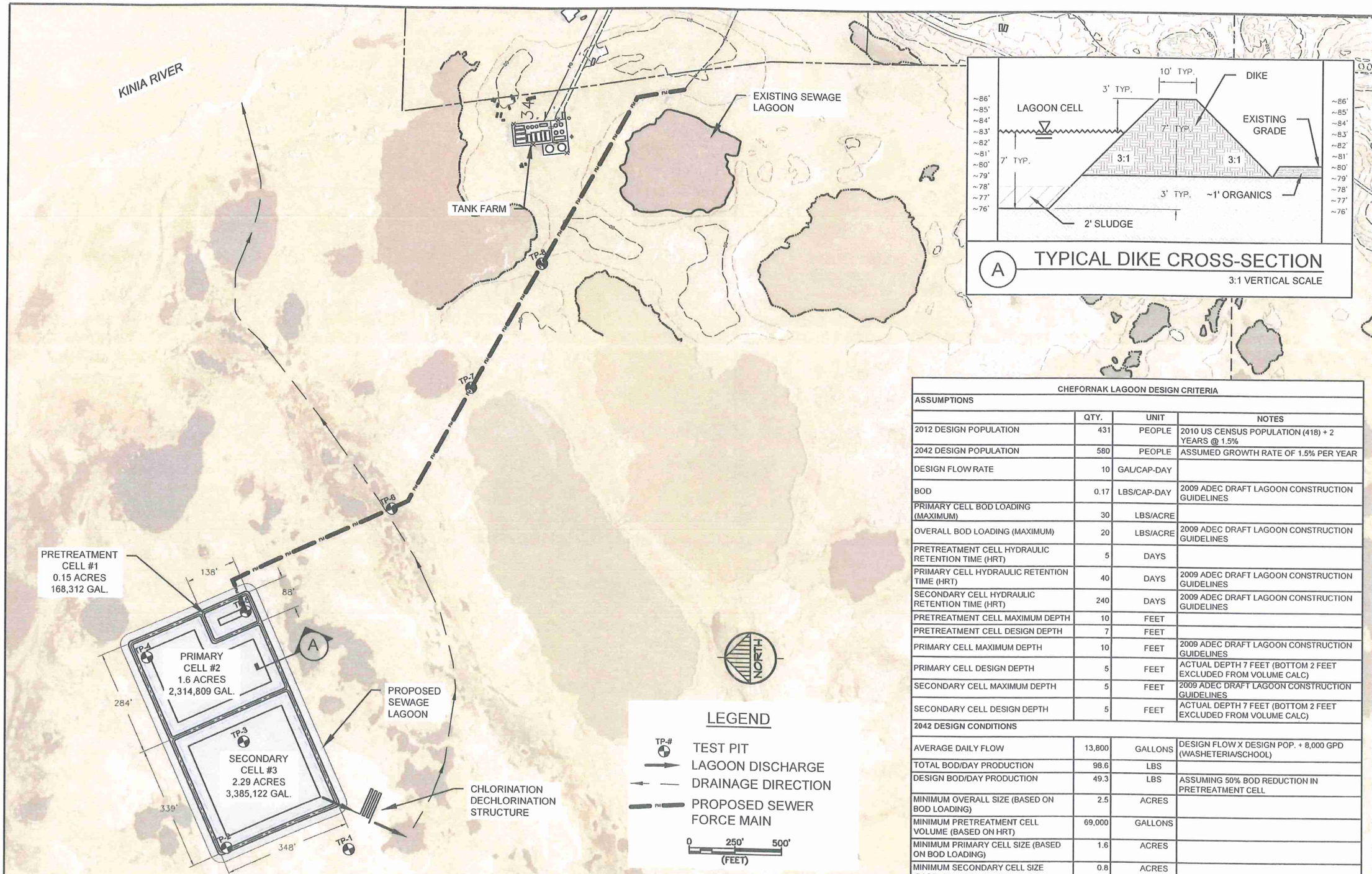

NOTE: DIMENSIONS ARE TO CENTERLINE OF DIKE, AREA BASED ON WATER SURFACE AND VOLUMES EXCLUDE BOTTOM 2 FEET OF CELLS.

CHEFORNAK LAGOON DESIGN CRITERIA			
ASSUMPTIONS			
	QTY.	UNIT	NOTES
2012 DESIGN POPULATION	431	PEOPLE	2010 US CENSUS POPULATION (418) + 2 YEARS @ 1.5%
2042 DESIGN POPULATION	580	PEOPLE	ASSUMED GROWTH RATE OF 1.5% PER YEAR
DESIGN FLOW RATE	10	GAL/CAP-DAY	
BOD	0.17	LBS/CAP-DAY	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
PRIMARY CELL BOD LOADING (MAXIMUM)	30	LBS/ACRE	
OVERALL BOD LOADING (MAXIMUM)	20	LBS/ACRE	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
PRETREATMENT CELL HYDRAULIC RETENTION TIME (HRT)	5	DAYS	
PRIMARY CELL HYDRAULIC RETENTION TIME (HRT)	40	DAYS	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
SECONDARY CELL HYDRAULIC RETENTION TIME (HRT)	240	DAYS	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
PRETREATMENT CELL MAXIMUM DEPTH	10	FEET	
PRETREATMENT CELL DESIGN DEPTH	7	FEET	
PRIMARY CELL MAXIMUM DEPTH	10	FEET	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
PRIMARY CELL DESIGN DEPTH	5	FEET	ACTUAL DEPTH 7 FEET (BOTTOM 2 FEET EXCLUDED FROM VOLUME CALC)
SECONDARY CELL MAXIMUM DEPTH	5	FEET	2009 ADEC DRAFT LAGOON CONSTRUCTION GUIDELINES
SECONDARY CELL DESIGN DEPTH	5	FEET	ACTUAL DEPTH 7 FEET (BOTTOM 2 FEET EXCLUDED FROM VOLUME CALC)
2042 DESIGN CONDITIONS			
AVERAGE DAILY FLOW	13,800	GALLONS	DESIGN FLOW X DESIGN POP. + 8,000 GPD (WASHETERIA/SCHOOL)
TOTAL BOD/DAY PRODUCTION	98.6	LBS	
DESIGN BOD/DAY PRODUCTION	49.3	LBS	ASSUMING 50% BOD REDUCTION IN PRETREATMENT CELL
MINIMUM OVERALL SIZE (BASED ON BOD LOADING)	2.5	ACRES	
MINIMUM PRETREATMENT CELL VOLUME (BASED ON HRT)	69,000	GALLONS	
MINIMUM PRIMARY CELL SIZE (BASED ON BOD LOADING)	1.6	ACRES	
MINIMUM SECONDARY CELL SIZE (BASED ON BOD LOADING)	0.8	ACRES	
REQUIRED PRIMARY CELL VOLUME (BASED ON HRT)	552,001	GALLONS	
REQUIRED SECONDARY CELL VOLUME (BASED ON HRT)	3,312,004	GALLONS	
MINIMUM PRIMARY CELL SIZE	1.6	ACRES	BOD LOADING CONTROLS
MINIMUM SECONDARY CELL SIZE	3,312,004	GALLONS	HYDRAULIC RETENTION TIME CONTROLS

FIGURE 4B

WATER & SEWER MASTER PLAN - SEWAGE LAGOON

OPTION 4B - PROPOSED (3 CELL) WASTEWATER LAGOON

CHEFORNAK, ALASKA

Scale: SEE GRAPHIC

Date: JUNE 2011

Drawn: CM

CE2 ENGINEERS, INC.

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