



Temporary Treatment Facility Improves Long-term ROI for Food Manufacturer

Joshua R. Jondro, PE
Technical Manager
Woodard & Curran

COMMITMENT & INTEGRITY DRIVE RESULTS





Agenda

- Site Description
- Existing Conditions
- Temporary Treatment
- Return-on-Investment
 - Financial
 - Non-financial





The Site

- Confidential food manufacturer with products we all know and love!
- Successful operation at site for more than 2 decades



Wayne's World, 1992





Influent Wastewater vs Effluent Discharge Permit

Influent Wastewater Flows & Loads (2019)

	Flow	COD		TSS
	MGD	mg/L	PPD	mg/L
Max Month	0.130	19,300	15,400	3,400
Average Day	0.095	10,800	8,600	1,600

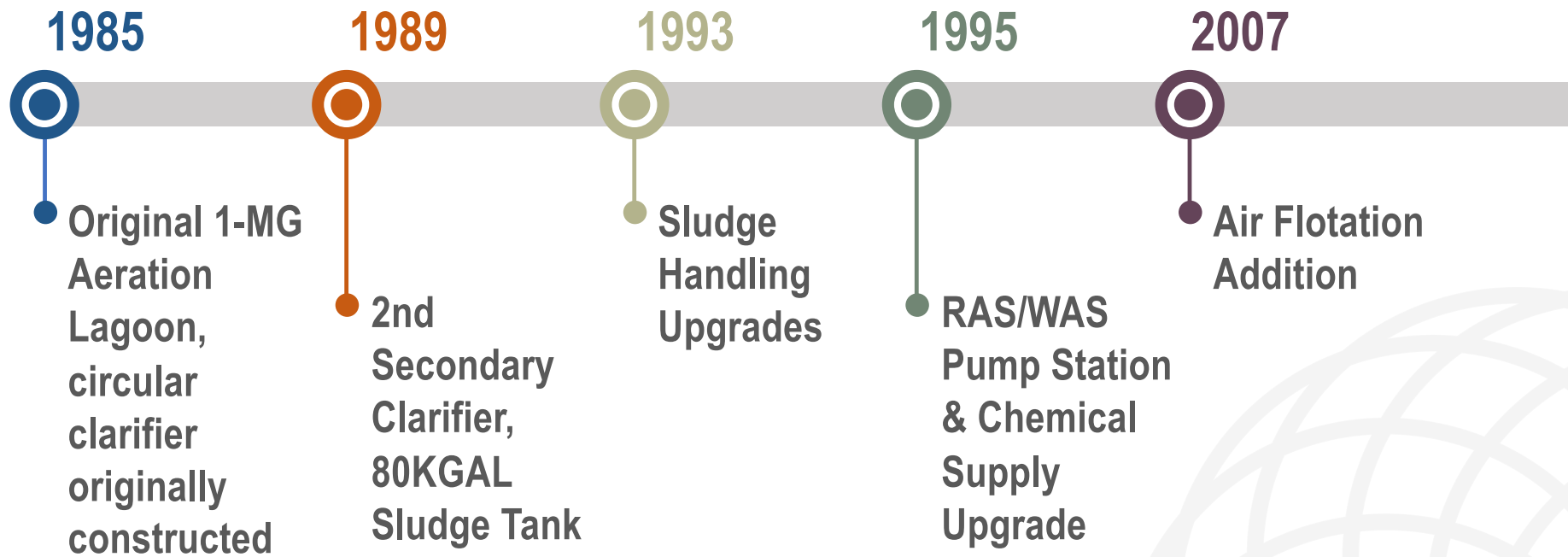
POTW Discharge Limits (2019)

	Conc mg/L	Mass PPD	Range
pH			6.5 to 8.5
BOD5	250	335	
TSS	300	400	



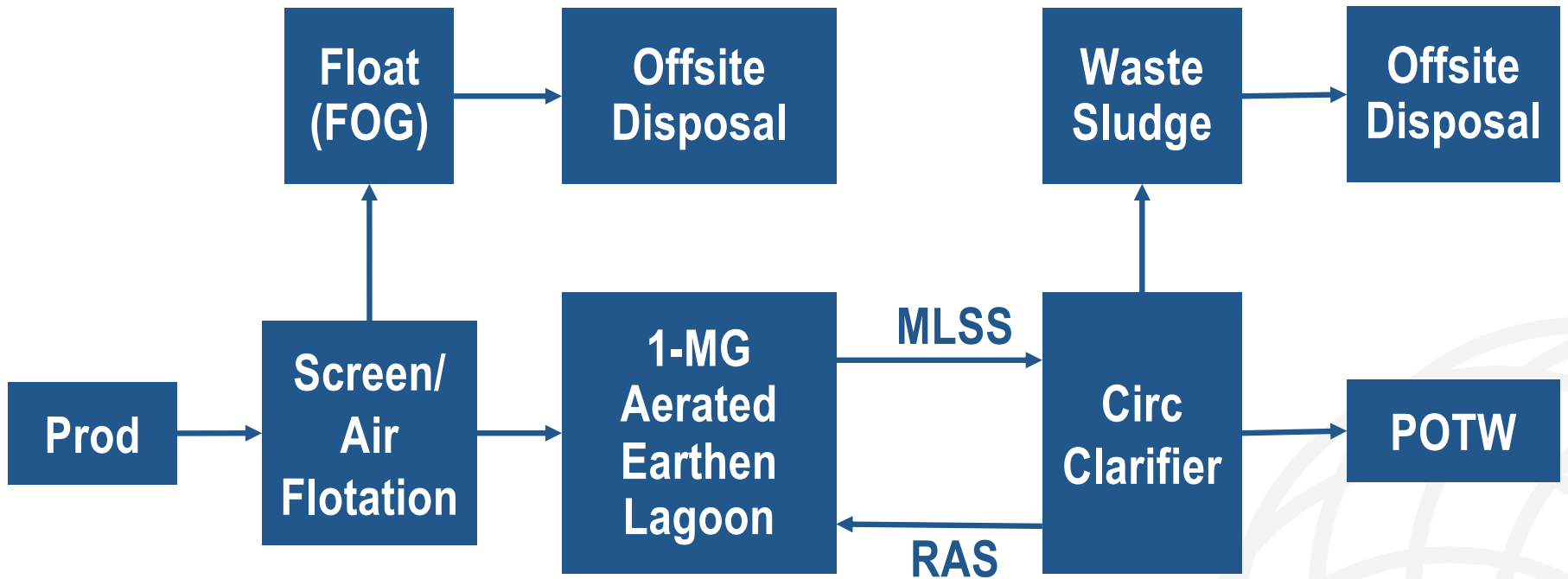


Treatment Plant Timeline





Block Flow Diagram (2018)





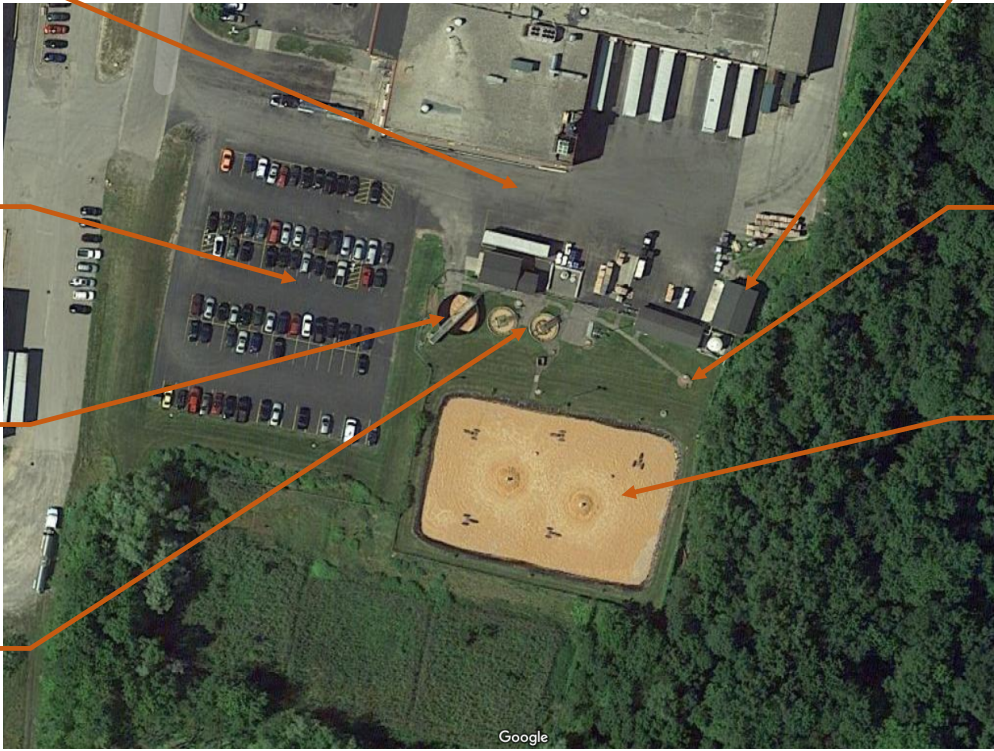
2018 Wastewater Treatment Plant

RAS/WAS Pumps

Employee Parking

80KGAL Sludge Storage Tank

Secondary Clarifier



RAW Influent Lift Station, Screen, Air Flotation, Float Storage

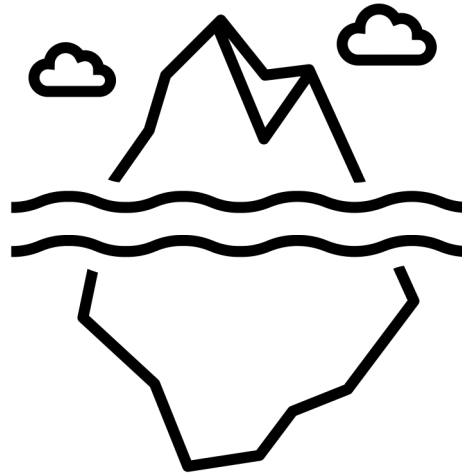
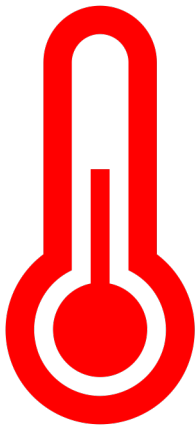
Air Flotation Effluent and RAS Lift Station

1-MG Aerated Lagoon





Historical Operational Challenges



O₂



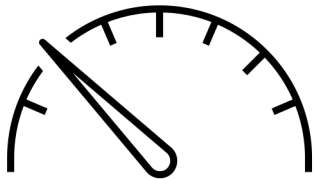
FOG





Late 2018–2019 Operational Challenges

O_2



REDUCED POTW
DISCHARGE CAPACITY

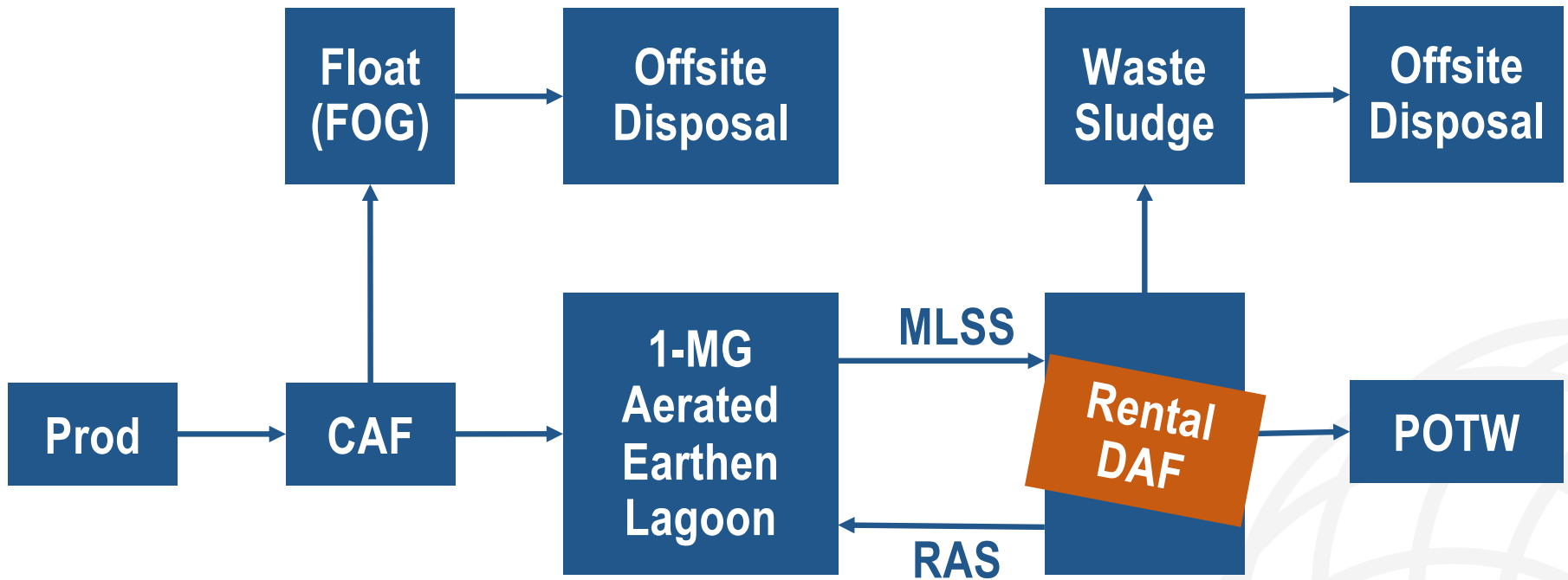


pH





Block Flow Diagram (2019)





WWTF Evaluation

- End of useful life
- Complete upgrade required
- Temporary solution needed

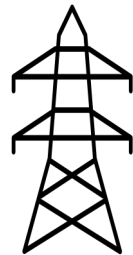




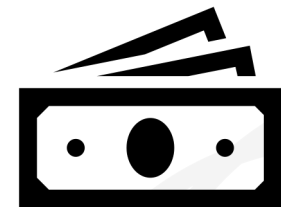
Short-term Solution Limitation



TANKAGE



**AERATION
EQUIPMENT**





Short-term (Temporary) Options Evaluated



Roughing MBBR with DAF



New Aeration Basin; Reuse Aerators



**New Aeration Basin;
Aeration Diffusers & Blowers**





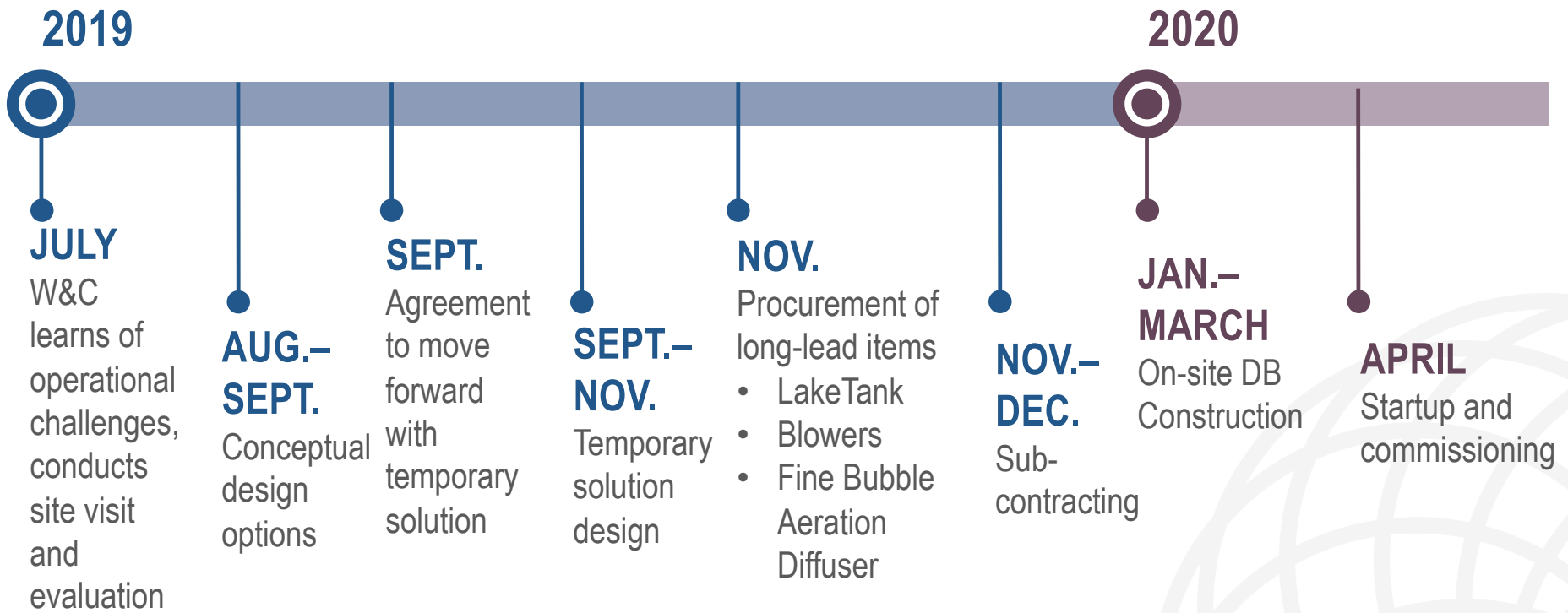
New Aeration Basin; Aeration Diffusers & Blowers

- Aeration: Fine vs Coarse Bubble
- Membrane penetration
- Equipment Sourcing
- Construction and Logistics



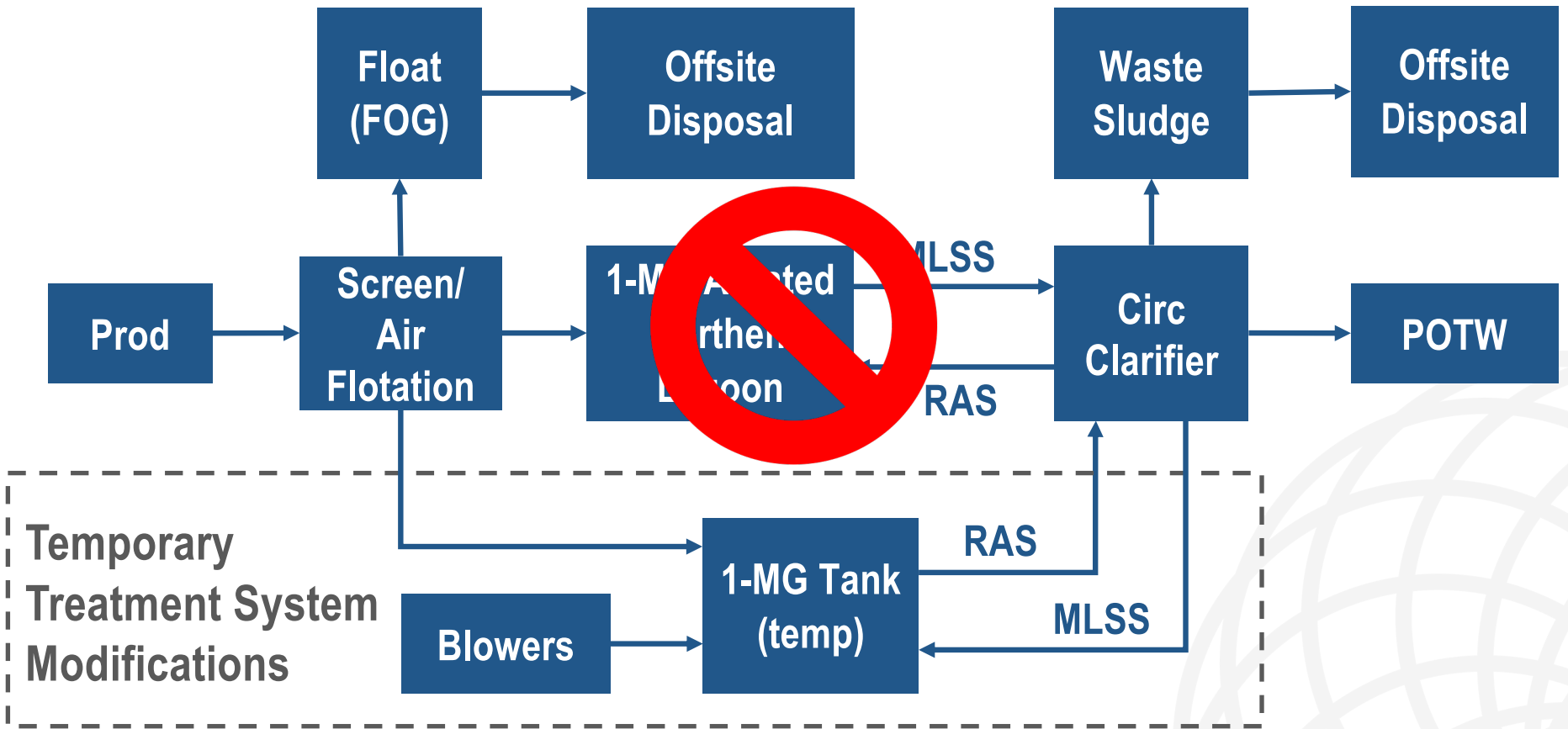


Schedule



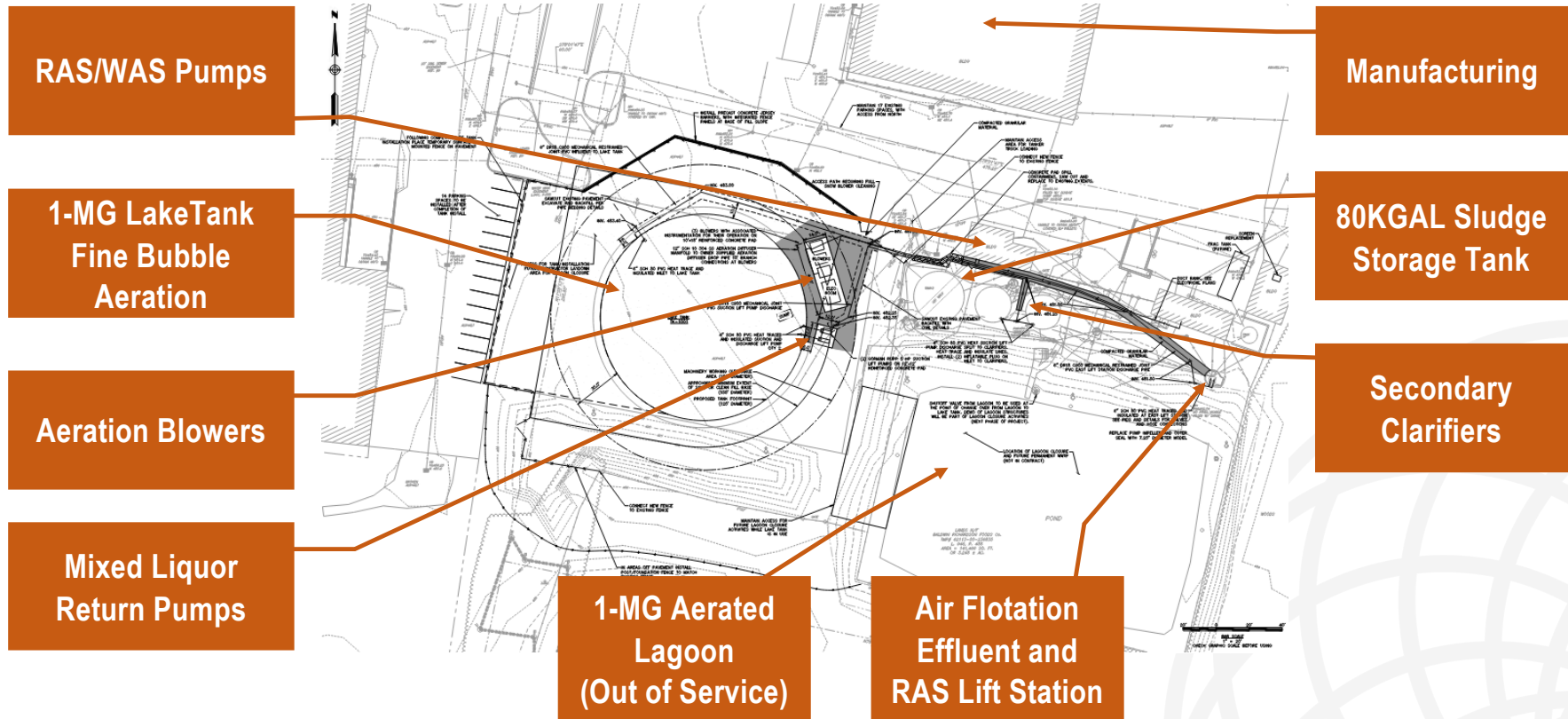


Temporary Treatment Process (2020 to Present)





Temporary Treatment System Design Drawing





January to Early February 2020

- Create level pad
- Tank erection





Mid-February 2020

- Assemble fine bubble aeration diffusers
- Concrete filled concrete tubs used for anchorage/ballast; no penetrations in liner





Late February 2020

- Process piping
- Conduits and pads





March 2020

- Blower installation
- Lift Station Diversion
- Elevated MLSS to Clarifier Pumps





April 2020

- Equipment commissioning
- Startup and seeding





Immediate ROI of Temporary System

- Financial benefits (projected)
 - \$200K / month hauling OPEX
 - <\$2M CAPEX (temp solutions)
 - ~12 to 20-month payback period (50 to 75% hauling reduction)
- Non-Financial
 - Lagoon closure
 - Temperature
 - Continued manufacturing





Long-term ROI of Temporary System

- Lagoon footprint recovery
- Potential future construction in same footprint
- Keep wastewater treatment close





Actual Performance

- Lower heat rejection from aeration
- Influent loads high, challenging temp system capacity
- Continued hauling
- Temporary system still in use while long-term solution designed/installed





Thank you!

- Questions??

Joshua R. Jondro, PE
Technical Manager

250 Royall Street, Suite 200E
Canton, MA 02021

781.613.0535

jjondro@woodardcurran.com

www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

