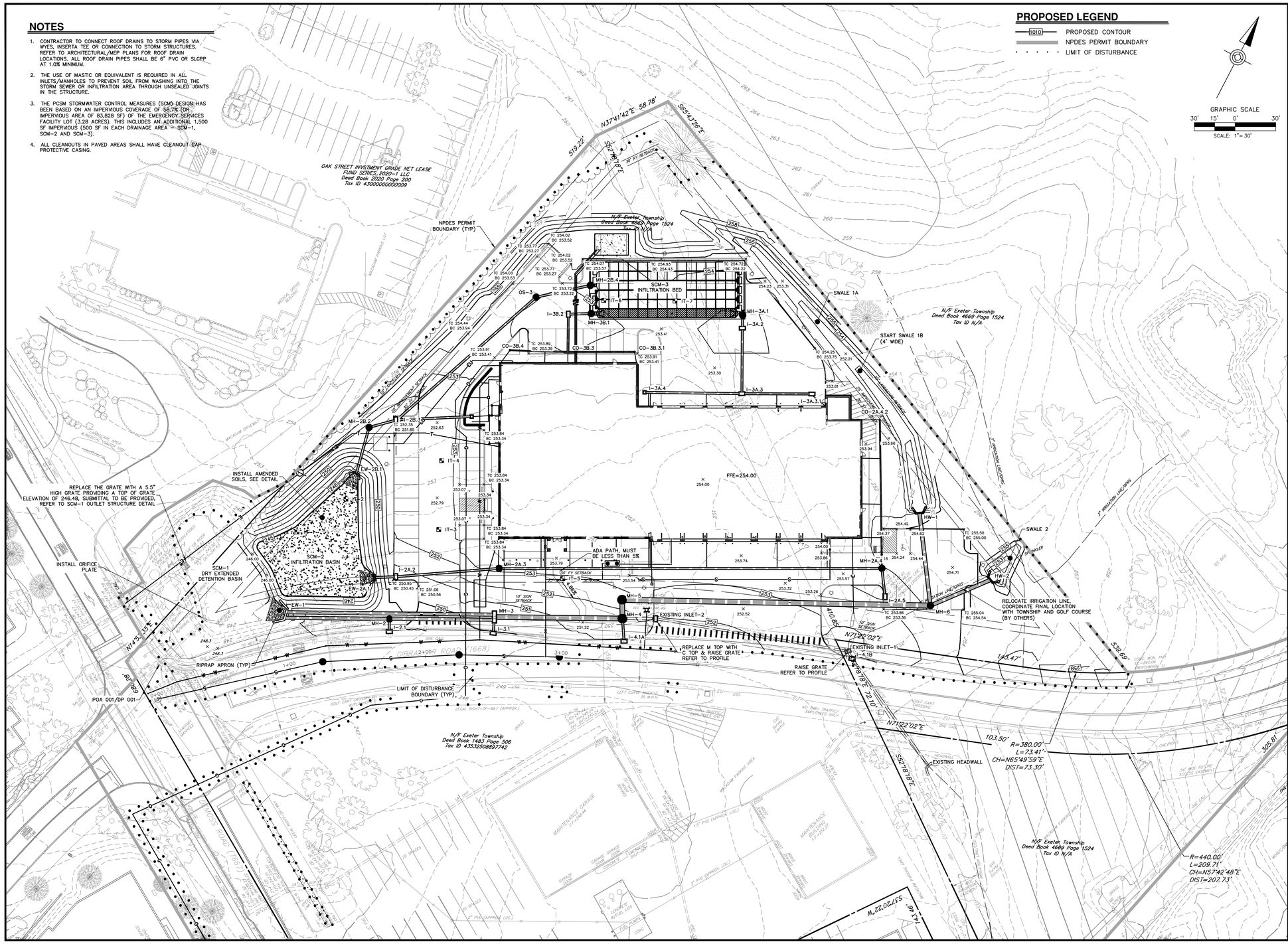
NOTES

1. CONTRACTOR TO CONNECT ROOF DRAINS TO STORM PIPES VIA WYES, INSERTA TEE OR CONNECTION TO STORM STRUCTURES. REFER TO ARCHITECTURAL/MEP PLANS FOR ROOF DRAIN LOCATIONS. ALL ROOF DRAIN PIPES SHALL BE 6" PVC OR SLCPP AT 1.0% MINIMUM.
2. THE USE OF MASTIC OR EQUIVALENT IS REQUIRED IN ALL INLETS/MANHOLES TO PREVENT SOIL FROM WASHING INTO THE STORM SEWER OR INFILTRATION AREA THROUGH UNSEALED JOINTS IN THE STRUCTURE.
3. THE PCSM STORMWATER CONTROL MEASURES (SCM) DESIGN HAS BEEN BASED ON AN IMPERVIOUS COVERAGE OF 58.7% (OR IMPERVIOUS AREA OF 83,828 SF) OF THE EMERGENCY SERVICES FACILITY LOT (3.28 ACRES). THIS INCLUDES AN ADDITIONAL 1,500 SF IMPERVIOUS (500 SF IN EACH DRAINAGE AREA — SCM-1, SCM-2 AND SCM-3).
4. ALL CLEANOUTS IN PAVED AREAS SHALL HAVE CLEANOUT CAP PROTECTIVE CASING.

PROPOSED LEGEND

- 1010 — PROPOSED CONTOUR
- NPDES PERMIT BOUNDARY
- LIMIT OF DISTURBANCE

GRAPHIC SCALE
30' 15' 0' 30'
SCALE: 1" = 30'



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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN FOR EMERGENCY SERVICES CENTER

EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606

EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

REVISIONS		
NO.	DATE	DESCRIPTION
1	2026.04.14	REV AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV AS PER 04/17/2026 BCCD COMMENTS
3	2026.05.15	REV AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGE/BID SET
5		
6		
7		
8		
9		

HRG PROJECT NUMBER: R006367.0427
PLAN DATE: 04/01/2026
DRAWING SCALE: 1"=30'
PROJ. MANAGER: DENNIS REICHEL

SHEET TITLE:
GRADING & PCSM PLAN

SHEET: GR-1 | 06

MW STUDIOS
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8098 SANDPIPER CIR, SUITE
NOTTINGHAM, MD 21236
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CONSULTANT:
HERBERT, ROWLAND & GRUBIC, INC.
1275 GLENLIVET DRIVE
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ALLENTOWN, PA 18106
610.351.0311 | hrg-inc.com

SEAL:

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — DENNIS J. REICHEL — ENGINEER NO. PE070761 — 10/01/2026

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER: 25-049

SUBMISSION: BID SET

ORIGINAL ISSUE DATE: 10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

REFERENCE PLAN

SHEET NUMBER:
C206

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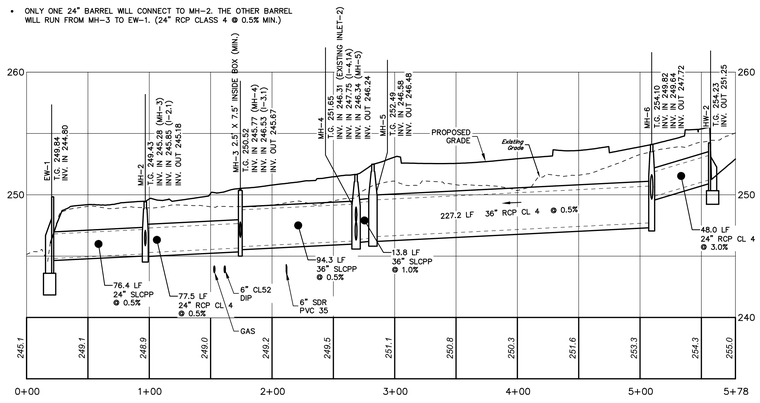
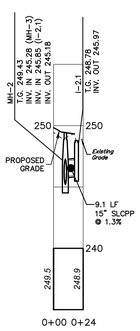
DUAL STORM PIPE NOTE

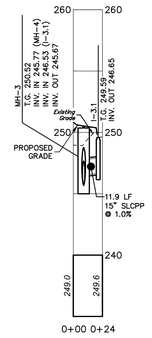
- ONLY ONE 24" BARREL WILL CONNECT TO MH-2. THE OTHER BARREL WILL RUN FROM MH-3 TO EW-1. (24" RCP CLASS 4 @ 0.5% MIN.)



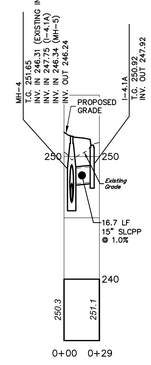
EW-1 TO HW-2



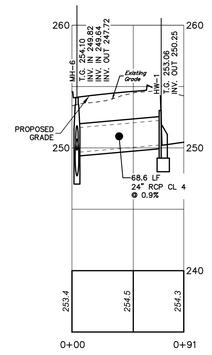
MH-2 TO I-2



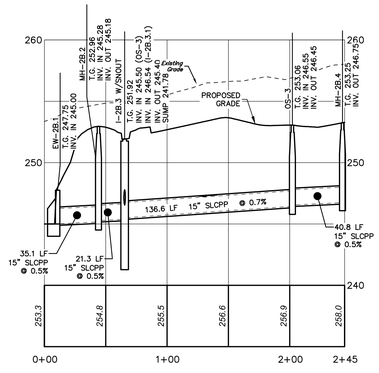
MH-3 TO I-3.1



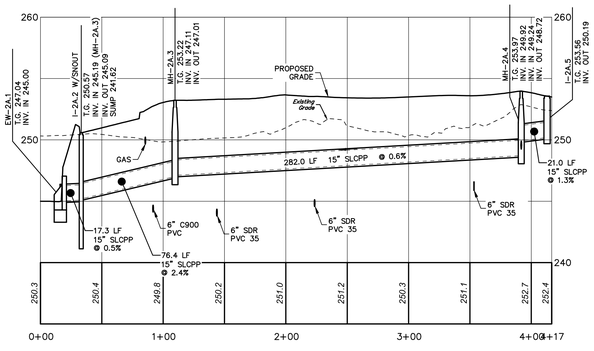
MH-4 TO I-4.1



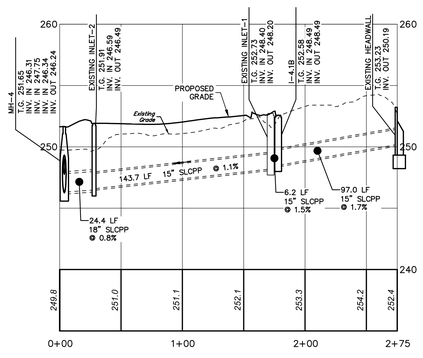
MH-6 TO HW-1



EW-2B.1 TO SCM-3



EW-2A.1 TO I-2A.5



EXISTING RUN

HORIZ: 50' 25' 0' 50'
VERT: 10' 5' 0' 10'
SCALE IN FEET

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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN FOR EMERGENCY SERVICES CENTER

EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606

EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

HRG PROJECT NUMBER:	R006367.0427
PLAN DATE:	04/01/2026
DRAWING SCALE:	AS SHOWN
PROJ. MANAGER:	DENNIS REICHEL

REVISIONS

NO.	DATE	DESCRIPTION
1	2026.04.14	REV AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV AS PER 04/20/2026 BCCD COMMENTS
3	2026.05.15	REV AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGE/BID SET
5		
6		
7		
8		
9		

SHEET TITLE:
STORM PROFILES

SHEET: PR-1 | 07

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CONSULTANT:

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SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DENNIS J. REICHEL
ENGINEER NO. PE070767
04/01/2026

EXETER TOWNSHIP EMERGENCY SERVICES FACILITY 70 GIBRALTER ROAD READING, PA 19606

PROJECT NUMBER:
25-049

SUBMISSION:
BID SET

ORIGINAL ISSUE DATE:
10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

REFERENCE PLAN

SHEET NUMBER:
C207

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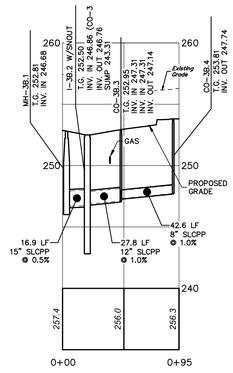
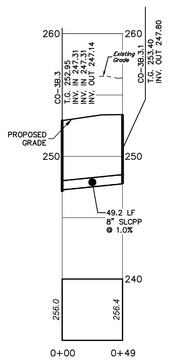
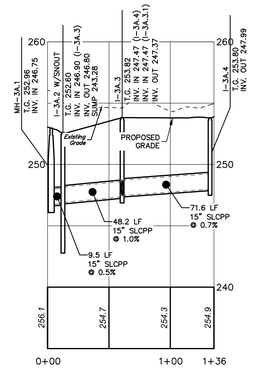


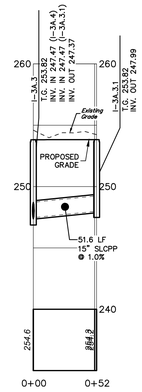
SCM-3 TO CO-3B.4



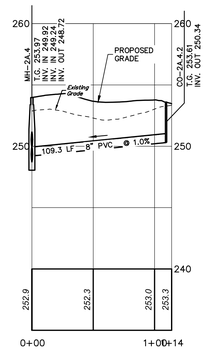
I-3B.3 TO CO-3B.3.1



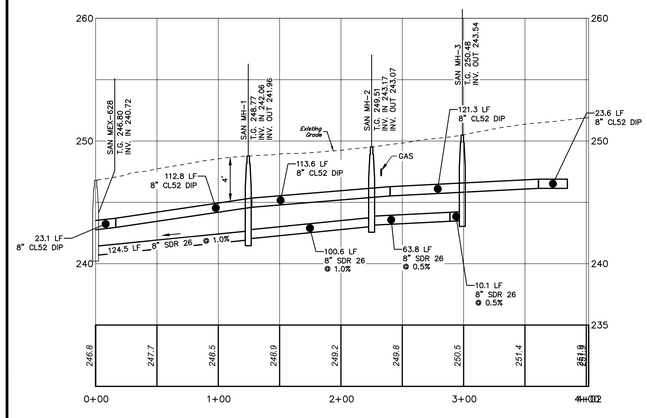
SCM-3 TO I-3A.4



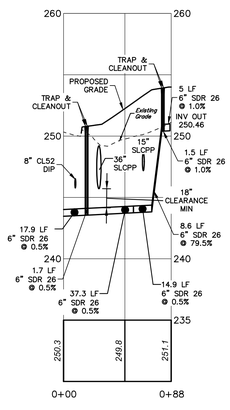
I-3A.3 TO I-3A.3.1



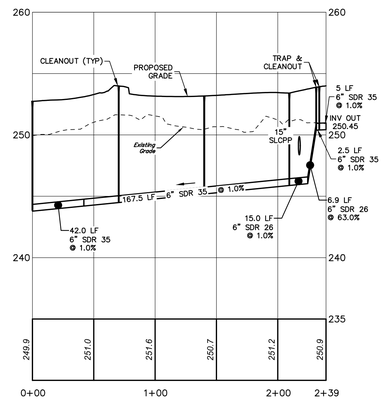
MH-2A.4 TO CO-2A.4.2



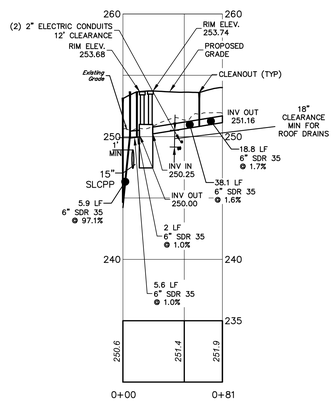
GIBRALTAR ROAD



LATERAL TO OFFICE



LATERAL TO EMS



LATERAL TO APPARATUS BAY

HORIZ: 50' 25' 0' 50'
VERT: 10' 5' 0' 10'
SCALE IN FEET

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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
FOR
EMERGENCY SERVICES CENTER
EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606
EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

HRG PROJECT NUMBER: R006367.0427
PLAN DATE: 04/01/2026
DRAWING SCALE: AS SHOWN
PROJ. MANAGER: DENNIS REICHEL

REVISIONS

NO.	DATE	DESCRIPTION
1	2026.04.14	REV. AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV. AS PER 04/17/2026 BCCD COMMENTS
3	2026.05.15	REV. AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGE/BID SET
5		
6		
7		
8		
9		

SHEET TITLE:
STORM AND SANITARY PROFILES

SHEET: **PR-2** **08**

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SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DENNIS J. REICHEL
ENGINEER
No. PE037767
10/01/2026

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER:
25-049

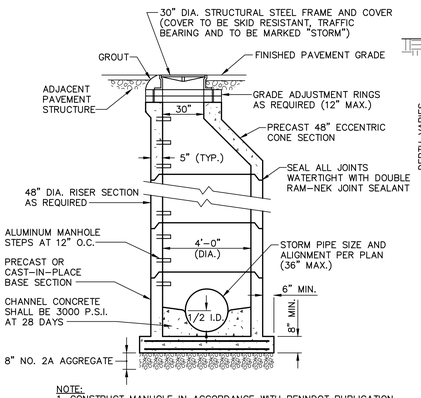
SUBMISSION:
BID SET

ORIGINAL ISSUE DATE:
10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

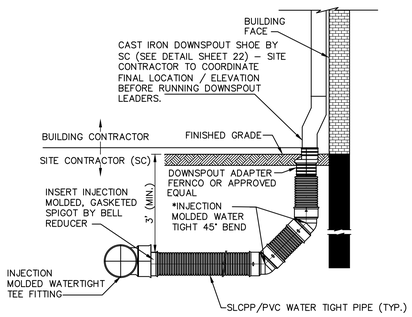
REFERENCE PLAN

SHEET NUMBER:
C208



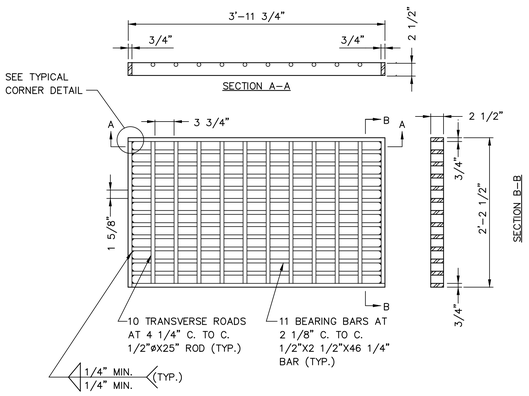
NOTE:
1. CONSTRUCT MANHOLE IN ACCORDANCE WITH PENNDOT PUBLICATION 72, RC-39 FOR PRECAST CONCRETE MANHOLES.
2. ALL MATERIALS AND CONSTRUCTION SHALL MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408.
3. USE FLAT TOP MANHOLES WHERE DEPTHS ARE LESS THAN 6' DEEP.

STORM SEWER MANHOLE
NOT TO SCALE

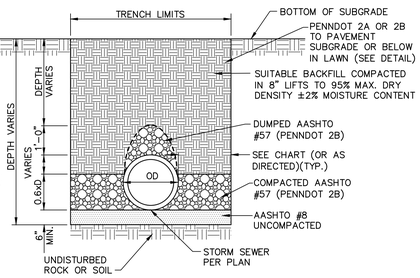


NOTES:
* INJECTION MOLDED FITTINGS ARE AVAILABLE IN TEES, WYES, REDUCERS, 45° BENDS AND BELL/BELL COUPLERS.

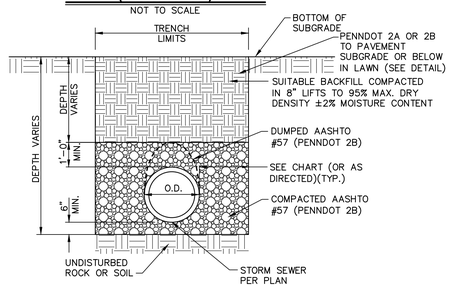
TYPICAL BUILDING DOWNSPOUT
NOT TO SCALE



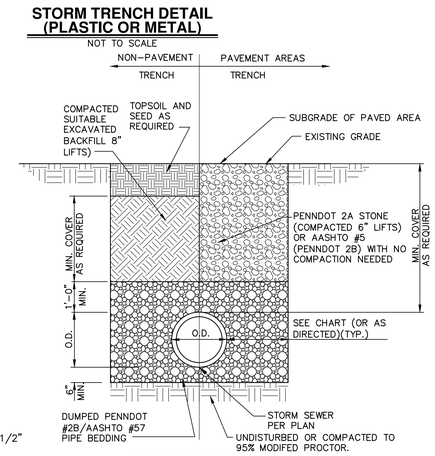
BICYCLE-SAFE STRUCTURAL STEEL GRATE
NOT TO SCALE



STORM TRENCH DETAIL (CONCRETE)
NOT TO SCALE

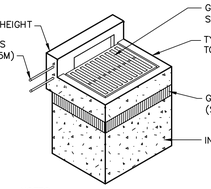


STORM TRENCH DETAIL (PLASTIC OR METAL)
NOT TO SCALE



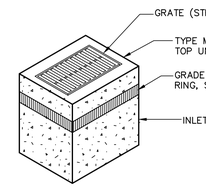
STORM TRENCH DETAIL (STANDARD SPEC.)
NOT TO SCALE

STORM PIPE TRENCH WIDTHS	
PIPE DIA (IN.)	TRENCH WIDTH (IN.)
≤ 6"	OD + 12"
8–10"	OD + 16"
12–24"	OD + 24"
30–42"	OD + 30"
48–60"	OD + 36"



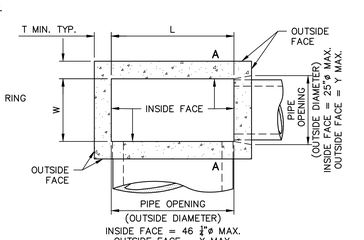
NOTES:
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION. CONTRACTOR SHALL VERIFY INLET BOX SIZING BASED ON PIPE SIZES AND ALIGNMENT PRIOR TO ORDERING PRECAST STRUCTURES.
2. ALL DRAINAGE STRUCTURES SHALL HAVE POURED-IN-PLACE CONCRETE CHANNEL BOTTOMS.
3. NO PIPES SHALL ENTER INLET BOX AT CORNER.
4. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. (SEE RC-45M FOR DETAILS)

TYPE C INLET DETAIL
NOT TO SCALE

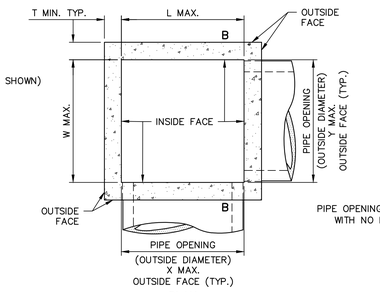


NOTES:
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION. CONTRACTOR SHALL VERIFY INLET BOX SIZING BASED ON PIPE SIZES AND ALIGNMENT PRIOR TO ORDERING PRECAST STRUCTURES.
2. ALL DRAINAGE STRUCTURES SHALL HAVE POURED-IN-PLACE CONCRETE CHANNEL BOTTOMS.
3. NO PIPES SHALL ENTER INLET BOX AT CORNER.
4. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45M FOR DETAILS.

TYPE M INLET DETAIL
NOT TO SCALE



PLAN
(STANDARD BOX)

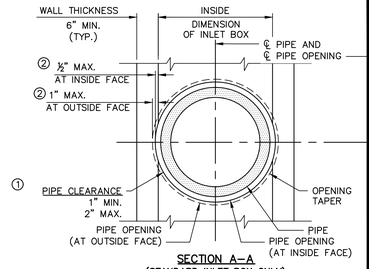


PLAN
(TYPE 4 THROUGH TYPE 10 AND TYPE D-H BOXES)

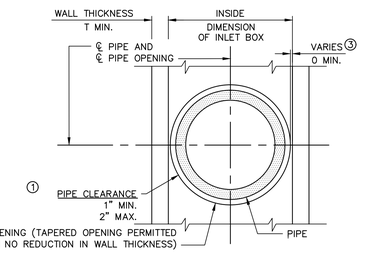
BOX TYPE	INSIDE BOX DIMENSIONS		WALL THICKNESS T	PIPE OPENING AT OUTSIDE FACE	
	W	L		X	Y
STANDARD	2'–0"	3'–9¼"	6"	47¼"	26"
TYPE 4	4'–0"	4'–0"	6"	48"	48"
TYPE 5	5'–0"	5'–0"	6"	60"	60"
TYPE 6	6'–0"	6'–0"	6"	72"	72"
TYPE 7	7'–0"	7'–0"	8"	84"	84"
TYPE 8	8'–0"	8'–0"	8"	96"	96"
TYPE 9	9'–0"	9'–0"	8"	108"	108"
TYPE 10	10'–0"	10'–0"	8"	120"	120"
TYPE D–H	2'–6"	8'–3"	6"	99"	30"

NOTES
1. CONSTRUCT INLET BOXES IN ACCORDANCE WITH THE REQUIREMENTS OF PADOT PUB. 408, SECTION 714 AND PUB. 72M, RC-46M.
2. PERMIT ONLY PRECAST INLET BOXES SUPPLIED BY A MANUFACTURER LISTED IN PADOT BULLETIN 15. USE CLASS AA CEMENT CONCRETE FOR PRECAST BOXES.
3. SEE PADOT PUB 72M, RC-43M FOR CONCRETE TOP UNITS, TRANSITION SLABS, RISER SECTIONS AND GRADE ADJUSTMENT RINGS.
4. PROVIDE 2" DIAMETER WEEPHOLES IN THE WALLS WHEN THE DEPTH BETWEEN THE FINISHED GRADE ELEVATION AND THE TOP OF THE SLAB ELEVATION IS GREATER THAN (10'–0").
   - VERTICAL PLACEMENT: 5'–0" MAXIMUM SPACING
   - HORIZONTAL PLACEMENT: PLACE WEEPHOLES IN THE SIDE WALLS THAT ARE PERPENDICULAR TO TRAFFIC.
   - LOCATE WEEPHOLES A MINIMUM OF 6" FROM PIPE OPENING OR JOINTS.
   - LOCATE WEEPHOLES A MINIMUM OF 1'–0" ABOVE OUTLET PIPE INVERT.
5. LOCATE PIPE OR PIPES, AS INDICATED, WITH THE INLET BOTTOM SHAPED TO CHANNEL THE FLOW TOWARD THE OUTLET PIPE. WHEN PROJECT CONDITIONS REQUIRE PIPE BLOCKOUTS TO BE FORMED WITHIN 4" FROM THE TOP OF THE INLET BOX, PROVIDE AN ADDITIONAL #3 REINFOREMENT BAR LOCATED 1 5/8" FROM THE TOP OF THE INLET BASE, FULL WIDTH ALONG THE INLET FACE. REMOVE ANY VISIBLE PORTION OF THE BAR, IF REQUIRED DURING INSTALLATION AND PRIOR TO JOINING THE PIPE TO THE INLET. IF REINFORCED CONCRETE PIPE IS USED, THE PIPE BLOCKOUT MAY BE FORMED 'FLUSH' WITH THE INLET BASE. LIMIT PIPE BLOCKOUT OF WALL TO 1".
6. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PADOT PUB. 408, SECTION 350.2, TO A DEPTH OF 12", IN LAYERS 4" THICK, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER.
7. PROVIDE SUITABLE LIFTING DEVICES FOR HANDLING AND INSTALLATION. GALVANIZE METAL DEVICES AS SPECIFIED IN PADOT PUB. 408 SECTION 1105.
8. PROVIDE MANHOLE STEPS WHEN THE DEPTH BETWEEN THE FINISHED GRADE ELEVATION AND THE TOP OF THE BOTTOM SLAB ELEVATION IS GREATER THAN 5'–0". SHALLOW RECESSES, ON THE INSIDE FACE OF THE INLET, NOT GREATER THAN 3/8" IN DEPTH, FORMED BY MAGNETIC STEP FORMERS ARE ACCEPTABLE AND DO NOT REQUIRE PATCHING. FOR DETAILS, REFER TO RC–39M.

PRECAST INLET BOXES (PUB 72M, RC-46M)
NOT TO SCALE

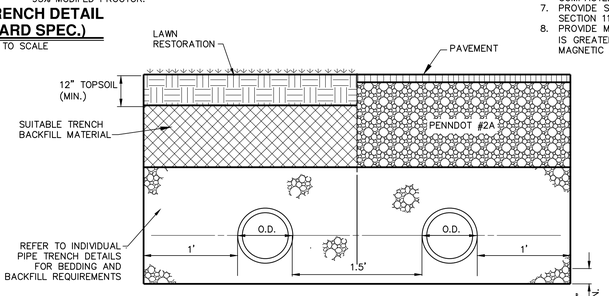


SECTION A–A
(STANDARD INLET BOX ONLY)



SECTION B–B
(TYPICAL ALL TYPES EXCEPT STANDARD)

LEGEND
① OUTSIDE DIAMETER OF PIPE TO PIPE OPENING
② REDUCTION IN WALL THICKNESS DIMENSION
③ INSIDE FACE OF BOX WALL TO OUTSIDE DIAMETER OF PIPE OPENING



DUAL STORM PIPE TRENCH DETAIL
NOT TO SCALE

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SEAL:

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — DENNIS J. REICHEL — ENGINEER NO. PE070781 — 10/01/2026

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
FOR
EMERGENCY SERVICES CENTER
EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606
EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

HRG PROJECT NUMBER: R006367.0427
PLAN DATE: 04/01/2026
DRAWING SCALE: AS SHOWN
PROJ. MANAGER: DENNIS REICHEL

REVISIONS

NO	DATE	DESCRIPTION
1	2026.04.14	REV AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV AS PER 04/20/2026 BCCD COMMENTS
3	2026.05.15	REV AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGES/BID SET
5		
6		
7		
8		
9		

SHEET TITLE:
DETAILS SHEET

SHEET: DT-1 | 09

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER:
25–049

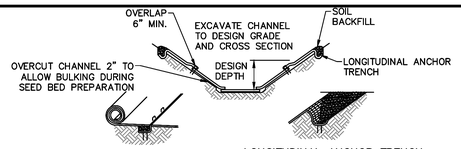
SUBMISSION:
BID SET

ORIGINAL ISSUE DATE:
10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

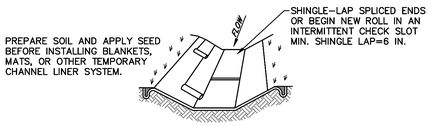
REFERENCE PLAN

SHEET NUMBER:
C209

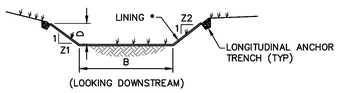


INTERMITTENT CHECK SLOT

LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW



CHANNEL CROSS-SECTION

* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION SPECIFICATIONS FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

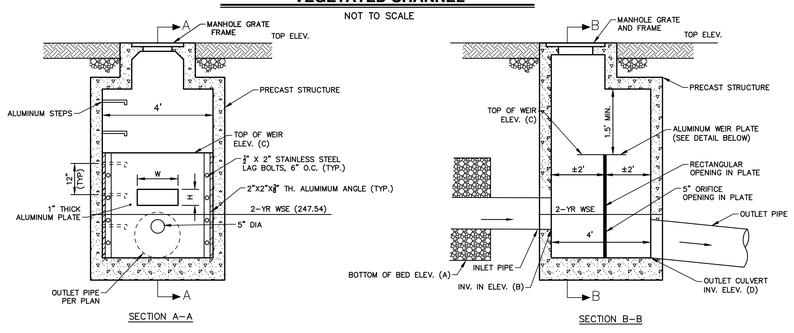
CHANNEL NO.	SLOPE/ STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
1A	1.50%/6.90%	3	1.1	9.6	3	3	S75/VEG
1B	1.50%	4	1.5	13	3	3	S75/VEG
2	8.46%	4	1	10	3	3	S200/VEG

NOTES:

1. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
2. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
3. NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

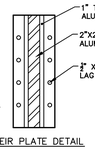
STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL

NOT TO SCALE



NOTES:

1. PROVIDE FIELD PLACED CONCRETE FILL IN THE BOTTOM OF ALL OUTLET STRUCTURES TO A DEPTH OF 1/2 OF THE PIPE I.D. PROVIDE AN ADEQUATE FLOW CHANNEL FOR THE TRANSITION TO THE OUTLET PIPE. SHAPE BOX BOTTOM FOR POSITIVE DRAINAGE.
2. CONSTRUCT THE REINFORCED CONCRETE FOUNDATION TO A DIMENSION 24" LARGER THAN THE OUTSIDE DIMENSIONS OF THE OUTLET STRUCTURE.
3. CONSTRUCT OUTLET STRUCTURE IN ACCORDANCE WITH PENNDOT PUBLICATION 72, RC-34 FOR PRECAST CONCRETE INLET BOXES.
4. INSTALL MANHOLE STEPS IN OUTLET STRUCTURES. STEPS SHALL BE PLACED ON THE OPPOSITE SIDE OF THE BOX FROM THE INLET PIPE. SEE COPOLYMER POLYPROPYLENE PLASTIC MANHOLE STEP DETAIL.
5. PROVIDE A 1" DIAMETER WEEP HOLE ON THE BOTTOM OF THE STRUCTURE.

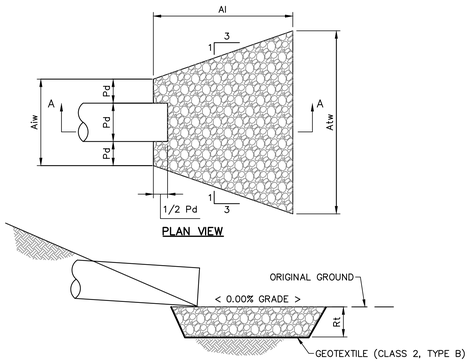


WEIR PLATE DETAIL

UNDERGROUND DETENTION BED	OUTLET STRUCTURE	BOTTOM OF BED (A)	INLET PIPE INV. IN (B)	CIRCULAR OPENING INV. EL. (FT)	DIAMETER D (IN)	RECTANGULAR OPENING INV. EL. (FT.)	WIDTH W (IN.)	HEIGHT H (IN.)	TOP OF WEIR ELEV. (C)	WEIR LENGTH (FT)	OUTLET CULVERT INV. ELEV. (D)	CULVERT DIAMETER (IN.)	TOP ELEV. (FT)
SCM-3	OS-3	246.00	246.55	247.25	5.0	N/A	N/A	N/A	249.83	4	246.45	15	253.06

SCM-3 UNDERGROUND INFILTRATION BED OUTLET STRUCTURE DETAIL

NOT TO SCALE



SECTION A-A

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R-	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
EW-1	24 x 2	4	18	12	12	22.5
EW-2A.1	15	4	18	10	4	12
EW-2B.1	15	4	18	10	4	12

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

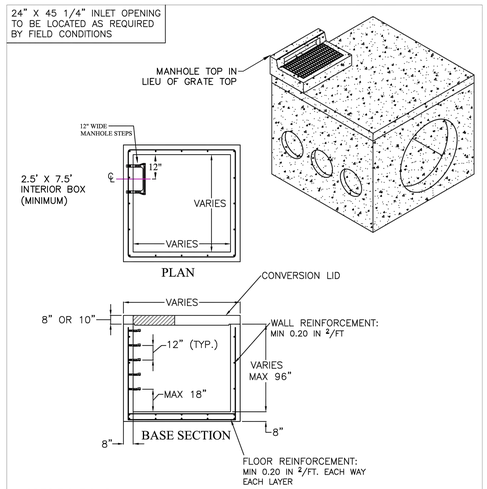
ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.

STANDARD CONSTRUCTION DETAIL #9-2
RIPRAP APRON AT PIPE OUTLET
NO FLARED ENDWALL

NOT TO SCALE

MANHOLE (MH-3)



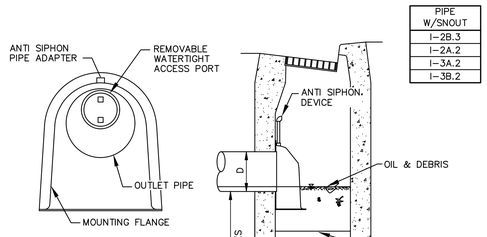
SPECIFICATIONS:

MINIMUM CONCRETE STRENGTH 4000 PSI @ 28 DAYS (PENNDOT CLASS AA)
MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 408 SECTION 605 & 714
STEEL REINFORCEMENT A615 GRADE 60 HORIZONTAL AND VERTICAL

Continental Concrete Products, Inc.
1 South Grosstown Rd.
Pottstown, PA 19464
Phone: (610) 327-3700
Fax: (610) 327-9488

MODIFIED LARGE INLET BOX FOR LARGE DIA. PIPE & MULTIPLE PARALLEL PIPE OPENINGS

SIGNATURE OF APPROVAL	DATE	AS	DWG	STRUCTURE
	2/08/16		MLIB	



DETAIL B

DETAIL A

PIPE DIA.	SNOUT SIZE
12"	18F OR 18R
15"	18F OR 18R
18"	24F OR 30R
24"	30F OR 30R
30"	48F
36"	48F

PIPE W/SNOUT
I-2B.3
I-2A.2
I-3A.2
I-3B.2

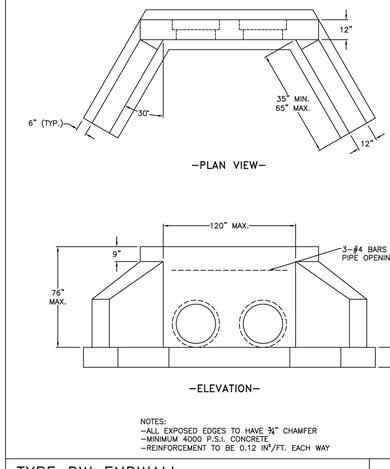
NOTES:

1. POSITION HOOD SO THAT BOTTOM FLANGE OF SNOUT IS 1/2 THE PIPE DIAMETER BELOW THE BOTTOM OF THE PIPE.
2. CONTACT MANUFACTURER FOR ADDITIONAL INSTALLATION DETAILS AND PRODUCT AVAILABILITY.
3. SUMP DEPTH OF 36" MIN. FOR ≤ 12" DIA. OUTLET. FOR OUTLETS ≥ 15", DEPTH = 2.5-3 TIMES DIA.

"SNOUT" OIL AND DEBRIS SEPARATOR

NOT TO SCALE

MONARCH PRODUCTS COMPANY, INC.
YORK HAVEN, PA.



NOTES:
-ALL EXPOSED EDGES TO HAVE ¾" CHAMFER
-MINIMUM 4000 P.S.I. CONCRETE
-REINFORCEMENT TO BE 0.12 IN²/FT. EACH WAY

TYPE DW ENDWALL ADJUSTABLE SIZES | DWG. OS-4

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✉ INFO@MWSARCH.COM
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SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DENNIS J. REICHEL
ENGINEER NO. PE070787
04/01/2026

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
FOR
EMERGENCY SERVICES CENTER
EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606
EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

HRG PROJECT NUMBER:	R006367.0427
PLAN DATE:	04/01/2026
DRAWING SCALE:	AS SHOWN
PROJ. MANAGER:	DENNIS REICHEL

REVISIONS NO.	DATE	DESCRIPTION
1	2026.04.14	REV AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV AS PER 04/17/2026 BCCD COMMENTS
3	2026.05.15	REV AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGES/BID SET
5		
6		
7		
8		
9		

SHEET TITLE:
DETAILS SHEET

SHEET: DT-2 | 10

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER: 25-049

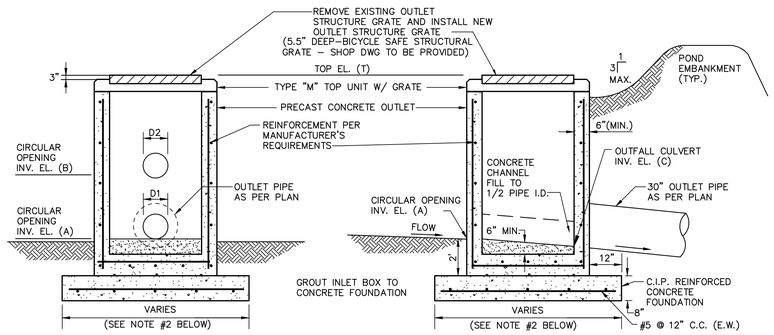
SUBMISSION: BID SET

ORIGINAL ISSUE DATE: 10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

REFERENCE PLAN

SHEET NUMBER:
C210



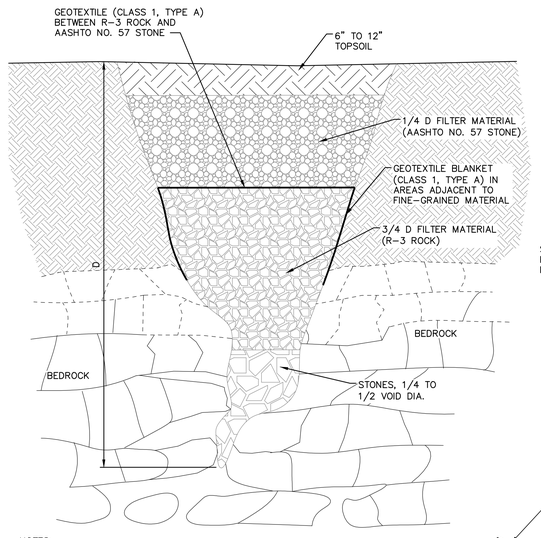
SIDE ELEVATION FRONT ELEVATION

NOTES:
1. PROVIDE FIELD PLACED CONCRETE FILL IN THE BOTTOM OF ALL OUTLET STRUCTURES TO A DEPTH OF 1/2 OF THE PIPE I.D. PROVIDE AN ADEQUATE FLOW CHANNEL FOR THE TRANSITION TO THE OUTLET PIPE. SHAPE BOX BOTTOM FOR POSITIVE DRAINAGE.
2. CONSTRUCT THE REINFORCED CONCRETE FOUNDATION TO A DIMENSION 24" LARGER THAN THE OUTSIDE DIMENSIONS OF THE OUTLET STRUCTURE.
3. CONSTRUCT OUTLET STRUCTURE IN ACCORDANCE WITH PENNDOT PUBLICATION 72, RC-34 FOR PRECAST CONCRETE INLET BOXES.

BASIN NO.	TOP ELEVATION T (FT)	INVERT A (FT)	DIAMETER D1 (IN)	INVERT B (FT)	DIAMETER D2 (IN)	INVERT C (FT)	2-YR WSE (FT)
SCM-1	246.48	243.50	6	244.43	12	241.63	246.57

EXISTING DRY EXTENDED DETENTION BASIN OUTLET STRUCTURE DETAIL (SCM-1)/GRATE REPLACEMENT

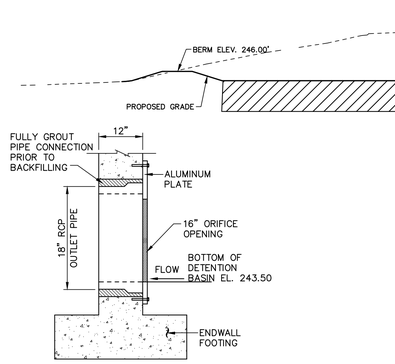
NOT TO SCALE



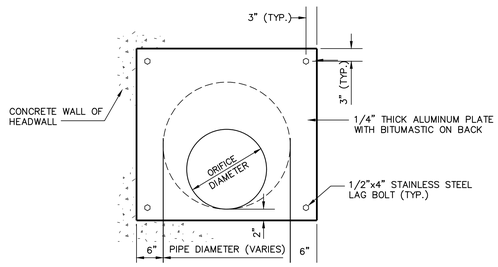
NOTES:
1. EXCAVATE LOOSE MATERIAL FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIAL. OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
2. STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.
3. DUE TO THE VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED ENGINEER.

SINKHOLE REPAIR WITH A PERVIOUS COVER

NOT TO SCALE

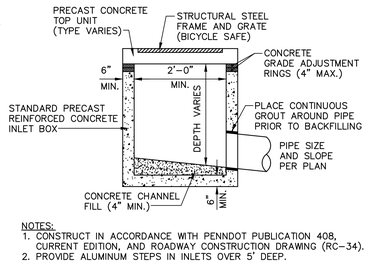


ORIFICE PLATE MOUNTING DETAIL



EXISTING HEADWALL ORIFICE PLATE DETAIL (SCM-1)

NOT TO SCALE

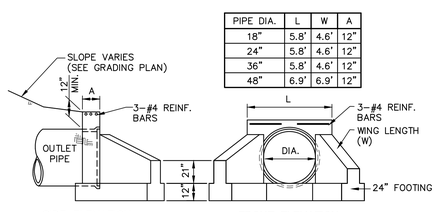


NOTES:
1. CONSTRUCT IN ACCORDANCE WITH PENNDOT PUBLICATION 408, CURRENT EDITION, AND ROADWAY CONSTRUCTION DRAWING (RC-34).
2. PROVIDE ALUMINUM STEPS IN INLETS OVER 5' DEEP.

INLET BOX DETAIL

NOT TO SCALE

PIPE DIA.	L	W	A
18"	5.8'	4.6'	12"
24"	5.8'	4.6'	12"
36"	5.8'	4.6'	12"
48"	6.9'	6.9'	12"

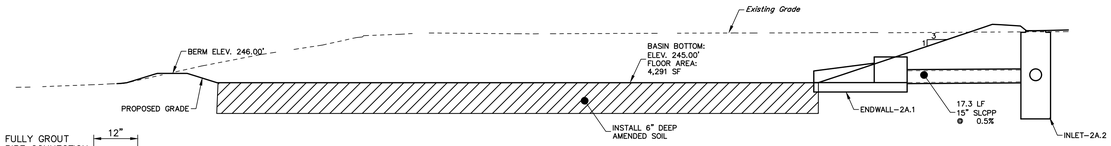


SIDE ELEVATION FRONT ELEVATION

NOTES:
1. CONSTRUCT IN ACCORDANCE WITH PENNDOT PUBLICATION 72 RC-31
2. FOR PIPE SIZES LESS THAN 36" CONSTRUCT WING WALL TO DIMENSIONS FOR 36" PIPE DIAMETER AS LISTED IN PENNDOT RC-31.

TYPE D-W ENDWALL DETAIL

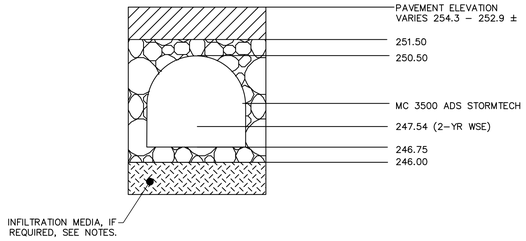
NOT TO SCALE



NOTES:
1. AMENDED SOIL SHALL HAVE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE PER USDA TEXTURAL TRIANGLE. MAXIMUM CLAY CONTENT <5%; SOIL MIXTURE SHALL BE 60% TOPSOIL, 20% SAND AND 20% COMPOST (MEETING U.S. COMPOSTING COUNCIL SEAL OF TESTING ASSURANCE (STA) PROGRAM OR APPROVED EQUAL).
2. IF BEDROCK OR PINNACLES ARE ENCOUNTERED DURING CONSTRUCTION OF THE BASIN, EXCAVATE ROCK TO A MINIMUM OF TWO FEET BELOW THE BASIN BOTTOM. INCREASE THE AMENDED SOIL TO THE BEDROCK OR PINNACLES.

INFILTRATION BASIN (SCM-2) CROSS SECTION

NOT TO SCALE



NOTES:
1. INFILTRATION MEDIA SHALL CONSIST OF GRANULAR BLENDED SOIL MIXTURES CONTAINING AT LEAST 70 PERCENT SAND AND LESS THAN 20 PERCENT SILT. ENGINEERED FILTER MEDIA SHOULD PROVIDE A MINIMUM INFILTRATION RATE OF 1.5 INCH/HOUR WITH A MAXIMUM INFILTRATION RATE ON THE ORDER OF SIX INCHES PER HOUR. ALL INFILTRATION/FILTER MEDIA SHALL BE WRAPPED WITH A SUITABLE FABRIC TO REDUCE CLOGGING.
2. IF BEDROCK IS ENCOUNTERED DURING EXCAVATION OF BED, EXCAVATE ROCK TO A MINIMUM OF TWO FEET BELOW THE BED BOTTOM. INCREASE INFILTRATION MEDIA DEPTH TO BED ROCK.
3. IF PERCHED WATER IS ENCOUNTERED DURING CONSTRUCTION OF THE BED, OVER EXCAVATION MAY BE REQUIRED TO ALLEVIATE THE CAUSE OF THE TRAPPED SURFACE WATER. INCREASE THE INFILTRATION MEDIA DEPTH TO THE BOTTOM OF THE EXCAVATION.

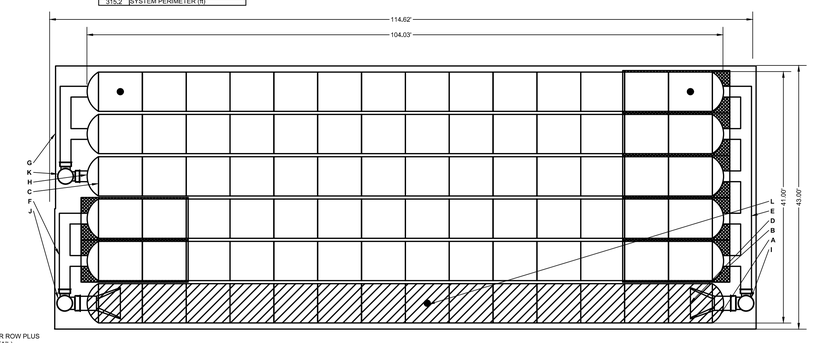
INFILTRATION BED (SCM-3) DETAIL

NOT TO SCALE

PROPOSED ELEVATIONS	
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	258.50
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	252.50
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	252.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	252.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	251.50
TOP OF STONE:	251.50
TOP OF MC-3500 CHAMBER:	250.50
18" x 18" TOP MANIFOLD INVERT:	248.42
24" ISOLATOR ROW PLUS INVERT:	248.92
18" x 18" BOTTOM MANIFOLD INVERT:	248.90
18" BOTTOM CONNECTION INVERT:	248.90
BOTTOM OF MC-3500 CHAMBER:	248.75
BOTTOM OF STONE:	248.00

PROPOSED LAYOUT	
84	STORMTECH MC-3500 CHAMBERS
12	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	STONE VOID
16485	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
4925	SYSTEM AREA (SF)
315.2	SYSTEM PERIMETER (ft)

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT	MAX FLOW
PREFABRICATED END CAP	A	24" BOTTOM PRE-CORED END CAP, PART#: MC3500IEPP24BC / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS		
PREFABRICATED END CAP	B	18" TOP PRE-CORED END CAP, PART#: MC3500IEPP18TC / TYP OF ALL 18" TOP CONNECTIONS		
PREFABRICATED END CAP	C	18" BOTTOM PRE-CORED END CAP, PART#: MC3500IEPP18BC / TYP OF ALL 18" BOTTOM CONNECTIONS		
FLAMP	D	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MCFLAMP1 (TYP 2 PLACES)		
MANIFOLD	E	18" x 18" TOP MANIFOLD, ADS N-12	20.03'	
MANIFOLD	F	18" x 18" TOP MANIFOLD, ADS N-12	20.03'	
MANIFOLD	G	18" x 18" BOTTOM MANIFOLD, ADS N-12	1.77'	
PIPE CONNECTION	H	18" BOTTOM CONNECTION	1.77'	
CONCRETE (INLET W/ ISO PLUS ROW	I	4' DIAMETER (24.00' SUMP MIN)		16.2 CFS IN
CONCRETE (INLET W/ ISO PLUS ROW)	J	4' DIAMETER (24.00' SUMP MIN)		11.0 CFS IN
CONCRETE (OUTLET)	K	4' DIAMETER (DESIGN BY ENGINEER)		8.0 CFS OUT
INSPECTION PORT	L	4" SEE DETAIL (TYP 3 PLACES)		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS125 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
FOR
EMERGENCY SERVICES CENTER
EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606
EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

PROFESSIONAL SEAL:

HRG PROJECT NUMBER: R006367.0427
PLAN DATE: 04/01/2026
DRAWING SCALE: AS SHOWN
PROJ. MANAGER: DENNIS REICHEL

REVISIONS NO.	DATE	DESCRIPTION
1	2026.04.14	REV AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV AS PER 04/17/2026 BCCD COMMENTS
3	2026.05.15	REV AS PER 05/11/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGES/BID SET
5		
6		
7		
8		
9		

SHEET TITLE: DETAILS SHEET

SHEET: DT-3 | 11

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SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DENNIS J REICHEL
ENGINEER NO. PE070787
10/01/2026

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER: 25-049

SUBMISSION: BID SET

ORIGINAL ISSUE DATE: 10/01/2026

SHEET REVISION SCHEDULE:
No. DATE

REFERENCE PLAN

SHEET NUMBER:

C211

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45s76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM -6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE: AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

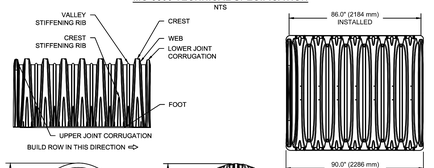
1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

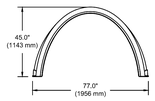
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

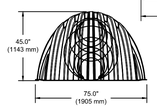
CONTACT ADS WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

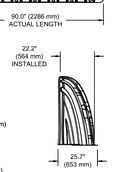
MC-3500 TECHNICAL SPECIFICATION

NTS









NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

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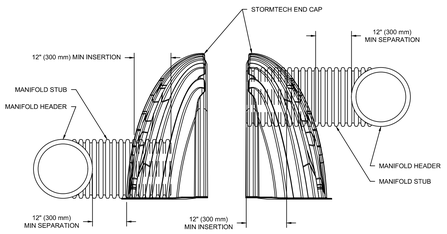
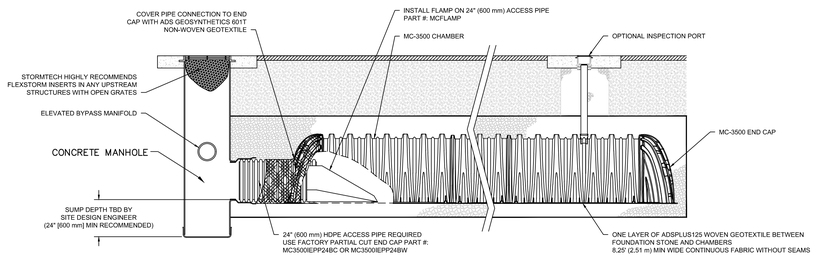


NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.



MC-3500 ISOLATOR ROW PLUS DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

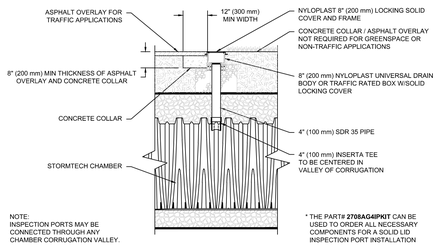
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

* THE PART# **2708AG4IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

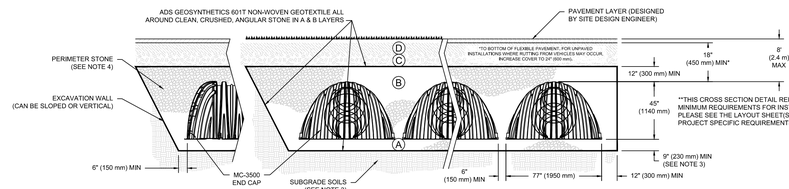
4" (100 mm) PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)

NTS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[3]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[3]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT, FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



**THIS CROSS SECTION DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR INSTALLATION. PLEASE SEE THE LAYOUT SHEET(S) FOR PROJECT SPECIFIC REQUIREMENTS.

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
FOR
EMERGENCY SERVICES CENTER
EXETER TOWNSHIP
4975 DEMOSS ROAD
READING, PA 19606
EXETER TOWNSHIP, BERKS COUNTY, PENNSYLVANIA

REVISIONS

NO.	DATE	DESCRIPTION
1	2026.04.14	REV. AS PER 04/09/2026 BCCD COMMENTS
2	2026.04.23	REV. AS PER 04/17/2026 BCCD COMMENTS
3	2026.05.15	REV. AS PER 05/08/2026 BCCD COMMENTS
4	2026.10.01	FIELD CHANGES /BID SET
5		
6		
7		
8		
9		

SHEET TITLE:
DETAILS SHEET

SHEET: **DT-4** 12

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DENNIS J. REICHEL
ENGINEER
No. PE070767
04/01/2026

PROFESSIONAL SEAL:

HRG PROJECT NUMBER: R006367.0427
PLAN DATE: 04/01/2026
DRAWING SCALE: AS SHOWN
PROJ. MANAGER: DENNIS REICHEL

EXETER TOWNSHIP
EMERGENCY SERVICES FACILITY
70 GIBRALTER ROAD
READING, PA 19606

PROJECT NUMBER:
25-049

SUBMISSION:
BID SET

ORIGINAL ISSUE DATE:
10/01/2026

SHEET REVISION SCHEDULE:

No.	DATE

REFERENCE PLAN

SHEET NUMBER:
C212

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