

Creative Construction Delivery for Ohio Counties



June 17, 2025

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Two Presentations – One Message

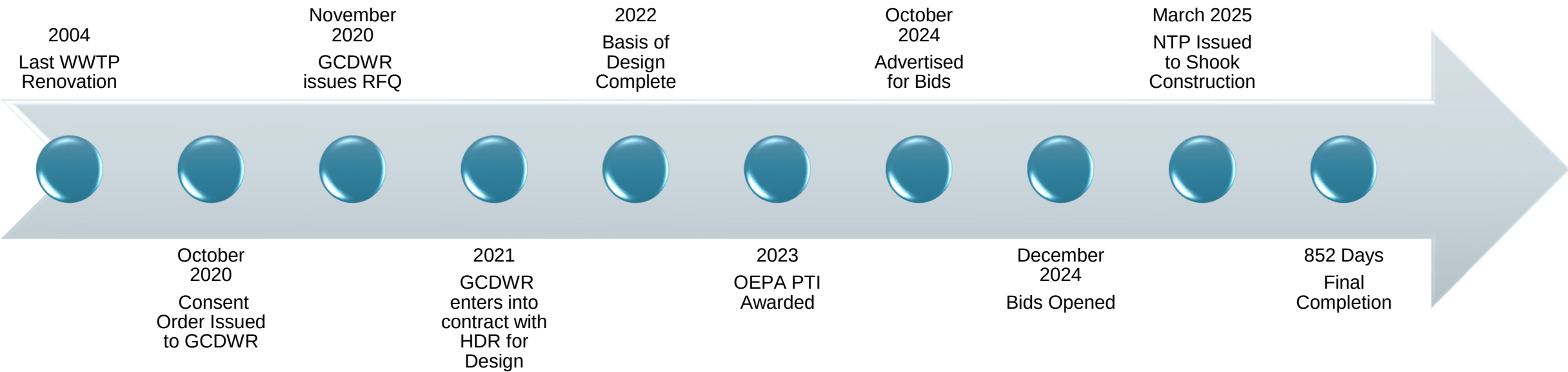
Part 1 – Geauga County McFarland Creek WWTP Digital Delivery Delivers from Design through Construction

Part 2 – Fayette County Rattlesnake WWTP Improvements Benefits of CMAR



Geauga County McFarland Creek WWTP Improvements Digital Delivery from Design through Construction

Timeline for McFarland Creek WWTP Design, Bidding and Construction

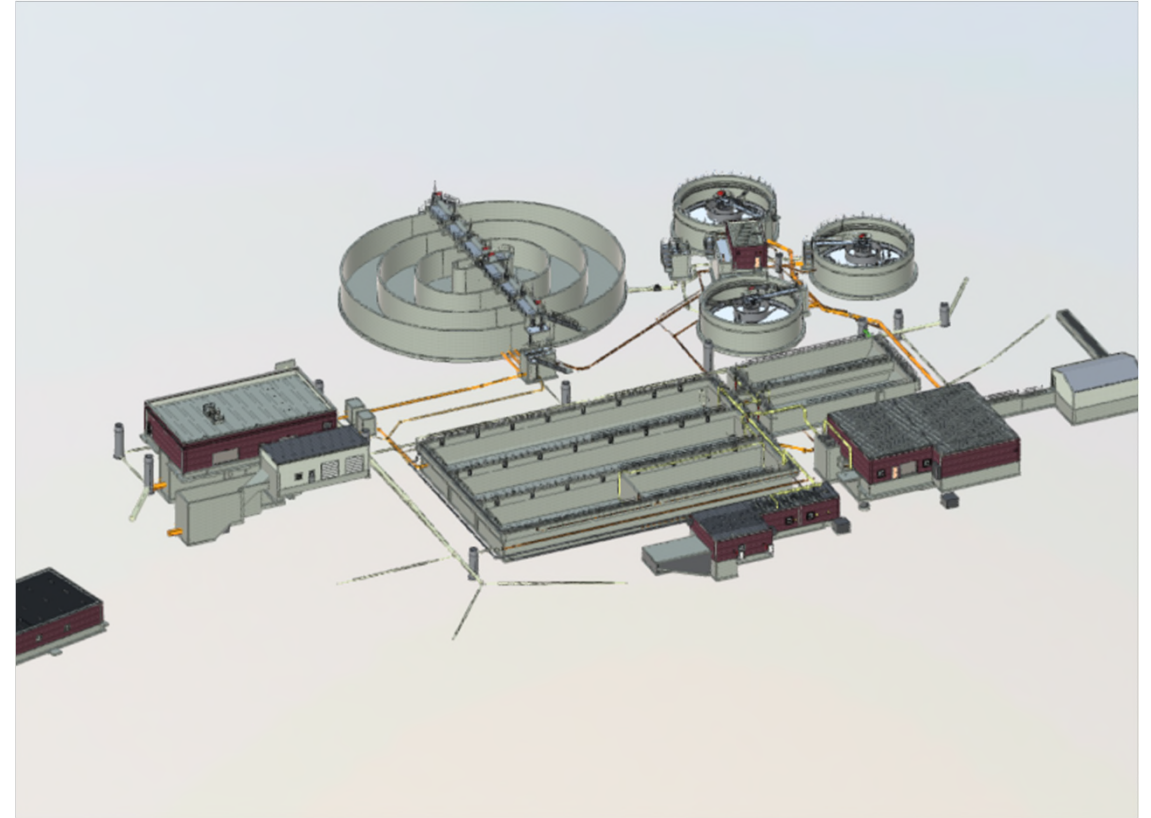


Geauga County McFarland Creek WWTP Improvements Digital Delivery from Design through Construction

How digital delivery aided in getting from A to B...



Pre-Construction Aerial View of Existing WWTP



BIM360 Model of Proposed Improvement – Under Construction Now

Design Phase

Lidar Scanning of Existing Facilities to capture existing conditions



Design of New Plant using REVIT and BIM360

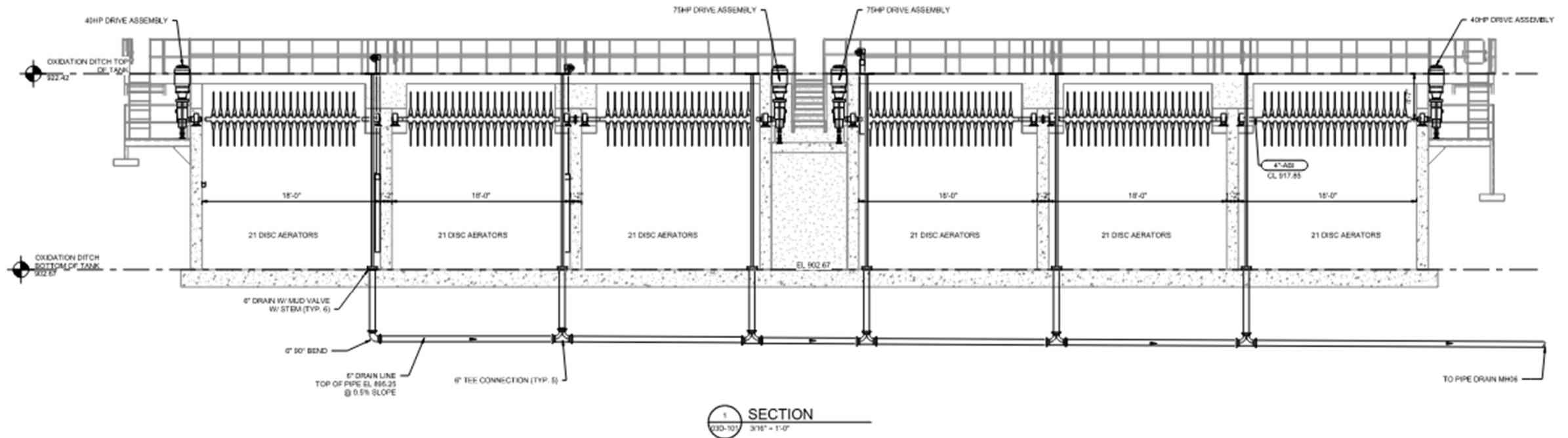


Development of Construction Plans from REVIT Model

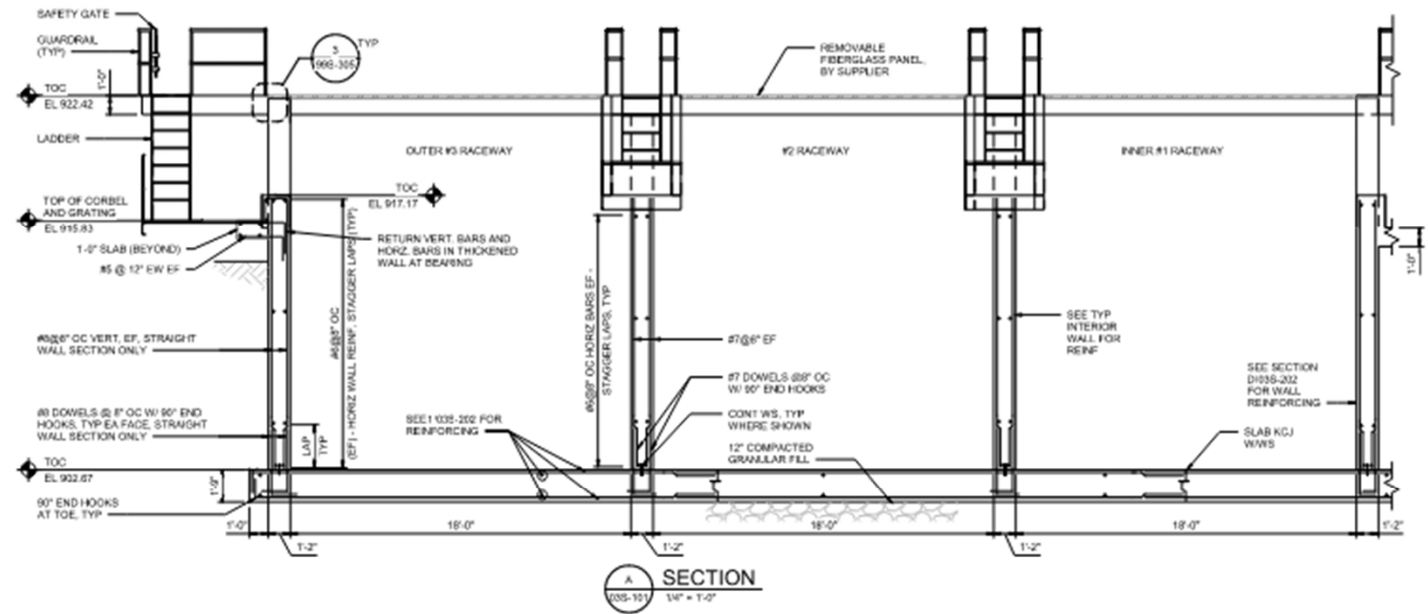
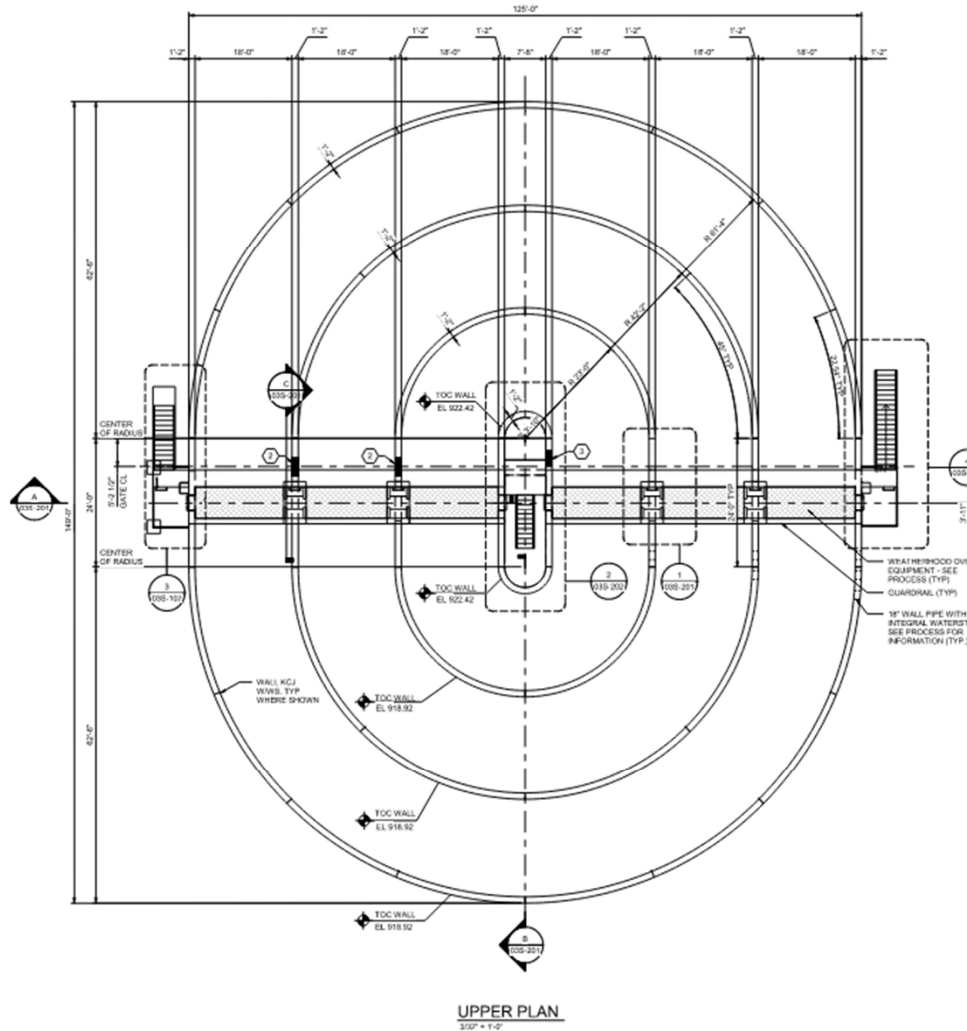


Development of Construction Plans

Plan and Section Sheets for all Disciplines Generated from REVIT Model



Plan and Section Sheets for all Disciplines Generated from REVIT Model



Construction Phase use of Digital Delivery

ArcGIS Platform

1. Utilizing an application developed in Survey 1-2-3 for Daily Inspections – Construction Photos are geotagged to the ArcGIS Scene Viewer
2. Unique Items in the ArcGIS database can be attributed with reference data, such as model number, photo, date of install, as well as several other customizable fields that we can create

Construction Phase use of Digital Delivery



Construction Phase use of Digital Delivery



Construction Phase use of Digital Delivery



Part 2 – Fayette County Rattlesnake WWTP Improvements

Benefits of CMAR



Pre-Construction Aerial View of Existing WWTP



BIM360 Model of Proposed Improvement – Under Construction Now

Rattlesnake WWTP Improvements

- Average flows 0.16 MGD
- Honda/LG flows 0.6-0.8 MGD
- Coordination with Honda on WW discharge
- OEPA coordination NPDES permitting, anti-deg
- Start-up flows in October 2024



Existing Rattlesnake WWTP Improvements

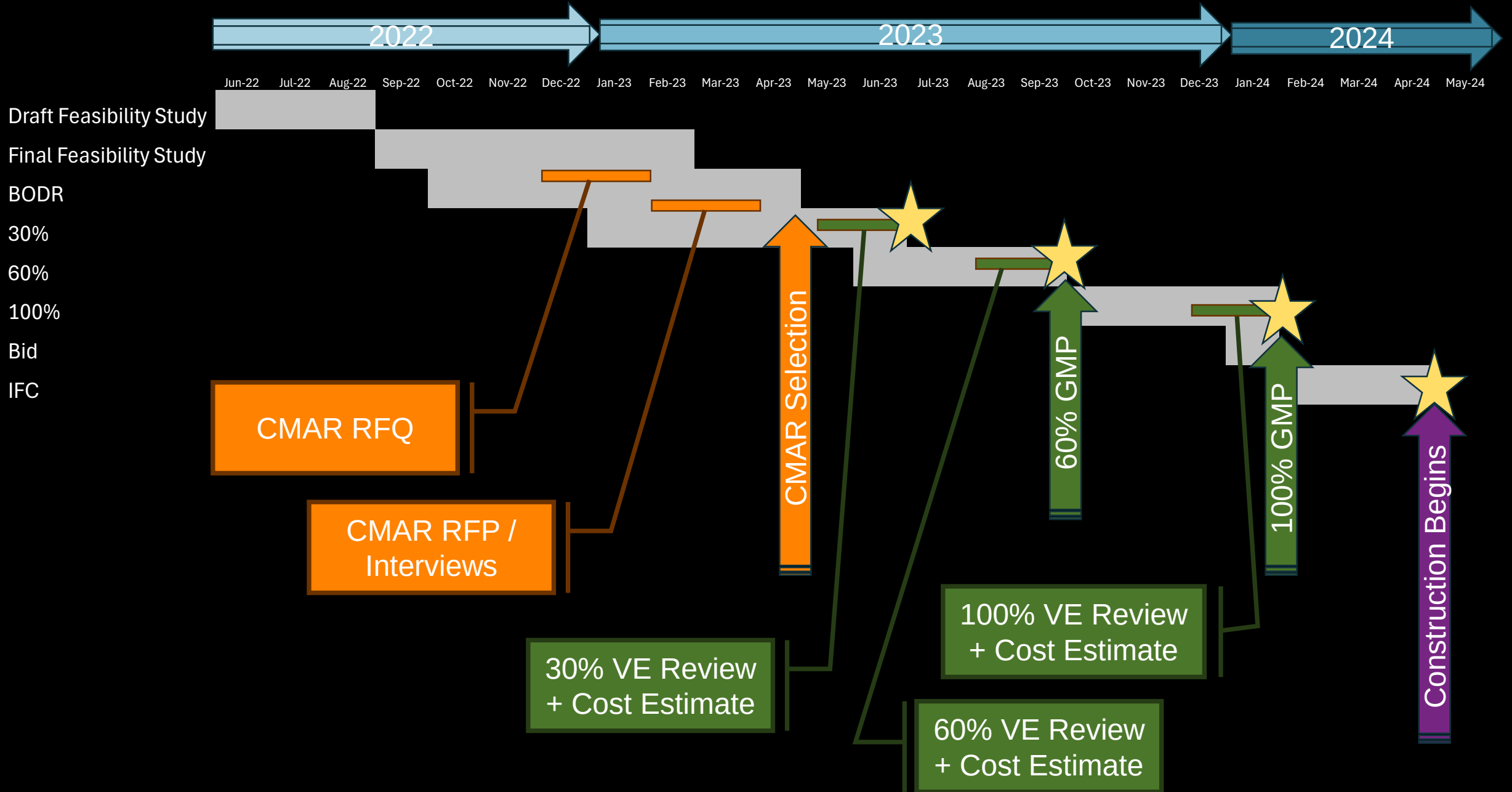
- Influent pumps with valve vault
- Mechanical screen
- Grit removal
- Stage 1 (offline)
- Oxidation Ditch with disc aerators
- Stage 5 (offline)
- 3 clarifiers (2 inoperable)
- RAS/WAS pumping (2 RAS pumps inoperable)
- UV disinfection
- Sludge storage tank



Proposed Rattlesnake WWTP Improvements

- Gravity sewer, force main, and Bluegrass pump station improvements for conveyance to the WWTP
- Influent flow metering
- **Replacement of the screen building superstructure**, mechanical and bar screens
- Replacement of disc aerators
- Improvements to the Stage 1 and Stage 5 tanks and splitter box
- Clarifier mechanism replacement in three existing clarifiers
- New RAS/WAS pumps and piping improvements **utilizing existing RAS/WAS building**
- UV replacement with **new UV structure and self-cleaning UV**
- Sludge storage and post-aeration improvements
- New **chemical addition and solids dewatering** building will provide metal salts (alum) and carbon (Micro C) addition to meet required NDPES permit limits
- Dewatering volute style press, polymer addition, sludge feed pumps and conveyor system
- A new administration and maintenance building with electrical and controls rooms, office, lab, breakroom, and vehicle garage
- Electrical and SCADA upgrades

Design / CMAR Schedule



30% VE

1	Civil (C)	Perimeter access road.
2	Process (D)	Construct new Headworks Building overtop existing concrete channels.
3	Process (D)	Reuse RAS building with new piping and new suction lift pumps. Revise yard piping to eliminate current operational issue.
4	Process (D)	Replace oxidation ditch rotors.
5	Process (D)	Early procurement of generator, ATS, and process equipment.
24	Architectural (A)	Locate electrical room at SW corner of Admin/Maintenance Building to minimize the length of the main electrical service.
25	Architectural (A)	Locate operator workstation area at SE corner of Admin/Maintenance Building which is closer to the plant.
26	Architectural (A)	Add window from operator office to entryway at Admin/Maintenance Building so operators can see when someone enters building.

60% VE

- Pipe and equipment materials
- Architectural materials of construction
- Roof design

100% VE

- Asphalt thickness reduction
- Precast meter vaults

46 33 11 - Chemical Feed System

VENDOR	60% PRICE	60% COMMENTS
Blue White (Pelton Environmental)	\$35,000	Alum: M4 pumps. Glycerol: M3 pumps. Includes (24) M12 cables for I/O, each ~10-ft in length. Excludes back pressure valves (not required for peristaltic pumps), pulsation dampeners (not required for peristaltic pumps), corp stops, distribution panels. Excludes flowmeters (required?).
Prominent (HPT)	\$67,400	Alum: DULCOflex pumps. Glycerol: DULCOflex pumps. Includes backpressure valves, dampeners, and corp stops. Includes flowmeters. Excludes distribution panels.
Watson-Marlow (BL Anderson)	\$56,500	Alum: Q-dos H-flo 300 pumps. Glycerol: Q-dos 120 pumps. Includes a spare pump head for each pump provided. Excludes back pressure valves, pulsation dampeners, corp stops, distribution panels.

- Multiple vendor quotes for equipment 60% design
- Selected with client during an equipment selection workshop
- Used quotes in development of GMP

MOPO / Construction Phasing Workshop

- Identification of early work
 - Bluegrass PS and FM improvements
 - Chemical addition
- 2 electrical services during construction for existing and new
- Review equipment delivery dates to help build schedule

Progress Pictures

Power washing split-face veneer – SHCB



Trapezoidal weir installation – U.V.



Equipment pad formed wall concrete pour – POST A



Equipment pad formed walls – POST AERATION



Equipment rack / Control panel installation – CLARI #3



Concrete pad pour – CLARI #3



VE 6	Fence PVC Coating	-\$8,130
VE 7	Reduce footage of 15in sewer storm piping	-\$5,540
VE 8	Routing of 8" sanitary sewer at Admin	\$4,468
VE 9	Bollards at Transformer	\$1,983
VE 10	Ceiling in Room 104 is SHB	\$2,850
VE 11	Delete HP coating on floor in Dewatering Room	-\$5,984
VE 12	Added Trench Drain	\$5,040
VE 13	Precast Meter Vaults	-\$5,563
VE 14	DIP Pressure Class 350	-\$6,280
VE 15	Bollards at Blower Building OVH Door	\$1,983
VE 16	Bollard Covers	\$0
VE 17	Admin Bldg Roof Design	-\$25,107
VE 18	Wiring for Hight Level Float in MV B	\$1,173
VE 19	Metal Roofing Clarifications	\$1,750
VE 20	HVAC VE Items	-\$53,531
VE 21	Metal Labe Casework	\$2,800
VE 22	O2 Ditch Equipment Motor Upgrade	\$3,025
VE 23	UV Canopy	-\$3,125
VE 24	Mixer Size Upgrades	-\$9,157
VE 25	Slide Gate Modification	\$4,680
VE 26	RAS pump motor upgrade	\$2,640

\$163K deduct
from VE items
after bid

27	AES Aid to Construction	\$52,528
28	Reroute Existing 6" Field Tile	\$7,239
29	HVAC Blanket and Condensate Alarm	\$1,060
30	Bulletin #001	\$4,090
31	Existing Sludge Storage Tank Cleaking	\$24,584
32	TA Parking Spots (6 Months)	\$14,040
33	RAS/WAS Airflow Station	\$2,894

Owner Contingency tracking
August 2024
~\$280K

Initial Owner Contingency	\$	223,035.00
Total Approved CORs		-\$56,754
Check	\$	-
Total Remaining Owner Contingency	\$	279,789.00

28	Reroute Existing 6" Field Tile	\$7,239
29	HVAC Blanket and Condensate Alarm	\$1,060
30	Bulletin #001	\$4,090
31	Existing Sludge Storage Tank Cleaking	\$24,584
32	TA Parking Spots (6 Months)	\$14,040
33	RAS/WAS Airflow Station	\$2,894
34	Fabricated Stop Plates	\$724
35	Poly Tank Sumo Fittings	\$937
36	Grit Classifier	\$96,908
37	Safety Items	\$5,128
38	8" MJ Fittings	\$4,892
39	Chemical Bldg Backflow Preventer	\$4,473
40	SHB HVAC Opening Relocate	\$18,523
41	RAS Temp Piping	\$11,155
42	VAC Truck	\$6,070
43	Admin HVAC Changes	\$2,150
44	RAS 8in pipe	\$8,334
45	UV Upper Brackets	\$5,000
46	Flowmeter Troubleshooting	\$1,364
47	Influent PS Repairs	\$12,843
48	4" MJ Vlve	\$4,483
49	4" Mags	\$25,245
50	Influent Pumps	\$24,500

Grit Classifier

Influent Pumps

Owner Contingency tracking
June 2025
~\$47K

Still to come:

- New RAS/WAS flow meters
- Sludge storage tank cleaning

Initial Owner Contingency	\$ 223,035.00
Total Approved CORs	\$175,975
Check	\$ -
Total Remaining Owner Contingency	\$ 47,060.00

Rattlesnake WWTP Construction Progress

Fayette County, OH



Admin Building Upgrade



Original Admin Building



New Admin Building with Garage

Next Steps

- Project representative
- Start-up and commissioning
- Construction completion end of 2025
- Water Reuse study in progress

Questions?