THE EVOLUTION OF INFILTRATION

THREE INDIANAPOLIS CASE STUDIES

★ TRADITIONAL DITCHES
★ HYBRID DITCHES
★ HYBRID DITCHES NOW WITH PARKING
HYBRID DITCH

BEST OF BOTH WORLDS (PIPES & DITCHES)

☑ INFILTRATION
HYBRID DITCH

BEST OF BOTH WORLDS (PIPES & DITCHES)

- INFILTRATION
- STORAGE
HYBRID DITCH

BEST OF BOTH WORLDS (PIPES & DITCHES)

- INFILTRATION
- STORAGE
- EFFICIENT CONVEYANCE OF STORM WATER
HYBRID DITCH

BEST OF BOTH WORLDS (PIPES & DITCHES)

- INfiltration
- Storage
- Efficient conveyance of storm water
- Shallower slopes
TRADITIONAL DITCHES

✅ TIME TESTED
TRADITIONAL DITCHES

- TIME TESTED
- LESS EXPENSIVE THAN PIPE
TRADITIONAL DITCHES

- Time Tested
- Less expensive than pipe
- Ditches side slope is steep
TRADITIONAL DITCHES

- Time tested
- Less expensive than pipe
- Ditches side slope is steep
- Filled in over time
Lessons learned

HYBRID DITCHES

✔ WASHED STONE

SEED AND MULCH

6" MIN. TOP SOIL

3:1 MAX

"B" BORROW BACKFILL
COMPACT IN 6" LIFTS

FOR TRENCHES LESS THAN
5" NON-WOVEN FILTER CLOTH
BURIED BETWEEN SOIL &
#8 STONE. MIN. 6" OVERLAP

WASHED #8 INITIAL BACKFILL
WASHED #8 HAND TAMPEO OR
WALKED INTO PLACE

6" MINIMUM

MINIMUM 12" SLOTTED HDPE
CLASS 1 PIPE STORM SEWER
SUBSURFACE DRAIN

6" OF WASHED
#8 STONE BEDDING

FOR TRENCHES GREATER THAN
5" NON-WOVEN FILTER CLOTH
SOCK COVERING SLOTTED
HDPE PIPE
Lessons learned

HYBRID DITCHES

✅ WASHED STONE
✅ NON-WOVEN WRAP
Lessons learned

HYBRID DITCHES

✔ WASHED STONE
✔ NON-WOVEN WRAP
✔ TOP SOIL FREE OF CLAY

- **SEED AND MULCH**
  - 6" MIN. TOP SOIL
  - 3:1 MAX

- **WASHED #8 INITIAL BACKFILL**
  - WASHED #8 HAND TAMMED OR WALKED INTO PLACE
  - 6" OF WASHED #8 STONE BEDDING

- **FOR TRENCHES LESS THAN 5' NON-WOVEN FILTER CLOTH BURIED BETWEEN SOIL & #8 STONE. MIN. 6" OVERLAP**
  - 6" MINIMUM

- **MINIMUM 12" SLOTTED HDPE CLASS 1 PIPE STORM SEWER SUBSURFACE DRAIN**

- **FOR TRENCHES GREATER THAN 5' NON-WOVEN FILTER CLOTH SOCK COVERING SLOTTED HDPE PIPE**
Lessons learned

HYBRID DITCHES

- Washed Stone
- Non-Woven Wrap
- Top Soil Free of Clay

Biodegradable Erosion Control Matting
Lessons learned

HYBRID DITCHES

PIPE OFFSET
FOR SHALLOW AREA

3:1 MAX.
SEED AND MULCH
6" MIN. TOP SOIL
3:1 MAX.

NON-WOVEN FILTER CLOTH
MIN. 6" OVERLAP
ENVELOPING #8 STONE

WASHED #8 INITIAL BACKFILL
WASHED #8 HAND TAMPERED OR WALKED INTO PLACE

6" OF WASHED #8 STONE BEDDING

6"
SLOTTED HDPE CLASS 1 PIPE
STORM SEWER SUBSURFACE DRAIN

6" BERM
PAVEMENT
Lessons learned
HYBRID DITCHES

UTILITY WRAPPING IN STONE

INfiltration Trench with Permeable Pavers | Alternate A

- **1" Concrete Containment Border**
- **6'0" x 1' x 1' x 2' x 6' x 4' Varies**
- **"B" Borrow Backfill**
- **3" 50/50 Topsoil Mix and Mulch Seeding**
- **3:1 (Typ) Slope Varies**
- **NO Subgrade Compaction Under Infiltration Trench**
- **12" Perforated HDPE Pipe Connected to Existing Closed Storm Sewer System**

**Permeable Pavers**
- **3 1½" Permeable Pavers on 3" Sand Bedding on 12" Washed No. 8 Stone Base on 24" Min. No. 2 Stone Subbase**

**Note:** Permeable Pavers are an alternate bid item and are not presently in the project. Detail is provided for information purposes only.
Lessons learned

HYBRID DITCHES

- **Utility Wrapping in Stone**
- **Pavers if Swept Regularly Have a Longer Life Span**

Infiltration Trench with Permeable Pavers | Alternate A

- 1" Concrete Containment Border
- 6'-0" Varies
- "B" Borrow Backfill
- 3'-0" 50/50 Topsoil Mix and Mulch Seeding
- 2'-0" Varies

Proposed Pavement
Compacted Subgrade
Geotextile Fabric

No Subgrade Compaction under Infiltration Trench

12" Perforated Hose Pipe (Connected to Existing Closed Storm Sewer System)

Permeable Pavers
3 1/8" Permeable Pavers on
3" Sand Bedding on
12" Washed No. 8 Stone Base on
24" Min. No. 2 Stone Subbase

Note:
Permeable Pavers are an Alternate Bid Item and are Not Presently in the Project. Detail is Provided for Information Purposes Only.
OPERATION AND MAINTENANCE

EVERY TYPE NEEDS IT!

DITCHES CLEARED OUT
OPERATION AND MAINTENANCE

EVERY TYPE NEEDS IT!

PIPE CLEANING WHEN FAILURE

HYBRID DITCHES
OPERATION AND MAINTENANCE

EVERY TYPE NEEDS IT!

HYBRID DITCHES
CORRECT MATERIAL ON TOP

1' CONCRETE CONTAINMENT BORDER

5' BORROW BACKFILL

2' x3' TOPSOIL MIX AND MULCH SEEDING

SLOPE VARIES

PROPOSED PAVEMENT

COMPACTED SUBGRADE

GEOTEXTILE FABRIC

G

INPUT

NO SUBGRADE COMPACTION UNDER INFILTRATION TRENCH

12' PERFORATED HDPE PIPE (CONNECTED TO EXISTING CLOSED STORM SEWER SYSTEM)

EXISTING GROUND

6' MIN.

6'

6' MIN.
OPERATION AND MAINTENANCE

EVERY TYPE NEEDS IT!

- Ditches: Cleared Out
- Hybrid Ditches: Pipe Cleaning When Failure
- Hybrid Ditches: Correct Material on Top
CONCLUSION

ADD IT TO YOUR STORM WATER TOOL BAG!
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