## SOLLENBERGER SILOS (MT-UB) Circular, Site Cast Concrete, Waste Storage Structure

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|---|---|---|
| Designers: | Stephen B. Clarke and Associates Ltd.<br>Rd #2 Baden<br>Ontario, Canada | (519) 634-8453 |
| Fabricators: | Sollenberger Silos<br>P.O. Box N<br>Chambersburg, PA 17201 | (717) 264-9588 |
| Drawings: | SSC 92-MT-UB-1 General Specifications<br>SSC-92-MT-UB-2 Typical Wall to Footing Details<br>SSC 92-MT-C'B-3 Floor Sump and Pipe Details<br>SSC-92-MT-UB-4 Wall Opening Details<br>SSC-92-MT-UB-5 12' Wall Reinforcing Details<br>SSC-92-MT-UB-6 16' Wall Reinforcing Details<br>SSC 92-MT-UB-7 Equipment Access Bridge Slab | |
| Location: | Calculations and drawings have been reviewed by the NNTC and the PA state office for compliance with National Conservation Practice Standard 313-80. Design folders are on file at both reviewing locations. The reviews were completed in February 1993. | |
| Materials: | Reinforced concrete footings, floors, walls and access pads contain Class 4000 concrete and Grade 60 steel. | |
| Sizes: | 12' walls with diameters from 30' through 140'.<br>16' walls with diameters from 30' through 90'.<br>Walls 8" thick (9" thick alternate). | |
| Application: | National Conservation Practice Standard 313-80 for medium (20 year) service life. | |
| Assumptions: | The allowable soil bearing capacity for the footings is 1500 psf. Walls are designed according to PCA "Circular Concrete Tanks Without Prestressing" for a hinged base connection and tank full, no backfill condition. Walls are also adequate for full backfill, tank empty condition. Additionally, the walls are adequate for varying backfill, tank empty condition with backfill depth differing up to 75% of the wall height around the perimeter of the tank. A finite element analysis was used for this condition. Minimum backfill of 4' is provided to assure frost protection of the footing. A drainage system behind the walls and under the floor with a pipe outlet is provided. Heavy equipment is not to be operated within 10' of the walls, except in areas specifically constructed with an access bridge slab as shown on the drawings. | |
| Concurrence: | The Head of the NNTC Engineering Staff concurs in the use of these detailed drawings. | |

SOLLENBERGER SILOS CORP. Concrete, Site Cast, Circular, Waste Storage Structures

Designer: Stephen B. Clarke & Associates Ltd.
R.R. #2, Baden
Ontario, Canada (519) 634-8453

Fabricator: Sollenberger Silos
P.O. Box N
Chambersberg, PA 17201 (717) 264-9588

Drawings:
SSC-92-MT-1 General Specifications
SSC-92-MT-2 Typical Wall to Footing Details
SSC-92-MT-3 Floor Sump and Pipe Details
SSC-92-MT-4 Wall Opening Details
SSC-92-MT-5 6' Wall Reinforcing Schedule
SSC-92-MT-6 8' Wall Reinforcing Schedule
SSC-92-MT-7 12' Wall Reinforcing Schedule
SSC-92-MT-8 16' Wall Reinforcing Schedule
SSC-92-MT-9 Kicker Wall Schematics
SSC-92-MT-10 Equipment Access Bridge Slab
SSC-92-MT-11 Wall Reinforcing for Equipment Access Beside Wall

Location: Calculations and drawings have been reviewed by the NNTC and the PA state office for compliance with National Conservation Practice Std. 313-80. Design folders are on file at both reviewing locations. The reviews were completed in February 1993.

Materials: Reinforced concrete footings, floors, walls and access pads contain Class 4000 concrete and Grade 60 steel.

Sizes: 6', 8' & 12' walls with diam. from 30' through 140'
16' walls with diam. from 30' through 90'.
Walls 8" thick (9" thick alternate).

Application: National Conservation Practice Standard 313-80 for medium (20 yr.) service life.

Assumptions: The allowable soil bearing capacity for the footings is 1500 psi. Walls are designed according to PCA "Circular Concrete Tanks Without Prestressing" for a hinged base connection and tank full, no backfill condition. Walls are also adequate for full backfill, tank empty condition. Backfill is assumed to be uniform depth (+/- 2') around the perimeter of the tank. Minimum backfill of 4' is provided to assure frost protection of the footing. A drainage system behind the walls and under the floor with a pipe outlet is provided. Heavy equipment is not to be operated within 10' of the walls, except in areas specifically constructed with an access bridge or additional wall reinforcement for equipment access as shown on the drawings.

ence: The Head of the NNTC Engineering Staff concurs in the use of these detailed drawings.

**SOLLENBERGER SILO Concrete, Site Cast, Round, Agw Tank**

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|---|---|
| Designers: | Stephen B Clarke and Associates<br>Rd #2 Baden<br>Ontario, Canada<br>(519) 634-8453 |
| Fabricators: | Sollenberger Silos<br>Box N<br>Chambersburg, PA 17201<br>(717) 265-9588 |
| Drawings: | C503-1A, 1B Revision 3 dated 2-21-86 (specs)<br>C503-2 Revision 1 dated 8-10-85 (footing)<br>C503-3,4,5 dated 4-85<br>C503-6,7,8 dated 4-85<br>C503-9, 10,11,12,13 dated 6-85<br>C503-15 Revision 1 dated 2-21-86<br>C503-16 dated 3-86 (sump pit)<br>(copy of typical title block attached) |
| Location: | Plans have been reviewed in detail by NENTC for compliance with Structural aspects of National Conservation Practice Standard 313-80. Design data is on file at the NENTC. Reviews of revision Were completed in April 1986. |
| Material: | The circular structure consists of site cast Class 4000 psi Concrete with Grade 60 steel. |
| Sizes: | H eights of 6, 8, 12 ft and 30 thru 140 ft diameters.<br>Walls are 8 in thick for all sizes. |
| Application: | National Conservation Practice Standard 313-80 for short (10 years Service life) |
| Assumptions: | Footings are designed for an allowable soil bearing capacity of 3000 psf.<br><br>Walls are designed according to PCA “Circular Concrete Tanks without Pre-stressing” for a hinged base connection and tank full no backfill condition. Walls are also adequate for full backfill tank empty condition. Backfill is assumed to be uniform depth plus or minus 2 ft around the perimeter of the tank. Placement of the tank above the seasonal high water table is also assumed. |
| Concurrence: | The Head of the NENTC Engineering Staff concurs in the use of<br><br>These detailed drawings. |

April 8, 1986

# Design Data Sheet for Standard Detail Drawing by:

**Sollenberger Silos**, **LLC** (**12017-CO 1-9**) Circular, Site Cast Waste Storage Facility
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**Designer:** Eugene K. Wagester, PE 412-344-1412 or 724-942-0698
WL PORT-LAND Systems, Inc
305 Mt. Lebanon Blvd, Suite 400
Pittsburgh, PA 15234

**Fabricator:** Sollenberger Silos, LLC 717-264-9588
2216 Wayne Avenue
Chambersburg, PA 17202

**Drawings:** 12017-CO1 R6, 12017-CO2 R7, 12017-CO6 R7, 12017-CO7 R5, and 12017-CO8 R6 sealed 8/22/13. 12017-CO3 R3, 12017 -CO4 R4, 12017-CO5 R2 and 12017-CO9 R2 sealed 7/17/13. A total of 9 pages. All sealed by Eugene K. Wagester, PE.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in August 2013.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameters: 8’ high wall, 40’ to 160’; 12’ high wall, 40’ to 150’; 16’ high wall, 90’ to 180’ all in 10’ increments
Walls: 8” thick for 8’ wall height up to 100’ with single mat of steel
10” thick for 8’ wall heights, 110’ and above, and for all 12’ wall heights, all diameters with a single mat of steel
12” thick for all 16’ wall heights, all diameters with a double mat of steel

**Applications:** PA Standard 313.

**Assumptions:** Walls are designed for full backfill, structure empty and structure full, minimum backfill conditions. Height of backfill can be for even and uneven backfill conditions with the minimum backfill of at least 48 inches (or frost depth) above the bottom of the footing. Lateral earth pressure of 65 psf and 85 psf surcharge (2’ surcharge for farm equipment) are assumed. Maximum equipment weight allowed adjacent to tank wall with total backfill is 8,000 lb. axle load or 10,000 lb. axle load if fill is 4’ or more below top of wall. Higher loads require utilizing bridge slab. Minimum required soil bearing capacities is 1.5 ksf under structure for incompressible soils. Expansive or other subgrade soil problems require 3.0 ksf. Design assumes a foundation drain as shown on drawings. Structure diameters between those shown above shall be installed with the reinforcing steel for the next larger diameter increment. Reduced structure heights can be used by elimination of top section of higher wall and adding #5 bar. Up to a 4’ step wall (Kicker wall) can be built on 8’ and 12’ high walls. Lengths can be as long as needed but must step down in 1’ increments with a minimum 4.5’ run.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

# Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-00)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-421-4232
Norton & Schmidt, Consulting Engineers
Suite 419, 1100 Main Street, Kansas City, MO 64105

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Rd., Newburg, PA 17240

**Drawings:** SCC-NS-00 sheets 1 thru 12 (3 sets), dated 4-26-00 for 8, 10, & 14 foot walls. SCC-NS-00 sheets 1 thru 12, dated 4-06-00 & sheets 1 thru 8, dated 9-06-00 for 12 foot walls.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in May 2001.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameters: 40 to 120 ft. in 20 ft. increments for 8, 10, 12, and 14 ft. walls.
130 ft. for 12 ft. walls.
Walls: 8 ft. high by 7.5 in. thick, 10 ft. high by 9.5 in. thick, 12 ft. high by 9.5 in. thick, 14 ft high by 9.5 in thick.

**Applications:** PA Standard 313 with equivalent fluid pressure of 60 pcf.

**Assumptions:** Minimum required soil bearing capacities are 1200 psf under floor slab and 1500 psf under the footing for 8 foot walls, 1500 psf under the footing and floor for 10 foot walls, 1500 psf under the floor and 2000 psf under the footing for 12 foot walls, and 2000 psf under the footing and floor for 14 foot walls. Backfill for frost protection is required. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used. Height of backfill against the structure walls shall not vary more than 4 feet. Structure diameters between those shown may be used provided the reinforcing steel for the next larger diameter is used.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

# Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-06L)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-737-0128
Norton & Schmidt, Consulting Engineers
311 East 11th Avenue, Kansas City, MO 64116

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Road,
Newburg, PA 17240

**Drawings:** SCC-NS-06L sheets 1 thru 8, dated 10-10-06.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in October 2006.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameter: 160 ft.
Walls: 16 ft. high by 11.5 in. thick.

**Applications:** PA Standard 313 with equivalent fluid pressure of 65 pcf.

**Assumptions:** Minimum required soil bearing capacity is 2,000 psf. Maximum backfill differential around the tank is 4 feet. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15,000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

# Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-02)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-421-4232
Norton & Schmidt, Consulting Engineers
Suite 419, 1100 Main Street, Kansas City, MO 64105

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Rd., Newburg, PA 17240

**Drawings:** SCC-NS-02 sheets 1 thru 9, dated 9-14-02 for 12 foot walls with an optional 2 foot kicker wall.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review was completed in November 2002.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameters: 140 ft.
Walls: 12 ft. high by 9.5 in. thick, and up to 14 ft. high by 9.5 in. thick in kicker wall section which is limited to 50% of the tank circumference.

**Applications:** PA Standard 313 with equivalent fluid pressure of 60 pcf.

**Assumptions:** Minimum required soil bearing capacities are 1500 psf under floor slab and 2000 psf under the footing. Backfill for frost protection is required. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used. Height of backfill against the structure walls shall not vary more than 4 feet.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

# Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-06)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-737--128
Norton & Schmidt, Consulting Engineers
Suite 419, 1100 Main Street, Kansas City, MO 64105

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Rd., Newburg, PA 17240

**Drawings:** SCC-NS-06 sheets 1 thru 10, dated 3-30-06.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in April 2006.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameters: 100 to 120 ft. in 10 ft. increments for 16 ft. walls.
Walls: 16 ft. high by 9.5 in. thick.

**Applications:** PA Standard 313 with equivalent fluid pressure of 65 pcf.

**Assumptions:** Minimum required soil bearing capacities are 1800 psf under floor slab and 2000 psf under the footing. Backfill for frost protection is required. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used. Height of backfill against the structure walls shall not vary more than 4 feet. Structure diameters between those shown may be used provided the reinforcing steel for the next larger diameter is used.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-06U)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-737--0128
Norton & Schmidt, Consulting Engineers
Suite 419, 1100 Main Street, Kansas City, MO 64105

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Rd., Newburg, PA 17240

**Drawings:** SCC-NS-06U sheets 1 thru 8, dated 5-22-06 and 6-30-06.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in July 2006.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameter: 90 ft.
Walls: 16 ft. high by 9.5 in. thick.

**Applications:** PA Standard 313 with equivalent fluid pressure of 65 pcf.

**Assumptions:** Minimum required soil bearing capacities are 1800 psf under floor slab and 2000 psf under the footing. Backfill 4 feet above the bottom of the footing is required. Maximum backfill differential around the tank is 13 feet. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

Design Data Sheet for Standard Detail Drawing by:

**Stoltzfus Concrete Construction, (SCC-NS-06A)** Circular, Site Cast Waste Storage Facility

**Designer:** Everett Prewitt, PE 816-737--0128
Norton & Schmidt, Consulting Engineers
Suite 419, 1100 Main Street, Kansas City, MO 64105

**Fabricator:** Stoltzfus Concrete Construction 717-423-6974
249 Shady Rd., Newburg, PA 17240

**Drawings:** SCC-NS-06A sheets 1 thru 9, dated 5-10-06.

**Location:** Calculations and drawing were reviewed for conformance with PA Standard 313. Design data are on file in NRCS-PA state office. Review of latest revision was completed in May 2006.

**Materials:** Reinforced concrete footings, floor slabs, walls, and access pads require Grade 60 steel with Class 4000 air-entrained concrete.

**Sizes:** Diameters: 60 and 80 ft.
Walls: 16 ft. high by 9.5 in. thick.

**Applications:** PA Standard 313 with equivalent fluid pressure of 65 pcf.

**Assumptions:** Minimum required soil bearing capacities are 1800 psf under floor slab and 2000 psf under the footing. Backfill for frost protection is required. Design assumes a foundation drain as shown on drawings. Additional wall steel in lieu of access pad is designed for a vehicle surcharge of 15000 pounds. If larger equipment loads are anticipated near the wall, the alternate equipment access pad must be used. Height of backfill against the structure walls shall not vary more than 4 feet. Structure diameters between those shown may be used provided the reinforcing steel for the next larger diameter is used.

**Concurrence:** The State Conservation Engineer concurs in the use of these standard detail drawings.

# STORAGE – LIX Circular, Glass-lined Steel, Waste Storage Structures

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|---|---|
| Designers And Fabricators: | Long Manufacturing, N. C., Inc<br>P>O> Box 1139<br>1907 North Main Street<br>Tarboro, North Carolina 27886 |
| Drawings: | Owners Manual, Form No. 756187, Rev. 3-84 |
| Design: | Dated 10-10-83 Revised 2-24-84 |
| Location: | Plans have been reviewed in detail by MNTC for compliance with Structural aspects of National Conservation Practice Standard 313-80. Revised design folders are on file at the NNTC and MNTC. Reviews were completed in March, 1984. |
| Material: | The circular tanks are made from glass-lined ASTM A607 Grade 50 steel sheets and ASTM A36 steel shapes. The ring footing and slab are site cast Class 3000 concrete with Grade 60 reinforcing steel. |
| Sizes: | 15, 20, 25 ft high and 35, 47, 58, 70, 82, 105 ft. diameters. |
| Application: | National Conservation Practice Standard 313-80 for medium (20 Year) service life. |
| Assumptions: | Footings are designed for an allowable soil bearing of 2000 psf. tanks are designed for a minimum allowable wind velocity of 80 mph which is adequate for all areas in the Northeast except the eastern coastal areas of Virginia and Massachusetts according to ASAE S388.3. |
| Concurrence: | The Head of the NNTC Engineering staff concurs in the use of this detail drawing. |

# WAGGONER CIRCULAR SITE CAST CONCRETE WASTE STORAGE STRUCTURE

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|---|---|
| Designers: | M. A. Dixon, Jr., P.E. (43710-E)<br>No known address |
| Fabricators: | Byron Waggoner<br>717-432-9403 |
| Drawings: | 12D BW-1, Sh. 1 Storage Pit Plans<br>12D BW-1, Sh. 2 Typ. Sec. “A” & Elev “B”<br>12D BW-1, Sh. 3 Details “C” thru “F”<br>12D BW-1, Sh. 4 Push-off Sec. “G” & Elev. “H”<br>12D BW-1, Sh. 5 Details “I” & “J”<br>12D BW-1, Sh. 6 Wall Reinf. Sch. & Notes |
| Location: | Calculations and drawings have been reviewed by the NNTC and the PA state office for compliance with National Conservation Practice Standard 313. Design folders are on file at both reviewing locations. Reviews were completed in June 1995 |
| Materials: | All site case concrete is Class 4000. All reinforcing steel is Grade 60. |
| Sizes: | Diameters are 60 & 90 ft. with 12 ft. height. |
| Applications: | National Conservation Practice Standard 313 for short (10 year) service life. |
| Assumptions: | Walls are designed according to PCA “Circular Concrete Tanks Without Pre-stressing” for a hinged base connection and tank full, no backfill condition. Walls are also adequate for full backfill, tank empty condition. Backfill is assumed to be of uniform +/-2’ around the perimeter of the tank. Min. backfill of 4’ is provided to assure frost protection of the footing. A drainage system behind the walls and under the floor with a pipe outlet is provided. No heavy equipment operation is permitted within 5 feet of the walls except on push-off slab. Equipment surcharge on the push-off slab is 100 p.s.f. |
| Concurrence: | The head of the NNTC Engineering Staff concurs in the use of these detail drawings. |

Waggoner Circular, Site Cast Concrete Waste Storage Structure

**Designer:** Michael A. Dixon, PE 717-795-8324
21 White Oak Blvd., Mechanicsburg, PA 17050

**Fabricator:** Byron Waggoner 717-432-8403
135 Bentz Mill Rd., East Berlin, PA 17316

**Drawings:** 12D BW-1, Sh. 1 storage Pit Plans
12D BW-1, Sh. 2 Typ. Sec. "A" & Elev. "B"
12D BW-1, Sh. 3 Details "C" thru "F"
12D BW-1, Sh. 4 Push-off Sec. "G" & Elev. "H"
12D BW-1, Sh. 5 Details "I" & "J"
12D BW-1, Sh. 6 Wall Reinf. Sch. & Notes

**Location:** Calculations and drawing have been reviewed by the NNTC and the PA state office for compliance with National Conservation Practice Standard 313. Design folders are on file at both reviewing locations. Reviews were completed in June 1995.

**Materials:** All site cast concrete is Class 4000. All reinforcing steel is Grade 60.

**Sizes:** Diameters are 60 & 90 ft. with 12 ft. height.

**Applications:** National Conservation Practice Standard 313 for short (10 year) service life.

**Assumptions:** Walls are designed according to PCA "Circular Concrete Tanks Without Prestressing" for a hinged base connection and tank full, no backfill condition. Walls are also adequate for full backfill, tank empty condition. Backfill is assumed to be of uniform depth +/-2' around the perimeter of the tank. Min. backfill of 4' is provided to assure frost protection of the footing. A drainage system behind the walls and under the floor with a pipe outlet is provided. No heavy equipment operation is permitted within 5 feet of the walls except on push-off slab. Equipment surcharge on the push-off slab is 100 p.s.f.

**Concurrence:** The Head of the NNTC Engineering Staff concurs in the use of these detail drawings.

Note: This sheet was re-typed to update the addresses of the designer and fabricator. The rest of the sheet is identical to the original.

**WEISER L – PANEL MANURE STORAGE SYSTEM**
**PRECAST REINFORCED CONCRETE D-PANELS**

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|---|---|
| Designer: | Gordon Riegstad, P.E. – Wisconsin<br>Riegstad & Associates<br>St. Paul, Minnesota |
| Owner and Fabricator: | Weiser Concrete Products, Inc<br>Rt. 2 (Hwy 10) Box 148<br>Maiden Rock, WI 54750 (715) 647-2311 |
| Drawings: | Nine (9) drawing sheets, dated June 27, 1994 (revised Nov 1, 1994).<br>Titled – "L-Panel Manure Storage System" |
| Sizes: | Pre-case concrete L-Panels, 8' 6" high, and either 7' 6" or 5' 1" wide, bolted together on floor slab for in-ground open-pit manure storage. 4' 6" minimum backfill is required. Plan pit dimensions are in 2' 6" increments each way, with 20' minimum dimension each way. |
| Location: | Design notes and plans have been reviewed by MNTC for compliance with the structural aspects of Practice Standard 313-80. Design folders are on file at MNTC. |
| Materials: | The L-panels are precast concrete panels with Class 5000 concrete and Grade 60 steel. The concrete floor slab is Class 3500 concrete. |
| Assumptions: | The L-panels are designed for a soil backfill equivalent fluid pressure of 50 psf with stored liquid manure pressure of 60 psf. Installations with remain above seasonal high water table. |
| Application: | SCS National Conservation Practice Standard 313 "Waste Storage Structure" for Medium (20 – year) service life. |
| Concurrence: | The head of the Midwest NTC Engineering Staff concurs in the use of these detail drawings. |

**WEISER'S LIQUID MANURE PIT**
**DRIVE THRU AND FREE STALL CONCRETE PANELS**

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|---|---|
| Designer: | Michael Malson, P.E. – Michigan<br>The Consulting Engineers Group, Inc<br>Mt. Prospect, Il |
| Owned and Fabricator: | Weiser Concrete Products, Inc.<br>Rt. 2 (Hwy 10) Box 148<br>Maiden Rock, WI 54750 (715) 647-2311 |
| Drawings: | Three Drawing Sheets; Drawing No. 1, revised 12/9/93, Titled – Weiser's Liquid Manure Pit, General Notes & Index. Drawing No. 10A, dated 12/9/93, Titled – Drive Thru Panel. Drawing No. 10B, dated 12/9/93, Titled – Free Stall Panel. |
| Sizes: | Solid cover panels for rectangular tank. Panels are both 12 feet long, the Drive Thru panel is 8 feet wide and the Free Stall panel is 7 feet 4 inches wide. These panels would be used where a free stall dairy barn is constructed on top of a Wieser's Liquid Manure pit. |
| Location: | Design notes and plans have been reviewed by MNTC for compliance with the structural aspects of Practice Standard 313-80. Design folders are on file at MNTC. |
| Materials: | The cover panels are precast concrete panels with Class 5000 concrete and Grade 60 steel. |
| Assumptions: | The cover panels are designed for a live load of 150 psf. The Drive Thru panel is also designed to support 12,000 pound wheel or axial load with a 30 psf distributed load. |
| Application: | SCS National Conservation Practice Standard 313 "Waste Storage Structure" for Medium (20 year) service life. |
| Concurrence: | The Head of the Midwest NTC Engineering Staff concurs in the use of these detail drawings. |