HILGARTWILSON
ENGINEER | PLAN | SURVEY | MANAGE

MASTER WASTEWATER REPORT

FOR

HAWES CROSSING

MESA, ARIZONA

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ARIZONA U.S.A.

October 2019
HW Project No. 1833

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1.0 EXECUTIVE SUMMARY

Hawes Crossing (the Project) is a proposed approximate 1,132 acre master planned mixed use development generally located west of Ellsworth Road, east of Sossaman Road, north of Watson Road and south of Elliot Road in the City of Mesa, Arizona. The Project will consist of up to 4,615 residential units, approximately 426 acres of commercial, industrial, and/or research and development land uses, and approximately 52 acres of developed open space.

This Master Wastewater Report has been prepared in support of the General Plan Amendment (GPA) for the Project. This report identifies and evaluates the proposed wastewater system infrastructure for serving the Project in accordance with City of Mesa design criteria. Estimated wastewater flows for the Project have been calculated based on the proposed land uses and current City design criteria. This report also identifies the anticipated average daily flows, peak flows, and sewer line sizes and alignments for the Project.

The proposed wastewater collection system has been designed in accordance with current City of Mesa design criteria as outlined in the City's *Engineering Procedure Manual: 2017 Engineering & Design Standards* (City of Mesa, 2017). The average daily flow projected for the Project based on the current land use plan and the City of Mesa design criteria is 1,441,992 gpd (1,001.4 gpm). Assuming a peaking factor of 1.90 for existing City sewer mains, the peak flow projected for the Project is 2,739,785 gpd (1,902.6 gpm).

To avoid excessive detail at the master planning level while still ensuring the final design will meet all applicable criteria, a minimum 7-ft of cover is used wherever possible, a 0.1-ft drop is applied to all manholes, and pipe lengths conform to City of Mesa manhole spacing requirements.

The sewer lines identified in this report will comprise the backbone of the Project's wastewater system infrastructure and consists of 8-inch to 21-inch sewer mains. Sewer layouts, sizing and alignments within individual parcels will be identified in detail as each parcel is developed. The Project area is currently served by the Greenfield Water Reclamation Plant (GWRP). The GWRP produces A+ effluent.

The Project is divided into development blocks, denoted as Villages, for the purposes of development sale offerings. These Villages are anticipated to be developed in phases specific to the developers needs and the wastewater system infrastructure will similarly be constructed in phases as required to serve each Village or Village phase in the Project. For any given Village, Village phase, or parcel development, the downstream sewer mains required to serve that given Village, Village phase, or parcel will be constructed at the same time as said Village, Village phase, or parcel is developed. Furthermore, all sewer mains constructed for each Village, Village phase, or parcel will be sized for build-out conditions.

2.0 INTRODUCTION

2.1 Background and Project Location

Hawes Crossing (the Project) is located in the City of Mesa (the City) within portions of Sections 8, 16, 17, 20, and 21 of Township 1 South, Range 7 East of the Gila and Salt River Base and Meridian. The Project is comprised of an approximate 1,132-acre master planned mixed use development located to the east and west of Loop 202 approximately between Warner Road and Elliot Road. The Project is generally bound by Elliot Road on the north, Ellsworth Road on the east, Warner Road on the south, and Sossaman Road on the west.

Figure 1 in Appendix A provides a vicinity map for the Project.

2.2 General Description

The Project is planned as a mixed-use development, which will include single family, medium density, and high density residential areas, parks and open space, along with office, mixed use, commercial, and light industrial areas. The land use plan for the Project is presented in Figure 2 (Conceptual Land Use Plan) of Appendix A. The site currently consists of existing dairies, light industrial and agricultural districts as well as estate residential properties (RU-43). The site generally slopes from east to west at approximately 0.4 percent. The existing ground at Hawes Crossing contains numerous undulations formed by local ridges and ravines. Overall, the existing ground slopes towards Sossaman Road and the Roosevelt canal. Portions of the Project are within the City limits with the remaining area under the jurisdiction of Maricopa County. It is assumed the areas within Maricopa County will be annexed into the City of Mesa and a General Plan Amendment and PAD Rezone will be processed and approved by the City.

The Project is located within the City of Mesa wastewater service area. It is in the Greenfield Water Reclamation Plant (WRP) wastewater collection area and wastewater infrastructure for the Project will be owned and operated by the City of Mesa.

2.3 Purpose of Report

This Master Wastewater Report has been prepared in support of the Hawes Crossing General Plan Amendment (GPA) and supports the proposed land use plan as described in the GPA. The purpose of this report is to identify and evaluate the proposed wastewater system infrastructure for serving the Project in accordance with the City of Mesa *Engineering Procedure Manual: 2019 Engineering & Design Standards* (City of Mesa, 2019). This Master Wastewater Report discusses the proposed wastewater infrastructure within the Project and identifies average daily wastewater flows and peak wastewater flows generated by the Project. It also identifies anticipated sewer line sizes and alignments, and presents the results from a hydraulic model of the proposed wastewater infrastructure.

This report provides a conceptual design of the “backbone” wastewater infrastructure within the Project and is intended to provide an overall wastewater

solution, establish design guidelines, and become the basis of design for more detailed studies for each parcel as the Project develops.

2.4 Previous Studies and Plans

There are no known previous wastewater studies or plans for the Project site.

3.0 DESIGN CRITERIA

3.1 City of Mesa Design Criteria

The proposed wastewater collection system for the Project has been designed in accordance with current City of Mesa design criteria as outlined in the City of Mesa Engineering Procedure Manual: 2019 Engineering & Design Standards (City of Mesa, 2019).

For the purposes of this Master Wastewater Report, to avoid excessive detail at the master planning level while still ensuring the final design will meet all applicable criteria, a 0.1-ft drop is applied to all manholes and a cover of 7.0 feet is used to account for changes and/or extensions to sewer alignments in final design. A summary of the design criteria used in this Master Wastewater Report is provided in Table 1 and Table 2.

For the purposes of this report, since specific building sizes have not been identified for the commercial/retail, office, industrial, and research and development parcels, this report assumes an acreage-based flow factor (1,300 gpd/acre) for these parcels in lieu of the City's standard flow factor, which is based on building square footage. The wastewater flows for these parcels will be refined using the City's flow factors during the design stage as final building sizes are determined.

TABLE 1
WASTEWATER SYSTEM DESIGN CRITERIA

Category	Value	Unit
Population Density		
Medium Density Residential (LDR) (2-4 DU/acre)	3.0	per dwelling unit
Medium Density Residential (LMDR) (4-6 DU/acre)	3.2	per dwelling unit
Medium Density Residential (MDR) (6-10 DU/acre)	2.7	per dwelling unit
High Density Residential (MHDR) (10-15 DU/acre)	2.0	per dwelling unit
High Density Residential (HDR) (15+ DU/acre)	1.7	per dwelling unit

TABLE 1 (Continued) WASTEWATER SYSTEM DESIGN CRITERIA		
Average Daily Flow		
Medium Density Residential (LDR) (2-4 DU/acre)	80	gpcd
Medium Density Residential (LMDR) (4-6 DU/acre)	80	gpcd
Medium Density Residential (MDR) (6-10 DU/acre)	80	gpcd
High Density Residential (MHDR) (10-15 DU/acre)	80	gpcd
High Density Residential (HDR) (15+ DU/acre)	80	gpcd
Commercial/Retail	1,300	gpad
Office	1,300	gpad
Industrial	1,300	gpad
Research & Development	1,300	gpad
System Layout		
Minimum Sewer Depth of Cover[3]	7.0	ft
Minimum Pipe Diameter	8	Inches
Minimum Manhole Invert Drop (0 - 90 degrees) [1]	0.1 – 0.2	ft drop across MH
Minimum Manhole Invert Drop (> 45 degrees) [1]	0.1	ft drop across MH
Maximum Manhole Spacing (8" to 15" pipes)[2]	500	ft spacing
Maximum Manhole Spacing (18" to 30" pipes)[2]	600	ft spacing
Minimum Pipe Slopes		
8-inch	0.0033	ft/ft
10-inch	0.0024	ft/ft
12-inch	0.0019	ft/ft
15-inch	0.0014	ft/ft
18-inch	0.0011	ft/ft
21-inch	0.0009	ft/ft
System Performance		
Manning's Roughness Coefficient (n)	0.013	
Minimum Full Flow Velocity	2.0	fps
Maximum Velocity	9.0	fps
Sewer Capacity Ratio (d/D, max at peak flow)	0.67	

Notes:

1. For the purposes of this Master Wastewater Report, a drop of 0.1-ft is applied at each manhole to allow for flexibility while still meeting the City design criteria at the design stage, as additional manholes may be added at final design.
2. For the purposes of this master planning-level evaluation, manholes are placed schematically and some manholes may be spaced further apart along straight runs than is required by the City. All manholes include a 0.1-ft drop to account for additional manholes with bends that may be required at final design.
3. Per City of Mesa design criteria, 6 feet of cover will be required during final design. For the purposes of this master planning-level evaluation, 7 feet of cover is used to provide flexibility of future sewer layouts while still ensuring City design criteria can be met.

TABLE 2 CITY OF MESA PEAKING FACTORS		
Average Flow (MGD)	Existing Lines	New Lines
Less than 1.0	2.30	3.00
1.0 to 10	1.90	2.50
10 to 20	1.70	2.30
20 to 30	1.60	2.10
30 to 40	1.50	2.00
40 to 50	1.40	1.90
Greater than 50	1.30	1.75

4.0 WASTEWATER FLOWS

4.1 Land Use

The Project will consist of up to 4,615 residential units and approximately 425.6 acres of non-residential use including commercial, industrial, research and development and other mixed used development. The Project will also incorporate up to 51.7 acres of open space including parks and amenities. Land use allocations and densities are assumed from target density ranges provided in the *Mesa Urban Development - Conceptual Land Use Master Plan* (Greey Pickett, 2019). Figure 2 in Appendix A shows the anticipated land uses and densities throughout the Project. Table 3 below summarizes these anticipated land uses and Table B.1 in Appendix B shows the land use budget for each parcel within the Project. Land uses, areas, densities, and dwelling unit counts are subject to change as the Project moves from master planning to preliminary and final design.

TABLE 3 PROPOSED LAND USE SUMMARY						
Assigned Parcel Group	Zoning Category	Proposed Land Use	Gross Area (ac)	Assumed Density (du/ac)	Potential Dwelling Units	Commercial / Industrial Gross Area (ac)
A	RS-6 & RSL-4.0	Low/Medium Density Residential (LMDR)	128.1	5.0	642	-
B	RSL-2.5	Medium Density Residential (MDR)	203.1	10.0	2,031	-
C	RM-5	High Density Residential (MHDR)	41.7	25.0	1,044	-
D	MX	Mixed Use	148.8	12.0	898	74.7
E	LI	Light Industrial	202.4	-	-	202.4
F	LC/GC	Commercial	142.7	-	-	142.7
G	OC	Office	5.8	-	-	5.8
H	-	Park/Open Space (Turf Irrigation)	51.7	-	-	-
-	-	Other/Streets/Etc.	207.5	-	-	-
		GRAND TOTAL:	**1,131.8**	**-**	**4,615**	**425.6**

4.2 Wastewater Flow Calculations

Anticipated average daily wastewater flows and peak wastewater flows for the Project were calculated based on the design criteria in Table 1 and Table 2 and the land uses identified in Table B.1 in Appendix B. It is anticipated that the offsite infrastructure for the Project will also convey wastewater flows for additional offsite parcels west of the Project. These offsite areas do not have specific land use designations from the City of Mesa or other private developers and are therefore not incorporated into this Master Wastewater Report. The average flow and peak flow for each grouping of land uses are summarized in Table 4 below. More detailed wastewater calculation tables are provided in Tables B.1, B.2, B.3, and B.4 in Appendix B.

TABLE 4
WASTEWATER FLOW SUMMARY

Assigned Parcel Grouping	Average Daily Flow		Peaking Factor	Peak Flow	
	gpd	gpm		gpd	gpm
A	164,352	114.1	3.0	493,056	342.4
B	438,696	304.7	3.0	1,316,088	914.0
C	141,984	98.6	3.0	425,952	295.8
D	240,790	167.2	3.0	722,370	501.6
E	263,120	182.7	3.0	789,360	548.2
F	185,510	128.8	3.0	556,530	386.5
G	7,540	5.2	3.0	22,620	15.7
Parks/Open Space	-	-	-	-	-
TOTAL (NEW PIPES)[1]:	**1,441,992**	**1,001.4**	**3.00**	**4,325,976**	**3,004.2**
TOTAL (EXISTING PIPES)[2,3]:	**1,441,992**	**1,001.4**	**1.90**	**2,739,785**	**1,902.6**

NOTES:
1) *City of Mesa peaking factor for new pipes experiencing Average Day Flows from 1.0 – 10.0 MGD is 2.5. However, since no single new pipe will convey the flows from the entire Project, a peaking factor of 3.0 is used here, representative of the peaking factor for new pipes experiencing Average Day Flows < 1.0 MGD.*
2) *City of Mesa peaking factor for existing pipes experiencing Average Day Flows from 1.0 – 10.0 MGD is 1.90.*
3) *Total in existing pipes constitutes all flows downstream of Outfall #9 in the existing 54-inch sewer main along the Roosevelt Canal.*

5.0 EXISTING WASTEWATER SYSTEM INFRASTRUCTURE

5.1 Wastewater Collection System

As shown in Figure 4 in Appendix A, existing wastewater infrastructure within the Project vicinity consists of a 42-inch sewer trunk main that flows to the east along Elliot Road and upsizes to 48-inches from Sossaman Road to the eastern boundary of the Roosevelt Canal. At the canal, it turns south, upsizes to a 54-inch main and conveys flows south along the east side of the Roosevelt Canal. There is an 18-inch sewer stub along the 54-inch main at Warner Road and an 18-inch sewer main was constructed and sleeved with the Loop 202 overpass to traverse the Loop 202 along Warner Road. To the northwest of the Project, an existing 24-inch main conveys flows along Peralta Avenue.

5.2 Wastewater Treatment

The Project is within the Greenfield service zone and will be served by the Greenfield Water Reclamation Plant (GWRP). The GWRP was constructed in 2007 with treatment capacity for handling 16 MGD of liquids and 24 MGD of equivalent solids. The liquid process includes screening, grit removal, primary clarification and biological treatment including nitrogen removal, secondary sedimentation, filtration and disinfection. Solids handling facilities include blending, thickening, anaerobic digestion and dewatering. At build out, the liquid's facility will be able to handle 46 MGD while the solids facility will be able to handle 64 MGD. The GWRP will process biosolids from Mesa's Southeast Water Reclamation Plant, as well. The plant produces A+ effluent.

The GWRP is owned by a consortium of municipalities including the Town of Queen Creek, the Town of Gilbert, and the City of Mesa. Although the three municipalities jointly own the plant, the City of Mesa operates and maintains it. Ultimate capacity within the plant is planned to be divided, with 24 MGD owned by the City of Mesa, 20 MGD owned by the Town of Gilbert, and 8 MGD owned by the Town of Queen Creek. Per discussions with the City, the GWRP Phase III Expansion is currently under construction and will be on-line in the fall of 2020. This will increase the existing liquids and solids treatment capacity to 30 MGD and 38 MGD, respectively.

6.0 PROPOSED WASTEWATER SYSTEM INFRASTRUCTURE

6.1 Proposed Wastewater Collection System Improvements

Figure 4 in Appendix A shows the backbone wastewater infrastructure proposed for the Project. The system is comprised of 8-inch to 21-inch gravity sewer mains that generally route flows west to tie-in points along the existing sewer infrastructure along Elliot Road and Warner Road.

The system layout is designed using proposed parcel boundaries, proposed collector and arterial roadway alignments, City of Mesa quarter section maps and as-built plans that identify existing wastewater infrastructure adjacent to the Project. Elevations identified for areas west of the Loop 202 are based on recent aerial topography while areas east of the Loop 202 are based on elevation data from the Flood Control District of Maricopa County (FCDMC) at 2-foot intervals. The system layout is designed using existing ground elevations and will be refined as each individual parcel develops. Where possible, the sewer trunk mains will follow arterial streets and major collectors to keep each parcel as independent as possible, allowing for various sub-phasing opportunities for the Project.

The proposed wastewater infrastructure will tie into the existing City of Mesa wastewater infrastructure adjacent to the Project at nine locations. Eight of the nine tie-in locations are along the existing 42-inch sewer main in Elliot Road at existing manholes. Two tie-in locations will be along Elliot Road between Sossaman Road and 80th Street. A third tie in location will be at the intersection of Elliot Road and 80th Street. A fourth tie in location will be between 80th Street and Hawes Road. A fifth tie-in will be at the intersection of Elliot Road and Hawes Road. A sixth tie-in point will be just west of the Loop 202 while the seventh and eighth tie-in points will be located

just east of the Loop 202. The final, ninth tie-in location will be along the existing 54-inch sewer main on the east side of the Roosevelt Canal, at the Warner Road alignment. The crowns of the proposed sewer mains will match the crowns of the existing sewer mains at each tie-in location.

To ensure every parcel can be properly served and to maintain flexibility for final design, the proposed layout shown in this Master Wastewater Report incorporates a 0.1-ft drop across every manhole, regardless of pipe direction change. Pipes were also placed at a minimum depth of 7-ft where possible to allow for further flexibility during final design. Select areas, identified on Figure 4 in Appendix A and in Section 8.1, have had their rim elevations adjusted to accommodate this 7-ft cover requirement. These areas may require some fill to meet minimum slope and cover requirements. Final required fill quantities, if any, will be determined during preliminary and final design.

Based on the site's existing topography, the proposed sewer mains generally range in depth from 7-feet to 25-feet. Each sewer alignment was analyzed to minimize pipe depth where possible. Depths are anticipated to decrease as the final site grading is completed and as the roadway design reduces the undulations of the existing ground. The sewer depths shown herein are based on existing ground elevations and may vary.

6.2 City Required Sewer Main Upsizing

The City is requiring that portions of the sewer main in Warner Road be upsized to meet the City's *2018 Wastewater Master Plan Update* (City of Mesa, 2018) guidelines. To serve the Project's flows, anAn 18-inch sewer main would be required in Warner Road from the Roosevelt Canal to the existing 18-inch sewer main that crosses below Loop 202. However, the City requires that the portion of this 18-inch main between the Roosevelt Canal and 80th Street be upsized to 21-inches. Additionally, to serve the Project's flows, a 12-inch sewer main is needed in Warner Road between Ellsworth Road and Loop 202. However, the City is requiring that this portion of the sewer main be upsized to 18-inches to serve future offsite development.

The City may contribute to the upsizing of sewer lines that are upsized for regional uses based on the City's policies on City cost sharing at the time of design and construction. This includes the proposed 21-inch and 18-inch sewer mains in Warner Road. If the City's cost sharing of the line upsizing is not available at the time of development, the City will determine how the developer should proceed with the design and construction of the main (including the potential for installation of what is only required to server the development itself).

6.3 Offsite Flows

It is anticipated that the proposed 18-inch and 21-inch sewer main in Warner Road will be used to serve both the Project as well as offsite flows from parcels west and east of the Project. These offsite areas have no designated land use from the City of Mesa or other private developers at this time and as such, wastewater flows for these parcels have not been determined. Flows from these offsite parcels will be considered during preliminary and final design of the 18-inch and 21-inch sewer

mains to confirm they will have adequate capacity. Areas west of the Project may also potentially flow directly west to the existing 54-inch sewer on the east side of the Roosevelt Canal, since the existing topography in the area generally slopes from east to west. Areas east of the Project may also sewer south to existing wastewater infrastructure along Ray Road. Potential tie in locations for offsite flows along the proposed 21-inch sewer main have been shown on Figure 4 in Appendix A.

6.4 Wastewater Treatment

Flows from the Project will be conveyed to the Greenfield Water Reclamation Plant (GWRP). As stated in Section 5.2, the GWRP has current capacity for 16 MGD of liquids and 24 MGD of equivalent solids. Ultimate build out capacity for solids handling at the GWRP is anticipated to be 64 MGD, with a liquids handling capacity of 46 MGD. Per discussions with the City, the GWRP Phase III Expansion is currently under construction and will be on-line in the fall of 2020. This will increase the existing liquids and solids treatment capacity to 30 MGD and 38 MGD, respectively.

6.5 Wastewater System Phasing

It is anticipated that the Project will be developed in several phases. The wastewater system infrastructure will also be constructed in phases as required to serve each phase of development. For any given phase, the downstream sewer mains required to serve that phase will be constructed at the same time as said phase is developed. Furthermore, the downstream sewer mains that are installed will be sized for build-out conditions.

7.0 DEVELOPMENT VILLAGES

7.1 Definition

Villages shall exclusively mean development areas within the Hawes Crossing project boundary and are delineated numerically (1-8) on the subject Master Plans. The numerical value associated with a Village is not an indication or obligation of sequential phasing or development. Villages, or portions thereof, may develop independently from one another but with primary infrastructure in accordance with the associated Master Plan documents. Infrastructure shall be as outlined in the approved Master Plan documents, or an approved amendment to those documents. Interim or alternative solutions may be allowed on a case by case basis, subject to City of Mesa review and approval.

7.2 Overview

The Project is planned to be divided into eight development villages. Villages 1 – 5 consist of all the land within the Project that is not currently owned by the State. Villages 6 – 8 are State Land owned. Each village has different wastewater infrastructure requirements and the following sections detail these requirements. As shown, some villages will be sharing the cost of certain lengths of pipe and associated infrastructure outlined in the following sections. The infrastructure shown as being required to serve each Village is based on Figure 4 in Appendix A and is quantified as the necessary infrastructure to serve that village as a stand-alone unit.

The sewer mains shown in Figures 5 through 12 in Appendix A show only the backbone infrastructure in rights-of-way and infrastructure that is required to adequately provide wastewater service to the village. A summary of the necessary wastewater infrastructure for serving each village is provided in Table 5 below. Figure 3 in Appendix A outlines the village boundaries.

TABLE 5
REQUIRED WASTEWATER INFRASTRUCTURE BY VILLAGE

Village	Length of Pipe (feet)				
	8-inch	10-inch	12-inch	18-inch	21-inch
1	4,332	1,835	0	0	0
2	10,401	1,732	498	0	5,752
3	261	725	0	0	0
4	0	0	0	2,653	5,752
5	1,629	792	0	4,282	5,752
6 (State Land)	7,441	167	0	1,347	5,752
7 (State Land)	3,019	792	0	2,653	5,752
8 (State Land)	7,308	0	831	7,198	5,752

7.3 Village 1

Village 1 consists of parcels A-1, A-2, B-1 through B-6, C-1, and D-1. Village 1 comprises approximately 110.5 acres of the overall Project area. The required wastewater infrastructure for serving Village 1 includes a 1,835 LF 10-inch sewer main through parcel A-1 and south down 80th Street to Elliot Road. Approximately 4,332 LF of 8-inch sewer main will be required within the streets and easements of Village 1, including the offsite frontage along 80th Street, as per the conceptual roadway alignments shown on Figure 2 in Appendix A. Included in this 3,129 LF is a 261 LF 8-inch sewer stub required within the main entrance road to Village 1 from Elliot Road. The length of this stub is dependent upon the entrances to parcels D-1 (Village 1) and D-2 (Village 3) and is to be cost shared with the requirements for serving Village 3. The necessary wastewater infrastructure for serving Village 1 of the Project is shown on Figure 5 in Appendix A.

7.4 Village 2

Village 2 consists of parcels A-3 through A-5 (approximately 60% of each parcel), B-7 through B-14, approximately 50% of parcel B-15, C-2, C-3, C-4, and D-3 through D-6. Village 2 comprises approximately 247.0 acres of the overall Project area. The required wastewater infrastructure for serving Village 2 includes 498 LF of 12-inch sewer main and 1,732 LF of 10-inch sewer main running south, then east from the easternmost entrance of Village 2 along Elliot Road to serve the bulk of Village 2. An 817 LF section of 8-inch sewer main will be needed to serve parcels C-2 and the northwest portion of A-3. 4,786 LF 8-inch sewer main will be needed in 80th Street and the Mesquite Street alignment to serve those portions of parcels A-3, A-4, A-5, and B-15 that are unable to gravity flow north to Elliot Road but are still included in Village 2. Village 2 will also cost share in 5,752 LF of the 21-inch sewer main proposed in Warner Road from the Roosevelt Canal to 80th Street. The necessary

wastewater infrastructure for serving Village 2 of the Project is shown on Figure 6 in Appendix A.

7.5 Village 3

Village 3 consists of parcel D-2. Village 3 comprises approximately 21.2 acres of the overall Project area. Village 3 will share the cost of the 8-inch sewer main stub entering this portion of the Project between parcels D-1 and D-2. The length of this stub is dependent upon the entrances to parcels D-1 (Village 1) and D-2 (Village 3). As shown on Figure 7 in Appendix A, the length of this 8-inch stub is 261 LF and is to be shared with the requirements for serving Village 1. Village 3 will also require a 10-inch sewer main along the frontage in Hawes Road, per the City's Water Resources Department, for serving future development to the east. The necessary wastewater infrastructure for serving Village 3 of the Project is shown on Figure 7 in Appendix A.

7.6 Village 4

Village 4 consists of parcels B-25 and F-4. Village 4 comprises approximately 58.6 acres of the overall Project area. The required infrastructure for serving Village 4 includes 5,752 LF of 21-inch sewer in Warner Road to extend from the Roosevelt Canal to 80th Street. This 21-inch sewer main will be cost shared with Phases 2, 5, 6, 7, and 8. Village 4 also requires 2,653 LF of 18-inch sewer main from 80th Street to Hawes Road. Portions of this 18-inch sewer main will be cost shared with Phases 5, 6, 7, and 8. The necessary wastewater infrastructure for serving Village 4 of the Project is shown on Figure 8 in Appendix A.

7.7 Village 5

Village 5 consists of parcels B-21, B-23, B-24, F-3, and F-4. Village 5 comprises approximately 87.1 acres of the overall Project area. The required infrastructure for serving Village 5 includes 792 LF of 10-inch sewer main in Hawes Road from the village entrance along Hawes Road, south to Warner Road. This 10-inch sewer main will be cost shared with Village 7. Village 5 also requires 4,282 LF of 18-inch sewer main in Warner Road from 80th Street to the existing 18-inch sewer underneath the Loop 202. Portions of this 18-inch sewer main will be cost shared with Phases 4, 6, 7, and 8. Village 5 also requires 5,752 LF of 21-inch sewer main in Warner Road from the Roosevelt Canal to 80th Street. This 21-inch sewer main will be cost shared with Phases 2, 4, 6, 7, and 8. The necessary wastewater infrastructure for serving Village 5 of the Project is shown on Figure 9 in Appendix A.

7.8 Village 6 (State Land Property)

Village 6 consists of approximately 40% of parcels A-3 through A-5, approximately 50% of B-15, B-16 through B-20, B-22, C-5, C-6, F-2, and G-1. Village 6 comprises approximately 164.9 acres of the overall Project area. The required infrastructure for serving Village 6 includes 5,752 LF of 21-inch sewer main from the Roosevelt Canal to the entrance to 80th Street along Warner Road. This 21-inch sewer main will have cost sharing with Phases 2, 4, 5, 7, and 8. Village 6 will also require 1,347 LF of 18-inch sewer main from 80th Street to the entrance along Warner Road. Portions of this 18-inch sewer main will be cost shared with Phases 4, 5, 7, and 8. A 167 LF 10-inch stub will be required between parcels B-22 and G-1. 7,441 LF of 8-inch sewer main

will serve the individual parcels to route wastewater south to Warner Road. A portion of this 8-inch sewer along 80th Street will be cost shared with Village 2. The necessary wastewater infrastructure for serving Village 6 of the Project is shown on Figure 10 in Appendix A.

7.9 Village 7 (State Land Property)

Village 7 consists of parcels D-7, D-8, E-1, and F-1. Village 7 comprises approximately 155.5 acres of the overall Project area. The required infrastructure for serving Village 7 includes 5,752 LF of 21-inch sewer main in Warner Road from the Roosevelt Canal to 80th Street. This 21-inch sewer main will have cost sharing with Phases 2, 4, 5, 6, and 8. Village 7 will also require 2,653 LF of 18-inch sewer main from 80th Street to the Hawes Road. Portions of this 18-inch sewer main will be cost shared with Phases 4, 5, 6, and 8. A 792 LF 10-inch sewer main extends north in Hawes Road from Warner Road. This 10-inch sewer main will have a cost share with Village 5. 3,019 LF of 8-inch sewer main extends north in Hawes Road from the proposed 10-inch sewer main and south in Hawes Road from Elliot Road. The necessary wastewater infrastructure for serving Village 7 of the Project is shown on Figure 11 in Appendix A.

7.10 Village 8 (State Land Property)

Village 8 consists of parcels D-9 through D-11, E-2 through E-9, and F-6 through F-8. Village 8 comprises approximately 291.5 acres of the overall Project area. The required infrastructure for serving Village 8 includes 7,198 LF of 18-inch sewer main in Warner Road from 80th Street to the southeastern corner of the Project. Portions of this 18-inch sewer main will have cost sharing with Villages 4, 5, 6, and 7. Village 8 also requires 5,752 LF of 21-inch sewer main in Warner Road from the Roosevelt Canal to 80th Street. This 21-inch sewer main will be cost shared with Phases 2, 4, 5, 6, and 7. An 831 LF 12-inch sewer main conveys flows south through the entrance to Village 8 between parcels E-2 and E-9 along Warner Road. 7,308 LF of 8-inch sewer main will be required in the streets of Village 8. The necessary wastewater infrastructure for serving Village 8 of the Project is shown on Figure 12 in Appendix A.

8.0 HYDRAULIC MODEL AND RESULTS

8.1 Design Methodology

The proposed wastewater collection system was modeled using SewerCAD V8i by Bentley Systems, Inc. The wastewater flows shown in Table B.1 in Appendix B were distributed to individual manholes throughout the collection system to provide an appropriate distribution of average daily flows and peak flows within the system. The wastewater loading for a given parcel is generally applied to the most upstream manhole within the parcel to account for flows that may enter the system at multiple points within a pipe segment, thus ensuring the entire pipe segment has sufficient capacity to convey the anticipated flow. For parcels containing multiple or diverging sewer lines, wastewater loading for the parcel is distributed to the upstream manholes based on the approximate percentage of the parcel said sewer line will serve.

The wastewater model represents the wastewater collection system's backbone trunk mains. The sewer line alignments within individual parcels will be determined at the time of each parcel's design.

The proposed wastewater collection system was optimized using aerial topography, existing FCDMC topography, and the proposed land use plan to determine the best sewer alignments while minimizing pipe depths. The collection system shown in Figure 4 in Appendix A was designed to meet the design criteria as specified in Table 1. Pipes were assumed to have a Manning's n value of 0.013 and were designed to convey the projected peak flows from the development.

Four areas within the Project in parcels A-3, B-8, D-1, and D-8 have been raised to reflect changes needed to adequately provide City of Mesa cover requirements over the proposed sewer pipes. Figure 4 in Appendix A identifies these areas and makes note of existing cover using existing topography. Table 6 below shows the minimum adjustments needed to the existing rim elevations to adequately serve the parcel and meet City requirements. Cover requirement over the pipe has been kept at 7-feet to ensure flexibility during final design as the actual sewer main alignments become known.

TABLE 6
MANHOLE RIM ADJUSTMENTS

Parcel	SewerCAD Manhole ID	Existing Rim Elevation (ft.)	Adjusted Rim Elevation (ft.)	Elevation Difference (ft.)
D-1	MH-38	1367.00	1368.50	1.50
	MH-39	1366.12	1367.30	1.18
B-8	MH-77	1359.02	1360.15	1.13
	MH-78	1359.00	1359.50	0.50
	MH-79	1356.36	1357.75	1.39
A-3	MH-47	1353.00	1355.26	2.26
	MH-48	1352.49	1356.56	4.07
	MH-49	1354.50	1357.70	3.20
	MH-50	1354.00	1358.81	4.81
	MH-51	1353.19	1360.10	6.91
	MH-52	1355.75	1361.94	6.19
	MH-53	1358.85	1363.69	4.84
D-8	MH-221	1378.40	1379.69	1.29
	MH-222	1376.00	1378.50	2.50
	MH-223	1374.00	1377.19	3.19
	MH-224	1374.54	1376.07	1.53
	MH-225	1375.00	1375.03	0.03

8.2 Model Results

The hydraulic model results show that the proposed wastewater collection system for the Project will adequately convey the projected peak flows to the existing City of

Mesa wastewater infrastructure in Elliot Road and along the Roosevelt Canal. Detailed hydraulic model results for the onsite collection system are included in Appendix D. As shown in the results, all proposed gravity sewer mains in the Project will convey the peak flows while maintaining full-flow velocities of less than nine feet per second as required by the City of Mesa.

The results from the peak flow scenario demonstrate that the gravity sewer mains within the Project will be able to convey the peak flows with a d/D ratio of less than 0.67, as required by the City of Mesa.

In accordance with the City's current design criteria, the sewer mains are anticipated to be Polyvinyl Chloride (PVC). Larger sewer mains may be constructed of other materials, as approved by the City of Mesa, and will be determined at the time of final design. Final invert and rim elevations will be determined at the time of final design. Pipe slopes will also be refined during final design as final grades are known.

8.3 Wastewater Capacity

The proposed 21-inch sewer main in Warner Road was evaluated using a minimum slope of 0.0029 ft./ft. from the existing stub along the 54-inch sewer main to Hawes Road. This was done to produce the maximum continuous slope possible using the existing ground elevations to provide a realistic depth over diameter (d/D) ratio within the pipe for the addition of future offsite flows. The model shows that the maximum d/D ratio for this proposed 21-inch sewer main utilizing a peaking factor of 3.0 for new pipes with under 1.0 MGD of average daily flow is 0.469 (46.9%) occurring just west of 80th Street on the sewer mains with a 0.0029 ft./ft. slope. This d/D ratio has the potential to be lowered further by increasing the pipe's slope as the Project moves from master planning into preliminary and final design. Flows from the Project will also be refined as the Project moves from master planning to preliminary design. Detailed offsite sewer capacity calculations can be found in Table B.5 in Appendix B. Alternatively, in calculating the projected d/D of the same section of the proposed 21-inch sewer main using the City of Mesa peaking factor of 2.30 for flows routed through existing lines, the 21-inch sewer main is anticipated to have a d/D of 0.404 (40.4 %) at a slope of 0.0029 ft./ft.

9.0 CONCLUSIONS

- This Master Wastewater Report identifies the locations and sizes of the proposed onsite and offsite wastewater system infrastructure required to convey flows from the Project to the existing Greenfield Water Reclamation Plant.

- The proposed gravity wastewater collection system consists of a network of 8-inch through 21-inch sewer mains, which will convey flows to nine separate outfalls along existing City wastewater infrastructure.

- The average daily flow projected for the Project based on the current land use plan and the City of Mesa design criteria is 1,441,992 gpd (1,001.4 gpm). Assuming a peaking factor of 1.90 for existing City sewer mains, the peak flow projected for the Project is 2,739,785 gpd (1,902.6 gpm).

- Offsite flows contributing to the proposed 21-inch sewer main in Warner Road will be determined during preliminary and final design of the sewer main. Based on the Project's peak flows through this proposed sewer main, it is anticipated that the 21-inch sewer main will have a depth over diameter ratio (d/D) of 46.9% at a proposed slope of 0.0029 ft/ft. Assuming a peaking factor of 2.30 for existing lines, this d/D is reduced to 40.4%.

- Flows from the Project will be conveyed to the Greenfield Water Reclamation Plant (GWRP).

10.0 REFERENCES

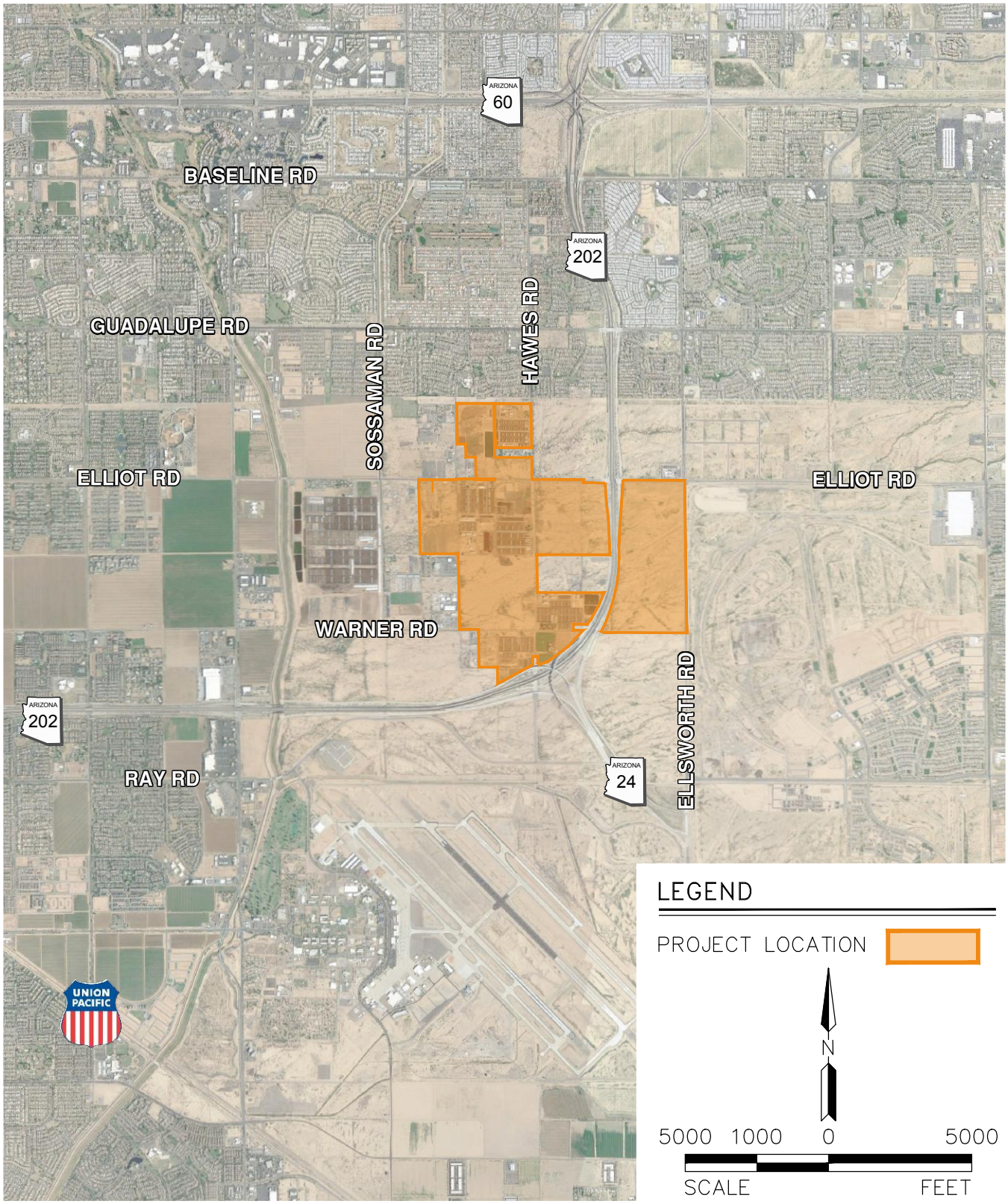
City of Mesa. (2019). *Engineering Procedure Manual: 2019 Engineering & Design Standards*. 2019, Mesa, AZ

City of Mesa. (2018). *2018 Wastewater Master Plan Update*. 2018, Mesa, AZ

Greey Pickett. (2019). *Mesa Urban Development - Conceptual Land Use Master Plan*. (September, 2019). Phoenix, AZ

APPENDIX A

FIGURES



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CHECKED BY:	AT

HAWES CROSSING

ELLIOT RD & LOOP 202
MARICOPA COUNTY, ARIZONA

FIG 1: VICINITY MAP

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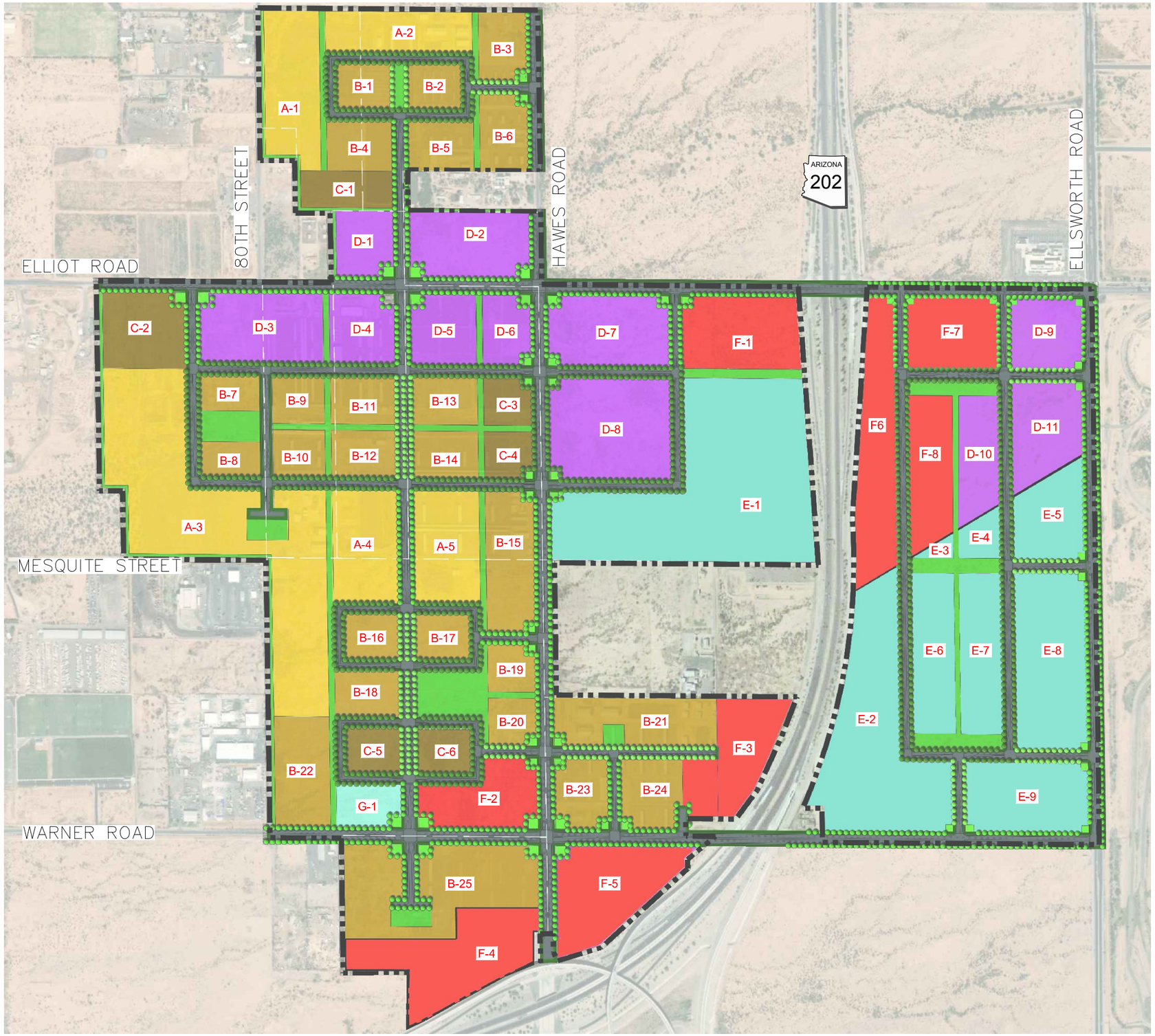

LEGEND

PROJECT BOUNDARY

ZONING CATEGORIES

A	RS-6 & RSL-4.0
B	RSL-2.5
C	RM-5
D	MIXED USE (MX)
E	LIGHT INDUSTRIAL (LI)
F	LIMITED COMMERCIAL (LC) & GENERAL COMMERCIAL (GC)
G	OFFICE (OC)
	PARK/OPEN SPACE
	RIGHT OF WAY/ROADWAY

NOTES

1) LAND USE PLAN PROVIDED BY GREEY-PICKETT.

2) LAND USE PLAN IS CONCEPTUAL AND IS SUBJECT TO CHANGE.

3) INDIVIDUAL PARCEL LABELING (IE. A-1, B-4, ETC.) IS NOT SEQUENTIAL FOR DEVELOPMENT AND IS USED SOLELY FOR THE PURPOSE OF DEFINING WATER DEMANDS AND WASTEWATER FLOWS BASED ON THEIR SPECIFIC ZONING CATEGORY.

N

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FIG 2: LAND USE PLAN

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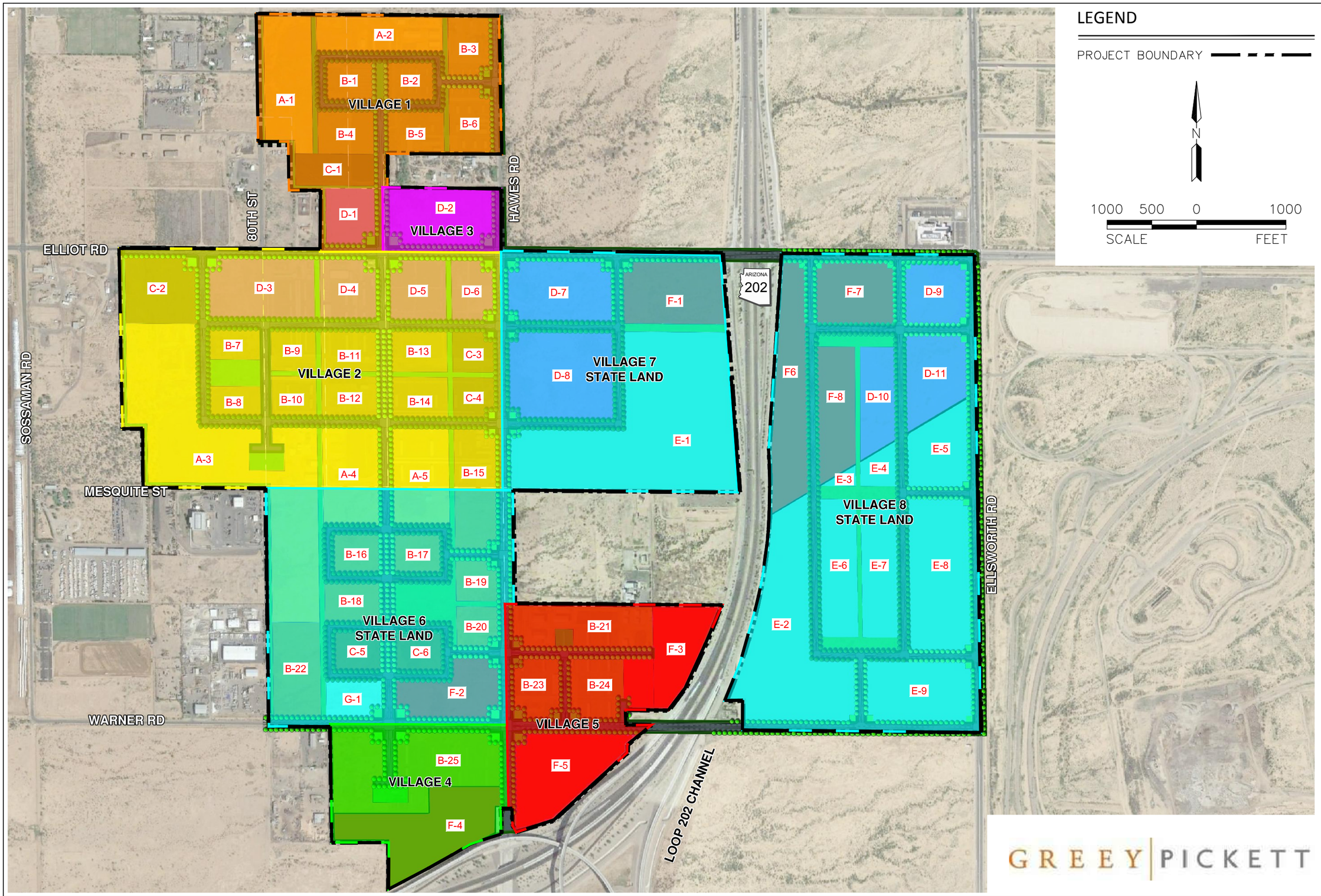

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PROJECT BOUNDARY

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FIG 3: VILLAGE EXHIBIT

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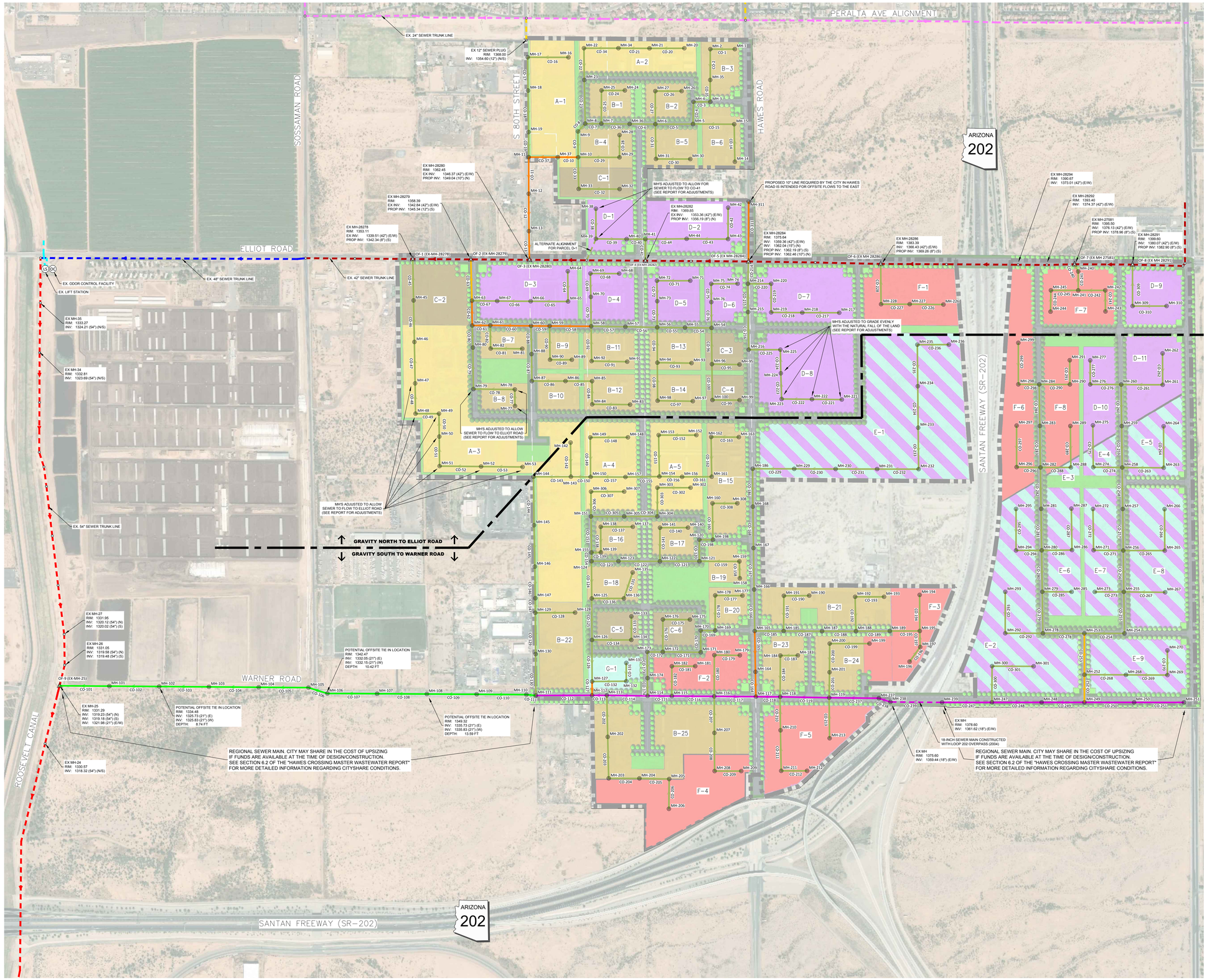

LEGEND

- PROJECT BOUNDARY
- SEWER CONVEYANCE DEMARCATION LINE
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN
- PROPOSED SEWER MANHOLE
- PROPOSED OUTFALL

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

- <= 8.0
- <= 10.0
- <= 12.0
- <= 15.0
- <= 18.0
- <= 21.0
- <= 24.0
- <= 42.0
- <= 48.0
- <= 54.0

NOTES

1) LAND USE PLAN PROVIDED BY GREEY–PICKETT.
2) ROAD ALIGNMENTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.
3) SEWER ALIGNMENTS ARE CONCEPTUAL AND ARE SUBJECT TO CHANGE.
4) DROP MANHOLES HAVE BEEN INCORPORATED TO LIMIT DEPTHS OF LATERAL SEWER MAINS.

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FIG 4: WASTEWATER SYSTEM IMPROVEMENTS

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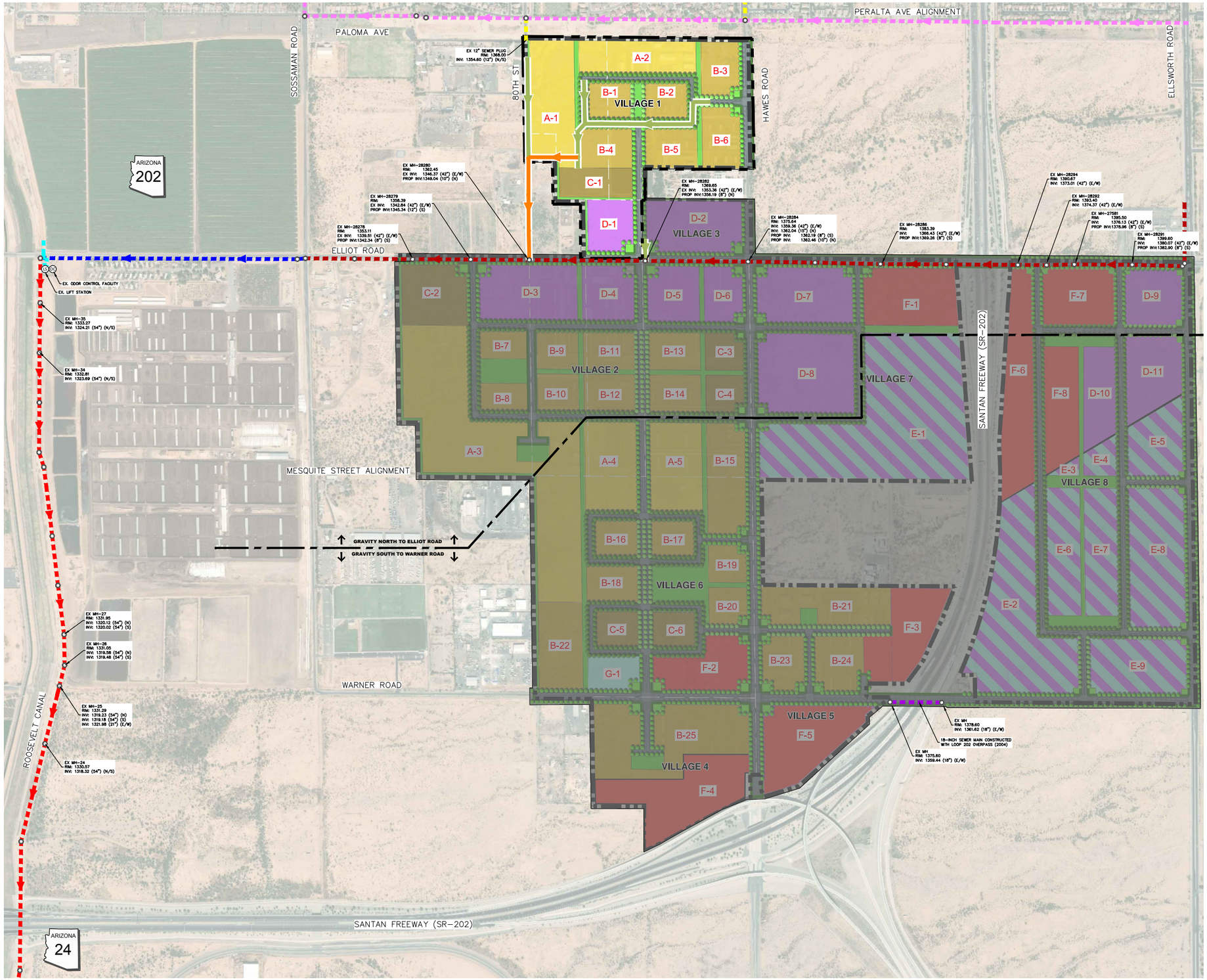

LEGEND

- PROJECT BOUNDARY
- SEWER CONVEYANCE DEMARCATION LINE
- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

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- = EXISTING
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- <= 54.0

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FIG 5: VILLAGE 1 REQUIRED INFRASTRUCTURE

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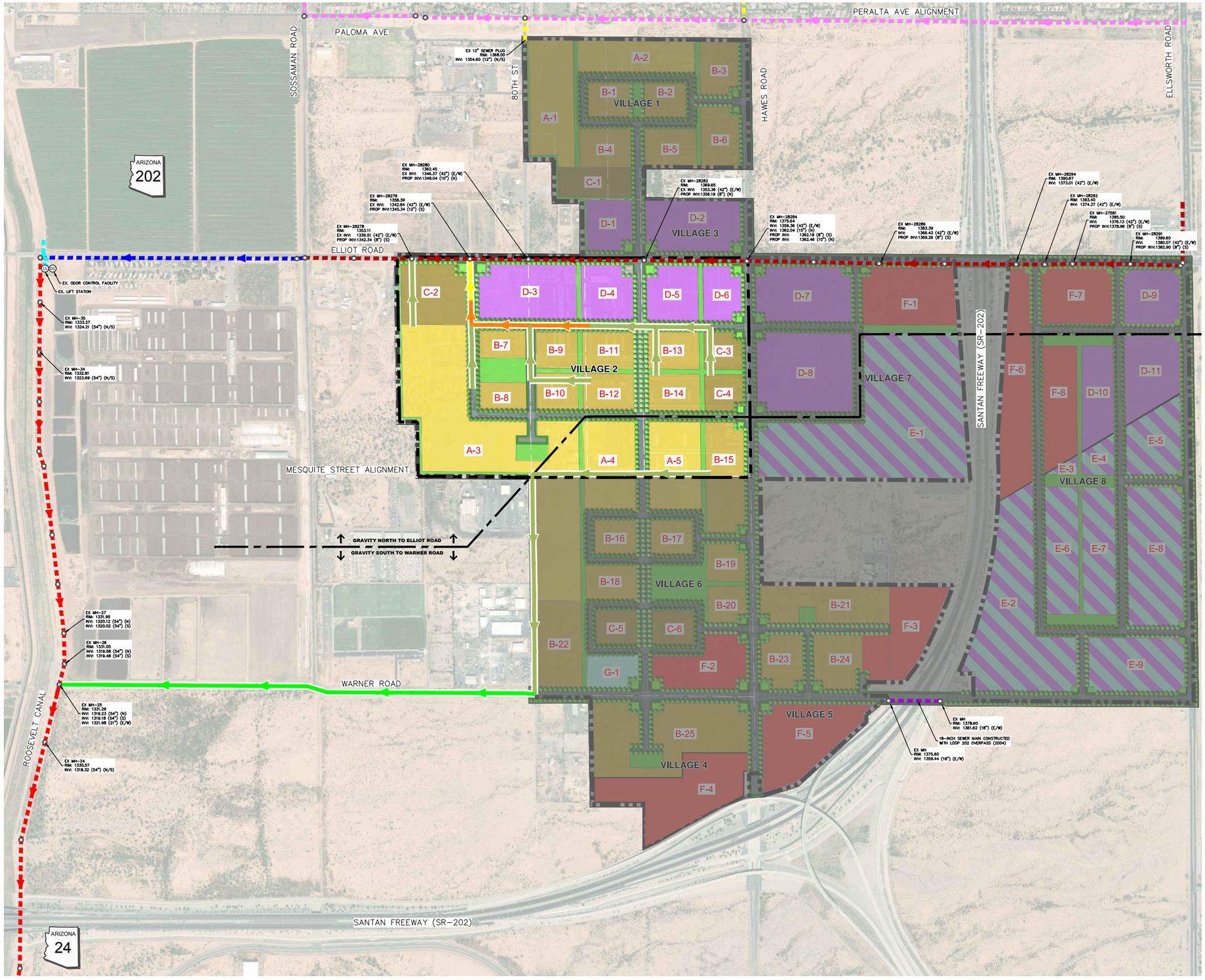

LEGEND

- PROJECT BOUNDARY
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- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

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FIG 6: VILLAGE 2 REQUIRED INFRASTRUCTURE

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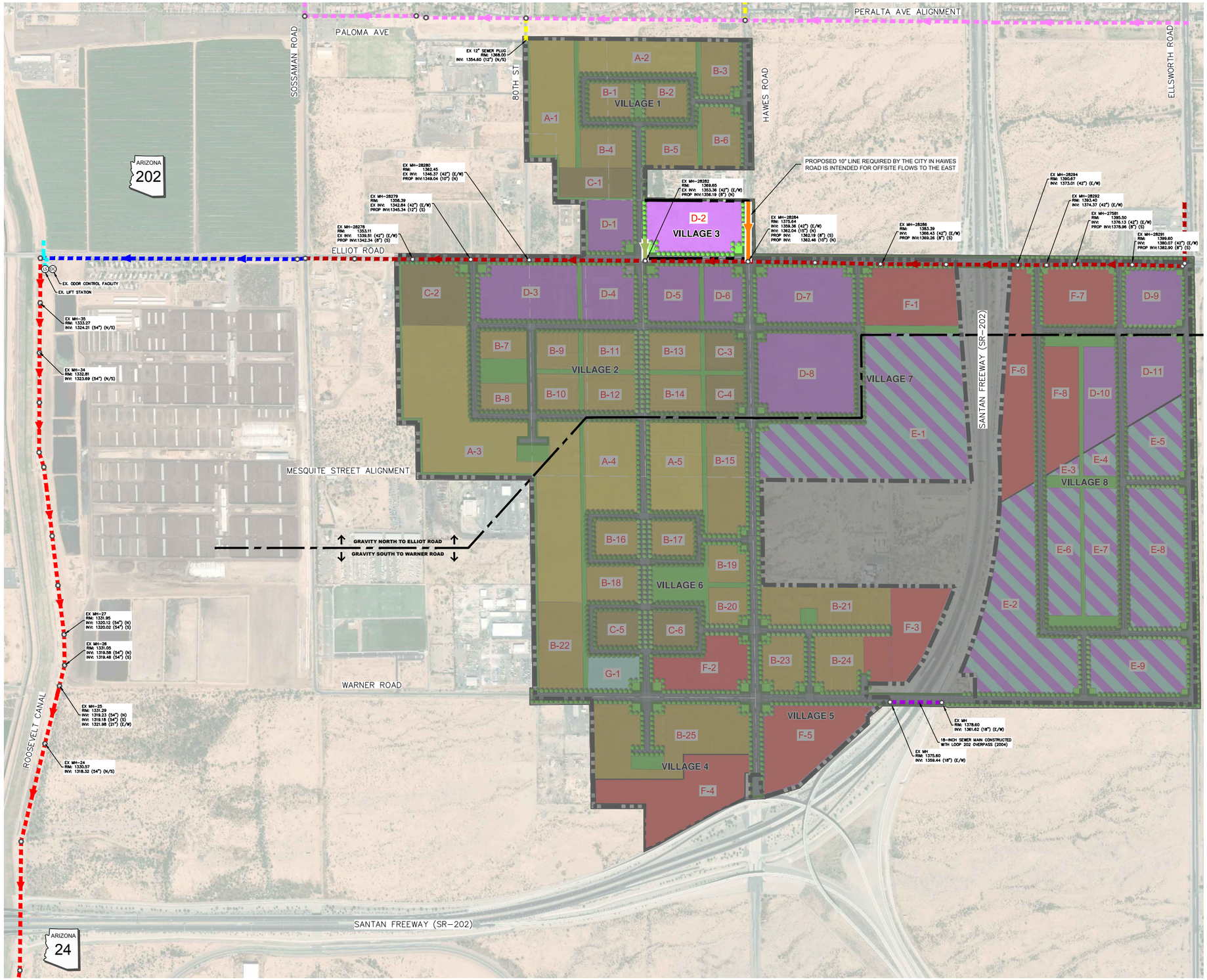

LEGEND

- PROJECT BOUNDARY
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- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

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NOTES

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FIG 7: VILLAGE 3 REQUIRED INFRASTRUCTURE

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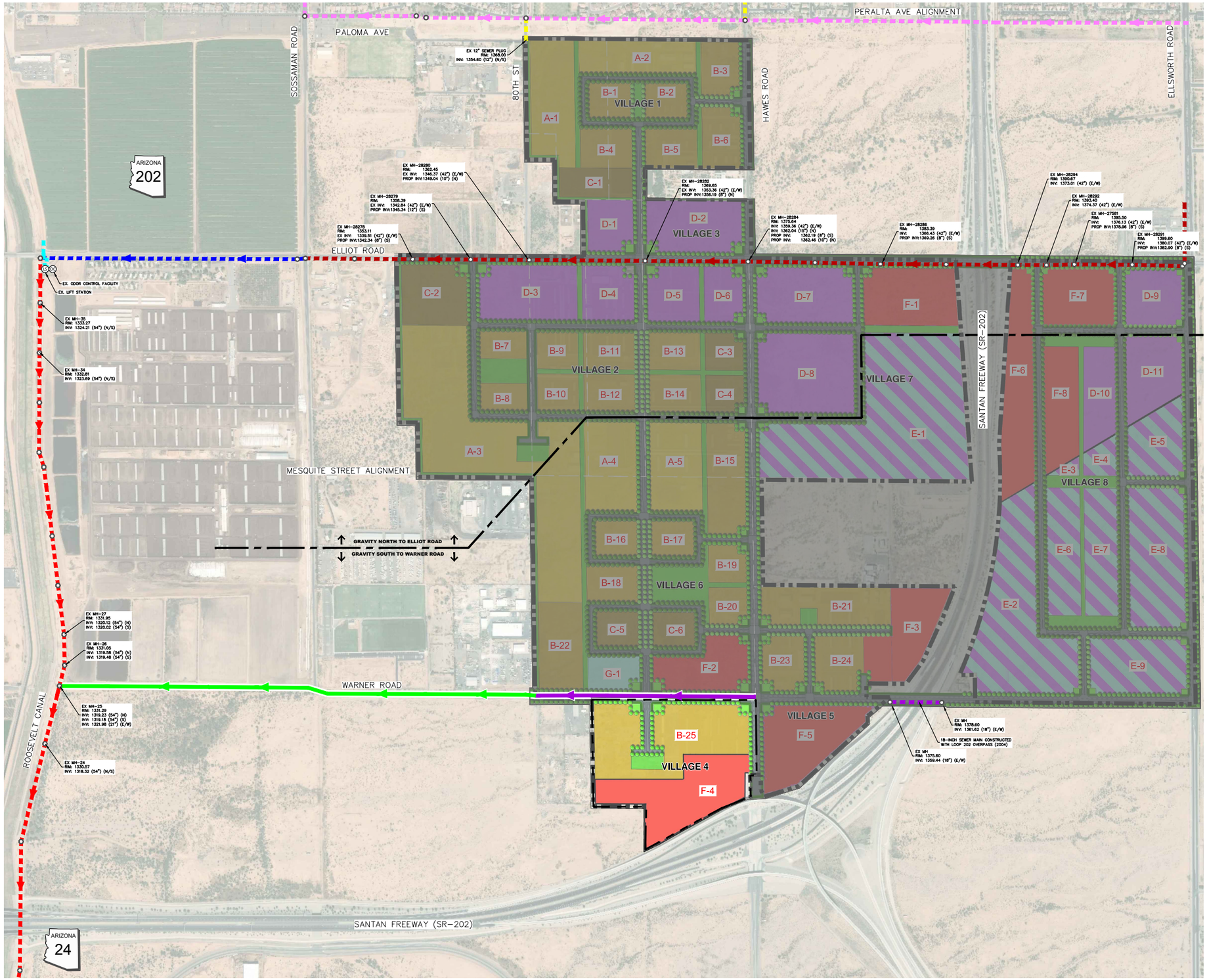

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COLOR CODING LEGEND
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FIG 8: VILLAGE 4 REQUIRED INFRASTRUCTURE

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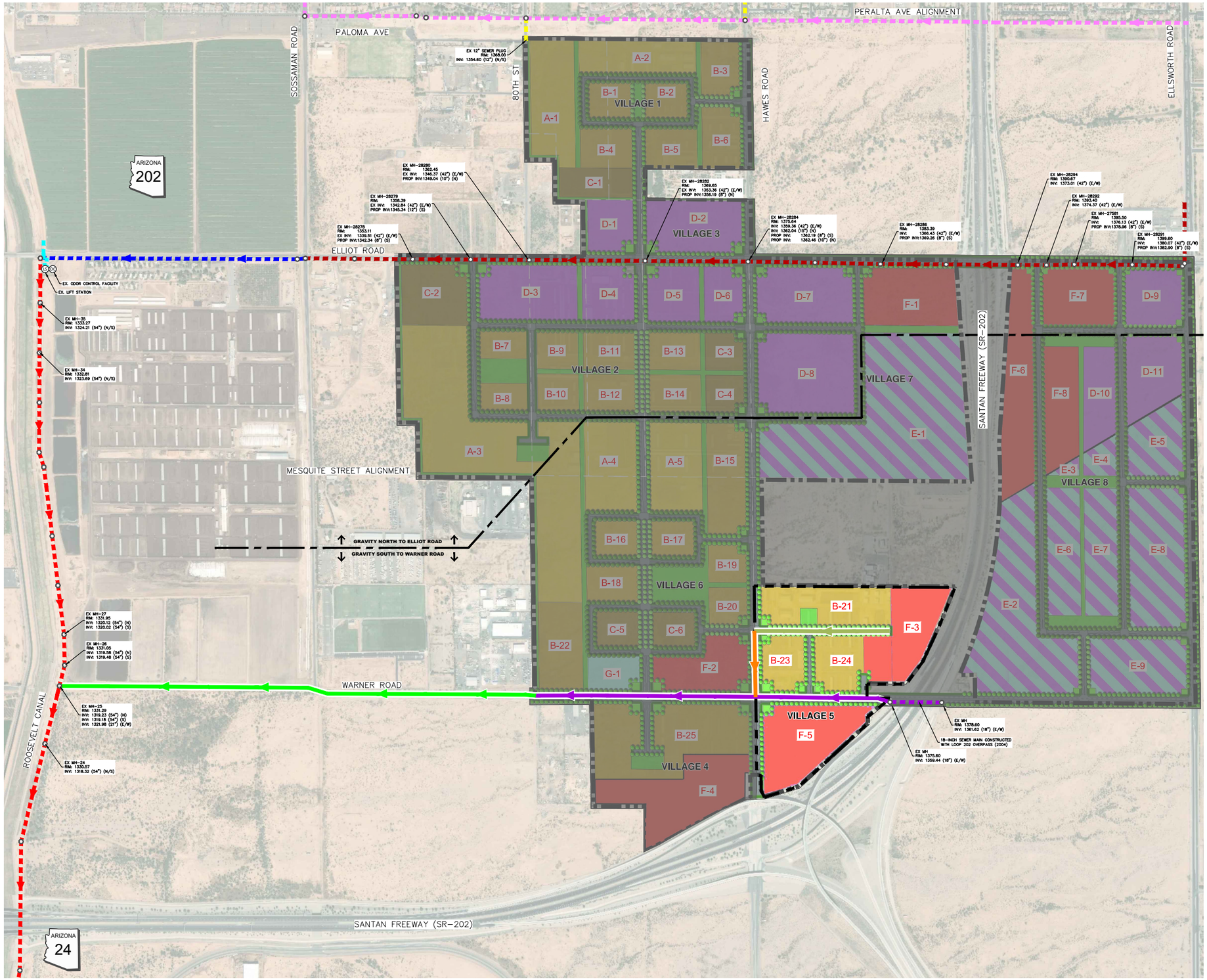

LEGEND

- PROJECT BOUNDARY
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- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

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FIG 9: VILLAGE 5 REQUIRED INFRASTRUCTURE

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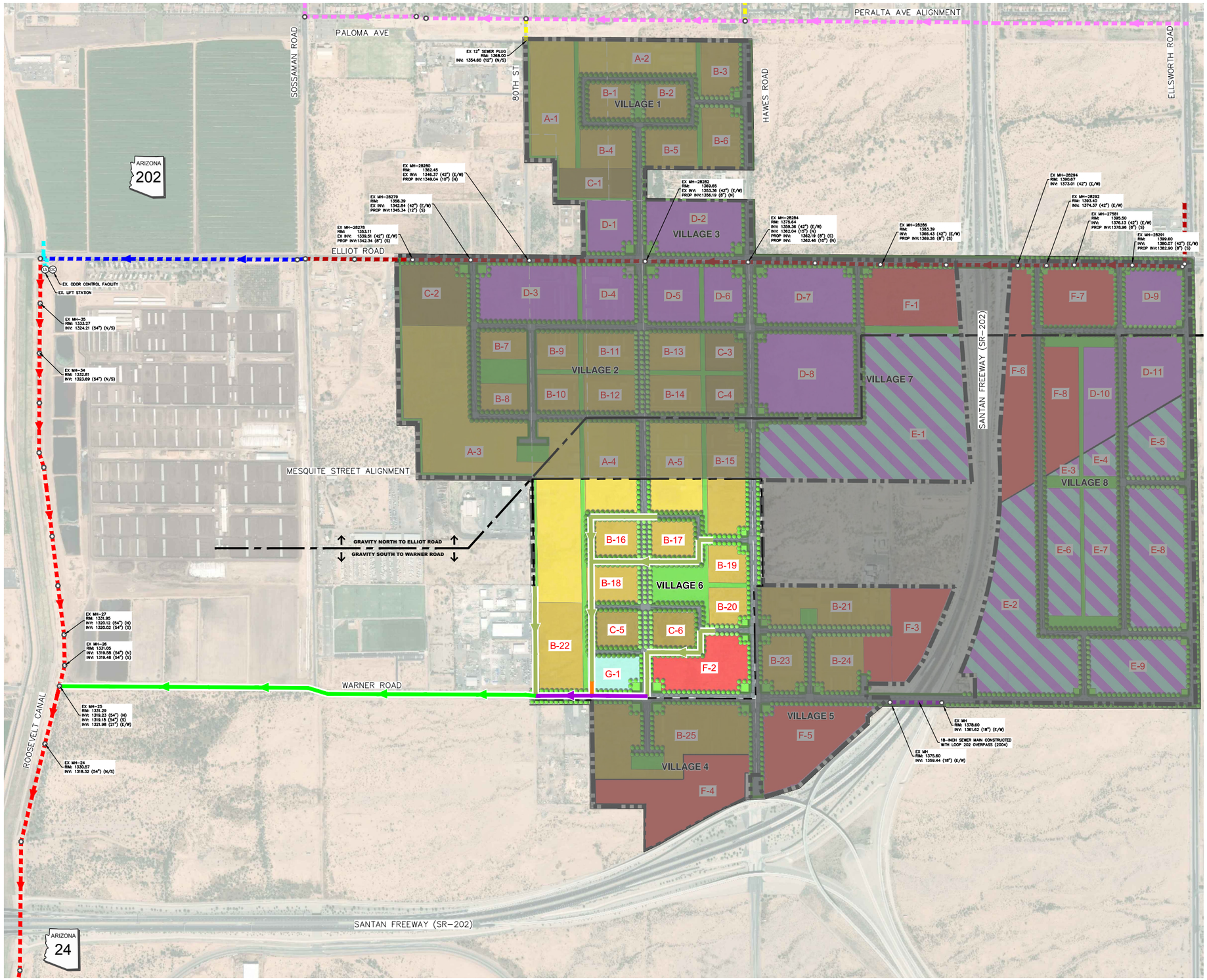

LEGEND

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- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

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2) ROAD ALIGNMENTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.
3) SEWER ALIGNMENTS ARE CONCEPTUAL AND ARE SUBJECT TO CHANGE.
4) DROP MANHOLES HAVE BEEN INCORPORATED TO LIMIT DEPTHS OF LATERAL SEWER MAINS.

N

1200 600 0 1200
SCALE FEET

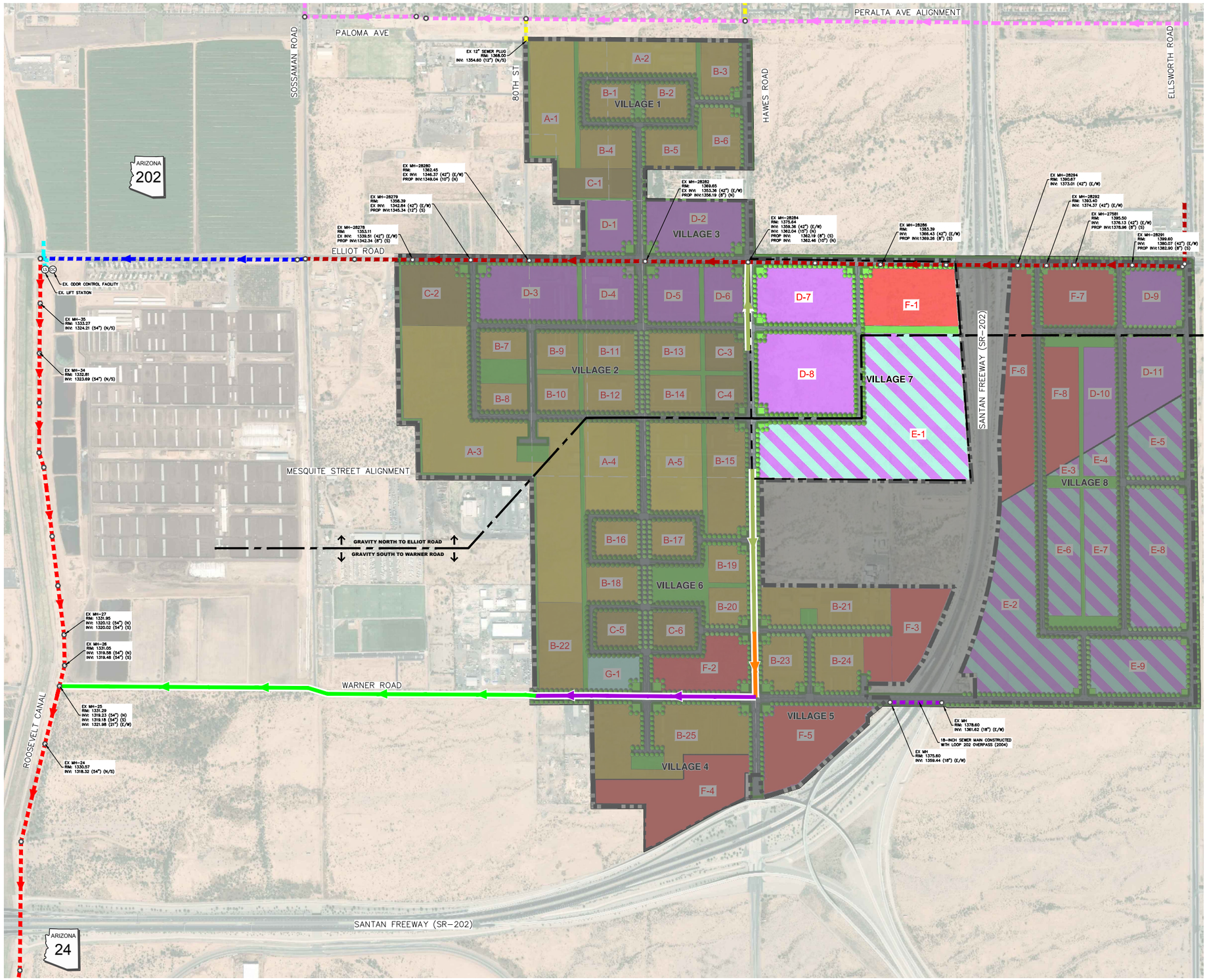
GREEY|PICKETT

HILGARTWILSON
2141 E. HIGHLAND AVE., STE. 250
PHOENIX, AZ 85016
P: 602.490.0535 / F: 602.368.2436

HAWES CROSSING
SANTAN FWY (SR-202) & ELLIOT ROAD
MESA, ARIZONA

FIG 10: VILLAGE 6 REQUIRED INFRASTRUCTURE

PROJ. NO.:	1833
DATE:	OCT 2019
SCALE:	1"=1200'
DRAWN BY:	MAJ
CHECKED BY:	MI



LEGEND

- PROJECT BOUNDARY
- SEWER CONVEYANCE DEMARCATION LINE
- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

- = PROPOSED
- = EXISTING
- <= 8.0
- <= 10.0
- <= 12.0
- <= 15.0
- <= 18.0
- <= 21.0
- <= 24.0
- <= 42.0
- <= 48.0
- <= 54.0

NOTES

1) LAND USE PLAN PROVIDED BY GREEY-PICKETT.
2) ROAD ALIGNMENTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.
3) SEWER ALIGNMENTS ARE CONCEPTUAL AND ARE SUBJECT TO CHANGE.
4) DROP MANHOLES HAVE BEEN INCORPORATED TO LIMIT DEPTHS OF LATERAL SEWER MAINS.

N

1200 600 0 1200
SCALE FEET

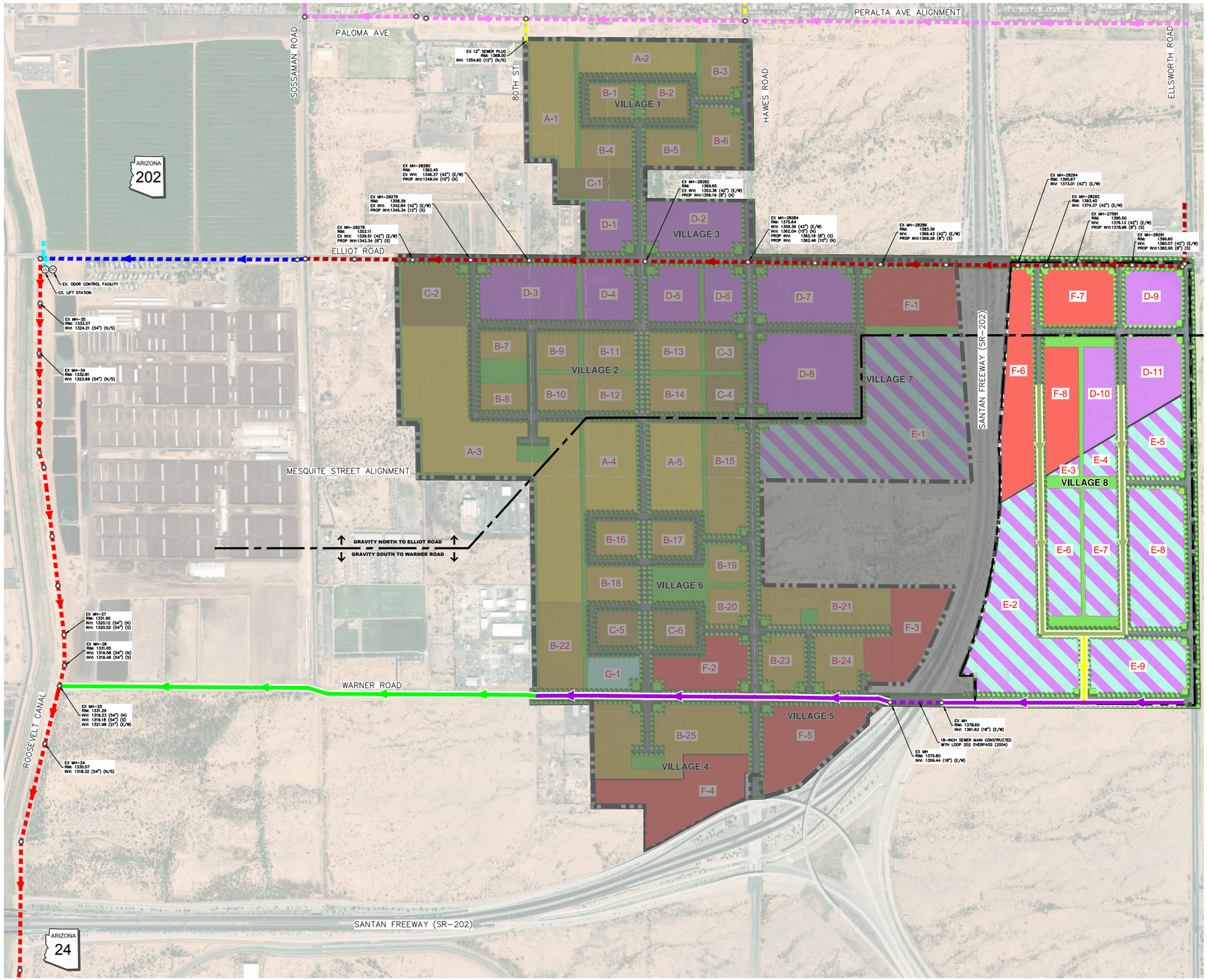
GREEY|PICKETT

HILGARTWILSON
2141 E. HIGHLAND AVE., STE. 250
PHOENIX, AZ 85016
P: 602.490.0535 / F: 602.368.2436

HAWES CROSSING
SANTAN FWY (SR-202) & ELLIOT ROAD
MESA, ARIZONA

FIG 11: VILLAGE 7 REQUIRED INFRASTRUCTURE

PROJ. NO.:	1833
DATE:	OCT 2019
SCALE:	1"=1200'
DRAWN BY:	MAJ
CHECKED BY:	MI



LEGEND

- PROJECT BOUNDARY
- SEWER CONVEYANCE DEMARCATION LINE
- VILLAGE BOUNDARY
- PROPOSED GRAVITY MAIN
- EXISTING GRAVITY MAIN

COLOR CODING LEGEND
CONDUIT: DIAMETER (IN)

- = PROPOSED
- = EXISTING
- <= 8.0
- <= 10.0
- <= 12.0
- <= 15.0
- <= 18.0
- <= 21.0
- <= 24.0
- <= 42.0
- <= 48.0
- <= 54.0

NOTES

1) LAND USE PLAN PROVIDED BY GREEY-PICKETT.
2) ROAD ALIGNMENTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.
3) SEWER ALIGNMENTS ARE CONCEPTUAL AND ARE SUBJECT TO CHANGE.
4) DROP MANHOLES HAVE BEEN INCORPORATED TO LIMIT DEPTHS OF LATERAL SEWER MAINS.

N

1200 600 0 1200
SCALE FEET

GREEY|PICKETT

HILGARTWILSON
2141 E. HIGHLAND AVE., STE. 250
PHOENIX, AZ 85016
P: 602.490.0535 / F: 602.368.2436

HAWES CROSSING
SANTAN FWY (SR-202) & ELLIOT ROAD
MESA, ARIZONA

FIG 12: VILLAGE 8 REQUIRED INFRASTRUCTURE

PROJ. NO.:	1833
DATE:	OCT 2019
SCALE:	1"=1200'
DRAWN BY:	MAJ
CHECKED BY:	MI

APPENDIX B

TABLES

Table B.1 - Wastewater Flows by Outfall

Hawes Crossing

Mesa, Arizona
October, 2019

HILGARTWILSON

Calculated By: MAJ
Checked By: MI

Assigned Parcel Label	Zoning Category	Land Use[4,5]	Gross Area	Assumed Density	Assumed Dwelling Units	Commercial/Industrial Gross Area	Population	Average Daily Flow		Peaking Fcator	Peak Flow	
			(ac)	(du/ac)	(du)	(ac)		(gpd)	(gpm)		(gpd)	(gpm)
OUTFALL 1 - EXISTING MH-28278 (Along Existing 42" Sewer in Elliot Road)												
(1/2) A-3	RSL-4.0	LMDR	32.6	5.0	163	-	522	41,728	29.0	3.0	95,974	66.6
C-2	RM-5	HDR	13.7	25.0	343	-	583	46,648	32.4	3.0	139,944	97.2
OF-1 (EX MH-28278) SUBTOTAL:			**46.3**	**-**	**506**	**0.0**	**1,105**	**88,376**	**61.4**	**3.0**	**265,128**	**184.1**
OUTFALL 2 - EXISTING MH-28279 (Along Existing 42" Sewer in Elliot Road)												
B-7	RSL-2.5	MDR	4.5	10.0	45	-	122	9,720	6.8	3.0	29,160	20.3
B-8	RSL-2.5	MDR	4.5	10.0	45	-	122	9,720	6.8	3.0	29,160	20.3
B-9	RSL-2.5	MDR	5.3	10.0	53	-	143	11,448	8.0	3.0	34,344	23.9
B-10	RSL-2.5	MDR	5.3	10.0	53	-	143	11,448	8.0	3.0	34,344	23.9
B-11	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-12	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-13	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-14	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
C-3	RM-5	HDR	4.9	25.0	123	-	209	16,728	11.6	3.0	50,184	34.9
C-4	RM-5	HDR	4.9	25.0	123	-	209	16,728	11.6	3.0	50,184	34.9
D-3	MX	MIXED USE	18.6	12.0	112.0	9.3	224	30,010	20.8	3.0	90,030	62.5
D-4	MX	MIXED USE	9.7	12.0	59.0	4.9	118	15,810	11.0	3.0	47,430	32.9
D-5	MX	MIXED USE	9.7	12.0	59.0	4.9	118	15,810	11.0	3.0	47,430	32.9
D-6	MX	MIXED USE	7.0	12.0	42.0	3.5	84	11,270	7.8	3.0	33,810	23.5
OF-2 (EX MH-28279) SUBTOTAL:			**101.2**	**-**	**982**	**22.6**	**2,215**	**206,580**	**143.5**	**3.0**	**619,740**	**430.4**
OUTFALL 3 - EXISTING MH-28280 (Along Existing 42" Sewer in Elliot Road)												
A-1	RS-6	LMDR	17.9	5.0	90	-	288	23,040	16.0	3.0	69,120	48.0
A-2	RS-6	LMDR	13.2	5.0	66	-	211	16,896	11.7	3.0	50,688	35.2
B-1	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-2	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-3	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-4	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-5	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-6	RSL-2.5	MDR	8.1	10.0	81	-	219	17,496	12.2	3.0	52,488	36.5
C-1	RM-5	HDR	7.4	25.0	185	-	315	25,160	17.5	3.0	75,480	52.4
OF-3 (EX MH-28280) SUBTOTAL:			**78.7**	**-**	**743**	**0.0**	**1,899**	**151,928**	**105.5**	**3.0**	**455,784**	**316.5**
OUTFALL 4 - EXISTING MH-28282 (Along Existing 42" Sewer in Elliot Road)												
D-1	MX	MIXED USE	7.9	12.0	48	4.0	96	12,880	8.9	3.0	38,640	26.8
D-2	MX	MIXED USE	16.6	12.0	100	8.3	200	26,790	18.6	3.0	80,370	55.8
OF-4 (EX MH-28282) SUBTOTAL:			**24.5**	**-**	**148**	**12.3**	**296**	**39,670**	**27.5**	**3.0**	**119,010**	**82.6**
OUTFALL 5 - EXISTING MH-28284 (Along Existing 42" Sewer in Elliot Road)												
D-7	MX	MIXED USE	17.9	12.0	108	9.0	216	28,980	20.1	3.0	86,940	60.4
D-8	MX	MIXED USE	26.1	12.0	157	13.1	314	42,150	29.3	3.0	126,450	87.8
OF-5 (EX MH-28284) SUBTOTAL:			**44.0**	**-**	**265**	**22.1**	**530**	**71,130**	**49.4**	**3.0**	**213,390**	**148.2**
OUTFALL 6 - EXISTING MH-28286 (Along Existing 42" Sewer in Elliot Road)												
F-1	LC/GC	COMMERCIAL	18.0	-	-	18.0	-	23,400	16.3	3.0	70,200	48.8
OF-6 (EX MH-28286) SUBTOTAL:			**18.0**	**-**	**0**	**18.0**	**0**	**23,400**	**16.3**	**3.0**	**70,200**	**48.8**
OUTFALL 7 - EXISTING MH-27581 (Along Existing 42" Sewer in Elliot Road)												
F-7	LC/GC	COMMERCIAL	13.7	-	-	13.7	-	17,810	12.4	3.0	53,430	37.1
OF-7 (EX MH-27581) SUBTOTAL:			**13.7**	**-**	**0**	**13.7**	**0**	**17,810**	**12.4**	**3.0**	**53,430**	**37.1**
OUTFALL 8 - EXISTING MH-28291 (Along Existing 42" Sewer in Elliot Road)												
D-9	MX	MIXED USE	10.7	12.0	65	5.4	130	17,420	12.1	4.0	52,260	36.3
OF-8 (EX MH-28291) SUBTOTAL:			**10.7**	**-**	**65**	**5.4**	**130**	**17,420**	**12.1**	**3.0**	**52,260**	**36.3**
OUTFALL 9 - EXISTING MH-25 (Along Existing 54" Sewer at Roosevelt Canal & Warner Road)												
(1/2) A-3	RSL-4.0	LMDR	32.6	5.0	163	-	522	41,728	29.0	3.0	95,974	66.6
A-4	RSL-4.0	LMDR	15.9	5.0	80	-	256	20,480	14.2	3.0	61,440	42.7
A-5	RSL-4.0	LMDR	15.9	5.0	80	-	256	20,480	14.2	3.0	61,440	42.7
B-15	RSL-2.5	MDR	14.5	10.0	145	-	392	31,320	21.8	3.0	93,960	65.3
B-16	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-17	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-18	RSL-2.5	MDR	6.5	10.0	65	-	176	14,040	9.8	3.0	42,120	29.3
B-19	RSL-2.5	MDR	4.9	10.0	49	-	132	10,584	7.4	3.0	31,752	22.1
B-20	RSL-2.5	MDR	4.9	10.0	49	-	132	10,584	7.4	3.0	31,752	22.1
B-21	RSL-2.5	MDR	21.0	10.0	210	-	567	45,360	31.5	3.0	136,080	94.5
B-22	RSL-2.5	MDR	13.2	10.0	132	-	356	28,512	19.8	3.0	85,536	59.4
B-23	RSL-2.5	MDR	7.6	10.0	76	-	205	16,416	11.4	3.0	49,248	34.2
B-24	RSL-2.5	MDR	4.8	10.0	48	-	130	10,368	7.2	3.0	31,104	21.6
B-25	RSL-2.5	MDR	28.3	10.0	283	-	764	61,128	42.5	3.0	183,384	127.4
C-5	RM-5	HDR	5.4	25.0	135	-	230	18,360	12.8	3.0	55,080	38.3
C-6	RM-5	HDR	5.4	25.0	135	-	230	18,360	12.8	3.0	55,080	38.3
D-10	MX	MIXED USE	10.6	12.0	64	5.3	128	17,130	11.9	3.0	51,390	35.7
D-11	MX	MIXED USE	14.0	12.0	84	7.0	168	22,540	15.7	3.0	67,620	47.0
E-1	LI	LIGHT INDUSTRIAL	68.9	-	-	68.9	-	89,570	62.2	3.0	268,710	186.6
E-2	LI	LIGHT INDUSTRIAL	41.0	-	-	41.0	-	53,300	37.0	3.0	159,900	111.0
E-3	LI	LIGHT INDUSTRIAL	1.2	-	-	1.2	-	1,560	1.1	3.0	4,680	3.3
E-4	LI	LIGHT INDUSTRIAL	3.7	-	-	3.7	-	4,810	3.3	3.0	14,430	10.0
E-5	LI	LIGHT INDUSTRIAL	12.6	-	-	12.6	-	16,380	11.4	3.0	49,140	34.1
E-6	LI	LIGHT INDUSTRIAL	15.0	-	-	15.0	-	19,500	13.5	3.0	58,500	40.6
E-7	LI	LIGHT INDUSTRIAL	15.0	-	-	15.0	-	19,500	13.5	3.0	58,500	40.6
E-8	LI	LIGHT INDUSTRIAL	26.6	-	-	26.6	-	34,580	24.0	3.0	103,740	72.0
E-9	LI	LIGHT INDUSTRIAL	18.4	-	-	18.4	-	23,920	16.6	3.0	71,760	49.8
F-2	LC/GC	COMMERCIAL	13.8	-	-	13.8	-	17,940	12.5	3.0	53,820	37.4
F-3	LC/GC	COMMERCIAL	16.9	-	-	16.9	-	21,970	15.3	3.0	65,910	45.8
F-4	LC/GC	COMMERCIAL	24.4	-	-	24.4	-	31,720	22.0	3.0	95,160	66.1
F-5	LC/GC	COMMERCIAL	20.8	-	-	20.8	-	27,040	18.8	3.0	81,120	56.3
F-6	LC/GC	COMMERCIAL	21.2	-	-	21.2	-	27,560	19.1	3.0	82,680	57.4
F-8	LC/GC	COMMERCIAL	13.9	-	-	13.9	-	18,070	12.5	3.0	54,210	37.6
G-1	OC	OFFICE	5.8	-	-	5.8	-	7,540	5.2	3.0	22,620	15.7
OF-9 (EX MH-25) SUBTOTAL:			**535.5**	**-**	**1,906**	**331.5**	**4,934**	**825,678**	**573.4**	**3.0**	**2,477,034**	**1,720.2**
PARCELS WITHOUT WASTEWATER DEMANDS												
PARK/OPEN SPACE			51.7	-	-	-	-	-	-	-	-	-
OTHER/STREETS/ETC.			207.5	-	-	-	-	-	-	-	-	-
WASTEWATER DEMAND TOTALS FOR NEW PIPES												
GRAND TOTAL[6]:			**1,131.8**	**-**	**4,615**	**425.6**	**11,109**	**1,441,992**	**1,001.4**	**3.0**	**4,325,976**	**3,004.2**

Notes:

Demand Factors:			Density:		Population Factor:	
Low Density Residential (RR):	200	gal/dwelling unit/day	< 1	du/acre	2.5	Persons/du
Low Density Residential (ER):	240	gal/dwelling unit/day	1 - 2	du/acre	3.0	Persons/du
Medium Density Residential (LDR):	240	gal/dwelling unit/day	2 - 4	du/acre	3.0	Persons/du
Medium Density Residential (LMDR):	256	gal/dwelling unit/day	4 - 6	du/acre	3.2	Persons/du
Medium Density Residential (MDR):	216	gal/dwelling unit/day	6 - 10	du/acre	2.7	Persons/du
High Density Residential (MHDR):	160	gal/dwelling unit/day	10 - 15	du/acre	2.0	Persons/du
High Density Residential (HDR):	136	gal/dwelling unit/day	15 +	du/acre	1.7	Persons/du
High Density Condominium:	136	gal/dwelling unit/day			1.7	Persons/du
Commercial[3]:	1,300	gal/acre/day				
Office[3]:	1,300	gal/acre/day				
Industrial:	1,300	gallons/acre/day				
Research and Development:	1,300	gallons/acre/day				

Peaking Factors:

Average Flow (mgd)	Existing Lines	New Lines
< 1.0	2.30	3.00
1.0 - 10	1.90	2.50
10 - 20	1.70	2.30
20 - 30	1.60	2.10
30 - 40	1.50	2.00
40 - 50	1.40	1.90
> 50	1.30	1.75

(1) Flow factors from the Engineering Procedure Manual - Engineering & Design Standards (City of Mesa, 2017).
(2) Values shown include inside and outside water use.
(3) Commercial/Office demand factor assumed from surrounding towns as City of Mesa standard is determined by actual square footage of building.
(4) Mixed Use calculated as 1/2 residential and 1/2 commercial.
(5) Light industrial is a mix of industrial, warehousing, and commercial buildings.
(6) Grand Total represents all flows generated by the Project through the proposed wastewater network. Flows are additive of all outfalls combined. Table B.2 in Appendix B shows peaking factors for the outfalls as wastewater flows through the existing pipe network.

Table B.2 - Wastewater Flow Calculations for Existing Sewer Network

Hawes Crossing

Mesa, Arizona
October, 2019

HILGARTWILSON

Calculated By: MAJ
Checked By: MI

Outfall (Manhole)	Gross Area	Assumed Density	Assumed Dwelling Units	Commercial/Industrial Gross Area	Population	Average Daily Flow		Peaking Fcator	Peak Flow	
	(ac)	(du/ac)	(du)	(ac)		(gpd)	(gpm)		(gpd)	(gpm)
OUTFALLS FLOWING TO EXISTING 42" SEWER LINE IN ELLIOT ROAD										
OF-1 (EX MH-28278):	46.3	-	506	-	1,105	88,376	61.4	3.0	265,128	184.1
OF-2 (EX MH-28279):	101.2	-	982	22.6	2,215	206,580	143.5	3.0	619,740	430.4
OF-3 (EX MH-28280):	78.7	-	743	-	1,899	151,928	105.5	3.0	455,784	316.5
OF-4 (EX MH-28282):	24.5	-	148	12.3	296	39,670	27.5	3.0	119,010	82.6
OF-5 (EX MH-28284):	44.0	-	265	22.1	530	71,130	49.4	3.0	213,390	148.2
OF-6 (EX MH-28286):	18.0	-	-	18.0	-	23,400	16.3	3.0	70,200	48.8
OF-7 (EX MH-27581):	13.7	-	-	13.7	-	17,810	12.4	3.0	53,430	37.1
OF-8 (EX MH-28291):	10.7	-	65	5.4	130	17,420	12.1	3.0	52,260	36.3
OUTFALLS FLOWING TO EXISTING 54" SEWER LINE AT ROOSEVELT CANAL AND WARNER ROAD										
OF-9 (EX MH-25):	535.5	-	1,906	331.5	4,934	825,678	573.4	3.0	2,477,034	1,720.2
PARCELS WITHOUT WASTEWATER DEMANDS										
PARK/OPEN SPACE	51.7	-	-	-	-	-	-	-	-	-
OTHER/STREETS/ETC.	207.5	-	-	-	-	-	-	-	-	-
TOTAL WASTEWATER FLOWS DOWNSTREAM OF OUTFALLS IN EXISTING PIPE NETWORK										
DOWNSTREAM OF OUTFALLS 1-8[3]:	**337.1**	**-**	**2,709**	**94.1**	**6,175**	**616,314**	**428.0**	**2.3**	**1,417,522**	**984.4**
DOWNSTREAM OF OUTFALL 9[4]:	**1131.8**	**-**	**4,615**	**425.6**	**11,109**	**1,441,992**	**1,001.4**	**1.9**	**2,739,785**	**1,902.6**

Notes:

Demand Factors:

Low Density Residential (RR):	200	gal/dwelling unit/day
Low Density Residential (ER):	240	gal/dwelling unit/day
Medium Density Residential (LDR):	240	gal/dwelling unit/day
Medium Density Residential (LMDR):	256	gal/dwelling unit/day
Medium Density Residential (MDR):	216	gal/dwelling unit/day
High Density Residential (MHDR):	160	gal/dwelling unit/day
High Density Residential (HDR):	136	gal/dwelling unit/day
High Density Condominium:	136	gal/dwelling unit/day
Commercial[2]:	1,300	gal/acre/day
Office[2]:	1,300	gal/acre/day
Industrial:	1,300	gallons/acre/day
Research and Development:	1,300	gallons/acre/day

Density:		Population Factor:	
< 1	du/acre	2.5	Persons/du
1 - 2	du/acre	3.0	Persons/du
2 - 4	du/acre	3.0	Persons/du
4 - 6	du/acre	3.2	Persons/du
6 - 10	du/acre	2.7	Persons/du
10 - 15	du/acre	2.0	Persons/du
15 +	du/acre	1.7	Persons/du
		1.7	Persons/du

Peaking Factors:

Average Flow (mgd)	Existing Lines	New Lines
< 1.0	2.30	3.00
1.0 - 10	1.90	2.50
10 - 20	1.70	2.30
20 - 30	1.60	2.10
30 - 40	1.50	2.00
40 - 50	1.40	1.90
> 50	1.30	1.75

(1) Flow factors from the Engineering Procedure Manual - Engineering & Design Standards (City of Mesa, 2017).
(2) Commercial/Office flow factor assumed from surrounding towns as City of Mesa standard is determined by actual square footage of building.
(3) Flows downstream of Outfalls 1-8 all outfall into the existing 42" sewer line in Elliot Road just east of Sossaman Road.
(4) Flows downstream of Outfall 9 include all flows from Outfalls 1-8 as well as Outfall 9, as all flows for the Project eventually flow through the existing 54" sewer line running north to south along the eastern side of the Roosevelt Canal.

Table B.3 - Wastewater Flow Calculations and Land Use Summary

Hawes Crossing

Mesa, Arizona

October, 2019

HILGARTWILSON

Calculated By: MAJ

Checked By: MI

Assigned Parcel Label	Zoning Category	Land Use[4,5]	Gross Area	Assumed Density	Assumed Dwelling Units	Commercial/Industrial Gross Area	Population	Average Daily Flow		Peaking Fcator	Peak Flow	
			(ac)	(du/ac)	(du)	(ac)		(gpd)	(gpm)		(gpd)	(gpm)
A	RS-6 & RSL-4.0	LMDR	128.1	5.0	642	-	2,054	164,352	114.1	3.0	493,056	342.4
B	RSL-2.5	MDR	203.1	10.0	2,031	-	5,484	438,696	304.7	3.0	1,316,088	914.0
C	RM-5	MHDR	41.7	25.0	1,044	-	1,775	141,984	98.6	3.0	425,952	295.8
D	MX	MIXED USE	148.8	12.0	898	74.7	1,796	240,790	167.2	3.0	722,370	501.6
E	LI	LIGHT INDUSTRIAL	202.4	-	-	202.4	-	263,120	182.7	3.0	789,360	548.2
F	LC/GC	COMMERCIAL	142.7	-	-	142.7	-	185,510	128.8	3.0	556,530	386.5
G	OC	OFFICE	5.8	-	-	5.8	-	7,540	5.2	3.0	22,620	15.7
PARK/OPEN SPACE			51.7	-	-	-	-	-	-	-	-	-
OTHER/STREETS/ETC.			207.5	-	-	-	-	-	-	-	-	-
GRAND TOTAL (New Pipes):			**1,131.8**	**-**	**4,615**	**425.6**	**11,109**	**1,441,992**	**1,001.4**	**3.00**	**4,325,976**	**3,004.2**
GRAND TOTAL (Existing Pipes)[6]:			**1,131.8**	**-**	**4,615**	**425.6**	**11,109**	**1,441,992**	**1,001.4**	**1.90**	**2,739,785**	**1,902.6**

Notes:

Demand Factors:

Low Density Residential (RR):	200	gal/dwelling unit/day
Low Density Residential (ER):	240	gal/dwelling unit/day
Medium Density Residential (LDR):	240	gal/dwelling unit/day
Medium Density Residential (LMDR):	256	gal/dwelling unit/day
Medium Density Residential (MDR):	216	gal/dwelling unit/day
High Density Residential (MHDR):	160	gal/dwelling unit/day
High Density Residential (HDR):	136	gal/dwelling unit/day
High Density Condominium:	136	gal/dwelling unit/day
Commercial[3]:	1,300	gal/acre/day
Office[3]:	1,300	gal/acre/day
Institutional:	1,300	gallons/acre/day
Industrial:	1,300	gallons/acre/day
Research and Development:	1,300	gallons/acre/day
School (w/ Cafeteria)	50	gpd/student

Density:		Population Factor:	
< 1	du/acre	2.5	Persons/du
1 - 2	du/acre	3.0	Persons/du
2 - 4	du/acre	3.0	Persons/du
4 - 6	du/acre	3.2	Persons/du
6 - 10	du/acre	2.7	Persons/du
10 - 15	du/acre	2.0	Persons/du
15 +	du/acre	1.7	Persons/du
		1.7	Persons/du

Peaking Factors:

Average Flow (mgd)	Existing Lines	New Lines
< 1.0	2.30	3.00
1.0 - 10	1.90	2.50
10 - 20	1.70	2.30
20 - 30	1.60	2.10
30 - 40	1.50	2.00
40 - 50	1.40	1.90
> 50	1.30	1.75

(1) Demand factors from the Engineering Procedure Manual - Engineering & Design Standards (City of Mesa, 2017)
(2) Values shown include inside and outside water use
(3) Commercial/Office demand factor averaged from surrounding towns as City of Mesa standard is determined by actual square footage of building
(4) Urban Mixed Use calculated as 1/2 residential and 1/2 commercial
(5) Technology Mixed Use calculated as 1/2 Commercial/Office and 1/2 Research and Development
(6) Total in existing pipes constitutes all flows downstream of Outfall #8 in the existing 54-inch sewer main along the Roosevelt Canal.

Table B.4 - Wastewater Flow Calculations by Village

Hawes Crossing

Mesa, Arizona
October, 2019

HILGARTWILSON

Calculated By: MAJ
Checked By: MI

Assigned Parcel Label	Zoning Category	Land Use[4,5]	Gross Area	Assumed Density	Assumed Dwelling Units	Commercial/Industrial Gross Area	Population	Average Daily Flow		Peaking Fcator	Peak Flow	
			(ac)	(du/ac)	(du)	(ac)		(gpd)	(gpm)		(gpd)	(gpm)
VILLAGE 1												
A-1	RS-6	LMDR	17.9	5.0	90	-	288	23,040	16.0	3.0	69,120	48.0
A-2	RS-6	LMDR	13.2	5.0	66	-	211	16,896	11.7	3.0	50,688	35.2
B-1	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-2	RSL-2.5	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-3	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-4	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-5	RSL-2.5	MDR	7.1	10.0	71	-	192	15,336	10.7	3.0	46,008	32.0
B-6	RSL-2.5	MDR	8.1	10.0	81	-	219	17,496	12.2	3.0	52,488	36.5
C-1	RM-5	HDR	7.4	25.0	185	-	315	25,160	17.5	3.0	75,480	52.4
D-1	MX	MIXED USE	7.9	12.0	48	4.0	96	12,880	8.9	3.0	38,640	26.8
Village 1 Subtotal:			**86.6**	**-**	**791**	**4.0**	**1,995**	**164,808**	**114.5**	**3.0**	**494,424**	**343.4**
VILLAGE 2												
A-3 (60%)	RSL-4.0	LMDR	39.1	5.0	196	-	626	50,074	34.8	3.0	150,221	104.3
A-4 (60%)	RSL-4.0	LMDR	9.5	5.0	48	-	154	12,288	8.5	3.0	36,864	25.6
A-5 (60%)	RSL-4.0	LMDR	9.5	5.0	48	-	154	12,288	8.5	3.0	36,864	25.6
B-7	RSL-2.5	MDR	4.5	10.0	45	-	122	9,720	6.8	3.0	29,160	20.3
B-8	RSL-2.5	MDR	4.5	10.0	45	-	122	9,720	6.8	3.0	29,160	20.3
B-9	RSL-2.5	MDR	5.3	10.0	53	-	143	11,448	8.0	3.0	34,344	23.9
B-10	RSL-2.5	MDR	5.3	10.0	53	-	143	11,448	8.0	3.0	34,344	23.9
B-11	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-12	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-13	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-14	RSL-2.5	MDR	6.7	10.0	67	-	181	14,472	10.1	3.0	43,416	30.2
B-15 (50%)	RSL-2.5	MDR	7.3	10.0	73	-	196	15,660	10.9	3.0	46,980	32.6
C-2	RM-5	HDR	13.7	25.0	343	-	583	46,648	32.4	3.0	139,944	97.2
C-3	RM-5	HDR	4.9	25.0	123	-	209	16,728	11.6	3.0	50,184	34.9
C-4	RM-5	HDR	4.9	25.0	123	-	209	16,728	11.6	3.0	50,184	34.9
D-3	MX	MIXED USE	18.6	12.0	112	9.3	224	30,010	20.8	3.0	90,030	62.5
D-4	MX	MIXED USE	9.7	12.0	59	4.9	118	15,810	11.0	3.0	47,430	32.9
D-5	MX	MIXED USE	9.7	12.0	59	4.9	118	15,810	11.0	3.0	47,430	32.9
D-6	MX	MIXED USE	7.0	12.0	42	3.5	84	11,270	7.8	3.0	33,810	23.5
Village 2 Subtotal:			**180.4**	**-**	**1,689**	**22.6**	**3,927**	**343,538**	**238.6**	**3.0**	**1,030,613**	**715.7**
VILLAGE 3												
D-2	MX	MIXED USE	16.6	12.0	100	8.3	200	26,790	18.6	3.0	80,370	55.8
Village 3 Subtotal:			**16.6**	**12.0**	**100**	**8.3**	**200**	**26,790**	**18.6**	**3.0**	**80,370**	**55.8**
VILLAGE 4												
B-25	RSL-2.5	MDR	28.3	10.0	283	-	764	61,128	42.5	3.0	183,384	127.4
F-4	LC/GC	COMMERCIAL	24.4	-	-	24.4	-	31,720	22.0	3.0	95,160	66.1
Village 4 Subtotal:			**52.7**	**-**	**283**	**24.4**	**764**	**92,848**	**64.5**	**3.0**	**278,544**	**193.4**
VILLAGE 5												
B-21	RSL-2.5	MDR	21.0	10.0	210	-	567	45,360	31.5	3.0	136,080	94.5
B-23	RSL-2.5	MDR	7.6	10.0	76	-	205	16,416	11.4	3.0	49,248	34.2
B-24	RSL-2.5	MDR	4.8	10.0	48	-	130	10,368	7.2	3.0	31,104	21.6
F-3	LC/GC	COMMERCIAL	16.9	-	-	16.9	-	21,970	15.3	3.0	65,910	45.8
F-4	LC/GC	COMMERCIAL	20.8	-	-	20.8	-	27,040	18.8	3.0	81,120	56.3
Village 5 Subtotal:			**71.1**	**-**	**334**	**37.7**	**902**	**121,154**	**84.1**	**3.0**	**363,462**	**252.4**
VILLAGE 6												
A-3 (40%)	RSL-4.0	LMDR	26.1	5.0	130	-	417	33,382	23.2	3.0	100,147	69.5
A-4 (40%)	RSL-4.0	LMDR	6.4	5.0	32	-	102	8,192	5.7	3.0	24,576	17.1
A-5 (40%)	RSL-4.0	LMDR	6.4	5.0	32	-	102	8,192	5.7	3.0	24,576	17.1
B-15 (50%)	RSL-2.5	MDR	7.3	10.0	73	-	196	15,660	10.9	3.0	46,980	32.6
B-16	MDR	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-17	MDR	MDR	5.4	10.0	54	-	146	11,664	8.1	3.0	34,992	24.3
B-18	MDR	MDR	6.5	10.0	65	-	176	14,040	9.8	3.0	42,120	29.3
B-19	MDR	MDR	4.9	10.0	49	-	132	10,584	7.4	3.0	31,752	22.1
B-20	MDR	MDR	4.9	10.0	49	-	132	10,584	7.4	3.0	31,752	22.1
B-22	MDR	MDR	13.2	10.0	132	-	356	28,512	19.8	3.0	85,536	59.4
C-5	RM-5	HDR	5.4	25.0	135	-	230	18,360	12.8	3.0	55,080	38.3
C-6	RM-5	HDR	5.4	25.0	135	-	230	18,360	12.8	3.0	55,080	38.3
F-2	LC/GC	COMMERCIAL	13.8	-	-	13.8	-	17,940	12.5	3.0	53,820	37.4
G-1	OC	OFFICE	5.8	-	-	5.8	-	7,540	5.2	3.0	22,620	15.7
Village 6 Subtotal:			**116.8**	**-**	**940**	**19.6**	**2,365**	**214,674**	**149.1**	**3.0**	**644,023**	**447.2**
VILLAGE 7												
D-7	MX	MIXED USE	17.9	12.0	108	9.0	216	28,980	20.1	3.0	86,940	60.4
D-8	MX	MIXED USE	26.1	12.0	157	13.1	314	42,150	29.3	3.0	126,450	87.8
E-1	LI	LIGHT INDUSTRIAL	68.9	-	-	68.9	-	89,570	62.2	3.0	268,710	186.6
F-1	LC/GC	COMMERCIAL	18.0	-	-	18.0	-	23,400	16.3	3.0	70,200	48.8
Village 7 Subtotal:			**130.9**	**-**	**265**	**109.0**	**530**	**184,100**	**127.8**	**3.0**	**552,300**	**383.5**
VILLAGE 8												
D-9	MX	MIXED USE	10.7	12.0	65	5.4	130	17,420	12.1	4.0	52,260	36.3
D-10	MX	MIXED USE	10.6	12.0	64	5.3	128	17,130	11.9	6.0	51,390	35.7
D-11	MX	MIXED USE	14.0	12.0	84	7.0	168	22,540	15.7	7.0	67,620	47.0
E-2	LI	LIGHT INDUSTRIAL	41.0	-	-	41.0	-	53,300	37.0	3.0	159,900	111.0
E-3	LI	LIGHT INDUSTRIAL	1.2	-	-	1.2	-	1,560	1.1	3.0	4,680	3.3
E-4	LI	LIGHT INDUSTRIAL	3.7	-	-	3.7	-	4,810	3.3	3.0	14,430	10.0
E-5	LI	LIGHT INDUSTRIAL	12.6	-	-	12.6	-	16,380	11.4	3.0	49,140	34.1
E-6	LI	LIGHT INDUSTRIAL	15.0	-	-	15.0	-	19,500	13.5	3.0	58,500	40.6
E-7	LI	LIGHT INDUSTRIAL	15.0	-	-	15.0	-	19,500	13.5	3.0	58,500	40.6
E-8	LI	LIGHT INDUSTRIAL	26.6	-	-	26.6	-	34,580	24.0	3.0	103,740	72.0
E-9	LI	LIGHT INDUSTRIAL	18.4	-	-	18.4	-	23,920	16.6	3.0	71,760	49.8
F-6	LC/GC	COMMERCIAL	21.2	-	-	21.2	-	27,560	19.1	3.0	82,680	57.4
F-7	LC/GC	COMMERCIAL	13.7	-	-	13.7	-	17,810	12.4	3.0	53,430	37.1
F-8	LC/GC	COMMERCIAL	13.9	-	-	13.9	-	18,070	12.5	5.0	54,210	37.6
Village 8 Subtotal:			**217.6**	**36.0**	**213**	**200.0**	**426**	**294,080**	**204.2**	**52.0**	**882,240**	**612.7**
PARK/OPEN SPACE			51.7	-	-	-	-	-	-	-	-	-
OTHER/STREETS/ETC.			207.5	-	-	-	-	-	-	-	-	-
GRAND TOTAL:			**1,131.8**	**-**	**4,615**	**425.6**	**11,109**	**1,441,992**	**1,001.4**	**3.0**	**4,325,976**	**3,004.2**

Notes:

Demand Factors:

Low Density Residential (RR):	200	gal/dwelling unit/day
Low Density Residential (ER):	240	gal/dwelling unit/day
Medium Density Residential (LDR):	240	gal/dwelling unit/day
Medium Density Residential (LMDR):	256	gal/dwelling unit/day
Medium Density Residential (MDR):	216	gal/dwelling unit/day
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High Density Residential (HDR):	136	gal/dwelling unit/day
High Density Condominium:	136	gal/dwelling unit/day
Commercial[3]:	1,300	gal/acre/day
Office[3]:	1,300	gal/acre/day
Industrial:	1,300	gallons/acre/day
Research and Development:	1,300	gallons/acre/day

Density:		Population Factor:	
< 1	du/acre	2.5	Persons/du
1 - 2	du/acre	3.0	Persons/du
2 - 4	du/acre	3.0	Persons/du
4 - 6	du/acre	3.2	Persons/du
6 - 10	du/acre	2.7	Persons/du
10 - 15	du/acre	2.0	Persons/du
15 +	du/acre	1.7	Persons/du
		1.7	Persons/du

Peaking Factors:

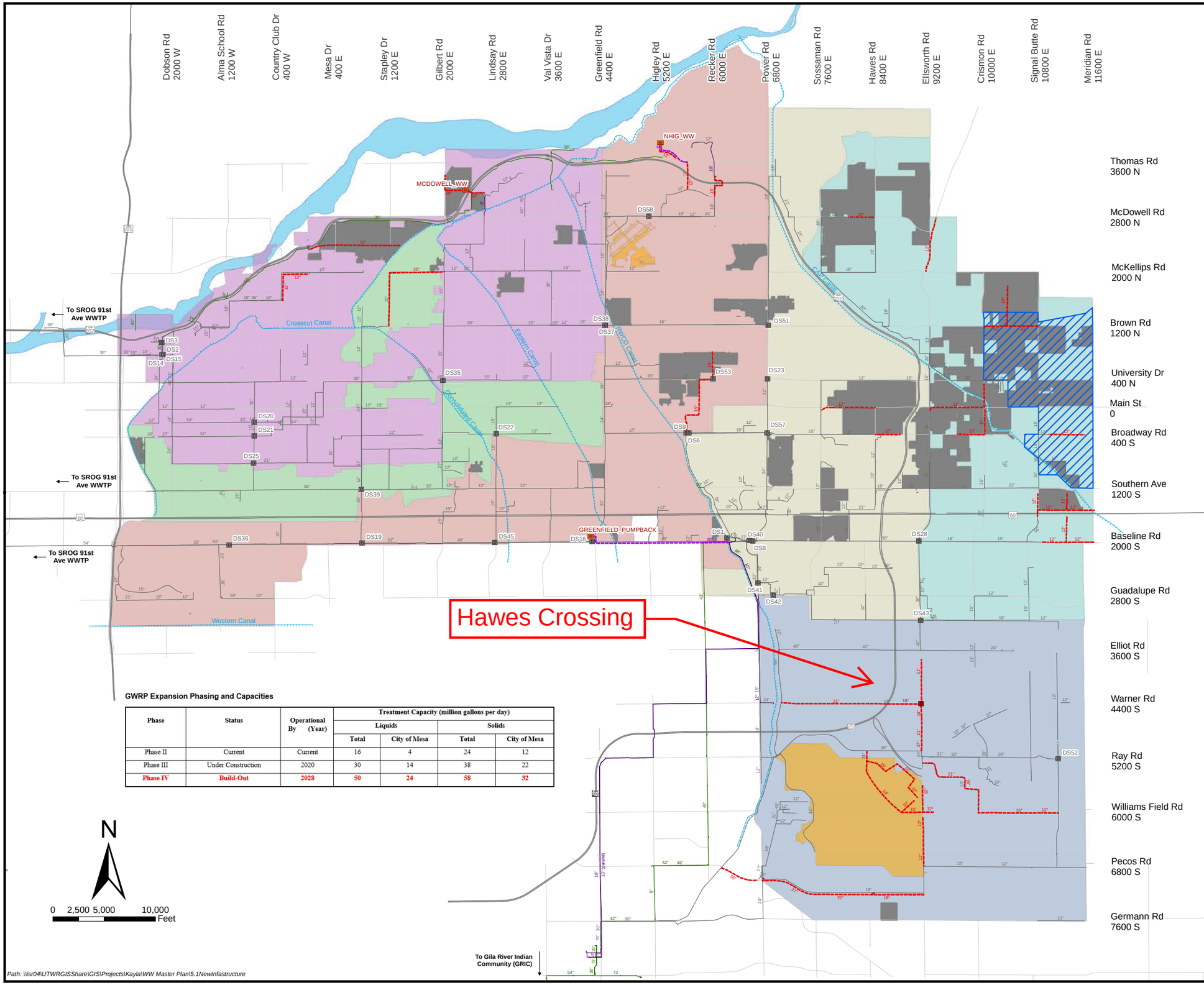
Average Flow (mgd)	Existing Lines	New Lines
< 1.0	2.30	3.00
1.0 - 10	1.90	2.50
10 - 20	1.70	2.30
20 - 30	1.60	2.10
30 - 40	1.50	2.00
40 - 50	1.40	1.90
> 50	1.30	1.75

(1) Demand factors from the Engineering Procedure Manual - Engineering & Design Standards (City of Mesa, 2017)
(2) Values shown include inside and outside water use
(3) Commercial/Office demand factor assumed from surrounding towns as City of Mesa standard is determined by actual square footage of building
(4) Urban Mixed Use calculated as 1/2 residential and 1/2 commercial
(5) Technology Mixed Use calculated as 1/2 Commercial/Office and 1/2 Research and Development

APPENDIX C

EXCERPTS FROM:

CITY OF MESA
2018 WASTEWATER MASTER PLAN UPDATE (CITY OF MESA, 2018)



GWRP Expansion Phasing and Capacities

Phase	Status	Operational By (Year)	Treatment Capacity (million gallons per day)			
			Liquids		Solids	
			Total	City of Mesa	Total	City of Mesa
Phase II	Current	Current	16	4	24	12
Phase III	Under Construction	2020	30	14	38	22
Phase IV	**Build-Out**	**2028**	**50**	**24**	**58**	**32**

Legend

- Proposed Diversion Structure
- Diversion Structure
- Metering Station
- Odor Control
- Siphon Structure
- Sulfide Station
- Reclamation Plant
- Existing Lift Station
- Proposed Lift Station
- Proposed New Force Main
- Proposed New Gravity Main
- Existing Wastewater Main
- Existing Force Main
- Existing Reclaimed Main

Other Features

- Arizona Water Co. Area
- Highway
- Street
- Canal
- Airport
- Septic Areas
- Salt River

Sewer Drainage Basins

- GWRP
- ME01 (SROG)
- ME02 (SROG)
- NWWRP / ME03 (SROG)
- SEWRP
- SEWRP / GWRP

mesa·az

City of Mesa
Wastewater Master Plan

Exhibit B
Buildout Wastewater
Infastructure Improvement Plan

March 2018

APPENDIX D

HYDRAULIC MODEL RESULTS

AVERAGE DAY FLOW

1. **Master Manhole Report** – This provides detailed information such as the rim elevation and structure depth of each manhole within the system.

2. **Master Gravity Pipe Report** – This provides detailed information such as the velocity, capacity, and percent full in each pipe in the system. Please note that the "Average Velocity" presented in the Master Gravity Pipe Report is actual velocity and not full flow velocity.

3. **Master Outlet Report** – This provides the invert, structure depth and flow at the outlet of the system.

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-1	1,380.00	1,372.33	7.67	15,336	1,372.42	1,372.42
MH-2	1,380.00	1,371.26	8.74	15,336	1,371.34	1,371.34
MH-3	1,375.07	1,367.30	7.77	15,336	1,367.37	1,367.37
MH-4	1,373.32	1,365.56	7.77	15,336	1,365.64	1,365.64
MH-5	1,376.61	1,364.57	12.04	32,832	1,364.68	1,364.68
MH-6	1,374.45	1,362.36	12.09	59,832	1,362.52	1,362.52
MH-7	1,369.00	1,360.01	8.99	71,496	1,360.19	1,360.19
MH-8	1,368.00	1,359.27	8.73	88,392	1,359.47	1,359.47
MH-9	1,367.02	1,358.75	8.27	88,392	1,358.92	1,358.92
MH-10	1,366.28	1,356.71	9.57	128,888	1,356.95	1,356.95
MH-11	1,363.00	1,355.07	7.93	151,928	1,355.33	1,355.33
MH-12	1,362.14	1,353.90	8.23	151,928	1,354.17	1,354.17
MH-13	1,362.14	1,352.72	9.41	151,928	1,352.93	1,352.93
MH-14	1,378.00	1,370.33	7.67	17,496	1,370.42	1,370.42
MH-15	1,380.00	1,368.74	11.26	17,496	1,368.83	1,368.83
MH-16	1,369.13	1,361.46	7.67	11,520	1,361.53	1,361.53
MH-17	1,366.19	1,359.74	6.45	11,520	1,359.81	1,359.81
MH-18	1,364.69	1,358.31	6.38	23,040	1,358.41	1,358.41
MH-19	1,363.29	1,356.56	6.73	23,040	1,356.66	1,356.66
MH-20	1,386.21	1,378.55	7.67	8,448	1,378.60	1,378.60
MH-21	1,375.00	1,367.23	7.77	8,448	1,367.29	1,367.29
MH-22	1,371.00	1,363.23	7.77	16,896	1,363.32	1,363.32
MH-23	1,369.35	1,361.58	7.77	16,896	1,361.66	1,361.66
MH-24	1,373.00	1,365.33	7.67	11,664	1,365.39	1,365.39
MH-25	1,369.86	1,362.09	7.77	11,664	1,362.16	1,362.16
MH-26	1,376.85	1,369.18	7.67	11,664	1,369.25	1,369.25
MH-27	1,375.37	1,367.61	7.77	11,664	1,367.68	1,367.68
MH-28	1,373.00	1,365.33	7.67	15,336	1,365.42	1,365.42
MH-29	1,373.00	1,364.35	8.65	15,336	1,364.42	1,364.42
MH-30	1,374.02	1,366.36	7.67	15,336	1,366.43	1,366.43
MH-31	1,371.61	1,363.85	7.77	15,336	1,363.93	1,363.93
MH-32	1,373.00	1,365.33	7.67	25,160	1,365.42	1,365.42
MH-33	1,366.00	1,358.23	7.77	25,160	1,358.34	1,358.34
MH-34	1,372.83	1,365.06	7.77	16,896	1,365.15	1,365.15
MH-35	1,378.07	1,369.93	8.14	15,336	1,370.00	1,370.00
MH-36	1,373.00	1,361.24	11.76	59,832	1,361.40	1,361.40
MH-37	1,366.92	1,356.01	10.90	128,888	1,356.26	1,356.26
MH-38	1,368.50	1,360.83	7.67	12,880	1,360.91	1,360.91
MH-39	1,367.30	1,359.53	7.77	12,880	1,359.61	1,359.61
MH-40	1,368.12	1,358.22	9.91	12,880	1,358.29	1,358.29
MH-41	1,369.70	1,357.37	12.33	39,670	1,357.50	1,357.50
MH-42	1,375.00	1,367.33	7.67	26,790	1,367.44	1,367.44
MH-43	1,374.04	1,365.98	8.05	26,790	1,366.09	1,366.09
MH-44	1,371.70	1,363.93	7.77	26,790	1,364.04	1,364.04
MH-45	1,353.27	1,343.99	9.28	88,376	1,344.19	1,344.19
MH-46	1,355.14	1,345.74	9.40	41,728	1,345.88	1,345.88
MH-47	1,355.26	1,347.49	7.77	41,728	1,347.63	1,347.63
MH-48	1,356.56	1,348.79	7.77	31,296	1,348.91	1,348.91
MH-49	1,357.70	1,349.93	7.77	31,296	1,350.05	1,350.05

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-50	1,358.81	1,351.04	7.77	20,864	1,351.14	1,351.14
MH-51	1,360.09	1,352.32	7.77	20,864	1,352.42	1,352.42
MH-52	1,361.94	1,354.17	7.77	10,432	1,354.24	1,354.24
MH-53	1,363.69	1,355.92	7.77	10,432	1,355.99	1,355.99
MH-54	1,372.00	1,362.24	9.76	44,726	1,362.38	1,362.38
MH-55	1,369.11	1,361.08	8.03	44,726	1,361.21	1,361.21
MH-56	1,368.04	1,359.11	8.93	89,480	1,359.32	1,359.32
MH-57	1,368.72	1,357.74	10.97	89,480	1,357.95	1,357.95
MH-58	1,366.00	1,352.80	13.20	119,762	1,353.03	1,353.03
MH-59	1,364.52	1,351.50	13.02	131,210	1,351.70	1,351.70
MH-60	1,361.39	1,350.15	11.24	157,130	1,350.42	1,350.42
MH-61	1,358.00	1,348.87	9.13	166,850	1,349.09	1,349.09
MH-62	1,355.11	1,347.18	7.93	176,570	1,347.46	1,347.46
MH-63	1,357.00	1,346.29	10.71	206,580	1,346.60	1,346.60
MH-64	1,366.00	1,358.33	7.67	15,005	1,358.42	1,358.42
MH-65	1,367.32	1,357.03	10.28	15,005	1,357.10	1,357.10
MH-66	1,362.15	1,354.38	7.77	30,010	1,354.48	1,354.48
MH-67	1,358.75	1,350.98	7.77	30,010	1,351.08	1,351.08
MH-68	1,369.67	1,362.00	7.67	15,810	1,362.07	1,362.07
MH-69	1,366.86	1,359.10	7.77	15,810	1,359.18	1,359.18
MH-70	1,366.00	1,358.07	7.93	15,810	1,358.15	1,358.15
MH-71	1,372.00	1,364.33	7.67	15,810	1,364.41	1,364.41
MH-72	1,370.00	1,362.23	7.77	15,810	1,362.32	1,362.32
MH-73	1,369.00	1,361.23	7.77	15,810	1,361.31	1,361.31
MH-74	1,374.00	1,366.33	7.67	11,270	1,366.40	1,366.40
MH-75	1,372.00	1,364.23	7.77	11,270	1,364.31	1,364.31
MH-76	1,371.13	1,363.37	7.77	11,270	1,363.44	1,363.44
MH-77	1,360.15	1,352.48	7.67	9,720	1,352.55	1,352.55
MH-78	1,359.50	1,351.82	7.68	9,720	1,351.89	1,351.89
MH-79	1,357.75	1,349.98	7.77	9,720	1,350.04	1,350.04
MH-80	1,356.16	1,348.23	7.94	9,720	1,348.29	1,348.29
MH-81	1,359.81	1,352.14	7.67	9,720	1,352.20	1,352.20
MH-82	1,358.00	1,350.23	7.77	9,720	1,350.30	1,350.30
MH-83	1,365.60	1,357.93	7.67	14,472	1,358.01	1,358.01
MH-84	1,365.00	1,356.33	8.67	14,472	1,356.41	1,356.41
MH-85	1,364.05	1,355.31	8.75	14,472	1,355.39	1,355.39
MH-86	1,363.65	1,354.15	9.51	25,920	1,354.26	1,354.26
MH-87	1,360.89	1,352.71	8.18	25,920	1,352.82	1,352.82
MH-88	1,361.00	1,351.53	9.47	25,920	1,351.64	1,351.64
MH-89	1,363.97	1,356.30	7.67	11,448	1,356.37	1,356.37
MH-90	1,363.00	1,355.23	7.77	11,448	1,355.31	1,355.31
MH-91	1,363.63	1,355.96	7.67	14,472	1,356.04	1,356.04
MH-92	1,364.73	1,354.45	10.28	14,472	1,354.53	1,354.53
MH-93	1,372.19	1,364.53	7.67	14,472	1,364.61	1,364.61
MH-94	1,371.07	1,360.62	10.45	28,944	1,360.73	1,360.73
MH-95	1,374.00	1,366.33	7.67	16,728	1,366.41	1,366.41
MH-96	1,372.02	1,364.26	7.77	33,456	1,364.37	1,364.37
MH-97	1,373.00	1,365.33	7.67	14,472	1,365.40	1,365.40
MH-98	1,370.00	1,362.23	7.77	14,472	1,362.32	1,362.32

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-99	1,376.18	1,368.52	7.67	16,728	1,368.59	1,368.59
MH-100	1,374.16	1,366.40	7.77	16,728	1,366.48	1,366.48
MH-101	1,333.76	1,323.89	9.86	825,678	1,324.34	1,324.34
MH-102	1,334.48	1,325.73	8.74	825,678	1,326.19	1,326.19
MH-103	1,338.87	1,327.57	11.30	825,678	1,328.03	1,328.03
MH-104	1,342.47	1,329.41	13.06	825,678	1,329.87	1,329.87
MH-105	1,342.70	1,331.25	11.44	825,678	1,331.71	1,331.71
MH-106	1,342.47	1,332.05	10.42	825,678	1,332.50	1,332.50
MH-107	1,345.14	1,333.89	11.26	825,678	1,334.34	1,334.34
MH-108	1,349.32	1,335.73	13.59	825,678	1,336.18	1,336.18
MH-109	1,350.01	1,337.57	12.44	825,678	1,338.02	1,338.02
MH-110	1,355.10	1,339.41	15.69	825,678	1,339.86	1,339.86
MH-111	1,356.14	1,339.84	16.31	825,678	1,340.29	1,340.29
MH-112	1,359.04	1,346.43	12.61	715,202	1,346.82	1,346.82
MH-113	1,359.48	1,347.11	12.38	609,306	1,347.51	1,347.51
MH-114	1,362.61	1,349.77	12.84	552,694	1,350.16	1,350.16
MH-115	1,364.08	1,350.72	13.37	523,750	1,351.10	1,351.10
MH-116	1,366.12	1,352.30	13.82	514,780	1,352.68	1,352.68
MH-117	1,368.33	1,353.85	14.47	469,574	1,354.22	1,354.22
MH-118	1,369.75	1,355.16	14.58	312,674	1,355.43	1,355.43
MH-119	1,372.00	1,356.98	15.02	282,738	1,357.26	1,357.26
MH-120	1,369.17	1,361.41	7.77	15,660	1,361.49	1,361.49
MH-121	1,370.35	1,360.45	9.90	26,244	1,360.55	1,360.55
MH-122	1,366.78	1,358.16	8.61	37,908	1,358.29	1,358.29
MH-123	1,364.00	1,356.23	7.77	37,908	1,356.36	1,356.36
MH-124	1,362.66	1,352.85	9.82	65,956	1,353.02	1,353.02
MH-125	1,364.02	1,351.26	12.76	79,996	1,351.45	1,351.45
MH-126	1,361.92	1,349.51	12.41	98,356	1,349.72	1,349.72
MH-127	1,360.00	1,347.60	12.40	105,896	1,347.82	1,347.82
MH-128	1,361.60	1,353.94	7.67	14,256	1,354.00	1,354.00
MH-129	1,358.44	1,344.25	14.19	96,220	1,344.46	1,344.46
MH-130	1,357.00	1,342.50	14.50	110,476	1,342.73	1,342.73
MH-131	1,362.00	1,354.33	7.67	7,540	1,354.39	1,354.39
MH-132	1,362.98	1,353.51	9.48	7,540	1,353.57	1,353.57
MH-133	1,366.72	1,359.06	7.67	18,360	1,359.13	1,359.13
MH-134	1,363.24	1,355.47	7.77	18,360	1,355.56	1,355.56
MH-135	1,365.00	1,357.33	7.67	14,040	1,357.41	1,357.41
MH-136	1,366.00	1,356.14	9.86	14,040	1,356.23	1,356.23
MH-137	1,365.30	1,357.63	7.67	11,664	1,357.70	1,357.70
MH-138	1,363.00	1,355.23	7.77	11,664	1,355.31	1,355.31
MH-139	1,363.00	1,354.12	8.88	11,664	1,354.18	1,354.18
MH-140	1,368.57	1,360.91	7.67	11,664	1,360.98	1,360.98
MH-141	1,367.37	1,359.60	7.77	11,664	1,359.68	1,359.68
MH-142	1,360.78	1,353.11	7.67	13,909	1,353.19	1,353.19
MH-143	1,362.99	1,351.65	11.34	54,145	1,351.80	1,351.80
MH-144	1,360.00	1,350.06	9.94	68,055	1,350.24	1,350.24
MH-145	1,361.66	1,348.04	13.63	68,055	1,348.21	1,348.21
MH-146	1,359.60	1,346.29	13.32	81,964	1,346.48	1,346.48
MH-147	1,358.00	1,344.93	13.07	81,964	1,345.12	1,345.12

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-148	1,368.00	1,360.33	7.67	12,288	1,360.40	1,360.40
MH-149	1,364.97	1,357.21	7.77	12,288	1,357.28	1,357.28
MH-150	1,365.86	1,355.54	10.32	40,236	1,355.67	1,355.67
MH-151	1,364.17	1,354.82	9.34	16,384	1,354.91	1,354.91
MH-152	1,371.53	1,363.87	7.67	12,288	1,363.93	1,363.93
MH-153	1,369.34	1,361.57	7.77	12,288	1,361.65	1,361.65
MH-154	1,368.02	1,359.82	8.20	27,948	1,359.93	1,359.93
MH-155	1,362.00	1,353.29	8.71	28,048	1,353.41	1,353.41
MH-156	1,370.00	1,362.23	7.77	15,660	1,362.30	1,362.30
MH-157	1,365.93	1,358.16	7.77	27,948	1,358.27	1,358.27
MH-158	1,371.00	1,363.33	7.67	10,584	1,363.40	1,363.40
MH-159	1,371.17	1,362.56	8.61	10,584	1,362.63	1,362.63
MH-160	1,372.28	1,364.51	7.77	15,660	1,364.59	1,364.59
MH-161	1,372.19	1,363.52	8.67	15,660	1,363.60	1,363.60
MH-162	1,372.96	1,365.20	7.77	15,660	1,365.28	1,365.28
MH-163	1,377.25	1,369.58	7.67	15,660	1,369.65	1,369.65
MH-164	1,370.00	1,355.34	14.66	156,900	1,355.61	1,355.61
MH-165	1,371.00	1,356.62	14.38	156,900	1,356.89	1,356.89
MH-166	1,371.74	1,358.54	13.20	89,570	1,358.74	1,358.74
MH-167	1,372.00	1,360.29	11.71	89,570	1,360.49	1,360.49
MH-168	1,373.35	1,362.04	11.32	89,570	1,362.24	1,362.24
MH-169	1,368.51	1,360.10	8.41	10,584	1,360.17	1,360.17
MH-170	1,368.09	1,359.43	8.66	10,584	1,359.50	1,359.50
MH-171	1,368.00	1,358.47	9.53	10,584	1,358.54	1,358.54
MH-172	1,367.07	1,354.84	12.22	28,944	1,354.96	1,354.96
MH-173	1,363.26	1,354.12	9.14	28,944	1,354.24	1,354.24
MH-174	1,364.00	1,352.98	11.02	28,944	1,353.09	1,353.09
MH-175	1,367.43	1,359.76	7.67	18,360	1,359.84	1,359.84
MH-176	1,364.00	1,356.23	7.77	18,360	1,356.33	1,356.33
MH-177	1,371.08	1,363.41	7.67	10,584	1,363.48	1,363.48
MH-178	1,369.37	1,361.60	7.77	10,584	1,361.67	1,361.67
MH-179	1,369.26	1,361.59	7.67	8,970	1,361.65	1,361.65
MH-180	1,368.00	1,360.23	7.77	8,970	1,360.30	1,360.30
MH-181	1,367.00	1,359.33	7.67	8,970	1,359.39	1,359.39
MH-182	1,365.18	1,357.41	7.77	8,970	1,357.47	1,357.47
MH-183	1,371.31	1,363.64	7.67	16,416	1,363.73	1,363.73
MH-184	1,370.71	1,362.85	7.87	16,416	1,362.93	1,362.93
MH-185	1,375.00	1,361.69	13.31	67,330	1,361.86	1,361.86
MH-186	1,374.57	1,363.64	10.93	89,570	1,363.84	1,363.84
MH-187	1,376.53	1,363.32	13.22	44,650	1,363.46	1,363.46
MH-188	1,378.00	1,364.77	13.23	44,650	1,364.91	1,364.91
MH-189	1,379.82	1,367.59	12.23	21,970	1,367.69	1,367.69
MH-190	1,375.69	1,368.02	7.67	22,680	1,368.12	1,368.12
MH-191	1,375.00	1,366.91	8.09	22,680	1,367.01	1,367.01
MH-192	1,374.00	1,366.23	7.77	22,680	1,366.34	1,366.34
MH-193	1,380.01	1,372.34	7.67	22,680	1,372.42	1,372.42
MH-194	1,380.00	1,372.33	7.67	10,985	1,372.41	1,372.41
MH-195	1,380.00	1,368.88	11.12	21,970	1,368.98	1,368.98
MH-196	1,378.11	1,370.44	7.67	10,985	1,370.51	1,370.51

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-197	1,380.00	1,369.62	10.38	10,985	1,369.69	1,369.69
MH-198	1,370.00	1,362.23	7.77	15,660	1,362.31	1,362.31
MH-199	1,375.31	1,367.64	7.67	10,368	1,367.70	1,367.70
MH-200	1,372.96	1,365.20	7.77	10,368	1,365.27	1,365.27
MH-201	1,377.55	1,363.96	13.59	10,368	1,364.03	1,364.03
MH-202	1,360.63	1,349.69	10.95	56,612	1,349.85	1,349.85
MH-203	1,359.80	1,351.44	8.36	36,236	1,351.57	1,351.57
MH-204	1,361.78	1,352.76	9.01	36,236	1,352.89	1,352.89
MH-205	1,364.00	1,354.05	9.95	15,860	1,354.13	1,354.13
MH-206	1,363.00	1,355.33	7.67	15,860	1,355.42	1,355.42
MH-207	1,364.86	1,356.59	8.27	36,236	1,356.72	1,356.72
MH-208	1,365.98	1,358.21	7.77	15,860	1,358.30	1,358.30
MH-209	1,368.00	1,360.33	7.67	15,860	1,360.41	1,360.41
MH-210	1,370.82	1,360.49	10.33	13,520	1,360.57	1,360.57
MH-211	1,371.00	1,362.21	8.79	13,520	1,362.29	1,362.29
MH-212	1,371.00	1,363.33	7.67	13,520	1,363.41	1,363.41
MH-213	1,372.00	1,364.33	7.67	13,520	1,364.41	1,364.41
MH-214	1,374.00	1,363.08	10.93	71,130	1,363.25	1,363.25
MH-215	1,373.78	1,364.30	9.48	42,150	1,364.44	1,364.44
MH-216	1,376.07	1,365.90	10.17	42,150	1,366.03	1,366.03
MH-217	1,378.92	1,371.25	7.67	14,490	1,371.33	1,371.33
MH-218	1,376.90	1,369.13	7.77	14,490	1,369.20	1,369.20
MH-219	1,374.60	1,366.83	7.77	28,980	1,366.95	1,366.95
MH-220	1,375.00	1,365.60	9.40	28,980	1,365.71	1,365.71
MH-221	1,379.69	1,372.02	7.67	21,075	1,372.12	1,372.12
MH-222	1,378.50	1,370.73	7.77	21,075	1,370.82	1,370.82
MH-223	1,377.19	1,369.42	7.77	42,150	1,369.56	1,369.56
MH-224	1,376.07	1,368.30	7.77	42,150	1,368.43	1,368.43
MH-225	1,375.03	1,367.26	7.77	42,150	1,367.40	1,367.40
MH-226	1,386.00	1,378.33	7.67	11,700	1,378.39	1,378.39
MH-227	1,383.00	1,375.23	7.77	11,700	1,375.31	1,375.31
MH-228	1,381.68	1,373.91	7.77	23,400	1,373.99	1,373.99
MH-229	1,376.13	1,365.39	10.74	89,570	1,365.59	1,365.59
MH-230	1,379.00	1,367.14	11.86	89,570	1,367.34	1,367.34
MH-231	1,381.09	1,368.89	12.20	67,177	1,369.07	1,369.07
MH-232	1,382.72	1,370.64	12.08	67,177	1,370.82	1,370.82
MH-233	1,385.00	1,372.39	12.61	44,785	1,372.53	1,372.53
MH-234	1,384.20	1,374.14	10.06	44,785	1,374.28	1,374.28
MH-235	1,383.66	1,375.89	7.77	22,392	1,375.99	1,375.99
MH-236	1,386.45	1,378.78	7.67	22,392	1,378.87	1,378.87
MH-237	1,375.00	1,358.82	16.18	258,850	1,359.09	1,359.09
MH-238	1,375.60	1,359.34	16.26	258,850	1,359.61	1,359.61
MH-239	1,378.60	1,361.62	16.98	258,850	1,361.88	1,361.88
MH-240	1,395.24	1,381.83	13.41	17,810	1,381.90	1,381.90
MH-241	1,395.81	1,382.67	13.14	17,810	1,382.77	1,382.77
MH-242	1,398.16	1,388.81	9.36	8,905	1,388.87	1,388.87
MH-243	1,397.41	1,389.74	7.67	8,905	1,389.81	1,389.81
MH-244	1,392.48	1,384.81	7.67	8,905	1,384.88	1,384.88
MH-245	1,392.71	1,383.86	8.85	8,905	1,383.93	1,383.93

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-247	1,380.78	1,362.38	18.40	258,850	1,362.72	1,362.72
MH-248	1,383.69	1,363.14	20.55	241,083	1,363.47	1,363.47
MH-249	1,386.68	1,363.81	22.87	241,083	1,364.14	1,364.14
MH-250	1,388.41	1,364.57	23.84	0	1,364.57	1,364.57
MH-251	1,390.74	1,365.33	25.41	0	1,365.33	1,365.33
MH-252	1,387.28	1,365.76	21.52	241,083	1,366.04	1,366.04
MH-253	1,386.06	1,366.81	19.25	217,163	1,367.12	1,367.12
MH-254	1,389.87	1,370.54	19.33	114,940	1,370.77	1,370.77
MH-255	1,390.58	1,372.29	18.29	114,940	1,372.52	1,372.52
MH-256	1,393.49	1,374.04	19.45	87,900	1,374.24	1,374.24
MH-257	1,393.87	1,375.79	18.08	60,860	1,375.96	1,375.96
MH-258	1,394.90	1,377.54	17.35	60,860	1,377.71	1,377.71
MH-259	1,396.06	1,379.29	16.77	31,105	1,379.41	1,379.41
MH-260	1,398.65	1,381.04	17.61	31,105	1,381.16	1,381.16
MH-261	1,400.60	1,382.79	17.81	22,540	1,382.89	1,382.89
MH-262	1,391.81	1,384.14	7.67	22,540	1,384.24	1,384.24
MH-263	1,396.95	1,389.18	7.77	16,380	1,389.27	1,389.27
MH-264	1,399.34	1,391.67	7.67	16,380	1,391.75	1,391.75
MH-265	1,394.75	1,386.98	7.77	17,290	1,387.07	1,387.07
MH-266	1,397.07	1,389.40	7.67	17,290	1,389.48	1,389.48
MH-267	1,393.03	1,385.36	7.67	17,290	1,385.44	1,385.44
MH-268	1,388.00	1,380.23	7.77	23,920	1,380.33	1,380.33
MH-269	1,392.36	1,384.37	8.00	11,960	1,384.43	1,384.43
MH-270	1,393.11	1,385.45	7.67	11,960	1,385.52	1,385.52
MH-271	1,391.14	1,382.61	8.53	9,750	1,382.68	1,382.68
MH-272	1,392.02	1,384.35	7.67	9,750	1,384.42	1,384.42
MH-273	1,389.08	1,381.42	7.67	9,750	1,381.48	1,381.48
MH-274	1,393.18	1,382.86	10.33	13,375	1,382.94	1,382.94
MH-275	1,392.29	1,384.62	7.67	8,565	1,384.69	1,384.69
MH-276	1,394.81	1,385.47	9.34	8,565	1,385.53	1,385.53
MH-277	1,394.19	1,386.52	7.67	8,565	1,386.59	1,386.59
MH-278	1,385.45	1,368.89	16.56	102,223	1,369.11	1,369.11
MH-279	1,386.77	1,370.64	16.12	84,457	1,370.84	1,370.84
MH-280	1,388.32	1,372.39	15.93	74,707	1,372.57	1,372.57
MH-281	1,389.51	1,374.14	15.37	47,190	1,374.29	1,374.29
MH-282	1,390.44	1,375.89	14.55	47,190	1,376.04	1,376.04
MH-283	1,392.54	1,377.64	14.90	22,815	1,377.74	1,377.74
MH-284	1,388.62	1,379.39	9.23	22,815	1,379.49	1,379.49
MH-285	1,388.11	1,380.44	7.67	9,750	1,380.51	1,380.51
MH-286	1,390.23	1,381.26	8.97	9,750	1,381.33	1,381.33
MH-287	1,390.68	1,383.01	7.67	9,750	1,383.08	1,383.08
MH-288	1,390.00	1,382.24	7.77	10,595	1,382.31	1,382.31
MH-289	1,391.87	1,384.20	7.67	9,035	1,384.26	1,384.26
MH-290	1,392.20	1,384.44	7.77	9,035	1,384.49	1,384.49
MH-291	1,394.03	1,386.36	7.67	9,035	1,386.42	1,386.42
MH-292	1,383.24	1,375.09	8.16	17,767	1,375.18	1,375.18
MH-293	1,384.50	1,376.84	7.67	17,767	1,376.93	1,376.93
MH-294	1,386.89	1,378.76	8.13	17,767	1,378.85	1,378.85
MH-295	1,388.17	1,380.51	7.67	17,767	1,380.60	1,380.60

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-296	1,391.82	1,381.66	10.17	13,780	1,381.74	1,381.74
MH-297	1,391.07	1,383.41	7.67	13,780	1,383.49	1,383.49
MH-298	1,389.15	1,380.32	8.82	13,780	1,380.40	1,380.40
MH-299	1,389.74	1,382.07	7.67	13,780	1,382.15	1,382.15
MH-300	1,381.47	1,373.70	7.77	17,767	1,373.79	1,373.79
MH-301	1,383.19	1,375.53	7.67	17,767	1,375.61	1,375.61
MH-302	1,370.79	1,363.12	7.67	8,192	1,363.19	1,363.19
MH-303	1,373.90	1,361.70	12.19	8,192	1,361.76	1,361.76
MH-304	1,367.23	1,359.46	7.77	8,192	1,359.52	1,359.52
MH-305	1,364.62	1,356.85	7.77	8,192	1,356.91	1,356.91
MH-306	1,364.00	1,355.91	8.09	8,192	1,355.98	1,355.98
MH-307	1,365.00	1,357.33	7.67	8,192	1,357.40	1,357.40
MH-308	1,373.82	1,366.15	7.67	15,660	1,366.23	1,366.23
MH-309	1,399.68	1,391.91	7.77	17,420	1,391.98	1,391.98
MH-310	1,402.57	1,394.90	7.67	17,420	1,394.97	1,394.97
MH-311	1,376.00	1,364.19	11.81	0	1,364.19	1,364.19

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-1	8.0	295.4	0.013	0.0033	MH-1	1,372.33	7.00	MH-2	1,371.36	7.97	15,336	0.93	4.4	351,922	12.6	448,636
CO-2	8.0	372.1	0.013	0.0033	MH-2	1,371.26	8.07	MH-35	1,370.03	7.37	15,336	0.93	4.4	351,922	12.6	448,636
CO-3	8.0	203.5	0.013	0.0081	MH-3	1,367.30	7.10	MH-4	1,365.66	7.00	15,336	1.27	2.8	551,079	10.2	702,525
CO-4	8.0	267.9	0.013	0.0033	MH-4	1,365.56	7.10	MH-5	1,364.67	11.27	15,336	0.93	4.4	351,922	12.6	448,636
CO-5	8.0	453.3	0.013	0.0047	MH-5	1,364.57	11.37	MH-6	1,362.46	11.32	32,832	1.31	7.9	418,101	16.8	533,002
CO-6	8.0	310.3	0.013	0.0033	MH-6	1,362.36	11.42	MH-36	1,361.34	11.00	59,832	1.38	17.0	351,922	24.7	448,636
CO-7	8.0	194.0	0.013	0.0033	MH-7	1,360.01	8.33	MH-8	1,359.37	7.97	71,496	1.45	20.3	351,922	27.0	448,636
CO-8	8.0	127.9	0.013	0.0033	MH-8	1,359.27	8.07	MH-9	1,358.85	7.50	88,392	1.55	25.1	351,922	30.1	448,636
CO-9	8.0	311.7	0.013	0.0057	MH-9	1,358.75	7.60	MH-10	1,356.97	8.64	88,392	1.88	19.1	462,104	26.2	589,098
CO-10	10.0	246.2	0.013	0.0024	MH-10	1,356.71	8.74	MH-37	1,356.11	9.97	128,888	1.50	23.7	544,154	29.2	693,696
CO-11	10.0	442.6	0.013	0.0024	MH-11	1,355.07	7.10	MH-12	1,354.00	7.30	151,928	1.58	27.9	544,154	31.8	693,696
CO-12	10.0	449.9	0.013	0.0024	MH-12	1,353.90	7.40	MH-13	1,352.82	8.48	151,928	1.58	27.9	544,154	31.8	693,696
CO-13	10.0	346.0	0.013	0.0106	MH-13	1,352.72	8.58	OF-3 (EX MH-28280)	1,349.04	12.58	151,928	2.68	13.3	1,146,179	21.8	1,461,169
CO-14	8.0	453.3	0.013	0.0033	MH-14	1,370.33	7.00	MH-15	1,368.84	10.50	17,496	0.96	5.0	351,922	13.5	448,636
CO-15	8.0	496.8	0.013	0.0033	MH-15	1,368.74	10.60	MH-5	1,367.10	8.84	17,496	0.96	5.0	351,922	13.5	448,636
CO-16	8.0	491.5	0.013	0.0033	MH-16	1,361.46	7.00	MH-17	1,359.84	5.68	11,520	0.85	3.3	351,697	11.0	448,349
CO-17	8.0	401.5	0.013	0.0033	MH-17	1,359.74	5.78	MH-18	1,358.41	5.62	11,520	0.85	3.3	352,596	11.0	449,495
CO-18	8.0	500.0	0.013	0.0033	MH-18	1,358.31	5.72	MH-19	1,356.66	5.96	23,040	1.04	6.5	351,936	15.4	448,654
CO-19	8.0	301.7	0.013	0.0044	MH-19	1,356.56	6.06	MH-11	1,355.24	7.09	23,040	1.15	5.7	405,215	14.4	516,576
CO-20	8.0	419.5	0.013	0.0267	MH-20	1,378.55	7.00	MH-21	1,367.33	7.00	8,448	1.60	0.8	1,001,627	5.8	1,276,891
CO-21	8.0	374.8	0.013	0.0055	MH-21	1,367.23	7.10	MH-34	1,365.16	7.00	8,448	0.93	1.9	455,133	8.4	580,211
CO-22	8.0	383.4	0.013	0.0040	MH-22	1,363.23	7.10	MH-23	1,361.68	7.00	16,896	1.02	4.3	389,866	12.6	497,008
CO-23	8.0	526.6	0.013	0.0042	MH-23	1,361.58	7.10	MH-8	1,359.37	7.97	16,896	1.04	4.3	397,150	12.5	506,294
CO-24	8.0	281.6	0.013	0.0112	MH-24	1,365.33	7.00	MH-25	1,362.19	7.00	11,664	1.31	1.8	647,209	8.3	825,073
CO-25	8.0	400.1	0.013	0.0050	MH-25	1,362.09	7.10	MH-7	1,360.11	8.23	11,664	0.98	2.7	431,331	10.1	549,868
CO-26	8.0	317.7	0.013	0.0046	MH-26	1,369.18	7.00	MH-27	1,367.71	7.00	11,664	0.96	2.8	417,573	10.2	532,329
CO-27	8.0	398.9	0.013	0.0033	MH-27	1,367.61	7.10	MH-6	1,366.29	7.49	11,664	0.85	3.3	351,922	11.1	448,636
CO-28	8.0	268.5	0.013	0.0033	MH-28	1,365.33	7.00	MH-29	1,364.45	7.89	15,336	0.93	4.4	351,922	12.6	448,636
CO-29	8.0	498.0	0.013	0.0115	MH-29	1,364.35	7.99	MH-10	1,358.61	7.00	15,336	1.43	2.3	657,445	9.4	838,122
CO-30	8.0	413.9	0.013	0.0058	MH-30	1,366.36	7.00	MH-31	1,363.95	7.00	15,336	1.13	3.3	467,692	11.1	596,221
CO-31	8.0	419.8	0.013	0.0033	MH-31	1,363.85	7.10	MH-6	1,362.46	11.32	15,336	0.93	4.4	351,922	12.6	448,636
CO-32	8.0	493.3	0.013	0.0142	MH-32	1,365.33	7.00	MH-33	1,358.33	7.00	25,160	1.79	3.4	729,739	11.3	930,284
CO-33	8.0	382.2	0.013	0.0033	MH-33	1,358.23	7.10	MH-10	1,356.97	8.64	25,160	1.07	7.1	351,922	16.1	448,636
CO-34	8.0	415.4	0.013	0.0042	MH-34	1,365.06	7.10	MH-22	1,363.33	7.00	16,896	1.04	4.3	395,480	12.5	504,164
CO-35	8.0	262.9	0.013	0.0096	MH-35	1,369.93	7.47	MH-3	1,367.40	7.00	15,336	1.34	2.6	600,743	9.8	765,838
CO-36	8.0	342.0	0.013	0.0033	MH-36	1,361.24	11.10	MH-7	1,360.11	8.23	59,832	1.38	17.0	351,922	24.7	448,636
CO-37	10.0	350.3	0.013	0.0024	MH-37	1,356.01	10.07	MH-11	1,355.17	7.00	128,888	1.51	23.6	546,505	29.1	696,694
CO-38	8.0	363.4	0.013	0.0033	MH-38	1,360.83	7.00	MH-39	1,359.63	7.00	12,880	0.88	3.7	351,922	11.6	448,636

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-39	8.0	369.4	0.013	0.0033	MH-39	1,359.53	7.10	MH-40	1,358.32	9.14	12,880	0.88	3.7	351,922	11.6	448,636
CO-40	8.0	225.3	0.013	0.0033	MH-40	1,358.22	9.24	MH-41	1,357.47	11.56	12,880	0.88	3.7	351,922	11.6	448,636
CO-41	8.0	261.2	0.013	0.0045	MH-41	1,357.37	11.66	OF-4 (EX-MH-28282)	1,356.19	12.79	39,670	1.37	9.6	412,038	18.6	525,273
CO-42	8.0	378.4	0.013	0.0033	MH-42	1,367.33	7.00	MH-43	1,366.08	7.28	26,790	1.09	7.6	351,922	16.6	448,636
CO-43	8.0	498.7	0.013	0.0039	MH-43	1,365.98	7.38	MH-44	1,364.03	7.00	26,790	1.16	7.0	383,307	15.9	488,646
CO-44	8.0	498.3	0.013	0.0038	MH-44	1,363.93	7.10	MH-41	1,362.03	7.00	26,790	1.15	7.1	378,005	16.0	481,887
CO-45	8.0	500.0	0.013	0.0033	MH-45	1,343.99	8.62	OF-1 (EX-MH-28278)	1,342.34	10.10	88,376	1.55	25.1	351,922	30.1	448,636
CO-46	8.0	500.0	0.013	0.0033	MH-46	1,345.74	8.73	MH-45	1,344.09	8.52	41,728	1.24	11.9	351,922	20.6	448,636
CO-47	8.0	500.0	0.013	0.0033	MH-47	1,347.49	7.10	MH-46	1,345.84	8.63	41,728	1.24	9.3	448,636	20.6	448,636
CO-48	8.0	364.8	0.013	0.0033	MH-48	1,348.79	7.10	MH-47	1,347.59	7.00	31,296	1.14	7.0	448,671	17.9	448,671
CO-49	8.0	282.5	0.013	0.0037	MH-49	1,349.93	7.10	MH-48	1,348.89	7.00	31,296	1.19	6.6	472,923	17.4	472,923
CO-50	8.0	277.1	0.013	0.0037	MH-50	1,351.04	7.10	MH-49	1,350.03	7.00	20,864	1.06	4.4	472,419	14.3	472,419
CO-51	8.0	355.2	0.013	0.0033	MH-51	1,352.32	7.10	MH-50	1,351.14	7.00	20,864	1.02	4.6	449,342	14.7	449,342
CO-52	8.0	500.0	0.013	0.0035	MH-52	1,354.17	7.10	MH-51	1,352.42	7.00	10,432	0.84	2.3	462,031	10.4	462,031
CO-53	8.0	500.0	0.013	0.0033	MH-53	1,355.92	7.10	MH-52	1,354.27	7.00	10,432	0.82	2.3	448,636	10.5	448,636
CO-54	8.0	320.6	0.013	0.0033	MH-54	1,362.24	9.09	MH-55	1,361.18	7.26	44,726	1.27	12.7	351,922	21.3	448,636
CO-55	8.0	334.2	0.013	0.0056	MH-55	1,361.08	7.36	MH-56	1,359.21	8.16	44,726	1.53	9.8	458,118	18.7	584,017
CO-56	8.0	384.5	0.013	0.0033	MH-56	1,359.11	8.26	MH-57	1,357.84	10.20	89,480	1.55	25.4	351,922	30.3	448,636
CO-57	8.0	412.3	0.013	0.0033	MH-57	1,357.74	10.30	MH-58	1,356.38	8.95	89,480	1.55	25.4	351,922	30.3	448,636
CO-58	10.0	500.0	0.013	0.0024	MH-58	1,352.80	12.37	MH-59	1,351.60	12.09	119,762	1.47	22.0	544,154	28.1	693,696
CO-59	10.0	225.4	0.013	0.0055	MH-59	1,351.50	12.19	MH-60	1,350.25	10.31	131,210	2.04	15.9	826,781	23.8	1,053,994
CO-60	10.0	490.5	0.013	0.0024	MH-60	1,350.15	10.41	MH-61	1,348.97	8.20	157,130	1.59	28.9	544,154	32.3	693,696
CO-61	10.0	217.6	0.013	0.0073	MH-61	1,348.87	8.30	MH-62	1,347.28	7.00	166,850	2.41	17.6	950,665	25.1	1,211,924
CO-62	10.0	298.8	0.013	0.0024	MH-62	1,347.18	7.10	MH-63	1,346.46	9.71	176,570	1.64	32.4	544,132	34.4	693,669
CO-63	12.0	498.4	0.013	0.0019	MH-63	1,346.29	9.71	OF-2 (EX-MH-28279)	1,345.34	12.05	206,580	1.56	26.2	788,568	30.8	1,005,280
CO-64	8.0	364.2	0.013	0.0033	MH-64	1,358.33	7.00	MH-65	1,357.13	9.52	15,005	0.92	4.3	351,922	12.5	448,636
CO-65	8.0	451.0	0.013	0.0057	MH-65	1,357.03	9.62	MH-66	1,354.48	7.00	15,005	1.11	3.3	460,628	11.0	587,217
CO-66	8.0	404.0	0.013	0.0082	MH-66	1,354.38	7.10	MH-67	1,351.08	7.00	30,010	1.55	5.4	553,772	14.1	705,958
CO-67	8.0	303.9	0.013	0.0054	MH-67	1,350.98	7.10	MH-63	1,349.33	7.00	30,010	1.35	6.7	451,024	15.5	574,973
CO-68	8.0	347.7	0.013	0.0081	MH-68	1,362.00	7.00	MH-69	1,359.20	7.00	15,810	1.28	2.9	550,429	10.4	701,696
CO-69	8.0	282.2	0.013	0.0033	MH-69	1,359.10	7.10	MH-70	1,358.17	7.17	15,810	0.93	4.5	351,922	12.8	448,636
CO-70	8.0	354.4	0.013	0.0033	MH-70	1,358.07	7.27	MH-58	1,356.90	8.44	15,810	0.93	4.5	351,922	12.8	448,636
CO-71	8.0	401.5	0.013	0.0050	MH-71	1,364.33	7.00	MH-72	1,362.33	7.00	15,810	1.08	3.7	432,351	11.6	551,169
CO-72	8.0	247.2	0.013	0.0036	MH-72	1,362.23	7.10	MH-73	1,361.33	7.00	15,810	0.97	4.3	369,671	12.5	471,263
CO-73	8.0	315.3	0.013	0.0064	MH-73	1,361.23	7.10	MH-56	1,359.21	8.16	15,810	1.18	3.2	490,329	11.0	625,079
CO-74	8.0	318.6	0.013	0.0063	MH-74	1,366.33	7.00	MH-75	1,364.33	7.00	11,270	1.05	2.3	485,389	9.4	618,783

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-75	8.0	220.1	0.013	0.0035	MH-75	1,364.23	7.10	MH-76	1,363.47	7.00	11,270	0.86	3.1	361,761	10.8	461,179
CO-76	8.0	310.6	0.013	0.0033	MH-76	1,363.37	7.10	MH-54	1,362.34	8.99	11,270	0.84	3.2	351,922	10.9	448,636
CO-77	8.0	198.9	0.013	0.0033	MH-77	1,352.48	7.00	MH-78	1,351.82	7.01	9,720	0.81	2.8	351,862	10.2	448,560
CO-78	8.0	499.0	0.013	0.0035	MH-78	1,351.82	7.01	MH-79	1,350.08	7.01	9,720	0.82	2.7	362,489	10.0	462,107
CO-79	8.0	500.6	0.013	0.0033	MH-79	1,349.98	7.11	MH-80	1,348.33	7.17	9,720	0.81	2.8	351,912	10.2	448,624
CO-80	8.0	267.0	0.013	0.0033	MH-80	1,348.23	7.27	MH-62	1,347.34	7.10	9,720	0.81	2.8	351,917	10.2	448,629
CO-81	8.0	381.6	0.013	0.0047	MH-81	1,352.14	7.00	MH-82	1,350.33	7.00	9,720	0.92	2.3	421,566	9.3	537,420
CO-82	8.0	279.0	0.013	0.0039	MH-82	1,350.23	7.10	MH-61	1,349.14	8.20	9,720	0.86	2.5	383,932	9.8	489,443
CO-83	8.0	456.6	0.013	0.0033	MH-83	1,357.93	7.00	MH-84	1,356.43	7.91	14,472	0.91	4.1	351,922	12.3	448,636
CO-84	8.0	279.0	0.013	0.0033	MH-84	1,356.33	8.01	MH-85	1,355.41	7.98	14,472	0.91	4.1	351,922	12.3	448,636
CO-85	8.0	320.6	0.013	0.0033	MH-85	1,355.31	8.08	MH-86	1,354.25	8.74	14,472	0.91	4.1	351,922	12.3	448,636
CO-86	8.0	405.5	0.013	0.0033	MH-86	1,354.15	8.84	MH-87	1,352.81	7.41	25,920	1.08	7.4	351,922	16.3	448,636
CO-87	8.0	325.6	0.013	0.0033	MH-87	1,352.71	7.51	MH-88	1,351.63	8.70	25,920	1.08	7.4	351,922	16.3	448,636
CO-88	8.0	339.3	0.013	0.0033	MH-88	1,351.53	8.80	MH-60	1,350.41	10.31	25,920	1.08	7.4	351,922	16.3	448,636
CO-89	8.0	262.9	0.013	0.0037	MH-89	1,356.30	7.00	MH-90	1,355.33	7.00	11,448	0.88	3.1	371,522	10.7	473,623
CO-90	8.0	405.9	0.013	0.0033	MH-90	1,355.23	7.10	MH-59	1,353.89	9.96	11,448	0.85	3.3	351,922	11.0	448,636
CO-91	8.0	428.3	0.013	0.0033	MH-91	1,355.96	7.00	MH-92	1,354.55	9.51	14,472	0.91	4.1	351,922	12.3	448,636
CO-92	8.0	419.4	0.013	0.0033	MH-92	1,354.45	9.61	MH-58	1,353.06	12.27	14,472	0.91	4.1	351,922	12.3	448,636
CO-93	8.0	411.3	0.013	0.0033	MH-93	1,364.53	7.00	MH-94	1,363.17	7.23	14,472	0.91	4.1	351,922	12.3	448,636
CO-94	8.0	425.8	0.013	0.0033	MH-94	1,360.62	9.78	MH-56	1,359.21	8.16	28,944	1.12	8.2	351,922	17.2	448,636
CO-95	8.0	331.9	0.013	0.0060	MH-95	1,366.33	7.00	MH-96	1,364.36	7.00	16,728	1.17	3.5	472,805	11.5	602,740
CO-96	8.0	437.6	0.013	0.0044	MH-96	1,364.26	7.10	MH-54	1,362.34	8.99	33,456	1.29	8.3	405,338	17.2	516,732
CO-97	8.0	424.0	0.013	0.0071	MH-97	1,365.33	7.00	MH-98	1,362.33	7.00	14,472	1.19	2.8	515,283	10.3	656,892
CO-98	8.0	459.0	0.013	0.0033	MH-98	1,362.23	7.10	MH-94	1,360.72	9.68	14,472	0.91	4.1	351,922	12.3	448,636
CO-99	8.0	326.1	0.013	0.0062	MH-99	1,368.52	7.00	MH-100	1,366.50	7.00	16,728	1.18	3.5	481,836	11.4	614,253
CO-100	8.0	432.0	0.013	0.0047	MH-100	1,366.40	7.10	MH-96	1,364.36	7.00	16,728	1.08	4.0	421,132	12.1	536,867
CO-101	21.0	600.0	0.013	0.0032	MH-101	1,323.89	8.11	OF-9 (EX-MH-25)	1,321.98	7.56	825,678	2.64	18.2	4,538,003	25.5	5,785,126
CO-102	21.0	600.0	0.013	0.0029	MH-102	1,325.73	6.99	MH-101	1,323.99	8.01	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-103	21.0	600.0	0.013	0.0029	MH-103	1,327.57	9.55	MH-102	1,325.83	6.89	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-104	21.0	600.0	0.013	0.0029	MH-104	1,329.41	11.31	MH-103	1,327.67	9.45	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-105	21.0	600.0	0.013	0.0029	MH-105	1,331.25	9.69	MH-104	1,329.51	11.21	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-106	21.0	238.6	0.013	0.0029	MH-106	1,332.05	8.67	MH-105	1,331.35	9.59	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-107	21.0	600.0	0.013	0.0029	MH-107	1,333.89	9.51	MH-106	1,332.15	8.57	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-108	21.0	600.0	0.013	0.0029	MH-108	1,335.73	11.84	MH-107	1,333.99	9.41	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-109	21.0	600.0	0.013	0.0029	MH-109	1,337.57	10.69	MH-108	1,335.83	11.74	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-110	21.0	600.0	0.013	0.0029	MH-110	1,339.41	13.94	MH-109	1,337.67	10.59	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-111	21.0	113.9	0.013	0.0029	MH-111	1,339.84	14.56	MH-110	1,339.51	13.84	825,678	2.55	19.1	4,325,799	26.1	5,514,604
CO-112	18.0	678.5	0.013	0.0096	MH-112	1,346.43	11.11	MH-111	1,339.94	14.71	715,202	3.80	13.7	5,208,462	22.2	6,639,839

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-113	18.0	177.1	0.013	0.0033	MH-113	1,347.11	10.88	MH-112	1,346.53	11.01	609,306	2.47	20.0	3,041,545	26.8	3,877,414
CO-114	18.0	491.4	0.013	0.0029	MH-114	1,349.77	11.34	MH-113	1,348.34	9.64	552,694	2.31	19.3	2,867,752	26.3	3,655,860
CO-115	18.0	293.0	0.013	0.0029	MH-115	1,350.72	11.87	MH-114	1,349.87	11.24	523,750	2.27	18.3	2,867,752	25.6	3,655,860
CO-116	18.0	511.1	0.013	0.0029	MH-116	1,352.30	12.32	MH-115	1,350.82	11.77	514,780	2.26	18.0	2,867,752	25.4	3,655,860
CO-117	18.0	501.9	0.013	0.0029	MH-117	1,353.85	12.97	MH-116	1,352.40	12.22	469,574	2.20	16.4	2,867,752	24.2	3,655,860
CO-118	18.0	292.2	0.013	0.0041	MH-118	1,355.16	13.08	MH-117	1,353.95	12.87	312,674	2.22	9.1	3,427,386	18.1	4,369,292
CO-119	18.0	591.1	0.013	0.0029	MH-119	1,356.98	13.52	MH-118	1,355.26	12.98	282,738	1.90	9.9	2,867,752	18.8	3,655,860
CO-120	8.0	260.6	0.013	0.0033	MH-120	1,361.41	7.10	MH-121	1,360.55	9.13	15,660	0.93	4.4	351,922	12.8	448,636
CO-121	8.0	476.3	0.013	0.0046	MH-121	1,360.45	9.23	MH-122	1,358.26	7.85	26,244	1.22	6.3	414,778	15.2	528,767
CO-122	8.0	500.0	0.013	0.0037	MH-122	1,358.16	7.95	MH-123	1,356.33	7.00	37,908	1.25	10.2	370,628	19.2	472,483
CO-123	8.0	323.5	0.013	0.0038	MH-123	1,356.23	7.10	MH-124	1,355.00	7.00	37,908	1.28	10.0	378,680	18.9	482,747
CO-124	8.0	449.4	0.013	0.0033	MH-124	1,352.85	9.15	MH-125	1,351.36	12.00	65,956	1.42	18.7	351,922	25.9	448,636
CO-125	8.0	500.0	0.013	0.0033	MH-125	1,351.26	12.10	MH-126	1,349.61	11.64	79,996	1.50	22.7	351,922	28.6	448,636
CO-126	8.0	500.0	0.013	0.0033	MH-126	1,349.51	11.74	MH-127	1,347.86	11.47	98,356	1.59	27.9	351,922	31.8	448,636
CO-127	10.0	167.2	0.013	0.0024	MH-127	1,347.60	11.57	MH-112	1,347.19	11.01	105,896	1.42	19.5	544,154	26.4	693,696
CO-128	8.0	480.6	0.013	0.0066	MH-128	1,353.94	7.00	MH-129	1,350.77	7.00	14,256	1.15	2.9	496,992	10.4	633,574
CO-129	8.0	499.2	0.013	0.0033	MH-129	1,344.25	13.52	MH-130	1,342.60	13.73	96,220	1.58	27.3	351,922	31.5	448,636
CO-130	8.0	497.8	0.013	0.0035	MH-130	1,342.50	13.83	MH-111	1,340.77	14.71	110,476	1.68	30.6	361,485	33.3	460,828
CO-131	8.0	220.6	0.013	0.0033	MH-131	1,354.33	7.00	MH-132	1,353.61	8.71	7,540	0.75	2.1	351,922	9.0	448,636
CO-132	8.0	412.0	0.013	0.0033	MH-132	1,353.51	8.81	MH-127	1,352.15	7.19	7,540	0.75	2.1	351,922	9.0	448,636
CO-133	8.0	283.6	0.013	0.0123	MH-133	1,359.06	7.00	MH-134	1,355.57	7.00	18,360	1.55	2.7	679,027	10.1	865,635
CO-134	8.0	474.7	0.013	0.0033	MH-134	1,355.47	7.10	MH-126	1,353.91	7.35	18,360	0.97	5.2	351,922	13.8	448,636
CO-135	8.0	329.9	0.013	0.0033	MH-135	1,357.33	7.00	MH-136	1,356.24	9.09	14,040	0.90	4.0	351,922	12.1	448,636
CO-136	8.0	387.5	0.013	0.0033	MH-136	1,356.14	9.19	MH-125	1,354.87	8.49	14,040	0.90	4.0	351,922	12.1	448,636
CO-137	8.0	387.3	0.013	0.0059	MH-137	1,357.63	7.00	MH-138	1,355.33	7.00	11,664	1.04	2.5	471,832	9.7	601,499
CO-138	8.0	308.1	0.013	0.0033	MH-138	1,355.23	7.10	MH-139	1,354.22	8.12	11,664	0.85	3.3	351,922	11.1	448,636
CO-139	8.0	113.1	0.013	0.0064	MH-139	1,354.12	8.22	MH-155	1,353.39	7.94	11,664	1.08	2.4	490,065	9.5	624,744
CO-140	8.0	337.7	0.013	0.0036	MH-140	1,360.91	7.00	MH-141	1,359.70	7.00	11,664	0.87	3.2	365,687	10.9	466,184
CO-141	8.0	406.2	0.013	0.0033	MH-141	1,359.60	7.10	MH-122	1,358.26	7.85	11,664	0.85	3.3	351,922	11.1	448,636
CO-142	8.0	412.5	0.013	0.0033	MH-142	1,353.11	7.00	MH-143	1,351.75	10.57	13,909	0.90	4.0	351,922	12.1	448,636
CO-143	8.0	450.5	0.013	0.0033	MH-143	1,351.65	10.67	MH-144	1,350.16	9.17	54,145	1.34	15.4	351,922	23.4	448,636
CO-144	8.0	583.4	0.013	0.0033	MH-144	1,350.06	9.27	MH-145	1,348.14	12.86	68,055	1.44	19.3	351,922	26.3	448,636
CO-145	8.0	499.7	0.013	0.0033	MH-145	1,348.04	12.96	MH-146	1,346.39	12.55	68,055	1.44	19.3	351,922	26.3	448,636
CO-146	8.0	381.3	0.013	0.0033	MH-146	1,346.29	12.65	MH-147	1,345.03	12.30	81,964	1.51	23.3	351,922	29.0	448,636
CO-147	8.0	175.3	0.013	0.0033	MH-147	1,344.93	12.40	MH-129	1,344.35	13.42	81,964	1.51	23.3	351,922	29.0	448,636
CO-148	8.0	452.6	0.013	0.0067	MH-148	1,360.33	7.00	MH-149	1,357.31	7.00	12,288	1.10	2.5	500,929	9.6	638,593
CO-149	8.0	475.5	0.013	0.0033	MH-149	1,357.21	7.10	MH-150	1,355.64	9.56	12,288	0.87	3.5	351,922	11.4	448,636
CO-150	8.0	237.9	0.013	0.0033	MH-150	1,355.54	9.66	MH-143	1,354.75	7.57	40,236	1.23	11.4	351,922	20.2	448,636
CO-151	8.0	433.4	0.013	0.0033	MH-151	1,354.82	8.68	MH-155	1,353.39	7.94	16,384	0.94	4.7	351,922	13.1	448,636

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-152	8.0	455.2	0.013	0.0048	MH-152	1,363.87	7.00	MH-153	1,361.67	7.00	12,288	0.99	2.9	425,140	10.4	541,976
CO-153	8.0	500.0	0.013	0.0033	MH-153	1,361.57	7.10	MH-154	1,359.92	7.43	12,288	0.87	3.5	351,922	11.4	448,636
CO-154	8.0	105.3	0.013	0.0033	MH-155	1,353.29	8.04	MH-124	1,352.95	9.05	28,048	1.11	8.0	351,922	16.9	448,636
CO-155	8.0	409.7	0.013	0.0038	MH-154	1,359.82	7.53	MH-157	1,358.26	7.00	27,948	1.16	7.4	378,429	16.3	482,428
CO-156	8.0	273.5	0.013	0.0084	MH-156	1,362.23	7.10	MH-154	1,359.92	7.43	15,660	1.29	2.8	563,000	10.2	717,722
CO-157	8.0	419.9	0.013	0.0033	MH-157	1,358.16	7.10	MH-150	1,356.77	8.42	27,948	1.11	7.9	351,922	16.9	448,636
CO-158	8.0	203.3	0.013	0.0033	MH-158	1,363.33	7.00	MH-159	1,362.66	7.84	10,584	0.83	3.0	351,922	10.6	448,636
CO-159	8.0	482.8	0.013	0.0042	MH-159	1,362.56	7.94	MH-121	1,360.55	9.13	10,584	0.90	2.7	395,824	10.0	504,604
CO-160	8.0	438.2	0.013	0.0050	MH-160	1,364.51	7.10	MH-198	1,362.33	7.00	15,660	1.07	3.6	432,056	11.6	550,792
CO-161	8.0	357.4	0.013	0.0033	MH-161	1,363.52	8.00	MH-156	1,362.33	7.00	15,660	0.93	4.4	352,839	12.8	449,805
CO-162	8.0	478.5	0.013	0.0033	MH-162	1,365.20	7.10	MH-161	1,363.62	7.90	15,660	0.93	4.4	351,922	12.8	448,636
CO-163	8.0	333.3	0.013	0.0128	MH-163	1,369.58	7.00	MH-162	1,365.30	7.00	15,660	1.49	2.3	694,260	9.3	885,055
CO-164	10.0	299.4	0.013	0.0024	MH-164	1,355.34	13.83	MH-117	1,354.62	12.87	156,900	1.59	28.8	544,154	32.3	693,696
CO-165	10.0	492.6	0.013	0.0024	MH-165	1,356.62	13.55	MH-164	1,355.44	13.73	156,900	1.59	28.8	544,154	32.3	693,696
CO-166	8.0	500.0	0.013	0.0033	MH-166	1,358.54	12.53	MH-165	1,356.89	13.45	89,570	1.55	25.5	351,922	30.3	448,636
CO-167	8.0	500.0	0.013	0.0033	MH-167	1,360.29	11.05	MH-166	1,358.64	12.43	89,570	1.55	25.5	351,922	30.3	448,636
CO-168	8.0	500.0	0.013	0.0033	MH-168	1,362.04	10.65	MH-167	1,360.39	10.95	89,570	1.55	25.5	351,922	30.3	448,636
CO-169	8.0	174.1	0.013	0.0033	MH-169	1,360.10	7.74	MH-170	1,359.53	7.90	10,584	0.83	3.0	351,922	10.6	448,636
CO-170	8.0	261.7	0.013	0.0033	MH-170	1,359.43	8.00	MH-171	1,358.57	8.77	10,584	0.83	3.0	351,922	10.6	448,636
CO-171	8.0	457.3	0.013	0.0033	MH-171	1,358.47	8.87	MH-172	1,356.96	9.44	10,584	0.83	3.0	351,922	10.6	448,636
CO-172	8.0	187.6	0.013	0.0033	MH-172	1,354.84	11.56	MH-173	1,354.22	8.37	28,944	1.12	8.2	351,922	17.2	448,636
CO-173	8.0	316.6	0.013	0.0033	MH-173	1,354.12	8.47	MH-174	1,353.08	10.25	28,944	1.12	8.2	351,922	17.2	448,636
CO-174	8.0	213.2	0.013	0.0033	MH-174	1,352.98	10.35	MH-114	1,352.27	9.67	28,944	1.12	8.2	351,922	17.2	448,636
CO-175	8.0	325.2	0.013	0.0105	MH-175	1,359.76	7.00	MH-176	1,356.33	7.00	18,360	1.47	2.9	629,142	10.5	802,042
CO-176	8.0	391.1	0.013	0.0033	MH-176	1,356.23	7.10	MH-172	1,354.94	11.46	18,360	0.97	5.2	351,922	13.8	448,636
CO-177	8.0	328.4	0.013	0.0052	MH-177	1,363.41	7.00	MH-178	1,361.70	7.00	10,584	0.97	2.4	442,374	9.5	563,946
CO-178	8.0	423.6	0.013	0.0033	MH-178	1,361.60	7.10	MH-169	1,360.20	7.64	10,584	0.83	3.0	351,922	10.6	448,636
CO-179	8.0	307.8	0.013	0.0041	MH-179	1,361.59	7.00	MH-180	1,360.33	7.00	8,970	0.85	2.3	391,241	9.3	498,761
CO-180	8.0	497.4	0.013	0.0036	MH-180	1,360.23	7.10	MH-116	1,358.45	7.00	8,970	0.81	2.4	366,948	9.6	467,792
CO-181	8.0	281.4	0.013	0.0065	MH-181	1,359.33	7.00	MH-182	1,357.51	7.00	8,970	1.00	1.8	493,241	8.3	628,792
CO-182	8.0	359.7	0.013	0.0033	MH-182	1,357.41	7.10	MH-115	1,356.22	7.19	8,970	0.79	2.5	351,922	9.8	448,636
CO-183	8.0	210.7	0.013	0.0033	MH-183	1,363.64	7.00	MH-184	1,362.95	7.10	16,416	0.94	4.7	351,922	13.1	448,636
CO-184	8.0	497.3	0.013	0.0033	MH-184	1,362.85	7.20	MH-118	1,361.20	7.88	16,416	0.94	4.7	351,922	13.1	448,636
CO-185	8.0	348.3	0.013	0.0033	MH-165	1,360.54	9.79	MH-185	1,361.69	12.64	67,330	1.43	19.1	351,922	26.2	448,636
CO-186	8.0	456.1	0.013	0.0033	MH-186	1,363.64	10.26	MH-168	1,362.14	10.55	89,570	1.55	25.5	351,922	30.3	448,636
CO-187	8.0	462.7	0.013	0.0033	MH-185	1,361.79	12.54	MH-187	1,363.32	12.55	44,650	1.27	12.7	351,922	21.3	448,636
CO-188	8.0	409.0	0.013	0.0033	MH-187	1,363.42	12.45	MH-188	1,364.77	12.57	44,650	1.27	12.7	351,922	21.3	448,636
CO-189	8.0	408.6	0.013	0.0033	MH-188	1,366.24	11.09	MH-189	1,367.59	11.56	21,970	1.03	6.2	351,922	15.1	448,636
CO-190	8.0	305.1	0.013	0.0033	MH-190	1,368.02	7.00	MH-191	1,367.01	7.32	22,680	1.04	6.4	351,922	15.3	448,636

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-191	8.0	424.1	0.013	0.0033	MH-191	1,366.91	7.42	MH-185	1,365.51	8.82	22,680	1.04	6.4	351,922	15.3	448,636
CO-192	8.0	414.4	0.013	0.0033	MH-188	1,364.87	12.47	MH-192	1,366.23	7.10	22,680	1.04	6.4	351,922	15.3	448,636
CO-193	8.0	347.6	0.013	0.0173	MH-192	1,366.33	7.00	MH-193	1,372.34	7.00	22,680	1.86	2.8	805,244	10.3	1,026,540
CO-194	8.0	434.3	0.013	0.0033	MH-194	1,372.33	7.00	MH-195	1,370.90	8.43	10,985	0.84	3.1	351,922	10.8	448,636
CO-195	8.0	361.1	0.013	0.0033	MH-195	1,368.88	10.45	MH-189	1,367.69	11.46	21,970	1.03	6.2	351,922	15.1	448,636
CO-196	8.0	217.7	0.013	0.0033	MH-196	1,370.44	7.00	MH-197	1,369.72	9.61	10,985	0.84	3.1	351,922	10.8	448,636
CO-197	8.0	193.5	0.013	0.0033	MH-197	1,369.62	9.71	MH-195	1,368.98	10.35	10,985	0.84	3.1	351,922	10.8	448,636
CO-198	8.0	164.1	0.013	0.0044	MH-198	1,362.23	7.10	MH-120	1,361.51	7.00	15,660	1.03	3.8	407,607	11.9	519,625
CO-199	8.0	480.0	0.013	0.0049	MH-199	1,367.64	7.00	MH-200	1,365.30	7.00	10,368	0.95	2.4	427,928	9.5	545,530
CO-200	8.0	346.1	0.013	0.0033	MH-200	1,365.20	7.10	MH-201	1,364.06	12.83	10,368	0.82	2.9	351,922	10.5	448,636
CO-201	8.0	307.0	0.013	0.0033	MH-201	1,363.96	12.93	MH-119	1,362.94	8.39	10,368	0.82	2.9	351,922	10.5	448,636
CO-202	8.0	500.0	0.013	0.0033	MH-202	1,349.69	10.28	MH-113	1,348.04	10.78	56,612	1.36	16.1	351,922	24.0	448,636
CO-203	8.0	500.0	0.013	0.0033	MH-203	1,351.44	7.69	MH-202	1,349.79	10.18	36,236	1.19	10.3	351,922	19.3	448,636
CO-204	8.0	370.9	0.013	0.0033	MH-204	1,352.76	8.35	MH-203	1,351.54	7.59	36,236	1.19	10.3	351,922	19.3	448,636
CO-205	8.0	358.4	0.013	0.0033	MH-205	1,354.05	9.29	MH-204	1,352.86	8.25	15,860	0.94	4.5	351,922	12.9	448,636
CO-206	8.0	359.9	0.013	0.0033	MH-206	1,355.33	7.00	MH-205	1,354.15	9.19	15,860	0.94	4.5	351,922	12.9	448,636
CO-207	8.0	440.5	0.013	0.0033	MH-207	1,356.59	7.60	MH-116	1,355.14	10.31	36,236	1.19	10.3	351,922	19.3	448,636
CO-208	8.0	459.7	0.013	0.0033	MH-208	1,358.21	7.10	MH-207	1,356.69	7.50	15,860	0.94	4.5	351,922	12.9	448,636
CO-209	8.0	320.0	0.013	0.0063	MH-209	1,360.33	7.00	MH-208	1,358.31	7.00	15,860	1.17	3.3	486,840	11.0	620,632
CO-210	8.0	403.7	0.013	0.0033	MH-210	1,360.49	9.66	MH-118	1,359.16	9.92	13,520	0.89	3.8	351,922	11.9	448,636
CO-211	8.0	488.4	0.013	0.0033	MH-211	1,362.21	8.13	MH-210	1,360.59	9.56	13,520	0.89	3.8	351,922	11.9	448,636
CO-212	8.0	311.5	0.013	0.0033	MH-212	1,363.33	7.00	MH-211	1,362.31	8.03	13,520	0.89	3.8	351,922	11.9	448,636
CO-213	8.0	488.1	0.013	0.0033	MH-213	1,364.33	7.00	MH-119	1,362.72	8.61	13,520	0.89	3.8	351,922	11.9	448,636
CO-214	8.0	268.2	0.013	0.0033	MH-214	1,363.08	10.26	OF-5 (EX MH-28284)	1,362.19	12.78	71,130	1.45	15.9	448,583	26.9	448,583
CO-215	8.0	340.8	0.013	0.0033	MH-215	1,364.30	8.81	MH-214	1,363.18	10.16	42,150	1.25	9.4	448,681	20.7	448,681
CO-216	8.0	453.5	0.013	0.0033	MH-216	1,365.90	9.51	MH-215	1,364.40	8.71	42,150	1.25	9.4	448,548	20.7	448,548
CO-217	8.0	446.0	0.013	0.0045	MH-217	1,371.25	7.00	MH-218	1,369.23	7.00	14,490	1.02	3.5	412,547	11.4	525,922
CO-218	8.0	375.5	0.013	0.0059	MH-218	1,369.13	7.10	MH-219	1,366.93	7.00	14,490	1.11	3.1	468,685	10.7	597,488
CO-219	8.0	344.9	0.013	0.0033	MH-219	1,366.83	7.10	MH-220	1,365.70	8.64	28,980	1.12	8.2	351,922	17.2	448,636
CO-220	8.0	279.5	0.013	0.0033	MH-220	1,365.60	8.74	MH-214	1,364.67	8.66	28,980	1.12	8.2	351,922	17.2	448,636
CO-221	8.0	360.2	0.013	0.0033	MH-221	1,372.02	7.00	MH-222	1,370.83	7.01	21,075	1.02	4.7	449,638	14.7	449,638
CO-222	8.0	365.3	0.013	0.0033	MH-222	1,370.73	7.11	MH-223	1,369.52	7.00	21,075	1.02	4.7	448,737	14.8	448,737
CO-223	8.0	310.3	0.013	0.0033	MH-223	1,369.42	7.10	MH-224	1,368.40	7.01	42,150	1.25	9.4	448,616	20.7	448,616
CO-224	8.0	284.7	0.013	0.0033	MH-224	1,368.30	7.11	MH-225	1,367.36	7.01	42,150	1.25	9.4	448,535	20.7	448,535
CO-225	8.0	382.0	0.013	0.0033	MH-225	1,367.26	7.10	MH-216	1,366.00	9.41	42,150	1.25	9.4	449,394	20.7	449,394
CO-226	8.0	406.2	0.013	0.0074	MH-226	1,378.33	7.00	MH-227	1,375.33	7.00	11,700	1.13	2.2	526,451	9.2	671,128
CO-227	8.0	345.6	0.013	0.0035	MH-227	1,375.23	7.10	MH-228	1,374.01	7.00	11,700	0.87	3.2	364,615	10.9	464,817

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-228	8.0	485.9	0.013	0.0096	MH-228	1,373.91	7.10	OF-6 (EX MH 28286)	1,369.26	13.46	23,400	1.53	3.9	599,232	12.0	763,912
CO-229	8.0	500.0	0.013	0.0033	MH-186	1,363.74	10.16	MH-229	1,365.39	10.07	89,570	1.55	25.5	351,922	30.3	448,636
CO-230	8.0	500.0	0.013	0.0033	MH-229	1,365.49	9.97	MH-230	1,367.14	11.19	89,570	1.55	25.5	351,922	30.3	448,636
CO-231	8.0	500.0	0.013	0.0033	MH-230	1,367.24	11.09	MH-231	1,368.89	11.53	67,177	1.43	19.1	351,922	26.1	448,636
CO-232	8.0	500.0	0.013	0.0033	MH-231	1,368.99	11.43	MH-232	1,370.64	11.42	67,177	1.43	19.1	351,922	26.1	448,636
CO-233	8.0	500.0	0.013	0.0033	MH-232	1,370.74	11.32	MH-233	1,372.39	11.94	44,785	1.27	12.7	351,922	21.3	448,636
CO-234	8.0	500.0	0.013	0.0033	MH-233	1,372.49	11.84	MH-234	1,374.14	9.39	44,785	1.27	12.7	351,922	21.3	448,636
CO-235	8.0	500.0	0.013	0.0033	MH-234	1,374.24	9.29	MH-235	1,375.89	7.10	22,392	1.04	6.4	351,922	15.2	448,636
CO-236	8.0	379.9	0.013	0.0073	MH-235	1,375.99	7.00	MH-236	1,378.78	7.00	22,392	1.37	4.3	525,062	12.5	669,359
CO-237	18.0	600.0	0.013	0.0029	MH-237	1,358.82	14.68	MH-119	1,357.08	13.42	258,850	1.85	9.0	2,867,752	18.0	3,655,860
CO-238	18.0	145.7	0.013	0.0029	MH-238	1,359.34	14.76	MH-237	1,358.92	14.58	258,850	1.85	9.0	2,867,752	18.0	3,655,860
CO-239	18.0	623.0	0.013	0.0035	MH-239	1,361.62	15.48	MH-238	1,359.44	14.66	258,850	1.98	8.2	3,150,117	17.2	4,015,825
CO-240	8.0	98.2	0.013	0.0292	MH-240	1,381.83	12.74	OF-7 (EX MH 27581)	1,378.96	15.87	17,810	2.08	1.7	1,046,563	8.1	1,334,176
CO-241	8.0	227.0	0.013	0.0033	MH-241	1,382.67	12.47	MH-240	1,381.93	12.64	17,810	0.97	5.1	351,922	13.6	448,636
CO-242	8.0	325.3	0.013	0.0033	MH-242	1,388.81	8.69	MH-241	1,387.73	7.41	8,905	0.79	2.5	351,922	9.8	448,636
CO-243	8.0	253.6	0.013	0.0033	MH-243	1,389.74	7.00	MH-242	1,388.91	8.59	8,905	0.79	2.5	351,922	9.8	448,636
CO-244	8.0	256.6	0.013	0.0033	MH-244	1,384.81	7.00	MH-245	1,383.96	8.08	8,905	0.79	2.5	351,922	9.8	448,636
CO-245	8.0	330.0	0.013	0.0033	MH-245	1,383.86	8.18	MH-241	1,382.77	12.37	8,905	0.79	2.5	351,922	9.8	448,636
CO-247	18.0	600.0	0.013	0.0011	MH-247	1,362.38	16.90	MH-239	1,361.72	15.38	258,850	1.31	11.5	2,251,577	22.9	2,251,577
CO-248	18.0	600.0	0.013	0.0011	MH-248	1,363.14	19.05	MH-247	1,362.48	16.80	241,083	1.29	10.7	2,251,577	22.1	2,251,577
CO-249	18.0	515.4	0.013	0.0011	MH-249	1,363.81	21.37	MH-248	1,363.24	18.95	241,083	1.29	10.7	2,251,587	22.1	2,251,587
CO-250	18.0	600.0	0.013	0.0011	MH-250	1,364.57	22.34	MH-249	1,363.91	21.27	0	0.00	0.0	2,251,577	(N/A)	2,251,577
CO-251	18.0	600.0	0.013	0.0011	MH-251	1,365.33	23.91	MH-250	1,364.67	22.24	0	0.00	0.0	2,251,577	(N/A)	2,251,577
CO-252	12.0	334.0	0.013	0.0041	MH-252	1,365.76	20.52	MH-249	1,364.41	21.27	241,083	2.13	20.9	1,150,800	27.4	1,467,060
CO-253	12.0	497.2	0.013	0.0019	MH-253	1,366.81	18.25	MH-252	1,365.86	20.42	217,163	1.58	27.6	787,304	31.6	1,003,669
CO-254	8.0	483.0	0.013	0.0033	MH-254	1,370.54	18.66	MH-253	1,368.95	16.44	114,940	1.66	32.7	351,922	34.5	448,636
CO-255	8.0	500.0	0.013	0.0033	MH-255	1,372.29	17.62	MH-254	1,370.64	18.56	114,940	1.66	32.7	351,922	34.5	448,636
CO-256	8.0	500.0	0.013	0.0033	MH-255	1,372.39	17.52	MH-256	1,374.04	18.78	87,900	1.54	25.0	351,922	30.0	448,636
CO-257	8.0	500.0	0.013	0.0033	MH-256	1,374.14	18.68	MH-257	1,375.79	17.41	60,860	1.39	17.3	351,922	24.9	448,636
CO-258	8.0	500.0	0.013	0.0033	MH-257	1,375.89	17.31	MH-258	1,377.54	16.69	60,860	1.39	17.3	351,922	24.9	448,636
CO-259	8.0	500.0	0.013	0.0033	MH-258	1,377.64	16.59	MH-259	1,379.29	16.10	31,105	1.14	8.8	351,922	17.8	448,636
CO-260	8.0	500.0	0.013	0.0033	MH-259	1,379.39	16.00	MH-260	1,381.04	16.94	31,105	1.14	8.8	351,922	17.8	448,636
CO-261	8.0	500.0	0.013	0.0033	MH-260	1,381.14	16.84	MH-261	1,382.79	17.15	22,540	1.04	6.4	351,922	15.2	448,636
CO-262	8.0	378.5	0.013	0.0033	MH-261	1,382.89	17.05	MH-262	1,384.14	7.00	22,540	1.04	6.4	351,922	15.2	448,636
CO-263	8.0	500.0	0.013	0.0039	MH-263	1,389.18	7.10	MH-258	1,387.23	7.00	16,380	1.00	4.3	383,015	12.5	488,274
CO-264	8.0	500.0	0.013	0.0048	MH-264	1,391.67	7.00	MH-263	1,389.28	7.00	16,380	1.07	3.9	423,225	12.0	539,535
CO-265	8.0	500.0	0.013	0.0033	MH-265	1,386.98	7.10	MH-256	1,385.33	7.49	17,290	0.96	4.9	351,922	13.4	448,636

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-266	8.0	500.0	0.013	0.0046	MH-266	1,389.40	7.00	MH-265	1,387.08	7.00	17,290	1.08	4.1	417,350	12.3	532,045
CO-267	8.0	497.9	0.013	0.0049	MH-267	1,385.36	7.00	MH-255	1,382.91	7.00	17,290	1.11	4.0	429,681	12.2	547,765
CO-268	8.0	500.0	0.013	0.0033	MH-268	1,380.23	7.10	MH-252	1,378.58	8.03	23,920	1.06	6.8	351,922	15.7	448,636
CO-269	8.0	500.0	0.013	0.0081	MH-269	1,384.37	7.33	MH-268	1,380.33	7.00	11,960	1.17	2.2	550,566	9.1	701,871
CO-270	8.0	296.6	0.013	0.0033	MH-270	1,385.45	7.00	MH-269	1,384.47	7.23	11,960	0.86	3.4	351,922	11.2	448,636
CO-271	8.0	358.2	0.013	0.0033	MH-271	1,382.61	7.87	MH-256	1,381.43	11.39	9,750	0.81	2.8	351,922	10.2	448,636
CO-272	8.0	497.6	0.013	0.0033	MH-272	1,384.35	7.00	MH-271	1,382.71	7.77	9,750	0.81	2.8	351,922	10.2	448,636
CO-273	8.0	350.0	0.013	0.0033	MH-273	1,381.42	7.00	MH-255	1,380.26	9.65	9,750	0.81	2.8	351,922	10.2	448,636
CO-274	8.0	349.2	0.013	0.0033	MH-274	1,382.86	9.66	MH-258	1,381.70	12.53	13,375	0.89	3.8	351,922	11.9	448,636
CO-275	8.0	504.6	0.013	0.0033	MH-275	1,384.62	7.00	MH-274	1,382.96	9.56	8,565	0.77	2.4	351,922	9.6	448,636
CO-276	8.0	374.2	0.013	0.0033	MH-276	1,385.47	8.67	MH-260	1,384.23	13.75	8,565	0.77	2.4	351,922	9.6	448,636
CO-277	8.0	289.6	0.013	0.0033	MH-277	1,386.52	7.00	MH-276	1,385.57	8.57	8,565	0.77	2.4	351,922	9.6	448,636
CO-278	8.0	499.9	0.013	0.0033	MH-278	1,368.89	15.89	MH-253	1,367.24	18.15	102,223	1.61	29.0	351,922	32.4	448,636
CO-279	8.0	500.0	0.013	0.0033	MH-279	1,370.64	15.46	MH-278	1,368.99	15.79	84,457	1.52	24.0	351,922	29.4	448,636
CO-280	8.0	500.0	0.013	0.0033	MH-280	1,372.39	15.26	MH-279	1,370.74	15.36	74,707	1.48	21.2	351,922	27.6	448,636
CO-281	8.0	500.0	0.013	0.0033	MH-281	1,374.14	14.70	MH-280	1,372.49	15.16	47,190	1.29	13.4	351,922	21.9	448,636
CO-282	8.0	500.0	0.013	0.0033	MH-282	1,375.89	13.89	MH-281	1,374.24	14.60	47,190	1.29	13.4	351,922	21.9	448,636
CO-283	8.0	500.0	0.013	0.0033	MH-283	1,377.64	14.24	MH-282	1,375.99	13.79	22,815	1.04	6.5	351,922	15.3	448,636
CO-284	8.0	500.0	0.013	0.0033	MH-284	1,379.39	8.56	MH-283	1,377.74	14.14	22,815	1.04	6.5	351,922	15.3	448,636
CO-285	8.0	352.9	0.013	0.0038	MH-285	1,380.44	7.00	MH-279	1,379.10	7.00	9,750	0.85	2.6	377,764	9.9	481,581
CO-286	8.0	365.4	0.013	0.0033	MH-286	1,381.26	8.30	MH-280	1,380.05	7.60	9,750	0.81	2.8	351,922	10.2	448,636
CO-287	8.0	500.0	0.013	0.0033	MH-287	1,383.01	7.00	MH-286	1,381.36	8.20	9,750	0.81	2.8	351,922	10.2	448,636
CO-288	8.0	366.2	0.013	0.0033	MH-288	1,382.24	7.10	MH-282	1,381.03	8.75	10,595	0.83	3.0	351,922	10.6	448,636
CO-289	8.0	500.1	0.013	0.0037	MH-289	1,384.20	7.00	MH-288	1,382.34	7.00	9,035	0.83	2.4	373,880	9.5	476,629
CO-290	8.0	369.3	0.013	0.0094	MH-290	1,384.44	7.10	MH-284	1,380.96	7.00	9,035	1.13	1.5	594,914	7.7	758,407
CO-291	8.0	291.6	0.013	0.0063	MH-291	1,386.36	7.00	MH-290	1,384.54	7.00	9,035	0.99	1.9	484,584	8.4	617,756
CO-292	8.0	454.4	0.013	0.0033	MH-292	1,375.09	7.49	MH-278	1,373.59	11.19	17,767	0.97	5.0	351,922	13.6	448,636
CO-293	8.0	500.0	0.013	0.0033	MH-293	1,376.84	7.00	MH-292	1,375.19	7.39	17,767	0.97	5.0	351,922	13.6	448,636
CO-294	8.0	309.3	0.013	0.0033	MH-294	1,378.76	7.47	MH-280	1,377.73	9.92	17,767	0.97	5.0	351,922	13.6	448,636
CO-295	8.0	500.0	0.013	0.0033	MH-295	1,380.51	7.00	MH-294	1,378.86	7.37	17,767	0.97	5.0	351,922	13.6	448,636
CO-296	8.0	287.8	0.013	0.0033	MH-296	1,381.66	9.50	MH-282	1,380.71	9.07	13,780	0.90	3.9	351,922	12.0	448,636
CO-297	8.0	500.0	0.013	0.0033	MH-297	1,383.41	7.00	MH-296	1,381.76	9.40	13,780	0.90	3.9	351,922	12.0	448,636
CO-298	8.0	252.1	0.013	0.0033	MH-298	1,380.32	8.16	MH-284	1,379.49	8.46	13,780	0.90	3.9	351,922	12.0	448,636
CO-299	8.0	500.0	0.013	0.0033	MH-299	1,382.07	7.00	MH-298	1,380.42	8.06	13,780	0.90	3.9	351,922	12.0	448,636
CO-300	8.0	436.8	0.013	0.0033	MH-300	1,373.70	7.10	MH-247	1,372.26	7.85	17,767	0.97	5.0	351,922	13.6	448,636
CO-301	8.0	500.0	0.013	0.0034	MH-301	1,375.53	7.00	MH-300	1,373.80	7.00	17,767	0.98	4.9	359,765	13.4	458,635
CO-302	8.0	400.0	0.013	0.0033	MH-302	1,363.12	7.00	MH-303	1,361.80	11.43	8,192	0.77	2.3	351,922	9.4	448,636
CO-303	8.0	346.7	0.013	0.0062	MH-303	1,361.70	11.53	MH-304	1,359.56	7.00	8,192	0.96	1.7	481,383	8.1	613,675
CO-304	8.0	400.0	0.013	0.0063	MH-304	1,359.46	7.10	MH-305	1,356.95	7.00	8,192	0.96	1.7	485,695	8.0	619,173

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-305	8.0	400.0	0.013	0.0048	MH-305	1,356.85	7.10	MH-151	1,354.92	8.58	8,192	0.88	1.9	425,060	8.6	541,873
CO-306	8.0	300.0	0.013	0.0033	MH-306	1,355.91	7.42	MH-151	1,354.92	8.58	8,192	0.77	2.3	351,922	9.4	448,636
CO-307	8.0	400.0	0.013	0.0033	MH-307	1,357.33	7.00	MH-306	1,356.01	7.32	8,192	0.77	2.3	351,922	9.4	448,636
CO-308	8.0	300.0	0.013	0.0051	MH-308	1,366.15	7.00	MH-160	1,364.61	7.00	15,660	1.09	3.6	438,929	11.5	559,554
CO-309	8.0	500.0	0.013	0.0180	MH-309	1,391.91	7.10	OF-8 (EX MH 28291)	1,382.90	16.03	17,420	1.74	2.1	822,412	9.0	1,048,425
CO-310	8.0	410.0	0.013	0.0070	MH-310	1,394.90	7.00	MH-309	1,392.01	7.00	17,420	1.25	3.4	514,184	11.2	655,491
CO-311	10.0	722.5	0.013	0.0024	MH-311	1,364.19	10.98	OF-5 (EX MH-28284)	1,362.46	12.35	0	0.00	0.0	543,511	(N/A)	692,877

FlexTable: Outfall Table

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (gal/day)
OF-1 (EX-MH-28278)	1,353.11	1,342.34	1,342.51	88,376
OF-2 (EX-MH-28279)	1,358.39	1,345.34	1,345.57	206,580
OF-3 (EX MH-28280)	1,362.45	1,349.04	1,349.22	151,928
OF-4 (EX-MH-28282)	1,369.65	1,356.19	1,356.30	39,670
OF-5 (EX MH-28284)	1,375.64	1,362.19	1,362.46	71,130
OF-6 (EX MH 28286)	1,383.39	1,369.26	1,369.34	23,400
OF-7 (EX MH 27581)	1,395.50	1,378.96	1,379.01	17,810
OF-8 (EX MH 28291)	1,399.60	1,382.90	1,382.96	17,420
OF-9 (EX-MH-25)	1,331.29	1,321.98	1,322.39	825,678

PEAK FLOW

1. **Master Manhole Report** – This provides detailed information such as the rim elevation and structure depth of each manhole within the system.

2. **Master Pipe Report** – This provides detailed information such as the velocity, capacity, and percent full in each pipe in the system for the peak flow. Please note that the "Average Velocity" presented in the Master Pipe Report is actual velocity and not full flow velocity.

3. **Master Outlet Report** – This provides the invert, structure depth and flow at the outlet of the system.

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-1	1,380.00	1,372.33	7.67	46,008	1,372.48	1,372.48
MH-2	1,380.00	1,371.26	8.74	46,008	1,371.40	1,371.40
MH-3	1,375.07	1,367.30	7.77	46,008	1,367.42	1,367.42
MH-4	1,373.32	1,365.56	7.77	46,008	1,365.70	1,365.70
MH-5	1,376.61	1,364.57	12.04	98,496	1,364.77	1,364.77
MH-6	1,374.45	1,362.36	12.09	179,496	1,362.65	1,362.65
MH-7	1,369.00	1,360.01	8.99	214,488	1,360.33	1,360.33
MH-8	1,368.00	1,359.27	8.73	265,176	1,359.64	1,359.64
MH-9	1,367.02	1,358.75	8.27	265,176	1,359.06	1,359.06
MH-10	1,366.28	1,356.71	9.57	386,664	1,357.15	1,357.15
MH-11	1,363.00	1,355.07	7.93	455,784	1,355.56	1,355.56
MH-12	1,362.14	1,353.90	8.23	455,784	1,354.40	1,354.40
MH-13	1,362.14	1,352.72	9.41	455,784	1,353.09	1,353.09
MH-14	1,378.00	1,370.33	7.67	52,488	1,370.49	1,370.49
MH-15	1,380.00	1,368.74	11.26	52,488	1,368.89	1,368.89
MH-16	1,369.13	1,361.46	7.67	34,560	1,361.59	1,361.59
MH-17	1,366.19	1,359.74	6.45	34,560	1,359.87	1,359.87
MH-18	1,364.69	1,358.31	6.38	69,120	1,358.49	1,358.49
MH-19	1,363.29	1,356.56	6.73	69,120	1,356.72	1,356.72
MH-20	1,386.21	1,378.55	7.67	25,344	1,378.64	1,378.64
MH-21	1,375.00	1,367.23	7.77	25,344	1,367.33	1,367.33
MH-22	1,371.00	1,363.23	7.77	50,688	1,363.38	1,363.38
MH-23	1,369.35	1,361.58	7.77	50,688	1,361.72	1,361.72
MH-24	1,373.00	1,365.33	7.67	34,992	1,365.44	1,365.44
MH-25	1,369.86	1,362.09	7.77	34,992	1,362.20	1,362.20
MH-26	1,376.85	1,369.18	7.67	34,992	1,369.30	1,369.30
MH-27	1,375.37	1,367.61	7.77	34,992	1,367.73	1,367.73
MH-28	1,373.00	1,365.33	7.67	46,008	1,365.48	1,365.48
MH-29	1,373.00	1,364.35	8.65	46,008	1,364.47	1,364.47
MH-30	1,374.02	1,366.36	7.67	46,008	1,366.48	1,366.48
MH-31	1,371.61	1,363.85	7.77	46,008	1,363.99	1,363.99
MH-32	1,373.00	1,365.33	7.67	75,480	1,365.49	1,365.49
MH-33	1,366.00	1,358.23	7.77	75,480	1,358.42	1,358.42
MH-34	1,372.83	1,365.06	7.77	50,688	1,365.21	1,365.21
MH-35	1,378.07	1,369.93	8.14	46,008	1,370.05	1,370.05
MH-36	1,373.00	1,361.24	11.76	179,496	1,361.53	1,361.53
MH-37	1,366.92	1,356.01	10.90	386,664	1,356.46	1,356.46
MH-38	1,368.50	1,360.83	7.67	38,640	1,360.97	1,360.97
MH-39	1,367.30	1,359.53	7.77	38,640	1,359.67	1,359.67
MH-40	1,368.12	1,358.22	9.91	38,640	1,358.35	1,358.35
MH-41	1,369.70	1,357.37	12.33	119,010	1,357.59	1,357.59
MH-42	1,375.00	1,367.33	7.67	80,370	1,367.52	1,367.52
MH-43	1,374.04	1,365.98	8.05	80,370	1,366.17	1,366.17
MH-44	1,371.70	1,363.93	7.77	80,370	1,364.12	1,364.12
MH-45	1,353.27	1,343.99	9.28	265,128	1,344.36	1,344.36
MH-46	1,355.14	1,345.74	9.40	125,184	1,345.98	1,345.98
MH-47	1,355.26	1,347.49	7.77	125,184	1,347.73	1,347.73
MH-48	1,356.56	1,348.79	7.77	93,888	1,349.00	1,349.00
MH-49	1,357.70	1,349.93	7.77	93,888	1,350.13	1,350.13

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-50	1,358.81	1,351.04	7.77	62,592	1,351.21	1,351.21
MH-51	1,360.09	1,352.32	7.77	62,592	1,352.49	1,352.49
MH-52	1,361.94	1,354.17	7.77	31,296	1,354.29	1,354.29
MH-53	1,363.69	1,355.92	7.77	31,296	1,356.04	1,356.04
MH-54	1,372.00	1,362.24	9.76	134,178	1,362.49	1,362.49
MH-55	1,369.11	1,361.08	8.03	134,178	1,361.30	1,361.30
MH-56	1,368.04	1,359.11	8.93	268,440	1,359.49	1,359.49
MH-57	1,368.72	1,357.74	10.97	268,440	1,358.12	1,358.12
MH-58	1,366.00	1,352.80	13.20	359,286	1,353.22	1,353.22
MH-59	1,364.52	1,351.50	13.02	393,630	1,351.85	1,351.85
MH-60	1,361.39	1,350.15	11.24	471,390	1,350.65	1,350.65
MH-61	1,358.00	1,348.87	9.13	500,550	1,349.26	1,349.26
MH-62	1,355.11	1,347.18	7.93	529,710	1,347.72	1,347.72
MH-63	1,357.00	1,346.29	10.71	619,740	1,346.86	1,346.86
MH-64	1,366.00	1,358.33	7.67	45,015	1,358.48	1,358.48
MH-65	1,367.32	1,357.03	10.28	45,015	1,357.16	1,357.16
MH-66	1,362.15	1,354.38	7.77	90,030	1,354.55	1,354.55
MH-67	1,358.75	1,350.98	7.77	90,030	1,351.16	1,351.16
MH-68	1,369.67	1,362.00	7.67	47,430	1,362.13	1,362.13
MH-69	1,366.86	1,359.10	7.77	47,430	1,359.24	1,359.24
MH-70	1,366.00	1,358.07	7.93	47,430	1,358.21	1,358.21
MH-71	1,372.00	1,364.33	7.67	47,430	1,364.47	1,364.47
MH-72	1,370.00	1,362.23	7.77	47,430	1,362.38	1,362.38
MH-73	1,369.00	1,361.23	7.77	47,430	1,361.36	1,361.36
MH-74	1,374.00	1,366.33	7.67	33,810	1,366.44	1,366.44
MH-75	1,372.00	1,364.23	7.77	33,810	1,364.36	1,364.36
MH-76	1,371.13	1,363.37	7.77	33,810	1,363.49	1,363.49
MH-77	1,360.15	1,352.48	7.67	29,160	1,352.60	1,352.60
MH-78	1,359.50	1,351.82	7.68	29,160	1,351.94	1,351.94
MH-79	1,357.75	1,349.98	7.77	29,160	1,350.09	1,350.09
MH-80	1,356.16	1,348.23	7.94	29,160	1,348.34	1,348.34
MH-81	1,359.81	1,352.14	7.67	29,160	1,352.25	1,352.25
MH-82	1,358.00	1,350.23	7.77	29,160	1,350.34	1,350.34
MH-83	1,365.60	1,357.93	7.67	43,416	1,358.07	1,358.07
MH-84	1,365.00	1,356.33	8.67	43,416	1,356.47	1,356.47
MH-85	1,364.05	1,355.31	8.75	43,416	1,355.45	1,355.45
MH-86	1,363.65	1,354.15	9.51	77,760	1,354.33	1,354.33
MH-87	1,360.89	1,352.71	8.18	77,760	1,352.90	1,352.90
MH-88	1,361.00	1,351.53	9.47	77,760	1,351.72	1,351.72
MH-89	1,363.97	1,356.30	7.67	34,344	1,356.42	1,356.42
MH-90	1,363.00	1,355.23	7.77	34,344	1,355.36	1,355.36
MH-91	1,363.63	1,355.96	7.67	43,416	1,356.10	1,356.10
MH-92	1,364.73	1,354.45	10.28	43,416	1,354.59	1,354.59
MH-93	1,372.19	1,364.53	7.67	43,416	1,364.67	1,364.67
MH-94	1,371.07	1,360.62	10.45	86,832	1,360.82	1,360.82
MH-95	1,374.00	1,366.33	7.67	50,184	1,366.46	1,366.46
MH-96	1,372.02	1,364.26	7.77	100,368	1,364.46	1,364.46
MH-97	1,373.00	1,365.33	7.67	43,416	1,365.45	1,365.45
MH-98	1,370.00	1,362.23	7.77	43,416	1,362.37	1,362.37

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-99	1,376.18	1,368.52	7.67	50,184	1,368.64	1,368.64
MH-100	1,374.16	1,366.40	7.77	50,184	1,366.54	1,366.54
MH-101	1,333.76	1,323.89	9.86	2,477,034	1,324.69	1,324.69
MH-102	1,334.48	1,325.73	8.74	2,477,034	1,326.56	1,326.56
MH-103	1,338.87	1,327.57	11.30	2,477,034	1,328.40	1,328.40
MH-104	1,342.47	1,329.41	13.06	2,477,034	1,330.24	1,330.24
MH-105	1,342.70	1,331.25	11.44	2,477,034	1,332.08	1,332.08
MH-106	1,342.47	1,332.05	10.42	2,477,034	1,332.87	1,332.87
MH-107	1,345.14	1,333.89	11.26	2,477,034	1,334.71	1,334.71
MH-108	1,349.32	1,335.73	13.59	2,477,034	1,336.55	1,336.55
MH-109	1,350.01	1,337.57	12.44	2,477,034	1,338.39	1,338.39
MH-110	1,355.10	1,339.41	15.69	2,477,034	1,340.23	1,340.23
MH-111	1,356.14	1,339.84	16.31	2,477,034	1,340.66	1,340.66
MH-112	1,359.04	1,346.43	12.61	2,145,606	1,347.12	1,347.12
MH-113	1,359.48	1,347.11	12.38	1,827,918	1,347.83	1,347.83
MH-114	1,362.61	1,349.77	12.84	1,658,082	1,350.47	1,350.47
MH-115	1,364.08	1,350.72	13.37	1,571,250	1,351.40	1,351.40
MH-116	1,366.12	1,352.30	13.82	1,544,340	1,352.98	1,352.98
MH-117	1,368.33	1,353.85	14.47	1,408,722	1,354.50	1,354.50
MH-118	1,369.75	1,355.16	14.58	938,022	1,355.64	1,355.64
MH-119	1,372.00	1,356.98	15.02	848,214	1,357.47	1,357.47
MH-120	1,369.17	1,361.41	7.77	46,980	1,361.55	1,361.55
MH-121	1,370.35	1,360.45	9.90	78,732	1,360.62	1,360.62
MH-122	1,366.78	1,358.16	8.61	113,724	1,358.39	1,358.39
MH-123	1,364.00	1,356.23	7.77	113,724	1,356.45	1,356.45
MH-124	1,362.66	1,352.85	9.82	197,868	1,353.16	1,353.16
MH-125	1,364.02	1,351.26	12.76	239,988	1,351.61	1,351.61
MH-126	1,361.92	1,349.51	12.41	295,068	1,349.91	1,349.91
MH-127	1,360.00	1,347.60	12.40	317,688	1,347.99	1,347.99
MH-128	1,361.60	1,353.94	7.67	42,768	1,354.05	1,354.05
MH-129	1,358.44	1,344.25	14.19	288,660	1,344.64	1,344.64
MH-130	1,357.00	1,342.50	14.50	331,428	1,342.92	1,342.92
MH-131	1,362.00	1,354.33	7.67	22,620	1,354.44	1,354.44
MH-132	1,362.98	1,353.51	9.48	22,620	1,353.61	1,353.61
MH-133	1,366.72	1,359.06	7.67	55,080	1,359.19	1,359.19
MH-134	1,363.24	1,355.47	7.77	55,080	1,355.63	1,355.63
MH-135	1,365.00	1,357.33	7.67	42,120	1,357.47	1,357.47
MH-136	1,366.00	1,356.14	9.86	42,120	1,356.28	1,356.28
MH-137	1,365.30	1,357.63	7.67	34,992	1,357.74	1,357.74
MH-138	1,363.00	1,355.23	7.77	34,992	1,355.36	1,355.36
MH-139	1,363.00	1,354.12	8.88	34,992	1,354.22	1,354.22
MH-140	1,368.57	1,360.91	7.67	34,992	1,361.03	1,361.03
MH-141	1,367.37	1,359.60	7.77	34,992	1,359.73	1,359.73
MH-142	1,360.78	1,353.11	7.67	41,728	1,353.25	1,353.25
MH-143	1,362.99	1,351.65	11.34	162,436	1,351.93	1,351.93
MH-144	1,360.00	1,350.06	9.94	204,164	1,350.38	1,350.38
MH-145	1,361.66	1,348.04	13.63	204,164	1,348.35	1,348.35
MH-146	1,359.60	1,346.29	13.32	245,892	1,346.64	1,346.64
MH-147	1,358.00	1,344.93	13.07	245,892	1,345.28	1,345.28

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-148	1,368.00	1,360.33	7.67	36,864	1,360.44	1,360.44
MH-149	1,364.97	1,357.21	7.77	36,864	1,357.34	1,357.34
MH-150	1,365.86	1,355.54	10.32	120,708	1,355.77	1,355.77
MH-151	1,364.17	1,354.82	9.34	49,152	1,354.97	1,354.97
MH-152	1,371.53	1,363.87	7.67	36,864	1,363.98	1,363.98
MH-153	1,369.34	1,361.57	7.77	36,864	1,361.70	1,361.70
MH-154	1,368.02	1,359.82	8.20	83,844	1,360.01	1,360.01
MH-155	1,362.00	1,353.29	8.71	84,144	1,353.49	1,353.49
MH-156	1,370.00	1,362.23	7.77	46,980	1,362.36	1,362.36
MH-157	1,365.93	1,358.16	7.77	83,844	1,358.36	1,358.36
MH-158	1,371.00	1,363.33	7.67	31,752	1,363.45	1,363.45
MH-159	1,371.17	1,362.56	8.61	31,752	1,362.68	1,362.68
MH-160	1,372.28	1,364.51	7.77	46,980	1,364.64	1,364.64
MH-161	1,372.19	1,363.52	8.67	46,980	1,363.66	1,363.66
MH-162	1,372.96	1,365.20	7.77	46,980	1,365.34	1,365.34
MH-163	1,377.25	1,369.58	7.67	46,980	1,369.70	1,369.70
MH-164	1,370.00	1,355.34	14.66	470,700	1,355.84	1,355.84
MH-165	1,371.00	1,356.62	14.38	470,700	1,357.12	1,357.12
MH-166	1,371.74	1,358.54	13.20	268,710	1,358.91	1,358.91
MH-167	1,372.00	1,360.29	11.71	268,710	1,360.66	1,360.66
MH-168	1,373.35	1,362.04	11.32	268,710	1,362.41	1,362.41
MH-169	1,368.51	1,360.10	8.41	31,752	1,360.22	1,360.22
MH-170	1,368.09	1,359.43	8.66	31,752	1,359.55	1,359.55
MH-171	1,368.00	1,358.47	9.53	31,752	1,358.59	1,358.59
MH-172	1,367.07	1,354.84	12.22	86,832	1,355.04	1,355.04
MH-173	1,363.26	1,354.12	9.14	86,832	1,354.32	1,354.32
MH-174	1,364.00	1,352.98	11.02	86,832	1,353.18	1,353.18
MH-175	1,367.43	1,359.76	7.67	55,080	1,359.90	1,359.90
MH-176	1,364.00	1,356.23	7.77	55,080	1,356.39	1,356.39
MH-177	1,371.08	1,363.41	7.67	31,752	1,363.52	1,363.52
MH-178	1,369.37	1,361.60	7.77	31,752	1,361.72	1,361.72
MH-179	1,369.26	1,361.59	7.67	26,910	1,361.69	1,361.69
MH-180	1,368.00	1,360.23	7.77	26,910	1,360.34	1,360.34
MH-181	1,367.00	1,359.33	7.67	26,910	1,359.43	1,359.43
MH-182	1,365.18	1,357.41	7.77	26,910	1,357.52	1,357.52
MH-183	1,371.31	1,363.64	7.67	49,248	1,363.79	1,363.79
MH-184	1,370.71	1,362.85	7.87	49,248	1,362.99	1,362.99
MH-185	1,375.00	1,361.69	13.31	201,990	1,362.00	1,362.00
MH-186	1,374.57	1,363.64	10.93	268,710	1,364.01	1,364.01
MH-187	1,376.53	1,363.32	13.22	133,950	1,363.57	1,363.57
MH-188	1,378.00	1,364.77	13.23	133,950	1,365.02	1,365.02
MH-189	1,379.82	1,367.59	12.23	65,910	1,367.77	1,367.77
MH-190	1,375.69	1,368.02	7.67	68,040	1,368.19	1,368.19
MH-191	1,375.00	1,366.91	8.09	68,040	1,367.09	1,367.09
MH-192	1,374.00	1,366.23	7.77	68,040	1,366.41	1,366.41
MH-193	1,380.01	1,372.34	7.67	68,040	1,372.49	1,372.49
MH-194	1,380.00	1,372.33	7.67	32,955	1,372.46	1,372.46
MH-195	1,380.00	1,368.88	11.12	65,910	1,369.06	1,369.06
MH-196	1,378.11	1,370.44	7.67	32,955	1,370.56	1,370.56

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-197	1,380.00	1,369.62	10.38	32,955	1,369.75	1,369.75
MH-198	1,370.00	1,362.23	7.77	46,980	1,362.37	1,362.37
MH-199	1,375.31	1,367.64	7.67	31,104	1,367.75	1,367.75
MH-200	1,372.96	1,365.20	7.77	31,104	1,365.32	1,365.32
MH-201	1,377.55	1,363.96	13.59	31,104	1,364.07	1,364.07
MH-202	1,360.63	1,349.69	10.95	169,836	1,349.97	1,349.97
MH-203	1,359.80	1,351.44	8.36	108,708	1,351.66	1,351.66
MH-204	1,361.78	1,352.76	9.01	108,708	1,352.99	1,352.99
MH-205	1,364.00	1,354.05	9.95	47,580	1,354.19	1,354.19
MH-206	1,363.00	1,355.33	7.67	47,580	1,355.48	1,355.48
MH-207	1,364.86	1,356.59	8.27	108,708	1,356.82	1,356.82
MH-208	1,365.98	1,358.21	7.77	47,580	1,358.36	1,358.36
MH-209	1,368.00	1,360.33	7.67	47,580	1,360.46	1,360.46
MH-210	1,370.82	1,360.49	10.33	40,560	1,360.63	1,360.63
MH-211	1,371.00	1,362.21	8.79	40,560	1,362.34	1,362.34
MH-212	1,371.00	1,363.33	7.67	40,560	1,363.47	1,363.47
MH-213	1,372.00	1,364.33	7.67	40,560	1,364.47	1,364.47
MH-214	1,374.00	1,363.08	10.93	213,390	1,363.40	1,363.40
MH-215	1,373.78	1,364.30	9.48	126,450	1,364.54	1,364.54
MH-216	1,376.07	1,365.90	10.17	126,450	1,366.14	1,366.14
MH-217	1,378.92	1,371.25	7.67	43,470	1,371.38	1,371.38
MH-218	1,376.90	1,369.13	7.77	43,470	1,369.25	1,369.25
MH-219	1,374.60	1,366.83	7.77	86,940	1,367.03	1,367.03
MH-220	1,375.00	1,365.60	9.40	86,940	1,365.79	1,365.79
MH-221	1,379.69	1,372.02	7.67	63,225	1,372.19	1,372.19
MH-222	1,378.50	1,370.73	7.77	63,225	1,370.90	1,370.90
MH-223	1,377.19	1,369.42	7.77	126,450	1,369.66	1,369.66
MH-224	1,376.07	1,368.30	7.77	126,450	1,368.54	1,368.54
MH-225	1,375.03	1,367.26	7.77	126,450	1,367.50	1,367.50
MH-226	1,386.00	1,378.33	7.67	35,100	1,378.44	1,378.44
MH-227	1,383.00	1,375.23	7.77	35,100	1,375.36	1,375.36
MH-228	1,381.68	1,373.91	7.77	70,200	1,374.06	1,374.06
MH-229	1,376.13	1,365.39	10.74	268,710	1,365.76	1,365.76
MH-230	1,379.00	1,367.14	11.86	268,710	1,367.51	1,367.51
MH-231	1,381.09	1,368.89	12.20	201,533	1,369.21	1,369.21
MH-232	1,382.72	1,370.64	12.08	201,533	1,370.96	1,370.96
MH-233	1,385.00	1,372.39	12.61	134,355	1,372.64	1,372.64
MH-234	1,384.20	1,374.14	10.06	134,355	1,374.39	1,374.39
MH-235	1,383.66	1,375.89	7.77	67,177	1,376.07	1,376.07
MH-236	1,386.45	1,378.78	7.67	67,177	1,378.93	1,378.93
MH-237	1,375.00	1,358.82	16.18	776,550	1,359.29	1,359.29
MH-238	1,375.60	1,359.34	16.26	776,550	1,359.81	1,359.81
MH-239	1,378.60	1,361.62	16.98	776,550	1,362.07	1,362.07
MH-240	1,395.24	1,381.83	13.41	53,430	1,381.96	1,381.96
MH-241	1,395.81	1,382.67	13.14	53,430	1,382.83	1,382.83
MH-242	1,398.16	1,388.81	9.36	26,715	1,388.92	1,388.92
MH-243	1,397.41	1,389.74	7.67	26,715	1,389.85	1,389.85
MH-244	1,392.48	1,384.81	7.67	26,715	1,384.92	1,384.92
MH-245	1,392.71	1,383.86	8.85	26,715	1,383.97	1,383.97

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-247	1,380.78	1,362.38	18.40	776,550	1,362.99	1,362.99
MH-248	1,383.69	1,363.14	20.55	723,250	1,363.72	1,363.72
MH-249	1,386.68	1,363.81	22.87	723,250	1,364.39	1,364.39
MH-250	1,388.41	1,364.57	23.84	0	1,364.57	1,364.57
MH-251	1,390.74	1,365.33	25.41	0	1,365.33	1,365.33
MH-252	1,387.28	1,365.76	21.52	723,250	1,366.26	1,366.26
MH-253	1,386.06	1,366.81	19.25	651,490	1,367.39	1,367.39
MH-254	1,389.87	1,370.54	19.33	344,820	1,370.98	1,370.98
MH-255	1,390.58	1,372.29	18.29	344,820	1,372.73	1,372.73
MH-256	1,393.49	1,374.04	19.45	263,700	1,374.41	1,374.41
MH-257	1,393.87	1,375.79	18.08	182,580	1,376.09	1,376.09
MH-258	1,394.90	1,377.54	17.35	182,580	1,377.84	1,377.84
MH-259	1,396.06	1,379.29	16.77	93,315	1,379.50	1,379.50
MH-260	1,398.65	1,381.04	17.61	93,315	1,381.25	1,381.25
MH-261	1,400.60	1,382.79	17.81	67,620	1,382.97	1,382.97
MH-262	1,391.81	1,384.14	7.67	67,620	1,384.32	1,384.32
MH-263	1,396.95	1,389.18	7.77	49,140	1,389.33	1,389.33
MH-264	1,399.34	1,391.67	7.67	49,140	1,391.81	1,391.81
MH-265	1,394.75	1,386.98	7.77	51,870	1,387.13	1,387.13
MH-266	1,397.07	1,389.40	7.67	51,870	1,389.54	1,389.54
MH-267	1,393.03	1,385.36	7.67	51,870	1,385.50	1,385.50
MH-268	1,388.00	1,380.23	7.77	71,760	1,380.41	1,380.41
MH-269	1,392.36	1,384.37	8.00	35,880	1,384.47	1,384.47
MH-270	1,393.11	1,385.45	7.67	35,880	1,385.57	1,385.57
MH-271	1,391.14	1,382.61	8.53	29,250	1,382.73	1,382.73
MH-272	1,392.02	1,384.35	7.67	29,250	1,384.47	1,384.47
MH-273	1,389.08	1,381.42	7.67	29,250	1,381.53	1,381.53
MH-274	1,393.18	1,382.86	10.33	40,125	1,382.99	1,382.99
MH-275	1,392.29	1,384.62	7.67	25,695	1,384.73	1,384.73
MH-276	1,394.81	1,385.47	9.34	25,695	1,385.58	1,385.58
MH-277	1,394.19	1,386.52	7.67	25,695	1,386.63	1,386.63
MH-278	1,385.45	1,368.89	16.56	306,670	1,369.30	1,369.30
MH-279	1,386.77	1,370.64	16.12	253,370	1,371.00	1,371.00
MH-280	1,388.32	1,372.39	15.93	224,120	1,372.72	1,372.72
MH-281	1,389.51	1,374.14	15.37	141,570	1,374.40	1,374.40
MH-282	1,390.44	1,375.89	14.55	141,570	1,376.15	1,376.15
MH-283	1,392.54	1,377.64	14.90	68,445	1,377.82	1,377.82
MH-284	1,388.62	1,379.39	9.23	68,445	1,379.57	1,379.57
MH-285	1,388.11	1,380.44	7.67	29,250	1,380.55	1,380.55
MH-286	1,390.23	1,381.26	8.97	29,250	1,381.38	1,381.38
MH-287	1,390.68	1,383.01	7.67	29,250	1,383.13	1,383.13
MH-288	1,390.00	1,382.24	7.77	31,785	1,382.36	1,382.36
MH-289	1,391.87	1,384.20	7.67	27,105	1,384.31	1,384.31
MH-290	1,392.20	1,384.44	7.77	27,105	1,384.53	1,384.53
MH-291	1,394.03	1,386.36	7.67	27,105	1,386.46	1,386.46
MH-292	1,383.24	1,375.09	8.16	53,300	1,375.24	1,375.24
MH-293	1,384.50	1,376.84	7.67	53,300	1,376.99	1,376.99
MH-294	1,386.89	1,378.76	8.13	53,300	1,378.91	1,378.91
MH-295	1,388.17	1,380.51	7.67	53,300	1,380.66	1,380.66

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Depth (Structure) (ft)	Flow (Total Out) (gal/day)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
MH-296	1,391.82	1,381.66	10.17	41,340	1,381.79	1,381.79
MH-297	1,391.07	1,383.41	7.67	41,340	1,383.54	1,383.54
MH-298	1,389.15	1,380.32	8.82	41,340	1,380.46	1,380.46
MH-299	1,389.74	1,382.07	7.67	41,340	1,382.21	1,382.21
MH-300	1,381.47	1,373.70	7.77	53,300	1,373.86	1,373.86
MH-301	1,383.19	1,375.53	7.67	53,300	1,375.68	1,375.68
MH-302	1,370.79	1,363.12	7.67	24,576	1,363.23	1,363.23
MH-303	1,373.90	1,361.70	12.19	24,576	1,361.79	1,361.79
MH-304	1,367.23	1,359.46	7.77	24,576	1,359.55	1,359.55
MH-305	1,364.62	1,356.85	7.77	24,576	1,356.95	1,356.95
MH-306	1,364.00	1,355.91	8.09	24,576	1,356.02	1,356.02
MH-307	1,365.00	1,357.33	7.67	24,576	1,357.44	1,357.44
MH-308	1,373.82	1,366.15	7.67	46,980	1,366.28	1,366.28
MH-309	1,399.68	1,391.91	7.77	52,260	1,392.04	1,392.04
MH-310	1,402.57	1,394.90	7.67	52,260	1,395.03	1,395.03
MH-311	1,376.00	1,364.19	11.81	0	1,364.19	1,364.19

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-1	8.0	295.4	0.013	0.0033	MH-1	1,372.33	7.00	MH-2	1,371.36	7.97	46,008	1.28	13.1	351,922	21.6	448,636
CO-2	8.0	372.1	0.013	0.0033	MH-2	1,371.26	8.07	MH-35	1,370.03	7.37	46,008	1.28	13.1	351,922	21.6	448,636
CO-3	8.0	203.5	0.013	0.0081	MH-3	1,367.30	7.10	MH-4	1,365.66	7.00	46,008	1.76	8.3	551,079	17.3	702,525
CO-4	8.0	267.9	0.013	0.0033	MH-4	1,365.56	7.10	MH-5	1,364.67	11.27	46,008	1.28	13.1	351,922	21.6	448,636
CO-5	8.0	453.3	0.013	0.0047	MH-5	1,364.57	11.37	MH-6	1,362.46	11.32	98,496	1.80	23.6	418,101	29.1	533,002
CO-6	8.0	310.3	0.013	0.0033	MH-6	1,362.36	11.42	MH-36	1,361.34	11.00	179,496	1.88	51.0	351,922	44.0	448,636
CO-7	8.0	194.0	0.013	0.0033	MH-7	1,360.01	8.33	MH-8	1,359.37	7.97	214,488	1.97	60.9	351,922	48.7	448,636
CO-8	8.0	127.9	0.013	0.0033	MH-8	1,359.27	8.07	MH-9	1,358.85	7.50	265,176	2.07	75.4	351,922	55.3	448,636
CO-9	8.0	311.7	0.013	0.0057	MH-9	1,358.75	7.60	MH-10	1,356.97	8.64	265,176	2.54	57.4	462,104	47.0	589,098
CO-10	10.0	246.2	0.013	0.0024	MH-10	1,356.71	8.74	MH-37	1,356.11	9.97	386,664	2.02	71.1	544,154	53.4	693,696
CO-11	10.0	442.6	0.013	0.0024	MH-11	1,355.07	7.10	MH-12	1,354.00	7.30	455,784	2.10	83.8	544,154	59.1	693,696
CO-12	10.0	449.9	0.013	0.0024	MH-12	1,353.90	7.40	MH-13	1,352.82	8.48	455,784	2.10	83.8	544,154	59.1	693,696
CO-13	10.0	346.0	0.013	0.0106	MH-13	1,352.72	8.58	OF-3 (EX MH-28280)	1,349.04	12.58	455,784	3.67	39.8	1,146,179	38.3	1,461,169
CO-14	8.0	453.3	0.013	0.0033	MH-14	1,370.33	7.00	MH-15	1,368.84	10.50	52,488	1.33	14.9	351,922	23.1	448,636
CO-15	8.0	496.8	0.013	0.0033	MH-15	1,368.74	10.60	MH-5	1,367.10	8.84	52,488	1.33	14.9	351,922	23.1	448,636
CO-16	8.0	491.5	0.013	0.0033	MH-16	1,361.46	7.00	MH-17	1,359.84	5.68	34,560	1.18	9.8	351,697	18.8	448,349
CO-17	8.0	401.5	0.013	0.0033	MH-17	1,359.74	5.78	MH-18	1,358.41	5.62	34,560	1.18	9.8	352,596	18.8	449,495
CO-18	8.0	500.0	0.013	0.0033	MH-18	1,358.31	5.72	MH-19	1,356.66	5.96	69,120	1.44	19.6	351,936	26.5	448,654
CO-19	8.0	301.7	0.013	0.0044	MH-19	1,356.56	6.06	MH-11	1,355.24	7.09	69,120	1.59	17.1	405,215	24.7	516,576
CO-20	8.0	419.5	0.013	0.0267	MH-20	1,378.55	7.00	MH-21	1,367.33	7.00	25,344	2.24	2.5	1,001,627	9.8	1,276,891
CO-21	8.0	374.8	0.013	0.0055	MH-21	1,367.23	7.10	MH-34	1,365.16	7.00	25,344	1.29	5.6	455,133	14.2	580,211
CO-22	8.0	383.4	0.013	0.0040	MH-22	1,363.23	7.10	MH-23	1,361.68	7.00	50,688	1.42	13.0	389,866	21.6	497,008
CO-23	8.0	526.6	0.013	0.0042	MH-23	1,361.58	7.10	MH-8	1,359.37	7.97	50,688	1.44	12.8	397,150	21.4	506,294
CO-24	8.0	281.6	0.013	0.0112	MH-24	1,365.33	7.00	MH-25	1,362.19	7.00	34,992	1.81	5.4	647,209	14.1	825,073
CO-25	8.0	400.1	0.013	0.0050	MH-25	1,362.09	7.10	MH-7	1,360.11	8.23	34,992	1.37	8.1	431,331	17.1	549,868
CO-26	8.0	317.7	0.013	0.0046	MH-26	1,369.18	7.00	MH-27	1,367.71	7.00	34,992	1.33	8.4	417,573	17.4	532,329
CO-27	8.0	398.9	0.013	0.0033	MH-27	1,367.61	7.10	MH-6	1,366.29	7.49	34,992	1.18	9.9	351,922	18.9	448,636
CO-28	8.0	268.5	0.013	0.0033	MH-28	1,365.33	7.00	MH-29	1,364.45	7.89	46,008	1.28	13.1	351,922	21.6	448,636
CO-29	8.0	498.0	0.013	0.0115	MH-29	1,364.35	7.99	MH-10	1,358.61	7.00	46,008	1.99	7.0	657,445	15.9	838,122
CO-30	8.0	413.9	0.013	0.0058	MH-30	1,366.36	7.00	MH-31	1,363.95	7.00	46,008	1.57	9.8	467,692	18.8	596,221
CO-31	8.0	419.8	0.013	0.0033	MH-31	1,363.85	7.10	MH-6	1,362.46	11.32	46,008	1.28	13.1	351,922	21.6	448,636
CO-32	8.0	493.3	0.013	0.0142	MH-32	1,365.33	7.00	MH-33	1,358.33	7.00	75,480	2.47	10.3	729,739	19.3	930,284
CO-33	8.0	382.2	0.013	0.0033	MH-33	1,358.23	7.10	MH-10	1,356.97	8.64	75,480	1.48	21.4	351,922	27.7	448,636
CO-34	8.0	415.4	0.013	0.0042	MH-34	1,365.06	7.10	MH-22	1,363.33	7.00	50,688	1.43	12.8	395,480	21.4	504,164
CO-35	8.0	262.9	0.013	0.0096	MH-35	1,369.93	7.47	MH-3	1,367.40	7.00	46,008	1.87	7.7	600,743	16.6	765,838
CO-36	8.0	342.0	0.013	0.0033	MH-36	1,361.24	11.10	MH-7	1,360.11	8.23	179,496	1.88	51.0	351,922	44.0	448,636
CO-37	10.0	350.3	0.013	0.0024	MH-37	1,356.01	10.07	MH-11	1,355.17	7.00	386,664	2.03	70.8	546,505	53.2	696,694
CO-38	8.0	363.4	0.013	0.0033	MH-38	1,360.83	7.00	MH-39	1,359.63	7.00	38,640	1.22	11.0	351,922	19.8	448,636

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-39	8.0	369.4	0.013	0.0033	MH-39	1,359.53	7.10	MH-40	1,358.32	9.14	38,640	1.22	11.0	351,922	19.8	448,636
CO-40	8.0	225.3	0.013	0.0033	MH-40	1,358.22	9.24	MH-41	1,357.47	11.56	38,640	1.22	11.0	351,922	19.8	448,636
CO-41	8.0	261.2	0.013	0.0045	MH-41	1,357.37	11.66	OF-4 (EX-MH-28282)	1,356.19	12.79	119,010	1.88	28.9	412,038	32.3	525,273
CO-42	8.0	378.4	0.013	0.0033	MH-42	1,367.33	7.00	MH-43	1,366.08	7.28	80,370	1.51	22.8	351,922	28.6	448,636
CO-43	8.0	498.7	0.013	0.0039	MH-43	1,365.98	7.38	MH-44	1,364.03	7.00	80,370	1.60	21.0	383,307	27.5	488,646
CO-44	8.0	498.3	0.013	0.0038	MH-44	1,363.93	7.10	MH-41	1,362.03	7.00	80,370	1.59	21.3	378,005	27.6	481,887
CO-45	8.0	500.0	0.013	0.0033	MH-45	1,343.99	8.62	OF-1 (EX-MH-28278)	1,342.34	10.10	265,128	2.07	75.3	351,922	55.3	448,636
CO-46	8.0	500.0	0.013	0.0033	MH-46	1,345.74	8.73	MH-45	1,344.09	8.52	125,184	1.70	35.6	351,922	36.2	448,636
CO-47	8.0	500.0	0.013	0.0033	MH-47	1,347.49	7.10	MH-46	1,345.84	8.63	125,184	1.70	27.9	448,636	36.2	448,636
CO-48	8.0	364.8	0.013	0.0033	MH-48	1,348.79	7.10	MH-47	1,347.59	7.00	93,888	1.57	20.9	448,671	31.1	448,671
CO-49	8.0	282.5	0.013	0.0037	MH-49	1,349.93	7.10	MH-48	1,348.89	7.00	93,888	1.63	19.9	472,923	30.2	472,923
CO-50	8.0	277.1	0.013	0.0037	MH-50	1,351.04	7.10	MH-49	1,350.03	7.00	62,592	1.45	13.2	472,419	24.6	472,419
CO-51	8.0	355.2	0.013	0.0033	MH-51	1,352.32	7.10	MH-50	1,351.14	7.00	62,592	1.40	13.9	449,342	25.2	449,342
CO-52	8.0	500.0	0.013	0.0035	MH-52	1,354.17	7.10	MH-51	1,352.42	7.00	31,296	1.17	6.8	462,031	17.6	462,031
CO-53	8.0	500.0	0.013	0.0033	MH-53	1,355.92	7.10	MH-52	1,354.27	7.00	31,296	1.14	7.0	448,636	17.9	448,636
CO-54	8.0	320.6	0.013	0.0033	MH-54	1,362.24	9.09	MH-55	1,361.18	7.26	134,178	1.74	38.1	351,922	37.5	448,636
CO-55	8.0	334.2	0.013	0.0056	MH-55	1,361.08	7.36	MH-56	1,359.21	8.16	134,178	2.10	29.3	458,118	32.6	584,017
CO-56	8.0	384.5	0.013	0.0033	MH-56	1,359.11	8.26	MH-57	1,357.84	10.20	268,440	2.08	76.3	351,922	55.7	448,636
CO-57	8.0	412.3	0.013	0.0033	MH-57	1,357.74	10.30	MH-58	1,356.38	8.95	268,440	2.08	76.3	351,922	55.7	448,636
CO-58	10.0	500.0	0.013	0.0024	MH-58	1,352.80	12.37	MH-59	1,351.60	12.09	359,286	1.99	66.0	544,154	51.0	693,696
CO-59	10.0	225.4	0.013	0.0055	MH-59	1,351.50	12.19	MH-60	1,350.25	10.31	393,630	2.77	47.6	826,781	42.3	1,053,994
CO-60	10.0	490.5	0.013	0.0024	MH-60	1,350.15	10.41	MH-61	1,348.97	8.20	471,390	2.12	86.6	544,154	60.5	693,696
CO-61	10.0	217.6	0.013	0.0073	MH-61	1,348.87	8.30	MH-62	1,347.28	7.00	500,550	3.28	52.7	950,665	44.8	1,211,924
CO-62	10.0	298.8	0.013	0.0024	MH-62	1,347.18	7.10	MH-63	1,346.46	9.71	529,710	2.17	97.3	544,132	65.4	693,669
CO-63	12.0	498.4	0.013	0.0019	MH-63	1,346.29	9.71	OF-2 (EX-MH-28279)	1,345.34	12.05	619,740	2.08	78.6	788,568	56.8	1,005,280
CO-64	8.0	364.2	0.013	0.0033	MH-64	1,358.33	7.00	MH-65	1,357.13	9.52	45,015	1.27	12.8	351,922	21.4	448,636
CO-65	8.0	451.0	0.013	0.0057	MH-65	1,357.03	9.62	MH-66	1,354.48	7.00	45,015	1.54	9.8	460,628	18.8	587,217
CO-66	8.0	404.0	0.013	0.0082	MH-66	1,354.38	7.10	MH-67	1,351.08	7.00	90,030	2.14	16.3	553,772	24.1	705,958
CO-67	8.0	303.9	0.013	0.0054	MH-67	1,350.98	7.10	MH-63	1,349.33	7.00	90,030	1.86	20.0	451,024	26.8	574,973
CO-68	8.0	347.7	0.013	0.0081	MH-68	1,362.00	7.00	MH-69	1,359.20	7.00	47,430	1.77	8.6	550,429	17.6	701,696
CO-69	8.0	282.2	0.013	0.0033	MH-69	1,359.10	7.10	MH-70	1,358.17	7.17	47,430	1.29	13.5	351,922	22.0	448,636
CO-70	8.0	354.4	0.013	0.0033	MH-70	1,358.07	7.27	MH-58	1,356.90	8.44	47,430	1.29	13.5	351,922	22.0	448,636
CO-71	8.0	401.5	0.013	0.0050	MH-71	1,364.33	7.00	MH-72	1,362.33	7.00	47,430	1.49	11.0	432,351	19.8	551,169
CO-72	8.0	247.2	0.013	0.0036	MH-72	1,362.23	7.10	MH-73	1,361.33	7.00	47,430	1.34	12.8	369,671	21.4	471,263
CO-73	8.0	315.3	0.013	0.0064	MH-73	1,361.23	7.10	MH-56	1,359.21	8.16	47,430	1.64	9.7	490,329	18.6	625,079
CO-74	8.0	318.6	0.013	0.0063	MH-74	1,366.33	7.00	MH-75	1,364.33	7.00	33,810	1.47	7.0	485,389	15.9	618,783

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-75	8.0	220.1	0.013	0.0035	MH-75	1,364.23	7.10	MH-76	1,363.47	7.00	33,810	1.19	9.3	361,761	18.3	461,179
CO-76	8.0	310.6	0.013	0.0033	MH-76	1,363.37	7.10	MH-54	1,362.34	8.99	33,810	1.17	9.6	351,922	18.5	448,636
CO-77	8.0	198.9	0.013	0.0033	MH-77	1,352.48	7.00	MH-78	1,351.82	7.01	29,160	1.12	8.3	351,862	17.3	448,560
CO-78	8.0	499.0	0.013	0.0035	MH-78	1,351.82	7.01	MH-79	1,350.08	7.01	29,160	1.14	8.0	362,489	17.0	462,107
CO-79	8.0	500.6	0.013	0.0033	MH-79	1,349.98	7.11	MH-80	1,348.33	7.17	29,160	1.12	8.3	351,912	17.3	448,624
CO-80	8.0	267.0	0.013	0.0033	MH-80	1,348.23	7.27	MH-62	1,347.34	7.10	29,160	1.12	8.3	351,917	17.3	448,629
CO-81	8.0	381.6	0.013	0.0047	MH-81	1,352.14	7.00	MH-82	1,350.33	7.00	29,160	1.27	6.9	421,566	15.8	537,420
CO-82	8.0	279.0	0.013	0.0039	MH-82	1,350.23	7.10	MH-61	1,349.14	8.20	29,160	1.19	7.6	383,932	16.6	489,443
CO-83	8.0	456.6	0.013	0.0033	MH-83	1,357.93	7.00	MH-84	1,356.43	7.91	43,416	1.26	12.3	351,922	21.0	448,636
CO-84	8.0	279.0	0.013	0.0033	MH-84	1,356.33	8.01	MH-85	1,355.41	7.98	43,416	1.26	12.3	351,922	21.0	448,636
CO-85	8.0	320.6	0.013	0.0033	MH-85	1,355.31	8.08	MH-86	1,354.25	8.74	43,416	1.26	12.3	351,922	21.0	448,636
CO-86	8.0	405.5	0.013	0.0033	MH-86	1,354.15	8.84	MH-87	1,352.81	7.41	77,760	1.49	22.1	351,922	28.1	448,636
CO-87	8.0	325.6	0.013	0.0033	MH-87	1,352.71	7.51	MH-88	1,351.63	8.70	77,760	1.49	22.1	351,922	28.1	448,636
CO-88	8.0	339.3	0.013	0.0033	MH-88	1,351.53	8.80	MH-60	1,350.41	10.31	77,760	1.49	22.1	351,922	28.1	448,636
CO-89	8.0	262.9	0.013	0.0037	MH-89	1,356.30	7.00	MH-90	1,355.33	7.00	34,344	1.22	9.2	371,522	18.2	473,623
CO-90	8.0	405.9	0.013	0.0033	MH-90	1,355.23	7.10	MH-59	1,353.89	9.96	34,344	1.18	9.8	351,922	18.7	448,636
CO-91	8.0	428.3	0.013	0.0033	MH-91	1,355.96	7.00	MH-92	1,354.55	9.51	43,416	1.26	12.3	351,922	21.0	448,636
CO-92	8.0	419.4	0.013	0.0033	MH-92	1,354.45	9.61	MH-58	1,353.06	12.27	43,416	1.26	12.3	351,922	21.0	448,636
CO-93	8.0	411.3	0.013	0.0033	MH-93	1,364.53	7.00	MH-94	1,363.17	7.23	43,416	1.26	12.3	351,922	21.0	448,636
CO-94	8.0	425.8	0.013	0.0033	MH-94	1,360.62	9.78	MH-56	1,359.21	8.16	86,832	1.54	24.7	351,922	29.8	448,636
CO-95	8.0	331.9	0.013	0.0060	MH-95	1,366.33	7.00	MH-96	1,364.36	7.00	50,184	1.62	10.6	472,805	19.5	602,740
CO-96	8.0	437.6	0.013	0.0044	MH-96	1,364.26	7.10	MH-54	1,362.34	8.99	100,368	1.77	24.8	405,338	29.9	516,732
CO-97	8.0	424.0	0.013	0.0071	MH-97	1,365.33	7.00	MH-98	1,362.33	7.00	43,416	1.65	8.4	515,283	17.4	656,892
CO-98	8.0	459.0	0.013	0.0033	MH-98	1,362.23	7.10	MH-94	1,360.72	9.68	43,416	1.26	12.3	351,922	21.0	448,636
CO-99	8.0	326.1	0.013	0.0062	MH-99	1,368.52	7.00	MH-100	1,366.50	7.00	50,184	1.64	10.4	481,836	19.4	614,253
CO-100	8.0	432.0	0.013	0.0047	MH-100	1,366.40	7.10	MH-96	1,364.36	7.00	50,184	1.49	11.9	421,132	20.7	536,867
CO-101	21.0	600.0	0.013	0.0032	MH-101	1,323.89	8.11	OF-9 (EX-MH-25)	1,321.98	7.56	2,477,034	3.58	54.6	4,538,003	45.7	5,785,126
CO-102	21.0	600.0	0.013	0.0029	MH-102	1,325.73	6.99	MH-101	1,323.99	8.01	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-103	21.0	600.0	0.013	0.0029	MH-103	1,327.57	9.55	MH-102	1,325.83	6.89	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-104	21.0	600.0	0.013	0.0029	MH-104	1,329.41	11.31	MH-103	1,327.67	9.45	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-105	21.0	600.0	0.013	0.0029	MH-105	1,331.25	9.69	MH-104	1,329.51	11.21	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-106	21.0	238.6	0.013	0.0029	MH-106	1,332.05	8.67	MH-105	1,331.35	9.59	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-107	21.0	600.0	0.013	0.0029	MH-107	1,333.89	9.51	MH-106	1,332.15	8.57	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-108	21.0	600.0	0.013	0.0029	MH-108	1,335.73	11.84	MH-107	1,333.99	9.41	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-109	21.0	600.0	0.013	0.0029	MH-109	1,337.57	10.69	MH-108	1,335.83	11.74	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-110	21.0	600.0	0.013	0.0029	MH-110	1,339.41	13.94	MH-109	1,337.67	10.59	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-111	21.0	113.9	0.013	0.0029	MH-111	1,339.84	14.56	MH-110	1,339.51	13.84	2,477,034	3.45	57.3	4,325,799	47.0	5,514,604
CO-112	18.0	678.5	0.013	0.0096	MH-112	1,346.43	11.11	MH-111	1,339.94	14.71	2,145,606	5.19	41.2	5,208,462	39.1	6,639,839

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-113	18.0	177.1	0.013	0.0033	MH-113	1,347.11	10.88	MH-112	1,346.53	11.01	1,827,918	3.35	60.1	3,041,545	48.3	3,877,414
CO-114	18.0	491.4	0.013	0.0029	MH-114	1,349.77	11.34	MH-113	1,348.34	9.64	1,658,082	3.12	57.8	2,867,752	47.2	3,655,860
CO-115	18.0	293.0	0.013	0.0029	MH-115	1,350.72	11.87	MH-114	1,349.87	11.24	1,571,250	3.08	54.8	2,867,752	45.8	3,655,860
CO-116	18.0	511.1	0.013	0.0029	MH-116	1,352.30	12.32	MH-115	1,350.82	11.77	1,544,340	3.07	53.9	2,867,752	45.4	3,655,860
CO-117	18.0	501.9	0.013	0.0029	MH-117	1,353.85	12.97	MH-116	1,352.40	12.22	1,408,722	2.99	49.1	2,867,752	43.1	3,655,860
CO-118	18.0	292.2	0.013	0.0041	MH-118	1,355.16	13.08	MH-117	1,353.95	12.87	938,022	3.05	27.4	3,427,386	31.5	4,369,292
CO-119	18.0	591.1	0.013	0.0029	MH-119	1,356.98	13.52	MH-118	1,355.26	12.98	848,214	2.61	29.6	2,867,752	32.8	3,655,860
CO-120	8.0	260.6	0.013	0.0033	MH-120	1,361.41	7.10	MH-121	1,360.55	9.13	46,980	1.29	13.3	351,922	21.8	448,636
CO-121	8.0	476.3	0.013	0.0046	MH-121	1,360.45	9.23	MH-122	1,358.26	7.85	78,732	1.68	19.0	414,778	26.1	528,767
CO-122	8.0	500.0	0.013	0.0037	MH-122	1,358.16	7.95	MH-123	1,356.33	7.00	113,724	1.72	30.7	370,628	33.4	472,483
CO-123	8.0	323.5	0.013	0.0038	MH-123	1,356.23	7.10	MH-124	1,355.00	7.00	113,724	1.75	30.0	378,680	33.0	482,747
CO-124	8.0	449.4	0.013	0.0033	MH-124	1,352.85	9.15	MH-125	1,351.36	12.00	197,868	1.93	56.2	351,922	46.5	448,636
CO-125	8.0	500.0	0.013	0.0033	MH-125	1,351.26	12.10	MH-126	1,349.61	11.64	239,988	2.02	68.2	351,922	52.0	448,636
CO-126	8.0	500.0	0.013	0.0033	MH-126	1,349.51	11.74	MH-127	1,347.86	11.47	295,068	2.12	83.8	351,922	59.2	448,636
CO-127	10.0	167.2	0.013	0.0024	MH-127	1,347.60	11.57	MH-112	1,347.19	11.01	317,688	1.93	58.4	544,154	47.5	693,696
CO-128	8.0	480.6	0.013	0.0066	MH-128	1,353.94	7.00	MH-129	1,350.77	7.00	42,768	1.60	8.6	496,992	17.6	633,574
CO-129	8.0	499.2	0.013	0.0033	MH-129	1,344.25	13.52	MH-130	1,342.60	13.73	288,660	2.11	82.0	351,922	58.4	448,636
CO-130	8.0	497.8	0.013	0.0035	MH-130	1,342.50	13.83	MH-111	1,340.77	14.71	331,428	2.22	91.7	361,485	62.8	460,828
CO-131	8.0	220.6	0.013	0.0033	MH-131	1,354.33	7.00	MH-132	1,353.61	8.71	22,620	1.04	6.4	351,922	15.3	448,636
CO-132	8.0	412.0	0.013	0.0033	MH-132	1,353.51	8.81	MH-127	1,352.15	7.19	22,620	1.04	6.4	351,922	15.3	448,636
CO-133	8.0	283.6	0.013	0.0123	MH-133	1,359.06	7.00	MH-134	1,355.57	7.00	55,080	2.15	8.1	679,027	17.1	865,635
CO-134	8.0	474.7	0.013	0.0033	MH-134	1,355.47	7.10	MH-126	1,353.91	7.35	55,080	1.35	15.7	351,922	23.6	448,636
CO-135	8.0	329.9	0.013	0.0033	MH-135	1,357.33	7.00	MH-136	1,356.24	9.09	42,120	1.25	12.0	351,922	20.7	448,636
CO-136	8.0	387.5	0.013	0.0033	MH-136	1,356.14	9.19	MH-125	1,354.87	8.49	42,120	1.25	12.0	351,922	20.7	448,636
CO-137	8.0	387.3	0.013	0.0059	MH-137	1,357.63	7.00	MH-138	1,355.33	7.00	34,992	1.45	7.4	471,832	16.4	601,499
CO-138	8.0	308.1	0.013	0.0033	MH-138	1,355.23	7.10	MH-139	1,354.22	8.12	34,992	1.18	9.9	351,922	18.9	448,636
CO-139	8.0	113.1	0.013	0.0064	MH-139	1,354.12	8.22	MH-155	1,353.39	7.94	34,992	1.49	7.1	490,065	16.1	624,744
CO-140	8.0	337.7	0.013	0.0036	MH-140	1,360.91	7.00	MH-141	1,359.70	7.00	34,992	1.22	9.6	365,687	18.5	466,184
CO-141	8.0	406.2	0.013	0.0033	MH-141	1,359.60	7.10	MH-122	1,358.26	7.85	34,992	1.18	9.9	351,922	18.9	448,636
CO-142	8.0	412.5	0.013	0.0033	MH-142	1,353.11	7.00	MH-143	1,351.75	10.57	41,728	1.24	11.9	351,922	20.6	448,636
CO-143	8.0	450.5	0.013	0.0033	MH-143	1,351.65	10.67	MH-144	1,350.16	9.17	162,436	1.83	46.2	351,922	41.6	448,636
CO-144	8.0	583.4	0.013	0.0033	MH-144	1,350.06	9.27	MH-145	1,348.14	12.86	204,164	1.94	58.0	351,922	47.3	448,636
CO-145	8.0	499.7	0.013	0.0033	MH-145	1,348.04	12.96	MH-146	1,346.39	12.55	204,164	1.94	58.0	351,922	47.3	448,636
CO-146	8.0	381.3	0.013	0.0033	MH-146	1,346.29	12.65	MH-147	1,345.03	12.30	245,892	2.03	69.9	351,922	52.8	448,636
CO-147	8.0	175.3	0.013	0.0033	MH-147	1,344.93	12.40	MH-129	1,344.35	13.42	245,892	2.03	69.9	351,922	52.8	448,636
CO-148	8.0	452.6	0.013	0.0067	MH-148	1,360.33	7.00	MH-149	1,357.31	7.00	36,864	1.54	7.4	500,929	16.3	638,593
CO-149	8.0	475.5	0.013	0.0033	MH-149	1,357.21	7.10	MH-150	1,355.64	9.56	36,864	1.20	10.5	351,922	19.4	448,636
CO-150	8.0	237.9	0.013	0.0033	MH-150	1,355.54	9.66	MH-143	1,354.75	7.57	120,708	1.69	34.3	351,922	35.5	448,636
CO-151	8.0	433.4	0.013	0.0033	MH-151	1,354.82	8.68	MH-155	1,353.39	7.94	49,152	1.31	14.0	351,922	22.3	448,636

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-152	8.0	455.2	0.013	0.0048	MH-152	1,363.87	7.00	MH-153	1,361.67	7.00	36,864	1.37	8.7	425,140	17.7	541,976
CO-153	8.0	500.0	0.013	0.0033	MH-153	1,361.57	7.10	MH-154	1,359.92	7.43	36,864	1.20	10.5	351,922	19.4	448,636
CO-154	8.0	105.3	0.013	0.0033	MH-155	1,353.29	8.04	MH-124	1,352.95	9.05	84,144	1.52	23.9	351,922	29.4	448,636
CO-155	8.0	409.7	0.013	0.0038	MH-154	1,359.82	7.53	MH-157	1,358.26	7.00	83,844	1.60	22.2	378,429	28.2	482,428
CO-156	8.0	273.5	0.013	0.0084	MH-156	1,362.23	7.10	MH-154	1,359.92	7.43	46,980	1.80	8.3	563,000	17.3	717,722
CO-157	8.0	419.9	0.013	0.0033	MH-157	1,358.16	7.10	MH-150	1,356.77	8.42	83,844	1.52	23.8	351,922	29.3	448,636
CO-158	8.0	203.3	0.013	0.0033	MH-158	1,363.33	7.00	MH-159	1,362.66	7.84	31,752	1.15	9.0	351,922	18.0	448,636
CO-159	8.0	482.8	0.013	0.0042	MH-159	1,362.56	7.94	MH-121	1,360.55	9.13	31,752	1.25	8.0	395,824	17.0	504,604
CO-160	8.0	438.2	0.013	0.0050	MH-160	1,364.51	7.10	MH-198	1,362.33	7.00	46,980	1.49	10.9	432,056	19.7	550,792
CO-161	8.0	357.4	0.013	0.0033	MH-161	1,363.52	8.00	MH-156	1,362.33	7.00	46,980	1.29	13.3	352,839	21.8	449,805
CO-162	8.0	478.5	0.013	0.0033	MH-162	1,365.20	7.10	MH-161	1,363.62	7.90	46,980	1.29	13.3	351,922	21.8	448,636
CO-163	8.0	333.3	0.013	0.0128	MH-163	1,369.58	7.00	MH-162	1,365.30	7.00	46,980	2.08	6.8	694,260	15.7	885,055
CO-164	10.0	299.4	0.013	0.0024	MH-164	1,355.34	13.83	MH-117	1,354.62	12.87	470,700	2.11	86.5	544,154	60.4	693,696
CO-165	10.0	492.6	0.013	0.0024	MH-165	1,356.62	13.55	MH-164	1,355.44	13.73	470,700	2.11	86.5	544,154	60.4	693,696
CO-166	8.0	500.0	0.013	0.0033	MH-166	1,358.54	12.53	MH-165	1,356.89	13.45	268,710	2.08	76.4	351,922	55.8	448,636
CO-167	8.0	500.0	0.013	0.0033	MH-167	1,360.29	11.05	MH-166	1,358.64	12.43	268,710	2.08	76.4	351,922	55.8	448,636
CO-168	8.0	500.0	0.013	0.0033	MH-168	1,362.04	10.65	MH-167	1,360.39	10.95	268,710	2.08	76.4	351,922	55.8	448,636
CO-169	8.0	174.1	0.013	0.0033	MH-169	1,360.10	7.74	MH-170	1,359.53	7.90	31,752	1.15	9.0	351,922	18.0	448,636
CO-170	8.0	261.7	0.013	0.0033	MH-170	1,359.43	8.00	MH-171	1,358.57	8.77	31,752	1.15	9.0	351,922	18.0	448,636
CO-171	8.0	457.3	0.013	0.0033	MH-171	1,358.47	8.87	MH-172	1,356.96	9.44	31,752	1.15	9.0	351,922	18.0	448,636
CO-172	8.0	187.6	0.013	0.0033	MH-172	1,354.84	11.56	MH-173	1,354.22	8.37	86,832	1.54	24.7	351,922	29.8	448,636
CO-173	8.0	316.6	0.013	0.0033	MH-173	1,354.12	8.47	MH-174	1,353.08	10.25	86,832	1.54	24.7	351,922	29.8	448,636
CO-174	8.0	213.2	0.013	0.0033	MH-174	1,352.98	10.35	MH-114	1,352.27	9.67	86,832	1.54	24.7	351,922	29.8	448,636
CO-175	8.0	325.2	0.013	0.0105	MH-175	1,359.76	7.00	MH-176	1,356.33	7.00	55,080	2.04	8.8	629,142	17.7	802,042
CO-176	8.0	391.1	0.013	0.0033	MH-176	1,356.23	7.10	MH-172	1,354.94	11.46	55,080	1.35	15.7	351,922	23.6	448,636
CO-177	8.0	328.4	0.013	0.0052	MH-177	1,363.41	7.00	MH-178	1,361.70	7.00	31,752	1.35	7.2	442,374	16.1	563,946
CO-178	8.0	423.6	0.013	0.0033	MH-178	1,361.60	7.10	MH-169	1,360.20	7.64	31,752	1.15	9.0	351,922	18.0	448,636
CO-179	8.0	307.8	0.013	0.0041	MH-179	1,361.59	7.00	MH-180	1,360.33	7.00	26,910	1.18	6.9	391,241	15.8	498,761
CO-180	8.0	497.4	0.013	0.0036	MH-180	1,360.23	7.10	MH-116	1,358.45	7.00	26,910	1.13	7.3	366,948	16.3	467,792
CO-181	8.0	281.4	0.013	0.0065	MH-181	1,359.33	7.00	MH-182	1,357.51	7.00	26,910	1.39	5.5	493,241	14.1	628,792
CO-182	8.0	359.7	0.013	0.0033	MH-182	1,357.41	7.10	MH-115	1,356.22	7.19	26,910	1.09	7.6	351,922	16.6	448,636
CO-183	8.0	210.7	0.013	0.0033	MH-183	1,363.64	7.00	MH-184	1,362.95	7.10	49,248	1.31	14.0	351,922	22.4	448,636
CO-184	8.0	497.3	0.013	0.0033	MH-184	1,362.85	7.20	MH-118	1,361.20	7.88	49,248	1.31	14.0	351,922	22.4	448,636
CO-185	8.0	348.3	0.013	0.0033	MH-165	1,360.54	9.79	MH-185	1,361.69	12.64	201,990	1.94	57.4	351,922	47.0	448,636
CO-186	8.0	456.1	0.013	0.0033	MH-186	1,363.64	10.26	MH-168	1,362.14	10.55	268,710	2.08	76.4	351,922	55.8	448,636
CO-187	8.0	462.7	0.013	0.0033	MH-185	1,361.79	12.54	MH-187	1,363.32	12.55	133,950	1.74	38.1	351,922	37.4	448,636
CO-188	8.0	409.0	0.013	0.0033	MH-187	1,363.42	12.45	MH-188	1,364.77	12.57	133,950	1.74	38.1	351,922	37.4	448,636
CO-189	8.0	408.6	0.013	0.0033	MH-188	1,366.24	11.09	MH-189	1,367.59	11.56	65,910	1.42	18.7	351,922	25.9	448,636
CO-190	8.0	305.1	0.013	0.0033	MH-190	1,368.02	7.00	MH-191	1,367.01	7.32	68,040	1.43	19.3	351,922	26.3	448,636

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-191	8.0	424.1	0.013	0.0033	MH-191	1,366.91	7.42	MH-185	1,365.51	8.82	68,040	1.43	19.3	351,922	26.3	448,636
CO-192	8.0	414.4	0.013	0.0033	MH-188	1,364.87	12.47	MH-192	1,366.23	7.10	68,040	1.43	19.3	351,922	26.3	448,636
CO-193	8.0	347.6	0.013	0.0173	MH-192	1,366.33	7.00	MH-193	1,372.34	7.00	68,040	2.58	8.4	805,244	17.4	1,026,540
CO-194	8.0	434.3	0.013	0.0033	MH-194	1,372.33	7.00	MH-195	1,370.90	8.43	32,955	1.16	9.4	351,922	18.4	448,636
CO-195	8.0	361.1	0.013	0.0033	MH-195	1,368.88	10.45	MH-189	1,367.69	11.46	65,910	1.42	18.7	351,922	25.9	448,636
CO-196	8.0	217.7	0.013	0.0033	MH-196	1,370.44	7.00	MH-197	1,369.72	9.61	32,955	1.16	9.4	351,922	18.4	448,636
CO-197	8.0	193.5	0.013	0.0033	MH-197	1,369.62	9.71	MH-195	1,368.98	10.35	32,955	1.16	9.4	351,922	18.4	448,636
CO-198	8.0	164.1	0.013	0.0044	MH-198	1,362.23	7.10	MH-120	1,361.51	7.00	46,980	1.43	11.5	407,607	20.3	519,625
CO-199	8.0	480.0	0.013	0.0049	MH-199	1,367.64	7.00	MH-200	1,365.30	7.00	31,104	1.31	7.3	427,928	16.2	545,530
CO-200	8.0	346.1	0.013	0.0033	MH-200	1,365.20	7.10	MH-201	1,364.06	12.83	31,104	1.14	8.8	351,922	17.8	448,636
CO-201	8.0	307.0	0.013	0.0033	MH-201	1,363.96	12.93	MH-119	1,362.94	8.39	31,104	1.14	8.8	351,922	17.8	448,636
CO-202	8.0	500.0	0.013	0.0033	MH-202	1,349.69	10.28	MH-113	1,348.04	10.78	169,836	1.85	48.3	351,922	42.6	448,636
CO-203	8.0	500.0	0.013	0.0033	MH-203	1,351.44	7.69	MH-202	1,349.79	10.18	108,708	1.64	30.9	351,922	33.5	448,636
CO-204	8.0	370.9	0.013	0.0033	MH-204	1,352.76	8.35	MH-203	1,351.54	7.59	108,708	1.64	30.9	351,922	33.5	448,636
CO-205	8.0	358.4	0.013	0.0033	MH-205	1,354.05	9.29	MH-204	1,352.86	8.25	47,580	1.29	13.5	351,922	22.0	448,636
CO-206	8.0	359.9	0.013	0.0033	MH-206	1,355.33	7.00	MH-205	1,354.15	9.19	47,580	1.29	13.5	351,922	22.0	448,636
CO-207	8.0	440.5	0.013	0.0033	MH-207	1,356.59	7.60	MH-116	1,355.14	10.31	108,708	1.64	30.9	351,922	33.5	448,636
CO-208	8.0	459.7	0.013	0.0033	MH-208	1,358.21	7.10	MH-207	1,356.69	7.50	47,580	1.29	13.5	351,922	22.0	448,636
CO-209	8.0	320.0	0.013	0.0063	MH-209	1,360.33	7.00	MH-208	1,358.31	7.00	47,580	1.62	9.8	486,840	18.8	620,632
CO-210	8.0	403.7	0.013	0.0033	MH-210	1,360.49	9.66	MH-118	1,359.16	9.92	40,560	1.23	11.5	351,922	20.3	448,636
CO-211	8.0	488.4	0.013	0.0033	MH-211	1,362.21	8.13	MH-210	1,360.59	9.56	40,560	1.23	11.5	351,922	20.3	448,636
CO-212	8.0	311.5	0.013	0.0033	MH-212	1,363.33	7.00	MH-211	1,362.31	8.03	40,560	1.23	11.5	351,922	20.3	448,636
CO-213	8.0	488.1	0.013	0.0033	MH-213	1,364.33	7.00	MH-119	1,362.72	8.61	40,560	1.23	11.5	351,922	20.3	448,636
CO-214	8.0	268.2	0.013	0.0033	MH-214	1,363.08	10.26	OF-5 (EX MH-28284)	1,362.19	12.78	213,390	1.96	47.6	448,583	48.5	448,583
CO-215	8.0	340.8	0.013	0.0033	MH-215	1,364.30	8.81	MH-214	1,363.18	10.16	126,450	1.71	28.2	448,681	36.4	448,681
CO-216	8.0	453.5	0.013	0.0033	MH-216	1,365.90	9.51	MH-215	1,364.40	8.71	126,450	1.71	28.2	448,548	36.4	448,548
CO-217	8.0	446.0	0.013	0.0045	MH-217	1,371.25	7.00	MH-218	1,369.23	7.00	43,470	1.41	10.5	412,547	19.5	525,922
CO-218	8.0	375.5	0.013	0.0059	MH-218	1,369.13	7.10	MH-219	1,366.93	7.00	43,470	1.54	9.3	468,685	18.3	597,488
CO-219	8.0	344.9	0.013	0.0033	MH-219	1,366.83	7.10	MH-220	1,365.70	8.64	86,940	1.54	24.7	351,922	29.8	448,636
CO-220	8.0	279.5	0.013	0.0033	MH-220	1,365.60	8.74	MH-214	1,364.67	8.66	86,940	1.54	24.7	351,922	29.8	448,636
CO-221	8.0	360.2	0.013	0.0033	MH-221	1,372.02	7.00	MH-222	1,370.83	7.01	63,225	1.41	14.1	449,638	25.3	449,638
CO-222	8.0	365.3	0.013	0.0033	MH-222	1,370.73	7.11	MH-223	1,369.52	7.00	63,225	1.40	14.1	448,737	25.4	448,737
CO-223	8.0	310.3	0.013	0.0033	MH-223	1,369.42	7.10	MH-224	1,368.40	7.01	126,450	1.71	28.2	448,616	36.4	448,616
CO-224	8.0	284.7	0.013	0.0033	MH-224	1,368.30	7.11	MH-225	1,367.36	7.01	126,450	1.71	28.2	448,535	36.4	448,535
CO-225	8.0	382.0	0.013	0.0033	MH-225	1,367.26	7.10	MH-216	1,366.00	9.41	126,450	1.71	28.1	449,394	36.3	449,394
CO-226	8.0	406.2	0.013	0.0074	MH-226	1,378.33	7.00	MH-227	1,375.33	7.00	35,100	1.57	6.7	526,451	15.5	671,128
CO-227	8.0	345.6	0.013	0.0035	MH-227	1,375.23	7.10	MH-228	1,374.01	7.00	35,100	1.22	9.6	364,615	18.6	464,817

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-228	8.0	485.9	0.013	0.0096	MH-228	1,373.91	7.10	OF-6 (EX MH 28286)	1,369.26	13.46	70,200	2.11	11.7	599,232	20.5	763,912
CO-229	8.0	500.0	0.013	0.0033	MH-186	1,363.74	10.16	MH-229	1,365.39	10.07	268,710	2.08	76.4	351,922	55.8	448,636
CO-230	8.0	500.0	0.013	0.0033	MH-229	1,365.49	9.97	MH-230	1,367.14	11.19	268,710	2.08	76.4	351,922	55.8	448,636
CO-231	8.0	500.0	0.013	0.0033	MH-230	1,367.24	11.09	MH-231	1,368.89	11.53	201,533	1.94	57.3	351,922	47.0	448,636
CO-232	8.0	500.0	0.013	0.0033	MH-231	1,368.99	11.43	MH-232	1,370.64	11.42	201,533	1.94	57.3	351,922	47.0	448,636
CO-233	8.0	500.0	0.013	0.0033	MH-232	1,370.74	11.32	MH-233	1,372.39	11.94	134,355	1.74	38.2	351,922	37.5	448,636
CO-234	8.0	500.0	0.013	0.0033	MH-233	1,372.49	11.84	MH-234	1,374.14	9.39	134,355	1.74	38.2	351,922	37.5	448,636
CO-235	8.0	500.0	0.013	0.0033	MH-234	1,374.24	9.29	MH-235	1,375.89	7.10	67,177	1.43	19.1	351,922	26.1	448,636
CO-236	8.0	379.9	0.013	0.0073	MH-235	1,375.99	7.00	MH-236	1,378.78	7.00	67,177	1.90	12.8	525,062	21.4	669,359
CO-237	18.0	600.0	0.013	0.0029	MH-237	1,358.82	14.68	MH-119	1,357.08	13.42	776,550	2.54	27.1	2,867,752	31.3	3,655,860
CO-238	18.0	145.7	0.013	0.0029	MH-238	1,359.34	14.76	MH-237	1,358.92	14.58	776,550	2.54	27.1	2,867,752	31.3	3,655,860
CO-239	18.0	623.0	0.013	0.0035	MH-239	1,361.62	15.48	MH-238	1,359.44	14.66	776,550	2.72	24.7	3,150,117	29.8	4,015,825
CO-240	8.0	98.2	0.013	0.0292	MH-240	1,381.83	12.74	OF-7 (EX MH 27581)	1,378.96	15.87	53,430	2.88	5.1	1,046,563	13.7	1,334,176
CO-241	8.0	227.0	0.013	0.0033	MH-241	1,382.67	12.47	MH-240	1,381.93	12.64	53,430	1.34	15.2	351,922	23.3	448,636
CO-242	8.0	325.3	0.013	0.0033	MH-242	1,388.81	8.69	MH-241	1,387.73	7.41	26,715	1.09	7.6	351,922	16.6	448,636
CO-243	8.0	253.6	0.013	0.0033	MH-243	1,389.74	7.00	MH-242	1,388.91	8.59	26,715	1.09	7.6	351,922	16.6	448,636
CO-244	8.0	256.6	0.013	0.0033	MH-244	1,384.81	7.00	MH-245	1,383.96	8.08	26,715	1.09	7.6	351,922	16.6	448,636
CO-245	8.0	330.0	0.013	0.0033	MH-245	1,383.86	8.18	MH-241	1,382.77	12.37	26,715	1.09	7.6	351,922	16.6	448,636
CO-247	18.0	600.0	0.013	0.0011	MH-247	1,362.38	16.90	MH-239	1,361.72	15.38	776,550	1.79	34.5	2,251,577	40.5	2,251,577
CO-248	18.0	600.0	0.013	0.0011	MH-248	1,363.14	19.05	MH-247	1,362.48	16.80	723,250	1.76	32.1	2,251,577	39.0	2,251,577
CO-249	18.0	515.4	0.013	0.0011	MH-249	1,363.81	21.37	MH-248	1,363.24	18.95	723,250	1.76	32.1	2,251,587	39.0	2,251,587
CO-250	18.0	600.0	0.013	0.0011	MH-250	1,364.57	22.34	MH-249	1,363.91	21.27	0	0.00	0.0	2,251,577	(N/A)	2,251,577
CO-251	18.0	600.0	0.013	0.0011	MH-251	1,365.33	23.91	MH-250	1,364.67	22.24	0	0.00	0.0	2,251,577	(N/A)	2,251,577
CO-252	12.0	334.0	0.013	0.0041	MH-252	1,365.76	20.52	MH-249	1,364.41	21.27	723,250	2.88	62.8	1,150,800	49.6	1,467,060
CO-253	12.0	497.2	0.013	0.0019	MH-253	1,366.81	18.25	MH-252	1,365.86	20.42	651,490	2.10	82.7	787,304	58.7	1,003,669
CO-254	8.0	483.0	0.013	0.0033	MH-254	1,370.54	18.66	MH-253	1,368.95	16.44	344,820	2.19	98.0	351,922	65.7	448,636
CO-255	8.0	500.0	0.013	0.0033	MH-255	1,372.29	17.62	MH-254	1,370.64	18.56	344,820	2.19	98.0	351,922	65.7	448,636
CO-256	8.0	500.0	0.013	0.0033	MH-255	1,372.39	17.52	MH-256	1,374.04	18.78	263,700	2.07	74.9	351,922	55.1	448,636
CO-257	8.0	500.0	0.013	0.0033	MH-256	1,374.14	18.68	MH-257	1,375.79	17.41	182,580	1.89	51.9	351,922	44.4	448,636
CO-258	8.0	500.0	0.013	0.0033	MH-257	1,375.89	17.31	MH-258	1,377.54	16.69	182,580	1.89	51.9	351,922	44.4	448,636
CO-259	8.0	500.0	0.013	0.0033	MH-258	1,377.64	16.59	MH-259	1,379.29	16.10	93,315	1.57	26.5	351,922	31.0	448,636
CO-260	8.0	500.0	0.013	0.0033	MH-259	1,379.39	16.00	MH-260	1,381.04	16.94	93,315	1.57	26.5	351,922	31.0	448,636
CO-261	8.0	500.0	0.013	0.0033	MH-260	1,381.14	16.84	MH-261	1,382.79	17.15	67,620	1.43	19.2	351,922	26.2	448,636
CO-262	8.0	378.5	0.013	0.0033	MH-261	1,382.89	17.05	MH-262	1,384.14	7.00	67,620	1.43	19.2	351,922	26.2	448,636
CO-263	8.0	500.0	0.013	0.0039	MH-263	1,389.18	7.10	MH-258	1,387.23	7.00	49,140	1.39	12.8	383,015	21.4	488,274
CO-264	8.0	500.0	0.013	0.0048	MH-264	1,391.67	7.00	MH-263	1,389.28	7.00	49,140	1.49	11.6	423,225	20.4	539,535
CO-265	8.0	500.0	0.013	0.0033	MH-265	1,386.98	7.10	MH-256	1,385.33	7.49	51,870	1.32	14.7	351,922	23.0	448,636

Label	Diam (in)	Length (ft)	Mannin g's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-266	8.0	500.0	0.013	0.0046	MH-266	1,389.40	7.00	MH-265	1,387.08	7.00	51,870	1.50	12.4	417,350	21.1	532,045
CO-267	8.0	497.9	0.013	0.0049	MH-267	1,385.36	7.00	MH-255	1,382.91	7.00	51,870	1.53	12.1	429,681	20.8	547,765
CO-268	8.0	500.0	0.013	0.0033	MH-268	1,380.23	7.10	MH-252	1,378.58	8.03	71,760	1.46	20.4	351,922	27.1	448,636
CO-269	8.0	500.0	0.013	0.0081	MH-269	1,384.37	7.33	MH-268	1,380.33	7.00	35,880	1.63	6.5	550,566	15.4	701,871
CO-270	8.0	296.6	0.013	0.0033	MH-270	1,385.45	7.00	MH-269	1,384.47	7.23	35,880	1.19	10.2	351,922	19.1	448,636
CO-271	8.0	358.2	0.013	0.0033	MH-271	1,382.61	7.87	MH-256	1,381.43	11.39	29,250	1.12	8.3	351,922	17.3	448,636
CO-272	8.0	497.6	0.013	0.0033	MH-272	1,384.35	7.00	MH-271	1,382.71	7.77	29,250	1.12	8.3	351,922	17.3	448,636
CO-273	8.0	350.0	0.013	0.0033	MH-273	1,381.42	7.00	MH-255	1,380.26	9.65	29,250	1.12	8.3	351,922	17.3	448,636
CO-274	8.0	349.2	0.013	0.0033	MH-274	1,382.86	9.66	MH-258	1,381.70	12.53	40,125	1.23	11.4	351,922	20.2	448,636
CO-275	8.0	504.6	0.013	0.0033	MH-275	1,384.62	7.00	MH-274	1,382.96	9.56	25,695	1.08	7.3	351,922	16.2	448,636
CO-276	8.0	374.2	0.013	0.0033	MH-276	1,385.47	8.67	MH-260	1,384.23	13.75	25,695	1.08	7.3	351,922	16.2	448,636
CO-277	8.0	289.6	0.013	0.0033	MH-277	1,386.52	7.00	MH-276	1,385.57	8.57	25,695	1.08	7.3	351,922	16.2	448,636
CO-278	8.0	499.9	0.013	0.0033	MH-278	1,368.89	15.89	MH-253	1,367.24	18.15	306,670	2.14	87.1	351,922	60.7	448,636
CO-279	8.0	500.0	0.013	0.0033	MH-279	1,370.64	15.46	MH-278	1,368.99	15.79	253,370	2.05	72.0	351,922	53.8	448,636
CO-280	8.0	500.0	0.013	0.0033	MH-280	1,372.39	15.26	MH-279	1,370.74	15.36	224,120	1.99	63.7	351,922	50.0	448,636
CO-281	8.0	500.0	0.013	0.0033	MH-281	1,374.14	14.70	MH-280	1,372.49	15.16	141,570	1.76	40.2	351,922	38.6	448,636
CO-282	8.0	500.0	0.013	0.0033	MH-282	1,375.89	13.89	MH-281	1,374.24	14.60	141,570	1.76	40.2	351,922	38.6	448,636
CO-283	8.0	500.0	0.013	0.0033	MH-283	1,377.64	14.24	MH-282	1,375.99	13.79	68,445	1.44	19.4	351,922	26.4	448,636
CO-284	8.0	500.0	0.013	0.0033	MH-284	1,379.39	8.56	MH-283	1,377.74	14.14	68,445	1.44	19.4	351,922	26.4	448,636
CO-285	8.0	352.9	0.013	0.0038	MH-285	1,380.44	7.00	MH-279	1,379.10	7.00	29,250	1.18	7.7	377,764	16.7	481,581
CO-286	8.0	365.4	0.013	0.0033	MH-286	1,381.26	8.30	MH-280	1,380.05	7.60	29,250	1.12	8.3	351,922	17.3	448,636
CO-287	8.0	500.0	0.013	0.0033	MH-287	1,383.01	7.00	MH-286	1,381.36	8.20	29,250	1.12	8.3	351,922	17.3	448,636
CO-288	8.0	366.2	0.013	0.0033	MH-288	1,382.24	7.10	MH-282	1,381.03	8.75	31,785	1.15	9.0	351,922	18.0	448,636
CO-289	8.0	500.1	0.013	0.0037	MH-289	1,384.20	7.00	MH-288	1,382.34	7.00	27,105	1.14	7.2	373,880	16.2	476,629
CO-290	8.0	369.3	0.013	0.0094	MH-290	1,384.44	7.10	MH-284	1,380.96	7.00	27,105	1.59	4.6	594,914	12.9	758,407
CO-291	8.0	291.6	0.013	0.0063	MH-291	1,386.36	7.00	MH-290	1,384.54	7.00	27,105	1.38	5.6	484,584	14.2	617,756
CO-292	8.0	454.4	0.013	0.0033	MH-292	1,375.09	7.49	MH-278	1,373.59	11.19	53,300	1.34	15.1	351,922	23.3	448,636
CO-293	8.0	500.0	0.013	0.0033	MH-293	1,376.84	7.00	MH-292	1,375.19	7.39	53,300	1.34	15.1	351,922	23.3	448,636
CO-294	8.0	309.3	0.013	0.0033	MH-294	1,378.76	7.47	MH-280	1,377.73	9.92	53,300	1.34	15.1	351,922	23.3	448,636
CO-295	8.0	500.0	0.013	0.0033	MH-295	1,380.51	7.00	MH-294	1,378.86	7.37	53,300	1.34	15.1	351,922	23.3	448,636
CO-296	8.0	287.8	0.013	0.0033	MH-296	1,381.66	9.50	MH-282	1,380.71	9.07	41,340	1.24	11.7	351,922	20.5	448,636
CO-297	8.0	500.0	0.013	0.0033	MH-297	1,383.41	7.00	MH-296	1,381.76	9.40	41,340	1.24	11.7	351,922	20.5	448,636
CO-298	8.0	252.1	0.013	0.0033	MH-298	1,380.32	8.16	MH-284	1,379.49	8.46	41,340	1.24	11.7	351,922	20.5	448,636
CO-299	8.0	500.0	0.013	0.0033	MH-299	1,382.07	7.00	MH-298	1,380.42	8.06	41,340	1.24	11.7	351,922	20.5	448,636
CO-300	8.0	436.8	0.013	0.0033	MH-300	1,373.70	7.10	MH-247	1,372.26	7.85	53,300	1.34	15.1	351,922	23.3	448,636
CO-301	8.0	500.0	0.013	0.0034	MH-301	1,375.53	7.00	MH-300	1,373.80	7.00	53,300	1.36	14.8	359,765	23.1	458,635
CO-302	8.0	400.0	0.013	0.0033	MH-302	1,363.12	7.00	MH-303	1,361.80	11.43	24,576	1.06	7.0	351,922	15.9	448,636
CO-303	8.0	346.7	0.013	0.0062	MH-303	1,361.70	11.53	MH-304	1,359.56	7.00	24,576	1.33	5.1	481,383	13.7	613,675
CO-304	8.0	400.0	0.013	0.0063	MH-304	1,359.46	7.10	MH-305	1,356.95	7.00	24,576	1.34	5.1	485,695	13.6	619,173

Label	Diam (in)	Length (ft)	Manning's n	Slope (ft/ft)	Start Node	Invert (Start) (ft)	Cover (Start) (ft)	Stop Node	Invert (Stop) (ft)	Cover (Stop) (ft)	Flow (gal/day)	Velocity (ft/s)	Flow / Capacity (Design) (%)	Capacity (Design) (gal/day)	Depth (Normal) / Diam (%)	Capacity (Full Flow) (gal/day)
CO-305	8.0	400.0	0.013	0.0048	MH-305	1,356.85	7.10	MH-151	1,354.92	8.58	24,576	1.21	5.8	425,060	14.5	541,873
CO-306	8.0	300.0	0.013	0.0033	MH-306	1,355.91	7.42	MH-151	1,354.92	8.58	24,576	1.06	7.0	351,922	15.9	448,636
CO-307	8.0	400.0	0.013	0.0033	MH-307	1,357.33	7.00	MH-306	1,356.01	7.32	24,576	1.06	7.0	351,922	15.9	448,636
CO-308	8.0	300.0	0.013	0.0051	MH-308	1,366.15	7.00	MH-160	1,364.61	7.00	46,980	1.51	10.7	438,929	19.6	559,554
CO-309	8.0	500.0	0.013	0.0180	MH-309	1,391.91	7.10	OF-8 (EX MH 28291)	1,382.90	16.03	52,260	2.42	6.4	822,412	15.2	1,048,425
CO-310	8.0	410.0	0.013	0.0070	MH-310	1,394.90	7.00	MH-309	1,392.01	7.00	52,260	1.74	10.2	514,184	19.1	655,491
CO-311	10.0	722.5	0.013	0.0024	MH-311	1,364.19	10.98	OF-5 (EX MH-28284)	1,362.46	12.35	0	0.00	0.0	543,511	(N/A)	692,877

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (gal/day)
OF-1 (EX-MH-28278)	1,353.11	1,342.34	1,342.64	265,128
OF-2 (EX-MH-28279)	1,358.39	1,345.34	1,345.75	619,740
OF-3 (EX MH-28280)	1,362.45	1,349.04	1,349.36	455,784
OF-4 (EX-MH-28282)	1,369.65	1,356.19	1,356.39	119,010
OF-5 (EX MH-28284)	1,375.64	1,362.19	1,362.46	213,390
OF-6 (EX MH 28286)	1,383.39	1,369.26	1,369.40	70,200
OF-7 (EX MH 27581)	1,395.50	1,378.96	1,379.05	53,430
OF-8 (EX MH 28291)	1,399.60	1,382.90	1,383.00	52,260
OF-9 (EX-MH-25)	1,331.29	1,321.98	1,322.69	2,477,034