

SKETCH AAA

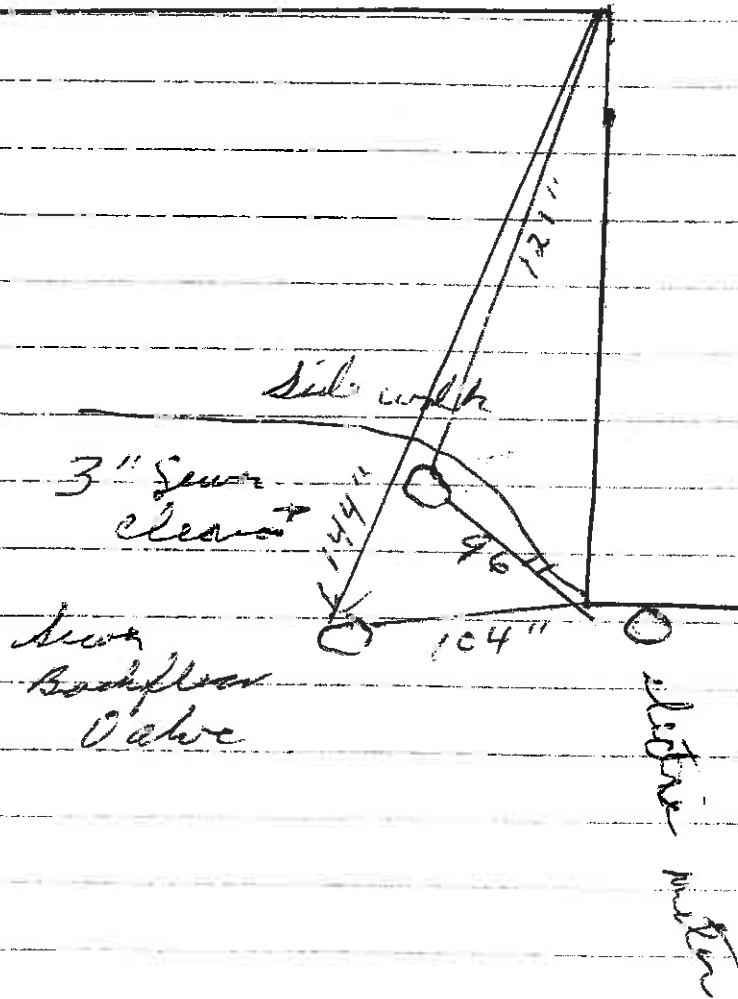
TANK #50 - SERVES HOUSES #100, #101, #102 & #103

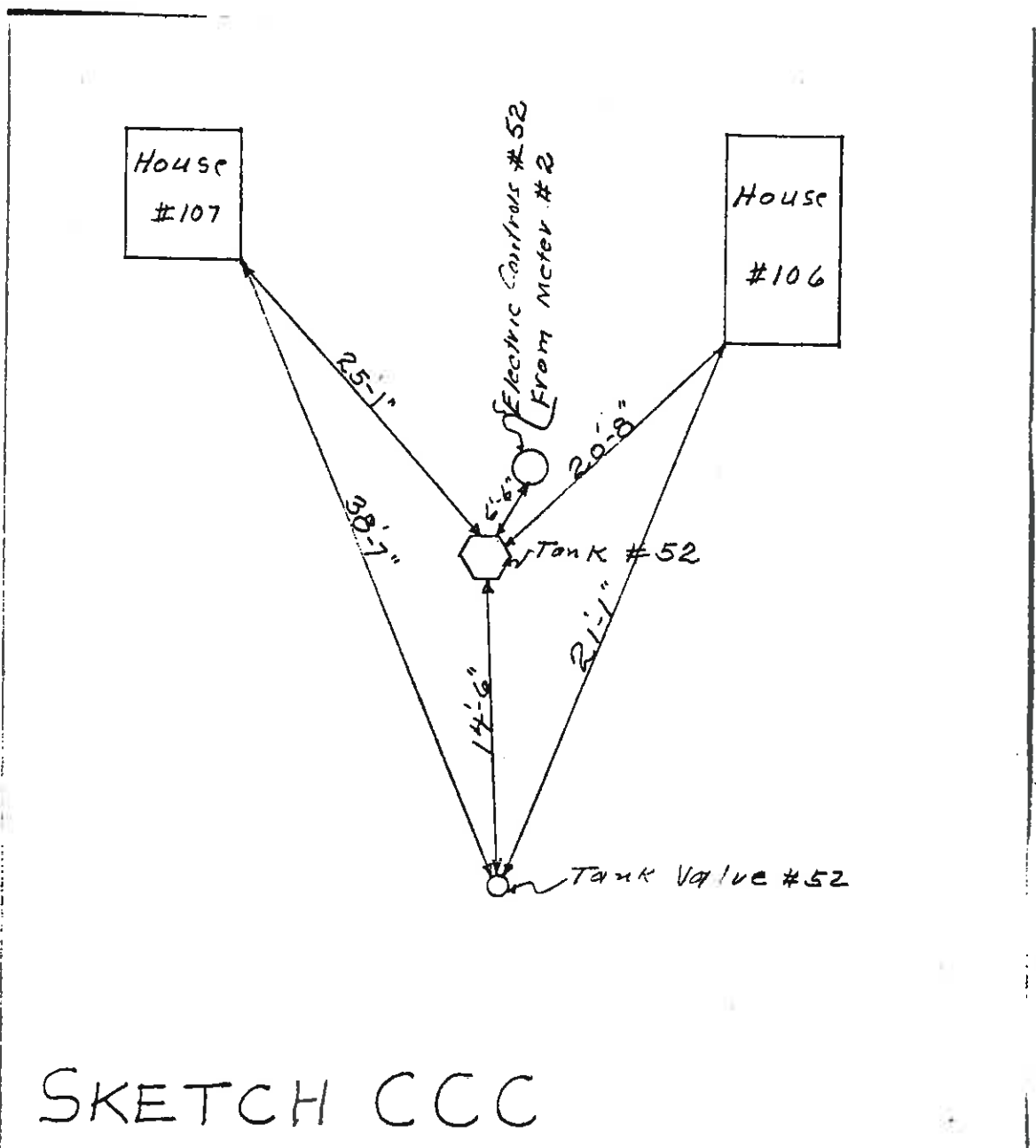
CUNY'S PLUMBING & REPAIR  
12310 KLEINER RD.  
MONTREAL, NY 10503

Lot 107

Garage

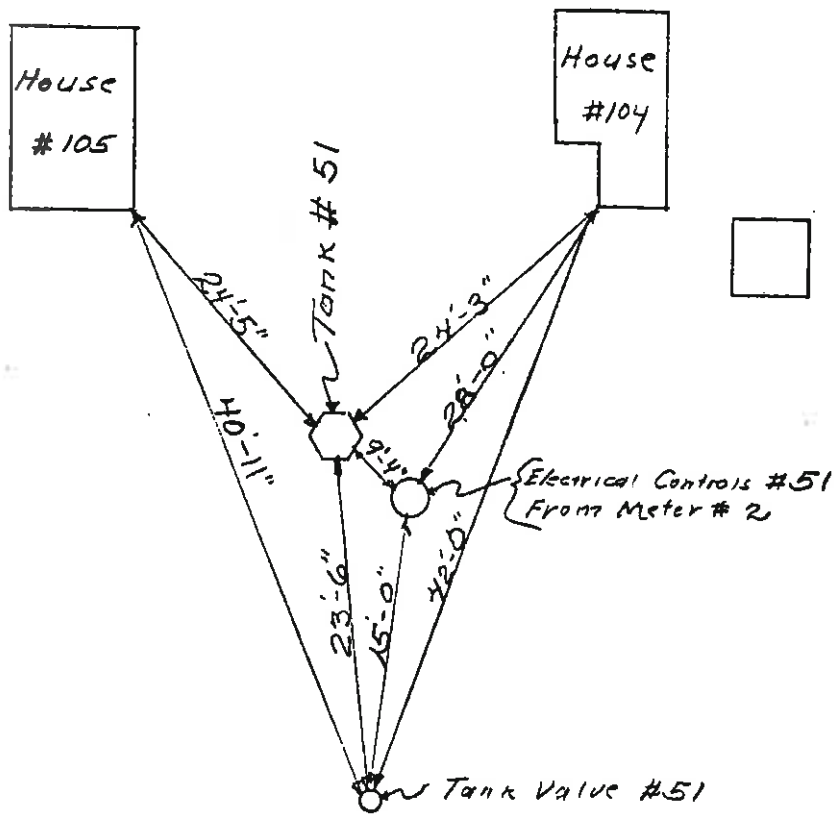
Street





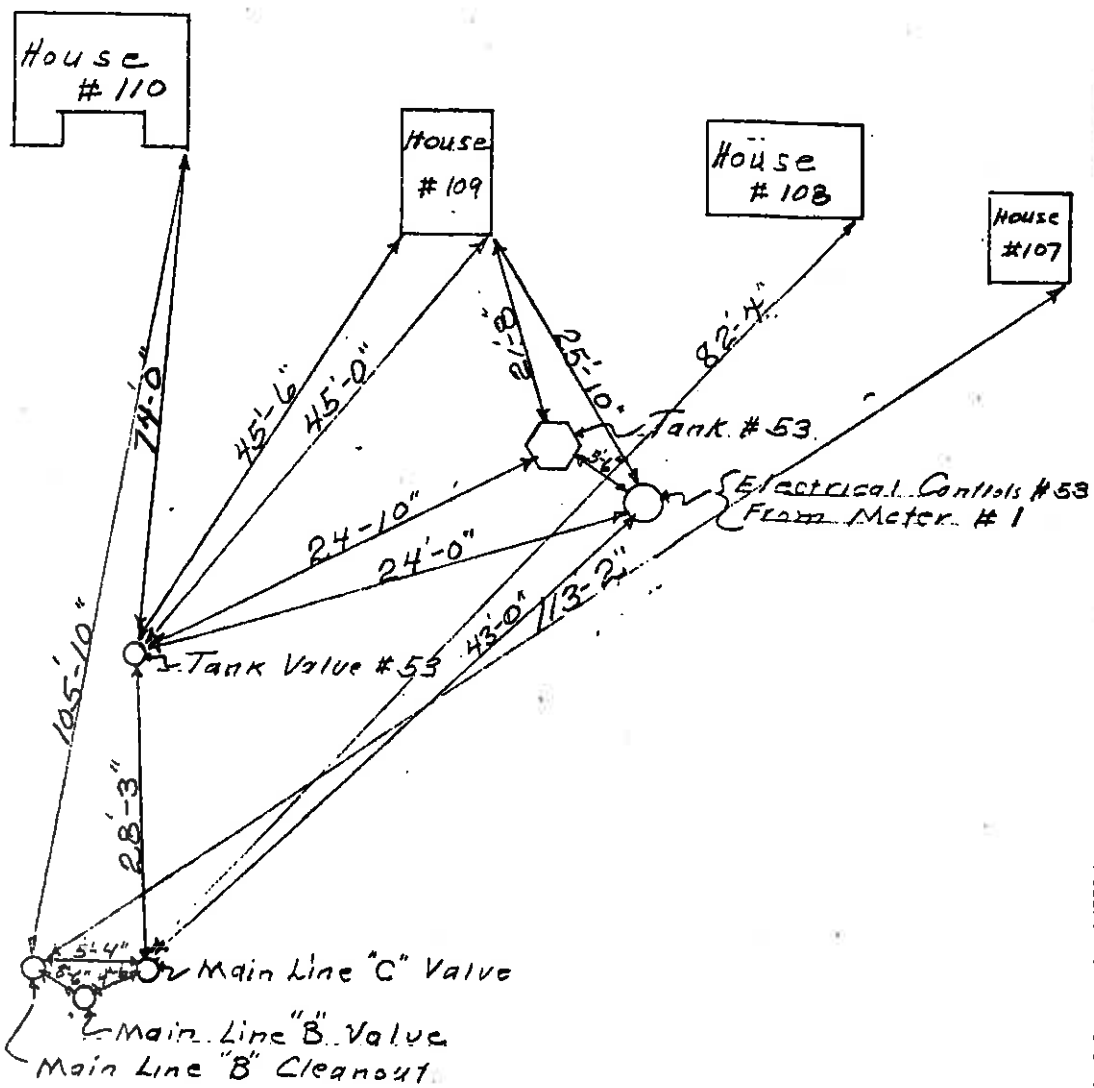
# SKETCH CCC

TANK #52 - SERVES HOUSES #106 & #107



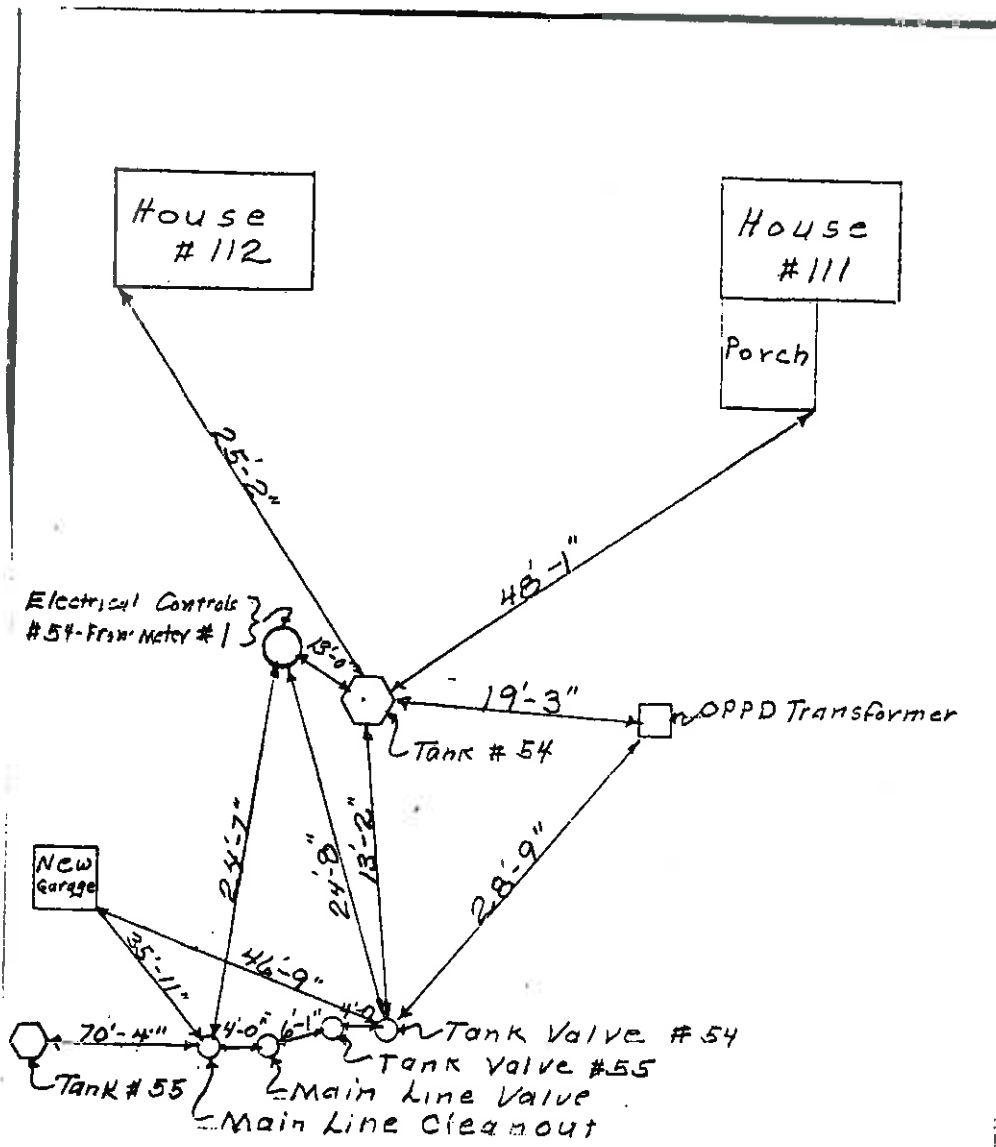
SKETCH BBB

TANK #51 - SERVES HOUSES #104 & #105 ...



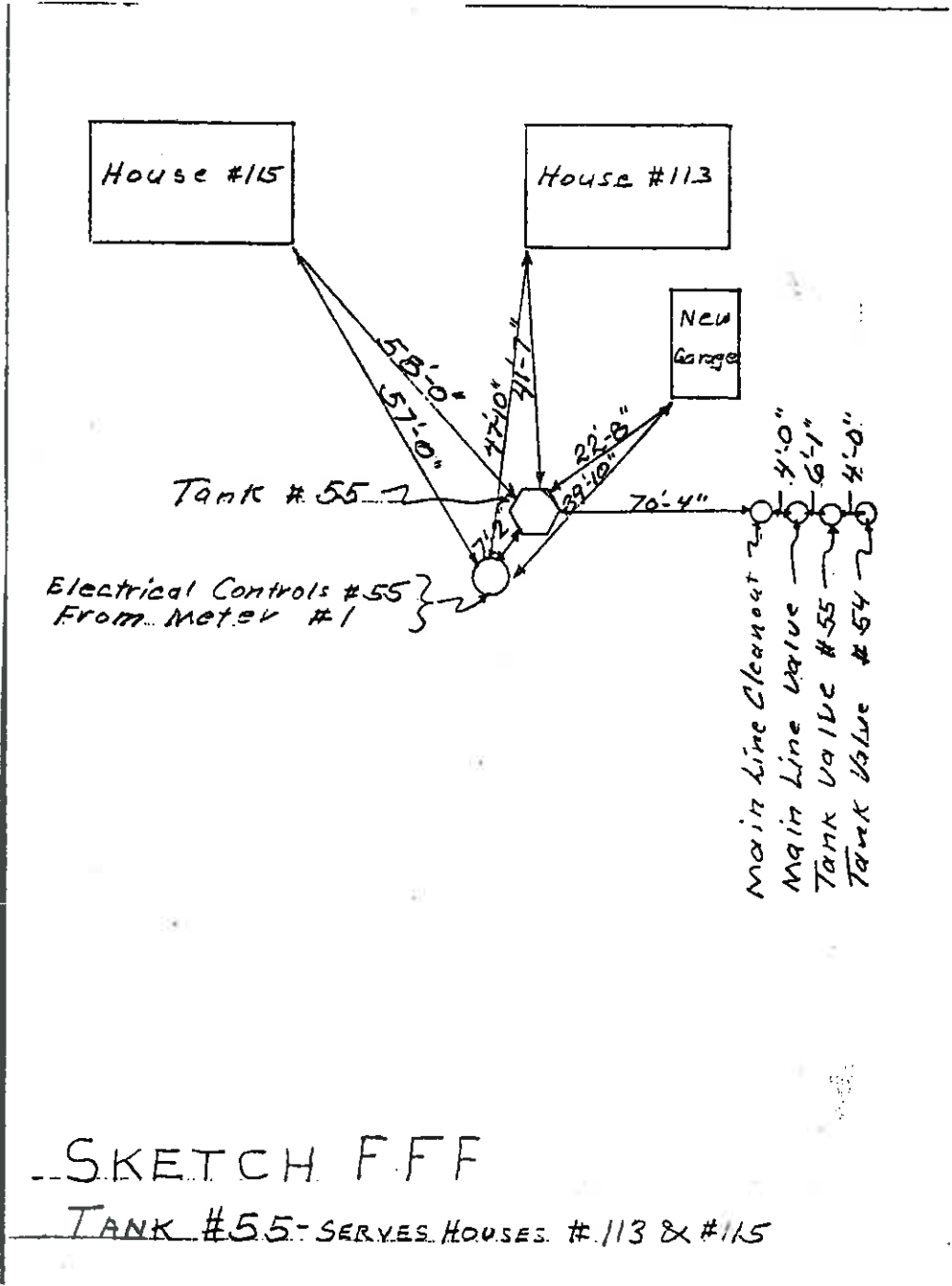
# SKETCH DDD

TANK # 53 - SERVES HOUSES # 109 & # 110



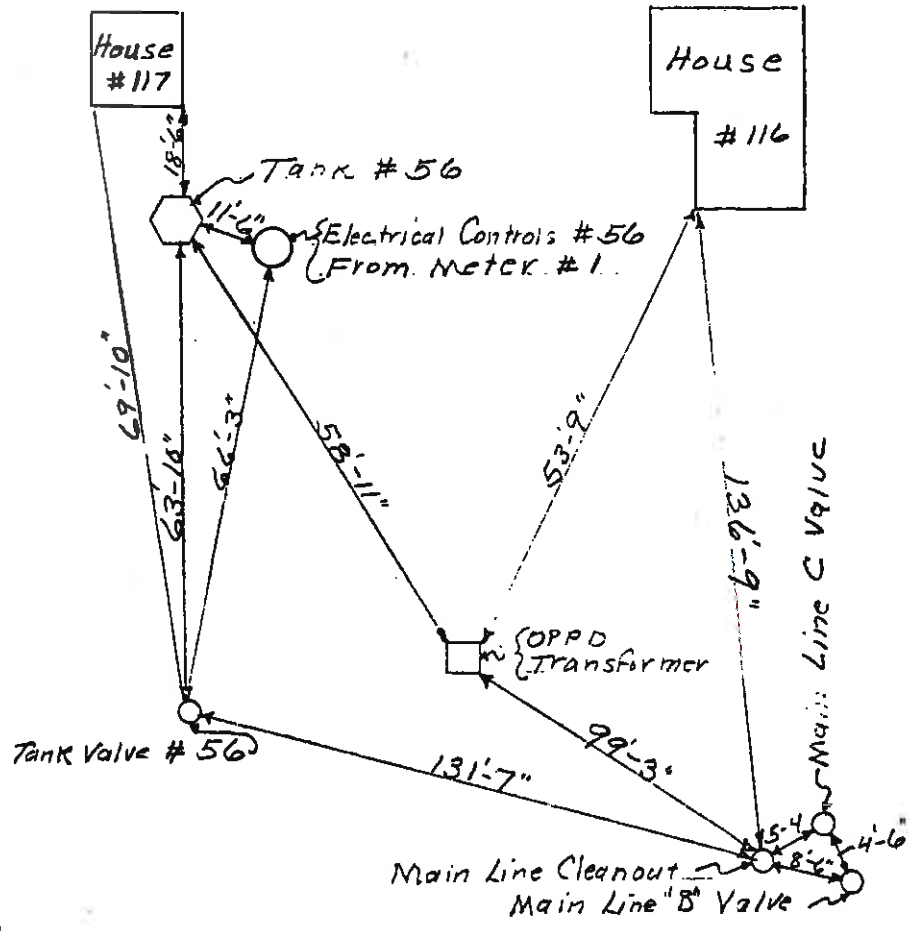
SKETCH EEE

TANK #54 - SERVES HOUSES #111 & #112



SKETCH F.F.F

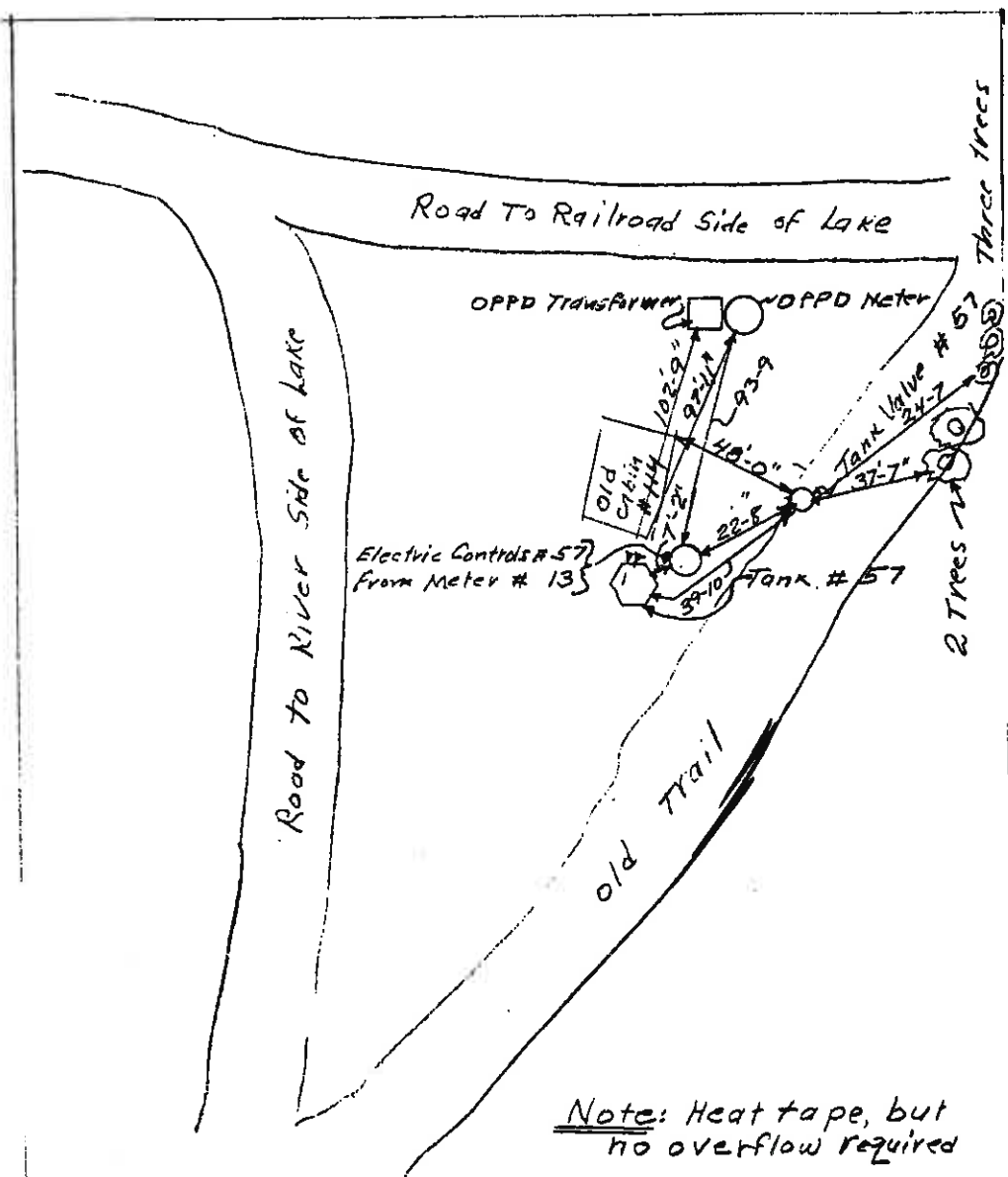
TANK #55 - SERVES HOUSES #113 & #115



SKETCH GGG

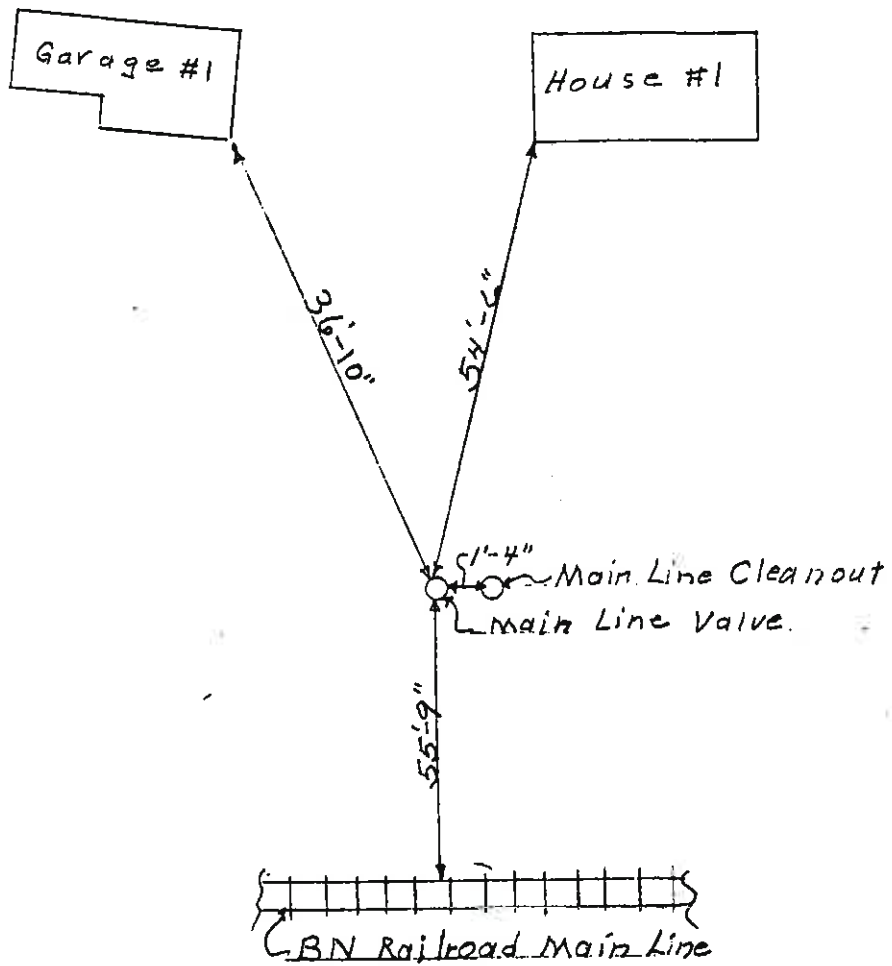
TANK # 56 - SERVES HOUSES # 116 & # 117





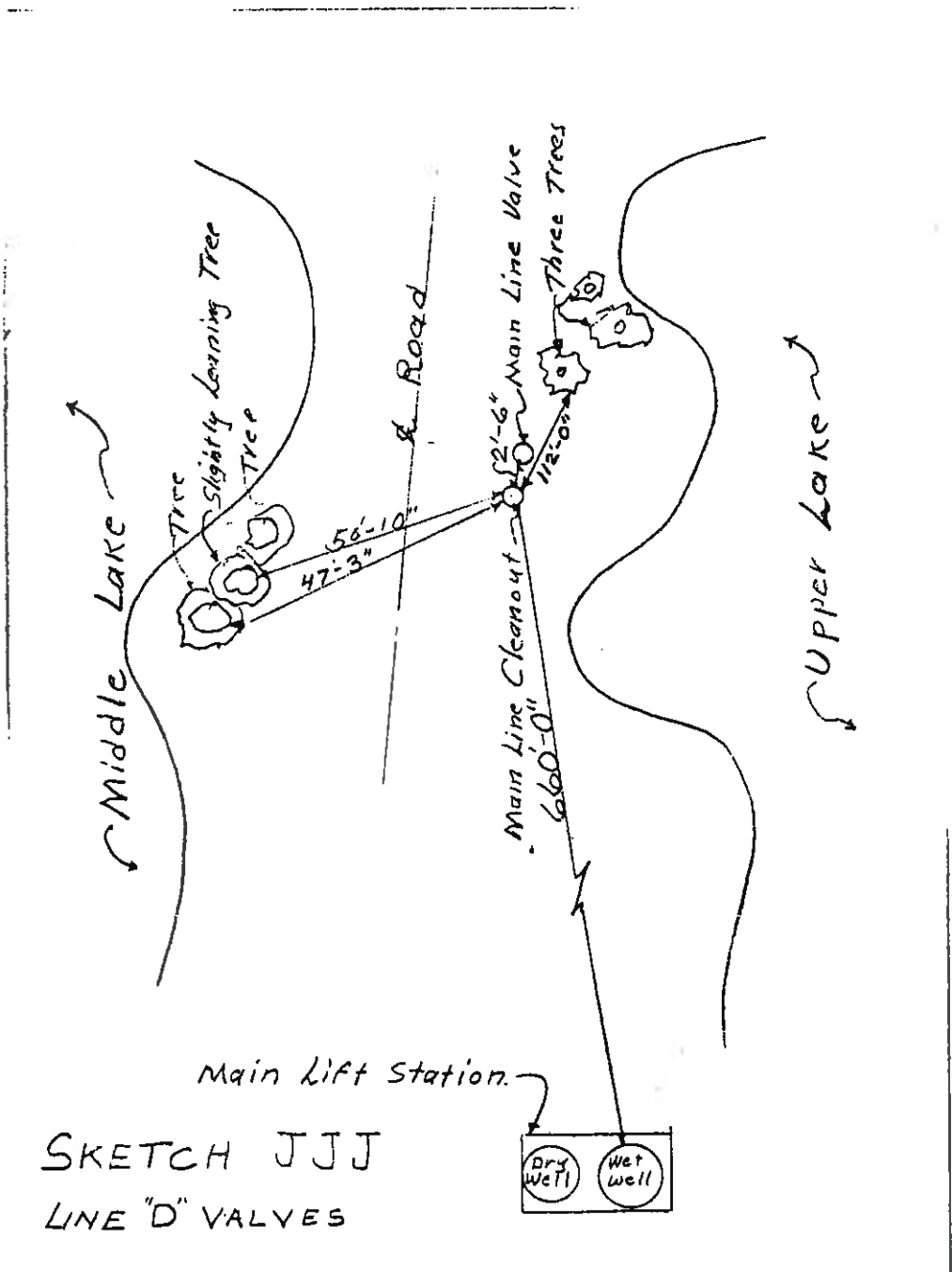
SKETCH HHH

TANK #57 - SERVES HOUSE #114

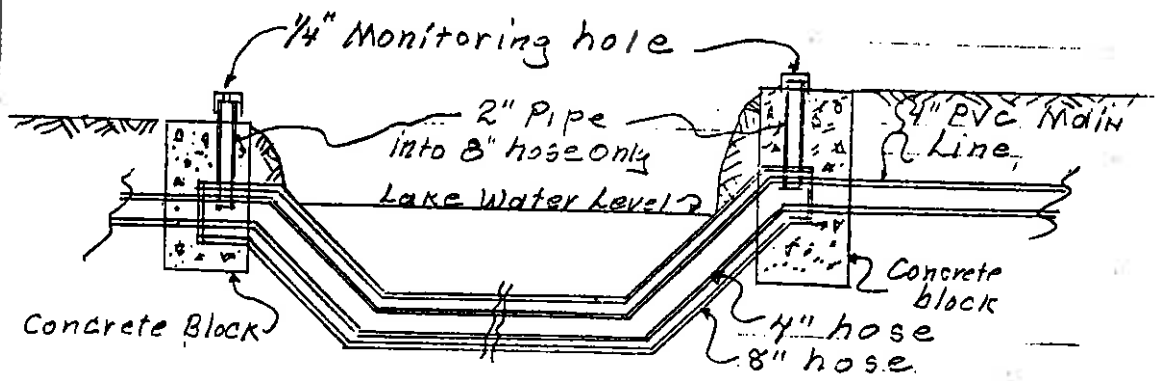


SKETCH III

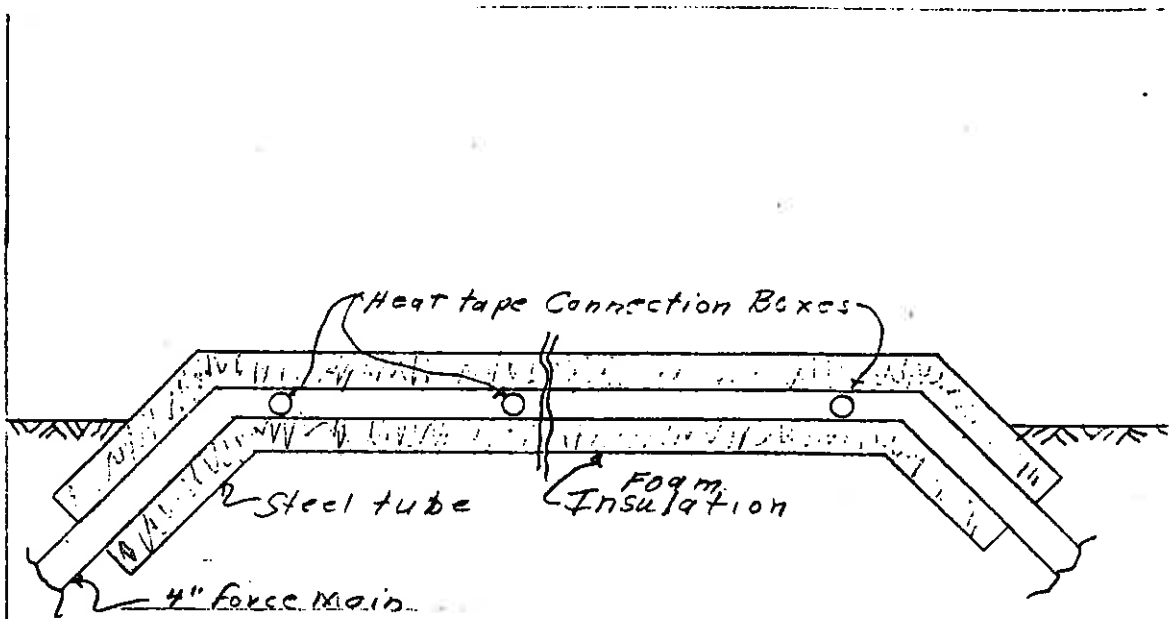
MAIN LINE VALVE & CLEANOUT



SKETCH JJJ  
 LINE "D" VALVES

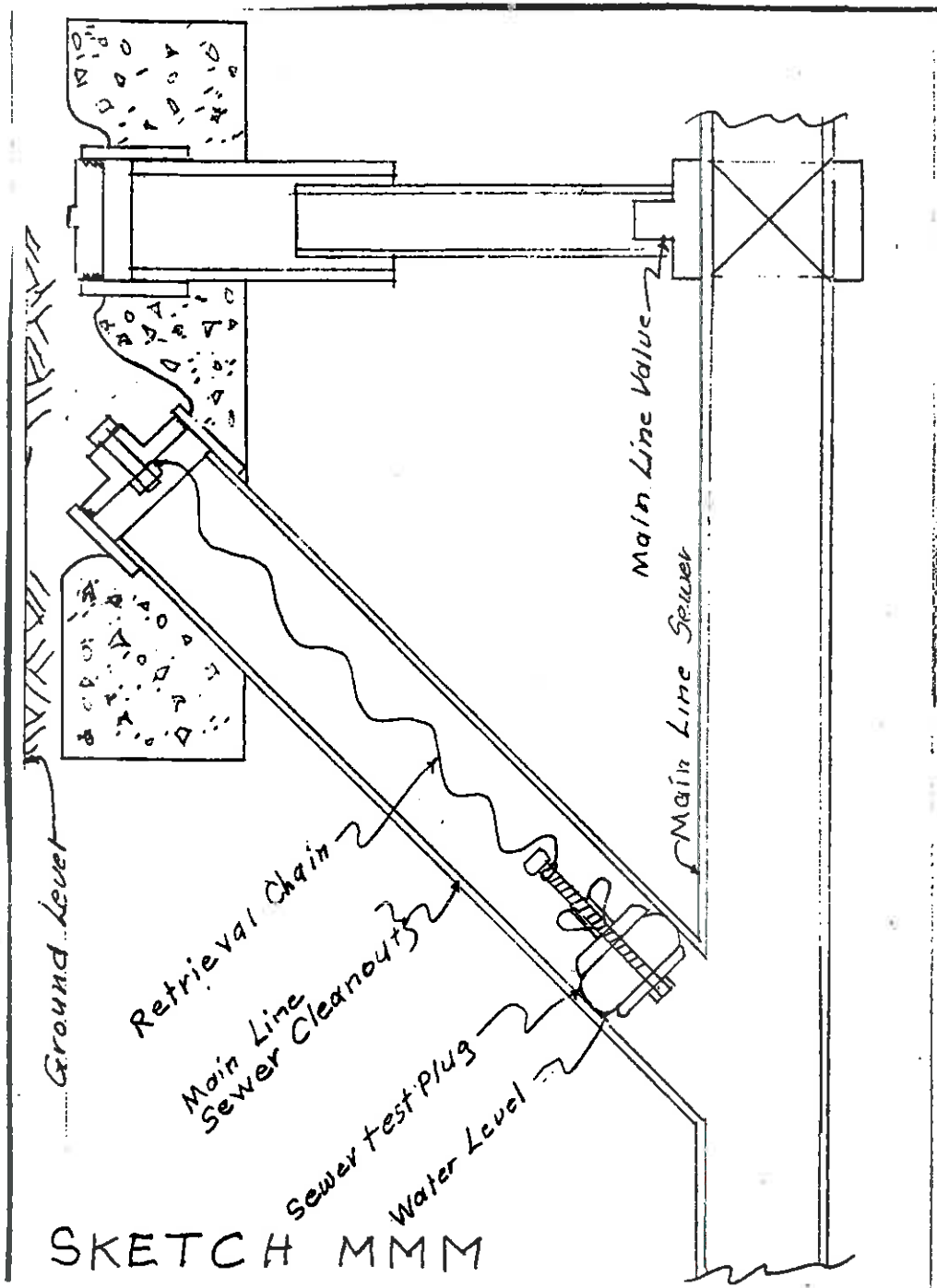


SKETCH KKK  
LAKE CROSSING



SKETCH LLL

FORCE MAIN ACROSS BRIDGE - MIDDLE ISLAND



SKETCH MMM

SEWER AND SEWAGE LIFT STATION  
UPPER LAKE, SOUTH BEND, NEBRASKA

SEWER DESIGN INFORMATION:

This sewer is designed as a combination 'gravity' and 'force-main' system. From the homes to the sewage collection tanks, it operates as a 'gravity' system. From one to four homes are connected to each tank via 4" SDR-35 PVC pipe. These 4" pipes are connected together with Y's, and enter the tank through one common 4" inlet.

Once in the tanks, the sewage is picked up by 2HP grinder pumps and forced out of the tanks via 1½" and then 1½" 160 PSI PVC pipe with class 40 fittings. In each tank, there is a back-pressure valve, a union, and a shut-off valve. Also a heat tape to prevent freeze-ups, three control floats, and an overflow pipe which leads into a gravel bed.

With the exception of tanks #45 and #49, there is another back-pressure valve located just outside of the tank on the 1½" line. On #45 this same valve is located just back of the tank shut-off valve, about two feet from the main line. On #49 it is located just back of the tank shut-off valve, about four feet from the main line.

This 1½" line goes to the main line via a tank shut-off valve. From here it is conveyed via 2", 2½", 3" or 4" lines to the main lift pumps and forced through a 4" hose under Middle Lake and dumped into a sewage manhole on Middle Island. (This 4" hose is inside an 8" hose to protect against possible leaks. There is a monitoring station at each end of the hose to check for leaks.)

From this manhole it goes by way of an 8" gravity line to approximately the center of Middle Island where it is again picked up by lift pumps and forced through a 4" force main across the bridge and over to the sewage lagoons located 1/2 mile southeast of Middle Island.

Located a short distance from the sewage collection tanks is the control box for the sewage pumps. Also a circuit-breaker box for protection of the electrical system. From one to seven pumps are fed from a meter centrally located with reference to these pumps. Each meter has it's overload breaker.

INDIVIDUAL TANK OPERATION:

Unless there is an indicated malfunction, the tanks should never need to be opened for inspection and maintenance. However, should the red light come on, or other indication of a malfunction, you should first check the circuit breakers. Check first at the individual tank and also at the meter which serves that tank. If they have not been tripped, then the control box should be opened. Check first to be sure the switch has been left in the automatic position. Push the green reset button and see if this will start the pump. (Do not, under any condition, hold the reset button in to keep it from popping out, as this may cause the pump to burn out. Resets are for a purpose, and this purpose is to protect the pump.)

If this does not remedy the problem, then turn the switch to the manual position. If the pump now starts, then probably the problem is a float not functioning. (Again, turn the switch back to the automatic position before you forget it.)

If none of these procedures start the pump, then the tank top must be dug up. In digging, be sure to dig a large enough hole around it to prevent sticks, stones and sand from falling into the tank and clogging the pump.

Inside the tank are the following items serving the following purposes:

1. A heat tape wrapped around the piping to keep it from freezing. It has its own thermostat in a clear plastic tube at the incoming end of the tape. It is set at 35° F. There are a few tanks whose tops are 3'-0" or more below the ground which do not require heat tapes, as Olsson & Associates do not feel it will freeze this deep.
2. There are three blue floats in all tanks. In addition, tanks #33 & 34 have a red float. All floats have normally open switches. These floats determine



appropriate water level in tanks.

3. There is a motor-pump combination for pumping sewage.
4. There is a pipe union for pump removal.
5. There is a back-pressure valve.
6. There is a gate valve to shut off when working on pumps.
7. Most tanks have an overflow pipe leading to a gravel bed.

The lowest blue float is the pump turn-off float which is connected to terminals #1 & 2 in the control box. It should be located at a level where the pump will pump down to the top of the pump, but still not allow it to pump air into the lines.

The second float is the pump turn-on switch. It should be set so the pump turns on and never allows the water level to get higher than 3 to 4" below the inlet line from the homes. In the 500 gallon tanks, this float and the turn-on float will be only about 4 to 6" apart. In the larger tanks, it will be more. This float is hooked to terminals #3 & 4.

The third blue float is the red light alarm float. It should be set about 2" above the turn-on float. It should turn on just prior to sewage reaching the bottom of the inlet pipes, as it alerts you to a pump malfunction. This is connected to terminals #5 & 6.

On tanks #33 & 34 only, the red float is to turn off the water pumps should there be a malfunction, allowing the water level to rise too high. It should be set slightly above the level of the red-light float. This float is connected to the well pump control box.

The first thing to check on opening the tank, is to see if the pump is indeed trying to start. If it is not, then either it is clogged with something solid, burned out, or a float is malfunctioning. Check next to see if the motor turn-on float is hung up on piping or sewage debris. If not, then with a volt-ohm meter, check to see that the float switch is actually closing when it is turned upside down. If it is defective, replace it. If not defective, then check to be sure the turn-off float is not hung up. If none of these cure the ills, and the motor will not run on manual, then the motor must be defective and should be replaced.

To remove the motor, first unwrap the heat tape back past the pipe union. Then turn off the pipe gate valve to prevent back flow of sewage and disconnect the pipe union. Using the chain (Not the motor cord!), carefully pull the motor up and out. (Be especially careful not to damage the piping, as this PVC pipe breaks quite easily.) With the power turned off, check to see that nothing is stuck in the pump entrance and be sure that the motor turns freely. (Blades may be sharp, so be careful of hands.) If the pump turns freely, then again try resetting the breaker and try it again with the switch in the hand position. If the pump works, reinstall it and try it in the tank. NOTE: Be sure gate valve is opened before starting pump, as pump may develop enough pressure to rupture the lines in the tank. Be sure that the switch is again placed in the automatic position before closing the control box.

About once each year, you should open each control box and place the switch in the manual position to be sure that each pump is operating. (You can hear the pump start.) It would also be well to take a loop of insulated wire and short terminals #5 & 6 to test the red light to be sure it is not burned out, broken or jarred loose in its socket. (Again, be sure switch is in the automatic position before closing box.)

When replacing a heat tape, be sure not to overlap it on itself, or for that matter, even allow two wraps to touch each other, or it may burn out. Also press the thermostat inside the plastic tube to test it and be sure the tape is heating up. The tape comes on at 35° F, but since it will not be that cold, the only way to test it is by pressing the contacts and holding them till the tape warms up to touch.

When closing the tank, always be sure the gate valve has been opened, and that all floats are free to move. When closing a control box, be sure switch is in automatic position and that all circuit breakers have been closed.

Should a line break or need to be worked on between the main line and the collection tank, there is a tank shut-off valve located about one foot from the main line. Check proper sketch for that valve location.

#### MAIN LINE OPERATION:

The main line should never give problems unless heavy sewage or debris should settle to the bottom of the line and plug it. If this should happen, there are cleanouts located along the line. Due to an engineering design error, our consulting engineers, Olsson Associates, designed these cleanouts similar to those on a gravity line. It was found that sewage would back up nearly to ground level, and be subject to freezing. To prevent this, sewage test plugs were installed in the throats of the cleanouts to hold the water below the frost level. See sketch MMM.

To remove these plugs, carefully open the top cap and you will find an attached chain to prevent the cleanout plug from being sucked down into the main line. Attach about 8 to 10 feet of #9 wire (or other method of securing it) to this chain, and run it through the center of the 1½" pipe tool to keep the plug from pushing down. While pulling on this wire, carefully unscrew the wing nut on the plug and remove it. (Since it is subject to dampness, it may have rusted, although we did lubricate it liberally to preclude this happening.) Pull it out and use snake or other equipment to clean the line.

On reinstallation, be sure the plug fits snugly as you push it down to take the water down with it and preclude any standing above the plug to freeze and break the plastic pipe.

#### MAIN LINE LIFT STATION:

This lift station consists of two pumps in the wet well along with associated floats. Should it fail to function, a red light and a siren will come on. You may push the button to silence the siren, but the small red light will still stay on.

As with the individual pump stations, check to be sure the reset buttons have not kicked off, or that the fuses have not blown. In addition to the main fuses, there are two small fuses in the control box above the transformer which power the transformer. (These are similar to those in your car, but are one amp fuses.) One is a line fuse, and one is a spare. If the line fuse has blown, replace it with the spare. There are also spares in the bottom of the control box. Try the one amp fuses first. If they will not hold it, you may go to 1½ amp fuses, but in no case heavier.

Turn each pump switch to manual to find if one but not both of the pumps are working. (They normally alternate, with only one pump working at a time, unless the water level gets extremely high, in which case both pumps will come on.) When you find which pump is causing trouble, check to see if the floats for that pump are working properly. Also check to see that the control relays are closing properly.

If you find that a pump is burned up, or something stuck in the pump, use the chain to pull it up. You do not have to disconnect any piping to remove the pump, as these are shear-type connections. You will need a long chain and a come-along to lift this pump, as it is quite heavy. You may also have to jar the shear connector to break it loose. When replacing the pump, be sure the shear connector is completely seated, or the piping will leak and it will not pump properly.

LAKE CROSSING MAINTENANCE:

The lake crossing is a 4" rubber hose inside an 8" rubber hose. At each end, a 2" plastic pipe is inserted inside the sealed 8" tube to monitor for leaks from the 4" tube. At each end up on the bank, is a concrete pad with the 2" pipe and cap sticking out of the pad. The top of the 2" cap is drilled with a 1/4" monitoring hole. Should the 4" hose leak, water will spurt out of this hole when the main lift pumps are operating, indicating a leak in the 4" hose. At some (long future, we hope) time it may be necessary to replace the 4" hose. To do so, it will be necessary to open both concrete blocks at the ends of the hose, and pull the 4" hose out, and at the same time pulling the new hose in. Then the monitor blocks will have to be remade. I think the new hose will have to be filled with water to preclude floatation.

GRAVITY SEWER LINES (ON MIDDLE ISLAND, BUT PART OF THIS SYSTEM):

These gravity lines should require little or no maintenance. However, should a blockage occur, there are manholes for rodding it out.

SEWAGE LIFT STATION (ON MIDDLE ISLAND, BUT PART OF THIS SYSTEM):

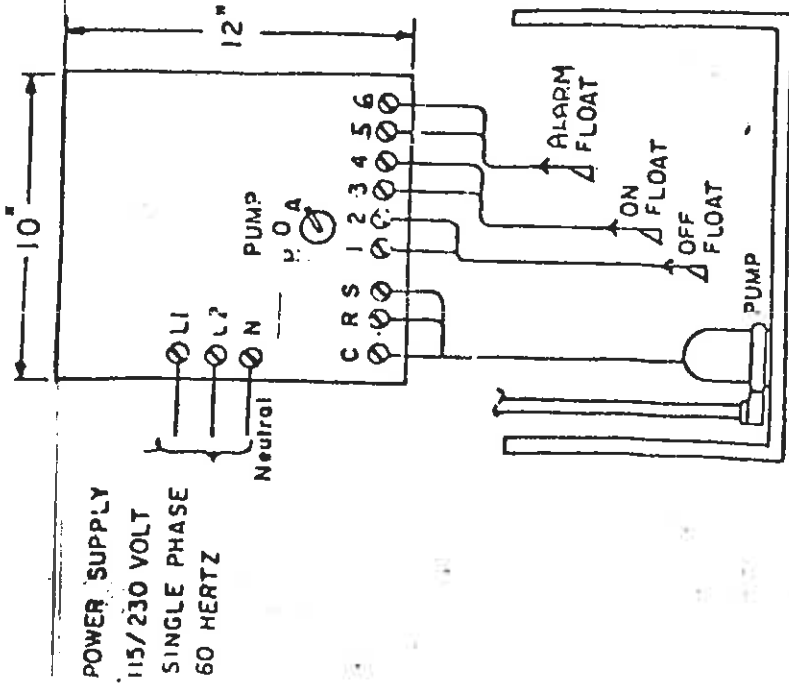
Maintenance for this station is so similar to that on Upper Lake, that I will not repeat it.

SEWAGE LAGOONS:

These lagoons will require little maintenance for a good number of years. At some future time, the primary pond (south one) may have to be cleaned out. At that time, sewage should be diverted to the other pond by changing the plate in the weir box and also by opening the by-pass valve located at the east end of the dividing berm, and then allowing the sludge to dry out and be removed.

Several times during the summer the grass and weeds should be mowed close to the water level, to prevent trash from hanging up on them and causing an odor.

NEMA 4 FIBERGLASS ENCLOSURE



SUMP

FLOAT BULBS ARE NORMALLY OPEN TYPE

POWER SUPPLY CONNECTIONS (ON CONTACTOR)

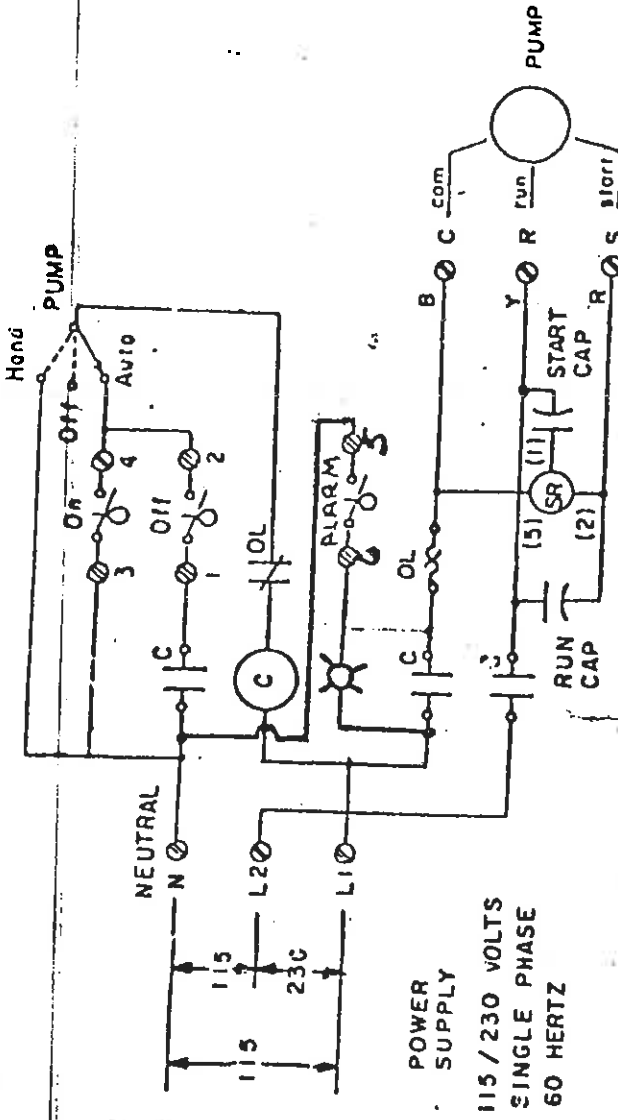
- 115/230 Volt 3 Wire Power Supply
- Connect To Terminals L1, L2 and N.
- Neutral Must Be Connected To N.

FLOAT CONNECTIONS

- Connect Off Float To Terminals 1 and 2
- Connect On Float To Terminals 3 and 4
- CONNECT ALARM FLOAT TO TERMINALS 5 AND 6

PUMP CONNECTIONS

- Connect Pump Motor To Terminals C-Common
- R - Run Winding
- S - Start Winding



115 / 230 VOLTS  
SINGLE PHASE  
60 HERTZ

1 ADD ALARM

REV	DATE
1	9-13-83

ABS PUMPS Inc.

SIMPLEX PUMP CONTROL

ABS JOB 102128

AB11-0278 sht 1 of 1 A 7-8-83

MIDDLE ISLAND, SOUTH BEND, NE

Revised Lot Numbers

New Lot #'s

2  
3 - 39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55

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Old Lot #'s

1 & 2  
3 - 39  
40 - 41 - 42  
43 - 44  
45 - 46  
47 - 48  
49 - 50  
51 - 52  
53 - 54  
55 - 56  
57 - 58  
59 - 60  
61 - 62  
63 - 64  
65 - 66  
67 - 68  
69 - 70 - 71  
72, ~~73~~-74

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TOTAL LOTS  
FOR SALE

55

74