

MAINTENANCE FLUSHING PLAN FOR THE POTABLE WATER SYSTEM



**JOINT BASE PEARL HARBOR-HICKAM,
HAWAII**



**CONTRACT: N62470-19-D-4001
DELIVERY ORDER: N6274224F0189**

June 2025

FINAL REPORT FOR
**MAINTENANCE FLUSHING PLAN
FOR THE POTABLE WATER SYSTEM**

JOINT BASE PEARL HARBOR-HICKAM, HAWAII

Prepared For:

NAVAL FACILITIES ENGINEERING COMMAND

**Contract Number: N62470-19-D-4001
Task Order Number: N6274224F0189**

June 2025

AH Engineering Consultants
11837 Rock Landing Drive, Suite 300
Newport News, Virginia 23606
(757) 873-4959

TABLE OF CONTENTS

- 1 INTRODUCTION..... 1-1**
 - 1.1 PURPOSE1-1
 - 1.2 BACKGROUND1-1

- 2 UNIDIRECTIONAL FLUSHING (UDF)..... 2-1**
 - 2.1 SYSTEM-WIDE UDF PLAN2-1
 - 2.2 UDF LARGE DIAMETER MAINS2-3
 - 2.3 REVIEWING AND UPDATING2-4

- 3 ANNUAL MAINTENANCE FLUSHING 3-5**
 - 3.1 LOW WATER QUALITY3-5
 - 3.2 DEAD-END MAINS3-9
 - 3.3 CUSTOMER COMPLAINTS3-10
 - 3.4 REVIEWING AND UPDATING3-10
 - 3.5 INTEGRATING UDF AND MFP PLANS.....3-11

- 4 CONCLUSION 4-1**

APPENDICES

- A. JBPHH Water Distribution System Annual Flushing Loops
- B. JBPHH Water Distribution System Dead-ends Flushing Procedures
- C. Water Quality Action Team Standard Operating Procedure

D. TABLES

TABLE	PAGE
Table 2-1 Annual UDF Flushing Schedule	2-1

FIGURES

FIGURE	PAGE
Figure 3-1 Low Chlorine Residual at JBPHH	3-6
Figure 3-2 Cast Iron Pipes at JBPHH FFHC Water Distribution System.....	3-7
Figure 3-3 Highest Water Age at JBPHH FFHC Water Distribution System	3-8
Figure 3-4 Chlorine Residual, CI Pipes, and Highest Water Age Superimposed.....	3-9

ACRONYMS & ABBREVIATIONS

AH	AH/BC Navy JV, LLC
FFHC	fit for human consumption
GIS	Geographic Information System
JBPHH	Joint Base Pearl Harbor-Hickam
MFP	Maintenance Flushing Plan
SOP	Standard Operating Procedure
UDF	Unidirectional Flushing
WQAT	Water Quality Action Team

1 INTRODUCTION

AH/BC Navy JV, LLC (AH) was tasked under Contract N62470-19-D-4001, Delivery Order N6274224F0189, to develop a Maintenance Flushing Plan (MFP) for the Potable Water System at Joint Base Pearl Harbor-Hickam (JBPHH), Hawaii. AH received the JBPHH water distribution system map (Appendix A) from the geographic information system department and updated the map based on the site reconnaissance performed by AH personnel from September 23 through December 20, 2024.

1.1 PURPOSE

The purpose of this report is to outline the annual flushing plan for JBPHH water distribution system. This plan is designed to improve water quality by addressing areas of low chlorine residual, stagnant water in dead-end mains, and resolving customer complaints related to taste, odor, and discoloration.

1.2 BACKGROUND

The distribution system is a key element of every public water supply. The importance of distribution systems is highlighted by the fact that 60 to 70 percent of the capital investment in a utility is generally allocated to the distribution of finished water. The distribution system also serves as the final barrier for protecting water quality prior to reaching the customer. Unfortunately, the traditional focus on hydraulic objectives may hinder the optimization of those required for maintaining high water quality. The last decade has brought an increasing awareness of the potentially deleterious effects that distribution systems can have on water quality.

A MFP is a tool designed for maintaining water quality in the distribution system. Benefits of a MFP include reduced bacterial growth, restored disinfectant residual, color/turbidity control, corrosion control, and restored flow and pressures.

2 UNIDIRECTIONAL FLUSHING (UDF)

2.1 SYSTEM-WIDE UDF PLAN

A UDF plan was developed for JBPHH water distribution system. The plan encompasses the following features:

- A system wide UDF will be completed within 18 months of starting and encompasses the entire JBPHH distribution system. Select distribution valves will be closed, and hydrants opened, to define a single flow path and target a flushing velocity of between (b) (3) (B) to scour clean the distribution mains.
- Data will be collected during this process to measure and record the actual flow velocity achieved in each individual water main.
- After completion, the Navy will unidirectionally flush 20% of the distribution system every year. Therefore, the entire distribution system will be unidirectionally flushed every five years as indicated in Table 2-1.
- This is consistent with other large water systems of comparable size and complexity to JBPHH.

Table 2-1 Annual UDF Schedule

Area	UDF Sequence	Number of Loops	Year to Flush
Manana Housing	1	3	1
Pearl City	2	9	1
Beckoning Point	3	1	1
Ford Island	4	13	1
West Loch	5	4	1
Iroquois Point	6	8	1
Puuloa Housing	7	1	3
Puuloa Rifle Range	8	1	3
McGrew Point	9	2	3

Table 2-1 Annual UDF Schedule (Continue)

Area	UDF Se- quence	Number of Loops	Year to Flush
Halawa	10	1	3
Camp Smith	11	4	3
Richardson Field	12	1	3
Makalapa Housing	13	6	3
Moanalua	14	2	3
Moanalua Terrace	15	5	3
Catlin Park	16	6	3
Doris Miller	17	2	3
Radford Terrace	18	5	3
Halsey Terrace	19	8	4
Hale Moku	20	4	5
Hokulani	21	2	5
FISC	22	6	5
Subbase Pearl	23	5	5
Naval Station Pearl	24	6	5
Shipyard Pearl	25	12	5
Hospital Point	26	2	5
Ohana Nui	27	1	5
Hickam Zone 4	1	4	2
Hickam Zone 5	2	6	2
Hickam Zone 6	3	8	2
Hickam Zone 7	4	2	2
Hickam Zone 8	5	5	2
Hickam Zone 2	6	5	2

Table 2-1 Annual UDF Schedule (Continue)

Area	UDF Sequence	Number of Loops	Year to Flush
Hickam Zone 1	7	3	2
Hickam Zone 12	8	2	2
Hickam Zone 9	9	10	4
Hickam Zone 3	10	9	4
Hickam Zone 10	11	7	4
Hickam Zone 11	12	2	4

2.2 UDF LARGE DIAMETER MAINS

UDF is a water main cleaning technique that uses distributed water intentionally directed in a single pathway to achieve higher flow velocities (e.g., (b) (3) (B)) to remove sediment and mineral buildup. UDF uses existing distribution system assets (i.e., valves and hydrants), sequentially opened and closed to implement this process.

Water mains at JBPHH range in size from 4 to 42-inches in diameter and span 373 miles. Of these, water mains \leq 12-inches in diameter comprise approximately 85 percent of the total. In addition, fire hydrants are generally located on water mains \leq 12-inches in diameter. That means, it would be impossible to flush the larger transmission mains (16- to 42-inches in size), which contain limited, if any, hydrants. Furthermore, to achieve the elevated flow velocities in the transmission mains would require the supply and discharge of vast quantities of distributed water – more than the primary supply source can support (Waiawa Pump Station) and the existing the storm water systems can effectively handle.

Lastly, the results of hydraulic modeling of the entire JBPHH water system under average flow conditions indicate the velocities in the transmission mains would not support sediment deposition. This is backed up by anecdotal evidence obtained during the contaminant flushing performed immediately after the 2021 Red Hill incident. Enormous quantities of water were discharged from the distribution system in a concerted effort to remove petroleum hydrocarbon contamination. During this process, no discolored water episodes were observed or reported by JBPHH operating staff, which suggests the transmission mains were clean and free of sediment/mineral buildup. Accordingly, the larger transmission mains (16- to 42-inches in size), will not be unidirectionally flushed at JBPHH and act as a clean water source for the UDF procedures.

2.3 REVIEWING AND UPDATING

Due to potable water distribution system changes, a periodic review and updates of the UDF plan will be performed as needed to make sure that water quality concern areas are being flushed correctly. The UDF plan is not a static plan and will be subject to change based on the following:

- Water quality data
- Customer complaints, and
- Significant changes to the JBPHH distribution system.

3 ANNUAL MAINTENANCE FLUSHING

An annual MFP was developed for JBPHH fit for human consumption (FFHC) water distribution system. The flushing plan will be conducted systematically throughout the year, focusing on the following key areas:

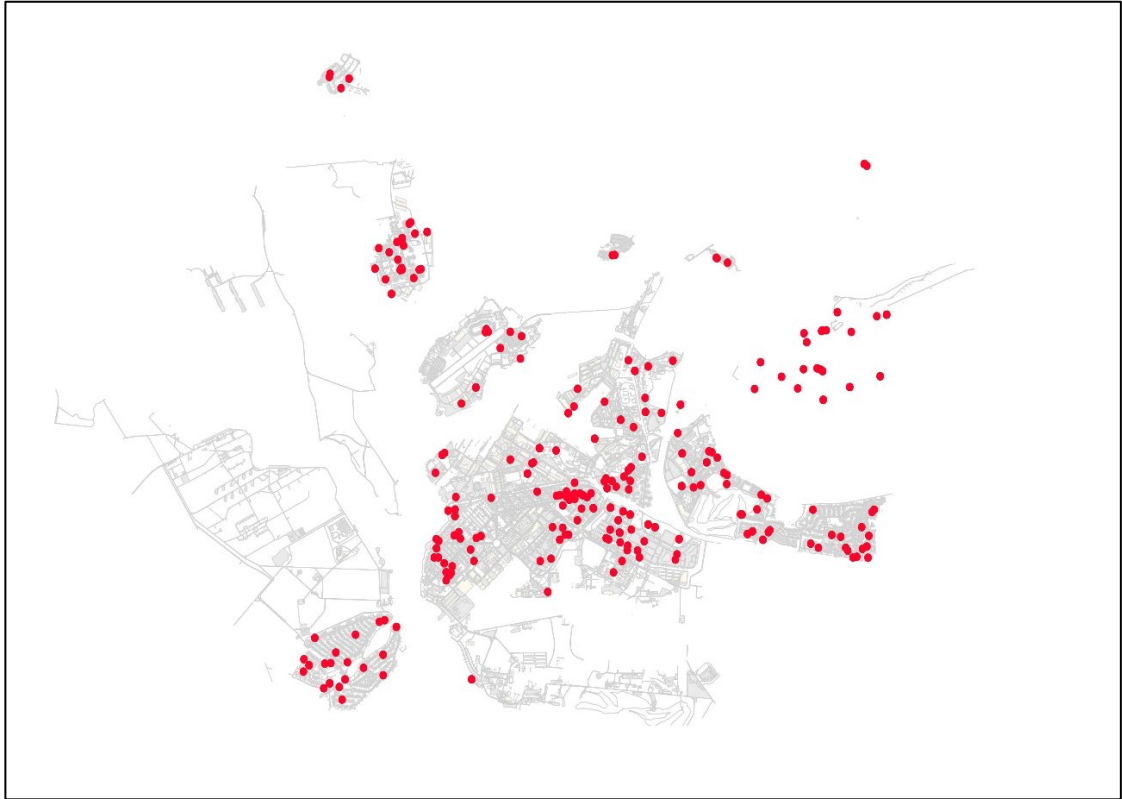
3.1 LOW WATER QUALITY

Areas with consistently low chlorine residual levels, as identified through the 2024 routine water quality sampling, indicate locations where disinfectant levels fall below acceptable thresholds of 0.2 mg/L. These areas often result from low-flow conditions, extended water retention times, or microbial growth within the distribution system. Ensuring adequate chlorine residual is essential to maintaining FFHC water quality and preventing bacterial contamination. By mapping these sampling results, as shown in Figure 3-1, AH identified areas where corrective actions, such as targeted flushing, are necessary to restore and maintain proper disinfection levels.

Additionally, areas with old cast iron pipes that were installed before 1960, identified through Geographic Information System (GIS) data, present unique challenges in water quality management. Older cast iron pipes are prone to internal corrosion and biofilm buildup, which can contribute to chlorine demand and lead to reduced residuals. Corrosion byproducts, such as iron and manganese deposits, may also cause discoloration and affect overall water aesthetics. Figure 3-2 shows the cast iron pipes in the FFHC water distribution system for JBPHH.

High water age, determined from the Hydraulic Water Model, further informs the selection of annual flushing loops. Water age represents the time it takes for water to travel through the distribution system, with higher values indicating prolonged stagnation. Areas with high water age often coincide with dead-end mains, oversized pipelines, or underutilized sections of the system, all of which can contribute to disinfectant decay, water quality deterioration, and increased water quality complaints. Figure 3-3 highlights the areas with the highest water age; yellow highlights show lines with the longest water ages and black areas indicate water ages approaching 30 days.

Figure 3-1 Low Chlorine Residual at JBPHH



By integrating chlorine sampling data from Figure 3-1, GIS-based pipe age analysis from Figure 3-2, and hydraulic modeling results from Figure 3-3, AH developed an optimized approach to annual flushing loops from the superimposed maps as shown in Figure 3-4. Utilizing Figure 3-4 as a template for selecting areas for an annual flushing plan, this data-driven strategy ensures that flushing efforts are prioritized toward the areas most susceptible to water quality issues, maximizing the effectiveness of operations.

From Figure 3-4, AH developed maintenance flushing loops that can be used to increase the chlorine residual as needed. A total of 42 maintenance loops in 28 JBPHH areas were developed to perform this task. Out of the 42 maintenance loops, 30 loops were located in Pearl Harbor areas while 12 loops were located in Hickam zones. Appendix A provides details for each loop.

Figure 3-2 Cast Iron Pipes at JBPHH FFHC Water Distribution System



Figure 3-3 Highest Water Age at JBPHH FFHC Water Distribution System



Figure 3-4 Chlorine Residual, CI Pipes, and Highest Water Age Superimposed



3.2 DEAD-END MAINS

Water mains that experience limited flow due to their terminal nature will be flushed regularly to remove sediment buildup and maintain disinfectant residuals. AH identified 43 dead ends in 14 JBPHH Pearl Harbor areas and 21 dead ends in 8 JBPHH Hickam zones of the FFHC water distribution system. The procedure for flushing the dead ends is simply opening the hydrant for the specified time indicated on the step for the specific dead end; this will remove five (5) times the volume of water contained in the isolated pipe section. This is not a UDF procedure and is only intended to remove stagnant water in the dead-end. Appendix B details the dead-end flushing procedures.

The goal for this plan is to periodically dispel stagnant water and replace it with fresh water to restore the disinfectant residual. The plan will not utilize distribution system valves to perform the flushing. In addition, consideration should be given to automating this process through the installation of automatic flushing devices.

3.3 CUSTOMER COMPLAINTS

The Water Quality Action Team (WQAT) Standard Operating Procedure (SOP) for JBPHH outlines a structured approach to addressing customer complaints related to water quality (see Appendix C). When a complaint is received, the WQAT promptly logs the issue, categorizes it based on parameters such as taste, odor, discoloration, pressure concerns, or potential contamination, and prioritizes response actions accordingly. Field personnel conduct on-site investigations, including chlorine residual testing, pH analysis, turbidity checks, and bacteriological sampling, as needed. If water quality parameters are outside acceptable limits, the team implements corrective measures such as flushing, system isolation, or additional treatment. Findings are documented, and customers receive timely updates regarding investigations, corrective actions, and expected resolution timelines. The SOP ensures consistent, data-driven decision-making, regulatory compliance, and transparent communication, enhancing customer trust and maintaining potable water safety and distribution system integrity at JBPHH. The customer complaint SOP will be implemented as needed and will only be triggered by a customer complaint.

3.4 REVIEWING AND UPDATING

Due to potable water distribution system changes, a periodic review and updates of the Annual MFP will be performed as needed to make sure that water quality concern areas are being flushed correctly. The MFP plan is not a static plan and will be subject to change based on the following:

- Water quality data
- Customer complaints, and
- Significant changes to the JBPHH distribution system.

3.5 INTEGRATING UDF PLAN AND MFP

The UDF plan and MFP share the same areas and zones. In the first year, the UDF plan will be fully implemented. After that, it will follow a five-year rotation. Any areas and zones flushed under the UDF plan in a given year will be excluded from the MFP for that same year. The same crew will carry out both plans, ensuring improved coordination and more efficient scheduling between the two programs.

4 CONCLUSION

This annual flushing plan aims to enhance water quality and system reliability while addressing regulatory requirements. All personnel involved in the annual flushing operations should adhere to the standard operating procedures in either Appendix A, B or C, and to safety guidelines.

APPENDIX A

JBPHH Water Distribution System Annual Flushing Loops

JBPHH Water Distribution System
Pearl Harbor
Annual Flushing Loops

(b) (3) (A)

Step 1 - Close Valve CP-MV-80
 Close Valve CP-MV-126
 Close Valve CP-MV-124
 Close Valve CP-MV-41
 Open Hydrant CP-FH-52
 Monitor Hydrant CP-FH-52

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 8 min
Calculated Velocity:
 6.35 ft/sec



Caitlin Park				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/17/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant CP-FH-52
 Open Hydrant CP-FH-11
 Monitor Hydrant CP-FH-11

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 15 min
Calculated Velocity:
 6.35 ft/sec



Caitlin Park				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/17/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant CP-FH-11
 Open Valve CP-MV-41
 Open Hydrant CP-FH-19
 Monitor Hydrant CP-FH-19

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
6.35 ft/sec



Caitlin Park				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/17/2025	UOF	3

(b) (3) (A)

Step 4 - Close Hydrant CP-FH-19
 Close Valve CP-MV-57
 Close Valve CP-MV-63
 Open Hydrant CP-FH-43
 Monitor Hydrant CP-FH-43

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
24 min
 Calculated Velocity:
6.35 ft/sec



Caitlin Park				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/17/2025	UF	4

(b) (3) (A)

Step 5 - Close Hydrant CP-FH-43
Open Valve CP-MV-57
Open Valve CP-MV-63
Open Valve CP-MV-126
Open Valve CP-MV-124
Open Valve CP-MV-80

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Caitlin Park				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/17/2025	UOF	5

(b) (3) (A)

Step 1 - Close Valve CS-MV-24A
 Close Valve CS-MV-49A
 Close Valve CS-MV-61
 Open Hydrant CS-FH-30
 Monitor Hydrant CS-FH-31

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
 24 min
Calculated Velocity:
 8.18 ft/sec



Camp Smith

LOOP 1/ STEP 1

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant CS-FH-30
 Open Hydrant CS-FH-32
 Open Hydrant CS-FH-33
 Monitor Hydrant CS-FH-32

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 min
Calculated Velocity:
8.18 ft/sec



Camp Smith

LOOP 1 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant CS-FH-32
Close Hydrant CS-FH-33
Open Valve CS-MV-24A
Open Valve CS-MV-49A
Open Valve CS-MV-61

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Camp Smith

LOOP 1 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	3

(b) (3) (A)

Step 1 - Close Valve CS-MV-98
 Open Hydrant CS-FH-20
 Monitor Hydrant CS-FH-20

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
 6 min
Calculated Velocity:
 11.37 ft/sec



Camp Smith				
LOOP 2 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant CS-FH-20
 Open Valve CS-MV-98
 Close Valve CS-MV-100A
 Open Hydrant CS-FH-20
 Monitor Hydrant CS-FH-20

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
 5 min
Calculated Velocity:
 11.37 ft/sec



Camp Smith

LOOP 2 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
Dean Dorsey	Tony Aumar	01/20/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant CS-FH-20
 Open Valve CS-MV-100A
 Open Hydrant CS-FH-18
 Monitor Hydrant CS-FH-18

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
11.37 ft/sec



Camp Smith				
LOOP 2 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant CS-FH-18
 Close Valve CS-MV-78
 Close Valve CS-MV-112
 Close Valve CS-MV-112A
 Open Hydrant CS-FH-8
 Monitor Hydrant CS-FH-8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 min
Calculated Velocity:
6.39 ft/sec



Camp Smith				
LOOP 2 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	4

(b) (3) (A)

Step 5 - Close Hydrant CS-FH-8
Open Valve CS-MV-112A
Open Valve CS-MV-112
Open Valve CS-MV-78

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Camp Smith

LOOP 2 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	5

(b) (3) (A)

Step 1 - Close Valve DM-MV-8
 Close Valve DM-MV-18
 Open Hydrant DM-FH-7
 Open Hydrant DM-FH-9
 Monitor Hydrant DM-FH-9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 11 min
Calculated Velocity:
 6.96 ft/sec



Doris Miller				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant DM-FH-7
 Close Hydrant DM-FH-9
 Open Valve DM-MV-18
 Close Valve DM-MV-7
 Open Hydrant DM-FH-7
 Monitor Hydrant DM-FH-9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 min
 Calculated Velocity:
13.92 ft/sec



Doris Miller				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant DM-FH-7
 Open Valve DM-MV-7
 Open Valve DM-MV-8
 Open Valve DM-MV-26
 Open Hydrant DM-FH-24
 Monitor Hydrant DM-FH-24

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
43 min
Calculated Velocity:
6.96 ft/sec



Doris Miller

LOOP 1 / STEP 3

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	3

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Doris Miller				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/21/2024	UDF	4

(b) (3) (A)

Step 1 - Close Valve FP-MV-130-Z9
 Close Valve FP-MV-142B-Z9
 Close Valve FP-MV-36-Z9
 Close Valve FP-MV-9A-Z9
 Open Hydrant FP-FH-560-Z9
 Monitor Hydrant FP-FH-515-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 min
Calculated Velocity:
8.15 ft/sec



FISC Pearl				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant FP-FH-560-Z9
 Open Hydrant FP-FH-515-Z9
 Monitor Hydrant FP-FH-507-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
17 min
Calculated Velocity:
8.15 ft/sec



FISC Pearl				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant FP-FH-515-Z9
 Open Hydrant FP-FH-507-Z9
 Monitor Hydrant FP-FH-507-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec












FISC Pearl				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant FP-FH-507-Z9
Open Valve FP-MV-9A-Z9
Open Valve FP-MV-36-Z9
Open Valve FP-MV-130-Z9
Open Valve FP-MV-142B-Z9

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



FISC Pearl				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UOF	4

(b) (3) (A)

Step 1 - Close Valve FP-MV-179-Z9
Close Valve FP-MV-207A-Z9
Open Hydrant FP-FH-542-Z9
Open Hydrant FP-FH-541-Z9
Monitor Hydrant FP-FH-541-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
18 min
Calculated Velocity:
4.08 ft/sec



FISC Pearl

LOOP 2 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant FP-FH-541-Z9
Close Hydrant FP-FH-542-Z9
Open Hydrant FP-FH-540-Z9
Open Hydrant FP-FH-544-Z9
Monitor Hydrant FP-FH-544-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 min
Calculated Velocity:
7.25 ft/sec



FISC Pearl				
LOOP 2 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UF	2

(b) (3) (A)

Step 3 - Close Hydrant FP-FH-540-Z9
Close Hydrant FP-FH-544-Z9
Open Valve FP-MV-179-Z9
Open Valve FP-MV-207A-Z9

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



FISC Pearl				
LOOP 2 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	3

(b) (3) (A)

Step 1 - Close Valve FI-MV-438
 Open Hydrant FI-FH-5-29
 Open Hydrant FI-FH-5-30
 Monitor Hydrant FI-FH-5-30

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
7.52 ft/sec



Ford Island				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-5-29
 Close Hydrant FI-FH-5-30
 Open Valve FI-MV-438
 Close Valve FI-MV-501
 Open Hydrant FI-FH-6-1
 Monitor Hydrant FI-FH-6-2

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 min
 Calculated Velocity:
8.46 ft/sec



Ford Island

LOOP 1 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant FI-FH-6-1
 Open Hydrant FI-FH-4-14
 Monitor Hydrant FI-FH-4-14

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
17 min
Calculated Velocity:
7.52 ft/sec



Ford Island				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	3

(b) (3) (A)

Step 4 - Close Hydrant FI-FH-4-14
 Open Valve FI-MV-501
 Close Valve FI-MV-73
 Open Hydrant FI-FH-8-1
 Monitor Hydrant FI-FH-8-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 17 min
Calculated Velocity:
 8.46 ft/sec



Ford Island

LOOP 1 / STEP 4

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	4

(b) (3) (A)

Step 5 - Close Hydrant FI-FH-8-1
 Open Valve FI-MV-73
 Open Hydrant FI-FH-1-16
 Open Hydrant FI-FH-1-20
 Monitor Hydrant FI-FH-1-13A

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
7.52 ft/sec



Ford Island

LOOP 1 / STEP 5

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	5

(b) (3) (A)

Step 6 - Close Hydrant FI-FH-1-16
 Close Hydrant FI-FH-1-20
 Open Hydrant FI-FH-1-10
 Monitor Hydrant FI-FH-1-10

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 12 min
Calculated Velocity:
 7.52 ft/sec



Ford Island

LOOP 1 / STEP 6

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UDF	6

(b) (3) (A)

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Ford Island

LOOP 1 / STEP 7

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (3) (A)	(b) (3) (A)	01/21/2025	UOF	7

(b) (3) (A)

Step 1 - Close Valve HM-MV-57
 Close Valve HM-MV-75
 Close Valve HM-MV-43
 Close Valve HM-MV-84B
 Open Hydrant HM-FH-738
 Monitor Hydrant HM-FH-738

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
52 min
 Calculated Velocity:
7.5 ft/sec



Hale Moku				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant HM-FH-738
 Open Hydrant HM-FH-735
 Monitor Hydrant HM-FH-735

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 12 min
Calculated Velocity:
 7.5 ft/sec



Hale Moku				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant HM-FH-735
Open Valve HM-MV-57
Open Valve HM-MV-75
Open Valve HM-MV-43
Open Valve HM-MV-84B

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hale Moku				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/21/2025	UOF	3

(b) (3) (A)

Step 1 - Close Valve SY-MV-52-Z1
 Close Valve SY-MV-8-Z1
 Open Hydrant SY-FH-225-Z1
 Monitor Hydrant SY-FH-226-Z1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 10 min
Calculated Velocity:
 15.04 ft/sec



Hospital Point				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant SY-FH-225-Z1
 Open Hydrant SY-FH-220-Z1
 Monitor Hydrant SY-FH-220-Z1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
 5 min
Calculated Velocity:
 15.04 ft/sec



Hospital Point				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UF	2

(b) (3) (A)

Step 3 - Close Hydrant SY-FH-220-Z1
Open Valve SY-MV-8-Z1
Open Valve SY-MV-52-Z1

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hospital Point				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	3

(b) (3) (A)

Step 1 - Close Valve IP-MV-82
Open Hydrant IP-FH-2
Monitor Hydrant IP-FH-3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
43 min
Calculated Velocity:
7.83 ft/sec



Iroquois Point

LOOP 1 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UF	1

(b) (3) (A)

Step 2 - Close Hydrant IP-FH-2
Open Hydrant IP-FH-5
Monitor Hydrant IP-FH-62

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
37 min
Calculated Velocity:
7.83 ft/sec



Iroquois Point

LOOP 1 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UF	2

(b) (3) (A)

Step 3 - Close Hydrant IP-FH-5
 Open Valve IP-MV-82
 Open Hydrant IP-FH-28
 Monitor Hydrant IP-FH-28

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 8 min
Calculated Velocity:
 13.92 ft/sec



Iroquois Point				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UF	3

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Iroquois Point

LOOP 1 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UDF	4

(b) (3) (A)

Step 1 - Close Valve IP-MV-148
 Close Valve IP-MV-152
 Close Valve IP-MV-142
 Close Valve IP-MV-163
 Open Hydrant IP-FH-57
 Monitor Hydrant IP-FH-42

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
34 min
 Calculated Velocity:
7.83 ft/sec



Iroquois Point

LOOP 2 / STEP 1

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant IP-FH-57
 Open Hydrant IP-FH-41
 Monitor Hydrant IP-FH-40

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
25 min
 Calculated Velocity:
7.83 ft/sec



Iroquois Point				
LOOP 2 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant IP-FH-41
 Open Valve IP-MV-163
 Close Valve IP-MV-162
 Open Hydrant IP-FH-40
 Monitor Hydrant IP-FH-40

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
43 min
 Calculated Velocity:
7.83 ft/sec



Iroquois Point				
LOOP 2 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	3

(b) (3) (A)

Step 4 - Close Hydrant IP-FH-40
Open Valve IP-MV-162
Open Valve IP-MV-142
Open Valve IP-MV-152
Open Valve IP-MV-148

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Iroquois Point				
LOOP 2 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/22/2025	UOF	4

(b) (3) (A)

Step 1 - Close Valve BMK-MV-158
 Open Hydrant BMK-FH-2
 Monitor Hydrant BMK-FH-2

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
6.78 ft/sec



Makalapa Housing				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant BMK-FH-2
 Open Hydrant BMK-FH-936
 Monitor Hydrant BMK-FH-930

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
6.03 ft/sec



Makalapa Housing				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant BMK-FH-936
 Open Hydrant BMK-FH-930
 Monitor Hydrant BMK-FH-930

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
8 min
Calculated Velocity:
6.78 ft/sec











Makalapa Housing				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	3

(b) (3) (A)

Step 4 - Close Hydrant BMK-FH-930
Open Valve BMK-MV-158

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Makalapa Housing				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	4

(b) (3) (A)

Step 1 - Close Valve BMK-MV-158
 Open Hydrant BMK-FH-943
 Monitor Hydrant BMK-FH-944

Wait until flowing water clears and
 record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 min
Calculated Velocity:
6.78 ft/sec



Makalapa Housing				
LOOP 2 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant BMK-FH-943
 Open Hydrant BMK-FH-944
 Monitor Hydrant BMK-FH-944

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
6.78 ft/sec



Makalapa Housing				
LOOP 2 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant BMK-FH-944
 Open Valve BMK-MV-158
 Open Hydrant BMK-FH-939
 Monitor Hydrant BMK-FH-939

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
6.78 ft/sec



Makalapa Housing				
LOOP 2 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant BMK-FH-939
 Open Hydrant BMK-FH-920
 Monitor Hydrant BMK-FH-920

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 5 min
Calculated Velocity:
 12.06 ft/sec



Makalapa Housing				
LOOP 2 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	4

(b) (3) (A)

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Makalapa Housing				
LOOP 2 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	5

(b) (3) (A)

Step 1 Close Valve MPT-MV-43A
 Close Valve MPT-MV-4
 Close Valve MPT-MV-6
 Close Valve MPT-MV-10
 Open Hydrant MPT-FH-11
 Monitor Hydrant MPT-FH-10

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 22 min
Calculated Velocity:
 7.25 ft/sec



McGrew Point Housing				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/23/2025	UOF	1

(b) (3) (A)

Step 2 Close Hydrant MPT-FH-11
Open Hydrant MPT-FH-6
Monitor Hydrant MPT-FH-4

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 min
Calculated Velocity:
14.49 ft/sec



McGrew Point Housing

LOOP 1 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/23/2025	UOF	2

(b) (3) (A)

Step 3 Close Hydrant MPT-FH-6
Open Hydrant MPT-FH-4
Monitor Hydrant MPT-FH-4

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



McGrew Point Housing

LOOP 1 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/23/2025	UOF	3

(b) (3) (A)

Step 4
Close Hydrant MPT-FH-4
Open Valve MPT-MV-10
Open Valve MPT-MV-6
Open Valve MPT-MV-4
Open Valve MPT-MV-43A

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

McGrew Point Housing				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	1/23/2025	UOF	4



(b) (3) (A)

Step 1 - Open Hydrant PWC-FH-603
 Monitor Hydrant PWC-FH-603

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
51 min
Calculated Velocity:
5.68 ft/sec



Moanalua				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/23/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PWC-FH-603
 Open Hydrant PWC-FH-609
 Monitor Hydrant PWC-FH-609

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
7 min
Calculated Velocity:
6.39 ft/sec



Moanalua				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant PWC-FH-609
Close Valve MT-MV-113
Close Valve MT-MV-97
Open Hydrant MT-FH-29A
Monitor Hydrant MT-FH-29A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
14 min
Calculated Velocity:
6.39 ft/sec



Moanalua				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/23/2025	UOF	3

(b) (3) (A)

Step 4 - Close Hydrant MT-FH-29A
 Open Valve MT-MV-113
 Close Valve MT-MV-94
 Open Hydrant MT-FH-29A
 Monitor Hydrant MT-FH-29A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
 11 min
Calculated Velocity:
 6.39 ft/sec



Moanalua				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant MT-FH-29A
Open Valve MT-MV-94
Open Valve MT-MV-97

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Moanalua

LOOP 1 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/29/2025	UOF	5

(b) (3) (A)

Step 1 - Close Valve MT-MV-123
Open Hydrant MT-FH-37A
Monitor Hydrant MT-FH-37A

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 min
Calculated Velocity:
5.68 ft/sec



Moanalua Terrace				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/24/2025	UOF	1

(b) (3) (A)

Step 2 - Close Hydrant MT-FH-37A
Open Valve MT-MV-123
Open Hydrant MT-FH-23
Monitor Hydrant MT-FH-23

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
14 min
Calculated Velocity:
6.39 ft/sec



Moanalua Terrace				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/24/2025	UOF	2

(b) (3) (A)

Step 3 - Close Hydrant MT-FH-23
Close Valve MT-MV-71
Close Valve MT-MV-69A
Open Hydrant MT-FH-18A
Monitor Hydrant MT-FH-18A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
11 min
Calculated Velocity:
6.39 ft/sec



Moanalua Terrace				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/24/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant MT-FH-18A
Open Valve MT-MV-71
Open Hydrant MT-FH-17B
Monitor Hydrant MT-FH-17B

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 min
Calculated Velocity:
6.39 ft/sec



Moanalua Terrace				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/24/2025	UOF	4

(b) (3) (A)

Step 5 - Close Hydrant MT-FH-17B
Open Valve MT-MV-69A

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Moanalua Terrace				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/24/2025	UOF	5

(b) (3) (A)

Step 1 - Close Valve HALALI-MV-78-Z6
 Close Valve HALALI-MV-111A-Z6
 Close Valve NS-MV-56-Z7
 Open Hydrant HALALI-FH-304-Z6
 Open Hydrant HALALI-FH-305-Z6
 Monitor Hydrant NS-FH-308-Z7

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 12 min
Calculated Velocity:
 10.02 ft/sec



Naval Station Pearl

LOOP 1 / STEP 1

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant HALALI-FH-304-Z6
 Close Hydrant HALALI-FH-305-Z6
 Open Valve HALALI-MV-111A-Z6
 Close Valve HALALI-MV-77-Z6
 Open Hydrant HALALI-FH-303-Z6
 Open Hydrant HALALI-FH-304-Z6
 Monitor Hydrant HALALI-FH-305-Z6

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
6.96 ft/sec



Naval Station Pearl

LOOP 1 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant HALALI-FH-303-Z6
 Close Hydrant HALALI-FH-304-Z6
 Open Valve HALALI-MV-77-Z6
 Open Hydrant HALALI-FH-305-Z6
 Open Hydrant NS-FH-308-Z7
 Monitor Hydrant NS-FH-278-Z7

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 7 min
Calculated Velocity:
 10.02 ft/sec



Naval Station Pearl

LOOP 1 / STEP 3

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant HALALI-FH-305-Z6
 Close Hydrant NS-FH-308-Z7
 Open Valve NS-MV-56-Z7
 Close Valve NS-MV-8A-Z7
 Open Hydrant NS-FH-308-Z7
 Monitor Hydrant NS-FH-308-Z7

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
10 min
Calculated Velocity:
7.83 ft/sec



Naval Station Pearl				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant NS-FH-308-Z7
 Open Valve HALALI-MV-78-Z6
 Open Valve NS-MV-8A-Z7
 Close Valve SY-MV-64-Z6
 Open Hydrant SY-FH-269-Z6
 Monitor Hydrant SY-FH-269-Z6

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
7 min
Calculated Velocity:
13.92 ft/sec












Naval Station Pearl				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant SY-FH-269-Z6
 Open Valve SY-MV-64-Z6
 Open Hydrant NS-FH-306-Z6
 Monitor Hydrant NS-FH-306-Z6

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.


Minimum Time To Flush:
5 min
Calculated Velocity:
7.83 ft/sec



Naval Station Pearl				
LOOP 1 / STEP 6				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	6

(b) (3) (A)

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Naval Station Pearl				
LOOP 1 / STEP 7				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2023	UDF	7

(b) (3) (A)

Step 1 - Close Valve PC-MV-117
 Close Valve PC-MV-111B
 Close Valve PC-MV-136
 Close Valve PC-MV-208A
 Open Hydrant PC-FH-33
 Monitor Hydrant PC-FH-33

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 min
Calculated Velocity:
15.04 ft/sec



Pearl City				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/27/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PC-FH-33
 Open Hydrant PC-FH-41
 Monitor Hydrant PC-FH-35

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
 8 min
Calculated Velocity:
 15.04 ft/sec



Pearl City				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/27/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant PC-FH-41
 Open Hydrant PC-FH-35
 Monitor Hydrant PC-FH-35

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 min
Calculated Velocity:
15.04 ft/sec



Pearl City				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/27/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant PC-FH-35
Open Hydrant PC-FH-30A
Monitor Hydrant PC-FH-30A

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
15.04 ft/sec



Pearl City				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/27/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant PC-FH-30A
Open Valve PC-MV-117
Open Valve PC-MV-111B
Open Valve PC-MV-136
Open Valve PC-MV-208A

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Pearl City				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/27/2025	UDF	5

(b) (3) (A)

Step 1 - Open Hydrant PC-FH-62A
Monitor Hydrant PC-FH-62A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
8 min
Calculated Velocity:
8.46 ft/sec



Pearl City				
LOOP 2 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PC-FH-62A
 Close Valve PC-MV-106A
 Open Hydrant PC-FH-55B
 Monitor Hydrant PC-FH-55B

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
15 min
 Calculated Velocity:
8.46 ft/sec



Pearl City

LOOP 2 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant PC-FH-55B
 Open Valve PC-MV-106A
 Close Valve PC-MV-307B
 Open Hydrant PC-FH-76
 Monitor Hydrant PC-FH-76

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 20 min
Calculated Velocity:
 8.46 ft/sec



Pearl City				
LOOP 2 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant PC-FH-76
 Open Valve PC-MV-307B
 Open Hydrant PC-FH-57
 Monitor Hydrant PC-FH-57

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
17 min
Calculated Velocity:
8.46 ft/sec



Pearl City

LOOP 2 / STEP 4

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant PC-FH-57
 Open Hydrant PC-FH-4A
 Monitor Hydrant PC-FH-4A

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 10 min
Calculated Velocity:
 15.04 ft/sec



Pearl City

LOOP 2 / STEP 5

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant PC-FH-4A

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Pearl City				
LOOP 2 / STEP 6				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/28/2025	UDF	6

(b) (3) (A)

Step 1 - Close Valve PUU-MV-16
 Close Valve PUU-MV-17
 Open Hydrant PUU-FH-10
 Open Hydrant PUU-FH-9
 Monitor Hydrant PUU-FH-8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 20 min
Calculated Velocity:
 10.83 ft/sec



Puuloa Housing				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PUU-FH-10
 Close Hydrant PUU-FH-9
 Open Hydrant PUU-FH-6
 Monitor Hydrant PUU-FH-6

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
 20 min
Calculated Velocity:
 8.46 ft/sec



Puuloa Housing				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant PUU-FH-6
 Open Hydrant PUU-FH-8
 Open Hydrant PUU-FH-75A
 Monitor Hydrant PUU-FH-75A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 min
Calculated Velocity:
10.83 ft/sec



Puuloa Housing

LOOP 1 / STEP 3

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant PUU-FH-8
 Close Hydrant PUU-FH-75A
 Open Valve PUU-MV-17
 Close Valve PUU-MV-11
 Open Hydrant PUU-FH-6
 Monitor Hydrant PUU-FH-6

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
7 min
Calculated Velocity:
8.46 ft/sec



Puuloa Housing

LOOP 1 / STEP 4

Maintenance Flushing
 JBPHH, Hawaii










Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant PUU-FH-6
Open Valve PUU-MV-11
Open Valve PUU-MV-16

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Puuloa Housing

LOOP 1 / STEP 5

Maintenance Flushing
JBPHH, Hawaii










Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	5

(b) (3) (A)

Step 1 - Open Hydrant PRR-FH-13
Monitor Hydrant PRR-FH-13
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
31 min
Calculated Velocity:
8.46 ft/sec



Puuloa Rifle Range				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PRR-FH-13
Close Valve PRR-MV-13
Open Hydrant PRR-FH-3
Monitor Hydrant PRR-FH-3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
8.46 ft/sec



Puuloa Rifle Range

LOOP 1 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant PRR-FH-3
 Open Hydrant PRR-FH-4
 Monitor Hydrant PRR-FH-4

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
15.04 ft/sec



Puuloa Rifle Range

LOOP 1 / STEP 3

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale










Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant PRR-FH-4
Close Valve IP-MV-94
Close Valve IP-MV-96
Close Valve IP-MV-99
Open Hydrant PRR-FH-5
Monitor Hydrant PRR-FH-5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
24 min
Calculated Velocity:
8.46 ft/sec



Puuloa Rifle Range

LOOP 1 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale










Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant PRR-FH-5
 Open Valve PRR-MV-13
 Open Valve IP-MV-94
 Open Valve IP-MV-96
 Open Valve IP-MV-99
 Open Hydrant PRR-FH-5
 Monitor Hydrant PRR-FH-5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
7 min
Calculated Velocity:
8.46 ft/sec












Puuloa Rifle Range				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	5

Step 6 - Close Hydrant PRR-FH-5

(b) (3) (A)

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed



Puuloa Rifle Range

LOOP 1 / STEP 6

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2023	UDF	6

(b) (3) (A)

Step 1 - Open Hydrant RT-FH-33
Monitor Hydrant RT-FH-33

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
5.98 ft/sec



Radford Terrace

LOOP 1 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant RT-FH-33
 Open Hydrant RT-FH-27
 Monitor Hydrant RT-FH-27

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
10.63 ft/sec



Radford Terrace				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant RT-FH-27
 Close Valve RT-MV-149
 Open Hydrant RT-FH-41
 Monitor Hydrant RT-FH-41

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
 24 min
Calculated Velocity:
 5.98 ft/sec



Radford Terrace				
LOOP 1 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant RT-FH-41
 Close Valve RT-MV-52
 Open Hydrant RT-FH-13
 Monitor Hydrant RT-FH-13

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
5.98 ft/sec



Radford Terrace

LOOP 1 / STEP 4

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UF	4

(b) (3) (A)

Step 5 - Close Hydrant RT-FH-13
Open Valve RT-MV-52
Open Valve RT-MV-149

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Radford Terrace				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	01/20/2025	UF	5

(b) (3) (A)

Step 1 - Close Valve MP-MV-49-Z5
 Close Valve SY-MV-76A-Z6
 Close Valve SY-MV-114-Z3
 Close Valve MP-MV-4-Z5
 Close Valve MP-MV-43-Z5
 Open Hydrant MP-FH-237-Z5
 Open Hydrant MP-FH-238-Z5
 Monitor Hydrant MP-FH-201-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/back-siphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
7.25 ft/sec



Shipyard Pearl				
LOOP 1 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2023	UDP	1

(b) (3) (A)

Step 2 - Close Hydrant MP-FH-237-Z5
 Close Hydrant MP-FH-238-Z5
 Open Valve MP-MV-43-Z5
 Close Valve MP-MV-36-Z5
 Open Hydrant MP-FH-237-Z5
 Monitor Hydrant MP-FH-239-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- ◆ Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
8.15 ft/sec



Shipyard Pearl

LOOP 1 / STEP 2

Maintenance Flushing
 JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2023	UDP	2

(b) (3) (A)

Step 3 - Close Hydrant MP-FH-237-Z5
Open Valve MP-MV-36-Z5
Open Hydrant SY-FH-296-Z5
Monitor Hydrant SY-FH-264-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
11 min
Calculated Velocity:
8.15 ft/sec



Shipyard Pearl

LOOP 1 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant SY-FH-296-Z5
Open Hydrant MP-FH-204-Z5
Monitor Hydrant MP-FH-204-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 min
Calculated Velocity:
14.49 ft/sec



Shipyards Pearl				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant MP-FH-204-Z5
Open Valve SY-MV-76A-Z6
Close Valve MP-MV-52-Z5
Open Hydrant MP-FH-204-Z5
Monitor Hydrant MP-FH-202-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Shipyards Pearl				
LOOP 1 / STEP 5				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant MP-FH-204-Z5
Open Valve MP-MV-52-Z5
Open Hydrant MP-FH-242-Z5
Monitor Hydrant MP-FH-242-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Shipyard Pearl				
LOOP 1 / STEP 6				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	6

(b) (3) (A)

Step 7 - Close Hydrant MP-FH-242-Z5
Open Valve MP-MV-49-Z5
Close Valve MP-MV-16-Z5
Open Hydrant MP-FH-242-Z5
Monitor Hydrant MP-FH-242-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time to Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Shipyard Pearl				
LOOP 1 / STEP 7				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	7

(b) (3) (A)

Step 8 - Close Hydrant MP-FH-242-Z5
Open Valve MP-MV-4-Z5
Open Valve MP-MV-16-Z5
Close Valve MP-MV-12-Z5
Open Hydrant MP-FH-242-Z5
Monitor Hydrant MP-FH-242-Z5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Shipyards Pearl				
LOOP 1 / STEP 8				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	8

(b) (3) (A)

Step 9 - Close Hydrant MP-FH-242-Z5
Open Valve MP-MV-12-Z5
Open Valve SY-MV-114-Z3

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Shipyard Pearl

LOOP 1 / STEP 9

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/03/2025	UDF	9



(b) (3) (A)

Step 1 - Close Valve SY-MV-6-Z4
Open Hydrant SY-FH-163-Z4
Open Hydrant SY-FH-164-Z4
Monitor Hydrant SY-FH-164-Z4

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 min
Calculated Velocity:
7.25 ft/sec



Shipyards Pearl				
LOOP 2 / STEP 1				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	1



(b) (3) (A)

Step 2 - Close Hydrant SY-FH-163-Z4
 Close Hydrant SY-FH-164-Z4
 Open Valve SY-MV-6-Z4
 Close Valve SY-MV-94-Z3
 Close Valve SY-MV-95-Z3
 Close Valve SY-MV-62-Z3
 Close Valve SY-MV-49A-Z3
 Close Valve SY-MV-49-Z3
 Open Hydrant SY-FH-168-Z3
 Open Hydrant SY-FH-103-Z3
 Monitor Hydrant SY-FH-116B-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 min
Calculated Velocity:
7.25 ft/sec



Shipyard Pearl				
LOOP 2 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	2



(b) (3) (A)

Step 3 - Close Hydrant SY-FH-168-Z3
Close Hydrant SY-FH-103-Z3
Open Hydrant SY-FH-172-Z3
Monitor Hydrant SY-FH-172-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
8.15 ft/sec



Shipyard Pearl

LOOP 2 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	3



(b) (3) (A)

Step 4 - Close Hydrant SY-FH-172-Z3
Open Hydrant SY-FH-110-Z3
Monitor Hydrant SY-FH-110-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
8.15 ft/sec



Shipyard Pearl

LOOP 2 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	4



(b) (3) (A)

Step 5 - Close Hydrant SY-FH-110-Z3
Open Hydrant SY-FH-119-Z3
Open Hydrant SY-FH-120-Z3
Monitor Hydrant SY-FH-120-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 min
Calculated Velocity:
7.25 ft/sec



Shipyard Pearl

LOOP 2 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	5



(b) (3) (A)

Step 6 - Close Hydrant SY-FH-119-Z3
Close Hydrant SY-FH-120-Z3
Open Valve SY-MV-62-Z3
Open Valve SY-MV-94-Z3
Open Valve SY-MV-95-Z3
Close Valve SY-MV-65-Z3
Close Valve SY-MV-66-Z3
Open Hydrant SY-FH-103-Z3
Open Hydrant SY-FH-160-Z3
Monitor Hydrant SY-FH-103-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
10.43 ft/sec



Shipyard Pearl

LOOP 2 / STEP 6

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	6



(b) (3) (A)

Step 7 - Close Hydrant SY-FH-103-Z3
Close Hydrant SY-FH-160-Z3
Open Valve SY-MV-65-Z3
Open Valve SY-MV-66-Z3
Open Hydrant SY-FH-116B-Z3
Monitor Hydrant SY-FH-116B-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
7.25 ft/sec



Shipyard Pearl

LOOP 2 / STEP 7

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	7



(b) (3) (A)

Step 8 - Close Hydrant SY-FH-116B-Z3
Open Valve SY-MV-49A-Z3
Open Valve SY-MV-49-Z3
Close Valve SY-MV-63-Z3
Open Hydrant SY-FH-103-Z3
Open Hydrant SY-FH-160-Z3
Monitor Hydrant SY-FH-103-Z3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
7.25 ft/sec



Shipyard Pearl

LOOP 2 / STEP 8

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	8



(b) (3) (A)

Step 9 - Close Hydrant SY-FH-103-Z3
Close Hydrant SY-FH-160-Z3
Open Valve SY-MV-63-Z3

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Shipyard Pearl

LOOP 2 / STEP 9

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	9

(b) (3) (A)

Step 1 - Open Hydrant SB-FH-421-Z8
Monitor Hydrant SB-FH-421-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

LOOP 1 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant SB-FH-421-Z8
Close Valve SB-MV-10-Z8
Close Valve SB-MV-79-Z8
Open Hydrant SB-FH-417-Z8
Monitor Hydrant SB-FH-403-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl				
LOOP 1 / STEP 2				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant SB-FH-417-Z8
Open Valve SB-MV-10-Z8
Open Hydrant SB-FH-403-Z8
Monitor Hydrant SB-FH-403-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

LOOP 1 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant SB-FH-403-Z8
Open Hydrant SB-FH-404-Z8
Monitor Hydrant SB-FH-404-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

LOOP 1 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant SB-FH-404-Z8
Open Valve SB-MV-79-Z8
Close Valve SB-MV-73A-Z8
Close Valve SB-MV-82-Z8
Open Hydrant SB-FH-403-Z8
Monitor Hydrant SB-FH-403-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl

LOOP 1 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant SB-FH-403-Z8
Close Valve SB-MV-42B-Z8
Close Valve SB-MV-34A-Z8
Close Valve SB-MV-3-Z8
Open Hydrant SB-FH-412-Z8
Monitor Hydrant SB-FH-412-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl				
LOOP 1 / STEP 6				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	6

(b) (3) (A)

Step 7 - Close Hydrant SB-FH-412-Z8
Open Valve SB-MV-82-Z8
Close Valve SB-MV-85-Z8
Open Hydrant SB-FH-405-Z8
Monitor Hydrant SB-FH-405-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

LOOP 1 / STEP 7

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	7

(b) (3) (A)

Step 8 - Close Hydrant SB-FH-405-Z8
Open Valve SB-MV-73A-Z8
Open Valve SB-MV-85-Z8
Open Valve SB-MV-42B-Z8
Close Valve SB-MV-42-Z8
Open Hydrant SB-FH-409-Z8
Monitor Hydrant SB-FH-409-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl

LOOP 1 / STEP 8

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	8

(b) (3) (A)

Step 9 - Close Hydrant SB-FH-409-Z8
Open Valve SB-MV-3-Z8
Open Valve SB-MV-34A-Z8
Open Valve SB-MV-42-Z8

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Sub Base Pearl

LOOP 1 / STEP 9

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/07/2025	UDF	9

(b) (3) (A)

Step 1 - Close Valve SB-MV-42A-Z8
Close Valve SB-MV-41-Z8
Open Hydrant SB-FH-409-Z8
Monitor Hydrant SB-FH-409-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl

LOOP 2 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/10/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant SB-FH-409-Z8
Open Hydrant SB-FH-412-Z8
Monitor Hydrant SB-FH-408-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
8.15 ft/sec



Sub Base Pearl

LOOP 2 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/10/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant SB-FH-412-Z8
Open Valve SB-MV-42A-Z8
Open Valve SB-MV-41-Z8
Open Hydrant SB-FH-413-Z8
Monitor Hydrant SB-FH-413-Z8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

LOOP 2 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked by	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/10/2025	UDF	3

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Sub Base Pearl

LOOP 2 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	03/10/2025	UDF	4

(b) (3) (A)

Step 1 - Close Valve WL-MV-20
Open Hydrant WL-FH-6
Monitor Hydrant WL-FH-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 1 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-6
Open Hydrant WL-FH-5
Monitor Hydrant WL-FH-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 1 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-5
Open Valve WL-MV-20
Open Hydrant WL-FH-3
Monitor Hydrant WL-FH-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
33 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 1 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant WL-FH-3
Open Hydrant WL-FH-1
Monitor Hydrant WL-FH-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 min
Calculated Velocity:
14.49 ft/sec



West Loch				
LOOP 1 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant WL-FH-1

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch

LOOP 1 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	5

(b) (3) (A)

Step 1 - Close Valve WL-MV-78
Open Hydrant WL-FH-20
Monitor Hydrant WL-FH-45

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
11 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 2 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-20
Open Valve WL-MV-78
Close Valve WL-MV-92
Open Hydrant WL-FH-24
Monitor Hydrant WL-FH-45

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 min
Calculated Velocity:
14.49 ft/sec



West Loch

LOOP 2 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-24
Open Valve WL-MV-92
Open Hydrant WL-FH-45
Monitor Hydrant WL-FH-45

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
39 min
Calculated Velocity:
7.25 ft/sec



West Loch

LOOP 2 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant WL-FH-45

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch

LOOP 2 / STEP 4

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	4

(b) (3) (A)

Step 1 - Open Hydrant WL-FH-62
Monitor Hydrant WL-FH-62

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 3 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-62
Close Valve WL-MV-162
Open Hydrant WL-FH-66
Monitor Hydrant WL-FH-69

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 3 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-66
Open Hydrant WL-FH-70
Monitor Hydrant WL-FH-70

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 3 / STEP 3

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant WL-FH-70
 Open Valve WL-MV-162
 Open Hydrant WL-FH-70
 Open Hydrant WL-FH-69
 Monitor Hydrant WL-FH-70

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 min
Calculated Velocity:
7.25 ft/sec



West Loch				
LOOP 3 / STEP 4				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant WL-FH-69
Close Hydrant WL-FH-70
Open Hydrant WL-FH-67
Monitor Hydrant WL-FH-67

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 3 / STEP 5

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant WL-FH-67

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch

LOOP 3 / STEP 6

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/26/2025	UDF	6

(b) (3) (A)

Step 1 - Open Hydrant WL-FH-81
Monitor Hydrant WL-FH-82

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 4 / STEP 1

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2025	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-81
Open Hydrant WL-FH-82
Monitor Hydrant WL-FH-81

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 min
Calculated Velocity:
8.15 ft/sec



West Loch

LOOP 4 / STEP 2

Maintenance Flushing
JBPHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2025	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-82

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch				
LOOP 4 / STEP 3				
Maintenance Flushing JBPHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	02/27/2025	UDF	3

JBPHH Water Distribution System
Hickam
Annual Flushing Loops

(b) (3) (A)

Step 1 - Close Valve Zone 1-MV-8
Close Valve Zone 1-MV-13
Close Valve Zone 1-MV-14
Close Valve Zone 1-MV-20
Close Valve Zone 1-MV-22
Open Hydrant Zone 1-FH-528
Monitor Hydrant Zone 1-FH-383
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 1				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 1-FH-528
Close Valve Zone 1-MV-35
Open Hydrant Zone 1-FH-382
Monitor Hydrant Zone 1-FH-527
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 1				
LOOP 1 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 1-FH-382
Open Valve Zone 1-MV-35
Open Valve Zone 1-MV-13
Close Valve Zone 1-MV-19
Close Valve Zone 1-MV-16
Open Hydrant Zone 1-FH-386
Monitor Hydrant Zone 1-FH-386
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
16 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 1				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 1-FH-386
Open Valve Zone 1-MV-19
Open Valve Zone 1-MV-20
Close Valve Zone 1-MV-13
Close Valve Zone 1-MV-37
Open Hydrant Zone 1-FH-528
Monitor Hydrant Zone 1-FH-384
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 1				
LOOP 1 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant Zone 1-FH-528
Open Valve Zone 1-MV-13
Open Valve Zone 1-MV-37
Open Valve Zone 1-MV-22
Open Valve Zone 1-MV-14
Open Valve Zone 1-MV-8

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 1				
LOOP 1 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 1 - Close Valve Zone 2-MV-5
Close Valve Zone 2-MV-1
Close Valve Zone 2-MV-34
Close Valve Zone 2-MV-10
Close Valve Zone 2-MV-17
Open Hydrant Zone 2-FH-343
Open Hydrant Zone 2-FH-227
Monitor Hydrant Zone 2-FH-223

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 minutes
Calculated Velocity:
6.96 ft/sec



Hickam Zone 2				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 2-FH-343
Close Hydrant Zone 2-FH-227
Open Hydrant Zone 2-FH-222
Monitor Hydrant Zone 2-FH-222

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 2				
LOOP 1 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 2-FH-222
Close Valve Zone 2 MV-3
Open Hydrant Zone 2-FH-232
Monitor Hydrant Zone 2-FH-232

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
17 minutes
Calculated Velocity:
5.01 ft/sec



Hickam Zone 2				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 2-FH-232
Open Valve Zone 2 MV-1
Open Valve Zone 2 MV-3
Open Valve Zone 2 MV-17
Close Valve Zone 2 MV-11
Close Valve Zone 2 MV-52
Open Hydrant Zone 2-FH-202
Monitor Hydrant Zone 2-FH-202

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
16 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 2

LOOP 1 / STEP 4

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant Zone 2-FH-202
Open Valve Zone 2 MV-52
Open Valve Zone 2 MV-10
Open Valve Zone 2 MV-11
Open Valve Zone 2 MV-5
Open Valve Zone 2 MV-34

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 2				
LOOP 1 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 1 - Close Valve Zone 3-MV-45
Open Hydrant Zone 11-FH-444
Monitor Hydrant Zone 11-FH-444
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
32 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 3				
LOOP 1 / STEP 1				
Unidirectional Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 11-FH-444
Open Hydrant Zone 3-FH-394
Monitor Hydrant Zone 3-FH-394
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
17 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 3

LOOP 1 / STEP 2

Unidirectional Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 3-FH-394
Open Valve Zone 3-MV-45
Close Valve Zone 3-MV-62
Open Hydrant Zone 11-FH-514
Monitor Hydrant Zone 11-FH-514
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 3

LOOP 1 / STEP 3

Unidirectional Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 11-FH-514
Open Valve Zone 3-MV-62

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 3				
LOOP 1 / STEP 4				
Unidirectional Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 1 - Close Valve Zone 4-MV-12
Close Valve Zone 4-MV-57
Open Hydrant Zone 4-FH-286
Monitor Hydrant Zone 4-FH-286

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 4

LOOP 1 / STEP 1

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 4-FH-286
Open Valve Zone 4-MV-57
Open Hydrant Zone 4-FH-305
Monitor Hydrant Zone 4-FH-305

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
13 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 4

LOOP 1 / STEP 2

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 4-FH-305
Open Valve Zone 4-MV-12
Close Valve Zone 4-MV-28
Close Valve Zone 4-MV-29
Open Hydrant Zone 4-FH-304
Monitor Hydrant Zone 4-FH-304
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 4				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 4-FH-304
Open Valve Zone 4-MV-28
Open Valve Zone 4-MV-29
Close Valve Zone 4-MV-60
Open Hydrant Zone 4-FH-294
Monitor Hydrant Zone 4-FH-294
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
16 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 4				
LOOP 1 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant Zone 4-FH-294
Open Valve Zone 4-MV-60

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 4				
LOOP 1 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5



(b) (3) (A)

Step 1 - Close Valve Zone 6-MV-22
Close Valve Zone 6-MV-3
Close Valve Zone 8-MV-61
Close Valve Zone 8-MV-63
Open Hydrant Zone 8-FH-425
Monitor Hydrant Zone 8-FH-425

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
38 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



(b) (3) (A)

Step 2 - Close Hydrant Zone 8-FH-425
Open Hydrant Zone 6-FH-79
Monitor Hydrant Zone 6-FH-79

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 6				
LOOP 1 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



(b) (3) (A)

Step 3 - Close Hydrant Zone 6-FH-79
Open Hydrant Zone 8-FH-365
Monitor Hydrant Zone 8-FH-94

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 6				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3



(b) (3) (A)

Step 4 - Close Hydrant Zone 8-FH-365
Open Valve Zone 8-MV-61
Open Valve Zone 8-MV-63
Open Valve Zone 6-MV-3
Open Valve Zone 6-MV-22

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 6				
LOOP 1 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4



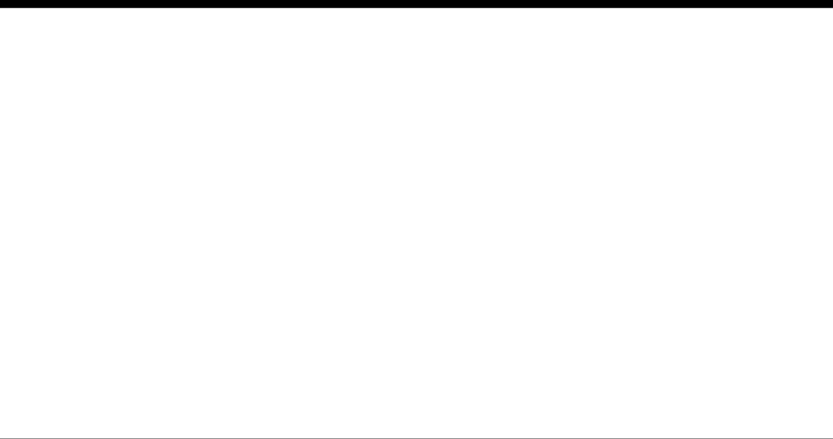
(b) (3) (A)

Step 1 - Close Valve Zone 6-MV-39
Close Valve Zone 6-MV-26
Close Valve Zone 6-MV-21
Close Valve Zone 6-MV-3
Close Valve Zone 6-MV-17
Close Valve Zone 6-MV-7
Close Valve Zone 8-MV-70
Close Valve Zone 8-MV-67
Close Valve Zone 8-MV-60
Close Valve Zone 8-MV-61
Close Valve Zone 8-MV-75
Open Hydrant Zone 6-FH-83
Monitor Hydrant Zone 6-FH-90

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)



- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
16 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 2 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



(b) (3) (A)

Step 2 - Close Hydrant Zone 6-FH-83
Open Valve Zone 6-MV-21
Open Valve Zone 6-MV-3
Close Valve Zone 6-MV-20
Open Hydrant Zone 6-FH-90
Monitor Hydrant Zone 8-FH-94

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 2 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



(b) (3) (A)

Step 3 - Close Hydrant Zone 6-FH-90
Open Valve Zone 6-MV-20
Open Hydrant Zone 8-FH-425
Monitor Hydrant Zone 8-FH-465

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 2 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3



(b) (3) (A)

Step 4 - Close Hydrant Zone 8-FH-425
Open Valve Zone 6-MV-39
Open Valve Zone 6-MV-26
Open Valve Zone 6-MV-17
Open Valve Zone 6-MV-7
Open Valve Zone 8-MV-70
Open Valve Zone 8-MV-67
Open Valve Zone 8-MV-60
Open Valve Zone 8-MV-61
Open Valve Zone 8-MV-75

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 6				
LOOP 2 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 1 - Close Valve Zone 7-MV-12
Close Valve Zone 7-MV-13
Close Valve Zone 6-MV-56
Close Valve Zone 6-MV-63
Close Valve Zone 6-MV-53
Close Valve Zone 6-MV-52
Close Valve Zone 6-MV-50
Open Hydrant Zone 6-FH-71
Open Hydrant Zone 6-FH-72
Monitor Hydrant Zone 6-FH-72

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
22 minutes
Calculated Velocity:
6.96 ft/sec












Hickam Zone 6				
LOOP 3 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 6-FH-71
Close Hydrant Zone 6-FH-72
Open Valve Zone 6-MV-50
Close Valve Zone 7-MV-30
Open Hydrant Zone 6-FH-71
Open Hydrant Zone 6-FH-70
Monitor Hydrant Zone 6-FH-69

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 minutes
Calculated Velocity:
6.96 ft/sec



Hickam Zone 6

LOOP 3 / STEP 2

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale










Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 6-FH-71
Close Hydrant Zone 6-FH-70
Open Valve Zone 7-MV-30
Open Valve Zone 7-MV-12
Close Valve Zone 7-MV-10
Close Valve Zone 7-MV-6
Close Valve Zone 6-MV-42
Close Valve Zone 6-MV-39
Open Hydrant Zone 6-FH-76
Monitor Hydrant Zone 6-FH-77

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6

LOOP 3 / STEP 3

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 6-FH-76
Open Valve Zone 7-MV-10
Open Valve Zone 7-MV-6
Open Valve Zone 6-MV-56
Close Valve Zone 6-MV-43
Open Hydrant Zone 6-FH-77
Monitor Hydrant Zone 6-FH-77

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6

LOOP 3 / STEP 4

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant Zone 6-FH-77
Open Valve Zone 6-MV-43
Open Valve Zone 6-MV-42
Close Valve Zone 6-MV-27
Close Valve Zone 6-MV-30
Close Valve Zone 6-MV-26
Open Hydrant Zone 6-FH-82
Monitor Hydrant Zone 6-FH-82

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 3 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant Zone 6-FH-82
Open Valve Zone 6-MV-26
Open Valve Zone 6-MV-39
Open Valve Zone 6-MV-27
Open Valve Zone 6-MV-30
Open Valve Zone 6-MV-52
Open Valve Zone 6-MV-53
Open Valve Zone 6-MV-63
Open Valve Zone 7-MV-13

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 6				
LOOP 3 / STEP 6				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	6



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 1 - Close Valve Zone 7-MV-3
 Close Valve Zone 7-MV-5
 Close Valve Zone 8-MV-23
 Close Valve Zone 8-MV-71
 Close Valve Zone 8-MV-14
 Open Hydrant Zone 8-FH-36
 Monitor Hydrant Zone 8-FH-36

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
26 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 4 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	1



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 2 - Close Hydrant Zone 8-FH-36
 Close Valve Zone 6-MV-27
 Close Valve Zone 6-MV-12
 Close Valve Zone 6-MV-13
 Open Hydrant Zone 6-FH-84
 Monitor Hydrant Zone 6-FH-84

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
26 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 4 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 3 - Close Hydrant Zone 6-FH-84
 Open Valve Zone 7-MV-3
 Close Valve Zone 6-MV-30
 Open Hydrant Zone 6-FH-84
 Monitor Hydrant Zone 6-FH-84

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
26 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 4 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	3



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 4 - Close Hydrant Zone 6-FH-84
 Open Valve Zone 6-MV-27
 Open Valve Zone 6-MV-30
 Open Valve Zone 6-MV-12
 Open Valve Zone 6-MV-13
 Open Valve Zone 8-MV-71
 Close Valve Zone 8-MV-31
 Close Valve Zone 8-MV-48
 Close Valve Zone 8-MV-51
 Close Valve Zone 8-MV-67
 Open Hydrant Zone 8-FH-97
 Monitor Hydrant Zone 8-FH-97

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
18 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6

LOOP 4 / STEP 4

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 5 - Close Hydrant Zone 8-FH-97
 Open Valve Zone 8-MV-23
 Open Valve Zone 8-MV-67
 Open Valve Zone 8-MV-48
 Close Valve Zone 8-MV-36
 Close Valve Zone 8-MV-55
 Close Valve Zone 8-MV-70
 Open Hydrant Zone 8-FH-93
 Monitor Hydrant Zone 8-FH-93

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6

LOOP 4 / STEP 5

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 6 - Close Hydrant Zone 8-FH-93
 Open Valve Zone 8-MV-51
 Open Valve Zone 8-MV-70
 Open Valve Zone 8-MV-36
 Close Valve Zone 6-MV-12
 Close Valve Zone 6-MV-7
 Open Hydrant Zone 6-FH-89
 Monitor Hydrant Zone 6-FH-89

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
21 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6				
LOOP 4 / STEP 6				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	6



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 7 - Close Hydrant Zone 6-FH-89
 Open Valve Zone 6-MV-7
 Open Valve Zone 6-MV-12
 Open Valve Zone 8-MV-55
 Close Valve Zone 8-MV-33
 Close Valve Zone 8-MV-44
 Close Valve Zone 8-MV-46
 Close Valve Zone 8-MV-60
 Open Hydrant Zone 8-FH-100
 Monitor Hydrant Zone 8-FH-100

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 6

LOOP 4 / STEP 7

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	7



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Step 8 - Close Hydrant Zone 8-FH-100
Open Valve Zone 8-MV-60
Open Valve Zone 8-MV-44
Open Valve Zone 8-MV-46
Open Valve Zone 8-MV-33
Open Valve Zone 7-MV-5

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 6				
LOOP 4 / STEP 8				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3) (A)	(b) (3) (A)	11/20/2024	UDF	8

(b) (3) (A)

Step 1 - Close Valve Zone 9-MV-10
Close Valve Zone 9-MV-4
Open Hydrant Zone 9-FH-109
Monitor Hydrant Zone 9-FH-109
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 9				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 9-FH-109
Open Valve Zone 9-MV-4
Close Valve Zone 9-MV-3
Open Hydrant Zone 9-FH-109
Monitor Hydrant Zone 9-FH-108
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 9				
LOOP 1 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 9-FH-109
Open Valve Zone 9 MV-3
Open Hydrant Zone 9-FH-556
Monitor Hydrant Zone 9-FH-556
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 9

LOOP 1 / STEP 3

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 9-FH-556
Open Valve Zone 9 MV-10

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 9

LOOP 1 / STEP 4

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 1 - Close Valve Zone 9-MV-83
Close Valve Zone 9-MV-49
Close Valve Zone 9-MV-51
Close Valve Zone 9-MV-56
Open Hydrant Zone 9-FH-133
Monitor Hydrant Zone 9-FH-497
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
29 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 9

LOOP 2 / STEP 1

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant Zone 9-FH-133
Open Valve Zone 9-MV-83
Open Hydrant Zone 9-FH-503
Monitor Hydrant Zone 9-FH-503
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
22 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 9

LOOP 2 / STEP 2

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant Zone 9-FH-503
Open Hydrant Zone 9-FH-420
Monitor Hydrant Zone 9-FH-420
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 9				
LOOP 2 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant Zone 9-FH-420
 Open Hydrant Zone 9-FH-428
 Open Hydrant Zone 9-FH-429
 Monitor Hydrant Zone 9-FH-429
 Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
7.25 ft/sec



Hickam Zone 9				
LOOP 2 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant Zone 9-FH-428
Close Hydrant Zone 9-FH-429
Open Valve Zone 9 MV-56
Close Valve Zone 9 MV-67
Open Hydrant Zone 9-FH-503
Monitor Hydrant Zone 9-FH-503
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 9				
LOOP 2 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant Zone 9-FH-503
Open Hydrant Zone 9-FH-436
Monitor Hydrant Zone 9-FH-436
Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 9				
LOOP 2 / STEP 6				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	6

(b) (3) (A)

Step 7 - Close Hydrant Zone 9-FH-436
Open Valve Zone 9 MV-49
Open Valve Zone 9 MV-51
Open Valve Zone 9 MV-67

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 9				
LOOP 2 / STEP 7				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	7



(b) (3) (A)

Step 1 - Close Valve Zone 10-MV-35
Close Valve Zone 10-MV-100
Close Valve Zone 10-MV-38
Open Hydrant Zone 10-FH-360
Open Hydrant Zone 10-FH-588
Monitor Hydrant Zone 10-FH-361
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used

- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
20 minutes
Calculated Velocity:
7.25 ft/sec



Hickam Zone 10				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



(b) (3) (A)

Step 2 - Close Hydrant Zone 10-FH-360
Close Hydrant Zone 10-FH-588
Open Hydrant Zone 10-FH-452
Open Hydrant Zone 10-FH-453
Monitor Hydrant Zone 10-FH-453
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used

- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
19 minutes
Calculated Velocity:
10.43 ft/sec



Hickam Zone 10				
LOOP 1 / STEP 2				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



(b) (3) (A)

Step 3 - Close Hydrant Zone 10-FH-452
Close Hydrant Zone 10-FH-453
Open Hydrant Zone 10-FH-450
Monitor Hydrant Zone 10-FH-450
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used

- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3



(b) (3) (A)

Step 4 - Close Hydrant Zone 10-FH-450
Open Valve Zone 10 MV-100
Close Valve Zone 10 MV-23
Open Hydrant Zone 10-FH-455
Open Hydrant Zone 10-FH-456
Monitor Hydrant Zone 10-FH-456
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
11 minutes
Calculated Velocity:
10.43 ft/sec



Hickam Zone 10				
LOOP 1 / STEP 4				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4



(b) (3) (A)

Step 5 - Close Hydrant Zone 10-FH-455
Close Hydrant Zone 10-FH-456
Open Valve Zone 10 MV-35
Open Valve Zone 10 MV-23
Close Valve Zone 10 MV-20
Open Hydrant Zone 10-FH-450
Monitor Hydrant Zone 10-FH-449
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
16 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10				
LOOP 1 / STEP 5				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5



(b) (3) (A)

Step 6 - Close Hydrant Zone 10-FH-450
Open Valve Zone 10 MV-20
Open Valve Zone 10 MV-38

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 10				
LOOP 1 / STEP 6				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	6



Step 1 - Close Valve Zone 11-MV-20
Close Valve Zone 11-MV-16
Open Hydrant Zone 11-FH-412
Open Hydrant Zone 11-FH-406
Monitor Hydrant Zone 11-FH-576
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
67 minutes
Calculated Velocity:
7.25 ft/sec



Hickam Zone 11				
LOOP 1 / STEP 1				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



Step 2 - Close Hydrant Zone 11-FH-412
Close Hydrant Zone 11-FH-406
Open Hydrant Zone 11-FH-575
Open Hydrant Zone 11-FH-576
Monitor Hydrant Zone 11-FH-576
Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
22 minutes
Calculated Velocity:
7.25 ft/sec



Hickam Zone 11

LOOP 1 / STEP 2

Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



Step 3 - Close Hydrant Zone 11-FH-575
Close Hydrant Zone 11-FH-576
Open Valve Zone 11-MV-16
Open Valve Zone 11-MV-20

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
22 minutes
Calculated Velocity:
7.25 ft/sec



Hickam Zone 11				
LOOP 1 / STEP 3				
Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

APPENDIX B

JBPHH Water Distribution System Dead-ends Flushing Procedures

JBPHH Water Distribution System
Pearl Harbor
Dead-ends Flushing Procedures

(b) (3) (A)

Step 1 - Open Hydrant CS-FH-35
Monitor Hydrant CS-FH-35

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
11.37 ft/sec



Camp Smith

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant CS-FH-35

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Camp Smith				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant DM-FH-23
Monitor Hydrant DM-FH-23

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

5 minutes

Calculated Velocity:

10.63 ft/sec



Doris Miller

DEAD END 1/ STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant DM-FH-23
Open Hydrant DM-FH-24
Monitor Hydrant DM-FH-24

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Doris Miller

DEAD END 1/ STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant DM-FH-24

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Doris Miller

DEAD END 1/ STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant DM-FH-6
Monitor Hydrant DM-FH-6

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
21 minutes
Calculated Velocity:
3.48 ft/sec



Doris Miller

DEAD END 2/ STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant DM-FH-6

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Doris Miller

DEAD END 2/ STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant FP-FH-530-Z9
Monitor Hydrant FP-FH-530-Z9

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 minutes
Calculated Velocity:
3.62 ft/sec



FISC				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FP-FH-530-Z9
Open Hydrant FP-FH-541-Z9
Monitor Hydrant FP-FH-541-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 minutes
Calculated Velocity:
3.62 ft/sec



FISC				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant FP-FH-541-Z9
Open Hydrant FP-FH-542-Z9
Monitor Hydrant FP-FH-542-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



FISC				
DEAD END 1 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant FP-FH-542-Z9
Open Hydrant FP-FH-523-Z9
Monitor Hydrant FP-FH-523-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
23 minutes
Calculated Velocity:
3.62 ft/sec



FISC				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant FP-FH-523-Z9
Open Hydrant FP-FH-540-Z9
Monitor Hydrant FP-FH-540-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
3.62 ft/sec



FISC

DEAD END 1 / STEP 5

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 6 - Close Hydrant FP-FH-540-Z9

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



FISC				
DEAD END 1 / STEP 6				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	6



(b) (3) (A)

Step 1 - Open Hydrant FI-FH-1-2
Monitor Hydrant FI-FH-1-2

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used

- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
26 minutes
Calculated Velocity:
3.76 ft/sec



Ford Island				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-1-2
Open Hydrant FI-FH-1-5
Monitor Hydrant FI-FH-1-5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
3.76 ft/sec



Ford Island				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant FI-FH-1-5
Open Hydrant FI-FH-1-1
Monitor Hydrant FI-FH-1-1

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

6 minutes

Calculated Velocity:

15.04 ft/sec



Ford Island

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant FI-FH-1-1

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Ford Island				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4



(b) (3) (A)

Step 1 - Open Hydrant FI-FH-5-19
Monitor Hydrant FI-FH-5-19

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
15.04 ft/sec



Ford Island

DEAD END 2 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



Step 2 - Close Hydrant FI-FH-5-19

(b) (3) (A)

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Ford Island

DEAD END 2 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant FI-FH-2-8
Monitor Hydrant FI-FH-2-8

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
8.46 ft/sec



Ford Island				
DEAD END 3 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-2-8
Open Hydrant FI-FH-2-18
Monitor Hydrant FI-FH-2-18

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
8.46 ft/sec



Ford Island

DEAD END 3 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant FI-FH-2-18

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Ford Island				
DEAD END 3 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant FI-FH-2-16
Monitor Hydrant FI-FH-2-16

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
15.04 ft/sec



Ford Island

DEAD END 4 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-2-16

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Ford Island

DEAD END 4 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 1 - Open Hydrant FI-FH-2-4
Monitor Hydrant FI-FH-2-4

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
15.04 ft/sec



Ford Island				
DEAD END 5 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-2-4

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Ford Island				
DEAD END 5 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant FI-FH-2-14
Monitor Hydrant FI-FH-2-14

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

12 minutes

Calculated Velocity:

3.76 ft/sec



Ford Island

DEAD END 6 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii










Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-2-14

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 minutes
Calculated Velocity:
3.76 ft/sec



Ford Island				
DEAD END 6 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant FI-FH-3-9
Monitor Hydrant FI-FH-3-9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
8.46 ft/sec



Ford Island

DEAD END 7 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant FI-FH-3-9

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
8.46 ft/sec



Ford Island

DEAD END 7 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant HT-FH-47
Monitor Hydrant HT-FH-47

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
7.83 ft/sec



Halsey Terrace

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant HT-FH-47

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Halsey Terrace				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant HT-FH-24
Monitor Hydrant HT-FH-24

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◊ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
7.83 ft/sec



Halsey Terrace

DEAD END 2 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant HT-FH-24

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Halsey Terrace				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant IP-FH-75A
Monitor Hydrant IP-FH-75A

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
5.01 ft/sec



Iroquois Point

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant IP-FH-75A
Open Hydrant IP-FH-75B
Monitor Hydrant IP-FH-75B

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
7.83 ft/sec



Iroquois Point

DEAD END 1 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant IP-FH-75B

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Iroquois Point

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant BMK-FH-944
Monitor Hydrant BMK-FH-944

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 minutes
Calculated Velocity:
6.78 ft/sec



Makalapa

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

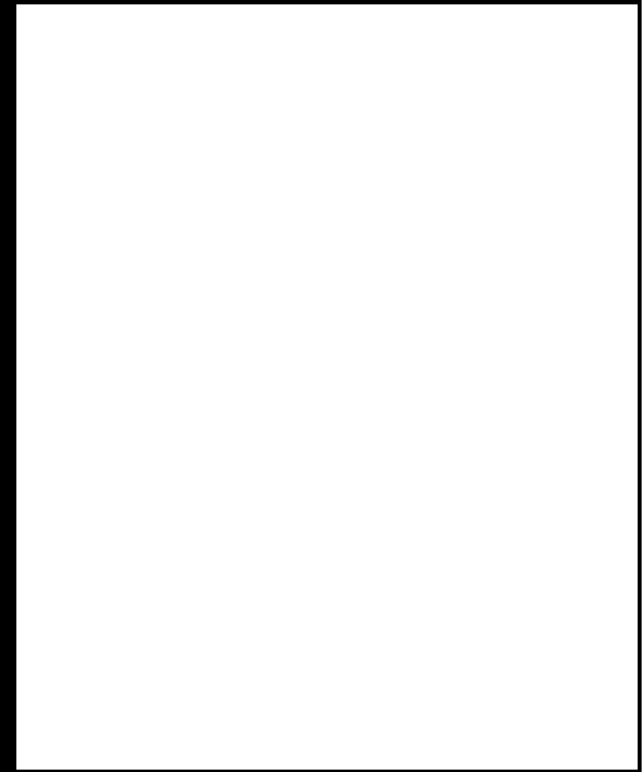
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant BMK-FH-944
Open Hydrant BMK-FH-943
Monitor Hydrant BMK-FH-943

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)



- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
12.06 ft/sec



Makalapa				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant BMK-FH-943

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Makalapa

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant BMK-FH-941
Monitor Hydrant BMK-FH-941

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
11 minutes
Calculated Velocity:
12.06 ft/sec



Makalapa				
DEAD END 2 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant BMK-FH-941

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Makalapa				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant MP-FH-293-Z5
Monitor Hydrant MP-FH-293-Z5

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◊ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

9 minutes

Calculated Velocity:

8.15 ft/sec



Shipyards Pearl

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant MP-FH-293-Z5

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Shipyard Pearl				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant MAL-FH-2
Monitor Hydrant MAL-FH-2

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
15 minutes
Calculated Velocity:
5.98 ft/sec



Moanalua Terrace				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant MAL-FH-2

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed












Moanalua Terrace				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant PC-FH-12B
Monitor Hydrant PC-FH-12B

Wait until flowing water clears and record time-to-clear.

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used

-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 minutes
Calculated Velocity:
8.46 ft/sec



Pearl City				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PC-FH-12B
 Open Hydrant PC-FH-12C
 Monitor Hydrant PC-FH-12C

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
8.46 ft/sec



Pearl City				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant PC-FH-12C
Open Hydrant PC-FH-11
Monitor Hydrant PC-FH-11

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
10 minutes
Calculated Velocity:
8.46 ft/sec



Pearl City				
DEAD END 1 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant PC-FH-11

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Pearl City				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	4

(b) (3) (A)

Step 1 - Open Hydrant PWC-FH-603
Monitor Hydrant PWC-FH-603

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
11.37 ft/sec



PWC				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PWC-FH-603

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



PWC				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant PWC-FH-609
Monitor Hydrant PWC-FH-609

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
6.39 ft/sec



PWC

DEAD END 2 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant PWC-FH-609

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed












PWC				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant RT-FH-5
Monitor Hydrant RT-FH-5

Wait until flowing water clears and record time-to-clear.

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used

-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 minutes
Calculated Velocity:
5.98 ft/sec



Radford Terrace				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant RT-FH-5
Open Hydrant RT-FH-8
Monitor Hydrant RT-FH-8

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
5.98 ft/sec



Radford Terrace				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant RT-FH-8

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Radford Terrace

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant RT-FH-33
Monitor Hydrant RT-FH-33

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
5.98 ft/sec



Radford Terrace				
DEAD END 2 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant RT-FH-33

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed












Radford Terrace				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant SB-FH-561-Z9
Monitor Hydrant SB-FH-561-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used
-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Sub Base Pearl

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant SB-FH-561-Z9
Open Hydrant SB-FH-556-Z9
Monitor Hydrant SB-FH-556-Z9

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
27 minutes
Calculated Velocity:
3.62 ft/sec



Sub Base Pearl

DEAD END 1 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant SB-FH-556-Z9

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Sub Base Pearl

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant WL-FH-18
Monitor Hydrant WL-FH-18

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
23 minutes
Calculated Velocity:
5.22 ft/sec



West Loch				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-18
Open Hydrant WL-FH-16
Monitor Hydrant WL-FH-16

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
17 minutes
Calculated Velocity:
14.49 ft/sec



West Loch				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-16

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch				
DEAD END 1 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant WL-FH-43
Monitor Hydrant WL-FH-43

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
8.15 ft/sec



West Loch

DEAD END 2 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-43

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant WL-FH-67
Monitor Hydrant WL-FH-67

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 minutes
Calculated Velocity:
8.15 ft/sec



West Loch

DEAD END 3 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant WL-FH-67
Open Hydrant WL-FH-66
Monitor Hydrant WL-FH-66

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
33 minutes
Calculated Velocity:
8.15 ft/sec



West Loch				
DEAD END 3 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant WL-FH-66

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



West Loch

DEAD END 3 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

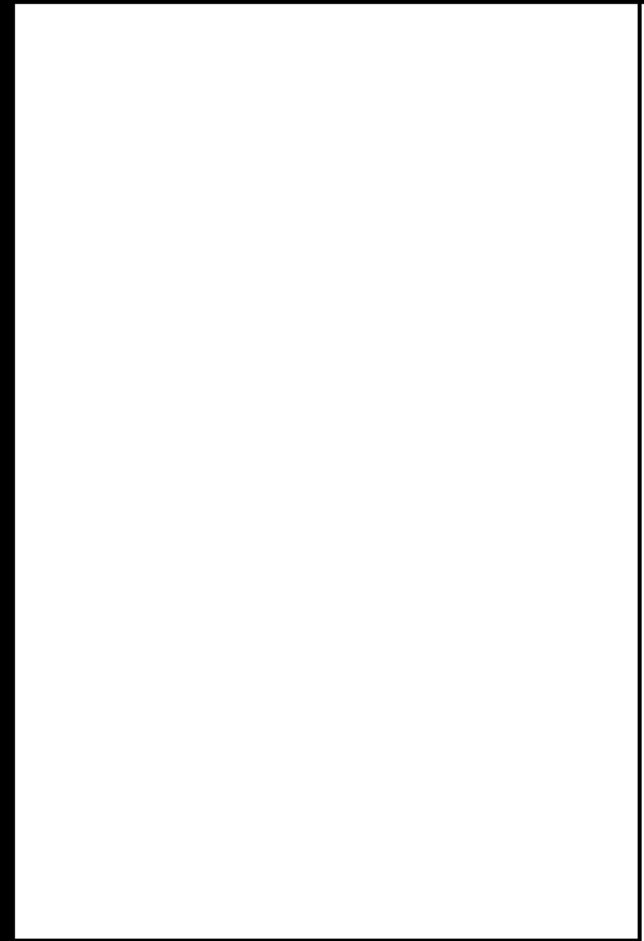
JBPHH Water Distribution System
Hickam
Dead-ends Flushing Procedures

(b) (3) (A)

Step 1 - Open Hydrant ZONE 3-FH-401
Monitor Hydrant ZONE 3-FH-401

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)



- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec

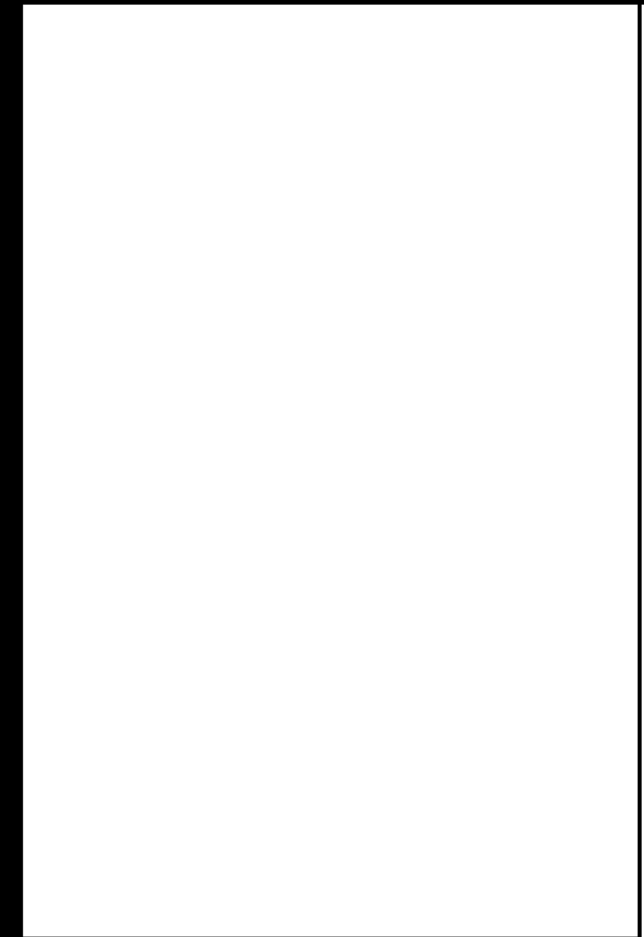


Hickam Zone 3				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 3-FH-401

(b) (3) (A)



- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 3				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant ZONE 3-FH-557
Monitor Hydrant ZONE 3-FH-557

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
12 minutes
Calculated Velocity:
7.83 ft/sec



Hickam Zone 3				
DEAD END 2 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 3-FH-557

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 3

DEAD END 2 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant ZONE 5-FH-105
Monitor Hydrant ZONE 5-FH-105

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 5				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 5-FH-105

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 5				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant ZONE 7-FH-258
Monitor Hydrant ZONE 7-FH-258

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 7

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale






Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1





(b) (3) (A)

Step 2 - Close Hydrant ZONE 7-FH-258
Open Hydrant ZONE 7-FH-18
Monitor Hydrant ZONE 7-FH-18

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

-  Valve / Hydrant to be opened
-  Valve / Hydrant to be closed
-  Hydrant to be closed then reopened
-  Valve closed from previous steps
-  Valve / Hydrant not used

-  Monitoring Hydrant
-  Line segments flushed in current step
-  Line segments flushed in previous steps
-  Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 7				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant ZONE 7-FH-18

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 7

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3



(b) (3) (A)

Step 1 - Open Hydrant ZONE 8-FH-39
Monitor Hydrant ZONE 8-FH-39

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 8				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1



(b) (3) (A)

Step 2 - Close Hydrant ZONE 8-FH-39
Open Hydrant BIS-FH-5
Monitor Hydrant BIS-FH-5

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 8				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2



(b) (3) (A)

Step 3 - Close Hydrant BIS-FH-5
Open Hydrant BIS-FH-3
Monitor Hydrant BIS-FH-3

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used

- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 8				
DEAD END 1 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3



(b) (3) (A)

Step 4 - Close Hydrant BIS-FH-3
Open Hydrant ZONE 8-FH-103
Monitor Hydrant ZONE 8-FH-103

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used

- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 8				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4



Step 5 - Close Hydrant ZONE 8-FH-103

(b) (3) (A)

(b) (3) (A)

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 8				
DEAD END 1 / STEP 5				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 1 - Open Hydrant ZONE 9-FH-550
Monitor Hydrant ZONE 9-FH-550

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 9				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 9-FH-550
Open Hydrant ZONE 9-FH-355
Monitor Hydrant ZONE 9-FH-355

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 9				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant ZONE 9-FH-355

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 9				
DEAD END 1 / STEP 3				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 1 - Open Hydrant ZONE 10-FH-162
Monitor Hydrant ZONE 10-FH-162

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
7 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 10-FH-162
Open Hydrant ZONE 10-FH-163
Monitor Hydrant ZONE 10-FH-163

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
9 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant ZONE 10-FH-163
Open Hydrant ZONE 10-FH-168
Monitor Hydrant ZONE 10-FH-168

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
31 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant ZONE 10-FH-168
Open Hydrant ZONE 10-FH-176
Monitor Hydrant ZONE 10-FH-176

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
6 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 10				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4

(b) (3) (A)

Step 5 - Close Hydrant ZONE 10-FH-176

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 10				
DEAD END 1 / STEP 5				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	5

(b) (3) (A)

Step 1 - Open Hydrant ZONE 10-FH-434
Monitor Hydrant ZONE 10-FH-434

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
14.49 ft/sec



Hickam Zone 10

DEAD END 2 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 10-FH-434

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 10				
DEAD END 2 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant ZONE 11-FH-316
Monitor Hydrant ZONE 11-FH-316

Wait until flowing water clears and
record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
14 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 11

DEAD END 1 / STEP 1

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 11-FH-316
Open Hydrant ZONE 11-FH-576
Monitor Hydrant ZONE 11-FH-576

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

5 minutes

Calculated Velocity:

14.49 ft/sec



Hickam Zone 11

DEAD END 1 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 3 - Close Hydrant ZONE 11-FH-576
Open Hydrant ZONE 11-FH-488
Monitor Hydrant ZONE 11-FH-488

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

● ◆ Valve / Hydrant to be opened

◆ Monitoring Hydrant

● ◆ Valve / Hydrant to be closed

— Line segments flushed in current step

◆ Hydrant to be closed then reopened

— Line segments flushed in previous steps

● Valve closed from previous steps

— Line not flushed

● ◆ Valve / Hydrant not used

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:

25 minutes

Calculated Velocity:

8.15 ft/sec



Hickam Zone 11

DEAD END 1 / STEP 3

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	3

(b) (3) (A)

Step 4 - Close Hydrant ZONE 11-FH-488

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 11				
DEAD END 1 / STEP 4				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (3)	(b) (3)	11/20/2024	UDF	4

(b) (3) (A)

Step 1 - Open Hydrant ZONE 11-FH-316
Monitor Hydrant ZONE 11-FH-316

Wait until flowing water clears and record time-to-clear.

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
8 minutes
Calculated Velocity:
8.15 ft/sec



Hickam Zone 11				
DEAD END 2 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 11-FH-316

- Valve / Hydrant to be opened
- Valve / Hydrant to be closed
- Hydrant to be closed then reopened
- Valve closed from previous steps
- Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 11

DEAD END 2 / STEP 2

Dead End Maintenance Flushing
JPBHH, Hawaii

Scale: not to scale

Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

(b) (3) (A)

Step 1 - Open Hydrant ZONE 12-FH-418
Monitor Hydrant ZONE 12-FH-418

Wait until flowing water clears and record time-to-clear.

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed

A minimum velocity of 6 ft/sec can be achieved for this loop by flushing the designated 2 1/2-inch hydrant. Residual pressures should be monitored throughout flushing to ensure that pressures will not drop below 20 psi, otherwise the system will be vulnerable to problems associated with backflow/backsiphonage.

Minimum Time To Flush:
5 minutes
Calculated Velocity:
13.92 ft/sec



Hickam Zone 12				
DEAD END 1 / STEP 1				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	1

(b) (3) (A)

Step 2 - Close Hydrant ZONE 12-FH-418

(b) (3) (A)

- ◆ Valve / Hydrant to be opened
- ◆ Valve / Hydrant to be closed
- ◆ Hydrant to be closed then reopened
- Valve closed from previous steps
- ◆ Valve / Hydrant not used
- ◆ Monitoring Hydrant
- Line segments flushed in current step
- Line segments flushed in previous steps
- Line not flushed



Hickam Zone 12				
DEAD END 1 / STEP 2				
Dead End Maintenance Flushing JPBHH, Hawaii				
Scale: not to scale				
Drawn By	Checked By	Date	Project	Sheet No.
(b) (6)	(b) (6)	11/20/2024	UDF	2

APPENDIX C

Water Quality Action Team
Standard Operating Procedure
JOINT BASE PEARL HARBOR-HICKAM OAHU HI