Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information	**Staff Assigned Case No.:**
Project Name: Palomino Farms	
Project Description: Developing 34 lots that are minimum of 2.5 acres	
Project Address: 0 WHISKEY SPRINGS RD,	
Project Area (acres or square feet): 205.11 Acres	
Project Location (with point of reference to major cross streets **AND** area locator): Located in Palomino Valley, north east from the intersection of Pyramid Highway and Whiskey Springs Rd.	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
077-090-13	554.22	077-090-14	219.14

Indicate any previous Washoe County approvals associated with this application:
Case No.(s).

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Palomino Farms LLC		Name: Venture Engineering	
Address: 200 Mile Circle Dr.		Address: 530 E Plumb Ln.	
	Zip: 89511		Zip: 89502
Phone: (775) 830-7534	Fax:	Phone: 775-825-9898	Fax:
Email: brian@bmcdreno.com		Email: john@venturereno.com	
Cell:	Other:	Cell:	Other:
Contact Person: Brian Murphy		Contact Person: John Munson	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Palomino Farms LLC		Name:	
Address: 200 Mile Circle Dr.		Address:	
	Zip: 89511		Zip:
Phone: (775) 830-7534	Fax:	Phone:	Fax:
Email: brian@bmcdreno.com		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person:	

For Office Use Only

Date Received:	Initial:	Planning Area:
County Commission District:		Master Plan Designation(s):
CAB(s):		Regulatory Zoning(s):

Tentative Subdivision Map Application
Supplemental Information

(All required information may be separately attached)

1. What is the location (address or distance and direction from nearest intersection)?

0 WHISKEY SPRINGS RD; LOCATED NORTH EAST OF THE INTERSECTION OF WHISKEY SPRINGS AND PYRAMID HIGHWAY.

2. What is the subdivision name (proposed name must not duplicate the name of any existing subdivision)?

PALOMINO FARMS SUBDIVISION

3. Density and lot design:

a. Acreage of project site	205.11 AC
b. Total number of lots	34
c. Dwelling units per acre	0.166
d. Minimum and maximum area of proposed lots	MIN=2.50 AC / MAX=2.82 AC
e. Minimum width of proposed lots	100'
f. Average lot size	2.59

4. What utility company or organization will provide services to the development:

a. Sewer Service	N/A
b. Electrical Service	N/A
c. Telephone Service	N/A
d. LPG or Natural Gas Service	N/A
e. Solid Waste Disposal Service	N/A
f. Cable Television Service	N/A
g. Water Service	N/A

5. For common open space subdivisions (Article 408), please answer the following:

   a. Acreage of common open space:

105.00 AC

   b. What development constraints are within the development and how many acres are designated slope, wetlands, faults, springs, and/or ridgelines:

DEVELOPMENT CONSTRAINT, FLOOD ZONE A TO THE EAST OF PROPOSED DEVELOPMENT.

   c. Range of lot sizes (include minimum and maximum lot size):

2.5 AC - 2.82 AC

d. Proposed yard setbacks if different from standard:

N/A

e. Justification for setback reduction or increase, if requested:

N/A

f. Identify all proposed non-residential uses:

OPENSPACE

g. Improvements proposed for the common open space:

NONE

h. Describe or show on the tentative map any public or private trail systems within common open space of the development:

NONE

i. Describe the connectivity of the proposed trail system with existing trails or open space adjacent to or near the property:

NONE

j. If there are ridgelines on the property, how are they protected from development?

NO RIDGELINES ON THE PROPERTY

k. Will fencing be allowed on lot lines or restricted? If so, how?

FENCING WILL BE ALLOWED ON LOT LINES.

l. Identify the party responsible for maintenance of the common open space:

PALOMINO FARMS LLC

6. Is the project adjacent to public lands or impacted by "Presumed Public Roads" as shown on the adopted April 27, 1999 Presumed Public Roads (see Washoe County Engineering website at http://www.washoecounty.us/pubworks/engineering.htm). If so, how is access to those features provided?

NO

7. Is the parcel within the Truckee Meadows Service Area?

❑ Yes	■ No

8. Is the parcel within the Cooperative Planning Area as defined by the Regional Plan?

■ Yes	❑ No	If yes, within what city?

9. Has an archeological survey been reviewed and approved by SHPO on the property? If yes, what were the findings?

NO

10. Indicate the type and quantity of water rights the application has or proposes to have available:

a. Permit #		acre-feet per year	
b. Certificate #		acre-feet per year	
c. Surface Claim #		acre-feet per year	
d. Other #		acre-feet per year	

a. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

11. Describe the aspects of the tentative subdivision that contribute to energy conservation:

NONE

12. Is the subject property in an area identified by Planning and Building as potentially containing rare or endangered plants and/or animals, critical breeding habitat, migration routes or winter range? If so, please list the species and describe what mitigation measures will be taken to prevent adverse impacts to the species:

NO

13. If private roads are proposed, will the community be gated? If so, is a public trail system easement provided through the subdivision?

THE COMMUNITY WILL NOT BE GATED.

14. Are there any applicable policies of the adopted area plan in which the project is located that require compliance? If so, which policies and how does the project comply?

NO

15. Are there any applicable area plan modifiers in the Development Code in which the project is located that require compliance? If so, which modifiers and how does the project comply?

NO AREA PLAN MODIFIERS ARE APPLICABLE

16. Will the project be completed in one phase or is phasing planned? If so, please provide that phasing plan:

THE PROJECT WILL BE COMPLETED IN ONE PHASE.

17. Is the project subject to Article 424, Hillside Development? If yes, please address all requirements of the Hillside Ordinance in a separate set of attachments and maps.

❑ Yes	■ No	If yes, include a separate set of attachments and maps.

18. Is the project subject to Article 418, Significant Hydrologic Resources? If yes, please address Special Review Considerations within Section 110.418.30 in a separate attachment.

❑ Yes	■ No	If yes, include separate attachments.

Grading

Please complete the following additional questions if the project anticipates grading that involves: (1) Disturbed area exceeding twenty-five thousand (25,000) square feet not covered by streets, buildings and landscaping; (2) More than one thousand (1,000) cubic yards of earth to be imported and placed as fill in a special flood hazard area; (3) More than five thousand (5,000) cubic yards of earth to be imported and placed as fill; (4) More than one thousand (1,000) cubic yards to be excavated, whether or not the earth will be exported from the property; or (5) If a permanent earthen structure will be established over four and one-half (4.5) feet high:

19. How many cubic yards of material are you proposing to excavate on site?

IMPORT

20. How many cubic yards of material are you exporting or importing? If exporting of material is anticipated, where will the material be sent? If the disposal site is within unincorporated Washoe County, what measures will be taken for erosion control and revegetation at the site? If none, how are you balancing the work on-site?

21. Can the disturbed area be seen from off-site? If yes, from which directions, and which properties or roadways? What measures will be taken to mitigate their impacts?

22. What is the slope (Horizontal/Vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

23. Are you planning any berms and, if so, how tall is the berm at its highest? How will it be stabilized and/or revegetated?

24. Are retaining walls going to be required? If so, how high will the walls be, will there be multiple walls with intervening terracing, and what is the wall construction (i.e. rockery, concrete, timber, manufactured block)? How will the visual impacts be mitigated?

25. Will the grading proposed require removal of any trees? If so, what species, how many, and of what size?

NO

26. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

27. How are you providing temporary irrigation to the disturbed area?

NO

28. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

Venture Engineering & Consulting Inc.
530 E. Plumb Lane
Reno, NV 89502
Phone: (775) 825-9898

Project Narrative

Palomino Farms 34-Lot Subdivision Tentative Map Application
Washoe County, NV
APNs: 007-090-13 and 077-090-14
Submitted by: Venture Engineering & Consulting Inc.

Date: May 07, 2025

The Palomino Farms project proposes a 34-lot residential subdivision on a 179.08-acre site located at 0 Whiskey Springs Rd, Washoe County, NV (APNs: 007-090-13 and 077-090-14). The development aims to establish a sustainable rural community in the Palomino Valley by subdividing the property into lots with a minimum size of 2.5 acres. To address flood risk, all residential development has been strategically relocated westward, outside the eastern flood zone identified by the National Flood Hazard Layer. The site, currently vacant land, will preserve environmental integrity by designating a portion of the property as deed-restricted open space, aligning with Washoe County's objectives for balanced rural development.

The project modifies the standard zoning requirement of 5 acres per septic and well to 2.5 acres per septic and well, with an additional 2.5 acres of deed-restricted open space per lot, ensuring a total of 5 acres per septic system. This modification has been approved through a variance granted by the State of Nevada Board of Health, confirming compliance with state regulations for septic system density. Infrastructure improvements, including septic and well systems, adhere to Washoe County Health District standards, and the final map plans align with approved construction and water project plans. The Palomino Farms subdivision reflects a carefully planned approach to rural development, supporting Washoe County's goals for sustainable growth and environmental stewardship.

N
W E
S
SCALE: 1"=150'
150 0 75 150 300

APN 076-231-04
HSU, MICHAEL &
MARIA

TO PYRAMID LAKE

APN 076-232-01
SMITH LIVING TRUST,
CLAY & MICHELE

4280

ZONE A
ZONE X

AREA 4
A=10.65 ACRES
Q(5)=3.55 CFS
Q(100)=16.18 CFS

RETENTION POND
VOLUME = 223846.57 Cu-ft

4290

LOT: 1
LOT: 15
LOT: 14
LOT: 13
LOT: 29
LOT: 28
LOT: 12
LOT: 27
LOT: 11
LOT: 26
LOT: 10
LOT: 25
LOT: 9
LOT: 8
LOT: 34
LOT: 23
LOT: 7
LOT: 22
LOT: 6
LOT: 33
LOT: 21
LOT: 5
LOT: 32
LOT: 20
LOT: 4
LOT: 31
LOT: 19
LOT: 3
LOT: 30
LOT: 2
LOT: 18
LOT: 1

OPEN SPACE AREA
AREA: 31.07 AC

EMERGENCY ACCESS GATE

OPEN SPACE AREA
AREA: 5.10 AC

4300

AREA 2
A=42.35 ACRES
Q(5)=11.91 CFS
Q(100)=45.50 CFS

AREA 1
A=61.20 ACRES
Q(5)=7.63 CFS
Q(100)=41.18 CFS

PROPOSED OPEN SPACE
(69.04 ACRES)

APN: 077-090-14

20' SECONDARY ACCESS ROAD

AREA 3
A=64.88 ACRES
Q(5)=12.25 CFS
Q(100)=60.20 CFS

4320

STATE ROUTE 445

REMAINDER PARCEL
FUTURE GENERAL COMMERCIAL
NOT A PART
AREA: 18.77 AC

4330

4310

APN: 077-090-13

WHISKY SPRINGS RD.

TO RENO

PROPOSED HALF STREET IMPROVEMENTS

IRONWOOD RD.

APN 076-242-01
ANDERSEN FAMILY
TRUST

APN 076-242-05
SPRINGWOOD LLC

ZONE X
ZONE A

APN 077-090-02
JOHNSON, KAREN

DEVELOPED AREA BOUNDARY

REMAINDER PARCEL
APN: 077-090-14
NOT A PART
(134.52 AC)

076-232-05

SAGE FLAT RD

4210

4288

REFER SHEET C-0

REMAINDER PARCEL
APN: 077-090-13
NOT A PART
(439.07 AC)

077-090-03

REFER SHEET C-0

PROJECT INFORMATION

DEVELOPED AREA ZONING: LDS & GR
NOT A PART ZONING: PSP, LDS, GR, & GC

PARCEL APN	ACRES
077-090-13	554.22
077-090-14	219.14
TOTAL ACRES	773.36

TENTATIVE MAP PROJECT	ACRES
RESIDENTIAL STREET & LOT AREA =	99.90
OPEN SPACE AREA =	105.00
TOTAL DEVELOPED ACRES =	204.90
NOT A PART REMAINDER PARCELS=	568.46
TOTAL TENTATIVE MAP AREA=	773.36

GROSS DENSITY (34/204.90=0.166 DU/ACRES)
88.04 ACRES 34 DU

MINIMUM LOT SIZE = 2.5 ACRES
AVERAGE LOT WIDTH = 175 FT

VENTURE ENGINEERING & CONSULTING, INC.
Civil Engineering · Planning · Land Development
530 E. PLUMB LANE STE. 4 PH: (775) 825-9898
RENO, NV 89502 venturereno@gmail.com

PROFESSIONAL ENGINEER, STATE OF NEVADA
JOHN N. MUNSON
EXP. 12-31-25
CIVIL
No. 9732
5/6/25

TENTATIVE MAP OF PALOMINO FARMS
DRAINAGE PLAN DEVELOPED CONDITIONS
APN:077-090-13 & 077-090-14

WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN: JRP
CHECKED: JNM
DATE: 5/6/25
SCALE
HORIZ: 1"= 200'
VERT: NONE
ISSUE: PRELIMINARY
SHEET NUMBER:
D-2
PAGE: 2 OF: 2

V:\21220_Palomino Subdivision\Drawings\21220 Drainage Plan.dwg

N
W E
S
SCALE: 1"=200'
200 0 100 200 400

Q(5)= 6.07 CFS
Q(100)= 37.07 CFS
APN 076-232-01
ZONE X
ZONE A
Q(5)= 8.08 CFS
Q(100)= 51.61 CFS
TENTATIVE MAP BOUNDARY
APN 077-090-14
APN 077-090-13
DRAINAGE BOUNDARY

AREA 1
A=89.33 ACRES
Q(5)=6.07 CFS
Q(100)=37.07 CFS

AREA 2
A=89.75 ACRES
Q(5)=8.08 CFS
Q(100)=51.61 CFS

Ti
DISTANCE=100'

Ti
DISTANCE 100'

4270 4275 4280 4285 4290 4295 4300 4305 4310 4315 4320 4325 4330

ZONE X
ZONE A

VENTURE ENGINEERING & CONSULTING, INC.
Civil Engineering · Planning · Land Development
530 E. PLUMB LANE STE. 4 PH: (775) 825-9898
RENO, NV 89502 venturereno@gmail.com

PALOMINO SUBDIVISION
PRELIMINARY SITE PLAN
APN:077-090-13 & 077-090-14
WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN:	JSM
CHECKED:	JNM
DATE:	7/30/24
SCALE	
HORIZ:	1"= 200'
VERT:	NONE
ISSUE:	PRELIMINARY
SHEET NUMBER:	C-1
PAGE:	1 OF: 1

V:\21220_Palomino Subdivision\Drawings\21220 Existing Drainage Plan.dwg

NORTHERN NEVADA
Public Health
Serving Reno, Sparks & Washoe County

District Board of Health
Meeting Minutes

Members
Devon Reese, Chair
Clara Andriola, Vice Chair
Paul Anderson
Michael Brown
Dr. Eloy Ituarte
Steve Driscoll
Dr. Reka Danko

Thursday, February 27, 2025
1:00 p.m.

Washoe County Administration Complex
Commission Chambers, Building A
1001 East Ninth Street
Reno, NV

---

1. **Roll Call and Determination of Quorum.**
   Chair, Devon Reese, called the meeting to order at 1:00 p.m.
   The following members and staff were present:

   Members present: Devon Reese (virtual until 1:10 p.m.)
   Clara Andriola
   Paul Anderson
   Michael D. Brown
   Dr. Eloy Ituarte
   Steve Driscoll
   Dr. Reka Danko (arrived at 1:05 p.m.)

   Ms. Lawson verified a quorum was present.

2. **Pledge of Allegiance.**
   Ms. Clara Andriola led the pledge to the flag.

3. **Election of District Board of Health Vice Chair for the period 2/17/25-12/31/2026.**
   Candidates include Clara Andriola, Paul Anderson, Steve Driscoll, Michael Brown, Dr. Eloy Ituarte, and Dr. Reka Danko. (FOR POSSIBLE ACTION)

   Chair Reese nominated Clara Andriola for the Vice Chair position. With no opposition to this or other nominations, Paul Anderson seconded the motion, which was approved unanimously.

   Chair Reese turned the meeting over to Vice Chair Andriola.

4. **Approval of Agenda. (FOR POSSIBLE ACTION)**

   Steve Driscoll motioned to approve the agenda. Michael Brown seconded the motion, and it was approved unanimously.

Vice Chair Andriola asked how the patient payer mix compares year over year in terms of the percentage that has been reported.

Mr. Duplantis reported the mix is shown in the report and is reviewed daily. Before the Affordable Care Act, they saw more uncompensated care and less Medicaid. Afterwards, they were picking up more covered people under Medicaid. In looking at the future, if Medicaid were to change, he expects that there would be a shift between Medicaid and uncompensated care.

Mr. Driscoll asked about who pays for transports out of the area and how that affects the daily fleet in the service area.

Mr. Duplantis noted that REMSA Health does few transports out of the area, but about 40 inter-facility transports. One example for out-of-area would be pediatric mental health patients, who get transported to Las Vegas. This takes a unit and its staff out of service for two days. In this situation, they increase staff and equipment to accommodate the shortage.

Vice Chair Andriola thanked Mr. Duplantis on behalf of the Board for all his work on presenting everything and getting the highest level of financial reporting that one entity can achieve.

10. **Presentation, discussion, and possible approval of the Regional Emergency Medical Services Authority (REMSA) Health Franchise Compliance Report for the period of 7/1/2023 through 6/30/2024. (FOR POSSIBLE ACTION)**
Staff Representative: Andrea Esp

Andrea Esp shared that in 2024, REMSA Health was found compliant in all 17 articles. There was nothing outstanding, with all information provided in the time frame outlined.

Mr. Driscoll moved to approve the Compliance Report. Motion was seconded by Mr. Anderson and approved unanimously.

11. **Recommendation to uphold the decision of the Sewage, Wastewater & Sanitation (SWS) Hearing Board to approve Variance Case #H24-0004VARI of the Northern Nevada Public Health Regulations Governing Sewage, Wastewater, and Sanitation, allowing a reduction in minimum lot size for a new subdivision to be served by septic, by holding sufficient additional land open in perpetuity to meet the maximum septic density intended by the regulations, for Palomino Farms LLC, owner of 0 Whiskey Springs Rd/0 Safe Flat Rd, Washoe County, Nevada, Assessor's Parcel Numbers 077-090-013 and 077-090-14. (FOR POSSIBLE ACTION)**
Staff Representative: Dave Kelly

Dave Kelly noted that regulations require that any new subdivision being served by septic need a minimum of 5 acres and any proposal that doesn't meet that minimum goes through a variance procedure. This variance was approved by the Advisory Board, requesting a minimum lot size of 2.5 acres to meet the regulatory intended minimum density. They proposed holding open space in two 2.5-acre or more, so the total density meets the criteria. In addition, the new parcels are located outside of the 100-year flood zone, which is an additional benefit to the proposal. The variance allows for slight modifications when going through the planning department processes, as long as the minimum acreage of 2.5 acres is met and the minimum density of 1 septic per 5 acres is not exceeded.

Mr. Driscoll asked if the developer came back in the future, wishing to develop these 2.5-acre sites being held as open space, what would be the process for a variance?

Mr. Kelly noted that this will be recorded as part of the map that it will remain open space unless municipal sewer becomes available.

Mr. Brown motioned to uphold the decision of the SWS Board, with a second by Mr. Driscoll. The motion was approved unanimously.

12. **Discussion on the FY26 Budget status, timelines, and next steps.**
Staff Representative: Jack Zenteno

Erin Dixon presented a brief overview of the NNPH's budget process and timelines. The Interlocal Agreement requires that the Board of County Commissioners adopt a final budget for NNPH and must be prepared using the same timeframes and format used by other County departments. It also requires that the preliminary budget is presented to the managers of the City of Reno, City of Sparks, and Washoe County for review and comment. The NNPH budget will be presented to the District Board of Health at a special meeting on March 6 at 3:00 p.m. On March 14, NNPH leadership will be meeting with the three jurisdictional partners and the comments from that meeting will be brought back to this Board at the regular March meeting on March 27. The budget will then be included in the County's budget process before the BCC and submitted to the State based on State requirements and timelines. She thanked the members of the Board for their flexibility in being available for the special meeting next week.

13. **Recommendation for appointment to the Air Pollution Control Hearing Board as an At-Large Committee Member. Staff recommends: The appointment of Mr. Chaitanya Korra for a three-year term beginning on February 27, 2025, and concluding on February 26, 2028; Applicants include: William Foster McCoy, Ph.D., and Stephen Birdsall. (FOR POSSIBLE ACTION)**
Staff Representative: Francisco Vega

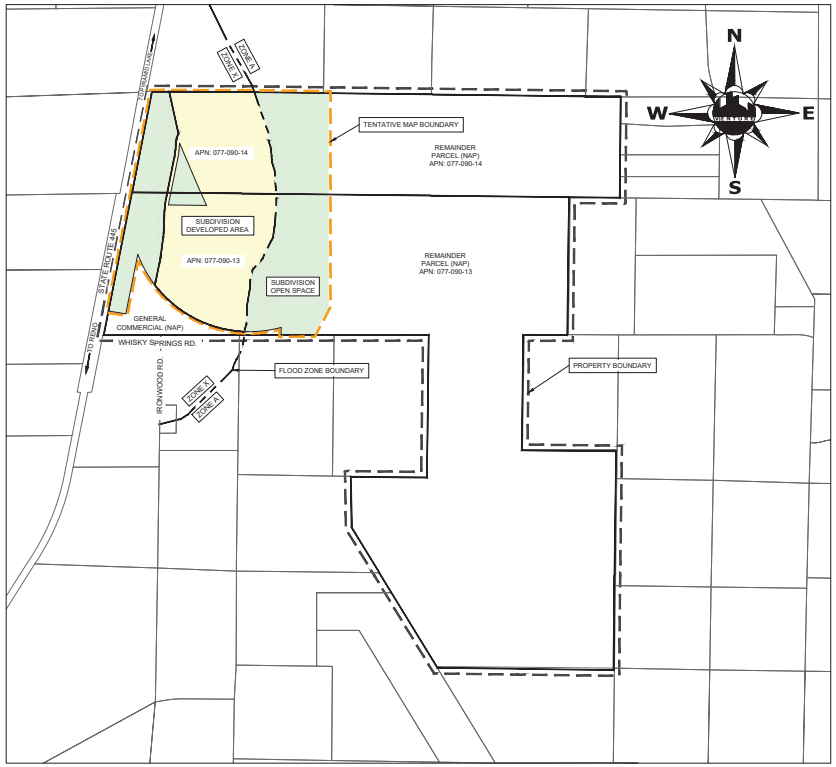
Francisco Vega shared his sincere appreciation to all applicants in communicating their interest in joining the Board.

Mr. Anderson moved to accept the appointment as suggested. Mr. Brown seconded the motion, and the item passed unanimously.

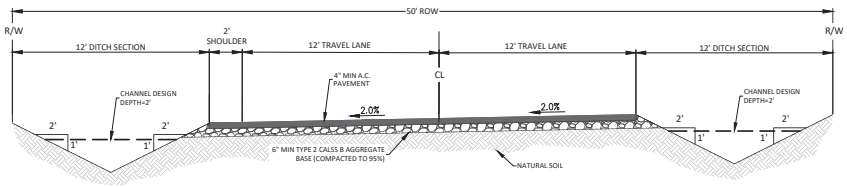
14. **Review, discussion, and possible adoption of the Business Impact Statement regarding proposed revisions to the District Board of Health Regulations Governing Air Quality Management, Chapter 040 (Prohibited Emissions), Part 040.110 (Asbestos Control Standards), and Part 040.115 (Acknowledgement of Asbestos Assessment) with a finding that the revised regulations do not impose a direct and significant economic burden on a business; and set a public hearing for possible adoption of the proposed revisions to the Regulations for March 27, 2025, at 1:00 p.m. (FOR POSSIBLE ACTION)**
Staff Representative: Francisco Vega

Craig Peterson shared the new Air Quality mission statement, which reads the Air Quality Management Division is dedicated to the protection of air quality and the safeguard of public health for all of Washoe County through the development and implementation of effective programs and regulations while supporting economic growth, community partnerships and environmental justice. Revisions to General Source Permitting Regulations, Chapter 030 regarding asbestos were relocated to Chapter 040 under prohibited emissions in September 2024. The sections regarding asbestos have not been reviewed or revised in 25-30 years and do not reflect the intended purpose of the federal regulations. Major changes would include separating the rules into two parts, 040.110 (Asbestos Control Standards) and 40.115 (Acknowledgement of Asbestos

TENTATIVE SUBDIVISION MAP FOR PALOMINO FARMS



KEY MAP
N.T.S



SECTION A-A: 50' R.O.W LOCAL STREET WITH ROADSIDE DITCHES

SHEET INDEX

SHEET NO.		SHEET TITLE
SITE CIVIL PLANS		
1	C-0	COVER SHEET
2	T-1	PRELIMINARY TENTATIVE MAP
3	T-2	PRELIMINARY TENTATIVE MAP
4	G-1	PRELIMINARY GRADING PLAN
5	G-2	PRELIMINARY GRADING PLAN

CIVIL ENGINEER

VENTURE ENGINEERING AND CONSULTING, INC.
C/O JOHN MUNSON, P.E.
530 E PLUMB LANE, SUITE #4
RENO, NV 89502
PHONE: 775-825-9898
EMAIL: VENTURERENO@GMAIL.COM

BENCHMARK

THE BASIS OF BEARINGS FOR THE SURVEY IS STATE PLANE NV WEST ZONE. THE BASIS OF ELEVATIONS IS NAD88.

FEMA INFORMATION

FIRM: 32031C2675G
PROPERTY DESIGNATION: ZONE A,X

SITE INFORMATION

TYPICAL LOT SIZE STATISTICS ARE AS FOLLOWS

PALOMINO FARMS: 34 LOTS
AVERAGE LOT SIZE: 2.59 AC
MIN LOT SIZE: 2.50 AC
MAX LOT SIZE: 2.82 AC

PROJECT INFORMATION

DEVELOPED AREA ZONING: LDS & GR
NOT A PART ZONING:PSP, LDS, GR, & GC

PARCEL APN	ACRES
077-090-13	554.22
077-090-14	219.14
TOTAL ACRES	773.36

TENTATIVE MAP PROJECT	ACRES
RESIDENTIAL STREET & LOT AREA =	99.90
OPEN SPACE AREA =	105.21
TOTAL DEVELOPED ACRES =	205.11
NOT A PART REMAINDER PARCELS=	568.46
TOTAL TENTATIVE MAP AREA=	773.36

GROSS DENSITY (34/205.11=0.166 DU/ACRES)
=1 DU/6 ACRES =1 UNIT/6 ACRES

MINIMUM LOT SIZE = 2.5 ACRES
AVERAGE LOT WIDTH = 175 FT

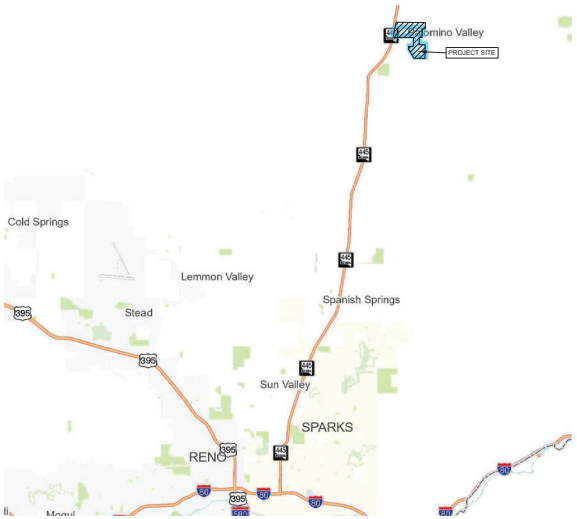
OWNER/DEVELOPER

PALOMINO FARMS LLC

200 MILE CIRCLE DR
RENO NV 89511

BASIS OF BEARINGS

NEVADA STATE PLAN COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983/ 1994, HIGH ACCURACY REFERENCE NETWORK (NAD 83/94-HARN), AS DETERMINED USING REAL TIME KINEMATIC (RTK) GPS OBSERVATIONS WITH CORRECTIONS TRANSMITTED BY THE NEVADA GPS NETWORK (NGN GPS). THE BEARING BETWEEN GPS REFERENCE STATION "RSTEAD"-N22SM01037 AND "WWRF"-S113M15000 IS TAKEN AS SOUTH 52°15'19" EAST. ALL DIMENSION SHOWN ARE GROUND DISTANCES. COMBINED GRID TO GROUND FACTOR=1.000197939.



VICINITY MAP
N.T.S

VENTURE ENGINEERING & CONSULTING, INC.
Civil Engineering · Planning · Land Development
530 E. PLUMB LANE STE. 4 PH: (775) 825-9898
RENO, NV 89502 venturereno@gmail.com

JOHN N. MUNSON
EXP. 12-31-25
CIVIL
No. 9732
5-8-25

TENTATIVE MAP OF PALOMINO FARMS
COVER SHEET
APN:077-090-13 & 077-090-14
WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN: JRP
CHECKED: JNM
DATE: 5-6-25
SCALE:
HORIZ: NONE
VERT: NONE
ISSUE: PERMIT
SHEET NUMBER: C-0
PAGE: 1 OF: 5

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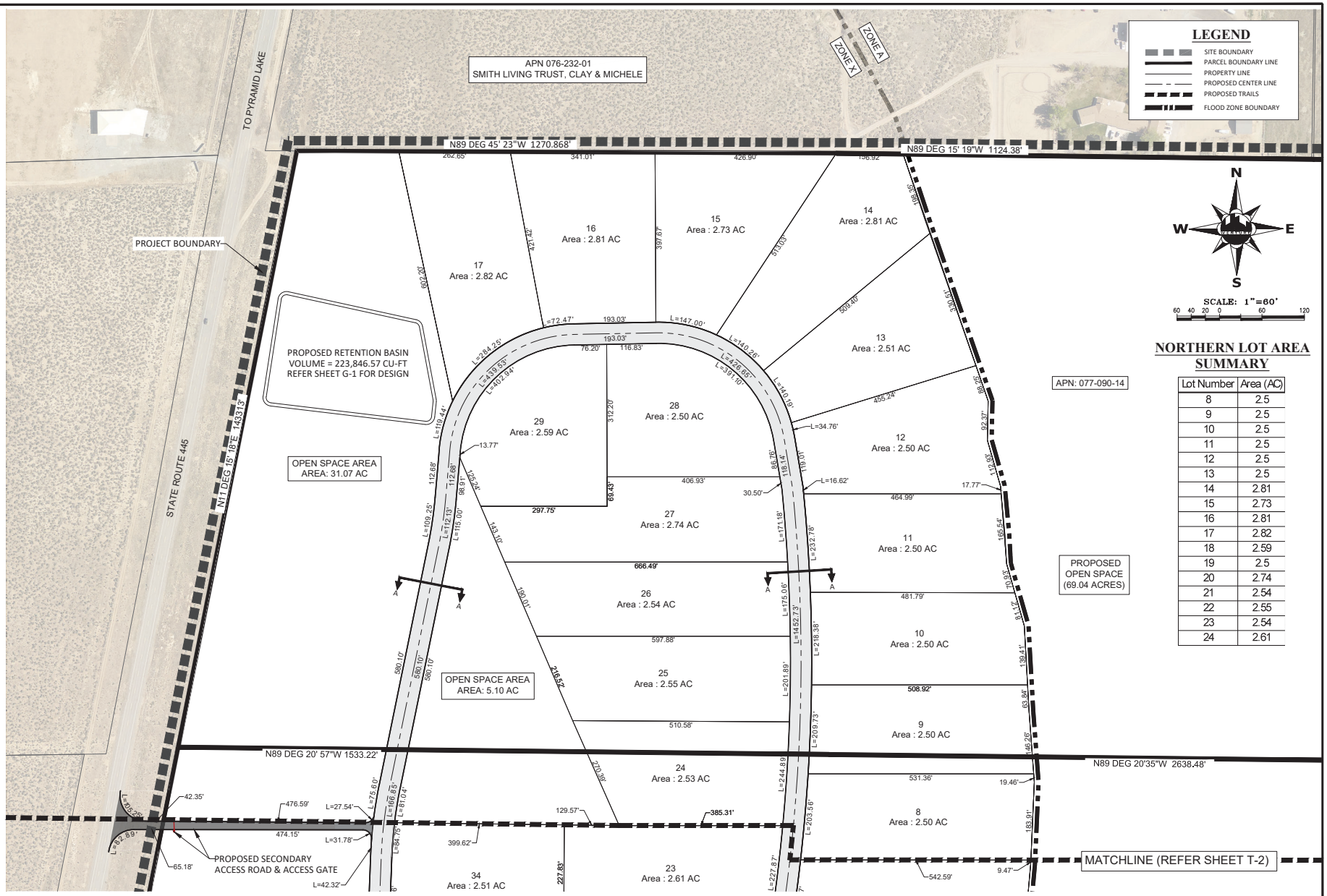

NORTHERN LOT AREA SUMMARY

APN: 077-090-14

Lot Number	Area (AC)
8	2.5
9	2.5
10	2.5
11	2.5
12	2.5
13	2.5
14	2.81
15	2.73
16	2.81
17	2.82
18	2.59
19	2.5
20	2.74
21	2.54
22	2.55
23	2.54
24	2.61

PROPOSED OPEN SPACE (69.04 ACRES)

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Civil Engineering · Planning · Land Development
530 E. PLUMB LANE STE. 4 PH: (775) 825-9898
RENO, NV 89502 venturereno@gmail.com

JOHN N. WILKINSON
PE 12-31-25
CIVIL
5-8-25

TENTATIVE MAP OF PALOMINO FARMS
PRELIMINARY TENTATIVE MAP
APN:077-090-13 & 077-090-14
WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN: JRP
CHECKED: JNM
DATE: 5/6/25
SCALE:
HORIZ: 1"= 60'
VERT: NONE
ISSUE: PERMIT
SHEET NUMBER: T-1
PAGE: 2 OF: 5

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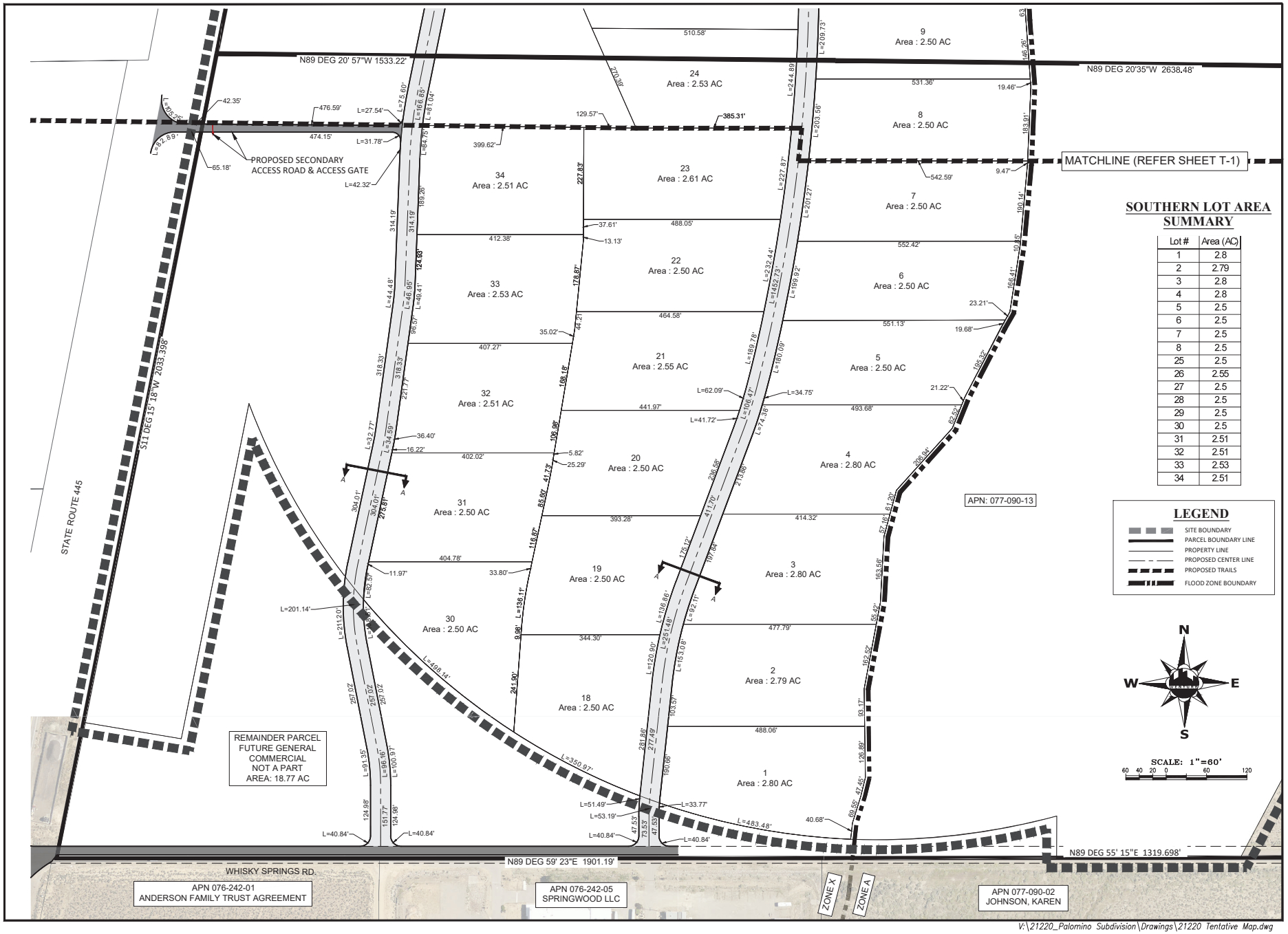

SOUTHERN LOT AREA SUMMARY

Lot #	Area (AC)
1	2.8
2	2.79
3	2.8
4	2.8
5	2.5
6	2.5
7	2.5
8	2.5
25	2.5
26	2.55
27	2.5
28	2.5
29	2.5
30	2.5
31	2.51
32	2.51
33	2.53
34	2.51

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY LINE
- PROPERTY LINE
- PROPOSED CENTER LINE
- PROPOSED TRAILS
- FLOOD ZONE BOUNDARY

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JOHN N. JOHNSON — CIVIL ENGINEER, STATE OF NEVADA — EXP. 12-31-25 — CIVIL — 5-8-25

TENTATIVE MAP OF PALOMINO FARMS
PRELIMINARY TENTATIVE MAP
APN:077-090-13 & 077-090-14

WASHOE COUNTY, NEVADA

REVISIONS:

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DATE: 5-6-25
SCALE
HORIZ: 1"= 60'
VERT: NONE
ISSUE: PERMIT
SHEET NUMBER: T-2
PAGE: 3 OF: 5

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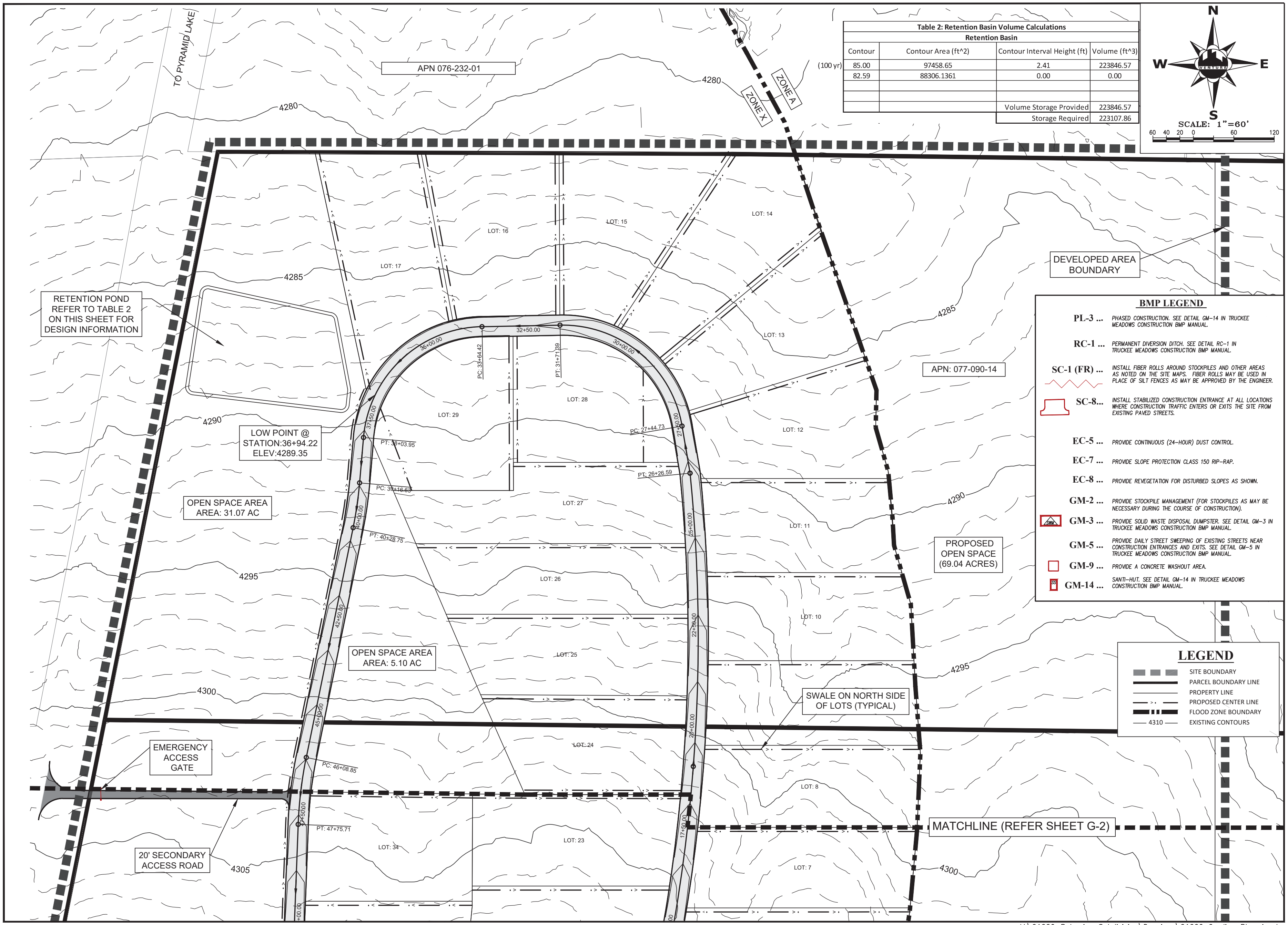

Table 2: Retention Basin Volume Calculations				
	Retention Basin			
	Contour	Contour Area (ft^2)	Contour Interval Height (ft)	Volume (ft^3)
(100 yr)	85.00	97458.65	2.41	223846.57
	82.59	88306.1361	0.00	0.00
			Volume Storage Provided	223846.57
			Storage Required	223107.86

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PROFESSIONAL ENGINEER-STATE OF NEVADA
JOHN N. MUNSON
EXP. 12-31-25
CIVIL
No. 9732
5/8/25

TENTATIVE MAP OF PALOMINO FARMS
PRELIMINARY GRADING PLAN
APN:077-090-13 & 077-090-14

WASHOE COUNTY, NEVADA

REVISIONS:

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DATE: 5/6/25
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VERT: NONE
ISSUE: PERMIT
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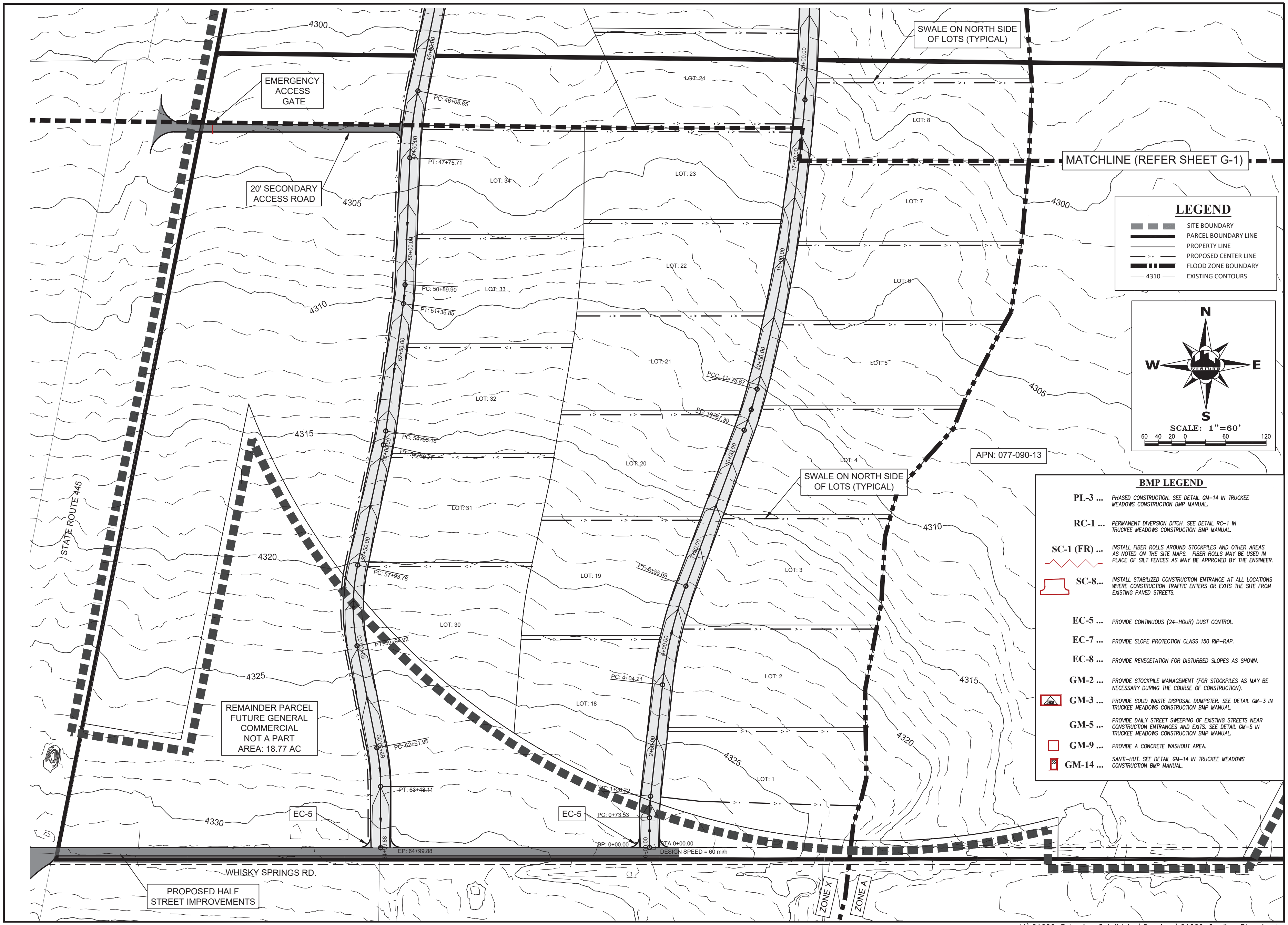

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PROFESSIONAL ENGINEER STATE OF NEVADA
JOHN N. MUNSON
EXP. 12-31-25
CIVIL
No. 9732
5/8/24

TENTATIVE MAP OF PALOMINO FARMS PRELIMINARY GRADING PLAN
APN:077-090-13 & 077-090-14
WASHOE COUNTY, NEVADA

REVISIONS:

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PAGE: 5 OF: 5

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PRELIMINARY GEOTECHNICAL INVESTIGATION

PROPOSED PALOMINO FARMS SUBDIVISION

Portions of Assessor's Office Parcel Numbers 077-090-13 and -14

Whiskey Springs Road

WASHOE COUNTY, NEVADA

Prepared for:

Brian Murphy Construction and Development, Inc.
695 Mile Circle Drive
Reno, Nevada 89511

Attn: Brian Murphy, President

May 7, 2025

Project No. 460.03.24-G

Earth Tech
Geotechnical and Construction Testing Services
681 Edison Way, Reno, NV 89502

May 7, 2025
Project No. 460.03.24-G

Brian Murphy Construction and Development, Inc.
695 Mile Circle Drive
Reno, Nevada 89511

Attn: Brian Murphy, President

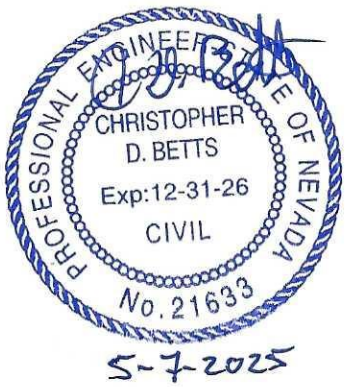
Re: Preliminary Geotechnical Investigation, Proposed Palomino Farms Subdivision, Portions of Assessor's Office Parcel Numbers 077-090-13 and -14, Washoe County, Nevada

Dear Mr. Murphy,

Earth Tech is pleased to present results of a preliminary geotechnical investigation our firm conducted for the project. Based on results of our preliminary investigation, experience in the area, and understanding of proposed development, we conclude that, from a geotechnical standpoint, the property is suitable for its intended use. The primary geotechnical concerns are the presence of expansive soil, and the potential presence of clean (little or no binder) soil.

We appreciate having been selected to prepare this preliminary investigation and trust results fulfill your needs. If you, or your design consultants, have questions, please do not hesitate to contact us at (775) 954-6719 or at chris@earthtechnv.com.

Respectfully,



Joshua V. Reyes
Joshua V. Reyes, E.I.T.

Chris D. Betts
Chris D. Betts, P.E.
President

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Earth Tech, LLC
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I INTRODUCTION

Earth Tech is pleased to present results of a preliminary geotechnical investigation our firm conducted for the proposed project in the Palomino Valley area. The site is on the north side of Whiskey Springs Road and east side of Pyramid Highway and includes portions of Washoe County Assessor's Office Parcel Numbers 077-090-13 and -14 (Property). Development includes construction of isolated pads for single-family residences and commercial development serviced with on-site water and sewage disposal systems. The structures will have one to two levels, will be wood-framed with joist-supported and/or slab-on-grade floors, and will be supported with shallow conventional spread foundations. Dedicated service streets and private parking areas will be surfaced with asphaltic concrete.

We have not received information concerning foundation loads; however, we anticipate maximum wall loads will be about two to five kip per foot (dead plus live plus snow load) and maximum column loads will be less than 15 kip (dead plus live plus snow load). For frost protection, perimeter foundations will bottom at least 24 inches below lowest adjacent exterior ground surface per code. Structural design will follow criteria outlined in the 2018 *International Residential and Building Codes*.

We anticipate earthwork necessary to attain proposed pad grades and proper site drainage will result in cuts and fills from one to two feet. Neither new slopes nor site earth retaining walls are anticipated. Depth of utility and sewage disposal trenches should be less than ten feet. Existing underground utilities in proposed structural areas will be abandoned or relocated. Earthwork in proposed dedicated areas will be performed in accordance with the 2012 *Standard Specifications for Public Works Construction, Revision 8* by the Regional Transportation Commission.

The purpose of our investigation was to provide opinions and discussions concerning geotechnical suitability of the Property for its intended use. Once design parameters, such as building locations, finished floor elevations, foundation types and loads, and grading information have been established, a design-level geotechnical report with detailed information of the subsurface soil conditions and recommendations for design and construction should be prepared.

This report is preliminary and geotechnical in nature and not intended to identify other constraints such as environmental hazards, wetlands determinations, or the potential presence of buried utilities.

II FIELD EXPLORATION AND LABORATORY TESTS

To attain an overview of underlying soil conditions across the Property, one test boring and a test pit were performed. The test boring was advanced using a Central Mine Equipment (CME) 55 drill rig with 7.125-inch outside diameter hollow-stem augers (HSA), while the test pit was excavated using a Komatsu PC238USLC-11 excavator with a 24-inch bucket. Our subsurface exploration extended to depths of 12 to 15½ feet below ground surface.

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The test boring and pit were positioned in the field using pace and compass and a site plan provided by Venture Engineering and Consulting, Inc. The test boring and pit locations are depicted on Plate 1 with respect to the referenced site plan. Locations are approximate. No greater accuracy is implied.

Our engineer logged the visual descriptions of the earth materials. Representative soil samples were collected from the test boring in an 18-inch split-spoon sampler using a 140-pound safety hammer with a 30-inch drop from a cathead release mechanism. From the test pit, samples were collected using a pick and shovel. To assess permeability of the underlying soil, percolation tests were performed in the test pit. The test boring and pit were loosely backfilled with auger and trench cuttings. Logs of the test boring and pit are presented on Plates 2 and 3. The materials encountered were classified in accordance with the Unified Soil Classification System, which is explained on Plate 4.

The samples were returned to our office to confirm field classifications and to select representative samples for laboratory testing. Results of in-situ dry unit-weights and moisture contents, particle size analyses, Atterberg Limits, and moisture-density relationships are presented on Plates 5 through 9.

III SITE AND SOIL CONDITIONS

Based on the United States Geological Survey 7.5-Minute topographic map of the Fraser Flat Quadrangle, the site is located in Sections 5 and 6, Township 22 North, Range 21 East, and Sections 31 and 32, Township 23 North, Range 21 East. Elevation is between about 4,200 and 4,300 feet relative to mean sea level.

The portions of the Property proposed for development are undeveloped and vacant. Review of images available on Google Earth reveals these portions have been undeveloped and vacant dating back to 1985, the oldest image available. The development area is bordered by Pyramid Highway to the west, Whiskey Springs Road to the south, pasture to the east and a single-family residence and undeveloped land to the north. In general, the Property is relatively flat and level and matches elevations of adjacent roadways and development.

According to the National Resource Conservation Service *Web Soil Survey* and U.S. Department of Agriculture, Soil Conservation Service (*Soil Survey of Washoe County, Nevada, South Part,* Sheet No. 10, dated 1980), the underlying earth materials consist of Turria loam (#570), Wedertz sandy loam, 2 to 4 percent slopes (#1170), and Pizene sandy loam, 0 to 4 percent slopes (#1240). These units are described as follows:

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Turria loam (#570): This very deep, well-drained soil is on alluvial fans. It formed in alluvium from mixed rock sources. Slopes are 0 to 2 percent. Elevation is 4,500 to 5,000 feet. Typically, the surface layer is light brownish gray loam about 2 inches thick. The subsoil is brown clay loam 10 inches thick. The substratum to a depth of 60 inches is pale brown, stratified sandy loam and silt loam. Permeability is moderately slow. Effective rooting depth is 60 inches or more. Run off is slow, hazard of water erosion is slight, and hazard of soil blowing is slight. This soil is subject to shallow flooding during storms of unusually high intensity. Limitations for shallow excavations are slight. Limitations for dwellings with or without basements are severe due to flooding. Limitations for local roads and streets are moderate due to low load bearing strength, flooding, and susceptibility to frost action. Limitations for septic tank absorption fields are moderate due to flooding and slow percolation rates. Shrink-swell potential is moderate. Frequency of flooding is rare. Depth to high water table is greater than 6.0 feet. Depth to bedrock is greater than 60 inches. Potential frost action is moderate. Risk of corrosion to uncoated steel and concrete is moderate and low, respectively. The main limitations associated with use of this unit for urban development, as described by the soil survey, are low strength, susceptibility to frost heaving, and flooding.

Wedertz sandy loam, 2 to 4 percent slopes (#1170): This very deep, well-drained soil is on alluvial fans. It formed in alluvium derived from mixed rock sources. Elevation is 4,500 to 5,500 feet. Typically, the surface layer is pale brown sandy loam about 6 inches thick. The subsoil is brown sandy clay about 16 inches thick. The upper 12 inches of the substratum is pale brown, weakly cemented sandy loam. The lower part to a depth of 60 inches is pale brown gravelly loamy sand. Depth to weak cementation ranges from 20 to 35 inches. Permeability is moderately slow in the subsoil and upper part of the substratum and rapid in the lower part of the substratum. Available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, the hazard of water erosion is slight. The hazard of soil blowing is slight. The soil is subject to flash flooding during storms of unusually high intensity. Limitations for shallow excavations are severe due to caving. Limitations for dwellings with or without basements and for small commercial building are severe due to flooding. Limitations for local roads and streets are moderate due to low strength and frost action. Limitations for septic tank absorption fields are severe due to slow percolation rates and poor filter. The shrink-swell potential is low to moderate. The frequency of flooding is rare. Depth to high water table is greater than 6.0 feet. Depth to bedrock is greater than 60 inches. The potential frost action is moderate. The risk of corrosion to steel and concrete is moderate. Limitations associated with use of this soil for urban development, as defined by the soil survey, are the flooding potential, variable permeability rates, the high clay content, and susceptibility to frost heave.

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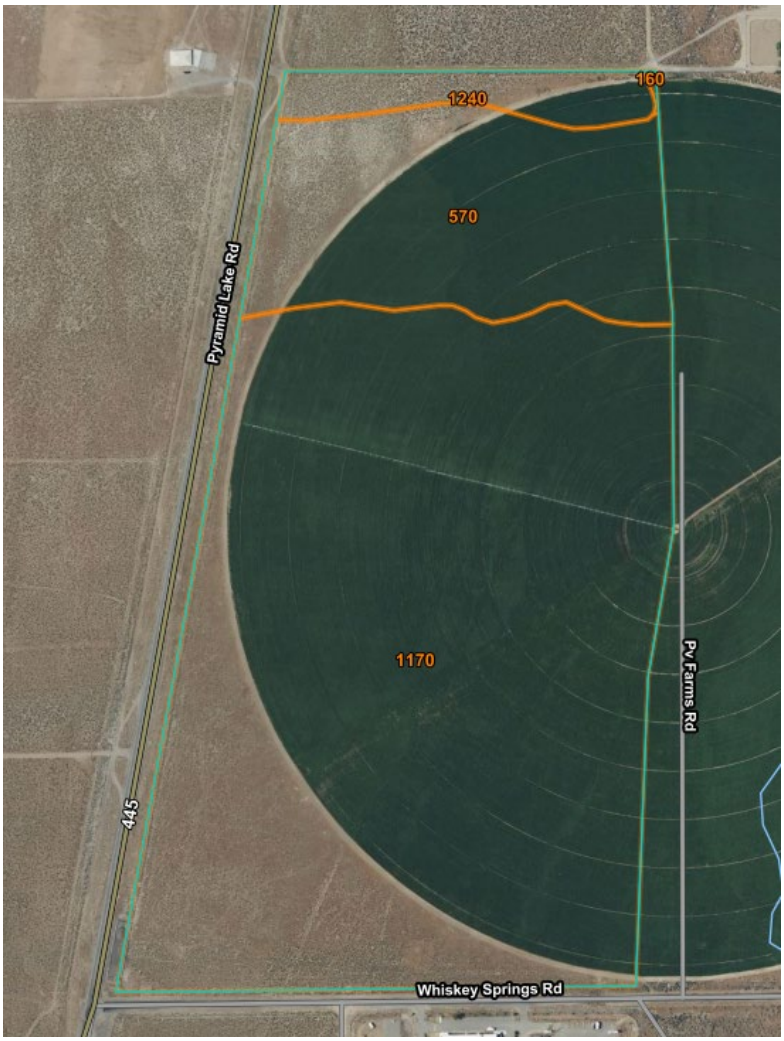
Pizene sandy loam, 0 to 4 percent slopes (#1240): This very deep, well-drained soil is on alluvial fans and outwash plains. It formed in alluvium derived from mixed rock sources. Elevation is 4,400 to 5,000 feet. Typically, the surface layer is pale brown sandy loam about 6 inches thick. The subsoil is brown sandy clay loam about 15 inches thick. The substratum to a depth of 60 inches is sandy loam. Permeability is moderately slow. Effective rooting depth is 60 inches or more. Runoff is slow, hazard of water erosion is slight, hazard of soil blowing is slight. This soil is slightly affected by salt and alkali in the subsoil. Limitations for shallow excavations are slight. Limitations for dwellings with or without basements are slight. Limitations for local roads and streets are slight. Limitations for septic tank absorption fields are slight. Shrink-swell potential is low to moderate. Frequency of flooding is none. Depth to high water table is greater than 6.0 feet. Depth to bedrock is greater than 60 inches. Potential frost action is low. Risk of corrosion to uncoated steel and concrete is high. The soil survey suggests that this unit is well suited for to use for dwellings and septic tank absorption fields.



Soils units according to the Web Soil Survey

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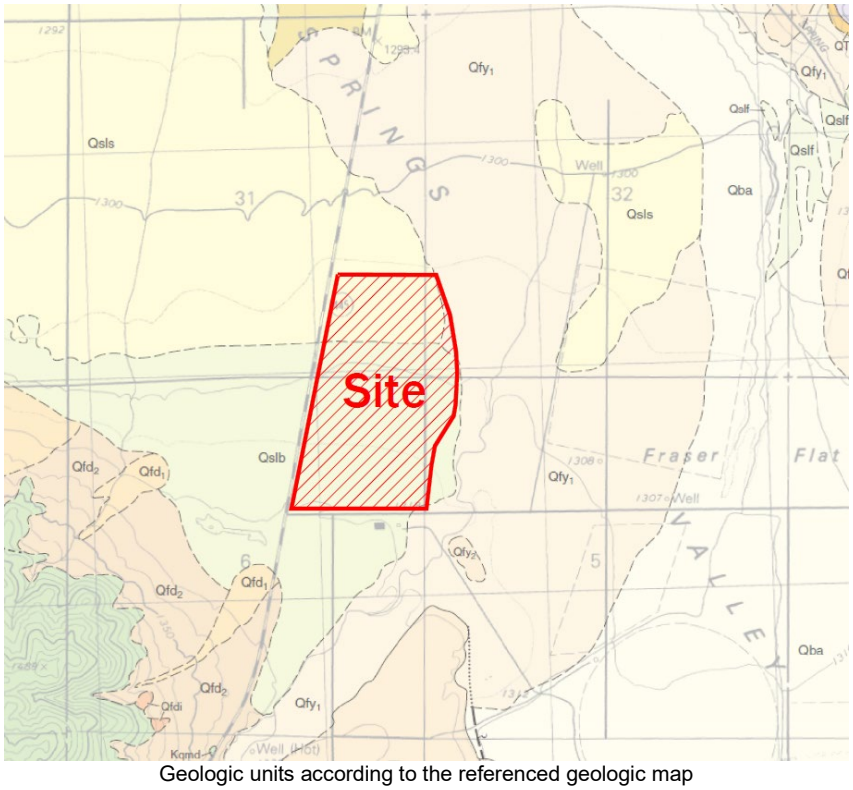
According to mapping by Larry J. Garside, Stephen B. Castor, Craig M. dePolo, and David A. Davis (*Geologic Map of the Fraser Flat Quadrangle and the West Half of the Moses Rock Quadrangle, Washoe County, Nevada,* Nevada Bureau of Mines and Geology, dated 2003), the material underlying the subject Property consists of Quaternary-age nearshore lacustrine deposits with strandlines (Qslb), and Quaternary-age alluvium covering lacustrine deposits (Qsls). These units are described as follows:

> Quaternary-age nearshore lacustrine deposits with strandlines (Qslb): Deposits of silty sand that are largely beach, shoreline, and nearshore deposits from Pleistocene Lake Lahontan. The deposits are moderately sorted with a few cobbles; clasts are subangular to subrounded, with cobbles and gravel that are subrounded to rounded. Deposits are light brown and gray and are non-stratified to moderately stratified.
>
> Quaternary-age alluvium covering lacustrine deposits (Qsls): Light-brown to gray, alluvial, silty sands and sandy silts overlying lacustrine sandy silt deposits. Weakly to moderately stratified. Alluvial deposit thickness varies from 0.1 to about 1 meter. A hummocky surface is common, and pea-gravel lags are locally found at the surface.



Geologic units according to the referenced geologic map

Our subsurface exploration confirms, in general, the referenced soil and geologic mapping with the native soils consisting of light-brown to brown, loose to dense, dry, silty sand (SM), brown, stiff, moist, sandy lean clay (CL), brown, medium dense to very dense, dry, clayey sand with varying amounts of gravel (SC), and light brown, medium dense, dry, silty gravel with sand and occasional cobbles (GM) to the depths explored.

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At the time of our subsurface exploration (April 19 and 24, 2025), no free water or evidence or previous free water was encountered.

Overall, the native soils are in a compact and/or firm density state, exhibit very low (SM and GM soil) to high (CL soil) potential for expansion and low (CL soil) to moderately high (SM and GM soil) Resistance R-Values.

IV. GEOLOGIC AND SEISMIC CONSIDERATIONS

To evaluate potential geological hazards at the Property, our investigation included a site reconnaissance and review of available literature and maps.

A. Geology

The property is situated in the Palomino Valley, a structural basin located northeast of Reno and Sparks. This valley is bounded by the Pah Rah Range to the west and the Virginia Mountains to the east, both predominantly composed of Mesozoic granitic and metavolcanic rocks. The valley floor consists of quaternary alluvial deposits derived from the surrounding highlands, forming a relatively flat basin that facilitates surface water accumulation during precipitation events. Drainage within the valley is primarily internal, with limited outflow, leading to the formation of ephemeral playas and shallow ponds in low-lying areas. The region lies within the transitional zone between the Sierra Nevada to the west and the Basin and Range Province to the east, characterized by extensional tectonics and high-angle normal faulting trending in a north-northeast direction. These structural features have influenced the development of the basin's geomorphology and hydrology. Groundwater resources are present within the basin-fill aquifers, although their extent and recharge rates are influenced by the valley's closed drainage system and climatic conditions.

B. Faulting and Seismicity

According to referenced geologic map, no faults cross the Property. According to *Quaternary Faults in Google Earth* by the USGS, no faults cross the Property. Quaternary-age faults are those which have moved or shifted in the last 1.6 million years. The website indicates that the nearest Holocene- to latest-Pleistocene-age fault is approximately 2.4 miles west of the Property. Faults of this age have moved or shifted in the last 15,000 years.

According to the United States Geologic Survey (USGS) Quaternary Faults website (usgs.maps.arcgis.com), the nearest principal Quaternary-age faults are those associated with the Honey Lake fault zone. Using established empirical relationships (Wells and Coppersmith, 1994) and reported fault parameters, we estimate that an earthquake of magnitude 7.3 is possible along this fault zone.

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C. Liquefaction

Liquefaction is a loss of soil shear strength associated with loose, saturated, granular deposits subjected to strong earthquake shaking. Liquefaction can result in unacceptable movement of foundations. Generally, liquefaction assessments are reserved for public safety facilities such as fire, police and hospitals or other buildings with high occupancy such as schools. We recommend that the decision to evaluate the potential for liquefaction be considered by the owner or developer during the design-level geotechnical investigation.

D. Slope Stability

Based on the level nature of the Property and our anticipated depth to groundwater, we do not believe the Property is susceptible to landslides, slumps, or rock falls.

E. Flooding

The Federal Emergency Management Agency flood map (FEMA-Map 32031C2675G dated March 16, 2009) shows the portions of the Property to be developed in Flood Hazard Zone X unshaded. According to FEMA, Zone X unshaded areas are determined to be outside the 0.2 percent annual chance floodplain.

F. Radon

Radon, a colorless, odorless, radioactive gas derived from the natural decay of uranium, is found in nearly all rocks and soils. The Environmental Protection Agency (EPA) suggests that remedial action be taken to reduce radon in any structure with average indoor radon of 4.0 picocuries per liter (pCi/L) or more. Based on *Radon in Nevada* (Rigby *et al*., Nevada Bureau of Mines and Geology, Bulletin 108, 1994), the Property, as well as much of northern Nevada is in, or is in close proximity to, an area where average indoor radon concentrations could exceed 4.0 pCi/L.

V OPINIONS AND DISCUSSIONS

Portions of the underlying soils exhibit a potential for expansion. Expansive soils are subject to substantial volume changes (shrink and swell) with changes in moisture content. Changes in moisture content can occur due to seasonal variations in precipitation, landscape irrigation, broken or leaking water pipes and sewer lines, and/or poor site drainage. These volume changes can cause differential movements (settlement or heave) of foundations, interior slabs-on-grade, exterior flatwork such as walkways, stoops and patios, and pavement sections.

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One method to reduce the potential for movement is to remove (over-excavate) the expansive material to a sufficient depth and replace it with approved compacted fill, thereby reducing the thickness of the expansive layer, providing surcharge, and maintaining moisture at a suitable and near constant level. In conjunction with over-excavation and filling, moisture conditioning of the exposed materials to a slightly over optimum moisture content will be needed during construction. Proper site grading and drainage is necessary for preventing infiltration of water and maintaining the expansive soil at a near-constant moisture content.

Experience has shown that movement of improvements can occur, even if the recommended removal depth is followed, whenever underlying expansive material is allowed to remain. Therefore, the intent of our recommendations is to control this movement without exceeding economic feasibility; however, the owner or developer should weigh the benefits of deeper removal.

Alternatively, to mitigate potential movement, structures can be supported using post-tensioned slab-on-ground foundations, which mitigate movement by the rigid nature of the system.

The native soils are relatively clean sand and contain little or no binder such as silt. Consideration should be given to difficulty associated with moisture conditioning and attaining specified compaction percentages associated with clean soils. Consideration should also be given to the potential for instability of excavation sidewalls and the subsequent lateral increase in pit dimensions and trench widths due to widening or overbreak. Stabilization measures such shoring will be necessary to maintain stability and safety.

The soil survey suggests that low strength, susceptibility to frost heaving, variable permeability rates, and flooding can be an additional constraints associated with the use of the underlying soils for urban development. Based on our understanding that foundations will bottom at least 24 inches below lowest exterior ground surface and that structural subbase, aggregate base and proper drainage will be provided within exterior flatwork and pavement areas, we do not believe that low strength and susceptibility to frost heave will adversely impact the Property. Additional percolation testing should be performed during the design-level geotechnical report to assess the potential for variable permeability rates. Based on our review of the referenced FEMA map, the portions of the Property proposed for developed are in an area outside the 0.2 percent annual chance floodplain.

The soil survey also suggests portions of the native soils may exhibit a corrosion potential for uncoated steel or concrete. Assessment of corrosion potential should be performed during the design-level geotechnical report; however, based on our experience in the area, we believe that adequate mitigation can be attained through use of properly prepared and placed, corrosion resistant concrete such as six sack Type II portland cement concrete with 20 percent supplemental cementitious material; by maintaining a minimum 3-inch concrete cover where reinforcing steel or other metal is near native soils and, at the direction of the manufacturer, by using special coating on reinforcing steel and metal.

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In addition to their corrosion potential, consideration should also be given to chemical constituents which may inhibit establishment of landscaping, such as lawns, plants, and other vegetation growth not indigenous to the area. Laboratory testing to determine the agronomic characteristics of the native soils was not part of the scope of our work; however, it should be considered.

Studies regarding the presence of radon gas suggest the Property, as well as much of northern Nevada, is in an area which could exceed the action levels established by the Environmental Protection Agency. Determinations regarding the potential presence of radon gas should be considered prior to site development.

There are no apparent geologic hazards that would place unusual constraints on the project; however, strong ground shaking associated with earthquakes should be expected to occur during the life of the project.

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VI REFERENCES

Federal Emergency Management Agency, U.S. Department of Homeland Security, *FEMA's Flood Map Service Center* (https://msc.fema.gov/portal)

Garside, Larry J., Castor, Stephen B., dePolo, Craig M., Davis, David A. *Geologic Map of the Fraser Flat Quadrangle and the West Half of the Moses Rock Quadrangle, Washoe County, Nevada.* 1:24,000. Reno: Nevada Bureau of Mines & Geology, University of Nevada, Reno, 2003

International Code Council *2018 International Residential and Building Codes,* Whittier: International Code Council, Inc., 2016

Regional Transportation Commission of Washoe County. *Standard Specification for Public Works Construction, Revision 8.* Reno: Regional Transportation Commission of Washoe County, 2012

Rigby, James G., Jonathan G. Price, Lindsay G. Christensen, Daphne D. La Pointe, Alan R. Ramelli, Mario O. Desilets, Ronald H. Hess, and Stanley R. Marshall. *Radon in Nevada*. Reno: Nevada Bureau of Mines & Geology, Bulletin 108, University of Nevada, Reno, 1994

United States Department of Agriculture, Soil Conservation Service. *Soil Survey of Washoe County, South Part, Nevada*. Approved 1980

United States Department of the Interior Geological Survey, *Fraser Flat Quadrangle, Nevada*. 7.5-minute series map (topographic). 1:24,000. Denver: USGS, 2021

United States Department of Agriculture, Soil Conservation Service, Web Soil Survey

Washoe County Health District. *Regulations of the Washoe County District Board of Health Governing Sewage, Wastewater, and Sanitation*. Amended and Approved on May 23, 2013.

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VII GLOSSARY OF TEST PROCEDURES

ASTM Test Designation: C 136: *Standard Test Methods for Sieve Analysis of Fine and Coarse Aggregates*

ASTM Test Designation: D 420: *Standard Guide to Site Characterization for Engineering Design and Construction Purposes*

ASTM Test Designation: D 1557: *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 KN-m/m^3))*

ASTM Test Designation: D 1586: *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.*

ASTM Test Designation: D 2216: *Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.*

ASTM Test Designation: D 2487: *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*

ASTM Test Designation: D 2488: *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*

ASTM Test Designation: D 4318: *Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils*

Section 090 (Percolation Test): Regulations of the Washoe County District Board of Health Governing Sewage, Wastewater, and Sanitation. Amended and Approved on May 23, 2013.

Earth Tech, LLC
681 Edison Way
Reno, Nevada 89502
(775) 954-6719

VIII DISTRIBUTION

One .pdf via e-mail to:

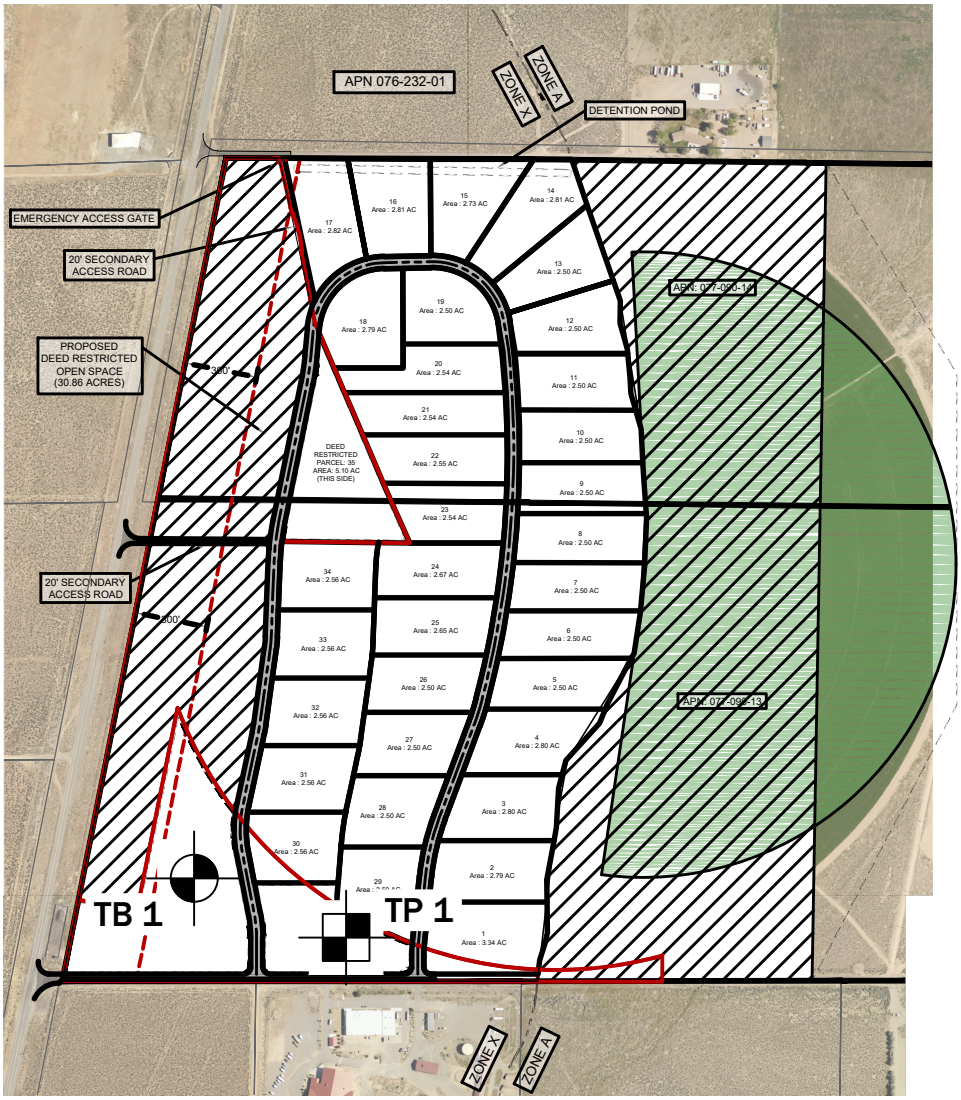
Brian Murphy Construction and Development, Inc.
695 Mile Circle Drive
Reno, Nevada 89511
Attn: Brian Murphy, President

One .pdf via e-mail to:

Venture Engineering & Consulting, Inc.
530 E. Plumb Lane
Reno, Nevada 89502
Attn: John Munson, Principal Engineer

Earth Tech, LLC
681 Edison Way
Reno, Nevada 89502
(775) 954-6719

IX LIST OF ILLUSTRATIONS



Notes: N.T.S

Site plan from
Venture Engineering & Consulting, Inc.

Approximate test boring location

Approximate test pit location

Job No. 460.03.24-G	SITE AND EXPLORATION PLAN	Reviewed: CDB
EarthTech Geotechnical and Construction Testing Services 681 Edison Way, Reno, NV 89502	Proposed Palomino Farms Subdivision APNs 077-090-13 and -14 Washoe County, Nevada	Plate 1

Test Boring: TB 1

Equipment: CME 55 w/ 3.75" ID HSA

Elevation: N/A Date: 4/19/2025

Laboratory Tests Plate Numbers and Related Information	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
* Particle Size Distribution Report (See Plate 5) Liquid and Plastic Limits Test Report (See Plate 7) Compaction Test Report (See Plate 9)	11/6" 28/6"	8.0	114.3	* 1	Brown silty sand (SM), loose, dry, with minor roots to three inches deep Becoming medium dense below six inches Brown clayey sand with gravel (SC), very dense, dry, cemented
	35	8.1	104.9	4 5	Brown silty sand (SM), dense, dry
				8	Occasional gravel below 8.0 feet
	45			10	
	40			15	No Free Water Encountered

Note: HSA = Hollow Stem Auger

GPS: 39.4723139°N
119.664389°W

Job No. 460.03.24-G	TEST BORING LOG	Reviewed: CDB
EarthTech Geotechnical and Construction Testing Services 681 Edison Way, Reno, NV 89502	Proposed Palomino Farms Subdivision APNs 077-090-13 and -14 Washoe County, Nevada	Plate 2

Test Pit: TP 1

Equipment: Komatsu PC238USLC

Elevation: N/A Date: 4/24/2025

Laboratory Tests Plate Numbers and Related Information	Driving Resistance Blows/Ft.	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
* Particle Size Distribution Report (See Plate 6) Liquid and Plastic Limits Test Report (See Plate 8)			*	1	Light-brown silty sand (SM), loose, dry, with abundant roots Brown sandy clay (CL), stiff, moist
				2	Brown clayey sand (SC), medium dense, dry
				3	Light-brown silty gravel with sand and occasional cobbles (GM), medium dense, dry Light-brown silty sand (SM), medium dense, dry
				4	
				5	
				6	
				7	
				8	
				9	
				10	
				11	
				12	No Free Water Encountered

GPS: 39.806150°N
119.660690°W

Job No. 460.03.24-G	TEST PIT LOG	Reviewed: CDB
EarthTech Geotechnical and Construction Testing Services 681 Edison Way, Reno, NV 89502	Proposed Palomino Farms Subdivision APNs 077-090-13 and -14 Washoe County, Nevada	Plate 3

MAJOR DIVISIONS			HATCH		TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS — MORE THAN HALF COURSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS — MORE THAN HALF COURSE FRACTION IS SMALLER THAN No. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS SILTY CLAYS, LEAN CLAYS
			OL		INORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

SAMPLE DESIGN

"UNDISTURBED" SAMPLE

BULK OR CLASSIFICATION SAMPLE

STRENGTH TESTS

VANE SHEAR TEST
F = FIELD
L = LABORATORY

UNCONFINED COMPRESSION TEST

1000 DIRECT SHEAR TEST
CD = CONSOLIDATED DRAIN

STRESS NORMAL TO SHEAR PLANE (PSF)

1000 TRIAXIAL COMPRESSION TEST
UU = UNCONSOLIDATED - UNDRAINED
CU = CONSOLIDATED - UNDRAINED
CD = CONSOLIDATED - DRAINED

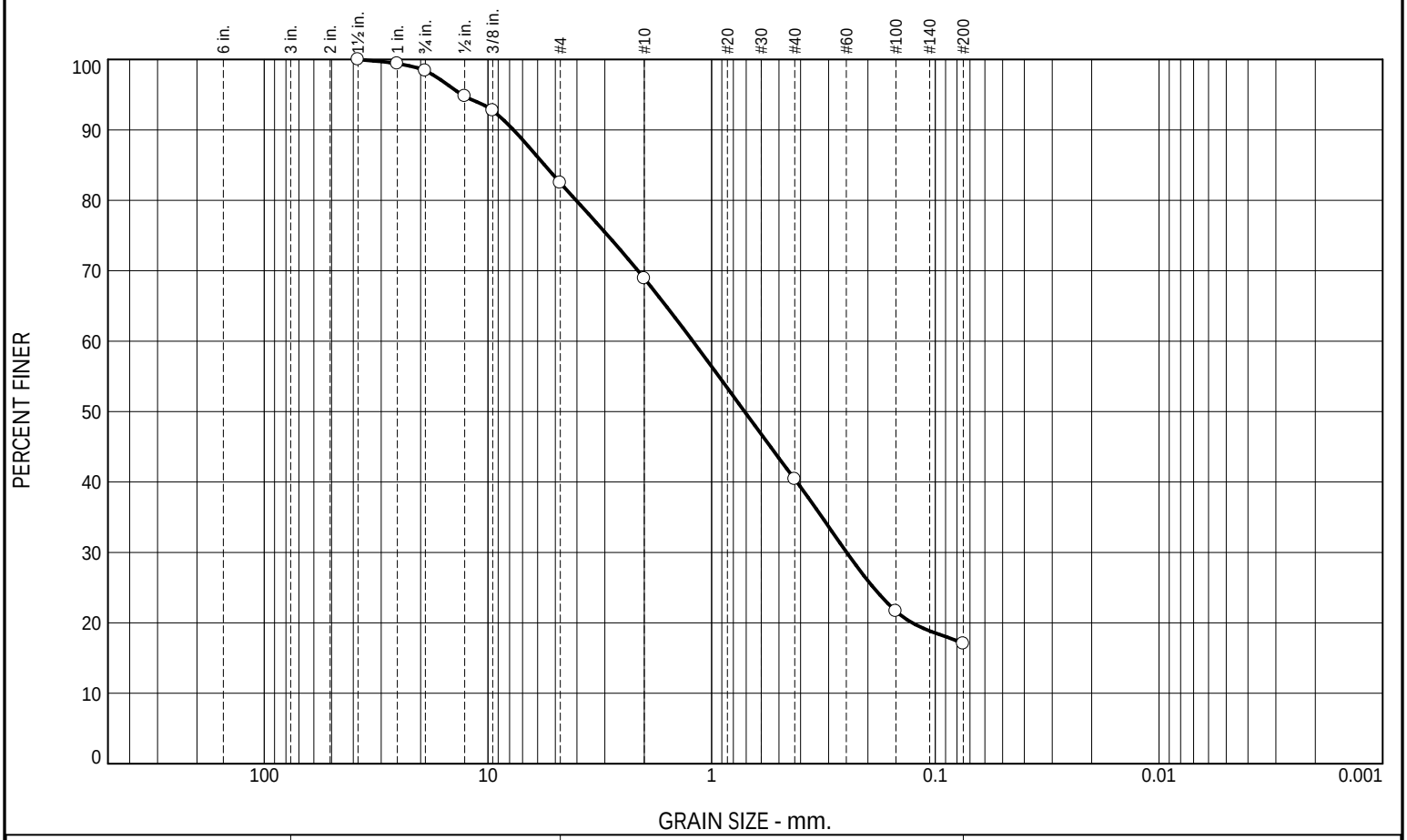
1/2 DEVIATOR STRESS
CONFINING STRESS

KEY TO TEST DATA

Job No. 460.03.24-G	SOIL CLASSIFICATION CHART/KEY	Reviewed: CDB
EarthTech Geotechnical and Construction Testing Services 681 Edison Way, Reno, NV 89502	Proposed Palomino Farms Subdivision APNs 077-090-13 and -14 Washoe County, Nevada	Plate 4

Particle Size Distribution Report

ASTM D422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.6	15.9	13.6	28.5	23.4	17.0	

Test Results (ASTM D422)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1.5"	100.0			
1.0"	99.4			
.75"	98.4			
.50"	94.8			96.3
.375"	92.8			94.3
#4	82.5			83.8
#10	68.9			70.0
#40	40.4			41.1
#100	21.7			22.0
#200	17.0			17.3

* (no specification provided)

Material Description

Brown clayey sand with gravel (SC)

Atterberg Limits

PL= 16 LL= 24 PI= 8

Coefficients

D_{90}= 7.6838 D_{85}= 5.5763 D_{60}= 1.2132
D_{50}= 0.7117 D_{30}= 0.2490 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Test Remarks

Source of Sample: Test Boring #1 Depth: 1.0-3.0'
Sample Number: 25-086 Sample Date: 04-21-2025

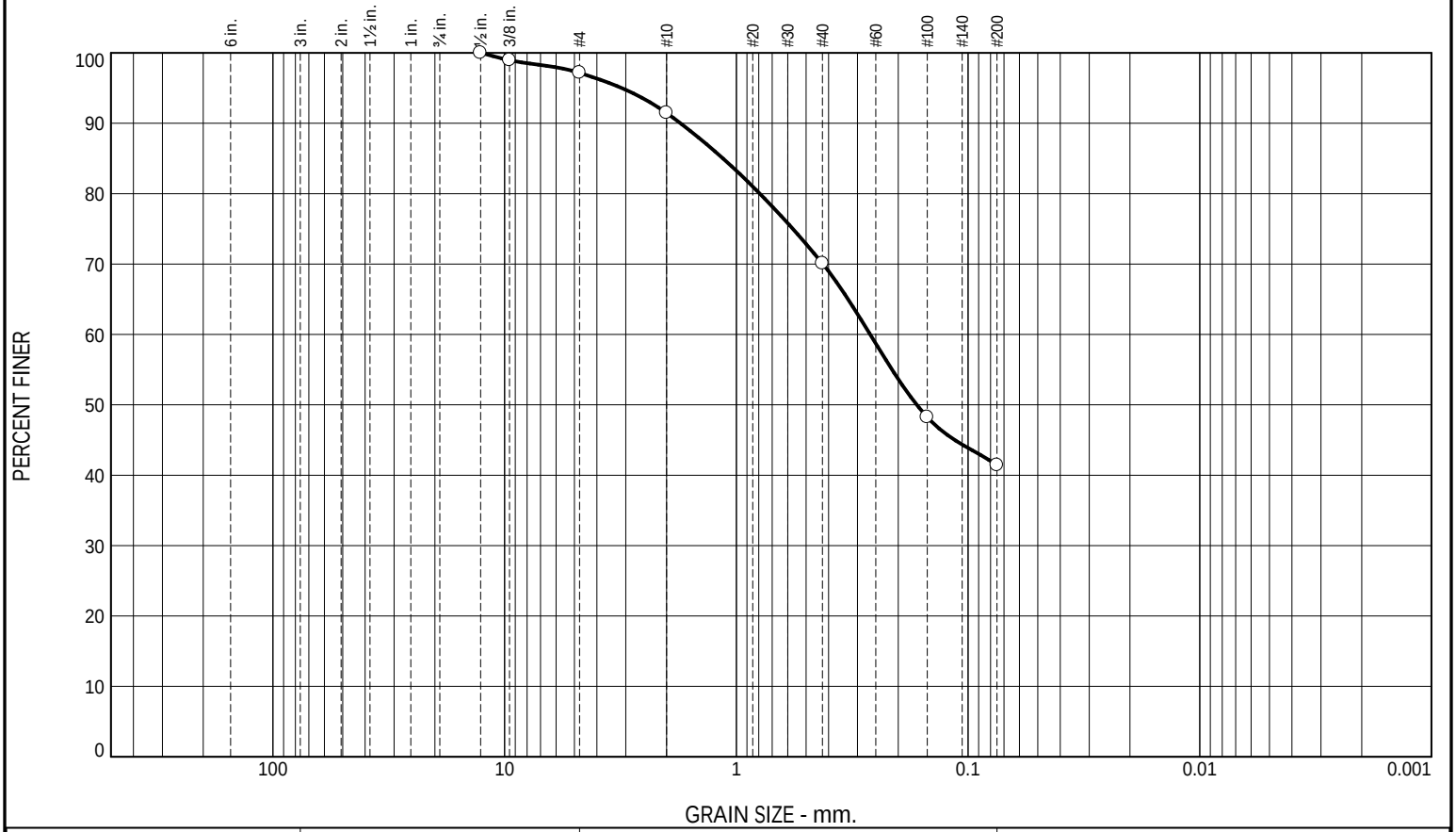
Earth Tech
681 Edison Way
Reno, NV, 89502

Client: Brian Murphy Construction and Development
Project: Palomino Farms Subdivision

Project No: 460.03.24-G Plate 5

Particle Size Distribution Report

ASTM C136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	5.7	21.4	28.7	41.4	

Test Results (ASTM C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/2"	100.0			
3/8"	99.0			
#4	97.2			
#10	91.5			
#40	70.1			
#100	48.3			
#200	41.4			

* (no specification provided)

Material Description

Brown clayey sand (SC)

Atterberg Limits

PL= 16 LL= 47 PI= 31

Coefficients

D_{90}= 1.7418 D_{85}= 1.1415 D_{60}= 0.2646
D_{50}= 0.1665 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(7)

Test Remarks

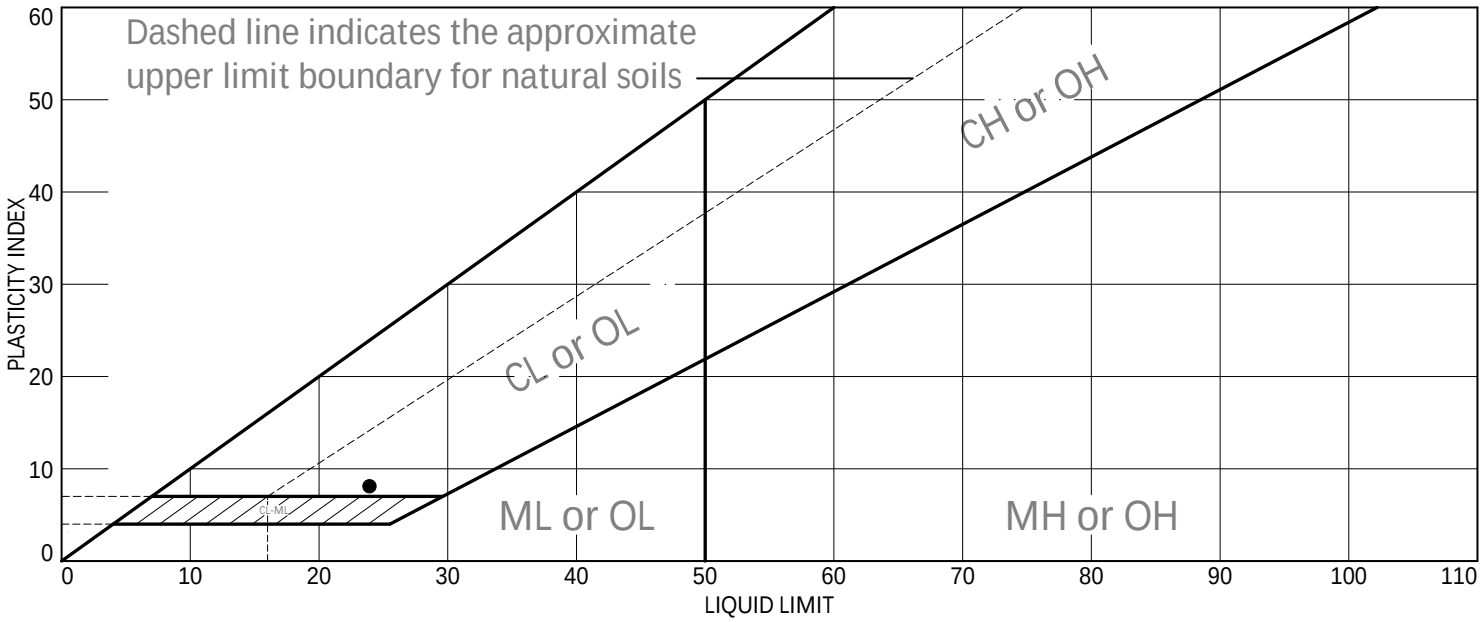
Source of Sample: Test Pit #1 Depth: 0.5-1.5'
Sample Number: 25-096 Sample Date: 4/24/2025

Earth Tech 681 Edison Way Reno, NV, 89502	Client: Brian Murphy Construction and Development Project: Palomino Farms Subdivision Project No: 460.03.24-G Plate 6

Tested By: BL Checked By: CDB

LIQUID AND PLASTIC LIMITS TEST REPORT

ASTM D4318



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: Test Boring #1 Depth: 1.0-3.0' Sample Number: 25-086	04-21-2025			SL

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	Brown clayey sand with gravel (SC)	SC	24	16	8		40.4

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Plastic	Percent passing sieve #200= 17.0

Project No. 460.03.24-G Client: Brian Murphy Construction and Development

Project: Palomino Farms Subdivision

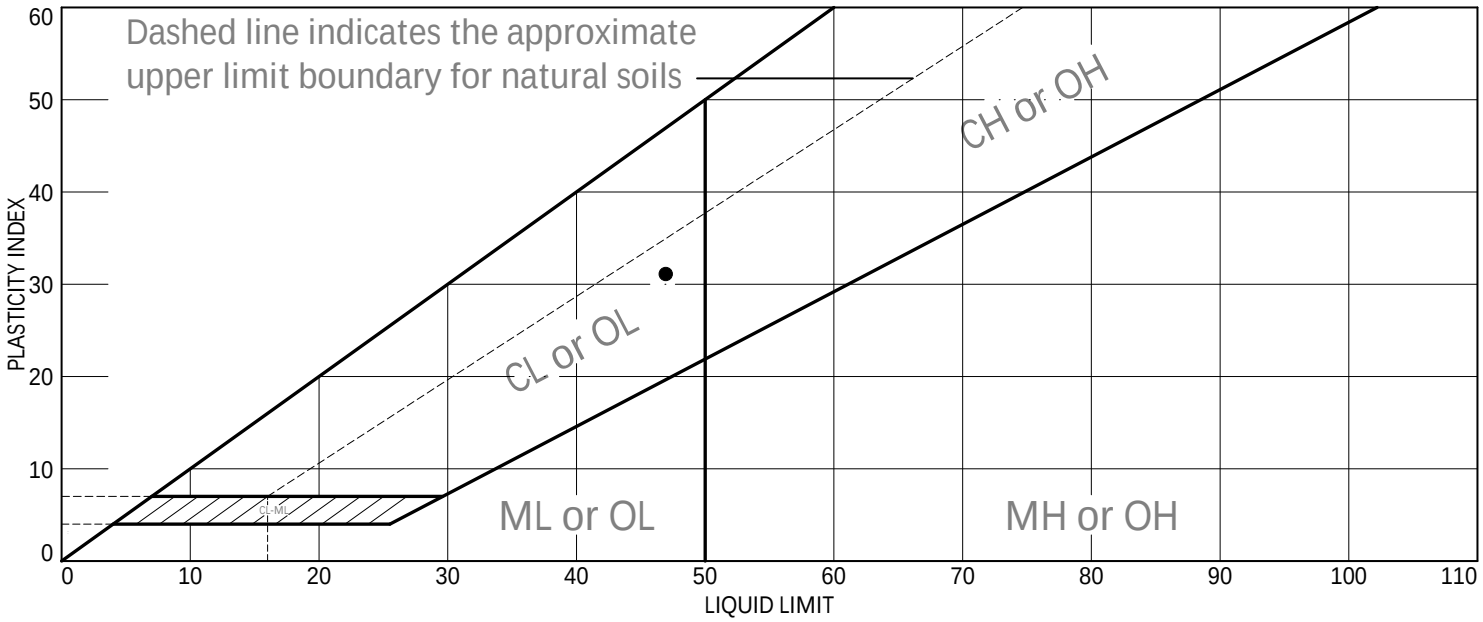
Checked by: CDB

Title:

Earth Tech
681 Edison Way
Reno, NV, 89502

LIQUID AND PLASTIC LIMITS TEST REPORT

ASTM D4318



	Sample Identification	Sampled	Received	Tested	Technician
●	Source of Sample: Test Pit #1 Depth: 0.5-1.5' Sample Number: 25-096	4/24/2025	4/24/2025	4/28/2025	SL

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	Brown clayey sand (SC)	SC	47	16	31		70.1

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Plastic	%-#200 = 41.4%

Project No. 460.03.24-G Client: Brian Murphy Construction and Development

Project: Palomino Farms Subdivision

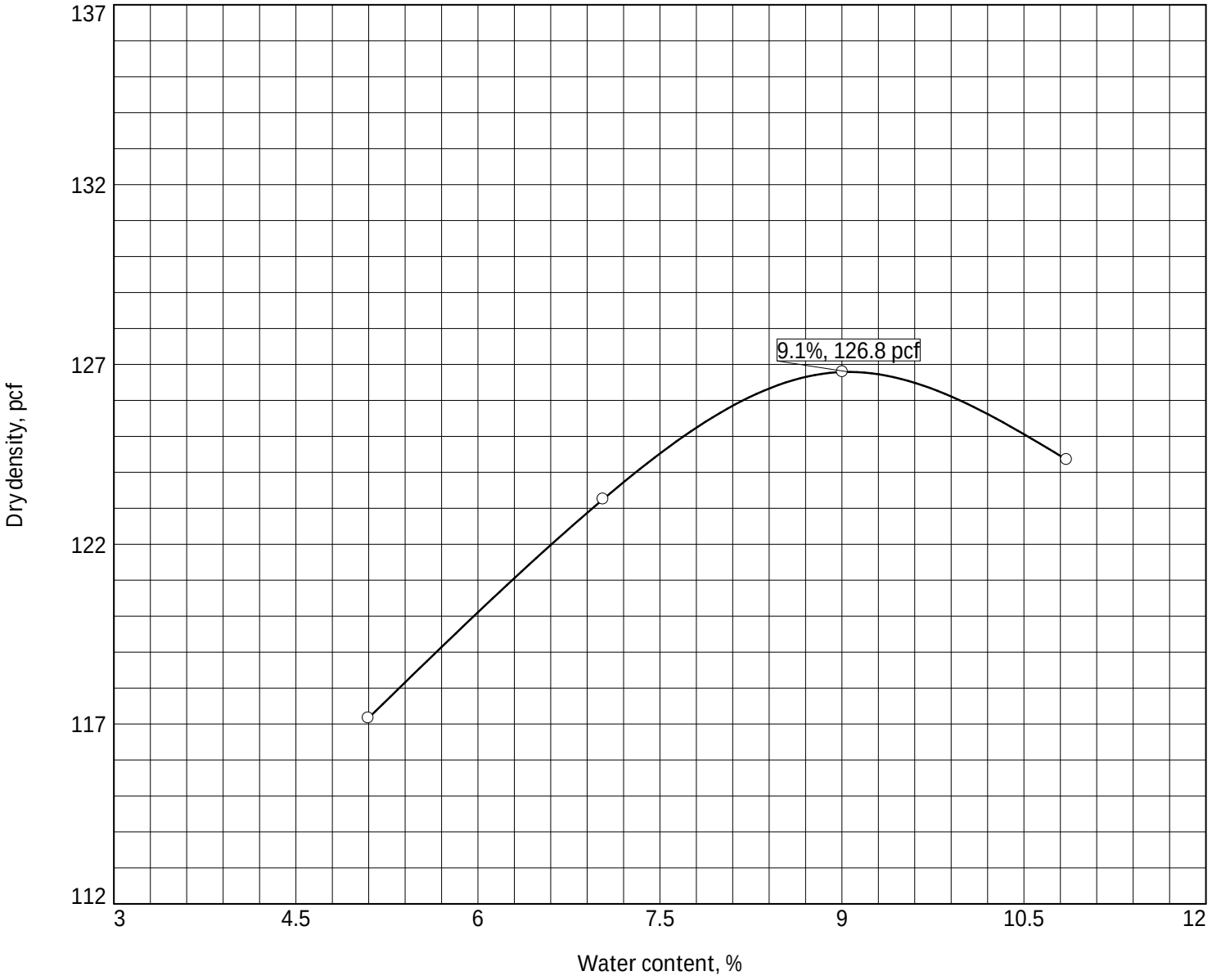
Checked by: CDB

Title:

Earth Tech
681 Edison Way
Reno, NV, 89502

Plate 8

COMPACTION TEST REPORT



Test specification: ASTM D 1557-12 Method C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.0-3.0'	SC	A-2-4(0)			24	8	1.6	17.0

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 126.8 pcf Optimum moisture = 9.1 %	Brown clayey sand with gravel (SC)

Project No. 460.03.24-G Client: Brian Murphy Construction and Development

Project: Palomino Farms Subdivision

Date: 04-21-2025

○ Source of Sample: Test Boring #1 Sample Number: 25-086

Remarks:

Earth Tech
681 Edison Way
Reno, NV, 89502

Plate 9

PRELIMINARY HYDROLOGY REPORT

FOR

PALOMINO FARMS LLC

0 WHISKEY SPRINGS RD
Reno, NV 89511

PREPARED FOR:

PALOMINO FARMS LLC
200 MILE CIRCLE DR.
Reno, NV 89511

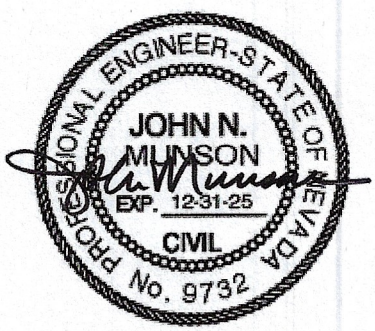
PREPARED BY:

VENTURE
ENGINEERING & CONSULTING INC.

530 E. Plumb Lane, Suite 4
Reno, Nevada 89502
Ph: (775) 825-9898

May 6th , 2025

John Munson
Digitally signed by John Munson
Date: 2025.05.07 14:41:44 -07'00'



1. Introduction

This hydrology report supports the development application for the Palomino Farms 34-lot subdivision located at 0 Whiskey Springs Rd, Washoe County, NV (APNs: 007-090-13 and 077-090-14). The project involves subdividing 179.08 acres into 34 residential lots, each with a minimum size of 2.5 acres, to relocate development out of the eastern flood zone while maintaining environmental balance through deed-restricted open space. This report evaluates stormwater runoff under existing and proposed developed conditions, ensuring compliance with Washoe County stormwater management standards.

2. Site Description

- Location: 0 Whiskey Springs Rd, Washoe County, NV (APNs: 007-090-13 and 077-090-14).
- Total Drainage Area Analyzed: 179.08 acres.
- Existing Conditions: The site is currently vacant land, with drainage flowing to the northeast. The existing drainage pattern is divided into two basin areas, as shown in the attached Existing Conditions Map.
- Proposed Development: The project subdivides the area into 34 lots, each a minimum of 2.5 acres, to shift development westward out of the flood zone to the east. The remaining area will be deed-restricted as open space to preserve environmental integrity. The proposed drainage is divided into four basin areas, as depicted in the attached Developed Conditions Map.

3. Hydrologic Analysis

The hydrologic analysis was conducted using the Rational Method, a standard approach for urban and rural watersheds, as outlined in the Washoe County Development Code and Public Works Design Manual. The Rational Method calculates peak runoff using the formula:

$$Q = C \times I \times A$$

Where:

- (Q) = Peak runoff rate (cubic feet per second, cfs)
- (C) = Runoff coefficient (dimensionless)
- (I) = Rainfall intensity (inches per hour, in/hr)
- (A) = Drainage area (acres)

3.1 Design Criteria

- Design Storms: 5-year and 100-year storm events, per Washoe County standards.
- Time of Concentration (Tc): Calculated for both existing and developed conditions using the same methodology. The Tc is determined by summing the initial overland flow time for the first 100 feet and the travel time for the remaining distance. For existing conditions, these calculations are detailed in Table A: Existing Conditions Time of Concentration Calculations. The same method is applied for the developed conditions, with calculations provided in Table B: Developed Conditions Time of Concentration Calculations.
- Rainfall Intensity (I): Interpolated using NOAA Atlas 14 intensity-duration-frequency (IDF) curves, based on the total calculated Tc for each basin. The specific (I) values are highlighted in green in Tables A and B and are used in Table 1 with composite (C) values and basin areas to compute (Q).
- Runoff Coefficients ((C)): Composite (C) values for 5-year and 100-year events were obtained from Table 202 of the Washoe County Public Works Design Manual. Specific (C) values for each basin are provided in Table 1.

3.2 Existing Conditions

The existing 179.08-acre site drains to the northeast and is divided into two basin areas (see Existing Conditions Map). The time of concentration (Tc) for each basin was calculated by adding the initial overland flow time for the first 100 feet to the travel time for the remaining distance, as detailed in Table A: Existing Conditions Time of Concentration Calculations. Using the interpolated (I) values (highlighted in green in Table A), composite (C) values, and basin areas, the peak runoff (Q) for each basin was computed. The total existing flows are:

- Q (5) = 14.15 cfs
- Q (100) = 88.68 cfs

These flows are summarized in Table 1: Existing Versus Developed Conditions.

3.3 Proposed Developed Conditions

The proposed development divides the 179.08-acre area into four drainage basins (see Developed Conditions Map). Each lot is a minimum of 2.5 acres, allowing the developed area to be shifted west, out of the eastern flood zone, with the remaining land deed-restricted as open space. The drainage areas are as follows:

- Area 1: Drains east, consistent with existing conditions.
- Area 2 and Area 3: Flow north and west into a large retention basin designed to hold the 100-year storm event, retaining the entire increase in runoff (see Table 1). Roadside ditches are provided to facilitate flow.
- Area 4: A small area that flows north, as it does currently.

The time of concentration (Tc) for each of the four basins was calculated using the same methodology as the existing conditions: initial overland flow time for the first 100 feet plus travel time for the remaining distance, as detailed in Table B: Developed Conditions Time of Concentration Calculations. The corresponding (I) values were interpolated using NOAA Atlas 14 data (highlighted in green in Table B). These (I) values, along with composite (C) values and basin areas, were used to compute the peak runoff (Q) for each basin in Table 1: Existing Versus Developed Conditions. Total flows for Areas 1–4 are:

- Q (5) = 35.34 cfs
- Q (100) = 163.06 cfs

The increase in flow from existing to proposed conditions is:

- Q (5) increase = 35.34 - 14.15 = 21.19 cfs
- Q (100) increase = 163.06 - 88.68 = 74.38 cfs

3.4 Stormwater Mitigation

To address the increase in runoff (quantified in Table 1: Q (5) increase = 21.19 cfs & Q (100) increase = 74.38 cfs, a large retention basin is proposed for Areas 2 and 3. The required retention volume for the 100-year storm event, as shown at the bottom of Table 1: Existing Versus Developed Conditions, is 223,107.86 cubic feet. The retention basin is designed to provide a storage volume of 223,846.57 cubic feet, as detailed in Table 2: Detention Design Information, which exceeds the required volume by 738.71 cubic feet, ensuring sufficient capacity to retain the entire increase in runoff for the 100-year storm event with a margin of safety. Roadside ditches are provided to direct flows from Areas 2 and 3 into the retention basin, while Area 1 continues to drain east, and Area 4 flows north, both maintaining existing drainage patterns.

4. Compliance with Approved Plans

The stormwater management design in the final map plans aligns with:

- Construction Permit Plans: Submitted to Washoe County on May 8, 2025], including grading and drainage specifications.

No deviations exist between the final map plans and the submitted construction plans, ensuring compliance with Washoe County and regional requirements.

5. Conclusion

The proposed Palomino Farms 34-lot subdivision at 0 Whiskey Springs Rd will not result in adverse downstream flooding or water quality impacts. The stormwater management plan, incorporating a large retention basin for Areas 2 and 3 with a provided storage volume of 223,846.57 cubic feet (exceeding the required 223,107.86 cubic feet for the 100-year storm event), effectively mitigates the increase in runoff (Q (5) increase = 21.19 cfs & Q(100) increase = 74.38 cfs). The final map plans are consistent with the submitted construction plans, as verified in Section 4. All design elements comply with Washoe County standards.

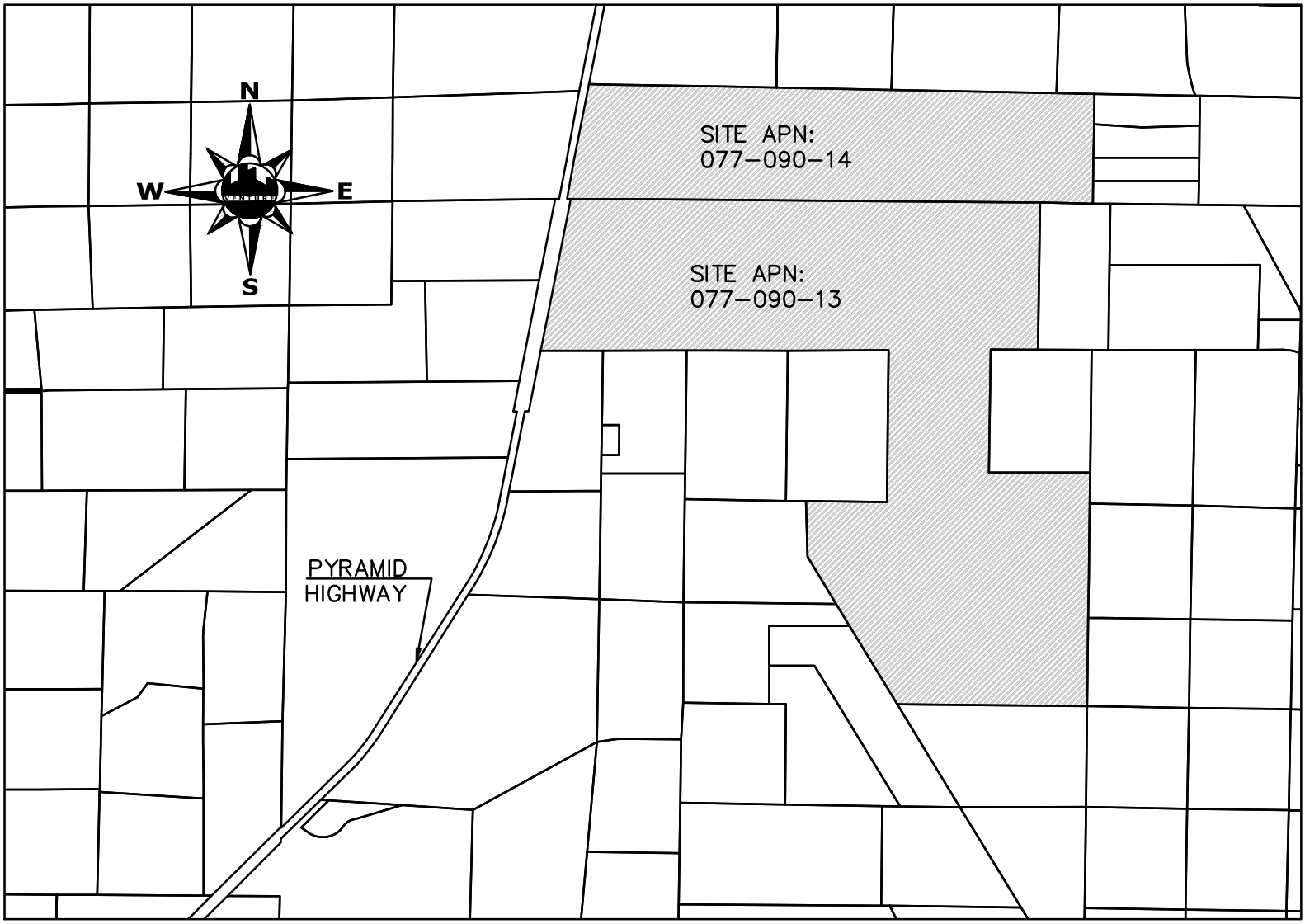
Attachments:

- Vicinity Map
- Table A: Existing Conditions Time of Concentration Calculations
- Table B: Developed Conditions Time of Concentration Calculations
- Table 1: Existing Versus Developed Conditions
- Table 2: Detention Design Information
- Existing Conditions Map
- Developed Conditions Map
- Runoff C Values
- NOAA Atlas 14 Table with Rainfall Intensity Data
- Flood Map

References:

- Washoe County Public Works Design Manual, Table 202 (Runoff Coefficients).
- NOAA Atlas 14 (Rainfall Intensity Data for Washoe County, NV).

APPENDIX



VICINITY MAP
NTS

Table A - Existing Conditions - Rational Method Tc=Ti+Tt for Intensity Calculations

(Modified Truckee Meadows Reagional Drainage Manual Table 703)

Time Calc
Intensity Calc

EXISTING CONDITIONS HYDROLOGY (5 YEAR)

SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Overland Flow Travel Time (Tt)				Tc (Ti+Tt)
Basin Area	R (C value)	Length (ft)	Slope	Ti (min)	Length (ft)	Slope	Velocity (fps)	Tt (min)	Tc (min)
1	0.2	100.00	0.811	17.37					17.37
1					959.90	1.687	0.9	17.77586852	17.78
1					2701.01	0.696	0.57	78.97675439	78.98
				SUM TIME	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
			Intensity Interpolation	114.12	60	0.529	120	0.325	0.34

EXISTING CONDITIONS HYDROLOGY (5 YEAR)

SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Overland Flow Travel Time (Tt)				Tc (Ti+Tt)
Basin Area	R (C Value)	Length (ft)	Slope	Ti (min)	Length (ft)	Slope	Velocity (fps)	Tt (min)	Tc (min)
2	0.2	100.00	1.665	13.67					13.67
2					1112.42	1.635	0.87	21.31073755	21.31
2					2311.79	1.414	0.82	46.98764024	46.99
				SUM TIME	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
			Intensity Interpolation	81.97	60	0.529	120	0.325	0.45

EXISTING CONDITIONS HYDROLOGY (100 YEAR)

SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Overland Flow Travel Time (Tt)				Tc (Ti+Tt)
Basin Area	R (C Value)	Length (ft)	Slope	Ti (min)	Length (ft)	Slope	Velocity (fps)	Tt (min)	Tc (min)
1	0.5	100.00	0.811	11.58					11.58
1					959.90	1.687	0.9	17.77586852	17.78
1					2701.01	0.696	0.57	78.97675439	78.98
				SUM TIME	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
			Intensity Interpolation	108.33	60	1.34	120	0.702	0.83

EXISTING CONDITIONS HYDROLOGY (100 YEAR)

SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Overland Flow Travel Time (Tt)				Tc (Ti+Tt)
Basin Area	R (C Value)	Length (ft)	Slope	Ti (min)	Length (ft)	Slope	Velocity (fps)	Tt (min)	Tc (min)
2	0.5	100.00	1.665	9.11					9.11
2					1112.42	1.635	0.87	21.31073755	21.31
2					2311.79	1.414	0.82	46.98764024	46.99
				SUM TIME	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
			Intensity Interpolation	77.41	60	1.34	120	0.702	1.15

Table B - Proposed Conditions - Rational Method Tc=Ti+Tt for Intensity Calculations

(Modified Truckee Meadows Reagional Drainage Manual Table 703)

Time Calc
Intensity Calc

PROPOSED CONDITIONS HYDROLOGY (5 YEAR)

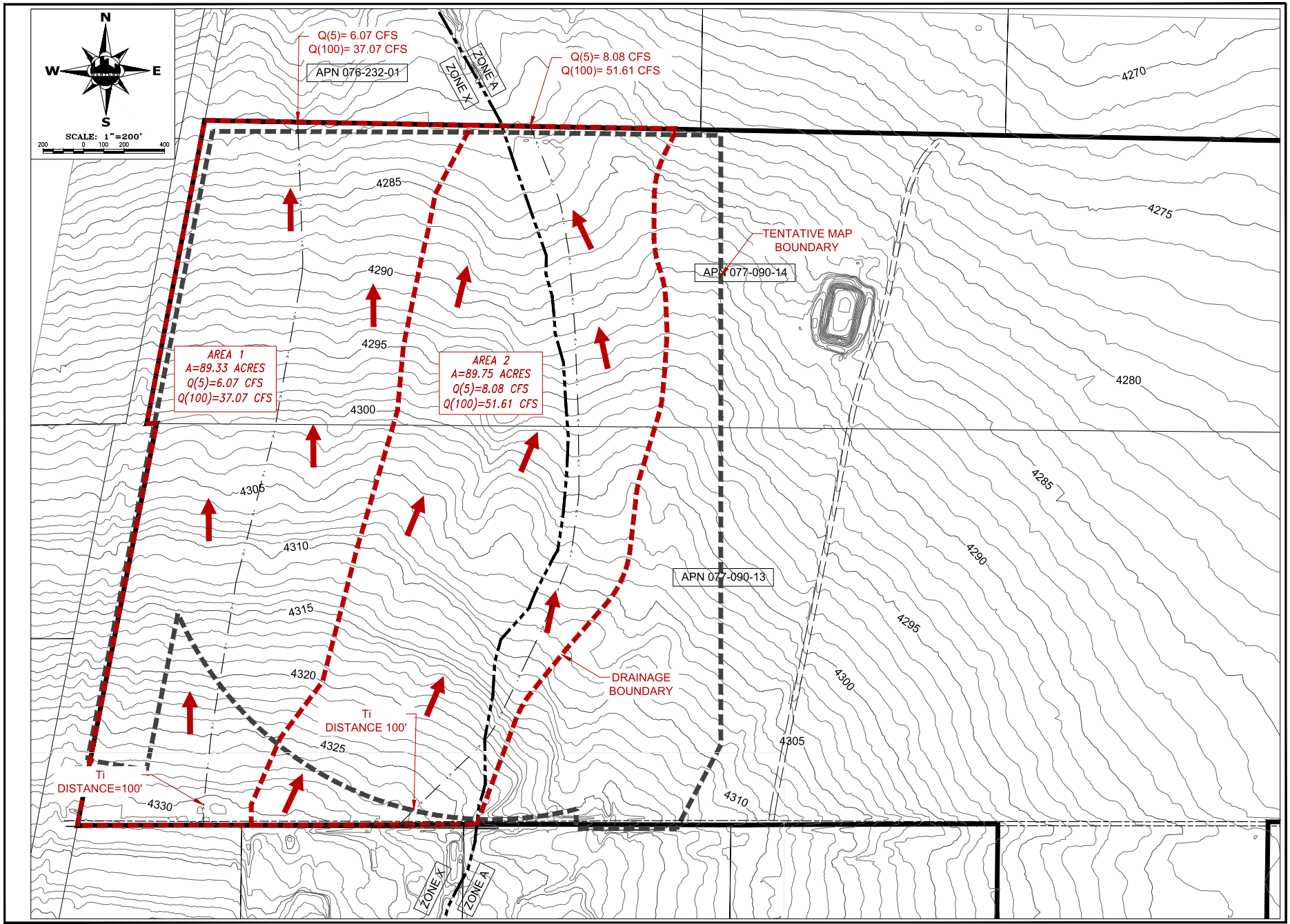
SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Roadside Ditch Travel Time (Tt)			Tc (Ti+Tt)	Intensity Interpolation				
Basin Area	R (Composite C)	Length (ft)	Slope	Ti (min)	Length (ft)	Velocity (fps)	Tt (min)	Tc (min)	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
Area 1	0.28	3491	1.203	82.00				82.00	60	0.529	120	0.326	0.45
Area 2	0.37	490	1.000	29.09	3904	6.92	9.40	38.49	30	0.854	60	0.529	0.76
Area 3	0.37	2700	1.481	59.89	2702	6.92	6.51	66.40	60	0.529	120	0.326	0.51
Area 4	0.32	392	1.786	22.91				22.91	15	1.27	30	0.854	1.05

PROPOSED CONDITIONS HYDROLOGY (100 YEAR)

SUB-BASIN DATA		INITIAL/OVERLAND TIME (Ti)			Roadside Ditch Travel Time (Tt)			Tc (Ti+Tt)	Intensity Interpolation				
Basin Area	R (Composite C)	Length (ft)	Slope	Ti (min)	Length (ft)	Velocity (fps)	Tt (min)	Tc (min)	Time 1 (Min)	NOAA I Value	Time 2 (Min)	NOAA I Value	Intensity (in/hour)
Area 1	0.5	3491	1.203	60.00				60.00	30	2.17	60	1.34	1.34
Area 2	0.51	490	1.000	23.51	3904	6.92	9.40	32.91	30	2.17	60	1.34	2.09
Area 3	0.57	2700	1.481	43.48	2702	6.92	6.51	49.99	30	2.17	60	1.34	1.62
Area 4	0.5	392	1.786	17.63				17.63	15	3.22	30	2.17	3.04

Table 1 - Rational C Method, Flow and Volume Calculations - Existing Versus Developed							
	Existing Condition Hydrology						
	Rational Method Tc=Ti+Tt (Time of Concentration)						
	Surface Cover	Area (sf)	C5	Weighted	C100	Weighted	
	Open Space (0-5% vegetated)	7,800,724.80	0.20	1560145	0.5	3900362	
	Total/Composite	7,800,724.80	**0.20**	1560145	**0.50**	3900362	
	Acres Total	179.08					
Basin Area	Area (acres)	I(5) in/hr (Tc=Ti+Tt)	C5	Q(5) cfs	C100	I(100) in/hr (Tc=Ti+Tt)	Qp(100) cfs
1	89.33	0.34	0.20	6.07	0.50	0.83	37.07
2	89.75	0.45	0.20	8.08	0.50	1.15	51.61
Total				14.15			88.68
	Developed Condition Hydrology						
	Rational Method Tc=Ti+Tt (Time of Concentration)						
	Surface Cover	Area (sf)	C5	Weighted	C100	Weighted	
Area 1	Rural 2.5 Acre lots	1,298,350.73	0.35	454423	0.5	649,175.4	
Area 1	Open space Range	1350907.43	0.2	270181	0.5	675,453.7	
	Commercial Area	16632.51	0.85	14138	0.85	14,137.6	
	Total Area 1	2665890.67	**0.28**	738742	**0.50**	1338767	
Area 2	Rural 2.5 Acre lots	1,770,422.11	0.35	619648	0.5	885211	
Area 2	Commercial Area	74,183.17	0.85	63056	0.85	63056	
	Total Area 3	1844605.28	**0.37**	682703	**0.51**	948267	
Area 3	Rural 2.5 Acre lots	663,890.12	0.35	232362	0.5	331,945.1	
Area 3	Commercial Area	586996.07	0.85	498947	0.85	498,946.7	
Area 3	Open space Range	1575442.89	0.2	315089	0.5	787,721.4	
	Total Area 3	2826329.08	**0.37**	1046397	**0.57**	1618613	
Area 4	Rural 2.5 Acre lots	363,239.40	0.35	127134	0.5	181,619.7	
Area 4	Open space Range	100588.48	0.2	20118	0.5	50,294.2	
	Total Area 4	463827.88	**0.32**	147251	**0.50**	231914	
	Area (acres)	I(5) in/hr (Tc=Ti+Tt)	C5	Q(5) cfs	C(100)	I(100) in/hr (Tc=Ti+Tt)	Qp(100) cfs
Area 1	61.20	0.45	0.28	7.63	0.50	1.34	41.18
Area 2	42.35	0.76	0.37	11.91	0.51	2.09	45.50
Area 3	64.88	0.51	0.37	12.25	0.57	1.62	60.20
Area 4	10.65	1.05	0.32	3.55	0.50	3.04	16.18
	Total Developed Runoff			**35.34**			**163.06**
Summary						Peak Flow	Peak Flow
						35.34	163.06
						Peak Flow	Peak Flow
						Q(5) cfs	Q(100) cfs
						-14.15	-88.68
				Volume	Volume		
Increase	Table B Time 5yr (min)	Table B Time 100yr (min)		5-Year, Cu-Ft	100-Year, Cu-Ft	Peak Flow	Peak Flow
	66.4	49.99		84427.36	223107.86	21.19	74.38

Table 2: Retention Basin Volume Calculations			
Retention Basin			
Contour	Contour Area (ft^2)	Contour Interval Height (ft)	Volume (ft^3)
(100 yr) 85.00	97458.65	2.41	223846.57
82.59	88306.1361	0.00	0.00
		Volume Storage Provided	223846.57
		Storage Required	223107.86



VENTURE ENGINEERING & CONSULTING, INC.
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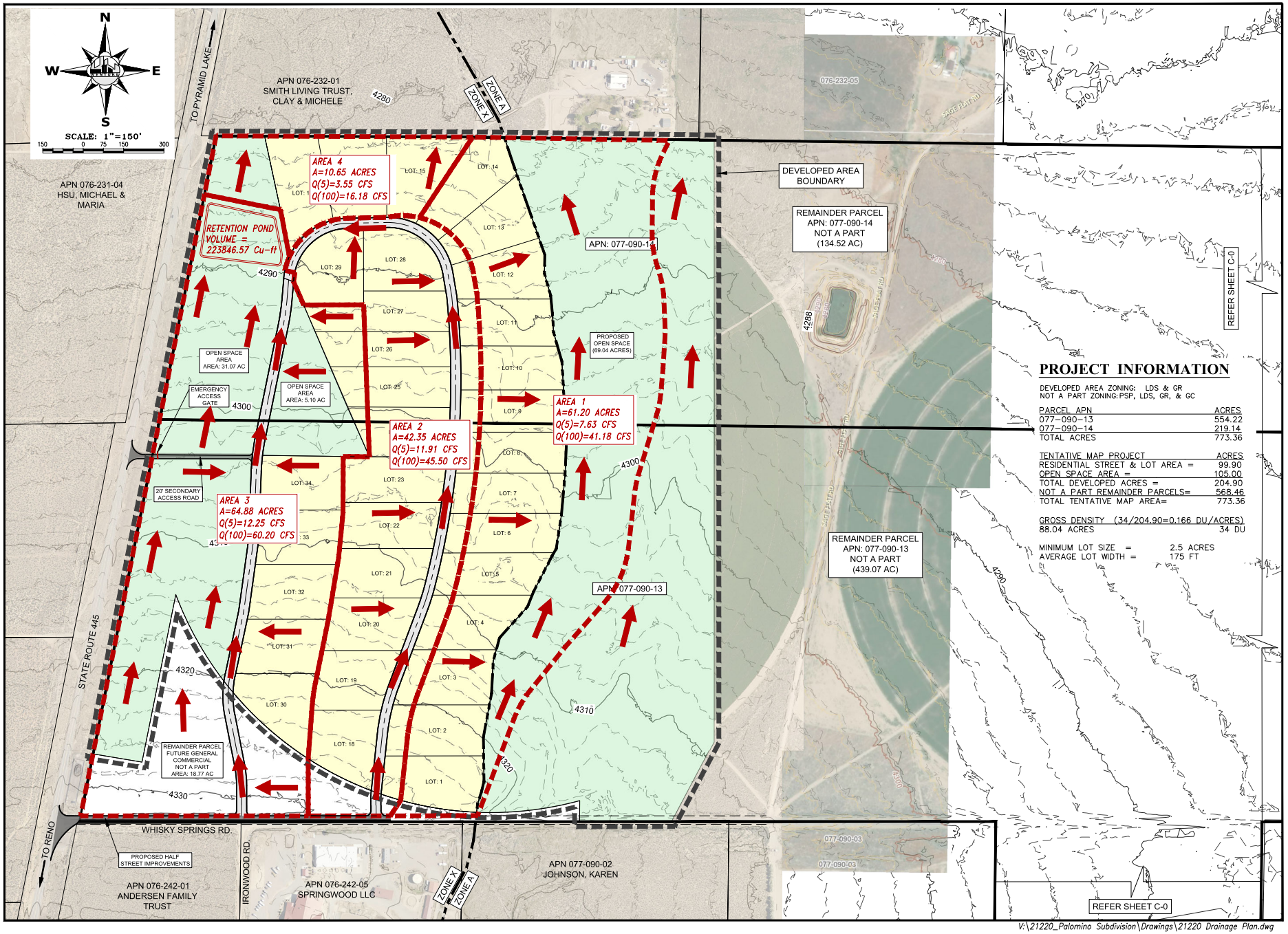
530 E. PLUMB LANE STE. 4 PH: (775) 825-9898
RENO, NV 89502 venturereno@gmail.com

PALOMINO SUBDIVISION
PRELIMINARY SITE PLAN
APN:077-090-13 & 077-090-14
WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN: JSM
CHECKED: JNM
DATE: 7/30/24
SCALE
HORIZ: 1"= 200'
VERT: NONE
ISSUE: PRELIMINARY
SHEET NUMBER:
C-1
PAGE: 1 OF: 1

V:\21220_Palomino Subdivision\Drawings\21220 Existing Drainage Plan.dwg



PROJECT INFORMATION

DEVELOPED AREA ZONING: LDS & GR
NOT A PART ZONING: PSP, LDS, GR, & GC

PARCEL APN	ACRES
077-090-13	554.22
077-090-14	219.14
TOTAL ACRES	773.36

TENTATIVE MAP PROJECT	ACRES
RESIDENTIAL STREET & LOT AREA =	99.90
OPEN SPACE AREA =	105.00
TOTAL DEVELOPED ACRES =	204.90
NOT A PART REMAINDER PARCELS=	568.46
TOTAL TENTATIVE MAP AREA=	773.36

GROSS DENSITY (34/204.90=0.166 DU/ACRES)
88.04 ACRES 34 DU

MINIMUM LOT SIZE = 2.5 ACRES
AVERAGE LOT WIDTH = 175 FT

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NEVADA PROFESSIONAL ENGINEER STATE OF NEVADA
JOHN N. MUNSON
EXP. 12-31-25
CIVIL
NO. 9732
5/6/25

TENTATIVE MAP OF PALOMINO FARMS
DRAINAGE PLAN DEVELOPED CONDITIONS
APN:077-090-13 & 077-090-14

WASHOE COUNTY, NEVADA

REVISIONS:

DRAWN: JRP
CHECKED: JNM
DATE: 5/6/25
SCALE
HORIZ: 1"= 200'
VERT: NONE
ISSUE: PRELIMINARY
SHEET NUMBER:
D-2
PAGE: 2 OF: 2

V:\21220_Palomino Subdivision\Drawings\21220 Drainage Plan.dwg

A = watershed area, acres

The following Table 201 listing runoff coefficients based depending on future use, shall be used:

TABLE 201 RUNOFF COEFFICIENTS "C"

Land Use Type	Runoff Coefficient "C"
Rural	0.25-0.35
Single Family Residential	0.45-0.60
Multi-Residential	0.60-0.70
Neighborhood Commercial	0.85
Community Commercial	0.85
Tourist Commercial	0.85
Office	0.85
Manufacturing	0.85-0.90
Distribution and Warehousing	0.85-0.90
Public Facility	0.50-0.85
Pavement and Concrete Surfaces	0.90-0.95
Park	0.25
Open Space (0-5% grade - vegetated)	0.20-0.30
Open Space (0-5% grade - no vegetation)	0.30-0.40
Open Space (5-15% grade - vegetated or unvegetated)	0.40-0.50
Open Space (Over 15% grade - sparsely vegetated, rock or clay soils)	0.40-0.60

Weighted values of the runoff coefficient "C" may be required where land use is most accurately described as a mixture of the land uses listed above or where it is a mixture of impervious and pervious areas and not well represented by a single entry in the preceding list.

Sub-areas which include an LID feature will typically require special consideration and weighting of the runoff coefficient "C". See Chapter X for specific guidance on post construction storm water quality design considerations.

Included below for reference is Table 202 from both the TMRDM and the Truckee Meadows Structural Controls Manual.

TABLE 202 ADDITIONAL RUNOFF COEFFICIENTS "C" FOR REFERENCE

Runoff coefficients for the Rational Method from the Washoe County Hydrologic Criteria and Drainage Design Manual (a.k.a., the TMRDM) and the City of Sparks (1998 and 1996, respectively), and as per the Truckee Meadows Structural Controls Design Manual.

		Runoff Coefficients	
Land Use or Surface Characteristics	**Aver. % Impervious Area**	**5-Year (C_5)**	**100-Year (C_{100})**
Business/Commercial:			
Downtown Areas	85	.82	.85
Neighborhood Areas	70	.65	.80
Residential:			
(Average Lot Size)			
⅛ Acre or Less (Multi-Unit)	65	.60	.78
¼ Acre	38	.50	.65
⅓ Acre	30	.45	.60
½ Acre	25	.40	.55
1 Acre	20	.35	.50
Industrial:	72	.68	.82
Open Space:			
(Lawns, Parks, Golf Courses)	5	.05	.30
Undeveloped Areas:			
Range	0	.20	.50
Forest	0	.05	.30
Streets/Roads:			
Paved	100	.88	.93
Gravel	20	.25	.50
Drives/Walks:	95	.87	.90
Roofs:	90	.85	.87

Notes:

1. Composite runoff coefficients shown for Residential, Industrial, and Business/Commercial Areas assume irrigated grass landscaping for all previous areas. For development with landscaping other than irrigated grass, the designer must develop project specific composite runoff coefficients from the surface characteristics presented in this table.

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Record Precipitation

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NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: NV

Data description

Data type: Precipitation intensity **Units:** English **Time series type:** Partial duration

Select location

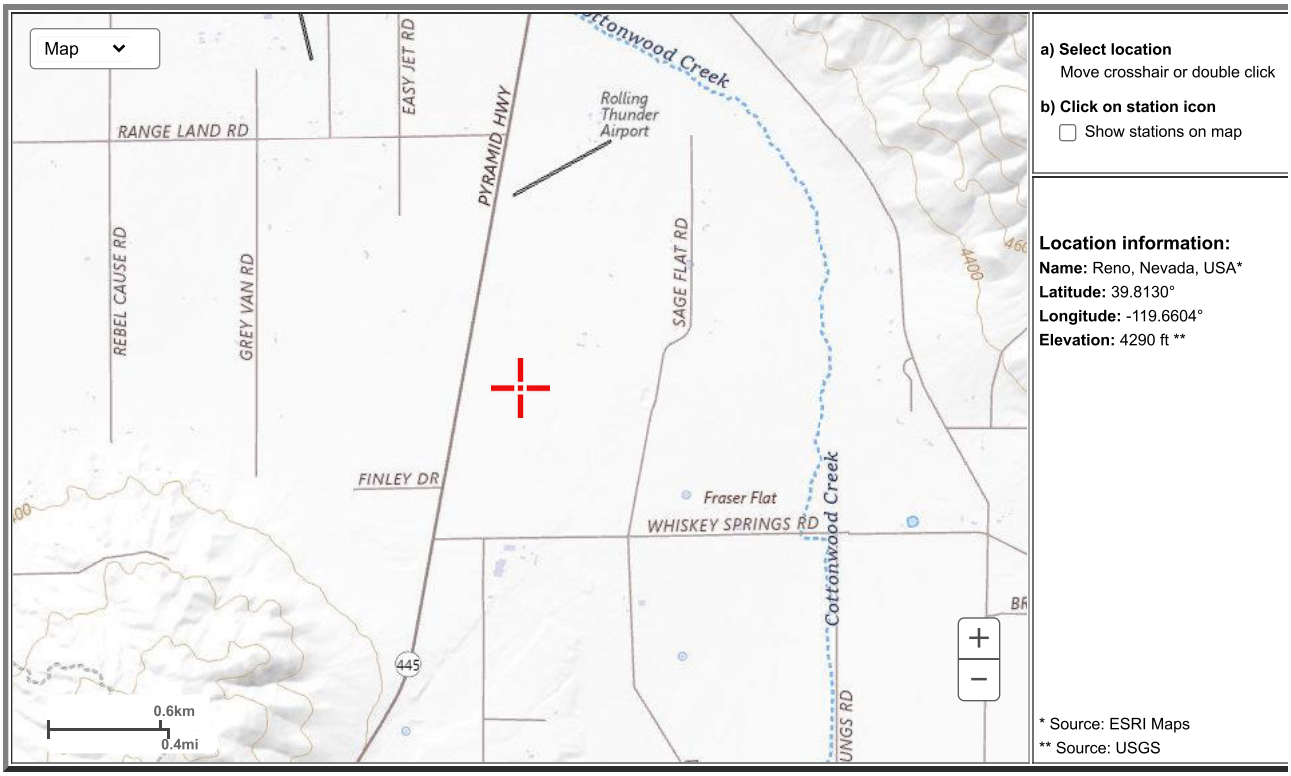
1) Manually:

a) By location (decimal degrees, use "-" for S and W): Latitude: Longitude: Submit

b) By station (list of NV stations): Select station

c) By address Search

2) Use map:



POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 1, Version 5

PF tabular | PF graphical | Supplementary information | Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.21** (0.996-1.39)	**1.50** (1.24-1.76)	**2.02** (1.68-2.39)	**2.52** (2.09-3.01)	**3.36** (2.75-4.09)	**4.16** (3.34-5.16)	**5.11** (4.01-6.46)	**6.30** (4.76-8.12)	**8.23** (5.94-11.0)	**10.0** (6.96-13.7)
10-min	**0.918** (0.750-1.06)	**1.15** (0.936-1.34)	**1.54** (1.27-1.82)	**1.91** (1.59-2.29)	**2.56** (2.09-3.12)	**3.17** (2.54-3.92)	**3.89** (3.05-4.92)	**4.79** (3.62-6.19)	**6.26** (4.52-8.36)	**7.63** (5.30-10.4)
15-min	**0.760** (0.620-0.876)	**0.948** (0.772-1.11)	**1.27** (1.05-1.50)	**1.58** (1.32-1.89)	**2.12** (1.73-2.58)	**2.62** (2.10-3.24)	**3.22** (2.52-4.06)	**3.96** (3.00-5.11)	**5.18** (3.74-6.91)	**6.30** (4.38-8.61)
30-min	**0.512** (0.418-0.592)	**0.638** (0.520-0.746)	**0.854** (0.710-1.01)	**1.07** (0.886-1.28)	**1.42** (1.16-1.74)	**1.76** (1.41-2.18)	**2.17** (1.70-2.74)	**2.67** (2.02-3.44)	**3.49** (2.52-4.66)	**4.25** (2.95-5.80)
60-min	**0.316** (0.259-0.366)	**0.394** (0.322-0.462)	**0.529** (0.439-0.628)	**0.660** (0.548-0.789)	**0.881** (0.720-1.07)	**1.09** (0.874-1.35)	**1.34** (1.05-1.69)	**1.65** (1.25-2.13)	**2.16** (1.56-2.88)	**2.63** (1.82-3.59)
2-hr	**0.203** (0.177-0.237)	**0.253** (0.221-0.295)	**0.326** (0.283-0.381)	**0.392** (0.336-0.457)	**0.495** (0.415-0.581)	**0.590** (0.483-0.697)	**0.702** (0.560-0.855)	**0.866** (0.661-1.08)	**1.14** (0.832-1.46)	**1.41** (0.985-1.81)
3-hr	**0.160** (0.142-0.184)	**0.199** (0.177-0.230)	**0.251** (0.222-0.289)	**0.295** (0.259-0.340)	**0.358** (0.310-0.414)	**0.415** (0.352-0.484)	**0.484** (0.403-0.573)	**0.583** (0.475-0.723)	**0.770** (0.595-0.978)	**0.945** (0.705-1.22)

6-hr	**0.111** (0.099-0.126)	**0.138** (0.123-0.158)	**0.173** (0.153-0.197)	**0.199** (0.176-0.227)	**0.235** (0.205-0.269)	**0.261** (0.225-0.301)	**0.289** (0.246-0.336)	**0.326** (0.273-0.384)	**0.402** (0.330-0.495)	**0.477** (0.384-0.617)
12-hr	**0.072** (0.064-0.081)	**0.090** (0.081-0.102)	**0.115** (0.102-0.129)	**0.133** (0.118-0.150)	**0.158** (0.139-0.180)	**0.178** (0.154-0.203)	**0.198** (0.170-0.228)	**0.218** (0.184-0.254)	**0.245** (0.202-0.291)	**0.271** (0.219-0.326)
24-hr	**0.044** (0.039-0.050)	**0.056** (0.050-0.063)	**0.073** (0.065-0.082)	**0.087** (0.077-0.098)	**0.106** (0.093-0.120)	**0.121** (0.105-0.138)	**0.137** (0.118-0.158)	**0.154** (0.130-0.179)	**0.178** (0.147-0.209)	**0.197** (0.160-0.234)
2-day	**0.026** (0.023-0.029)	**0.033** (0.029-0.038)	**0.044** (0.039-0.050)	**0.052** (0.046-0.060)	**0.065** (0.056-0.074)	**0.074** (0.064-0.086)	**0.085** (0.072-0.099)	**0.096** (0.080-0.113)	**0.112** (0.091-0.133)	**0.124** (0.099-0.151)
3-day	**0.019** (0.017-0.021)	**0.024** (0.021-0.028)	**0.032** (0.028-0.037)	**0.039** (0.034-0.044)	**0.048** (0.042-0.055)	**0.056** (0.048-0.065)	**0.064** (0.054-0.075)	**0.073** (0.060-0.086)	**0.085** (0.069-0.102)	**0.095** (0.075-0.116)
4-day	**0.015** (0.013-0.017)	**0.020** (0.017-0.023)	**0.027** (0.023-0.030)	**0.032** (0.028-0.037)	**0.040** (0.034-0.046)	**0.047** (0.039-0.054)	**0.054** (0.045-0.063)	**0.061** (0.050-0.072)	**0.072** (0.058-0.086)	**0.081** (0.064-0.098)
7-day	**0.010** (0.009-0.012)	**0.013** (0.011-0.015)	**0.018** (0.015-0.021)	**0.022** (0.019-0.025)	**0.027** (0.023-0.032)	**0.032** (0.027-0.037)	**0.037** (0.030-0.043)	**0.042** (0.034-0.050)	**0.049** (0.039-0.060)	**0.055** (0.043-0.068)
10-day	**0.008** (0.007-0.009)	**0.010** (0.009-0.012)	**0.014** (0.012-0.016)	**0.017** (0.015-0.020)	**0.021** (0.018-0.025)	**0.025** (0.021-0.029)	**0.028** (0.023-0.033)	**0.032** (0.026-0.038)	**0.037** (0.030-0.045)	**0.042** (0.033-0.051)
20-day	**0.005** (0.004-0.006)	**0.006** (0.005-0.007)	**0.009** (0.007-0.010)	**0.010** (0.009-0.012)	**0.013** (0.011-0.015)	**0.015** (0.012-0.017)	**0.016** (0.014-0.019)	**0.018** (0.015-0.022)	**0.021** (0.017-0.026)	**0.024** (0.019-0.029)
30-day	**0.004** (0.003-0.004)	**0.005** (0.004-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.010** (0.008-0.011)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.016)	**0.016** (0.013-0.019)	**0.018** (0.014-0.021)
45-day	**0.003** (0.002-0.003)	**0.004** (0.003-0.004)	**0.005** (0.004-0.006)	**0.006** (0.005-0.007)	**0.008** (0.006-0.009)	**0.009** (0.007-0.010)	**0.010** (0.008-0.011)	**0.011** (0.009-0.012)	**0.012** (0.010-0.014)	**0.013** (0.011-0.016)
60-day	**0.002** (0.002-0.003)	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.004-0.006)	**0.006** (0.005-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.007-0.010)	**0.010** (0.008-0.011)	**0.010** (0.008-0.012)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in CSV format: Precipitation frequency estimates Submit

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Water Prediction (OWP)
1325 East West Highway
Silver Spring, MD 20910
Page Author: HDSC webmaster
Page last modified: April 21, 2017

National Flood Hazard Layer FIRMette

FEMA

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/3/2024 at 11:33 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Venture Engineering & Consulting Inc.
530 E. Plumb Lane
Reno, NV 89502
Phone: (775) 825-9898

May 8, 2025

Washoe County Community Development
City of Reno
1001 E 9th St
Reno, NV 89512

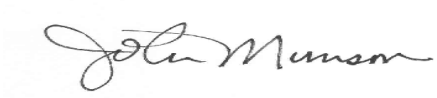
Re: Palomino Farms Tentative Map Traffic Estimate.

As part of the tentative map application for the proposed 34-lot subdivision, estimated trip generation rates have been reviewed in accordance with Washoe County requirements. Based on standard assumptions from the 11th edition ITE traffic formulas for an average rate of 0.75 AM peak hour trips and 0.99 PM peak hour trips per single-family lot, the project is expected to generate approximately 26 AM and 34 PM peak hour trips on a typical weekday. These projected volumes are well below the threshold of 80 peak hour trips that would require a traffic impact report under County standards—representing only about 3/7 of the minimum requirement. While some residents at the recent neighborhood meeting raised concerns and requested a traffic study, the anticipated traffic generation does not meet the criteria necessitating one for this application.

Any future traffic analysis related to improvements at the intersection of Whiskey Springs Road and Pyramid Highway (State Route 431) will fall under the purview of the Nevada Department of Transportation (NDOT).

Sincerely,

VENTURE ENGINEERING AND CONSULTING, INC.



John N. Munson, P.E.
President/Principal

Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

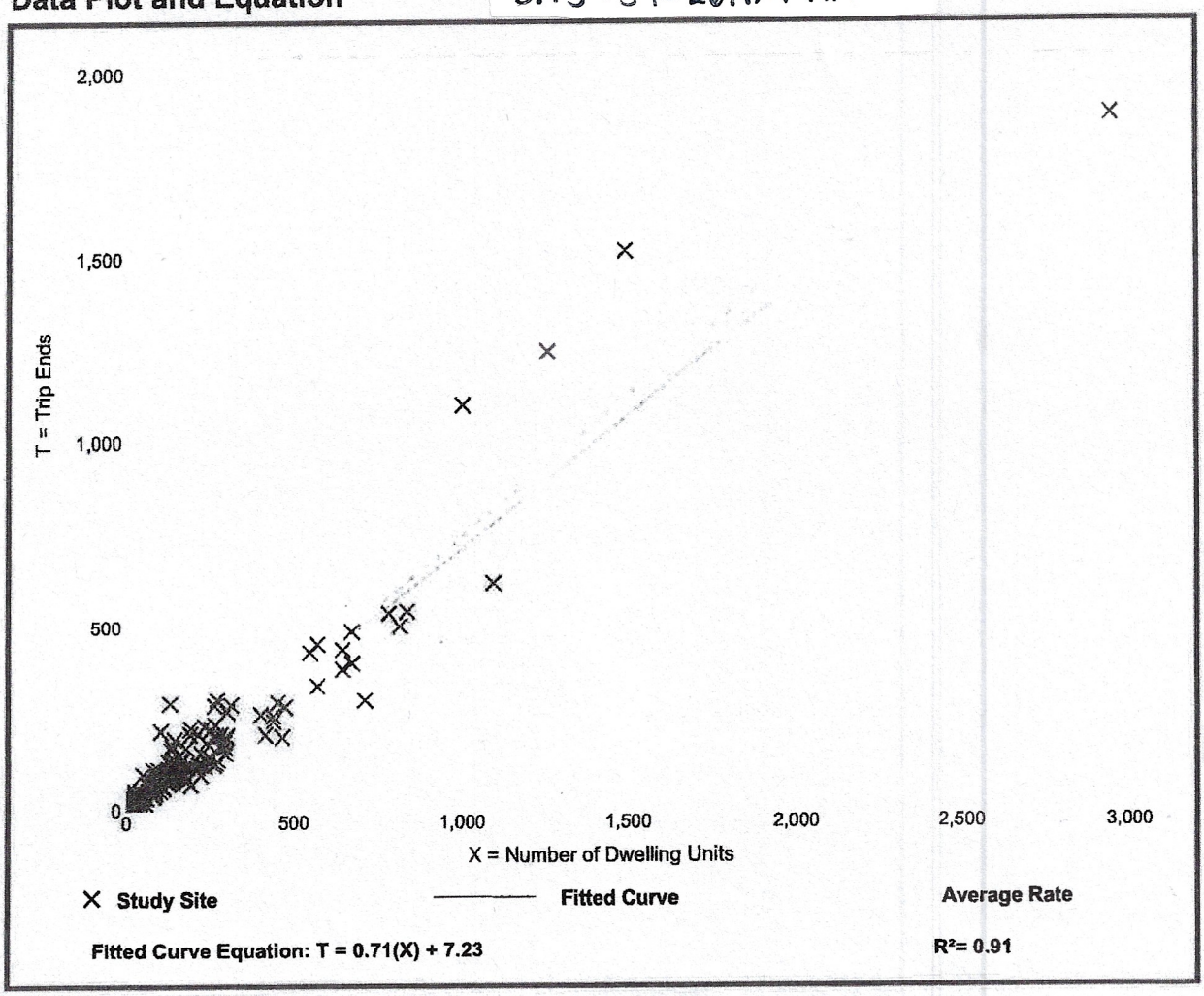
Setting/Location: **General Urban/Suburban**
Number of Studies: 169
Avg. Num. of Dwelling Units: 34
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.34 - 2.27	0.25

Data Plot and Equation

0.75 x 34 = 26 AM PHT



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Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

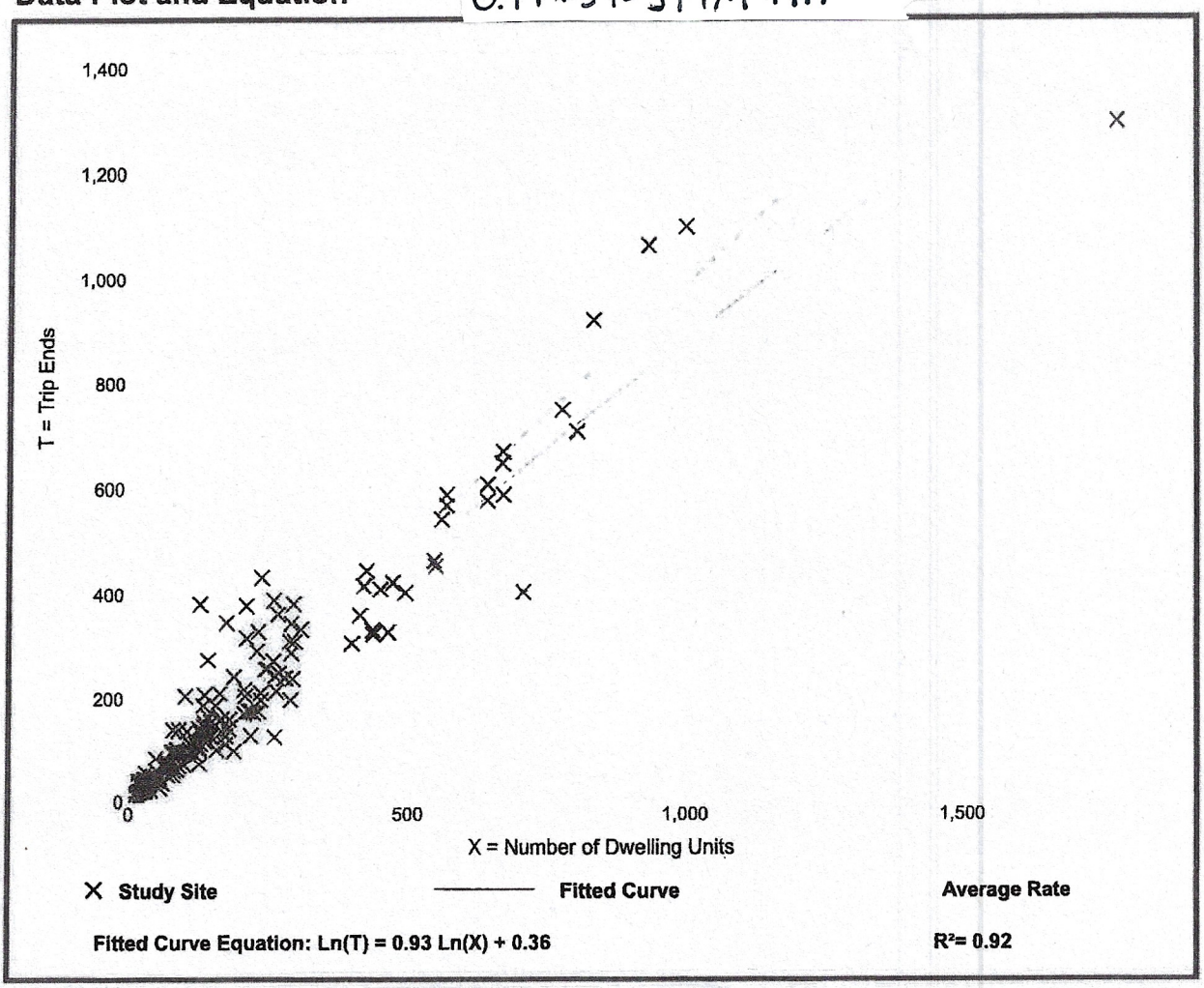
Setting/Location: **General Urban/Suburban**
Number of Studies: 178
Avg. Num. of Dwelling Units: 34
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.49 - 2.98	0.28

Data Plot and Equation

0.99 x 34 = 34 PM PHT



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