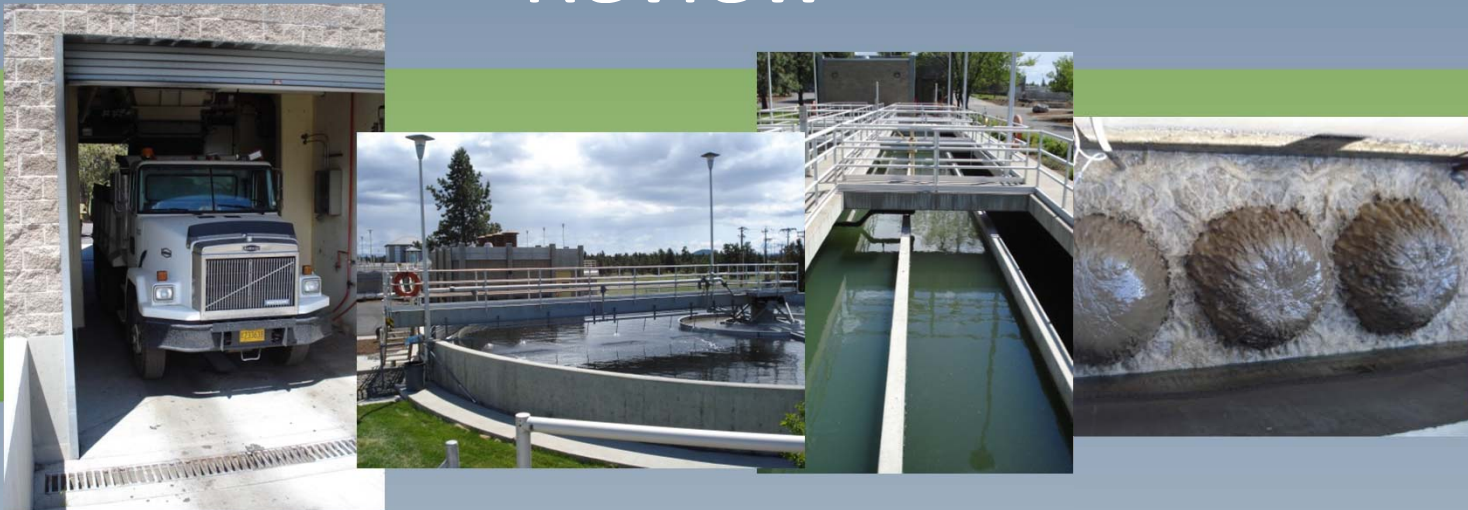


PRESENTATION

# Bend WRF Predesign: Schematic Design Review



June 10, 2011

**CH2MHILL**

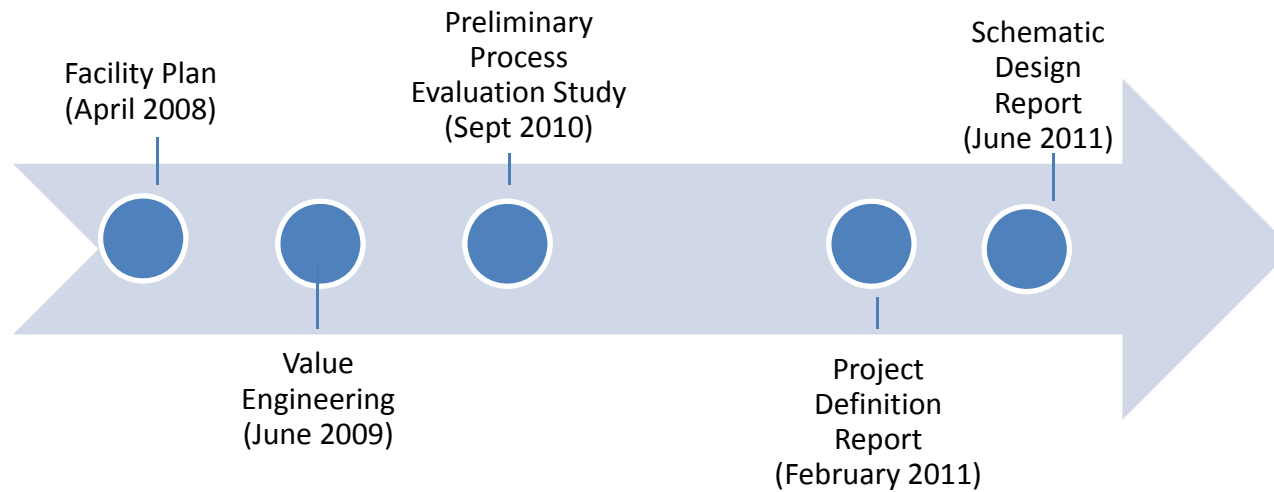
# Design Criteria – Projected Flows

Flow Condition (mgd)	2030
Average Annual Flow	10.9
Average Day Maximum Month Flow	11.9
Peak Day Flow	13.6
Peak Dry Weather Flow	21.4
Peak Wet Weather Flow	29.1

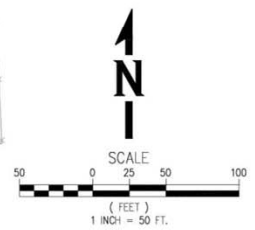
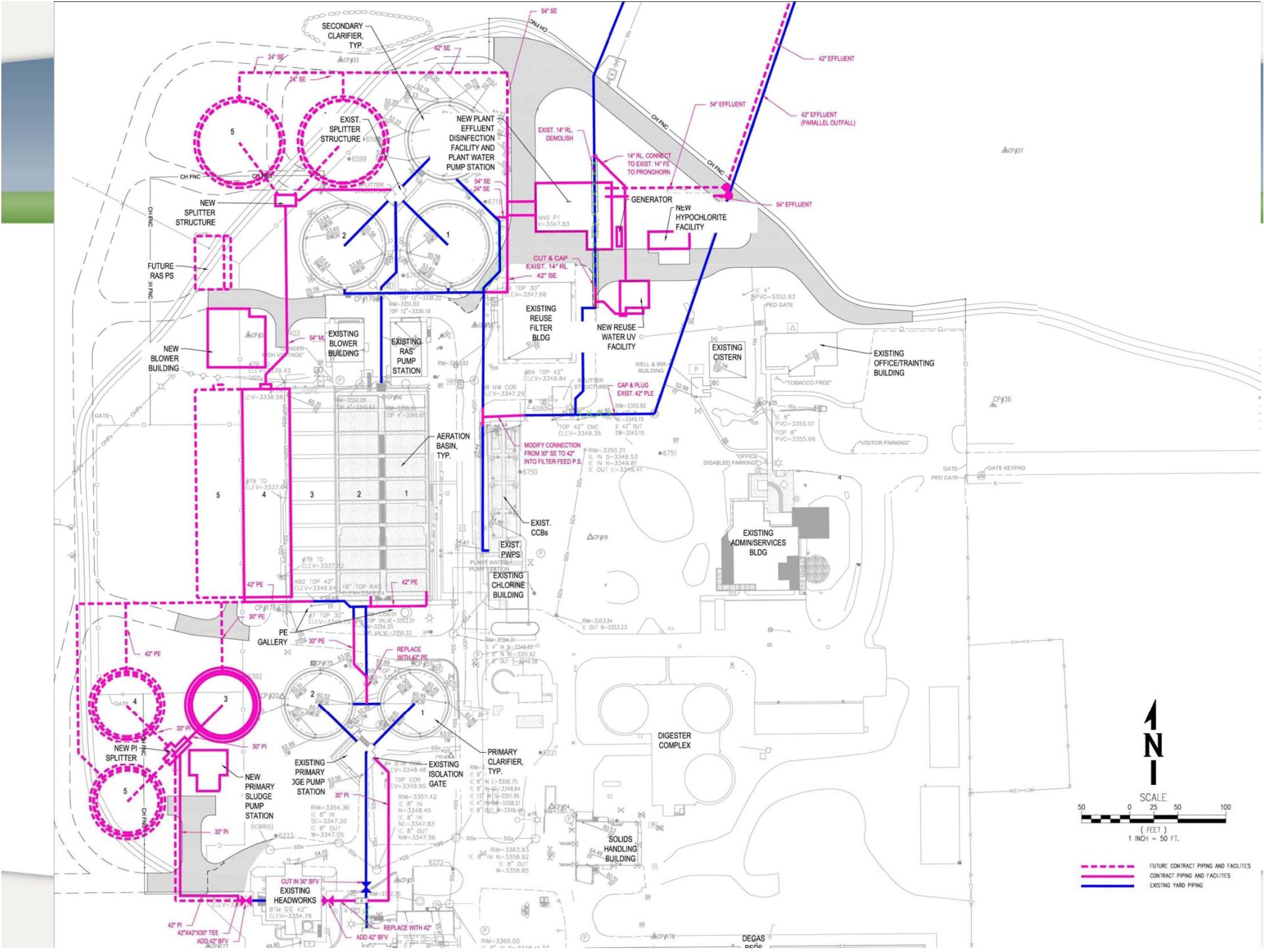
# Design Criteria – Regulatory Requirements

- Current WPCF Discharge Requirements
- Future Reclaimed Water Requirements
- Future Total Nitrogen Requirements
- Reliability and Redundancy Requirements

# Project Overview – Work to Date

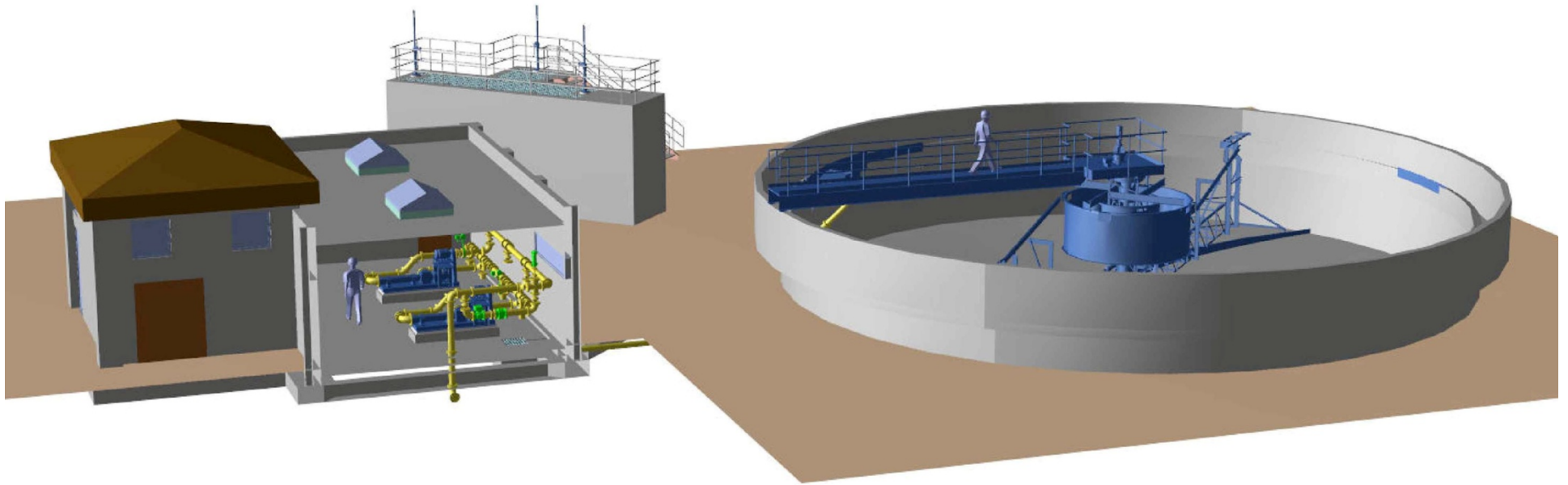




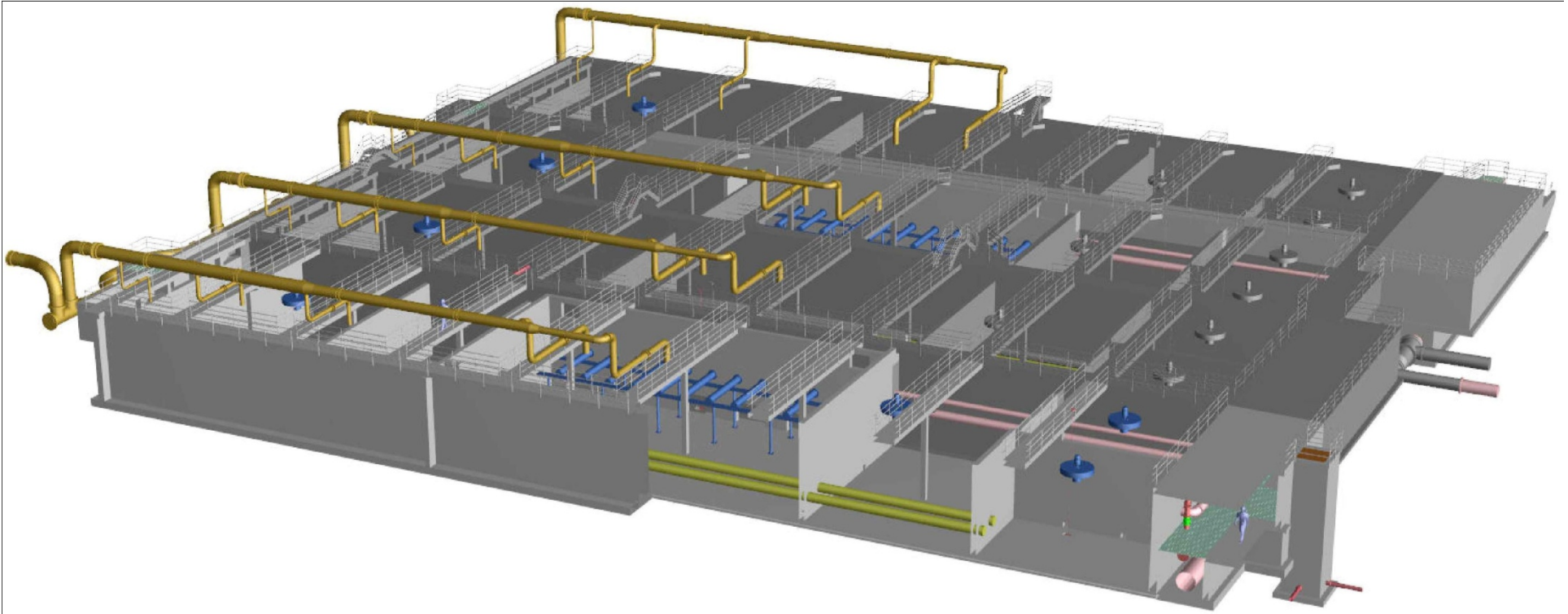


- FUTURE CONTRACT PIPING AND FACILITIES
- CONTRACT PIPING AND FACILITIES
- EXISTING YARD PIPING

# 3-Primary Treatment





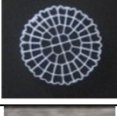

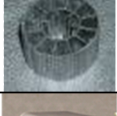
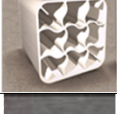


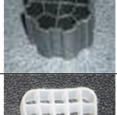
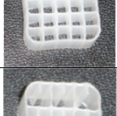

# 4-Secondary Treatment Improvements



# IFAS Equipment

- Plastic Biofilm Carrier Media – Current manufacturers

Table 1. Plastic biofilm carrier characteristics reported by the manufacturer

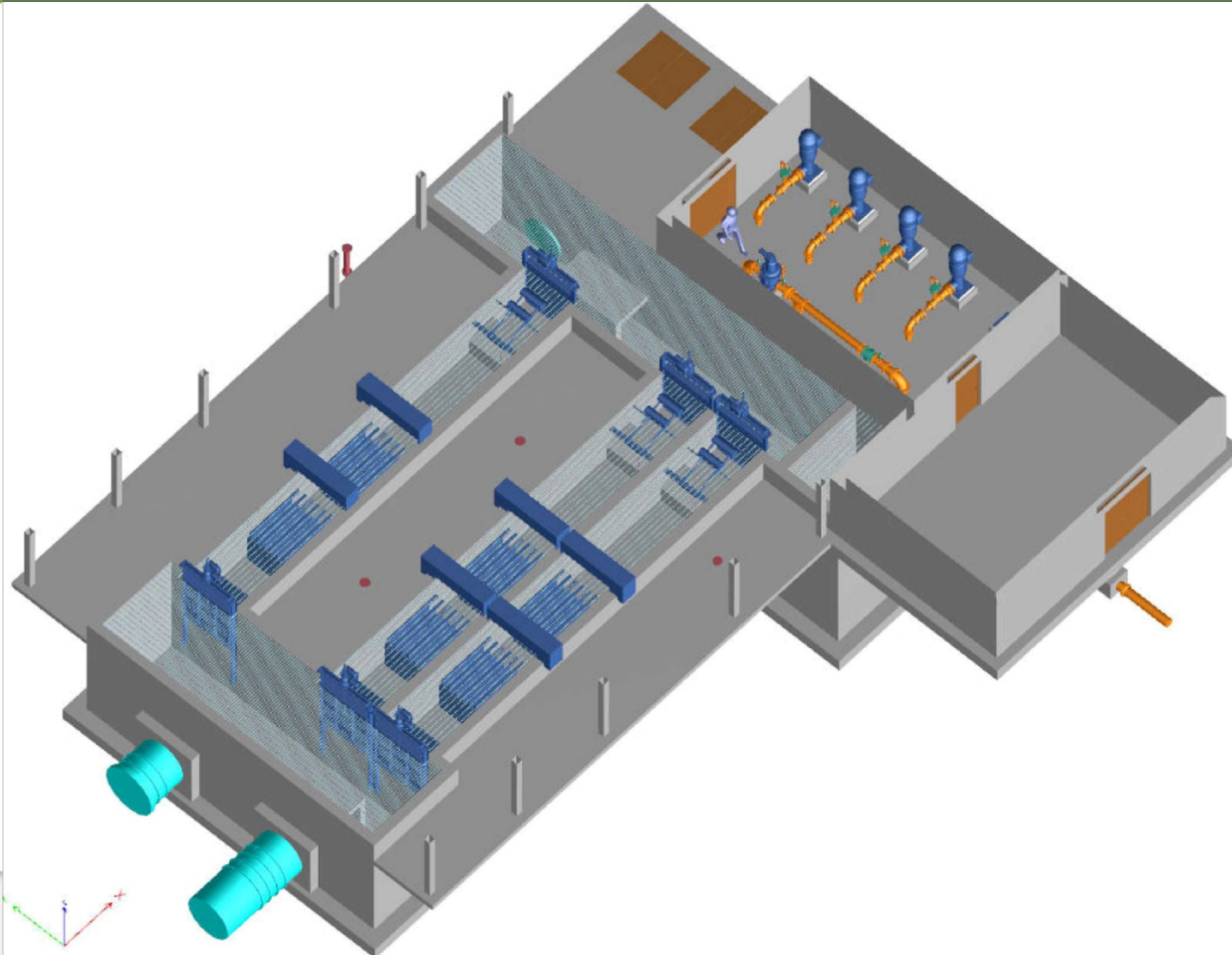
Manufacturer	Name	Bulk Specific Surface Area <sup>1</sup>	Dimensions (Depth; Diameter)	Carrier Photograph
Veolia Inc.	AnoxKaldnes™ K1 or K1 Heavy	500 m <sup>2</sup> /m <sup>3</sup>	7 mm; 10 mm	
	AnoxKaldnes™ K3	500 m <sup>2</sup> /m <sup>3</sup>	12 mm; 25 mm	
	AnoxKaldnes™ Matrix™ Sol	800 m <sup>2</sup> /m <sup>3</sup>	4 mm; 25 mm	
Headworks BIO  (* Licensed by: Infilco Degremont, Inc.)	ActiveCell™ 450 *	402m <sup>2</sup> /m <sup>3</sup> (450 m <sup>2</sup> /m <sup>3</sup> reported by IDI)	15 mm; 22mm	
	ActiveCell™ 515 *	485 m <sup>2</sup> /m <sup>3</sup> (515 m <sup>2</sup> /m <sup>3</sup> reported by IDI)	15 mm; 22 mm	
	ActiveCell™ 920	680 m <sup>2</sup> /m <sup>3</sup>	15 x 15 x 10 mm (L x W x D)	
AqWise	ABC4™	600 m <sup>2</sup> /m <sup>3</sup>	14 mm; 14mm	
	ABC5™	650 m <sup>2</sup> /m <sup>3</sup>	12 mm; 12mm	
Entex Technologies, Inc.	Bioportz™	589 m <sup>2</sup> /m <sup>3</sup>	14 mm; 18 mm	
Biowater Technology	BWT15™	828 m <sup>2</sup> /m <sup>3</sup>	15 x 15 x 5 mm (L x W x D)	
	BWTX™	640 m <sup>2</sup> /m <sup>3</sup>	15 x 15 x 10 mm (L x W x D)	



# IFAS Equipment – Retention Screens / Diffuser Assemblies

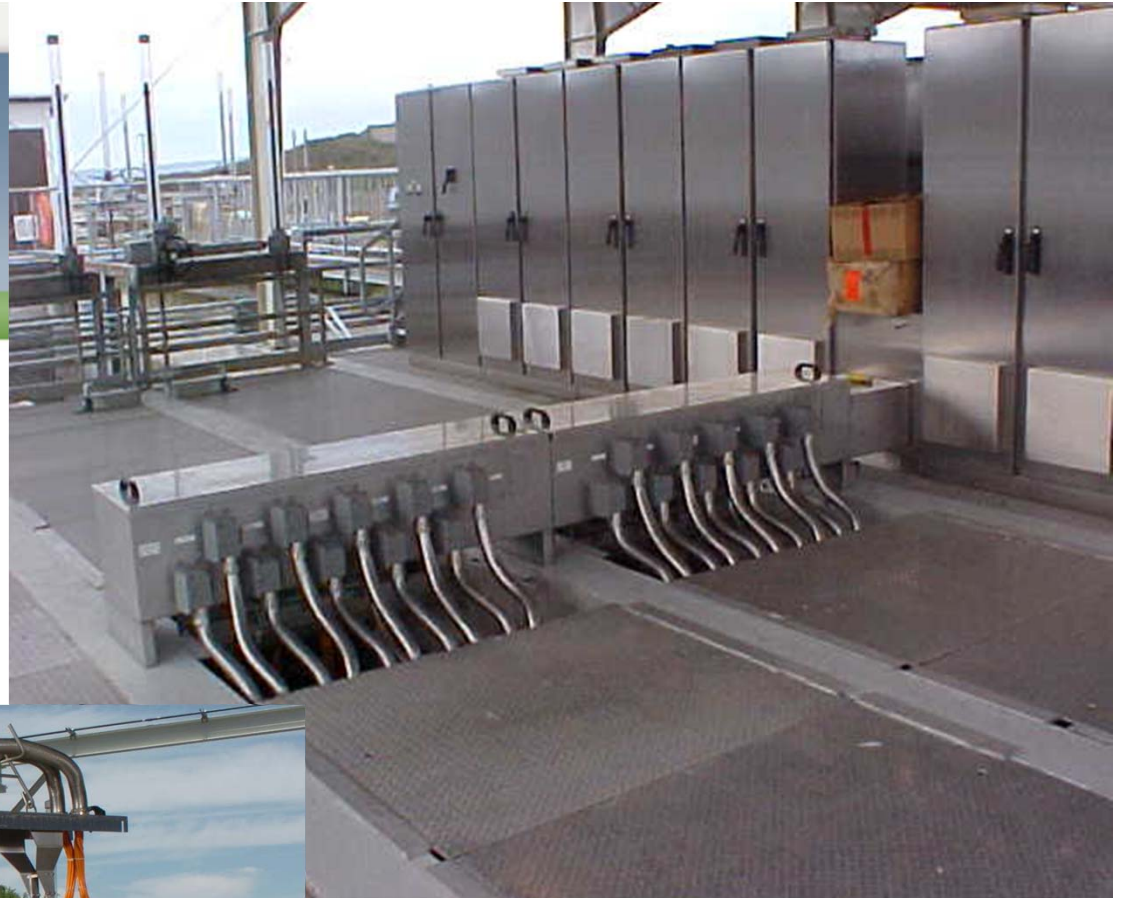


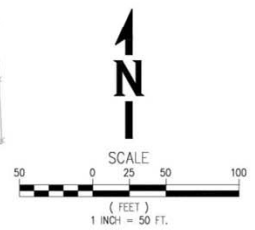
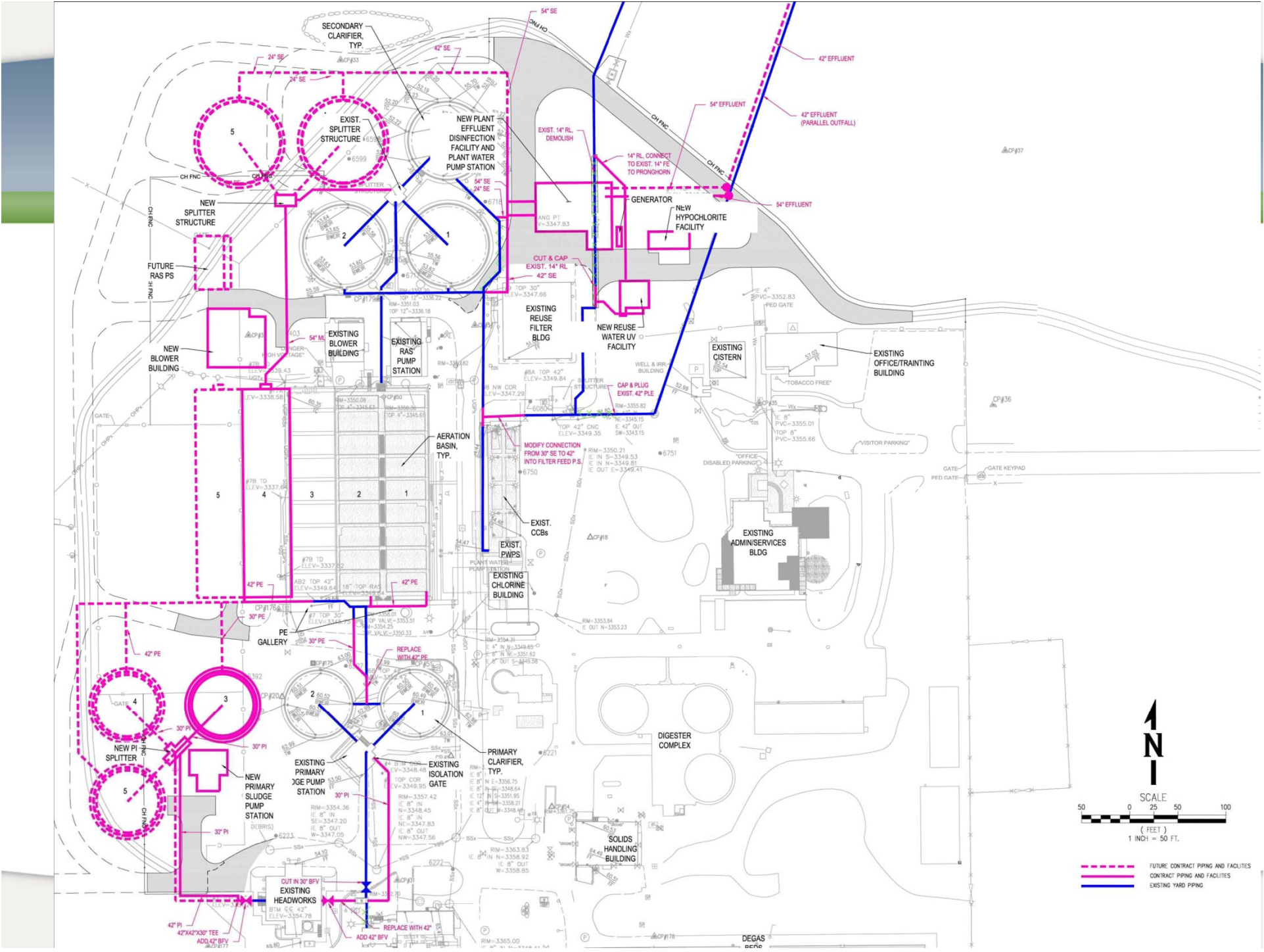
# Plant Effluent Disinfection, Hypochlorite, Plant Water Pump Station





# UV Disinfection

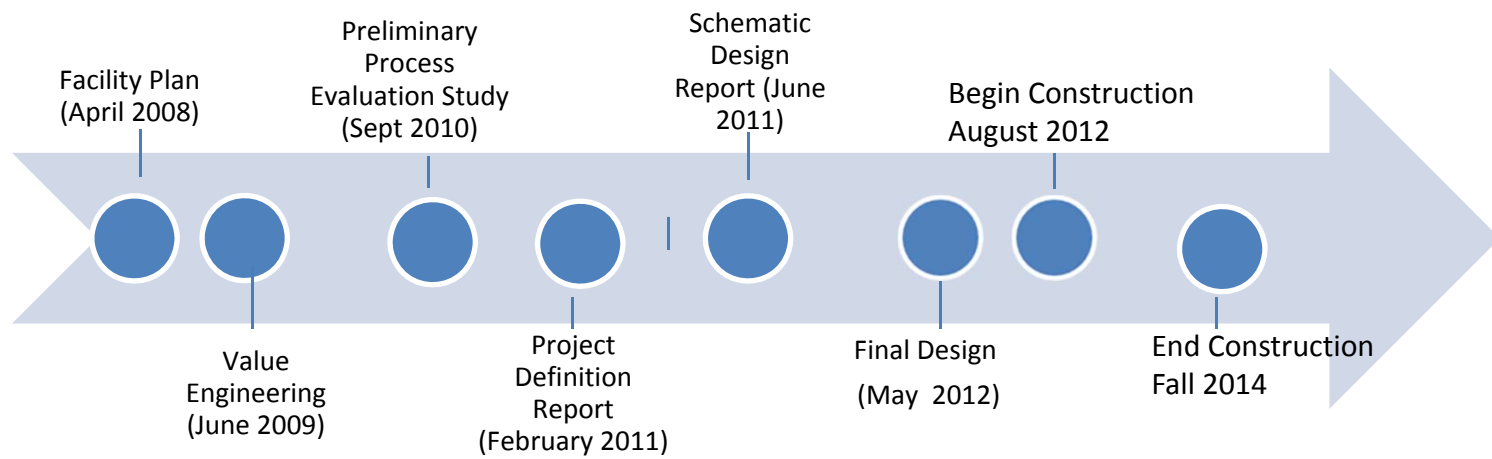




- FUTURE CONTRACT PIPING AND FACILITIES
- CONTRACT PIPING AND FACILITIES
- EXISTING YARD PIPING



# Project Overview – Schedule



# Secondary Expansion – Schematic Design

Questions?