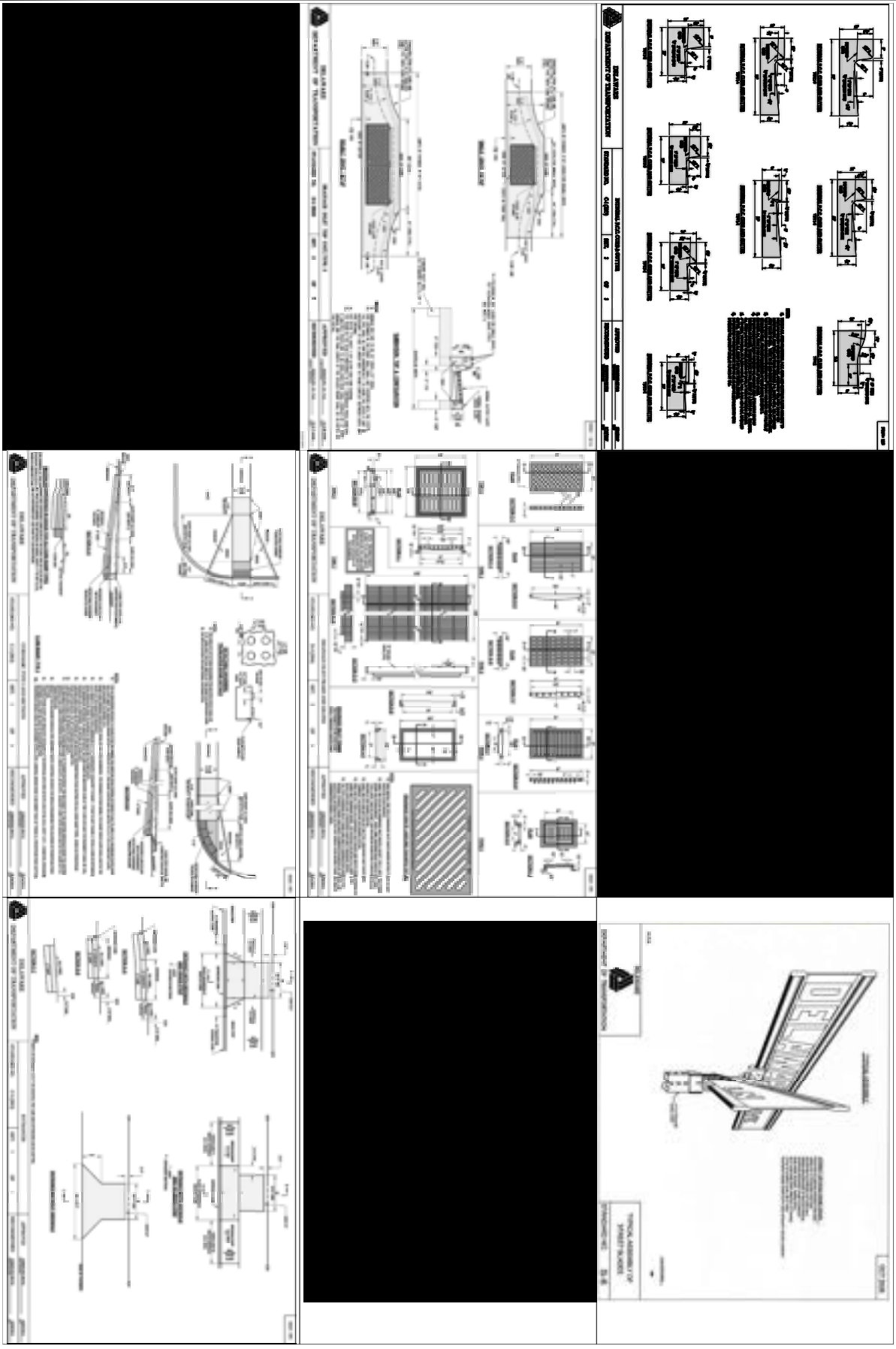

DETAILS (SHEET 1 OF 7)

FOR

MILLVILLE BY THE SEA

SUMMERWIND CONNECTOR

BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

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REVISION	DATE	DESCRIPTION
1	2/18/21	REVISED PER GMB COMMENTS DATED 12/22/20
2	05/06/21	REVISED PER GMB COMMENTS DATED 04/06/21
3	07/26/21	REVISED TO UPDATE CATCH BASINS

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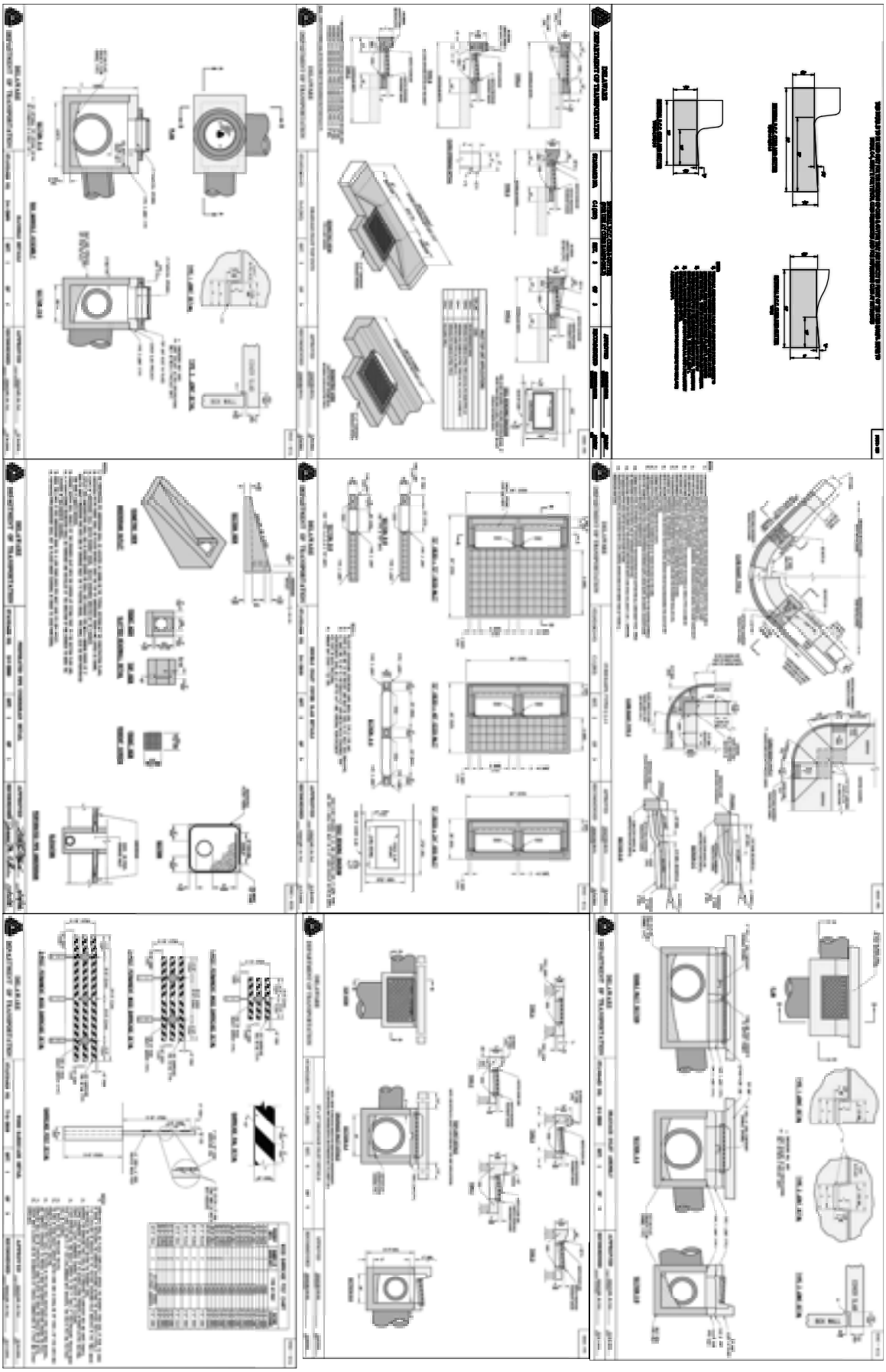
DATE: NOVEMBER 16, 2020
DESIGNED BY: YMR
APPROVED BY: RHS
TITLE: P20045-DETAILS.dwg
SHEET NO.: D-1



DETAILS (SHEET 2 OF 7)

FOR

MILLVILLE BY THE SEA

SUMMERWIND CONNECTOR

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SUSSEX COUNTY, DELAWARE

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Trench Construction

- Information provided in this pocket installation guide is intended as a quick reference only and does not supersede requirements specified on project plans.
- The trench or ditch should be wide enough to place and compact backfill around the entire pipe.
- Refer to Table 2 for recommended minimum trench widths. The design engineer may modify the trench width based on site specific conditions.

Table 2:

Minimum Trench Widths	
Pipe Diameter in. (mm)	Trench Width in. (m)
4 - 8 (100 - 200)	*
10 (250)	28 (0.7)
12 (300)	30 (0.8)
15 (375)	34 (0.9)
18 (450)	39 (1.0)
24 (600)	48 (1.2)
30 (750)	56 (1.4)
36 (900)	64 (1.6)
42 (1050)	72 (1.8)
48 (1200)	80 (2.0)
54 (1350)	88 (2.2)
60 (1500)	96 (2.4)

*Usually dependent on smallest bucket size available.

Backfill Recommendations

Plastic pipe and a well-constructed backfill envelope work together to support soil and traffic loads. Correct installation will ensure long-term trouble-free service for all types of pipe systems.

Backfill Material Selection

- Provided the plans meet minimum recommendations as stated in Table 4, they should take precedence.
- Locally available materials may be acceptable for backfill use, but must meet one of the acceptable soil classifications outlined in Table 4.
- Class I materials can be dumped around pipe. Voids must be eliminated by knifing under and around pipe or by some other technique.
- Non-cohesive sand, sand/gravel mixes and other Class II and III materials must be compacted to a minimum of 85% and 90% standard Proctor density, respectively.
- Inorganic silts, and gravelly, sandy or silty clays, and other Class IV materials are not permitted.
- Flowable fill is another acceptable backfill material. Misalignment or flotation may occur unless added precautions are taken, such as anchoring the pipe or pouring the flowable fill in lifts.
- See appendix for references to additional product specific resources that may be used when installing corrugated plastic pipe.

Table 4:

Acceptable Backfill Material and Compaction Requirements				
	Soil Classifications			Minimum Standard Proctor Density %
Description	ASTM D2321	ASTM D2487	AASHTO M43	
Graded or crushed, crushed stone, gravel	Class I	-	5 56	Dumped
Well-graded sand, gravels and gravel/sand mixtures; poorly graded sand, gravels and gravel/sand mixtures; little or no fines	Class II	GW GP SW SP	57 6	85%
Silty or clayey gravels, gravel/sand/silt or gravel and clay mixtures; silty or clayey sands, sand/clay or sand/silt mixtures	Class III	GM GC SM SC	Gravel and sand (<35% fines)	90%

* Layer heights should not exceed 1/3 the pipe diameter. Layer heights may also need to be reduced to accommodate compaction method.

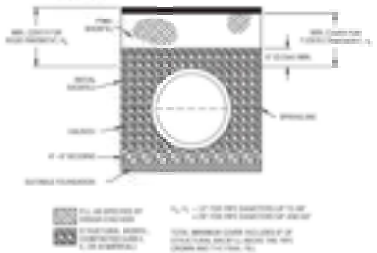
Groundwater or Surface Runoff

When groundwater or surface runoff is present in the work area, dewater to maintain stability of native and imported materials. Maintain water level below pipe foundation to provide a stable trench bottom.

Backfill Envelope Construction

- If native soil cannot carry load, import, compact and level adequate bedding material as in Figure 5.
- Figure 5 represents typical trench construction applicable to all products. See appendix for references to additional product specific resources.

Figure 5:



- Place and compact backfill in layers to meet requirements of Table 4 and project requirements. Note that the large diameter pipes may require layer heights less than those indicated in the table to achieve proper compaction.
- Avoid impacting pipe with compaction equipment.
- 4" - 48" (100-1200mm) single pipe runs receiving H-25 traffic requires final backfill 6" (0.15m) above initial backfill to provide at least 12" (0.3m) of total cover as measured from the top of pipe to bottom of flexible pavement or to top of rigid pavement.
- 54" (1350mm) and 60" (1500mm) single pipe runs receiving H-25 traffic require final backfill 18" (0.5m) above initial backfill to provide at least 24" (0.6m) of total cover as measured from top of the pipe to the bottom of flexible pavement or to top of rigid pavement.
- Minimum cover may be reduced in areas with no or infrequent light traffic. These situations must first be reviewed by the pipe manufacturer.

NOTES:

1. THE DETAILS ON THIS SHEET ARE FOR USE IN STORMWATER INSTALLATION.
2. ALL STORMDRAIN MATERIALS ARE TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

REVISIONS

REVISION	DATE	DESCRIPTION
1	2/18/21	REVISED PER GMB COMMENTS DATED 1/22/220
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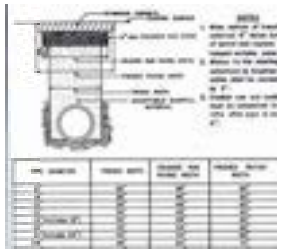
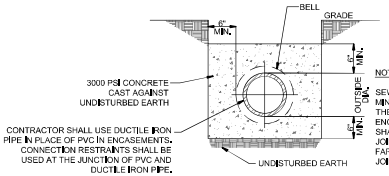
DETAILS (SHEET 3 OF 7)
FOR
MILLVILLE BY THE SEA
SUMMERWIND CONNECTOR
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

DATE: NOVEMBER 16, 2020
DESIGNED BY: YMR
APPROVED BY: RHS
FILE: P20043-DETAILS.dwg
SHEET NO.: **D-3**

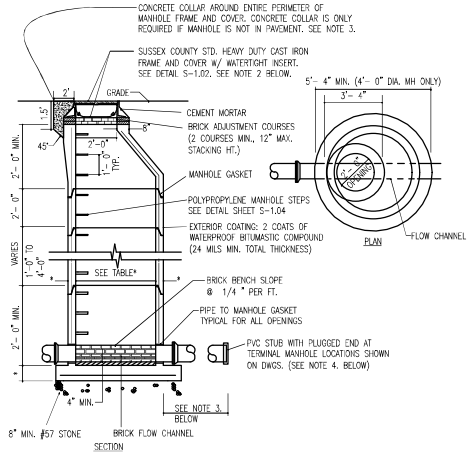


SANITARY SEWER TRENCH DETAIL
N.T.S.



ENCASEMENT DETAIL
N.T.S.

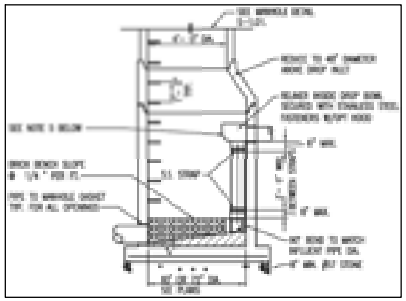
NOTE:
SEWER ENCASEMENT SHOULD BE A MINIMUM OF 10' BEYOND BOTH SIDES OF THE CONFLICT, OR AS DIRECTED BY ENGINEER, IN LENGTH. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUAL DISTANCE AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.



NOTES:
1. MANHOLE SHALL CONFORM TO ASTM C-478.
2. FOR MANHOLES LOCATED IN DELDOT ROADWAYS, THE FRAME AND COVER SHALL BE LOCATED OUTSIDE OF THE WHEEL PATH WHENEVER POSSIBLE. PROVIDE INDIVIDUAL CUTSHEETS FOR ALL MANHOLES INSTALLED WITHIN DELDOT ROADWAYS.
3. CONCRETE PAD DIMENSIONS ALSO APPLY FOR TERMINAL CLEANOUTS WHEN TERMINAL CLEANOUTS ARE NOT IN PAVED ROADWAYS. ALL CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. COUNTY INSPECTOR WILL DETERMINE STUB LENGTH BASED ON FIELD CONDITIONS.

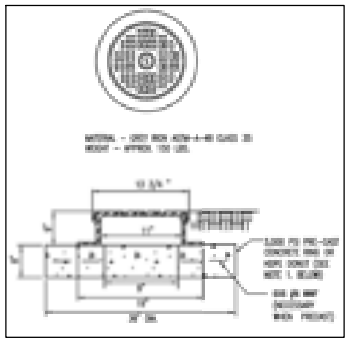
MANHOLE SIZE		
INSIDE DIAMETER R	WALL THICKNESS S	MANHOLE BASE
4'	5"	6"
5'	6"	8"
6'	7"	8"
7'	8"	12"

S-1.01: PRECAST CONCRETE MANHOLE
N.T.S.



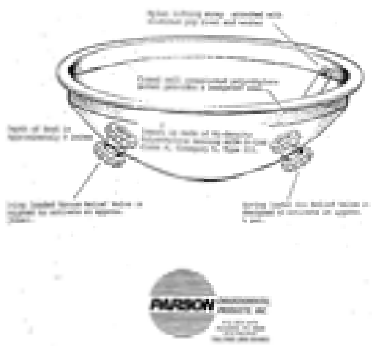
INSIDE DROP MANHOLE DETAIL
N.T.S.

NOTES:
1. STAINLESS STEEL STRAPS SHALL BE 1/8" X 1" MIN.
2. S.S. STRAP CONNECTORS SHALL BE EXPANSION BOLTS OR APPROVED EQUAL.
3. PROVIDE 72" DIAMETER MANHOLE WHEN TWO DROP CONNECTIONS OCCUR IN ONE MANHOLE.
4. A DROP MANHOLE IS NOT REQUIRED WHEN THE DIFFERENCE IN INVERTS IS 2' OR LESS. FOR DIFFERENCES IN INVERTS OF 2' OR LESS, PROVIDE A SMOOTH TRANSITION WITH THE FLOW CHANNEL.
5. INSTALL AN INSIDE DROP BOWL (NO HOOD) SECURED WITH STAINLESS STEEL FASTENERS.
6. A SECOND DROP SHALL BE PERMITTED IN AN EXISTING 60" DIAMETER MANHOLE.



8" CLEANOUT AND COVER
N.T.S.

NOTES:
1. HDPE COMPOSITE DONUT BASE SHALL BE SUBSTITUTED FOR CONCRETE RING IN NON-TAFFIC AREA. HDPE DONUT IS NOT ALLOWED IN TRAFFIC BEARING AREA.
2. METAL CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION.
3. SEWER MANHOLE LIDS INSTALLED IN PEDESTRIAN SIDEWALK AND/OR MULTIMODAL PATH MUST BE ADA COMPLIANT.



BOWL INSERT DETAIL
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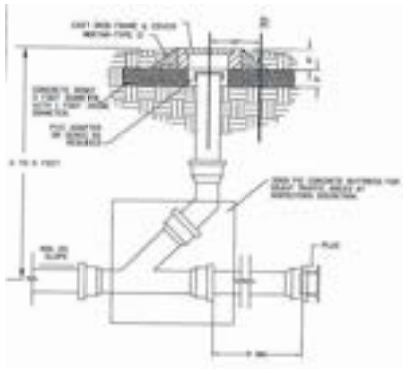
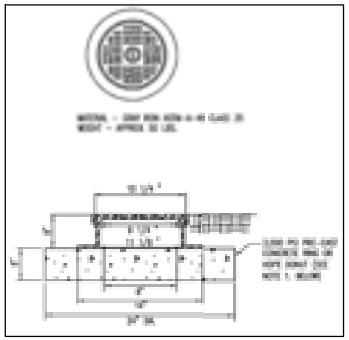


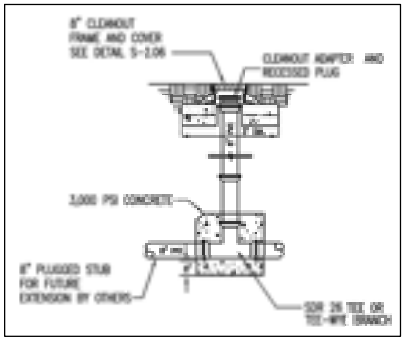
SEWER CLEANOUT DETAIL
N.T.S.

NOTES:
1. CAST IRON FRAME & COVER SHALL BE LL BE B-1140 FOR 4" & 6" CLEANOUTS.
2. 6" CLEANOUTS SHALL HAVE GENCO ADAPTERS AND B-1180 CAST IRON FRAME & COVERS.
3. ALL PIPING SHALL BE SDR-35 PVC.
4. MAINTAIN A 10' SEPARATION BETWEEN SEWER AND WATER.



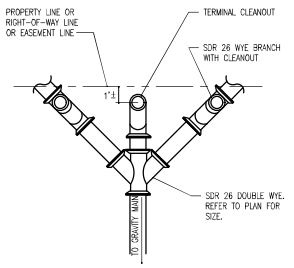
6" CLEANOUT AND COVER
N.T.S.

NOTES:
1. HDPE COMPOSITE DONUT BASE SHALL BE SUBSTITUTED FOR CONCRETE RING IN NON-TAFFIC AREA. HDPE DONUT IS NOT ALLOWED IN TRAFFIC BEARING AREA.
2. METAL CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION.
3. SEWER CLEANOUT LIDS INSTALLED IN PEDESTRIAN SIDEWALK AND/OR MULTIMODAL PATH MUST BE ADA COMPLIANT.



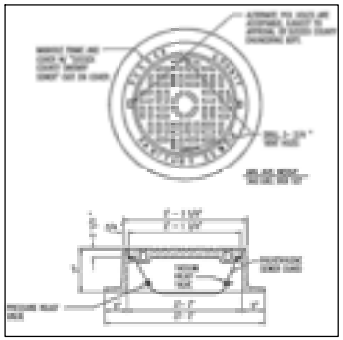
TEE CLEANOUT FOR FUTURE SEWER EXTENSIONS
N.T.S.

NOTES:
1. A MINIMUM OF 3" CLEARANCE SHALL BE PROVIDED BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
2. ALL INVERTS TO TEE-WYE CONNECTIONS SHALL BE FIELD SURVEYED FOR FINAL AS-BUILTS.



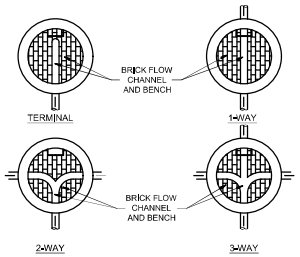
DOUBLE WYE CLEANOUT
N.T.S.

NOTE:
1. REFER TO SEWER CLEANOUT DETAIL FOR STANDARD AND SECTION.



S-1.02: MANHOLE FRAME AND COVER
N.T.S.

NOTES:
1. SEWER MANHOLE LIDS INSTALLED IN PEDESTRIAN SIDEWALK AND/OR MULTI-USE PATH MUST BE ADA COMPLIANT.



FLOW CHANNEL PATTERNS
N.T.S.

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DETAILS (SHEET 4 OF 7)
FOR
MILLVILLE BY THE SEA
SUMMERWIND CONNECTOR
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

DATE: NOVEMBER 16, 2020

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YMR	RHS

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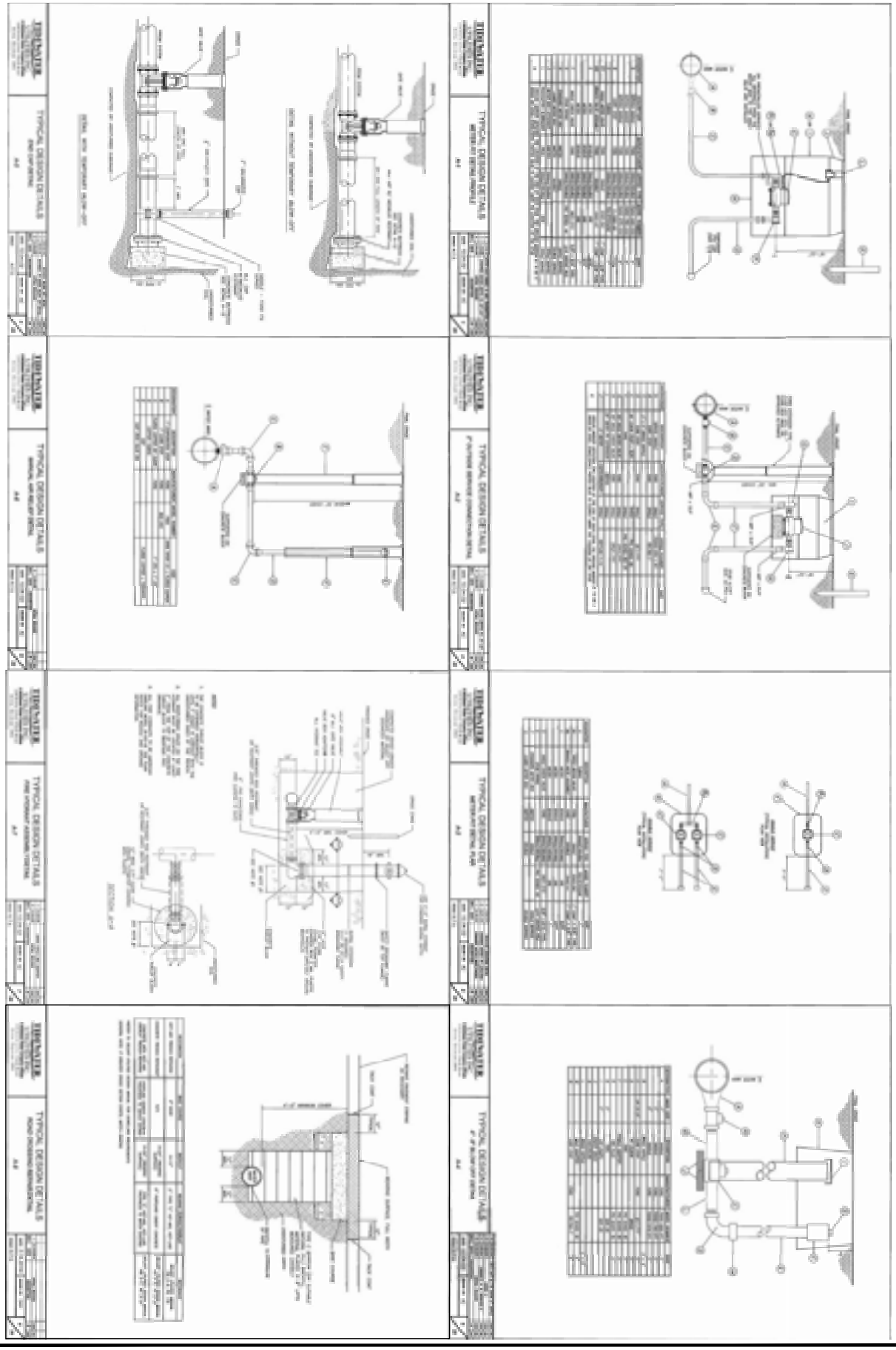

DETAILS (SHEET 5 OF 7)

FOR

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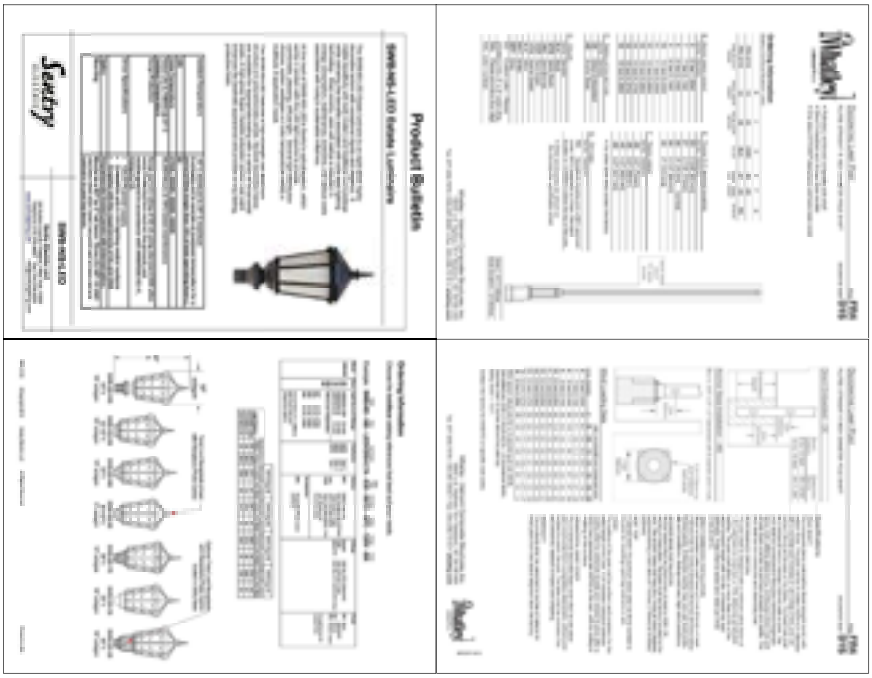
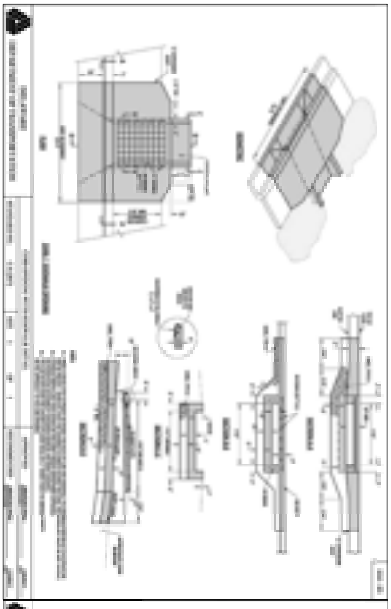
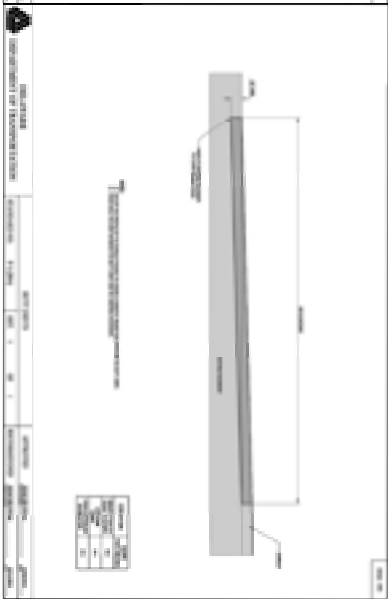
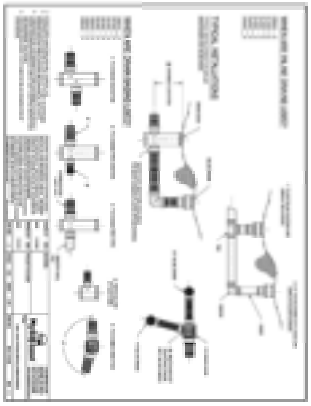

DETAILS (SHEET 7 OF 7)

FOR

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