OFFSITE SEWER & WATER IMPROVEMENTS

FOR

GENERATIONS AT GREEN VALLEY

El Dorado Hills, CA

November 2022

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GPA22-0001, Z22-0001, TM22-0001

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INTRODUCTION

This document provides a brief description of the proposed offsite water and sewer improvements associated with the Generations at Green Valley project. A Facility Improvement Letter (FIL) has been issued by the El Dorado Irrigation District (EID / District) and can be found in Appendix 1. It should be noted that the Project is not within the District's boundary and would require annexation.

OFFSITE WATER IMPROVEMENTS

As noted in the FIL, the Project would be required to make three water line connections to the existing EID water system. One connection would be made to an existing 8" line near the western Project boundary located in Lima Way. The second connection would be to the existing 10" line at the intersection of Clarksville Road and Greenview Drive approximately 1 mile south of the Project. The third connection would be to the existing 12-inch line in Green Valley Road just west of the Pleasant Grove Middle School, approximately 1 mile east of the Project. The approximate connection points and alignments are shown on Figure A.

OFFSITE SEWER IMPROVEMENTS

The demands assumed at the time of the FIL application consisted of 380 single-family homes plus the Clubhouse and Park. Per the FIL, the Project will require 386 Equivalent Dwelling Units (EDUs) of sewer service. Although the Project may result in fewer than 386 EDUs due to potential use of onsite septic for some of the larger lots, or a vault restroom at the park, the 386 EDU demand has been used to assess capacities.

As shown on Figure A, the Project's sewer will connect to the existing gravity sewer line in Lima Way near the Project's western boundary. From there, the Project flows will make their way through the existing sewer system to the Highland Hills Lift Station (HHLS).

Per the FIL, the HHLS does not have available capacity to serve the Project and would need to be upgraded. In addition, there is approximately 1,600 lf of existing gravity lines located upstream of the HHLS that would need to be upsized. Capacity analysis of the existing gravity lines can be found in Appendix 2.

Commencing at the HHLS, a new force main would be constructed within existing streets to Silva Valley Parkway. It would continue south along Silva Valley Parkway until reaching the SMUD corridor where it would then head west along the SMUD corridor, ultimately making a connection to an existing 15" gravity line. The length of the proposed force main is approximately 8,500 lf. The flow then makes its way into the St. Andrews Lift Station via an existing gravity sewer line.

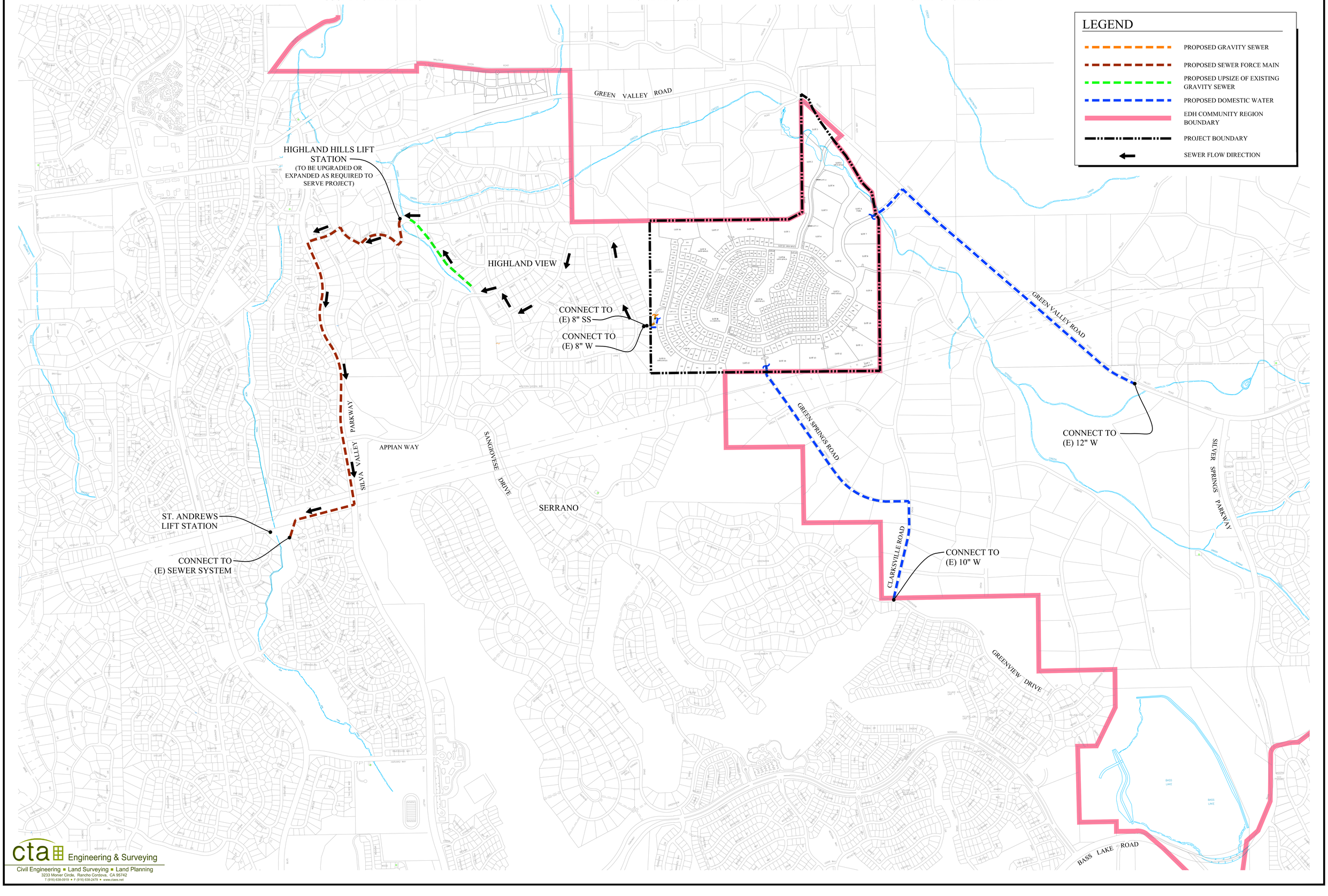
Per District staff, further review of the St. Andrews Lift Station's capacity to serve the project is needed.

From the St. Andrews Lift Station, the flows continue to the El Dorado Hills Wastewater Treatment Plant via the Silva Valley Trunk Sewer for treatment. Sections of the Silva Valley Trunk Sewer do not have adequate capacity to serve the Project and would need to be improved. The District has a project in their Capital Improvement Plan (CIP) to assess the Silva Valley Trunk Sewer, Project No. 15036. The description and timing of that project can be found in Appendix 3.

FIGURE A
OFFSITE SEWER & WATER EXHIBIT
GENERATIONS AT GREEN VALLEY

COUNTY OF EL DORADO | NOVEMBER, 2022 | STATE OF CALIFORNIA

SCALE: 1" = 500'



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APPENDIX 1

El Dorado Irrigation District
Facility Improvement Letter

El Dorado Irrigation District

Letter No.: DS0222-047

February 9, 2022

VIA EMAIL

Aidan Barry
Green Valley Benefits, LLC
1350 17th Street, Suite 350
Denver, CO 80202
Email: abarry@thetrulifecompanies.com

Subject: Facility Improvement Letter (FIL) 3608FIL, Generations at Green Valley **-Annexation**
Assessor's Parcel No. 126-020-001, 002, 003, 004 & 126-150-023 (Outside)

Dear Mr. Barry:

This letter is in response to your request dated November 29, 2021 and is valid for a period of three years. If a Facility Plan Report (FPR) for your project has not been submitted to El Dorado Irrigation District (EID or District) within three years of the date of this letter, a new FIL will be required.

Design drawings for your project must be in conformance with the District's *Water, Sewer and Recycled Water Design and Construction Standards*.

This proposed project is a 380-lot residential subdivision on 280.7 acres. Water service, sewer service, and fire hydrants are requested. The property is **not** within the District boundary and will require annexation before service can be obtained. This letter is not a commitment to serve, but does address the location and approximate capacity of existing facilities that may be available to serve your project.

Water Supply
As of January 1, 2021, there were approximately 18,968 equivalent dwelling units (EDUs) of water supply available in the El Dorado Hills Water Supply Region. Your project as proposed on this date would require 387 EDUs of water supply.

Water Facilities
This project will need to be served by a combination of the 12-inch water line located northeast of the project in Green Valley Road and connections to the Bass Lake Tanks service area to the south. The existing water lines located in the adjacent Highland View Subdivision to the west do not have adequate pressure or capacity to serve your proposed development. The El Dorado Hills Fire Department has determined that the minimum fire flow for this project is 1,875 GPM for a

one-hour duration while maintaining a 20-psi residual pressure. According to the District's hydraulic model, the existing system can deliver the required fire flow utilizing the potential points of connection outlined below.

In order to provide this fire flow and receive service, you must construct a looped water line extension connecting to the 12-inch water line located in Green Valley Road (near the Summerbrook subdivision that is under construction) and also to the 10-inch water line located at the intersection of Clarksville Road and Greenview Drive to the south. This project will also be required to connect to the 8-inch water line located near the western project boundary. It is likely that multiple pressure reducing stations will be required in order to serve the proposed development.

The Facility Plan Report (FPR) should analyze the future need for storage in this region based on potential future developments and the timing of your project. At this time additional storage is not required in the Bass Lake Tank service area to meet current demand and fire flow requirements. The hydraulic grade line for the existing 12-inch water line located in Green Valley Road is 1,503 feet above mean sea level at static conditions and 1,450 feet above mean sea level during fire flow and maximum day demands. The hydraulic grade line for the existing 10-inch water line located in Greenview Drive is 1,462 feet above mean sea level at static conditions and 1,380 feet above mean sea level during fire flow and maximum day demands.

The flow predicted above was developed using a computer model and is not an actual field flow test.

Sewer Facilities

There are no sewer facilities in the immediate vicinity of this project that have adequate capacity to serve the anticipated flows from the proposed development. There is an 8-inch gravity sewer line located near the western property line. This gravity line conveys wastewater to the Highland Hills Lift Station (HHLS), which does not have available capacity to serve this project. HHLS would need to be upgraded in order to serve this project. Additionally your project would be required to upsize approximately 1,800 feet of 8-inch and 10-inch gravity sewer main located immediately upstream of HHLS.

The Timberline Lift Station is located downstream of HHLS and shares a 12-inch force main connection with the New York Creek Lift Station that discharges to the St. Andrews Lift Station. These lift stations and the 12-inch force main that is shared between these two lift stations do not have capacity available and would need to be upsized for any additional flows beyond the current capacity of the existing lift stations. One option may be to construct approximately 7,600 of new 10-inch force main that would convey the flows from HHLS to the St. Andrews Lift Station, thus bypassing the Timberline Lift Station.

The Silva Valley Trunk Gravity Sewer (various sizes) conveys wastewater from several sources, including the discharge of the St. Andrews Lift Station, to the El Dorado Hills Wastewater Treatment Plant. There are sections of the Silva Valley Trunk Sewer, located along Silva Valley Parkway, that do not have adequate capacity to serve the proposed development. That section of sewer is being evaluated by the District, but at this time none of the required system upgrades are included in the District's current 5-year Capital Improvement Plan.

Your project as proposed on this date would require 386 EDUs of sewer service.

Facility Plan Report
An FPR will be required for this project. The FPR shall address the expansion of the water and sewer facilities and the specific fire flow requirements for all phases of the project. A meeting to discuss the content of the report will be required. Please contact this office to arrange the meeting. A preliminary utility plan, prepared by your engineer, must be brought to the meeting.

Two copies of the FPR will be required along with a $3,000.00 deposit. You will be billed for actual time spent in review and processing of your FPR. Please submit the FPR and fee to our Development Services Department. Enclosed is the FPR description and transmittal form for your use. The items listed under content in the description and the completed transmittal form must be bound in each copy of the FPR.

Easement Requirements
Proposed water lines, sewer lines and related facilities must be located within an easement accessible by conventional maintenance vehicles. When the water lines or waste water lines are within streets, they shall be located within the paved section of the roadway. No structures will be permitted within the easements of any existing or proposed facilities. The District must have unobstructed access to these easements at all times, and does not generally allow water or waste water facilities along lot lines.

Easements for any new District facilities constructed by this project must be granted to the District prior to District approval of water and/or waste water improvement plans, whether on-site or off-site. In addition, due to either nonexistent or prescriptive easements for some older facilities, any existing on-site District facilities that will remain in place after the development of this property must also have an easement granted to the District.

Environmental
The County is the lead agency for environmental review of this project per Section 15051 of the California Environmental Quality Act Guidelines (CEQA). The County's environmental document should include a review of both off-site and on-site water and sewer facilities that may be constructed by this project. You may be requested to submit a copy of the County's

environmental document to the District if your project involves significant off-site facilities. If the County's environmental document does not address all water and waste water facilities and they are not exempt from environmental review, a supplemental environmental document will be required. This document would be prepared by a consultant. It could require several months to prepare and you would be responsible for its cost.

Annexation

The applicant is charged for all costs associated with the annexation proposal. A preliminary cost benefit analysis has been completed. This project as currently defined **will not** have a negative financial impact on the District. Please contact Development Services regarding the annexation process.

Summary

Service to this proposed development is contingent upon the following:

- Annexation approval from the District's Board of Directors and El Dorado County Local Agency Formation Commission;
- Payment of District Annexation Impact Fee (Contact Development Services for fee calculation);
- Inclusion of lands into the District's service area from the United States Department of the Interior Bureau of Reclamation (Contact Development Services for more information)
- The availability of uncommitted water supplies at the time service is requested;
- Approval of the County's environmental document by the District (if requested);
- Approval of a Facility Plan Report by the District;
- Approval of an extension of facilities application by the District;
- Approval of facility improvement plans by the District;
- Construction by the developer of all on-site and off-site proposed water and sewer facilities;
- Acceptance of these facilities by the District; and
- Payment of all District connection costs.

Services shall be provided in accordance with El Dorado Irrigation District Board Policies and Administrative Regulations, as amended from time-to-time. As they relate to conditions of and fees for extension of service, District Administrative Regulations will apply as of the date of a fully executed Extension of Facilities Agreement.

If you have any questions, please contact Marc Mackay at (530) 642-4135.

Sincerely,

Michael J. Brink, P.E.
Supervising Civil Engineer

MB/MM:kh

Enclosures: System Map
FPR guidelines and transmittal

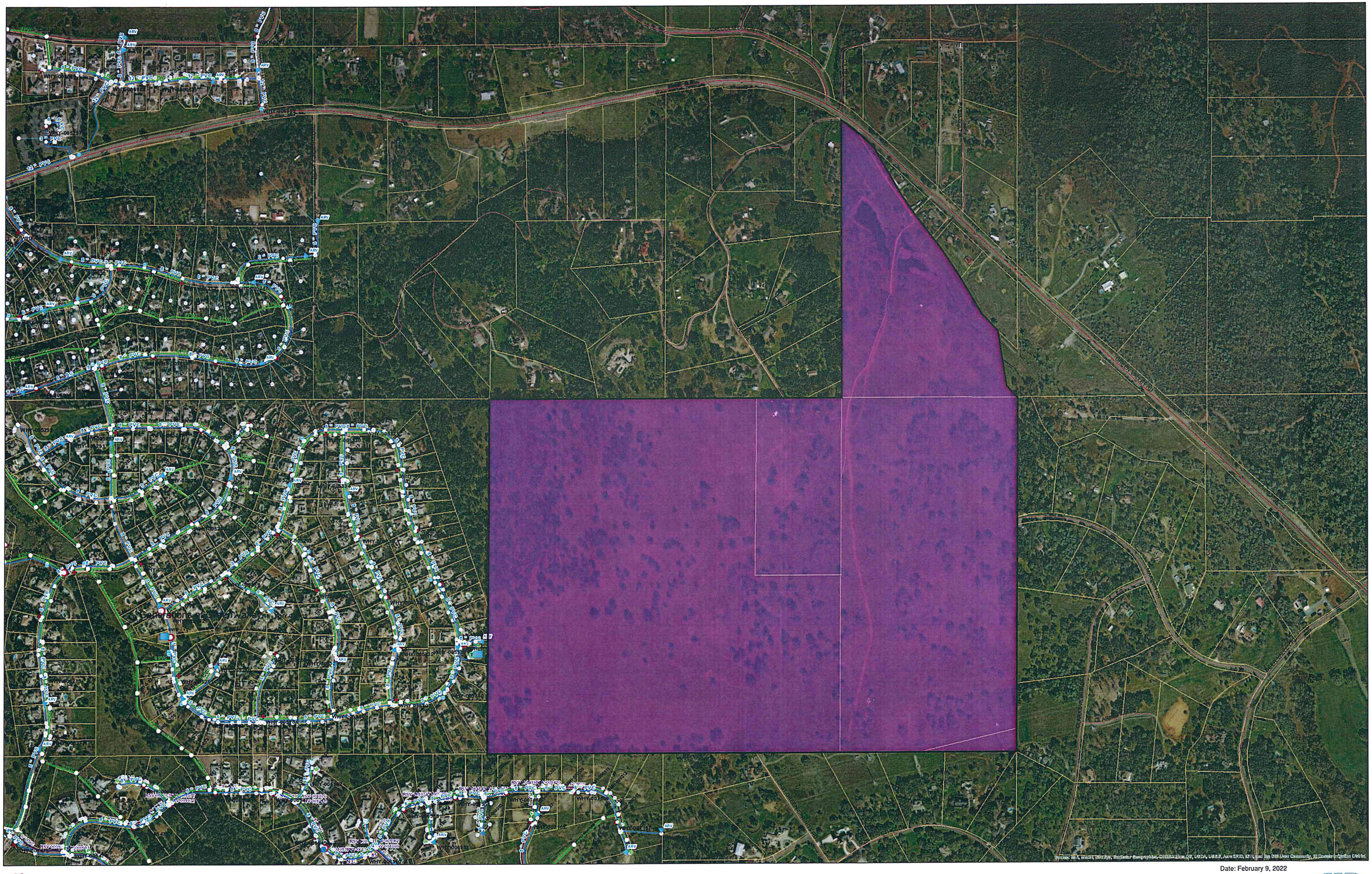
cc w/ System Map:

Gina Hamilton - Senior Planner
El Dorado County Development Services Department
Via email - gina.hamilton@edcgov.us

Erica Sanchez - Assistant Executive Officer
El Dorado County LAFCO
Via email - esanchez@edlafco.us

Ronald A. Phillips - Project Management Specialist
El Dorado Hills Fire Department
Via email - firemarshal@edhfire.com

Connie Peach
CTA Engineering & Surveying
Via email - cpeach@ctaes.net



Scale: NTS

Web AppBuilder for ArcGIS
El Dorado Irrigation District | Maxar |

Date: February 9, 2022

Project: Generations at Green Valley

APN: 126-020-001,002,003 004 + 126-150-23

WARNING: No accuracy of map implied until field checked by EID. Exact pipe locations must be field verified.

APPENDIX 2

Existing Sewer Capacity Analysis to Highland Hills Lift Station

Generations at Green Valley
El Dorado Hills, CA

Existing Sewer Capacity Analysis to Highland Hills Lift Station
November 2022

GENERAL

This analysis summarizes existing gravity sewer line capacities from the Generations at Green Valley Project's westerly boundary to the Highland Hills Lift Station (HHLS).

DEMANDS

An average dry weather flow (ADWF) of 240 gallons per single family dwelling per day represents one equivalent dwelling unit (EDU) of sewer demand. This equates to an ADWF of 0.166 (1/6) gallons per minute (gpm) per EDU. A peaking factor of 4.0 applied to the average dry weather flow results in peak wet weather flow (PWWF) of 0.666 (2/3) gpm per EDU.

CAPACITY CRITERIA

- Sewage flows for 33 EDU's and fewer served by 6-inch sewers are to have a minimum slope of 1.5% (0.015 ft/ft).
- Sewer lines serving 34 or more EDU's are sized according to velocity and capacity criteria, as follows.
- Minimum and maximum design velocities are 2 feet per second (fps) and 10 feet per second (fps), respectively.
- Six-inch sewers may flow no more than 50% full. All other sizes may flow no more than 67% full.
- The maximum slope of any sewer line is 19%.
- Manning's "n" used in hydraulic computations is 0.013 for all sewer pipes.

CONCLUSIONS

Based on the attached supporting calculations, the existing gravity sewer lines would adequately convey the proposed project flows, with the exception of three pipe segments identified on Exhibit A. The capacities of these segments would be exceeded and would require replacement with larger pipes sizes or steeper pipe slopes.

Exhibit A depicts the sewer system and the analyzed routes. Table A summarizes sewer flows and calculations. The analysis assumes 386 EDUs being generated by the Project.

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EXHIBIT A

GENERATIONS AT GREEN VALLEY

EXISTING SEWER CAPACITY ANALYSIS TO HIGHLAND HILLS LIFT STATION

COUNTY OF EL DORADO | NOVEMBER, 2022 | STATE OF CALIFORNIA

0 100' 200' 400'
SCALE: 1" = 200'

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TABLE A **EXISTING CAPACITY SUMMARY** **11/07/22**

FROM	TO	EX. & FUTURE EDU'S	EX. EDU'S + PP	PWWF @ 2/3 GPM/EDU	EX. PIPE DIA. (IN)	EX. PIPE SLOPE (FT/FT)	VELOCITY (FPS)	PERCENT FULL
C	1	0	386	257.33	8"	0.1500	9.10	23.6
1	2	0	386	257.33	8"	0.0607	6.58	29.8
2	3	2	388	258.67	8"	0.0503	6.16	31.3
3	4	5	391	260.67	8"	0.1076	8.11	25.9
4	5	13	399	266.00	8"	0.1006	7.97	26.6
5	6	19	405	270.00	8"	0.0745	7.17	29.0
6	7	26	412	274.67	8"	0.1112	8.33	26.3
7	8	29	415	276.67	8"	0.0350	5.51	35.7
8	9	29	415	276.67	8"	0.0701	7.08	29.8
9	10	56	442	294.67	8"	0.0875	7.79	29.1
10	11	58	444	296.00	8"	0.0050	2.70	65.9
11	12	60	446	297.33	8"	0.0050	2.70	66.2
12	13	62	448	298.67	8"	0.0325	5.48	37.9
13	14	79	465	310.00	8"	0.0570	6.79	33.3
14	15	81	467	311.33	8"	0.1057	8.49	28.4
15	16	91	477	318.00	8"	0.0216	4.80	43.9
16	17	96	482	321.33	8"	0.0900	8.08	30.1
17	18	96	482	321.33	8"	0.0100	3.61	55.4
18	19	97	483	322.00	8"	0.0847	7.91	30.6
19	20	97	483	322.00	8"	0.0540	6.72	34.5
20	21	111	497	331.33	8"	0.1050	8.61	29.4
21	22	111	497	331.33	8"	0.1000	8.46	29.8
22	23	334	720	480.00	8"	0.0650	8.04	40.6
23	24	335	721	480.67	8"	0.0900	9.04	37.2
24	25	339	725	483.33	8"	0.0050	N/A	FULL
25	26	346	732	488.00	8"	0.0334	6.30	49.5
26	27	347	733	488.67	8"	0.0118	4.20	69.5
27	28	348	734	489.33	8"	0.0093	3.79	76.7
28	29	478	864	576.00	10"	0.02	5.42	44.8
29	HHLS	500	886	590.67	10"	0.02	5.45	45.5
DESIGN CRITERIA								
MINIMUM VELOCITY = 2 FPS @ 33+ EDUs; MAXIMUM VELOCITY = 10 FPS								
MAXIMUM VOLUME: 6" @ 50%; 8"+ @ 67%								
MAXIMUM SLOPE = 19%								
CAPACITY CRITERIA EXCEEDED								

Circular Pipe (220901 Highland View Sewer Capacities.fm8)

Label	Roughness Coefficient	Diameter (in)	Discharge (gpm)	Percent Full (%)	Velocity (ft/s)	Channel Slope (ft/ft)
C-1	0.013	8.0	257.33	23.6	9.10	0.1500
1-2	0.013	8.0	257.33	29.8	6.58	0.0607
2-3	0.013	8.0	258.67	31.3	6.16	0.0503
3-4	0.013	8.0	260.67	25.9	8.11	0.1076
4-5	0.013	8.0	266.00	26.6	7.97	0.1006
5-6	0.013	8.0	270.00	29.0	7.17	0.0745
6-7	0.013	8.0	274.67	26.3	8.33	0.1112
7-8	0.013	8.0	276.67	35.7	5.51	0.0350
8-9	0.013	8.0	276.67	29.8	7.08	0.0701
9-10	0.013	8.0	294.67	29.1	7.79	0.0875
10-11	0.013	8.0	296.00	65.9	2.70	0.0050
11-12	0.013	8.0	297.33	66.2	2.70	0.0050
12-13	0.013	8.0	298.67	37.9	5.48	0.0325
13-14	0.013	8.0	310.00	33.3	6.79	0.0570
14-15	0.013	8.0	311.33	28.4	8.49	0.1057
15-16	0.013	8.0	318.00	43.9	4.80	0.0216
16-17	0.013	8.0	321.33	30.1	8.08	0.0900
17-18	0.013	8.0	321.33	55.4	3.61	0.0100
18-19	0.013	8.0	322.00	30.6	7.91	0.0847
19-20	0.013	8.0	322.00	34.5	6.72	0.0540
20-21	0.013	8.0	331.33	29.4	8.61	0.1050
21-22	0.013	8.0	331.33	29.8	8.46	0.1000
22-23	0.013	8.0	480.00	40.6	8.04	0.0650
23-24	0.013	8.0	480.67	37.2	9.04	0.0900
24-25	0.013	8.0	483.33	82.0	2.79	0.0050
25-26	0.013	8.0	488.00	49.5	6.30	0.0334
26-27	0.013	8.0	488.67	69.5	4.20	0.0118
27-28	0.013	8.0	489.33	76.7	3.79	0.0093
28-29	0.013	10.0	576.00	44.8	5.42	0.0200
29-HHLS	0.013	10.0	590.67	45.5	5.45	0.0200
24-25 w/10"	0.013	10.0	483.33	61.4	3.07	0.0050
25-26 w/10"	0.013	10.0	488.00	35.6	6.24	0.0334
26-27 w/10"	0.013	10.0	488.67	47.5	4.27	0.0118
27-28 w/10"	0.013	10.0	489.33	50.9	3.90	0.0093

Bentley Systems, Inc. Haestad Methods Solution Center
27 Siemon Company Drive Suite 200 W Watertown, CT 06795 USA
+1-203-755-1666

Minimum pipe diameter (10")
to accommodate project flows

APPENDIX 3

El Dorado Irrigation District
CIP Project No. 15036

2022	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 15036

Project Name: Silva Valley - El Dorado Hills Sewerline

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 11/08/21

Project Description:

The 2013 Wastewater Facility Master Plan (WWMP) identified 2,100 feet of the 18"/21" sewer line along Silva Valley Road and 4,500 feet of 18" sewer line between Silva Valley Rd and the EDH Wastewater Treatment Plant as needing capacity upsizing in the future. In order to further refine the extent and timing of improvements required, flow monitoring and survey work to determine manhole invert and ground elevations was completed. Flow monitoring and survey data has been incorporated into the District collection system model to determine remaining pipeline capacity. The current capacity analysis indicates the peak wet weather flow rate in 12,000 feet of pipeline exceeds design capacity and of that 4,700 feet is in a surcharged condition, i.e. water backing up into manholes. Additional wet weather flow data has been collected to calibrate the model further.

The hydraulic modeling update in 2020 included a refinement of necessary pipeline sizing as well as a list of improvement options. A Basis of Design (BODR) report is needed to determine the most cost effective and constructable pipe alignment considering environmental concerns and easement acquisition. Because project development is conceptual at this time, construction expenditures are not included. Once the BODR is completed, construction expenditures will be programmed into the Capital Improvement Plan.

Basis for Priority:

This project will replace undersized assets to ensure reliability and continual operation of the El Dorado Hills collection system. If the capacity limitations are not corrected, sanitary sewer overflows could occur and future connections to the collection system will be limited.

Project Financial Summary:			
Funded to Date:	$ 220,920	Expenditures through end of year:	$ 207,206
Spent to Date:	$ 197,206	2022 - 2026 Planned Expenditures:	$ 1,000,000
Cash flow through end of year:	$ 10,000	Total Project Estimate:	$ 1,207,206
Project Balance	$ 13,714	Additional Funding Required	$ 986,286

Description of Work	Estimated Annual Expenditures					
	2022	2023	2024	2025	2026	Total
Study/Planning	$ 150,000					$ 150,000
Environmental	$ 100,000	$ 100,000				$ 200,000
Easement Acquisition		$ 50,000	$ 200,000			$ 250,000
Design		$ 200,000	$ 200,000			$ 400,000
Construction						$ -
						$ -
TOTAL	$ 250,000	$ 350,000	$ 400,000	$ -	$ -	$ 1,000,000

Estimated Funding Sources	Percentage	2022	Amount
Wastewater FCCs	100%		$236,286
Total	100%		$236,286

Funding Comments: The project provides capacity for new wastewater customers, therefore is funded with wastewater FCCs.