			Μ	ASTER APPLICATION
RENO	CIAL USE ONLY	OFFICIAL USE	ONLY	
PLANNING DIVISION RECEI	VED	CASE NUMBER		
PROJECT NAME				
PROJECT DESCRIPTION				
	uld be concise in describing the reason his application. and a general descriptio	on of the proposed use. site	e improvement, or proiect.	rs, other applications
PROJECT ADDRESS			IUMBERS	
MASTER PLAN	ZONING			ACRES
PROPERTY OWNER	APPLICANT		AGENT AND CONTACT	
NAME	NAME		NAME	
MAILING ADDRESS	MAILING ADDRESS		MAILING ADDRESS	
PHONE	PHONE		PHONE	
EMAIL	EMAIL		EMAIL	
COMPLETENESS REVIEW OFFICIAL USE ONLY			* The person listed as conta attend staff/applicant meetin regarding this applicatior information when necessary, of the staff report and decision	ngs, answer questions n, provide additional and will receive a copy



## MASTER APPLICATION

## Application Type

Select each application type being applied for below. A supplemental application checklist will be required to be submitted for each application type selected. The supplemental application type checklist can be found by clicking on the name of the application below. Additional information on the city's Master Plan, zoning code, planned unit development and specific plan district handbooks, and the Public Works Design Manual can all be found by clicking on each respective titles.





## Item A.2: Owner Affidavit

I am the owner/authorized agent, as demonstrated on the attached documentation, of the property involved in this petition and I authorize <u>Toll Brothers, Inc.</u> (name of applicant) to request development-related applications on my property. This authorization is inclusive of Assessor Parcel Number(s) <u>010-421-11</u>.

I declare under penalty of perjury that the foregoing is true and correct for the development application case number (to be filled in by City of Reno staff).

Executed on <u>3.15.2</u> (date)	24, in <u>hen</u> (City)	Ò	, <u> </u>		
		Signature	pl		
		Nicholog Printed Name	J. Pavich, 1	Mengor	
STATE OF NEVADA	) ) SS	-			
COUNTY OF WASHOE	)		_	_	
On this <u>15</u> <sup>th</sup> day of appeared before me, a No above property who ackno application.	tary Public in and for s	aid County and	d State, known to m	e to be the owner/auth	norized agent of the

JODY E. MUSGRAVE Notary Public - State of Nevada Appointment Recorded In Washoe County No: 16-2365-2 - Expires April 26, 2024	NotaryPublic	E Musquare exp. 4.26.24
--	--------------	----------------------------

Attachments:

- 1. Secretary of State documentation, authorization letter, or corporate charter than demonstrates authority to sign for corporate or trust entity.
- 2. Notary supplement for states and counties differing from that listed above.



## Item A.2: Applicant Affidavit

I am the applicant and/or consultant/firm involved in this petition and the foregoing statements and answers herein contained and the information herewith submitted for a <u>Tentative Map/Minor Conditional Use Permit</u> (application type) are in all respects complete, true, and correct to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is complete, true and correct for the development application case number

(to be filled in	by City of Reno sta	ff).		
Executed on <u>3/28/24</u> , in (date)	RENO	NEVADA		
(date)	(City)	(State)		
	Company:	Toll BROTHERS		
	Name:	F BODCHARDT		
	Title:	1012 LOND ENTITLEME	ENT MANAGER	
	Signed: 🧲	-11		
STATE OF NEVADA ) ) ss				
COUNTY OF WASHOE )				
On this 28 <sup>th</sup> day of <u>Mave</u> appeared before me, a Notary Public involved in this petition who acknowle	n and for said Cour	nty and State, known to me to be	the applicant and/or consultant/fin	rm
of said application.	0			
Maile Caufield NOTARY PUBLIC		(K)		

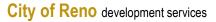
Attachments:

1. Secretary of State documentation, authorization letter, or corporate charter than demonstrates authority to sign for corporate or trust entity.

Notary Public

2. Notary supplement for states and counties differing from that listed above.

Appt. No. 21-2200-02 My Appt. Expires August 13, 2025





# WHAT IS A MINOR CONDITIONAL USE PERMIT?

This process examines proposed uses and activities on a property to ensure their compatibility with surrounding areas and to mitigate potential impacts. Projects requiring a minor conditional use permit are generally expected to be less intense than those requiring a conditional use permit. Minor conditional use permits are reviewed administratively, while conditional use permits require a public hearing by the Planning Commission. Both application types require notice to nearby property owners.



CLICK HERE FOR APPLICATION FEES

## **APPLICATION CHECKLIST**

Applicants must provide all forms, documents, information, and materials listed in the checklist below in digital format. The submission packets must be in the same order as the checklist. Review materials and check the boxes within the column on the left-hand side of the page to confirm submission.

# WHAT IS THE PROCESS AND HOW LONG WILL IT TAKE?

Applications are accepted on the second and fourth Monday of each month. A review for completeness will be conducted within three days of the application submittal. Incomplete applications will be returned to the applicant. Once the application has been deemed complete, it will follow the process and estimated timeline in RMC 18.08.604.



TYPICALLY REVIEWED WITHIN 30 DAYS



ACCEPTED ON THE 2ND AND 4TH MONDAY

A.1	Master Application
A.2	Owner's Affidavit and Applicant's Affidavit
A.3	Application Forms
B.1	Project Narrative – submit a written description of the request that includes why a minor conditional use permit is being submitted, project details, historical background, and existing uses and improvements on site.
B.2	Findings Analysis (see RMC 18.08.604(e) and RMC 18.08.304(e) for legal findings)
B.3	Vicinity Map – 8.5" x 11" map showing surrounding parcels including the subject site
B.4	Photographs of the existing building and site
B.5	Floor Plan – a conceptual floor plan may be required to demonstrate how a proposed use will operate
B.6	Site Plan (see site plan submittal guide) – all project applications should include a basic site plan showing property lines, parking and parking calculations, building footprint, and proposed tenant space. A more detailed plan is only required if site improvements are proposed or are necessary to mitigate the impacts of a proposed use.



#### MINOR CONDITIONAL USE PERMIT APPLICATION

B.7	Preliminary Utility Plan (see utility plan submittal guide) – only required if utility improvements are proposed or necessary to support the proposed use. If adequate services exist, describe them within the project narrative.			
B.8	Preliminary Grading & Drainage Plan (see grading plan submittal guide) – only required if site improvements are proposed or are necessary to mitigate impacts of the proposed use			
B.9	Preliminary Landscape Plan (see landscape plan submittal guide) – may be necessary if landscaping is proposed or required to mitigate impacts of a proposed use. Must be submitted in color.			
B.10	Preliminary Lighting Plan & Photometric Analysis – may be necessary if new lighting is proposed or operations require lighting to be on beyond 11:00 p.m.			
B.11	Acoustical Study – May be required for uses that could have noise impacts			
B.12	Preliminary Sewer Report (see Public Works Design Manual) – only required if utility improvements are proposed or necessary to support proposed use. If adequate services exist, describe them within the project narrative.			
B.13	Traffic Study – if required by additional use regulations, development standards, or in the thresholds outlined in RMC 18.04.601(c)			
B.14	Project of Regional Significance Checklist			
SUBMITT	AL GUIDELINES			
If submitting in-person, submit one USB drive with all completed forms, materials, reports, and supplemental information				

If submitting online, create an account on the permitting portal at OneNV.us and submit through the online form

Payment of application fees is required within three days of the application being accepted



## MINOR CONDITIONAL USE PERMIT FINDINGS ANALYSIS

Findings and approval criteria are the legal justification for a body's decision on an application. A complete analysis of these findings and criteria is required from the applicant at the time of application submittal. Detailed explanation of each finding can be found within RMC 18.08.604(e) and RMC 18.08.304(e).

Provide a written response addressing how the proposed request is in conformance with the following findings.

#### ALL MINOR CONDITIONAL USE PERMIT APPLICATIONS SHALL MEET THE FOLLOWING FINDINGS.

- 1) The proposed location of the use is in accordance with the objectives of Title 18 of the Reno Municipal Code and the purpose of the zoning district in which the site is located.
- 2) The proposed land use and project design is compatible with surrounding development.
- 3) The proposed land use and project design is consistent with applicable development standards.
- 4) Public services and facilities are available to serve the project, or will be provided with development.
- 5) The characteristics of the use as proposed and as may be conditioned are reasonably compatible with the types of use permitted in the surrounding area.
- 6) The granting of the conditional use permit will not be materially detrimental to the public health, safety, or welfare. The factors to be considered in evaluating this application shall include: Property damage or nuisance resulting from noise, smoke, odor, dust, vibration, or illumination; and any hazard to persons and property.

#### IN ADDITION TO THESE FINDINGS, ALL DEVELOPMENT APPLICATIONS SHALL MEET THE FOLLOWING APPROVAL CRITERIA.

- 1) The project is consistent with the Reno Master Plan
- 2) The project is in compliance with Title 18 of the Reno Municipal Code.
- 3) The project mitigates any anticipated traffic impacts.
- 4) The project provides for a safe environment.
- 5) If the project involves phases, it proposes a rational phasing plan.



## Item A.3: Application Forms

The applicant or duly authorized agent of the applicant requests that the Administrator of the City of Reno approve a minor conditional use permit.

## **PROJECT ANALYSIS**

1.	Land Use	List the uses triggering this application below:		
2.	Acoustical Analysis	Does this include noise levels that exceed the ambient noise levels of the surrounding area or include noise impacts after 9 pm?	Yes 🗆 No 🗆	A sound study is required with this application prepared by a licensed acoustical engineer
3.	Water and Sewer Service	Is the subject site served by an on-site septic system for sewage or an on-site well for water service?	Yes 🗆 No 🗆	If yes, this application requires payment of Washoe County Health District fees and will be subject to their review
4.	Combination Applications	Is this application submitted in combination with a site plan review?	Yes 🗆 No 🗆	

## **PROJECT DETAILS**

	Number o	f Units or Resident Beds		
Project Features		Number of Buildings		
		Building Height		
		Number of Stories		
	Parking Spaces Provided			
	Accessible Spaces Provided			
	I	Bicycle Spaces Provided		
Hou	Monday		 Friday	
rs of (	Tuesday		Saturday	
Hours of Operation	Wednesday		Sunday	
tion	Thursday			



Adjacent Properties	Northern Land Use & Zoning	
	Eastern Land Use & Zoning	
	Southern Land Use & Zoning	
	Western Land Use & Zoning	

PROVIDE A SUMMARY OF PROPOSED OPERATIONS INCLUDING THE NUMBER OF EMPLOYEES, TYPICAL BUSINESS OPERATIONS, EQUIPMENT USED, ETC.

## DESCRIBE HOW THIS PROJECT COULD IMPACT PUBLIC SAFETY AND SERVICES AND DESCRIBE HOW THESE IMPACTS ARE PLANNED TO BE MITIGATED.





## WHAT IS A TENTATIVE MAP?

This process is used to subdivide property into more than four lots. Tentative maps are most related to the development of single-family residential subdivisions. Applications include proposed lot and block configurations and existing and proposed physical conditions of the property, including existing topography and improvements, proposed grading, utilities, and landscaping, etc.



CLICK HERE FOR APPLICATION FEES

## APPLICATION CHECKLIST

Applicants must provide all forms, documents, information, and materials listed in the checklist below in digital format. The submission packets must be in the same order as the checklist. Review materials and check the boxes within the column on the left-hand side of the page to confirm submission.

# WHAT IS THE PROCESS AND HOW LONG WILL IT TAKE?

Applications are accepted on the second and fourth Monday of each month. A review for completeness will be conducted within three days of the application submittal. Incomplete applications will be returned to the applicant and not scheduled for a hearing. Once the application has been deemed complete, it will follow the process and estimated timeline in RMC 18.08.702.

\* refer to the project of regional significance checklist to determine if a hearing before the Regional Planning Commission is required.



TYPICALLY REVIEWED WITHIN 60 DAYS



ACCEPTED ON THE 2ND AND 4TH MONDAY

A.1	Master Application
A.2	Owner's Affidavit and Applicant's Affidavit
A.3	Application Forms
B.1	Project Narrative – submit a written description of the request that includes project details, historical background, and existing uses and improvements on site
B.2	Findings Analysis (see NRS 278.349(3) and RMC 18.08.304(e) for legal findings)
B.3	Vicinity Maps – 8.5" x 11" map showing surrounding parcels including the subject site
B.4	Current Title Report - must be dated within 60 days of application submission
B.5	Tentative Map (see tentative map submittal guide)
B.6	Site Plan (see site plan submittal guide)
B.7	Preliminary Utility Plan (see utility plan submittal guide)
B.8	Preliminary Grading & Drainage Plan (see grading plan submittal guide)
B.9	Preliminary Landscape Plan (see landscape plan submittal guide)



#### **TENTATIVE MAP APPLICATION**

B.10	Preliminary Hydrology Report (see hydrology/drainage report submittal guide)				
B.11	Preliminary Geotechnical Report				
B.12	Preliminary Sewer Report (see Public Works Design Manual)				
B.13	Traffic Study – only required if project meets the thresholds outlined in RMC 18.04.601(c)				
B.14	Preliminary Lighting Plan & Photometric Analysis - only required if new on-site lighting is proposed beyond standard street lighting				
B.15	Project of Regional Significance Checklist				
SUBMITT	TAL GUIDELINES				
REQU	REQUIRED: Submit one printed submission packet with original, signed documents for the Nevada Division of Environmental Protection				
lf subn	If submitting in person, submit one USB drive with all completed forms, materials, reports, and supplemental information				
lf subn	If submitting online, create an account on the permitting portal at OneNV.us and submit through the online form				

Payment of application fees is required within three days of the application being accepted



## TENTATIVE MAP FINDINGS ANALYSIS

Findings and approval criteria are the legal justification for a body's decision on an application. A complete analysis of these findings and criteria is required from the applicant at the time of application submittal. Detailed explanation of each finding can be found within NRS 278.349(3) and RMC 18.08.304(e).

Provide a written response addressing how the proposed request is in conformance with the following findings.

#### ALL TENTATIVE MAP APPLICATIONS SHALL CONSIDERED UNDER THE FOLLOWING.

- 1) Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal.
- 2) The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision.
- 3) The availability and accessibility of utilities.
- 4) The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks.
- 5) Conformity with the zoning ordinances and master plan, except that if any existing zoning ordinance is inconsistent with the master plan, the zoning ordinance takes precedence.
- 6) General conformity with the governing body's master plan of streets and highways.
- 7) The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;
- 8) Physical characteristics of the land such as floodplain, slope and soil.
- 9) The recommendations and comments of those entities and persons reviewing the tentative map pursuant to NRS 278.330 to 278.3485, inclusive.
- 10) The availability and accessibility of fire protection, including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires, including fires in wild lands.
- 11) The potential impacts to wildlife and wildlife habitat.
- 12) The submission by the subdivider of an affidavit stating that the subdivider will make provision for payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of paragraph (f) of subsection 1 of NRS 598.0923, if applicable, by the subdivider or any successor in interest.

#### IN ADDITION TO THESE FINDINGS, ALL DEVELOPMENT APPLICATIONS SHALL MEET THE FOLLOWING APPROVAL CRITERIA.

- 1) The project is consistent with the Reno Master Plan
- 2) The project is in compliance with Title 18 of the Reno Municipal Code.
- 3) The project mitigates any anticipated traffic impacts.
- 4) The project provides for a safe environment.
- 5) If the project involves phases, it proposes a rational phasing plan.



## Item A.3: Application Forms

The applicant or duly authorized agent of the applicant requests that the City of Reno approve a tentative map. All tentative map applications submitted to the City of Reno shall be prepared by, or under the direct supervision of, a Nevada Registered Civil Engineer or Land Surveyor in accordance with NRS 625 and shall be wet stamped, signed, and dated with appropriate seals.

## **PROJECT ANALYSIS**

1.	Cuts and Fills	Does site grading include cuts of slopes 20 feet or greater in depth? Does site grading include fills of ten feet or greater in height?	Yes 🗆 No 🗆 Yes 🗆 No 🗆	If yes, a cut and fill exhibit must be supplied, and this application must be submitted in conjunction with a major site plan review
2.	Hillside Development	Does this site have an average slope of 10% or greater? Does the site have slopes exceeding 15% on 25% or more of the land area?	Yes 🗆 No 🗆 Yes 🗆 No 🗆	If yes to either, utilize standards in your analysis from RMC Chapter 18.04 Article 4 Hillside Development and this application must be submitted in conjunction with a major site plan review
3.	Major Drainageway	Does the site include a drainageway that drains a land area of 100 acres or more?	Yes 🗆 No 🗆	If yes, utilize standards in your analysis from RMC Section 18.04.104 Drainage Way Protection and this application must be submitted in conjunction with a major site plan review
4.	Cluster Development	Is this application proposing cluster development with a tentative map?	Yes 🗆 No 🗆	If yes, refer to additional findings per RMC Section 18.08.603(e)(3)
5.	Large Grading Projects	Does this application propose development of a site 10 acres or greater in land area?	Yes 🗆 No 🗆	If yes, refer to additional findings per RMC Section 18.04.302(d)(1)
6.	Powerline Relocation	Are power line relocations proposed for this project?	Yes 🗆 No 🗆	If yes, identify these on the site plan and provide a narrative discussing the relocation including carrying capacity, overhead versus underground, and other characteristics.



#### City of Reno development services **TENTATIVE MAP APPLICATION** Is the subject property within an area of If yes, provide an analysis in the Yes 🗆 No 🗆 potential hazard, such as but not limited to project narrative regarding the earthquake faults, earth slide areas, or impact of the hazards and otherwise hazardous slopes? describe proposed mitigation Earth Hazards 7. measures Identify these areas on the subdivision map. Will the project disturb areas within or adjacent If yes, provide an analysis in the Yes 🗆 No 🗆 to wetlands, stream environments, or other project narrative of the potential significant hydrologic resources? impacts and describe proposed Sensitive Hydrological 8. mitigating measures Resources Identify these areas on the subdivision map Is the subject project located within an airport If yes, provide an analysis in the Yes 🗆 No 🗆 noise exposure area of 65 ldn or greater? project narrative regarding the impact of the hazard on the proposed development and

9. Airp		Airport Noise Exposure			describe proposed mitigation measures
					Identify these areas on the subdivision map.
	10.	Safe Routes to School	Is this project located in the proximity of a primary or secondary school, or does it impact a pedestrian or bicycle route to a nearby school?	Yes 🗆 No 🗆	If yes, this application is subject to the review of the Safe Routes to School Team of the Washoe County School District
	11.	Water and Sewer Service	Is the subject site served or proposed to be served by an on-site septic system for sewage or an on-site well for water service?	Yes 🗆 No 🗆	If yes, this application requires payment of Washoe County Health District fees and will be subject to their review
	12.	Combination Application	Is this application submitted in combination with any other application such as a site plan review or conditional use permit?	Yes 🗆 No 🗆	



#### **TENTATIVE MAP APPLICATION**

## **PROJECT DETAILS**

	Number of Lots	
Project Features	Average Lot Size	
	Net Acreage	
ct Fe	Gross Acreage (area used for density)	
ature	Project Density	
St	Number of Commercial Parcels	
	Number of Residential Parcels	
	L	
A	Northern Land Use & Zoning	
Adjacent Properties	Eastern Land Use & Zoning	
Propert	Southern Land Use & Zoning	
ies	Western Land Use & Zoning	

IDENTIFY THE TOTAL NUMBER OF FINAL MAPS INTENDED TO BE RECORDED. INCLUDE THE NUMBER OF LOTS PER EACH PHASE AND THE PROPOSED SEQUENCING.

## IDENTIFY ANY NATURAL FEATURES LOCATED ON THE SITE AND WHAT PRESERVATION MEASURES ARE PROPOSED AS A PART OF THIS REQUEST.



PROVIDE PEAK HOUR AND AVERAGE DAILY TRAFFIC VOLUME GENERATION ESTIMATES FOR THE PROPOSED PROJECT.

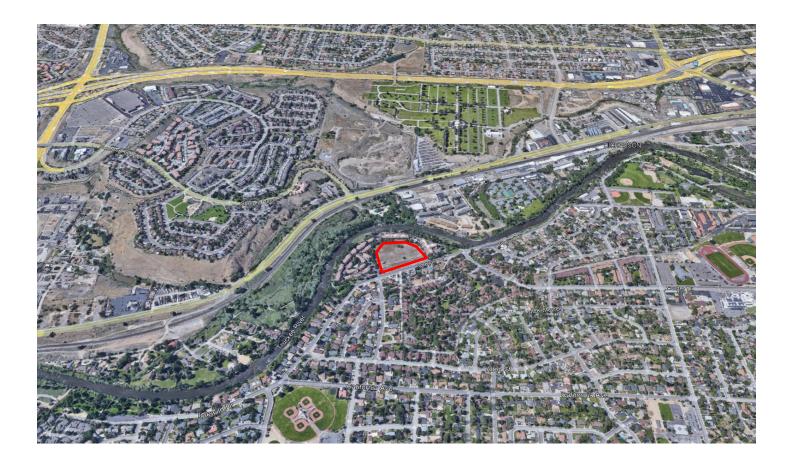
IDENTIFY THE NEAREST TRANSIT FACILITIES SERVING THE AREA.



# **Riverpoint at Idlewild**

TENTATIVE MAP MINOR CONDITIONAL USE PERMIT

April 2024



**Prepared For:** 



10345 Professional Circle, Suite 200 Reno NV 89521

Prepared By:



241 Ridge Street, Suite 400 Reno, NV 89501

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#### APPENDICES

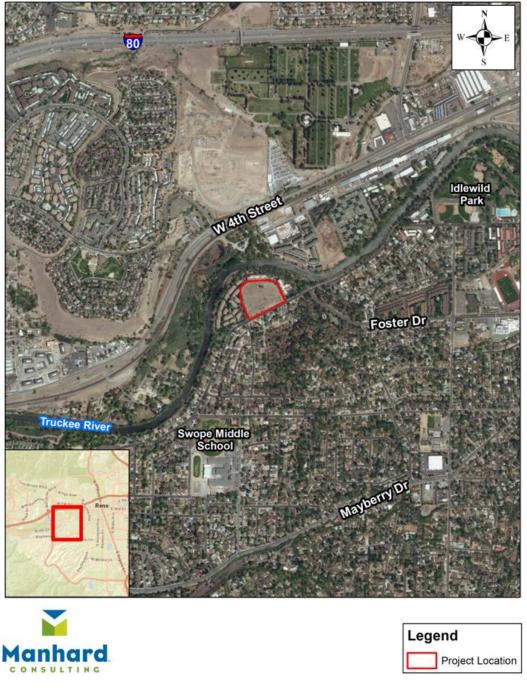
- Master Application
- Owner and Applicant Affidavits
- Application Forms (TM & MCUP)
- Findings Analysis
- Vicinity Map
- Title Report
- TM Plan Set
- Preliminary Landscape Plan
- Conceptual Floor Plans and Elevations
- Preliminary Hydrology Report
- Preliminary Geotechnical Report
- Preliminary Sewer Report
- Trip Generation & Access Review Letter
- Project of Regional Significance Checklist

• Water Supply and Conveyance Study Letter

## **PROJECT LOCATION**

The project site (APN 010-421-11) is +/- 5.59 acres located at 2865 Idlewild Drive, south of the Truckee River. The project site is surrounded on the north, east, and west by condomuniums (Idlewild Riverfront and Idlewild Riverfront II) and to the south, acoss Idlewild Drive, by single-family residences. The site is accessed via Idlewild Drive.

### Figure 1: Project Location





## **EXISTING CONDITIONS**

The subject property is undeveloped with minimal existing vegetation. The site is located adjacent to two existing condomunium developments (Idlewild Riverfront and Idlewild Riverfront II). Idlewild Drive runs along the southern border of the subject property. Existing single-family residential lots are located south of this proposed development, across Idlewild Drive. The project site has a Master Plan designation of Multi-Family Neighborhood (MF) and is zoned Multi-Family Residential 30 units/acre (MF-30).

Direction	Master Plan	Current Zoning	Current Land Use
North	Multi-Family Neighborhood	Multi-Family Residential (30 units/acre)	Multi-Family Residential
East	Multi-Family Neighborhood	Multi-Family Residential (30 units/acre)	Multi-Family Residential
South	Single-Family Neighborhood	Single-Family Residential (5 units/acre)	Single-Family Residential
West	Multi-Family Neighborhood	Multi-Family Residential (30 units/acre)	Multi-Family Residential

## Figure 2: Surrounding Property Designations

## Figure 3: Existing Conditions- Site Photos





Figure 3: Existing Conditions – Site Photos, cont.







Figure 3: Existing Conditions – Site Photos, cont.





Figure 4: Master Plan Designation - Multi-Family Neighborhood (MF)

)

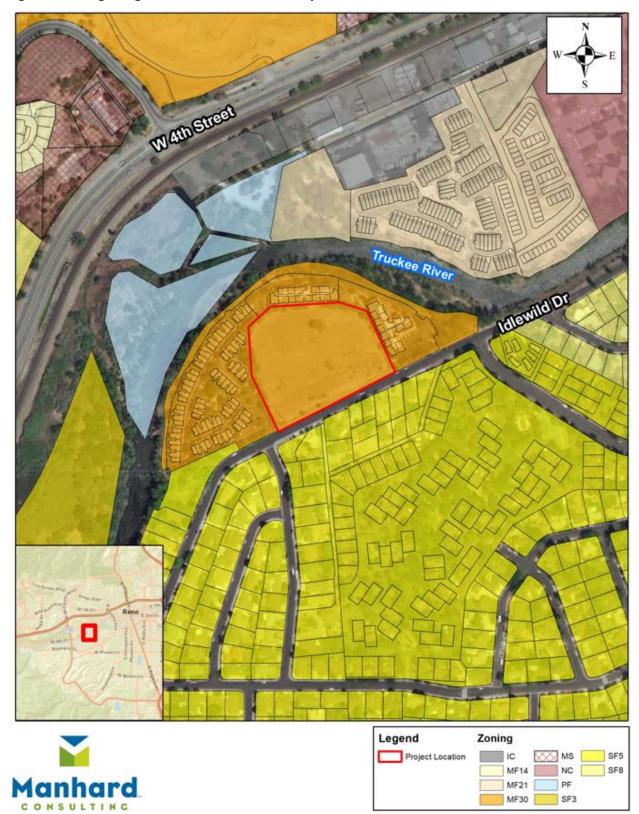


Figure 5: Zoning Designation - MF-30: Multi-Family Residential

2-4

## BACKGROUND

There is a current development application approved on the subject property that was approved on February 16, 2022 (LDC22-00039). The approval is for 120 residential condominiums with three-story buildings. The approved project is more dense (120 units @ 21.47 units per acre), with taller buildings proposed than the proposed two-story single family attached residential development.

## **APPLICATION REQUEST**

The enclosed application is a request for:

- 1) A **Tentative Map** to create a subdivision consisting of 57 single family attached lots on a +/- 5.59 acre project site.
- 2) A **Minor Conditional Use Permit** to allow more than 20and less than 100 units in the MF-30 zoning designation in accordance with RMC 18.03.302(3)(c).

## **PROJECT DESCRIPTION**

Riverpoint at Idlewild is a proposed 57-unit single family attached residential subdivision with common area, landscaping, and associated off-street and on-street parking. This project has been designed to:

- Complement the existing condominium developments that surround the subject property.
- Provide infill housing opportunities adjacent to existing infrastructure, with smaller lots that will minimize land, construction, and infrastructure cost.

The project includes two-story buildings with either 3 or 7 units and 3 different unit types. The units will range from 1,724 to 1,899 sq. ft. and will include 3 to 4 bedrooms. Each unit has a 2-car attached garage. There is also additional off-street on driveways and on-street parking with parallel and perpendicular stalls provided.

The project includes 2.2 acres of common area which will be landscaped and will include pedestrian amenities (DG trail and benches). Each lot includes a private rear yard, and a paver driveway that will be limited common area. Additionally, the common area in front and along the sides of each unit will be landscaped and maintained by the homeowner's association or similar entity. The private street will also be maintained by the homeowner's association or similar entity.

The project density is 10.2 units per acre (57 units/5.59 acres). The existing MF-30 zoning designation allows for up to 30 dwelling units per acre.

This site is near regional outdoor amenities such as the Oxbow Nature Study Area, Idlewild Park, and Ivan Sack Park which are accessible by existing trails and the sidewalk network in the area.



Public water and sanitary sewer systems will service all units.

A goal of the ReImagine Reno Master Plan is to promote responsible and well-managed growth, encouraging infill development within areas adjacent to existing infrastructure. The proposed project accomplishes this goal. The Master Plan addresses the need for additional moderate density housing, similar to the proposed project, which will increase the overall supply of housing in the City.

### Figure 7: Project Summary

Project Summary				
Total Area	+/- 5.59 acres			
Total Number of Units	57			
Maximum Density	30 units/acre			
Proposed Density	10.2 units/acre (57 units/5.59 acres)			
Parking Required	114 spaces (1 per 1,250 sq. ft. per unit)			
Parking Provided	246 spaces (includes 2 garage spaces and 2 driveway spaces per unit + 18 on-street spaces)			
Total Common Area/Open Space	2.2 acres			





## Figure 8: Preliminary Site/Landscape Plan (full size included with application)

## PLANT LEGEND





## ARCHITECTURAL DESIGN

Conceptual elevations are included with this application package for the proposed single family attached product (3-plex and 7-plex buildings). Final design will meet code requirements for building design established in RMC 18.04.903(c).

#### Figure 9: Conceptual Elevations - Front



PLAN 3

PLAN 2 (3 - PLEX)







Figure 9: Conceptual Elevations, cont. – Rear and sides (3-plex)



LEFT



REAR





Figure 9: Conceptual Elevations, cont. – Rear and sides (7-plex)

#### **DEVELOPMENT STANDARDS**

The project has been designed to meet the MF-30 development standards, and other relevant RMC standards, including RMC Section 18.04.903 (b) and (c), General Standards for Residential Districts, circulation and access and building design. Additionally, RMC code section 18.04.905 (Additional Standards for Multi-Family Districts) states that any project requiring a conditional use permit in a multi-family district shall have a minimum 20 foot setback from any property line abutting a single-family district. The proposed setbacks for this project, where applicable, exceed this requirement.



DEVELOPMENT STANDARD	MF-30 REQUIREMENT	PROPOSED	
Base Density, max.	30 du/acre (1 du/1,450 sq. ft.)	10.2 du/acre	
Lot size, min.	3,000 sq. ft.	5.59 acres	
Lot width, min.	50 ft.; no minimum lot width for zero-lot line development	N/A	
Front Setback	15 ft.	+/- 61 ft. (from Idlewild Drive to closest building, project periphery)	
Side Setback	5 ft.	Min. 20 ft. (project periphery)	
Rear	10 ft.	Min. 20 ft. (project periphery)	
Street-facing garage	20 ft. measured from sidewalk or planned sidewalk to face of garage	Min. 20 ft. from sidewalk or planned sidewalk to face of garage	
Building Separation	10 ft.	Min. 10 ft.	
Maximum Height	45 ft.	26.5 ft.	
Stories	3	2	
Usable open space, min.	100 sq. ft./du	Common area = 2.2 acres Rear yards = +/- 248 sq. ft. (10 ft. x 24.83 ft., as shown)	

#### Figure 10: MF-30 Development Standards

#### LANDSCAPING/OPEN SPACE

As shown on the Preliminary Landscape Plan, there is a total of +/- 2.2 acres of common area/open space provided which will include trees, shrubs, a trail, and sidewalks and pedestrian amenities. Of this area, approximately 67,500 sq. ft. (28% of the site) is landscaped. Each unit also has a private rear yard that is not included in the landscape area. The driveway areas will be limited common area. Common areas around the front and sides of each unit/building will be landscaped. A homeowner's association or similar entity will maintain all common area landscaping. The Preliminary Landscape Plan incorporates the requirements of the RMC Section 18.04.804, including street trees and required landscaping.



### Figure 11: Typical Private Backyard Concepts

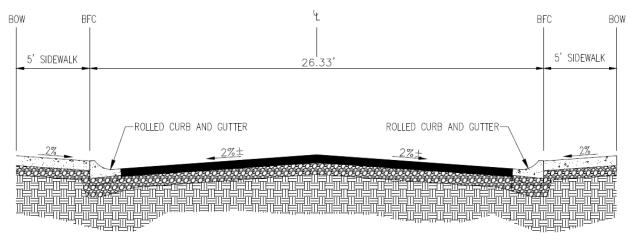


## **VEHICLE AND PEDESTRIAN ACCESS**

Vehicular access to the site is provided from Idlewild Drive. The internal drive within the development is proposed to be private. This access drive will have curb and gutter and is 26 ft. from back face of curb to back face of curb. There are also 5 ft. sidewalks on each side of the street. The internal private street will provide access to all on-site parking, which includes both on-street, driveways, and garage parking, as designated on the site plan.



#### Figure 12: Private Street-Section



#### Pedestrian Access

Pedestrian access will be provided throughout the project site through a network of sidewalks and trails. The sidewalks depicted on the site plan on each side of the street are a minimum 5 ft. in width. The internal trails are throughout the common area and connect to an existing sidewalk along Idlewild Drive. From this sidewalk, there is easy access to nearby Ivan Sack Park, Crissie Caughlin Park, Idlewild Park, and The Crooked Mile trail that runs adjacent to the Truckee River.

#### **PROJECT SIGNAGE AND EXTERIOR LIGHTING**

An entry sign, identifying the name of the development may be used to mark the development entrance off Idlewild Drive. Typical residential numbering will be used on individual lots as applicable. All signage will be in accordance with the RMC.

Site lighting within the Riverpoint at Idlewild development will adhere to the lighting standards contained in the RMC.

#### PARKING

Required parking will be provided through a combination of attached two-car garages, driveways, and common on-street parking areas. The RMC off-street parking requirement for single-family attached dwellings is 1 space per 1,250 sq. ft. per unit (not to exceed 3 per unit); which is 2 parking spaces per unit for the proposed development. Based on these requirements, a total of 114 spaces are required; 246 spaces are provided. Additional on-street parking is provided with parallel and perpendicular stalls. The parking mix is:

- 114 attached garage spaces
- 114 driveway spaces



• 18 on-street spaces

## Figure 13: Parking Calculations

	# of Units	Spaces Required	Total Required Spaces	Total Spaces Provided
Single Family Attached	57	1 per 1,250 sq. ft. per unit (not to exceed 3 per unit)	2 per unit	114 garage 114 driveway 18 on-street
TOTAL			114 spaces	246 spaces

## TRAFFIC

A trip generation and access review letter is included with this application (Headway Transportation, April 2024). This review found that the proposed development would generate 410 average daily trips, 27 AM peak hour trips, and 32 PM peak hour trips. Because the project is significantly below the 100 or more peak-hour trip threshold, in accordance with RMC Section 18.04.601(c)(3), a traffic entry and access study is not required. The letter finds that the proposed project is not expected to have any significant impact on local traffic operations. Also, based on all criteria analyzed it was determined that no turn lanes (right turn deceleration or left turn) are recommended.

### Figure 14: Trip Generation for Proposed Uses

Land Use	Units	ADT	AM Peak Hour	PM Peak Hour
Single Family	57	410	27	32
Attached Housing				
(ITE Code 215)				

## UTILITIES AND PUBLIC SERVICES

#### <u>Water</u>

The project will access and tie into existing public utilities within the public right of way of Idlewild Drive. Truckee Meadows Water Authority (TMWA) owns and maintains an existing water main within this rightof-way. The Riverpoint at Idlewild project will tie into this existing main with a new water main that will loop through and serve the development. No additional offsite improvements for water mains, storage facilities, pumping facilities, or water wells are anticipated to serve this development.

#### <u>Sewer</u>

There is existing sanitary sewer infrastructure within the Idlewild Drive right-of-way, which flows west to east at the subject site. The project will connect to this existing infrastructure, a 10-inch sanitary sewer main. There will be a private sewer lift station and force main that will be maintained by the homeowner's

association or similar entity. The preliminary sewer design shows that onsite and offsite sewer mains have capacity.

A complete Preliminary Sewer Report is included with this application package.

## Other Public Services

The City of Reno currently provides police and fire services. The closest fire station is located at Mayberry Drive and Hunter Lake Drive, approximately 0.8 miles from the project area. This is within a 3-minute response time. City of Reno police patrols already exist in the area and should not be significantly impacted by this request. Washoe County School District provides educational services. Current zoned schools for the project area include Hunter Lake Elementary, Swope Middle School, and Reno High School. The Regional Transportation Commission (RTC) provides public transportation. The nearest bus stop is located on Idlewild Drive near Hunter Lake Drive, approximately 0.6 miles east of the project site. Several recreational facilities are located near the proposed development including Idlewild Park, Ivan Sack Park and The Crooked Mile trail.

## HYDROLOGY

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Numbers 32020C3038G, Riverpoint at Idlewild is in Shaded Zone X, areas of 0.2% annual chance flood or areas of 1% chance flood with average depth less than 1 foot.

Within the Riverpoint at Idlewild project site, drainage will be routed using a combination of surface swales, yard drains and storm drainpipes. All flow will be routed to the on-site detention basin. The detention basin will outlet into an existing 18" diameter storm drainpipe that currently extends into the project property. This pipe runs through an easement on the adjacent property to the Truckee River. All grading was designed to outlet all sump conditions to the low points of the project and discharge into open areas. In the occurrence of a storm larger than a 100-year, 24-hour event which overwhelms any/all inlets within the on-site storm drain network, there is overland flow routing that has been accounted for to route water to the detention basin prior to the flooding of any structures within the project. All detention ponds will be used for water quality as water will percolate into the ground and sedimentation will settle at the bottom of the retention basins. Sedimentation will be cleaned periodically.

A complete Hydrology Report is included with this application package.



## FINDINGS ANALYSIS- APPROVAL CRITERIA APPLICABLE TO ALL APPLICATIONS

### 1) Consistency with the Reno Master Plan

The project site has a Master Plan designation of Multi-Family and is zoned MF-30 (Multi-Family Residential, 30 units/acre). The proposed residential project is consistent with the Master Plan designation and with relevant Master Plan policies, including priority locations for infill (2.2A), housing demand (4.1A), neighborhood connections (4.2E), infill and redevelopment (4.3B), connectivity and access (4.5A), streetscape design (N-G.8), pedestrian and bicycle access (N-G.12), outdoor gathering space.

## 2) Compliance with This Title 18

The Tentative Map has been designed to be in compliance with Title 18, including zoning designations and development standards. With approval of this Tentative Map and Minor Conditional Use Permit for the proposed single family attached residential development as described in this application, it is in compliance with Title 18.

## 3) Mitigates Traffic Impacts

A trip generation and access review letter determined that neither a full traffic study or a traffic entry and access study was required. The letter states that no turn lanes (right turn deceleration or left turn) are recommended. The attached traffic letter by Headway Transportation outlines the findings.

#### 4) Provides Safe Environment

Because the project has been designed in accordance with RMC Title 18, and all public services including police and fire are available to serve this area, the project provides a safe environment.

#### 5) Rational Phasing Plan

All necessary utilities are currently in place or will be in place to adequately serve the proposed project. Any new infrastructure improvements will be constructed to City of Reno standards and will be paid for by the developer. The project is not intended to be phased. The developer reserves the right to record maps in accordance with NRS 278.360 and to modify the phasing schedule, including the number of units recorded with each phase. Each phase, if modified, shall conform to City of Reno standards relating to access and fire management.



#### **TENTATIVE MAP FINDINGS**

# (a) Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal

The proposed project has been designed in accordance with the required environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, and facilities to supply water and community or public sewage disposal. All necessary infrastructure to serve the project will be completed by the developer and adequate capacity exists to accommodate additional demands generated by the project.

## (b) The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision

Water needed to serve the project will be dedicated through the Truckee Meadows Water Authority (TMWA) with submittal of Final Maps.

#### (c) The availability and accessibility of utilities

All necessary utilities are currently in place or will be in place to adequately serve the proposed project. Any new infrastructure improvements will be constructed to City of Reno standards and will be paid for by the developer.

## (d) The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks

The project site will be served by existing schools within the Washoe County School District including Hunter Lake Elementary, Swope Middle School, and Reno High School. Police patrols already exist in the area and should not be significantly impacted by this request. Also, Riverpoint at Idlewild is within a +/- 3-minute response time (0.8 mile) of the City of Reno Fire Station located at the corner of Mayberry Drive and Hunter Lake Drive. The Regional Transportation Commission (RTC) provides public transportation. The nearest bus stop is located at South Arlington Avenue and California Avenue, approximately 1.8 miles east, northeast of the project site. Several recreational facilities are located near the proposed development including Idlewild Park, Ivan Sack Park and The Crooked Mile trail.

## (e) Conformity with the zoning ordinances and master plan, except that if any existing zoning ordinance is inconsistent with the master plan, the zoning ordinance takes precedence

The project site has a MF (Multi-Family) Master Plan designation and an MF-30 (Multi-Family Residential, 30 units/acre) zoning designation. The proposed project is consistent with the City of Reno Master Plan and zoning designations and is compatible with the surrounding property uses (residential). The project has been specifically designed to meet the requirements of the City of Reno zoning ordinance development standards. A minor CUP application has been submitted to the City of Reno to allow more than 20, but less than 100 units within the development.

#### (f) General conformity with the governing body's master plan of streets and highways

The project utilizes Idlewild Drive for primary access. Idlewild Drive is currently constructed, complies with all City of Reno standards, and serves as a collector road in this residential area.



## (g) The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision

The existing public street, Idlewild Drive, which runs adjacent to the southern property line of the subject property should not be negatively affected from the proposed development. This roadway has been properly sized to accommodate traffic generated by the envisioned use. A trip generation and access review letter determined that neither a full traffic study or a traffic entry and access study was required. The letter states that no turn lanes (right turn deceleration or left turn) are recommended. The attached traffic letter by Headway Transportation outlines the findings.

#### (h) Physical characteristics of the land such as floodplain, slope, and soil

The project site is well suited for residential development at the density proposed. A preliminary geotechnical investigation was conducted (the full report is included with this submittal package) and identified no issues that would preclude development of the property. The site is in Shaded Zone X floodplain, areas of 0.2% annual chance flood or areas of 1% chance flood with average depth less than 1 foot. The site does not have any constraints due to steep slopes and/or poor soils.

## (i) The recommendations and comments of those entities and persons reviewing the tentative map pursuant to NRS 278.330 to 278.3485, inclusive

The proposed project request will be circulated to the required entities and persons in accordance with NRS 278.330 to 278.3485. Any recommendations or comments will be addressed accordingly.

# (j) The availability and accessibility of fire protection, including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires, including fires in wild lands

The project meets and/or exceeds fire department access standards. Fire hydrants will be provided (per City Code) within the development.

#### (k) The submission by the subdivider of an affidavit stating that the subdivider will make provision for payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of subsection 5 of NRS 598.0923, if applicable, by the subdivider or any successor in interest

The developer agrees to make provisions for the payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of subsection 5 of NRS 598.0923, if applicable.

#### **CONDITIONAL USE PERMIT FINDINGS (GENERAL)**

## (a) The proposed location of the uses is in accordance with the objectives of this Title and the purpose of the zoning district in which the site is located

The project has been designed to meet the requirements of the City of Reno zoning ordinance development standards. Surrounding property to the north, east, and west share the same Master Plan and zoning designations as the subject property. Property to the south, across Idlewild Drive, has a SF (Single-Family) Master Plan designation and a SF-5 (Single-Family Residential, 5 units/acre) zoning



designation. The proposed use is consistent with the City of Reno Master Plan and zoning designations and compatible with the surrounding property uses.

#### (b) The proposed land use and project design is compatible with surrounding development

The proposed use and project design is compatible with surrounding development. The proposed use compliments the existing uses to the north, east and west of the subject property and provides a transitionary use between the existing use to the south of the subject property and those uses to the north, east, and west. The proposed project is consistent with the existing MF-30 zoning and Multi-Family Neighborhood Master Plan designation.

#### (c) The proposed land use and project design is consistent with applicable development standards

The project has been designed to meet the requirements of the City of Reno development standards for the MF-30 zoning district and any other applicable development standards include in Article 9 Site and Building Standards for Residential Districts.

#### (d) Public services and facilities are available to serve the project, or will be provided with development

All utility infrastructure needed to serve the project is in place and/or can easily be extended to serve the project. The private internal street will connect the development to Idlewild Drive. Additionally, a network of sidewalks and trails will be provided within the site and connect to existing public sidewalk that runs along Idlewild Drive.

## (e) The characteristics of the use as proposed and as may be conditioned are reasonably compatible with the types of use permitted in the surrounding area

The proposed project use (single family attached residential) is compatible with the condominium use to the north, east, and west of the subject property and it provides a good transition to the single family residential use to the south. The proposed density on site is below the maximum allowed MF-30 density (30 du/ac.). The

## (f) The granting of the conditional use permit will not be materially detrimental to the public health, safety, or welfare. The factors to be considered in evaluating this application shall include:

a. Property damage or nuisance resulting from noise, smoke, odor, dust, vibration, or illumination; and

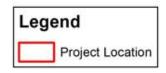
#### b. Any hazard to persons and property

The proposed project will not create adverse environmental impacts such as smoke, noise, glare, dust, vibrations, fumes, pollution, or odor which would be detrimental to, or constitute a nuisance to area properties. Additionally, the granting of the conditional use permit would not generate any hazards to nearby persons and/or property.

#### **VICINITY MAP**







#### SITE PHOTOS

#### **Existing Conditions- Site Photos**





Existing Conditions – Site Photos, cont.









## Transaction Identification Data, for which the Company assumes no liability as set forth in Commitment Condition 5.e.:

Issuing Agent: First American Title Insurance Company National Commercial Services Issuing Office: 8311 W. Sunset Road, Suite 100, Las Vegas, NV 89113 Issuing Office's ALTA® Registry ID: 1153431 Commitment Number: NCS-1205571-HHLV Issuing Office File Number: NCS-1205571-HHLV Property Address: 2865 Idlewild Drive, Reno, NV 89509 Revision Number: First Amended

#### **SCHEDULE A**

1. Commitment Date: February 16, 2024 at 7:30 AM

First American

- 2. Policy to be issued:
  - a. ALTA Extended Owner's Policy Proposed Insured: To Be Determined Proposed Amount of Insurance: \$To Be Determined The estate or interest to be insured: See Item 3 below
- 3. The estate or interest in the Land at the Commitment Date is:

Fee

4. The Title is, at the Commitment Date, vested in:

Courtyard at Idlewild, LLC, a Nevada limited liability company

5. The Land is described as follows:

See Exhibit A attached hereto and made a part hereof

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Commitment No. NCS-1205571-HHLV

File No. NCS-1205571-HHLV

#### **SCHEDULE B, PART I—Requirements**

The following requirements must be met:

- (A) Pay the agreed amounts for the interest in the land and/or the mortgage to be insured.
- (B) Pay us the premiums, fees and charges for the policy.
- (C) Documents satisfactory to us creating the interest in the land and/or the mortgage to be insured must be signed, delivered and recorded.
- (D) You must tell us in writing the name of anyone not referred to in this Commitment who will get an interest in the land or who will make a loan on the land. We may then make additional requirements or exceptions.
- (E) Releases(s) or Reconveyance(s) of Item(s): 18 and 20
- (F) Other: NONE
- (G) You must give us the following information:
  - 1. Any off record leases, surveys, etc.
  - 2. Statement(s) of Identity, all parties.
  - 3. Other: NONE

The following additional requirements, as indicated by "X", must be met:

[X] (H) Provide information regarding any off-record matters, which may include, but are not limited to: leases, recent works of improvement, or commitment statements in effect under the Environmental Responsibility Acceptance Act, Civil Code Section 850, et seq.

The Company's Owner's Affidavit form (attached hereto) must be completed and submitted prior to close in order to satisfy this requirement. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.

[X] (I) An ALTA/NSPS survey of recent date, which complies with the current minimum standard detail requirements for ALTA/NSPS land title surveys, must be submitted to the Company for review. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.

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- [X] (J) The following LLC documentation is required:
  - (i) a copy of the Articles of Organization
    (ii) a copy of the Operating Agreement, if applicable
    (iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
    (iv) express Company Consent to the current transaction
- [] (K) The following partnership documentation is required :

(i) a copy of the partnership agreement, including all applicable amendments thereto (ii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State

(iii) express Partnership Consent to the current transaction

[] (L) The following corporation documentation is required:

(i) a copy of the Articles of Incorporation
(ii) a copy of the Bylaws, including all applicable Amendments thereto
(iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
(iv) express Corporate Resolution consenting to the current transaction

[] (M) Based upon the Company's review of that certain partnership/operating agreement dated **Not disclosed** for the proposed insured herein, the following requirements must be met:

Any further amendments to said agreement must be submitted to the Company, together with an affidavit from one of the general partners or members stating that it is a true copy, that said partnership or limited liability company is in full force and effect, and that there have been no further amendments to the agreement. This Commitment will then be subject to such further requirements as may be deemed necessary.

- [] (N) A copy of the complete lease, as referenced in Schedule A, #3 herein, together with any amendments and/or assignments thereto, must be submitted to the Company for review, along with an affidavit executed by the present lessee stating that it is a true copy, that the lease is in full force and effect, and that there have been no further amendments to the lease. This Commitment will then be subject to such further requirements as may be deemed necessary.
- [X] (O) Approval from the Company's Underwriting Department must be obtained for issuance of the policy contemplated herein and any endorsements requested thereunder. This Commitment will then be subject to such further requirements as may be required to obtain such approval.

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- [X] (P) Potential additional requirements, if ALTA Extended coverage is contemplated hereunder, and work on the land has commenced prior to close, some or all of the following requirements, and any other requirements which may be deemed necessary, may need to be met:
- [] (Q) The Company's "Indemnity Agreement I" must be executed by the appropriate parties.
- [] (R) Financial statements from the appropriate parties must be submitted to the Company for review.
- [] (S) A copy of the construction contract must be submitted to the Company for review.
- [] (T) An inspection of the land must be performed by the Company for verification of the phase of construction.
- [] (U) The Company's "Mechanic's Lien Risk Addendum" form must be completed by a Company employee, based upon information furnished by the appropriate parties involved.
- [] (V) Escrow must confirm that there are no open deeds of trust before closing.

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Commitment No. NCS-1205571-HHLV

File No. NCS-1205571-HHLV

#### SCHEDULE B, PART II—Exceptions

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This Commitment and the Policy treat any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document will be excepted from coverage.

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

- 1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records. Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
- 2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession thereof.
- 3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
- 4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and that are not shown by the Public Records.
- 5. Unpatented mining claims, (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof, (c) water rights or, claims or Title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the Public Records.
- 6. Any lien or right to a lien for services, labor, material or equipment, unless such lien is shown by the Public Records at Date of Policy and not otherwise excepted from coverage herein.

#### Exceptions 1-6 will be omitted on extended coverage policies

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- 7. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I-Requirements are met.
- 8. Water rights, claims or title to water, whether or not shown by the Public Records.
- 9. Any taxes that may be due, but not assessed, for new construction which can be assessed on the unsecured property rolls, in the office of the County Assessor, per Nevada Revised Statute 361.260.
- 10. Any taxes that may be due as provided under NRS 361.4725.
- 11. Any unpaid sewer service charges plus interest and penalties, which would create a lien and attach to said real property, pursuant to Chapter 7.20 of the Reno Municipal Code. Specific amounts may be obtained by calling (775)334-2095.
- 12. Any unpaid charges due the Washoe County Sewer & Water District. Specific amounts may be obtained by calling the Washoe County Water Resources, Utility Services Division at P.O. Box 11130, Reno, NV 89520, (775) 954-4601.
- 13. Those taxes for the fiscal year July 1, 2023 through June 30, 2024, including any secured personal property taxes collected by the County Treasurer.

APN 010-421-11 1st installment 2nd installment	\$   2,680.48 \$  2,678.50	PAID PAID
3rd installment 4th installment	\$  2,678.49 \$  2,678.49	PAID
Total	\$ <b>10,715.96</b>	

#### NOTE:

Said taxes become a lien on July 1, 2023, each installment will become due and payable on the following dates:

1st installment is due on the 3rd Monday of August, 2023. 2nd installment is due on the 1st Monday of October, 2023. 3rd installment is due on the 1st Monday of January, 2024. 4th installment is due on the 1st Monday of March, 2024.

Each installment will become delinquent ten (10) days after due.

\$10,715.96

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14. Rights of way for any existing roads, trails, canals, streams, ditches, drain ditches, pipe, pole or transmission lines traversing said premises.

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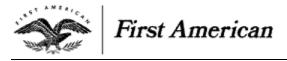
- 15. Reservations and provisions as contained in the Patent from the State of Nevada, recorded [Illegible], in Book A, Page 364 of Patents Records, as Instrument No. N/A.
- 16. Reservations and provisions as contained in Patent from the United States of America, recorded February 19, 1889, in Book A, Page 387 of Patents Records, as Instrument No. N/A.
- 17. An easement for public utilities and incidental purposes in the document recorded June 15, 1945 in Book 169, Page 514 as Instrument No. <u>131041</u>.
- 18. A Deed of Trust to secure an original indebtedness of \$3,122,000.00 recorded May 28, 2004 as Instrument No. <u>3046237</u> of Official Records. Dated: April 30, 2004
  Trustor: Conte Development, a Nevada corporation, Raintree Holdings, LLC, a Nevada Limited Liability Company and Spanish Springs Investments, LLC, a Nevada limited liability company
  Trustee: Western Title Company, Inc., a Nevada Corporation
  Stonefield, Inc., a Nevada Corporation

A document disclosing an additional advance in the amount of \$500,000.00, recorded June 01, 2004 as Instrument No. <u>3046971</u> of Official Records.

The obligation secured by the above-mentioned deed of trust may have been paid in a prior transaction. We are currently seeking a letter of indemnification from the title company which appears to have handled that transaction. If we are successful, this exception will not appear in the policy.

- 19. An easement for public utilities and incidental purposes in the document recorded September 19, 2005 as Instrument No. 3278837 of Official Records.
- 20.A Deed of Trust to secure an original indebtedness of \$4,500,000.00 recorded September 07,<br/>2006 as Instrument No. 3435495 of Official Records.<br/>Dated:<br/>Trustor:<br/>Trustor:<br/>Trustee:<br/>Beneficiary:September 05, 2006<br/>Courtyard at Idlewild, LLC, a Nevada limited liability company<br/>Western Title Company, Inc., a Nevada Corporation<br/>Stonefield, Inc.
  - A document entitled "Security Interest Holder's Certificate" recorded August 11, 2006 as Instrument No. <u>3425061</u> of Official Records.

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- 21. The following matters disclosed by an ALTA/NSPS survey, dated January 10, 2022, prepared by Mannhard Consulting, as Job No. Not Specified.
- 22. Any facts, rights, interests or claims which would be disclosed by a correct ALTA/NSPS survey.
- 23. Rights of parties in possession.

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#### **INFORMATIONAL NOTES**

NOTE to proposed insured lender only: No Private transfer fee covenant, as defined in Federal Housing Finance Agency Final Rule 12 CFR Part 1228, that was created and first appears in the Public Records on or after February 8, 2011, encumbers the Title except as follows: None

The map attached, if any, may or may not be a survey of the land depicted hereon. First American Title Insurance Company expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which the map is attached.

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Commitment No. NCS-1205571-HHLV

File No. NCS-1205571-HHLV

#### EXHIBIT A

The Land referred to herein below in situated in the County of Washoe, State of Nevada, and is described as follows:

ALL THAT CERTAIN PIECE OR PARCEL OF LAND SITUATE IN THE CITY OF RENO, COUNTY OF WASHOE, STATE OF NEVADA, BEING ALL THAT PORTION OF THE NORTHEAST 1/4 OF SECTION 16 AND THE NORTHWEST 1/4 OF SECTION 15, TOWNSHIP 19 NORTH, RANGE 19 EAST, M.D.B.&M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE ONE-QUARTER SECTION CORNER COMMON TO SECTIONS 15 AND 16, TOWNSHIP 19 NORTH, RANGE 19 EAST, M.D.B.&M.; THENCE SOUTH 89° 31' 40" WEST 1313.00 FEET; THENCE NORTH 50° 19' 40" EAST 206.17 FEET; THENCE NORTH 27°53' EAST 357.56 FEET; THENCE NORTH 21°34' EAST 737.30 FEET; THENCE NORTH 4° 41' 30" EAST 93.52 FEET; THENCE NORTH 63°25' EAST 312.50 FEET TO THE NORTHEASTERN CORNER OF THE PARCEL OF LAND CONVEYED TO SIERRA PACIFIC POWER COMPANY, A CORPORATION, BY DEED RECORDED AUGUST 24, 1951, UNDER DOCUMENT NO. 198713, DEED RECORDS OF WASHOE COUNTY; THENCE SOUTH 26°32' EAST 60.85 FEET TO A POINT ON THE NORTHERLY LINE OF THE PARCEL OF LAND CONVEYED TO PAUL ETCHEBERRY, ET UX, BY DEED RECORDED JANUARY 17, 1958, IN BOOK 465, PAGE 250, DOCUMENT NO. 283138, DEED RECORDS OF WASHOE COUNTY, NEVADA; THENCE ALONG THE NORTHERLY LINE OF SAID ETCHEBERRY PARCEL AND ALONG THE NORTHEASTERLY EASEMENT LINE OF A 60 FOOT EASEMENT NORTH 64°41' EAST A DISTANCE OF 185.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 26° 35' 00" WEST 270.00 FEET; THENCE NORTH 4° 35' 00" WEST 210.00 FEET; THENCE NORTH 48° 01' 56" EAST 130.00 FEET; THENCE NORTH 85° 25' 00" EAST 300.00 FEET; THENCE SOUTH 73° 34' 00" EAST 125.00 FEET; THENCE SOUTH 26° 02' 49" EAST A DISTANCE OF 295.89 FEET TO A POINT ON THE NORTHERLY LINE OF IDLEWILD DRIVE; THENCE ALONG SAID IDLEWILD DRIVE THE TWO FOLLOWING COURSES AND DISTANCES: SOUTH 62° 42' 52" WEST 365.00 FEET AND SOUTH 63° 05' 20" WEST 205.82 FEET TO THE TRUE POINT OF BEGINNING.

NOTE: THE ABOVE METES AND BOUNDS LEGAL DESCRIPTION APPEARED PREVIOUSLY IN THAT CERTAIN DOCUMENT RECORDED MARCH 04, 2005 AS INSTRUMENT NO. <u>3178549</u> OF OFFICIAL RECORDS.

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First American

#### ALTA COMMITMENT FOR TITLE INSURANCE issued by FIRST AMERICAN TITLE INSURANCE COMPANY

#### NOTICE

**IMPORTANT—READ CAREFULLY:** THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

#### COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, First American Title Insurance Company, a Nebraska Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Amount of Insurance and the name of the Proposed Insured.

If all of the Schedule B, Part I—Requirements have not been met within six months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

Bv:

#### FIRST AMERICAN TITLE INSURANCE COMPANY

Bv:

Kenneth D. DeGiorgio, President

Lisa W. Cornehl, Secretary

Countersigned by:

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Julie Skinner Authorized Signatory

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First American

#### COMMITMENT CONDITIONS

#### **1.** DEFINITIONS

- a. "Discriminatory Covenant": Any covenant, condition, restriction, or limitation that is unenforceable under applicable law because it illegally discriminates against a class of individuals based on personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or other legally protected class.
- b. "Knowledge" or "Known": Actual knowledge or actual notice, but not constructive notice imparted by the Public Records.
- c. "Land": The land described in Item 5 of Schedule A and improvements located on that land that by State law constitute real property. The term "Land" does not include any property beyond that described in Schedule A, nor any right, title, interest, estate, or easement in any abutting street, road, avenue, alley, lane, right-of-way, body of water, or waterway, but does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
- d. "Mortgage": A mortgage, deed of trust, trust deed, security deed, or other real property security instrument, including one evidenced by electronic means authorized by law.
- e. "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
- f. "Proposed Amount of Insurance": Each dollar amount specified in Schedule A as the Proposed Amount of Insurance of each Policy to be issued pursuant to this Commitment.
- g. "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
- h. "Public Records": The recording or filing system established under State statutes in effect at the Commitment Date under which a document must be recorded or filed to impart constructive notice of matters relating to the Title to a purchaser for value without Knowledge. The term "Public Records" does not include any other recording or filing system, including any pertaining to environmental remediation or protection, planning, permitting, zoning, licensing, building, health, public safety, or national security matters.
- i. "State": The state or commonwealth of the United States within whose exterior boundaries the Land is located. The term "State" also includes the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and Guam.
- j. "Title": The estate or interest in the Land identified in Item 3 of Schedule A.
- **2.** If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

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- **3.** The Company's liability and obligation is limited by and this Commitment is not valid without:
  - a. the Notice;
  - b. the Commitment to Issue Policy;
  - c. the Commitment Conditions;
  - d. Schedule A;
  - e. Schedule B, Part I—Requirements; and
  - f. Schedule B, Part II—Exceptions; and
  - g. a counter-signature by the Company or its issuing agent that may be in electronic form.

#### 4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company is not liable for any other amendment to this Commitment.

#### **5.** LIMITATIONS OF LIABILITY

- a. The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
  - i. comply with the Schedule B, Part I—Requirements;
  - ii. eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
  - iii. acquire the Title or create the Mortgage covered by this Commitment.
- b. The Company is not liable under Commitment Condition 5.a. if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
- c. The Company is only liable under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
- d. The Company's liability does not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Condition 5.a. or the Proposed Amount of Insurance.
- e. The Company is not liable for the content of the Transaction Identification Data, if any.
- f. The Company is not obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
- g. The Company's liability is further limited by the terms and provisions of the Policy to be issued to the Proposed Insured.

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- 6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT; CHOICE OF LAW AND CHOICE OF FORUM
  - a. Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
  - b. Any claim must be based in contract under the State law of the State where the Land is located and is restricted to the terms and provisions of this Commitment. Any litigation or other proceeding brought by the Proposed Insured against the Company must be filed only in a State or federal court having jurisdiction.
  - c. This Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
  - d. The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
  - e. Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
  - f. When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

#### 7. IF THIS COMMITMENT IS ISSUED BY AN ISSUING AGENT

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for closing, settlement, escrow, or any other purpose.

8. PRO-FORMA POLICY

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

**9.** CLAIMS PROCEDURES

This Commitment incorporates by reference all Conditions for making a claim in the Policy to be issued to the Proposed Insured. Commitment Condition 9 does not modify the limitations of liability in Commitment Conditions 5 and 6.

#### **10.** CLASS ACTION

ALL CLAIMS AND DISPUTES ARISING OUT OF OR RELATING TO THIS COMMITMENT, INCLUDING ANY SERVICE OR OTHER MATTER IN CONNECTION WITH ISSUING THIS COMMITMENT, ANY BREACH OF A COMMITMENT PROVISION, OR ANY OTHER CLAIM OR DISPUTE ARISING OUT OF OR RELATING TO THE TRANSACTION GIVING RISE TO THIS COMMITMENT, MUST BE BROUGHT IN AN INDIVIDUAL CAPACITY. NO PARTY MAY SERVE AS PLAINTIFF, CLASS MEMBER, OR PARTICIPANT IN ANY CLASS OR REPRESENTATIVE PROCEEDING. ANY POLICY ISSUED PURSUANT TO THIS COMMITMENT WILL CONTAIN A CLASS ACTION CONDITION.

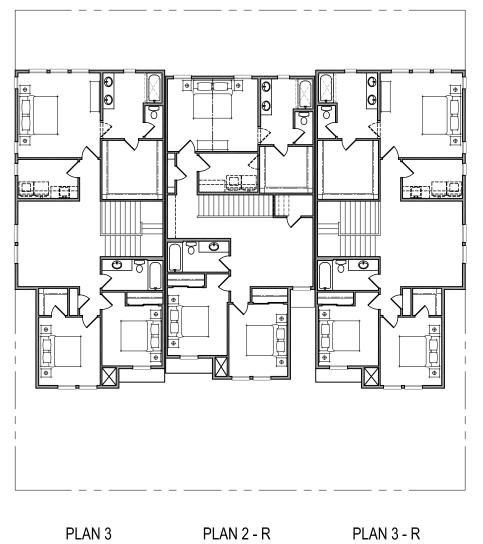
This page is only a part of a 2021 ALTA Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; and Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

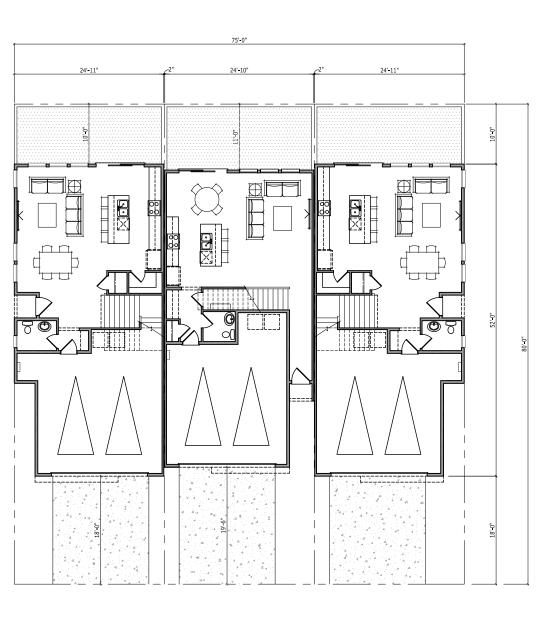


#### **11.** ARBITRATION

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Amount of Insurance is \$2,000,000 or less may be arbitrated at the election of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at http://www.alta.org/arbitration.

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PLAN 3

PLAN 2 - R

PLAN 3 PLAN 2 - R

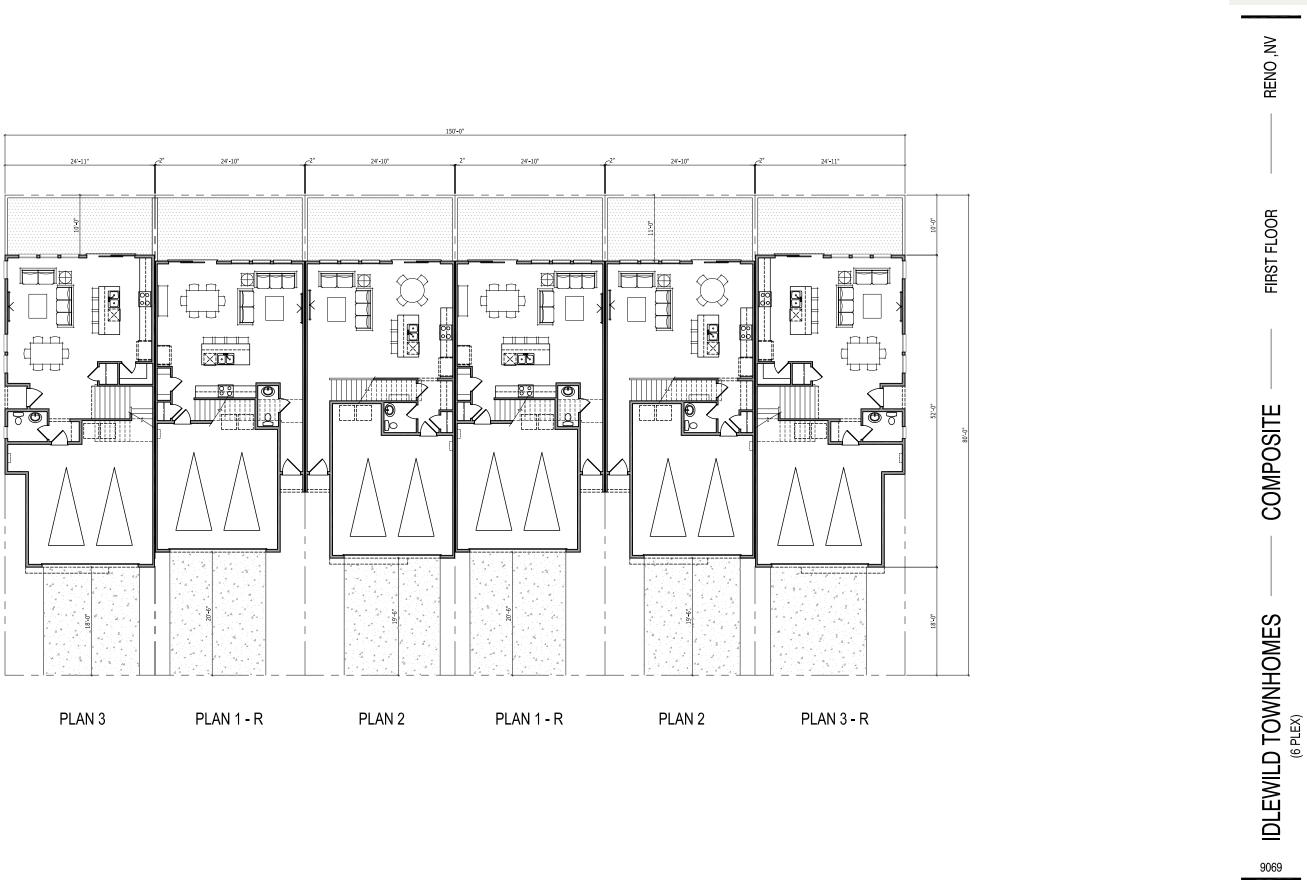
#### TOLL BROTHERS

RENO ,NV

PLAN 3 - R

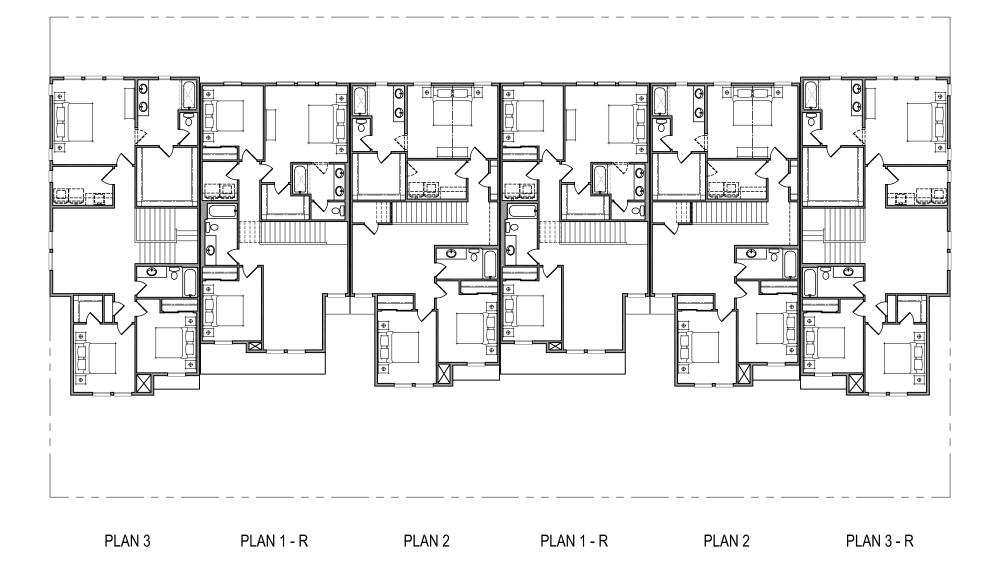
FLOOR PLAN COMPOSITE IDLEWILD TOWNHOMES
 (3 PLEX)

A-01 03-25-2024



A-02 03-25-2024

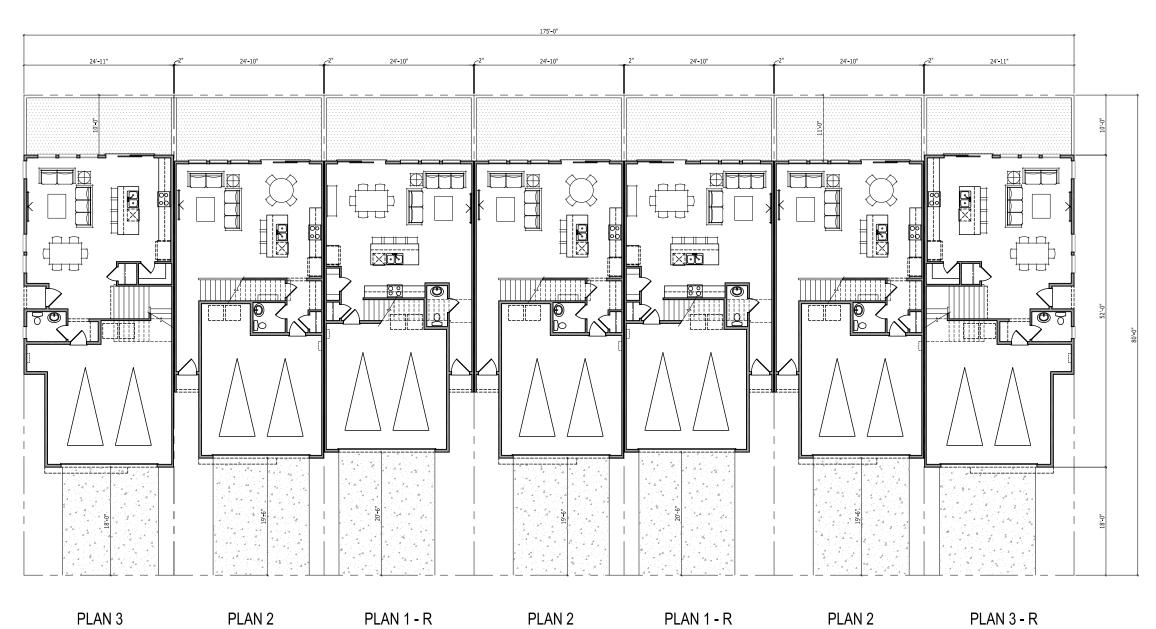
#### **TOLL BROTHERS**







**A-03** 



PLAN 3

PLAN 2

PLAN 1 - R

PLAN 2

PLAN 1 - R



PLAN 3 - R



A-04 03-25-2024







A-05 03-25-2024





### TOLL BROTHERS



9069

A-06



REAR





## TOLL BROTHERS

RIGHT



9069

A-07







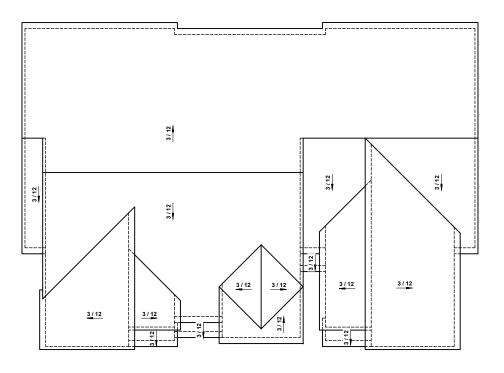
LEFT

## TOLL BROTHERS

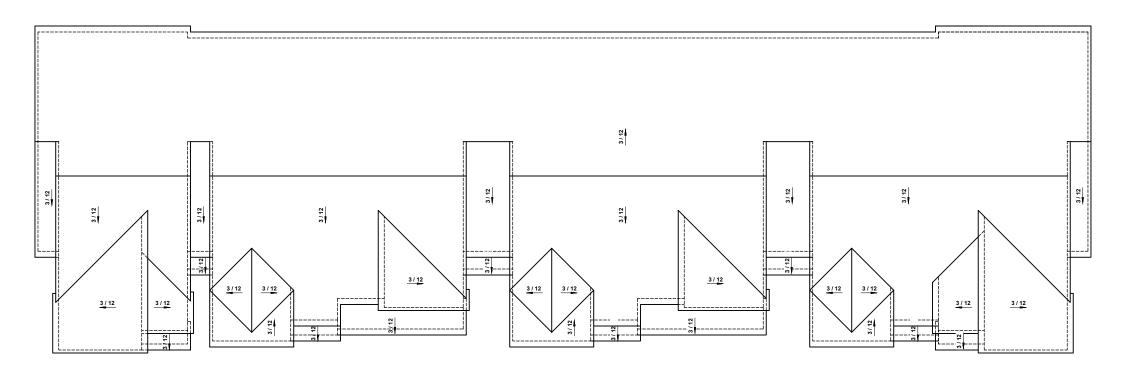
RIGHT



A-08 03-25-2024



(3 - PLEX)

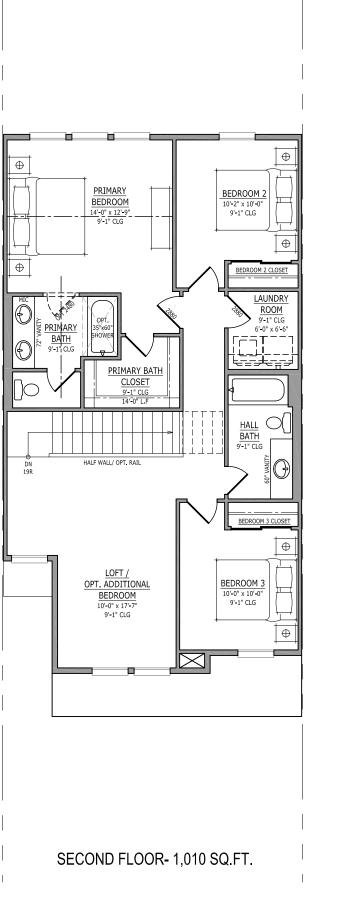


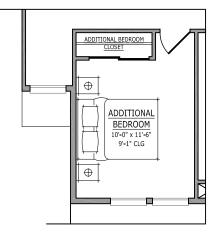
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## TOLL BROTHERS

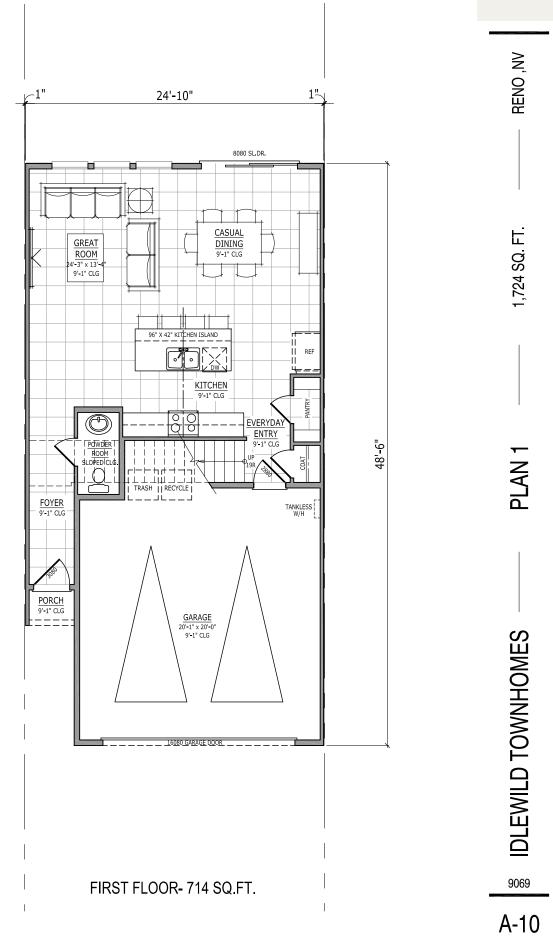


**A-09** 



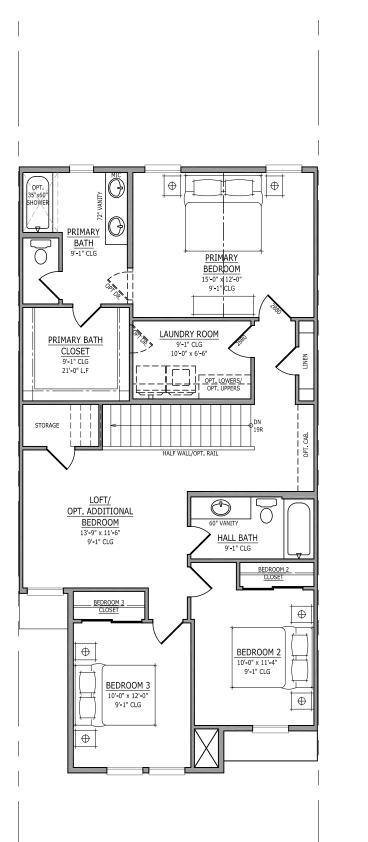


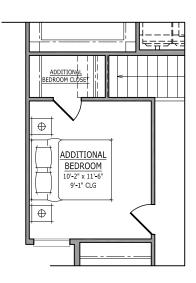
OPT. ADDITIONAL BEDROOM



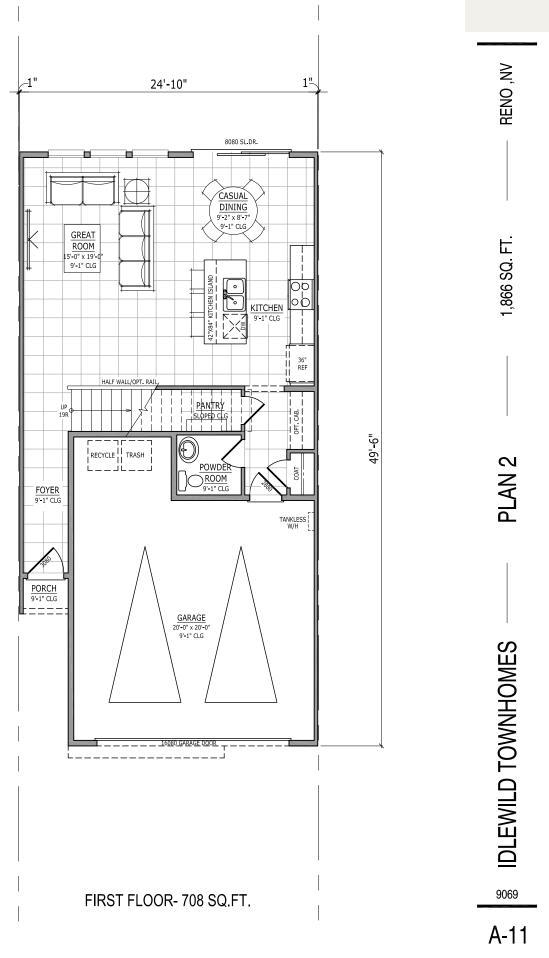


03-25-2024



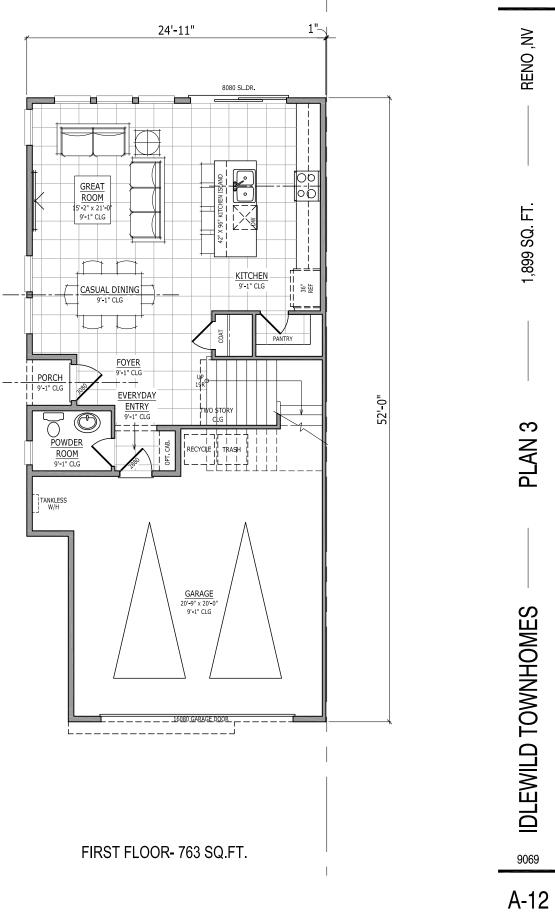


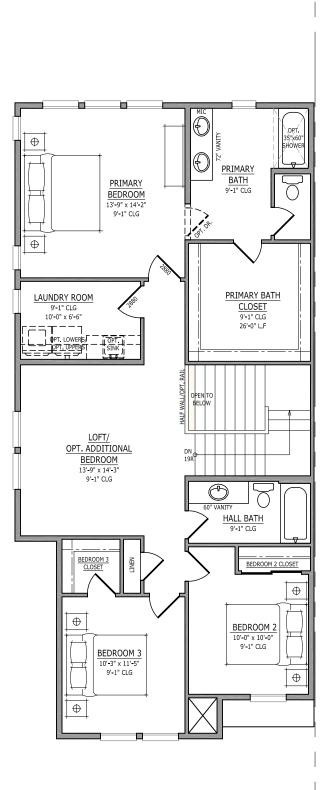
OPT. ADDITIONAL BEDROOM

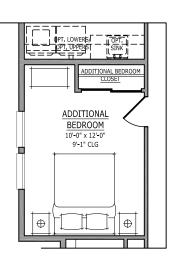


#### TOLL BROTHERS

03-25-2024







OPT. ADDITIONAL BEDROOM



03-25-2024

## STANDARD SYMBOLS

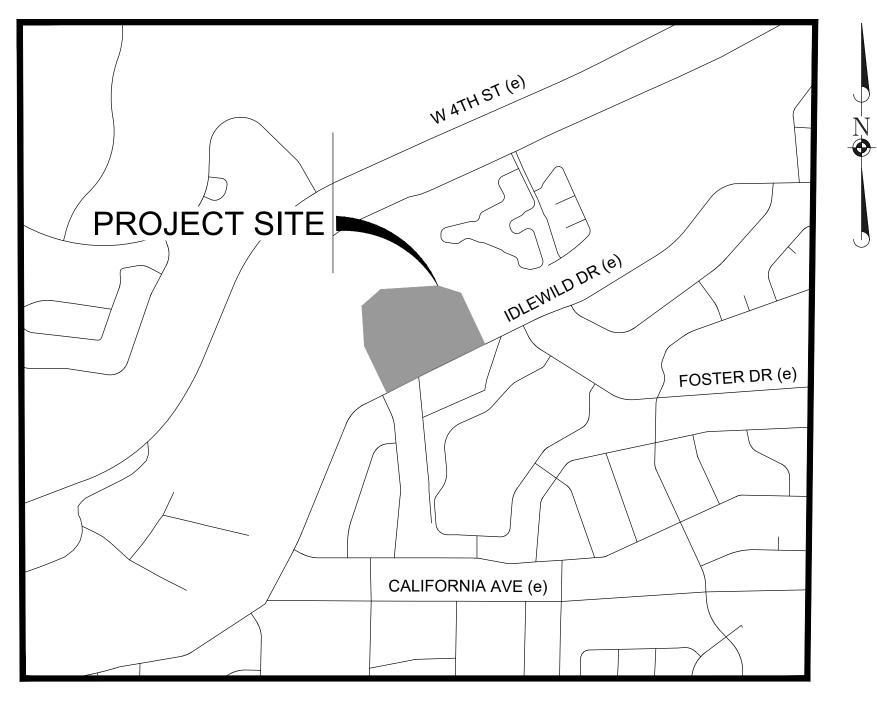
EXISTING	STORM SEWER SANITARY SEWER WATER MAIN GAS ELECTRIC TELEPHONE SANITARY MANHOLE SANITARY CLEANOUT STORM MANHOLE CATCH BASIN	PROPOSED         → → →         - <t< th=""></t<>
	SWPPP FEATURES	• ••• •• ••
	RIP RAP FLARED END SECTION HEADWALL STREET LIGHT DITCH OR SWALE DIRECTION OF FLOW 2 FOOT CONTOURS ROADWAY GRADE BREAK CURB AND GUTTER CONCRETE WALK	
	ACCESSIBLE CURB RAMP	
	PROPERTY LINE SIGN POWER POLE GUY WIRE GAS VALVE ELECTRICAL BOX TELEPHONE PEDISTAL CHAIN-LINK FENCE TOP OF CURB ELEVATION EDGE OF PAVEMENT ELEVATION TOP OF WALL ELEVATION FINISH GRADE ELEVATION GRADE BREAK ELEVATION FLOWLINE ELEVATION	€2.80 TC (62.80) TC (62.80) EP (62.80) FW (62.80) FG (62.80) FL
80808080	ROCKERY WALL	KAAA)
	RETAINING WALL LANDSCAPE WALL CLASS "A" MONUMENT	

## ABBREVIATIONS



# **TENTATIVE MAP FOR RIVERPOINT AT IDLEWILD**

# APN: 010-421-11 RENO, NEVADA



VICINITY MAP NTS



Manhard CONSULTING 241 Ridge Street, Suite 400, Reno, NV 89501 ph:775-746-3500 fx:775.746.3520 menhard.com Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers Construction Managers · Environmental Scientists · Landscape Architects · Planners

OWNER COURTYARD AT IDLEWILD, LLC 1025 RIDGEVIEW DR, SUITE 200 RENO, NV 89519

CIVIL MANHARD CONSULTING, LTD 241 RIDGE STREET, SUITE 400 RENO, NEVADA 89501 (775) 746-3500

**GEOTECH ENGINEER** 

WOOD RODGERS 1361 CORPORATE BLVD RENO, NV 89502 (775) 823–4068

DEVELOPER TOLL BROTHERS 10345 PROFESSIONAL CIR, SUITE 200 RENO, NV 89521 (775) 850–2441

PLANNER MANHARD CONSULTING, LTD 241 RIDGE STREET, SUITE 400 RENO, NEVADA 89501 (775) 746-3500

LANDSCAPE ARCHITECT

LA STUDIO NEVADA 1552 C STREET SPARKS, NV 89431 (775) 323–2223

SURVEYOR

MANHARD CONSULTING, LTD 241 RIDGE STREET, SUITE 400 RENO, NEVADA 89501 (775) 746-3500

MODIFIED NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983/1994 (NAD 83/94) DETERMINED USING REAL TIME KINEMATIC GPS (RTK GPS) OBSERVATIONS OF WASHOE COUNTY CONTROL MONUMENTS S61SM01191 AND S61SM01212, THE BEARING TAKEN AS SOUTH 44°24'30" WEST. THE COMBINED GRID TO GROUND FACTOR = 1.000197939. ALL DISTANCES SHOWN HEREIN ARE GROUND VALUES.

SHEET LIST TABLE

SHEET

NUMBER	SHEET TITLE
1	TITLE SHEET
2	SITE PLAN
3	UTILITY PLAN
4	GRADING PLAN
5	CROSS SECTIONS

## UTILITIES

CABLE	-	CHARTER COMMUNICATIONS
PHONE	-	AT&T
ELECTRICAL	-	NV ENERGY
GAS	-	NV ENERGY
SEWER	-	CITY OF RENO
STORM DRAIN	-	CITY OF RENO
SOLID WASTE	-	WASTE MANAGEMENT
WATER	_	TRUCKEE MEADOWS WATER AUTHORITY

## PROJECT DATA

ASSESSOR PARCEL NUMBERS TOTAL UNITS	-	010-421-11 57 UNITS
DENSITY	_	10.2 DU/AC
GROSS AREA	-	5.59 AC
COMMON AREA	_	2.2± AC
LIMITED COMMON ELEMENT AREA	-	0.6± AC
PRIVATE ROAD AREA	_	0.9± AC
LOT AREA	_	1.9± AC
EXISTING ZONING	—	MF 30

## **BASIS OF BEARINGS**

## BASIS OF ELEVATION

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS TAKEN FROM THE CITY OF RENO BENCHMARK NETWORK, BENCHMARK # 3010, HAVING A PUBLISHED ELEVATION OF 4555.60 FEET. DESCRIBED AS A 1 1/2 INCH DIA STL CAP IN THE TC AT THE SE COR OF IDLEWILD DR AND SHAMROCK LN, 2' W'LY OF BCR ALONG IDLEWILD DRIVE.

## ENGINEER'S STATEMENT

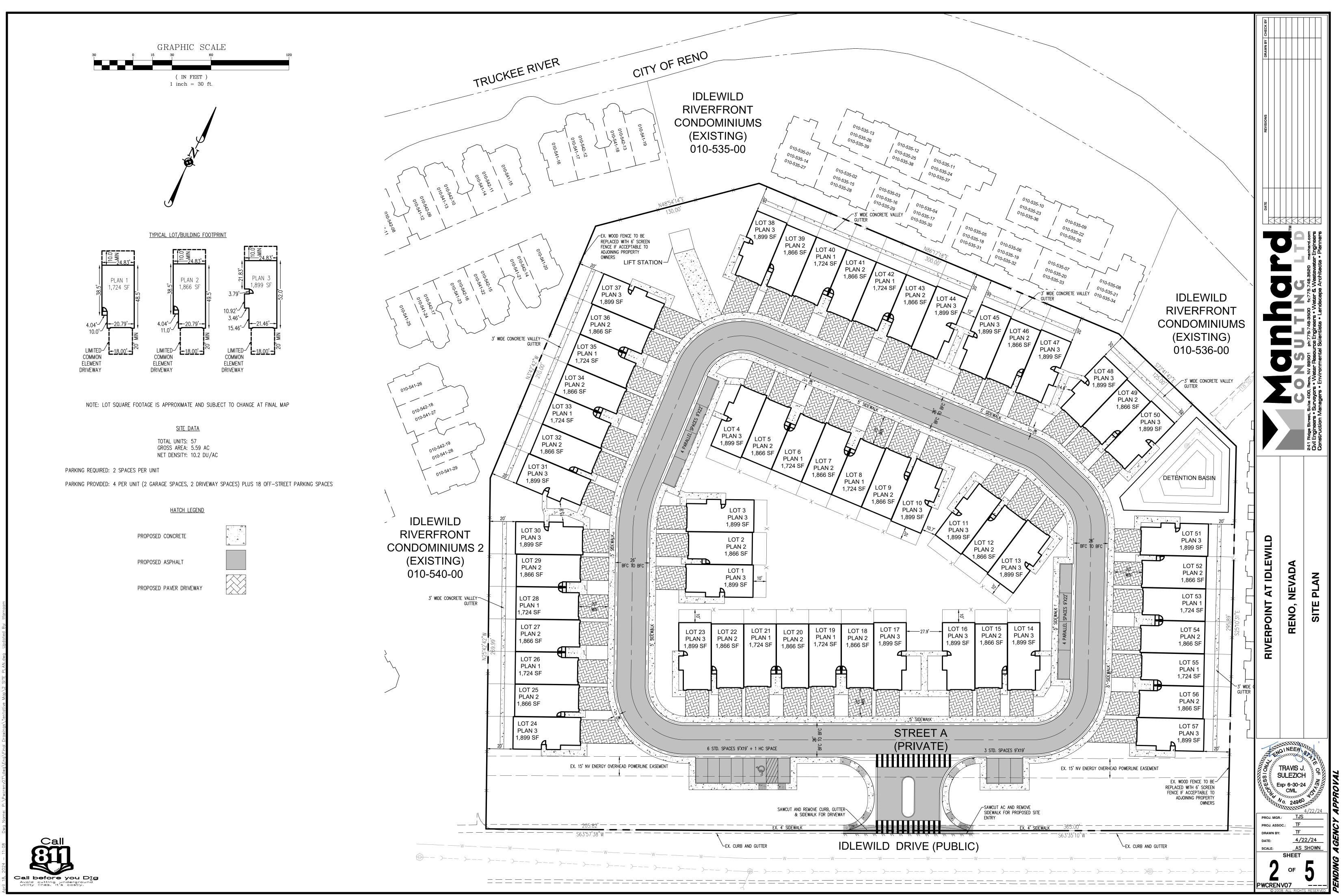
THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE CITY OF RENO SITE PLAN REVIEW REQUIREMENTS WITH ACCEPTED ENGINEERING PROCEDURES AND GUIDELINES, AND ARE IN SUBSTANTIAL COMPLIANCE WITH APPLICABLE STATUTES, CITY ORDINANCES, AND CODES. IN THE EVENT OF A CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND THE CITY CODES, PUD HANDBOOK SHALL PREVAIL.



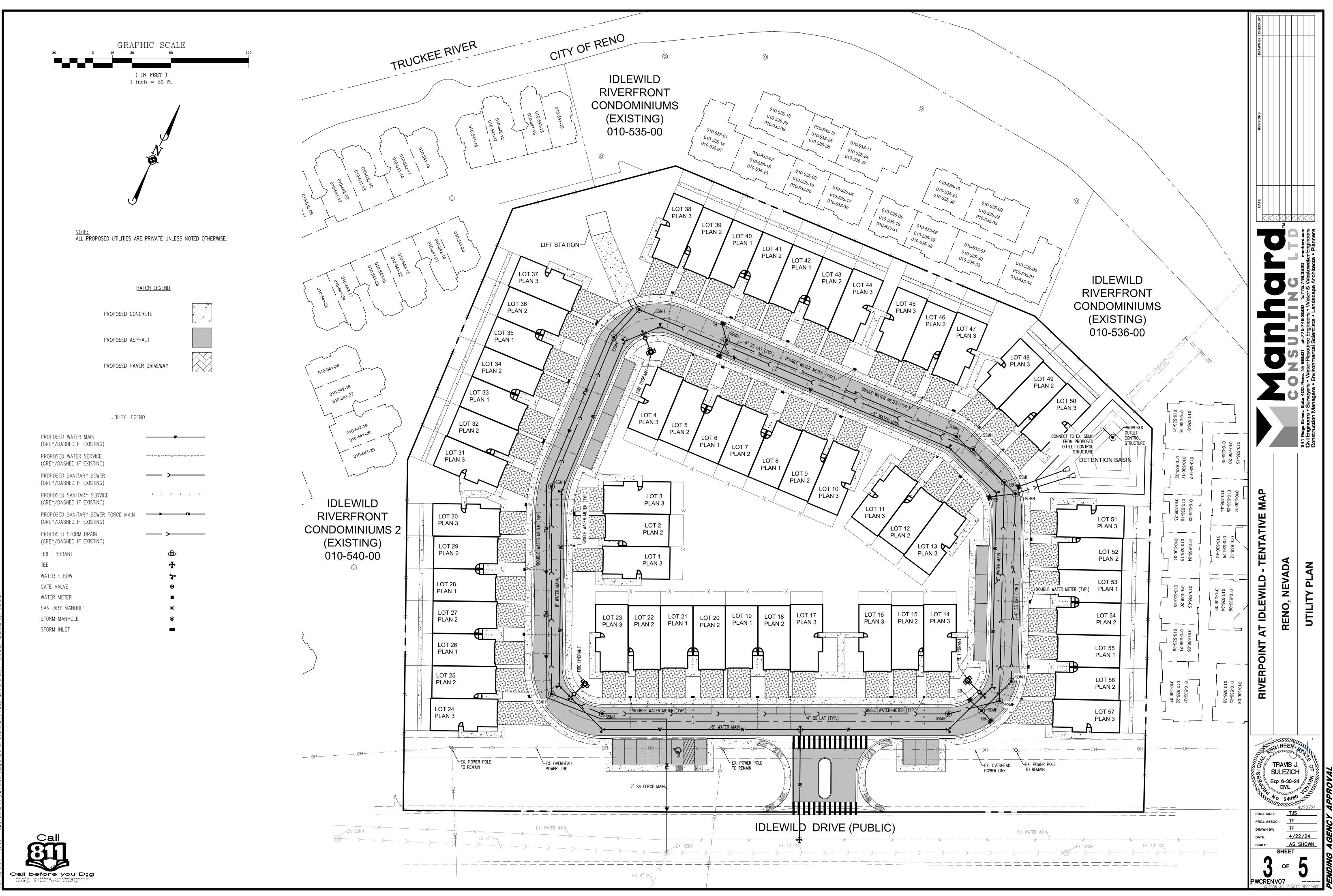
PROJ. MGR	RIVERPOINT AT IDLEWILD - TENTATIVE MAP		REVISIONS	DRAWN BY CHECK BY
.: <u>TJS</u> pc.: TF	RENO, NEVADA			
5	TITLE SHEET	5-748-3500 gineers • ttists • La		

OF **D** PWCRENV07

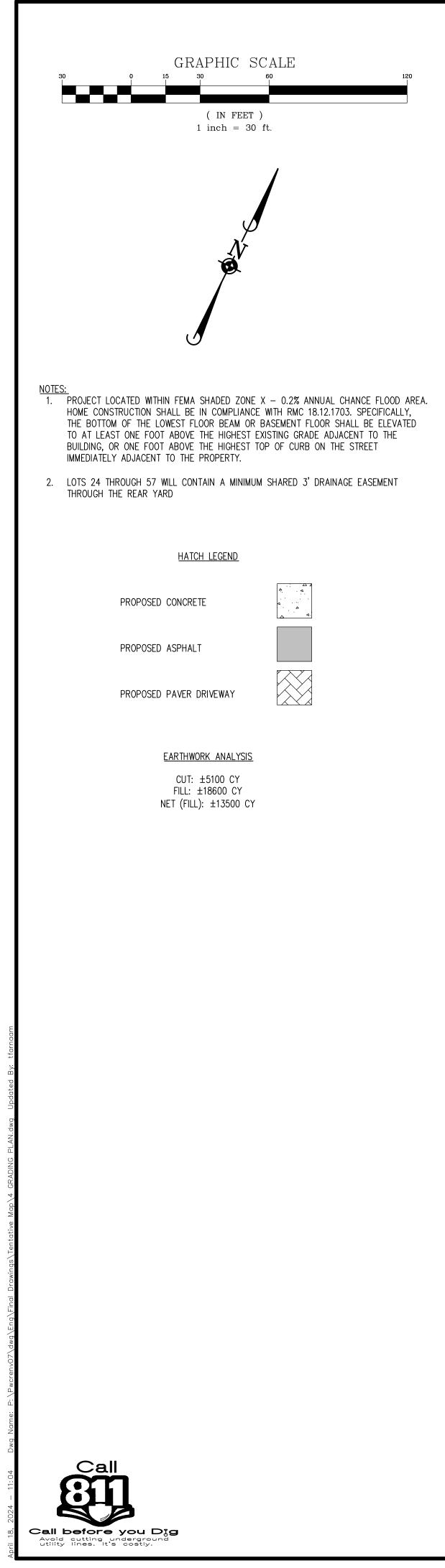
P.E.#24960

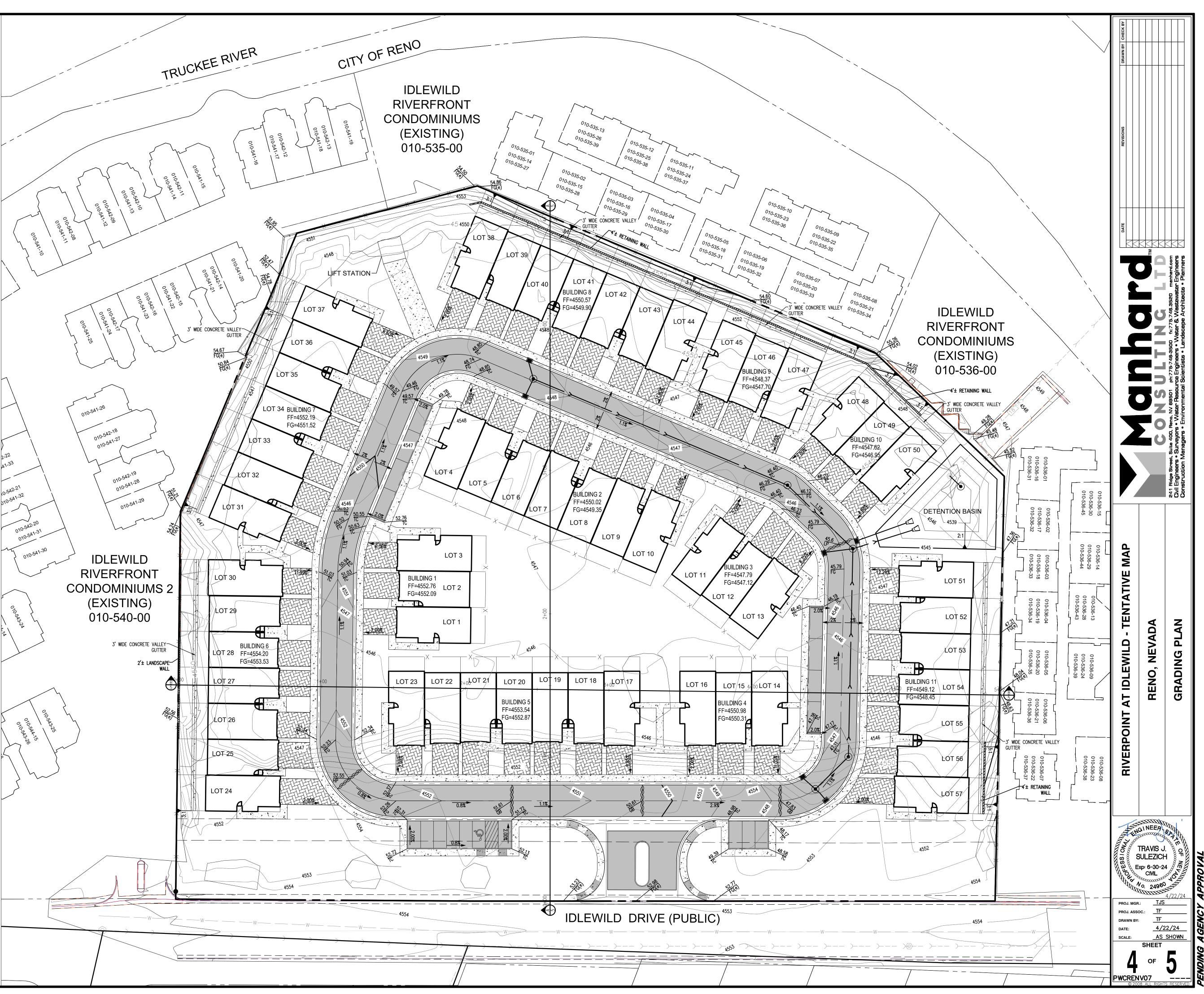


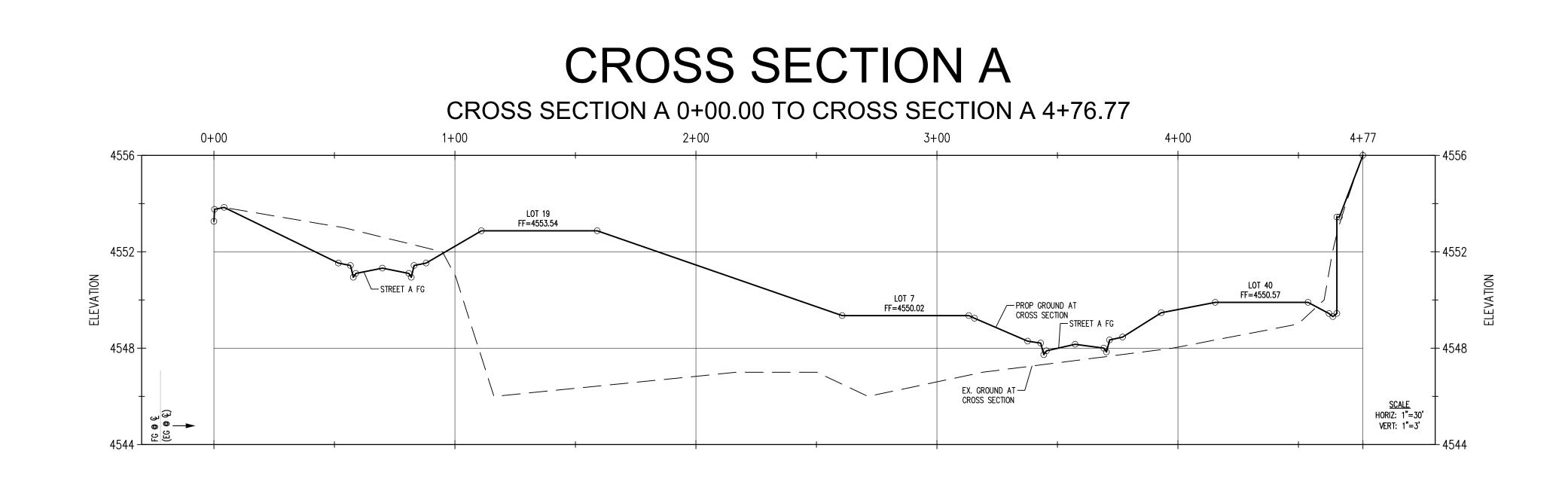
A GENC

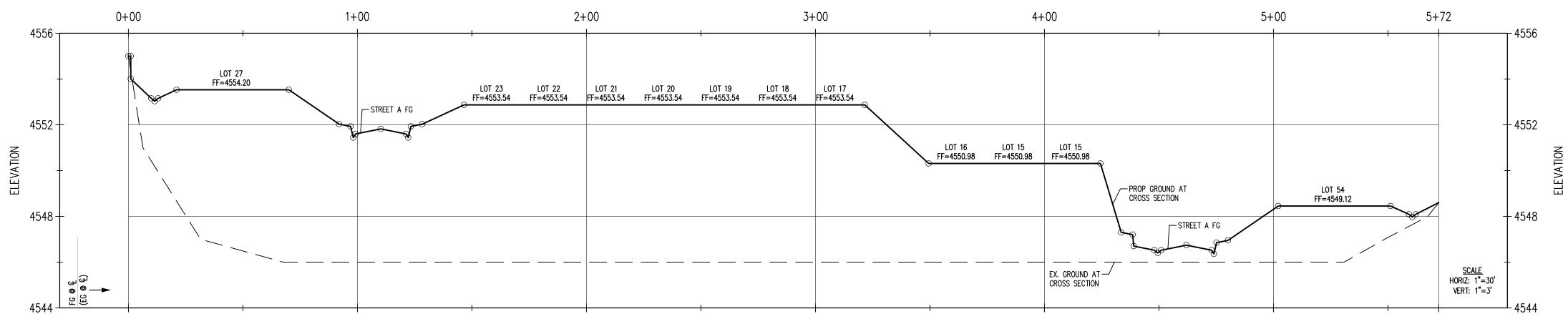








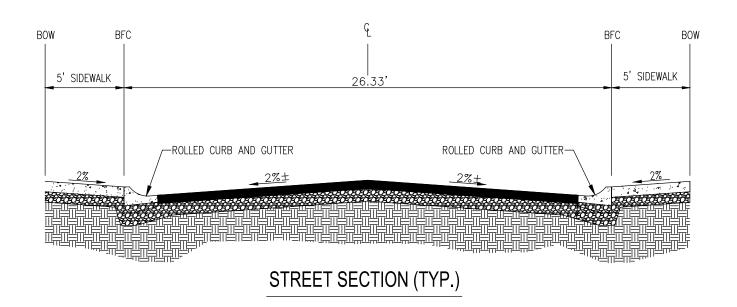


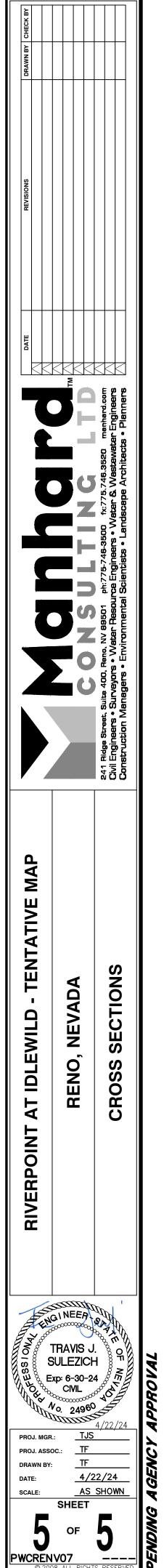




# **CROSS SECTION B**

CROSS SECTION B 0+00.00 TO CROSS SECTION B 5+72.13





A GENC.

# PLANT LEGEND

	ORNAMENTAL TREES
	DECIDUOUS SHADE TREES
	EVERGREEN TREES
	LANDSCAPE AREA
+ + + + + + + + + +	RE-VEGETATION AREAS
	DG TRAIL
	POSSIBLE BENCH LOCATION

LANDSCAPE DATA

(NOT TO SCALE)

SITE AREA = 243,501 SQ FT (5.590 ACRES) APN: 010-421-11

ZONING: MF30 (MULTI-FAMILY 30 UNITS PER ACRE)

PROPOSED: ATTACHED SINGLE-FAMILY

REQUIRED LANDSCAPE AREA, RESIDENTIAL DISTRICT, FRONT YARDS, EXCL. DRIVEWAYS PER RMC 18.04.804(c)(1)(a) = 12,514 SQ FT

PROVIDED LANDSCAPE AREA = APPROX. 67,500 SQ FT (~28% OF SITE)

TREES REQUIRED = 163

• LANDSCAPE TREES = 163 1 TREE PER 300 SQ FT OF REQUIRED LANDSCAPE AREA

SHRUBS REQUIRED = 978 MIN.

• 6 SHRUBS PER REQUIRED TREE

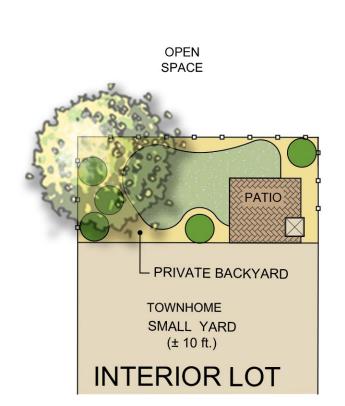
# GENERAL NOTES

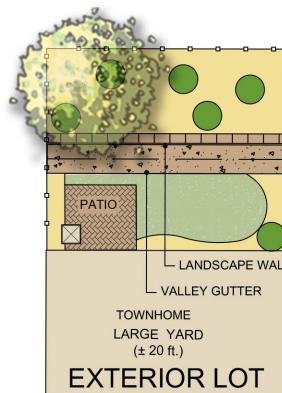
ALL PLANTING AND IRRIGATION SHALL BE INSTALLED PER LOCAL GOVERNING CODES. 1)

2) TREES

- DECIDUOUS TREES SHALL HAVE A MINIMUM CALIPER OF 2 INCHES.
- EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT OF 6 FEET. ADDITIONAL TREES, BEYOND THOSE REQUIRED BY CODE, MAY BE REDUCED IN SIZE AT INSTALLATION.
- ALL STREET TREES SHALL BE APPROVED SPECIES LISTED ON THE URBAN FORESTER STREET TREE LIST.
- FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL 3) PRACTICES RELATING TO MICRO-CLIMATE, SOIL, AND WATER REGIMES. ALL TREES WILL BE STAKED SO AS TO REMAIN UPRIGHT AND PLUMB FOLLOWING INSTALLATION. PLANT SIZE AND QUALITY AT TIME OF PLANTING WILL BE PER THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-1990).
- 4) ALL SHRUB BEDS WILL RECEIVE 4" DEPTH MULCH WITH WEED CONTROL.
- ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED. CONTAINER PLANTINGS WILL BE 5) DRIP IRRIGATED BASED ON THE SPECIFIC HORTICULTURAL REQUIREMENTS OF EACH SPECIES. A REDUCED-PRESSURE-TYPE BACKFLOW PREVENTOR WILL BE PROVIDED ON THE IRRIGATION SYSTEM AS REQUIRED PER CODE.
- 6) PLAN IS CONCEPTUAL. PLANT QUANTITIES INDICATED ARE PER CITY OF RENO CODE REQUIREMENTS. PLANT LOCATIONS, FINAL SPECIES SELECTION, AND SIZE AT PLANTING SHALL BE DETERMINED DURING DEVELOPMENT OF THE FINAL CONSTRUCTION DOCUMENTS.
- 7) FINAL TREE PLACEMENT ALONG FRONTAGE SHALL BE REVIEWED BY NV ENERGY

# TYPICAL PRIVATE BACKYARD CONCEPTS: ± 175 SQ. FT. MINIMUM OF USABLE OPEN SPACE 1:10 SCALE





- LANDSCAPE WALL P 7 P 7  $\bigcirc$ PATIC

LANDSCAPE MALL

1

63

VALLEY GUTTER TOWNHOME LARGE YARD (± 20 ft.)

**EXTERIOR LOT** 



# Preliminary Hydrology Report

For

# **Riverpoint at Idlewild**

# **Tentative Map**

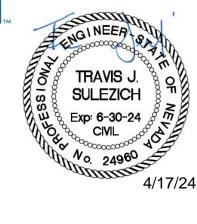
Prepared for:

Toll Brothers 10345 Professional Cir, Suite 200 Reno, Nevada 89521

Prepared by:



241 Ridge St., Suite 400 Reno, Nevada 89501



Project No: PWCRENV07

April 2024

DACE

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**FIGURE #3** – PROPOSED HYDROLOGIC CONDITIONS DISPLAY

# 1 Introduction

# 1.1 <u>Purpose of Study</u>

This report presents the data, hydrologic and hydraulic analyses, and conclusions of a preliminary drainage study performed for the proposed Riverpoint at Idlewild Tentative Map project. This study was performed in accordance with the *City of Reno Public Works Design Manual* (RPWDM).

A cross-reference with the Tentative Map plans will aid in the understanding of this report. In addition, in the interest of brevity and clarity, this report will defer to figures, tables, and the data and calculations contained in the appendices whenever possible. All analysis for on-site flow are accounted for in this study.

# 1.2 <u>Project Location and Site Description</u>

The Riverpoint at Idlewild project is approximately  $5.59\pm$  acres in size. The site is located within the northeast <sup>1</sup>/<sub>4</sub> of Section 16 and the northwest <sup>1</sup>/<sub>4</sub> of Section 15, Township 19 North, and Range 19 East of the Mount Diablo Principal Meridian, City of Reno, Washoe County, Nevada. The current site address is 2865 Idlewild Dr. (APN 010-421-11).

The following report represents the preliminary hydrologic analysis for the Riverpoint at Idlewild project (see Figure #1, *Vicinity Map*). Riverpoint at Idlewild is a proposed single-family/townhome residential development with the associated landscaping, roads, and civil improvements. The project will contain 57 residential units.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Numbers 32020C3038G, Riverpoint at Idlewild is in Shaded Zone X, areas of 0.2% annual chance flood or areas of 1% chance flood with average depth less than 1 foot. Reference FEMA panel in Appendix A.

# 2 Methodologies and Assumptions

# 2.1 <u>Hydrologic Analysis Methods</u>

Parameters presented herein were determined using the data and methodologies presented in City of Reno Public Works Design Manual. In instances where *City of Reno Public Works Design Manual* was lacking information or specificity, the *Truckee Meadows Regional Drainage Manual* (TMRDM) and/or the other appropriate sources and software user manuals were referenced.

For the existing and proposed on-site hydrologic conditions, the Rational Method was utilized in accordance with the RPWDM and TMRDM. The Rainfall-intensityduration-frequency (IDF) curve from the Point Precipitation Frequency Estimates from NOAA Atlas 14 database were used to determine the 5-year and 100-year rainfall intensities for this project. Reference Appendix A for the precipitation data and rainfall intensities. A minimum time of concentration of 10-minutes was used for this project and value for the 5-year storm event is 1.39 in/hr and the 100-year storm event is 3.44 in/hr.

The runoff coefficients for the pre-development conditions were taken from Table 701 of the TMRDM. Basin X-1 has a runoff coefficient for Range (Undeveloped Areas) [C(5)=0.20, C(100)=0.50]. The Rational Method Runoff Coefficient Table 701 is included in Appendix A.

The runoff coefficients for the post-development model were taken from Table 701 of the TMRDM. Basins P-1 has a runoff coefficient for 1/8-acre lots or less [C(5)=0.60, C(100)=0.78] for a conservative analysis. The Rational Method Runoff Coefficient Table 701 is included in Appendix A.

# **3** Existing Drainage Conditions

# 3.1 Existing On-Site Drainage

The existing hydrologic analysis was based on the current conditions of the proposed project site. The proposed project site was analyzed using the Rational Method and is currently covered in native vegetation. The existing hydrologic sub-basin was delineated based on its point of discharge at the northeast corner of the site. For the existing catchment, a time of concentration (Tc) and the Rational Method coefficients were selected, taking into consideration the catchment characteristics, which include catchment area and land cover. For this study, a conservative 10-minute time of concentration was used. During final plans, a more in-depth analysis will be Table 1 and Figure 2 summarize the characteristics of the on-site performed. catchment in the study area. Catchment boundaries for this study are the specific proposed project limits. Reference Table 1 for the complete existing Rational Method analysis. Reference Figure 2 (Existing Hydrologic Conditions Display) in the map pocket for existing hydrology drainage map and the associated hydrologic sub-basins. All existing runoff from project parcel exits the site via an existing storm drain pipe that extends on to the parcel in the northeast corner.

# Table 1 – Existing Conditions Rational Method Model Summary for the Riverpoint at Idlewild project, Reno, Nevada.

Sub- Basin	Area (Ac.)	Rational Method Coefficient (C5/C100)	Time of Concentration (min)	Rainfall Intensity (I5/I100) (in/hr)	5-Year Peak Flows (cfs)	100-Year Peak Flows (cfs)
X-1	5.59	0.20/0.50	10.0	1.39/3.44	1.6	9.6

# 4 Proposed Drainage Conditions

# 4.1 <u>Proposed On-Site Drainage</u>

Reference Figure 3 (Proposed Hydrologic Conditions Display) in the map pocket for the associated proposed hydrologic sub-areas and tentative storm drain networks. A 5-year intensity of 1.39 in/hr and 100-year intensity of 3.44 in/hr were used.

Within the Riverpoint at Idlewild project site, drainage will be routed using a combination of surface swales, yard drains and storm drain pipes. All flow will be routed to the on-site detention basin. The detention basis will outlet into an existing 18" diameter storm drain pipe that currently extends into the project property. This pipe runs through an easement on the adjacent property to the Truckee River.

All grading was designed to outlet all sump conditions to the low points of the project and discharge into open areas. In the occurrence of a storm larger than 100-year, 24hour event which overwhelms any/all inlets within the on-site storm drain network, there is overland flow routing that has been accounted for to route water to the detention basin prior to the flooding of any structures within the project.

# Table 2 – Proposed Conditions Rational Method Model Summary for Riverpoint at Idlewild, Reno, Nevada.

Sub- Basin	Area (Ac.)	Rational Method Coefficient (C5/C100)	Time of Concentration (min)	Rainfall Intensity (I5/I100) (in/hr.)	5-Year Peak Flows (cfs)	100-Year Peak Flows (cfs)
P-1	5.59	0.60/0.78	10.00	1.39/3.44	4.7	15.0

# 5 Detention Analysis

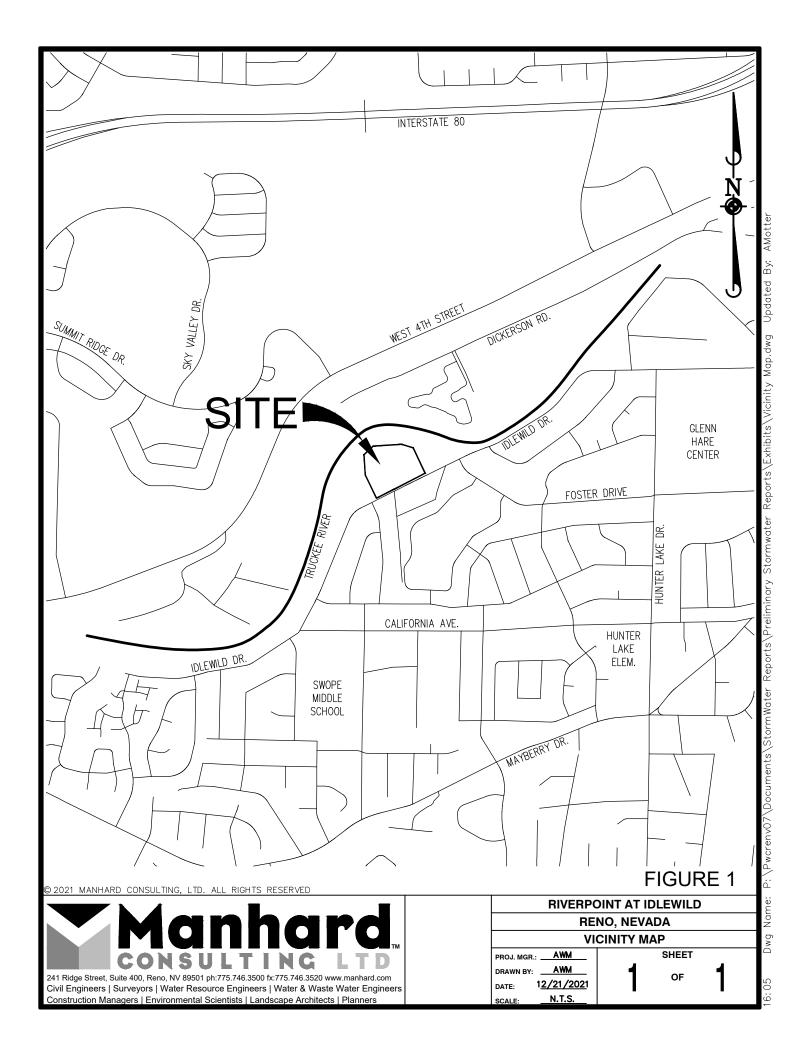
The detention calculation was performed using the total acreage of the site of 5.59 acres. The overall detention required calculation was performed using equation 1301 in the Truckee Meadows Regional Drainage Manual. The calculated runoff volume for the existing 100-year condition is 5,760 ft<sup>3</sup>. The calculated runoff volume for the proposed 100-year condition is 9,000 ft<sup>3</sup>. The difference of 3,240 ft<sup>3</sup> (.0744 ac\*ft) is the required detention basin volume. On-site detention will be provided to mitigate the increased runoff volumes in the 100-year event. Low Impact Development (LID) swales will be used to transport discharge to the retention basins and act as a water quality element. All detention ponds will be used for water quality as water will percolate into the ground and sedimentation will settle at the bottom of the retention basins. Sedimentation will be cleaned periodically.

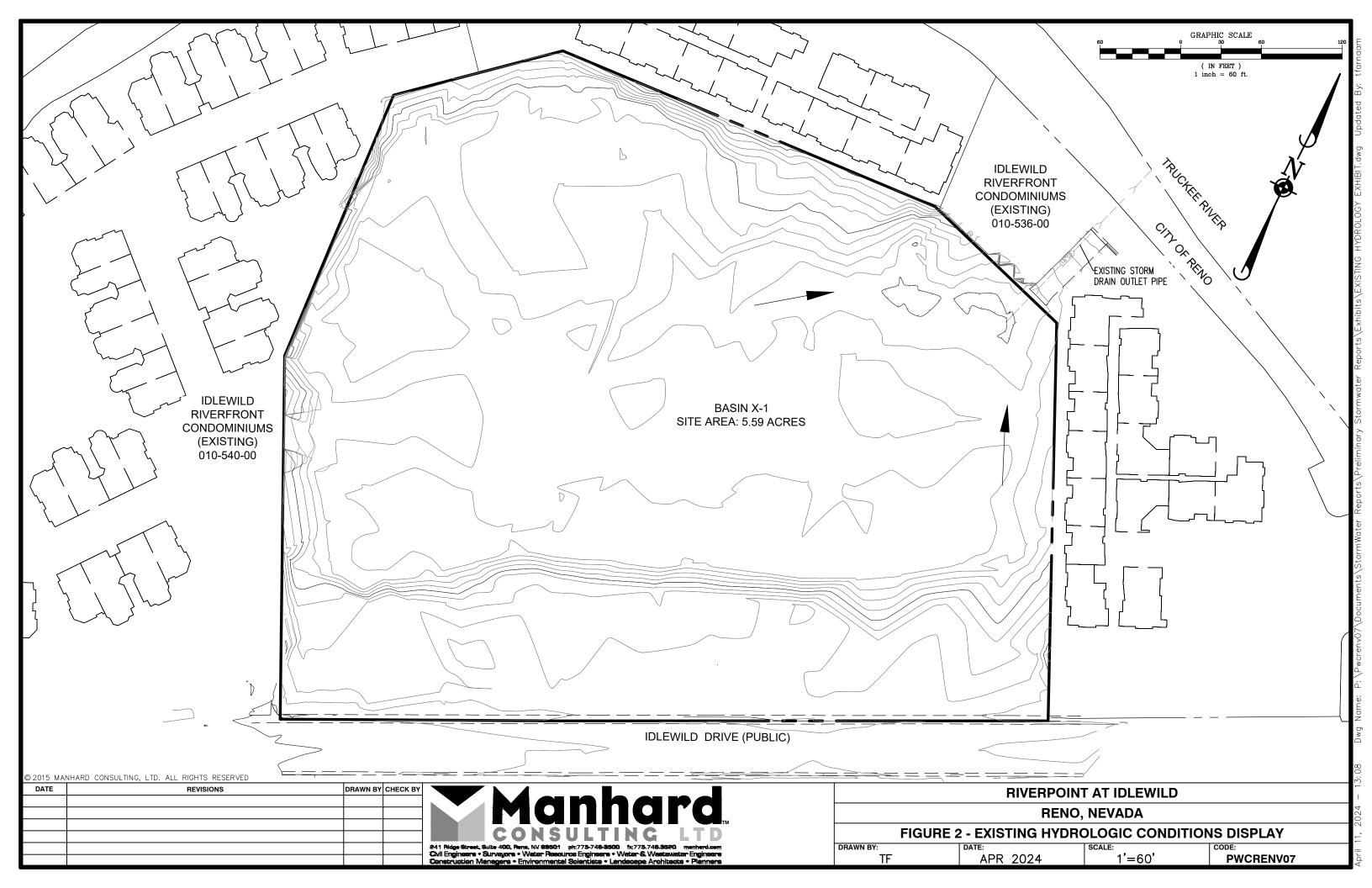
# 6 Conclusion

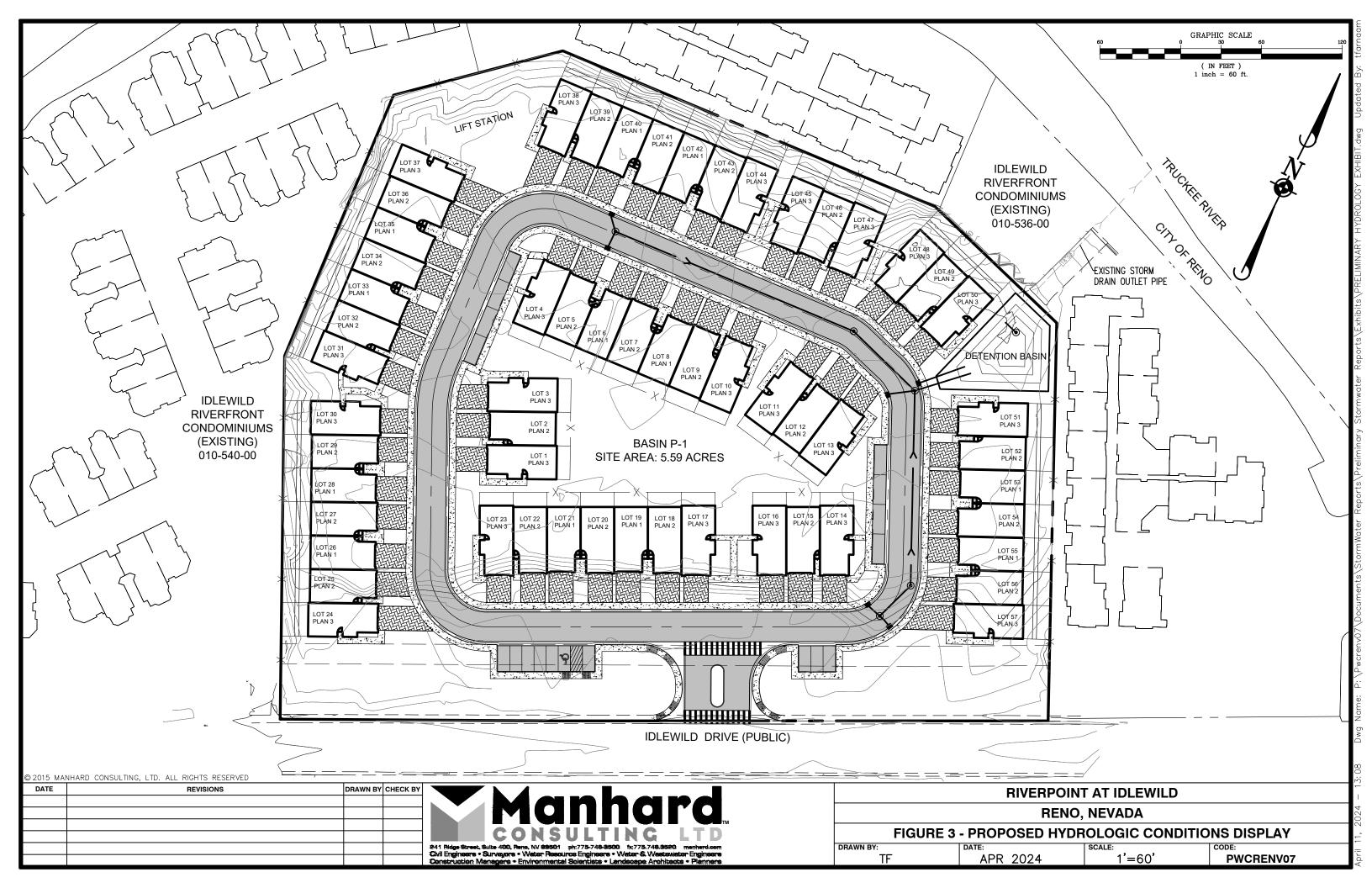
This study is intended to be a working document and may require updates and revisions to address the status of the improvement plans.

The proposed improvements and the analyses presented herein are in accordance with drainage regulations presented in *City of Reno Public Works Design Manual*. In instances where the *City of Reno Public Works Design Manual* was lacking information or specificity, the *Truckee Meadows Regional Drainage Manual* and/or the other appropriate sources and software user manuals were referenced.

This study was prepared using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable professional engineers practicing in this and similar localities.







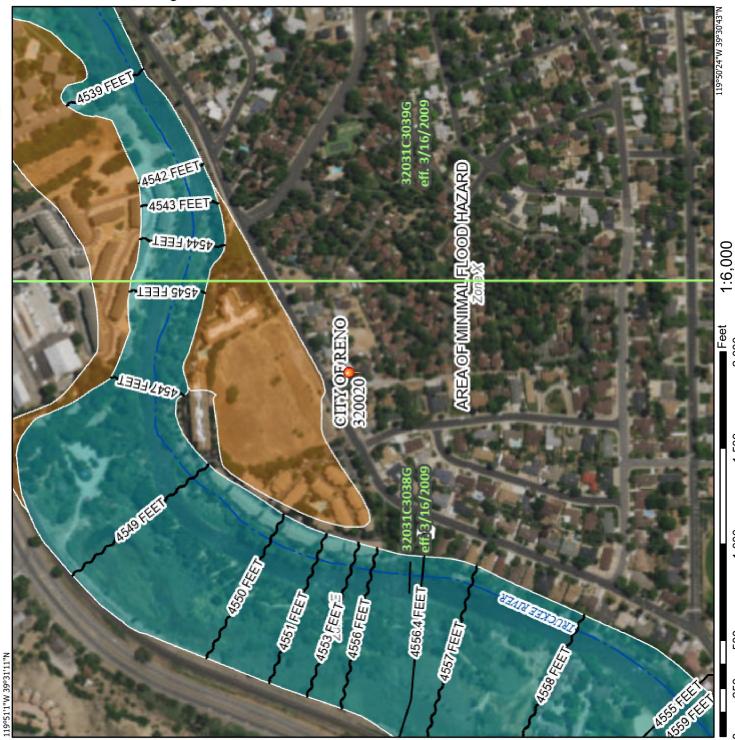
# **APPENDIX** A

# SUPPORTING DATA

# National Flood Hazard Layer FIRMette

**FEMA** 

005111"\\/\ 30031111"\\



Legend		
SEE FIS REPORT FOR DE	TAILED LEGEND AND INDE	SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAVOUT
SPECIAL FLOOD HAZARD AREAS	Without Base Flood E Zone A, V, A99 With BFE or Depth Zo Regulatory Floodway	Without Base Flood Elevation (BFE) Zone A, V. A99 With BFE or Depth Zone AE, A0, AH, VE, AR Regulatory Floodway
DTHER AREAS OF	0.2% Annue of 1% annue depth less i areas of les Future Cont Chance Flo Chance Flo Levee. See Area with F	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 Effective LOMRs Area of Undeterr	Area of Minimal Flood Hazard Zone X Effective LOMRs Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Cu	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	20.2         Cross Sections with 1.           17.5         Water Surface Elevation           8 Coastal Transect         Base Flood Elevation           1000 Elevation         Durisdiction Boundary           1011 Elevation         Unrisdiction Boundary            Coastal Transect Base            Coastal Transect Base            Coastal Transect Base            Profile Baseline           Hydrographic Feature	Cross Sections with 1% Annual Chance Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Available Digital Data Available Digital Data Availa Unmapped The pin displayed on the mar	<ul> <li>Digital Data Available</li> <li>No Digital Data Available</li> <li>Unmapped</li> <li>The pin displayed on the map is an approximate</li> </ul>
This map comp	point selected by the user and doe an authoritative property location. This map complies with FEMA's standards for the us	point selected by the user and does not represent an authoritative property location. • with FEMA's standards for the use of
digital flood maps i The basemap show accuracy standards The flood hazard ini authoritative NFHL was exported on 12 reflect changes or a time. The NFHL and become supersedet	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 r was exported on 12/27/2021 at 12:37 PM and does not reflect changes or amendments subsequent to this date or time. The NFHL and effective information may change or become superseded by new data over time.	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 12/27/2021 at 12:37 PM 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 v elements do not app legend, scale bar, m FIRM panel number, unmapped and unm regulatory purposes.	This map image is void if the one or more of the followir elements do not appear: basemap imagery, flood zone l legend, scale bar, map creation date, community identif FIRM panel number, and FIRM effective date. Map imag unmapped and unmodernized areas cannot be used for regulatory purposes.	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.

2,000 Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

1,500

1,000

500

250

0

RATIONAL FORMULA METHOD RUNOFF COEFFICIENTS								
Land Use or Surface Characteristics	Aver. % Impervious Area	Runoff C 5-Year (Cg)	Coefficients 100-Year (C <sub>100</sub> )					
Business/Commercial: Downtown Areas	85	.82	.85					
Neighborhood Areas	70	.65	.80					
Residential: (Average Lot Size)								
<sup>1</sup> / <sub>8</sub> Acre or Less (Multi-Unit)	65	.60	.78					
<sup>1</sup> / <sub>4</sub> Acre	38	.50	.65					
<sup>1</sup> / <sub>8</sub> Acre	30	.45	.60					
<sup>1</sup> / <sub>2</sub> 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					
<u>Roof</u> :	90	.85	.87					

Notes:

1. Composite runoff coefficients shown for Residential, Industrial, and Business/Commercial Areas assume irrigated grass landscaping for all pervious 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.

VERSION: April 30, 2009	REFERENCE: USDCM, DROCOG, 1969	TABLE 701
WRC ENGINEERING, INC.	(with modifications)	701



NOAA Atlas 14, Volume 1, Version 5 Location name: Reno, Nevada, USA\* Latitude: 39.5167°, Longitude: -119.8454° Elevation: 4546.17 ft\*\* \* source: ESRI Maps \*\* source: USGS



#### POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

#### PF tabular

Dunation				Avera	ge recurren	ce interval (y	/ears)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>1.10</b>	<b>1.36</b>	<b>1.82</b>	<b>2.27</b>	<b>3.01</b>	<b>3.71</b>	<b>4.52</b>	<b>5.52</b>	<b>7.14</b>	<b>8.63</b>
	(0.948-1.27)	(1.16-1.60)	(1.56-2.16)	(1.92-2.69)	(2.50-3.61)	(2.96-4.50)	(3.50-5.58)	(4.10-6.96)	(4.98-9.34)	(5.76-11.5)
10-min	<b>0.834</b>	<b>1.04</b>	<b>1.39</b>	<b>1.72</b>	<b>2.29</b>	<b>2.82</b>	<b>3.44</b>	<b>4.20</b>	<b>5.44</b>	<b>6.56</b>
	(0.720-0.966)	(0.888-1.22)	(1.19-1.64)	(1.46-2.05)	(1.90-2.75)	(2.26-3.42)	(2.66-4.24)	(3.12-5.30)	(3.79-7.10)	(4.38-8.78)
15-min	<b>0.692</b>	<b>0.856</b>	<b>1.15</b>	<b>1.42</b>	<b>1.89</b>	<b>2.33</b>	<b>2.84</b>	<b>3.47</b>	<b>4.50</b>	<b>5.42</b>
	(0.592-0.800)	(0.732-1.01)	(0.980-1.36)	(1.21-1.69)	(1.57-2.27)	(1.86-2.83)	(2.20-3.51)	(2.58-4.38)	(3.14-5.87)	(3.62-7.26)
30-min	<b>0.466</b>	<b>0.578</b>	<b>0.774</b>	<b>0.960</b>	<b>1.28</b>	<b>1.57</b>	<b>1.92</b>	<b>2.34</b>	<b>3.03</b>	<b>3.65</b>
	(0.400-0.538)	(0.494-0.678)	(0.662-0.912)	(0.816-1.14)	(1.06-1.53)	(1.25-1.90)	(1.48-2.36)	(1.74-2.95)	(2.11-3.95)	(2.44-4.89)
60-min	<b>0.289</b>	<b>0.357</b>	<b>0.478</b>	<b>0.593</b>	<b>0.789</b>	<b>0.970</b>	<b>1.19</b>	<b>1.45</b>	<b>1.87</b>	<b>2.26</b>
	(0.247-0.333)	(0.305-0.419)	(0.409-0.565)	(0.504-0.704)	(0.653-0.947)	(0.776-1.18)	(0.918-1.46)	(1.08-1.83)	(1.31-2.45)	(1.51-3.02)
2-hr	<b>0.192</b>	<b>0.238</b>	<b>0.306</b>	<b>0.362</b>	<b>0.452</b>	<b>0.531</b>	<b>0.622</b>	<b>0.740</b>	<b>0.966</b>	<b>1.17</b>
	(0.171-0.220)	(0.212-0.274)	(0.268-0.350)	(0.314-0.416)	(0.380-0.525)	(0.435-0.626)	(0.496-0.746)	(0.566-0.922)	(0.698-1.24)	(0.814-1.53)
3-hr	<b>0.154</b>	<b>0.191</b>	<b>0.239</b>	<b>0.277</b>	<b>0.330</b>	<b>0.377</b>	<b>0.434</b>	<b>0.509</b>	<b>0.646</b>	<b>0.788</b>
	(0.138-0.173)	(0.173-0.216)	(0.215-0.270)	(0.246-0.314)	(0.289-0.377)	(0.323-0.436)	(0.364-0.510)	(0.417-0.620)	(0.513-0.831)	(0.597-1.03)
6-hr	<b>0.109</b>	<b>0.136</b>	<b>0.168</b>	<b>0.192</b>	<b>0.224</b>	<b>0.247</b>	<b>0.271</b>	<b>0.299</b>	<b>0.348</b>	<b>0.404</b>
	(0.098-0.121)	(0.123-0.152)	(0.151-0.188)	(0.172-0.215)	(0.197-0.253)	(0.215-0.281)	(0.232-0.312)	(0.250-0.349)	(0.284-0.421)	(0.324-0.520
12-hr	<b>0.071</b>	<b>0.089</b>	<b>0.112</b>	<b>0.130</b>	<b>0.153</b>	<b>0.170</b>	<b>0.188</b>	<b>0.206</b>	<b>0.229</b>	<b>0.249</b>
	(0.064-0.079)	(0.081-0.099)	(0.101-0.125)	(0.116-0.144)	(0.135-0.172)	(0.148-0.193)	(0.161-0.217)	(0.172-0.240)	(0.187-0.274)	(0.198-0.302
24-hr	<b>0.045</b>	<b>0.056</b>	<b>0.071</b>	<b>0.083</b>	<b>0.100</b>	<b>0.113</b>	<b>0.127</b>	<b>0.141</b>	<b>0.160</b>	<b>0.176</b>
	(0.041-0.050)	(0.051-0.063)	(0.064-0.079)	(0.075-0.092)	(0.089-0.111)	(0.100-0.126)	(0.112-0.142)	(0.123-0.159)	(0.138-0.183)	(0.149-0.202
2-day	<b>0.027</b>	<b>0.034</b>	<b>0.043</b>	<b>0.050</b>	<b>0.061</b>	<b>0.069</b>	<b>0.078</b>	<b>0.087</b>	<b>0.100</b>	<b>0.110</b>
	(0.024-0.030)	(0.030-0.038)	(0.038-0.048)	(0.045-0.057)	(0.054-0.068)	(0.061-0.078)	(0.067-0.089)	(0.075-0.100)	(0.084-0.116)	(0.091-0.130
3-day	<b>0.019</b>	<b>0.025</b>	<b>0.031</b>	<b>0.037</b>	<b>0.045</b>	<b>0.052</b>	<b>0.058</b>	<b>0.066</b>	<b>0.076</b>	<b>0.084</b>
	(0.017-0.022)	(0.022-0.028)	(0.028-0.035)	(0.033-0.042)	(0.040-0.051)	(0.045-0.058)	(0.051-0.067)	(0.056-0.075)	(0.064-0.088)	(0.069-0.099
4-day	<b>0.016</b>	<b>0.020</b>	<b>0.026</b>	<b>0.030</b>	<b>0.037</b>	<b>0.043</b>	<b>0.049</b>	<b>0.055</b>	<b>0.064</b>	<b>0.071</b>
	(0.014-0.018)	(0.018-0.022)	(0.023-0.029)	(0.027-0.034)	(0.033-0.042)	(0.037-0.048)	(0.042-0.056)	(0.047-0.063)	(0.053-0.075)	(0.059-0.084
7-day	<b>0.011</b>	<b>0.013</b>	<b>0.018</b>	<b>0.021</b>	<b>0.026</b>	<b>0.029</b>	<b>0.033</b>	<b>0.037</b>	<b>0.043</b>	<b>0.048</b>
	(0.009-0.012)	(0.012-0.015)	(0.016-0.020)	(0.018-0.024)	(0.022-0.029)	(0.025-0.034)	(0.029-0.038)	(0.032-0.044)	(0.036-0.051)	(0.039-0.057
10 <b>-</b> day	<b>0.008</b>	<b>0.011</b>	<b>0.014</b>	<b>0.016</b>	<b>0.020</b>	<b>0.023</b>	<b>0.026</b>	<b>0.029</b>	<b>0.033</b>	<b>0.037</b>
	(0.007-0.009)	(0.009-0.012)	(0.012-0.016)	(0.015-0.019)	(0.018-0.023)	(0.020-0.026)	(0.022-0.030)	(0.025-0.034)	(0.028-0.039)	(0.030-0.043
20 <b>-</b> day	<b>0.005</b>	<b>0.007</b>	<b>0.009</b>	<b>0.010</b>	<b>0.012</b>	<b>0.014</b>	<b>0.015</b>	<b>0.017</b>	<b>0.019</b>	<b>0.021</b>
	(0.005-0.006)	(0.006-0.007)	(0.008-0.010)	(0.009-0.011)	(0.011-0.014)	(0.012-0.016)	(0.013-0.018)	(0.015-0.020)	(0.016-0.023)	(0.018-0.025
30-day	<b>0.004</b>	<b>0.005</b>	<b>0.007</b>	<b>0.008</b>	<b>0.009</b>	<b>0.010</b>	<b>0.012</b>	<b>0.013</b>	<b>0.015</b>	<b>0.016</b>
	(0.004-0.004)	(0.004-0.006)	(0.006-0.007)	(0.007-0.009)	(0.008-0.011)	(0.009-0.012)	(0.010-0.013)	(0.011-0.015)	(0.012-0.017)	(0.013-0.019
45-day	<b>0.003</b>	<b>0.004</b>	<b>0.005</b>	<b>0.006</b>	<b>0.007</b>	<b>0.008</b>	<b>0.009</b>	<b>0.010</b>	<b>0.011</b>	<b>0.012</b>
	(0.003-0.004)	(0.004-0.005)	(0.005-0.006)	(0.005-0.007)	(0.006-0.008)	(0.007-0.009)	(0.008-0.010)	(0.009-0.011)	(0.009-0.012)	(0.010-0.013
60-day	0.003	0.003	0.005	0.005	0.006	0.007	0.008	0.008	<b>0.009</b> (0.008-0.010)	0.009

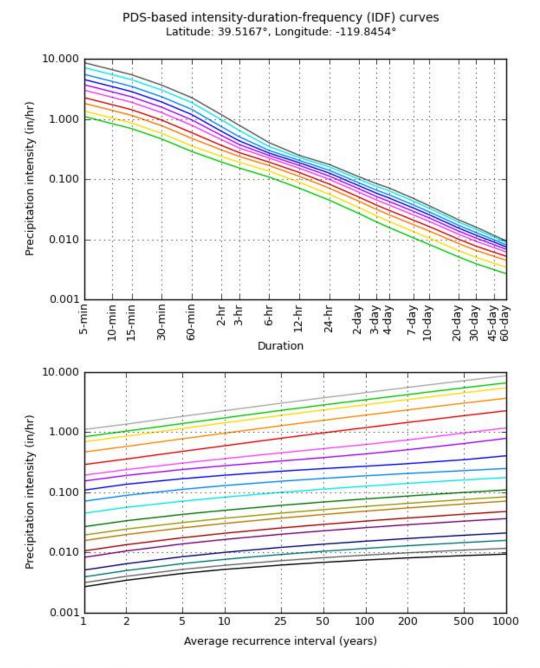
<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

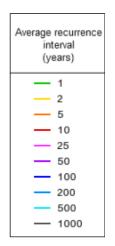
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper 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.

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# **PF graphical**





Duration								
5-min	- 2-day							
- 10-min	— 3-day							
- 15-min	— 4-day							
- 30-min	— 7-day							
- 60-min	- 10-day							
- 2-hr	- 20-day							
3-hr	- 30-day							
6-hr	- 45-day							
12-hr	- 60-day							
24-hr								

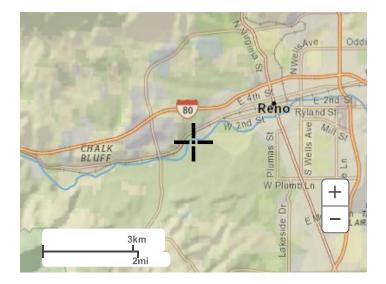
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Maps & aerials

Small scale terrain

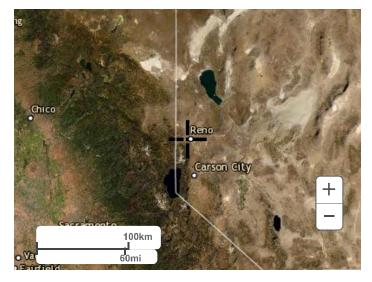


Large scale terrain



Large scale map

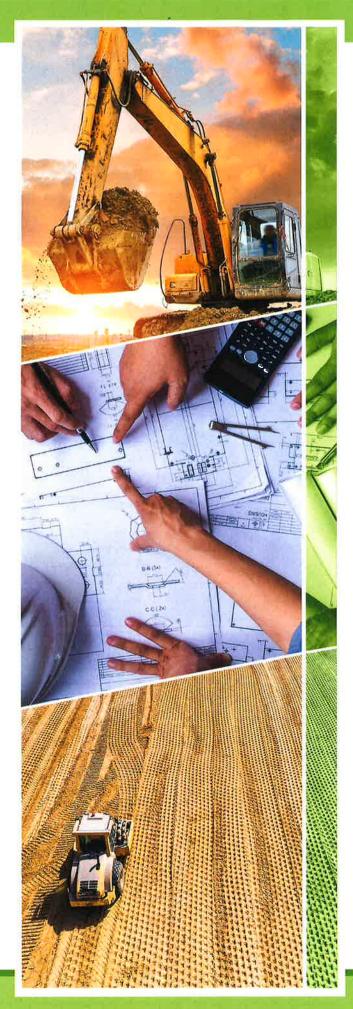
Large scale aerial



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US Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Water Center 1325 East West Highway Silver Spring, MD 20910 Questions?: <u>HDSC.Questions@noaa.gov</u>

**Disclaimer** 



# **GEOTECHNICAL IN VESTIGATION**

# **RIVERPOINT AT IDLEWILD**

Reno, Washoe County, Nevada

# Submitted To

Mr. Mike Daniels **1085 Group, LLC** 8700 Technology Way Reno, NV 89521

# Project No. 4143001

December 2021



Justin M. McDougal, PE PE Number -24474 (NV)



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#### **EXECUTIVE SUMMARY**

The overall site, located in the City of Reno, Washoe County, Nevada, encompasses an area of approximately 5.6 acres, and based on representative latitude and longitude, is located at 39.5168°N and -119.8455°E, respectively. The site is bordered by Idlewild Drive to the south and apartments and townhomes to the west, north, and east. Notably the Truckee River is located a few hundred feet to the north of the site. Overall, the site is relatively flat with a two to three percent slope from the north to the center of the site, and the southern quarter of the site is raised approximately six to eight feet adjacent to Idlewild Drive. Vegetation consists of grasses, sage brush, and a few small trees. Scattered boulders are located along the western border of the site.

Per Google Earth Imagery, a hospital previously occupied the project area which was razed between 1994 and 1999. The site was then cleared and rough graded circa 2004. Between 2007 and 2010, uncontrolled fill was placed across the site which ranged between 3 ½-feet and 6 ½-feet in thickness. Mitigation of the uncontrolled fill is outlined in Section 8.3 of this report.

The Riverpoint at Idlewild project consists of developing a clubhouse, pool, 92 townhouse units, and associated parking and drive areas. The structures are anticipated be two to three-stories in height, wood-framed, with conventional spread foundations or structural slab-on-grade foundations. Foundation loads are anticipated to be light. The Grading Plan provided by 1085 Group, LLC, dated November 21, 2021 indicates fills across the site approaching up to seven feet in thickness.

The native soils units encountered in our explorations typically consisted of granular soils with some oversize material up to 3-feet in diameter. Fill soil was encountered across the site. The majority of the fill appeared to consist of native soils. The native subsurface conditions we encountered are consistent with the geologic map. Groundwater was encountered as shallow as 9.25 feet below ground surface in test pit TP-3. Due to the relatively shallow groundwater encountered on the site, provisions for wet trench conditions should be included in construction planning and cost estimates.

Excavatability will probably be more difficult in utility trenches where removal of larger sized particles can be difficult within the confines of a trench which may result in irregular trench widths where boulders must be removed. Sloughing of the trench sidewalls was observed in most of the test pits as noted on the logs in Appendix A.

### **1.0 INTRODUCTION**

Presented herein are the results of Wood Rodgers' preliminary geotechnical exploration, laboratory testing, and associated geotechnical design recommendations for the proposed Riverpoint at Idlewild project to be located in Reno, Nevada. The assessments and recommendations presented in this geotechnical report have been determined, in part, around the surface and subsurface conditions identified by our exploration program which was developed to be consistent with locally accepted industry practices regarding exploratory means and methods for geotechnical investigations of similar projects. The proposed structural elements, topography, grading design, soils, and geology are all unique; therefore, the engineering judgment employed by those in responsible charge of geotechnical design considerations, as defined by the State of Nevada, is considered the established and accepted standard of care for our evaluations and analyses associated with this report.

This report has been prepared in consideration of the applicable provisions set forth in the International Building Code (IBC, 2018), ASCE 7, and the amendments and modifications adopted by the City of Reno. These documents establish the minimum requirements to safeguard the public health, safety and general welfare of the occupants as well as the minimum level of structural integrity, life safety, fire safety and livability for inhabitants of new and existing structures. Geotechnical considerations for public improvements have been formulated around the requirements of the City of Reno Public Works Design Manual and the Standard Specifications for Public Works Construction. Performance standards around which our primary recommendations have been framed are based upon the requirements of the referenced documents. Any expectations of performance inconsistent with, outside the purview of, or exceeding the requirements of the referenced documents are subjective and, therefore, a function of materials, design, workmanship, and ownership. Unless these expectations of performance are specifically stipulated or quantified herein, they are considered in excess to the scope and design standards of this report.

The objectives of this study were to:

- 1. Explore, test, and assess general soil, geology, and ground water conditions pertaining to design and construction considerations for the proposed development.
- 2. Provide recommendations associated with the design and construction of the project, as related to the identified geotechnical conditions and the stipulated design levels and performance standards established herein.

Project location is indicated on Plate A-1a in Appendix A. The area specifically covered by this report is shown in Figure 1 and on Plate A-1b (Site Map) in Appendix A. Our study included field exploration, laboratory testing, and engineering analyses to identify the physical and mechanical properties of the various on-site materials. Results of our field exploration and testing programs are included in this report; in consideration of the stated design levels and performance standards, these results form the basis for our conclusions and recommendations.

# 2.0 PROJECT DESCRIPTION

The Riverpoint at Idlewild project consists of developing a clubhouse, pool, 92 townhouse units, and associated parking and drive areas. The structures are anticipated be two to three-stories in height, wood-framed, with conventional spread foundations or structural slab-on-grade foundations. Foundation loads are anticipated to be light.

The Grading Plan provided by 1085 Group, LLC, dated November 21, 2021 indicates fills across the site approaching up to seven feet in thickness.

Any street improvements on Idlewild Drive will be dedicated to the City of Reno. Underground utilities will be provided by a variety of public and private companies.

# 3.0 SITE CONDITIONS

The overall site, located in the City of Reno, Washoe County, Nevada, encompasses an area of approximately 5.6 acres, and based on representative latitude and longitude, is located at 39.5168°N and -119.8455°E, respectively. As shown in Figure 1, the site is bordered by Idlewild Drive to the south and apartments and townhomes to the west, north, and east.

Overall, the site is relatively flat with a two to three percent slope from the north to the center of the site, and the southern quarter of the site is raised approximately six to eight feet adjacent to Idlewild Drive. Vegetation consists of grasses, sage brush, and a few small trees. Scattered boulders are located along the western border of the site.



FIGURE 1 - PROJECT DEVELOPMENT AREA

Per Google Earth Imagery, a hospital previously occupied the project area which was razed between 1994 and 1999. The site was then cleared and rough graded circa 2004. Between 2007 and 2010, uncontrolled fill was placed across the site which ranged between 3 ½-feet and 6 ½-feet in thickness.

# 4.0 **EXPLORATION**

The project was explored in December 2021 by excavating a series of six test pits using a Volvo 145 excavator and conducting a geophysical field study of shear wave velocity utilizing the Refraction Micro-tremor (ReMi) method. The approximate locations of the test pits and ReMi geophysical lines are shown on Plate A-1b – Site Map. Maximum depth of test pit advance extended to 12-feet below the existing

ground surface. Bulk samples for index testing were collected from representative depths within the soil horizon. Plate A-1c presents an Improvement Map showing current project layout in relation to the site and exploration locations.

Wood Rodgers' personnel examined and classified soils in the field in general accordance with ASTM D2488 (Description and Identification of Soils). During exploration, representative bulk samples were placed in sealed plastic bags and subsequently returned to our Reno, Nevada laboratory for testing. Additional soil classifications, as well as verification of the field classifications, were performed in accordance with ASTM D2487 (Unified Soil Classification System [USCS]) upon completion of laboratory testing as described below in the Laboratory Testing section. Logs of the test pits are presented as Plate A-2. A USCS explanatory chart of soil unit symbols and related descriptions has been included as Plate A-3 - Unified Soil Classification s.

Shear wave velocity measurements have been relied upon for the development of geotechnical design characterization of soil stiffness. This information also aids in the determination of an appropriate Site Class (IBC, ASCE 7) and provides a screening tool for liquefaction potential. Plates A-5 presents the geophysical profile.

# 5.0 LABORATORY TESTING

Soil testing performed in the Wood Rodgers' laboratory was conducted in general accordance with the standards and methods described in Volume 4.08 (Soil and Rock; Dimension Stone; Geosynthetics) of the ASTM Standards. Samples of significant soil types were analyzed to determine in-situ moisture contents (ASTM D2216), grain size distributions (ASTM D6913), and plasticity indices (ASTM D4318). Results of the testing is presented in Appendix A on Plates A-4a through A-4b. Table 1 also presents a summary of the test data. The test results were used to classify the soils according the USCS (ASTM D2487) and to verify the field logs which were then updated.

Additional testing included chemical tests to indicate the potential for corrosion to concrete and steel elements which is presented on Plate A-4c.

Test Hole	Depth (Ft.)	Moisture (%)	%Gravel (+ #4)*	% Sand (#4- #200)	%Fines (-#200)	Liquid Limit	Plastic Index	USCS		
ASTM Standard		D2216	D6913			D43	D2487			
TP-1	0.5-3	7.9	32.3	47.7	20.0	25	7	SC-SM		
TP-3	0.5-4	6.7	16.1	74.6	9.3	NP	NP	SW-SM		
TP-4	0.25-1.75	8.5	20.5	58.9	20.6	25	7	SC-SM		

Table 1 - Summary of Test Data

Test Hole	Depth (Ft.)	Moisture (%)	%Gravel (+ #4)*	% Sand (#4- #200)	%Fines (-#200)	Liquid Limit	Plastic Index	USCS			
ASTM Standard D		D2216	D6913			D4318		D2487			
TP-6	6-9	3.8	49.4	25.5	6.2	24	3	GW-GM			

Table 1 - Summary of Test Data

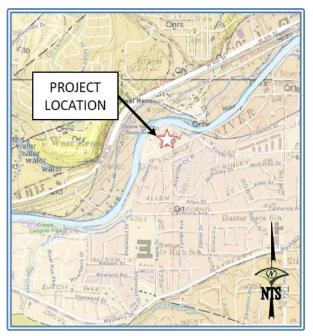
\* Since ASTM D2487 is limited by a maximum particle size of 3", the gradation test data presented is based on a maximum particle size of 3".

# 6.0 GEOLOGIC AND GENERAL SOIL AND GROUNDWATER CONDITIONS

Based on the Preliminary revised geologic maps of the Reno urban area, Nevada (Ramelli, Henry, Walker, 2011), shown in Figure 2, the site is mapped in an area of Pleistocene undivided Truckee River Deposits (Qrt). The native soils units encountered in our explorations typically consisted of granular soils with some oversize material up to 3-feet in diameter. Fill soil was encountered across the site. The majority of the fill appeared to consist of native soils. The native subsurface conditions we encountered are consistent with the geologic map.

Groundwater was encountered as shallow as 9.25 feet below ground surface in test pit TP-3.

#### 7.0 SEISMIC HAZARDS



#### FIGURE 2 - GEOLOGIC MAP

The Truckee Meadows lies along the western margin of the Basin and Range physiographic province located between the Virginia Range and the Pah Rah Range to the east and the Carson Range to the west. The Basin and Range province is characterized by a series of valleys bounded by north/south trending mountain ranges, byproducts of the seismically active zones of the Wasatch Front in Utah and the Sierra Nevada Mountains along the California/Nevada border. Faulting and seismic activity are integral to the formation of this series of alternating valleys and mountain ranges. As a consequence, the presence of faults, active and inactive, are common in western Nevada.

#### 7.1 Surface Rupture

Criterion for evaluating earthquake faults has been formulated by a professional committee for the State of Nevada Earthquake Safety Council. The guidelines present recommendations that faults with evidence of movement within the past 10,000 years (Holocene time) are considered Holocene active. The United States Geological Survey (USGS) describes faults with evidence of displacement within the last 15,000

years to be considered Latest Quaternary active, faults with movement in the last 130,000 years are considered Late Quaternary active and faults with movement within the last 1.6 million years are considered Quaternary active. The guidelines recommend that active Holocene faults be offset by occupied structures a minimum of 50 feet. In addition, the guidelines specify that no "critical facilities" shall be placed over a Late Quaternary active fault.

The USGS U.S. Quaternary Faults Map was accessed to review the proximity of any active faults as previously characterized. The closest mapped fault is located approximately 950 feet to the north of the site and would be considered Quaternary active. The fault is part of the unnamed fault zone in the Truckee River canyon and is sufficiently distant that offsets or additional geotechnical considerations are not recommended; surface rupture is considered unlikely.

#### 7.2 Liquefaction

Liquefaction is a loss of soil shear strength that can occur during a seismic event as excessive pore water pressure between the soil grains is induced by cyclic shear stresses. This phenomenon is limited to poorly consolidated (Standard Penetration Test less than 30, overburden stress corrected shear wave velocity less than 700 fps) clean to silty sand/sandy silt lying below the ground water table (typically less than 50 feet deep).

Based on the observed depth to groundwater and the results of the geophysical survey, liquefaction induced settlement and lateral spread are considered low on the project site.

# 7.3 Slope Instability

The site and surrounding low-lying topography are such that the potential for slope instability at the site due to gravitational or seismic activity is considered low provided site grading recommendations are incorporated in cut and fill slope designs.

# 8.0 DISCUSSION AND RECOMMENDATIONS

#### 8.1 General Information

The following definitions characterize terms utilized in this report:

- Rock fill possesses more than 30-perent retained on the 3/4-inch sieve. Rock fill may present particles up to 12-inches.
- Fine-grained soil possesses more than 40 percent by weight passing the number 200 sieve and exhibits a plasticity index lower than 15.
- Clay soil possesses more than 30 percent passing the number 200 sieve and exhibits a plasticity index greater than 15.
- Granular soil does not meet the above criteria and has a maximum particle size less than 6-inches.

It should be noted these definitions have been formulated around anticipated soil behavior and may not coincide with classifications provided by the Unified Soil Classification System.

The recommendations provided herein, particularly under Site Preparation, Grading and Filling, Foundations, Site Drainage, and Construction Observations and Testing Services are intended to reduce risks of structural distress related to consolidation or expansion of native soils and/or structural fills. These recommendations, along with proper design and construction of the planned structure(s) and associated improvements, work together as a system to improve overall performance. If any aspect of this system is ignored or poorly implemented, the performance of the project will suffer. Any evaluation of the site for the presence of surface or subsurface hazardous substances is beyond the scope of this study. When suspected hazardous substances are encountered during routine geotechnical investigations, they are noted in the exploration logs and reported to the client. No such substances were identified during our exploration.

Recommendations for paved improvements in right-of-way areas will be consistent with City of Reno standards. On-site parking and driveway recommendations are in general conformance with AASHTO's Low Volume Road design protocols, the Portland Cement Association (PCA) and American Concrete Institute (ACI) recommendations. Underground utilities will be provided by a variety of public and private companies; trenching and backfill recommendations presented herein are generally consistent with OSHA and City of Reno requirements, respectively.

The test pits were advanced at the approximate locations shown on the site map. Each test pit was backfilled upon completion of the field portion of our study, and the backfill was compacted to the extent possible with the equipment on hand. However, the backfill was not compacted to the requirements presented herein under Grading and Filling. If structures, concrete flatwork, pavement, utilities or other improvements are to be located in the vicinity of any of the test pits, the backfill should be removed and re-compacted in accordance with the requirements contained in the soils report. Failure to properly compact backfill could result in excessive settlement of improvements located over test pits.

The site-specific Stormwater Pollution Prevention Plan (SWPPP), as required by the State of Nevada, will be the responsibility of the general contractor and/or owner. Recommendations presented herein regarding moisture conditioning are for the benefit of creating a targeted fill behavior. Moisture conditioning recommendations are not intended to direct the contractor in their means and methods for dust and SWPPP control.

Structural areas referred to in this report include all areas of buildings, concrete slabs, asphalt pavements, as well as pads for any minor structures or retaining walls. Areas which extend behind or under rockery or other retaining structures are considered structural zones. In addition, the structural zone shall be

considered to extend at a 1:1 (H:V) slope out from the edge of the structural footprint. All compaction requirements presented in this report are relative to ASTM D 1557<sup>1</sup>.

# 8.2 Soil Profile Type Amplification Factors

In accordance with ASCE 7-16 and the Northern Nevada Amendments of the 2018 IRC, Site Class C has been assigned to the project. Seismic design values were determined based on a representative latitude and longitude of 39.5168°N and -119.8455°E, respectively. Per ASCE 7-16, the site's modified Peak Ground Acceleration (PGA<sub>M</sub>) to be used for engineering analyses is equal to 0.862g. The ASCE 7 Hazards reports, presenting Risk Categories II and III for the Structural Engineer's consideration, is presented in Appendix B.

# 8.3 Site Preparation

All vegetation and topsoil are to be cleared and grubbed from structural areas. A minimum stripping depth of 0.3 to 0.5 feet is anticipated. Localized deeper areas may be required in areas of large brush and trees or where large root balls are encountered. Vegetation and organic debris should be disposed of offsite or placed in designated non-structural areas. If on-site disposal is approved, vegetation could be blended with soil (at a maximum ratio of 1:10 vegetation to soil, by mass) prior to placement in nonstructural fill or landscape areas. It is recommended that the organic materials be broken up using a large sheep's foot roller or chipped prior to blending with soil and moisture conditioning. Placement of tree trunks, root balls and limbs within any fill profile is prohibited.

Any undocumented fill material encountered within the development area shall be removed to within one foot of the underlying native soil. The resulting surface should then be moisture conditioned to near optimum moisture content and compacted with heavy vibratory compaction equipment to at least 90 percent compaction per ASTM D1557 before placing additional fill. The fill soils to be re-used as structural fill should be screened for oversize material (i.e., > 12-inches), moisture conditioned to near optimum moisture content, and compacted to the recommendations provided in Section 8.4 of this report. Refer to the test pit logs in Appendix A for depths of uncontrolled fill on the project site which ranged between 3 ½ and 6 ½ feet across the site.

Particles larger than the maximum particle size stipulated in Section 8.1 (also referred to as oversize), will be generated during mass grading of cut zones and trenching. Depending on the improvement under construction, any resulting void created by removal of oversize material may be filled with concrete during a footing pour, or with structural fill placed and compacted to at least 90-percent relative compaction (ASTM D1557).

<sup>&</sup>lt;sup>1</sup> • Relative compaction refers to the ratio (percentage of the in-place density of a soil divided by the same soil's maximum dry density) as determined by the ASTM D 1557 laboratory test procedure. Optimum moisture content is the corresponding moisture content of the same soil at its maximum dry density.

Prior to receiving structural fill or structural loading, subgrade soils should be moisture conditioned to within 3-percent of optimum moisture content and densified for a depth of 12-inches to not less than 90-percent of the soil's maximum dry density (ASTM D1557).

Where less than 70 percent of the material passes the ¾-inch sieve, the soil is too coarse for determining the moisture-density relationship of the material (ASTM D1557) and a proof rolling program consisting of a performance specification of a minimum of five single passes with a minimum 20-ton roller for mass grading, or five complete passes with a vibratory hand compactor in footing trenches is recommended.

In all cases, the final subgrade shall be smooth, firm, and relatively unyielding as determined by the Engineer. Compaction limits shall extend at 1H:1V below the edge of structural areas and at least five feet beyond the edges of the structural improvements.

If encountered, pumping soils may be scarified and allowed to dry or removed and replaced with a layer of compacted structural fill. Alternatively, in cases of severe yielding, angular, 12-inch minus stabilizing angular rock fill may be utilized. The size of the rock could vary depending on the soil's consistency and depth of soft, saturated soils. Depending on the size of rock, the minimum stabilization layer thickness should be a minimum of 1 1/3 times the largest diameter rock. Depending on the amount of moisture present and source, a separation geomembrane such as Mirafi 180N may be required. The geomembrane should be placed as a "burrito wrap" that encapsulates the entire stabilization rock fill. A minimum overlap of one foot is required. Subgrade stabilization is a trial-and-error process, and it is recommended that a test section of suitable depth and length be conducted. The contractor should propose a stabilization protocol that is consistent with their readily available means and methods, and this proposal presented for review, by the owner, the general contractor, and grading inspector. For the design considerations presented in this report, subgrade stabilization is considered adequate if the subgrade is firm and relatively unyielding (as approved by the engineer) when proof-rolled with a fully loaded water truck. Subgrade stabilization may not be required for walkways or private improvements subject solely to foot traffic providing the required compaction levels are achieved; however, if/where walkways or private improvements are structurally connected to the building, subgrade stabilization is required.

Groundwater was encountered as shallow as 9.3-feet below the existing ground surface. Excavations for underground storage tanks or utility trenches that approach groundwater or that extend to within the zone of influence of groundwater will have a greater tendency to yield, slough or cave and must be adequately considered and mitigations planned for by the contractor. If underground storage tanks are placed within the groundwater depth, tie down anchors or other measures may be required to counteract hydrostatic pressure acting on the tank when empty or low.

# 8.4 Grading and Filling

Structural fill is defined as any material placed below structural elements and includes foundations, concrete slabs-on-grade, pavements, or any structure that derives support from the underlying soil. Granular and

fine-grained soil generated on-site and free of vegetation, organic matter, and other deleterious material may be used as structural fill. Particles larger than the maximum particle size stipulated in Section 8.1 (also referred to as oversize) shall be screened from the soils prior to reuse. Imported structural fill should be substantially free of organic matter, any deleterious material, and meet the requirements of Table 2 for onsite use outside of public right-of-way unless approved by the local jurisdiction. Right-of-way areas should otherwise be subject to the Structural Fill requirement of the latest adopted version of Standard Specifications for Public Works Construction.

Sieve Size (ASTM D6913)	Percent by Weight Passing Sieve
6 Inch	100
4 Inch	90 - 100
¾ Inch	70 - 100
No. 40	15-70
No. 200	5-30
Maximum Liquid Limit (ASTM D4318) <sup>(1)</sup>	40
Maximum Plasticity Index (ASTM D4318) <sup>(1)</sup>	15
Soluble Sulfate Level (ACI 318, Table 4.3.1)	Negligible
R-Value (ASTM D2844)	30 Min.
1 Dry Method	

Table 2 - Guideline Specification for Imported Structural Fill for On-Site Use

Dry Method

Adjustments to the recommended limits presented in Table 3 may be approved upon request on a caseby-case basis to allow the use of other granular, non-expansive material, including rock fill. Any such adjustments must be made and approved by the Geotechnical Engineer, in writing, prior to importing structural fill to the site.

Soils that are classified as 'rock-fill' should be placed in conformance with the following recommended construction placement verification procedures.

- A moisture-density relationship (ASTM D1557 Method C) should be determined on the portion of the material passing the 3/-inch sieve. This data should be used in the documentation of the in-place moisture content of the fill and subgrade soil as it relates to optimum as well as determining the relative compaction of the soil matrix within rock fill.
- Where standard density testing cannot be performed due to oversize material, developing performance criteria for proof rolling is recommended which typically consists of at least five single passes with a minimum 20-ton roller (815 Caterpillar "Sheepsfoot" compactor, or equivalent) for mass grading, or five complete passes with hand compactors or pneumatic trench roller in footing trenches is recommended. This alternative has proven to provide adequate performance as long as all other geotechnical recommendations are closely followed. Continuous monitoring of the proof-rolling program should be provided to establish that no significant increase in measured density is occurring

with subsequent passes prior to terminating compaction efforts. The rolling pattern established shall be reported and shall include number of passes (each way), equipment used, thickness of fill lift, and estimated fraction of the fill passing the <sup>3</sup>/<sub>4</sub>-inch sieve. Density tests and moisture contents should be reported as part of the quality assurance program.

- Compacted granular fill should be plus or minus 3 percent of optimum moisture. Higher moisture contents are acceptable if the soil lift is stable and required compaction can be obtained in succeeding fill lifts.
- Oversize rock particles up to 12-inches in diameter may be used as approved by the Engineer within
  the on-site fill material and should be placed in such a manner that nesting of the oversize rock
  material does not occur. In other words, the voids between the rock particles should be filled with a
  finer grained material to create a dense, homogenous mixture (i.e., well graded). Compliance with
  this requirement will be based on both careful construction procedures of the grading contractor and
  approval by the Engineer's representative.
- Granular soils with particles up to 12-inches in diameter can be placed in maximum 18-inch lifts. Granular soils with particles up to 6-inches in diameter can be placed in maximum 12-inch lifts.

A nominal maximum particle size of 6-inches is recommended for the final 24-inches of pad fills to facilitate fine grading and advancing utility and footing trenches.

Structural fill, not meeting the definition of rockfill, should be placed in maximum 12-inch thick (loose) level lifts utilizing heavy vibratory compaction equipment such as a Caterpillar 815 and densified to at least 90 percent relative compaction (ASTM D1557). All structural fill soils should have moisture contents of at least plus or minus 3 percent of optimum moisture (ASTM D1557) prior to densification. Where structural fills exceed five feet in thickness, the minimum compaction requirement shall be increased to 95 percent. During freezing periods, the contractor must protect areas to receive additional fill from freezing by the use of concrete blankets or by the use of a minimum of 12-inches of loose capping fill placed by the end of each day's shift.

# 8.5 Testing and Observation

Verification of fills should be performed by a firm that is AASHTO Materials Reference Laboratory (AMRL) accredited in ASTM E329. Special inspection of fill soils is required during mass grading of the development; the Special Inspector should be ICC certified in soils or NAQTC certified in Sampling and Density disciplines. The special inspector shall verify and document that placement of rockfill (if any) is consistent with the grading and placement requirements indicated in the Grading and Filling section of this report.

Density testing of fills should be in accordance with ASTM D6938 (Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods) or ASTM D1556 (Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method) unless rock fill is approved

which will then be subject to performance based full time field observation. Subgrade, structural fill, nonstructural fill, bedding and backfill shall be density tested by the appropriate means and methods.

For soils meeting ASTM gradations that allow for density testing by nuclear methods, testing frequency shall be as prescribed herein. Subgrade should be density tested approximately every 500 square yards. Fill should be density tested once for every 1,000 square yards per lift of material placed during mass grading and one test per 300 feet of footing trenches or overexcavation of footings. Bedding and backfill should be density tested per foot of thickness, the more restrictive of: one test between manholes or valves, or one test every 500 lineal feet, including laterals. One density test should be performed for each 500 square yards or per each lift for smaller, localized fill zones. Construction observation is required for mass graded fills and full time observation is required for any rock fill placement. The testing frequency should be increased if the contractor is having difficulty achieving and maintaining the required moisture levels. Nonstructural fills should be density tested for every 2,000 yards or for every 2-feet of fill for smaller, localized fill zones.

#### 8.6 Trenching and Excavation

Regulations amended in Part 1926, Volume 54, Number 209 of the Federal Register (Table B-1, October 31, 1989) require that the temporary sidewall slopes be limited to maintain trench stability. Minimum sidewall slopes and acceptable trench configurations are also presented in the referenced register. Based on the results of our exploration program, it is our opinion that the bulk of the native site soils appear to be predominately Type C, although variations exist. All fills should conservatively be considered Type C unless directed otherwise by a competent individual trained in trench safety. All trenching should be performed and stabilized in accordance with local, state, and OSHA standards. Bank stability is the responsibility of the contractor or contractor's qualified representative who is present at the site, able to observe changes in ground conditions, and has control over personnel and equipment. Oversize material (> 6-inches) may be encountered during trenching and excavations. Any voids created from the removal of large rocks should be filled with concrete or structural fill compacted to the requirements of this report.

Trench bedding and backfill shall be consistent with the requirements of the City of Reno Public Works Design Manual and the requirements of the private utilities. Based on our testing program, the majority of on-site soils do not meet the requirements of Class E backfill; however, Wood Rodgers is comfortable with the use of native soils for on-site backfill if allowed by respective utility providers as they are granular in nature. The City of Reno should be approached to determine if they will allow native soils to be utilized in right-of-way areas.

Excavatability will probably be more difficult in utility trenches where removal of larger sized particles can be difficult within the confines of a trench which may result in irregular trench widths where boulders must be removed. Sloughing of the trench sidewalls was observed in most of the test pits as noted on the logs in Appendix A. Due to the relatively shallow groundwater encountered on the site, provisions for wet trench conditions for deep trenches should be included in construction planning and cost estimates. Pot holing of the site prior to bidding and construction is recommended to determine current groundwater conditions.

### 8.7 Foundations

#### 8.7.1 Standard Spread Foundations

Provided the foundation soils have been prepared in accordance with the recommendations of this report, the bearing values presented in Table 3 may be used for design.

Table 3 - Allowable Foundation Bearing Pressures	
Loading Condition	Maximum Net Allowable Bearing Pressure (PSF) <sup>1</sup>
Dead Load Plus Full Time Live Load	3,000
Dead Load Plus Live Loads, Plus Transient Wind or Seismic Loads	4,000

Table 3 - Allowable Foundation Bearing Pressures

 $^{\rm 1}\,{\rm Net}$  allowable bearing pressure is that pressure at the base of the footing in excess of the adjacent overburden pressure.

For frost protection, footings should be founded at least two feet below adjacent outside or unheated interior finish grades. Interior footings not located within frost prone areas should be founded at least 12 inches below surrounding ground or slab level for confinement. Regardless of loading, individual pad foundations and continuous spread foundations should be at least 18 and 12 inches wide, respectively, or as required by code. The minimum footing sizes recommended are based on the ability to develop bearing capacity. Footings should be designed by the project civil or structural engineer.

Lateral loads, such as wind or seismic, may be resisted by passive soil pressure and friction on the bottom of the footing. Coefficients of base friction of 0.40 are typical to structural fills. Design values for active and passive equivalent fluid pressures of 37 and 350 pounds per square foot per foot of depth, respectively, can be utilized. However, in designing for passive pressure, the upper one-foot of the soil profile should not be included unless confined by a concrete slab, or pavement. These design values are based on spread footings bearing on native granular soils, native fine-grained soils, or structural fill and backfilled with structural fill.

If loose, soft, wet, or disturbed soils are encountered at the foundation subgrade, these soils should be removed to expose suitable foundation soils, and the resulting over-excavation backfilled with compacted structural fill or subgrade stabilized by the use of angular cobble rock fill as previously discussed. The base of all excavations should be near optimum moisture and free of loose materials at the time of concrete placement.

Total settlement for the structures is anticipated to be on the order of 1-inch, or less. Differential settlement between foundations with similar loads and sizes is anticipated to be half of the total settlement over 40-feet.

### 8.7.2 Structural Slab-on-Grade Foundations

The design values presented in Table 4 have been developed for use when considering design of structural foundations. The design profile relied upon to develop the values in Table 4 have been based on our December 2021 exploration.

	6		
Design Values	Condition	Center Lift	Edge Lift
Post Tonsioning Institute (DTI)	Edge Moisture Variation - e <sub>m</sub> (ft.)	9.0	5.4
Post-Tensioning Institute (PTI)	Differential Soil Movement - y <sub>m</sub> (in.)	-0.21	0.26

### Table 4 - Structural Slab-on-Grade Design Recommendations

Post-construction settlement of the slab foundation, not including the contributions due to edge and center lifts is modeled to approach a ½-inch over 40-feet. If significant time passes between preparing this geotechnical report and constructing foundations, or if fill is imported to the site that is not considered structural, it is important that additional analysis be performed to verify the design values and update as necessary.

Soil chlorides shall be mitigated per Section 4.3.2.2 – Soil Chlorides from the referenced PTI manual. Test results obtained during our investigation have been attached with this report in Appendix A.

An allowable bearing value of 2,500 pounds per square foot may be utilized for design. This value may be increased by a factor of 1.33 when considering wind or seismic loading. An uncorrected k-value of 120 pci, which is not corrected for footing size, may be used for design.

Per the requirements of the Northern Nevada Amendments to the IBC, turn downs for structural slabs must extend to a minimum depth of 2-feet below finished adjacent exterior grade or be designed to resist the effects of frost-heave (such as insulation as presented in ASCE 32). It should be pointed out, however, that potential movement due to frost-heave would be in addition to edge-lift caused by clay activity and, therefore, the design edge-lift value should consider the cumulative effects of the two influences. In addition, the 2018 Northern Nevada Code Amendments require that deflection calculations "would need to show that the maximum combined frost and expansive soil heaving, as localized at slab edges, with resultant non-uniformly distributed deflections, as well as whole slab deflections would not result in super structure racking or excessive truss, roof, or wall frame movement." Minimum slab thickness and recommended turn-down should be established by the Structural Engineer.

The project area is in a cold region for which special concrete placement and design considerations for adverse weather are warranted for post-tensioned slabs in general and for residences left unheated for

an extended period of time. The potential for structural slab curling is especially a concern in areas subject to low humidity and hot or cold conditions. Aggressive use of curing compounds is recommended for a minimum of two weeks after concrete placement or as indicated by the curing product manufacturer.

The preferred slab profile has been selected to consist of a 15-mil moisture vapor retarder such as Stego Wrap covered by a minimum two-inch layer of compact Type 2 Class B aggregate base placed near optimum moisture content and compacted by at least three complete passes with a vibroplate. Per Figure R6.2 (PTI DC10.5-12), Table 5 presents the recommended coefficients of friction,  $\mu$ , for first and average subsequent movements based on the design slab support profile. A sand layer or size No. 67 concrete aggregate is not recommended for direct slab support. If location of the polyethylene sheeting significantly impacts the design or tensioning protocol, we recommend placement of the vapor retarder be indicated as a special inspection item.

Material	First Movement	Average Subsequent Movements
Aggregate Base	1.95	1.37
Structural Fill	1.72	0.88
Polyethylene Sheeting <sup>1</sup>	0.88	0.55

Table 5 - Coefficient of Friction,  $\mu$ , for 5-inch Slabs

<sup>1</sup>For normal construction practice,  $\mu = 0.75$ 

Post-tensioned foundations, when compared to conventionally reinforced slabs, are expected to deform. The flexibility of the slab distributes localized soil movement to a more uniform slab shape; however, it is important that other consultants be cognizant of this behavior so that their products and design can be made compatible with a flexible foundation system. Typically, roof trusses, load concentrations, architectural features spanning between the active and non-active zones, non-flexible exterior siding, brittle floor coverings, and areas that slope to drain and utility connections warrant closer scrutiny.

Some floor coverings, such as tile or linoleum, are sensitive to moisture that can be transmitted through slabs. Floor coverings should be installed in accordance with the manufacturer's recommendations including restrictions related to maximum vapor transmission rates.

All concrete placement and curing should be performed in accordance with procedures outlined by the American Concrete Institute (ACI) publication 318. Special considerations should be given to concrete placed and cured during hot or cold weather conditions.

Post-construction practices must be incorporated to help ensure the successful performance of the structural slabs. To help minimize movements in soils due to post-construction factors, not climate related, the following maintenance procedures are required:

- Uniform landscaping should be provided adjacent to the perimeter of the foundation, and excellent drainage provided and maintained away from the residence. It is strongly recommended that only drip irrigation, if any, be installed within five feet of foundations. Never allow water to pond adjacent to the structure.
- Recommended positive drainage is a minimum of six inches of fall in ten feet (5%), and impervious surfaces within ten feet of the building foundation should be sloped a minimum of two percent away from the foundation.
- Irrigation water should be applied in a uniform, systematic manner as equally as possible on all sides of the structures to keep the soil moist. Areas without ground cover may require more moisture due to the potential for increased evaporation.
- Soaker hoses, if used, should be placed a minimum of five feet away from foundation edges. Sprinklers should not be allowed to spray directly on building foundations.
- Trees should not be planted within 10 feet of the structure.
- Check gutters and downspouts to be sure they are clear, and water discharges a minimum of five feet from foundation.
- The foundation perimeter should be observed during extreme hot and dry periods to help ensure that adequate watering is being provided to prevent the soil from separating from the foundation.

It is strongly recommended that a yearly survey of foundations is conducted and any maintenance necessary to improve drainage and prevent ponding of water adjacent to these structures is performed. This is especially important during the first ten years after construction because that is usually when the most severe adjustment between the new foundation and supporting soil occurs. Following the above listed procedures should help limit detrimental foundation movement caused by expansive soils. These recommendations should be provided to homeowners and any landscape contractors to prevent adverse grading, watering or planting to occur. It is further recommended that Landscape contracts contain specific language regarding the necessity of maintaining code grading requirements as well as planting and watering conditions presented herein.

### 8.8 Retaining Walls

Recommended lateral earth pressures for consideration in the design of retaining structures with level backfill are presented in Table 6. The values presented in Table 6 do not consider hydrostatic pressures or surcharge loading. Traffic loading should be modeled by increasing the wall backfill load by an additional height of two feet. Unless confined by slab or pavement, the surface foot of soil should be ignored when considering passive resistance. If retaining walls contain sloping backfill or are greater than six feet in exposed height, the engineer shall be consulted on a case-by-case basis.

		artifificosarco	
Condition	Active (psf/f)	Passive (psf/f)	At Rest
Condition	Static	Static	(psf/f)
Level	37	350	57

Table 6 - Lateral Earth Pressures

Excessive retaining wall pressures can be developed due to heavy compaction equipment proximate to the wall during backfill placement. Large vibratory compaction should be avoided for retaining wall backfill placed within ten feet of the back face of wall. Small vibratory trench compactors will be suitable for compaction directly behind the wall. Backfill behind retaining structures should be compacted to not less than 90 percent of the soils' maximum dry density. French drains, encased in a drainage gravel backfill layer wrapped in geotextile such as Mirafi 140 N, or a pre-manufactured drain system such as Tensar<sup>®</sup> DC1200 should be utilized if buildup of hydrostatic pressure is possible. Soil preparation for retaining wall foundations and allowable bearing capacities shall be consistent with the Site Preparation, Grading and Filling, and Foundations sections of this report.

### 8.9 Erosion Control

Erosion potential is dependent on numerous factors involving grain size distribution, cohesion, moisture content, slope angle and the velocity of the water or wind on the ground surface. Erosion protection should be in accordance with the City of Reno Public Works Design Manual. Revegetation of disturbed areas subject to sheet flows or concentrated flows less than five feet per second is recommended. Areas that have concentrated flows with velocities greater than five feet per second should incorporate rip-rap or other mechanical stabilization.

Temporary (during construction) and permanent (after construction) erosion control will be required for all disturbed areas. In compliance with all applicable city, county, state and federal regulations the contractor shall prevent dust from being generated during construction, and the contractor shall submit an acceptable dust control plan prior to starting site preparation or earthwork. The project specifications should include an indemnification of the Owner and Engineer by the Contractor for any dust generation during the construction period. The owner will be responsible for mitigation of dust after acceptance of the project.

### 8.10 Site Drainage

Adequate surface drainage must be constructed and maintained away from the structures. The permanent finish slopes away from the structure should be constructed to allow water to drain away quickly from and prevent any ponding of water adjacent to the structure per code requirements. Runoff should be collected within permanent drainage paths that can convey water off the property or to designated collection facilities. A system of roof gutters and downspouts are recommended to collect roof drainage and direct it away from foundations.

Foundation and stem wall backfill should be densified to at least 90 percent relative compaction in accordance with the requirements given in the Grading and Filling Section. Compacting the backfill material decreases permeability and reduces the amount of irrigation and storm water available to enter under floor areas.

### 8.11 Concrete

Sulfate testing on the native soils and the fill soils yielded results in the negligible range. No special concrete provisions are required to address sulfate resistance based on the materials tested. Type 1 or Type 2 cement is recommended for use on the site.

When considering chlorides, ACI 318-11, Table 4.2.1 rates the severity of corrosion as Moderate or Exposure Class C1 for concrete exposed to moisture but not to external sources of chlorides." External sources of chlorides include exposure to deicing chemicals. ACI indicates that this chloride exposure would elevate the exposure class to Severe or Exposure Class C2 which would require a minimum compressive strength of 5,000 psi and a maximum water to cement ratio of 0.40 for exterior slabs-on-grade. The Standard Specification for Public Works Construction, Section 337.10.01.03, presents concrete requirements for public improvements when considering freeze-thaw cycles, salt and sulfates. These considerations should be extended to include private improvements.

As a courtesy, resistivity, pH, chlorides, oxidation-reduction potential, sulfides and moisture were tested to aid others in the assessment of potential corrosivity to ductile iron pipe and/or steel reinforcement; refer to Appendix A, Plate A-4c for test methods and results. Wood Rodgers, Inc. is not a corrosion engineering firm. Therefore, a Corrosion Engineer or Structural Engineer knowledgeable in the project steel specifications should be consulted for final assessments of corrosion potential at the site.

### 8.11.1 Concrete Slab-on-Grade

A 4-inch minimum compacted aggregate base course (Type 2, Class B, Standard Specifications for Public Works Construction) compacted to 95-percent relative compaction is recommended beneath interior or exterior concrete slabs-on-grade subject solely to foot traffic. The recommended base course section should be increased to 6-inches where vehicle traffic is anticipated. Dedicated and public easement improvements shall be constructed in accordance with the City of Reno standards and the Standard Specifications for Public Works Construction.

Wood Rodgers does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, if a vapor retarder system more rigorous than the requirements of the IBC is desired, we recommend that a qualified person/firm be engaged/consulted with to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. This person/firm should provide recommendations for mitigation of potential adverse impact of moisture vapor transmission on various components of the structure as deemed appropriate. If special conditions do not exist, Wood Rodgers typically recommends a moisture vapor retarder, consisting of Stego Wrap (15 mil), or equal, to be placed beneath the aggregate base course as part of the moisture vapor system.

Concrete placement and curing should be performed in accordance with procedures outlined by the American Concrete Institute. Special considerations, as specified in ACI 318, should be given to concrete placed and cured during windy, low humidity, hot or cold (including freezing) weather conditions.

Proper curing, finishing, control joints and reinforcing should be provided to minimize any damage resulting from shrinkage including cracks and slab curling. Western Nevada is a region with absorptive aggregates and exceptionally low relative humidity. As a consequence, concrete flatwork will shrink and curl in a manner which is not typical of many other US regions. Proper site preparation and placement of reinforcement are imperative to the performance of slab-on-grade improvements. Joint spacing, locally, is typically on 10 to 12 foot centers for large slabs and no more than five feet for sidewalks. Cracking that occurs within the slab-on-grade floors will often reflect through overlying improvements even if adequate substrate preparation has occurred. Control of the rate of moisture loss in concrete slab-on-grade improvements by the use of curing compounds, fogging or other suitable means is imperative to protecting the slab from excessive curling.

Conventional concrete slab-on-grade recommendations presented herein are intended to reduce the potential for cracking of slabs as a result of differential movement and reducing slab curling. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still exhibit some cracking and curling. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the amount of water within the mix (water cement ratio of 0.45 or less), the incorporation of crack control joints and proper concrete placing and curing practices including ACI 318 provisions for areas subject to freeze thaw conditions. The use of mid-range plasticizers should be considered to reduce the need to add water by the contractor.

### 8.12 Structural Pavement Sections

Table 7 presents the recommended minimum structural pavement sections for the development based on planned use Aggregate base used to support pedestrian and flexible or concrete pavements should be compacted to a minimum of 95% relative compaction.

Condition	Pavement Thickness (In.)	Pavement Type <sup>1</sup>	Type II Class B Base Course Thickness (In.)									
Main Access Drives	4	2" Type 3 + Lime / 2" Type 2 + Lime	6									
Automobile Parking	3	Type 3 + Lime	6									
Equipment Offload & Loading Areas, Truck Zones	4	Type 2 + Lime	8									

Table 7 - Structural Pavement Sections
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		Tavement Sections	
Condition	Pavement Thickness (In.)	Pavement Type <sup>1</sup>	Type II Class B Base Course Thickness (In.)
Dumpster Aprons <sup>2</sup>	6	Reinforced Portland Cement Concrete	6

Table 7 - Structural Pavement Sections

<sup>1</sup> Per the Standard Specifications for Public Works Construction

<sup>2</sup> Dumpster aprons should extend far enough from the trash enclosure so that the wheel loads are confined to the reinforced concrete pad.

Roadway construction shall be in accordance with the approved plans, the Standard Specifications for Public Works Construction and the City of Reno Design Manual. Roadway subgrade shall be prepared in accordance with the requirements of this report. The Contractor should submit a pavement mix design to the Owner or Engineer, for approval, at least five working days prior to paving. When pavement is placed directly adjacent to concrete flatwork, the finish compacted grade of the pavement should be at least ½ of an inch higher than the edge of adjacent concrete surface to allow adequate compaction of the pavement without damaging the concrete.

### 8.13 Asphalt Concrete Design Life

Maintenance is mandatory to ensure long-term pavement performance and to meet or exceed the assumed 20-year design life. Maintenance refers to any activity performed on the pavement that is intended to preserve its original service life or load-carrying capacity. Examples of maintenance activities include patching, crack or joint sealing, and seal coats. If these maintenance activities are ignored or deferred, premature failure of the pavement will occur.

Premature failure of asphaltic concrete frequently occurs adjacent to poorly graded ponding areas and/or landscape areas. Failures may occur due to excessive precipitation, irrigation and landscaping water infiltrating into the subgrade soils causing subgrade failure. As such, in areas where saturation of the subgrade soils beneath asphaltic pavement may occur, we strongly recommend the owner/project manager include provisions by design for a subdrain system to eliminate the potential for saturation of subgrade soils. The subdrain system should discharge into a permanent drainage area that will not impede drainage flow to cause the system to back-up and/or clog. Appropriate maintenance procedures should be implemented to ensure the subdrain system does not plug and allow for proper drainage of surface and subsurface water beneath paved areas. Subdrain location and configuration should be evaluated once final grading and landscaping plans have been prepared. If the ultimate traffic exceeds the anticipated levels, it may be necessary to reevaluate and overlay the pavement at some time in the future.

NV64-28 (polymerized asphalt oil) is recommended because it is known for substantially reducing cracking due to thermal stresses prevalent in the freeze thaw environment. The savings in long term maintenance of the pavement including crack sealing is in our opinion worth the extra expense. However, this asphalt oil recommendation should be considered optional in that it is relative to frequency of maintenance only and does not affect structural calculations.

The cost associated with proper maintenance is generally much less than the cost for reconstruction due to the premature failure of the pavement. Therefore, since pavement quality is an integral consideration in the formulation of our design recommendations, we strongly recommend the owner/project manager implement a pavement management program.

### 9.0 CONSTRUCTION OBSERVATION AND TESTING SERVICES

The recommendations presented in this report are based on the assumption that the contractors perform their work as required by the project documents and that owner/project manager provides sufficient field-testing and construction review during each phase of construction. Prior to construction, the owner/project manager should schedule a pre-construction conference including, but not limited to representatives of the owner, architect, civil engineer, the general contractor, earthwork and materials subcontractors, building official, and geotechnical engineer. It is the owner's/project manager responsibility to set-up this meeting and contact all responsible parties. The conference will allow parties to review the project plans, specifications, scheduling and recommendations presented in this report, and discuss applicable material quality and mix design requirements. Quality control reports should be submitted to the owner/project manager for review and distributed to the appropriate parties. It is essential that any changes or revisions to project plans be provided to Wood Rodgers in a timely fashion to ensure contractor compliance and avoid construction delays or the need to remove completed work.

During construction, Wood Rodgers Incorporated should have the opportunity to provide sufficient onsite observation of site preparation and grading, over-excavation, fill placement, foundation installation, and paving. These observations would allow us to document the geotechnical conditions are in fact just as anticipated and that the contractor's work meets with the criteria in the approved plans and specifications. Verification of horizontal and vertical control must be provided by whoever was responsible for establishing those boundaries and constructing associated improvements.

### **10.0 STANDARD LIMITATION CLAUSE**

This report has been prepared in accordance with generally accepted local geotechnical practices. The analyses and recommendations submitted are based upon field exploration performed at the specific locations identified and the conditions encountered, as discussed in our report. No guarantee or warranty as to the continuity of soil conditions between exploration points is implied or intended. Therefore, this report does not reflect soil variations that may become evident during the construction period, at which time re-evaluation of the recommendations may be necessary. Final plans and specifications should be reviewed by the design engineer responsible for this geotechnical report to determine if they have been prepared in accordance with the recommendations contained in this report prior to submitting to the building department for review. It is the owner's/project manager responsibility to provide the plans and specifications to the engineer. We recommend our firm be retained to perform construction observation in all phases of the project related to geotechnical factors to document compliance with our

recommendations. The owner/project manager is responsible for distribution of this geotechnical report to all designers and contractors whose work is related to geotechnical factors.

It is the contractor's responsibility for the grading and construction of the designed improvements. This responsibility includes the means, methods, techniques, sequence, and procedures of construction and safety of construction at the site. All construction shall conform to the requirements of the most recently adopted version of the Standard Specifications for Public Works Construction and the requirements of the City of Reno and Washoe County, Nevada. Failure to inspect the work shall not relieve the contractor from his obligation to perform sound and reliable work as described herein and as described in the Standard Specifications.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the project and incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

In the event of changes in the design, location, or ownership of the project after presentation of this report, our recommendations should be reviewed and possibly modified by the Geotechnical Engineer. If the Geotechnical Engineer is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation or misapplication of our recommendations or their validity in the event changes have been made in the original design concept without our prior review. The engineer makes no other warranties, either expressed or implied, as to the professional advice provided under the terms of this agreement and included in this report.

This report was prepared by Wood Rodgers, Inc. for the benefit of 1085 Group, LLC and their duly assigned agents or other responsible parties. The material in it reflects Wood Rodgers' best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Wood Rodgers accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made by third parties or actions based on this report without consultation with Wood Rodgers and written approval for such actions.

### **11.0 REFERENCES**

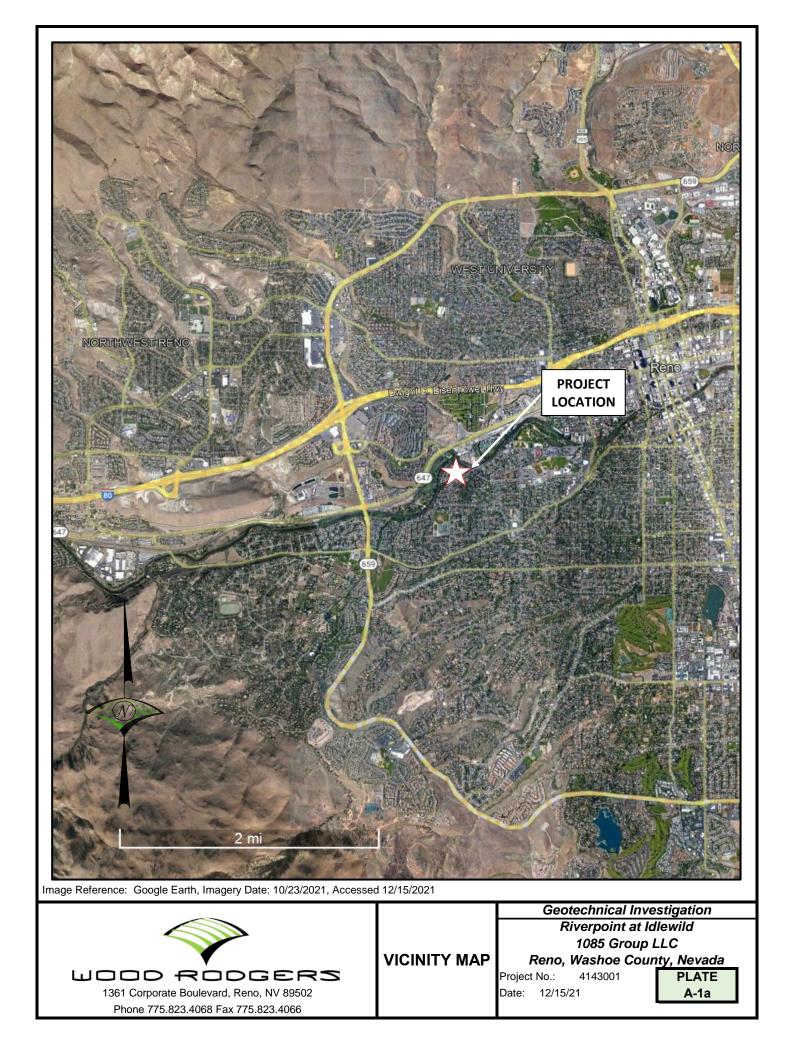
- American Concrete Institute. "318-11: Building Code Requirements for Structural Concrete and Commentary." N.p., n.d. Web. 06 Apr. 2017.
- American Society for Testing and Materials (ASTM), 2014, *Soil and Rock; Dimension Stone; Geosynthetics,* Volume 4.08.
- American Society of Civil Engineers (ASCE), "Minimum Design Loads for Buildings and Other Structures (7-16)." 2017, www.asce.org/templates/publications-book-detail.aspx?id=6725.
- Andrus, Ronald D., and Kenneth H. Stokoe Ii. "Liquefaction Resistance of Soils from Shear-Wave Velocity." Journal of Geotechnical and Geoenvironmental Engineering, vol. 126, no. 11, 2000, pp. 1015– 1025., doi:10.1061/(asce)1090-0241(2000)126:11(1015).
- Bowles, J. E., 1996, Foundation Analysis and Design, McGraw Hill. 5th Edition
- International Building Code 2018 (including Northern Nevada Amendments); International Conference of Building Officials.
- Koerner, Robert M., 1984, Construction and Geotechnical Methods in Foundation Engineering, McGraw-Hill Book Company
- Martin, Geoffrey R. (Geoffrey Robert), and Marshall Lew. *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California*. Southern California Earthquake Center, University of Southern California, 1999.
- Ramelli, A.R., Henry, C.D., Walker, J.P., 2011, Preliminary revised geologic maps of the Reno urban area, Nevada: Nevada Bureau of Mines and Geology, Open File Report 11-7, scale 1:24,000

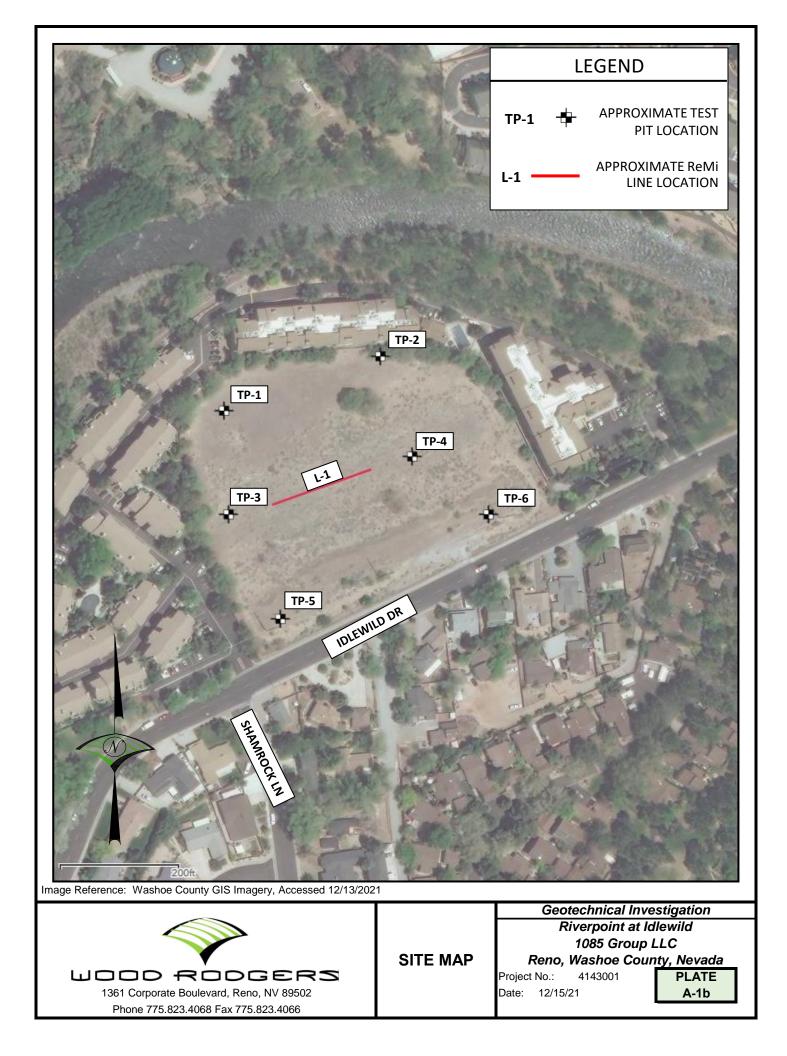
Sowers, George, F., 1979, Introductory Soil Mechanics and Foundations: Geotechnical Engineering

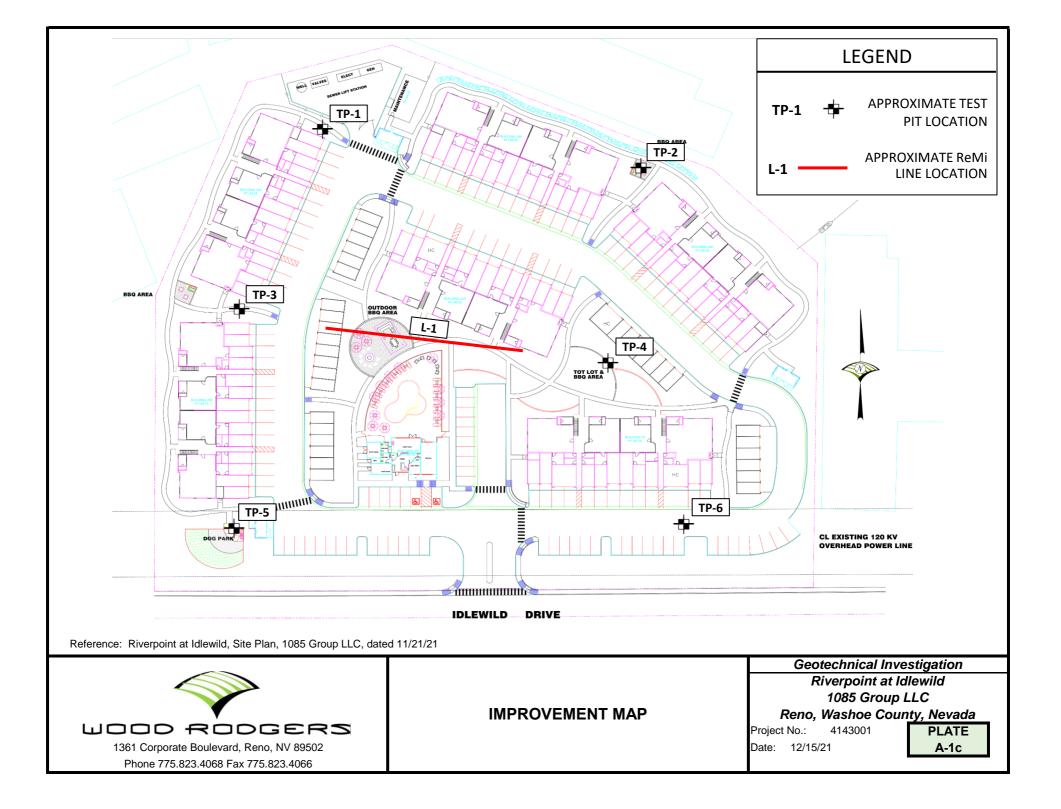
- Standard Specifications for Public Works Construction, 2016 (Washoe County, Sparks-Reno, Carson City, Yerington, Nevada).
- The Asphalt Institute, 1991, *Thickness Design Asphalt Pavements for Highways and Streets*, Manual Series No. 1 (MS-1).
- U.S. Quaternary Faults, United States Geological Survey, maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps.

Youd, T. L., and I. M. Idriss. "Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils." *Journal of Geotechnical and Geoenvironmental Engineering*, vol. 127, no. 4, 2001.

# APPENDIX A GEOTECHNICAL PLATES







odgers Inc. prporate Blvd V 89521 ne: 775-823-4068 5-823-4066					Т	EST	' Pl'	ΓΝ	UME			
	PROJEC	r na	ME	River	point at Idle	wild						
13001												
1 <b>COMPLETED</b> <u>12/7/21</u>	GROUND	EL	EVAT		4548 ft		TEST	PIT SI	<b>ZE</b> _3	6 inch	es	
TOR Joy Engineering	GROUND	WA	TER	LEVE	LS:							
Volvo 145 Excavator	AT	ті№	IE OF	EXCA		NO	FREE	WATE		COUN	TERE	D
n CHECKED BY Justin McDougal	AT	EN	d of	EXCA	VATION	NO	FREE	WATE	R ENC	COUN	FERED	)
	AF	TER	EXC	AVAT	ION NO	) FRE	E WAT	ER EN	ICOU	NTERE	Ð	
		Ш	J	<sup>°</sup>								F
MATERIAL DESCRIPTION		SAMPI E TYPI	NUMBER	RECOVERY 9 (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WI (pcf)	MOISTURE CONTENT (%				FINES CONTENT (%)
very dense, moist, brown, low plasticity, ~10% overs liameter ELL GRADED SAND WITH SILT AND GRAVEL, (S se, moist, tan brown, nonplastic			GB 1A GB 1B GB 1C					7.9	25	18	7	20.0
	provide Blvd V 89521 ne: 775-823-4068 5-823-4066 C Iso001 1 COMPLETED _12/7/21 TOR _Joy Engineering Volvo 145 Excavator n CHECKED BY _Justin McDougal MATERIAL DESCRIPTION LTY, CLAYEY SAND WITH GRAVEL AND COBBLE very dense, moist, brown, low plasticity, ~10% over tiameter ELL GRADED SAND WITH SILT AND GRAVEL, (S se, moist, tan brown, nonplastic NND WITH COBBLES, (SM) very dense, slightly mo opplastic, ~ 5% oversize > 6" diameter	proporate Blvd V 89521       PROJECT         project       PROJECT         1       COMPLETED       12/7/21       GROUND         TOR       Joy Engineering       GROUND         Volvo 145 Excavator       AT         n       CHECKED BY       Justin McDougal       AT         MATERIAL DESCRIPTION       AT         LTY, CLAYEY SAND WITH GRAVEL AND COBBLES, very dense, moist, brown, low plasticity, ~10% oversize to liameter       See moist, brown, low plasticity, ~10% oversize to liameter         ELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) se, moist, tan brown, nonplastic       SW-SM)         NAD WITH COBBLES, (SM) very dense, slightly moist, onplastic, ~ 5% oversize > 6" diameter	arporate Bivd V 89521 ne: 775-823-4068 5-823-4066 C PROJECT M I3001 PROJECT LC 1 COMPLETED 12/7/21 GROUND EL TOR Joy Engineering GROUND W/ Volvo 145 Excavator AT TIM n CHECKED BY Justin McDougal AT ENI AFTER MATERIAL DESCRIPTION LTY, CLAYEY SAND WITH GRAVEL AND COBBLES, very dense, moist, brown, low plasticity, ~10% oversize to filameter ELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) re, moist, tan brown, nonplastic ND WITH COBBLES, (SM) very dense, slightly moist, onplastic, ~ 5% oversize > 6" diameter	argorate Blvd V 89521 ne: 775-823-4068 5-823-4066 C PROJECT NAME I3001 PROJECT LOCAT 1 COMPLETED 12/7/21 GROUND &LEVAT TOR Joy Engineering GROUND WATER Volvo 145 Excavator AT TIME OF n CHECKED BY Justin McDougal AT END OF AFTER EXC MATERIAL DESCRIPTION GRAVEL AND COBBLES, very dense, moist, brown, low plasticity, ~10% oversize to itameter ELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) se, moist, tan brown, nonplastic NND WITH COBBLES, (SM) very dense, slightly moist, onplastic, ~ 5% oversize > 6" diameter	ATERIAL DESCRIPTION	sporate Bivd V98521 ne: 775-823-4068 5-823-4066 C Light of the second secon	sporate Bivd V98521 ne: 775-823-4068 5-823-4066 C	PROJECT NAME Riverpoint at Idlewid PROJECT NAME Riverpoint at Idlewid PROJECT LOCATION Reno, Nevada GROUND ELEVATION 4548 ft TEST GROUND WATER LEVELS: AT TIME OF EXCAVATION NO FREE AT TIME OF EXCAVATION NO FREE	PROJECT NAME       Riverpoint at idlewiid         Ner 775-823-4068       PROJECT NAME       Riverpoint at idlewiid         C       PROJECT LOCATION       Reno, Nevada         1      COMPLETED       127/21       GROUND ELEVATION       4548 ft       TEST PT SI         GROUND WATER LEVELS:       Value 145 Excavator      GROUND WATER LEVELS:       AT TIME OF EXCAVATION      NO FREE WATE         MATERIAL DESCRIPTION       MATERIAL DESCRIPTION      NO FREE WATE       AFTER EXCAVATION      NO FREE WATE         MATERIAL DESCRIPTION      NO FREE WATE AND COBBLES.      NO GB      NO GB      NO GB         LTY, CLAYEY SAND WITH GRAVEL AND COBBLES.      NO GB      NO GB	PROJECT NAME Riverpoint at Idlewild PROJECT NAME Riverpoint at Idlewild PROJECT NAME Riverpoint at Idlewild PROJECT LOCATION Reno, Nevada C	PAG         PAG           vprozete Bivd         vprozete IVAME           versponse         PROJECT NAME           C         PROJECT NAME           PROJECT LOCATION         Reno, Nevada           1	PAGE 1 C PAGE 1

We												
130 Re Tel	ood Rodgers Inc. 61 Corporate Blvd eno NV 89521 slephone: 775-823-4068 x: 775-823-4066				T	EST	Γ PI	ΓΝ	UME		<b>R TF</b> E 1 C	
CLIENT 1085 Grou		PROJEC		River	oint at Idle	wild						
PROJECT NUMBER					Reno, Neva							
	2/7/21 COMPLETED 12/7/21	GROUND	ELEVA		4552 ft		TEST	PIT SI	<b>ZE</b> _3	6 inch	es	
EXCAVATION CONT	TRACTOR Joy Engineering	GROUND	WATER	LEVE	LS:							
EXCAVATION METH	HOD Volvo 145 Excavator	AT	TIME OF	EXCA	VATION _	NO	FREE	WATE	ER EN	COUN	TERE	D
LOGGED BY Seth	Barton CHECKED BY Justin McDougal	AT	END OF	EXCA	VATION	NO	FREE	WATE	R ENC	COUN	TERED	)
NOTES:		AF	TER EXC	AVAT	ION NC	) FRE	E WAT	ER EN	ICOU	NTERE	ED	
			ш	%			L.	()		LIMITS		NT
0.0 DEPTH GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID		>	FINES CONTENT (%)
(SC 1.5-1 2.5 5.0 5.0 5.0 5.0 5.0 5.0	L - SILTY, CLAYEY SAND WITH GRAVEL AND COBBLE SM) very dense, moist, brown, low plasticity, ~10% overs foot diameter L - WELL GRADED SAND WITH SILT AND GRAVEL, (SI y dense, moist, tan brown, nonplastic TY SAND WITH COBBLES, (SM) very dense, slightly mois wn, nonplastic, ~ 5% oversize > 6" diameter Bottom of Test Pit at 12.0 Feet.	W-SM) 										

.GPJ																
	<			Wood Rodgers Inc. 1361 Corporate Blvd Reno NV 89521 Telephone: 775-823-4068 Fax: 775-823-4066					T	EST	Γ PI	ΓΝ	UME		<b>R TP</b> ≡ 1 0	
RPOI		п	10	85 Group, LLC	PROJEC	ΤN	AME	Riverp	oint at Idle	wild						
51				UMBER _ 4143001			-									
-				COMPLETED         12/7/21							TEST	PIT SI	<b>ZE</b> 3	6 inche	es	
4				N CONTRACTOR _Joy Engineering							_	_		-		
2				N METHOD Volvo 145 Excavator					VATION	9.3 ft						
Ϋ́.				Seth Barton     CHECKED BY Justin McDougal					VATION -							
Ċ.									ON							
<u>ы</u> –													AT	FERBE	RG	г
z	o DEPTH o (ft)	GRAPHIC	DOJ	MATERIAL DESCRIPTION			NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID			FINES CONTENT (%)
	0.0	$\otimes$	$\times$	FILL - SILTY, CLAYEY SAND WITH GRAVEL, (SC-SM) mea	dium										_	
	-	$\bigotimes$	$\bigotimes$	dense, moist, brown, low plasticity FILL - POORLY GRADED GRAVEL, (GP) medium dense, dr		$\vdash$										
	-	×	$\bigotimes$			9M2	GB 3A									
	- 2.5	×	X	FILL - WELL GRADED SAND WITH SILT AND GRAVEL, (S very dense, moist, tan brown, nonplastic	SW-SM)	en y	GB 3B					6.7	NP	NP	NP	9.3
	_	×	$\bigotimes$													
KENO/JOBS/4	-			SILTY SAND WITH GRAVEL AND COBBLES, (SM) very der moist, brown, nonplastic, ~10% oversize > 6" diameter	nse,			-								
CTIONDATAJOBS-RENOJOBS/4143	5.0					₩Y	GB 3C									
	- - 7.5															
	-															
	-			Bottom of Test Pit at 9.3 Feet.												
12:52				Sloughing from 1.5-3.0' and 3.5-9.3'												
23/21				cloughing non 1.5-5.0 and 5.5-5.5												
121 -																
GDI																
2 LAB																
ñ																
N Z																
5																
TAI																
INSE																
Ú H H H																
ECH																
GEOTECH BH COLUMNS PLATE - GINT STD US LAB.GDT - 12/23/21 12:52																

<		Wood Rodgers Inc. 1361 Corporate Blvd Reno NV 89521 Telephone: 775-823-4068					T	EST	Γ PI	TN	UMI		<b>R TF</b> E 1 C	
	<b>NT</b> 108	<b>_</b> Fax: 775-823-4066 35 Group, LLC <b>F</b>	ROJECT	' N/	ME	Riverr	oint at Idle	wild						
PROJ		JMBER _4143001 F												
DATE		TED <u>12/7/21</u> COMPLETED <u>12/7/21</u> G							TEST	PIT S	<b>ZE</b> 3	6 inch	es	
EXCA		N CONTRACTOR Joy Engineering												
EXCA		N METHOD Volvo 145 Excavator						10.0 ft	:					
LOGG	GED BY	Seth Barton CHECKED BY Justin McDougal	AT	EN	d of	EXCA	VATION							
NOTE	S:		AF	FEF	EXC	AVATI	ON							
				Ц	J	%			L.	(9	AT	rerbe Limits		NT
0 DEPTH 0 (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPI E TVP	NUMBER	RECOVERY ( (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID			FINES CONTENT (%)
		FILL - SILTY, CLAYEY SAND WITH GRAVEL, (SC-SM) mediu dense, moist, brown, low plasticity		m	GB 4A	-				8.5	25	18	7	20.6
CLIEN PROJ DATE EXCA EXCA LOGG NOTE HLag 0.0 		<ul> <li>Foreign object encountered</li> <li>FILL - WELL GRADED SAND WITH SILT AND GRAVEL, (SW very dense, moist, tan brown, nonplastic</li> <li>SILTY SAND WITH GRAVEL AND COBBLES, (SM) very dense moist, brown, nonplastic</li> <li>SILTY, CLAYEY SAND, (SC-SM) very dense, very moist, gray I slightly plastic, mottling observed</li> </ul>	e,		GB 4B 4C GB 4D									
		CLAYEY SAND, (SC) very dense, wet, gray, low to medium pla Bottom of Test Pit at 11.0 Feet. Sloughing from 1.8-3.8'	sticity											

CGPJ														
		Wood Rodgers Inc. 1361 Corporate Blvd Reno NV 89521 Telephone: 775-823-4068 Fax: 775-823-4066					T	EST	Γ PI	TN	UMI		<b>R TF</b> 5E 1 C	
	<b>NT</b> 10	85 Group, LLC	PROJEC	ΤN	AME	River	oint at Idle	wild						
		UMBER 4143001					Reno, Neva							
		TED 12/7/21 COMPLETED 12/7/21							TEST	PIT SI	<b>ZE</b> _3	6 inch	es	
		N CONTRACTOR Joy Engineering												
	VATIC	N METHOD Volvo 145 Excavator	AT	TIN	/IE OF			NO	FREE	WATE	ER EN	COUN	ITERE	D
	GED B	CHECKED BY Justin McDougal	AT	EN	d of	EXCA	VATION	NO	FREE	WATE	RENC	COUN	TEREC	)
	S:		AF	TE	REXC	AVAT	ION NO	) FRE	E WAT	ER EN	NCOU	NTER	ED	
A\GE				L	L	%			L.	()		TERBE	ERG	NT
OINT IDLEWILD O O DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION			NUMBER	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID			FINES CONTENT (%)
		FILL - SILTY, CLAYEY GRAVEL WITH SAND AND COBBLE (SC-SM) very dense, moist, brown, slightly plastic, ~15% ove diameter, some boulders to 1.5-foot diameter encountered WELL GRADED GRAVEL WITH SILT, SAND, AND COBBLI (GW-GM) very dense, moist, brown, slightly plastic, ~20% ov 6" diameter Bottom of Test Pit at 12.0 Feet. Sloughing from 6.25-12.0'	ersize > 6"		GB 5A GB									
GEOTECH BH COLUMNS PLATE - GINT STD US LAB.GDT - 12/23/21 1						-								

<u> </u>				
		Wood Rodgers Inc. 1361 Corporate Blvd Reno NV 89521 Telephone: 775-823-4068 Fax: 775-823-4066	TEST PIT NUMBER TP-	
	<b>ENT</b> 108	5 Group, LLC	PROJECT NAME Riverpoint at Idlewild	
>		IMBER _ 4143001	PROJECT LOCATION Reno, Nevada	
=		ED 12/7/21 COMPLETED 12/7/21	GROUND ELEVATION 4554 ft TEST PIT SIZE 36 inches	
<u>t</u>		N CONTRACTOR _Joy Engineering		
2		METHOD Volvo 145 Excavator		
й		Seth Barton CHECKED BY Justin McDougal	AT END OF EXCAVATION NO FREE WATER ENCOUNTERED	
	'ES:		AFTER EXCAVATION NO FREE WATER ENCOUNTERED	
				:
OINT_IDLEWILD_OA		MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER RECOVERY % (RQD) (RDD) (RQD) (RDD)	(%)
	-	FILL - SILTY, CLAYEY GRAVEL WITH SAND AND COBBLI (SC-SM) very dense, moist, brown, slightly plastic, ~15% ove diameter, some boulders to 2.5-foot diameter encountered	S,	
			GB 6A	
		WELL GRADED GRAVEL WITH SILT, SAND, AND COBBL (GW-GM) very dense, moist, brown, slightly plastic, ~30% ov 6" diameter, some boulders to 3-foot diameter encountered		
			GB 6B 3.8 24 21 3 6	6.2
10.0				
		Bottom of Test Pit at 12.0 Feet.		
GEOLECH BH COLOMNS PLATE - GINTS		Sloughing from 6.0-12.0'		

	MAJOR DIVISI	ON				T	YPICAL NAMES		
NA		CLEAN SANDS	000	GW			VELS WITH OR	WITHOUT SAND,	
LS R TH/	GRAVEL MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	WITH LITTLE OR NO FINES	••	GP	LITTLE OR NO FINES POORLY GRADED GRAVELS WITH OR WITHOUT SAND LITTLE OR NO FINES				
D SOI ARSE E		GRAVELS WITH		GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND			
SIEV SIEV		OVER 12% FINES		GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND			S WITH SAND	
<b>COARSED-GRAINED SOILS</b> E THAN HALF IS COARSER 1 NO. 200 SIEVE	SAND MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH	1000	SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES				
ARSE HAN I N		LITTLE OR NO FINES		SP	POORLY GRADED SAND WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES				
<b>COARSED-GRAINED SOILS</b> MORE THAN HALF IS COARSER THAN NO. 200 SIEVE		SANDS WITH OVER 12% FINES		SM	SILTY SANDS WITH OR WITHOUT GRAVEL				
		OVER 12/01 INES		SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL				
ILS FINER VE	SILT AND CLAY LIQUID LIMIT 50% OR LESS			ML CL	FLOUR, SILTS WITH SANDS AND GRAVELS INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY				
E SOILS D SIEVE O SIEVE					CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS ORGANIC SILTS OR CLAYS OF LOW PLASTICITY				
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	011 T A1			мн			NIC SILTS, MICACEOUS OR DIATOMACEOUS		
INE-GI E TH/ Han n	SILT AND CLAY			СН		FINE SANDY OR SILTY SOLID, ELASTIC SILTS INORGANIC CLAYS OR HIGH PLASTICITY, FAT CLAYS			
H MOR T				ОН	ORGANIC SILTS OR CLAYS MEDIUM TO HIGH PLASTICITY				
	HIGHLY ORGANIC SOILS			Pt			GHLY ORGANIC	SOILS	
60			a —				1		
○ 50				SILTS		STENCY SPT BLOW*	RELATIVE SANDS &	DENSITY SPT BLOW*	
ASTICITY INDEX (PI)				CLA		COUNTS (N)	GRAVELS	COUNTS (N)	
9 40	/	́СН	1 🗖	VERY S	OFT	0 - 2	VERY LOOSE	0 - 4	
≧ ≿ 30				SOF	Т	3 - 4	LOOSE	5 - 10	
U S			Μ	IEDIUM		5 - 8	MEDIUM DENSE	11 - 30	
Ë 20				STIF		9 - 15	DENSE	31 - 50	
~ .	CL CL	мн&он		VERY S		16 - 30	VERY DENSE	50 +	
<sup>LL</sup> 10			* т		ARD 30 + tandard Penetration Resistance (N) In blows per foot is obtained by				
0 10 20 30 40 50 60 70 80 90 100 LIQUID LIMIT (LL)				the ASTM D1585 procedure using 2" O.D., 1 3/8" I.D. samplers.					
		/	Г			DEFINITIONS OF	SOIL FRACTIONS	]	
				SC		IPONENT	PARTICLE S	SIZE RANGE	
DESCR	IPTION OF ESTIMATED F			OBBLES			ABOVE 3 INCHES		
	GRAVEL, SAND, AND		GF	RAVEL			3 IN. TO NO. 4 SI	EVE	
TRACE		sent but est. < 5%			RSE GI		3 IN. TO 3/4 IN.		
FEW		10%	1		E GRAV	EL	3/4 IN. TO NO. 4 S		
LITTLE 15% - 20%			SAND				NO. 4 TO NO. 200		
SOME		- 45%	COARSE SAND				NO. 4 TO NO. 10		
MOSTLY		100%		MEDIUM SAND			NO. 10 TO NO. 40		
	centages are presented within		FINE SAND				NO. 40 TO NO. 200		
nonzon with	a laboratory tested soil sample	ა.	FI	NES (SI	LT OR C	LAY)	MINUS NO. 200 S	SIEVE	
							Geotechnica	al Investigation	
					n e 0 i	. ⊢			
	$\langle \rangle$		-	UNIFIED SOIL			Riverpoint at Idlewild		
			CL	CLASSIFICATION			1085 Group LLC		
				AND			Reno, Washoe County, Nevada Project No.: 4143001 PLATE		
	Corporate Boulevard, Reno, N		Y TO S	SOIL [	DESCH		ject No.: 414300 e: 12/15/21	PLATE A-3	
	275 823 4068 Eav 775 823					20			

1361 Corporate Boulevard, Reno, NV 89502 Phone 775.823.4068 Fax 775.823.4066

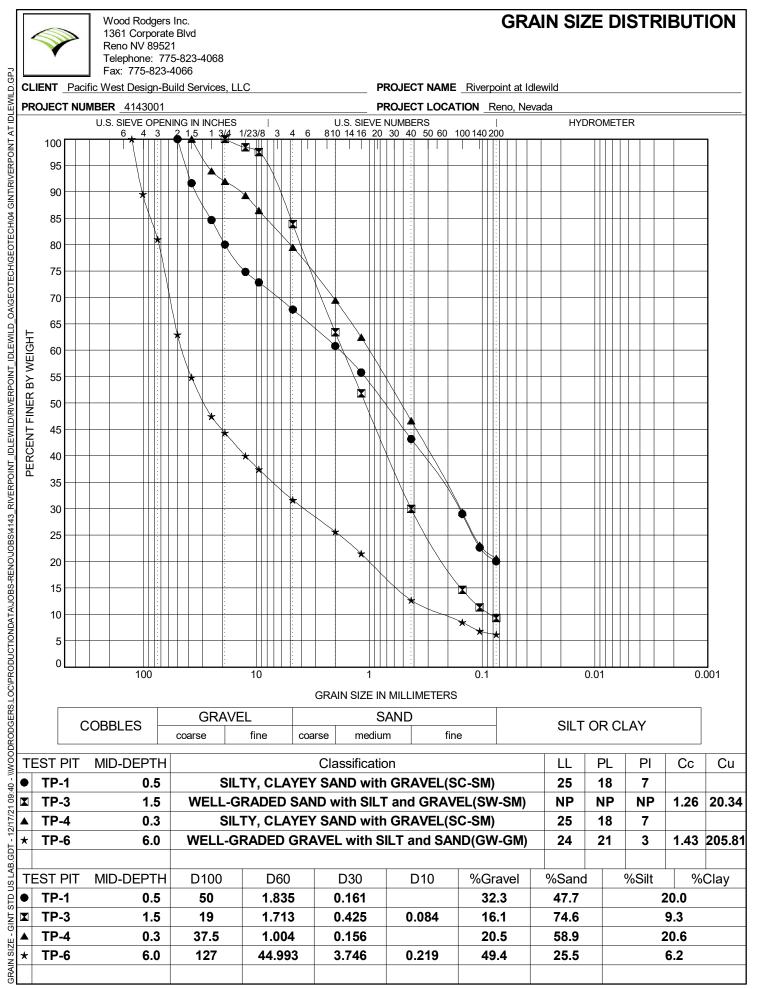
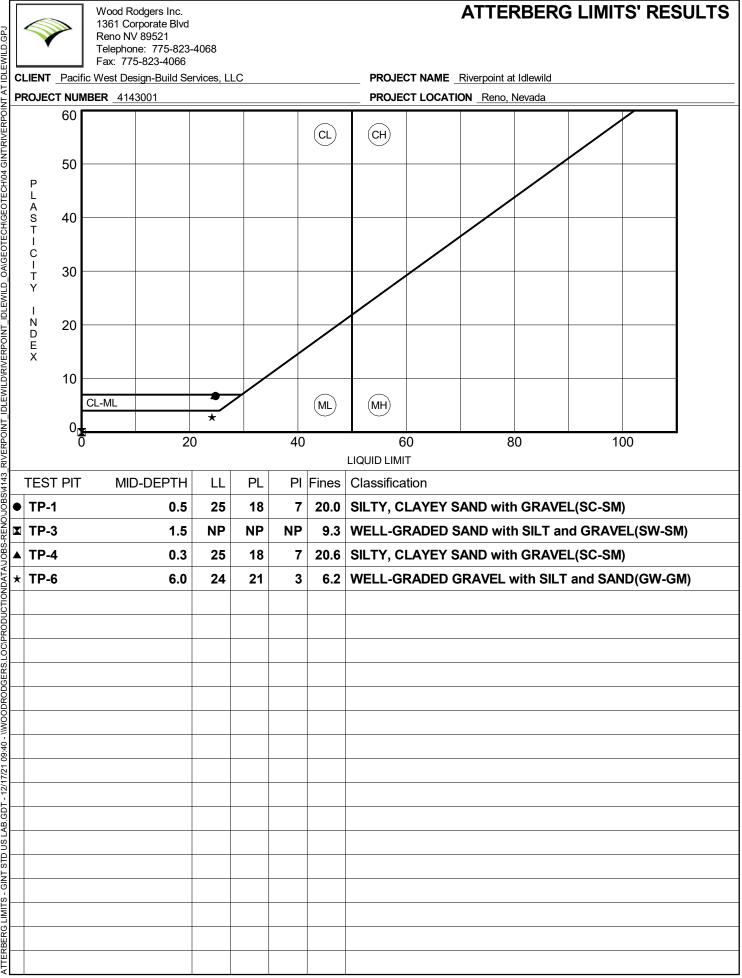
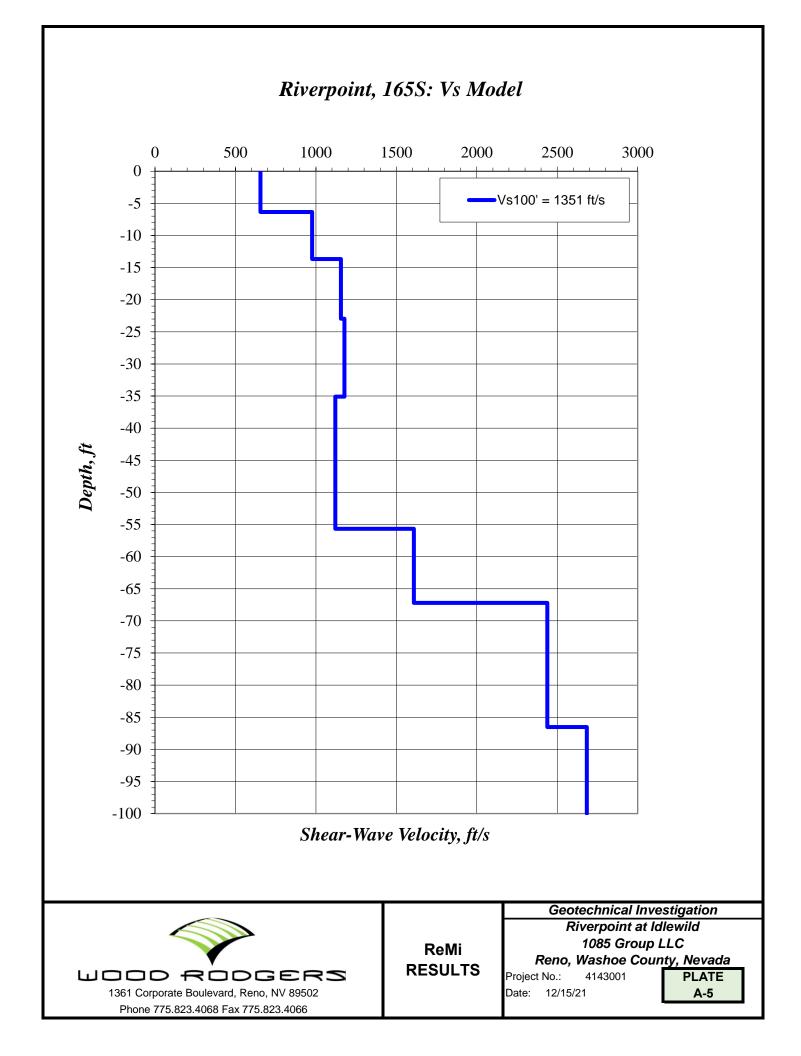


Plate A-4a



<b>Silver</b>	Silver State 1135 Finance				An	alytical Re	eport
Analytical La	aboratories Reno, NV 89	00 FAX: (888)	398-7002				1120601 21/2021
Client: Wood R	odgers				Sample	d By: W. Musn	icki
Project Name: 4143001	l/Riverpoint @ Idlewild/	TP-2 @ 0.5	- 4'				
PO #: LAB 39	61						
Laboratory Accreditation	Number: NV015/CA299	0					
Laboratory ID	Client Sample ID		Date	/Time San	pled	Date Received	
21120601-01	TP-2 @ 0.5 - 4'		12/1	0/2021 11:4	40	12/10/2021	
Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Sodium	ASTM D2791	< 0.01	%	0.01	AC	12/20/2021 9:47	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01	AC	12/20/2021 11:30	
Sulfate	SM4500 SO4E	< 0.01	%	0.01	MC	12/20/2021 10:32	2
Laboratory Accreditation	Number: NV015/CA299	0					
Laboratory ID	Client Sample ID		Date	/Time San	pled	Date Received	
21120601-02	TP-4 @ 1.75 - 3.75'			0/2021 11:4		12/10/2021	
Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chloride	EPA 9056	<5	mg/Kg	5	CTR	12/20/2021 14:40	
Oxidation-Reduction Potential	SM 2580B	253	mV		AC	12/20/2021 13:22	
pH pH Temperature	SW-846 9045D	7.73	pH Units °C		AC	12/20/2021 9:25	
pH Temperature Resistivity	SW-846 9045D AASHTO T288	19.0 8000	Ohms-cm		AC MC	12/20/2021 9:25 12/20/2021 9:19	
Sodium	ASTM D2791	< 0.01	%	0.01	AC	12/20/2021 9:13	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01	AC	12/20/2021 11:30	
Sulfate	SM4500 SO4E	< 0.01	%	0.01	MC	12/20/2021 10:32	
Sulfide	AWWA C105	Negative	POS/NEG		AC	12/15/2021 16:39	)
Laboratory Accreditation	Number: NV015/CA299	00					
Laboratory ID	Client Sample ID		Date	/Time San	pled	Date Received	
21120601-03	TP-6 @ 1 - 3'		12/1	0/2021 11:4	40	12/10/2021	
Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Sodium	ASTM D2791	< 0.01	%	0.01	AC	12/20/2021 9:47	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01 0.01	AC MC	12/20/2021 11:30	
Sulfate	SM4500 SO4E	< 0.01	70	0.01	ШĊ	12/20/2021 10:3:	-
					Geotechn	ical Investigat	ion
			CHEMICAL		•	oint at Idlewild Group LLC	1
	LODGERS ulevard, Reno, NV 89502	S	TESTING RESULTS	Project N	eno, Wash	001 PL	evada ATE -4c



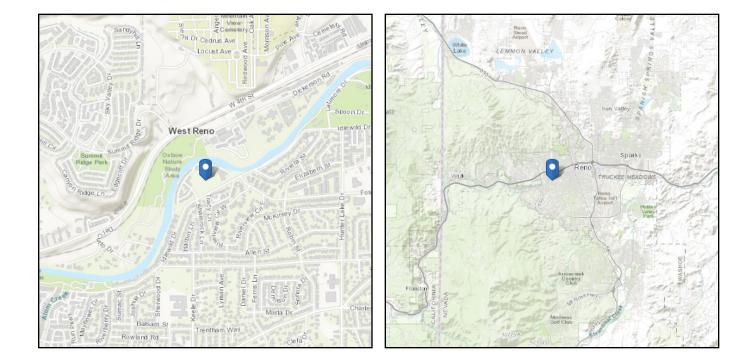
APPENDIX B ASCE 7 HAZARDS REPORTS

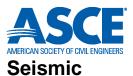


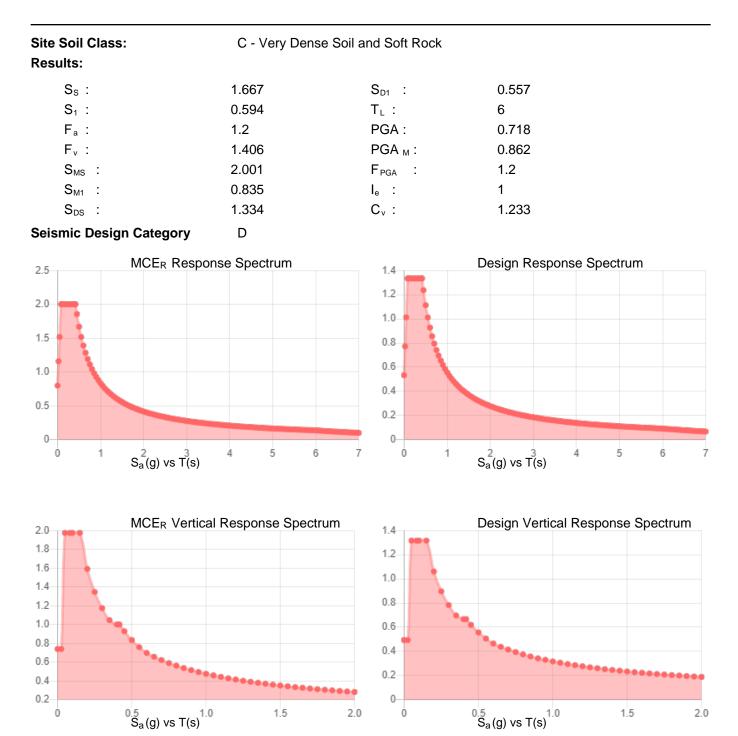
# ASCE 7 Hazards Report

Standard:ASCE/SEI 7-16Risk Category:IISoil Class:C - Very Dense<br/>Soil and Soft Rock

Elevation: 4545.67 ft (NAVD 88) Latitude: 39.5168 Longitude: -119.8455







### Data Accessed:

Thu Dec 23 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



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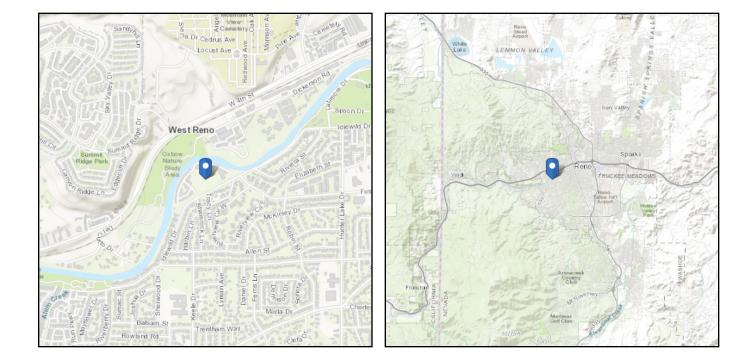
# ASCE 7 Hazards Report

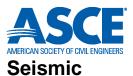
Standard:ASCE/SEI 7-16Risk Category:IIISoil Class:C - Very Dense<br/>Soil and Soft Rock

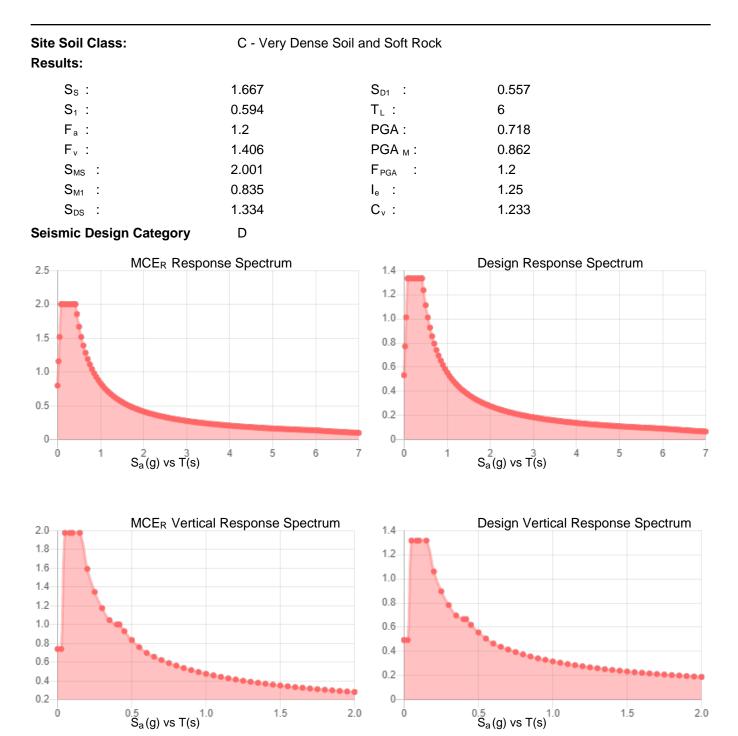
 Elevation:
 4545.67 ft (NAVD 88)

 Latitude:
 39.5168

 Longitude:
 -119.8455







### Data Accessed:

Thu Dec 23 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



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Civil Engineering Surveying Water Resources Management Water & Wastewater Engineering Construction Management Environmental Sciences Landscape Architecture Land Planning

### PRELIMINARY SEWER REPORT FOR RIVERPOINT at IDLEWILD

Reno, Nevada

Prepared for:

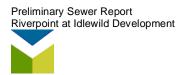
Toll Brothers 10345 Professional Cir, Suite 200 Reno, Nevada 89521

Prepared by:

Manhard Consulting, Ltd. 241 Ridge Street, Suite 400 Reno, NV 89501

> Job No. PWCREV07 April 16, 2024





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EXHIBIT 1: FEMA FIRM

## **APPENDICES**

APPENDIX A: FLOWMASTER OUTPUT DATA

Appendix B: EXISTING OFFSITE SEWER ANALYSIS

## **ABBREVIATIONS**

ac	Acre
ac-ft	Acre-feet
bgs	Below ground surface
cfs	Cubic feet per second
d/D	depth to diameter ratio
EDU	Equivalent dwelling unit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
ft	Foot
ft <sup>2</sup>	Square foot
ft <sup>3</sup>	Cubic foot
fps	Feet per second
GIS	Geographical Information System
gpm	Gallons per minute
gpd	Gallons per day
Max.	Maximum
Min.	Minimum
NV	Nevada
Qp	Peak flow
RCBC	Reinforced Concrete Box Culvert
ROW	Right of Way
vel.	Velocity



### **1** INTRODUCTION

### 1.1 PURPOSE OF STUDY

This report presents the data, methodology, and results of a preliminary sewer design report for the Riverpoint at Idlewild. Future Final Maps and final designs will incorporate detailed sewer modeling and design.

This report documents the existing and proposed sewerage conditions of the proposed project:

- Proposed sewer shed
- Proposed sewer generation rates
- Compliance with City of Reno Code and/or other applicable ordinances

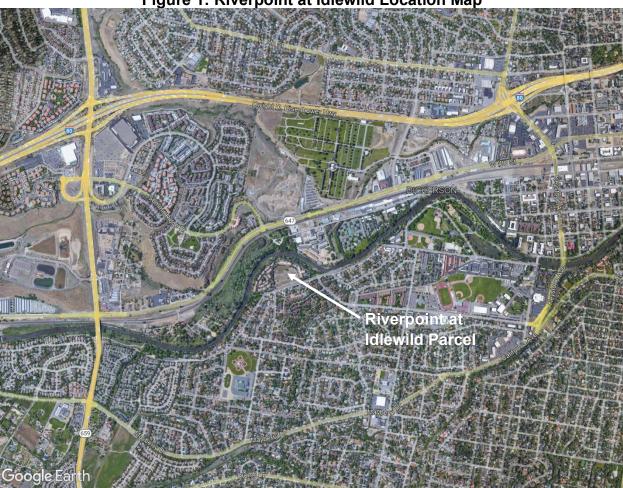
### 1.2 PROJECT LOCATION AND DESCRIPTION

The Riverpoint at Idlewild project site is in west Reno located adjacent to the Truckee River on Idlewild Drive east of McCarran Blvd.

Sanitary sewer infrastructure does exist in Idlewild Drive and flows west to east at the subject site. The project will connect to the existing sewer manhole in Idlewild Drive which is a 10-inch sewer main.

Figure 1 shows the location of the project site. The site is located in flood zone X. Relevant FEMA flood maps define the area as *the 0.2% annual chance flood*. The FEMA flood zone mapping at the Riverpoint at Idlewild Development. The lift station top slab and wet well rim shall conform to the City of Reno Flood Hazard Ordinance.





### Figure 1: Riverpoint at Idlewild Location Map

### 2 METHODOLOGY AND ASSUMPTIONS

The existing zoning at the Riverpoint at Idlewild Development site is MF 30. The development includes 57 townhome units and covers approximately 5.59 acres.

Existing and proposed conditions sewage loading is estimated based on the 2016 City of Reno Public Works Design Manual. Loading estimates are calculated using the unit rates in Table 2-1 which are found in the design manual stating that sewer mains in the 8" to 10" range are at 350 gal/capita/day (peak flow). Occupancy rates for townhomes are at 3.0 capita/dwelling unit.

### Table 2-1: Sewer System Master Plan Update Wastewater Generation Rates

	Average Dry	
Land Use Category	Weather Flow	Units
Single-Family Residential	1050	(gpd/DU)

Sewage generation estimates do not include wet weather flows. This assumption is based on construction of new 8" sewer gravity infrastructure within development that ties into the existing 10" sewer line in Idlewild Drive, as shown on Exhibit 1.

### 2.1 PIPE SIZING CRITERIA

Pipe sizing will conform to the City of Reno Design Manual for sewer design criteria.

- Sewer capacity at peak flow is at d/D = 0.5
- Min. diameter for sewer mains is 8-inches
- Min. design velocity is 2 fps at peak flow or when pipe is half full

Slopes less than those required for mean velocities of 2 fps during peak flows may be permitted when approved by the City Engineer.

### **3 CONCEPTUAL SEWER DESIGN RESULTS**

This section discusses the results of the proposed conditions sewage generation, onsite and offsite pipe capacity.

### 3.1 SEWAGE GENERATION

The estimates for the existing zoning and proposed Idlewild Development flows are contained in Appendix A. The methodology and assumptions are included in the calculated estimates.

Table 3-1 summarizes the proposed sewage generation values.

### Table 3-1: Proposed Riverpoint at Idlewild Development Sewage Generation

	Sewage Loading (gpd)		
Land Use Category	Ave. Day	Peak Hourly	
Single Family (57 units)		59,850	
Tota	a/	59,850 gpd	



### 3.2 RIVERPOINT DEVELOPMENT PIPE CAPACITY

Pipe capacity has been estimated for the single-family residential for average daily flow and peak hourly flow. The results show that the average day and peak hourly flow are contained below the maximum 0.5 d/D ratio for 8-inch PVC pipe at the minimum slope of 0.5%. Flow capacity estimate results for 8-inch PVC pipe at 0.5% slope are summarized in appendix A.

### 3.3 RIVERPOINT LIFT STATION

The Riverpoint Lift Station will be designed at final design to meet the minimum requirements per City of Reno standards.

### 3.4 EXISTING OFFSITE SEWER ANALYSIS

An analysis of the existing offsite sewer system has been completed for the surrounding area. The analysis includes the additional 59,580 gpd that would be added to the system for the Riverpoint Project. Based on the analysis, none of the existing pipes in the surrounding area will exceed 0.5 d/D with the additional 59,580 gpd that would be contributing from the Riverpoint Project. The full output data and associated exhibit is provided in Appendix B.

### 4 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 GENERAL CONSIDERATIONS

This study is intended to be a preliminary sewer analysis in support of the Riverpoint at Idlewild Development. Further progress towards a final design of the Riverpoint Development site will include additional master technical sewer reports specific to the final site design.

This preliminary sewer design report shows that onsite and offsite sewer mains will have capacity.

### 4.2 IMPACTS TO ADJACENT PROPERTIES

There are no impacts to adjacent properties regarding sanitary sewer.



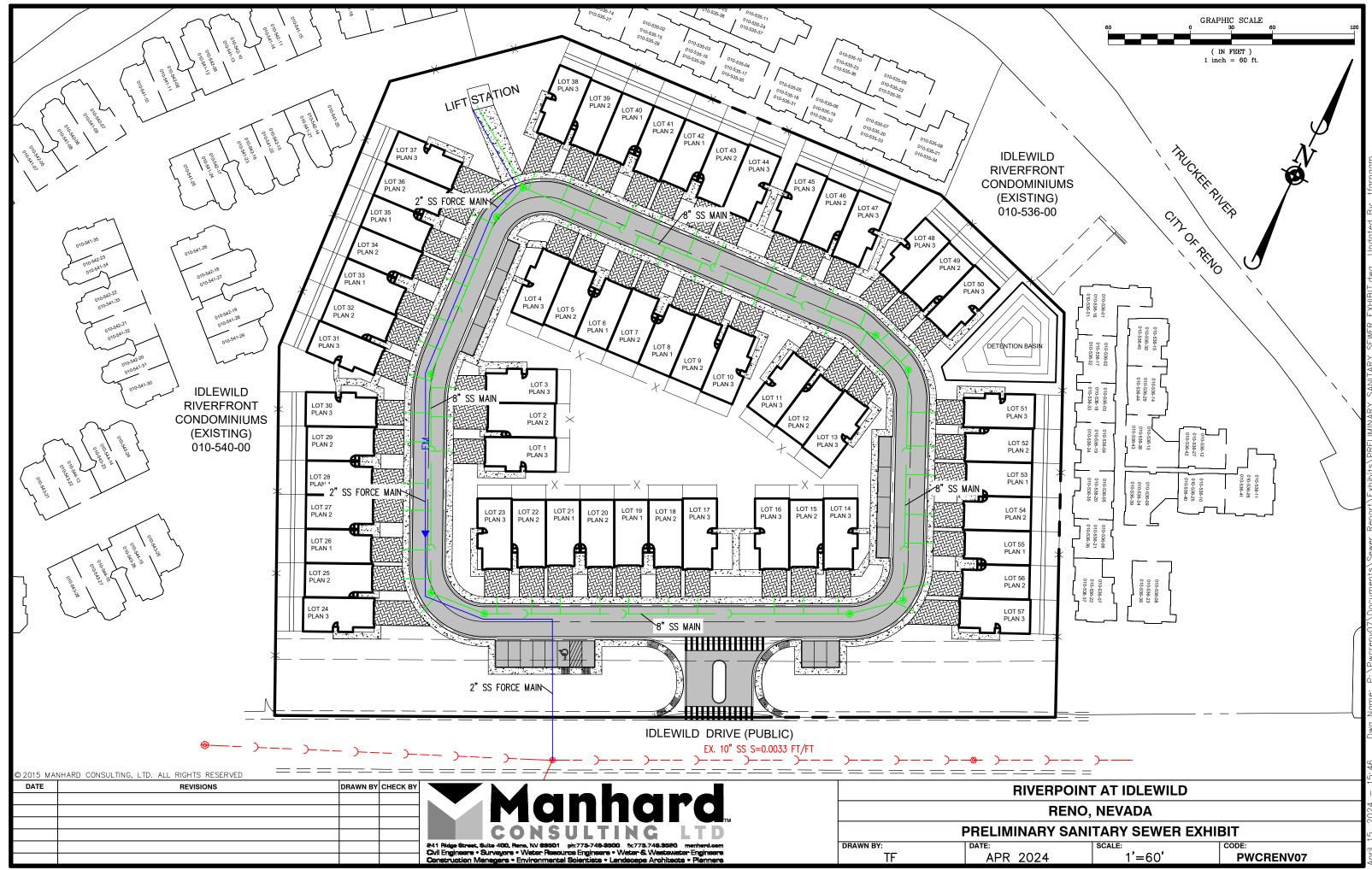
### 4.3 STANDARDS OF PRACTICE

This study was prepared using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable professional engineers practicing in this and similar localities.

### 5 **REFERENCES**

City of Reno Public Works Design Manual, 2016

Manhard Consulting, Ltd.



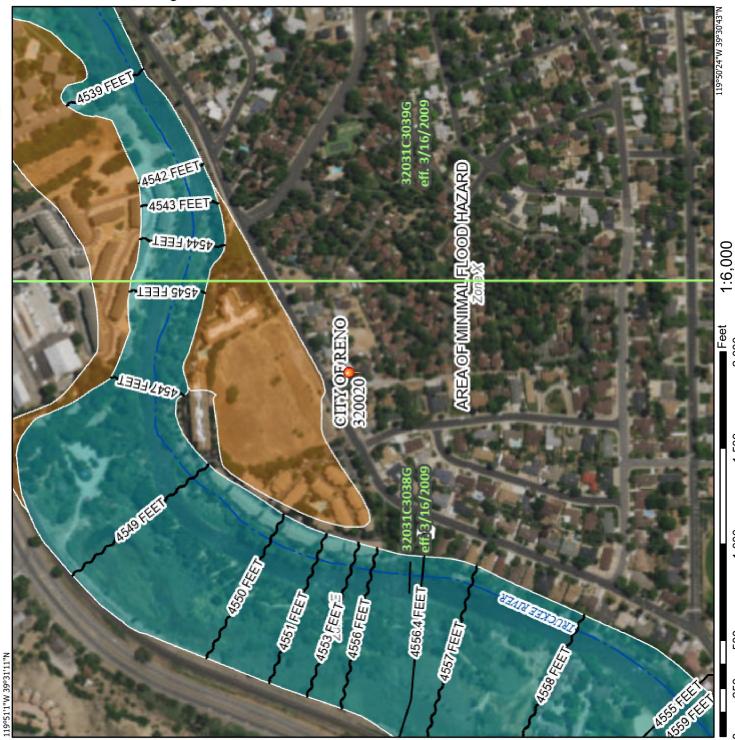


# Exhibit 1: FEMA FIRM

# National Flood Hazard Layer FIRMette

**FEMA** 

005111"\\/\ 30031111"\\



Legend		
SEE FIS REPORT FOR DE	TAILED LEGEND AND IN	SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAVOUT
SPECIAL FLOOD HAZARD AREAS	Without I Zone A. V With BFE With BFE	Without Base Flood Elevation (BFE) Zone A, V. A99 With BFE or Depth Zone AE, A0, AH, VE, AR Regulatory Floodway
DTHER AREAS OF	0.2% Am of 1% an depth lee areas of Future Cc Chance F Area with Levee. Sc	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 Effective LOMRs Area of Undeterr	Area of Minimal Flood Hazard Zone X Effective LOMRs Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel,	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	B     20.2     Cross Sections water Surface El vater Surface El vater Surface El vater Surface El vater Surface El levation       B     Coastal Transect Intersect       B     Coastal Transect Intersect       B     Coastal Transect       B     Coastal Transect       Durisdiction Bour	Cross Sections with 1% Annual Chance Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Digital E No Digital E Unmapped	<ul> <li>Digital Data Available</li> <li>No Digital Data Available</li> <li>Unmapped</li> <li>The pin displayed on the map is an approximate</li> </ul>
This map comp	point selected b an authoritative This map complies with FEMA's str	point selected by the user and does not represent an authoritative property location. • with FEMA's standards for the use of
digital flood maps i The basemap show accuracy standards The flood hazard ini authoritative NFHL was exported on 12 reflect changes or a time. The NFHL and become supersedet	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 authoritative NFHL web services provided by FEMA. Th austhoritative NFHL web services provided by FEMA. Th aves exported on <b>12</b> ,277,2021 at <b>12</b> :37 PM and does reflect changes or amendments subsequent to this di time. The NFHL and effective information may changh become superseded by new data over time.	
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2,000 Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

1,500

1,000

500

250

0



# Appendix A: Flowmaster Output Data

Project Description		
Friction Method	Manning	
	Formula	
Solve For	Discharge	
Input Data		
Roughness Coefficient	0.014	
Channel Slope	0.005 ft/ft	
Normal Depth	4.0 in	
Diameter	8.0 in	
Results		
Discharge	0.40 cfs	
Flow Area	0.2 ft <sup>2</sup>	
Wetted Perimeter	1.0 ft	
Hydraulic Radius	2.0 in	
Top Width	0.67 ft	
Critical Depth	3.5 in	
Percent Full	50.0 %	
Critical Slope	0.008 ft/ft	
Velocity	2.27 ft/s	
Velocity Head	0.08 ft	
Specific Energy	0.41 ft	
Froude Number	0.783	
Maximum Discharge	0.85 cfs	
Discharge Full	0.79 cfs	
Slope Full	0.001 ft/ft	
Flow Type	Subcritical	
GVF Input Data		
Downstream Depth	0.0 in	
Length	0.0 ft	
Number Of Steps	0	
GVF Output Data		
Upstream Depth	0.0 in	
Profile Description	-	
Profile Headloss	0.00 ft	
Average End Depth Over Rise	0.0 %	
Normal Depth Over Rise	50.0 %	
Downstream Velocity	Infinity ft/s	
Upstream Velocity	Infinity ft/s	
Normal Depth	4.0 in	
Critical Depth	3.5 in	
Channel Slope	0.005 ft/ft	
Critical Slope	0.008 ft/ft	

## Riverpoint at Idelwild Half Full Capacity

Riverpoint at Idlewild.fm8 4/15/2024 Bentley Systems, Inc. Haestad Methods Solution Center 27 Siemon Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666 FlowMaster [10.03.00.03] Page 1 of 1

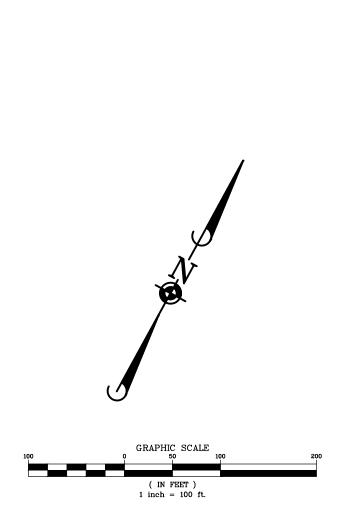


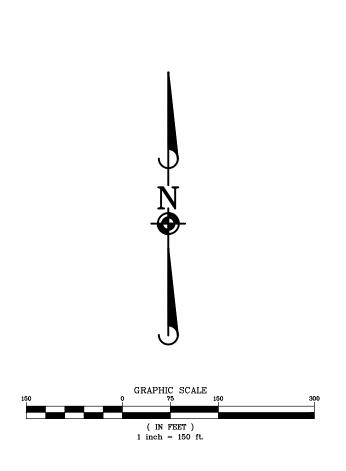
# Appendix B: Existing Offsite Sewer Analysis

Manhole GIS	Pipe GIS	Contributing	Downstream	Slope	Flow	Proposed	Full	Existing	Proposed
ID#	ID#	Lots	Pipe Size		Monitoring Data	Flow	Capacity	% Full	% Full
				(%)	(GPD)	(GPD)	(GPD)		
150120027	150120027	21							
150125006	2902	176	8"	0.44	54500.4	114350.4	524809.3	10%	22%
150125005	2903	184	10"	0.88	56977.7	116827.7	1313315.9	4%	9%
150221016	5640	192	10"	0.28	59455.0	119305.0	740679.2	8%	16%
150221034	3442	216	10"	0.46	66886.9	126736.9	949439.5	7%	13%
150221012	3443	230	10"	0.24	71222.1	131072.1	685742.2	10%	19%
150221011	5643	230	8"	0.10	71222.1	131072.1	306354.2	23%	43%
150221008	26252 & 26253	264	<u>2@ 6"</u>	1.22	81750.6	141600.6	800140.3	10%	18%
150221007	5645	266	10"	0.33	82369.9	142219.9	804664.5	10%	18%
150221006	3444	270	10"	0.36	83608.6	143458.6	840212.0	10%	17%
150221004	3445	270	8"	1.12	83608.6	143458.6	857662.5	10%	17%
150221003	3446	275	8"	1.02	85156.9	145006.9	851845.7	10%	17%
150221001	3447	281	8"	0.63	87014.9	146864.9	669584.3	13%	22%
150221033	4892	289	8"	0.85	89492.2	149342.2	729045.5	12%	20%
150227024	4893	312	10"	0.67	96614.4	156464.4	1145919.9	8%	14%
150227011	5639	329	8"	5.61	101878.6	161728.6	1873608.1	5%	9%
150227015	3448	337	12"	1.09	104355.9	164205.9	2403006.2	4%	7%
150227014	22139	507	15"	1.01	156998.3	216848.3	4193950.4	4%	5%
150227102	22140	563	15"	1.30	174339.4	234189.4	4932690.6	4%	5%
150227013	8154	710	12"	0.78	219859.6	279709.6	2032666.7	11%	14%
150227012	8153	790	12"	1.43	244632.5	304482.5	2752663.7	9%	11%
150227006	22143	814	15"	0.50	252064.4	311914.4	1485882.6	17%	21%
150228034	8143	922	15"	0.50	285507.8	345357.8	1485882.6	19%	23%
150228033	8142	1042	15"	0.50	322667.2	382517.2	1485882.6	22%	26%
150228045	8141	1090	15"	0.60	337531.0	397381.0	3232877.1	10%	12%
150228032	8140	1138	12"	0.20	352394.7	412244.7	1025058.6	34%	40%
150228040	43606	1138	12"	1.00	352394.7	412244.7	2301534.5	15%	18%
350518	8139	1138	12"	1.00	352394.7	412244.7	2369397.755	15%	17%
150228031	16044	1186	15"	1.00	367258.5	427108.5	4173268.2	9%	10%
150228057	16043	1186	15"	1.00	367258.5	427108.5	2101822.6	17%	20%
150228039	16042	1186	15"	1.57	367258.5	427108.5	5228703.7	7%	8%
150228056	16084	1210	15"	0.80	374690.3	434540.3	3733126.4	10%	12%

# Idlewild Drive Sewer Capacity Analysis







PACIFIC WEST COMPANIES RENO, NEVADA RIVERPOINT SEWER EXHIBIT	DATE DATE REVISIONS		241 Ridge Street, Suite 400, Reno, NV 89501 ph:775-748-3500 fx:775.748.3520 manhard.com Civil Engineers • Surveyors • Weter Resource Engineers • Weter & Wetter & Wetter & Wetter Engineers Construction Managers • Environmental Scientists • Landscape Architects • Planners
PACIFIC WEST COMPANIE RENO, NEVADA RIVERPOINT SEWER EXHIE	S		
	PACIFIC WEST COMPANIE	RENO, NEVADA	RIVERPOINT SEWER EXHIB