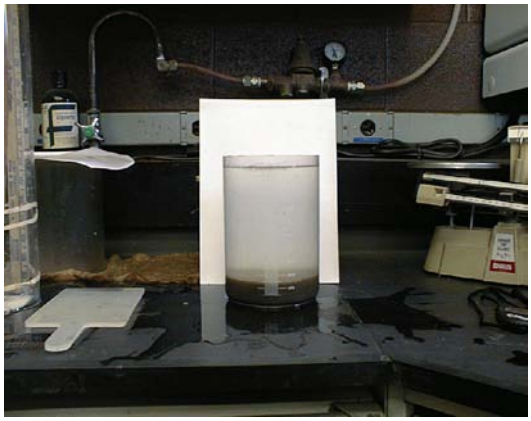
Town of Ticonderoga
Ticonderoga S.D. #5 WPCP
SPDES # 0036706

Wet Weather Operating Plan

Programable flow diversion gate for stormwater storage.

Secondary clarifier during simulated wet weather event.



Good sludge quality, one key ingredient in maximizing flow capacity.

Aeration tank mode changes provide process flexibility.

Town of Ticonderoga
Ticonderoga S.D. #5 WPCP Wet Weather Operating Plan

Forward

The purpose of this document is to meet the requirement of developing a *"Wet Weather Operating Plan"* for the Ticonderoga S.D. #5 WPCP. The requirement is specified in the Town of Ticonderoga Wastewater Treatment Plant's State Pollution Discharge Elimination System (SPDES) Permit, number NY0036706 dated 11/25/99 (Attachment 1). The Wet Weather Operating Plan is one of 15 Best Management Practices (BMP's) that are included in the SPDES Permit requirements. The goal of this operating plan is to outline practices and procedures used to operate the treatment facility to treat a minimum flow of 3.0 mgd through the secondary system and provide screening and grit removal for a minimum of 38.0 mgd during a wet weather event, while not diminishing effluent quality or destabilizing treatment upon return to dry weather flow.

The Ticonderoga S.D. #5 WPCP *"Wet Weather Operating Plan"* is divided into the following nine (9) plant areas.

1) Collection System
2) Screening and Equalization
3) Grit Removal
4) Aeration Tanks
5) Secondary Settling
6) Solids Handling
7) Septage Receiving Station
8) Process Control / Lab
9) Instrumentation / Recording

A flow schematic of the Ticonderoga WPCP #5 is shown in Figure 1. The nine plant areas listed above are divided into five (5) subareas, which are entitled "Before Wet Weather Flow", "During Wet Weather Flow", "After Wet Weather Flow", "Why Do We Do This?", and "What Triggers the Change?".

The five subareas are used to identify specific tasks or procedures that are needed in each of the nine "plant areas" to meet the goal of the BMP #5. The specific practices and procedures specified in the five subareas of the *"Wet Weather Operating Plan"* were identified by the operator from past experiences of treating wet weather flow, and through a comprehensive wastewater treatment plant flow evaluation done by the Facilities Operations Assistance Section of NYSDEC. This evaluation is detailed in the report titled *"Town of Ticonderoga Wastewater Treatment Plant Flow Study Wet Weather Operating Practices"* (Attachment 2) completed in September 1999. This flow study, and facility evaluation was completed over a period of 10 months. The evaluation consisted of simulating wet weather events using stored stormwater while monitoring effluent total suspended solids, turbidity, ammonia and sludge blanket levels in the secondary clarifiers. The *"Town of Ticonderoga Wastewater Treatment Plant Flow Study and Wet Weather Operating Practices"* consisted of the following:

- ✓ Executive Summary
- ✓ Background
- ✓ Major Unit Process Evaluation
- ✓ On-site Evaluation
- ✓ Using Solids Flux as an Operational Tool
- ✓ * Staffing
- ✓ Conclusions

* The facility staffing is an important ingredient in meeting the goals of the Wet Weather Operating Plan. Additional process control testing that is needed along with maintaining the proper sludge inventory as outlined in the plan are essential. Proper staffing of the facility helps to insure that these important ingredients of the plan are met.

The flow study report was reviewed by the NYSDEC Region 5 Office and the Town of Ticonderoga and found to be in order. (Attachment 3). The simulated storm events detailed in the "Flow Study" proved invaluable in developing operational tools and practices specified in the following "*Wet Weather Operating Plan*".

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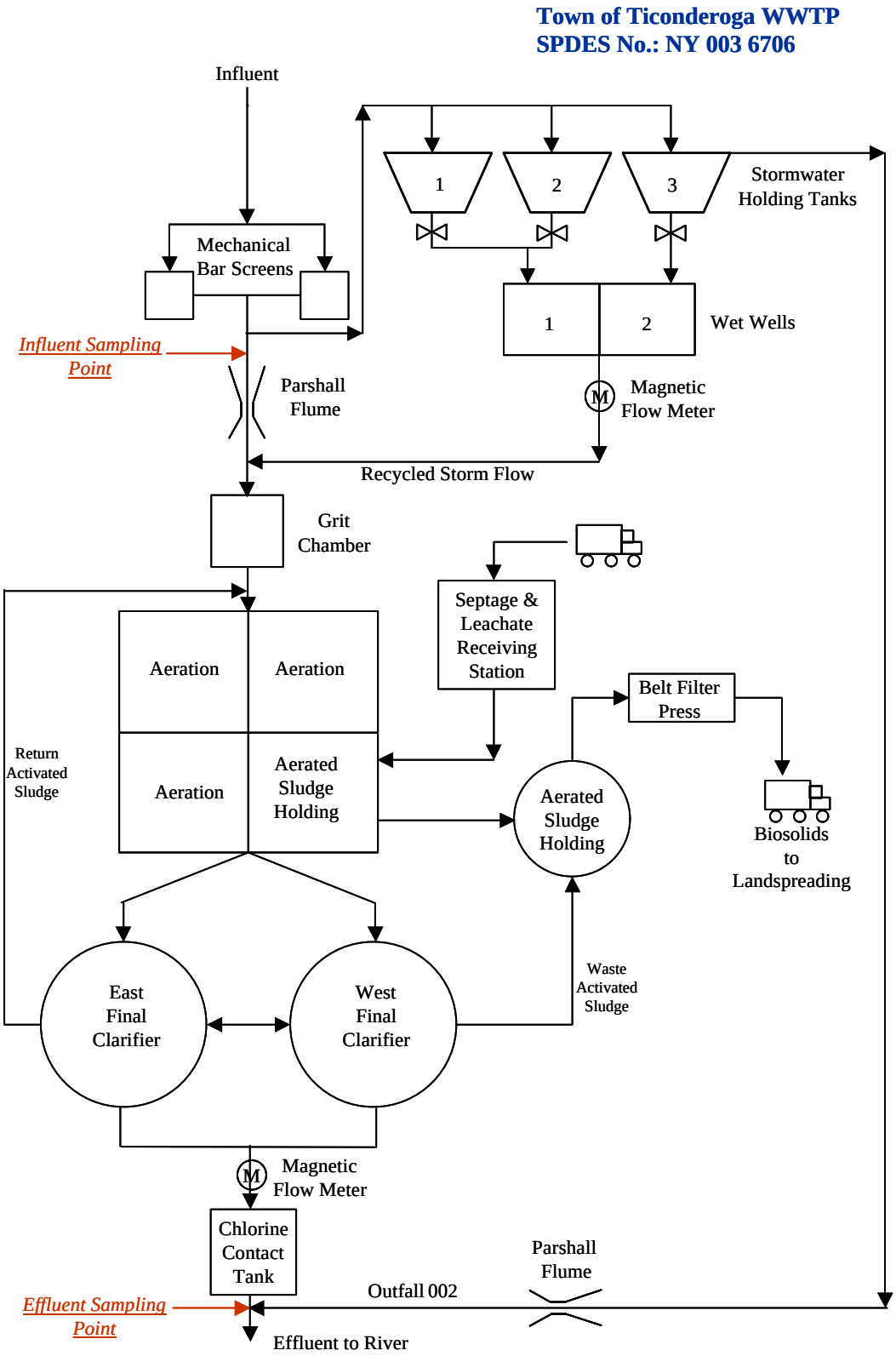
Ticonderoga S.D. #5 WPCP Flow Schematic



Plant Area: Collection System

Unit Process and Equipment List

Unit Process	Equipment
Collection System	Catch Basins (100) Pump Stations (6) Combined Sewer Overflow (1) (Outfall 003) Wastewater Treatment Plant Influent Channel

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Catch Basins: Maintain **semi annual** catch basin cleaning schedule:
Pump Station: Maintain pump station preventive maintenance (PM). Record pump station meter readings. (date, time, flow and pump hours.)
CSO (Outfall 003): Visually inspect combined sewer overflow, outfall 003, minimum, once per week. Record time and date of inspection.
Influent Channel: Clean influent channel, schedule based on flow and grit accumulation.

During Wet Weather

What Do We Do?
Catch Basins: Inspect and keep all catch basins open.
Pump Station: Inspect pump station, record daily meter readings.
CSO: Set up sampler at outfall 003 if overflow is imminent. Monitor CSO in accordance with SPDES Permit for flow, BOD, TSS and Phosphorous. Record and log; date, time and duration of overflows.
Influent Channel: Keep influent channel free of debris.

After Wet Weather

What Do We Do?
Catch Basins: Semi annually clean catch basins with vac truck.
Pump Station: Inspect pump station wet well and for pump damage and / or affects of high wet weather flow. Repair / replace any damaged equipment. Flush pumps.
CSO: Log samples from outfall 003, send the samples to the lab. Log date, time and duration of overflow. Visually inspect area of overflow, clean up debris / floatables if necessary.
Influent Channel: Clean / flush influent channel.

Why Do We Do This?
To maximize grit capture during first flush. Minimize CSO. Collect data from CSO for SPDES Permit requirements. Keep pump station in working order, prepare for future wet weather event.
What Triggers the Change?
Generally flows over 3.0 mgd. Flows in excess of 1.7 mgd may require storage.

Collection system CSO (outfall 003) Alarm light and power source for sampler

Alarm switch inside manhole of collection system CSO.

Plant Area: Screening and Equalization
(See Figures 2 and 3 for details on Gates, Valves & Weirs)

Unit Process and Equipment List

Unit Process	Equipment
Screening	Mechanically Cleaned Bar Screen (2) Gates (3), G-1 Plant, G-2 North Bar Screen, G-3 South Hoppers (2)
Equalization	Storm Water Holding Tanks (SWHT) (3) Programmable Storm Water Control Gate (G-4) and Weir (W-1) Weirs 2 and 3 (W2, W3) Dialer System Diversion Gates Between Storm Water Tanks 1 & 2 Adjustable Weirs (3) (W-11, W-12, W-13) for Storm Water Holding Tanks Storm Water Holding Tank Flushing Pumps (2) Flush Water Control Valves (16) Storm Water Recycle Pumps (2) P61, P62 Combustible Gas Meters
Plant CSO	CSO - Outfall 002 & Stormwater Channel CSO Stormwater Channel Sampler

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Screening: Maintain preventive maintenance on bar screens. Gates G1 & G2 open, South Bar Screen in service. Hopper emptied daily or as needed. Gate G3 closed, North bar screen in ready mode, hopper empty.
Equalization: Maintain storm water holding tanks (SWHT's) as empty as possible by maximizing recycle flow. W1 set so flow rates above 1.7 mgd are diverted into SWHT's. Weirs W2 & W3 are set to allow flow into SWHT's. G6 open position to allow flow into SWHT #1. Keep combustible gas meters in SWHT's calibrated with date and time of calibration logged. Weirs W11, W12, & W13 all in high position, maximizing storage.
Maintain preventive maintenance on all related equipment.

During Wet Weather

What Do We Do?
Screening: South and North bar screens in service, in "hand position". G3 open. Hoppers checked and emptied as needed. Flows up to 38 mgd are screened, additional flow not screened but diverted to SWHT's. Grit settles out in SWHT's.
Equalization: G5 closed. Weir W1 is raised to divert flows of over 1.7 mgd. Diversion gate G6 open, G7 closed. W2 & W3 at levels to allow storm flow to enter SWHT #1. W11, W12 and W13 set at high position to maximize storage capacity. At flow rate of 1.7 mgd flow diverts into SWHT's Dialer activated rings dispatch center. Plant staff respond to dialer.
Plant CSO: If wet weather flow persists until SWHT's are full, a plant bypass event occurs (Outfall 002). Dialer activated rings dispatch center. Plant staff respond start sampler. Record date, time and duration of bypass, sample in accordance with SPDES Permit (Attachment 1). The plant must biologically treat a minimum of 3.0 mgd during bypass event. Set Gate 4 control @ 1.5 - 1.6 mgd. Start recycle from storm tanks at 1.5 mgd. Total flow to secondary system 3.0 or greater. Consult state point analysis spread sheet for exact flow secondary system will take.

After Wet Weather

What Do We Do?
Screening: When flow reaches 1.0 mgd set screens in "auto position". Close G3, isolate South screen. Clean and inspect.
Equalization: Recycle storm water for treatment (if not being done) by opening V34, V35, and V36 and using storm water recycle pump(s) P61 or P62. Set storm water recycle pump(s) so plant flow is a minimum of 1.7 mgd. Actual flow based on process control testing and sludge settling velocities. Prepare for next wet weather event. Inspect and maintain all related equipment.
Plant CSO: Log date and time of CSO event. Take bypass sampler out of service, clean. Inspect channel.

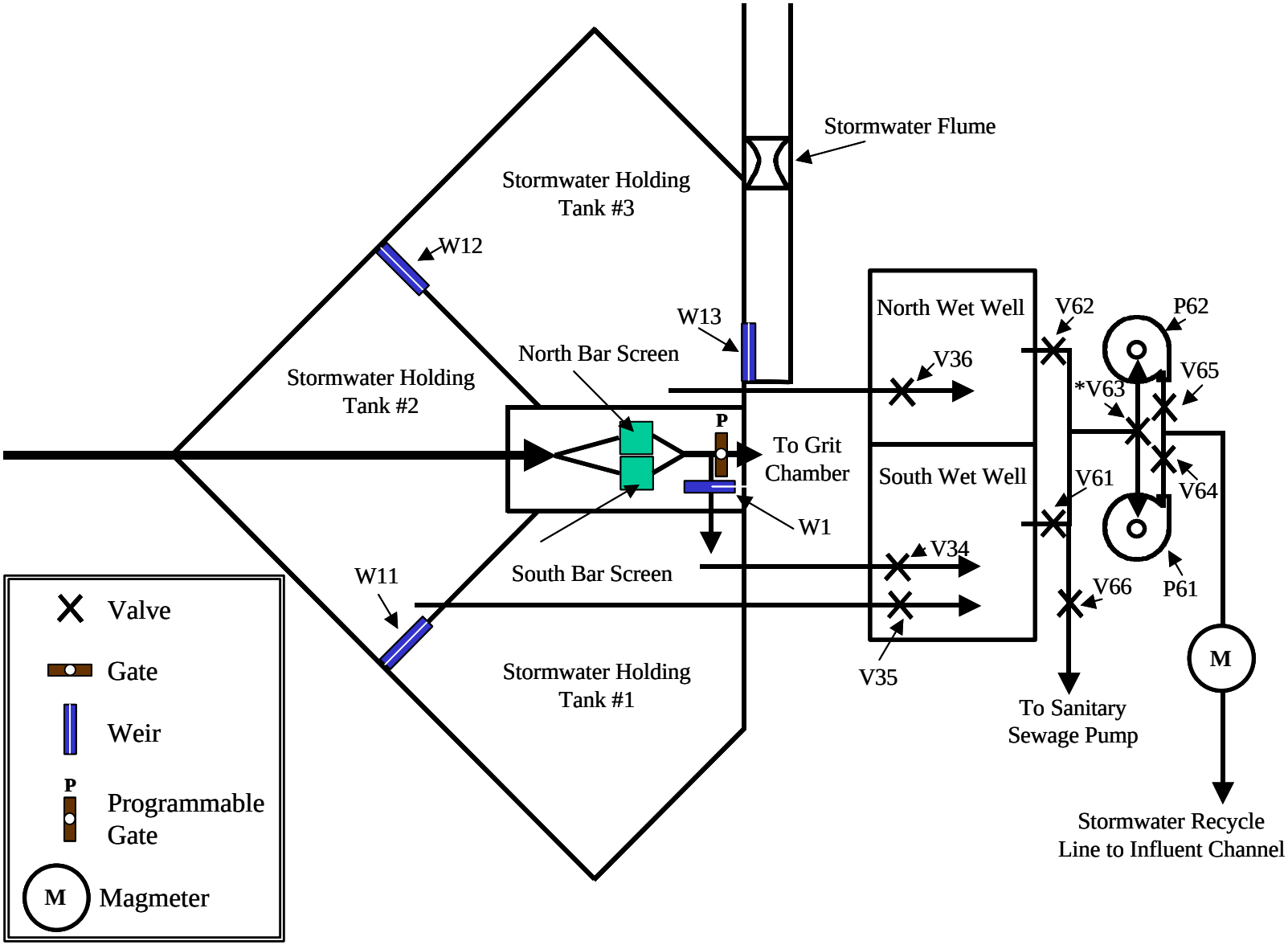
Why Do We Do This?
Catch and store as much flow as possible. Provide biological treatment for a minimum of 1.7 mgd while storage is available, and increase to a minimum of 3.0 mgd if storage becomes full. Provide screening of flows to 38 mgd, and degritting of all flow. Biologically treat stored flow when wet weather event subsides.

What Triggers the Change?
Initially, flow rates above 1.7 mgd and further actions when flow reaches 3.0 mgd.

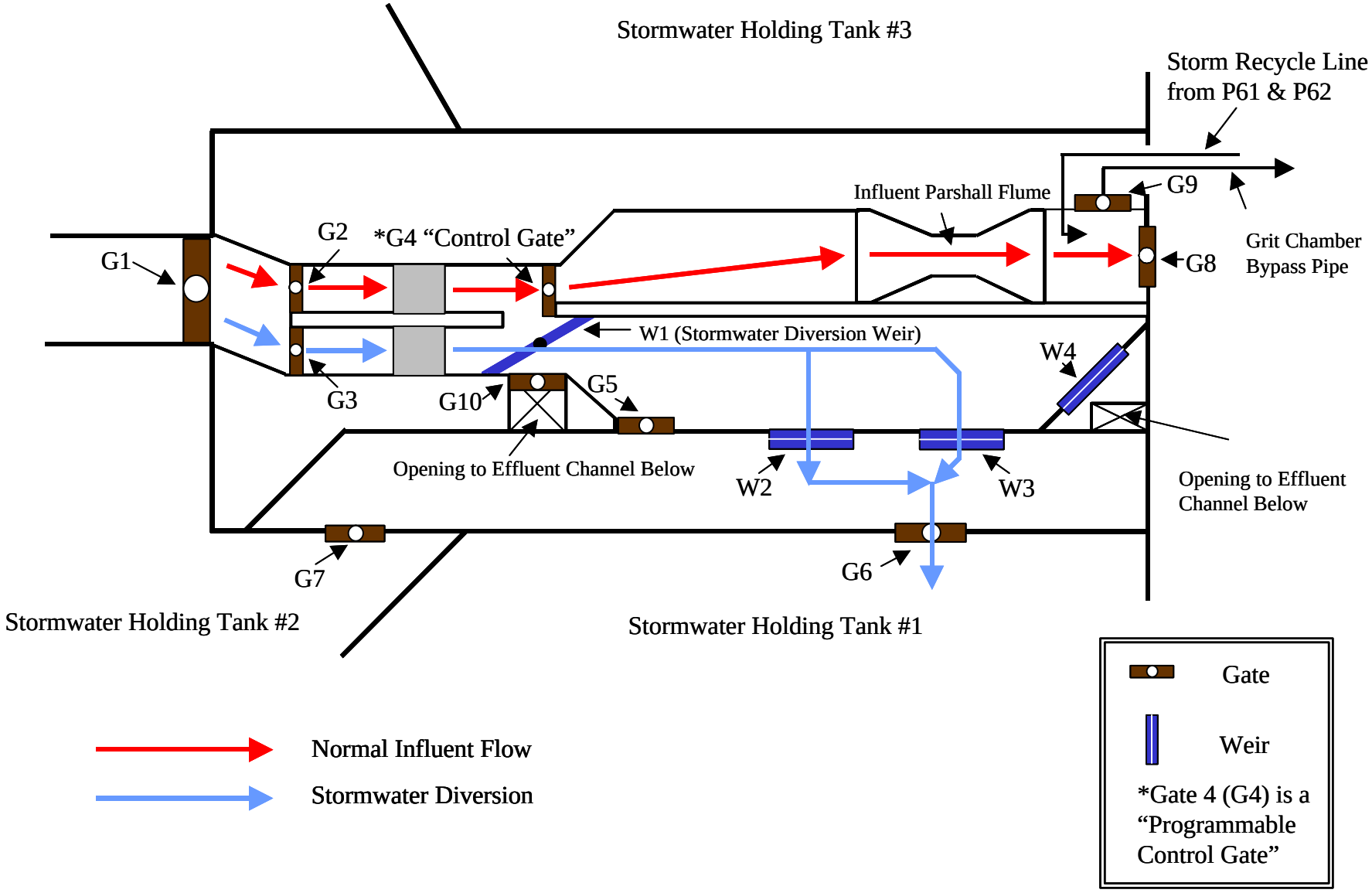
Gate G2 (right) to south bar screen and Gate G3 (left) to North Bar Screen.

South Bar Screen (right) used for dry weather flow. North Bar Screen (left) ready mode for wet weather event.

Storm Water Holding Tanks & Recycle



Detail of Screening & Diversion Channels



Plant Area: Grit Removal

Unit Process and Equipment List

Unit Process	Equipment
Grit Removal	Storm Water Grit Channel Grit Chamber & Drive Unit (1) Grit Chamber Adjustable Vanes Grit Pump (2) Cyclone (1) Classifier (1) Grit Buggy (1)
Comminuter	Muffin Monster (1)

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Grit Removal: Storm water grit channel is kept as clean as possible between events. Adjust vanes in grit chamber for maximum efficiency during current flow conditions. Grit chamber drive unit at 50 megahertz, timer 2 hours off 0.5 hours on. Maintain cyclone pressure at 7 - 8 psi minimum. If less check grit pump for plugging. Keep grit buggy empty.
Comminuter: Muffin Monster Check for operation, maintain

During Wet Weather

What Do We Do?
Grit: Adjust grit tank vanes to reduce short circuiting during high flow, closing vanes until flow is equalized across the tank. Increase grit chamber drive speed. Turn grit pump to hand. Empty grit buggy regularly as needed.
Comminuter: Remove Muffin Monster from the channel when flow reaches 2.0 mgd.

After Wet Weather

What Do We Do?
Grit: Grit chamber vanes can be readjusted for decreased flow rate. Reset timer back to "normal" position (2 hours off 0.5 hours on). Grit tank drive unit back to normal (50 megahertz). Grit pump in auto.
Comminuter: Reinstall Muffin Monster if it was removed.

Why Do We Do This?
Grit: To provide for maximum grit removal prior to biological treatment units. **Comminuter:** Muffin Monster must be pulled from grit chamber effluent channel to allow flows over 2.0 mgd to aeration tanks. If the Muffin Monster is left in place the flow will back up and flood the building.
What Triggers the Change?
Grit removal changes at flow of 1.0 mgd. Muffin Monster removed at flow of 2.0 mgd.

Adjustable vanes for grit chamber help direct flow evenly across the tank. Vanes are throttled closed as flow increases.

Cyclone degritter and grit buggies. Cyclone pressure must be kept at a minimum 7-8 psi.

Plant Area: Aeration Tanks
(See Figure 4 for details on gates, valves and weirs.)
Unit Process and Equipment List

Unit Process	Equipment
Aeration Tanks	Aeration Tanks (4)
Air Supply	Blowers (3) Diffusers, EDI Fine Bubble (36 each tank) Motorized Air Control Valves (4)
Gates	Gates (6), G-81 Influent West Tank, G-82 Influent South Tank, G-83 Between South & West Tanks, G-84 Between South & East Tank, G-85 Between East & North Tank, G-86 Between West & North Tank
Return Sludge Valves	Return Sludge Line Valves (7) (V-82, V-83, V-84, V-85, V-86, V-87, V-88)
	Effluent Weirs (W-81 North Tank, W-82 East Tank)
Monitoring	Royce Dissolved Oxygen Meter & Probe

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Aeration Tanks: Aeration tanks in plug flow mode. May be 2 tanks (summer) or 3 tanks (winter) in operation depending on time of year and dry weather flow. One (1) 50 H.P. blower on line. **Plug Flow with Two (2) tanks in operation**: Raw and return sludge into west aeration tank.G81 open, G86 open. G82 closed, G83 closed, G84 closed, G85 closed. West RAS line in service V82 open. V83 closed, V84 closed, V85 closed V86 closed, V87 closed, V88 closed. Discharge over W81. (See Table 1 and Figure 4) **Plug Flow with Three (3) tanks in operation:** Raw and return sludge into south aeration tank. G82 open, G83 open, G86 open, V85 open. G81 closed, G85 closed, V82 and V83 closed. Discharge over W81.
Royce Dissolve Oxygen Meter in west aeration tank with two aeration tanks, south with three tanks on line.
Return Sludge Pumps: One pump online.
Maintain PM on all related equipment

During Wet Weather

What Do We Do?
Aeration Tanks: Switch to sludge reaeration mode. Three aeration tanks, West and North aeration tanks are contact tanks, south tank is the sludge reaeration. Open G82, G83, G86. Close G81, G84, G85. Aeration effluent over W81. Return sludge into south aeration tank, open V85, close V82, V83, V84,V86, V87, V88. (See Attachment 1) One (1) 50 H.P. Blower online.
Royce Dissolved Oxygen Meter in west aeration tank with two aeration tanks. Maintain probe. (Motorized air control valves respond to Royce D.O. Meter readings.)
Return Sludge: One pump online.

After Wet Weather

What Do We Do?
Aeration Tanks: Return to plug flow. Using either two (2) or three (3) aeration tanks as described in "Before Wet Weather". One (1) 50 H.P. blower online.
Royce Dissolved Oxygen Meter: Install in west tank if two aeration tanks are online or south tank if three aeration tanks are on line.
Return Sludge Pump: One (1) pump online.

Why Do We Do This?
Switch to sludge reaeration mode, this will decrease the solids loading rate to the secondary clarifiers during high flow rates. This helps keep blanket levels in the secondary clarifiers down and maximizes the allowable secondary clarifier hydraulic loading rates.
What Triggers the Change?
Flow rates over 1.7 mgd, and during recycling of storm water holding tanks for secondary treatment.

Ticonderoga Aeration Tank Mode Change
Gate, Valve, and Weir Schedule
Table 1

Gates	Plug Flow Two Aeration Tanks	Plug Flow Three Aeration Tanks	*Sludge Reaeration Three Aeration Tanks
G-81	Open	Closed	Open
G-82	Closed	Open	Closed
G-83	Closed	Open	Open
G-84	Closed	Closed	Closed
G-85	Closed	Closed	Closed
G-86	Open	Open	Open
Valves			
V-82	West RS Line - Open East RS Line - Closed	West RS Line - Closed East RS Line - Open	Closed
V-83	West RS Line - Closed East RS Line - Open	West RS Line - Open East RS Line - Closed	Closed
V-84	Closed	Closed	Closed
V-85	Closed	Closed	Open
V-86	Closed	Closed	Closed
V-87	Closed	Closed	Closed
V-88	Closed	Closed	Closed
Weirs			
W-81	Open	Open	Open
W-82	Closed	Closed	Closed

East aeration tank used for waste sludge storage.
Refer to Figure 1 for gate, valve, and weir locations.
****Mode for Wet Weather Operation***

Ticonderoga Aeration Tanks - Gates, Valves & Weirs

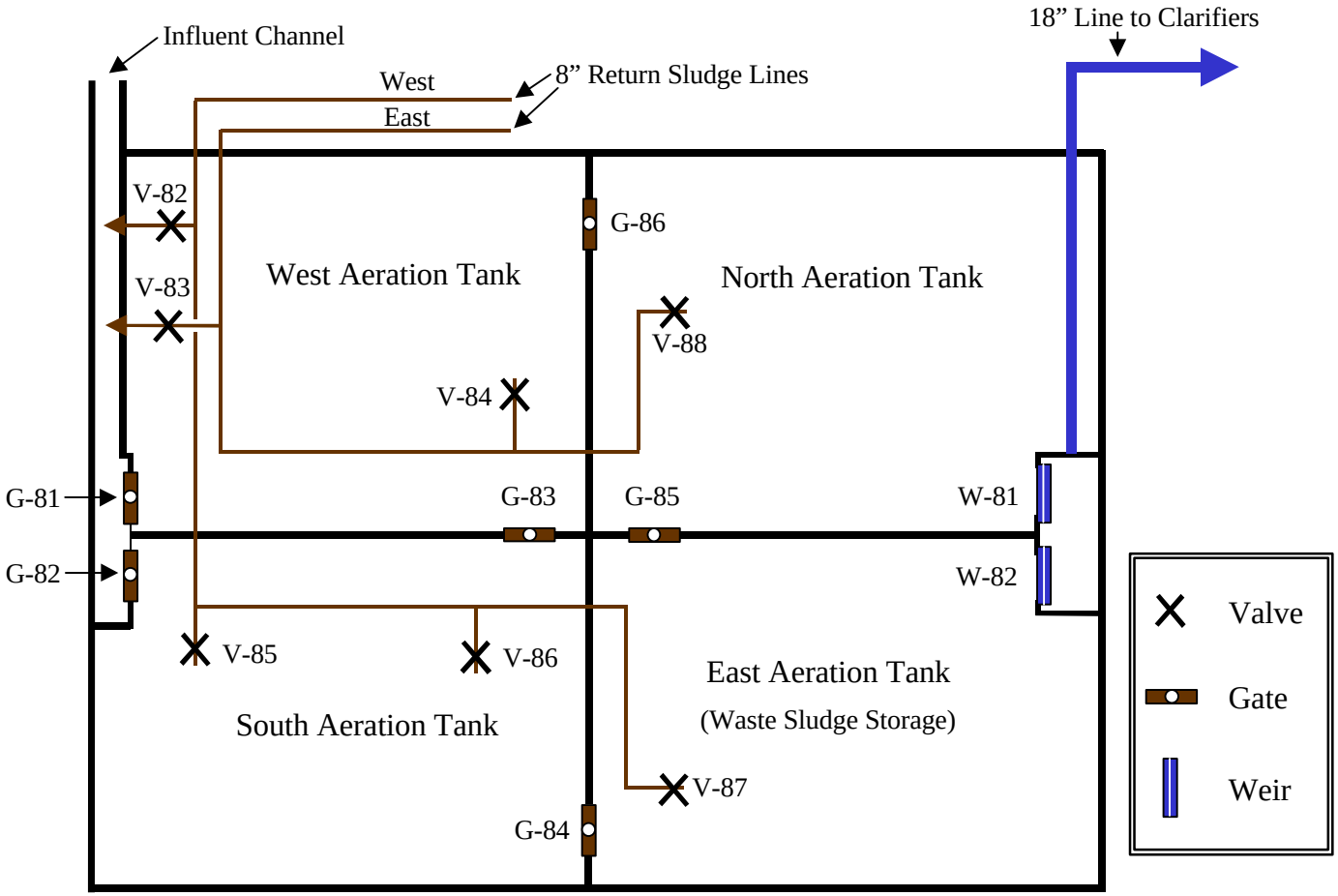


Figure 4

Plant Area: Secondary Settling
(See Figure 5 for details on gates, valves and weirs)

Unit Process and Equipment List

Unit Process	Equipment
Secondary Clarifiers	Secondary Clarifiers (2) Return Sludge Pumps (2) Waste Pumps (2) Gate Valves (4) (G-143 & G-144 West Clarifier, G-141 & G-142 East Clarifier) Draft Tubes & Valves (10) (V-152 V-153, V-154, V-155, V-156 West Clarifier, V-147, V148, V-149, V-150, V-151 East Clarifier) Sludge Scrapper and Drive Sludge Wells (2) & Valves (6), (V-143, V-144, V-146 West Clarifier, V-141, V-142, V-145 East Clarifier Effluent Weir Trough (2)

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Secondary Clarifiers: One (1) secondary clarifier online. West Clarifier, G143 open, V152, V153, V154, V155, V156 in use. V144 open, V146 open. V143 closed (drain valve). East Clarifier (Table 2)
Return Sludge Pumps: One (1) return sludge pump online. Sludge blankets monitored two times per day (more if blankets are over 3 feet in depth).
Waste Sludge Pumps: Normal operation, sludge wasted based on mass levels.
Related equipment: Inspected and perform PM.

During Wet Weather

What Do We Do?
Secondary Clarifiers: Put second clarifier online. Remove slide gate G141. G142 open. Open V145, Open V147, V148, V149, V150, V151. (Table 2)
Return Sludge Pumps: One (1) pump online, but an increase in flow rate may be needed to get all draft tubes in both clarifiers flowing, valves V147 - V156 may need to be adjusted. Monitor sludge blanket levels every two hours. Monitor sludge return draft tubes twice per day. Increase return rate if needed to keep settled sludge flowing.
Waste Sludge Pumps: Maintain normal operation with wasting rates based on mass levels.
Related Equipment: Inspect.

After Wet Weather

What Do We Do?
Secondary Clarifiers: Return to one (1) secondary clarifier when flow rates are reduced. Exact flow rate determined by process control testing and sludge settling velocities. Empty the out of service clarifier, clean and inspect.
Return Sludge Pumps: After blankets are back to normal (1 to 2 feet) reduce pump speed to pre wet weather rate.
Waste Sludge Pumps: Increase wasting rate if needed based on mass levels.
Related Equipment: Inspect, clean, repair if needed.

Why Do We Do This?
Putting second clarifier online allows for the treatment of maximum flow. Increase in return sludge rate may be needed to keep all the draft tubes flowing. Monitoring of the sludge blanket levels help in determining maximum flow rates that the clarifiers can handle during the event.
What Triggers the Change?
Generally flow rates over 1.5 mgd will need a second clarifier. This will be largely influenced by the mass levels, SVI, and sludge settling velocities. (See process control testing.)

Secondary Clarifiers Gate & Valve Schedule

Table 2

Gates	**West Clarifier on Line**	**East Clarifier on Line**	**Both Clarifiers on Line**
G141	Closed	Open	Open
G142	Closed	Open	Open
G143	Open	Closed	Open
G144	Open	Closed	Open
Valves			
V141	Closed	Open	Closed
V142	Open	Closed	Open
V143	Open	Closed	Closed
V144	Closed	Open	Open
V145	Open	Open	Open
V146	Open	Closed	Open
V147	Open	Open	Open
V148	Open	Open	Open
V149	Open	Open	Open
V150	Open	Open	Open
V151	Open	Open	Open
V152	Open	Open	Open
V153	Open	Open	Open
V154	Open	Open	Open
V155	Open	Open	Open
V156	Open	Open	Open

Secondary Clarifiers Gates & Valves

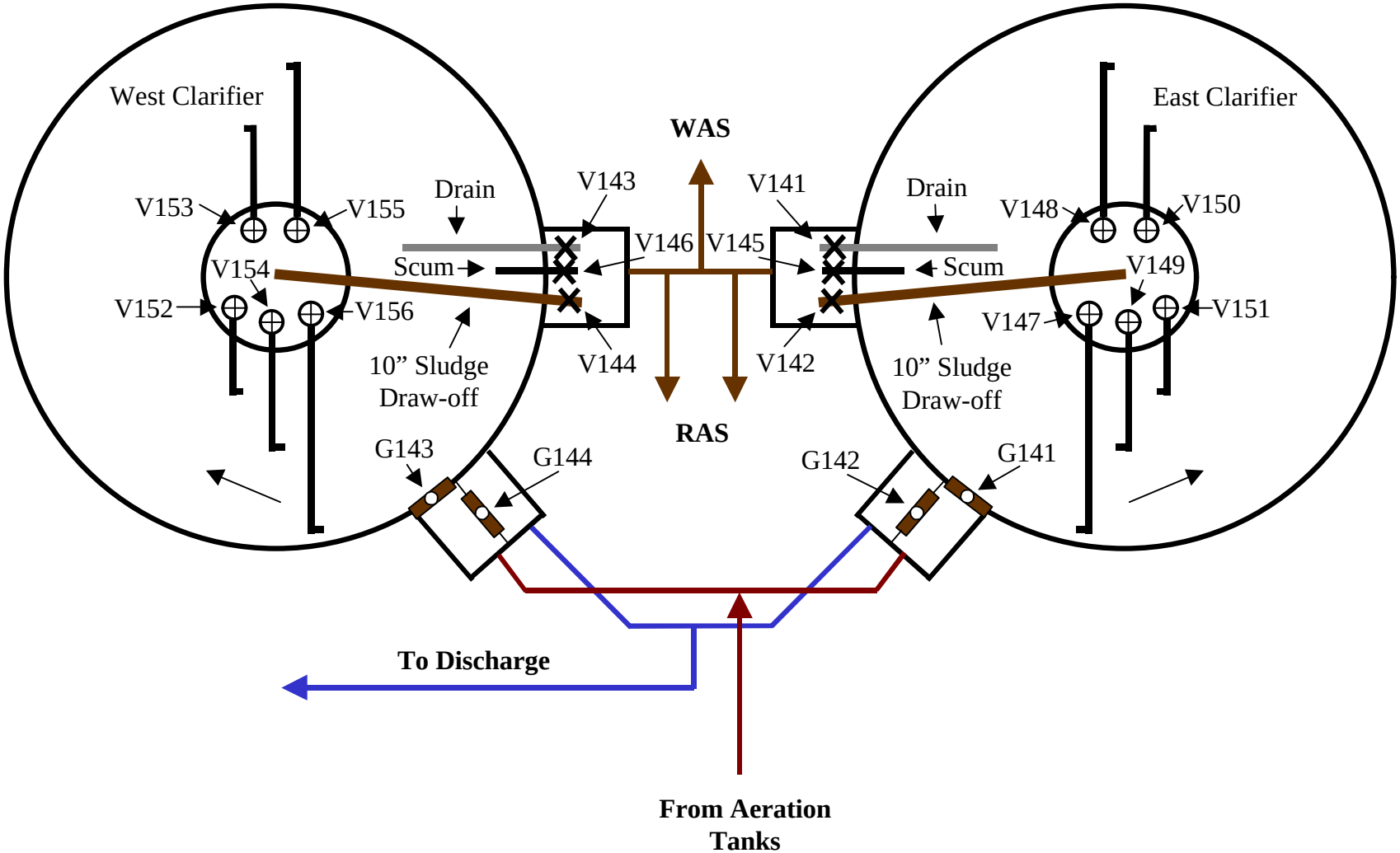


Figure 5

Plant Area: Solids Handling

Unit Process and Equipment List

Unit Process	Equipment
Sludge Storage	Sludge Holding Tank (1) (Spare Aeration Tank) Thickening / Decant Tank (1) Air Blower (1) Sludge Transfer Pump (1) Sludge Wet Well & Floats
Dewatering	Belt Filter Press Polymer System
Sludge Disposal	Dump Truck Loader / Spreader Spreading Site

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Sludge Storage: Waste into east aeration tank (which is used as the waste sludge holding tank). From sludge holding tank sludge is pumped to the Thickener / Decant Tank. This tank is used to thicken the waste sludge. Blower #4 used to aerate and mix. Pump from Thickener to Sludge Wet Well, then to Belt Filer Press using the Penn Valley Disc Pump.
Dewatering: Belt filter press operated as needed to keep aeration tank mass at the appropriate level. Mixed liquor concentrations of 1500 to 2000 mg/l worked well during stress testing. Perform PM on all related equipment.
Sludge Disposal: Keep dump truck and loader onsite while operating belt filter press.

During Wet Weather

What Do We Do?
Sludge Storage: No change.
Dewatering: During a wet weather event dewatering may be delayed do to other staff duties associated with the wet weather event.
Sludge Disposal: Same as above.

After Wet Weather

What Do We Do?
Sludge Storage: No change.
Dewatering: Increase dewatering to catch up on sludge if necessary.
Sludge Disposal: Keep dump truck and loader onsite while operating belt filter press.

Why Do We Do This?
To keep sludge quality at an optimum. Due to other staff duties during the wet weather event dewatering may be halted or delayed. Sufficient time must be allocated after the event to catch up if needed.
What Triggers the Change?
Changes are more likely to occur after the storm or wet weather event, such as increased wasting and increased sludge dewatering. Based on sludge quality. (See process control.)

Plant Area: Septage Receiving Station

Unit Process and Equipment List

Unit Process	Equipment
Septage Receiving	Holding Tanks (3) Transfer Pumps (1 large, 1 metering) Air Supply, Course Bubble Diffusers Muffin Monster Bubbler System Valves (3)

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Septage Receiving: Septage is received on a regular basis at the septage receiving station. The septage is then pumped into the sludge storage tank using the Penn Valley 2" Disc Pump. Check and perform PM on all related equipment.

During Wet Weather

What Do We Do?
Septage Receiving: No septage is added to the raw wastewater entering the biological treatment system. Septage is added to the "Sludge Holding Tank" only. No septage upstream of the CSO's.

After Wet Weather

What Do We Do?
Septage Receiving: No change, other than check and inspect levels of septage receiving holding tanks. Check chemical feed (Potassium Permanganate) pump and day tank.

Why Do We Do This?
The septage is pumped directly to the sludge holding tank, it is not introduced into the raw flow. This is done to minimize any affects the septage has on the wastewater treatment facilities performance.
What Triggers the Change?
Septage will be added to the sludge holding tank. No septage will be added into the raw flow stream.

Septage receiving area and holding tanks. Waste haulers pump into septage holding tanks where potassium permanganate is added for odor control. The sludge is then pumped to the waste sludge holding tank.

Plant Area: Process Control / Lab

Unit Process and Equipment List

Unit Process	Equipment
Process Control	Royce Meter Settling Columns Ammonia Test Kits Settleometer Total Suspended Solids (TSS) Sludge Volume Index (SVI) Dissolved Oxygen Meter
Return Sludge Chlorination Equipment	Sodium Hypochlorite (900 gallons needed for each chlorination event) Hypo Feed Pump
Lab Testing	Effluent Total Suspended Solids (TSS) Effluent BOD Ammonia

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Process Control: To prepare for wet weather events, good sludge quality is maintained at all times. During stress testing of the facility in the Fall of 1998 through the Summer of 1999 it was established that target values for mixed liquor suspended solids should be maintained at 1500 to 2000 mg/L with a sludge volume index (SVI) of under 150 mL/gm. Maintain aeration tank D.O. levels at or above 2.0 mg/L. Secondary clarifier solids loading rates should be maintained at about 35 lbs/day/sqft. Settling velocities (sets of dilutions) are run twice per month, mixed liquor columns are run twice per week. The results are entered into the solids flux / state point analysis spreadsheets to predict the maximum hydraulic flow that the facility can successfully treat. New "sets" of columns are run if the settling velocities change greatly from the last column. The Royce suspended solids meter is used to determine concentrations of the dilutions. Sludge blanket levels in the secondary clarifier(s) should be monitored and controlled to prevent solids loss. Wasting rates should be adjusted to maintain mixed liquor concentration of 1500 to 2000 mg/L. Effluent ammonia testing is done daily (test kit) to monitor nitrification. Historical records for all the above testing is kept on site.

Return Sludge Chlorination Equipment: Enough chlorine is kept onsite to chlorinate for a filamentous bulking episode (about 900 gallons). Chlorination of the return sludge is implemented if the SVI is above the target value of 150 mL/gm for longer than 3 to 5 days and the presence of filaments are verified using the microscope.
Lab Testing: All SPDES Permit testing is done. Including BOD, TSS, Ammonia, and Phosphorous.

During Wet Weather

What Do We Do?
Process Control: During a wet weather event the state point model is used to determine the maximum flow the facility can treat. The daily column results are entered into the spreadsheet to determine the maximum flow the plant can treat. The SPDES Permit requires a minimum of 3.0 mgd to be treated biologically with two (2) clarifiers on line during a wet weather event. Additional flow is stored and treated when event subsides.
Return Sludge Chlorination Equipment: No change.
Lab Testing: No Change

After Wet Weather

What Do We Do?
Process Control: Recycle storm water holding tanks based on maximum plant flow from the state point model. Maintain sludge quality described in “Before Wet Weather”.
Return Sludge Chlorination Equipment: No change
Lab Testing: No change

Why Do We Do This?
A good process control testing program is the backbone of optimizing the facility for a storm event. The state point model is a tool used to predict the maximum flow the facility can successfully treat on any given day based on the current sludge quality.
What Triggers the Change?
Settling column dilutions are done twice per month, mixed liquor column is run daily. All other process control tests are conducted daily. At flows above 1.7 mgd the wet weather plan is implemented.

Plant Area: Instrumentation / Recording

Unit Process and Equipment List

Unit Process	Equipment
Flow Recording	Influent (Flume) Effluent (Magmeters) Return Sludge (Magmeters) Storm Water Bypass Storm Water Recycle Air Flow

Wet Weather O&M Practices

Before Wet Weather

What Do We Do?
Flow rates are recorded daily.

During Wet Weather

What Do We Do?
Flow rates are monitored and recorded. Changes to unit processes are made as detailed previously.

After Wet Weather

What Do We Do?
Flow rates are recorded daily.

Why Do We Do This?
At certain flow rates, as specified in the discussion for each unit processes, changes need to be made to insure storage of maximum flow and biological treatment of a minimum of 3.0 mgd during a wet weather event.

What Triggers the Change?
At a flow rate of 1.7 mgd, flow is diverted into the storm holding tanks and the dialer system is activated. Plant staff respond to dialer and implement wet weather operating plan.