



Agricultural
Best
Management
Practices
(BMPs) for
Water Quality
Protection



Milkhouse Wastewater:

Condition before
improvements



Milkhouse Wastewater:

Condition before
improvements



Milkhouse
Wastewater:

Percolation Test



Milkhouse Wastewater:

1) Settling Tank & 2)
Flout Tank



Milkhouse Wastewater:

Gravity flow from
first tank to second
tank



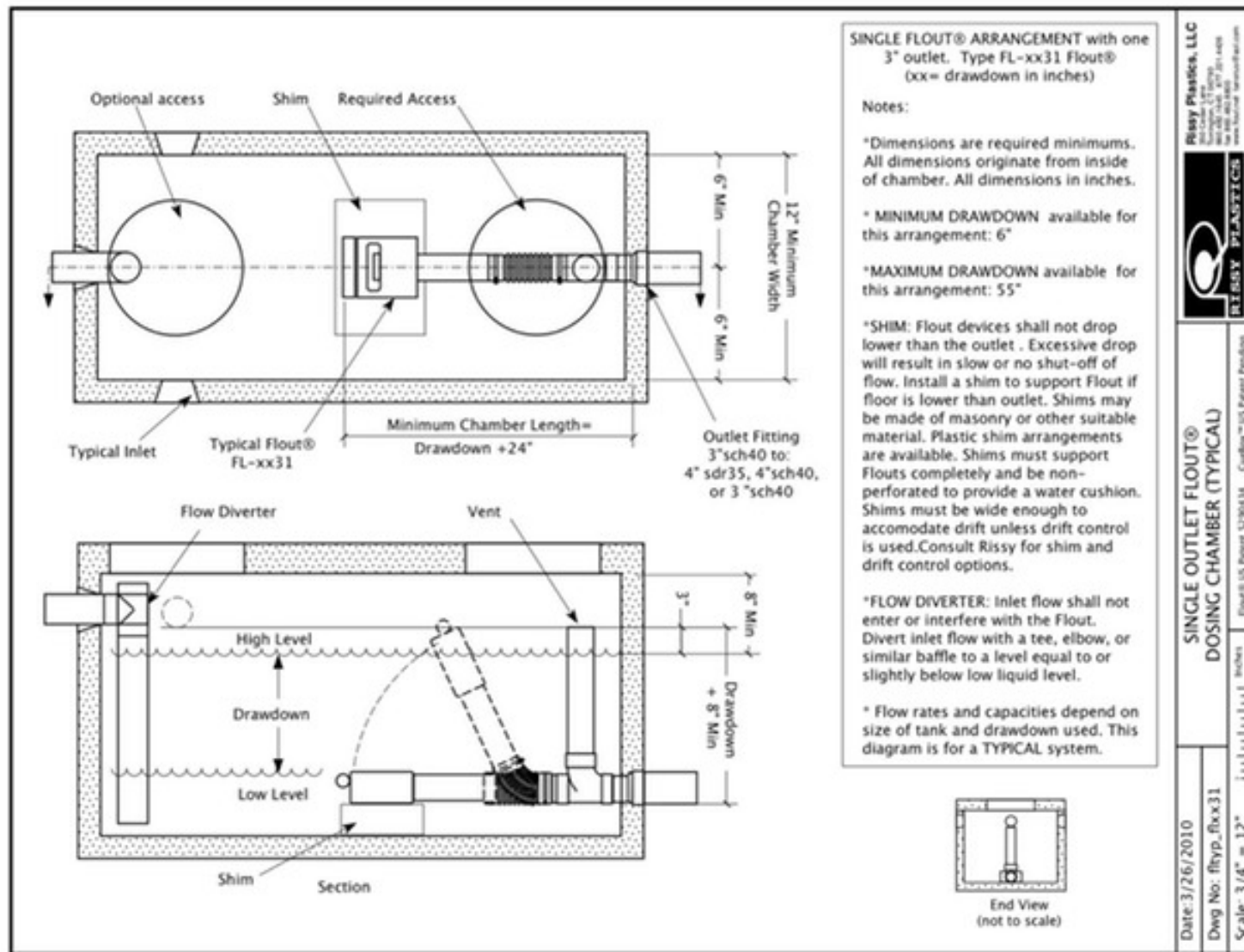
Milkhouse
Wastewater:

Zabel filter in first
tank



Milkhouse
Wastewater:

Flout in second
tank



Milkhouse Wastewater:

Flout in second tank



Milkhouse Wastewater:

Boring under road



Milkhouse Wastewater:

Pulling pipe under
road



Milkhouse
Wastewater:

Distribution box



Milkhouse Wastewater:

Installing infiltrator
chambers in
trenches



Milkhouse Wastewater:

Backfilling
infiltrator chambers

Milkhouse Wastewater System (2 tanks with gravity flow to infiltrator chambers)

Material List:

- 1 – 1000 gallon septic tanks (grease trap) with baffles
 - coated
 - with 2 risers per tank
- 1 – Zabel Filter
 - Model A300 - 8 x 18 -VC
- 1 – 1000 gallon utility tank with bottom outlet for Flout
 - with 1 riser
- 1 – Flout
 - dose 800 gallons per flush
- 550 feet – 4” Sch 40 PVC pipe
 - plus assorted pipe fittings
- 1 – Distribution box
 - 6 hole
- 108 feet – Infiltrator Chambers
 - (27) Quick 4 Standard Chambers
 - with 6 end caps

Note: All quantities are estimated.

Milkhouse Wastewater:

Typical material list



Waste
Storage:

Daily spreading in
winter

Earthen Waste Storage:



Picking a suitable
site for a waste
storage structure

Earthen Waste Storage:



Digging the core
trench for earthen
berm



Earthen Waste Storage:

Building the
earthen berm



Earthen Waste Storage:

Compacting the
earthen berm



Earthen
Waste
Storage:

Finishing the
earthen berm



Earthen
Waste
Storage:

It holds water!

Earthen Waste Storage:



Installing the liner

Earthen Waste Storage:



Concrete ramp over
liner

Earthen Waste Storage:



Fence and gates in
place

Concrete Waste Storage:



Digging test pits

Concrete Waste Storage:

Checking floor
elevation



Concrete Waste Storage:



Finished base for
floor



Concrete Waste Storage:

Concrete floor with
waterstop and
rebar



Concrete
Waste
Storage:

Wall form with
double row of rebar

Concrete Waste Storage:



Pouring concrete
for wall



Concrete
Waste
Storage:

Completed
structure with
loading pad and
fence/gate

Concrete Waste Storage:



Waste transfer line
with clean out

Concrete Waste Storage:



Transfer line with
duckbill valve



Concrete
Waste
Storage:

Manure cross
channel in barn



Concrete
Waste
Storage:

Manure reception
pit in barn



Concrete
Waste
Storage:

Manure pump for
transfer from barn
to storage



Slurrystore
Waste
Storage:

Rebar for footer

Slurrystore Waste Storage:



Installing starter
strip for wall panels

Slurrystore Waste Storage:



Installing jacks for
raising wall panels

Slurrystore Waste Storage:



Installing wall
panels

Slurrystore Waste Storage:



Flapper valve on
transfer line

Slurrystore Waste Storage:



Loading pad and
pump



Heavy Use
Area
Protection:

Barnyard - before

Heavy Use Area Protection:



Barnyard - before

Heavy Use Area Protection:



Barnyard – after
(gutter on roof)

Heavy Use Area Protection:



Barnyard – after
(concrete pad)

Heavy Use Area Protection:



Barnyard – after
(Fence & wood
curbs)

Heavy Use
Area
Protection:

Screen box to
collect solids



Heavy Use Area Protection:



Transfer pipe to VTA



Roofwater Management:

Before



Roofwater Management:

Dripline trench
ready for pipe and
#2 stone



Roofwater Management:

Dripline trench with
4" PVC pipe



Roofwater Management:

Completed dripline
to convey
roofwater away
from barn



Diversion:

Grassed waterway
to divert surface
water away from
barn



Diversion:

Stone-lined
waterway to divert
surface water away
from barn



Roofwater Management:

After



Access
Road:

Before



Access
Road:

After



Access
Road:

After

Access
Road:

After





Silage
leachate
collection &
treatment:

Bunk silo – slopes
to one point



Silage
leachate
collection &
treatment:

Detail showing
separation of
concentrated low
flows from bunk
runoff



Silage
leachate
collection &
treatment:

Pipe for low flows
from bunk to
holding tank



Silage
leachate
collection &
treatment:

Pipe for diluted
high flows from
bunk to VTA