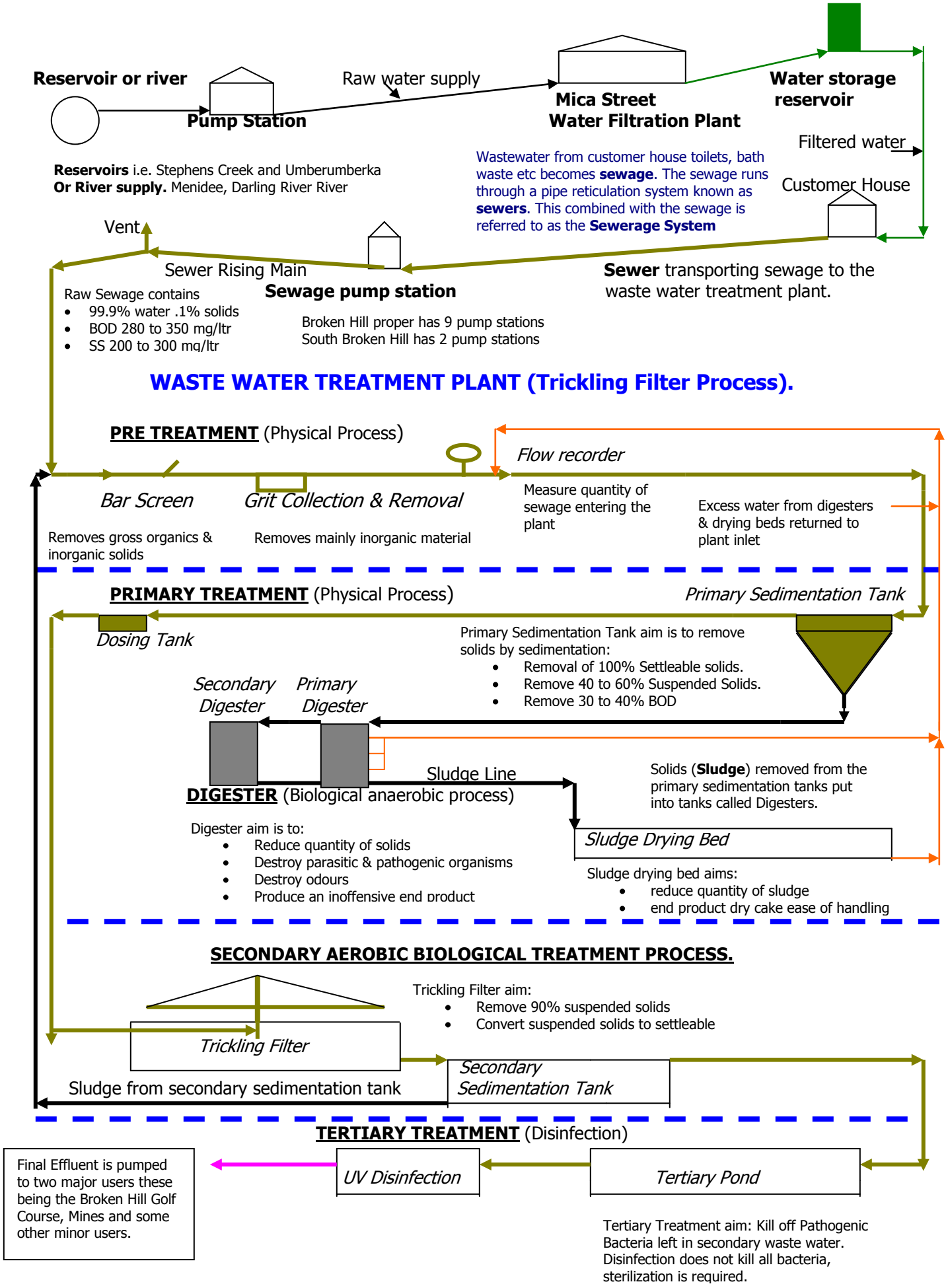
Reservoir or river
Pump Station
Raw water supply
Mica Street
Water Filtration Plant
Water storage reservoir
Filtered water
Customer House
Reservoirs i.e. Stephens Creek and Umberumberka
Or River supply. Menidee, Darling River River
Wastewater from customer house toilets, bath waste etc becomes sewage. The sewage runs through a pipe reticulation system known as sewers. This combined with the sewage is referred to as the Sewerage System
Vent
Sewer Rising Main
Sewage pump station
Sewer transporting sewage to the waste water treatment plant.
Raw Sewage contains
99.9% water .1% solids
BOD 280 to 350 mg/ltr
SS 200 to 300 mg/ltr
Broken Hill proper has 9 pump stations
South Broken Hill has 2 pump stations
WASTE WATER TREATMENT PLANT (Trickling Filter Process).
PRE TREATMENT (Physical Process)
Flow recorder
Bar Screen
Grit Collection & Removal
Measure quantity of sewage entering the plant
Excess water from digesters & drying beds returned to plant inlet
Removes gross organics & inorganic solids
Removes mainly inorganic material
PRIMARY TREATMENT (Physical Process)
Primary Sedimentation Tank
Dosing Tank
Primary Sedimentation Tank aim is to remove solids by sedimentation:
Removal of 100% Settleable solids.
Remove 40 to 60% Suspended Solids.
Remove 30 to 40% BOD
Secondary Digester
Primary Digester
Sludge Line
DIGESTER (Biological anaerobic process)
Solids (Sludge) removed from the primary sedimentation tanks put into tanks called Digesters.
Digester aim is to:
Reduce quantity of solids
Destroy parasitic & pathogenic organisms
Destroy odours
Produce an inoffensive end product
Sludge Drying Bed
Sludge drying bed aims:
reduce quantity of sludge
end product dry cake ease of handling
SECONDARY AEROBIC BIOLOGICAL TREATMENT PROCESS.
Trickling Filter aim:
Remove 90% suspended solids
Convert suspended solids to settleable
Trickling Filter
Secondary Sedimentation Tank
Sludge from secondary sedimentation tank
TERTIARY TREATMENT (Disinfection)
Final Effluent is pumped to two major users these being the Broken Hill Golf Course, Mines and some other minor users.
UV Disinfection
Tertiary Pond
Tertiary Treatment aim: Kill off Pathogenic Bacteria left in secondary waste water. Disinfection does not kill all bacteria, sterilization is required.