



INSPIRATION  
IMAGE ONE



INSPIRATION  
IMAGE TWO



INSPIRATION  
IMAGE THREE



INSPIRATION  
IMAGE FOUR



INSPIRATION  
IMAGE FIVE



INSPIRATION  
IMAGE SIX

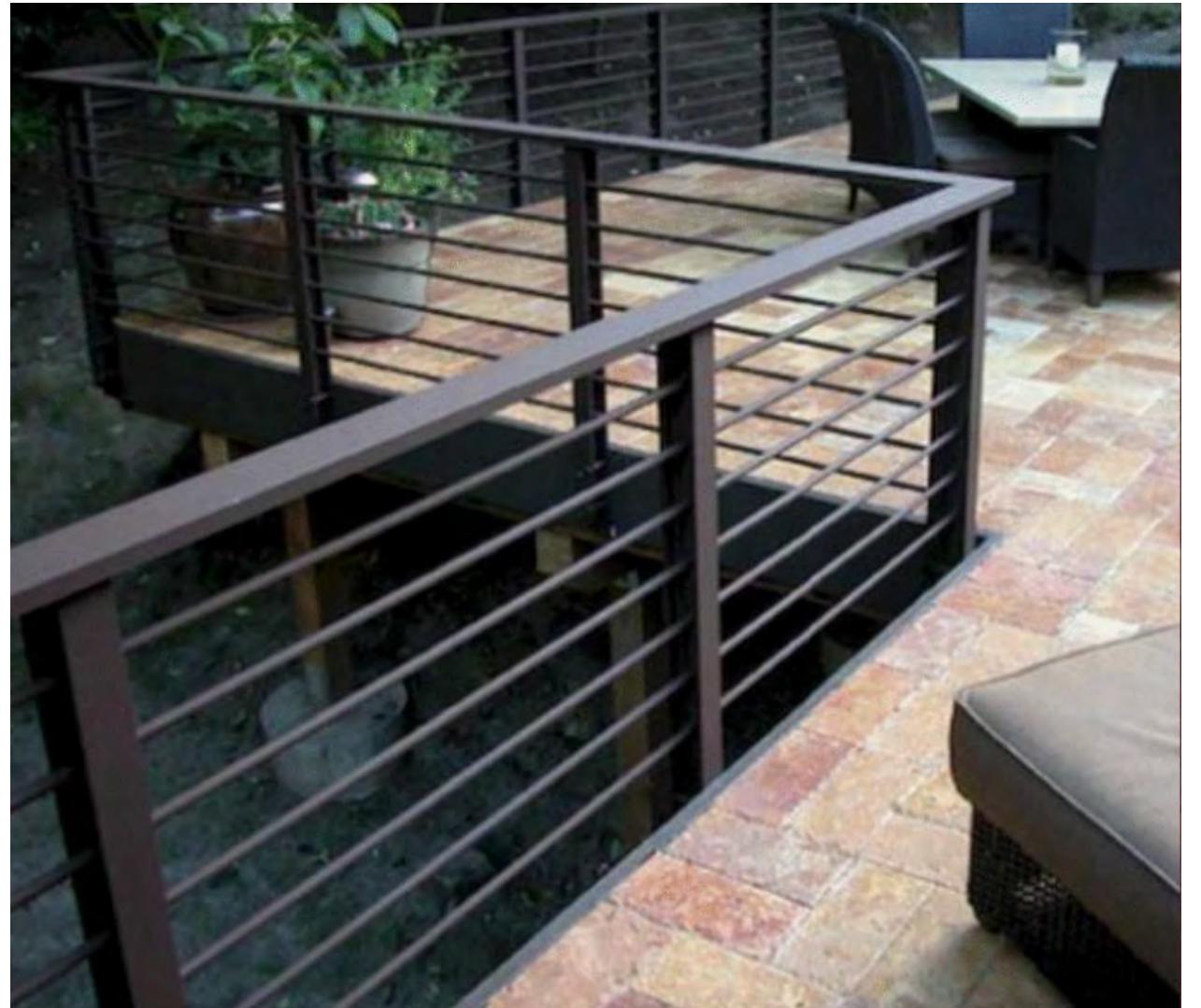
## DESIGN INSPIRATION IMAGES

# STEWART STREET APARTMENTS

906 SOUTH STEWART STREET, CARSON CITY, NEVADA, 89701  
CONSOLIDATED MUNICIPALITY OF CARSON CITY, NEVADA

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This Plan is Conceptual in Nature and No Guarantee of Its Accuracy is Implied. The Owner/Architect reserves the Right to make  
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NOVEMBER 05, 2020



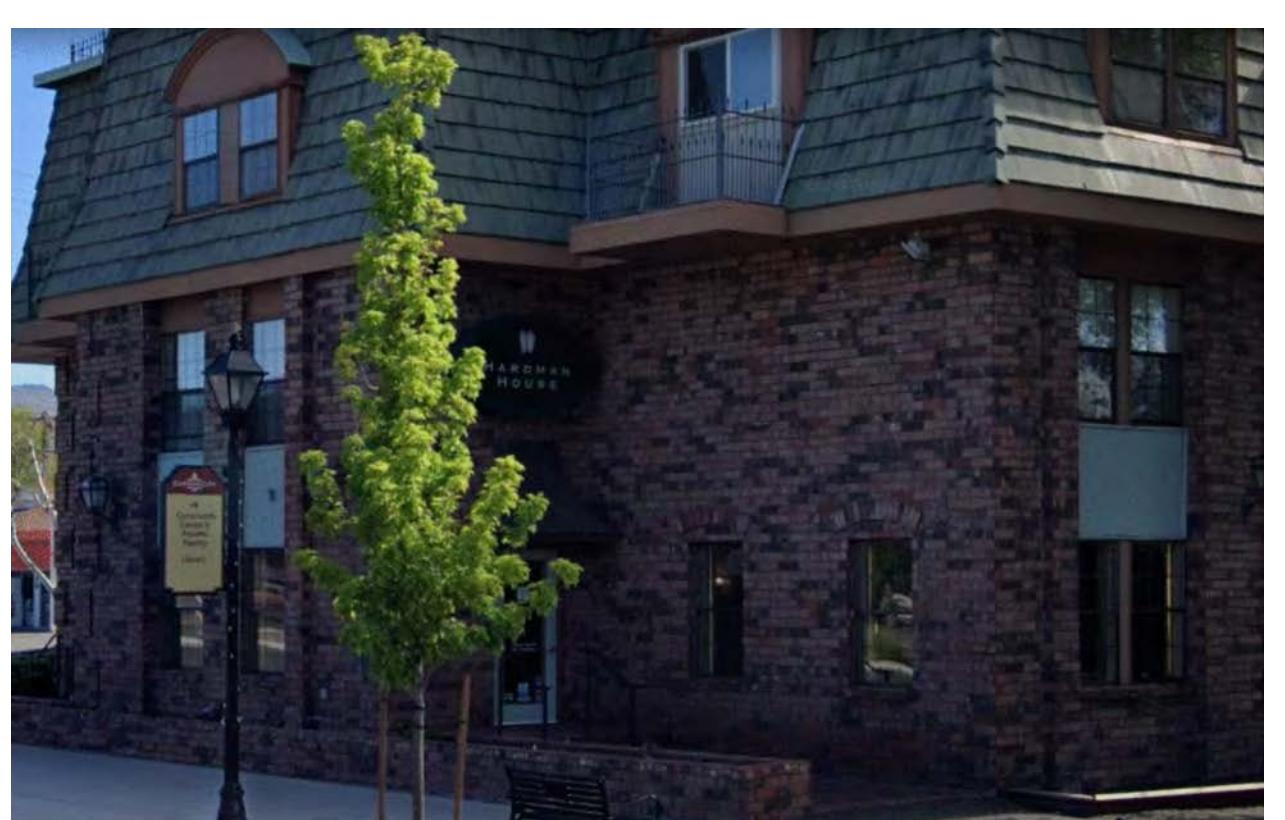
BALCONY  
RAILINGS



PLANTERS  
ADJACENT TO  
NINTH STREET



EXTERIOR  
CLADDING  
MATERIALS



EXTERIOR CLADDING  
MATERIALS



GROUND LEVEL PATIO  
PRIVACY WALL



PLANTERS ADJACENT TO  
NINTH STREET



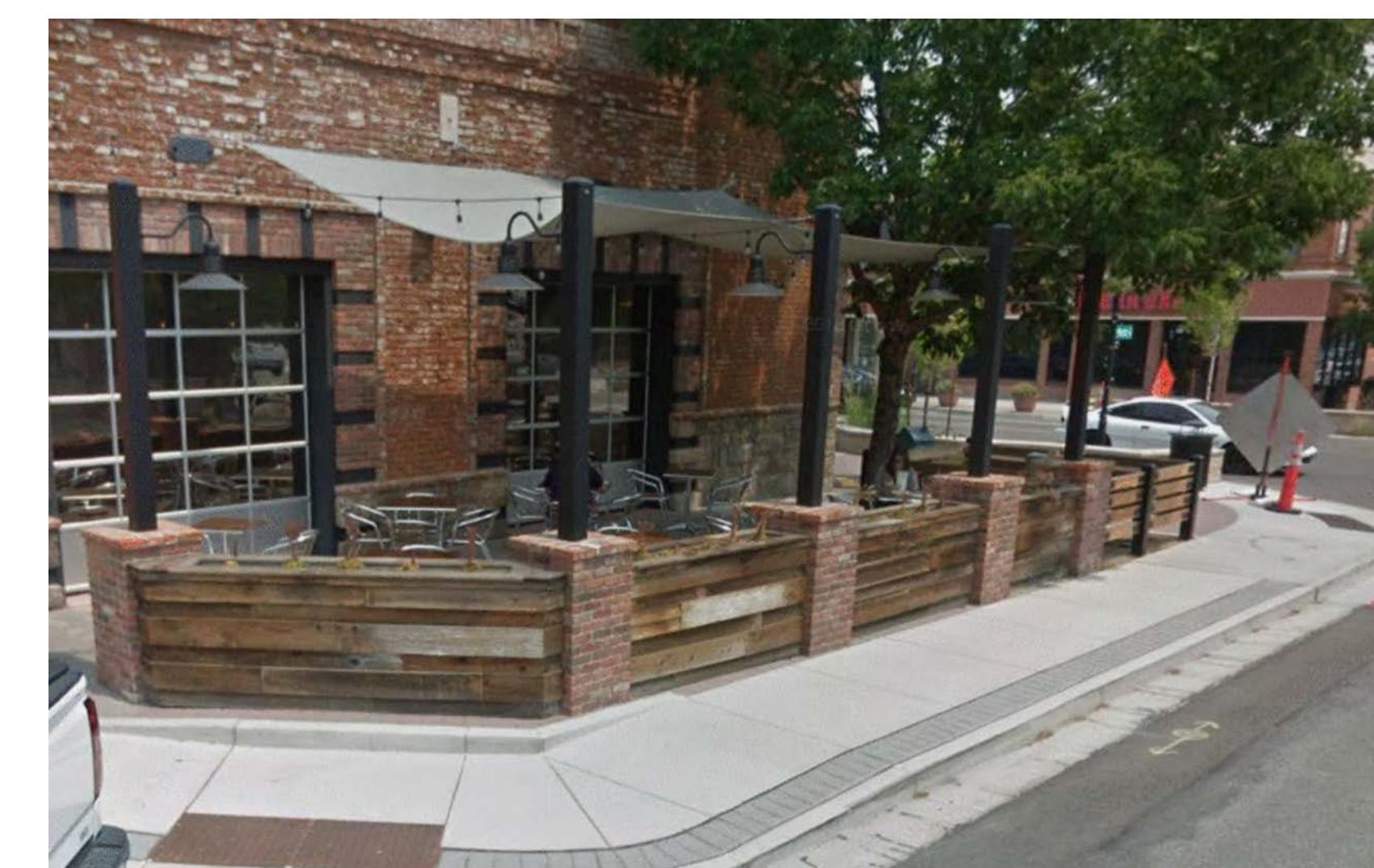
3' TALL RAISED PLANTERS  
ADJACENT TO BUILDING



GENERAL  
STREETScape



PARK BENCHES AND  
STREET LIGHTS



GROUND LEVEL  
TRELLIS/PRIVACY WALLS

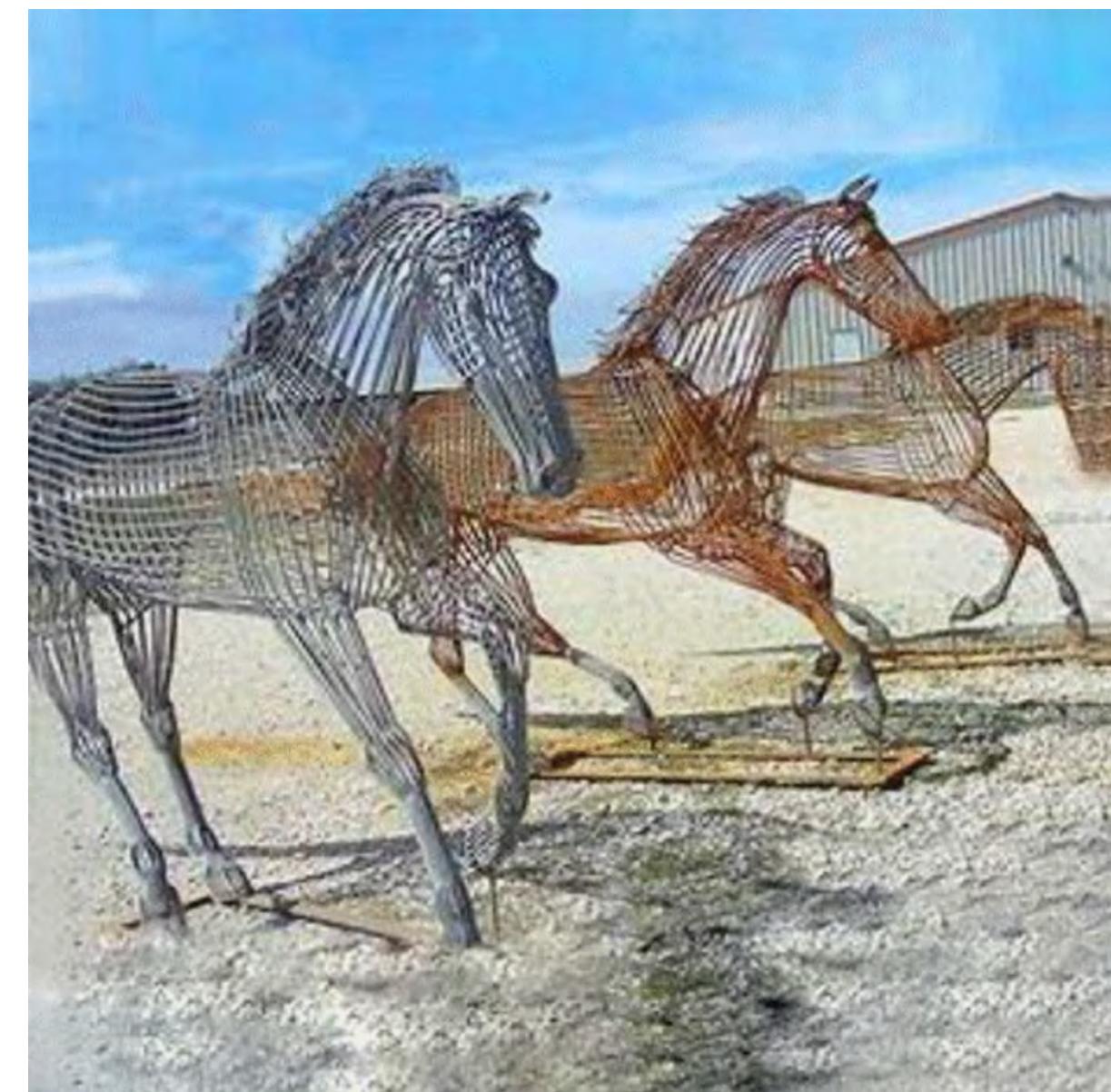
# DESIGN INSPIRATION IMAGES - BUILDING DETAILS

## STEWART STREET APARTMENTS

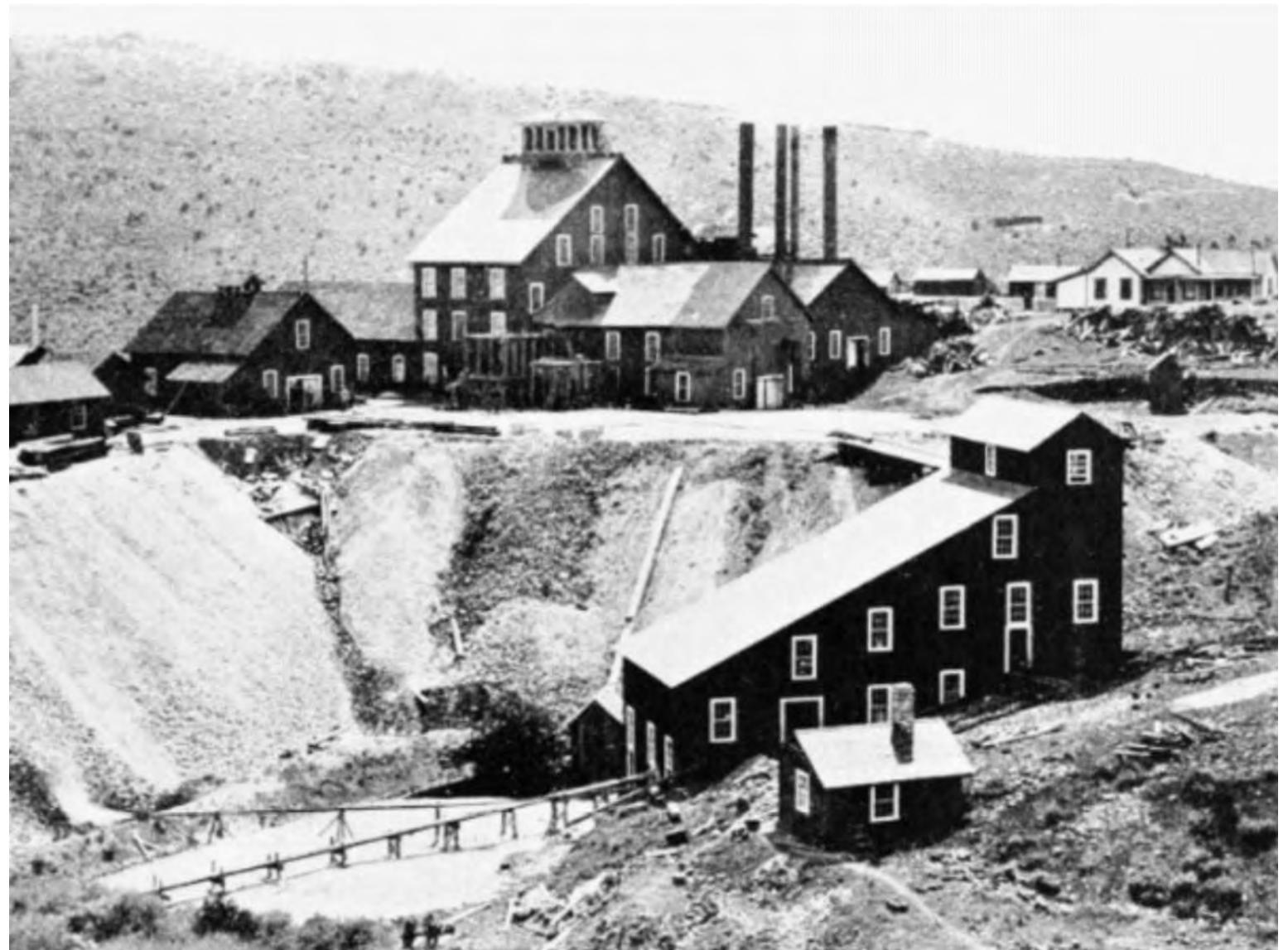
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GFRC (GLASS FIBER  
REINFORCED CONCRETE)  
WALL PANEL INSPIRATION



PUBLIC PLAZA SCULPTURE  
INSPIRATION IMAGES



PUBLIC ART WALL PANEL INSPIRATION IMAGES

# DESIGN INSPIRATION IMAGES - PUBLIC ART STEWART STREET APARTMENTS

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**Carson City Planning Division**  
**108 E. Proctor Street • Carson City NV 89701**  
**Phone: (775) 887-2180 • E-mail: [planning@carson.org](mailto:planning@carson.org)**

## FILE #

**APPLICANT** **PHONE #**  
**Pillar Income Asset Management** **469-522-4431**

**MAILING ADDRESS, CITY, STATE, ZIP**

**1603 LBJ Frwy, Ste 800, Dallas TX, 75234**

**EMAIL ADDRESS**

**randy.johnson@pillarincome.com**

**PROPERTY OWNER** **PHONE #**

**LD Carson City Stewart St. LLC c/o Bradford Phillips** **see above#**

**MAILING ADDRESS, CITY, STATE, ZIP**

**1605 LBJ Freeway, Suite 700, Dallas, TX, 75234**

**EMAIL ADDRESS**

**Randy Johnson / randy.johnson@pillarincome.com**

**APPLICANT AGENT/REPRESENTATIVE** **PHONE #**

**Manhard Consulting / Louis Cariola** **775-250-8613**

**MAILING ADDRESS, CITY STATE, ZIP**

**241 Ridge Street, Ste 400, Reno NV 89501**

**EMAIL ADDRESS**

**lcariola@manhard.com**

**Project's Assessor Parcel Number(s):** **Street Address**

**004-055-02 and 004-055-07** **906 S Stewart Street and uaddressed site on E 9th Street**

**Project's Master Plan Designation**

**Downtown Mixed Use**

**Project's Current Zoning**

**DT-MU**

**Nearest Major Cross Street(s)**

**Little Lane**

Please provide a brief description of your proposed project and/or proposed use below. Provide additional pages to describe your request in more detail. Proposal was the subject of MPRs 2020-0011 and 2020-0021. Project is a 5-story MFR development with 254 units and a 6 story parking garage.

**Four Div. 6 SUP triggers: residential use only, limiting public spaces, no building step back, sidewalks**

### PROPERTY OWNER'S AFFIDAVIT

I, Bradford Phillips, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to, the filing of this application.

Signature

Address

1603 LBJ Frwy, Suite 800

Date

11/3/2020

Use additional page(s) if necessary for additional owners.

STATE OF NEVADA

COUNTY Dallas

On November 3, 2020, Bradford A. Phillips, personally appeared before me, a notary public, personally known (or proved) to me to be the person whose signature is affixed to the foregoing document and who acknowledged to me that he/she executed the foregoing document.

Notary Public



PAUL A. DECKER  
My Notary ID # 126749385  
Expires December 11, 2020

NOTE: If your project is located within the Historic District or airport area, it may need to be scheduled before the Historic Resources Commission or the Airport Authority in addition to being scheduled for review by the Planning Commission. Planning staff can help you make this determination.

If there is any additional information that would provide a clearer picture of your proposal that you would like to add for presentation to the Planning Commission, please be sure to include it in your detailed description.

Please type and sign the statement on the following page at the end of your findings response.

### **ACKNOWLEDGMENT OF APPLICANT**

I certify that the forgoing statements are true and correct to the best of my knowledge and belief. I agree to fully comply with all conditions as established by the Planning Commission. I am aware that this permit becomes null and void if the use is not initiated within one-year of the date of the Planning Commission's approval; and I understand that this permit may be revoked for violation of any of the conditions of approval. I further understand that approval of this application does not exempt me from all City code requirements.



Applicant's Signature



Print Name



Date

# Master Plan Policy Checklist

## Special Use Permits & Major Project Reviews & Administrative Permits

### PURPOSE

The purpose of a development checklist is to provide a list of questions that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master Plan that are related to non-residential and multi-family residential development. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

Development Name: Stewart Street Apartments

Reviewed By: \_\_\_\_\_

Date of Review: \_\_\_\_\_

### DEVELOPMENT CHECKLIST

The following five themes are those themes that appear in the Carson City Master Plan and which reflect the community's vision at a broad policy level. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. A check mark indicates that the proposed development meets the applicable Master Plan policy. The Policy Number is indicated at the end of each policy statement summary. Refer to the Comprehensive Master Plan for complete policy language.

#### CHAPTER 3: A BALANCED LAND USE PATTERN



The Carson City Master Plan seeks to establish a balance of land uses within the community by providing employment opportunities, a diverse choice of housing, recreational opportunities, and retail services.

##### Is or does the proposed development:

- Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?
- Use sustainable building materials and construction techniques to promote water and energy conservation (1.1e, f)?
- Located in a priority infill development area (1.2a)?
- Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?

- Protect existing site features, as appropriate, including mature trees or other character-defining features (1.4c)?
- At adjacent county boundaries or adjacent to public lands, coordinated with the applicable agency with regards to compatibility, access and amenities (1.5a, b)?
- In identified Mixed-Use areas, promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria (2.1b, 2.2b, 2.3b, Land Use Districts, Appendix C)?
- Meet adopted standards (e.g. setbacks) for transitions between non-residential and residential zoning districts (2.1d)?
- Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?
- Sited outside the primary floodplain and away from geologic hazard areas or follows the required setbacks or other mitigation measures (3.3d, e)?
- Provide for levels of services (i.e. water, sewer, road improvements, sidewalks, etc.) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions)?
- If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

## CHAPTER 4: EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES



The Carson City Master Plan seeks to continue providing a diverse range of park and recreational opportunities to include facilities and programming for all ages and varying interests to serve both existing and future neighborhoods.

### Is or does the proposed development:

- Provide park facilities commensurate with the demand created and consistent with the City's adopted standards (4.1b)?
- Consistent with the Open Space Master Plan and Carson River Master Plan (4.3a)?

## CHAPTER 5: ECONOMIC VITALITY



The Carson City Master Plan seeks to maintain its strong diversified economic base by promoting principles which focus on retaining and enhancing the strong employment base, include a broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to a successful community.

### Is or does the proposed development:

- Encourage a citywide housing mix consistent with the labor force and non-labor force populations (5.1j)
- Encourage the development of regional retail centers (5.2a)
- Encourage reuse or redevelopment of underused retail spaces (5.2b)?
- Support heritage tourism activities, particularly those associated with historic resources, cultural institutions and the State Capitol (5.4a)?
- Promote revitalization of the Downtown core (5.6a)?
- Incorporate additional housing in and around Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

## CHAPTER 6: LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS



The Carson City Master Plan seeks to promote safe, attractive and diverse neighborhoods, compact mixed-use activity centers, and a vibrant, pedestrian-friendly Downtown.

### Is or does the proposed development:

- Use durable, long-lasting building materials (6.1a)?
- Promote variety and visual interest through the incorporation of varied building styles and colors, garage orientation and other features (6.1b)?
- Provide variety and visual interest through the incorporation of well-articulated building facades, clearly identified entrances and pedestrian connections, landscaping and other features consistent with the Development Standards (6.1c)?
- Provide appropriate height, density and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects or adjacent to existing rural neighborhoods (6.2a, 9.3b 9.4a)?
- If located in an identified Mixed-Use Activity Center area, contain the appropriate mix, size and density of land uses consistent with the Mixed-Use district policies (7.1a, b)?
- If located Downtown:
  - Integrate an appropriate mix and density of uses (8.1a, e)?
  - Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?
  - Incorporate appropriate public spaces, plazas and other amenities (8.1d)?
- Incorporate a mix of housing models and densities appropriate for the project location and size (9.1a)?

## CHAPTER 7: A CONNECTED CITY



The Carson City Master Plan seeks promote a sense of community by linking its many neighborhoods, employment areas, activity centers, parks, recreational

amenities and schools with an extensive system of interconnected roadways, multi-use pathways, bicycle facilities, and sidewalks.

**Is or does the proposed development:**

- Promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density) along major travel corridors to facilitate future transit (11.2b)?
- Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?
- Provide appropriate pathways through the development and to surrounding lands, including parks and public lands, consistent with the Unified Pathways Master Plan (12.1a, c)?

## Confirmation of Taxes Paid for APNs 004-055-02 and 004-055-07

Carson City Property Inquiry 004-055-02 : 2020								
No Personal Exemptions								
Billing Fiscal Year (2020 - 2021)								
Installment	Date Due	Date Paid	Tax Billed	Cost Billed	Penalty/Interest	Total Due	Amount Paid	Total Unpaid
1	8/17/2020	10/2/2020	\$3,050.53	\$0.00	\$122.02	\$3,172.55	\$3,172.55	\$0.00
2	10/5/2020	11/3/2020	\$3,050.17	\$0.00	\$0.00	\$3,050.17	\$3,050.17	\$0.00
3	1/4/2021	11/3/2020	\$3,050.17	\$0.00	\$0.00	\$3,050.17	\$3,050.17	\$0.00
4	3/1/2021	11/3/2020	\$3,050.17	\$0.00	\$0.00	\$3,050.17	\$3,050.12	\$0.05
<b>Total</b>			<b>\$12,201.04</b>	<b>\$0.00</b>	<b>\$122.02</b>	<b>\$12,323.06</b>	<b>\$12,323.01</b>	<b>\$0.05</b>

Carson City Property Inquiry 004-055-07 : 2020								
No Personal Exemptions								
Billing Fiscal Year (2020 - 2021)								
Installment	Date Due	Date Paid	Tax Billed	Cost Billed	Penalty/Interest	Total Due	Amount Paid	Total Unpaid
1	8/17/2020	9/28/2020	\$1,021.73	\$0.00	\$40.87	\$1,062.60	\$1,062.60	\$0.00
2	10/5/2020	10/2/2020	\$1,021.36	\$0.00	\$0.00	\$1,021.36	\$1,021.36	\$0.00
3	1/4/2021	11/3/2020	\$1,021.36	\$0.00	\$0.00	\$1,021.36	\$1,021.36	\$0.00
4	3/1/2021	11/3/2020	\$1,021.36	\$0.00	\$0.00	\$1,021.36	\$1,021.36	\$0.00
<b>Total</b>			<b>\$4,085.81</b>	<b>\$0.00</b>	<b>\$40.87</b>	<b>\$4,126.68</b>	<b>\$4,126.68</b>	<b>\$0.00</b>

November 5, 2020

Hope Sullivan, Planning Manager  
Carson City Planning Division  
108 E. Proctor Street  
Carson City, NV 89701

Sent via email

**Re: Major Project Review Comments – MPR-2020-0021**

Dear Ms. Sullivan,

The following response is to comments for Major Project Review 2020-0021. The comments letter is dated May 5, 2020 (attached). The project that was reviewed included 248 multi-family units located on two parcels in the Downtown Mixed Use (DTMU) zoning district, APNs 004-055-02 and 004-055-07. The address is 906 South Stewart Street. These responses are submitted concurrently with a Special Use Permit (SUP) application. The SUP application includes a request for 253 units, a five unit increase to the project contemplated in MPR-2020-0021. The change is proposed because the applicant is considering the design of sub-surface stormwater detention on the south side of the proposed structure. This design change would alter the configuration of the ground floor, which originally contemplated a cantilevered extension over a surface stormwater basin. The re-design includes five additional units in the same location, above a sub-surface detention facility. Preliminary soil investigations have revealed that the facility may be designed to adequately meet Carson City standards, but the full engineering design work and modeling has not been completed. The impacts of additional units will be addressed in all technical reports. It is expected that since the SUP request will be for 253 units, if the sub-surface design is not possible, the original count of 248 would be permitted to proceed. An engineered design for stormwater detention will be submitted with site improvement plans including updated and complete results of soil investigations.

The following responses are to the Planning Division comments (Hope Sullivan, AICP).

**1. Permitted Use - CCMC 18.04.125 and Development Standards Division 6**

*Multi-family dwellings are an allowed use in the DTMU zoning district. The development is also subject to the design standards identified in Division 6 of the Development Standards. Per CCMC 18.07.020, if an alternative compliance is suggested, it is subject to a Special Use Permit. As you are proposing only residential uses, and not stepping the building back, a Special Use Permit will be required to utilize an alternative standard.*

*In the application for a Special Use Permit, please specifically address each component of Division 6 of the Development Standards and demonstrate compliance. Within the Downtown Mixed Use zoning district, the subject property is designated Urban Mixed Use.*

**Response:** The application for a SUP addresses each component of Division 6 and makes requests for an alternate standard where appropriate.

**2. Growth Management - CCMC 18.12**

*Growth Management applies to all residential, commercial and industrial property that is required to be served by city water and/or sewer service within the consolidated municipality of Carson City.*

**Conclusion**

*Due to changing conditions of business and requirements for zoning, master plan and development codes of Carson City, this MPR information will expire and will need to be updated with a new MPR if the developer has not applied for a building permit within one year of the date of the MPR meeting.*

*When applying for a building permit in relation to the proposed project in addition to the required plans, please submit the following:*

- *Copy of this MPR letter packet.*
- *Exterior light fixture details must be submitted with a building permit application for review and approval by the Planning Division prior to installation.*
- *Color palette for all proposed exterior colors of the buildings.*

**Response:** It is understood that the Growth Management provisions of Carson City Code are applicable to the proposal. Appropriate lighting details will be submitted with building plans as will final color palette choices. The SUP submittal includes significant details of intended colors, materials, and finishes proposed for the project.

The following responses are to the Building Division comments (Corey Coleman, Chief Building Official)

1. *Design to the 2018 Code Series.*
2. *Provide submittal digitally to the Carson City Building Division.*
3. *Provide design criteria on cover pages.*
4. *Nevada licensed contractor required for all commercial construction.*
5. *Address utility line easement through proposed center of the building.*
6. *Address exhaust in the garage if it will be enclosed.*
7. *A pre-submittal meeting with building and fire staff will be required prior to submittal of a building permit.*
8. *Provide a detailed exiting plan.*
9. *Provide accessibility as per the International Building Code.*
10. *Address the power line.*
11. *Please advise the building official of like projects.*

**Response:** The submittal for building plans will address comments from the Building Official and are understood. Regarding item 5 above, the existing electrical line easement running north/south through the site will be abandoned.

The following responses are to Development Engineering comments (Stephen Pottey, P.E.)

1. *The proposed access is acceptable by engineering standards.*
2. *If this project is required to go before the planning commission, water, sewer, storm drain, flood, and traffic impact reports must be submitted at that time.*

**Response:** The SUP submittal includes all the required impact reports.

3. *The project is in an X-shaded FEMA flood zone, and basements will not be allowed.*

**Response:** Understood: no basement level is proposed.

4. *The detention basin will be privately owned and maintained. If any changes are made to the cantilevered section of the building, care should be taken to ensure maintenance equipment can work in the basin.*

**Response:** The proposed SUP design contemplates a sub-surface detention facility that will connect to City storm drain infrastructure. It is understood that regardless of design submitted as part of the building plan submittal (sub-surface or surface), the same condition will apply.

5. *If trees are used in the street scape, the species and the manner of planting must be approved by Carson City Public Works.*

**Response:** Plant species will be submitted with site improvement and/or building plans.

6. *A wet stamped water main analysis must be submitted in accordance with CCDS 15.3.1(a) to show that adequate pressure will be delivered to the meter and fire flows meet the minimum requirements of the Carson City Fire Department. The capacity of the 6 inch cast iron water main in East Ninth Street must be analyzed. In the event that the capacity of this main meets the required demand imposed by the project, the City may elect to have the main replaced with this project, at the City's expense. There are no current hydrant fire flow test results for this area and the City recommends doing testing through Carson City Public Works early in the design process.*

**Response:** Flow test results and preliminary analysis of the 6" main has been determined to be adequate for providing service to the project. The preliminary design shows the replacement of the 6" water main in East Ninth Street by Carson City.

7. *This project must be served with a domestic water master meter.*

**Response:** The SUP plans show a single domestic water service to the building. It is understood that the service will include a domestic water master meter.

8. *A sealed traffic impact study must be provided, meeting the requirements of CCDS 12.13. The traffic impact study must include a LOS analysis and signal warrant at the intersection of Stewart St / Little Ln and must also review the existing LOS and operations at Roop Street / Little Lane and Stewart / 9th Street. Please contact Chris Martinovich with any question regarding the scope of this study at 775-283-7367.*

**Response:** The SUP submittal includes a traffic impact study in accordance with the procedure described above.

9. *New curb, gutter, sidewalk, and half street paving must be installed along the project frontage on East Ninth Street.*

**Response:** These improvements are included in the SUP submittal plan set.

10. *New curb, gutter, sidewalk, and half street mill and overlay must be installed on South Stewart Street along the project frontage. Stewart Street, which is classified as an arterial, must be widened by approximately 1 foot to accommodate a bike lane. See Standard detail C-5.1.8. Any necessary additional right-of-way must be dedicated to Carson City.*

**Response:** The SUP plans include the improvements noted above.

11. *A portion of the project contains a FEMA AO flood zone. The project must obtain FEMA LOMA approval prior to a site improvement permit being issued. The project must meet all applicable City and Federal requirements for flood damage prevention, including requirements for structures with basements located in a flood plane.*

**Response:** In accordance with comment 3 above, no basement is proposed. FEMA LOMA or other applicable FEMA permitting is understood as a condition.

12. *A Technical Drainage Study meeting the requirements of section 14 of the Carson City Development Standards must be submitted with the permit and plans.*

**Response:** A drainage project impact report is included in SUP submittal and a full Technical Drainage Study will be provided with the final permit and plans.

13. *A wet stamped sewer main analysis be submitted that includes addressing the effect of flows on the existing system. See section 15.3.2 of CCDS.*

**Response:** A sewer project impact report is included in the SUP submittal and a full Sewer Analysis and Report will be provided with the final permit and plans.

14. *A reduced pressure principle assembly backflow preventer will be required for the domestic water line. The fire line must have a double check valve backflow preventer if it is Class 1-3, or a reduced pressure principle assembly if it is Class 4-6. These backflow preventers must be above ground in a hot box, and must be located as close to the property line as possible. The irrigation service will need a reduced pressure backflow preventer if a vacuum breaker system cannot be designed to operate properly.*

**Response:** The required backflow preventers will be installed above ground and the fire line double check valve backflow preventer will likely be located within a fire riser room inside the building.

15. *Water and sewer connection fees must be paid. If these fees were paid in the past, then the difference between the old and new amounts of water/sewer usages must be paid for. Please see CCMC 12.01.030 for the water connection fee schedule and 12.03.020 for the sewer connection fee schedule.*

16. *Any engineering work done on this project must be wet stamped and signed by an engineer licensed in Nevada. This will include site, grading, utility and erosion control plans as well as standard details.*

17. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.
18. Addresses for units will be provided during the building permit review process.
19. Fresh water must be used for Dust control. Contact the Water Operations Supervisor Public Works at 283-7382 for more information.
20. A private testing agreement will be necessary for the compaction and material testing in the street right of way. The form can be obtained through Carson City Permit Engineering.
21. An erosion control plan meeting section 13 of CCDS will be required in the plan set.
22. If an existing water service is to be re-used, it must be checked for condition. It may need to be replaced. Any existing water and sewer services not being used must be abandoned at the main.
23. New electrical service must be underground.
24. Any work performed in the street right of way will require a traffic control plan and a time line type schedule to be submitted before the work can begin. A minimum of one week notice must be given before any work can begin in the street right of way.
25. Please show any easements on the construction drawings.
26. A Construction Stormwater Permit from the Nevada Division of Environmental Protection (NDEP) will be required for the construction of projects 1 acre or greater.

**Response:** Items 15 through 26 are understood and will be addressed where appropriate in the site improvement, construction, and building phases.

If you have any questions or require any additional information, feel free to contact me directly at 775-250-8613 or lcariola@manhard.com.

Sincerely,  
**MANHARD CONSULTING, LTD.**



Louis Cariola  
Senior Planner



# Carson City Planning Division

108 E. Proctor Street  
Carson City, Nevada 89701  
(775) 887-2180-Hearing Impaired:711  
[www.carson.org](http://www.carson.org)  
[www.carson.org/planning](http://www.carson.org/planning)

---

May 5, 2020

Louis Cariola  
Manhard Consulting  
241 Ridge Street, Suite 400  
Reno, NV 89501

**Major Project Review:** MPR-2020-0021

**Project Description:** Construction of a five story multi-family residential development consisting of 248 units with a mix of 20 studio units, 136 one bedroom units, and 92 two bedroom units, and a six story parking garage at 906 South Stewart Street, APN 004-055-02, and -07.

**Review Date:** April 21, 2020

## **Major Project Review Comments**

The Major Project Review Committee has reviewed the proposed plans for construction of a five story multi-family residential development consisting of 248 units with a mix of 20 studio units, 136 one bedroom units, and 92 two bedroom units, and a six story parking garage. The following requirements and comments are provided for your use in preparing final plans and submittals for the project. Please be advised that the comments presented in this letter are based on the plans submitted with the Major Project Review application and may not include all the requirements or conditions which may be placed on the project at the time of submittal of planning applications for approval (if applicable) or final plans for building permits. It is hoped, however, that this review will expedite the completion of your project.

Some of the requirements noted below may have already been shown or otherwise indicated in the plans and need only be submitted in the final improvement plan form. Final on- and off-site improvement plans shall be submitted to the Permit Center, (108 E. Proctor Street). These plans must contain all appropriate requirements of Development Engineering, Health, Utilities, Fire, and Planning Divisions/Departments.

Planning applications (if applicable), such as Master Plan Amendments, Zoning Changes, Special Use Permits, Variances, Lot Line Adjustments, Parcel Maps, etc. shall be submitted to the Planning Division (108 E. Proctor Street) for review and approval.

## **SITE INFORMATION:**

Address: 906 South Stewart Street

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APN: 004-055-02 and -07

Parcel Size: 3.44 acres

Master Plan Designation: Downtown Mixed Use (DTMU)

Zoning: Downtown Mixed Use (DTMU)

**PLANNING DIVISION**

**Contact Hope Sullivan, Planning Manager**

1. **Permitted Use - CCMC 18.04.125 and Development Standards Division 6**

Multi-family dwellings are an allowed use in the DTMU zoning district. The development is also subject to the design standards identified in Division 6 of the Development Standards. Per CCMC 18.07.020, if an alternative compliance is suggested, it is subject to a Special Use Permit. As you are proposing only residential uses, and not stepping the building back, a Special Use Permit will be required to utilize an alternative standard.

In the application for a Special Use Permit, please specifically address each component of Division 6 of the Development Standards and demonstrate compliance. Within the Downtown Mixed Use zoning district, the subject property is designated Urban Mixed Use.

2. **Growth Management - CCMC 18.12**

Growth Management applies to all residential, commercial and industrial property that is required to be served by city water and/or sewer service within the consolidated municipality of Carson City.

**Conclusion**

Due to changing conditions of business and requirements for zoning, master plan and development codes of Carson City, this MPR information will expire and will need to be updated with a new MPR if the developer has not applied for a building permit within one year of the date of the MPR meeting.

When applying for a building permit in relation to the proposed project in addition to the required plans, please submit the following:

- Copy of this MPR letter packet.
- Exterior light fixture details must be submitted with a building permit application for review and approval by the Planning Division prior to installation.
- Color palette for all proposed exterior colors of the buildings.

**BUILDING DIVISION**

**Contact Corey Coleman, Chief Building Official**

1. Design to the 2018 Code Series.
2. Provide submittal digitally to the Carson City Building Division.
3. Provide design criteria on cover pages.
4. Nevada licensed contractor required for all commercial construction.
5. Address utility line easement through proposed center of the building.

6. Address exhaust in the garage if it will be enclosed.
7. A pre-submittal meeting with building and fire staff will be required prior to submittal of a building permit.
8. Provide a detailed exiting plan.
9. Provide accessibility as per the International Building Code.
10. Address the power line.
11. Please advise the building official of like projects.

## **ENGINEERING AND UTILITIES**

**Contact Stephen Pottet, Development Engineering**

1. The proposed access is acceptable by engineering standards.
2. If this project is required to go before the planning commission, water, sewer, storm drain, flood, and traffic impact reports must be submitted at that time.
3. The project is in an X-shaded FEMA flood zone, and basements will not be allowed.
4. The detention basin will be privately owned and maintained. If any changes are made to the cantilevered section of the building, care should be taken to ensure maintenance equipment can work in the basin.
5. If trees are used in the street scape, the species and the manner of planting must be approved by Carson City Public Works.
6. A wet stamped water main analysis must be submitted in accordance with CCDS 15.3.1(a) to show that adequate pressure will be delivered to the meter and fire flows meet the minimum requirements of the Carson City Fire Department. The capacity of the 6 inch cast iron water main in East Ninth Street must be analyzed. In the event that the capacity of this main meets the required demand imposed by the project, the City may elect to have the main replaced with this project, at the City's expense. There are no current hydrant fire flow test results for this area and the City recommends doing testing through Carson City Public Works early in the design process.
7. This project must be served with a domestic water master meter.
8. A sealed traffic impact study must be provided, meeting the requirements of CCDS 12.13. The traffic impact study must include a LOS analysis and signal warrant at the intersection of Stewart St / Little Ln and must also review the existing LOS and operations at Roop Street / Little Lane and Stewart / 5th Street. Please contact Chris Martinovich with any question regarding the scope of this study at 775-283-7367.
9. New curb, gutter, sidewalk, and half street paving must be installed along the project frontage on East Ninth Street.
10. New curb, gutter, sidewalk, and half street mill and overlay must be installed on South Stewart Street along the project frontage. Stewart Street, which is classified as an arterial, must be widened by approximately 1 foot to accommodate a bike lane. See Standard detail C-5.1.8. Any necessary additional right-of-way must be dedicated to Carson City.
11. A portion of the project contains a FEMA AO flood zone. The project must obtain FEMA LOMA approval prior to a site improvement permit being issued. The project must meet

all applicable City and Federal requirements for flood damage prevention, including requirements for structures with basements located in a flood plane.

12. A Technical Drainage Study meeting the requirements of section 14 of the Carson City Development Standards must be submitted with the permit and plans.
13. A wet stamped sewer main analysis must be submitted that includes addressing the effect of flows on the existing City system. See section 15.3.2 of CCDS.
14. A reduced pressure principle assembly backflow preventer will be required for the domestic water line. The fire line must have a double check valve backflow preventer if it is Class 1-3, or a reduced pressure principle assembly if it is Class 4-6. These backflow preventers must be above ground in a hot box, and must be located as close to the property line as possible. The irrigation service will need a reduced pressure backflow preventer if a vacuum breaker system cannot be designed to operate properly.
15. Water and sewer connection fees must be paid. If these fees were paid in the past, then the difference between the old and new amounts of water/sewer usages must be paid for. Please see CCMC 12.01.030 for the water connection fee schedule and 12.03.020 for the sewer connection fee schedule.
16. Any engineering work done on this project must be wet stamped and signed by an engineer licensed in Nevada. This will include site, grading, utility and erosion control plans as well as standard details.
17. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.
18. Addresses for units will be provided during the building permit review process.
19. Fresh water must be used for Dust control. Contact the Water Operations Supervisor Public Works at 283-7382 for more information.
20. A private testing agreement will be necessary for the compaction and material testing in the street right of way. The form can be obtained through Carson City Permit Engineering.
21. An erosion control plan meeting section 13 of CCDS will be required in the plan set.
22. If an existing water service is to be re-used, it must be checked for condition. It may need to be replaced. Any existing water and sewer services not being used must be abandoned at the main.
23. New electrical service must be underground.
24. Any work performed in the street right of way will require a traffic control plan and a time line type schedule to be submitted before the work can begin. A minimum of one week notice must be given before any work can begin in the street right of way.
25. Please show any easements on the construction drawings.
26. A Construction Stormwater Permit from the Nevada Division of Environmental Protection (NDEP) will be required for the construction of projects 1 acre or greater.

These comments are based on a very general site plan and do not indicate a complete review. All pertinent requirements of Nevada State Law, Carson City Code, and Carson City Development Standards will still apply whether mentioned in this letter or not.

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## **FIRE DEPARTMENT**

**Contact Dave Ruben, Fire Marshall**

1. Project must comply with the IFC and northern Nevada fire code amendments as adopted by Carson City.
2. The access easement on the south side of the project will need to be recorded prior to the start of construction.
3. The fire lane on the south and west sides of the project will need to be marked. The south side fire lane may be marked with signage in the landscape buffer. We can't comment further on it until the Carson Mall striping plan is available to us to see how it integrates.
4. The proposed loading zone for occupant use is not compatible with the fire lane traffic flow.
5. At least one Knox box will be required.
6. A Knox key switch is required on the electric gate operator in the parking garage.
7. Gurney sized elevators are required.
8. Unit addressing must comply with CCMC T18 Appendix, Division 22.
9. Additional fire hydrants are required.
10. Project requires a remote FDC. The FDC must be within 100' of a hydrant.
11. We were unable to determine the finish floor height of the highest occupied floor based on the information provided. It may be classified as a high rise building.
12. If the project is determined to be a high-rise, there are additional requirements.
13. An emergency responder radio system may be required depending on the final design. A radio coverage analysis will be required as part of the building permit submittal. If the project is determined to be a high-rise, the emergency responder radio system is required.
14. Fire apparatus access roads will have 30' inside/50' outside radius turns.
15. We recommend a pre submittal meeting prior to submittal for the building permit.

## **ENVIRONMENTAL REVIEW**

**Jen Churchward, Senior Environmental Control Officer**

1. ECA will require the submittal of a Spill Prevention Plan describing all BMPs, including but not limited to mechanical systems and/or procedures that will prevent any petroleum hydrocarbons from entering the Storm Sewer System per CCMC 12.19.090
2. Parking Garage required to connect to a pretreatment system (i.e. sand/oil interceptor) prior to discharge into Carson City Storm Drain System.

## **HEALTH DEPARTMENT**

**Dustin Boothe, Health Specialist**

### **Pool/spa**

Plans would need to be submitted to Carson City Building Department for Health Department review. The pool/spa would need to be designed in current building code and applicable sections in Nevada Administrative Code (NAC) 444.

## **PARKS RECREATION AND OPEN SPACE**

Nick Wentworth, Project Manager

1. The City will not be responsible for any landscape or irrigation system maintenance on the project. All landscaping and landscape maintenance in the right of way will be the sole responsibility of the owner. The developer is required to maintain all common landscape and open space areas within the development including any landscaping in the street(s) right of ways in perpetuity.
2. Carson City is a Bee City, USA. As a result, the developer shall use approximately 50% pollinator friendly plant material for any required landscaping on the project site. Also, any remaining landscape plant material selection needs to be consistent with the City's approved tree species list or other tree species, as approved by the City. The Carson City Pollinator Plant list and other plant selection resources can be found at [www.carson.org/beecityusa](http://www.carson.org/beecityusa)

The City's approved tree species list for commercial projects can be found at <https://www.carson.org/Home/ShowDocument?id=15225>

3. The developer is required to incorporate "best management practices" into their construction documents and specifications to reduce the spread of noxious weeds.
4. Evergreen trees must be planted a minimum of 10' from any city/public street or sidewalk. Fruit bearing, "non-fruiting" flowering or any other trees that drop debris such as seed pods, flowers or fruit will not be permitted near city/public sidewalks.
5. Sidewalk planters should follow a similar theme as Downtown Carson City (Examples: Carson Street from 5th St. to William St. and Curry St. from Musser to Robinson). Different species that follow the guidelines in comment #4 above and the city's approved tree species list are acceptable. Steel grates around trees will not be accepted.
6. Landscape plans will need to be submitted to the Parks Department for final approval before proceeding with that phase of construction.

The aforementioned comments are based on the Major Project Review Committee's review. If you have any questions, please feel free to contact the following members of staff, Monday through Friday 8:00 AM to 4:00 PM.

### **Planning Division –**

Hope Sullivan, Planning Manager  
(775) 283-7922  
Email: [hsullivan@carson.org](mailto:hsullivan@carson.org)

### **Engineering Division –**

Stephen Pottey, Development Engineering  
(775) 283-7079  
Email: [spottey@carson.org](mailto:spottey@carson.org)

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### **Building Division –**

Corey Coleman, Chief Building Official  
(775) 283-7052  
Email: [ccoleman@carson.org](mailto:ccoleman@carson.org)

**Environmental Control Department –**  
Mark Irwin, Senior Environmental Control Officer  
(775) 283-7380  
Email: [mirwin@carson.org](mailto:mirwin@carson.org)

**Fire Prevention –**  
Dave Ruben, Fire Marshall  
(775) 283-7153  
Email: [druben@carson.org](mailto:druben@carson.org)

**Health Department -**  
Dustin Boothe, Health Specialist  
(775)283-7220  
Email: [dbooth@carson.org](mailto:dbooth@carson.org)

**Parks Recreation and Open Space -**  
Nick Wentworth, Project Manager  
(775) 283-7733  
Email: [nwentworth@carson.org](mailto:nwentworth@carson.org)

Sincerely,  
Community Development Department, Planning Division

  
Hope Sullivan, AICP  
Planning Manager

cc: MPR-2020-0021



## CONCEPTUAL DRAINAGE STUDY

FOR

### STEWART STREET APARTMENTS

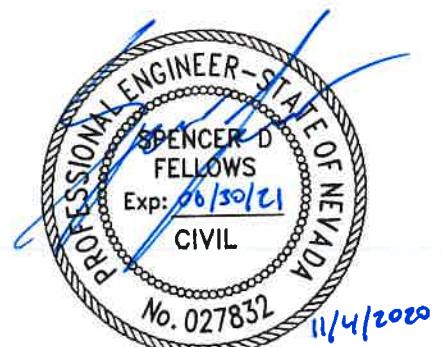
CARSON CITY, NEVADA

Prepared for:

Pillar Income Asset Management  
1603 LBJ Frwy, Suite 800  
Dallas, TX 75234

Prepared by:

Manhard Consulting  
241 Ridge Street, Suite 400  
Reno, Nevada 89501



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## **INTRODUCTION**

- B.** The following report is a Conceptual Drainage Study for Stewart Street Apartments dated November 2020.
- C.** The contact person for the preparation of this report is Daniel Birchfield, P.E. at Manhard Consulting, 775-746-3500.
- D.** The project consists of 253 residential units, a club house, and associated roadway improvements.
- E.** The existing Stewart Street Apartments parcel numbers are APN 004-055-02 & 004-055-07 and are 3.44 acres in combined size. The parcel slopes from the northwest to the southeast at approximately 0.4% within the confines of the project site. The proposed project site is situated within a portion of the Southeast ¼ of the Southwest ¼ and a portion of the Southwest ¼ of the Southwest ¼ of Section 17, Township 15 North, and Range 20 East of the Mount Diablo Meridian in Carson City, Nevada. Currently, the parcel is vacant was previously developed and is proposed to be fully developed.

The subject property is currently zoned DT-MU within Carson City and is adjacent to developed areas:

North: East 9<sup>th</sup> Street, zoned DT-MU  
South: Existing Parking Lot, zoned RC  
East: South Stewart Street, zoned DT-MU  
West: S Plaza Street, zoned DT-MU

- F.** Reference the included Vicinity Map (Figure #1).

## **II EXISTING AND PROPOSED HYDROLOGY**

- A.** The intent of this hydrology study is to set a basis for the existing conditions for comparison to the proposed conditions, show the free draining flood water storage is preserved on site, and prove that the discharge created by the proposed development was alleviated via a detention facility prior to discharging into the existing storm drain lateral located at the southeast corner of the proposed project site. There are a total of 4 existing drainage basins, 7 proposed drainage basins, and 1 detention facility for the proposed project. Basins are represented by their boundary as well as existing and proposed conditions. Reference Figure 2 (Existing Hydrologic Conditions) and Figure 3 (Proposed Hydrologic Conditions) for a visual representation of existing basins, proposed basins, and detention facility.
  
- B.** The Rational Method was used to determine storm flow discharge. Data used for the Rational Method was derived from the following: NOAA Atlas 14 precipitation intensity values for a 10-minute time of concentration and runoff coefficients are from the 2009 Truckee Meadows Regional Drainage Manual.

The Rational Method was used to determine the storage volume required for the free draining flood water and increase of peak storm runoff. Data used for the Rational Method was derived from the following: NOAA Atlas 14 precipitation intensity values for the 5-year and 100-year storm, FEMA Flood Map Service Center for the flood plain limits and depths of flooding during the 100-year storm, and runoff curve numbers are from the 2009 Truckee Meadows Regional Drainage Manual.

The following is a description of each basin and its data characteristics. ‘E’ represents the existing basin and ‘P’ represents the proposed basin.

BASIN E-1 TO E-4 – The basins total 3.44 acres in size. A runoff coefficient of 0.82 was used for the 5-year storm event, and a runoff coefficient value of 0.85 was used for the 100-year storm event (based on downtown commercial area) for the existing conditions. Using a 10-minute time of concentration, the intensity value for the 5-year storm event is 1.46 inches/hour, and the intensity value for the 100-year storm event is 3.55 inches/hour, respectively. Discharge sheet flows across the proposed project site in

the existing condition in a northwest to southeast at approximately 0.4% discharging into the existing storm drain system with some area discharging south of the property.

**BASINS P-1 TO P-7** – The basins total 3.44 acres in size. A runoff coefficient of 0.88 was used for the 5-year storm event, and a runoff coefficient value of 0.93 was used for the 100-year storm event (based a paved area) for the proposed conditions of P-1 to P-8. The area was previously developed as a downtown area, but the preliminary layout shows less permeable area than before. The C-value was increased to create a conservative analysis of the proposed condition. Using a 10-minute time of concentration, the intensity value for the 5-year storm event is 1.46 inches/hour, and the intensity value for the 100-year storm event is 3.55 inches/hour, respectively. Discharge flows along the proposed roads and accesses varying in slope from 0.3% and 1.5% and enters the proposed storm drain network at various catch basin locations and ends up at the proposed detention facility located in the south end of the proposed project. The discharge will exit the detention facility at a rate that equals the discharge in the existing conditions ending up in the existing storm drain main located in the southeast corner of the proposed project site.

The tables below are the analyzed values for the existing and proposed 5-yr and 100-yr storm events.

Table 1: Existing Condition

BASIN	AREA (ac)	RUNOFF COEFFICIENT (5-YEAR)	RUNOFF COEFFICIENT (100-YEAR)	INTENSITY (5-YEAR) (in/hr)	INTENSITY (100-YEAR) (in/hr)	Q5 (cfs)	Q100 (cfs)
EX-1	0.06	0.82	0.85	1.46	3.55	0.08	0.19
EX-2	2.71	0.82	0.85	1.46	3.55	3.25	8.19
EX-3	0.60	0.82	0.85	1.46	3.55	0.72	1.81
EX-4	0.07	0.82	0.85	1.46	3.55	0.08	0.20
E-Total	3.44					4.12	10.39

Table 2: Proposed Condition

BASIN	AREA (ac)	RUNOFF COEFFICIENT (5-YEAR)	RUNOFF COEFFICIENT (100-YEAR)	INTENSITY (5-YEAR) (in/hr)	INTENSITY (100-YEAR) (in/hr)	Q5 (cfs)	Q100 (cfs)
P-1	0.06	0.88	0.93	1.46	3.55	0.08	0.21
P-2	0.95	0.88	0.93	1.46	3.55	1.22	3.14
P-3	1.63	0.88	0.93	1.46	3.55	2.09	5.37
P-4	0.25	0.88	0.93	1.46	3.55	0.32	0.81
P-5	0.04	0.88	0.93	1.46	3.55	0.05	0.13
P-6	0.48	0.88	0.93	1.46	3.55	0.62	1.59
P-7	0.04	0.88	0.93	1.46	3.55	0.05	0.12
P-Total	3.44					4.42	11.37

- C. The downstream drainage consists of a 15-inch storm drain pipe followed by a 24-inch storm pipe, which follows South Stewart Street. The storm drain system outlets into Linear Park and then leads to the Carson River.
- D. There is an existing drainage problem for the proposed project site as the site is currently in a localized low point which contributes to the parcel being in a floodplain Zone AO. There is a catch basin with a 12-inch pipe on site that serves as an outlet structure. The proposed detention facility will consolidate the area of the floodplain to be outside the building footprint and be able to provide the flood water storage currently on the parcel.
- E. The project site lies in Shaded Zone X (area of minimal flood hazard (500-yr floodplain)) and Zone AO (area of 1 feet of flood water depth during 100-yr storm). FEMA flood hazard designators have been labeled in the included Figures 2 and 3. Reference the included FEMA FIRMette from map #3200010092G included in Appendix A.
- F. There is no existing irrigation on the proposed site.
- G. Reference Figure 2 (Existing Hydrologic Conditions) and Figure 3 (Proposed Hydrologic Conditions) for the tributary areas of existing basins, proposed basins, and detention facility.

### **III. PROPOSED DRAINAGE FACILITIES**

- A.** The project site will be graded to allow drainage to flow toward catch basins that enter manholes, and discharge through a proposed storm drain network and into a proposed detention facility located in the south end of the project site. Discharge will then exit the detention facility in a condition less than or equal to the existing condition and enter the existing storm drain network. (Reference Figure 3, Proposed Hydrologic Conditions for a graphical interpretation of the proposed flow direction).
- B.** Detention will be accomplished by meeting the requirements set forth in Division 14 of the Title 18 Appendix - Carson City Development Standards. Based on the proposed verses existing conditions, the following table dictates the required detention for all storm events as per Section 14.4 of the Carson City Development Standards Table 3 illustrates the overall increase in all storm events for the entire 21.52-acre property in the existing verses the proposed conditions.

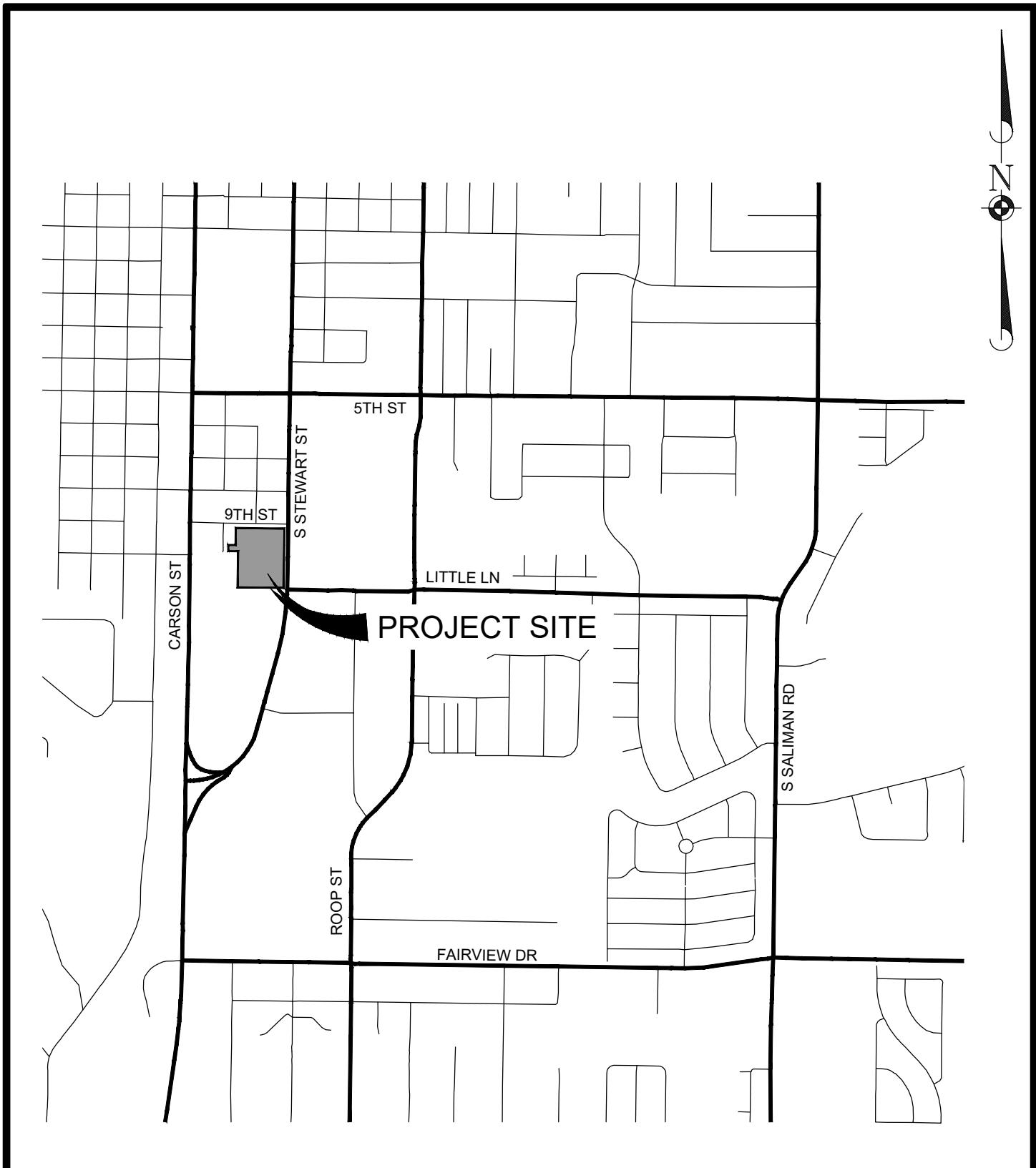
**TABLE 3 - STORM EVENT INCREASE (V-AC-FT)**

Storm Event	Existing Volume (ft <sup>3</sup> )	Proposed Volume (ft <sup>3</sup> )	Net increase (ft <sup>3</sup> )	Volume to be used (ft <sup>3</sup> )
5	3250	3490	240	
100	6230	6820	590	590
<b>Total</b>				<b>590</b>

Sizing was performed using the Rational Method for a 5-year and 100-year storm to find the net increase of runoff. The south area of the project will allow for the volume of ponding water to remain with the building finish floor to be 2 feet above the elevation of flooding. This will redefine the Zone AO within the parcel. A more detailed analysis of the flood elevation will be determined at final design.

#### **IV. CONCLUSIONS**

- A.** This report has been prepared in compliance with Division 14 of the Title 18 Appendix - Carson City Development Standards.
- B.** This report is compliant with the most current FEMA standards. An MT-1 or MT-2 application will be needed to be completed with the project as the floodplain limits of Zone AO will be redefined on the parcel.
- C.** According to the analysis contained within this report, the addition of a detention facility will detain the required amount of discharge in the required storm event with negligible impact to downstream facilities and surrounding areas.



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STEWART STREET APARTMENTS

CARSON CITY, NEVADA

VICINITY MAP

PROJ. MGR.: DCB

DRAWN BY: SDF

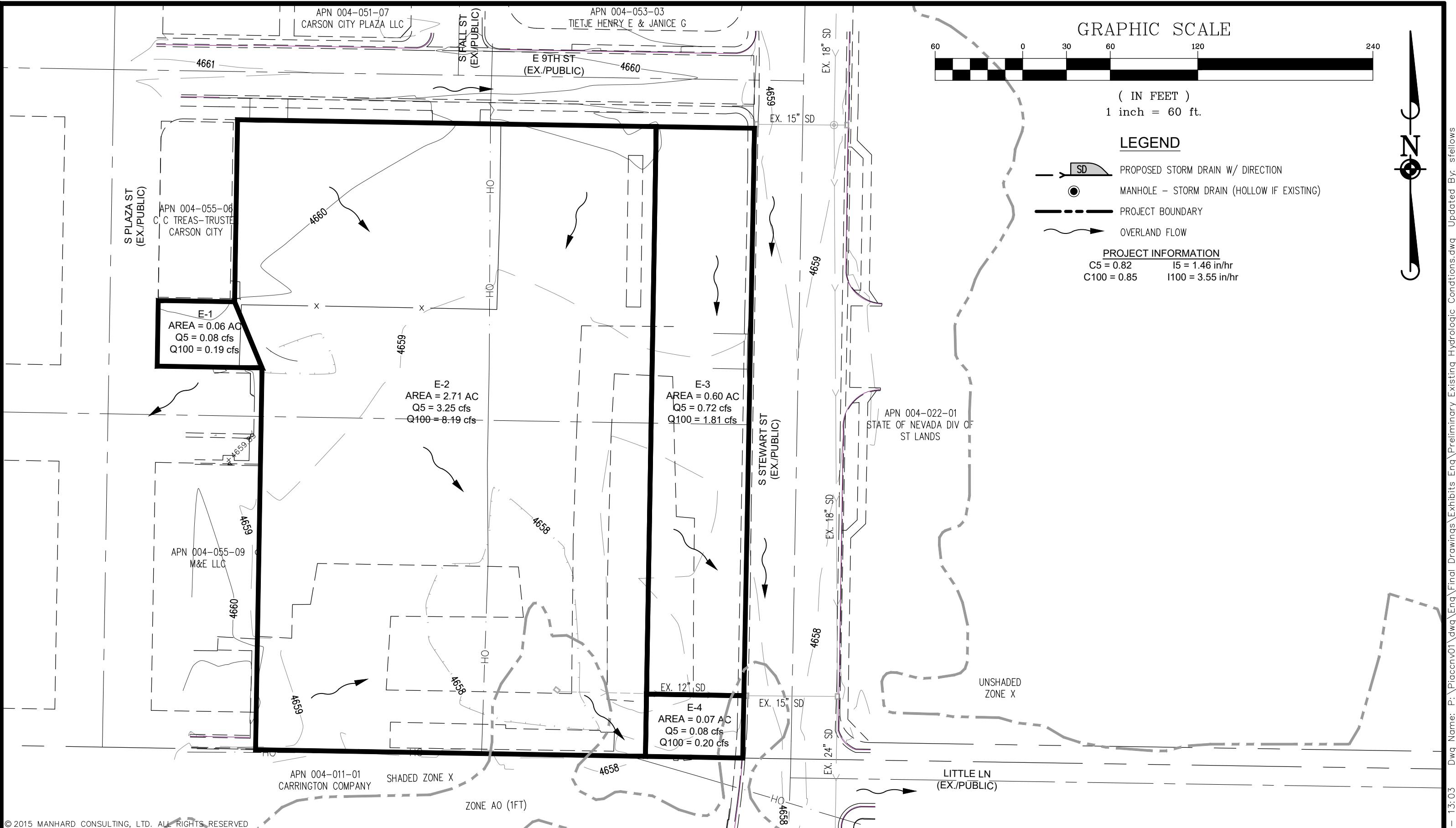
DATE: NOV 2020

SCALE: 1"=1000'

SHEET

OF

1  
3  
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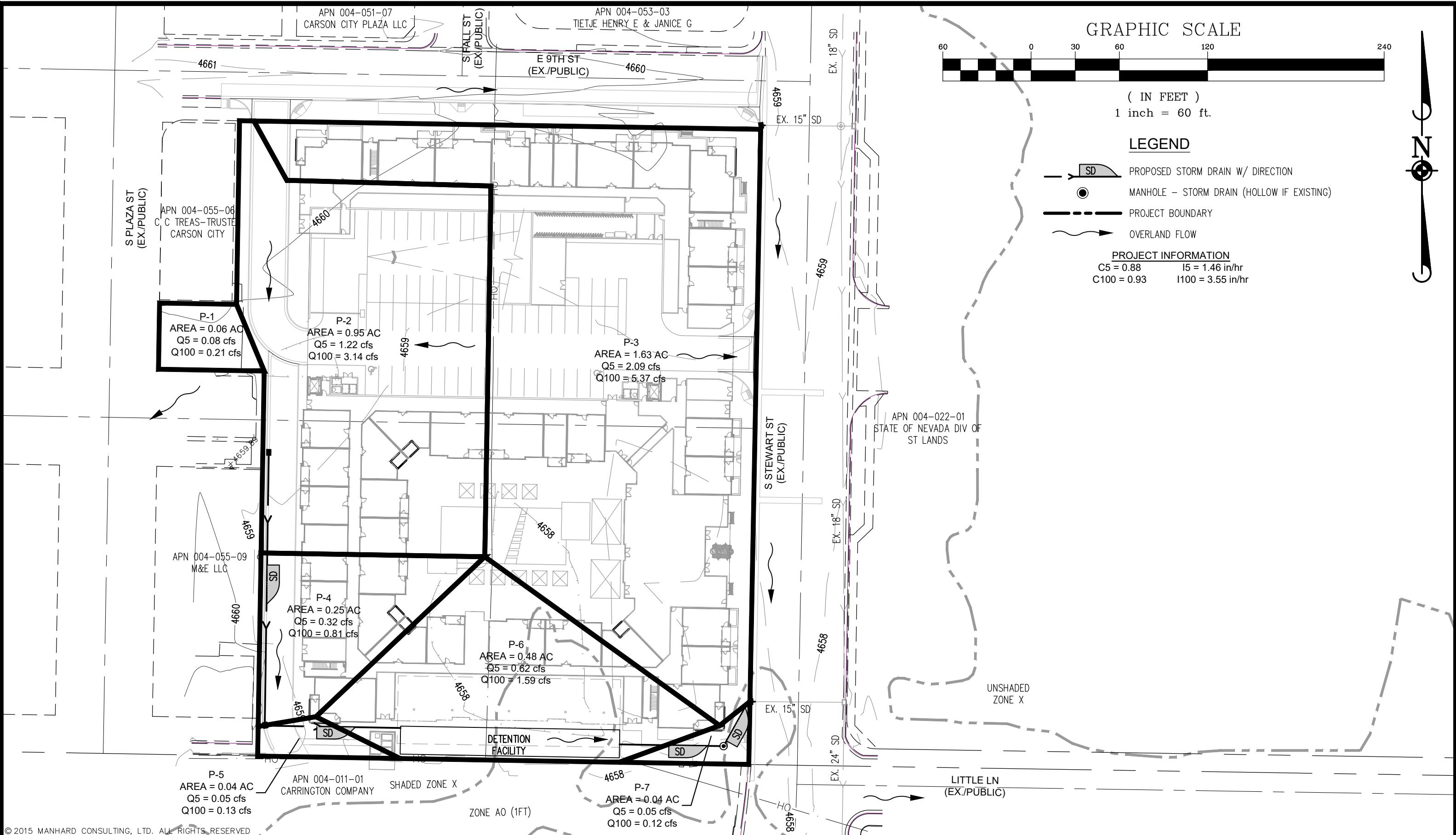


## STEWART STREET APARTMENTS

## CARSON CITY, NEVADA

## FIGURE 2 - EXISTING HYDROLOGIC CONDITIONS

DRAWN BY: SDF DATE: NOV 2020 SCALE: 1"=60' CODE: PIACCNV01



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DATE	REVISIONS	DRAWN BY	CHECK BY

**APPENDIX A**

**Supporting Calculations Data**



**NOAA Atlas 14, Volume 1, Version 5**  
**Location name: Carson City, Nevada, USA\***  
**Latitude: 39.158°, Longitude: -119.7651°**  
**Elevation: 4660.89 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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.15 (0.996-1.37)	1.44 (1.25-1.70)	1.92 (1.66-2.28)	2.39 (2.03-2.82)	3.14 (2.59-3.72)	3.83 (3.06-4.57)	4.66 (3.60-5.62)	5.65 (4.18-6.92)	7.21 (5.04-9.04)	8.64 (5.75-11.0)
10-min	0.882 (0.756-1.04)	1.10 (0.948-1.30)	1.46 (1.25-1.73)	1.81 (1.54-2.15)	2.39 (1.97-2.83)	2.92 (2.33-3.48)	3.55 (2.74-4.27)	4.30 (3.19-5.27)	5.49 (3.83-6.88)	6.57 (4.37-8.38)
15-min	0.728 (0.628-0.860)	0.908 (0.784-1.07)	1.21 (1.04-1.43)	1.50 (1.27-1.78)	1.97 (1.63-2.34)	2.41 (1.92-2.88)	2.93 (2.26-3.53)	3.55 (2.63-4.36)	4.54 (3.17-5.68)	5.43 (3.61-6.92)
30-min	0.490 (0.422-0.578)	0.610 (0.528-0.722)	0.814 (0.698-0.964)	1.01 (0.858-1.20)	1.33 (1.09-1.58)	1.62 (1.30-1.94)	1.97 (1.52-2.38)	2.39 (1.77-2.93)	3.06 (2.14-3.83)	3.66 (2.43-4.66)
60-min	0.303 (0.261-0.357)	0.377 (0.327-0.447)	0.503 (0.432-0.597)	0.624 (0.531-0.740)	0.822 (0.678-0.976)	1.00 (0.802-1.20)	1.22 (0.942-1.47)	1.48 (1.10-1.81)	1.89 (1.32-2.37)	2.26 (1.51-2.89)
2-hr	0.206 (0.183-0.235)	0.254 (0.226-0.292)	0.324 (0.286-0.370)	0.386 (0.338-0.441)	0.480 (0.408-0.550)	0.564 (0.468-0.653)	0.658 (0.532-0.771)	0.772 (0.604-0.918)	0.968 (0.724-1.20)	1.15 (0.832-1.46)
3-hr	0.164 (0.147-0.184)	0.204 (0.184-0.230)	0.256 (0.228-0.288)	0.298 (0.264-0.335)	0.358 (0.312-0.405)	0.410 (0.351-0.468)	0.468 (0.392-0.539)	0.542 (0.444-0.634)	0.662 (0.526-0.805)	0.778 (0.602-0.980)
6-hr	0.114 (0.103-0.128)	0.143 (0.128-0.160)	0.177 (0.158-0.198)	0.205 (0.182-0.229)	0.241 (0.212-0.271)	0.270 (0.234-0.306)	0.300 (0.255-0.343)	0.334 (0.278-0.386)	0.384 (0.312-0.451)	0.427 (0.340-0.511)
12-hr	0.075 (0.067-0.085)	0.095 (0.084-0.106)	0.119 (0.106-0.134)	0.138 (0.122-0.155)	0.164 (0.143-0.186)	0.184 (0.158-0.209)	0.204 (0.173-0.235)	0.225 (0.187-0.262)	0.253 (0.205-0.301)	0.275 (0.218-0.332)
24-hr	0.050 (0.045-0.055)	0.063 (0.057-0.069)	0.079 (0.072-0.087)	0.093 (0.084-0.102)	0.111 (0.101-0.123)	0.126 (0.113-0.139)	0.142 (0.126-0.156)	0.158 (0.139-0.175)	0.180 (0.156-0.201)	0.197 (0.169-0.222)
2-day	0.030 (0.027-0.034)	0.038 (0.034-0.042)	0.048 (0.043-0.054)	0.057 (0.051-0.063)	0.069 (0.061-0.077)	0.078 (0.069-0.088)	0.088 (0.077-0.099)	0.098 (0.085-0.112)	0.113 (0.096-0.130)	0.125 (0.104-0.145)
3-day	0.022 (0.020-0.025)	0.028 (0.025-0.031)	0.036 (0.032-0.040)	0.042 (0.037-0.047)	0.051 (0.045-0.058)	0.058 (0.051-0.066)	0.066 (0.057-0.075)	0.074 (0.064-0.085)	0.086 (0.072-0.099)	0.095 (0.079-0.110)
4-day	0.018 (0.016-0.020)	0.023 (0.020-0.026)	0.029 (0.026-0.033)	0.035 (0.031-0.039)	0.043 (0.037-0.048)	0.049 (0.042-0.055)	0.055 (0.048-0.063)	0.062 (0.053-0.071)	0.072 (0.060-0.083)	0.080 (0.066-0.093)
7-day	0.012 (0.011-0.014)	0.015 (0.014-0.017)	0.020 (0.017-0.022)	0.023 (0.021-0.026)	0.028 (0.025-0.032)	0.032 (0.028-0.037)	0.037 (0.032-0.042)	0.041 (0.035-0.047)	0.047 (0.040-0.055)	0.052 (0.044-0.061)
10-day	0.009 (0.008-0.010)	0.012 (0.010-0.013)	0.015 (0.014-0.017)	0.018 (0.016-0.020)	0.022 (0.019-0.025)	0.025 (0.022-0.028)	0.028 (0.024-0.031)	0.031 (0.027-0.035)	0.035 (0.030-0.041)	0.039 (0.032-0.045)
20-day	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.011 (0.010-0.012)	0.013 (0.012-0.015)	0.015 (0.013-0.016)	0.016 (0.014-0.018)	0.018 (0.016-0.020)	0.020 (0.017-0.023)	0.022 (0.019-0.025)
30-day	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.011 (0.010-0.012)	0.012 (0.011-0.014)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.016 (0.014-0.019)
45-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.008 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.013)	0.012 (0.010-0.014)
60-day	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.008-0.011)

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

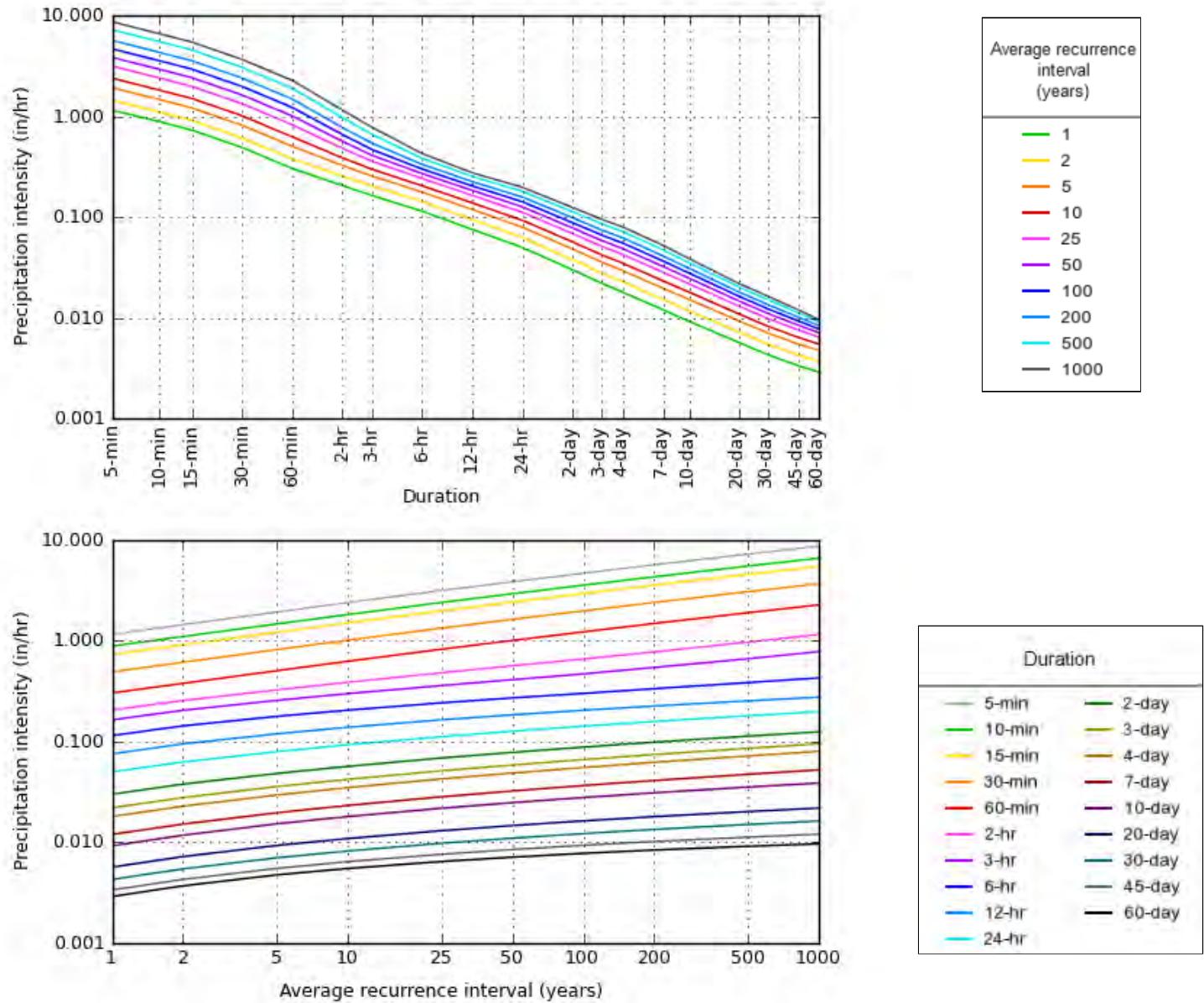
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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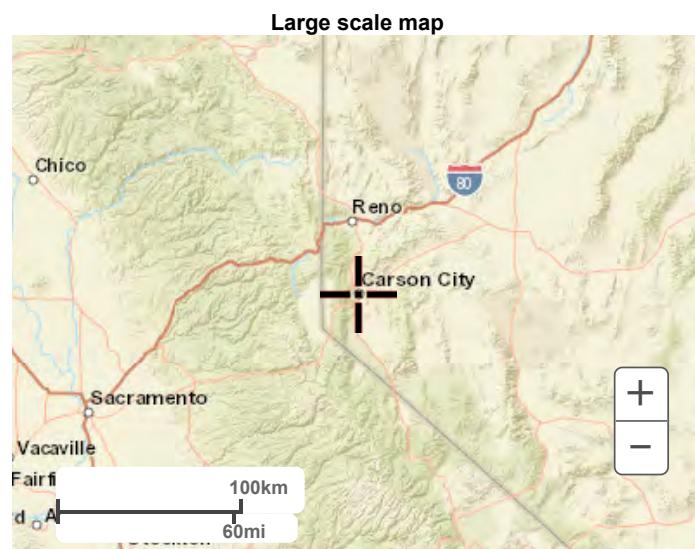
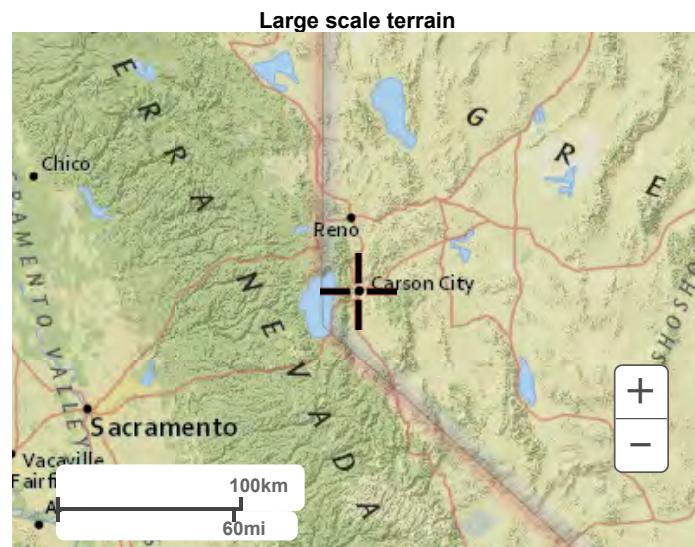
#### PF graphical

PDS-based intensity-duration-frequency (IDF) curves  
Latitude: 39.1580°, Longitude: -119.7651°



## Maps & aerials

[Small scale terrain](#)



Large scale aerial

[Back to Top](#)

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[US Department of Commerce](#)  
[National Oceanic and Atmospheric Administration](#)  
[National Weather Service](#)  
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## RATIONAL FORMULA METHOD RUNOFF COEFFICIENTS

Land Use or Surface Characteristics	Aver. % Impervious Area	Runoff Coefficients	
		5-Year (C <sub>5</sub> )	100-Year (C <sub>100</sub> )
<u>Business/Commercial:</u>			
Downtown Areas	85	.82	.85
Neighborhood Areas	70	.65	.80
<u>Residential:</u>			
(Average Lot Size)			
1/8 Acre or Less (Multi-Unit)	65	.60	.78
1/4 Acre	38	.50	.65
1/8 Acre	30	.45	.60
1/2 Acre	25	.40	.55
1 Acre	20	.35	.50
<u>Industrial:</u>	72	.68	.82
<u>Open Space:</u>			
(Lawns, Parks, Golf Courses)	5	.05	.30
<u>Undeveloped Areas:</u>			
Range	0	.20	.50
Forest	0	.05	.30
<u>Streets/Roads:</u>			
Paved	100	.88	.93
Gravel	20	.25	.50
<u>Drives/Walks:</u>			
	95	.87	.90
<u>Roof:</u>			
	90	.85	.87

## Notes:

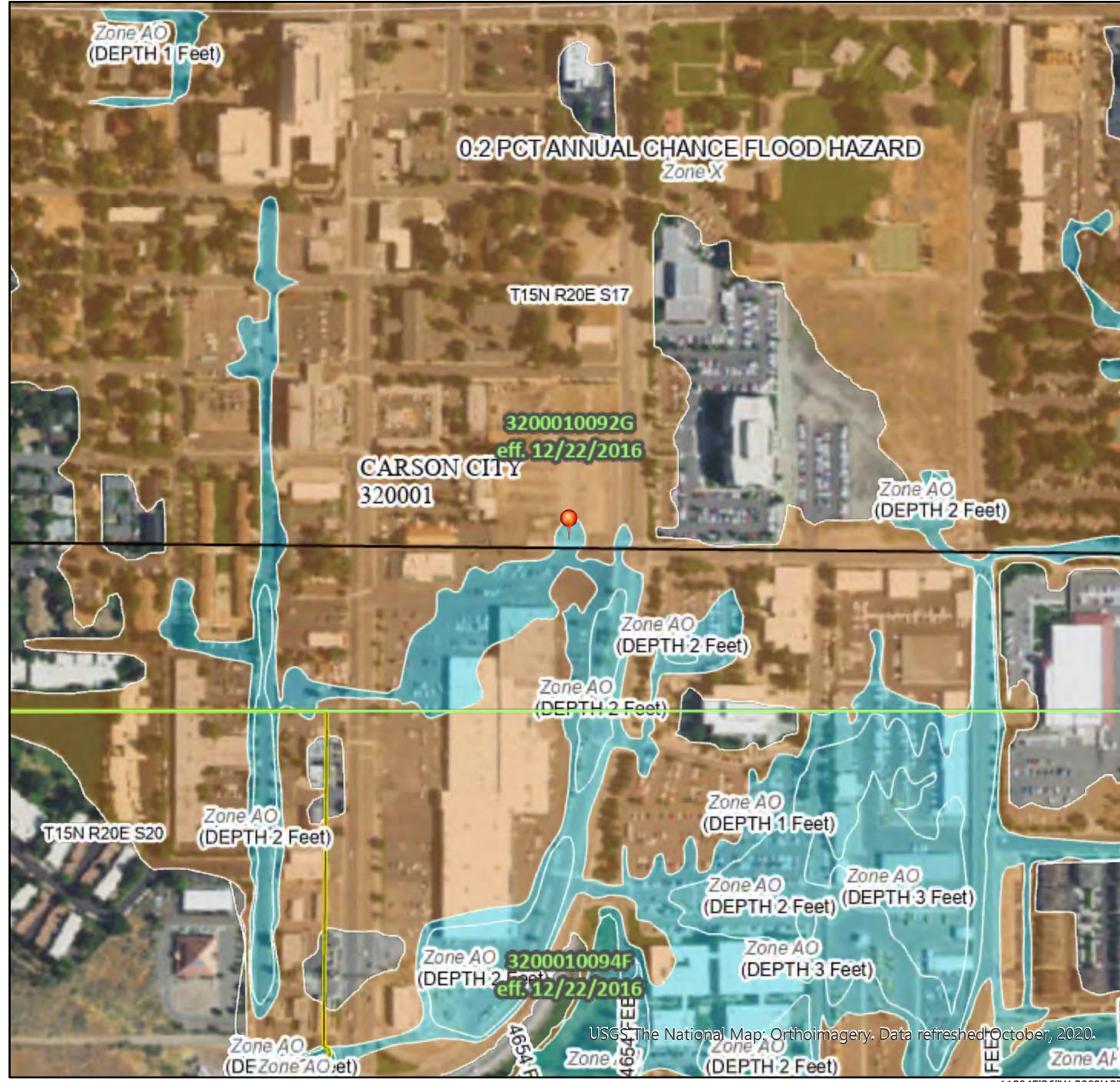
1. Composite runoff coefficients shown for Residential, Industrial, and Business/Commercial Areas assume irrigated grass landscaping for all pervious areas. For development with landscaping other than irrigated grass, the designer must develop project specific composite runoff coefficients from the surface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

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

# National Flood Hazard Layer FIRMette



119°46'13"W 39°9'41"N



## Legend

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes. Zone X
OTHER AREAS	Area with Flood Risk due to Levee Zone D
	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
GENERAL STRUCTURES	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	Cross Sections with 1% Annual Chance
	Water Surface Elevation
	Coastal Transect
MAP PANELS	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
MAP PANELS	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/3/2020 at 4:10 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 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.



# **Manhard**

**CONSULTING LTD**

## **PRELIMINARY WATER MAIN ANALYSIS REPORT**

**FOR**

**STEWART STREET APARTMENTS**

**CARSON CITY, NEVADA**

**Prepared for:**

Pillar Income Asset Management  
1603 LBJ Frwy, Suite 800  
Dallas, TX 75234

**Prepared by:**

Manhard Consulting  
241 Ridge Street, Suite 400  
Reno, Nevada 89501



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Table 1 – Stewart Street Apartments Pressure Summary

## **1 INTRODUCTION**

### **1.1 Purpose of Analysis**

This report represents a preliminary analysis of the proposed water main system for the Stewart Street Apartments Project. The report describes the water system and the criteria used for design. The purpose of this analysis is to establish the adequacy of the proposed water main pipe diameters and layout to meet the needs of the development.

### **1.2 Project Location and Description**

The proposed Stewart Street Apartments is approximately 3.44 acres in size and located near the center portion of Carson City, northwest of the intersection of Little Lane and South Stewart Street. The proposed project site is situated within a portion of the Southeast  $\frac{1}{4}$  of the Southwest  $\frac{1}{4}$  and a portion of the Southwest  $\frac{1}{4}$  of the Southwest  $\frac{1}{4}$  of Section 17, Township 15 North, and Range 20 East of the Mount Diablo Meridian (refer to Figure 1, Vicinity Map). The project site is within the existing parcels 004-055-07 and 004-055-02.

Figure 2, the Water Main Layout, illustrates the location and orientation of the project and its proposed building and roadway locations.

### **1.3 Project Description**

The Stewart Street Apartments is a proposed multi-family building which consists of maximum of 253 residential units. The project site is currently zoned Downtown Mixed Use. For purposes of this water main analysis the average unit size for this development is taken to be approximately 900 sf.

### **1.4 Methodologies**

The Stewart Street Apartments water main analysis was analyzed using WaterGEMS, which employs the Hazen-Williams Method to determine headloss. The Hazen-Williams formula uses a pipe carrying capacity factor (C) based on piping materials. For the Stewart Street Apartments analysis, a C-value of 135 was used to model the proposed water main system.

## **2 PROPOSED ALIGNMENT AND QUANTITY OF SERVICE**

### **2.1 Project Water Main System**

Two connection points to the existing water system are being utilized for this project. One connection point is on an existing 8-inch water main occurs to the east of the project site on South Stewart Street. The other connection is on an existing 6-inch water main to the north of the project on East 9<sup>th</sup> Street. The 6-inch fire service connection will occur on South Stewart Street and the 4-inch domestic water service connection to the building will be off the proposed 8-inch connection on East 9<sup>th</sup> Street (refer to Figure 2, *Water Main Layout*).

Carson City has proposed to offer the replacement cost of the existing 6-inch cast iron pipe on East 9<sup>th</sup> Street with PVC pipe; however, there is some discrepancy whether the 6-inch is an 8-inch and/or where is the transition is to an 8-inch. The model was built assuming the pipe on East 9<sup>th</sup> Street is or would be upgraded to an 8-inch pipe.

## **2.2 Water Main Analysis**

Two pressure tests and data were provided by Carson City dated September 16, 2020 at South Stewart Street. The more conservative of the two were used in this model, but another test should be done during final design to determine the correct pressure. The static pressure was measured to be 100 psi with a calculated flow rate capacity of 4,800 gpm at 20 psi. See Appendix B for the Fire Flow Test Data Sheet.

A total fixture count resulting in 440 gpm was used in the analysis of the water main system from FEA Consulting Engineers included in Appendix C of this report. The total demand will be adjusted and confirmed in final design when the fixture count in the clubhouse and other amenities are determined. A maximum day demand factor of 2.0 was applied to the average day demand to obtain the maximum day demand (per *Tentative Addendum*). The peak hour demand was calculated by applying a 1.5 global demand multiplier to the maximum day demands.

Irrigation demands are not known at this time for the minimal landscaping along the street of the development. An assumed demand of 1 gpm will be used for the irrigation meter. This demand will be adjusted in final design.

In a separate analysis, the maximum day demand with a 2000 gpm fire flow requirement was applied to the hydrants in the system. This 2000 gpm fire flow requirement was obtained from Section B105 and Table B105.1(2) of the 2018 International Fire Code by assuming the building will be Type I-B having the single largest floor area of 32,000 square-feet. (refer to Appendix C). The building type and fire flow will be confirmed at final design.

The following table provides the high and low pressures that were calculated using WaterGEMS (refer to Appendix A for WaterGEMS output) for each demand condition:

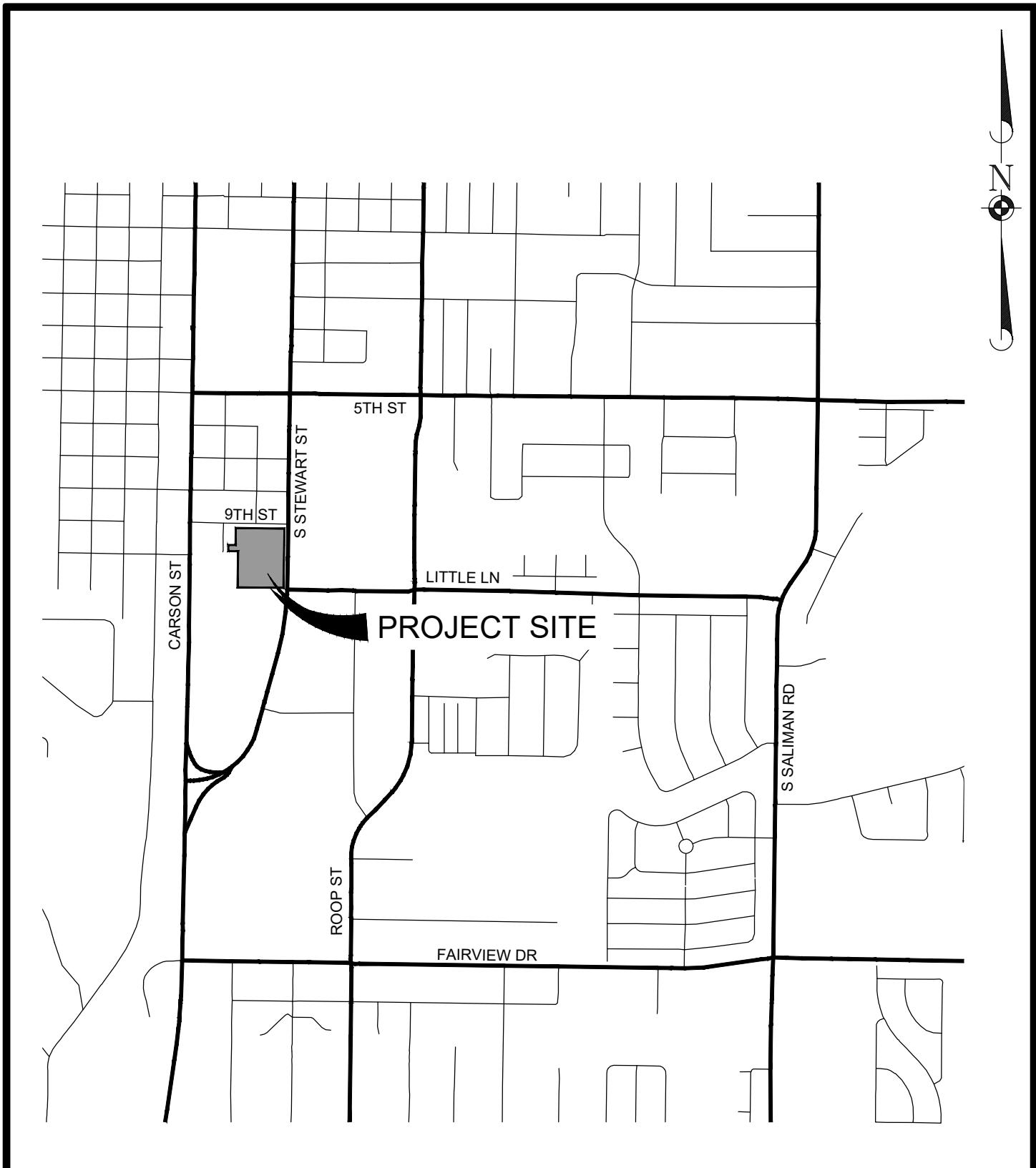
**Table 1: Stewart Street Apartments Pressure Summary**

Condition	High Pressure (psi)	Low Pressure (psi)
Max Day	99	96
Peak Hour	98	94
Max Day + Fire Flow	84	51

The maximum day demand low pressure of 96 psi is above the NAC minimum of 40 psi. The peak hour demand low pressure is above the minimum of 60 psi listed in the *Carson City Development Standards*. The pressure for the various scenarios can be found in the WaterGEMS output included in Appendix A of this report. The fire flow low pressures indicated in the table above are well above the NAC minimum requirement of 20 psi. The pressure at the hydrants can be found in the WaterGEMS output included in Appendix A of this report.

### **3 CONCLUSION**

The analysis of the water system shows that the pipe sizes and layouts within Stewart Street Apartments are adequately designed to meet the demands of the development. The WaterGEMS analysis shows that the pressures are greater than the minimum requirement and below the maximum requirement for Carson City and the NAC requirements. Stewart Street Apartments complies and meets the minimum pressures per NAC 445A.6711 during maximum day, peak hour, and fire flow conditions.



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 Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers  
 Construction Managers • Environmental Scientists • Landscape Architects • Planners

STEWART STREET APARTMENTS

CARSON CITY, NEVADA

VICINITY MAP

PROJ. MGR.: DCB

DRAWN BY: SDF

DATE: NOV 2020

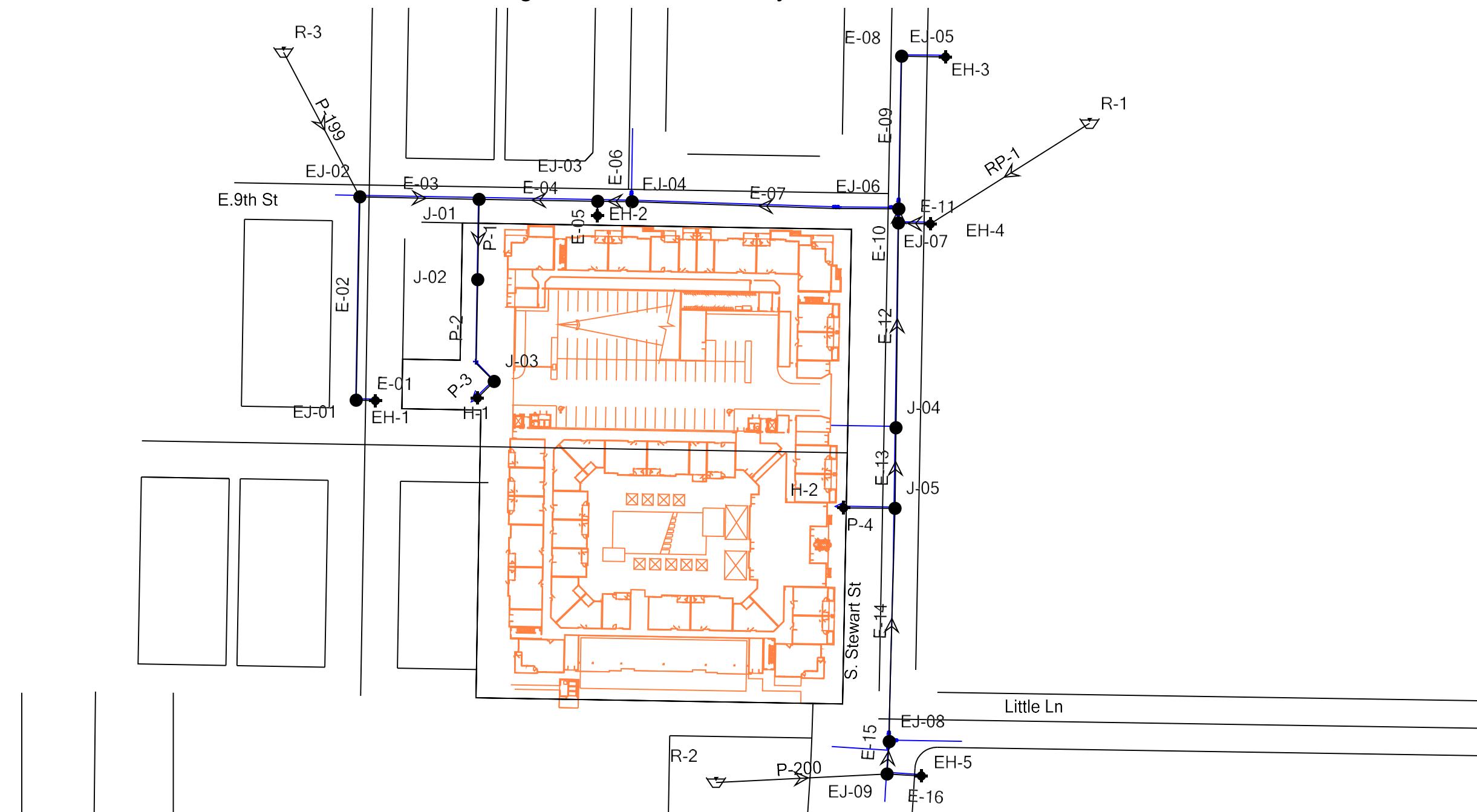
SCALE: 1"=1000'

SHEET

OF

1  
2  
PIA.CCNV01

Figure 2 - Watermain Layout



## **APPENDIX A**

### **WaterGEMS Output**

## Scenario Summary Report

### Scenario: ADD

---

#### Scenario Summary

---

ID	76
Label	ADD
Notes	
Active Topology	<I> Base Active Topology
Physical	<I> Base Physical
Demand	ADD
Initial Settings	<I> Base Initial Settings
Operational	<I> Base Operational
Age	<I> Base Age
Constituent	<I> Base Constituent
Trace	<I> Base Trace
Fire Flow	<I> Base Fire Flow
Energy Cost	<I> Base Energy Cost
Transient	<I> Base Transient
Pressure Dependent Demand	<I> Base Pressure Dependent Demand
Failure History	<I> Base Failure History
SCADA	<I> Base SCADA
User Data Extensions	<I> Base User Data Extensions
Steady State/EPS Solver Calculation Options	AVERAGE DAY
Transient Solver Calculation Options	<I> Base Calculation Options

---

#### Hydraulic Summary

---

Time Analysis Type	Steady State	Use simple controls during steady state?	True
Friction Method	Hazen-Williams	Is EPS Snapshot?	False
Accuracy	0.001	Start Time	12:00:00 AM
Trials	40	Calculation Type	Hydraulics Only

---

## FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Start Node	Stop Node	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
E-01	17	EJ-01	EH-1	135.0	0.0	0.00
E-02	185	EJ-01	EJ-02	135.0	0.0	0.00
E-03	108	EJ-02	J-01	135.0	133.2	1.51
E-04	108	J-01	EJ-03	135.0	307.8	1.96
E-05	13	EJ-03	EH-2	135.0	0.0	0.00
E-06	31	EJ-03	EJ-04	135.0	307.8	1.96
E-07	243	EJ-04	EJ-06	135.0	307.8	1.96
E-08	40	EH-3	EJ-05	135.0	0.0	0.00
E-09	139	EJ-05	EJ-06	135.0	0.0	0.00
E-10	13	EJ-06	EJ-07	135.0	307.9	1.96
E-11	29	EJ-07	EH-4	135.0	209.7	2.38
E-12	186	EJ-07	J-04	135.0	98.1	0.63
E-13	73	J-04	J-05	135.0	98.1	0.63
E-14	212	J-05	EJ-08	135.0	98.1	0.63
E-15	30	EJ-08	EJ-09	135.0	98.1	0.63
E-16	31	EJ-09	EH-5	135.0	0.0	0.00
P-1	73	J-01	J-02	135.0	441.0	2.81
P-2	99	J-02	J-03	135.0	0.0	0.00
P-3	21	J-03	H-1	135.0	0.0	0.00
P-4	47	J-05	H-2	135.0	0.0	0.00
P-199	149	R-3	EJ-02	135.0	133.2	1.51
P-200	156	R-2	EJ-09	135.0	98.1	1.11
RP-1	171	R-1	EH-4	135.0	209.7	1.34

## FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
EJ-01	4,655.70	0.0	4,884.79	99
EJ-02	4,656.70	0.0	4,884.79	99
EJ-03	4,656.30	0.0	4,884.82	99
EJ-04	4,656.30	0.0	4,884.88	99
EJ-05	4,655.90	0.0	4,885.34	99
EJ-06	4,655.50	0.0	4,885.34	99
EJ-07	4,655.40	0.0	4,885.37	99
EJ-08	4,654.00	0.0	4,885.48	100
EJ-09	4,653.90	0.0	4,885.48	100
J-01	4,656.50	0.0	4,884.61	99
J-02	4,656.50	441.0	4,884.34	99
J-03	4,656.50	0.0	4,884.34	99
J-04	4,654.70	0.0	4,885.41	100
J-05	4,654.40	0.0	4,885.43	100