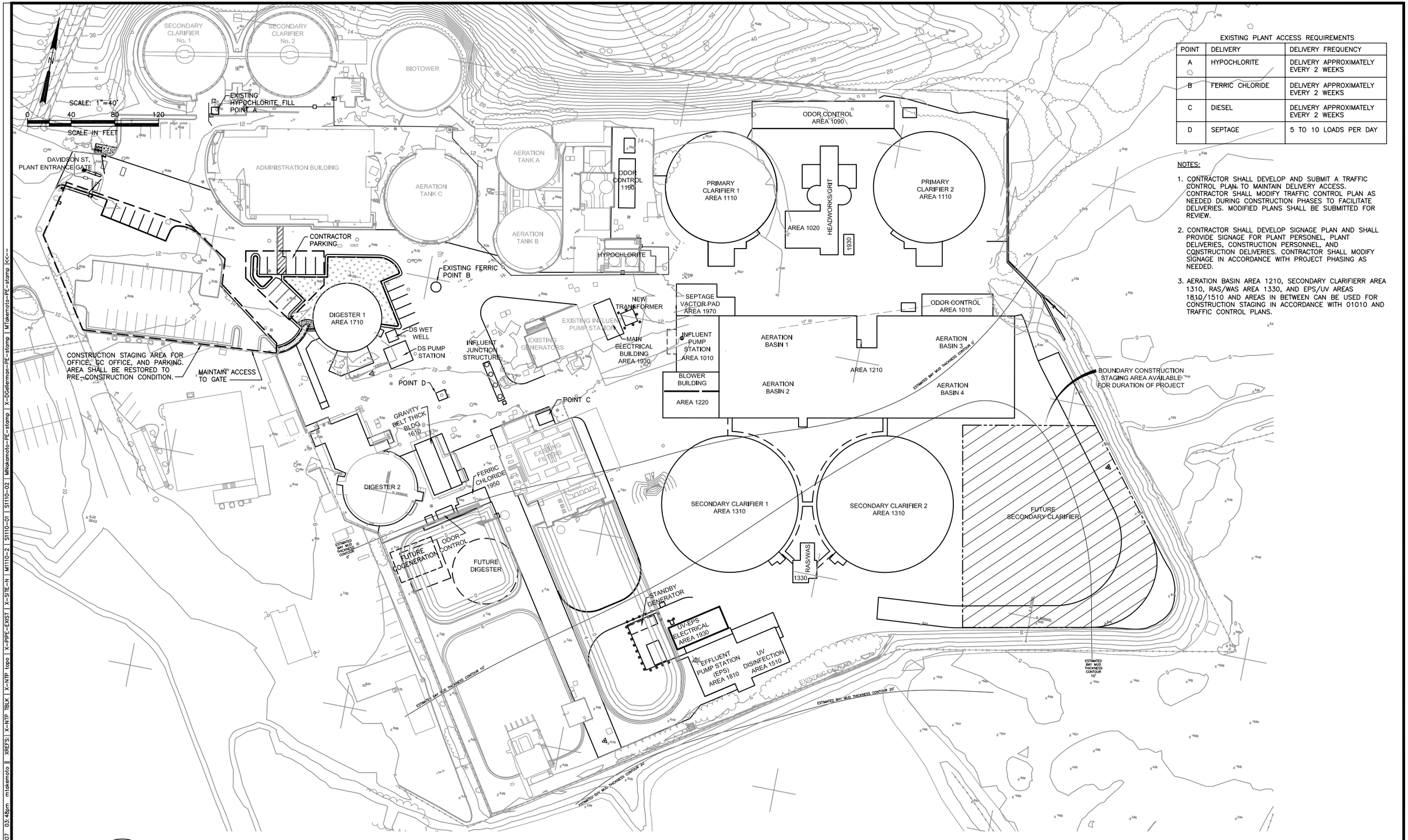

EXISTING PLANT ACCESS REQUIREMENTS

POINT	DELIVERY	DELIVERY FREQUENCY
A	HYPOCHLORITE	DELIVERY APPROXIMATELY EVERY 2 WEEKS
B	FERRIC CHLORIDE	DELIVERY APPROXIMATELY EVERY 2 WEEKS
C	DIESEL	DELIVERY APPROXIMATELY EVERY 2 WEEKS
D	SEPTAGE	5 TO 10 LOADS PER DAY

NOTES:

1. CONTRACTOR SHALL DEVELOP AND SUBMIT A TRAFFIC CONTROL PLAN TO MAINTAIN DELIVERY ACCESS. CONTRACTOR SHALL MODIFY TRAFFIC CONTROL PLAN AS NEEDED DURING CONSTRUCTION PHASES TO FACILITATE DELIVERIES. MODIFIED PLANS SHALL BE SUBMITTED FOR REVIEW.
2. CONTRACTOR SHALL DEVELOP SIGNAGE PLAN AND SHALL PROVIDE SIGNAGE FOR PLANT PERSONEL, PLANT DELIVERIES, CONSTRUCTION PERSONNEL, AND CONSTRUCTION DELIVERIES. CONTRACTOR SHALL MODIFY SIGNAGE IN ACCORDANCE WITH PROJECT PHASING AS NEEDED.
3. AERATION BASIN AREA 1210, SECONDARY CLARIFIERR AREA 1310, RAS/WAS AREA 1330, AND EPS/UV AREAS 1810/1510 AND AREAS IN BETWEEN CAN BE USED FOR CONSTRUCTION STAGING IN ACCORDANCE WITH 01010 AND TRAFFIC CONTROL PLANS.

REGISTERED PROFESSIONAL ENGINEER — MARC K. NAKAMOTO — No. 63282 — Exp. 06-30-08 — CIVIL — STATE OF CALIFORNIA — 12-13-06

0" 1" — VERIFY SCALES — BAR IS ONE INCH LONG ON FULL SIZE DRAWING. IF NOT ONE INCH LONG ON THIS DRAWING, ADJUST SCALES ACCORDINGLY

RMC Water & Environment

REV	DATE	BY	APVD	DESCRIPTION
1	04/13/07	SAJ	MNK	CONFORMED DRAWING

DESIGNED M. NAKAMOTO
DRAWN S. JUNG
CHECKED D. GELLERMAN

SUBMITTED: DENNIS GELLERMAN — RMC PROJ ENGR CE-34684
APPROVED: STEVE CLARY — RMC ENGR CE-30318

NOVATO SANITARY DISTRICT

NOVATO WASTEWATER FACILITY UPGRADE

SITE PLAN

DWG NO G-9
SHEET NO
PROJ NO 0049-007
DATE December 2006

FILENAME: G09 4-17-07 03:48pm mtakemoto | XREFS: X-NTP TBLK | X-NTP topo | X-PIPE-EXIST | X-SITE-N | M1110-2 | S1110-01 | S1110-02 | MNakamoto-PE-stamp | X-DGellerman-PE-stamp | MTakemoto-PE-stamp |<<--

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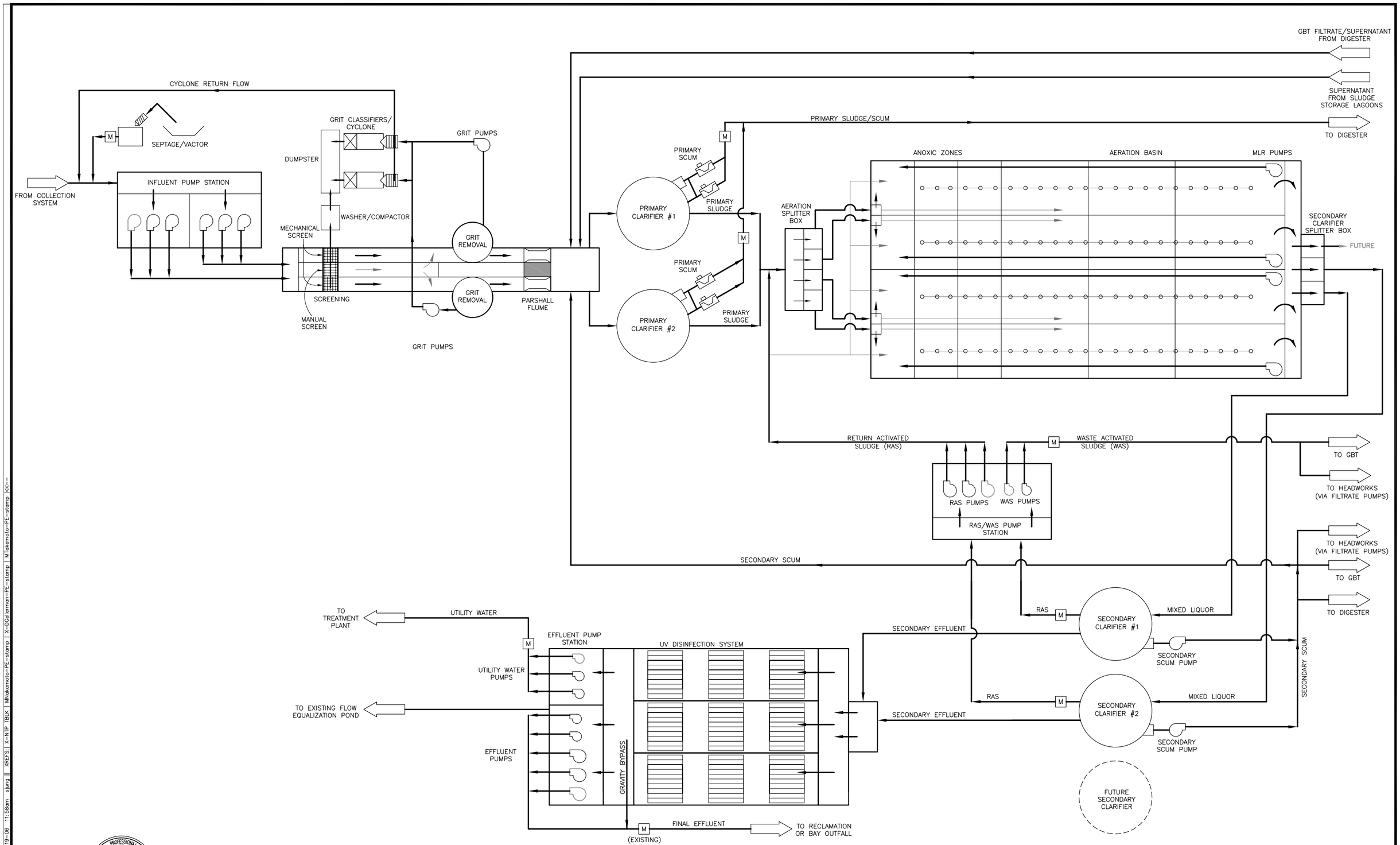

REGISTERED PROFESSIONAL ENGINEER — DENNIS G. GELLERMAN — No. 34684 — Exp. 09-30-07 — CIVIL — STATE OF CALIFORNIA — 12-13-06

0" 1" — VERIFY SCALES — BAR IS ONE INCH LONG ON FULL SIZE DRAWING. IF NOT ONE INCH LONG ON THIS DRAWING, ADJUST SCALES ACCORDINGLY

RMC Water & Environment

REV	DATE	BY	APVD	DESCRIPTION
1				
2				
3				
4				
5				

DESIGNED	M. TOLCHER
DRAWN	S. JUNG
CHECKED	M. MATSON

SUBMITTED: DENNIS GELLERMAN — RMC PROJ ENGR — CE-34684
APPROVED: STEVE CLARY — RMC ENGR — CE-30318

NOVATO SANITARY DISTRICT

NOVATO WASTEWATER FACILITY UPGRADE

LIQUID PROCESS DIAGRAM

DWG NO	G-4
SHEET NO	
PROJ NO	0049-007
DATE	December 2006

FILENAME: G04 12-19-06 11:58am sjung | XREFS: | X-NTP TBLK | MNakamoto-PE-stamp | X-DGellerman-PE-stamp | MTakemoto-PE-stamp |<<--

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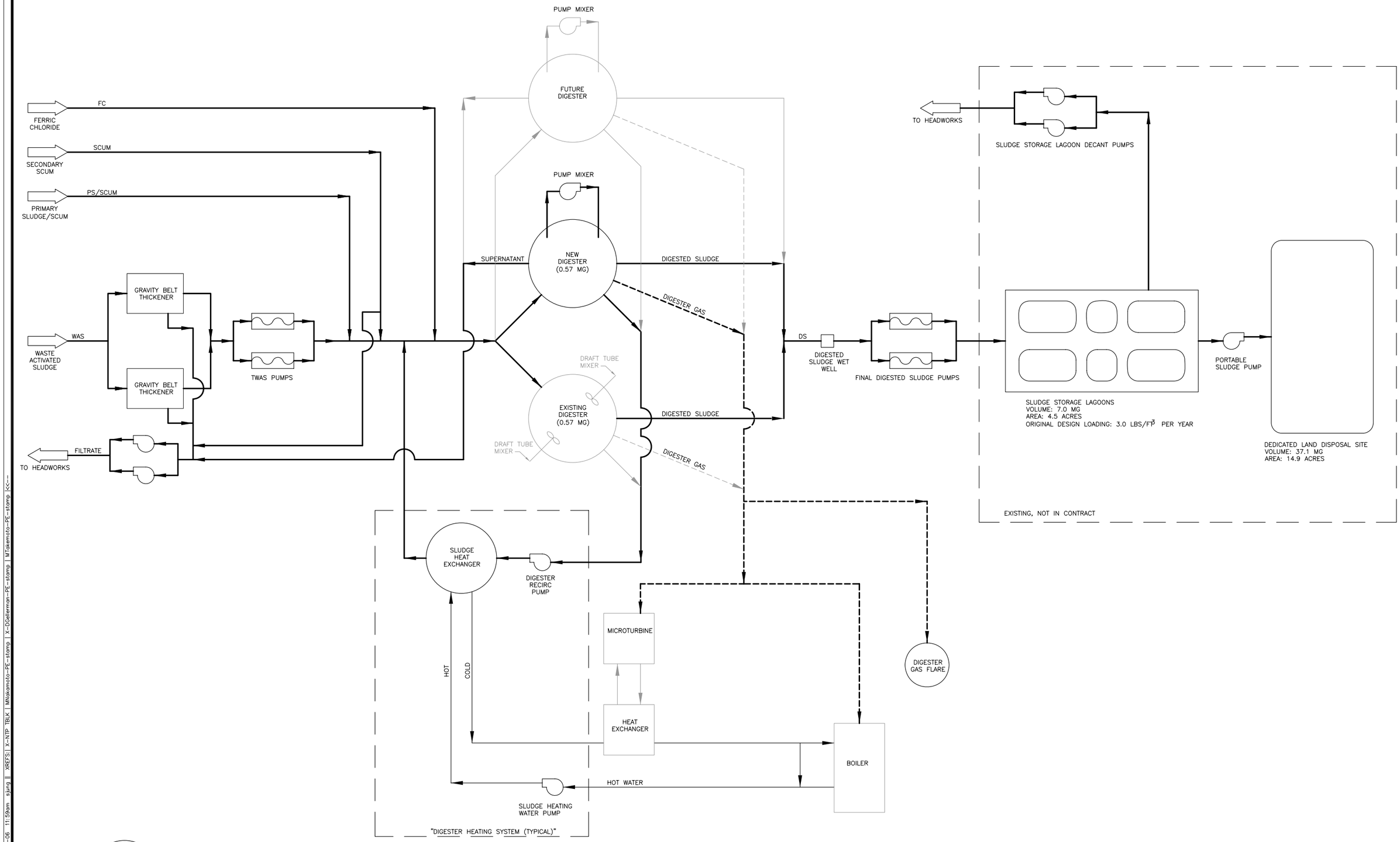

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REGISTERED PROFESSIONAL ENGINEER MARK W. TAKEMOTO No. 64369 Exp. 06-30-07 CIVIL STATE OF CALIFORNIA 12-13-06

0" — 1" — VERIFY SCALES — BAR IS ONE INCH LONG ON FULL SIZE DRAWING. IF NOT ONE INCH LONG ON THIS DRAWING, ADJUST SCALES ACCORDINGLY

RMC Water & Environment

REV	DATE	BY	APVD	DESCRIPTION
1				
2				
3				
4				
5				

DESIGNED M. TAKEMOTO
DRAWN S. JUNG
CHECKED M. MATSON

SUBMITTED: DENNIS GELLERMAN RMC PROJ ENGR CE-34684
APPROVED: STEVE CLARY RMC ENGR CE-30318

NOVATO SANITARY DISTRICT

NOVATO WASTEWATER FACILITY UPGRADE

SOLIDS HANDLING DIAGRAM

DWG NO G-5
SHEET NO
PROJ NO 0049-007
DATE December 2006

Last Saved By: ktalbot 12-13-06 03:58pm

Design Criteria	Value	Units
Design Year	2025	---
Average Dry Weather Flow (ADWF)	7.0	MGD
Average Annual Flow (AAF)	7.8	MGD
Average Wet Weather Flow (AWWF)	10.3	MGD
Peak Week	17.7	MGD
Peak Wet Weather Flow, Max Day (PWWF)	30.7	MGD
Normal Peak 3-Hour Flow	34.6	MGD
Max Peak 3-Hour Flow	47.0	MGD
Average BOD Loading	14,600	lbs/day
Average TSS Loading	17,600	lbs/day
Headworks		
Influent Pump Station		
Type	Non-Clog Submersible	
Number (installed/standby)	6/1	---
Capacity (each)	9.4	MGD
TDH	42.2	feet
Motor Size	125	HP
Septage Receiving Station		
Number	1	
Grinder Motor Size	5	HP
Auger Motor Size	2	HP
Mechanical Screens		
Type	Filter Screen	
Number	2	---
Width	4.5	feet
Openings	15	mm
Manual Screens		
Type	Bar	
Number	1	---
Width	3.5	feet
Openings	1	inch
Screenings Conveyor		
Type	Shaftless Screw	
Number	1	---
Size	14	inch
Screenings Washers/Compactors		
Number	1	---
Compactor Motor Size	3	HP
Grinder Motor Size	10	HP
Grit Chamber		
Type	Vortex	
Number	2	---
Diameter	16	feet
Capacity (each)	23.5	MGD
Motor Size	3	HP
Grit Pumps		
Type	Recessed Impeller	
Number (installed/standby)	2	
Capacity (each)	300	GPM
TDH	29	feet
Motor size	7.5	HP
Grit Cyclones		
Type	Centrifugal	
Number	2	---
Capacity (each)		
Inlet	300	GPM
Under flow	16	GPM
Grit Classifier		
Type	Screw Conveyor	
Number	2	---
Size	12	inches
Motor Size	2	HP
Influent Metering		
Parshall Flumes		
Number	2	---
Throat Width	30	inches

Design Criteria	Value	Units
Primary Treatment		
Primary Sedimentation Basins		
Type	Circular	
Number of Basins	2	---
Design Overflow Rate		
@ ADWF (7 mgd)	< 800	gpd/sf
@ Peak 3-Hour (47 mgd)	< 3,000	gpd/sf
Diameter (each basin)	100	feet
Side Water Depth	12	feet
Primary Sludge/Scum Pumps		
Type	Progressive Cavity	
Number (installed/standby)	4/0	---
Capacity (each)	125	gpm
TDH	39	Feet
Motor Size	15	HP
*Scum pumps will be used as back-up sludge pumps and vice versa		
Secondary Treatment		
Nitrification Operation		
MLSS	2,500 - 3,000	mg/l
Mean cell residence time	8 to 9	days
RAS capacity	3-10	mgd
Carbonaceous Operation		
MLSS	1100 - 1300	mg/l
Mean cell residence time	2.5 - 3	days
RAS capacity	2.5-5	MGD
Aeration Basins		
Number of Basins	4	ea
Volume, each basin	115,300	ft^3
Side Water Depth	23	ft
Anoxic Zones Volume per Basin	27,600	ft^3
Aeration Blowers		
Type, Duty	Single-Stage Centrifugal	
Type, Standby	Multi-Stage Centrifugal	
Number (Installed/Standby)	3/1	
Capacity (Duty/Standby, each)	4,500/4,000	scfm
Motor Size	250	HP
Mixed Liquor Recycle Pumps		
Type	Submersible Propeller	
Number (installed/standby)	4/0	---
Capacity (each)	3.5	MGD
TDH	1	Feet
Motor Size	2.5	HP
Submersible Mixers		
Type	Submersible	
Number (installed/standby)	12/0	---
Motor Size	2.5	HP
Secondary Drainage Pump		
Type	Submersible	
Number (installed/standby)	1/0	---
Capacity	1800	GPM
TDH	27	Feet
Motor Size	20	HP
ML Channel Air Blower		
Type	Positive Displacement	
Number	1/0	---
Capacity	450	SCFM
TDH	3.5	PSI
Motor Size	10	HP
Secondary Clarifiers		
Solids Flux Rate		
Average Dry Weather Flow	8.25	$lbs/ft^2/d$
Type	Circular	
Number of Clarifiers	2	---
Design Overflow Rate		
@ ADWF (7 MGD, 2 Basins)	407	gpd/ft^2
@ Max Peak 3-Hour (47 mgd)	2,320	gpd/ft^2
Diameter (each clarifier)	125	ft
Side Water Depth	16	ft

Design Criteria	Value	Units
RAS Pumps		
Type	Submersible	
Number (installed/standby)	3/1	---
Capacity (each)	5	MGD
TDH	14	Feet
Motor Size	35	HP
Secondary Scum Pumps		
Type	Submersible Chopper	
Number (installed/shelf spare)	2/1	---
Capacity	150	gpm
TDH	36	Feet
Motor Size	7.5	HP
WAS Pumps		
Type	Non-Clog Submersible	
Number (installed/standby)	2/1	---
Capacity (each)	400	GPM
TDH	19	Feet
Motor Size	5	HP
UV Disinfection		
Enterococci Limits		
Peak Day Wet Weather (31 MGD)	35	MPN/100 ml
Peak 3-Hour (47 mgd)	276	MPN/100 ml
Design UV Transmittance	0.55	---
Dose	35	mJ/cm^2
Number of Channels	3	---
Channel Width	74	Inches
Channel Length	33	Feet
Channel Side Water Depth	62	Inches
UV Channel Air Blower		
Type	Positive Displacement	
Number	1	
Capacity	150	SCFM
TDH	6.5	PSI
Motor Size	7.5	HP
Effluent Pumping		
Dry Weather		
Type	Vertical Column	
Number (installed/standby)	2/1	---
Capacity (each)	11	MGD
TDH	22	Feet
Motor Size	60	HP
~~Wet Weather~~		
~~Type~~	~~Vertical Turbine~~	
~~Number (installed/standby)~~	~~3/1~~	~~---~~
~~Capacity (each)~~	~~23.5~~	~~MGD~~
~~TDH~~	~~57~~	~~Feet~~
~~Motor Size~~	~~300~~	~~HP~~
Utility Water Pumps		
Type	Vertical Turbine	
Number (installed/standby)	3/1	
Capacity (each)	750	gpm
TDH	200	Feet
Motor Size	60	HP
Solids (WAS) Thickening		
Gravity Belt Thickeners		
Number (Installed/Standby)	2/1	---
Belt width	1	meter
Belt Drive Motor Size	2	HP
Hours of Operation (Nitrification)	10	hours/day
Hours of Operation (Carbonaceous)	16	hours/day
Maximum Solids Loading Rate	700	lbs/hr/meter
Maximum Hydraulic Loading Rate	200	gpm/meter
Solids Capture	95	%
Thickened WAS Solids Concentration	5	%

NIC

Design Criteria	Value	Units
High Pressure Washwater Pumps		
Type	In-Line Multi-Stage	
Number (Installed/Standby)	2/1	---
Capacity (each)	60	GPM
Inlet Pressure	60	psi
Required Discharge Pressure	105	psi
Motor Size	2	HP
Polymer Delivery System		
Polymer Type	Emulsion	
Number (Installed/Standby)	2/1	---
Dose, active polymer	8	lbs/ton
Polymer Use (Peak Month)	129	lbs/day
Polymer Flow	1.31	GPH
Polymer Storage (30-day @ Peak Month)	470	gallons
GBT Filtrate Pumps		
Type	Non-Clog Submersible	
Number (Installed/Standby)	2/1	---
Capacity (each)	345	GPM
TDH	39.1	feet
Motor Size	7.5	HP
Thickened WAS Pumps		
Number (Installed/Standby)	2/1	---
Type	Progressive Cavity	
Capacity (each)	40	GPM
TDH	25	feet
Motor Size	3	HP
Anaerobic Digestion		
Number of Digesters (1 Existing)	2	
Volume (each)	571,000	gallons
Diameter	60	feet
Side Water Depth	27	feet
Volatile Solids Destruction	50	%
Design Temperature	98	deg. F
Digester Mixing, turnovers	9	per day
Digester Mixing		
Number (Installed/shelf spare)	1/1	---
Pump Type	Horizontal Chopper	
Capacity (each)	3,600	gpm
TDH	16.7	feet
Motor Size	30	HP
Digester Recirculation Pumps		
Number (Installed/Standby)	2/1	---
Pump Type	Screw Centrifugal	
Capacity (each)	200	gpm
TDH	14.5	feet
Motor Size	5	HP
Digested Sludge Pumps		
Number (Installed/Standby)	2/1	---
Pump Type	Progressive cavity	
Capacity (each)	95	gpm
TDH	344	feet
Motor Size	20	HP
Ferric Chloride Pumps		
Number (Installed/Standby)	2/0	---
Pump Type	Peristaltic	
Capacity (each)	15	gph
Hypochlorite Pumps		
Number (Installed/Standby)	3/1	one existing
Pump Type	Diaphragm	
Capacity (new, each)	12.0	gph
Capacity (existing, each)	77	gph
Motor Size	0.5	HP

REGISTERED PROFESSIONAL ENGINEER — DENNIS G. GELLERMAN — No. 34684 — Exp. 09-30-07 — CIVIL — STATE OF CALIFORNIA — 12-13-06

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RMC Water & Environment

REV	DATE	BY	APVD	DESCRIPTION

DESIGNED M. TOLCHER
DRAWN S. JUNG
CHECKED M. MATSON

SUBMITTED: DENNIS GELLERMAN — RMC PROJ ENGR CE-34684
APPROVED: STEVE CLARY — RMC ENGR CE-30318

NOVATO SANITARY DISTRICT

NOVATO WASTEWATER FACILITY UPGRADE

DESIGN CRITERIA

DWG NO G-6
SHEET NO
PROJ NO 0049-007
DATE December 2006

FILENAME: G06 12-19-06 01:22pm sjung | XREFS: | X-NTP TBLK | MNakamoto-PE-stamp | X-DGellerman-PE-stamp | MTakemoto-PE-stamp |<<--

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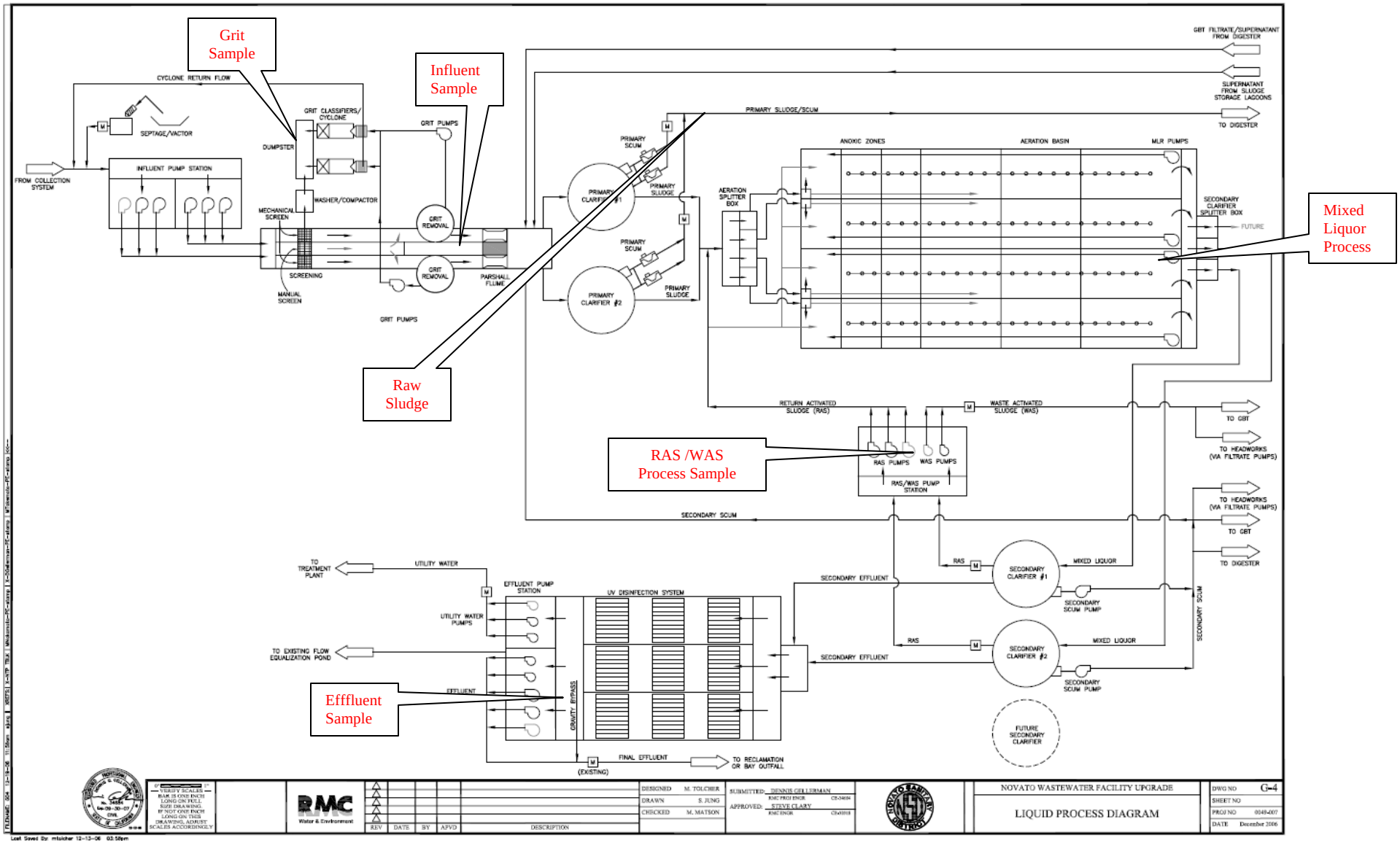
LIQUID STREAM & SOLIDS SAMPLE LOCATIONS



SOLIDS STREAM SAMPLE LOCATIONS