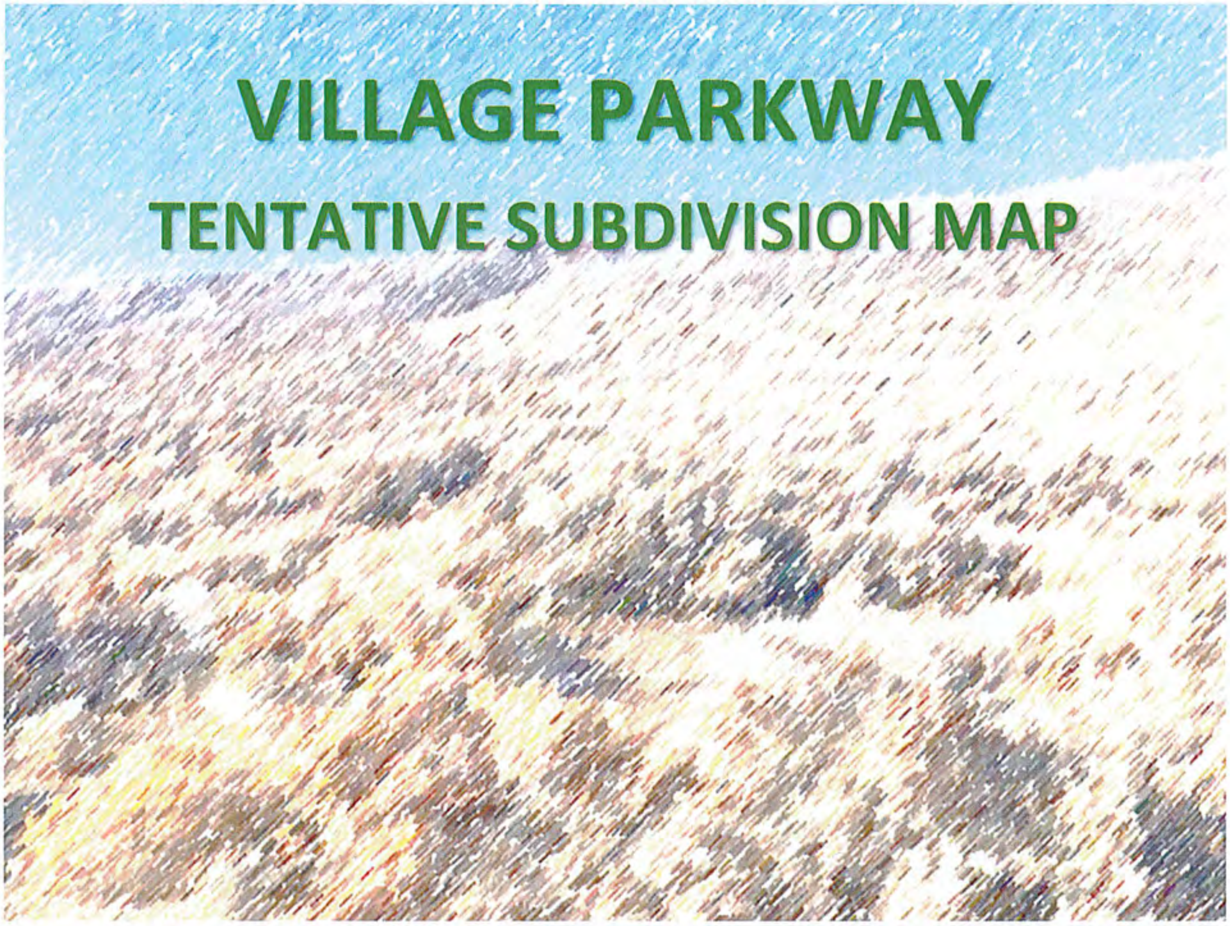
VILLAGE PARKWAY

TENTATIVE SUBDIVISION MAP



Prepared by:

CHRISTY

CORPORATION

March 8, 2021

VILLAGE PARKWAY

TENTATIVE SUBDIVISION MAP

Prepared for:

Lifestyle Homes TND, LLC

4790 Caughlin Parkway, Suite 519

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March 8, 2021

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VILLAGE PARKWAY TENTATIVE MAP

Introduction

This application includes the following request:

- A **Tentative Subdivision Map** to allow for 166 detached single family units and 183 attached single family units in the High Density Suburban (HDS) regulatory zone.

Project Location

The Village Parkway properties (APN #'s 087-400-11, 23, and 24) consist of 124.6± acres located on the west side of Village Parkway, north of Cold Springs Drive in the Cold Springs Area Plan. Mud Springs Drive (private) traverses the site along the eastern property boundary. Figure 1 (below) depicts the project location.

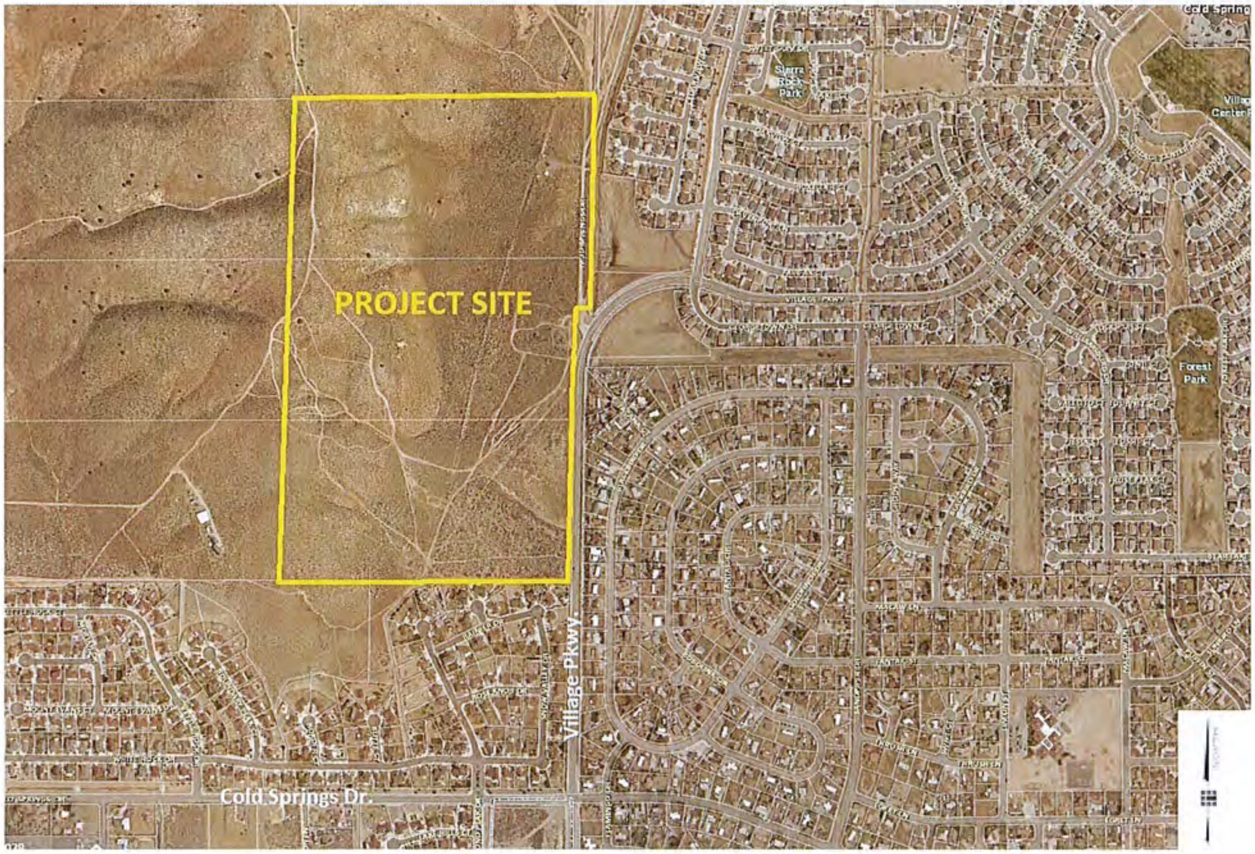


Figure 1 – Vicinity Map

Existing Conditions

Currently, the project site is vacant. The western side of the properties is characterized by steep slopes and a ridgeline that separates the parcels from large lot residential uses to the west. The eastern portion of the property is relatively flat and easily accessed from Village Parkway. Surrounding land use included single family suburban residential to the east, south, and northeast, and large-lot residential to the north and west.

The site topography is reflected in the current Master Plan designations for the site. The western portions of the property are designated as Rural while the eastern half of the site is Suburban Residential. Figure 2 (below) depicts the existing Master Plan designations for the site and surrounding area.

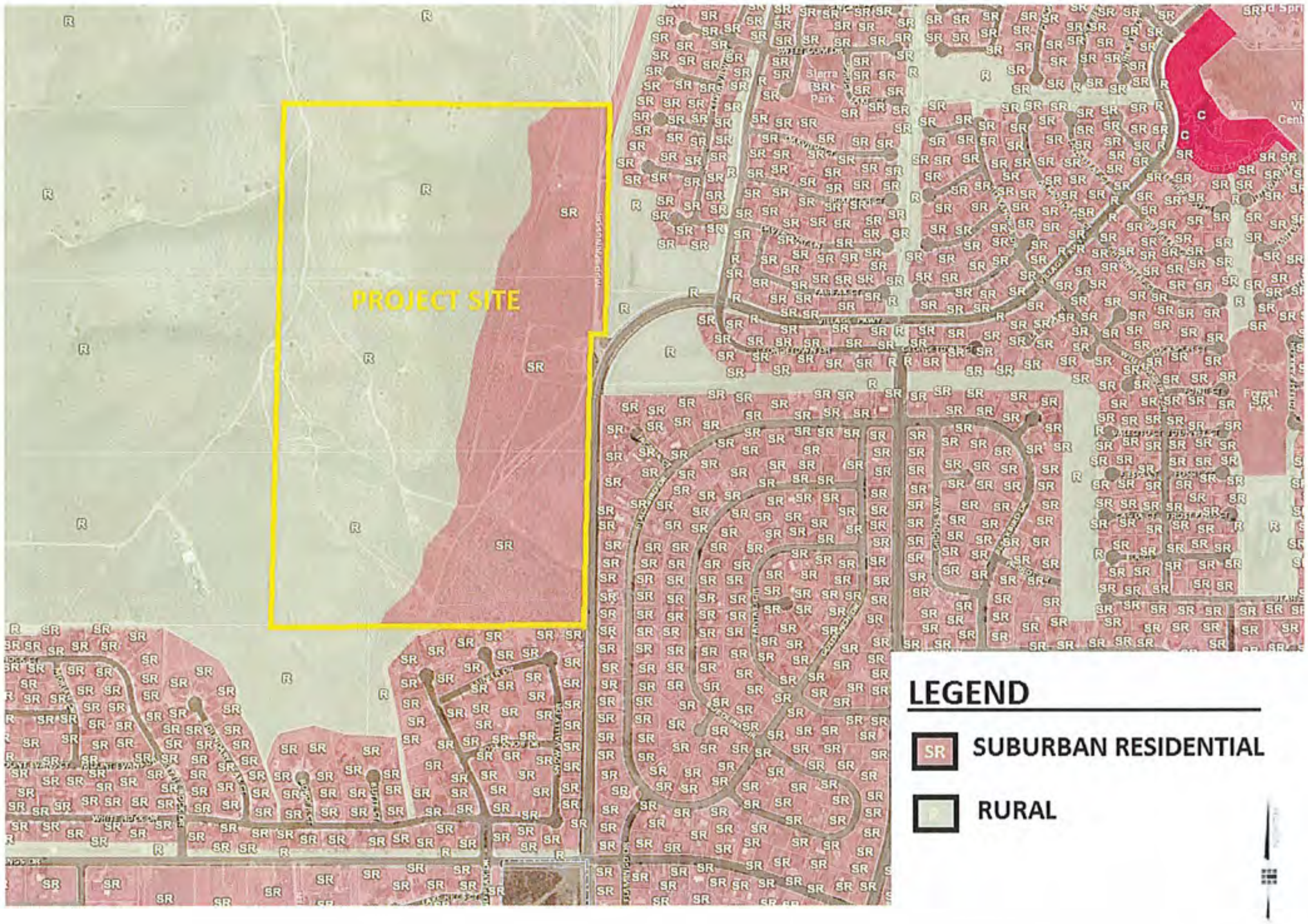


Figure 2 – Master Plan Land Use

The project site includes split zoning. The western side of the property is zoned General Rural (GR) while the eastern portion of the site is designated as High Density Suburban (HDS). The HDS portion of the site includes 47.2± acres of HDS zoning which allows for 7 dwelling units per acre for detached single family and 9 units per acre for attached single family use.

Figure 3 (below) depicts the existing site zoning.

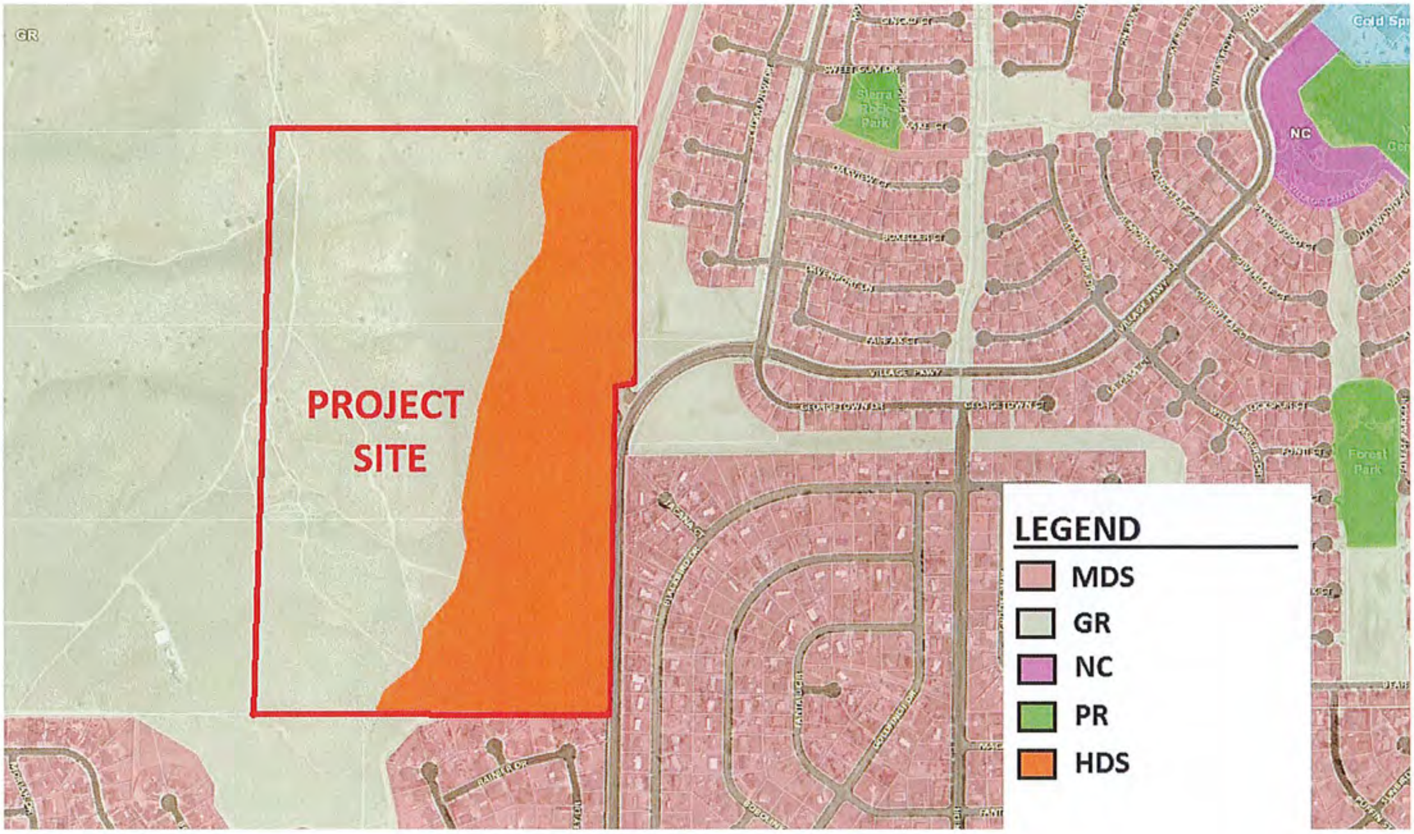


Figure 3 - Zoning

Figure 4 (below) and 5 (following page) depict the existing onsite conditions.

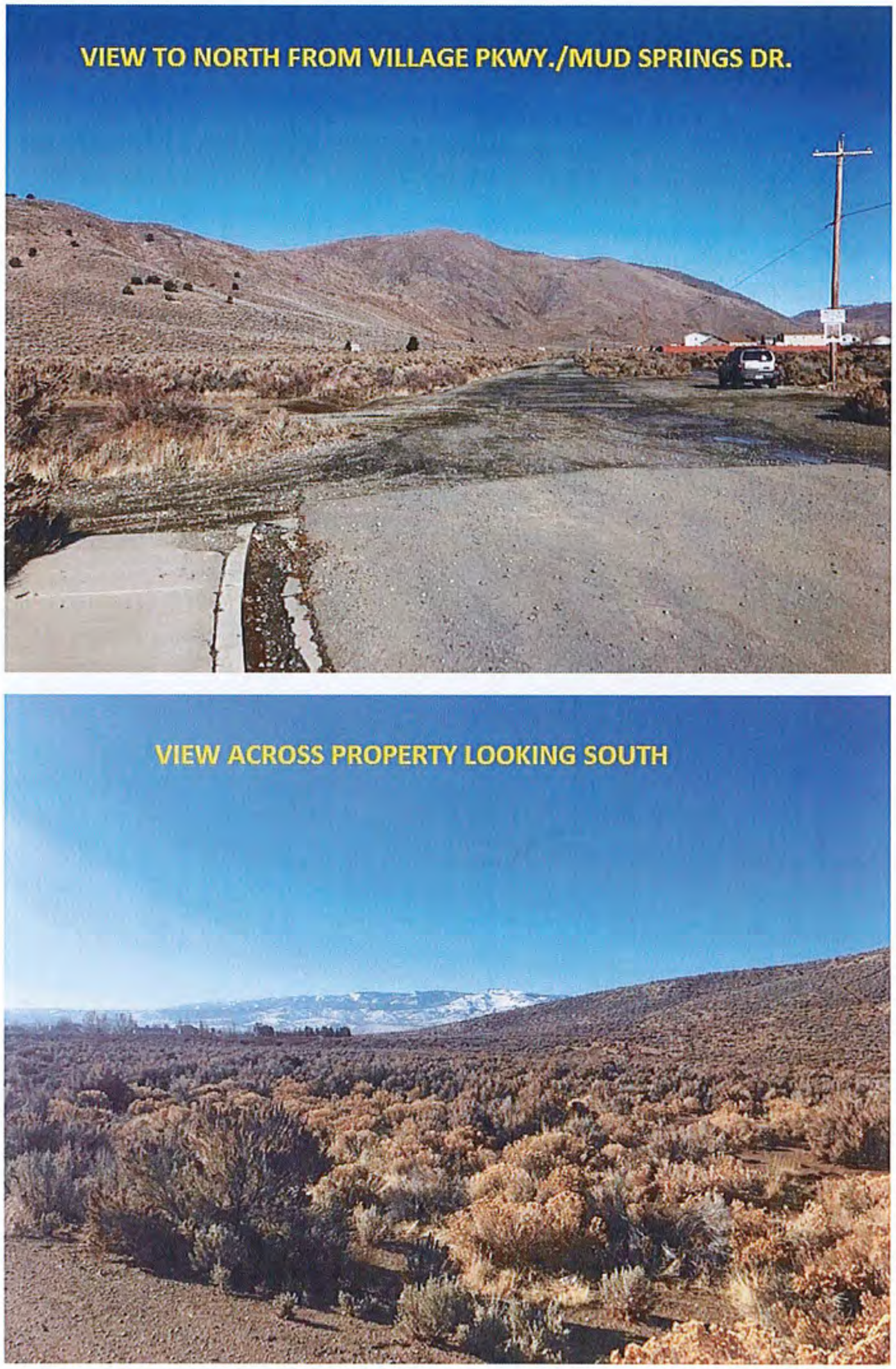
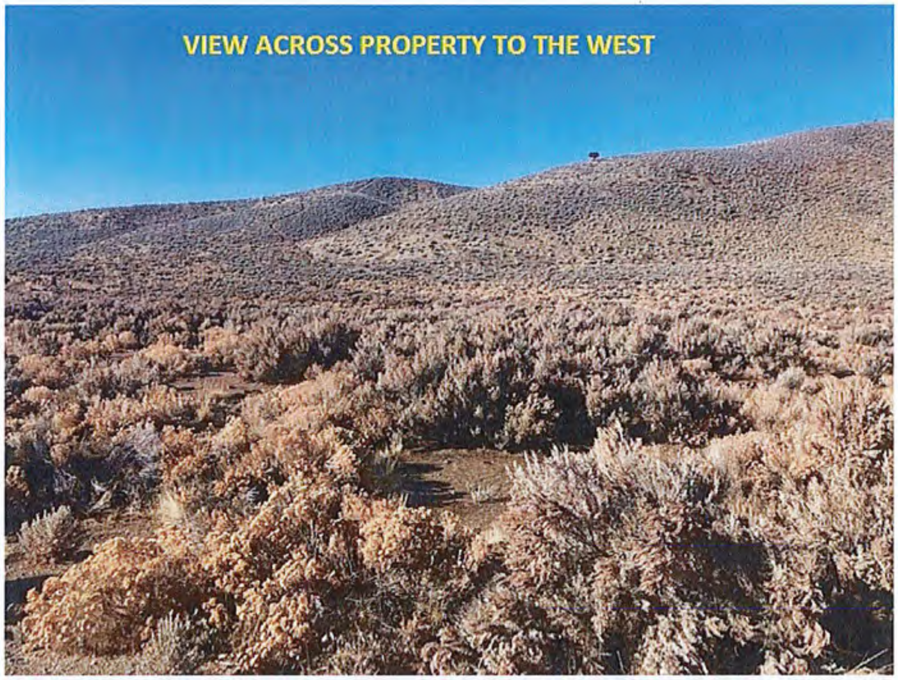


Figure 4 – Existing Conditions



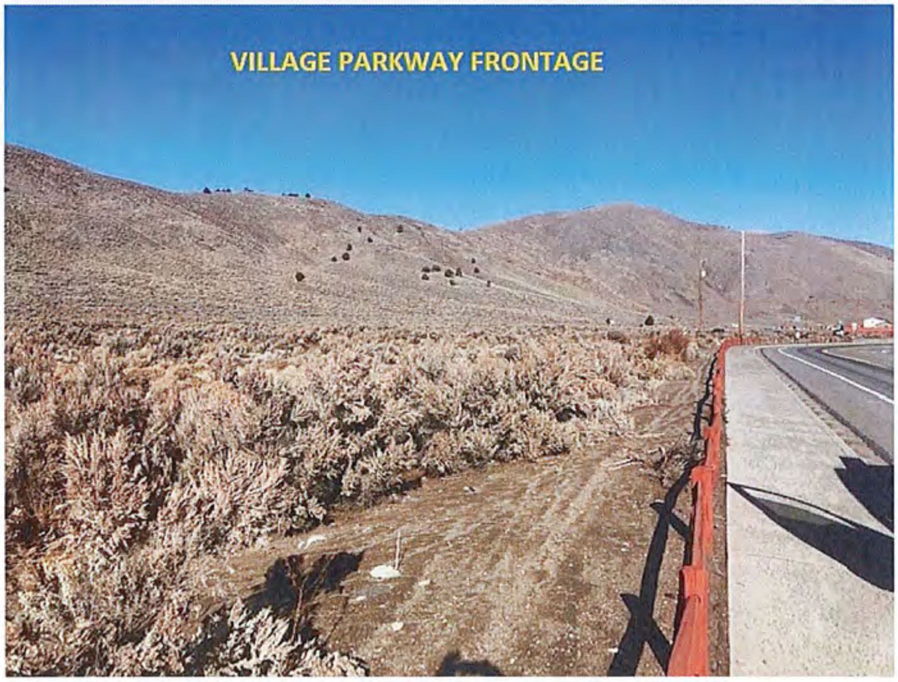


Figure 5 – Existing Conditions

Request Summary

This application includes a request for a Tentative Subdivision Map to allow for a mix of attached and detached single family units totaling 349. Attached single family product (townhomes) is clustered at the southern portion of the project site with detached single family units located at the central and northern portions of the project area. The project utilizes a Common Open Space Development concept which preserves the General Rural (GR) zoned portion of the site and steeper slopes located at the west side of the existing parcels. Units are proposed to be clustered within the HDS zoning area.

Primary access to the project will be via a new divided entry along Village Parkway. This entry will serve as the primary access for both the townhome and detached units. Two secondary emergency access roads located at the southern boundary and north-central portion of the site will provide additional connection to Village Parkway ensuring all emergency access requirements are met. The secondary access roads will be gated to limit access to emergency vehicles only.

The Village Parkway Tentative Map is somewhat unique in that it provides for two distinct housing types. Townhome units will be located at the southern portion of the project site and are designed to face landscaped common areas/paseos within the project. These common areas create an attractive outdoor living space for residents and encourage outdoor gathering, recreation, etc. The design of the townhome portion of the tentative map includes alley-loaded garages. As a result, building facades facing the landscaped paseos are not dominated by garages and provide for a safe pedestrian environment free of vehicles.

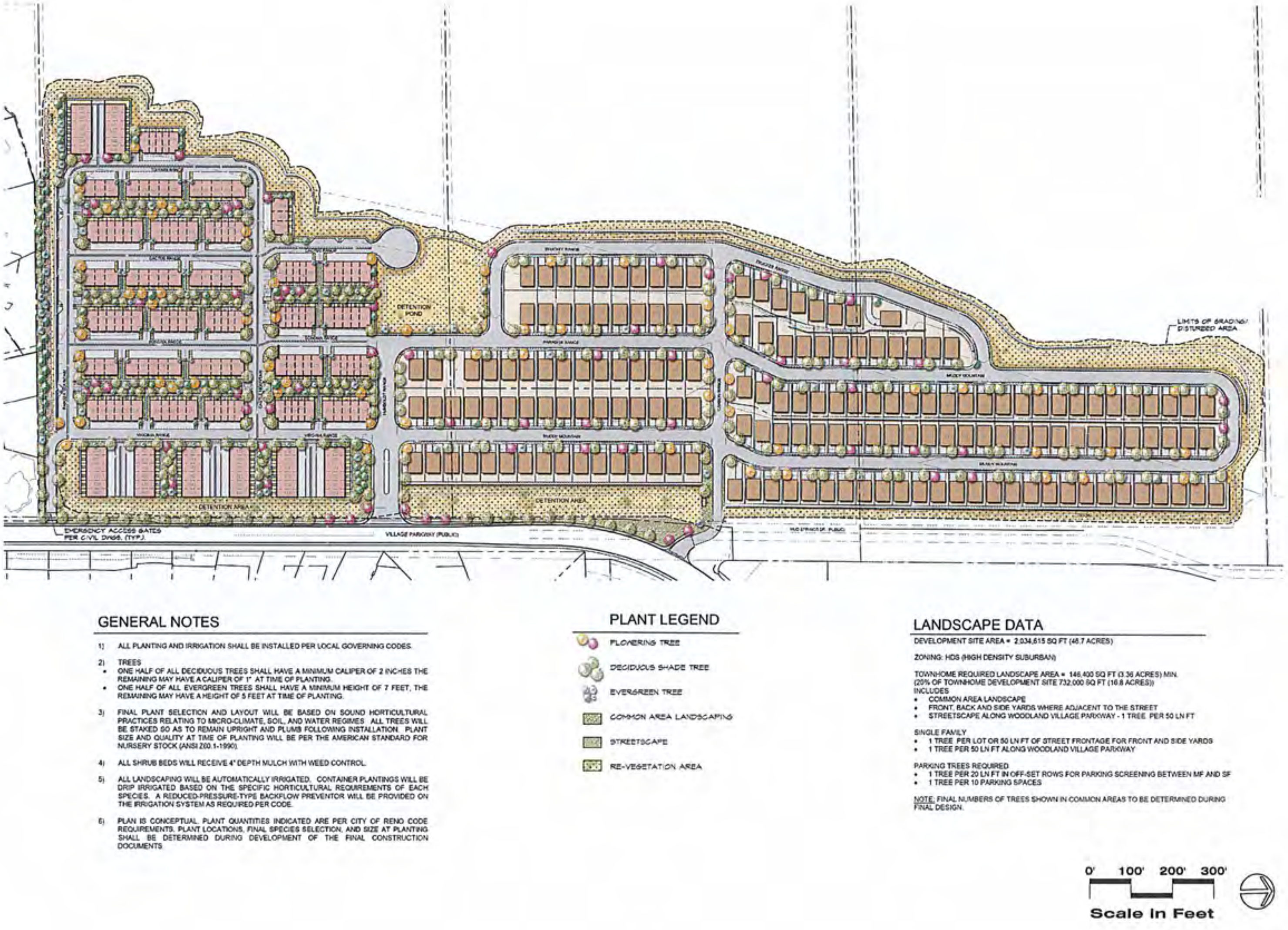
Townhome units are expected to range in size from 900± square feet to 2,000± square feet and will include a mix of one, two, and three story floorplans (not to exceed 35 feet in height). Alleyways within the townhome area will be private and maintained by a homeowner's association (HOA). The HOA will also be responsible for the ongoing maintenance of paseos, landscape common areas, and exterior maintenance of units. A separate HOA for the townhome units (not to include the single family detached units) may be enacted with final map.

Each townhome unit will include a garage along the internal alleys. Additionally, parking "pods" are provided and dispersed throughout the community within proximity to units, providing guest and visitor parking. Parking areas are located to not interfere with paseo functionality and include an additional 114 spaces, ensuring all Washoe County Development Code requirements are satisfied. A parking summary is also included on the attached site plan.

Townhomes will share a common wall(s) with adjoining units. As attached single family products, residents will own the individual parcel of land on which the townhome is located. The townhome concept serves to diversify residential offerings within Cold Springs and broadens home ownership opportunities for residents in the area by offering a lower maintenance, more affordable housing option. A total of 183 townhome units are proposed.

VILLAGE PARKWAY TENTATIVE MAP

Figure 6 (below) depicts the preliminary site plan for the Village Parkway Tentative Map. A full size copy of the plan is included as an attachment to this report.



GENERAL NOTES

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

2) TREES
- ONE HALF OF ALL DECIDUOUS TREES SHALL HAVE A MINIMUM CALIPER OF 2 INCHES THE REMAINING MAY HAVE A CALIPER OF 1" AT TIME OF PLANTING.
- ONE HALF OF ALL EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT OF 7 FEET, THE REMAINING MAY HAVE A HEIGHT OF 5 FEET AT TIME OF PLANTING.

3) FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL 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.

5) ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED. CONTAINER PLANTINGS WILL BE 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.

PLANT LEGEND

● FLOWERING TREE
● DECIDUOUS SHADE TREE
● EVERGREEN TREE
▨ COMMON AREA LANDSCAPING
▨ STREETSCAPE
▨ RE-VEGETATION AREA

LANDSCAPE DATA

DEVELOPMENT SITE AREA = 2,034,615 SQ FT (46.7 ACRES)

ZONING: HDS (HIGH DENSITY SUBURBAN)

TOWNHOME REQUIRED LANDSCAPE AREA = 146,400 SQ FT (3.36 ACRES) MIN.
(20% OF TOWNHOME DEVELOPMENT SITE 732,000 SQ FT (16.8 ACRES))
INCLUDES
- COMMON AREA LANDSCAPE
- FRONT, BACK AND SIDE YARDS WHERE ADJACENT TO THE STREET
- STREETSCAPE ALONG WOODLAND VILLAGE PARKWAY - 1 TREE PER 50 LN FT

SINGLE FAMILY
- 1 TREE PER LOT OR 50 LN FT OF STREET FRONTAGE FOR FRONT AND SIDE YARDS
- 1 TREE PER 50 LN FT ALONG WOODLAND VILLAGE PARKWAY

PARKING TREES REQUIRED
- 1 TREE PER 20 LN FT IN OFF-SET ROWS FOR PARKING SCREENING BETWEEN MF AND SF
- 1 TREE PER 10 PARKING SPACES

NOTE: FINAL NUMBERS OF TREES SHOWN IN COMMON AREAS TO BE DETERMINED DURING FINAL DESIGN.

Figure 6 – Preliminary Site Plan

As Figure 6 depicts, detached single family units are located at the central and northern portions of the tentative map area. The detached units take on a more traditional neighborhood concept and include lots sizes ranging from 3,645± square feet to 8,257± square feet. New units will be accessed via an internal street network with no units accessed directly from Village Parkway. Roadways within the detached unit area will be public and are designed to Washoe County standards. In all, a total of 166 detached units are proposed.

Grading of the project site will include cutting into a small portion of the GR zoned property located on the west side of the tentative map area to provide fill within eastern portions of the site. In accordance with Washoe County grading standards, cuts will be less than 10 feet in height and will be screened from the view of Village Parkway by the intervening homes. No units are proposed within the GR zoned portion of the existing parcels. Improvements within the GR area include limited grading along the eastern edge as well as a portion of roadway that will provide access to detached units at the north end of the site.

Landscaped common area will be located along the Village Parkway frontage. This will provide for a visually appealing streetscape and incorporates required onsite detention. Additionally, a larger detention basin, central to the project site, is located at the western side of the tentative map area to ensure all Washoe County requirements related to stormwater and drainage are implemented. Similar to the Village Parkway frontage, the detention area will include landscaping and is incorporated as a community amenity. Landscape improvements and detention areas are located within dedicated common area and will be maintained by the project HOA. A trail (as shown on the attached plans) will be included at the western side of the site, connecting to open space areas to the west.

The project will be constructed in phases. Townhomes and detached products may be phased separately but could include concurrent phases of development. It is anticipated that each product type may include up to 4 individual phases with project buildout estimated at 5 to 7 years.

The current HDS zoning allows for up to 9 units per acre for attached single family and 7 units per acre for detached single family housing. Thus, under the current conditions, up to 424 units could be developed at the project site. Under the proposed mix, 349 units are proposed. The townhome portion of the project accounts for approximately 45% of the site area (21.24± acres), resulting in a proposed density of 8.6 units per acre. Detached single family products account for the remaining 25.96± acres of the site, resulting in a detached density of 6.4 units per acre. Overall project density is 7.4 dwelling units per acre. This is fully compliant with the existing HDS zoning and Suburban Residential Master Plan designation.

Per the Common Open Space Development provisions of the Washoe County Development Code, units are clustered within the portion of the site zoned HDS which includes approximately 47.2± acres. The remaining 77.4± acres zoned GR will be dedicated as open space with no future development. Therefore, the overall gross density for the project is 2.8 dwelling units per acre.

The proposed units and densities not only comply with the underlying land use designations assigned by Washoe County, but are also compatible with the surrounding area as well. Per the Land Use Compatibility Matrix included in the Washoe County Development Code, HDS zoning and its associated permitted density, has the highest compatibility rating with MDS zoning which is located immediately to the south. GR portions of the site will remain undeveloped and are included as dedicated common area/open space. Preservation of this area, including steep slopes and ridgelines, will preserve viewsheds within Cold Springs and serves to ensure that the project provides a proper land use transition to the west.

The Common Open Space approach to the project is highly logical given the site location, characteristics, and product types proposed. Dedicated common areas will include landscape areas, resident amenities (within the townhome portion of the site) and stormwater facilities. These areas provide visual breaks within the community and add aesthetic appeal within neighborhoods. By including these areas and facilities within common area, long term maintenance by the HOA will occur, reducing the burden upon Washoe County. One of the most important considerations of the Common Open Space provisions is the preservation and protection of the western side of the site (areas zoned GR). This will ensure the permanent protection of steep slopes and the adjoining ridgeline. These areas help frame the west side of the Cold Springs Valley and dedicating them as common area/open space preserves views for residents of the entire area.

A detailed traffic impact analysis for the Village Parkway Tentative Map has been prepared by Solaegui Engineers to evaluate the traffic impacts resulting from development of the project. The study was done in conjunction with the Village Center project which is also being developed by Lifestyle Homes/Lissner family. Thus, the analysis provides for a more comprehensive analysis to account for all projects occurring within the area that may impact the local and regional roadway network. Recommendations from the traffic analysis are incorporated into the project design and identified mitigation measures can be conditioned (as necessary) with this tentative map request.

Based on trip generation data published by the Institute of Transportation Engineers (ITE), the townhome units (ITE Land Use Code 230) are expected to generate 1,063 average daily trips (ADT) with 81 am and 95 pm peak hour trips. The detached units (ITE Land Use Code 210) will generate 1,580 ADT with 125 am and 166 pm peak trips. Total estimated traffic generation is 2,643 ADT with 206 am and 261 pm peak trips at full buildout. It is important to note that this is a cumulative impact with the completion of all project phases. Per the recommendations of the traffic analysis, improvements and mitigations to the roadway network will occur to ensure that all traffic impacts are properly mitigated, and acceptable levels of service are maintained for area roadways.

The following table provides for an overall executive summary of the project:

Village Parkway Tentative Map - Development Summary	
Project Component	**Proposed with Tentative Map**
Project Area	124.6± acres
Development Area (HDS zoning)	47.2± acres
Townhome Units (Single Family Attached)	183 units
Detached Single Family Units	166 units
Total Units	349 units
Gross Project Density	2.8 dwelling units per acre
Net Project Density (Tentative Map Area)	7.4 dwelling units per acre
Smallest Detached Lot Size	3,645± square feet
Largest Detached Lot Size	8,257± square feet
Average Detached Lot Size	4,250± square feet
Smallest Attached Lot Size	800± square feet
Largest Attached Lot Size	1,348± square feet
Average Attached Lot Size	1,047± square feet
Total Lot Area	20.48± acres
Public Right-of-Way Area	6.65± acres
Common Area[1]	97.47± acres

1 – includes private roadway area.

Cold Springs Area Plan

The Village Parkway Tentative Map and its associated design and density fully complies with the current HDS regulatory zoning and Suburban Residential Master Plan land use designations. The proposed unit mix will serve to diversify the Cold Springs housing market and offers much needed housing opportunities that are more affordable than traditional single family homes on larger lots located within the area. This will appeal to a wide range of residents, including the "missing middle" which has been identified as an area of critical concern by regional agencies, including Washoe County, Truckee Meadows Regional Planning, and the Economic Development Authority of Western Nevada (EDAWN).

The project, as proposed, will either support or implement the following policies from the Cold Springs Area Plan. It is also important to note that the project does not conflict with any provisions outlined in the Area Plan. The site is located within the Cold Springs Suburban Character Management Area which is identified as the area where new growth is to occur within the Cold Springs Valleys.

Relevant policies:

CS.1.1.3 Any residential land use more dense than one dwelling unit per five acres (1du/5 acres) must be located within the Cold Springs Suburban Character Management Area (CSSCMA).

CS.2.7 Landscape designs for new development will emphasize the use of native and/or drought tolerant vegetation, with non-native and atypical vegetation integrated sparingly into any landscaped area.

CS.2.7.1 Where landscaping is required in yards adjoining streets, residential subdivisions shall offer at least two (2) options for drought tolerant (i.e. climate adaptive) and native type landscaping.

CS.2.7.2 Large expanses of turf shall be discouraged, except for necessary use in parks and recreational facilities. The use of treated effluent shall be used whenever feasible for irrigation of large turf areas.

CS.2.8 To avoid long, continuous sections of solid fencing along street frontages, especially collectors and arterials, subdivision design should avoid platting large numbers of continuous linear lots with back yards and fences directly abutting the public right of way (see Photo 13). This design approach not only creates a "tunnel" effect, but can also result in maintenance problems, graffiti, and illegal access issues. If this design situation cannot be avoided, the following shall be required:

a. Fences may not exceed six (6) feet in height and shall be set back at least fifteen (15) feet from the edge of pavement or right-of-way, whichever is greater;

b. Fences shall employ offsetting articulation every other section;

c. Fences shall be either open (e.g. split rail) or (if not open) constructed of materials other than wood and metal, such as block masonry, brick, or stucco; and,

d. The creation of a Homeowners Association will be encouraged (for unified maintenance of common area and fencing).

CS.2.10 Prevent future suburban residential subdivisions from locating residences directly adjacent to major highways or railroad easements. Effective shielding and buffering will be planned to provide noise abatement with health and safety precautions.

CS.3.1 The policy level of service (LOS) for local and regional transportation facilities in the Cold Springs planning area is LOS "C" or better for roadway volume (i.e. flow rates) and LOS "D" or better for intersections. All development proposals must demonstrate how the adopted level of service for local transportation facilities will be maintained.

CS.3.2 Washoe County will work with the Regional Transportation Commission (RTC) and neighboring jurisdictions to ensure that potential impacts arising from development in neighboring jurisdictions are mitigated and consistent with the intent of policy CS.3.1.

CS.3.3 The necessary right-of-way and intersection requirements identified in the Regional Transportation Plan will be protected through dedication, setback or other method deemed adequate and appropriate by the Regional Transportation Commission and Washoe County.

CS.4.1 Ensure that the scenic and ecologic qualities of the mountains and hills in the Cold Springs planning area are preserved.

CS.4.1.1 Development on hillsides shall disturb the smallest area possible. All graded or disturbed areas, exposed slopes and areas of soil or landform disturbance not designated for development shall be revegetated after grading in order to mitigate adverse visual impacts, improve soil conditions, minimize erosion and stabilize necessary cut and fill slopes with plant roots. Drought tolerant/fire resistant and/or native species should be used whenever possible.

CS.4.1.2 Revegetation should be conducted as soon as practicable after disturbance while considering factors favorable to successful outcomes, such as weather and seasonal conditions.

CS.4.1.3 During development review, preference will be given to proposals that minimize hillside disturbance or otherwise conserve steep slopes.

CS.4.1.4 Development and/or disturbance of slopes in excess of 30% shall be prohibited except for necessary utility and infrastructure facilities. Any area of 30% slopes disturbed for utility or infrastructure purposes shall be mitigated by the provision of undisturbed open space elsewhere on the site at a 2:1 ratio.

CS.4.1.5 Unique geological landforms, landmarks, and natural rock outcroppings shall be preserved.

CS.4.2 The following shall be considered in all grading activities:

a. Minimize disruption to natural topography.

b. Utilize natural contours and slopes.

c. Complement the natural characteristics of the landscape.

d. Preserve existing vegetation and ground coverage where possible to minimize erosion.

e. Minimize cuts and fills.

CS.4.3 Encourage techniques such as transfer of development rights and conservation easements to protect sensitive areas. For example, development rights on the upper slopes of Peavine, Fred's and Petersen Mountains could be transferred or purchased for use in more suitable areas.

CS.4.5 Fencing installed along common open space areas within subdivisions should consist of an "open fence" design (e.g. split rail or equivalent).

CS.5.1 Prior to the approval of master plan amendments, tentative maps, or public initiated capital improvements in the Cold Springs planning area, the Nevada Department of Conservation and Natural Resources will be contacted and, if the department requests, an appropriate archaeological investigation will be conducted.

CS.6.1 All development and planning activities, regardless of agency, shall be reviewed for compatibility with, and potential implementation of, the Recreational Opportunities Plan map.

CS.6.1.1 Certain proposed trail alignments follow existing street alignments in order to provide overall connectivity and linkage to school and park facilities. These alignments are considered "proposed" because at present only the street right-of-way is available for pedestrian and bike use. Concrete sidewalks, dirt and gravel paths, bike lanes, signage, and/or other improvements should be constructed along these alignments as part of future street maintenance, development, or other capital improvements. These proposed routes represent desired designated bike and pedestrian routes within the community.

CS.9.3 Open space areas, including privately owned common open space, should be linked together to the greatest extent possible (to form unbroken corridors) and allow barrier free access to wildlife.

CS.9.4 South facing slopes with good sun exposure, particularly slopes with bitterbrush and mature vegetation, should receive a higher priority in the designation of open space to protect winter range habitat for Mule Deer and other wildlife.

CS.9.5 The Petersen Mountain Range is used as critical winter range by local Mule Deer herds and is of particular importance to overall Mule Deer habitat within the planning area. Washoe County strongly supports the preservation of this habitat and associated migration corridors and encourages the Bureau of Land Management to conduct additional planning for this area.

CS.10.1 Development proposals within the Cold Springs Valley will conform to Regional Water Management Plan Policy 3.1.c, "Flood Plain Storage Outside the Truckee River Watershed," as well as locally specific flood control requirements as amended and adopted by the Washoe County Department of Water Resources and the Regional Water Planning Commission.

CS.10.2 Increases or displacement in volume of storm drainage runoff as a result of development will be mitigated per procedures set forth in Washoe County Code Chapter 110 (i.e. the Development Code), the Regional Water Management Plan, and the Truckee Meadows Low Impact Development Manual.

CS.10.3 The use of Low Impact Development (LID) techniques is strongly encouraged to help implement Goal Ten (10) and associated policies. For guidance implementing this policy, consult the Truckee Meadows Low Impact Development Manual developed for the Cities of Reno and Sparks and Washoe County under the guidance of the Truckee Meadows Storm Water Permit Coordinating Committee.

CS.11.2 New development shall comply with Regional Water Management Plan Policy 1.3.e: "Water Resource Commitments."

CS.11.3 New development shall comply with Regional Water Management Plan Policy 2.1.a: "Effluent Reuse – Efficient Use of Water Resources and Water Rights."

Tentative Map Findings

Section 110.608.20 of the Washoe County Development Code establishes legal findings that must be made by the Planning Commission or Board of County Commissioners in order to approve a Tentative Map request. These findings are listed below and are addressed in **bold face** type.

(a) Environmental and Health Laws. 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 Village Parkway Tentative Map will be served by municipal water through an extension of existing Great Basin Water Company facilities. Sewer service will be provided by Washoe County at the Cold Springs Water Reclamation Facility which has ample capacity to accommodate the 349 proposed units (a will serve letter is included in the appendices of this report). Waste Management will provide solid waste removal and is already operating in the immediate area.

(b) Availability of Water. The availability of water which meets applicable health standards as well as requirements for water rights, quality or will-serve commitments;

The project will be served by Great Basin Water Company. An intent to serve letter from the water company is included as an attachment to this report.

(c) Utilities. The availability and accessibility of utilities;

The project will be served by all municipal utilities, infrastructure, and services as detailed within this report and on the attached engineering plans.

(d) Public Services. The availability and accessibility of public services such as schools, police and fire protection, transportation, recreation and parks;

Public services, including sheriff patrols are already occurring within the surrounding neighborhoods. With construction of the new elementary school in Cold Springs, the Washoe County School District has indicated that there is ample capacity to accommodate new students from this project. The project site is within a two minute response time of the TMFPD Cold Springs station and is within walking distance of existing park facilities.

(e) Plan Consistency. General conformance with the Development Code and Master Plan;

The project, as proposed, is consistent with Washoe County Development Code standards, including the Article 408/Common Open Space provisions. Project density is in full compliance with the existing HDS zoning and Suburban Residential Master Plan designations.

(f) Impact on Existing Streets. The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;

A detailed traffic impact analysis has been completed by Solaegui Engineers, concurrent with this tentative map request. The traffic study identifies required roadway improvements and mitigation measures that can be conditioned with this request to ensure all impacts associated with the project are properly mitigated and appropriate levels of service are retained.

(g) Physical Characteristics. Physical characteristics of the land such as flood plain, slope and soil;

The site is well suited for the type and intensity of development proposed, as discussed in the previous section of this report. Development is focused on flat portions of the site with very little disturbance proposed within GR designated areas. The Common Open Space approach will preserve steeper slopes and the ridgeline that runs within the western portion of the parcel boundaries.

(h) Agency Review. The recommendations and comments of the entities reviewing the tentative map; and

Copies of this report and the included plans will be circulated to all applicable reviewing agencies for review and comment. Specific requirements and relevant comments can be included as conditions tied to this request and implemented with final map(s).

(i) Impact on Existing Drainage System. The effect of the proposed subdivision on the existing natural and man-made drainage system.

The project will provide for onsite detention at various locations within the site, compliant with Washoe County standards. Run-off from the site will not be increased in the post development condition. A detailed drainage study is included as an attachment to this report.

APPENDICES

Washoe County Development Application

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

Project Information **Staff Assigned Case No.:** _______________

Project Name: Village Parkway Tentative Map

Project Description: A tentative subdivision map request to allow for 166 detached and 183 attached single family units in the HDS zone.

Project Address: West side of Village Parkway, north of Cold Springs Drive

Project Area (acres or square feet): 124.6 acres

Project Location (with point of reference to major cross streets **AND** area locator):

The site is located on the west side of Village Parkway, north of Cold Springs Drive in Cold Springs. Mud Springs Drive traverses along the eastern property boundary.See attached vicinity map.

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
087-400-11	42.43 acres	087-400-24	41.26 acres
087-400-23	40.91 acres		

Indicate any previous Washoe County approvals associated with this application:
Case No.(s). WRZA20-0004

Applicant Information (attach additional sheets if necessary)

Property Owner:	**Professional Consultant:**
Name: Lifestyle Homes TND, LLC	Name: Christy Corporation, Ltd.
Address: 4790 Caughlin Pkwy., Suite 519	Address: 1000 Kiley Pkwy.
Reno, NV Zip: 89519	Sparks, NV Zip: 89436
Phone: (775) 750-5537 Fax:	Phone: (775) 502-8552 Fax:
Email: rlissner@gmail.com	Email: mike@christynv.com
Cell: (775) 750-5537 Other:	Cell: (775) 250-3455 Other:
Contact Person: Bob Lissner	Contact Person: Mike Railey
Applicant/Developer:	**Other Persons to be Contacted:**
Name: Same as Above	Name: Summit Engineering Corporation
Address:	Address: 5405 Mae Anne Ave.
Zip:	Reno, NV Zip: 89523
Phone: Fax:	Phone: (775) 747-8550 Fax:
Email:	Email: robert@summitnv.com
Cell: Other:	Cell: (775) 787-4331 Other:
Contact Person:	Contact Person: Robert Gelu, P.E.

For Office Use Only

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

Property Owner Affidavit

Applicant Name: Lifestyle Homes TND, LLC

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, Robert Lissner,
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 087-400-11, 23, and 24

Printed Name Robert Lissner

Signed RJ LISSNER

Address 4790 Caughlin Pkwy. #519
Reno, NV 89519

Subscribed and sworn to before me this 10th day of February, 2021.

Notary Public in and for said county and state

My commission expires: 10/16/21

(Notary Stamp)

MICHELE DAVIS
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 97-4108-2 - Expires October 16, 2021

*Owner refers to the following: (Please mark appropriate box.)

- ☐ Owner
- ☑ Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

Community Services Department

Planning and Building

TENTATIVE SUBDIVISION MAP APPLICATION

WASHOE COUNTY, NEVADA

1861

Community Services Department
Planning and Building
1001 E. Ninth St., Bldg. A
Reno, NV 89512-2845

Telephone: 775.328.6100

Tentative Subdivision Map Application
Supplemental Information

(All required information may be separately attached)

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

   The project site is on the west side of Village Parkway approximately 1,300 feet north of Cold Springs Drive.

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

   Village Parkway Homes

3. Density and lot design:

a. Acreage of project site	124.6 acres
b. Total number of lots	349
c. Dwelling units per acre	2.8 du/ac
d. Minimum and maximum area of proposed lots	800 sq.ft. minimum/8,257 sq.ft. maximum
e. Minimum width of proposed lots	18 feet (attached product)
f. Average lot size	4,250 sq.ft. (detached)/1,047 sq.ft. (attached)

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

a. Sewer Service	Cold Springs Water Treatment Facility
b. Electrical Service	NV Energy
c. Telephone Service	AT&T or Charter Communications
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	AT&T or Charter Communications
g. Water Service	

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

   a. Acreage of common open space:

   97.47 acres

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

   The west side of the site contains slope areas (approximately 77.37 acres)

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

   800 square feet (attached) to 8,257 square feet (detached)

d. Proposed yard setbacks if different from standard:

Detached - 20' to garage/10' to house (front), 3' to property line/10' to buildings (side), 10' (rear). Attached - 0' with 10' between buildings.

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

The adjusted setbacks allow for a new product type in the Cold Springs market that is much needed and provides more attainable housing for a wide demographic.

f. Identify all proposed non-residential uses:

Various common area and open space is provided. Refer to attached plans.

g. Improvements proposed for the common open space:

Common areas will be landscaped as shown on the attached landscape plan. Slopes on the west side of the property will remain as natural open space.

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

Refer to the attached plan for trails, paths, and pedestrian improvements.

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

A trail is provided at the western portion of the project providing connection to open space areas.

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

Ridgelines on the west side of the property are preserved as permanent open space.

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

Privacy fencing between detached homes will be permitted per WCDC standards.

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

A homeowner's association will be established to provide ongoing maintenance of common areas and community amenities.

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

Public land exists beyond GR zoned areas. A trail is provided to allow access to this area. Refer to attached plans.

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

☒ Yes	☐ No

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

☐ Yes	■ No	If yes, within what city?

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

Not applicable.

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

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

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

A water service acknowledgement from Great Basin Water Company is attached.

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

Homes will include energy efficient building materials and solar orientation is a consideration in the placement of building envelopes (to the extent possible).

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

Not applicable.

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

Alleys will be private but no gating is proposed.

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

Refer to attached report for a detailed policy analysis.

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

Not applicable.

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

The project is expected to take 5 to 7 years to complete with up to 4 phases for each product type.

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

☐ Yes	☒ No	If yes, include a separate set of attachments and maps.

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

☐ Yes	☒ No	If yes, include separate attachments.

Grading

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

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

Refer to attached engineering plans and reports for a full grading plan including cut/fill analysis.

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

Import of fill material will occur. Refer to attached engineering plans for full details.

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

Areas of cut will be fully screened from adjoining properties by new homes and landscaping.

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

Revegetation and rip-rap (as needed) will be used to stabilize disturbed slopes. Slopes are proposed at 3:1, consistent with Washoe County policy.

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

Berms will be included adjacent to detention areas and include a mix of native revegetation and formal landscape treatments.

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

Refer to attached grading plan for specific wall details and heights. Walls are located at the western edge of the project.

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

Not applicable.

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

Refer to attached landscape plan for revegetation specifications.

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

Temporary irrigation can be provided via a connection with domestic service planned for landscaped common areas.

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

WSCD will be a reviewing agency of this request and suggestions can be conditioned as appropriate.

Request to Reserve New Street Name(s)

The Applicant is responsible for all sign costs.

Applicant Information

Name: Lifestyle Homes TND, LLC

Address: 4790 Caughlin Pkwy., Suite 519

The project site is on the west side of Village Parkway approximately 1,300 feet north of Cold Springs Drive.

Phone : ______________ Fax: ______________

☐ Private Citizen ☐ Agency/Organization

Street Name Requests

(No more than 14 letters or 15 if there is an "i" in the name. Attach extra sheet if necessary.)

Street names will be requested with final map	

If final recordation has not occurred within one (1) year, it is necessary to submit a written request for extension to the coordinator prior to the expiration date of the original

Location

Project Name: Village Parkway Tentative Map

☐ Reno ☐ Sparks ☐ Washoe County

Parcel Numbers: ______________

☐ Subdivision ☐ Parcelization ☐ Private Street

Please attach maps, petitions and supplementary information.

Approved: ______________ Date: ______________

Regional Street Naming Coordinator

☐ Except where noted

Denied: ______________ Date: ______________

Regional Street Naming Coordinator

Washoe County Geographic Information Services

1001 E. Ninth Street

Reno, NV 89512-2845

Phone: (775) 328-2325 - Fax: (775) 328-6133

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Account Detail   Change of Address   Print this Page

CollectionCart

	Items	Total		
Collection Cart	0	$0.00	Checkout	View

Pay Online

No payment due for this account.

Washoe County Parcel Information

Parcel ID	Status	Last Update
08740011	Active	3/5/2021 1:40:37 AM

Current Owner:
LIFESTYLE HOMES TND LLC

4790 CAUGHLIN PKWY 519
RENO, NV 89519

SITUS:
1050 MUD SPRINGS DR
WCTY NV

Taxing District
4000

Geo CD:

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2020	$649.45	$649.45	$0.00	$0.00	$0.00
2019	$617.92	$617.92	$0.00	$0.00	$0.00
2018	$589.62	$589.62	$0.00	$0.00	$0.00
2017	$565.85	$565.85	$0.00	$0.00	$0.00
2016	$552.33	$552.33	$0.00	$0.00	$0.00
				Total	$0.00

Disclaimer

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

Washoe County Treasurer
P.O. Box 30039, Reno NV 89520-3039
ph (775) 328-2510 fax (775) 328-2500
Email tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Account Detail   Change of Address   Print this Page

CollectionCart

	Items	Total		
Collection Cart	0	$0.00	Checkout	View

Pay Online

No payment due for this account.

Washoe County Parcel Information

Parcel ID	Status	Last Update
08740023	Active	3/5/2021 1:40:37 AM

Current Owner:
LIFESTYLE HOMES TND LLC

4790 CAUGHLIN PKWY 519
RENO, NV 89519

SITUS:
17811 VILLAGE PKWY
WASHOE COUNTY NV

Taxing District
4000

Geo CD:

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2020	$344.56	$344.56	$0.00	$0.00	$0.00
2019	$327.55	$327.55	$0.00	$0.00	$0.00
2018	$312.55	$312.55	$0.00	$0.00	$0.00
2017	$299.95	$299.95	$0.00	$0.00	$0.00
2016	$293.17	$293.17	$0.00	$0.00	$0.00
				Total	$0.00

Disclaimer

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- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Account Detail | Change of Address | Print this Page

CollectionCart

	Items	Total		
Collection Cart	0	$0.00	Checkout	View

Pay Online

No payment due for this account.

Washoe County Parcel Information

Parcel ID	Status	Last Update
08740024	Active	3/5/2021 1:40:37 AM

Current Owner:
LIFESTYLE HOMES TND LLC

4790 CAUGHLIN PKWY 519
RENO, NV 89519

SITUS:
17901 VILLAGE PKWY
WASHOE COUNTY NV

Taxing District
4000

Geo CD:

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2020	$385.68	$385.68	$0.00	$0.00	$0.00
2019	$366.71	$366.71	$0.00	$0.00	$0.00
2018	$349.91	$349.91	$0.00	$0.00	$0.00
2017	$335.81	$335.81	$0.00	$0.00	$0.00
2016	$328.12	$328.12	$0.00	$0.00	$0.00
				Total	$0.00

Disclaimer

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

Great Basin
Water Co.™

NOTICE OF INTENT TO SERVE

Re: Mud Springs Condos

329 Townhouses – Washoe County Parcels 87-400-11, 23 and 24

Type: Central Water

Utility Service Provider Name: Great Basin Water Co.

The undersigned Utility Service Provider agrees to provide the aforementioned Mud Springs Condos (aka Village Parkway) project ("the Project") water service in accordance with the terms and conditions of the then current utility tariffs approved by the Public Utilities Commission of Nevada (PUCN) and subject to the conditions set forth herein and agreed to by the developer of the Project ("Developer") who has countersigned below. Developer and Utility Service Provider shall cooperate to seek approval from the Public Utilities Commission of Nevada ("PUCN") to annex the Project area into the Utility Service Provider's certificated service area.

This commitment to serve is conditioned upon the Utility Service Provider's receipt of necessary approvals from all required government agencies, including but not limited to the annexation approval from the PUCN, the Developer's satisfaction of all tariff and development requirements of Utility Service Provider. Such development requirements of Utility Service Provider include the Developer's payment of all appropriate fees and Developer's dedication and Utility Service Provider's acceptance of any and all required infrastructure and water rights in good standing with the Nevada Division of Water Resources ("NDWR") and adequate for provision of water service to the Project. For the avoidance of doubt, Utility Service Provider shall have no obligation to provide service to the Project unless and until all Developer obligations are satisfied which shall include any necessary regulatory approvals from Nevada Division Water Resources or any other agency with jurisdiction for Utility Service Provider's use of the water rights Developer dedicates to the Utility Service Provider for its provision of service to the Project.

Utility Service Provider intends to service the proposed development with potable water service for 329 Townhouses. This Project requires an estimated 46.3 AFA (using permit Nos. 65056 and 65058) calculated at .12 AFA per unit plus 2.0 acres of landscaping calculated at 3.41 AFA per acre based on GBWC Division Tariff 1-W (Water) Rule No. 21, C. Water Rights Dedication Requirements for an Intent to Serve, Cold Springs – Spanish Springs. Utility Service Provider's intent to serve is conditioned upon the availability and adequacy of water under these water rights dedicated by Developer.

This document is agreed to under the signature of an agent of the Utility Service Provider authorized to sign the agreement and Developer's authorized agent. This notice of Intent to Serve will expire and become null and void if the service for the aforesaid parcel is not applied for with the Utility Service

Provider within two years of the date of this document in accordance with the terms of the utility's tariffs in force at such time.

Name of Lifestyle Homes TND, LLC agent: Robert Lissner

Robert Lissner 1/8/20

Signature of Authorized Agent of Developer Date

Name of Utility Service Provider's authorized agent: Wendy Barnett, President, GBWC

1-8-20

Signature of Authorized Agent of Water Provider Date

Recd 2/8/21

ADDENDUM TO INTENT TO SERVE
Mud Springs Condos – January 8, 2020

Subject: December 16, 2020 update:

1. Name – From Mud Springs Condos to Village Parkway
2. From 329 Townhouses to 191 Townhouses and 181 Single Family Residences
3. Change in water right permit Nos. and total AFA requirement

Developer had previously proposed the development as Mud Springs Condos (now Village Parkway) for 329 Townhouses and is now altering the plans to have 191 Townhouses and 181 Single Family Residences (3600 sq ft). Originally, the development was to use 46.3 AFA using two permit Nos. Now the development will use 73.03 AFA that will come from Permit No. 65058 only.

This intent to serve is conditioned upon GBWC's receipt of necessary approvals from all required government agencies.

IN WITNESS WHEREOF, this Agreement is executed on the date above first written.

Lifestyle Homes TND, LLC agent
RJ Lissner 2/8/21
By:
Its: MANAGER

Great Basin Water Co.
Sean Twomey
By: Sean Twomey
Its: President

WASHOE COUNTY
COMMUNITY SERVICES DEPARTMENT
Engineering and Capital Projects

1001 EAST 9TH STREET
PO BOX 11130
RENO, NEVADA 89520-0027
PHONE (775) 328.3600
FAX (775) 328.3699

January 27, 2021

Robert Lissner
Woodland Village North, LLC
4790 Caughlin Parkway #519
Reno, NV 89519

SUBJECT: **Intent to Serve Village Parkway Homes**
APN: 087-400-11; 087-400-24; 087-400-23
372 Units

To whom it may concern:

The Washoe County Community Services Department, Engineering and Capital Projects Division, has reviewed the preliminary plans for the subject project and has committed to serve the project under the following conditions:

1. Final building permit plans are submitted to Washoe County Utilities for review and approval per Washoe County ordinance and design standards.
2. Adhere to all sections of NAC 278.290 & NAC 278.430 that require all necessary improvements to the collection system or treatment facility be approved by Washoe County Utilities and constructed and/or the financial assurance made prior to the approval of the building permit.

Review of the information submitted does not constitute an application for service, imply the process of planning and construction of the facilities necessary for service have been completed, is not a will serve letter nor does it imply that any sewer connection fees have been paid. Capacity assurance will be determined after all fees have been paid and accepted.

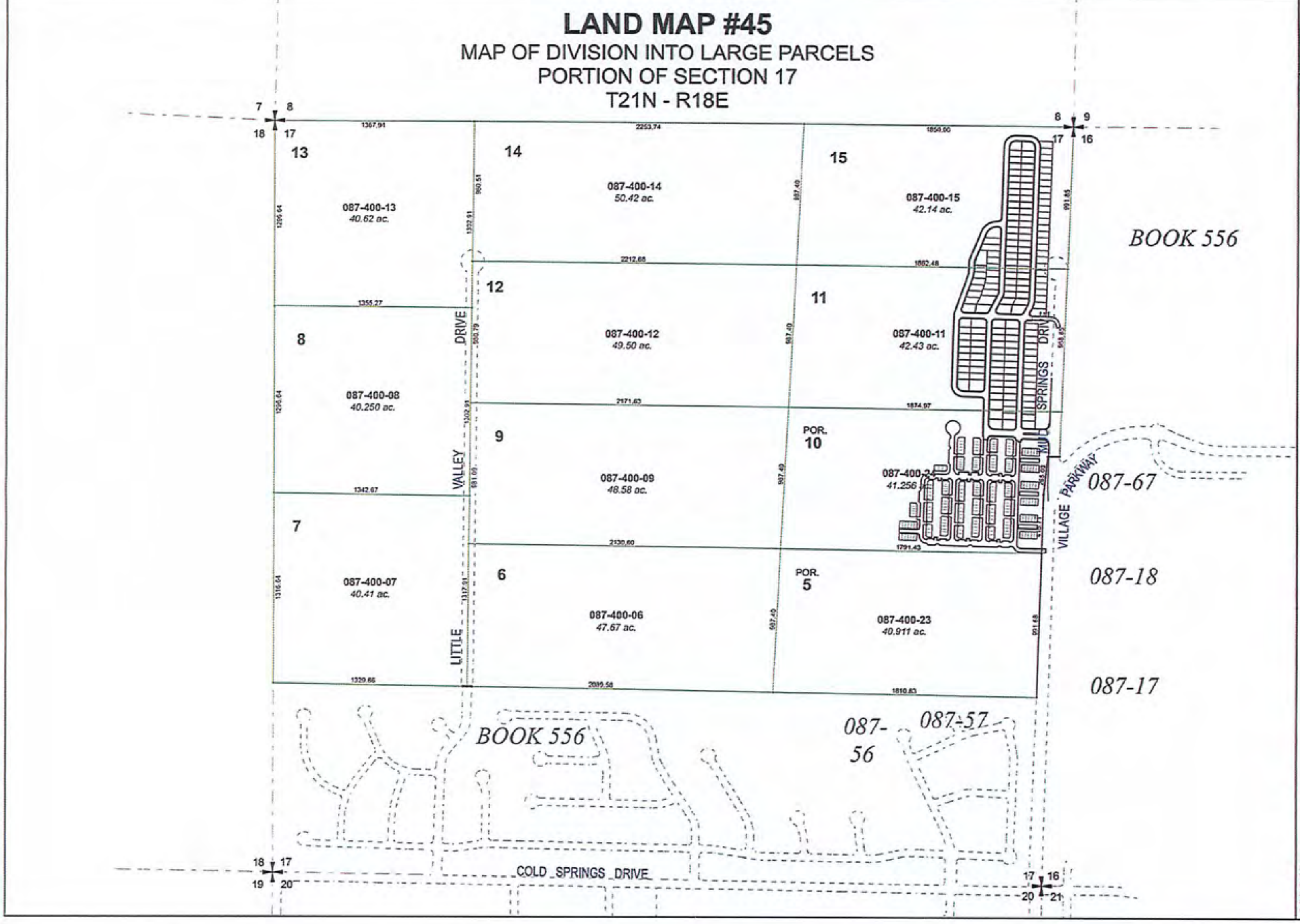
Sincerely,

Dwayne E. Smith, P.E.
Director Engineering & Capital Projects

c: Timothy Simpson, P.E., Licensed Engineer

LAND MAP #45

MAP OF DIVISION INTO LARGE PARCELS
PORTION OF SECTION 17
T21N - R18E



Assessor's Map Number

087-40

STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
Michael E. Clark, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231

Feet
0 150 300 450 600
1 inch = 600 feet

created by: EMG 6/26/2015

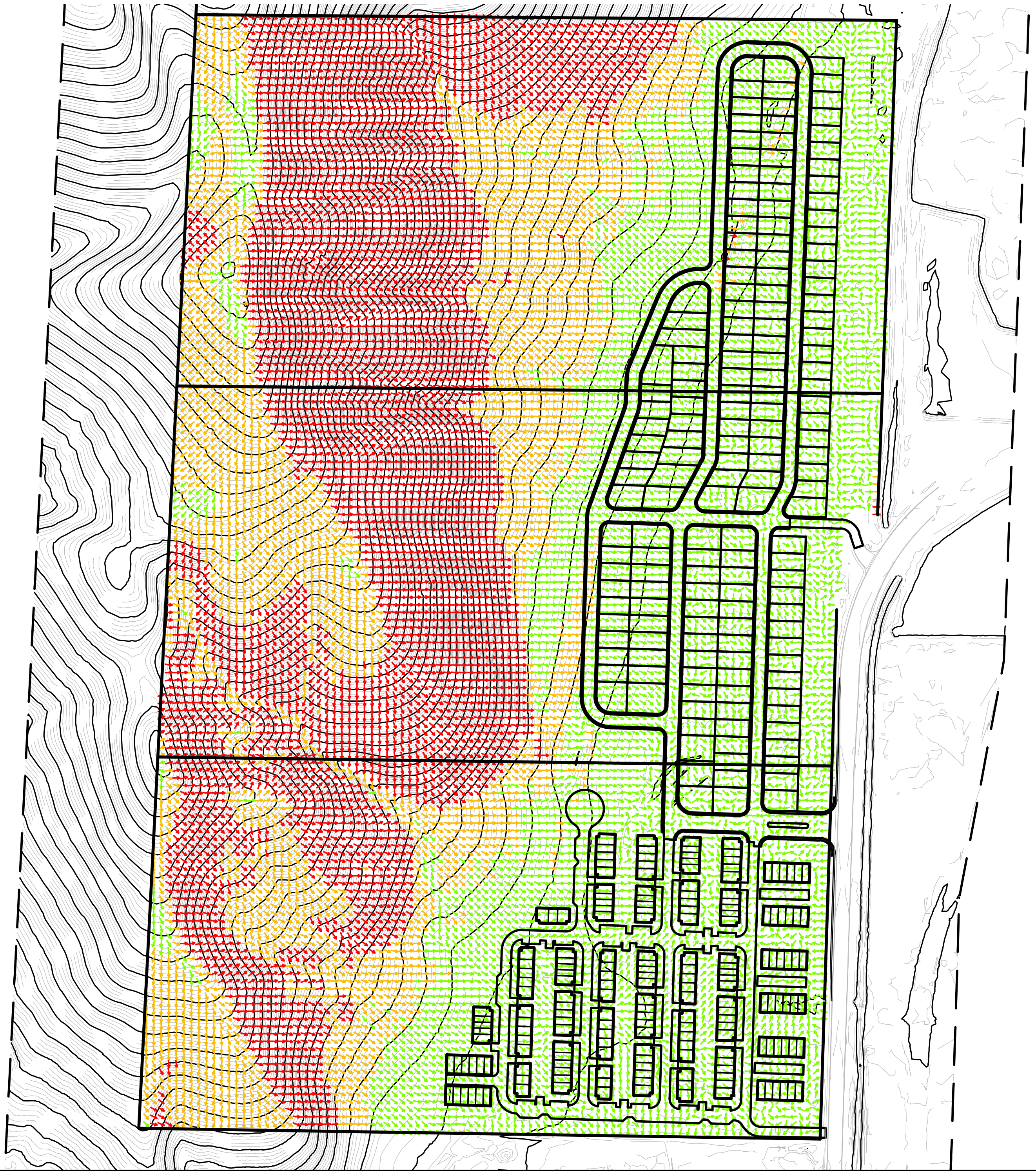
last updated: ________

area previously shown on map(s)
087-02

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

SLOPE STATISTICS FOR SUBJECT PROPERTY

🟩	0 TO 15 Percent	46.20%	57.55 AC.
🟧	15 TO 30 Percent	22.90%	28.52 AC.
🟥	> 30 Percent	30.90%	38.49 AC.
	TOTALS	100%	124.56 AC.



VILLAGE PARKWAY HOMES SLOPE MAP

SCALE: 1"=400'

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_DISPLAYS.DWG ~ 11:43 AM * 05-MAR-2021

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE: (775) 747-8550 FAX: (775) 747-8559

SHEET 1 OF 1

PRELIMINARY
SANITARY SEWER REPORT
FOR
VILLAGE PARKWAY
HOMES

Prepared for

LIFESTYLE HOMES TND, LLC
4790 CAUGHLIN PARKWAY #519
RENO, NV 89519

Prepared by

SUMMIT ENGINEERING CORPORATION™

**SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE
RENO, NEVADA 89523
(775) 747-8550**

Job # 31097

MARCH 2021

PROFESSIONAL ENGINEER - STATE OF NEVADA
ROBERT
GELU
Exp. 6-30-21
CIVIL
No. 17741

3-8-21

TABLE OF CONTENTS

PAGE

INTRODUCTION

The following report represents the sanitary sewer analysis for Village Parkway Homes with two alternate options to carry wastewater to the sewer treatment plant. The project is a proposed 349-unit single-family development located in Section 17, Township 21 North, Range 18 East, Reno, Nevada. The purpose of this study is to estimate the peak sewer flows, in accordance with the criteria set forth in the Washoe County Department of Water Resources. The information for the proposed subdivision is listed below:

APN: 087-400-11
Area: 42.43 Acres

APN: 087-400-24
Area: 41.26 Acres

APN:087-400-23
Area: 40.91 Acres

The property surrounding this project is as follows:

North:	APN 087-400-15, Lee K Pearson
South:	Peavine View Estates (Existing)
East:	Village Parkway (Existing)
West:	APN 087-400-12, Liscom Family Trust; APN 087-400-09, Tonniel R Strickland, APN 087-400-06, Ferrel Family Trust

DESIGN STANDARDS

The following design standards were used in designing the mains within Village Parkway Homes, and in analyzing the effects of connecting the Village Parkway Homes development to existing sewer facilities (reference Washoe County Department of Water Resources):

- Manning's roughness coefficient, n= 0.012
- Pipe capacity in terms of one-half full. Maximum allowed by Washoe County is 0.8D, where D is the nominal diameter of the pipe.

- Peak discharge of 270 gallons per capita per day
- Peaking factor of 3
- Minimum mean velocity of 2.5 feet per second
- Maximum mean velocity of 10 feet per second

EXISITING SANITARY SEWER FACILITIES

Village Parkway Homes will utilize the existing treatment facility located west of Woodland Village Phase 22 and 23, for sewer treatment and disposal. Alternate 1 ties into an existing 10-inch gravity sewer main north of the site with a minimum slope of 0.0058 ft/ft. This existing sewer main carries wastewater directly to the sewer treatment plant. Alternate 2 ties into an existing 10-inch gravity sewer main east of the site with a minimum slope of 0.003 ft/ft. This existing sewer main carries wastewater to the Woodland Village lift station. Reference the *Update to Technical Memorandum 3 (2017 Facility Plan)*, performed by Farr West Engineering, for existing lift station and force main information.

PROPOSED SANITARY SEWER FACILITIES

Village Parkway Homes will be served by proposed sanitary sewer mains comprised of 8-inch diameter SDR 35 PVC pipes. These mains will connect to a proposed on-site sanitary sewer lift station which will carry flows to the existing sewer mains in both alternate options via a sewer force main.

SEWER ANALYSIS

The approximate location of the proposed sanitary sewer system servicing Village Parkway Homes is illustrated on the display map in the appendix of this report. Using the Washoe County Gravity Sewer Collection Design Standards, these 349 units will generate a peak flow of 282,690 gallons per day (gpd). The 80% capacities were found using Flowmaster. The flattest section of the on-site gravity sanitary sewer is an 8-inch diameter SDR 35 PVC pipe which has a slope of 0.005 ft/ft, the 80% full capacity of this pipe is 478,602 gpd and a half-full velocity of 3.1 ft/s and can serve approximately 591 units. The flow will then go through a proposed on-site sanitary lift station and a proposed sewer force main that will be designed by others.

Alternate 1 will combine 349 units from Village Parkway Homes and 480 units from the Diamond Peak lift station (per the *Update to Technical Memorandum 3 (2017 Facility Plan)*, by Farr West Engineering) for a total demand of 671,490 gpd. The existing 10" sewer main carrying these flows at a slope of 0.0058 ft/ft has an 80%-full capacity of 1,141,937 gpd and velocity of 3.78 fps. These flows are carried to the sewer treatment plant through an existing 12-inch pipe with a slope of 0.0053 ft/ft. The 80%-full capacity of this is 1,775,072 gpd and has a velocity of 4.08 fps. Woodland Village contributes 1,087 units to this pipe as well, which brings the total combined demand to 1,551,960 gpd. These existing pipes will satisfy the demand for Alternate 1.

Alternate 2 will combine 349 units from Village Parkway Homes and 501 units from Woodland Village for a total demand of 688,500 gpd. The existing 10" sewer main carrying these flows at a minimum slope of 0.003 ft/ft has an 80%-full capacity of 827,275 gpd and velocity of 2.72 fps. These flows are then directed to the existing Woodland Village lift station, which will carry the flows to the existing sewer treatment plant. The remaining capacities for the Woodland Village lift station and force mains are shown in Table 1 (per the *Update to Technical Memorandum 3 (2017 Facility Plan)*, by Farr West Engineering). These numbers are based on the existing 1,085 ERU at the time. The adjusted capacities referenced in Table 1 shows additional contributions from Woodland Village and the proposed Village Parkway Homes, for a total demand of 1,672 ERU's. The existing facilities will satisfy the demand for Alternate 2.

Table 1: Remaining Capacity for Woodland Village Lift Station

Component	2017 Woodland Village Remaining Capacity (ERU's)	Adjusted Woodland Village Remaining Capacity (ERU's)
Wet Well Storage	1,140	553
Force Main	1,184	597
Pump	4,120	3,533

CONCLUSION

The Village Parkway Homes will consist of 349 units that will generate a proposed peak flow demand of 282,690 gpd. The proposed 8-inch mains in the development have a minimum slope of 0.005 ft/ft. and will be directing flows to a sanitary sewer lift station. The two alternate options connecting to the existing facilities present adequate capacities for the additional demand produced by the site.

APPENDIX A

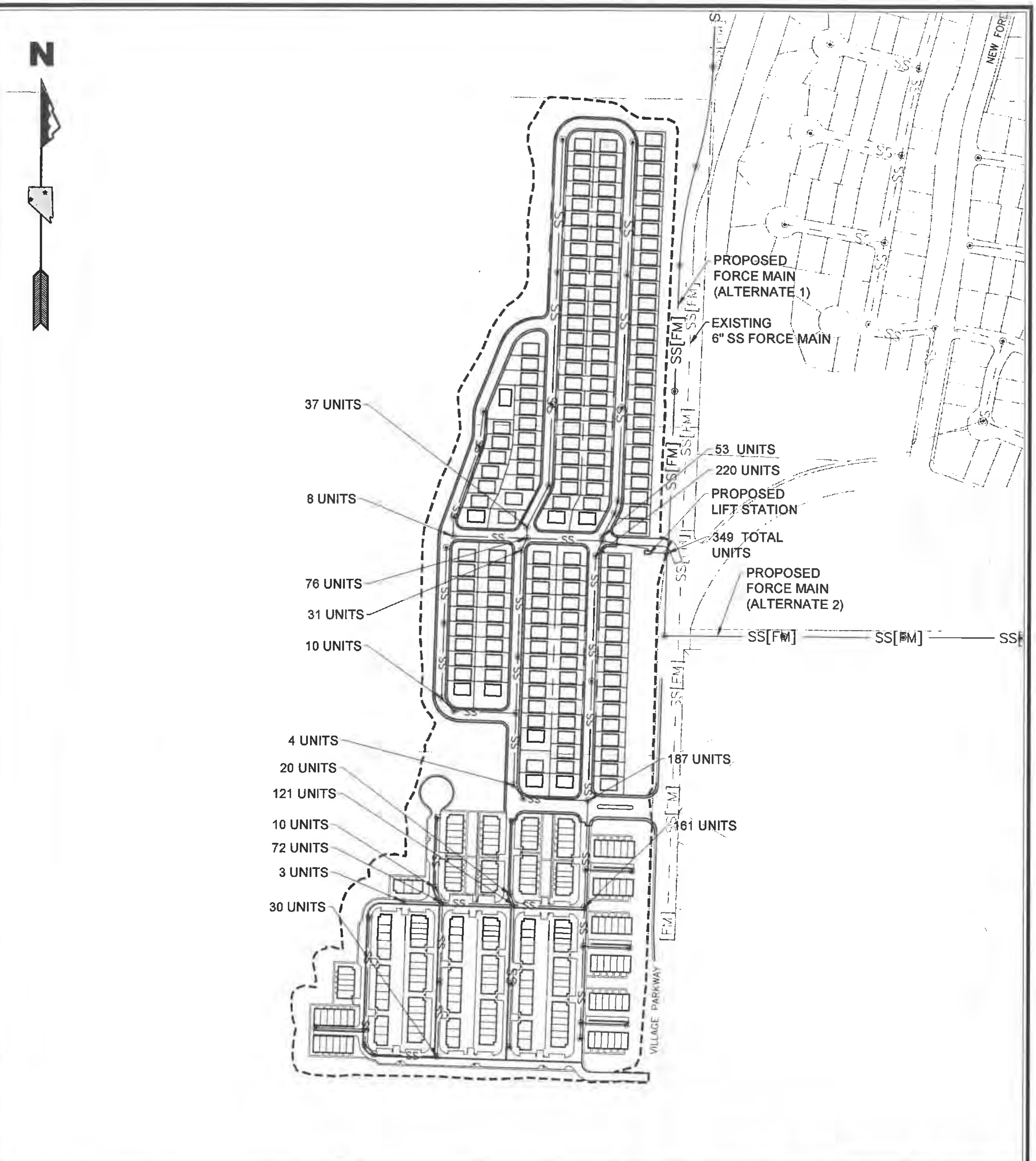
VILLAGE PARKWAY HOMES VICINITY MAP

N.T.S.

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

SHEET 1 OF 1

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\Sewer\VICINITYMAP.DWG ~ 8:14 AM * 29-JAN-2021



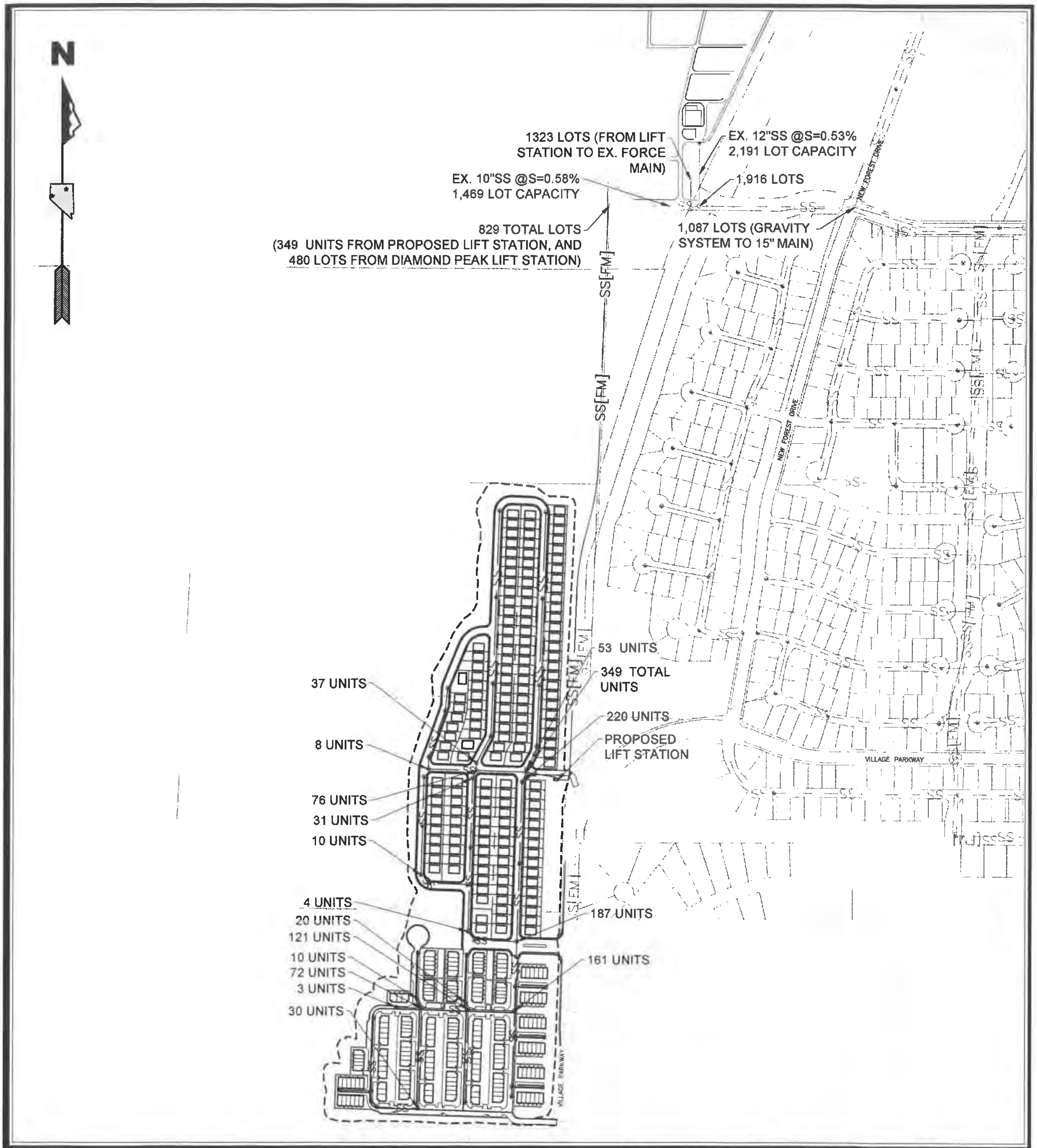
VILLAGE PARKWAY HOMES ON-SITE SEWER DISPLAY

SCALE: 1"=400'

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

SHEET 1 OF 1

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\Sewer\SEWER DISPLAY.DWG ~ 11:36 AM • 01-MAR-2021



VILLAGE PARKWAY HOMES ALTERNATE 1

SCALE: 1"=600'

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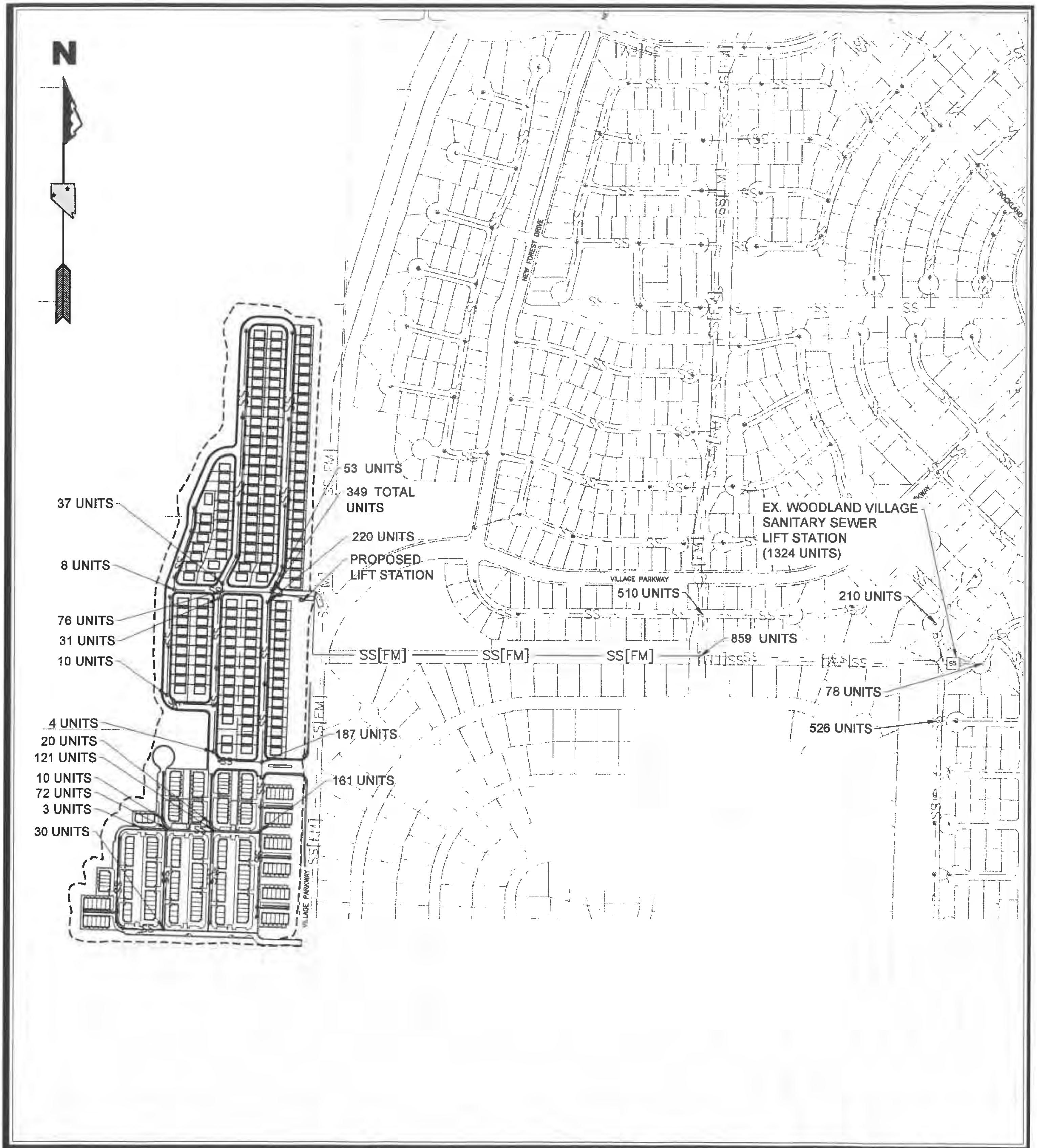
SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

SHEET 1 OF 1



VILLAGE PARKWAY HOMES ALTERNATE 2

SCALE: 1"=600'

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

SHEET 1 OF 1

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\Sewer\SEWER DISPLAY.DWG ~ 10:08 AM * 04-MAR-2021

APPENDIX B

8" MAIN 80% FULL CAPACITY @ S=0.5%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.005
Normal Depth	6.4
Diameter	8.0

Results

Discharge	584,772
Flow Area	0.3
Wetted Perimeter	1.5
Hydraulic Radius	2.4
Top Width	0.53
Critical Depth	5.4
Percent Full	80.0
Critical Slope	0.007
Velocity	3.02
Velocity Head	0.14
Specific Energy	0.68
Froude Number	0.711
Maximum Discharge	643,543
Discharge Full	598,252
Slope Full	0.005
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	0.0
Downstream Velocity	0.00
Upstream Velocity	0.00
Normal Depth	6.4
Critical Depth	5.4
Channel Slope	0.005
Critical Slope	0.007

8" MAIN DEMAND @ S=0.50%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.0050
Diameter	8.0
Discharge	282,690

Results

Normal Depth	3.9
Flow Area	0.2
Wetted Perimeter	1.0
Hydraulic Radius	2.0
Top Width	0.67
Critical Depth	3.7
Percent Full	48.4
Critical Slope	0.0058
Velocity	2.62
Velocity Head	0.11
Specific Energy	0.43
Froude Number	0.920
Maximum Discharge	643,543
Discharge Full	598,252
Slope Full	0.0011
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	38.4
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	3.9
Critical Depth	3.7
Channel Slope	0.0050
Critical Slope	0.0058

ALT. 1 EX.10" MAIN 80% FULL CAPACITY @ S=0.58%

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.012
Channel Slope	0.0058
Normal Depth	8.0
Diameter	10.0

Results	
Discharge	1,141,937
Flow Area	0.5
Wetted Perimeter	1.8
Hydraulic Radius	3.0
Top Width	0.67
Critical Depth	7.2
Percent Full	80.0
Critical Slope	0.0075
Velocity	3.78
Velocity Head	0.22
Specific Energy	0.89
Froude Number	0.795
Maximum Discharge	1,256,705
Discharge Full	1,168,261
Slope Full	0.0055
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	80.0
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	8.0
Critical Depth	7.2
Channel Slope	0.0058
Critical Slope	0.0075

ALT. 1 EX.10" MAIN DEMAND @ S=0.58%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.0058
Diameter	10.0
Discharge	671,490

Results

Normal Depth	5.4
Flow Area	0.3
Wetted Perimeter	1.4
Hydraulic Radius	2.6
Top Width	0.83
Critical Depth	5.4
Percent Full	54.4
Critical Slope	0.0058
Velocity	3.43
Velocity Head	0.18
Specific Energy	0.64
Froude Number	1.001
Maximum Discharge	1,256,705
Discharge Full	1,168,261
Slope Full	0.0019
Flow Type	Critical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	55.8
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	5.4
Critical Depth	5.4
Channel Slope	0.0058
Critical Slope	0.0058

ALT. 1 EX.12" MAIN DEMAND @ S=0.53%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.012
Channel Slope	0.0053
Diameter	12.0
Discharge	551,960

Results	
Normal Depth	4.5
Flow Area	0.3
Wetted Perimeter	1.3
Hydraulic Radius	2.5
Top Width	0.97
Critical Depth	4.6
Percent Full	37.8
Critical Slope	0.0049
Velocity	3.14
Velocity Head	0.15
Specific Energy	0.53
Froude Number	1.045
Maximum Discharge	1,953,473
Discharge Full	1,815,992
Slope Full	0.0005
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	37.8
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	4.5
Critical Depth	4.6
Channel Slope	0.0053
Critical Slope	0.0049

ALT. 1 EX12" MAIN 80% FULL CAPACITY @ S=0.53%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.0053
Normal Depth	9.6
Diameter	12.0

Results

Discharge	1,775,072
Flow Area	0.7
Wetted Perimeter	2.2
Hydraulic Radius	3.7
Top Width	0.80
Critical Depth	8.5
Percent Full	80.0
Critical Slope	0.0069
Velocity	4.08
Velocity Head	0.26
Specific Energy	1.06
Froude Number	0.783
Maximum Discharge	1,953,473
Discharge Full	1,815,992
Slope Full	0.0051
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	80.0
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	9.6
Critical Depth	8.5
Channel Slope	0.0053
Critical Slope	0.0069

ALT. 2 EX.10" MAIN DEMAND @ S=0.30%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.012
Channel Slope	0.0030
Diameter	10.0
Discharge	688,500

Results

Normal Depth	6.9
Flow Area	0.4
Wetted Perimeter	1.6
Hydraulic Radius	2.9
Top Width	0.77
Critical Depth	5.5
Percent Full	68.8
Critical Slope	0.0058
Velocity	2.66
Velocity Head	0.11
Specific Energy	0.68
Froude Number	0.651
Maximum Discharge	903,816
Discharge Full	840,208
Slope Full	0.0020
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	55.8
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	6.9
Critical Depth	5.5
Channel Slope	0.0030
Critical Slope	0.0058

ALT. 2 EX10" MAIN 80% FULL CAPACITY @ S=0.30%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.012
Channel Slope	0.0030
Normal Depth	8.0
Diameter	10.0

Results

Discharge	821,275
Flow Area	0.5
Wetted Perimeter	1.8
Hydraulic Radius	3.0
Top Width	0.67
Critical Depth	6.0
Percent Full	80.0
Critical Slope	0.0062
Velocity	2.72
Velocity Head	0.11
Specific Energy	0.78
Froude Number	0.572
Maximum Discharge	903,816
Discharge Full	840,208
Slope Full	0.0029
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.0
Length	0.0
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0
Profile Description	N/A
Profile Headloss	0.00
Average End Depth Over Rise	0.0
Normal Depth Over Rise	80.0
Downstream Velocity	Infinity
Upstream Velocity	Infinity
Normal Depth	8.0
Critical Depth	6.0
Channel Slope	0.0030
Critical Slope	0.0062

PRELIMINARY HYDROLOGY REPORT FOR

VILLAGE PARKWAY HOMES

COLD SPRINGS VALLEY

WASHOE COUNTY, NEVADA

Prepared for:

WOODLAND VILLAGE LLC

4790 CAUGHLIN PARKWAY, #439

RENO, NV 89519

Prepared by:

DEW Hydrology

10180 Grizzly Hill Court

Reno, NV 89521

PROFESSIONAL ENGINEER-STATE OF NEVADA
DAVID E.
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CIVIL
No. 17501

March 8, 2021

March 8, 2021

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1.0 INTRODUCTION

1.1 Introduction and Location

This report documents a hydrology study for the proposed Village Parkway Homes (VPH) project in unincorporated Washoe County, Nevada. The project is located in Cold Springs Valley, just west of Woodland Village, about 10 miles north of Reno, NV (Figure 1). The area planned for development is in APNs 087-400-23, 087-400-24, and 087-400-11. It lies in Section 17, T 21 N, R 18 E, MDBM. The area of interest is shown on Flood Insurance Rate Map (FIRM) panels 32031C2805H and 32031C2825H (Figure 4) with an effective date of June 18, 2013. The project is in Flood Zone X (unshaded), an area of minimal flood hazard.

This study was conducted following procedures described in the Truckee Meadows Regional Drainage Manual (Manual).

1.2 Existing Site Conditions and Historic Drainage Patterns

Cold Springs Valley is a closed drainage basin with its terminus in the Whites Lake playa. Historically, stormwater drained from the Peterson Mountain and other ranges south through Cold Springs Valley to Whites Lake. Cold Springs Valley slopes to the south at about 4 to 5%. Natural vegetation consists of sagebrush and grasses. The soils in the valley are highly permeable. The Village Parkway Homes project lies at the eastern base of Peterson Mountain and receives runoff from ephemeral channels flowing onto the project area. Permeable soils at the base of the mountain infiltrated appreciable quantities of the runoff. The remainder flowed into the valley then south to the White Lake Playa. Previous studies of the project area set the required flow limits at Mud Springs Road at **230 cfs** for 100-year, 24-hour event.

1.3 Project Description

The proposed project consists of 181 individual residential homes on 3,600 (minimum) square foot lots and 37 townhome buildings with 191 units plus the required parking spaces. The project plans to mitigate the impacts of the project on flood rates through the construction of 3 retention/detention ponds.

2.0 PREVIOUS STUDIES

Previous studies that have a bearing on this application are summarized below.

In 1985, SEA Engineers/Planners completed Percolation Investigation Sweger Estate Cold Springs Valley. This was a percolation investigation of Section 9 and the west half of Section 15. The results showed very high percolation rates in Section 9 (<2 minutes per inch) and were slightly slower in Section 15 (5 minutes per inch).

Summit Engineers summarized another percolation study in a letter report in October, 1998. It stated that almost all of the Woodland Village project site was composed of permeable soils.

In February, 1999, Nimbus Engineers prepared Hydrology Report (Existing Conditions) Cold Springs 2,000 (updated March, 2000). This report divided the drainage basin into 15 sub-basins and prepared a hydrologic (HEC-HMS) model of the area. Village Parkway Homes lies within Watersheds L, P and Q in their report. This report estimated that the 100-year, 24 hour peak flow at Mud Springs Road would be 97 cfs.

In July, 1999, Nimbus prepared Flood Control Master Plan for Cold Springs 2,000, Inc. This was based on a proposed layout for Woodland Village and included the affect of the permeable soils on flow rates. This study used the HEC-1 model.

Request for Letter of Map Revision (LOMR) Cold Springs 2,000 was prepared by Nimbus Engineers in March, 2000. This report used the existing conditions HEC-HMS model with the affects of the permeable soils included to revise the flow rates in the Zone A portions of the project. Based on comments from FEMA, the impacts of the soils was modified and the 100-year, 24-hour flow rate at Mud Springs Road was set at 230 cfs.

In 2006, Nimbus Engineers updated the Master Plan based on revised development plans.

In 2013, Michael Baker Jr. prepared a Letter of Map Revision (LOMR) for the northern part of Cold Springs Valley (basically offsite watersheds A to J from the 1999 Nimbus report) to define the floodplain in those areas.

DEW Hydrology prepared the Updated Hydrology Master Plan For Woodland Village Subdivision Cold Springs Valley Washoe County, Nevada in 2016. It analyzed the impacts of developing Village 20 in Woodland Village and also updated the Master Plan for full build-out conditions through phase 23.

Drainage reports have been prepared by Summit Engineers for different villages (phases) of Woodland Village as they were completed. Also, Letter-Reports have been submitted by Nimbus and Quad Knopf to address various interim conditions.

3.0 HYDROLOGIC ANALYSIS

3.1 Methodology

The U.S Army Corps of Engineers HEC-1 (v. 4.1R) computer program was used in this analysis. This program incorporates watershed area, time of concentration, curve number and precipitation data to compute peak flow rates and runoff volumes. These parameters and the values used in the model are discussed below. Procedures described in the Truckee Meadows Regional Drainage Manual (TMRDM) were followed in this analysis. Because the area of the VPH project has been included in the Woodland Village models, the most recent (2016) Woodland Village model is being used as the starting point for this project. Models were developed for the 100-year and 5-year events for VPH.

3.2 Rainfall Depth and Distribution

The Woodland Village project has used a 100-year, 24-hour precipitation depth of 4.59 inches and a 5-year precipitation depth of 2.56 inches. A check on the NOAA website showed that rainfall depths had increased. The 100-year depth at VPH is 4.94 inches and Michael Baker Jr., used 5.01 inches for the 100-year precipitation value in their 2013 LOMR for areas further north and higher in elevation. Previously used rainfall depths are still within the confidence limits, so they were used in the model with a balanced storm distribution as was done in earlier studies.

3.3 Watershed Delineation

Figure 2 shows the watershed map used in the previous Woodland Village Master Plan update through Phase 20. The watershed boundaries affecting VPH (L1, L2, P, and Q) are based on topographic data from USGS topographic maps. The proposed offsite and onsite watershed boundaries (Figure 2B) are based on existing topography and planned grading.

3.4 Runoff Curve Number

To calculate the runoff curve number (CN), the soil types within each watershed were identified by hydrologic soil groups. Soils have been classified by the U.S. National Resource Conservation Service (NRCS) into 4 hydrologic soil groups: A, B, C, and D. Infiltration rates decrease from soil groups A through D. Group A soils have a rapid infiltration rate and include very porous soils such as sands. Groups B and C have intermediate infiltration rates. Group D soils have a very slow infiltration rate which results in a larger percentage of the rainfall contributing to runoff. The hydrologic soil groups were obtained from the NRCS web soil survey found at http://websoilsurvey.nrcs.usda.gov/app. This soils map (Figure 4) shows that soils in the mountainous areas west of the project are Group D, while the project area itself is mostly Group A with minor amounts of Group C.

Relative soil moisture content is described in the NRCS methodology by the term "antecedent moisture condition" or AMC. Three different relative conditions are describe by the NRCS, AMC I, II and III. AMC I is an extremely dry condition where soil moisture has been depleted and infiltration rates for the soil are near their maximum. AMC III is a saturated condition with limited infiltration and AMC II is an average condition. As prescribed in the "Truckee Meadows Regional Drainage Manual", AMC II was used in this study.

Vegetation also is a factor in evaluating curve number. An investigation of the site showed that the vegetation type in the study area is sagebrush and cheatgrass in fair condition. The areas are developed with lot sizes from 0.25 to 0.3 acres. Curve numbers were based on the characteristics described above and Table 702 of the Regional Drainage manual. Curve number calculations are shown in Appendix B. In the area northwest of the development, the two I watersheds used the standard curve number input into the model with the 80% diversion rate used in previous models. The 2 O watersheds use a 4-inch initial abstraction and a constant loss rate of 0.1 inch/hour as was used in previous models for watershed O.

3.5 Overland Flow Infiltration

As detailed in previous Woodland Village reports, the soils in the project area consist of highly permeable sands and gravels. Studies showed that using the curve number method resulted in flow rates that were too high. To correct this, a diversion feature in the HEC models was used to simulate infiltration and reduce the flow rates entering and passing through the Woodland Village area. These are included in the HEC-1 model used in this study. The only watershed directly draining to VPH with a diversion is Watershed P (Figures 2 and 2B) which had a diversion rate of 50%. Because the VPH development will cover the permeable soils at the base of Peterson Mountain, this diversion was removed from the model. Diversions from other areas of the Cold Springs Drainage Basin, typically 50% to 70% of the flow rate, were left in the model.

3.6 Watershed Lag Time

Watershed time of concentration is the time it takes for water to reach the watershed outlet from the most hydraulic distant point in the watershed. The watershed lag time is used for the SCS methodology in the HEC-1 program. Using the SCS methodology, the lag time (TLAG) is equal to 0.6 times the time of concentration (T_c), or TLAG = 0.6 x T_c. Table 703 and Figure 701 from the Regional Drainage Manual were used to calculate time of concentration for most watersheds. Equation 710 in the Manual was used. For basins with an area exceeding 1 square mile or with a slope greater than 10%. Calculations are presented in Appendix B.

3.7 Hydrograph Routing

Channel and overland flow routing were performed with the Muskingum-Cunge method. This method takes into account channel characteristics such as shape, slope, length and roughness. The modified puls method was used for reservoir routing.

3.8 Summary of Watershed Parameters

The parameters for the new watersheds created or modified for VPH are shown in Table 1.

TABLE 1. NEW WATERSHEDS FOR VILLAGE PARKWAY HOMES

WATERSHED	AREA, AC	AREA, SQ MI	CURVE NO.	LAG, HR
L1	18.6	0.029	77	0.21
L3	7.44	0.018	77	0.2
P	19.84	0.031	77	0.1
Q	33.28	0.052	77	0.19
Q2	8.32	0.013	77	0.16
VPH-1	22.63	0.035	77	0.19
VPH-2	6.32	0.01	77	0.16
VPH-3	6.56	0.01	77	0.15
VPH-4	7.44	0.011	77	0.15
VPH-5	3.38	0.005	77	0.13

3.9 Results

The proposed VPH project was inserted into both the model evaluating the project on the Woodland Village Phase 20 and at full build out. As mentioned earlier, the control point used to regulate flows leaving Cold Springs Valley was Mud Springs Road (HEC-1 model node ABMSR). Because the Village Parkway Homes project is partially upstream and partially downstream of this point (Figure 2B) and diverts some flow from upstream to downstream of ABMSR, the proposed conditions flow rate at this point is not entirely reliable. Therefore, we compared the existing and proposed flow rates at Cold Springs Road, downstream of the project area, to measure the effectiveness of the detention/retention ponds (HEC-1 model nodes ABCDSR and BLCSRD). Flow rates at those nodes from the Nimbus 2001 report were used for comparison. The results are shown in Table 2.

TABLE 2. RESULTS FROM VPH 100-YEAR, 24-HOUR MODEL

MODEL NODE	PHASE 20 MODEL	FULL BUILD-OUT	LIMIT
ABMSR	195	194	230
ABDCSP	284	284	337
BLCSRP	291	291	342

Table 2 shows that the detention/retention ponds maintain the flow rates below the required limits at all 3 locations. Therefore, the project will not impact downstream property owners.

Using the Phase 20 model as a base, the proposed conditions 5-year flow rates were 66 cfs both Above and Below Cold Springs Road. Both of these flow rates are below the rates from the Woodland Village Phase 23 report of 71 cfs Above Cold Springs Road and 72 cfs Below Cold Springs Road. The proposed rate Above Mud Springs Road is 54 cfs which is below the previous rate of 65 cfs.

3.10 Detention/Retention Ponds

Three detention/retention ponds are proposed for the project. One, the west pond, (VPHRP) will intercept offsite flow from Peterson Mountain. It will collect this flow and route it to the southeast pond(Figure 2B). VPHRP has a 36-inch pipe outlet at elevation 5061.5 feet. This is 1.5 feet above the bottom of the pond so it will have 1.5 feet (18 inches) of retention volume. Infiltration tests showed an infiltration rate of 23 inches/hour (Appendix D). Hence, this water would infiltrate in less than an hour.

Because of the high infiltration rate, infiltration would likely occur in the pond during the storm event. This assumption has been made in other ponds in Cold Springs Valley. The rate of infiltration was calculated by first reducing the infiltration rate by 10% to 21 incher/hour. This rate was used over the pond area at the elevation of the outlet pipe's invert, 0.57 acres at 5061.5 feet. The resulting rate of infiltration, 12 cfs was included in the proposed conditions models.

The northeast pond (NEPD) will collect runoff from offsite watershed L3 and onsite watershed VPH-1 (Figure 2B). This pond has an 18-inch outlet at elevation 5060 feet. It discharges to the channel on the east side of Village Parkway.

The southeast pond collects the water from the west pond and from onsite watersheds VPH-2, VPH-3, VPH-4 and VPH-5. It has a 30-inch pipe at elevation 5058.15 feet. It discharges to the channel on the east side of Village Parkway. The flow rates and water surface elevations for the ponds during the 100-year, 24-hour event are shown in Table 3.

TABLE 3. DETENTION/RETENTION POND DATA FOR 100-YEAR EVENT

POND	Q in, cfs	Q out, cfs	Water Elev., ft	Freeboard, ft
West	131	44	5066.4	0.6
Northeast	71	19	5062.68	0.3
Southeast	81	44	5063.05	0.45

4.0 SUMMARY AND FINDINGS

Village Parkway Homes (VPH) will be constructed west of the Woodland Village subdivision. It will consist of single-family homes and townhomes. Three detention/retention basins will be constructed as part of the project. These ponds will mitigate the impacts of VPH on peak flow rates. Modeling results show that the project can be constructed without impacting adjacent or downstream properties. Flow rates remain within the allowed limit of 230 cfs at Mud Springs Road, 337 cfs above Cold Springs Road, and 342 cfs below Cold Springs Road for the 100-year 24-hour storm.

6.0 REFERENCES

DEW Hydrology, Updated Hydrology Master Plan for Woodland Village Subdivision Phase 23 Cold Springs Valley, Washoe County, NV, September 5. 2019.

Nimbus Engineers, Hydrology Report (Existing Conditions) Cold Springs 2,000, Revised March, 2000.

Nimbus Engineers, Request for Letter of Map Revision, (LOMR) Cold Springs 2,000, March 2000.

Nimbus Engineers, Cold Springs Updated Storm Drainage Report, May, 2001.

Nimbus Enginers, Updated Storm Drainage Report Woodland Village Cold Springs Valley, February, 2003.

HDR, Letter of Map Revision White Lake City of Reno, NV, July, 2009

U.S. Army Corps of Engineers, Hydrologic Engineering, Computer Program 723-X6-L2010, (HEC-1) version 4.1R, updated by HEC-1.com, 2000. .

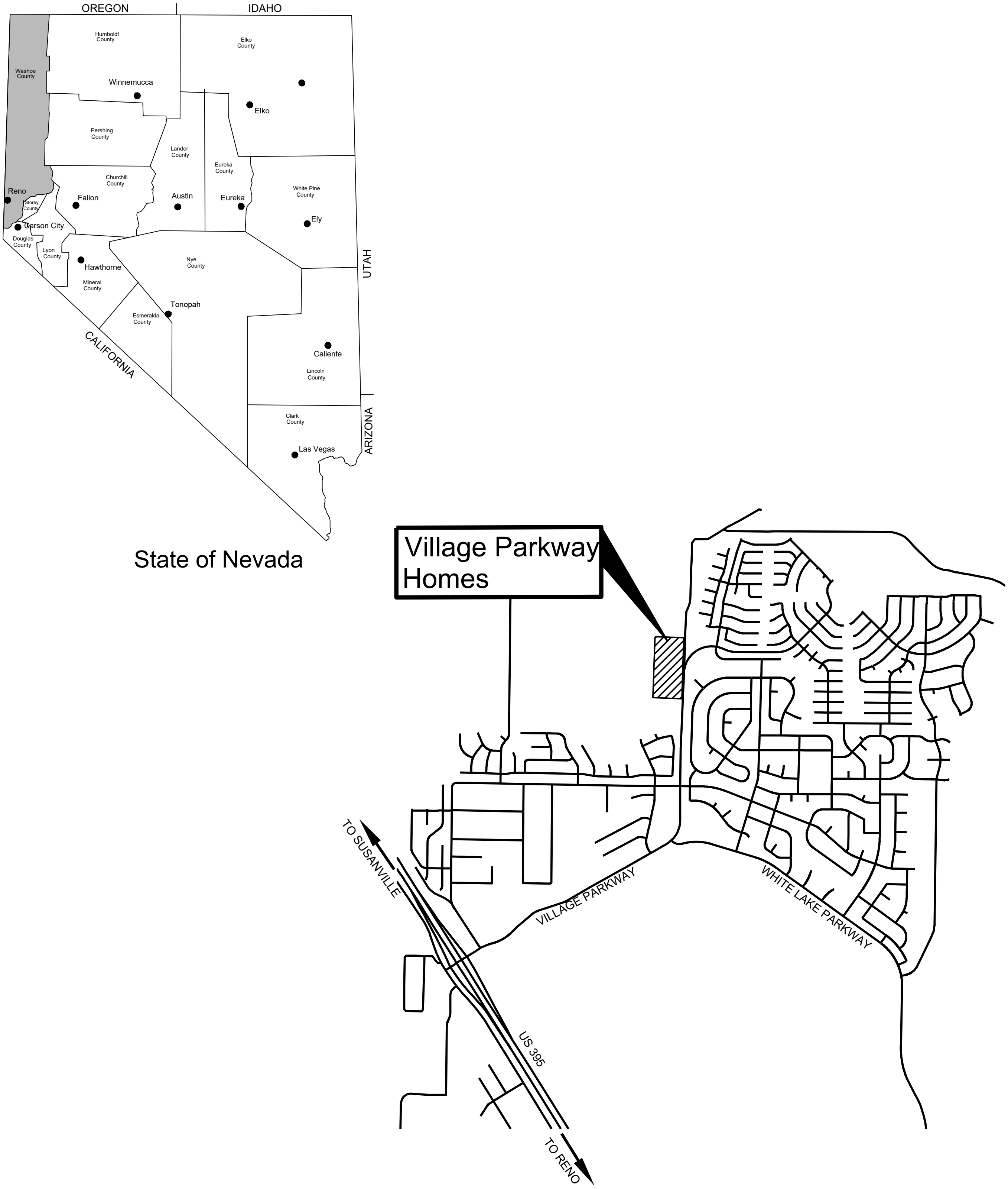
National Weather Service Website: **http://dipper.nws.noaa.gov/hdsc/pfds/sa/nv_pfds.html**

Natural Resource Conservation Service Website**: http://websoilsurvey.nrcs.usda.gov/app**

City of Reno, City of Sparks, and Washoe County, Truckee Meadows Regional Drainage Manual, April, 2009.

APPENDIX A

FIGURES



State of Nevada

Vicinity Map

FIGURE 1
Vicinity Map
Village Parkway Homes
Reno, Nevada
February 4, 2021

DEW Hydrology
10180 Grizzly Hill Court
Reno, Nevada 89521
Phone: (775) 815-2293

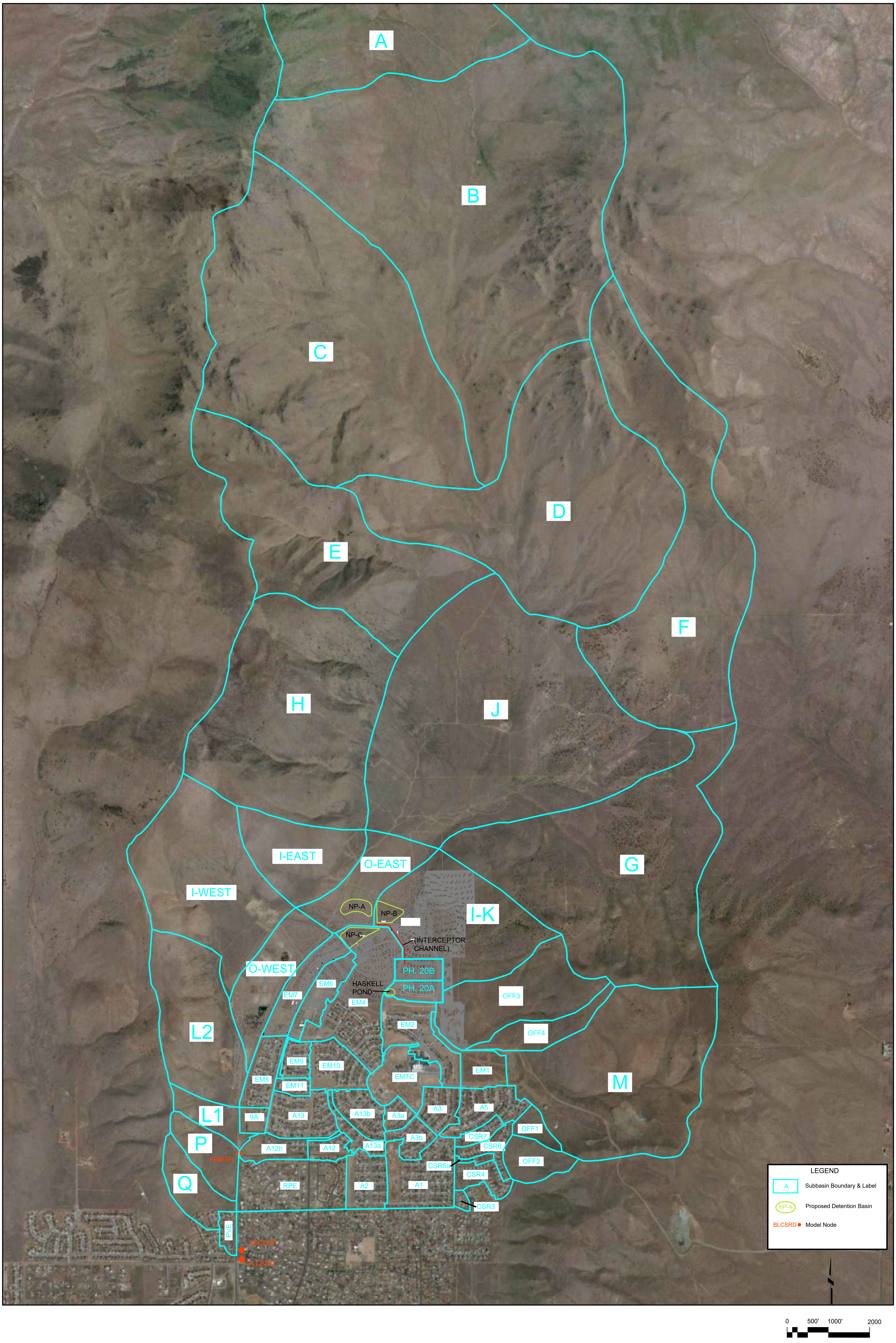


FIGURE 2
Phase 20 Watershed Map
Village Parkway Homes
Reno, Nevada
March 2, 2021

DEW Hydrology
10180 Grizzly Hill Court
Reno, Nevada 89521
Phone: (775) 815-2293

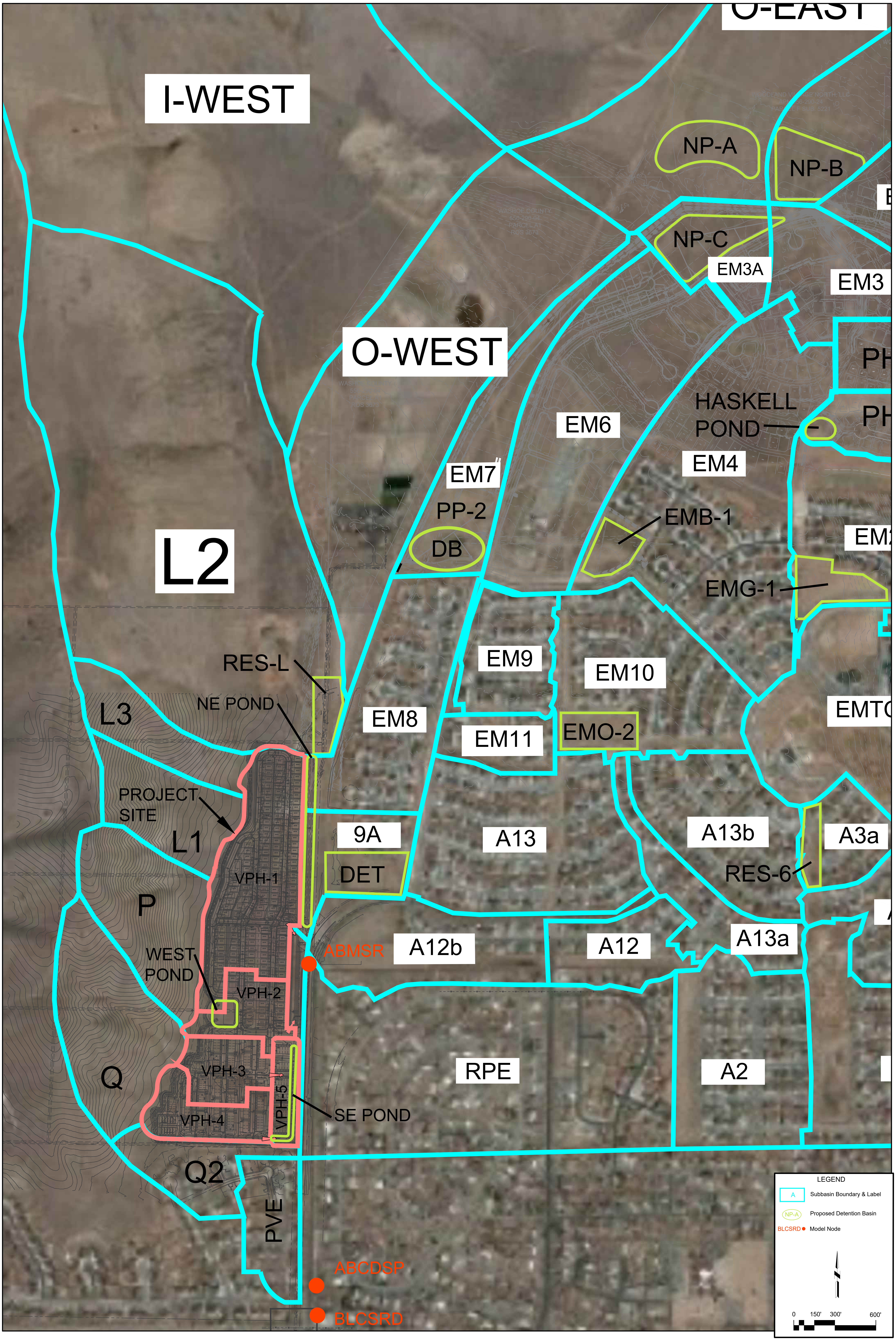


FIGURE 2B
Local Watershed Map - Proposed Conditions
Village Parkway Homes
Reno, Nevada
February 4, 2021

DEW Hydrology
10180 Grizzly Hill Court
Reno, Nevada 89521
Phone: (775) 815-2293

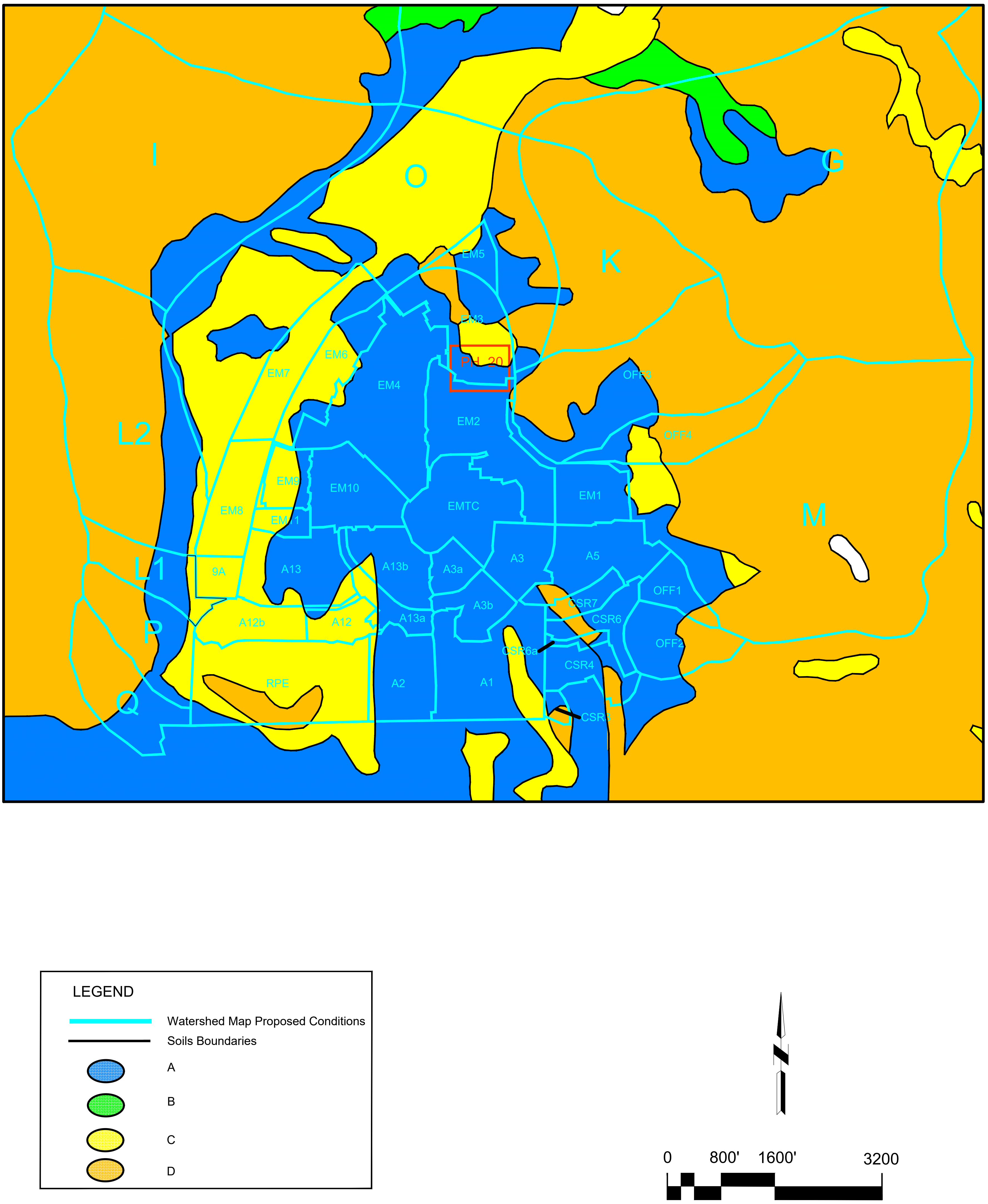
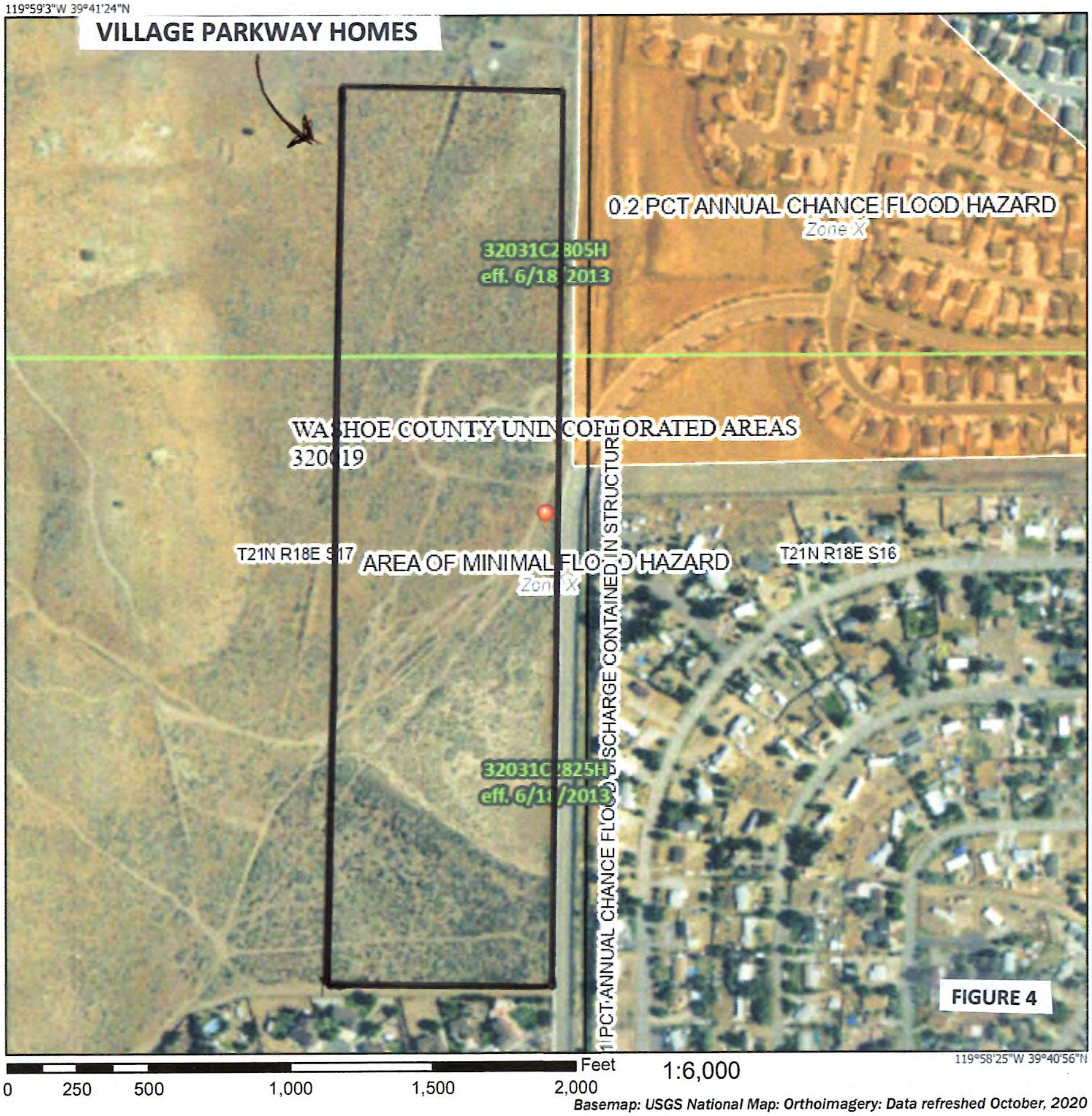


FIGURE 3
Soils Map
Village Parkway
Reno, Nevada
January 29, 2021

DEW Hydrology
10180 Grizzly Hill Court
Reno, Nevada 89521
Phone: (775) 815-2293

National Flood Hazard Layer FIRMette

FEMA



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

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN	Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	- — - -	Channel, Culvert, or Storm Sewer
	IIIIIII	Levee, Dike, or Floodwall
OTHER FEATURES	(B) 20.2 17.5	Cross Sections with 1% Annual Chance Water Surface Elevation
	8 — — —	Coastal Transect
	513	Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
	— -- —	Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/7/2021 at 1:16 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.

APPENDIX B

SUPPORTING CALCULATIONS

Cold Springs

NOAA Atlas 14, Volume 1, Version 5
Location name: Reno, Nevada, USA*
Latitude: 39.6802°, Longitude: -119.9686°
Elevation: 5068.9 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

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.114 (0.095-0.130)	0.141 (0.118-0.163)	0.187 (0.159-0.220)	0.232 (0.196-0.275)	0.310 (0.256-0.371)	0.384 (0.310-0.466)	0.473 (0.371-0.583)	0.583 (0.440-0.732)	0.766 (0.549-0.991)	0.938 (0.645-1.24)
10-min	0.173 (0.144-0.197)	0.214 (0.180-0.249)	0.285 (0.242-0.335)	0.354 (0.299-0.419)	0.471 (0.390-0.565)	0.584 (0.471-0.709)	0.720 (0.564-0.888)	0.888 (0.671-1.11)	1.17 (0.835-1.51)	1.43 (0.981-1.89)
15-min	0.214 (0.179-0.245)	0.265 (0.223-0.308)	0.353 (0.299-0.416)	0.438 (0.370-0.519)	0.584 (0.484-0.701)	0.723 (0.584-0.879)	0.892 (0.699-1.10)	1.10 (0.831-1.38)	1.45 (1.03-1.87)	1.77 (1.22-2.34)
30-min	0.288 (0.241-0.330)	0.357 (0.300-0.415)	0.474 (0.403-0.559)	0.590 (0.499-0.699)	0.786 (0.651-0.943)	0.975 (0.786-1.18)	1.20 (0.942-1.48)	1.48 (1.12-1.86)	1.95 (1.39-2.52)	2.38 (1.64-3.15)
60-min	0.356 (0.298-0.408)	0.442 (0.371-0.513)	0.587 (0.499-0.692)	0.730 (0.617-0.865)	0.974 (0.806-1.17)	1.21 (0.973-1.47)	1.49 (1.17-1.83)	1.83 (1.39-2.30)	2.41 (1.73-3.12)	2.95 (2.03-3.90)
2-hr	0.473 (0.420-0.541)	0.588 (0.523-0.674)	0.753 (0.663-0.863)	0.899 (0.783-1.03)	1.13 (0.960-1.30)	1.34 (1.11-1.55)	1.58 (1.29-1.86)	1.91 (1.51-2.33)	2.51 (1.90-3.15)	3.08 (2.26-3.94)
3-hr	0.581 (0.523-0.654)	0.720 (0.653-0.816)	0.898 (0.808-1.01)	1.05 (0.935-1.19)	1.26 (1.11-1.44)	1.46 (1.26-1.67)	1.69 (1.44-1.95)	2.02 (1.68-2.37)	2.60 (2.10-3.18)	3.15 (2.49-3.98)
6-hr	0.873 (0.791-0.971)	1.08 (0.984-1.21)	1.33 (1.20-1.49)	1.52 (1.37-1.71)	1.78 (1.58-2.00)	1.97 (1.73-2.22)	2.16 (1.88-2.46)	2.41 (2.07-2.77)	2.93 (2.48-3.42)	3.44 (2.87-4.05)
12-hr	1.24 (1.12-1.38)	1.55 (1.40-1.73)	1.94 (1.74-2.16)	2.25 (2.01-2.51)	2.66 (2.36-2.98)	2.98 (2.61-3.36)	3.30 (2.86-3.76)	3.63 (3.10-4.18)	4.07 (3.40-4.76)	4.44 (3.65-5.27)
24-hr	1.65 (1.48-1.86)	2.08 (1.87-2.34)	2.67 (2.39-3.00)	3.15 (2.80-3.54)	3.82 (3.36-4.32)	4.36 (3.79-4.96)	4.93 (4.24-5.66)	5.53 (4.69-6.40)	6.36 (5.29-7.47)	7.02 (5.74-8.36)
2-day	2.06 (1.82-2.35)	2.62 (2.31-2.99)	3.43 (3.02-3.92)	4.10 (3.59-4.70)	5.06 (4.37-5.84)	5.84 (4.99-6.79)	6.68 (5.62-7.85)	7.57 (6.28-9.00)	8.84 (7.16-10.7)	9.88 (7.85-12.2)
3-day	2.29 (2.01-2.62)	2.92 (2.57-3.35)	3.89 (3.41-4.47)	4.69 (4.09-5.40)	5.85 (5.03-6.78)	6.80 (5.77-7.95)	7.84 (6.55-9.24)	8.95 (7.36-10.7)	10.5 (8.46-12.8)	11.9 (9.33-14.7)
4-day	2.52 (2.20-2.90)	3.23 (2.82-3.72)	4.35 (3.80-5.02)	5.29 (4.58-6.11)	6.64 (5.69-7.73)	7.77 (6.56-9.11)	9.00 (7.48-10.6)	10.3 (8.43-12.3)	12.3 (9.75-14.9)	13.9 (10.8-17.1)
7-day	3.00 (2.60-3.51)	3.88 (3.35-4.53)	5.29 (4.56-6.19)	6.46 (5.54-7.56)	8.13 (6.88-9.59)	9.51 (7.95-11.3)	11.0 (9.07-13.2)	12.6 (10.2-15.3)	14.9 (11.8-18.5)	16.8 (13.1-21.1)
10-day	3.44 (2.99-4.00)	4.47 (3.88-5.19)	6.10 (5.28-7.09)	7.41 (6.39-8.63)	9.28 (7.90-10.9)	10.8 (9.08-12.7)	12.4 (10.3-14.8)	14.1 (11.5-17.0)	16.5 (13.2-20.3)	18.5 (14.5-23.0)
20-day	4.46 (3.89-5.16)	5.81 (5.06-6.72)	7.94 (6.90-9.17)	9.56 (8.28-11.0)	11.7 (10.1-13.6)	13.4 (11.4-15.6)	15.1 (12.7-17.8)	17.0 (14.2-20.3)	19.7 (16.1-23.9)	21.9 (17.5-26.9)
30-day	5.34 (4.66-6.18)	6.96 (6.07-8.05)	9.49 (8.26-11.0)	11.4 (9.90-13.1)	13.9 (12.0-16.1)	15.9 (13.6-18.4)	17.8 (15.1-20.9)	19.9 (16.6-23.5)	22.9 (18.9-27.5)	25.3 (20.6-30.8)
45-day	6.51 (5.68-7.40)	8.49 (7.41-9.65)	11.5 (10.0-13.1)	13.7 (11.9-15.6)	16.6 (14.3-18.9)	18.7 (16.1-21.4)	20.8 (17.8-24.0)	23.0 (19.4-26.7)	26.3 (21.9-30.9)	28.8 (23.7-34.3)
60-day	7.50 (6.52-8.55)	9.84 (8.55-11.2)	13.3 (11.6-15.2)	15.8 (13.7-17.9)	18.8 (16.3-21.5)	21.1 (18.1-24.1)	23.2 (19.8-26.7)	25.3 (21.4-29.4)	28.5 (23.7-33.3)	30.8 (25.4-36.4)

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

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

Please refer to NOAA Atlas 14 document for more information.

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vil Pkwy **CALCULATED BY:** DEW
SUBBASIN: L1
TOTAL AREA: 18.6 ACRES

HSG	AREA, ACRES	FRACTION OF AREA	LAND USE & CONDITION	CN	WTD. CN	REMARKS
D	18.6	1.000	Shrub/brush fair	77	77.0	
	0	0.000	Sage/grass, fair	70	0.0	
		0.000			0.0	
		0.000			0.0	
	18.6	1.000				

FINAL CN VALUE: **77.0**

PROJECT: Vil Pkwy **CALCULATED BY:** DEW
SUBBASIN: P
TOTAL AREA: 19.84 ACRES

HSG	AREA, ACRES	FRACTION OF AREA	LAND USE & CONDITION	CN	WTD. CN	REMARKS
D	19.84	1.000	Shrub/brush, fair	77	77.0	
	0	0.000	Sage/grass, fair	70	0.0	
		0.000			0.0	
	19.84	1.000				

FINAL CN VALUE: **77.0**

PROJECT: Vil Pkwy **CALCULATED BY:** DEW
SUBBASIN: Q Existing Conditions
TOTAL AREA: 33.3 ACRES

HSG	AREA, ACRES	FRACTION OF AREA	LAND USE & CONDITION	CN	WTD. CN	REMARKS
D	33.3	1.000	Sage/grass, fair	77	77.0	
		0.000			0.0	
		0.000			0.0	
		0.000			0.0	
		0.000			0.0	
		0.000			0.0	
		0.000			0.0	
	33.3	1.000				

FINAL CN VALUE: **77.0**

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vill Pkway
SUBBASIN: Q2
AREA, AC.: 8.32
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	.25 AC LOTS	8.32	1.000	77	77.0	
C		0.00	0.000	63	0.0	
D		0.00	0.000	84	0.0	
C		0.00	0.000	98	0.0	
		8.32	1.000			
		FINAL CN VALUE:			**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vill Pkway
SUBBASIN: L3
AREA, AC.: 7.44
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	Shrub/brush fair	7.44	0.894	77	68.9	
C		0.00	0.000	63	0.0	
D		0.00	0.000	84	0.0	
C		0.00	0.000	98	0.0	
		7.44	0.894			
		FINAL CN VALUE:			**68.9**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Village Parkway Homes
SUBBASIN: VPH-1
AREA, AC.: 22.63
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	3,600 sq ft lots	22.63	1.000	77	77.0	
A		0.00	0.000	0	0.0	
C		0.00	0.000	0	0.0	
		22.63	1.000			
			FINAL CN VALUE:		**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

PROJECT: Village Parkway Homes
SUBBASIN: VPH-2
AREA, AC.: 6.32
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	3,600 sq ft lots	6.32	1.000	77	77.0	
A		0.00	0.000	0	0.0	
C		0.00	0.000	0	0.0	
		6.32	1.000			
			FINAL CN VALUE:		**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vill Pkway
SUBBASIN: VPH-3
AREA, AC.: 6.56
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	3,600 sq ft lots	6.56	1.000	77	77.0	
C		0.00	0.000	63	0.0	
D		0.00	0.000	84	0.0	
C		0.00	0.000	98	0.0	
		6.56	1.000			
		FINAL CN VALUE:			**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vill Pkway
SUBBASIN: VPH-4
AREA, AC.: 7.44
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	3,600 sq ft lots	7.44	1.000	77	77.0	
C		0.00	0.000	63	0.0	
D		0.00	0.000	84	0.0	
C		0.00	0.000	98	0.0	
		7.44	1.000			
		FINAL CN VALUE:			**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

CURVE NUMBER CALCULATION WORKSHEET

PROJECT: Vill Pkway
SUBBASIN: VPH-5
AREA, AC.: 3.38
CALCULATED BY: DEW

HSG	LAND USE & CONDITION	AREA, ACRES	FRACTION OF AREA	CN*	WTD. CN	REMARKS
A	3,600 sq ft lots	3.38	1.000	77	77.0	
C		0.00	0.000	63	0.0	
D		0.00	0.000	84	0.0	
C		0.00	0.000	98	0.0	
		3.38	1.000			
		FINAL CN VALUE:			**77.0**	

*Curve number values based on Truckee Meadows Regional Drainage Manual (2009)

TIME OF CONCENTRATION CALCULATIONS

PROJECT: VILLAGE PARKWY HOMES

Developed Watersheds

SUB-BASIN			INITIAL/OVERLAND TIME			TRAVEL TIME, t_t					URANIZED BASINS C		FINAL
DATA					t_i	L,	S,	Vel,	TRAVEL TIME	t_c	TOTAL	t_c	t_c
NAME	CN	R	L, FT	S, %	TIME, t_i	ft	%	ft/sec	tt , min	t_i+t_t	LENGTH, FT		min
VPH-1	77	0.6264	100	1	8.52	1606	0.5	1.4	19.12	27.64	1706	19.48	19
VPH-2	77	0.6264	100	1	8.52	946	0.5	1.4	11.26	19.79	1046	15.81	16
VPH-3	77	0.6264	100	1	8.52	710	0.5	1.4	8.45	16.98	810	14.50	15
VPH-4	77	0.6264	100	1	8.52	821	0.5	1.4	9.77	18.30	921	15.12	15
VPH-5	77	0.6264	100	1	8.52	440	0.5	1.4	5.24	13.76	540	13.00	13
Q2	77	0.6264	100	1	8.52	1050	0.5	1.4	12.50	21.02	1150	16.39	16

LAG TIMES FOR WATERSHEDS OVER 1 SQUARE MILE I OR WITH SLOPES GREATER THAN 10%

PROJECT: **Village Parkway**

Watershed*	Watercourse Length (L), miles	Length to Centroid (L_c), miles	Upper Elev., ft	Lower Elev., ft	Elevation Change, ft	Average Slope (S), ft/mi	Roughness (Kn)	Lag Time (TLAG)hours
L1	0.35	0.17	5,600.0	5,100.0	500.0	1,428.57	0.08	0.21
P	0.16	0.05	5,470.0	5,100.0	370.0	2,312.50	0.08	0.10
Q	0.27	0.13	5,360.0	5,120.0	240.0	888.89	0.08	0.19
L3	0.29	0.15	5350	5090	260.0	896.55	0.08	0.20

$TLAG= 22.1(K_n)((L*(L_c/S^{.5}))^{.33}$ Equation 710 in Truckee Meadows Regional Drainage Manual

APPENDIX C

HEC-1 MODELS

EXISTING CONDITIONS THROUGH WOODLAND VILLAGE PHASE 20

VPH Existing Cond
Woodland Village Ph.20

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1*****************************************                         ****************************************
 *                                       *                         *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                         *   U.S. ARMY CORPS OF ENGINEERS       *
 *       JUN 1998 AND FEB 2010           *                         *   HYDROLOGIC ENGINEERING CENTER      *
 *           VERSION 4.1R                *                         *        609 SECOND STREET             *
 *      RGMHEC2000 WWW.HEC-1.COM         *                         *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   07MAR21  TIME  18:38:31   *                         *          (916) 756-1104              *
 *                                       *                         *                                      *
 *****************************************                         ****************************************




                                  X     X  XXXXXXX   XXXXX         X
                                  X     X  X        X     X       XX
                                  X     X  X        X              X
                                  XXXXXXX  XXXX     X       XXXXX  X
                                  X     X  X        X              X
                                  X     X  X        X     X        X
                                  X     X  XXXXXXX   XXXXX        XXX




           THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

           THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
           THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
           NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
           DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
           KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


1                                              HEC-1 INPUT                                                  PAGE  1

          LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                      *DDIAGRAM
             1        ID        100 yr 24 hr event
             2        ID  VILLAGE PARKWAY HOMES
             3        ID  FILE NAME WV20-1RB.DA T       THROUGH WV-20 ONLY
             4        ID  USING TYPE II STORM DISTRIBUTION
                      *        DARF          AREA (SQ.      MI.)
                      *        1.00              0 -  2
                      *        0.99            2.1 -  8
                      *        0.98            8.1 - 16
                      *        0.97           16.1 - 29
                      *        0.96           29.1 - 43
                      *        0.95           43.1 - 63
                      *        0.94           63.1 - 98
             5        IT      10                      800
             6        IO       5       0
             7        JR    PREC     1.0     .99     .98     .97     .96     .95

             8        KK       A
             9        BA    0.72
            10        PH       1             .68    1.24    2.06    2.32    2.52    2.94    3.76    4.59
            11        LS     1.7      54
            12        UD     .62

            13        KK       B
            14        BA    1.78
            15        LS    1.63      55
            16        UD     1.1

            17        KK   D@A&B
            18        HC       2

            19        KK   D-A&B
            20        DT    D-AB
            21        DI       0      10      50     100     500
            22        DQ       0       5      25      50     250

            23        KK   RCH-1
            24        KM  ROUTE A&B TO J1@AB
            25        RD   10200     .04     .12            TRAP       3       1

            26        KK       C
            27        BA    1.26
            28        LS     1.7      54
            29        UD     .82

            30        KK  J1@A&B
            31        HC       2

            32        KK   RCH-2
            33        RD    3500     .06     .12            TRAP      10     2.5
1                                              HEC-1 INPUT                                                  PAGE  2

          LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            34        KK       D
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```
    35           BA     1.0
    36           LS    1.57      50
    37           UD     .63

    38           KK  J2ABCD
    39           HC       2

    40           KK     DJ2
    41           KM  CHANGE DIVERSION FROM 50% TO 75%
    42           DT      J2
    43           DI       0      10      50     100     500
    44           DQ       0     7.5    37.5      75     375

    45           KK       E
    46           BA    .615
    47           LS    1.45      58
    48           UD     .68

    49           KK     D@E
    50           DT      DE
    51           DI       0      10      50     100     500
    52           DQ       0      10      50     100     500

    53           KK       F
    54           BA   0.815
    55           LS    1.51      57
    56           UD       1

    57           KK     D@F
    58           DT      DF
    59           DI       0      10      50     100     500
    60           DQ       0      10      50     100     500

    61           KK    J3-1
    62           HC       2

    63           KK       J
    64           BA    1.14
    65           LU       4     0.1
    66           UD     .67

    67           KK    J3-2
    68           HC       2

    69           KK       G
    70           BA    0.81
    71           LS    1.03      66
    72           UD     .93
1                                          HEC-1 INPUT                                    PAGE  3

  LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


    73           KK     D@G
    74           DT     DDG
    75           DI       0      10      50     100     500
    76           DQ       0      10      50     100     500

    77           KK       H
    78           BA    0.74
    79           LS    1.12      64
    80           UD     .63

    81           KK     D@H
    82           DT     DDH
    83           DI       0      10      50     100     500
    84           DQ       0      10      50     100     500

    85           KK      J3
    86           HC       4

    87           KK   RCH-3
    88           RD    8000     .04     .05            TRAP      10       1

    89           KK    D@J3
    90           DT    D-J3
    91           DI       0      10      50     100     500
    92           DQ       0       5      25      50     250

    93           KK   IEAST
    94           BA     .18
    95           LS              64
    96           UD     .22

    97           KK    D@IE
    98           DT     DDG
    99           DI       0      10      50     100     500
   100           DQ       0       8      40      80     400

   101           KK   OEAST
   102           BA     .21
   103           LU       4      .1

   104           KK     CP2
```

```
 105          HC       2

 106          KK  CPO+J3
 107          HC       2

 108          KK   D@NOA
 109          DT     DNA
 110          DI       0      40      60     100     500    1000
 111          DQ       0       0      40      40      40      40
```

```
 112          KK  RS-NOA          NORTH RESERVOIR A
 113          KM    36" OUTLET
 114          RS       1    STOR       0
 115          SA       0     .17     .91    2.24    3.55    4.94
 116          SE  5101.5    5102    5103    5104    5105    5106
 117          SQ       0       6      19      35      50      60
 118          SE  5101.5  5102.5  5103.5  5104.5  5105.5  5106.5

 119          KK      I-KWATERSHED CONSISTING OF K+ EM-3+EM-5      APPROX.
 120          BA   .3741
 121          LS              65
 122          UD    0.61

 123          KK   DVI-K          DIVERT FLOW FROM I-K SAME RATE AS FROM K
 124          DT    D-IK
 125          DI       0      10     100     500
 126          DQ       0       5      50     250

 127          KK  WV20-B          PART OF WV-20 GOING NORTH
 128          BA    .017
 129          LS              74
 130          UD     .16

 131          KK   CPEM5
 132          HC       2

 133          KK   D@NOB
 134          DT     DNB
 135          DI       0      40      60     100     500    1000
 136          DQ       0       0      40      40      40      40

 137          KK  RS-NOB          NORTH RESERVOIR B
 138          KM    12" OUTLET
 139          RS       1    STOR       0
 140          SA       0    0.02    0.16    0.52    1.73    3.30    5.24    5.38    5.52
 141          SE  5102.5    5103    5104    5104    5106    5107    5108    5109    5110
 142          SQ       0     2.2     4.5     5.6       7       8       9      10      11
 143          SE  5102.5  5103.5  5104.5  5105.5  5106.5  5107.5  5108.5  5109.5

 144          KK   NORTH
 145          HC       2

 146          KK       M
 147          BA    0.56
 148          LS    1.17      63
 149          UD    0.52

 150          KK   RES-M
 151          RS       1    STOR       0
 152          SA     2.5    2.56    2.66    2.79    1.95    3.15     3.4    3.72    4.12
 153          SE       0    1.38    2.06    2.68    3.29    3.99    4.87    5.91     7.1
 154          SQ       0       6      19      35      50      60      72      78      90
 155          SE       0       1       2       3       4       5       6       7       8
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 156          KK   OFF-4          OFFSITE   4
 157          BA     .06
 158          LS              63
 159          UD     .42

 160          KK  M+OFF4          COMBINE OFF4 + POND M
 161          HC       2

 162          KK     D@M
 163          DT     DDM
 164          DI       0      10      50     100     500    1000
 165          DQ       0       2      10      20     100     200

 166          KK   OFF-3
 167          BA   0.191
 168          LS              65
 169          UD    0.52

 170          KK   OF3+4          COMBINE OFF3 & O FF4 & POND M
 171          HC       2

 172          KK    EM-1
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         173          BA    .046
         174          LS              88
         175          UD    0.25

         176          KK   JEM1+        COMBINE EM1, POND M, OFF3 & OFF4
         177          KM  SAME AS JM EM1 OFF3 OFF4 IN HEC-HMS
         178          HC       2

         179          KK     TRI        TRIANGULAR AREA EAST OF VILLAGE PKWY
         180          BA    .009
         181          LS            64.5
         182          UD    0.16

         183          KK   CPPP1        ADD TRIANGULAR AREA TO FLOW INTO PP-1
         184          HC       2

         185          KK    PP-1
         186          KM  NOW WITH 30" OUTLET
         187          RS       1    STOR       0
         188          SA       0     .11     .34     .73    1.19    1.82    1.96    2.10    2.24
         189          SA    2.52
         190          SE   14.34      15      16      17      18      19      20      21      22
         191          SE      24
         192          SQ       0     5.5      16      28      38      45      50      57      62
         193          SQ      70      75
         194          SE   14.34   15.34   16.34   17.34   18.34   19.34   20.34   21.34   22.34
         195          SE   24.34
1                                                    HEC-1 INPUT                                         PAGE  6

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         196          KK  RCHPP1
         197          RD    2475    .007     .04            TRAP       3       3

         198          KK   D@NOC
         199          DT     DNC
         200          DI       0      40      60     100     500    1000
         201          DQ       0       0      40      40      40      40

         202          KK  RS-NOC        NORTH RESERVOIR C
         203          KM   30" OUTLET
         204          RS       1    STOR       0
         205          SA       0     .22     .82     2.4    3.85    4.54    5.03    5.31
         206          SE    5094    5095    5096    5097    5098    5099    5100    5101
         207          SQ       0     5.5      16      28      38      45      50      57
         208          SE    5094    5095    5096    5097    5098    5099    5100    5101

         209          KK  CP-NOR        COMBINE 3 NORTH DET BASINS
         210          HC       2

         211          KK   IWEST
         212          BA     .35
         213          LS              64
         214          UD     .37

         215          KK    D@IW
         216          DT    DDIW
         217          DI       0      10      50     100     500
         218          DQ       0       8      40      80     400

         219          KK   OWEST
         220          BA     .18
         221          LU       4      .1

         222          KK     CP1
         223          HC       2

         224          KK   NOR+I        COMBINE FLOW FROM 3 DET BASINS & OFFSITE WATERSHED I
         225          HC       2

         226          KK     EM4
         227          BA   .1193
         228          LS              84
         229          UD     .25

         230          KK   EMB-1
         231          RS       1    STOR       0
         232          SA     1.5    1.54     1.6    1.68    1.79    1.95    2.15
         233          SE    5078  5079.1 5079.69 5080.25 5080.95 5081.86 5082.96
         234          SQ       0       8      26      40      52      60
         235          SE    5078    5079    5080    5081    5082    5083
1                                                    HEC-1 INPUT                                         PAGE  7

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         236          KK  RHEMB1          REACH   EMB-1
         237          RD     759   .0066     .04            TRAP       3       3

         238          KK    EM-6
         239          BA   .0455
         240          LS     1.5      84
         241          UD     .32
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   242          KK    EM-7
   243          BA    .061
   244          LS      .5       83
   245          UD      .3

   246          KK  CP-PP2
   247          HC       3

   248          KK    PP-2        NORTH OFBRIAR ROAD
   249          KM  OUTLET IS ONE 30" RCP
   250          RS       1    STOR       0
   251          SA       0     .02     .16     .52    1.73    3.30    5.24    5.38    5.52
   252          SE    5171  5171.5  5172.5  5173.5  5174.5  5175.5  5176.5  5177.5  5178.5
   253          SQ       0     5.7    13.5    18.6      22      25      29      31      32
   254          SE    5171    5172    5173    5174    5175    5176    5177    5178  5178.5

   255          KK  JCHAN2
   256          HC       2

   257          KK  CHAN-2
   258          RD    1130    .005     .04            TRAP       6       3

   259          KK      L2
   260          BA    .252
   261          LS    1.03      66
   262          UD     .33

   263          KK     D@L
   264          DT     D-L
   265          DI       0      10      50     100     500
   266          DQ       0       5      25      50     250

   267          KK   RES-L
   268          RS       1    STOR       0
   269          SA     0.6    0.64    0.69    0.76    0.86       1
   270          SE       0    1.69    2.25    2.95    3.86    4.96
   271          SQ       0     5.5      16      28      38      45
   272          SE       0       1       2       3       4       5

   273          KK      L1
   274          BA    .038
   275          LS    1.03      66
   276          UD     .28
1                                         HEC-1 INPUT                                              PAGE  8

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   277          KK  JCHAN4
   278          HC       3

   279          KK  RECH4A
   280          RD     395    .001     .04            TRAP       8       3

   281          KK   RCH4B
   282          RD     665    .001     .04            TRAP      10       3

   283          KK  WV-20A        PART OF WV-20 GOING SOUTH
   284          BA    .013
   285          LS              61
   286          UD     .15

   287          KK  HASKEL        12" RCP OUTLET
   288          RS       1    STOR       0
   289          SA       0     .47     .55     .60     .65
   290          SE  5194.5    5195    5196    5197    5198
   291          SQ       0     2.4     4.7       6     7.5
   292          SE  5194.5  5195.5  5196.5  5197.5  5198.5

   293          KK    EM-2
   294          BA   .0621
   295          LS              78
   296          UD     .32

   297          KK   20A+2        COMBINE W VILLAGE 20A POND WITH EM-2
   298          KM  FLOW GOES INTO POND EMG-1
   299          HC       2

   300          KK   EMG-1        DETENTION POND EMG-1
   301          RS       1    STOR       0
   302          SA     0.8    0.83     .87     .93    1.02    1.13    1.29
   303          SE      86    87.1   87.69   88.25   88.95   89.86   90.96
   304          SQ       0       8      26      40      52      60
   305          SE      86      87      88      89      90      91

   306          KK   EMG-1
   307          RD    1630     .01     .04            TRAP       3       3

   308          KK    EMTC
   309          BA    .053
   310          LS     1.5      79
   311          UD     .27
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          312         KK   EM-10
          313         BA    .053
          314         LS     1.5      72
          315         UD     .32
1                                                 HEC-1 INPUT                                          PAGE  9

         LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          316         KK   JEMO2
          317         HC       3

          318         KK   EMO-2
          319         RS       1    STOR       0
          320         SA     1.2    1.25    1.26    1.27    1.29     1.3    1.32    1.34    1.39
          321         SE      67   68.49   68.91   69.31   69.72   70.21   70.69   71.31    72.8
          322         SQ       0      11      32      56      76      90     100
          323         SE      67      68      69      70      71      72      73

          324         KK    EMOc
          325         RD     615    .003     .04            TRAP       0       3

          326         KK   EM-11
          327         BA    .012
          328         LS     1.5      86
          329         UD     .13

          330         KK    EM-9
          331         BA    .021
          332         LS     1.5      86
          333         UD     .13

          334         KK  JG2&B2
          335         HC       3

          336         KK    EM-8
          337         BA    .046
          338         LS     1.5      82
          339         UD     .22

          340         KK   EM-12
          341         BA    .015
          342         LS     1.5      93
          343         UD     .12

          344         KK  TODETN
          345         HC       3

          346         KK    DETN
          347         RS       1    STOR       0
          348         SA    2.25    2.31     2.4     2.5    2.63    2.78    2.96    3.18    3.48
          349         SE       0    1.49    1.91    2.31    2.72    3.21    3.69    4.31     5.8
          350         SQ       0     5.5      16      28      38      45      50
          351         SE       0       1       2       3       4       5       6

          352         KK     J4B
          353         HC       2
1                                                 HEC-1 INPUT                                          PAGE 10

         LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          354         KK  RCH-4C
          355         RD     300    .001     .04            TRAP      12       3

          356         KK      A3
          357         BA    .055
          358         LS              80
          359         UD     .16

          360         KK     A3A
          361         BA    .007
          362         LS              76
          363         UD     .13

          364         KK  COMBA3
          365         HC       2

          366         KK   RES-6
          367         RS       1    STOR       0
          368         SA    0.24     0.5    0.54    0.61    0.67    0.69
          369         SE    5074    5075    5076    5077    5078    5079
          370         SQ       0     4.3      14      24      30      35

          371         KK     A3B
          372         BA    .026
          373         LS              77
          374         UD     .17

          375         KK  D-PARK
          376         DT    PARK
          377         DI       0      20     100     500    1000
          378         DQ       0       5      25     125     250
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 379         KK   RES-5
 380         RS       1    STOR       0
 381         SA    0.25    0.28    0.32    0.35    0.39    0.43    0.46     0.5    0.59
 382         SE    5069    5070    5071    5072    5073    5074    5075    5076    5077
 383         SQ       0     4.3      14      24      30    35.4      40      44      44

 384         KK     R-9         ROUTING
 385         RD    1000     .02     .05            TRAP      15       1

 386         KK    A13A
 387         BA    .006
 388         LS              72
 389         UD     .17

 390         KK    A13B
 391         BA     .04
 392         LS              73
 393         UD     .18
1                                      HEC-1 INPUT                                          PAGE 11

 LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 394         KK  COMA13
 395         HC       2

 396         KK    A12A
 397         BA    .015
 398         LS              75
 399         UD     .15

 400         KK     A12
 401         BA     .02
 402         LS              73
 403         UD     .12

 404         KK  COMA12
 405         HC       2

 406         KK   JRES3
 407         HC       3

 408         KK   RES-3
 409         RS       1    STOR       0
 410         SA       1     1.2    1.35    1.55     1.8
 411         SE    5059    5060    5061    5062    5063
 412         SQ       0       0     7.3   53.15  116.35

 413         KK     A13
 414         BA     .05
 415         LS              74
 416         UD     .17

 417         KK    A12B
 418         BA     .03
 419         LS              88
 420         UD     .12

 421         KK   JRES1
 422         HC       3

 423         KK   RES-1
 424         RS       1    STOR       0
 425         SA   .0006   .0812   .2929   .6341  1.0634  1.5306  2.0022  2.4899  3.0079  3.5568
 426         SA  4.1272  5.1068  5.5454  5.8719
 427         SE    5057  5057.2  5057.4  5057.6  5057.8    5058  5058.2  5058.4  5058.6  5058.8
 428         SE    5059    5060    5061    5062
 429         SQ       0       0       0       0       0       0       0     1.2     2.4     3.6
 430         SQ     4.8      14      20      20

 431         KK   ABMSR       ABOVE MUD SPRINGS ROAD
 432         HC       3
1                                      HEC-1 INPUT                                          PAGE 12

 LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 433         KK   OFF-1
 434         BA   .0226
 435         LS              63
 436         UD     .22

 437         KK      R8
 438         RD    2000    .054     .05            TRAP      15       1

 439         KK      A5
 440         BA     .06
 441         LS              84
 442         UD     .17

 443         KK   CSR-7
 444         BA    .014
 445         LS              75
 446         UD     .18
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 447           KK      J-1
 448           HC        3

 449           KK    EXDET
 450           RS        1    STOR       0
 451           SA     0.27    0.28    0.37    0.47    0.52    0.52    0.52
 452           SE     5118    5119    5121    5125 5125.25  5125.5    5126
 453           SQ        0       0     9.8      23    99.5     238   631.1

 454           KK      DIV
 455           DT    D-DIV
 456           DI        0      10     100    1000
 457           DQ        0       5      50     500

 458           KK   REXDET
 459           RD     1787    .025    .013            TRAP      40       1

 460           KK    OFF-2
 461           BA    .0496
 462           LS               63
 463           UD      .27

 464           KK     R-19
 465           RD     1400     .02     .05            TRAP      15       1

 466           KK   CSR-6A
 467           BA     .005
 468           LS               73
 469           UD      .17

 470           KK   EXDT1A
 471           RS        1    STOR       0
 472           SA        0   .0046   .0169   .0553   .0703
 473           SE     5103    5104    5105    5109    5110
 474           SQ        0    1.65    4.75    8.43    9.15
1                                            HEC-1 INPUT                                        PAGE 13

LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 475           KK      J-6
 476           HC        2

 477           KK    CSR-6
 478           BA     .025
 479           LS               78
 480           UD      .18

 481           KK   CPXDT1
 482           HC        2

 483           KK    EXDT1
 484           RS        1    STOR       0
 485           SA     0.25    0.31    0.37    0.49
 486           SE     5101    5103    5105    5108
 487           SQ        0     9.5      17      22

 488           KK       A1
 489           BA      .09
 490           LS               78
 491           UD       .2

 492           KK       J8
 493           HC        2

 494           KK      R21
 495           RM        1    .107     .02

 496           KK    JRES2
 497           HC        2

 498           KK     RES2
 499           RS        1    STOR       0
 500           SA        0     .18     1.4     2.9     3.1     3.3     3.5     3.6     3.7     3.8
 501           SA      3.9
 502           SE   5065.5    5066    5067    5068    5069    5070    5071 5071.34 5071.59 5071.84
 503           SE  5072.34
 504           SQ        0      .9     5.5     9.1    11.6    13.6    15.4      16    23.8    37.8
 505           SQ     77.5

 506           KK      R22
 507           RD      800     .02     .05            TRAP      15       1

 508           KK    CSR-4
 509           BA      .03
 510           LS               75
 511           UD      .13

 512           KK   EXDET2
 513           RS        1    STOR       0
 514           SA     0.13    0.16    0.19    0.22    0.26     0.3    0.34    0.39
 515           SE     5091    5092    5093    5094    5095    5096    5097    5098
 516           SQ        0     2.4       5     6.5       8     9.5      10      11
```

```
1                                                      HEC-1 INPUT                                         PAGE 14

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       517          KK   CSR-3
       518          BA   .0053
       519          LS              80
       520          UD     .12

       521          KK     J11
       522          HC       2

       523          KK   DITCH
       524          RD    3000     .01     .04             TRAP       6     1.5

       525          KK      A2
       526          BA     .05
       527          LS              76
       528          UD     .15

       529          KK  JRES15
       530          HC       3

       531          KK   RES15
       532          RS       1    STOR       0
       533          SA    3.55    3.71    3.85    4.04    4.36    4.69    4.94
       534          SE  5058.5    5059  5059.5    5060    5061    5062    5064
       535          SQ       0       0       0      .6     4.7     8.3    12.2

       536          KK     R23
       537          RD    2600     .02     .05             TRAP       5       1

       538          KK     RPE
       539          BA    0.12
       540          LS              72
       541          UD     .28

       542          KK   ACS-1
       543          HC       3

       544          KK       P
       545          BA    .069
       546          LS              71
       547          UD     .13

       548          KK   DIV-P
       549          DT     D-P
       550          DI       0      10     100    1000
       551          DQ       0       5      50     500

       552          KK       Q
       553          BA    .039
       554          LS              68
       555          UD     .27
1                                                      HEC-1 INPUT                                         PAGE 15

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       556          KK   PVE-1
       557          BA   .0128
       558          LS              76
       559          UD     .13

       560          KK  ABCDSP          ABOVE COLD SPRINGS ROAD
       561          HC       4

       562          KK   PVE-2
       563          BA    .011
       564          LS              76
       565          UD     .13

       566          KK  BLCSRD          BELOW COLD SPRINGS ROAD
       567          HC       2
       568          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   8            A
                .
  13            .          B
                .          .
                .          .
  17         D@A&B...........
                .
                .
  20            .------->   D-AB
  19         D-A&B
```

```
            V
            V
  23    RCH-1
            .
            .
  26        .         C
            .         .
            .         .
  30  J1@A&B...........
            V
            V
  32    RCH-2
            .
            .
  34        .         D
            .         .
            .         .
  38  J2ABCD...........
            .
            .
  42        .------->    J2
  40      DJ2
            .
            .
  45        .         E
            .         .
            .         .
  50        .         .------->    DE
  49        .       D@E
            .         .
            .         .
  53        .         .         F
            .         .         .
            .         .         .
  58        .         .         .------->    DF
  57        .         .       D@F
            .         .         .
            .         .         .
  61        .      J3-1...........
            .         .
            .         .
  63        .         .         J
            .         .         .
            .         .         .
  67        .      J3-2...........
            .         .
            .         .
  69        .         .         G
            .         .         .
            .         .         .
  74        .         .         .------->    DDG
  73        .         .       D@G
            .         .         .
            .         .         .
  77        .         .         .         H
            .         .         .         .
            .         .         .         .
  82        .         .         .         .------->    DDH
  81        .         .         .       D@H
            .         .         .         .
            .         .         .         .
  85       J3...............................
            V
            V
  87    RCH-3
            .
            .
  90        .------->    D-J3
  89     D@J3
            .
            .
  93        .     IEAST
            .         .
            .         .
  98        .         .------->    DDG
  97        .      D@IE
            .         .
            .         .
 101        .         .     OEAST
            .         .         .
            .         .         .
 104        .       CP2...........
            .         .
            .         .
 106   CPO+J3...........
            .
            .
 109        .------->    DNA
 108    D@NOA
            V
            V
 112   RS-NOA
            .
            .
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119           .         I-K
              .           .
              .           .
124           .           .------->    D-IK
123           .       DVI-K
              .           .
              .           .
127           .           .     WV20-B
              .           .          .
              .           .          .
131           .       CPEM5............
              .           .
              .           .
134           .           .------->      DNB
133           .       D@NOB
              .           V
              .           V
137           .      RS-NOB
              .           .
              .           .
144     NORTH............
              .
              .
146           .           M
              .           V
              .           V
150           .       RES-M
              .           .
              .           .
156           .           .     OFF-4
              .           .          .
              .           .          .
160           .      M+OFF4............
              .           .
              .           .
163           .           .------->      DDM
162           .         D@M
              .           .
              .           .
166           .           .     OFF-3
              .           .          .
              .           .          .
170           .       OF3+4............
              .           .
              .           .
172           .           .      EM-1
              .           .          .
              .           .          .
176           .       JEM1+............
              .           .
              .           .
179           .           .        TRI
              .           .          .
              .           .          .
183           .       CPPP1............
              .           V
              .           V
185           .        PP-1
              .           V
              .           V
196           .      RCHPP1
              .           .
              .           .
199           .           .------->      DNC
198           .       D@NOC
              .           V
              .           V
202           .      RS-NOC
              .           .
              .           .
209      CP-NOR............
              .
              .
211           .       IWEST
              .           .
              .           .
216           .           .------->     DDIW
215           .        D@IW
              .           .
              .           .
219           .           .      OWEST
              .           .          .
              .           .          .
222           .         CP1............
              .           .
              .           .
224       NOR+I............
              .
              .
226           .         EM4
              .           V
              .           V
230           .       EMB-1
              .           V
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              .           V
236           .     RHEMB1
              .           .
              .           .
238           .           .     EM-6
              .           .        .
              .           .        .
242           .           .        .    EM-7
              .           .        .       .
              .           .        .       .
246           .     CP-PP2........................
              .           V
              .           V
248           .        PP-2
              .           .
              .           .
255       JCHAN2............
              V
              V
257       CHAN-2
              .
              .
259           .         L2
              .           .
              .           .
264           .           .------->      D-L
263           .         D@L
              .           V
              .           V
267           .       RES-L
              .           .
              .           .
273           .           .         L1
              .           .          .
              .           .          .
277       JCHAN4........................
              V
              V
279       RECH4A
              V
              V
281        RCH4B
              .
              .
283           .      WV-20A
              .           V
              .           V
287           .      HASKEL
              .           .
              .           .
293           .           .        EM-2
              .           .           .
              .           .           .
297           .       20A+2............
              .           V
              .           V
300           .       EMG-1
              .           V
              .           V
306           .       EMG-1
              .           .
              .           .
308           .           .        EMTC
              .           .           .
              .           .           .
312           .           .           .    EM-10
              .           .           .        .
              .           .           .        .
316           .       JEMO2........................
              .           V
              .           V
318           .       EMO-2
              .           V
              .           V
324           .        EMOc
              .           .
              .           .
326           .           .       EM-11
              .           .           .
              .           .           .
330           .           .           .     EM-9
              .           .           .        .
              .           .           .        .
334           .      JG2&B2........................
              .           .
              .           .
336           .           .        EM-8
              .           .           .
              .           .           .
340           .           .           .    EM-12
              .           .           .        .
              .           .           .        .
344           .      TODETN........................
              .           V
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              .          V
346           .       DETN
              .          .
              .          .
352         J4B...........
              V
              V
354      RCH-4C
              .
              .
356           .         A3
              .          .
              .          .
360           .          .        A3A
              .          .          .
              .          .          .
364           .     COMBA3...........
              .          V
              .          V
366           .      RES-6
              .          .
              .          .
371           .          .        A3B
              .          .          .
              .          .          .
376           .          .          .------->     PARK
375           .          .     D-PARK
              .          .          V
              .          .          V
379           .          .      RES-5
              .          .          V
              .          .          V
384           .          .        R-9
              .          .          .
              .          .          .
386           .          .          .        A13A
              .          .          .           .
              .          .          .           .
390           .          .          .           .        A13B
              .          .          .           .           .
              .          .          .           .           .
394           .          .          .      COMA13............
              .          .          .           .
              .          .          .           .
396           .          .          .           .        A12A
              .          .          .           .           .
              .          .          .           .           .
400           .          .          .           .           .        A12
              .          .          .           .           .          .
              .          .          .           .           .          .
404           .          .          .           .      COMA12...........
              .          .          .           .           .
              .          .          .           .           .
406           .          .      JRES3........................
              .          .          V
              .          .          V
408           .          .      RES-3
              .          .          .
              .          .          .
413           .          .          .         A13
              .          .          .           .
              .          .          .           .
417           .          .          .           .        A12B
              .          .          .           .           .
              .          .          .           .           .
421           .          .      JRES1........................
              .          .          V
              .          .          V
423           .          .      RES-1
              .          .          .
              .          .          .
431       ABMSR......................
              .
              .
433           .      OFF-1
              .          V
              .          V
437           .         R8
              .          .
              .          .
439           .          .         A5
              .          .          .
              .          .          .
443           .          .          .       CSR-7
              .          .          .           .
              .          .          .           .
447           .        J-1.......................
              .          V
              .          V
449           .      EXDET
              .          .
              .          .
455           .          .------->    D-DIV
454           .        DIV
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              .          V
              .          V
458           .     REXDET
              .          .
              .          .
460           .          .       OFF-2
              .          .           V
              .          .           V
464           .          .        R-19
              .          .           .
              .          .           .
466           .          .           .      CSR-6A
              .          .           .           V
              .          .           .           V
470           .          .           .      EXDT1A
              .          .           .           .
              .          .           .           .
475           .          .         J-6............
              .          .           .
              .          .           .
477           .          .           .       CSR-6
              .          .           .           .
              .          .           .           .
481           .          .      CPXDT1............
              .          .           V
              .          .           V
483           .          .       EXDT1
              .          .           .
              .          .           .
488           .          .           .          A1
              .          .           .           .
              .          .           .           .
492           .          .          J8............
              .          .           V
              .          .           V
494           .          .         R21
              .          .           .
              .          .           .
496           .      JRES2............
              .          V
              .          V
498           .       RES2
              .          V
              .          V
506           .        R22
              .          .
              .          .
508           .          .       CSR-4
              .          .           V
              .          .           V
512           .          .      EXDET2
              .          .           .
              .          .           .
517           .          .           .       CSR-3
              .          .           .           .
              .          .           .           .
521           .          .         J11............
              .          .           V
              .          .           V
523           .          .       DITCH
              .          .           .
              .          .           .
525           .          .           .          A2
              .          .           .           .
              .          .           .           .
529           .     JRES15........................
              .          V
              .          V
531           .      RES15
              .          V
              .          V
536           .        R23
              .          .
              .          .
538           .          .         RPE
              .          .           .
              .          .           .
542       ACS-1.......................
              .
              .
544           .          P
              .          .
              .          .
549           .          .------->      D-P
548           .      DIV-P
              .          .
              .          .
552           .          .           Q
              .          .           .
              .          .           .
556           .          .           .       PVE-1
              .          .           .           .
              .          .           .           .
560      ABCDSP...................................
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                  .
                  .
 562              .        PVE-2
                  .            .
                  .            .
 566      BLCSRD............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************                                                  **************************************
*                                        *                                                  *                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                                  *   U.S. ARMY CORPS OF ENGINEERS     *
*        JUN 1998 AND FEB 2010           *                                                  *   HYDROLOGIC ENGINEERING CENTER    *
*            VERSION 4.1R                *                                                  *         609 SECOND STREET          *
*       RGMHEC2000 WWW.HEC-1.COM         *                                                  *      DAVIS, CALIFORNIA 95616       *
* RUN DATE   07MAR21  TIME  18:38:31     *                                                  *          (916) 756-1104            *
*                                        *                                                  *                                    *
******************************************                                                  **************************************



                                   100 yr 24 hr event
                             VILLAGE PARKWAY HOMES
                             FILE NAME WV20-1RB.DA T        THROUGH WV-20 ONLY
                             USING TYPE II STORM DISTRIBUTION

    6 IO        OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT        HYDROGRAPH TIME DATA
                       NMIN         10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        800  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      6   0  ENDING DATE
                     NDTIME       1310  ENDING TIME
                     ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   133.17 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

      JP         MULTI-PLAN OPTION
                       NPLAN           1  NUMBER OF PLANS

      JR         MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    1.00       .99        .98        .97        .96        .95
1

                 PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                 FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                                TIME TO PEAK IN HOURS


                                                                 RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION      AREA    PLAN                RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6
                                                             1.00      .99      .98      .97      .96      .95

 HYDROGRAPH AT
+                    A         .720     1     FLOW        121.51   117.04   112.64   108.31   104.04    99.83
                                              TIME         12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+                    B        1.780     1     FLOW        220.78   213.16   205.63   198.22   190.92   183.72
                                              TIME         13.33    13.33    13.33    13.33    13.33    13.33

  2 COMBINED AT
+                D@A&B        2.500     1     FLOW        305.45   294.83   284.36   274.03   263.86   253.84
                                              TIME         13.17    13.17    13.17    13.17    13.17    13.17

 DIVERSION TO
+                 D-AB        2.500     1     FLOW        152.72   147.41   142.18   137.02   131.93   126.92
                                              TIME         13.17    13.17    13.17    13.17    13.17    13.17

 HYDROGRAPH AT
+                D-A&B        2.500     1     FLOW        152.72   147.41   142.18   137.02   131.93   126.92
                                              TIME         13.17    13.17    13.17    13.17    13.17    13.17

 ROUTED TO
+                RCH-1        2.500     1     FLOW        154.00   148.35   142.60   134.73   129.09   124.07
                                              TIME         13.67    13.67    13.67    13.67    13.67    13.83
```

```
 HYDROGRAPH AT
+                  C      1.260     1   FLOW       173.70   167.28   160.97   154.75   148.63   142.70
                                        TIME        13.00    13.00    13.00    13.00    13.00    13.17

  2 COMBINED AT
+              J1@A&B     3.760     1   FLOW       292.49   277.67   264.27   253.43   243.81   234.54
                                        TIME        13.33    13.33    13.50    13.50    13.50    13.50

 ROUTED TO
+               RCH-2     3.760     1   FLOW       289.48   275.52   261.29   250.68   240.82   232.01
                                        TIME        13.50    13.50    13.67    13.67    13.67    13.67

 HYDROGRAPH AT
+                  D      1.000     1   FLOW       166.69   160.98   155.35   149.80   144.33   138.95
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

  2 COMBINED AT
+              J2ABCD     4.760     1   FLOW       375.21   358.74   340.56   321.28   307.53   293.48
                                        TIME        13.50    13.50    13.50    13.50    13.50    13.67

 DIVERSION TO
+                 J2      4.760     1   FLOW       281.41   269.06   255.42   240.96   230.64   220.11
                                        TIME        13.50    13.50    13.50    13.50    13.50    13.67

 HYDROGRAPH AT
+                DJ2      4.760     1   FLOW        93.80    89.69    85.14    80.32    76.88    73.37
                                        TIME        13.50    13.50    13.50    13.50    13.50    13.67

 HYDROGRAPH AT
+                  E       .615     1   FLOW       142.56   138.11   133.71   129.35   125.05   120.80
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

 DIVERSION TO
+                 DE       .615     1   FLOW       142.56   138.11   133.71   129.35   125.05   120.80
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+                D@E       .615     1   FLOW          .00      .00      .00      .00      .00      .00
                                        TIME          .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                  F       .815     1   FLOW       130.32   126.11   121.96   117.95   114.02   110.14
                                        TIME        13.17    13.17    13.17    13.33    13.33    13.33

 DIVERSION TO
+                 DF       .815     1   FLOW       130.32   126.11   121.96   117.95   114.02   110.14
                                        TIME        13.17    13.17    13.17    13.33    13.33    13.33

 HYDROGRAPH AT
+                D@F       .815     1   FLOW          .00      .00      .00      .00      .00      .00
                                        TIME          .00      .00      .00      .00      .00      .00

  2 COMBINED AT
+               J3-1      1.430     1   FLOW          .00      .00      .00      .00      .00      .00
                                        TIME          .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                  J      1.140     1   FLOW        13.79    10.25     6.53     2.83      .00      .00
                                        TIME        17.83    18.17    18.33    18.50      .00      .00

  2 COMBINED AT
+               J3-2      2.570     1   FLOW        13.79    10.25     6.53     2.83      .00      .00
                                        TIME        17.83    18.17    18.33    18.50      .00      .00

 HYDROGRAPH AT
+                  G       .810     1   FLOW       263.54   257.51   251.51   245.56   239.63   233.74
                                        TIME        13.17    13.17    13.17    13.17    13.17    13.17

 DIVERSION TO
+                DDG       .810     1   FLOW       263.54   257.51   251.51   245.56   239.63   233.74
                                        TIME        13.17    13.17    13.17    13.17    13.17    13.17

 HYDROGRAPH AT
+                D@G       .810     1   FLOW          .00      .00      .00      .00      .00      .00
                                        TIME          .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                  H       .740     1   FLOW       282.19   275.35   268.54   261.78   255.07   248.40
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

 DIVERSION TO
+                DDH       .740     1   FLOW       282.19   275.35   268.54   261.78   255.07   248.40
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+                D@H       .740     1   FLOW          .00      .00      .00      .00      .00      .00
                                        TIME          .00      .00      .00      .00      .00      .00

  4 COMBINED AT
+                 J3      8.880     1   FLOW        93.80    89.69    85.14    80.32    76.88    73.37
                                        TIME        13.50    13.50    13.50    13.50    13.50    13.67

 ROUTED TO
+               RCH-3     8.880     1   FLOW        93.81    88.64    84.28    79.68    76.05    73.02
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                                          TIME        13.67     13.67     13.67     13.83     13.83     13.83

 DIVERSION TO
+                  D-J3      8.880     1    FLOW        46.91     44.32     42.14     39.84     38.02     36.51
                                          TIME        13.67     13.67     13.67     13.83     13.83     13.83

 HYDROGRAPH AT
+                  D@J3      8.880     1    FLOW        46.91     44.32     42.14     39.84     38.02     36.51
                                          TIME        13.67     13.67     13.67     13.83     13.83     13.83

 HYDROGRAPH AT
+                 IEAST       .180     1    FLOW       126.16    123.09    120.03    117.00    113.98    110.98
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

 DIVERSION TO
+                   DDG       .180     1    FLOW       100.93     98.47     96.03     93.60     91.18     88.78
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                  D@IE       .180     1    FLOW        25.23     24.62     24.01     23.40     22.80     22.20
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 OEAST       .210     1    FLOW         2.86      2.21      1.59       .98       .11       .00
                                          TIME        17.17     17.50     17.83     18.00     18.17       .00

  2 COMBINED AT
+                   CP2       .390     1    FLOW        25.23     24.62     24.01     23.40     22.80     22.20
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                CPO+J3      9.270     1    FLOW        49.23     46.60     44.38     41.92     40.06     38.50
                                          TIME        13.67     13.67     13.67     13.83     13.83     13.83

 DIVERSION TO
+                   DNA      9.270     1    FLOW        18.45     13.19      8.75      3.83       .12       .00
                                          TIME        13.67     13.67     13.67     13.83     13.83       .00

 HYDROGRAPH AT
+                 D@NOA      9.270     1    FLOW        39.89     39.99     39.75     39.62     39.94     38.50
                                          TIME        13.17     14.17     13.50     14.00     13.83     13.83

 ROUTED TO
+                RS-NOA      9.270     1    FLOW        28.95     29.08     29.02     28.77     28.35     27.63
                                          TIME        14.83     14.83     14.67     14.67     14.67     14.67

                                       ** PEAK STAGES IN FEET **
                                       1    STAGE     5104.12   5104.13   5104.13   5104.11   5104.08   5104.04
                                            TIME        14.83     14.83     14.67     14.67     14.67     14.67

 HYDROGRAPH AT
+                   I-K       .374     1    FLOW       153.89    150.30    146.72    143.17    139.64    136.13
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 DIVERSION TO
+                  D-IK       .374     1    FLOW        76.94     75.15     73.36     71.58     69.82     68.06
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                 DVI-K       .374     1    FLOW        76.94     75.15     73.36     71.58     69.82     68.06
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                WV20-B       .017     1    FLOW        20.35     19.99     19.63     19.28     18.92     18.57
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                 CPEM5       .391     1    FLOW        82.12     80.18     78.24     76.32     74.41     72.51
                                          TIME        12.67     12.67     12.67     12.67     12.67     12.67

 DIVERSION TO
+                   DNB       .391     1    FLOW        40.00     40.00     40.00     40.00     40.00     40.00
                                          TIME        12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                 D@NOB       .391     1    FLOW        42.12     40.18     38.97     39.87     39.23     38.34
                                          TIME        12.67     12.67     13.33     13.33     13.33     13.33

 ROUTED TO
+                RS-NOB       .391     1    FLOW         7.73      7.69      7.65      7.61      7.57      7.52
                                          TIME        18.83     18.67     18.67     18.67     18.67     18.50

                                       ** PEAK STAGES IN FEET **
                                       1    STAGE     5107.23   5107.19   5107.15   5107.11   5107.07   5107.02
                                            TIME        18.83     18.83     18.83     18.83     18.67     18.67

  2 COMBINED AT
+                 NORTH      9.661     1    FLOW        36.44     36.53     36.44     36.13     35.67     34.90
                                          TIME        14.83     14.83     14.83     14.67     14.67     14.67

 HYDROGRAPH AT
+                     M       .560     1    FLOW       229.45    223.62    217.83    212.08    206.37    200.70
                                          TIME        12.67     12.67     12.67     12.67     12.67     12.67
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ROUTED TO
+              RES-M      .560    1  FLOW      59.65    58.59    57.49    56.41    55.37    54.34
                                     TIME      13.67    13.67    13.67    13.67    13.67    13.67

                                  ** PEAK STAGES IN FEET **
                                  1  STAGE      4.96     4.86     4.75     4.64     4.54     4.44
                                     TIME      13.67    13.67    13.67    13.67    13.67    13.67

HYDROGRAPH AT
+              OFF-4      .060    1  FLOW      27.36    26.64    25.94    25.24    24.54    23.85
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

 2 COMBINED AT
+              M+OFF4     .620    1  FLOW      67.04    65.81    64.59    63.22    61.91    60.76
                                     TIME      13.00    13.00    13.00    13.00    13.17    13.17

DIVERSION TO
+              DDM        .620    1  FLOW      13.41    13.16    12.92    12.64    12.38    12.15
                                     TIME      13.00    13.00    13.00    13.00    13.17    13.17

HYDROGRAPH AT
+              D@M        .620    1  FLOW      53.63    52.65    51.67    50.58    49.53    48.61
                                     TIME      13.00    13.00    13.00    13.00    13.17    13.17

HYDROGRAPH AT
+              OFF-3      .191    1  FLOW      88.81    86.71    84.62    82.55    80.48    78.43
                                     TIME      12.67    12.67    12.67    12.67    12.67    12.67

 2 COMBINED AT
+              OF3+4      .811    1  FLOW     131.95   128.56   125.18   121.76   118.25   114.76
                                     TIME      12.83    12.83    12.83    12.83    12.83    12.83

HYDROGRAPH AT
+              EM-1       .046    1  FLOW      80.73    79.70    78.67    77.65    76.62    75.59
                                     TIME      12.33    12.33    12.33    12.33    12.33    12.33

 2 COMBINED AT
+              JEM1+      .857    1  FLOW     175.19   171.35   167.54   163.74   159.97   156.22
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

HYDROGRAPH AT
+              TRI        .009    1  FLOW       6.87     6.71     6.55     6.39     6.24     6.08
                                     TIME      12.33    12.33    12.33    12.33    12.33    12.33

 2 COMBINED AT
+              CPPP1      .866    1  FLOW     179.42   175.49   171.58   167.70   163.84   160.00
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

ROUTED TO
+              PP-1       .866    1  FLOW      63.48    63.43    63.37    63.32    63.27    62.83
                                     TIME      14.50    14.33    14.33    14.33    14.17    14.17

                                  ** PEAK STAGES IN FEET **
                                  1  STAGE     22.07    22.05    22.04    22.02    22.00    21.85
                                     TIME      14.50    14.50    14.33    14.33    14.17    14.17

ROUTED TO
+              RCHPP1     .866    1  FLOW      63.97    63.58    63.37    63.33    63.28    62.83
                                     TIME      13.17    13.50    14.50    14.00    14.33    14.33

DIVERSION TO
+              DNC        .866    1  FLOW      40.00    40.00    40.00    40.00    40.00    40.00
                                     TIME      13.17    13.17    13.17    13.17    13.17    13.17

HYDROGRAPH AT
+              D@NOC      .866    1  FLOW      39.97    39.59    39.83    39.89    39.66    39.67
                                     TIME      21.50    21.33    21.00    20.83    20.67    20.33

ROUTED TO
+              RS-NOC     .866    1  FLOW      31.83    31.89    31.98    32.06    32.14    32.22
                                     TIME      22.67    22.33    22.17    22.00    21.67    21.50

                                  ** PEAK STAGES IN FEET **
                                  1  STAGE   5097.38  5097.39  5097.40  5097.41  5097.41  5097.42
                                     TIME      22.67    22.33    22.17    22.00    21.67    21.50

 2 COMBINED AT
+              CP-NOR   10.527    1  FLOW      58.69    58.69    58.57    58.19    57.61    56.58
                                     TIME      15.00    14.83    14.83    14.83    14.83    14.83

HYDROGRAPH AT
+              IWEST      .350    1  FLOW     187.08   182.50   177.95   173.43   168.93   164.47
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

DIVERSION TO
+              DDIW       .350    1  FLOW     149.67   146.00   142.36   138.74   135.14   131.57
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

HYDROGRAPH AT
+              D@IW       .350    1  FLOW      37.42    36.50    35.59    34.69    33.79    32.89
                                     TIME      12.50    12.50    12.50    12.50    12.50    12.50

HYDROGRAPH AT
+              OWEST      .180    1  FLOW       5.07     3.90     2.79     1.52      .15      .00
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                                      TIME         17.50     17.67     18.00     18.17     18.33       .00

  2 COMBINED AT
+                CP1      .530      1   FLOW         37.42     36.50     35.59     34.69     33.79     32.89
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

  2 COMBINED AT
+              NOR+I    11.057      1   FLOW         68.36     67.23     66.13     64.94     63.81     62.69
                                        TIME         12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                EM4      .119      1   FLOW        186.95    184.32    181.68    179.05    176.43    173.80
                                        TIME         12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+              EMB-1      .119      1   FLOW         54.03     53.59     53.15     52.72     52.29     51.78
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE      5082.25   5082.20   5082.14   5082.09   5082.04   5081.98
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

 ROUTED TO
+             RHEMB1      .119      1   FLOW         53.68     53.26     52.82     52.34     51.86     51.30
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+               EM-6      .045      1   FLOW         39.35     38.33     37.30     36.28     35.27     34.25
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+               EM-7      .061      1   FLOW         80.64     79.43     78.21     77.00     75.79     74.58
                                        TIME         12.33     12.33     12.33     12.33     12.33     12.33

  3 COMBINED AT
+             CP-PP2      .226      1   FLOW        159.60    156.91    154.18    151.52    148.76    146.12
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+               PP-2      .226      1   FLOW         29.33     29.23     29.13     29.03     28.86     28.67
                                        TIME         15.17     15.17     15.17     15.00     15.00     15.00

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE      5177.16   5177.11   5177.06   5177.01   5176.97   5176.92
                                        TIME         15.17     15.17     15.17     15.00     15.00     15.00

  2 COMBINED AT
+             JCHAN2    11.283      1   FLOW         93.03     91.81     90.80     90.28     89.49     88.25
                                        TIME         12.67     12.67     14.83     14.67     14.67     14.67

 ROUTED TO
+             CHAN-2    11.283      1   FLOW         92.89     91.03     90.79     90.28     89.46     88.21
                                        TIME         12.67     14.83     14.83     14.83     14.83     14.83

 HYDROGRAPH AT
+                 L2      .252      1   FLOW        159.85    156.27    152.70    149.16    145.63    142.13
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

 DIVERSION TO
+                D-L      .252      1   FLOW         79.92     78.13     76.35     74.58     72.82     71.06
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                D@L      .252      1   FLOW         79.92     78.13     76.35     74.58     72.82     71.06
                                        TIME         12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+              RES-L      .252      1   FLOW         36.12     35.36     34.60     33.85     33.10     32.36
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE         3.81      3.74      3.66      3.58      3.51      3.44
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                 L1      .038      1   FLOW         25.58     24.98     24.38     23.79     23.20     22.62
                                        TIME         12.33     12.33     12.33     12.33     12.33     12.33

  3 COMBINED AT
+             JCHAN4    11.573      1   FLOW        143.03    140.02    138.18    135.72    132.82    131.13
                                        TIME         12.67     12.67     12.67     12.67     12.67     12.67

 ROUTED TO
+             RECH4A    11.573      1   FLOW        138.46    135.90    133.96    131.05    128.74    127.13
                                        TIME         12.67     12.67     12.67     12.67     12.67     12.67

 ROUTED TO
+              RCH4B    11.573      1   FLOW        135.18    132.85    130.60    128.16    125.52    124.37
                                        TIME         12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+             WV-20A      .013      1   FLOW          7.92      7.72      7.51      7.31      7.11      6.90
                                        TIME         12.33     12.33     12.33     12.33     12.33     12.33
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 ROUTED TO
+              HASKEL      .013     1   FLOW        2.00       1.96       1.92       1.89       1.85       1.82
                                        TIME       12.83      12.83      12.83      12.83      12.83      12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE    5195.33    5195.32    5195.30    5195.29    5195.27    5195.26
                                        TIME       12.83      12.83      12.83      12.83      12.83      12.83

 HYDROGRAPH AT
+              EM-2        .062     1   FLOW       67.41      66.33      65.25      64.17      63.09      62.02
                                        TIME       12.50      12.50      12.50      12.50      12.50      12.50

  2 COMBINED AT
+              20A+2       .075     1   FLOW       69.27      68.15      67.04      65.93      64.82      63.71
                                        TIME       12.50      12.50      12.50      12.50      12.50      12.50

 ROUTED TO
+              EMG-1       .075     1   FLOW       35.65      35.09      34.54      33.98      33.43      32.88
                                        TIME       12.83      12.83      12.83      12.83      12.83      12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE      88.69      88.65      88.61      88.57      88.53      88.49
                                        TIME       12.83      12.83      12.83      12.83      12.83      12.83

 ROUTED TO
+              EMG-1       .075     1   FLOW       35.08      34.82      33.90      33.70      32.80      32.58
                                        TIME       13.00      13.00      13.00      13.00      13.00      13.00

 HYDROGRAPH AT
+              EMTC        .053     1   FLOW       39.62      38.41      37.32      36.28      35.25      34.22
                                        TIME       12.33      12.33      12.50      12.50      12.50      12.50

 HYDROGRAPH AT
+              EM-10       .053     1   FLOW       29.86      28.98      28.11      27.24      26.38      25.52
                                        TIME       12.50      12.50      12.50      12.50      12.50      12.50

  3 COMBINED AT
+              JEMO2       .181     1   FLOW       88.46      86.58      83.74      81.44      79.12      76.46
                                        TIME       12.50      12.50      12.50      12.50      12.50      12.50

 ROUTED TO
+              EMO-2       .181     1   FLOW       49.68      48.52      47.22      45.95      44.73      43.41
                                        TIME       13.17      13.17      13.17      13.17      13.17      13.17

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE      69.74      69.69      69.63      69.58      69.53      69.48
                                        TIME       13.17      13.17      13.17      13.17      13.17      13.17

 ROUTED TO
+              EMOc        .181     1   FLOW       49.30      48.14      46.77      45.57      44.42      43.18
                                        TIME       13.17      13.17      13.33      13.33      13.33      13.33

 HYDROGRAPH AT
+              EM-11       .012     1   FLOW       15.44      14.99      14.54      14.10      13.65      13.21
                                        TIME       12.17      12.17      12.17      12.17      12.17      12.17

 HYDROGRAPH AT
+              EM-9        .021     1   FLOW       27.01      26.23      25.45      24.67      23.89      23.12
                                        TIME       12.17      12.17      12.17      12.17      12.17      12.17

  3 COMBINED AT
+              JG2&B2      .214     1   FLOW       53.33      52.11      50.67      49.31      48.02      46.60
                                        TIME       13.17      13.17      13.17      13.17      13.17      13.33

 HYDROGRAPH AT
+              EM-8        .046     1   FLOW       45.35      44.08      42.81      41.54      40.29      39.03
                                        TIME       12.33      12.33      12.33      12.33      12.33      12.33

 HYDROGRAPH AT
+              EM-12       .015     1   FLOW       28.78      28.10      27.41      26.72      26.03      25.33
                                        TIME       12.17      12.17      12.17      12.17      12.17      12.17

  3 COMBINED AT
+              TODETN      .275     1   FLOW      112.78     109.94     107.10     104.27     101.45      98.64
                                        TIME       12.33      12.33      12.33      12.33      12.33      12.33

 ROUTED TO
+              DETN        .275     1   FLOW       33.01      32.32      31.61      30.91      30.23      29.51
                                        TIME       14.67      14.67      14.67      14.67      14.67      14.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE       3.50       3.43       3.36       3.29       3.22       3.15
                                        TIME       14.67      14.67      14.67      14.67      14.67      14.83

  2 COMBINED AT
+              J4B       11.848     1   FLOW      153.97     150.95     147.97     144.93     141.96     139.73
                                        TIME       12.83      12.83      12.83      13.00      13.00      12.83

 ROUTED TO
+              RCH-4C    11.848     1   FLOW      152.84     149.97     147.31     144.37     141.40     139.19
                                        TIME       13.00      13.00      13.00      13.00      13.00      13.00

 HYDROGRAPH AT
+              A3          .055     1   FLOW       81.57      80.33      79.10      77.86      76.63      75.40
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                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                    A3A      .007      1  FLOW        10.21     10.03      9.85      9.68      9.50      9.32
                                           TIME        12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+                 COMBA3      .062      1  FLOW        90.04     88.67     87.29     85.92     84.55     83.18
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  RES-6      .062      1  FLOW        34.25     33.89     33.54     33.19     32.83     32.48
                                           TIME        12.67     12.67     12.67     12.67     12.67     12.67

                                        ** PEAK STAGES IN FEET **
                                        1  STAGE     5078.85   5078.78   5078.71   5078.64   5078.57   5078.50
                                           TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                    A3B      .026      1  FLOW        35.10     34.53     33.95     33.38     32.81     32.24
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 DIVERSION TO
+                   PARK      .026      1  FLOW         8.78      8.63      8.49      8.35      8.20      8.06
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 D-PARK      .026      1  FLOW        26.33     25.89     25.46     25.04     24.61     24.18
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  RES-5      .026      1  FLOW        15.37     15.10     14.83     14.57     14.30     14.02
                                           TIME        12.50     12.50     12.50     12.50     12.50     12.50

                                        ** PEAK STAGES IN FEET **
                                        1  STAGE     5071.14   5071.11   5071.08   5071.06   5071.03   5071.00
                                           TIME        12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                    R-9      .026      1  FLOW        14.98     14.51     14.32     14.18     13.92     13.53
                                           TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                   A13A      .006      1  FLOW         6.66      6.53      6.41      6.29      6.17      6.04
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                   A13B      .040      1  FLOW        46.30     45.46     44.62     43.78     42.95     42.12
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                 COMA13      .046      1  FLOW        52.96     51.99     51.03     50.07     49.11     48.16
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                   A12A      .015      1  FLOW        18.64     18.30     17.97     17.63     17.30     16.97
                                           TIME        12.17     12.17     12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                    A12      .020      1  FLOW        27.30     26.79     26.28     25.77     25.26     24.76
                                           TIME        12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+                 COMA12      .035      1  FLOW        45.94     45.09     44.25     43.40     42.57     41.73
                                           TIME        12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+                  JRES3      .107      1  FLOW        99.96     98.15     96.36     94.47     92.43     90.65
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  RES-3      .107      1  FLOW        47.40     45.98     44.65     43.35     41.89     40.48
                                           TIME        12.67     12.67     12.67     12.67     12.67     12.67

                                        ** PEAK STAGES IN FEET **
                                        1  STAGE     5061.87   5061.84   5061.81   5061.79   5061.75   5061.72
                                           TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                    A13      .050      1  FLOW        60.24     59.18     58.12     57.06     56.01     54.96
                                           TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                   A12B      .030      1  FLOW        68.94     68.06     67.18     66.31     65.43     64.55
                                           TIME        12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+                  JRES1      .187      1  FLOW       128.12    124.86    121.55    118.37    116.28    114.21
                                           TIME        12.33     12.33     12.33     12.17     12.17     12.17

 ROUTED TO
+                  RES-1      .187      1  FLOW        15.81     15.58     15.35     15.12     14.89     14.66
                                           TIME        14.33     14.33     14.33     14.33     14.33     14.33
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                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5060.30  5060.26  5060.22  5060.19  5060.15  5060.11
                                        TIME        14.33    14.33    14.33    14.33    14.33    14.33

  3 COMBINED AT
+               ABMSR     12.097    1   FLOW       198.14   194.73   191.46   187.84   184.09   181.11
                                        TIME        13.00    13.00    13.00    13.00    13.00    13.00

 HYDROGRAPH AT
+               OFF-1       .023    1   FLOW        14.87    14.50    14.12    13.75    13.38    13.02
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+                  R8       .023    1   FLOW        14.17    13.83    13.49    12.98    12.65    12.31
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+                  A5       .060    1   FLOW       101.37    99.97    98.58    97.18    95.78    94.39
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+               CSR-7       .014    1   FLOW        17.56    17.26    16.96    16.66    16.36    16.06
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

  3 COMBINED AT
+                 J-1       .097    1   FLOW       129.54   127.49   125.44   123.40   121.38   119.37
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+               EXDET       .097    1   FLOW       118.99   120.21   121.42   122.46   123.54   124.59
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5125.29  5125.29  5125.29  5125.29  5125.29  5125.30
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 DIVERSION TO
+               D-DIV       .097    1   FLOW        59.50    60.10    60.71    61.23    61.77    62.30
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+                 DIV       .097    1   FLOW        59.50    60.10    60.71    61.23    61.77    62.30
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 ROUTED TO
+             REXDET        .097    1   FLOW        54.37    54.01    53.90    52.96    52.05    52.34
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+               OFF-2       .050    1   FLOW        28.29    27.55    26.82    26.09    25.36    24.64
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+                R-19       .050    1   FLOW        28.11    27.41    26.72    26.39    25.69    24.99
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+              CSR-6A       .005    1   FLOW         5.79     5.68     5.58     5.47     5.37     5.27
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+              EXDT1A       .005    1   FLOW         5.02     5.00     4.97     4.95     4.92     4.89
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5105.30  5105.27  5105.24  5105.21  5105.19  5105.16
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
+                 J-6       .055    1   FLOW        33.01    32.27    31.53    31.16    30.35    29.47
                                        TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+               CSR-6       .025    1   FLOW        35.04    34.47    33.91    33.36    32.80    32.24
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
+              CPXDT1       .080    1   FLOW        59.86    58.63    57.41    55.94    54.72    53.52
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+               EXDT1       .080    1   FLOW        20.24    20.03    19.82    19.61    19.40    19.20
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5106.94  5106.82  5106.69  5106.56  5106.44  5106.32
                                        TIME        12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+                  A1       .090    1   FLOW       124.95   122.93   120.92   118.92   116.92   114.92
                                        TIME        12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
+                  J8       .170    1   FLOW       139.01   136.74   134.49   132.17   129.93   127.69
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                                      TIME          12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  R21      .170    1  FLOW         119.58    117.72    115.86    113.97    112.12    110.28
                                       TIME          12.50     12.50     12.50     12.50     12.50     12.50

  2 COMBINED AT
+                 JRES2     .266    1  FLOW         173.95    171.73    169.76    166.93    164.17    162.62
                                       TIME          12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                  RES2     .266    1  FLOW          15.37     15.23     15.09     14.95     14.81     14.67
                                       TIME          16.83     16.67     16.67     16.67     16.67     16.50

                                   ** PEAK STAGES IN FEET **
                                    1  STAGE       5070.98   5070.90   5070.83   5070.75   5070.67   5070.60
                                       TIME          16.83     16.83     16.83     16.67     16.67     16.67

 ROUTED TO
+                  R22      .266    1  FLOW          15.37     15.23     15.09     14.95     14.81     14.67
                                       TIME          16.83     16.83     16.83     16.67     16.67     16.67

 HYDROGRAPH AT
+                 CSR-4     .030    1  FLOW          41.96     41.21     40.47     39.72     38.98     38.24
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

 ROUTED TO
+                EXDET2     .030    1  FLOW           9.79      9.75      9.71      9.67      9.63      9.59
                                       TIME          12.67     12.67     12.67     12.67     12.67     12.67

                                   ** PEAK STAGES IN FEET **
                                    1  STAGE       5096.59   5096.51   5096.42   5096.34   5096.26   5096.18
                                       TIME          12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                 CSR-3     .005    1  FLOW           9.54      9.39      9.24      9.10      8.95      8.80
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+                   J11     .035    1  FLOW          15.89     15.68     15.48     15.28     15.07     14.87
                                       TIME          12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                 DITCH     .035    1  FLOW          17.59     17.34     17.08     16.82     16.57     16.31
                                       TIME          12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                    A2     .050    1  FLOW          64.81     63.67     62.53     61.40     60.27     59.15
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+                JRES15     .352    1  FLOW          80.64     79.25     77.87     76.51     75.12     73.77
                                       TIME          12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                 RES15     .352    1  FLOW          10.22     10.12     10.02      9.92      9.82      9.72
                                       TIME          29.33     29.17     29.17     29.00     29.00     28.83

                                   ** PEAK STAGES IN FEET **
                                    1  STAGE       5062.98   5062.93   5062.88   5062.83   5062.78   5062.73
                                       TIME          29.50     29.33     29.17     29.17     29.17     29.00

 ROUTED TO
+                   R23     .352    1  FLOW          10.22     10.12     10.02      9.92      9.82      9.72
                                       TIME          29.50     29.67     29.33     29.50     29.17     29.00

 HYDROGRAPH AT
+                   RPE     .120    1  FLOW         110.88    108.73    106.59    104.45    102.33    100.21
                                       TIME          12.33     12.33     12.33     12.33     12.33     12.33

  3 COMBINED AT
+                 ACS-1   12.568    1  FLOW         254.45    249.00    243.43    238.34    233.21    229.78
                                       TIME          12.50     12.50     12.50     12.67     12.67     12.67

 HYDROGRAPH AT
+                     P     .069    1  FLOW          80.56     78.95     77.35     75.75     74.17     72.59
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

 DIVERSION TO
+                   D-P     .069    1  FLOW          40.28     39.47     38.67     37.88     37.08     36.29
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                 DIV-P     .069    1  FLOW          40.28     39.47     38.67     37.88     37.08     36.29
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                     Q     .039    1  FLOW          30.26     29.60     28.94     28.29     27.64     26.99
                                       TIME          12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 PVE-1     .013    1  FLOW          18.66     18.34     18.01     17.69     17.37     17.05
                                       TIME          12.17     12.17     12.17     12.17     12.17     12.17
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  4 COMBINED AT
+              ABCDSP   12.689    1  FLOW      310.00   303.50   296.89   290.58   283.84   279.14
                                     TIME       12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+               PVE-2     .011    1  FLOW       16.04    15.76    15.48    15.20    14.93    14.65
                                     TIME       12.17    12.17    12.17    12.17    12.17    12.17

  2 COMBINED AT
+              BLCSRD   12.700    1  FLOW      317.23   310.61   303.89   297.46   290.61   285.80
                                     TIME       12.50    12.50    12.50    12.50    12.50    12.50
1
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PROPOSED CONDITIONS THROUGH PHASE 20

VPH Proposed Conditions
Base Model: Woodland
Village Through Ph 20

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1***************************************                                                       ***************************************
 *                                      *                                                      *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                      *  U.S. ARMY CORPS OF ENGINEERS       *
 *       JUN 1998 AND FEB 2010          *                                                      *  HYDROLOGIC ENGINEERING CENTER      *
 *           VERSION 4.1R               *                                                      *        609 SECOND STREET            *
 *      RGMHEC2000 WWW.HEC-1.COM        *                                                      *     DAVIS, CALIFORNIA 95616         *
 * RUN DATE   07MAR21  TIME  18:18:59   *                                                      *         (916) 756-1104              *
 *                                      *                                                      *                                     *
****************************************                                                       ***************************************



                                          X     X  XXXXXXX   XXXXX          X
                                          X     X  X        X     X        XX
                                          X     X  X        X               X
                                          XXXXXXX  XXXX     X       XXXXX   X
                                          X     X  X        X               X
                                          X     X  X        X     X         X
                                          X     X  XXXXXXX   XXXXX         XXX




                     THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

                     THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
                     THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
                     NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
                     DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
                     KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


1                                                  HEC-1 INPUT                                                  PAGE  1

              LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                          *DDIAGRAM
                 1        ID       100 yr 24 hr event
                 2        ID  VILLAGE PARKWAY HOMES
                 3        ID  FILE NAME VPH-DIV2.DA T
                 4        ID  USING TYPE II STORM DISTRIBUTION
                 5        ID  BASE MODEL FROM WOODLAND VILLAGE PH 20
                          *       DARF          AREA (SQ.     MI.)
                          *       1.00             0 -  2
                          *       0.99           2.1 -  8
                          *       0.98           8.1 - 16
                          *       0.97          16.1 - 29
                          *       0.96          29.1 - 43
                          *       0.95          43.1 - 63
                          *       0.94          63.1 - 98
                 6        IT      10               800
                 7        IO       5       0
                 8        JR    PREC     1.0     .99     .98     .97     .96     .95

                 9        KK       A
                10        BA    0.72
                11        PH       1             .68    1.24    2.06    2.32    2.52    2.94    3.76    4.59
                12        LS     1.7      54
                13        UD     .62

                14        KK       B
                15        BA    1.78
                16        LS    1.63      55
                17        UD     1.1

                18        KK   D@A&B
                19        HC       2

                20        KK   D-A&B
                21        DT    D-AB
                22        DI       0      10      50     100     500
                23        DQ       0       5      25      50     250

                24        KK   RCH-1
                25        KM  ROUTE A&B TO J1@AB
                26        RD   10200     .04     .12            TRAP       3       1

                27        KK       C
                28        BA    1.26
                29        LS     1.7      54
                30        UD     .82

                31        KK  J1@A&B
                32        HC       2

                33        KK   RCH-2
                34        RD    3500     .06     .12            TRAP      10     2.5
1                                                  HEC-1 INPUT                                                  PAGE  2

              LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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             35           KK        D
             36           BA      1.0
             37           LS     1.57       50
             38           UD      .63

             39           KK   J2ABCD
             40           HC        2

             41           KK      DJ2
             42           KM   CHANGE DIVERSION FROM 50% TO 75%
             43           DT       J2
             44           DI        0       10       50      100      500
             45           DQ        0      7.5     37.5       75      375

             46           KK        E
             47           BA     .615
             48           LS     1.45       58
             49           UD      .68

             50           KK      D@E
             51           DT       DE
             52           DI        0       10       50      100      500
             53           DQ        0       10       50      100      500

             54           KK        F
             55           BA    0.815
             56           LS     1.51       57
             57           UD        1

             58           KK      D@F
             59           DT       DF
             60           DI        0       10       50      100      500
             61           DQ        0       10       50      100      500

             62           KK     J3-1
             63           HC        2

             64           KK        J
             65           BA     1.14
             66           LU        4      0.1
             67           UD      .67

             68           KK     J3-2
             69           HC        2

             70           KK        G
             71           BA     0.81
             72           LS     1.03       66
             73           UD      .93
1                                                       HEC-1 INPUT                                              PAGE  3

        LINE              ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


             74           KK      D@G
             75           DT      DDG
             76           DI        0       10       50      100      500
             77           DQ        0       10       50      100      500

             78           KK        H
             79           BA     0.74
             80           LS     1.12       64
             81           UD      .63

             82           KK      D@H
             83           DT      DDH
             84           DI        0       10       50      100      500
             85           DQ        0       10       50      100      500

             86           KK       J3
             87           HC        4

             88           KK    RCH-3
             89           RD     8000      .04      .05              TRAP       10        1

             90           KK     D@J3
             91           DT     D-J3
             92           DI        0       10       50      100      500
             93           DQ        0        5       25       50      250

             94           KK    IEAST
             95           BA      .18
             96           LS                64
             97           UD      .22

             98           KK     D@IE
             99           DT      DDG
            100           DI        0       10       50      100      500
            101           DQ        0        8       40       80      400

            102           KK    OEAST
            103           BA      .21
            104           LU        4       .1
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         105          KK      CP2
         106          HC        2

         107          KK  CPO+J3
         108          HC        2

         109          KK   D@NOA
         110          DT      DNA
         111          DI        0      40      60     100     500    1000
         112          DQ        0       0      40      40      40      40
1                                                  HEC-1 INPUT                                        PAGE  4

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         113          KK  RS-NOA        NORTH RESERVOIR A
         114          KM   36" OUTLET
         115          RS        1    STOR       0
         116          SA        0     .17     .91    2.24    3.55    4.94
         117          SE  5101.5    5102    5103    5104    5105    5106
         118          SQ        0       6      19      35      50      60
         119          SE  5101.5  5102.5  5103.5  5104.5  5105.5  5106.5

         120          KK      I-KWATERSHED CONSISTING OF K+ EM-3+EM-5      APPROX.
         121          BA   .3741
         122          LS               65
         123          UD    0.61

         124          KK   DVI-K        DIVERT FLOW FROM I-K SAME RATE AS FROM K
         125          DT    D-IK
         126          DI        0      10     100     500
         127          DQ        0       5      50     250

         128          KK  WV20-B        PART OF WV-20 GOING NORTH
         129          BA    .017
         130          LS               74
         131          UD     .16

         132          KK   CPEM5
         133          HC        2

         134          KK   D@NOB
         135          DT      DNB
         136          DI        0      40      60     100     500    1000
         137          DQ        0       0      40      40      40      40

         138          KK  RS-NOB        NORTH RESERVOIR B
         139          KM   12" OUTLET
         140          RS        1    STOR       0
         141          SA        0    0.02    0.16    0.52    1.73    3.30    5.24    5.38    5.52
         142          SE  5102.5    5103    5104    5104    5106    5107    5108    5109    5110
         143          SQ        0     2.2     4.5     5.6       7       8       9      10      11
         144          SE  5102.5  5103.5  5104.5  5105.5  5106.5  5107.5  5108.5  5109.5

         145          KK   NORTH
         146          HC        2

         147          KK        M
         148          BA    0.56
         149          LS    1.17      63
         150          UD    0.52

         151          KK   RES-M
         152          RS        1    STOR       0
         153          SA      2.5    2.56    2.66    2.79    1.95    3.15     3.4    3.72    4.12
         154          SE        0    1.38    2.06    2.68    3.29    3.99    4.87    5.91     7.1
         155          SQ        0       6      19      35      50      60      72      78      90
         156          SE        0       1       2       3       4       5       6       7       8
1                                                  HEC-1 INPUT                                        PAGE  5

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         157          KK   OFF-4        OFFSITE   4
         158          BA      .06
         159          LS               63
         160          UD      .42

         161          KK  M+OFF4        COMBINE OFF4 + POND M
         162          HC        2

         163          KK      D@M
         164          DT      DDM
         165          DI        0      10      50     100     500    1000
         166          DQ        0       2      10      20     100     200

         167          KK    OFF-3
         168          BA    0.191
         169          LS               65
         170          UD     0.52

         171          KK    OF3+4       COMBINE OFF3 & O FF4 & POND M
         172          HC        2
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  173          KK  EM-1
  174          BA  .046
  175          LS                88
  176          UD  0.25

  177          KK JEM1+        COMBINE EM1, POND M, OFF3 & OFF4
  178          KM SAME AS JM EM1 OFF3 OFF4 IN HEC-HMS
  179          HC     2

  180          KK   TRI        TRIANGULAR AREA EAST OF VILLAGE PKWY
  181          BA  .009
  182          LS              64.5
  183          UD  0.16

  184          KK CPPP1        ADD TRIANGULAR AREA TO FLOW INTO PP-1
  185          HC     2

  186          KK  PP-1
  187          KM NOW WITH 30" OUTLET
  188          RS     1    STOR       0
  189          SA     0     .11     .34     .73    1.19    1.82    1.96    2.10    2.24
  190          SA  2.52
  191          SE 14.34      15      16      17      18      19      20      21      22
  192          SE    24
  193          SQ     0     5.5      16      28      38      45      50      57      62
  194          SQ    70      75
  195          SE 14.34   15.34   16.34   17.34   18.34   19.34   20.34   21.34   22.34
  196          SE 24.34
 1                                                   HEC-1 INPUT                                  PAGE  6

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


  197          KK RCHPP1
  198          RD  2475    .007     .04            TRAP       3       3

  199          KK D@NOC
  200          DT   DNC
  201          DI     0      40      60     100     500    1000
  202          DQ     0       0      40      40      40      40

  203          KK RS-NOC       NORTH RESERVOIR C
  204          KM  30" OUTLET
  205          RS     1    STOR       0
  206          SA     0     .22     .82     2.4    3.85    4.54    5.03    5.31
  207          SE  5094    5095    5096    5097    5098    5099    5100    5101
  208          SQ     0     5.5      16      28      38      45      50      57
  209          SE  5094    5095    5096    5097    5098    5099    5100    5101

  210          KK CP-NOR       COMBINE 3 NORTH DET BASINS
  211          HC     2

  212          KK IWEST
  213          BA   .35
  214          LS                64
  215          UD   .37

  216          KK  D@IW
  217          DT  DDIW
  218          DI     0      10      50     100     500
  219          DQ     0       8      40      80     400

  220          KK OWEST
  221          BA   .18
  222          LU     4      .1

  223          KK   CP1
  224          HC     2

  225          KK NOR+I        COMBINE FLOW FROM 3 DET BASINS & OFFSITE WATERSHED I
  226          HC     2

  227          KK   EM4
  228          BA .1193
  229          LS                84
  230          UD   .25

  231          KK EMB-1
  232          RS     1    STOR       0
  233          SA   1.5    1.54     1.6    1.68    1.79    1.95    2.15
  234          SE  5078  5079.1 5079.69 5080.25 5080.95 5081.86 5082.96
  235          SQ     0       8      26      40      52      60
  236          SE  5078    5079    5080    5081    5082    5083
 1                                                   HEC-1 INPUT                                  PAGE  7

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


  237          KK RHEMB1          REACH   EMB-1
  238          RD   759   .0066     .04            TRAP       3       3

  239          KK  EM-6
  240          BA .0455
  241          LS   1.5      84
```

```
           242          UD     .32

           243          KK    EM-7
           244          BA    .061
           245          LS      .5      83
           246          UD      .3

           247          KK  CP-PP2
           248          HC       3

           249          KK    PP-2        NORTH OFBRIAR ROAD
           250          KM  OUTLET IS ONE 30" RCP
           251          RS       1    STOR       0
           252          SA       0     .02     .16     .52    1.73    3.30    5.24    5.38    5.52
           253          SE    5171  5171.5  5172.5  5173.5  5174.5  5175.5  5176.5  5177.5  5178.5
           254          SQ       0     5.7    13.5    18.6      22      25      29      31      32
           255          SE    5171    5172    5173    5174    5175    5176    5177    5178  5178.5

           256          KK  JCHAN2
           257          HC       2

           258          KK  CHAN-2
           259          RD    1130    .005     .04            TRAP       6       3

           260          KK      L2
           261          BA    .234
           262          LS    1.03      66
           263          UD     .33

           264          KK     D@L
           265          DT     D-L
           266          DI       0      10      50     100     500
           267          DQ       0       5      25      50     250

           268          KK   RES-L
           269          RS       1    STOR       0
           270          SA     0.6    0.64    0.69    0.76    0.86       1
           271          SE       0    1.69    2.25    2.95    3.86    4.96
           272          SQ       0     5.5      16      28      38      45
           273          SE       0       1       2       3       4       5

           274          KK      L3        PART OF L2 DRAINING TO VILLAGE PARKWAY HOMES
           275          BA    .018
           276          LS              77
           277          UD     0.2
1                                                   HEC-1 INPUT                                                  PAGE  8

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           278          KK   VPH-1        VILL. PKWY HOMES NORTH PORTION
           279          BA   0.035
           280          LS              77
           281          UD     .19

           282          KK  VPCP-1
           283          HC       2

           284          KK      L1
           285          BA    .029
           286          LS              77
           287          UD     .21

           288          KK       P
           289          BA    .031
           290          LS              77
           291          UD     0.1

           292          KK   VPCP2
           293          HC       2

           294          KK       Q
           295          BA    .052
           296          LS              77
           297          UD     .19

           298          KK  VPCP2A        FLOW ENTERING RETENTION/DETENTION POND
           299          HC       2

           300          KK   D@VPH        INFILTRATION @ VP RETENTION POND
           301          DT     VPH
           302          DI       0      10      25      50     100     140     150     155     200
           303          DQ       0       0      12      12      12      12      12      12      12

           304          KK   VPHRPRETENTION/DETENTION POND @ VILLAGE PKWY HOMES
           305          KM  30-IN RCP OUTLET@ 61.5 FT
           306          RS       1    STOR       0
           307          SA    .278    .607    .848    .972   1.013
           308          SE    5060    5062    5064    5066    5067
           309          SQ       0       0     4.5      16      29      35      40      50
           310          SE    5060  5061.5  5062.5  5063.5  5064.5  5065.5   5066.    5067

           311          KK   D-SOU
           312          DT   SOUTH
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       313        DI       0      10      50     100     500
       314        DQ       0      10      50     100     500

       315        KK   VPCP3        COMBINE FLOWS GOING TO RET PONDS
       316        HC       2
1                                        HEC-1 INPUT                                                  PAGE  9

      LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       317        KK  VPNEPD        RETENTION/DETEN TION POND
       318        KM  18-IN RCP OUTLET@ 60 FT
       319        KM  2 FT OF GRAVEL AT BOTTOM OF POND
       320        RS       1    STOR       0
       321        SA     .14     .14     .34     .73     .94    1.13
       322        SE      56    57.9      58      62      64      66
       323        SQ       0       0       0       0       4      13      20      26      30      35
       324        SE      56    57.9      58      60      61      62      63      64      65      66

       325        KK  VPCP1A        COMBINE OUTFLOW FROM PVH NE POND WITH MAIN CHANNEL
       326        HC       3

       327        KK  RECH4A
       328        RD     395    .001     .04            TRAP       8       3

       329        KK   RCH4B
       330        RD     665    .001     .04            TRAP      10       3

       331        KK  WV-20A        PART OF WV-20 GOING SOUTH
       332        BA    .013
       333        LS              61
       334        UD     .15

       335        KK  HASKEL        12" RCP OUTLET
       336        RS       1    STOR       0
       337        SA       0     .47     .55     .60     .65
       338        SE  5194.5    5195    5196    5197    5198
       339        SQ       0     2.4     4.7       6     7.5
       340        SE  5194.5  5195.5  5196.5  5197.5  5198.5

       341        KK    EM-2
       342        BA   .0621
       343        LS              78
       344        UD     .32

       345        KK   20A+2        COMBINE W VILLAGE 20A POND WITH EM-2
       346        KM  FLOW GOES INTO POND EMG-1
       347        HC       2

       348        KK   EMG-1        DETENTION POND EMG-1
       349        RS       1    STOR       0
       350        SA     0.8    0.83     .87     .93    1.02    1.13    1.29
       351        SE      86    87.1   87.69   88.25   88.95   89.86   90.96
       352        SQ       0       8      26      40      52      60
       353        SE      86      87      88      89      90      91

       354        KK   EMG-1
       355        RD    1630     .01     .04            TRAP       3       3
1                                        HEC-1 INPUT                                                  PAGE 10

      LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       356        KK    EMTC
       357        BA    .053
       358        LS     1.5      79
       359        UD     .27

       360        KK   EM-10
       361        BA    .053
       362        LS     1.5      72
       363        UD     .32

       364        KK   JEMO2
       365        HC       3

       366        KK   EMO-2
       367        RS       1    STOR       0
       368        SA     1.2    1.25    1.26    1.27    1.29     1.3    1.32    1.34    1.39
       369        SE      67   68.49   68.91   69.31   69.72   70.21   70.69   71.31    72.8
       370        SQ       0      11      32      56      76      90     100
       371        SE      67      68      69      70      71      72      73

       372        KK    EMOc
       373        RD     615    .003     .04            TRAP       0       3

       374        KK   EM-11
       375        BA    .012
       376        LS     1.5      86
       377        UD     .13

       378        KK    EM-9
       379        BA    .021
       380        LS     1.5      86
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        381            UD     .13

        382            KK  JG2&B2
        383            HC       3

        384            KK    EM-8
        385            BA    .046
        386            LS     1.5      82
        387            UD     .22

        388            KK   EM-12
        389            BA    .015
        390            LS     1.5      93
        391            UD     .12

        392            KK  TODETN
        393            HC       3
1                                             HEC-1 INPUT                                               PAGE 11

       LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


        394            KK    DETN
        395            RS       1    STOR       0
        396            SA    2.25    2.31     2.4     2.5    2.63    2.78    2.96    3.18    3.48
        397            SE       0    1.49    1.91    2.31    2.72    3.21    3.69    4.31     5.8
        398            SQ       0     5.5      16      28      38      45      50
        399            SE       0       1       2       3       4       5       6

        400            KK     J4B
        401            HC       2

        402            KK  RCH-4C
        403            RD     300    .001     .04            TRAP      12       3

        404            KK      A3
        405            BA    .055
        406            LS              80
        407            UD     .16

        408            KK     A3A
        409            BA    .007
        410            LS              76
        411            UD     .13

        412            KK  COMBA3
        413            HC       2

        414            KK   RES-6
        415            RS       1    STOR       0
        416            SA    0.24     0.5    0.54    0.61    0.67    0.69
        417            SE    5074    5075    5076    5077    5078    5079
        418            SQ       0     4.3      14      24      30      35

        419            KK     A3B
        420            BA    .026
        421            LS              77
        422            UD     .17

        423            KK  D-PARK
        424            DT    PARK
        425            DI       0      20     100     500    1000
        426            DQ       0       5      25     125     250

        427            KK   RES-5
        428            RS       1    STOR       0
        429            SA    0.25    0.28    0.32    0.35    0.39    0.43    0.46     0.5    0.59
        430            SE    5069    5070    5071    5072    5073    5074    5075    5076    5077
        431            SQ       0     4.3      14      24      30    35.4      40      44      44

        432            KK     R-9         ROUTING
        433            RD    1000     .02     .05            TRAP      15       1
1                                             HEC-1 INPUT                                               PAGE 12

       LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


        434            KK    A13A
        435            BA    .006
        436            LS              72
        437            UD     .17

        438            KK    A13B
        439            BA     .04
        440            LS              73
        441            UD     .18

        442            KK  COMA13
        443            HC       2

        444            KK    A12A
        445            BA    .015
        446            LS              75
        447            UD     .15
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   448          KK     A12
   449          BA     .02
   450          LS               73
   451          UD     .12

   452          KK  COMA12
   453          HC       2

   454          KK   JRES3
   455          HC       3

   456          KK   RES-3
   457          RS       1    STOR       0
   458          SA       1     1.2    1.35    1.55     1.8
   459          SE    5059    5060    5061    5062    5063
   460          SQ       0       0     7.3   53.15  116.35

   461          KK     A13
   462          BA     .05
   463          LS               74
   464          UD     .17

   465          KK    A12B
   466          BA     .03
   467          LS               88
   468          UD     .12

   469          KK   JRES1
   470          HC       3

   471          KK   RES-1
   472          RS       1    STOR       0
   473          SA   .0006   .0812   .2929   .6341  1.0634  1.5306  2.0022  2.4899  3.0079  3.5568
   474          SA  4.1272  5.1068  5.5454  5.8719
   475          SE    5057  5057.2  5057.4  5057.6  5057.8    5058  5058.2  5058.4  5058.6  5058.8
   476          SE    5059    5060    5061    5062
1                                        HEC-1 INPUT                                            PAGE 13

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   477          SQ       0       0       0       0       0       0       0     1.2     2.4     3.6
   478          SQ     4.8      14      20      20

   479          KK   ABMSR        ABOVE MUD SPRINGS ROAD
   480          HC       3

   481          KK   OFF-1
   482          BA   .0226
   483          LS               63
   484          UD     .22

   485          KK      R8
   486          RD    2000    .054     .05            TRAP      15       1

   487          KK      A5
   488          BA     .06
   489          LS               84
   490          UD     .17

   491          KK   CSR-7
   492          BA    .014
   493          LS               75
   494          UD     .18

   495          KK     J-1
   496          HC       3

   497          KK   EXDET
   498          RS       1    STOR       0
   499          SA    0.27    0.28    0.37    0.47    0.52    0.52    0.52
   500          SE    5118    5119    5121    5125 5125.25  5125.5    5126
   501          SQ       0       0     9.8      23    99.5     238   631.1

   502          KK     DIV
   503          DT   D-DIV
   504          DI       0      10     100    1000
   505          DQ       0       5      50     500

   506          KK  REXDET
   507          RD    1787    .025    .013            TRAP      40       1

   508          KK   OFF-2
   509          BA   .0496
   510          LS               63
   511          UD     .27

   512          KK    R-19
   513          RD    1400     .02     .05            TRAP      15       1

   514          KK  CSR-6A
   515          BA    .005
   516          LS               73
   517          UD     .17
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 LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  518           KK  EXDT1A
  519           RS       1    STOR       0
  520           SA       0   .0046   .0169   .0553   .0703
  521           SE    5103    5104    5105    5109    5110
  522           SQ       0    1.65    4.75    8.43    9.15

  523           KK     J-6
  524           HC       2

  525           KK   CSR-6
  526           BA    .025
  527           LS              78
  528           UD     .18

  529           KK  CPXDT1
  530           HC       2

  531           KK   EXDT1
  532           RS       1    STOR       0
  533           SA    0.25    0.31    0.37    0.49
  534           SE    5101    5103    5105    5108
  535           SQ       0     9.5      17      22

  536           KK      A1
  537           BA     .09
  538           LS              78
  539           UD      .2

  540           KK      J8
  541           HC       2

  542           KK     R21
  543           RM       1    .107     .02

  544           KK   JRES2
  545           HC       2

  546           KK    RES2
  547           RS       1    STOR       0
  548           SA       0     .18     1.4     2.9     3.1     3.3     3.5     3.6     3.7     3.8
  549           SA     3.9
  550           SE  5065.5    5066    5067    5068    5069    5070    5071 5071.34 5071.59 5071.84
  551           SE 5072.34
  552           SQ       0      .9     5.5     9.1    11.6    13.6    15.4      16    23.8    37.8
  553           SQ    77.5

  554           KK     R22
  555           RD     800     .02     .05            TRAP      15       1
```

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 LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  556           KK   CSR-4
  557           BA     .03
  558           LS              75
  559           UD     .13

  560           KK  EXDET2
  561           RS       1    STOR       0
  562           SA    0.13    0.16    0.19    0.22    0.26     0.3    0.34    0.39
  563           SE    5091    5092    5093    5094    5095    5096    5097    5098
  564           SQ       0     2.4       5     6.5       8     9.5      10      11

  565           KK   CSR-3
  566           BA   .0053
  567           LS              80
  568           UD     .12

  569           KK     J11
  570           HC       2

  571           KK   DITCH
  572           RD    3000     .01     .04            TRAP       6     1.5

  573           KK      A2
  574           BA     .05
  575           LS              76
  576           UD     .15

  577           KK  JRES15
  578           HC       3

  579           KK   RES15
  580           RS       1    STOR       0
  581           SA    3.55    3.71    3.85    4.04    4.36    4.69    4.94
  582           SE  5058.5    5059  5059.5    5060    5061    5062    5064
  583           SQ       0       0       0      .6     4.7     8.3    12.2
```

```
          584          KK     R23
          585          RD    2600     .02     .05              TRAP       5       1

          586          KK     RPE
          587          BA    0.12
          588          LS               72
          589          UD     .28

          590          KK   ACS-1
          591          HC       2

          592          KK    VPH2
          593          BA    0.01
          594          LS               77
          595          UD    0.16
1                                                      HEC-1 INPUT                                        PAGE 16

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          596          KK   VPH-3
          597          BA     .01
          598          LS               77
          599          UD    0.15

          600          KK   VPCP2
          601          HC       2

          602          KK   VPH-4
          603          BA    .011
          604          LS               77
          605          UD    0.15

          606          KK   VPH-5
          607          BA    .005
          608          LS               77
          609          UD     .13

          610          KK   RCLDP
          611          DR   SOUTH

          612          KK  VPCP-4         COMBINE VPH3, 4, AND 5
          613          HC       4

          614          KK  VPDICH         VILLAGE PKWY HOMES DETENTION DITCH
          615          KM  OUTLETIS 30"  RCP @ ELEV 5058.15
          616          RS       1    STOR       0
          617          SA   .0001    0.13    0.42    0.74       1
          618          SE  5058.1  5059.5    5060    5062  5063.5
          619          SQ       0       5      16      29      35      44      46
          620          SE  5058.1  5059.1  5060.1  5061.1  5062.1  5063.1  5063.5

          621          KK      Q2
          622          BA    .013
          623          LS               77
          624          UD     .16

          625          KK   VPCP6COMBINED FLOW IN MUD SPRINGS CHANNEL
          626          HC       4

          627          KK   PVE-1
          628          BA   .0128
          629          LS               76
          630          UD     .13

          631          KK  ABCDSP         ABOVE COLD SPRINGS ROAD
          632          HC       2

          633          KK   PVE-2
          634          BA    .011
          635          LS               76
          636          UD     .13
1                                                      HEC-1 INPUT                                        PAGE 17

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          637          KK  BLCSRD         BELOW COLD SPRINGS ROAD
          638          HC       2
          639          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    9          A
               .
               .
   14          .            B
               .            .
               .            .
   18       D@A&B............
```

```
            .
            .
 21         .------->    D-AB
 20     D-A&B
            V
            V
 24     RCH-1
            .
            .
 27         .         C
            .         .
            .         .
 31    J1@A&B..........
            V
            V
 33     RCH-2
            .
            .
 35         .         D
            .         .
            .         .
 39    J2ABCD..........
            .
            .
 43         .------->      J2
 41       DJ2
            .
            .
 46         .         E
            .         .
            .         .
 51         .         .------->    DE
 50         .       D@E
            .         .
            .         .
 54         .         .         F
            .         .         .
            .         .         .
 59         .         .         .------->    DF
 58         .         .       D@F
            .         .         .
            .         .         .
 62         .      J3-1..........
            .         .
            .         .
 64         .         .         J
            .         .         .
            .         .         .
 68         .      J3-2..........
            .         .
            .         .
 70         .         .         G
            .         .         .
            .         .         .
 75         .         .         .------->   DDG
 74         .         .       D@G
            .         .         .
            .         .         .
 78         .         .         .         H
            .         .         .         .
            .         .         .         .
 83         .         .         .         .------->   DDH
 82         .         .         .       D@H
            .         .         .         .
            .         .         .         .
 86        J3..............................
            V
            V
 88     RCH-3
            .
            .
 91         .------->    D-J3
 90      D@J3
            .
            .
 94         .     IEAST
            .         .
            .         .
 99         .         .------->   DDG
 98         .      D@IE
            .         .
            .         .
102         .         .     OEAST
            .         .         .
            .         .         .
105         .       CP2..........
            .         .
            .         .
107    CPO+J3..........
            .
            .
110         .------->     DNA
109     D@NOA
            V
```

```
              V
113      RS-NOA
              .
              .
120           .         I-K
              .           .
              .           .
125           .           .------->    D-IK
124           .       DVI-K
              .           .
              .           .
128           .           .      WV20-B
              .           .           .
              .           .           .
132           .       CPEM5............
              .           .
              .           .
135           .           .------->     DNB
134           .       D@NOB
              .           V
              .           V
138           .      RS-NOB
              .           .
              .           .
145       NORTH............
              .
              .
147           .           M
              .           V
              .           V
151           .       RES-M
              .           .
              .           .
157           .           .       OFF-4
              .           .           .
              .           .           .
161           .      M+OFF4............
              .           .
              .           .
164           .           .------->     DDM
163           .         D@M
              .           .
              .           .
167           .           .       OFF-3
              .           .           .
              .           .           .
171           .       OF3+4............
              .           .
              .           .
173           .           .        EM-1
              .           .           .
              .           .           .
177           .       JEM1+............
              .           .
              .           .
180           .           .         TRI
              .           .           .
              .           .           .
184           .       CPPP1............
              .           V
              .           V
186           .        PP-1
              .           V
              .           V
197           .      RCHPP1
              .           .
              .           .
200           .           .------->     DNC
199           .       D@NOC
              .           V
              .           V
203           .      RS-NOC
              .           .
              .           .
210      CP-NOR............
              .
              .
212           .       IWEST
              .           .
              .           .
217           .           .------->    DDIW
216           .        D@IW
              .           .
              .           .
220           .           .       OWEST
              .           .           .
              .           .           .
223           .         CP1............
              .           .
              .           .
225       NOR+I............
              .
              .
227           .         EM4
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              .           V
              .           V
231           .       EMB-1
              .           V
              .           V
237           .      RHEMB1
              .           .
              .           .
239           .           .        EM-6
              .           .           .
              .           .           .
243           .           .           .        EM-7
              .           .           .           .
              .           .           .           .
247           .      CP-PP2........................
              .           V
              .           V
249           .        PP-2
              .           .
              .           .
256     JCHAN2............
              V
              V
258     CHAN-2
              .
              .
260           .          L2
              .           .
              .           .
265           .           .------->     D-L
264           .         D@L
              .           V
              .           V
268           .       RES-L
              .           .
              .           .
274           .           .          L3
              .           .           .
              .           .           .
278           .           .           .       VPH-1
              .           .           .           .
              .           .           .           .
282           .           .      VPCP-1............
              .           .           .
              .           .           .
284           .           .           .          L1
              .           .           .           .
              .           .           .           .
288           .           .           .           .           P
              .           .           .           .           .
              .           .           .           .           .
292           .           .           .       VPCP2............
              .           .           .           .
              .           .           .           .
294           .           .           .           .           Q
              .           .           .           .           .
              .           .           .           .           .
298           .           .           .      VPCP2A............
              .           .           .           .
              .           .           .           .
301           .           .           .           .------->    VPH
300           .           .           .       D@VPH
              .           .           .           V
              .           .           .           V
304           .           .           .       VPHRP
              .           .           .           .
              .           .           .           .
312           .           .           .           .------->  SOUTH
311           .           .           .       D-SOU
              .           .           .           .
              .           .           .           .
315           .           .       VPCP3............
              .           .           V
              .           .           V
317           .           .      VPNEPD
              .           .           .
              .           .           .
325     VPCP1A........................
              V
              V
327     RECH4A
              V
              V
329      RCH4B
              .
              .
331           .      WV-20A
              .           V
              .           V
335           .      HASKEL
              .           .
              .           .
341           .           .        EM-2
              .           .           .
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                 .           .           .
   345           .       20A+2............
                 .           V
                 .           V
   348           .       EMG-1
                 .           V
                 .           V
   354           .       EMG-1
                 .           .
                 .           .
   356           .           .        EMTC
                 .           .           .
                 .           .           .
   360           .           .           .       EM-10
                 .           .           .           .
                 .           .           .           .
   364           .       JEMO2........................
                 .           V
                 .           V
   366           .       EMO-2
                 .           V
                 .           V
   372           .        EMOc
                 .           .
                 .           .
   374           .           .       EM-11
                 .           .           .
                 .           .           .
   378           .           .           .        EM-9
                 .           .           .           .
                 .           .           .           .
   382           .      JG2&B2........................
                 .           .
                 .           .
   384           .           .        EM-8
                 .           .           .
                 .           .           .
   388           .           .           .       EM-12
                 .           .           .           .
                 .           .           .           .
   392           .      TODETN........................
                 .           V
                 .           V
   394           .        DETN
                 .           .
                 .           .
   400         J4B............
                 V
                 V
   402      RCH-4C
                 .
                 .
   404           .          A3
                 .           .
                 .           .
   408           .           .         A3A
                 .           .           .
                 .           .           .
   412           .      COMBA3............
                 .           V
                 .           V
   414           .       RES-6
                 .           .
                 .           .
   419           .           .         A3B
                 .           .           .
                 .           .           .
   424           .           .           .------->     PARK
   423           .           .      D-PARK
                 .           .           V
                 .           .           V
   427           .           .       RES-5
                 .           .           V
                 .           .           V
   432           .           .         R-9
                 .           .           .
                 .           .           .
   434           .           .           .        A13A
                 .           .           .           .
                 .           .           .           .
   438           .           .           .           .        A13B
                 .           .           .           .           .
                 .           .           .           .           .
   442           .           .           .      COMA13............
                 .           .           .           .
                 .           .           .           .
   444           .           .           .           .        A12A
                 .           .           .           .           .
                 .           .           .           .           .
   448           .           .           .           .           .         A12
                 .           .           .           .           .           .
                 .           .           .           .           .           .
   452           .           .           .           .      COMA12............
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            .         .         .         .         .
454         .         .     JRES3....................
            .         .         V
            .         .         V
456         .         .     RES-3
            .         .         .
            .         .         .
461         .         .         .       A13
            .         .         .         .
            .         .         .         .
465         .         .         .         .      A12B
            .         .         .         .         .
            .         .         .         .         .
469         .         .     JRES1....................
            .         .         V
            .         .         V
471         .         .     RES-1
            .         .         .
            .         .         .
479     ABMSR....................
            .
            .
481         .     OFF-1
            .         V
            .         V
485         .        R8
            .         .
            .         .
487         .         .        A5
            .         .         .
            .         .         .
491         .         .         .     CSR-7
            .         .         .         .
            .         .         .         .
495         .       J-1....................
            .         V
            .         V
497         .     EXDET
            .         .
            .         .
503         .         .------->    D-DIV
502         .       DIV
            .         V
            .         V
506         .    REXDET
            .         .
            .         .
508         .         .     OFF-2
            .         .         V
            .         .         V
512         .         .      R-19
            .         .         .
            .         .         .
514         .         .         .    CSR-6A
            .         .         .         V
            .         .         .         V
518         .         .         .    EXDT1A
            .         .         .         .
            .         .         .         .
523         .         .       J-6..........
            .         .         .
            .         .         .
525         .         .         .     CSR-6
            .         .         .         .
            .         .         .         .
529         .         .    CPXDT1..........
            .         .         V
            .         .         V
531         .         .     EXDT1
            .         .         .
            .         .         .
536         .         .         .        A1
            .         .         .         .
            .         .         .         .
540         .         .        J8..........
            .         .         V
            .         .         V
542         .         .       R21
            .         .         .
            .         .         .
544         .     JRES2..........
            .         V
            .         V
546         .      RES2
            .         V
            .         V
554         .       R22
            .         .
            .         .
556         .         .     CSR-4
            .         .         V
            .         .         V
560         .         .    EXDET2
            .         .         .
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                  .           .           .
    565           .           .           .       CSR-3
                  .           .           .           .
                  .           .           .           .
    569           .           .         J11............
                  .           .           V
                  .           .           V
    571           .           .       DITCH
                  .           .           .
                  .           .           .
    573           .           .           .          A2
                  .           .           .           .
                  .           .           .           .
    577           .      JRES15........................
                  .           V
                  .           V
    579           .       RES15
                  .           V
                  .           V
    584           .         R23
                  .           .
                  .           .
    586           .           .         RPE
                  .           .           .
                  .           .           .
    590           .       ACS-1............
                  .           .
                  .           .
    592           .           .        VPH2
                  .           .           .
                  .           .           .
    596           .           .           .       VPH-3
                  .           .           .           .
                  .           .           .           .
    600           .           .       VPCP2............
                  .           .           .
                  .           .           .
    602           .           .           .       VPH-4
                  .           .           .           .
                  .           .           .           .
    606           .           .           .           .       VPH-5
                  .           .           .           .           .
                  .           .           .           .           .
    611           .           .           .           .           .           .<-------   SOUTH
    610           .           .           .           .           .       RCLDP
                  .           .           .           .           .           .
                  .           .           .           .           .           .
    612           .           .      VPCP-4....................................
                  .           .           V
                  .           .           V
    614           .           .      VPDICH
                  .           .           .
                  .           .           .
    621           .           .           .          Q2
                  .           .           .           .
                  .           .           .           .
    625       VPCP6....................................
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                  .
    627           .       PVE-1
                  .           .
                  .           .
    631      ABCDSP............
                  .
                  .
    633           .       PVE-2
                  .           .
                  .           .
    637      BLCSRD............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
 *                                       *                                                ***************************************
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                *                                     *
 *        JUN 1998 AND FEB 2010          *                                                *   U.S. ARMY CORPS OF ENGINEERS      *
 *            VERSION 4.1R               *                                                *   HYDROLOGIC ENGINEERING CENTER     *
 *      RGMHEC2000 WWW.HEC-1.COM         *                                                *         609 SECOND STREET           *
 *  RUN DATE   07MAR21  TIME  18:18:59   *                                                *      DAVIS, CALIFORNIA 95616        *
 *                                       *                                                *          (916) 756-1104             *
 *****************************************                                                *                                     *
                                                                                          ***************************************



                                100 yr 24 hr event
                          VILLAGE PARKWAY HOMES
                          FILE NAME VPH-DIV2.DA T
                          USING TYPE II STORM DISTRIBUTION
                          BASE MODEL FROM WOODLAND VILLAGE PH 20

    7 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
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                        QSCAL          0.  HYDROGRAPH PLOT SCALE

          IT         HYDROGRAPH TIME DATA
                        NMIN          10  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         800  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      6    0  ENDING DATE
                      NDTIME        1310  ENDING TIME
                       ICENT          19  CENTURY MARK

                   COMPUTATION INTERVAL     .17 HOURS
                        TOTAL TIME BASE  133.17 HOURS

               ENGLISH UNITS
                    DRAINAGE AREA         SQUARE MILES
                    PRECIPITATION DEPTH   INCHES
                    LENGTH, ELEVATION     FEET
                    FLOW                  CUBIC FEET PER SECOND
                    STORAGE VOLUME        ACRE-FEET
                    SURFACE AREA          ACRES
                    TEMPERATURE           DEGREES FAHRENHEIT

          JP         MULTI-PLAN OPTION
                        NPLAN          1  NUMBER OF PLANS

          JR         MULTI-RATIO OPTION
                         RATIOS OF PRECIPITATION
                        1.00       .99       .98       .97       .96       .95
1

                   PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                    FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                                    TIME TO PEAK IN HOURS


                                                                   RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6
                                                            1.00      .99      .98      .97      .96      .95

 HYDROGRAPH AT
+                      A      .720     1   FLOW          121.51   117.04   112.64   108.31   104.04    99.83
                                           TIME           12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+                      B     1.780     1   FLOW          220.78   213.16   205.63   198.22   190.92   183.72
                                           TIME           13.33    13.33    13.33    13.33    13.33    13.33

  2 COMBINED AT
+                   D@A&B    2.500     1   FLOW          305.45   294.83   284.36   274.03   263.86   253.84
                                           TIME           13.17    13.17    13.17    13.17    13.17    13.17

 DIVERSION TO
+                   D-AB     2.500     1   FLOW          152.72   147.41   142.18   137.02   131.93   126.92
                                           TIME           13.17    13.17    13.17    13.17    13.17    13.17

 HYDROGRAPH AT
+                   D-A&B    2.500     1   FLOW          152.72   147.41   142.18   137.02   131.93   126.92
                                           TIME           13.17    13.17    13.17    13.17    13.17    13.17

 ROUTED TO
+                   RCH-1    2.500     1   FLOW          154.00   148.35   142.60   134.73   129.09   124.07
                                           TIME           13.67    13.67    13.67    13.67    13.67    13.83

 HYDROGRAPH AT
+                      C     1.260     1   FLOW          173.70   167.28   160.97   154.75   148.63   142.70
                                           TIME           13.00    13.00    13.00    13.00    13.00    13.17

  2 COMBINED AT
+                  J1@A&B    3.760     1   FLOW          292.49   277.67   264.27   253.43   243.81   234.54
                                           TIME           13.33    13.33    13.50    13.50    13.50    13.50

 ROUTED TO
+                   RCH-2    3.760     1   FLOW          289.48   275.52   261.29   250.68   240.82   232.01
                                           TIME           13.50    13.50    13.67    13.67    13.67    13.67

 HYDROGRAPH AT
+                      D     1.000     1   FLOW          166.69   160.98   155.35   149.80   144.33   138.95
                                           TIME           12.83    12.83    12.83    12.83    12.83    12.83

  2 COMBINED AT
+                  J2ABCD    4.760     1   FLOW          375.21   358.74   340.56   321.28   307.53   293.48
                                           TIME           13.50    13.50    13.50    13.50    13.50    13.67

 DIVERSION TO
+                     J2     4.760     1   FLOW          281.41   269.06   255.42   240.96   230.64   220.11
                                           TIME           13.50    13.50    13.50    13.50    13.50    13.67

 HYDROGRAPH AT
+                    DJ2     4.760     1   FLOW           93.80    89.69    85.14    80.32    76.88    73.37
                                           TIME           13.50    13.50    13.50    13.50    13.50    13.67

 HYDROGRAPH AT
+                      E      .615     1   FLOW          142.56   138.11   133.71   129.35   125.05   120.80
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                                    TIME      12.83    12.83    12.83    12.83    12.83    12.83

 DIVERSION TO
+               DE      .615    1   FLOW     142.56   138.11   133.71   129.35   125.05   120.80
                                    TIME      12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+              D@E      .615    1   FLOW        .00      .00      .00      .00      .00      .00
                                    TIME        .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                F      .815    1   FLOW     130.32   126.11   121.96   117.95   114.02   110.14
                                    TIME      13.17    13.17    13.17    13.33    13.33    13.33

 DIVERSION TO
+               DF      .815    1   FLOW     130.32   126.11   121.96   117.95   114.02   110.14
                                    TIME      13.17    13.17    13.17    13.33    13.33    13.33

 HYDROGRAPH AT
+              D@F      .815    1   FLOW        .00      .00      .00      .00      .00      .00
                                    TIME        .00      .00      .00      .00      .00      .00

  2 COMBINED AT
+             J3-1     1.430    1   FLOW        .00      .00      .00      .00      .00      .00
                                    TIME        .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                J     1.140    1   FLOW      13.79    10.25     6.53     2.83      .00      .00
                                    TIME      17.83    18.17    18.33    18.50      .00      .00

  2 COMBINED AT
+             J3-2     2.570    1   FLOW      13.79    10.25     6.53     2.83      .00      .00
                                    TIME      17.83    18.17    18.33    18.50      .00      .00

 HYDROGRAPH AT
+                G      .810    1   FLOW     263.54   257.51   251.51   245.56   239.63   233.74
                                    TIME      13.17    13.17    13.17    13.17    13.17    13.17

 DIVERSION TO
+              DDG      .810    1   FLOW     263.54   257.51   251.51   245.56   239.63   233.74
                                    TIME      13.17    13.17    13.17    13.17    13.17    13.17

 HYDROGRAPH AT
+              D@G      .810    1   FLOW        .00      .00      .00      .00      .00      .00
                                    TIME        .00      .00      .00      .00      .00      .00

 HYDROGRAPH AT
+                H      .740    1   FLOW     282.19   275.35   268.54   261.78   255.07   248.40
                                    TIME      12.83    12.83    12.83    12.83    12.83    12.83

 DIVERSION TO
+              DDH      .740    1   FLOW     282.19   275.35   268.54   261.78   255.07   248.40
                                    TIME      12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+              D@H      .740    1   FLOW        .00      .00      .00      .00      .00      .00
                                    TIME        .00      .00      .00      .00      .00      .00

  4 COMBINED AT
+               J3     8.880    1   FLOW      93.80    89.69    85.14    80.32    76.88    73.37
                                    TIME      13.50    13.50    13.50    13.50    13.50    13.67

 ROUTED TO
+            RCH-3     8.880    1   FLOW      93.81    88.64    84.28    79.68    76.05    73.02
                                    TIME      13.67    13.67    13.67    13.83    13.83    13.83

 DIVERSION TO
+             D-J3     8.880    1   FLOW      46.91    44.32    42.14    39.84    38.02    36.51
                                    TIME      13.67    13.67    13.67    13.83    13.83    13.83

 HYDROGRAPH AT
+             D@J3     8.880    1   FLOW      46.91    44.32    42.14    39.84    38.02    36.51
                                    TIME      13.67    13.67    13.67    13.83    13.83    13.83

 HYDROGRAPH AT
+            IEAST      .180    1   FLOW     126.16   123.09   120.03   117.00   113.98   110.98
                                    TIME      12.33    12.33    12.33    12.33    12.33    12.33

 DIVERSION TO
+              DDG      .180    1   FLOW     100.93    98.47    96.03    93.60    91.18    88.78
                                    TIME      12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+             D@IE      .180    1   FLOW      25.23    24.62    24.01    23.40    22.80    22.20
                                    TIME      12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+            OEAST      .210    1   FLOW       2.86     2.21     1.59      .98      .11      .00
                                    TIME      17.17    17.50    17.83    18.00    18.17      .00

  2 COMBINED AT
+              CP2      .390    1   FLOW      25.23    24.62    24.01    23.40    22.80    22.20
                                    TIME      12.33    12.33    12.33    12.33    12.33    12.33
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 2 COMBINED AT
+               CPO+J3      9.270     1   FLOW        49.23     46.60     44.38     41.92     40.06     38.50
                                          TIME        13.67     13.67     13.67     13.83     13.83     13.83

 DIVERSION TO
+                  DNA      9.270     1   FLOW        18.45     13.19      8.75      3.83       .12       .00
                                          TIME        13.67     13.67     13.67     13.83     13.83       .00

 HYDROGRAPH AT
+                D@NOA      9.270     1   FLOW        39.89     39.99     39.75     39.62     39.94     38.50
                                          TIME        13.17     14.17     13.50     14.00     13.83     13.83

 ROUTED TO
+               RS-NOA      9.270     1   FLOW        28.95     29.08     29.02     28.77     28.35     27.63
                                          TIME        14.83     14.83     14.67     14.67     14.67     14.67

                                   ** PEAK STAGES IN FEET **
                                      1   STAGE     5104.12   5104.13   5104.13   5104.11   5104.08   5104.04
                                          TIME        14.83     14.83     14.67     14.67     14.67     14.67

 HYDROGRAPH AT
+                  I-K       .374     1   FLOW       153.89    150.30    146.72    143.17    139.64    136.13
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 DIVERSION TO
+                 D-IK       .374     1   FLOW        76.94     75.15     73.36     71.58     69.82     68.06
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                DVI-K       .374     1   FLOW        76.94     75.15     73.36     71.58     69.82     68.06
                                          TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+               WV20-B       .017     1   FLOW        20.35     19.99     19.63     19.28     18.92     18.57
                                          TIME        12.33     12.33     12.33     12.33     12.33     12.33

 2 COMBINED AT
+                CPEM5       .391     1   FLOW        82.12     80.18     78.24     76.32     74.41     72.51
                                          TIME        12.67     12.67     12.67     12.67     12.67     12.67

 DIVERSION TO
+                  DNB       .391     1   FLOW        40.00     40.00     40.00     40.00     40.00     40.00
                                          TIME        12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                D@NOB       .391     1   FLOW        42.12     40.18     38.97     39.87     39.23     38.34
                                          TIME        12.67     12.67     13.33     13.33     13.33     13.33

 ROUTED TO
+               RS-NOB       .391     1   FLOW         7.73      7.69      7.65      7.61      7.57      7.52
                                          TIME        18.83     18.67     18.67     18.67     18.67     18.50

                                   ** PEAK STAGES IN FEET **
                                      1   STAGE     5107.23   5107.19   5107.15   5107.11   5107.07   5107.02
                                          TIME        18.83     18.83     18.83     18.83     18.67     18.67

 2 COMBINED AT
+                NORTH      9.661     1   FLOW        36.44     36.53     36.44     36.13     35.67     34.90
                                          TIME        14.83     14.83     14.83     14.67     14.67     14.67

 HYDROGRAPH AT
+                    M       .560     1   FLOW       229.45    223.62    217.83    212.08    206.37    200.70
                                          TIME        12.67     12.67     12.67     12.67     12.67     12.67

 ROUTED TO
+                RES-M       .560     1   FLOW        59.65     58.59     57.49     56.41     55.37     54.34
                                          TIME        13.67     13.67     13.67     13.67     13.67     13.67

                                   ** PEAK STAGES IN FEET **
                                      1   STAGE        4.96      4.86      4.75      4.64      4.54      4.44
                                          TIME        13.67     13.67     13.67     13.67     13.67     13.67

 HYDROGRAPH AT
+                OFF-4       .060     1   FLOW        27.36     26.64     25.94     25.24     24.54     23.85
                                          TIME        12.50     12.50     12.50     12.50     12.50     12.50

 2 COMBINED AT
+               M+OFF4       .620     1   FLOW        67.04     65.81     64.59     63.22     61.91     60.76
                                          TIME        13.00     13.00     13.00     13.00     13.17     13.17

 DIVERSION TO
+                  DDM       .620     1   FLOW        13.41     13.16     12.92     12.64     12.38     12.15
                                          TIME        13.00     13.00     13.00     13.00     13.17     13.17

 HYDROGRAPH AT
+                  D@M       .620     1   FLOW        53.63     52.65     51.67     50.58     49.53     48.61
                                          TIME        13.00     13.00     13.00     13.00     13.17     13.17

 HYDROGRAPH AT
+                OFF-3       .191     1   FLOW        88.81     86.71     84.62     82.55     80.48     78.43
                                          TIME        12.67     12.67     12.67     12.67     12.67     12.67

 2 COMBINED AT
+                OF3+4       .811     1   FLOW       131.95    128.56    125.18    121.76    118.25    114.76
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                                        TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                EM-1       .046    1   FLOW        80.73     79.70     78.67     77.65     76.62     75.59
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                JEM1+      .857    1   FLOW       175.19    171.35    167.54    163.74    159.97    156.22
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                 TRI       .009    1   FLOW         6.87      6.71      6.55      6.39      6.24      6.08
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                CPPP1      .866    1   FLOW       179.42    175.49    171.58    167.70    163.84    160.00
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                PP-1       .866    1   FLOW        63.48     63.43     63.37     63.32     63.27     62.83
                                        TIME        14.50     14.33     14.33     14.33     14.17     14.17

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE       22.07     22.05     22.04     22.02     22.00     21.85
                                        TIME        14.50     14.50     14.33     14.33     14.17     14.17

 ROUTED TO
+               RCHPP1      .866    1   FLOW        63.97     63.58     63.37     63.33     63.28     62.83
                                        TIME        13.17     13.50     14.50     14.00     14.33     14.33

 DIVERSION TO
+                 DNC       .866    1   FLOW        40.00     40.00     40.00     40.00     40.00     40.00
                                        TIME        13.17     13.17     13.17     13.17     13.17     13.17

 HYDROGRAPH AT
+               D@NOC       .866    1   FLOW        39.97     39.59     39.83     39.89     39.66     39.67
                                        TIME        21.50     21.33     21.00     20.83     20.67     20.33

 ROUTED TO
+               RS-NOC      .866    1   FLOW        31.83     31.89     31.98     32.06     32.14     32.22
                                        TIME        22.67     22.33     22.17     22.00     21.67     21.50

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5097.38   5097.39   5097.40   5097.41   5097.41   5097.42
                                        TIME        22.67     22.33     22.17     22.00     21.67     21.50

  2 COMBINED AT
+               CP-NOR    10.527    1   FLOW        58.69     58.69     58.57     58.19     57.61     56.58
                                        TIME        15.00     14.83     14.83     14.83     14.83     14.83

 HYDROGRAPH AT
+               IWEST       .350    1   FLOW       187.08    182.50    177.95    173.43    168.93    164.47
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

 DIVERSION TO
+                DDIW       .350    1   FLOW       149.67    146.00    142.36    138.74    135.14    131.57
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                D@IW       .350    1   FLOW        37.42     36.50     35.59     34.69     33.79     32.89
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+               OWEST       .180    1   FLOW         5.07      3.90      2.79      1.52       .15       .00
                                        TIME        17.50     17.67     18.00     18.17     18.33       .00

  2 COMBINED AT
+                 CP1       .530    1   FLOW        37.42     36.50     35.59     34.69     33.79     32.89
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

  2 COMBINED AT
+               NOR+I     11.057    1   FLOW        68.36     67.23     66.13     64.94     63.81     62.69
                                        TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                 EM4       .119    1   FLOW       186.95    184.32    181.68    179.05    176.43    173.80
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+               EMB-1       .119    1   FLOW        54.03     53.59     53.15     52.72     52.29     51.78
                                        TIME        12.83     12.83     12.83     12.83     12.83     12.83

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     5082.25   5082.20   5082.14   5082.09   5082.04   5081.98
                                        TIME        12.83     12.83     12.83     12.83     12.83     12.83

 ROUTED TO
+              RHEMB1       .119    1   FLOW        53.68     53.26     52.82     52.34     51.86     51.30
                                        TIME        12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                EM-6       .045    1   FLOW        39.35     38.33     37.30     36.28     35.27     34.25
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50
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 HYDROGRAPH AT
+             EM-7      .061    1   FLOW        80.64    79.43    78.21    77.00    75.79    74.58
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

  3 COMBINED AT
+             CP-PP2    .226    1   FLOW       159.60   156.91   154.18   151.52   148.76   146.12
                                    TIME        12.50    12.50    12.50    12.50    12.50    12.50

 ROUTED TO
+             PP-2      .226    1   FLOW        29.33    29.23    29.13    29.03    28.86    28.67
                                    TIME        15.17    15.17    15.17    15.00    15.00    15.00

                               ** PEAK STAGES IN FEET **
                                1   STAGE     5177.16  5177.11  5177.06  5177.01  5176.97  5176.92
                                    TIME        15.17    15.17    15.17    15.00    15.00    15.00

  2 COMBINED AT
+             JCHAN2  11.283    1   FLOW        93.03    91.81    90.80    90.28    89.49    88.25
                                    TIME        12.67    12.67    14.83    14.67    14.67    14.67

 ROUTED TO
+             CHAN-2  11.283    1   FLOW        92.89    91.03    90.79    90.28    89.46    88.21
                                    TIME        12.67    14.83    14.83    14.83    14.83    14.83

 HYDROGRAPH AT
+             L2        .234    1   FLOW       148.45   145.13   141.82   138.53   135.25   132.00
                                    TIME        12.50    12.50    12.50    12.50    12.50    12.50

 DIVERSION TO
+             D-L       .234    1   FLOW        74.23    72.56    70.91    69.26    67.63    66.00
                                    TIME        12.50    12.50    12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+             D@L       .234    1   FLOW        74.23    72.56    70.91    69.26    67.63    66.00
                                    TIME        12.50    12.50    12.50    12.50    12.50    12.50

 ROUTED TO
+             RES-L     .234    1   FLOW        33.83    33.12    32.41    31.71    31.02    30.33
                                    TIME        12.83    12.83    12.83    12.83    12.83    12.83

                               ** PEAK STAGES IN FEET **
                                1   STAGE        3.58     3.51     3.44     3.37     3.30     3.23
                                    TIME        12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
+             L3        .018    1   FLOW        24.11    23.71    23.32    22.92    22.52    22.13
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+             VPH-1     .035    1   FLOW        47.18    46.41    45.63    44.86    44.08    43.31
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
+             VPCP-1    .053    1   FLOW        71.29    70.12    68.95    67.77    66.61    65.44
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+             L1        .029    1   FLOW        38.51    37.88    37.24    36.60    35.97    35.34
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+             P         .031    1   FLOW        55.48    54.55    53.62    52.70    51.78    50.86
                                    TIME        12.17    12.17    12.17    12.17    12.17    12.17

  2 COMBINED AT
+             VPCP2     .060    1   FLOW        83.57    82.15    80.73    79.32    77.91    76.50
                                    TIME        12.17    12.17    12.17    12.17    12.17    12.17

 HYDROGRAPH AT
+             Q         .052    1   FLOW        70.09    68.94    67.78    66.63    65.49    64.34
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
+             VPCP2A    .112    1   FLOW       142.83   140.49   138.16   135.84   133.52   131.20
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

 DIVERSION TO
+             VPH       .112    1   FLOW        12.00    12.00    12.00    12.00    12.00    12.00
                                    TIME        12.00    12.00    12.00    12.00    12.00    12.00

 HYDROGRAPH AT
+             D@VPH     .112    1   FLOW       130.83   128.49   126.16   123.84   121.52   119.20
                                    TIME        12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+             VPHRP     .112    1   FLOW        44.34    43.47    42.60    41.73    40.86    39.99
                                    TIME        12.67    12.67    12.67    12.67    12.67    12.67

                               ** PEAK STAGES IN FEET **
                                1   STAGE     5066.43  5066.35  5066.26  5066.17  5066.09  5066.00
                                    TIME        12.67    12.67    12.67    12.67    12.67    12.67

 DIVERSION TO
+             SOUTH     .112    1   FLOW        44.34    43.47    42.60    41.73    40.86    39.99
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                                      TIME       12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+              D-SOU      .112    1   FLOW         .00       .00       .00       .00       .00       .00
                                      TIME         .00       .00       .00       .00       .00       .00

  2 COMBINED AT
+              VPCP3      .165    1   FLOW       71.29     70.12     68.95     67.77     66.61     65.44
                                      TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+              VPNEPD     .165    1   FLOW       17.78     17.37     16.97     16.56     16.16     15.76
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

                                  ** PEAK STAGES IN FEET **
                                  1   STAGE      62.68     62.62     62.57     62.51     62.45     62.39
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

  3 COMBINED AT
+              VPCP1A   11.682    1   FLOW      141.48    138.98    137.16    134.63    132.18    130.42
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

 ROUTED TO
+              RECH4A   11.682    1   FLOW      140.10    137.39    135.54    133.00    130.71    128.94
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

 ROUTED TO
+              RCH4B    11.682    1   FLOW      136.25    133.94    132.14    129.92    127.52    125.72
                                      TIME       13.00     13.00     13.00     13.00     13.00     13.00

 HYDROGRAPH AT
+              WV-20A     .013    1   FLOW        7.92      7.72      7.51      7.31      7.11      6.90
                                      TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+              HASKEL     .013    1   FLOW        2.00      1.96      1.92      1.89      1.85      1.82
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

                                  ** PEAK STAGES IN FEET **
                                  1   STAGE    5195.33   5195.32   5195.30   5195.29   5195.27   5195.26
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+              EM-2       .062    1   FLOW       67.41     66.33     65.25     64.17     63.09     62.02
                                      TIME       12.50     12.50     12.50     12.50     12.50     12.50

  2 COMBINED AT
+              20A+2      .075    1   FLOW       69.27     68.15     67.04     65.93     64.82     63.71
                                      TIME       12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+              EMG-1      .075    1   FLOW       35.65     35.09     34.54     33.98     33.43     32.88
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

                                  ** PEAK STAGES IN FEET **
                                  1   STAGE      88.69     88.65     88.61     88.57     88.53     88.49
                                      TIME       12.83     12.83     12.83     12.83     12.83     12.83

 ROUTED TO
+              EMG-1      .075    1   FLOW       35.08     34.82     33.90     33.70     32.80     32.58
                                      TIME       13.00     13.00     13.00     13.00     13.00     13.00

 HYDROGRAPH AT
+              EMTC       .053    1   FLOW       39.62     38.41     37.32     36.28     35.25     34.22
                                      TIME       12.33     12.33     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+              EM-10      .053    1   FLOW       29.86     28.98     28.11     27.24     26.38     25.52
                                      TIME       12.50     12.50     12.50     12.50     12.50     12.50

  3 COMBINED AT
+              JEMO2      .181    1   FLOW       88.46     86.58     83.74     81.44     79.12     76.46
                                      TIME       12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+              EMO-2      .181    1   FLOW       49.68     48.52     47.22     45.95     44.73     43.41
                                      TIME       13.17     13.17     13.17     13.17     13.17     13.17

                                  ** PEAK STAGES IN FEET **
                                  1   STAGE      69.74     69.69     69.63     69.58     69.53     69.48
                                      TIME       13.17     13.17     13.17     13.17     13.17     13.17

 ROUTED TO
+              EMOc       .181    1   FLOW       49.30     48.14     46.77     45.57     44.42     43.18
                                      TIME       13.17     13.17     13.33     13.33     13.33     13.33

 HYDROGRAPH AT
+              EM-11      .012    1   FLOW       15.44     14.99     14.54     14.10     13.65     13.21
                                      TIME       12.17     12.17     12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+              EM-9       .021    1   FLOW       27.01     26.23     25.45     24.67     23.89     23.12
                                      TIME       12.17     12.17     12.17     12.17     12.17     12.17
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  3 COMBINED AT
+               JG2&B2      .214     1   FLOW        53.33     52.11     50.67     49.31     48.02     46.60
                                         TIME        13.17     13.17     13.17     13.17     13.17     13.33

 HYDROGRAPH AT
+                 EM-8      .046     1   FLOW        45.35     44.08     42.81     41.54     40.29     39.03
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                EM-12      .015     1   FLOW        28.78     28.10     27.41     26.72     26.03     25.33
                                         TIME        12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+               TODETN      .275     1   FLOW       112.78    109.94    107.10    104.27    101.45     98.64
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                 DETN      .275     1   FLOW        33.01     32.32     31.61     30.91     30.23     29.51
                                         TIME        14.67     14.67     14.67     14.67     14.67     14.83

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE        3.50      3.43      3.36      3.29      3.22      3.15
                                         TIME        14.67     14.67     14.67     14.67     14.67     14.83

  2 COMBINED AT
+                  J4B    11.957     1   FLOW       157.90    154.86    152.30    149.32    146.17    143.79
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.17

 ROUTED TO
+               RCH-4C    11.957     1   FLOW       157.21    154.46    151.75    148.81    145.86    143.49
                                         TIME        13.17     13.17     13.17     13.17     13.17     13.17

 HYDROGRAPH AT
+                   A3      .055     1   FLOW        81.57     80.33     79.10     77.86     76.63     75.40
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                  A3A      .007     1   FLOW        10.21     10.03      9.85      9.68      9.50      9.32
                                         TIME        12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+               COMBA3      .062     1   FLOW        90.04     88.67     87.29     85.92     84.55     83.18
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                RES-6      .062     1   FLOW        34.25     33.89     33.54     33.19     32.83     32.48
                                         TIME        12.67     12.67     12.67     12.67     12.67     12.67

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE     5078.85   5078.78   5078.71   5078.64   5078.57   5078.50
                                         TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                  A3B      .026     1   FLOW        35.10     34.53     33.95     33.38     32.81     32.24
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 DIVERSION TO
+                 PARK      .026     1   FLOW         8.78      8.63      8.49      8.35      8.20      8.06
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+               D-PARK      .026     1   FLOW        26.33     25.89     25.46     25.04     24.61     24.18
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                RES-5      .026     1   FLOW        15.37     15.10     14.83     14.57     14.30     14.02
                                         TIME        12.50     12.50     12.50     12.50     12.50     12.50

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE     5071.14   5071.11   5071.08   5071.06   5071.03   5071.00
                                         TIME        12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                  R-9      .026     1   FLOW        14.98     14.51     14.32     14.18     13.92     13.53
                                         TIME        12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                 A13A      .006     1   FLOW         6.66      6.53      6.41      6.29      6.17      6.04
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 A13B      .040     1   FLOW        46.30     45.46     44.62     43.78     42.95     42.12
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+               COMA13      .046     1   FLOW        52.96     51.99     51.03     50.07     49.11     48.16
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 A12A      .015     1   FLOW        18.64     18.30     17.97     17.63     17.30     16.97
                                         TIME        12.17     12.17     12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                  A12      .020     1   FLOW        27.30     26.79     26.28     25.77     25.26     24.76
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                                     TIME      12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+                COMA12     .035    1  FLOW      45.94     45.09     44.25     43.40     42.57     41.73
                                       TIME      12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+                 JRES3     .107    1  FLOW      99.96     98.15     96.36     94.47     92.43     90.65
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                 RES-3     .107    1  FLOW      47.40     45.98     44.65     43.35     41.89     40.48
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

                                  ** PEAK STAGES IN FEET **
                                    1  STAGE   5061.87   5061.84   5061.81   5061.79   5061.75   5061.72
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                   A13     .050    1  FLOW      60.24     59.18     58.12     57.06     56.01     54.96
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                  A12B     .030    1  FLOW      68.94     68.06     67.18     66.31     65.43     64.55
                                       TIME      12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+                 JRES1     .187    1  FLOW     128.12    124.86    121.55    118.37    116.28    114.21
                                       TIME      12.33     12.33     12.33     12.17     12.17     12.17

 ROUTED TO
+                 RES-1     .187    1  FLOW      15.81     15.58     15.35     15.12     14.89     14.66
                                       TIME      14.33     14.33     14.33     14.33     14.33     14.33

                                  ** PEAK STAGES IN FEET **
                                    1  STAGE   5060.30   5060.26   5060.22   5060.19   5060.15   5060.11
                                       TIME      14.33     14.33     14.33     14.33     14.33     14.33

  3 COMBINED AT
+                 ABMSR   12.206    1  FLOW     201.65    198.01    194.87    191.28    187.32    183.85
                                       TIME      13.00     13.00     13.00     13.00     13.00     13.00

 HYDROGRAPH AT
+                 OFF-1     .023    1  FLOW      14.87     14.50     14.12     13.75     13.38     13.02
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                    R8     .023    1  FLOW      14.17     13.83     13.49     12.98     12.65     12.31
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                    A5     .060    1  FLOW     101.37     99.97     98.58     97.18     95.78     94.39
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                 CSR-7     .014    1  FLOW      17.56     17.26     16.96     16.66     16.36     16.06
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

  3 COMBINED AT
+                   J-1     .097    1  FLOW     129.54    127.49    125.44    123.40    121.38    119.37
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                 EXDET     .097    1  FLOW     118.99    120.21    121.42    122.46    123.54    124.59
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

                                  ** PEAK STAGES IN FEET **
                                    1  STAGE   5125.29   5125.29   5125.29   5125.29   5125.29   5125.30
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 DIVERSION TO
+                 D-DIV     .097    1  FLOW      59.50     60.10     60.71     61.23     61.77     62.30
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                   DIV     .097    1  FLOW      59.50     60.10     60.71     61.23     61.77     62.30
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                REXDET     .097    1  FLOW      54.37     54.01     53.90     52.96     52.05     52.34
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                 OFF-2     .050    1  FLOW      28.29     27.55     26.82     26.09     25.36     24.64
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  R-19     .050    1  FLOW      28.11     27.41     26.72     26.39     25.69     24.99
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                CSR-6A     .005    1  FLOW       5.79      5.68      5.58      5.47      5.37      5.27
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33
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 ROUTED TO
+               EXDT1A     .005    1   FLOW        5.02      5.00      4.97      4.95      4.92      4.89
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

                                   ** PEAK STAGES IN FEET **
                                   1   STAGE    5105.30   5105.27   5105.24   5105.21   5105.19   5105.16
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                  J-6     .055    1   FLOW       33.01     32.27     31.53     31.16     30.35     29.47
                                       TIME       12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                CSR-6     .025    1   FLOW       35.04     34.47     33.91     33.36     32.80     32.24
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+               CPXDT1     .080    1   FLOW       59.86     58.63     57.41     55.94     54.72     53.52
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                EXDT1     .080    1   FLOW       20.24     20.03     19.82     19.61     19.40     19.20
                                       TIME       12.83     12.83     12.83     12.83     12.83     12.83

                                   ** PEAK STAGES IN FEET **
                                   1   STAGE    5106.94   5106.82   5106.69   5106.56   5106.44   5106.32
                                       TIME       12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                   A1     .090    1   FLOW      124.95    122.93    120.92    118.92    116.92    114.92
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

  2 COMBINED AT
+                   J8     .170    1   FLOW      139.01    136.74    134.49    132.17    129.93    127.69
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                  R21     .170    1   FLOW      119.58    117.72    115.86    113.97    112.12    110.28
                                       TIME       12.50     12.50     12.50     12.50     12.50     12.50

  2 COMBINED AT
+                JRES2     .266    1   FLOW      173.95    171.73    169.76    166.93    164.17    162.62
                                       TIME       12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
+                 RES2     .266    1   FLOW       15.37     15.23     15.09     14.95     14.81     14.67
                                       TIME       16.83     16.67     16.67     16.67     16.67     16.50

                                   ** PEAK STAGES IN FEET **
                                   1   STAGE    5070.98   5070.90   5070.83   5070.75   5070.67   5070.60
                                       TIME       16.83     16.83     16.83     16.67     16.67     16.67

 ROUTED TO
+                  R22     .266    1   FLOW       15.37     15.23     15.09     14.95     14.81     14.67
                                       TIME       16.83     16.83     16.83     16.67     16.67     16.67

 HYDROGRAPH AT
+                CSR-4     .030    1   FLOW       41.96     41.21     40.47     39.72     38.98     38.24
                                       TIME       12.17     12.17     12.17     12.17     12.17     12.17

 ROUTED TO
+               EXDET2     .030    1   FLOW        9.79      9.75      9.71      9.67      9.63      9.59
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67

                                   ** PEAK STAGES IN FEET **
                                   1   STAGE    5096.59   5096.51   5096.42   5096.34   5096.26   5096.18
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                CSR-3     .005    1   FLOW        9.54      9.39      9.24      9.10      8.95      8.80
                                       TIME       12.17     12.17     12.17     12.17     12.17     12.17

  2 COMBINED AT
+                  J11     .035    1   FLOW       15.89     15.68     15.48     15.28     15.07     14.87
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                DITCH     .035    1   FLOW       17.59     17.34     17.08     16.82     16.57     16.31
                                       TIME       12.50     12.50     12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                   A2     .050    1   FLOW       64.81     63.67     62.53     61.40     60.27     59.15
                                       TIME       12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
+               JRES15     .352    1   FLOW       80.64     79.25     77.87     76.51     75.12     73.77
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
+                RES15     .352    1   FLOW       10.22     10.12     10.02      9.92      9.82      9.72
                                       TIME       29.33     29.17     29.17     29.00     29.00     28.83

                                   ** PEAK STAGES IN FEET **
                                   1   STAGE    5062.98   5062.93   5062.88   5062.83   5062.78   5062.73
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                                     TIME       29.50    29.33    29.17    29.17    29.17    29.00

 ROUTED TO
+              R23      .352    1   FLOW       10.22    10.12    10.02     9.92     9.82     9.72
                                    TIME       29.50    29.67    29.33    29.50    29.17    29.00

 HYDROGRAPH AT
+              RPE      .120    1   FLOW      110.88   108.73   106.59   104.45   102.33   100.21
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 2 COMBINED AT
+            ACS-1      .472    1   FLOW      110.88   108.73   106.59   104.45   102.33   100.21
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+             VPH2      .010    1   FLOW       13.40    13.18    12.96    12.74    12.53    12.31
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+            VPH-3      .010    1   FLOW       13.51    13.28    13.05    12.82    12.59    12.36
                                    TIME       12.17    12.17    12.17    12.17    12.17    12.17

 2 COMBINED AT
+            VPCP2      .020    1   FLOW       26.63    26.19    25.76    25.33    24.90    24.47
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
+            VPH-4      .011    1   FLOW       14.86    14.60    14.35    14.10    13.84    13.59
                                    TIME       12.17    12.17    12.17    12.17    12.17    12.17

 HYDROGRAPH AT
+            VPH-5      .005    1   FLOW        7.59     7.46     7.33     7.20     7.07     6.95
                                    TIME       12.17    12.17    12.17    12.17    12.17    12.17

 HYDROGRAPH AT
+            RCLDP      .000    1   FLOW       44.34    43.47    42.60    41.73    40.86    39.99
                                    TIME       12.67    12.67    12.67    12.67    12.67    12.67

 4 COMBINED AT
+           VPCP-4      .036    1   FLOW       81.18    79.97    78.76    77.56    76.35    75.14
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
+           VPDICH      .036    1   FLOW       43.57    42.93    42.29    41.64    40.99    40.35
                                    TIME       13.00    13.00    13.00    13.00    13.00    13.00

                               ** PEAK STAGES IN FEET **
                                1   STAGE    5063.05  5062.98  5062.91  5062.84  5062.77  5062.69
                                    TIME       13.00    13.00    13.00    13.00    13.00    13.00

 HYDROGRAPH AT
+               Q2      .013    1   FLOW       17.42    17.13    16.85    16.57    16.28    16.00
                                    TIME       12.33    12.33    12.33    12.33    12.33    12.33

 4 COMBINED AT
+            VPCP6    12.726    1   FLOW      290.76   284.94   280.10   275.38   269.08   263.38
                                    TIME       12.67    12.67    12.67    12.67    12.67    12.67

 HYDROGRAPH AT
+            PVE-1      .013    1   FLOW       18.66    18.34    18.01    17.69    17.37    17.05
                                    TIME       12.17    12.17    12.17    12.17    12.17    12.17

 2 COMBINED AT
+           ABCDSP    12.739    1   FLOW      295.05   289.17   284.26   279.47   273.11   267.35
                                    TIME       12.67    12.67    12.67    12.67    12.67    12.67

 HYDROGRAPH AT
+            PVE-2      .011    1   FLOW       16.04    15.76    15.48    15.20    14.93    14.65
                                    TIME       12.17    12.17    12.17    12.17    12.17    12.17

 2 COMBINED AT
+           BLCSRD    12.750    1   FLOW      302.21   296.11   290.97   284.94   278.96   273.51
                                    TIME       12.50    12.50    12.50    12.50    12.50    12.50
1
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PROPOSED CONDITIONS THROUGH FULL BUILD OUT OF WOODLAND VILLAGE

VPH Proposed
100 Year event
Base Model: Woodland Village
Full buildout

```
1****************************************                   ****************************************
*                                       *                   *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                   *   U.S. ARMY CORPS OF ENGINEERS       *
*        JUN 1998 AND FEB 2010          *                   *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1R               *                   *        609 SECOND STREET             *
*       RGMHEC2000 WWW.HEC-1.COM        *                   *     DAVIS, CALIFORNIA 95616          *
* RUN DATE   07MAR21  TIME  17:57:35    *                   *         (916) 756-1104               *
*                                       *                   *                                      *
****************************************                   ****************************************


                          X     X  XXXXXXX   XXXXX        X
                          X     X  X        X     X      XX
                          X     X  X        X             X
                          XXXXXXX  XXXX     X     XXXXX   X
                          X     X  X        X             X
                          X     X  X        X     X       X
                          X     X  XXXXXXX   XXXXX       XXX




                THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

                THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
                THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
                NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
                DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
                KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


1                                              HEC-1 INPUT                                                 PAGE  1

      LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                 *DDIAGRAM
         1       ID       100 yr 24 hr event
         2       ID    WOODLANDVILLAGE PHASE 23 MODEL
         3       ID   FILE NAME VPH-FBO.DAT
         4       ID   USING BALANCED STORM
         5       ID       FULL BUILD OUT  USES 3 BASINS IN NORTH
                 *
                 *        DARF         AREA (SQ.      MI.)
                 *        1.00              0 -  2
                 *        0.99            2.1 -  8
                 *        0.98            8.1 - 16
                 *        0.97           16.1 - 29
                 *        0.96           29.1 - 43
                 *        0.95           43.1 - 63
                 *        0.94           63.1 - 98
         6       IT      10                    800
         7       IO       5       0
         8       JR    PREC     1.0     .99     .98     .97

         9       KK       A
        10       BA    0.72
        11       PH       1             .68    1.24    2.06    2.32    2.52    2.94    3.76    4.59
        12       LS     1.7      54
        13       UD     .62

        14       KK       B
        15       BA    1.78
        16       LS    1.63      55
        17       UD     1.1

        18       KK   D@A&B
        19       HC       2

        20       KK   D-A&B
        21       DT    D-AB
        22       DI       0      10      50     100     500
        23       DQ       0       5      25      50     250

        24       KK   RCH-1
        25       KM  ROUTE A&B TO J1@AB
        26       RD   10200     .04     .12            TRAP       3       1

        27       KK       C
        28       BA    1.26
        29       LS     1.7      54
        30       UD     .82

        31       KK  J1@A&B
        32       HC       2
1                                              HEC-1 INPUT                                                 PAGE  2

      LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


        33       KK   RCH-2
        34       RD    3500     .06     .12            TRAP      10     2.5
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   35        KK       D
   36        BA     1.0
   37        LS    1.57      50
   38        UD     .63

   39        KK  J2ABCD
   40        HC       2

   41        KK     DJ2
   42        DT      J2
   43        DI       0      10      50     100     500
   44        DQ       0       5      25      50     250

   45        KK       E
   46        BA    .615
   47        LS    1.45      58
   48        UD     .68

   49        KK     D@E
   50        DT      DE
   51        DI       0      10      50     100     500
   52        DQ       0       8      40      80     400

   53        KK       F
   54        BA   0.815
   55        LS    1.51      57
   56        UD       1

   57        KK     D@F
   58        DT      DF
   59        DI       0      10      50     100     500
   60        DQ       0       8      40      80     400

   61        KK    J3-1
   62        HC       2

   63        KK       J
   64        BA    1.14
   65        LU       4     0.1
   66        UD     .67

   67        KK    J3-2
   68        HC       2

   69        KK       G
   70        BA    0.81
   71        LS    1.03      66
   72        UD     .93
1
                                           HEC-1 INPUT                                                         PAGE  3

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   73        KK     D@G
   74        DT     DDG
   75        DI       0      10      50     100     500
   76        DQ       0       8      40      80     400

   77        KK       H
   78        BA    0.74
   79        LS    1.12      64
   80        UD     .63

   81        KK     D@H
   82        DT     DDH
   83        DI       0      10      50     100     500
   84        DQ       0       8      40      80     400

   85        KK      J3
   86        HC       4

   87        KK   RCH-3
   88        RD    4000     .04     .05            TRAP      10       1

   89        KK    D@J3
   90        DT    D-J3
   91        DI       0      10      50     100     250     500
   92        DQ       0       5      25      50     125     250

   93        KK   IEAST
   94        BA     .18
   95        LS              64
   96        UD     .22

   97        KK    D@IE
   98        DT     DDG
   99        DI       0      10      50     100     500
  100        DQ       0       8      40      80     400

  101        KK   OEAST
  102        BA     .21
  103        LU       4      .1
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      104           KK     CP2
      105           HC       2

      106           KK  CP0+J3
      107           HC       2

      108           KK   D@NOA
      109           DT     DNA
      110           DI       0       40       60      100      500     1000
      111           DQ       0        0       40       40       40       40
1                                                HEC-1 INPUT                                              PAGE  4

     LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      112           KK    NP-A          NORTH RESERVOIR A
      113           KM    36" OUTLET
      114           RS       1     STOR        0
      115           SA       0      .17      .91     2.24     3.55     4.94     5.09     5.24
      116           SE  5101.5     5102     5103     5104     5105     5106     5107     5108
      117           SQ       0        6       19       35       50       60       72       78
      118           SE  5101.5   5102.5   5103.5   5104.5   5105.5   5106.5   5107.5   5108.5

      119           KK     K-1
      120           BA    .077
      121           LS                 70
      122           UD     .31

      123           KK    D@K1
      124           DT    DDK1
      125           DI       0       10       50      100      500
      126           DQ       0        5       25       50      250

      127           KK     K-2
      128           BA    .105
      129           LS                 70
      130           UD     .30

      131           KK    D@K2
      132           DT    DDK2
      133           DI       0       10       50      100      500
      134           DQ       0        5       25       50      250

      135           KK     K-3
      136           BA    .033
      137           LS                 70
      138           UD     .22

      139           KK    D@K3
      140           DT    DDK3
      141           DI       0       10       50      100      500
      142           DQ       0        5       25       50      250

      143           KK    CP-K
      144           HC       3

      145           KK    EM-5
      146           BA     .03
      147           LS                 88
      148           UD     .19

      149           KK  DP-EM5          POND TO MITAGATE EM-5 DEVELOPMENT
      150           RS       1     STOR        0
      151           SA     .47      .74
      152           SE   23.17    28.17
      153           SQ       0      4.1     12.5       20       26       29
      154           SE   23.17    24.17    25.17    26.17    27.17    28.17
1                                                HEC-1 INPUT                                              PAGE  5

     LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      155           KK   CPEM5
      156           HC       2

      157           KK   D@NOB
      158           DT     DNB
      159           DI       0       40       60      100      500     1000
      160           DQ       0        0       40       40       40       40

      161           KK    NP-B          NORTH RESERVOIR B
      162           KM    12" OUTLET
      163           RS       1     STOR        0
      164           SA       0     0.02     0.16     0.52     1.73     3.30     5.24     5.38     5.52
      165           SE  5102.5   5103.5   5104.5   5105.5   5106.5   5107.5   5108.5   5109.5
      166           SQ       0      2.2      4.5      5.6        7        8        9       10       11
      167           SE  5102.5   5103.5   5104.5   5105.5   5106.5   5107.5   5108.5   5109.5

      168           KK   NORTH
      169           HC       2

      170           KK       M
      171           BA    0.56
      172           LS    1.17       63
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       173          UD     0.52

       174          KK    RES-M
       175          RS        1    STOR       0
       176          SA      2.5    2.56    2.66    2.79    1.95    3.15     3.4    3.72    4.12
       177          SE        0    1.38    2.06    2.68    3.29    3.99    4.87    5.91     7.1
       178          SQ        0       6      19      35      50      60      72      78      90
       179          SE        0       1       2       3       4       5       6       7       8

       180          KK    OFF-4       OFFSITE   4
       181          BA      .06
       182          LS               63
       183          UD      .42

       184          KK   M+OFF4       COMBINE OFF4 + POND M
       185          HC        2

       186          KK      D@M
       187          DT      DDM
       188          DI        0      10      50     100     500    1000
       189          DQ        0       2      10      20     100     200

       190          KK    OFF-3
       191          BA    0.191
       192          LS               65
       193          UD     0.52
1                                              HEC-1 INPUT                                          PAGE  6

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       194          KK    OF3+4       COMBINE OFF3 & O FF4 & POND M
       195          HC        2

       196          KK     EM-1
       197          BA     .046
       198          LS               88
       199          UD     0.25

       200          KK    JEM1+       COMBINE EM1, POND M, OFF3 & OFF4
       201          KM  SAME AS JM EM1 OFF3 OFF4 IN HEC-HMS
       202          HC        2

       203          KK      TRI       TRIANGULAR AREA EAST OF VILLAGE PKWY
       204          BA     .009
       205          LS               64
       206          UD      .16

       207          KK    CPPP1       ADD TRIANGULAR AREA TO FLOW INTO PP-1
       208          HC        2

       209          KK     PP-1
       210          KM  NOW WITH 30" OUTLET
       211          RS        1    STOR       0
       212          SA        0     .11     .34     .73    1.19    1.82    1.96    2.10    2.24    2.38
       213          SA     2.52
       214          SE    14.34      15      16      17      18      19      20      21      22      23
       215          SE       24
       216          SQ        0     5.5      16      28      38      45      50      57      62      68
       217          SQ       70      75
       218          SE    14.34   15.34   16.34   17.34   18.34   19.34   20.34   21.34   22.34   23.34
       219          SE    24.34

       220          KK   RCHPP1
       221          RD     2475    .007     .04            TRAP       3       3

       222          KK     EM-3
       223          BA     .023
       224          LS               88
       225          UD      .15

       226          KK     JCH1
       227          HC        2

       228          KK   WV20-B       PART OF WV-20 GOING NORTH
       229          BA     .017
       230          LS               74
       231          UD      .16

       232          KK     JCH2       COMBINE EM-3, EM-5, WV20B, & FLOW FROM M, ET.AL.
       233          HC        2
1                                              HEC-1 INPUT                                          PAGE  7

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       234          KK    D@NOC
       235          DT      DNC
       236          DI        0      40      60     100     500    1000
       237          DQ        0       0      40      40      40      40

       238          KK     NP-C       NORTH RESERVOIR C
       239          KM  30" OUTLET
       240          RS        1    STOR       0
```

```
 241          SA        0     .22     .82     2.4    3.85    4.54    5.03    5.31
 242          SE     5094    5095    5096    5097    5098    5099    5100    5101
 243          SQ        0     5.5      16      28      38      45      50      57      62      68
 244          SE     5094    5095    5096    5097    5098    5099    5100    5101

 245          KK   CP-NOR         COMBINE 3 NORTH DET BASINS
 246          HC        2

 247          KK    IWEST
 248          BA      .35
 249          LS               64
 250          UD      .37

 251          KK     D@IW
 252          DT     DDIW
 253          DI        0      10      50     100     500
 254          DQ        0       8      40      80     400

 255          KK    OWEST
 256          BA      .18
 257          LU        4      .1

 258          KK      CP1
 259          HC        2

 260          KK    NOR+I         COMBINE FLOW FROM 3 DET BASINS & OFFSITE WATERSHED I
 261          HC        2

 262          KK    EM-3A
 263          BA      .01
 264          LS               89
 265          UD      .13

 266          KK     EM-4
 267          BA       .1
 268          LS               84
 269          UD      .25

 270          KK    CEMB1
 271          HC        2
1
                                          HEC-1 INPUT                                        PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 272          KK    EMB-1
 273          RS        1    STOR       0
 274          SA      1.5    1.54     1.6    1.68    1.79    1.95    2.15
 275          SE     5078  5079.1 5079.69 5080.25 5080.95 5081.86 5082.96
 276          SQ        0       8      26      40      52      60
 277          SE     5078    5079    5080    5081    5082    5083

 278          KK   RHEMB1           REACH   EMB-1
 279          RD      759   .0066     .04            TRAP       3       3

 280          KK     EM-6
 281          BA     .078
 282          LS               84
 283          UD      .25

 284          KK     EM-7
 285          KM  WILL NOT BE DEVELOPED,
 286          BA     .034
 287          LS               61
 288          UD      .21

 289          KK   CP-PP2         NORTH OF BRIAR ROAD
 290          HC        3

 291          KK     PP-2         NORTH OFBRIAR ROAD
 292          KM   OUTLET  (1) 12"
 293          RS        1    STOR       0
 294          SA        0     .22     .82     2.4    3.85    4.54    5.03    5.31
 295          SE     5094    5095    5096    5097    5098    5099    5100    5101
 296          SQ        0     2.2     4.5     5.6       7       8       9      10      11
 297          SE     5094    5095    5096    5097    5098    5099    5100    5101  5101.5

 298          KK   JCHAN2
 299          HC        2

 300          KK   CHAN-2
 301          RD     1130    .005     .04            TRAP       6       3

 302          KK       L2
 303          BA     .234
 304          LS     1.03      66
 305          UD      .33

 306          KK      D@L
 307          DT      D-L
 308          DI        0      10      50     100     500
 309          DQ        0       5      25      50     250

 310          KK    RES-L
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     311          RS       1    STOR       0
     312          SA     0.6    0.64    0.69    0.76    0.86       1
     313          SE       0    1.69    2.25    2.95    3.86    4.96
     314          SQ       0     5.5      16      28      38      45
     315          SE       0       1       2       3       4       5
1                                          HEC-1 INPUT                                                PAGE  9

   LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


     316          KK      L3          PART OF L2 DRAINING TO VILLAGE PARKWAY HOMES
     317          BA    .018
     318          LS              77
     319          UD     0.2

     320          KK   VPH-1          VILL. PKWY HOMES NORTH PORTION
     321          BA   0.035
     322          LS              77
     323          UD     .19

     324          KK  VPCP-1
     325          HC       2

     326          KK  VPNEPD          RETENTION/DETEN TION POND
     327          KM  18-IN RCP OUTLET@ 60 FT
     328          RS       1    STOR       0
     329          SA     .34     .73     .94    1.13
     330          SE      58      62      64      66
     331          SQ       0       0       4      13      20      26      30      35
     332          SE      58      60      61      62      63      64      65      66

     333          KK  VPCP1A          COMBINE OUTFLOW FROM PVH NE POND WITH MAIN CHANNEL
     334          HC       3

     335          KK  RECH4A
     336          RD     395    .001     .04            TRAP       8       3

     337          KK   RCH4B
     338          RD     665    .001     .04            TRAP      10       3

     339          KK  WV-20A          PART OF WV-20 GOING SOUTH
     340          BA    .013
     341          LS              61
     342          UD     .15

     343          KK  HASKEL          12" RCP OUTLET
     344          RS       1    STOR       0
     345          SA       0     .47     .55     .60     .65
     346          SE  5194.5    5195    5196    5197    5198
     347          SQ       0     2.4     4.7       6     7.5
     348          SE  5194.5  5195.5  5196.5  5197.5  5198.5

     349          KK    EM-2
     350          BA   .0621
     351          LS              78
     352          UD     .32

     353          KK   20A+2          COMBINE W VILLAGE 20A POND WITH EM-2
     354          KM  FLOW GOES INTO POND EMG-1
     355          HC       2
1                                          HEC-1 INPUT                                                PAGE 10

   LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


     356          KK   EMG-1          DETENTION POND EMG-1
     357          RS       1    STOR       0
     358          SA     0.8    0.83     .87     .93    1.02    1.13    1.29
     359          SE      86    87.1   87.69   88.25   88.95   89.86   90.96
     360          SQ       0       8      26      40      52      60
     361          SE      86      87      88      89      90      91

     362          KK   EMG-1
     363          RD    1630     .01     .04            TRAP       3       3

     364          KK    EMTC
     365          BA    .053
     366          LS     1.5      79
     367          UD     .27

     368          KK   EM-10
     369          BA    .053
     370          LS     1.5      72
     371          UD     .32

     372          KK   JEMO2
     373          HC       3

     374          KK   EMO-2
     375          RS       1    STOR       0
     376          SA     1.2    1.25    1.26    1.27    1.29     1.3    1.32    1.34    1.39
     377          SE      67   68.49   68.91   69.31   69.72   70.21   70.69   71.31    72.8
     378          SQ       0      11      32      56      76      90     100
     379          SE      67      68      69      70      71      72      73
```

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      380         KK    EMOc
      381         RD     615     .003     .04               TRAP        0       3

      382         KK   EM-11
      383         BA    .012
      384         LS     1.5       86
      385         UD     .13

      386         KK    EM-9
      387         BA    .021
      388         LS     1.5       86
      389         UD     .13

      390         KK  JG2&B2
      391         HC       3

      392         KK    EM-8
      393         BA    .046
      394         LS     1.5       82
      395         UD     .22
1
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     LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      396         KK   EM-12
      397         BA    .015
      398         LS     1.5       93
      399         UD     .12

      400         KK  TODETN
      401         HC       3

      402         KK    DETN
      403         RS       1     STOR       0
      404         SA    2.25     2.31     2.4      2.5     2.63     2.78     2.96     3.18     3.48
      405         SE       0     1.49    1.91     2.31     2.72     3.21     3.69     4.31      5.8
      406         SQ       0      5.5      16       28       38       45       50
      407         SE       0        1       2        3        4        5        6

      408         KK     J4B
      409         HC       2

      410         KK  RCH-4C
      411         RD     300     .001     .04               TRAP       12       3

      412         KK      A3
      413         BA    .055
      414         LS               80
      415         UD     .16

      416         KK     A3A
      417         BA    .007
      418         LS               76
      419         UD     .13

      420         KK  COMBA3
      421         HC       2

      422         KK   RES-6
      423         RS       1     STOR       0
      424         SA    0.24      0.5    0.54     0.61     0.67     0.69
      425         SE    5074     5075    5076     5077     5078     5079
      426         SQ       0      4.3      14       24       30       35

      427         KK     A3B
      428         BA    .026
      429         LS               77
      430         UD     .17

      431         KK  D-PARK
      432         DT    PARK
      433         DI       0       20     100      500     1000
      434         DQ       0        5      25      125      250
1
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     LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      435         KK   RES-5
      436         RS       1     STOR       0
      437         SA    0.25     0.28    0.32     0.35     0.39     0.43     0.46      0.5     0.59
      438         SE    5069     5070    5071     5072     5073     5074     5075     5076     5077
      439         SQ       0      4.3      14       24       30     35.4       40       44       44

      440         KK     R-9       ROUTING
      441         RD    1000      .02     .05               TRAP       15       1

      442         KK    A13A
      443         BA    .006
      444         LS               72
      445         UD     .17
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```
 446            KK    A13B
 447            BA     .04
 448            LS                  73
 449            UD     .18

 450            KK  COMA13
 451            HC       2

 452            KK    A12A
 453            BA    .015
 454            LS                  75
 455            UD     .15

 456            KK     A12
 457            BA     .02
 458            LS                  73
 459            UD     .12

 460            KK  COMA12
 461            HC       2

 462            KK   JRES3
 463            HC       3

 464            KK   RES-3
 465            RS       1    STOR       0
 466            SA       1     1.2    1.35    1.55     1.8
 467            SE    5059    5060    5061    5062    5063
 468            SQ       0       0     7.3   53.15  116.35

 469            KK     A13
 470            BA     .05
 471            LS                  74
 472            UD     .17
1                                       HEC-1 INPUT                                              PAGE 13

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 473            KK    A12B
 474            BA     .03
 475            LS                  88
 476            UD     .12

 477            KK   JRES1
 478            HC       3

 479            KK   RES-1
 480            RS       1    STOR       0
 481            SA   .0006   .0812   .2929   .6341  1.0634  1.5306  2.0022  2.4899  3.0079  3.5568
 482            SA  4.1272  5.1068  5.5454  5.8719
 483            SE    5057  5057.2  5057.4  5057.6  5057.8    5058  5058.2  5058.4  5058.6  5058.8
 484            SE    5059    5060    5061    5062
 485            SQ       0       0       0       0       0       0       0     1.2     2.4     3.6
 486            SQ     4.8      14      20      20

 487            KK   ABMSR        ABOVE MUD SPRINGS ROAD
 488            HC       3

 489            KK   OFF-1
 490            BA   .0226
 491            LS                  63
 492            UD     .22

 493            KK      R8
 494            RD    2000    .054     .05            TRAP      15       1

 495            KK      A5
 496            BA     .06
 497            LS                  84
 498            UD     .17

 499            KK   CSR-7
 500            BA    .014
 501            LS                  75
 502            UD     .18

 503            KK     J-1
 504            HC       3

 505            KK   EXDET
 506            RS       1    STOR       0
 507            SA    0.27    0.28    0.37    0.47    0.52    0.52    0.52
 508            SE    5118    5119    5121    5125 5125.25  5125.5    5126
 509            SQ       0       0     9.8      23    99.5     238   631.1

 510            KK     DIV
 511            DT   D-DIV
 512            DI       0      10     100    1000
 513            DQ       0       5      50     500
1                                       HEC-1 INPUT                                              PAGE 14

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
 514        KK  REXDET
 515        RD    1787    .025    .013            TRAP      40       1

 516        KK   OFF-2
 517        BA   .0496
 518        LS              63
 519        UD     .27

 520        KK    R-19
 521        RD    1400     .02     .05            TRAP      15       1

 522        KK  CSR-6A
 523        BA    .005
 524        LS              73
 525        UD     .17

 526        KK  EXDT1A
 527        RS       1    STOR       0
 528        SA       0   .0046   .0169   .0553   .0703
 529        SE    5103    5104    5105    5109    5110
 530        SQ       0    1.65    4.75    8.43    9.15

 531        KK     J-6
 532        HC       2

 533        KK   CSR-6
 534        BA    .025
 535        LS              78
 536        UD     .18

 537        KK  CPXDT1
 538        HC       2

 539        KK   EXDT1
 540        RS       1    STOR       0
 541        SA    0.25    0.31    0.37    0.49
 542        SE    5101    5103    5105    5108
 543        SQ       0     9.5      17      22

 544        KK      A1
 545        BA     .09
 546        LS              78
 547        UD      .2

 548        KK      J8
 549        HC       2

 550        KK     R21
 551        RM       1    .107     .02
1                                         HEC-1 INPUT                                                  PAGE 15

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 552        KK   JRES2
 553        HC       2

 554        KK    RES2
 555        RS       1    STOR       0
 556        SA       0     .18     1.4     2.9     3.1     3.3     3.5     3.6     3.7     3.8
 557        SA     3.9
 558        SE  5065.5    5066    5067    5068    5069    5070    5071 5071.34 5071.59 5071.84
 559        SE 5072.34
 560        SQ       0      .9     5.5     9.1    11.6    13.6    15.4      16    23.8    37.8
 561        SQ    77.5

 562        KK     R22
 563        RD     800     .02     .05            TRAP      15       1

 564        KK   CSR-4
 565        BA     .03
 566        LS              75
 567        UD     .13

 568        KK  EXDET2
 569        RS       1    STOR       0
 570        SA    0.13    0.16    0.19    0.22    0.26     0.3    0.34    0.39
 571        SE    5091    5092    5093    5094    5095    5096    5097    5098
 572        SQ       0     2.4       5     6.5       8     9.5      10      11

 573        KK   CSR-3
 574        BA   .0053
 575        LS              80
 576        UD     .12

 577        KK     J11
 578        HC       2

 579        KK   DITCH
 580        RD    3000     .01     .04            TRAP       6     1.5

 581        KK      A2
 582        BA     .05
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```
       583        LS              76
       584        UD      .15

       585        KK   JRES15
       586        HC        3

       587        KK    RES15
       588        RS        1    STOR       0
       589        SA     3.55    3.71    3.85    4.04    4.36    4.69    4.94
       590        SE   5058.5    5059  5059.5    5060    5061    5062    5064
       591        SQ        0       0       0      .6     4.7     8.3    12.2
1                                               HEC-1 INPUT                                              PAGE 16

      LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       592        KK      R23
       593        RD     2600     .02     .05            TRAP       5       1

       594        KK      RPE
       595        BA     0.12
       596        LS              72
       597        UD      .28

       598        KK    ACS-1
       599        HC        2

       600        KK    VPCP3
       601        HC        2

       602        KK       L1
       603        BA     .029
       604        LS              77
       605        UD      .21

       606        KK        P
       607        BA     .031
       608        LS              77
       609        UD      0.1

       610        KK    VPCP2
       611        HC        2

       612        KK        Q
       613        BA     .052
       614        LS              77
       615        UD      .19

       616        KK   VPCP2A          FLOW ENTERING RETENTION/DETENTION POND
       617        HC        2

       618        KK    D@VPH          INFILTRATION @ VP RETENTION POND
       619        DT      VPH
       620        DI        0      10      25      50     100     140     150     155     200
       621        DQ        0       0      12      12      12      12      12      12      12

       622        KK    VPHRPRETENTION/DETENTION POND @ VILLAGE PKWY HOMES
       623        KM  30-IN RCP OUTLET@ 61.5 FT
       624        RS        1    STOR       0
       625        SA     .278    .607    .848    .972   1.013
       626        SE     5060    5062    5064    5066    5067
       627        SQ        0       0     4.5      16      29      35      40      50
       628        SE     5060  5061.5  5062.5  5063.5  5064.5  5065.5   5066.    5067

       629        KK     VPH2
       630        BA     0.01
       631        LS              77
       632        UD     0.15
1                                               HEC-1 INPUT                                              PAGE 17

      LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       633        KK    VPCP3          COMBINE FLOWS GOING TO RET POND
       634        HC        2

       635        KK    VPH-3
       636        BA      .01
       637        LS              77
       638        UD     0.15

       639        KK    VPH-4
       640        BA     .011
       641        LS              77
       642        UD     0.15

       643        KK    VPH-5
       644        BA     .005
       645        LS              77
       646        UD      .13

       647        KK   VPCP-4          COMBINE VPH3, 4, AND 5
       648        HC        4
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         649           KK  VPDICH          VILLAGE PKWY HOMES DETENTION DITCH
         650           KM  OUTLETIS 30"  RCP @ ELEV 5058.15
         651           RS       1    STOR       0
         652           SA   .0001    0.13    0.42    0.74       1
         653           SE  5058.1  5059.5    5060    5062  5063.5
         654           SQ       0       5      16      29      35      44      46
         655           SE  5058.1  5059.1  5060.1  5061.1  5062.1  5063.1  5063.5

         656           KK   VPCP5TOTAL FLOW LEAVING VILLAGE PKWY HOMES
         657           HC       2

         658           KK      Q2
         659           BA    .013
         660           LS              77
         661           UD     .16

         662           KK  VPCP6COMBINED FLOW IN MUD SPRINGS CHANNEL
         663           HC       2

         664           KK   PVE-1
         665           BA   .0128
         666           LS              76
         667           UD     .13

         668           KK  ABCDSP          ABOVE COLD SPRINGS ROAD
         669           HC       2

         670           KK   PVE-2
         671           BA    .011
         672           LS              76
         673           UD     .13
1                                           HEC-1 INPUT                                                    PAGE 18

        LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         674           KK  BLCSRD          BELOW COLD SPRINGS ROAD
         675           HC       2
         676           ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING           (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR         (<---) RETURN OF DIVERTED OR PUMPED FLOW

    9           A
                .
                .
   14           .           B
                .           .
                .           .
   18       D@A&B............
                .
                .
   21           .------->   D-AB
   20       D-A&B
                V
                V
   24       RCH-1
                .
                .
   27           .           C
                .           .
                .           .
   31      J1@A&B............
                V
                V
   33       RCH-2
                .
                .
   35           .           D
                .           .
                .           .
   39      J2ABCD............
                .
                .
   42           .------->     J2
   41         DJ2
                .
                .
   45           .          E
                .          .
                .          .
   50           .          .------->      DE
   49           .        D@E
                .          .
                .          .
   53           .          .           F
                .          .           .
                .          .           .
   58           .          .           .------->      DF
   57           .          .         D@F
                .          .           .
```

```
                    .           .          .
  61                .       J3-1............
                    .           .
                    .           .
  63                .           .          J
                    .           .          .
                    .           .          .
  67                .       J3-2............
                    .           .
                    .           .
  69                .           .          G
                    .           .          .
                    .           .          .
  74                .           .          .------->    DDG
  73                .           .       D@G
                    .           .          .
                    .           .          .
  77                .           .          .           H
                    .           .          .           .
                    .           .          .           .
  82                .           .          .           .------->    DDH
  81                .           .          .        D@H
                    .           .          .           .
                    .           .          .           .
  85              J3....................................
                   V
                   V
  87          RCH-3
                   .
                   .
  90               .------->   D-J3
  89           D@J3
                   .
                   .
  93               .       IEAST
                   .           .
                   .           .
  98               .           .------->    DDG
  97               .       D@IE
                   .           .
                   .           .
 101               .           .     OEAST
                   .           .         .
                   .           .         .
 104               .        CP2...........
                   .           .
                   .           .
 106         CPO+J3.............
                   .
                   .
 109               .------->     DNA
 108        D@NOA
                  V
                  V
 112          NP-A
                  .
                  .
 119              .        K-1
                  .          .
                  .          .
 124              .          .------->    DDK1
 123              .       D@K1
                  .          .
                  .          .
 127              .          .        K-2
                  .          .          .
                  .          .          .
 132              .          .          .------->    DDK2
 131              .          .       D@K2
                  .          .          .
                  .          .          .
 135              .          .          .         K-3
                  .          .          .           .
                  .          .          .           .
 140              .          .          .           .------->    DDK3
 139              .          .          .        D@K3
                  .          .          .           .
                  .          .          .           .
 143              .      CP-K........................
                  .          .
                  .          .
 145              .          .       EM-5
                  .          .          V
                  .          .          V
 149              .          .     DP-EM5
                  .          .          .
                  .          .          .
 155              .     CPEM5............
                  .          .
                  .          .
 158              .          .------->    DNB
 157              .     D@NOB
                  .          V
                  .          V
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161           .       NP-B
              .          .
              .          .
168       NORTH...........
              .
              .
170           .          M
              .          V
              .          V
174           .      RES-M
              .          .
              .          .
180           .          .       OFF-4
              .          .           .
              .          .           .
184           .     M+OFF4............
              .          .
              .          .
187           .          .------->      DDM
186           .        D@M
              .          .
              .          .
190           .          .       OFF-3
              .          .           .
              .          .           .
194           .      OF3+4............
              .          .
              .          .
196           .          .        EM-1
              .          .           .
              .          .           .
200           .      JEM1+............
              .          .
              .          .
203           .          .         TRI
              .          .           .
              .          .           .
207           .      CPPP1............
              .          V
              .          V
209           .       PP-1
              .          V
              .          V
220           .     RCHPP1
              .          .
              .          .
222           .          .        EM-3
              .          .           .
              .          .           .
226           .       JCH1............
              .          .
              .          .
228           .          .      WV20-B
              .          .           .
              .          .           .
232           .       JCH2............
              .          .
              .          .
235           .          .------->      DNC
234           .      D@NOC
              .          V
              .          V
238           .       NP-C
              .          .
              .          .
245      CP-NOR...........
              .
              .
247           .      IWEST
              .          .
              .          .
252           .          .------->      DDIW
251           .       D@IW
              .          .
              .          .
255           .          .       OWEST
              .          .           .
              .          .           .
258           .        CP1............
              .          .
              .          .
260       NOR+I...........
              .
              .
262           .      EM-3A
              .          .
              .          .
266           .          .        EM-4
              .          .           .
              .          .           .
270           .      CEMB1............
              .          V
              .          V
272           .      EMB-1
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                    .           V
                    .           V
  278               .      RHEMB1
                    .           .
                    .           .
  280               .           .        EM-6
                    .           .           .
                    .           .           .
  284               .           .           .        EM-7
                    .           .           .           .
                    .           .           .           .
  289               .      CP-PP2........................
                    .           V
                    .           V
  291               .        PP-2
                    .           .
                    .           .
  298          JCHAN2............
                    V
                    V
  300          CHAN-2
                    .
                    .
  302               .          L2
                    .           .
                    .           .
  307               .           .-------->      D-L
  306               .         D@L
                    .           V
                    .           V
  310               .       RES-L
                    .           .
                    .           .
  316               .           .          L3
                    .           .           .
                    .           .           .
  320               .           .           .       VPH-1
                    .           .           .           .
                    .           .           .           .
  324               .           .      VPCP-1............
                    .           .           V
                    .           .           V
  326               .           .      VPNEPD
                    .           .           .
                    .           .           .
  333          VPCP1A........................
                    V
                    V
  335          RECH4A
                    V
                    V
  337           RCH4B
                    .
                    .
  339               .      WV-20A
                    .           V
                    .           V
  343               .      HASKEL
                    .           .
                    .           .
  349               .           .        EM-2
                    .           .           .
                    .           .           .
  353               .       20A+2............
                    .           V
                    .           V
  356               .       EMG-1
                    .           V
                    .           V
  362               .       EMG-1
                    .           .
                    .           .
  364               .           .        EMTC
                    .           .           .
                    .           .           .
  368               .           .           .       EM-10
                    .           .           .           .
                    .           .           .           .
  372               .       JEMO2........................
                    .           V
                    .           V
  374               .       EMO-2
                    .           V
                    .           V
  380               .        EMOc
                    .           .
                    .           .
  382               .           .       EM-11
                    .           .           .
                    .           .           .
  386               .           .           .        EM-9
                    .           .           .           .
                    .           .           .           .
  390               .      JG2&B2........................
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                  .           .
                  .           .
  392             .           .        EM-8
                  .           .           .
                  .           .           .
  396             .           .           .       EM-12
                  .           .           .           .
                  .           .           .           .
  400             .      TODETN........................
                  .           V
                  .           V
  402             .        DETN
                  .           .
                  .           .
  408           J4B............
                  V
                  V
  410        RCH-4C
                  .
                  .
  412             .          A3
                  .           .
                  .           .
  416             .           .         A3A
                  .           .           .
                  .           .           .
  420             .      COMBA3............
                  .           V
                  .           V
  422             .       RES-6
                  .           .
                  .           .
  427             .           .         A3B
                  .           .           .
                  .           .           .
  432             .           .           .------->    PARK
  431             .           .      D-PARK
                  .           .           V
                  .           .           V
  435             .           .       RES-5
                  .           .           V
                  .           .           V
  440             .           .         R-9
                  .           .           .
                  .           .           .
  442             .           .           .        A13A
                  .           .           .           .
                  .           .           .           .
  446             .           .           .           .        A13B
                  .           .           .           .           .
                  .           .           .           .           .
  450             .           .           .      COMA13............
                  .           .           .           .
                  .           .           .           .
  452             .           .           .           .        A12A
                  .           .           .           .           .
                  .           .           .           .           .
  456             .           .           .           .           .         A12
                  .           .           .           .           .           .
                  .           .           .           .           .           .
  460             .           .           .           .      COMA12............
                  .           .           .           .           .
                  .           .           .           .           .
  462             .           .       JRES3........................
                  .           .           V
                  .           .           V
  464             .           .       RES-3
                  .           .           .
                  .           .           .
  469             .           .           .         A13
                  .           .           .           .
                  .           .           .           .
  473             .           .           .           .        A12B
                  .           .           .           .           .
                  .           .           .           .           .
  477             .           .       JRES1........................
                  .           .           V
                  .           .           V
  479             .           .       RES-1
                  .           .           .
                  .           .           .
  487          ABMSR........................
                  .
                  .
  489             .       OFF-1
                  .           V
                  .           V
  493             .          R8
                  .           .
                  .           .
  495             .           .          A5
                  .           .           .
                  .           .           .
  499             .           .           .       CSR-7
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              .           .           .           .
              .           .           .           .
503           .         J-1........................
              .           V
              .           V
505           .       EXDET
              .           .
              .           .
511           .           .------->   D-DIV
510           .         DIV
              .           V
              .           V
514           .      REXDET
              .           .
              .           .
516           .           .       OFF-2
              .           .           V
              .           .           V
520           .           .        R-19
              .           .           .
              .           .           .
522           .           .           .      CSR-6A
              .           .           .           V
              .           .           .           V
526           .           .           .      EXDT1A
              .           .           .           .
              .           .           .           .
531           .           .         J-6............
              .           .           .
              .           .           .
533           .           .           .       CSR-6
              .           .           .           .
              .           .           .           .
537           .           .      CPXDT1............
              .           .           V
              .           .           V
539           .           .       EXDT1
              .           .           .
              .           .           .
544           .           .           .          A1
              .           .           .           .
              .           .           .           .
548           .           .          J8............
              .           .           V
              .           .           V
550           .           .         R21
              .           .           .
              .           .           .
552           .       JRES2............
              .           V
              .           V
554           .        RES2
              .           V
              .           V
562           .         R22
              .           .
              .           .
564           .           .       CSR-4
              .           .           V
              .           .           V
568           .           .      EXDET2
              .           .           .
              .           .           .
573           .           .           .       CSR-3
              .           .           .           .
              .           .           .           .
577           .           .         J11............
              .           .           V
              .           .           V
579           .           .       DITCH
              .           .           .
              .           .           .
581           .           .           .          A2
              .           .           .           .
              .           .           .           .
585           .      JRES15........................
              .           V
              .           V
587           .       RES15
              .           V
              .           V
592           .         R23
              .           .
              .           .
594           .           .         RPE
              .           .           .
              .           .           .
598           .       ACS-1............
              .           .
              .           .
600        VPCP3............
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602           .          L1
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              .           .
606           .           .           P
              .           .           .
              .           .           .
610           .      VPCP2.............
              .           .
              .           .
612           .           .           Q
              .           .           .
              .           .           .
616           .     VPCP2A.............
              .           .
              .           .
619           .           .------->     VPH
618           .      D@VPH
              .           V
              .           V
622           .      VPHRP
              .           .
              .           .
629           .           .        VPH2
              .           .           .
              .           .           .
633           .      VPCP3.............
              .           .
              .           .
635           .           .       VPH-3
              .           .           .
              .           .           .
639           .           .           .       VPH-4
              .           .           .           .
              .           .           .           .
643           .           .           .           .       VPH-5
              .           .           .           .           .
              .           .           .           .           .
647           .     VPCP-4.....................................
              .           V
              .           V
649           .     VPDICH
              .           .
              .           .
656      VPCP5.............
              .
              .
658           .         Q2
              .           .
              .           .
662      VPCP6.............
              .
              .
664           .      PVE-1
              .           .
              .           .
668     ABCDSP.............
              .
              .
670           .      PVE-2
              .           .
              .           .
674     BLCSRD.............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                           *************************************
*                                       *                                           *                                   *
*  FLOOD HYDROGRAPH PACKAGE   (HEC-1)   *                                           *   U.S. ARMY CORPS OF ENGINEERS    *
*       JUN 1998 AND FEB 2010           *                                           *   HYDROLOGIC ENGINEERING CENTER   *
*           VERSION 4.1R                *                                           *        609 SECOND STREET          *
*       RGMHEC2000 WWW.HEC-1.COM        *                                           *     DAVIS, CALIFORNIA 95616       *
* RUN DATE   07MAR21  TIME  17:57:35    *                                           *         (916) 756-1104            *
*                                       *                                           *                                   *
*****************************************                                           *************************************



                           100 yr 24 hr event
                      WOODLANDVILLAGE PHASE 23 MODEL
                     FILE NAME VPH-FBO.DAT
                     USING BALANCED STORM
                           FULL BUILD OUT  USES 3 BASINS IN NORTH

   7 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN         10  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1   0  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        800  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      6   0  ENDING DATE
```

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                        NDTIME       1310  ENDING TIME
                        ICENT          19  CENTURY MARK

                      COMPUTATION INTERVAL     .17 HOURS
                           TOTAL TIME BASE  133.17 HOURS

               ENGLISH UNITS
                    DRAINAGE AREA          SQUARE MILES
                    PRECIPITATION DEPTH    INCHES
                    LENGTH, ELEVATION      FEET
                    FLOW                   CUBIC FEET PER SECOND
                    STORAGE VOLUME         ACRE-FEET
                    SURFACE AREA           ACRES
                    TEMPERATURE            DEGREES FAHRENHEIT

          JP          MULTI-PLAN OPTION
                            NPLAN             1  NUMBER OF PLANS

          JR          MULTI-RATIO OPTION
                          RATIOS OF PRECIPITATION
                        1.00        .99        .98        .97
1

                 PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                 FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                                 TIME TO PEAK IN HOURS


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION        STATION      AREA    PLAN              RATIO 1   RATIO 2   RATIO 3   RATIO 4
                                                            1.00       .99       .98       .97

 HYDROGRAPH AT
+                    A          .720      1     FLOW      121.51    117.04    112.64    108.31
                                                TIME       12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                    B         1.780      1     FLOW      220.78    213.16    205.63    198.22
                                                TIME       13.33     13.33     13.33     13.33

  2 COMBINED AT
+                D@A&B         2.500      1     FLOW      305.45    294.83    284.36    274.03
                                                TIME       13.17     13.17     13.17     13.17

 DIVERSION TO
+                 D-AB         2.500      1     FLOW      152.72    147.41    142.18    137.02
                                                TIME       13.17     13.17     13.17     13.17

 HYDROGRAPH AT
+                D-A&B         2.500      1     FLOW      152.72    147.41    142.18    137.02
                                                TIME       13.17     13.17     13.17     13.17

 ROUTED TO
+                RCH-1         2.500      1     FLOW      154.00    148.35    142.60    134.73
                                                TIME       13.67     13.67     13.67     13.67

 HYDROGRAPH AT
+                    C         1.260      1     FLOW      173.70    167.28    160.97    154.75
                                                TIME       13.00     13.00     13.00     13.00

  2 COMBINED AT
+               J1@A&B         3.760      1     FLOW      292.49    277.67    264.27    253.43
                                                TIME       13.33     13.33     13.50     13.50

 ROUTED TO
+                RCH-2         3.760      1     FLOW      289.48    275.52    261.29    250.68
                                                TIME       13.50     13.50     13.67     13.67

 HYDROGRAPH AT
+                    D         1.000      1     FLOW      166.69    160.98    155.35    149.80
                                                TIME       12.83     12.83     12.83     12.83

  2 COMBINED AT
+               J2ABCD         4.760      1     FLOW      375.21    358.74    340.56    321.28
                                                TIME       13.50     13.50     13.50     13.50

 DIVERSION TO
+                   J2         4.760      1     FLOW      187.60    179.37    170.28    160.64
                                                TIME       13.50     13.50     13.50     13.50

 HYDROGRAPH AT
+                  DJ2         4.760      1     FLOW      187.60    179.37    170.28    160.64
                                                TIME       13.50     13.50     13.50     13.50

 HYDROGRAPH AT
+                    E          .615      1     FLOW      142.56    138.11    133.71    129.35
                                                TIME       12.83     12.83     12.83     12.83

 DIVERSION TO
+                   DE          .615      1     FLOW      114.05    110.49    106.97    103.48
                                                TIME       12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                  D@E          .615      1     FLOW       28.51     27.62     26.74     25.87
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                                      TIME       12.83     12.83     12.83     12.83

   HYDROGRAPH AT
 +                  F      .815    1  FLOW      130.32    126.11    121.96    117.95
                                      TIME       13.17     13.17     13.17     13.33

   DIVERSION TO
 +                 DF      .815    1  FLOW      104.25    100.89     97.57     94.36
                                      TIME       13.17     13.17     13.17     13.33

   HYDROGRAPH AT
 +                D@F      .815    1  FLOW       26.06     25.22     24.39     23.59
                                      TIME       13.17     13.17     13.17     13.33

    2 COMBINED AT
 +               J3-1     1.430    1  FLOW       51.83     50.20     48.58     46.99
                                      TIME       13.00     13.00     13.00     13.00

   HYDROGRAPH AT
 +                  J     1.140    1  FLOW       13.79     10.25      6.53      2.83
                                      TIME       17.83     18.17     18.33     18.50

    2 COMBINED AT
 +               J3-2     2.570    1  FLOW       51.83     50.20     48.58     46.99
                                      TIME       13.00     13.00     13.00     13.00

   HYDROGRAPH AT
 +                  G      .810    1  FLOW      263.54    257.51    251.51    245.56
                                      TIME       13.17     13.17     13.17     13.17

   DIVERSION TO
 +                DDG      .810    1  FLOW      210.83    206.01    201.21    196.44
                                      TIME       13.17     13.17     13.17     13.17

   HYDROGRAPH AT
 +                D@G      .810    1  FLOW       52.71     51.50     50.30     49.11
                                      TIME       13.17     13.17     13.17     13.17

   HYDROGRAPH AT
 +                  H      .740    1  FLOW      282.19    275.35    268.54    261.78
                                      TIME       12.83     12.83     12.83     12.83

   DIVERSION TO
 +                DDH      .740    1  FLOW      225.75    220.28    214.83    209.43
                                      TIME       12.83     12.83     12.83     12.83

   HYDROGRAPH AT
 +                D@H      .740    1  FLOW       56.44     55.07     53.71     52.36
                                      TIME       12.83     12.83     12.83     12.83

    4 COMBINED AT
 +                 J3     8.880    1  FLOW      312.19    300.98    291.34    281.83
                                      TIME       13.33     13.00     13.00     13.00

   ROUTED TO
 +              RCH-3     8.880    1  FLOW      307.27    297.87    285.79    276.82
                                      TIME       13.50     13.17     13.17     13.17

   DIVERSION TO
 +               D-J3     8.880    1  FLOW      153.63    148.93    142.90    138.41
                                      TIME       13.50     13.17     13.17     13.17

   HYDROGRAPH AT
 +               D@J3     8.880    1  FLOW      153.63    148.93    142.90    138.41
                                      TIME       13.50     13.17     13.17     13.17

   HYDROGRAPH AT
 +              IEAST      .180    1  FLOW      126.16    123.09    120.03    117.00
                                      TIME       12.33     12.33     12.33     12.33

   DIVERSION TO
 +                DDG      .180    1  FLOW      100.93     98.47     96.03     93.60
                                      TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
 +               D@IE      .180    1  FLOW       25.23     24.62     24.01     23.40
                                      TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
 +              OEAST      .210    1  FLOW        2.86      2.21      1.59       .98
                                      TIME       17.17     17.50     17.83     18.00

    2 COMBINED AT
 +                CP2      .390    1  FLOW       25.23     24.62     24.01     23.40
                                      TIME       12.33     12.33     12.33     12.33

    2 COMBINED AT
 +             CPO+J3     9.270    1  FLOW      156.64    152.34    146.24    141.68
                                      TIME       13.17     13.17     13.17     13.17

   DIVERSION TO
 +                DNA     9.270    1  FLOW       40.00     40.00     40.00     40.00
                                      TIME       12.50     12.50     12.50     12.50
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   HYDROGRAPH AT
 +                D@NOA      9.270     1   FLOW       116.64    112.34    106.24    101.68
                                           TIME        13.17     13.17     13.17     13.17

   ROUTED TO
 +                NP-A       9.270     1   FLOW        53.33     52.16     51.05     49.76
                                           TIME        14.33     14.33     14.33     14.33

                                      ** PEAK STAGES IN FEET **
                                       1   STAGE     5105.83   5105.72   5105.60   5105.48
                                           TIME        14.33     14.33     14.33     14.33

   HYDROGRAPH AT
 +                  K-1       .077     1   FLOW        60.74     59.54     58.35     57.16
                                           TIME        12.50     12.50     12.50     12.50

   DIVERSION TO
 +                 DDK1       .077     1   FLOW        30.37     29.77     29.17     28.58
                                           TIME        12.50     12.50     12.50     12.50

   HYDROGRAPH AT
 +                 D@K1       .077     1   FLOW        30.37     29.77     29.17     28.58
                                           TIME        12.50     12.50     12.50     12.50

   HYDROGRAPH AT
 +                  K-2       .105     1   FLOW        83.14     81.48     79.86     78.24
                                           TIME        12.33     12.50     12.50     12.50

   DIVERSION TO
 +                 DDK2       .105     1   FLOW        41.57     40.74     39.93     39.12
                                           TIME        12.33     12.50     12.50     12.50

   HYDROGRAPH AT
 +                 D@K2       .105     1   FLOW        41.57     40.74     39.93     39.12
                                           TIME        12.33     12.50     12.50     12.50

   HYDROGRAPH AT
 +                  K-3       .033     1   FLOW        32.15     31.50     30.86     30.22
                                           TIME        12.33     12.33     12.33     12.33

   DIVERSION TO
 +                 DDK3       .033     1   FLOW        16.07     15.75     15.43     15.11
                                           TIME        12.33     12.33     12.33     12.33

   HYDROGRAPH AT
 +                 D@K3       .033     1   FLOW        16.07     15.75     15.43     15.11
                                           TIME        12.33     12.33     12.33     12.33

    3 COMBINED AT
 +                 CP-K       .215     1   FLOW        87.22     85.42     83.63     81.85
                                           TIME        12.33     12.33     12.33     12.33

   HYDROGRAPH AT
 +                 EM-5       .030     1   FLOW        56.53     55.82     55.11     54.40
                                           TIME        12.33     12.33     12.33     12.33

   ROUTED TO
 +              DP-EM5        .030     1   FLOW        21.64     21.41     21.19     20.96
                                           TIME        12.67     12.67     12.67     12.67

                                      ** PEAK STAGES IN FEET **
                                       1   STAGE       26.44     26.41     26.37     26.33
                                           TIME        12.67     12.67     12.67     12.67

    2 COMBINED AT
 +                CPEM5       .245     1   FLOW       104.71    102.86    101.01     99.17
                                           TIME        12.50     12.50     12.50     12.50

   DIVERSION TO
 +                  DNB       .245     1   FLOW        40.00     40.00     40.00     40.00
                                           TIME        12.33     12.33     12.33     12.33

   HYDROGRAPH AT
 +                D@NOB       .245     1   FLOW        64.71     62.86     61.01     59.17
                                           TIME        12.50     12.50     12.50     12.50

   ROUTED TO
 +                 NP-B       .245     1   FLOW         8.28      8.25      8.22      8.20
                                           TIME        17.50     17.67     17.33     17.50

                                      ** PEAK STAGES IN FEET **
                                       1   STAGE     5107.78   5107.75   5107.72   5107.70
                                           TIME        17.83     17.67     17.50     17.33

    2 COMBINED AT
 +                NORTH      9.515     1   FLOW        61.48     60.30     59.17     57.87
                                           TIME        14.33     14.33     14.33     14.33

   HYDROGRAPH AT
 +                    M       .560     1   FLOW       229.45    223.62    217.83    212.08
                                           TIME        12.67     12.67     12.67     12.67

   ROUTED TO
 +                RES-M       .560     1   FLOW        59.65     58.59     57.49     56.41
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                                                TIME        13.67     13.67     13.67     13.67

                                            ** PEAK STAGES IN FEET **
                                             1  STAGE        4.96      4.86      4.75      4.64
                                                TIME        13.67     13.67     13.67     13.67

   HYDROGRAPH AT
+                   OFF-4       .060         1  FLOW        27.36     26.64     25.94     25.24
                                                TIME        12.50     12.50     12.50     12.50

    2 COMBINED AT
+                   M+OFF4      .620         1  FLOW        67.04     65.81     64.59     63.22
                                                TIME        13.00     13.00     13.00     13.00

   DIVERSION TO
+                   DDM         .620         1  FLOW        13.41     13.16     12.92     12.64
                                                TIME        13.00     13.00     13.00     13.00

   HYDROGRAPH AT
+                   D@M         .620         1  FLOW        53.63     52.65     51.67     50.58
                                                TIME        13.00     13.00     13.00     13.00

   HYDROGRAPH AT
+                   OFF-3       .191         1  FLOW        88.81     86.71     84.62     32.55
                                                TIME        12.67     12.67     12.67     12.67

    2 COMBINED AT
+                   OF3+4       .811         1  FLOW       131.95    128.56    125.18    121.76
                                                TIME        12.83     12.83     12.83     12.83

   HYDROGRAPH AT
+                   EM-1        .046         1  FLOW        80.73     79.70     78.67     77.65
                                                TIME        12.33     12.33     12.33     12.33

    2 COMBINED AT
+                   JEM1+       .857         1  FLOW       175.19    171.35    167.54    163.74
                                                TIME        12.50     12.50     12.50     12.50

   HYDROGRAPH AT
+                   TRI         .009         1  FLOW         6.67      6.51      6.36      6.20
                                                TIME        12.33     12.33     12.33     12.33

    2 COMBINED AT
+                   CPPP1       .866         1  FLOW       179.31    175.38    171.48    167.60
                                                TIME        12.50     12.50     12.50     12.50

   ROUTED TO
+                   PP-1        .866         1  FLOW        64.36     63.51     62.67     61.85
                                                TIME        14.50     14.50     14.33     14.33

                                            ** PEAK STAGES IN FEET **
                                             1  STAGE       22.73     22.59     22.45     22.31
                                                TIME        14.50     14.50     14.33     14.33

   ROUTED TO
+                   RCHPP1      .866         1  FLOW        64.36     63.51     62.67     61.85
                                                TIME        14.67     14.67     14.50     14.50

   HYDROGRAPH AT
+                   EM-3        .023         1  FLOW        44.94     44.36     43.79     43.21
                                                TIME        12.17     12.17     12.17     12.17

    2 COMBINED AT
+                   JCH1        .889         1  FLOW        66.22     65.38     64.53     63.71
                                                TIME        14.33     14.33     14.33     14.33

   HYDROGRAPH AT
+                   WV20-B      .017         1  FLOW        20.35     19.99     19.63     19.28
                                                TIME        12.33     12.33     12.33     12.33

    2 COMBINED AT
+                   JCH2        .906         1  FLOW        84.45     83.17     81.90     80.64
                                                TIME        12.33     12.33     12.33     12.33

   DIVERSION TO
+                   DNC         .906         1  FLOW        40.00     40.00     40.00     40.00
                                                TIME        12.17     12.17     12.17     12.17

   HYDROGRAPH AT
+                   D@NOC       .906         1  FLOW        44.45     43.17     41.90     40.64
                                                TIME        12.33     12.33     12.33     12.33

   ROUTED TO
+                   NP-C        .906         1  FLOW        31.58     31.59     31.60     31.62
                                                TIME        23.00     22.83     22.67     22.50

                                            ** PEAK STAGES IN FEET **
                                             1  STAGE     5097.36   5097.36   5097.36   5097.36
                                                TIME        23.00     22.83     22.67     22.50

    2 COMBINED AT
+                   CP-NOR    10.421         1  FLOW        85.85     84.02     82.27     80.34
                                                TIME        14.50     14.50     14.50     14.33
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  HYDROGRAPH AT
 +               IWEST      .350     1   FLOW      187.08    182.50    177.95    173.43
                                         TIME       12.50     12.50     12.50     12.50

  DIVERSION TO
 +                DDIW      .350     1   FLOW      149.67    146.00    142.36    138.74
                                         TIME       12.50     12.50     12.50     12.50

  HYDROGRAPH AT
 +                D@IW      .350     1   FLOW       37.42     36.50     35.59     34.69
                                         TIME       12.50     12.50     12.50     12.50

  HYDROGRAPH AT
 +               OWEST      .180     1   FLOW        5.07      3.90      2.79      1.52
                                         TIME       17.50     17.67     18.00     18.17

   2 COMBINED AT
 +                 CP1      .530     1   FLOW       37.42     36.50     35.59     34.69
                                         TIME       12.50     12.50     12.50     12.50

   2 COMBINED AT
 +               NOR+I    10.951     1   FLOW       89.47     87.61     85.86     84.00
                                         TIME       14.50     14.33     14.33     14.33

  HYDROGRAPH AT
 +               EM-3A      .010     1   FLOW       22.31     22.03     21.75     21.48
                                         TIME       12.17     12.17     12.17     12.17

  HYDROGRAPH AT
 +                EM-4      .100     1   FLOW      156.73    154.52    152.31    150.11
                                         TIME       12.33     12.33     12.33     12.33

   2 COMBINED AT
 +               CEMB1      .110     1   FLOW      174.31    171.89    169.47    167.05
                                         TIME       12.33     12.33     12.33     12.33

  ROUTED TO
 +               EMB-1      .110     1   FLOW       52.15     51.62     51.00     50.39
                                         TIME       12.83     12.83     12.83     12.83

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE    5082.02   5081.97   5081.92   5081.87
                                         TIME       12.83     12.83     12.83     12.83

  ROUTED TO
 +              RHEMB1      .110     1   FLOW       51.80     51.26     50.61     50.03
                                         TIME       12.83     12.83     12.83     12.83

  HYDROGRAPH AT
 +                EM-6      .078     1   FLOW      122.27    120.54    118.82    117.10
                                         TIME       12.33     12.33     12.33     12.33

  HYDROGRAPH AT
 +                EM-7      .034     1   FLOW       19.87     19.33     18.79     18.26
                                         TIME       12.33     12.33     12.33     12.33

   3 COMBINED AT
 +              CP-PP2      .222     1   FLOW      171.07    168.38    165.48    162.79
                                         TIME       12.33     12.33     12.33     12.33

  ROUTED TO
 +                PP-2      .222     1   FLOW       10.22     10.09      9.98      9.91
                                         TIME       20.50     20.67     20.50     20.67

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE    5101.11   5101.05   5100.98   5100.91
                                         TIME       20.67     20.67     20.67     20.67

   2 COMBINED AT
 +              JCHAN2    11.173     1   FLOW       98.78     96.84     94.99     93.08
                                         TIME       14.50     14.50     14.33     14.33

  ROUTED TO
 +              CHAN-2    11.173     1   FLOW       98.74     96.82     94.98     92.98
                                         TIME       14.50     14.50     14.50     14.33

  HYDROGRAPH AT
 +                  L2      .234     1   FLOW      148.45    145.13    141.82    138.53
                                         TIME       12.50     12.50     12.50     12.50

  DIVERSION TO
 +                 D-L      .234     1   FLOW       74.23     72.56     70.91     69.26
                                         TIME       12.50     12.50     12.50     12.50

  HYDROGRAPH AT
 +                 D@L      .234     1   FLOW       74.23     72.56     70.91     69.26
                                         TIME       12.50     12.50     12.50     12.50

  ROUTED TO
 +               RES-L      .234     1   FLOW       33.83     33.12     32.41     31.71
                                         TIME       12.83     12.83     12.83     12.83

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE       3.58      3.51      3.44      3.37
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                                          TIME        12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                L3        .018      1    FLOW        24.11     23.71     23.32     22.92
                                          TIME        12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                VPH-1     .035      1    FLOW        47.18     46.41     45.63     44.86
                                          TIME        12.33     12.33     12.33     12.33

 2 COMBINED AT
+                VPCP-1    .053      1    FLOW        71.29     70.12     68.95     67.77
                                          TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+                VPNEPD    .053      1    FLOW        19.24     18.84     18.45     18.06
                                          TIME        12.83     12.83     12.83     12.83

                                     ** PEAK STAGES IN FEET **
                                     1    STAGE       62.89     62.83     62.78     62.72
                                          TIME        12.83     12.83     12.83     12.83

 3 COMBINED AT
+                VPCP1A  11.460      1    FLOW       139.74    136.78    133.85    130.77
                                          TIME        12.83     12.83     12.83     12.83

 ROUTED TO
+                RECH4A  11.460      1    FLOW       138.06    135.08    132.40    129.27
                                          TIME        12.83     12.83     12.83     12.83

 ROUTED TO
+                RCH4B   11.460      1    FLOW       136.63    133.75    130.98    127.98
                                          TIME        13.00     13.00     13.00     13.17

 HYDROGRAPH AT
+                WV-20A    .013      1    FLOW         7.92      7.72      7.51      7.31
                                          TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+                HASKEL    .013      1    FLOW         2.00      1.96      1.92      1.89
                                          TIME        12.83     12.83     12.83     12.83

                                     ** PEAK STAGES IN FEET **
                                     1    STAGE     5195.33   5195.32   5195.30   5195.29
                                          TIME        12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                EM-2      .062      1    FLOW        67.41     66.33     65.25     64.17
                                          TIME        12.50     12.50     12.50     12.50

 2 COMBINED AT
+                20A+2     .075      1    FLOW        69.27     68.15     67.04     65.93
                                          TIME        12.50     12.50     12.50     12.50

 ROUTED TO
+                EMG-1     .075      1    FLOW        35.65     35.09     34.54     33.98
                                          TIME        12.83     12.83     12.83     12.83

                                     ** PEAK STAGES IN FEET **
                                     1    STAGE       88.69     88.65     88.61     88.57
                                          TIME        12.83     12.83     12.83     12.83

 ROUTED TO
+                EMG-1     .075      1    FLOW        35.08     34.82     33.90     33.70
                                          TIME        13.00     13.00     13.00     13.00

 HYDROGRAPH AT
+                EMTC      .053      1    FLOW        39.62     38.41     37.32     36.28
                                          TIME        12.33     12.33     12.50     12.50

 HYDROGRAPH AT
+                EM-10     .053      1    FLOW        29.86     28.98     28.11     27.24
                                          TIME        12.50     12.50     12.50     12.50

 3 COMBINED AT
+                JEMO2     .181      1    FLOW        88.46     86.58     83.74     81.44
                                          TIME        12.50     12.50     12.50     12.50

 ROUTED TO
+                EMO-2     .181      1    FLOW        49.68     48.52     47.22     45.95
                                          TIME        13.17     13.17     13.17     13.17

                                     ** PEAK STAGES IN FEET **
                                     1    STAGE       69.74     69.69     69.63     69.58
                                          TIME        13.17     13.17     13.17     13.17

 ROUTED TO
+                EMOc      .181      1    FLOW        49.30     48.14     46.77     45.57
                                          TIME        13.17     13.17     13.33     13.33

 HYDROGRAPH AT
+                EM-11     .012      1    FLOW        15.44     14.99     14.54     14.10
                                          TIME        12.17     12.17     12.17     12.17
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   HYDROGRAPH AT
+                 EM-9      .021     1   FLOW       27.01     26.23     25.45     24.67
                                         TIME       12.17     12.17     12.17     12.17

    3 COMBINED AT
+                JG2&B2     .214     1   FLOW       53.33     52.11     50.67     49.31
                                         TIME       13.17     13.17     13.17     13.17

   HYDROGRAPH AT
+                 EM-8      .046     1   FLOW       45.35     44.08     42.81     41.54
                                         TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
+                 EM-12     .015     1   FLOW       28.78     28.10     27.41     26.72
                                         TIME       12.17     12.17     12.17     12.17

    3 COMBINED AT
+                TODETN     .275     1   FLOW      112.78    109.94    107.10    104.27
                                         TIME       12.33     12.33     12.33     12.33

   ROUTED TO
+                 DETN      .275     1   FLOW       33.01     32.32     31.61     30.91
                                         TIME       14.67     14.67     14.67     14.67

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE       3.50      3.43      3.36      3.29
                                         TIME       14.67     14.67     14.67     14.67

    2 COMBINED AT
+                  J4B    11.735     1   FLOW      161.77    158.26    154.59    150.95
                                         TIME       13.50     13.50     13.50     13.50

   ROUTED TO
+                RCH-4C   11.735     1   FLOW      161.67    158.15    154.51    150.86
                                         TIME       13.50     13.50     13.50     13.50

   HYDROGRAPH AT
+                  A3       .055     1   FLOW       81.57     80.33     79.10     77.86
                                         TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
+                  A3A      .007     1   FLOW       10.21     10.03      9.85      9.68
                                         TIME       12.17     12.17     12.17     12.17

    2 COMBINED AT
+                COMBA3     .062     1   FLOW       90.04     88.67     87.29     85.92
                                         TIME       12.33     12.33     12.33     12.33

   ROUTED TO
+                 RES-6     .062     1   FLOW       34.25     33.89     33.54     33.19
                                         TIME       12.67     12.67     12.67     12.67

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE    5078.85   5078.78   5078.71   5078.64
                                         TIME       12.67     12.67     12.67     12.67

   HYDROGRAPH AT
+                  A3B      .026     1   FLOW       35.10     34.53     33.95     33.38
                                         TIME       12.33     12.33     12.33     12.33

   DIVERSION TO
+                 PARK      .026     1   FLOW        8.78      8.63      8.49      8.35
                                         TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
+                D-PARK     .026     1   FLOW       26.33     25.89     25.46     25.04
                                         TIME       12.33     12.33     12.33     12.33

   ROUTED TO
+                 RES-5     .026     1   FLOW       15.37     15.10     14.83     14.57
                                         TIME       12.50     12.50     12.50     12.50

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE    5071.14   5071.11   5071.08   5071.06
                                         TIME       12.50     12.50     12.50     12.50

   ROUTED TO
+                  R-9      .026     1   FLOW       14.98     14.51     14.32     14.18
                                         TIME       12.67     12.67     12.67     12.67

   HYDROGRAPH AT
+                 A13A      .006     1   FLOW        6.66      6.53      6.41      6.29
                                         TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
+                 A13B      .040     1   FLOW       46.30     45.46     44.62     43.78
                                         TIME       12.33     12.33     12.33     12.33

    2 COMBINED AT
+                COMA13     .046     1   FLOW       52.96     51.99     51.03     50.07
                                         TIME       12.33     12.33     12.33     12.33

   HYDROGRAPH AT
+                 A12A      .015     1   FLOW       18.64     18.30     17.97     17.63
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                                         TIME        12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                 A12      .020      1   FLOW        27.30     26.79     26.28     25.77
                                         TIME        12.17     12.17     12.17     12.17

  2 COMBINED AT
+              COMA12      .035      1   FLOW        45.94     45.09     44.25     43.40
                                         TIME        12.17     12.17     12.17     12.17

  3 COMBINED AT
+               JRES3      .107      1   FLOW        99.96     98.15     96.36     94.47
                                         TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+               RES-3      .107      1   FLOW        47.40     45.98     44.65     43.35
                                         TIME        12.67     12.67     12.67     12.67

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE     5061.87   5061.84   5061.81   5061.79
                                         TIME        12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                 A13      .050      1   FLOW        60.24     59.18     58.12     57.06
                                         TIME        12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                A12B      .030      1   FLOW        68.94     68.06     67.18     66.31
                                         TIME        12.17     12.17     12.17     12.17

  3 COMBINED AT
+               JRES1      .187      1   FLOW       128.12    124.86    121.55    118.37
                                         TIME        12.33     12.33     12.33     12.17

 ROUTED TO
+               RES-1      .187      1   FLOW        15.81     15.58     15.35     15.12
                                         TIME        14.33     14.33     14.33     14.33

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE     5060.30   5060.26   5060.22   5060.19
                                         TIME        14.33     14.33     14.33     14.33

  3 COMBINED AT
+               ABMSR    11.984      1   FLOW       203.26    199.08    194.91    190.65
                                         TIME        13.17     13.17     13.17     13.17

 HYDROGRAPH AT
+               OFF-1      .023      1   FLOW        14.87     14.50     14.12     13.75
                                         TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+                  R8      .023      1   FLOW        14.17     13.83     13.49     12.98
                                         TIME        12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                  A5      .060      1   FLOW       101.37     99.97     98.58     97.18
                                         TIME        12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+               CSR-7      .014      1   FLOW        17.56     17.26     16.96     16.66
                                         TIME        12.33     12.33     12.33     12.33

  3 COMBINED AT
+                 J-1      .097      1   FLOW       129.54    127.49    125.44    123.40
                                         TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+               EXDET      .097      1   FLOW       118.99    120.21    121.42    122.46
                                         TIME        12.50     12.50     12.50     12.50

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE     5125.29   5125.29   5125.29   5125.29
                                         TIME        12.50     12.50     12.50     12.50

 DIVERSION TO
+               D-DIV      .097      1   FLOW        59.50     60.10     60.71     61.23
                                         TIME        12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                 DIV      .097      1   FLOW        59.50     60.10     60.71     61.23
                                         TIME        12.50     12.50     12.50     12.50

 ROUTED TO
+              REXDET      .097      1   FLOW        54.37     54.01     53.90     52.96
                                         TIME        12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+               OFF-2      .050      1   FLOW        28.29     27.55     26.82     26.09
                                         TIME        12.33     12.33     12.33     12.33

 ROUTED TO
+                R-19      .050      1   FLOW        28.11     27.41     26.72     26.39
                                         TIME        12.50     12.50     12.50     12.50
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 HYDROGRAPH AT
+              CSR-6A      .005     1   FLOW        5.79      5.68      5.58      5.47
                                        TIME       12.33     12.33     12.33     12.33

 ROUTED TO
+              EXDT1A      .005     1   FLOW        5.02      5.00      4.97      4.95
                                        TIME       12.33     12.33     12.33     12.33

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE    5105.30   5105.27   5105.24   5105.21
                                        TIME       12.33     12.33     12.33     12.33

 2 COMBINED AT
+                 J-6      .055     1   FLOW       33.01     32.27     31.53     31.16
                                        TIME       12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+               CSR-6      .025     1   FLOW       35.04     34.47     33.91     33.36
                                        TIME       12.33     12.33     12.33     12.33

 2 COMBINED AT
+              CPXDT1      .080     1   FLOW       59.86     58.63     57.41     55.94
                                        TIME       12.33     12.33     12.33     12.33

 ROUTED TO
+               EXDT1      .080     1   FLOW       20.24     20.03     19.82     19.61
                                        TIME       12.83     12.83     12.83     12.83

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE    5106.94   5106.82   5106.69   5106.56
                                        TIME       12.83     12.83     12.83     12.83

 HYDROGRAPH AT
+                  A1      .090     1   FLOW      124.95    122.93    120.92    118.92
                                        TIME       12.33     12.33     12.33     12.33

 2 COMBINED AT
+                  J8      .170     1   FLOW      139.01    136.74    134.49    132.17
                                        TIME       12.33     12.33     12.33     12.33

 ROUTED TO
+                 R21      .170     1   FLOW      119.58    117.72    115.86    113.97
                                        TIME       12.50     12.50     12.50     12.50

 2 COMBINED AT
+               JRES2      .266     1   FLOW      173.95    171.73    169.76    166.93
                                        TIME       12.50     12.50     12.50     12.50

 ROUTED TO
+                RES2      .266     1   FLOW       15.37     15.23     15.09     14.95
                                        TIME       16.83     16.67     16.67     16.67

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE    5070.98   5070.90   5070.83   5070.75
                                        TIME       16.83     16.83     16.83     16.67

 ROUTED TO
+                 R22      .266     1   FLOW       15.37     15.23     15.09     14.95
                                        TIME       16.83     16.83     16.83     16.67

 HYDROGRAPH AT
+               CSR-4      .030     1   FLOW       41.96     41.21     40.47     39.72
                                        TIME       12.17     12.17     12.17     12.17

 ROUTED TO
+              EXDET2      .030     1   FLOW        9.79      9.75      9.71      9.67
                                        TIME       12.67     12.67     12.67     12.67

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE    5096.59   5096.51   5096.42   5096.34
                                        TIME       12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+               CSR-3      .005     1   FLOW        9.54      9.39      9.24      9.10
                                        TIME       12.17     12.17     12.17     12.17

 2 COMBINED AT
+                 J11      .035     1   FLOW       15.89     15.68     15.48     15.28
                                        TIME       12.33     12.33     12.33     12.33

 ROUTED TO
+               DITCH      .035     1   FLOW       17.59     17.34     17.08     16.82
                                        TIME       12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                  A2      .050     1   FLOW       64.81     63.67     62.53     61.40
                                        TIME       12.17     12.17     12.17     12.17

 3 COMBINED AT
+              JRES15      .352     1   FLOW       80.64     79.25     77.87     76.51
                                        TIME       12.33     12.33     12.33     12.33

 ROUTED TO
+               RES15      .352     1   FLOW       10.22     10.12     10.02      9.92
```

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                                             TIME          29.33     29.17     29.17     29.00

                                          ** PEAK STAGES IN FEET **
                                           1  STAGE      5062.98   5062.93   5062.88   5062.83
                                              TIME         29.50     29.33     29.17     29.17
 ROUTED TO
+                      R23       .352      1  FLOW         10.22     10.12     10.02      9.92
                                              TIME         29.50     29.67     29.33     29.50

 HYDROGRAPH AT
+                      RPE       .120      1  FLOW        110.88    108.73    106.59    104.45
                                              TIME         12.33     12.33     12.33     12.33

  2 COMBINED AT
+                    ACS-1       .472      1  FLOW        110.88    108.73    106.59    104.45
                                              TIME         12.33     12.33     12.33     12.33

  2 COMBINED AT
+                    VPCP3     12.456      1  FLOW        242.42    237.34    233.27    227.19
                                              TIME         12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                       L1       .029      1  FLOW         38.51     37.88     37.24     36.60
                                              TIME         12.33     12.33     12.33     12.33

 HYDROGRAPH AT
+                        P       .031      1  FLOW         55.48     54.55     53.62     52.70
                                              TIME         12.17     12.17     12.17     12.17

  2 COMBINED AT
+                    VPCP2       .060      1  FLOW         83.57     82.15     80.73     79.32
                                              TIME         12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                        Q       .052      1  FLOW         70.09     68.94     67.78     66.63
                                              TIME         12.33     12.33     12.33     12.33

  2 COMBINED AT
+                   VPCP2A       .112      1  FLOW        142.83    140.49    138.16    135.84
                                              TIME         12.33     12.33     12.33     12.33

 DIVERSION TO
+                      VPH       .112      1  FLOW         12.00     12.00     12.00     12.00
                                              TIME         12.00     12.00     12.00     12.00

 HYDROGRAPH AT
+                    D@VPH       .112      1  FLOW        130.83    128.49    126.16    123.84
                                              TIME         12.33     12.33     12.33     12.33

 ROUTED TO
+                    VPHRP       .112      1  FLOW         44.34     43.47     42.60     41.73
                                              TIME         12.67     12.67     12.67     12.67

                                          ** PEAK STAGES IN FEET **
                                           1  STAGE      5066.43   5066.35   5066.26   5066.17
                                              TIME         12.67     12.67     12.67     12.67

 HYDROGRAPH AT
+                     VPH2       .010      1  FLOW         13.51     13.28     13.05     12.82
                                              TIME         12.17     12.17     12.17     12.17

  2 COMBINED AT
+                    VPCP3       .122      1  FLOW         49.80     48.85     47.90     46.94
                                              TIME         12.50     12.50     12.50     12.50

 HYDROGRAPH AT
+                    VPH-3       .010      1  FLOW         13.51     13.28     13.05     12.82
                                              TIME         12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                    VPH-4       .011      1  FLOW         14.86     14.60     14.35     14.10
                                              TIME         12.17     12.17     12.17     12.17

 HYDROGRAPH AT
+                    VPH-5       .005      1  FLOW          7.59      7.46      7.33      7.20
                                              TIME         12.17     12.17     12.17     12.17

  4 COMBINED AT
+                   VPCP-4       .148      1  FLOW         81.01     79.81     78.60     77.40
                                              TIME         12.33     12.33     12.33     12.33

 ROUTED TO
+                   VPDICH       .148      1  FLOW         43.54     42.90     42.25     41.61
                                              TIME         13.00     13.00     13.00     13.00

                                          ** PEAK STAGES IN FEET **
                                           1  STAGE      5063.05   5062.98   5062.91   5062.83
                                              TIME         13.00     13.00     13.00     13.00

  2 COMBINED AT
+                    VPCP5     12.604      1  FLOW        283.71    278.10    273.48    266.87
                                              TIME         12.67     12.67     12.67     12.67
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 HYDROGRAPH AT
+                Q2      .013    1   FLOW     17.42    17.13    16.85    16.57
                                     TIME     12.33    12.33    12.33    12.33

  2 COMBINED AT
+             VPCP6    12.617    1   FLOW    289.15   283.46   278.76   272.07
                                     TIME     12.67    12.67    12.67    12.67

 HYDROGRAPH AT
+             PVE-1      .013    1   FLOW     18.66    18.34    18.01    17.69
                                     TIME     12.17    12.17    12.17    12.17

  2 COMBINED AT
+            ABCDSP    12.629    1   FLOW    295.59   289.63   284.16   278.18
                                     TIME     12.50    12.50    12.50    12.50

 HYDROGRAPH AT
+             PVE-2      .011    1   FLOW     16.04    15.76    15.48    15.20
                                     TIME     12.17    12.17    12.17    12.17

  2 COMBINED AT
+            BLCSRD    12.640    1   FLOW    302.82   296.74   291.16   285.07
1                                    TIME     12.50    12.50    12.50    12.50
```

5-YEAR EVENT PROPOSED CONDITIONS THROUGH PHASE 20 OF WOODLAND VILLAGE

5 Year Event
Base Model; Woodland
Village through Pb 20

```
1*****************************************                   ***************************************
*                                        *                   *                                     *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                   *   U.S. ARMY CORPS OF ENGINEERS      *
*        JUN 1998 AND FEB 2010           *                   *   HYDROLOGIC ENGINEERING CENTER     *
*            VERSION 4.1R                *                   *         609 SECOND STREET           *
*      RGMHEC2000 WWW.HEC-1.COM          *                   *      DAVIS, CALIFORNIA 95616        *
* RUN DATE   07MAR21  TIME  17:24:13     *                   *          (916) 756-1104             *
*                                        *                   *                                     *
******************************************                   ***************************************


                        X     X  XXXXXXX   XXXXX          X
                        X     X  X        X     X        XX
                        X     X  X        X               X
                        XXXXXXX  XXXX     X       XXXXX   X
                        X     X  X        X               X
                        X     X  X        X     X         X
                        X     X  XXXXXXX   XXXXX         XXX


 THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

 THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1
                                             HEC-1 INPUT                                                PAGE  1

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

               *DDIAGRAM
   1           ID        100 yr 24 hr event
   2           ID  VILLAGE PARKWAY HOMES    5 YEAR EVENT
   3           ID  FILE NAME VPH-5YR.DAT
   4           ID  USING TYPE II STORM DISTRIBUTION
   5           ID  BASE MODEL FROM WOODLAND VILLAGE PH 20
               *        DARF          AREA (SQ.      MI.)
               *        1.00             0 -  2
               *        0.99           2.1 -  8
               *        0.98           8.1 - 16
               *        0.97          16.1 - 29
               *        0.96          29.1 - 43
               *        0.95          43.1 - 63
               *        0.94          63.1 - 98
   6           IT      10                       800
   7           IO       5       0
   8           JR    PREC     1.0     .99     .98     .97     .96     .95

   9           KK       A
  10           BA    0.72
  11           PH                     .24     .44     .73     .98    1.16    1.56    2.06    2.56
  12           LS     1.7      54
  13           UD     .62

  14           KK       B
  15           BA    1.78
  16           LS    1.63      55
  17           UD     1.1

  18           KK   D@A&B
  19           HC       2

  20           KK   D-A&B
  21           DT    D-AB
  22           DI       0      10      50     100     500
  23           DQ       0       5      25      50     250

  24           KK   RCH-1
  25           KM  ROUTE A&B TO J1@AB
  26           RD   10200     .04     .12            TRAP       3       1

  27           KK       C
  28           BA    1.26
  29           LS     1.7      54
  30           UD     .82

  31           KK   J1@A&B
  32           HC       2

  33           KK   RCH-2
  34           RD    3500     .06     .12            TRAP      10     2.5
1                                            HEC-1 INPUT                                                PAGE  2

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
  35        KK       D
  36        BA     1.0
  37        LS    1.57      50
  38        UD     .63

  39        KK  J2ABCD
  40        HC       2

  41        KK     DJ2
  42        KM  CHANGE DIVERSION FROM 50% TO 75%
  43        DT      J2
  44        DI       0      10      50     100     500
  45        DQ       0     7.5    37.5      75     375

  46        KK       E
  47        BA    .615
  48        LS    1.45      58
  49        UD     .68

  50        KK     D@E
  51        DT      DE
  52        DI       0      10      50     100     500
  53        DQ       0      10      50     100     500

  54        KK       F
  55        BA   0.815
  56        LS    1.51      57
  57        UD       1

  58        KK     D@F
  59        DT      DF
  60        DI       0      10      50     100     500
  61        DQ       0      10      50     100     500

  62        KK    J3-1
  63        HC       2

  64        KK       J
  65        BA    1.14
  66        LU       4     0.1
  67        UD     .67

  68        KK    J3-2
  69        HC       2

  70        KK       G
  71        BA    0.81
  72        LS    1.03      66
  73        UD     .93
1                                       HEC-1 INPUT                                                     PAGE  3

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  74        KK     D@G
  75        DT     DDG
  76        DI       0      10      50     100     500
  77        DQ       0      10      50     100     500

  78        KK       H
  79        BA    0.74
  80        LS    1.12      64
  81        UD     .63

  82        KK     D@H
  83        DT     DDH
  84        DI       0      10      50     100     500
  85        DQ       0      10      50     100     500

  86        KK      J3
  87        HC       4

  88        KK   RCH-3
  89        RD    8000     .04     .05            TRAP      10       1

  90        KK    D@J3
  91        DT    D-J3
  92        DI       0      10      50     100     500
  93        DQ       0       5      25      50     250

  94        KK   IEAST
  95        BA     .18
  96        LS              64
  97        UD     .22

  98        KK    D@IE
  99        DT     DDG
 100        DI       0      10      50     100     500
 101        DQ       0       8      40      80     400

 102        KK   OEAST
 103        BA     .21
 104        LU       4      .1
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       105          KK      CP2
      ·106          HC        2

       107          KK   CP0+J3
       108          HC        2

       109          KK    D@NOA
       110          DT      DNA
       111          DI        0      40      60     100     500    1000
       112          DQ        0       0      40      40      40      40
1                                              HEC-1 INPUT                                      PAGE  4

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       113          KK   RS-NOA       NORTH RESERVOIR A
       114          KM    36" OUTLET
       115          RS        1    STOR       0
       116          SA        0     .17     .91    2.24    3.55    4.94
       117          SE   5101.5    5102    5103    5104    5105    5106
       118          SQ        0       6      19      35      50      60
       119          SE   5101.5  5102.5  5103.5  5104.5  5105.5  5106.5

       120          KK       I-KWATERSHED CONSISTING OF K+ EM-3+EM-5      APPROX.
       121          BA    .3741
       122          LS               65
       123          UD     0.61

       124          KK    DVI-K       DIVERT FLOW FROM I-K SAME RATE AS FROM K
       125          DT     D-IK
       126          DI        0      10     100     500
       127          DQ        0       5      50     250

       128          KK   WV20-B       PART OF WV-20 GOING NORTH
       129          BA     .017
       130          LS               74
       131          UD      .16

       132          KK    CPEM5
       133          HC        2

       134          KK    D@NOB
       135          DT      DNB
       136          DI        0      40      60     100     500    1000
       137          DQ        0       0      40      40      40      40

       138          KK   RS-NOB       NORTH RESERVOIR B
       139          KM    12" OUTLET
       140          RS        1    STOR       0
       141          SA        0    0.02    0.16    0.52    1.73    3.30    5.24    5.38    5.52
       142          SE   5102.5    5103    5104    5104    5106    5107    5108    5109    5110
       143          SQ        0     2.2     4.5     5.6       7       8       9      10      11
       144          SE   5102.5  5103.5  5104.5  5105.5  5106.5  5107.5  5108.5  5109.5

       145          KK    NORTH
       146          HC        2

       147          KK        M
       148          BA     0.56
       149          LS     1.17      63
       150          UD     0.52

       151          KK    RES-M
       152          RS        1    STOR       0
       153          SA      2.5    2.56    2.66    2.79    1.95    3.15     3.4    3.72    4.12
       154          SE        0    1.38    2.06    2.68    3.29    3.99    4.87    5.91     7.1
       155          SQ        0       6      19      35      50      60      72      78      90
       156          SE        0       1       2       3       4       5       6       7       8
1                                              HEC-1 INPUT                                      PAGE  5

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


       157          KK    OFF-4       OFFSITE   4
       158          BA      .06
       159          LS               63
       160          UD      .42

       161          KK  M+OFF4        COMBINE OFF4 + POND M
       162          HC        2

       163          KK      D@M
       164          DT      DDM
       165          DI        0      10      50     100     500    1000
       166          DQ        0       2      10      20     100     200

       167          KK    OFF-3
       168          BA    0.191
       169          LS               65
       170          UD     0.52

       171          KK    OF3+4       COMBINE OFF3 & O FF4 & POND M
       172          HC        2
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        173         KK    EM-1
        174         BA    .046
        175         LS               88
        176         UD    0.25

        177         KK    JEM1+          COMBINE EM1, POND M, OFF3 & OFF4
        178         KM   SAME AS JM EM1 OFF3 OFF4 IN HEC-HMS
        179         HC       2

        180         KK     TRI           TRIANGULAR AREA EAST OF VILLAGE PKWY
        181         BA    .009
        182         LS             64.5
        183         UD    0.16

        184         KK    CPPP1          ADD TRIANGULAR AREA TO FLOW INTO PP-1
        185         HC       2

        186         KK     PP-1
        187         KM   NOW WITH 30" OUTLET
        188         RS       1    STOR       0
        189         SA       0     .11     .34     .73    1.19    1.82    1.96    2.10    2.24
        190         SA    2.52
        191         SE   14.34      15      16      17      18      19      20      21      22
        192         SE      24
        193         SQ       0     5.5      16      28      38      45      50      57      62
        194         SQ      70      75
        195         SE   14.34   15.34   16.34   17.34   18.34   19.34   20.34   21.34   22.34
        196         SE   24.34
1                                               HEC-1 INPUT                                              PAGE  6

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        197         KK  RCHPP1
        198         RD    2475    .007     .04            TRAP       3       3

        199         KK   D@NOC
        200         DT     DNC
        201         DI       0      40      60     100     500    1000
        202         DQ       0       0      40      40      40      40

        203         KK  RS-NOC          NORTH RESERVOIR C
        204         KM   30" OUTLET
        205         RS       1    STOR       0
        206         SA       0     .22     .82     2.4    3.85    4.54    5.03    5.31
        207         SE    5094    5095    5096    5097    5098    5099    5100    5101
        208         SQ       0     5.5      16      28      38      45      50      57
        209         SE    5094    5095    5096    5097    5098    5099    5100    5101

        210         KK  CP-NOR          COMBINE 3 NORTH DET BASINS
        211         HC       2

        212         KK   IWEST
        213         BA     .35
        214         LS              64
        215         UD     .37

        216         KK    D@IW
        217         DT    DDIW
        218         DI       0      10      50     100     500
        219         DQ       0       8      40      80     400

        220         KK   OWEST
        221         BA     .18
        222         LU       4      .1

        223         KK     CP1
        224         HC       2

        225         KK   NOR+I          COMBINE FLOW FROM 3 DET BASINS & OFFSITE WATERSHED I
        226         HC       2

        227         KK     EM4
        228         BA   .1193
        229         LS              84
        230         UD     .25

        231         KK   EMB-1
        232         RS       1    STOR       0
        233         SA     1.5    1.54     1.6    1.68    1.79    1.95    2.15
        234         SE    5078  5079.1 5079.69 5080.25 5080.95 5081.86 5082.96
        235         SQ       0       8      26      40      52      60
        236         SE    5078    5079    5080    5081    5082    5083
1                                               HEC-1 INPUT                                              PAGE  7

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        237         KK  RHEMB1          REACH   EMB-1
        238         RD     759   .0066     .04            TRAP       3       3

        239         KK    EM-6
        240         BA   .0455
        241         LS     1.6      84
```

```
    242        UD      .32

    243        KK     EM-7
    244        BA     .061
    245        LS       .5      83
    246        UD       .3

    247        KK   CP-PP2
    248        HC        3

    249        KK     PP-2         NORTH OFBRIAR ROAD
    250        KM   OUTLET IS ONE 30" RCP
    251        RS        1    STOR       0
    252        SA        0     .02     .16     .52    1.73    3.30    5.24    5.38    5.52
    253        SE     5171  5171.5  5172.5  5173.5  5174.5  5175.5  5176.5  5177.5  5178.5
    254        SQ        0     5.7    13.5    18.6      22      25      29      31      32
    255        SE     5171    5172    5173    5174    5175    5176    5177    5178  5178.5

    256        KK   JCHAN2
    257        HC        2

    258        KK   CHAN-2
    259        RD     1130    .005     .04            TRAP       6       3

    260        KK       L2
    261        BA     .234
    262        LS     1.03      66
    263        UD      .33

    264        KK      D@L
    265        DT      D-L
    266        DI        0      10      50     100     500
    267        DQ        0       5      25      50     250

    268        KK    RES-L
    269        RS        1    STOR       0
    270        SA      0.6    0.64    0.69    0.76    0.86       1
    271        SE        0    1.69    2.25    2.95    3.86    4.96
    272        SQ        0     5.5      16      28      38      45
    273        SE        0       1       2       3       4       5

    274        KK       L3         PART OF L2 DRAINING TO VILLAGE PARKWAY HOMES
    275        BA     .018
    276        LS               77
    277        UD      0.2
1                                        HEC-1 INPUT                                        PAGE  8

 LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    278        KK    VPH-1         VILL. PKWY HOMES NORTH PORTION
    279        BA    0.035
    280        LS               77
    281        UD      .19

    282        KK   VPCP-1
    283        HC        2

    284        KK       L1
    285        BA     .029
    286        LS               77
    287        UD      .21

    288        KK        P
    289        BA     .031
    290        LS               77
    291        UD      0.1

    292        KK    VPCP2
    293        HC        2

    294        KK        Q
    295        BA     .052
    296        LS               77
    297        UD      .19

    298        KK   VPCP2A         FLOW ENTERING RETENTION/DETENTION POND
    299        HC        2

    300        KK    D@VPH         INFILTRATION @ VP RETENTION POND
    301        DT      VPH
    302        DI        0      10      25      50     100     140     150     155     200
    303        DQ        0       0      12      12      12      12      12      12      12

    304        KK   VPHRPRETENTION/DETENTION POND @ VILLAGE PKWY HOMES
    305        KM   30-IN RCP OUTLET@ 61.5 FT
    306        RS        1    STOR       0
    307        SA     .278    .607    .848    .972   1.013
    308        SE     5060    5062    5064    5066    5067
    309        SQ        0       0     4.5      16      29      35      40      50
    310        SE     5060  5061.5  5062.5  5063.5  5064.5  5065.5   5066.    5067

    311        KK    D-SOU
    312        DT    SOUTH
```

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           313         DI         0       10       50       100       500
           314         DQ         0       10       50       100       500

           315         KK     VPCP3         COMBINE FLOWS GOING TO RET PONDS
           316         HC         2
1                                                        HEC-1 INPUT                                        PAGE  9

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           317         KK    VPNEPD         RETENTION/DETEN TION POND
           318         KM    18-IN RCP OUTLET@ 60 FT
           319         RS         1     STOR        0
           320         SA       .14      .14      .34       .73       .94     1.13
           321         SE        56     57.9       58        62        64       66
           322         SQ         0        0        0         0         4       13       20       26       30       35
           323         SE        56     57.9       58        60        61       62       63       64       65       66

           324         KK    VPCP1A         COMBINE OUTFLOW FROM PVH NE POND WITH MAIN CHANNEL
           325         HC         3

           326         KK    RECH4A
           327         RD       395     .001      .04                TRAP        8        3

           328         KK     RCH4B
           329         RD       665     .001      .04                TRAP       10        3

           330         KK    WV-20A         PART OF WV-20 GOING SOUTH
           331         BA      .013
           332         LS                 61
           333         UD       .15

           334         KK    HASKEL         12" RCP OUTLET
           335         RS         1     STOR        0
           336         SA         0      .47      .55       .60       .65
           337         SE    5194.5     5195     5196      5197      5198
           338         SQ         0      2.4      4.7         6       7.5
           339         SE    5194.5   5195.5   5196.5    5197.5    5198.5

           340         KK      EM-2
           341         BA     .0621
           342         LS                 78
           343         UD       .32

           344         KK     20A+2         COMBINE W VILLAGE 20A POND WITH EM-2
           345         KM    FLOW GOES INTO POND EMG-1
           346         HC         2

           347         KK     EMG-1         DETENTION POND EMG-1
           348         RS         1     STOR        0
           349         SA       0.8     0.83      .87       .93      1.02     1.13     1.29
           350         SE        86     87.1    87.69     88.25     88.95    89.86    90.96
           351         SQ         0        8       26        40        52       60
           352         SE        86       87       88        89        90       91

           353         KK     EMG-1
           354         RD      1630      .01      .04                TRAP        3        3

           355         KK      EMTC
           356         BA      .053
           357         LS       1.5       79
           358         UD       .27
1                                                        HEC-1 INPUT                                        PAGE 10

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           359         KK     EM-10
           360         BA      .053
           361         LS       1.5       72
           362         UD       .32

           363         KK     JEM02
           364         HC         3

           365         KK     EMO-2
           366         RS         1     STOR        0
           367         SA       1.2     1.25     1.26      1.27      1.29      1.3     1.32     1.34     1.39
           368         SE        67    68.49    68.91     69.31     69.72    70.21    70.69    71.31     72.8
           369         SQ         0       11       32        56        76       90      100
           370         SE        67       68       69        70        71       72       73

           371         KK      EMOc
           372         RD       615     .003      .04                TRAP        0        3

           373         KK     EM-11
           374         BA      .012
           375         LS       1.5       86
           376         UD       .13

           377         KK      EM-9
           378         BA      .021
           379         LS       1.5       86
           380         UD       .13
```

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   381          KK  JG2&B2
   382          HC             3

   383          KK      EM-8
   384          BA      .046
   385          LS       1.5      82
   386          UD       .22

   387          KK     EM-12
   388          BA      .015
   389          LS       1.5      93
   390          UD       .12

   391          KK    TODETN
   392          HC             3

   393          KK      DETN
   394          RS         1    STOR       0
   395          SA      2.25    2.31     2.4     2.5    2.63    2.78    2.96    3.18    3.48
   396          SE         0    1.49    1.91    2.31    2.72    3.21    3.69    4.31     5.8
   397          SQ         0     5.5      16      28      38      45      50
   398          SE         0       1       2       3       4       5       6
1                                                   HEC-1 INPUT                                          PAGE 11

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   399          KK       J4B
   400          HC         2

   401          KK    RCH-4C
   402          RD       300    .001     .04            TRAP      12       3

   403          KK        A3
   404          BA      .055
   405          LS                80
   406          UD       .16

   407          KK       A3A
   408          BA      .007
   409          LS                76
   410          UD       .13

   411          KK    COMBA3
   412          HC         2

   413          KK     RES-6
   414          RS         1    STOR       0
   415          SA      0.24     0.5    0.54    0.61    0.67    0.69
   416          SE      5074    5075    5076    5077    5078    5079
   417          SQ         0     4.3      14      24      30      35

   418          KK       A3B
   419          BA      .026
   420          LS                77
   421          UD       .17

   422          KK    D-PARK
   423          DT      PARK
   424          DI         0      20     100     500    1000
   425          DQ         0       5      25     125     250

   426          KK     RES-5
   427          RS         1    STOR       0
   428          SA      0.25    0.28    0.32    0.35    0.39    0.43    0.46     0.5    0.59
   429          SE      5069    5070    5071    5072    5073    5074    5075    5076    5077
   430          SQ         0     4.3      14      24      30    35.4      40      44      44

   431          KK       R-9          ROUTING
   432          RD      1000     .02     .05            TRAP      15       1

   433          KK      A13A
   434          BA      .006
   435          LS                72
   436          UD       .17
1                                                   HEC-1 INPUT                                          PAGE 12

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   437          KK      A13B
   438          BA       .04
   439          LS                73
   440          UD       .18

   441          KK    COMA13
   442          HC         2

   443          KK      A12A
   444          BA      .015
   445          LS                75
   446          UD       .15
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   447          KK     A12
   448          BA     .02
   449          LS                  73
   450          UD     .12

   451          KK  COMA12
   452          HC       2

   453          KK   JRES3
   454          HC       3

   455          KK   RES-3
   456          RS       1    STOR       0
   457          SA       1     1.2    1.35    1.55     1.8
   458          SE    5059    5060    5061    5062    5063
   459          SQ       0       0     7.3   53.15  116.35

   460          KK     A13
   461          BA     .05
   462          LS                  74
   463          UD     .17

   464          KK    A12B
   465          BA     .03
   466          LS                  88
   467          UD     .12

   468          KK   JRES1
   469          HC       3

   470          KK   RES-1
   471          RS       1    STOR       0
   472          SA   .0006   .0812   .2929   .6341  1.0634  1.5306  2.0022  2.4899  3.0079  3.5568
   473          SA  4.1272  5.1068  5.5454  5.8719
   474          SE    5057  5057.2  5057.4  5057.6  5057.8    5058  5058.2  5058.4  5058.6  5058.8
   475          SE    5059    5060    5061    5062
   476          SQ       0       0       0       0       0       0       0     1.2     2.4     3.6
   477          SQ     4.8      14      20      20
1                                           HEC-1 INPUT                                                 PAGE 13

 LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   478          KK   ABMSR          ABOVE MUD SPRINGS ROAD
   479          HC       3

   480          KK   OFF-1
   481          BA   .0226
   482          LS                  63
   483          UD     .22

   484          KK      R8
   485          RD    2000    .054     .05              TRAP      15       1

   486          KK      A5
   487          BA     .06
   488          LS                  84
   489          UD     .17

   490          KK   CSR-7
   491          BA    .014
   492          LS                  75
   493          UD     .18

   494          KK     J-1
   495          HC       3

   496          KK   EXDET
   497          RS       1    STOR       0
   498          SA    0.27    0.28    0.37    0.47    0.52    0.52    0.52
   499          SE    5118    5119    5121    5125 5126.25  5125.5    5126
   500          SQ       0       0     9.8      23    99.5     238   631.1

   501          KK     DIV
   502          DT   D-DIV
   503          DI       0      10     100    1000
   504          DQ       0       5      50     500

   505          KK  REXDET
   506          RD    1787    .025    .013              TRAP      40       1

   507          KK   OFF-2
   508          BA   .0496
   509          LS                  63
   510          UD     .27

   511          KK    R-19
   512          RD    1400     .02     .05              TRAP      15       1

   513          KK  CSR-6A
   514          BA    .005
   515          LS                  73
   516          UD     .17
1                                           HEC-1 INPUT                                                 PAGE 14
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 517        KK  EXDT1A
 518        RS       1    STOR       0
 519        SA       0  .0046   .0169   .0553   .0703
 520        SE    5103   5104    5105    5109    5110
 521        SQ       0   1.65    4.75    8.43    9.15

 522        KK     J-6
 523        HC       2

 524        KK   CSR-6
 525        BA    .025
 526        LS             78
 527        UD     .18

 528        KK  CPXDT1
 529        HC       2

 530        KK   EXDT1
 531        RS       1    STOR       0
 532        SA    0.25   0.31    0.37    0.49
 533        SE    5101   5103    5105    5108
 534        SQ       0    9.5      17      22

 535        KK      A1
 536        BA     .09
 537        LS             78
 538        UD      .2

 539        KK      J8
 540        HC       2

 541        KK     R21
 542        RM       1   .107     .02

 543        KK   JRES2
 544        HC       2

 545        KK    RES2
 546        RS       1   STOR       0
 547        SA       0    .18     1.4     2.9     3.1     3.3     3.5     3.6     3.7     3.8
 548        SA     3.9
 549        SE  5065.5   5066    5067    5068    5069    5070    5071 5071.34 5071.59 5071.84
 550        SE 5072.34
 551        SQ       0     .9     5.5     9.1    11.6    13.6    15.4      16    23.8    37.8
 552        SQ    77.5

 553        KK     R22
 554        RD     800    .02     .05            TRAP      15       1
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 555        KK   CSR-4
 556        BA     .03
 557        LS             75
 558        UD     .13

 559        KK  EXDET2
 560        RS       1   STOR       0
 561        SA    0.13   0.16    0.19    0.22    0.26     0.3    0.34    0.39
 562        SE    5091   5092    5093    5094    5096    5096    5097    5098
 563        SQ       0    2.4       5     6.5       8     9.5      10      11

 564        KK   CSR-3
 565        BA   .0053
 566        LS             80
 567        UD     .12

 568        KK     J11
 569        HC       2

 570        KK   DITCH
 571        RD    3000    .01     .04            TRAP       6     1.5

 572        KK      A2
 573        BA     .05
 574        LS             76
 575        UD     .15

 576        KK  JRES15
 577        HC       3

 578        KK   RES15
 579        RS       1   STOR       0
 580        SA    3.55   3.71    3.85    4.04    4.36    4.69    4.94
 581        SE  5058.5   5059  5059.5    5060    5061    5062    5064
 582        SQ       0      0       0      .6     4.7     8.3    12.2

 583        KK     R23
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         584          RD    2600      .02       .05             TRAP        5         1

         585          KK     RPE
         586          BA    0.12
         587          LS               72
         588          UD     .28

         589          KK   ACS-1
         590          HC       2

         591          KK    VPH2
         592          BA    0.01
         593          LS               77
         594          UD    0.16
1                                                    HEC-1 INPUT                                        PAGE 16

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         595          KK   VPH-3
         596          BA     .01
         597          LS               77
         598          UD    0.15

         599          KK   VPCP2
         600          HC       2

         601          KK   VPH-4
         602          BA    .011
         603          LS               77
         604          UD    0.15

         605          KK   VPH-5
         606          BA    .005
         607          LS               77
         608          UD     .13

         609          KK   RCLDP
         610          DR   SOUTH

         611          KK  VPCP-4         COMBINE VPH3, 4, AND 5
         612          HC       4

         613          KK  VPDICH         VILLAGE PKWY HOMES DETENTION DITCH
         614          KM  OUTLETIS 30"  RCP @ ELEV 5058.15
         615          RS       1    STOR        0
         616          SA   .0001     0.13     0.42     0.74        1
         617          SE  5058.1   5059.5     5060     5062   5063.5
         618          SQ       0        5       16       29       35       44       46
         619          SE  5058.1   5059.1   5060.1   5061.1   5062.1   5063.1   5063.5

         620          KK      Q2
         621          BA    .013
         622          LS               77
         623          UD     .16

         624          KK   VPCP6COMBINED FLOW IN MUD SPRINGS CHANNEL
         625          HC       4

         626          KK   PVE-1
         627          BA   .0128
         628          LS               76
         629          UD     .13

         630          KK  ABCDSP         ABOVE COLD SPRINGS ROAD
         631          HC       2

         632          KK   PVE-2
         633          BA    .011
         634          LS               76
         635          UD     .13
1                                                    HEC-1 INPUT                                        PAGE 17

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


         636          KK  BLCSRD         BELOW COLD SPRINGS ROAD
         637          HC       2
         638          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    9          A
               .
               .
   14          .          B
               .          .
               .          .
   18       D@A&B..........
               .
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                    .
  21                .------->      D-AB
  20            D-A&B
                    V
                    V
  24            RCH-1
                    .
                    .
  27                .           C
                    .           .
                    .           .
  31           J1@A&B............
                    V
                    V
  33            RCH-2
                    .
                    .
  35                .           D
                    .           .
                    .           .
  39           J2ABCD............
                    .
                    .
  43                .------->      J2
  41              DJ2
                    .
                    .
  46                .           E
                    .           .
                    .           .
  51                .           .------->      DE
  50                .         D@E
                    .           .
                    .           .
  54                .           .           F
                    .           .           .
                    .           .           .
  59                .           .           .------->      DF
  58                .           .         D@F
                    .           .           .
                    .           .           .
  62                .        J3-1............
                    .           .
                    .           .
  64                .           .           J
                    .           .           .
                    .           .           .
  68                .        J3-2............
                    .           .
                    .           .
  70                .           .           G
                    .           .           .
                    .           .           .
  75                .           .           .------->      DDG
  74                .           .         D@G
                    .           .           .
                    .           .           .
  78                .           .           .           H
                    .           .           .           .
                    .           .           .           .
  83                .           .           .           .------->      DDH
  82                .           .           .         D@H
                    .           .           .           .
                    .           .           .           .
  86               J3....................................
                    V
                    V
  88            RCH-3
                    .
                    .
  91                .------->      D-J3
  90             D@J3
                    .
                    .
  94                .       IEAST
                    .           .
                    .           .
  99                .           .------->      DDG
  98                .        D@IE
                    .           .
                    .           .
 102                .           .       OEAST
                    .           .           .
                    .           .           .
 105                .         CP2............
                    .           .
                    .           .
 107           CPO+J3............
                    .
                    .
 110                .------->      DNA
 109            D@NOA
                    V
                    V
```

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113   RS-NOA
          .
          .
120       .       I-K
          .         .
          .         .
125       .         .------->    D-IK
124       .      DVI-K
          .         .
          .         .
128       .         .       WV20-B
          .         .           .
          .         .           .
132       .      CPEM5...........
          .         .
          .         .
135       .         .------->    DNB
134       .      D@NOB
          .         V
          .         V
138       .     RS-NOB
          .         .
          .         .
145    NORTH...........
          .
          .
147       .         M
          .         V
          .         V
151       .      RES-M
          .         .
          .         .
157       .         .       OFF-4
          .         .           .
          .         .           .
161       .     M+OFF4...........
          .         .
          .         .
164       .         .------->    DDM
163       .       D@M
          .         .
          .         .
167       .         .       OFF-3
          .         .           .
          .         .           .
171       .      OF3+4...........
          .         .
          .         .
173       .         .       EM-1
          .         .           .
          .         .           .
177       .      JEM1+...........
          .         .
          .         .
180       .         .        TRI
          .         .           .
          .         .           .
184       .      CPPP1...........
          .         V
          .         V
186       .       PP-1
          .         V
          .         V
197       .     RCHPP1
          .         .
          .         .
200       .         .------->    DNC
199       .      D@NOC
          .         V
          .         V
203       .     RS-NOC
          .         .
          .         .
210    CP-NOR...........
          .
          .
212       .      IWEST
          .         .
          .         .
217       .         .------->    DDIW
216       .       D@IW
          .         .
          .         .
220       .         .       OWEST
          .         .           .
          .         .           .
223       .        CP1...........
          .         .
          .         .
225    NOR+I...........
          .
          .
227       .        EM4
          .         V
```

```
                   .           V
     231           .       EMB-1
                   .           V
                   .           V
     237           .      RHEMB1
                   .           .
                   .           .
     239           .           .        EM-6
                   .           .           .
                   .           .           .
     243           .           .           .        EM-7
                   .           .           .           .
                   .           .           .           .
     247           .      CP-PP2........................
                   .           V
                   .           V
     249           .        PP-2
                   .           .
                   .           .
     256      JCHAN2............
                   V
                   V
     258      CHAN-2
                   .
                   .
     260           .          L2
                   .           .
                   .           .
     265           .           .------->     D-L
     264           .         D@L
                   .           V
                   .           V
     268           .       RES-L
                   .           .
                   .           .
     274           .           .          L3
                   .           .           .
                   .           .           .
     278           .           .           .       VPH-1
                   .           .           .           .
                   .           .           .           .
     282           .           .      VPCP-1............
                   .           .           .
                   .           .           .
     284           .           .           .          L1
                   .           .           .           .
                   .           .           .           .
     288           .           .           .           .           P
                   .           .           .           .           .
                   .           .           .           .           .
     292           .           .           .       VPCP2............
                   .           .           .           .
                   .           .           .           .
     294           .           .           .           .           Q
                   .           .           .           .           .
                   .           .           .           .           .
     298           .           .           .      VPCP2A............
                   .           .           .           .
                   .           .           .           .
     301           .           .           .           .------->     VPH
     300           .           .           .       D@VPH
                   .           .           .           V
                   .           .           .           V
     304           .           .           .       VPHRP
                   .           .           .           .
                   .           .           .           .
     312           .           .           .           .------->  SOUTH
     311           .           .           .       D-SOU
                   .           .           .           .
                   .           .           .           .
     315           .           .       VPCP3............
                   .           .           V
                   .           .           V
     317           .           .      VPNEPD
                   .           .           .
                   .           .           .
     324      VPCP1A........................
                   V
                   V
     326      RECH4A
                   V
                   V
     328       RCH4B
                   .
                   .
     330           .      WV-20A
                   .           V
                   .           V
     334           .      HASKEL
                   .           .
                   .           .
     340           .           .        EM-2
                   .           .           .
                   .           .           .
```

```
  344           .       20A+2............
                .           V
                .           V
  347           .       EMG-1
                .           V
                .           V
  353           .       EMG-1
                .           .
                .           .
  355           .           .        EMTC
                .           .           .
                .           .           .
  359           .           .           .        EM-10
                .           .           .           .
                .           .           .           .
  363           .       JEMO2........................
                .           V
                .           V
  365           .       EMO-2
                .           V
                .           V
  371           .        EMOc
                .           .
                .           .
  373           .           .       EM-11
                .           .           .
                .           .           .
  377           .           .           .         EM-9
                .           .           .           .
                .           .           .           .
  381           .      JG2&B2........................
                .           .
                .           .
  383           .           .        EM-8
                .           .           .
                .           .           .
  387           .           .           .        EM-12
                .           .           .           .
                .           .           .           .
  391           .      TODETN........................
                .           V
                .           V
  393           .        DETN
                .           .
                .           .
  399         J4B............
                V
                V
  401      RCH-4C
                .
                .
  403           .          A3
                .           .
                .           .
  407           .           .         A3A
                .           .           .
                .           .           .
  411           .      COMBA3............
                .           V
                .           V
  413           .       RES-6
                .           .
                .           .
  418           .           .         A3B
                .           .           .
                .           .           .
  423           .           .           .------->    PARK
  422           .           .      D-PARK
                .           .           V
                .           .           V
  426           .           .       RES-5
                .           .           V
                .           .           V
  431           .           .         R-9
                .           .           .
                .           .           .
  433           .           .           .        A13A
                .           .           .           .
                .           .           .           .
  437           .           .           .           .        A13B
                .           .           .           .           .
                .           .           .           .           .
  441           .           .           .      COMA13............
                .           .           .           .
                .           .           .           .
  443           .           .           .           .        A12A
                .           .           .           .           .
                .           .           .           .           .
  447           .           .           .           .           .         A12
                .           .           .           .           .           .
                .           .           .           .           .           .
  451           .           .           .           .      COMA12............
                .           .           .           .           .
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453             .          .       JRES3......................
                .          .           V
                .          .           V
455             .          .       RES-3
                .          .           .
                .          .           .
460             .          .           .       A13
                .          .           .         .
                .          .           .         .
464             .          .           .         .        A12B
                .          .           .         .           .
                .          .           .         .           .
468             .          .       JRES1......................
                .          .           V
                .          .           V
470             .          .       RES-1
                .          .           .
                .          .           .
478         ABMSR.......................
                .
                .
480             .      OFF-1
                .          V
                .          V
484             .         R8
                .          .
                .          .
486             .          .         A5
                .          .          .
                .          .          .
490             .          .          .      CSR-7
                .          .          .          .
                .          .          .          .
494             .        J-1......................
                .          V
                .          V
496             .      EXDET
                .          .
                .          .
502             .          .------->  D-DIV
501             .        DIV
                .          V
                .          V
505             .     REXDET
                .          .
                .          .
507             .          .       OFF-2
                .          .           V
                .          .           V
511             .          .        R-19
                .          .           .
                .          .           .
513             .          .           .     CSR-6A
                .          .           .          V
                .          .           .          V
517             .          .           .     EXDT1A
                .          .           .          .
                .          .           .          .
522             .          .         J-6...........
                .          .           .
                .          .           .
524             .          .           .      CSR-6
                .          .           .          .
                .          .           .          .
528             .          .      CPXDT1...........
                .          .           V
                .          .           V
530             .          .       EXDT1
                .          .           .
                .          .           .
535             .          .           .         A1
                .          .           .          .
                .          .           .          .
539             .          .          J8...........
                .          .           V
                .          .           V
541             .          .         R21
                .          .           .
                .          .           .
543             .      JRES2............
                .          V
                .          V
545             .       RES2
                .          V
                .          V
553             .        R22
                .          .
                .          .
555             .          .       CSR-4
                .          .           V
                .          .           V
559             .          .      EXDET2
                .          .           .
                .          .           .
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 564         .         .         .     CSR-3
             .         .         .         .
             .         .         .         .
 568         .         .       J11..........
             .         .         V
             .         .         V
 570         .         .     DITCH
             .         .         .
             .         .         .
 572         .         .         .        A2
             .         .         .         .
             .         .         .         .
 576         .    JRES15....................
             .         V
             .         V
 578         .     RES15
             .         V
             .         V
 583         .       R23
             .         .
             .         .
 585         .         .       RPE
             .         .         .
             .         .         .
 589         .     ACS-1..........
             .         .
             .         .
 591         .         .      VPH2
             .         .         .
             .         .         .
 595         .         .         .     VPH-3
             .         .         .         .
             .         .         .         .
 599         .         .     VPCP2..........
             .         .         .
             .         .         .
 601         .         .         .     VPH-4
             .         .         .         .
             .         .         .         .
 605         .         .         .         .     VPH-5
             .         .         .         .         .
             .         .         .         .         .
 610         .         .         .         .         .         .<-------   SOUTH
 609         .         .         .         .         .     RCLDP
             .         .         .         .         .         .
             .         .         .         .         .         .
 611         .         .    VPCP-4..............................
             .         .         V
             .         .         V
 613         .         .    VPDICH
             .         .         .
             .         .         .
 620         .         .         .        Q2
             .         .         .         .
             .         .         .         .
 624     VPCP6..............................
             .
             .
 626         .     PVE-1
             .         .
             .         .
 630    ABCDSP..........
             .
             .
 632         .     PVE-2
             .         .
             .         .
 636    BLCSRD..........

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
*                                         *                                     **************************************
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                                     *                                    *
*       JUN 1998 AND FEB 2010             *                                     *   U.S. ARMY CORPS OF ENGINEERS     *
*           VERSION 4.1R                  *                                     *   HYDROLOGIC ENGINEERING CENTER    *
*      RGMHEC2000 WWW.HEC-1.COM           *                                     *        609 SECOND STREET           *
*  RUN DATE   07MAR21  TIME  17:24:13     *                                     *     DAVIS, CALIFORNIA 95616        *
*                                         *                                     *        (916) 756-1104              *
*****************************************                                       *                                    *
                                                                                **************************************



                            100 yr 24 hr event
                         VILLAGE PARKWAY HOMES    5 YEAR EVENT
                         FILE NAME VPH-5YR.DAT
                         USING TYPE II STORM DISTRIBUTION
                         BASE MODEL FROM WOODLAND VILLAGE PH 20

   7 IO           OUTPUT CONTROL VARIABLES
                        IPRNT            5  PRINT CONTROL
                        IPLOT            0  PLOT CONTROL
                        QSCAL           0.  HYDROGRAPH PLOT SCALE
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      IT          HYDROGRAPH TIME DATA
                          NMIN        10  MINUTES IN COMPUTATION INTERVAL
                         IDATE     1   0  STARTING DATE
                         ITIME      0000  STARTING TIME
                            NQ       800  NUMBER OF HYDROGRAPH ORDINATES
                        NDDATE     6   0  ENDING DATE
                        NDTIME      1310  ENDING TIME
                         ICENT        19  CENTURY MARK

                    COMPUTATION INTERVAL      .17 HOURS
                         TOTAL TIME BASE  133.17 HOURS

          ENGLISH UNITS
                DRAINAGE AREA          SQUARE MILES
                PRECIPITATION DEPTH    INCHES
                LENGTH, ELEVATION      FEET
                FLOW                   CUBIC FEET PER SECOND
                STORAGE VOLUME         ACRE-FEET
                SURFACE AREA           ACRES
                TEMPERATURE            DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                        NPLAN              1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                   1.00      .99      .98      .97      .96      .95
1

            PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                               FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                                   TIME TO PEAK IN HOURS


  OPERATION         STATION     AREA    PLAN                RATIOS APPLIED TO PRECIPITATION
                                                    RATIO 1  RATIO 2  RATIO 3  RATIO 4  RATIO 5  RATIO 6
                                                       1.00      .99      .98      .97      .96      .95

 HYDROGRAPH AT
+                      A        .720     1   FLOW      4.11     3.91     3.72     3.53     3.34     3.16
                                             TIME     18.00    18.00    18.00    18.00    18.00    18.17

 HYDROGRAPH AT
+                      B       1.780     1   FLOW     11.68    11.14    10.62    10.10     9.59     9.09
                                             TIME     18.00    18.00    18.17    18.17    18.17    18.33

  2 COMBINED AT
+                  D@A&B       2.500     1   FLOW     15.78    15.05    14.33    13.63    12.93    12.24
                                             TIME     18.00    18.00    18.00    18.17    18.17    18.17

 DIVERSION TO
+                   D-AB       2.500     1   FLOW      7.89     7.53     7.17     6.81     6.47     6.12
                                             TIME     18.00    18.00    18.00    18.17    18.17    18.17

 HYDROGRAPH AT
+                  D-A&B       2.500     1   FLOW      7.89     7.53     7.17     6.81     6.47     6.12
                                             TIME     18.00    18.00    18.00    18.17    18.17    18.17

 ROUTED TO
+                  RCH-1       2.500     1   FLOW      7.89     7.52     7.16     6.80     6.45     6.11
                                             TIME     19.00    19.17    19.17    19.17    19.17    19.33

 HYDROGRAPH AT
+                      C       1.260     1   FLOW      7.13     6.79     6.45     6.11     5.78     5.45
                                             TIME     18.00    18.17    18.17    18.17    18.17    18.17

  2 COMBINED AT
+                 J1@A&B       3.760     1   FLOW     14.94    14.18    13.46    12.73    12.00    11.31
                                             TIME     18.00    18.17    18.17    18.33    18.50    18.50

 ROUTED TO
+                  RCH-2       3.760     1   FLOW     15.14    14.31    13.63    12.87    12.16    11.46
                                             TIME     18.33    18.00    18.50    18.67    18.83    18.50

 HYDROGRAPH AT
+                      D       1.000     1   FLOW      6.30     5.96     5.63     5.31     5.04     4.81
                                             TIME     15.33    15.50    15.50    15.67    17.50    18.00

  2 COMBINED AT
+                 J2ABCD       4.760     1   FLOW     21.08    20.06    19.02    17.99    17.10    16.11
                                             TIME     17.50    18.00    18.17    17.83    18.00    18.17

 DIVERSION TO
+                     J2       4.760     1   FLOW     15.81    15.04    14.27    13.49    12.83    12.08
                                             TIME     17.50    18.00    18.17    17.83    18.00    18.17

 HYDROGRAPH AT
+                    DJ2       4.760     1   FLOW      5.27     5.01     4.76     4.50     4.28     4.03
                                             TIME     17.50    18.00    18.17    17.83    18.00    18.17

 HYDROGRAPH AT
+                      E        .615     1   FLOW      6.68     6.37     6.07     5.77     5.48     5.20
                                             TIME     15.00    15.00    15.17    15.17    15.33    15.33
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 DIVERSION TO
+               DE      .615    1   FLOW      6.68    6.37    6.07    5.77    5.48    5.20
                                    TIME     15.00   15.00   15.17   15.17   15.33   15.33

 HYDROGRAPH AT
+               D@E     .615    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

 HYDROGRAPH AT
+               F       .815    1   FLOW      7.36    7.00    6.64    6.30    5.97    5.65
                                    TIME     15.67   15.83   15.83   16.00   16.17   16.33

 DIVERSION TO
+               DF      .815    1   FLOW      7.36    7.00    6.64    6.30    5.97    5.65
                                    TIME     15.67   15.83   15.83   16.00   16.17   16.33

 HYDROGRAPH AT
+               D@F     .815    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

  2 COMBINED AT
+               J3-1   1.430    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

 HYDROGRAPH AT
+               J      1.140    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

  2 COMBINED AT
+               J3-2   2.570    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

 HYDROGRAPH AT
+               G       .810    1   FLOW     30.63   29.36   28.12   26.90   25.70   24.51
                                    TIME     13.50   13.50   13.50   13.50   13.50   13.50

 DIVERSION TO
+               DDG     .810    1   FLOW     30.63   29.36   28.12   26.90   25.70   24.51
                                    TIME     13.50   13.50   13.50   13.50   13.50   13.50

 HYDROGRAPH AT
+               D@G     .810    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

 HYDROGRAPH AT
+               H       .740    1   FLOW     23.85   22.59   21.35   20.14   19.04   18.01
                                    TIME     13.00   13.00   13.00   13.00   13.17   13.17

 DIVERSION TO
+               DDH     .740    1   FLOW     23.85   22.59   21.35   20.14   19.04   18.01
                                    TIME     13.00   13.00   13.00   13.00   13.17   13.17

 HYDROGRAPH AT
+               D@H     .740    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

  4 COMBINED AT
+               J3     8.880    1   FLOW      5.27    5.01    4.76    4.50    4.28    4.03
                                    TIME     17.50   18.00   18.17   17.83   18.00   18.17

 ROUTED TO
+               RCH-3  8.880    1   FLOW      5.32    5.02    4.82    4.58    4.32    4.07
                                    TIME     18.67   19.17   18.83   19.00   19.17   18.83

 DIVERSION TO
+               D-J3   8.880    1   FLOW      2.66    2.51    2.41    2.29    2.16    2.04
                                    TIME     18.67   19.17   18.83   19.00   19.17   18.83

 HYDROGRAPH AT
+               D@J3   8.880    1   FLOW      2.66    2.51    2.41    2.29    2.16    2.04
                                    TIME     18.67   19.17   18.83   19.00   19.17   18.83

 HYDROGRAPH AT
+               IEAST   .180    1   FLOW      8.51    7.93    7.36    6.82    6.29    5.82
                                    TIME     12.33   12.33   12.33   12.33   12.33   12.50

 DIVERSION TO
+               DDG     .180    1   FLOW      6.81    6.34    5.89    5.45    5.03    4.65
                                    TIME     12.33   12.33   12.33   12.33   12.33   12.50

 HYDROGRAPH AT
+               D@IE    .180    1   FLOW      1.70    1.59    1.47    1.36    1.26    1.16
                                    TIME     12.33   12.33   12.33   12.33   12.33   12.50

 HYDROGRAPH AT
+               OEAST   .210    1   FLOW       .00     .00     .00     .00     .00     .00
                                    TIME       .00     .00     .00     .00     .00     .00

  2 COMBINED AT
+               CP2     .390    1   FLOW      1.70    1.59    1.47    1.36    1.26    1.16
                                    TIME     12.33   12.33   12.33   12.33   12.33   12.50

  2 COMBINED AT
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 +              CPO+J3     9.270     1   FLOW         3.14      2.95      2.83      2.69      2.53      2.38
                                         TIME        18.17     17.67     17.83     18.00     18.17     18.83
  DIVERSION TO
 +                 DNA     9.270     1   FLOW          .00       .00       .00       .00       .00       .00
                                         TIME          .00       .00       .00       .00       .00       .00
  HYDROGRAPH AT
 +               D@NOA     9.270     1   FLOW         3.14      2.95      2.83      2.69      2.53      2.38
                                         TIME        18.17     17.67     17.83     18.00     18.17     18.83
  ROUTED TO
 +              RS-NOA     9.270     1   FLOW         3.04      2.92      2.78      2.62      2.47      2.32
                                         TIME        18.17     17.83     18.00     18.17     18.17     18.33
                                    ** PEAK STAGES IN FEET **
                                     1   STAGE     5102.01   5101.99   5101.96   5101.94   5101.91   5101.89
                                         TIME        18.17     17.83     18.00     18.17     18.17     18.33
  HYDROGRAPH AT
 +                 I-K      .374     1   FLOW        14.46     13.77     13.08     12.42     11.76     11.12
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.00
  DIVERSION TO
 +                D-IK      .374     1   FLOW         7.23      6.88      6.54      6.21      5.88      5.56
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.00
  HYDROGRAPH AT
 +               DVI-K      .374     1   FLOW         7.23      6.88      6.54      6.21      5.88      5.56
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.00
  HYDROGRAPH AT
 +              WV20-B      .017     1   FLOW         3.67      3.57      3.48      3.38      3.29      3.19
                                         TIME        12.33     12.33     12.33     12.33     12.33     12.33
  2 COMBINED AT
 +               CPEM5      .391     1   FLOW         8.35      7.98      7.61      7.26      6.90      6.56
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.00
  DIVERSION TO
 +                 DNB      .391     1   FLOW          .00       .00       .00       .00       .00       .00
                                         TIME          .00       .00       .00       .00       .00       .00
  HYDROGRAPH AT
 +               D@NOB      .391     1   FLOW         8.35      7.98      7.61      7.26      6.90      6.56
                                         TIME        13.00     13.00     13.00     13.00     13.00     13.00
  ROUTED TO
 +              RS-NOB      .391     1   FLOW         4.66      4.61      4.56      4.52      4.44      4.32
                                         TIME        15.17     15.17     15.00     14.83     14.83     14.83
                                    ** PEAK STAGES IN FEET **
                                     1   STAGE     5104.64   5104.60   5104.56   5104.52   5104.47   5104.42
                                         TIME        15.33     15.17     15.17     15.00     15.00     14.83
  2 COMBINED AT
 +               NORTH     9.661     1   FLOW         7.54      7.25      6.92      6.61      6.33      6.06
                                         TIME        17.67     17.33     17.33     17.50     17.67     17.83
  HYDROGRAPH AT
 +                   M      .560     1   FLOW        15.70     14.78     13.96     13.16     12.39     11.64
                                         TIME        12.83     13.00     13.00     13.00     13.00     13.17
  ROUTED TO
 +               RES-M      .560     1   FLOW         7.39      7.06      6.71      6.34      5.96      5.74
                                         TIME        18.33     18.33     18.50     18.50     18.67     18.67
                                    ** PEAK STAGES IN FEET **
                                     1   STAGE        1.11      1.08      1.05      1.03       .99       .96
                                         TIME        18.33     18.33     18.50     18.50     18.67     18.67
  HYDROGRAPH AT
 +               OFF-4      .060     1   FLOW         1.78      1.66      1.56      1.47      1.38      1.29
                                         TIME        12.67     12.67     12.83     12.83     12.83     12.83
  2 COMBINED AT
 +              M+OFF4      .620     1   FLOW         8.19      7.82      7.44      7.03      6.64      6.40
                                         TIME        18.17     18.17     18.17     18.33     18.17     18.17
  DIVERSION TO
 +                 DDM      .620     1   FLOW         1.64      1.56      1.49      1.41      1.33      1.28
                                         TIME        18.17     18.17     18.17     18.33     18.17     18.17
  HYDROGRAPH AT
 +                 D@M      .620     1   FLOW         6.55      6.26      5.95      5.62      5.31      5.12
                                         TIME        18.17     18.17     18.17     18.33     18.17     18.17
  HYDROGRAPH AT
 +               OFF-3      .191     1   FLOW         7.91      7.51      7.12      6.74      6.37      6.00
                                         TIME        12.83     12.83     12.83     12.83     12.83     12.83
  2 COMBINED AT
 +               OF3+4      .811     1   FLOW        10.28      9.73      9.20      8.69      8.23      7.82
                                         TIME        12.83     12.83     12.83     13.00     13.00     15.17
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 HYDROGRAPH AT
+               EM-1       .046    1   FLOW       23.01     22.65     22.30     21.94     21.59     21.24
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33
  2 COMBINED AT
+               JEM1+      .857    1   FLOW       26.84     26.22     25.60     25.00     24.41     23.83
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33
 HYDROGRAPH AT
+               TRI        .009    1   FLOW         .55       .52       .49       .45       .42       .39
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33
  2 COMBINED AT
+               CPPP1      .866    1   FLOW       27.39     26.73     26.09     25.45     24.83     24.22
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33
 ROUTED TO
+               PP-1       .866    1   FLOW       19.37     18.88     18.41     17.95     17.50     17.06
                                       TIME       12.83     12.83     12.83     12.83     12.83     12.83
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE      16.62     16.58     16.54     16.50     16.46     16.43
                                       TIME       12.83     12.83     12.83     12.83     12.83     12.83
 ROUTED TO
+               RCHPP1     .866    1   FLOW       19.38     18.87     18.36     17.92     17.58     17.23
                                       TIME       13.17     13.17     13.17     12.83     12.83     12.83
 DIVERSION TO
+               DNC        .866    1   FLOW         .00       .00       .00       .00       .00       .00
                                       TIME         .00       .00       .00       .00       .00       .00
 HYDROGRAPH AT
+               D@NOC      .866    1   FLOW       19.38     18.87     18.36     17.92     17.58     17.23
                                       TIME       13.17     13.17     13.17     12.83     12.83     12.83
 ROUTED TO
+               RS-NOC     .866    1   FLOW       16.34     16.12     15.82     15.37     14.95     14.52
                                       TIME       13.83     13.83     13.83     13.67     13.67     13.67
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE    5096.03   5096.01   5095.98   5095.94   5095.90   5095.86
                                       TIME       13.83     13.83     13.83     13.67     13.67     13.67
  2 COMBINED AT
+               CP-NOR   10.527    1   FLOW       21.76     21.48     21.10     20.51     19.92     19.37
                                       TIME       13.83     13.83     13.83     13.83     13.67     13.67
 HYDROGRAPH AT
+               IWEST      .350    1   FLOW       13.54     12.77     12.02     11.29     10.58      9.89
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67
 DIVERSION TO
+               DDIW       .350    1   FLOW       10.83     10.22      9.62      9.03      8.46      7.91
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67
 HYDROGRAPH AT
+               D@IW       .350    1   FLOW        2.71      2.55      2.40      2.26      2.12      1.98
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67
 HYDROGRAPH AT
+               OWEST      .180    1   FLOW         .00       .00       .00       .00       .00       .00
                                       TIME         .00       .00       .00       .00       .00       .00
  2 COMBINED AT
+               CP1        .530    1   FLOW        2.71      2.55      2.40      2.26      2.12      1.98
                                       TIME       12.67     12.67     12.67     12.67     12.67     12.67
  2 COMBINED AT
+               NOR+I    11.057    1   FLOW       23.47     23.17     22.70     22.07     21.46     20.85
                                       TIME       13.67     13.67     13.83     13.67     13.67     13.67
 HYDROGRAPH AT
+               EM4        .119    1   FLOW       47.85     46.99     46.14     45.28     44.44     43.59
                                       TIME       12.33     12.33     12.33     12.33     12.33     12.33
 ROUTED TO
+               EMB-1      .119    1   FLOW       15.69     15.30     14.90     14.51     14.12     13.73
                                       TIME       13.00     13.00     13.00     13.00     13.00     13.00
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE    5079.43   5079.41   5079.38   5079.36   5079.34   5079.32
                                       TIME       13.00     13.00     13.00     13.00     13.00     13.00
 ROUTED TO
+               RHEMB1     .119    1   FLOW       15.61     15.20     14.81     14.43     14.05     13.69
                                       TIME       13.00     13.17     13.17     13.17     13.17     13.17
 HYDROGRAPH AT
+               EM-6       .045    1   FLOW        1.41      1.34      1.27      1.21      1.15      1.10
                                       TIME       14.00     14.17     14.33     14.33     14.50     14.67
 HYDROGRAPH AT
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 +             EM-7        .061     1   FLOW        19.10     18.71     18.33     17.94     17.55     17.17
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

   3 COMBINED AT
 +             CP-PP2      .226     1   FLOW        27.78     27.05     26.34     25.64     24.96     24.30
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

  ROUTED TO
 +             PP-2        .226     1   FLOW        18.99     18.84     18.69     18.49     18.16     17.84
                                        TIME        13.83     13.83     13.83     13.67     13.67     13.67

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE     5174.12   5174.07   5174.03   5173.98   5173.91   5173.85
                                        TIME        13.83     13.83     13.83     13.67     13.67     13.67

   2 COMBINED AT
 +             JCHAN2    11.283     1   FLOW        42.46     41.99     41.38     40.56     39.62     38.70
                                        TIME        13.83     13.67     13.83     13.67     13.67     13.67

  ROUTED TO
 +             CHAN-2    11.283     1   FLOW        42.45     41.97     41.37     40.54     39.57     38.62
                                        TIME        13.83     13.83     13.83     13.83     13.83     13.83

  HYDROGRAPH AT
 +             L2          .234     1   FLOW        14.35     13.63     12.93     12.24     11.56     10.89
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

  DIVERSION TO
 +             D-L         .234     1   FLOW         7.18      6.82      6.46      6.12      5.78      5.45
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

  HYDROGRAPH AT
 +             D@L         .234     1   FLOW         7.18      6.82      6.46      6.12      5.78      5.45
                                        TIME        12.50     12.50     12.50     12.50     12.50     12.50

  ROUTED TO
 +             RES-L       .234     1   FLOW         3.25      3.13      3.01      2.90      2.78      2.67
                                        TIME        14.00     14.00     14.00     14.17     14.17     14.17

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE         .59       .57       .55       .53       .51       .49
                                        TIME        14.00     14.00     14.00     14.17     14.17     14.17

  HYDROGRAPH AT
 +             L3          .018     1   FLOW         4.91      4.80      4.69      4.57      4.46      4.35
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  HYDROGRAPH AT
 +             VPH-1       .035     1   FLOW         9.63      9.40      9.18      8.96      8.74      8.52
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

   2 COMBINED AT
 +             VPCP-1      .053     1   FLOW        14.54     14.20     13.86     13.53     13.20     12.87
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  HYDROGRAPH AT
 +             L1          .029     1   FLOW         7.84      7.66      7.48      7.29      7.11      6.93
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  HYDROGRAPH AT
 +             P           .031     1   FLOW        11.21     10.95     10.69     10.42     10.16      9.90
                                        TIME        12.17     12.17     12.17     12.17     12.17     12.17

   2 COMBINED AT
 +             VPCP2       .060     1   FLOW        16.84     16.43     16.03     15.62     15.22     14.83
                                        TIME        12.17     12.17     12.17     12.17     12.17     12.17

  HYDROGRAPH AT
 +             Q           .052     1   FLOW        14.30     13.97     13.63     13.31     12.98     12.65
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

   2 COMBINED AT
 +             VPCP2A      .112     1   FLOW        29.23     28.56     27.89     27.22     26.56     25.90
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  DIVERSION TO
 +             VPH         .112     1   FLOW        12.00     12.00     12.00     12.00     12.00     12.00
                                        TIME        12.17     12.17     12.17     12.17     12.17     12.33

  HYDROGRAPH AT
 +             D@VPH       .112     1   FLOW        17.23     16.56     15.89     15.22     14.56     13.90
                                        TIME        12.33     12.33     12.33     12.33     12.33     12.33

  ROUTED TO
 +             VPHRP       .112     1   FLOW         5.89      5.68      5.46      5.24      5.01      4.79
                                        TIME        13.83     14.00     14.00     14.17     14.17     14.33

                                   ** PEAK STAGES IN FEET **
                                    1   STAGE     5062.62   5062.60   5062.58   5062.56   5062.54   5062.53
                                        TIME        13.83     14.00     14.00     14.17     14.17     14.33

  DIVERSION TO
 +             SOUTH       .112     1   FLOW         5.89      5.68      5.46      5.24      5.01      4.79
                                        TIME        13.83     14.00     14.00     14.17     14.17     14.33
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 HYDROGRAPH AT
+              D-SOU      .112     1   FLOW          .00       .00       .00       .00       .00       .00
                                       TIME          .00       .00       .00       .00       .00       .00
 2 COMBINED AT
+              VPCP3      .165     1   FLOW        14.54     14.20     13.86     13.53     13.20     12.87
                                       TIME        12.33     12.33     12.33     12.33     12.33     12.33
 ROUTED TO
+              VPNEPD     .165     1   FLOW         1.51      1.46      1.40      1.35      1.30      1.25
                                       TIME        17.33     17.67     17.83     18.00     18.00     18.17
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE       60.38     60.36     60.35     60.34     60.32     60.31
                                       TIME        17.50     17.67     18.00     18.00     18.00     18.17
 3 COMBINED AT
+              VPCP1A   11.682     1   FLOW        45.69     45.09     44.37     43.41     42.33     41.26
                                       TIME        13.83     13.83     13.83     13.83     13.83     13.83
 ROUTED TO
+              RECH4A   11.682     1   FLOW        45.66     45.03     44.27     43.30     42.25     41.18
                                       TIME        14.00     14.00     14.00     13.83     13.83     13.83
 ROUTED TO
+              RCH4B    11.682     1   FLOW        45.61     44.95     44.17     43.19     42.12     41.08
                                       TIME        14.17     14.00     14.00     14.00     14.00     14.00
 HYDROGRAPH AT
+              WV-20A     .013     1   FLOW          .29       .27       .24       .22       .21       .20
                                       TIME        12.33     12.33     12.50     12.83     12.83     12.83
 ROUTED TO
+              HASKEL     .013     1   FLOW          .21       .20       .19       .19       .18       .17
                                       TIME        14.00     14.00     14.33     14.17     14.50     14.33
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE     5194.59   5194.58   5194.58   5194.58   5194.57   5194.57
                                       TIME        14.00     14.17     14.17     14.17     14.33     14.33
 HYDROGRAPH AT
+              EM-2       .062     1   FLOW        14.35     14.03     13.71     13.39     13.08     12.76
                                       TIME        12.50     12.50     12.50     12.50     12.50     12.50
 2 COMBINED AT
+              20A+2      .075     1   FLOW        14.45     14.12     13.79     13.46     13.14     12.82
                                       TIME        12.50     12.50     12.50     12.50     12.50     12.50
 ROUTED TO
+              EMG-1      .075     1   FLOW         6.10      5.96      5.82      5.67      5.53      5.39
                                       TIME        13.17     13.17     13.17     13.17     13.17     13.17
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE       86.76     86.74     86.73     86.71     86.69     86.67
                                       TIME        13.17     13.17     13.17     13.17     13.17     13.17
 ROUTED TO
+              EMG-1      .075     1   FLOW         6.11      5.96      5.82      5.68      5.53      5.39
                                       TIME        13.33     13.33     13.33     13.33     13.33     13.33
 HYDROGRAPH AT
+              EMTC       .053     1   FLOW         1.26      1.20      1.14      1.09      1.03       .99
                                       TIME        14.17     14.17     14.33     14.50     14.67     15.00
 HYDROGRAPH AT
+              EM-10      .053     1   FLOW          .92       .87       .83       .79       .76       .72
                                       TIME        14.33     14.50     14.67     14.83     15.00     15.00
 3 COMBINED AT
+              JEMO2      .181     1   FLOW         8.13      7.83      7.55      7.27      6.99      6.72
                                       TIME        13.33     13.33     13.50     13.50     13.50     13.50
 ROUTED TO
+              EMO-2      .181     1   FLOW         6.17      5.98      5.79      5.59      5.41      5.22
                                       TIME        15.17     15.33     15.33     15.33     15.33     15.33
                                  ** PEAK STAGES IN FEET **
                                   1   STAGE       67.56     67.54     67.53     67.51     67.49     67.47
                                       TIME        15.33     15.33     15.33     15.33     15.33     15.33
 ROUTED TO
+              EMOc       .181     1   FLOW         6.17      5.98      5.78      5.59      5.40      5.22
                                       TIME        15.33     15.33     15.33     15.50     15.50     15.50
 HYDROGRAPH AT
+              EM-11      .012     1   FLOW          .42       .40       .38       .36       .34       .33
                                       TIME        13.17     13.83     13.83     13.83     14.00     14.17
 HYDROGRAPH AT
+              EM-9       .021     1   FLOW          .73       .70       .67       .63       .60       .57
                                       TIME        13.83     13.83     13.83     14.00     14.00     14.17
 3 COMBINED AT
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  +              JG2&B2      .214    1   FLOW        7.19     6.95     6.72     6.49     6.26     6.04
                                         TIME       15.00    15.17    15.17    15.17    15.33    15.33

 HYDROGRAPH AT
  +                EM-8      .046    1   FLOW        1.28     1.22     1.16     1.10     1.05      .99
                                         TIME       14.00    14.00    14.17    14.33    14.50    14.67

 HYDROGRAPH AT
  +               EM-12      .015    1   FLOW         .93      .87      .81      .76      .72      .69
                                         TIME       13.00    13.00    13.17    13.33    13.67    13.83

  3 COMBINED AT
  +              TODETN      .275    1   FLOW        9.16     8.85     8.55     8.24     7.94     7.64
                                         TIME       15.00    15.00    15.00    15.00    15.00    15.00

 ROUTED TO
  +                DETN      .275    1   FLOW        5.54     5.35     5.18     5.00     4.84     4.67
                                         TIME       19.50    19.67    19.67    19.67    19.83    19.83

                                  ** PEAK STAGES IN FEET **
                                     1   STAGE       1.00      .97      .94      .91      .88      .85
                                         TIME       19.50    19.67    19.67    19.83    19.83    20.00

  2 COMBINED AT
  +                 J4B    11.957    1   FLOW       47.78    46.64    45.68    44.56    43.35    42.17
                                         TIME       14.67    14.33    14.17    14.17    14.17    14.17

 ROUTED TO
  +              RCH-4C    11.957    1   FLOW       47.76    46.62    45.62    44.51    43.32    42.15
                                         TIME       14.67    14.33    14.17    14.17    14.17    14.17

 HYDROGRAPH AT
  +                  A3      .055    1   FLOW       18.55    18.17    17.80    17.42    17.05    16.68
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
  +                 A3A      .007    1   FLOW        1.97     1.92     1.87     1.82     1.78     1.73
                                         TIME       12.17    12.17    12.17    12.17    12.17    12.17

  2 COMBINED AT
  +              COMBA3      .062    1   FLOW       20.23    19.81    19.39    18.98    18.57    18.16
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
  +               RES-6      .062    1   FLOW        9.18     8.95     8.72     8.49     8.27     8.04
                                         TIME       12.67    12.67    12.67    12.67    12.67    12.67

                                  ** PEAK STAGES IN FEET **
                                     1   STAGE    5075.50  5075.48  5075.46  5075.43  5075.41  5075.39
                                         TIME       12.67    12.67    12.67    12.67    12.67    12.67

 HYDROGRAPH AT
  +                 A3B      .026    1   FLOW        7.18     7.01     6.85     6.68     6.52     6.36
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 DIVERSION TO
  +                PARK      .026    1   FLOW        1.79     1.75     1.71     1.67     1.63     1.59
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
  +              D-PARK      .026    1   FLOW        5.38     5.26     5.13     5.01     4.89     4.77
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 ROUTED TO
  +               RES-5      .026    1   FLOW        2.41     2.35     2.29     2.24     2.18     2.12
                                         TIME       12.67    12.67    12.67    12.67    12.67    12.67

                                  ** PEAK STAGES IN FEET **
                                     1   STAGE    5069.56  5069.55  5069.53  5069.52  5069.51  5069.49
                                         TIME       12.67    12.67    12.67    12.67    12.67    12.67

 ROUTED TO
  +                 R-9      .026    1   FLOW        2.38     2.32     2.26     2.20     2.18     2.13
                                         TIME       12.83    12.83    12.83    12.83    12.83    12.83

 HYDROGRAPH AT
  +                A13A      .006    1   FLOW        1.08     1.05     1.02      .99      .95      .92
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
  +                A13B      .040    1   FLOW        7.92     7.69     7.47     7.25     7.03     6.81
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

  2 COMBINED AT
  +              COMA13      .046    1   FLOW        9.00     8.74     8.49     8.23     7.98     7.73
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
  +                A12A      .015    1   FLOW        3.49     3.40     3.31     3.23     3.14     3.06
                                         TIME       12.33    12.33    12.33    12.33    12.33    12.33

 HYDROGRAPH AT
  +                 A12      .020    1   FLOW        4.57     4.43     4.30     4.16     4.03     3.90
                                         TIME       12.17    12.17    12.17    12.17    12.17    12.17
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  2 COMBINED AT
 +             COMA12      .035    1   FLOW       8.00      7.77      7.54      7.32      7.10      6.88
                                       TIME      12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
 +             JRES3       .107    1   FLOW      16.97     16.48     16.01     15.54     15.09     14.62
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
 +             RES-3       .107    1   FLOW       3.05      2.95      2.84      2.74      2.64      2.55
                                       TIME      16.17     16.17     16.33     16.50     16.67     16.67

                                  ** PEAK STAGES IN FEET **
                                   1   STAGE   5060.42   5060.40   5060.39   5060.38   5060.36   5060.35
                                       TIME      16.17     16.17     16.33     16.50     16.67     16.67

 HYDROGRAPH AT
 +             A13         .050    1   FLOW      10.85     10.56     10.27      9.99      9.70      9.42
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
 +             A12B        .030    1   FLOW      19.55     19.25     18.95     18.65     18.35     18.05
                                       TIME      12.17     12.17     12.17     12.17     12.17     12.17

  3 COMBINED AT
 +             JRES1       .187    1   FLOW      28.82     28.25     27.68     27.11     26.55     25.99
                                       TIME      12.17     12.17     12.17     12.17     12.17     12.17

 ROUTED TO
 +             RES-1       .187    1   FLOW       4.11      4.00      3.90      3.80      3.70      3.60
                                       TIME      19.17     19.17     19.17     19.17     19.33     19.33

                                  ** PEAK STAGES IN FEET **
                                   1   STAGE   5058.88   5058.87   5058.85   5058.83   5058.82   5058.80
                                       TIME      19.17     19.00     19.17     19.17     19.17     19.17

  3 COMBINED AT
 +             ABMSR     12.206    1   FLOW      54.73     53.65     52.56     51.31     49.98     48.65
                                       TIME      14.50     14.17     14.00     14.00     14.00     14.00

 HYDROGRAPH AT
 +             OFF-1       .023    1   FLOW        .81       .75       .71       .66       .61       .57
                                       TIME      12.33     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
 +             R8          .023    1   FLOW        .86       .83       .88       .74       .62       .61
                                       TIME      12.67     12.67     12.67     12.83     12.83     13.00

 HYDROGRAPH AT
 +             A5          .060    1   FLOW      25.98     25.53     25.07     24.62     24.16     23.71
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 HYDROGRAPH AT
 +             CSR-7       .014    1   FLOW       3.30      3.22      3.14      3.05      2.97      2.89
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

  3 COMBINED AT
 +             J-1         .097    1   FLOW      29.29     28.75     28.21     27.67     27.14     26.60
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
 +             EXDET       .097    1   FLOW      11.54     11.38     11.22     11.05     10.87     10.70
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

                                  ** PEAK STAGES IN FEET **
                                   1   STAGE   5121.53   5121.48   5121.43   5121.38   5121.32   5121.27
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

 DIVERSION TO
 +             D-DIV       .097    1   FLOW       5.77      5.69      5.61      5.53      5.43      5.35
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

 HYDROGRAPH AT
 +             DIV         .097    1   FLOW       5.77      5.69      5.61      5.53      5.43      5.35
                                       TIME      12.67     12.67     12.67     12.67     12.67     12.67

 ROUTED TO
 +             REXDET      .097    1   FLOW       5.77      5.68      5.60      5.54      5.45      5.36
                                       TIME      12.83     12.83     12.83     12.83     12.83     12.83

 HYDROGRAPH AT
 +             OFF-2       .050    1   FLOW       1.75      1.63      1.51      1.40      1.30      1.19
                                       TIME      12.50     12.50     12.50     12.50     12.50     12.50

 ROUTED TO
 +             R-19        .050    1   FLOW       1.62      1.55      1.47      1.35      1.24      1.21
                                       TIME      12.83     12.83     12.83     12.67     12.83     12.83

 HYDROGRAPH AT
 +             CSR-6A      .005    1   FLOW        .99       .96       .94       .91       .88       .85
                                       TIME      12.33     12.33     12.33     12.33     12.33     12.33

 ROUTED TO
```

```
 +              EXDT1A      .005     1   FLOW       1.02      .99      .96      .94      .91      .88
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE   5103.62  5103.60  5103.58  5103.57  5103.55  5103.53
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
   2 COMBINED AT
 +                J-6       .055     1   FLOW       2.00     1.91     1.82     1.76     1.57     1.53
                                         TIME      12.67    12.83    12.83    12.67    12.83    12.83
  HYDROGRAPH AT
 +               CSR-6      .025     1   FLOW       7.43     7.26     7.10     6.93     6.77     6.61
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
   2 COMBINED AT
 +              CPXDT1      .080     1   FLOW       8.45     8.25     8.06     7.87     7.68     7.49
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
  ROUTED TO
 +               EXDT1      .080     1   FLOW       4.19     4.07     3.96     3.85     3.72     3.58
                                         TIME      13.00    13.00    13.00    12.83    12.83    12.83

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE   5101.88  5101.86  5101.83  5101.81  5101.78  5101.75
                                         TIME      13.00    13.00    12.83    12.83    12.83    12.83
  HYDROGRAPH AT
 +                  A1      .090     1   FLOW      26.44    25.85    25.26    24.68    24.09    23.52
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
   2 COMBINED AT
 +                  J8      .170     1   FLOW      29.31    28.64    27.98    27.32    26.66    26.01
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
  ROUTED TO
 +                 R21      .170     1   FLOW      25.30    24.73    24.17    23.60    23.04    22.48
                                         TIME      12.50    12.50    12.50    12.50    12.50    12.50
   2 COMBINED AT
 +               JRES2      .266     1   FLOW      30.48    29.80    29.12    28.42    27.75    27.07
                                         TIME      12.50    12.50    12.50    12.50    12.50    12.50
  ROUTED TO
 +                RES2      .266     1   FLOW       8.43     8.30     8.18     8.05     7.92     7.79
                                         TIME      15.50    15.50    15.50    15.33    15.33    15.33

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE   5067.81  5067.78  5067.74  5067.71  5067.67  5067.64
                                         TIME      15.50    15.50    15.50    15.33    15.33    15.33
  ROUTED TO
 +                 R22      .266     1   FLOW       8.43     8.30     8.18     8.05     7.91     7.79
                                         TIME      15.50    15.50    15.50    15.50    15.50    15.50
  HYDROGRAPH AT
 +               CSR-4      .030     1   FLOW       7.75     7.55     7.34     7.14     6.94     6.74
                                         TIME      12.17    12.17    12.17    12.17    12.17    12.17
  ROUTED TO
 +              EXDET2      .030     1   FLOW       3.13     3.05     2.98     2.90     2.82     2.75
                                         TIME      12.67    12.67    12.67    12.67    12.67    12.67

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE   5092.28  5092.25  5092.22  5092.19  5092.16  5092.13
                                         TIME      12.67    12.67    12.67    12.67    12.67    12.67
  HYDROGRAPH AT
 +               CSR-3      .005     1   FLOW       2.15     2.10     2.06     2.01     1.97     1.92
                                         TIME      12.17    12.17    12.17    12.17    12.17    12.17
   2 COMBINED AT
 +                 J11      .035     1   FLOW       4.25     4.15     4.04     3.94     3.84     3.73
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
  ROUTED TO
 +               DITCH      .035     1   FLOW       4.65     4.52     4.38     4.25     4.06     3.93
                                         TIME      12.67    12.67    12.67    12.67    12.67    12.67
  HYDROGRAPH AT
 +                  A2      .050     1   FLOW      12.58    12.28    11.98    11.68    11.38    11.09
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.33
   3 COMBINED AT
 +             JRES15       .352     1   FLOW      16.29    15.88    15.38    14.93    14.59    14.17
                                         TIME      12.33    12.33    12.33    12.33    12.33    12.67
  ROUTED TO
 +              RES15       .352     1   FLOW       3.88     3.75     3.62     3.48     3.35     3.21
                                         TIME      25.17    25.17    25.17    25.17    25.17    25.17

                                    ** PEAK STAGES IN FEET **
                                     1   STAGE   5060.80  5060.77  5060.74  5060.70  5060.67  5060.64
                                         TIME      25.17    25.17    25.17    25.17    25.17    25.00
```

```
 ROUTED TO
+               R23       .352     1   FLOW      3.88     3.75     3.62     3.48     3.35     3.21
                                       TIME     25.33    25.33    25.33    25.33    25.33    25.33
 HYDROGRAPH AT
+               RPE       .120     1   FLOW     17.49    16.93    16.38    15.83    15.28    14.74
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
  2 COMBINED AT
+             ACS-1       .472     1   FLOW     17.49    16.93    16.38    15.83    15.28    14.74
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
 HYDROGRAPH AT
+              VPH2       .010     1   FLOW      2.74     2.68     2.62     2.55     2.49     2.43
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
 HYDROGRAPH AT
+             VPH-3       .010     1   FLOW      2.71     2.65     2.59     2.53     2.47     2.40
                                       TIME     12.17    12.17    12.33    12.33    12.33    12.33
  2 COMBINED AT
+             VPCP2       .020     1   FLOW      5.45     5.33     5.21     5.08     4.96     4.84
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
 HYDROGRAPH AT
+             VPH-4       .011     1   FLOW      2.99     2.91     2.85     2.78     2.71     2.66
                                       TIME     12.17    12.33    12.33    12.33    12.33    12.33
 HYDROGRAPH AT
+             VPH-5       .005     1   FLOW      1.53     1.49     1.46     1.42     1.38     1.35
                                       TIME     12.17    12.17    12.17    12.17    12.17    12.17
 HYDROGRAPH AT
+             RCLDP       .000     1   FLOW      5.89     5.68     5.46     5.24     5.01     4.79
                                       TIME     13.83    14.00    14.00    14.17    14.17    14.33
  4 COMBINED AT
+            VPCP-4       .036     1   FLOW     10.54    10.10     9.66     9.22     8.86     8.63
                                       TIME     12.33    12.33    12.33    12.33    12.17    12.33
 ROUTED TO
+            VPDICH       .036     1   FLOW      9.57     9.40     9.10     8.79     8.50     8.29
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33

                                ** PEAK STAGES IN FEET **
                                   1   STAGE  5059.52  5059.50  5059.47  5059.44  5059.42  5059.40
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
 HYDROGRAPH AT
+                Q2       .013     1   FLOW      3.57     3.48     3.40     3.32     3.24     3.16
                                       TIME     12.33    12.33    12.33    12.33    12.33    12.33
  4 COMBINED AT
+             VPCP6     12.726     1   FLOW     67.91    66.55    65.11    63.46    61.69    59.92
                                       TIME     13.83    14.00    14.00    14.00    14.00    14.00
 HYDROGRAPH AT
+             PVE-1       .013     1   FLOW      3.61     3.52     3.43     3.34     3.25     3.16
                                       TIME     12.17    12.17    12.17    12.17    12.17    12.17
  2 COMBINED AT
+            ABCDSP     12.739     1   FLOW     68.55    67.16    65.70    64.04    62.26    60.48
                                       TIME     13.83    13.83    14.00    14.00    14.00    14.00
 HYDROGRAPH AT
+             PVE-2       .011     1   FLOW      3.10     3.02     2.94     2.87     2.79     2.71
                                       TIME     12.17    12.17    12.17    12.17    12.17    12.17
  2 COMBINED AT
+            BLCSRD     12.750     1   FLOW     69.10    67.70    66.21    64.53    62.75    60.96
1                                      TIME     13.83    13.83    13.83    14.00    14.00    13.83
```

APPENDIX D

DETENTION POND DATA

VILLAGE PARKWAY HOMES

DETENTION/RETENTION POND DETAILS

WEST POND

ELEVATION, FT	AREA, ACRES
5060	0.278
5062	0.607
5064	0.848
5066	0.972
5067	1.013

Outlet: 30 inch rcp at elevation 5061.5

NORTHEAST POND

ELEVATION, FT	AREA, ACRES
5056	0.14*
5057.9	0.14*
5058	0.34
5062	0.73
5064	0.94
5066	1.13

*The bottom 2 feet of the pond will be filled with rock. The area shown is the total area multiplied by 0.4, the porosity of gravel.

Outlet: 18-inch rcp at elevation 5060

SOUTHEAST POND

ELEVATION, FT	AREA, ACRES
5058.1	0.0001
5059.5	0.13
5060	0.42
5062	0.74
5063.5	1.0

Outlet: 30 inch rcp at elevation 5058.1

SUMMIT ENGINEERING CORPORATION
PERC RATE TEST

PROJECT NAME: Woodland Village Town Homes
PROJECT NUMBER: 31097

TEST SPECIFICATIONS: Infiltration
DATE: 2/19/2021

TECHNICIAN: JB

Hole No.
Perc Rate: min/in
Depth from native ground to gravel: 10 ft. 2.6
Soil Description: SW-SM
Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
3:30	2	11	9	15	1.7
3:45	2	9 8/16	7 8/16	15	2.0
4:00	2	8 12/16	6 12/16	15	2.2
4:15	2	8	6	15	2.5
4:30	2	7 12/16	5 12/16	15	2.6
4:45	2	7 11/16	5 11/16	15	2.6
5:00	2	7 11/16	5 11/16	15	2.6

Hole No.
Perc Rate: min/in
Depth from native ground to gravel:
Soil Description:
Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
			0		#DIV/0!
			0		#DIV/0!
			0		#DIV/0!
			0		#DIV/0!
			0		#DIV/0!
			0		#DIV/0!
			0		#DIV/0!

GENERAL NOTES

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

2) TREES
- ONE HALF OF ALL DECIDUOUS TREES SHALL HAVE A MINIMUM CALIPER OF 2 INCHES THE REMAINING MAY HAVE A CALIPER OF 1" AT TIME OF PLANTING.
- ONE HALF OF ALL EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT OF 7 FEET, THE REMAINING MAY HAVE A HEIGHT OF 5 FEET AT TIME OF PLANTING.

3) FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL 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.

5) ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED. CONTAINER PLANTINGS WILL BE 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.

PLANT LEGEND

● FLOWERING TREE
● DECIDUOUS SHADE TREE
● EVERGREEN TREE
▨ COMMON AREA LANDSCAPING
▨ STREETSCAPE
▨ RE-VEGETATION AREA

LANDSCAPE DATA

DEVELOPMENT SITE AREA = 2,034,615 SQ FT (46.7 ACRES)

ZONING: HDS (HIGH DENSITY SUBURBAN)

TOWNHOME REQUIRED LANDSCAPE AREA = 146,400 SQ FT (3.36 ACRES) MIN.
(20% OF TOWNHOME DEVELOPMENT SITE 732,000 SQ FT (16.8 ACRES))
INCLUDES
- COMMON AREA LANDSCAPE
- FRONT, BACK AND SIDE YARDS WHERE ADJACENT TO THE STREET
- STREETSCAPE ALONG WOODLAND VILLAGE PARKWAY - 1 TREE PER 50 LN FT

SINGLE FAMILY
- 1 TREE PER LOT OR 50 LN FT OF STREET FRONTAGE FOR FRONT AND SIDE YARDS
- 1 TREE PER 50 LN FT ALONG WOODLAND VILLAGE PARKWAY

PARKING TREES REQUIRED
- 1 TREE PER 20 LN FT IN OFF-SET ROWS FOR PARKING SCREENING BETWEEN MF AND SF
- 1 TREE PER 10 PARKING SPACES

<u>NOTE:</u> FINAL NUMBERS OF TREES SHOWN IN COMMON AREAS TO BE DETERMINED DURING FINAL DESIGN.

0' 100' 200' 300'
Scale in Feet

L.A. StudioNevada
the landscape architecture studio
1552 C Street Sparks, NV 89431 (775) 323-2223 NV RLA #440
www.lastudionevada.com

REGISTERED LANDSCAPE ARCHITECT
RYAN HANSEN
440
3/5/21
Expires: 6/30/21
STATE OF NEVADA

Preliminary Landscape Plan
VILLAGE PARKWAY HOMES
Lifestyle Homes

Washoe Co. Nevada

No.	Revision Date

LA No: 032-514-01-21
Designed: KRD
Drawn: KRD
Checked: RWH
Date: 3/5/21

Sheet L1 of 1

GEOTECHNICAL INVESTIGATION FOR
VILLAGE PARKWAY TOWNHOMES
WOODLAND VILLAGE
RENO, NEVADA

File No. 31097

February 5, 2021

SUMMIT ENGINEERING CORPORATION

Prepared For:

Mr. Robert Lissner
Woodland Village North, LLC
4790 Caughlin Parkway, #519
Reno, Nevada 89519

Prepared By:

Summit Engineering Corporation
5405 Mae Anne Avenue
Reno, Nevada 89523

PROFESSIONAL ENGINEER-STATE OF NEVADA
JOSEPH R. PURSEL
Exp: 12-31-21
CIVIL
No. 21906
02-05-21

Joseph R. Pursel
Geotechnical Division Manager

SUMMIT ENGINEERING CORPORATION™

February 5, 2021

Job No. 31097

Mr. Robert Lissner
Woodland Village North, LLC
4790 Caughlin Parkway, #519
Reno, Nevada 89519

RE: Geotechnical Investigation
Village Parkway Townhomes
Woodland Village
Reno, NV

Dear Client Name:

Attached please find the results of our geotechnical investigation for the proposed Village Parkway Townhomes, located in Woodland Village, north of Reno, Nevada. Summit excavated 14 exploratory test pits to characterize the site for townhomes. Material testing was performed on samples obtained from the site. Results of the analyses and logs of the test pits are included as sheets in this report.

The site is currently vacant, with one abandoned structure towards the north end, and typical high desert grasses and shrubs throughout. Silty Sands (SM) were encountered primarily on this site along with some area of poor and well graded sand. The access to the site is proposed off of Village Parkway, an existing and year-round maintained roadway. The site appears to be suitable for the proposed improvements.

The following report provides geotechnical recommendations and guidelines for the design and construction of the project. We wish to thank you for the opportunity of providing our services. We are readily available to answer any related questions.

Sincerely,

SUMMIT ENGINEERING CORPORATION

Joseph R. Pursel, P.E.
Geotechnical Division Manager

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1150 Lamoille Highway • Elko, Nevada 89801 • (775) 738-8058 FAX (775) 738-8267
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GEOTECHNICAL INVESTIGATION
VILLAGE PARKWAY TOWNHOMES
RENO, NEVADA

I. INTRODUCTION

A. Project Description

This report presents the results of our Geotechnical Investigation to evaluate Village Parkway Townhome site for construction of townhomes, utilities and surface improvements in Woodland Village. Exploration, laboratory testing and engineering analyses were conducted to provide geotechnical recommendations for the design and construction of the project.

The subject property is located adjacent to Village Parkway, Woodland Village, in the Cold Springs area North of Reno, Nevade. On the west of the property is open, vacant land, sloping up to foothills. On the east and south sides of the property are existing single family homes and development. On the north side mainly vacant land, with one large parcel residence adjacent, and the waste water treatment plant farther to the north. There is an abandoned structure on the northern 1/3 of the project site. The site is bound on the east by Village Parkway and Mud Springs Road. The site gently slopes to the east and south, with the western boundary increasing in elevation adjacent to the foothills. The site is covered with sparse vegetation typically found in the high desert, including, but not limited to, grasses, sagebrush, rabbitbrush. The site is located in the northeast ¼ of the northeast ¼, the southeast ¼ of the northeast ¼, and the northeast ¼ of the southeast ¼ of Section 17, Township 21 North, Range 18 East in Reno, Nevada. Sheet 1 presents a vicinity map. Sheet 2 presents the project site with test pit locations.

It is our understanding that the proposed development will entail the construction of a 372 unit townhome site, with site grading, flat work, paving, utilities including drainage retention/detention structures.

The site will have access from Village Parkway, a fully paved and year-round maintained roadway.

B. Purpose and Scope

The purpose of this investigation was to determine subsurface soil and bedrock conditions and to provide geotechnical design criteria for the proposed townhomes. The scope of this investigation included surface reconnaissance, subsurface exploration, analysis of field and laboratory data, research of pertinent geologic literature and report preparation. This report provides conclusions and recommendations concerning:

- General subsurface conditions and geology
- Site preparation and earthwork
- Engineering properties of the soils and bedrock that will influence design of future structures, including:

    - Bearing capacities
    - Settlement potential
    - Lateral earth pressures
    - Portland cement concrete
    - Asphalt concrete
    - Seismic design criteria
    - Infiltration for drainage structure design and sizing

C. Field Exploration and Laboratory Testing

Summit Engineering Corporation conducted the subsurface investigation by excavating 14 exploratory test pits to depths of up to 13 feet below existing grade. The exploratory test pits were excavated with a medium sized Link Belt Track Excavator equipped with a 48” side bucket. Representative samples of the soil were collected from the test pits. Selected samples were tested at Summit’s laboratory and other outside laboratories. A Professional Engineer supervised the logging of the subsurface conditions encountered. Sheet 1 shows the vicinity map and Sheet 2 presents a site map with the locations of the test pits. Sheet 3 shows the geologic data surrounding the site. Sheet 4 shows the faults in the surrounding area. Sheets 5 through 18 display the logs of soils and bedrock encountered in the excavations. Sheets 19 and 20 show the logs of the infiltration pits. Sheet 21 provides a key to the excavation logs as well as a copy of the Unified Soil Classification System used to identify the site soils. Sheet 22 provides the results to the sieve value for the samples. Sheet 23 provides the results to the plastic index results for the samples. Sheet 24 provides the results to the resistance value for one sample. Sheet 25 provides the results for two sulfate samples.

Representative bulk samples were taken from the excavations every two feet of depth or every significant lithologic change. Representative samples were tested as follows: 1) sieve analyses tests (ASTM D422); 2) moisture content tests (ASTM D2216); 3) Atterberg limits tests (ASTM 4318), to confirm field soil classifications; 4) an R-value test (ASTM D2844) to determine a flexible pavement structural section; and

5) a soluble sulfates test to determine if the native soils are reactive with Portland cement concrete. The index test results can be used to estimate engineering properties of the native soil/bedrock. Results of the laboratory tests are displayed on the test pit logs, and presented independently in Appendix D. All laboratory testing was conducted in accordance with the applicable standards.

II. DISCUSSION

A. Site Description

The site is located in the Cold Springs area of Reno, NV, adjacent to Village Parkway. The site consists mainly high desert grasses and shrubs. Surrounding the subject site are single family developments and open land.

B. Site Geology

The project is located in Reno, Nevada. The most current geologic area map is Soeller and Nielson's 1980 Geologic Map of the Reno NW Quadrangle, Nevada. The rock types encountered were identified by those authors as the following:

> **Qs: Flood Plain Deposits:** Pale to dark yellowish-brown and pale brownish white beds of moderately to well-sorted fine to very fine sand, and poorly sorted sandy clay and mud.
>
> **Qfg: Alluvial Fan Deposits:** Gray to yellowish-brown deposits of sandy to pebbly cobble and boulder gravel.
>
> **Qb: Beach Deposits:** Lakeshore deposits of pale yellowish-brown to pale yellowish-white, granular medium to coarse sand, sandy pebble gravel, and granule gravel.

The site has been mapped by F.E.M.A. (Federal Emergency Management Agency Map Numbers 32031C2825H and 32031C2805H) as being in Zone X. Zone X is described as "Area of Minimal Flood Hazard."

C. Regional Seismicity

The property, according to International Building Code 2012/2015 maps, may be subject to strong seismic acceleration, 0.509 (S1) ground acceleration, a major seismic event. The effect of seismic shaking, therefore, is an important consideration.

The site has native soil profile D – Default, since the top 100’ of soils conditions is not known. The following table summarizes seismic design parameters for the 2012/2015 International Building Code criteria for structural design of the project:

IBC SEISMIC DESIGN

Site Class	D - Default
Soil Profile Type	Stiff Soil
Soil Shear Wave Velocity ($\ddot{\upsilon}_s$)	600 to 1,200 ft/s
Standard penetration resistance (N)	15 to 50
Soil undrained shear strength (s_u)	1,000 to 2,000 psf
Site Coefficient (F_a) w/ short accel. (s_s)	1.2
Site Coefficient (F_v) w/ 1-sec. accel. (s_1)	*
Max. ground motion, 0.2-sec SA (S_s), %g	1.54
Max. ground motion, 1.0-sec SA (S_1), %g	0.509
Design acceleration, S_{DS}, g	1.232
Design acceleration, S_{D1}, g	*

NOTE *: Structural Engineer shall determine these values in accordance with ASCE 7-16, Section 11.4.8, Exception 2.

The site is located in Woodland Village, in the Cold Springs area of Reno, NV. Earthquake activity is difficult to predict and it is not known which documented fault system may produce an earthquake event and associated surface rupture. Current research by the Nevada Bureau of Mines and Geology and the University of Nevada, Reno indicates that a local earthquake event of Richter scale magnitude 7.0 would not be unlikely.

At the present time, there are not any local codes that provide guidelines for the evaluation of seismic risk or surface rupture hazard associated with Quaternary (Holocene and Pleistocene) faults, except a minimum 50 foot set back from occupied structures. The State of Nevada requires the use of seismic provisions set by the IBC, as well as adoptions of appropriate local standards (NRS 278.580.5). For the purposes of assessing seismic hazard and potential fault rupture hazard, standard engineering practice is to pursue the most diligent investigation of those faults deemed to be most likely to be active. Most geological consultants in Nevada follow the conventions established by the Nevada Earthquake Safety Council, whose guidelines are based on the Alquist-Priolo Act of 1972 in California. Per these guidelines, faults with evidence of movement in Holocene time (past 12,000 years) are considered “Holocene active”. Those faults with evidence of displacement during Late Pleistocene time (10,000 to 130,000 years ago) would be considered “Late Quaternary active”. Faults with evidence of last displacement having occurred during middle and early Quaternary time (130,000 years to 1,600,000 years ago) are considered “Quaternary Active Faults” (formerly “potentially active”). Faults with last displacement older than 1,600,000 years are deemed “inactive”. Active faults are afforded a greater degree of study and analysis than those regarded as inactive. Normally, any fault suspected of being active, as demonstrated by offset of the argillic (topsoil) horizon, poses a greater risk to development and requires a minimum setback of 50 feet for occupied structures. **No mapped active faults cross the site or are within 50 feet of the site (Sheet 4) nor were any encountered during this investigation.** An inactive fault does bisect the site in a north-south direction. All published data indicates this fault as inactive and no evidence of past seismic activity was found in the exploration. The closest mapped active faults (<15,000 years) are approximately 0.25 miles to the south. The seismic hazard at the Village Parkway Townhomes is probably no greater than other comparable locations in the area that are located at comparable distances to identified faults.

Occupied structures have been built over and adjacent to inactive faults in the greater Reno area for decades, without significant harm to residents from temblors affecting the area. Building codes have evolved in recent years to provide adequate structural protection to residents for the level of tremors experienced to date. Summit Engineering does not recommend siting occupied structures across any fault, regardless of activity classification.

Groundwater was not encountered during the exploratory work by Summit. Liquefaction, a hazard in seismic zones where water-saturated, loose soils lose their bearing during seismic shaking, is not anticipated to be a problem on the project site.

D. Subsurface Materials and Conditions

Based on a total of 14 exploratory test pits completed in this area, along with the 2 infiltration pits, the native material appeared to be the only material present and there was no evidence of uncontrolled fill on the site. The native material was present throughout the test pits up to the depth of excavation. The majority of this material was silty sands, SM. All material on-site meeting structural fill parameters in Appendix A will be suitable to be used to provide suitable support for proposed structures.

Groundwater was not encountered on the site. Groundwater is not anticipated to impact development of the site.

III. CONCLUSIONS AND RECOMMENDATIONS

From a geotechnical engineering standpoint, it is our opinion that the site at Village Parkway is suitable for the construction of the proposed 372 townhome improvements provided that the recommendations contained in this report are incorporated into design and construction. The following sections present our conclusions and recommendations concerning the proposed project.

A. Foundation Considerations

Native non-expansive gravels and sands will be suitable to provide direct foundation support. If any clay or expansive silts are found they should not be used to provide direct foundation support. Analysis obtained from field and laboratory testing indicates native materials (Silty Sands (SM)) that can typically support up to **2,000 pounds per square foot** for dead plus long term live loads, on spread type footings with less than 1 inch of total settlement and less than 1/2 inch of differential settlement across the length of the structures.

In Silty Sands (SM), passive soil resistance to lateral movement may be calculated using an equivalent fluid weight of 150 pounds per square foot per foot of depth and a coefficient of friction of 0.25. Active lateral soil pressure may be calculated using an equivalent fluid weight of 45 pounds per square foot per foot of depth. The at-rest soil pressure may be calculated using an equivalent fluid pressure of 60 pounds per square foot per foot of depth. These values assume that the native non-expansive granular soils and bedrock will provide direct foundation support

B. Grading and Filling

Any uncontrolled fill materials and clayey sand, if encountered, shall be removed prior to placing any fill. These materials are unsuitable for use as fill in structural areas due to the amount of deleterious materials observed. Therefore, these materials shall only be placed as the final lift of fill in landscaped areas.

All areas that are to receive fill or structural loading shall be scarified to a depth of at least 12 inches, moisture conditioned to within 2 percent of optimum, and re-compacted to at least 90 percent relative compaction (ASTM D 1557). If the native subgrade is too coarse to density test, then moisture conditioning and compaction shall be completed to the satisfaction of the Geotechnical Engineer. A proof rolling program of a minimum 5 complete passes with a minimum 10 ton roller or a Cat 825 self propelled sheepfoot may be acceptable. For footing trenches, 3 complete passes with hand compactors may be adequate.

All fill, except rock fill (<30% retained on the ¾" sieve), shall be placed in 12-inch maximum lifts, moisture conditioned to within 2 percent of optimum, and compacted to at least 90 percent (ASTM D1557). It is anticipated that many of the on-site materials will be amenable to density testing.

In structural areas, the maximum particle size shall be 12 inches. This material shall be placed in 12 inch lifts (maximum) moisture conditioned and compacted to the satisfaction of the Geotechnical Engineer. Care should be taken to insure that voids between cobbles and boulders are filled with finer materials. Five complete passes with a minimum 10 ton roller or a Cat 825 Sheepsfoot compactor may achieve adequate compaction. Acceptance of the density requirements shall be by observation of lift thickness, moisture conditioned, and applied compaction effort.

Any imported material for use in structural areas shall meet the specifications of Appendix A, Section 3.2 "structural fill material". (Per the Standard Specifications for Public Works Construction 2016).

The following guideline specification is provided if it is decided to import structural cap material to the site.

Sieve Sizes	Percentage Passing (by weight)
6 Inch	100
3/4 Inch	70-100
No. 40	15-50
No. 200	10-30
Liquid Limit (max.)	38
Plastic Index (max.)	15
Expansion Index (max.)	20
R-value (min.)	30

All imported structural cap material shall be moisture conditioned to within 2 percent of optimum and placed in 12 inch (max) finished lifts and compacted to a minimum 90 percent compaction relative to ASTM D 1557.

C. Surface and Subsurface Drainage

Surface drainage shall be diverted away from all buildings and not be permitted to pond or pool adjacent to foundations. It is recommended that all crawlspaces be lined with Visqueen sheeting, and that positive crawlspace drainage be provided to a collection point. A small diameter pipe (2 to 4-inch) may be placed beneath and perpendicular to the footing, sloped to drain to daylight, or the drain rock bedding of the sewer service lateral to the street may be utilized to drain the crawlspace. Slab-on-grade foundation systems may require subsurface drainage dependent on conditions encountered during grading. The Geotechnical

Engineer shall determine whether subsurface drainage is required at that time.

Grading plans should be designed to minimize the potential for infiltrated precipitation or yard irrigation to migrate laterally and down slope along the cut/fill interface and surfacing in down slope lots. Roof gutters and downspouts are recommended to discharge water well away from foundation areas.

D. Slope Stability and Erosion Control

The results of our exploration and testing indicate that 2:1 (H:V) slopes will be stable for on-site materials in cut and fill. All cut and fill slopes should incorporate brow ditches to divert surface drainage away from the slope face. Any major cut or fill slopes shall include mid-height benches in accordance with International Building Code standards.

The potential for dust generation, both during and after construction, is moderately high at this project. Dust control will be mandatory on this project in order to comply with air quality standards. The contractor shall submit a dust control plan and obtain the required permit from Washoe County prior to commencing site grading.

Stabilization of all slopes and areas disturbed by construction will be required to prevent erosion and to control dust. Stabilization may consist of riprap, re-vegetation and landscaping, or dust palliative. Slopes steeper than 3:1 (H:V) will require stabilization.

E. Trenching and Excavation

All trenching and excavation shall be conducted in accordance with all local, state, and federal (OSHA) standards. In general, all soil encountered during exploration meets the criteria for OSHA Type C soils. Any oversized material loosened during excavation will require scaling prior to permitting workmen to enter the trench.

Any area in question should be examined by the Geotechnical Engineer. The following table is reproduced from Occupational Safety and Health, Subpart P, 1926.652, Appendix B:

TABLE B-1

MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]	
STABLE ROCK	VERTICAL	(90°)
TYPE A [2]	3/4:1	(53°)
TYPE B	1:1	(45°)
TYPE C	1 1/2:1	(34°)

NOTES

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
2. A short-term maximum allowable slope of 1/2 H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4 H:1V (53°).
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

Bedding and initial backfill over the pipe will require import to meet the specifications of the utility having jurisdiction. On-site soils may be used for trench backfill, provided particles over 4 inches in diameter are removed. Imported structural cap material or native silty sands or native gravels will be required within 3 feet below bottom of footing and 2 feet below bottom of pavement subgrade. All trench backfill shall be placed in 8 inch (max.) finished lifts, moisture conditioned to within 2 percent of optimum, and densified to at least 90 percent relative compaction (ASTM D1557). If metal pipes are to be utilized, corrosion protective measures shall be taken.

F. Asphaltic Concrete Design

The site is currently in the City of Reno. For the paving areas, the anticipated equivalent 18,000 pound Single Axle Load (ESAL) is 240,186. This is based on an assumed 1,980 light vehicle trips per day and 20 3-axle or more trucks, including school buses and wasted disposal trucks. A proposed structural section for this area is to be 4 inches of asphalt on 12 inches of cement treated base on 20” of pit run (structural fill), and which is more than sufficient to support the anticipated traffic of passenger vehicles. The resultant “R” value tested for the light traffic private parking area subgrade is 0 (Sheet 24). A Type 3 (1/2 inch size) mix is recommended for all areas for a smoother, more flush finished surface, which is less susceptible to moisture penetration. A 50 Blow, Marshall mix design with 2-4 percent air voids is recommended for this project. The use of PGG4-28NV is also recommended in order to increase the resistance to thermal cracking and help reduce pavement maintenance over the life of the pavement. A mix design shall be submitted to the Geotechnical Engineer for approval one week prior to paving.

Subgrade material that meets structural requirements, shall be scarified to a minimum depth of 6 inches, moisture conditioned to within 2 percent of optimum, and compacted to at least 90 percent. If structural requirements are not met, all areas should receive 2 feet of structural material. Aggregate base materials shall be Type 2, Class B. The aggregate base materials shall be approved by the Geotechnical Engineer prior to incorporation into the pavement structure. Aggregate base shall be moisture conditioned to within 2 percent of optimum and compacted to at least 95 percent compaction (ASTM D 1557).

G. Concrete Slabs

Any dedicated concrete walkways and driveways should be directly underlain by aggregate base per City of Reno standards. Decomposed granite, the same unit thickness as aggregate base, can be used in lieu of aggregate base under private walks and driveways. The concrete mix design for exterior concrete shall have a minimum of 6 sacks of Portland cement, with a maximum water to cement ratio of 0.45, and air content between 4.5 and 7.5 percent. This recommendation is to provide resistance to freeze-thaw cycles that occur in the Reno/Sparks area. Additional requirements for exterior concrete are as follows:

Minimum compression strength = 4,000 psi,
Maximum slump = 4”

Interior slab-on-grade and foundation concrete shall follow criteria established by the project structural engineer. Soluble sulfates have a detrimental effect on Portland cement concrete. Two samples were taken from on-site yielded results of <0.01 percent water soluble sulfate (Sheet 25). Therefore, the sulfate exposure is ranked “Negligible”.

TABLE 1904.3

REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

SULFATE EXPOSURE	WATER SOLUBLE SULFATE (SO_4)IN SOIL, PERCENT BY WEIGHT	SULFATE (SO_4) IN WATER (ppm)	CEMENT TYPE ASTM C150	CEMENT TYPE ASTM C595	CEMENT TYPE ASTM C1157	MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO, BY WEIGHT, NORMAL - WEIGHT AGGREGATE CONCRETE [a]	MINIMUM f'_c NORMAL-WEIGHT AND LIGHTWEIGHT AGGREGATE CONCRETE (psi)[a]
Negligible	0.00 – 0.10	0 - 150	-	-	-	-	-
Moderate	0.10 - 0.20	150 - 1,500	II	II, IP (MS),	MS	0.50	4,000

				IS(MS), P(MS), I(PM)(MS), I(SM)(MS)			
Severe	0.20 – 2.00	1,500 – 10,000	V	-	HS	0.45	4,500
Very severe	Over 2.00	Over 10,000	V plus pozzolan [c]	-	HS plus pozzolan [d]	0.45	4,500

For SI: 1 pound per square inch=0.00689 Mpa.

a. A lower-water-cementitious materials ratio or higher strength may be required for low permeability or for protection against corrosion of embedded items or freezing and thawing (see Table 1904.2.2).

b. Seawater.

c. Pozzolan that has been determined by test or service record to improve sulfate resistance when used in concrete contain Type V cement.

d. Pozzolan that has been determined by test or service record to improve sulfate resistance when used in concrete contain Type HS blended cement.

Structural concrete mix designs for interior and private improvements only should meet one of the following criteria:

TYPE OF CEMENT	**MINIMUM SACKS OF CEMENT PER CUBIC YARD** (prior to replacement with fly ash)	**MAXIMUM WATER TO CEMENTIOUS MATERIALS RATIO**
Type II	6	0.5
Type II and fly ash	5.5	0.53
Type IP	5.5	0.53
Type V	5.5	0.53
Type V and fly ash	5.5	0.53

Concrete mix designs shall be determined per Chapter 7 of “Design and Control of Concrete Mixtures” by the Portland Cement Association and as further modified by IBC 2012 standards, and submitted to the Geotechnical Engineer for approval at least one week prior to pouring the concrete.

Structural concrete mix designs for interior and private improvements only should meet one of the criteria found in the Portland Cement Association “Design and Control of Concrete Mixtures” Chapter 9, 2011.

The Reno area is in a climatic zone of low humidity and concrete is susceptible to shrinkage cracking and curling during curing. All concrete work shall follow the procedures of the American Concrete Institute.

H. Anticipated Construction Problems

The site has a strong potential for dust generation, and will require constant dust suppression measures during construction.

I. Infiltration Results

Two infiltration pits were dug and infiltration tests performed to aid in sizing, design and analysis of drainage structure. Infiltration Pit 1, on the west side of the project, had an infiltration rate of 2 minutes per inch at 10 feet below surface grade. Infiltration Pit 2, on the east side of the project, had an infiltration rate of 7 minutes per inch at 6 feet below surface grade. Logs of the infiltration pits are found on sheets 19 and 20, results are presented in Appendix C.

LIMITATIONS

This report is prepared solely for the use of Summit Engineering's client. Any entity wishing to utilize this report must obtain permission from them prior to doing so. Our services consist of professional opinions and recommendations made in accordance with generally accepted soil and foundation engineering principles and practices. The analyses and recommendations contained in this report are based on our site reconnaissance, the information derived from our field exploration and laboratory testing, our understanding of the proposed development, and the assumption that the soil conditions in the proposed building and grading areas do not deviate from the anticipated conditions.

Unanticipated variations in soil conditions could exist in unexplored areas on the site. If any soil or groundwater conditions are encountered at the site that are different from those discussed in this report, our firm should be immediately notified so that our recommendations can be modified to accommodate the situation. In addition, if the scope of the proposed construction, including proposed loads or structural location, changes from that described in this report, our firm should be notified.

Recommendations made in this report are based on the assumption that an adequate number of tests and inspections will be made during construction to verify compliance with these recommendations. Such tests and inspections should include, but not necessarily be limited to, the following:

- Review of site construction plans for conformance with soils investigation.
- Observation and testing during site preparation, grading, excavation and placement of fill.
- Observation and testing of materials and placement of asphalt concrete and site concrete.
- Foundation observation and review.
- Consultation as may be required during construction.

The findings in this report are valid as of the present date; however, changes in the conditions of the property can occur with the passage of time, whether they are due to natural processes or to the works of man on this or adjacent lands. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

REFERENCES

American Society of Civil Enigineers, Online Hazard Tool: https://asce7hazardtool.online/

Manual of Concrete Practice, American Concrete Institute, 2008

Federal Emergency Management Agency, 2009, Flood Insurance Rate Map Washoe County, Nevada and Incorporated Areas: Maps 32031C280H and 32031C2825H.

International Code Council, 2018, International Conference of Building Officials.

Nevada Bureau of Mines and Geology: http://www.nbmg.unr.edu

Soeller, S.A., and Nielson, R.C., 1980, Geologic Map of the Reno NW Quadrangle, Nevada: Nevada Bureau of Mines and Geology

Standard Specifications for Public Works Construction 2016.

U.S. Geological Survey: http://geohazards.usgs.gov/designmaps/us/application.php

APPENDIX A

APPENDIX A
SPECIFICATIONS FOR
SITE PREPARATION, EXCAVATION, COMPACTION
STRUCTURAL FILL AND SUBGRADE PREPARATION

1.0 GENERAL

1.1 Standard Specifications - Where referred to in these specifications, "Standard Specifications" shall mean the Standard Specifications for Public Works Construction (2016 edition).

1.2 Scope - All work shall be done in accordance with the Standard Specifications except as may be modified by the specifications outlined below. The work done under these specifications shall include clearing, stripping, removal of unsuitable material, excavation and preparation of natural soil, placement and compaction of on-site and/or imported fill material, or as specifically referred to in the plans or specifications.

1.3 Geotechnical Engineer - When used herein, Geotechnical Engineer shall mean the engineer or a representative under the engineer's supervision. The work covered by these specifications shall be inspected by a Geotechnical Engineer, who shall be retained by the Owner. The Geotechnical Engineer will be present during the site preparation and grading to inspect the work and to perform the tests necessary to evaluate material quality and compaction. The Geotechnical Engineer shall submit a report to the Owner, including a tabulation of all tests performed.

1.4 Soils Report - A "Geotechnical Investigation" report, prepared by Summit Engineering Corporation, is available for review and may be used as a reference to the surface and subsurface soil and groundwater conditions on these projects. The Contractor shall make his own interpretation with regards to the methods and equipment necessary to perform the excavations.

1.5 Percent Relative Compaction - Where referred to herein, percent relative compaction shall mean the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same material, as determined by ASTM D-1557, laboratory compaction test procedure. Optimum moisture content is the moisture content corresponding to the maximum dry density determined by ASTM D-1557.

2.0 SITE PREPARATION AND EARTHWORK

2.1 All earthwork and site preparation should be performed in accordance with the requirements of this report and attached specifications, and the Standard Specifications.

2.2 Clearing - Areas to be graded shall be cleared of brush and debris. These materials shall be removed from the site and discarded by an acceptable means approved by the owner.

2.3 Stripping - Surface soils containing roots and organic matter shall be stripped from areas to be graded and stockpiled or discarded as specified by the plans and specifications or at the discretion of the owner. Strippings may be used as the final lift of fill for areas to be planted.

2.4 Dust Control - The contractor shall prevent and maintain control of all dust generated during construction in compliance with all federal, state, county, and city regulations. The project specifications should include an indemnification by the contractor of the engineer and owner for all dust generated during the entire construction period.

2.5 Materials - All material not suitable for use as structural fill, shall be removed from the sites by the Contractor, or placed in non-structural fill areas. The Geotechnical Engineer shall determine the suitability of material for reuse as structural fill.

2.6 Ground Surface - The ground surface exposed by stripping and/or excavation shall be scarified to a minimum depth of 12 inches, moisture conditioned, by aerating or adding water, to within 2 percent of optimum moisture content and compacted to 90 percent relative compaction, unless otherwise specified. Compaction of the ground surface shall be approved by the Geotechnical Engineer prior to placement of fill, structural fill, aggregate base, and/or Portland cement concrete.

2.7 Backfill of test pits and trenches – Our exploration pits and trenches were backfilled without mechanical compaction. In structural areas, backfill in the pits should be removed and replaced in lifts with compactive effort.

3.0 FILL MATERIAL

3.1 Fill material shall be free of perishable, organic material. Rock used in the fill shall be placed in such a manner that no voids are present, either between or around the rock, after compacting the layer.

3.2 Structural Fill Material (SSPWC) - Material shall consist of suitable non-expansive soils having a plasticity index less than 12, and a minimum "R"-value of 30. The gradation requirements shall be as follows:

Sieve Sizes	Percentage Passing (by weight)
4"	100
3/4"	70 - 100
#40	15 - 50
#200	10 - 30

Materials not meeting the above requirements may be suitable for use as structural cap material at the discretion of the Geotechnical Engineer. Samples of imported fill proposed for use as structural cap material shall be submitted to the Geotechnical Engineer and approved before it is delivered to a site.

3.3 Rock Fill - Fill material containing over 30 percent (by weight) of rock larger than 3/4 inches in greatest dimension is defined as rock fill. Rock Fill located five or more feet below finished grade may be constructed in loose lifts up to the maximum size of the rock in the material but not exceeding diameters of 18 inches. The voids around the rock in each rock fill lift shall be filled with granular material and fines and compacted to the satisfaction of the Geotechnical Engineer. Rocks larger than 18 inches in diameter shall be placed in non-structural areas or in deep fills at the discretion of the geotechnical engineer. Care should be taken to fill all voids with finer grained materials. No nesting of larger rocks shall be allowed. Rock fill shall not be used for slab-on-grade construction without the approval of the Geotechnical Engineer. The maximum allowable particle size shall be decreased by the Geotechnical Engineer if the achieved compaction is not satisfactory to the Geotechnical Engineer or "nesting" is observed by the Geotechnical Engineer.

4.0 EARTHWORK AND FILL PLACEMENT

4.1 Placement - Fill material shall be placed in layers that shall not exceed 12 inches of compacted thickness, unless otherwise approved by the Geotechnical Engineer. Each layer shall be evenly spread and moisture conditioned to within 2 percent of optimum moisture content. Unless otherwise specified, each layer of earth fill shall be compacted to 90 percent relative compaction. Compaction shall be approved by the Geotechnical Engineer. Rock fill shall be placed in accordance with the appropriate sections of the Standard Specifications. Rock fill placement and compaction shall be approved by the Geotechnical Engineer. Full time inspection of fill placement is required in structural areas and areas designated as dedicated improvement for the City of Reno, unless otherwise approved by the Engineer.

4.2 Keyways - Where the fill extends onto native slopes with gradients greater than 5:1, the fill shall be keyed into the native soils. The keys will have a minimum width of equipment width or 10 feet, whichever is lesser, and constructed with a minimum 5 percent slope into the hillside.

4.3 Compaction Equipment - The Contractor shall provide and use equipment of a type and weight suitable for the conditions encountered in the field. The equipment shall be capable of obtaining the required degree of compaction in all areas including those that are inaccessible to ordinary rolling equipment.

4.4 Reworking - When, in the judgment of the Geotechnical Engineer, sufficient compaction effort has not been used, or where the field density tests indicate that the required compaction or moisture content has not been obtained, subgrade and/or fill materials shall be reworked and compacted as needed to obtain the required density and moisture content. This reworking shall be accomplished prior to the placement of fill, structural fill, aggregate base, and/or Portland cement concrete.

4.5 Unstable Areas - If pumping or other indications of instability are noted, fill and/or subgrade materials shall be evaluated by the Geotechnical Engineer, scarified, left to dry, and re-compacted or removed and replaced as needed to obtain the required density and moisture content. This work shall be accomplished prior to the placement of fill, structural fill, aggregate base, and/or Portland cement concrete.

4.6 Frozen Materials – Fill shall not be placed on frozen materials, nor shall frozen material be utilized as fill.

5.0 EXCAVATION AND SLOPE REQUIREMENTS

5.1 Finished cut slopes shall not exceed 2 horizontal to 1 vertical and fill slopes should not exceed ratios of 2 horizontal to 1 vertical. Slopes steeper than three horizontal to one vertical or more than ten feet in height should be protected from erosion using riprap, vegetation, or a similar designated and acceptable means meeting the applicable standards.

5.2 Temporary, unsupported construction slopes less than ten feet in height may stand at a slope as steep as 1:1 (H:V) provided that the length of the unsupported slope does not exceed twenty feet. These temporary slopes should not remain unsupported for extended periods of time.

6.0 FOUNDATIONS AND FOOTING

6.1 Spread type continuous and column footings should be designed, to impose a maximum net dead plus long-term live load of **2,000 pounds per square foot**. Net bearing pressures of up to one-third in excess of the given bearing value are permitted for transient live loads from wind and earthquake.

6.2 Exterior footings should be embedded a minimum of 24 inches below the lowest adjacent final compacted subgrade to provide adequate frost protection and confinement. Isolated interior footings should be imbedded per IBC requirements. The recommendations of this report are applicable to all footings.

6.3 The design coefficient of friction is 0.25. The passive soil pressure was calculated as 150 pounds per cubic foot (150 psf per foot of depth). The active soil pressure was similarly was calculated as 45 pounds per cubic foot. The at-rest soil pressure, when walls are braced on the top and the bottom, was calculated as 60 pounds per cubic foot. These design values assume the non-expansive granular soils that meet parameters for structural fill are providing vertical and lateral support. All exterior footings shall be embedded a minimum 24 inches below adjacent finished grade for frost protection, and a minimum of four feet above groundwater.

6.4 Backfill of footing excavations or formed footings should be moisture conditioned to within 2 percent of optimum moisture content and compacted to a minimum of 90 percent relative compaction.

6.5 All footing excavations should be clear of loose material prior to placement of concrete. The bottom of the footing excavation should be scarified to a depth of 12 inches, moisture conditioned to within 2 percent of optimum moisture content, and compacted to a minimum of 90 percent relative compaction.

7.0 UTILITY TRENCH BACKFILL

7.1 Bedding Material - Bedding material shall meet one of the following gradation requirements listed below and shall be non-plastic:

Bedding will require import to meet one of the following specifications:

	CLASS A BACKFILL	**CLASS B BACKFILL**	**CLASS C BACKFILL**
SIEVE SIZE	% PASSING	%PASSING	% PASSING
1”	-	-	100
¾”	-	-	90-100
½”	-	100	-
3/8”	100	-	10-55
#4	90-100	0-15	0-10
#50	10-40	-	-
#100	3-20	-	-
#200	0-15	0-3	-

Bedding as defined in this report shall be within 6 inches of the bottom of the pipe, within 12 inches of the sides of the pipe, and within 12 inches, or to a depth required from the top of the pipe to the top of the groundwater table, whichever is greater, over the pipe. Where groundwater is encountered, filter fabric or filter material shall encapsulate the bedding, if Class B or Class C backfill is utilized. The filter fabric shall be a 10 oz./sq. yd. non-woven geotextile.

Individual utility companies may have additional specifications, which should also be followed.

7.2 Placement and Compaction - Bedding material shall first be placed so that the pipe is supported for the full length of the barrel with full bearing on the bottom segment of the pipe equal to a minimum of 0.4 times the outside diameter of the barrel. Bedding shall also extend to one foot above the top of the pipe. Pipe bedding within 6 inches of the pipe shall be placed in thin layers not exceeding 8 inches in loose thickness, conditioned to the proper moisture content for compaction. Class A backfill shall be compacted to at least 90 percent relative compaction. Class B and/or C backfill shall be compacted to the satisfaction of the Geotechnical Engineer. All other trench backfill shall be placed in thin layers not exceeding 8 inches in loose thickness, conditioned to within 2 percent of optimum moisture content, and compacted as required for adjacent fill, or if not specified, to at least 90 percent compaction in areas under structures, utilities, roadways, parking areas, and concrete flatwork.

7.3 Drain Rock - Any necessary subsurface drainage systems shall use drain rock conforming to the following Class C gradation:

Sieve Sizes	Percentage Passing (by weight)
1"	100
3/4"	90-100
3/8"	10-55
#4	0-10

8.0 CONCRETE SLAB-ON-GRADE AND FLATWORK CONSTRUCTION

8.1 Slab-on-grade - When used in this report, slab-on-grade shall refer to all interior concrete floors.

8.2 Concrete flatwork - A general term, flatwork refers to all exterior concrete site work including sidewalks, driveways, curb and gutters, and patios.

8.3 Subgrade - The upper twelve inches of subgrade beneath the aggregate base under concrete flatwork and slabs-on-grade shall be scarified, moisture conditioned to within 2 percent of optimum moisture content, and compacted to 90 percent relative compaction. Compaction shall be approved by the Geotechnical Engineer.

8.4 Concrete Mix Design - The contractor shall submit a concrete mix design to the Geotechnical Engineer for review and approval 1 week prior to placement of any concrete. The exterior concrete mix design shall utilize a minimum of 6 sacks of Portland Cement Concrete and a maximum water cement ratio of 0.45. Exterior concrete shall also meet the following specifications:

Minimum 28 day compressive strength = 4000 psi.
Air content = 4.5 – 7.5%
Maximum slump = 4 inches

Interior concrete mix designs shall comply with the structural plans and the tables included in Section G of this report.

Admixtures - All admixtures incorporated in the mix design shall be approved by the Geotechnical Engineer.

Finishing - All finishing shall be done in the absence of bleed water. No water shall be added to placed concrete during finishing.

8.5 Over-excavation - Soils within three feet of flatwork or five feet of slab-on-grade shall be over-excavated. Over-excavations should extend at least two feet laterally beyond the edge of the flatwork/slab-on-grade section.

8.6 Base - Base material shall be compacted to 95 percent relative compaction. Compaction shall be approved by the Geotechnical Engineer. Type II Class B aggregate base meeting the following requirements shall be used:

Gradation Requirements

Sieve Size	Percentage Passing (by weight)
1"	100
3/4"	90-100
#4	35-65
#16	15-40
#200	2-10

Plasticity Index should meet the following requirements:

Percentage Passing #200 (by weight)	Plasticity Index Maximum
0.1 to 3.0	15
3.1 to 4.0	12
4.1 to 5.0	9
5.1 to 8.0	6
8.0 to 11.0	4

Other Requirements

R-value	Minimum of 70
Fractured faces	Minimum of 35%
LA Abrasion	Maximum of 45%
Liquid Limit	Maximum of 35%

8.7 Concrete slab-on-grade thickness and compressive strength requirements shall be in accordance with design criteria provided by the Structural Engineer. Minimum slab thickness and compressive strength for flatwork shall be in accordance with the applicable requirements.

8.8 Concrete work shall conform to all requirements of ACI 301-2008, Specifications for Structural Concrete for Buildings, except as modified by supplemental requirements.

8.9 To facilitate curing of the slab, base materials shall be kept moist until placement of the concrete.

8.10 Excessive slump (high water cement ratio) of the concrete and/or improper curing procedures used during hot or cold weather could lead to excessive shrinkage, cracking or curling of slabs and other flatwork.

9.0 RETAINING WALLS

9.1 Retaining walls should be designed using a passive pressure calculated as 150 pounds per cubic foot and active soil pressure calculated as 45 pounds per cubic foot. A base coefficient of 0.25 should be used for resistance to sliding.

9.2 Footings should be placed at least 24 inches below the lowest adjacent finished grade. Subgrade shall be prepared as per these specifications.

9.3 In addition to active soil pressures the effects of any surcharge from adjacent structures or roadways should be included in calculating lateral pressures on retaining walls.

9.4 The design pressures given assume the soils retained are granular, non-expansive and free draining.

9.5 Retaining wall backfill should be moisture conditioned to within 2 percent of optimum and compacted to 85 percent in non-structural areas and 90 percent in structural areas. The use of heavy compaction equipment could cause excessive lateral pressures, which may cause failure of the wall.

9.6 Installation of weep holes or a continuous drain along the base of the wall is recommended to prevent water from being retained behind the wall.

9.7 An interceptor swale should be provided at the top of all retaining walls.

10.0 ASPHALTIC CONCRETE PAVEMENT

10.1 Material and Procedure - The asphalt-concrete material and placement procedures shall conform to appropriate sections of the "Standard Specifications". Aggregate materials for asphaltic concrete shall conform to the requirements listed for Type 3 aggregate in Section 200.02.02 of the "Standard Specifications, 2016". A Type 3, 50-blow, Marshall mix design with 2 to 4 percent air voids is recommended for all areas. PG64-28NV is also recommended for this project. The Contractor shall submit proposed asphalt-concrete mix designs to the Geotechnical Engineer for review and approval 1 week prior to paving. Asphalt materials should be compacted to a minimum of 92 percent of its theoretical maximum specific gravity or 96 percent of its Marshall density.

10.2 Subgrade Preparation - After completion of the utility trench backfill and prior to the placement of aggregate base, the upper 12 inches of finished subgrade soil or structural fill material shall be moisture conditioned to at within 2 percent of optimum and compacted to at least 90 percent. This may require scarifying, moisture conditioning and compacting.

10.3 Aggregate Base Rock - After the subgrade and/or structural fill is properly prepared, the aggregate base material shall be placed uniformly on the approved areas. Aggregate base shall be placed in such a manner as to prevent segregation of the different sizes of material and any such segregation, unless satisfactorily corrected, shall be cause for rejection at the discretion of the Geotechnical Engineer. The aggregate base material shall be spread for compaction in layers not to exceed six inches; moisture conditioned to within 2 percent of optimum, and compacted to at least 95 percent compaction. Aggregate base materials shall meet the requirements of Section 200.01.03 of the "Standard Specifications, 2016" for Type 2, Class B aggregate base. The aggregate base materials shall be approved by the Geotechnical Engineer prior to incorporation into the pavement structure.

11.0 SEISMIC DESIGN

11.1 Design of structures should include an allowance for earthquake loading. Structures should be designed in conjunction with IBC 2012 criteria for seismic acceleration of 0.509 g in soil profiles.

APPENDIX B

FLEXIBLE PAVEMENT SECTION

Village Parkway Townhomes

Average Vehicles per day	2000

Truck Type	Percent Distributed	Daily Traffic Count	Number of Vehicles/Year	Number of Vehicles/Year in Design Lane	Truck Factor	Growth Factor	ESAL
Single-Unit Trucks							
2-Axle, 4-Tire	99%	1980	722700	722700	0.006	24.3	105370
3-Axle or more (includes coach buses)	1%	20	7300	7300	0.76	24.3	134816
Tractor Semi-Trailers and Combinations							
4-Axle or less	0%	0	0	0	0.84	24.3	0
5-Axle	0%	0	0	0	1.1	24.3	0
6-Axle or more	0%	0	0	0	1.3	24.3	0
					Total ESAL		**240,186**

Key Assumptions

20 year design @ 2% growth

100% of traffic in Design Lane

R-Values	0
Resilient Modulus	772

1993 AASHTO Pavement Design

DARWin Pavement Design and Analysis System

A Proprietary AASHTOWare
Computer Software Product

Flexible Structural Design Module

Village Parkway Townhome
ADT=5,000
R-Value=0
4 inches AC on 12 Inches cement treated base on 20" Pit Run (Structural Fill)

Flexible Structural Design

18-kip ESALs Over Initial Performance Period	240,186
Initial Serviceability	4.2
Terminal Serviceability	2
Reliability Level	85 %
Overall Standard Deviation	0.45
Roadbed Soil Resilient Modulus	772 psi
Stage Construction	1
Calculated Design Structural Number	5.50 in

Specified Layer Design

Layer	Material Description	Struct Coef. (Ai)	Drain Coef. (Mi)	Thickness (Di)(in)	Width (ft)	Calculated SN (in)
1	4" AC	0.39	1	4	12	1.56
2	12" Cement Treated Base	0.23	1	12	12	2.76
3	20" Pit Run (Structural Fill)	0.06	1	20	12	1.20
Total	-	-	-	36.00	-	5.52

APPENDIX C

INFILTRATION RESULTS

SUMMIT ENGINEERING CORPORATION
PERC RATE TEST

PROJECT NAME:	Village Parkway Townhomes	**PROJECT NUMBER:**	31097
TEST SPECIFICATIONS:	Infiltration	**DATE:**	1/19/2021
TECHNICIAN:	JB		

Hole No. IF-2 **Perc Rate:** 7 min/in

Depth from native ground to gravel: 6 ft.

Soil Description: ML w/sand

Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
9:49	6	11 4/16	5 4/16	15	2.9
10:05	6	9 9/16	3 9/16	15	4.2
10:20	6	8 15/16	2 15/16	15	5.1
10:35	6	8 8/16	2 8/16	15	6.0
10:50	6	8 3/16	2 3/16	15	6.9
11:05	6	8 2/16	2 2/16	15	7.1
11:20	6	8 2/16	2 2/16	15	7.1

Hole No. IF-1 **Perc Rate:** 2 min/in

Depth from native ground to gravel: 10 ft.

Soil Description: SM w/grvl

Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
9:29	2	11 10/16	9 10/16	15	1.6
9:45	2	10 6/16	8 6/16	15	1.8
10:15	2	9 5/16	7 5/16	15	2.1
10:30	2	8 15/16	6 15/16	15	2.2
10:45	2	8 11/16	6 11/16	15	2.2
11:00	2	8 10/16	6 10/16	15	2.3
11:15	2	8 10/16	6 10/16	15	2.3

APPENDIX D

LABORATORY RESULTS

SUMMIT ENGINEERING CORPORATION™
Engineering The West Since 1978.

5405 Mae Anne Avenue
Reno Nevada 89523
Phone (775) 747-8550 Fax (775) 747-8559

Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3371.0**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3277.6**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**2.8%**
DATE:	**1/27/2021**	WASH WEIGHT(g):	**1777.8**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-1, 5-6'**	CC:	1.07
		CU:	8.06

PI:	NP	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**98**
LL:		**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**12.6**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		7.7		0.4	**100**	
#4		39.3		2.2	**98**	
#8		170.5		9.6	**90**	
#10		211.7		11.9	**88**	
#16		385.6		21.7	**78**	
#30		621.4		35.0	**65**	
#40		790.1		44.4	**56**	
#50		975.6		54.9	**45**	
#100		1330.6		74.8	**25**	
#200		1553.1		87.4	**12.6**	
PAN		1627.5				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME: **Woodland Village Town Homes**
JOB NUMBER: **31097**
LAB NUMBER: **2529**
DATE: **1/28/2021**
TECHNICIAN: **MC**

TOTAL COARSE WEIGHT **921.1**
TOTAL WET FINE WIGHT **3954.1**
TOTAL DRY SAMPLE WIEGHT **4767.3**
SIEVE FINE AND COARSE SPLIT **3/4**
BEFORE WASH WEIGHT **1944.0**
FINE WET WEIGHT **3954.1**
FINE DRY WEIGHT **3846.2**
PERCENT MOISTURE **2.8**

PI: **4.3**
LL: **21.9**
UCS CLASSIFICATION: **SM w/grvl**
CU: 26.00
CC: 0.96
SOIL NAME: Silty Sand with gravel

SIEVE	**COARSE GRADATION**			**FINE GRADATION**			**COMBINED GRADATION**	**SPEC**
	WEIGHT RETAINED	**PERCENT RETAINED**	**PERCENT PASSING**	**WEIGHT RETAINED**	**PERCENT RETAINED**	**PERCENT PASSING**		
6								
5								
4"								
3"	555.0	12	88				88	
2"	741.0	16	84				84	
1 1/2"	741.0	16	84				84	
1"	890.2	19	81				81	
3/4"	921.1	19	81				81	
1/2"				100.5	5	95	77	
3/8"				199.8	10	90	72	
#4				365.0	19	81	66	
#8				527.7	27	73	59	
#10				569.9	29	71	57	
#16				685.0	35	65	52	
#30				802.2	41	59	47	
#40				849.9	44	56	45	
#50				893.2	46	54	44	
#100				1037.5	53	47	38	
#200				1031.7	53	46.9	37.9	
PAN				1057.1	54			

Notes: TP-2, 3-4'

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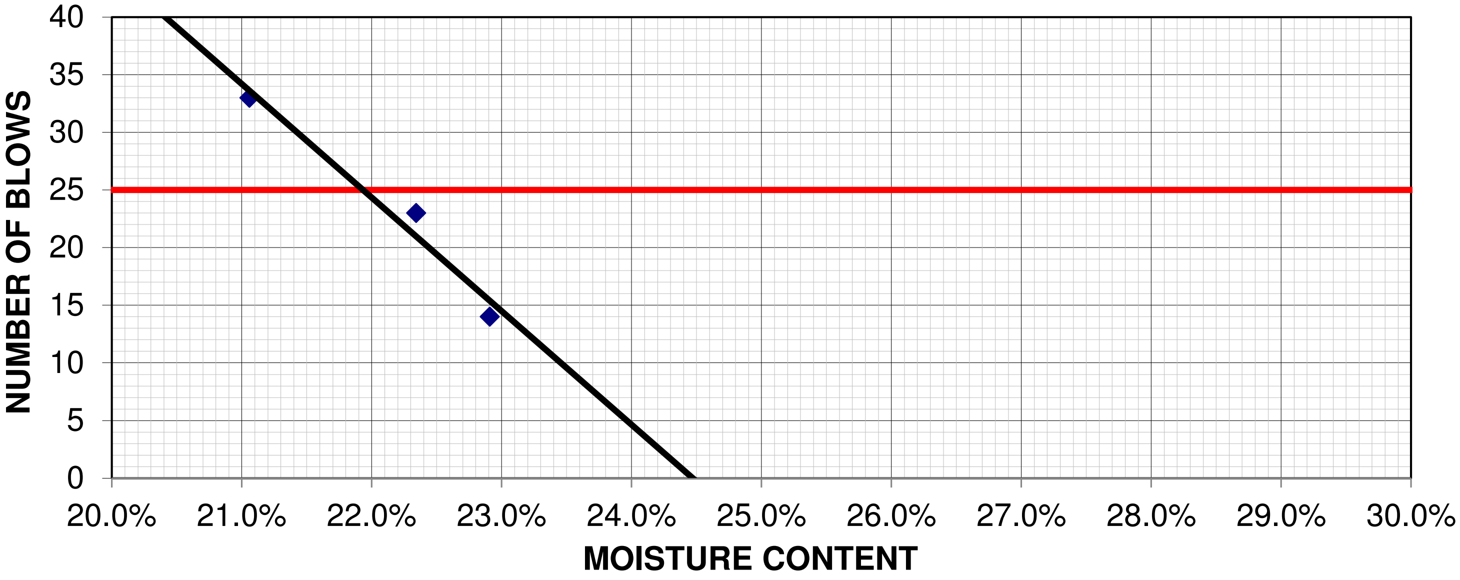
JOB NAME: Woodland Village Town Homes
JOB NUMBER: 31097
DATE: 1/28/2021
TESTED BY: JB
LAB NUMBER: 2529
SAMPLE DESCRIPTION: TP-2, 3-4'

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT: **21.9**
PLASTIC LIMIT: **17.6**
PLASTICITY INDEX: **4.3**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	14	23	33	
TARE NO.	I1	Q	T		B	Z	G	
GROSS WET WEIGHT	7.71	7.24	7.97		12.13	12.81	13.92	
GROSS DRY WEIGHT	7.05	6.72	7.36		10.46	11.15	12.17	
TARE WEIGHT	3.25	3.84	3.86		3.17	3.72	3.86	
NET DRY WEIGHT	3.80	2.88	3.50		7.29	7.43	8.31	
WEIGHT OF WATER	0.66	0.52	0.61		1.67	1.66	1.75	
% MOISTURE	17.37%	18.06%	17.43%		22.91%	22.34%	21.06%	

LIQUID LIMIT



REMARKS:

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Reno Nevada 89523
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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3278.3**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3152.2**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**4.0%**
DATE:	**1/28/2021**	WASH WEIGHT(g):	**1719.1**
TECHNICIAN:	**MC**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-3, 2.5-3.5'**	CC:	6.29
		CU:	5.77

PI:	1.4	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**99**
LL:	22.3	**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**19.6**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	100	
3/8"		0.0		0	100	
#4		9.4		0.5	99	
#8		88.4		5.1	95	
#10		138.5		8.1	92	
#16		303.8		17.7	82	
#30		505.6		29.4	71	
#40		611.8		35.6	64	
#50		729.7		42.4	58	
#100		1079.0		62.8	37	
#200		1382.4		80.4	19.6	
PAN		1520.7				

NOTES:

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JOB NAME: Woodland Village Town Homes

JOB NUMBER: 31097

DATE: 1/28/2021

TESTED BY: JB

LAB NUMBER: 2529

SAMPLE DESCRIPTION: TP-3, 2.5-3.5'

Liquid and Plastic Limit *(ASTM D 4318)*

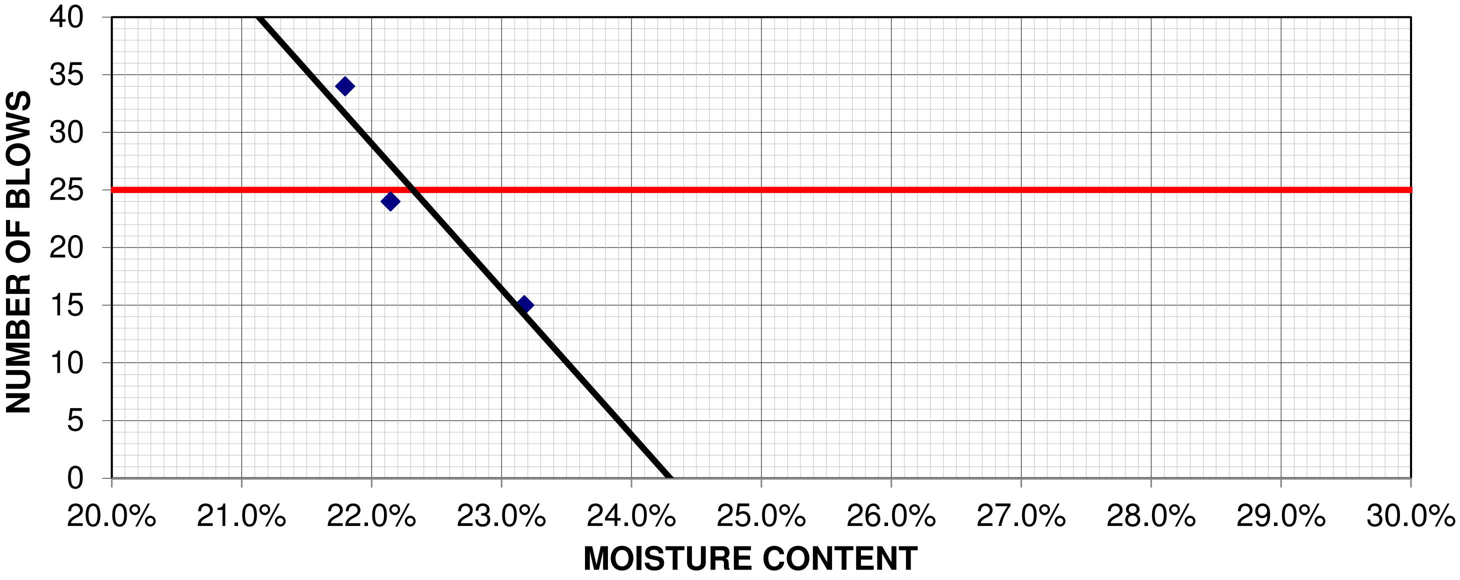
LIQUID LIMIT: **22.3**

PLASTIC LIMIT: **20.9**

PLASTICITY INDEX: **1.4**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	15	24	34	
TARE NO.	L	W	F		D	C	P	
GROSS WET WEIGHT	8.49	7.25	7.25		12.60	10.13	14.03	
GROSS DRY WEIGHT	7.68	6.64	6.59		10.95	8.87	12.21	
TARE WEIGHT	3.78	3.88	3.28		3.83	3.18	3.86	
NET DRY WEIGHT	3.90	2.76	3.31		7.12	5.69	8.35	
WEIGHT OF WATER	0.81	0.61	0.66		1.65	1.26	1.82	
% MOISTURE	20.77%	22.10%	19.94%		23.17%	22.14%	21.80%	

LIQUID LIMIT



REMARKS:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland VillageTownhomes**	WET WEIGHT (g):	**4116.2**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**4027.9**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**2.2%**
DATE:	**1/25/2021**	WASH WEIGHT(g):	**1158.2**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-4, 7.5-8.5'**	CC:	2.78
		CU:	7.83

PI:	NP	**SOIL CLASSIFICATION:**	**SW**	% PASSING #4:	**88**
LL:		**SOIL NAME:**	**Well Graded Sand**	% PASSING #200:	**4.2**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		30.7		2.7	**97**	
3/8"		49.4		4.3	**96**	
#4		144.5		12.5	**88**	
#8		447.3		38.6	**61**	
#10		573.1		49.5	**51**	
#16		882.0		76.2	**24**	
#30		1011.0		87.3	**13**	
#40		1029.8		88.9	**11**	
#50		1051.7		90.8	**9**	
#100		1092.6		94.3	**6**	
#200		1109.7		95.8	**4.2**	
PAN		1111.1				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3246.3**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3120.7**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**4.0%**
DATE:	**1/28/2021**	WASH WEIGHT(g):	**1775.8**
TECHNICIAN:	**JB**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-5, 2-3'**	CC:	0.85
		CU:	10.48

PI:	4.9	**SOIL CLASSIFICATION:**	**SW**	% PASSING #4:	**92**
LL:	24.5	**SOIL NAME:**	**Well Graded Sand**	% PASSING #200:	**4.4**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"		12.0			100	
1/2"		28.9		1.6	**98**	
3/8"		50.2		2.8	**97**	
#4		141.7		8.0	**92**	
#8		512.3		28.8	**71**	
#10		638.5		36.0	**64**	
#16		899.3		50.6	**49**	
#30		1157.6		65.2	**35**	
#40		1304.6		73.5	**27**	
#50		1460.4		82.2	**18**	
#100		1608.5		90.6	**9**	
#200		1697.9		95.6	**4.4**	
PAN		1715.1				

NOTES:

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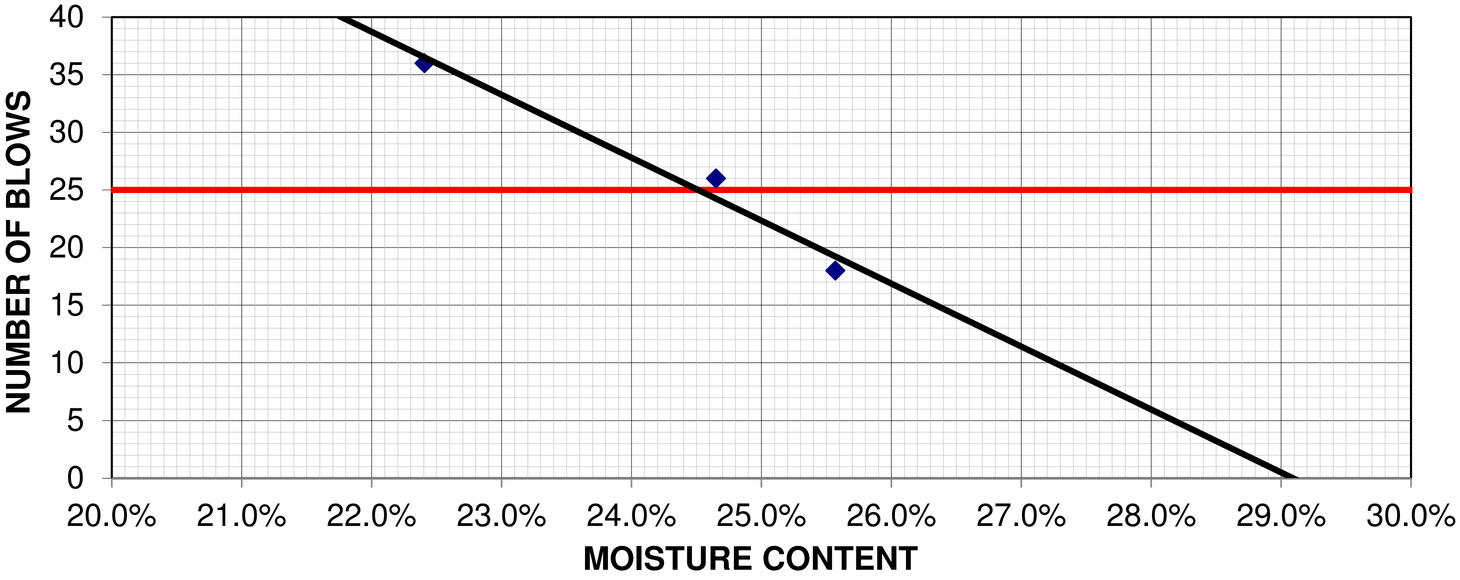
JOB NAME: Woodland Village Town Homes
JOB NUMBER: 31097
DATE: 1/28/2021
TESTED BY: JB
LAB NUMBER: 2529
SAMPLE DESCRIPTION: TP-5, 2-3'

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT: **24.5**
PLASTIC LIMIT: **19.6**
PLASTICITY INDEX: **4.9**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	18	26	36	
TARE NO.	k	X	E		J1	G1	Y	
GROSS WET WEIGHT	6.08	6.91	6.45		10.55	11.08	9.08	
GROSS DRY WEIGHT	5.61	6.37	6.03		9.20	9.49	8.00	
TARE WEIGHT	3.16	3.80	3.77		3.92	3.04	3.18	
NET DRY WEIGHT	2.45	2.57	2.26		5.28	6.45	4.82	
WEIGHT OF WATER	0.47	0.54	0.42		1.35	1.59	1.08	
% MOISTURE	19.18%	21.01%	18.58%		25.57%	24.65%	22.41%	

LIQUID LIMIT



REMARKS:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3120.2**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**2851.1**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**9.4%**
DATE:	**1/27/2021**	WASH WEIGHT(g):	**1508.1**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-6, 6.5-7.5'**	CC:	0.53
		CU:	20.53

PI:	1.4	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**92**
LL:	23.7	**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**37.0**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		122.6		8.1	**92**	
#8		230.5		15.3	**85**	
#10		251.9		16.7	**83**	
#16		330.0		21.9	**78**	
#30		436.3		28.9	**71**	
#40		514.3		34.1	**66**	
#50		628.2		41.7	**58**	
#100		781.6		51.8	**48**	
#200		950.7		63.0	**37.0**	
PAN		1072.2				

NOTES:

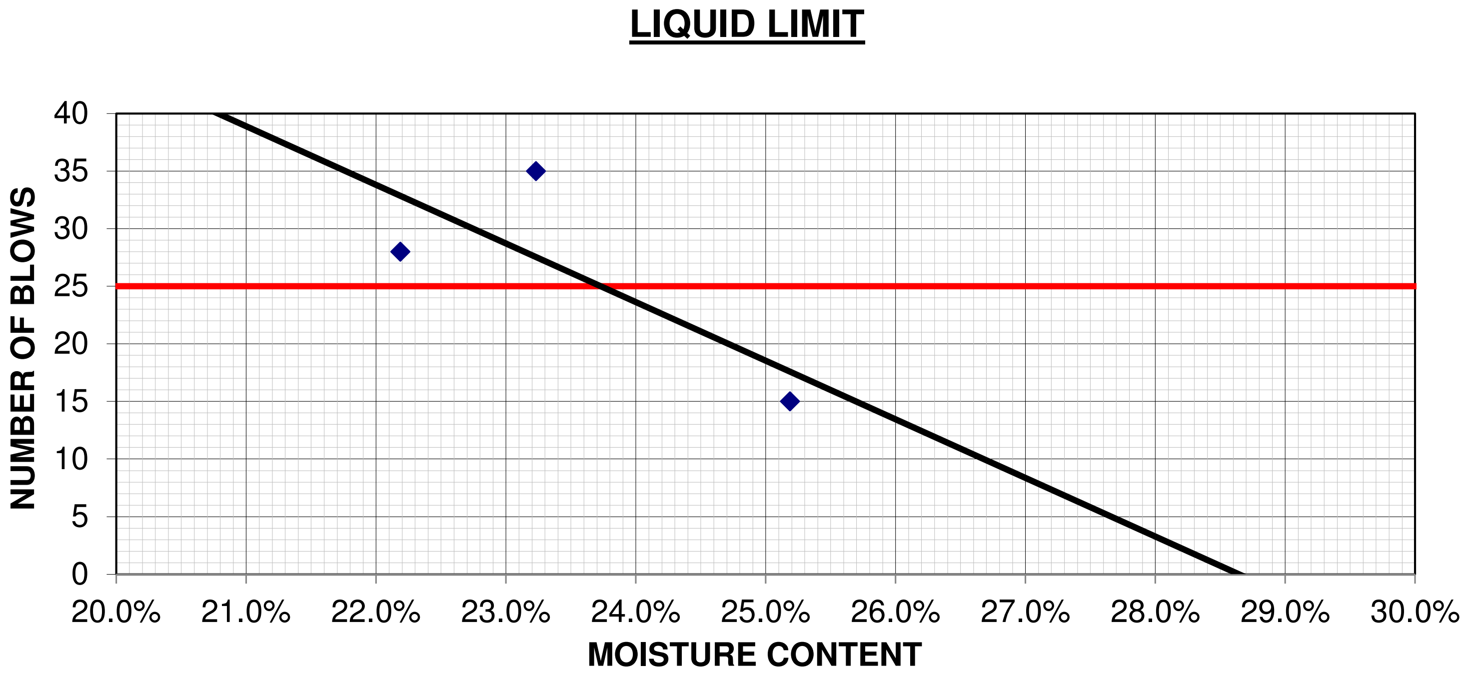
SUMMIT ENGINEERING CORPORATION™
Engineering The West Since 1978.

JOB NAME: Woodland Village Town Homes
JOB NUMBER: 31097
DATE: 1/27/2021
TESTED BY: JB
LAB NUMBER: 2529
SAMPLE DESCRIPTION: TP-6, 6.5-7.5'

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT: **23.7**
PLASTIC LIMIT: **22.3**
PLASTICITY INDEX: **1.4**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	15	28	35	
TARE NO.	K	R	Y		J1	V	G1	
GROSS WET WEIGHT	7.88	6.73	7.14		12.32	10.86	11.58	
GROSS DRY WEIGHT	7.02	6.07	6.43		10.63	9.46	9.97	
TARE WEIGHT	3.16	3.16	3.18		3.92	3.15	3.04	
NET DRY WEIGHT	3.86	2.91	3.25		6.71	6.31	6.93	
WEIGHT OF WATER	0.86	0.66	0.71		1.69	1.40	1.61	
% MOISTURE	22.28%	22.68%	21.85%		25.19%	22.19%	23.23%	



REMARKS:

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Grading Analysis (ASTM C-136)

JOB NAME: **Woodland Village Town Homes**
JOB NUMBER: **31097**
LAB NUMBER: **2529**
DATE: **1/27/2021**
TECHNICIAN: **JB**
SAMPLE DESCRIPTION: **TP-7, 7.0-7.5'**

WET WEIGHT (g): **3871.1**
DRY WEIGHT (g): **3709.5**
PERCENT MOISTURE: **4.4%**
WASH WEIGHT(g): **1175.2**
SOAK TIME (min): **30.0**
CC: 0.78
CU: 23.57
% PASSING #4: **97**
% PASSING #200: **11.4**

PI: NP
LL:

SOIL CLASSIFICATION: **SW-SM**
SOIL NAME: **Well Graded Sand-Silty Sand**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		34.5		2.9	**97**	
#8		277.8		23.6	**76**	
#10		354.0		30.1	**70**	
#16		558.0		47.5	**53**	
#30		696.6		59.3	**41**	
#40		761.0		64.8	**35**	
#50		819.6		69.7	**30**	
#100		932.7		79.4	**21**	
#200		1041.2		88.6	**11.4**	
PAN		1068.3				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**4203.3**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3988.7**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**5.4%**
DATE:	**1/26/2021**	WASH WEIGHT(g):	**1504.4**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-8, 6-6.5'**	CC:	0.80
		CU:	11.90

PI:	NP	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**98**
LL:		**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**20.8**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		28.1		1.9	**98**	
#8		158.1		10.5	**89**	
#10		205.7		13.7	**86**	
#16		369.1		24.5	**75**	
#30		553.0		36.8	**63**	
#40		665.5		44.2	**56**	
#50		797.3		53.0	**47**	
#100		999.3		66.4	**34**	
#200		1191.1		79.2	**20.8**	
PAN		1291.7				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3007.0**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**2794.4**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**7.6%**
DATE:	**1/27/2021**	WASH WEIGHT(g):	**1287.0**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-9, 4.5-5.0'**	CC:	0.65
		CU:	5.09

PI:	6.1	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**100**
LL:	29.8	**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**43.4**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		2.6		0.2	**100**	
#8		10.9		0.8	**99**	
#10		14.2		1.1	**99**	
#16		36.7		2.9	**97**	
#30		101.8		7.9	**92**	
#40		161.2		12.5	**87**	
#50		240.9		18.7	**81**	
#100		452.1		35.1	**65**	
#200		728.0		56.6	**43.4**	
PAN		918.6				

NOTES:

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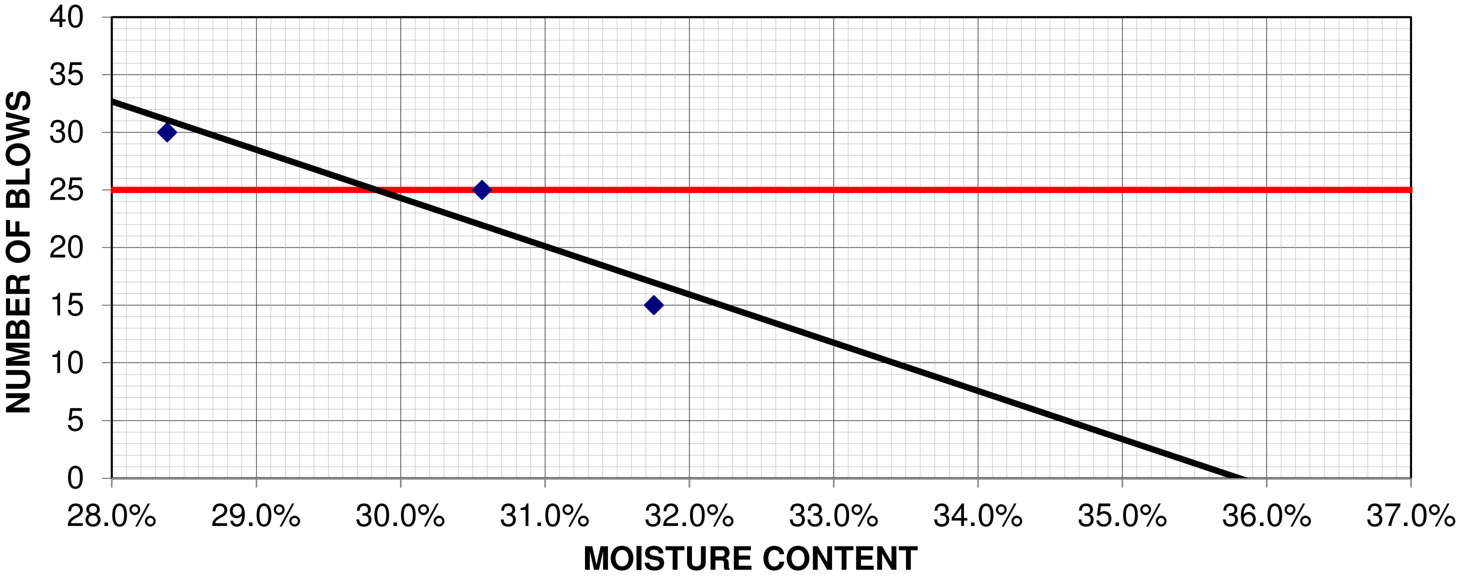
JOB NAME:	Woodland Village Town Homes
JOB NUMBER:	31097
DATE:	1/27/2021
TESTED BY:	JB
LAB NUMBER:	2529
SAMPLE DESCRIPTION:	TP-9, 4.5-5.0'

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT:	**29.8**
PLASTIC LIMIT:	**23.7**
PLASTICITY INDEX:	**6.1**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	15	25	30	
TARE NO.	A1	E	S		B	F1	G	
GROSS WET WEIGHT	7.52	7.07	7.20		14.13	15.07	12.68	
GROSS DRY WEIGHT	6.82	6.46	6.41		11.65	12.42	10.73	
TARE WEIGHT	3.84	3.77	3.24		3.84	3.75	3.86	
NET DRY WEIGHT	2.98	2.69	3.17		7.81	8.67	6.87	
WEIGHT OF WATER	0.70	0.61	0.79		2.48	2.65	1.95	
% MOISTURE	23.49%	22.68%	24.92%		31.75%	30.57%	28.38%	

LIQUID LIMIT



REMARKS: ______________________________

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**4058.2**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3984.9**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**1.8%**
DATE:	**1/27/2021**	WASH WEIGHT(g):	**1601.2**
TECHNICIAN:	**JB**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-11, 2-3'**	CC:	0.96
		CU:	5.28

PI:	NP	**SOIL CLASSIFICATION:**	**SP-SM**	% PASSING #4:	**100**
LL:		**SOIL NAME:**	**Poorly Graded Sand- Silty Sand**	% PASSING #200:	**10.8**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		0.6		0.0	**100**	
#8		30.1		1.9	**98**	
#10		56.3		3.5	**96**	
#16		185.7		11.6	**88**	
#30		430.1		26.9	**73**	
#40		578.4		36.1	**64**	
#50		730.3		45.6	**54**	
#100		1119.8		69.9	**30**	
#200		1428.5		89.2	**10.8**	
PAN		1535.1				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME: **Woodland Village Townhomes**
JOB NUMBER: **31097**
LAB NUMBER: **2529**
DATE: **1/25/2021**
TECHNICIAN: **PM**
SAMPLE DESCRIPTION: **TP-12, 6-7'**

WET WEIGHT (g): **3923.7**
DRY WEIGHT (g): **3864.8**
PERCENT MOISTURE: **1.5%**
WASH WEIGHT(g): **1255.6**
SOAK TIME (min): **30.0**
CC: 1.29
CU: 3.11
% PASSING #4: **90**
% PASSING #200: **0.6**

PI: NP
LL:
SOIL CLASSIFICATION: **SP**
SOIL NAME: **Poorly Graded Sand**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		25.1		2.0	**98**	
3/8"		33.5		2.7	**97**	
#4		128.5		10.2	**90**	
#8		629.0		50.1	**50**	
#10		798.8		63.6	**36**	
#16		1076.1		85.7	**14**	
#30		1177.4		93.8	**6**	
#40		1212.9		96.6	**3**	
#50		1238.2		98.6	**1**	
#100		1246.5		99.3	**1**	
#200		1247.8		99.4	**0.6**	
PAN		0.0				

NOTES:

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Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3741.0**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**3612.0**
LAB NUMBER:	**2529**	PERCENT MOISTURE:	**3.6%**
DATE:	**1/28/2021**	WASH WEIGHT(g):	**1720.3**
TECHNICIAN:	**MC**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**TP-14, 6.5-7.5'**	CC:	1.07
		CU:	36.46

PI:	0.4	**SOIL CLASSIFICATION:**	**SM w/grvl**	% PASSING #4:	**83**
LL:	19.3	**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**13.3**

SIEVE	**WEIGHT RETAINED**		**% RETAINED**		**% PASSING**	**SPECS**
	INDIVIDUAL	**CUMULATIVE**	**INDIVIDUAL**	**CUMULATIVE**		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"		19.3			100	
1/2"		47.7		2.8	**97**	
3/8"		94.5		5.5	**95**	
#4		287.1		16.7	**83**	
#8		528.7		30.7	**69**	
#10		607.8		35.3	**65**	
#16		821.6		47.8	**52**	
#30		1036.4		60.2	**40**	
#40		1125.8		65.4	**35**	
#50		1209.2		70.3	**30**	
#100		1359.3		79.0	**21**	
#200		1490.9		86.7	**13.3**	
PAN		1530.8				

NOTES:

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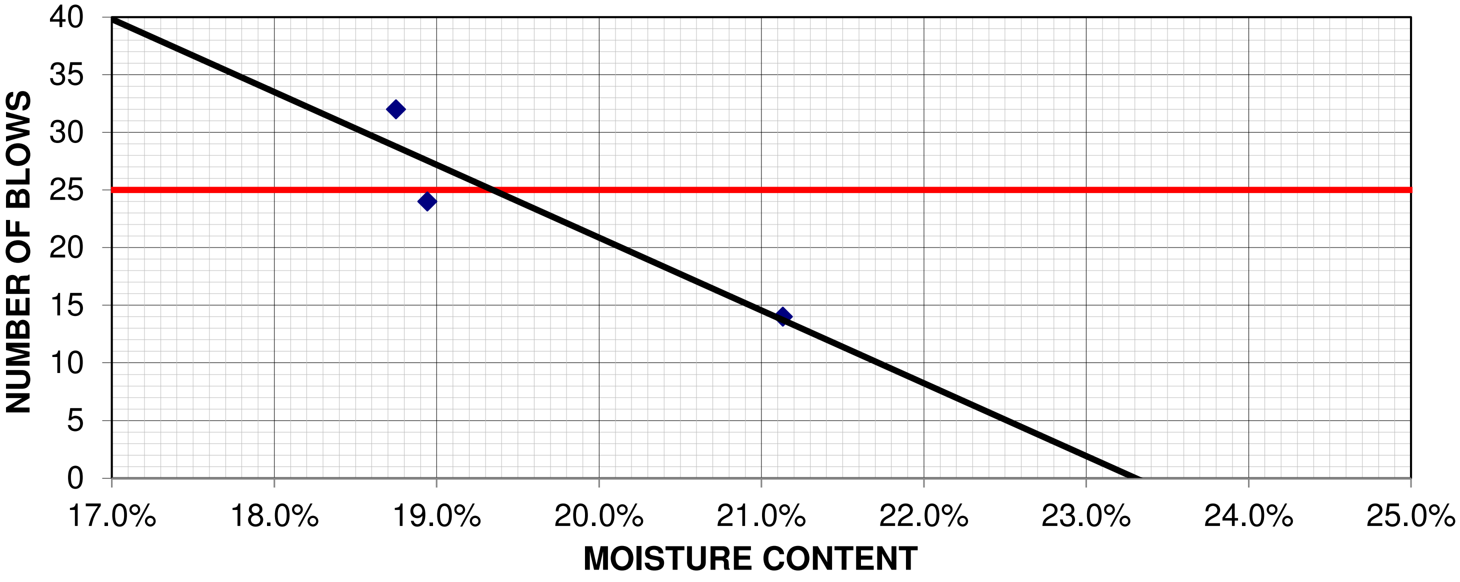
JOB NAME:	Woodland Village Town Homes
JOB NUMBER:	31097
DATE:	1/28/2021
TESTED BY:	JB
LAB NUMBER:	2529
SAMPLE DESCRIPTION:	TP-14, 6.5-7.5'

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT:	**19.3**
PLASTIC LIMIT:	**18.9**
PLASTICITY INDEX:	**0.4**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**	14	24	32	
TARE NO.	S	F1	R		V	B	A1	
GROSS WET WEIGHT	7.27	7.34	8.68		10.43	10.37	11.25	
GROSS DRY WEIGHT	6.63	6.78	7.78		9.16	9.33	10.08	
TARE WEIGHT	3.24	3.75	3.16		3.15	3.84	3.84	
NET DRY WEIGHT	3.39	3.03	4.62		6.01	5.49	6.24	
WEIGHT OF WATER	0.64	0.56	0.90		1.27	1.04	1.17	
% MOISTURE	18.88%	18.48%	19.48%		21.13%	18.94%	18.75%	

LIQUID LIMIT



REMARKS:

SHEETS

VICINITY MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097
APPR BY: JRP
DRAWN BY: JRP

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SHEET 1 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\1_VICINITY MAP.DWG ~ 8:44 AM * 05-FEB-2021

SITE MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097
APPR BY: JRP
DRAWN BY: JRP

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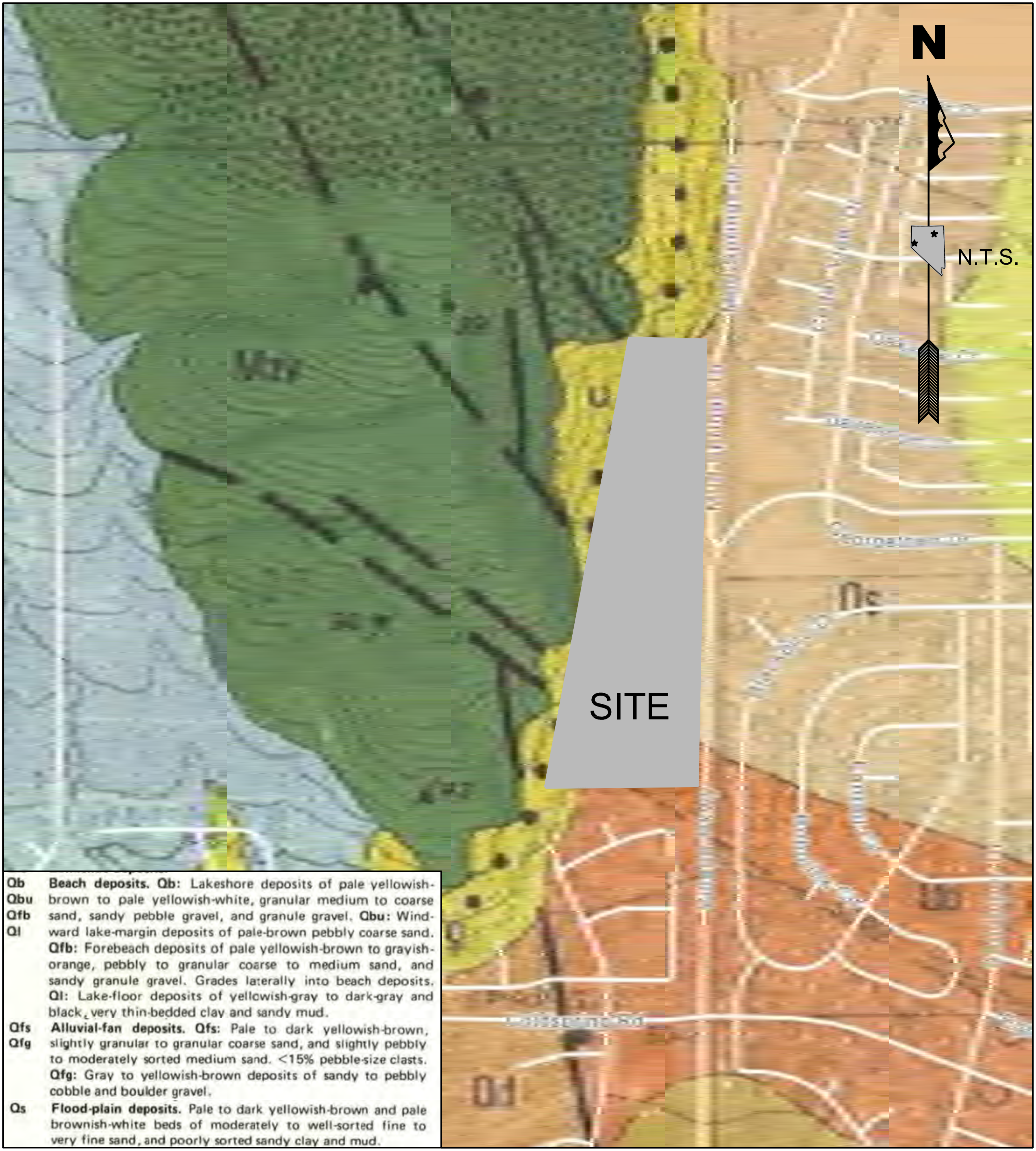
SHEET
2
OF
25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\2_SITE MAP.DWG ~ 8:45 AM * 05-FEB-2021



Qb Qbu Qfb Ql	**Beach deposits. Qb:** Lakeshore deposits of pale yellowish-brown to pale yellowish-white, granular medium to coarse sand, sandy pebble gravel, and granule gravel. **Qbu:** Windward lake-margin deposits of pale-brown pebbly coarse sand. **Qfb:** Forebeach deposits of pale yellowish-brown to grayish-orange, pebbly to granular coarse to medium sand, and sandy granule gravel. Grades laterally into beach deposits. **Ql:** Lake-floor deposits of yellowish-gray to dark-gray and black, very thin-bedded clay and sandy mud.
Qfs Qfg	**Alluvial-fan deposits. Qfs:** Pale to dark yellowish-brown, slightly granular to granular coarse sand, and slightly pebbly to moderately sorted medium sand. <15% pebble-size clasts. **Qfg:** Gray to yellowish-brown deposits of sandy to pebbly cobble and boulder gravel.
Qs	**Flood-plain deposits.** Pale to dark yellowish-brown and pale brownish-white beds of moderately to well-sorted fine to very fine sand, and poorly sorted sandy clay and mud.

GEOLOGIC MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097
APPR BY: JRP
DRAWN BY: JRP
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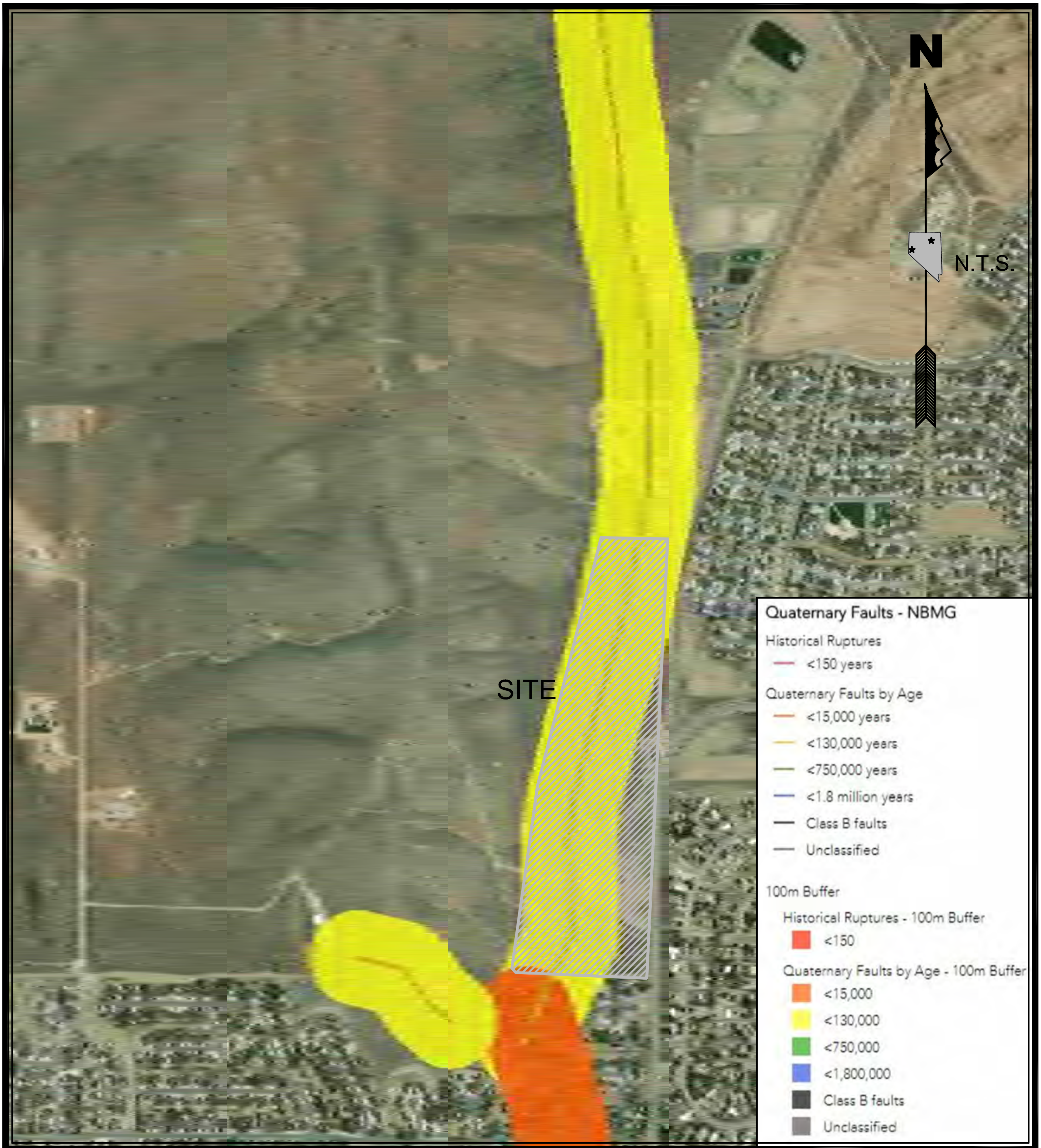
SHEET 3 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\3_GeoMap.DWG ~ 1:05 PM * 05-FEB-2021



FAULT MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097
APPR BY: JRP
DRAWN BY: JRP
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SHEET
4
OF
25

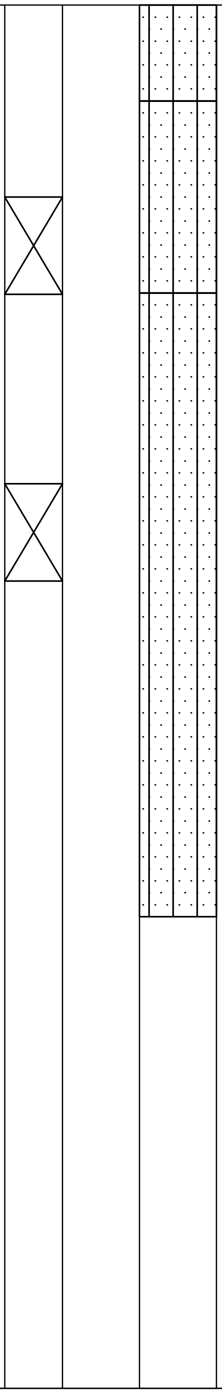
N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\4_FaultMap.DWG ~ 9:16 AM * 05-FEB-2021

LOG OF TP-1

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM	0–1' BSG: SILTY SANDS SILTY SANDS. SPARSE VEGETATION
						SM	1–3' BSG: SILTY SANDS SILTY SANDS. ESTIMATED 70% SANDS, 30% NON PLASTIC FINES. SLIGHTLY CEMENTED. DRY. LIGHT TAN. SULFATE SAMPLE. <0.01% RESULT.
				2	☒		
						SM	3–9.5' BSG: SILTY SANDS SILTY SANDS. 85% SANDS, 15% NON PLASTIC FINES. SLIGHTLY CEMENTED. DRY.
				4			
NP	12.6	2.8			☒		
				6			
				8			
							BOH @ 9.5' BSG. NO GROUNDWATER.
				10			
				12			
				14			



TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 1

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 5 OF 25

LOG OF TP-2

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM	0–1' BSG: SILTY SANDS SILTY SANDS. MINOR ORGANICS (ROOTS) SURFACE GRASS AND SHRUBS
						SM W/GRAVEL	1–9' BSG: SILTY SANDS WITH GRAVEL SILTY SANDS. 25% SANDS, 40% FINES, 35% GRAVELS TO 3" MINUS. CEMENTED. DRY. DENSE. TAN.
				2			
4.3	37.9	2.8			☒		
				4			
				6			
				8			
							BOH @ 9' BSG. NO GROUNDWATER.
				10			
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 2

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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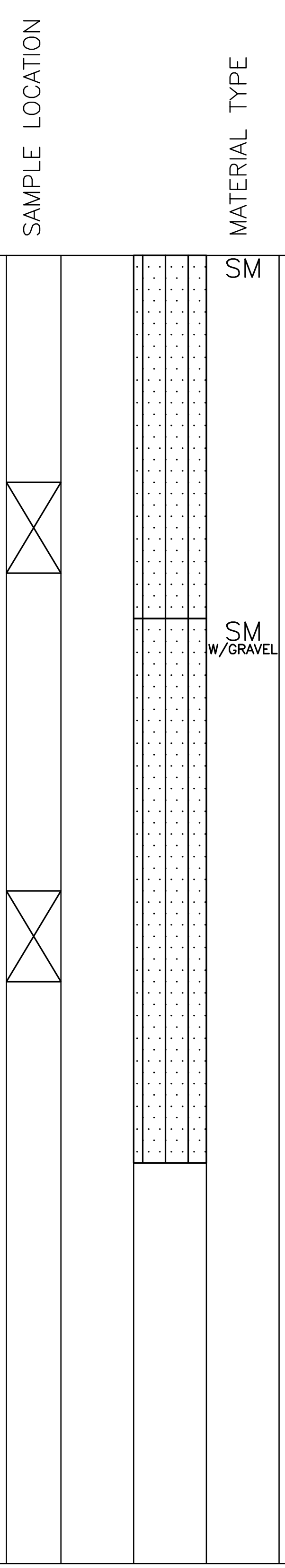
LOG OF TP-3

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)
				2
1.4	17.6	4.0		
				4
				6
				8
				10
				12
				14



0–4' BSG: SILTY SANDS.
SILTY SANDS. MINOR VEGETATION AT SURFACE.
80% SANDS, 20% FINES.
TAN.

4–10' BSG: SILTY SANDS WITH GRAVEL
SILTY SANDS. ESTIMATED 70% SANDS,
15% FINES, 15% GRAVELS TO 3/4".
DRY. LIGHT TAN. LENSES OF CEMENTATION.
MEDIUM DENSE TO LOOSE.

BOH @ 10' BSG. NO GROUNDWATER.

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 3

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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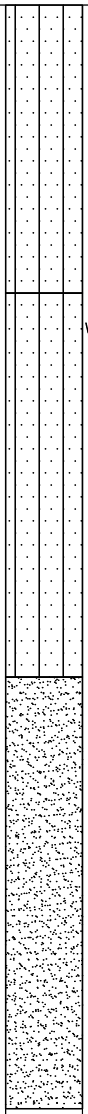
SHEET 7 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\7_TP-3.DWG ~ 8:47 AM * 05-FEB-2021

LOG OF TP-4

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.



PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM	<u>0-3' BSG: SILTY SAND</u> SILTY SANDS. SLIGHT ORGANICS IN FIRST 12". BROWN. MOIST. NON-PLASTIC FINES.
				2			
					☒	SM W/GRAVEL	<u>3-7' BSG: SILTY SAND WITH GRAVEL</u> SILTY SANDS. ESTIMATED 60% SANDS, 20% NON-PLASTIC FINES, 20% GRAVELS TO 1". DENSE.
				4			
				6			
						SW	<u>7-11.5' BSG: WELL GRADED SAND</u> SANDS. 85% SANDS, 5% NON-PLASTIC FINES, 10% GRAVELS TO 1/2". LIGHT BROWN. MOIST. LOOSE.
NP	4.2	2.2		8	☒		
				10			
							BOH @ 11.5' BSG. NO GROUNDWATER.
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 4

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 8 OF 25

LOG OF TP-5

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						PT	<u>0–1' BSG: ORGANICS</u> SILTY SANDS. ROOTS AND ORGANICS. GRASSES AND SHRUBS.
						SW	<u>1–3.5' BSG: WELL GRADED SANDS</u> SANDS. 85% SANDS, 5% FINES, 10% GRAVELS. DENSE. SLIGHTLY MOIST.
				2	☒		
2.9	4.4	4.0					
						SM	<u>3.5–9.5' BSG: SILTY SANDS</u> INCREASE IN AMOUNT OF FINES. ESTIMATED 75% SANDS, 20% FINES, 5% GRAVELS. DRY. LENSES OF CEMENTATION. MEDIUM DENSE TO LOOSE.
				4			
				6	☒		
				8			
							BOH @ 9.5' BSG. NO GROUNDWATER.
				10			
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 5

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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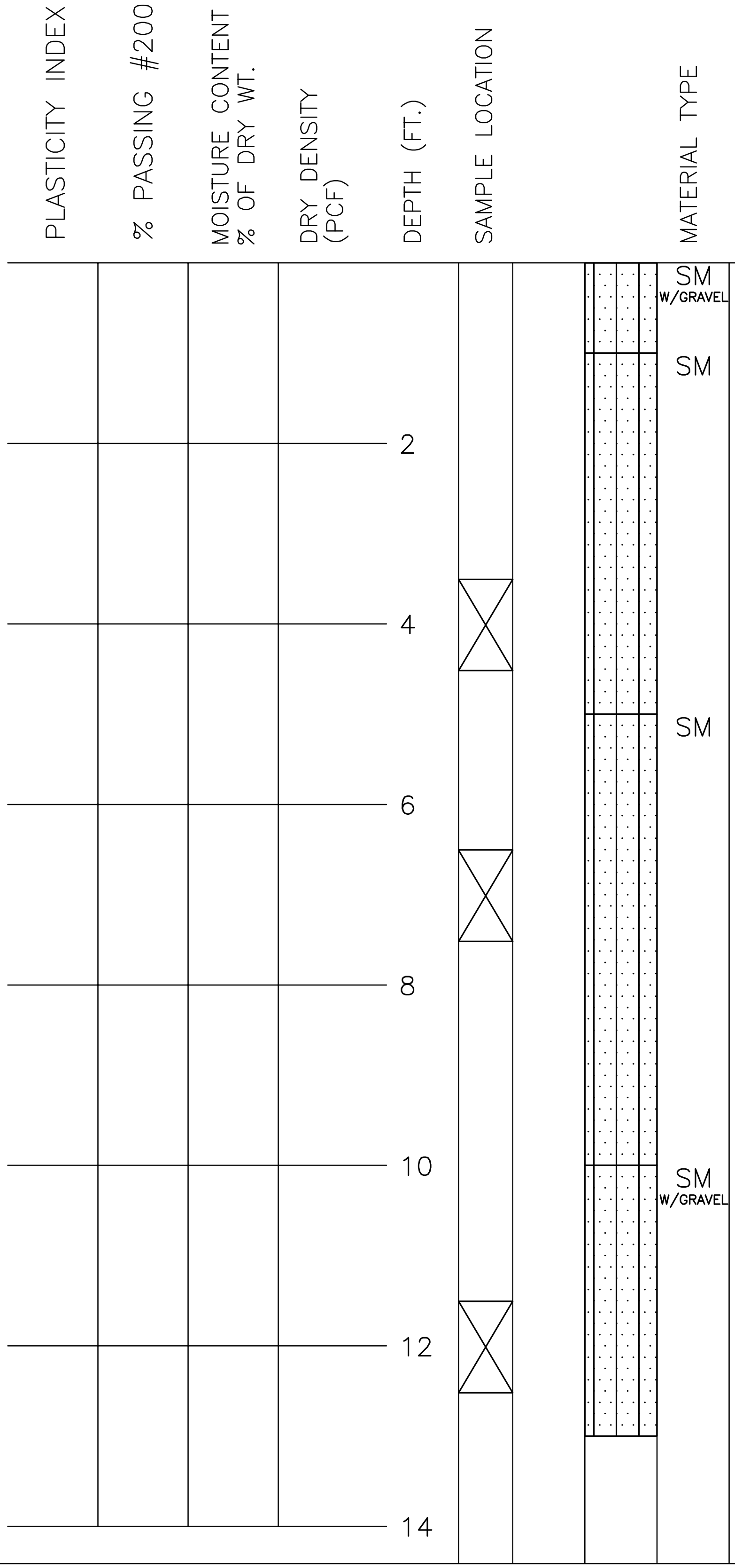
SHEET 9 OF 25

LOG OF TP-6

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.



0-1' BSG: SILTY SANDS WITH GRAVEL
SILTY SANDS. BROWN. MOIST. SOME ORGANICS.

1-5' BSG: SILTY SANDS
SILTY SANDS. ESTIMATED 60% SANDS,
25% NON-PLASTIC FINES,
15% GRAVELS.

5-10' BSG: SILTY SANDS
SILTY SANDS. 60% SANDS, 35% FINES,
5% GRAVELS.
PARTIALLY CEMENTED. LIGHT BROWN.
MOIST.

10-13' BSG: SILTY SANDS WITH GRAVEL
SILTY SANDS. ESTIMATED 55% SANDS,
25% NON-PLASTIC FINES, 15% GRAVELS.
PARTIALLY CEMENTED. LIGHT BROWN. MOIST.

BOH @ 13' BSG. NO GROUNDWATER.

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 6

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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LOG OF TP-7

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
					☒	SM	<u>0-1.5' BSG: SILTY SANDS</u> SILTY SANDS. ESTIMATED 80% SANDS, 20% FINES. SLIGHTLY CEMENTED. BROWN. MOIST.
						SM	<u>1.5-7' BSG: SILTY SANDS</u> SILTY SANDS. CEMENTED. ESTIMATED 80% SANDS, 20% FINES. TAN. DRY. DENSE.
				2			
				4			
				6			
					☒	SW-SM	<u>7-10' BSG: WELL GRADED SAND WITH SILT</u> SANDS. 85% SANDS, 10% NON-PLASTIC FINES, 5% GRAVELS. SLIGHTLY MOIST TO DRY. TAN SLIGHTLY DENSE.
NP	11.4	4.4		8			
				10			SLIGHTLY MOIST TO DRY. TAN SLIGHTLY DENSE.
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 7

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 11 OF 25

LOG OF TP-8

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
					☒	SM	<u>0-2' BSG: SILTY SANDS</u> SILTY SANDS. SOME MINOR ORGANICS. ESTIMATED 70% SANDS, 30% FINES. SLIGHTLY MOIST. BROWN. SAMPLE FOR R-VALUE. R-VALUE=0
				2		SM	<u>2-3.5' BSG: SILTY SANDS</u> DECREASE IN MOISTURE AT 2' BSG. ESTIMATED 70% SANDS, 30% FINES. MEDIUM DENSE.
						SM	<u>3.5-12' BSG: SILTY SANDS</u> SILTY SANDS. 80% SANDS, 20% NON-PLASTIC FINES. LENSES OF CEMENTATION. DRY. TAN TO BROWN. DENSE TO LOOSE.
				4			
NP	20.8	5.4		6	☒		
				8			
				10			
				12			BOH @ 12' BSG. NO GROUNDWATER.
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 8

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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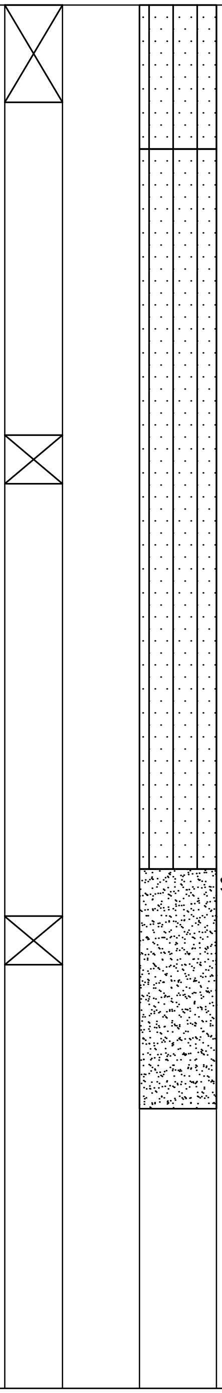
SHEET 12 OF 25

LOG OF TP-9

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)
				2
				4
6.1	43.4	7.6		
				6
				8
				10
				12
				14



SM

0–1.5' BSG: SILTY SANDS
SILTY SANDS. ESTIMATED 70% SANDS,
30% FINES. SLIGHTLY MOIST. BROWN.
SAMPLE SULFATES. RESULTS – <0.01%

SM

1.5–9' BSG: SILTY SANDS
SILTY SANDS. DECREASE IN MOISTURE.
55% SANDS, 45% FINES.
CEMENTED. LIGHT TAN. DENSE.

SP-SM

9–11.5' BSG: POORLY GRADED SAND WITH SILT
SANDS. ESTIMATED 85% SANDS,
10% FINES, 5% GRAVELS.
LOOSE. TAN TO GRAY. SLIGHTLY MOIST.

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 9

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 13 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\13_TP-9.DWG ~ 11:13 AM * 05-FEB-2021

LOG OF TP-10

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM	<u>0-1' BSG: SILTY SANDS</u> SILTY SANDS. ESTIMATED 80% SANDS, 20% FINES. SLIGHTLY MOIST. SLIGHTLY CEMENTED.
						SP-SM	<u>1-10' BSG: POORLY GRADED SAND WITH SILT</u> SANDS. 90% SANDS, 10% NON-PLASTIC FINES. TAN TO WHITE. CEMENTED. MEDIUM DENSE. DRY.
				2	☒		
NP	10.8	1.8					
				4			
				6			
				8			
				10	☒	SP-SM	<u>10-11.5' BSG: POORLY GRADED SAND WITH SILT</u> SANDS. INCREASE IN GRAVELS. ESTIMATED 80% SANDS, 10% FINES, 10% GRAVELS.
							BOH @ 11.5' BSG. NO GROUNDWATER.
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 10

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

SUMMIT™ ENGINEERING CORPORATION
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LOG OF TP–11

EQUIPMENT: LINK BELT EXC.

DATE: 1–19–21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM W/GRAVEL	0–1.5’ BSG: SILTY SANDS WITH GRAVEL LOOSE. MOIST. BROWN. SLIGHT ORGANICS.
						SP–SM	1.5–6’ BSG: POORLY GRADED SAND WITH SILT SANDS. 90% SANDS, 10% FINES. LOOSE. BROWN.
				2	☒		
NP	10.8	1.8					
				4			
				6	☒	SM W/GRAVEL	6–9’ BSG: SILTY SANDS WITH GRAVEL INCREASE IN AMOUNT OF GRAVEL AND COARSE SANDS. ESTIMATED 65% SANDS, 15% NON–PLASTIC FINES, 20% GRAVELS. LOOSE. MOIST. BROWN.
				8			
							BOH @ 9’ BSG. NO GROUNDWATER.
				10			
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 11

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVE. RENO, NV. 89523

LOG OF TP-12

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	MATERIAL TYPE	
						SM W/GRAVEL	<u>0–1' BSG: SILTY SANDS WITH GRAVEL</u> LOOSE. MOIST. BROWN. SLIGHT ORGANICS.
						SM	<u>1–6' BSG: SILTY SANDS WITH GRAVEL</u> SILTY SANDS. ESTIMATED 60% SANDS, 25% NON–PLASTIC FINES, 15% GRAVELS TO 1/2". LOOSE. MOIST. BROWN.
				2			
					☒		
				4			
				6		SP	<u>6–10' BSG: POORLY GRADED SAND</u> SANDS. 90% SANDS, 10% GRAVELS TO 3/4" MINUS. LOOSE. DRY. BROWN.
NP	0.5	1.5			☒		
				8			
				10			BOH @ 10' BSG. NO GROUNDWATER.
				12			
				14			

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 12

JOB #: 31097

DRAWN BY: JRP

CHECKED BY: JRP

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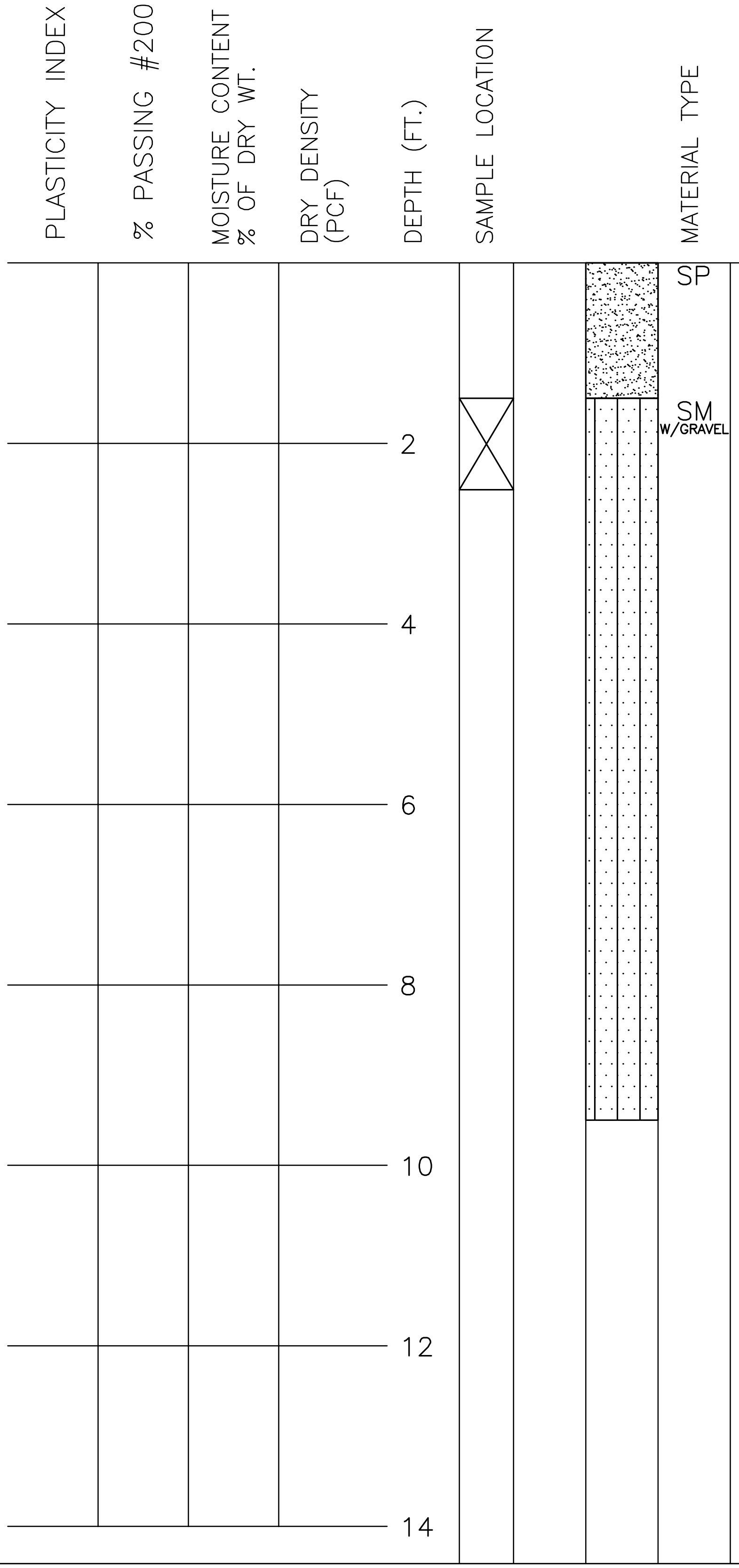
LOG OF TP-13

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.



0-1.5' BSG: POORLY GRADED SAND
COARSE SANDS. MOIST. SLIGHTLY LOOSE.
DARK BROWN. SOME ORGANICS AND ROOTS.

1.5-9.5' BSG: SILTY SANDS WITH GRAVEL
DECREASE IN MOISTURE.
ESTIMATED 65% SANDS, 15% FINES,
20% MINOR GRAVELS. SLIGHTLY MOIST.
LOOSE.

SLIGHTLY CEMENTED AT 6' BSG.

BOH @ 9.5' BSG. NO GROUNDWATER.

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 13

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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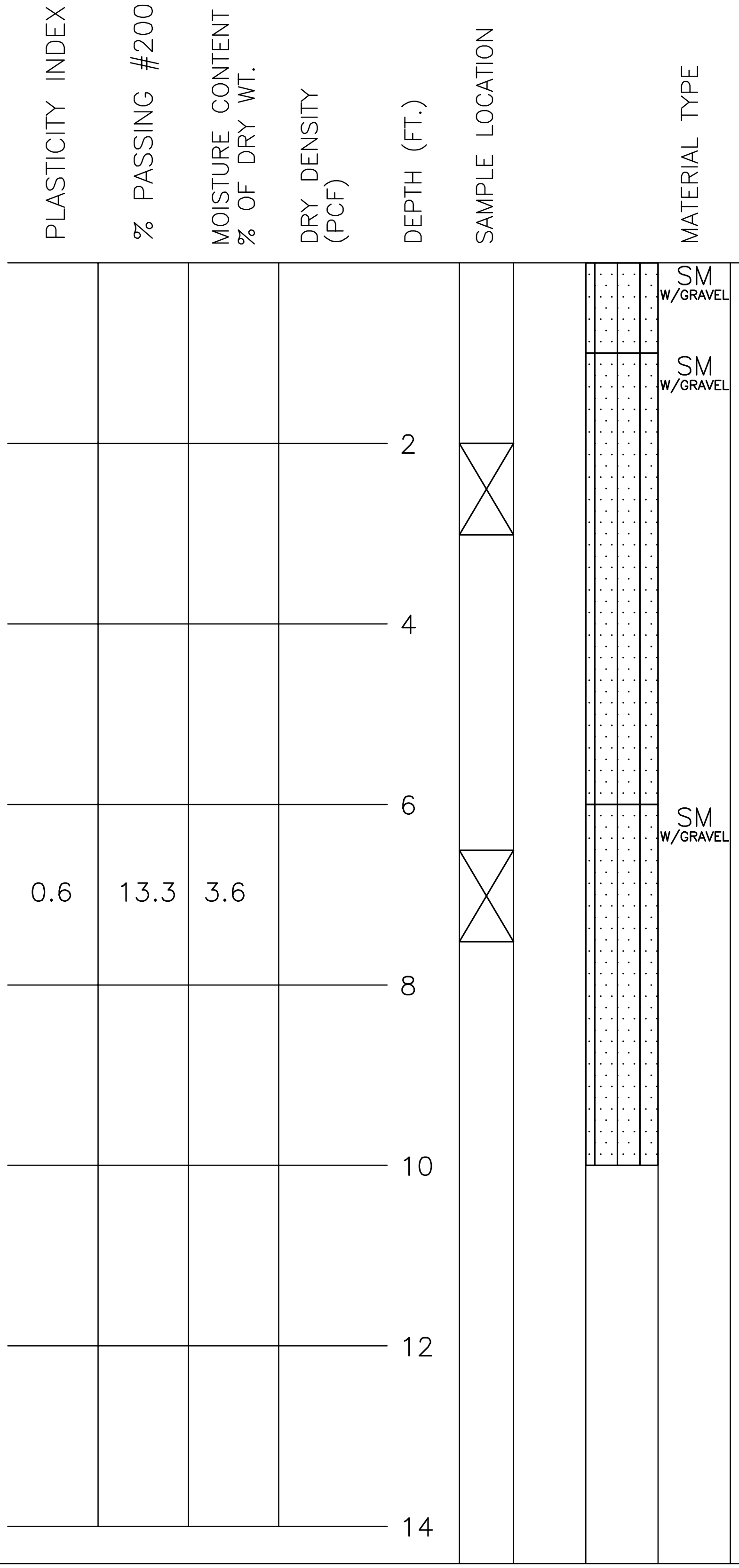
SHEET 17 OF 25

LOG OF TP-14

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.



0-1' BSG: SILTY SANDS WITH GRAVEL
BROWN. MOIST. SLIGHTLY ORGANIC.

1-6' BSG: SILTY SANDS WITH GRAVEL
SILTY SANDS. 65% SANDS, 20% NON-PLASTIC FINES, 15% GRAVELS TO 1".
PARTIALLY CEMENTED. BROWN. MOIST.

6-10' SBG: SILTY SANDS WITH GRAVEL
SILTY SANDS. 70% SANDS, 15% NON-PLASTIC FINES, 15% GRAVELS TO 3/4".
PARTIALLY CEMENTED. MOIST./ BROWN.

BOH @ 10' BSG. NO GROUNDWATER.

TEST PIT LOG
VILLAGE PARKWAY TOWNHOMES
TEST PIT 14

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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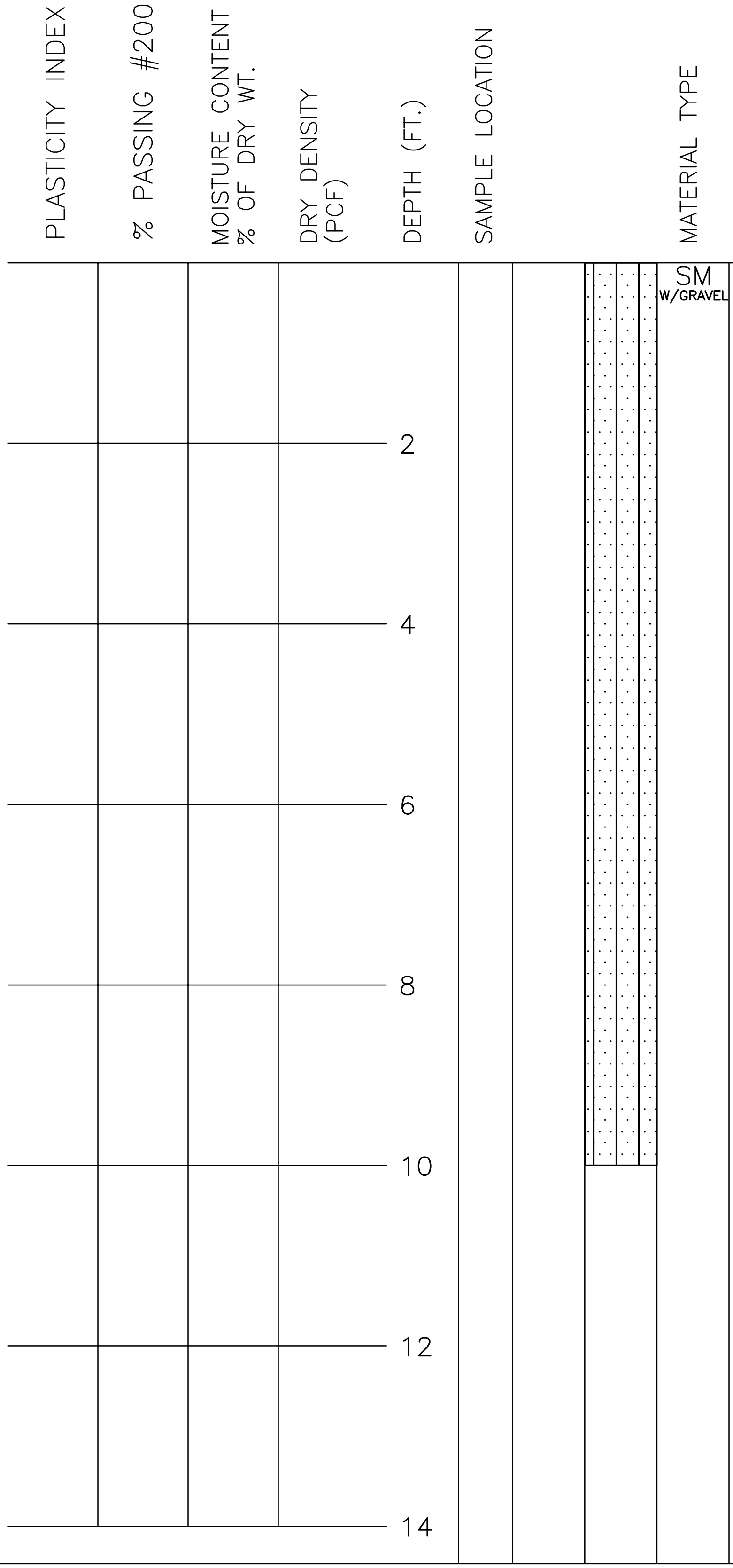
SHEET 18 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\18_TP-14.DWG ~ 2:08 PM * 05-FEB-2021

LOG OF IF-1

EQUIPMENT: LINK BELT EXC.

DATE: 1-19-21 ELEV.



0-10' BSG: SILTY SANDS WITH GRAVEL LENSES OF CEMENTATION. GRAVELS TO 1". SOME LOW PLASTICITY FINES.

BOH @ 10' BSG. NO GROUNDWATER.
INFILTRATION RATE @ 10'=2MIN/INCH

INFILTRATION PIT LOG
VILLAGE PARKWAY TOWNHOMES
INFILTRATION PIT 1

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 19 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\19_IF-1.DWG ~ 2:18 PM * 05-FEB-2021

LOG OF IF–2

EQUIPMENT: LINK BELT EXC.

DATE: 1–19–21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION			MATERIAL TYPE	
							▨	SC	<u>0–2.5' BSG: CLAYEY SANDS</u> SOME SURFACE ORGANICS. ESTIMATED 75% SANDS, 15% SLIGHTLY PLASTIC FINES, 10% GRAVELS.
				2			▨		
							░	SM	<u>2.5–6' BSG: SILTY SANDS</u> ESTIMATED 75% SANDS, 20% FINES, 5% MINOR GRAVELS.
				4			░		
				6					BOH @ 6' BSG. NO GROUNDWATER. INFILTRATION RATE @ 6'=7MIN/INCH
				8					
				10					
				12					
				14					

INFILTRATIONPIT LOG
VILLAGE PARKWAY TOWNHOMES
INFILTRATION PIT 2

JOB #: 31097
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 20 OF 25

	MAJOR DIVISIONS		GRAPHIC SYMBOL	GROUP SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS LESS THAN 50% PASSING No. 200 SIEVE	GRAVELS LESS THAN 50% COARSE FRACTION PASSES THE No.4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES		GW	WELL GRADED GRAVELS, GRAVEL/SAND MIXTURE
				GP	POORLY GRADED GRAVELS, GRAVEL/SAND MIXTURE
		GRAVELS WITH OVER 12% FINES		GM	SILTY GRAVEL, POORLY GRADED GRAVEL/SAND/SILT MIXTURE
				GC	CLAYEY GRAVEL, POORLY GRADED GRAVEL/SAND/CLAY MIXTURE
	SANDS MORE THAN 50% COARSE FRACTION PASSES THE No.4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES		SW	WELL GRADED SANDS, GRAVELLY SANDS
				SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES		SM	SILTY SANDS, POORLY GRADED SAND/CLAY MIXTURES
				SC	CLAYEY SAND, POORLY GRADED SAND/CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING No. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS & VERY FINE SANDS OF LOW PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, LEAN CLAYS
				OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
ORGANIC RICH SOILS				PT	TOPSOIL, PEAT, ORGANIC RICH SOILS
OTHER SOILS				F	FILL MATERIALS

UNIFIED SOIL CLASSIFICATION SYSTEM

▩	UNDISTURBED SAMPLE
☒	BULK SAMPLE
◫	NO RECOVERY
▽	WATER LEVEL AT TIME OF DRILLING
▼	STATIC WATER LEVEL AFTER DRILLING

SOIL KEY
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097
APPR: JRP
DRAWN BY: JRP

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SHEET 21 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\21_SOIL KEY.DWG ~ 8:43 AM * 05-FEB-2021

SAMPLE LOCATION	SAMPLE DEPTH	% PASSING 3”	% PASSING #4	% PASSING #40	% PASSING #200	LIQUID LIMIT	PLASTICTY INDEX	USCS	MATERIAL TYPE
TP–1	5.0–6.0’	100	98	56	12.6	–	NP	SM	NATIVE
TP–2	3.0–4.0’	88	66	45	37.9	21.9	4.3	SM	NATIVE
TP–3	2.5–3.5’	100	99	64	19.6	22.3	1.4	SM	NATIVE
TP–4	7.5–8.5’	100	88	11	4.2	–	NP	SW	NATIVE
TP–5	2.0–3.0’	100	92	27	4.4	24.5	4.9	SW	NATIVE
TP–6	6.5–7.5’	100	92	66	37.0	23.7	1.4	SM	NATIVE
TP–7	7.0–7.5’	100	97	35	11.4	–	NP	SW–SM	NATIVE
TP–8	6.0–6.5’	100	98	56	20.8	–	NP	SM	NATIVE
TP–9	4.5–5.5’	100	100	87	43.4	29.8	6.1	SM	NATIVE
TP–11	2.0–3.0’	100	100	64	10.8	–	NP	SP–SM	NATIVE
TP–12	6.0–7.0’	100	90	3	0.6	–	NP	SP	NATIVE
TP–14	6.5–7.5’	100	83	35	13.3	19.3	0.4	SM	NATIVE

SIEVE ANALYSIS
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO: 31097
APPR BY: JRP
DRAWN BY: JEB

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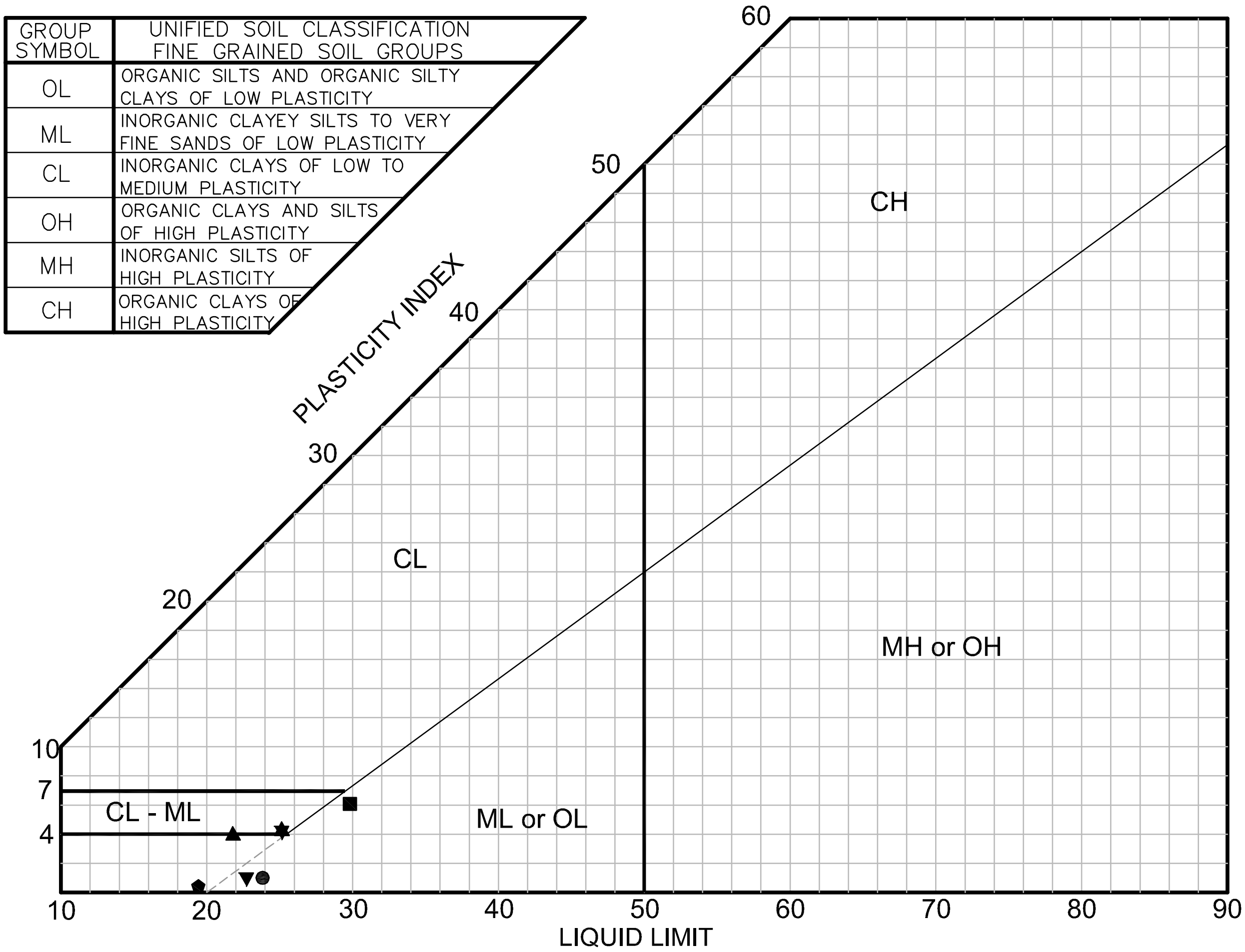
SHEET 22 OF 25



GROUP SYMBOL	UNIFIED SOIL CLASSIFICATION FINE GRAINED SOIL GROUPS
OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
ML	INORGANIC CLAYEY SILTS TO VERY FINE SANDS OF LOW PLASTICITY
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY
OH	ORGANIC CLAYS AND SILTS OF HIGH PLASTICITY
MH	INORGANIC SILTS OF HIGH PLASTICITY
CH	ORGANIC CLAYS OF HIGH PLASTICITY

TEST SYMBOL	SAMPLE LOCATION	SAMPLE DEPTH	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTICITY INDEX	CLASSIFICATION
▲	TP–2	3–4'	37.9	21.9	4.3	SM
▼	TP–3	2.5–3.5'	19.6	22.3	1.4	SM
✡	TP–5	2–3'	4.4	24.5	4.9	SW
●	TP–6	6.5–7.5'	37.0	23.7	1.4	SM
■	TP–9	4.5–5'	43.4	29.8	6.1	SM
⬟	TP–14	6.5–7.5'	13.3	19.3	0.4	SM

PLASTICITY INDEX
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO: 31097
APPR BY: JRP
DRAWN BY: JEB

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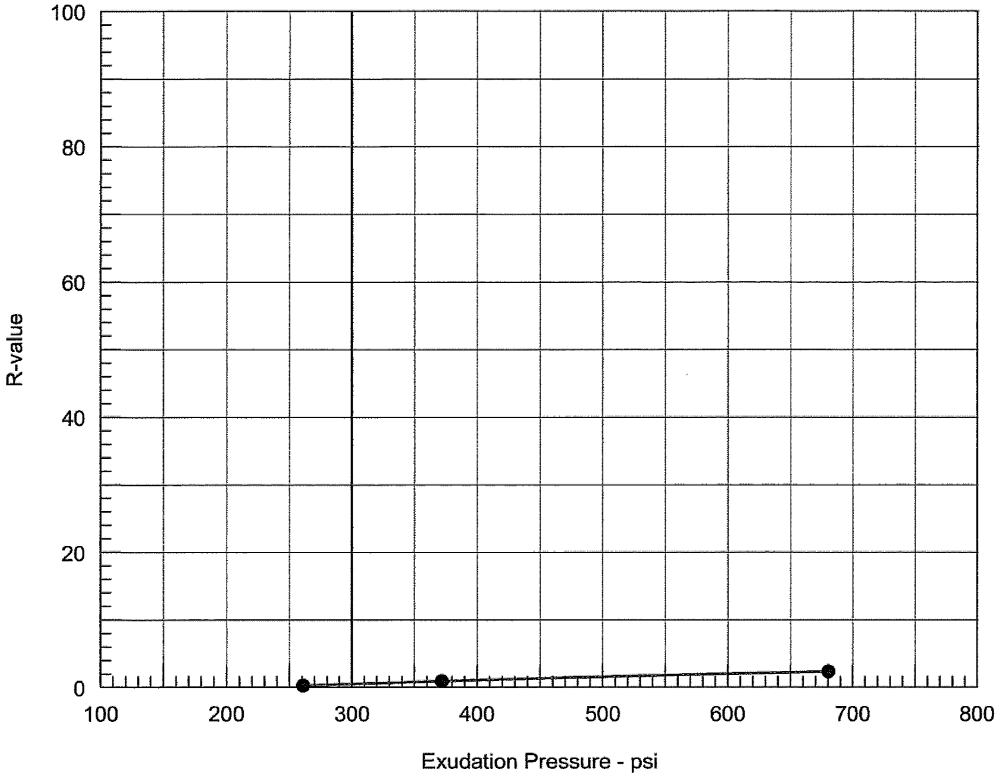
SHEET
23
OF
25

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psi	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	75	103.9	24.3	0.00	153	2.60	681	2	2
2	50	99.1	26.1	0.00	157	2.50	372	1	1
3	49	103.8	27.9	0.00	159	2.50	261	0	0

Test Results	Material Description
R-value at 300 psi exudation pressure = 0	SITE SOIL

Project No.: 1146
Project: WOODLAND VILLAGE- VILLAGE PARKWAY TOWNHOMES
Location: WOODLAND VILLAGE SITE
Sample Number: 35043
Date: 1/26/2021

Tested by: M. PONTONI
Checked by: S. VINEIS
Remarks:
RECEIVED 1/21/2021

CME CONSTRUCTION MATERIALS ENGINEERS, INC.

Figure 1A

RESISTANCE VALUE
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO: 31097
APPR BY: JRP
BY: JRP

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVE. RENO, NV. 89523

Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

Analytical Report

Workorder#: 21010927
Date Reported: 2/4/2021

Client: Summit Engineering **Sampled By:** Joe Pursel
Project Name: 31097/ WVTH TP 9 0-1 Sulfate
PO #: 11354

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
21010927-01	WVTH TP 9 0-1 Sulfate	01/19/2021 12:00	1/21/2021

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Sodium	ASTM D2791	< 0.01	%	0.01	AC	02/03/2021 9:53	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01	AC	02/03/2021 9:56	
Sulfate	SM4500 SO4E	< 0.01	%	0.01	AC	02/03/2021 9:52	

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
21010927-02	WVTH TP 1 2-3 Sulfate	01/19/2021 12:30	1/21/2021

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Sodium	ASTM D2791	< 0.01	%	0.01	AC	02/03/2021 9:53	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01	AC	02/03/2021 9:56	
Sulfate	SM4500 SO4E	< 0.01	%	0.01	AC	02/03/2021 9:52	

Original

SULFATE RESULTS
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO: 31097
APPR BY: JRP
BY: JRP

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVE. RENO, NV. 89523

SHEET 25 OF 25

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\ACAD\25_SULFATES.DWG ~ 8:41 AM * 05-FEB-2021

SUMMIT ENGINEERING CORPORATION ™

March 5, 2021

Job No. 31097

Mr. Robert Lissner
Woodland Village North, LLC
4790 Caughlin Parkway, #519
Reno, NV 89519

RE: Geotechnical Investigation Addendum #1
Village Parkway Townhomes
Woodland Village
Reno, NV

Dear Mr. Lissner:

Summit Engineering Corporation is pleased to present to you this addendum to the report for the proposed housing project, Village Parkway Townhomes, in Woodland Village Development, in Reno, Nevada. Previously, Summit had provided a report dated February 5, 2021 (Summit File 31097), for the proposed housing development. This addendum is being issued to address and include additional infiltration testing that was performed on-site after the initial exploration.

All previous recommendations from the report prepared by Summit Engineering Corporation dated February 5, 2021 remain valid and in place. This Addendum adds the additional infiltration test and results. An infiltration rate of 3 min/inch should be used in storm drain design for this area.

If you have any questions, please contact our office.

Sincerely,
SUMMIT ENGINEERING CORPORATION

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSEPH R. PURSEL
Exp: 12-31-21
CIVIL
No. 21906

03-05-21

Joseph R. Pursel, P.E.
Geotechnical Division Manager

Reference: Geotechnical Investigation for Village Parkway Townhomes, Woodland Village, Reno Nevada. File No. 31097. Dated February 5, 2021.

CC: Robert Gelu, P.E., Summit Engineering

5405 Mae Anne Avenue • Reno, Nevada 89523 • (775) 747-8550 FAX (775) 747-8559
1150 Lamoille Highway • Elko, Nevada 89801 • (775) 738-8058 FAX (775) 738-8267
www.summitnv.com

VICINITY MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097 ADD.1

APPR BY: JRP

DRAWN BY: JRP

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVE. RENO, NV. 89523

SHEET 1 OF 3

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\Addendum\1_VICINITY MAP.DWG ~ 11:25 AM * 07-MAR-2021

SITE MAP FOR
VILLAGE PARKWAY TOWNHOMES
RENO, NV

JOB NO.: 31097 ADD.1
APPR BY: JRP
DRAWN BY: JRP
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SHEET
2
OF
3

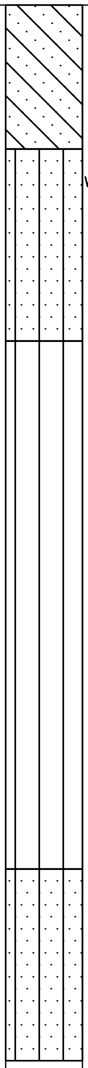
N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\Addendum\2_SITE MAP.DWG ~ 11:27 AM • 07-MAR-2021

LOG OF IF-3

EQUIPMENT: YANMAR Vi055

DATE: 2-19-21 ELEV.

PLASTICITY INDEX	% PASSING #200	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION
				2	
				4	
				6	
				8	
				10	
NP	13.8	9.3			☒
				12	
				14	



MATERIAL TYPE	
SC	<u>0-1.5' BSG: CLAYEY SANDS</u> CLAYEY SANDS, BROWN, VERY MOIST, SOFT, SLIGHTLY ORGANIC. ESTIMATED 15% GRAVELS. MEDIUM PLASTIC.
SM W/GRAVEL	<u>1.5-3.5' BSG: SILTY SANDS WITH GRAVEL</u> SILTY SANDS. SEMI-MOIST. LIGHT BROWN. ESTIMATED 20% NON-PLASTIC FINES, 20% GRAVELS TO 1/2".
ML	<u>3.5-9' BSG: SILTS</u> SILT. PARTIALLY CEMENTED. LIGHT BROWN TO BROWN. DENSE. ESTIMATED 50-60% FINES. MOIST.
SM	<u>9-11' BSG: SILTY SANDS</u> SILTY SANDS. BROWN, MOIST, LOOSE. 85% SANDS, 15% NON-PLASTIC FINES. INFILTRATION RATE @ 10' BSG=3 MIN/INCH BOTTOM EXPLORATION @ 11' BSG.

INFILTRATION PIT LOG
VILLAGE PARKWAY TOWNHOMES
INFILTRATION PIT 3

JOB #: 31097 ADD.1
DRAWN BY: JRP
CHECKED BY: JRP

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SHEET 3 OF 3

N:\DWGS\J31097_VillageParkwayTownhomes\Geotech\Addendum\3_TP-1.DWG ~ 11:46 AM * 07-MAR-2021

SUMMIT ENGINEERING CORPORATION
PERC RATE TEST

PROJECT NAME:	Woodland Village Town Homes	**PROJECT NUMBER:**	31097
TEST SPECIFICATIONS:	Infiltration	**DATE:**	2/19/2021
TECHNICIAN:	JB		

Hole No. IF-3 **Perc Rate:** 3 min/in

Depth from native ground to gravel: 10 ft.

Soil Description: SW-SM

Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
3:30	2	11	9	15	1.7
3:45	2	9 8/16	7 8/16	15	2.0
4:00	2	8 12/16	6 12/16	15	2.2
4:15	2	8	6	15	2.5
4:30	2	7 12/16	5 12/16	15	2.6
4:45	2	7 11/16	5 11/16	15	2.6
5:00	2	7 11/16	5 11/16	15	2.6

Hole No. **Perc Rate:** min/in

Depth from native ground to gravel:

Soil Description:

Notes:

Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in

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Engineering The West Since 1978.

5405 Mae Anne Avenue
Reno Nevada 89523
Phone (775) 747-8550 Fax (775) 747-8559

Grading Analysis (ASTM C-136)

JOB NAME:	**Woodland Village Town Homes**	WET WEIGHT (g):	**3033.9**
JOB NUMBER:	**31097**	DRY WEIGHT (g):	**2775.2**
LAB NUMBER:	**2533 IF 10-11**	PERCENT MOISTURE:	**9.3%**
DATE:	**2/23/2021**	WASH WEIGHT(g):	**2101.6**
TECHNICIAN:	**PM**	SOAK TIME (min):	**30.0**
SAMPLE DESCRIPTION:	**Silty Sands**	CC:	1.25
		CU:	9.62

PI:	NP	**SOIL CLASSIFICATION:**	**SM**	% PASSING #4:	**100**
LL:		**SOIL NAME:**	**Silty Sand**	% PASSING #200:	**13.8**

SIEVE	WEIGHT RETAINED		% RETAINED		% PASSING	SPECS
	INDIVIDUAL	CUMULATIVE	INDIVIDUAL	CUMULATIVE		
3"					100	
2"					100	
1 1/2"					100	
1"					100	
3/4"					100	
1/2"		0.0		0	**100**	
3/8"		0.0		0	**100**	
#4		3.2		0.2	**100**	
#8		42.2		2.0	**98**	
#10		62.4		3.0	**97**	
#16		255.6		12.2	**88**	
#30		708.0		33.7	**66**	
#40		951.6		45.3	**55**	
#50		1151.4		54.8	**45**	
#100		1580.9		75.2	**25**	
#200		1811.0		86.2	**13.8**	
PAN		1842.3				

NOTES:

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Engineering The West Since 1978.

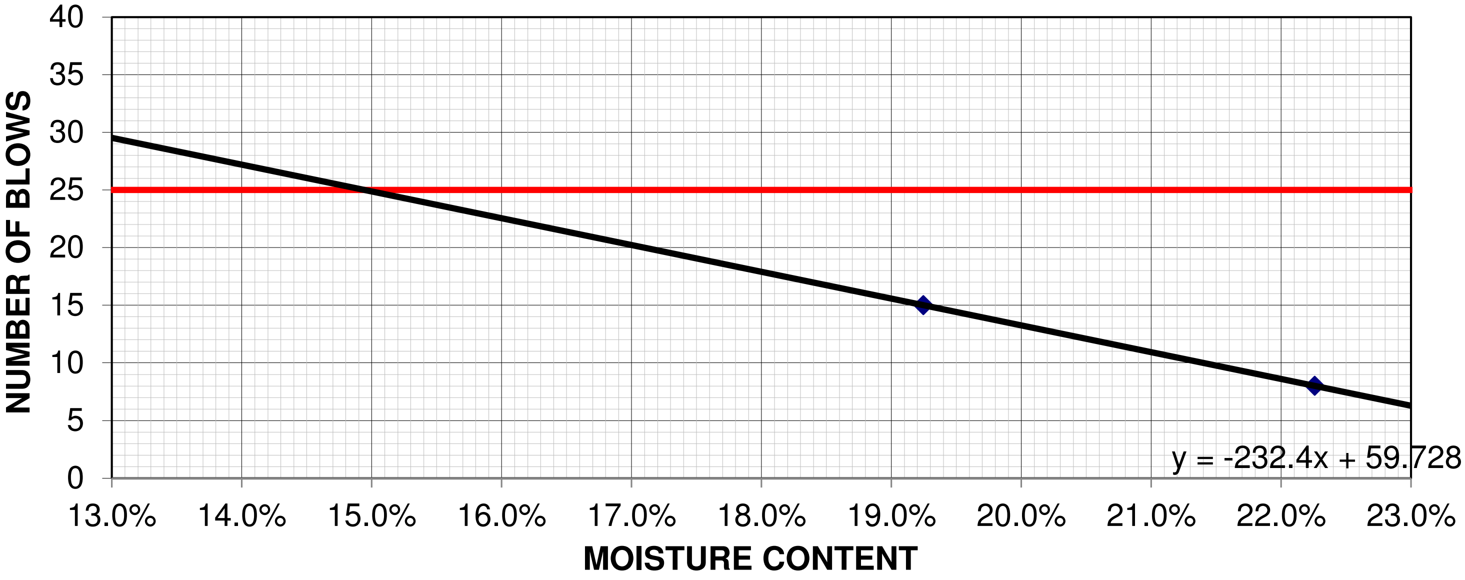
JOB NAME: Woodland Village Town Homes
JOB NUMBER: 31097
DATE: 2/23/2021
TESTED BY: MC
LAB NUMBER: 2533 IF 10-11
SAMPLE DESCRIPTION: Silty Sands

Liquid and Plastic Limit *(ASTM D 4318)*

LIQUID LIMIT: **15.0**
PLASTIC LIMIT: **20.6**
PLASTICITY INDEX: **-5.6**

	PLASTIC LIMIT				**LIQUID LIMIT / NUMBER OF BLOWS**			
DETERMINATION	**1**	**2**	**3**	**4**		15	8	
TARE NO.	T	X				B	G1	
GROSS WET WEIGHT	9.26	9.72				9.88	10.65	
GROSS DRY WEIGHT	8.34	8.71				8.91	9.27	
TARE WEIGHT	3.88	3.82				3.87	3.07	
NET DRY WEIGHT	4.46	4.89			0.00	5.04	6.20	
WEIGHT OF WATER	0.92	1.01			0.00	0.97	1.38	
% MOISTURE	20.63%	20.65%			#DIV/0!	19.25%	22.26%	

LIQUID LIMIT



REMARKS:

SOLAEGUI
ENGINEERS, LTD

VILLAGE PARKWAY AND VILLAGE CENTER RESIDENTIAL PROJECTS

TRAFFIC STUDY

NOVEMBER 2020

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
PAUL W. SOLAEGUI
CIVIL
No. 7183

11-2-20
EXP 6-30-22

Prepared by:
Solaegui Engineers, Ltd.
715 H Street
Sparks, Nevada 89431
(775) 358-1004

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VILLAGE PARKWAY AND VILLAGE CENTER RESIDENTIAL PROJECTS

TRAFFIC STUDY

EXECUTIVE SUMMARY

The proposed Village Parkway and Village Center Residential developments will be located in the Cold Springs area of Washoe County, Nevada. The Village Parkway Residential site is generally located west of Village Parkway and north of Cold Springs Drive on undeveloped land. The Village Center Residential site is generally located east of Village Parkway and north of Village Center Drive on mostly undeveloped land. Community center and restaurant buildings exist on the Village Center Residential site. The purpose of this study is to address the project's impact upon the adjacent street network. The following intersections have been identified for traffic capacity analysis:

1. Village Parkway/White Lake Parkway
2. Village Parkway/Cold Springs Drive
3. Village Parkway/Project Access
4. Village Parkway/New Forest Drive/Georgetown Drive
5. Village Parkway/Village Center Drive
6. Village Parkway/Rockland Drive
7. Village Parkway/North Driveway
8. Village Center Drive/East Driveway
9. Crystal Canyon Boulevard/Aquamarine Drive

The traffic study includes analysis of the AM and PM peak hours for the existing, existing plus project, 2030 base, 2030 base plus project, 2040 base, and 2040 base plus project scenarios. The White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections have been identified for updated traffic signal warrant analysis.

The proposed Village Parkway Residential development will include the construction of a total of 428 attached dwelling units with access provided from one proposed roadway intersecting Village Parkway. The Village Parkway Residential development is anticipated to generate 3,348 average daily trips with 207 trips occurring during the AM peak hour and 241 trips occurring during the PM peak hour.

The proposed Village Center Residential development will include the construction of a total of 111 attached dwelling units with access provided from multiple driveways on Village Parkway and Village Center Drive. The Village Center Residential development is anticipated to generate 851 average daily trips with 61 trips occurring during the AM peak hour and 71 trips occurring during the PM peak hour.

Traffic generated by the Village Parkway and Village Center Residential developments will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with Washoe County requirements.

It is recommended that the Village Parkway/Project Access intersection be designed as a three-leg intersection with stop sign control at the west approach. It is recommended that the intersection contain an exclusive left turn lane with a minimum of 340 feet of storage/deceleration length at the south approach.

It is recommended that the Village Parkway/Rockland Drive-Project Driveway intersection be improved as a four-leg intersection with stop sign control at the east project driveway and west Rockland Drive approaches. It is recommended that the existing lane markings at the west Rockland Drive approach be modified to show a shared left turn-through lane and an exclusive right turn lane. It is recommended that the north Village Parkway approach be modified to contain a left turn lane with a minimum of 100 feet of storage length.

It is recommended that pedestrian crosswalks be installed at the new east leg of the Village Parkway/Rockland Drive-Project Access intersection and at the east leg of the Village Parkway/ North Driveway intersection.

INTRODUCTION

STUDY AREA

The proposed Village Parkway and Village Center Residential developments will be located in the Cold Springs area of Washoe County, Nevada. The Village Parkway Residential site is generally located west of Village Parkway and north of Cold Springs Drive. The Village Center Residential site is generally located east of Village Parkway and north of Village Center Drive. Figure 1 shows the approximate location of the two sites. The purpose of this study is to address the project's impact upon the adjacent street network. The following intersections have been identified for traffic capacity analysis:

1. Village Parkway/White Lake Parkway
2. Village Parkway/Cold Springs Drive
3. Village Parkway/Project Access
4. Village Parkway/New Forest Drive/Georgetown Drive
5. Village Parkway/Village Center Drive
6. Village Parkway/Rockland Drive
7. Village Parkway/North Driveway
8. Village Center Drive/East Driveway
9. Crystal Canyon Boulevard/Aquamarine Drive

This traffic study includes analysis of the AM and PM peak hours for the existing, existing plus project, 2030 base, 2030 base plus project, 2040 base, and 2040 base plus project scenarios. The White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections have been identified for updated traffic signal warrant analysis.

EXISTING AND PROPOSED LAND USES

Both sites are mostly undeveloped land with existing community center and restaurant buildings on the Village Center Residential site. These buildings will remain with development of the projects. Land adjacent to the Village Parkway Residential site consists of single family dwelling units to the east and south and undeveloped land to the north and west. Land adjacent to the Village Center site consists of single family dwelling units to the north, south and west and a middle school and neighborhood park to the east.

The proposed Village Parkway Residential development will include the construction of a total of 428 attached dwelling units with access provided from one proposed roadway intersecting Village Parkway.

The proposed Village Center Residential development will include the construction of a total of 111 attached dwelling units with access provided from multiple driveways on Village Parkway and Village Center Drive.

VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS

VICINITY MAP

FIGURE 1

EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

Village Parkway is a two-lane roadway with one through lane in each direction within the project study area. The speed limit is generally posted for 45 miles per hour west of White Lake Parkway, 35 miles per hour between White Lake Parkway and New Forest Drive, and 25 miles per hour east and north of New Forest Drive. Roadway improvements west of White Lake Parkway generally include graded shoulders with striped edgelines and a striped centerline. The remaining segment of Village Parkway contains curb, gutter, sidewalk and a bike lane on both sides of the street with a striped centerline. A raised center median exists between Rockland Drive and Village Center Drive.

White Lake Parkway is a two-lane roadway with one through lane in each direction east of Village Parkway. The speed limit is posted for 35 miles per hour. Roadway improvements generally include graded shoulders with striped bike lanes and a striped centerline. Some curb, gutter, and sidewalk improvements exist just east of Village Parkway.

Cold Springs Drive is a two-lane roadway with one through lane in each direction east and west of Village Parkway. The speed limit is posted for 25 miles per hour. Roadway improvements west of Village Parkway generally include curb and gutter on both sides of the street, sidewalk on the south side of the street, and a striped centerline. Curb, gutter, sidewalk and striping improvements do not exist on Cold Springs Drive east of Village Parkway.

New Forest Drive is a two-lane roadway with one through lane in each direction north of Village Parkway. The speed limit is posted for 25 miles per hour. Roadway improvements generally include curb, gutter, and sidewalk on both sides of the street with some centerline striping.

Georgetown Drive is a two-lane roadway with one through lane in each direction south of Village Parkway. Georgetown Drive aligns with New Forest Drive at the intersection with Village Parkway. The speed limit is posted for 25 miles per hour. Roadway improvements generally include curb, gutter, and sidewalk on both sides of the street.

Rockland Drive is a two-lane roadway with one through lane in each direction west of Village Parkway. The speed limit is posted for 25 miles per hour. Roadway improvements generally include curb, gutter, and sidewalk on both sides of the street.

Village Center Drive is a two-lane roadway with one through lane in each direction east of Village Parkway. The speed limit is not posted but assumed to be 25 miles per hour. Roadway improvements include curb and gutter on both sides of the street, a sidewalk on the south side of the street, and a striped centerline. Village Center Drive becomes Aquamarine Drive east of Jutewood Court.

Aquamarine Drive is a two-lane roadway with one through lane in each direction east of Jutewood Court. The speed limit is posted for 25 miles per hour. Roadway improvements include curb, gutter, and sidewalk on both sides of the street.

Crystal Canyon Boulevard is a two-lane roadway with one through lane in each direction north and south of Aquamarine Drive. The speed limit is posted for 25 miles per hour near Aquamarine Drive. Roadway improvements generally include curb and gutter on both sides of the street, sidewalk in some areas, and a striped centerline.

The Village Parkway/White Lake Parkway intersection is an unsignalized three-leg intersection with stop sign control at the east White Lake Parkway approach. The north approach contains one left turn lane and one through lane. The south approach contains one through lane and one right turn lane. The east approach contains one shared left turn-right turn lane. A striped crosswalk exists at the north leg.

The Village Parkway/Cold Springs Drive intersection is an unsignalized four-leg intersection with stop sign control at the east and west Cold Springs Drive approaches. The north and south approaches each contain one left turn lane and one shared through-right turn lane. The east and west approaches each contain one shared left turn-through-right turn lane. Striped crosswalks exist at the north and south legs.

The Village Parkway/Project Access intersection does not currently exist but is anticipated to be constructed as an unsignalized three-leg intersection with stop sign control at the west project access approach. The intersection will be analyzed with one shared through-right turn lane at the north approach, one shared left turn-through lane at the south approach, and one shared left turn-right turn lane at the west approach.

The Village Parkway/New Forest Drive-Georgetown Drive intersection is an unsignalized four-leg intersection with stop sign control at the north New Forest Drive and south Georgetown Drive approaches. The north, east, and west approaches each contain one left turn lane and one shared through-right turn lane. The south approach contains one shared left turn-through-right turn lane. Striped crosswalks exist at the north, south, east, and west legs.

The Village Parkway/Village Center Drive intersection is an unsignalized three-leg intersection with stop sign control at the east Village Center Drive approach. The north approach contains one left turn lane and one through lane. The south approach contains one shared through-right turn lane. The east approach contains one left turn lane and one right turn lane. Striped crosswalks do not exist at the intersection.

The Village Parkway/Rockland Drive intersection is an unsignalized three-leg intersection with stop sign control at the west Rockland Drive approach. The north approach contains one shared through-right turn lane. The south approach contains one left turn lane and one through lane. The west approach contains one left turn lane and one right turn lane. Striped crosswalks exist at all legs. With construction of the Village Center Residential development the intersection will be improved as a four-leg intersection with stop sign control at the east and west approaches. The four-leg intersection will be analyzed with one left turn lane and one shared through-right turn lane at the north and south approaches, one shared left turn-through lane and one right turn lane at the west approach, and one shared left turn-through-right turn lane at the east approach.

The Village Parkway/North Driveway intersection is an unsignalized three-leg intersection with stop sign control at the east approach. The north approach contains one left turn lane and one through lane. The south approach contains one shared through-right turn lane. The west approach appears to contain one shared left turn-right turn lane. The driveway currently provides access to the community center parking lot. With development of the Village Center development the driveway will continue to serve the community center as well as the new residential units.

The Village Center Drive/East Driveway intersection is an unsignalized three-leg intersection with stop sign control at the north approach. The west approach contains one shared left turn-through lane. The east approach contains one shared through-right turn lane. The north approach contains one shared left turn-right turn lane. The driveway currently provides access to the restaurant and neighborhood park parking lot. With development of the Village Center development the driveway will continue to serve the restaurant and park as well as the new residential units.

The Crystal Canyon Boulevard/Aquamarine Drive intersection is an unsignalized four-leg intersection with stop sign control at the east and west Aquamarine Drive approaches. The north, south, east, and west approaches each contain one shared left turn-through-right turn lane. Striped crosswalks exist at the north, east, and west legs.

TRIP GENERATION

In order to assess the magnitude of project traffic impacts on the key roadways and intersections, the project dwelling units had to be reviewed in order to correspond to land use categories listed in the Tenth Edition of *ITE Trip Generation* (2018). The Village Parkway development will include a total of 428 attached dwelling units and the Village Center development will include a total of 111 attached dwelling units. Both projects are anticipated to contain single family and multifamily dwellings.

ITE Trip Generation generally states that multifamily housing consists of apartments, townhouses or condominiums located within the same building with at least three other dwelling units. It is estimated that approximately 385 dwelling units within the Village Parkway development and 100 dwelling units within the Village Center development are anticipated to be in buildings with at least three other units which meets the multifamily definition. Trip generation for these dwelling units was therefore calculated based on trip generation equations for *ITE Trip Generation* Land Use 220: Multifamily Housing (Low-Rise).

The remaining 43 dwelling units within the Village Parkway development and 11 dwelling units within the Village Center development are anticipated to be in buildings with less than three other units which does not meet the multifamily definition. Trip generation for these dwelling units was therefore calculated based on trip generation equations for *ITE Trip Generation* Land Use 210: Single Family Detached Housing.

Trip generation was calculated for the weekday peak hours occurring between 7:00 AM and 9:00 AM and 4:00 PM and 6:00 PM which correspond to the peak hours of adjacent street traffic.

Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour traffic volumes generated by the two projects. The trip generation worksheets are included in the Appendix.

TABLE 1
TRIP GENERATION

		AM PEAK HOUR			PM PEAK HOUR		
LAND USE/VARIABLE	ADT	IN	OUT	TOTAL	IN	OUT	TOTAL
Village Parkway Residential							
Single Family (43 DU)	478	9	26	35	28	17	45
Low-Rise Multifamily (385 DU)	2,870	39	133	172	123	73	196
Total	3,348	48	159	207	151	90	241
Village Center Residential							
Single Family (11 DU)	136	3	10	13	7	5	12
Low-Rise Multifamily (100 DU)	715	11	37	48	37	22	59
Total	851	14	47	61	44	27	71
Grand Total	4,199	62	206	268	195	117	312

TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the project traffic to the key intersections was based on existing peak hour traffic patterns and the locations of attractions and productions. Figure 2 shows the anticipated trip distribution percentages for both projects. The peak hour trips shown in Table 1 were subsequently assigned to the key intersections based on the trip distribution. Figure 3 shows the trip assignment at the key intersections for the AM and PM peak hours.

EXISTING AND PROJECTED TRAFFIC VOLUMES

Figure 4 shows the existing traffic volumes at the key intersections during the AM and PM peak hours. The existing peak hour traffic volumes were obtained from weekday traffic counts conducted in September and October of 2020. It should be noted that the September and October 2020 traffic counts were conducted during the COVID-19 pandemic which may have resulted in reduced traffic on the area streets. The existing traffic counts at the Village Parkway intersections with White Lake Parkway and Rockland Drive were subsequently compared with 2019 preCOVID-19 traffic volumes at these same intersections. A comparison of the total intersection volumes indicates that the September/October 2020 traffic volumes are higher than the 2019 preCOVID-19 traffic volumes during the AM peak hour and almost equal during the PM peak hour. This comparison indicates that the existing September/October 2020 traffic counts do not require adjustments. However, in order to ensure conservative results the highest turning movement volumes from the 2019 and 2020 counts were utilized at the Village Parkway intersections with White Lake Parkway and Rockland Drive and appropriate adjustments were then made at the adjacent intersections.

Figure 5 shows the existing plus project traffic volumes at the key intersections during the AM and PM peak hours. The existing plus project volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the existing traffic volumes shown on Figure 4.

Figure 6 shows the 2030 base traffic volumes at the key intersections during the AM and PM peak hours. The 2030 base traffic volumes were obtained by adding traffic generated by the approved but unbuilt dwelling units within Woodland Village and traffic generated by Cold Springs Elementary School, which is currently under construction, to the existing traffic volumes. Peak hour traffic volumes generated by the unbuilt Woodland Village dwelling units were obtained from the Woodland Village Traffic Signal Warrant Study letter dated January 15, 2020. Peak hour traffic volumes generated by the school were obtained from the Cold Springs Elementary School Traffic Study dated March 2019. Woodland Village and Cold Springs Elementary School are both anticipated to buildout by 2030.

Figure 7 shows the 2030 base plus project traffic volumes at the key intersections during the AM and PM peak hours. The 2030 base plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the 2030 base traffic volumes shown on Figure 6.

Figure 8 shows the 2040 base traffic volumes at the key intersections during the AM and PM peak hours. The 2040 base traffic volumes were also obtained by adding traffic generated by the approved but unbuilt dwelling units within Woodland Village and traffic generated by Cold Springs Elementary School, which is currently under construction, to the existing traffic volumes. Woodland Village and Cold Springs Elementary School are both anticipated to buildout by 2030 and therefore the 2030 and 2040 base traffic volumes are identical.

Figure 9 shows the 2040 base plus project traffic volumes at the key intersections during the AM and PM peak hours. The 2040 base plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the 2040 base traffic volumes shown on Figure 8. Again, the 2030 base plus project and 2040 base plus project traffic volumes are identical.

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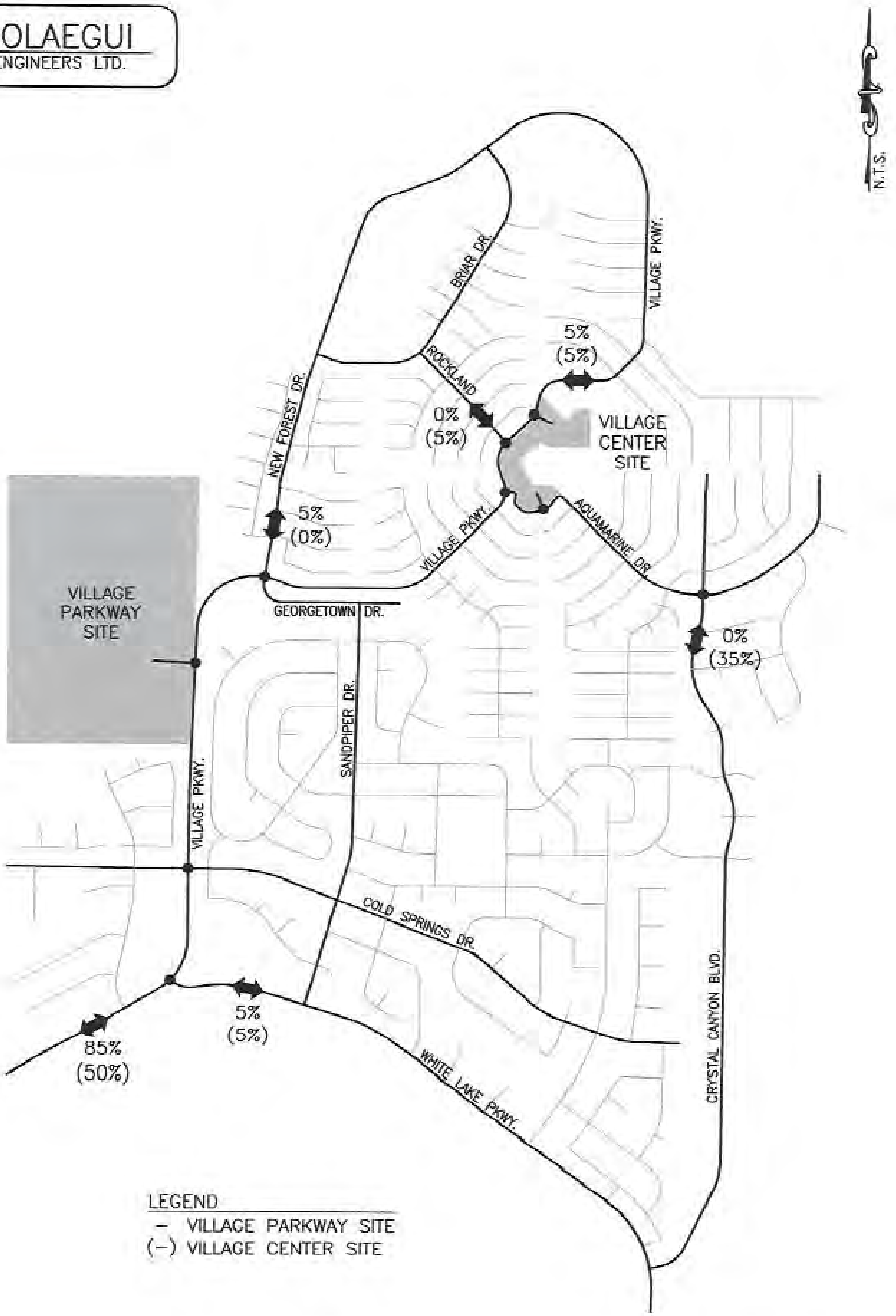
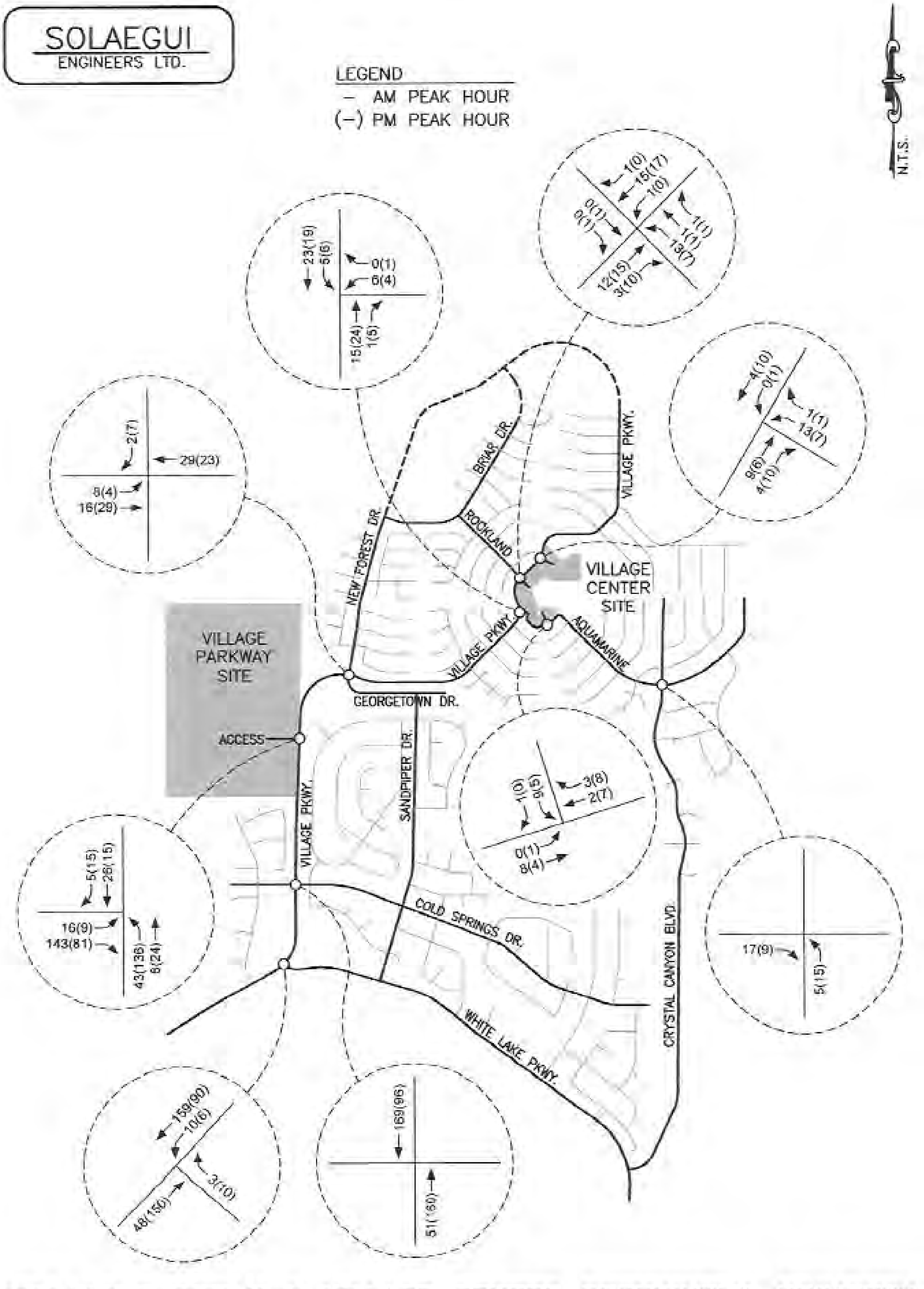


VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS
TRIP DISTRIBUTION
FIGURE 2



VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS

TRIP ASSIGNMENT

FIGURE 3

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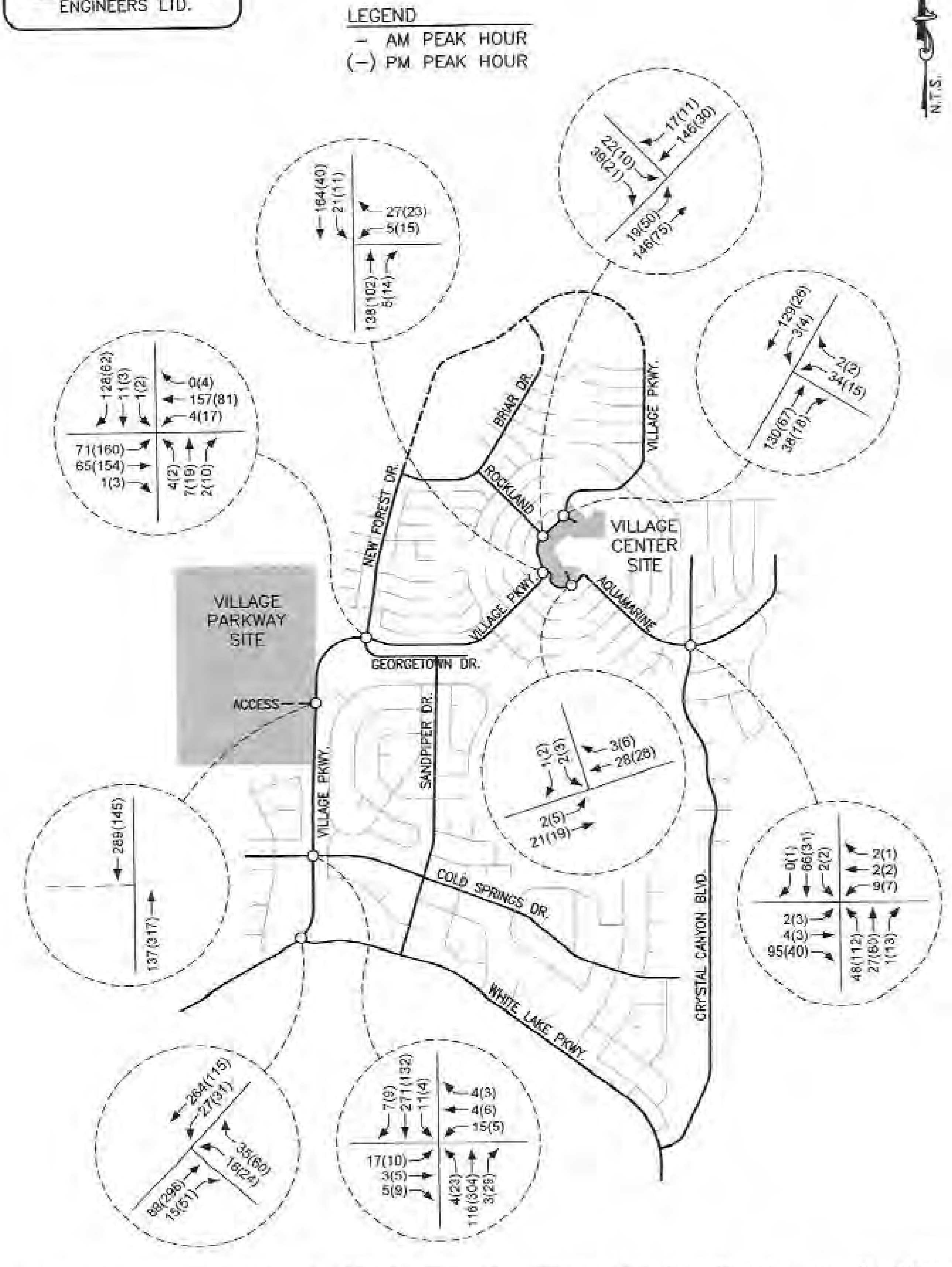
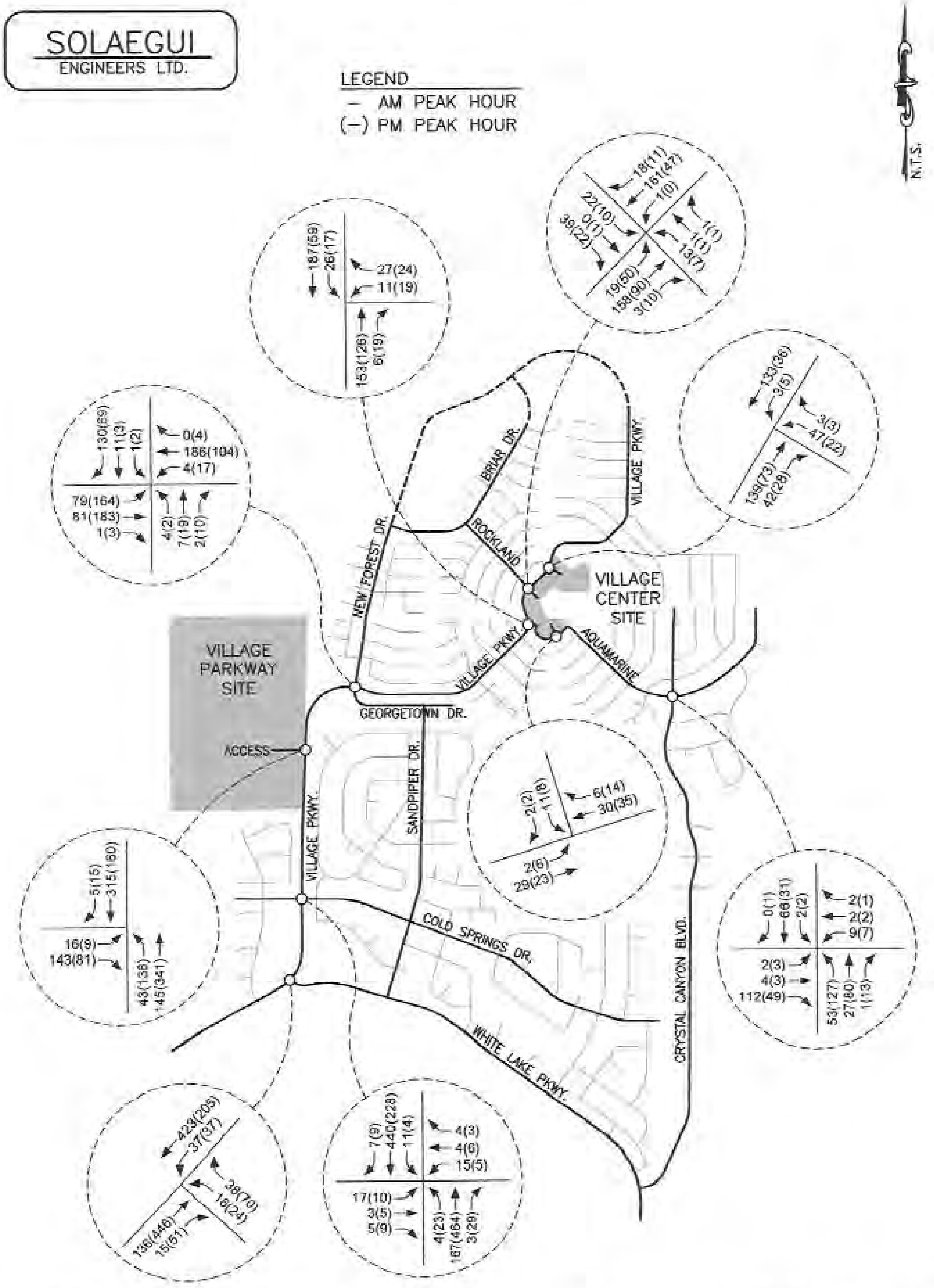


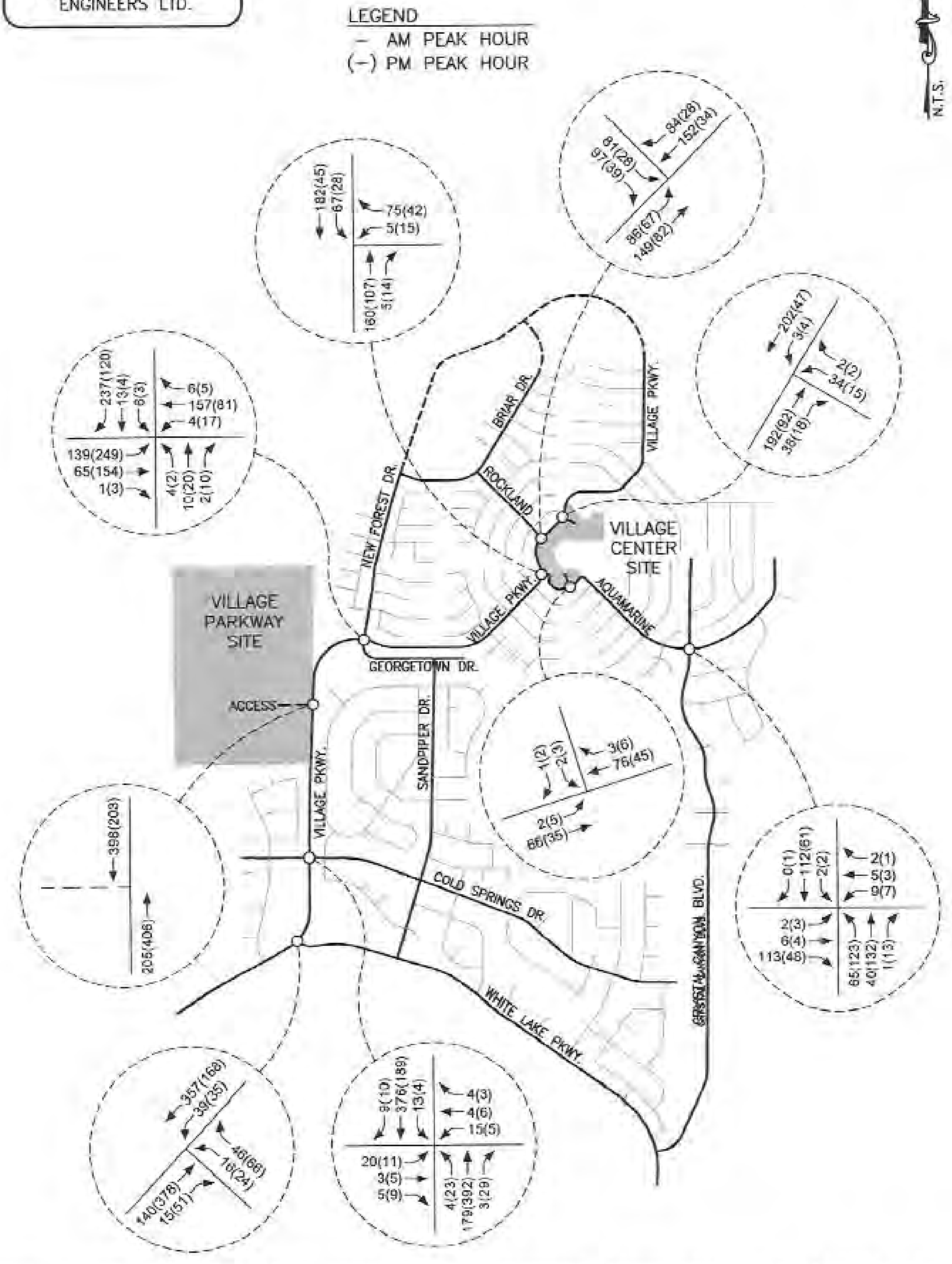
VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS
EXISTING TRAFFIC VOLUMES
FIGURE 4

SOLAEGUI
ENGINEERS LTD.



VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS
EXISTING PLUS PROJECT TRAFFIC VOLUMES
FIGURE 5

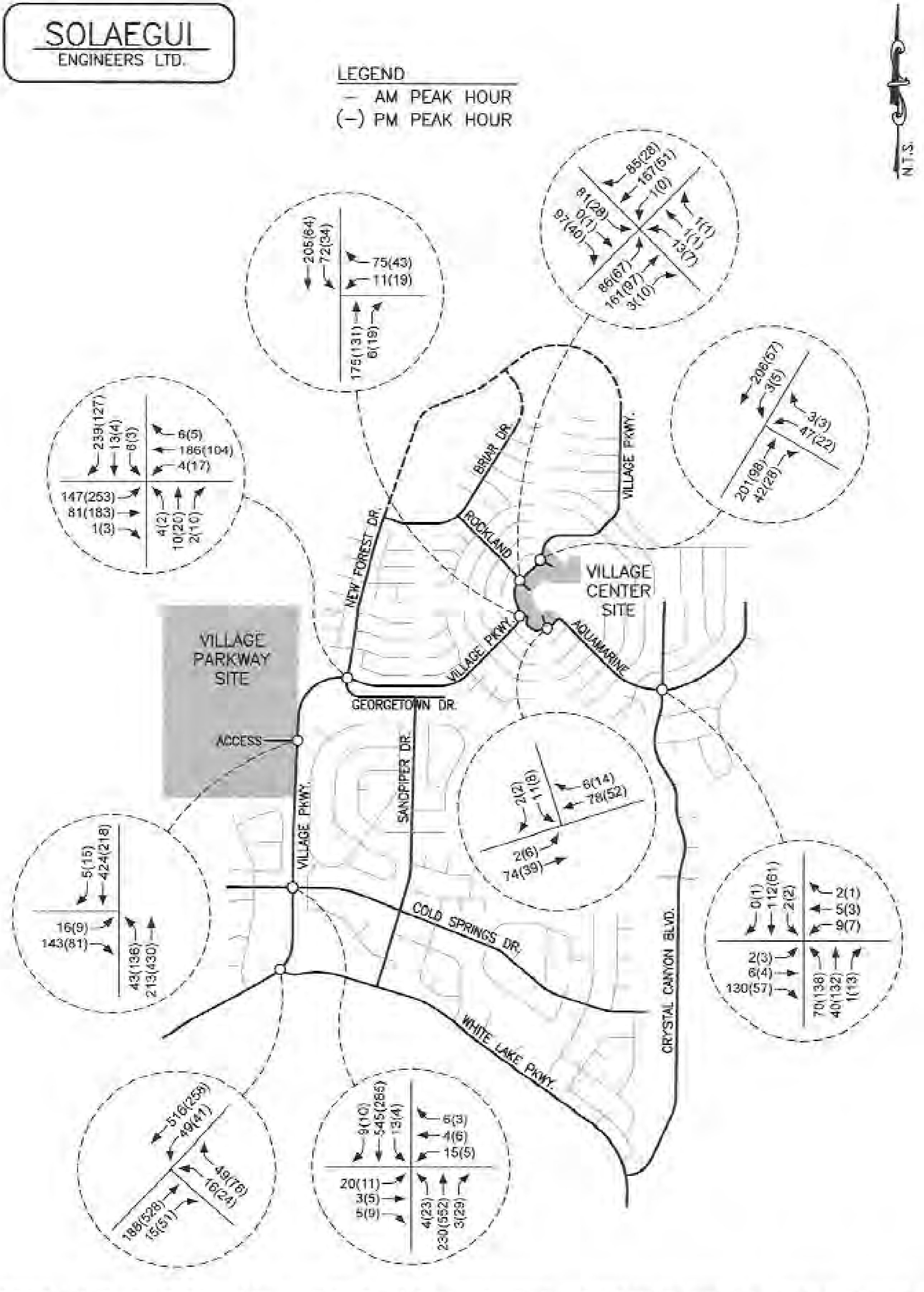
SOLAEGUI
ENGINEERS LTD.



VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS

2030 BASE TRAFFIC VOLUMES

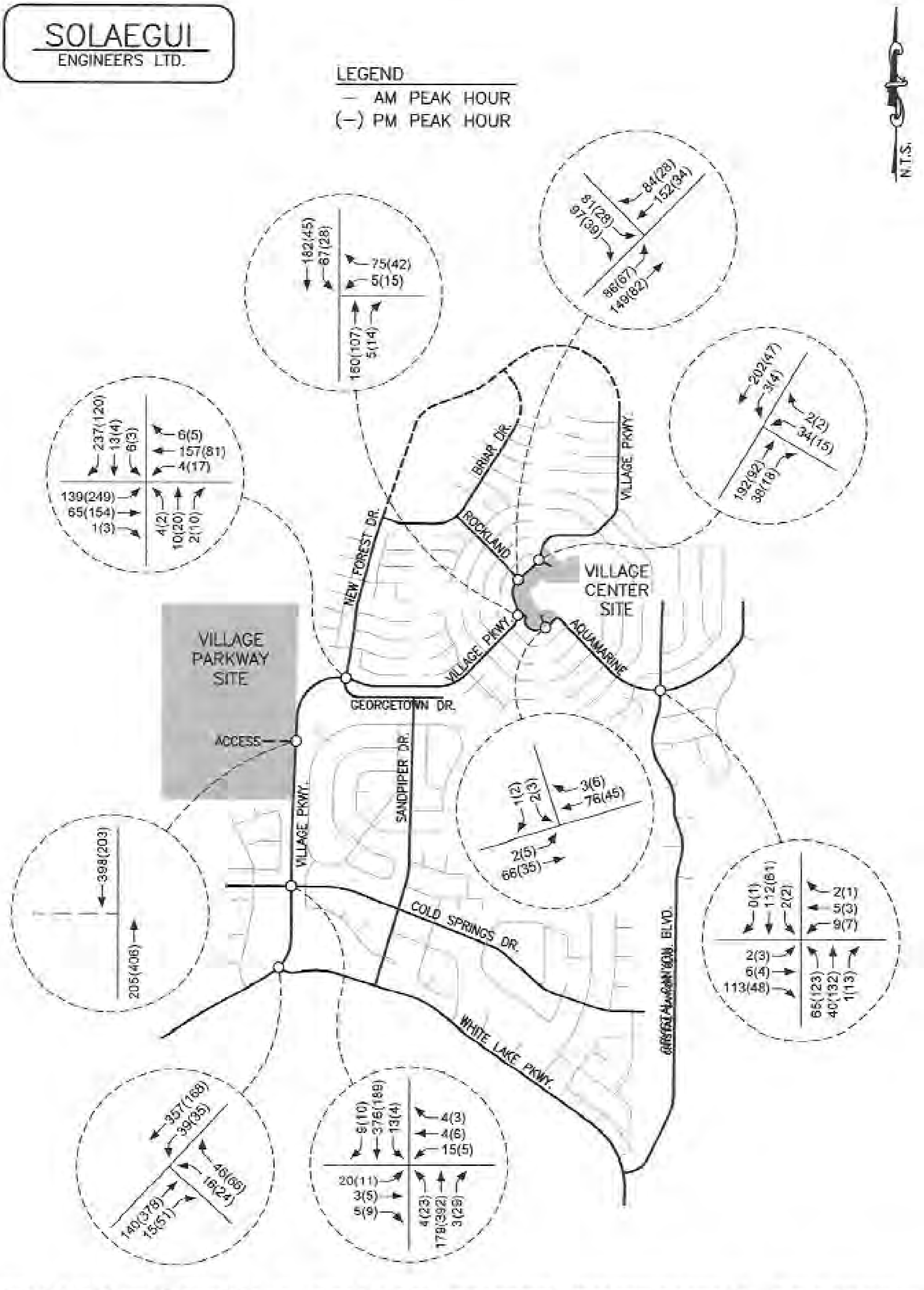
FIGURE 6



VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS

2030 BASE PLUS PROJECT TRAFFIC VOLUMES

FIGURE 7

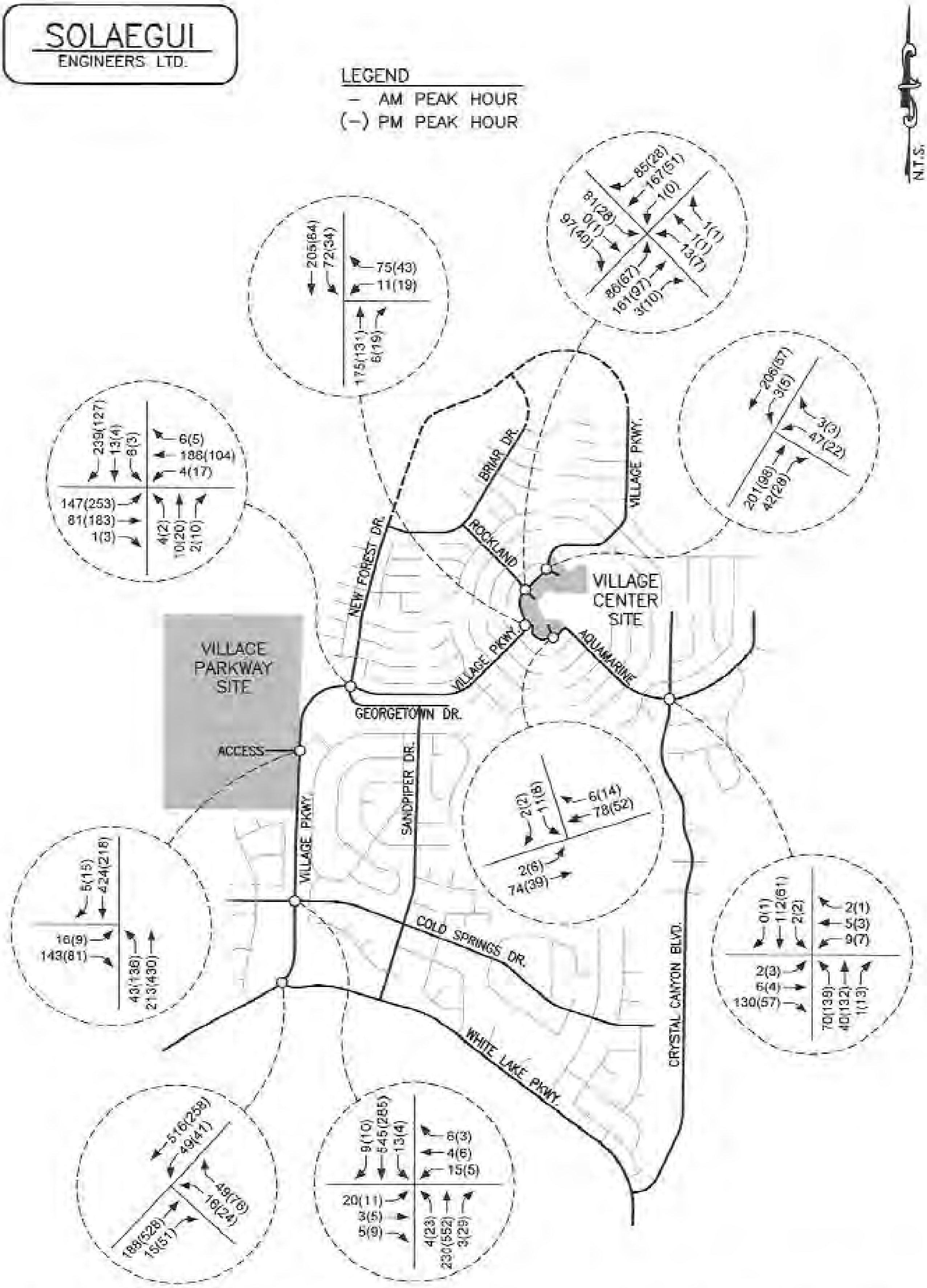


VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS

2040 BASE TRAFFIC VOLUMES

FIGURE 8

SOLAEGUI
ENGINEERS LTD.



VILLAGE PARKWAY & VILLAGE CENTER RESIDENTIAL PROJECTS
2040 BASE PLUS PROJECT TRAFFIC VOLUMES
FIGURE 9

INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual (6th Edition)*, prepared by the Transportation Research Board, for unsignalized stop-controlled intersections. The latest version of the Highway Capacity computer software was used to analyze the intersections.

The result of capacity analysis is a level of service (LOS) rating for each unsignalized intersection minor movement. Level of service is a qualitative measure of traffic operating conditions where a letter grade "A" through "F", corresponding to progressively worsening traffic operation, is assigned to the unsignalized intersection minor movement.

The *Highway Capacity Manual* defines level of service for one or two-way stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

TABLE 2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

The RTC's 2040 Regional Transportation Plan indicates that level of service standards used for assessing the need for street and highway improvements at a planning level are LOS D for all regional roadway facilities projected to carry less than 27,000 ADT and LOS E for all regional roadway facilities projected to carry 27,000 or more ADT. RTC's traffic forecasting model indicates that all roadways at the key study intersections will carry less than 27,000 ADT indicating a policy LOS D standard. It should be noted that Washoe County's Cold Springs Area Plan states that LOS C or better is the policy level of service for roadways and LOS D or better is the policy level of service for intersections. LOS D is therefore the level of service standard for all key intersections in this traffic study.

Table 3 on the following page shows a summary of the level of service and delay results at the key intersections for the existing and existing plus project scenarios. The intersection capacity worksheets are included in the Appendix.

TABLE 3
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS
EXISTING AND EXISTING PLUS PROJECT SCENARIOS

INTERSECTION	EXISTING		EXISTING + PROJECT	
	AM	PM	AM	PM
Village/White Lake (Stop at East)				
WB Left-Right	B10.0	B11.7	B11.1	B14.4
SB Left	A7.5	A8.2	A7.6	A8.7
Village/Cold Springs (Stop East/West)				
EB Left-Thru-Right	B12.2	B12.3	C15.6	C15.8
WB Left-Thru-Right	B12.1	B13.2	C15.2	C17.2
NB Left	A7.9	A7.6	A8.4	A7.8
SB Left	A7.5	A8.0	A7.6	A8.5
Village/Project Access (Stop at West)				
EB Left-Right	N/A	N/A	B12.5	B10.9
NB Left	N/A	N/A	A8.1	A7.9
Village/New Forest (Stop North & South)				
EB Left	A7.8	A7.7	A7.9	A7.8
WB Left	A7.4	A7.6	A7.4	A7.7
NB Left-Thru-Right	B12.9	B14.5	B13.9	C15.5
SB Left-Thru	B12.3	C16.6	B13.3	C18.0
SB Right	B10.2	A9.0	B10.5	A9.2
Village/Village Center (Stop at East)				
WB Left	B11.7	A9.6	B12.4	B10.1
WB Right	A9.4	A9.0	A9.5	A9.1
SB Left	A7.7	A7.5	A7.7	A7.6
Village/Rockland (Stop at West)				
EB Left	B12.4	B10.2	N/A	N/A
EB Right	A9.9	A8.7	N/A	N/A
NB Left	A7.8	A7.4	N/A	N/A
Village/Rockland-Project Driveway (Stop at East & West)				
EB Left-Thru	N/A	N/A	B13.7	B10.8
EB Right	N/A	N/A	B10.1	A8.8
WB Left-Thru-Right	N/A	N/A	B14.2	B10.9
NB Left	N/A	N/A	A7.9	A7.5
SB Left	N/A	N/A	A7.8	A7.5
Village/North Dwy (Stop at East)				
WB Left-Right	B11.2	A9.2	B11.6	A9.4
SB Left	A7.7	A7.4	A7.7	A7.4
Village Center/East Dwy (Stop at North)				
EB Left	A7.3	A7.3	A7.3	A7.3
SB Left-Right	A8.7	A8.7	A8.9	A8.9
Crystal Canyon/Aquamarine (Stop East & West)				
EB Left-Thru-Right	A9.3	A9.2	A9.4	A9.2
WB Left-Thru-Right	B10.9	B12.1	B11.2	B12.6
NB Left	A7.5	A7.5	A7.5	A7.5
SB Left	A7.3	A7.4	A7.3	A7.4

Table 4 shows a summary of the level of service and delay results at the key intersections for the 2030 base, 2030 base plus project, 2040 base, and 2040 base plus project scenarios. The intersection capacity worksheets are included in the Appendix.

TABLE 4
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS
2030 AND 2040 SCENARIOS

	2030 BASE		2030 BASE + PROJECT		2040 BASE		2040 BASE + PROJECT	
INTERSECTION	AM	PM	AM	PM	AM	PM	AM	PM
Village/White Lake (Stop at East)								
WB Left-Right	B10.7	B13.0	B12.1	C16.6	B10.7	B13.0	B12.1	C16.6
SB Left	A7.6	A8.4	A7.8	A9.0	A7.6	A8.4	A7.8	A9.0
Village/Cold Springs (Stop East/West)								
EB Left-Thru-Right	B14.9	B14.2	C19.8	C19.0	B14.9	B14.2	C19.8	C19.0
WB Left-Thru-Right	B14.1	C15.2	C18.2	C20.5	B14.1	C15.2	C18.2	C20.5
NB Left	A8.2	A7.7	A8.8	A8.0	A8.2	A7.7	A8.8	A8.0
SB Left	A7.7	A8.3	A7.8	A8.8	A7.7	A8.3	A7.8	A8.8
Village/Project Access (Stop at West)								
EB Left-Right	N/A	N/A	B14.7	B11.9	N/A	N/A	B14.7	B11.9
NB Left	N/A	N/A	A8.5	A8.1	N/A	N/A	A8.5	A8.1
Village/New Forest (Stop North & South)								
EB Left	A8.0	A7.9	A8.1	A8.0	A8.0	A7.9	A8.1	A8.0
WB Left	A7.4	A7.6	A7.4	A7.7	A7.4	A7.6	A7.4	A7.7
NB Left-Thru-Right	C17.0	C18.7	C18.7	C20.3	C17.0	C18.7	C18.7	C20.3
SB Left-Thru	C15.2	C22.3	C16.6	C24.6	C15.2	C22.3	C16.6	C24.6
SB Right	B11.4	A9.4	B11.9	A9.6	B11.4	A9.4	B11.9	A9.6
Village/Village Center (Stop at East)								
WB Left	B13.9	B10.0	B15.0	B10.5	B13.9	B10.0	B15.0	B10.5
WB Right	B10.0	A9.1	B10.1	A9.3	B10.0	A9.1	B10.1	A9.3
SB Left	A7.9	A7.5	A7.9	A7.6	A7.9	A7.5	A7.9	A7.6
Village/Rockland (Stop at West)								
EB Left	C19.9	B10.8	N/A	N/A	C19.9	B10.8	N/A	N/A
EB Right	B11.0	A8.8	N/A	N/A	B11.0	A8.8	N/A	N/A
NB Left	A8.3	A7.5	N/A	N/A	A8.3	A7.5	N/A	N/A
Village/Rockland/Dwy (Stop at East/West)								
EB Left-Thru	N/A	N/A	C24.8	B11.7	N/A	N/A	C24.8	B11.7
EB Right	N/A	N/A	B11.2	A8.9	N/A	N/A	B11.2	A8.9
WB Left-Thru-Right	N/A	N/A	C22.2	B11.7	N/A	N/A	C22.2	B11.7
NB Left	N/A	N/A	A8.4	A7.6	N/A	N/A	A8.4	A7.6
SB Left	N/A	N/A	A7.8	A7.5	N/A	N/A	A7.8	A7.5
Village/North Dwy (Stop at East)								
WB Left-Right	B13.0	A9.5	B13.6	A9.7	B13.0	A9.5	B13.6	A9.7
SB Left	A7.9	A7.5	A7.9	A7.5	A7.9	A7.5	A7.9	A7.5

TABLE 4 (CONTINUED)
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS
2030 AND 2040 SCENARIOS

	2030 BASE		2030 BASE + PROJECT		2040 BASE		2040 BASE + PROJECT	
INTERSECTION	AM	PM	AM	PM	AM	PM	AM	PM
Village Center/East Dwy (Stop at North)								
EB Left	A7.4	A7.3	A7.4	A7.4	A7.4	A7.3	A7.4	A7.4
SB Left-Right	A9.3	A8.9	A9.5	A9.1	A9.3	A8.9	A9.5	A9.1
Crystal Can./Aquamarine (Stop East/West)								
EB Left-Thru-Right	A9.9	A9.6	B10.0	A9.6	A9.9	A9.6	B10.0	A9.6
WB Left-Thru-Right	B12.2	B13.7	B12.6	B14.3	B12.2	B13.7	B12.6	B14.3
NB Left	A7.6	A7.6	A7.6	A7.6	A7.6	A7.6	A7.6	A7.6
SB Left	A7.3	A7.5	A7.3	A7.5	A7.3	A7.5	A7.3	A7.5

Village Parkway/White Lake Parkway Intersection

The Village Parkway/White Lake Parkway intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements operate at LOS B or better during the AM peak hour and LOS C or better during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Parkway/White Lake Parkway intersection.

Village Parkway/Cold Springs Drive Intersection

The Village Parkway/Cold Springs Drive intersection was analyzed as an unsignalized four-leg intersection with stop control at the east and west approaches for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements operate at LOS C or better during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS B or better during the AM peak hour and LOS C or better during the PM peak hour. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements operate at LOS C or better during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Parkway/Cold Springs Drive intersection.

Village Parkway/Project Access Intersection

The Village Parkway/Project Access intersection was analyzed as an unsignalized three-leg intersection with stop control at the west approach for the existing plus project, 2030 base plus project, and 2040 base plus project scenarios. For the existing plus project traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. The intersection was analyzed with single lanes at all approaches for each scenario. The Village Parkway/Project Access intersection meets Washoe County's policy LOS D standard for all with project scenarios.

The need for an exclusive left turn lane on Village Parkway at the project access intersection was reviewed based on AASHTO guidelines for left turn lanes on two-lane roadways. Table 9-23 of the AASHTO publication lists traffic volumes and operating speeds which necessitate the need for left turn lanes. An exclusive left turn lane is warranted based on the existing plus project traffic volumes. Storage requirements were subsequently reviewed for the left turn lane based on the AASHTO criteria of providing storage for an average two minute period. Approximately 125 feet of storage length is required based on the projected left turn volumes. A minimum deceleration length (including taper) of 215 feet is also required for the left turn lane based on the 35 mile per hour speed limit on Village Parkway for a total length of 340 feet. The need for an exclusive right turn lane on Village Parkway at the project access was also reviewed based on RTC's access management standards. The standards indicate that right turn deceleration lanes are needed on moderate access control arterials (Village Parkway) if the right turn ingress movement serves more than 60 vehicles per hour. The anticipated right turn ingress volume is below the 60 vehicle per hour threshold so a right turn lane is not warranted.

It is recommended that the Village Parkway/Project Access intersection be designed as a three-leg intersection with stop sign control at the west approach and contain an exclusive left turn lane with a minimum of 340 feet of storage/deceleration length at the south approach.

Village Parkway/New Forest Drive-Georgetown Drive Intersection

The Village Parkway/New Forest Drive-Georgetown Drive intersection was analyzed as an unsignalized four-leg intersection with stop control at the north and south approaches for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM peak hour and LOS C or better during the PM peak hour. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM peak hour and LOS C or better during the PM peak hour. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS C or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements operate at LOS C or better during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Parkway/New Forest Drive-Georgetown Drive intersection.

Village Parkway/Village Center Drive Intersection

The Village Parkway/Village Center Drive intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM peak hour and LOS A during the PM peak hour. For the existing plus project traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Parkway/Village Center Drive intersection.

Village Parkway/Rockland Drive-Project Driveway Intersection

The Village Parkway/Rockland Drive intersection was analyzed as an unsignalized three-leg intersection with stop control at the west approach for the existing, 2030 base, and 2040 base scenarios. The intersection minor movements currently operate at LOS B or better during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS C or better during the AM peak hour and LOS B or better during the PM peak hour. The three-leg intersection was analyzed with the existing approach lanes. The existing three-leg intersection meets Washoe County's policy LOS D standard.

The Village Parkway/Rockland Drive-Project Driveway intersection was analyzed as an unsignalized four-leg intersection with stop control at the east and west approaches for the existing plus project, 2030 base plus project, and 2040 base plus project scenarios. For the existing plus project traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements operate at LOS C or better during the AM peak hour and LOS B or better during the PM peak hour. The four-leg intersection was analyzed with one left turn lane and one shared through-right turn lane at the north and south Village Parkway approaches, one shared left turn-through lane and one right turn lane at the west approach, and one shared left turn-through-right turn lane at the east approach. The four-leg intersection meets Washoe County's policy LOS D standard for all with project scenarios.

It is recommended that the Village Parkway/Rockland Drive-Project Driveway intersection be improved as a four-leg intersection with stop sign control at the east project driveway and west Rockland Drive approaches. It is recommended that the existing lane markings at the west Rockland Drive approach be modified to show a shared left turn-through lane and an exclusive right turn lane. The north approach currently contains a center two-way left turn lane. It is recommended that the north Village Parkway approach be modified to contain a typical left turn lane with a minimum of 100 feet of storage length.

Village Parkway/North Driveway Intersection

The Village Parkway/North Driveway intersection was analyzed as an unsignalized three-leg intersection with stop control at the east approach for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM peak hour and LOS A during the PM peak hour. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM peak hour and LOS A during the PM peak hour. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS B or better during the AM peak hour and LOS A during the PM peak hour. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM peak hour and LOS A during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Parkway/North Driveway intersection.

Village Center Drive/East Driveway Intersection

The Village Center Drive/East Driveway intersection was analyzed as an unsignalized three-leg intersection with stop control at the north approach for all scenarios. The intersection minor movements currently operate at LOS A during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS A during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS A during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS A during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Village Center Drive/East Driveway intersection.

Crystal Canyon Boulevard/Aquamarine Drive Intersection

The Crystal Canyon Boulevard/Aquamarine Drive intersection was analyzed as an unsignalized four-leg intersection with stop control at the east and west approaches for all scenarios. The intersection minor movements currently operate at LOS B or better during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM and PM peak hours. For both the 2030 base and 2040 base traffic volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For both the 2030 base plus project and 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS B or better during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Washoe County's policy LOS D standard for all study scenarios. No capacity improvements are recommended at the Crystal Canyon Boulevard/Aquamarine Drive intersection.

SITE PLAN REVIEW

A copy of the preliminary site plans for the proposed Village Parkway and Village Center Residential developments are included with this submittal. The preliminary site plan for the Village Center development indicates that project access will be provided from existing driveways on Village Parkway and Village Center Drive and one new driveway on Village Parkway. The new driveway will align with Rockland Drive. The project driveways will connect to the on-site roadways and guest parking area. The site plan also indicates that parking will continue to be provided for the existing Woodland Village community center and restaurant buildings. The project driveways, internal streets, and parking areas are anticipated to provide good access and internal circulation.

Access to the Village Parkway site will be provided from one new roadway intersecting Village Parkway. The location of the project access intersection has not yet been determined but will be located along the project frontage south of Mud Springs Drive. Mud Springs Drive intersects the curved segment of Village Parkway and a left turn lane exists on Village Parkway at Mud Springs Drive. It is therefore suggested that the project access intersection be located so that is meets sight distance requirements and does not interfere with the existing left turn lane at the Village Parkway/Mud Springs Drive intersection. RTC's access management standards also indicate that driveways on arterials with moderate access control (Village Parkway) shall be located a minimum of 300 feet from adjacent driveways. The project access intersection should also be located to meet the 300 foot minimum spacing requirement.

SCHOOL ZONE PEDESTRIAN SAFETY REVIEW

The project's impact on pedestrian safety within the existing school zone on Village Parkway was reviewed. The school zone begins ±50 feet north of Rockland Drive and ends ±50 west of Cody Court. A single midblock crosswalk located ±150 feet north of the North Driveway exists within the Village Parkway school zone. The existing pavement markings and signs at this school zone crossing appear to conform to Manual on Uniform Traffic Control Devices (MUTCD) standards. Three additional Village Parkway crossings located adjacent to the project site exist outside the school zone limits. Two of these crossings are located at the north and south legs of the Village Parkway/Rockland Drive intersection and the third crossing is located approximately midway between Rockland Drive and Village Center Drive. The existing pavement markings and signs at these crossings also appear to conform to MUTCD standards.

School pedestrian activity was subsequently reviewed at the four Village Parkway crosswalks. Actual counts show 9 AM peak hour and 5 PM peak hour pedestrians at the midblock crossing north of the North Project Driveway, 12 AM peak hour and 3 PM peak hour pedestrians at the crossing north of Rockland Drive, 21 AM peak hour and 9 PM peak hour pedestrians at the crossing south of Rockland Drive, and 20 AM peak hour and 6 PM peak hour pedestrians at the midblock crossing between Rockland Drive and Village Center Drive. Our observations indicate good pedestrian safety at each of the crossings.

Traffic volumes were also reviewed on Village Parkway at these pedestrian crossing locations in order to compare to Washoe County street capacity thresholds. The 2040 base plus project traffic volumes show a maximum volume of 527 vehicles during the AM peak hour on Village Parkway south of Rockland Drive. This peak hour volume amounts to ±5,300 ADT based on a typical 10% AM peak hour percentage of the ADT. Washoe County standards indicate that two-lane collector streets (Village Parkway) are designed to serve a maximum of 7,300 vehicles per day. The maximum 2040 buildout traffic volume of 5,300 ADT on Village Parkway is well below the 7,300 ADT capacity threshold of the street. It should be noted that bike lanes and sidewalks exist on both sides of Village Parkway per Washoe County collector street standards.

In summary, the existing school zone on Village Parkway as well as the existing pedestrian facilities on Village Parkway further south of the school zone appear to conform to MUTCD standard while providing safe operation based on site observations. In addition, buildout traffic volumes on Village Parkway will be lower than the design capacity of the street. It is recommended that pedestrian crosswalks be installed at the new east leg of the Village Parkway/ Rockland Drive-Project Access intersection and at the east leg of the Village Parkway/North Driveway intersection.

TRAFFIC SIGNAL WARRANT ANALYSIS

A full traffic signal warrant study was prepared for the White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections in January of 2020. Traffic Signal Warrants 1 through 9 as presented in the 2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD) were analyzed. The results of this study indicate that no traffic signal warrants are met at either the White Lake Parkway/Crystal Canyon Boulevard or Village Parkway/White Lake Parkway intersections for either the existing or existing plus unbuilt Woodland Village traffic volumes.

Traffic Signal Warrants 1 through 3 as presented in the 2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD) were subsequently re-evaluated at the White Lake Parkway/ Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections based on additional traffic volumes generated by the proposed Village Parkway and Village Center Residential developments as well as trips generated by the Cold Springs Elementary School.

The results of the updated warrant analysis indicate that traffic signal warrants 1, 2, and 3 are still not met at the White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections. The updated warrant analysis is included in the Appendix.

RECOMMENDATIONS

Traffic generated by the Village Parkway and Village Center Residential developments will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping, or traffic control improvements comply with Washoe County requirements.

It is recommended that the Village Parkway/Project Access intersection be designed as a three-leg intersection with stop sign control at the west approach. It is recommended that the intersection contain an exclusive left turn lane with a minimum of 340 feet of storage/deceleration length at the south approach.

It is recommended that the Village Parkway/Rockland Drive-Project Driveway intersection be improved as a four-leg intersection with stop sign control at the east project driveway and west Rockland Drive approaches. It is recommended that the existing lane markings at the west Rockland Drive approach be modified to show a shared left turn-through lane and an exclusive right turn lane. It is recommended that the north Village Parkway approach be modified to contain a left turn lane with a minimum of 100 feet of storage length.

It is recommended that pedestrian crosswalks be installed at the new east leg of the Village Parkway/Rockland Drive-Project Access intersection and at the east leg of the Village Parkway/North Driveway intersection.

APPENDIX

Single-Family Detached Housing
(210)

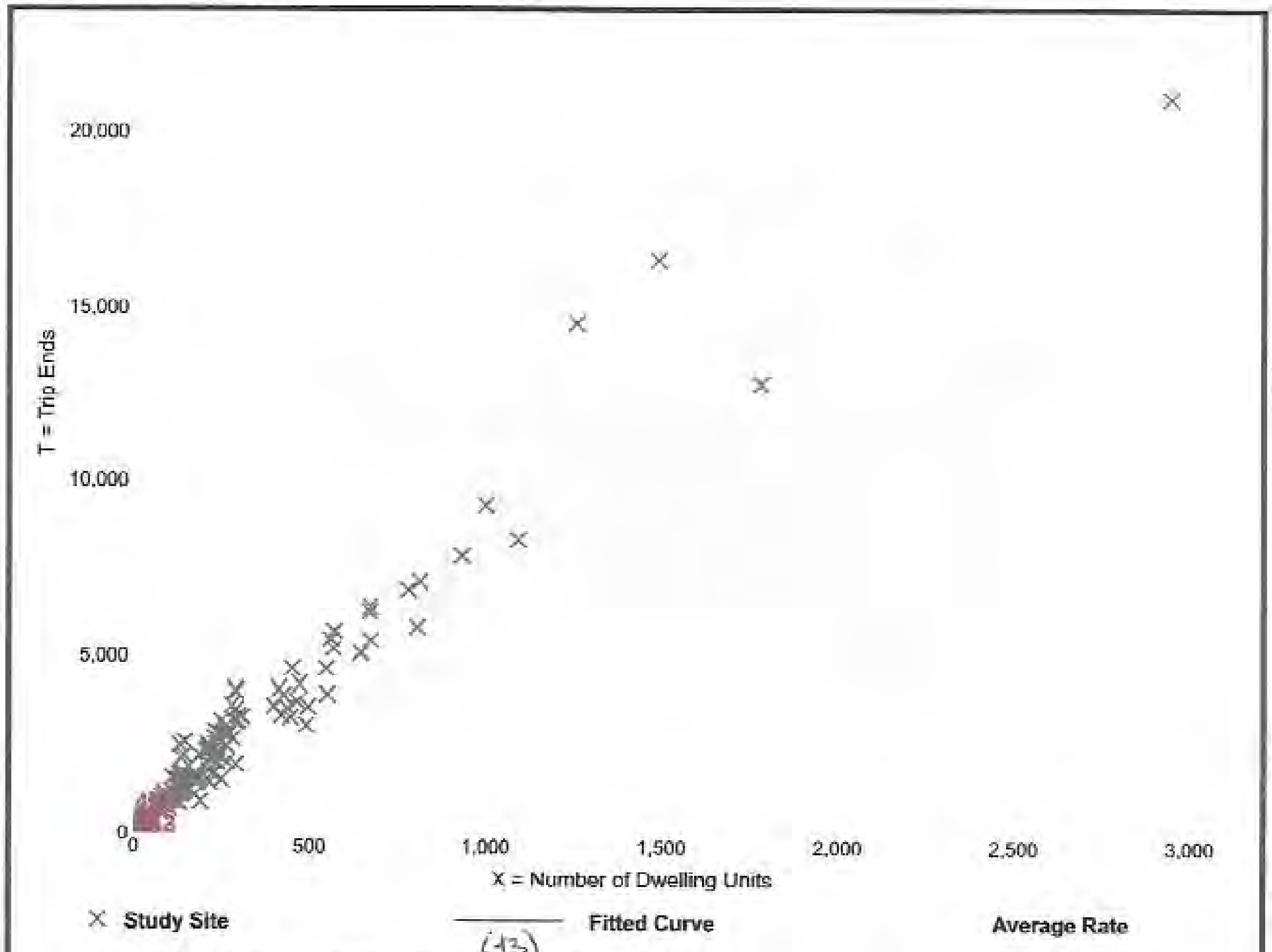
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



(43)

Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71 = 478

R^2= 0.95

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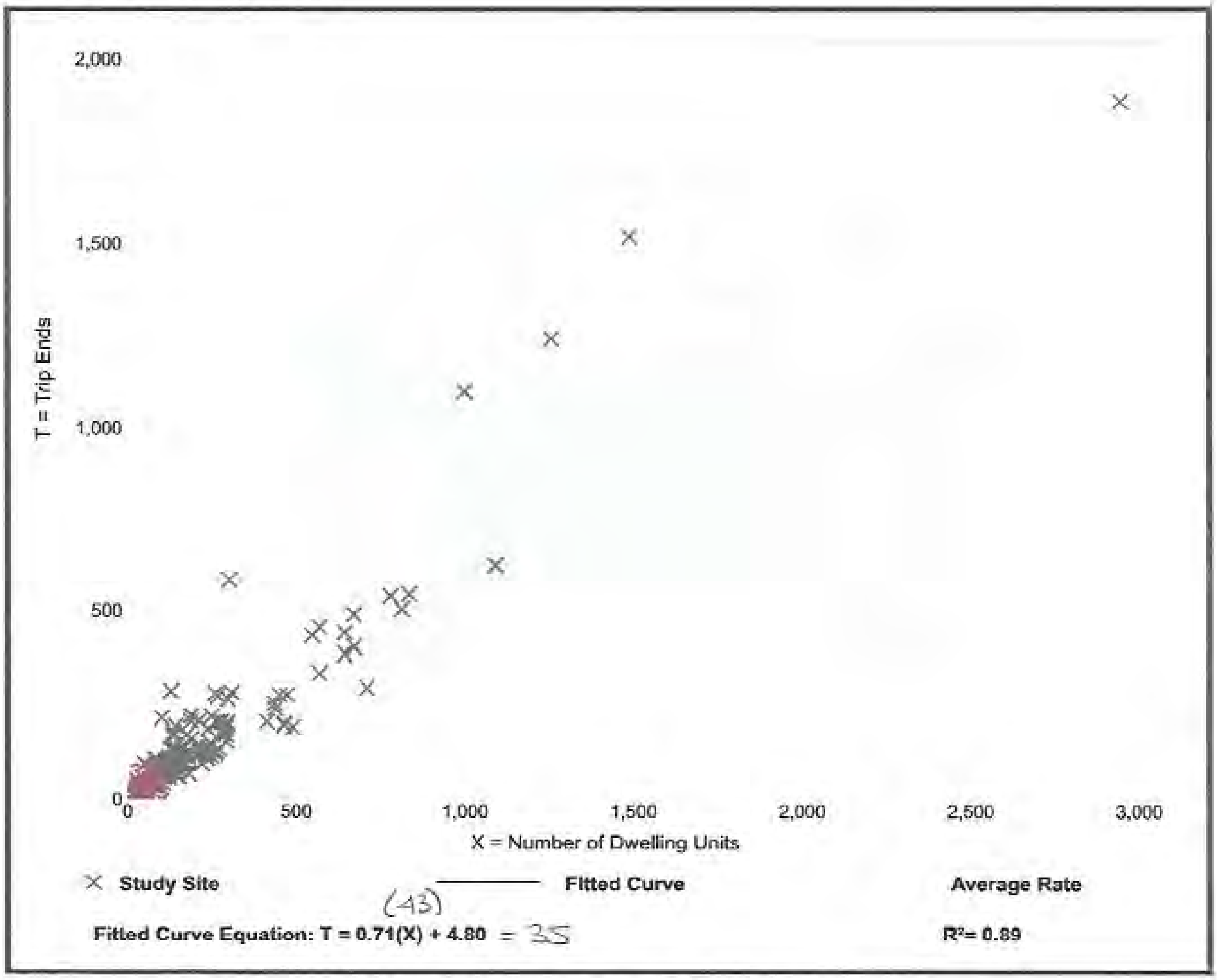
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



Trip Gen Manual, 10th Edition • Institute of Transportation Engineers

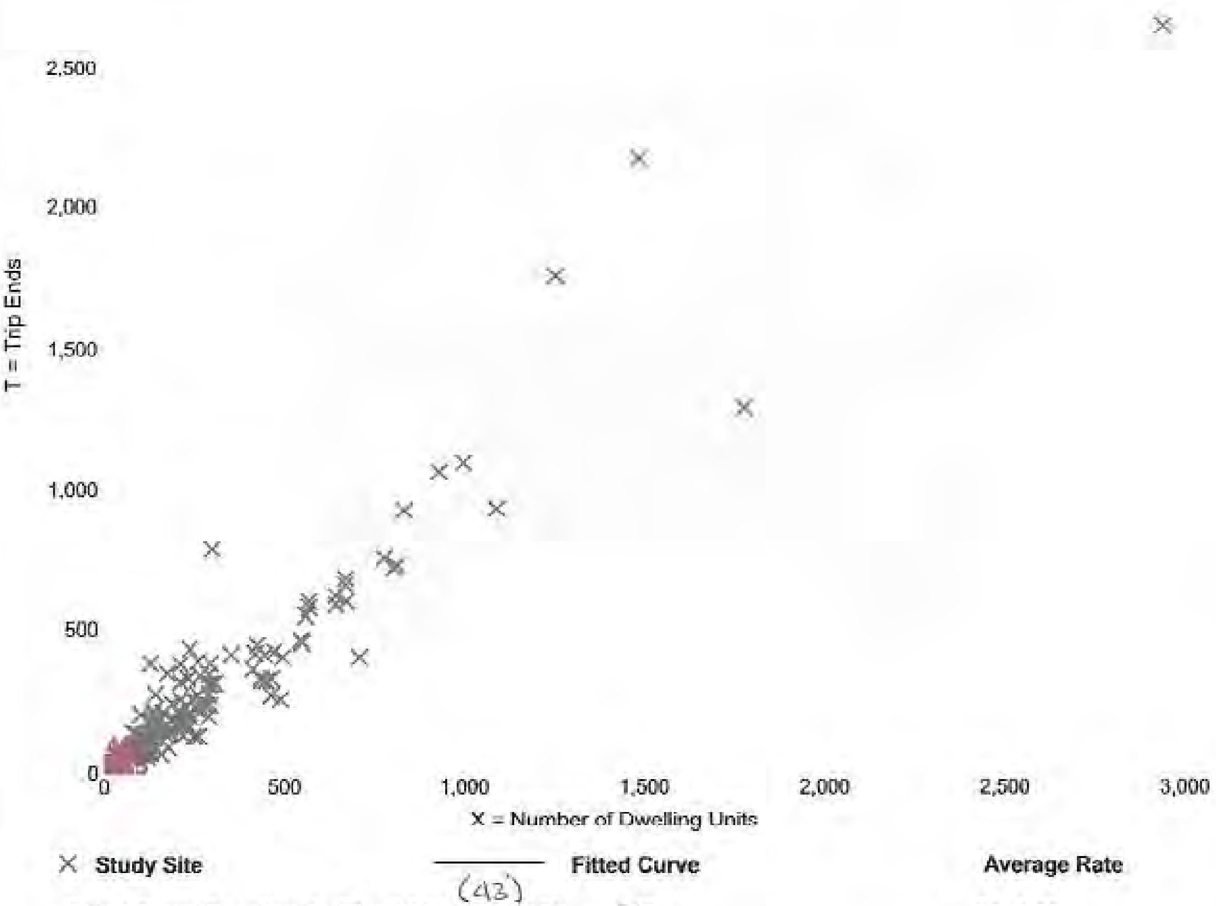
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



(43)

Fitted Curve Equation: Ln(T) = 0.96 Ln(X) + 0.20 = 45

R^2= 0.92

Multifamily Housing (Low-Rise)
(220)

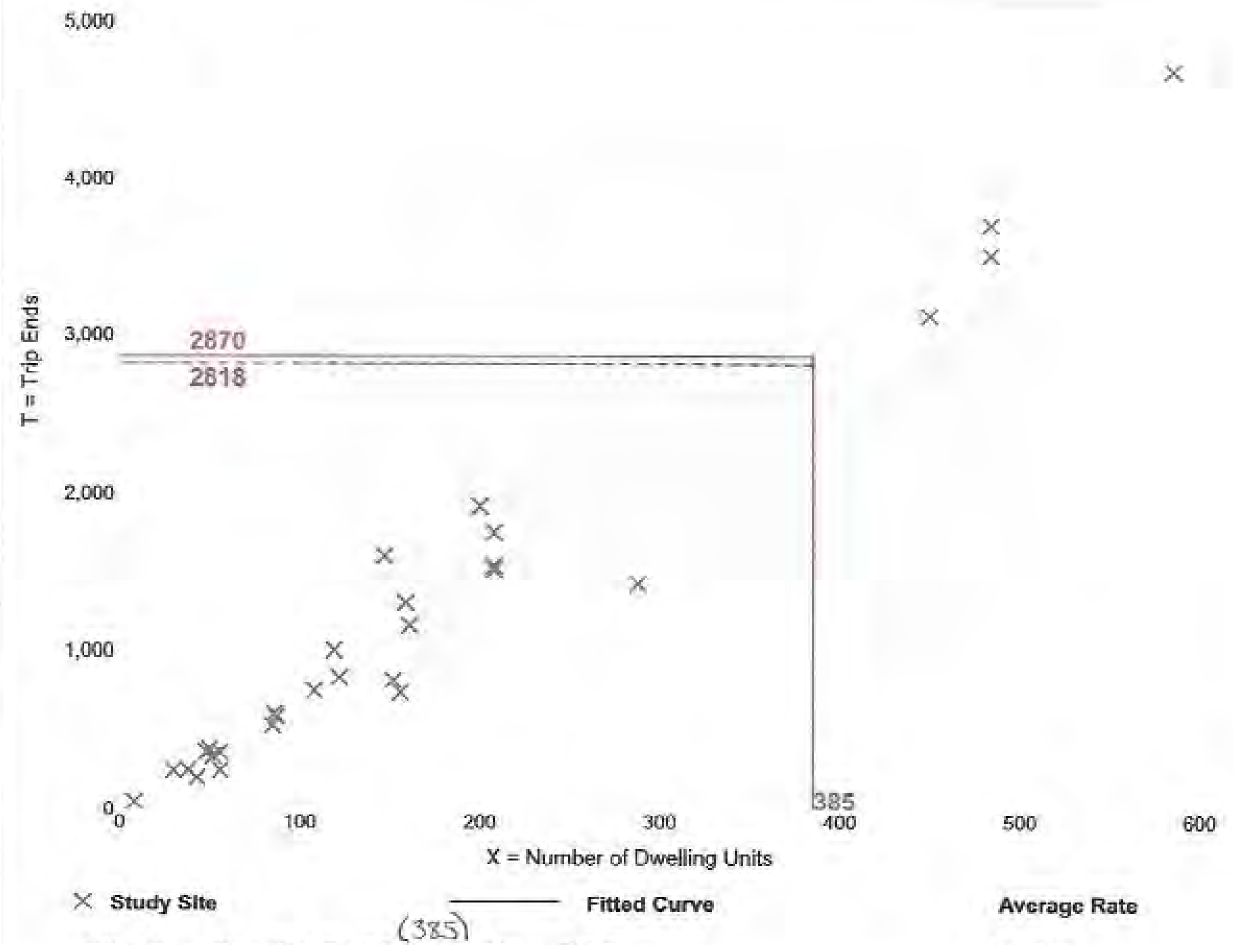
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



(385)
Fitted Curve Equation: T = 7.56(X) - 40.86 = 2870

R^2= 0.96

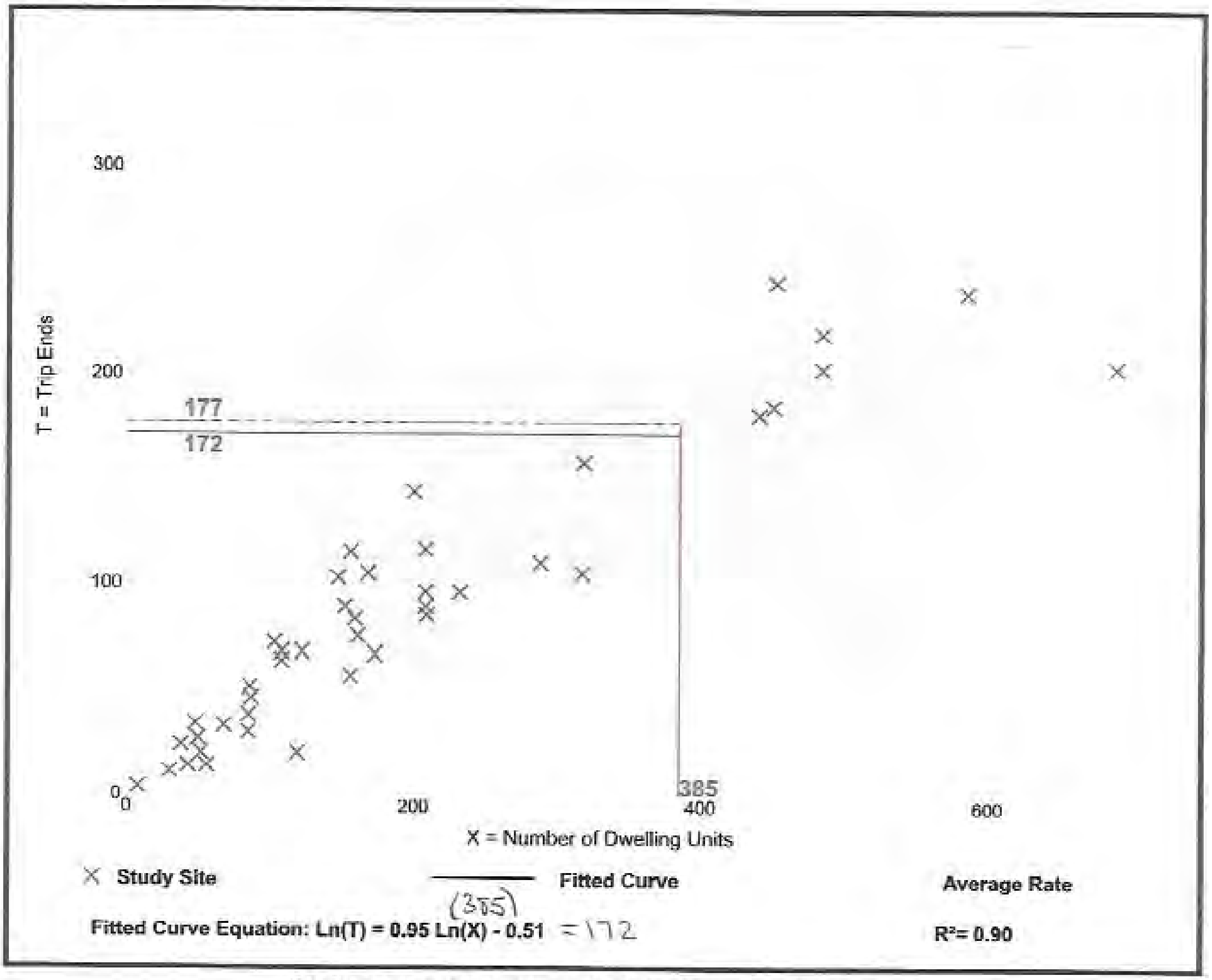
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise)

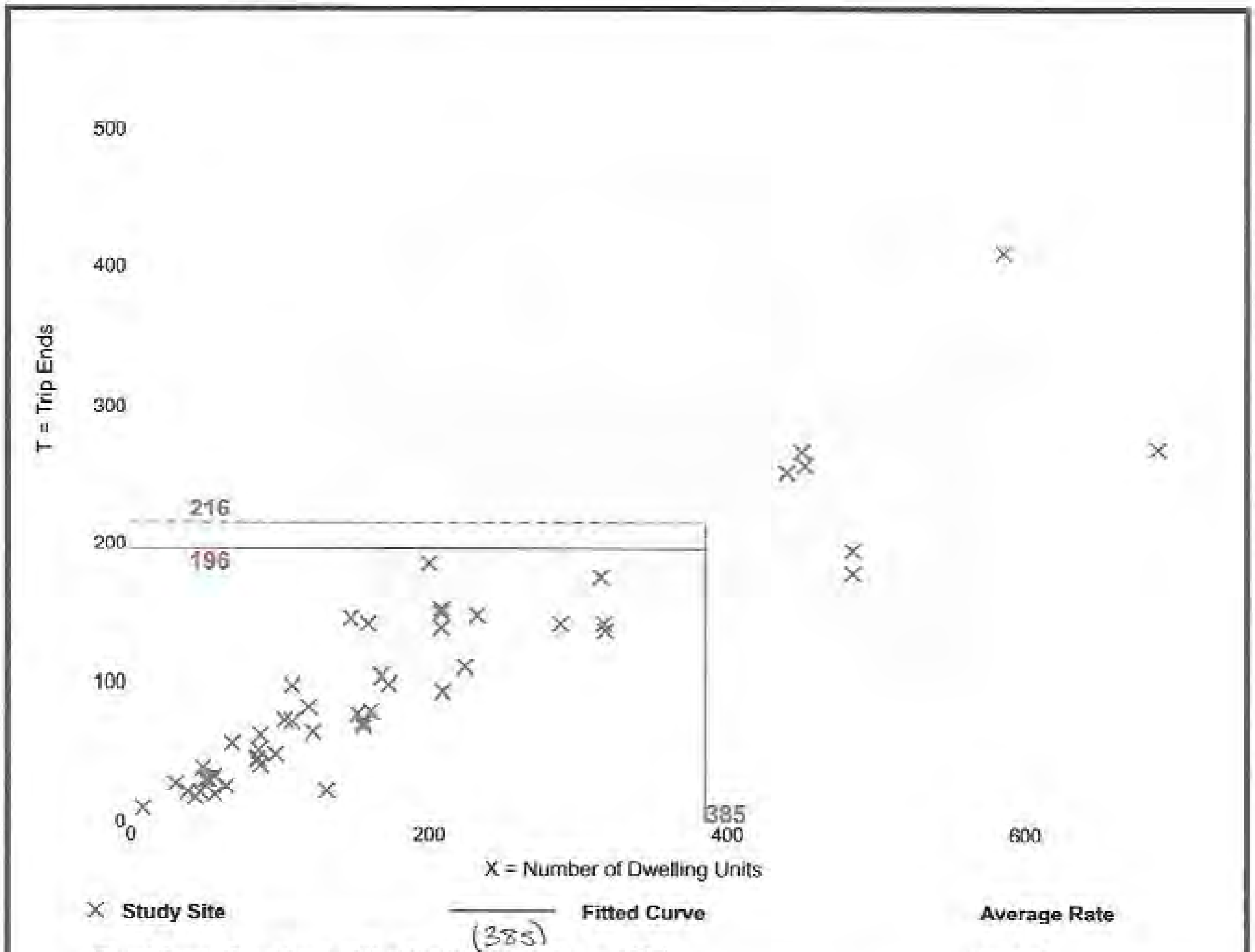
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



(385)
Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02 = 196

R²= 0.86

Single-Family Detached Housing
(210)

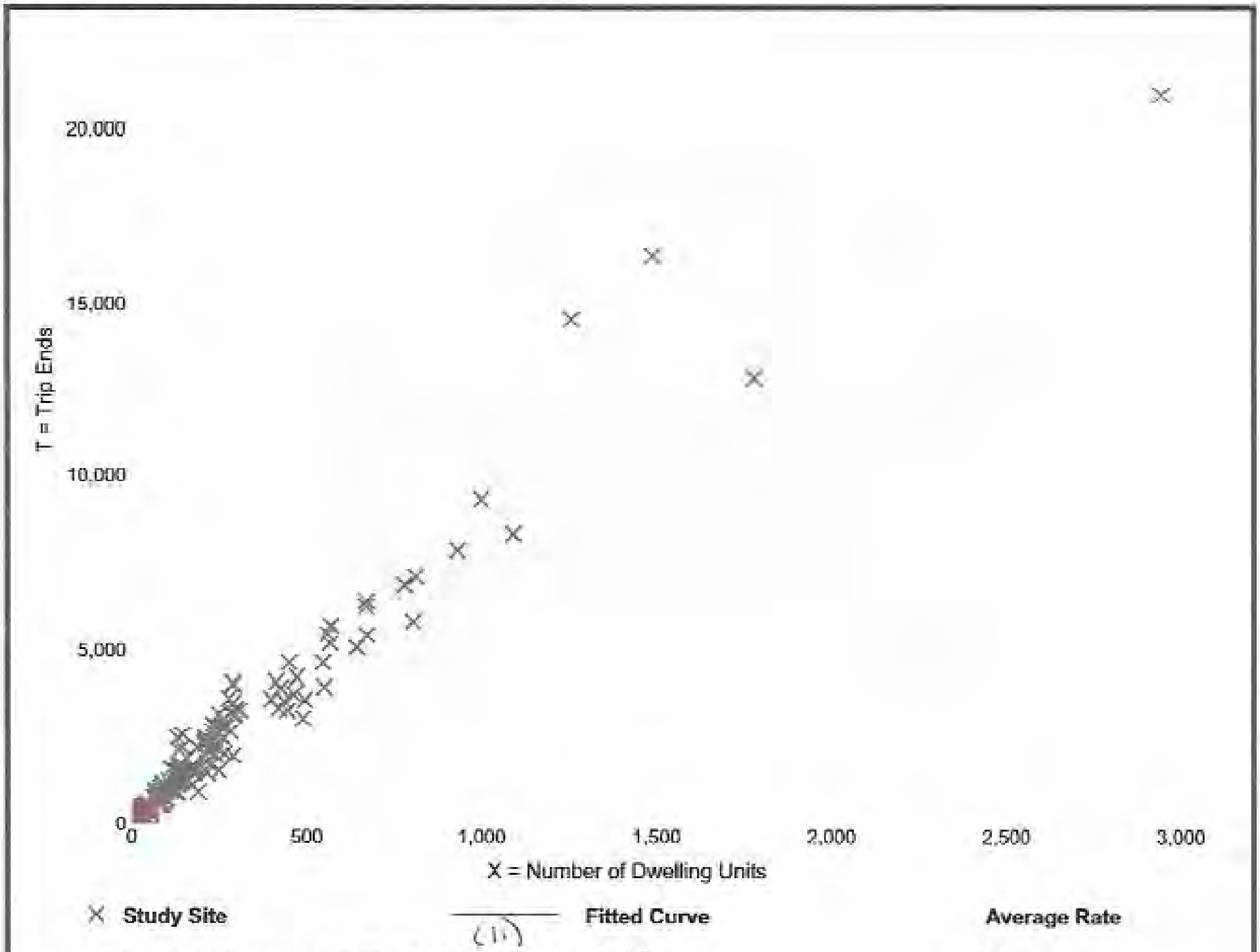
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71 = 136

R²= 0.95

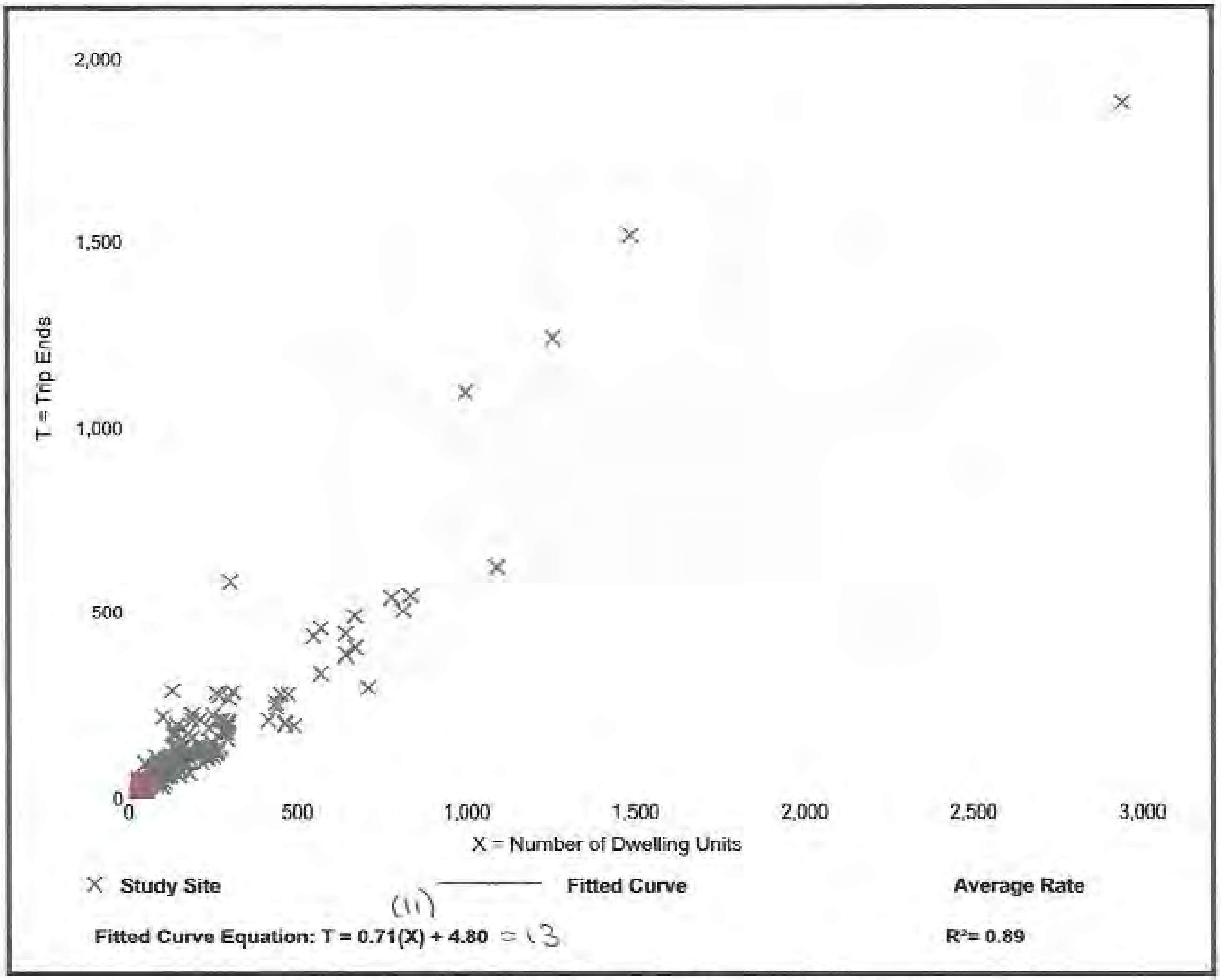
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



(11)

Fitted Curve Equation: $T = 0.71(X) + 4.80$ = 13

$R^2 = 0.89$

Single-Family Detached Housing

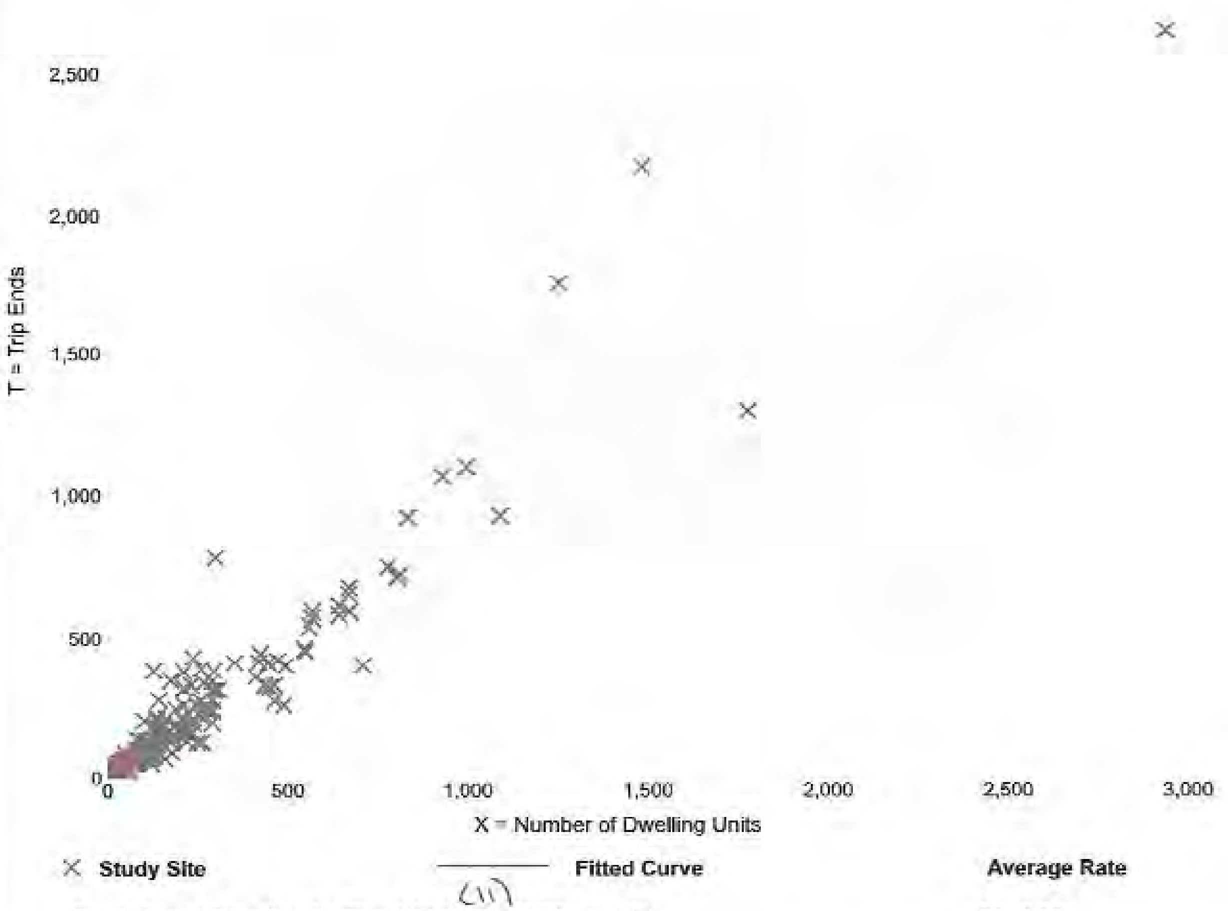
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



(11)

Fitted Curve Equation: Ln(T) = 0.96 Ln(X) + 0.20 ≈ 12

R² = 0.92

Multifamily Housing (Low-Rise)

(220)

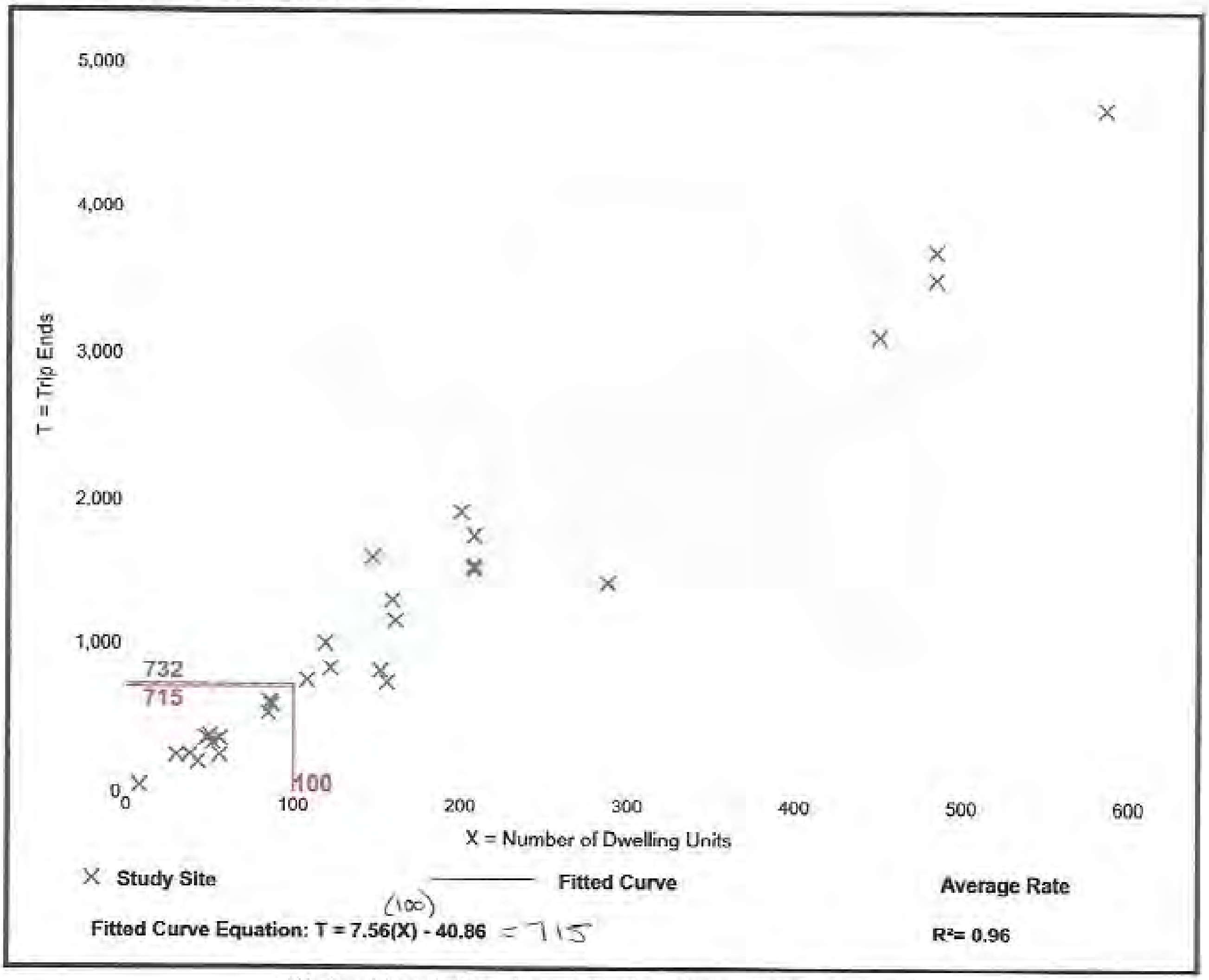
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



(100)
Fitted Curve Equation: T = 7.56(X) - 40.86 = 715

R²= 0.96

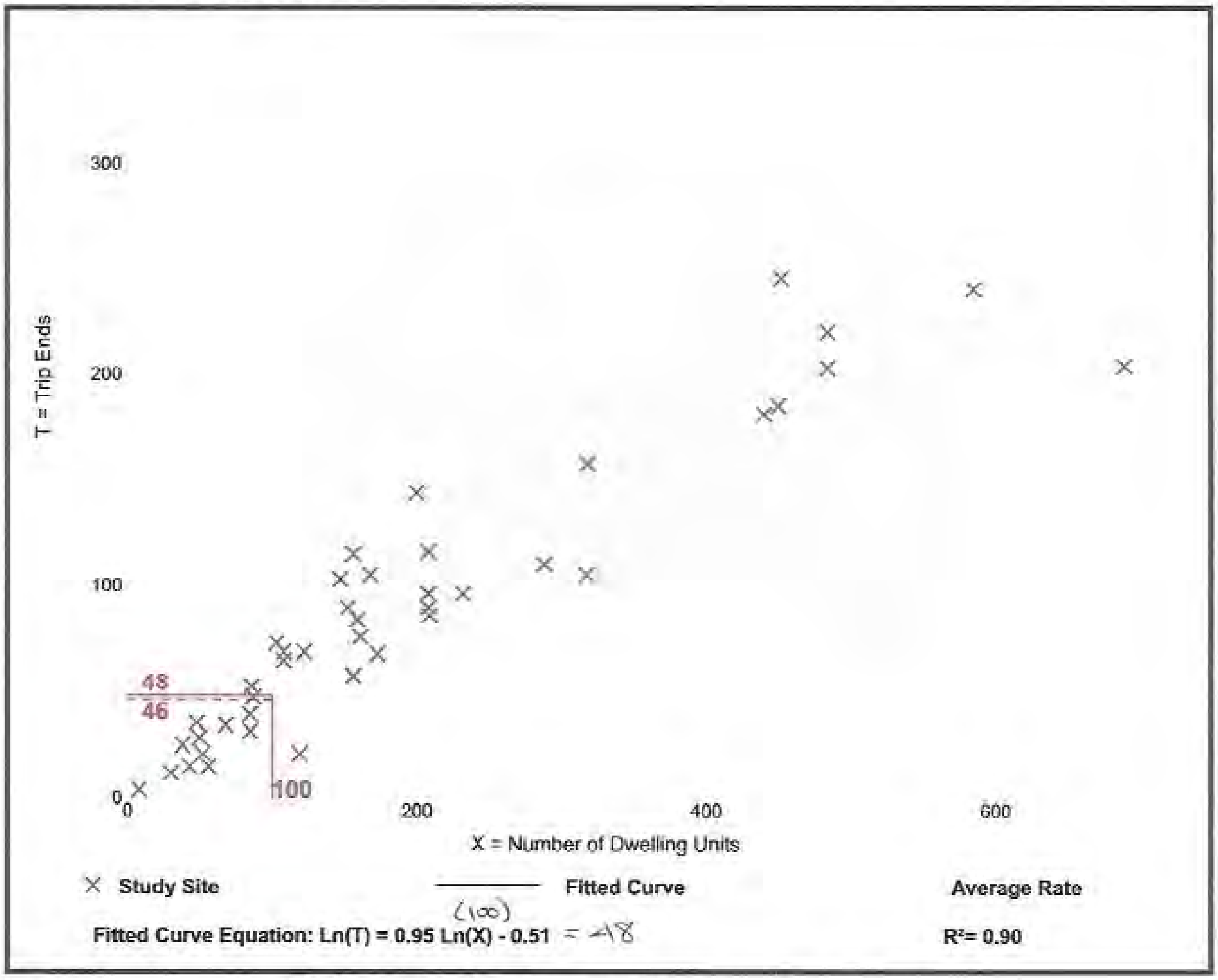
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



Fitted Curve Equation: $Ln(T) = 0.95\ Ln\overset{(100)}{(X)} - 0.51 = 48$

$R^2 = 0.90$

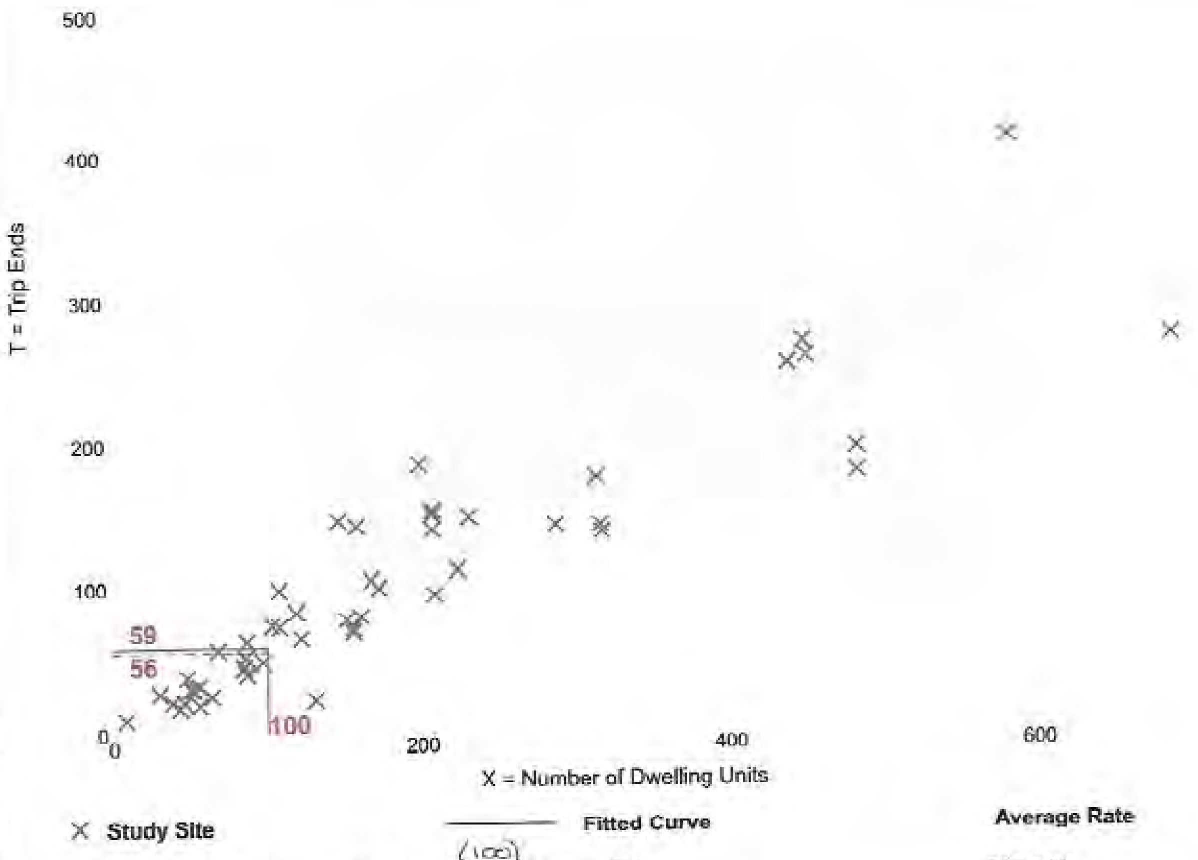
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.15

Data Plot and Equation



(100)
Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02 = 59

R²= 0.86

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	AM Existing
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		35			88	15		27	264	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)							57							30		
Capacity, c (veh/h)							780							1475		
v/c Ratio							0.07							0.02		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							10.0							7.5		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					10.0								0.7			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		60			296	51		31	115	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							93							34		
Capacity, c (veh/h)							634							1173		
v/c Ratio							0.15							0.03		
95% Queue Length, Q_{95} (veh)							0.5							0.1		
Control Delay (s/veh)							11.7							8.2		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					11.7								1.7			
Approach LOS					B											

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		38			136	15		37	423	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							60							41		
Capacity, c (veh/h)							648							1410		
v/c Ratio							0.09							0.03		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							11.1							7.6		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					11.1								0.6			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		70			446	51		37	205	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							104							41		
Capacity, c (veh/h)							487							1018		
v/c Ratio							0.21							0.04		
95% Queue Length, Q_{95} (veh)							0.8							0.1		
Control Delay (s/veh)							14.4							8.7		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					14.4								1.3			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		46			140	15		39	357	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							69							43		
Capacity, c (veh/h)							695							1405		
v/c Ratio							0.10							0.03		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							10.7							7.6		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					10.7								0.8			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	PM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		66			378	51		35	168	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							100							39		
Capacity, c (veh/h)							548							1086		
v/c Ratio							0.18							0.04		
95% Queue Length, Q_{95} (veh)							0.7							0.1		
Control Delay (s/veh)							13.0							8.4		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.0								1.5			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		49			188	15		49	516	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							72							54		
Capacity, c (veh/h)							579							1343		
v/c Ratio							0.12							0.04		
95% Queue Length, Q_{95} (veh)							0.4							0.1		
Control Delay (s/veh)							12.1							7.8		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					12.1								0.7			
Approach LOS					B											

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		76			528	51		41	258	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							111							46		
Capacity, c (veh/h)							420							941		
v/c Ratio							0.26							0.05		
95% Queue Length, Q_{95} (veh)							1.1							0.2		
Control Delay (s/veh)							16.6							9.0		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.6								1.2			
Approach LOS					C											

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		46			140	15		39	357	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)							69							43		
Capacity, c (veh/h)							695							1405		
v/c Ratio							0.10							0.03		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							10.7							7.6		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					10.7								0.8			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	PM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		66			378	51		35	168	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							100							39		
Capacity, c (veh/h)							548							1086		
v/c Ratio							0.18							0.04		
95% Queue Length, Q_{95} (veh)							0.7							0.1		
Control Delay (s/veh)							13.0							8.4		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.0								1.5			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						16		49			188	15		49	516	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							72							54		
Capacity, c (veh/h)							579							1343		
v/c Ratio							0.12							0.04		
95% Queue Length, Q_{95} (veh)							0.4							0.1		
Control Delay (s/veh)							12.1							7.8		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					12.1								0.7			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & White Lake
Jurisdiction	Washoe County
East/West Street	White Lake Parkway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						24		76			528	51		41	258	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							111							46		
Capacity, c (veh/h)							420							941		
v/c Ratio							0.26							0.05		
95% Queue Length, Q_{95} (veh)							1.1							0.2		
Control Delay (s/veh)							16.6							9.0		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.6								1.2			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		17	3	5		15	4	4		4	116	3		11	271	7
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				26			4				12		
Capacity, c (veh/h)			525				532			1252				1453		
v/c Ratio			0.05				0.05			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.2				0.2			0.0				0.0		
Control Delay (s/veh)			12.2				12.1			7.9				7.5		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	12.2				12.1				0.3				0.3			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		10	5	9		5	6	3		23	304	29		4	132	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			27				16			26				4		
Capacity, c (veh/h)			521				457			1423				1189		
v/c Ratio			0.05				0.03			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.1				0.0		
Control Delay (s/veh)			12.3				13.2			7.6				8.0		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	12.3				13.2				0.5				0.2			
Approach LOS	B				B											

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		17	3	5		15	4	4		4	167	3		11	440	7
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				26			4				12		
Capacity, c (veh/h)			369				378			1067				1385		
v/c Ratio			0.08				0.07			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.2				0.2			0.0				0.0		
Control Delay (s/veh)			15.6				15.2			8.4				7.6		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	15.6				15.2				0.2				0.2			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		10	5	9		5	6	3		23	464	29		4	228	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	Eastbound U	L	T	R	Westbound U	L	T	R	Northbound U	L	T	R	Southbound U	L	T	R
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

	Eastbound U	L	T	R	Westbound U	L	T	R	Northbound U	L	T	R	Southbound U	L	T	R
Flow Rate, v (veh/h)			27				16			26				4		
Capacity, c (veh/h)			360				310			1301				1022		
v/c Ratio			0.07				0.05			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.2			0.1				0.0		
Control Delay (s/veh)			15.8				17.2			7.8				8.5		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	15.8				17.2				0.3				0.1			
Approach LOS	C				C											

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HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		Site Information	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		20	3	5		15	4	6		4	179	3		13	376	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			31				28			4				14		
Capacity, c (veh/h)			394				423			1132				1370		
v/c Ratio			0.08				0.07			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.3				0.2			0.0				0.0		
Control Delay (s/veh)			14.9				14.1			8.2				7.7		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	14.9				14.1				0.2				0.3			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		11	5	9		5	6	3		23	392	29		4	189	10
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				16			26				4		
Capacity, c (veh/h)			418				367			1348				1094		
v/c Ratio			0.07				0.04			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.1				0.0		
Control Delay (s/veh)			14.2				15.2			7.7				8.3		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)	14.2				15.2				0.4				0.2			
Approach LOS	B				C											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		20	3	5		15	4	6		4	230	3		13	545	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			31				28			4				14		
Capacity, c (veh/h)			274				301			964				1306		
v/c Ratio			0.11				0.09			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.4				0.3			0.0				0.0		
Control Delay (s/veh)			19.8				18.2			8.8				7.8		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.8				18.2				0.1				0.2			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		11	5	9		5	6	3		23	552	29		4	285	10
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				16			26				4		
Capacity, c (veh/h)			285				247			1232				940		
v/c Ratio			0.10				0.06			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.3				0.2			0.1				0.0		
Control Delay (s/veh)			19.0				20.5			8.0				8.8		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.0				20.5				0.3				0.1			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		20	3	5		15	4	6		4	179	3		13	376	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			31				28			4				14		
Capacity, c (veh/h)			394				423			1132				1370		
v/c Ratio			0.08				0.07			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.3				0.2			0.0				0.0		
Control Delay (s/veh)			14.9				14.1			8.2				7.7		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	14.9				14.1				0.2				0.3			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		11	5	9		5	6	3		23	392	29		4	189	10
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				16			26				4		
Capacity, c (veh/h)			418				367			1348				1094		
v/c Ratio			0.07				0.04			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.1				0.0		
Control Delay (s/veh)			14.2				15.2			7.7				8.3		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)	14.2				15.2				0.4				0.2			
Approach LOS	B				C											

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Cold Springs
Jurisdiction	Washoe County
East/West Street	Cold Springs Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		20	3	5		15	4	6		4	230	3		13	545	9
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			31				28			4				14		
Capacity, c (veh/h)			274				301			964				1306		
v/c Ratio			0.11				0.09			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.4				0.3			0.0				0.0		
Control Delay (s/veh)			19.8				18.2			8.8				7.8		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.8				18.2				0.1				0.2			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Cold Springs
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Cold Springs Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		11	5	9		5	6	3		23	552	29		4	285	10
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			28				16			26				4		
Capacity, c (veh/h)			285				247			1232				940		
v/c Ratio			0.10				0.06			0.02				0.00		
95% Queue Length, Q_{95} (veh)			0.3				0.2			0.1				0.0		
Control Delay (s/veh)			19.0				20.5			8.0				8.8		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	19.0				20.5				0.3				0.1			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Access
Jurisdiction	Washoe County
East/West Street	Project Access
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		16		143						43	145				315	5
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			177							48						
Capacity, c (veh/h)			653							1203						
v/c Ratio			0.27							0.04						
95% Queue Length, Q_{95} (veh)			1.1							0.1						
Control Delay (s/veh)			12.5							8.1						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	12.5								2.1							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Access
Jurisdiction	Washoe County
East/West Street	Project Access
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		9		81						136	341				160	15
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			100							151						
Capacity, c (veh/h)			709							1379						
v/c Ratio			0.14							0.11						
95% Queue Length, Q_{95} (veh)			0.5							0.4						
Control Delay (s/veh)			10.9							7.9						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	10.9								3.0							
Approach LOS	B															

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Access
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Project Access
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		16		143						43	213				424	5
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			177							48						
Capacity, c (veh/h)			548							1086						
v/c Ratio			0.32							0.04						
95% Queue Length, Q_{95} (veh)			1.4							0.1						
Control Delay (s/veh)			14.7							8.5						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	14.7								1.8							
Approach LOS	B															

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HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Access
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Project Access
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		9		81						136	430				218	15
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			100							151						
Capacity, c (veh/h)			625							1306						
v/c Ratio			0.16							0.12						
95% Queue Length, Q_{95} (veh)			0.6							0.4						
Control Delay (s/veh)			11.9							8.1						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.9								2.9							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information / Site Information

Analyst	MSH	Intersection	Village & Access
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Project Access
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		16		143						43	213				424	5
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			177							48						
Capacity, c (veh/h)			548							1086						
v/c Ratio			0.32							0.04						
95% Queue Length, Q_{95} (veh)			1.4							0.1						
Control Delay (s/veh)			14.7							8.5						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	14.7								1.8							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Access
Jurisdiction	Washoe County
East/West Street	Project Access
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		9		81						136	430				218	15
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			100							151						
Capacity, c (veh/h)			625							1306						
v/c Ratio			0.16							0.12						
95% Queue Length, Q_{95} (veh)			0.6							0.4						
Control Delay (s/veh)			11.9							8.1						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.9								2.9							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2020	North/South Street	New Forest/Georgetown
Time Analyzed	AM Existing	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		71	65	1		4	157	0		4	7	2		1	11	128
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		84				5					15			1		164
Capacity, c (veh/h)		1390				1521					468			492		858
v/c Ratio		0.06				0.00					0.03			0.00		0.19
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.1			0.0		0.7
Control Delay (s/veh)		7.8				7.4					12.9			12.3		10.2
Level of Service (LOS)		A				A					B			B		B
Approach Delay (s/veh)	4.0				0.2				12.9				10.2			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2020	North/South Street	New Forest/Georgetown
Time Analyzed	PM Existing	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		160	154	3		17	81	4		2	19	10		2	3	62
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

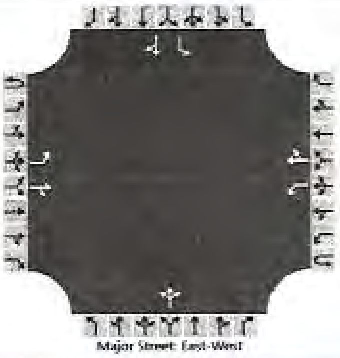
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		178				19					34			2		72
Capacity, c (veh/h)		1500				1402					412			312		965
v/c Ratio		0.12				0.01					0.08			0.01		0.07
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.3			0.0		0.2
Control Delay (s/veh)		7.7				7.6					14.5			16.6		9.0
Level of Service (LOS)		A				A					B			C		A
Approach Delay (s/veh)	3.9				1.3				14.5				9.3			
Approach LOS									B				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2020	North/South Street	New Forest/Georgetown
Time Analyzed	AM Existing + Project	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		79	81	1		4	186	0		4	7	2		1	11	130
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		93				5					15			1		166
Capacity, c (veh/h)		1351				1497					419			437		821
v/c Ratio		0.07				0.00					0.04			0.00		0.20
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.1			0.0		0.8
Control Delay (s/veh)		7.9				7.4					13.9			13.3		10.5
Level of Service (LOS)		A				A					B			B		B
Approach Delay (s/veh)	3.9				0.2				13.9				10.5			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

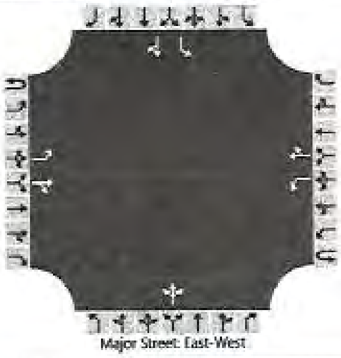
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing + Project
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village & New Forest
Jurisdiction	Washoe County
East/West Street	Village Parkway
North/South Street	New Forest/Georgetown
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		164	183	3		17	104	4		2	19	10		2	3	69
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		182				19					34			2		80
Capacity, c (veh/h)		1468				1365					376			278		934
v/c Ratio		0.12				0.01					0.09			0.01		0.09
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.3			0.0		0.3
Control Delay (s/veh)		7.8				7.7					15.5			18.0		9.2
Level of Service (LOS)		A				A					C			C		A
Approach Delay (s/veh)	3.7				1.0				15.5				9.5			
Approach LOS									C				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2030	North/South Street	New Forest/Georgetown
Time Analyzed	AM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		139	65	1		4	157	6		4	10	2		6	13	237
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		164				5					19			7		294
Capacity, c (veh/h)		1382				1521					318			360		854
v/c Ratio		0.12				0.00					0.06			0.02		0.34
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.2			0.1		1.5
Control Delay (s/veh)		8.0				7.4					17.0			15.2		11.4
Level of Service (LOS)		A				A					C			C		B
Approach Delay (s/veh)	5.4				0.2				17.0				11.5			
Approach LOS									C				B			

HCS7 Two-Way Stop-Control Report

General Information / Site Information

Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2030	North/South Street	New Forest/Georgetown
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		249	154	3		17	81	5		2	20	10		3	4	120
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		277				19					36			3		138
Capacity, c (veh/h)		1498				1402					298			211		964
v/c Ratio		0.18				0.01					0.12			0.02		0.14
95% Queue Length, Q_{95} (veh)		0.7				0.0					0.4			0.0		0.5
Control Delay (s/veh)		7.9				7.6					18.7			22.3		9.4
Level of Service (LOS)		A				A					C			C		A
Approach Delay (s/veh)	4.9				1.3				18.7				9.7			
Approach LOS									C				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2030	North/South Street	New Forest/Georgetown
Time Analyzed	AM Base + Project	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		147	81	1		4	186	6		4	10	2		6	13	239
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

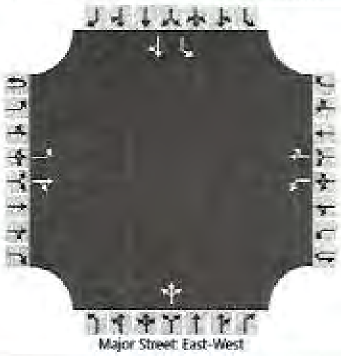
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		173				5					19			7		296
Capacity, c (veh/h)		1343				1497					282			318		817
v/c Ratio		0.13				0.00					0.07			0.02		0.36
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.2			0.1		1.7
Control Delay (s/veh)		8.1				7.4					18.7			16.6		11.9
Level of Service (LOS)		A				A					C			C		B
Approach Delay (s/veh)	5.2				0.2				18.7				12.0			
Approach LOS									C				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2030	North/South Street	New Forest/Georgetown
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		253	183	3		17	104	5		2	20	10		3	4	127
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		281				19					36			3		146
Capacity, c (veh/h)		1466				1365					271			187		933
v/c Ratio		0.19				0.01					0.13			0.02		0.16
95% Queue Length, Q_{95} (veh)		0.7				0.0					0.4			0.1		0.6
Control Delay (s/veh)		8.0				7.7					20.3			24.6		9.6
Level of Service (LOS)		A				A					C			C		A
Approach Delay (s/veh)	4.6				1.0				20.3				9.9			
Approach LOS									C				A			

HCS7 Two-Way Stop-Control Report

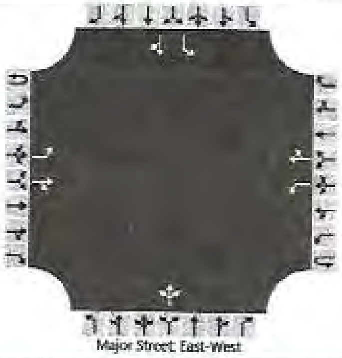
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village & New Forest
Jurisdiction	Washoe County
East/West Street	Village Parkway
North/South Street	New Forest/Georgetown
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		139	65	1		4	157	6		4	10	2		6	13	237
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		164				5					19			7		294
Capacity, c (veh/h)		1382				1521					318			360		854
v/c Ratio		0.12				0.00					0.06			0.02		0.34
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.2			0.1		1.5
Control Delay (s/veh)		8.0				7.4					17.0			15.2		11.4
Level of Service (LOS)		A				A					C			C		B
Approach Delay (s/veh)	5.4				0.2				17.0				11.5			
Approach LOS									C				B			

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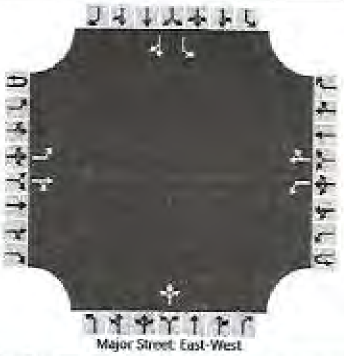
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2040	North/South Street	New Forest/Georgetown
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		249	154	3		17	81	5		2	20	10		3	4	120
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Flow Rate, v (veh/h)		277				19					36			3		138
Capacity, c (veh/h)		1498				1402					298			211		964
v/c Ratio		0.18				0.01					0.12			0.02		0.14
95% Queue Length, Q_{95} (veh)		0.7				0.0					0.4			0.0		0.5
Control Delay (s/veh)		7.9				7.6					18.7			22.3		9.4
Level of Service (LOS)		A				A					C			C		A
Approach Delay (s/veh)	4.9				1.3				18.7				9.7			
Approach LOS									C				A			

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2040	North/South Street	New Forest/Georgetown
Time Analyzed	AM Base + Project	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		147	81	1		4	186	6		4	10	2		6	13	239
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		173				5					19			7		296
Capacity, c (veh/h)		1343				1497					282			318		817
v/c Ratio		0.13				0.00					0.07			0.02		0.36
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.2			0.1		1.7
Control Delay (s/veh)		8.1				7.4					18.7			16.6		11.9
Level of Service (LOS)		A				A					C			C		B
Approach Delay (s/veh)	5.2				0.2				18.7				12.0			
Approach LOS									C				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & New Forest
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Parkway
Analysis Year	2040	North/South Street	New Forest/Georgetown
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		253	183	3		17	104	5		2	20	10		3	4	127
Percent Heavy Vehicles (%)		2				2				2	2	2		2	2	2
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		281				19					36			3		146
Capacity, c (veh/h)		1466				1365					271			187		933
v/c Ratio		0.19				0.01					0.13			0.02		0.16
95% Queue Length, Q_{95} (veh)		0.7				0.0					0.4			0.1		0.6
Control Delay (s/veh)		8.0				7.7					20.3			24.6		9.6
Level of Service (LOS)		A				A					C			C		A
Approach Delay (s/veh)	4.6				1.0				20.3				9.9			
Approach LOS									C				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						5		27			138	5		21	164	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						7		36						28		
Capacity, c (veh/h)						547		855						1383		
v/c Ratio						0.01		0.04						0.02		
95% Queue Length, Q_{95} (veh)						0.0		0.1						0.1		
Control Delay (s/veh)						11.7		9.4						7.7		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.8								0.9			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Village Center
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						15		23			102	14		11	40	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						17		26						12		
Capacity, c (veh/h)						792		930						1457		
v/c Ratio						0.02		0.03						0.01		
95% Queue Length, Q_{95} (veh)						0.1		0.1						0.0		
Control Delay (s/veh)						9.6		9.0						7.5		
Level of Service (LOS)						A		A						A		
Approach Delay (s/veh)					9.2								1.6			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						11		27			153	6		26	187	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)						15		36						35		
Capacity, c (veh/h)						499		832						1358		
v/c Ratio						0.03		0.04						0.03		
95% Queue Length, Q_{95} (veh)						0.1		0.1						0.1		
Control Delay (s/veh)						12.4		9.5						7.7		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					10.4								0.9			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

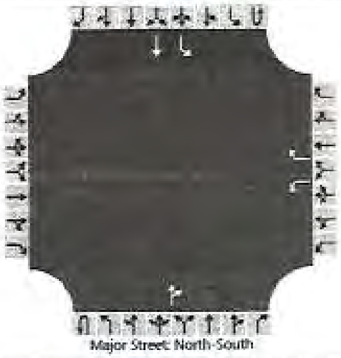
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Village Center
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						19		24			126	19		17	59	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						21		27						19		
Capacity, c (veh/h)						725		896						1418		
v/c Ratio						0.03		0.03						0.01		
95% Queue Length, Q_{95} (veh)						0.1		0.1						0.0		
Control Delay (s/veh)						10.1		9.1						7.6		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.6								1.7			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						5		75			160	5		67	182	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						7		100						89		
Capacity, c (veh/h)						412		823						1349		
v/c Ratio						0.02		0.12						0.07		
95% Queue Length, Q_{95} (veh)						0.0		0.4						0.2		
Control Delay (s/veh)						13.9		10.0						7.9		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					10.2								2.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						15		42			107	14		28	45	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						17		47						31		
Capacity, c (veh/h)						733		924						1450		
v/c Ratio						0.02		0.05						0.02		
95% Queue Length, Q_{95} (veh)						0.1		0.2						0.1		
Control Delay (s/veh)						10.0		9.1						7.5		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.3								2.9			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

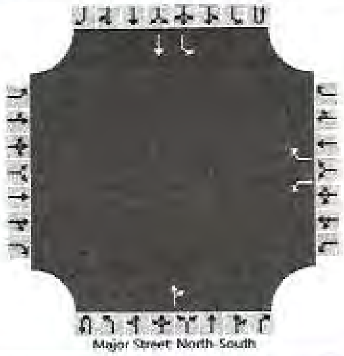
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Village Center
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Village Parkway
Peak Hour Factor	0.75
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						11		75			175	6		72	205	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						15		100						96		
Capacity, c (veh/h)						375		802						1325		
v/c Ratio						0.04		0.12						0.07		
95% Queue Length, Q_{95} (veh)						0.1		0.4						0.2		
Control Delay (s/veh)						15.0		10.1						7.9		
Level of Service (LOS)						B		B						A		
Approach Delay (s/veh)					10.8								2.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						19		43			131	19		34	64	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						21		48						38		
Capacity, c (veh/h)						670		890						1411		
v/c Ratio						0.03		0.05						0.03		
95% Queue Length, Q_{95} (veh)						0.1		0.2						0.1		
Control Delay (s/veh)						10.5		9.3						7.6		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.7								2.6			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						5		75			160	5		67	182	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						7		100						89		
Capacity, c (veh/h)						412		823						1349		
v/c Ratio						0.02		0.12						0.07		
95% Queue Length, Q_{95} (veh)						0.0		0.4						0.2		
Control Delay (s/veh)						13.9		10.0						7.9		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					10.2								2.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

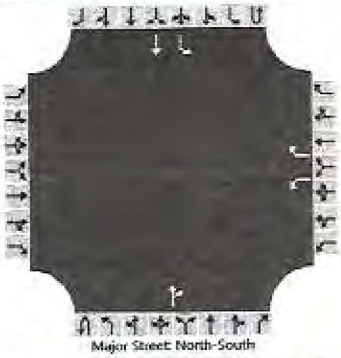
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	PM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & Village Center
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						15		42			107	14		28	45	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)						17		47						31		
Capacity, c (veh/h)						733		924						1450		
v/c Ratio						0.02		0.05						0.02		
95% Queue Length, Q_{95} (veh)						0.1		0.2						0.1		
Control Delay (s/veh)						10.0		9.1						7.5		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.3								2.9			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						11		75			175	6		72	205	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						15		100						96		
Capacity, c (veh/h)						375		802						1325		
v/c Ratio						0.04		0.12						0.07		
95% Queue Length, Q_{95} (veh)						0.1		0.4						0.2		
Control Delay (s/veh)						15.0		10.1						7.9		
Level of Service (LOS)						B		B						A		
Approach Delay (s/veh)					10.8								2.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Village Center
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						19		43			131	19		34	64	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						21		48						38		
Capacity, c (veh/h)						670		890						1411		
v/c Ratio						0.03		0.05						0.03		
95% Queue Length, Q_{95} (veh)						0.1		0.2						0.1		
Control Delay (s/veh)						10.5		9.3						7.6		
Level of Service (LOS)						B		A						A		
Approach Delay (s/veh)					9.7								2.6			
Approach LOS					A											

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		22		39						19	146				146	17
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

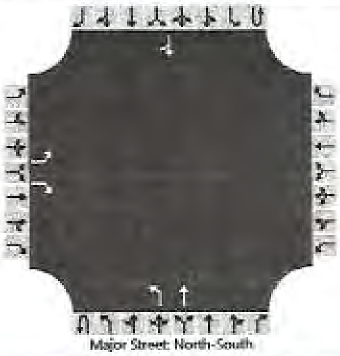
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		29		52						25						
Capacity, c (veh/h)		518		780						1304						
v/c Ratio		0.06		0.07						0.02						
95% Queue Length, Q_{95} (veh)		0.2		0.2						0.1						
Control Delay (s/veh)		12.4		9.9						7.8						
Level of Service (LOS)		B		A						A						
Approach Delay (s/veh)	10.8								0.9							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	PM Existing	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		10		21						50	75				30	11
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		23						56						
Capacity, c (veh/h)		703		998						1535						
v/c Ratio		0.02		0.02						0.04						
95% Queue Length, Q_{95} (veh)		0.0		0.1						0.1						
Control Delay (s/veh)		10.2		8.7						7.4						
Level of Service (LOS)		B		A						A						
Approach Delay (s/veh)	9.2								3.0							
Approach LOS	A															

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		22	0	39		13	1	1		19	158	3		1	161	18
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		29		52			20			25				1		
Capacity, c (veh/h)		442		760			413			1281				1307		
v/c Ratio		0.07		0.07			0.05			0.02				0.00		
95% Queue Length, Q_{95} (veh)		0.2		0.2			0.2			0.1				0.0		
Control Delay (s/veh)		13.7		10.1			14.2			7.9				7.8		
Level of Service (LOS)		B		B			B			A				A		
Approach Delay (s/veh)	11.4				14.2				0.8				0.0			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	PM Existing + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		10	1	22		7	1	1		50	90	10		1	47	11
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

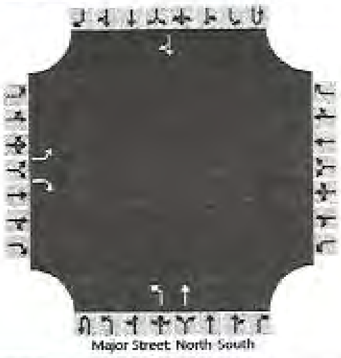
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12		24			10			56				1		
Capacity, c (veh/h)		629		974			624			1510				1452		
v/c Ratio		0.02		0.03			0.02			0.04				0.00		
95% Queue Length, Q_{95} (veh)		0.1		0.1			0.0			0.1				0.0		
Control Delay (s/veh)		10.8		8.8			10.9			7.5				7.5		
Level of Service (LOS)		B		A			B			A				A		
Approach Delay (s/veh)	9.5				10.9				2.5				0.1			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		81		97						86	149				152	84
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		108		129						115						
Capacity, c (veh/h)		348		729						1201						
v/c Ratio		0.31		0.18						0.10						
95% Queue Length, Q_{95} (veh)		1.3		0.6						0.3						
Control Delay (s/veh)		19.9		11.0						8.3						
Level of Service (LOS)		C		B						A						
Approach Delay (s/veh)	15.1								3.0							
Approach LOS	C															

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		28		39						67	82				34	28
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		31		43						74						
Capacity, c (veh/h)		648		992						1518						
v/c Ratio		0.05		0.04						0.05						
95% Queue Length, Q_{95} (veh)		0.2		0.1						0.2						
Control Delay (s/veh)		10.8		8.8						7.5						
Level of Service (LOS)		B		A						A						
Approach Delay (s/veh)	9.6								3.4							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		81	0	97		13	1	1		86	161	3		1	167	85
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		108		129			20			115				1		
Capacity, c (veh/h)		289		710			229			1180				1303		
v/c Ratio		0.37		0.18			0.09			0.10				0.00		
95% Queue Length, Q_{95} (veh)		1.7		0.7			0.3			0.3				0.0		
Control Delay (s/veh)		24.8		11.2			22.2			8.4				7.8		
Level of Service (LOS)		C		B			C			A				A		
Approach Delay (s/veh)	17.4				22.2				2.9				0.0			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		28	1	40		7	1	1		67	97	10		1	51	28
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		32		44			10			74				1		
Capacity, c (veh/h)		569		957			551			1481				1443		
v/c Ratio		0.06		0.05			0.02			0.05				0.00		
95% Queue Length, Q_{95} (veh)		0.2		0.1			0.1			0.2				0.0		
Control Delay (s/veh)		11.7		8.9			11.7			7.6				7.5		
Level of Service (LOS)		B		A			B			A				A		
Approach Delay (s/veh)	10.1				11.7				2.9				0.1			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		81		97						86	149				152	84
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		108		129						115						
Capacity, c (veh/h)		348		729						1201						
v/c Ratio		0.31		0.18						0.10						
95% Queue Length, Q_{95} (veh)		1.3		0.6						0.3						
Control Delay (s/veh)		19.9		11.0						8.3						
Level of Service (LOS)		C		B						A						
Approach Delay (s/veh)	15.1								3.0							
Approach LOS	C															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	0
Configuration		L		R						L	T					TR
Volume (veh/h)		28		39						67	82				34	28
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		31		43						74						
Capacity, c (veh/h)		648		992						1518						
v/c Ratio		0.05		0.04						0.05						
95% Queue Length, Q_{95} (veh)		0.2		0.1						0.2						
Control Delay (s/veh)		10.8		8.8						7.5						
Level of Service (LOS)		B		A						A						
Approach Delay (s/veh)	9.6								3.4							
Approach LOS	A															

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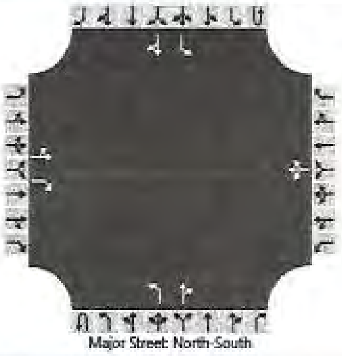
HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		81	0	97		13	1	1		86	161	3		1	167	85
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		108		129			20			115				1		
Capacity, c (veh/h)		289		710			229			1180				1303		
v/c Ratio		0.37		0.18			0.09			0.10				0.00		
95% Queue Length, Q_{95} (veh)		1.7		0.7			0.3			0.3				0.0		
Control Delay (s/veh)		24.8		11.2			22.2			8.4				7.8		
Level of Service (LOS)		C		B			C			A				A		
Approach Delay (s/veh)	17.4				22.2				2.9				0.0			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & Rockland
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Rockland Drive
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		28	1	40		7	1	1		67	97	10		1	51	28
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		32		44			10			74				1		
Capacity, c (veh/h)		569		957			551			1481				1443		
v/c Ratio		0.06		0.05			0.02			0.05				0.00		
95% Queue Length, Q_{95} (veh)		0.2		0.1			0.1			0.2				0.0		
Control Delay (s/veh)		11.7		8.9			11.7			7.6				7.5		
Level of Service (LOS)		B		A			B			A				A		
Approach Delay (s/veh)	10.1				11.7				2.9				0.1			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						34		2			130	38		3	129	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							40							4		
Capacity, c (veh/h)							631							1345		
v/c Ratio							0.08							0.00		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							11.2							7.7		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					11.2								0.2			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

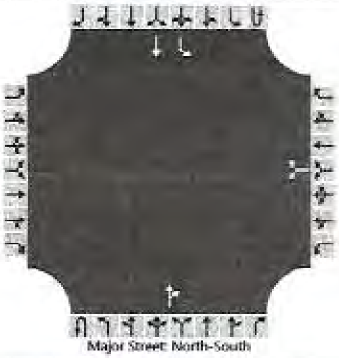
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & North Driveway
Jurisdiction	Washoe County
East/West Street	North Driveway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						15		2			67	18		4	26	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							19							4		
Capacity, c (veh/h)							882							1500		
v/c Ratio							0.02							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.2							7.4		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.2								1.0			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	AM Existing + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						47		3			139	42		3	133	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							67							4		
Capacity, c (veh/h)							615							1325		
v/c Ratio							0.11							0.00		
95% Queue Length, Q_{95} (veh)							0.4							0.0		
Control Delay (s/veh)							11.6							7.7		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					11.6								0.2			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2020	North/South Street	Village Parkway
Time Analyzed	PM Existing + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						22		3			73	28		5	36	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

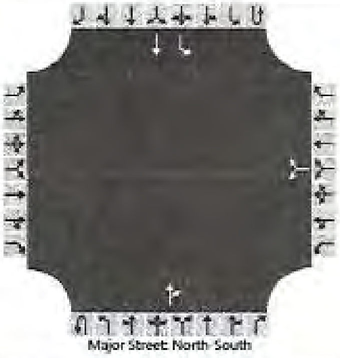
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							28							6		
Capacity, c (veh/h)							854							1477		
v/c Ratio							0.03							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.4							7.4		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.4								0.9			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						34		2			192	38		3	202	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							48							4		
Capacity, c (veh/h)							499							1254		
v/c Ratio							0.10							0.00		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							13.0							7.9		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.0								0.1			
Approach LOS					B											

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						15		2			92	18		4	47	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)							19							4		
Capacity, c (veh/h)							827							1465		
v/c Ratio							0.02							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.5							7.5		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.5								0.6			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information / Site Information

General Information		**Site Information**	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2030	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						47		3			201	42		3	206	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							67							4		
Capacity, c (veh/h)							486							1236		
v/c Ratio							0.14							0.00		
95% Queue Length, Q_{95} (veh)							0.5							0.0		
Control Delay (s/veh)							13.6							7.9		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.6								0.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Village & North Driveway
Jurisdiction	Washoe County
East/West Street	North Driveway
North/South Street	Village Parkway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						22		3			98	28		5	57	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							28							6		
Capacity, c (veh/h)							801							1443		
v/c Ratio							0.03							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.7							7.5		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.7								0.6			
Approach LOS					A											

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						34		2			192	38		3	202	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

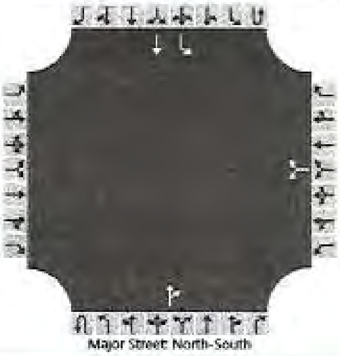
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							48							4		
Capacity, c (veh/h)							499							1254		
v/c Ratio							0.10							0.00		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							13.0							7.9		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.0								0.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						15		2			92	18		4	47	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							19							4		
Capacity, c (veh/h)							827							1465		
v/c Ratio							0.02							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.5							7.5		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.5								0.6			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.75
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						47		3			201	42		3	206	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

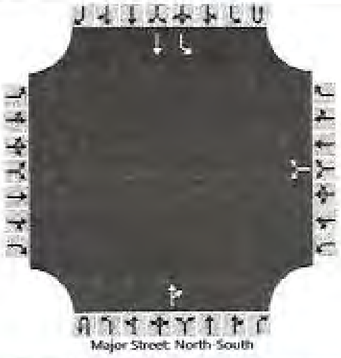
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							67							4		
Capacity, c (veh/h)							486							1236		
v/c Ratio							0.14							0.00		
95% Queue Length, Q_{95} (veh)							0.5							0.0		
Control Delay (s/veh)							13.6							7.9		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.6								0.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village & North Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	North Driveway
Analysis Year	2040	North/South Street	Village Parkway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						22		3			98	28		5	57	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							28							6		
Capacity, c (veh/h)							801							1443		
v/c Ratio							0.03							0.00		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							9.7							7.5		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.7								0.6			
Approach LOS					A											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Project Driveway
Time Analyzed	AM Existing	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	21				28	3						2		1
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													4	
Capacity, c (veh/h)		1571													966	
v/c Ratio		0.00													0.00	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.7	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.6												8.7			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Project Driveway
Time Analyzed	PM Existing	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	19				28	6						3		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													6	
Capacity, c (veh/h)		1573													974	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.7	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	1.5												8.7			
Approach LOS													A			

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Project Driveway
Time Analyzed	AM Existing + Project	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	29				30	6						11		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													16	
Capacity, c (veh/h)		1563													933	
v/c Ratio		0.00													0.02	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.3													8.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.5												8.9			
Approach LOS													A			

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2020	North/South Street	Project Driveway
Time Analyzed	PM Existing + Project	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		6	23				35	14						8		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		7													11	
Capacity, c (veh/h)		1551													932	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	1.5												8.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2030	North/South Street	Project Driveway
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	66				76	3						2		1
Percent Heavy Vehicles (%)		2	-											2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													4	
Capacity, c (veh/h)		1494													850	
v/c Ratio		0.00													0.00	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.4													9.3	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.3			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	PM Base
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village Center & Driveway
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Project Driveway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	35				45	6						3		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													6	
Capacity, c (veh/h)		1548													937	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.9												8.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base + Project
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village Center & Driveway
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Project Driveway
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes

Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	74				78	6						11		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													16	
Capacity, c (veh/h)		1486													810	
v/c Ratio		0.00													0.02	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.5			
Approach LOS													A			

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HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	PM Base + Project
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village Center & Driveway
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Project Driveway
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		6	39				52	14						8		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		7													11	
Capacity, c (veh/h)		1526													892	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.4													9.1	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	1.0												9.1			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base
Intersection Orientation	East-West
Project Description	

Site Information

Intersection	Village Center & Driveway
Jurisdiction	Washoe County
East/West Street	Village Center Drive
North/South Street	Project Driveway
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	66				76	3						2		1
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													4	
Capacity, c (veh/h)		1494													850	
v/c Ratio		0.00													0.00	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.4													9.3	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.3			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Project Driveway
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	35				45	6						3		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													6	
Capacity, c (veh/h)		1548													937	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.3													8.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.9												8.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Project Driveway
Time Analyzed	AM Base + Project	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	74				78	6						11		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													16	
Capacity, c (veh/h)		1486													810	
v/c Ratio		0.00													0.02	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.5			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Village Center & Driveway
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Village Center Drive
Analysis Year	2040	North/South Street	Project Driveway
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		6	39				52	14						8		2
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		7													11	
Capacity, c (veh/h)		1526													892	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.4													9.1	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	1.0												9.1			
Approach LOS													A			

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HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2020	North/South Street	Crystal Canyon Boulevard
Time Analyzed	AM Existing	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	4	95		9	2	2		48	27	1		2	66	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			119				15			56				2		
Capacity, c (veh/h)			956				624			1521				1579		
v/c Ratio			0.12				0.02			0.04				0.00		
95% Queue Length, Q_{95} (veh)			0.4				0.1			0.1				0.0		
Control Delay (s/veh)			9.3				10.9			7.5				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.3				10.9				4.8				0.2			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2020	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Existing	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	3	40		7	2	1		112	80	13		2	31	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			51				11			124				2		
Capacity, c (veh/h)			916				520			1575				1488		
v/c Ratio			0.06				0.02			0.08				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.3				0.0		
Control Delay (s/veh)			9.2				12.1			7.5				7.4		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.2				12.1				4.4				0.4			
Approach LOS	A				B											

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HCS7 Two-Way Stop-Control Report

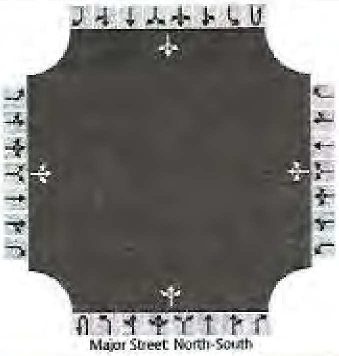
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2020
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Crystal Canyon/Aquamarine
Jurisdiction	Washoe County
East/West Street	Aquamarine Drive
North/South Street	Crystal Canyon Boulevard
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	4	112		9	2	2		53	27	1		2	66	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

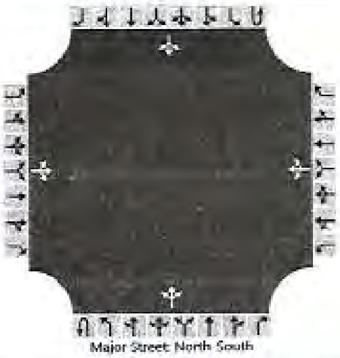
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			139				15			62				2		
Capacity, c (veh/h)			958				595			1521				1579		
v/c Ratio			0.14				0.03			0.04				0.00		
95% Queue Length, Q_{95} (veh)			0.5				0.1			0.1				0.0		
Control Delay (s/veh)			9.4				11.2			7.5				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.4				11.2				5.0				0.2			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2020	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Existing + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	3	49		7	2	1		127	80	13		2	31	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Approach	Eastbound				Westbound				Northbound				Southbound			
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Approach	Eastbound				Westbound				Northbound				Southbound			
Flow Rate, v (veh/h)			61				11			141				2		
Capacity, c (veh/h)			923				485			1575				1488		
v/c Ratio			0.07				0.02			0.09				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.3				0.0		
Control Delay (s/veh)			9.2				12.6			7.5				7.4		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.2				12.6				4.6				0.4			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2030
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Crystal Canyon/Aquamarine
Jurisdiction	Washoe County
East/West Street	Aquamarine Drive
North/South Street	Crystal Canyon Boulevard
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	6	113		9	5	2		65	40	1		2	112	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			142				19			76				2		
Capacity, c (veh/h)			880				515			1453				1559		
v/c Ratio			0.16				0.04			0.05				0.00		
95% Queue Length, Q_{95} (veh)			0.6				0.1			0.2				0.0		
Control Delay (s/veh)			9.9				12.2			7.6				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.9				12.2				4.8				0.1			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2030	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	4	48		7	3	1		123	132	13		2	61	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			61				12			137				2		
Capacity, c (veh/h)			852				428			1532				1418		
v/c Ratio			0.07				0.03			0.09				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.3				0.0		
Control Delay (s/veh)			9.6				13.7			7.6				7.5		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.6				13.7				3.9				0.2			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2030	North/South Street	Crystal Canyon Boulevard
Time Analyzed	AM Base + Project	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	6	130		9	5	2		70	40	1		2	112	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			162				19			82				2		
Capacity, c (veh/h)			883				492			1453				1559		
v/c Ratio			0.18				0.04			0.06				0.00		
95% Queue Length, Q_{95} (veh)			0.7				0.1			0.2				0.0		
Control Delay (s/veh)			10.0				12.6			7.6				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	10.0				12.6				5.0				0.1			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2030	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	4	57		7	3	1		138	132	13		2	61	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			71				12			153				2		
Capacity, c (veh/h)			858				399			1532				1418		
v/c Ratio			0.08				0.03			0.10				0.00		
95% Queue Length, Q_{95} (veh)			0.3				0.1			0.3				0.0		
Control Delay (s/veh)			9.6				14.3			7.6				7.5		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.6				14.3				4.1				0.2			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information		**Site Information**	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2040	North/South Street	Crystal Canyon Boulevard
Time Analyzed	AM Base	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	6	113		9	5	2		65	40	1		2	112	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			142				19			76				2		
Capacity, c (veh/h)			880				515			1453				1559		
v/c Ratio			0.16				0.04			0.05				0.00		
95% Queue Length, Q_{95} (veh)			0.6				0.1			0.2				0.0		
Control Delay (s/veh)			9.9				12.2			7.6				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.9				12.2				4.8				0.1			
Approach LOS	A				B											

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2040	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Base	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	4	48		7	3	1		123	132	13		2	61	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			61				12			137				2		
Capacity, c (veh/h)			852				428			1532				1418		
v/c Ratio			0.07				0.03			0.09				0.00		
95% Queue Length, Q_{95} (veh)			0.2				0.1			0.3				0.0		
Control Delay (s/veh)			9.6				13.7			7.6				7.5		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.6				13.7				3.9				0.2			
Approach LOS	A				B											

HCS7 Two-Way Stop-Control Report

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	10/19/2020
Analysis Year	2040
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	

Site Information

Intersection	Crystal Canyon/Aquamarine
Jurisdiction	Washoe County
East/West Street	Aquamarine Drive
North/South Street	Crystal Canyon Boulevard
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	6	130		9	5	2		70	40	1		2	112	0
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			162				19			82				2		
Capacity, c (veh/h)			883				492			1453				1559		
v/c Ratio			0.18				0.04			0.06				0.00		
95% Queue Length, Q_{95} (veh)			0.7				0.1			0.2				0.0		
Control Delay (s/veh)			10.0				12.6			7.6				7.3		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	10.0				12.6				5.0				0.1			
Approach LOS	A				B											

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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	MSH	Intersection	Crystal Canyon/Aquamarine
Agency/Co.	Solaegui Engineers	Jurisdiction	Washoe County
Date Performed	10/19/2020	East/West Street	Aquamarine Drive
Analysis Year	2040	North/South Street	Crystal Canyon Boulevard
Time Analyzed	PM Base + Project	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description			

Lanes

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	4	57		7	3	1		138	132	13		2	61	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			71				12			153				2		
Capacity, c (veh/h)			858				399			1532				1418		
v/c Ratio			0.08				0.03			0.10				0.00		
95% Queue Length, Q_{95} (veh)			0.3				0.1			0.3				0.0		
Control Delay (s/veh)			9.6				14.3			7.6				7.5		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.6				14.3				4.1				0.2			
Approach LOS	A				B											

UPDATED TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic Volumes

Traffic volumes for the warrant analysis at the White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections were obtained by adding traffic generated by the unbuilt Woodland Village dwelling units, unbuilt Cold Springs Elementary School, and Village Parkway and Village Center Residential developments to the existing traffic volumes.

The existing hourly traffic volumes and unbuilt Woodland Village hourly traffic volumes were obtained from the original warrant analysis letter dated January 15, 2020 with updated peak hour counts conducted at the Village Parkway/White Lake Parkway intersection in October 2020. The peak hour traffic volumes for the elementary school were obtained from the Cold Springs Elementary School Traffic Study dated March 2019. The peak hour traffic volumes for the Village Parkway and Village Center Residential developments were calculated based on *ITE Trip Generation*. Trips generated by the school and the proposed Village Parkway and Village Center Residential developments during the remaining hours were estimated based on hourly percentages of daily traffic obtained from *ITE Trip Generation*. The entering and departing trips during the non-peak hours were estimated based on existing traffic volume splits on the key roadways.

Table 1A shows the hourly traffic volumes at the White Lake Parkway/Crystal Canyon Boulevard intersection for the period between 7:00 AM and 6:00 PM.

Table 1A
Hourly Traffic Volumes
White Lake Parkway/Crystal Canyon Boulevard Intersection

	White Lake Parkway (Major Street)					Crystal Canyon Blvd. (Minor Street)		
Time Period	NB Thru	NB Right	SB Left	SB Thru	Total	WB Left	WB Right	Total
7:00 AM - 8:00 AM	50	93	3	224	370	317	10	327
8:00 AM - 9:00 AM	86	61	2	176	325	191	12	203
9:00 AM - 10:00 AM	51	49	2	115	217	133	6	139
10:00 AM - 11:00 AM	67	64	4	109	244	145	7	152
11:00 AM - 12:00 PM	99	73	6	96	274	106	9	115
12:00 PM - 1:00 PM	118	147	6	85	356	86	9	95
1:00 PM - 2:00 PM	140	159	8	79	386	102	8	110
2:00 PM - 3:00 PM	143	165	9	81	398	106	9	115
3:00 PM - 4:00 PM	227	226	9	176	638	105	7	112
4:00 PM - 5:00 PM	279	313	13	89	694	96	8	104
5:00 PM - 6:00 PM	249	301	7	92	649	94	9	103

Table 1B shows the hourly traffic volumes at the Village Parkway/White Lake Parkway intersection for the period between 6:00 AM and 6:00 PM.

Table 1B
Hourly Traffic Volumes
Village Parkway/White Lake Parkway Intersection

	Village Parkway (Major Street)					White Lake Parkway (Minor Street)		
Time Period	NB Thru	NB Right	SB Left	SB Thru	Total	WB Left	WB Right	Total
6:00 AM - 7:00 AM	81	8	27	412	528	20	15	35
7:00 AM - 8:00 AM	188	15	49	516	768	16	49	65
8:00 AM - 9:00 AM	97	15	31	328	471	33	18	51
9:00 AM - 10:00 AM	97	11	31	282	421	13	24	37
10:00 AM - 11:00 AM	94	11	28	234	367	15	23	38
11:00 AM - 12:00 PM	149	8	29	280	466	17	30	47
12:00 PM - 1:00 PM	300	12	28	219	559	17	37	54
1:00 PM - 2:00 PM	287	16	37	213	553	20	48	68
2:00 PM - 3:00 PM	284	23	26	215	548	25	55	80
3:00 PM - 4:00 PM	367	27	37	215	646	19	42	61
4:00 PM - 5:00 PM	496	22	39	240	797	25	70	95
5:00 PM - 6:00 PM	528	51	41	258	878	24	76	100

The hourly traffic volumes shown in Tables 1A and 1B were subsequently used in the traffic signal warrant analysis at the White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections. These hourly traffic volumes represent 2030 and 2040 base plus project conditions.

Warrant Analysis at the White Lake Parkway/Crystal Canyon Boulevard Intersection

Traffic Signal Warrants 1 through 3 as presented in the 2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD) were reviewed at the White Lake Parkway/Crystal Canyon Boulevard intersection. The intersection is an unsignalized three-leg intersection with stop sign control at the east approach. The intersection contains one shared left turn-through lane at the north approach, one through lane and one right turn lane at the south approach, and one shared left turn-right turn lane at the east approach. White Lake Parkway (major street) therefore has two lanes for moving traffic and Crystal Canyon Boulevard (minor street) has one lane for moving traffic. The speed limit is posted for 35 miles per hour on White Lake Parkway.

Warrant 1 - Eight Hour Vehicular Volume includes a review of two conditions. Condition A, Minimum Vehicular Volume, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal. Condition B, Interruption of Continuous Traffic, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. The need for a traffic signal shall be considered if one of the following conditions exist for each of any eight hours of an average day:

A. The major street volume (total of both approaches) exceeds 600 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 150 vehicles per hour for a one lane approach for Condition A; or

B. The major street volume (total of both approaches) exceeds 900 vehicles per hour for a one lane approach while the minor street volume (higher volume approach) exceeds 75 vehicles per hour for a one lane approach for Condition B.

The results of warrant 1 are shown in Table 2 for the highest hourly traffic volumes.

Table 2
Warrant 1 Results at White Lake Parkway/Crystal Canyon Boulevard Intersection

Condition A – Minimum Vehicular Volume

	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	150
Major Volume	370	325	244	386	398	638	694	649	600
Hour Met?	No	No	No	No	No	No	No	No	8

Condition B – Interruption of Continuous Traffic

	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	75
Major Volume	370	325	244	386	398	638	694	649	900
Hour Met?	No	No	No	No	No	No	No	No	8

As shown in Table 2, no hours are met for Condition A and no hours are met for Condition B. The combination of Conditions A and B was subsequently reviewed. The combination of Conditions A and B indicates that the need for a traffic signal shall be considered if both of the following conditions exist for each of any eight hours of an average day:

A. The major street volume (total of both approaches) exceeds 480 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 120 vehicles per hour for a one lane approach for Condition A; and

B. The major street volume (total of both approaches) exceeds 720 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 60 vehicles per hour for a one lane approach for Condition B.

The results of warrant 1 for the combination of conditions A and B are shown in Table 3.

Table 3
Warrant 1 Combination Results at White Lake Parkway/Crystal Canyon Boulevard Intersection

Condition A – Minimum Vehicular Volume									
	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	120
Major Volume	370	325	244	386	398	638	694	649	480
Hour Met?	No	No	No	No	No	No	No	No	8
Condition B – Interruption of Continuous Traffic									
	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	60
Major Volume	370	325	244	386	398	638	694	649	720
Hour Met?	No	No	No	No	No	No	No	No	8

As shown in Table 3, no hours are met for Condition A and no hours are met for Condition B. Traffic signal warrant 1 is not met for the hourly traffic volumes.

<u>Warrant 2 – Four Hour Vehicular Volume</u> is intended to be applied where the volume of the intersecting traffic is the principal reason to consider installing a traffic signal. The need for a traffic signal shall be considered if for each of any four hours of an average day the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor street (higher volume approach) all fall above the applicable curve in Figure 4C-1 of the Manual on Uniform Traffic Control Devices for the existing combination of approach lanes. The curve shown in Figure 4C-1 levels out at a minor street lower threshold volume of 80 vehicles per hour for a one lane approach and a major street volume of approximately 1,300 vehicles per hour for two approach lanes.

The results of warrant 2 are shown in Table 4 for the highest hourly traffic volumes.

Table 4
Warrant 2 Results at White Lake Parkway/Crystal Canyon Boulevard Intersection

	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	80
Major Volume	370	325	244	386	398	638	694	649	1300±
Hour Met?	No	No	No	No	No	No	No	No	4

As shown in Table 4, no hours are met for warrant 2. The minor street approach volumes meet the lower threshold volume but the low major street approach volumes result in the plotted points falling below the applicable curve. Traffic signal warrant 2 is not met for the hourly traffic volumes.

Warrant 3 - Peak Hour is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The need for a traffic signal shall be considered if the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same hour of an average day:

  1. The total stopped time delay experienced by the traffic on one minor street approach (one direction only) controlled by a stop sign equals or exceeds 4 vehicle-hours for a one lane approach, and

  2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic, and

  3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches.

B. If the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor street approach for one hour of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes. The curve in Figure 4C-3 levels out at a minor street lower threshold volume of 100 vehicles per hour for a one lane approach and a major street volume of approximately 1,700 vehicles per hour.

Category A was first reviewed for Warrant 3. The maximum delay on the minor street approach is approximately 1.5 vehicle-hours for the highest hour which is well below the 4 vehicle-hour threshold so category A is not met. Category B was subsequently reviewed. The results of warrant 3, category B are shown in Table 5 for the highest hourly traffic volumes.

Table 5
Warrant 3 Results at White Lake Parkway/Crystal Canyon Boulevard Intersection

	7-8 AM	8-9 AM	10-11 AM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	327	203	152	110	115	112	104	103	100
Major Volume	370	325	244	386	398	638	694	649	1700±
Hour Met?	No	No	No	No	No	No	No	No	1

As shown in Table 5, no hours are met for warrant 3. The minor street approach volume meets the lower threshold volume for multiple hours but the low major street approach volumes result in the plotted points falling below the applicable curve. Traffic signal warrant 3 is not met for the hourly traffic volumes.

Warrant Analysis at the Village Parkway/White Lake Parkway Intersection

Traffic Signal Warrants 1 through 3 as presented in the 2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD) were reviewed at the Village Parkway/White Lake Parkway intersection. The Village Parkway/White Lake Parkway intersection is an unsignalized three-leg intersection with stop sign control at the east approach. The intersection contains one left turn lane and one through lane at the north approach, one through lane and one right turn lane at the south approach, and one shared left turn-right turn lane at the east approach. Village Parkway (major street) therefore has two lanes for moving traffic and White Lake Parkway (minor street) has one lane for moving traffic. The speed limit is posted for 35 miles per hour on Village Parkway.

Warrant 1 - Eight Hour Vehicular Volume includes a review of two conditions. Condition A, Minimum Vehicular Volume, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal. Condition B, Interruption of Continuous Traffic, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. The need for a traffic signal shall be considered if one of the following conditions exist for each of any eight hours of an average day:

A. The major street volume (total of both approaches) exceeds 600 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 150 vehicles per hour for a one lane approach for Condition A; or

B. The major street volume (total of both approaches) exceeds 900 vehicles per hour for a one lane approach while the minor street volume (higher volume approach) exceeds 75 vehicles per hour for a one lane approach for Condition B.

The results of warrant 1 are shown in Table 6 for the highest hourly traffic volumes.

Table 6
Warrant 1 Results at Village Parkway/White Lake Parkway Intersection

Condition A – Minimum Vehicular Volume									
	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	150
Major Volume	768	471	559	553	548	646	797	878	600
Hour Met?	No	No	No	No	No	No	No	No	8
Condition B – Interruption of Continuous Traffic									
	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	75
Major Volume	768	471	559	553	548	646	797	878	900
Hour Met?	No	No	No	No	No	No	No	No	8

As shown in Table 6, no hours are met for Condition A and no hours are met for Condition B. The combination of Conditions A and B was subsequently reviewed. The combination of Conditions A and B indicates that the need for a traffic signal shall be considered if both of the following conditions exist for each of any eight hours of an average day:

A. The major street volume (total of both approaches) exceeds 480 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 120 vehicles per hour for a one lane approach for Condition A; and

B. The major street volume (total of both approaches) exceeds 720 vehicles per hour for a two lane approach while the minor street volume (higher volume approach) exceeds 60 vehicles per hour for a one lane approach for Condition B.

The results of warrant 1 for the combination of conditions A and B are shown in Table 7 for the highest hourly traffic volumes.

Table 7
Warrant 1 Combination Results at Village Parkway/White Lake Parkway Intersection

Condition A – Minimum Vehicular Volume

	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	120
Major Volume	768	471	559	553	548	646	797	878	480
Hour Met?	No	No	No	No	No	No	No	No	8

Condition B – Interruption of Continuous Traffic

	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	60
Major Volume	768	471	559	553	548	646	797	878	720
Hour Met?	Yes	No	No	No	No	No	Yes	Yes	8

As shown in Table 7, no hours are met for Condition A and three hours are met for Condition B. Traffic signal warrant 1 is not met for the hourly traffic volumes.

Warrant 2 – Four Hour Vehicular Volume is intended to be applied where the volume of the intersecting traffic is the principal reason to consider installing a traffic signal. The need for a traffic signal shall be considered if for each of any four hours of an average day the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor street (higher volume approach) all fall above the applicable curve in Figure 4C-1 of the Manual on Uniform Traffic Control Devices for the existing combination of approach lanes. The curve shown in Figure 4C-1 levels out at a minor street lower threshold volume of 80 vehicles per hour for a one lane approach and a major street volume of approximately 1,300 vehicles per hour for two approach lanes.

The results of warrant 2 are shown in Table 8 for the highest hourly traffic volumes.

Table 8
Warrant 2 Results at Village Parkway/White Lake Parkway Intersection

	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	80
Major Volume	768	471	559	553	548	646	797	878	1300±
Hour Met?	No	No	No	No	No	No	No	No	4

No hours are met for warrant 2. The minor street approach volume meets the lower threshold volume for some hours but the low major street approach volumes result in the plotted points falling below the applicable curve. Traffic signal warrant 2 is not met for hourly traffic volumes.

Warrant 3 - Peak Hour is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The need for a traffic signal shall be considered if the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same hour of an average day:

   1. The total stopped time delay experienced by the traffic on one minor street approach (one direction only) controlled by a stop sign equals or exceeds 4 vehicle-hours for a one lane approach, and

   2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic, and

   3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches.

B. If the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor street approach for one hour of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes. The curve in Figure 4C-3 levels out at a minor street lower threshold volume of 100 vehicles per hour for a one lane approach and a major street volume of approximately 1,700 vehicles per hour.

Category A was first reviewed for warrant 3. The maximum delay on the minor street approach is approximately 0.5 vehicle-hours for the highest hour which is well below the 4 vehicle-hour threshold so category A is not met. Category B was subsequently reviewed. The results of warrant 3, category B are shown in Table 9 for the highest hourly traffic volumes.

Table 9 Warrant 3 Results at Village Parkway/White Lake Parkway Intersection									
	7-8 AM	8-9 AM	12-1 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM	5-6 PM	Req'd
Minor Volume	65	51	54	68	80	61	95	100	100
Major Volume	768	471	559	553	548	646	797	878	1700±
Hour Met?	No	No	No	No	No	No	No	No	1

As shown in Table 9, no hours are met for warrant 3. The minor street approach volume meets the lower threshold volume for one hour but the low major street approach volumes result in the plotted points falling below the applicable curve. Traffic signal warrant 3 is not met for the hourly traffic volumes.

Findings

The traffic signal warrant analysis indicates that vehicular warrants 1 through 3 are not met at the White Lake Parkway/Crystal Canyon Boulevard and Village Parkway/White Lake Parkway intersections for the hourly traffic volumes.

OWNER / DEVELOPER

LIFESTYLE HOMES TND LLC
ATTN: ROBERT LISSNER
4790 CAUGHLIN PARKWAY, #519
RENO, NEVADA 89519

BASIS OF ELEVATIONS

NORTH AMERICA VERTICAL DATUM (NGVD) 1929, WITH NORTH 1/4 CORNER OF SECTION 16 (5/8" REBAR WITH TAG #827) TAKEN AS ELEVATION 5084.50

BASIS OF BEARINGS

NORTH AMERICAN DATUM OF 1983 AS BASED ON FEDERAL BASE NETWORK/COOPERATIVE BASE NETWORK OBSERVATIONS IN 1994 (AKA NAD83/94), NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE AND HOLDING THE WASHOE COUNTY PUBLISHED LATITUDE AND LONGITUDE OF 39°37'31.936680" NORTH AND 119° 53' 01.166280" WEST FOR REGIONAL GPS CORS "STEA" (WASHOE COUNTY IDENTIFIER N22SM01037). A COMBINED GRID-TO-GROUND SCALE FACTOR OF 1.000170937 IS USED TO SCALE THE STATE PLANE GRID COORDINATES TO GROUND.

GENERAL CONSTRUCTION NOTES:

1. THESE NOTES CONTAIN INFORMATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK CONTAINED ON THESE IMPROVEMENT PLANS. THESE NOTES APPLY TO ALL PLAN SHEETS. ADDITIONAL CONSTRUCTION NOTES MAY ALSO BE SHOWN ON INDIVIDUAL PLAN SHEETS. THE CONTRACTOR IS RESPONSIBLE TO READ AND COMPLY WITH ALL NOTES SHOWN ON THIS SET OF PLANS. THE TERM "CONTRACTOR", AS USED IN THESE NOTES AND ELSEWHERE IN THIS PLAN SET, MEANS THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS AND INDIVIDUALS AUTHORIZED TO PERFORM WORK SHOWN ON THESE IMPROVEMENT PLANS. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WILL ALL NOTES APPLICABLE TO HIS/HER WORK. ALL CONTRACTORS ARE DIRECTED TO CONTACT THIS ENGINEER FOR ANY QUESTIONS REGARDING THE STATED OR IMPLIED MEANING OF ANY NOTE OR OTHER INFORMATION CONTAINED ON THESE IMPROVEMENT PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT HIS/HER CONTRACT FOR SERVICES INCLUDES THE RESPONSIBILITIES DEFINED BY THE APPLICABLE NOTES.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND THE SAFETY OF ALL CONSTRUCTION PERSONNEL IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY TRAFFIC AND PEDESTRIAN CONTROL DURING CONSTRUCTION INCLUDING WARNING SIGNS AND CONSTRUCTION FENCING WHERE REQUIRED.
3. THE EXISTING UTILITIES SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM VARIOUS SOURCES AND SHOULD BE FIELD VERIFIED PRIOR TO MAKING ANY NECESSARY CONNECTIONS. THE LOCAL UTILITY COMPANY SHOULD BE CONTACTED PRIOR TO REMOVING, REPLACING, RELOCATING OR CONNECTING TO, ANY EXISTING UTILITY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS DISCOVERED.
4. IT IS THE INTENT OF THESE SPECIFICATIONS AND IMPROVEMENT PLANS THAT THE WORK PERFORMED UNDER THE CONTRACT SHALL RESULT IN A COMPLETE OPERATING SYSTEM IN SATISFACTORY WORKING CONDITION WITH RESPECT TO THE FUNCTIONAL PURPOSES OF THE INSTALLATION. IF THERE ARE ANY QUESTIONS REGARDING THE STATED OR IMPLIED MEANING OF THESE PLANS, THE CONTRACTOR IS DIRECTED TO CONTACT THE CONSULTING ENGINEER IMMEDIATELY.
5. SHOULD ANY HISTORIC OR PREHISTORIC REMAINS OR ARTIFACTS BE DISCOVERED DURING SITE DEVELOPMENT, WORK SHALL TEMPORARILY BE HALTED AT THE SPECIFIC SITE AND THE STATE HISTORIC PRESERVATION OFFICE OF THE DEPARTMENT OF MUSEUMS, LIBRARY AND ARTS, SHALL BE NOTIFIED TO RECORD AND PHOTOGRAPH THE SITE. THE PERIOD OF TEMPORARY DELAY SHALL BE LIMITED TO A MAXIMUM OF TWO WORKING DAYS FROM THE DATE OF NOTIFICATION.
6. NO MATERIALS OF ANY KIND SHALL BE STOCKPILED OR CONSTRUCTION EQUIPMENT PARKED ON CONCRETE OR ASPHALT SURFACES TO BE DEDICATED TO WASHOE COUNTY.
7. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT ALL IMPROVEMENTS ARE CONSTRUCTED ACCORDING TO THESE PLANS AND DETAILS. ANY CHANGES TO THE LOCATION (HORIZONTAL OR VERTICAL), OR ANY OTHER PLAN DESIGNATION, SHALL BE APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO KEEP THE NECESSARY RECORDS TO ENABLE THE ENGINEER TO PREPARE AS-BUILT DRAWINGS OF THE FINAL CONSTRUCTED IMPROVEMENTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONFORMANCE WITH ALL PERMITS, INCLUDING GRADING PERMIT, BUILDING PERMITS, STREET CUT PERMITS, DUST CONTROL PERMIT, AND THE STORM WATER DISCHARGE PERMIT (ISSUED BY THE STATE OF NEVADA DIVISION OF ENVIRONMENTAL PROTECTION).
9. ALL BUILDABLE LOTS AND PARCELS WITHIN AN APPROVED SUBDIVISION REQUIRE THAT THE INDIVIDUAL BUILDING SITE PLOT PLANS SUBMITTED FOR BUILDING PERMITS SHALL SHOW ALL FINISH GRADE ELEVATIONS, HIGH POINT LOCATIONS, AND DRAINAGE SWALE LOCATIONS WITH A MINIMUM SLOPE SLOPE OF 1.0% . THE INFORMATION SHALL BE SHOWN ON BOTH THE INDIVIDUAL PLOT PLANS AND THE APPROVED CONSTRUCTION GRADING PLANS. ALL APPROVED CONSTRUCTION PLANS AND INDIVIDUAL PLOT PLANS SHALL BE STAMPED BY A NEVADA REGISTERED CIVIL ENGINEER.
10. ALL PARCELS WITHIN AN APPROVED SUBDIVISION SHALL REQUIRE THAT A NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR SUBMIT A CERTIFICATION LETTER TO THE BUILDING OFFICIAL PRIOR TO THE SCHEDULING OF INSPECTIONS FOR THE FOLLOWING:
    1. NEVADA REGISTERED CIVIL ENGINEER TO CERTIFY THAT:
        - 1.1 SOILS INVESTIGATION REPORT INDICATING SOILS CLASSIFICATION AND DESIGN PRIOR TO THE FOUNDATION INSPECTION.
        - 1.2 ELEVATION, GRADING AND DRAINAGE CERTIFICATION PER THE APPROVED CONSTRUCTION PLANS PRIOR TO THE ISSUANCE OF A CERTIFICATE
    2. NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR TO CERTIFY:
        - 2.1 FOUNDATION ELEVATION AND BUILDING SETBACK CERTIFICATION AS PER THE APPROVED PLOT PLAN PRIOR TO THE FOUNDATION INSPECTION.
11. THE CONTRACTOR SHALL PROVIDE A 30' FIRE BREAK AROUND THE LIMITS OF THE CONSTRUCTION PHASE CLEARED OF ALL COMBUSTIBLE MATERIAL INCLUDING WEEDS AND BRUSH PER THE REQUIREMENTS OF THE TRUCKEE MEADOWS FIRE PROTECTION DISTRICT. THE CONTRACTOR SHALL MAINTAIN THE 30' FIRE BREAK DURING ALL CONSTRUCTION OF THE CONSTRUCTION PHASE. AFTER ALL CONSTRUCTION HAS BEEN COMPLETED THE HOMEOWNER'S ASSOCIATION SHALL MAINTAIN THE FIRE BREAKS.
12. NO GRADING OR CONSTRUCTION TRAFFIC SHALL OCCUR OUTSIDE THE LIMITS OF THE PHASE OTHER THAN THE DELIVERY OF MATERIALS OR THE REMOVAL OF TRASH BY MEANS OF THE CONSTRUCTION HAUL ROUTE. THIS DEVELOPMENT SHALL UTILIZE THE BORDER TOWN EXIT, THEN VILLAGE PARKWAY TO WOODLAND VILLAGE PROJECT BOUNDARY. TEMPORARY DIRT ROADS WILL THEN BE UTILIZED FROM THE PROJECT BOUNDARY TO THE CONSTRUCTION SITE. GRAVEL APRONS SHALL BE PLACED AT ANY LOCATION WHERE CONSTRUCTION TRAFFIC EXITS TO A PAVED STREET OR OTHER ACCESS. GRAVEL APRONS SHALL BE OF SUFFICIENT AREA AND DEPTH TO PREVENT THE TRACKING OF SEDIMENT AND DEBRIS BEYOND THE CONSTRUCTION SITE.
13. SUMMIT ENGINEERING CORPORATION IS THE GEOTECHNICAL ENGINEER OF RECORD FOR THIS PROJECT. THE DEVELOPER IS RESPONSIBLE TO RETAIN THE SERVICES OF SUMMIT ENGINEERING CORPORATION TO PROVIDE ALL REQUIRED TESTING AND INSPECTION OF GRADING AND CONSTRUCTION NOT INSPECTED DIRECTLY BY WASHOE COUNTY OR GREAT BASIN WATER COMPANY. THE CONTRACTOR SHALL PROVIDE ANY INSPECTING ENTITY 48 HOURS ADVANCE NOTICE OF ANY REQUIRED TESTING OR INSPECTION.
14. ALL GRADING AND CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (PWC) AND THE LATEST DETAILS FOR (PWC) ADOPTED BY WASHOE COUNTY, THE "GEOTECHNICAL INVESTIGATION FOR VILLAGE PARKWAY TOWNHOMES" DATED FEBRUARY 5, 2021, PREPARED BY SUMMIT ENGINEERING CORPORATION. ALL SEWER CONSTRUCTION SHALL ALSO CONFORM TO THE WASHOE COUNTY DEPARTMENT OF PUBLIC WORKS UTILITY DIVISION DESIGN STANDARDS AND REVIEW GUIDELINES FOR WASTEWATER SYSTEMS. ALL WATER CONSTRUCTION SHALL ALSO CONFORM TO THE REQUIREMENTS OF GREAT BASIN WATER COMPANY.
15. IN ORDER TO EXPEDITE THE INSPECTION AND TESTING OF MATERIALS, THE CONTRACTOR SHALL FURNISH COMPLETE STATEMENTS TO THE GEOTECHNICAL ENGINEER AS TO THE ORIGIN, COMPOSITION AND MANUFACTURE OF ALL MATERIALS TO BE USED IN THE WORK. SUCH STATEMENTS SHALL BE FURNISHED PROMPTLY AFTER EXECUTION OF THE CONTRACT, BUT IN ALL CASES PRIOR TO DELIVERY OF SUCH MATERIALS.
16. AREAS TO BE GRADED SHALL BE CLEARED OF ALL SURFACE VEGETATION AND DEBRIS. THIS DEBRIS IS TO BE DISPOSED OF IN CONFORMANCE WITH WASHOE COUNTY REGULATIONS OR PLACED IN APPROVED NON-STRUCTURAL FILL AREAS IF SHOWN ON THE APPROVED GRADING PLANS.
17. ALL GRADING WITHIN PROPOSED STREET RIGHT-OF WAYS AND OTHER STRUCTURAL AREAS SHALL BE TO SUBGRADE ELEVATIONS. REFER TO THE DETAIL SHEETS FOR SPECIFIC INFORMATION ON SUBGRADE ELEVATIONS. SOIL WITHIN TWO FEET OF SUBGRADE ELEVATIONS MUST MEET THE REQUIREMENTS FOR STRUCTURAL FILL AS DEFINED IN THE GEOTECHNICAL INVESTIGATION AND AS VERIFIED IN THE FIELD BY THE GEOTECHNICAL FIELD INSPECTOR. INDIVIDUAL LOTS SHALL BE GRADED SUCH THAT THERE WILL BE NO IMPORT OF MATERIAL REQUIRED TO COMPLETE THE FINAL LOT GRADING TO THE FINISHED GRADES NOTED ON THE PLANS AFTER THE FOUNDATION IS POURED. THIS MAY BE ACCOMPLISHED BY STOCKPILING BACKFILL ON THE LOT OR LEAVING THE PADS AT 6 TO 12 INCHES ABOVE BOTTOM OF FOOTING GRADE FOR CAN-OUT BY THE CONCRETE CONTRACTOR. THE GRADING CONTRACTOR SHALL WORK OUT A SPECIFIC PLAN FOR THIS OPERATION WITH THE DEVELOPER PRIOR TO CONSTRUCTION. SOIL WITHIN THREE FEET OF BOTTOM OF FOOTING MUST ALSO MEET THE REQUIREMENTS FOR STRUCTURAL FILL TO BE VERIFIED BY THE FIELD INSPECTOR. GRADING WITHIN DETENTION BASINS AND OTHER REVEGETATED AREAS SHALL BE TO THE FINISHED GRADES NOTED ON THE PLANS AND MUST BE READY TO RECEIVE REVEGETATION WITHIN 15 DAYS OF COMPLETION.
18. DRAINAGE:
    THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL NEW DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING. NO FENCE OR OTHER OBSTRUCTION WHICH INTERFERES WITH DRAINAGE SHALL BE ALLOWED WITHIN A DRAINAGE OR STORM DRAIN EASEMENT. STORM RUNOFF FROM THE CONSTRUCTION AREA SHALL BE CONTROLLED AT ALL TIMES TO PREVENT THE TRANSPORT OF SEDIMENT AND DEBRIS TO EXISTING PAVED STREETS, STORM DRAIN SYSTEMS OR NATURAL DRAINAGE WAYS. SPECIFIC DETAILS OF STRAW BALE DAMS ARE INCLUDED IN THIS PLAN SET. STRAW BALE DAMS ARE THE MINIMUM PROTECTION REQUIRED. SILT FENCING OR OTHER APPROVED METHODS WILL BE REQUIRED IF SEDIMENT CAN NOT BE ADEQUATELY CONTROLLED BY STRAW BALE DAMS. ALL SEDIMENT CONTROL DEVICES SHALL BE CLEANED AND MAINTAINED PERIODICALLY DURING CONSTRUCITON AND IMMEDEATELY AFTER ANY RAINSTORM. AT THE COMPLETION OF CONSTRUCTION, ALL NEW STORM DRAIN SYSTEMS SHALL BE CLEANED PRIOR TO DEDICATION TO WASHOE COUNTY.
19. ALL STORM DRAIN INLETS AND OUTLETS SHALL BE ARMOURED WITH ROCK RIP-RAP (SIZE AND QUANTITY AS NOTED ON THE PLANS) AND SHALL BE GROUTED OR APPLIED OVER A LAYER OF MIRAFI 140N OR EQUIVALENT FABRIC.
20. THE CONTRACTOR SHALL MAINTAIN A 24-HOUR DUST CONTROL PROGRAM IN CONFORMITY WITH SECTION 40.030 OF THE WASHOE COUNTY AIR POLLUTION REGULATIONS AND THE APPROVED DUST CONTROL PERMIT FOR THE PROJECT. DUST SHALL BE CONTROLLED AT ALL TIMES BY DIRECT WATERING OF AREAS DISTURBED BY GRADING OPERATIONS. OPEN WATERING SHALL BE BY WATER TRUCK OR PRESSURE IRRIGATION SYSTEM. AREAS DESIGNATED FOR REVEGETAION SHALL BE REVEGETATED WITHIN 15 DAYS OF COMPLETION OF GRADING. AREAS NOT TO RECEIVE PERMANENT REVEGETATION SHALL BE TREATED WITH AN APPROVED DUST PALLIATIVE WITHIN 15 DAYS OF COMPLETION OF GRADING OPERATIONS. A LIST OF ACCEPTABLE DUST PALLIATIVES CAN BE OBTAINED FROM THE WASHOE COUNTY AIR QUALITY DIVISION.
21. SLOPE STABILIZATION AND REVEGETATION:
    ALL DISTURBED AREAS OUTSIDE THE PROPOSED STREET RIGHT OF WAYS AND LOT AREAS, INCLUDING DETENTION BASINS AND TEMPORARY DITCHES SHALL BE PERMANENTLY REVEGETATED WITHIN 15 DAYS OF COMPLETION OF GRADING OPERATIONS USING THE SEED MIX AND APPLICATION INSTRUCTIONS SHOWN BELOW. TEMPORARY IRRIGATION IS RECOMMENDED FOR AT LEAST TWO GROWING SEASONS TO ENSURE THE SUCCESS OF THE SEEDING.

SPECIES	LBS PER ACRE
GRASSES	
WHEAT GRASS CRESTED/BLUEBUNCH WHEAT GRASS	4
WHEAT GRASS SIBERIAN P-27	4
FESCUE SHEEP COVER	4
BLUEGRASS CANBY/SANDBERG	4
WILDRYE GREAT BASIN MAGNAR/NATIVE	2
RYEGRASS ANNUAL (NURSE CROP)	8
SHRUBS	
SAGEBRUSH BASIN	0.5
RABBIT BRUSH	0.5
SALT BUSH FOURWING	3
BITTER BRUSH	0.5
SPINY HPSAGE	0.5
FLOWERS	
DRYLAND AGGRESSIVE BLEND	1
	32 LBS PER ACRE

MULCH SHALL CONSIST OF DEGRADABLE GREEN DYED CELLULOSE FIBER (RECYCLED NEWSPAPER) (AGRI-FIBER BY GREENSTONE INDUSTRIES OAE). MULCH SHALL BE FREE FROM WEEDS OR OTHER FOREIGN MATTER TOXIC TO SEED GERMINATION AND SUITABLE FOR HYDROMULCHING. APPLY AT A RATE OF 2,000 LBS PER ACRE. MULCH APPLICATION SHALL INCLUDE 15-30-5 FERTILIZER AT AN APPLICATION RATE OF 30 LBS PER ACRE.

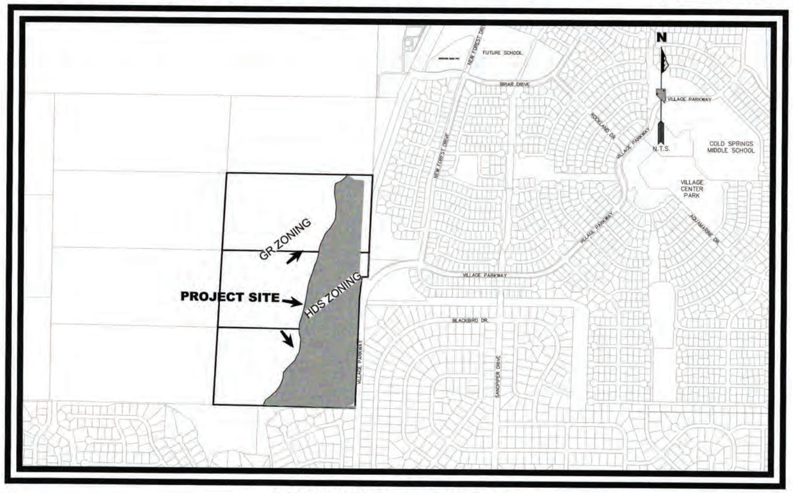
SOIL AND MULCH TACKIFIER SHALL BE USED AT A RATE OF 100 LBS PER ACRE FOR HYDRAULIC APPLICATION OF SEED, WOOD FIBER MULCH, AND TACKIFIER TO STABILIZE THE SOIL SURFACE, AND SHALL CONSIST OF AT LEAST THREE DIFFERENT BUT COMPLIMENTARY ACTIVE HYDROCOLLOIDS FROM NATURAL PLANT SOURCES. THE COMBINATION SHALL EXHIBIT SWELLING AND LUBRICITY QUALITIES WHEN HYDRATED IN WATER SLURRY, AND WHEN DRY ON THE SOIL SURFACE SHALL FORM LOOSE CONNECTING FIBRALS IN A CHAIN-LIKE TACKING FILM, AS MANUFACTURED BY RECLAMARE COMPANY UNDER THE TRADE NAME J-TAC, OR APPROVED EQUAL, AND SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

ALL FILL DIRT IMPORTED AS PART OF THE PROJECT IS REQUIRED TO BE "CERTIFIED WEED FREE."

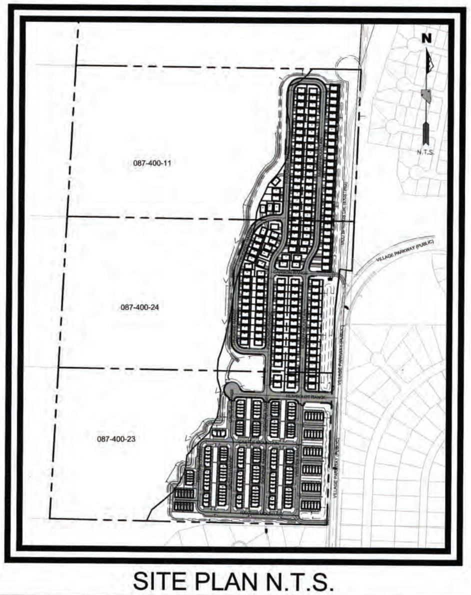
BEST MANAGEMENT PRACTICES WILL BE USED TO PREVENT THE SPREAD OF NOXIOUS AND INVASIVE WEEDS DURING CONSTRUCTION ACTIVITIES.

TENTATIVE MAP PLANS
FOR
VILLAGE PARKWAY HOMES

COLD SPRINGS WASHOE COUNTY NEVADA



VICINITY MAP N.T.S.



SITE PLAN N.T.S.

SHEET INDEX

PROJECT DATA

SINGLE FAMILY DETACHED LOTS	166 LOTS
SINGLE FAMILY ATTACHED LOTS	183 LOTS
TOTAL LOTS	349 LOTS
TOTAL AREA	124.6 AC
COMMON OPEN SPACE AREA	±97.58AC
PRIVATE PAVEMENT AREA	±3.58 AC
TOTAL LOT AREA	±20.45 AC
PUBLIC RIGHT OF WAY	±6.57 AC
GROSS DENSITY	2.80 DU/AC
AVERAGE DETACHED LOT SIZE	4,250 SF
LARGEST DETACHED LOT	8,257 SF
SMALLEST DETACHED LOT	3,645 SF
AVERAGE ATTACHED LOT SIZE	1,047 SF
LARGEST ATTACHED LOT	1,348 SF
SMALLEST ATTACHED LOT	800 SF

ABBREVIATIONS

A.C.	ASPHALTIC CONCRETE
AGG.	AGGREGATE
B.C.	BEGIN CURVE
B.F.	BOTTOM OF FOOTING
B.O.P.	BOTTOM OF PIPE
B.V.C.	BEGIN VERTICAL CURVE
B.W.	BACK OF SIDEWALK
C.B.	CATCH BASIN
CL	CENTERLINE
CONC.	CONCRETE
CONST.	CONSTRUCT
C.O.	CLEAN OUT
C.P.	CONCRETE PIPE
C.R.	CURB RETURN
D.I.	DROP INLET
DET.	DETAIL
E.	ELECTRICAL
ELEV.	ELEVATION
E.C.	END OF CURVE
E.V.C.	END OF VERTICAL CURVE
EXIST.	EXISTING
(EX)	EXISTING
E.G.	EXISTING GRADE
F.F.	FINISHED FLOOR
F.F.C.	FRONT FACE OF CURB
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
FL	FLOW LINE
FLG.	FLANGE
G.	GAS
G.B.	GRADE BREAK
GTV.	GATE VALVE
H.C.	HANDICAPPED
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
INT.	INTERSECTION
I.E.	INVERT ELEVATION
L	LENGTH
L.F.	LINEAL FEET
L.P.	LOW POINT
LT.	LEFT
M.D.D.	MAXIMUM DRY DENSITY
M.H.	MANHOLE
MPOC	MID POINT OF CURVE
NTS	NOT TO SCALE
P.	PAD ELEVATION
PCC	POINT OF COMPOUND CURVATURE
PI.	POINT OF INTERSECTION
P.R.C.	POINT OF REVERSE CURVATURE
P.V.C.	POLYVINYL CHLORIDE PIPE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.O.	PUSH ON
P.U.E.	PUBLIC UTILITY EASEMENT
PL	PROPERTY LINE
Q10	10-YEAR STORM FLOW
Q100	100-YEAR STORM FLOW
(R)	RADIAL
R	RADIUS
R.C.P.	REINFORCED CONCRETE PIPE
REF.	REFERENCE
RET	RETURN
R.P.	RADIUS POINT
RT.	RIGHT
R/W	RIGHT OF WAY
S	SLOPE
S.G.	SUBGRADE
S.S.	SANITARY SEWER
S.W.	SIDEWALK
STD.	STANDARD
SHT.	SHEET
STA.	STATION
S.D.	STORM DRAIN
S.D.E.	STORM DRAIN EASEMENT
S.W.P.P.P.	STORM WATER POLLUTION PREVENTION PLAN
T	TANGENT
TELE.	TELEPHONE
T.C.	TOP OF CURB
T.B.	THRUST BLOCK
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
T.O.P.	TOP OF PIPE
TYP.	TYPICAL
V.C.	VERTICAL CURVE
V.P.I.	VERTICAL POINT OF INTERSECTION
Δ	CURVE DELTA
W	WATER

ENGINEER'S STATEMENT

THESE PLANS (SHEETS T-1 THROUGH X-3 OF 22) HAVE BEEN PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING PROCEDURES AND GUIDELINES, AND ARE IN SUBSTANTIAL COMPLIANCE WITH APPLICABLE STATUTES, COUNTY ORDINANCES, AND CODES. IN THE EVENT OF CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND COUNTY CODES, THE COUNTY CODES SHALL PREVAIL.

ROBERT GELU P.E. #17741

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
TITLE SHEET
COLD SPRINGS WASHOE COUNTY NEVADA

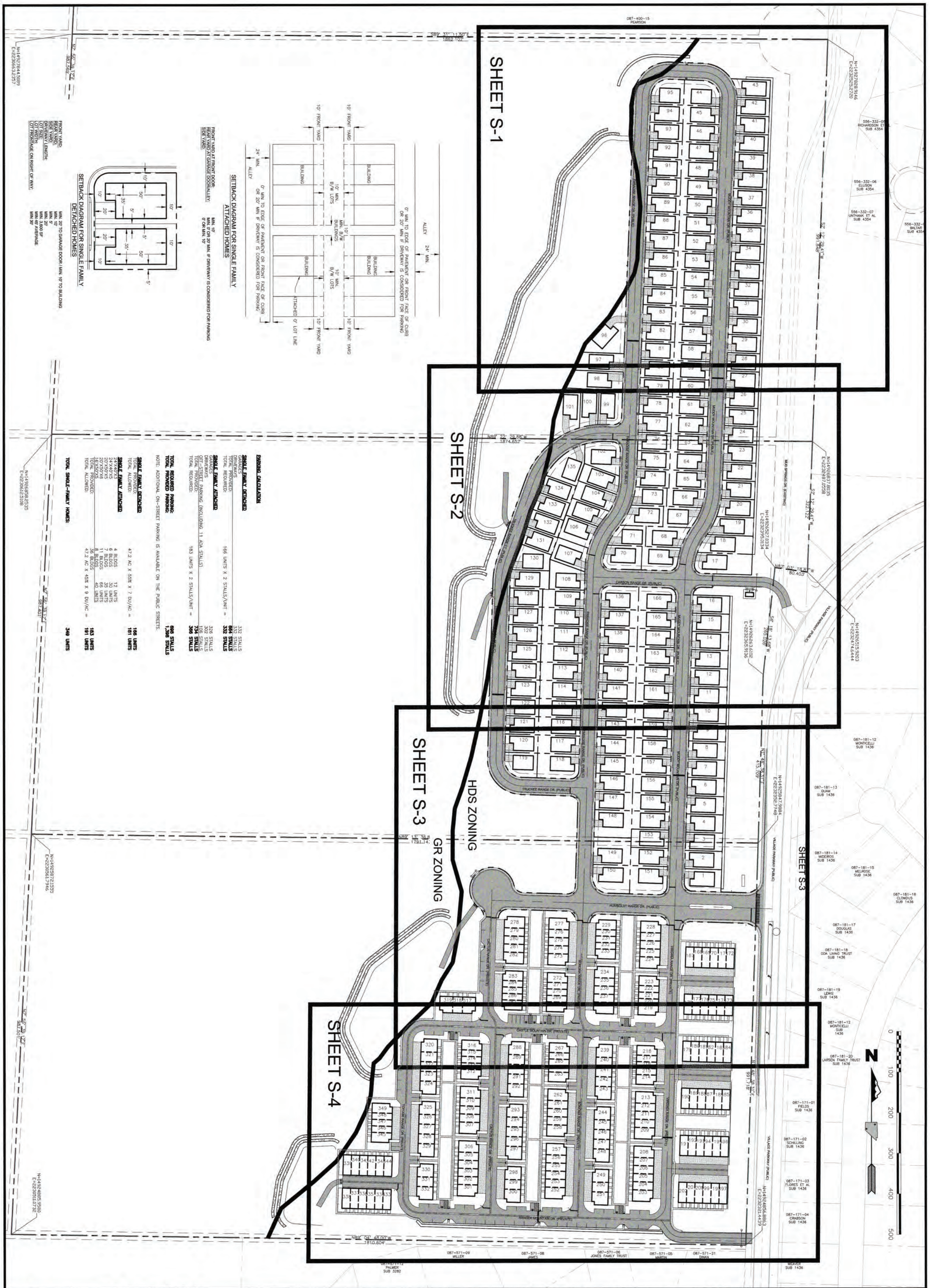
DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: N/A
VERT: N/A
JOB NO: 31097

ROBERT GELU
Exp: 6-30-23
CIVIL
No. 17741

7-8-21

SHEET T-1 OF 22

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_TITLE.DWG ~ 7:51 AM * 08-JUL-2021



PARKING CALCULATION

SINGLE FAMILY DETACHED

GARAGES		332 STALLS
DRIVEWAYS		332 STALLS
TOTAL PROVIDED:		**664 STALLS**
TOTAL REQUIRED:	166 UNITS X 2 STALLS/UNIT =	**332 STALLS**

SINGLE FAMILY ATTACHED

GARAGES		326 STALLS
DRIVEWAYS		302 STALLS
OFF-STREET PARKING (INCLUDING 11 ADA STALLS)		106 STALLS
TOTAL PROVIDED:		**734 STALLS**
TOTAL REQUIRED:	183 UNITS X 2 STALLS/UNIT =	**366 STALLS**

TOTAL REQUIRED PARKING:	**698 STALLS**
TOTAL PROVIDED PARKING:	**1,398 STALLS**

NOTE: ADDITIONAL ON-STREET PARKING IS AVAILABLE ON THE PUBLIC STREETS.

SINGLE FAMILY DETACHED

TOTAL PROVIDED:		**166 UNITS**
TOTAL ALLOWED:	47.2 AC X 55% X 7 DU/AC =	**181 UNITS**

SINGLE FAMILY ATTACHED

24'X40'X3	4 BLDGS	12 UNITS	
24'X40'X5	6 BLDGS	30 UNITS	
20'X50'X5	7 BLDGS	35 UNITS	
20'X50'X6	11 BLDGS	66 UNITS	
16'X50'X5	8 BLDGS	40 UNITS	
TOTAL PROVIDED:	36 BLDGS		**183 UNITS**
TOTAL ALLOWED:	47.2 AC X 45% X 9 DU/AC =		**191 UNITS**

TOTAL SINGLE-FAMILY HOMES: **349 UNITS**

SETBACK DIAGRAM FOR SINGLE FAMILY ATTACHED HOMES

FRONT YARD AT FRONT DOOR:	MIN. 10'
REAR YARD AT GARAGE DOOR/ALLEY:	MIN. 0' OR 20' MIN. IF DRIVEWAY IS CONSIDERED FOR PARKING
SIDE YARD:	0' OR MIN. 10'

SETBACK DIAGRAM FOR SINGLE FAMILY DETACHED HOMES

FRONT YARD:	MIN. 20' TO GARAGE DOOR / MIN. 10' TO BUILDING
REAR YARD:	MIN. 10'
SIDE YARD:	MIN. 5'
DRIVEWAY LENGTH:	MIN. 20'
LOT SIZE:	MIN. 3,600 SF
LOT WIDTH:	MIN 45' AVERAGE
LOT FRONTAGE ON RIGHT OF WAY:	MIN 30'

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
OVERALL SITE PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=100'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23
7-8-21

SHEET S-0 OF 22

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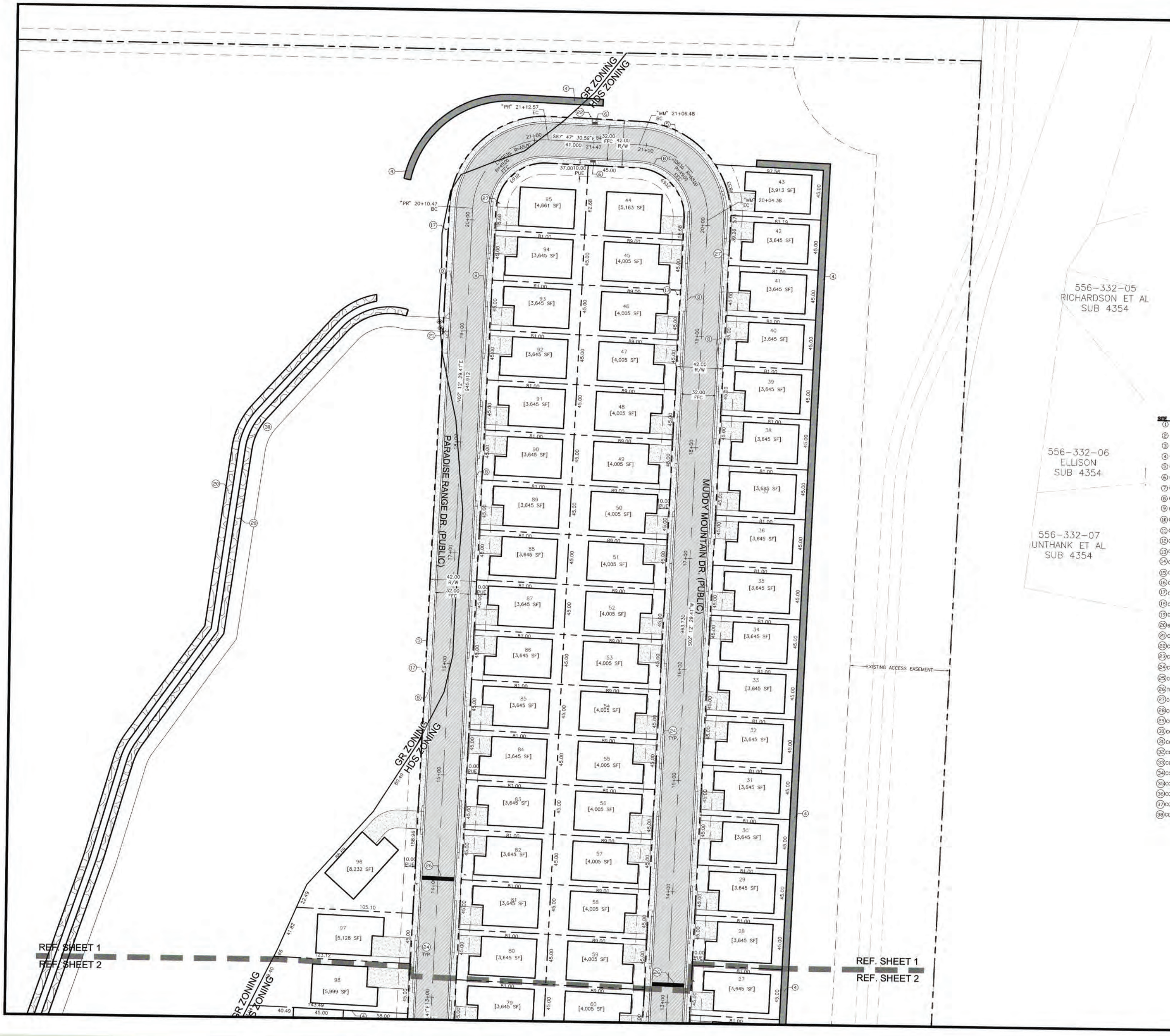

LEGEND

13	LOT NUMBER
[6000 SF]	LOT AREA IN SQUARE FEET
35	LOT LINE DIMENSION
▨	PROPOSED AC
☐	PROPOSED PCC
	STREET SIGN (GRAY IF EXISTING)
▬	STRIPING (GRAY IF EXISTING)
	PROPOSED RIGHT-OF-WAY
	PROPOSED LOT LINE
	CENTER LINE
	ADA RAMP

SITE PLAN KEYNOTES

① 12" STOP BAR PER MUTCD
② CONST. R1-1 STOP SIGN (30"X30") W/ STREET NAME SIGNS
③ CONST. R2-1 10 MPH SPEED LIMIT SIGN
④ CONST. 6' MAX RETAINING WALL
⑤ CONST. 4' WIDE PCC SIDEWALK
⑥ CONST. PEDESTRIAN RAMP W/ DETECTABLE WARNING SURFACE
⑦ CONST. MINIMUM 8' X 24' PARKING SPACE WITH MARKINGS
⑧ CONST. TYPE 1 PCC CURB AND GUTTER
⑨ CONST. TYPE 1 PCC MEDIAN CURB
⑩ CONST. "NO PARKING ON PAVEMENT EXCEPT IN DESIGNATED PARKING STALLS" SIGN
⑪ CONST. PCC STEPS AS NEEDED (MIN. 2 FOR EACH UNIT)
⑫ CONST. 3' CONCRETE VALLEY GUTTER
⑬ CONST. 2' WIDE x 6' LONG PEDESTRIAN CROSSING MARKINGS PER MUTCD
⑭ CONST. VAN ACCESSIBLE ADA PARKING STALL W/ MARKINGS
⑮ CONST. LANDSCAPE AREA PER LANDSCAPE PLANS
⑯ CONST. LANDSCAPE POT PER LANDSCAPE PLANS
⑰ CONST. R2-1 25 MPH SPEED LIMIT SIGN
⑱ CONST. "FIRE LANE NO PARKING" SIGN
⑲ CONST. EMERGENCY ACCESS GATE
⑳ 6' MAX ROCK WALL W/BENCHES
㉑ CONST. PCC COMMERCIAL DRIVEWAY WITH 2 REMOVABLE BOLLARDS
㉒ CONST. DUAL STREET NAME SIGN
㉓ CONST. 5' WIDE PCC SIDEWALK
㉔ CONST. PCC DRIVEWAY APRON PER W5.11 MODIFIED FOR PUBLIC STREETS (REF. SHEET X-1)
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㉖ TRAFFIC CALMING (SPEED BUMP W/ SIGNS)
㉗ CONST. R2-1 15 MPH SPEED LIMIT SIGN
㉘ CONST. "OFFROAD TRAIL ACCESS" SIGN
㉙ CONST. COMMERCIAL DRIVEWAY APRON
㉚ CONST. MAINTENANCE ACCESS ROAD
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TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES PRELIMINARY SITE PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23

7-8-21

SHEET S-1 OF 22

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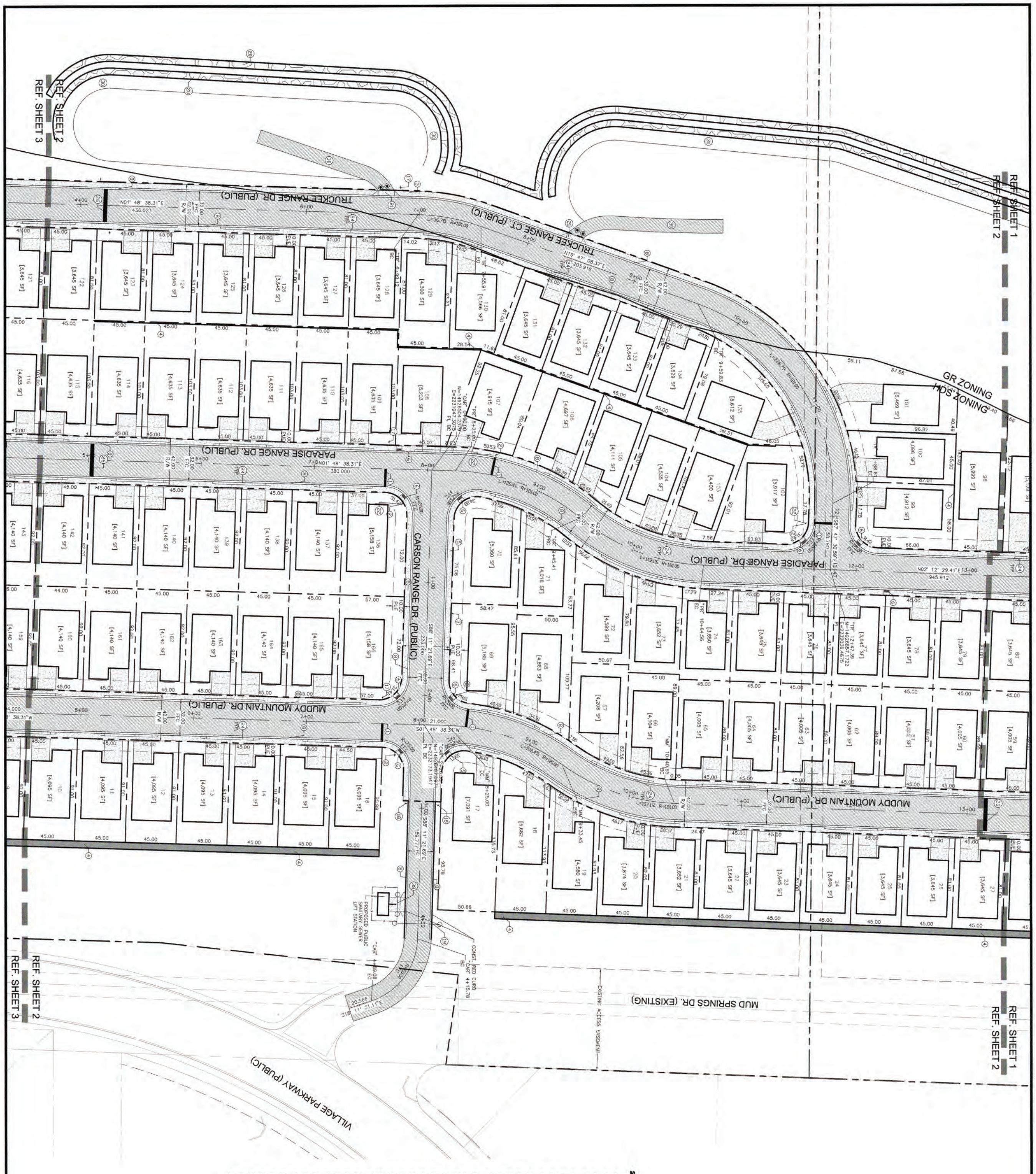

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— —	PROPOSED LOT LINE
— —	CENTER LINE
	ADA RAMP

0 40 80 120 160 200

N

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SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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COLD SPRINGS WASHOE COUNTY NEVADA

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SHEET S-2 OF 22

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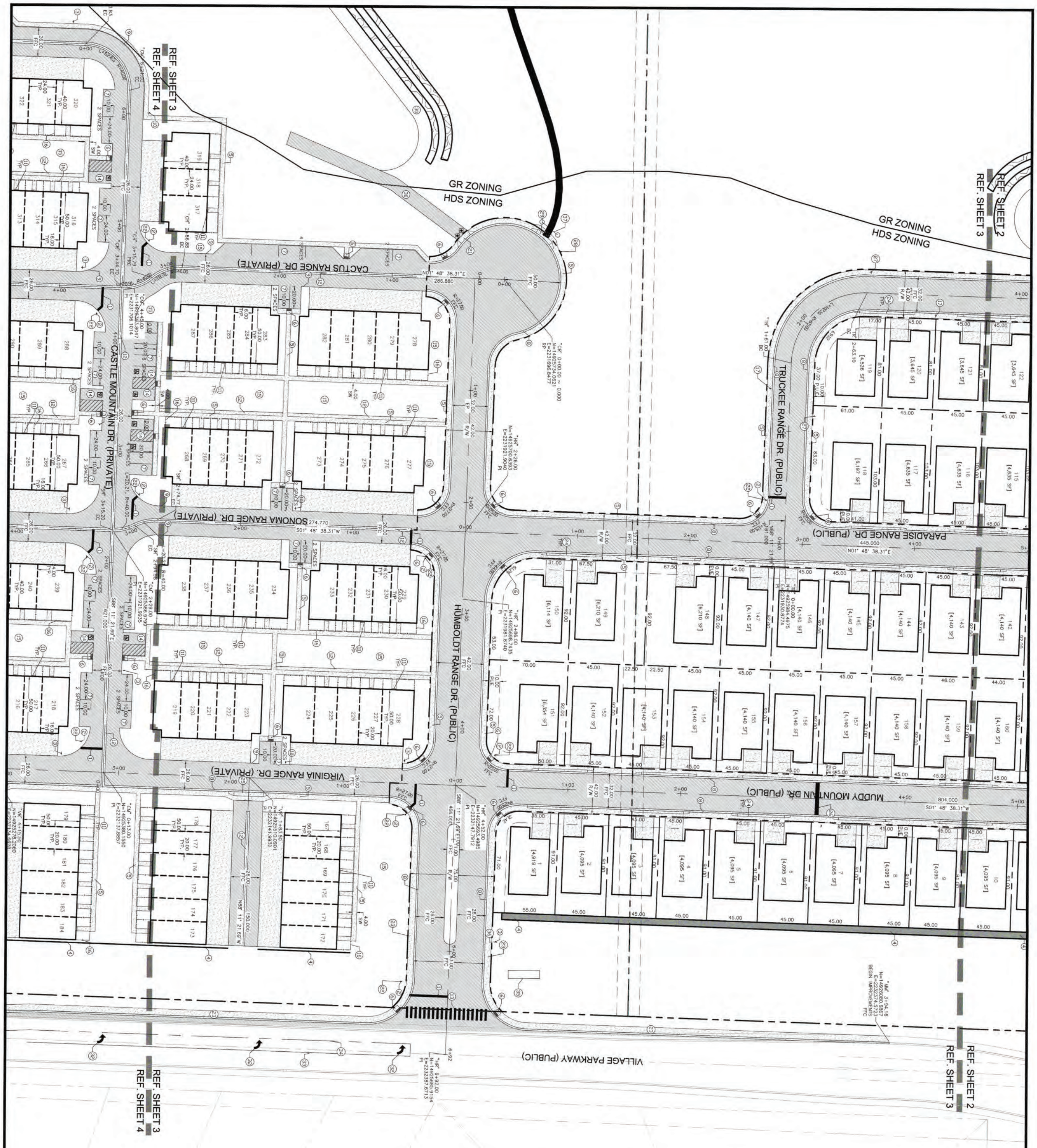


SITE PLAN KEYNOTES

① 12" STOP BAR PER MUTCD
② CONST. R1-1 STOP SIGN (30"X30") W/ STREET NAME SIGNS
③ CONST. R2-1 10 MPH SPEED LIMIT SIGN
④ CONST. 6' MAX RETAINING WALL
⑤ CONST. 4' WIDE PCC SIDEWALK
⑥ CONST. PEDESTRIAN RAMP W/ DETECTABLE WARNING SURFACE
⑦ CONST. MINIMUM 8' X 24' PARKING SPACE WITH MARKINGS
⑧ CONST. TYPE 1 PCC CURB AND GUTTER
⑨ CONST. TYPE 1 PCC MEDIAN CURB
⑩ CONST. "NO PARKING ON PAVEMENT EXCEPT IN DESIGNATED PARKING STALLS" SIGN
⑪ CONST. PCC STEPS AS NEEDED (MIN. 2 FOR EACH UNIT)
⑫ CONST. 3' CONCRETE VALLEY GUTTER
⑬ CONST. 2' WIDE x 6' LONG PEDESTRIAN CROSSING MARKINGS PER MUTCD
⑭ CONST. VAN ACCESSIBLE ADA PARKING STALL W/ MARKINGS
⑮ CONST. LANDSCAPE AREA PER LANDSCAPE PLANS
⑯ CONST. LANDSCAPE POT PER LANDSCAPE PLANS
⑰ CONST. R2-1 25 MPH SPEED LIMIT SIGN
⑱ CONST. "FIRE LANE NO PARKING" SIGN
⑲ CONST. EMERGENCY ACCESS GATE
⑳ 6' MAX ROCK WALL W/BENCHES
㉑ CONST. PCC COMMERCIAL DRIVEWAY WITH 2 REMOVABLE BOLLARDS
㉒ CONST. DUAL STREET NAME SIGN
㉓ CONST. 5' WIDE PCC SIDEWALK
㉔ CONST. PCC DRIVEWAY APRON PER W5.11 MODIFIED FOR PUBLIC STREETS (REF. SHEET X-1)
㉕ CONST. PCC DRIVEWAY APRON PER W5.11 MODIFIED FOR PRIVATE ALLEYS (REF. SHEET X-1)
㉖ TRAFFIC CALMING (SPEED BUMP W/ SIGNS)
㉗ CONST. R2-1 15 MPH SPEED LIMIT SIGN
㉘ CONST. "OFFROAD TRAIL ACCESS" SIGN
㉙ CONST. COMMERCIAL DRIVEWAY APRON
㉚ CONST. MAINTENANCE ACCESS ROAD
㉛ CONST. REMOVABLE BOLLARDS
㉜ CONST. LEFT ARROW TURN STRIPING
㉝ CONST. WHITE LANE STRIPING
㉞ CONST. YELLOW LANE STRIPING
㉟ CONST. ENTRANCE SIGN
㊱ CONST. ROAD NOT MAINTAINED BY WASHOE COUNTY SIGNAGE
㊲ CONST. DOG LEG FENCE
㊳ CONST. FENCE WITH GATE

LEGEND

13	LOT NUMBER
[6000 SF]	LOT AREA IN SQUARE FEET
35	LOT LINE DIMENSION
▨	PROPOSED AC
☐	PROPOSED PCC
▲	STREET SIGN (GRAY IF EXISTING)
▬	STRIPING (GRAY IF EXISTING)
— - —	PROPOSED RIGHT-OF-WAY
— - —	PROPOSED LOT LINE
— - —	CENTER LINE
	ADA RAMP

0 40 80 120 160 200

N

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES
PRELIMINARY SITE PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

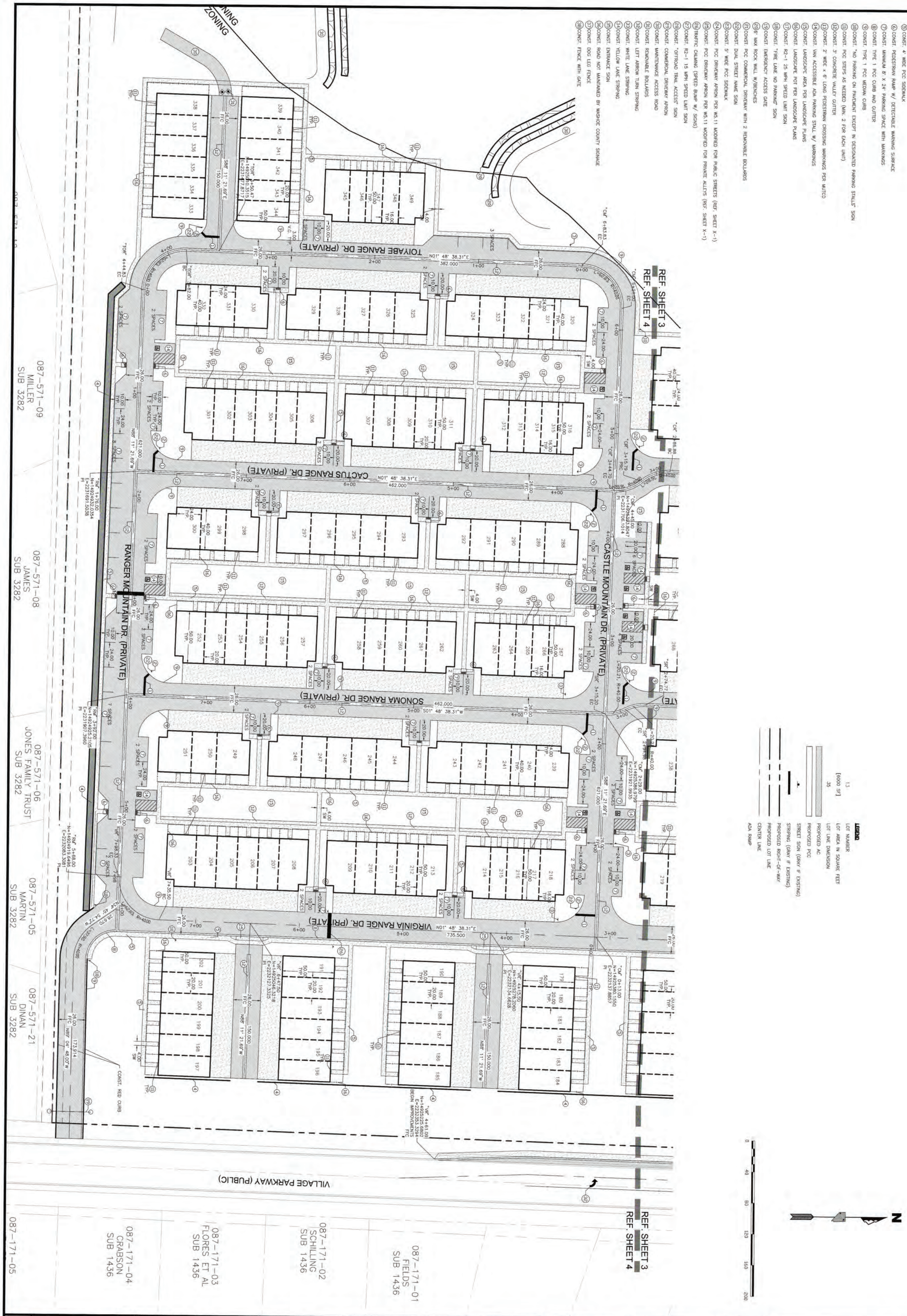
DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23
No. 17XX

7-8-21

SHEET S-3 OF 22

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:06 AM * 08-JUL-2021



SITE PLAN KEYNOTES

① 12" STOP BAR PER MUTCD
② CONST. R1-1 STOP SIGN (30"X30") W/ STREET NAME SIGNS
③ CONST. R2-1 10 MPH SPEED LIMIT SIGN
④ CONST. 6' MAX RETAINING WALL
⑤ CONST. 4' WIDE PCC SIDEWALK
⑥ CONST. PEDESTRIAN RAMP W/ DETECTABLE WARNING SURFACE
⑦ CONST. MINIMUM 8' X 24' PARKING SPACE WITH MARKINGS
⑧ CONST. TYPE 1 PCC CURB AND GUTTER
⑨ CONST. TYPE 1 PCC MEDIAN CURB
⑩ CONST. "NO PARKING ON PAVEMENT EXCEPT IN DESIGNATED PARKING STALLS" SIGN
⑪ CONST. PCC STEPS AS NEEDED (MIN. 2 FOR EACH UNIT)
⑫ CONST. 3' CONCRETE VALLEY GUTTER
⑬ CONST. 2' WIDE x 6' LONG PEDESTRIAN CROSSING MARKINGS PER MUTCD
⑭ CONST. VAN ACCESSIBLE ADA PARKING STALL W/ MARKINGS
⑮ CONST. LANDSCAPE AREA PER LANDSCAPE PLANS
⑯ CONST. LANDSCAPE POT PER LANDSCAPE PLANS
⑰ CONST. R2-1 25 MPH SPEED LIMIT SIGN
⑱ CONST. "FIRE LANE NO PARKING" SIGN
⑲ CONST. EMERGENCY ACCESS GATE
⑳ 6' MAX ROCK WALL W/BENCHES
㉑ CONST. PCC COMMERCIAL DRIVEWAY WITH 2 REMOVABLE BOLLARDS
㉒ CONST. DUAL STREET NAME SIGN
㉓ CONST. 5' WIDE PCC SIDEWALK
㉔ CONST. PCC DRIVEWAY APRON PER W5.11 MODIFIED FOR PUBLIC STREETS (REF. SHEET X-1)
㉕ CONST. PCC DRIVEWAY APRON PER W5.11 MODIFIED FOR PRIVATE ALLEYS (REF. SHEET X-1)
㉖ TRAFFIC CALMING (SPEED BUMP W/ SIGNS)
㉗ CONST. R2-1 15 MPH SPEED LIMIT SIGN
㉘ CONST. "OFFROAD TRAIL ACCESS" SIGN
㉙ CONST. COMMERCIAL DRIVEWAY APRON
㉚ CONST. MAINTENANCE ACCESS ROAD
㉛ CONST. REMOVABLE BOLLARDS
㉜ CONST. LEFT ARROW TURN STRIPING
㉝ CONST. WHITE LANE STRIPING
㉞ CONST. YELLOW LANE STRIPING
㉟ CONST. ENTRANCE SIGN
㊱ CONST. ROAD NOT MAINTAINED BY WASHOE COUNTY SIGNAGE
㊲ CONST. DOG LEG FENCE
㊳ CONST. FENCE WITH GATE

LEGEND

13	LOT NUMBER
[6000 SF]	LOT AREA IN SQUARE FEET
35	LOT LINE DIMENSION
▨	PROPOSED AC
☐	PROPOSED PCC
●	STREET SIGN (GRAY IF EXISTING)
▬	STRIPING (GRAY IF EXISTING)
— —	PROPOSED RIGHT-OF-WAY
— —	PROPOSED LOT LINE
— - —	CENTER LINE
	ADA RAMP

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES
PRELIMINARY SITE PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

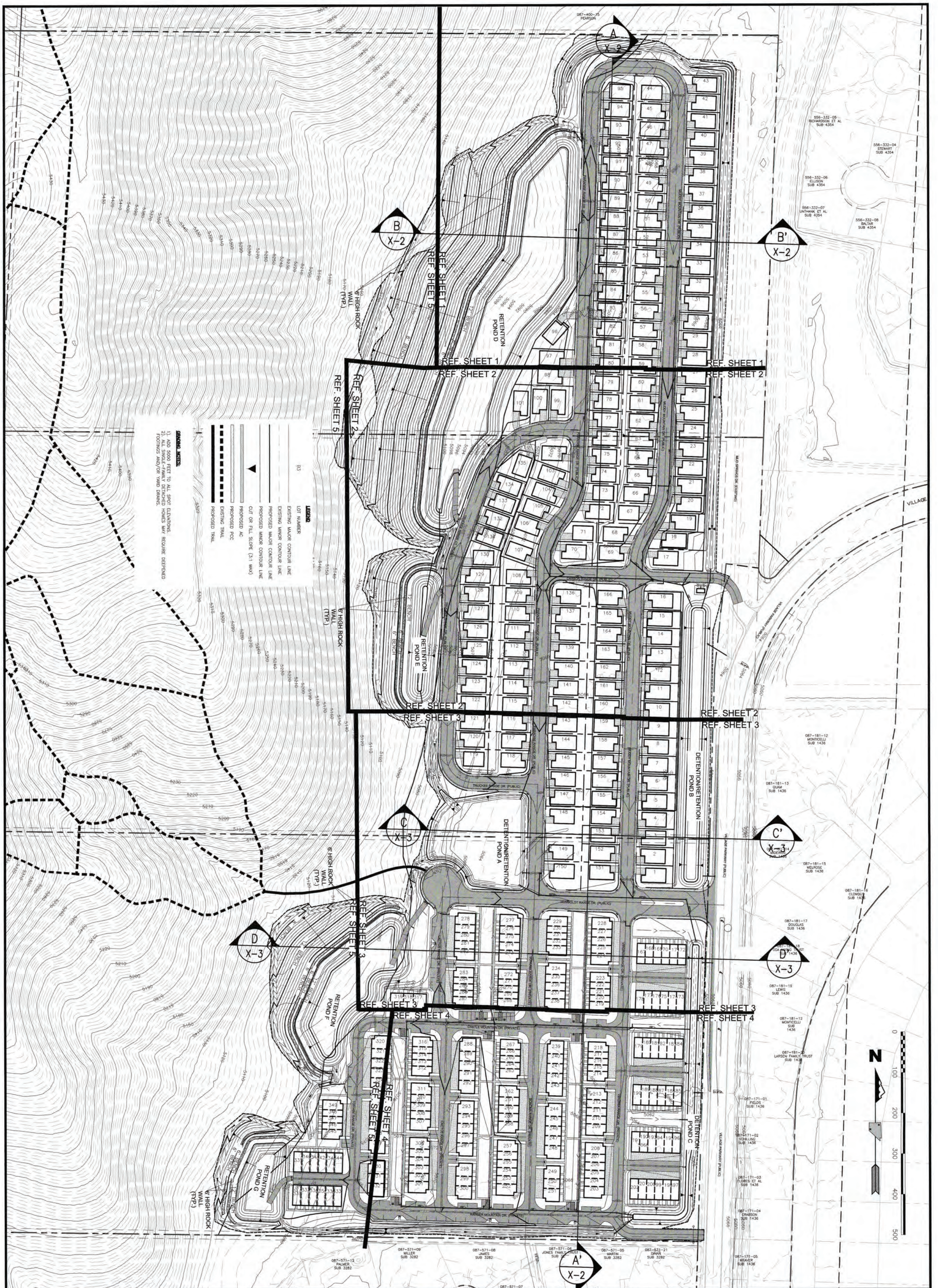
DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELU
No. 17741
Exp 6-30-23

7-8-21

SHEET S-4 OF 22

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:10 AM * 08-JUL-2021



REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES
OVERALL GRADING PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=100'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23

7-8-21

SHEET G-0 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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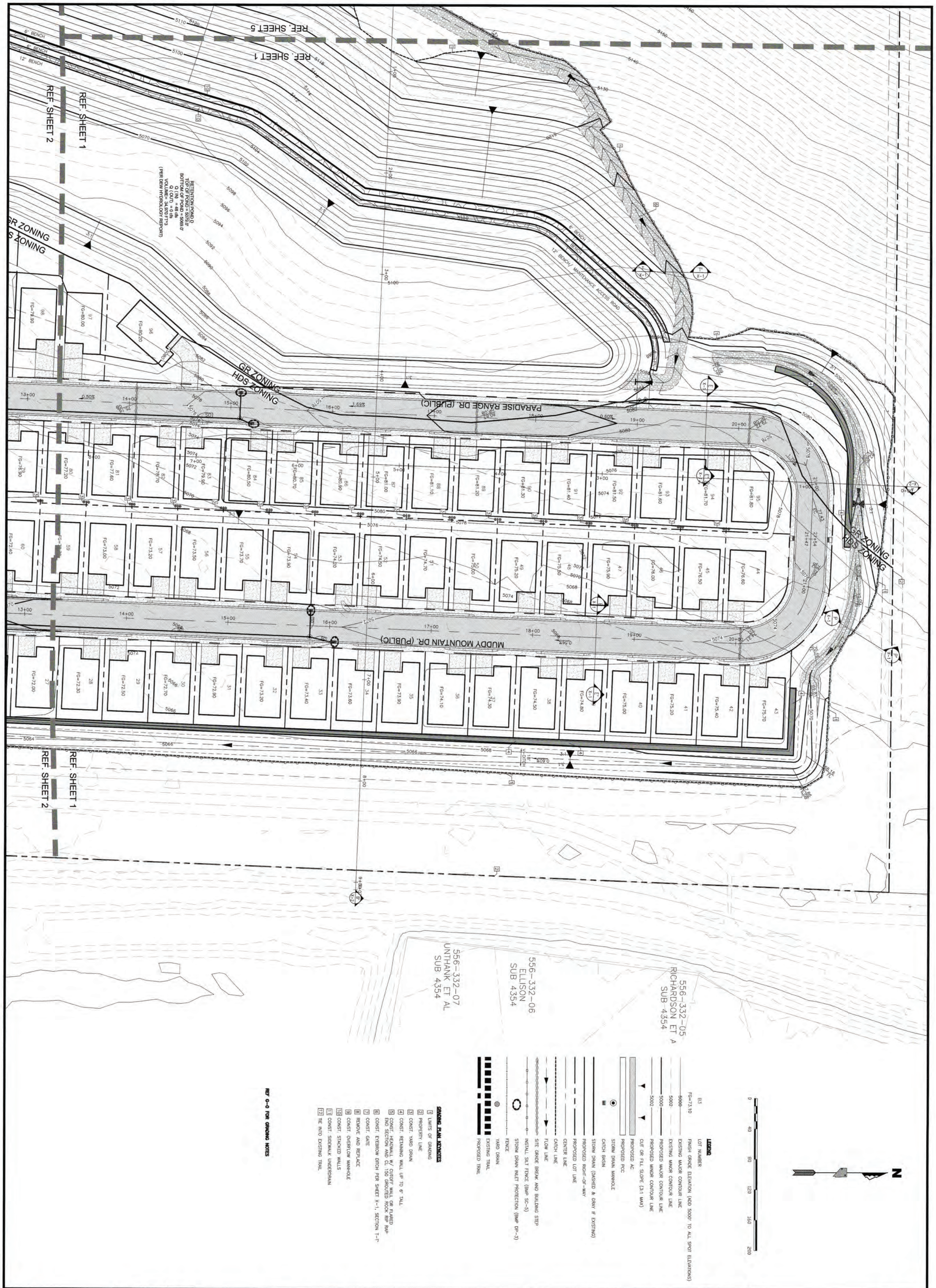

LEGEND

83	LOT NUMBER
FG=73.10	FINISH GRADE ELEVATION (ADD 5000' TO ALL SPOT ELEVATIONS)
5000	EXISTING MAJOR CONTOUR LINE
5002	EXISTING MINOR CONTOUR LINE
5000	PROPOSED MAJOR CONTOUR LINE
5002	PROPOSED MINOR CONTOUR LINE
	CUT OR FILL SLOPE (3:1 MAX)
	PROPOSED AC
	PROPOSED PCC
	STORM DRAIN MANHOLE
	CATCH BASIN
	STORM DRAIN (DASHED & GRAY IF EXISTING)
	PROPOSED RIGHT-OF-WAY
	PROPOSED LOT LINE
	CENTER LINE
	CATCH LINE
	FLOW LINE
	SITE GRADE BREAK AND BUILDING STEP
	INSTALL SILT FENCE (BMP SC-5)
	STORM DRAIN INLET PROTECTION (BMP DP-3)
	FENCE
	YARD DRAIN
	EXISTING TRAIL
	PROPOSED TRAIL

GRADING PLAN KEYNOTES

1. LIMITS OF GRADING
2. PROPERTY LINE
3. CONST. YARD DRAIN
4. CONST. RETAINING WALL UP TO 6' TALL
5. CONST. HEADWALL W/ CUTOFF WALL OR FLARED END SECTION AND CL 150 GROUTED ROCK RIP RAP
6. CONST. EYEBROW DITCH PER SHEET X-1, SECTION T-T'
7. CONST. GATE
8. REMOVE AND REPLACE
9. CONST. OVERFLOW MANHOLE
10. CONST. STACKED WALLS
11. CONST. SIDEWALK UNDERDRAIN
12. TIE INTO EXISTING TRAIL

REF G-0 FOR GRADING NOTES

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23
7-8-21

SHEET G-1 OF 22

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY GRADING PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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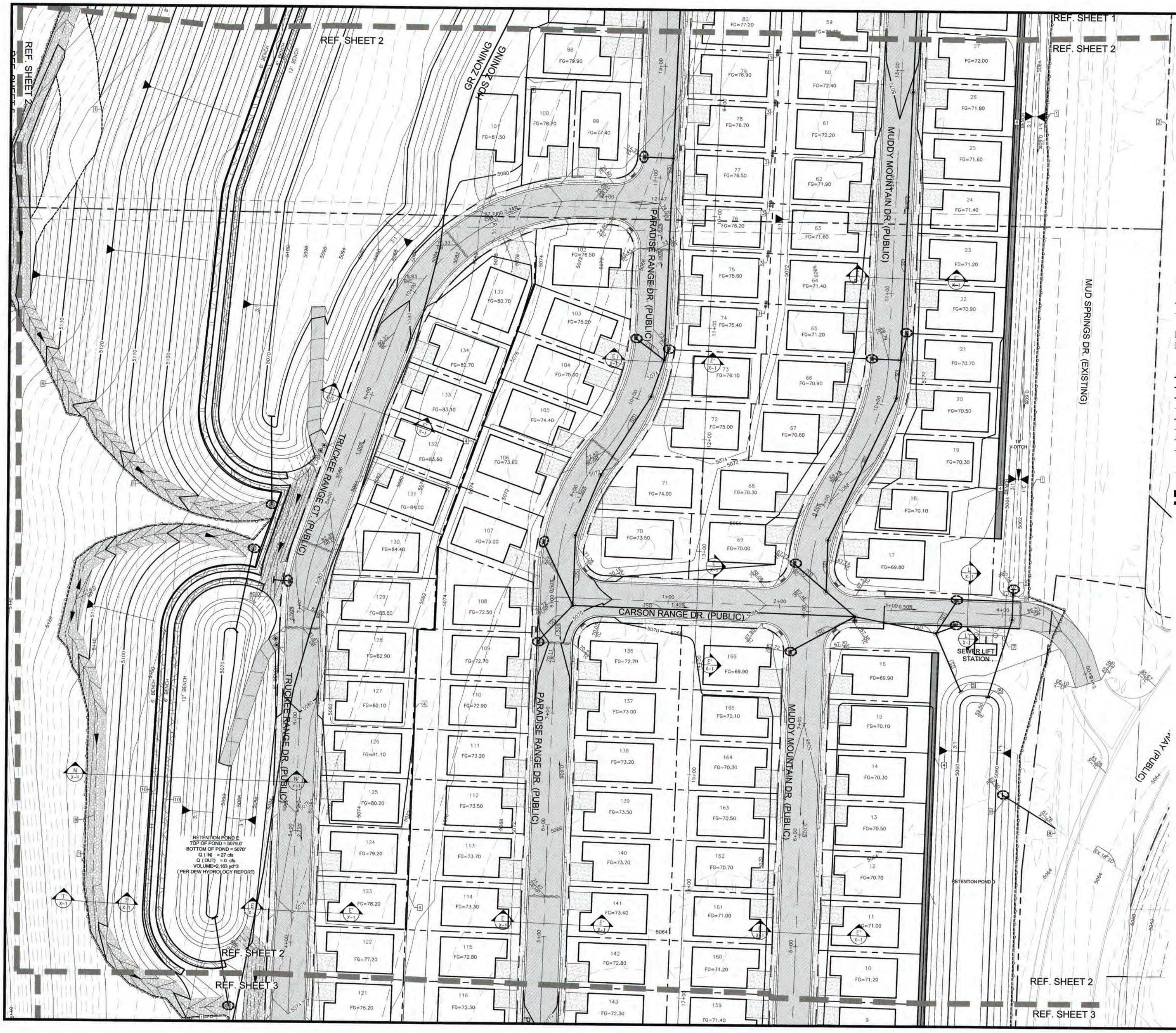

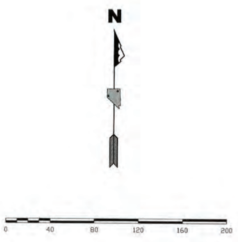

LEGEND

B3	LOT NUMBER
FG=73.10	FINISH GRADE ELEVATION (ADD 5000' TO ALL SPOT ELEVATIONS)
5000	EXISTING MAJOR CONTOUR LINE
5002	EXISTING MINOR CONTOUR LINE
5000	PROPOSED MAJOR CONTOUR LINE
5002	PROPOSED MINOR CONTOUR LINE
▼ ▼	CUT OR FILL SLOPE (3:1 MAX)
▨	PROPOSED AC
☐	PROPOSED PCC
⦿	STORM DRAIN MANHOLE
■	CATCH BASIN
───	STORM DRAIN (DASHED & GRAY IF EXISTING)
───	PROPOSED RIGHT-OF-WAY
── ‒ ‒ ──	PROPOSED LOT LINE
── ‒ ──	CENTER LINE
- - - -	CATCH LINE
─ ► ─	FLOW LINE
〰	SITE GRADE BREAK AND BUILDING STEP
─□─□─	INSTALL SILT FENCE (BMP SC-5)
○	STORM DRAIN INLET PROTECTION (BMP DP-3)
─·─·─	FENCE
◍	YARD DRAIN
■■■■■■	EXISTING TRAIL
━━ ▬ ━━	PROPOSED TRAIL

GRADING PLAN KEYNOTES

1. LIMITS OF GRADING
2. PROPERTY LINE
3. CONST. YARD DRAIN
4. CONST. RETAINING WALL UP TO 6' TALL
5. CONST. HEADWALL W/ CUTOFF WALL OR FLARED END SECTION AND CL 150 GROUTED ROCK RIP RAP
6. CONST. EYEBROW DITCH PER SHEET X-1, SECTION T-T'
7. CONST. GATE
8. REMOVE AND REPLACE
9. CONST. OVERFLOW MANHOLE
10. CONST. STACKED WALLS
11. CONST. SIDEWALK UNDERDRAIN
12. TIE INTO EXISTING TRAIL

REF G-0 FOR GRADING NOTES

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY GRADING PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT CELU
Exp. 6-30-23
CIVIL
No. 17741

7-8-21

SHEET G-2 OF 22

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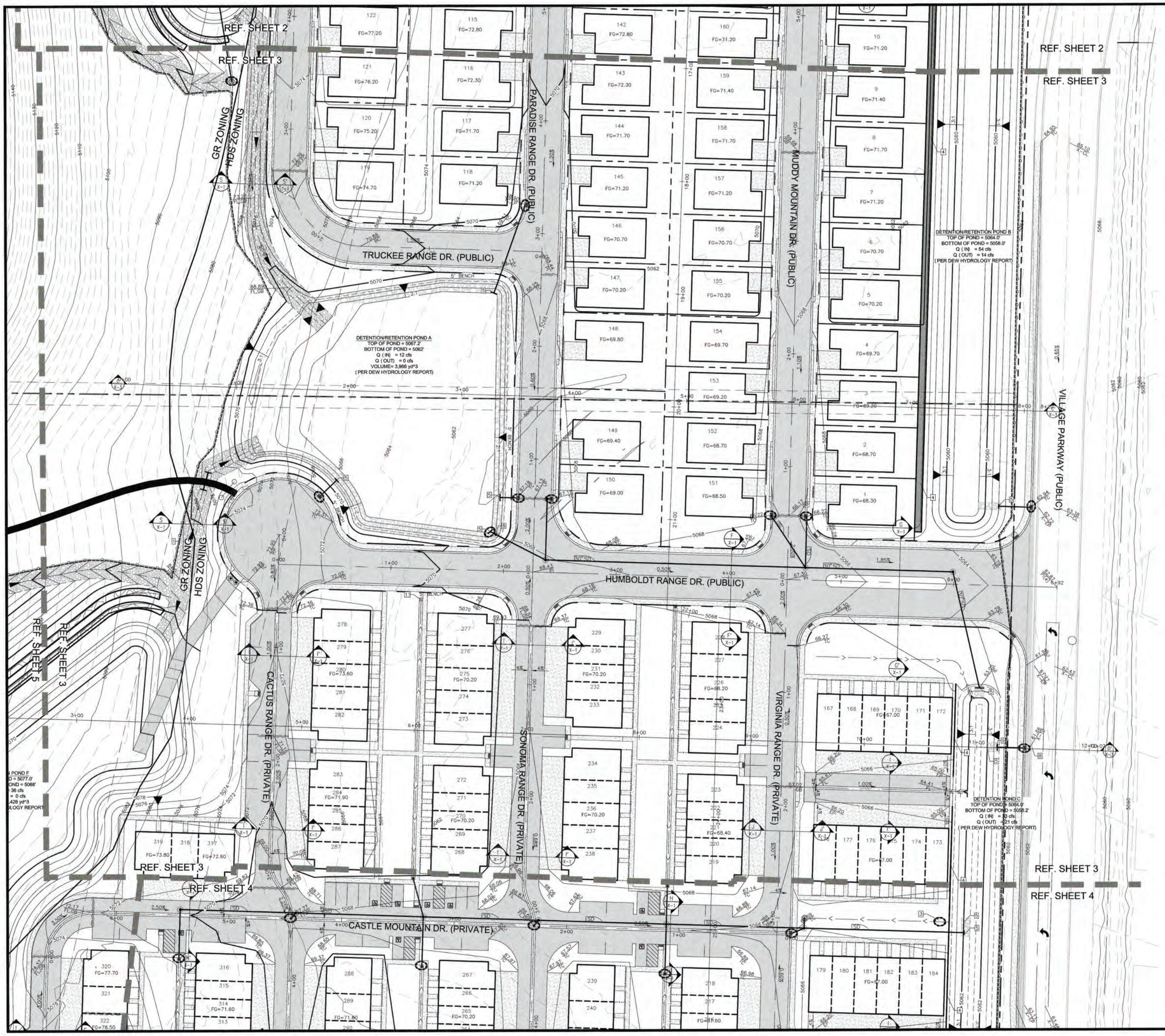

N

0 40 80 120 160 200

LEGEND

B3	LOT NUMBER
FG=73.10	FINISH GRADE ELEVATION (ADD 5000' TO ALL SPOT ELEVATIONS)
5000	EXISTING MAJOR CONTOUR LINE
5002	EXISTING MINOR CONTOUR LINE
5000	PROPOSED MAJOR CONTOUR LINE
5002	PROPOSED MINOR CONTOUR LINE
▼ ▼	CUT OR FILL SLOPE (3:1 MAX)
▨	PROPOSED AC
☐	PROPOSED PCC
◉	STORM DRAIN MANHOLE
■	CATCH BASIN
———	STORM DRAIN (DASHED & GRAY IF EXISTING)
———	PROPOSED RIGHT-OF-WAY
— — —	PROPOSED LOT LINE
— - —	CENTER LINE
- - - -	CATCH LINE
—▶—	FLOW LINE
~~	SITE GRADE BREAK AND BUILDING STEP
—o—o—	INSTALL SILT FENCE (BMP SC-5)
○	STORM DRAIN INLET PROTECTION (BMP DP-3)
—·—·—	FENCE
⊛	YARD DRAIN
■■■■	EXISTING TRAIL
▬ ■ ▬	PROPOSED TRAIL

GRADING PLAN KEYNOTES

1. LIMITS OF GRADING
2. PROPERTY LINE
3. CONST. YARD DRAIN
4. CONST. RETAINING WALL UP TO 6' TALL
5. CONST. HEADWALL W/ CUTOFF WALL OR FLARED END SECTION AND CL 150 GROUTED ROCK RIP RAP
6. CONST. EYEBROW DITCH PER SHEET X-1. SECTION T-T'
7. CONST. GATE
8. REMOVE AND REPLACE
9. CONST. OVERFLOW MANHOLE
10. CONST. STACKED WALLS
11. CONST. SIDEWALK UNDERDRAIN
12. TIE INTO EXISTING TRAIL

REF G-0 FOR GRADING NOTES

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY GRADING PLAN

COLD SPRINGS
WASHOE COUNTY
NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELLI
Exp. 6-30-23
7-8-21

SHEET
G-3 OF 22

SUMMIT ENGINEERING CORPORATION™
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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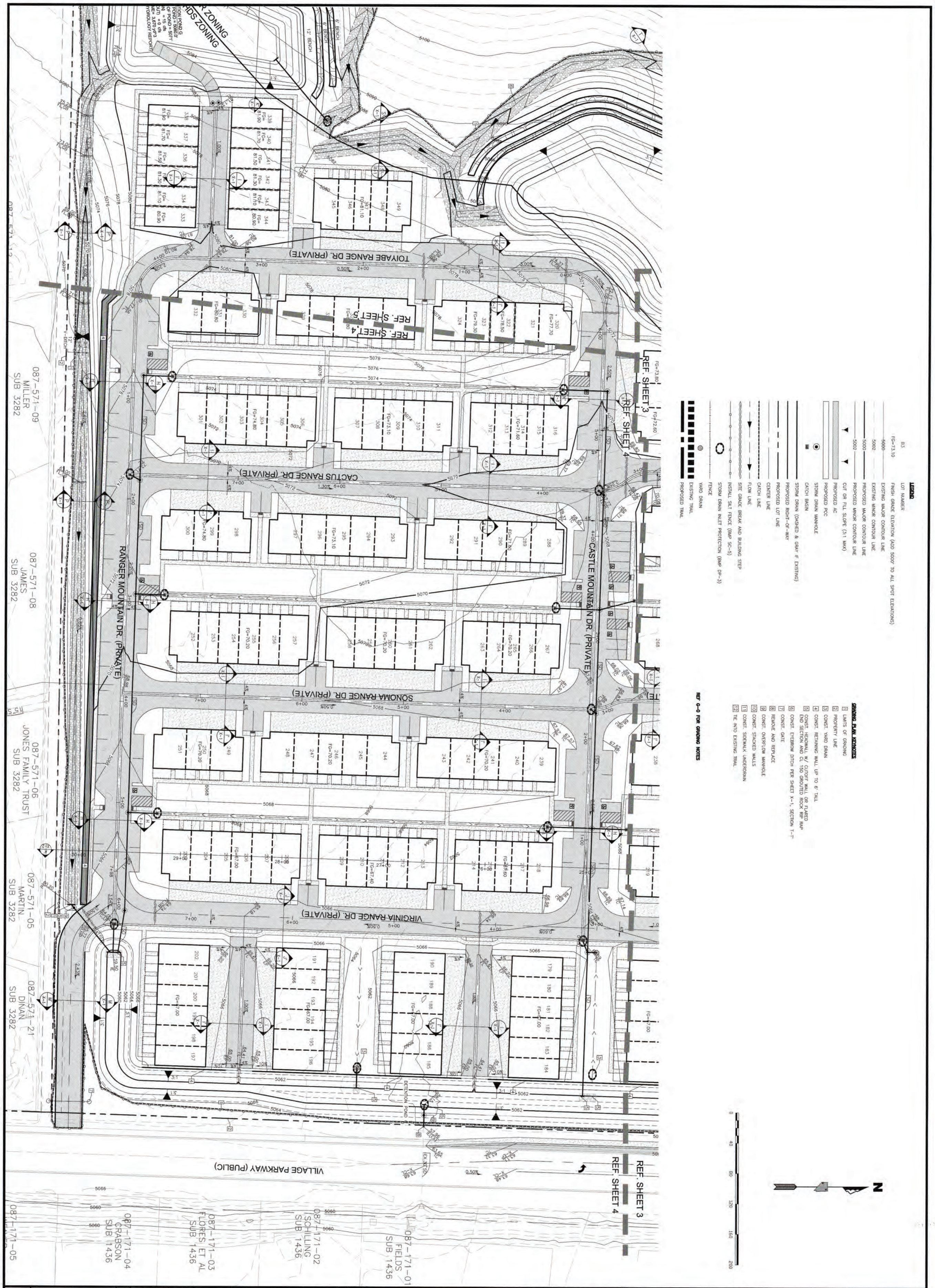

LEGEND

B3	LOT NUMBER
FG=73.10	FINISH GRADE ELEVATION (ADD 5000' TO ALL SPOT ELEVATIONS)
5000	EXISTING MAJOR CONTOUR LINE
5002	EXISTING MINOR CONTOUR LINE
5000	PROPOSED MAJOR CONTOUR LINE
5002	PROPOSED MINOR CONTOUR LINE
▼ ▼	CUT OR FILL SLOPE (3:1 MAX)
▨	PROPOSED AC
☐	PROPOSED PCC
◉	STORM DRAIN MANHOLE
■	CATCH BASIN
	STORM DRAIN (DASHED & GRAY IF EXISTING)
	PROPOSED RIGHT-OF-WAY
	PROPOSED LOT LINE
	CENTER LINE
	CATCH LINE
	FLOW LINE
	SITE GRADE BREAK AND BUILDING STEP
	INSTALL SILT FENCE (BMP SC-5)
	STORM DRAIN INLET PROTECTION (BMP DP-3)
	FENCE
⊗	YARD DRAIN
	EXISTING TRAIL
	PROPOSED TRAIL

GRADING PLAN KEYNOTES

1. LIMITS OF GRADING
2. PROPERTY LINE
3. CONST. YARD DRAIN
4. CONST. RETAINING WALL UP TO 6' TALL
5. CONST. HEADWALL W/ CUTOFF WALL OR FLARED END SECTION AND CL 150 GROUTED ROCK RIP RAP
6. CONST. EYEBROW DITCH PER SHEET X-1, SECTION T-T'
7. CONST. GATE
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9. CONST. OVERFLOW MANHOLE
10. CONST. STACKED WALLS
11. CONST. SIDEWALK UNDERDRAIN
12. TIE INTO EXISTING TRAIL

REF G-0 FOR GRADING NOTES

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY GRADING PLAN

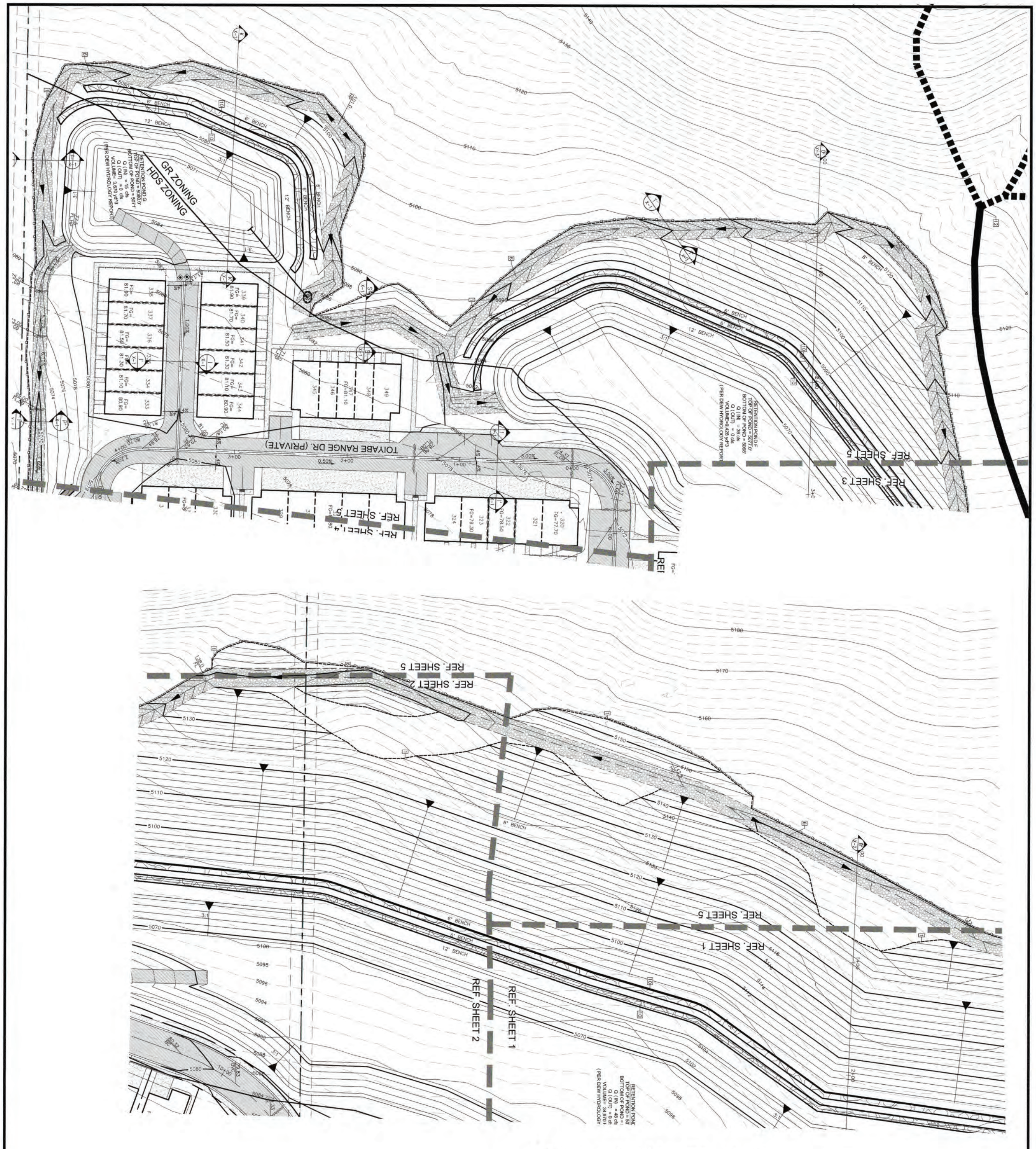
COLD SPRINGS WASHOE COUNTY NEVADA

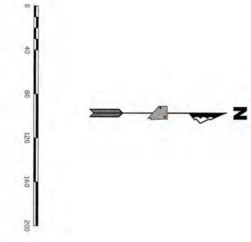
DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELLI
Exp. 6-30-22
7-8-21

SHEET G-4 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559





LEGEND

B3	LOT NUMBER
FG=73.10	FINISH GRADE ELEVATION (ADD 5000' TO ALL SPOT ELEVATIONS)
5000	EXISTING MAJOR CONTOUR LINE
5002	EXISTING MINOR CONTOUR LINE
5000	PROPOSED MAJOR CONTOUR LINE
5002	PROPOSED MINOR CONTOUR LINE
▼ ▼	CUT OR FILL SLOPE (3:1 MAX)
▨	PROPOSED AC
☐	PROPOSED PCC
⦿	STORM DRAIN MANHOLE
■	CATCH BASIN
	STORM DRAIN (DASHED & GRAY IF EXISTING)
	PROPOSED RIGHT-OF-WAY
	PROPOSED LOT LINE
	CENTER LINE
	CATCH LINE
▼	FLOW LINE
	SITE GRADE BREAK AND BUILDING STEP
	INSTALL SILT FENCE (BMP SC-5)
○	STORM DRAIN INLET PROTECTION (BMP DP-3)
	FENCE
⊗	YARD DRAIN
	EXISTING TRAIL
	PROPOSED TRAIL

GRADING PLAN KEYNOTES

1	LIMITS OF GRADING
2	PROPERTY LINE
3	CONST. YARD DRAIN
4	CONST. RETAINING WALL UP TO 6' TALL
5	CONST. HEADWALL W/ CUTOFF WALL OR FLARED END SECTION AND CL 150 GROUTED ROCK RIP RAP
6	CONST. EYEBROW DITCH PER SHEET X-1, SECTION T-T'
7	CONST. GATE
8	REMOVE AND REPLACE
9	CONST. OVERFLOW MANHOLE
10	CONST. STACKED WALLS
11	CONST. SIDEWALK UNDERDRAIN
12	TIE INTO EXISTING TRAIL

REF G-0 FOR GRADING NOTES

SHEET G-5 OF 22

ROBERT GELU
7-8-21

JOB NO: 31097
VERT:
HORIZ: 1"=40'
SCALE
CHECKED BY: RG
DESIGNED BY: RG

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY GRADING PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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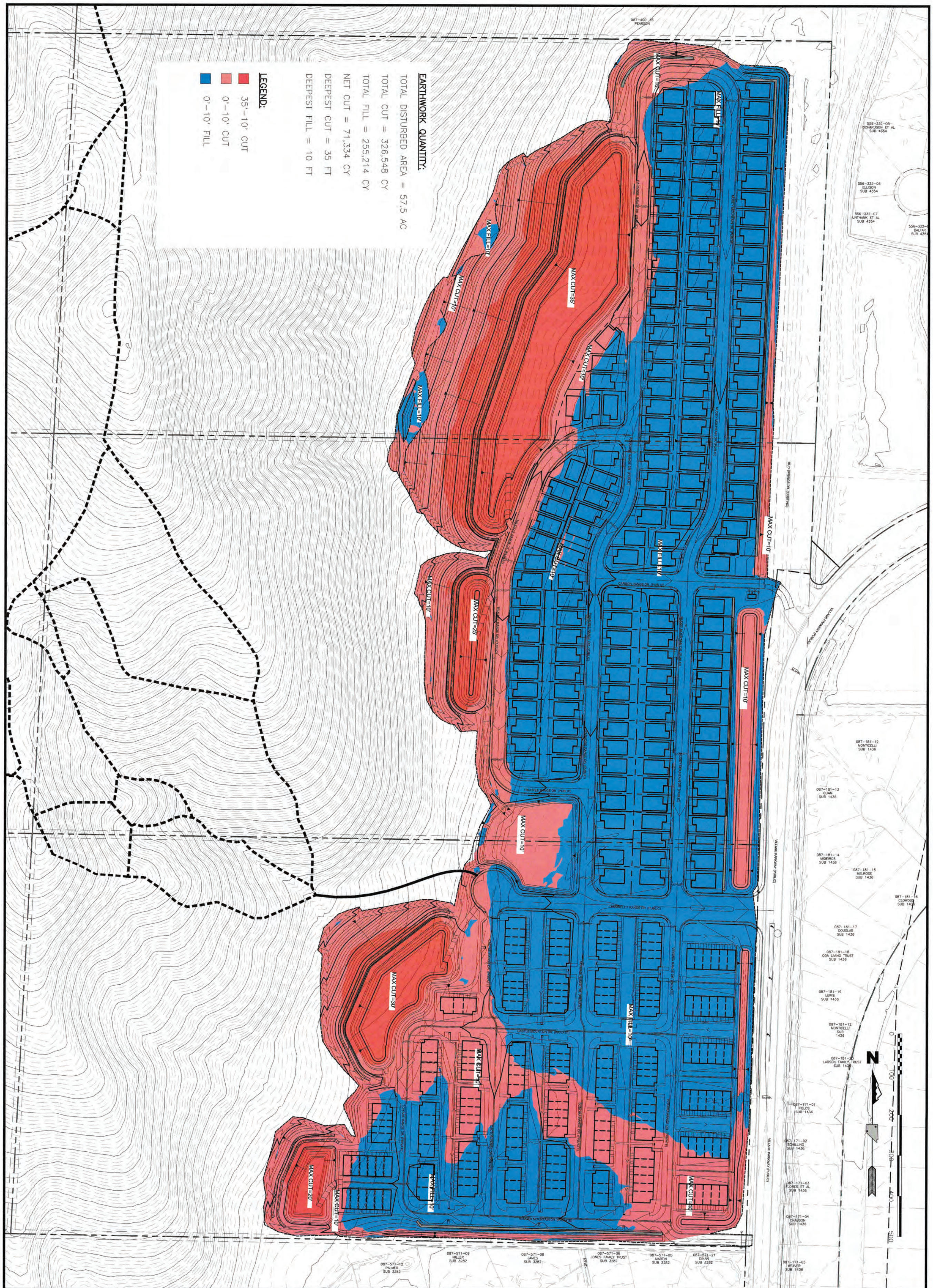


EARTHWORK QUANTITY:

TOTAL DISTURBED AREA = 57.5 AC

TOTAL CUT = 326,548 CY

TOTAL FILL = 255,214 CY

NET CUT = 71,334 CY

DEEPEST CUT = 35 FT

DEEPEST FILL = 10 FT

LEGEND:

🟥 35'-10' CUT

🟥 0'-10' CUT

🟦 0'-10' FILL

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
CUT/FILL MAP

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=100'
VERT:
JOB NO: 31097

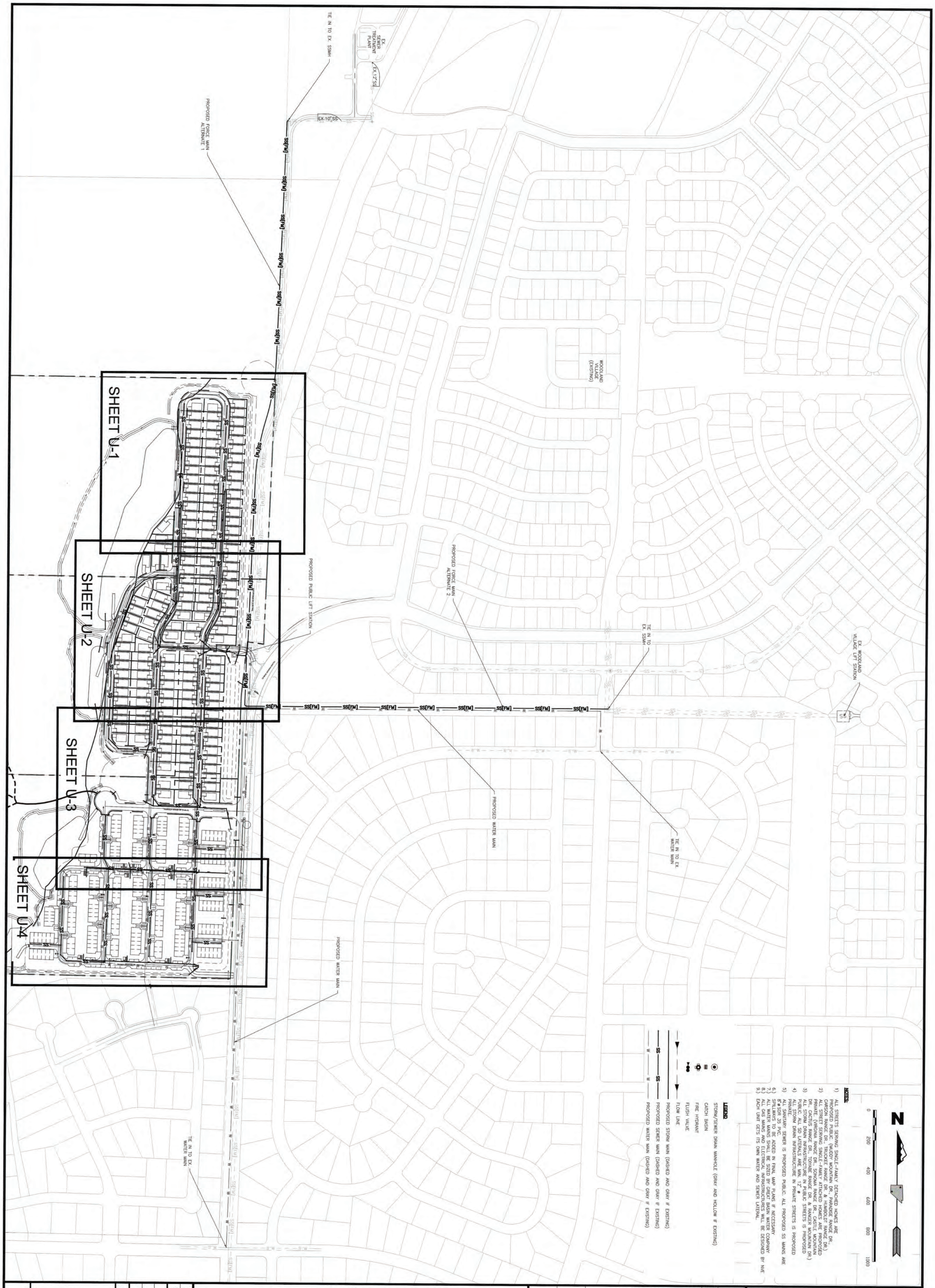
7-8-21

Exp. 6-30-23

SHEET C-0 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:36 AM * 08-JUL-2021



NOTES:

1) ALL STREETS SERVING SINGLE-FAMILY DETACHED HOMES ARE PROPOSED PUBLIC. (MUDDY MOUNTAIN DR., PARADISE RANGE DR., CARSON RANGE DR., TRUCKEE RANGE DR. & HUMBOLDT RANGE DR.)
2) ALL STREET SERVING SINGLE-FAMILY ATTACHED HOMES ARE PROPOSED PRIVATE. (VIRGINIA RANGE DR., SONOMA RANGE DR., CASTLE MOUNTAIN DR., CACTUS RANGE DR., TOIYABE RANGE DR. & RANGER MOUNTAIN DR.)
3) ALL STORM DRAIN INFRASTRUCTURE IN PUBLIC STREETS IS PROPOSED PUBLIC. ALL SD LATERALS ARE MIN. 12" ø
4) ALL STORM DRAIN INFRASTRUCTURE IN PRIVATE STREETS IS PROPOSED PRIVATE.
5) ALL SANITARY SEWER IS PROPOSED PUBLIC. ALL PROPOSED SS MAINS ARE 8"ø SDR 35 PVC.
6.) SPILLWAYS TO BE ADDED IN FINAL MAP PLANS IF NECESSARY
7.) ALL WATER MAINS SHALL BE SIZED BY GREAT BASIN WATER COMPANY
8.) ALL GAS MAINS AND ELECTRICAL INFRASTRUCTURES WILL BE DESIGNED BY NVE
9.) EACH UNIT GETS ITS OWN WATER AND SEWER LATERAL.

LEGEND

◉	STORM/SEWER DRAIN MANHOLE (GRAY AND HOLLOW IF EXISTING)
▪	CATCH BASIN
⊕	FIRE HYDRANT
▸●	FLUSH VALVE
—▼— — —▼—	FLOW LINE
———	PROPOSED STORM MAIN (DASHED AND GRAY IF EXISTING)
—SS——SS—	PROPOSED SEWER MAIN (DASHED AND GRAY IF EXISTING)
— W —— W —	PROPOSED WATER MAIN (DASHED AND GRAY IF EXISTING)

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
OVERALL UTILITY PLAN

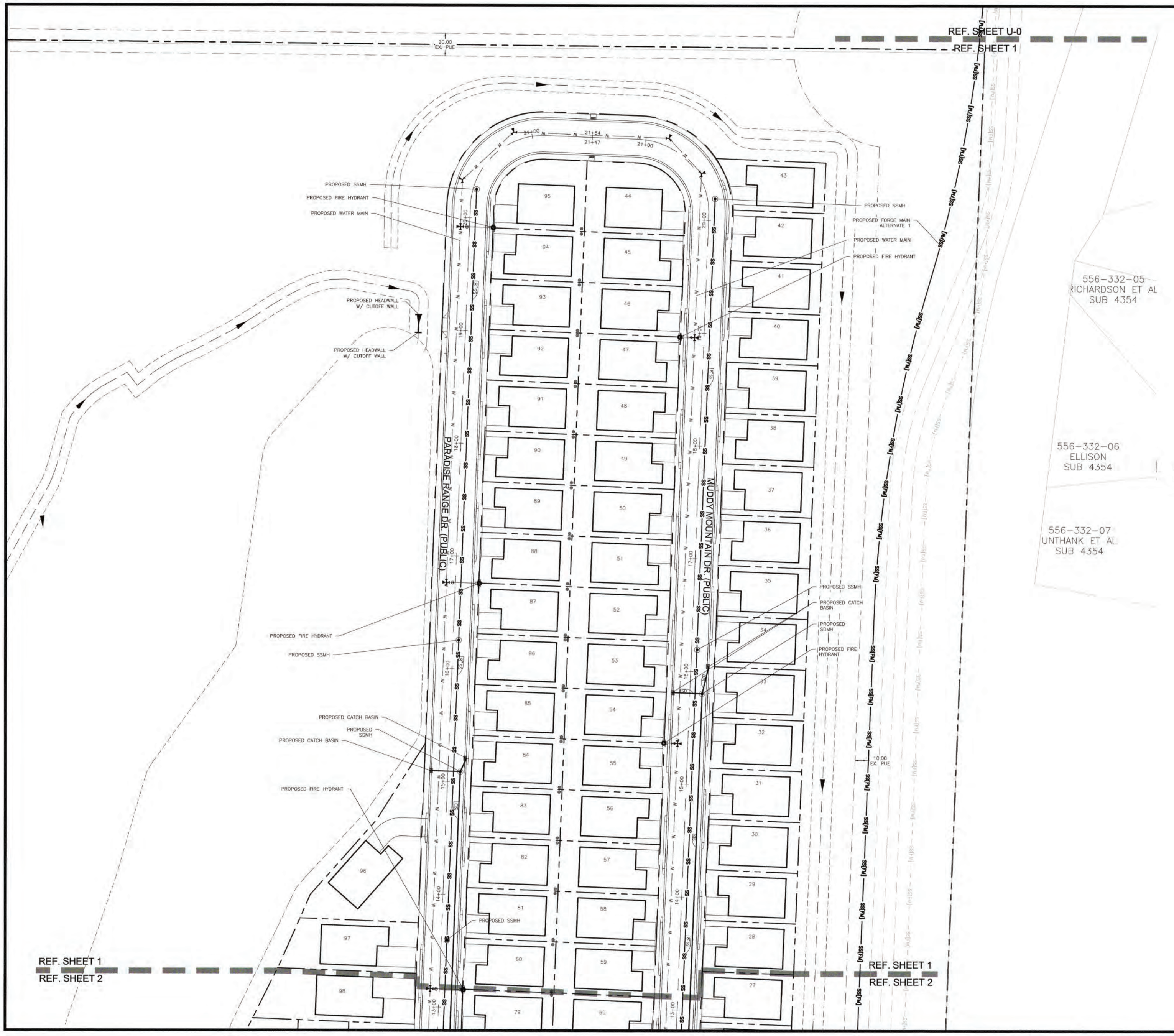
COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=100'
VERT:
JOB NO: 31097

GELU
Exp. 6-30-23
7-8-21

SHEET U-0 OF 22

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:14 AM * 08-JUL-2021



N

0 40 80 120 160 200

NOTES:

1) ALL STREETS SERVING SINGLE-FAMILY DETACHED HOMES ARE PROPOSED PUBLIC. (MUDDY MOUNTAIN DR., PARADISE RANGE DR., CARSON RANGE DR., TRUCKEE RANGE DR. & HUMBOLDT RANGE DR.)
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◉	STORM/SEWER DRAIN MANHOLE (GRAY AND HOLLOW IF EXISTING)
▬	CATCH BASIN
⊕	FIRE HYDRANT
►●●	FLUSH VALVE
—►— —►—	FLOW LINE
SD	PROPOSED STORM MAIN (DASHED AND GRAY IF EXISTING)
—SS— 8" SS —SS—	PROPOSED SEWER MAIN (DASHED AND GRAY IF EXISTING)
— W — W —	PROPOSED WATER MAIN (DASHED AND GRAY IF EXISTING)
⅄	ELBOW

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES PRELIMINARY UTILITY PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

ROBERT GELU
Exp. 6-30-23
CIVIL
No. 17747

7-8-21

SHEET U-1 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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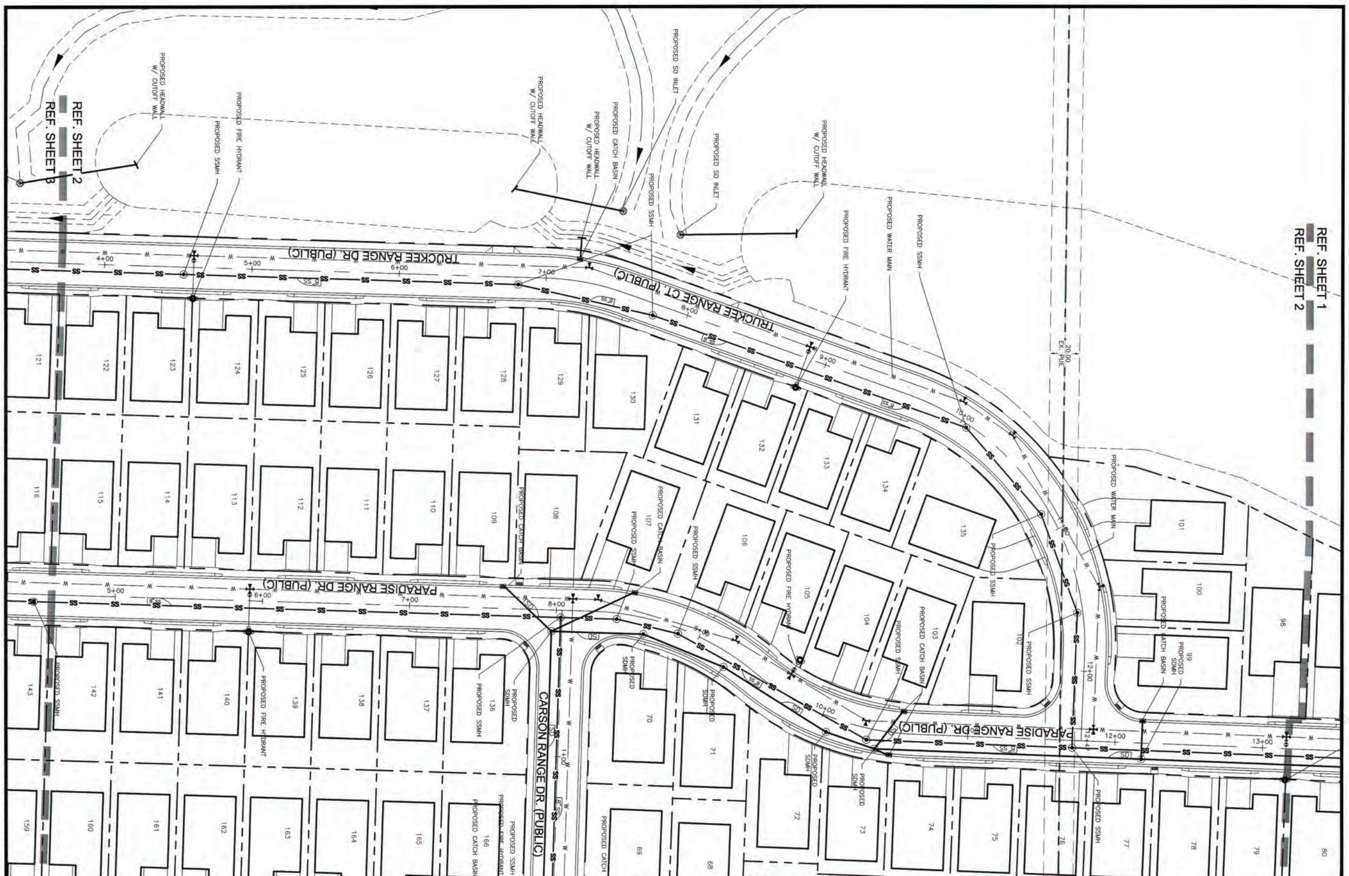

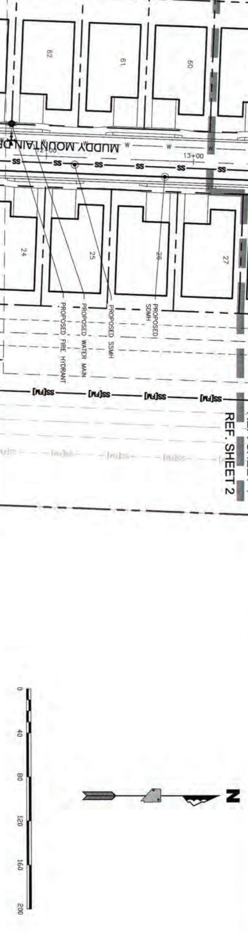

NOTES:

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LEGEND

◉	STORM/SEWER DRAIN MANHOLE (GRAY AND HOLLOW IF EXISTING)
■	CATCH BASIN
⊕	FIRE HYDRANT
⋈	FLUSH VALVE
→	FLOW LINE
SD	PROPOSED STORM MAIN (DASHED AND GRAY IF EXISTING)
SS 8" SS	PROPOSED SEWER MAIN (DASHED AND GRAY IF EXISTING)
W	PROPOSED WATER MAIN (DASHED AND GRAY IF EXISTING)
⅄	ELBOW

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
PRELIMINARY UTILITY PLAN

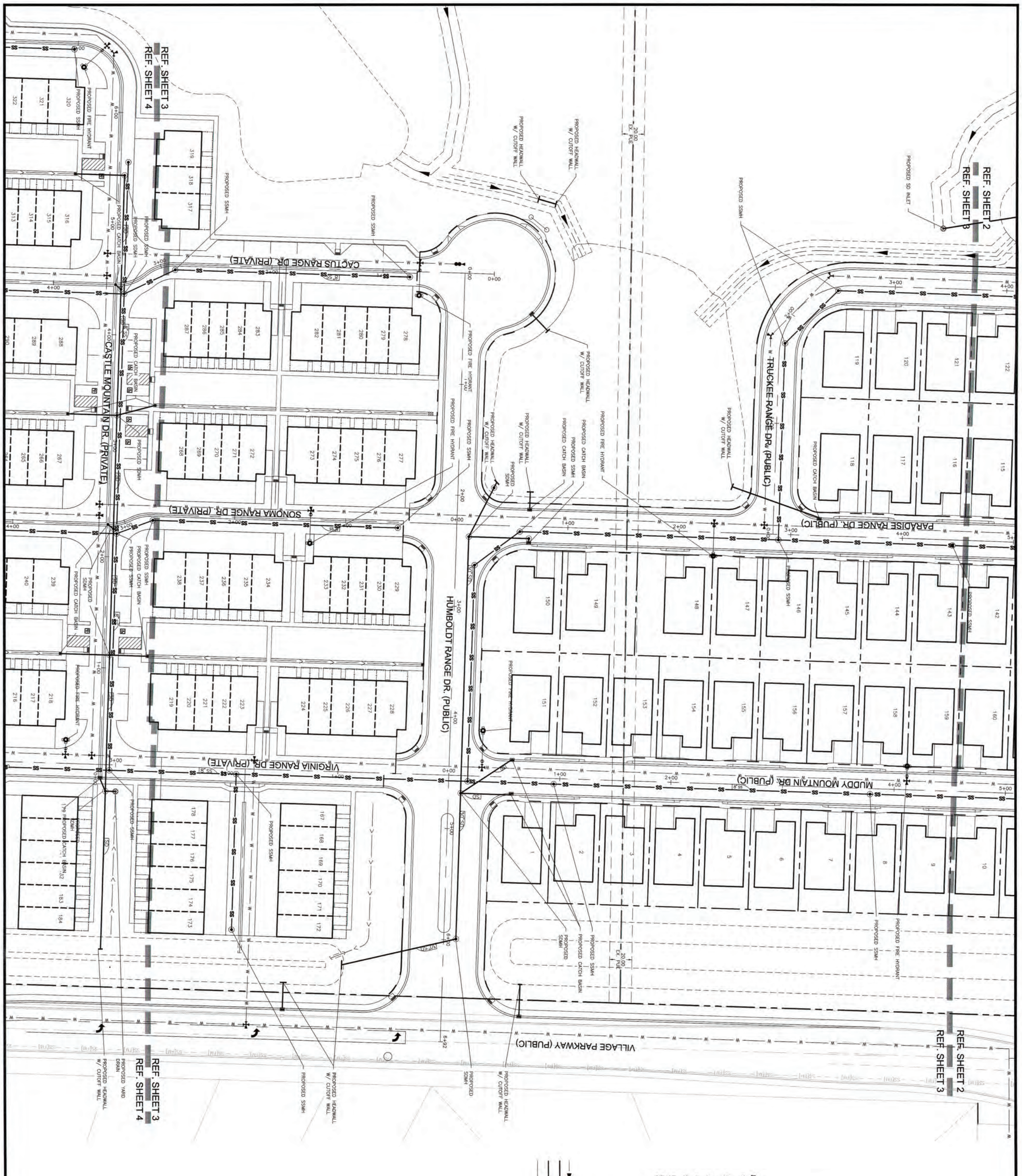
COLD SPRINGS
WASHOE COUNTY
NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097

Exp. 6-30-21
7-8-21

SHEET U-2 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559



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●	FLUSH VALVE
—▶—	FLOW LINE
SD	PROPOSED STORM MAIN (DASHED AND GRAY IF EXISTING)
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—W—	PROPOSED WATER MAIN (DASHED AND GRAY IF EXISTING)
⅄	ELBOW

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES
PRELIMINARY UTILITY PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=40'
VERT:
JOB NO: 31097
SHEET U-3 OF 22

ROBERT GELU
Exp. 6-30-23
7-8-21

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

LEGEND

◉	STORM/SEWER DRAIN MANHOLE (GRAY AND HOLLOW IF EXISTING)
▬	CATCH BASIN
⊕	FIRE HYDRANT
►●●	FLUSH VALVE
— ► — — — ► —	FLOW LINE
—[SD]—	PROPOSED STORM MAIN (DASHED AND GRAY IF EXISTING)
—SS—[8" SS]—SS—	PROPOSED SEWER MAIN (DASHED AND GRAY IF EXISTING)
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⅄	ELBOW

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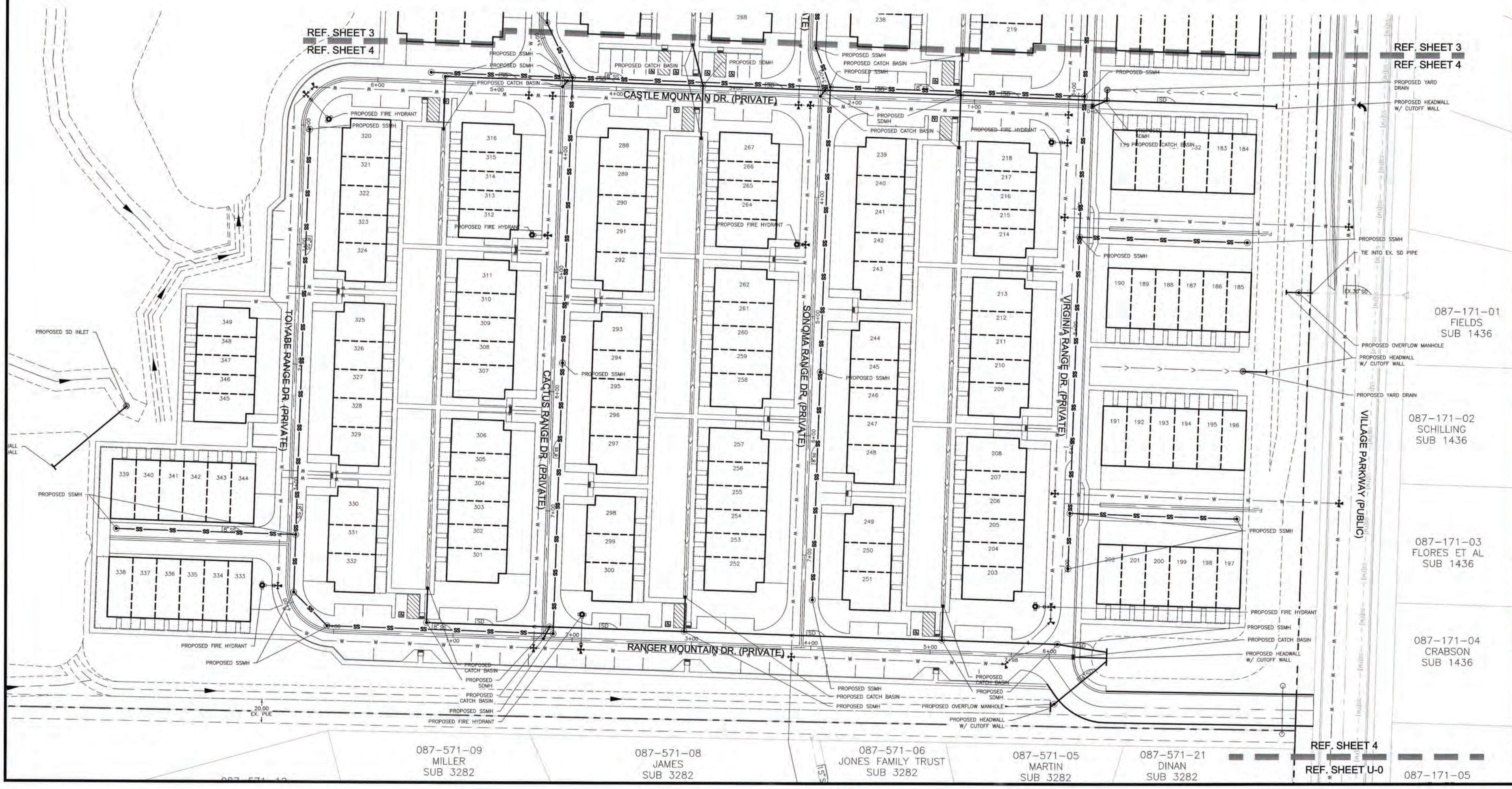

REV.	DATE
DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES PRELIMINARY UTILITY PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
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SCALE
HORIZ: 1"=40'
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JOB NO: 31097

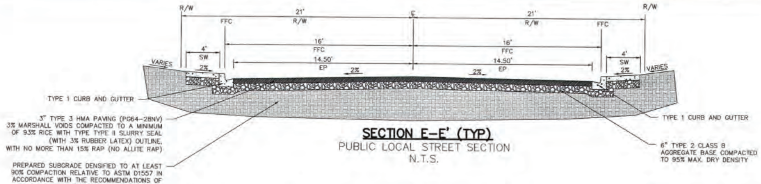
ROBERT GELU
Exp. 6-30-23
CIVIL
No. 17741

7-8-21

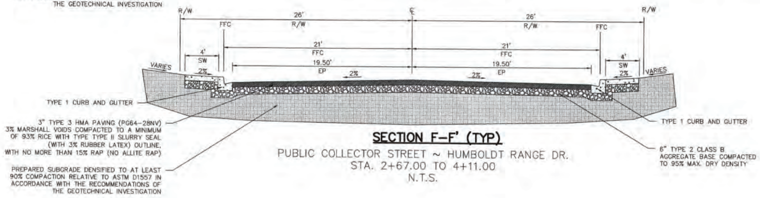
SHEET U-4 OF 22

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

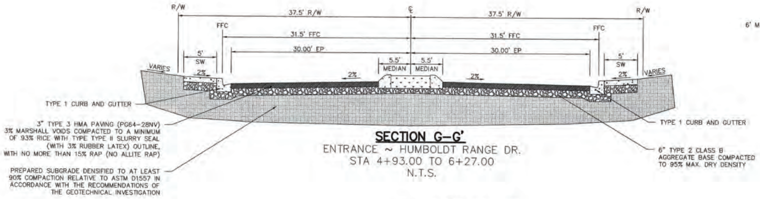
N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:23 AM * 08-JUL-2021



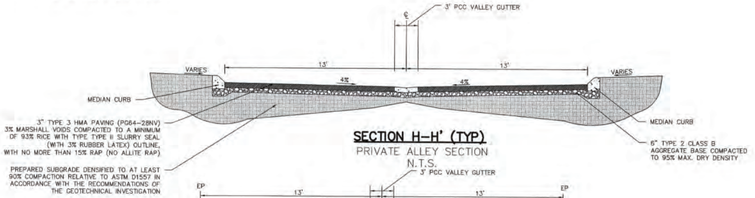
SECTION E-E' (TYP)
PUBLIC LOCAL STREET SECTION
N.T.S.



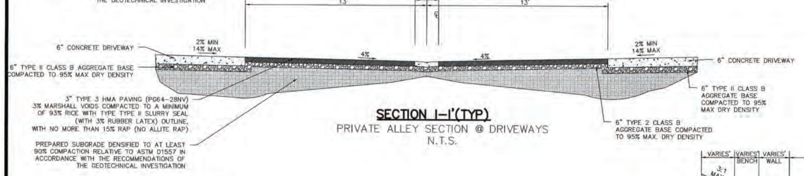
SECTION F-F' (TYP)
PUBLIC COLLECTOR STREET ~ HUMBOLDT RANGE DR.
STA. 2+67.00 TO 4+11.00
N.T.S.



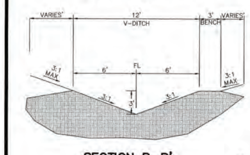
SECTION G-G'
ENTRANCE ~ HUMBOLDT RANGE DR.
STA 4+93.00 TO 6+27.00
N.T.S.



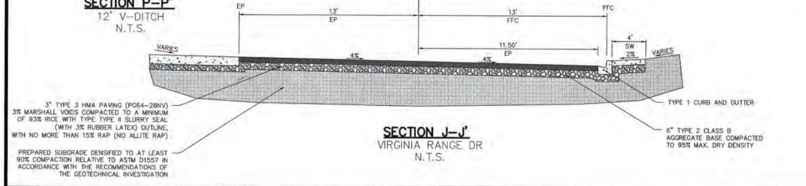
SECTION H-H' (TYP)
PRIVATE ALLEY SECTION
N.T.S.



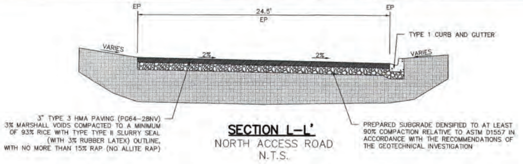
SECTION I-I'(TYP)
PRIVATE ALLEY SECTION @ DRIVEWAYS
N.T.S.



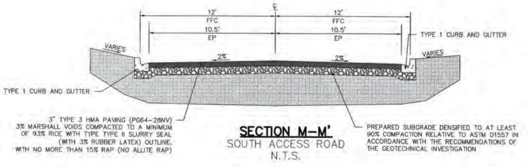
SECTION P-P'
12' V-DITCH
N.T.S.



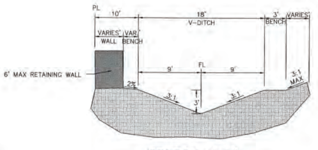
SECTION J-J'
VIRGINIA RANGE DR
N.T.S.



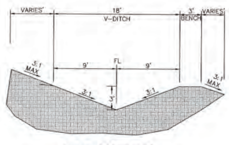
SECTION L-L'
NORTH ACCESS ROAD
N.T.S.



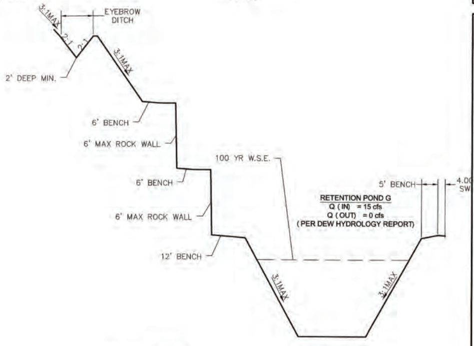
SECTION M-M'
SOUTH ACCESS ROAD
N.T.S.



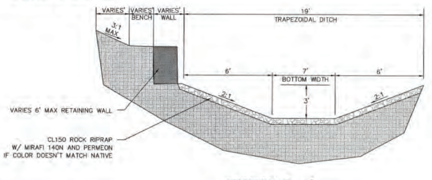
SECTION N-N'
18' V-DITCH W/ WALL
N.T.S.



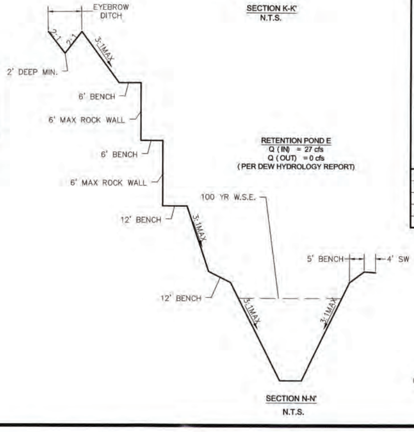
SECTION O-O'
18' V-DITCH
N.T.S.



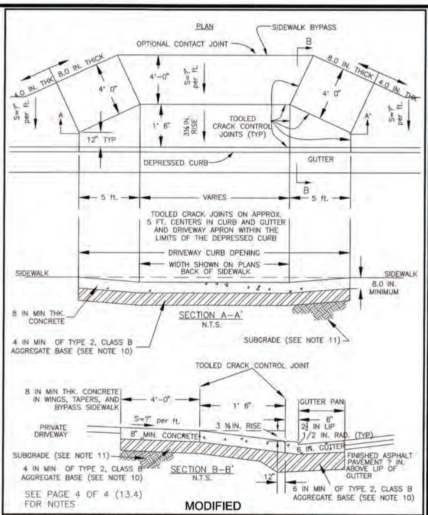
SECTION K-K'
N.T.S.



SECTION S-S'
19' TRAPEZOIDAL DITCH
N.T.S.



SECTION N-N'
N.T.S.



SEE PAGE 4 OF 4 (13.4)
FOR NOTES

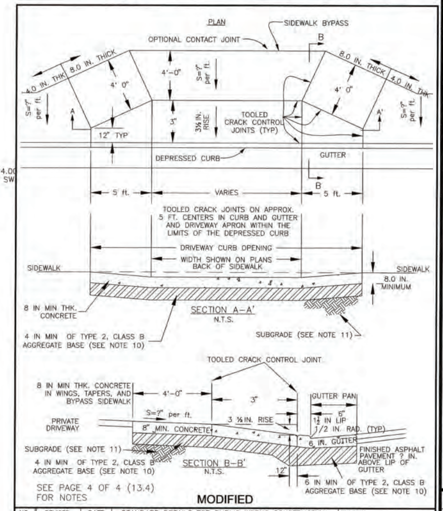
MODIFIED

NO.	REVISED	DATE
1	REDRAW	03/10 sw
2	REVISED	09/15 mde
3	REVISED	08/16 ww
4		

STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION

P.C.C. DRIVEWAY APRON
(PUBLIC STREETS W/ SIDEWALK
FOR SINGLE-FAMILY DETACHED HOMES)

SECTION: WASHOE
DRAWING NO: W-5.11
DATE: 08/16 ww
PAGE: 13.1



SEE PAGE 4 OF 4 (13.4)
FOR NOTES

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1	REDRAW	03/10 sw
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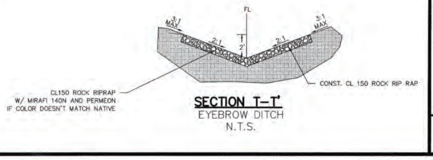
STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION

P.C.C. DRIVEWAY APRON
(PRIVATE ALLEYS W/ SIDEWALK)

SECTION: WASHOE
DRAWING NO: W-5.11
DATE: 08/16 ww
PAGE: 13.1



SECTION T-T'
EYEBROW DITCH
N.T.S.

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
CROSS SECTIONS & DETAILS

COLD SPRINGS
WASHOE COUNTY
NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: N.T.S.
VERT:
JOB NO: 31097

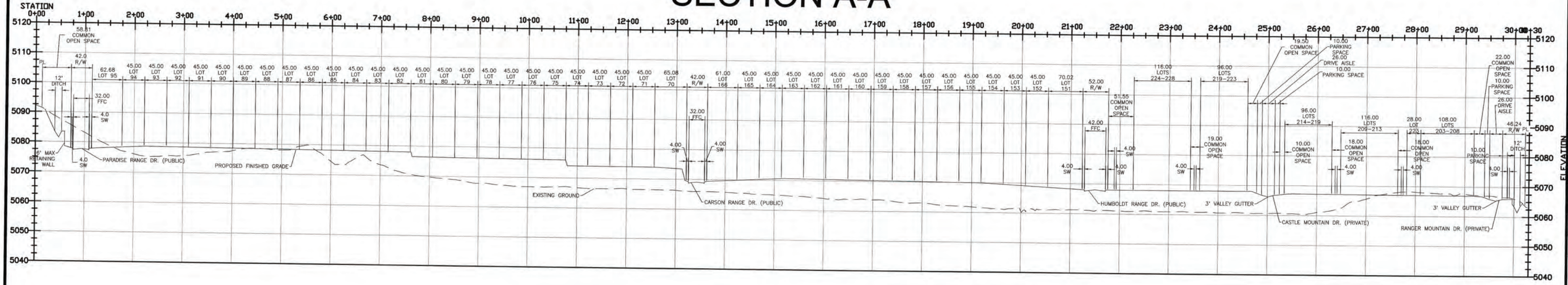
ROBERT GELU
Exp. 6-30-23
CIVIL
No. 17741

7-8-21

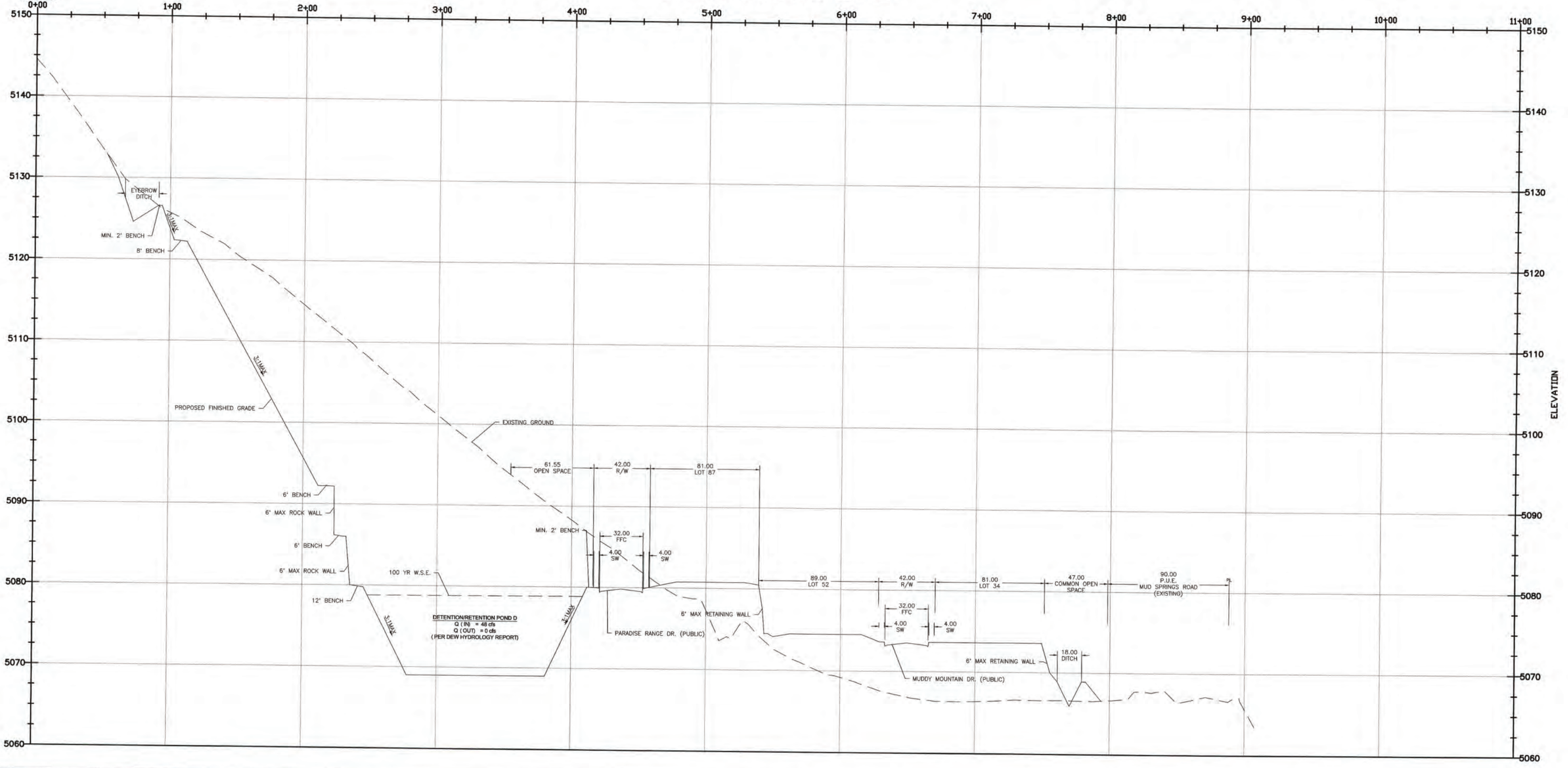
SHEET X-1 OF 22

N:\DWGS\U31097_VillageParkwayTownhomes\Civil\WVP_DETAILS.DWG ~ 8:31 AM * 08-JUL-2021

SECTION A-A'



SECTION B-B'



SUMMIT ENGINEERING CORPORATION™
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

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TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
CROSS SECTIONS

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: N.T.S.
VERT:
JOB NO: 31097

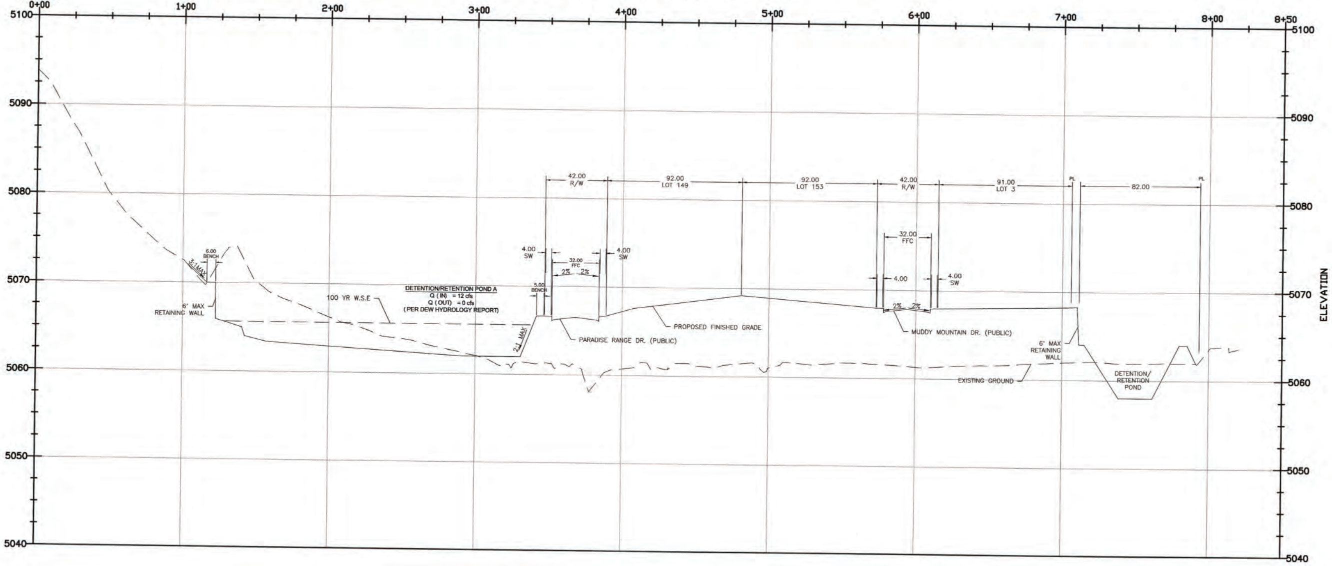
ROBERT GELU
Exp. 6-30-23
CIVIL
No. 17741

7-8-21

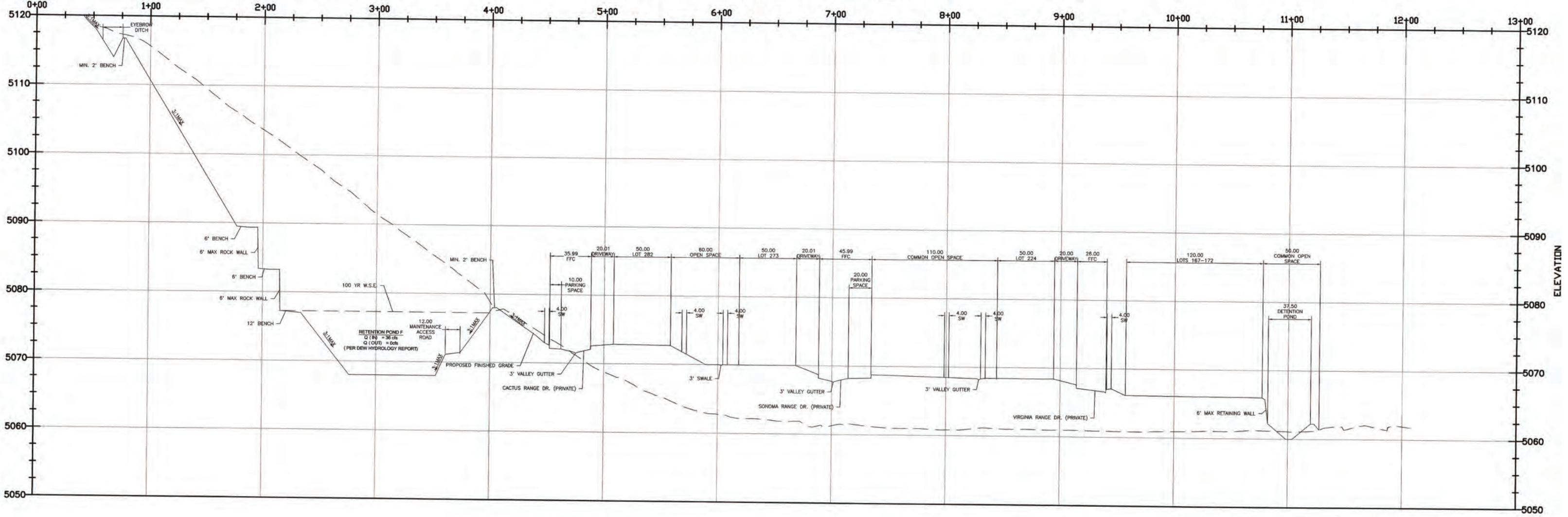
SHEET X-2 OF 22

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\WVP_BASE - KF-2.DWG ~ 8:28 AM * 08-JUL-2021

SECTION C-C'



SECTION D-D'



TENTATIVE MAP PLANS FOR VILLAGE PARKWAY HOMES
CROSS SECTIONS

COLD SPRINGS
WASHOE COUNTY
NEVADA

REV.	DATE	DESCRIPTION	BY	APP'D

SUMMIT ENGINEERING CORPORATION ™
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

DESIGNED BY: RG
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HORIZ: N.T.S.
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JOB NO: 31097

ROBERT GELU
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No. 17741

7-8-21

SHEET X-3 OF 22

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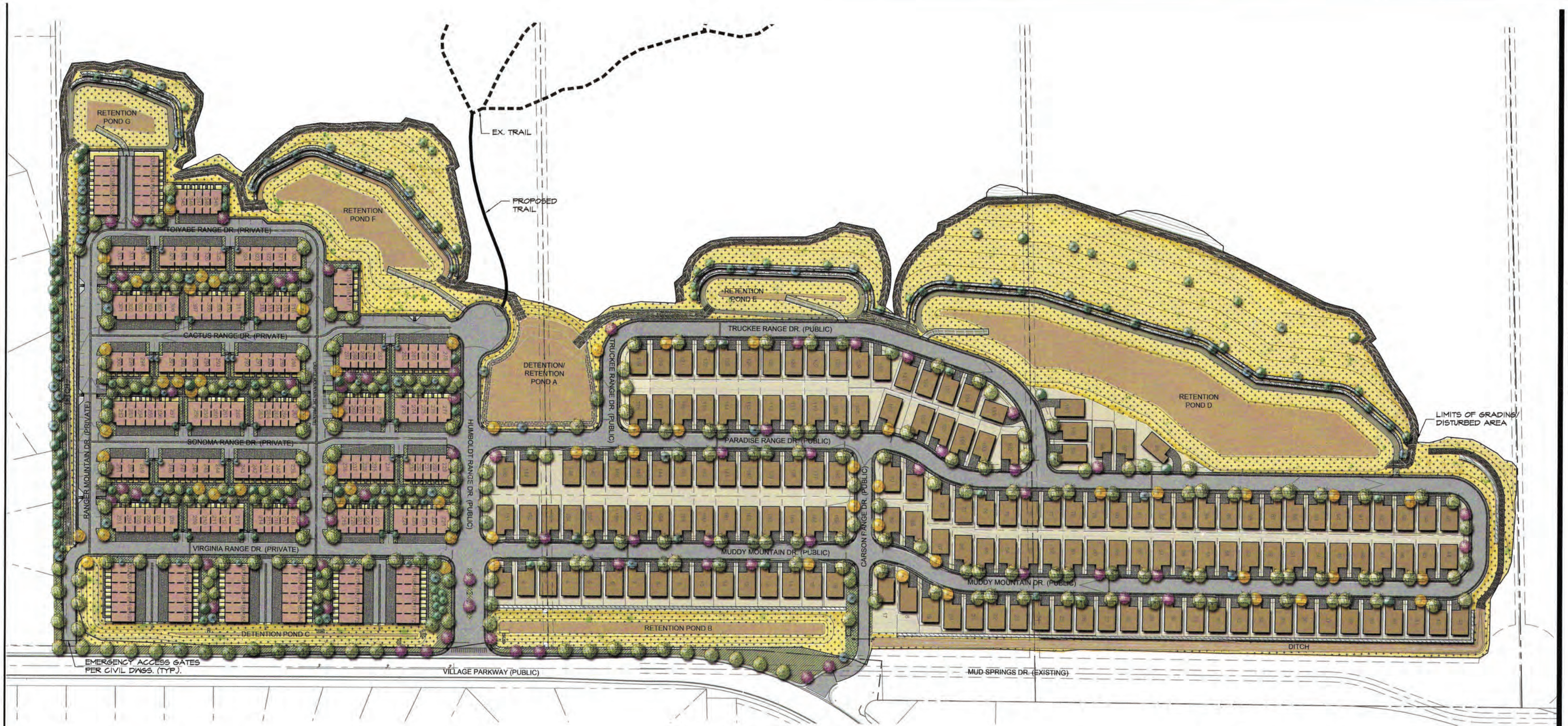


GENERAL NOTES

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

2) TREES
- ONE HALF OF ALL DECIDUOUS TREES SHALL HAVE A MINIMUM CALIPER OF 2 INCHES THE REMAINING MAY HAVE A CALIPER OF 1" AT TIME OF PLANTING.
- ONE HALF OF ALL EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT OF 7 FEET, THE REMAINING MAY HAVE A HEIGHT OF 5 FEET AT TIME OF PLANTING.

3) FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL 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.

5) ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED. CONTAINER PLANTINGS WILL BE 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 WASHOE COUNTY CODE REQUIREMENTS. PLANT LOCATIONS, FINAL SPECIES SELECTION, AND SIZE AT PLANTING SHALL BE DETERMINED DURING DEVELOPMENT OF THE FINAL CONSTRUCTION DOCUMENTS.

PLANT LEGEND

● FLOWERING TREE
● DECIDUOUS SHADE TREE
● EVERGREEN TREE
▨ COMMON AREA LANDSCAPING
▨ STREETSCAPE
▨ RE-VEGETATION AREA

LANDSCAPE DATA

DEVELOPMENT SITE AREA = 2,492,448 SQ FT (57.2 ACRES)

ZONING: HDS (HIGH DENSITY SUBURBAN)

TOWNHOME REQUIRED LANDSCAPE AREA = 156,580 SQ FT (3.59 ACRES) MIN.
(20% OF TOWNHOME DEVELOPMENT SITE 782,901 SQ FT (18 ACRES))
INCLUDES
- COMMON AREA LANDSCAPE
- FRONT, BACK AND SIDE YARDS WHERE ADJACENT TO THE STREET
- STREETSCAPE ALONG WOODLAND VILLAGE PARKWAY - 1 TREE PER 50 LN FT

SINGLE FAMILY
- 1 TREE PER LOT OR 50 LN FT OF STREET FRONTAGE FOR FRONT AND SIDE YARDS
- 1 TREE PER 50 LN FT ALONG WOODLAND VILLAGE PARKWAY

PARKING TREES REQUIRED
- 1 TREE PER 20 LN FT IN OFF-SET ROWS FOR PARKING SCREENING BETWEEN MF AND SF
- 1 TREE PER 10 PARKING SPACES

BENCH AREAS
- 1 TREE PER 100 LN FT OF BENCH

<u>NOTE:</u> EXACT NUMBERS OF TREES SHOWN IN COMMON AREAS TO BE DETERMINED DURING FINAL DESIGN.

Ryan W.
Hansen,
PLA ASLA

Digitally signed by
Ryan W. Hansen,
PLA ASLA
Date: 2021.07.07
15:46:23 -07'00'

0' 100' 200' 300'
Scale in Feet

L.A. Studio Nevada
the landscape architecture studio
1552 C Street Sparks, NV 89431 (775) 323-2223 NV RLA #440
www.lastudionevada.com

RYAN HANSEN 440 7/7/21 Expires: 6/30/22

Nevada

Preliminary Landscape Plan
VILLAGE PARKWAY HOMES
Lifestyle Homes

Washoe Co.

No.	Revision Date

LA No: 032-514-01-21
Designed: KRD
Drawn: KRD
Checked: RWH
Date: 7/7/21

Sheet L1 of 1

CHRISTY
CORPORATION

July 7, 2021

Dan Cahalane
Washoe County Planning and Building Division
1001 East 9th Street, Building A
Reno, Nevada 89512

RE: Village Parkway Tentative Map

Dear Dan,

As discussed in our previous meetings, attached are updated plan sets for the Village Parkway Tentative Map. Overall, the design and layout of the subdivision is very similar to that of the previously submitted map. The primary change is that cuts will now occur along the western edge of the site to generate the fill material that was previously proposed to be imported. The overall unit count remains the same and amenities such as trails are very similar in scope and location.

With the proposed grading on the west side of the site a Directors Modification is requested to allow for cuts over 10 feet and slopes over 10 feet. This is reflected on the attached plans. Additionally, a completed the Director's Modification questionnaire (completed by Summit Engineering) and application filing fee are also included as an attachment to this letter.

Proposed setbacks for the project are included on the tentative map title sheet, as requested. Also, the overall project summary table from the planning report has been updated and is included below:

Village Parkway Tentative Map - Development Summary	
Project Component	**Proposed with Tentative Map**
Project Area	124.6± acres
Development Area (HDS zoning)	47.2± acres
Townhome Units (Single Family Attached)	183 units
Detached Single Family Units	166 units
Total Units	349 units
Gross Project Density	2.8 dwelling units per acre
Net Project Density (Tentative Map Area)	7.4 dwelling units per acre
Smallest Detached Lot Size	3,645± square feet
Largest Detached Lot Size	8,257± square feet
Average Detached Lot Size	4,250± square feet
Smallest Attached Lot Size	800± square feet
Largest Attached Lot Size	1,348± square feet
Average Attached Lot Size	1,047± square feet
Total Lot Area	20.45± acres
Public Right-of-Way Area	6.57± acres
Common Area[1]	97.58± acres

[1] – includes private roadway area.

The table demonstrates that the overall project statistics and design is virtually identical to the previously submitted map. The only true change is to the grading design, as detailed on the attached plans.

Please do not hesitate to contact me at mike@christynv.com or (775) 250-3455 with any questions or concerns. Thank you for your ongoing assistance with the project.

Sincerely,

Mike Railey
Planning Manager

cc: Bob and Peter Lissner – Lifestyle Homes TND, LLC
Robert Gelu, P.E. – Summit Engineering Corporation

SOLAEGUI
ENGINEERS

April 13, 2021

Mitchell Fink, P.E.
Washoe County Community Development
P.O. Box 11130
Reno, Nevada 89520

Re: Village Parkway Residential – Trip Generation Letter

Dear Mitch:

This letter contains the findings of our trip generation review of the proposed Village Parkway Residential development project located on the west side of Village Parkway north of Cold Springs Drive in Washoe County, Nevada. We completed the original traffic study on November 2, 2020. Subsequent to our analysis the project the site plan was modified and the unit mix changed. The original study was based on 428 residential dwelling units with 385 of them being attached units plus 43 single family detached. The application was submitted showing a total of 347 dwelling units with 166 single family detached homes and 183 attached units. The new project site plan is attached. The purpose of this letter is to document the trip generation attributable to the new site plan with a comparison against the original unit mix.

Trip generation calculations for the project are based on the Tenth Edition of *ITE Trip Generation,* published by the Institute of Transportation Engineers. The calculation sheets are attached for ITE land use #210 Single Family Detached Housing and #220 Multifamily Detached Housing. Table 1 shows trip generation totals for the initial and current unit mix.

TABLE 1
TRIP GENERATION

LAND USE	ADT	AM PEAK HOUR TOTAL	PM PEAK HOUR TOTAL
Original Report			
Single Family Detached Housing			
43 Dwelling Units	478	35	45
Low Rise Multifamily Housing			
385 Dwelling Units	2,870	172	196
Subtotal 428 Dwelling Units	3,348	207	241
Updated Site Plan			
Single Family Detached Housing			
166 Dwelling Units	1,567	123	165
Low Rise Multifamily Housing			
183 Dwelling Units	1,340	84	101
Subtotal 349 Dwelling Units	2,907	207	266
Change with Updated Plan -79DU	-441	0	+25

Solaegui Engineers Ltd. • 715 H Street • Sparks, Nevada 89431 • 775/358-1004 • FAX 775/358-1098
Civil & Traffic Engineers
e-mail: psolaegui@aol.com

As indicated in Table 1, the original traffic report showed trip generation totals including 3,348 average daily trips with 207 AM peak hour trips and 241 PM peak hour trips. The updated site plan trip generation totals include 2,907 average daily trips with 207 AM peak hour trips and 266 PM peak hour trips. These totals when compared to the original traffic report are 441 less average daily trips with the same number during the AM peak hour period and 25 more trips during the PM peak hour. The PM peak hour is the only time period of increased trips and the change is only a 10 percent change. A copy of the Regional Transportation Commission comment letter is attached. It noted these totals. They characterized the report recommendations as still being valid. We concur with that description.

We trust that this information will be helpful to you. Please contact us if you have questions or comments.

Very truly yours,
SOLAEGUI ENGINEERS, LTD

PAUL W. SOLAEGUI
CIVIL
No. 7163

Paul W. Solaegui, P.E.

4-13-21
EXP 6-30-22

Enclosures
Letters/ Village Parkway Residential Trip Generation Letter

TENTATIVE MAP PLANS
FOR
VILLAGE PARKWAY HOMES

COLD SPRINGS WASHOE COUNTY NEVADA

OWNER / DEVELOPER

LIFESTYLE HOMES TND LLC
ATTN: ROBERT LISSNER
4790 CAUGHLIN PARKWAY, #519
RENO, NEVADA 89519

BASIS OF ELEVATIONS

NORTH AMERICA VERTICAL DATUM (NGVD) 1929, WITH NORTH 1/4 CORNER OF SECTION 16 (5/8" REBAR WITH TAG #6271) TAKEN AS ELEVATION 5084.50

BASIS OF BEARINGS

NORTH AMERICAN DATUM OF 1983 AS BASED ON FEDERAL BASE NETWORK/COOPERATIVE BASE NETWORK OBSERVATIONS IN 1994 (AKA NAD83/94). NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE AND HOLDING THE WASHOE COUNTY PUBLISHED LATITUDE AND LONGITUDE OF 39°37'31.936580" NORTH AND 119°52'01.196280" WEST FOR REGIONAL GPS CORS "STEA" (WASHOE COUNTY IDENTIFIER N225M01037). A COMBINED GRID-TO-GROUND SCALE FACTOR OF 1.00017093 IS USED TO SCALE THE STATE PLANE GRID COORDINATES TO GROUND

GENERAL CONSTRUCTION NOTES:

1. THESE NOTES CONTAIN INFORMATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK CONTAINED ON THESE IMPROVEMENT PLANS. THESE NOTES APPLY TO ALL PLAN SHEETS. ADDITIONAL CONSTRUCTION NOTES MAY ALSO BE SHOWN ON INDIVIDUAL PLAN SHEETS. THE CONTRACTOR IS RESPONSIBLE TO READ AND COMPLY WITH ALL NOTES SHOWN ON THIS SET OF PLANS. THE TERM "CONTRACTOR" AS USED IN THESE NOTES AND ELSEWHERE IN THIS PLAN SET, MEANS THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS AND INDIVIDUALS AUTHORIZED TO PERFORM WORK SHOWN ON THESE IMPROVEMENT PLANS. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL NOTES APPLICABLE TO HIS/HER WORK. ALL CONTRACTORS ARE DIRECTED TO CONTACT THIS ENGINEER FOR ANY QUESTIONS REGARDING THE STATED OR IMPLIED MEANING OF ANY NOTE OR OTHER INFORMATION CONTAINED ON THESE IMPROVEMENT PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT HIS/HER CONTRACT FOR SERVICES INCLUDES THE RESPONSIBILITIES DEFINED BY THE APPLICABLE NOTES.

2. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND THE SAFETY OF ALL CONSTRUCTION PERSONNEL IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY TRAFFIC AND PEDESTRIAN CONTROL DURING CONSTRUCTION INCLUDING WARNING SIGNS AND CONSTRUCTION FENCING WHERE REQUIRED.

3. THE EXISTING UTILITIES SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM VARIOUS SOURCES AND SHOULD BE FIELD VERIFIED PRIOR TO MAKING ANY NECESSARY CONNECTIONS. THE LOCAL UTILITY COMPANY SHOULD BE CONTACTED PRIOR TO REMOVING, REPLACING, RELOCATING OR CONNECTING TO ANY EXISTING UTILITY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS DISCOVERED.

4. IT IS THE INTENT OF THESE SPECIFICATIONS AND IMPROVEMENT PLANS THAT THE WORK PERFORMED UNDER THE CONTRACT SHALL RESULT IN A COMPLETE OPERATING SYSTEM IN SATISFACTORY WORKING CONDITION WITH RESPECT TO THE FUNCTIONAL PURPOSES OF THE INSTALLATION. IF THERE ARE ANY QUESTIONS REGARDING THE STATED OR IMPLIED MEANING OF THESE PLANS, THE CONTRACTOR IS DIRECTED TO CONTACT THE CONSULTING ENGINEER IMMEDIATELY.

5. SHOULD ANY HISTORIC OR PREHISTORIC REMAINS OR ARTIFACTS BE DISCOVERED DURING SITE DEVELOPMENT, WORK SHALL TEMPORARILY BE HALTED AT THE SPECIFIC SITE AND THE STATE HISTORIC PRESERVATION OFFICE OF THE DEPARTMENT OF MUSEUMS, LIBRARY AND ARTS, SHALL BE NOTIFIED TO RECORD AND PHOTOGRAPH THE SITE. THE PERIOD OF TEMPORARY DELAY SHALL BE LIMITED TO A MAXIMUM OF TWO WORKING DAYS FROM THE DATE OF NOTIFICATION.

6. NO MATERIALS OF ANY KIND SHALL BE STOCKPILED OR CONSTRUCTION EQUIPMENT PARKED ON CONCRETE OR ASPHALT SURFACES TO BE DEDICATED TO WASHOE COUNTY.

7. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT ALL IMPROVEMENTS ARE CONSTRUCTED ACCORDING TO THESE PLANS AND DETAILS. ANY CHANGES TO THE LOCATION (HORIZONTAL OR VERTICAL) OR ANY OTHER PLAN DESIGNATION, SHALL BE APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO KEEP THE NECESSARY RECORDS TO ENABLE THE ENGINEER TO PREPARE AS-BUILT DRAWINGS OF THE FINAL CONSTRUCTED IMPROVEMENTS.

8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONFORMANCE WITH ALL PERMITS, INCLUDING GRADING PERMIT, BUILDING PERMITS, STREET CUT PERMITS, DUST CONTROL PERMIT, AND THE STORM WATER DISCHARGE PERMIT (ISSUED BY THE STATE OF NEVADA DIVISION OF ENVIRONMENTAL PROTECTION).

9. ALL BUILDABLE LOTS AND PARCELS WITHIN AN APPROVED SUBDIVISION REQUIRE THAT THE INDIVIDUAL BUILDING SITE PLOT PLANS SUBMITTED FOR BUILDING PERMITS SHALL SHOW ALL FINISH GRADE ELEVATIONS, HIGH POINT LOCATIONS, AND DRAINAGE SWALE LOCATIONS WITH A MINIMUM SLOPE OF 1.0%. THIS INFORMATION SHALL BE SHOWN ON BOTH THE INDIVIDUAL PLOT PLANS AND THE APPROVED CONSTRUCTION GRADING PLANS. ALL APPROVED CONSTRUCTION PLANS AND INDIVIDUAL PLOT PLANS SHALL BE STAMPED BY A NEVADA REGISTERED CIVIL ENGINEER.

10. ALL PARCELS WITHIN AN APPROVED SUBDIVISION SHALL REQUIRE THAT A NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR SUBMIT A CERTIFICATION LETTER TO THE BUILDING OFFICIAL PRIOR TO THE SCHEDULING OF INSPECTIONS FOR THE FOLLOWING:
    1. NEVADA REGISTERED CIVIL ENGINEER TO CERTIFY THAT:
        1.1 SOILS INVESTIGATION REPORT INDICATING SOILS CLASSIFICATION AND DESIGN PRIOR TO THE FOUNDATION INSPECTION.
        1.2 ELEVATION, GRADING AND DRAINAGE CERTIFICATION FOR THE APPROVED CONSTRUCTION PLANS PRIOR TO THE ISSUANCE OF A CERTIFICATE.
    2. NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR TO CERTIFY:
        2.1 FOUNDATION ELEVATION AND BUILDING SETBACK CERTIFICATION AS PER THE APPROVED PLOT PLAN PRIOR TO THE FOUNDATION INSPECTION.

11. THE CONTRACTOR SHALL PROVIDE A 30' FIRE BREAK AROUND THE LIMITS OF THE CONSTRUCTION PHASE CLEARED OF ALL COMBUSTIBLE MATERIAL INCLUDING WEEDS AND BRUSH PER THE REQUIREMENTS OF THE TRUCKEE MEADOWS FIRE PROTECTION DISTRICT. THE CONTRACTOR SHALL MAINTAIN THE 30' FIRE BREAK DURING ALL CONSTRUCTION OF THE CONSTRUCTION PHASE. AFTER ALL CONSTRUCTION HAS BEEN COMPLETED THE HOMEOWNER'S ASSOCIATION SHALL MAINTAIN THE FIRE BREAK.

12. NO GRADING OR CONSTRUCTION TRAFFIC SHALL OCCUR OUTSIDE THE LIMITS OF THE PHASE OTHER THAN THE DELIVERY OF MATERIALS OR THE REMOVAL OF TRASH BY MEANS OF THE CONSTRUCTION HAUL ROUTE. THIS DEVELOPMENT SHALL UTILIZE THE BORDER TOWN EXIT, THEN VILLAGE PARKWAY TO WOODLAND VILLAGE PROJECT BOUNDARY. TEMPORARY DIRT ROADS WILL THEN BE UTILIZED FROM THE PROJECT BOUNDARY TO THE CONSTRUCTION SITE. GRAVEL APRONS SHALL BE PLACED AT ANY LOCATION WHERE CONSTRUCTION TRAFFIC EXITS TO A PAVED STREET OR OTHER ACCESS. GRAVEL APRONS SHALL BE OF SUFFICIENT AREA AND DEPTH TO PREVENT THE TRACKING OF SEDIMENT AND DEBRIS BEYOND THE CONSTRUCTION SITE.

13. SUMMIT ENGINEERING CORPORATION IS THE GEOTECHNICAL ENGINEER OF RECORD FOR THIS PROJECT. THE DEVELOPER IS RESPONSIBLE TO RETAIN THE SERVICES OF SUMMIT ENGINEERING CORPORATION TO PROVIDE ALL REQUIRED TESTING AND INSPECTION OF GRADING AND CONSTRUCTION NOT INSPECTED DIRECTLY BY WASHOE COUNTY OR GREAT BASIN WATER COMPANY. THE CONTRACTOR SHALL PROVIDE ANY INSPECTING ENTITY 48 HOURS ADVANCE NOTICE OF ANY REQUIRED TESTING OR INSPECTION.

14. ALL GRADING AND CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (PWC) AND THE LATEST DETAILS FOR SPWC ADOPTED BY WASHOE COUNTY, THE "GEOTECHNICAL INVESTIGATION FOR VILLAGE PARKWAY TOWNHOMES" DATED FEBRUARY 5, 2021, PREPARED BY SUMMIT ENGINEERING CORPORATION. ALL SEWER CONSTRUCTION SHALL ALSO CONFORM TO THE WASHOE COUNTY DEPARTMENT OF PUBLIC WORKS UTILITY DIVISION DESIGN STANDARDS AND REVIEW GUIDELINES FOR WASTEWATER SYSTEMS. ALL WATER CONSTRUCTION SHALL ALSO CONFORM TO THE REQUIREMENTS OF GREAT BASIN WATER COMPANY.

15. IN ORDER TO EXPEDITE THE INSPECTION AND TESTING OF MATERIALS, THE CONTRACTOR SHALL FURNISH COMPLETE STATEMENTS TO THE GEOTECHNICAL ENGINEER AS TO THE ORIGIN, COMPOSITION AND MANUFACTURE OF ALL MATERIALS TO BE USED IN THE WORK. SUCH STATEMENTS SHALL BE FURNISHED PROMPTLY AFTER EXECUTION OF THE CONTRACT, BUT IN ALL CASES PRIOR TO DELIVERY OF SUCH MATERIALS.

16. AREAS TO BE GRADED SHALL BE CLEARED OF ALL SURFACE VEGETATION AND DEBRIS. THIS DEBRIS IS TO BE DISPOSED OF IN CONFORMANCE WITH WASHOE COUNTY REGULATIONS OR PLACED IN APPROVED NON-STRUCTURAL FILL AREAS IF SHOWN ON THE APPROVED GRADING PLANS.

17. ALL GRADING WITHIN PROPOSED STREET RIGHT-OF-WAYS AND OTHER STRUCTURAL AREAS SHALL BE TO SUBGRADE ELEVATIONS. REFER TO THE DETAIL SHEETS FOR SPECIFIC INFORMATION ON SUBGRADE ELEVATIONS. SOIL WITHIN TWO FEET OF SUBGRADE ELEVATIONS MUST MEET THE REQUIREMENTS FOR STRUCTURAL FILL AS DEFINED IN THE GEOTECHNICAL INVESTIGATION AND AS VERIFIED IN THE FIELD BY THE GEOTECHNICAL FIELD INSPECTOR. INDIVIDUAL LOTS SHALL BE GRADED SUCH THAT THERE WILL BE NO IMPORT OF MATERIAL REQUIRED TO COMPLETE THE FINAL LOT GRADING TO THE FINISHED GRADES NOTED ON THE PLANS AFTER THE FOUNDATION IS POURED. THIS MAY BE ACCOMPLISHED BY STOCKPILING BACKFILL ON THE LOT OR LEAVING THE PADS AT 6 TO 12 INCHES ABOVE BOTTOM OF FOOTING GRADE FOR CAN-OUT BY THE CONCRETE CONTRACTOR. THE GRADING CONTRACTOR SHALL WORK OUT A SPECIFIC PLAN FOR THIS OPERATION WITH THE DEVELOPER PRIOR TO CONSTRUCTION. SOIL WITHIN THREE FEET OF BOTTOM OF FOOTING MUST ALSO MEET THE REQUIREMENTS FOR STRUCTURAL FILL TO BE VERIFIED BY THE FIELD INSPECTOR. GRADING WITHIN DETENTION BASINS AND OTHER REVEGETATED AREAS SHALL BE TO THE FINISHED GRADES NOTED ON THE PLANS AND MUST BE READY TO RECEIVE REVEGETATION WITHIN 15 DAYS OF COMPLETION.

18. DRAINAGE:
THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL NEW DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING. NO FENCE OR OTHER OBSTRUCTION WHICH INTERFERES WITH DRAINAGE SHALL BE ALLOWED WITHIN A DRAINAGE OR STORM DRAIN EASEMENT. STORM RUNOFF FROM THE CONSTRUCTION AREA SHALL BE CONTROLLED AT ALL TIMES TO PREVENT THE TRANSPORT OF SEDIMENT AND DEBRIS TO EXISTING PAVED STREETS, STORM DRAIN SYSTEMS OR NATURAL DRAINAGE WAYS. SPECIFIC DETAILS OF STRAW BALE DAMS ARE INCLUDED IN THIS PLAN SET. STRAW BALE DAMS ARE THE MINIMUM PROTECTION REQUIRED. SILT FENCING OR OTHER APPROVED METHODS WILL BE REQUIRED IF SEDIMENT CAN NOT BE ADEQUATELY CONTROLLED BY STRAW BALE DAMS. ALL SEDIMENT CONTROL DEVICES SHALL BE CLEANED AND MAINTAINED PERIODICALLY DURING CONSTRUCTION AND IMMEDIATELY AFTER ANY RAINSTORM. AT THE COMPLETION OF CONSTRUCTION, ALL NEW STORM DRAIN SYSTEMS SHALL BE CLEANED PRIOR TO DEDICATION TO WASHOE COUNTY.

19. ALL STORM DRAIN INLETS AND OUTLETS SHALL BE ARMOURED WITH ROCK RIP-RAP (SIZE AND QUANTITY AS NOTED ON THE PLANS) AND SHALL BE GROUTED OR APPLIED OVER A LAYER OF MIRAFI 140N OR EQUIVALENT FABRIC.

20. THE CONTRACTOR SHALL MAINTAIN A 24-HOUR DUST CONTROL PROGRAM IN CONFORMITY WITH SECTION 40.030 OF THE WASHOE COUNTY AIR POLLUTION REGULATIONS AND THE APPROVED DUST CONTROL PERMIT FOR THE PROJECT. DUST SHALL BE CONTROLLED AT ALL TIMES BY DIRECT WATERING OF AREAS DISTURBED BY GRADING OPERATIONS. OPEN WATERING SHALL BE BY WATER TRUCK OR PRESSURE IRRIGATION SYSTEM. AREAS DESIGNATED FOR REVEGETATION SHALL BE REVEGETATED WITHIN 15 DAYS OF COMPLETION OF GRADING. AREAS NOT TO RECEIVE PERMANENT REVEGETATION SHALL BE TREATED WITH AN APPROVED DUST PALLIATIVE WITHIN 15 DAYS OF COMPLETION OF GRADING OPERATIONS. A LIST OF ACCEPTABLE DUST PALLIATIVES CAN BE OBTAINED FROM THE WASHOE COUNTY AIR QUALITY DIVISION.

21. SLOPE STABILIZATION AND REVEGETATION
ALL DISTURBED AREAS OUTSIDE THE PROPOSED STREET RIGHT OF WAYS AND LOT AREAS, INCLUDING DETENTION BASINS AND TEMPORARY DITCHES SHALL BE PERMANENTLY REVEGETATED WITHIN 15 DAYS OF COMPLETION OF GRADING OPERATIONS USING THE SEED MIX AND APPLICATION INSTRUCTIONS SHOWN BELOW. TEMPORARY IRRIGATION IS RECOMMENDED FOR AT LEAST TWO GROWING SEASONS TO ENSURE THE SUCCESS OF THE SEEDING.

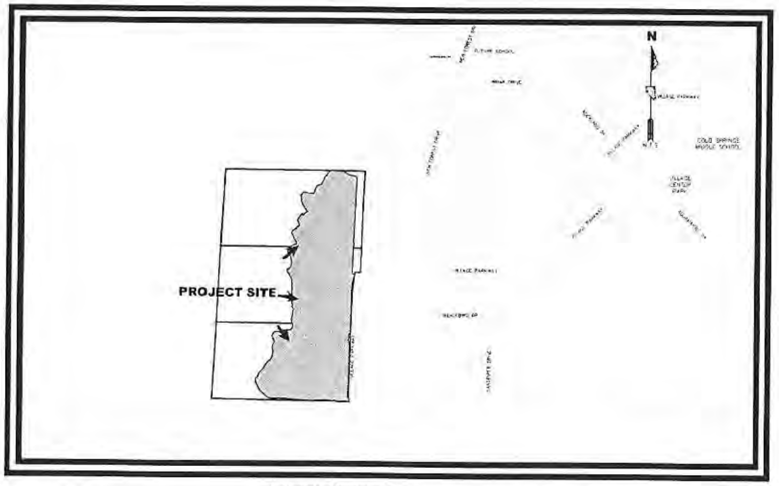
SPECIES	LBS PER ACRE
GRASSES	
WHEAT GRASS CRESTED/BLUEBUNCH WHEAT GRASS	4
WHEAT GRASS SIBERIAN P-27	4
FESCUE SHEEP COVER	4
BLUEGRASS CANBY/SANDBERG	4
WILDRYE GREAT BASIN MAGNAR NATIVE	2
RYEGRASS ANNUAL (NURSE CROP)	8
SHRUBS	
SAGEBRUSH BASIN	0.5
RABBIT BRUSH	0.5
SALT BUSH FOURWING	3
BITTER BRUSH	0.5
SPINY HOPSAGE	0.5
FLOWERS	
DRYLAND AGGRESSIVE BLEND	1
	33 LBS PER ACRE

MULCH SHALL CONSIST OF DEGRADABLE GREEN DYED CELLULOSE FIBER (RECYCLED NEWSPAPER) (AGRI-FIBER BY GREENSTONE INDUSTRIES (GAL)). MULCH SHALL BE FREE FROM WOODS OR OTHER FOREIGN MATTER TOXIC TO SEED GERMINATION AND SUITABLE FOR HYDROMULCHING. APPLY AT A RATE OF 2,000 LBS PER ACRE. MULCH APPLICATION SHALL INCLUDE 15-30-5 FERTILIZER AT AN APPLICATION RATE OF 50 LBS PER ACRE.

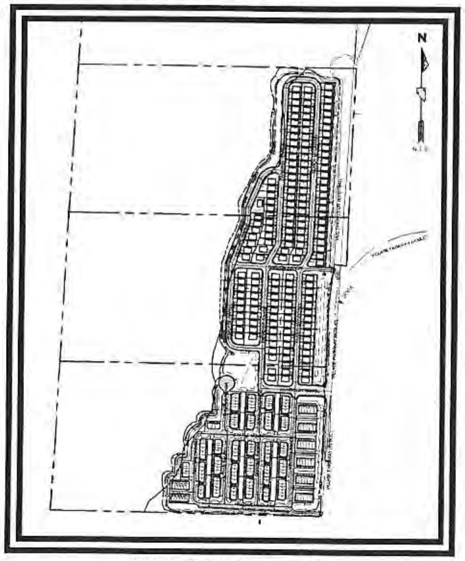
SOIL AND MULCH TACKIFIER SHALL BE USED AT A RATE OF 100 LBS PER ACRE FOR HYDRAULIC APPLICATION OF SEED, WOOD FIBER MULCH, AND TACKIFIER TO STABILIZE THE SOIL SURFACE, AND SHALL CONSIST OF AT LEAST THREE DIFFERENT BUT COMPLIMENTARY ACTIVE HYDROCOLLOIDS FROM NATURAL PLANT SOURCES. THE COMBINATION SHALL EXHIBIT SWELLING AND LUBRICITY QUALITIES WHEN HYDRATED IN WATER SLURRY, AND WHEN DRY ON THE SOIL SURFACE SHALL FORM LOOSE CONNECTING FIBRALS IN A CHAIN-LIKE TACKING FILM, AS MANUFACTURED BY RECLAMARE COMPANY UNDER THE TRADE NAME J-TAC OR APPROVED EQUAL, AND SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

ALL FILL DIRT IMPORTED AS PART OF THE PROJECT IS REQUIRED TO BE "CERTIFIED WEED FREE".

BEST MANAGEMENT PRACTICES WILL BE USED TO PREVENT THE SPREAD OF NOXIOUS AND INVASIVE WEEDS DURING CONSTRUCTION ACTIVITIES.



VICINITY MAP N.T.S.



SITE PLAN N.T.S.

SHEET INDEX

PROJECT DATA

SINGLE FAMILY DETACHED LOTS	166 LOTS
SINGLE FAMILY ATTACHED LOTS	183 LOTS
TOTAL LOTS	349 LOTS
TOTAL AREA	124.6 AC
COMMON OPEN SPACE AREA	±93.89 AC
PRIVATE PAVEMENT AREA	±3.58 AC
TOTAL LOT AREA	±20.48 AC
PUBLIC RIGHT OF WAY	±6.65 AC
GROSS DENSITY	2.80 DU/AC
AVERAGE DETACHED LOT SIZE	4,250 SF
LARGEST DETACHED LOT	8,257 SF
SMALLEST DETACHED LOT	3,645 SF
AVERAGE ATTACHED LOT SIZE	1,047 SF
LARGEST ATTACHED LOT	1,348 SF
SMALLEST ATTACHED LOT	800 SF

ABBREVIATIONS

A.C.	ASPHALTIC CONCRETE	M.H.	MANHOLE
AGG	AGGREGATE	M.P.O.C.	MID POINT OF CURVE
B.C.	BEGIN CURVE	N.T.S.	NOT TO SCALE
B.F.	BOTTOM OF FOOTING	P.E.	PAD ELEVATION
B.O.P.	BOTTOM OF PIPE	P.C.C.	POINT OF COMPOUND CURVATURE
B.V.C.	BEGIN VERTICAL CURVE	P.I.	POINT OF INTERSECTION
B.W.	BACK OF SIDEWALK	P.R.C.	POINT OF REVERSE CURVATURE
C.B.	CATCH BASIN	P.V.C.	POLYVINYL CHLORIDE PIPE
CL	CENTERLINE	P.V.I.	POINT OF VERTICAL INTERSECTION
CONC	CONCRETE	P.O.	PUSH ON
CONST	CONSTRUCT	P.U.E.	PUBLIC UTILITY EASEMENT
C.O.	CLEAN OUT	PL	PROPERTY LINE
C.P.	CONCRETE PIPE	Q10	10-YEAR STORM FLOW
C.R.	CURB RETURN	Q100	100-YEAR STORM FLOW
D.I.	DROP INLET	(R)	RADIAL
DET	DETAIL	R	RADIUS
E	ELECTRICAL	R.C.P.	REINFORCED CONCRETE PIPE
ELEV	ELEVATION	REF	REFERENCE
E.C.	END OF CURVE	RET	RETURN
E.V.C.	END OF VERTICAL CURVE	R.P.	RADIUS POINT
EXIST	EXISTING	RT	RIGHT
(EX)	EXISTING	R/W	RIGHT OF WAY
E.G.	EXISTING GRADE	S	SLOPE
F.F.	FINISHED FLOOR	S.G.	SUBGRADE
F.F.C.	FRONT FACE OF CURB	S.S.	SANITARY SEWER
F.G.	FINISHED GRADE	S.W.	SIDEWALK
F.H.	FIRE HYDRANT	STD	STANDARD
FL	FLOW LINE	SHT	SHEET
FLG	FLANGE	STA	STATION
G	GAS	S.D.	STORM DRAIN
G.B.	GRADE BREAK	S.D.E.	STORM DRAIN EASEMENT
G.V.	GATE VALVE	S.W.P.P.P.	STORM WATER POLLUTION PREVENTION PLAN
H.C.	HANDICAPPED	T	TANGENT
HORIZ	HORIZONTAL	TELE	TELEPHONE
H.P.	HIGH POINT	T.C.	TOP OF CURB
INT	INTERSECTION	T.B.	THRUST BLOCK
I.E.	INVERT ELEVATION	TOE	TOE OF SLOPE
L	LENGTH	TOP	TOP OF SLOPE
L.F.	LINEAL FEET	T.O.P.	TOP OF PIPE
L.P.	LOW POINT	TYP	TYPICAL
LT	LEFT	V.C.	VERTICAL CURVE
M.D.D.	MAXIMUM DRY DENSITY	V.P.I.	VERTICAL POINT OF INTERSECTION
		Δ	CURVE DELTA
		W	WATER

ENGINEER'S STATEMENT

THESE PLANS (SHEETS T-1 THROUGH X-3 OF 21) HAVE BEEN PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING PROCEDURES AND GUIDELINES, AND ARE IN SUBSTANTIAL COMPLIANCE WITH APPLICABLE STATUTES, COUNTY ORDINANCES, AND CODES. IN THE EVENT OF CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND COUNTY CODES, THE COUNTY CODES SHALL PREVAIL.

ROBERT CELU P.E. #17741

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

REV.	DATE	DESCRIPTION	BY	APP'D

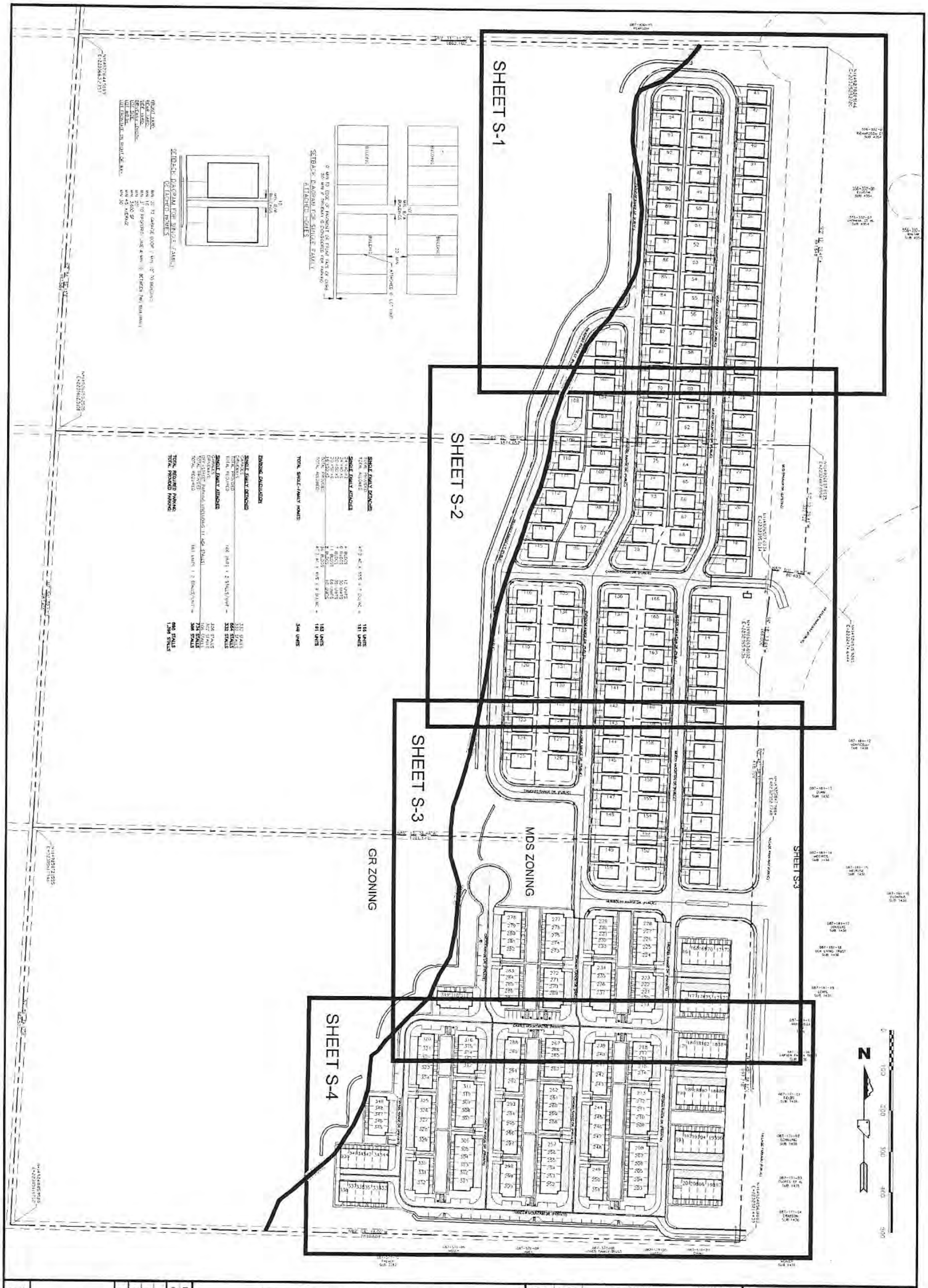
TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
TITLE SHEET

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: N/A
VERT: N/A
JOB NO: 31097

SHEET T-1 OF 21

N:\DWGS\31097_VillageParkwayTownhomes\Civil\VVP_TITLE.DWG - 8:41 AM - 03-MAR-2021



REV.	DATE	DESCRIPTION	BY	APP'D

TENTATIVE MAP PLANS FOR
VILLAGE PARKWAY HOMES
OVERALL SITE PLAN

COLD SPRINGS WASHOE COUNTY NEVADA

DESIGNED BY: RG
CHECKED BY: RG
SCALE
HORIZ: 1"=100'
VERT:
JOB NO: 31097

SHEET S-0 OF 21

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE:(775) 747-8550 FAX:(775) 747-8559

N:\DWGS\U31097_VillageParkwayTownhomes\Civil\VVP_BASE.DWG - 11:09 AM * 04-MAR-2021

Single-Family Detached Housing
(210)

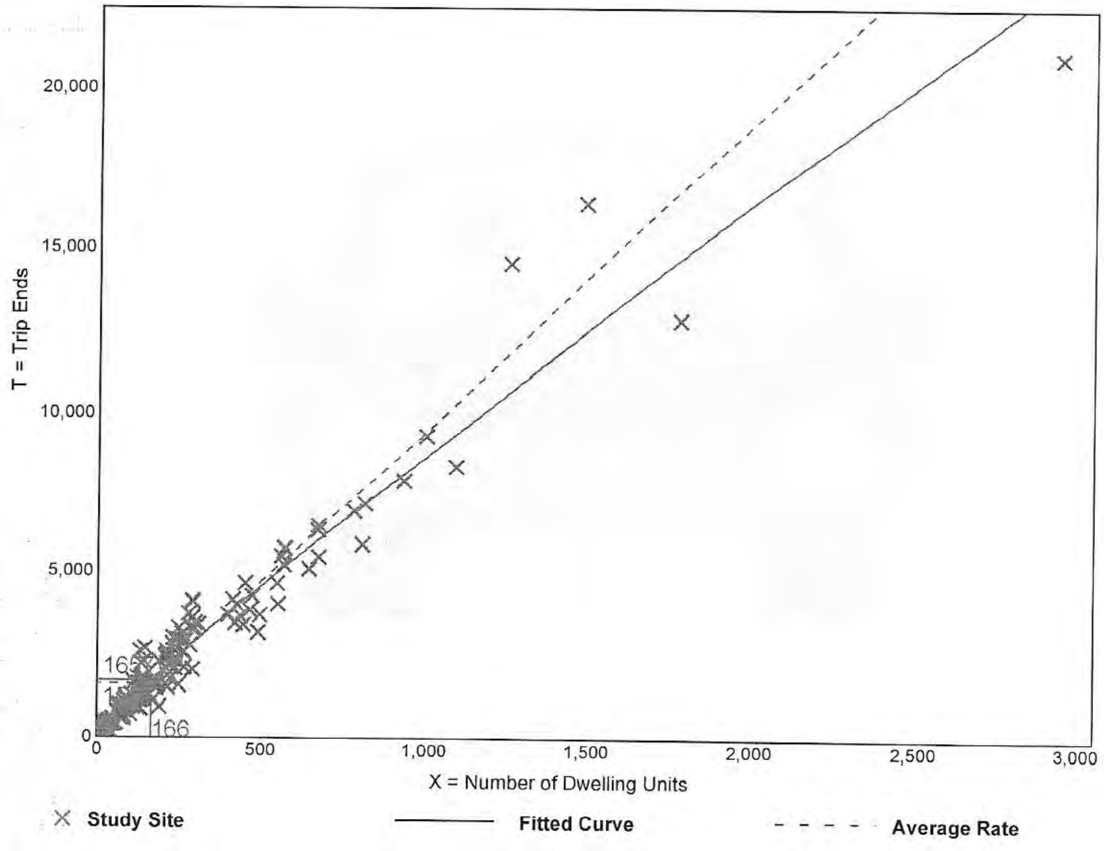
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.71

R^2= 0.95

Trip Gen Manual, 10th Edition • Institute of Transportation Engineers

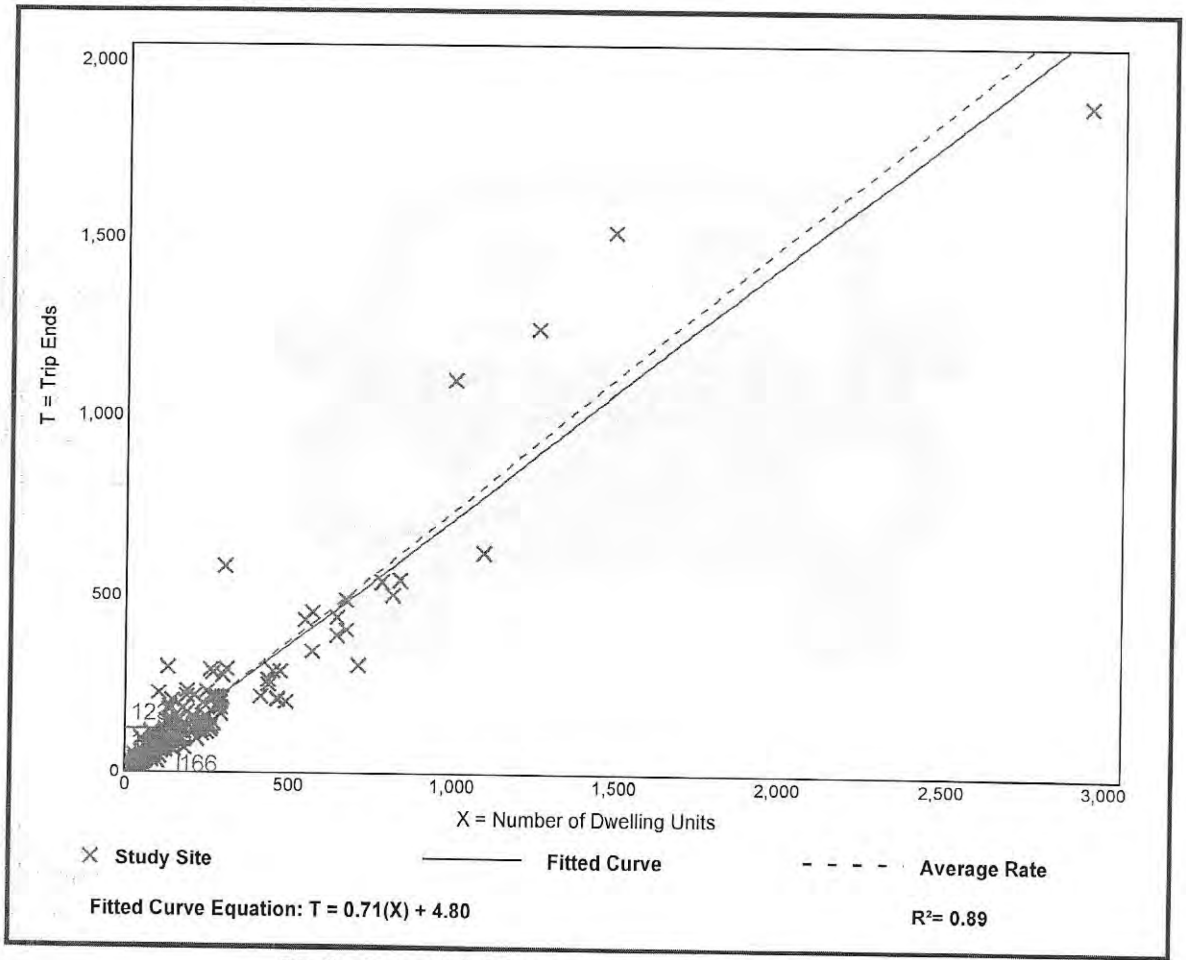
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



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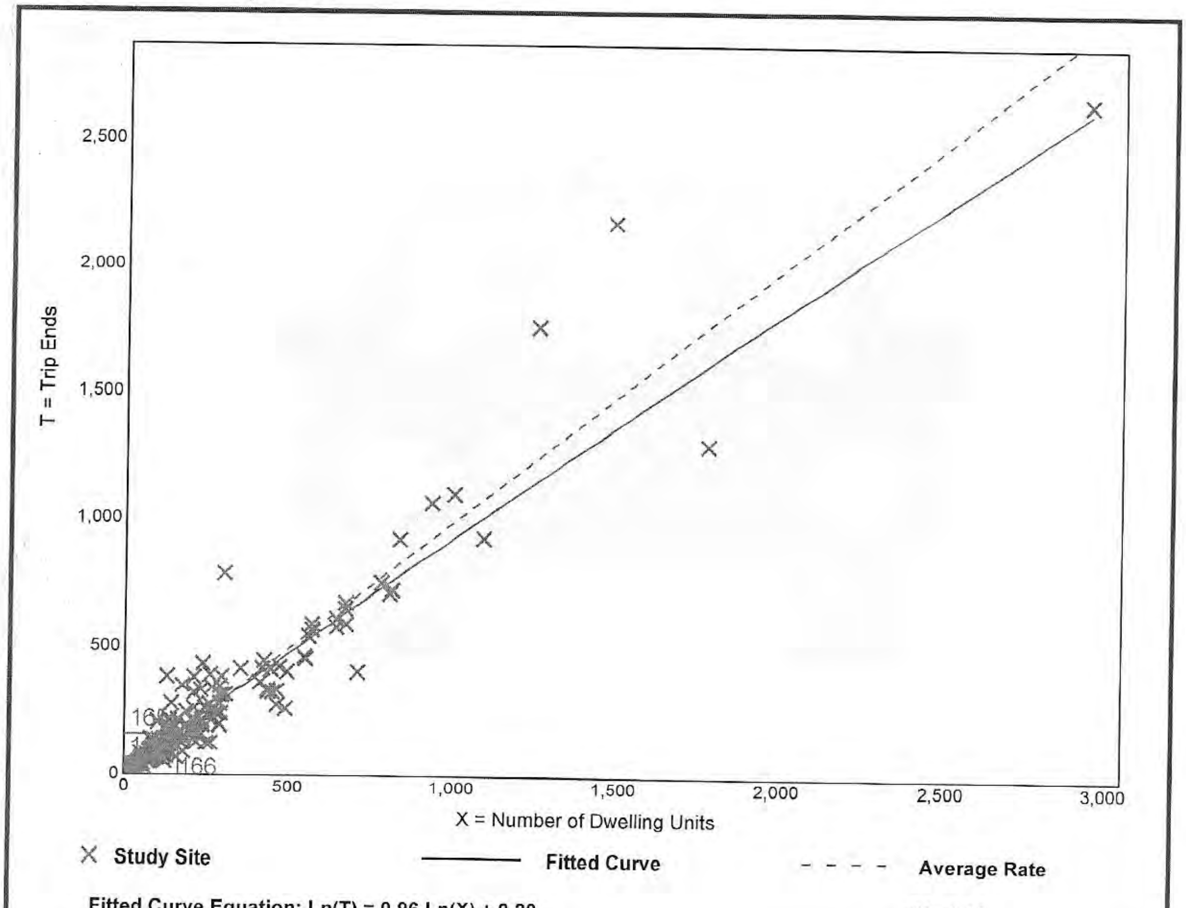
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Fitted Curve Equation: $\ln(T) = 0.96 \ln(X) + 0.20$

$R^2 = 0.92$

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Multifamily Housing (Low-Rise)
(220)

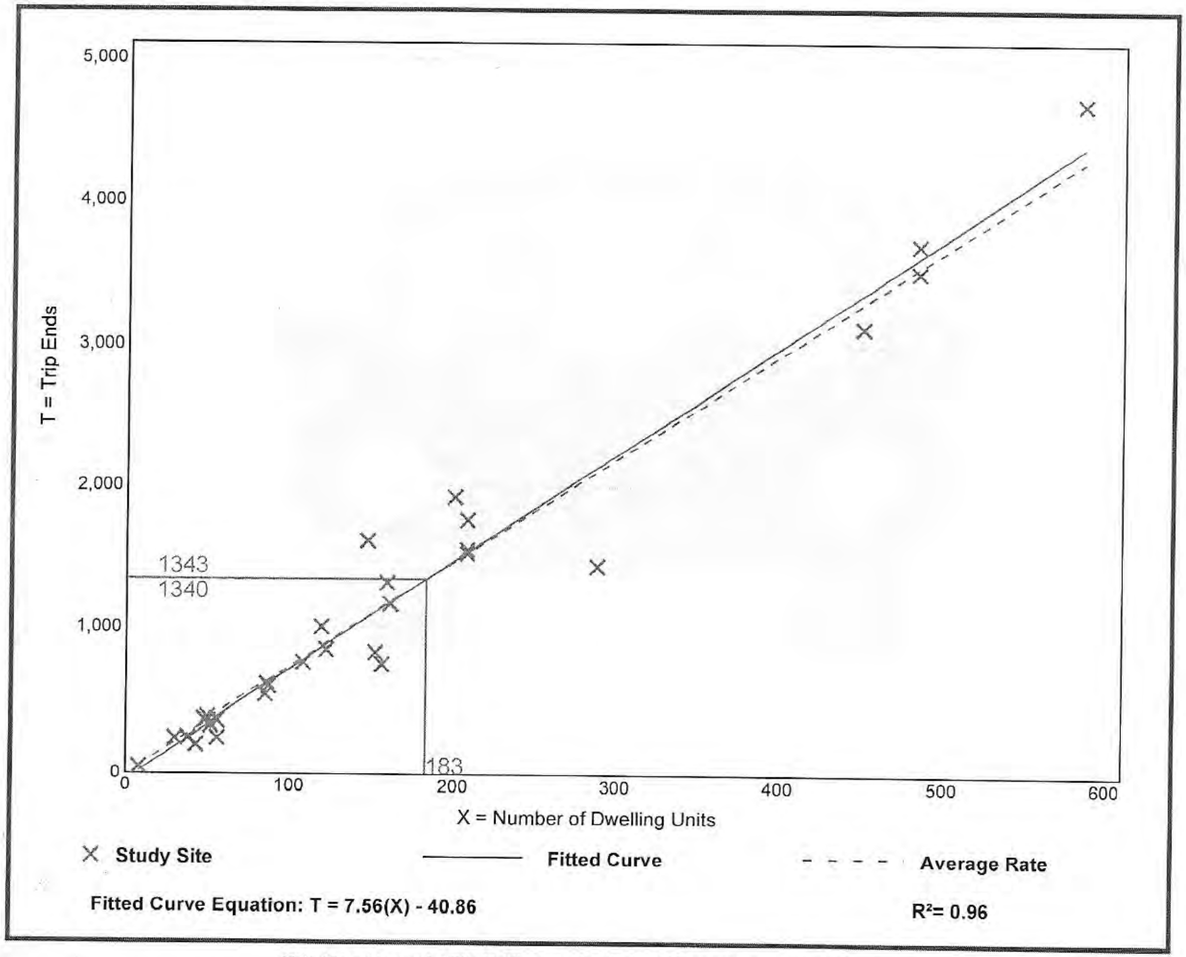
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



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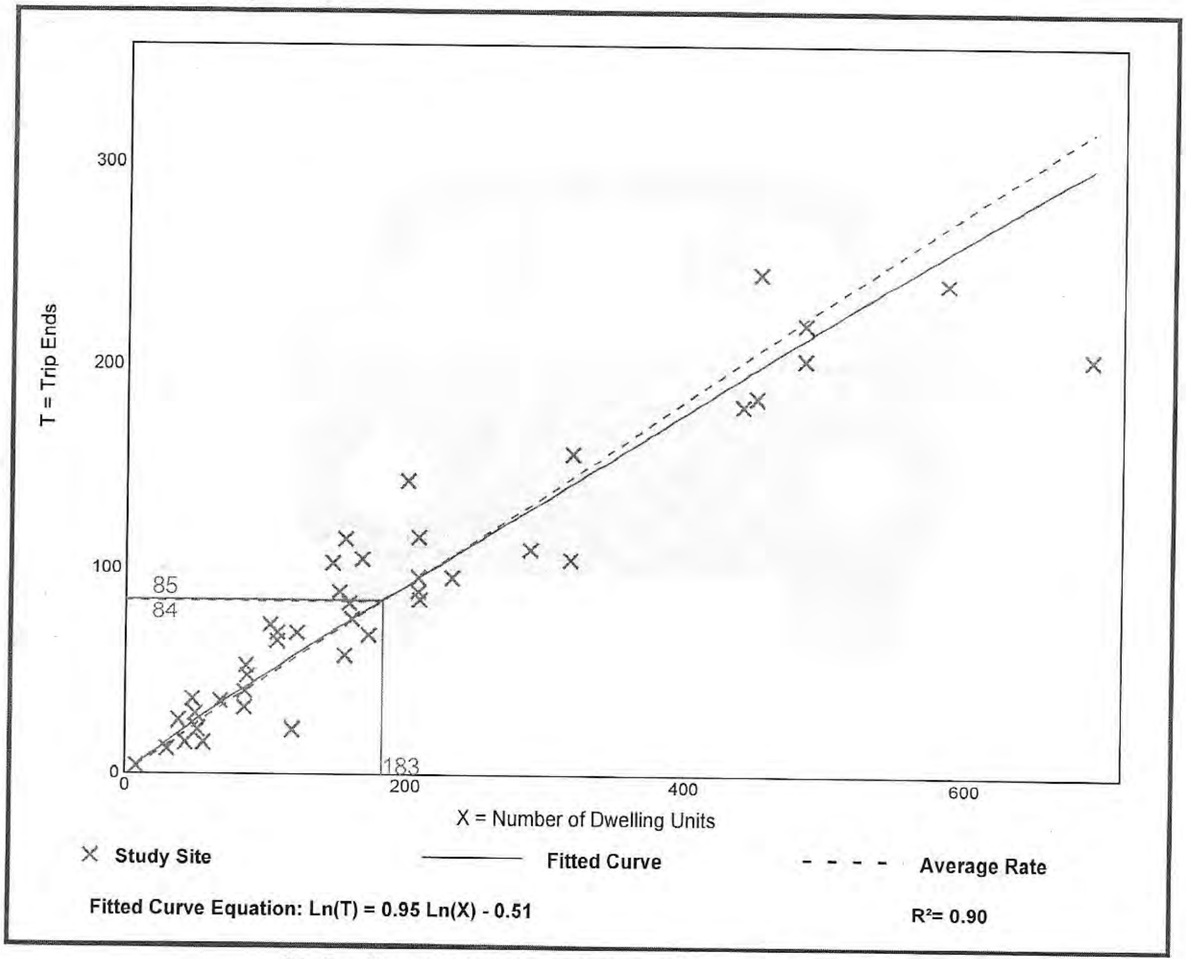
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



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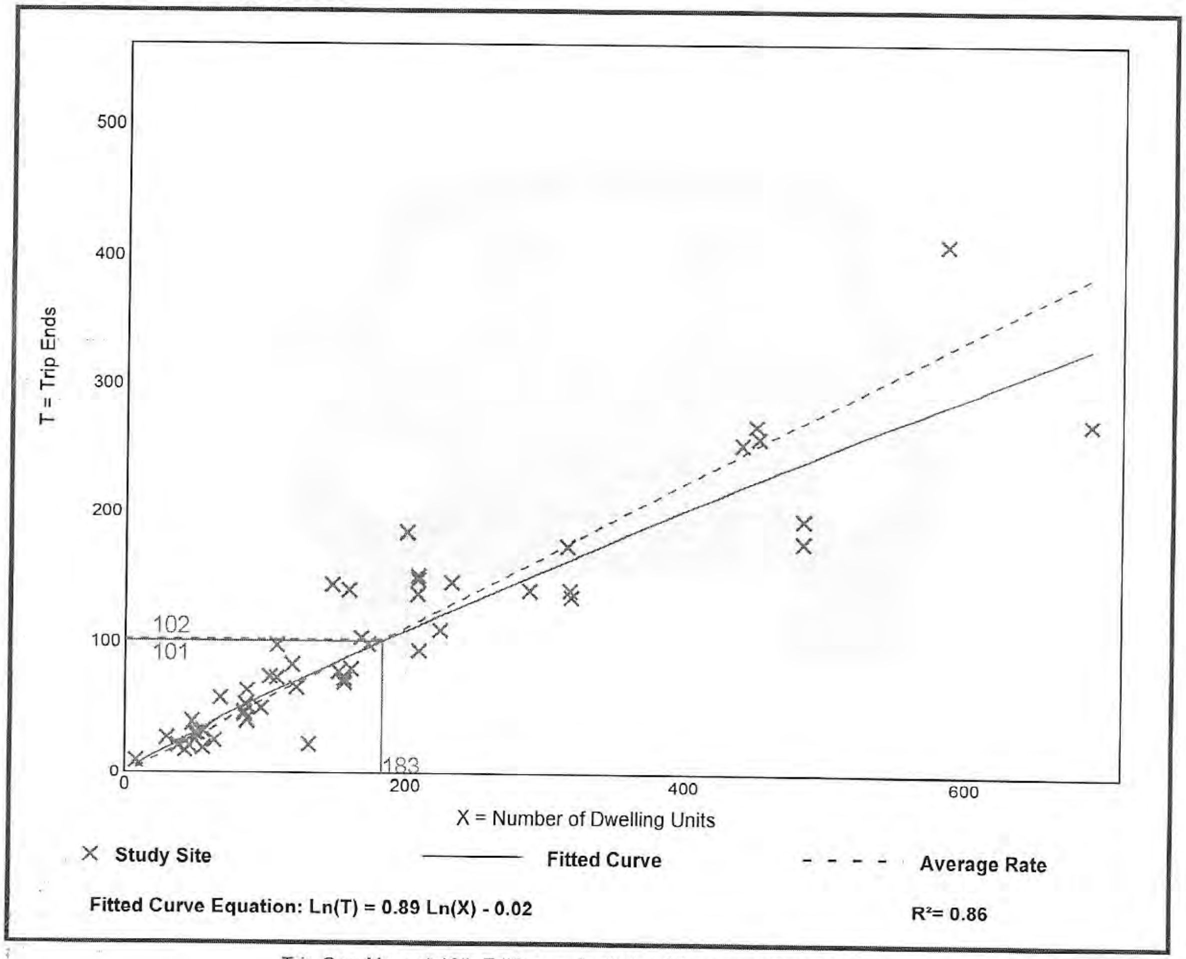
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02

R^2= 0.86

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REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

March 26, 2021

FR: Chrono/PL 181-21

Mr. Dan Cahalane, Planner
Community Services Department
Washoe County
PO Box 11130
Reno, NV 89520

Dear Mr. Cahalane,

RE: WTM21-007 (Village Parkway)

The Regional Transportation Commission (RTC) has reviewed this request to approve a tentative map for 166 detached single-family dwelling units and 183 attached single-family dwelling units in a common open space subdevelopment, and major grading permit for the proposed tentative map. This project is planned for the west side of Village Parkway, north of Cold Springs Drive.

The project site access is located on Village Parkway, a regional road, identified by the 2050 Regional Transportation Plan (RTP) as an Arterial with moderate access control. New accesses on Village Parkway should be designed to meet the criteria outlined in the table below.

Access Management Standards-Arterials[1] and Collectors

Access Management Class	Posted Speeds	Signals Per Mile and Spacing[2]	Median Type	Left From Major Street? (Spacing from signal)	Left From Minor Street or Driveway?	Right Decel Lanes at Driveways?	Driveway Spacing[3]
Moderate Access Control	40-45 mph	3 or less Minimum spacing 1590 feet	Raised or painted w/turn pockets	Yes 500 ft. minimum	No, on 6 or 8-lane roadways w/o signal	Yes[4]	200 ft./300 ft.

[1] On-street parking shall not be allowed on any new arterials. Elimination of existing on-street parking shall be considered a priority for major and minor arterials operating at or below the policy level of service.

[2] Minimum signal spacing is for planning purposes only; additional analysis must be made of proposed new signals in the context of planned signalized intersections, and other relevant factors impacting corridor level of service.

[3] Minimum spacing from signalized intersections/spacing other driveways.

[4] If there are more than 60 inbound, right-turn movements during the peak-hour.

The application requests to approve a tentative map for 166 detached single-family dwelling units and 183 attached single-family dwelling units. Though the number and type of units evaluated in the applicant's traffic study does not match the number and type of units proposed in the application, the overall trip generation for the number proposed in the application is largely the same as shown in the traffic study. Therefore, the recommendations/mitigations provided in the traffic study are still valid. The proposed 166 detached single-family units and 183 attached single-family units are anticipated to generate approximately 2907 daily trips, 207 AM peak hour trips, and 266 PM peak hour trips.

The policy Level of Service (LOS) standard for Village Parkway and White Lake Parkway is LOS D. Intersections shall be designed to provide a level of service consistent with maintaining the policy level of service of the intersecting corridor. This project should be required to complete roadway improvements necessary to maintain policy LOS standards. The traffic study shows that the intersection of the Project Access/ Village Parkway will operate at LOS B or better in the 2040 Plus Project Scenario with the construction of a 340' exclusive northbound to westbound left turn lane on Village Parkway. **The applicant should be required to construct this left turn lane and any necessary accompanying improvements on Village Parkway as a condition of approval**. The traffic generated by the project will also impact the intersection of regional roadways Village Parkway and White Lake Parkway. The applicant's traffic study shows that with no improvements, the intersection will operate at LOS C or better in the 2040 Plus Project Scenario, which meets the policy level of service of LOS D.

The applicant should assess the available stopping and intersection sight distance at the proposed project access intersections using guidelines provided in AASHTO's Policy on Geometric Design of Highways and Streets (Green Book). Landscaping and buildings should be placed so that clear sight triangles are provided.

It is recommended that this development be required to provide a 10-space Park-n-Ride near the entrance of the development. This is a way to promote and encourage carpooling and vanpooling to the residents and it is beneficial to help reduce air pollution and traffic congestion. For information on the Smart Trips program, please contact Scott Miklos, Trip Reduction Analyst at 775-3535-1920 or email smiklos@rtcwashoe.com.

The RTP, RTC Bicycle/Pedestrian Master Plan and the Nevada Department of Transportation Pedestrian Safety Action Plan, all indicate that new development and re-development will be encouraged to construct pedestrian and bicycle facilities, internal and/or adjacent to the development, within the regional road system. In addition, these plans recommend that the applicant be required to design and construct any sidewalks along the frontage of the property in conformance with the stated ADA specifications.

Thank you for the opportunity to comment on this application. Please feel free to contact me at 775-332-0174 or email me at rkapuler@rtcwashoe.com if, you have any questions or comments.

Sincerely,

Rebecca Kapuler

Rebecca Kapuler
Senior Planner

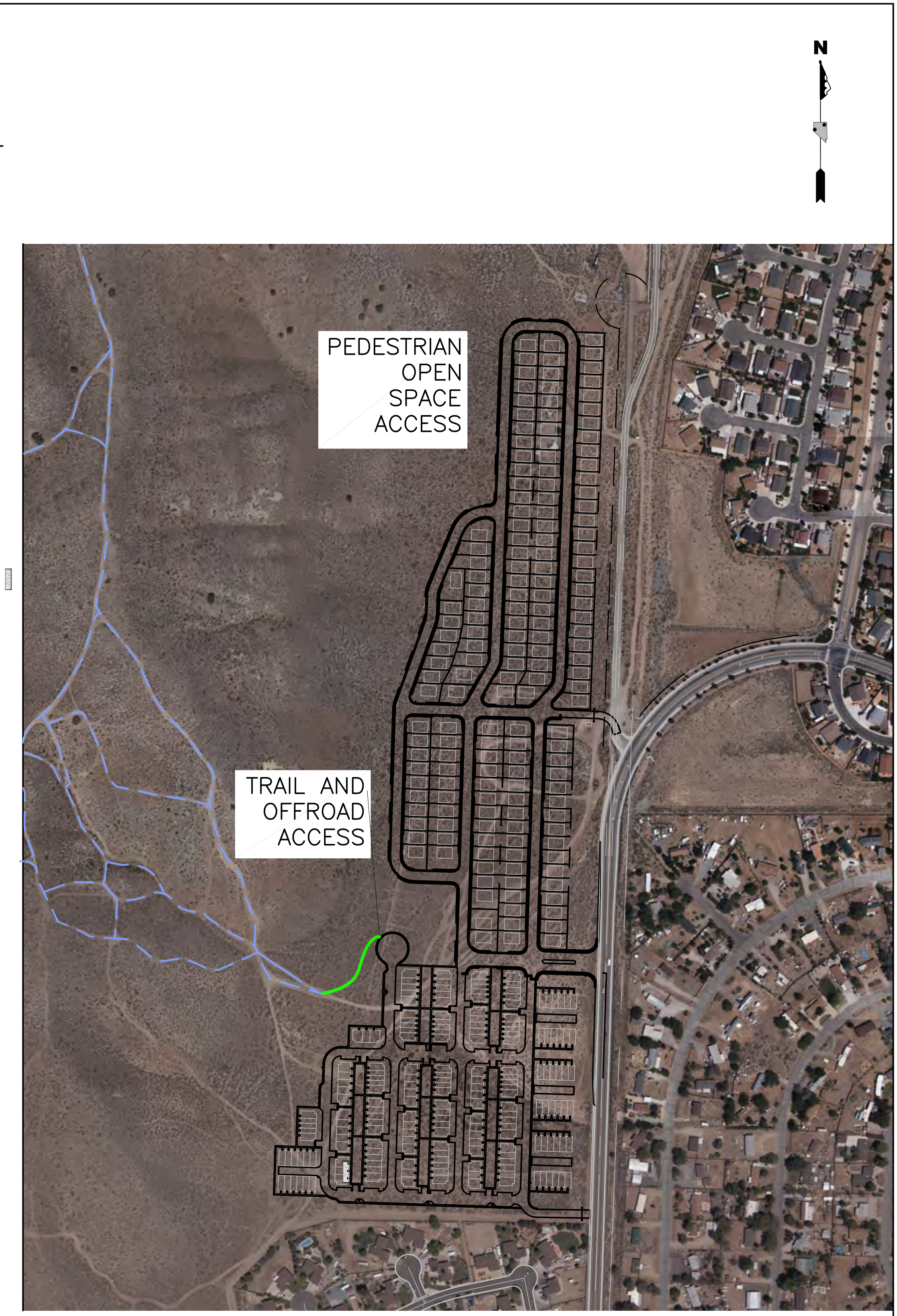
CC: Dale Keller, Regional Transportation Commission
Blaine Petersen, Regional Transportation Commission,
Sara Going, Regional Transportation Commission
Tina Wu, Regional Transportation Commission
Andrew Jankayura, Regional Transportation Commission
Scott Miklos, Regional Transportation Commission
Alex Wolfson, Nevada Department of Transportation

/Village Parkway

LEGEND

- - - EXISTING TRAIL

— PROPOSED TRAIL



VILLAGE PARKWAY TOWN HOMES TRAIL MAP

SCALE: N.T.S.

SUMMIT ENGINEERING CORPORATION
5405 MAE ANNE AVENUE, RENO, NV. 89523
PHONE: (775) 747-8550 FAX: (775) 747-8559

SHEET 1 OF 1

N:\DWGS\J31097_VillageParkwayTownhomes\Civil\Retired\$$WVP_TrailMap.DWG ~ 12:22 PM * 12-APR-2021

Director’s Modification of Standards
Supplemental Information

(All required information may be separately attached)

1. What modification or deviation are you requesting? **Be specific.**

Cuts over 10', slopes over 10' in height with the use of retaining walls and benches.

2. Why is the modification or deviation necessary to the success of the project/development? **Be specific.** Are there any extenuating circumstances or physical conditions on the proposed project/development site?

The cuts and slopes are necessary to provide the required retention volume for the project.

3. Are you proposing to mitigate the effect of the modification or reduction?

The cut material will be used onsite to balance earthwork. Meetig all requirements of 110.438.45 (c)(1)(i) through (v).

4. What section of code are you requesting to modify or deviate? **Be specific.** List the code section and if there are specific requirements for the modification, provide detailed information. For deviation, provide the percentage of the deviation.

Meeting all requirements of 110.438.48(c)(1)(i) through (v).

5. For Minor Deviation request; list what properties/parcels are affected by the deviation? Explain if there will be any impacts to the affected neighboring properties. (At a minimum, affected property owners are those owners of parcels that immediately abut the location of the proposed minor deviation.)

N/A