowley, PE
Cc File

T:\Projects\13451\2013-11-08 Villa Mari Storm Water Review.docx





August 5, 2014

Grand Traverse County D.P.W.
Attn: Dianne Thompson
Public Services Building
2650 Lafranier Road
Traverse City, MI 49686

RE: Villa Mari Winery, Peninsula Twp.
Commercial Water Service Permit Application

Dear Dianne

On behalf of Croft LLC., please find the following documents enclosed for the Water Service Permit Application for the Villa Mari Winery in Peninsula Twp., Grand Traverse County, Michigan:

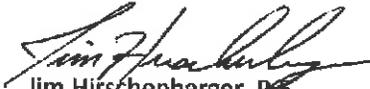
1. 2 copies of the applicable drawings (Gen. Note Sheet C1.0, Utility Plan C5.0 & the Water Service Plan C5.1)
2. 1 copy of the Architectural Floor Plans A2.0 – A2.7.
3. 1 copy of the Commercial Water Service Application
4. 1 copy of the relevant Grand Traverse County Technical Specifications & Details.
5. 1 copy of the Letter of Agency (from Croft LLC.)

This project is a new project including building construction, concrete and HMA pavements, concrete and HMA curb, on-site sanitary septic fields, groundwater well supply (irrigation and winery process water) and municipal water service (domestic and fire protection). A new water service will be installed from the 8" diameter water main along Underwood Ridge to the proposed building.

Installation of the water service is awaiting permit approval.

If you have any questions, please feel free to call me at (231) 946-9310 ext. 1007. Thank you for your assistance.

Sincerely,
Mansfield Land Use Consultants


Jim Hirschenberger, P.E.
Project Engineer

Enclosures:

P:\Land Projects\2013\13099 Villa Mari\Permitting\DPW Water Service Permit\140801_DPW_Water_Permit_Ltr_13099.doc

830 Cottageview Drive -Suite 201
P.O. Box 4015 Traverse City, MI 49685

p 231.946.9310
f 231.946.8926

Hydrant Flow Test Summary

Project: **Villa Mari**
 Project No.: **13099**
 Location: **Peninsula Township, Grand Traverse County**
 Client: **Croft LLC**

Test Date: 10/13/2014
Test Time: 10:15 AM
Test Location: Twp. Fire Station #2, Center Rd.
Test Elevation: 622.63
Hydrant Opening (d): 2.50 in. (Assumed)
Hydrant Coefficient (c): 0.90 (Assumed)
Completed By: Randy Rittenhouse
From Entity: Peninsula Township Fire Department

Observed Data
Static Pressure: 120 psi
Residual Pressure: 89 psi
Pressure Drop (hf): 31 psi (Static - Residual)
Pressure Drop (hr): 100 psi (Static - 20psi)
Observed Flow (Qf): 654
Pitot Gauge (p): 15
Flow Device: HM2H

Anticipated Flow (Q):
 $Q = 29.83 \times (c) \times (d^2) \times \text{SQRT}(p)$
 $Q = 650 \text{ gpm}$

Predicted Flow @ 20psi
 $Qr = Qf \times ((hr \wedge 0.54) / (hf \wedge 0.54))$
 $Qr = 1,231 \text{ gpm @ 20 psi}$

Project Information
 Bldg. First Floor Elev = 678.00 '
 Hydrant Flow Test Elev = 622.63 '
 Elevation Change = 55.37 '
 Pressure Differential = 24 psi
 Increase or Decrease? = Decrease
 Est. Static Pressure = 96 psi (Villa Mari First Floor Elev.)

Petra Kuehnis

From: CPS.Application@michigan.gov
Sent: Friday, October 11, 2013 3:33 PM
To: petrak@maaeps.com; pjalpers@charter.net
Subject: CPS Permit Issued - 28052-020649-13-101113

Dear Villa Mari Winery c/o Marty Lagina,

Your permit with application reference number 20649 has been issued by Michigan Department of Transportation. The permit number is 28052-020649-13-101113.

Please login to the CPS system to print the permit and its attachments.

Please do not reply to this email.

Thank you,

MDOT Construction Permit System

You can access CPS by logging into One Stop by clicking on this link

<http://www.michigan.gov/business>

Application Reference Number:20649

Applicant Info**Applicant Name:** Villa Mari Winery c/o Marty Lagina**Mailing Address:** 121 E Front St, Suite 200**City:** Traverse City**State:** MI**Zip:** 49684**Primary Contact****Contact Name:** Petra Kuehnis**Phone No:** 231-946-9310**Cell Phone No:** 231-631-1916**Email Address:** petrak@maaeps.com**Contractor Info****Contractor Name:** Alpers Excavating**Mailing Address:** 16 S West Silver Lake Road**City:** Grawn**State:**

MI

Zip:

49685

Primary Contact**Contact Name:** Matt Alpers**Phone No:** 231-943-4710**Cell Phone No:**

231-218-0739

Email Address: pjalpers@charter.net**Site Info****State Route:** M37**Township Of:** Peninsula**County:** Grand Traverse County

Town	Range	Section
T28N	R10W	19

Nearest Intersection:

Bay East Drive

Side of Road:

South East

Distance to the nearest intersection:

240.0 Feet

Direction from worksite to the nearest intersection on the state route:

South

Work Info**Proposed Start Date:**

10/25/2013

Proposed Completion Date:

05/23/2014

Purpose:

new driveway for winery tasting room facility

Requisition #:**Work Order #:****MDOT Job #:****Organizations Job #:****Lane Closure Proposed:**

No

Work Located on Restricted Route:

No

Work performed outside of time restrictions:

No

Date Submitted:

08/21/2013

Bond Info**Department Bond**

EI 02888

Number:

Insurance Info

**Certificate of
Insurance Number:** L46507

Attachments

Attachments Included.

Type of Work

Driveways

Commercial Driveways - Parking spaces 10-50

Application Fee (Nonrefundable)

Additional fees may be applied.

\$275.00

POST IN CONSPICUOUS PLACE

HEALTH DEPARTMENT

SEWAGE DISPOSAL PERMIT # 36222

SEPTIC TANK SIZE (2) 4000 single + (1) 1000 DBL

DISPOSAL FIELD SIZE 1862 LINEAL 7,448 sq. ft.

~~WELL~~

NAME VILLA MARI / CROFT, LLC TWP. Peninsula

LOCATION 8175 Center Rd. CO. _____

Grand Traverse County Health Department
Traverse City

Phone No. 231-995-6051

SIGNED Dan Turner, R.S. DATE 1/6/14

GTC #142
Rev. 6/01

POST IN CONSPICUOUS PLACE

HEALTH DEPARTMENT

SEWAGE DISPOSAL PERMIT # 36221

SEPTIC TANK SIZE _____

DISPOSAL FIELD SIZE _____ LINEAL _____ sq. ft.

WELL - TYPE II - WSSN # 20472-28

NAME VILLA MARI / CROFT LLC TWP. PENINSULA sec. 1

LOCATION 8175 CENTER ROAD CO. G.T.

Grand Traverse County Health Department
Traverse City

Phone No. 231-995-6051

SIGNED EuiBurt R.S. DATE 12-9-2013

995-6026 DIRECT LINE

GTC #142



**GRAND TRAVERSE COUNTY
HEALTH DEPARTMENT**

PERSONAL HEALTH
Suite A
2325 Garfield Road, N.
Traverse City, MI 49686
(231) 922-4831

ENVIRONMENTAL HEALTH
2650 LaFranier Road
Traverse City, MI 49686
(231) 995-6051

ANIMAL CONTROL
2650 LaFranier Road
Traverse City, MI 49686
(231) 995-6080

www.gtchd.org

December 9, 2013

Villa Mari/Croft LLC
121 E. Front Street
Traverse City, MI 49684

Re: Well permit approval for the new well located at 8175 Center Road, Peninsula Township, section 19, Grand Traverse County

Water Supply Serial Number: 20472-28

Dear Villa Mari Public Water Supply Operator,

Enclosed please find a copy of the Type II Noncommunity Public Water Supply Permit #36221

The following provisions are required to meet Michigan's State Well Code, Act 399, P. A. 1976.

ISOLATION:

This well must be at least 75' away from any source of potential contamination. This includes retention basins, catch basins, inside plumbing in the slab flooring, and any part of the sanitary sewer line(s). See the septic permit for the well location.

WELL YIELD

The well servicing your establishment must produce a minimum of 47 gallons per minute. The pressure tank sizing requires a minimum drawdown capacity of a two minute pump run time, which would be a minimum of a 94 gallon drawdown capacity, if using a diaphragm type pressure tank. This requirement is not required if installing a variable speed pump.

Sampling Requirements

12/9/2013

Once the well has been completed and the distribution system has been installed and chlorinated, two coliform bacteria samples, 24 hours apart and a nitrate sample must be taken and must meet standards as set forth in Act 399, PA 1976.

The following routine monitoring of water quality from your supply is required:

1. The minimum bacteriological sampling frequency required from your supply is one sample per quarter for the first year of operation.
2. The minimum nitrate/nitrite sampling frequency required from your supply is annual.

You are required to maintain a file record relating to your water system for at least five years which contains: your well log, your permit and water sample result forms. You must include your WSSN number (water supply serial number) on all water sample forms. This number is used by our office and by the laboratory to track your water sample results. It is used for crediting you for your water sample results. It is also used for crediting you for having collected your required monitoring samples.

If you do not include the WSSN number on your sample forms, no record of your sampling will be available and a "failure to monitor" violation notice may be issued. Your WSSN number for this well is **20472-28**.

Be sure to indicate where the samples were collected on your sample request form in the box labeled "Sampling Point". The approved sampling tap for your facility is at the food service sink.

Be advised that you may use either the MDNRE laboratory or a private laboratory which has been MDNRE-certified (parameter-specific) for the analysis of drinking water. If a private lab is used, you must provide the results to this office. Be sure to include your WSSN number on the sample result forms.

If you have any questions regarding this letter or concerning sampling procedures, please contact this office.

Thank you for your cooperation.

Sincerely,



Eric Burt, R.S.
Public Water Supply Coordinator
Grand Traverse County Health Department

Enclosures

Grand Traverse County Health Department
 2650 LAFRANIER RD
 TRAVERSE CITY, MI 49686
 231-995-6051

GT #: **36221**

OWNER VILLA MARI / CROFT LLC
 CURRENT MAILING ADDRESS 121 E. FRONT ST. STE 200
Traverse City, MI 49684 PH. 231-835-3659
 NEW Yes EXISTING _____
 TYPE OF ESTABLISHMENT Commercial
 PROPERTY ADDRESS 8175 CENTER RD
 SUBDIVISION _____
 CITY TRAVERSE CITY LOT # _____
 TOWNSHIP Peninsula Twp. SECTION 18

SOIL:
 SOIL TYPE TO A DEPTH OF 6"

 DEPTH TO GROUND WATER _____

SEPTIC TANK SIZE _____	NUMBER OF BEDROOMS _____
PUMP CHAMBER _____	NUMBER OF BATHS _____
EFFLUENT FILTER _____	LAUNDRY <u>NO</u>
DRAIN BED _____	DISHWASHER <u>NO</u>
LINEAL FEET _____	GARBAGE DISPOSAL <u>NO</u>
SQUARE FEET _____	BASEMENT PLUMBING <u>NO</u>
TILE LINES ON _____	SEWAGE EJECTOR <u>NO</u>
TILE FIELD _____	EXISTING FUEL TANKS <u>NO</u>
TRENCH WIDTH _____	SHARED WELL <u>NO</u>
LINEAL FEET _____	OTHER _____

OTHER _____
 ADDITIONAL PERMIT SPECIFICATIONS:

SEE REVERSE SIDE FOR DRAWING AND CONSTRUCTION DETAILS

CERTIFICATION OF INSPECTION
 (PERMIT TO COVER)

SEWER _____ SEPTIC TANK _____ PUMP CHAMBER _____

MANUFACTURER OF SEPTIC TANK _____

FINAL DISPOSAL _____ ISOLATION DIST _____

NOTES _____

INSPECTION BY _____ DATE _____

CONTRACTOR _____

SEPTIC _____

WELL _____

APPROVAL OF A PLAN AND THE INSTALLATION CANNOT BE CONSIDERED BY THE OWNER AS A GUARANTEE THAT SUCCESSFUL OPERATION IS ASSURED. THERE ARE MANY WAYS A SYSTEM CAN BE ABUSED CAUSING FAILURE.

SEPTIC PERMIT
 WELL PERMIT
PROPERTY TAX # - 281101901100

WATER SUPPLY INFORMATION

CITY _____ WELL X
 WELL TYPE Type II 4" PVC w/ 1/2" HDPE
 DEPTH 47' MINIMUM
 EXISTING WELL TO BE ABANDONED AND PLUGGED NO
 APPROVED _____

WELL # 26472-28
(SEE PERMIT)

WATER SAMPLE RESULTS

BACTERIOLOGICAL _____ DATE SAMPLED _____
 NITRATES _____ PPM DATE SAMPLED _____

WATER SAMPLING REQUIREMENT

(1) Before placing a new, repaired, or reconditioned water supply system into service, and after all traces of chlorine have been flushed out, 1 or more water samples shall be collected from the sampling faucet. Organisms of the coliform group shall not be present in the sample or samples.
 (2) The water supply owner shall be responsible for collecting the water sample or shall arrange for the owner's designated representative to collect the sample. The well drilling contractor or pump installer shall notify the water supply owner of the owner's responsibility for collecting the water sample.

AGREEMENT

I HEREBY AGREE TO COMPLY WITH REQUIREMENTS OF THE SANITARY CODE FOR THE COUNTY OF GRAND TRAVERSE, AND THE APPLICABLE LAWS OF THE STATE OF MICHIGAN IN THE INSTALLATION OF A SEPTIC TANK SEWAGE DISPOSAL SYSTEM & /OR WELL INSTALLATION ON THE ABOVE DESCRIBED PROPERTY, AND TO CONSTRUCT THE SAME ACCORDING TO THE PLANS AND SPECIFICATIONS AS DESCRIBED AND APPROVED ABOVE; OTHERWISE I UNDERSTAND THE PERMIT WILL BE VOID.

THE FINAL INSPECTION REQUIRED BEFORE COVERING. ONE DAY NOTICE SHALL BE GIVEN FOR INSPECTION.

SIGNED [Signature] DATE 12/1/13
 OWNER OR AGENT

THE SPECIFICATIONS AS STATED ON THIS PERMIT MEET WITH MINIMUM REQUIREMENTS OF THE SANITARY CODE. THE OWNER SHOULD BE ADVISED THAT ADDITIONAL CONSTRUCTION OPTIONS MAY BE AVAILABLE WHICH COULD EXTEND THE LIFE EXPECTANCY OF THE SEWAGE SYSTEM. CONSULT WITH THE HEALTH DEPARTMENT REGARDING THESE OPTIONS.

PERMIT TO INSTALL, CONSTRUCT OR REPLACE
EXPIRES 2 YEARS AFTER DATE OF ISSUE
 PERMIT IS NON-TRANSFERABLE TO PERSON OR PLACE

ISSUED TO VILLA MARI / CROFT LLC
 DATE 12/4/2013 BY [Signature]
 HEALTH DEPT. REPRESENTATIVE

RECEIPT # 38616 DATE 11/26/2013

RECEIVED **\$598.00** WELL PERMITS

POST IN CONSPICUOUS PLACE

HEALTH DEPARTMENT

SEWAGE DISPOSAL PERMIT # 36222

SEPTIC TANK SIZE (2) 4000 single + (1) 1000 DBL

DISPOSAL FIELD SIZE 1862 LINEAL 7,448 sq. ft.

~~WELL~~
NAME VILLA MARI / CROFT, LLC TWP. Peninsula
LOCATION 8175 Center Rd. CO. _____

Grand Traverse County Health Department

Traverse City

Phone No. 231-995-6051

SIGNED Dan Trudoms, MS, RS DATE 1/6/14

EARTH CHANGE PERMIT

GRAND TRAVERSE COUNTY
Soil Erosion & Sedimentation Control Department
2650 LaFranier Road
Traverse City, MI 49686
(231) 995-6042

Permit No. 23765 Township PENINSULA
Address 8175 CENTER RD.

Section No. 19 Town ZBN Range 10W
Date of Issue 9-30-15 Date of Expiration 9-30-16

SOIL EROSION and SEDIMENTATION CONTROL
(PART 91 OF ACT 451, P.A. 1994, as amended)

GRAND TRAVERSE COUNTY SOIL EROSION
& SEDIMENTATION CONTROL ORDINANCE (as amended)

[Signature]
Inspector

GTC-587
Rev. 11/13

PLEASE POST PERMIT VISIBLE FROM STREET OR HIGHWAY.

SESC PERMIT

Under the provisions of PART 91, SOIL EROSION & SEDIMENTATION CONTROL ACT (SESC) (1994 PA 451 as amended) and/or GRAND TRAVERSE COUNTY SESC ORDINANCE, as amended.

GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION
2650 LAFRANIER RD
TRAVERSE CITY MI 49686
Phone # (231) 995-6042

Permit #: 23765
Type:
Issued:
Expires: 9/14/2016
Fee: 1,618
Receipt #: 37900
Applied: 9/14/2015

Owner:
CROFT LLC
121 E FRONT ST SUITE 200
TRAVERSE CITY MI 49684

Contractor/On-Site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

DEQ Permit #: Issue Date:
Credit/Surety Amount: 10,000.00 Expires:

Authority is hereby granted to make the following earth changes:

FINISH GRADING

Located at: 8175 CENTER RD
In PENINSULA Twp, Sect 19 Town 28 Range 10 Lot # Block
Sub:
Property Tax #: 28 - 11 - 019 - 011 - 02

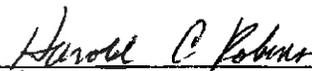
Permit Conditions:

1. The permitted activity shall be completed in accordance with the approved plans and specifications, and the following general conditions.
2. This permit does not waive the necessity for obtaining all other required federal, state, or local permits.
3. Permittee shall notify the permitting agency within one week after completing the permitted activity or one week prior to the permit expiration date, whichever comes first.

General Conditions:

In accordance with Rule 1709 promulgated under the authority of Part 91, Soil Erosion and Sedimentation Control, of the natural Resources and Environmental Protection act, 1994 PA 451, as amended, and in addition to the information on the attached plan(s) and special conditions, the following general conditions apply to the earth change authorized by this permit.

- Design, construct, and complete the earth change in a manner that limits the exposed area of disturbed land for the shortest period of time.


Signature

THIS PERMIT ALONG WITH THE SITE PLAN MUST BE POSTED AT THE PROJECT SITE
Continued on Next Page

- Remove sediment caused by accelerated soil erosion from runoff water before it leaves the site of the earth change.
- Temporary or permanent control measures shall be designed and installed to convey water around, through, or from the earth change at a non-erosive velocity.
- Install temporary soil erosion and sedimentation control measures before or upon commencement of the earth change activity and maintain the measures on a daily basis. Remove temporary soil erosion and sedimentation control measures after permanent soil erosion measures are in place and the area is stabilized. (Stabilized means the establishment of vegetation or the proper placement, grading, or covering of soil to ensure its resistance to soil erosion, sliding, or other earth movement.)
- Complete permanent soil erosion control measures for the earth change within five calendar days after final grading or upon completion of the final earth change. If it is not possible to permanently stabilize the earth change, then maintain temporary soil erosion and sedimentation control measures until permanent soil erosion control measures are in place and the area is stabilized.
- Permittee shall notify the permitting agency within one week after completing the permitted activity or one week prior to expiration date, whichever comes first.

Specific Conditions:

This permit is approved according to the site plan received on Sept. 6th. 2013 and additional site plan received on Sept. 11th. 2015. with the following requirements:

1. Install silt fence as shown on site plan, properly trenched in. Install silt fence in locations shown on the approved site plans.
2. Store spoils where indicated in the site plan. all spoils need to be stored behind the silt fence.
3. If grading is in process in dry months, a water truck must be kept on site to prevent erosion from the wind.
4. Install Erosion Control Blanket on all slopes 3:1 or steeper according to the manufactures recommendations.
5. Install retaining walls to stabilize steep slopes as required.
6. All retention areas shall have sloped #:1 or less. Those slopes must be reinforced with erosion control mats to establish vegetation
7. Install riprap at all drain outlets to prevent erosion.
8. Do not allow sediment to be tracked onto the street. If tracking does occur, sweep the street by the end of the day.
9. Within 5 days of final grading place 4 inches of topsoil, seed and straw mulch over all disturbed areas.
10. Store spoils for tunnels and building on the NE sides of the drive as planned.
11. Install silt fence between spoils and existing basins to prevent soil from washing onto existing grass or into existing basins.
12. Install landscaping, stone drains or gutters as planned under roof drip edges to prevent erosion from storm water runoff.
13. Follow all soil erosion control measures on the engineered site


Signature

THIS PERMIT ALONG WITH THE SITE PLAN MUST BE POSTED AT THE PROJECT SITE
Continued on Next Page

Continued from Previous Page
SESC PERMIT

Permit 23765

plan from Mansfield Land Use Consultants Job. # 13099.

14. Allow not tracking onto Underwood Ridge. If tracking does occur, sweep streets at the end of the day.

15. For the Borrow Pit and 9.25 Ac. Vineyard Area place erosion erosion control blanket in the swale to prevent washing until cover crop is established.

16. All disturbed areas that have not been Final Graded and Seeded shall be temporarily stabilized over the winter by a method Developed by Mansfield Land Use Consultants and supplied to GT Soil Erosion Dept


Signature

THIS PERMIT ALONG WITH THE SITE PLAN MUST BE POSTED AT THE PROJECT SITE



GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION

Receipt Number 37900

Date 9/21/2015
Received of MANSFIELD LAND USE CONSULTANTS
Notes SOIL PERMIT# 23765

Cash Amount Credit N
Check Amount 1618.00 Check/Doc# 5493

Description	Amount
SOIL EROSION PERMIT	1618.00
	=====
<u> </u> /GZAGORE	Total 1618.00

EARTH CHANGE PERMIT

GRAND TRAVERSE COUNTY
Soil Erosion & Sedimentation Control Department
2650 LaFranier Road
Traverse City, MI 49686
(231) 995-6042

Permit No. 22684 Township Peninsula

Address 8175 Center Road

Section No. 19 Town 28 Range 10

Date of Issue 9/6/13 EXT. Date of Expiration 9/06/15
Pete Brubki Inspector

SOIL EROSION and SEDIMENTATION CONTROL
(PART 91 OF ACT 451, P. A. 1994, as amended)

GRAND TRAVERSE COUNTY SOIL EROSION
& SEDIMENTATION CONTROL ORDINANCE (as amended)

GTC 587
Rev. 11/13

PLEASE POST PERMIT VISIBLE FROM STREET OR HIGHWAY.

P E R M I T

SOIL EROSION & SEDIMENTATION CONTROL ACT (Part 91, 1994 PA 451, #25 as amended) AND/OR SOIL EROSION, SEDIMENTATION AND STORMWATER RUNOFF CONTROL ORDINANCE OF 2003

GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION
2650 LAFRANIER RD
TRAVERSE CITY MI 49686
Phone # (231) 995-6042

Permit #: 2268
Type: COMM/IND
Issued: 9/09/201
Expires: 9/06/201
Fee: 81
Receipt #: 3647
Applied: 9/06/201

Owner:
CROFT LLC
121 E FRONT SUITE 200 ST
TRAVERSE CITY MI 49684

6/30/14 Amendment
Inspection G

Contractor/On-Site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

8/27/14 approved 1 yr extension
through 9/06/2015 Pete
Bru

DEQ Permit #: Issue Date:
Credit/Surety Amount: 1,000.00 Expires:

Under the provisions of Part 91 of Act 451 of 1994 and/or the GTC Ordinance #25 of 2003, authority is hereby granted to make the following earth changes:

GRADING TO CONSTRUCT WINERY AND ENTRANCE DRIVE; AMEND TO ADD: WINE TUNNELS, BUILDING, ASPHALT ROAD, STONE PARKING, TOPSOIL STORAGE AREA

Located at: 8175 CENTER RD
In PENINSULA Twp, Sect 19 Town 28 Range 10 Lot # Block
Sub:
Property Tax #: 28 - 11 - 019 - 011 - 00

Work to be done under authority of this permit is subject to the following special instructions and requirements:

This permit does not obviate the need for any other state or local permits or authority to conduct these activities. This permit is approved according to the site plan received on September 6, 2013 with the following conditions:

1. Install silt fence according to the site plan, properly trenched in.
2. Store spoils where indicated on plan. All spoils need to be stored behind the silt fence.
3. If grading is in process during dry months, a water truck must be kept on site to prevent wind erosion.
4. Use erosion control mats on any slope that is greater than 3:1.
5. Install retaining walls to stabilize steep slopes as required.
6. All retention areas shall have slopes of 3:1 or less. Those slopes must be reinforced with erosion control mats to establish vegetation.
7. Install riprap at all drain outlets to prevent erosion.
8. Do not allow sediment to be tracked onto the street. If tracking occurs, sweep the street by the end of the day.
9. Within 5 days of finish grading, place 4 inches of topsoil, seed and mulch over all disturbed soils.

AMENDMENT:

1. Store spoils for tunnels and building on the NE sides of the drive

COMMENCEMENT OF WORK PRIOR TO RECEIVING THE APPROVED PERMIT is a municipal or state civil infraction that may subject you to a fine of not more than \$2,500.00. Knowingly violating the Soil Erosion and Sedimentation Control Act, of 1994 PA 451, as amended or knowingly making a false statement on the permit application or a soil erosion or sedimentation control plan may subject you to a civil fine of not more than \$10,000.00 for each day of the violation. In addition, knowingly violating section 9112 or 9117, relating to a determination that the work undertaken does not conform to a permit or plan or adversely affects adjacent land or waters, may be responsible for a civil fine of not less than \$2,500.00 nor more than \$25,000.00 for each day of the violation.

PERMIT PROCEDURES

In accordance with Part 91 of Act 451 of 1994, as amended, and/or the GTC Ordinance #25 of 2003 and their corresponding General Rules, the undersigned herewith makes application for a permit to undertake a proposed earth change. Permit requirements will be as follows:

1. A person proposing to undertake an earth change shall submit an application for a state prescribed permit to the appropriate enforcing agency. In land development, the application shall be submitted by the landowner or their designated agent (a person who has written authorization from the landowner to sign the application and secure a permit in the landowner's name), whoever is responsible for the earth change.
2. The application shall be accompanied by a soil erosion and sedimentation control plan and any other document with the appropriate enforcing agency may require.
3. The soil erosion and sedimentation control plan shall be reviewed and approved by a person designated by the county or local enforcing agency who is trained and experienced in soil erosion and sedimentation control techniques.
4. The appropriate enforcing agency shall approve, disapprove or require modification of an application for an earth change permit within 30 calendar days following receipt of the application. Notification of disapproval shall be made by certified mail with the reasons for disapproval and conditions required for approval.
5. A state prescribed application form shall be provided to the applicant by the county or local enforcing agency.
6. A state prescribed permit shall be used by each county for local enforcing agency and shall include any additional provisions that may be required by the county or local enforcing agency. The permit shall be available on the site of the earth change for inspection.
7. Upon a determination that an applicant has met all the requirements of Part 91 and the promulgated rules, and the local ordinance, if applicable, the appropriate enforcing agency shall issue a permit for the proposed earth change.
8. An "authorized public agency" is exempt from obtaining a permit from a county or local enforcing agency, but shall notify the county or local enforcing agency of each proposed earth change.
9. When an earth change is under the jurisdiction of 2 or more local or county enforcing agencies, the person must obtain coverage in each jurisdiction, unless there is an interlocal agreement.

Continued from Previous Page
P E R M I T

SOIL EROSION & SEDIMENTATION CONTROL ACT (Part 91, 1994 PA 451, #25
as amended) AND/OR SOIL EROSION, SEDIMENTATION AND STORMWATER RUNOFF
CONTROL ORDINANCE OF 2003

GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION
2650 LAFRANIER RD
TRAVERSE CITY MI 49686
Phone # (231) 995-6042

Permit #: 2268
Type: COMM/IND
Issued: 9/09/201
Expires: 9/06/201
Fee: 81
Receipt #: 3647
Applied: 9/06/201

Owner:
CROFT LLC
121 E FRONT SUITE 200 ST
TRAVERSE CITY MI 49684

Contractor/On-Site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

DEQ Permit #: Issue Date:
Credit/Surety Amount: 1,000.00 Expires:

Under the provisions of Part 91 of Act 451 of 1994 and/or the GTC
Ordinance #25 of 2003, authority is hereby granted to make the
following earth changes:

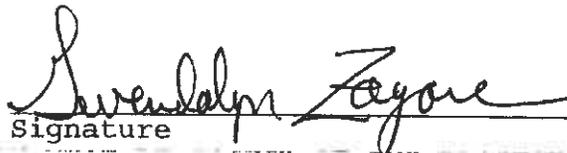
GRADING TO CONSTRUCT WINERY AND ENTRANCE DRIVE; AMEND TO ADD: WINE
TUNNELS, BUILDING, ASPHALT ROAD, STONE PARKING, TOPSOIL STORAGE AREA

Located at: 8175 CENTER RD
In PENINSULA Twp, Sect 19 Town 28 Range 10 Lot # Block
Sub:
Property Tax #: 28 - 11 - 019 - 011 - 00

Work to be done under authority of this permit is subject to the
following special instructions and requirements:

- as planned.
2. Install silt fence between spoils and existing basins to prevent soil from washing onto existing grass or into existing basins.
 3. Install landscaping, stone drains or gutters as planned under roof drip edges to prevent erosion from storm water run off.

All Earth Change permits require a final site inspection. The landowner/applicant is responsible for contacting our office, PRIOR TO THE EXPIRATION DATE, to request a final inspection when all permit requirements are met and the site is stabilized for the permit to be closed.


Signature

COMMENCEMENT OF WORK PRIOR TO RECEIVING THE APPROVED PERMIT is a municipal or state civil infraction that may subject you to a fine of not more than \$2,500.00. Knowingly violating the Soil Erosion and Sedimentation Control Act, of 1994 PA 451, as amended or knowingly making a false statement on the permit application or a soil erosion or sedimentation control plan may subject you to a civil fine of not more than \$10,000.00 for each day of the violation. In addition, knowingly violating section 9112 or 9117, relating to a determination that the work undertaken does not conform to a permit or plan or adversely affects adjacent land or waters, may be responsible for a civil fine of not less than \$2,500.00 nor more than \$25,000.00 for each day of the violation.

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In accordance with Part 91 of Act 451 of 1994, as amended, and/or the GTC Ordinance #25 of 2003 and their corresponding General Rules, the undersigned herewith makes application for a permit to undertake a proposed earth change. Permit requirements will be as follows:

1. A person proposing to undertake an earth change shall submit an application for a state prescribed permit to the appropriate enforcing agency. In land development, the application shall be submitted by the landowner or their designated agent (a person who has written authorization from the landowner to sign the application and secure a permit in the landowner's name), whoever is responsible for the earth change.
2. The application shall be accompanied by a soil erosion and sedimentation control plan and any other document with the appropriate enforcing agency may require.
3. The soil erosion and sedimentation control plan shall be reviewed and approved by a person designated by the county or local enforcing agency who is trained and experienced in soil erosion and sedimentation control techniques.
4. The appropriate enforcing agency shall approve, disapprove or require modification of an application for an earth change permit within 30 calendar days following receipt of the application. Notification of disapproval shall be made by certified mail with the reasons for disapproval and conditions required for approval.
5. A state prescribed application form shall be provided to the applicant by the county or local enforcing agency.
6. A state prescribed permit shall be used by each county for local enforcing agency and shall include any additional provisions that may be required by the county or local enforcing agency. The permit shall be available on the site of the earth change for inspection.
7. Upon a determination that an applicant has met all the requirements of Part 91 and the promulgated rules, and the local ordinance, if applicable, the appropriate enforcing agency shall issue a permit for the proposed earth change.
8. An "authorized public agency" is exempt from obtaining a permit from a county or local enforcing agency, but shall notify the county or local enforcing agency of each proposed earth change.
9. When an earth change is under the jurisdiction of 2 or more local or county enforcing agencies, the person must obtain coverage in each jurisdiction, unless there is an interlocal agreement.

POST IN CONSPICUOUS PLACE

HEALTH DEPARTMENT

SEWAGE DISPOSAL

PERMIT # 36221

SEPTIC TANK SIZE _____

DISPOSAL FIELD SIZE _____ LINEAL _____ sq. ft.

WELL

TYPE II - WSSN # 20472-28

NAME

VILLA MARI / CROFT LLC

TWP.

PENINSULA sec. 19

LOCATION

8175 CENTER ROAD

CO.

G.T.

Grand Traverse County Health Department

Traverse City

Phone No. 231-995-6051

SIGNED

EuiBurtas

DATE

12-9-2013

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

6. **Facilities Description** – In the space below provide a detailed description of the proposed project. Applications without adequate facilities descriptions will be returned. SEE EXAMPLES BELOW. Use additional sheets if needed.

1,337 feet of 8-inch water main from Underwood Ridge to the proposed Villa Mari Winery.

64 feet of 6-inch water main fire suppression connection to the proposed Villa Mari Winery.

EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES – EXAMPLES

Water Mains	500 feet of 8-inch water main in First Street from Main Street north to State Street. OR 250 feet of 12-inch water main in Clark Road from an existing 8-inch main in Third Avenue north to a hydrant.
Booster Stations	A booster station located at the southwest corner of Third Avenue and Main Street, and equipped with two, 15 Hp pumps each rated 150 gpm @ 200 feet TDH. Station includes backup power and all other equipment as required for proper operation.
Elevated Storage Tank	A 300,000 gallon elevated storage tank located in City Park. The proposed tank shall be spherical, all welded construction and supported on a single pedestal. The tank shall be 150 feet in height, 40 feet in diameter with a normal operating range of 130 – 145 feet. The interior coating system shall be ANSI/NSF Standard 61 approved or equivalent. The tank will be equipped with a cathodic protection system, and includes a tank level control system with telemetry.
Chemical Feed	A positive displacement chemical feed pump, rated at 24 gpd @ 110 psi to apply a chlorine solution for Well No. 1. Chlorine is 12.5% NaOCL, ANSI/NSF Standard 60 approved and will be applied at a rate of 1.0 mg/l of actual chlorine.
Water Supply Well	Well No. 3, a 200 foot deep well with 170 feet of 8-inch casing and 30 feet of 8-inch, 10 slot screen. The well will be equipped with a 20 Hp submersible pump and motor rated 200 gpm @ 225 feet TDH, set at 160 feet below land surface.
Treatment Facilities	A 5 million gpd water treatment plant located at the north end of Second Avenue. The facility will include 6 low service pumps, 2 rapid mix basins, 4 flocculation/sedimentation basins, 8 dual media filters, 3 million gallon water storage reservoir and 6 high service pumps. Also included are chemical feed pumps and related appurtenances for the addition of alum, fluoride, phosphate and chlorine.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

General Project Information – Complete all boxes below.	
<p>7. Design engineer's name, engineering firm, address, phone number, and email address:</p> <p>Mansfield Land Use Consultants Jim Hirschenberger, P.E. 830 Cottageview Dr., Suite 201 Traverse City, MI 49685 (231) 946-9310, ext. 1007 jimh@maaeps.com</p>	<p>8. Indicate who will provide project construction inspection:</p> <p><input type="checkbox"/> Organization listed in Box 1. <input type="checkbox"/> Engineering firm listed in Box 7. <input checked="" type="checkbox"/> Other - name, address, and phone number listed below. To Be Determined</p>
<p>9. Is a basis of design attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If no, briefly explain why a basis of design is not needed.</p>	
<p>10. Are sealed and signed engineering plans attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If no, briefly explain why engineering plans are not needed.</p>	
<p>11. Are sealed and signed construction specifications attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If specifications are not attached, they need to be on file at DEQ.</p>	
<p>12. Were Recommended Standards for Water Works, Suggested Practice for Water Works, AWWA guidelines, and the requirements of Act 399 and its administrative rules followed? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If no, explain which deviations were made and why.</p>	
<p>13. Are all coatings, chemical additives and construction materials ANSI/NSF or other adequate 3rd party approved? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If no, describe what coatings, additives or materials did not meet the applicable standard and why.</p>	
<p>14. Are all water system facilities being installed in the public right-of-way or a dedicated utility easement? (For projects not located in the public right-of-way, utility easements must be shown on the plans.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If no, explain how access will be obtained.</p>	
<p>15. Is the project construction activity within a wetland (as defined by Section 324.30301(d)) of Part 303, 1994 PA 451? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If yes, a wetland permit must be obtained.</p>	
<p>16. Is the project construction activity within a 100-year floodplain (as defined by R 323.1311(e)) of Part 31, 1994 PA 451, administrative rules? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If yes, a flood plain permit must be obtained.</p>	
<p>17. Is the project construction activity within 500 feet of a lake, reservoir, or stream? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If yes, a Soil and Erosion Control Permit must be obtained or indicate if the owner listed in box 2 of this application is an Authorized Public Agency (Section 10 of Part 91, 1994 PA 451) <input type="checkbox"/> Owner is APA.</p>	

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

18. Will the proposed construction activity be part of a project involving the disturbance of five (5) or more acres of land?
 YES NO

If yes, is this activity regulated by the National Pollutant Discharge Elimination System storm water regulations?
 YES: NPDES Authorization to discharge storm water from construction activities must be obtained.

NO: Describe why activity is not regulated: There is no storm water discharge. All storm water is contained on site in multiple storm basins designed to store (2) back-to-back 100-year storms (per ordinance) with no overflows. Please call 517-241-8993 with questions regarding the applicability of the storm water regulations.

19. Is the project in or adjacent to a site of suspected or known soil or groundwater contamination?
 YES NO

If yes, attach a copy of a plan acceptable to the DEQ for handling contaminated soils and/or groundwater disturbed during construction. Contact the local DEQ district office for listings of Michigan sites of environmental contamination.

20. IF YOU ARE A CUSTOMER/WHOLESALE/BULK PURCHASER, COMPLETE THE FOLLOWING

1) Name and WSSN of source water supply system (seller) 06640

2) Does the water service contract require water producer/seller to review and approve customer/wholesale/bulk purchaser water system construction plans?
 YES NO

If yes to #2, the producer/seller approval letter must be attached when submitted to DEQ.

21. **Owner's Certification** The owner of the proposed facilities or the owner's authorized representative shall complete the owner's certification. It is anticipated that the owner will either be a governmental agency (city, village, township, county, etc.) or a private owner (individual, company, association, etc.) of a Type I public water supply.

OWNER'S CERTIFICATION

PETER A. CORREIA (name), acting as the Supervisor (title/position) for
(print) (print)

Peninsula Township (entity owning proposed facilities) certify that this project has
(print)

been reviewed and approved as detailed by the Plans and Specifications submitted under this application, and is in compliance with the requirements of 1976 PA 399, as amended, and its administrative rules.



Signature*

1/26/15
Date

231-223 7322
Phone

*Original signature only, no photocopies will be accepted.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Permit Application for Water Systems (Continued)

PROJECT BASIS OF DESIGN – FOR WATER MAIN PROJECTS

PROJECT NAME: Villa Mari Winery

For this PROJECT the following information must be provided per Act 399 unless waived by the Department. For projects other than water main installation, or if additional space is needed, attach separate sheet(s) with detailed Basis of Design calculations.

- A. A general map of the initial and ultimate service areas
 Included on engineering plans Attached separately
- B. Number of service connections served by this permit application 1
- C. Total number of service connections ultimately served by entire project 1
- D. Residential Equivalent Units (REUs) served by this permit application 12.4
- E. Total Residential Equivalent Units (REUs) ultimately served by entire project 12.4
- F. Water flow rates for proposed project based on REUs listed in "D" and "E" above

- | | |
|--|---------------------------------------|
| 1. Initial design average day flow (mgd) | <u>0.00248</u> |
| 2. Initial design maximum day flow (mgd) | <u>0.00672</u> |
| 3. Total design average day flow (mgd) | <u>0.00248</u> |
| 4. Total design maximum day flow (mgd) | <u>0.00672</u> |
| 5. Required fire flows: ⁽¹⁾ | <u>1,500</u> gpm for <u>2.0</u> hours |

1,000 per call to J. Hirschentberger on 2/12/2014 BIT

20 per Hydrant test later BIT

- G. Actual flows and pressures of existing system at the connection point(s) ⁽²⁾
- | | |
|------------------------|---|
| | <u>Estimated @ 1,231</u> gpm at <u>20</u> psi |
| _____ gpm at _____ psi | |
| _____ gpm at _____ psi | |
| _____ gpm at _____ psi | |
- H. Estimated minimum flows and pressures within the proposed water main system ⁽³⁾
- 1,128 gpm at 96 psi

(1) Every water system must decide what levels of fire fighting flows they wish to provide. Fire flow should be appropriate for the area (residential, commercial, industrial) being served by the project. Typical fire flow rates can be obtained from the water supply, local fire dept., ISO or AWWA. The water system must then be designed to be able to provide the required fire flows while maintaining at least 20 psi in all portions of the distribution system.

(2) Flows and pressures at the connection points must be given to determine if the existing water main(s) are able to deliver water to the new service area. These numbers can be obtained from a properly modeled and calibrated distribution system hydraulic analysis or hydrant flow tests performed in the field. If more than one connection is proposed, list as needed.

(3) List what the estimated minimum flows can be expected in the proposed water mains based on estimated water demands, head losses, elevation changes and other factors that may affect flows, such as dead end mains.

SPECIAL CONDITIONS:

The following are conditions of this permit:

1. Peninsula Township shall have a construction inspector on-site during all water main installation activities.
2. Peninsula Township shall submit to our office an inspection/certification report within 90 days of project completion. This report shall include relevant field notes, verification that all conditions of this permit have been met, and that the project has been constructed in accordance with plans and standard specifications submitted to this office. Please include a set of as-built drawings as part of this report.

PERMIT NUMBER W157009	DATE February 12, 2015	ISSUED TO: Peninsula Township WSSN: 05233
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SESC PERMIT

Under the provisions of PART 91, SOIL EROSION & SEDIMENTATION CONTROL ACT (SESC) (1994 PA 451 as amended) and/or GRAND TRAVERSE COUNTY SESC ORDINANCE, as amended.

GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION
2650 LAFRANIER RD
TRAVERSE CITY MI 49686
Phone # (231) 995-6042

Permit #: 22684
Type: COMM/IND
Issued: 9/09/2013
Expires: 9/06/2015
Fee: 902
Receipt #: 37600
Applied: 9/06/2013

Owner:
CROFT LLC
121 E FRONT SUITE 200 ST
TRAVERSE CITY MI 49684

6/25/15 Amended Permit
GIZ

Contractor/On-Site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

DEQ Permit #: _____ Issue Date: _____
Credit/Surety Amount: 10,000.00 Expires: _____

Authority is hereby granted to make the following earth changes:

GRADING CONSTRUCT WINERY & ENTRANCE DRIVE; AMEND ADD WINE TUNNELS,
BUILDING, ASPHALT ROAD, STONE PARKING, TOPSOIL STORAGE AREA borrow pit
AMEND ADDITIONAL Vineyard 9.25 ACRES
Located at: 8175 CENTER RD
In PENINSULA Twp, Sect 19 Town 28 Range 10 Lot # Block
Sub:
Property Tax #: 28 - 11 - 019 - 011 - 00

Work to be done under authority of this permit is subject to the following special instructions and requirements:

This permit does not obviate the need for any other state or local permits or authority to conduct these activities. This permit is approved according to the site plan received on September 6, 2013 with the following conditions:

1. Install silt fence according to the site plan, properly trenched in.
2. Store spoils where indicated on plan. All spoils need to be stored behind the silt fence.
3. If grading is in process during dry months, a water truck must be kept on site to prevent wind erosion.
4. Use erosion control mats on any slope that is greater than 3:1.
5. Install retaining walls to stabilize steep slopes as required.
6. All retention areas shall have slopes of 3:1 or less. Those slopes must be reinforced with erosion control mats to establish vegetation.
7. Install riprap at all drain outlets to prevent erosion.
8. Do not allow sediment to be tracked onto the street. If tracking occurs, sweep the street by the end of the day.
9. Within 5 days of finish grading, place 4 inches of topsoil, seed and mulch over all disturbed soils.

Gwendolyn Zagore
Signature

THIS PERMIT ALONG WITH THE SITE PLAN MUST BE POSTED AT THE PROJECT SITE
Continued on Next Page

Continued from Previous Page
SESC PERMIT

Under the provisions of PART 91, SOIL EROSION & SEDIMENTATION CONTROL ACT (SESC) (1994 PA 451 as amended) and/or GRAND TRAVERSE COUNTY SESC ORDINANCE, as amended.

GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION
2650 LAFRANIER RD
TRAVERSE CITY MI 49686
Phone # (231) 995-6042

Permit #: 22684
Type: COMM/IND
Issued: 9/09/2013
Expires: 9/06/2015
Fee: 902
Receipt #: 37600
Applied: 9/06/2013

Owner:
CROFT LLC
121 E FRONT SUITE 200 ST
TRAVERSE CITY MI 49684

Contractor/On-Site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

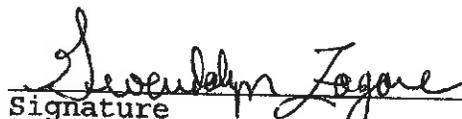
Located at: 8175 CENTER RD

Work to be done under authority of this permit is subject to the following special instructions and requirements:

- AMENDMENT 1: Wine Tunnels, Building, Asphalt Road, Stone Parking, Spoil Storage
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- AMENDMENT 2: Borrow Pit, Additional 9.25 vineyard
1. Follow all soil erosion control measures on the engineered plan from Mansfield Land Use Consultants Job No: 13099.
 2. Allow no tracking onto Underwood Ridge. If tracking does occur, sweep the street at the end of the work day.
 3. Place erosion control blanket in swale to prevent washing until cover crop is established.

All Earth Change permits require a final site inspection. The landowner/applicant is responsible for contacting our office, PRIOR TO THE EXPIRATION DATE, to request a final inspection when all permit requirements are met and the site is stabilized for the permit to be


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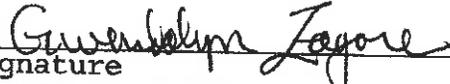
Owner:
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Contractor/On-site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

Located at: 8175 CENTER RD

Work to be done under authority of this permit is subject to the following special instructions and requirements:

closed.


Signature

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GRAND TRAVERSE COUNTY
SOIL EROSION & SEDIMENTATION

Receipt Number 37600

Date 6/23/2015
Received of VILLA MARI LLC
Notes SOIL PERMIT# 22684 AMEND PERMIT ADD 9.2 ACRE

Cash Amount
Check Amount 870.00 Credit N
Check/Doc# 5447

<u>Description</u>	<u>Amount</u>
SOIL EROSION PERMIT	870.00
<hr/>	
DMILLER	=====
Total	870.00

SESC PERMIT

Under the provisions of PART 91, SOIL EROSION & SEDIMENTATION CONTROL ACT (SESC) (1994 PA 451 as amended) and/or GRAND TRAVERSE COUNTY SESC ORDINANCE, as amended.

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Owner:
CROFT LLC
121 E FRONT SUITE 200 ST
TRAVERSE CITY MI 49684

6/25/15 Armond Permit
Giz

Contractor/On-site responsible person:
ALPERS EXCAVATING
16 S WEST SILVER LAKE RD
TRAVERSE CITY MI 49685

DEQ Permit #: Issue Date:
Credit/Surety Amount: 10,000.00 Expires:

Authority is hereby granted to make the following earth changes:

GRADING CONSTRUCT WINERY & ENTRANCE DRIVE; AMEND ADD WINE TUNNELS,
BUILDING, ASPHALT ROAD, STONE PARKING, TOPSOIL STORAGE AREA borrow pit
AMEND ADDITIONAL Vineyard 9.25 ACRES
Located at: 8175 CENTER RD
In PENINSULA Twp, Sect 19 Town 28 Range 10 Lot # Block
Sub:
Property Tax #: 28 - 11 - 019 - 011 - 00

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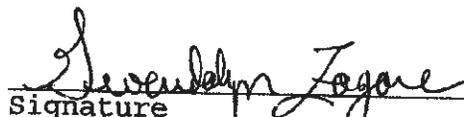
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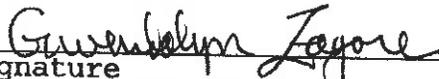
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SOIL EROSION & SEDIMENTATION

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Total	870.00

March 7, 2016

Request to Modify Findings of Fact

Upon reviewing the Findings of Fact dated January 11, 2016, the Applicant is requesting the following modifications to the text be considered by Township Staff:

1. **'the applicant shall preserve and cultivate 15.78 acres of sugar maples'**. Those who know Marty Lagina know that he has a passion for trees and forested areas. This passion is evident in the thoughtful detail of self-harvested and reclaimed wooden elements within the Mari Vineyard winery, many of which were milled at his own woodshop.
 - a. Sugar maple trees are not the only syrup producing trees. Allow for a variety of trees for syrup production and the general diversity and health of the woodlot.
 - b. The language in the Findings is essentially forever preserving the woodlot in sugar maple syrup production. Although the Applicant intends to manage the current woodlot for maple syrup production, future economic and environmental factors cannot be forecasted, and the Applicant wishes to reserve the right to be able to farm the area in any type of wine crop as allowed per the ordinance.
(references to this issue are on pages 2, 6, 14, 19, 21, and 24)
2. 2.1.c (pages 3 and 12) **'wine production waste water disposal is regulated by the Michigan Department of Environmental Quality and a permit shall be issued by this agency...prior to issuance of land use permit.'** The State has not yet finalized its on-site winery waste water permitting procedures, therefore it is not possible to meet this standard in any reasonable timeframe. In the meantime the Applicant intends to transport winery waste water to the County septage treatment plant. The Applicant will apply for on-site disposal permitting when State Permitting procedures are finalized.
3. 2.3.d (page 5) **'final MDOT Permitting shall be submitted to the Planning and Zoning Department prior to issuance of the SUP.'** The final MDOT permit number 28052-020649-13-101113 was received on October 11, 2013. Please see the attached document.
4. 3.1 (page 11) to be consistent with the rest of the document, please **replace the term 'B&B' with 'Guest House.'**
5. 21.3 (pages 22, 23, and 25) **'maximum allowed participants shall be 50 per guest activity use'**. Please change this language to better reflect the ordinance. The number of participants allowed in guest activity uses is based on the floor area provided and the tonnage of grapes harvested the prior year (*not to exceed 111 participants*). The Applicant used the 63 ton, 9 year harvest average (*=50 participants*) only as an example due to the devastating 2014 and 2015 growing seasons which resulted in only 30% of a typical year's harvest. Mari Vineyard's peak harvest in 2013 resulted in 105 tons of grapes which equates to 84 guest participants. The wine grape tonnage produced by Mari Vineyards on the OMP will increase as new vineyards are planted and young vineyards mature.