

murraysmith



Welcome

Fire and Water Unite

May 2019

Agenda

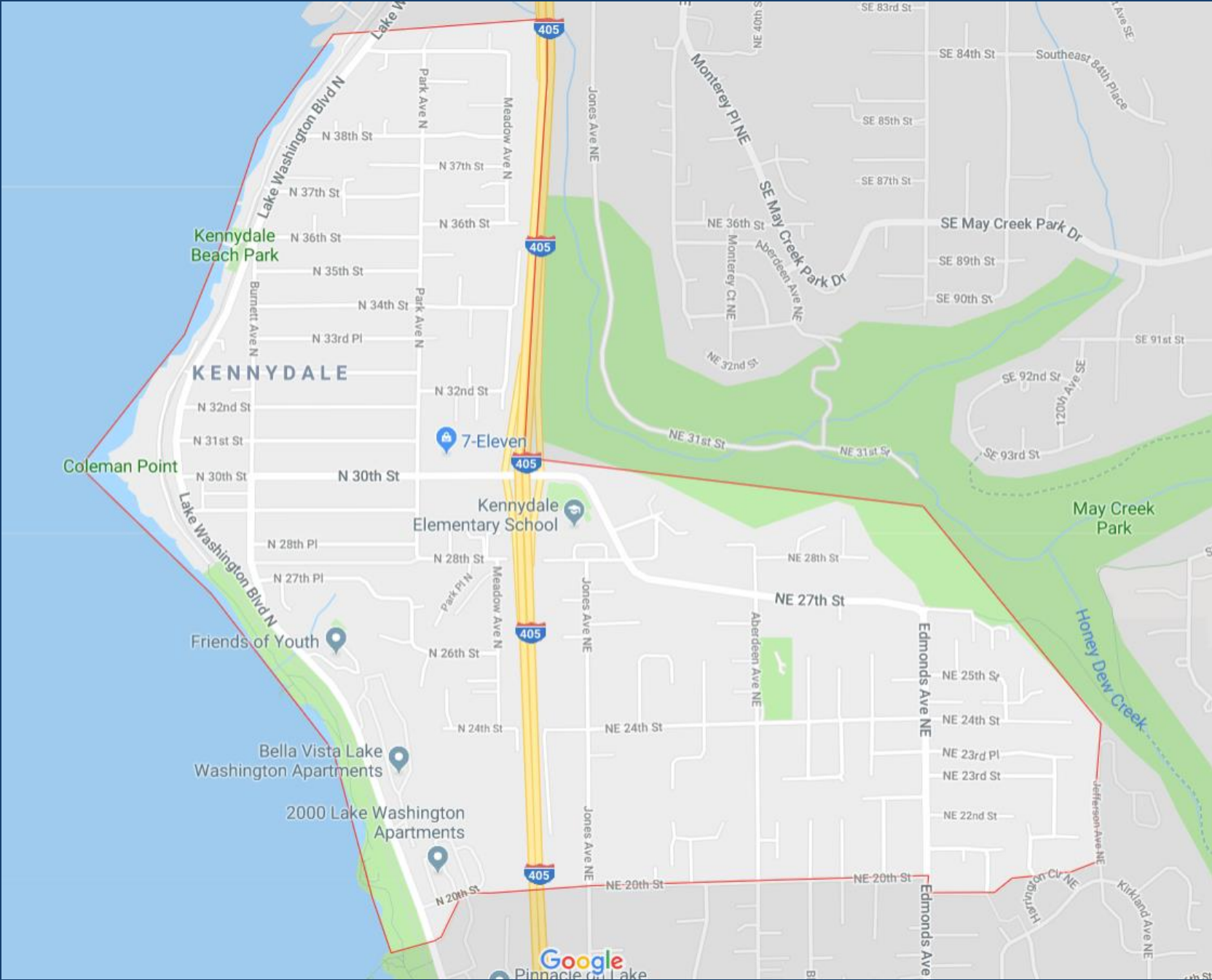
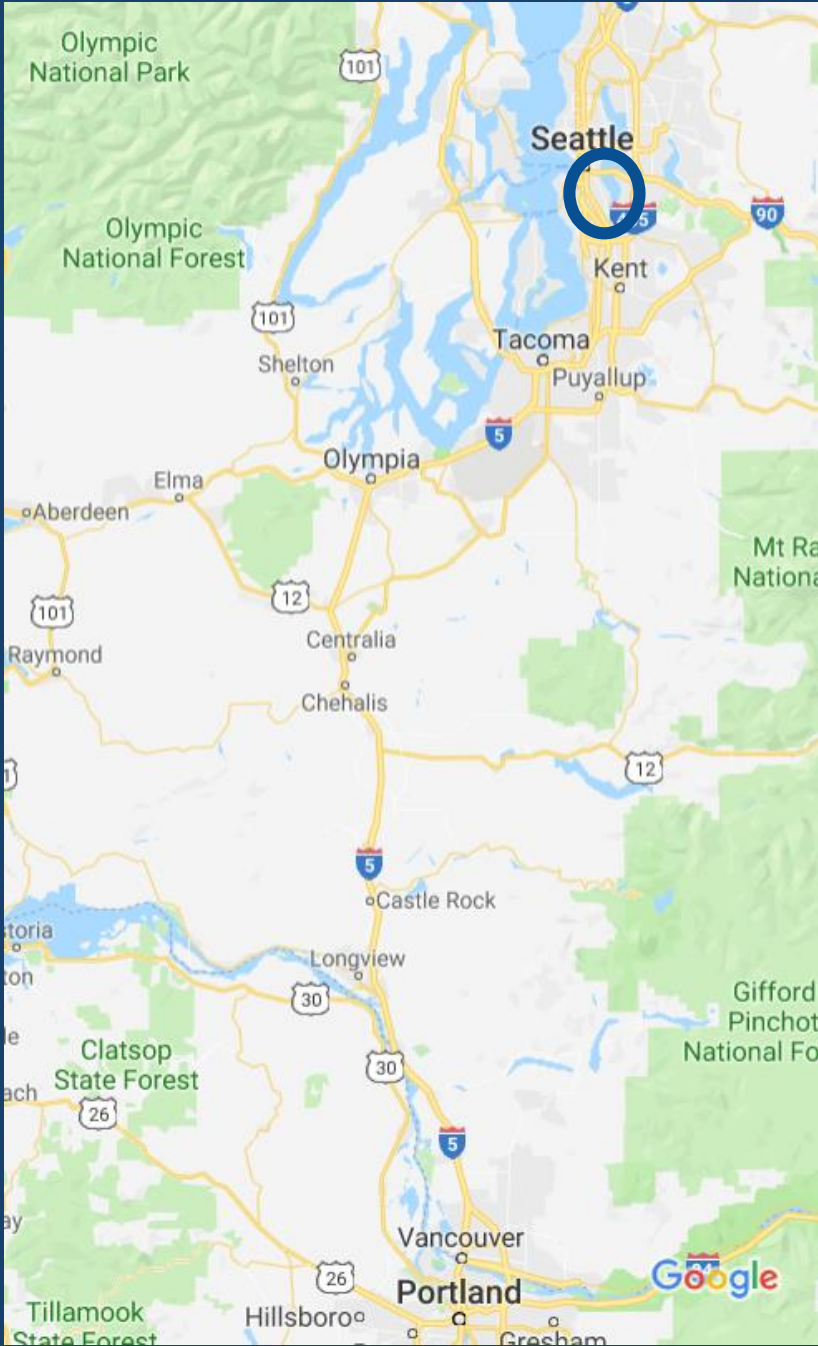


- 01 Project Background
- 02 Site Constraints
- 03 Design Challenges and Features
- 04 Public Outreach Program
- 05 Project Status
- 06 Q&A

1

Project Location

Renton, WA
Kennydale Neighborhood







1

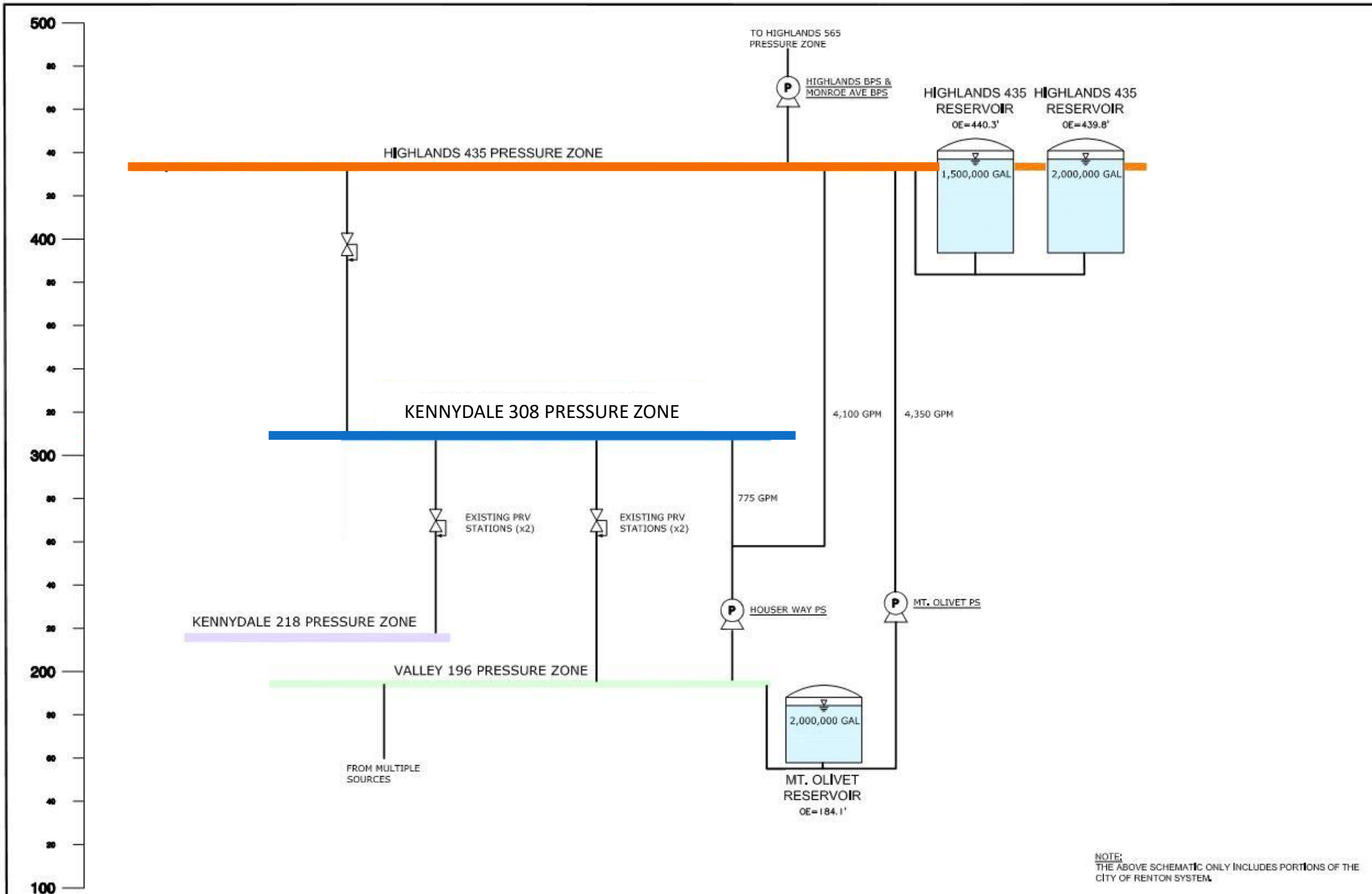
Small Project Site

Water System Overview

308 Zone

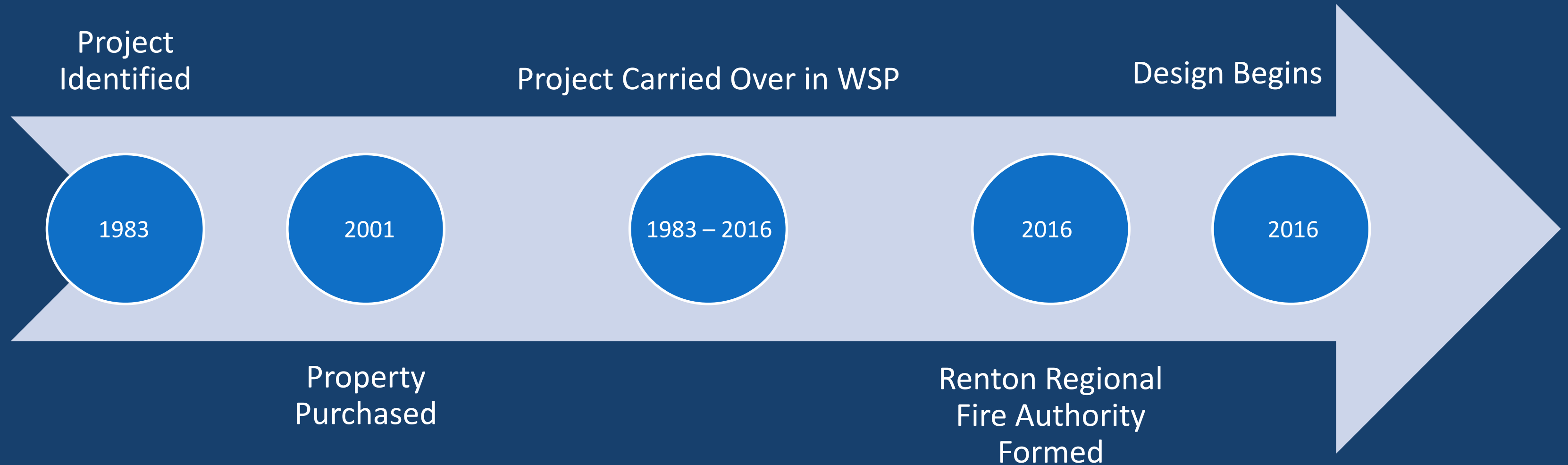
1. No existing storage
2. 3 MGD demand
3. Fed by 5 PRVs
4. Services

- 900+SFR
- 1700+ MFR
- 44 Commercial
- 20 Industrial
- 60+ Fire Protection
- 9 City Connections



1

Project History

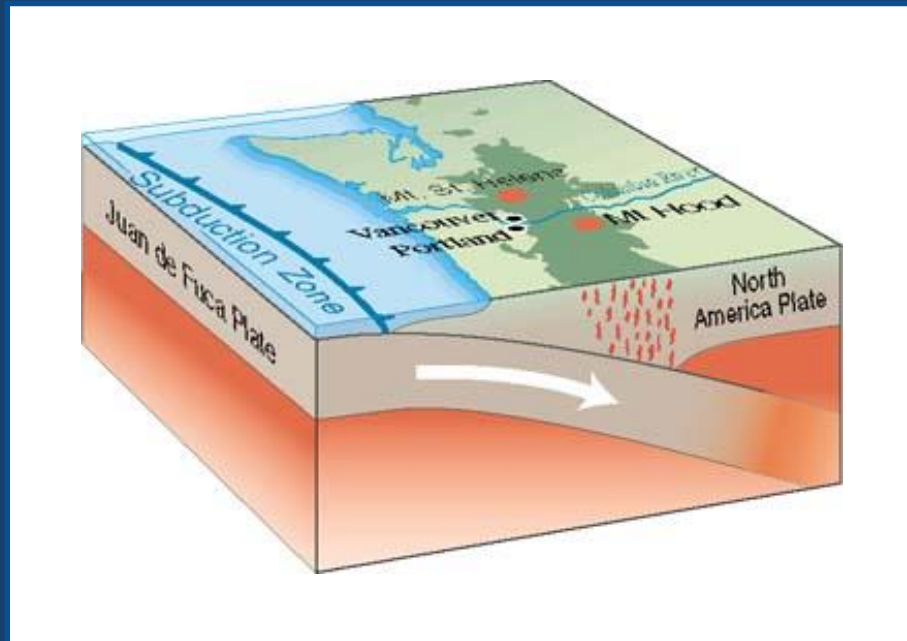


1. 1983 Water System Plan
2. Recent RRFA formation

3. Planned fire station in area
4. City owned property for many years

1

Project Goals



Seismic Resiliency



Surge Protection



Maintenance Friendly



Leverage Fire Station Construction

1

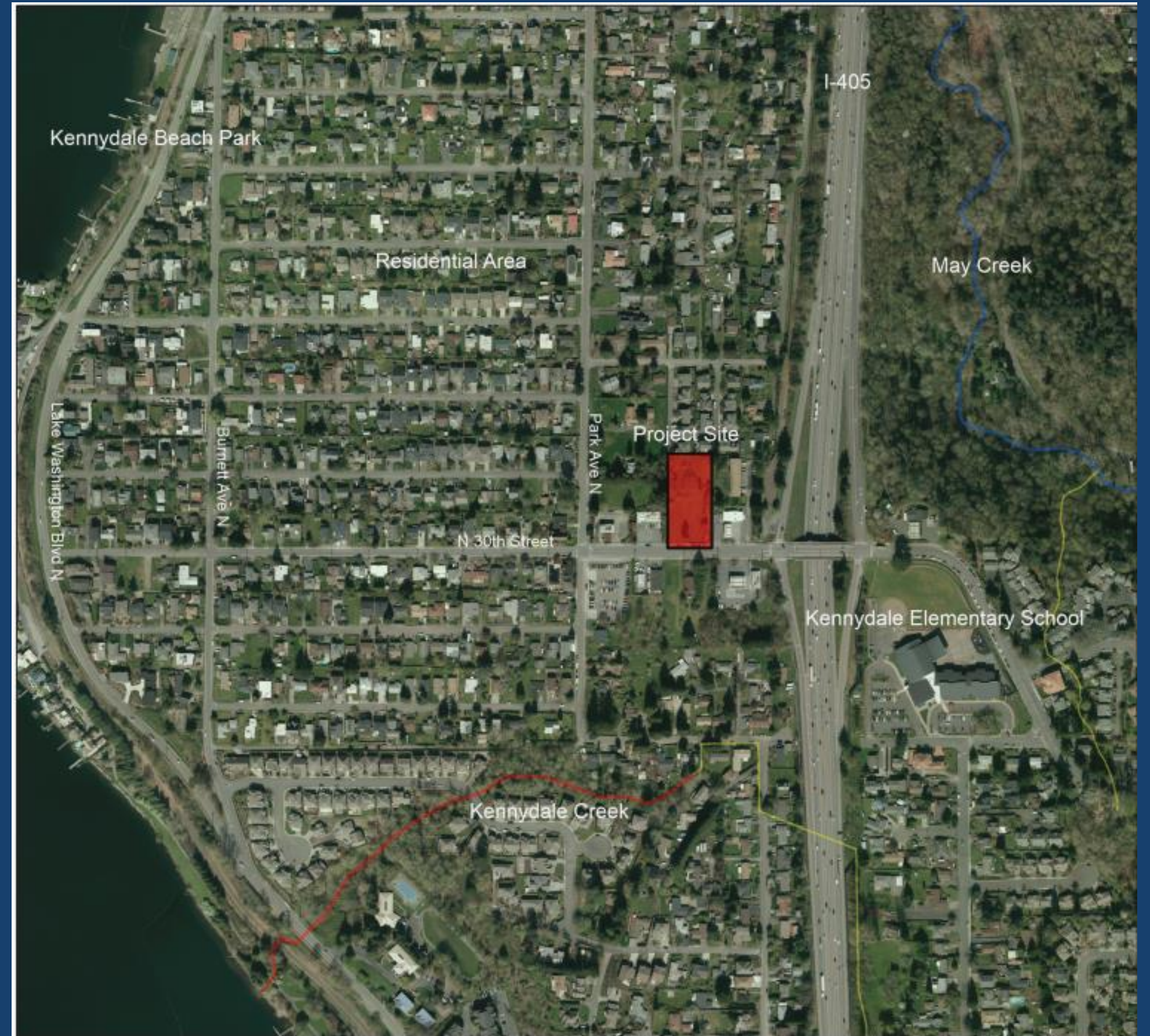
Project Team



2

Site Constraints

- Nearby residents
- Fire Station Constraints



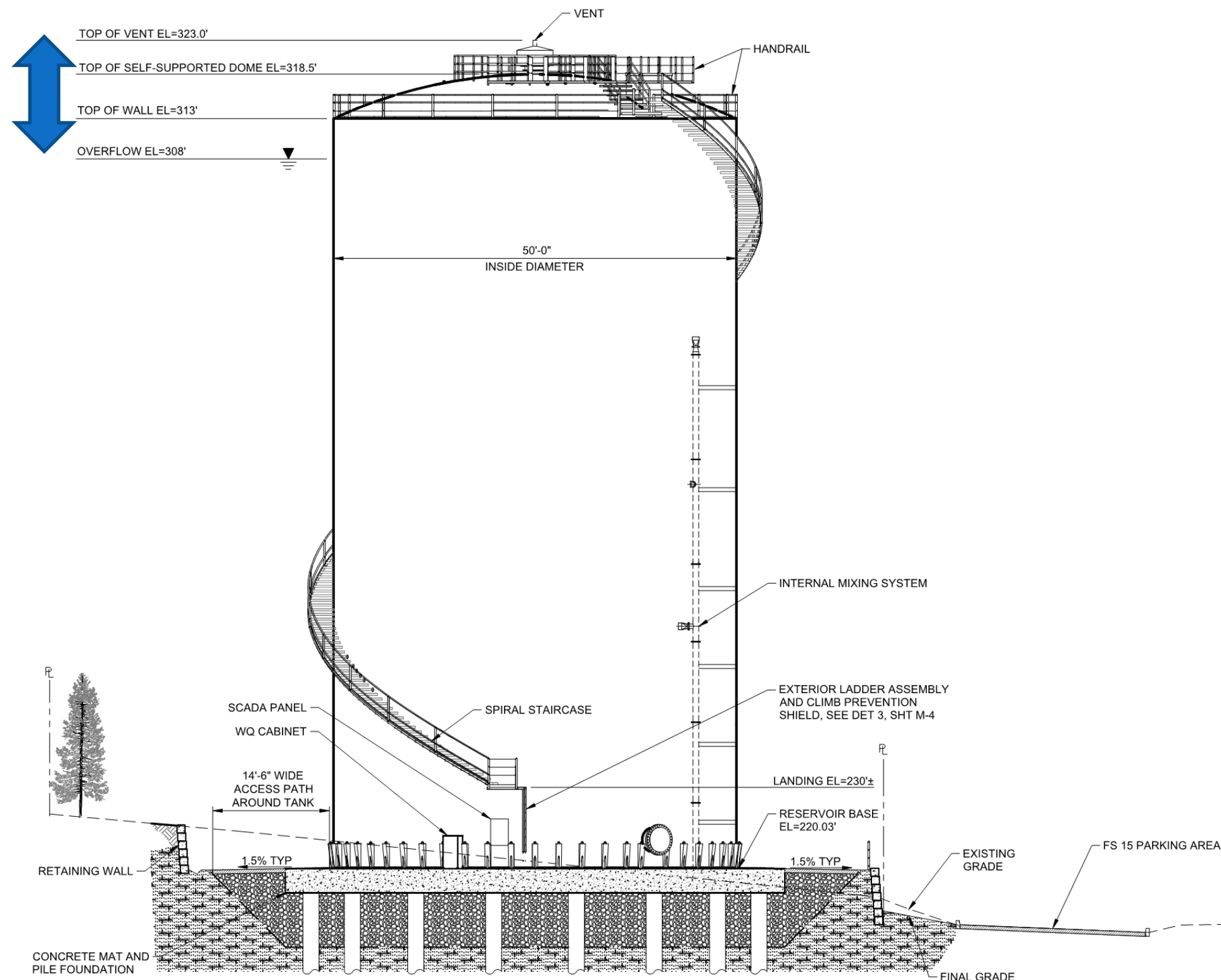
2

Phased Construction to Expedite Project



3

Design Integration into Water System



Height Limitations from FAA:
Maximum 323' AMSL

Old Overflow Elevation:
323'

Vent, Dome and Slosh Height
Required: 15'

New Overflow Elevation:
308'

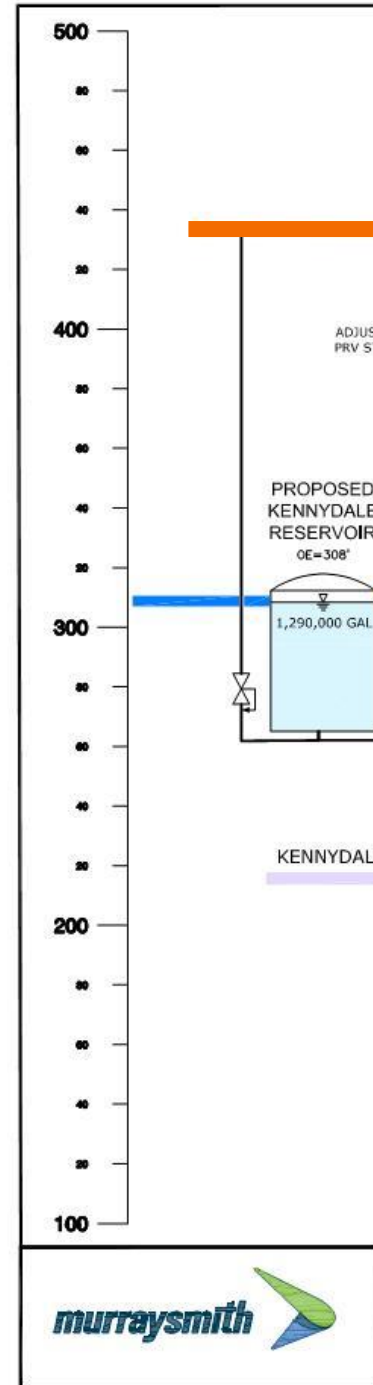
3

Design Integration into Water System

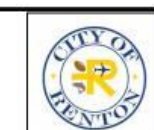
Offsite pressure considerations

Considered multiple pressure criteria and boundaries

New pressure zone boundaries



HEMATIC ONLY INCLUDES PORTIONS OF THE IN SYSTEM



3

Determining the Preferred Supply Source

2 existing supply sources

Impact of changed head conditions

Cost of energy

Operational changes

Supply capacities

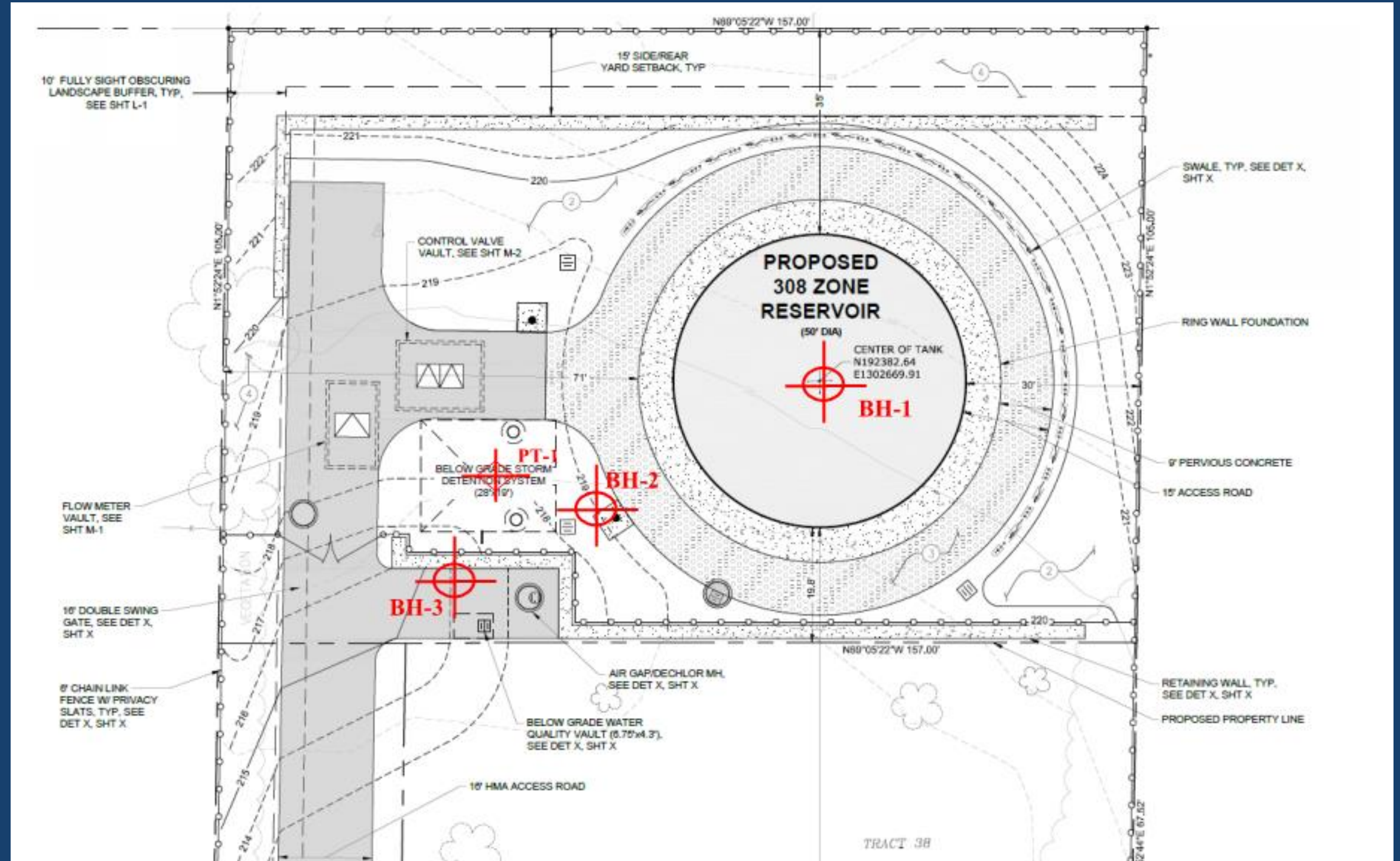
| 308 Zone | 2015 | 2015 | 2041 | 2041 | 2071 | 2071 |
|--------------|------|------|------|-------|-------|-------|
| | ADD | MDD | ADD | MDD | ADD | MDD |
| Demand (gpm) | 434 | 791 | 698 | 1,465 | 1,160 | 2,111 |

3

Soil Conditions

Top +/- 40' of material:

- 20-30 blow count
- 5,000 psf bearing capacity
- Static loading of tank was 5,400 psf



3

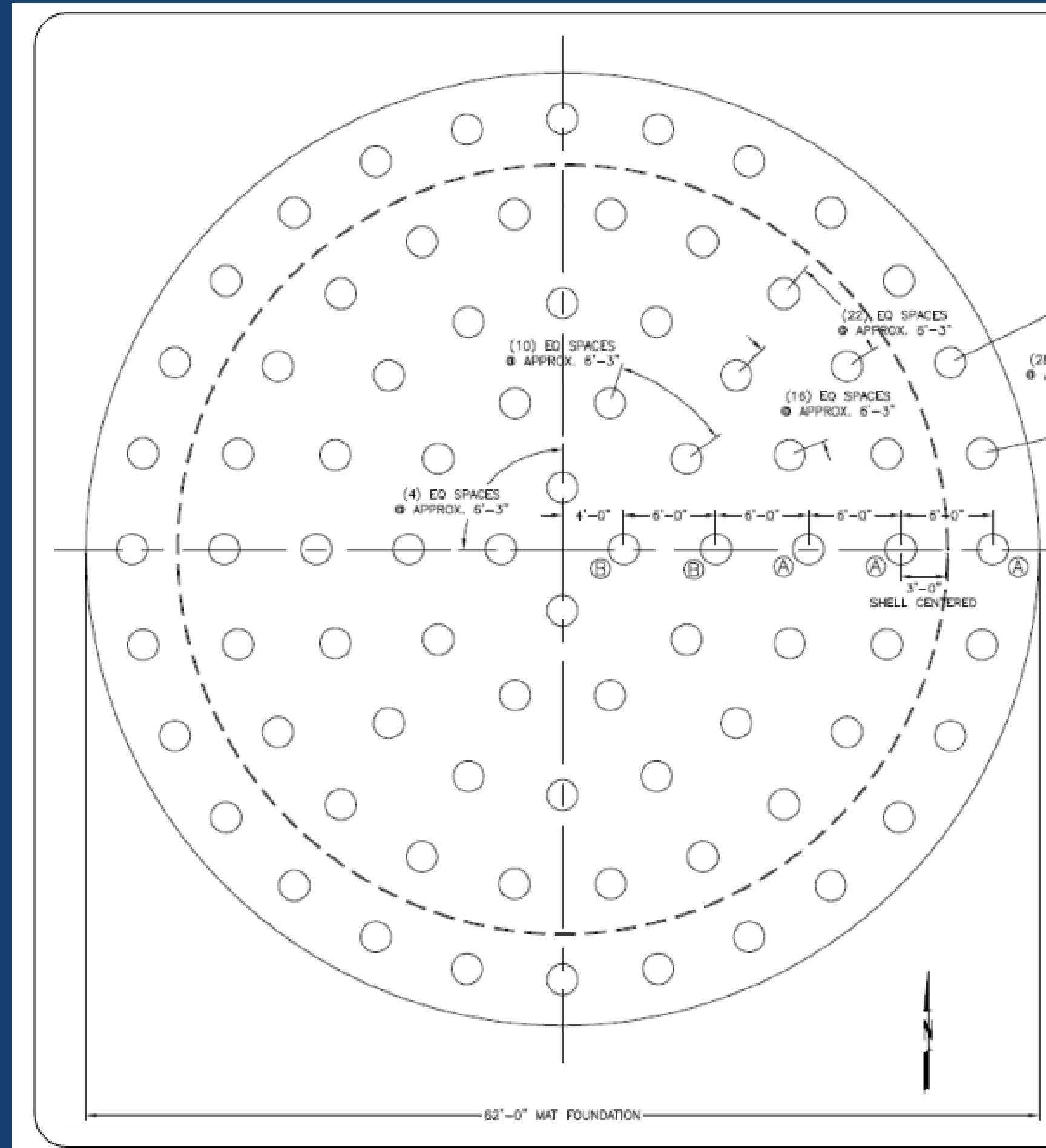
Pile Foundation

80 piles

24" Diameter

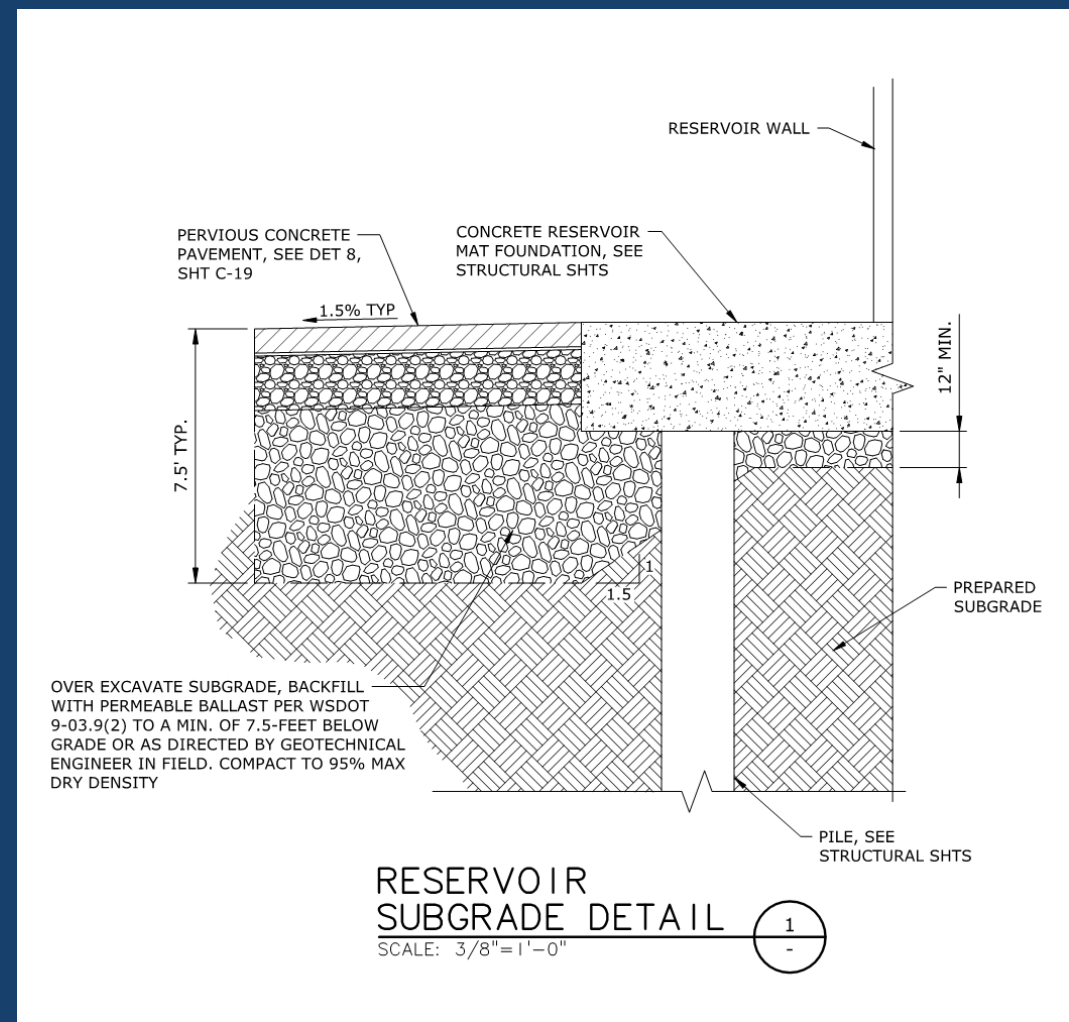
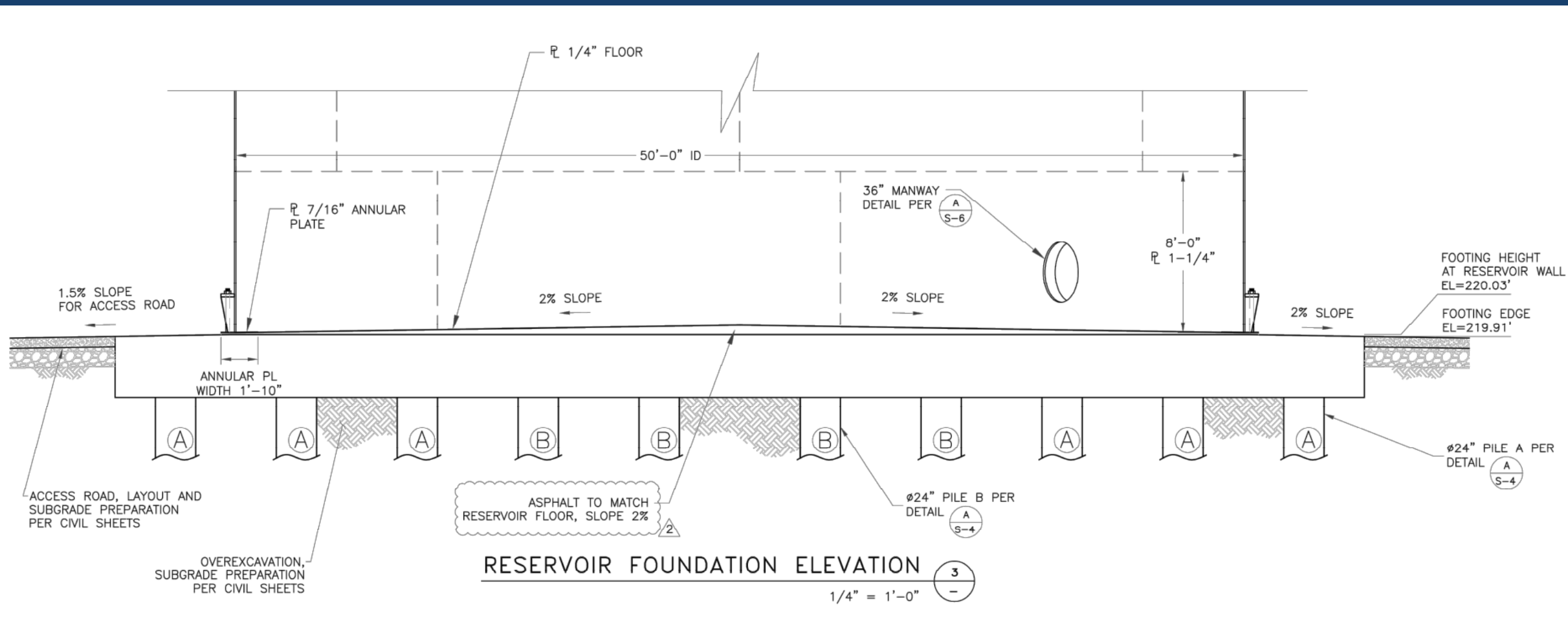
46' deep with 280 kip capacity near center

52' deep with 380 kip capacity near edges



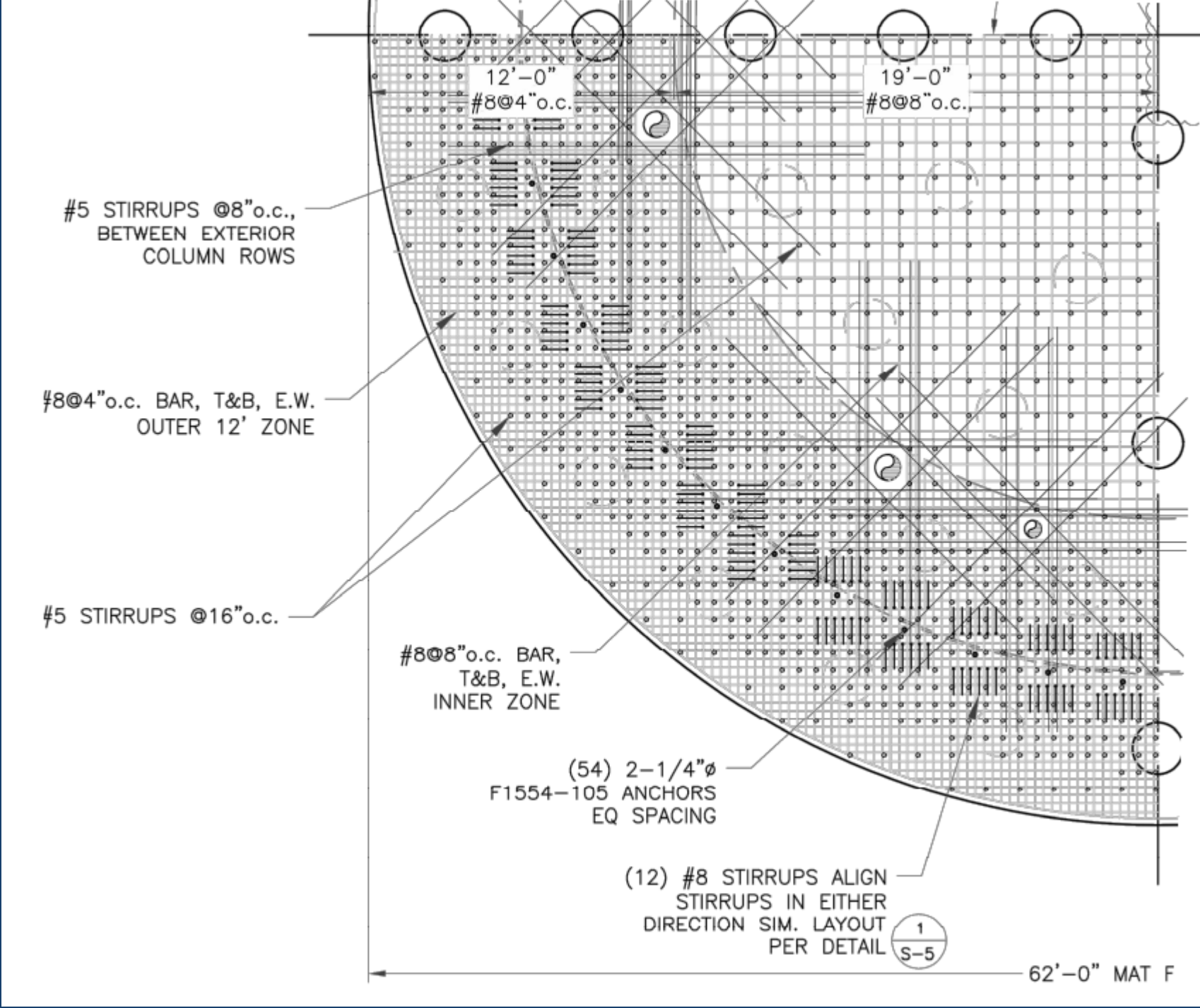
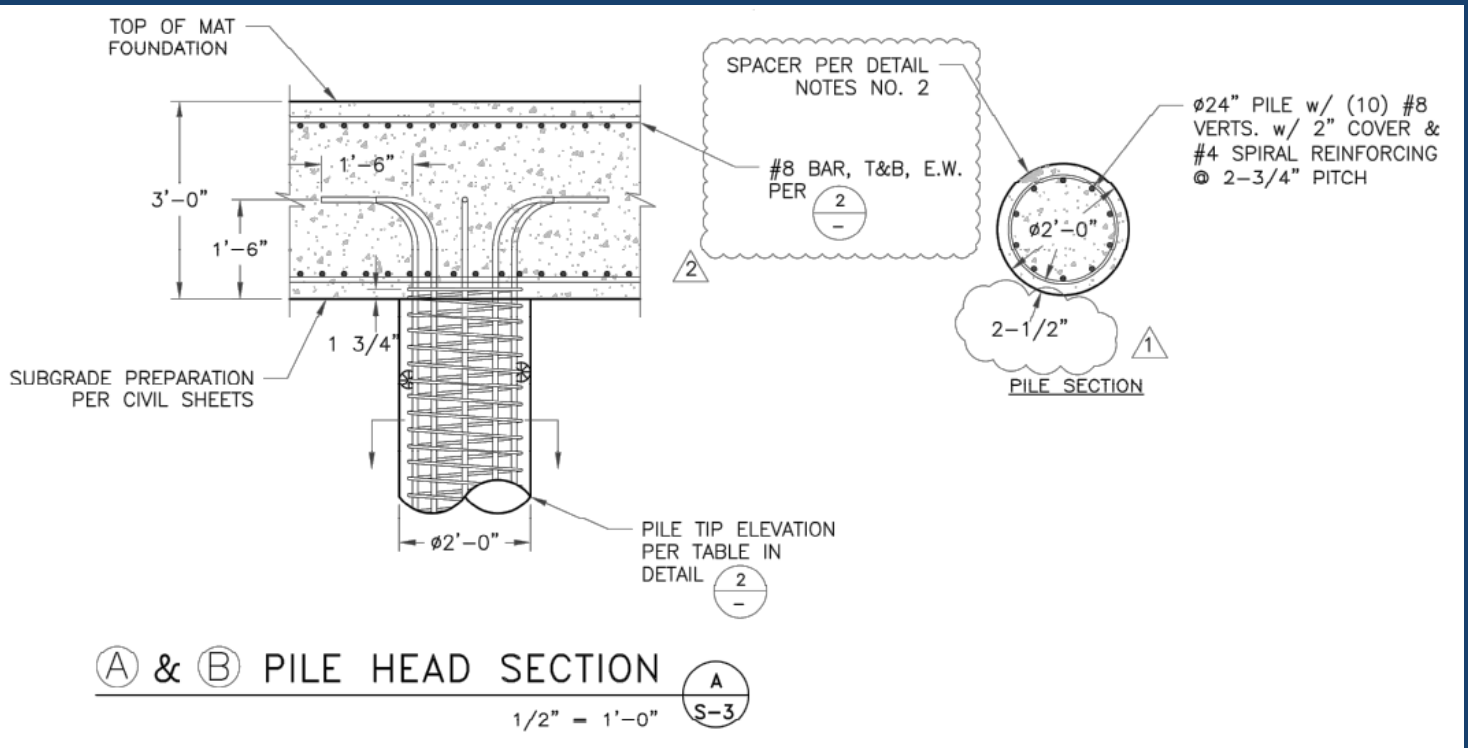
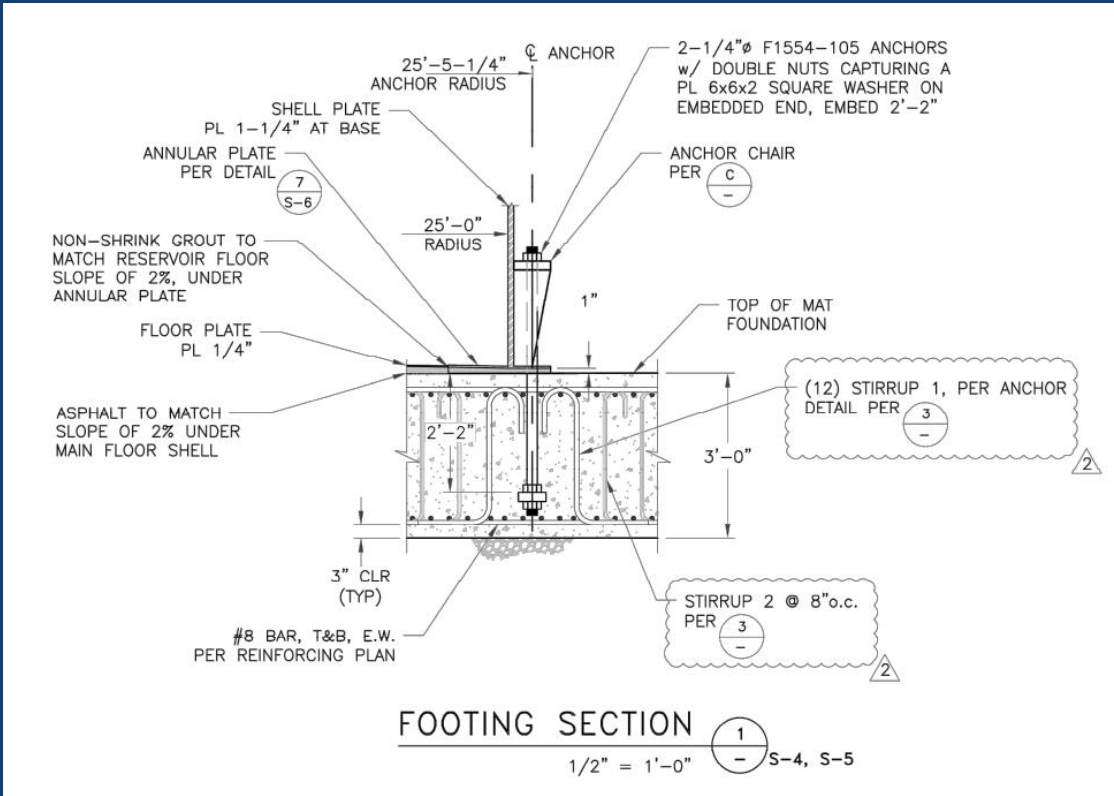
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Dual use of footing maximizes use of site

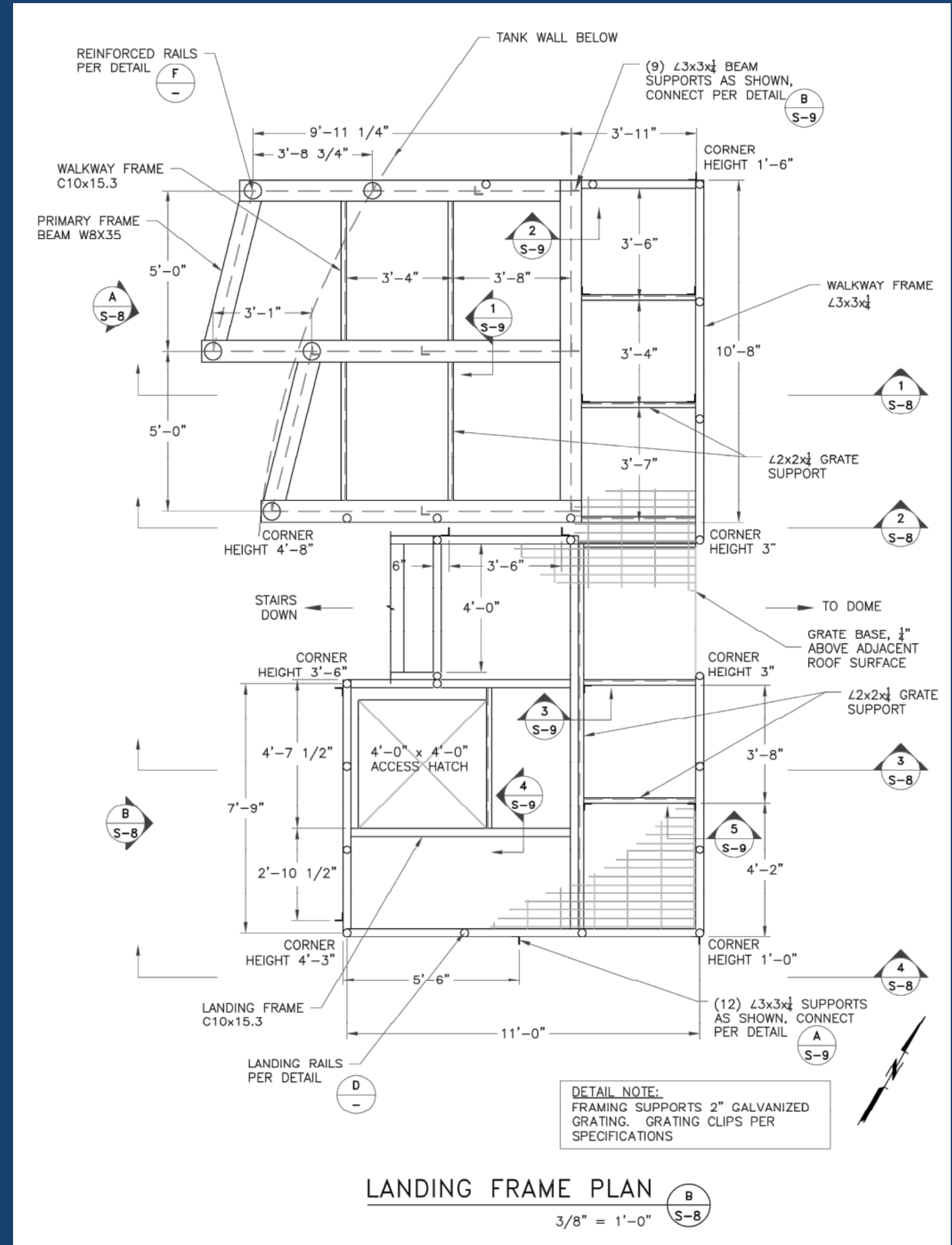
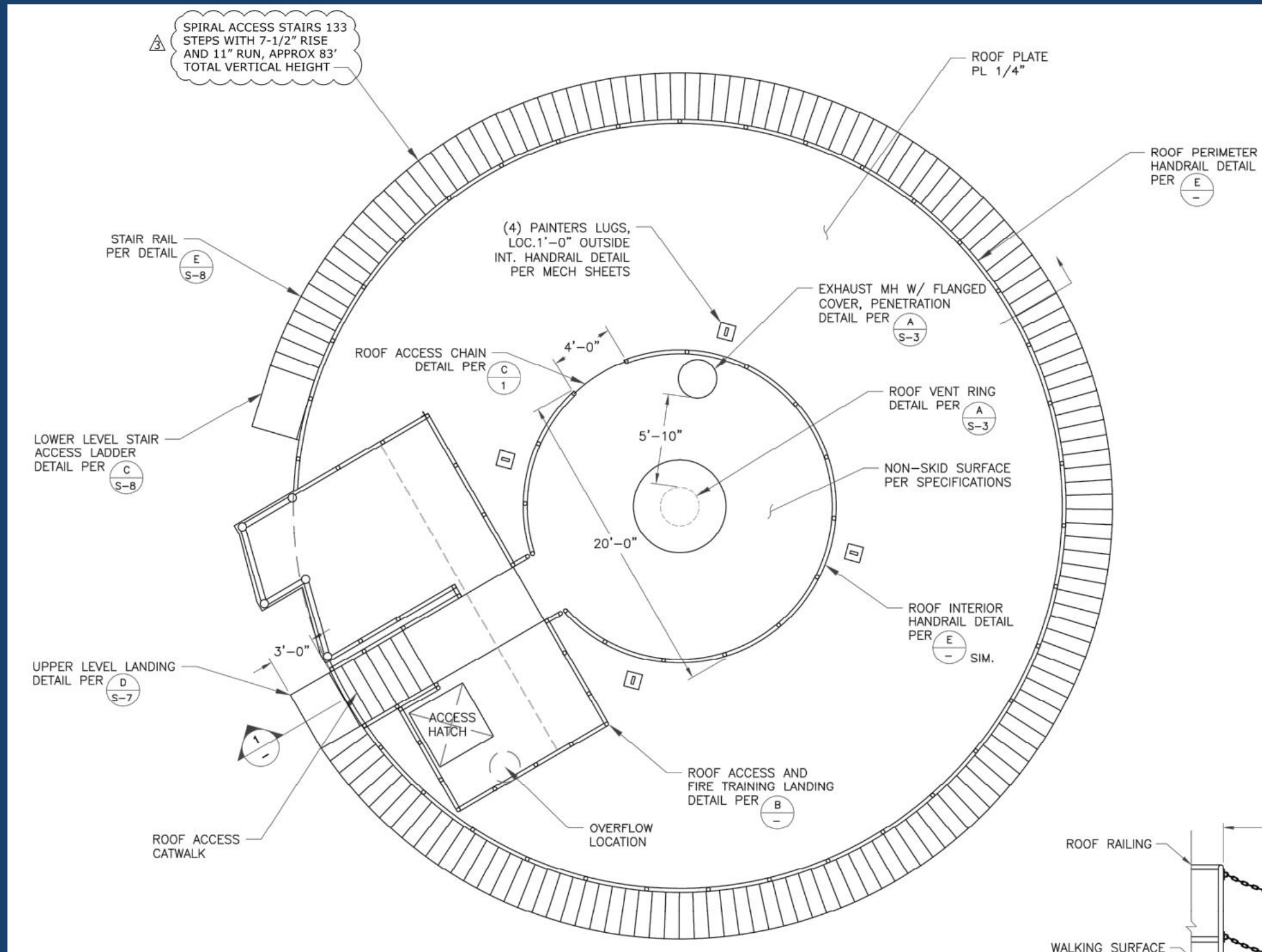


3

Foundation Detailing



Rescue Training Platform

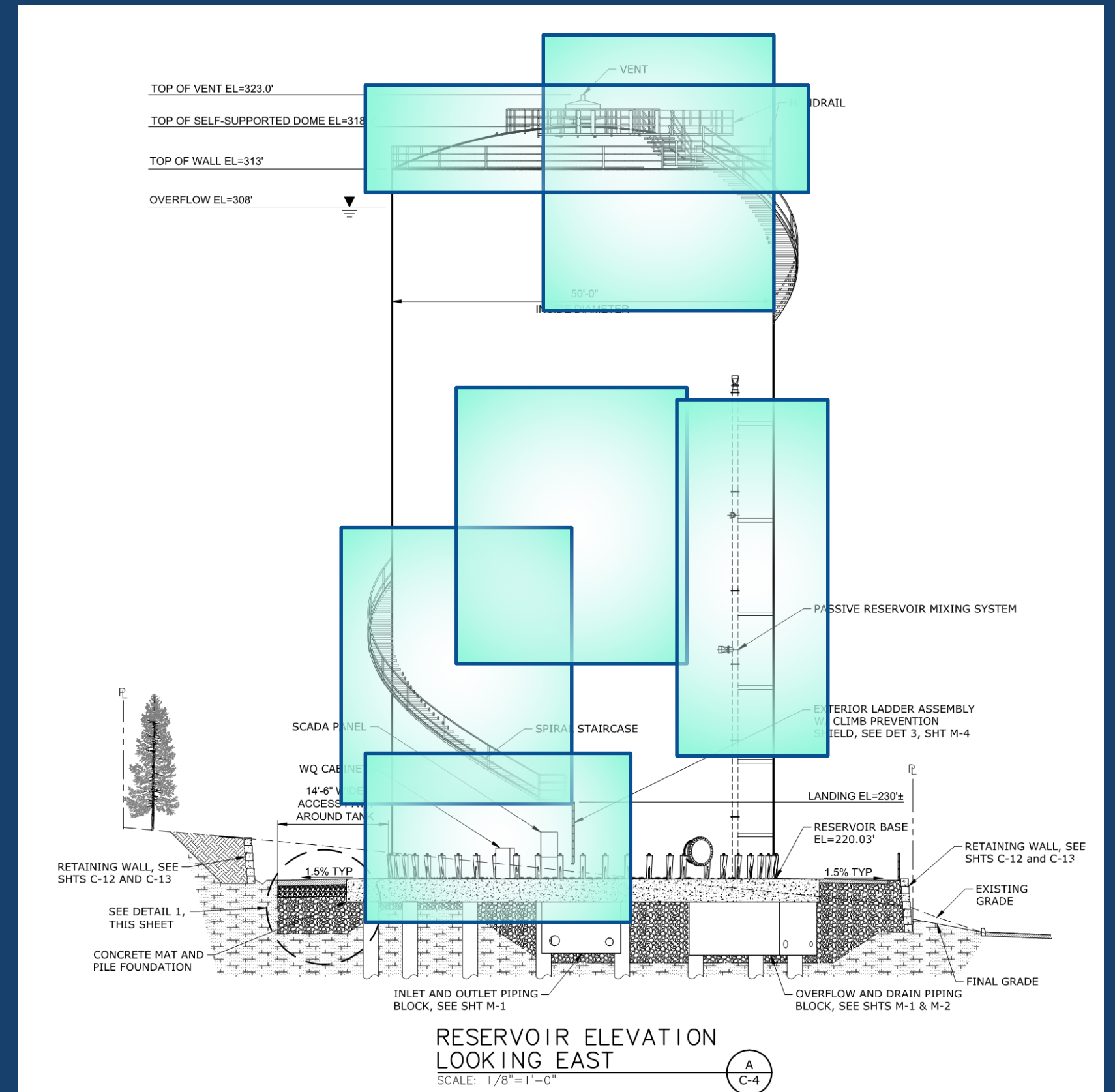


3

Maintenance Design Features

Features that reduce maintenance

1. Stairs
2. Submerged Piping Materials
3. Reduced ladder extents
4. Passive mixing system
5. WQ cabinet
6. Roof penetrations for future CP



4

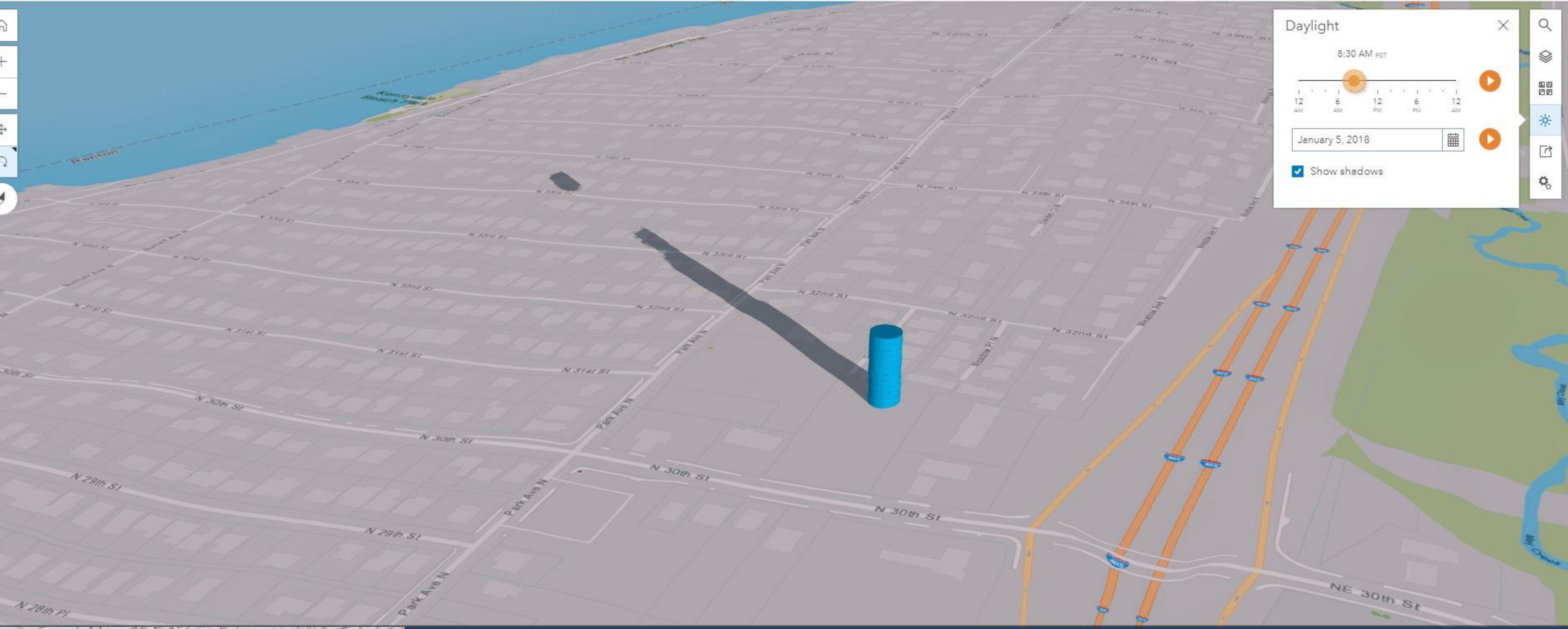
Public Outreach



1. Workshops
2. Shadow casting studies
3. Meetings with KNA
4. Got good buy-in
5. Leveraged joint Fire Station project angle

4

Public Outreach



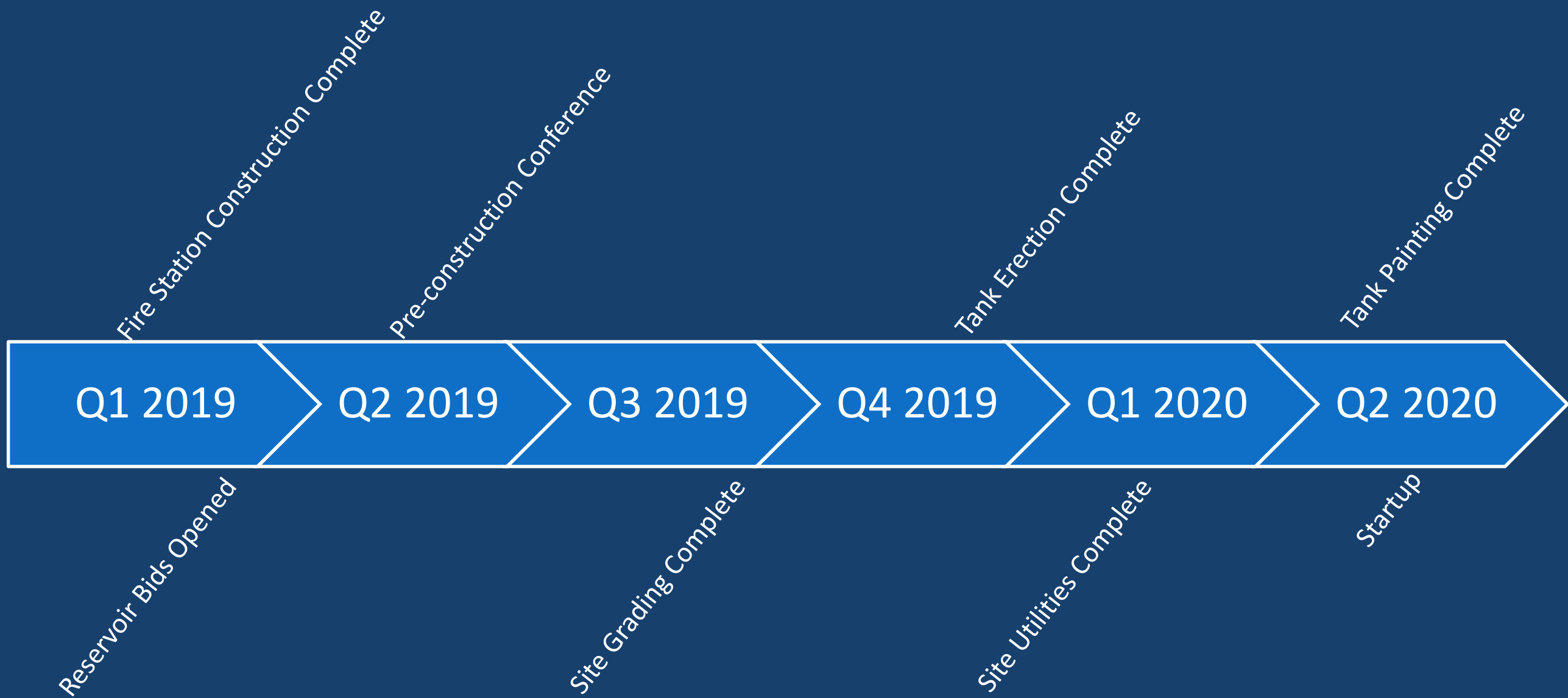
4

Public Outreach





Project Status







Q&A

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Thank you!

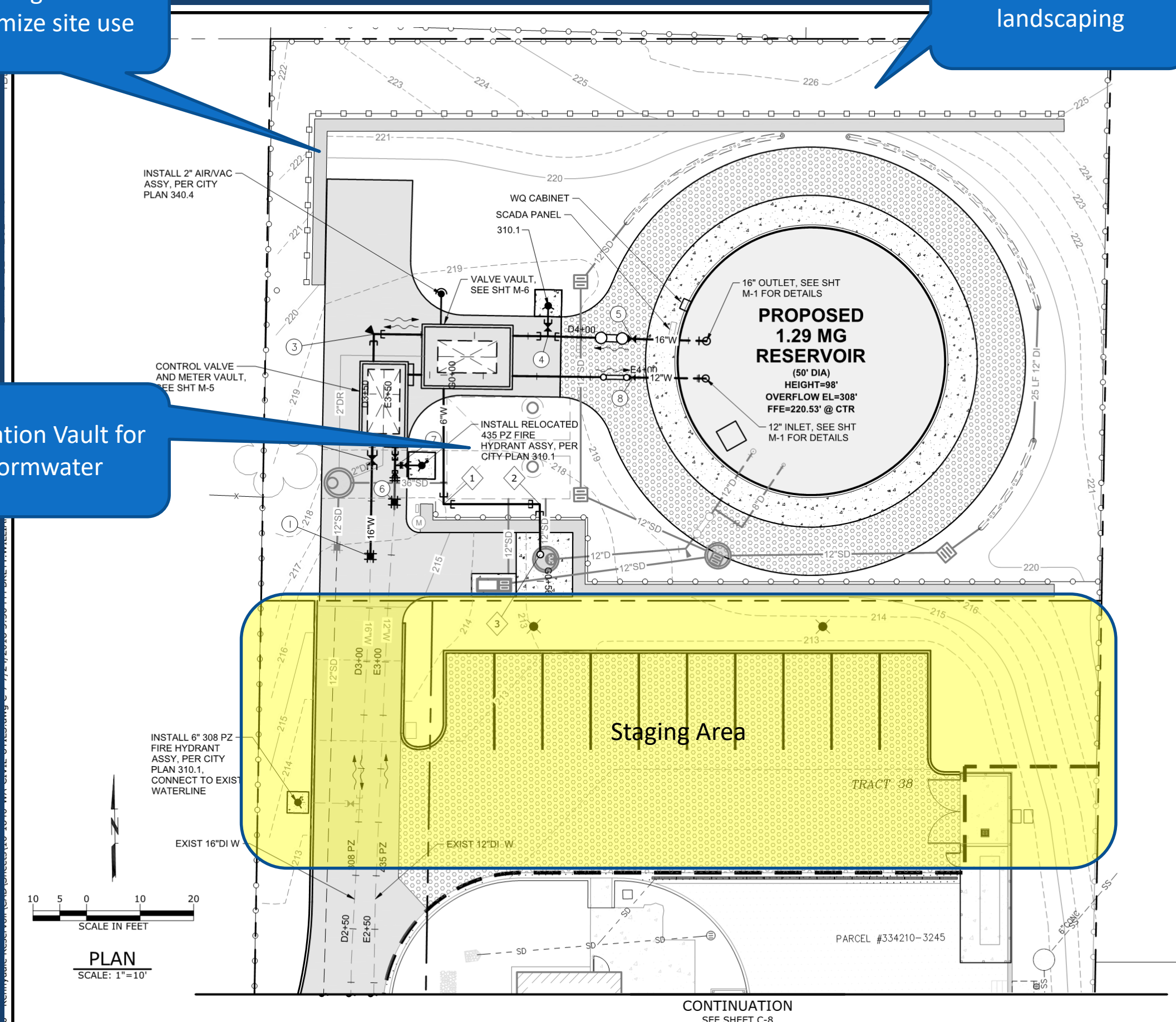
3

Site Design

Retaining Walls to maximize site use

Setbacks for landscaping

Infiltration Vault for Stormwater



INSTALL 2" AIR/VAC ASSY, PER CITY PLAN 340.4

INSTALL 6" 308 PZ FIRE HYDRANT ASSY, PER CITY PLAN 310.1, CONNECT TO EXIST WATERLINE

EXIST 16" DI W

EXIST 12" DI W

SCALE IN FEET

PLAN

SCALE: 1"=10'

CONTINUATION
SEE SHEET C-8



1

Heading

- text

2

Heading

- text

Outline

Project Location – Marshall (1 minute)

Renton, WA

Kennydale Neighborhood

Water System Overview – Eric (1 minute)

Renton Water system overall

customers, miles of pipe, # zones, etc.

Water System Overview (320 Zone) – Eric (1 minute)

Demand MGD

Served by PRVs and PS

Project History and Goals – Eric (1 minute)

When project was identified

Surge protection

Seismic Resiliency

Site Constraints – Eric (3 minutes)

Nearby residents

Fire Station Constraints

Construction Sequencing

Fire station built first

Contract site access separately

3 total bid packages

Design Integration into Water System – Marshall (4 minutes)

Height Limitations from FAA

Limited total structure height

Offsite pressure considerations

Considered multiple pressure criteria and boundaries

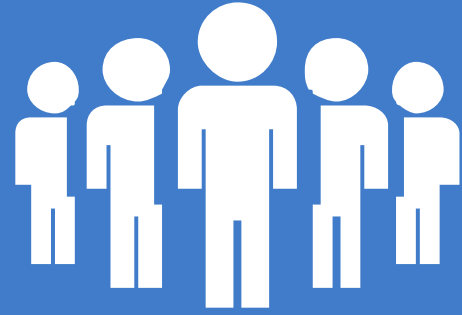
Now pressure zone boundaries

Fire station occupied

Q&A (5 minutes)

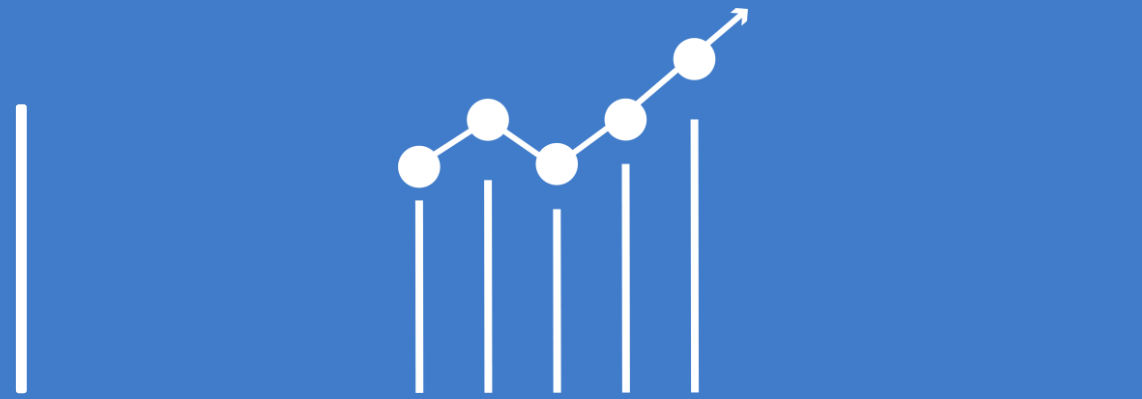
Good take away about options for contracting project to expedite schedule and move forward bringing the project on line

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- text



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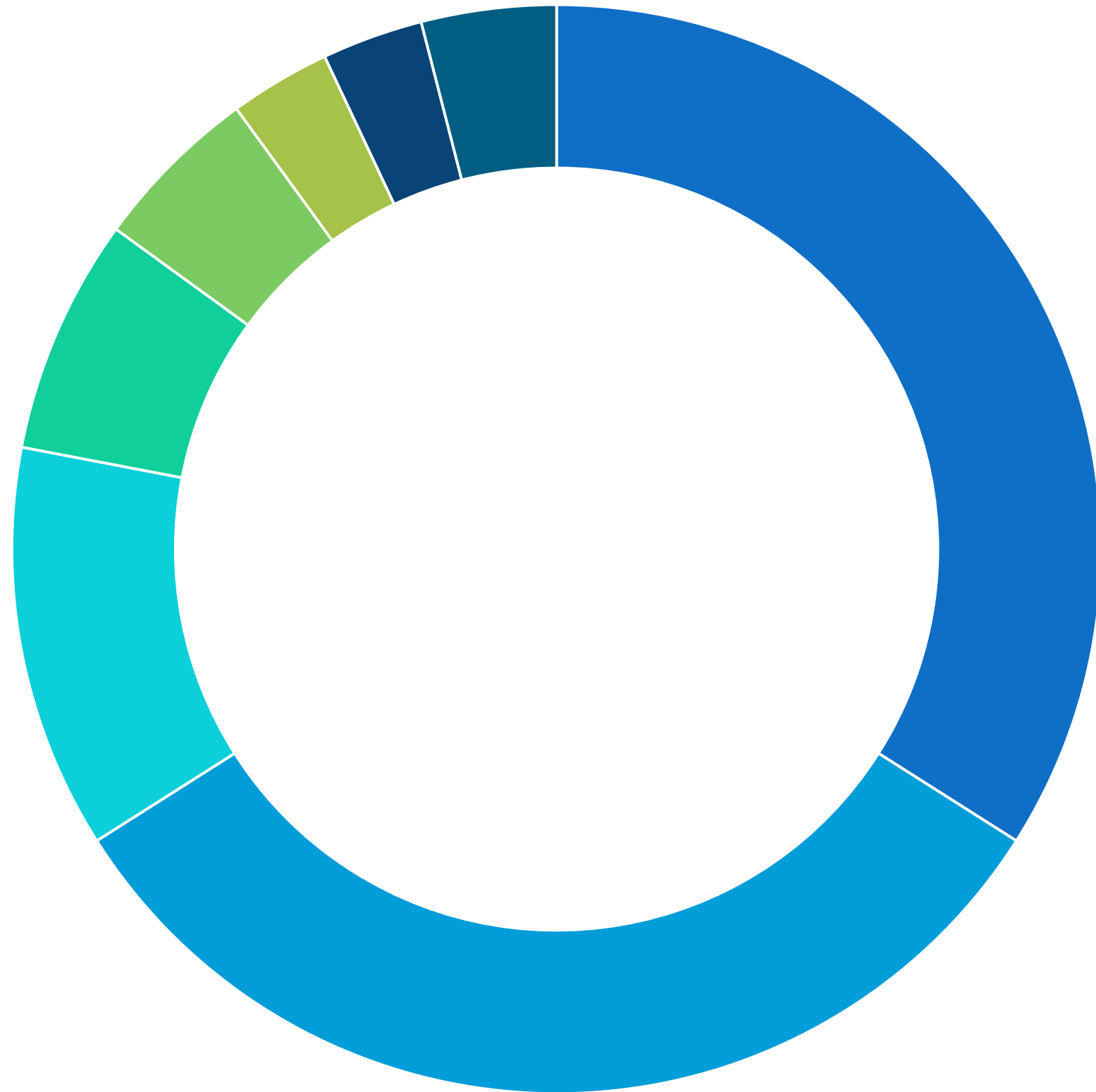
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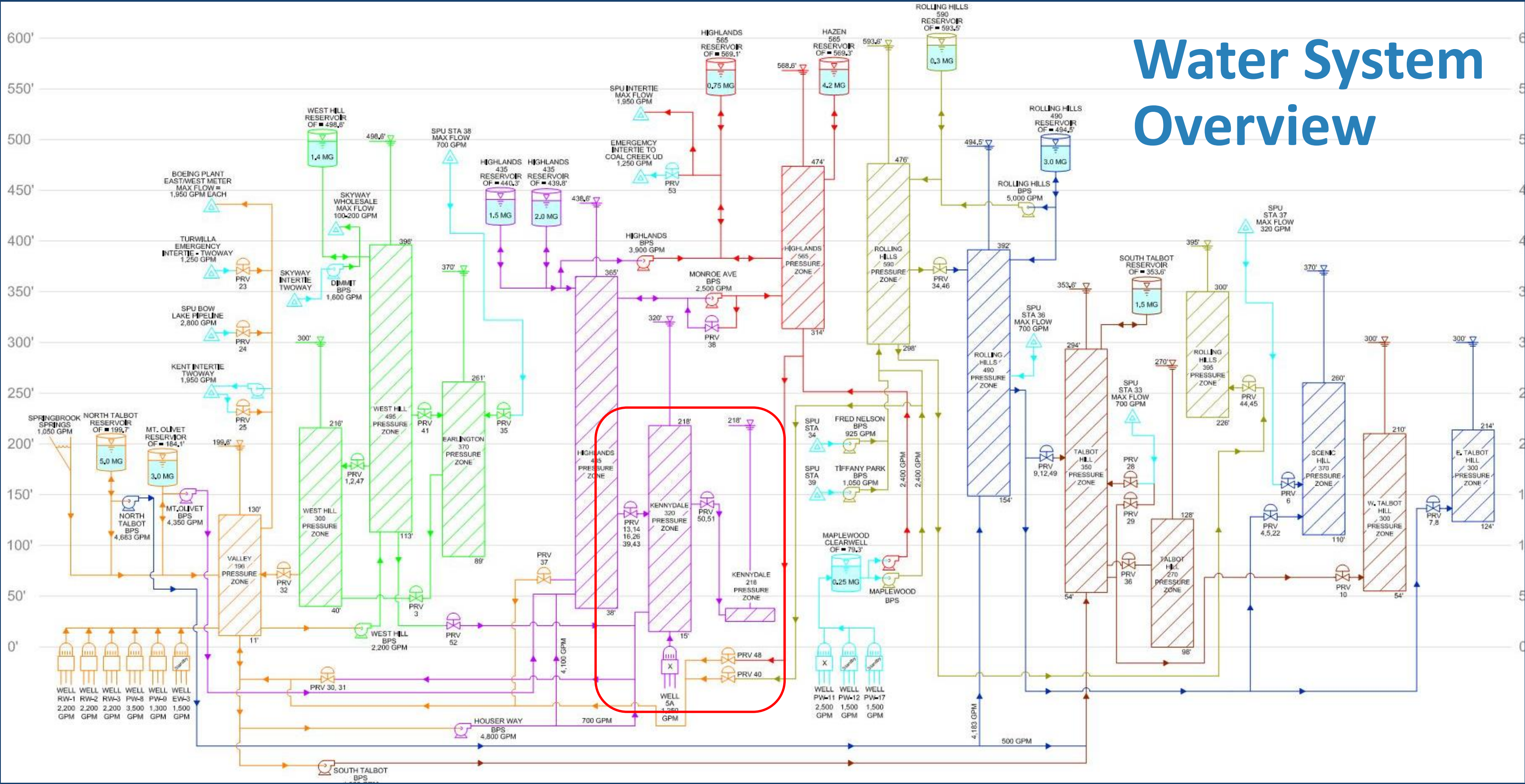


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Water System Overview



2

Site Constraints

Nearby residents
Fire Station Constraints

