

CONCEPT WATER/SEWER UTILITY LETTER for:

Founders Vista Subdivision

Castle Rock, Colorado

PDP19-0002

Prepared for:

Rusty Hall

Highline Engineering & Surveying Company, Inc.

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Parker, Colorado

80138

Prepared by:

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Ste. 199

Parker, Colorado

80134

Project No. HIGH19.02

June 24, 2019

Rev. 30OCT19

Rev. 06APR20



Project Location and Description

A. Site Location

1. The project is a parcel of land located in the west half of section 7, township 8 south, range 66 west, the southwest quarter and east half of section 12, township 8 south, range 67 west of the 6th principal meridian, town of Castle Rock, Douglas county, Colorado.
2. The project is located southwest of State Highway 86 and Ridge Road. Ridge Road borders the east side of the property.
3. Located east of Ridge Road is the Founders Village subdivision. To the west is The Oaks subdivision. The property is bordered on the north and south by unincorporated Douglas County.

B. Description of Property and Land Use

1. The project area is 181.5 acres, plus or minus.
2. It is proposed that the subdivision is to consist of single-family lots and duplexes. The following is the breakdown of each of quantities:

Single Family Lots-

353 lots * 1.0 = 368 SFE's

Duplexes-

214 lots * 1.0 = 214 SFE's

This provides a total of 567 lots with a total of **567 SFE's**.

3. There are no known navigable waterways, flood plains, or drainageways located on the project site. The site will consist of 85.6 acres (47.2%) of developed area, 89.1 acres (49.1%) of open space, and 6.8 acres (3.7%) of R.O.W.
4. There are no known existing irrigation canals or ditches.
5. The site is located on top of a plateau that slopes east to west with significant drops in elevation to the west. The southwest portion of the site is located within the Town's Skyline/Ridgeline Development Constraints. There is an existing 5-acre county parcel that shall be annexed. The county parcel is located west of the Enderud roundabout.
6. There are no On-Site Wastewater Treatment Systems (OWTS) on the project site.
7. There are no active water wells on the project site.

Existing Water System

A. Existing Distribution System

1. A 30-inch transmission was constructed within Ridge Road with a 12-inch stub out at the north entrance to the project and an 8-inch stub out was provided at the Enderud roundabout to service the project site. This

information was obtained from the Villages at Castle Rock Metro District No. 9 Water and Wastewater Master Plan and will need to be verified.

2. With the construction of the 30-inch main in Ridge Road it is assumed that adequate pressure will be supplied to the site. Pressure and flow tests will need to be obtained as the design progresses.

B. Existing Supply Facilities

1. The site was planned to be serviced by the water supply for the Villages at Castle Rock Metro Districts numbers 1 and 7 (known as the Founders Service Area).
2. The well fields for Districts 1 and 7 are Enderud, Weaver No. 1 and No. 2, and Mikelson.
3. A 2-acre parcel will be dedicated to the Town to develop wells at their discretion. It may also be an option to provide cash in lieu to the Town.
4. The Founders Water Treatment Plant is located within Founders Village and The East Water Treatment Plant is located within the Castle Oaks Property serve the Founders Service Area.
5. There are currently three storage tanks (6A, 6B, and 6C) located to the south of the project location on Ridge Road. The site shall be supplied by tanks 6A and 6C as 6B is offline. The two tanks provide a combined 4.2 million gallons of storage.
6. Per the Water and Wastewater Master Plan, the site is mainly located within the Green Zone. Portions of the site that fall in the Red Zone elevation shall be supplied by the Green Zone and have pressures controlled by pressure reducing valves (PRV's).

Proposed Water System

A. Proposed Distribution System

1. It is planned that the existing 12-inch extension that was provided during construction of the transmission line within Ridge Road will be utilized as well as the 12-inch extension that is located in the Enderud roundabout. A 12-inch watermain loop will be provided through the central part of the subdivision. A series of 8-inch supply lines will be looped through the subdivision's side streets. Fire hydrants are planned at the top of cul-de-sac dead ends. Any future development of the existing water infrastructure needed to serve this site is the responsibility of the owner.
2. Looping of the internal water system will be designed according the specifications of the Town of Castle Rock Water System Design Criteria Manual, 2018 (Manual). Dead ends will be kept to a minimum; however, it is anticipated that there will be several cul-de-sacs within the proposed development. Fire hydrants will be placed at the top of the cul-de-sacs.
3. Per the District master plan, it was anticipated that the existing green zone tanks, 6A, 6B, and 6C would serve the proposed subdivision. For analysis, the master plan utilized an SFE of 248 for the site. The proposed build out

for this subdivision is 567 SFE's, however, the existing system was designed to accommodate 5,340 SFE's. Per Table 1 in the master plan the ultimate SFE's for the three tanks is 2,698. This number would increase to 3,040, well below the ultimate SFE for the green zone. A portion of the master plan is provided in the appendix.

4. With tank 6B being offline the SFE capacity of the remaining two tanks is 3452, which is greater than the anticipated 3,040 SFE's. Further analysis shall be made to verify storage capacity and build out SFE's.
5. Since a portion of the site is within the red zone it is anticipated that PRV's may be necessary to regulate pressures. The entire site shall be serviced by the Green Zone supply system

B. Proposed Supply Facilities

1. Based on the master plan there is no need for additional supply facilities (pump stations)
2. At this time there are no known reasons for any variances from the Manual.

Existing Wastewater System

1. There are currently no wastewater systems within the site.
2. The nearest existing lines are located to the west within the South Ridge Townhouse Subdivision.
3. Per the master plan, the existing sewer lines in the South Ridge Townhouse Subdivision are 8-inch and collect in the South Street sanitary sewer main, which flows to the Plum Creek Interceptor.
4. The waste treatment is handled at the Plum Creek Wastewater Authority Treatment Plant.
5. Preliminary analysis in the master plan show that several existing sewer lines within the South Ridge Townhouse Subdivision may need to be upsized to meet the increased demands.

Proposed Wastewater System

A. Proposed Collection System

1. Any future development of the existing wastewater infrastructure needed to serve this site is the responsibility of the developer.
2. It is anticipated that the site will be divided into two collection zones, approximately splitting the property in half.
3. Both zones will be gravity collection lines that will tie into existing sewer mains within the South Ridge Townhouse Subdivision to the west.
4. The north half of the site shall have a private lift station to direct collection to the south and gravity feed to the southwest of the site.
5. Due to the topography to the west drop manholes may be needed.
6. Easements and Town access shall be provided where the sewer drops off of the plateau.

7. The anticipated SFE's for this site do exceed the amount of the SFE's in the master plan.
8. Updated calculations shall be completed to determine the need for expansion or upsizing of the existing wastewater collection system.
9. Per the master plan, the existing interceptors and treatment facilities should have adequate capacity to serve this site.

B. Proposed Collection System

1. It is anticipated that a lift stations and force main will be required to direct gravity flows from the north half to the south half of the site. The south half of the site shall gravity flow to the main located in South Valley Drive in the Oak Ridge subdivision to the west.

References

Town of Castle Rock Water System Design Criteria Manual, 2018

Town of Castle Rock Wastewater Collection Design Criteria Manual, 2018

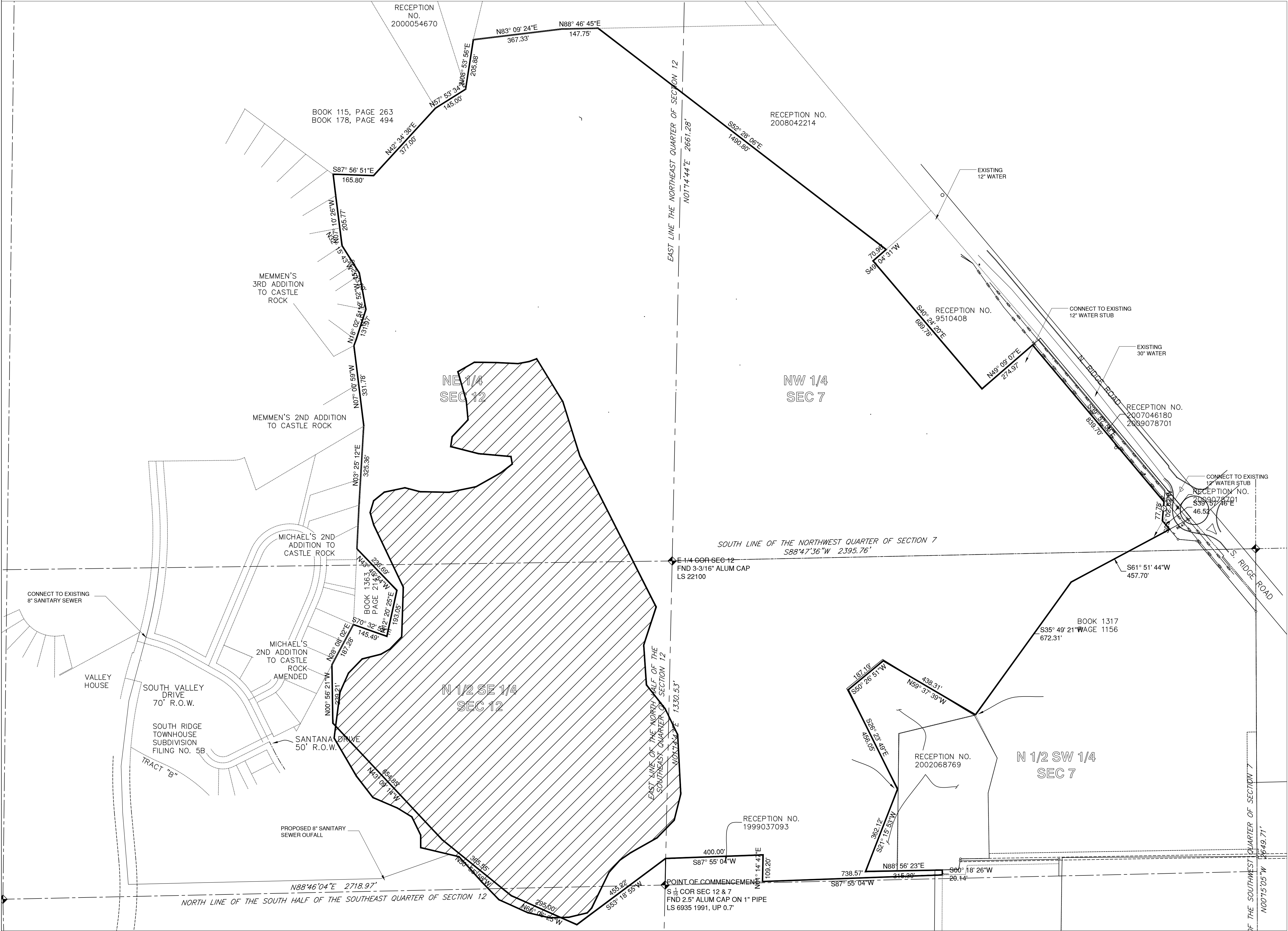
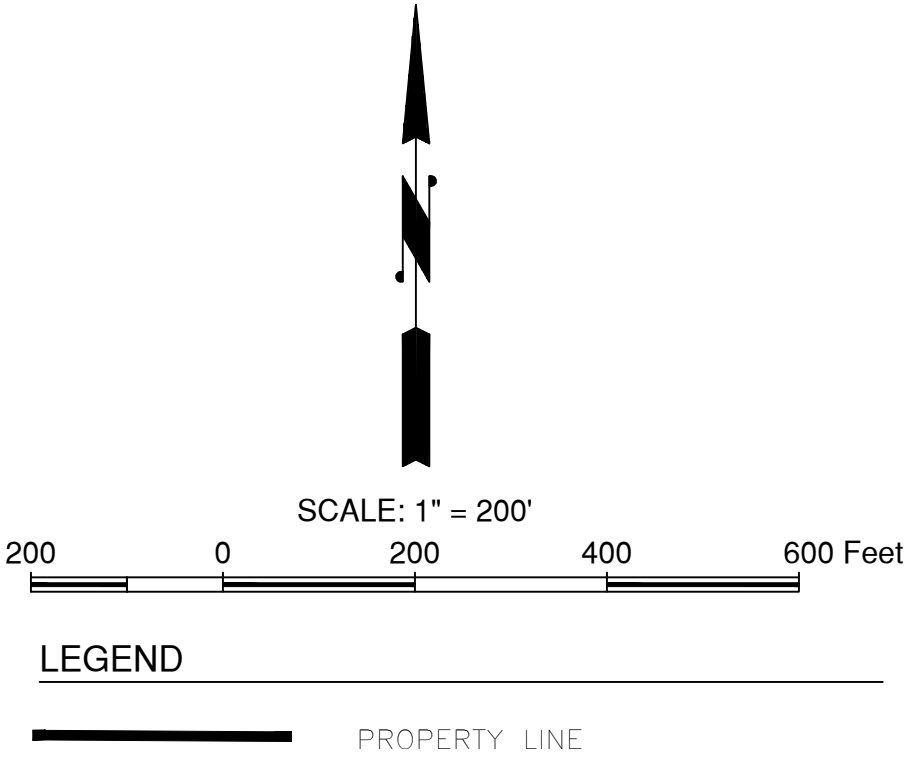
Villages at Castle Rock Metro District No. 9 Water & Wastewater Master Plan, Kennedy/Jenks Consultants, Engineers & Scientists, May 2011 (updated 2014)

Appendix A

Preliminary Utility Map

PLANNED DEVELOPMENT PLAN AND ZONING REGULATIONS, AMENDMENT NO. 1
MEMMEN YOUNG PORTION – THE VILLAGES AT CASTLE ROCK INFILL

1ST AMENDMENT OF THE MEMMEN YOUNG PORTION - THE VILLAGES AT CASTLE
ROCK INFILL, PLANNED UNIT DEVELOPMENT/PRELIMINARY SITE PLAN
A PART OF THE WEST HALF OF SECTION 7,
TOWNSHIP 08 SOUTH, RANGE 66 WEST 6th PRINCIPAL MERIDIAN,
AND THE EAST HALF OF SECTION 12,
TOWNSHIP 08 SOUTH, RANGE 67 WEST 6th PRINCIPAL MERIDIAN,
TOWN OF CASTLEROCK, COUNTY OF DOUGLAS, STATE OF COLORADO.
CASE NO. PDP19-0002



OVERALL UTILITY PLAN

HIGHLINE
ENGINEERING & SURVEYING
ENGINEERING CONSULTANTS

PO BOX 1295
PARKER, COLORADO 80134

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DATE: 9/01/20

SHEET 4 OF 5

JOB NO. FOUNDERS VISTA

CASE NO. PDP19-0002

Appendix B

Referenced Master Plan

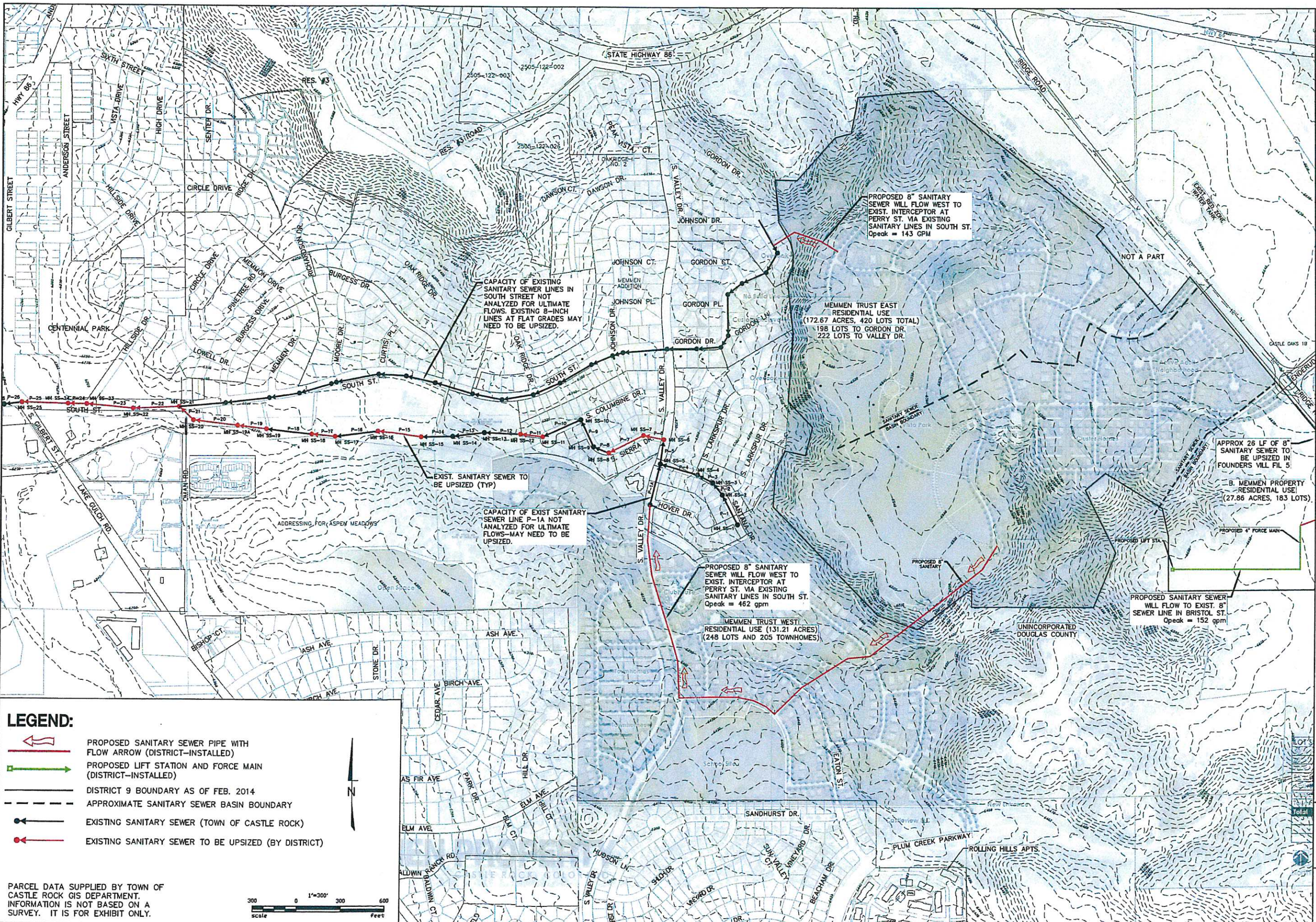
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DATE: 02/13/2014 LUS
DRAWN BY: JLD/02/13/2014
CHECKED BY: JLD/02/13/2014
JOB NO: 074602100118 at CR Metro Dist No 9.dwg

LEGEND:

- PROPOSED SANITARY SEWER PIPE WITH
FLOW ARROW (DISTRICT-INSTALLED)
- PROPOSED LIFT STATION AND FORCE MAIN
(DISTRICT-INSTALLED)
- DISTRICT 9 BOUNDARY AS OF FEB. 2014
- APPROXIMATE SANITARY SEWER BASIN BOUNDARY
- EXISTING SANITARY SEWER (TOWN OF CASTLE ROCK)
- EXISTING SANITARY SEWER TO BE UPSIZED (BY DISTRICT)

PARCEL DATA SUPPLIED BY TOWN OF
CASTLE ROCK GIS DEPARTMENT.
INFORMATION IS NOT BASED ON A
SURVEY. IT IS FOR EXHIBIT ONLY.

300 0 1"=300' 300 600
scale feet



Rev	Date	Description	App

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VILLAGES AT CASTLE ROCK METRO DISTRICT NO. 9

**PROPOSED
WASTEWATER FACILITIES**

DISTRICT NO. 9 WASTEWATER SYSTEM ANALYSIS

Design LUS
Drawn LUS
Checked CSS
Date 2/14
Job No. 0746021001

SHEET
1
OF 1 SHEETS

