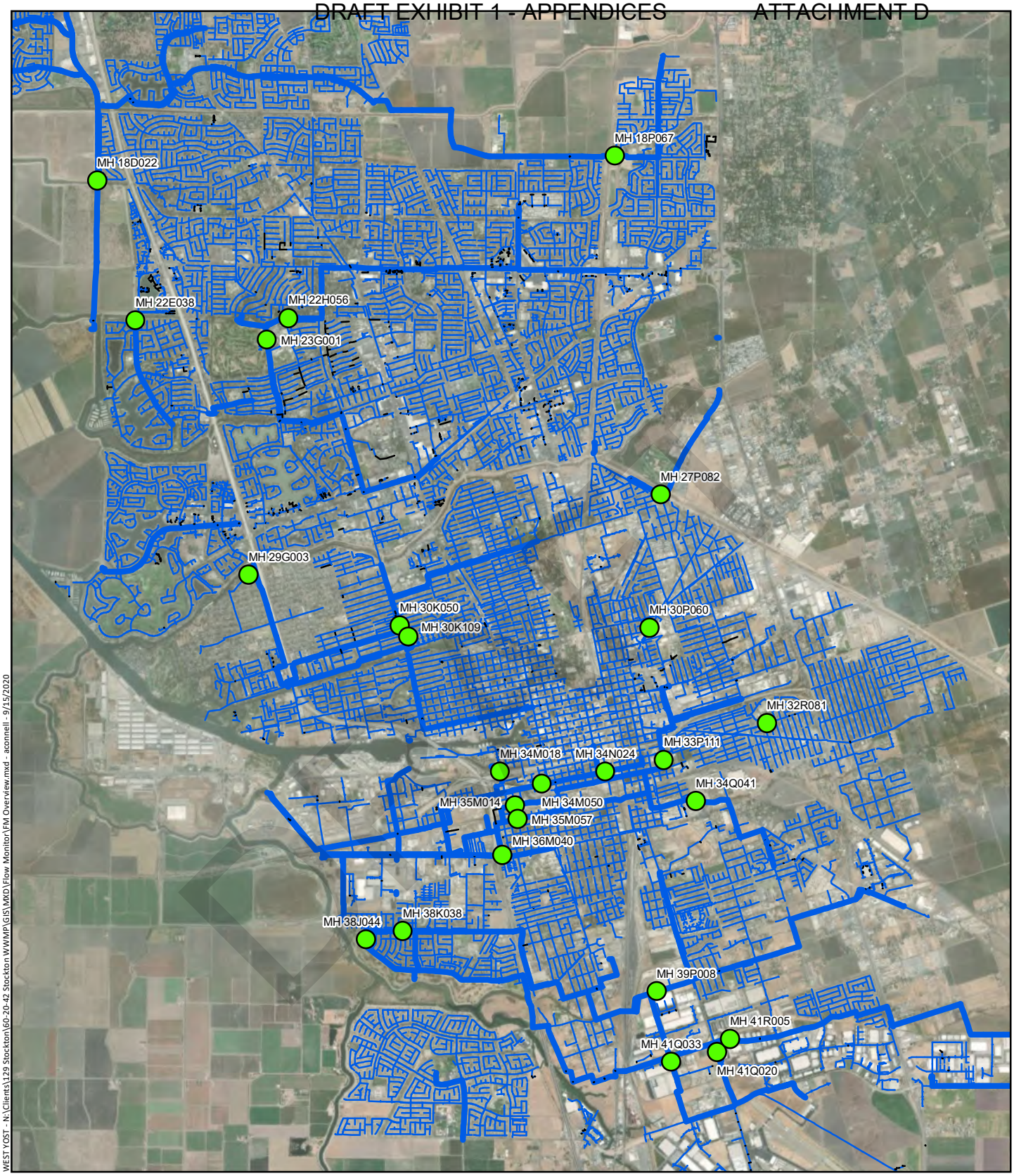
Appendix A

Collection System Flow Metering Locations



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM Overview.mxd - aconnell - 9/15/2020

Symbology

- Proposed Flow Meter

Gravity Main Size

- Unknown
- Less than 24
- 24 and Greater

N

0 3,500 7,000

Scale in Feet

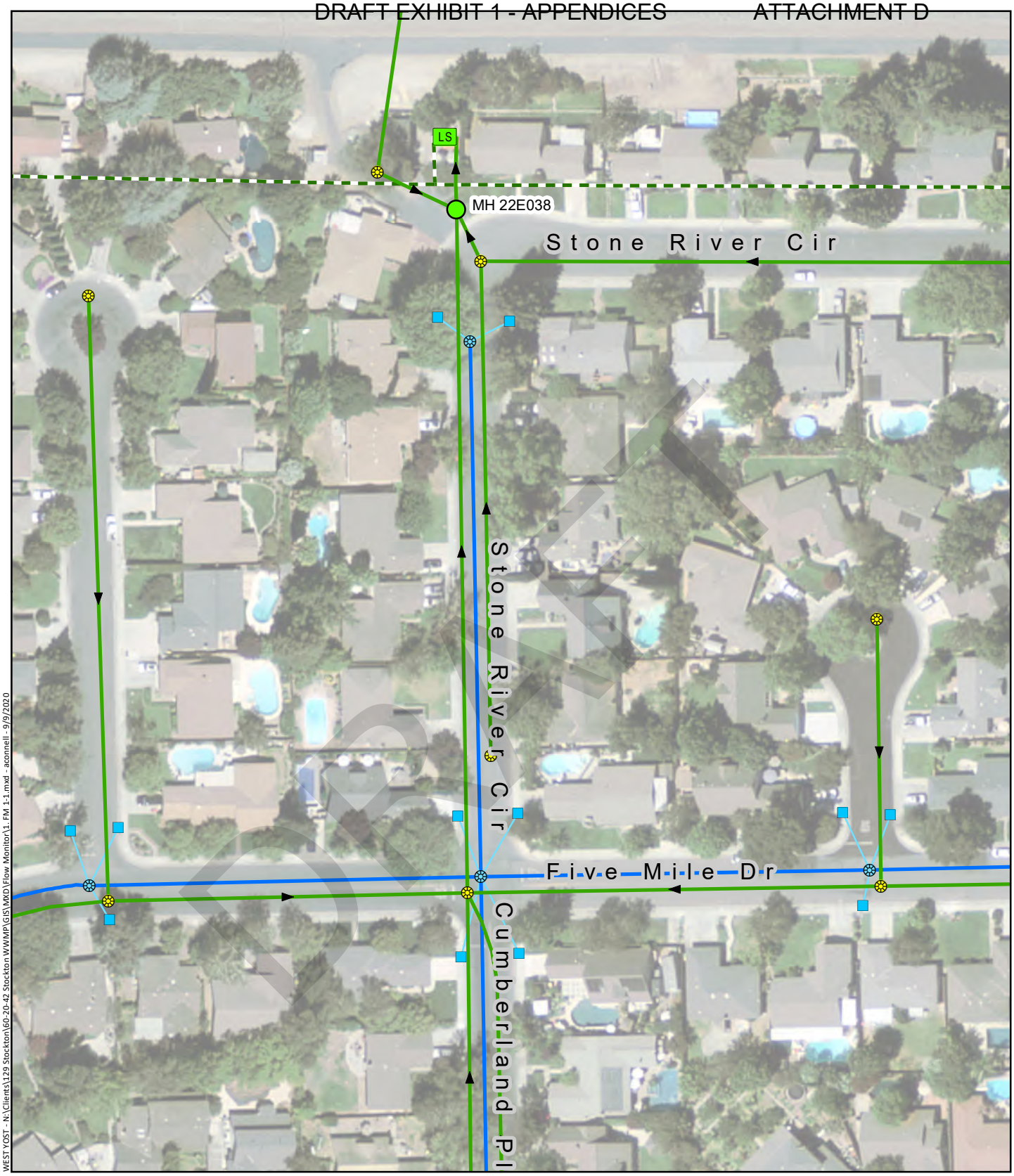
CITY OF STOCKTON

WEST YOST

Figure X

Proposed Flow Meter Location Overview

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\1- FM 1-1.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- LS Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

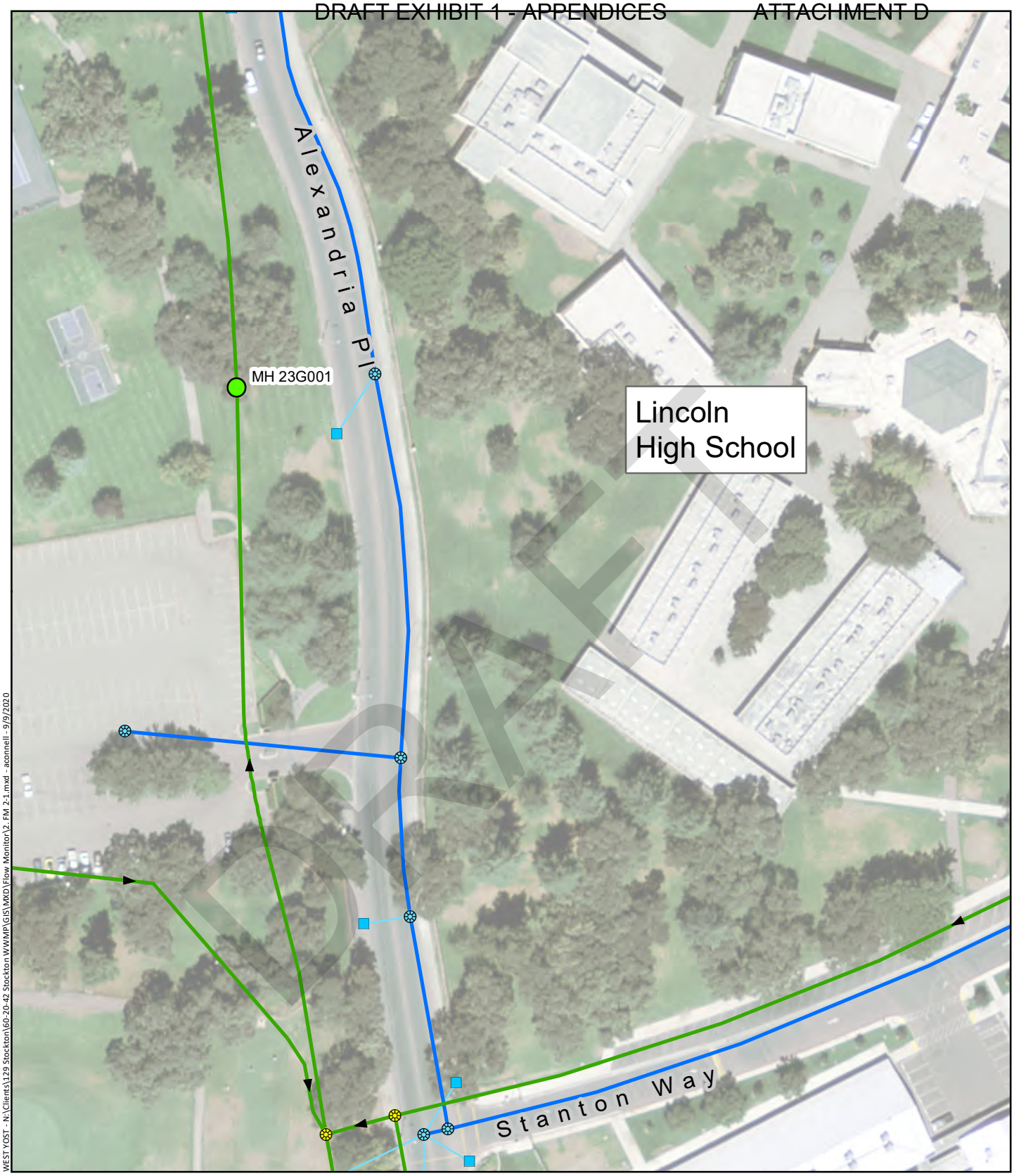
CITY OF STOCKTON

WEST YOST

Figure 1

Flow Meter 1-1
MH ID 22E038
Basin 1

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\2- FM 2-1.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 2

Flow Meter 2-1
MH ID 23G001

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/8/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 3

Flow Meter 2-2
MH ID 22H056
Basin 2

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

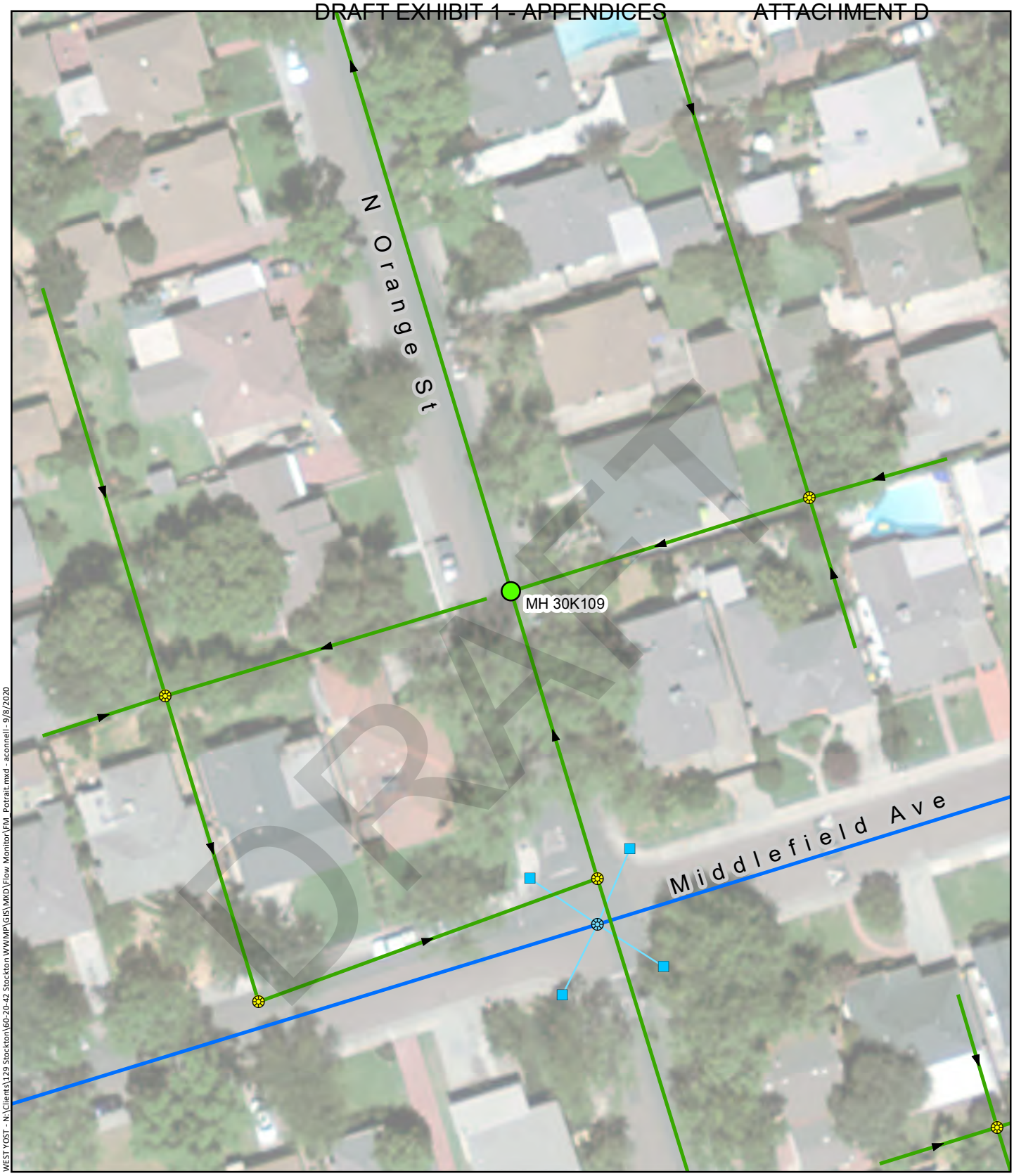
CITY OF STOCKTON

WEST YOST

Figure 4

Flow Meter 3-1
MH ID 30K050
Basin 3

City of Stockton
Wastewater
Master Plan



Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 5

Flow Meter 3-2
MH ID 30K109
Basin 3

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/8/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

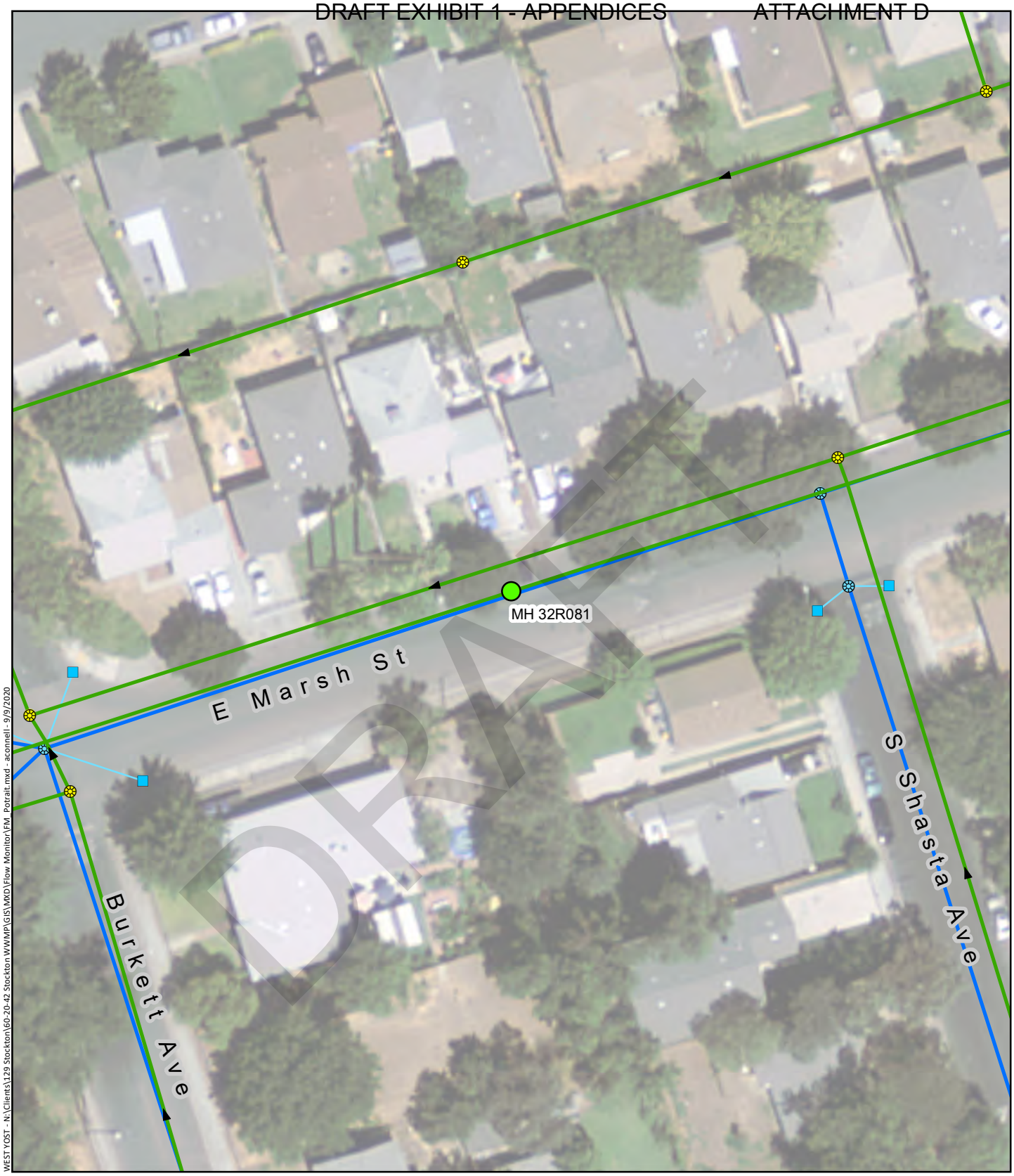
CITY OF STOCKTON

WEST YOST

Figure 6

Flow Meter 3-3
MH ID 29G003
Basin 3

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 7

Flow Meter 4-1
MH ID 32R081
Basin 4

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 8

Flow Meter 4-2
MH ID 30P060
Basin 4

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

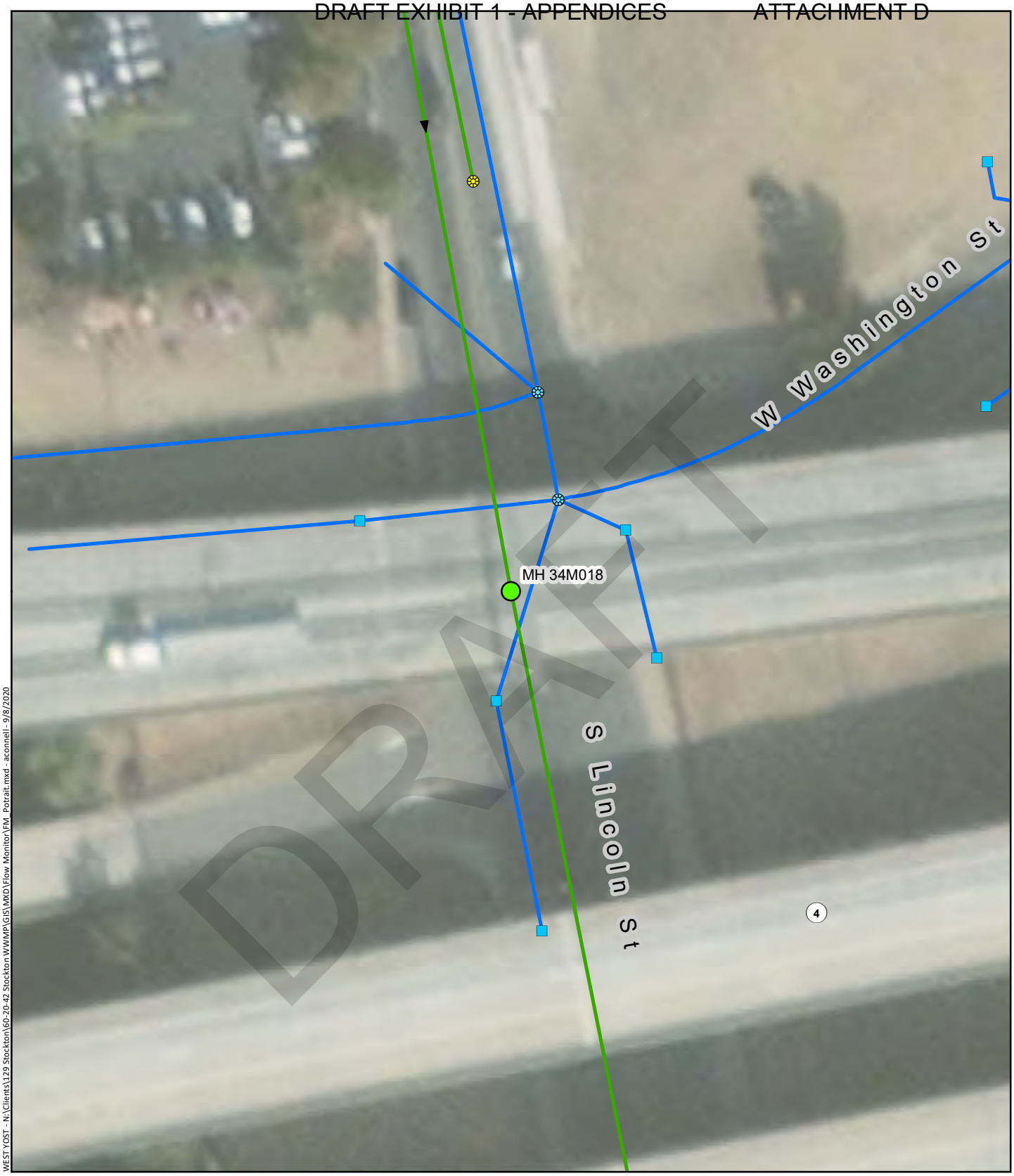
CITY OF STOCKTON

WEST YOST

Figure 9

Flow Meter 5-1
MH ID 35M014
Basin 5

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/8/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 10

Flow Meter 5-2
MH ID 34M018
Basin 5

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\11. FM 6-1.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 11

Flow Meter 6-1
MH ID 34Q041

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 12

Flow Meter 6-2
MH ID 33P111
Basin 6

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 13

Flow Meter 6-3
MH ID 34N024
Basin 6

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/8/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 14

Flow Meter 6-4
MH ID 36M040
Basin 6

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

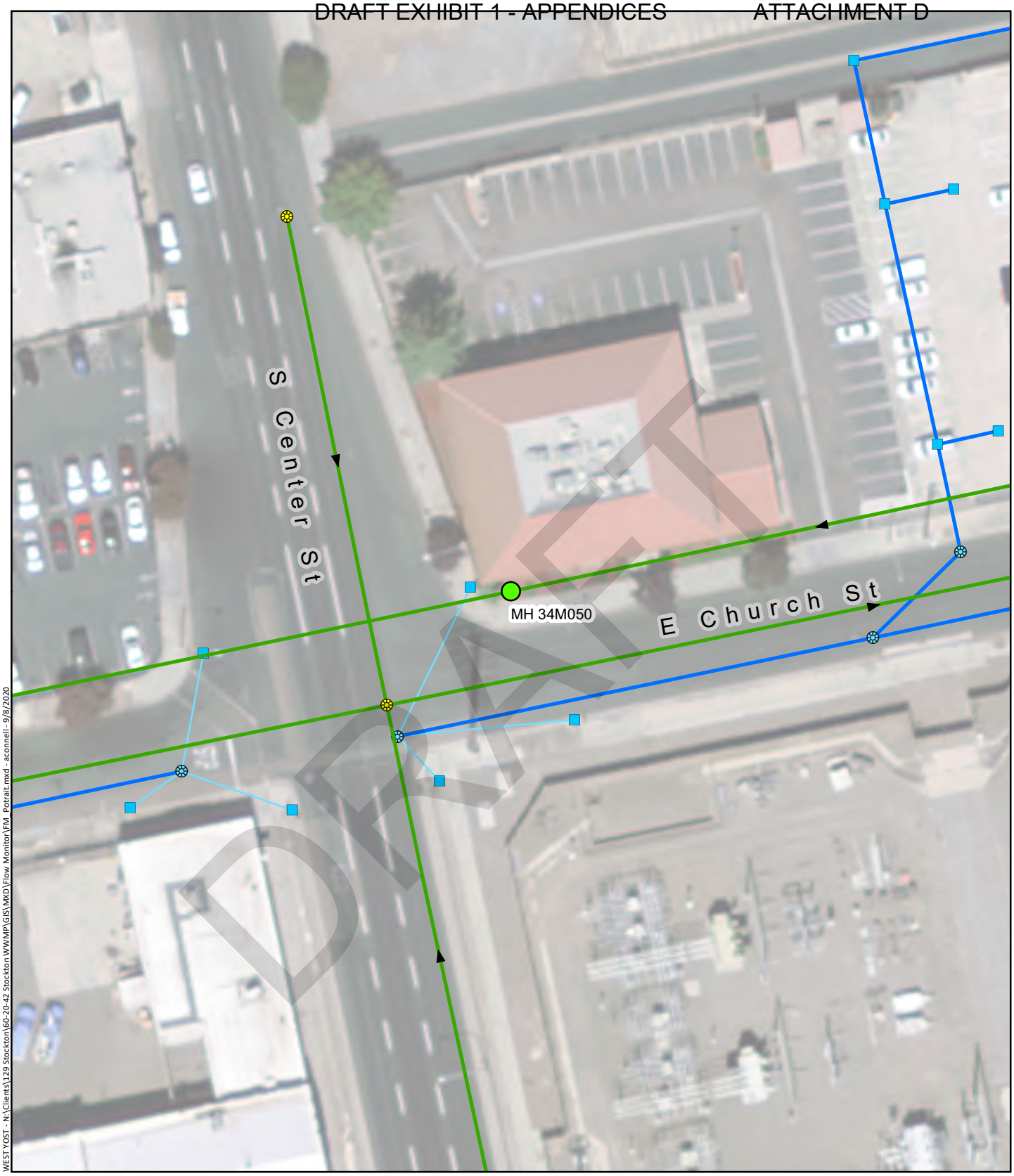
CITY OF STOCKTON

WEST YOST

Figure 15

Flow Meter 6-5
MH ID 35M057
Basin 6

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/8/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 16

Flow Meter 6-6
MH ID 34M050
Basin 6

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Monitor\FM_Potrait.mxd - aconnell - 9/9/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

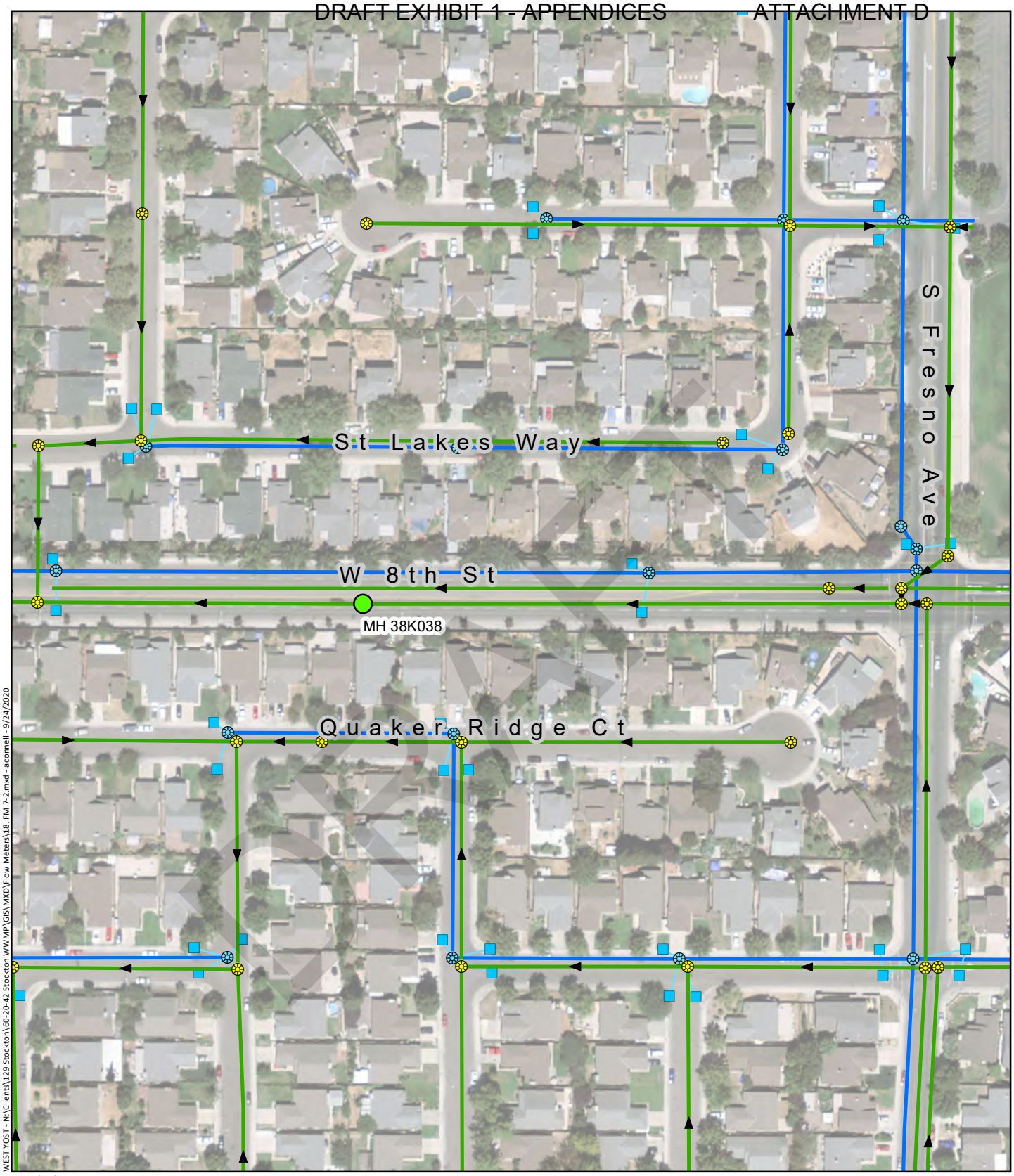
CITY OF STOCKTON

WEST YOST

Figure 17

Flow Meter 7-1
MH ID 39P008
Basin 7

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Meters\18. FM 7-2.mxd - aconnell - 9/24/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Storm Pump Station (LS)
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

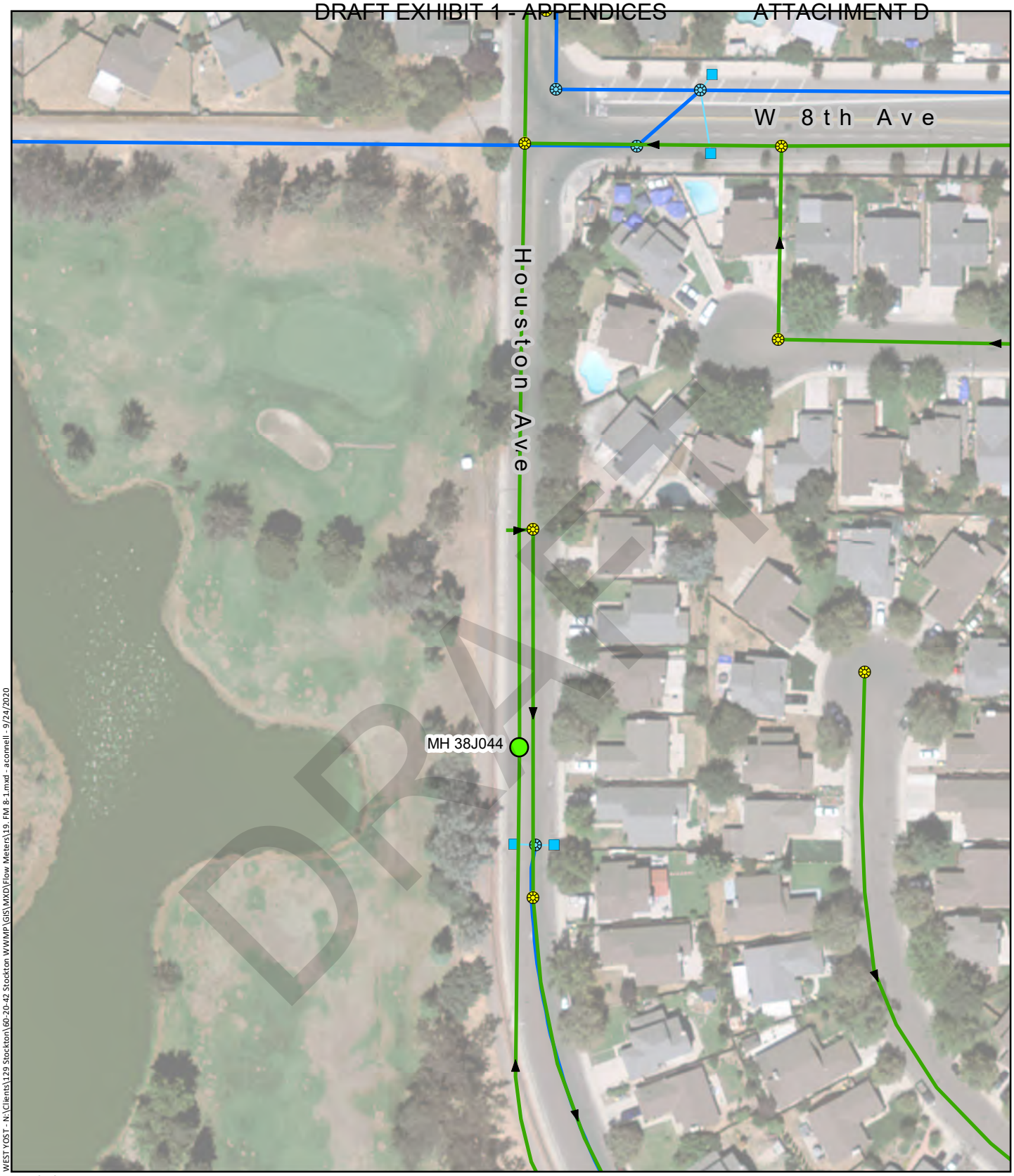
Figure 18

Flow Meter 7-2
MH ID 38K038

CITY OF STOCKTON

WEST YOST

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Meters\19_FM 8-1.mxd - aconnell - 9/24/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

Figure 19

Flow Meter 8-1
MH ID 38J044

CITY OF STOCKTON

WEST YOST

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Meters\FM_Potrait.mxd - aconnell - 9/24/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 20

Flow Meter 8-2
MH ID 41Q033
Basin 8

City of Stockton
Wastewater
Master Plan

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 21

Flow Meter 8-3
MH ID 41Q020
Basin 8

City of Stockton
Wastewater
Master Plan

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

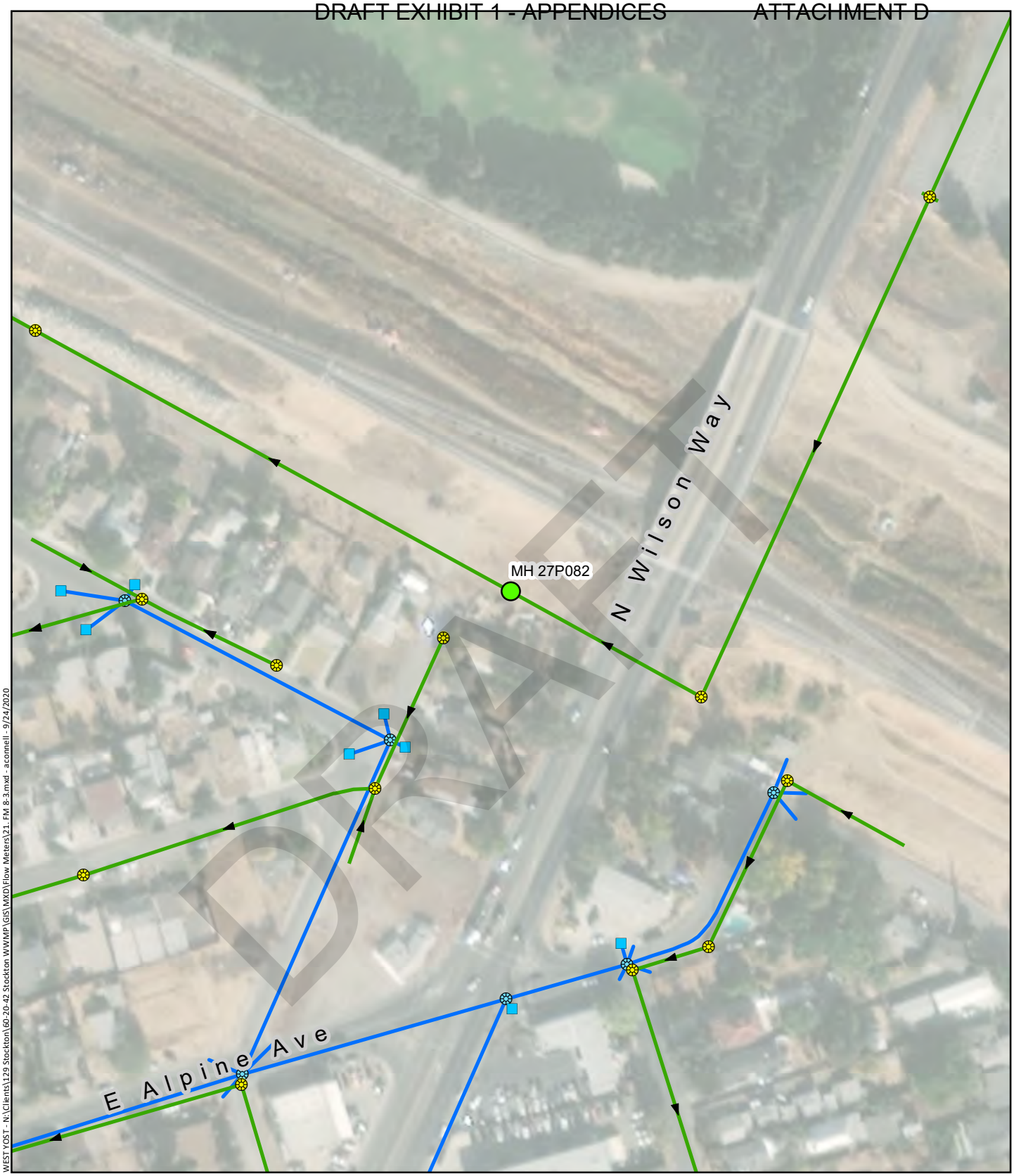
Figure 22

Flow Split 8-4
MH ID 41R005

City of Stockton
Wastewater
Master Plan

CITY OF STOCKTON

WEST YOST



Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

Figure 23

Flow Meter 9-1
MH ID 27P082
Basin 9

City of Stockton
Wastewater
Master Plan

CITY OF STOCKTON

WEST YOST

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 75 150

Scale in Feet

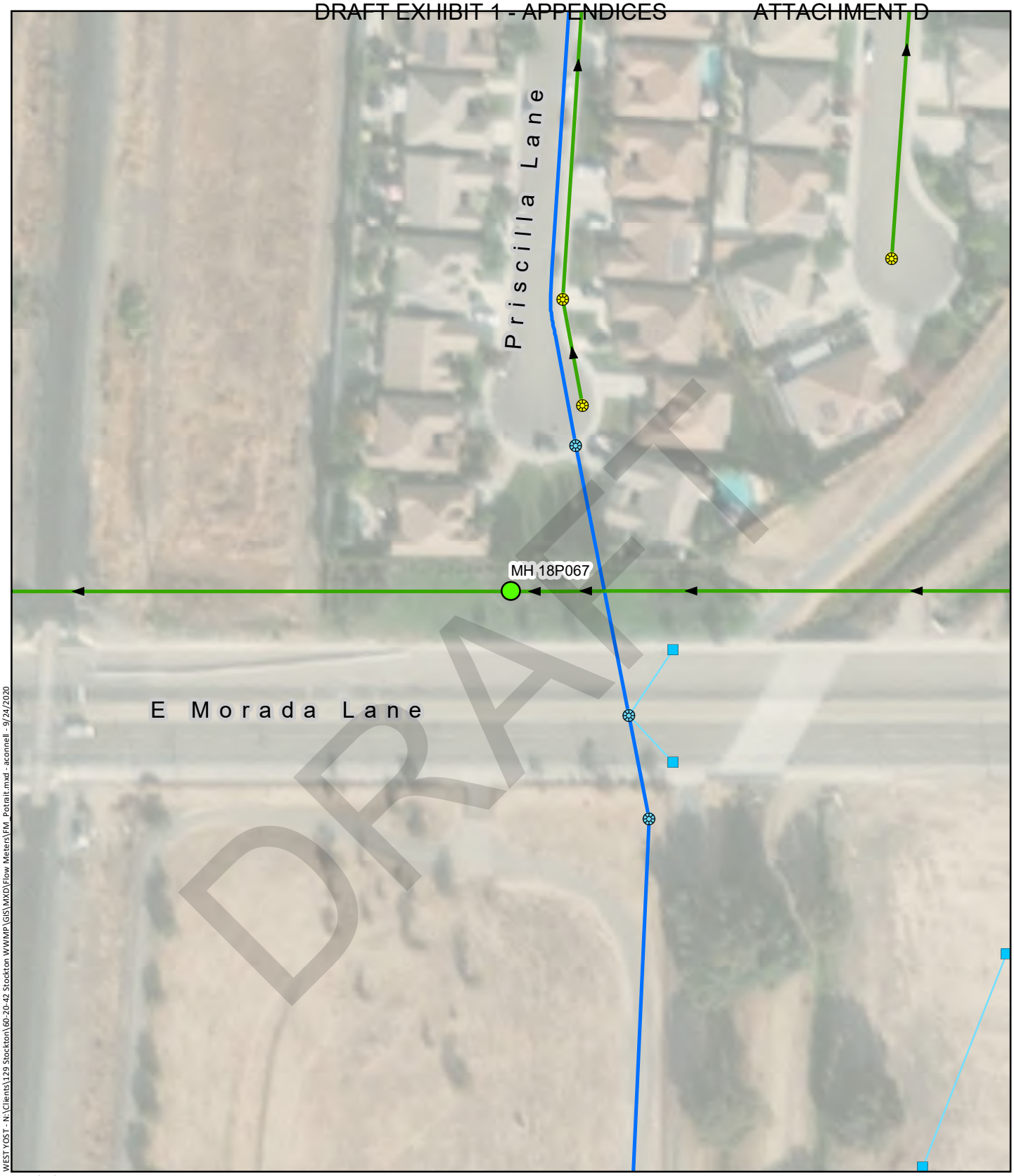
CITY OF STOCKTON

WEST YOST

Figure 24

Flow Meter 10-1
MH ID 18D022
Basin 10

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Meters\FM_Potrait.mxd - aconnell - 9/24/2020

Symbology

- Proposed Flow Meter
- Sewer Lift Station (LS)
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

Figure 25

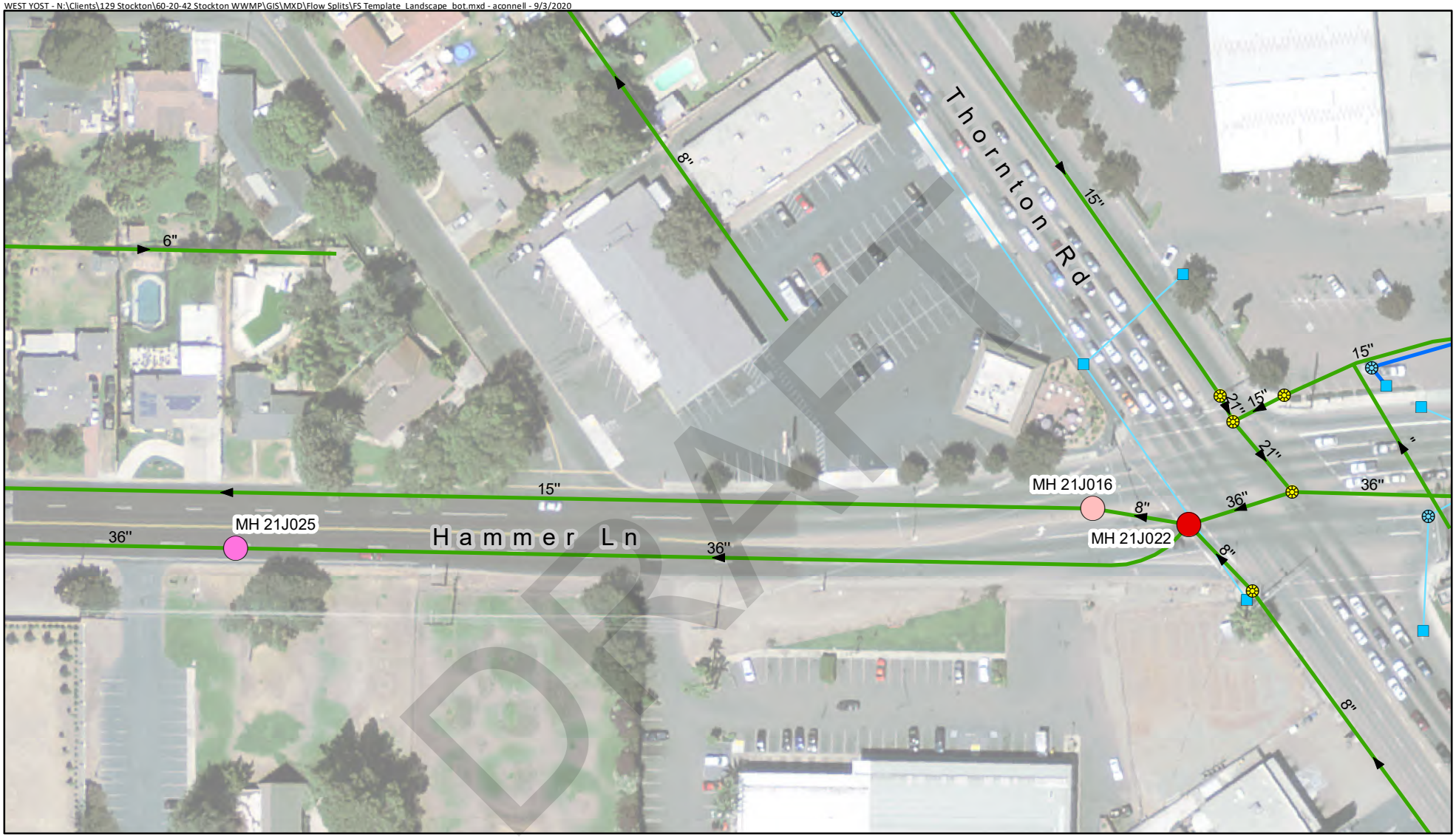
Flow Meter 10-2
MH ID 18P067
Basin 10

City of Stockton
Wastewater
Master Plan

Appendix B

Collection System Flow Split Locations

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

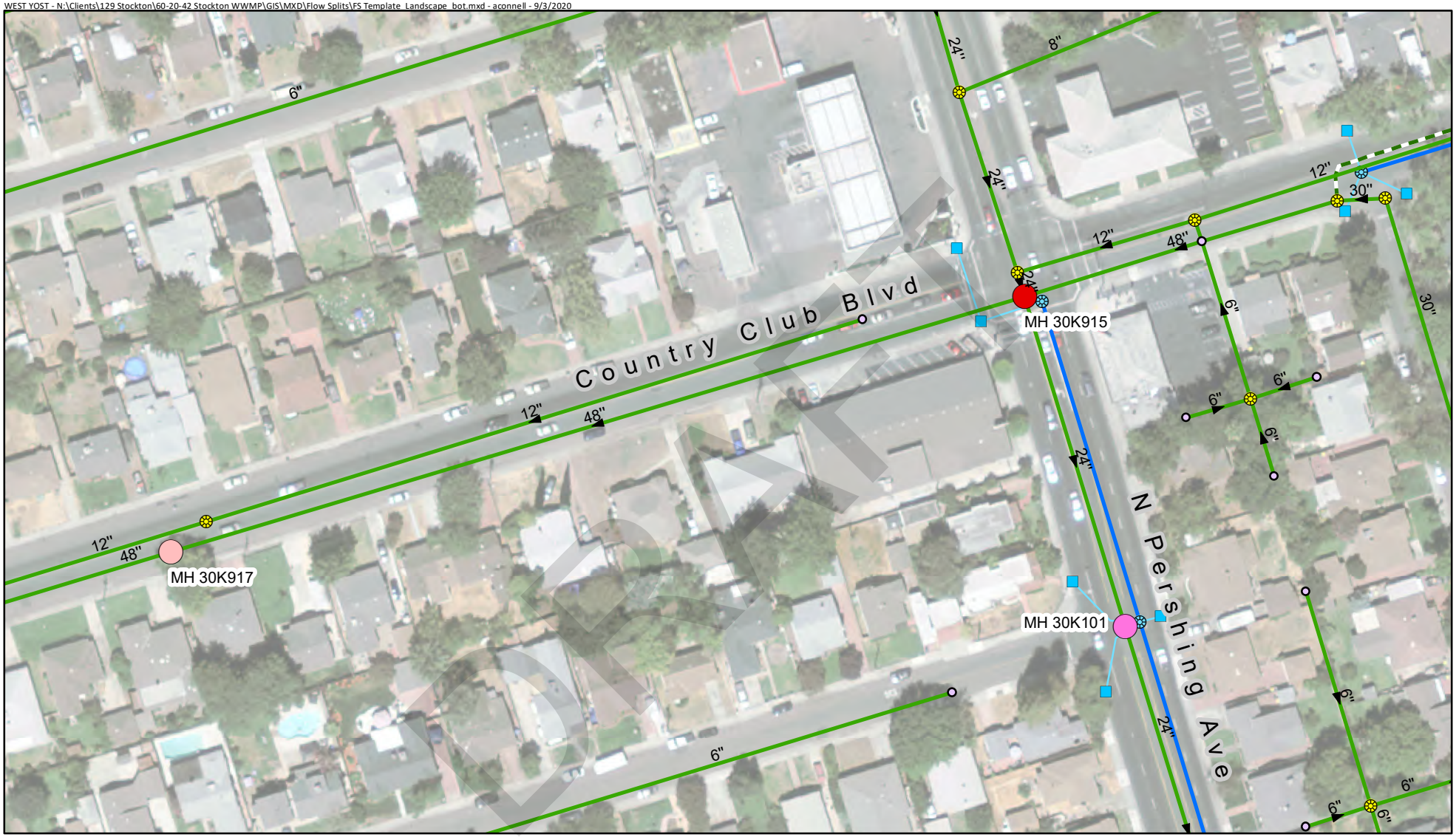
WEST YOST

Figure 1

Flow Split 2-1
MH ID 21J022

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 2

Flow Split 3-1
MH ID 30K915

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 3

Flow Split 3-2
MH ID 31K915

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\4. FS 3-3.mxd - aconnell - 9/4/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

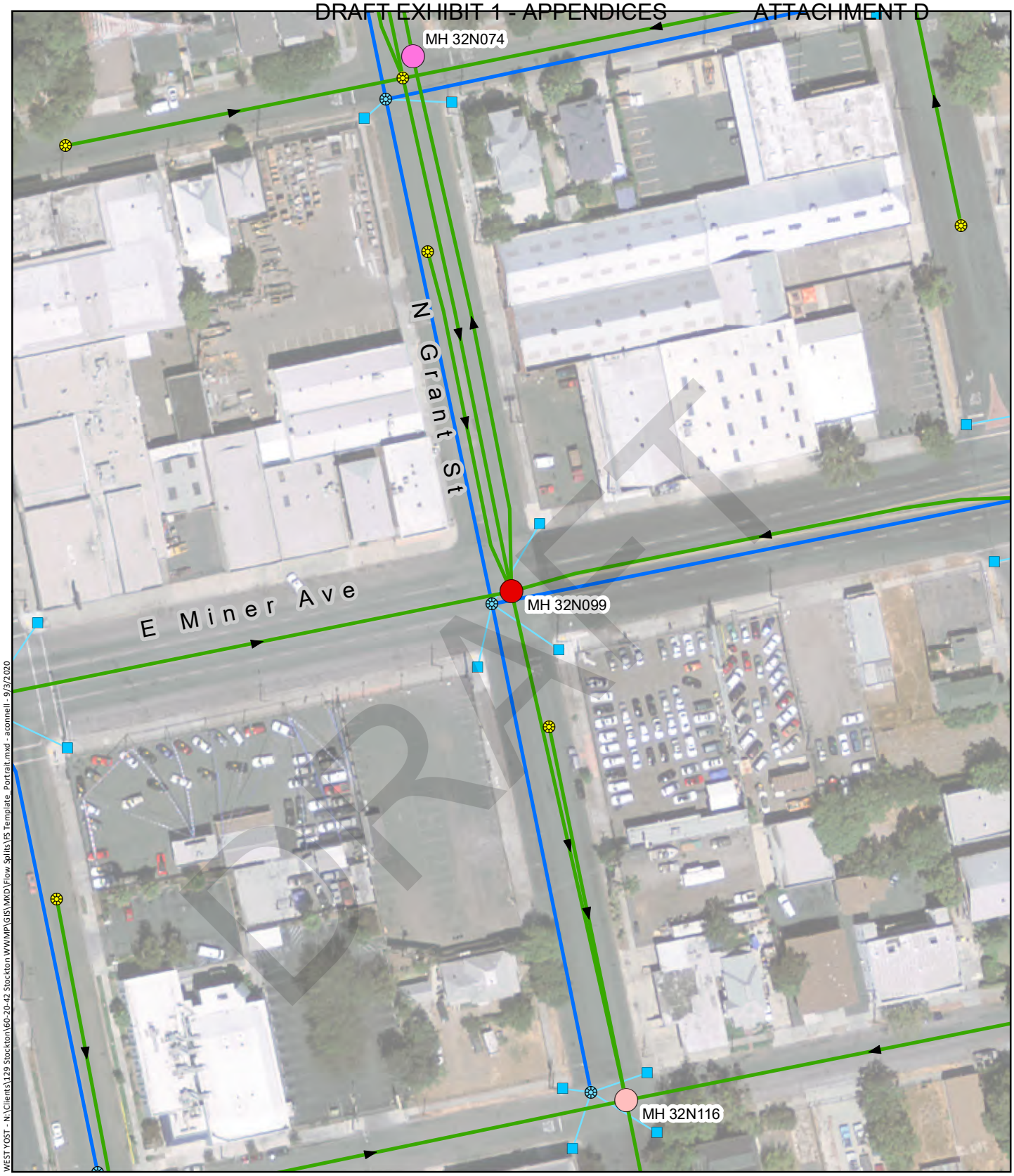
CITY OF STOCKTON

WEST YOST

Figure 4

Flow Split 3-3
MH ID 32N037

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Portrait.mxd - aconnell - 9/3/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

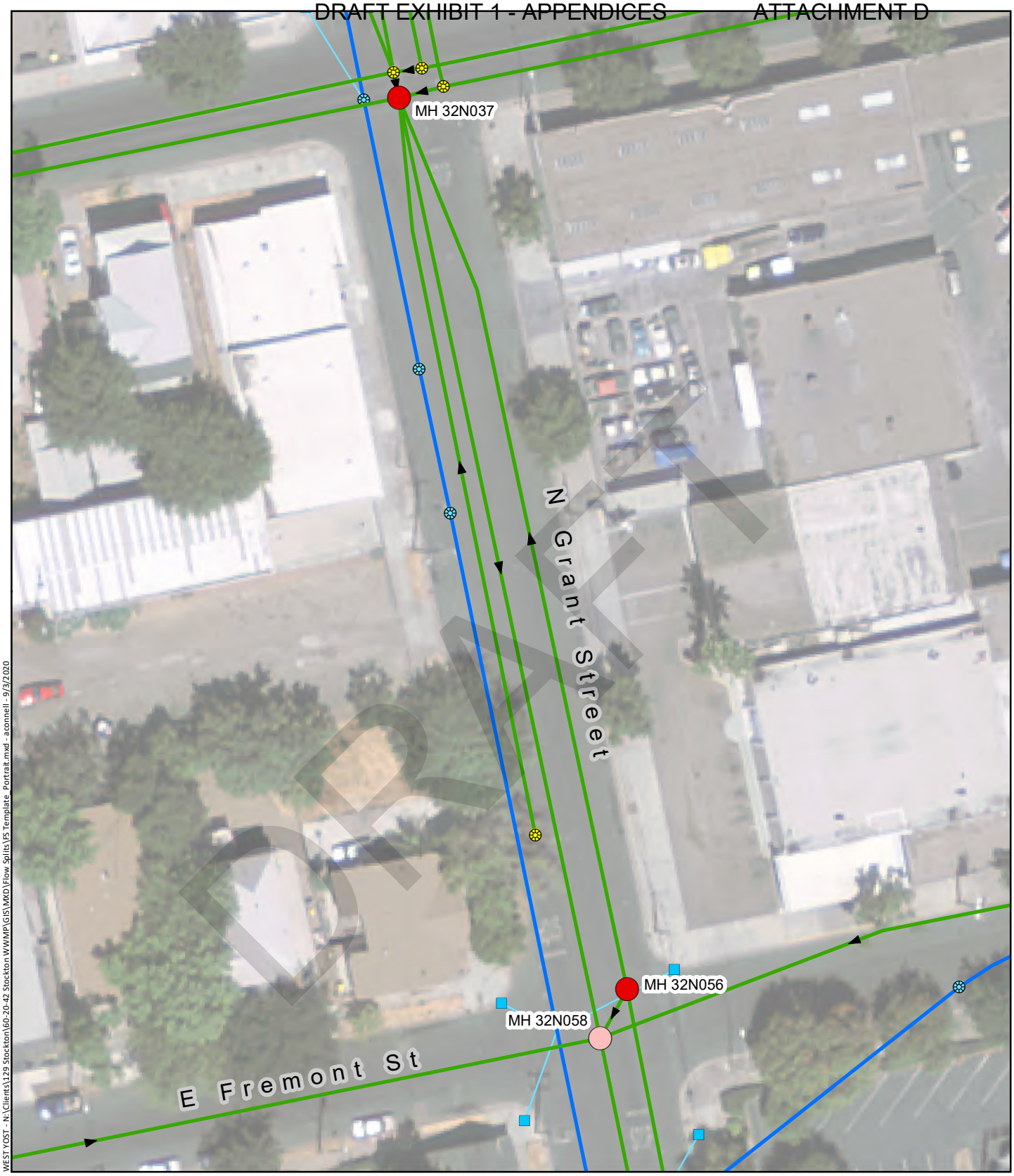
CITY OF STOCKTON

WEST YOST

Figure 5

Flow Split 3-4
MH ID 32N099

City of Stockton
Wastewater
Master Plan



WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\F5 Template_Portrait.mxd - aconnell - 9/3/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

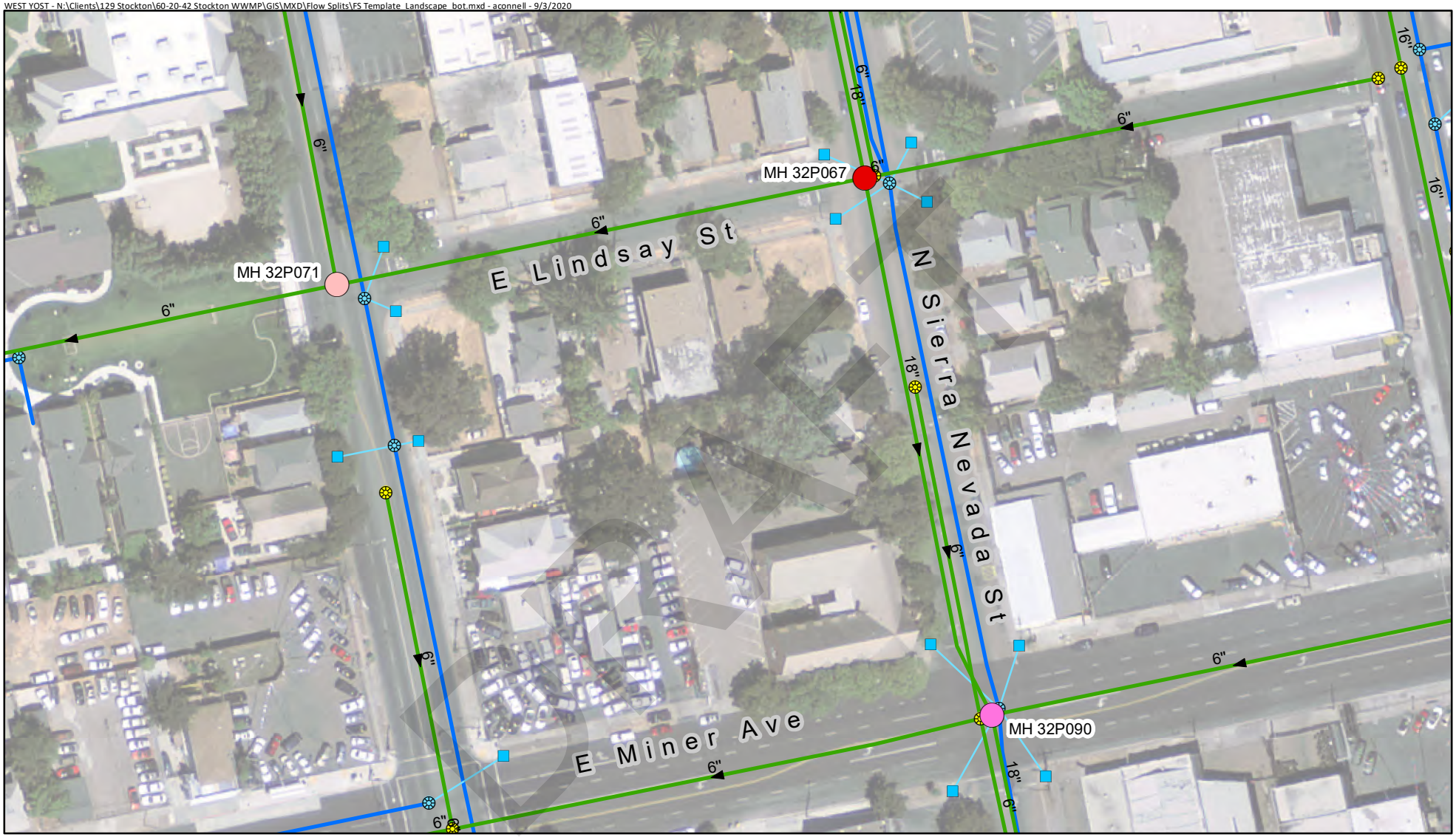
WEST YOST

Figure 6

Flow Split 3-5
MH ID 32N056

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

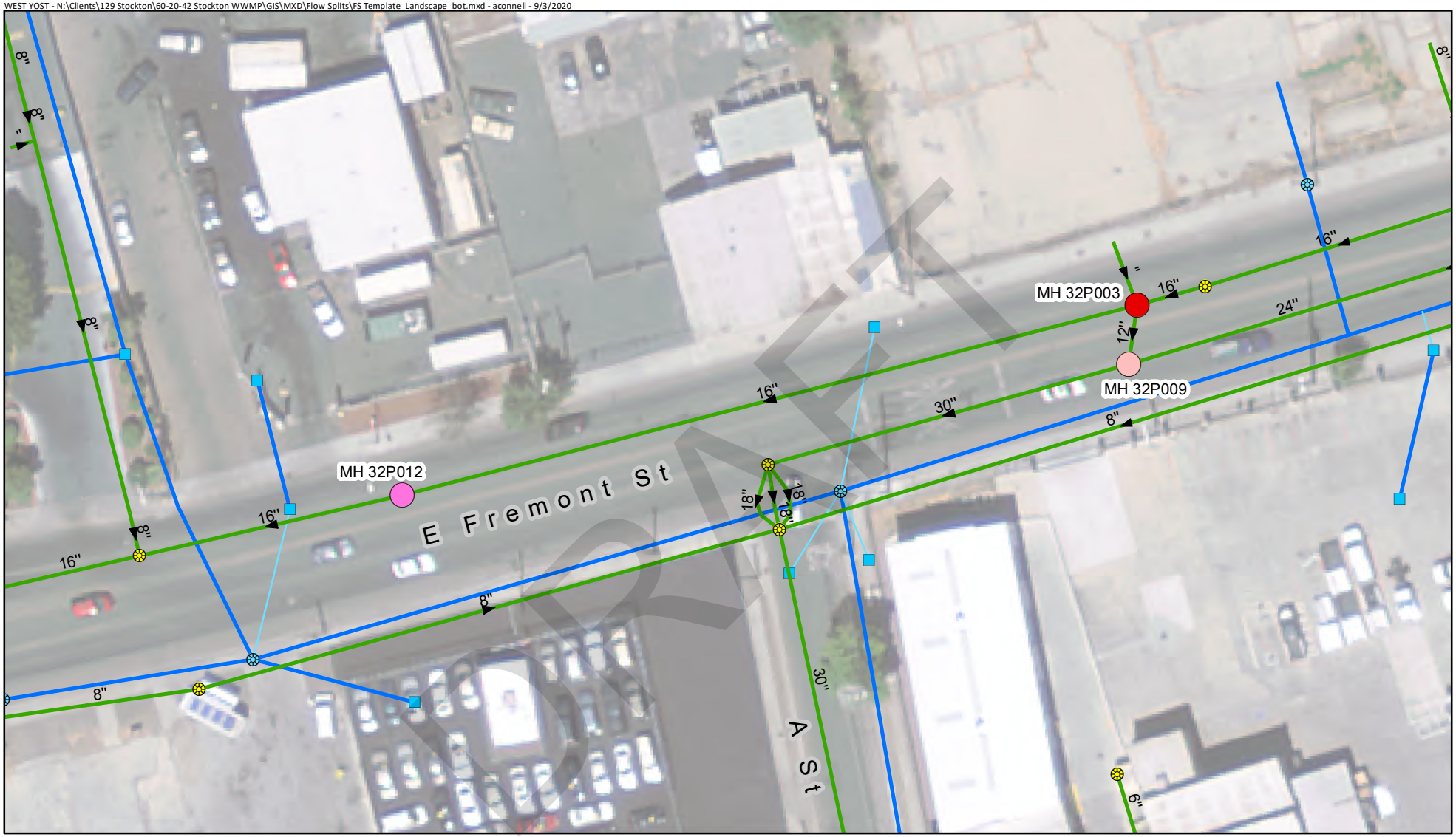
WEST YOST

Figure 7

Flow Split 3-6
MH ID 32P067

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 8

Flow Split 3-7
MH ID 32P003

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\F5 Template_Portrait.mxd - aconnell - 9/3/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Manhole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

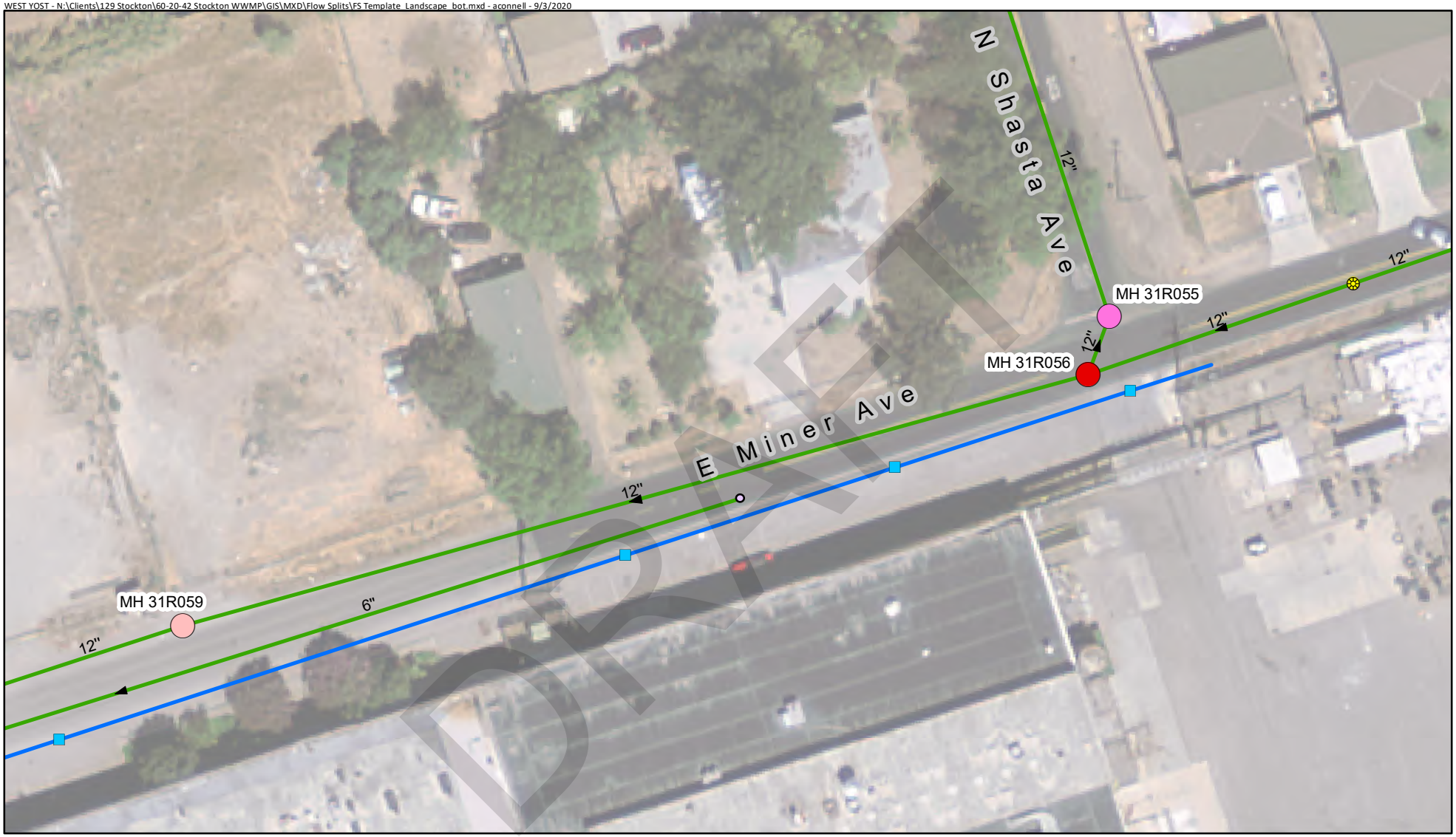
WEST YOST

Figure 9

Flow Split 4-1
MH ID 31R030

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

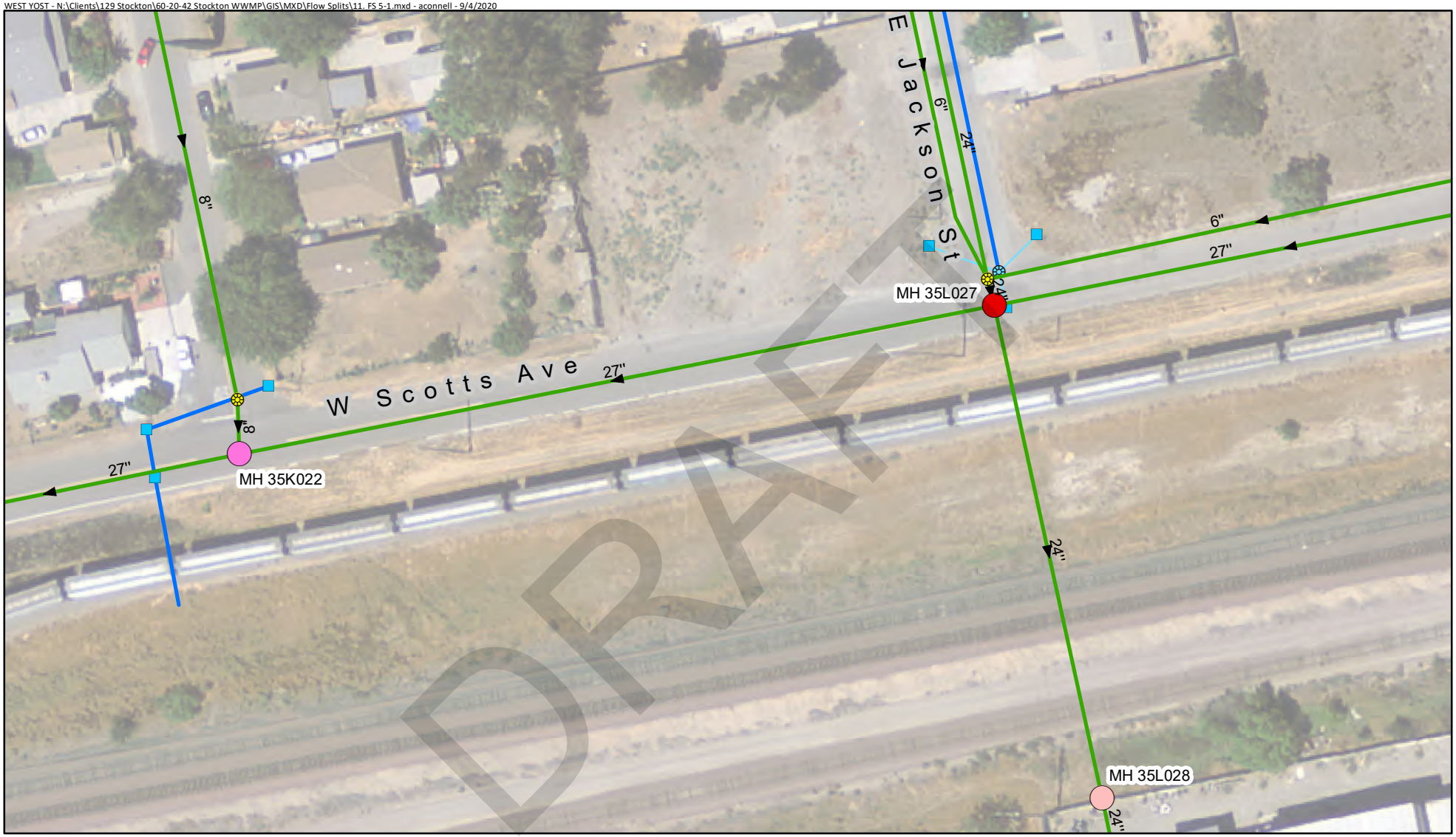
WEST YOST

Figure 10

Flow Split 4-2
MH ID 31R056

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\11. FS 5-1.mxd - aconnell - 9/4/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 37.5 75

Scale in Feet

CITY OF STOCKTON

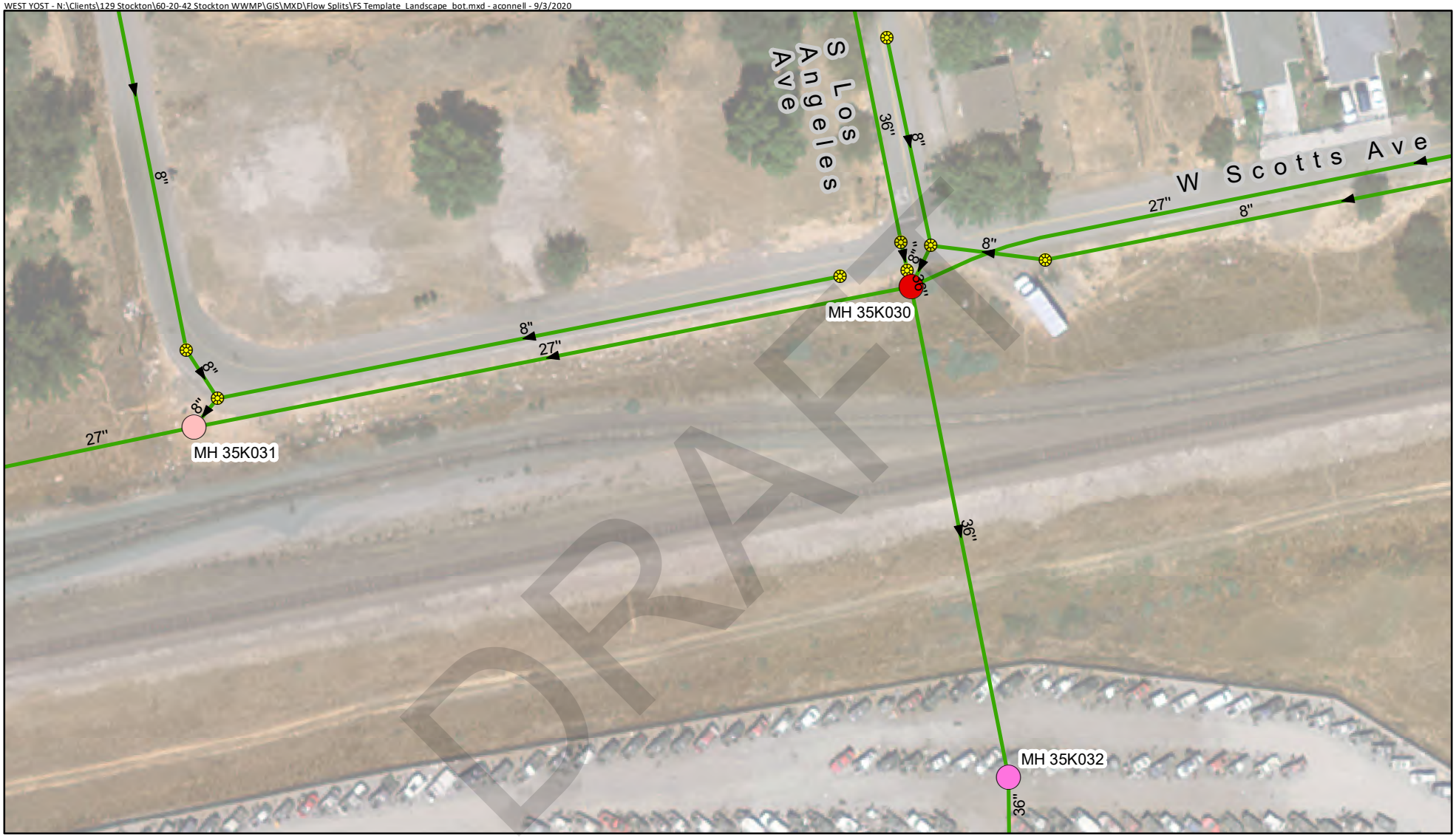
WEST YOST

Figure 11

Flow Split 5-1
MH ID 35L027

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 37.5 75

Scale in Feet

CITY OF STOCKTON

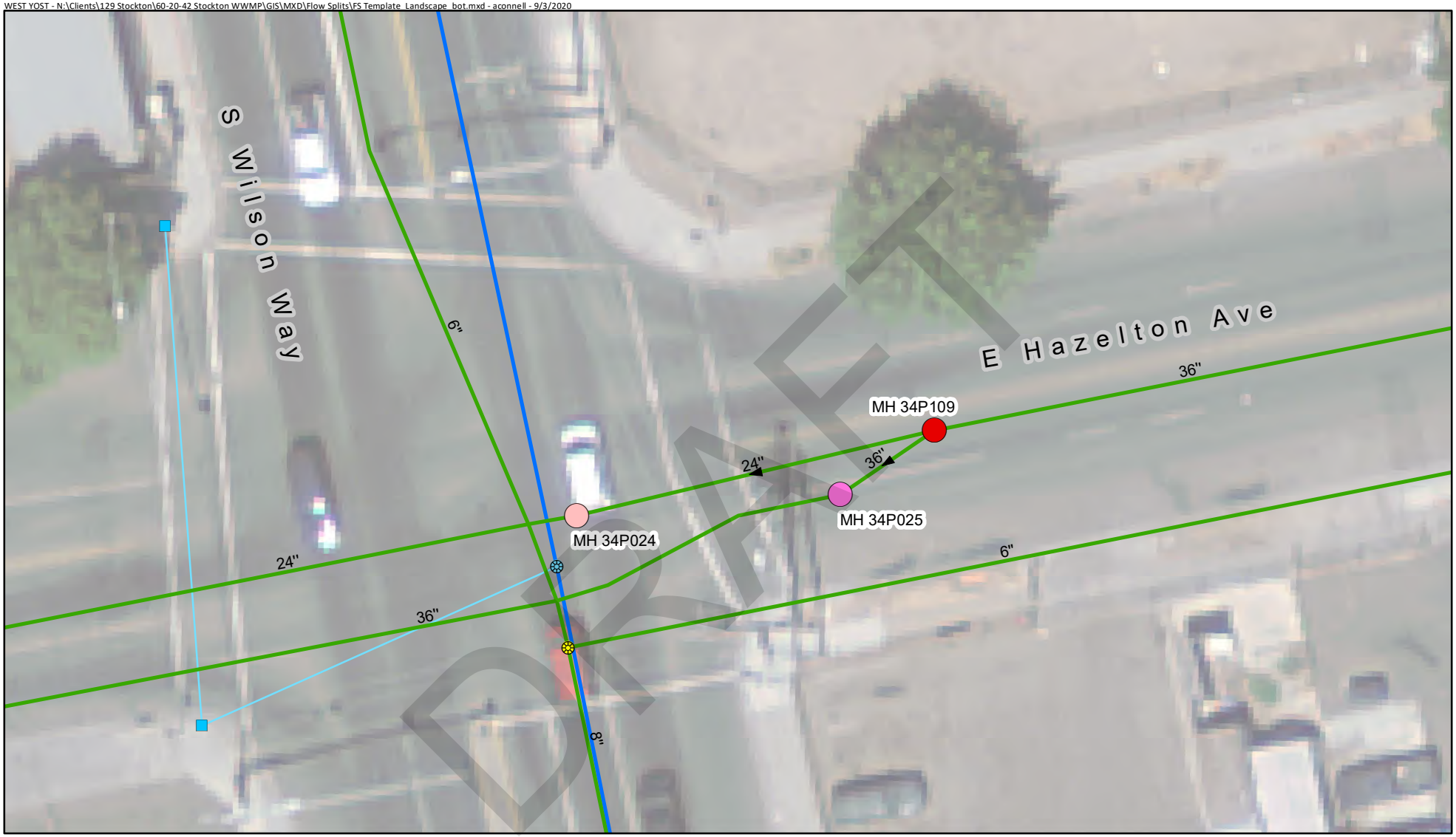
WEST YOST

Figure 12

Flow Split 5-2
MH ID 34P109

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 12.5 25

Scale in Feet

CITY OF STOCKTON

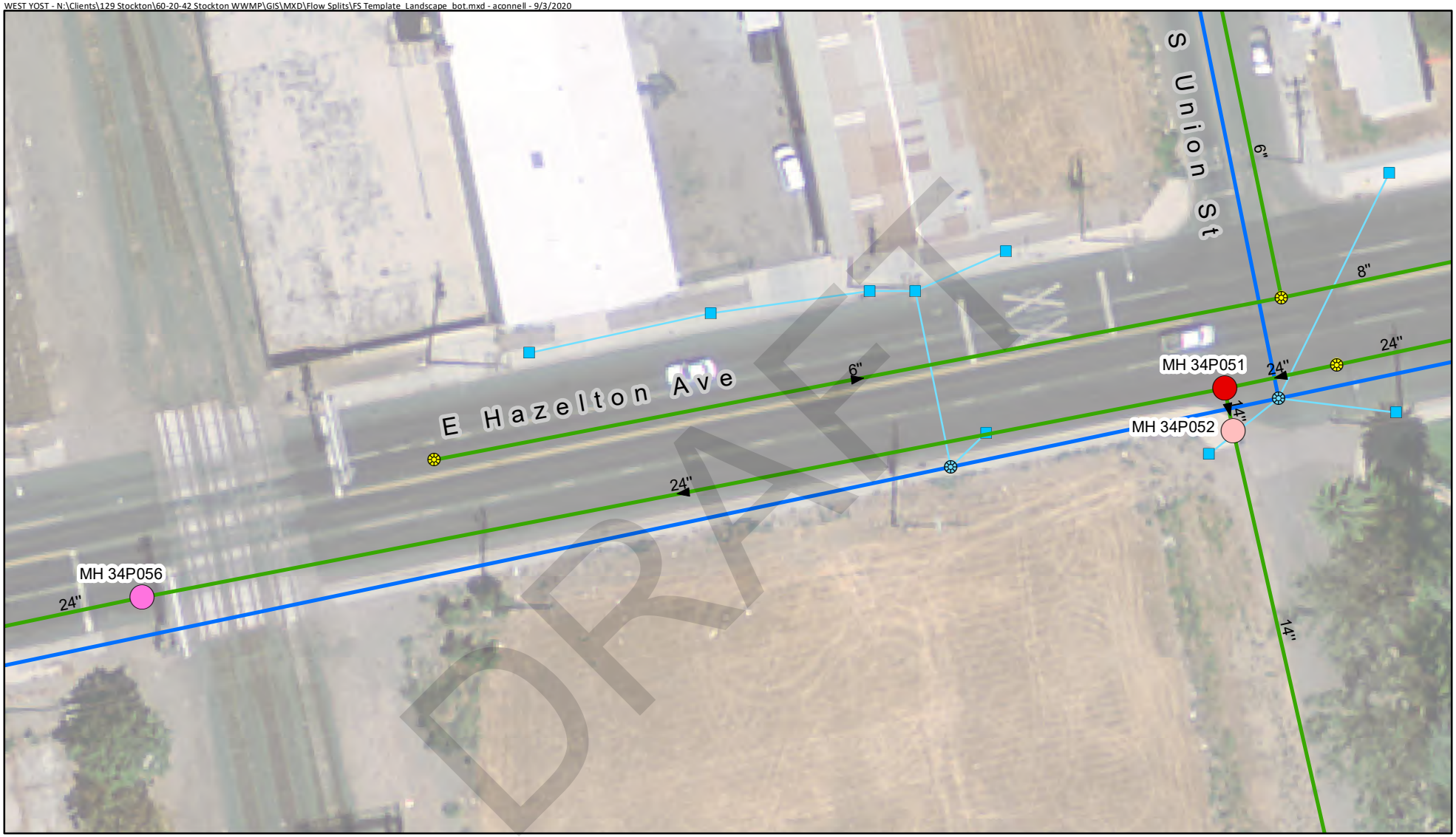
WEST YOST

Figure 13

Flow Split 6-1
MH ID 34P109

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 14

Flow Split 6-2
MH ID 34P051

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\16. FS 6-4.mxd - aconnell - 9/4/2020

Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 50 100

Scale in Feet

CITY OF STOCKTON

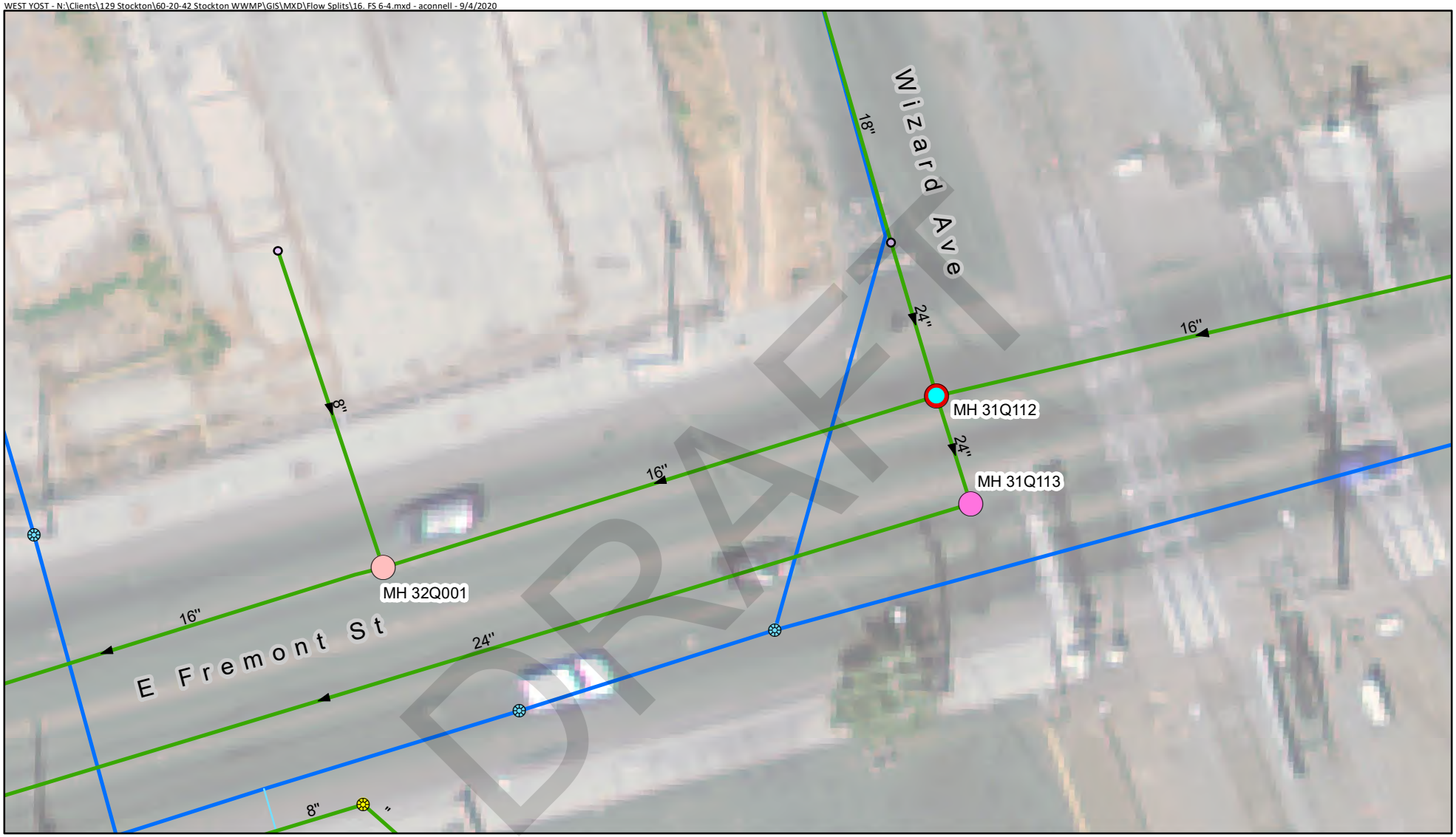
WEST YOST

Figure 15

Flow Split 6-3
MH ID 31Q112

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\16. FS 6-4.mxd - aconnell - 9/4/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 12.5 25

Scale in Feet

CITY OF STOCKTON

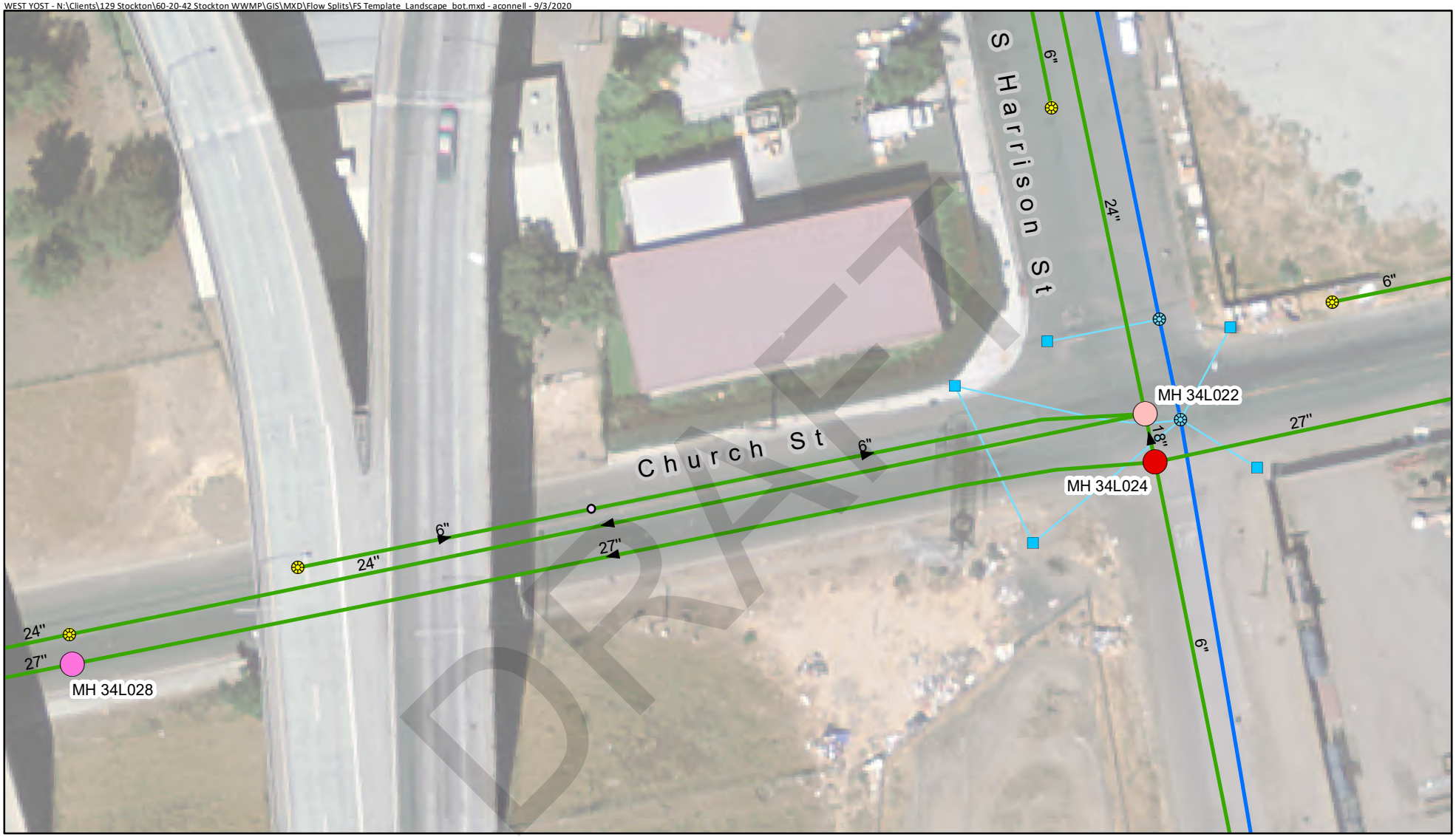
WEST YOST

Figure 16

Flow Split 6-4
MH ID 31Q112

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/3/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

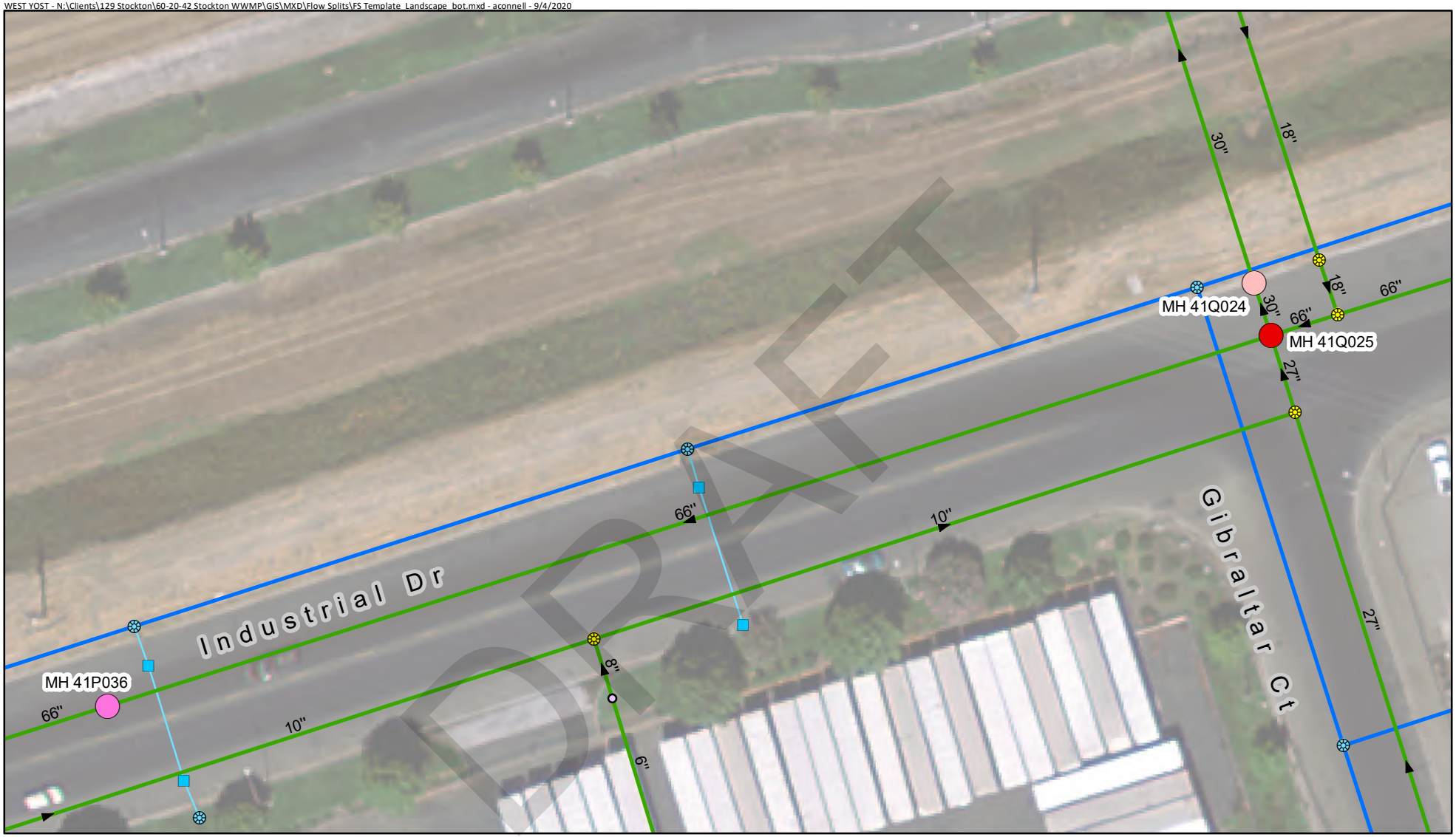
WEST YOST

Figure 17

Flow Split 6-5
MH ID 34L024

City of Stockton
Wastewater
Master Plan

WEST YOST - N:\Clients\129 Stockton\60-20-42 Stockton WWMP\GIS\MXD\Flow Splits\FS Template_Landscape_bot.mxd - aconnell - 9/4/2020



Symbology

- Flow Split MH
- Downstream MH 1
- Downstream MH 2
- LS Sewer Lift Station
- Sewer MH
- Lamphole
- Gravity Main
- Force Main
- Inlet or Catch Basin
- Storm Drain MH
- Catch Basin Line
- Storm Drain Line

N

0 25 50

Scale in Feet

CITY OF STOCKTON

WEST YOST

Figure 18

Flow Split 8-1
MH ID 41Q025

City of Stockton
Wastewater
Master Plan

Appendix C

Flow Split Survey Notes

JOB NUMBER: J20-2649

SURVEY CREW: JR JS

DATE: 9-23-2020

PT. NUMBER: 5000

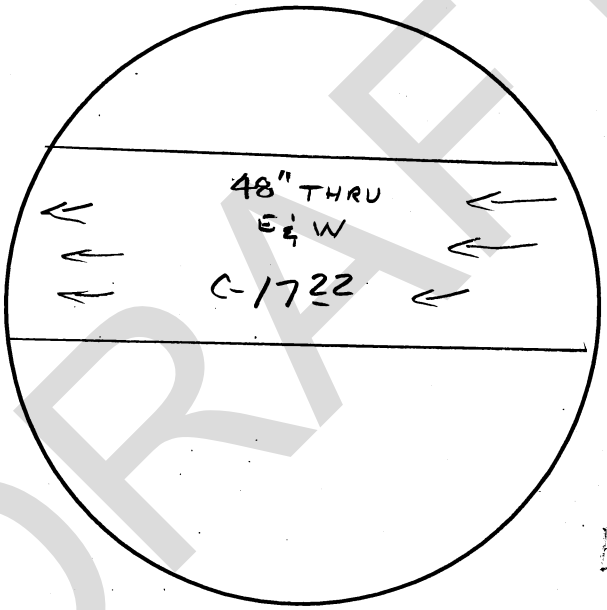
SSMH NO: MH 21J025

EX. RIM ELEV: 14.72

STREET INTERSECTION: HAMMER LANE, E. OF THORNTON

SCALE N.T.S.

- BRICK & MORTAR BARREL • GOOD CONDITION
- HEAVY FLOW WEST



EL-2 52

PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5001

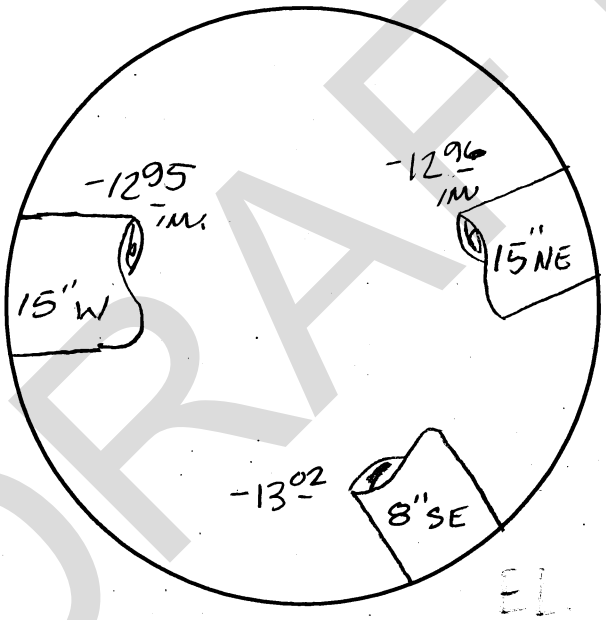
SSMH NO: MH 21J016

EX. RIM ELEV: 14.61

STREET INTERSECTION: HAMMER @ THORNTON

SCALE N.T.S.

STAGNANT
LID IS LABELED "STORM"
CONCRETE BARREL GOOD CONDITION



GIS Shows flow entering from east and existing west. Only two pipes in GIS. I think 15" NE is abandoned coming from MH21J008

PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5002

SSMH NO: MH 21J022

EX. RIM ELEV: 14.62

STREET INTERSECTION: HAMMER & THORNTON

SCALE N.T.S.

CONCRETE BARREL GOOD CONDITION

HEAVY FLOW WESTERLY

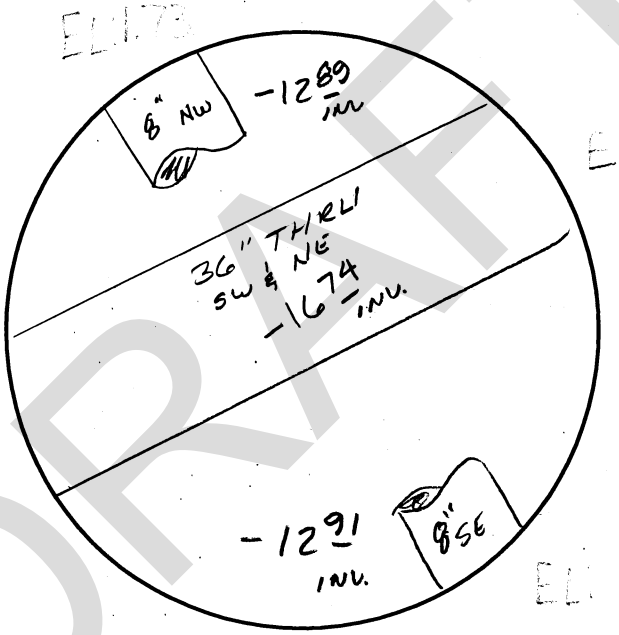


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5003

SSMH NO: MH 30K917

EX. RIM ELEV: 7.15

STREET INTERSECTION: COUNTRY CLUB @ W. OF PERSHING

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- HEAVY FLOW WESTERLY

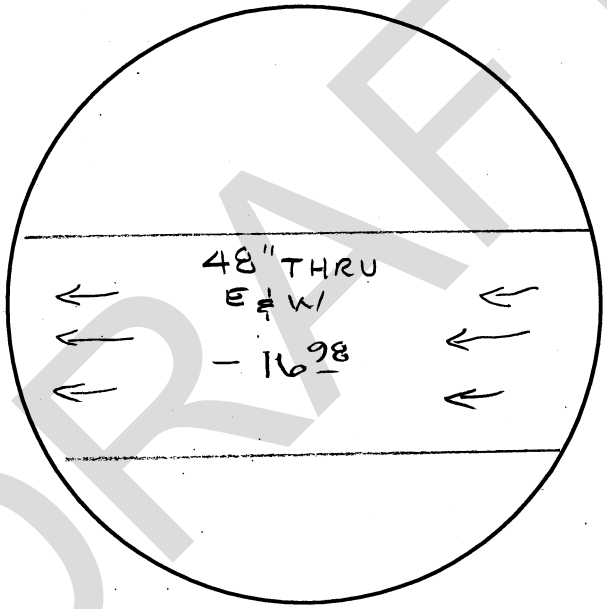


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

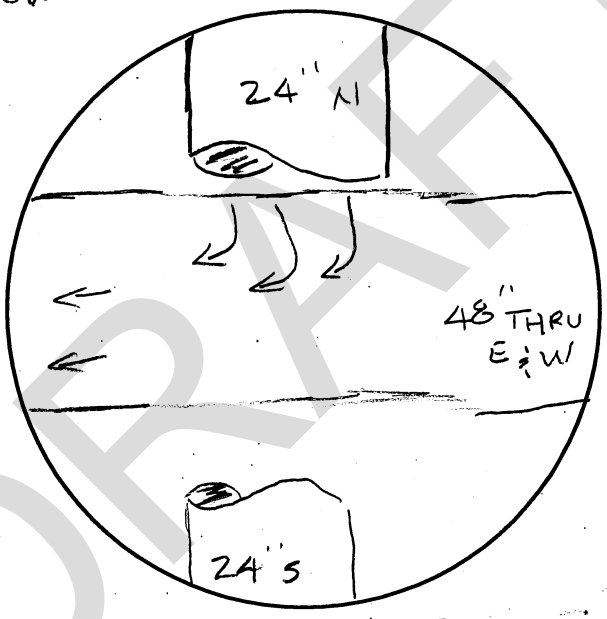
JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

JOB NUMBER: J20-2649
SURVEY CREW: JR/JS
DATE: 9-23-2020
PT. NUMBER: 5004
SSMH NO: MH 30K915
EX. RIM ELEV: 8.45
STREET INTERSECTION: COUNTRY CLUB & PERSHING

SCALE N.T.S.

- BARREL CONCRETE - GOOD CONDITION
- HEAVY FLOW FROM NORTH
- LITTLE TO ZERO FLOW FROM SOUTH



Can not confirm southern flow direction in GIS

PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5005

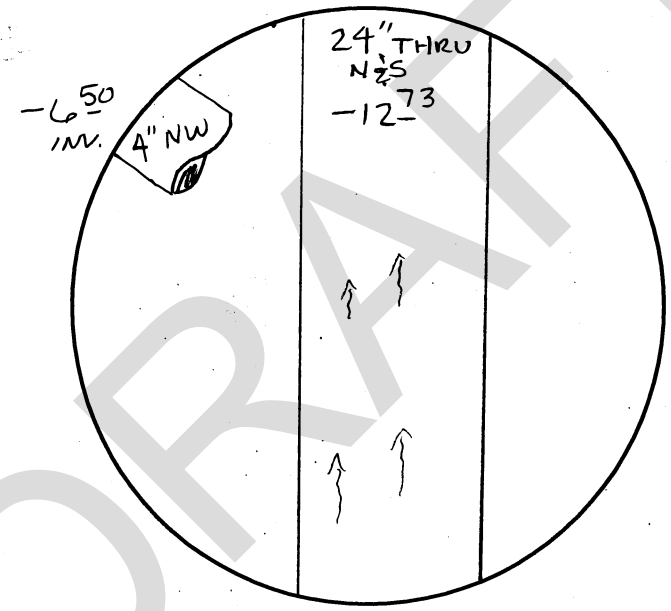
SSMH NO: MH 30R101

EX. RIM ELEV: 7.92

STREET INTERSECTION: PERSHING @ S. OF COUNTRY CLUB

SCALE N.T.S.

- BRICK & MORTAR BARREL GOOD CONDITION
- SLOW FLOW NORTHERLY



GIS shows reversed flow

PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hayyear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5006

SSMH NO: MH 31J082

EX. RIM ELEV: 5.68

STREET INTERSECTION: MISSION @ N. OF TUXEDO

SCALE N.T.S.

CONCRETE BARREL - GOOD CONDITION

HEAVY FLOW NORTHERLY

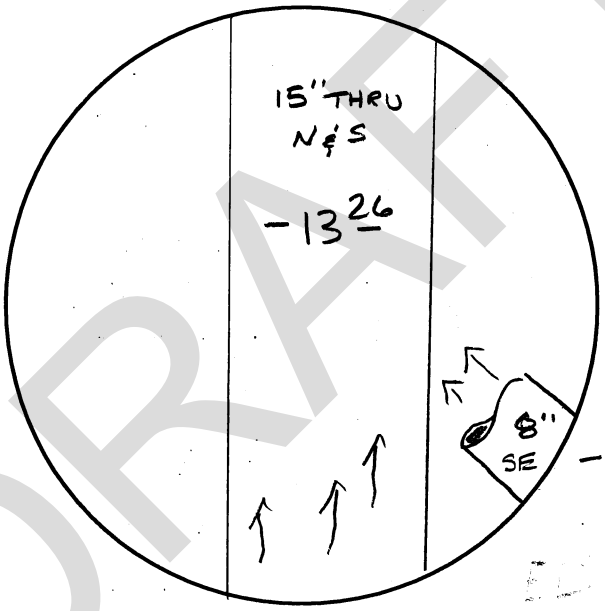


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5007

SSMH NO: MH 31J018

EX. RIM ELEV: 5.38

STREET INTERSECTION: S. TUXEDO @ MISSION RD.

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- HEAVY FLOW WEST
- HEAVY FLOW NORTH

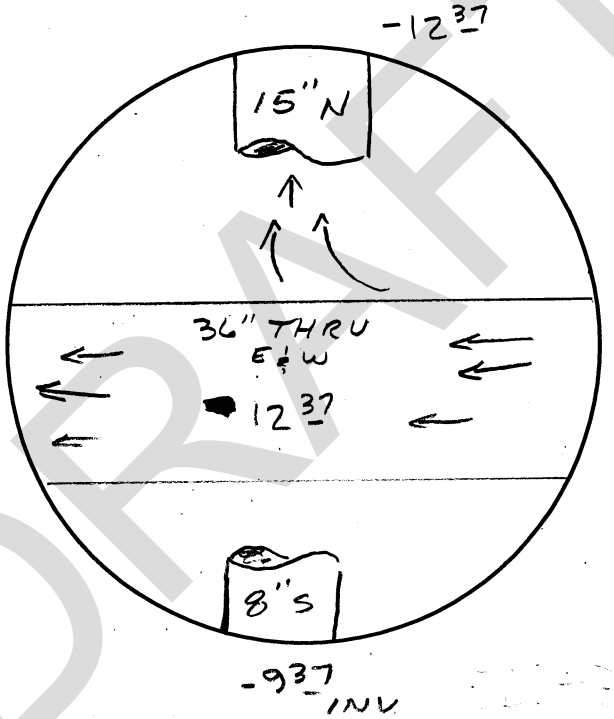


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5008

SSMH NO: MH 31J083

EX. RIM ELEV: 2.89

STREET INTERSECTION: LAKE DRIVE CUL-DE-SAC

SCALE N.T.S.

- CONCRETE BARREL CONDITION = GOOD
- HEAVY FLOW WESTERLY

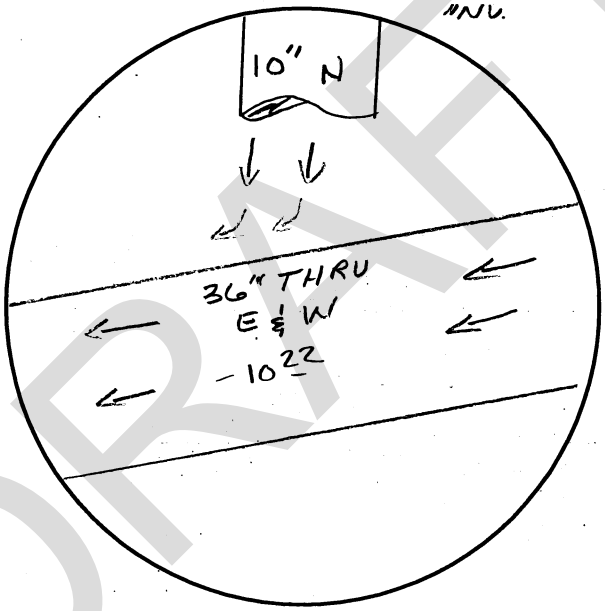


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5009

SSMH NO: MH 35K036

EX. RIM ELEV: 7.18

STREET INTERSECTION: W. SCOTTS @ NOMINAL & PCL NORTHEAST

SCALE N.T.S.

CONCRETE BARREL GOOD CONDITION

HEAVY FLOW SOUTH & WEST

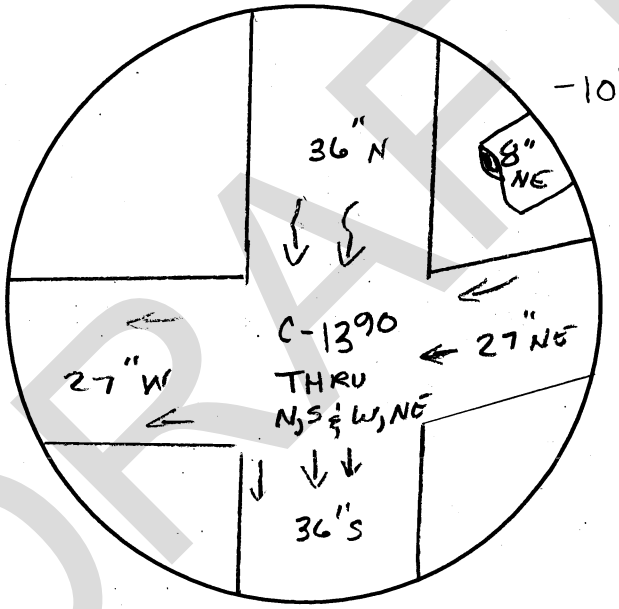


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5010

SSMH NO: MH 35K031

EX. RIM ELEV: 6.58

STREET INTERSECTION: W. SCOTTS AVE KNUCKLE

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- HEAVY FLOW WEST

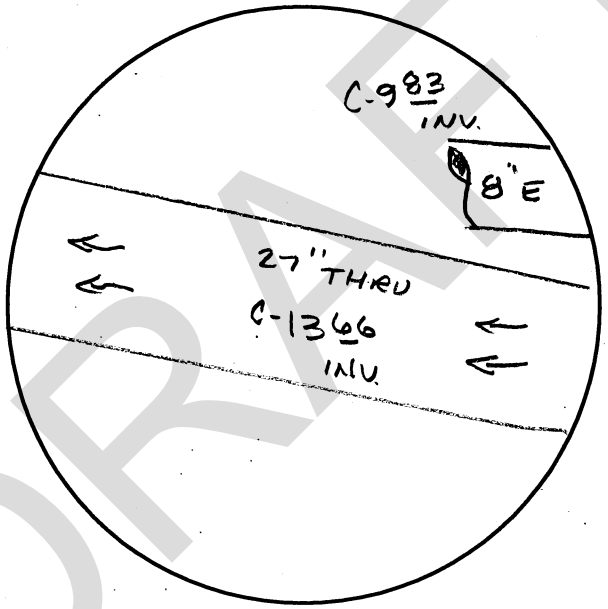


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5012

SSMH NO: MH 351028

EX. RIM ELEV: _____

STREET INTERSECTION: OHI PROPERTY NW CORNER

SCALE N.T.S.

BRICK & MORTAR FAIR CONDITION (OLD)

FLOWING SOUTH

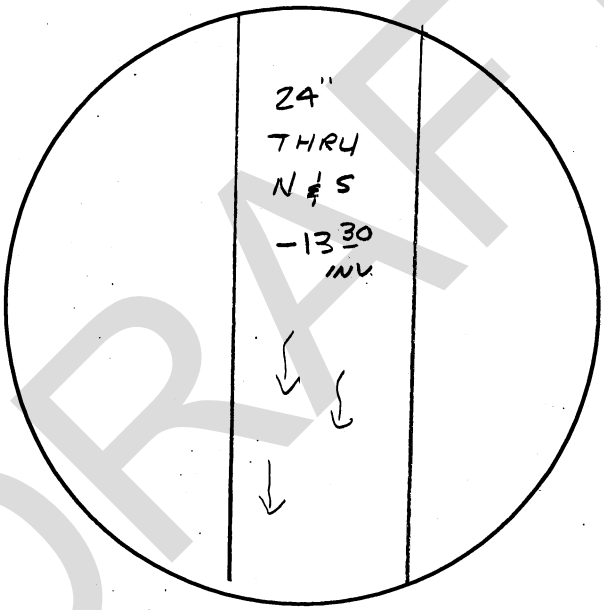


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hayyear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5013

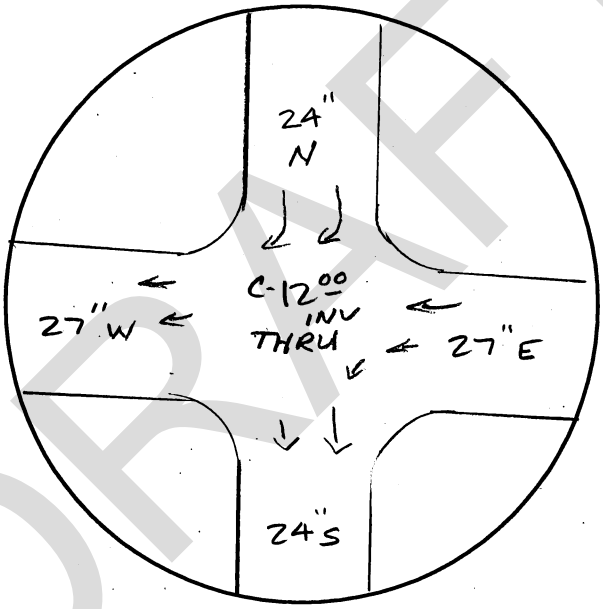
SSMH NO: MH 352027

EX. RIM ELEV: 6.68

STREET INTERSECTION: SCOTTS AVE @ PERSHING AVE

SCALE N.T.S.

- BRICK & MORTAR FAIR/OLD CONDITION
- FLOWING SOUTH & WEST



EL-5 =

PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5014

SSMH NO: MH 35K022

EX. RIM ELEV: 6.97

STREET INTERSECTION: MODESTO AVE @ SCOTTS AVE

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST

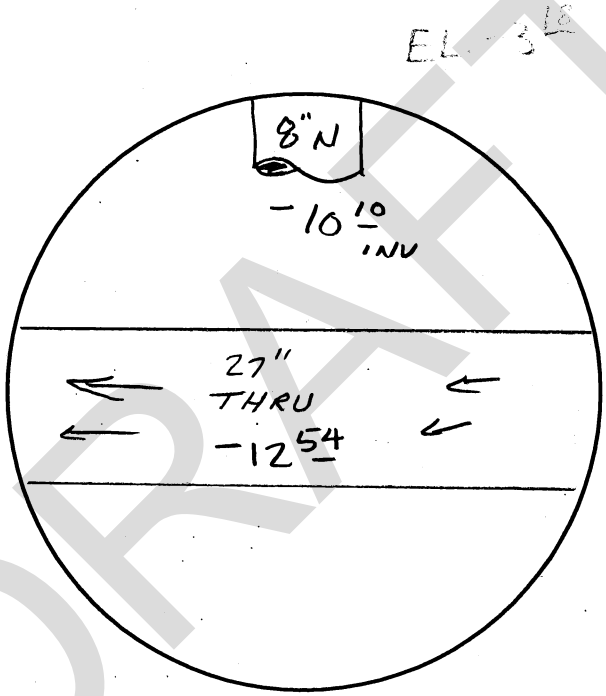


PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

JOB NUMBER: J20-2649
SURVEY CREW: JR/JS
DATE: 9-23-20
PT. NUMBER: 5015
SSMH NO: MH 341024
EX. RIM ELEV: 9.58
STREET INTERSECTION: HARRISON @ CHURCH

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST

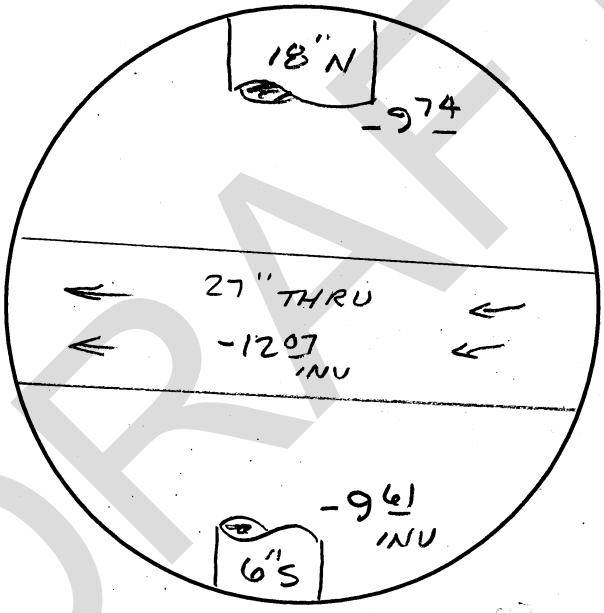


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: hpurpser
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5016

SSMH NO: MH 342022

EX. RIM ELEV: 9.53

STREET INTERSECTION: HARRISON @ CHURCH

SCALE N.T.S.

BRICK & MORTAR BARREL

STAGNANT/STILL ± 24" DEEP

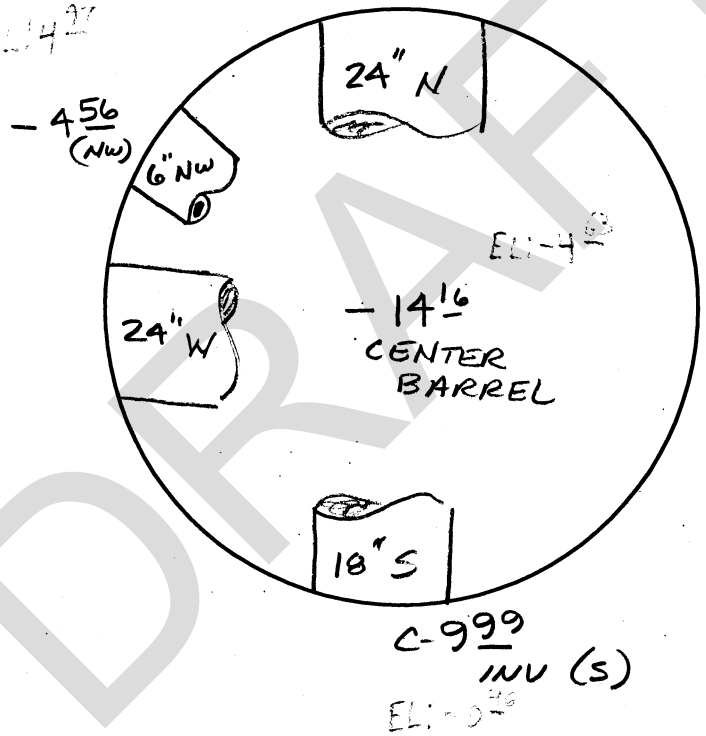


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/DS

DATE: 9-23-2020

PT. NUMBER: 5017

SSMH NO: MH34L028

EX. RIM ELEV: 12.16

STREET INTERSECTION: CHURCH W. OF HARRISON

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- STAGNANT/FULL OF DEBRIS 4'± DEEP

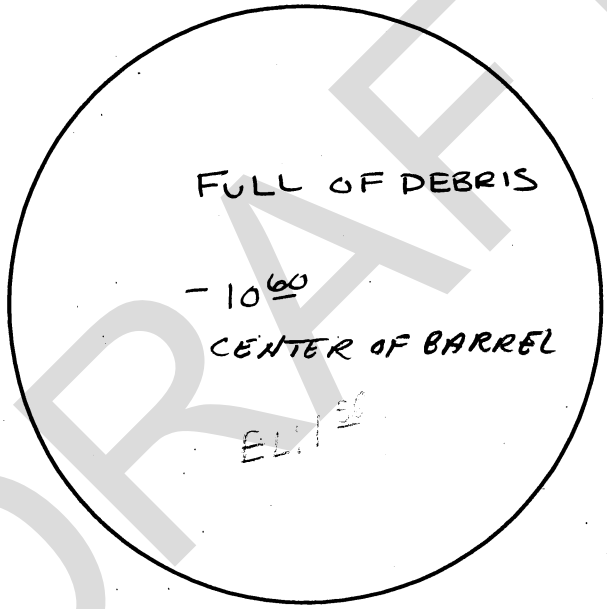


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5018

SSMH NO: MH 34P056

EX. RIM ELEV: 21.83

STREET INTERSECTION: HAZELTON W. OF UNION

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST

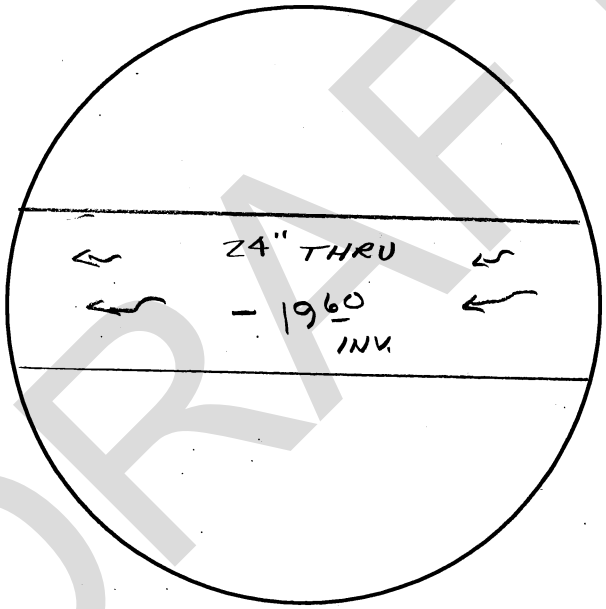


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5019

SSMH NO: MH 34P051

EX. RIM ELEV: 18.83

STREET INTERSECTION: HAZELTON @ UNION

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST

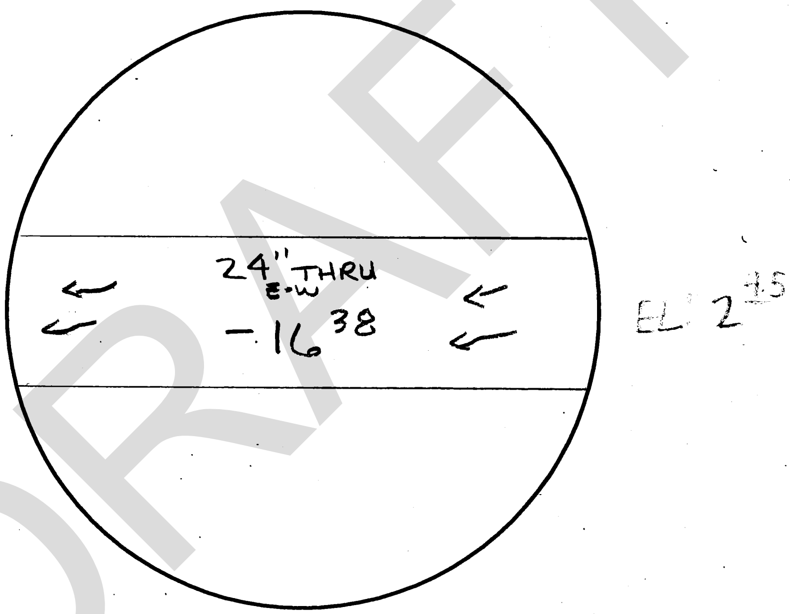


PHOTO FILE NO: ____________

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. ____________

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hpuryear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-20

PT. NUMBER: 5026

SSMH NO: MH 34P052

EX. RIM ELEV: 19.33

STREET INTERSECTION: HAZELTON @ UNION

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- DRY / EMPTY

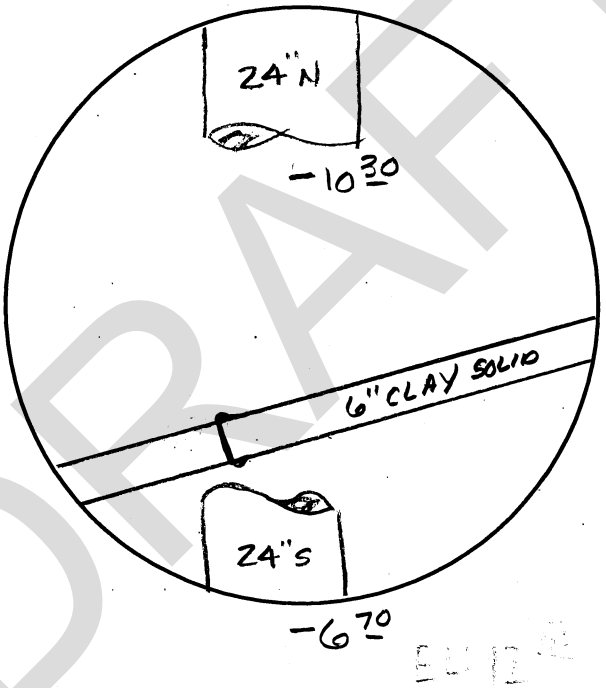


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

JOB NUMBER: J20-2649

SURVEY CREW: JR JS

DATE: 9-23-2020

PT. NUMBER: 5021

SSMH NO: MH 34P109

EX. RIM ELEV: 19.43

STREET INTERSECTION: WILSON WY @ E. HAZELTON

SCALE N.T.S.

CONCRETE BARREL GOOD CONDITION

FLOWING WEST

ZERO FLOW SW

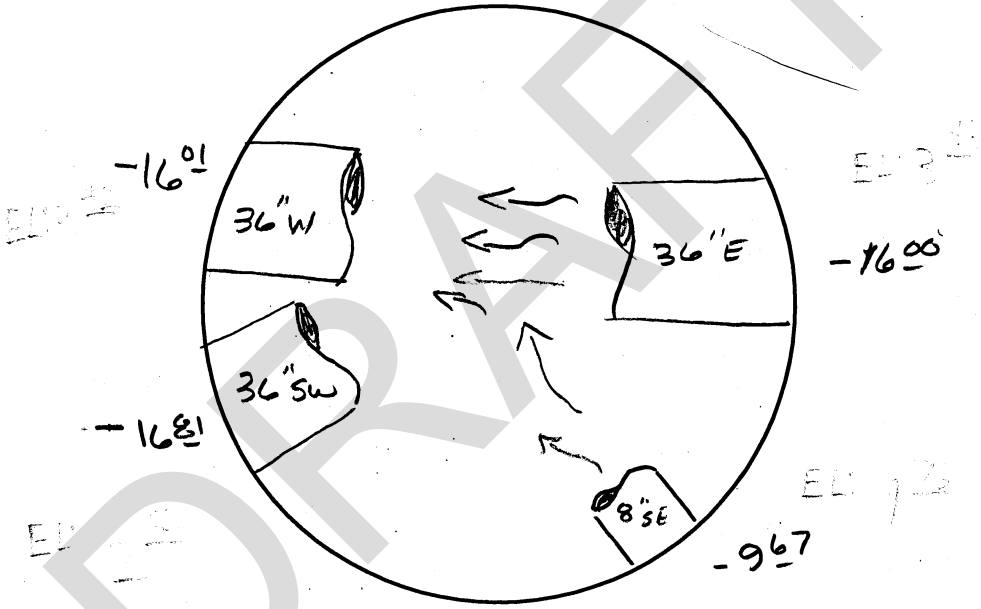


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

PLOTTED: 09/19/20 13:50 PLOTTED BY: hpuryear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR JS

DATE: 9-23-2020

PT. NUMBER: 5022

SSMH NO: MH 34P025

EX. RIM ELEV: 19.46

STREET INTERSECTION: WILSON WY @ E. HAZELTON

SCALE N.T.S.

- CONCRETE BARREL
- SOME DEBRIS/SLUDGE
- 50' ± DEEP
- SLOW FLOWING WEST

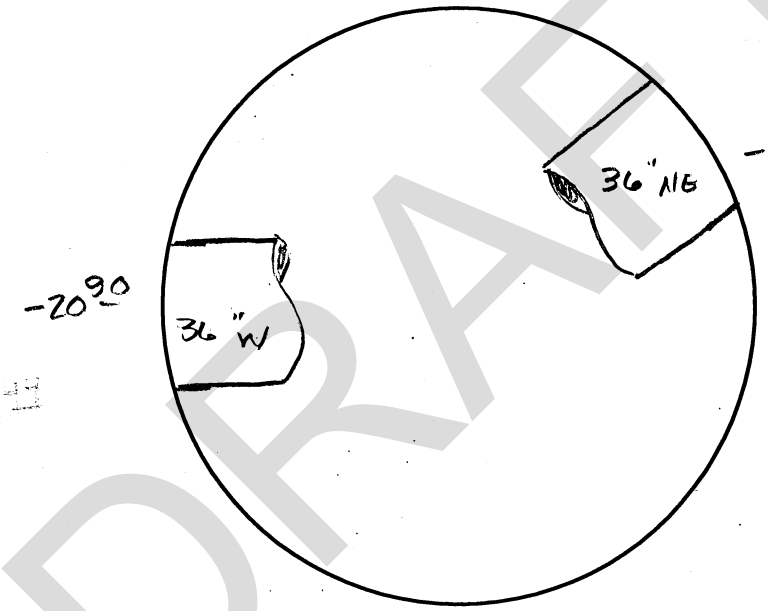


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hjuryear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-23-2020

PT. NUMBER: 5023

SSMH NO: MH 34P024

EX. RIM ELEV: 20.13

STREET INTERSECTION: WILSON WY @ E. HAZELTON

SCALE N.T.S.

- BRICK & MORTAR BARREL FAIR CONDITION (OLD)
- FLOWING WEST

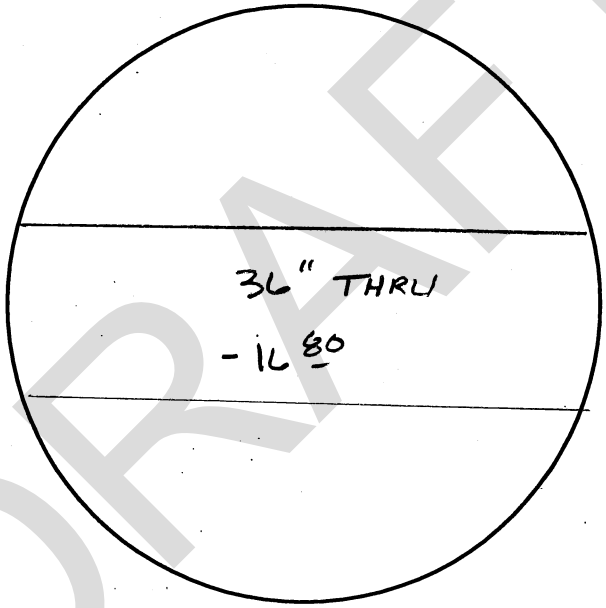


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5024

SSMH NO: MH 32N058

EX. RIM ELEV: 15.42

STREET INTERSECTION: GRANT ST & FREMONT

SCALE N.T.S.

CONCRETE BARREL - GOOD CONDITION

FLOWING NW

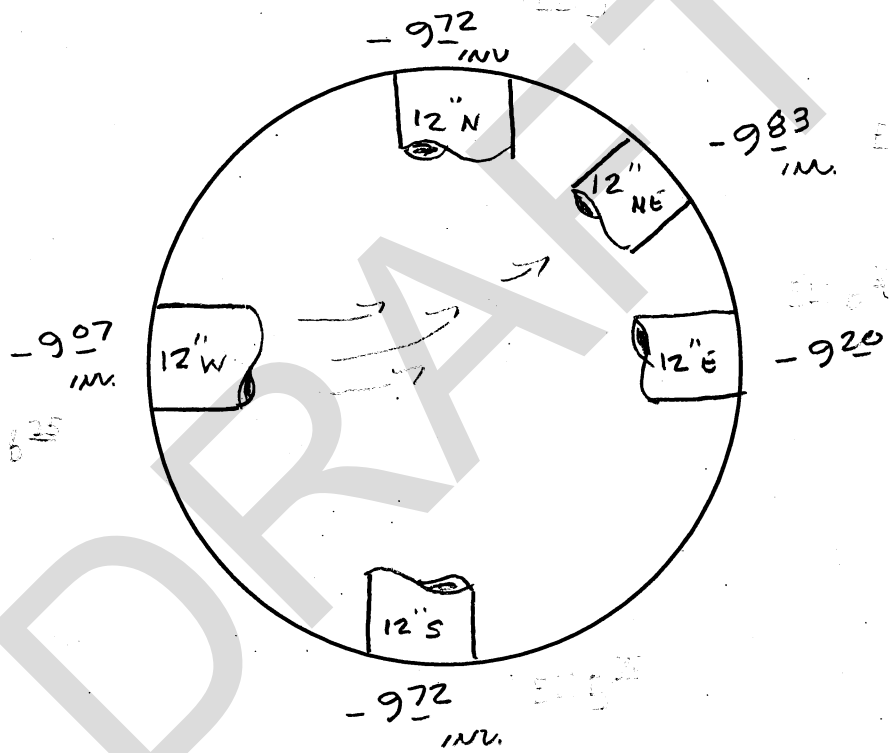


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON

SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Ngurzyser
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5025

SSMH NO: MH 32N056

EX. RIM ELEV: 15.16

STREET INTERSECTION: FREMONT & GRANT

SCALE N.T.S.

CONCRETE BARREL - GOOD CONDITION

FLOW NORTHERLY

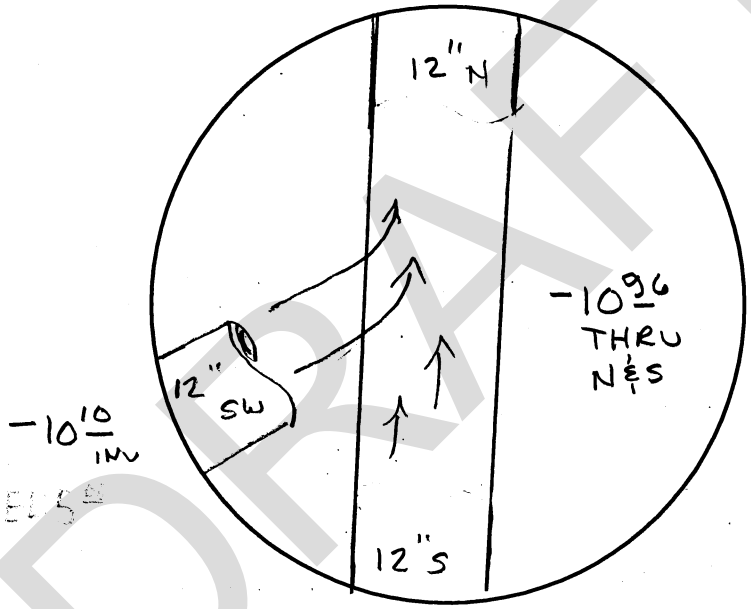


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5026

SSMH NO: MH 32N037

EX. RIM ELEV: 16.18

STREET INTERSECTION: OAK & GRANT

SCALE N.T.S.

CONCRETE BARREL GOOD CONDITION

FLOWING WEST

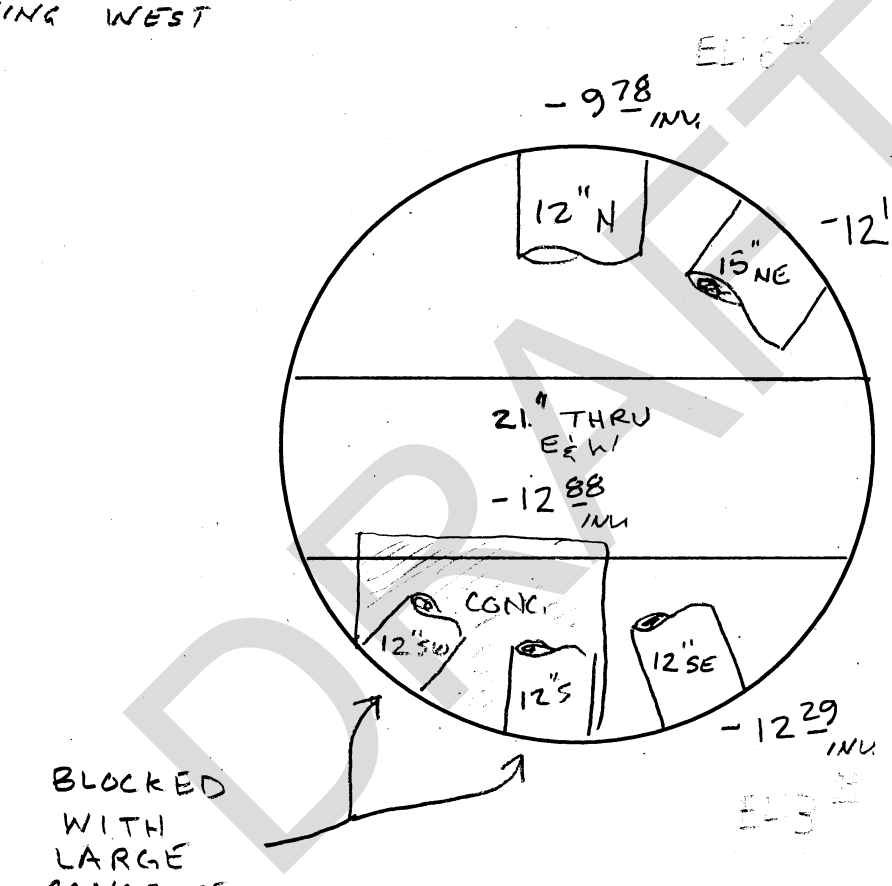


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5027

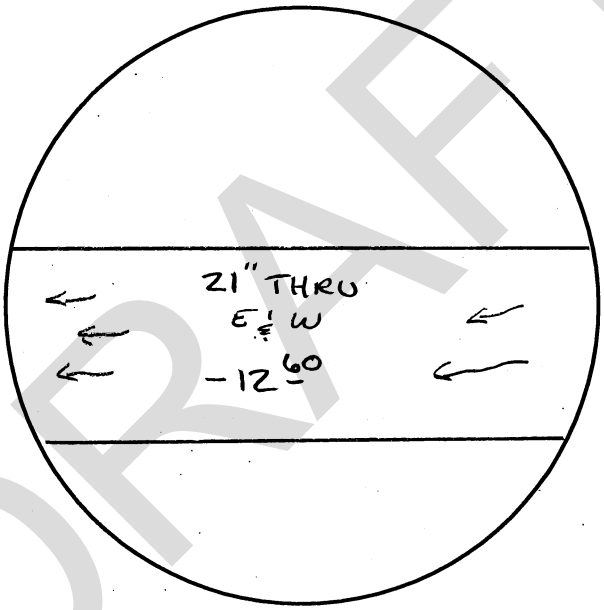
SSMH NO: MH 32N040

EX. RIM ELEV: 15.27

STREET INTERSECTION: OAK & STANISLAUS

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST



EL 2.37

PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5028

SSMH NO: MH 32N074

EX. RIM ELEV: 16.12

STREET INTERSECTION: LINDSAY & GRANT

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- STAGNANT
- MINIMAL FLOW
- 3" ± DEEP SEDIMENT IN TROUGH

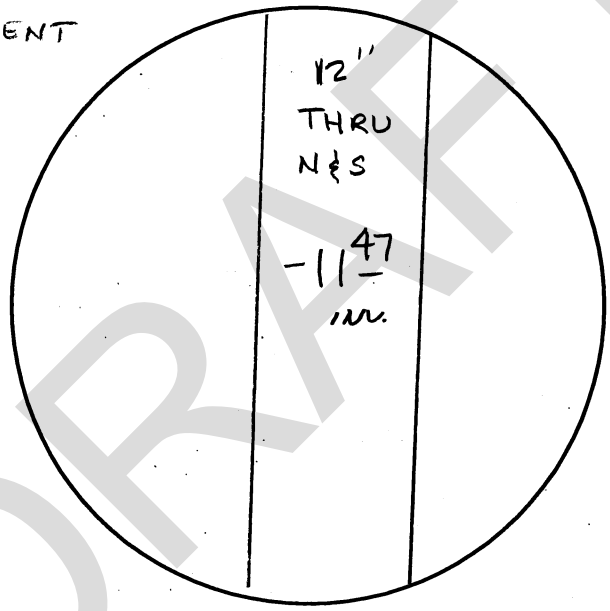


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/DS

DATE: 9-24-2020

PT. NUMBER: 5029

SSMH NO: MH 32N090

EX. RIM ELEV: 16.52

STREET INTERSECTION: GRANT ST & MINER

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING SLOW SOUTH

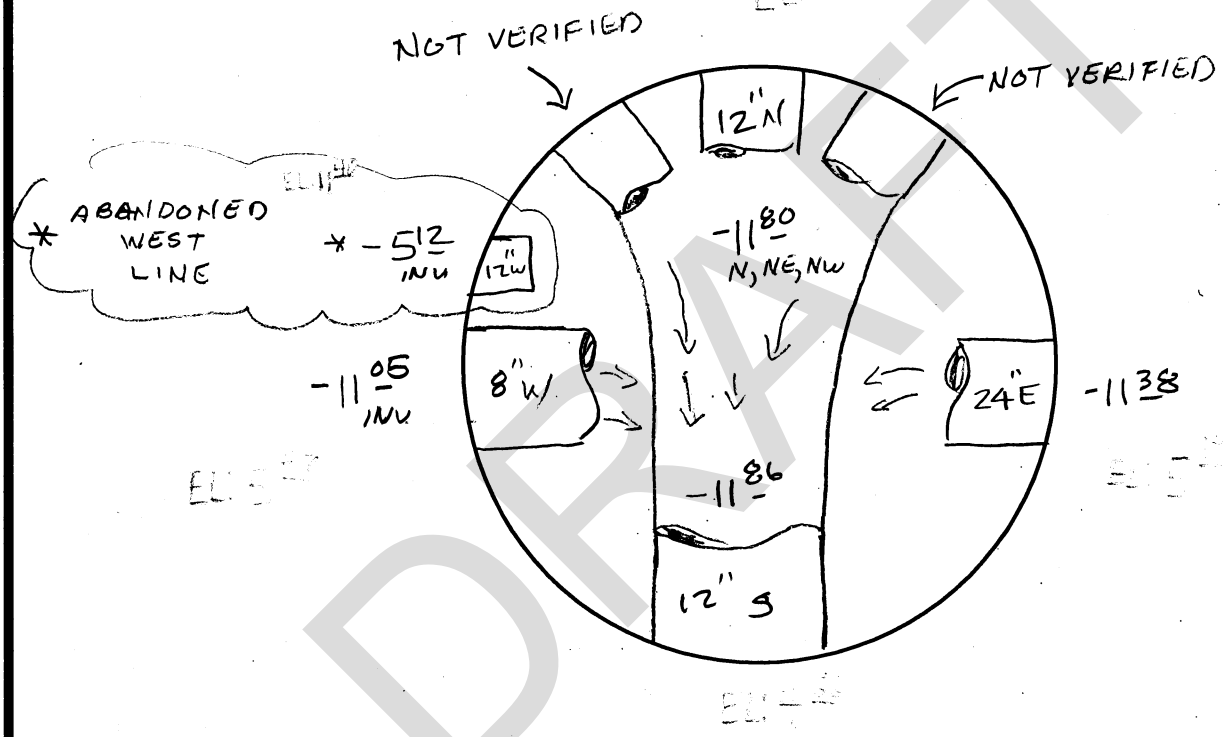


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-20

PT. NUMBER: 5030

SSMH NO: MH 32N116

EX. RIM ELEV: 17.12

STREET INTERSECTION: GRANT & CHANNEL

SCALE N.T.S.

- BRICK & MOTAR - GOOD CONDITION
- FLOW SOUTH (STEADY)

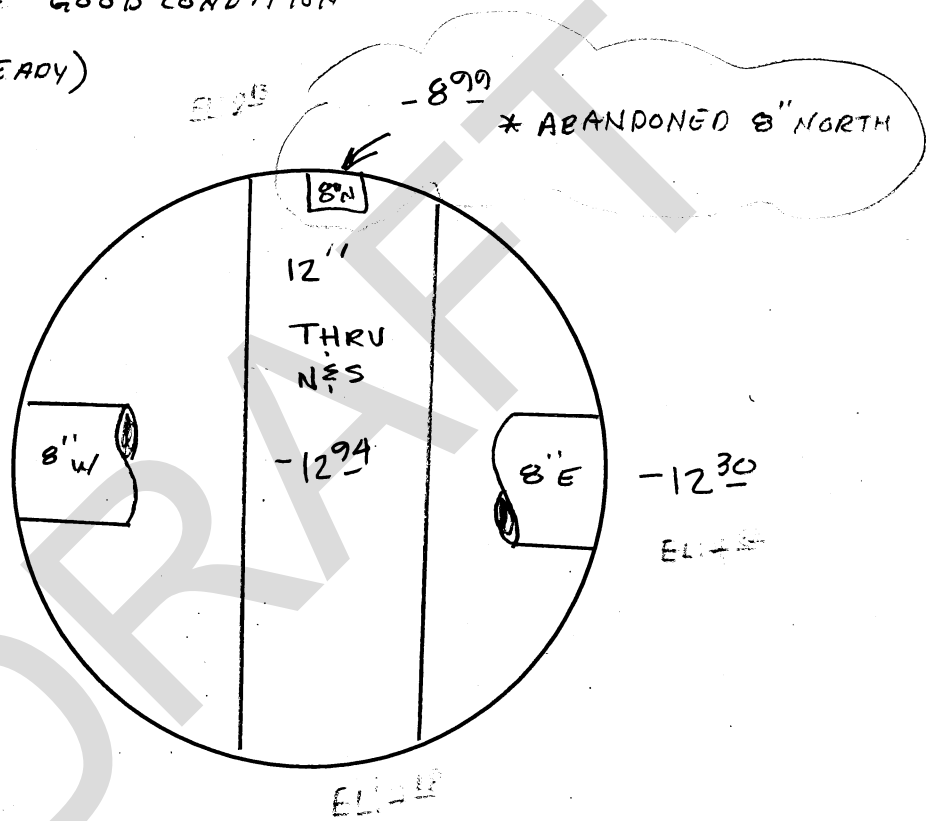


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/19/20 13:50 PLOTTED BY: hpuryear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5031

SSMH NO: MH 32P071

EX. RIM ELEV: 17.56

STREET INTERSECTION: LINDSAY & AIRPORT

SCALE N.T.S.

- BRICK & MORTAR - GOOD CONDITION
- SLOW FLOW WEST

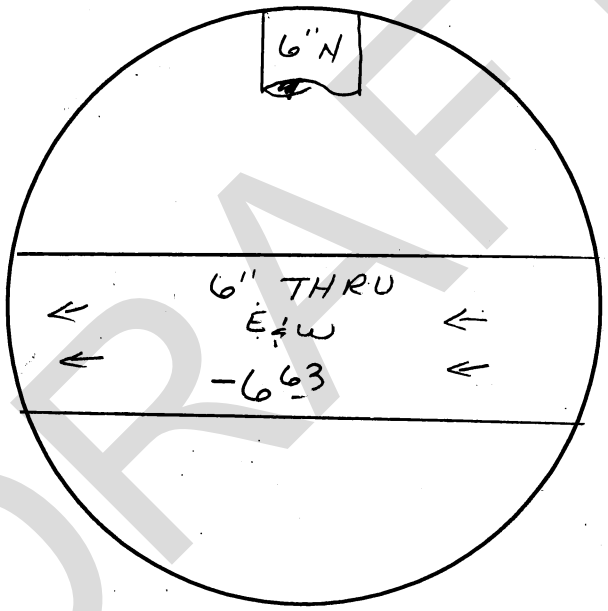


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: hpurveer
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5032

SSMH NO: MH 32P067

EX. RIM ELEV: 18.70

STREET INTERSECTION: SIERRA NEVADA & LINDSAY

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- SLOW FLOW SOUTH

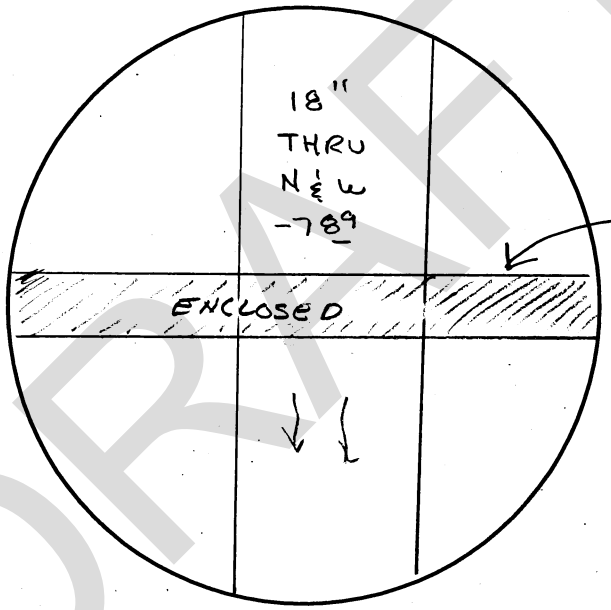


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hpuryear
DWG NAME: K:\20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5033

SSMH NO: MH32P090

EX. RIM ELEV: 19.20

STREET INTERSECTION: MINER & SIERRA NEVADA

SCALE N.T.S.

- CONCRETE GOOD CONDITION
- HEAVY FLOW SOUTH

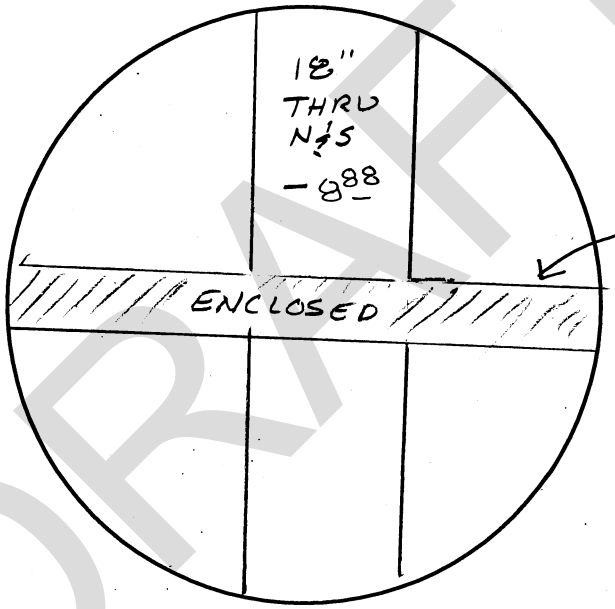


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5034

SSMH NO: MH 32P012

EX. RIM ELEV: 20.52

STREET INTERSECTION: FREMONT @ WEST OF "A" ST.

SCALE N.T.S.

- BRICK & MORTAR BARREL - GOOD CONDITON
- STAGNANT - NO FLOW (APPARENT)
- HEAVY SEDIMENT - 3" ± DEEP

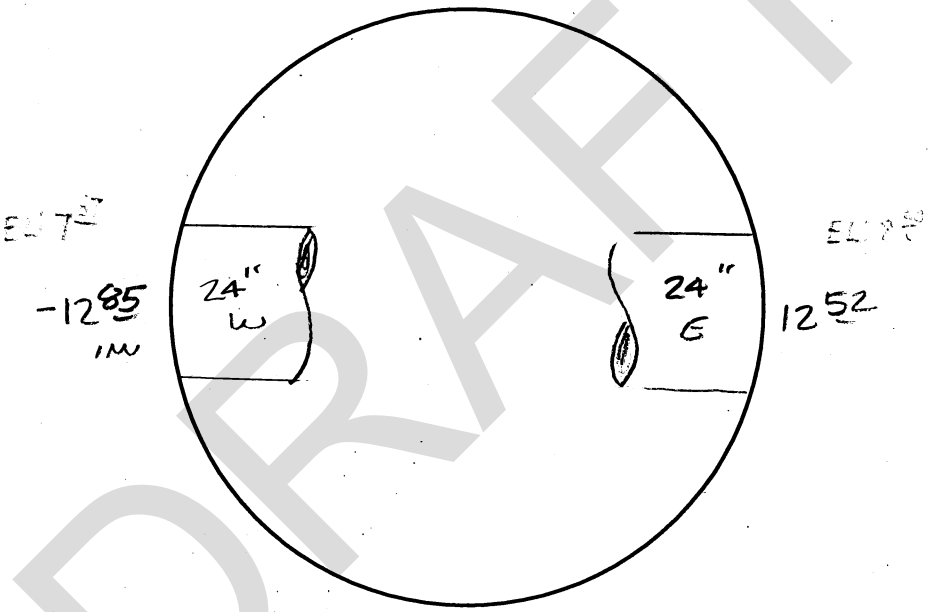


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

PLOTTED: 09/18/20 13:59 PLOTTED BY: Hpuyear
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/DS

DATE: 9-24-2020

PT. NUMBER: 5035

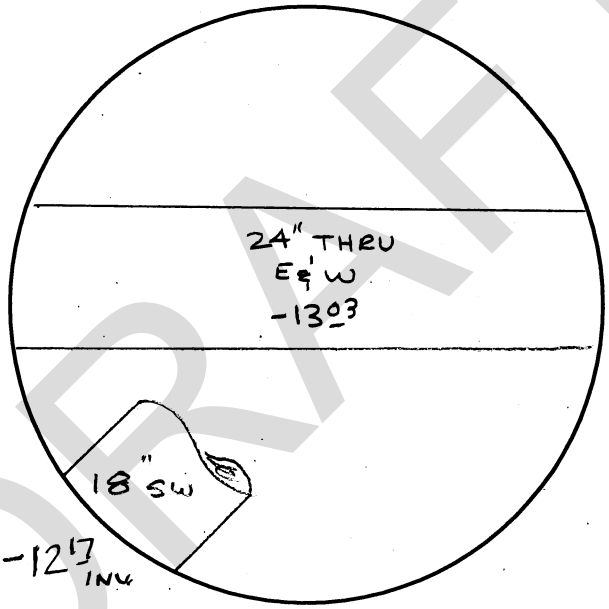
SSMH NO: MHP003

EX. RIM ELEV: 20.87

STREET INTERSECTION: FREMONT @ EAST OF "A" ST

SCALE N.T.S.

- BRICK & MORTAR GOOD CONDITION
- NO APPARENT FLOW
- DEBRIS 6" ± DEEP



EL 7.8

PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5036

SSMH NO: MH 32P009

EX. RIM ELEV: 21.33

STREET INTERSECTION: FREMONT EAST OF "A" ST.

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- GOOD FLOW WEST

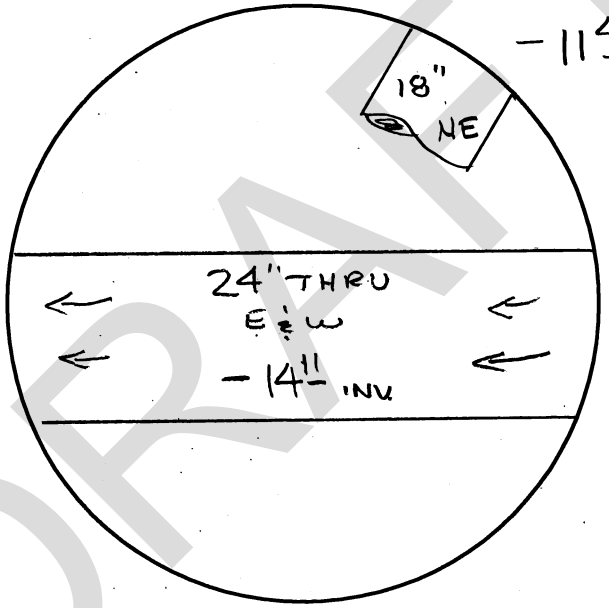


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5037

SSMH NO: MH 31Q113

EX. RIM ELEV: 22.05

STREET INTERSECTION: FREMONT @ WIZARD

SCALE N.T.S.

- BRICK & MORTAR BARREL - GOOD CONDITION
- FLOW WEST

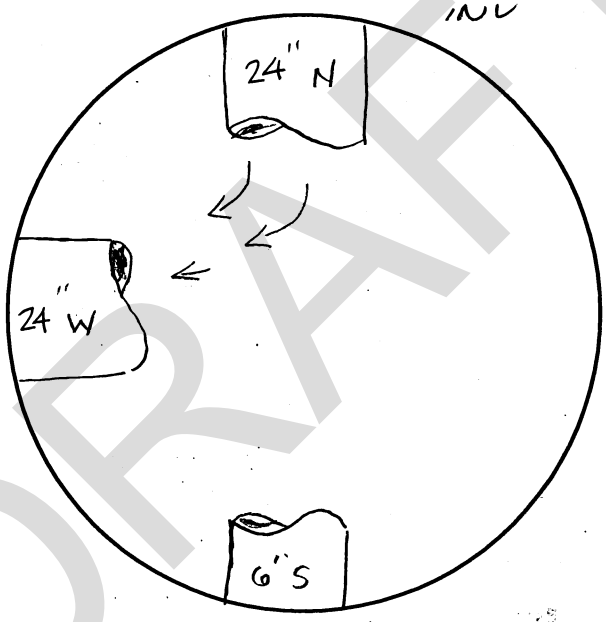


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-20

PT. NUMBER: 5038

SSMH NO: MH 31 Q112

EX. RIM ELEV: 21.70

STREET INTERSECTION: WIZARD & FREMONT

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- FLOWING SOUTH

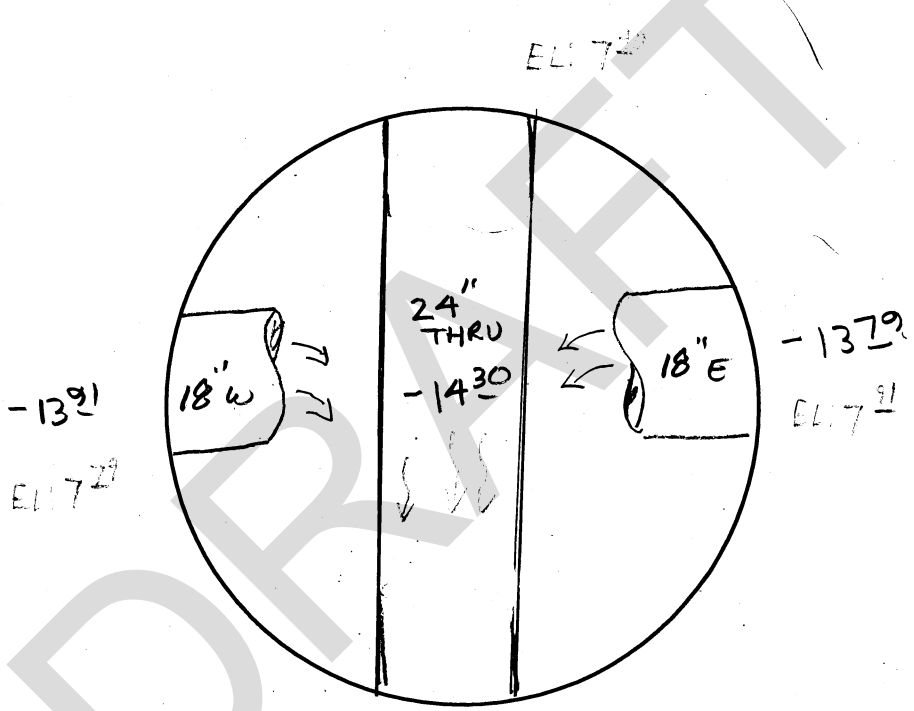


PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5039

SSMH NO: MH 32 Q001

EX. RIM ELEV: 20.86

STREET INTERSECTION: FREMONT @ WEST OF WIZARD

SCALE N.T.S.

- CONCRETG BARREL - GOOD CONDITION
- NO APPARENT FLOW
- SEDIMENT 3" ± DEEP

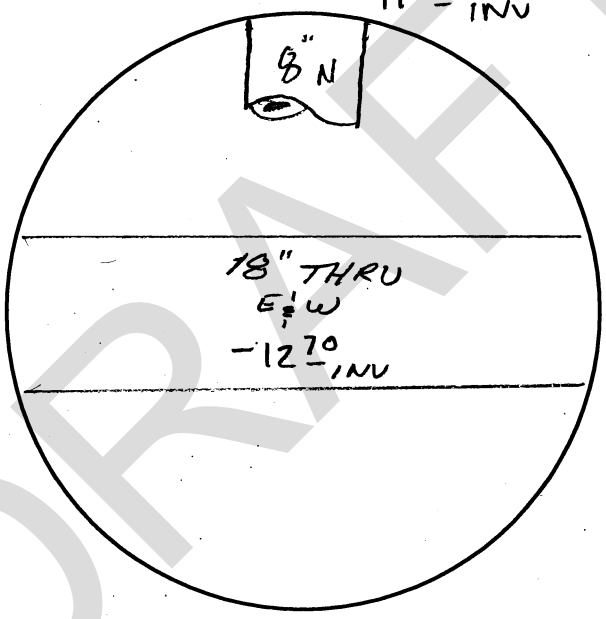


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

PLOTTED: 09/18/20 13:50 PLOTTED BY: Hayreyer
DWG NAME: K:\J20-2649 Stockton Manhole Survey\DWG_Field\manhole template.dwg

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5040

SSMH NO: MH 31R031

EX. RIM ELEV: 22.68

STREET INTERSECTION: FREMONT @ E OF FILBERT

SCALE N.T.S.

- CONCRETE BARREL GOOD CONDITION
- FLOWING WEST

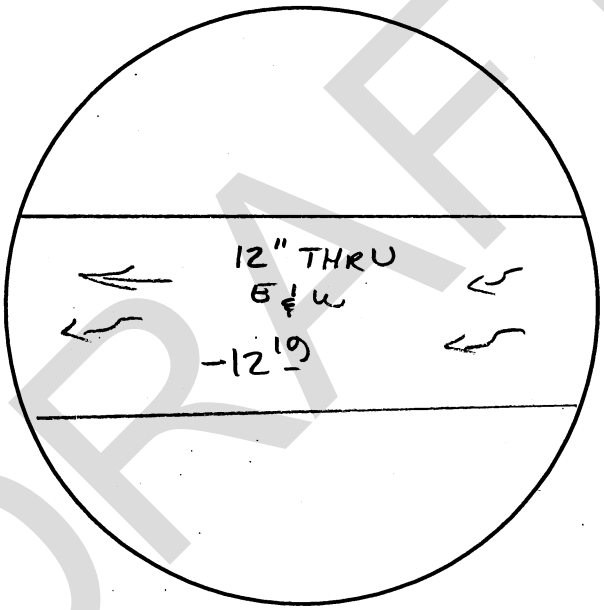


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9.24.2020

PT. NUMBER: 5041

SSMH NO: MH 31R030

EX. RIM ELEV: 23.97

STREET INTERSECTION: FREMONT & FILBERT

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- FLOWING WEST & NORTHERLY

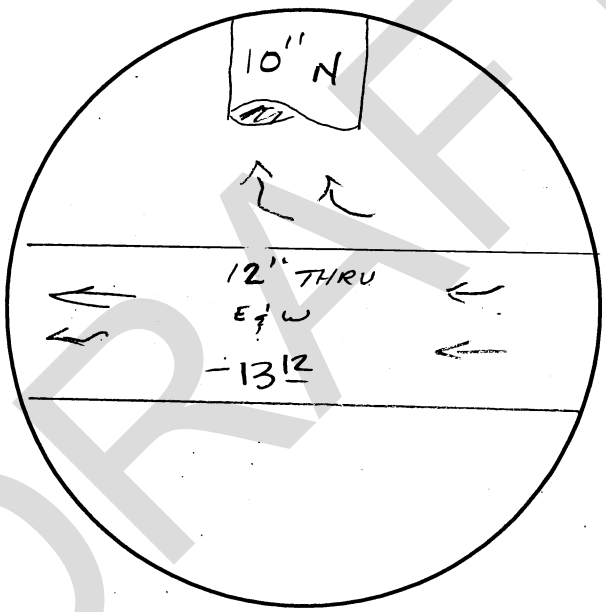


PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	

SHEET OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5042

SSMH NO: MH 31R005

EX. RIM ELEV: 22.45

STREET INTERSECTION: FILBERT @ N of FREMONT

SCALE N.T.S.

- CONC BARREL - GOOD CONDITION
- FLOWING NORTH

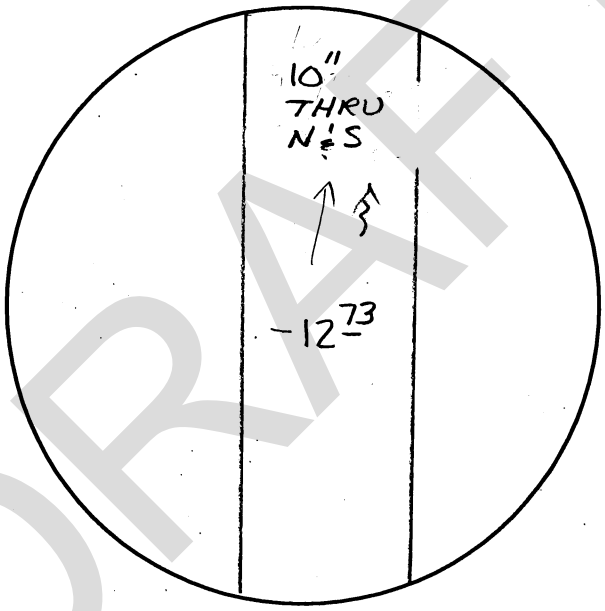


PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5043

SSMH NO: MH 31R055

EX. RIM ELEV: 23.35

STREET INTERSECTION: SHASTA & MINOR

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION!
- SLOW FLOW! NORTHERLY

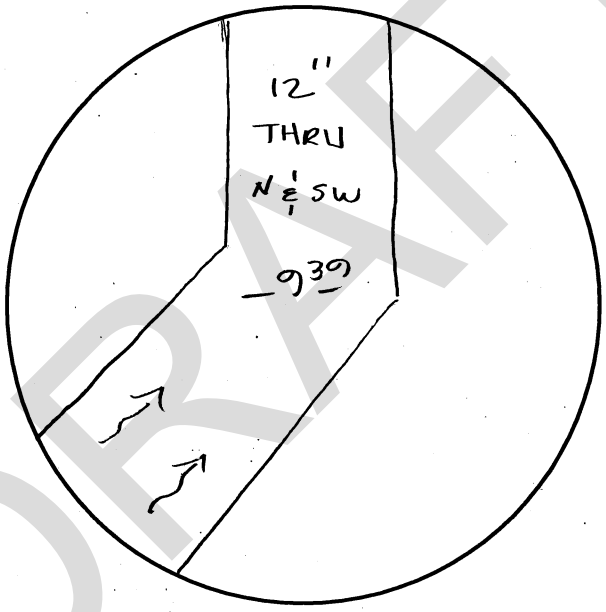


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JRDS

DATE: 9-24-2020

PT. NUMBER: 5044

SSMH NO: MH 31R056

EX. RIM ELEV: 23.34

STREET INTERSECTION: SHASTA & MINER

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- FLOWING NORTHERLY
- NO WEST PIPE

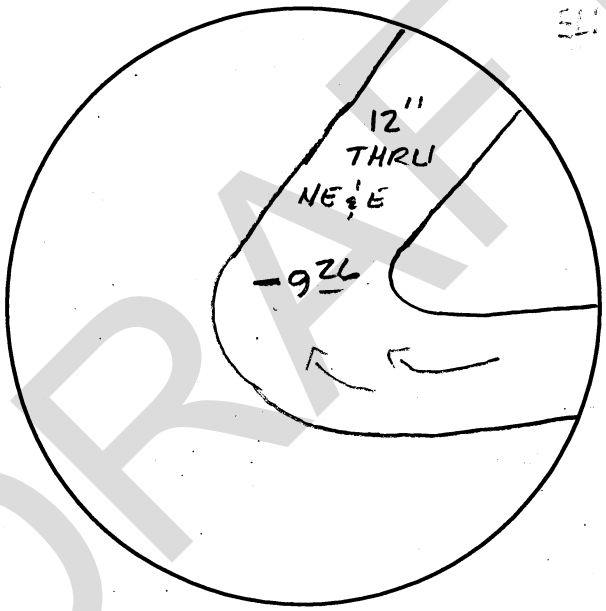


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9.24.2020

PT. NUMBER: 5046

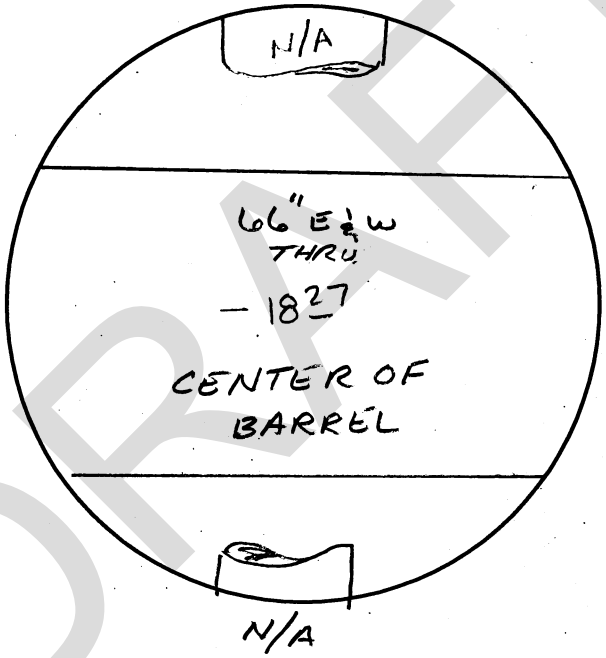
SSMH NO: MH 41Q025

EX. RIM ELEV: 18.73

STREET INTERSECTION: INDUSTRIAL DR @ GIBRALTAR

SCALE N.T.S.

- CONCRETE BARREL . GOOD CONDITION
- FLOWING NORTH & WEST
- INVERTS NORTH & SOUTH NOT ATTAINABLE



EL. 0.45

PHOTO FILE NO: _____

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JRDS

DATE: 9-24-2020

PT. NUMBER: 5047

SSMH NO: MH 41Q024

EX. RIM ELEV: 18.12

STREET INTERSECTION: INDUSTRIAL & GIBRALTAR

SCALE N.T.S.

- CONCRETE BARREL FAIR CONDITION - SOME SPACKLE FLAKING
- STAGNANT - 12" ± DEEP STILL WATER
- NO APPARENT FLOW

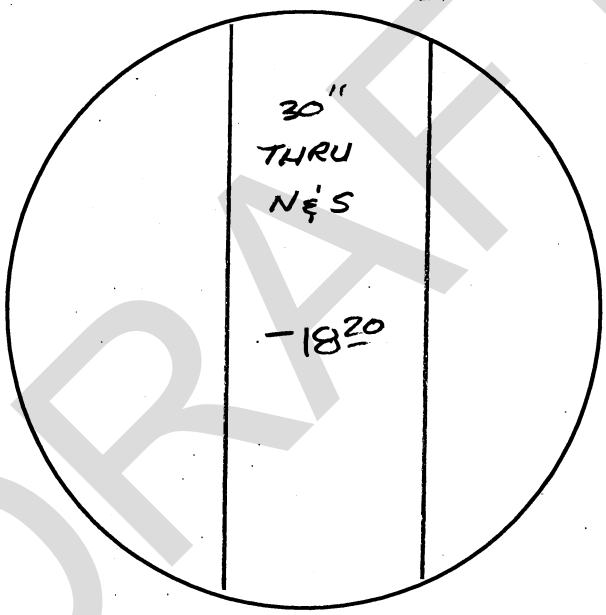


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

PT. NUMBER: 5048

SSMH NO: MH 41P036

EX. RIM ELEV: 18.66

STREET INTERSECTION: INDUSTRIAL @ WEST OF GIBRALTAR

SCALE N.T.S.

- CONCRETE BARREL - GOOD CONDITION
- HEAVY FLOW WEST

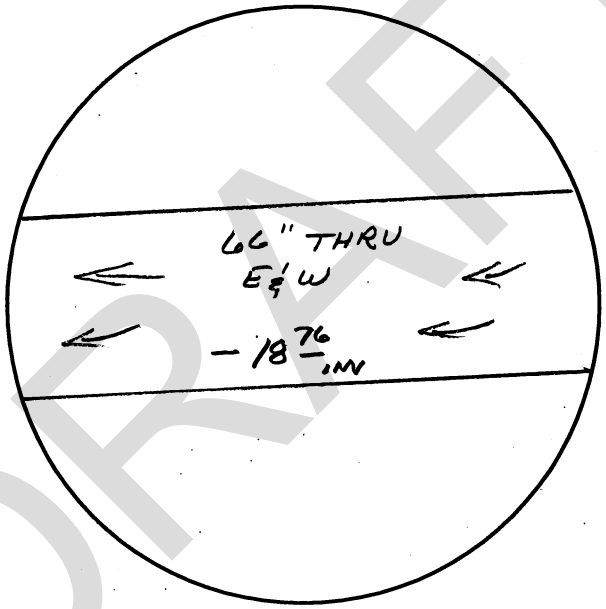


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

SEWER MANHOLE NO. _____

CITY OF STOCKTON
SEWER MANHOLE ASBUILT

STOCKTON, CALIFORNIA

JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	
OF	

JOB NUMBER: J20-2649

SURVEY CREW: JR/JS

DATE: 9-24-2020

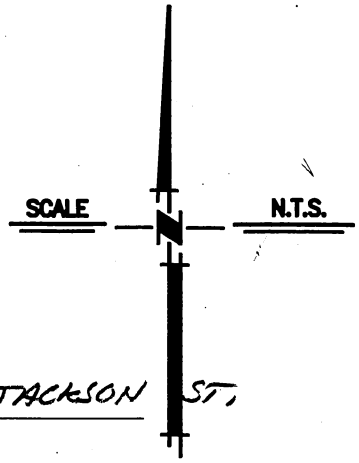
PT. NUMBER: 5049

SSMH NO: MH 35P012

EX. RIM ELEV: 17.40

STREET INTERSECTION: WILSON WAY @ N. OF JACKSON ST.

SCALE N.T.S.



- CONCRETE BARREL - GOOD CONDITION
- FLOWING WEST

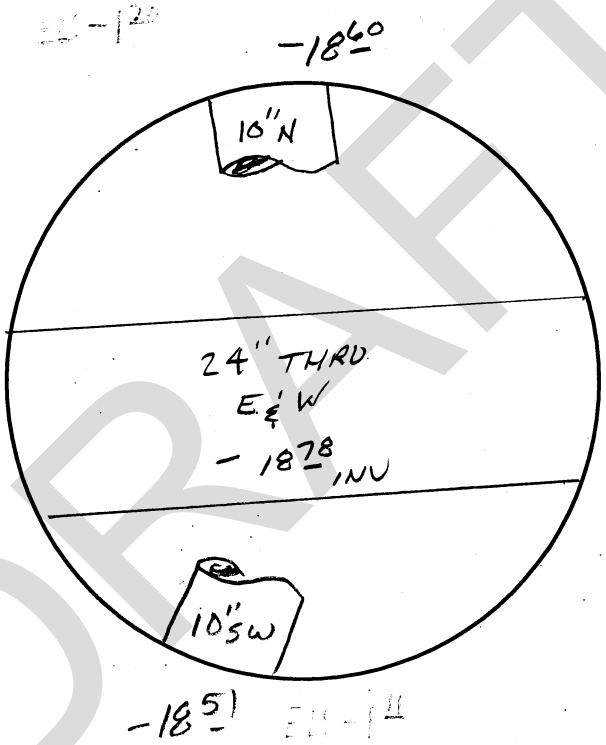


PHOTO FILE NO: _____

North Star Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-3525 Phone (209) 524-3526 Fax

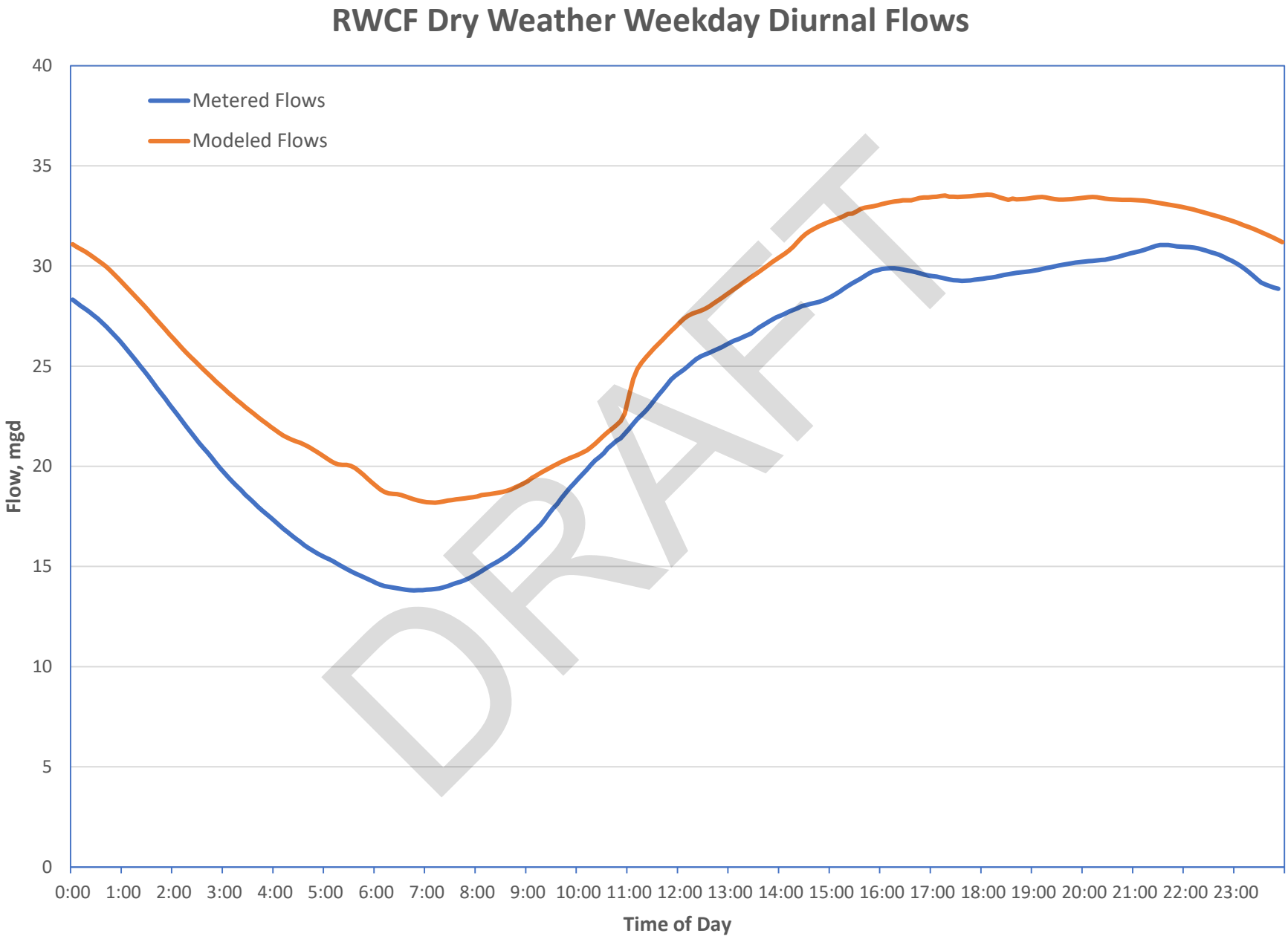
SEWER MANHOLE NO. _____

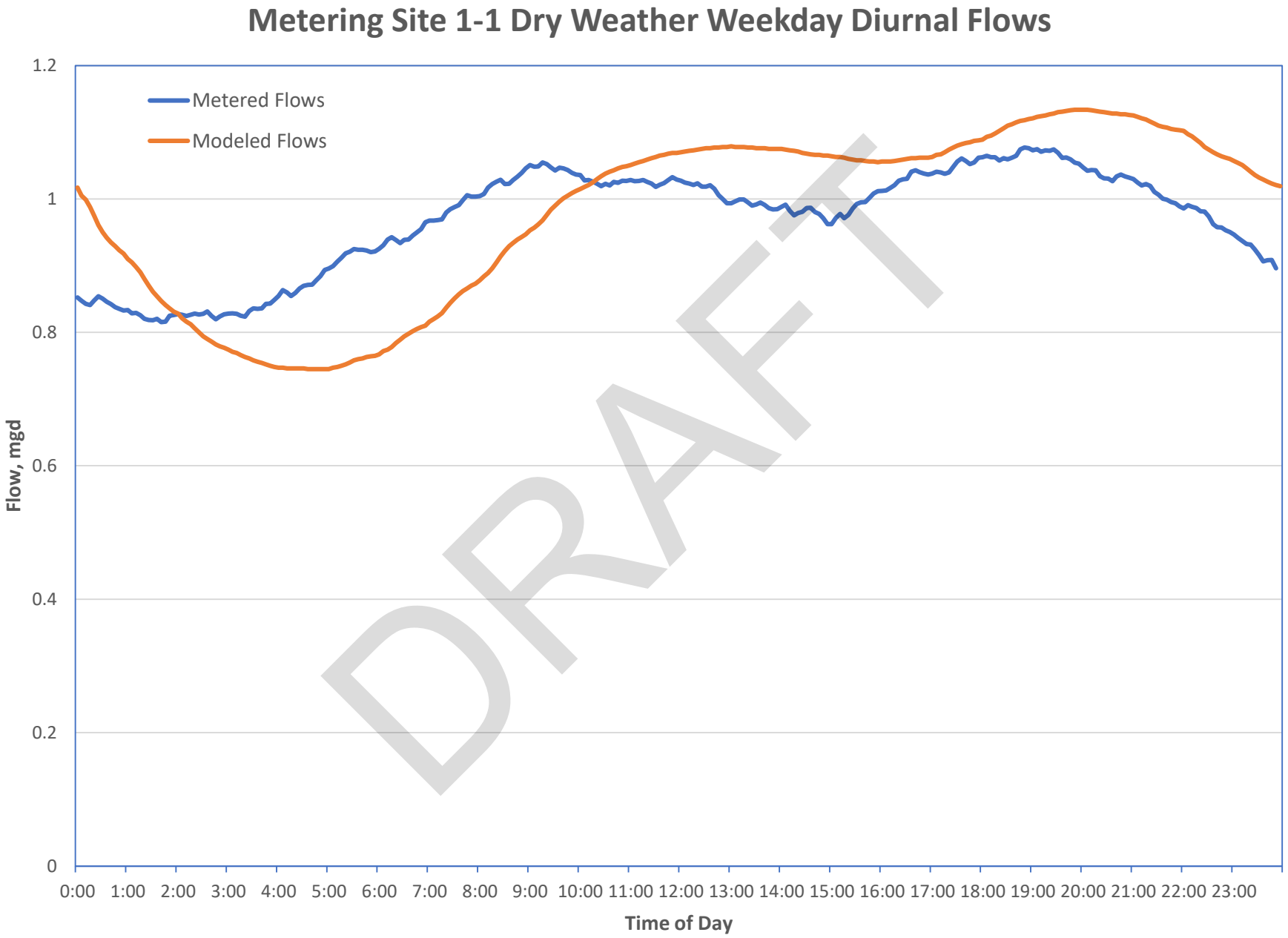
CITY OF STOCKTON
SEWER MANHOLE ASBUILT
STOCKTON, CALIFORNIA

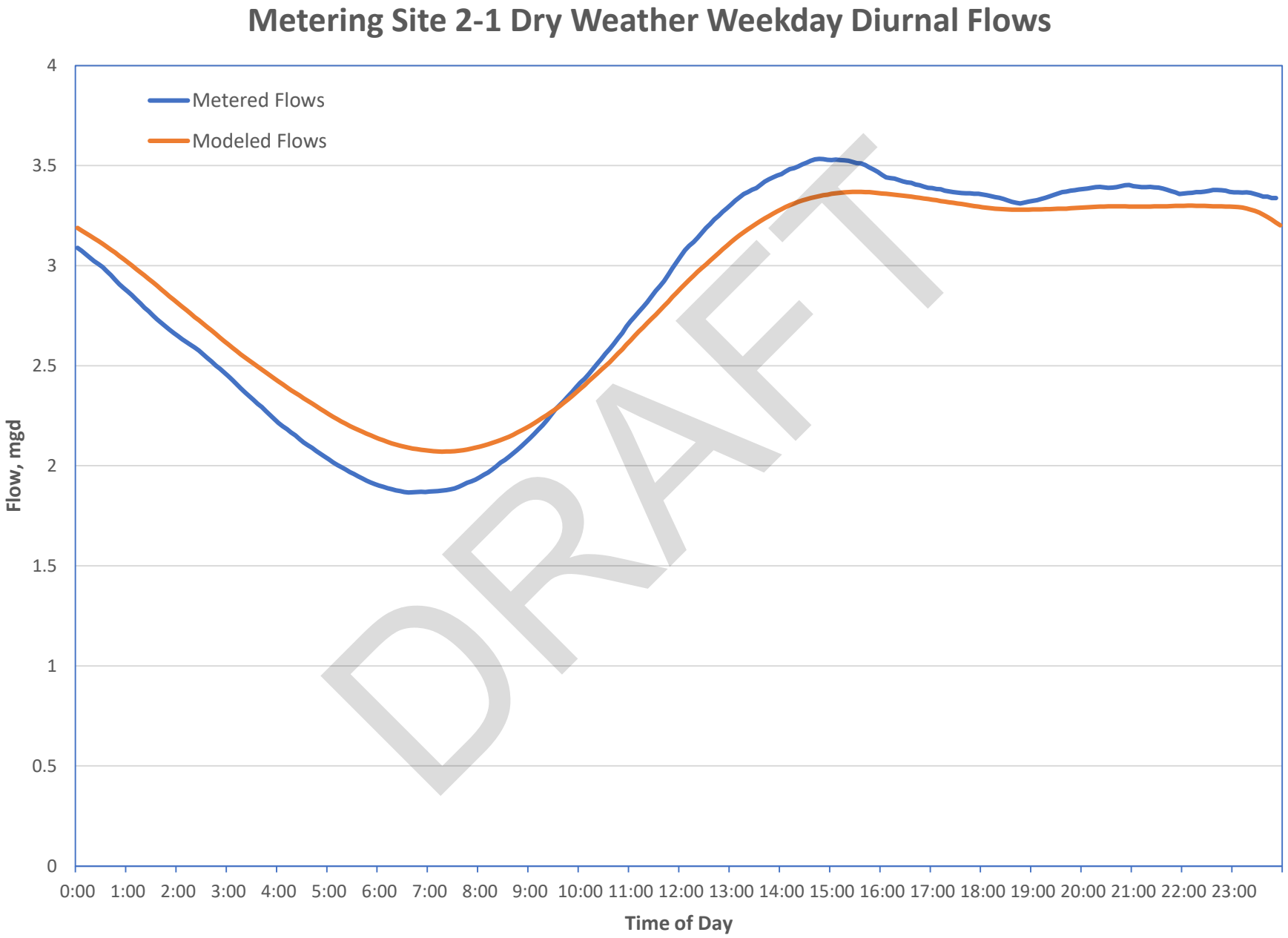
JOB:	J20-260
DATE:	9/23/2020
SCALE:	NTS
DRAWN:	
DESIGN:	
CHK'D:	
SHEET	OF

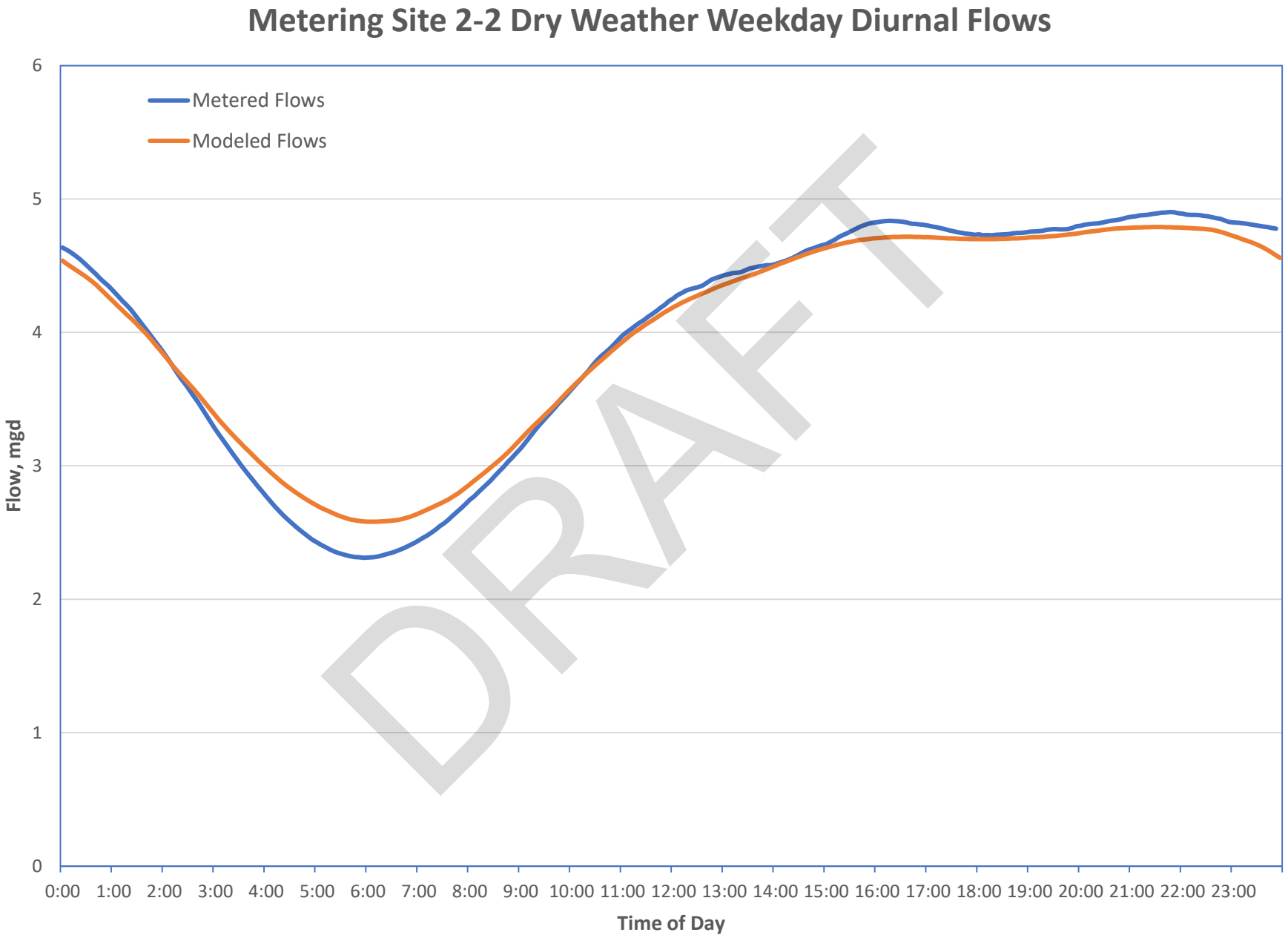
Appendix D

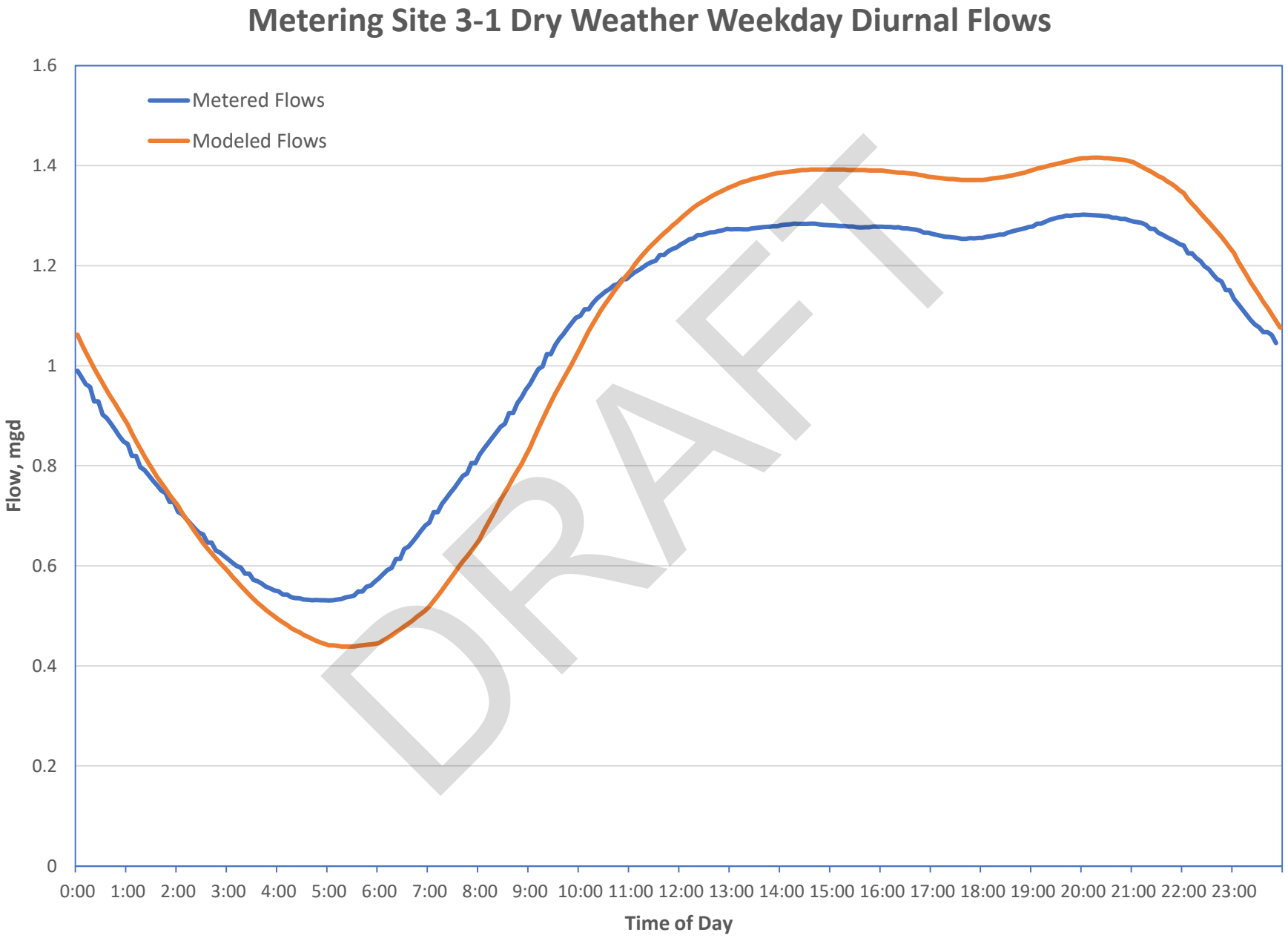
Modeled vs. Metered Dry Weather Diurnal Flows

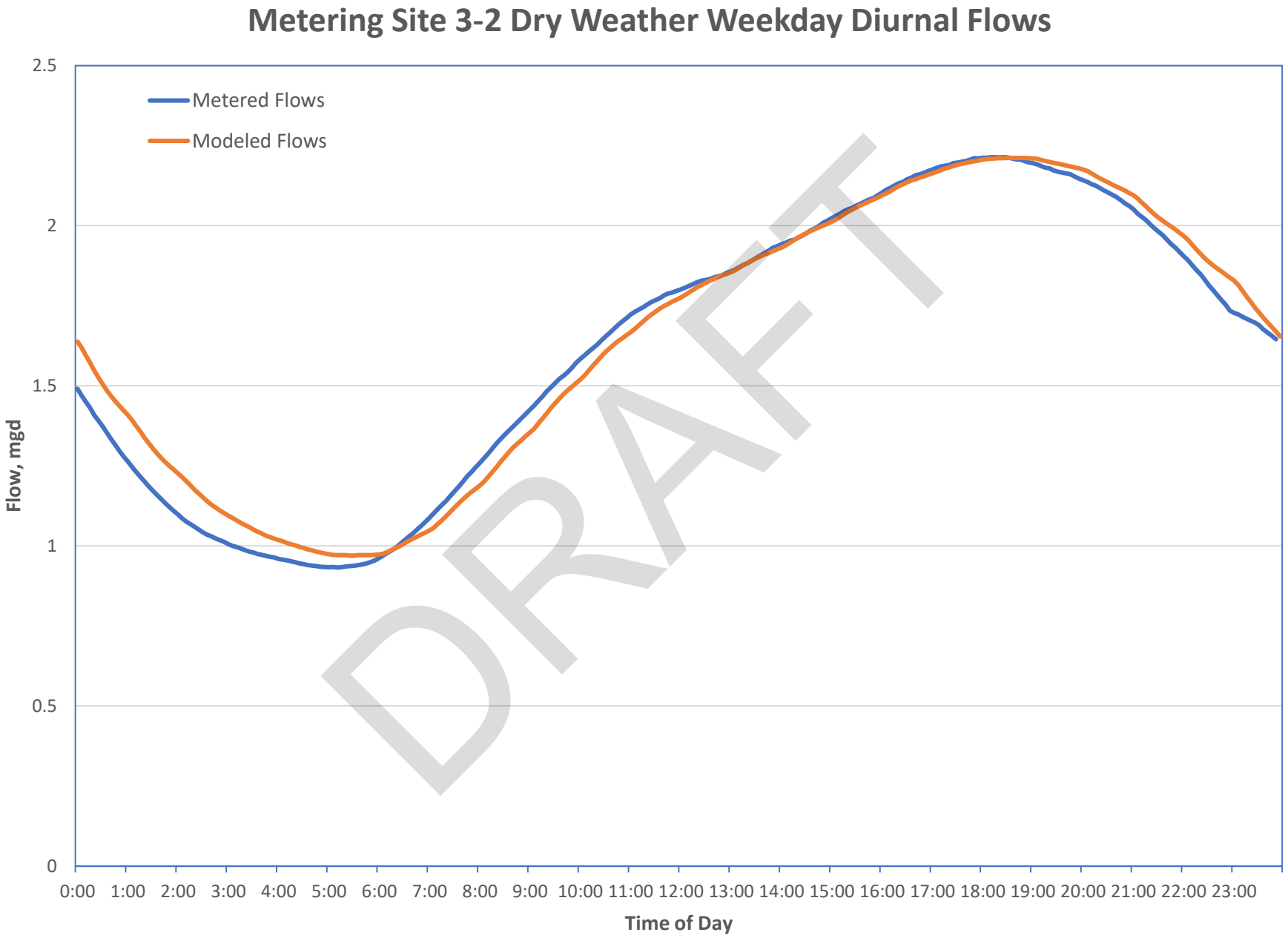

RWCF Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
40
35
30
25
20
15
10
5
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

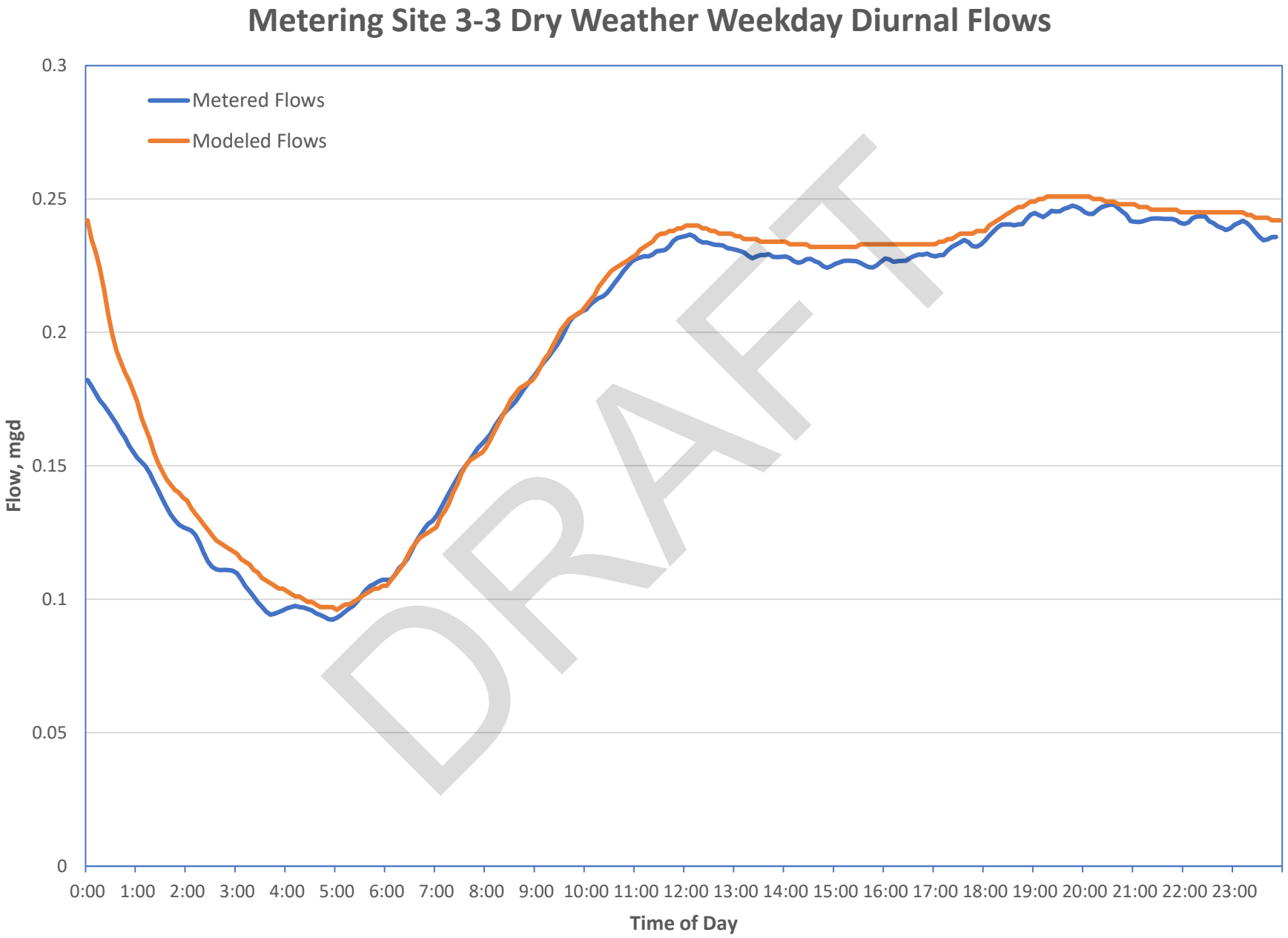

Metering Site 1-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day

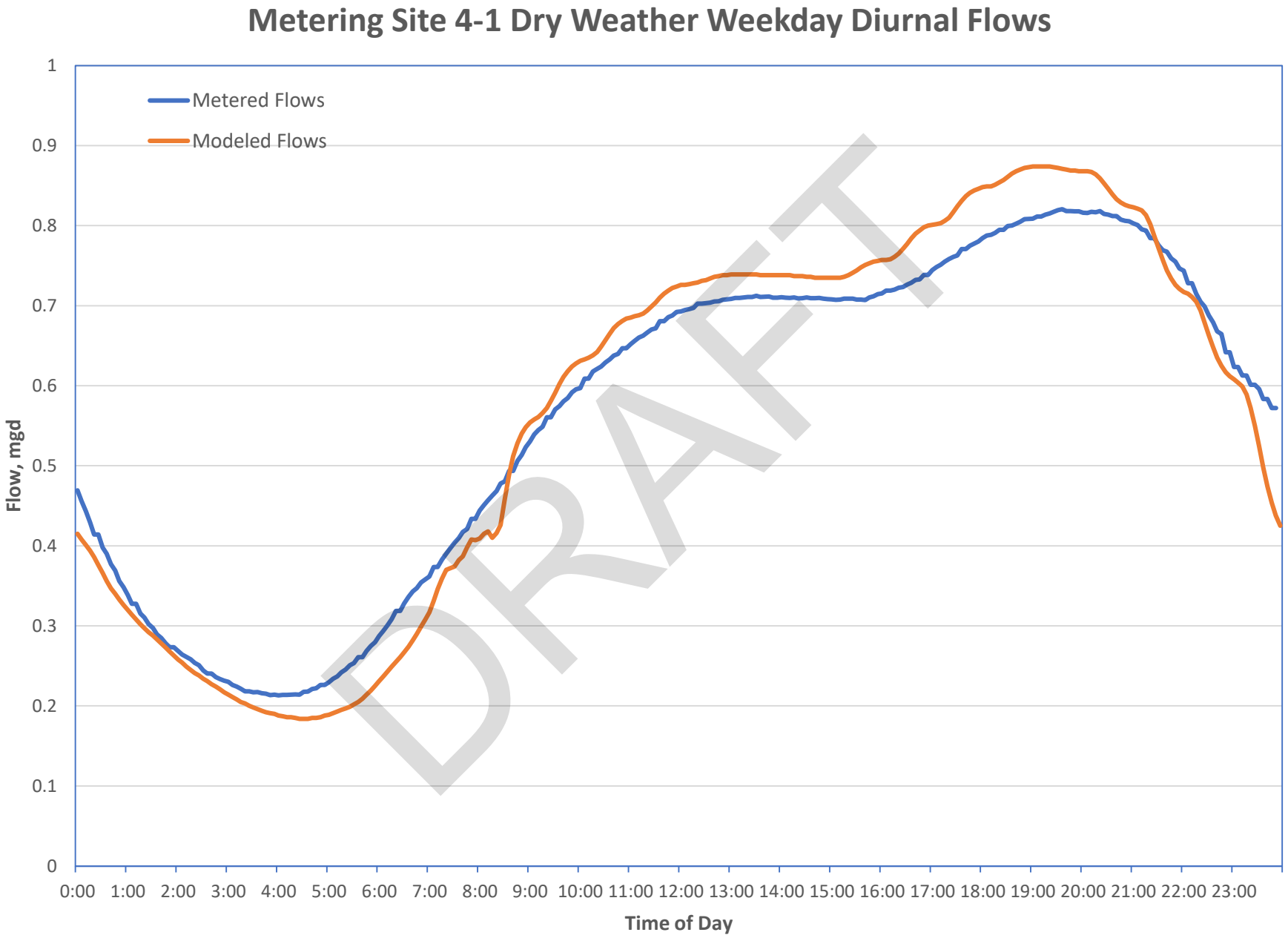

Metering Site 2-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0
0.5
1
1.5
2
2.5
3
3.5
4
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

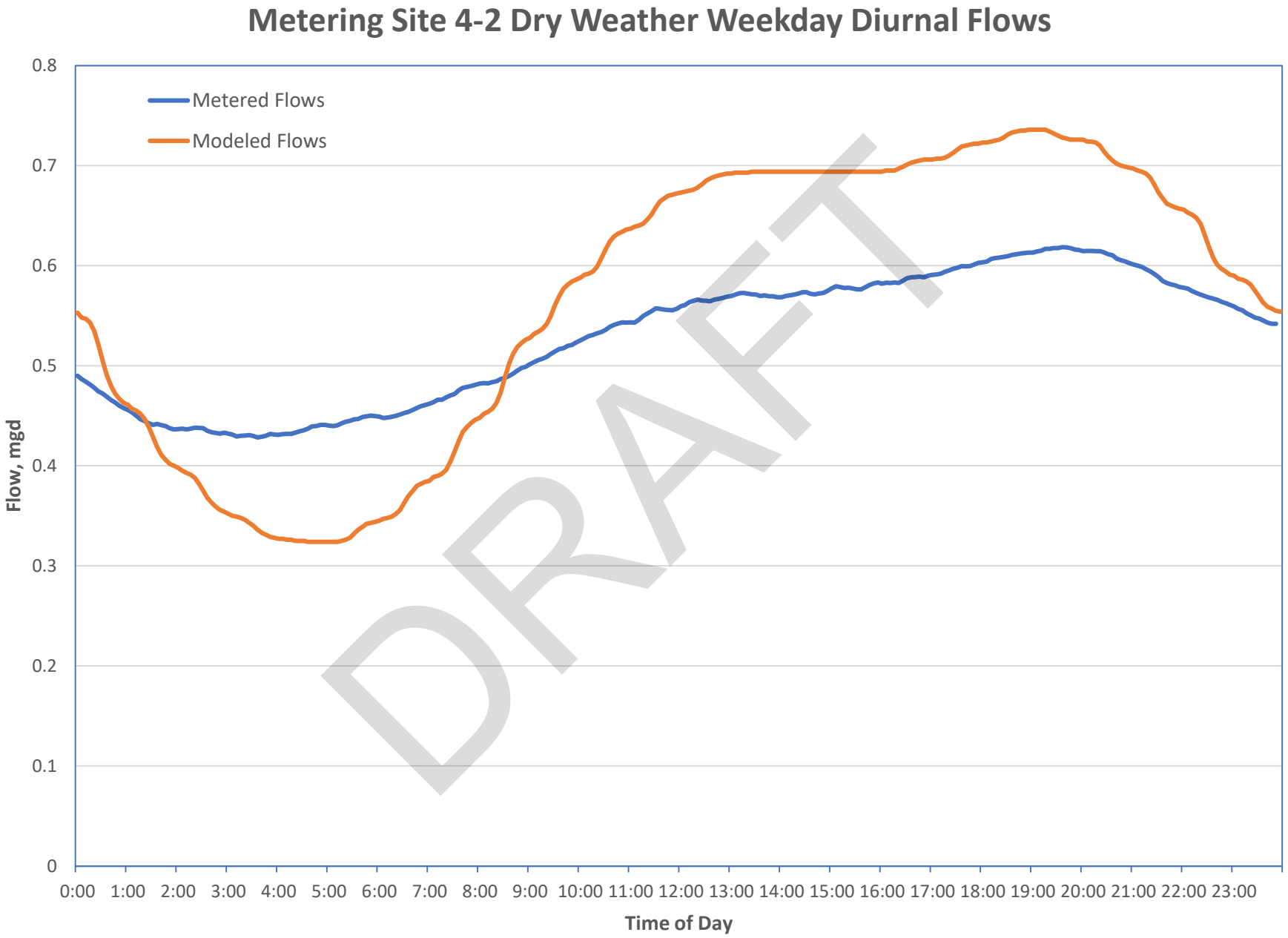

Metering Site 2-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0
1
2
3
4
5
6
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

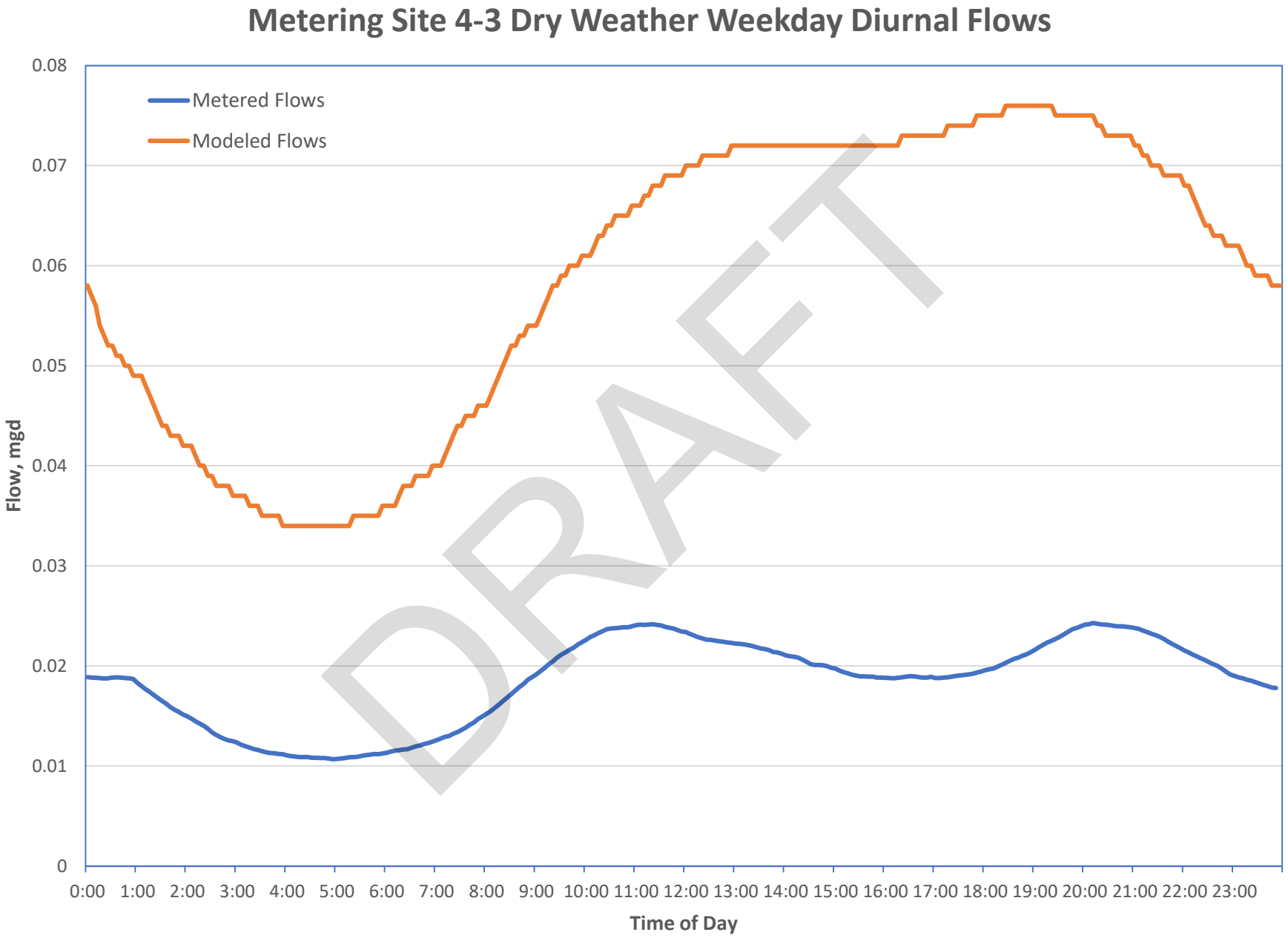

Metering Site 3-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

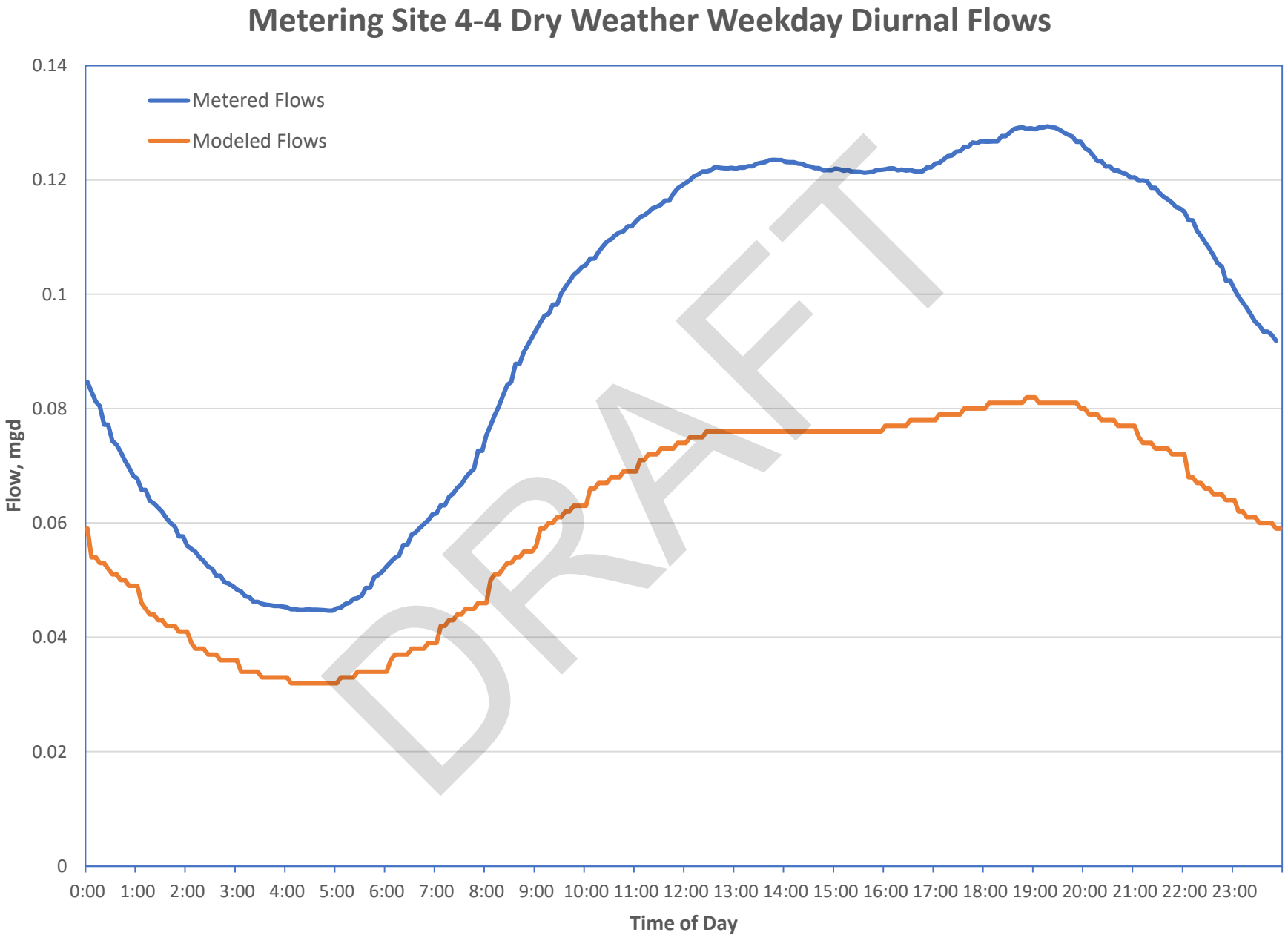

Metering Site 3-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
2.5
2
1.5
1
0.5
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

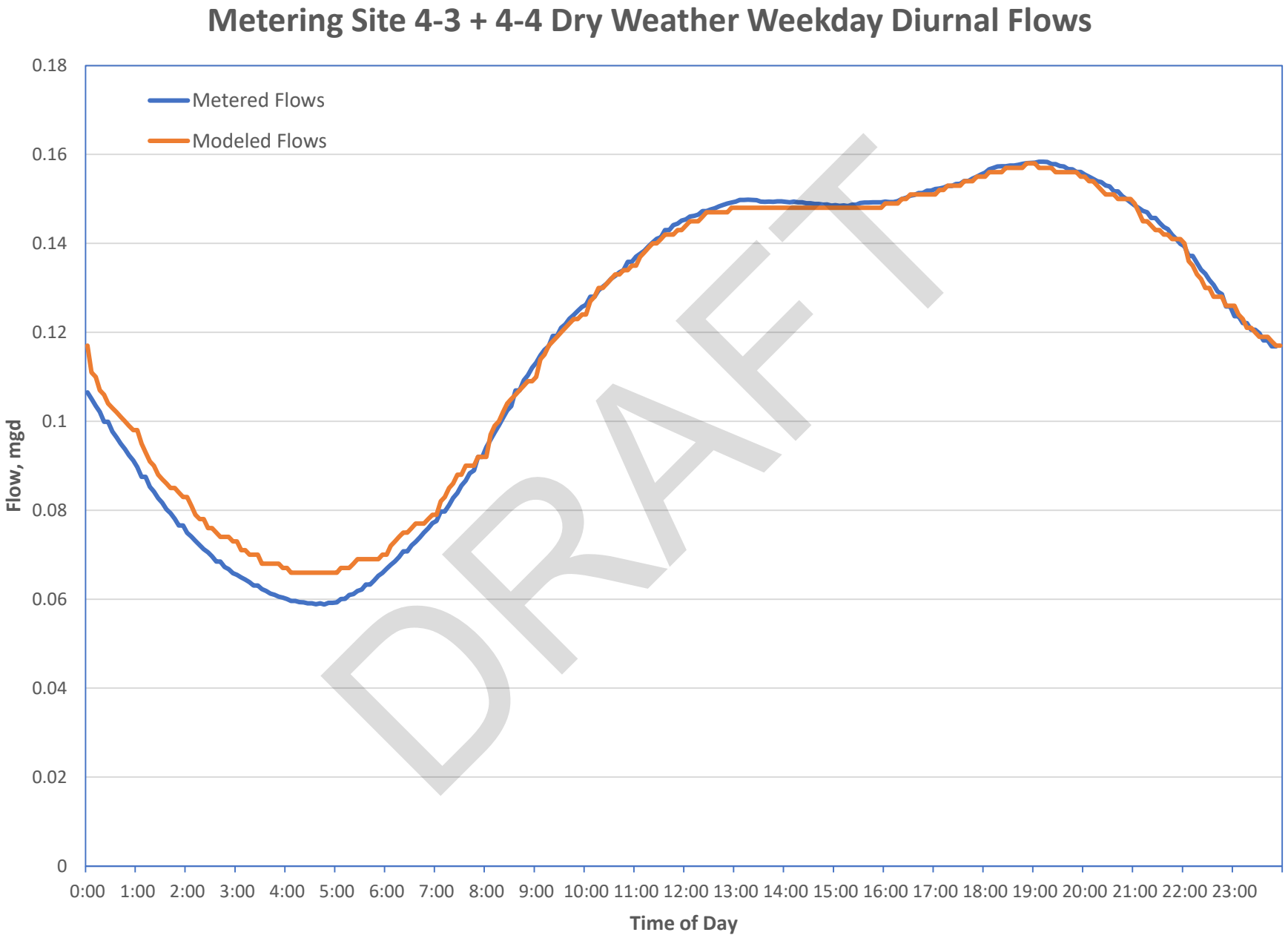

Metering Site 3-3 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.3
0.25
0.2
0.15
0.1
0.05
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

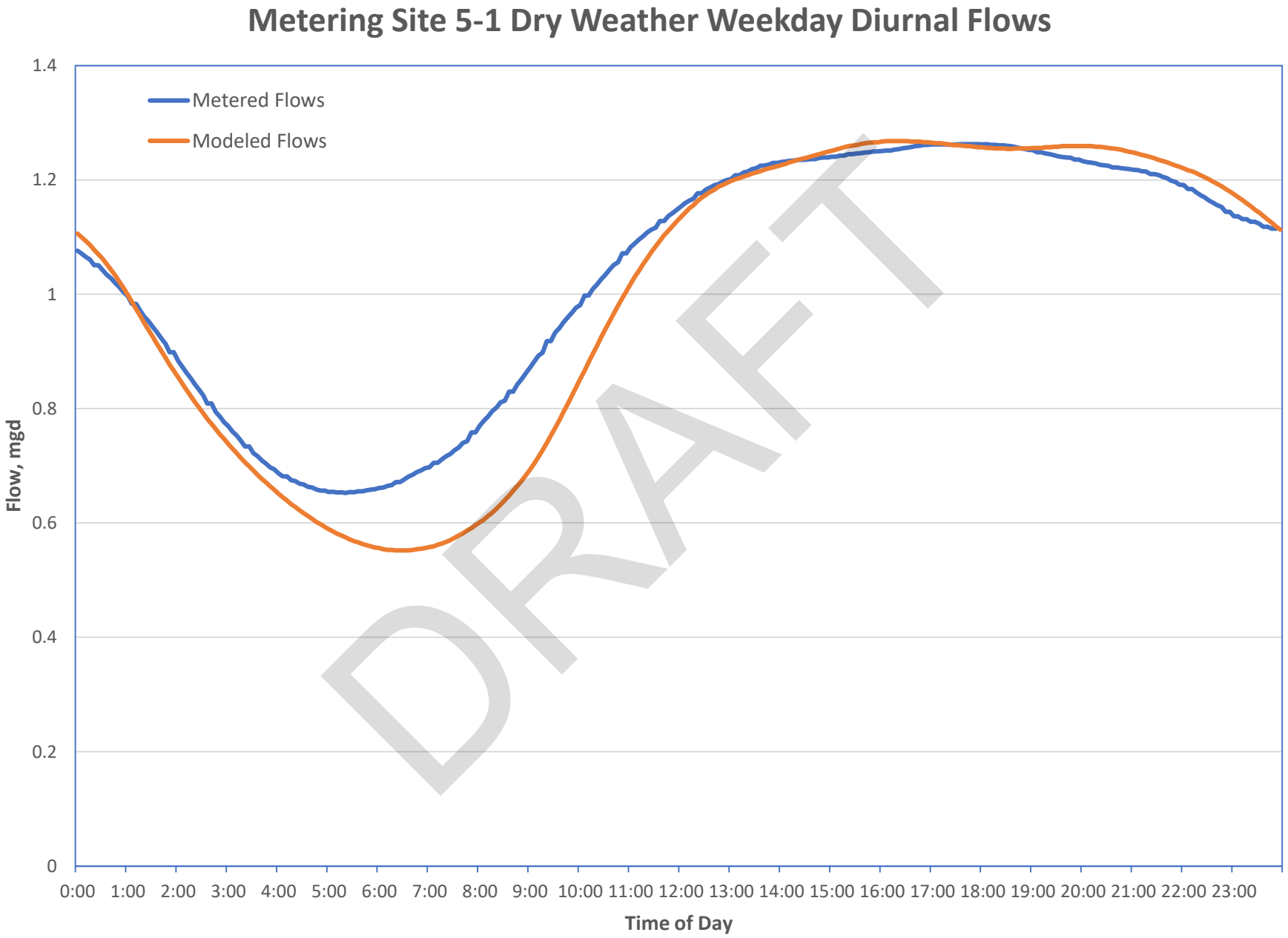

Metering Site 4-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

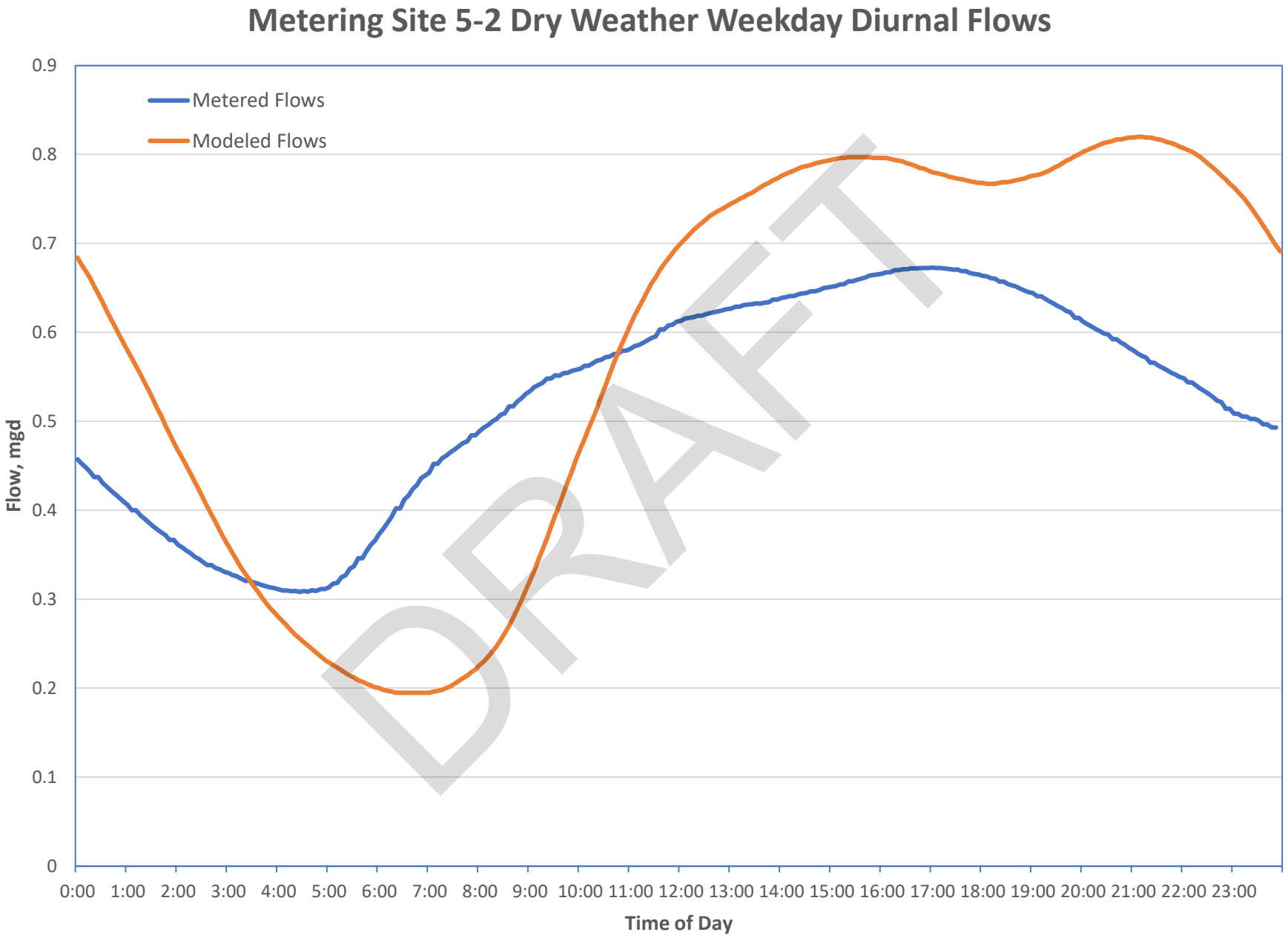

Metering Site 4-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

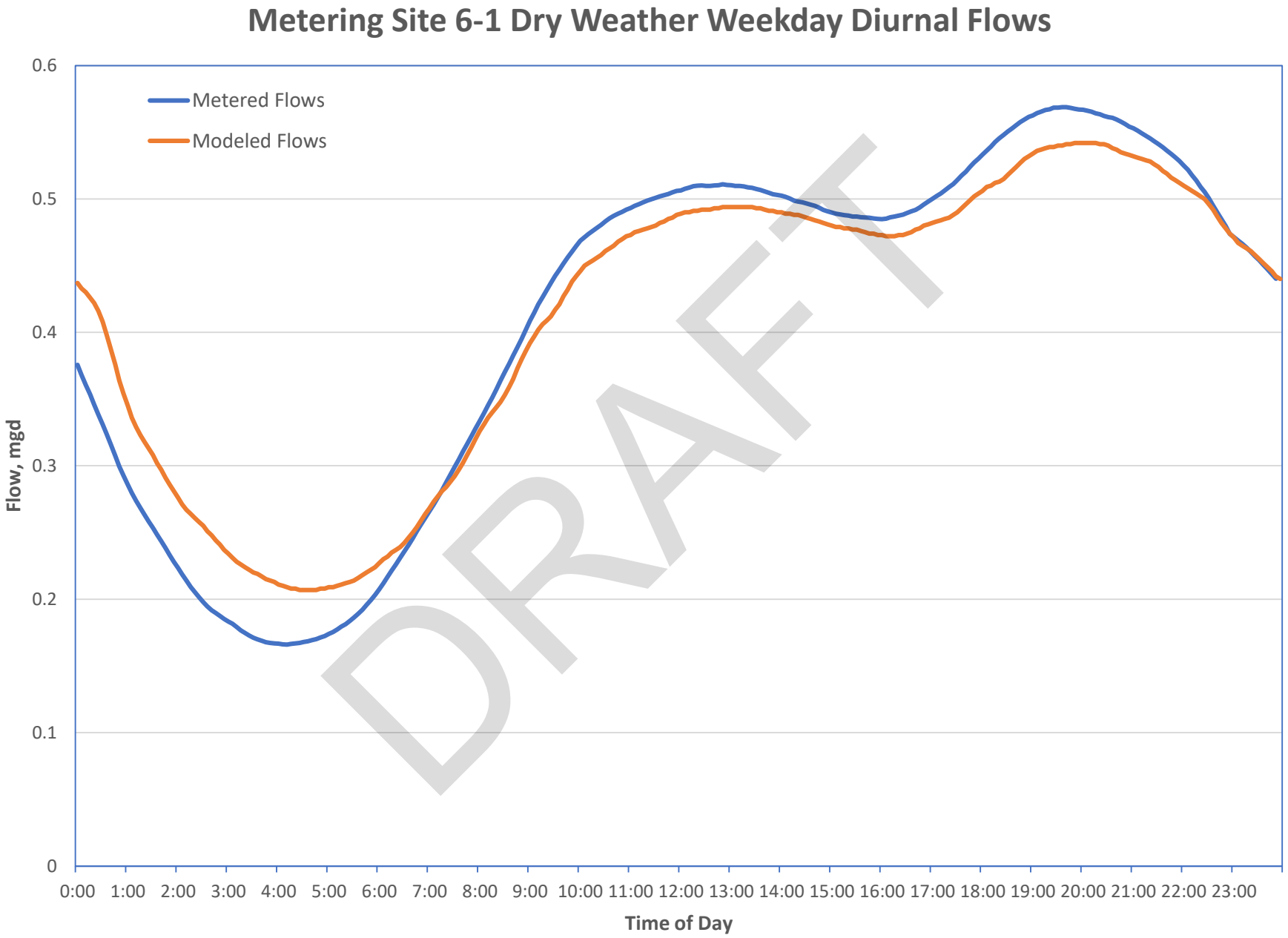

Metering Site 4-3 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

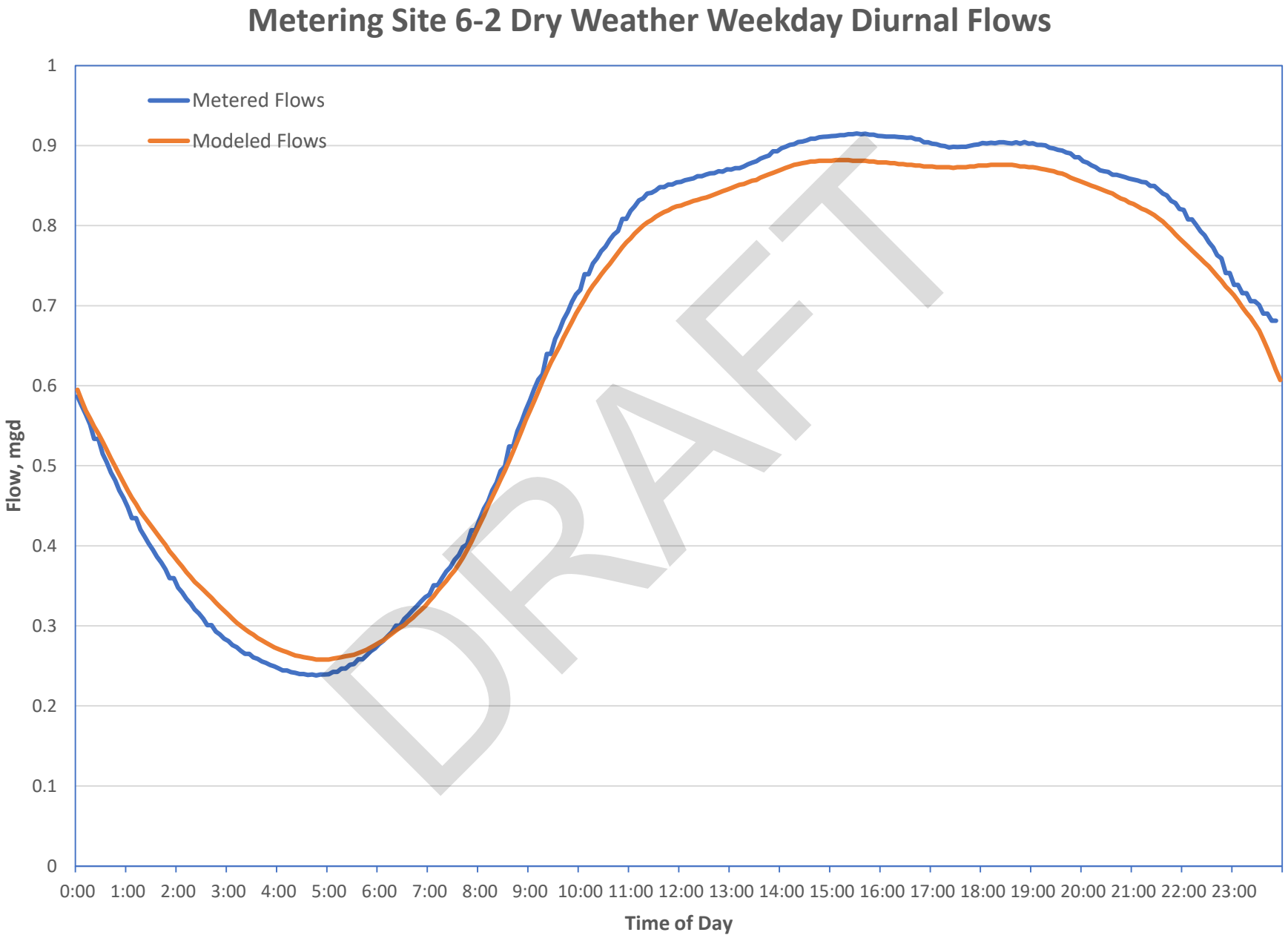

Metering Site 4-4 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

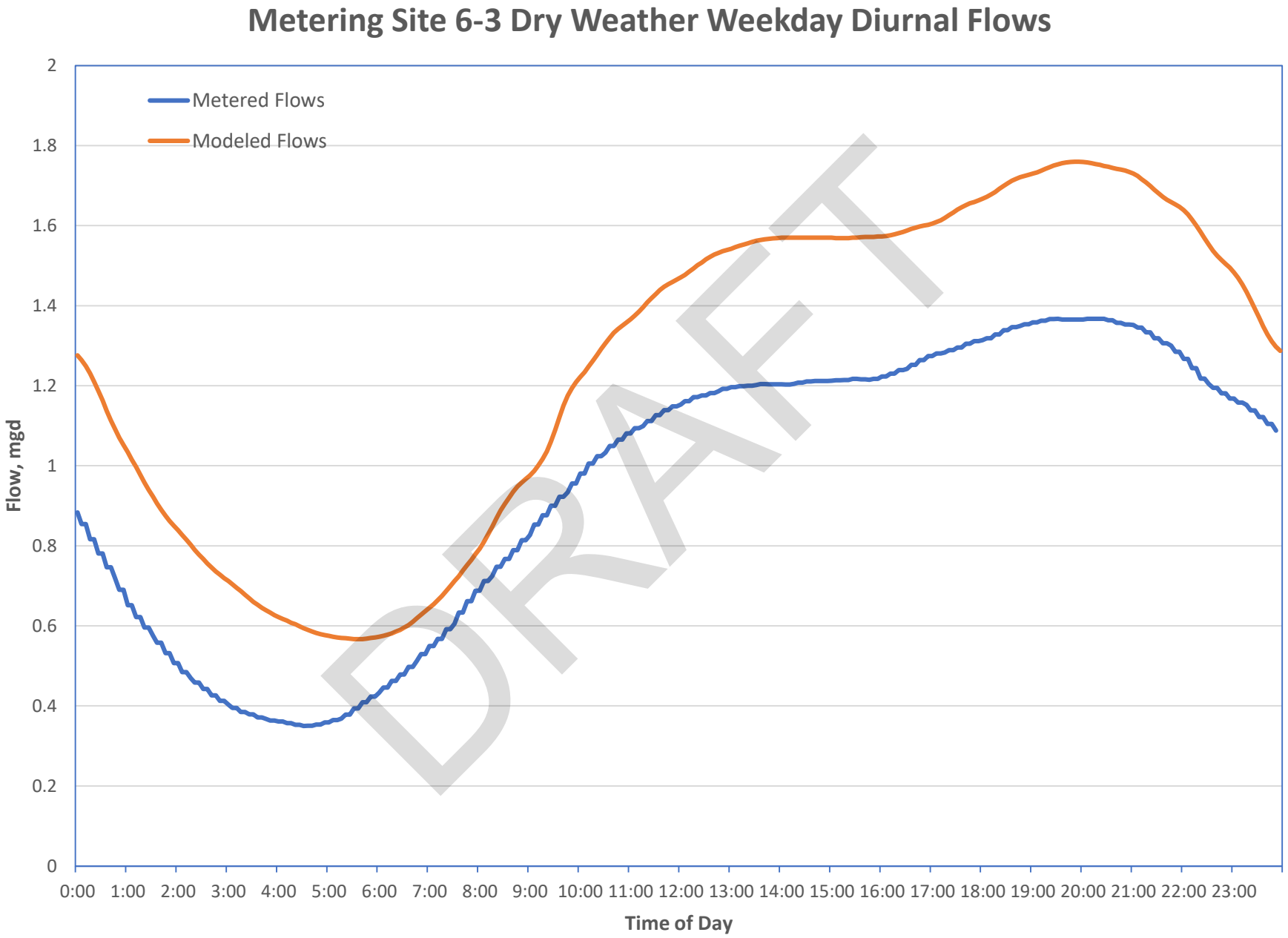

Metering Site 4-3 + 4-4 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

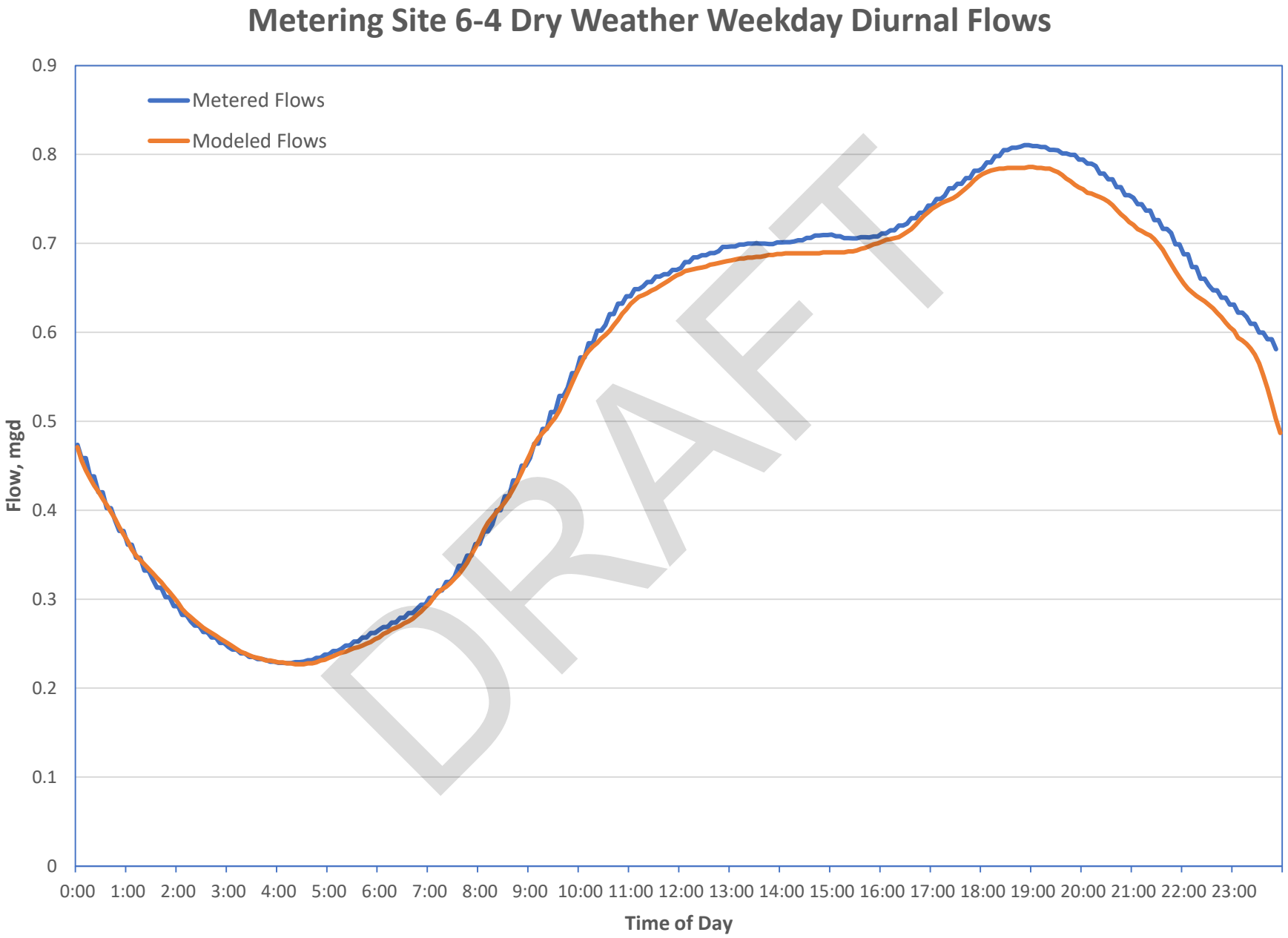

Metering Site 5-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

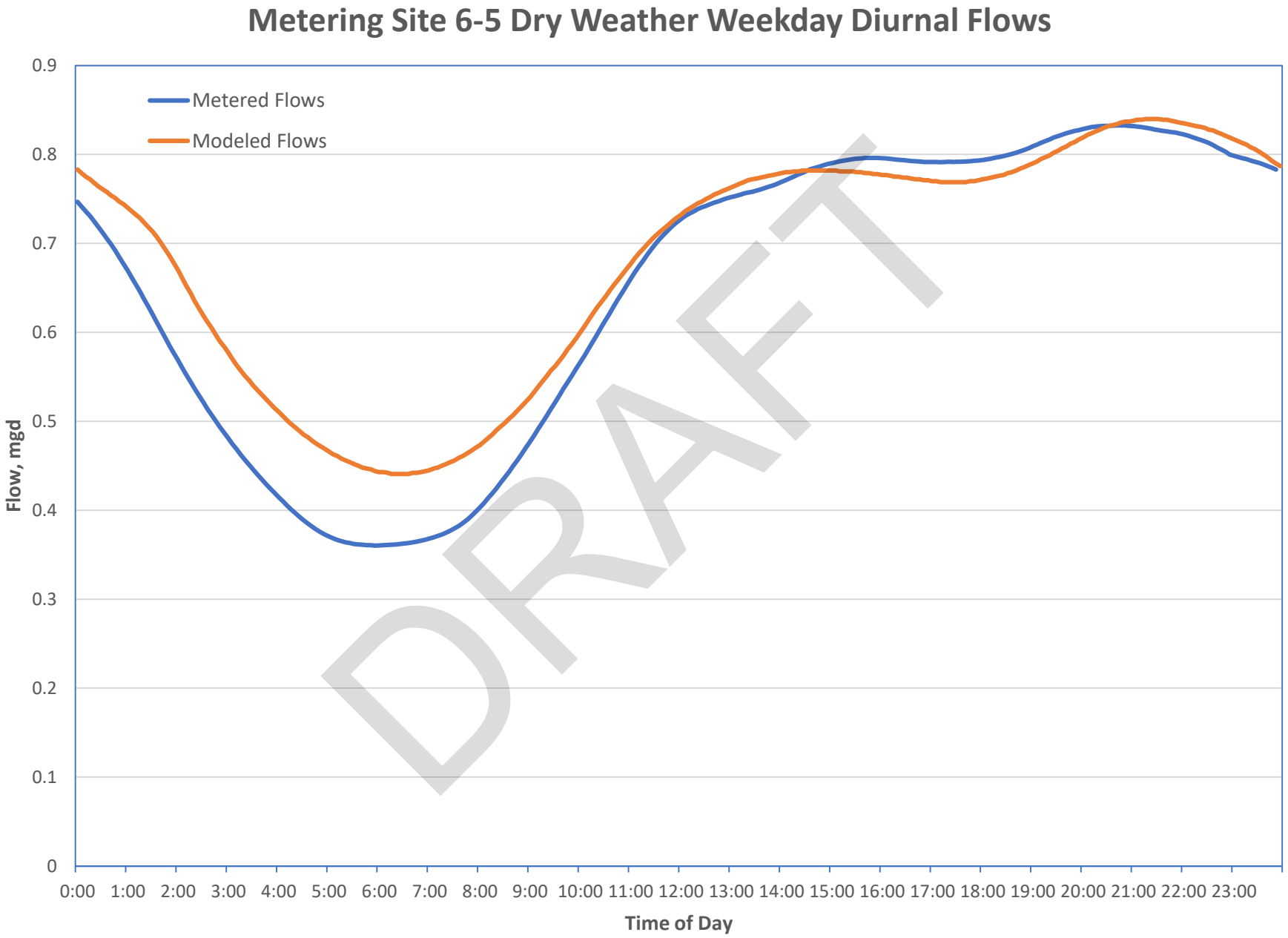

Metering Site 5-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

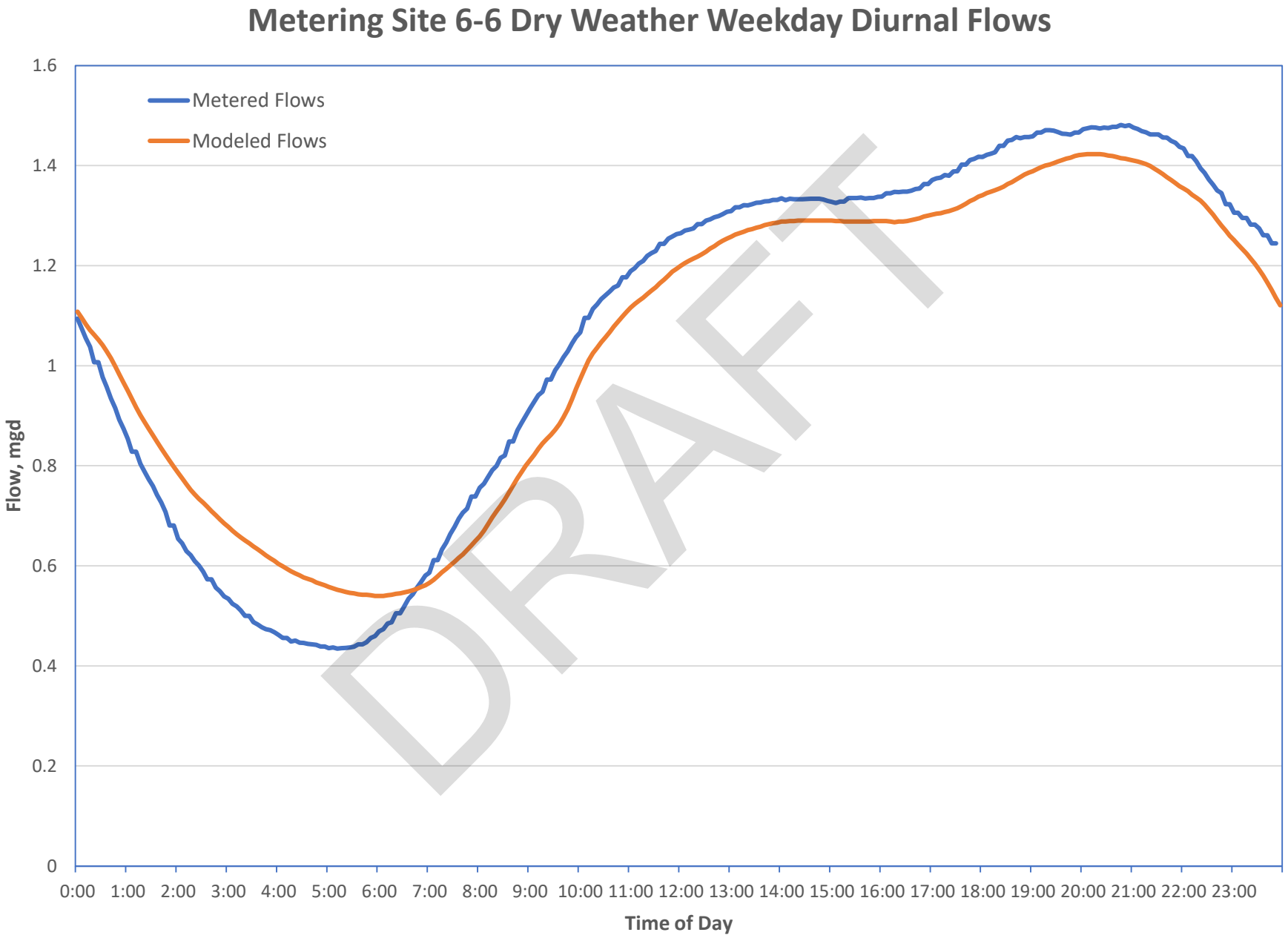

Metering Site 6-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

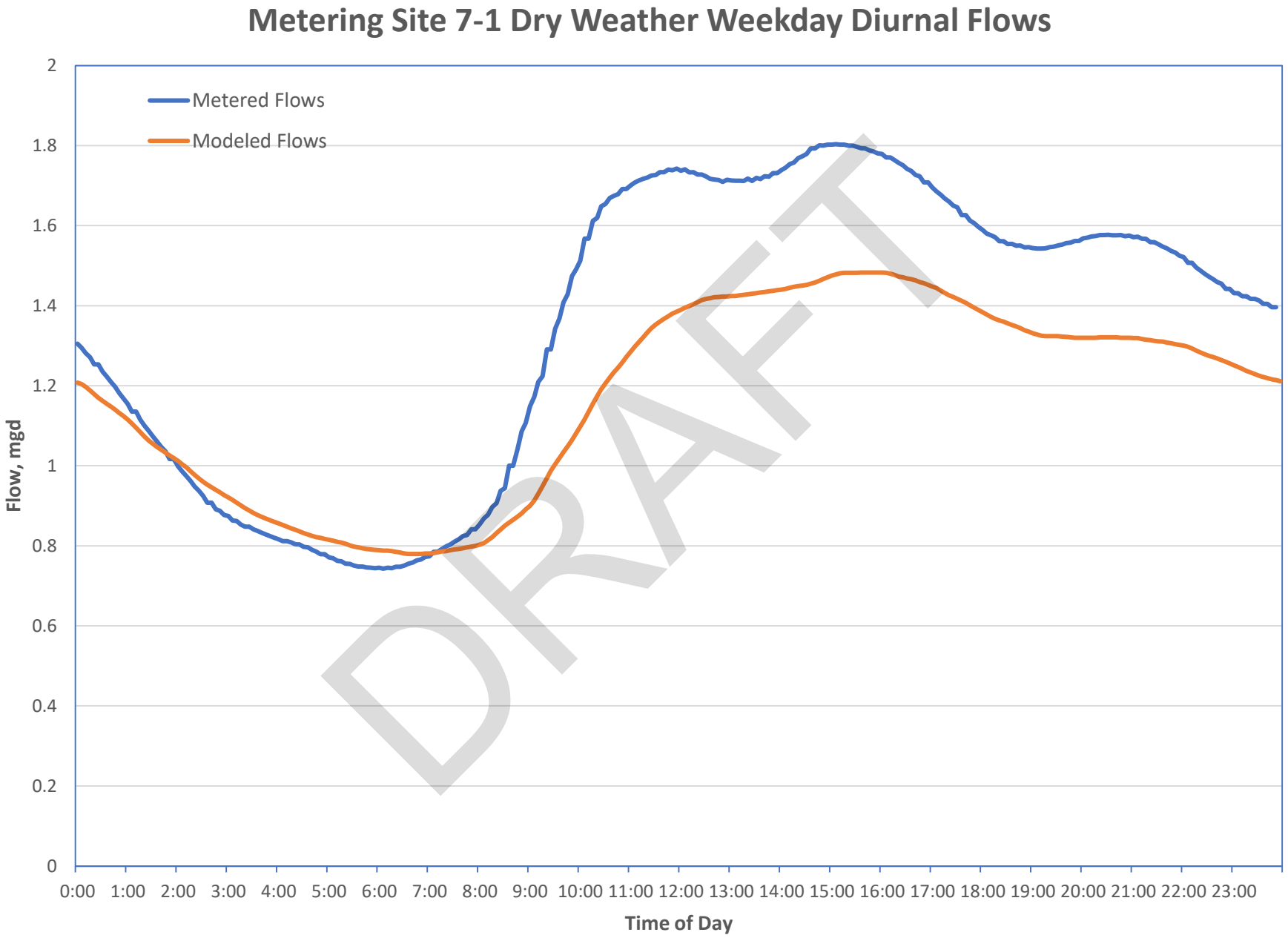

Metering Site 6-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

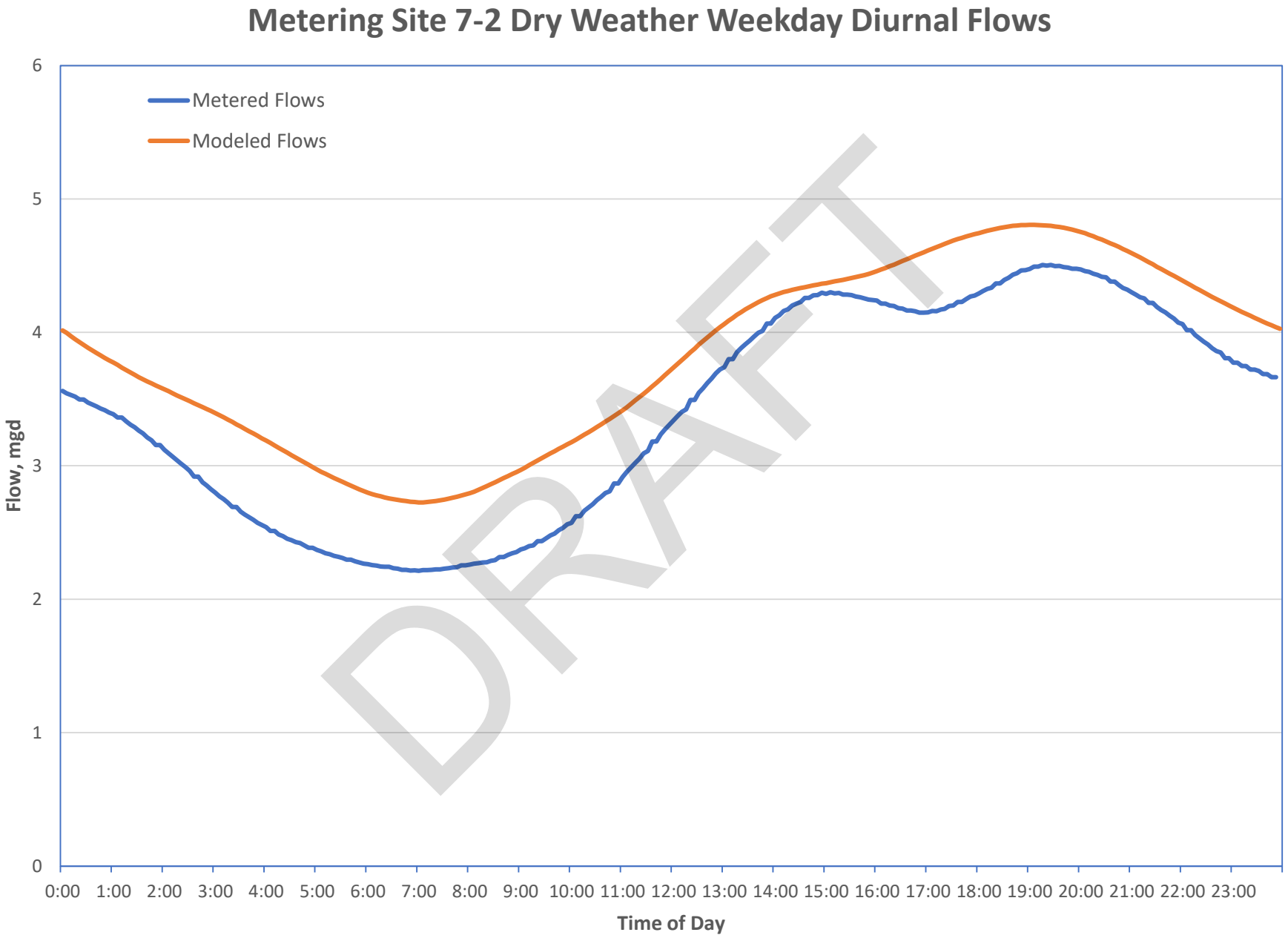

Metering Site 6-3 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

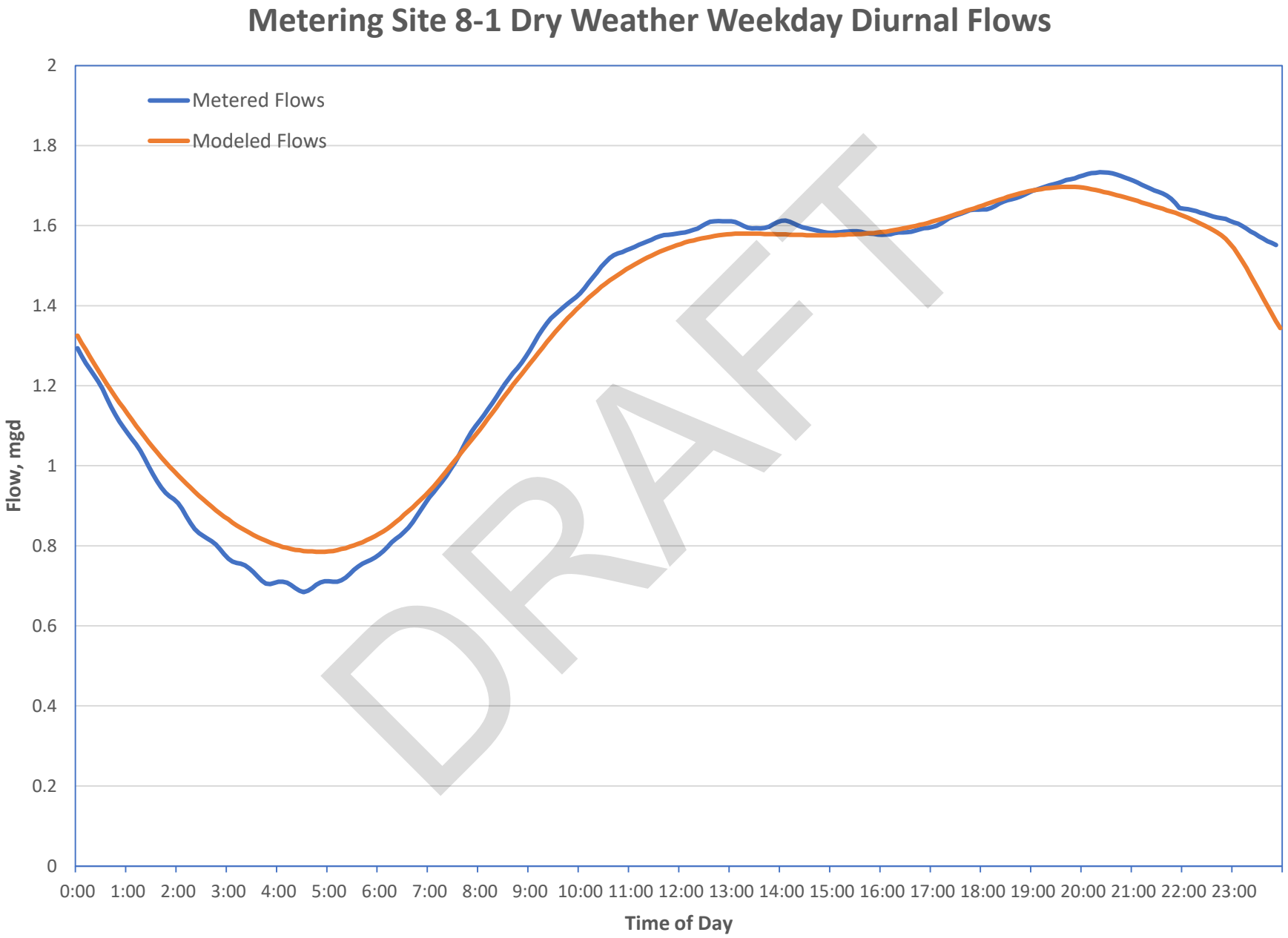

Metering Site 6-4 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

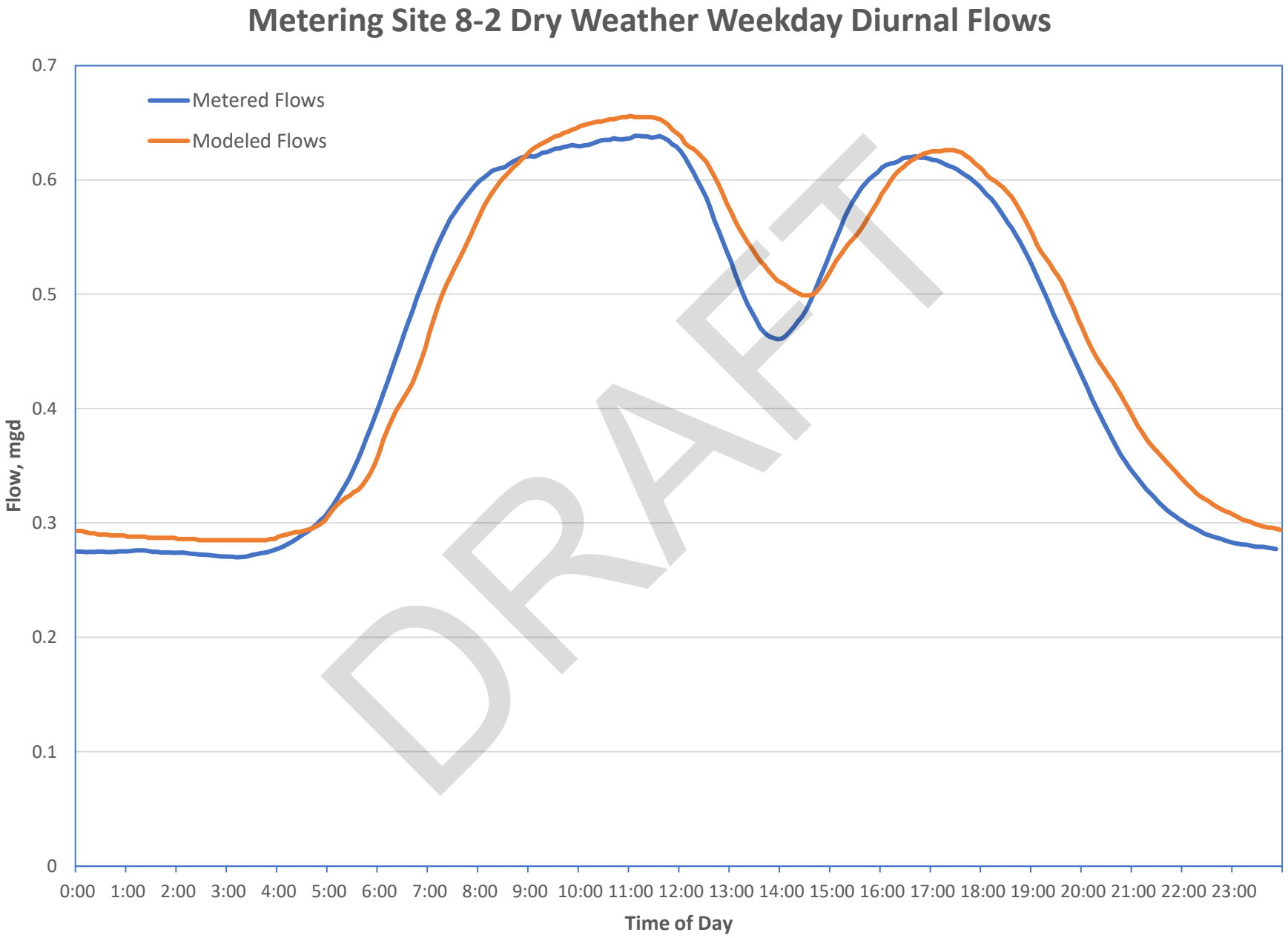

Metering Site 6-5 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day

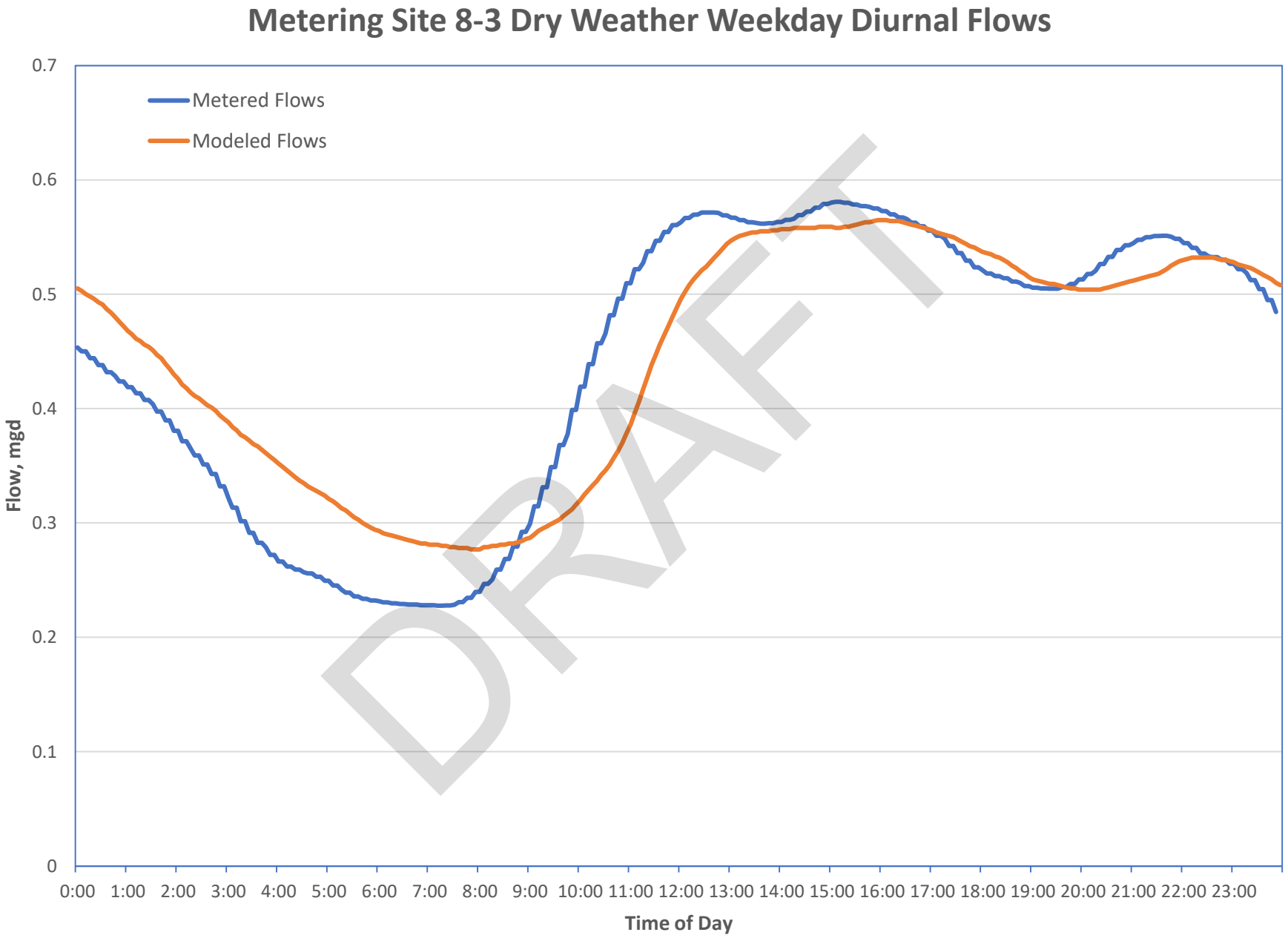

Metering Site 6-6 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

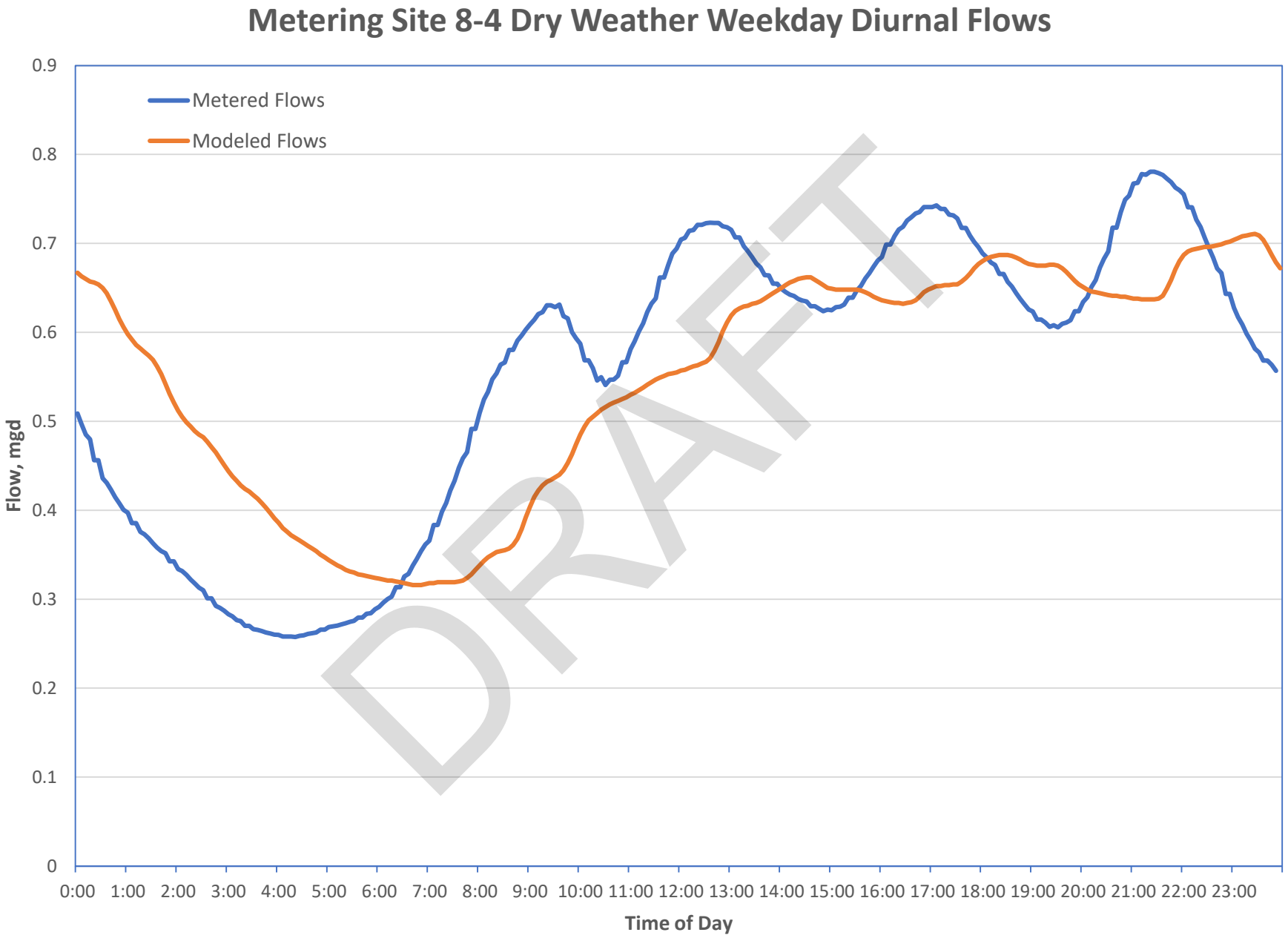

Metering Site 7-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

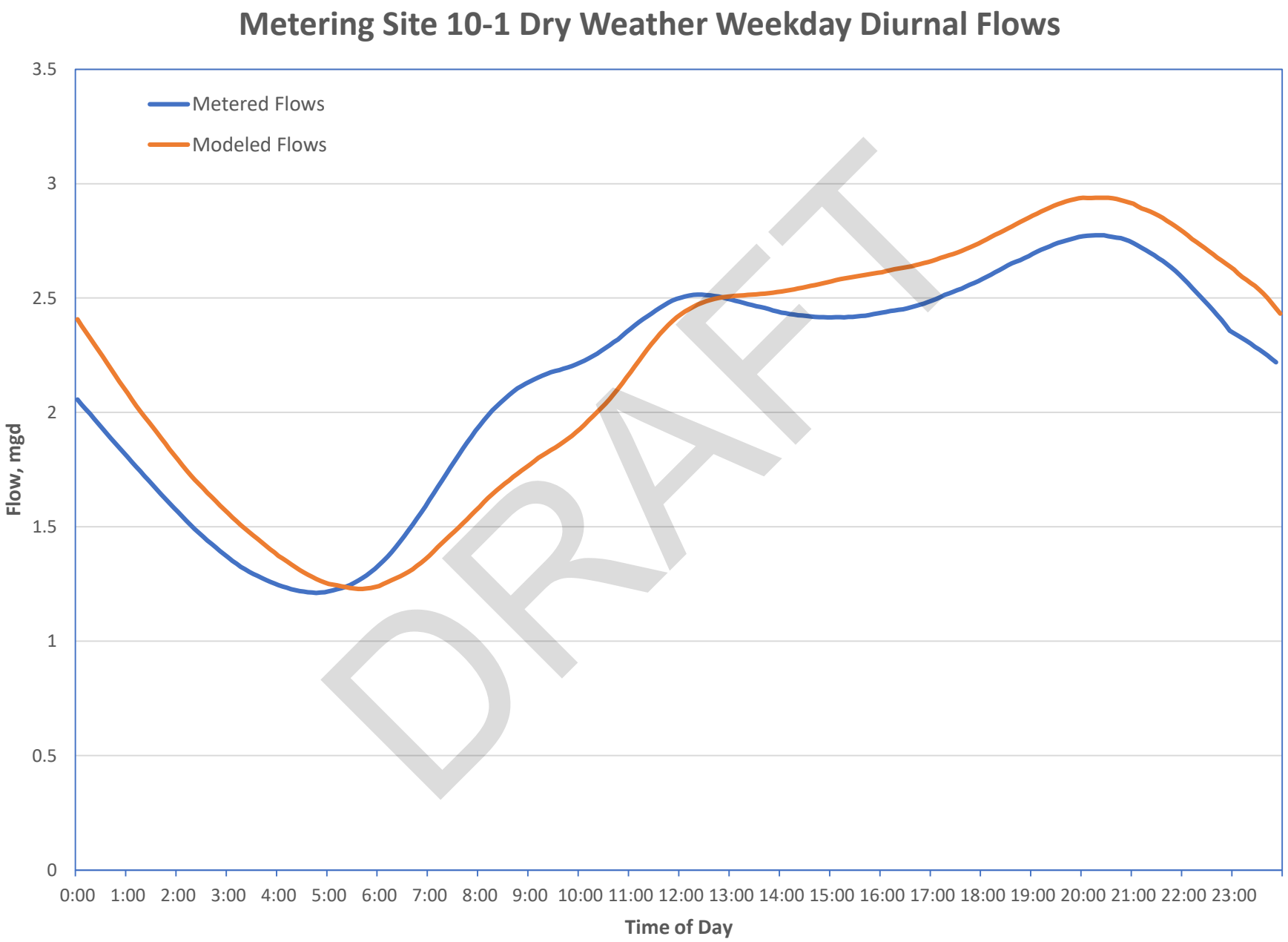

Metering Site 7-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0
1
2
3
4
5
6
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT


Metering Site 8-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT


Metering Site 8-2 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

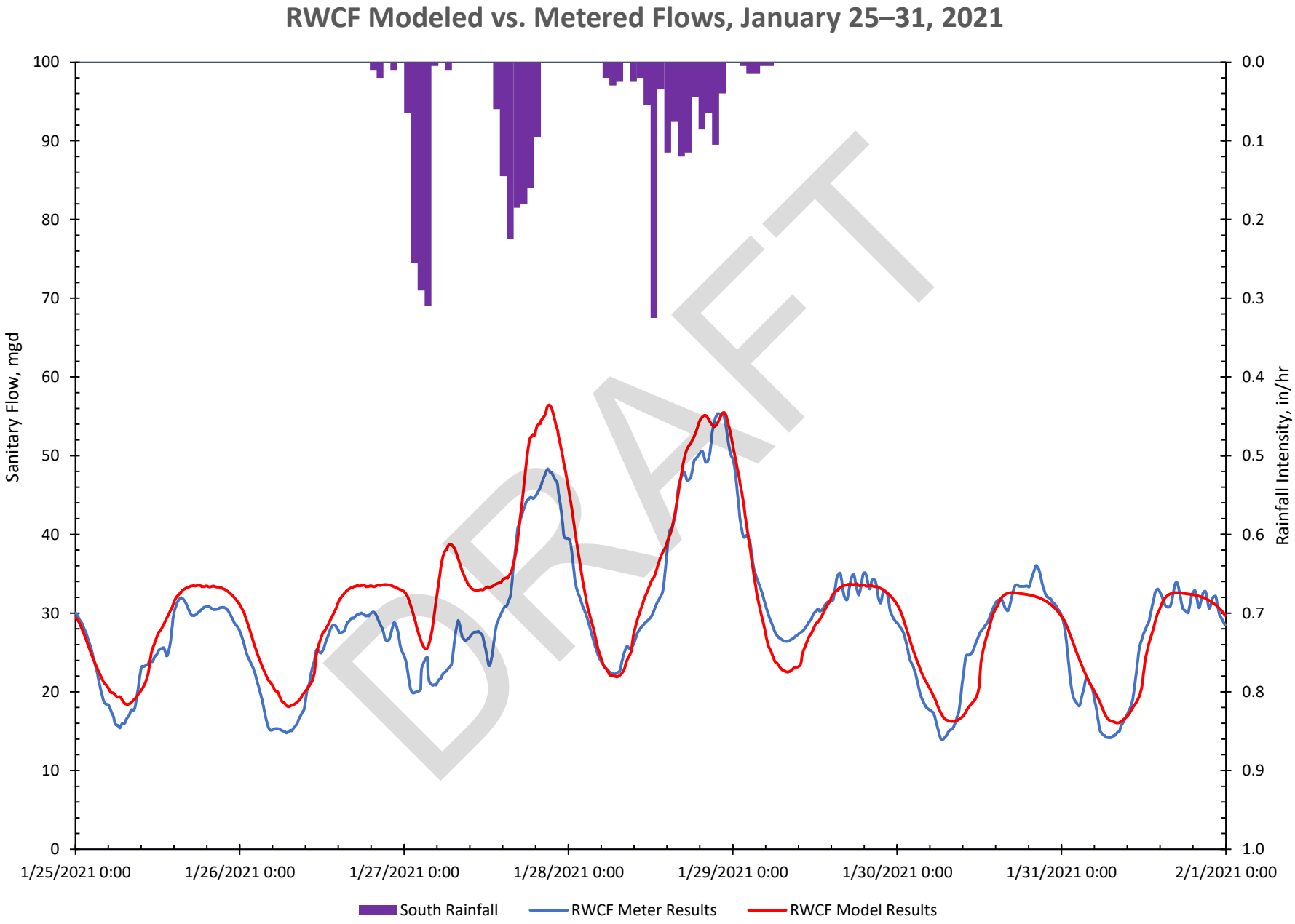

Metering Site 8-3 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

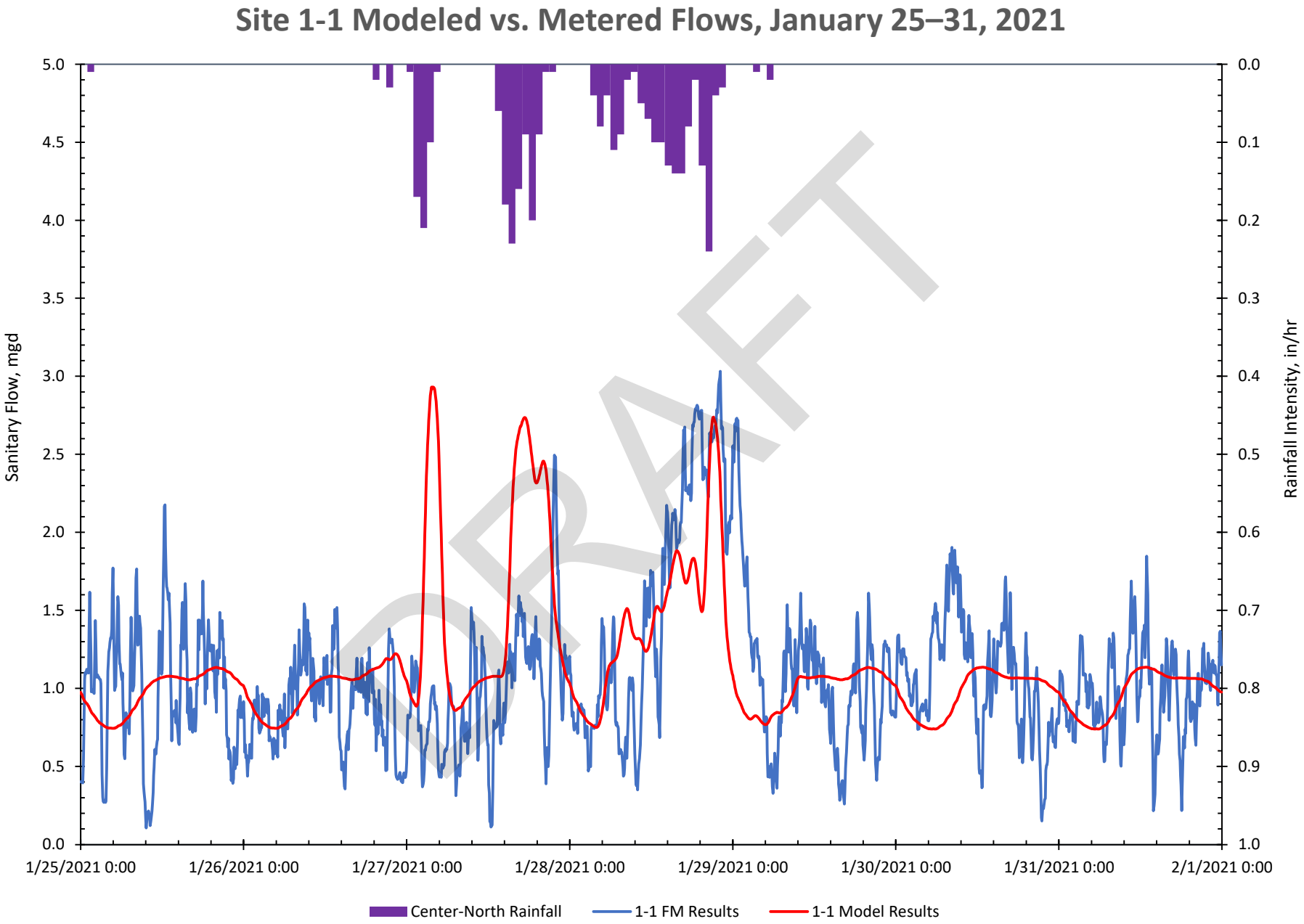

Metering Site 8-4 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT


Metering Site 10-1 Dry Weather Weekday Diurnal Flows
Metered Flows
Modeled Flows
Flow, mgd
3.5
3
2.5
2
1.5
1
0.5
0
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DRAFT

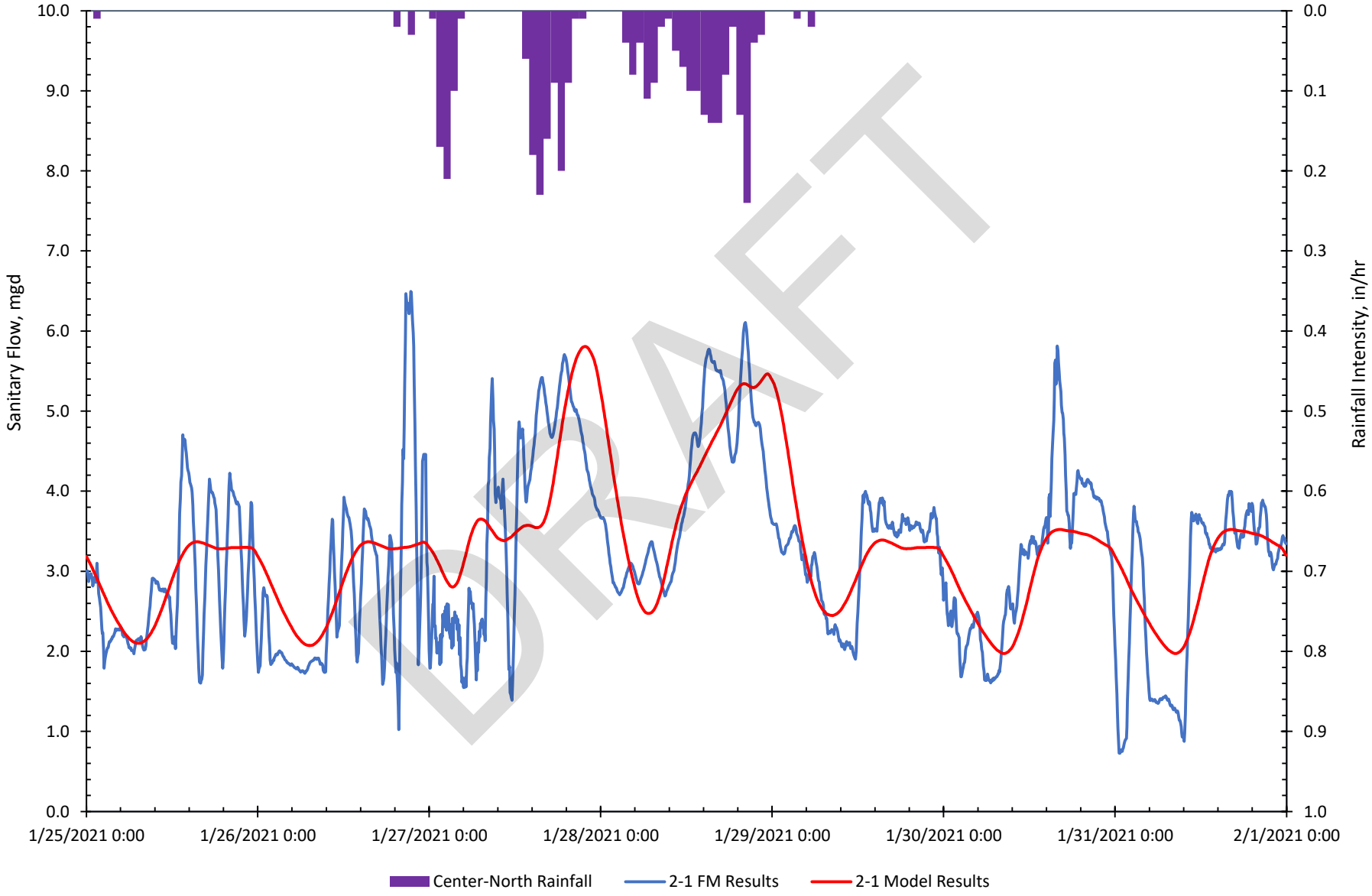
Appendix E

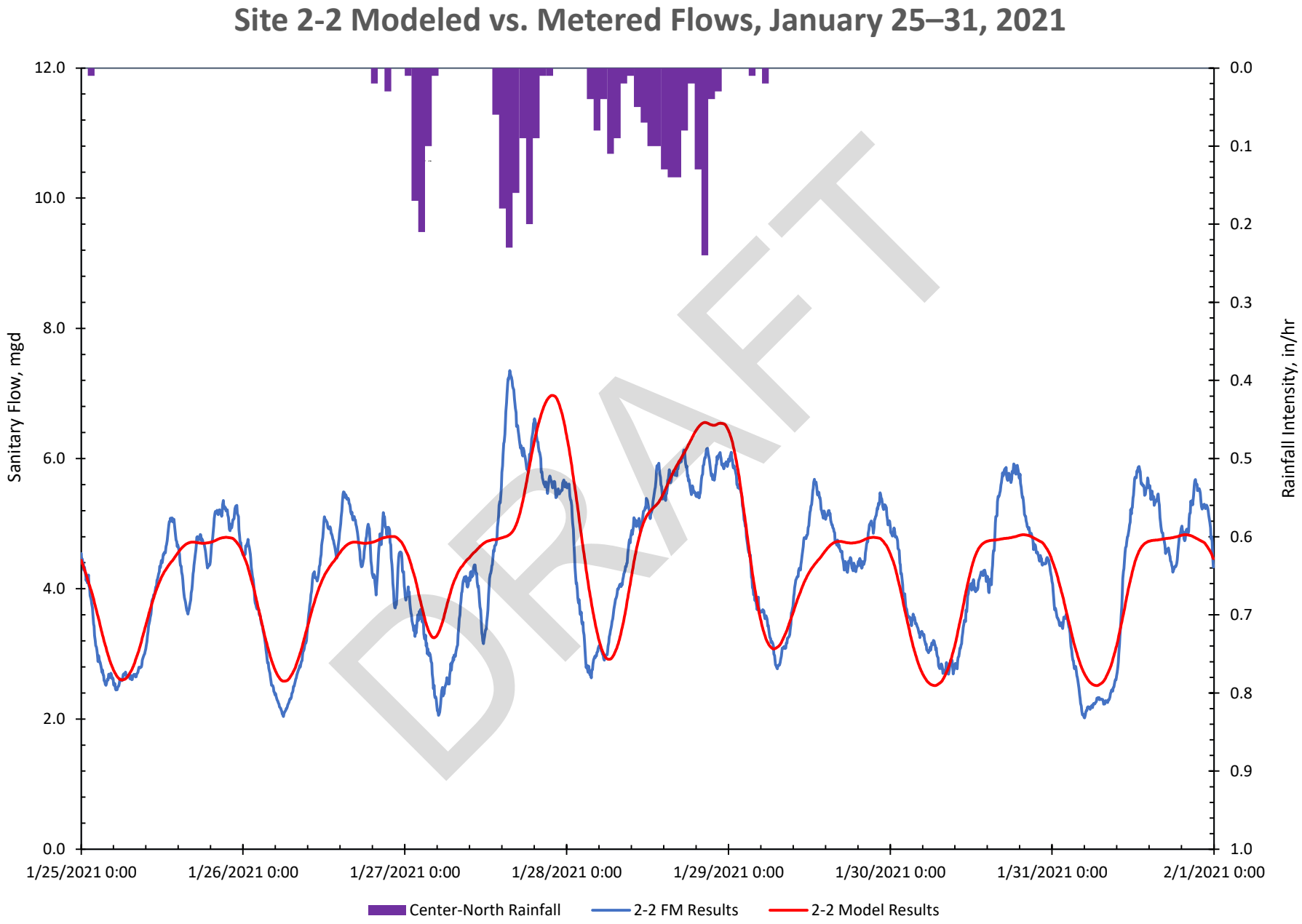
Modeled vs. Metered Wet Weather Flows


RWCF Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
100
90
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
RWCF Meter Results
RWCF Model Results
DRAFT

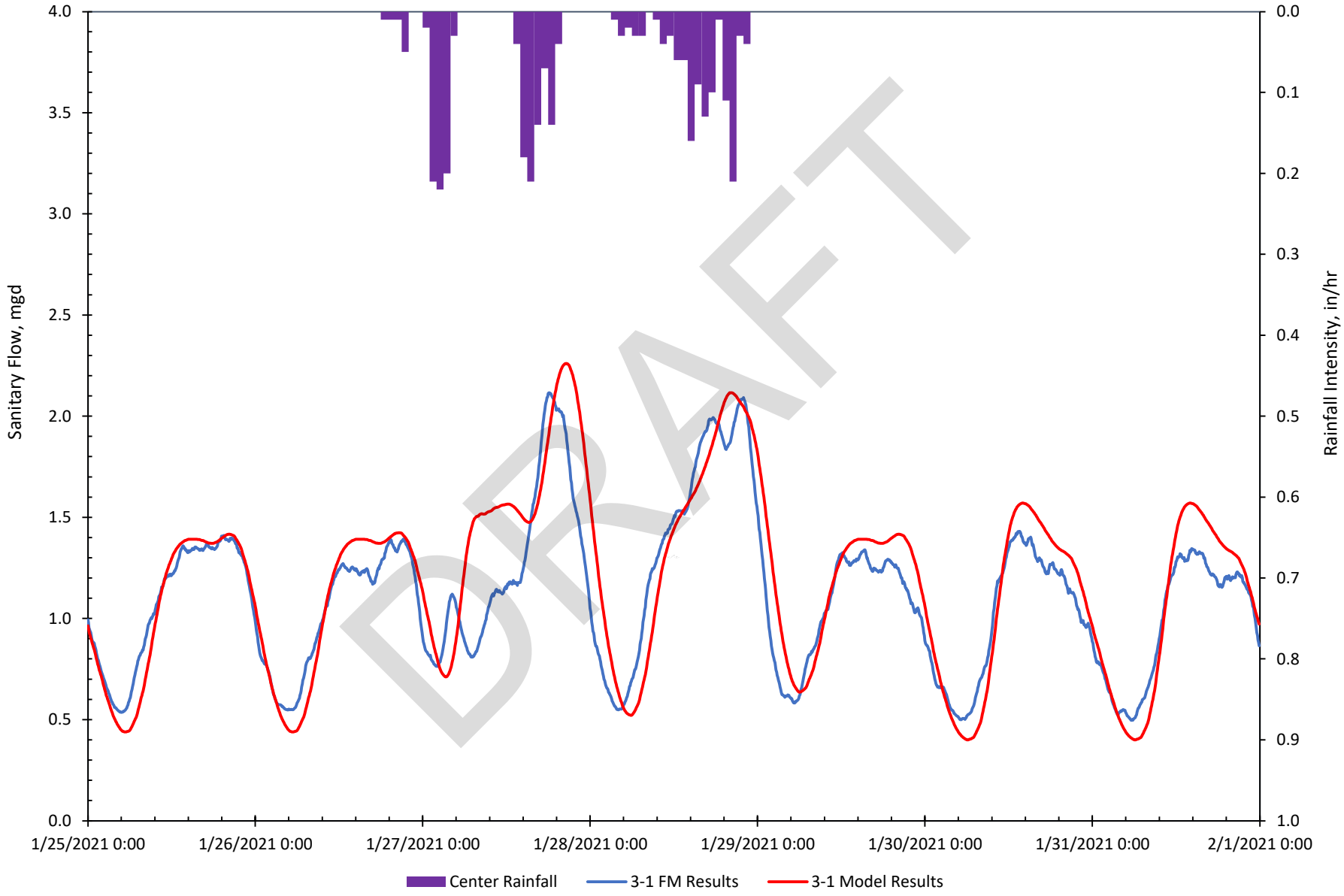

Site 1-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center-North Rainfall
1-1 FM Results
1-1 Model Results
DRAFT

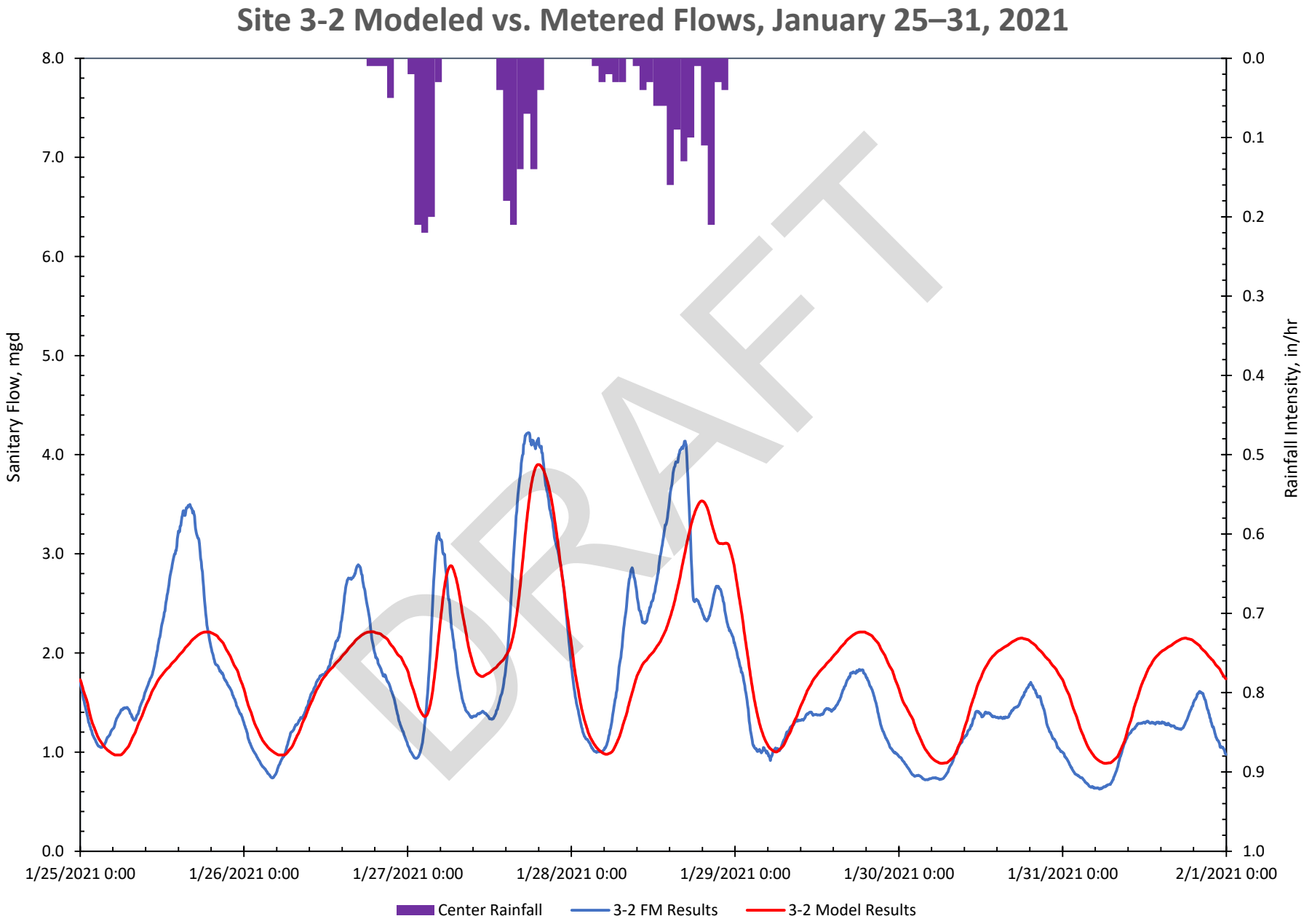
Site 2-1 Modeled vs. Metered Flows, January 25–31, 2021

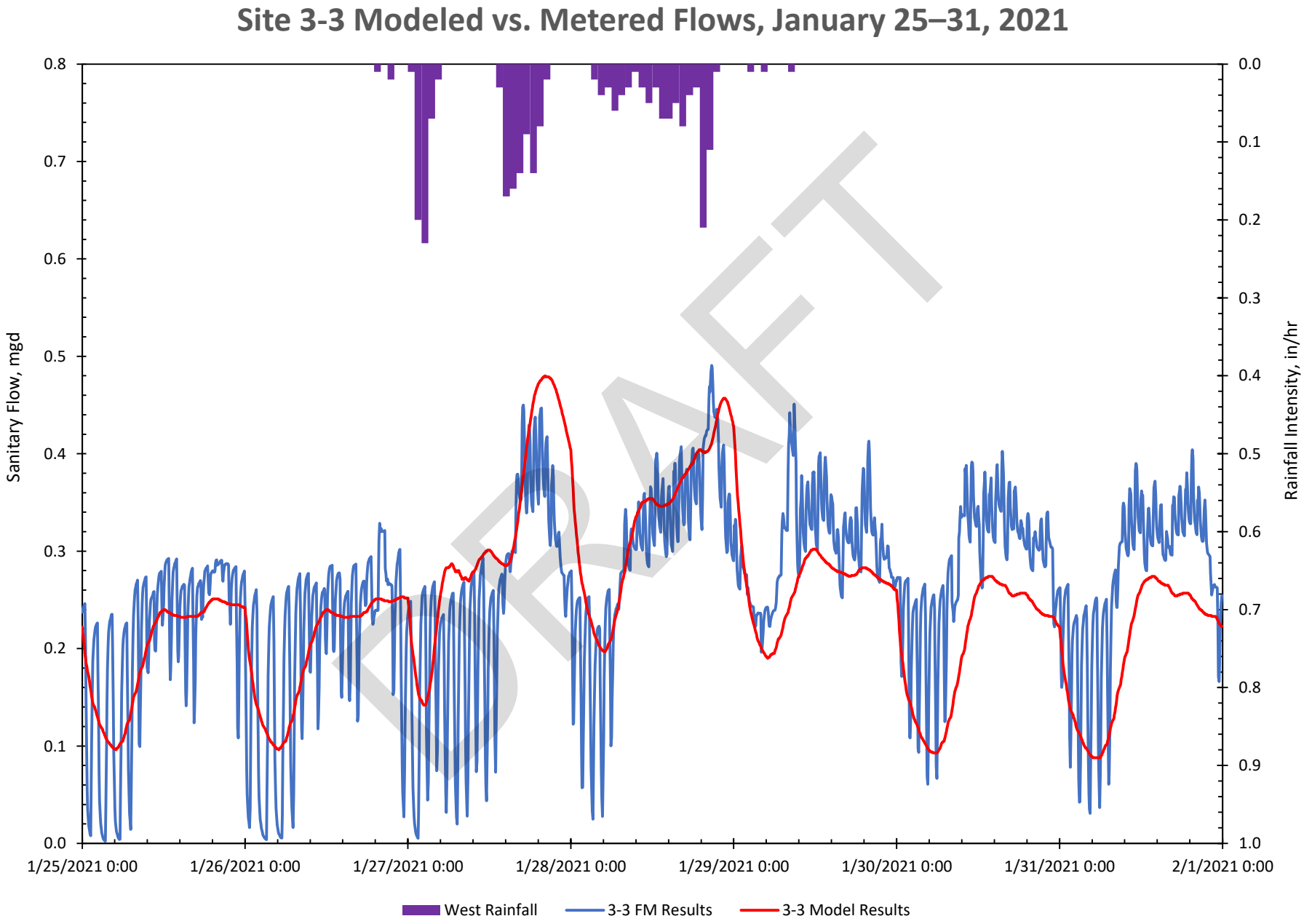



Site 2-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center-North Rainfall
2-2 FM Results
2-2 Model Results
DRAFT

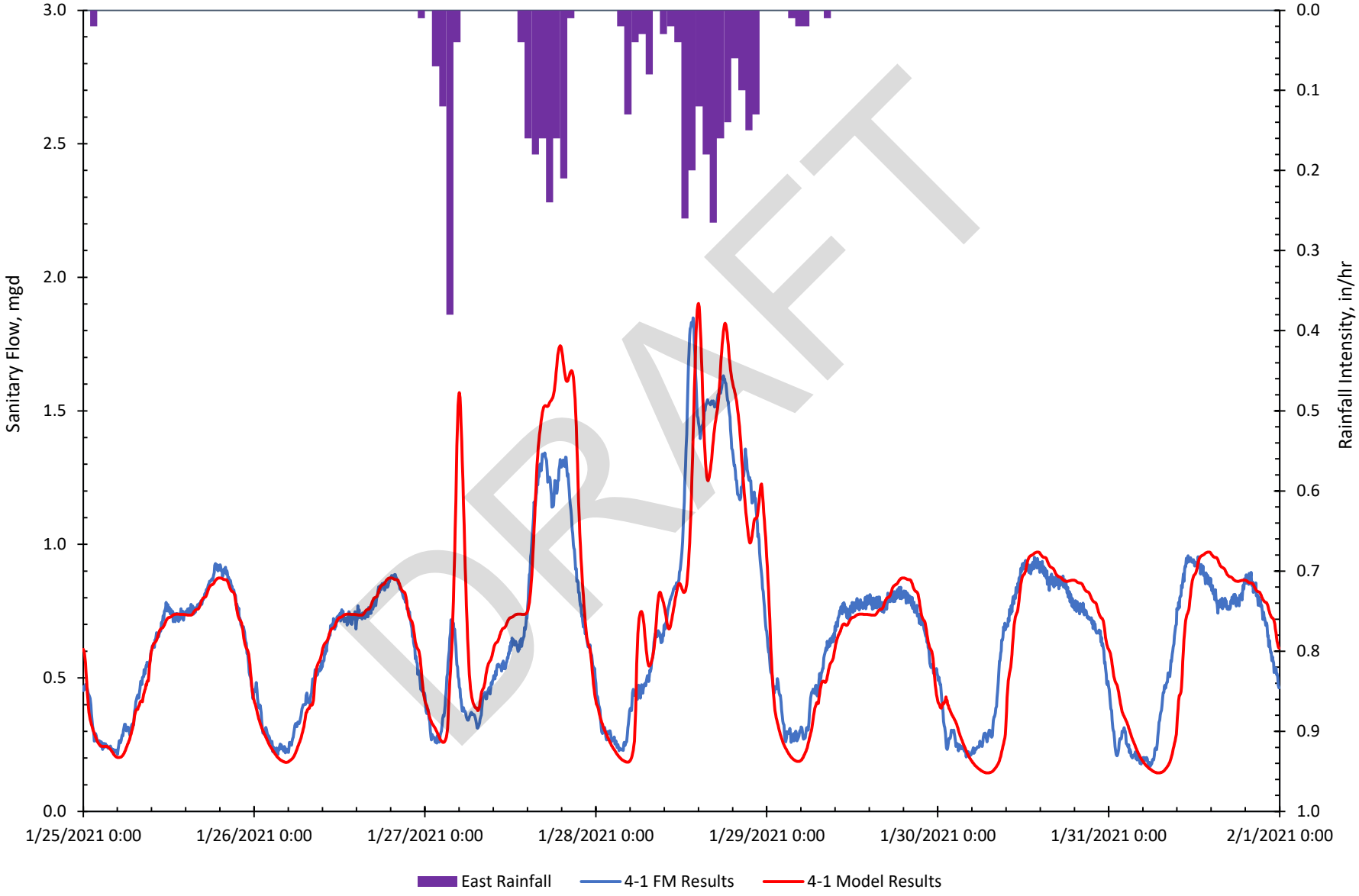
Site 3-1 Modeled vs. Metered Flows, January 25–31, 2021

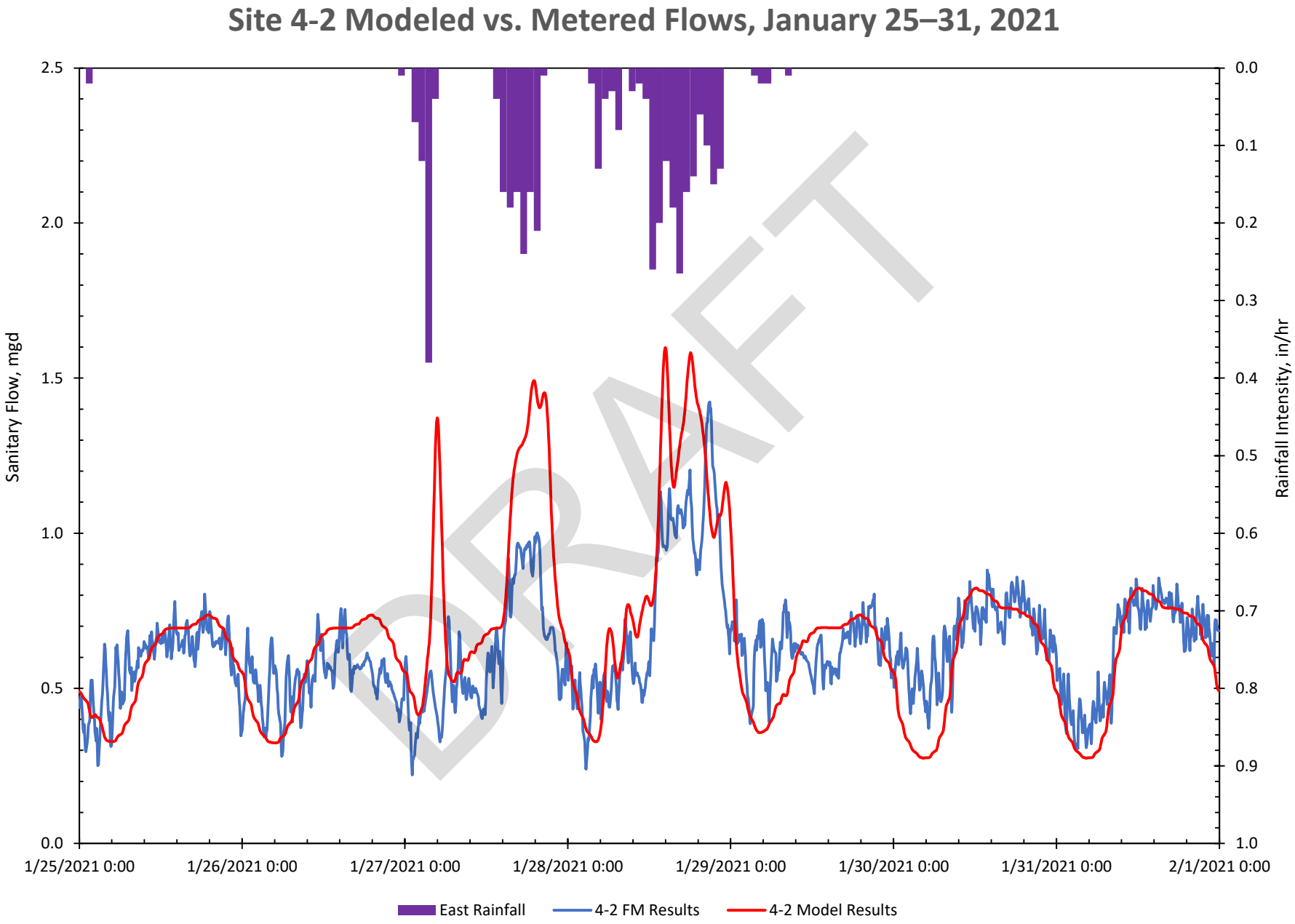


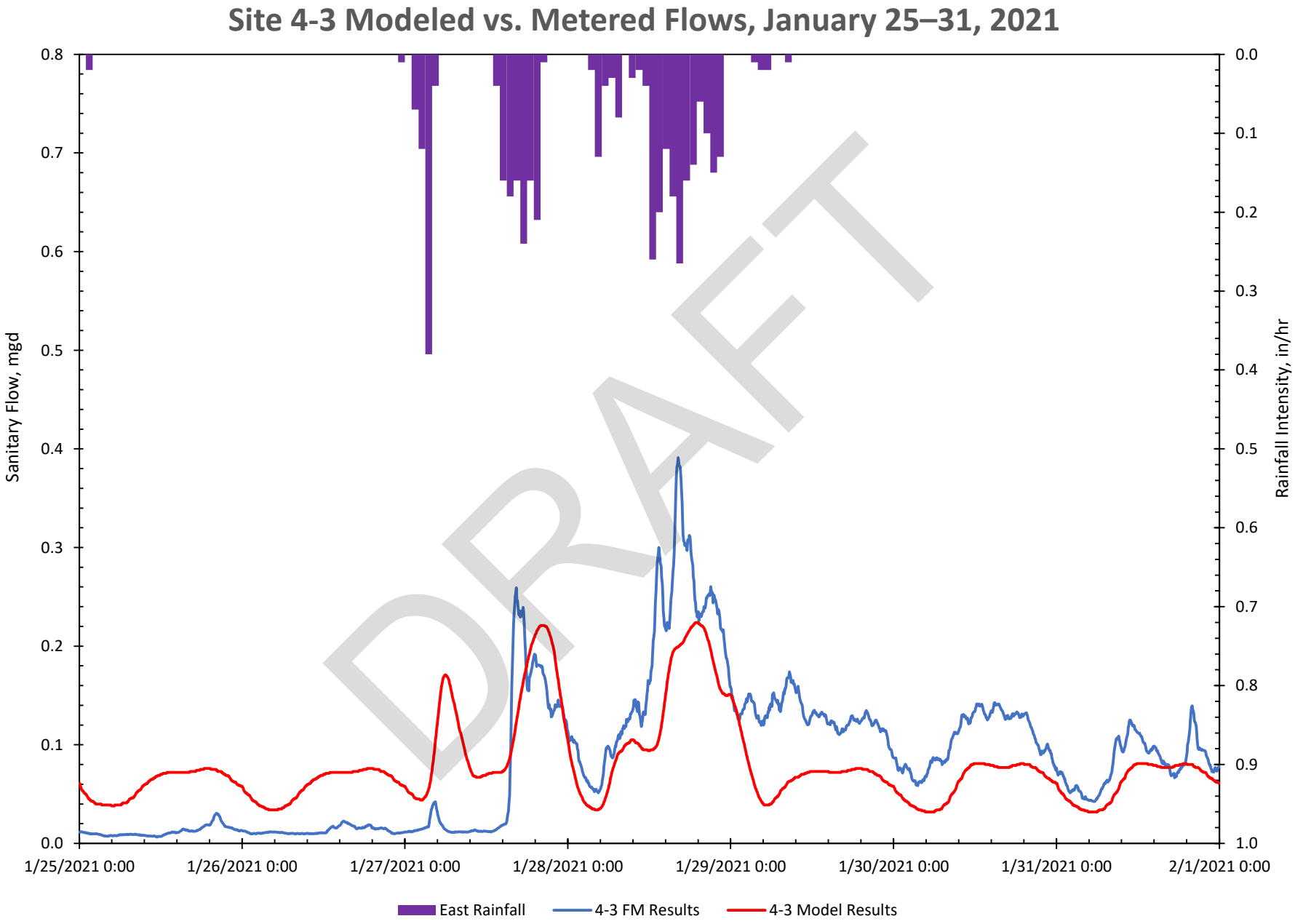

Site 3-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
3-2 FM Results
3-2 Model Results
DRAFT

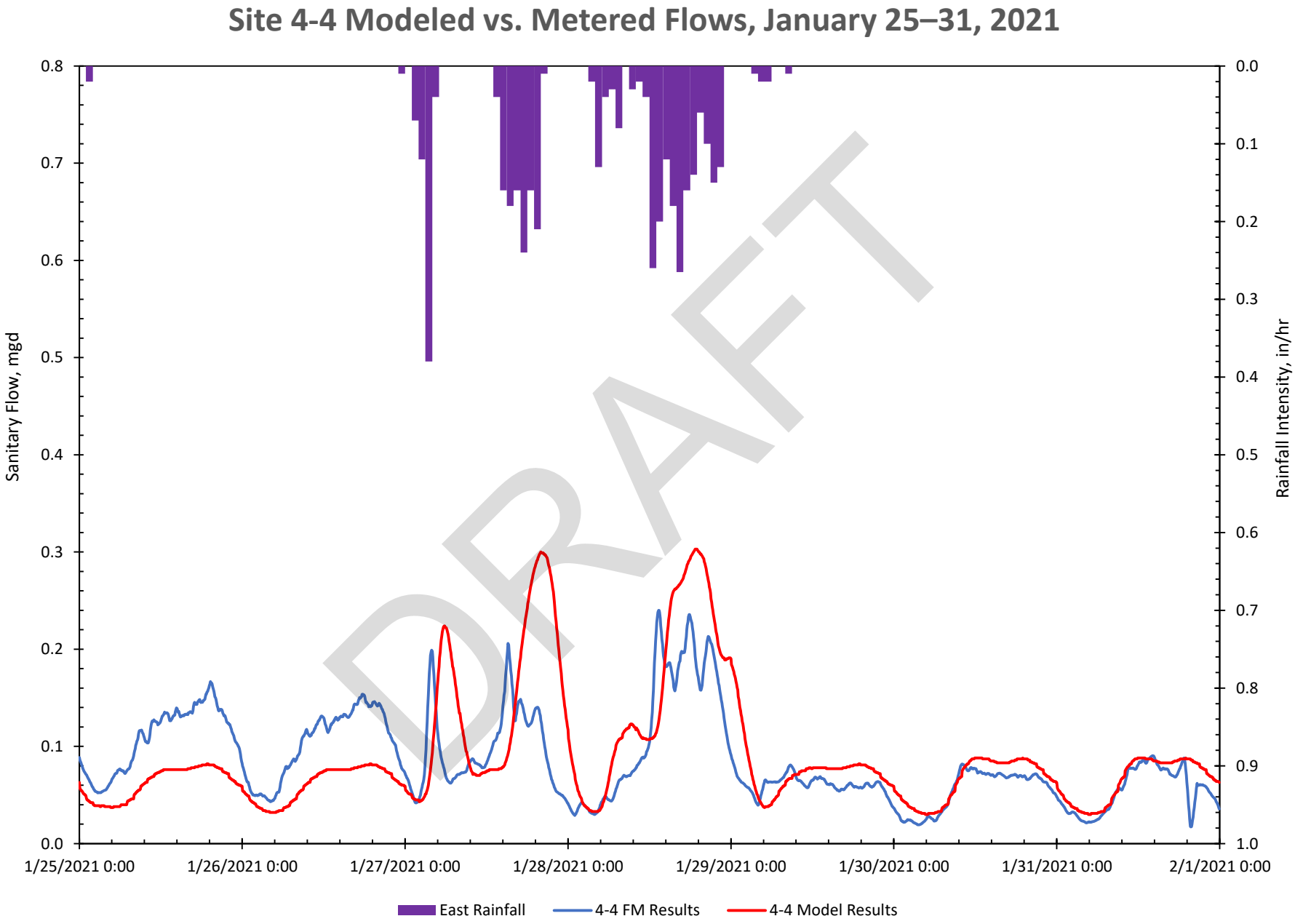

Site 3-3 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
West Rainfall
3-3 FM Results
3-3 Model Results
DRAFT

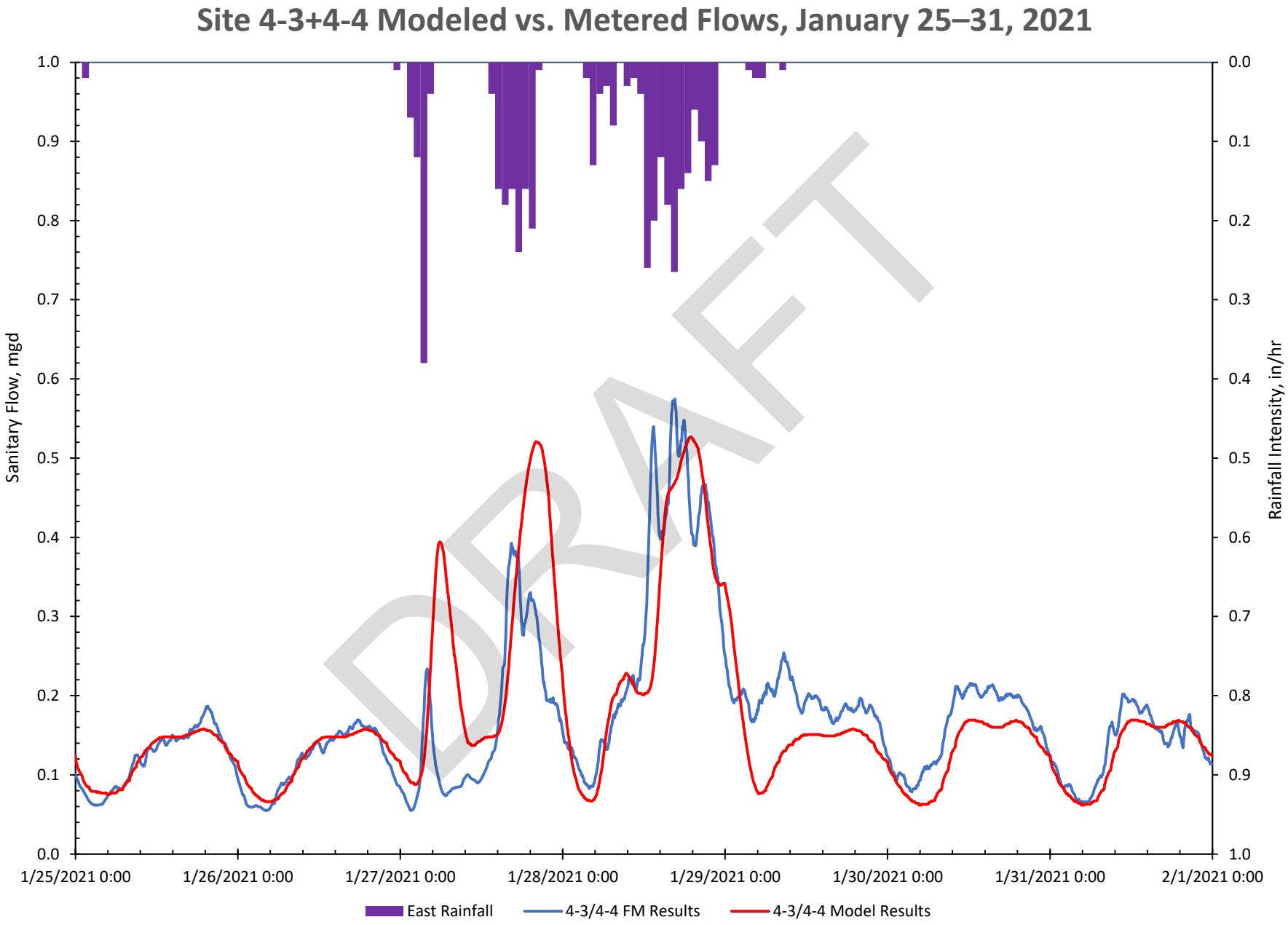
Site 4-1 Modeled vs. Metered Flows, January 25–31, 2021

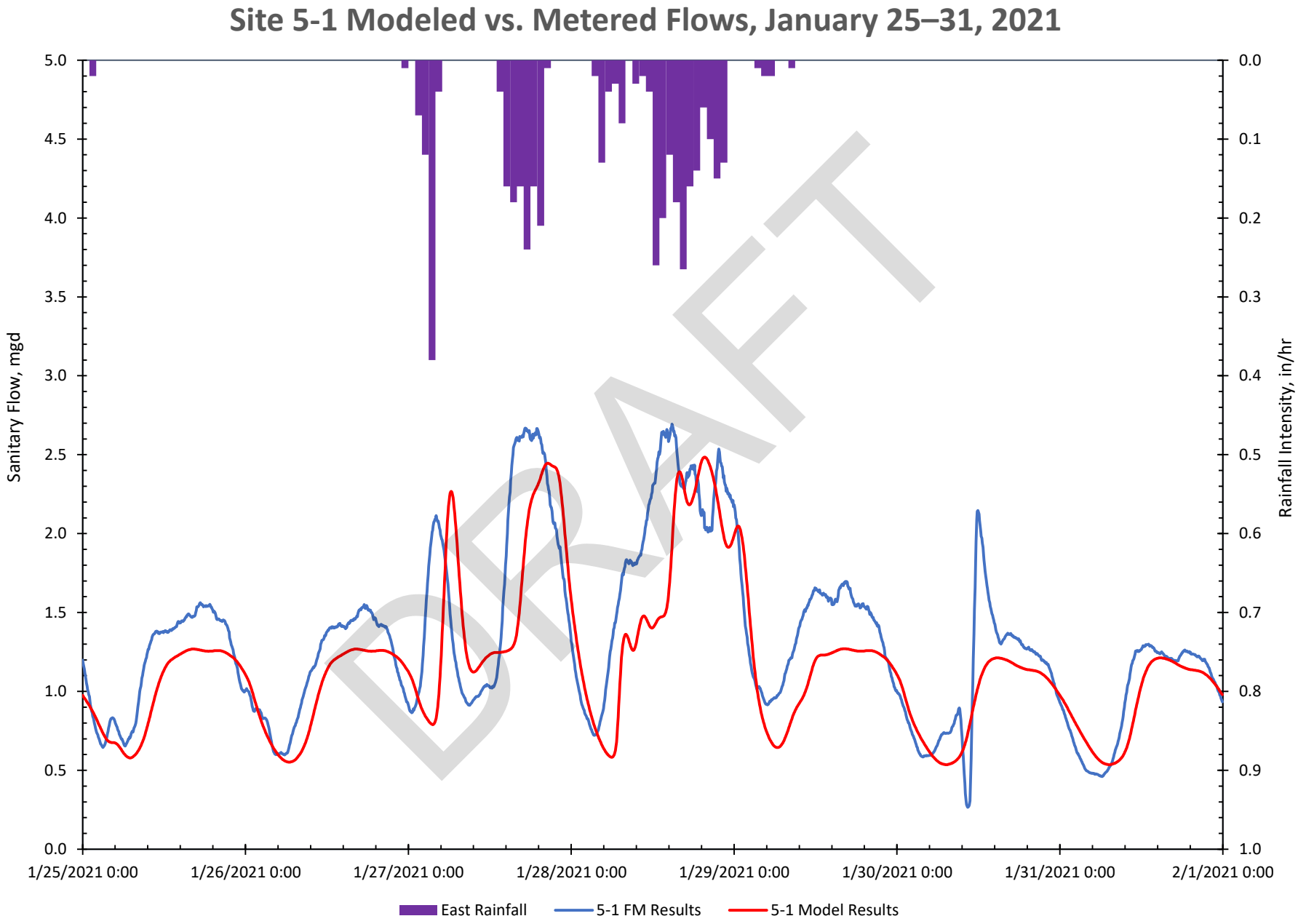


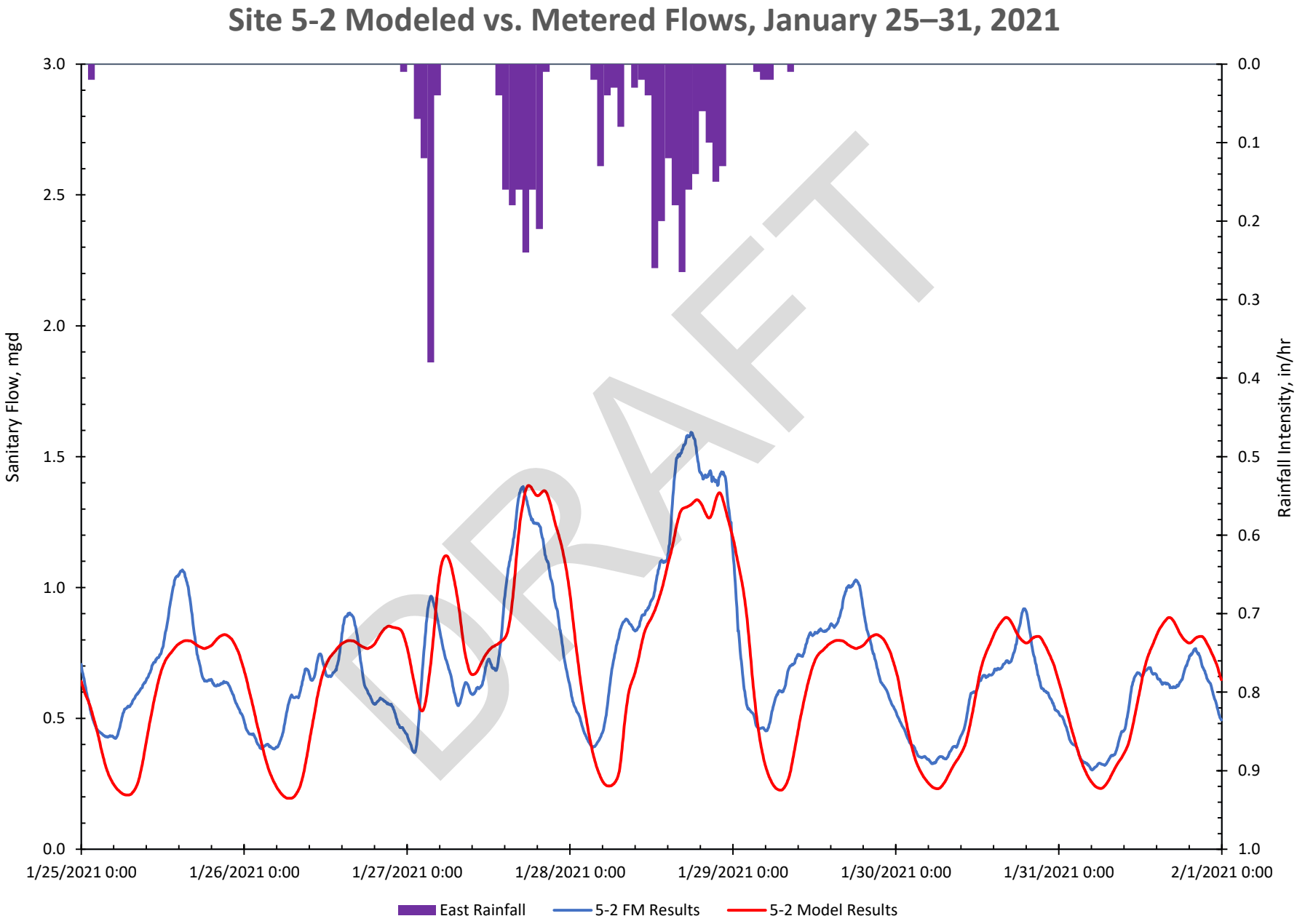

Site 4-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-2 FM Results
4-2 Model Results
DRAFT

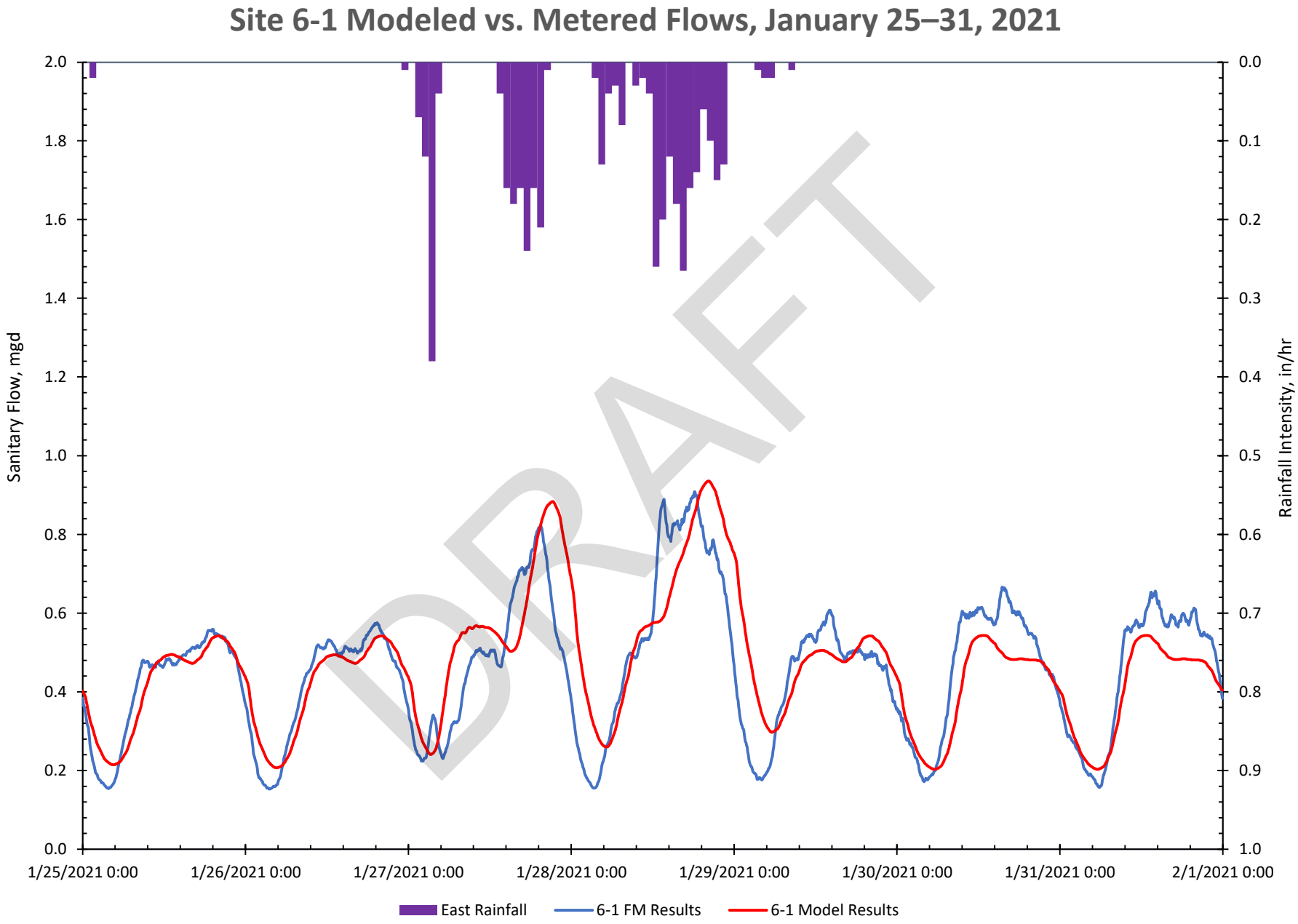

Site 4-3 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-3 FM Results
4-3 Model Results
DRAFT

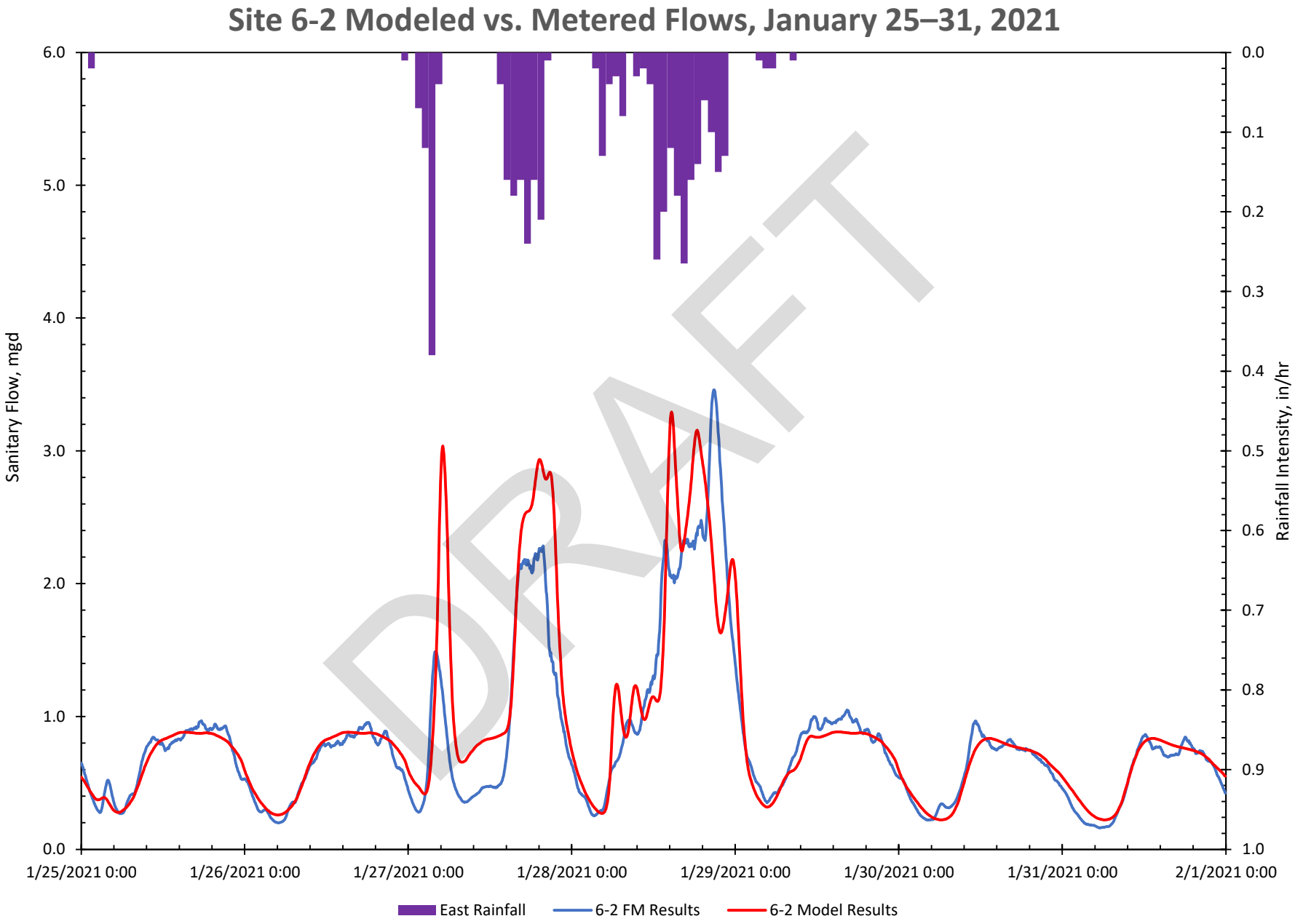

Site 4-4 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
1.0
0.9
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-4 FM Results
4-4 Model Results
DRAFT

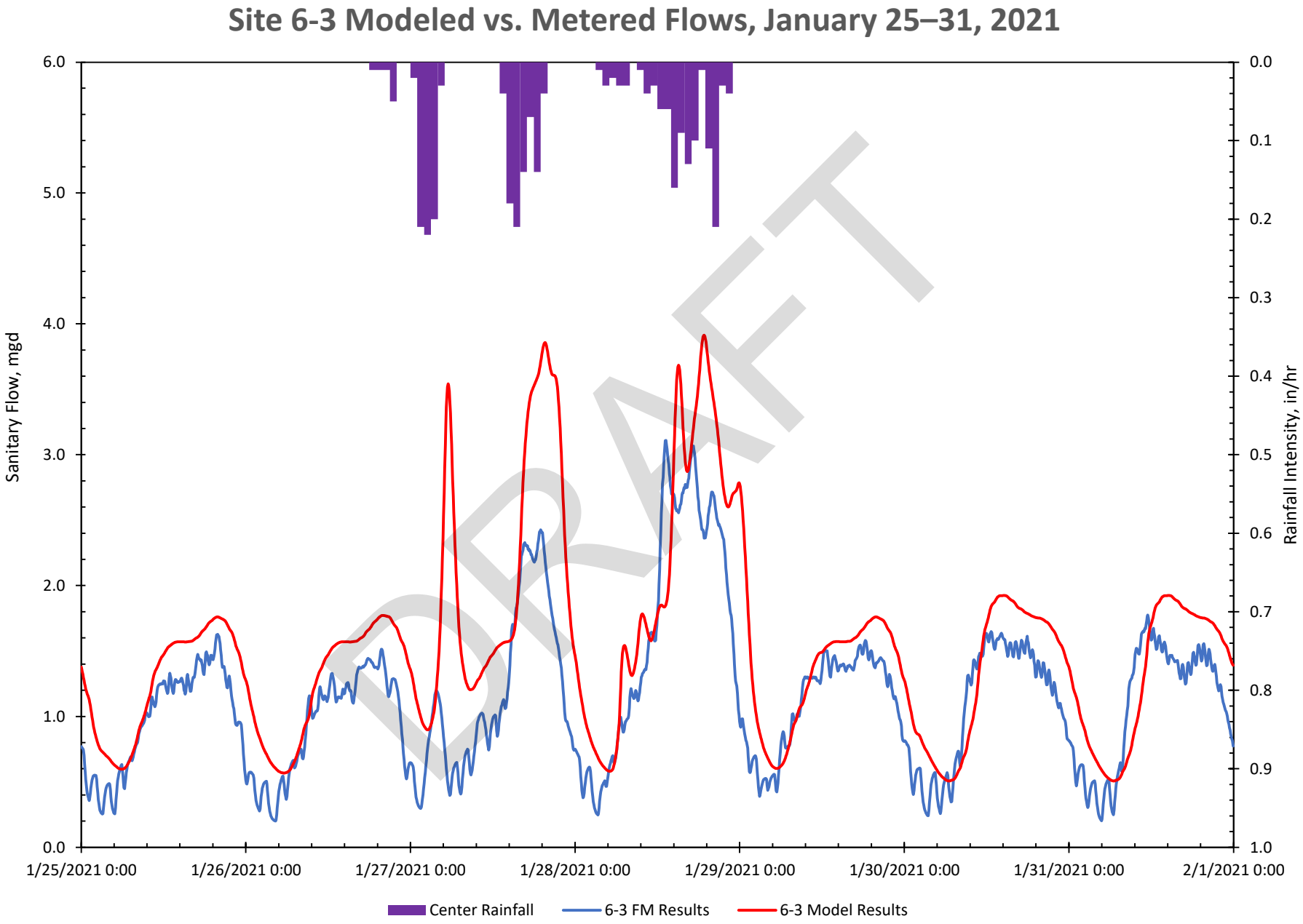

Site 4-3+4-4 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-3/4-4 FM Results
4-3/4-4 Model Results
DRAFT

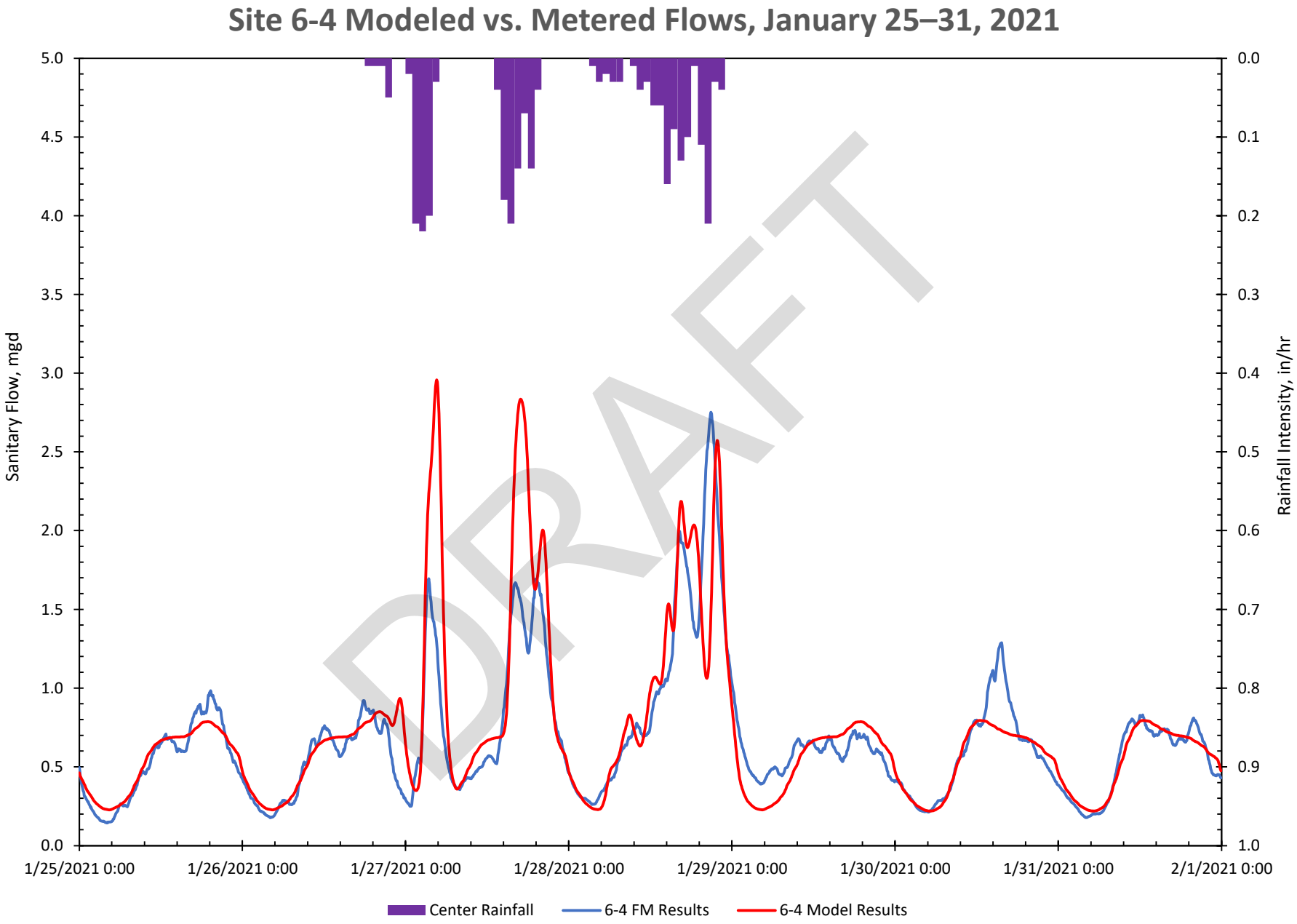

Site 5-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
5-1 FM Results
5-1 Model Results
DRAFT

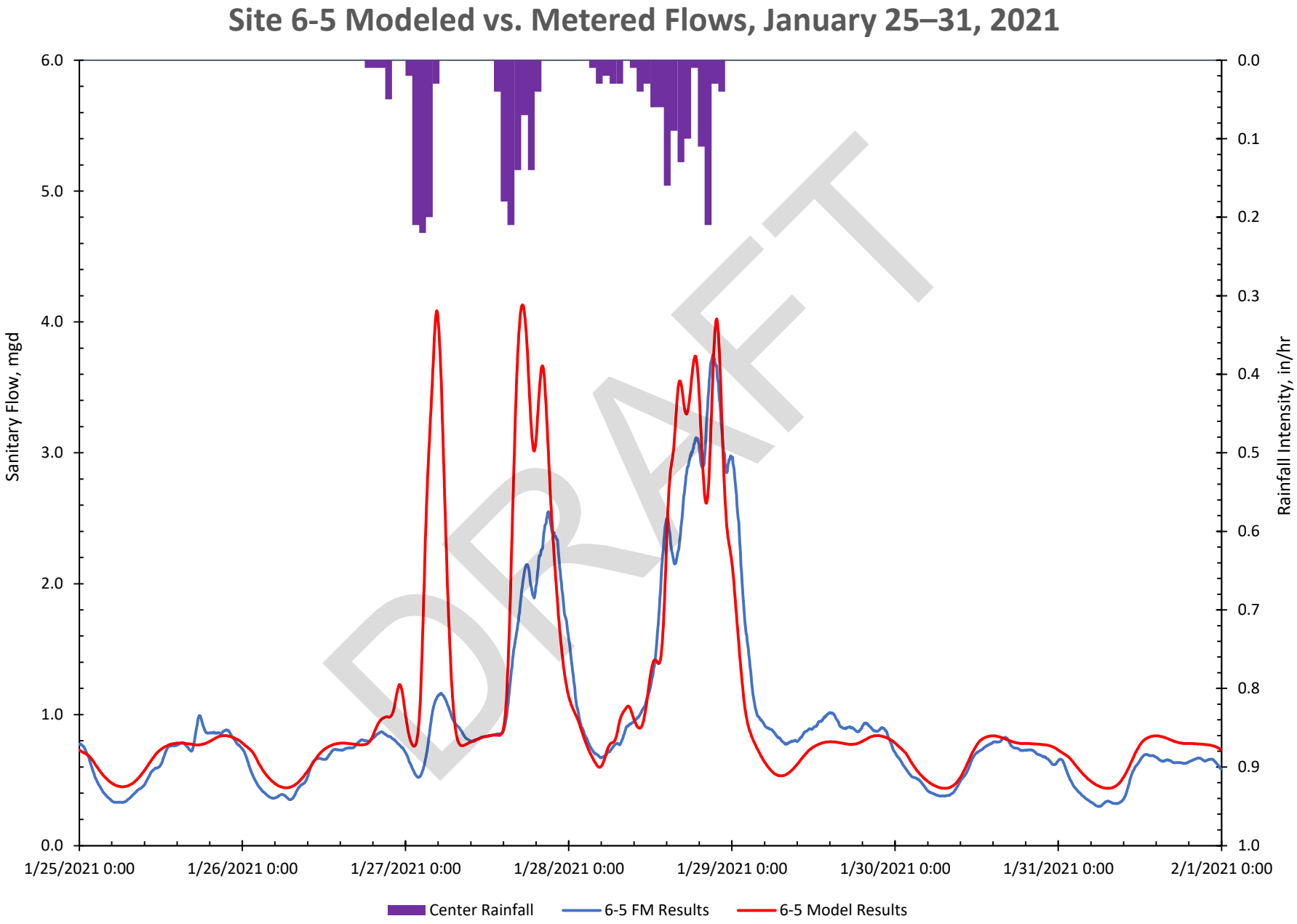

Site 5-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
5-2 FM Results
5-2 Model Results
DRAFT

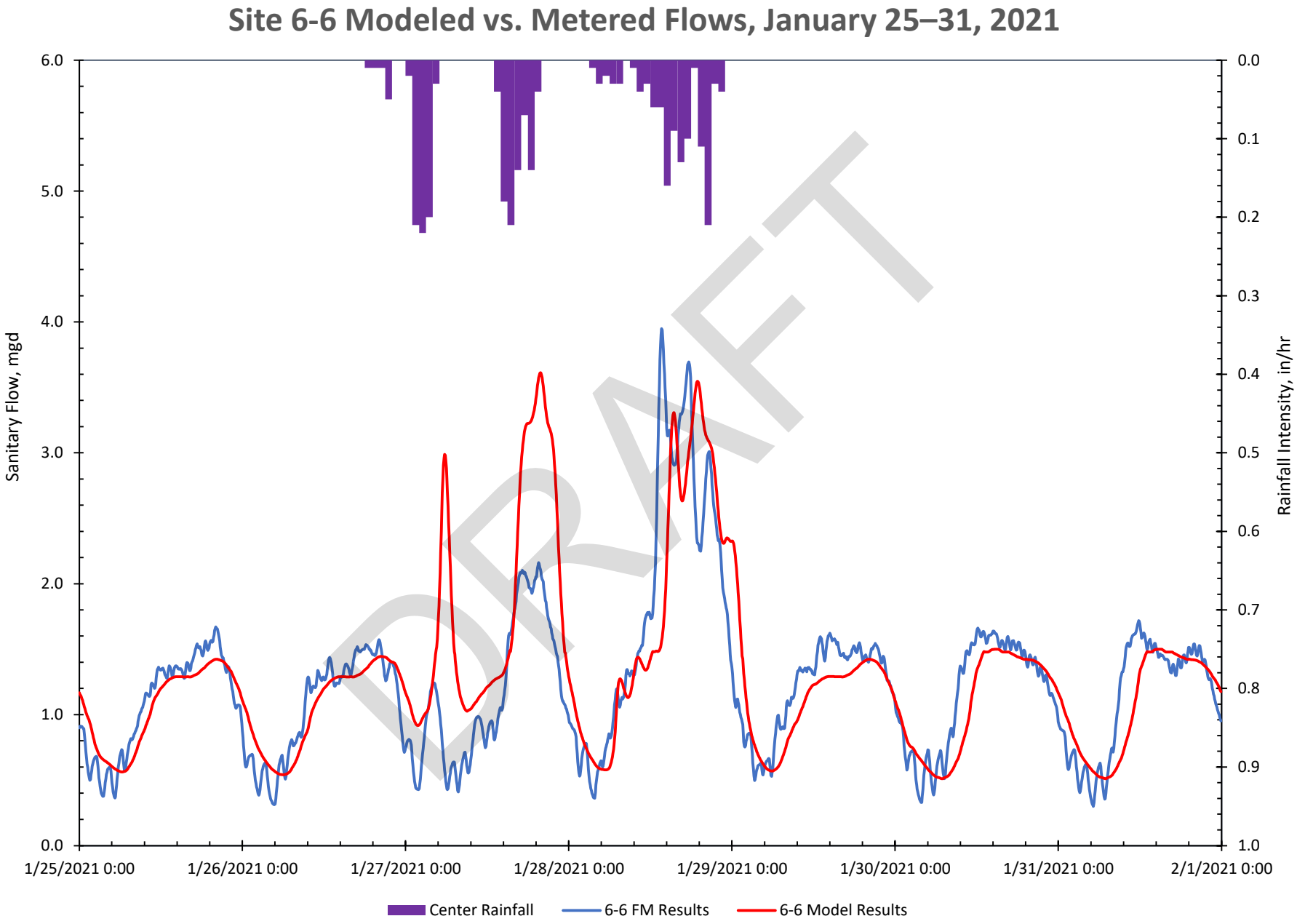

Site 6-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
6-1 FM Results
6-1 Model Results
DRAFT

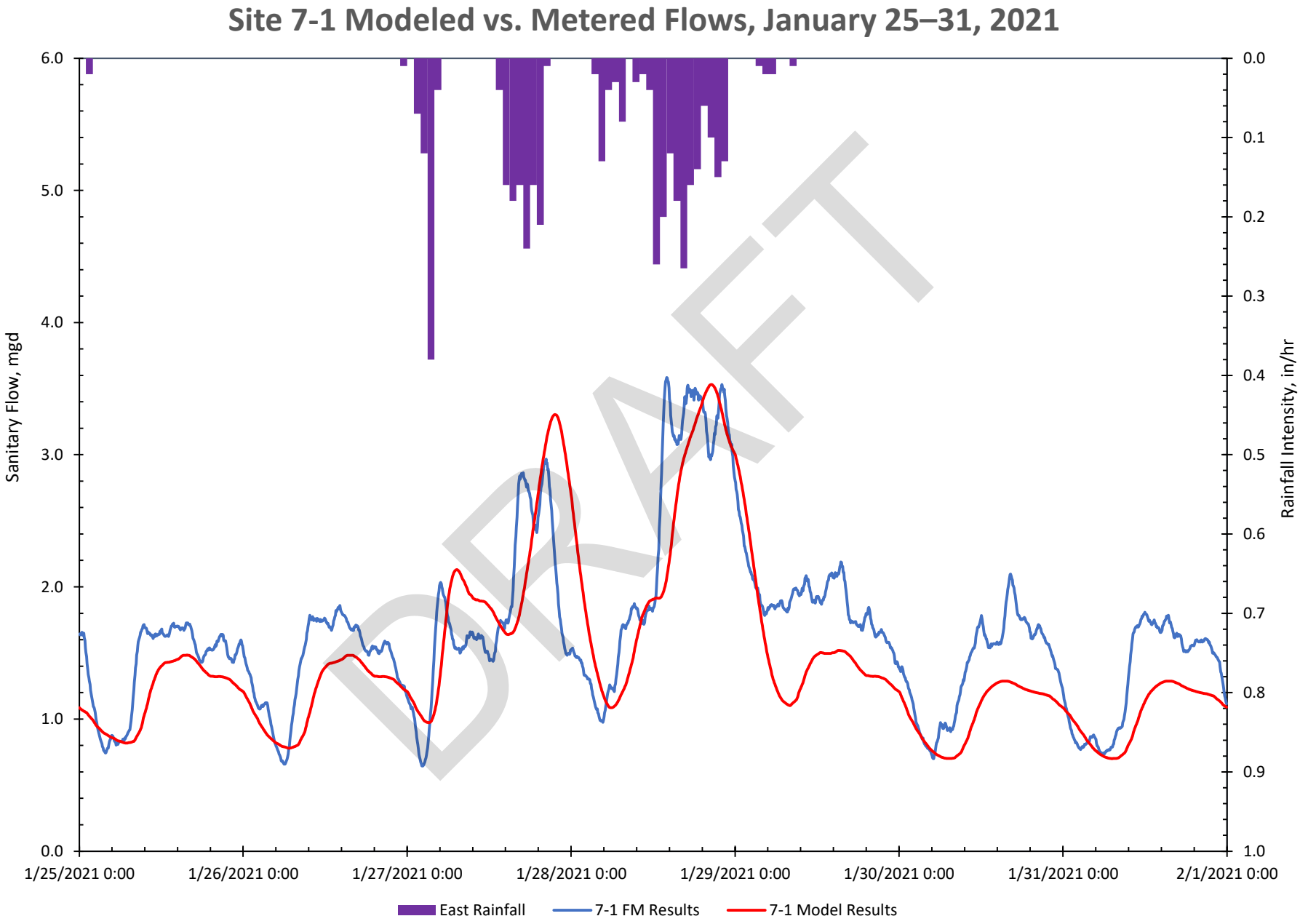

Site 6-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
6-2 FM Results
6-2 Model Results
DRAFT

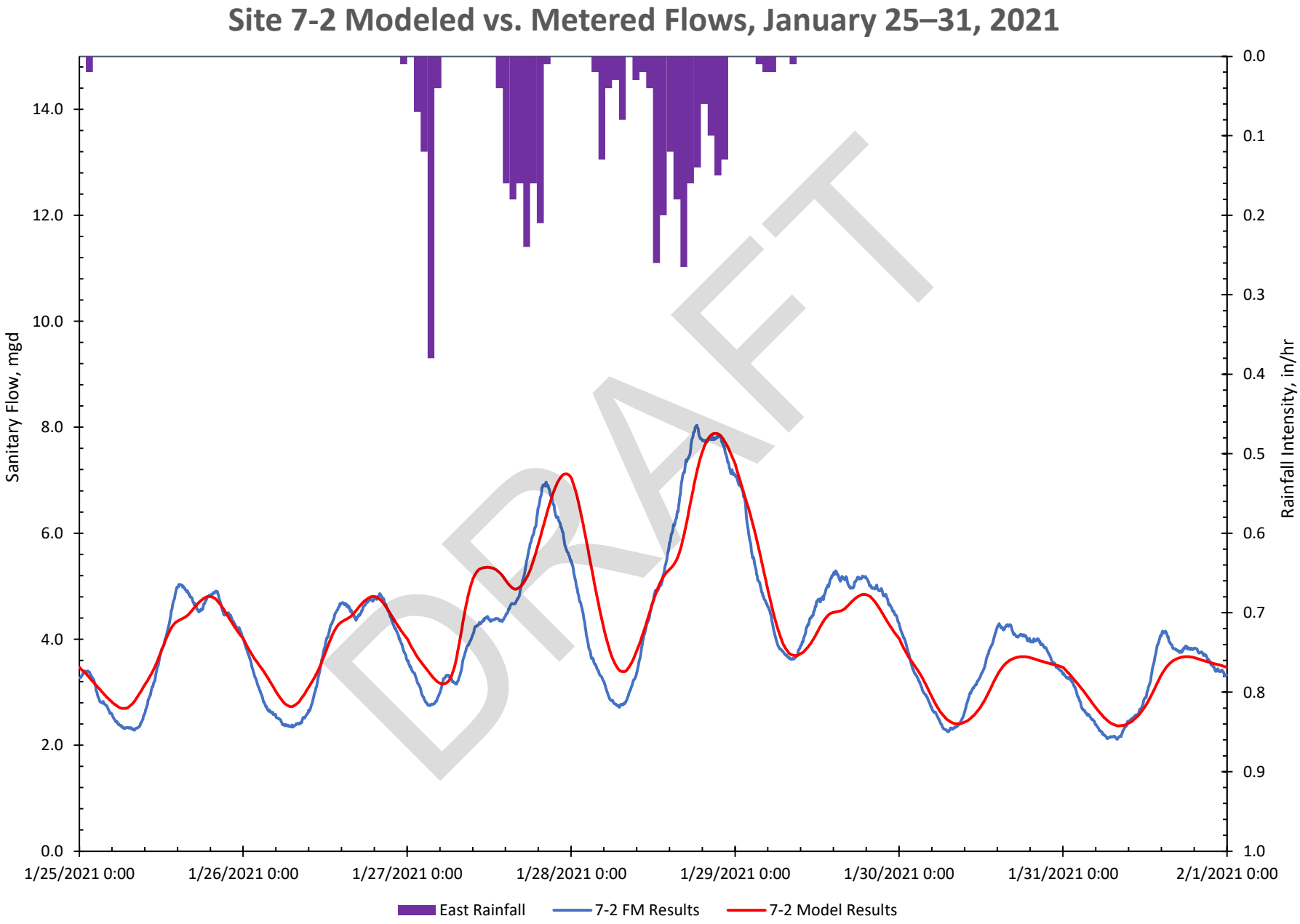

Site 6-3 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-3 FM Results
6-3 Model Results
DRAFT

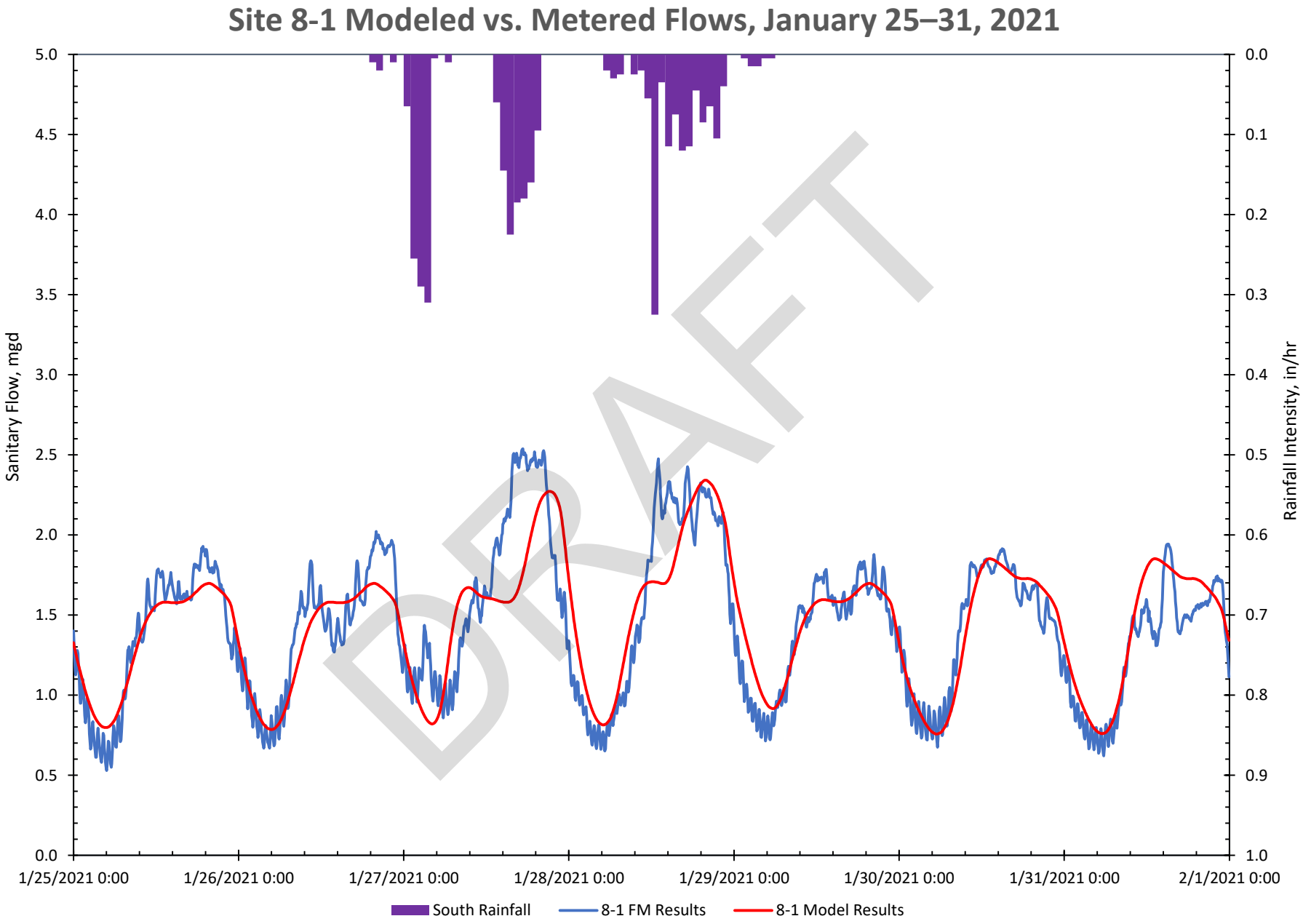

Site 6-4 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-4 FM Results
6-4 Model Results
DRAFT

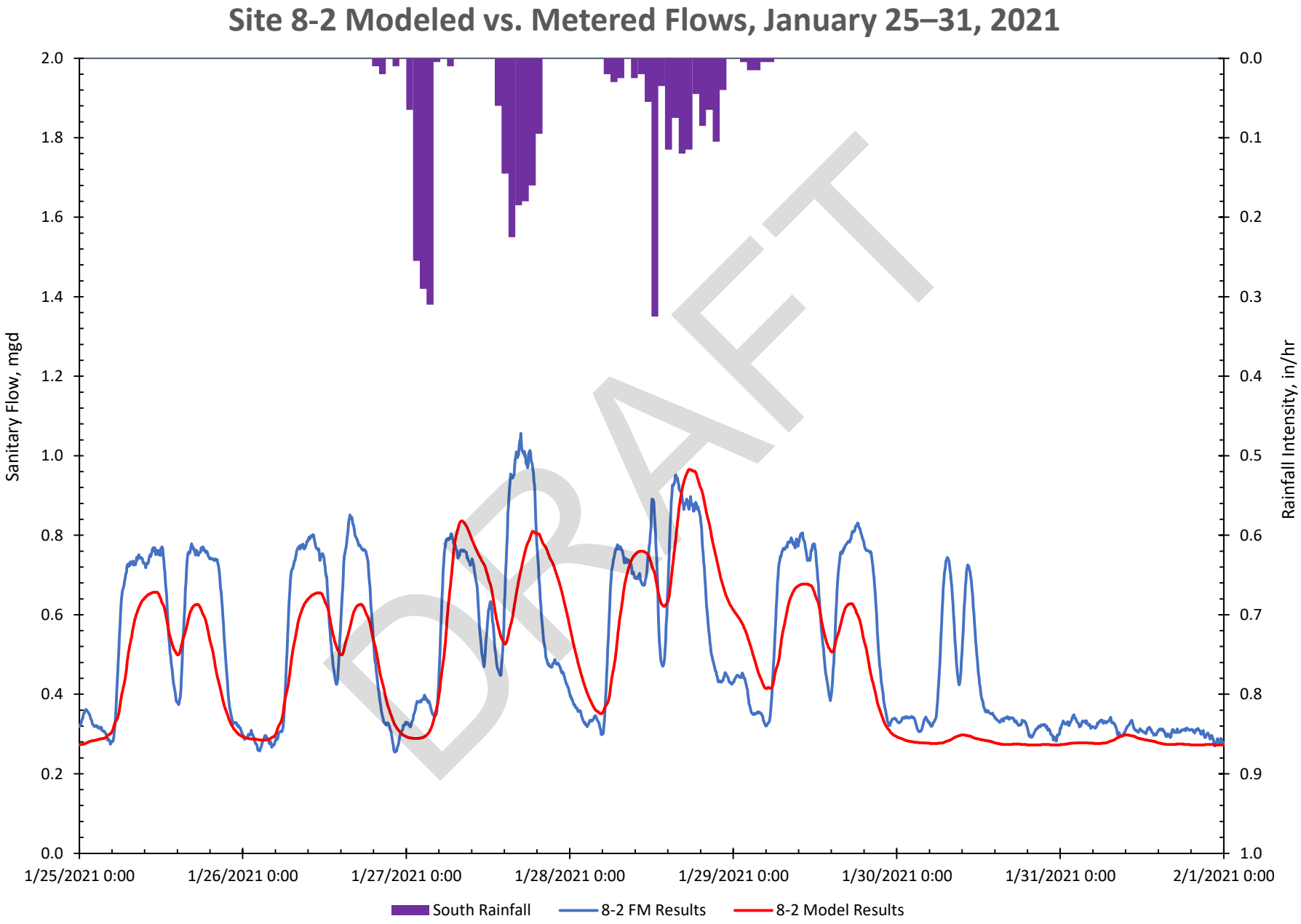

Site 6-5 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-5 FM Results
6-5 Model Results
DRAFT

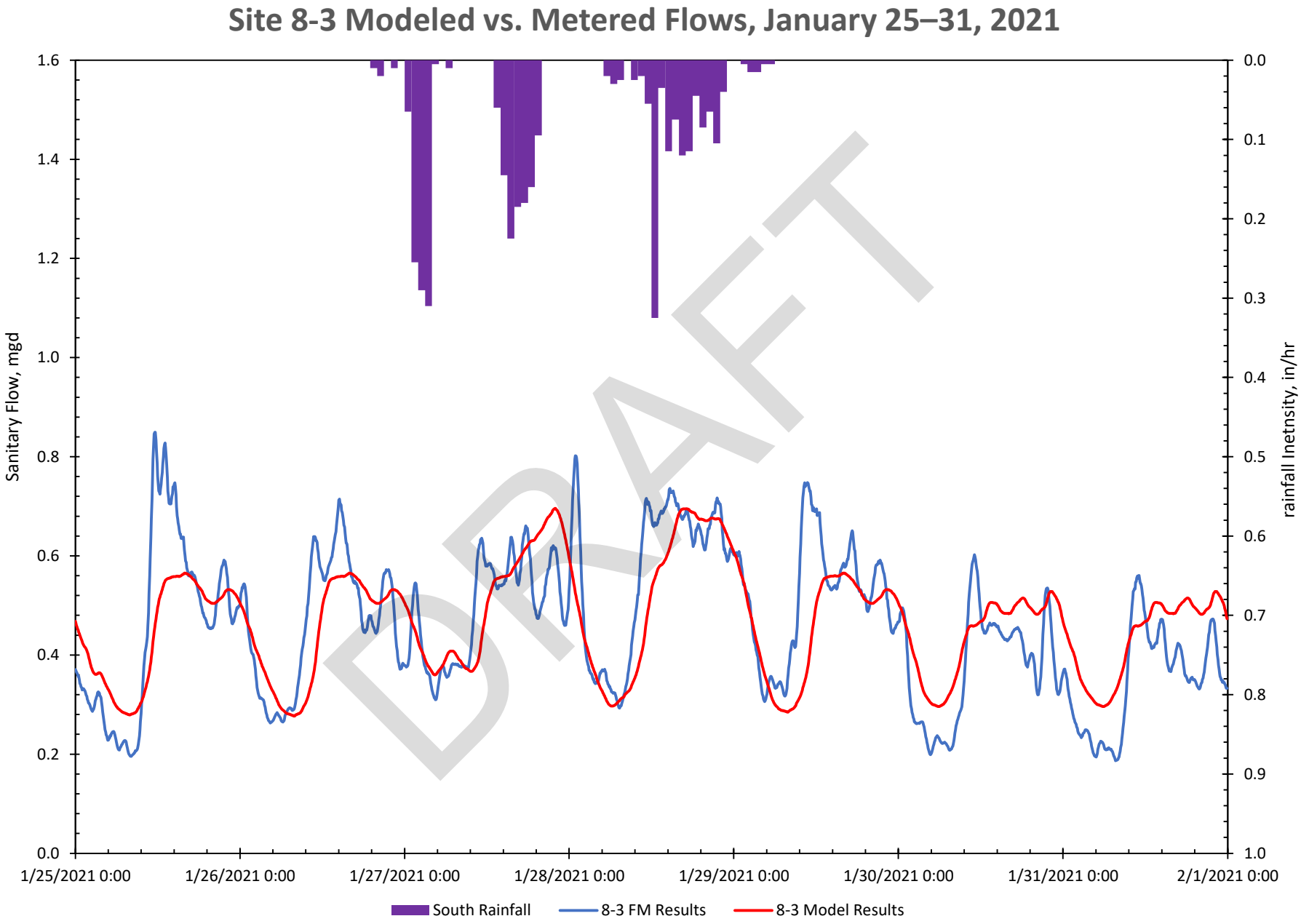

Site 6-6 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-6 FM Results
6-6 Model Results
DRAFT

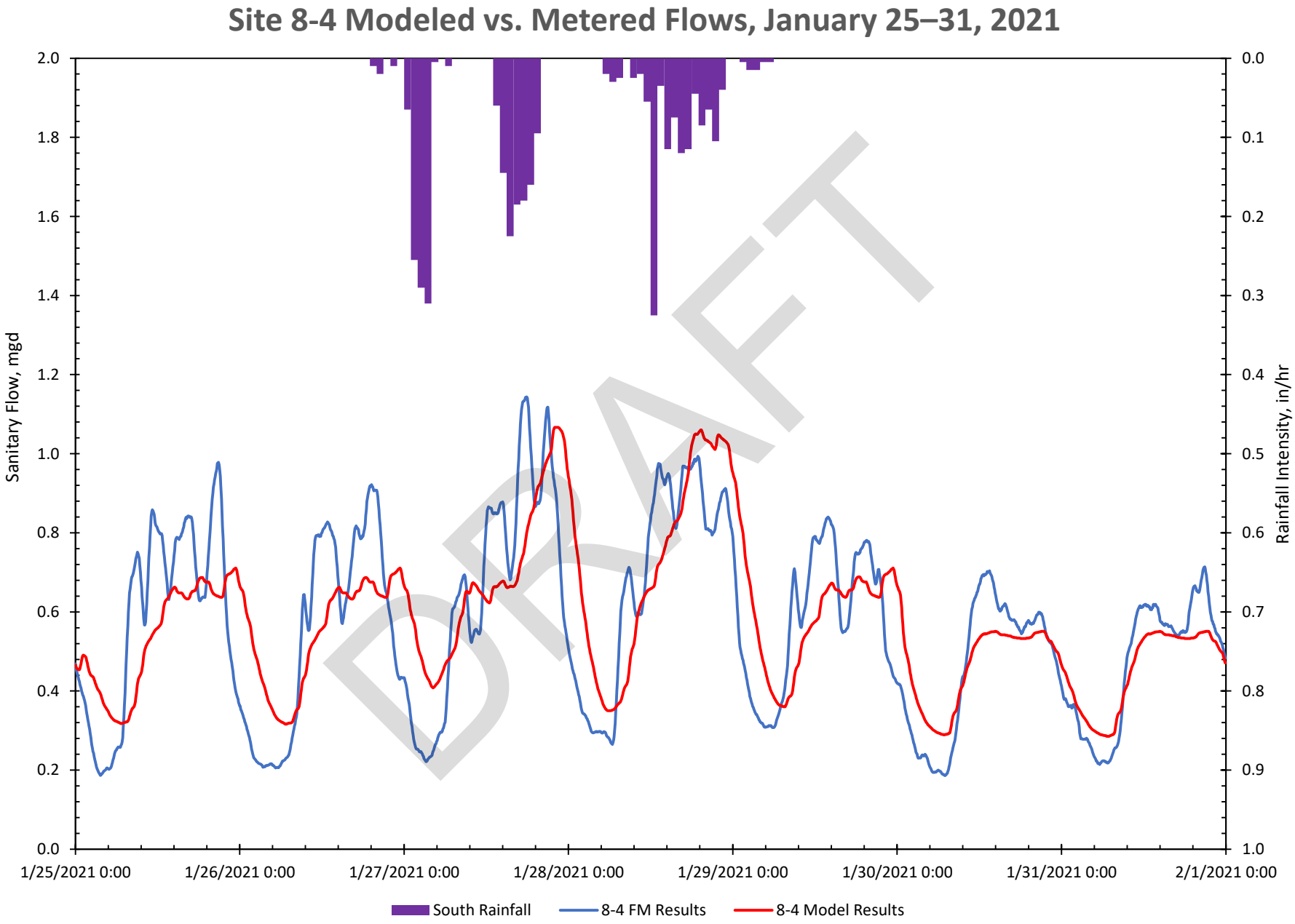

Site 7-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
7-1 FM Results
7-1 Model Results
DRAFT

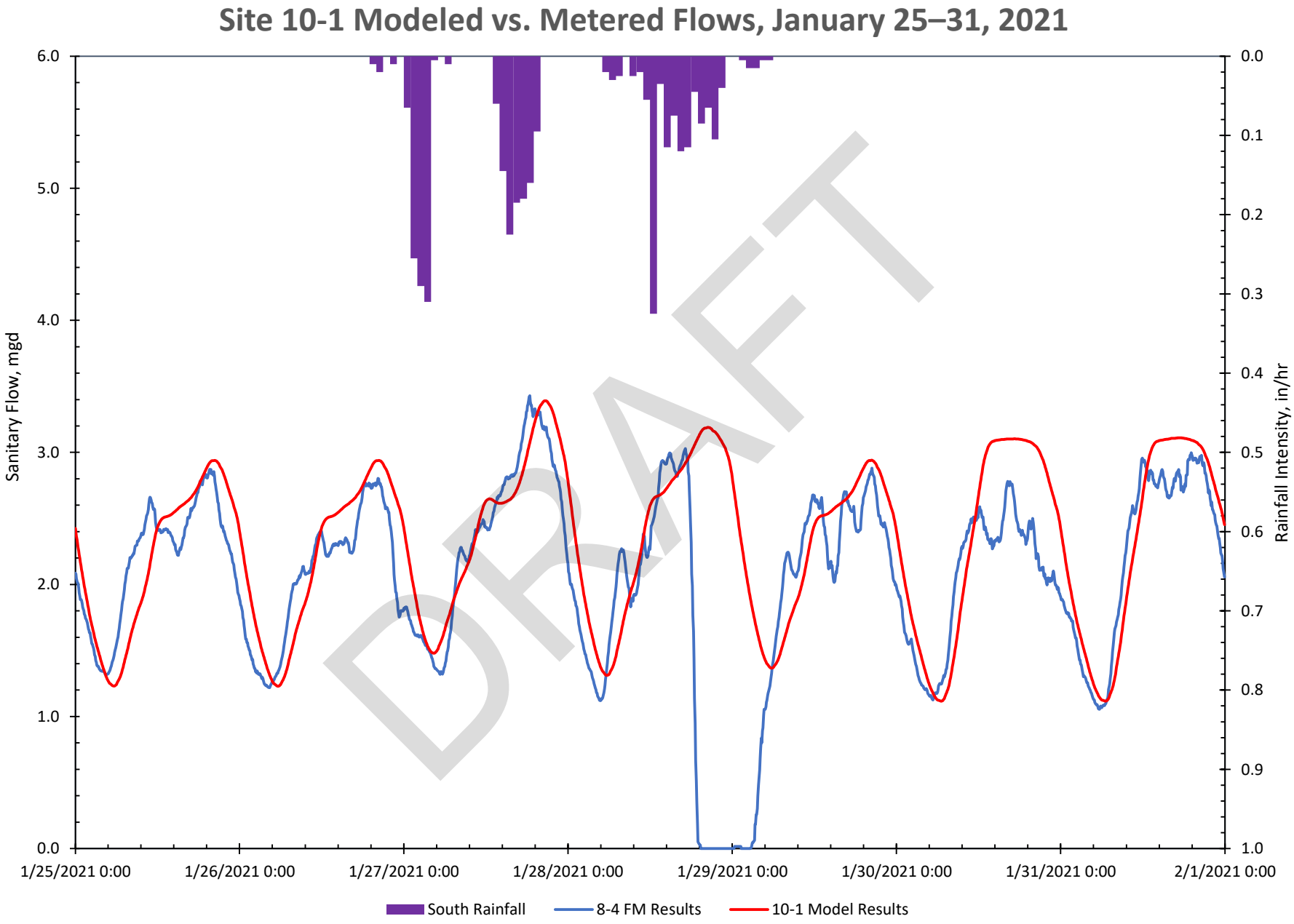

Site 7-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
7-2 FM Results
7-2 Model Results
DRAFT


Site 8-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-1 FM Results
8-1 Model Results
DRAFT


Site 8-2 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-2 FM Results
8-2 Model Results
DRAFT

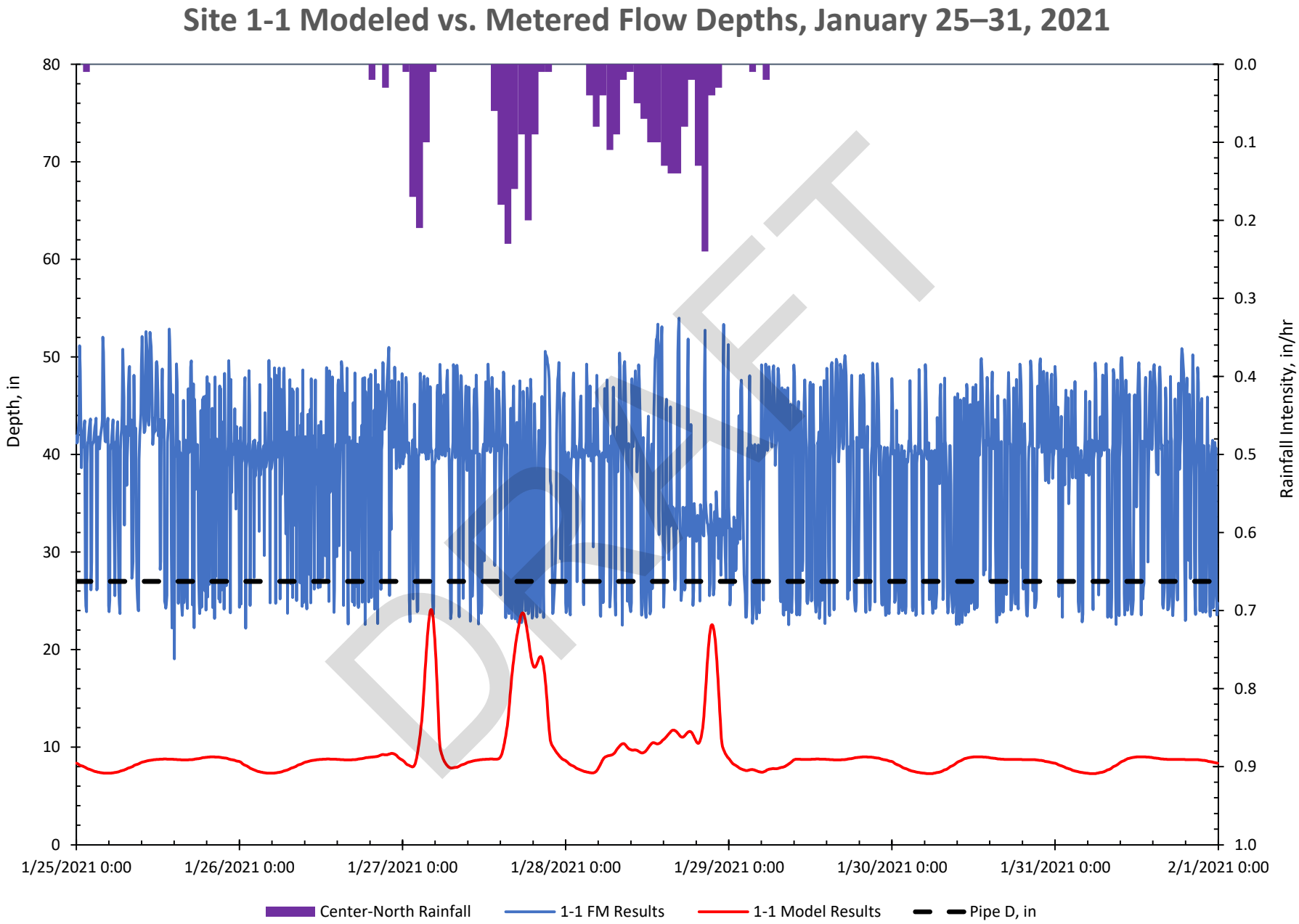

Site 8-3 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
rainfall Inetnsity, in/hr
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-3 FM Results
8-3 Model Results
DRAFT

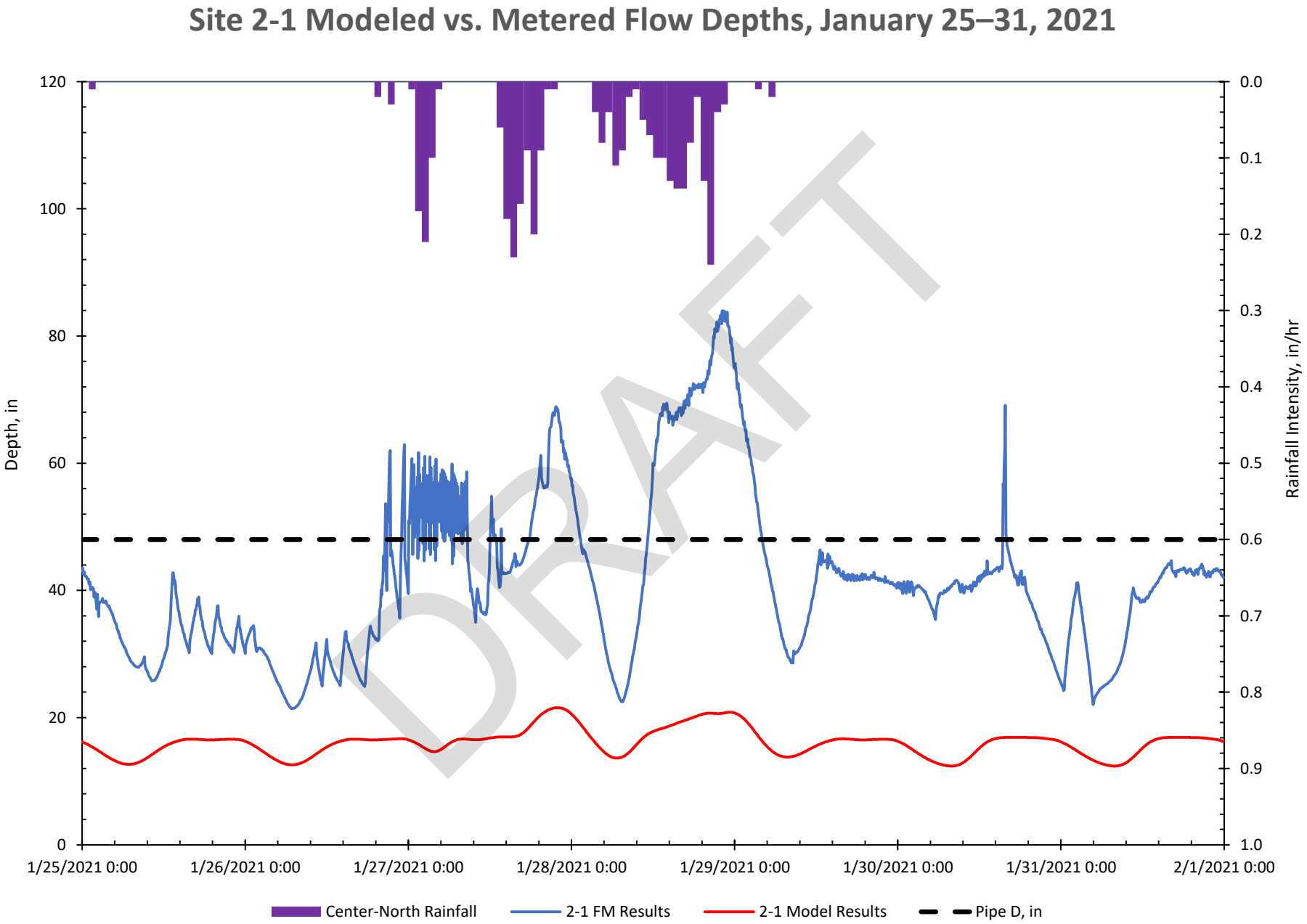

Site 8-4 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-4 FM Results
8-4 Model Results
DRAFT

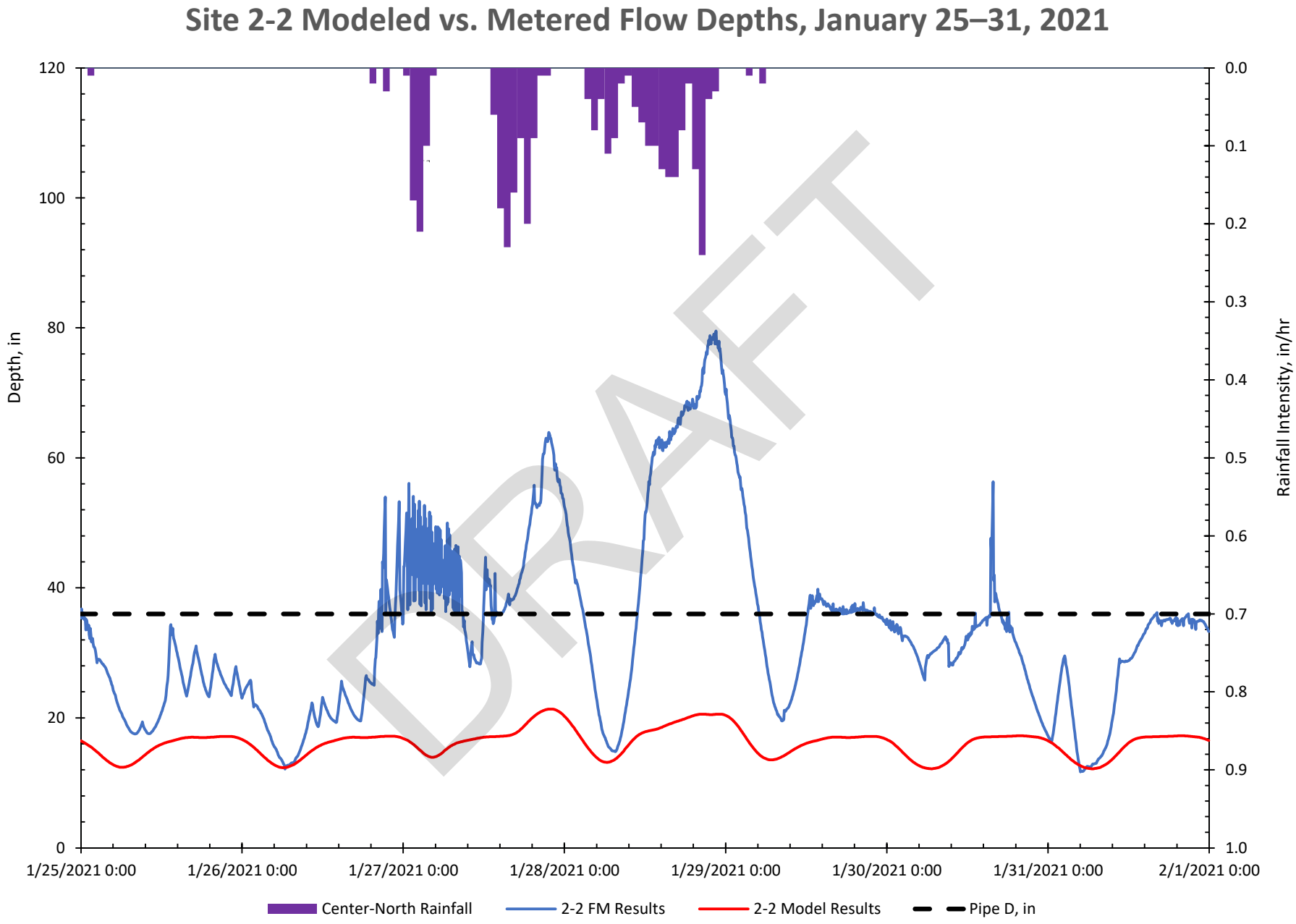

Site 10-1 Modeled vs. Metered Flows, January 25–31, 2021
Sanitary Flow, mgd
Rainfall Intensity, in/hr
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-4 FM Results
10-1 Model Results
DRAFT

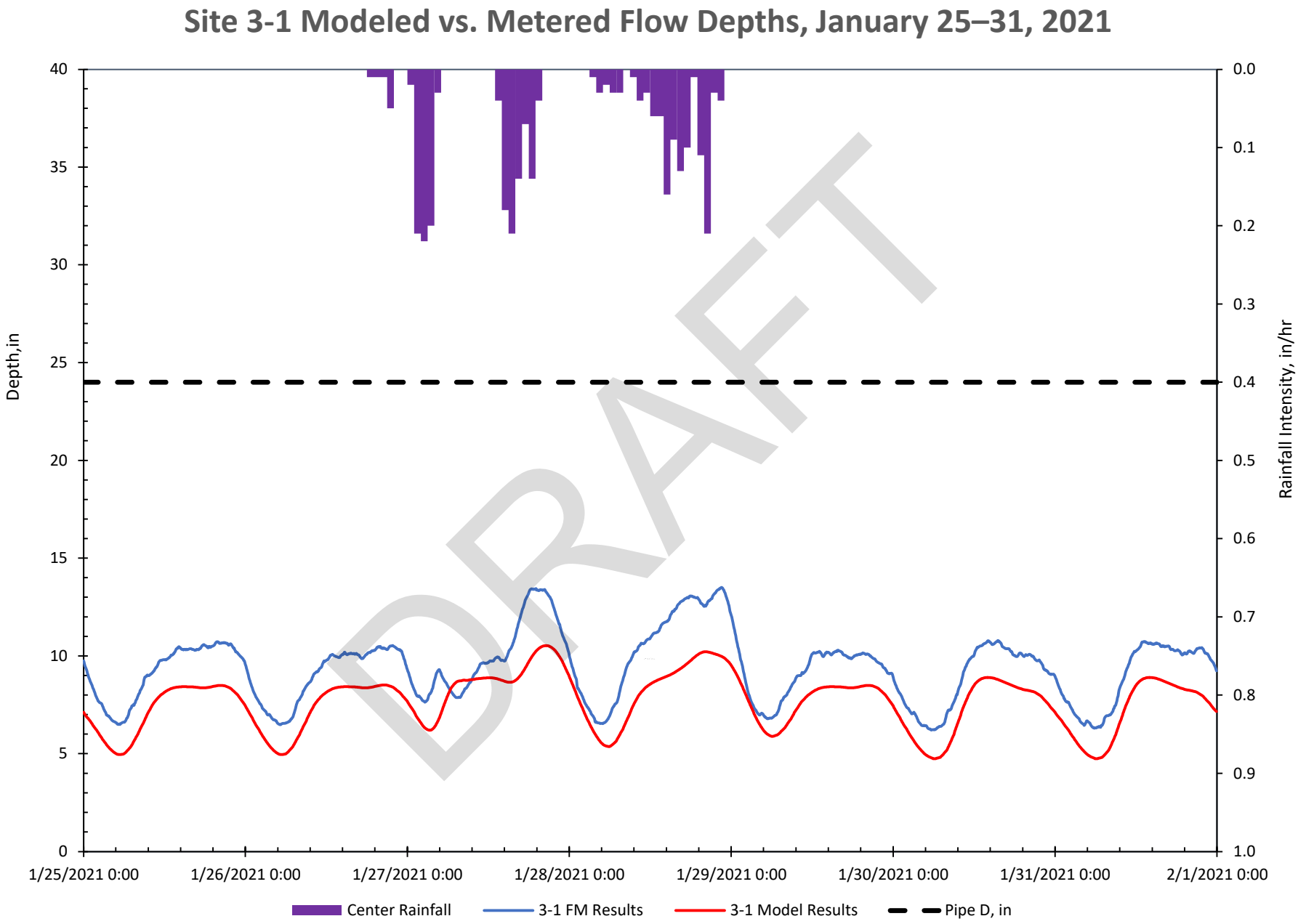
Appendix F

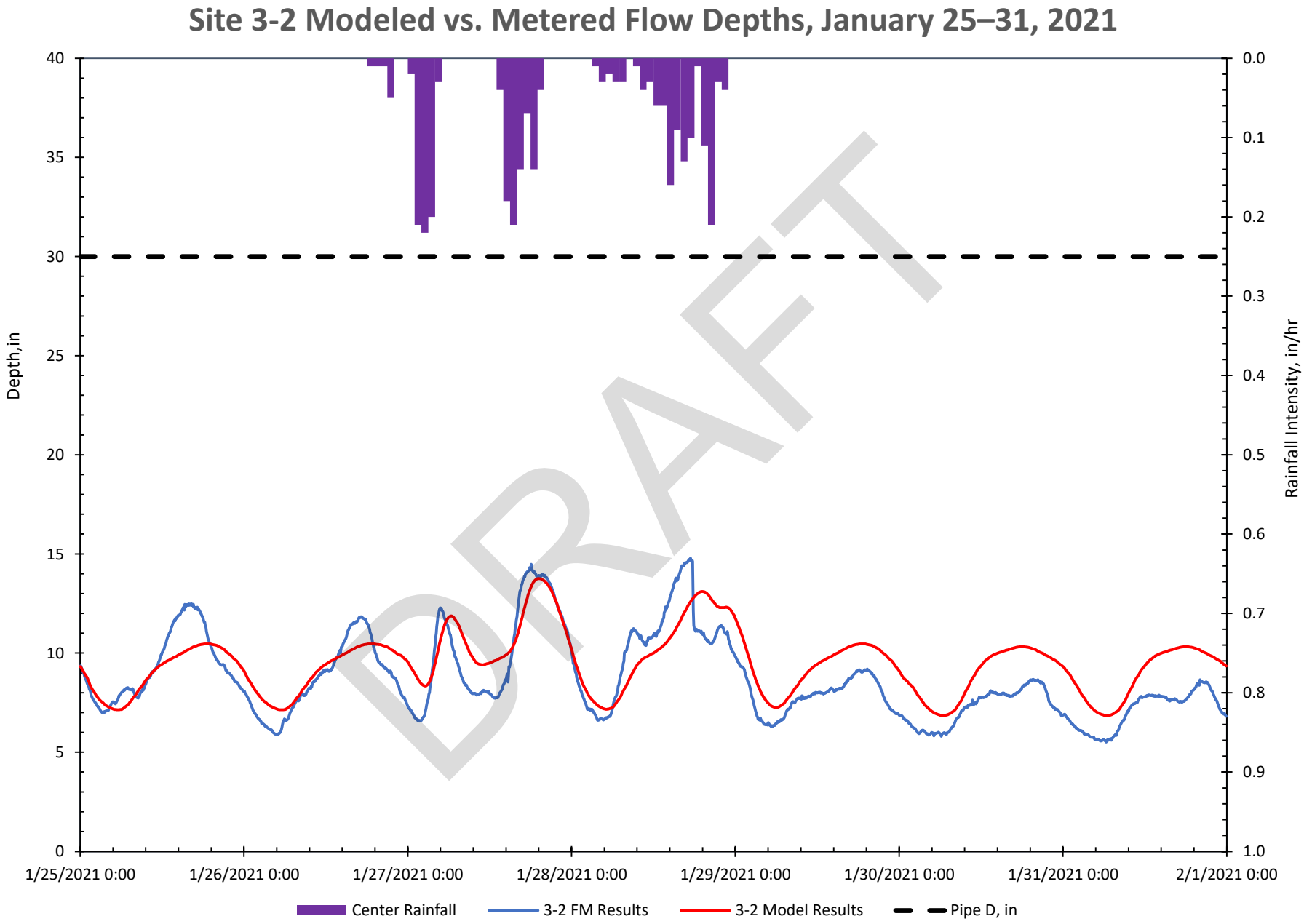
Modeled vs. Metered Wet Weather Flow Depths

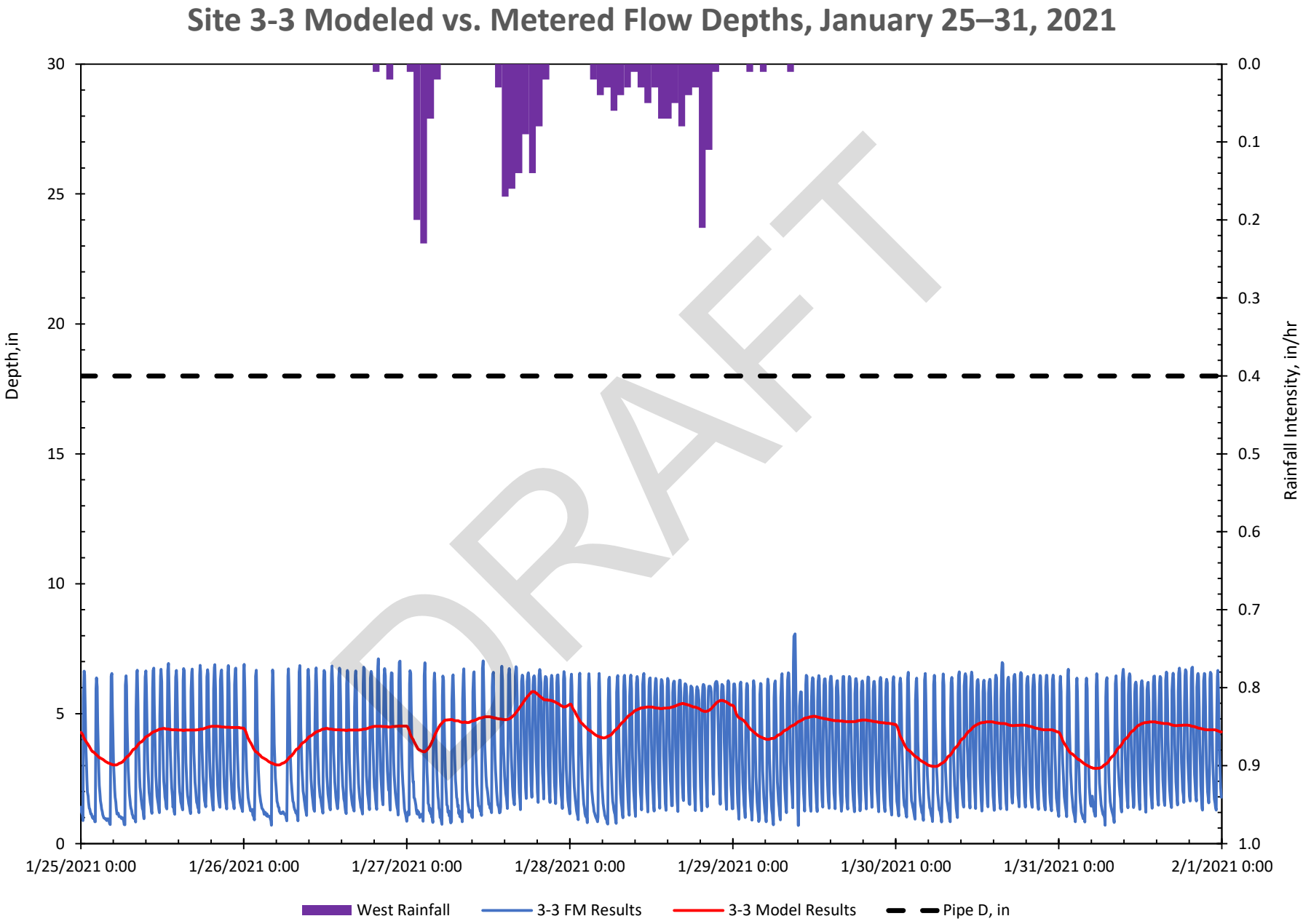

Site 1-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth, in
Rainfall Intensity, in/hr
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center-North Rainfall
1-1 FM Results
1-1 Model Results
Pipe D, in

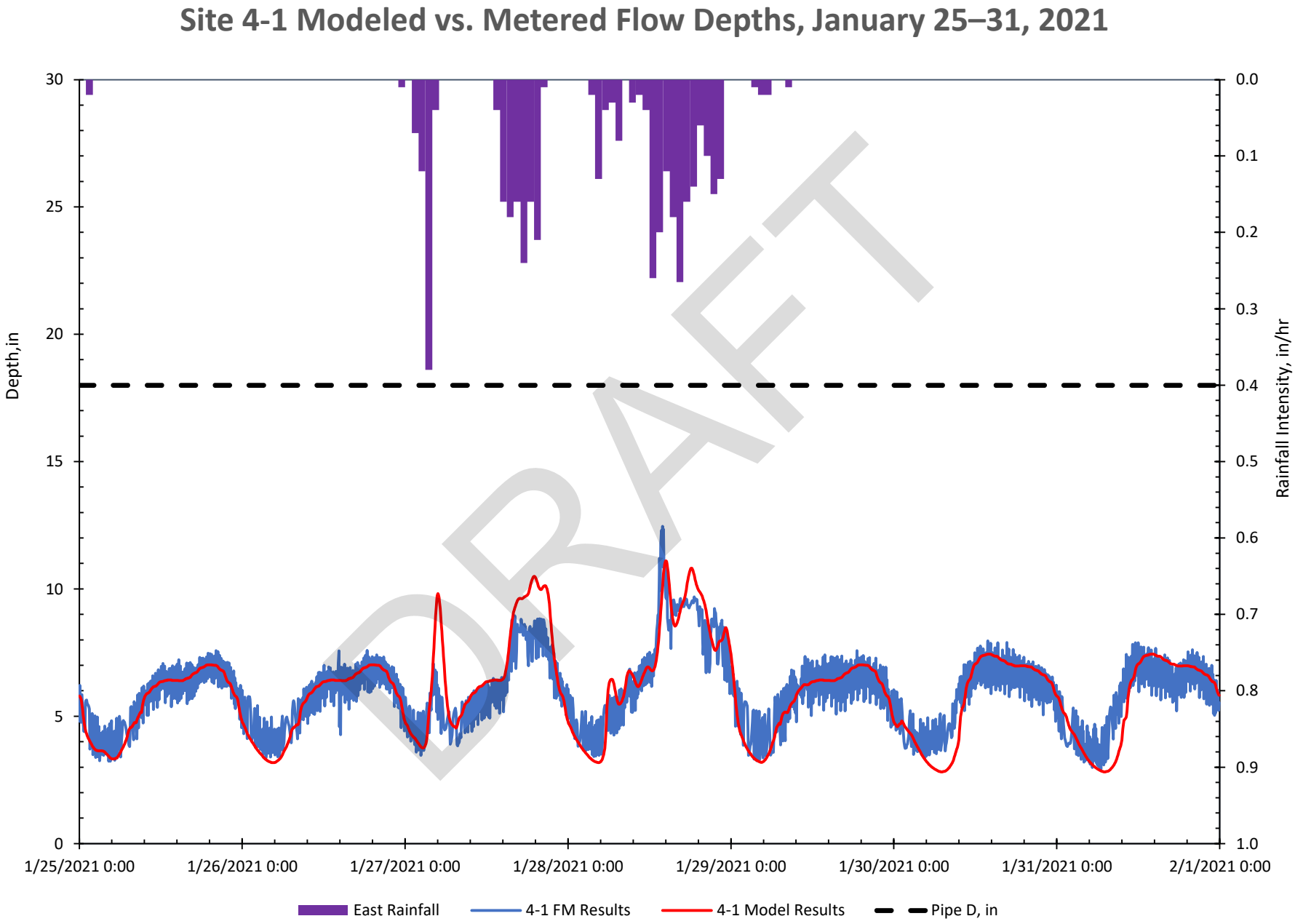

Site 2-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth, in
Rainfall Intensity, in/hr
120
100
80
60
40
20
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center-North Rainfall
2-1 FM Results
2-1 Model Results
Pipe D, in
DRAFT

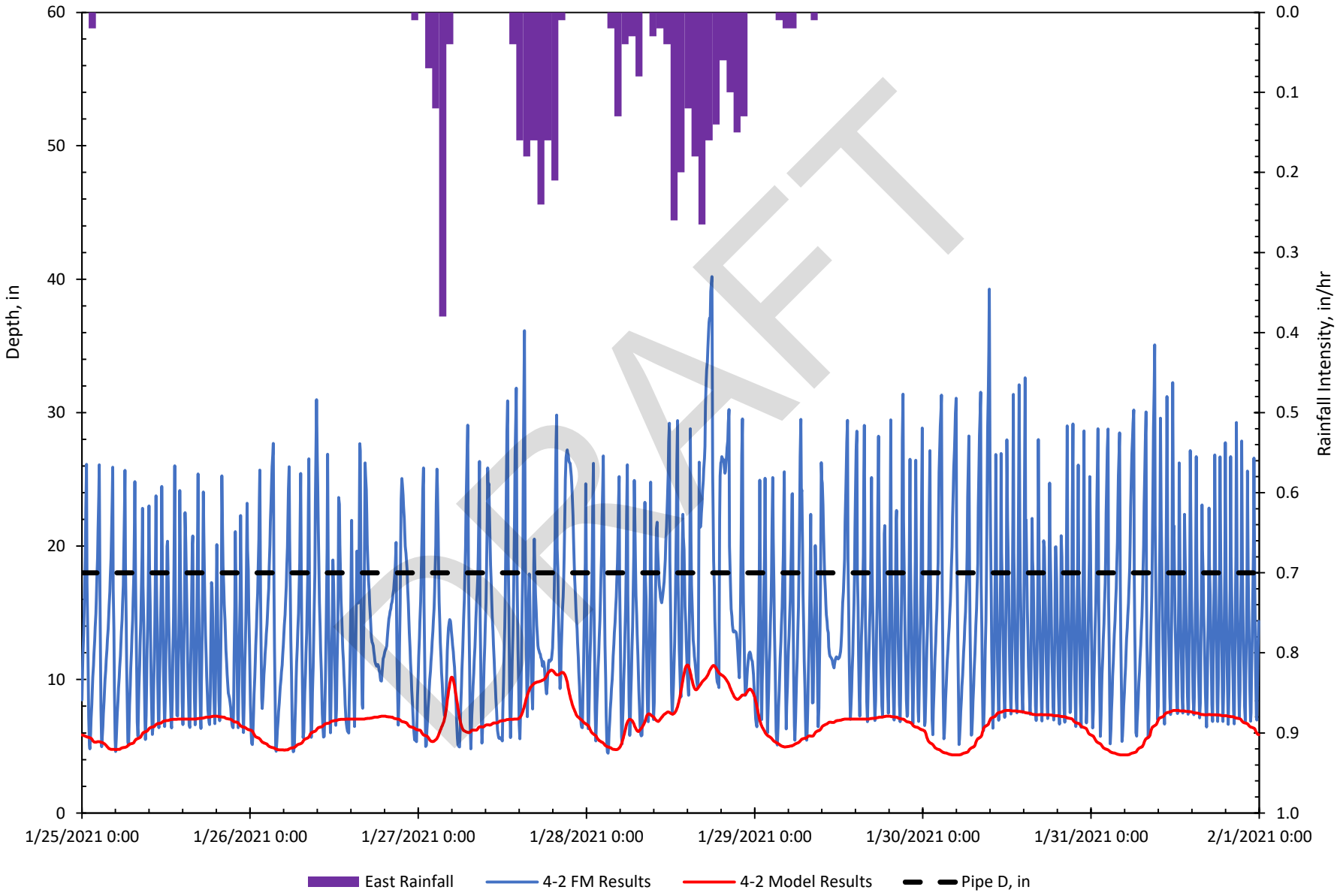

Site 2-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth, in
Rainfall Intensity, in/hr
120
100
80
60
40
20
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center-North Rainfall
2-2 FM Results
2-2 Model Results
Pipe D, in
DRAFT

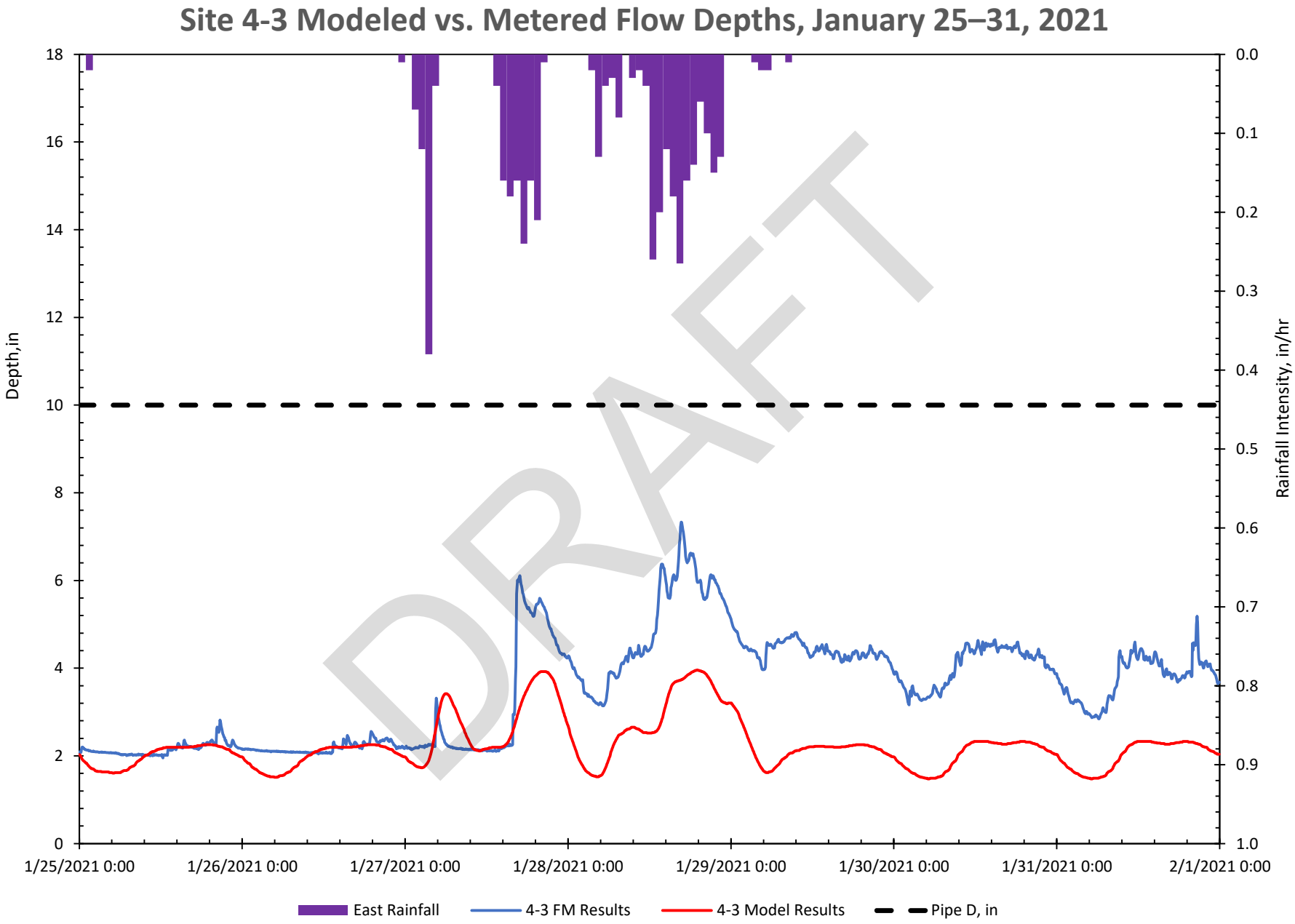

Site 3-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
3-1 FM Results
3-1 Model Results
Pipe D, in
DRAFT

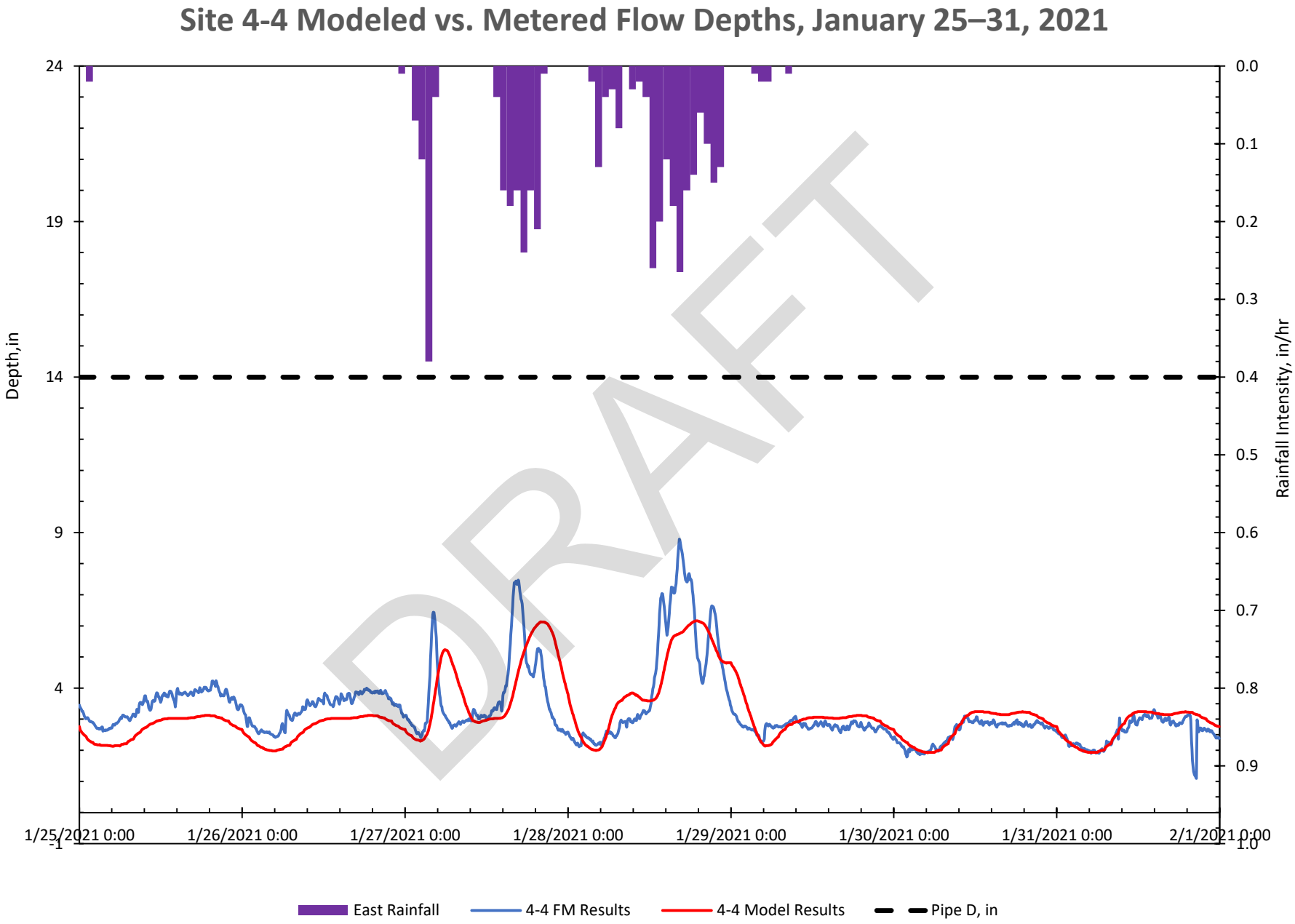

Site 3-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
3-2 FM Results
3-2 Model Results
Pipe D, in
DRAFT

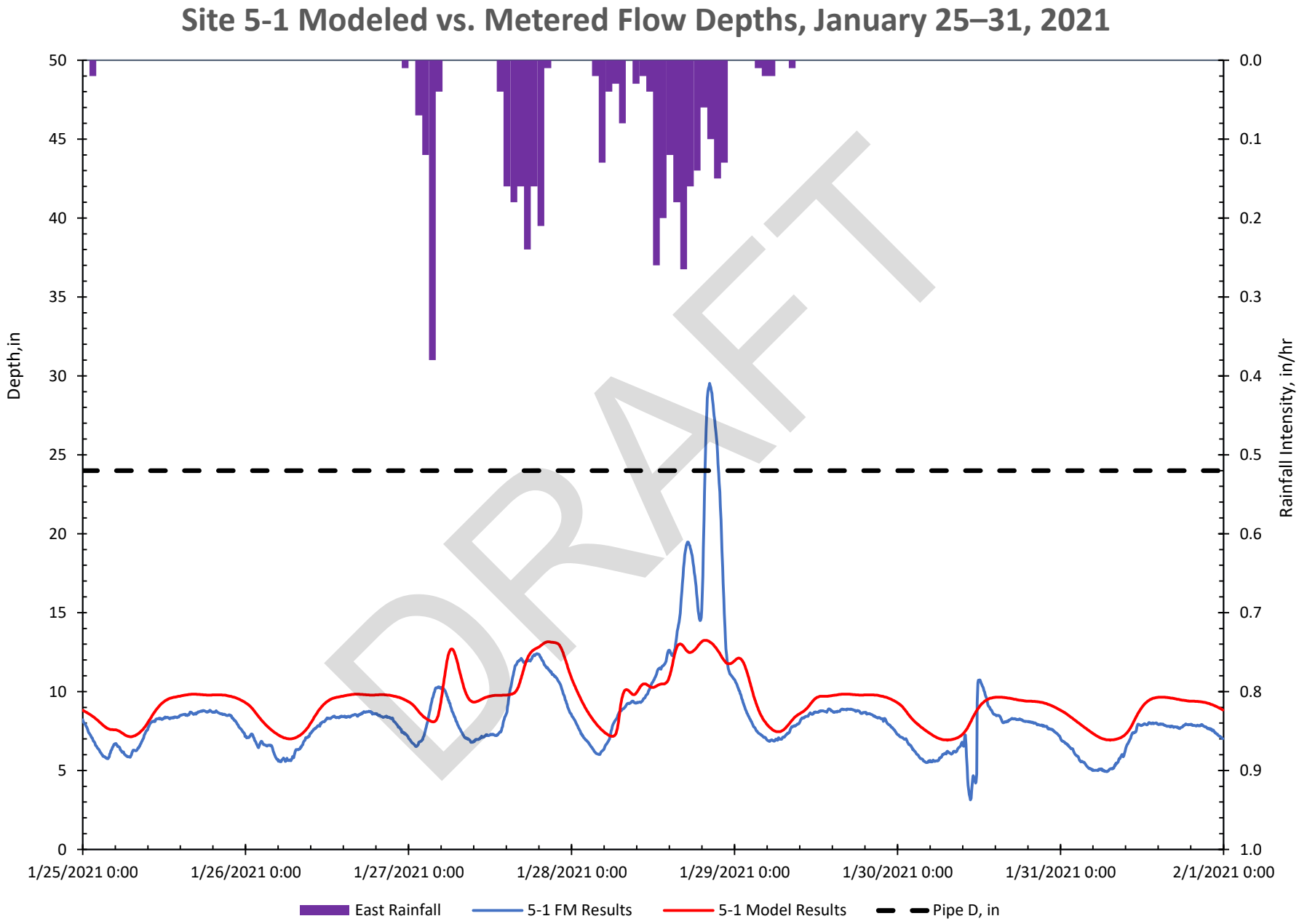

Site 3-3 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
West Rainfall
3-3 FM Results
3-3 Model Results
Pipe D, in

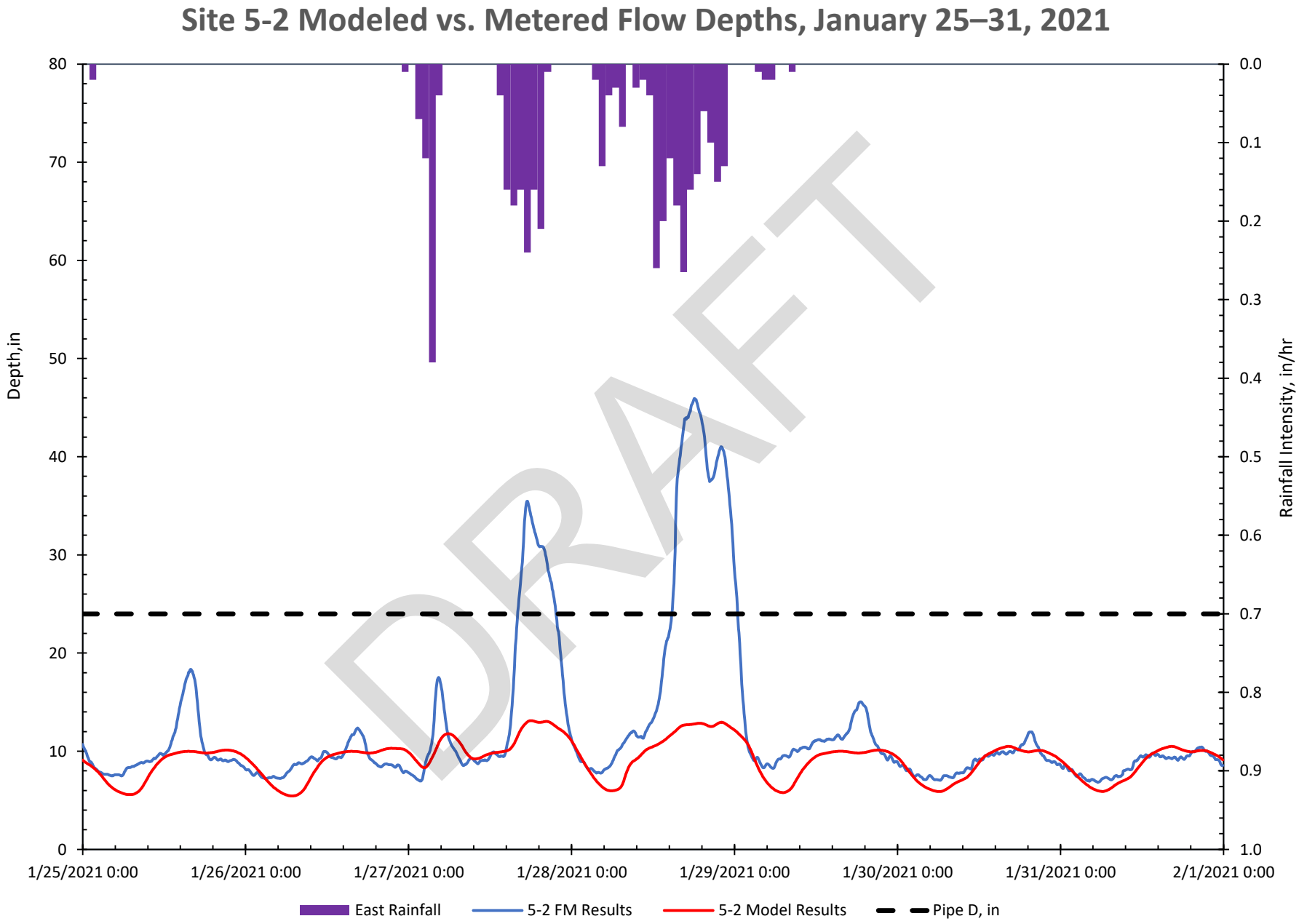

Site 4-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-1 FM Results
4-1 Model Results
Pipe D, in
DRAFT

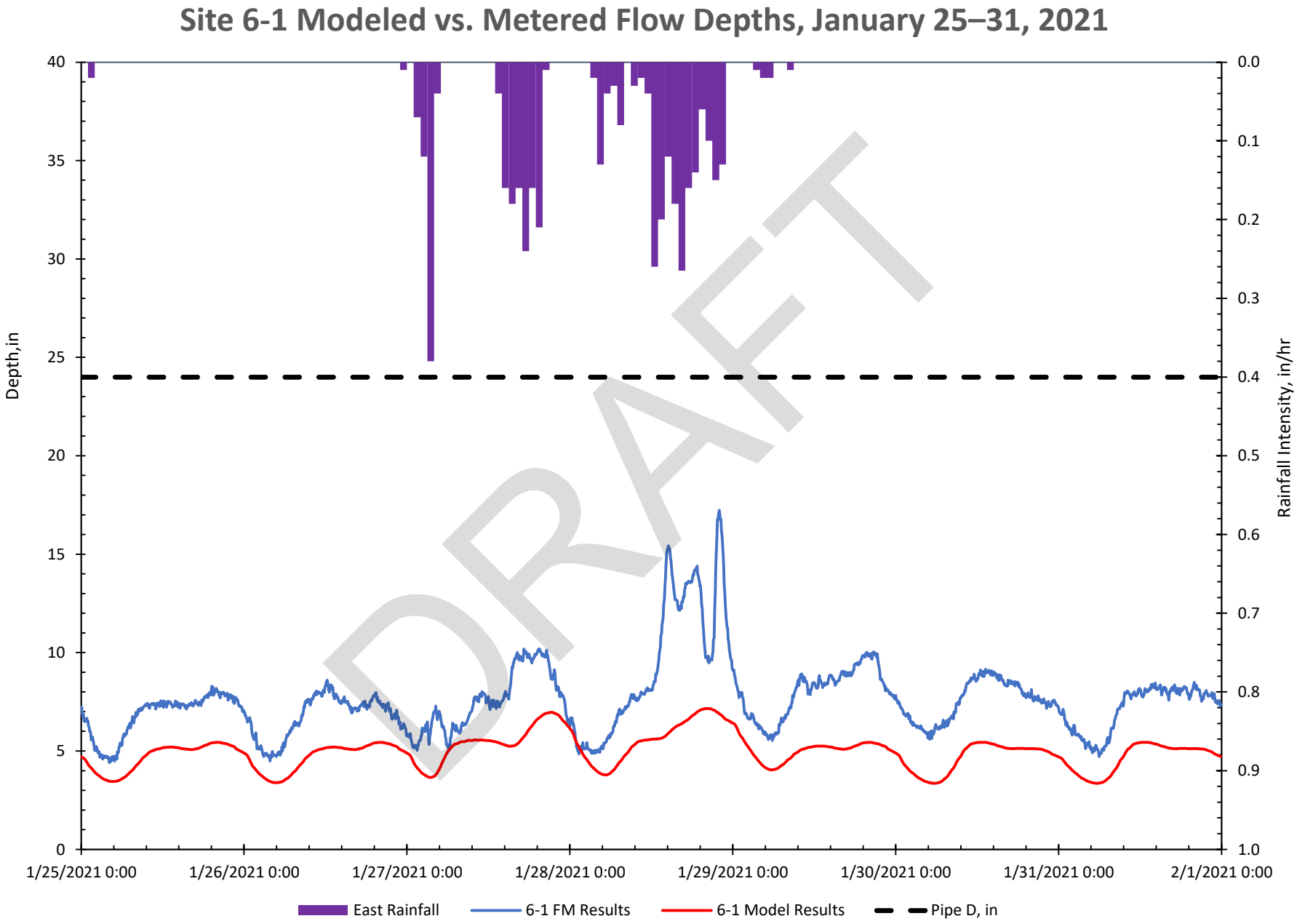

Site 4-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth, in
Rainfall Intensity, in/hr
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-2 FM Results
4-2 Model Results
Pipe D, in
DRAFT

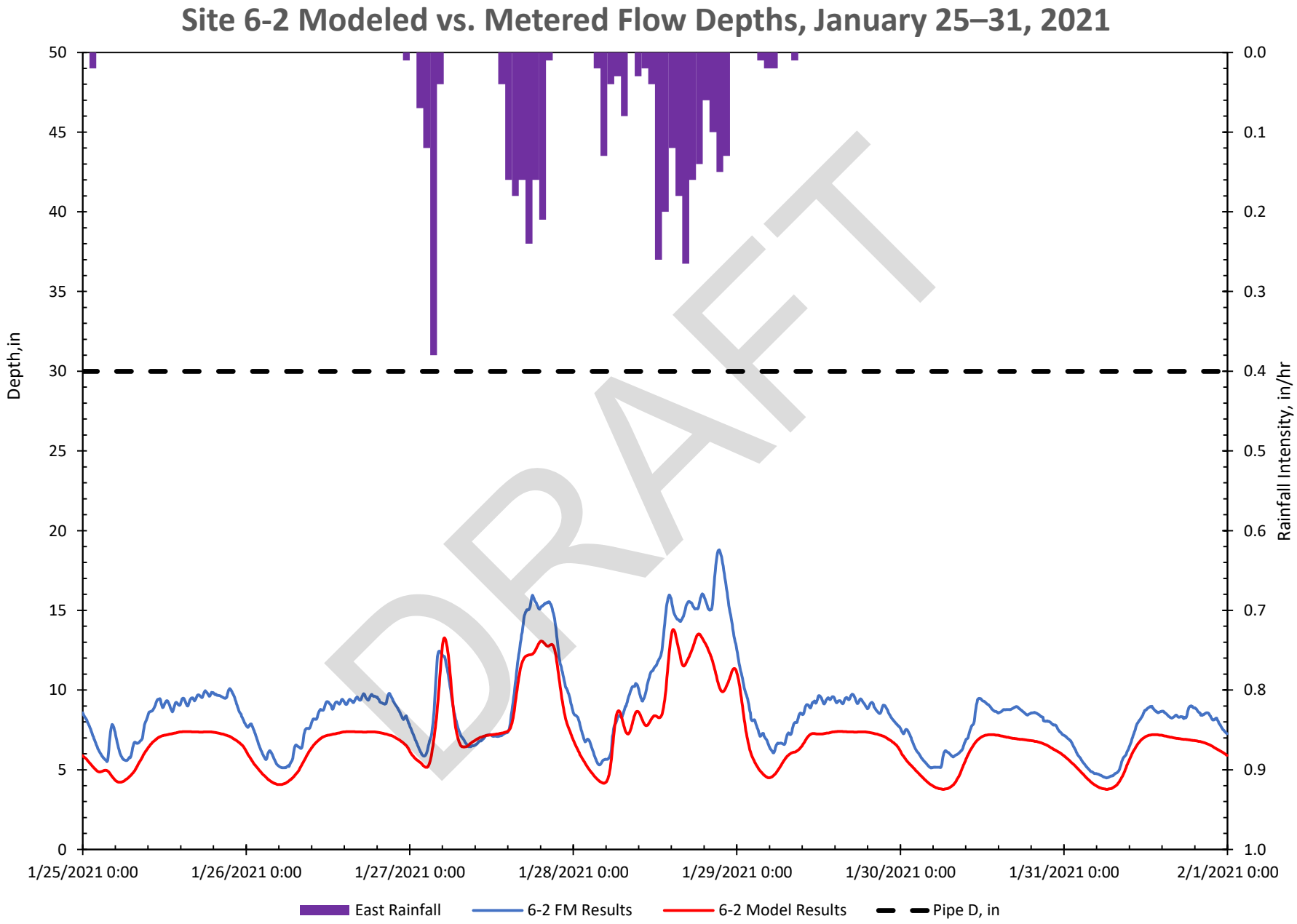

Site 4-3 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
18
16
14
12
10
8
6
4
2
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-3 FM Results
4-3 Model Results
Pipe D, in

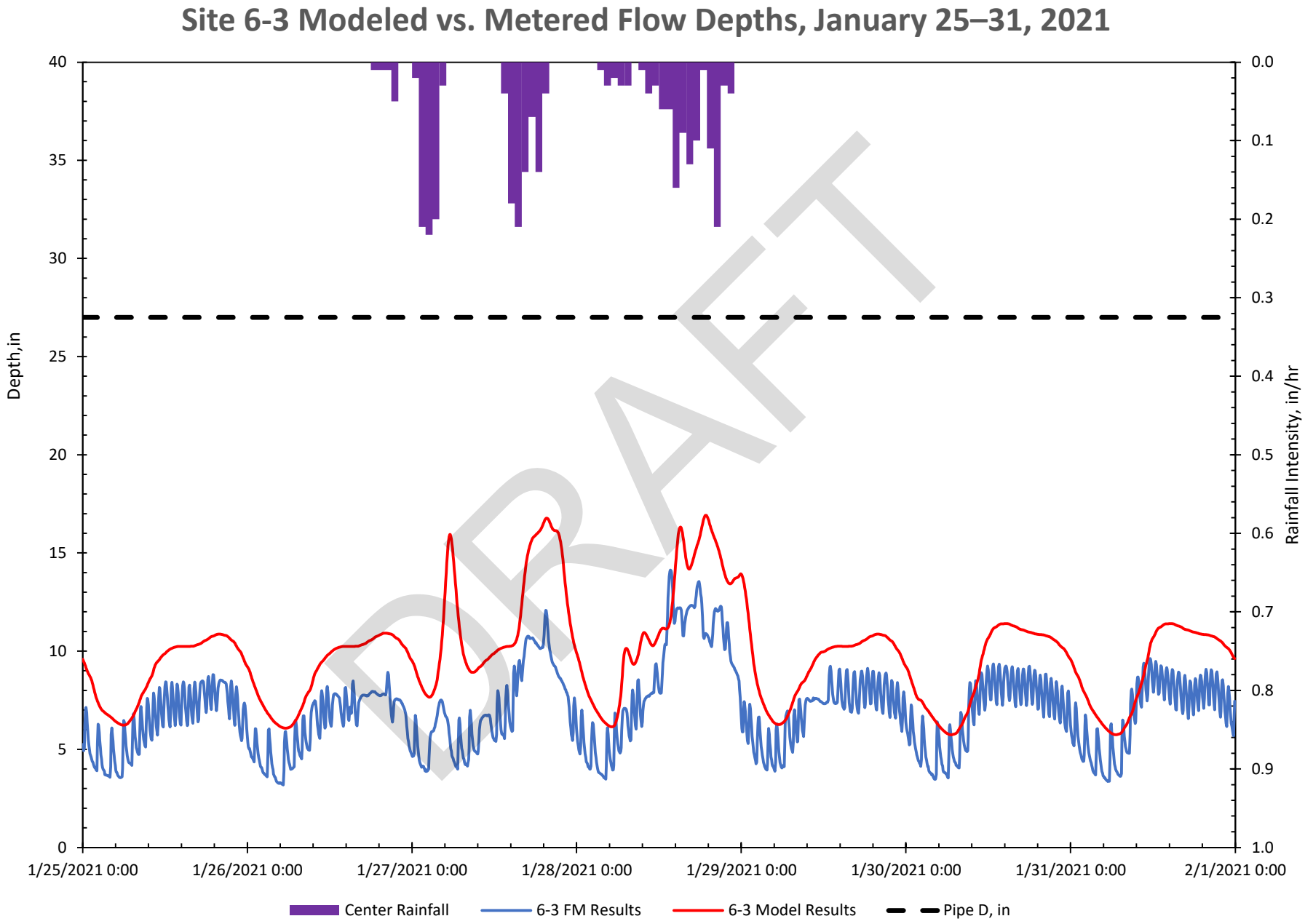

Site 4-4 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
24
19
14
9
4
-1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
4-4 FM Results
4-4 Model Results
Pipe D, in
DRAFT

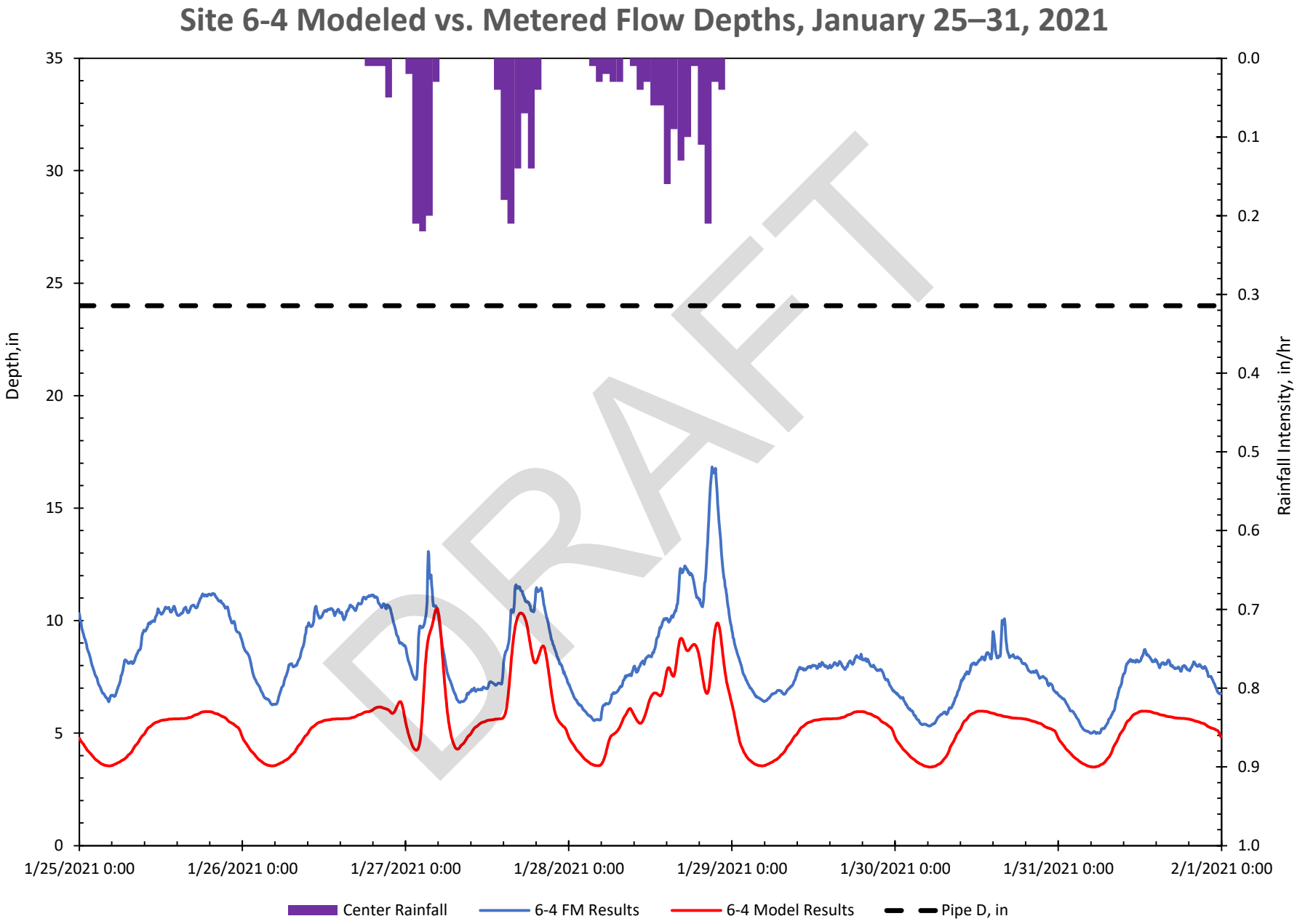

Site 5-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
50
45
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
5-1 FM Results
5-1 Model Results
Pipe D, in
DRAFT

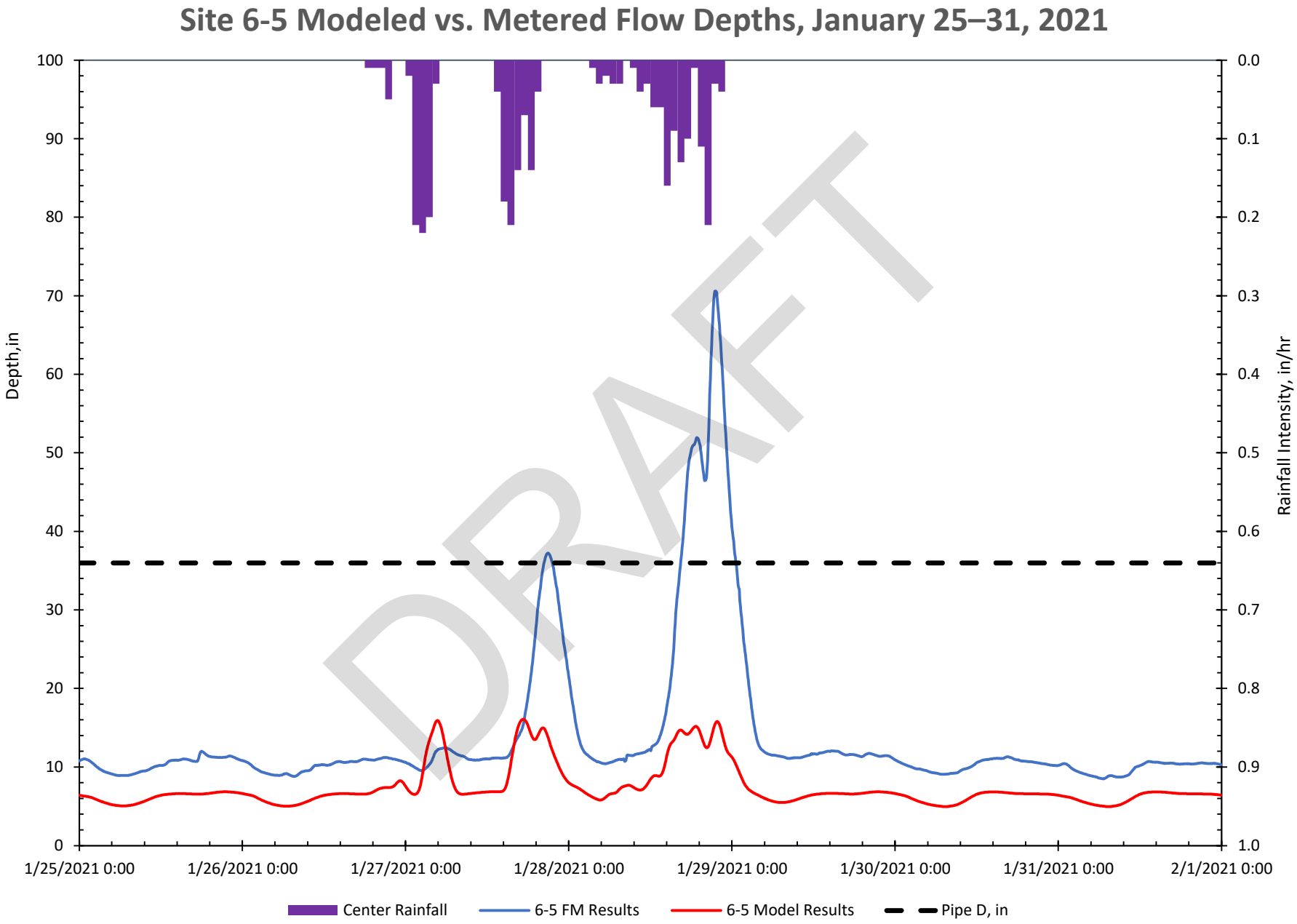

Site 5-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
5-2 FM Results
5-2 Model Results
Pipe D, in
DRAFT

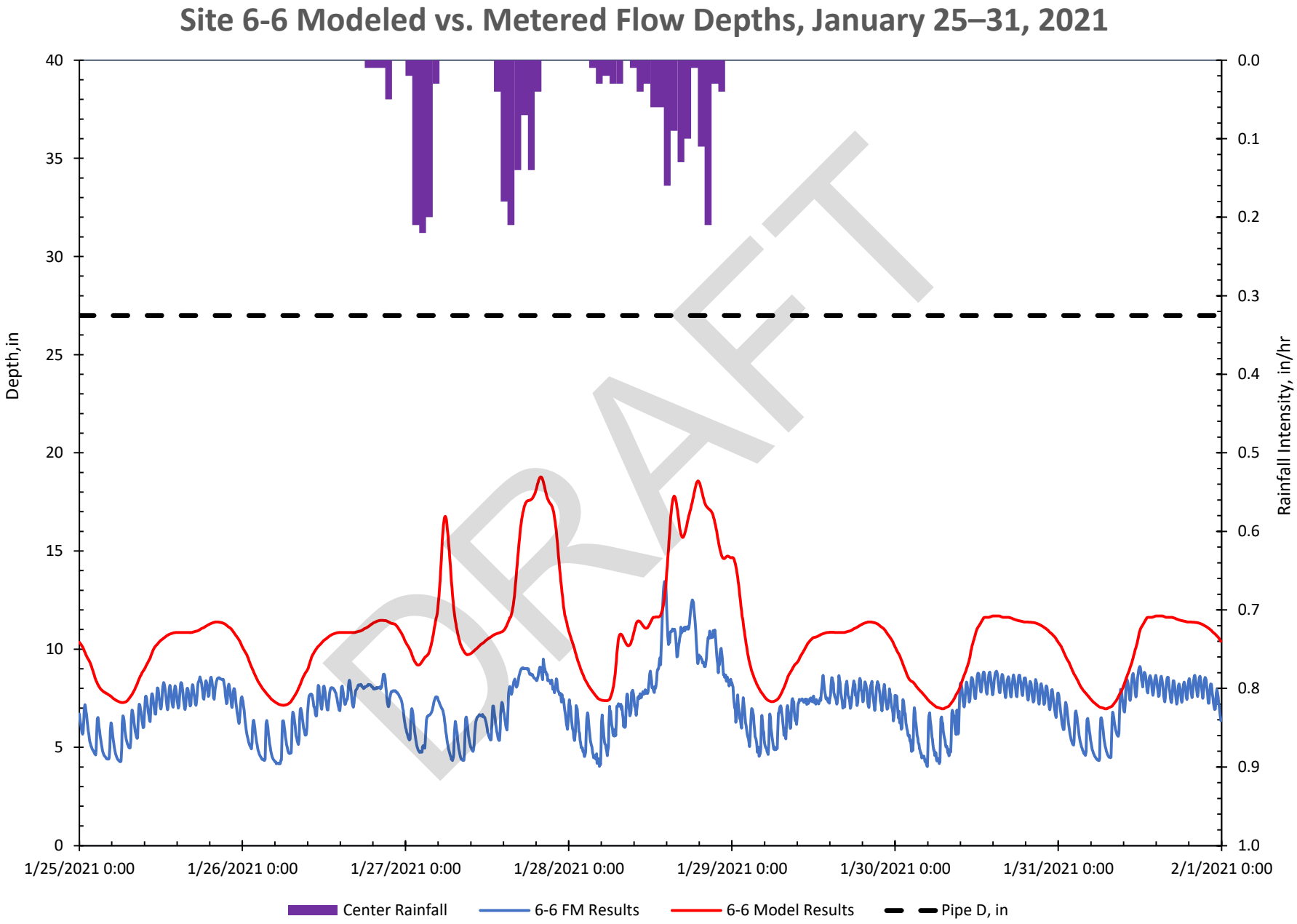

Site 6-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
6-1 FM Results
6-1 Model Results
Pipe D, in
DRAFT

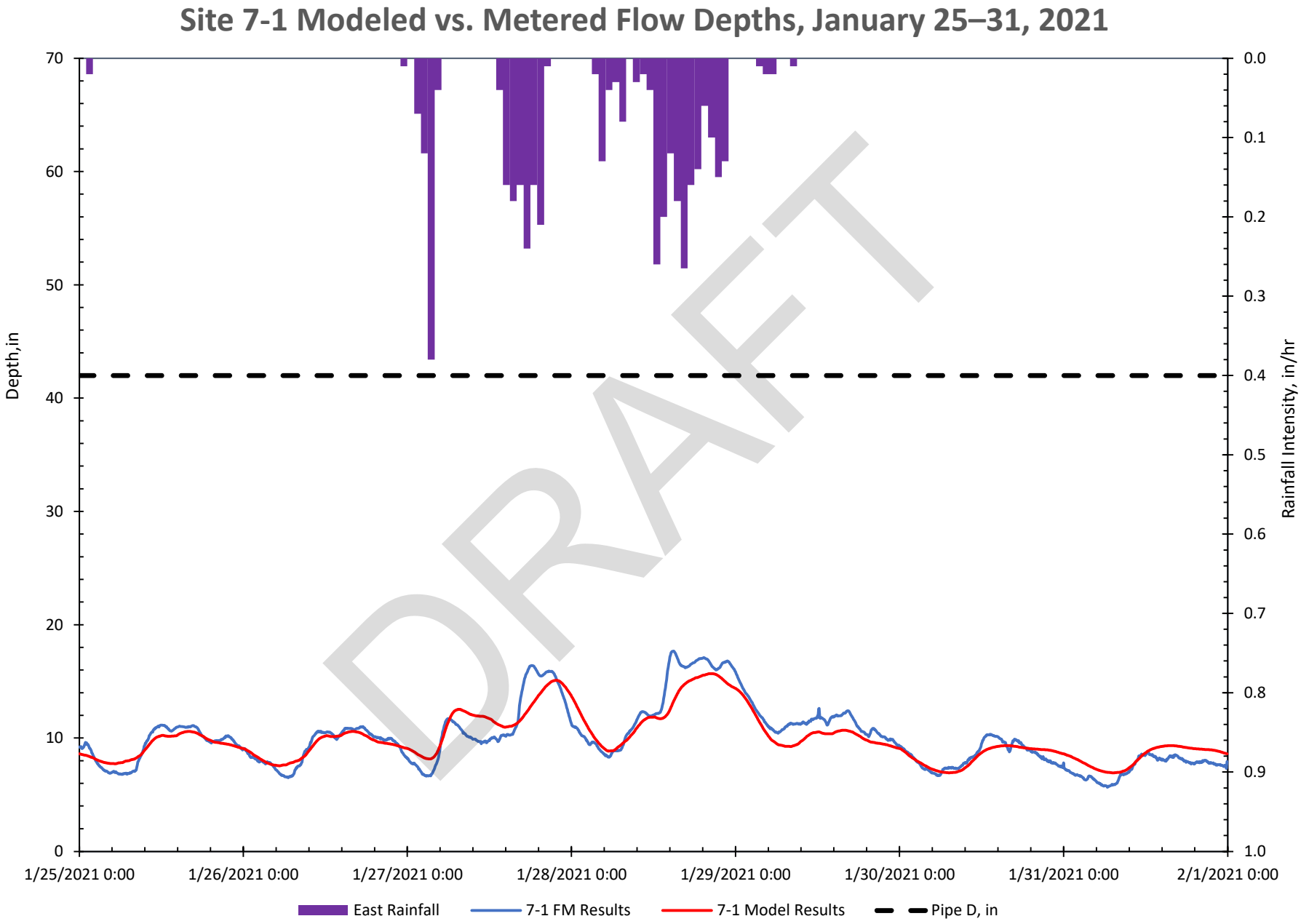

Site 6-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
50
45
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
6-2 FM Results
6-2 Model Results
Pipe D, in
DRAFT

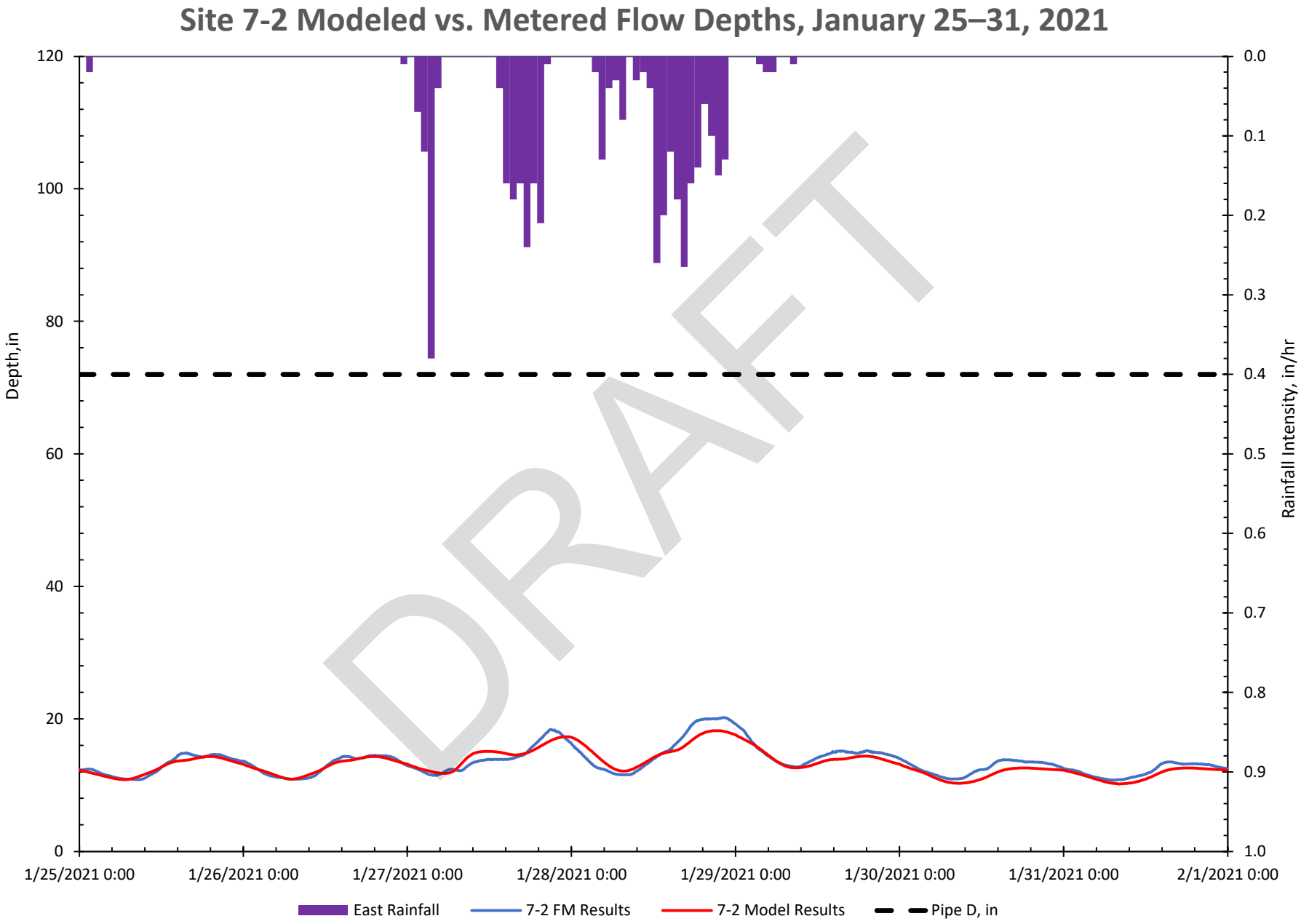

Site 6-3 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-3 FM Results
6-3 Model Results
Pipe D, in
DRAFT

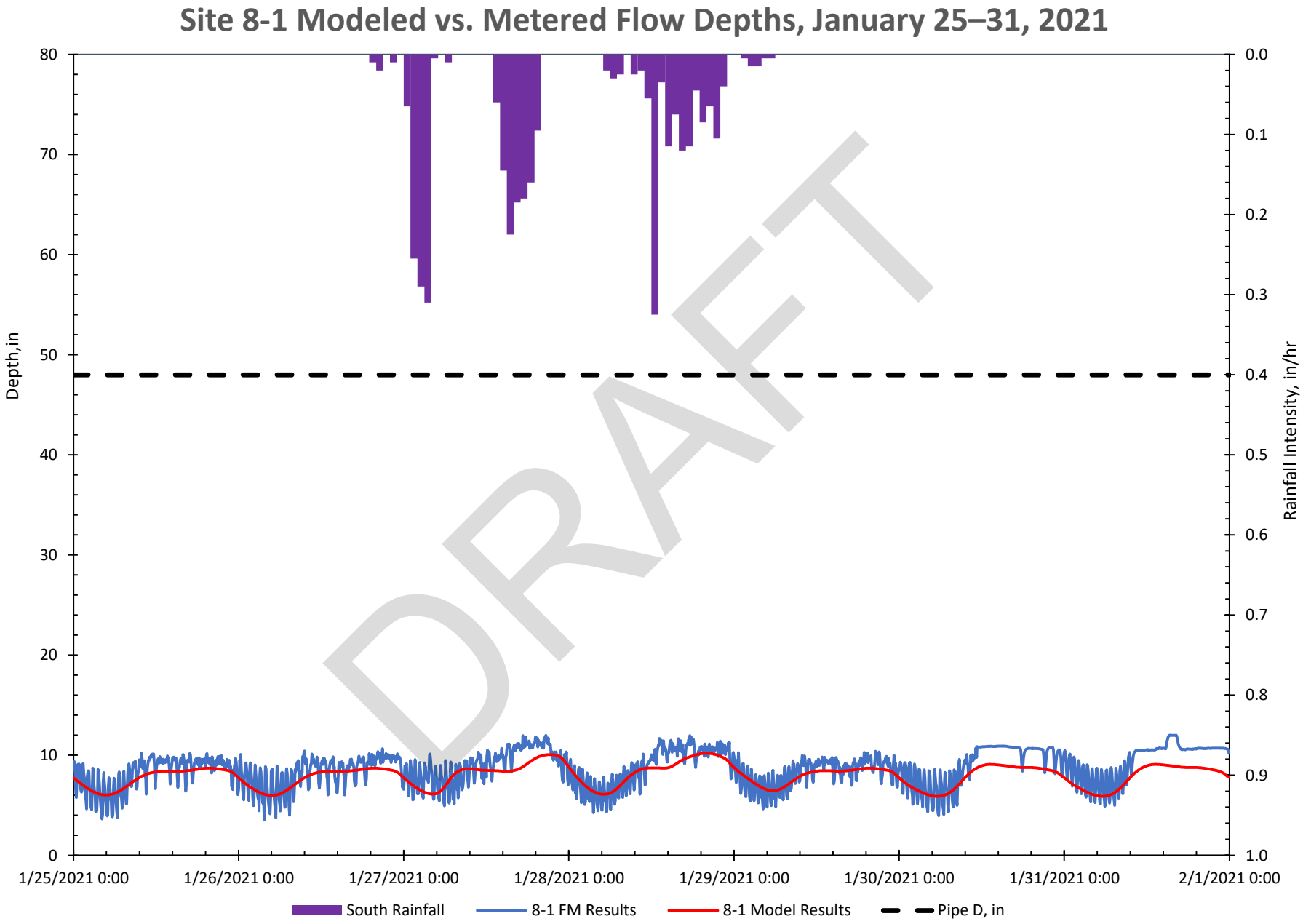

Site 6-4 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-4 FM Results
6-4 Model Results
Pipe D, in
DRAFT

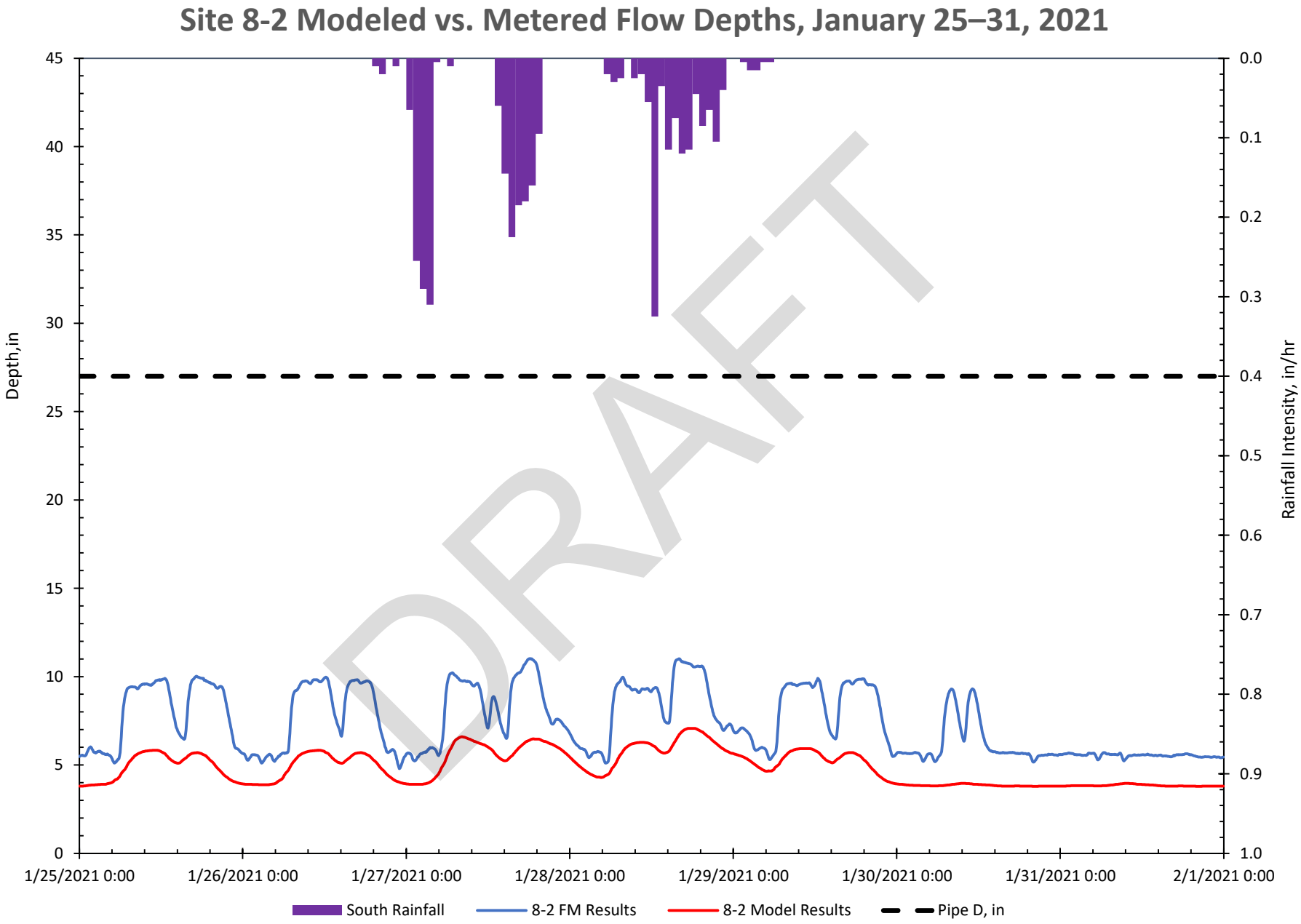

Site 6-5 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
100
90
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-5 FM Results
6-5 Model Results
Pipe D, in
DRAFT

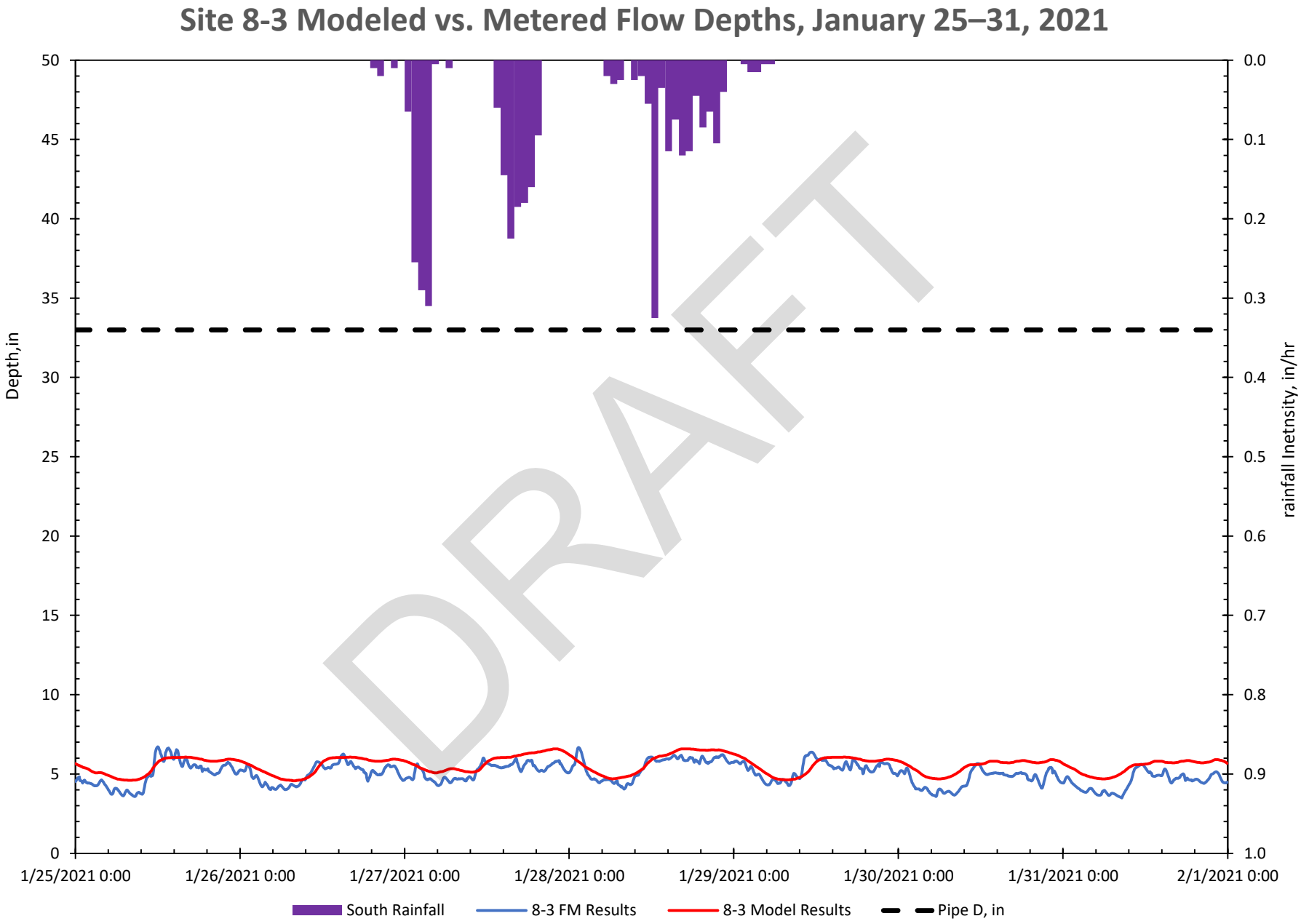

Site 6-6 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
Center Rainfall
6-6 FM Results
6-6 Model Results
Pipe D, in
DRAFT

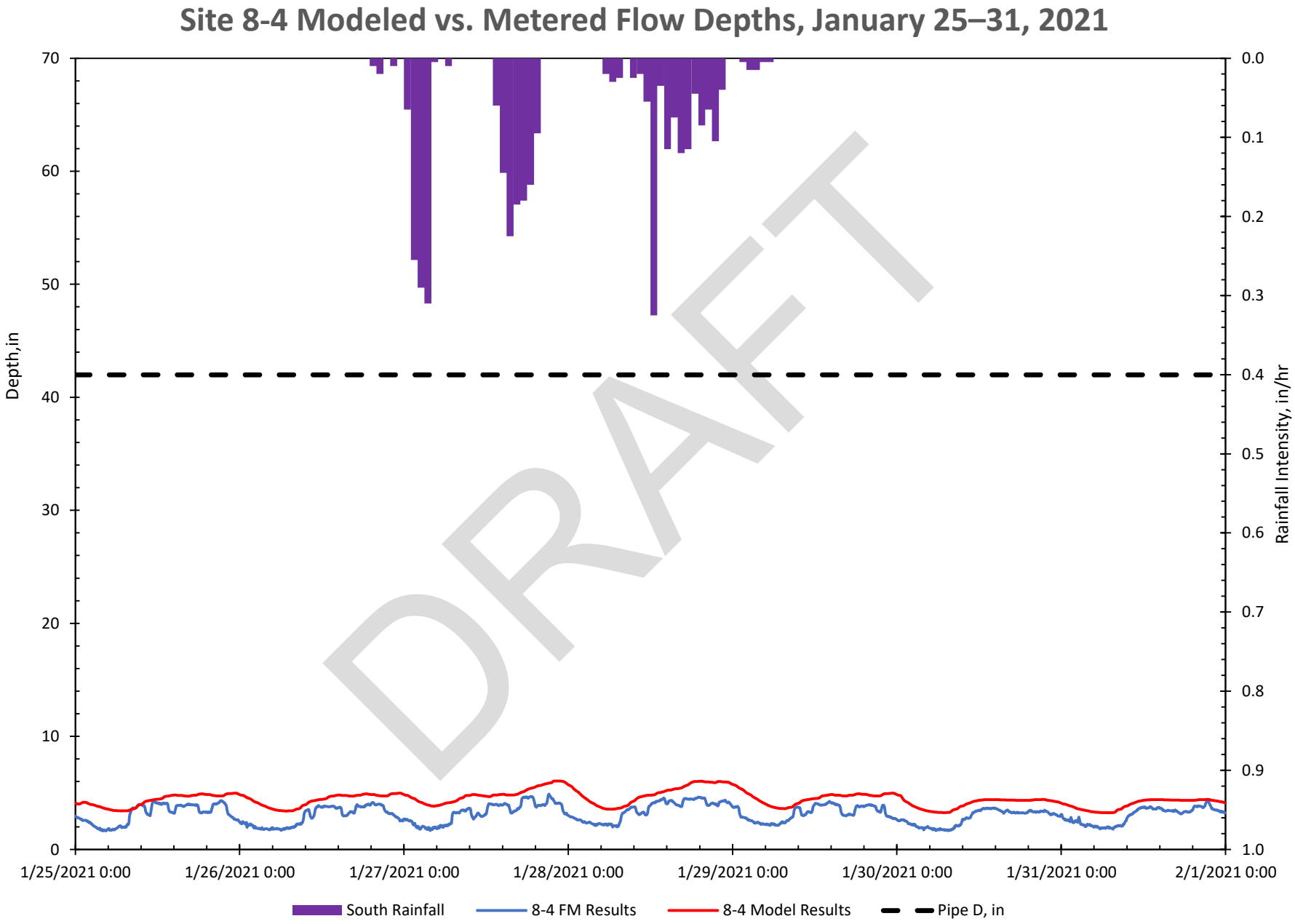

Site 7-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
7-1 FM Results
7-1 Model Results
Pipe D, in

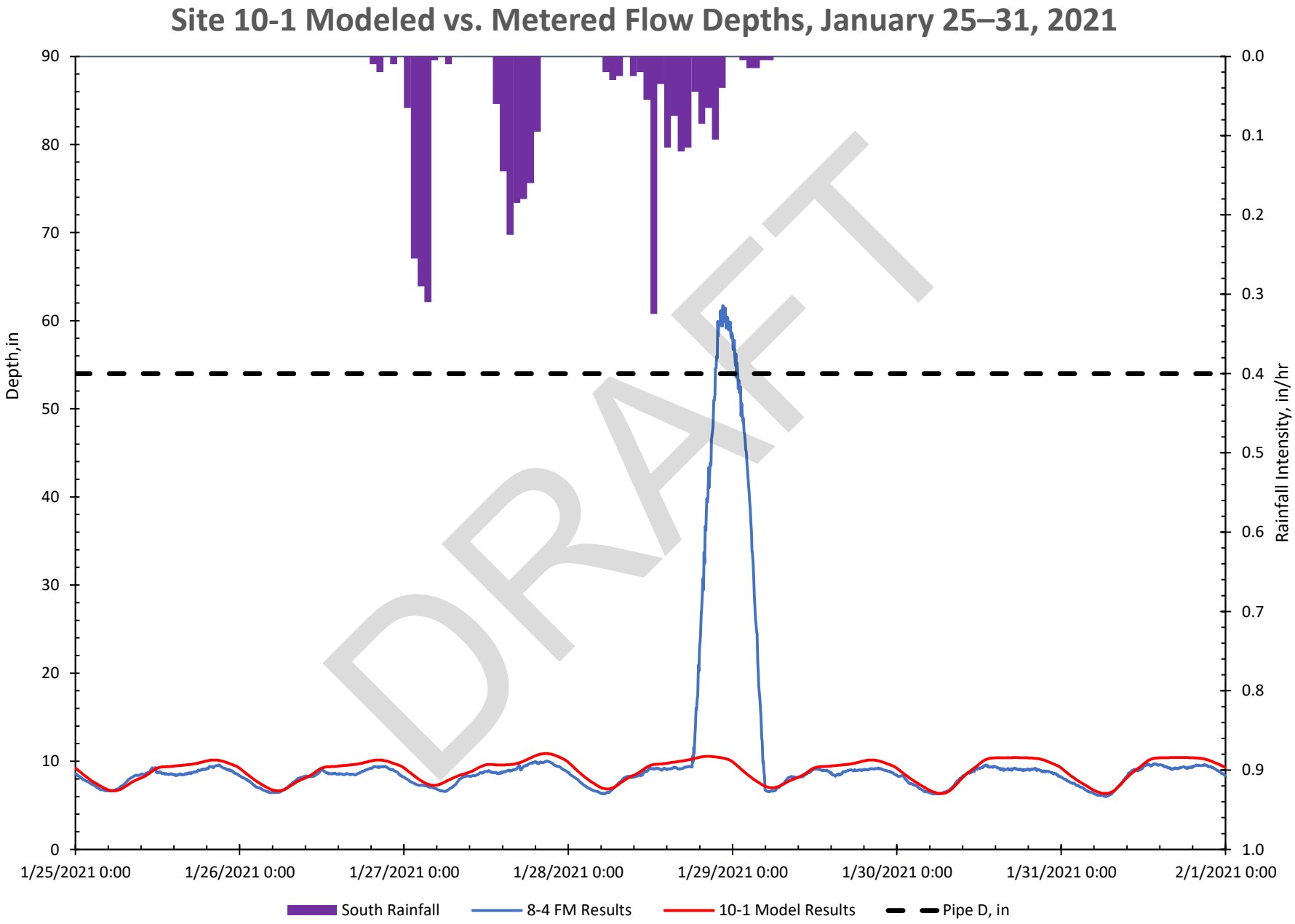

Site 7-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
120
100
80
60
40
20
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
East Rainfall
7-2 FM Results
7-2 Model Results
Pipe D, in
DRAFT


Site 8-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-1 FM Results
8-1 Model Results
Pipe D, in


Site 8-2 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
45
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-2 FM Results
8-2 Model Results
Pipe D, in


Site 8-3 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
rainfall Inetnsity, in/hr
50
45
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-3 FM Results
8-3 Model Results
Pipe D, in


Site 8-4 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-4 FM Results
8-4 Model Results
Pipe D, in
DRAFT


Site 10-1 Modeled vs. Metered Flow Depths, January 25–31, 2021
Depth,in
Rainfall Intensity, in/hr
90
80
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1/25/2021 0:00
1/26/2021 0:00
1/27/2021 0:00
1/28/2021 0:00
1/29/2021 0:00
1/30/2021 0:00
1/31/2021 0:00
2/1/2021 0:00
South Rainfall
8-4 FM Results
10-1 Model Results
Pipe D, in

Appendix G

Existing City Wastewater Facilities CIP

No.	Project No.	CIP Project No.	Project Name	Account No.	Total Project Cost	Available Budget	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Notes	Location	Description	Justification	Projected Date Range
1	**UW22001**	**MXXXXX**	Metro Drive ARV Vaults Replacement	437-7785	$120,000	$0	$0	$120,000	*$0*	*$0*	*$0*	$0		Metro Drive	This project provides funding to replace the existing air relief valve (ARV) vaults for the 24-inch sanitary sewer force main along Metro Drive.	The existing vaults housing the ARVs may fail and cause damage to the ARVs. The replacement would produce a more stable structure to house the ARVs.	7/1/2018-6/30/2023
3	**UW20022**	**M20022**	Fourteen Mile Slough Sanitary Pump Station Assessment	437-7785	$3,552,851	$429,641		$970,000	$2,153,210					N/A	The project is to assess the operation of the pump station to determine cause of pump failure.	Failure of the existing pumps increases maintenance and reduces reliability of the pump station.	7/1/2021-6/30/2022
4	**UW21015**	**M21015**	Quail Lakes Sanitary Sewer Lift Station Upgrade/Rehabilitation	437-7785	$799,250	$191,395	$0		$607,855				Push construction budget out by 1-year and verify scope w/ Maintenance. Update estimate if needed	N/A	This project will rehabilitate the existing sanitary sewer pump station by replacing all problematic mechanical and electrical equipment and install a 50-foot high monopole.	The rehabilitation of the pump station will minimize the potential for station failure and sewer backup and spillage caused by pump station shut downs. Installation of the monopole will improve SCADA transmission, preventing loss of data.	7/1/2022-6/30/2023
5	**UW23001**	**MXXXXX**	Plymouth & 5 Mile Creek Sanitary Sewer Pump Station (source: 2008 Master Plan)	437-7785	$2,441,000	$0	*$0*		$99,000	$2,342,000			Push previous budget out by 1-year	7078 Plymouth Rd	A new sanitary sewer pump station will be constructed replacing the existing Plymouth Road & Five Mile Creek sanitary sewer pump station to increase pumping capacity.	A new sanitary sewer pump station is required to accommodate increased wastewater flows from future development. The current Wastewater Master Plan anticipates wastewater flows at a 2035 build out will greatly exceed the current pump station capacity.	7/1/2022-6/30/2024
6	**UW23002**	**MXXXXX**	Bianchi and Calaveras River Storm Station New Sanitary Sewerline Installation	437	$378,400	$0	$0	$0	$378,400	$0	$0	$0		SW Corner of Bianchi Rd & N. El Dorado St (adjacent to 4 W Bianchi Rd Pump)	This project provides funding for the installation of a sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	7/1/2022-06/30/2023
7	**UW23003**	**MXXXXX**	Brookside Estates Sanitary Sewer Pump Station		$391,000				$391,000					2921 Brookside Rd	Rehabilitate existing sanitary sewer pump station and improve reliability by replacing all problematic components, such as sluice gates, scrubber, pumps, and liner in the wet well.	As the existing facility ages, it is necessary to replace components to ensure the pump station operates without service interruptions to customers.	7/1/2022-6/30/2023
8	**UW24001**	**MXXXXX**	West Lane and Calaveras River South Storm Station New Sanitary Sewer	437	$946,000	$0	$0	$0	$0	$135,000	$811,000	$0		N West Lane (adjacent to 4250 West Lane)	This project provides funding for the installation of sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	7/1/2023-6/30/2025
9	**UW24002**	**MXXXXX**	West Lane and Calaveras River North Storm Station New Sanitary Sewer Line Installation	437	$946,000	$0	$0	$0	$0	$135,000	$811,000	*$0*		S West Lane (adjacent to 4404 Woodbine Dr & 4407 Woodbine Dr)	This project provides funding for the installation of sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	7/1/2023-06/30/2025
10	**UW24003**	**MXXXXX**	Swenson Road & 5 Mile Creek Sanitary Sewer Pump Station (source: 2008 Master Plan)		$2,929,000					$87,900	$2,841,100		Push previous budget out by 2-years	6803 Alexandria Place	The pumps and controls will be replaced at the Swenson & Five Mile Creek sanitary sewer pump station to increase pumping capacity.	New pumps and controls are required to accommodate increased wastewater flows from future development. The current Wastewater Master Plan anticipates wastewater flows at the 2035 build out will exceed the current pump station capacity.	7/1/2023-06/30/2025
11	**UW24004**	**MXXXXX**	Kelley and Mosher Slough Sanitary Sewer Pump Station		$929,000					$929,000			Push previous budget out by 1-year	9213 Kelly Dr	This project will rehabilitate the existing sanitary sewer pump station by replacing all problematic mechanical and controls equipment.	The rehabilitation of the pump station will minimize the potential for sewer backups and spillage caused by pump station failure.	7/1/2023-06/30/2024
12	**UW24005**	**MXXXXX**	Lincoln Street Sanitary Sewer Pump Station and Forcemain	437	$8,590,200	$0	$0	$0	$0	$602,800	$3,993,700	$3,993,700	Push previous budget out by 1-year	Pump Station: Lincoln Street and Mormon Slough Forcemain: Church Street from Mormon Slough to Pershing Avenue	Installation of a sewer pump station at Lincoln St. and the Mormon slough. Install a forcemain in the existing deficient gravity sewer line along Church St. from the Mormon Slough to Pershing Ave.	Installation of appropriate sanitary pump station and forcemain will ensure adequate capacity and reliable system demands.	7/1/2023-6/30/2026
13	**UW25001**	**MXXXXX**	Brookside and I-5 Pump Station Emergency Power	437-7785	$237,000	$0	$0	$0	$0		$237,000			2781 Brookside Rd	This project provides for the installation of an emergency generator at the existing sanitary pump station to ensure continuous services.	The installation of this emergency generator is necessary to ensure the continuous operation of SS Pump Station during the power outage.	7/1/2024-06/30/2025
14	**UW24006**	**MXXXXX**	French Camp Sewer and Lift Station	437-7785	$12,001,000	$0	$0	$0	*$0*	$5,001,000	$1,000,000	$6,000,000	Need new estimate. Cost shown in based on 2019 WW Rate Study. Also, need to verify scope/need for project	East of I-5 and south of Arch Airport Rd between El Dorado St and French Camp Road	This is a new CIP project to provide for the construction of a new lift station and its sewer system.	The purpose of this new lift station and its sewer system is to meet the City's build-out capacity.	7/1/2023-06/30/2026
15	**UW25002**	**MXXXXX**	Camanche Sanitary Sewer Pump Station Rehabilitation (2008 MP)	437-7785	$550,000	$0	$0	$0	*$0*	*$0*	$550,000		Need new estimate. Cost shown in based on 2019 WW Rate Study	Camanche Ln (between Ridgeway Ave & Holiday Dr)	This project provides to replace existing pumps and controls.	To replace the existing pumps and controls are necessary to ensure the continuous operation of this pump station.	7/1/2024-06/30/2025
16	**UW25003**	**MXXXXX**	College Park Sanitary Sewer Pump Station Rehabilitation	437-7785	$750,000	$0	$0	$0	*$0*	*$0*	$750,000	*$0*	Need new estimate. Cost shown in based on 2019 WW Rate Study. Consult with Eric Johnson in MUD Maintenance	1502 Palm Ave	This project is to rehabilitate the existing pump station.	This is a very old pump station that needs to be rehabilitated.	7/1/2024-6/30/2025
17	**UW25004**	**MXXXXX**	Waterloo Sanitary Sewer Pump Station Rehabilitation	437-7785	$1,303,000	$0	$0	$0	*$0*	*$0*	$1,303,000	*$0*	Need new estimate. Cost shown in based on 2019 WW Rate Study. Consult with Eric Johnson in MUD Maintenance	1105 Waterloo Rd	This project is to rehabilitate the existing pump station.	This is a very old pump station that needs to be rehabilitated.	7/1/2024-6/30/2025
18	**UW25005**	**MXXXXX**	Drake Sanitary Sewer Pump Station Rehabilitation	437-7785	$1,303,000	$0	$0	$0	*$0*	*$0*	$1,303,000	*$0*	Need new estimate. Cost shown in based on 2019 WW Rate Study. Consult with Eric Johnson in MUD Maintenance	Adjacent to 626 Drake Ave	This project is to rehabilitate the existing pump station.	This is a very old pump station that needs to be rehabilitated.	7/1/2024-6/30/2025
19	**UW16022**	**M16022**	RWCF Modifications Project - Progressive Design Build	437	$223,554,079	$48,840,047	$60,273,645	$81,793,924	$28,518,223	$4,128,240			Highlighted changes show movement of $10M to FY2021, taking $5M each from FY22 and FY23	N/A			
20	**UW18011**	**M18011**	RWCF Pond No. 1 Cleaning	437-7709	$11,124,000	$1,000,000	$0	$1,000,000	$2,281,000	$2,281,000	$2,281,000	$2,281,000	Push previous budget out by 1-year	N/A	Cleaning of Pond No.1 at the Regional Wastewater Control Facility to restore treatment capacity.	Accumulated sludge in Pond No.1 has reduced its capacity treatment.	7/1/2021-6/30/2026
21	**UW20023**	**M20023**	RWCF New Outfall	437-7709	$10,457,000	$3,110,617	$0	$2,075,608	$5,195,247	$75,528			Verify estimated cost for possible savings (if No New Outfall is Req'd). Possibly advance other projects if so.	N/A	The project is to replace the existing outfall at the Tertiary site (western side) of San Joaquin River.	Technical Memorandum by RBI - RBI 641—NPDES Compliance Support, Task 25 • Eliminating construction of approximately 2,000 feet of large diameter (72") pipeline along the western edge of the San Joaquin River; • Allowing gravity discharge through a new outfall for more than 90% of the time; and • Condensing all operations on the main plant thereby eliminating permanent staffing at the T-Plant.	7/1/2021-6/30/2024
22	**UW22002**	**MXXXXX**	RWCF Sludge Day Tank Mixing Rehabiltation		$320,000			$162,000	$158,000					RWCF - 2500 Navy Drive	The project will provide funding to add mechanical mixers to the sludge day tanks located at the Regional Water Control Facility (RWCF). The addition of mixers to the sludge day tanks will keep the sludge homogenous and prevent suspended solids from settling inside the day tanks.	The sludge day tanks hold sludge prior to a dewatering process which extracts water from the sludge. The dewatering process is more efficient and easier to manage if the sludge is homogenous and has a consistent density. The new mixers will maintain the sludge in a homogenous state with a consistent density.	7/1/2021-6/30/2023

No.	Project No.	CIP Project No.	Project Name	Account No.	Total Project Cost	Available Budget	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Notes	Location	Description	Justification	Projected Date Range
23	**UW23004**	**MXXXXX**	RWCF Facility Main Plant Switchgear Upgrade with Load Shedding	437-7709	$340,000	$0	$0	$0	$117,000	$111,500	$111,500	$0		RWCF - 2500 Navy Drive	To replace the current method of manual load shedding to prevent interruption of power to critical facilities at RWCF.	To replace the current method of manual load shedding to prevent interruption of power to critical facilities at RWCF.	7/1/2022-06/30/2025
24	**UW23005**	**MXXXXX**	RWCF Cogeneration Engine No. 1 Rebuild	437-7709	$802,000	$0	$0	$0	$802,000	*$0*	*$0*	*$0*		RWCF - 2500 Navy Drive	The project is to overhaul Cogeneration Engine No.1 including source testing and submittal of test report to demonstrate compliance with the requirements of the air permit issued by SJVAPCD.	Cogeneration Engines at the RWCF provide heat for the wastewater digestion process, 1/3 of the plant's electrical demand, and disposal of gas generated as a byproduct of the wastewater process. The Cogeneration Engine manufacturer has recommended that a complete engine overhaul is done every 40,000 run-hours.	7/1/2022-6/30/2023
25	**UW09006**	**M09006**	RWCF Rehabilitate Digesters A & B for Sludge Storage	437-7709	$4,434,860	$454,164	$0	$0	$0	$1,990,348	$1,990,348		Close current project and move previous budget to outer years	N/A	Evaluate and rehabilitate Digester A and B to use as sludge feed storage for the belt presses.	Reduce the amount of accumlated solids in the digesters and evaluate the condition of the digesters.	7/1/2023-6/30/2025
26	**UW24007**	**MXXXXX**	RWCF Cogeneration Engine No. 4 Rebuild	437-7709	$760,000	$0	*$0*	*$0*	$0	$760,000	$0	*$0*		RWCF - 2500 Navy Drive	The project is to overhaul Cogeneration Engine No.4 including source testing and submittal of test report to demonstrate compliance with the requirements of the air permit issued by SJVAPCD.	Cogeneration Engines at the RWCF provide heat for the wastewater digestion process, 1/3 of the plant's electrical demand, and disposal of gas generated as a byproduct of the wastewater process. The Cogeneration Engine manufacturer has recommended that a complete engine overhaul is done every 40,000 run-hours.	7/1/2023-6/30/2024
27	**UW26001**	**MXXXXX**	RWCF Cogeneration Engine No. 3 Rebuild	437-7709	$760,000	$0	$0	$0	*$0*	*$0*	**$0**	*$760,000*	Need new estimate. Cost shown in based on 2019 WW Rate Study	RWCF - 2500 Navy Drive	The project is to overhaul Cogeneration Engine No.3 including source testing and submittal of test report to demonstrate compliance with the requirements of the air permit issued by SJVAPCD.	Cogeneration Engines at the RWCF provide heat for the wastewater digestion process, 1/3 of the plant's electrical demand, and disposal of gas generated as a byproduct of the wastewater process. The Cogeneration Engine manufacturer has recommended that a complete engine overhaul is done every 40,000 run-hours.	7/1/2025-6/30/2026
28	**UW21020**	**M21020**	FY2021 Sanitary Sewer Street Improvements Reimbursements (S.J. County)		$850,340	$166,000		$84,340	$150,000	$150,000	$150,000	$150,000	Update Estimate to add FY26 and account for any updates from SJ County	N/A			
29	**N/A**	**PW1903, PW1916, PW1914, PW2103, PW2106, PW1809**	FY2021 Sanitary Sewer Street Improvements Reimbursements (COS PW) - *Budget in PW Projects, refer to Estimate for details . For reference only*		$319,000	-$34,000	$278,000	$75,000					Update estimate to account for any info from PW, plus what's already listed in Reimbursement Spreadsheet. If no data available, then use assumption for estimate and placeholder based on prior data	N/A			
30	**UW20017**	**M20017**	FY2019 Sanitary Sewer Street Improvements Reimbursements (COS PW)		$90,700	$90,700								N/A			
31	**UW16006**	**M16006**	2016 Sanitary Sewer Rehabilitation Project		$1,029,935	$729,935		$300,000						N/A			
32	**UW17023**	**M17023**	Pershing Avenue Sewer Trunk Rehabilitation (Church Street to Navy Drive)	437-7787	$6,473,217	$2,350,117		$0	$4,123,100					N/A			
33	**UW18029**	**M18029**	Sierra Nevada Street Sanitary Sewer Line Rehabilitation		$1,985,159	$1,585,159		$400,000						N/A	This project will address capacity deficiencies and corrosion problems. This project will rehabilitate the existing 36-inch sanitary sewer line along Sierra Nevada Street between Hazelton Avenue and Worth Street due to severe corrosion and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapses in the City's sanitary sewer collection system, and allows continuous sewer service within the service area.	
34	**UW18030**	**M18030**	Mormon Slough Sanitary Sewer Line Rehabilitation		$3,147,724	$2,060,274		$0	$1,087,450					N/A			
35	**N/A**	**PW1805**	California Street Road Diet Sanitary Sewer Rehabilitation		$665,000	$78,000		*$587,000*						N/A	A 6" sewer line upsized to 8" (approximately 300')		
36	**UW20011**	**M20011**	Sanitary Sewer Maintenance Hole Rehabilitation Project		$1,900,164	$400,164		$300,000	$300,000	$300,000	$300,000	$300,000	Need estimate for outer years, or assume same amount each year ($300K per year)	N/A			
37	**UW20016**	**M20016**	Oak Street Trunk Rehabilitation (Wilson Wy to Pershing Avenue)		$1,409,454	$909,454			$500,000				Update cost estimate based on CCTV & revised scope for possible Savings	N/A			
38	**UW20020**	**M20020**	Sanitary Sewer Large Diameter Lines Replacement per AMMP		$3,991,661	$1,840,826		$368,846	$834,995	$946,994				N/A			
39	**UW21007**	**M21007**	Union Street Rehabilitation between Harding and Acacia (ID#R3R, 2008 MP)		$1,372,852	$194,252		$1,178,600						N/A			
40	**UW21016**	**M21016**	Sanitary Sewer Small Diameter Lines Replacement per AMMP		$1,847,066	$375,466		$1,471,600	*$0*	*$0*				N/A			
41	**UW21017**	**M21017**	Airport Way Sewer Trunk Rehabilitation (San Joaquin Farigrounds to Ralph Ave.)		$4,981,903	$609,463		$4,372,440					Project may need to be put on hold, pending updated Estimates for M18024 & M20016. Potential Savings can	N/A			
42	**UW21018**	**M21018**	Lincoln Road Sanitary Sewer Line Rehab between Pershing Ave. and Alexandria Place		$4,198,608	$579,108				$3,619,500			Project may need to be put on hold, pending updated Estimates for M18024 & M20016. Potential Savings can	N/A			
43	**UW23006**	**MXXXXX**	Longview Avenue Sewer Rehabilitation north of Longview through PUE, south of Swain from Pacific to El Dorado (ID#R2L, 2008 MP)		$1,086,000				$108,600	$977,400				Longview Ave (between Pacific Ave and El Dorado St)	Upsize 12" VCP pipe to 18" within Longview Avenue sewer easement from Pacific Ave to El Dorado Ave per WWMP.	Project will upsize the existing sewer pipe to alleviate full pipes in the collection system. Project will add capacity to the collection system in accordance with the current sewer master plan.	7/1/2022-6/30/2024
44	**UW23007**	**MXXXXX**	South Tuxedo Avenue Sewer Trunk Rehabilitation		$512,000				$512,000					South Tuxedo Avenue (between Kensington Way and Orange Street)	This project would rehabilitate the existing sewer trunk line along South Tuxedo Avenue between Kensington Way and Orange Street due to crack and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapses in the City's sanitary sewer collection system, and allows continuous sewer service within the service area.	7/1/2022-6/30/2023
45	**UW23008**	**MXXXXX**	Pershing Avenue Sewer Trunk Rehabilitation (Oak Street to Tuxedo Avenue)		$1,598,000				$93,943	$1,504,057				Pershing Avenue (Oak Street to Tuxedo Avenue)	This project would rehabilitate the existing sewer trunk line along Pershing Avenue between Oak Street and South Tuxedo Avenue due to cracks and potential consequences of structural failure.	The project will eliminate restrictions and pipeline collapse and allow for continuous sewer service to the service area.	7/1/2022-6/30/2024
46	**UW23009**	**MXXXXX**	Sperry Road/Gibraltar Court Sanitary Sewer Rehabilitation		$4,622,000				$555,000	$4,067,000				Sperry Road/Gibraltar Court	Project will address capacity deficiencies and corrosion problems. This project will rehabilitate existing 24/27-inch sanitary sewer line along Sperry Road and Gibraltar Court between Airport Way and Industrial Drive due to severe corrosion and potential consequences of structural failure.	These projects eliminate restrictions and pipeline collapses in the City's sanitary sewer collection systems, and allow for continuous sewer service within the service area.	7/1/2022-6/30/2024
47	**UW23010**	**MXXXXX**	Swain Road and Alturas Avenue Sewer Rehabilitation (ID#R2M, 2008 MP)		$573,000				$57,300	$515,700				Swain Road and Alturas Avenue	Upsizing of 12" sewer line to 15" along PUE from Swain Road just north of Longview Avenue northward to Alturas Avenue and along Alturas Avenue to Quincy Street.	Project will upsize the existing sewer pipe to alleviate full pipes in the collection system. Project will add capacity to collection system in accordance with the current sewer master plan.	7/1/2022-6/30/2024
48	**UW23011**	**MXXXXX**	El Dorado Street (Alpine to Wyandotte) Rehabilitation - (ID#R3I, 2008 MP) - Alpine to Wyandotte		$1,348,000				$229,000	$1,119,000				El Dorado Street (Alpine to Wyandotte)	Upsizing of 12" sewer line to 15" and 18" along El Dorado Street from East Sonoma Ave to Wyandotte St.	This section of pipe is identified in the Master Plan for upsizing.	7/1/2022-6/30/2024

No.	Project No.	CIP Project No.	Project Name	Account No.	Total Project Cost	Available Budget	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Notes	Location	Description	Justification	Projected Date Range
49	**UW23012**	**MXXXXX**	El Dorado Street (Fremont to Oak Street) Rehabilitation - (ID#R5H, 2008 MP) - Fremont to Oak		$617,890				$98,000	$519,890				El Dorado Street (Fremont to Oak Street)	This project will rehabilitate an existing 12-inch sanitary sewer line that is located below El Dorado Street between Fremont Street and Oak Street. This replacement line will be upsized to a 33-inch HDPE sanitary sewer line which will provide additional capacity for future demand as required by the Wastewater Master Plan.	The City's adopted 2035 Wastewater Master Plan identifies several sanitary sewer lines that need replacement to support the growth of commercial and industrial development in Stockton.	7/1/2022-6/30/2024
50	**UW25006**	**MXXXXX**	March Lane Sewer Trunk Rehabilitation (I-5 to Brookside Sewer Pump Station)		$6,311,000						$720,000	$5,591,000	Push previous budget out by 1-year	March Lane (I-5 to Brookside)	Rehabilitate the existing 24-inch and 30-inch sewer main line on March Lane between Interstate 5 and the Brookside Road Sewer Pump Station.	The pipeline is experiencing rapid deterioration and has the potential for structural failure.	7/1/2024-6/30/2026
51	**UW23013**	**MXXXXX**	Etna Street Rehabilitation - (ID#R2A, 2008 MP) - North of Hammer Lane along Etna to the north		$1,500,000				*$500,000*	$1,000,000			Push previous budget out by 1-year	Etna Street - North of Hammer Lane along Etna to the north	Upsize 12" VCP pipe to 18" on Etna (just north of Hammer) to 4000LF north per the Waste Water Master Plan.	Upsizing is necessary due to increased sewer flows from the development of surrounding areas.	7/1/2022-6/30/2024
52	**UW24008**	**MXXXXX**	Pardee Lane Rehabiliation - (ID#R2AD, 2008 MP) - Pacific and Bianchi		$16,710,000					$897,000	$15,813,000			Pardee Lane (Pacific and Bianchi)	Upsize existing sewer pipe to recommended size on Pardee Lane per Wastewater Master Plan.	Upsizing is necessary due to increased sewer flows from the development of surrounding areas.	7/1/2023-6/30/2025
53	**UW24009**	**MXXXXX**	Scotts Avenue Rehabilitation (ID#R5B, 2008 MP)		$312,750					$312,750				Scotts Avenue (between Pershing Avenue and Del Norte Street and between Del Norte Street and Navy Drive)	Upsize the existing 27-inch sewer trunk main on Scotts Avenue to 30-inches between Pershing Avenue and Del Norte Street and to 42-inches between Del Norte Street and Navy Drive.	Project will upsize the existing sewer trunk to alleviate full pipes in the collection system and accommodate future growth. Project will add capacity to the collection system in accordance with the current sewer master plan.	7/1/2023-6/30/2024
54	**UW24010**	**MXXXXX**	El Dorado Street (Market to Fremont) Rehabilitation - (ID#R5H, 2008 MP)- Market to Fremont		$1,867,910					$1,867,910				El Dorado Street (Market to Fremont)	This project will rehabilitate an existing 12-inch and 18-inch sanitary sewer line that is located below El Dorado Street between Market Street and Fremont Street. The replacement line will be upsized to a 24-inch, 27-inch, or 30-inch HDPE sanitary sewer line which will provide additional capacity for future demand as required by the Wastewater Master Plan.	The City's adopted 2035 Wastewater Master Plan identifies several sanitary sewer lines that need replacement to support the growth of commercial and industrial development in Stockton.	7/1/2023-6/30/2024
55	**UW24011**	**MXXXXX**	Hazelton Avenue Sewer Trunk Rehabilitation (Della to Pilgrim Streets)		$2,147,000					$2,147,000				Hazelton Avenue (Della to Pilgrim Streets)	Rehabilitate the existing 24-inch sewer main on Hazelton Avenue between Pilgrim Street and Wilson Way, and the 36-inch sewer main on Hazelton Avenue between Sierra Nevada Street and Della Street.	The sewer main pipeline is experiencing rapid deterioration and has the potential for structural failure.	7/1/2023-6/30/2024
56	**UW23014**	**MXXXXX**	Rosemarie Lane Sewer Rehabilitation (ID#R3O, 2008 MP) between Manchester and Crown Avenues		$1,630,549				$234,000	*$1,396,549*			Advance previous budget by 1-year	Rosemarie Lane (Manchester to Crown Avenues)	The project will upsize the existing 12-inch sanitary sewer line to a 15-inch line along Rosemarie Lane between Manchester and Crown Avenues using trenchless methods.	Upsizing of the sewer line is necessary due to increased sewer flows and deterioration resultant of development of surrounding areas.	7/1/2022-6/30/2024
57	**UW25007**	**MXXXXX**	Wyandotte St Sewer Rehabilitation (ID#R3H, 2008 MP) between California St and Pacific Ave		$3,482,000						$3,482,000			Wyandotte St (California St and Pacific Ave)	The project will provide funding to upsize the existing sanitary sewer line along Wyandotte Street between California Street and Pacific Avenue. Approximately 1,614 feet of existing 12-inch sewer will be upsized to an 18- inch line and approximately 1,293 feet of existing 16-inch sewer will be upsized to a 21-inch line.	Upsizing is necessary for increased sewer flows due to development of surrounding areas.	7/1/2024-6/30/2025
58	**UW25008**	**MXXXXX**	Harding Way Sewer Rehabilitation - (ID#R3Q, 2008 MP) - Between Wilson and Union Street		$1,572,000						$1,572,000			Harding Way Sewer (Wilson and Union Street)	The project will provide funding to upsize the existing sanitary sewer line along Harding Way between Wilson Way and Union Street. Approximately 771 feet of existing 12-inch sewer will be upsized to an 15-inch line and approximately 765 feet of existing 12-inch sewer will be upsized to an 18-inch line.	Upsizing is necessary due to increased sewer flows due to development of surrounding areas.	7/1/2024-6/30/2025
59	**UW25009**	**MXXXXX**	Ryde Avenue Sewer Rehabilitation (ID#R3C, 2008 MP) between River Dr and De Ovan Ave		$3,390,000						$3,390,000			Ryde Avenue (River Dr and De Ovan Ave)	The project will provide funding to upsize the existing sanitary sewer line along Ryde Avenue between River Drive and De Ovan Avenue. Approximately 289 feet of existing 30-inch sewer will be upsized to a 42-inch line and approximately 1,086 feet of existing 36-inch sewer will be upsized to a 42-inch line.	Upsizing is necessary due to increased sewer flows due to development of surrounding areas.	7/1/2024-6/30/2025
60	**UW25010**	**MXXXXX**	Del Norte Street Sewer Rehabilitation - (ID#R5A, 2008 MP) between Scotts St and Main St		$8,333,000						$8,333,000			Del Norte St (Scotts St and Main St)	The project will provide funding to upsize the existing sanitary sewer line along Del Norte Street between Scotts Street and Main Street. Approximately 2,805 feet of existing 36-inch sewer will be upsized to a 48-inch line.	Upsizing is necessary due to increased sewer flows due to development of surrounding areas.	7/1/2024-6/30/2025
61	**UW25012**	**MXXXXX**	Ralph Avenue Sewer Trunk Rehabilitation - Phase III (Airport Way to Perlman Drive)		$2,515,000						$254,000	$2,261,000	Need new estimate. Cost shown in based on 2019 WW Rate Study	Ralph Avenue (Airport Way to Perlman Drive)	This project would rehabilitate the existing sewer trunk line along Ralph Avenue approximately 1570 feet West of Airport Way to corrosion and potential consequences of structural failure.	This project will eliminate restrictions and pipeline collapses in the City's sanitary sewer collection systems, and allows for continuous sewer service within our service area.	7/1/2024-6/30/2026
62	**UW22003**	**MXXXXX**	Pershing Avenue sewer Trunk Rehabilitation (Lincoln Rd to Meadow Avenue)		$3,280,081	$1		$527,000	*$2,753,080*				Need new estimate. Cost shown in based on 2019 WW Rate Study	Pershing Avenue (Lincoln Road to Meadow Ave)	Upsize the existing 36-inch sewer trunk main on North Pershing Avenue between West Lincoln Road and Meadow Avenue to a 42-inch sewer trunk main.	Project will upsize the existing sewer trunk to alleviate full pipes in the collection system and accommodate future growth. Project will add capacity to collection system in accordance with the current Wastewater Master Plan.	7/1/2021-6/30/2023
63	**UW22004**	**MXXXXX**	System 10 Sewer Relief Forcemain		$7,676,000			$100,000	*$777,000*	*$6,799,000*			Need new estimate. Cost shown in based on 2019 WW Rate Study. Refer to 2018-23 Master CIP Budget for more info	City Wide	A total of three new pump stations will be required to serve various areas within System 15. The Thomson Pump Station will convey wastewater into existing System 10 trunks. The Gateway Pump Station and System 15 East Pump Station will pump flow via force mains directly to the 14 Mile Slough Pump Station.	The segment of force main downstream of the System 15 East Pump Station along Eight Mile Road to Trinity Parkway will be twinned to accommodate lower flows in early years while maintaining adequate velocities, and to facilitate maintenance of the force mains in the future.	7/1/2022-6/30/2024
64	**UW25011**	**MXXXXX**	Thornton and MacDuff Avenue Sewer Rehabilitation (ID#R2AC, 2008 MP)		$4,040,000						$486,000	*$3,554,000*	Need new estimate. Cost shown in based on 2019 WW Rate Study. Refer to 2018-23 Master CIP Budget for more info	Thronton Road & MacDuff Ave	Upsize 2269LF of 15-inch VCP pipe to 21-inch on MacDuff from Roxburgh Way to Thornton Road up to Hammer Lane per WWMP.	Upsizing is necessary due to increased sewer flows from development of surrounding areas.	7/1/2024-6/30/2026
65	**UW26003**	**MXXXXX**	Waterloo East Eastment at Wizard Avenue Sanitary Sewer Rehabiliation (ID#R6A, 2008 MP)		$584,000							*$584,000*	Need new estimate. Cost shown in based on 2019 WW Rate Study. Refer to 2018-23 Master CIP Budget for more info.	Waterloo at Wizard Ave	Upsize 424 linear feet of 18" pipe to 21" within easement south of Waterloo Road and East of Wizard Avenue per the 2008 Wastewater Master Plan .	Upsizing is necessary due to increased sewer flows from the development of surrounding areas.	7/1/2025-6/30/2026

No.	Tyler Project No.	MUD Project No.	Project Name	Project Description	Project Justification	Total Approved Budget	Initiated By	Performed By	Project Status	Project Notes
1	UW20018	M20018	Asset Condition Assessment for Sanitary Sewer Forcemains	The project will provide a condition assessment of approximately thirty (30) miles of forcemains. Findings from the assessment will be used to develop a risk model and a priority list for future capital improvement projects.	Assessment of forcemains is necessary to prioritize the necessary improvements or replacements to ensure reliable and uninterrupted service.	**$1,076,000.00**		MUD	N/A	
2	UW20019	M20019	Asset Condition Assessment for Sanitary Sewer Pump Stations	The project will provide a condition assessment of 27 sanitary sewer pump stations. Findings from the assessment will be used to develop a risk model and a priority project list for future capital improvement projects.	Assessment of pump stations is necessary to prioritize the necessary improvements or replacements to ensure reliable and uninterrupted service.	**$519,000.00**		MUD	N/A	
3	UW14030	M14030	Clean Water State Revolving Fund Program Assistance			**$231,509.00**	**Financial Assistance Application for RWCF Modf Project**	MUD	N/A	
4	UW21015	M21015	Quail Lakes Sanitary Sewer Lift Station Upgrade / Rehab	This project will rehabilitate the existing sanitary sewer pump station by replacing all problematic mechanical and electrical equipment and install a 50-foot high monopole.	The rehabilitation of the pump station will minimize the potential for station failure and sewer backup and spillage caused by pump station shut downs. Installation of the monopole will improve SCADA transmission, preventing loss of data.	**$191,395.00**	**2008 MP**	MUD	Existing capacity adequate for buildout	FY 22/23
5	UW21020	M21020	FY2021 Sanitary Sewer Street Improvements Reimbursements (SJ County)	This ongoing project provides funding for the repair and modification to the City's sanitary sewer collection system as a result of street improvement projects administered by the Public Works Department and other agencies. Funding for City street improvement projects is included in the individual Public Works projects. In FY2021 the following projects will contain budget for sewer system improvement reimbursements: PW1610, PW1721, PW1723, PW1727, PW1809, PW1914, PW1916, PW2103, PW2106, OM20-064, OM21-001.	During the construction of street improvement projects, it is often necessary to modify or repair sanitary sewer pipeline and maintenance holes. The project provides for the funding of such improvements.	**$250,340.00**		MUD	N/A	
6	UW20022	M20022	Fourteen Mile Pump Station Assessment & Repair	The project is to assess the operation of the pump station to determine cause of pump failure.	Failure of the existing pumps increases maintenance and reduces reliability of the pump station.	**$970,000.00**		MUD	27 mgd capacity needed to serve all 2040 development areas south of Eight Mile Road, per current Master Plan model	On hold, pending completion of 2021 Master Plan
7	UW13010	M13010	Sanitary Sewer Pump Station at 2414 Santiago Wy & Don Ave	Rehabilitate existing sanitary sewer pump station by replacing all problematic mechanical and electrical equipment, which will improve reliability.	This rehabilitation project will minimize pump station failure, overflows and ensures that the pump station capacity is adequate and reliable.	**$453,000.00**	**2008 MP**	MUD	Model indicates firm capacity is not adequate but total capacity is adequate; PS firm capacity = (550 gpm) 0.8 mgd; total capacity ~1.6 mgd; modeled flows: 1.3 mgd (2021), 1.4 mgd (2040), 1.6 mgd (buildout)	After contract with Siegfried is complete, notify Finance for FAOF. The cost should be split 50/50 with M13009.
8	UW13009	M13009	Sanitary Sewer Pump Station at SEC Thornton & Davis Roads	Rehabilitate existing sanitary sewer pump station by replacing all problematic mechanical and electrical equipment, which will improve reliability.	This rehabilitation project will minimize pump station failure, sewer overflow and ensure that the pump station capacity is adequate and reliable.	**$694,000.00**	**2008 MP**	MUD	Model indicates firm capacity is adequate; PS firm capacity = (850 gpm) 1.22 mgd; total capacity ~2.4 mgd; modeled flows: 1.18 mgd (2021), 1.19 mgd (2040), 1.20 mgd (buildout)	After contract with Siegfried is complete, notify Finance for FAOF. The cost should be split 50/50 with M13010.
9	UW24006	MXXXXX	French Camps Sewer and Lift Station	This is a new CIP project to provide for the construction of a new lift station and its sewer system.	The purpose of this new lift station and its sewer system is to meet the City's build-out capacity.	**$0.00**	**2008 MP**	MUD	TBD pending reconfiguration of Tidewater PS and Grupe; separate discussion required	FY 23/24 & 24/25
10	UW24005	MXXXXX	Lincoln Street Sanitary Sewer Pump Station and Forcemain	Installation of a sewer pump station at Lincoln St. and the Mormon slough. Install a forcemain in the existing deficient gravity sewer line along Church St. from the Mormon Slough to Pershing Ave.	Installation of appropriate sanitary pump station and forcemain will ensure adequate capacity and reliable system demands.	**$0.00**	**2008 MP**	MUD	~4 mgd pump station and ~1,800 LF of force main, per 2021 Master Plan CIP	FY 23/24, 24/25 & 25/26
11	UW24004	MXXXXX	Kelley and Mosher Slough Sanitary Sewer Pump Station	This project will rehabilitate the existing sanitary sewer pump station by replacing all problematic mechanical and controls equipment.	The rehabilitation of the pump station will minimize the potential for sewer backups and spillage caused by pump station failure.	**$0.00**	**2008 MP**	MUD	No upsizing needed; PS firm capacity = (3000 gpm) 4.3 mgd; modeled existing and future peak flow ~2 mgd	FY 23/24
12	UW23001	MXXXXX	Plymouth & 5 Mile Creek Sanitary Sewer Pump Station (source: 2008 Master Plan)	A new sanitary sewer pump station will be constructed replacing the existing Plymouth Road & Five Mile Creek sanitary sewer pump station to increase pumping capacity.	A new sanitary sewer pump station is required to accommodate increased wastewater flows from future development. The current Wastewater Master Plan anticipates wastewater flows at a 2035 build out will greatly exceed the current pump station capacity.	**$0.00**	**2008 MP**	MUD	No upsizing needed; PS firm capacity = (870 gpm) 1.25 mgd; modeled existing and future peak flow ~ 0.5 mgd	FY 22/23, FY 23/24
13	UW24003	MXXXXX	Swenson Road & 5 Mile Creek Sanitary Sewer Pump Station (source: 2008 Master Plan)	The pumps and controls will be replaced at the Swenson & Five Mile Creek sanitary sewer pump station to increase pumping capacity.	New pumps and controls are required to accommodate increased wastewater flows from future development. The current Wastewater Master Plan anticipates wastewater flows at the 2035 build out will exceed the current pump station capacity.	**$0.00**	**2008 MP**	MUD	Existing capacity appears adequate; ex. firm capacity = 20.2 mgd; modeled peak flow: 18.4 mgd (2021), 18.8 mgd (2040), 20.2 mgd (buildout)	FY 23/24, FY24/25

No.	Tyler Project No.	MUD Project No.	Project Name	Project Description	Project Justification	Total Approved Budget	Initiated By	Performed By	Project Status	Project Notes
14		MXXXXX	Brookside Estates Sanitary Sewer Pump Station	Rehabilitate existing sanitary sewer pump station to improve reliability by replacing all problematic components, such as sluice gates, scrubber, pumps, and liner in the wet well.	As the existing facility ages, it is necessary to replace components to ensure the pump station operates without service interruptions to customers.	**$0.00**		MUD	No upsizing needed; PS firm capacity = 8.6 mgd; modeled existing and future peak flow ~ 2.8 mgd	FY22/23
15	UW23002	MXXXXX	Bianchi and Calaveras River Storm Station New Sanitary Sewerline Installation	This project provides funding for the installation of a sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	**$0.00**		MUD	N/A	Not active. Budget in FY23
16	437-7785	M18015	Five Mile Slough Force Main Assessment	This project will perform an assessment/evaluation for the existing sanitary sewer force that crosses Five Mile Slough.	This assessment is required due to age and recent failure of the existing infrastructure. In addition, this force main is critical in the conveyance of sewage to Fourteen Mile Pump Station.	**$316,589.53**		MUD	N/A	
17	UW16006	M16006	2016 Sanitary Sewer Rehabilation Project	This project provides rehabilitation to the City's deteriorating Sanitary Sewer lines. Fiscal Year 2017/2018 will provide construction at eight locations using two rehab methods. The trenchless method (pipe bursting) will be used at Elmwood Avenue, Harding Way, El Monte Street and Phelps Street. The open cut method will be used at Commerce Street, Third Street, Worth Street and Grant Street.	Rehabilitation of these aging and deteriorating sewer lines are necessary to avoid catastrophic failure and ensure that they continue to operate without service interruption to customers.	**$1,603,000.00**		PW	Awaiting info from Ann and Ali re: trenchless repairs; open cut repairs are all adequate as is	On hold, pending completion of 2021 Master Plan
18	UW17018	M17018	Downtown Sewer Collection System	This project is to evaluate the existing downtown sewer collection system, redesign a larger sewer system to accept more flow, and replace undersized pipes.	The Downtown Sewer Collection System is the oldest part of the City's system. Little to no engineering data is available. This project will evaluate existing system and will identify a master plan that can be used to prioritize new construction of pipes. All deficient pipes will be replaced with this project. Future funding will be used to improve other needed improvement in the downtown area.	**$621,235.00**		PW	Not needed as described; superseded by 2021 CIP list	On hold, pending completion of 2021 Master Plan
19	UW18029	M18029	Sierra Nevada Street Sanitary Sewer Line Rehabilitation	This project will address capacity deficiencies and corrosion problems. This project will rehabilitate the existing 36-inch sanitary sewer line along Sierra Nevada Street between Hazelton Avenue and Worth Street due to severe corrosion and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapses in the City's sanitary sewer collection system, and allows continuous sewer service within the service area.	**$2,126,000.00**		PW	Capacity adequate for buildout; moving forward as is	100% design. Advertise fall 2021, award contract January, 2022, start construction May 2022.
20	UW20011	M20011	FY20/21 - Sanitary Sewer Maintenance Hole Rehabilitation Project	Ongoing rehabilitation of various existing sewer maintenance holes throughout the City of Stockton due to concerns over the corrosion condition and potential consequences of structural failure.	Rehabilitation of deteriorating maintenance holes are important to ensure that they continue to operate without service interruptions to customers.	**$900,000.00**	**O&M**	PW	N/A	Work will start in July 2021 and comnpleted in June 2022.
21	UW20020	M20020	Sanitary Sewer Large Diameter Lines Replacement per AMMP	The project is to rehabilitate the existing large diameter sewer lines at the following locations: -659 W. Anderson St. 24" VCP -Lincoln St. S at 545 W. Sonora St. 24" VCP -Harrison St. N at 548 W. Oak St. 16" VCP The pipeline are experiencing corrosion and cracks and have scored high in recent risk assessment.	The project is to rehabilitate the existing large diameter sewer lines at the following locations: -659 W. Anderson St. 24" VCP -Lincoln St. S at 545 W. Sonora St. 24" VCP -Harrison St. N at 548 W. Oak St. 16" VCP The pipeline are experiencing corrosion and cracks and have scored high in recent risk assessment.	**$2,210,151.00**	**AMMP**	PW	No capacity issues indicated; condition-based repairs only	Coordinate with Collections and provide scope to PW.
22	UW21007	M21007	Union Street Rehabilitation between Harding and Acacia (ID#R3R, 2008 MP)	The project will provide funding to upsize the gravity sanitary sewer pipeline on Union Street between Harding Avenue and Acacia Street. The sewer pipeline will be upsized from 12-inch pipe to 18-inch pipe.	Project will upsize the existing sewer trunk to alleviate full pipes in the collection system and accommodate future growth. Project will add capacity to the collection system in accordance with the sewer master plan.	**$1,378,000.00**	**2008 MP**	PW	Replace/upsize line from Harding to Oak: ~4,300 LF of 15-inch diameter pipe; ~10 MHs, per 2021 Master Plan CIP	Corrdinate with Stephen to determine to proceed or not. Design contract awarded to Siegfried on 3-9-21. start design April 2021. Complete design estimated March 2022. Start construction July 2022 estimated
23	UW21016	M21016	Sanitary Sewer Small Diameter Lines Replacement per AMMP	The project is to replace existing small diameter sewer lines with a larger size at the following locations: -Wilson Way (31P0380 - 31P0570) -Wilson Way (31P0280 - 31P0210) -Victoria Avenue (32J0370 - 32J0570) -Sonora Street (33P1060 - 33P1090) -Worth Street (35N0220 - 350260) - Flora Street (31P0730 - 31P0760) - The easement line between Howard St. & W 6th St. (37M0670 - 37M0700)	Replacement of sewer lines will avoid catastrophic failure and sewer overflow and ensures continuous service to the service area. The pipelines are experiencing corrosion and cracks and have scored high in a recent risk assessment.	**$1,849,120.00**	**AMMP**	PW	All lines are unmodeled 6" diameter pipes; proceed with upsizing to 8" diameter, per existing plans	Coordinate with Collections and modify scope. Preparing RFP for design. MUD staff to provide segments for line replacement.
24	UW21017	M21017	Airport Way Sewer Trunk Rehabilitation (San Joaquin Farigrounds to Ralph Ave.)	Rehabilitate the existing 30-inch and 42-inch sewer main line on Airport Way between the San Joaquin County Fairgrounds and Ralph Avenue.	The pipeline is experiencing rapid deterioration and has the potential for structural failure.	**$4,985,000.00**	**AMMP**	PW	No capacity issues indicated; condition-based repairs only	Preparing RFP for design. MUD staff to provide segments for line replacement.

No.	Tyler Project No.	MUD Project No.	Project Name	Project Description	Project Justification	Total Approved Budget	Initiated By	Performed By	Project Status	Project Notes
25	UW21020	PW1721, PW1610, PW1705, PW1723, PW1727, PW1808, PW1903, PW1916, PW1914, PW2103, PW2106, PW1809	Sanitary Sewer Street Improvements Reimbursements	This ongoing project provides funding for the repair and modification to the City's sanitary sewer collection system as a result of street improvement projects administered by the Public Works Department and other agencies.	During the construction of street improvement projects, it is often necessary to modify or repair sanitary sewer pipeline and maintenance holes. The project provides for the funding of such improvements.	**$353,000.00**	**Public Works**	PW	N/A	PW 1721 – Finalizing Plans, likely Advertise March, open bids April, Award July, Start Const. Sept. PW 1610 – Complete. PW 1705 – Awarded construction contract Feb. 2. Begin construction in March. PW 1723 – Finalizing plans. Likely advertise April, Open bids May, Award August. PW 1727 – Construction Contract awarded Dec. 2020. Start construction March 2021. PW 1808 – PS&E 90%. Advertise June, Open bids July, award October 2021, start spring 2022
26	UW22003	MXXXXX	Pershing Avenue Sewer Trunk Rehabilitation (Lincoln Rd to Meadow Avenue)	Upsize the existing 36-inch sewer trunk main on North Pershing Avenue between West Lincoln Road and Meadow Avenue to a 42-inch sewer trunk main.	Project will upsize the existing sewer trunk to alleviate full pipes in the collection system and accommodate future growth. Project will add capacity to collection system in accordance with the current Wastewater Master Plan.	**$527,000.00**	**2008 MP**	PW	Current modeling shows no current or future capacity issues on these two segments	Not active. Design funds to be approved in fiscal year 21-22? No work started yet.
27	UW22004	MXXXXX	System 10 Sewer Relief Forcemain	A total of three new pump stations will be required to serve various areas within System 15. The Thomson Pump Station will convey wastewater into existing System 10 trunks. The Gateway Pump Station and System 15 East Pump Station will pump flow via force mains directly to the 14 Mile Slough Pump Station.	The segment of force main downstream of the System 15 East Pump Station along Eight Mile Road to Trinity Parkway will be twinned to accommodate lower flows in early years while maintaining adequate velocities, and to facilitate maintenance of the force mains in the future.	**$100,000.00**	**2008 MP**	PW	Facilities needed to serve future development in Study Area 1; not needed until then	Not active. We don't have this project
28	N/A	PW1805	California Street Road Diet Sanitary Sewer Rehabilitation	The California Street Road Diet extends from Alpine Ave. to El Dorado Street (South). This corridor is intended to function as Stockton's bicycle spine that would connect North and Central Stockton through the downtown with South Stockton. This north/south facility would connect seven east/west backbone facilities throughout Stockton. ATP Cycle 4 has increased funding to extend the California lane reduction and add bike lanes between Miner Avenue and 8th Street.	This is one of the highest priority projects from the Bicycle Master Plan due to its ability to promote spatial equity and socio-economic equity throughout the City by connecting multiple disadvantaged neighborhoods to each other, as well as to jobs, schools, recreation, and many other daily amenities. The project will complete a road diet that provides a safer and more accessible bicycle experience for users of all ages and abilities.	**$665,000.00**		PW	N/A	Design approximately 50% complete. Anticipate design completion Fall 2021. construction spring/summer 2022
29		MXXXXX	West Lane and Calaveras River North Storm Station New Sanitary Sewer Line Installation	This project provides funding for the installation of a sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	**$0.00**		PW	N/A	Not active. FY 23/24, FY 24/25
30		MXXXXX	West Lane and Calaveras River South Storm Station New Sanitary Sewer	This project provides funding for the installation of a sanitary sewer line at a storm pump station facility for the purpose of dewatering the facility in the event of contamination.	The installation of a sanitary sewer line at a storm pump station facility will prevent the potential of discharging contaminated waters into a natural waterway.	**$0.00**		PW	N/A	Not active. FY 23/24, FY 24/25
31		M15003	Navy Drive 24-, 30- & 48 -Inch Sewer Rehabilitation (M15003)	Rehabilitation of the existing sanitary sewer trunk line along Navy Drive between I-5 and Fresno Ave. The existing sewer line shows signs of deterioration.	The pipeline is experiencing sever corrosion and has the potential for structural failure. Rehabilitation of this sewer line will avoid catastrophic failure and ensures uninterrupted service to customers.	**$2,828,007.00**		PW	Model shows no surcharging for existing or future conditions; CIPP adequate UNLESS Mariposa Road flows are added; need separate meeting to discuss w/Jeff and Mel	CIPP Design 100%. Bids came higher than budget. On hold. Need more budget for construction. Pending completion of 2021 Master Plan.
32		M17023	Pershing Avenue Sewer Trunk Rehab (Church To Navy)	This project would rehabilitate the existing 24-inch sanitary sewer main line along Pershing Avenue between Church Street and Navy Drive and along Church Street between Orange Street to Pershing Avenue.	The entire pipeline crown is experiencing cracking and has the potential for structural failure.	**$2,286,000.00**		PW	Finalize existing design; proceed with construction of identified improvements UNLESS Mariposa flows are added; should be implemented in conjunction with Lincoln Street PS project	30% Design. Anticipate completion of design in calendar year 2021. construction spring 2022
33		M17026	Navy Drive At I-5 Sewer Trunk Line	This project will address capacity deficiencies and corrosion problems at the 54 inch crossing under I-5 and 42 inch parallel and east of I-5 at Navy Drive.	This project eliminates restrictions and pipeline collapses in the City's sanitary sewer collection system and allows continuous sewer service within the service area.	**$1,889,360.00**		PW	Adverse sloped line slated for CIPP; proceed with planned rehab UNLESS Mariposa flows are added; project could be elminated by redirecting Worth Street flows west along Anderson Street then south along Stockton Street	100% Design. Advertise June 17, 2021 and award contract September 14, 2021. Start construction in Fall.
34		M18030	Mormon Slough Sanitary Sewer Line Rehabilitation	This project will address capacity deficiencies and corrosion problems. This project will rehabilitate the existing 24-inch sanitary sewer line along Mormon Slough at Jefferson Street due to severe corrosion and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapses in the City's sanitary sewer collection system, and allows continuous sewer service within the service area.	**$1,544,000.00**		PW	Need to see existing KSN design drawings to assess vertical alignments	Working on 30% design and environmental documentation. Constructiion expected summer 2022.
35		M20003	Zephyr Road Water Main	Installation of 1,250 feet of 16-inch water main on Zephyr Road between Pock Lane and B Street. Requires acquisition of 15-feet easement through private property (from end of the cul-de-sac on Zephyr Road to Pock Lane).	This large diameter water main is necessary to convey large volumes of water efficiently over long distances. Water mains provide the water backbone for subdivisions, water wells and reservoir sites.	**$719,387.00**		PW	N/A	Proposals are received and Siegfried is selected. Award and start design in fall 2021.

No.	Tyler Project No.	MUD Project No.	Project Name	Project Description	Project Justification	Total Approved Budget	Initiated By	Performed By	Project Status	Project Notes
36		M18031	Howard Street Sewer Rehab	This project provides for the replacement of an existing 6-inch sanitary sewer line due to multiple fractures and breaks in the pipeline.	As the existing sanitary sewer system ages, it is necessary to continually repair, rehabilitate or replace deteriorated infrastructure in order to ensure that the collection system operates without service interruptions to customers or sanitary sewer overflows.	**$117,520.00**		PW	If dig and replace or pipe burst, should be replaced with 8-inch; may already be in construction, per Gemma	Open bids on June 17, 2021. NTP in fall 2021.
37		M18024	Ralph Avenue Sewer Trunk Rehabilitation	This project would rehabilitate the existing sewer trunk line along Ralph Avenue between B Street and Pock Lane, along Pock Lane to Loomis Road public utilities easement to Mariposa Road to Munford Avenue due to corrosion and potential consequences of structural failure.	This project will eliminate restrictions and pipeline collapses in the City's sanitary sewer collection systems, and allows for continuous sewer service within our service area.	**$1,037,000.00**		PW	West Yost awarded design services contract Fall 2021, per Gemma	Proposals are received and West Yost is selected. Award and start design in fall 2021.
38		M18032	Pilgrim St And Union St Sewer Rehab	This project provides for the replacement of an existing 6-inch sanitary sewer line due to multiple fractures and breaks in the pipeline.	As the existing sanitary sewer system ages, it is necessary to continually repair, rehabilitate or replace deteriorated infrastructure to ensure that the collection system operates without service interruptions to customers or sanitary sewer overflows.	**$476,000.00**		PW	Unmodeled lines; no capacity issues anticipated; if dig and replace or pipe burst, should be replaced with 8-inch	Open bids on June 17, 2021. NTP in fall 2021.
39		M18028	Worth Street Sewer Trunk Rehab	This project will address capacity deficiencies and corrosion problems. This project will rehabilitate the existing 36-inch sanitary sewer line along Worth Street between Harrison Street and Sierra Nevada Street due to severe corrosion and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapse in the City's sanitary sewer collection system, and allows continuous sewer service within the service area.	**$4,846,500.00**		PW	Status TBD; some sucharging at buildout; the need for upsizing may be influenced by decisions re: Mariposa Road and Diamond Grade	90% design stage. 100% planse being prepared by West Yost. Permit documents being prepared (CVFPB).
40		M20016	Oak Street Sewer Trunk Rehabilitation (Wilson Way to Pershing Avenue)	This project will address capacity deficiencies and corrosion problems. This project will rehabilitate an existing sewer trunk line along Oak Street between Wilson Way and Pershing Avenue due to cracks, roots, and potential consequences of structural failure.	This project eliminates restrictions and pipeline collapses and allows for continuous sewer service to the service area.	**$949,000.00**		PW	West Yost design project; upsizing may be warranted; decision to be made in design	Design approximately 25% complete. Anticipate fall 2021 completion. Spring 2022 construction
41		M18045	Rose Street Storm Drain System Upsize	This project upsizes storm drainage infrastructure to eliminate flooding and reduce overflows of stormwater into the sanitary collection system.	This project addresses deficiencies in the storm drainage system on Rose Street. By upsizing the storm line, stormwater flooding decreases, and overflows into the sanitary collection system are prevented, thereby reducing the cost of wastewater treatment.	**$436,000.00**		PW	N/A	In Construction. Complete construction by October 2021.
42		M21018	Lincoln Road Sewer Trunk Rehabilitation	Upsize the existing 36-inch sewer trunk main on Lincoln Road between Pershing Avenue and Alexandria Place to a 42-inch sewer trunk main.	Project will upsize the existing sewer trunk to alleviate full pipes in the collection system and accommodate future growth. Project will add capacity to the collection system in accordance with the current sewer master plan.	**$4,204,000.00**	AMMP	PW	42-inch is adequate for buildout per 2021 Master Plan model	NTP for design is issed to Siegfried in May. Waiting for direction from MUD pending completion of 2021 Master Plan.
43		M20011	2020-2021 Maintenance Hole Rehab	Ongoing rehabilitation of various existing sewer maintenance holes throughout the City of Stockton due to concerns over the corrosion condition and potential consequences of structural failure.	Rehabilitation of deteriorating maintenance holes are important to ensure that they continue to operate without service interruptions to customers.	**$300,000.00**		PW	N/A	Coordinate with Collections. MUD to provide a list of MH's to PW.
44	434-7713	M18014	Market Street Sanitary Sewer Upsize	This project will address capacity deficiencies and corrosion problems. This project will upsize or parallel the existing sanitary sewer pipeline which has deficient capacity problems or is too old to continue to serve their existing service area. Project will eliminate restrictions to the collection system.	These projects eliminate restrictions and pipeline collapses in the City's sanitary sewer collection systems, and allow for continuous sewer service within the service area.	**$3,425,139.29**		PW	Buildout surcharging would be partially mitigated by Lincoln St PS; minor surcharging expected at buildout; if rehabilitation is planned, and if dig and replace is preferred, upsizing diameter may be justified	Not active

Appendix H

Wastewater Systems Financial Analysis

Technical Memorandum

Date:	09/26/2022
Project:	City of Stockton Wastewater Financial Analysis
To:	Jeff Pelz, West Yost
From:	Shawn Koorn, HDR
Subject:	City of Stockton 2022 Master Plan Financial Analysis

Introduction

Introduction

The effective implementation of the Wastewater Master Plan (Plan) is dependent on development of a wastewater rate revenue transition plan to support the operating and capital needs to maintain and expand the wastewater system to meet demands, state and local regulatory requirements, and provide the flexibility for the City of Stockton (City) to deal with unforeseen changes in the future. In general, the wastewater financial plan uses the annual operating expenses as well as the identified capital needs from the Plan to determine if the current wastewater rate revenues are sufficient to maintain and operate the City's wastewater utility. As necessary, the wastewater financial plan will also develop a rate transition plan to fully fund the wastewater utility.

Key Assumptions

The City's adopted Fiscal Year (FY) 2022 budget was used as the basis for the development of the projection of O&M expenses. Unique escalation factors were then developed which are based on historical inflationary factors for the City and the local area, as well as related to overall individual industry trends. These escalation factors were applied to the budgeted O&M expenses to project future annual O&M expenses over the projected time period.

The financial plan is predicated on the following:

- Projected rate revenue adjustments are implemented,
- The timing and magnitude of the capital improvements are maintained, and
- Customer characteristics remain similar for rate revenue generating purposes

There is also no assumed additional staffing (i.e., full-time equivalents [FTEs]) needed and no new O&M expenses were added for the wastewater financial plan.

Historical Review

The first step in reviewing the financial health of the City's wastewater utility is to gain an understanding from prior financial performance. To do this, the analysis starts with the previous 5-year period of FY 2017 to FY 2021. The City's wastewater proforma which details historical costs by category as well as budget figures going forward was used as the basis for the analysis. Given this information, one can assess the wastewater utility past financial health and gauge any trends that may be occurring. The information from the historical review helped in the development of the assumptions for the financial plan as well as in gaining an understanding of the wastewater

utility's operations. A summary of the historical operating revenues and expenses is shown in Table 1.

Table 1
Historical Revenue Requirement

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Revenues	**$66,980,583**	**$68,263,685**	**$72,606,768**	**$81,661,938**	**$71,491,891**
Expenses					
O&M	$41,347,565	$42,756,889	$42,320,681	$45,274,767	$48,153,636
Debt Services	2,537,403	2,398,769	2,813,733	4,274,405	8,157,015
Total Expenses	**$43,884,968**	**$45,155,658**	**$45,134,414**	**$49,549,172**	**$56,310,651**
Bal. / (Def.) of Funds	*$23,095,615*	*$23,108,027*	*$27,472,354*	*$32,112,766*	*$15,181,240*

As can be seen from the historical review, the City's wastewater utility has maintained adequate funding for annual operation and maintenance as well as funding capital improvements during this historical time period. Given the balance of funds, it is assumed that the City will use those funds for funding current and future wastewater capital improvement needs. Capital funding could be accomplished through annual funding, often referred to as rate funded capital or pay-as-you-go, or through funding reserves in initial years to fund large projects in the future. In years where the utility is deficient, it is likely indicating a use of reserve funds for capital improvement projects. In Summary form, this table provides a comparison from year to year using available historical data.

Development of the Wastewater Financial Plan

The wastewater financial plan was developed to determine the City's ability to fund its wastewater system capital improvements, as developed in this Wastewater Master Plan, as well as the projected O&M needs over the review period. The analysis also took into consideration prudent financial management criteria such as adequate funding of capital through rates, the planned capital funding approach, maintaining required debt service coverage (DSC) ratios, and operating and capital fund balances (i.e., reserve levels). The financial plan developed the projected wastewater utility revenues and expenses for FY 2022 through FY 2035. The development of the projection was based on the projected year end for FY 2022 provided by the City. The costs were then escalated through FY 2035, by applying previously mentioned escalation factors to reflect future cost inflation ranging from 2.0% percent to 7.0%, annually, depending on the expense category. The range in inflationary factors is based on historical trends in the different types of costs incurred by the City.

The following sections describe the key components of the financial plan. Worksheets showing the financial analysis are provided in the Appendix of this summary document.

Revenues

The first component in developing the financial plan is a review of the sources of revenue for the City's wastewater utility. The starting point was the projected year end revenues for FY 2022. The following revenues are received from the City's wastewater customers and operations:

- Rate revenues - annual rate revenues received based on current adopted rate levels

- Other revenues - permit fees, fines and penalties, interest income, rental income, and other miscellaneous sources

The City's wastewater rate revenues are anticipated to be approximately $76.4 million for FY 2022. Assumed customer growth is conservative at a rate of 1.0% per year. It is important to note that the rate revenues projected are prior to any rate adjustments either previously adopted or proposed. With the impact of assumed customer growth, wastewater rate revenues are anticipated to increase to approximately $84.3 million by FY 2035. Other, or miscellaneous, revenues are projected to be approximately $110.7 million in FY 2022. It is important that this figure contains proceeds of approximately $108.0 million from long-term debt issuance and therefore, will not continue at this level. Other revenues decline as available fund balance is utilized to fund capital improvements and interest revenues decline. After this, in FY 2024, other revenues are anticipated to increase slightly annually over the review period and total approximately $2.4 million by FY 2035. In total – including both rate and other revenues - the City's wastewater utility is anticipated to have received $187.1 million in FY 2022 (including the $108.0 million in WIFIA proceeds) or approximately $79.1 million at current rate levels without the bond proceeds. Total revenues are projected to increase, less the long-term debt proceeds, through FY 2035 to approximately $86.8 million, prior to any rate revenue adjustments based on growth projections. Provided in Table 3 is a summary of the current, and projected, rate and other revenues.

Operations and Maintenance

The next component of the financial plan for the City wastewater utility was to project the O&M expenses incurred to provide service to its customers. As noted, the projection of future O&M expenses is based on the City's adopted FY 2022 wastewater utility budget. The budgeted figures were then escalated annually through FY 2035 using the assumed inflationary factors described previously.

The O&M expenses in FY 2022 are anticipated at $45.8 million. For FY 2023, the budgeted O&M is $62.9 million. Based on the increase in O&M over the period and the assumed inflationary factors, O&M expense levels are expected to increase to $113.0 million by FY 2035. This assumes no significant additions or changes made to the O&M practices during the projected period. The forecast of O&M expenses is shown as a summary in Table 3.

Capital Funding Plan

A major component of the City's planning process, and a focal point of this financial planning analysis, is the funding of the City's wastewater CIP. For purposes of financial planning the CIP, as presented in detail in the Plan, which is shown in 2022 dollars, is increased annually by 2.7% to reflect the future escalation of costs due to inflationary impacts. For the City to maintain the existing wastewater system and level of service to its customers, it is important to reinvest in the system at a level at least equal to depreciation. It is prudent, therefore, to have a level of annual capital projects funded by rates greater than this target level. This is because the replacement cost of the system will continue to increase as a result of inflation and the annual depreciation for the wastewater utility may actually be the lower threshold of targeted funding. Depreciation expense for the wastewater utility was reported at $12.5 million in FY 2021. Following prudent financial practices of 1.5 to 2.0 times depreciation, this would result in the need for the City to invest at least $18.8 million annually to sustain its wastewater capital facilities. The financial plan projects that the rate-funded capital will increase over the review period from $17.2 million in FY 2022 to $25.1 million by FY 2035 and averaging $21.4 million.

The CIP includes capital projects that fluctuate from year to year and averages $43.9 million annually, with a range of $29.2 million to $74.5 million per year. The total capital project funding from FY 2022 through FY 2035 is $614.6 million. Funding for the capital projects comes from several sources:

- The first source of funding for capital projects is through the ***rate funded capital*** line item, which is established at $17.2 million in FY 2022 and increases – annually - to a maximum of $25.1 million in FY 2035 for a total funding of $299.9 million over the period or roughly 42.5% of the capital funding analysis. This funding source is a critical component for the annual renewal and replacement of the system, which as mentioned, should be targeted at a level greater than annual depreciation. As mentioned previously, the annual depreciation for FY 2021, which is the target minimum funding, was approximately $12.5 million. During the projected period, the level of rate funded capital for the City's wastewater utility reaches approximately 2.2 times depreciation.
- The second source of funding is from available ***reserves***. For purposes of capital funding, the City's wastewater financial plan utilized three reserves: operating reserve, connection fee reserve, and a reserve holding long-term debt proceeds. The City will likely transfer funds in years of surplus – which can happen for a number of reasons - into the operating fund which can then be used for funding capital projects in the future. Over the review period, it is assumed that the City will use approximately $85.5 million of operating reserves. The connection fee reserve – as the name implies – is a reserve designated to hold connection fee revenues and be used towards either growth related long-term debt service or growth related capital projects. It is important to note that the projects and funding related to the connection fee fund will only happen if the projected development (i.e., growth) materializes. If the growth does not occur and/or the funding is not available it is assumed that the projects will not be completed until sufficient funds are available, or additional long-term debt is issued to fund growth related capital. At this time, no connection fee reserves are being utilized to fund the capital improvements. Over the review period, $14.0 million of capital reserves are used to fund projects. Finally, approximately $64.8 million in capital projects are funded by operating reserves. It is important to note that the use of reserves from year to year may fluctuate greatly depending on the actual level of capital projects for the City as well as what type of project is it. The financial model assumes that if there is more capital funding available in a given year then there are planned capital projects, the excess funds will be moved to reserves in order to be saved and available to be used for future capital expenses.
- The final source of funding for wastewater capital projects is from ***long-term debt***. This comes in the form of low-interest loans (SRF and WIFIA) as well as municipal revenue bonds. This source not only allows the City to secure funding for large one-time projects, but it also serves as a tool to equitably spread the costs of projects to the future beneficiaries, even though they are not connected to the system yet. For this review, it is assumed that the City will need to issuing approximately $219.7 million in long-term debt to fund the identified capital projects.

Table 1 shows a summary of the capital projects by type and the various funding sources.

Table 2
Capital Improvement Projects Summary ($000)

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 3033	FY 2034	FY 2035
Total RWCF	$0	$8,085	$13,356	$5,018	$2,816	$3,474	$4,693	$4,820	$4,950	$5,084	$5,221	$5,362	$5,507	$5,656
Total Capacity Improv. to Existing Gravity Sewer	0	0	0	0	0	0	0	0	0	0	21,276	17,561	17,484	16,118
Total Rehab of Existing Gravity Sewer Facilities	0	2,876	5,063	4,333	9,456	18,280	10,912	11,448	22,482	25,885	18,491	0	0	0
Total PS & Force Main Improv.	0	2,054	5,906	20,852	21,415	21,993	20,827	2,892	743	7,626	0	0	0	0
Total Other Future System Improv.	0	0	0	0	0	0	11,733	12,050	12,376	12,710	13,053	13,405	13,767	14,139
RWCF Modification Project	74,576	49,912	4,324	0	0	0	0	0	0	0	0	0	0	0
Future Capital Improv	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trans to LTD Proceeds Fund	0	0	0	0	0	0	26,210	0	0	45,770	0	0	10,813	0
Transfer to Operating Fund	0	0	0	0	0	8,653	0	0	0	0	0	0	0	0
Total Capital Improv. Proj.	**$74,576**	**$62,926**	**$28,650**	**$30,203**	**$33,686**	**$52,400**	**$74,376**	**$31,210**	**$40,550**	**$97,074**	**$58,042**	**$36,328**	**$47,571**	**$35,913**
Less: Other Funding														
Operating Fund (431)	$18,522	$2,906	$14,927	$13,728	$14,742	$0	$0	$0	$0	$0	$0	$0	$0	$0
Connection Fee Fund (434)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital Fund - Sewer	14,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-Term Debt Proceeds	24,854	0	0	0	0	0	0	9,010	17,200	0	34,342	11,428	0	10,813
Low Interest Loans	0	46,800	0	0	0	30,000	0	0	0	0	0	0	0	0
Revenue Bonds	0	0	0	0	0	0	50,176	0	0	70,474	0	0	22,271	0
Total Other Funding	**$57,376**	**$49,706**	**$14,927**	**$13,728**	**$14,742**	**$30,000**	**$50,176**	**$9,010**	**$17,200**	**$70,474**	**$34,342**	**$11,428**	**$22,271**	**$10,813**
Total Rate Funded Capital	**$17,200**	**$14,350**	**$14,250**	**$16,800**	**$19,500**	**$22,400**	**$24,200**	**$22,200**	**$23,350**	**$26,600**	**$23,700**	**$24,900**	**$25,300**	**$25,100**

Debt Service

The City's wastewater utility currently has several outstanding debt issuances with an annual debt service payment of approximately $7.8 million for FY 2023. This includes the 2014 revenue bond as well as the recently issued WIFIA loan. As mentioned in the capital funding section, it is projected that the City has planned to issue additional long-term debt through WIFIA, SRF, and municipal revenue bonds to fund the planned capital improvement projects. Including the existing and future long-term debt, the annual debt service increased to approximately $19.3 million by FY 2035.

An important metric used in the analysis of debt is the DSC ratio. The DSC ratio is a comparison of revenues available to fund annual debt service payments after deducting O&M expenses from the total available revenues. The City has a DSC ratio target of 1.0 on all debt less connection fee revenue, and 1.25 when including connection fee revenue. This number is often looked at by rating agencies and can affect the terms of financing for future long-term debt issuances. As a result, the City's analysis has planned for a DSC ratio greater than 1.25 over the time period so that unforeseen circumstances do not impact the wastewater utility financial health and ability to issue long-term debt in the future. During the projected time period, the DSC ratio is above the target minimum and reflects prudent long-term financial planning targets.

Reserve Funds

The City, as mentioned earlier, has an operating reserve which serves a variety of purposes, but the three primary purposes are one or all of the following:

- To supply adequate liquidity and cash flow to cover the operating costs of the wastewater utility until revenues are collected for services rendered
- To provide funds for a catastrophic event resulting in a large capital funds need or loss of revenue
- To maintain surplus revenues to disburse in a deficit year, thereby reducing needed rate increases and resulting in smoother rate transition over time

The minimum target is set at 90 days of O&M expenses, which reflects general industry standard levels. For the City's wastewater utility, this figure would be approximately $22.9 million for FY 2022. The beginning balances, based on those provided by the City for the operating reserve, total $101.1 million in FY 2022; this figure contains significant funds that are earmarked for capital projects. Over the review period, reserves are used for various reasons, such as to fund the CIP and annual debt service payments, thereby minimizing rate adjustments. In FY 2035 it is projected that the ending reserve balance will be approximately $48.9 million. Given this the City should continue to monitor reserve levels annually to maintain adequate ending reserves balances.

Summary of the Financial Plan

The individual components discussed above are used to develop the financial plan. The summation of the annual O&M expenses, rate funded capital, debt service payments, and reserve funding is generally known as a revenue requirement. This analysis is used to compare the City's current wastewater rate revenues and operating and capital expenses, to assess the sufficiency of the existing wastewater rates. If there is a deficiency, and depending on the magnitude, timing, etc., a rate revenue adjustment may be recommended to maintain adequate funding for the operational and capital needs of the wastewater utility. Shown in Table 3 is a

summary of the wastewater revenue requirement that was prepared for the City's as part of this Wastewater Master Plan.

Table 3
Revenue Requirement Summary ($000)

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 3033	FY 2034	FY 2035
Revenues														
Rate Revenues	$76,418	$74,877	$75,626	$76,382	$77,146	$77,917	$78,696	$79,483	$80,278	$81,081	$81,892	$82,711	$83,538	$84,373
Other Revenues	110,723	2,302	2,698	2,741	2,494	2,156	2,262	2,281	2,301	2,324	2,349	2,372	2,397	2,426
Total Revenues	**$187,141**	**$77,179**	**$78,323**	**$79,123**	**$79,639**	**$80,074**	**$80,958**	**$81,765**	**$82,579**	**$83,405**	**$84,241**	**$85,083**	**$85,935**	**$86,799**
Expenses														
Total O&M Expenses	$45,820	$62,925	$66,071	$69,375	$72,844	$76,486	$80,310	$84,325	$88,542	$92,969	$97,617	$102,498	$107,623	$113,004
Rate Funded Capital	17,200	14,350	14,250	16,800	19,500	22,400	24,200	22,200	23,350	26,600	23,700	24,900	25,300	25,100
Net Debt Service	124,064	4,669	7,638	7,819	7,781	7,750	9,644	12,693	12,657	10,249	14,542	14,507	14,473	15,806
To / (From) Reserves	57	(272)	(289)	149	223	283	267	308	315	627	421	471	648	768
Total Expenses	**$187,141**	**$81,672**	**$87,671**	**$94,142**	**$100,348**	**$106,919**	**$114,421**	**$119,526**	**$124,863**	**$130,445**	**$136,280**	**$142,376**	**$148,044**	**$154,678**
Bal. / (Def.) of Funds	$0	($4,493)	($9,347)	($15,019)	($20,708)	($26,845)	($33,462)	($37,762)	($42,284)	($47,040)	($52,039)	($57,294)	($62,109)	($67,879)
Bal as a % of Rate Adj	0.0%	6.0%	12.4%	19.7%	26.8%	34.5%	42.5%	47.5%	52.7%	58.0%	63.5%	69.3%	74.3%	80.5%
Proposed Rate Adj.	**0.0%**	**6.0%**	**6.0%**	**6.5%**	**6.0%**	**6.0%**	**6.0%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.0%**	**3.5%**
Add'l Rev w/ Rate Adj	$0	$4,493	$9,347	$15,019	$20,708	$26,845	$33,462	$37,762	$42,284	$47,040	$52,039	$57,294	$62,109	$67,879
Total Bal. / (Def.)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

As noted in Table 3, the City's wastewater utility would need to adjust overall wastewater rate revenues over the time period in order to fully fund the operating and capital needs through FY 2035. Key drivers in the financial plan results are the projection of O&M costs and the funding of the proposed CIP from the Plan. Any future rate transition plan should aim to provide steady and predictable rate adjustments over time. The proposed rate adjustments should be designed to fund the wastewater utility as identified in this financial plan and in doing this will help to maintain a strong financial position for the City to fully fund the operational and capital needs of the wastewater utility.

Connection Fees

The City has a number of funding sources available to offset capital costs of which many were discussed above. Another source which was not described in detail is from connection fees received from new wastewater connections. New wastewater connections are assessed a connection fee as a way to recover part or all of the cost of providing the infrastructure necessary to service the new connection (e.g., customer). The intent is that all new system customers will pay an equitable share of (or 'buy' into) the cost of the wastewater system improvements needed to accommodate growth. The calculation typically includes a value of the existing wastewater system assets and then adds in the anticipated future capital associated with providing capacity for new wastewater customers. This total cost is then reviewed on an incremental approach, that is, a calculation is performed to look at what the costs related to adding an additional single family equivalent unit is. Given this calculation, the schedule of connection fees can be updated. The revenues from these fees can then be utilized to pay directly for capital projects or for long-term debt service related to growth or capacity expansion. Additionally, a portion of the revenue from connection fees may be eligible to offset existing long-term debt payments to the extent they funded growth and expansion related capital infrastructure.

The City currently has in place fees that serve this purpose, the wastewater connection fee. This fee reflects the investment in infrastructure (capacity) for the collection system in place as well as to the wastewater treatment plant infrastructure (capacity) available to new customers. In order to update the wastewater connection fee, the starting point would be the capital improvements as outlined in this Wastewater Master Plan, along with the City's existing wastewater infrastructure. The available capacity in the existing system, plus the growth or expansion related capital projects, would be utilized in the analysis to develop an updated wastewater connection fee. This would provide a fee that reflects the value of the capacity necessary to serve new customers connecting to the City's wastewater system.

Summary

The financial plan presented in this chapter is based on several assumptions: the level of growth in the system, inflation amounts, and the level of debt financing at certain terms. Should these assumptions change (e.g., growth increases, slows down, or does not occur) the level of balance or deficiency and, therefore, rate adjustments required will be affected. Likewise, if costs escalate faster or slower than indicated in this plan, the projected balance or deficiency would also be affected.

Technical Appendix

City of Stockton
Wastewater Rate Study
Summary of the Revenue Requirement
Exhibit 1

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035
Revenues														
Rate Revenues	$76,417,720	$74,876,870	$75,625,639	$76,381,895	$77,145,714	$77,917,171	$78,696,343	$79,483,306	$80,278,139	$81,080,921	$81,891,730	$82,710,647	$83,537,754	$84,373,131
Miscellaneous Revenues	110,723,267	2,302,421	2,697,697	2,741,294	2,493,774	2,156,403	2,261,876	2,281,199	2,301,139	2,324,412	2,348,881	2,371,925	2,397,381	2,425,952
Total Revenues	**$187,140,987**	**$77,179,291**	**$78,323,336**	**$79,123,189**	**$79,639,488**	**$80,073,574**	**$80,958,219**	**$81,764,505**	**$82,579,278**	**$83,405,333**	**$84,240,611**	**$85,082,572**	**$85,935,135**	**$86,799,083**
Expenses														
Total O&M Expenses	$45,819,898	$62,924,981	$66,071,230	$69,374,792	$72,843,531	$76,485,708	$80,309,993	$84,325,493	$88,541,767	$92,968,856	$97,617,299	$102,498,163	$107,623,072	$113,004,225
Rate Funded Capital	17,200,000	14,350,000	14,250,000	16,800,000	19,500,000	22,400,000	24,200,000	22,200,000	23,350,000	26,600,000	23,700,000	24,900,000	25,300,000	25,100,000
Net Debt Service	124,063,808	4,668,651	7,638,463	7,818,878	7,781,229	7,750,011	9,643,762	12,693,274	12,656,584	10,248,735	14,541,541	14,507,474	14,473,067	15,805,580
To / (From) Reserves	57,281	(271,729)	(289,029)	148,797	223,110	283,279	266,955	307,670	315,096	627,330	420,816	470,822	647,961	767,943
Total Revenue Requirement	**$187,140,987**	**$81,671,903**	**$87,670,665**	**$94,142,467**	**$100,347,869**	**$106,918,998**	**$114,420,710**	**$119,526,436**	**$124,863,447**	**$130,444,921**	**$136,279,655**	**$142,376,460**	**$148,044,099**	**$154,677,748**
Bal. / (Def.) of Funds	$0	($4,492,612)	($9,347,329)	($15,019,278)	($20,708,381)	($26,845,423)	($33,462,491)	($37,761,931)	($42,284,169)	($47,039,588)	($52,039,044)	($57,293,887)	($62,108,964)	($67,878,665)
Proposed Rate Adjustment	**0.0%**	**6.0%**	**6.0%**	**6.5%**	**6.0%**	**6.0%**	**6.0%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.0%**	**3.5%**
Add'l Revenue with Rate Adj	$0	$4,492,612	$9,347,329	$15,019,278	$20,708,381	$26,845,423	$33,462,491	$37,761,931	$42,284,169	$47,039,588	$52,039,044	$57,293,887	$62,108,964	$67,878,665
Bal. / (Def.) After Rate Adj	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Average Residential Customer Bill														
Customer Bill on Proposed Adj.	$49.56	$52.53	$55.69	$59.31	$62.86	$66.64	$70.63	$73.11	$75.66	$78.31	$81.05	$83.89	$86.41	$89.43
Bill Difference - Monthly		2.97	3.15	3.62	3.56	3.77	4.00	2.47	2.56	2.65	2.74	2.84	2.52	3.02
Cumulative Bill Difference		2.97	6.13	9.75	13.30	17.08	21.07	23.55	26.10	28.75	31.49	34.33	36.85	39.87
Debt Service Coverage Ratio (all debt) - No Connection Fees														
Before Rate Adjustment	1.10	1.83	1.14	0.89	0.62	0.33	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
After Proposed Rate Adjustment	1.10	2.41	2.00	2.25	2.50	2.77	2.64	2.20	2.27	2.75	2.15	2.22	2.25	2.16
Debt Service Coverage Ratio (all debt) - Plus Connection Fees														
Before Rate Adjustment	1.13	2.23	1.43	1.18	0.91	0.62	0.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00
After Proposed Rate Adjustment	1.13	2.81	2.29	2.54	2.79	3.06	2.89	2.41	2.48	3.00	2.34	2.41	2.45	2.34
Ending Fund Balance	**$104,622,606**	**$101,576,757**	**$86,537,713**	**$73,181,457**	**$58,887,334**	**$68,050,989**	**$68,547,661**	**$69,087,345**	**$69,636,775**	**$70,500,783**	**$71,160,643**	**$71,872,901**	**$72,764,710**	**$73,778,941**
Target Minimum - 6 mo. of O&M	*$22,909,949*	*$31,462,491*	*$33,035,615*	*$34,687,396*	*$36,421,766*	*$38,242,854*	*$40,154,997*	*$42,162,746*	*$44,270,884*	*$46,484,428*	*$48,808,649*	*$51,249,082*	*$53,811,536*	*$56,502,113*

City of Stockton
Wastewater Rate Study
Escalation Factors
Exhibit 2

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	*Notes*
Revenues															
Customer Growth	Calculated	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Misc / Other Revenues	Budget	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Expenses															
Labor	Budget	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Benefits - Medical	Budget	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Benefits - Retirement	Budget	7.0%	4.9%	5.9%	4.3%	1.8%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Benefits - Other	Budget	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	
Professional Services	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Materials & Supplies	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Equipment	Budget	4.0%	4.0%	4.0%	4.0%	4.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Chemicals	Budget	4.0%	4.0%	4.0%	4.0%	4.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Utilities	Budget	4.0%	4.0%	4.0%	4.0%	4.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
Insurance	Budget	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Miscellaneous	Budget	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	
Interest	0.5%	0.6%	0.8%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
New Debt Service Assumptions															
Revenue Bond															
Term in Years	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
Rate	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	
Low Interest Loan															
Term in Years	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	

City of Stockton
Wastewater Rate Study
Revenue Requirement
Exhibit 3

	YTD	Budget	Projected												
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Notes
Revenues															
Rate Revenues	$76,417,720	$74,876,870	$75,625,639	$76,381,895	$77,145,714	$77,917,171	$78,696,343	$79,483,306	$80,278,139	$81,080,921	$81,891,730	$82,710,647	$83,537,754	$84,373,131	As Customer Growth
Total Rate Revenues	**$76,417,720**	**$74,876,870**	**$75,625,639**	**$76,381,895**	**$77,145,714**	**$77,917,171**	**$78,696,343**	**$79,483,306**	**$80,278,139**	**$81,080,921**	**$81,891,730**	**$82,710,647**	**$83,537,754**	**$84,373,131**	
Other Revenues															
Fines and Penalties	$1,322,871	$995,230	$1,005,182	$1,015,234	$1,025,386	$1,035,640	$1,045,997	$1,056,457	$1,067,021	$1,077,691	$1,088,468	$1,099,353	$1,110,347	$1,121,450	As Misc / Other Revenues
Interest Income	1,103,896	1,010,691	1,393,050	1,423,600	1,162,903	812,224	904,255	910,002	916,229	925,653	936,135	945,051	956,239	970,398	Calculated on Reserves
Lien Admin Fees	200,000	200,000	202,000	204,020	206,060	208,121	210,202	212,304	214,427	216,571	218,737	220,924	223,134	225,365	As Misc / Other Revenues
Fats,Oils,Grease Inspectn	45,000	45,000	45,450	45,905	46,364	46,827	47,295	47,768	48,246	48,729	49,216	49,708	50,205	50,707	As Misc / Other Revenues
Misc Other Revenues	28,000	28,000	28,280	28,563	28,848	29,137	29,428	29,723	30,020	30,320	30,623	30,929	31,239	31,551	As Misc / Other Revenues
Permit Center Operations	23,500	23,500	23,735	23,972	24,212	24,454	24,699	24,946	25,195	25,447	25,702	25,959	26,218	26,480	As Misc / Other Revenues
WIFIA Proceeds	108,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Other Revenues	**$110,723,267**	**$2,302,421**	**$2,697,697**	**$2,741,294**	**$2,493,774**	**$2,156,403**	**$2,261,876**	**$2,281,199**	**$2,301,139**	**$2,324,412**	**$2,348,881**	**$2,371,925**	**$2,397,381**	**$2,425,952**	
Total Revenues	**$187,140,987**	**$77,179,291**	**$78,323,336**	**$79,123,189**	**$79,639,488**	**$80,073,574**	**$80,958,219**	**$81,764,505**	**$82,579,278**	**$83,405,333**	**$84,240,611**	**$85,082,572**	**$85,935,135**	**$86,799,083**	
Expenses															
Administration	$5,238,106	$5,604,463	$5,884,686	$6,178,920	$6,487,866	$6,812,260	$7,152,873	$7,510,516	$7,886,042	$8,280,344	$8,694,362	$9,129,080	$9,585,534	$10,064,810	As Labor
Customer Service	3,162,114	3,320,581	3,486,610	3,660,941	3,843,988	4,036,187	4,237,996	4,449,896	4,672,391	4,906,010	5,151,311	5,408,877	5,679,320	5,963,286	As Labor
Operations and Maintenance	37,419,678	53,999,937	56,699,934	59,534,931	62,511,677	65,637,261	68,919,124	72,365,080	75,983,334	79,782,501	83,771,626	87,960,207	92,358,218	96,976,128	As Labor
Additional O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Expenses	**$45,819,898**	**$62,924,981**	**$66,071,230**	**$69,374,792**	**$72,843,531**	**$76,485,708**	**$80,309,993**	**$84,325,493**	**$88,541,767**	**$92,968,856**	**$97,617,299**	**$102,498,163**	**$107,623,072**	**$113,004,225**	
Total Operations & Maintenance	**$45,819,898**	**$62,924,981**	**$66,071,230**	**$69,374,792**	**$72,843,531**	**$76,485,708**	**$80,309,993**	**$84,325,493**	**$88,541,767**	**$92,968,856**	**$97,617,299**	**$102,498,163**	**$107,623,072**	**$113,004,225**	
Taxes & Transfers															
Taxes & Transfers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Total Taxes & Transfers	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
Rate Funded Capital	**$17,200,000**	**$14,350,000**	**$14,250,000**	**$16,800,000**	**$19,500,000**	**$22,400,000**	**$24,200,000**	**$22,200,000**	**$23,350,000**	**$26,600,000**	**$23,700,000**	**$24,900,000**	**$25,300,000**	**$25,100,000**	FY 2021 Depr Exp = $12,481,751
Debt Service															
2014 Revenue Bond	$6,487,625	$6,487,500	$6,486,375	$6,698,250	$6,692,375	$6,693,250	$6,695,000	$6,696,875	$6,693,250	$0	$0	$0	$0	$0	Exhibit 5
2019 BANS	120,169,140	0	0	0	0	0	0	0	0	0	0	0	0	0	Exhibit 5
WIFIA	1,296,000	1,296,000	1,296,000	1,296,000	1,296,000	1,296,000	1,296,000	1,296,000	1,296,000	5,614,797	5,614,797	5,614,797	5,614,797	5,614,797	Exhibit 5
Assumed Low Interest Loan	0	0	3,002,086	3,002,086	3,002,086	3,002,086	4,926,499	4,926,499	4,926,499	4,926,499	4,926,499	4,926,499	4,926,499	4,926,499	Calc'd @ 2.5% for 20 yrs
Assumed Revenue Bond	0	0	0	0	0	0	0	3,080,374	3,080,374	3,080,374	7,406,909	7,406,909	7,406,909	8,774,173	Calc'd @ 4.5% for 30 yrs
Total Debt Service	$127,952,765	$7,783,500	$10,784,461	$10,996,336	$10,990,461	$10,991,336	$12,917,499	$15,999,749	$15,996,124	$13,621,670	$17,948,205	$17,948,205	$17,948,205	$19,315,469	
Less: Debt Service Funding															
Connection Fees (434 Fund)	$3,888,957	$3,114,849	$3,145,997	$3,177,457	$3,209,232	$3,241,324	$3,273,738	$3,306,475	$3,339,540	$3,372,935	$3,406,664	$3,440,731	$3,475,138	$3,509,890	
Bond Defeasance (431 Fund)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bond Defeasance (434 Fund)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Less Debt Service Funding	$3,888,957	$3,114,849	$3,145,997	$3,177,457	$3,209,232	$3,241,324	$3,273,738	$3,306,475	$3,339,540	$3,372,935	$3,406,664	$3,440,731	$3,475,138	$3,509,890	
Net Debt Service	**$124,063,808**	**$4,668,651**	**$7,638,463**	**$7,818,878**	**$7,781,229**	**$7,750,011**	**$9,643,762**	**$12,693,274**	**$12,656,584**	**$10,248,735**	**$14,541,541**	**$14,507,474**	**$14,473,067**	**$15,805,580**	

City of Stockton
Wastewater Rate Study
Revenue Requirement
Exhibit 3

	YTD	Budget	Projected												
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Notes
To / (From) Reserves															
Operating Fund (610-000)	$57,281	($271,729)	($289,029)	$148,797	$223,110	$283,279	$266,955	$307,670	$315,096	$627,330	$420,816	$470,822	$647,961	$767,943	
Captial Fund (610-612)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rate Stabilization Fund (610-611)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Long-Term Debt Proceeds Fund (610-614)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Connection Fee Fund (610-615)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total To / (From) Reserves	**$57,281**	**($271,729)**	**($289,029)**	**$148,797**	**$223,110**	**$283,279**	**$266,955**	**$307,670**	**$315,096**	**$627,330**	**$420,816**	**$470,822**	**$647,961**	**$767,943**	
Total Revenue Requirement	**$187,140,987**	**$81,671,903**	**$87,670,665**	**$94,142,467**	**$100,347,869**	**$106,918,998**	**$114,420,710**	**$119,526,436**	**$124,863,447**	**$130,444,921**	**$136,279,655**	**$142,376,460**	**$148,044,099**	**$154,677,748**	
Bal. / (Def.) of Funds	$0	($4,492,612)	($9,347,329)	($15,019,278)	($20,708,381)	($26,845,423)	($33,462,491)	($37,761,931)	($42,284,169)	($47,039,588)	($52,039,044)	($57,293,887)	($62,108,964)	($67,878,665)	
Bal as a % of Rate Adj	0.0%	6.0%	12.4%	19.7%	26.8%	34.5%	42.5%	47.5%	52.7%	58.0%	63.5%	69.3%	74.3%	80.5%	
Proposed Rate Adjustment	**0.0%**	**6.0%**	**6.0%**	**6.5%**	**6.0%**	**6.0%**	**6.0%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.5%**	**3.0%**	**3.5%**	
Add'l Revenue with Rate Adj	$0	$4,492,612	$9,347,329	$15,019,278	$20,708,381	$26,845,423	$33,462,491	$37,761,931	$42,284,169	$47,039,588	$52,039,044	$57,293,887	$62,108,964	$67,878,665	
Bal. / (Def.) After Rate Adj	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Total Balance as a % of Rates	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	
Average Residential Customer Bill	**$49.56**														
Customer Bill on Proposed Adj.	$49.56	$52.53	$55.69	$59.31	$62.86	$66.64	$70.63	$73.11	$75.66	$78.31	$81.05	$83.89	$86.41	$89.43	
Bill Difference - Monthly		2.97	3.15	3.62	3.56	3.77	4.00	2.47	2.56	2.65	2.74	2.84	2.52	3.02	
Cumulative Bill Difference		2.97	6.13	9.75	13.30	17.08	21.07	23.55	26.10	28.75	31.49	34.33	36.85	39.87	
Debt Service Coverage Ratio *(all debt)* **- No Connection Fees**															
Before Rate Adjustment	1.10	1.83	1.14	0.89	0.62	0.33	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Target 1.00
After Proposed Rate Adjustment	1.10	2.41	2.00	2.25	2.50	2.77	2.64	2.20	2.27	2.75	2.15	2.22	2.25	2.16	Target 1.00
Debt Service Coverage Ratio *(all debt)* **- Plus Connection Fees**															
Before Rate Adjustment	1.13	2.23	1.43	1.18	0.91	0.62	0.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00	Target 1.25
After Proposed Rate Adjustment	1.13	2.81	2.29	2.54	2.79	3.06	2.89	2.41	2.48	3.00	2.34	2.41	2.45	2.34	Target 1.25
Debt Service Coverage Ratio *(all debt)* **- Plus Conn Fees & Rate Stabilization**															
Before Rate Adjustment	1.24	3.89	2.63	2.37	2.12	1.84	1.35	0.90	0.70	0.57	0.23	0.01	0.00	0.00	Target 1.25
After Proposed Rate Adjustment	1.24	4.47	3.50	3.73	4.00	4.28	3.94	3.26	3.34	4.02	3.13	3.21	3.25	3.09	Target 1.25

City of Stockton
Wastewater Rate Study
Revenue Requirement
Exhibit 3

	YTD	Budget	Projected												
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Notes
Cash Reserves															
Beginning Reserve Balances	**$161,832,041**	**$104,622,606**	**$101,576,757**	**$86,537,713**	**$73,181,457**	**$58,887,334**	**$68,050,989**	**$94,758,058**	**$86,287,807**	**$69,636,775**	**$116,270,558**	**$82,588,867**	**$71,872,901**	**$83,577,528**	
Operating Fund (610-000)															
Beginning Balance	**$101,100,000**	**$82,635,374**	**$79,457,601**	**$64,241,605**	**$50,662,388**	**$36,143,073**	**$45,079,286**	**$45,346,241**	**$45,653,910**	**$45,969,006**	**$46,596,336**	**$47,017,152**	**$47,487,975**	**$48,135,935**	
Plus: Additions	57,281	0	0	148,797	223,110	8,936,213	266,955	307,670	315,096	627,330	420,816	470,822	647,961	767,943	
Repayment to 434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Less: Bond Defeasance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Less: Uses of Funds	(18,521,907)	(3,177,773)	(15,215,997)	(13,728,014)	(14,742,424)	0	0	0	0	0	0	0	0	0	
Ending Balance	**$82,635,374**	**$79,457,601**	**$64,241,605**	**$50,662,388**	**$36,143,073**	**$45,079,286**	**$45,346,241**	**$45,653,910**	**$45,969,006**	**$46,596,336**	**$47,017,152**	**$47,487,975**	**$48,135,935**	**$48,903,879**	
Captial Fund (610-612)															
Beginning Balance	**$14,000,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
Plus: Additions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Less: Uses of Funds	(14,000,000)	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ending Balance	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
Target Minimum - 6 mo. of O&M	**$22,909,949**	**$31,462,491**	**$33,035,615**	**$34,687,396**	**$36,421,766**	**$38,242,854**	**$40,154,997**	**$42,162,746**	**$44,270,884**	**$46,484,428**	**$48,808,649**	**$51,249,082**	**$53,811,536**	**$56,502,113**	50.0% O&M
Target Ending Bal. / (Def.)	*$59,725,425*	*$47,995,111*	*$31,205,990*	*$15,974,992*	*($278,693)*	*$6,836,432*	*$5,191,244*	*$3,491,164*	*$1,698,123*	*$111,909*	*($1,791,497)*	*($3,761,107)*	*($5,675,600)*	*($7,598,234)*	
Long-Term Debt Proceeds Fund (610-614)															
Beginning Balance	**$24,854,198**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$26,210,397**	**$17,200,462**	**$0**	**$45,769,775**	**$11,428,224**	**$0**	**$10,812,818**	
Plus: Additions	0	0	0	0	0	0	26,210,397	0	0	45,769,775	0	0	10,812,818	0	
Less: Uses of Funds	(24,854,198)	0	0	0	0	0	0	(9,009,935)	(17,200,462)	0	(34,341,551)	(11,428,224)	0	(10,812,818)	
Ending Balance	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$26,210,397**	**$17,200,462**	**$0**	**$45,769,775**	**$11,428,224**	**$0**	**$10,812,818**	**$0**	
Rate Stabilization Fund (610-611)															
Beginning Balance	**$12,873,782**	**$12,938,151**	**$13,015,780**	**$13,119,906**	**$13,251,105**	**$13,383,616**	**$13,517,452**	**$13,652,627**	**$13,789,153**	**$13,927,045**	**$14,066,315**	**$14,206,978**	**$14,349,048**	**$14,492,539**	
Plus: Additions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Plus Interest Earned	64,369	77,629	104,126	131,199	132,511	133,836	135,175	136,526	137,892	139,270	140,663	142,070	143,490	144,925	
Less: Uses of Funds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ending Balance	**$12,938,151**	**$13,015,780**	**$13,119,906**	**$13,251,105**	**$13,383,616**	**$13,517,452**	**$13,652,627**	**$13,789,153**	**$13,927,045**	**$14,066,315**	**$14,206,978**	**$14,349,048**	**$14,492,539**	**$14,637,464**	
Connection Fee Fund (610-615)															
Beginning Balance	**$9,004,061**	**$9,049,081**	**$9,103,376**	**$9,176,203**	**$9,267,965**	**$9,360,644**	**$9,454,251**	**$9,548,793**	**$9,644,281**	**$9,740,724**	**$9,838,131**	**$9,936,513**	**$10,035,878**	**$10,136,237**	
Capacity Fees	3,888,957	3,114,849	3,145,997	3,177,457	3,209,232	3,241,324	3,273,738	3,306,475	3,339,540	3,372,935	3,406,664	3,440,731	3,475,138	3,509,890	As Customer Growth
Plus Interest Earned	45,020	54,294	72,827	91,762	92,680	93,606	94,543	95,488	96,443	97,407	98,381	99,365	100,359	101,362	
Repayment from 431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bond Defeasance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Less: Uses of Funds	($3,888,957)	($3,114,849)	($3,145,997)	($3,177,457)	($3,209,232)	($3,241,324)	($3,273,738)	($3,306,475)	($3,339,540)	($3,372,935)	($3,406,664)	($3,440,731)	($3,475,138)	($3,509,890)	
Ending Balance	**$9,049,081**	**$9,103,376**	**$9,176,203**	**$9,267,965**	**$9,360,644**	**$9,454,251**	**$9,548,793**	**$9,644,281**	**$9,740,724**	**$9,838,131**	**$9,936,513**	**$10,035,878**	**$10,136,237**	**$10,237,599**	
Total Ending Balance	**$104,622,606**	**$101,576,757**	**$86,537,713**	**$73,181,457**	**$58,887,334**	**$68,050,989**	**$94,758,058**	**$86,287,807**	**$69,636,775**	**$116,270,558**	**$82,588,867**	**$71,872,901**	**$83,577,528**	**$73,778,941**	

City of Stockton
Wastewater Rate Study
Capital Improvement Plan
Exhibit 4

Inflation = 2.7%

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Total	*Notes*
RWCF																
Rehab Digester A & B for sludge storage Design (Evaluate per M20021)	$0	$0	$2,098,911	$2,155,581	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,254,492	
RWCF 60kV Transformer Replacement	0	821,600	0	0	0	0	0	0	0	0	0	0	0	0	821,600	
RWCF Cogeneration Engine No. 1 Rebuild	0	256,750	263,682	270,802	278,113	0	0	0	0	0	0	0	0	0	1,069,347	
RWCF Cogeneration Engine No. 3 Rebuild	0	0	0	0	0	868,292	0	0	0	0	0	0	0	0	868,292	
RWCF Cogeneration Engine No. 4 Rebuild	0	0	791,047	0	0	0	0	0	0	0	0	0	0	0	791,047	
RWCF Facility Main Plant Switchgear Upgrade with Load Shedding	0	120,159	118,130	121,319	0	0	0	0	0	0	0	0	0	0	359,608	
RWCF New Outfall	0	4,108,000	0	0	0	0	0	0	0	0	0	0	0	0	4,108,000	
RWCF Pond No. 1 Cleaning	0	0	2,405,837	2,470,794	2,537,506	2,606,019	0	0	0	0	0	0	0	0	10,020,156	
RWCF Sludge Day Tank Mixing Rehabiltation	0	82,160	84,378	0	0	0	0	0	0	0	0	0	0	0	166,538	
RWCF Floodwall Ph 1 Project	0	1,797,250	6,328,374	0	0	0	0	0	0	0	0	0	0	0	8,125,624	
RWCF 60-KV Transformer Station Relocation Project	0	898,625	1,054,729	0	0	0	0	0	0	0	0	0	0	0	1,953,354	
RWCF Large Diameter Pipe Inspection	0	0	210,946	0	0	0	0	0	0	0	0	0	0	0	210,946	
Unidentified	0	0	0	0	0	0	4,693,347	4,820,067	4,950,209	5,083,865	5,221,129	5,362,100	5,506,876	5,655,562	41,293,155	
Total RWCF	**$0**	**$8,084,544**	**$13,356,033**	**$5,018,497**	**$2,815,619**	**$3,474,311**	**$4,693,347**	**$4,820,067**	**$4,950,209**	**$5,083,865**	**$5,221,129**	**$5,362,100**	**$5,506,876**	**$5,655,562**	**$74,042,158**	
Capacity Improv. to Existing Gravity Sewer																
E. Marsh Street sewer	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,402,331	$0	$0	$0	$15,402,331	*Fund 434*
El Dorado Street / S. Center Street sewer	0	0	0	0	0	0	0	0	0	0	5,873,770	0	0	0	5,873,770	*Fund 434*
S. Wilson Way sewer	0	0	0	0	0	0	0	0	0	0	0	2,010,787	0	0	2,010,787	*Fund 434*
E. 6th Street	0	0	0	0	0	0	0	0	0	0	0	1,206,472	0	0	1,206,472	*Fund 434*
E. Main Street sewer	0	0	0	0	0	0	0	0	0	0	0	14,343,616	0	0	14,343,616	*Fund 434*
W. Washington Street / Port Road 23 sewer	0	0	0	0	0	0	0	0	0	0	0	0	7,296,611	0	7,296,611	*Fund 434*
Don Avenue / Meadow Avenue sewer	0	0	0	0	0	0	0	0	0	0	0	0	7,571,955	0	7,571,955	*Fund 434*
S. El Dorado Street sewer	0	0	0	0	0	0	0	0	0	0	0	0	2,615,766	0	2,615,766	*Fund 434*
Del Norte Street sewer	0	0	0	0	0	0	0	0	0	0	0	0	0	16,118,351	16,118,351	*Fund 434*
Cumberland & 5-Mile Slough PS inlet sewer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*Fund 434*
Total Capacity Improv. to Existing Gravity Sewer	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$21,276,101**	**$17,560,876**	**$17,484,332**	**$16,118,351**	**$72,439,660**	

City of Stockton
Wastewater Rate Study
Capital Improvement Plan
Exhibit 4

Inflation = 2.7%

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Total	*Notes*
Rehab of Existing Gravity Sewer Facilities																
Navy Drive parallel trunk sewers	$0	$2,875,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,875,600	
Worth Street trunk sewer	0	0	5,062,699	0	0	0	0	0	0	0	0	0	0	0	5,062,699	
Navy Drive I-5 trunk sewer	0	0	0	2,058,093	0	0	0	0	0	0	0	0	0	0	2,058,093	
Sierra Nevada Street trunk sewer	0	0	0	2,274,734	0	0	0	0	0	0	0	0	0	0	2,274,734	
Church Street/Pershing Avenue trunk sewer	0	0	0	0	9,455,853	0	0	0	0	0	0	0	0	0	9,455,853	
Oak Street trunk sewer	0	0	0	0	0	13,367,127	0	0	0	0	0	0	0	0	13,367,127	
Ralph Avenue trunk sewer, Phase 1	0	0	0	0	0	0	1,173,337	0	0	0	0	0	0	0	1,173,337	
Pershing Avenue sewer	0	0	0	0	0	0	1,760,005	0	0	0	0	0	0	0	1,760,005	
Mormon Slough trunk sewer	0	0	0	0	0	0	7,978,690	0	0	0	0	0	0	0	7,978,690	
March Lane trunk sewer	0	0	0	0	0	0	0	7,591,606	0	0	0	0	0	0	7,591,606	
Sperry Road/Gibraltar Court sewer	0	0	0	0	0	0	0	0	5,692,740	0	0	0	0	0	5,692,740	
Airport Way trunk sewer	0	0	0	0	0	0	0	0	0	6,354,831	0	0	0	0	6,354,831	
Union Street sewer	0	0	0	0	0	4,912,705	0	0	0	0	0	0	0	0	4,912,705	
Ralph Avenue trunk sewer, Phase 2	0	0	0	0	0	0	0	0	0	0	3,263,206	0	0	0	3,263,206	
Tuxedo Avenue sewer	0	0	0	0	0	0	0	0	0	635,483	0	0	0	0	635,483	
Hazelton Avenue trunk sewer	0	0	0	0	0	0	0	2,530,535	0	0	0	0	0	0	2,530,535	
Backyard and smaller diameter sewers	0	0	0	0	0	0	0	0	2,351,349	0	0	0	0	0	2,351,349	
Sewer Maintenance Hole Rehab	0	0	0	0	0	0	0	0	2,598,860	0	0	0	0	0	2,598,860	
Sanitary Sewer Small Diameter Lines Replc	0	0	0	0	0	0	0	0	0	2,287,739	0	0	0	0	2,287,739	
Sanitary Sewer Large Diameter Lines Replc	0	0	0	0	0	0	0	0	0	0	5,873,770	0	0	0	5,873,770	
Longview Avenue sewer	0	0	0	0	0	0	0	1,325,518	0	0	0	0	0	0	1,325,518	
Ryde Avenue trunk sewer	0	0	0	0	0	0	0	0	4,207,678	0	0	0	0	0	4,207,678	
Lincoln Road Trunk sewer	0	0	0	0	0	0	0	0	0	7,498,700	0	0	0	0	7,498,700	
Alturas Avenue sewer	0	0	0	0	0	0	0	0	742,531	0	0	0	0	0	742,531	
E. Bianchi Street/ Pardee Lane sewer	0	0	0	0	0	0	0	0	6,889,041	7,075,045	7,266,071	0	0	0	21,230,157	
Rose Marie Lane sewer	0	0	0	0	0	0	0	0	0	2,033,546	0	0	0	0	2,033,546	
Harding Way sewer	0	0	0	0	0	0	0	0	0	0	2,088,452	0	0	0	2,088,452	
Total Rehab of Existing Gravity Sewer Facilities	**$0**	**$2,875,600**	**$5,062,699**	**$4,332,827**	**$9,455,853**	**$18,279,832**	**$10,912,031**	**$11,447,660**	**$22,482,199**	**$25,885,344**	**$18,491,499**	**$0**	**$0**	**$0**	**$129,225,544**	
Pump Station and Force Main Improv.																
Westside Interceptor Parallel Force Main	$0	$0	$0	$14,027,527	$14,406,270	$14,795,239	$15,194,710	$0	$0	$0	$0	$0	$0	$0	$58,423,746	
Lincoln Street PS and Force Main	0	0	0	4,657,789	4,783,549	0	0	0	0	0	0	0	0	0	9,441,338	
14-Mile Slough PS Improvements	0	0	3,797,024	0	0	0	0	0	0	0	0	0	0	0	3,797,024	
5-Mile Slough Force Main	0	0	0	0	0	342,747	0	0	0	0	0	0	0	0	342,747	
Brookside Estates PS	0	0	0	0	0	1,028,241	0	0	0	0	0	0	0	0	1,028,241	
College Park PS	0	0	0	0	0	913,992	0	0	0	0	0	0	0	0	913,992	
Don Avenue & Santiago PS	0	0	0	0	0	571,245	0	0	0	0	0	0	0	0	571,245	
Drake and Hwy-99 PS	0	0	0	0	0	1,485,236	0	0	0	0	0	0	0	0	1,485,236	
Kelley & Mosher PS	0	0	0	0	0	571,245	0	0	0	0	0	0	0	0	571,245	
Quail Lakes PS	0	0	0	0	0	0	704,002	0	0	0	0	0	0	0	704,002	
Thornton & Davis PS	0	0	0	0	0	0	821,336	0	0	0	0	0	0	0	821,336	
Waterloo & Roosevelt PS	0	0	0	0	0	0	704,002	0	0	0	0	0	0	0	704,002	
Swenson and 5-Mile Slough PS	0	0	0	0	0	0	3,402,676	0	0	0	0	0	0	0	3,402,676	
Cumberland and 5-Mile Slough PS	0	0	0	0	0	0	0	0	0	7,625,797	0	0	0	0	7,625,797	*Fund 434*
Pump Station Rehabilitation and Modernization	0	2,054,000	2,109,458	2,166,413	2,224,907	2,284,979	0	0	0	0	0	0	0	0	10,839,757	
Plymouth & 5 Mile Creek PS	0	0	0	0	0	0	0	2,892,040	0	0	0	0	0	0	2,892,040	
Camanche PS	0	0	0	0	0	0	0	0	742,531	0	0	0	0	0	742,531	
Total Pump Station and Force Main Improv.	**$0**	**$2,054,000**	**$5,906,482**	**$20,851,729**	**$21,414,725**	**$21,992,923**	**$20,826,727**	**$2,892,040**	**$742,531**	**$7,625,797**	**$0**	**$0**	**$0**	**$0**	**$104,306,955**	

City of Stockton
Wastewater Rate Study
Capital Improvement Plan
Exhibit 4

Inflation = 2.7%

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	Total	*Notes*
Other Future System Improvements																
Capital Projects	$0	$0	$0	$0	$0	$0	$11,733,367	$12,050,168	$12,375,523	$12,709,662	$13,052,823	$13,405,249	$13,767,191	$14,138,905	$103,232,886	*Fund 434*
Total Other Future System Improvements	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,733,367**	**$12,050,168**	**$12,375,523**	**$12,709,662**	**$13,052,823**	**$13,405,249**	**$13,767,191**	**$14,138,905**	**$103,232,886**	
Recommended Studies																
Asset Condition Assessment for Sanitary Sewer Force Mains	$0	$1,129,700	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,129,700	
Asset Condition Assessment for Sanitary Sewer Pump Stations	0	0	0	0	556,227	0	0	0	0	0	0	0	0	0	556,227	
Corrosion and Odor Control Study	0	0	0	324,962	0	0	0	0	0	0	0	0	0	0	324,962	
West Side Interceptor Alignment Study	0	0	527,365	0	0	0	0	0	0	0	0	0	0	0	527,365	
Total Recommended Studies	**$0**	**$1,129,700**	**$527,365**	**$324,962**	**$556,227**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2,538,253**	
RWCF Modification Project	**$74,576,105**	**$49,912,200**	**$4,324,389**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$128,812,694**	
Future Capital Improvements	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
Transfer to Long-Term Debt Proceeds Fund	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$26,210,397**	**$0**	**$0**	**$45,769,775**	**$0**	**$0**	**$10,812,818**	**$0**	**$82,792,990**	
Transfer to Operating Fund	**$0**	**$0**	**$0**	**$0**	**$0**	**$8,652,934**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$8,652,934**	
Total Capital Improvement Projects	**$74,576,105**	**$64,056,044**	**$29,176,968**	**$30,528,014**	**$34,242,424**	**$52,400,000**	**$74,375,869**	**$31,209,935**	**$40,550,462**	**$97,074,443**	**$58,041,551**	**$36,328,224**	**$47,571,217**	**$35,912,818**	**$706,044,075**	
Less: Other Funding Sources																
Operating Fund (610-000)	$18,521,907	$2,906,044	$14,926,968	$13,728,014	$14,742,424	$0	$0	$0	$0	$0	$0	$0	$0	$0	$64,825,357	Input
Connection Fee Fund (610-615)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Fund 434
Captial Fund (610-612)	14,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	14,000,000	Input
Long-Term Debt Proceeds Fund (610-614)	24,854,198	0	0	0	0	0	0	9,009,935	17,200,462	0	34,341,551	11,428,224	0	10,812,818	107,647,188	Input
Low Interest Loans	0	46,800,000	0	0	0	30,000,000	0	0	0	0	0	0	0	0	76,800,000	Input
Revenue Bonds	0	0	0	0	0	0	50,175,869	0	0	70,474,443	0	0	22,271,217	0	142,921,529	Calculated
Total Other Funding Sources	**$57,376,105**	**$49,706,044**	**$14,926,968**	**$13,728,014**	**$14,742,424**	**$30,000,000**	**$50,175,869**	**$9,009,935**	**$17,200,462**	**$70,474,443**	**$34,341,551**	**$11,428,224**	**$22,271,217**	**$10,812,818**	**$406,194,074**	
Rate Funded Capital	**$17,200,000**	**$14,350,000**	**$14,250,000**	**$16,800,000**	**$19,500,000**	**$22,400,000**	**$24,200,000**	**$22,200,000**	**$23,350,000**	**$26,600,000**	**$23,700,000**	**$24,900,000**	**$25,300,000**	**$25,100,000**	**$299,850,000**	

City of Stockton
Wastewater Rate Study
Debt
Exhibit 5

Year	2014 Revenue Bond	2019 BANS	WIFIA	Total
FY 2022	$6,487,625	$120,169,140	$1,296,000	**$127,952,765**
FY 2023	6,487,500	0	1,296,000	**7,783,500**
FY 2024	6,486,375	0	1,296,000	**7,782,375**
FY 2025	6,698,250	0	1,296,000	**7,994,250**
FY 2026	6,692,375	0	1,296,000	**7,988,375**
FY 2027	6,693,250	0	1,296,000	**7,989,250**
FY 2028	6,695,000	0	1,296,000	**7,991,000**
FY 2029	6,696,875	0	1,296,000	**7,992,875**
FY 2030	6,693,250	0	1,296,000	**7,989,250**
FY 2031	0	0	5,614,797	**5,614,797**
FY 2032	0	0	5,614,797	**5,614,797**
FY 2033	0	0	5,614,797	**5,614,797**
FY 2034	0	0	5,614,797	**5,614,797**
FY 2035	0	0	5,614,797	**5,614,797**
FY 2036	0	0	5,614,797	**5,614,797**
FY 2037	0	0	5,614,797	**5,614,797**
FY 2038	0	0	5,614,797	**5,614,797**
FY 2039	0	0	5,614,797	**5,614,797**
FY 2040	0	0	5,614,797	**5,614,797**
FY 2041	0	0	5,614,797	**5,614,797**
FY 2042	0	0	5,614,797	**5,614,797**
FY 2043	0	0	5,614,797	**5,614,797**
FY 2044	0	0	5,614,797	**5,614,797**
FY 2045	0	0	5,614,797	**5,614,797**
FY 2046	0	0	5,614,797	**5,614,797**
FY 2047	0	0	5,614,797	**5,614,797**
FY 2048	0	0	5,614,797	**5,614,797**
FY 2049	0	0	5,614,797	**5,614,797**
FY 2050	0	0	5,614,797	**5,614,797**
FY 2051	0	0	5,614,797	**5,614,797**
FY 2052	0	0	0	**0**
FY 2053	0	0	0	**0**
FY 2054	0	0	0	**0**
FY 2055	0	0	0	**0**
FY 2056	0	0	0	**0**
FY 2057	0	0	0	**0**
	$59,630,500	**$120,169,140**	**$129,574,731**	**$309,374,371**