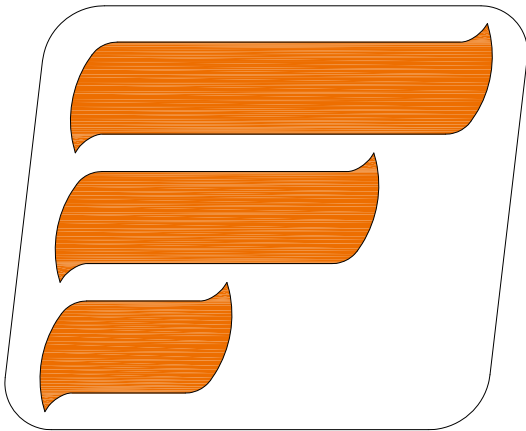


PROCESS FLOW DIAGRAM FOR
SUNCOR — VOYAGEUR
WASTE WATER TREATMENT PLANT
PFD



FilterBoxx™
Packaged Water Treatment Solutions

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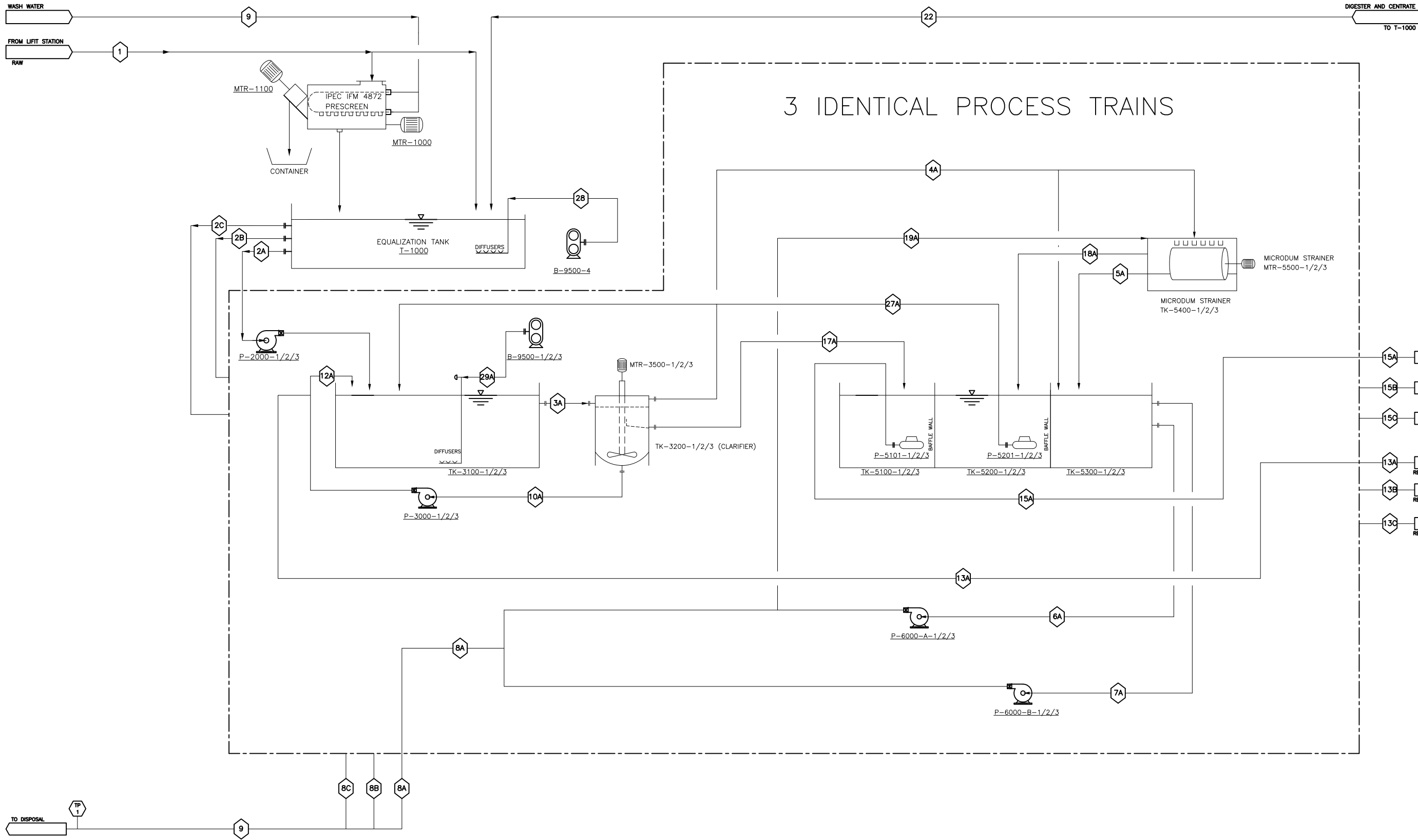
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CLIENT: SUNCOR

TITLE: VOYAGEUR
WASTE WATER TREATMENT PLANT
TITLE PAGE

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
000	28/10/08	AS BUILT	MAP	GC	M. PACHOLSKI	010801-T-101
					CHECKED BY:	DATE:
					G. CATTANI	28-OCT-2008
					APPROVED BY:	SCALE:
					K.SLOUGH	N/A
					JOB/QUOTE No.	
					010801	
					PLOT SCALE:	REV. SHEET No.
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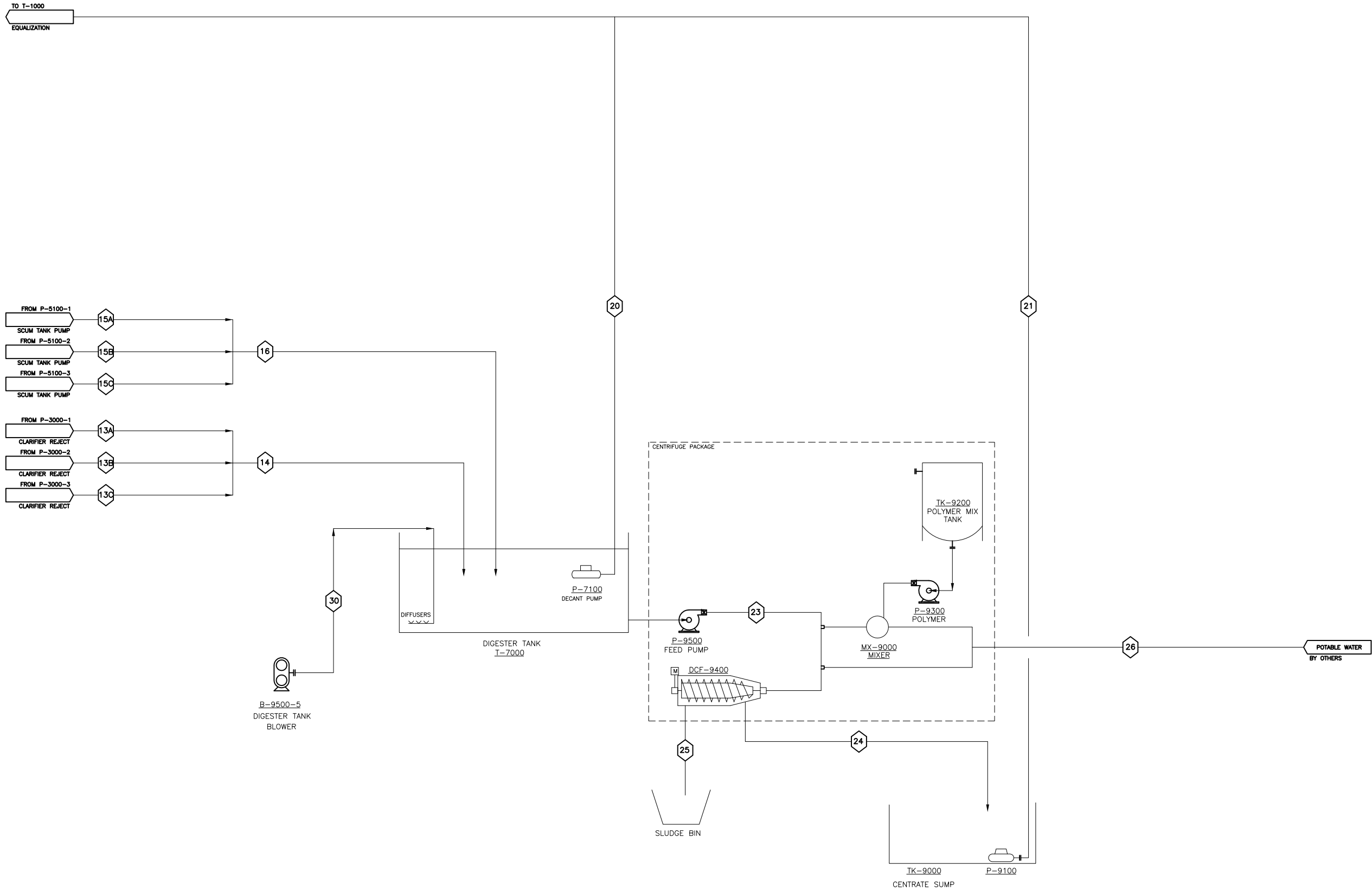
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CLIENT: SUNCOR

TITLE: VOYAGEUR
WASTE WATER TREATMENT PLANT
PROCESS FLOW DIAGRAM

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
000	28/10/08	AS BUILT	MAP	GC	M. PACHOLSKI	010801-D-101
					CHECKED BY:	DATE:
					G. CATTANI	28/10/08
					APPROVED BY:	SCALE:
					K. SLOUGH	N/A
					JOB/QUOTE No.	
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					PLOT SCALE:	REV. SHEET No.
					N/A	00 1 OF 3



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CLIENT: SUNCOR

TITLE: VOYAGEUR
WASTE WATER TREATMENT PLANT
PROCESS FLOW DIAGRAM

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
000	28/10/08	AS BUILT	MAP	GC	M. PACHOLSKI	010801-D-102
					CHECKED BY:	DATE:
					G. CATTANI	28/10/08
					APPROVED BY:	SCALE:
					K. SLOUGH	N/A
					JOB/QUOTE No.	
					010801	
					PLOT SCALE:	REV. SHEET No.
					N/A	00 2 OF 3

WASTE WATER TREATMENT PLANT PROCESS FLOW						
STREAM ID		SYSTEM PROCESS STREAM	SYSTEM PRESSURE (kPa)	SYSTEM FLOW RATE (M3/DAY)	SYSTEM PRESSURE (PSI)	SYSTEM FLOW RATE (USGPM)
1		RAW WATER INFULENT	TBD	750	TBD	137.80
2A		FEED STREAM PROCESS TRAIN 1	29.83	250	4.33	36.50
2B		FEED STREAM PROCESS TRAIN 2	29.83	250	4.33	36.50
2C		FEED STREAM PROCESS TRAIN 3	29.83	250	4.33	36.50
3A		CLARIFIER FEED PROCESS TRAIN 1	GRAVITY	248.75	GRAVITY	45.70
3B		CLARIFIER FEED PROCESS TRAIN 2	GRAVITY	248.75	GRAVITY	45.70
3C		CLARIFIER FEED PROCESS TRAIN 3	GRAVITY	248.75	GRAVITY	45.70
4A		MICRODRUM STRAINER FEED PROCESS TRAIN 1	GRAVITY	248.75	GRAVITY	45.70
4B		MICRODRUM STRAINER FEED PROCESS TRAIN 2	GRAVITY	248.75	GRAVITY	45.70
4C		MICRODRUM STRAINER FEED PROCESS TRAIN 3	GRAVITY	248.75	GRAVITY	45.70
5A		DOSE TANK FEED PROCESS TRAIN 1	GRAVITY	248.75	GRAVITY	45.70
5B		DOSE TANK FEED PROCESS TRAIN 2	GRAVITY	248.75	GRAVITY	45.70
5C		DOSE TANK FEED PROCESS TRAIN 3	GRAVITY	248.75	GRAVITY	45.70
6A		PUMP P-6000-A-1 FEED	448.15	248.75	65.00	45.70
6B		PUMP P-6000-A-2 FEED	448.15	248.75	65.00	45.70
6C		PUMP P-6000-A-3 FEED	448.15	248.75	65.00	45.70
7A		PUMP P-6000-B-1 FEED	448.15	248.75	65.00	45.70
7B		PUMP P-6000-B-2 FEED	448.15	248.75	65.00	45.70
7C		PUMP P-6000-B-3 FEED	448.15	248.75	65.00	45.70
8A		PROCESS TRAIN 1 TO DISPOSAL	448.15	248.75	65.00	45.70
8B		PROCESS TRAIN 2 TO DISPOSAL	448.15	248.75	65.00	45.70
8C		PROCESS TRAIN 3 TO DISPOSAL	448.15	248.75	65.00	45.70
9		TOTAL EFFLUENT TO DISPOSAL	448.15	746.25	65.00	137.10
10		INLET SCREEN WASH WATER	448.15	VARIOUS	65.00	VARIOUS
11A		CLARIFIER SLUDGE PUMP FEED TRAIN 1	GRAVITY	92.16	GRAVITY	16.93
11B		CLARIFIER SLUDGE PUMP FEED TRAIN 2	GRAVITY	92.16	GRAVITY	16.93
11C		CLARIFIER SLUDGE PUMP FEED TRAIN 3	GRAVITY	92.16	GRAVITY	16.93
12A		CLAIRIFIER SLUDGE RECYCLE TRAIN 1	29.83	90.91	25.00	16.70
12B		CLAIRIFIER SLUDGE RECYCLE TRAIN 2	29.83	90.91	25.00	16.70
12C		CLAIRIFIER SLUDGE RECYCLE TRAIN 3	29.83	90.91	25.00	16.70
13A		TRAIN 1 CLARIFIER SLUDGE TO DIGESTER	172.37	1.25	25.00	0.23
13B		TRAIN 2 CLARIFIER SLUDGE TO DIGESTER	172.37	1.25	25.00	0.23
13C		TRAIN 1 CLARIFIER SLUDGE TO DIGESTER	172.37	1.25	25.00	0.23
14		TOTAL CLARIFIER SLUDGE TO DIGESTER	172.37	3.75	25.00	0.69
15A		TRAIN 1 SCUM TANK TO DIGESTER	N/A	N/A	N/A	N/A
15B		TRAIN 2 SCUM TANK TO DIGESTER	N/A	N/A	N/A	N/A
15C		TRAIN 3 SCUM TANK TO DIGESTER	N/A	N/A	N/A	N/A
16		TOTAL SCUM TO DIGESTER	N/A	N/A	N/A	N/A
17A		TRAIN 1 CLARIFIER SCUM TO SCUM TANK	GRAVITY	VARIOUS	GRAVITY	VARIOUS
17B		TRAIN 2 CLARIFIER SCUM TO SCUM TANK	GRAVITY	VARIOUS	GRAVITY	VARIOUS
17C		TRAIN 3 CLARIFIER SCUM TO SCUM TANK	GRAVITY	VARIOUS	GRAVITY	VARIOUS
18A		TRAIN 1 MICRODRUM BACK WASH	GRAVITY	VARIOUS	GRAVITY	VARIOUS
19B		TRAIN 2 MICRODRUM BACK WASH	GRAVITY	VARIOUS	GRAVITY	VARIOUS
18C		TRAIN 3 MICRODRUM BACK WASH	GRAVITY	VARIOUS	GRAVITY	VARIOUS

WASTE WATER TREATMENT PLANT PROCESS FLOW						
STREAM ID		SYSTEM PROCESS STREAM	SYSTEM PRESSURE (kPa)	SYSTEM FLOW RATE (M3/DAY)	SYSTEM PRESSURE (PSI)	SYSTEM FLOW RATE (USGPM)
19A		TRAIN 1 MICRODRUM BACKWASH WATER	448.15	VARIOUS	65.00	45.70
19B		TRAIN 2 MICRODRUM BACKWASH WATER	448.15	VARIOUS	65.00	45.70
19C		TRAIN 3 MICRODRUM BACKWASH WATER	448.15	VARIOUS	65.00	45.70
20		DIGESTER DECANT PUMP DISCHARGE	448.15	24.50	65.00	45.00
21		CENTRATE SUMP PUMP TO EQUALIZATION TANK	448.15	24.50	65.00	45.00
23		CENTRIFUGE FEED	224.08	60.00	30.00	11.02
24		CENTRATE	GRAVITY	24.00	GRAVITY	4.41
25		DEWATERED SLUDGE	GRAVITY	VARIOUS	GRAVITY	VARIOUS
26		POTABLE WATER	206.84	VARIOUS	SUPPLY	VARIOUS
27A		TRAIN 1 BACKWASH TANK RECYCLE	448.15	245.00	65.00	45.00
27B		TRAIN 2 BACKWASH TANK RECYCLE	448.15	245.00	65.00	45.00
27C		TRAIN 3 BACKWASH TANK RECYCLE	448.15	245.00	65.00	45.00
28		EQUALIZATION TANK AIR FEED	32.88	7,339.73	4.76	180 CFM
29A		TRAIN 1 AREATION TANK AIR FEED	29.85	8,155.25	4.33	200 CFM
29B		TRAIN 2 AREATION TANK AIR FEED	29.85	8,155.25	4.33	200 CFM
29C		TRAIN 3 AREATION TANK AIR FEED	29.85	8,155.25	4.33	200 CFM
30		DIGESTER AIR FEED	29.85	14,271.70	4.33	350 CFM

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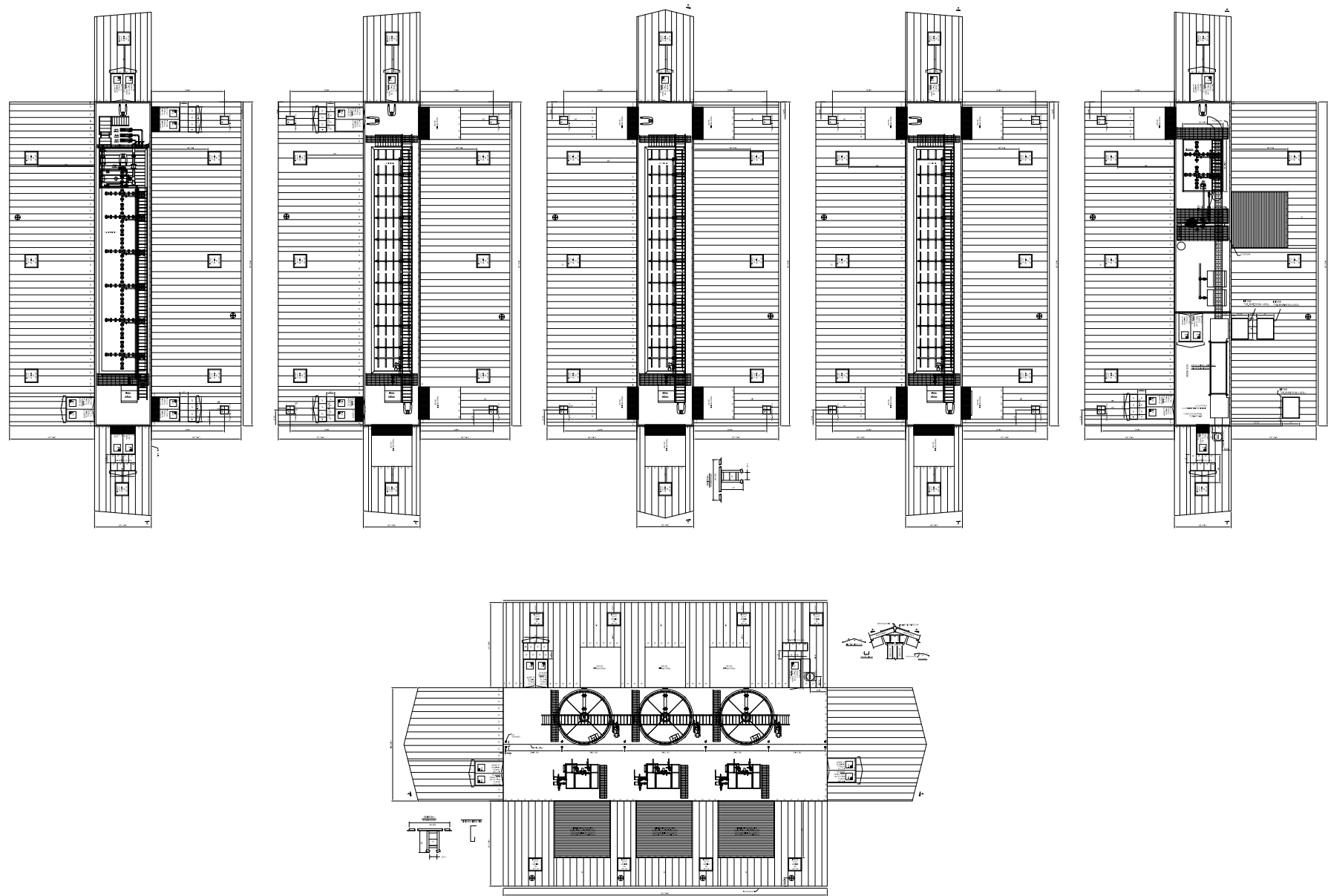
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TITLE: VOYAGEUR
WASTE WATER TREATMENT PLANT
PROCESS FLOW DIAGRAM

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
000	28/10/08	AS BUILT	MAP	GC	M. PACHOLSKI	010801-D-103
					CHECKED BY:	DATE:
					G. CATTANI	28/10/08
					APPROVED BY:	SCALE:
					K. SLOUGH	N/A
					JOB/QUOTE No.	
					010801	
					PLOT SCALE:	REV. SHEET No.
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IFC

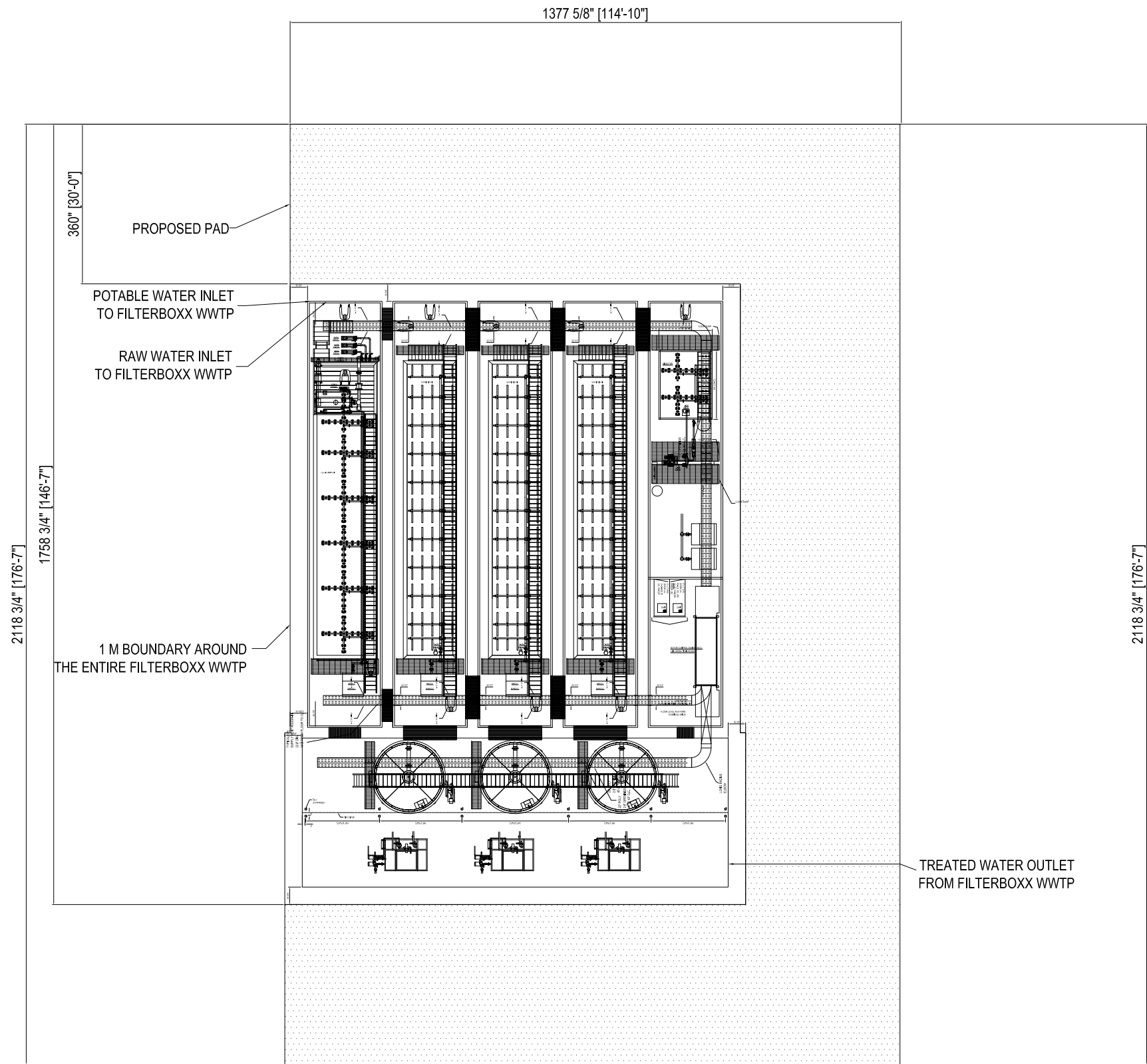
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SUNCOR ENERGY CANADA

TITLE:
WASTE WATER TREATMENT PLANT
SUNCOR VOYAGEUR CAMP
SYSTEM LAYOUT

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
6	2-JUN-08	IFC	MAP	GC	GC	010801-G-002
7	8-OCT-08	IFC	GC	KS	CHECKED BY:	DATE:
					KS	08-APR-08
					APPROVED BY:	SCALE:
					GC	AS SHOWN
					JOB/QUOTE No.	
					010801	
					PLOT SCALE:	REV. SHEET No.
						G5 2 OF 3



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SUNCOR ENERGY CANADA

TITLE:
WASTE WATER TREATMENT PLANT
EQUIPMENT
SYSTEM LAYOUT

No.	DATE	REVISION DESCRIPTION	BY	CHK'D	DRAWN BY:	DRAWING No.:
6	2-JUN-08	IFC	MAP	GC	GC	010801-G-003
7	8-OCT-08	IFC	GC	KS	CHECKED BY:	DATE:
					KS	07-MAY-08
					APPROVED BY:	SCALE:
					GC	AS SHOWN
					JOB/QUOTE No.	
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					PLOT SCALE:	REV. SHEET No.
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