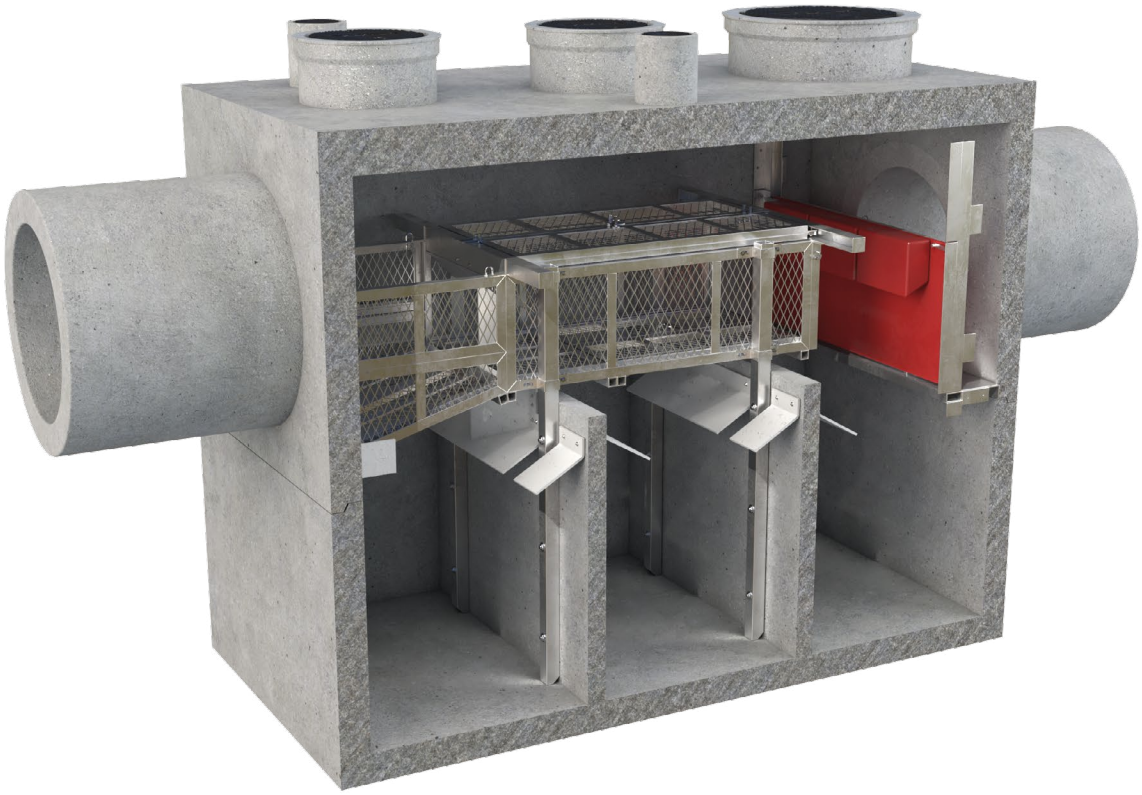
NSBB®

Nutrient Separating Baffle Box®

Installation Guide for Systems with Field-Installed Internal Components



Oldcastle Infrastructure™
A CRH COMPANY

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Warning

Read the following information, instructions and warnings before inspecting, cleaning or performing maintenance on this stormwater treatment device.

This manual is intended to explain the specifics of the Oldcastle Infrastructure Nutrient Separating Baffle Box and to review the aspects of existing regulations and safety procedures. It is the responsibility of all personnel to familiarize themselves with, understand and comply with all applicable local, state and federal laws before attempting to inspect or service this unit. All precautions and procedures in this manual are current at the time of printing but are subject to change based on the development of new processes and procedures. Oldcastle Infrastructure assumes no responsibility and is not accountable for any injuries, fines, penalties or losses that occur involving any procedure in this manual or other unaddressable actions taken. The Nutrient Separating Baffle Box performance is based on the procedures being followed in this manual. Non-Compliance with the outlined measures will be the responsibility of the owner.

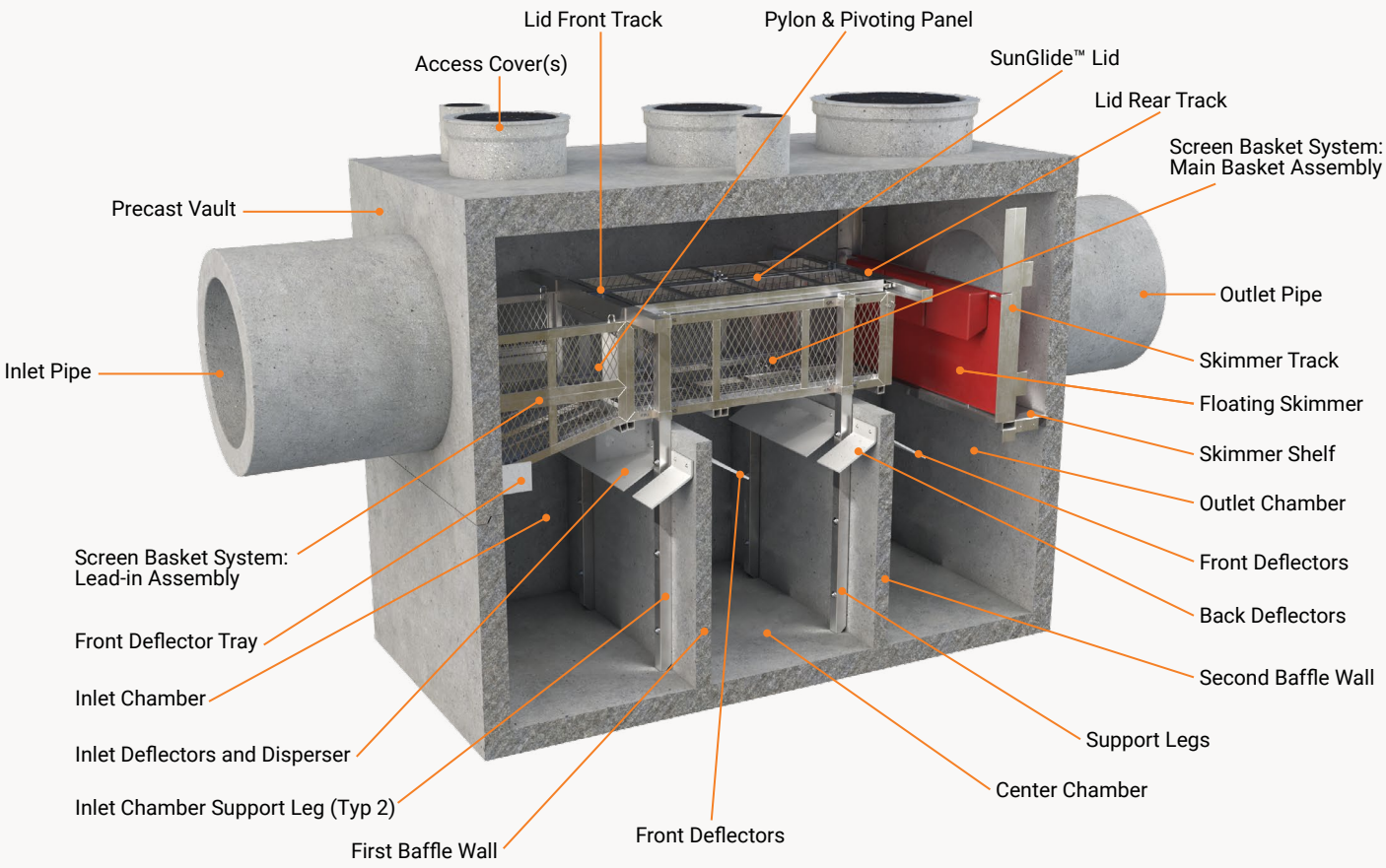
General Information

The Nutrient Separating Baffle Box (NSBB) is a key component of the site's stormwater management program and the proper installation of these units is essential. The NSBB contains patented technologies to treat and manage stormwater.

This manual is not intended to be all-inclusive and is a reference guide only.

Components

The NSBB consists of the following components and associated hardware, supplied by Oldcastle Infrastructure:



1. Required Tools & Equipment

1.1. Tools

- Lifting Straps or Chain
- Concrete SDS Hammer Drill with Concrete Bits: 3/8" x 10", 1/2" x 6", and 5/8" x 10" (min) (2 each, rebar style bit recommended)
- Impact Driver
- Drill with Bit Assortment Kit (up to 5/8”)
- Hammer/Short Sledge Hammer/ 2lb Hammer
- Wrench and Socket Set (7/16”, 1/2”, 9/16”, 3/4”)
- Pry Bar or Drift Pin
- Measuring Tape
- Permanent Marker or Grease Pen
- I-Beam Level (4 foot)
- Ladder
- PPE and Fall Protection
- Generator (if needed)
- Extension Cords (if needed)
- Portable Ventilation Fan (if needed)
- 4 Gas Air Monitor (if Confined Space)
- Tripod With Wench (if Confined Space)

2. General Installation Procedures

2.1. Site Preparation

Excavation should be completed prior to NSBB delivery. Refer to construction documents for details on unit size and excavation depth. The excavation area should be level and allow for adequate access to external lift points and external pipe connections. Sloping must meet OSHA requirements.

2.2. Delivery & Unloading

Verify that offloading equipment is rated for NSBB weight as noted on construction documents prior to delivery. NSBB vaults will be delivered on flatbed trucks. NSBB are lifted by the embedded lifers. Refer to construction documents for exact location of lifters.

2.3. Installation Sequence

A. Set NSBB base sections in the compacted level excavation. Install and grout the first and second Baffle Walls. Refer to Submittal Drawing for installation sequence.

B. Install Internal Components as described in Section 3.

C. Set top clamshell/sectional sections on the base sections. Refer to Submittal Drawing for installation sequence. If top slab requires minor adjustment, shim and secure with high strength non-shrink grout or concrete collar.

D. Install Floating Skimmer as described in Section 3.6, following OSHA requirements.

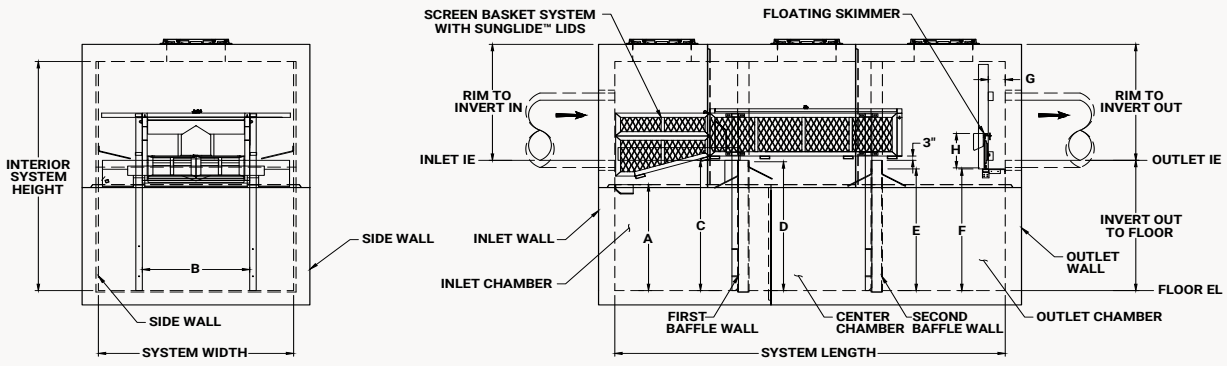
E. After installing the vault, make the pipe connections. Refer to construction documents for pipe location and size. Oversized holes to accommodate specific pipe type must be concentric to pipe inside diameter. After pipes are installed, all annular spaces shall be filled with a minimum of 3000 psi concrete for full thickness of precast walls. Pipes are to be flush with the inside surface of the concrete structure.

F. Finish the installation by backfilling with native soil (or engineered backfill if required per the construction documents).

3. Internals Installation Procedures

Refer to the project-specific approved Submittal Drawing for system layout, configuration, and relevant dimensions. Figure 1 displays dimensions (noted as A, B, etc.) on the Submittal Drawing that are relevant to the Internals installation procedure.

Figure 1



Reference Dimension	Description
A	Inlet Chamber - Front Deflector Tray
B	Inlet & Center Chamber - Support Legs
C	Inlet Chamber - Rear Deflectors and Disperser
D	Center Chamber - Front Deflector
E	Center & Outlet Chamber - Rear Deflector
F	Outlet Chamber - Skimmer Shelf
G	Outlet Chamber - Skimmer Wall Track

3.1. Overview

A. Remove all components and hardware from the pallet and inside the Main Basket assembly, as shipped.

B. Inspect and verify all parts are accounted for (refer to Packing List).

C. Proceed with the installation sequence outlined below. Reference the Components section and Figure 1, as needed.

D. Note that all Deflectors and Skimmer Tracks have two pre-drilled holes for anchors but only one anchor per location is required. The alternate hole should be used if rebar is encountered.

3.2. Inlet Chamber

A. Front Deflector tray

1. Reference the Submittal Drawing for the Figure 1, Dimension A. Using this dimension, measure up from the floor to mark a line across the Inlet Wall.
2. Using a level (for plumb) mark the Center Line down the face of the Inlet Wall.
3. Using these two reference lines, set the Front Deflector Tray centered on the Inlet wall to mark one hole on each side of the tray.
4. Set the Front Deflector Tray aside and drill 1/2” holes at each marked location. Install the Front Deflector Tray using the supplied 1/2” Anchor Bolts at the marked locations. Then, finish installing the additional Anchor Bolts along entire length of Deflector Tray, one for each set of two holes.

B. Support legs

1. Measure across the front of the first Baffle Wall and mark a Center Line. Using a level (for plumb) mark the Center Line down the face of the Baffle Wall.
2. Reference the Submittal Drawing for the Figure 1, Dimension B. Divide this dimension by two and measure and mark this dimension to the left and right of the Center Line. Using a level (for plumb) mark a left and right Mark Line down the face of the Baffle Wall.
3. One at a time, hold a Support Leg at each of the offset Mark Lines. The lines will be to the inside of the Support Legs. Important: The tapered end of the Support Leg is the bottom and sets against the Baffle Wall.
4. Once aligned with offset Mark Line on the baffle wall, mark the two sets of hole locations for the Support Leg.
5. Set Support Leg aside and drill 5/8” holes (straight and level) through the Baffle Wall at the marked locations.
6. Place Support Leg in position and push the two ½” long threaded bolts through Baffle Wall.
7. Install flat and lock washer to backside of bolts and loosely tighten.
8. Repeat Steps 3 through 7 for second Support Leg.
9. Once both Support Legs are installed and loosely tightened, measure the distance between them at the top and bottom of the baffle wall. Level as need to match Dimension B, and then tighten the four nuts, bolts and washers.

C. Deflectors and Disperser

1. Reference the Submittal Drawing for the Figure 1, Dimension C. Using the Center Line marked on the First Baffle Wall in Step B.1, center the V shaped Inlet Disperser to Dimension C on the Baffle Wall.
2. Mark one hole on each side at the pre-drilled mounting hole locations. Then set piece aside and drill ½" holes at each mark.
3. Attach the Disperser to the wall using the supplied ½" anchor bolts (loosely).
4. Slide Inlet deflector under the Disperser and center it.
5. Mark one hole at each set of two predrilled holes in the deflector. Then set deflector aside and drill ½" holes at each mark.
6. Using supplied ½" anchor bolts, attach Deflector to Baffle Wall and tighten. Then tighten Disperser anchor bolts.
7. Mark lines across the Baffle Wall from the Support Legs to the side of structure at the level of the middle Deflector.
8. Using the same attachment procedure noted above for the middle Deflector, install the two short Deflectors to the Baffle Wall, one on each side.

3.3. Center Chamber

A. Front Deflector

1. Measure across the back of the first Baffle Wall and mark a Center Line.
2. Reference the Submittal Drawing for the Figure 1, Dimension D. Using this dimension measure up from the floor to the Center Line.
3. Using a level mark a line across the Baffle Wall.
4. Center and hold in place the Deflector pieces to mark the pre-drilled hole locations for the Deflectors.
5. Set Deflector aside and drill ½" holes at each marked location.
6. Using supplied ½" Anchor Bolts, attach Deflector to baffle wall and tighten.

B. Support Legs - Repeat Steps 3.2.B from Inlet Chamber Support Legs to install Support Legs to the front side of the Second Baffle Wall in this chamber.

C. Back Deflector

1. Measure across the face of the second Baffle Wall and mark a Center Line.
2. Reference the Submittal Drawing for the Figure 1, Dimension E. Using this dimension measure up from the floor to the Center Line.
3. Using a level mark a line across the Baffle Wall, around the Support Legs.

4. Center and hold in place the Deflector pieces to mark the pre-drilled hole locations for the large Deflector between the Support Legs and the two small Deflectors on the outside of the Support Legs.
5. Set Deflector aside and drill ½" holes at each marked location.
6. Using supplied ½" Anchor Bolts, attach Deflector to baffle wall and tighten.

3.4. Outlet Chamber

A. Front Deflector

1. Measure across the back of the first Baffle Wall and mark a Center Line.
2. Reference the Submittal Drawing for the Figure 1, Dimension E. Using this dimension measure up from the floor to the Center Line.
3. Using a level mark a line across the Baffle Wall.
4. Center and hold in place the Deflector pieces to mark the pre-drilled hole locations for the Deflectors.
5. Set Deflector aside and drill ½" holes at each marked location.
6. Using supplied ½" Anchor Bolts, attach Deflector to baffle wall and tighten.

B. Skimmer Wall - This will be installed after top Top section is set in place, see Section 3.6.

3.5. Screen Basket System -The Screen Basket System consists of the Screen Basket Lead-In, the Main Basket, and the SunGlide™ Lid.

A. Screen Basket Lead-In – If the Screen Basket Lead-In is not already attached to the Main Basket, attach the Lead-in assembly to the Main Basket assembly with hardware provided.

B. Main Basket

1. Take four 6" x 3" pieces of wood, and place one just inside each support leg on top of the baffle walls. This establishes the 3" gap required between basket assembly bottom and top of baffle wall.
2. Lift the Main Basket assembly with appropriate lifting device (i.e. crane) by attaching the lifting device to the four lifting U-bolts pre-installed on the Main Basket assembly: two on the upper front and two on the rear upright supports.
3. Lower the Main Basket into the structure between support legs, being sure to center it between the two sets of Support Legs, with the front edge of the inlet Lead-in assembly at front edge of structure.
4. Once in place and supported by the wood spacers, check for hole alignment on the side of the Main Basket assembly and the Support Legs. These should be to each side of the Support Legs top and bottom. Adjust basket assembly, as needed.
5. Check that Support Legs are not taller that the Main Basket assembly. If taller, confirm the 3" gap, per Step 1. There is a allowable half-inch tolerance for additional adjustment up.

6. Using the supplied U-shaped brackets and hardware, attach the brackets over Support Legs and attach to Main Basket assembly. Note: This will require two people, with one being outside the Main Basket assembly and one being inside the assembly.
7. Open and close the floor doors of the Main Basket and the Lead-in to assure proper function.

C. SunGlide™ Lid

1. Attach Lid Front Track to top of Main Basket using supplied hardware.
2. Set both Lid Doors into track with locking latch facing towards the Outlet.
3. Attach Lid Rear Track to top of Main Basket using supplied hardware.
4. Check doors for proper alignment and smooth sliding operation. Close and lock doors, and then tighten all track hardware.
5. Install the Pylon (V-shaped flow spreader) onto the floor of the Main Basket, at the front flat edge (indicated by the two pre-drilled hole locations), using the supplied hardware already attached to the bottom of the Pylon
6. Attach the Pivoting Panel behind the Pylon to the upper angle bar across top of Main Basket. When installed the Pivot Panel should freely swing into the Main Basket.

3.6. Floating Skimmer -The Floating Skimmer consists of three main components: Skimmer Shelf, Skimmer Track, and Fiberglass Floating Skimmer. It is installed after the top sections are installed.

A. Skimmer Shelf

1. Reference the Submittal Drawing for the Figure 1, Dimension F. Using this dimension, measure up from the floor to mark a line across the Outlet wall.
2. To install the Skimmer Shelf, first install the Angle-Rear, using the included ½" anchor bolts, with solid side of the angle facing up and pre-drilled holes against the Outlet wall. Install it centered along the line marked in preceding step.
3. Set the Skimmer Platform (green fiberglass piece) on top of the Angle-Rear just installed, with the pre-attached Crossbeam towards the inlet side of the structure. Assure the Skimmer Platform is level and mark lines on both side walls along the front edge and bottom of the Crossbeam. Set Skimmer Platform aside.
4. Place the Crossbeam Support Angle at the lines marked in preceding step and anchor one each to both side walls using the provided ½" anchor bolts.
5. Place the Skimmer Platform on the Angle-Rear installed on the Outlet wall and Crossbeam Support Angles installed on the side walls.
6. Drill and attach the outlet side of the Skimmer Shelf Platform to the Angle-Rear using provided hardware, with bolts spaced evenly.

B. Skimmer Track

1. Measure the length of the long Skimmer Track. Important: If Skimmer Tracks are longer than the distance from inside top of structure to marked line (in Step 1), tracks will need to be cut to fit.
2. Install the left Skimmer Track on top of the inlet side of the Skimmer Shelf in the square portion that already has the fiberglass removed. The Skimmer Track is installed with the long mounting angle facing the inlet side and the two shorter mounting angles on the outlet side. Reference the Submittal Drawing for Figure 1, Dimension G for the distance between the Outlet wall and back of the Skimmer Track (typically 10.5”).
3. Use a Level to assure track is installed plumb. Mark one hole for each of the rear mounting angles on the Track. Both holes are not needed to secure.
4. Drill holes for the ½” anchor bolts provided and attach Skimmer Track with ½” anchor bolts provided.
5. Repeat Septs 7 through 9 for the right Skimmer Track installation.
6. Locate the two holes in the base of the track and drill the two ¼ holes through the crossbeam-support and attach using provided ¼” hardware.
7. Set the shorter Removable Angle of the Skimmer Track under the installed inlet face of the Skimmer Track to create a continuous channel for the Floating Skimmer.
8. Mark one hole for each of the mounting tabs on the rail piece and then drill holes for anchor bolts.
9. Attach short Removable Angles with the ½” anchor bolts provided.
10. Remove short Removable Angles for Floating Skimmer installation.

B. Floating Skimmer

1. Lift and place the Floating Skimmer on the Skimmer Shelf up against the Skimmer Track. The red plastic floats on the Float Skimmer should be at the top and facing the Inlet side.
2. Once the Floating Skimmer is set in place install the short Removable Angles of the Skimmer Track.
3. Slide the Floating Skimmer up and down to assure it slides freely.

Warranty

Warranty Information

Oldcastle Infrastructure products are engineered and manufactured with the intent of being a permanent part of the infrastructure. Oldcastle Infrastructure warranties its products to be free from manufacturing defects for a period of 5 years from the purchase date. In the event a warranty claim is made and determined to be valid, Oldcastle Infrastructure will replace or repair the product at their own discretion. Warranty claims must be submitted, evaluated and approved by Oldcastle Infrastructure for the claim to be determined valid. All warranty work must be authorized by Oldcastle Infrastructure prior to work beginning not covered by this warranty. There are no warranties expressed or implied other than what is specified herein. Abusive treatment, neglect or improper use of the Nutrient Separating Baffle Box will not be covered by this warranty.

Contact Information

General Inquires

For additional information concerning installation, general usage, maintenance products, warranties or replacement parts please contact:

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