TOWNSHIP of HOPEWELL

MERCER COUNTY

201 WASHINGTON CROSSING – PENNINGTON ROAD
TITUSVILLE, NEW JERSEY 08560-1410

PROJECT / APPLICATION

BLOCK: 78

LOT: 17

ADDRESS: 2500 PENNINGTON ROAD

PROJECT NAME: HERITAGE AT HOPEWELL - SITE PLAN, PRELIMINARY/FINAL

PLANS

SITE PLAN SET

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
2500 PENNINGTON ROAD
BLOCK 78, LOT 17
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

PROPERTY OWNERS WITHIN 200'

Block	Lot	Address
78	7.44	James and Kathleen Thompson 17 York Rd Pennington, NJ 08534
78	6	Eldrid Truelove 2514 Pennington Rd Pennington, NJ08534
78	27.24	Cosmo & Marion Iacavazzi 12 Westminster Ct Pennington, NJ 08534
78	7.52	Wellington Manor Homeowners Assoc. PO BOX 6622 Lawrenceville, NJ 08648
78	7.46	Syed M. and Azra N. Haider 21 York Rd Pennington, NJ 08534
78	4	Kelly Beamon 2518 Pennington Rd Pennington, NJ 08534
78	3	Stanley J. and Joan Sredinski 2516 Pennington Rd Pennington, NJ 08534
78	27.25	Priscilla H Gaver 14 Westminster Ct Pennington, NJ 08534
78	16	Greater Princeton Investments - Penn 5 Klockner Rd Lawrenceville, NJ 08648
78	15.01	Mercer Prof. D Corp C/O RCR Manage PO BOX 210 Crosswicks, NJ 08515
78	27.23	Frank and Elizabeth Colucci 10 Westminster Ct Pennington, NJ 08534
78	7.48	Julia R Kurisko 3 Westminster Ct Pennington, NJ 08534
78	7.51	Debra Massimo 9 Westminster Ct Pennington, NJ 08534
78	7.5	Hank Gerwers & Doris Schubert 7 Westminster Ct Pennington, NJ 08534
78	10.4	Project Freedom @ Hopewell Urban 1 Freedom Blvd Lawrenceville, NJ 08648
78	27.2	Joseph & Mary Ann McManus 2 Westminster Ct Pennington, NJ 08534
78	27.22	Franklin and Alice Miller 8 Westminster Ct Pennington, NJ 08534
78	7.47	Lucille Nugent 23 York Rd Pennington, NJ 08534
78	5	Eldrid Truelove 2514 Pennington Rd Pennington, NJ 08534
78	35	Greater Princeton Investments LLC 5 Klockner Rd Lawrenceville, NJ 08648
78	15.99	Hopewell TC Assoc. & Investments 416 Bethlehem Pike Fort Washington, PA 19034
78	27.21	Charles and Donna Drucker 6 Westminster Ct Pennington, NJ 08534
78	9.4	Wellington Manor Homeowners Assoc. PO BOX 6622 Lawrenceville, NJ 08648
78	7.45	Jeronowitz Living Trust 19 York Rd Pennington, NJ 08534
78	7.49	Jayne Everitt 5 Westminster Ct Pennington, NJ 08534
85	13	Township of Hopwell 201 Wash Cross Penn Rd Titusville, NJ 08560
85	7	F&L Laurenti C/O Laurenti Holding PO BOX 25055 Sarasota, FL 34239
85	8	Township of Hopwell 201 Wash Cross Penn Rd Titusville, NJ 08560

UTILITY CONTACTS

Trenton Water Company
Corporate Secretary
PO BOX 528
Trenton, NJ 08604

Comcast Cable
940 Prospect St.
Trenton, NJ 08618

Elizabethtown Gas Company
PO BOX 3175
Union, NJ 07083-1975

Verizon
Corporate Secretary
9 Gates Ave., No. 2
Montclair, NJ 07042

Transcontinental Gas PipeLine
Corporate Secretary
2800 Post Oakes Blvd.
Houston, TX 77056

NJ American Water Co., Inc.
Donna Short, GIS Supervisor
1 Water St.
Camden, NJ 08102-1658

Jersey Central Power & Light
c/o GPU Ser Tax
PO BOX 1911
Morristown, NJ 07962-1911

ELSA
Corporate Secretary
600 Whitehead Road
Lawrenceville, NJ 08648

Sun PipeLine/Right of Way Dept.
Montello Complex 525 Fritztown Rd.
Sinking Springs, PA 19608

AT&T
Corporate Secretary
1 AT&T Way
Bedminster, NJ 07921

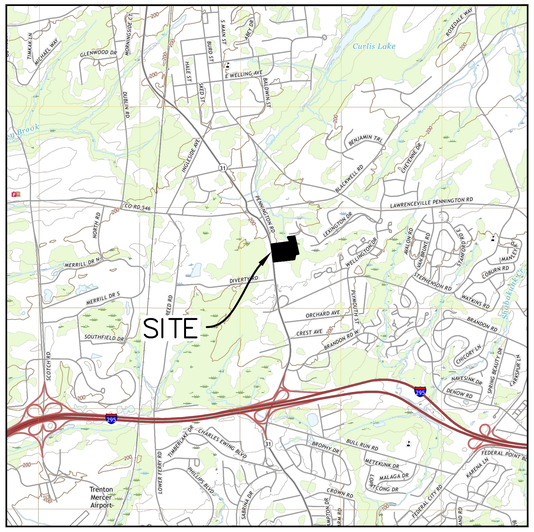
Public Service Electric & Gas
Manager-Corporate Prop.
80 Park Plaza, T6B
Newark, NJ 07102

Mercer County Planning Board
640 S. St., PO BOX 8068
Trenton, NJ 08650-0068

NJ Dept. of Transportation
c/o Commissioner-Office of Major Access
1035 Parkway Ave., CN 600
Trenton, NJ 08625

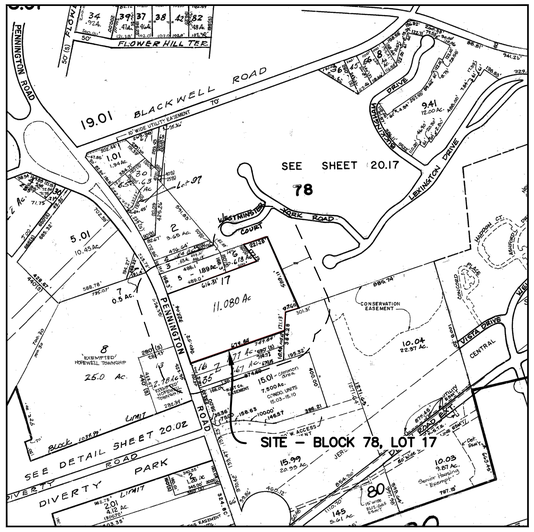
SHEET INDEX

No.	Description	Revision Date
1.	TITLE SHEET	11/22/23
2.	EXISTING CONDITIONS & DEMOLITION PLAN	11/22/23
3.	OVERALL GEOMETRY, SIGNAGE & STRIPING PLAN	11/22/23
4.	GEOMETRY, SIGNAGE & STRIPING PLAN	11/22/23
5.	GEOMETRY, SIGNAGE & STRIPING PLAN	11/22/23
6.	OVERALL GRADING PLAN	11/22/23
7.	GRADING PLAN	11/22/23
8.	GRADING PLAN	11/22/23
9.	OVERALL UTILITY PLAN	11/22/23
10.	UTILITY PLAN	11/22/23
11.	UTILITY PLAN	11/22/23
12.	UTILITY PROFILES	11/22/23
13.	UTILITY PROFILES	11/22/23
14.	LANDSCAPE & TREE REPLACEMENT PLAN	11/22/23
15.	LIGHTING PLAN – MAINTAINED	11/02/23
16.	LIGHTING PLAN – INITIAL & LIGHTING DETAILS	11/02/23
17.	LIGHTING DETAILS	11/02/23
18.	LANDSCAPING DETAILS	11/22/23
19.	SOIL EROSION & SEDIMENT CONTROL PLAN	11/22/23
20.	SOIL EROSION & SEDIMENT CONTROL DETAILS	11/22/23
21.	CONSTRUCTION DETAILS	11/22/23
22.	CONSTRUCTION DETAILS	11/22/23
23.	CONSTRUCTION DETAILS	11/22/23
24.	CONSTRUCTION DETAILS	11/22/23



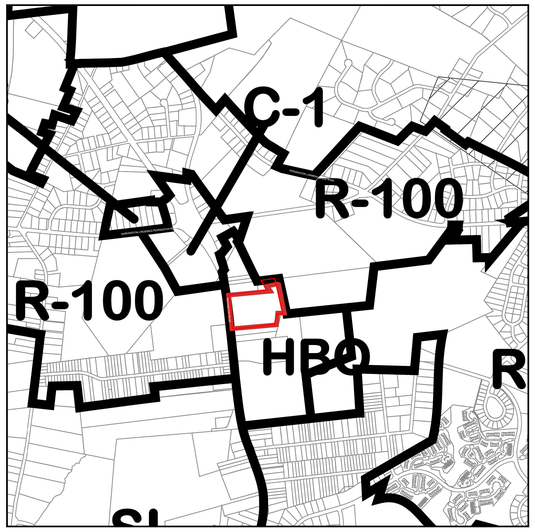
LOCATIONAL KEY MAP
PRINCETON QUADRANGLE

2000 0 2000 4000 6000
GRAPHIC SCALE
1 INCH = 2000 FEET



TAX MAP DIAGRAM
TAX MAP SHEET 20

400 200 0 400 800 1200
300 100
GRAPHIC SCALE
1 INCH = 400 FEET



ZONING MAP

800 400 0 1000 2000 3000
1000 600 200
GRAPHIC SCALE
1 inch = 1000 feet

General Notes

1. Applicant
   American Properties Hopewell II, LLC
   517 Route 1 South – Suite 2100
   Iselin, NJ 08830

   Owner (Block 78, Lot 17)
   Albert M. Enourato
   2500 Pennington Road
   Pennington, NJ 08534

2. Project site known and designated as Block 78, Lots 17, as shown on the current tax assessment map of Hopewell Township, Mercer County, New Jersey (Sheets 20), Containing 11.080 acres.

3. Boundary, topographic information and existing conditions shown based upon map entitled "Boundary & Topographic Survey, Block 78, Lot 17, situated in Hopewell Township, Mercer County, New Jersey" prepared by MidAtlantic Engineering Partners, LLC and dated 8/30/22.

4. Site coordinates: N 535866, E 413214

5. Horizontal Datum: NAD83 Vertical Datum: NAVD 88

6. The site is located within Flood Zone X (Areas determined to be outside the 0.2% annual chance floodplain) according to FEMA Flood Insurance Rate Map number 34021C0116F, having an effective date of July 20, 2016.

7. The State of New Jersey has determined that all or a portion of this lot lies in a flood hazard area and/ or riparian zone. Certain activities in flood hazard areas and riparian ones are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a flood hazard area permit. Consult www.nj.gov/dep/landuse or contact the Division of Land Use Regulation at (609) 777-0454 for more information prior to any construction onsite.

8. "Method 6 -Flood hazard area and floodway determined by calculation" set forth at N.J.A.C. 7:13-3.6 was used to delineate flood hazard area within the applicant's property.

AMERICAN PROPERTIES HOPEWELL			ZONE: Inclusionary Multi-Family (IMF-1)	
PROPOSED USE			Residential: Garden Apartments / Stacked Flats	
BLOCK 78, LOT 17				
BULK ZONE CRITERIA				
	REQUIRED	**EXISTING**	**PROPOSED**	**COMPLIES**
MIN. LOT AREA	10 AC	11.08 AC	11.08 AC	YES
MIN. LOT FRONTAGE	150 FT	563.65 FT	563.65 FT	YES
MIN. LOT WIDTH	300 FT	563.65 FT	563.65 FT	YES
MIN. LOT DEPTH	200 FT	806.88 FT	806.88 FT	YES
MIN. BUILDING SETBACK				
FRONT YARD	45 FT	292.6 FT	46.0 FT	YES
INDIVIDUAL UNIT FROM CURB/SIDEWALK (FRONT YARD)	20 FT	-	20.0 FT	YES
SIDE/REAR YARD	40 FT	246.6 FT	40.5 FT	YES
INDIVIDUAL UNIT FROM CURB (SIDE YARD)	10 FT	-	11.0 FT	YES
BUILDING TO BUILDING	20 FT	-	20.0 FT	YES
MAX. BUILDING COVERAGE	30%	0.42%	14.45%	YES
MAX. IMPERVIOUS COVERAGE	60%	1.62%	26.07%	YES
MAX. DENSITY	8 Units / Acre	1 Unit / Acre	6 Units / Acre	YES
MAX. BUILDING HEIGHT TOWNHOUSE AFFORDABLE APARTMENT	3 Stories / 45 FT	-	3 Stories / 40.96 Ft. 3 Stories / <40 Ft.	YES
DRIVE AISLE WIDTH	24 FT	-	24.0 FT	YES
PARKING REQUIREMENTS				
NUMBER OF SPACES [1]	157 10% Reduction = 142 Spaces[2]	-	189	YES
SETBACK FROM PROPERTY LINE	20 FT	-	91.44 FT	YES
DISTANCE FROM BUILDING	10 FT	-	16.50 FT	YES
STALL SIZE	9 FT x 18 FT	-	9 FT x 18 FT	
MIN. MAKE-READY EVSE	15% of Req. Off-Street Spaces (Total Off-Street = 52 Spaces)	-	8 Spaces [3]	YES
MIN. LANDSCAPE BUFFER		-		
FRONT YARD	25 FT	-	25 FT	YES
SIDE YARD	20 FT	-	20 FT	YES
AFFORDABLE HOUSING	15%	-	18.0%	YES
MIN. OPEN SPACE	20%	-	>20%	YES
MAX. BUILDING LENGTH	225 FT	-	169.67 FT	YES

1. Parking Requirements per RSIS.
2. Pursuant Ordinance 2022-OR-030, a parking space prepared with EVSE or Make-Ready equipment shall count as at least two parking spaces for the purpose of complying with a minimum parking space requirement. This shall result in a reduction of no more than 10 percent of the total required parking.
3. Pursuant Ordinance 2022-OR-030, one third of the total number of Make Ready EVSE parking spaces must be made active at the conclusion of construction. Of the remaining spaces, half must be made active within 3 years of completion of the construction project. Lastly, any remaining Make Ready EVSE spaces must be made active within 6 years of completing construction.

UNIT & PARKING TABLE			
UNIT TYPE (RSIS)	**UNITS**	**SPACES REQUIRED**	**SPACES PROPOSED**
TOWNHOUSE (GARAGE & DRIVEWAY) [3 4] 3-BEDROOM UNIT (2.4 SPACES / UNIT)	55	132	DRIVEWAY/GARAGE 134 [3] GUEST PARKING 22 [6]
SUB-TOTAL	55	132	156
GARDEN APARTMENT (AFFORDABLE) 1-BEDROOM UNIT (1.8 SPACES / UNIT) 2-BEDROOM UNIT (2.0 SPACES / UNIT) 3-BEDROOM UNIT (2.1 SPACES / UNIT)	 2 6 4	 4 12 9	25
SUB-TOTAL	12	25	25
10% EVSE SPACE REDUCTION [5]		(52 COMMON SPACES X 0.10) = 5.2	
SUB-TOTAL		-5 [5]	
TOTAL	**67**	**152**	**181**

1. A MINIMUM OF 2 HANDICAP PARKING STALLS ARE REQUIRED AND 3 ARE PROVIDED.
2. THE PROJECT PROPOSES 67 UNITS, 12 (18 %) OF WHICH ARE AFFORDABLE.
3. PER R.S.I.S. (N.J.A.C. 5.21-4.14(d)3.) A 1-CAR GARAGE & DRIVEWAY COMBINATION WITH A MINIMUM 18-FT LONG DRIVEWAY SHALL COUNT AS 2 OFF-STREET PARKING SPACES PER UNIT. PER R.S.I.S. (N.J.A.C. 5.21-4.14(d)3.) A 2-CAR GARAGE & DRIVEWAY COMBINATION WITH A MINIMUM 20 FT WIDE DRIVEWAY SHALL COUNT AS 3.5 OFF-STREET SPACES PER UNIT.
4. PER R.S.I.S. TABLE 4.4, NOTE B: THE NUMBER OF SPACES/UNIT INCLUDES 0.5 SPACES/UNIT FOR GUEST PARKING. HOWEVER, GUEST PARKING MUST BE PROVIDED FOR ON-STREET OR COMMON PARKING AREAS.
5. PURSUANT ORDINANCE 2022-OR-030, A PARKING SPACE PREPARED WITH EVSE OR MAKE-READY EQUIPMENT SHALL COUNT AS AT LEAST TWO PARKING SPACES FOR THE PURPOSE OF COMPLYING WITH A MINIMUM PARKING SPACE REQUIREMENT. THIS SHALL RESULT IN A REDUCTION OF NO MORE THAN 10 PERCENT OF THE TOTAL REQUIRED PARKING.
6. 52 COMMON PARKING SPACES ARE REQUIRED PRIOR TO 10% REDUCTION FOR EVSE SPACES. TOTAL COMMON PARKING SPACES REQUIRED ARE 47 SPACES WHERE 47 SPACES ARE PROVIDED

APPROVED BY THE HOPEWELL TOWNSHIP PLANNING BOARD AS A PRELIMINARY / FINAL MAJOR SITE PLAN

CHAIRMAN DATE

SECRETARY DATE

ENGINEER DATE

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	IAB
10/05/23	GENERAL REVISIONS	AFS	IAB
09/21/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: AS SHOWN
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 01-Title.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE49250000

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
TITLE SHEET
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
ENGINEERING PARTNERS, LLC
203N3 Bryan Road, Suite 300
Mount Laurel, NJ 08054
609-910-4440
Certificate of Authorization No. 24GA28018000
Louis L. Zungar IV P.E. PE No. GE49250500
William J. Parkhill II P.E. PE No. GE49250000

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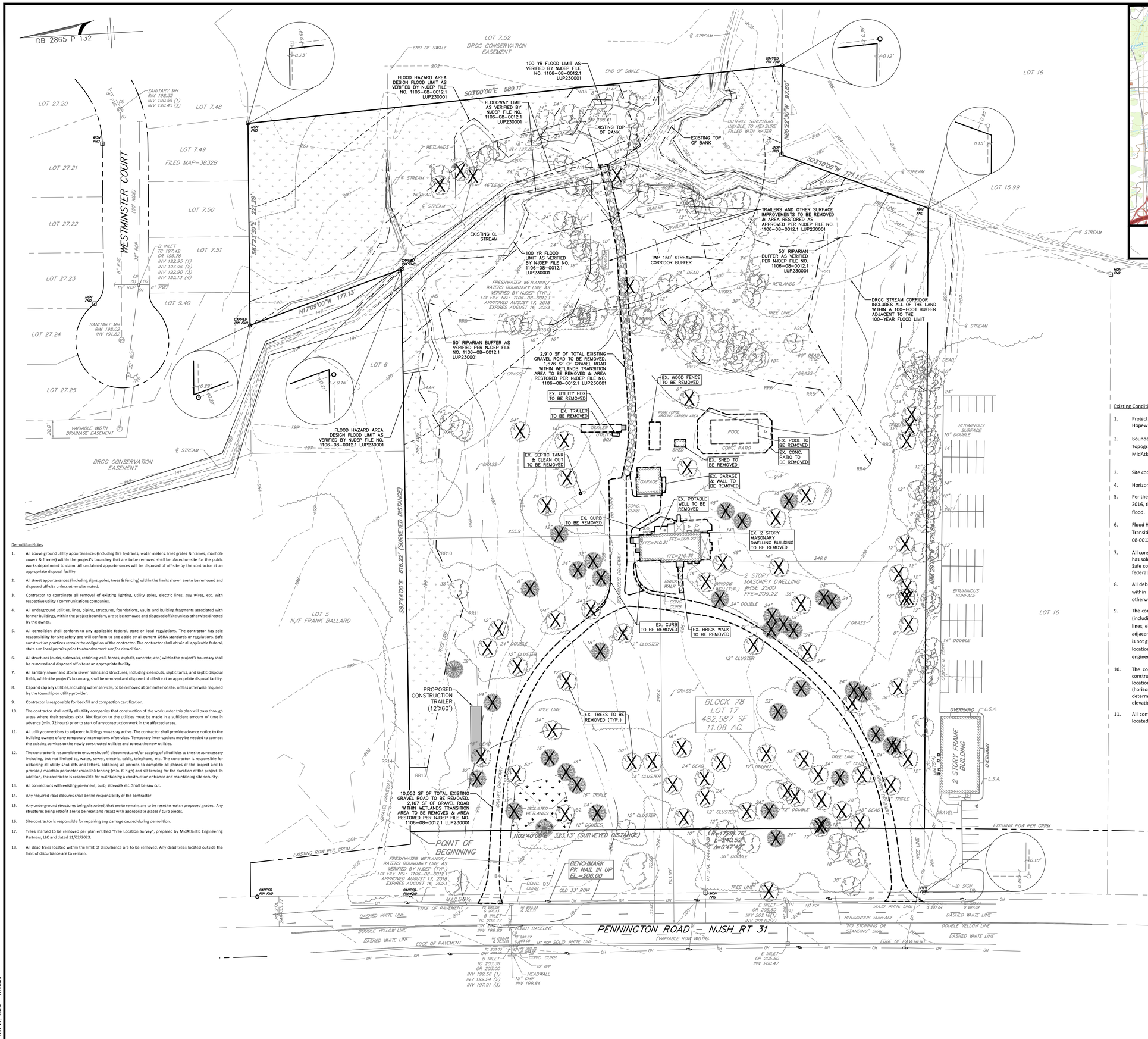

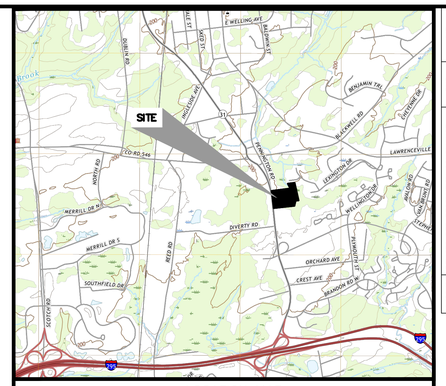

LOCATION MAP

PENNINGTON, NJ USGS QUAD MAP
SCALE: 1"=2000'

Demolition Notes

1. All above ground utility appurtenances (including fire hydrants, water meters, inlet grates & frames, manhole covers & frames) within the project's boundary that are to be removed shall be placed on-site for the public works department to claim. All unclaimed appurtenances will be disposed of off-site by the contractor at an appropriate disposal facility.
2. All street appurtenances (including signs, poles, trees & fencing) within the limits shown are to be removed and disposed off-site unless otherwise noted.
3. Contractor to coordinate all removal of existing lighting, utility poles, electric lines, guy wires, etc. with respective utility / communications companies.
4. All underground utilities, lines, piping, structures, foundations, vaults and building fragments associated with former buildings, within the project boundary, are to be removed and disposed offsite unless otherwise directed by the owner.
5. All demolition shall conform to any applicable federal, state or local regulations. The contractor has sole responsibility for site safety and will conform to and abide by all current OSHA standards or regulations. Safe construction practices remain the obligation of the contractor. The contractor shall obtain all applicable federal, state and local permits prior to abandonment and/or demolition.
6. All structures (curbs, sidewalks, retaining wall, fences, asphalt, concrete, etc.) within the project's boundary shall be removed and disposed off-site at an appropriate facility.
7. All sanitary sewer and storm sewer mains and structures, including cleanouts, septic tanks, and septic disposal fields, within the project's boundary, shall be removed and disposed of off-site at an appropriate disposal facility.
8. Cap and cap any utilities, including water services, to be removed at perimeter of site, unless otherwise required by the township or utility provider.
9. Contractor is responsible for backfill and compaction certification.
10. The contractor shall notify all utility companies that construction of the work under this plan will pass through areas where their services exist. Notification to the utilities must be made in a sufficient amount of time in advance (min. 72 hours) prior to start of any construction work in the affected areas.
11. All utility connections to adjacent buildings must stay active. The contractor shall provide advance notice to the building owners of any temporary interruptions of services. Temporary interruptions may be needed to connect the existing services to the newly constructed utilities and to test the new utilities.
12. The contractor is responsible to ensure shut off, disconnect, and/or capping of all utilities to the site as necessary including, but not limited to, water, sewer, electric, cable, telephone, etc. The contractor is responsible for obtaining all utility shut offs and letters, obtaining all permits to complete all phases of the project and to provide / maintain perimeter chain link fencing (min. 6' high) and silt fencing for the duration of the project. In addition, the contractor is responsible for maintaining a construction entrance and maintaining site security.
13. All connections with existing pavement, curb, sidewalk etc. Shall be saw cut.
14. Any required road closures shall be the responsibility of the contractor.
15. Any underground structures being disturbed, that are to remain, are to be reset to match proposed grades. Any structures being retrofit are to be reset and recast with appropriate grates / curb pieces.
16. Site contractor is responsible for repairing any damage caused during demolition.
17. Trees marked to be removed per plan entitled "Tree Location Survey", prepared by MidAtlantic Engineering Partners, LLC and dated 11/02/2023.
18. All dead trees located within the limit of disturbance are to be removed. Any dead trees located outside the limit of disturbance are to remain.

Existing Conditions Notes

1. Project site being known and designated as Block 78, Lot 17, as shown on the current tax assessment map of Hopewell Township, Mercer County, New Jersey (Sheet 20), containing 11.08 acres
2. Boundary, topographic information and existing conditions shown based upon map entitled "Boundary & Topographic Survey, Block 78, Lot 17, situated in Hopewell Township, Mercer County, New Jersey" prepared by MidAtlantic Engineering Partners, LLC and dated 8/30/22
3. Site coordinates: N 535866, E 413214
4. Horizontal Datum: NAD 83 Vertical Datum: NAVD 88
5. Per the FEMA Flood Insurance Rate Map, Community Panel No. 34021C0116F, with an effective date of July 20, 2016, the property is located in Floodplain Zone X, areas determined to be outside the 0.2% annual chance of flood.
6. Flood Hazard Area Individual Permit, Flood Hazard Area Verification, Freshwater Wetlands General Permit, and Transition Area Waiver Averaging Plan have been approved by NJDEP on 09/22/23, File and Activity No. 1106-08-0012.1 LUP230001.
7. All construction and demolition shall conform to any applicable federal, state and local regulations. Contractor has sole responsibility for site safety and to conform to and abide by all current OSHA standards or regulations. Safe construction practices remain the obligation of the contractor. The contractor shall obtain all applicable federal, state and local permits prior to construction.
8. All debris generated during construction such as trees, stumps, vegetation, dirt piles, construction debris, etc within the project's boundary shall be removed as part of this project and be disposed of off-site unless otherwise stated or approved.
9. The contractor is directed to the fact that the approximate locations of known utility structures and facilities (including but not limited to sanitary sewers, storm sewers, potable water lines and appurtenances, natural gas lines, electric, telephone and CATV lines and underground storage tanks) that may be encountered within and adjacent to the limits of the work are shown on the plans. The accuracy and completeness of this information is not guaranteed by the engineer, and the contractor is advised to verify in the field all the facts concerning the location of these utilities or other construction obstacles prior to construction. The contractor shall notify the engineer, in writing, prior to construction, of any discrepancies which may affect the project design.
10. The contractor shall verify locations of existing utilities and all other site conditions prior to beginning construction. Location of existing utilities shown on these drawings are approximate and subject to exact location in the field during construction as required by engineer or as deemed necessary to accurately locate (horizontal and vertically) all impacted utilities which are in conflict with new construction. Contractor to determine the location and elevation of the conflicting utilities and submit the data to the engineer for review elevation prior to construction.
11. All contractors must call the New Jersey one call system (1-800-272-1000) to have all underground utilities located prior to any demolition, construction, abandonment, soils investigation, and/or excavations.

LEGEND

PROJECT BOUNDARY
EXISTING BUILDING
EXISTING CENTERLINE
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING SPOT ELEVATION x 57.6
EXISTING WETLANDS LINE
EXISTING WETLANDS FLAG WLF
EXISTING SANITARY SEWER LINE
EXISTING SANITARY SEWER MANHOLE
EXISTING STORM SEWER LINE
EXISTING TYPE 'A' INLET
EXISTING TYPE 'B' INLET
EXISTING TYPE 'E' INLET
EXISTING MANHOLE/STORM GRATE
EXISTING WATER LINE W
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING GAS LINE G
EXISTING GAS VALVE
EXISTING OVERHEAD ELECTRIC LINE OH
EXISTING UTILITY POLE
EXISTING UTILITY POLE W/ LIGHT
EXISTING FENCELINE X X
EXISTING GUIDERAIL
EXISTING SIGNAGE
100-YR WATER SURFACE ELEV. 100.0
50' RIPARIAN BUFFER
FLOOD HAZARD LIMIT
100-YR FLOOD LIMIT
EXISTING TOP OF BANK
EXISTING STREAM CL
DRCC 100 FT BUFFER CORRIDOR

40 20 0 40 80 120
30 10
GRAPHIC SCALE
1 inch = 40 feet

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 02-Ex Conditions.dwg

11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE54728500

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
EXISTING CONDITIONS & DEMOLITION PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
Engineering Partners, LLC
2309B Briggs Road, Suite 300
Mount Laurel, NJ 08054
856-914-4050
Certificate of Authorization No. 24GA28184000
Louis L. Zwigner IV P.E. PE No. GE54726500
William J. Parkhill P.E. PE No. GE54728500

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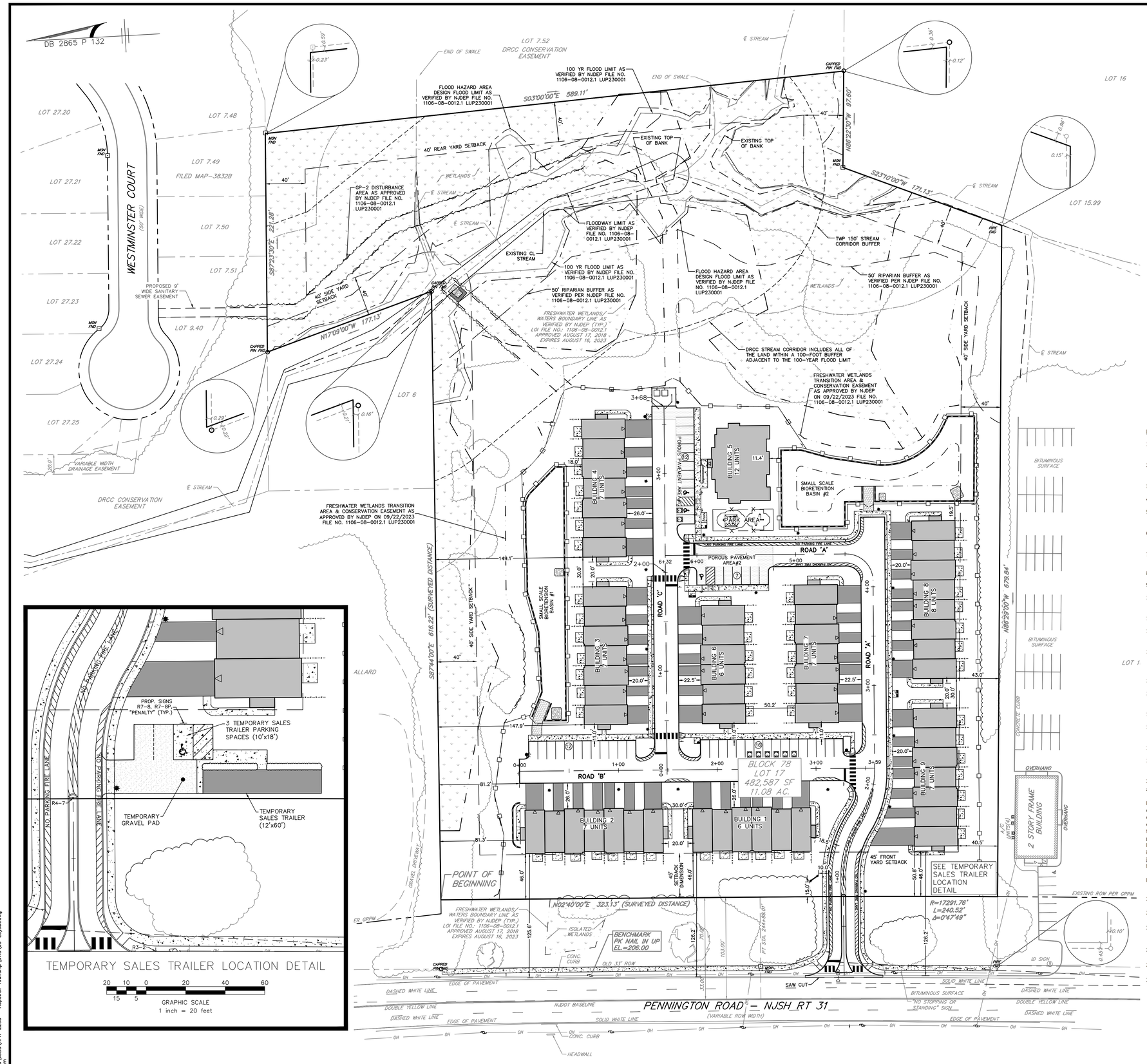

TEMPORARY SALES TRAILER LOCATION DETAIL

AMERICAN PROPERTIES HOPEWELL	ZONE: Inclusionary Multi-Family (IMF-1)
PROPOSED USE	Residential: Garden Apartments / Stacked Flats

BLOCK 78, LOT 17

BULK ZONE CRITERIA

	REQUIRED	EXISTING	PROPOSED	COMPLIES
MIN. LOT AREA	10 AC	11.08 AC	11.08 AC	YES
MIN. LOT FRONTAGE	150 FT	563.65 FT	563.65 FT	YES
MIN. LOT WIDTH	300 FT	563.65 FT	563.65 FT	YES
MIN. LOT DEPTH	200 FT	806.88 FT	806.88 FT	YES
MIN. BUILDING SETBACK				
FRONT YARD	45 FT	292.6 FT	46.0 FT	YES
INDIVIDUAL UNIT FROM CURB/SIDEWALK (FRONT YARD)	20 FT	-	20.0 FT	YES
SIDE/REAR YARD	40 FT	246.6 FT	40.5 FT	YES
INDIVIDUAL UNIT FROM CURB (SIDE YARD)	10 FT	-	11.0 FT	YES
BUILDING TO BUILDING	20 FT	-	20.0 FT	YES
MAX. BUILDING COVERAGE	30%	0.42%	14.45%	YES
MAX. IMPERVIOUS COVERAGE	60%	1.62%	26.07%	YES
MAX. DENSITY	8 Units / Acre	1 Unit / Acre	6 Units / Acre	YES
MAX. BUILDING HEIGHT TOWNHOUSE AFFORDABLE APARTMENT	3 Stories / 45 FT	-	 3 Stories / 40.96 Ft. 3 Stories / <40 Ft.	YES
DRIVE AISLE WIDTH	24 FT	-	24.0 FT	YES
PARKING REQUIREMENTS				
NUMBER OF SPACES [1]	157 10% Reduction = 142 Spaces[2]	-	189	YES
SETBACK FROM PROPERTY LINE	20 FT	-	91.44 FT	YES
DISTANCE FROM BUILDING	10 FT	-	16.50 FT	YES
STALL SIZE	9 FT x 18 FT	-	9 FT x 18 FT	
MIN. MAKE-READY EVSE	15% of Req. Off-Street Spaces (Total Off-Street = 52 Spaces)	-	8 Spaces [3]	YES
MIN. LANDSCAPE BUFFER		-		
FRONT YARD	25 FT	-	25 FT	YES
SIDE YARD	20 FT	-	20 FT	YES
AFFORDABLE HOUSING	15%	-	18.0%	YES
MIN. OPEN SPACE	20%	-	>20%	YES
MAX. BUILDING LENGTH	225 FT	-	169.67 FT	YES

1. Parking Requirements per RSIS.
2. Pursuant Ordinance 2022-OR-030, a parking space prepared with EVSE or Make-Ready equipment shall count as at least two parking spaces for the purpose of complying with a minimum parking space requirement. This shall result in a reduction of no more than 10 percent of the total required parking.
3. Pursuant Ordinance 2022-OR-030, one third of the total number of Make Ready EVSE parking spaces must be made active at the conclusion of construction. Of the remaining spaces, half must be made active within 3 years of completion of the construction project. Lastly, any remaining Make Ready EVSE spaces must be made active within 6 years of completing construction.

Layout Notes:

1. Project site being known and designated as Block 78, Lot 17, as shown on the current tax assessment map of Hopewell Township, Mercer County, New Jersey (Sheet 20), containing 11.080 acres.
2. Boundary, topographic information and existing conditions shown based upon map entitled "Boundary & Topographic Survey, Block 78, Lot 17, situated in Hopewell Township, Mercer County, New Jersey" prepared by MidAtlantic Engineering Partners, LLC and dated 8/30/22.
3. Site coordinates: N 535866, E 413214
4. Horizontal Datum: NAD 83 Vertical Datum: NAVD 88
5. Per the FEMA Flood Insurance Rate Map, Community Panel No. 34021C0116F, with an effective date of July 20, 2016, the property is located in Floodplain Zone X, areas determined to be outside the 0.2% annual chance of flood.
6. Flood Hazard Area Individual Permit, Flood Hazard Area Verification, Freshwater Wetlands General Permit, and Transition Area Waiver Averaging Plan have been approved by NJDEP on 09/22/23, File and Activity No. 1106-08-0012.1 LUP230001.
7. All construction to be in accordance with *NJDOT Standard Specifications for Road and Bridge Construction*, latest edition. Pavement striping and/or traffic control signage shall be installed in strict accordance with requirements of *The Manual on Uniform Traffic Control Devices* (MUTCD).
8. All stop bars internal to the site shall be 12" wide and all stop bars at site access locations shall be 24" wide.
9. All curb and sidewalks shall conform to state and federal barrier free design standards.
10. All sidewalk ramps marked HCR to have detectable warning surface installed in accordance with ADA regulations. All detectable warning strips shall be "replaceable wet-set" or equivalent. Surface mount or "stick on" warning strips are not permitted unless noted otherwise.
11. All proposed curbing to be Belgian block curb, unless otherwise noted.
12. Existing concrete curbing and/or walks that will be removed shall be removed from an existing expansion joint or saw cut for removal at an existing construction joint.
13. Where concrete curbing will be constructed within, or adjacent to, existing bituminous pavement, it shall be saw cut and removed, clear through to the subgrade, a minimum distance of 18 inches from, and parallel to, the proposed curb face. This requirement may be modified in the field if the Municipal / County Engineer determines that "face forming" of new curbs is more desirable.
14. Sidewalk/walkway risers must be greater than 4" and less than 7".
15. This project has been designed in accordance with New Jersey Administrative Code, Title 5, Chapter 21, "Residential Site Improvement Standards" to the maximum extent feasible.
16. See architect's plans for building elevations and floor plans.
17. All contractors must call the New Jersey One Call System (800-272-1000) in accordance with the Underground Facilities Control Act Law prior to any subsurface activity.
18. The contractor's work shall be in conformance with NJDOT 'Standard Specifications for Road and Bridge Construction', latest edition.
19. All signage to be posted and striping to be installed in accordance with the United States Department of Transportation-Federal Highway Administration, "Manual on Uniform Traffic Control Devices for Street and Highways (MUTCD), latest edition.
20. The contractor shall:
    a. Perform all work for the project in a finished and workmanlike manner to the satisfaction of the owner and in accordance with the best recognized trade practices.
    b. Be responsible to maintain the site in a clean and organized manner.
    c. Dispose of any and all construction debris in accordance with any local, state, or federal requirements.
    d. Repair any damage to public streets, curbs, sidewalks and utilities as a result of construction activities.
    e. Coordinate the construction schedule with the owner prior to start of work.
    f. Obtain any required road opening permits and perform work in accordance with AHJ requirements.
    g. Be responsible to provide traffic control including barricades, lighting, signage etc. as may be necessary for completion of the project.
    h. Be responsible for site safety & security and the means & methods of construction for project duration.
    i. Confirm the location of all utilities prior to start of construction by requesting a utility mark out and completing test pits as necessary.
    j. Notify the owner and engineer of any required field change immediately.
    k. Maintain dimensioned redline plans of all installed infrastructure and improvements that shall be provided to the owner / engineer noting the locations of all underground infrastructure such as electric conduit, water lines, roof leader collection piping etc.
    l. Only import certified clean fill (if required) in accordance with NJDEP Technical Requirements N.J.A.C 7:26E. All imported material requires approval by owner and their environmental consultant prior to placement onsite.
21. All easements for public purposes shall be dedicated to the township, unless otherwise noted.
22. Assigned parking spaces at a ratio of one space per affordable unit to be designated with painted marking.
23. All traffic control devices shall conform with the Manual on Uniform Traffic Control Devices, latest revised edition, and the latest New Jersey Department of Transportation Details and Standard Specifications.
24. Any conflicting existing pavement markings shall be removed by grinding method.
25. All striping dimensions shall be measured to the center of the line and to the physical center of double lines.
26. All sidewalk and curb within public right-of-way along the property frontage that is deteriorated or presents a tripping hazard shall be replaced under the direction of the county engineer or his/her representatives

LEGEND

EXISTING BOUNDARY
EXISTING CURB
PROPOSED CURB
EXISTING BUILDING
PROPOSED BUILDING
PROPOSED SIGN
PROPOSED SETBACK
EXISTING FENCELINE
PROPOSED FENCELINE
100-YR WATER SURFACE ELEV.
50' RIPARIAN BUFFER
FLOOD HAZARD LIMIT
100-YR FLOOD LIMIT
EXISTING TOP OF BANK
EXISTING STREAM CL
DRCC 100 FT BUFFER CORRIDOR
BASIN BOTTOM
PROPOSED RETAINING WALL
START MOUNTABLE CURB S.M.C.
END MOUNTABLE CURB E.M.C.

11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF
DATE	REVISIONS	DRAWN BY	CHECKED BY

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY: JMF
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 03-Layout.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE042458300

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
OVERALL GEOMETRY, SIGNAGE, & STRIPING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
Engineering Partners LLC
2026B Briggs Road, Suite 300
Mount Laurel, NJ 08054
609-914-0476
Certificate of Authorization No. 24GA28185000
Louis L. Zangrari IV P.E. PE No. GE042595300
William J. Parkhill II P.E. PE No. GE042458300

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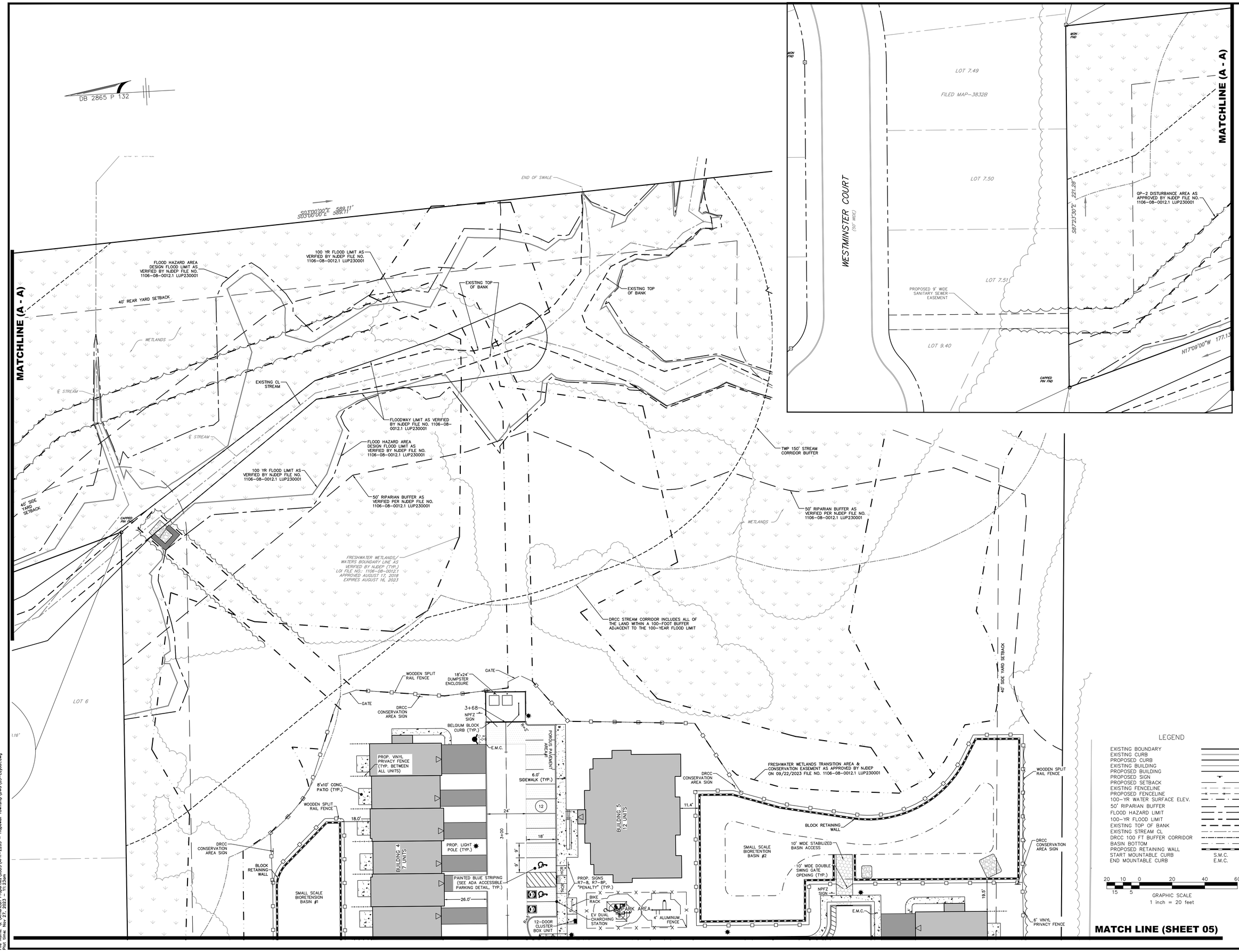

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10/05/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF
DATE	REVISIONS	DRAWN BY	CHECKED BY

DRAWN BY: IAB
CHECKED BY: JMF
RELEASED BY:
DATE: 08/31/23
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 03-Layout.dwg

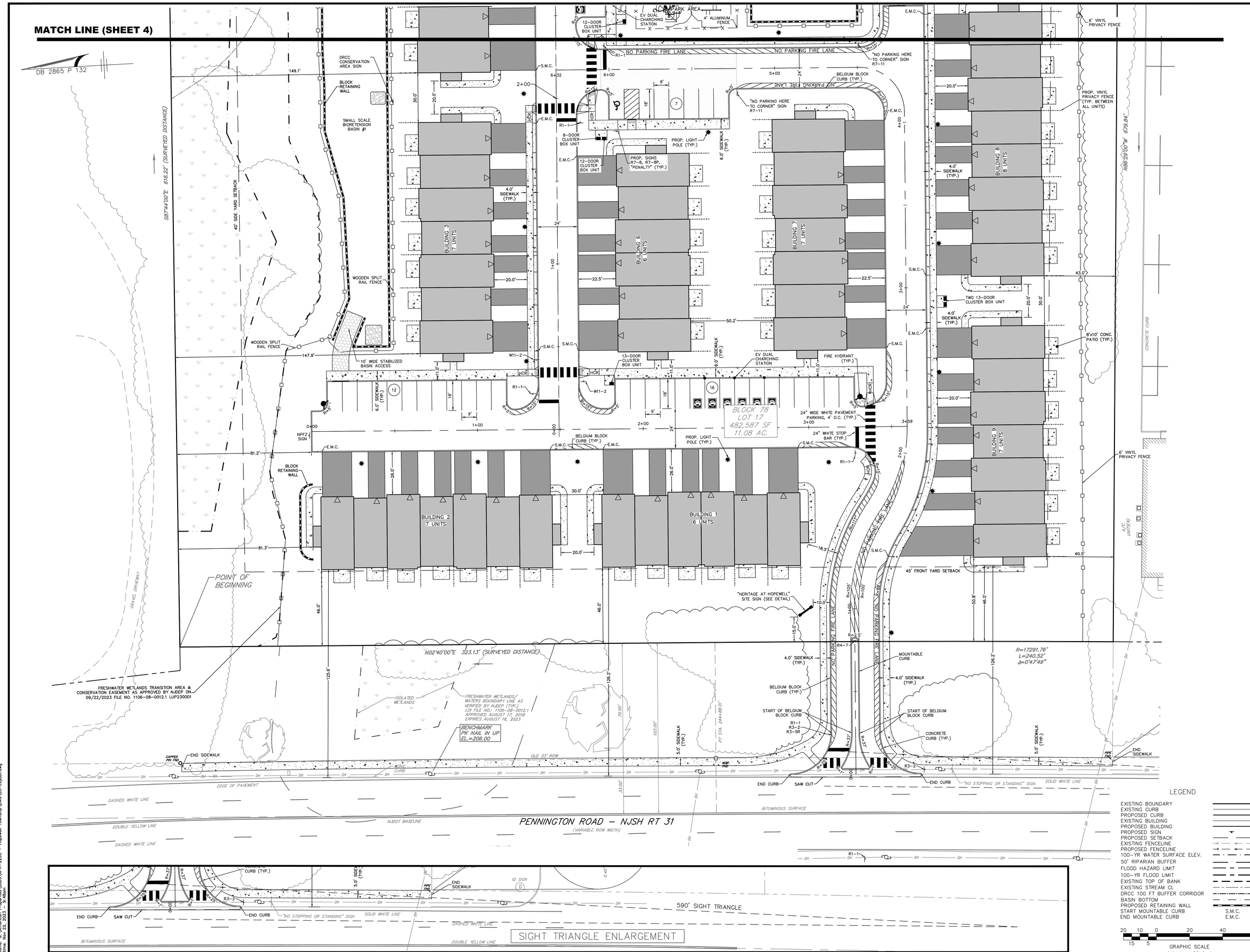
11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE54250000

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
GEOMETRY, SIGNAGE, & STRIPING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
ENGINEERING & PLANNING, LLC
2109B Briggs Road, Suite 300
Mount Laurel, NJ 08054
609-914-1440
Certificate of Authorization No. 24GA28185000
PE No. GE54250000
PE No. GE54250000
Louis L. Zuegner IV P.E.
Wissal J. Fawal P.E.

Sheet Number
4 OF 24



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11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
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09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=20'
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 03-Layout.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE49230600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
GEOMETRY, SIGNAGE, & STRIPING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20298 Bridge Road, Suite 200
Mount Laurel, NJ 08054
856-810-1450
Certificate of Authorization No. 24GA28184000
PE No. GE40265600
PE No. GE49230600
Louis L. Zuagner IV P.E.
William J. Parkhill P.E.

Sheet Number
5 OF 24

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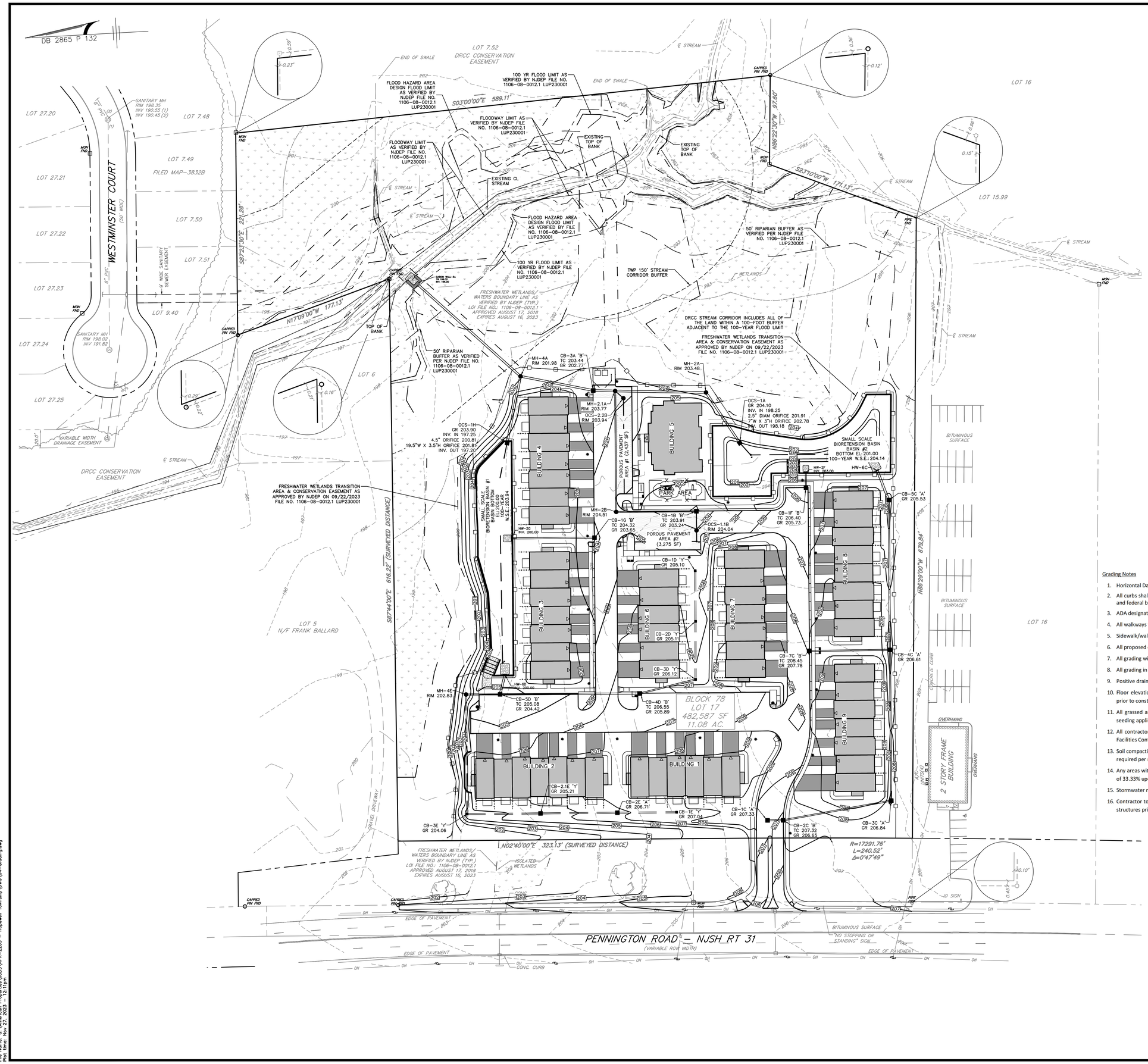

Grading Notes

1. Horizontal Datum: NAD 83 Vertical Datum: NAVD 88
2. All curbs shall be pavement flush depressed at crosswalks and handicapped ramps to conform to applicable state and federal barrier free design standards.
3. ADA designated units are to conform to the accessibility standards set forth in the Americans with Disabilities Act.
4. All walkways to have a maximum cross slope of 2% and running slope of 5% unless otherwise noted.
5. Sidewalk/walkway risers must be greater than 4" and less than 7". Tread depth to be 11" min.
6. All proposed curbing shall have a 6" reveal, unless otherwise stated.
7. All grading within grassed areas to be a minimum of 2% and a maximum of 3:1 slope unless otherwise noted.
8. All grading in pavement areas shall be greater than 1% unless otherwise noted.
9. Positive drainage to be maintained from all buildings in accordance with applicable regulations and building code.
10. Floor elevations, adjacent grade, doorway locations and elevations shall be confirmed with architectural plans prior to construction by the contractor.
11. All grassed areas to have a minimum of 4" clean top soil, when sod is being installed, or 6" clean top soil for seeding applications.
12. All contractors must call the New Jersey One Call System (800-272-1000) in accordance with the Underground Facilities Control Act Law prior to any subsurface activity.
13. Soil compaction to be per architectural requirements based on slab and footing design. 95% minimum compaction required per modified proctor moisture density test procedure ASTM D1557.
14. Any areas within the development which shall be disturbed during development shall not contain slopes in excess of 33.33% upon completion of the development.
15. Stormwater management basins have been designed in compliance with all applicable N.J.A.C. 7:8 requirements.
16. Contractor to provide shop drawings and structural calculations for any oversized drainage structures and outlet structures prior to construction.

LEGEND

EXISTING CONTOUR	
PROPOSED CONTOUR	
EXISTING SPOT ELEVATION	x 57.6
PROPOSED SPOT ELEVATION	x 57.6
EXISTING SANITARY SEWER LINE	
PROPOSED SANITARY SEWER LINE	S
EXISTING STORM SEWER LINE	
PROPOSED STORM SEWER LINE	
EXISTING INLET	
PROPOSED INLET	
PROPOSED MANHOLE	
EXISTING SANITARY MANHOLE	S
PROPOSED SANITARY MANHOLE	S
100-YR WATER SURFACE ELEV.	
50' RIPARIAN BUFFER	
FLOOD HAZARD LIMIT	
100-YR FLOOD LIMIT	
EXISTING TOP OF BANK	
EXISTING STREAM CL	
DRCC 100 FT BUFFER CORRIDOR	

40 20 0 40 80 120
30 10
GRAPHIC SCALE
1 inch = 40 feet

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11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/21/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB	CHECKED BY: JMF
DATE: 08/31/23	HORIZONTAL SCALE: 1"=40'
PROJECT No.: APR-2203	VERTICAL SCALE: N/A
DRAWING NAME: 04-Grading.dwg	RELEASED BY:

11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE54750600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
OVERALL GRADING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

Mid Atlantic Engineering/Realty Solutions, LLC
Certificate of Authorization No. 24GA28194000
20249 Bridge Road, Suite 300
Mount Laurel NJ 08054
609-410-4450
Louis L. Zungre IV P.E. PE No. GE54226500
William J. Parkhill II P.E. PE No. GE54750600

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Plot Time: Nov 27, 2023 - 12:19pm

LEGEND

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- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING SANITARY SEWER LINE
- PROPOSED SANITARY SEWER LINE
- EXISTING STORM SEWER LINE
- PROPOSED STORM SEWER LINE
- EXISTING INLET
- PROPOSED INLET
- PROPOSED MANHOLE
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- 100-YR WATER SURFACE ELEV.
- 50' RIPARIAN BUFFER
- FLOOD HAZARD LIMIT
- 100-YR FLOOD LIMIT
- EXISTING TOP OF BANK
- EXISTING STREAM CL
- DRCC 100 FT BUFFER CORRIDOR

DB 2865 P 132

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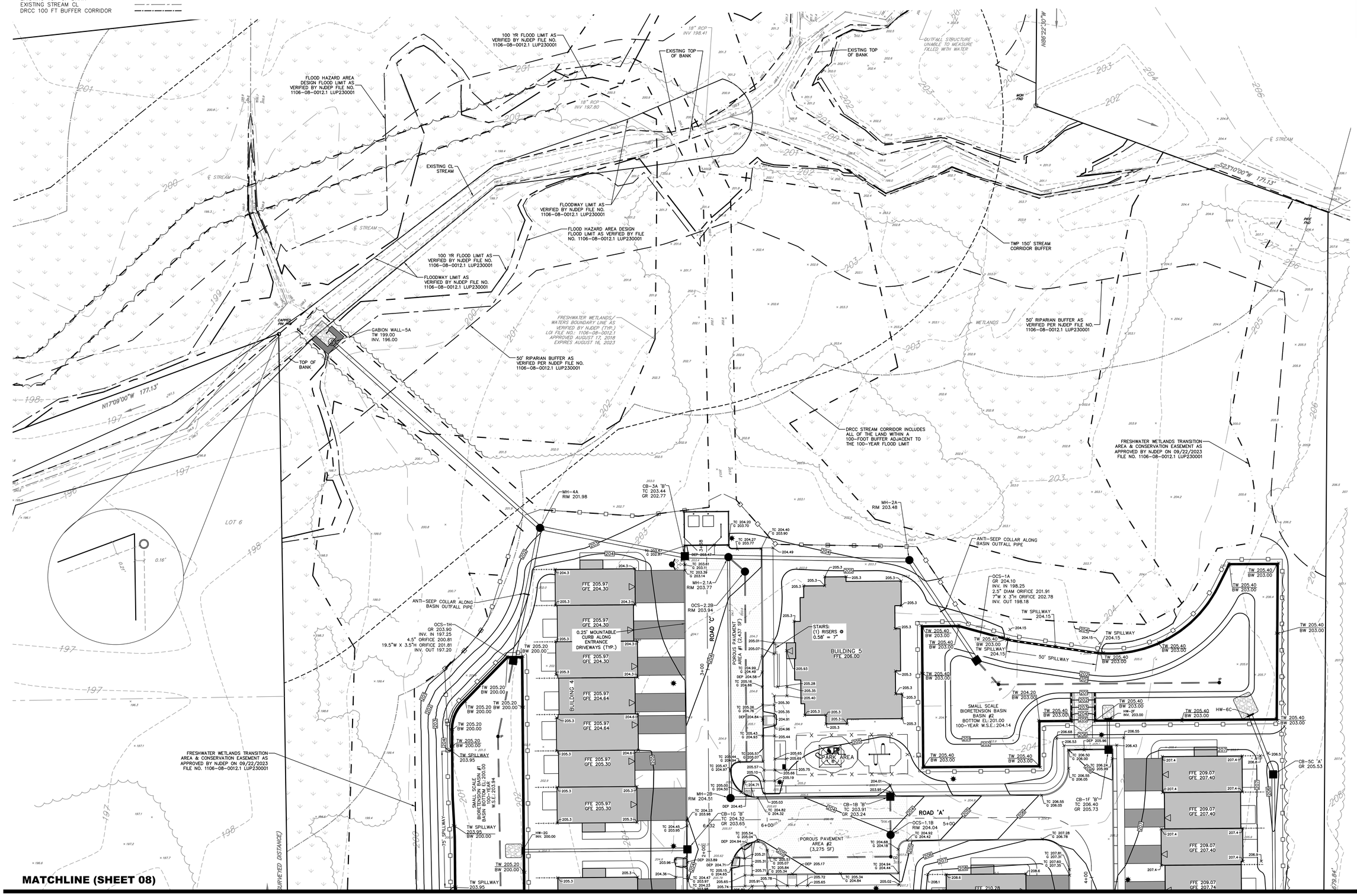
GRAPHIC SCALE
1 inch = 20 feet



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11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
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09/21/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
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CHECKED BY: JMF
HORIZONTAL SCALE: 1"=20'
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VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 04-Grading.dwg

William J. Parkhill II, P.E.
Date 11-22-2023
PROFESSIONAL ENGINEER
N.J. Lic. No. GE45630

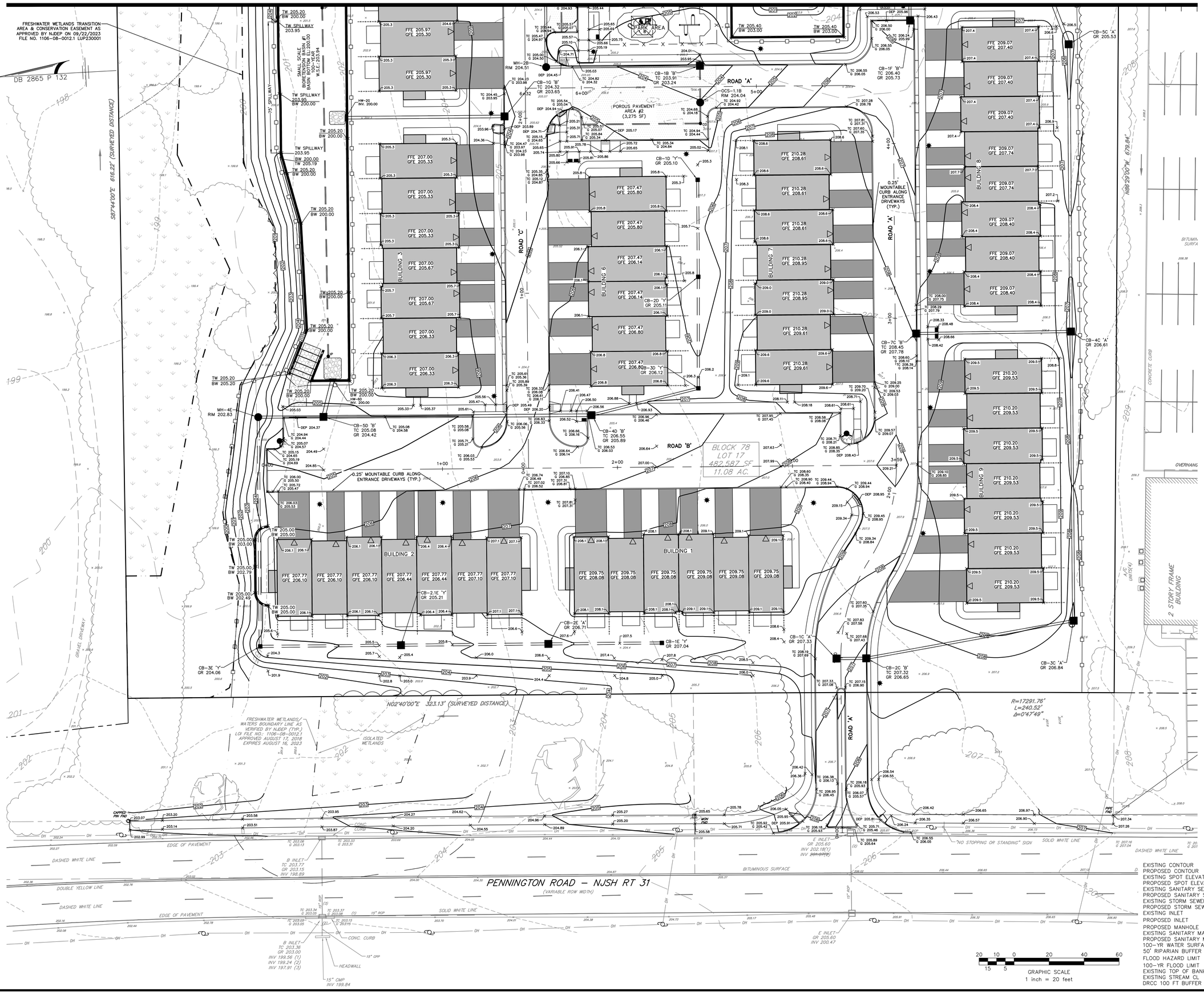
PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
GRADING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20195 Bridge Road, Suite 200
Mount Laurel, NJ 08054
609-910-4450
Certificate of Authorization No.: 24GA28184000
PE No. GE042600
PE No. GE045630
Louis L. Zungre IV P.E.
William J. Parkhill P.E.

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\04-Grading.dwg
Plot time: Nov 22, 2023 - 11:32am

MATCHLINE (SHEET 07)



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING SANITARY SEWER LINE
- PROPOSED SANITARY SEWER LINE
- EXISTING STORM SEWER LINE
- PROPOSED STORM SEWER LINE
- EXISTING INLET
- PROPOSED INLET
- PROPOSED MANHOLE
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- 100-YR WATER SURFACE ELEV.
- 50' RIPARIAN BUFFER
- FLOOD HAZARD LIMIT
- 100-YR FLOOD LIMIT
- EXISTING TOP OF BANK
- EXISTING STREAM CL
- DRCC 100 FT BUFFER CORRIDOR

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/21/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
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RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 04-Grading.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. License No. 24GE04018400

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
GRADING PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

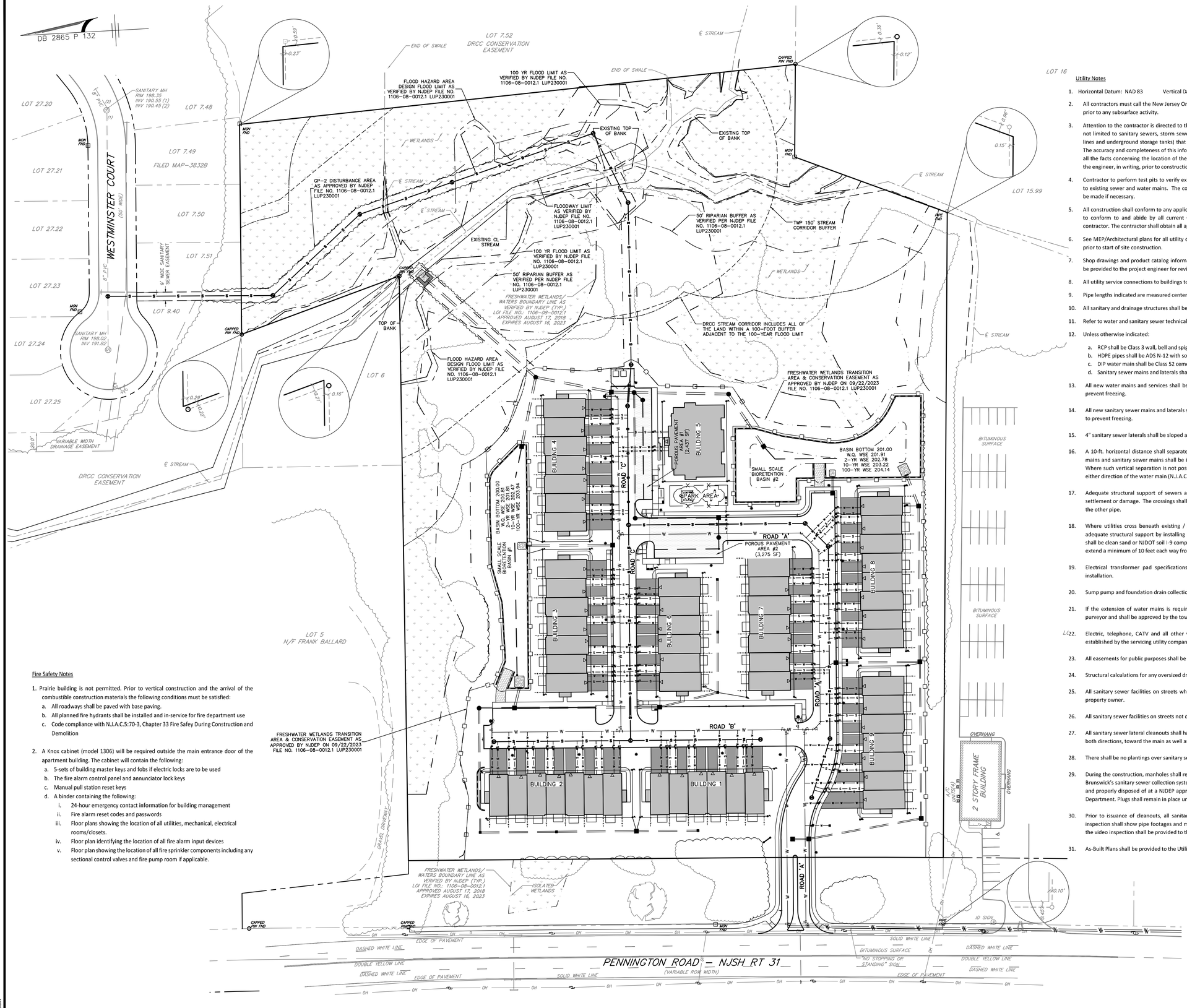
MidAtlantic
Engineering Partners, LLC
20399 Bridge Road, Suite 300
Mount Laurel, NJ 08054
(609) 910-4400

Certificate of Authorization No. 24GA28184000
PE No. GE04208300
PE No. GE04208300

Louis L. Zungner IV P.E.
William J. Parkhill II P.E.

Sheet Number 8 OF 24

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\04-Grading.dwg
Plot time: Nov 27, 2023 - 11:37am



Utility Notes

1. Horizontal Datum: NAD 83 Vertical Datum: NAVD 88
2. All contractors must call the New Jersey One Call System (800-272-1000) in accordance with the Underground Facilities Control Act Law prior to any subsurface activity.
3. Attention to the contractor is directed to the fact that the approximate locations of known utility structures and facilities (including but not limited to sanitary sewers, storm sewers, potable water lines and appurtenances, natural gas lines, electric, telephone and CATV lines and underground storage tanks) that may be encountered within and adjacent to the limits of the work are shown on the plans. The accuracy and completeness of this information is not guaranteed by the engineer, and the contractor is advised to verify in the field all the facts concerning the location of these utilities or other construction obstacles prior to construction. The contractor shall notify the engineer, in writing, prior to construction, of any discrepancies which may affect the project design.
4. Contractor to perform test pits to verify existing utility depths, sizes and locations prior to connecting proposed sewer and water mains to existing sewer and water mains. The contractor shall notify the engineer in writing of any conflicts so that design modifications can be made if necessary.
5. All construction shall conform to any applicable federal, state and local regulations. Contractor has sole responsibility for site safety and to conform to and abide by all current OSHA standards or regulations. Safe construction practices remain the obligation of the contractor. The contractor shall obtain all applicable federal, state and local permits prior to construction.
6. See MEP/Architectural plans for all utility connections to building. All utility connections shall be reviewed & verified by the contractor prior to start of site construction.
7. Shop drawings and product catalog information for all water and sanitary sewer structures, conduits, materials, and appurtenances, to be provided to the project engineer for review and approval prior to purchasing.
8. All utility service connections to buildings to be located underground.
9. Pipe lengths indicated are measured center to center of each structure.
10. All sanitary and drainage structures shall be precast concrete unless otherwise specified.
11. Refer to water and sanitary sewer technical specifications for material, installation and testing requirements.
12. Unless otherwise indicated:
    a. RCP shall be Class 3 wall, bell and spigot type with O-ring gaskets.
    b. HDPE pipes shall be ADS N-12 with soil tight joints or approved equal.
    c. DIP water main shall be Class 52 cement-lined ductile iron pipe (polyethylene encasement).
    d. Sanitary sewer mains and laterals shall be PVC SDR-35, push on, gasketed joint (ASTM-3034).
13. All new water mains and services shall be installed with a minimum of 4 feet of cover (relative to proposed grade) over the pipe to prevent freezing.
14. All new sanitary sewer mains and laterals shall be installed with a minimum of 3 feet of cover (relative to proposed grade) over the pipe to prevent freezing.
15. 4" sanitary sewer laterals shall be sloped at 1:48 (2.1%). 6" laterals shall be sloped at 1:96 (1.05%).
16. A 10-ft. horizontal distance shall separate water mains and sanitary sewer mains. Where such separation is not possible, the water mains and sanitary sewer mains shall be installed in separate trenches with the water main at least 18 inches above the sewer main. Where such vertical separation is not possible, the sewer main shall be constructed with watertight joints for a distance of 10 feet in either direction of the water main (N.J.A.C. 7:10-11.7(d)-5).
17. Adequate structural support of sewers and water lines at all points of crossing shall be provided to prevent excessive deflection, settlement or damage. The crossings shall be arranged such that the joints in the pipes are equidistant and as far apart as possible from the other pipe.
18. Where utilities cross beneath existing / proposed water mains or storm and sanitary sewers, the utility contractor shall provide adequate structural support by installing select backfill from the utility to the spring line of the water main or sewer. Select backfill shall be clean sand or NJDOT soil I-9 compacted to 95% of the modified proctor aggregate type density ASTM D-698 Method D. It shall extend a minimum of 10 feet each way from the centerline of the crossing.
19. Electrical transformer pad specifications, conduit locations and installation to be coordinated with electric company prior to installation.
20. Sump pump and foundation drain collection systems to be provided for residential units.
21. If the extension of water mains is required, the spacing and location of hydrants will comply with the fire standards of the water purveyor and shall be approved by the township engineer and fire official.
22. Electric, telephone, CATV and all other wire-served utility extensions and services shall be installed underground with standards established by the servicing utility company and approved by the township engineer.
23. All easements for public purposes shall be dedicated to the township, unless otherwise noted.
24. Structural calculations for any oversized drainage structures and the outlet structures should be provided.
25. All sanitary sewer facilities on streets where multi-family unit buildings are located shall be privately owned and maintained by the property owner.
26. All sanitary sewer facilities on streets not dedicated to the Township shall be privately owned and maintained by the property owner.
27. All sanitary sewer lateral cleanouts shall have two way tee-wyes to allow for cleaning, as well as TV inspection equipment to navigate in both directions, toward the main as well as to buildings.
28. There shall be no plantings over sanitary sewer lines.
29. During the construction, manholes shall remain plugged, using mechanical plugs, isolating all construction site sanitary lines from South Brunswick's sanitary sewer collection system. Prior to plug removal, any water in sanitary sewer lines or manholes shall be pumped out and properly disposed of at a NJDEP approved facility. Copies of all invoices for wastewater disposal shall be forwarded to the Utility Department. Plugs shall remain in place until the Utilities Department approves removal.
30. Prior to issuance of cleanouts, all sanitary sewer lines are to be cleaned, followed by a professional video inspection. They video inspection shall show pipe footages and manhole numbers. The camera shall have the ability to pan, showing all pipe joints. A copy of the video inspection shall be provided to the Utility Department for review.
31. As-Built Plans shall be provided to the Utilities Department on AutoCAD disc.

Fire Safety Notes

1. Prairie building is not permitted. Prior to vertical construction and the arrival of the combustible construction materials the following conditions must be satisfied:
   a. All roadways shall be paved with base paving.
   b. All planned fire hydrants shall be installed and in-service for fire department use
   c. Code compliance with N.J.A.C.5:70-3, Chapter 33 Fire Safey During Construction and Demolition
2. A Knox cabinet (model 1306) will be required outside the main entrance door of the apartment building. The cabinet will contain the following:
   a. 5-sets of building master keys and fobs if electric locks are to be used
   b. The fire alarm control panel and annunciator lock keys
   c. Manual pull station reset keys
   d. A binder containing the following:
      i. 24-hour emergency contact information for building management
      ii. Fire alarm reset codes and passwords
      iii. Floor plans showing the location of all utilities, mechanical, electrical rooms/closets.
      iv. Floor plan identifying the location of all fire alarm input devices
      v. Floor plan showing the location of all fire sprinkler components including any sectional control valves and fire pump room if applicable.

LEGEND

EXISTING BOUNDARY
EXISTING CURB
PROPOSED CURB
EXISTING BUILDING
PROPOSED BUILDING
PROPOSED SIGN
PROPOSED SETBACK
EXISTING FENCELINE
PROPOSED FENCELINE
100-YR WATER SURFACE ELEV.
50' RIPARIAN BUFFER
FLOOD HAZARD LIMIT
100-YR FLOOD LIMIT
EXISTING TOP OF BANK
EXISTING STREAM CL
DRCC 100 FT BUFFER CORRIDOR
BASIN BOTTOM
PROPOSED RETAINING WALL

40 20 0 40 80 120
30 10
GRAPHIC SCALE
1 inch = 40 feet

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/20/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/21/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

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RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 05-Utility.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE49258600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
OVERALL UTILITY PLAN
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20265 Bragg Road, Suite 300
Mount Laurel, NJ 08054
(609) 914-0400
Certificate of Authorization No. 24GA28185000
Louis L. Zuagna IV P.E. PE No. GE54285000
William J. Parkhill P.E. PE No. GE49258600

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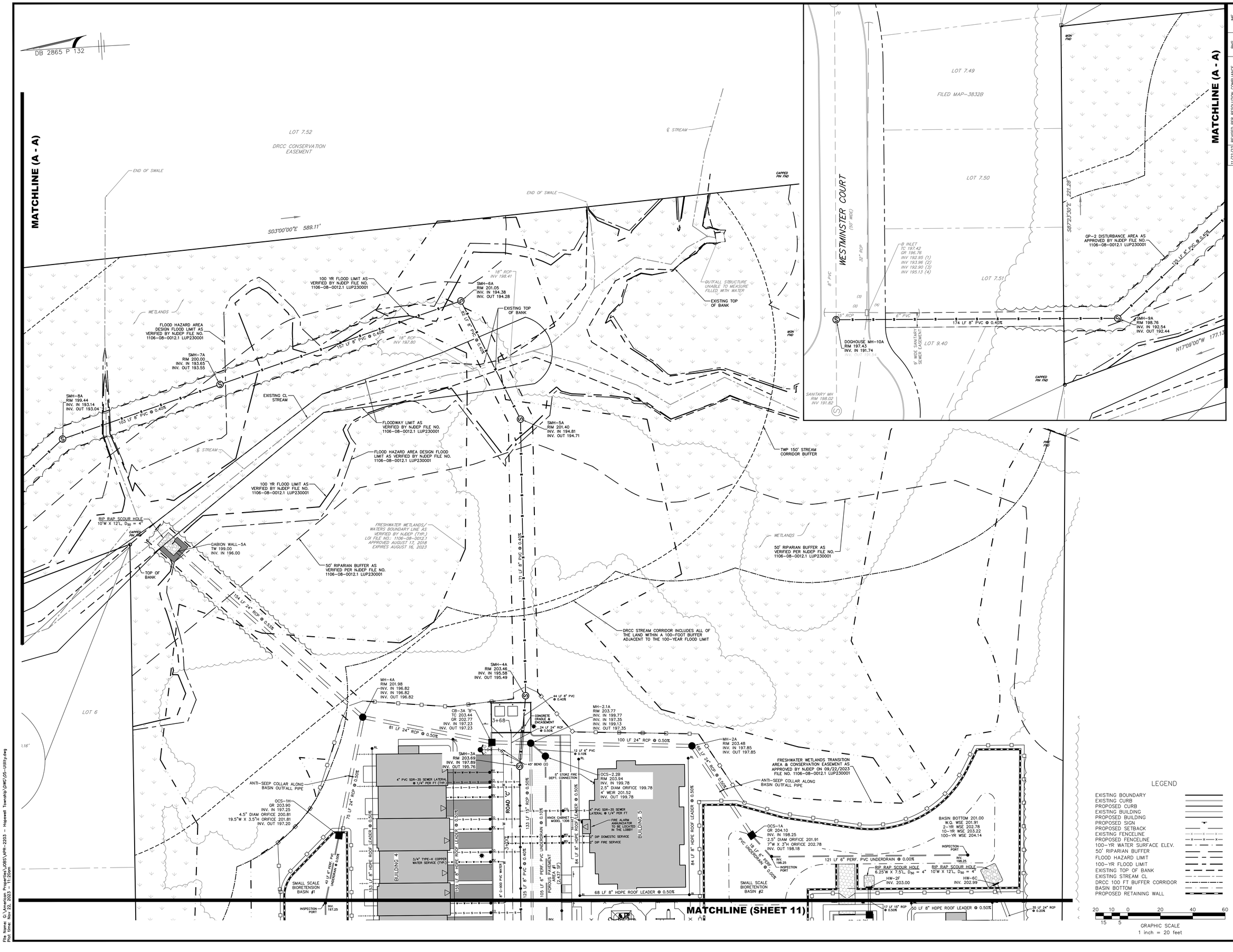

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09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
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VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 05-Utility.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE54528600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
UTILITY PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
220285 Bridge Road, Suite 301
Mount Laurel, NJ 08054
609-914-1450

Louis L. Zungone IV P.E. — Certificate of Authorization No. 24GA28189400
William J. Parkhill II P.E. — PE No. GE54528600
PE No. GE54153300

Sheet Number
10 OF 24

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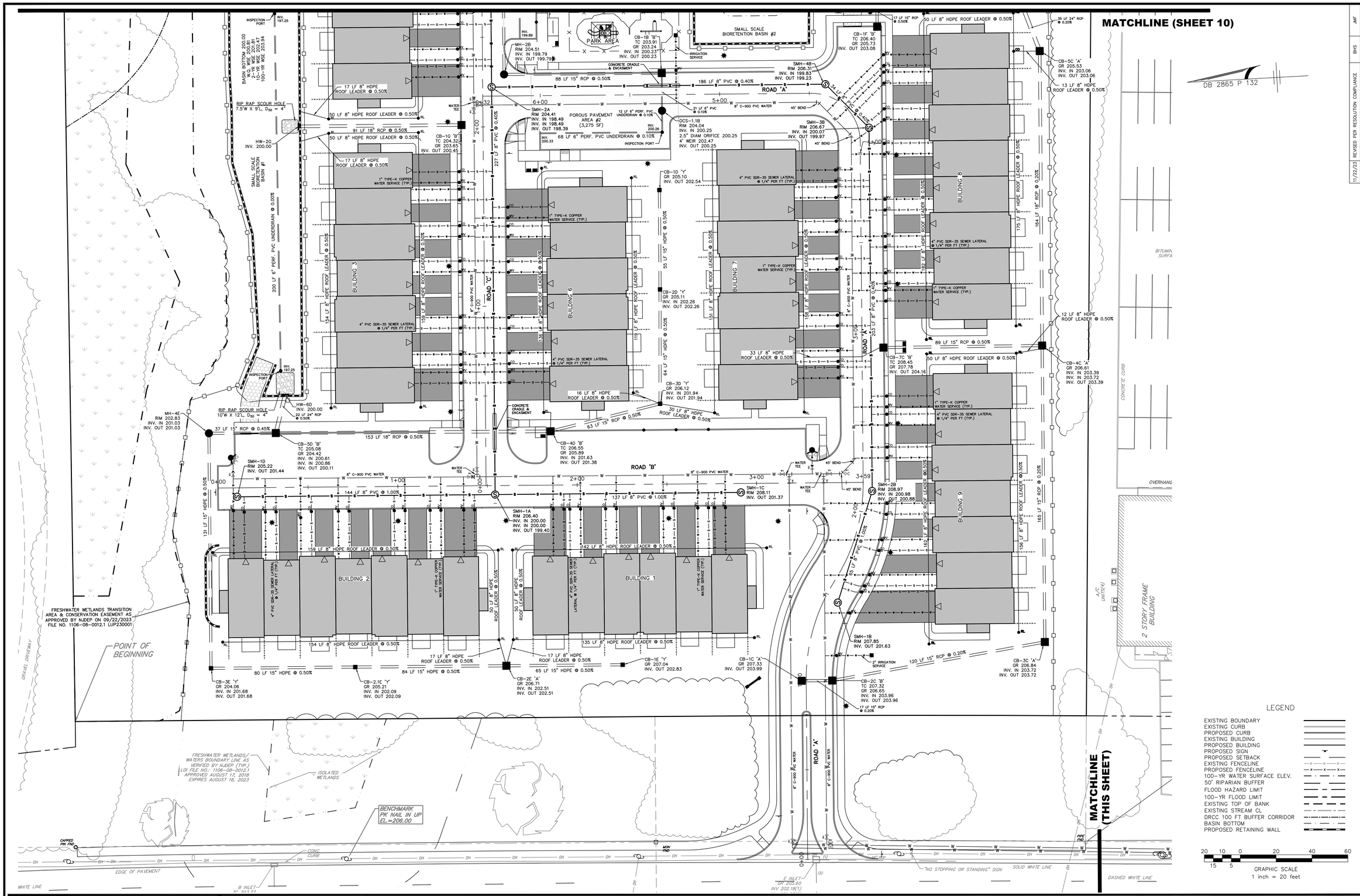

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VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 05-Utility.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. License No. 24GE04616300

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
UTILITY PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20298 Bridge Road, Suite 200
Mount Laurel, NJ 08054
856-810-1450
Certificate of Authorization No. 24GA28184000
PE No. GE04226300
PE No. GE04313600
Louis L. Zuagner IV P.E.
William J. Parkhill P.E.

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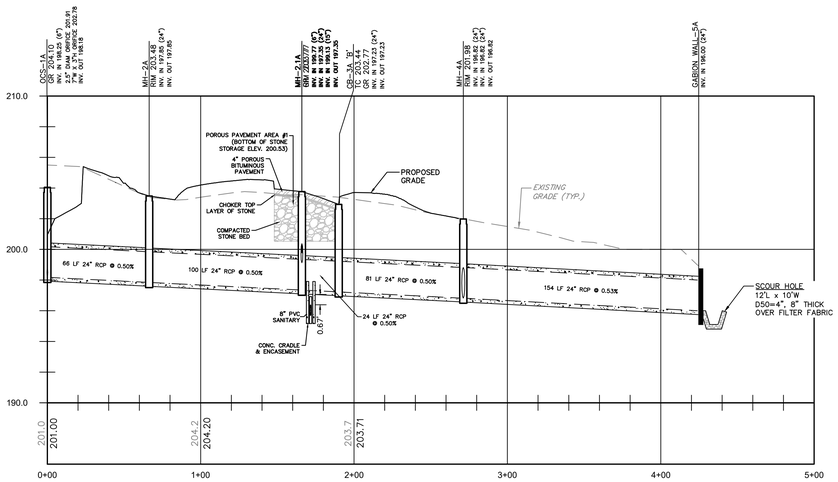

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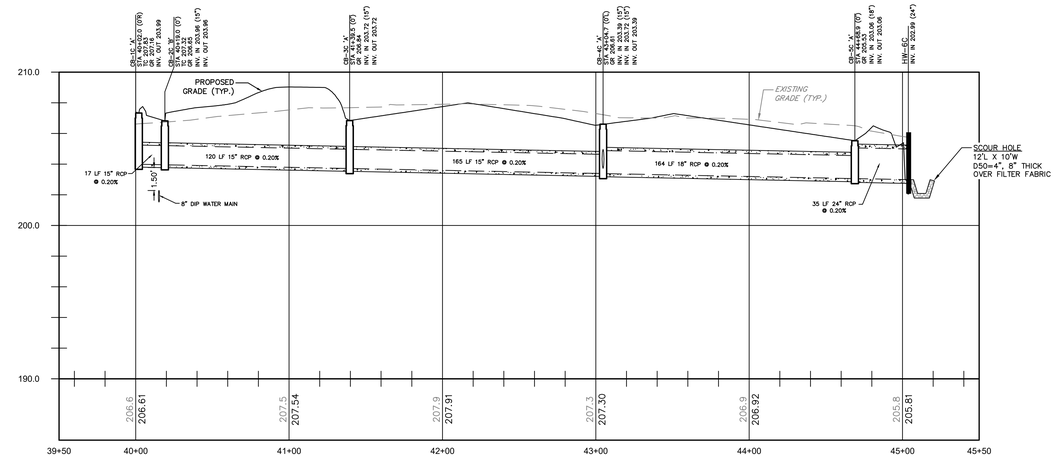

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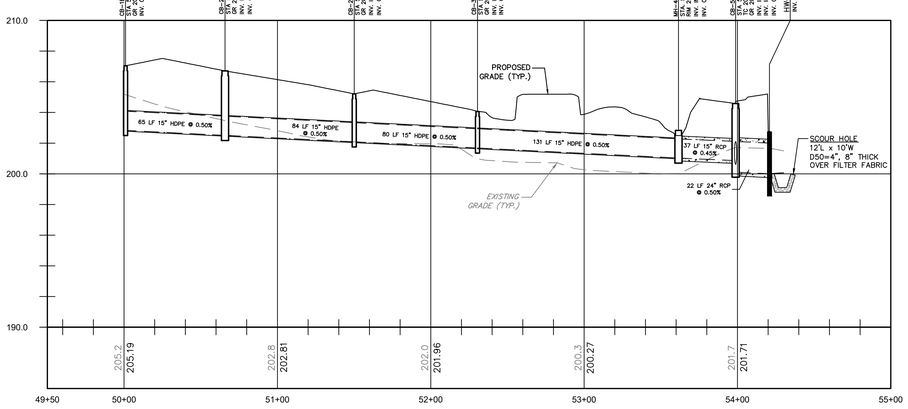

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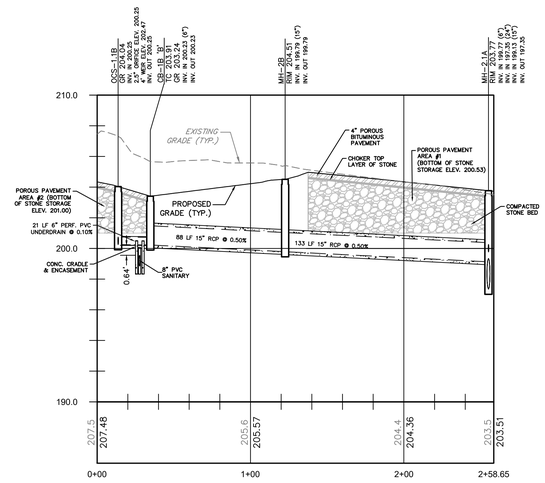

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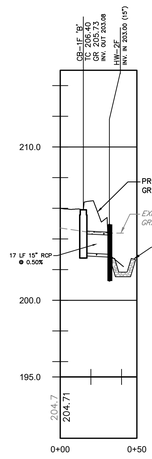

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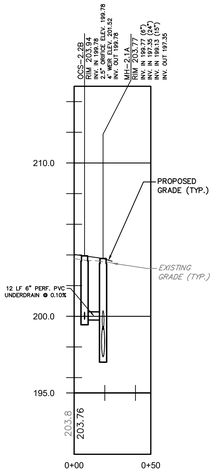

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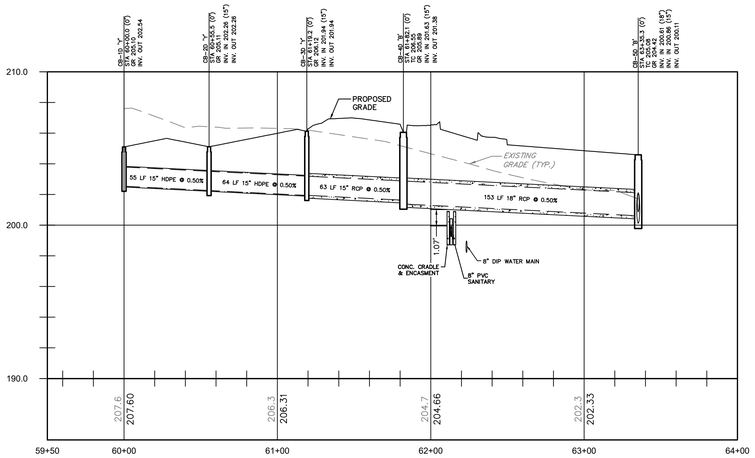

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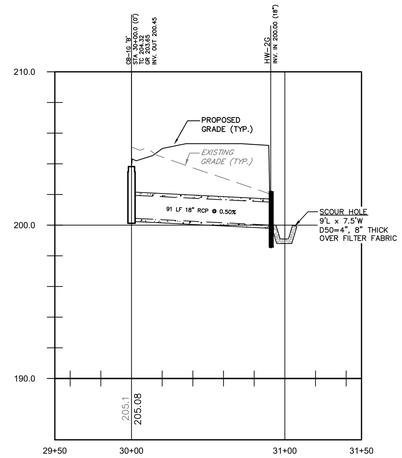

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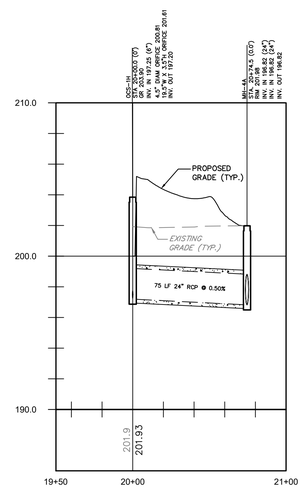

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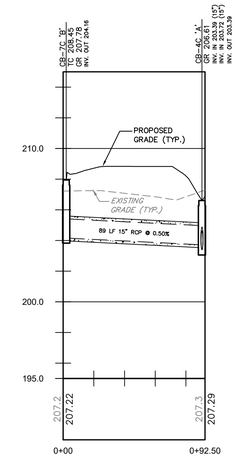

CB-7C TO CB-4C

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1 INCH = 40 FEET

VERTICAL GRAPHIC SCALE
1 INCH = 4 FEET

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07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF
DATE	REVISIONS	DRAWN BY	CHECKED BY

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: 1"=4'
PROJECT No.: APR-2203
DRAWING NAME: P-Grading.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE04250500

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
UTILITY PROFILES
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
Engineering Partners, LLC
2109B Briggs Road, Suite 300
Mount Laurel, NJ 08054
609-914-1440
Certificate of Authorization No. 24GA28018000
Louis L. Zuegner IV P.E. PE No. GE42626000
Wissam J. Fawaz P.E. PE No. GE54763600

Sheet Number
12 OF 24

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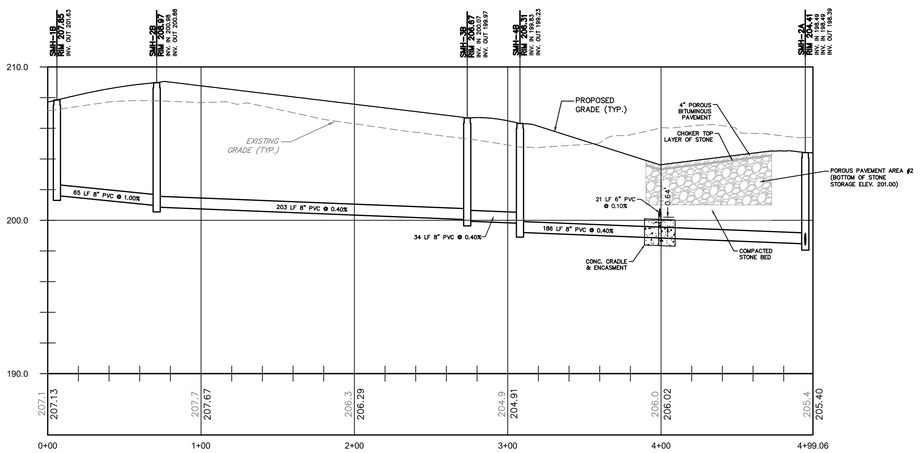
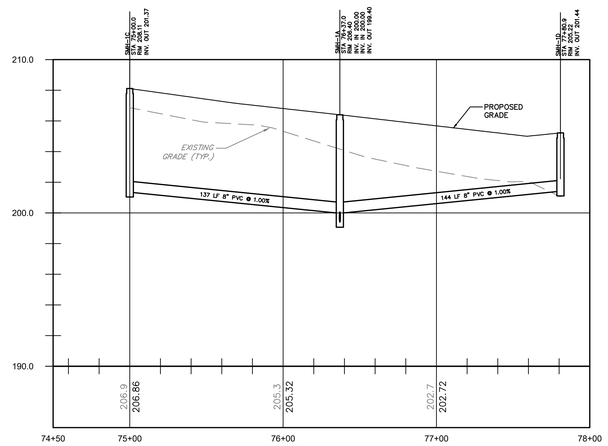


SMH-1B TO SMH-2A



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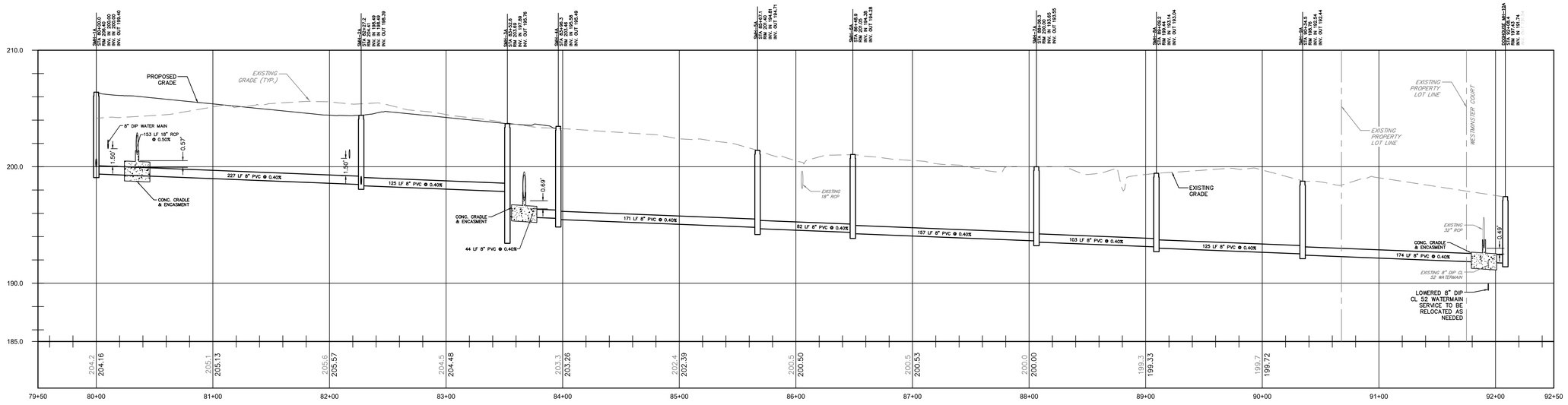

SMH-1A TO SMH-10A

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VERTICAL GRAPHIC SCALE
1 INCH = 4 FEET

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09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: 1"=4'
PROJECT No.: APR-2203
DRAWING NAME: P-Grading.dwg

William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE045900

Date 11-22-2023

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
UTILITY PROFILES

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic
Engineering Partners, LLC

Certificate of Authorization No. 24GA28184000

Louis L. Zungre N.P.E. PE No. GE042560000
William J. Parkhill P.E. PE No. GE045900000

20295 Bingo Road, Suite 300
Mount Laurel, NJ 08054
856-910-4450

Sheet Number
13 OF 24

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\P-Grading.dwg
Plot Date: Nov 27, 2023 - 3:41pm

Planting Notes

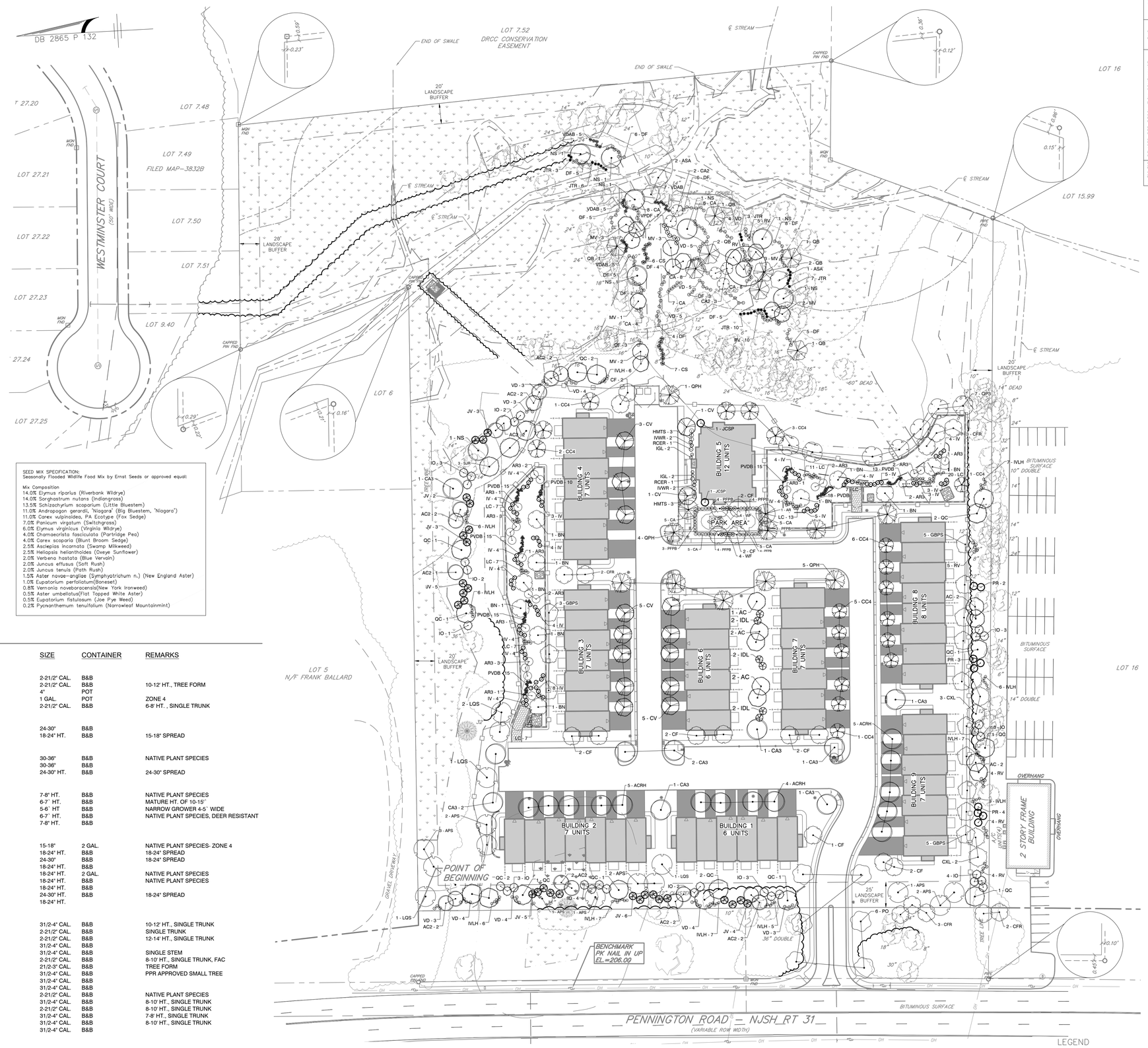
1. The contractor shall furnish and plant all plants shown on the drawings, as specified, and in quantities indicated on the plant list.
2. All plants shall be nursery grown.
3. All plants shall be in accordance with the "American Standard for Nursery Stock", latest edition.
4. All plants shall be hardy under climatic conditions similar to those in the locality of the project.
5. All plants shall be typical of their species or variety and shall have a normal habit of growth. They shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease and insect pests, eggs or larvae. They shall have healthy, well developed root systems.
6. Substitutions: When plants of a specified kind or size are not available within a reasonable distance, substitutions may be made upon request by the contractor, if approved by the owner or his representative.
7. Measurement: Dimensions of trees and shrubs shall conform to the "American Standard for Nursery Stock", latest edition.
8. Size: All plants shall conform to the measurements specified on the plant list, unless authorized in writing by the owner or his representative.
9. Balled and bur lapped plants shall be dug with firm natural balls of earth, of diameter and depth to include most of the fibrous roots. Container grown stock shall have been grown in a container long enough for the root system to have developed sufficiently to hold its soil together firm and whole. No plants shall be loose in the container.
10. Root balls of all plants shall be adequately protected at all times from the sun and drying winds or frost.
11. Owner or his representative shall be notified prior to beginning planting operations.
12. Plants with broken root balls or excessive damage to the crown shall be replaced prior to planting.
13. All trees shall be staked and guyed according to the details on the plans. In parking lot areas and planting areas adjacent to walkways vertical tree stakes shall be used in accordance with standard nursery practice.
14. All trees shall be wrapped immediately after they are planted. Approved tree wrap shall be installed according to the details on the plans.
15. Each tree and shrub shall be pruned in accordance with the ANSI standards to preserve the natural character of the plant. All dead wood or suckers and all broken or badly bruised branches shall be removed. Cuts over 1" (one inch) in diameter shall be painted with an approved tree paint.
16. Mulch: Immediately after planting operations are completed all trees and shrub planting pits shall be covered with a four-inch (4 inch) layer of licorice root or other material approved by the owner or his representative. The limit of this mulch for deciduous trees and single evergreen trees shall be the area of the pit; for evergreen tree clusters, a mulch bed shall be created.
17. Trees in leaf when planted shall be treated with anti-desiccant such as Wilt-Proof.
18. Planting soil of 50% top soil and 50% peat moss shall be mixed with existing soil at a rate of 1/3 planting soil and 2/3 existing soil.
19. Newly installed plant material shall be watered at the time of installation. Regular watering shall be provided to ensure the establishment growth and survival of plants.
20. Guarantee: All plant material shall be guaranteed by the contractor for twenty-four (24) months from the date of final approval by the township, except as otherwise stated in the township ordinance. The owner shall be responsible for maintenance unless otherwise agreed with contractor. It shall be the contractor's responsibility to monitor the project during the guarantee and notify the owner if problems develop with the plant material. Any material that is 25% dead or more shall be considered dead and must be replaced at no charge. A tree shall be considered dead when the main leader has died back, or there is 25% of the crown dead.
21. All planting shall be at the locations indicated on the drawings. The contractor shall be responsible for planting at the correct grades, alignment, and to the indicated layout of planting beds.
22. All planting beds should be free and clear of weeds prior to installation of mulch.
23. All deciduous trees to be incorporated into planting bed (mulch) or have 2' radius mulch ring.
24. Irrigation to be provided for the proposed development by a certified irrigation designer. The system is to be a design-built system and specifications shall be provided to the board professionals for review prior to installation.
25. All ground vegetation within a sight triangle cannot exceed a height of 30" and all trees within a sight triangle must be limbed to a height of at least 7'.
26. All trees over roadways shall be trimmed to a minimum height of 12' over the roadway grade to ensure proper clearance for emergency vehicle access.
27. All areas where natural vegetation and/or specimen trees are to remain shall be protected by the erection of fencing, and no disturbance shall occur prior to inspection by the township engineer and the issuance of written authorization to proceed with construction. These protective measures shall not be altered or removed without the approval of the township engineer.
28. All underground sprinkler lines must be installed out of the township right-of-way.
29. Disturbed areas for utilities including storm and sanitary facilities associated with General Permit 2 and 11 should be revegetated with seed mix ERMMX-122. The seed mix should not include any non-native or invasive species, such as deer-tongue, black-eyed Susan, purple coneflower, etc.
30. Seed mix ERNMX-900 to be applied within the two bioretention basins which include native and non-invasive species
31. The planting area shall not be mowed or maintained and will be allowed to revert to a natural condition.
32. Seed mixtures and sod types are subject to the approval of the Township Engineer.
33. All areas within the limits of disturbance not mulched for planting shall be seeded with grass.
34. Planting requirements shall conform to Sections 17-89.1.g and i of the Township Ordinance.

SEED MIX SPECIFICATION:
Seasonally Flooded Wildlife Food Mix by Ernst Seeds or approved equal:

Mix Composition
14.0% Elymus riparius (Riverbank Wildrye)
14.0% Sorghastrum nutans (Indiangrass)
13.5% Schizachyrium scoparium (Little Bluestem)
11.0% Andropogon gerardii, 'Niagara' (Big Bluestem, 'Niagara')
11.0% Carex vulpinoidea, PA Ecotype (Fox Sedge)
7.0% Panicum virgatum (Switchgrass)
6.0% Elymus virginicus (Virginia Wildrye)
4.0% Chamaecrista fasciculata (Partridge Pea)
4.0% Carex scoparia (Blunt Broom Sedge)
2.5% Asclepias incarnata (Swamp Milkweed)
2.5% Heliopsis helianthoides (Oxeye Sunflower)
2.0% Verbena hastata (Blue Vervain)
2.0% Juncus effusus (Soft Rush)
2.0% Juncus tenuis (Path Rush)
1.5% Aster novae-angliae (Symphyotrichum n.) (New England Aster)
1.0% Eupatorium perfoliatum(Boneset)
0.8% Vernonia noveboracensis(New York Ironweed)
0.5% Aster umbellatus(Flat Topped White Aster)
0.5% Eupatorium fistulosum (Joe Pye Weed)
0.2% Pycnanthemum tenuifolium (Narrowleaf Mountainmint)

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
BIORETENTION BASIN PLANTINGS						
AR3	22	ACER RUBRUM	RED MAPLE	2-21/2" CAL.	B&B	
BN	10	BETULA NIGRA	RIVER BIRCH	2-21/2" CAL.	B&B	10-12' HT., TREE FORM
LC	79	LOBELIA CARDINALIS `COMPLIMENT RED`	CARDINAL FLOWER	4"	POT	
PVDB	116	PANICUM VIRGATUM `DALLAS BLUES` TM	DALLAS BLUES SWITCH GRASS	1 GAL.	POT	ZONE 4
QB	8	QUERCUS BICOLOR	SWAMP WHITE OAK	2-21/2" CAL.	B&B	6-8' HT. , SINGLE TRUNK
DECIDUOUS SHRUBS						
CS	13	CORNUS SERICEA	RED TWIG DOGWOOD	24-30"	B&B	
IV	79	ILEX VERTICILLATA 'SPARKLEBERRY'	WINTERBERRY HOLLY	18-24" HT.	B&B	15-18" SPREAD
EVERGREEN SHRUBS						
IGL	4	ILEX GLABRA	INKBERRY HOLLY	30-36"	B&B	NATIVE PLANT SPECIES
IVWR	4	ILEX VERTICILLATA `WINTER RED`	WINTER RED HOLLY	30-36"	B&B	
RCER	2	RHODODENDRON CATAWBIENSE `ENGLISH ROSEUM`	ENGLISH ROSEUM RHODODENDRON	24-30" HT.	B&B	24-30" SPREAD
EVERGREEN TREES						
IO	30	ILEX OPACA	AMERICAN HOLLY	7-8' HT.	B&B	NATIVE PLANT SPECIES
IDL	6	ILEX X AQUIPERNYI `DRAGON LADY` TM	DRAGON LADY HOLLY	6-7' HT.	B&B	MATURE HT. OF 10-15'
JCSP	2	JUNIPERUS CHINENSIS `SPARTAN`	SPARTAN JUNIPER	5-6' HT	B&B	NARROW GROWER 4-5' WIDE
JV	28	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6-7' HT.	B&B	NATIVE PLANT SPECIES, DEER RESISTANT
PR	9	PINUS RIGIDA	PITCH PINE	7-8' HT.	B&B	
FLOWERING SHRUBS						
CA	61	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	15-18"	2 GAL.	NATIVE PLANT SPECIES- ZONE 4
HMTS	6	HYDRANGEA MACROPHYLLA `TWIST-N-SHOUT`	TWIST-N-SHOUT HYDRANGEA	18-24" HT.	B&B	18-24" SPREAD
IVLH	68	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	24-30"	B&B	18-24" SPREAD
PFPB	22	POTENTILLA FRUTICOSA `PINK BEAUTY`	PINK BEAUTY POTENTILLA	18-24" HT.	B&B	
RV	38	RHODODENDRON VISCOSUM	SWAMP AZALEA	18-24" HT.	2 GAL.	NATIVE PLANT SPECIES
VD	48	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	18-24" HT.	B&B	NATIVE PLANT SPECIES
VDAB	22	VIBURNUM DILATATUM `ASIAN BEAUTY`	ASIAN BEAUTY VIBURNUM	18-24" HT.	B&B	
VPDF	7	VIBURNUM PLICATUM TOMENTOSUM	DOUBLEFILE VIBURNUM	24-30" HT.	B&B	18-24" SPREAD
WF	9	WEIGELA FLORIDA	WEIGELA	18-24" HT.		
DECIDUOUS TREES						
APS	12	ACER PLATANOIDES `SUMMERSHADE`	SUMMERSHADE NORWAY MAPLE	31/2-4" CAL.	B&B	10-12' HT., SINGLE TRUNK
AR	2	ACER RUBRUM `OCTOBER GLORY` TM	OCTOBER GLORY MAPLE	2-21/2" CAL.	B&B	SINGLE TRUNK
ASA	3	ACER SACCHARINUM	SILVER MAPLE	2-21/2" CAL.	B&B	12-14' HT., SINGLE TRUNK
AC2	17	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	31/2-4" CAL.	B&B	
ACRH	14	AMELANCHIER CANADENSIS `ROBIN HILL`	CANADIAN SERVICEBERRY	31/2-4" CAL.	B&B	SINGLE STEM
CA2	5	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2-21/2" CAL.	B&B	8-10' HT., SINGLE TRUNK, FAC
CA3	10	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	21/2-3" CAL.	B&B	TREE FORM
CC4	19	CERCIS CANADENSIS	EASTERN REDBUD	31/2-4" CAL.	B&B	PPR APPROVED SMALL TREE
GBPS	13	GINKGO BILOBA `PRINCETON SENTRY`	PRINCETON SENTRY GINKGO	31/2-4" CAL.	B&B	
LQS	5	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEET GUM	31/2-4" CAL.	B&B	
NS	8	NYSSA SYLVATICA	SOUR GUM	2-21/2" CAL.	B&B	NATIVE PLANT SPECIES
PO	6	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	31/2-4" CAL.	B&B	8-10' HT., SINGLE TRUNK
QC	16	QUERCUS COCCINEA	SCARLET OAK	2-21/2" CAL.	B&B	8-10' HT., SINGLE TRUNK
QPS	7	QUERCUS PALUSTRIS	PIN OAK	31/2-4" CAL.	B&B	7-8' HT., SINGLE TRUNK
QPH	10	QUERCUS PHELLOS	WILLOW OAK	31/2-4" CAL.	B&B	8-10' HT., SINGLE TRUNK
SJR	3	SOPHORA JAPONICA `REGENT`	JAPANESE PAGODA TREE	31/2-4" CAL.	B&B	
FLOWERING TREES						
AC	9	AMELANCHIER CANADENSIS	SHADBLOW	31/2-4" CAL.	B&B	NATIVE PLANT SPECIES, SINGLE STEM
CV	15	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	31/2-4" CAL.	B&B	
CF	15	CORNUS FLORIDA	FLOWERING DOGWOOD	31/2-4" CAL.	B&B	MATURE HT. OF 25`, SINGLE STEM
CFR	10	CORNUS FLORIDA `RAINBOW`	RAINBOW FLOWERING DOGWOOD	31/2-4" CAL.	B&B	SINGLE TRUNK
CXL	5	CRATAEGUS X LAVALLEI	HAWTHORN	31/2-4" CAL.	B&B	
MV	14	MAGNOLIA VIRGINIANA	SWEET BAY	31/2-4" CAL.	B&B	NATIVE PLANT SPECIES
BIORETENTION BASIN PLANTS						
DF	66	DASIPHORA FRUTICOSA	SHRUBBY CINQUEFOIL	18-24" HT.	B&B	NATIVE PLANT SPECIES
JTR	29	JUNCUS TENUIS	PATH RUSH	2 GAL.	POT	



LEGEND

EXISTING BOUNDARY
EXISTING CURB
PROPOSED CURB
EXISTING BUILDING
PROPOSED BUILDING
PROPOSED SIGN
PROPOSED SETBACK
EXISTING FENCELINE
PROPOSED FENCELINE
100-YR WATER SURFACE ELEV.
BASIN BOTTOM
PROPOSED RETAINING WALL

40 20 0 40 80 120
30 10
GRAPHIC SCALE
1 inch = 40 feet

11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF
DATE	REVISIONS	DRAWN BY	CHECKED BY

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 06-L&L -one schedule.dwg

11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. 24GE04050900

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
LANDSCAPE & TREE REPLACEMENT PLAN

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

Mid Atlantic Engineering Partners, LLC
20298 Briggs Road, Suite 300
Mount Laurel, NJ 08054
609-410-4450
Certificate of Authorization No. 24GA28194000
Louis L. Zwanger IV P.E. PE No. GE04226500
William J. Parkhill II P.E. PE No. GE04250900

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\06-L&L -one schedule.dwg
Plot Time: Nov 27, 2023 - 11:57am

BEAM
ILLUMINATING ARCHITECTURE

BEAM, ltd.
2220 Mount Carmel Avenue
Glenside, PA 19038
T. 215.508.0900
www.beamltd.com

JASON BRADSHAW
LIGHTING CERTIFIED BY NCQLP
EXPIRATION 12.31.24
11/02/2023
DATE OF SIGN:

DB 2865 P 132

GRAPHIC SCALE
1 inch = 40 feet

CALCULATION SUMMARY (INITIAL)							
LABEL	LLF	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PARKING AREAS							
PARKING - 8 SPACE	1.0	FC	0.89	1.8	0.3	2.97	6.00
PARKING - 11 SPACE	1.0	FC	0.46	1.5	0.2	2.30	7.50
PARKING - 12 SPACE	1.0	FC	0.36	0.6	0.2	1.80	3.00
PARKING - 16 SPACE	1.0	FC	0.28	0.5	0.2	1.40	2.50
ROADWAYS							
ROADWAY	1.0	FC	0.87	2.2	0.2	4.35	11.00
ROADWAY WITHIN RTE. 31 ROW	1.0	FC	0.29	1.4	0	N/A	N/A

CALCULATION SUMMARY (MAINTAINED)							
LABEL	LLF	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PARKING AREAS							
PARKING - 8 SPACE	0.9	FC	0.80	1.7	0.2	4.00	8.50
PARKING - 11 SPACE	0.9	FC	0.42	1.4	0.2	2.10	7.00
PARKING - 12 SPACE	0.9	FC	0.32	0.5	0.2	1.60	2.50
PARKING - 16 SPACE	0.9	FC	0.27	0.4	0.1	2.70	4.00
ROADWAYS							
ROADWAY	0.9	FC	0.78	2.0	0.2	3.90	10.00
ROADWAY WITHIN RTE. 31 ROW	0.9	FC	0.25	1.2	0	N/A	N/A

TYPE	QUANTITY	MANUFACTURER	CATALOG NUMBER	MOUNTING	VOLTAGE	LAMP WATTS	LAMP TYPE	DESCRIPTION
A	19	AMERICAN ELECTRIC (OR EQUAL)	247CL-P103-MVOLT-27K-R4-FINISH-S NC-PR7-PCLL POLE: HOLOPHANE SMA-12-T4C-BASE-TENON-FINISH	12' POLE	120-277	40W	LED 2700K 80+CRI	LED SINGLE HEAD PARKING AND STREET LUMINAIRE, 12'-0" POLE, FULL CUT-OFF TYPE IV DISTRIBUTION, INTEGRAL DIMMING DRIVER, INTEGRAL PHOTOCELL CONTROL, AND 3652 DELIVERED LUMENS
B	14	JUNO (OR EQUAL)	4RLS-G2-07LM-27K-90CRI-FRPC-WH	UNDER CANOPY COVER	120	10W	LED 2700K 90+ CRI	LED CEILING MOUNTED DOWNLIGHT, WIDE SYMMETRIC DISTRIBUTION, DIFFUSED EDGE-LIT LENS, INTEGRAL DIMMING DRIVER, AND 691 DELIVERED LUMENS
C	112	PROGRESS LIGHTING (OR EQUAL)	P6084-31 LAMP: SATCO (OR EQUAL) 5A19-SW-LED-E26-927-120V	SURFACE 7'AFF	120	5W	LED A19 2700K 90+ CRI	LED WALL MOUNTED SCONCE, FULL CUT-OFF SHIELD AND DISTRIBUTION, AND E26 MEDIUM BASE. LED REPLACEMENT LAMP WITH 450 SOURCE LUMENS
D	87	PROGRESS LIGHTING (OR EQUAL)	P6085-31 LAMP: SATCO (OR EQUAL) 8.2A19-SW-LED-E26-927-120V	SURFACE 7'AFF	120	8.5W	LED 2700K 90+ CRI	LED WALL MOUNTED SCONCE, FULL CUT-OFF SHIELD AND DISTRIBUTION, AND E26 MEDIUM BASE. LED REPLACEMENT LAMP WITH 800 SOURCE LUMENS

NOTES:
1. ALL LUMINAIRES SHALL MEET ALL HOPEWELL TOWNSHIP LIGHTING ORDINANCE REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, BEING FULL CUT-OFF. REFER TO ORDINANCE FOR ADDITIONAL INFORMATION. POLE LIGHTING MEETS 2700K REQUIREMENT.
2. BECAUSE THIS IS A RESIDENTIAL DEVELOPMENT WITH 24-HOUR ACCESS ALL STREET AND PARKING LOT LIGHTING SHALL REMAIN ON FROM DUSK-TO-DAWN

FULL CUTOFF NOTES:
- FULL CUTOFF DEFINITION: ZERO INTENSITY AT OR ABOVE HORIZONTAL (90° ABOVE NADIR) AND LIMITED TO A VALUE NOT EXCEEDING 10% OF LAMP LUMENS AT OR ABOVE 80°
- BUG RATING U0 REQUIREMENTS: NO UPLIGHT EMITTED AT ALL
- REFER TO LUMINAIRE CUTSHEETS AND PHOTOMETRIC REPORTS FOR DOCUMENTATION OF COMPLIANCE

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	JEB	CMS
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: JEB
DATE: 05/11/23
CHECKED BY: CMS
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: BEAM 08-LAI.DWG

Date 11-02-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE04-050043

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
LIGHTING PLAN – MAINTAINED

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

Mid Atlantic Engineering Associates, Inc.
Certificate of Authorization No. 24GA28184000
Louis L. Zungar IV P.E. PE No. GE045260500
William J. Parkhill II P.E. PE No. GE047503600
20000 Bridge Road, Suite 300
Mount Laurel, NJ 08054
609-410-4400

File Name: G:\Users\Jason\AppData\Local\Temp\AcPublish_33920\BEAM 08-LAI.DWG
Plot Time: Nov 02, 2023 – 3:48pm

BEAM
ILLUMINATING ARCHITECTURE

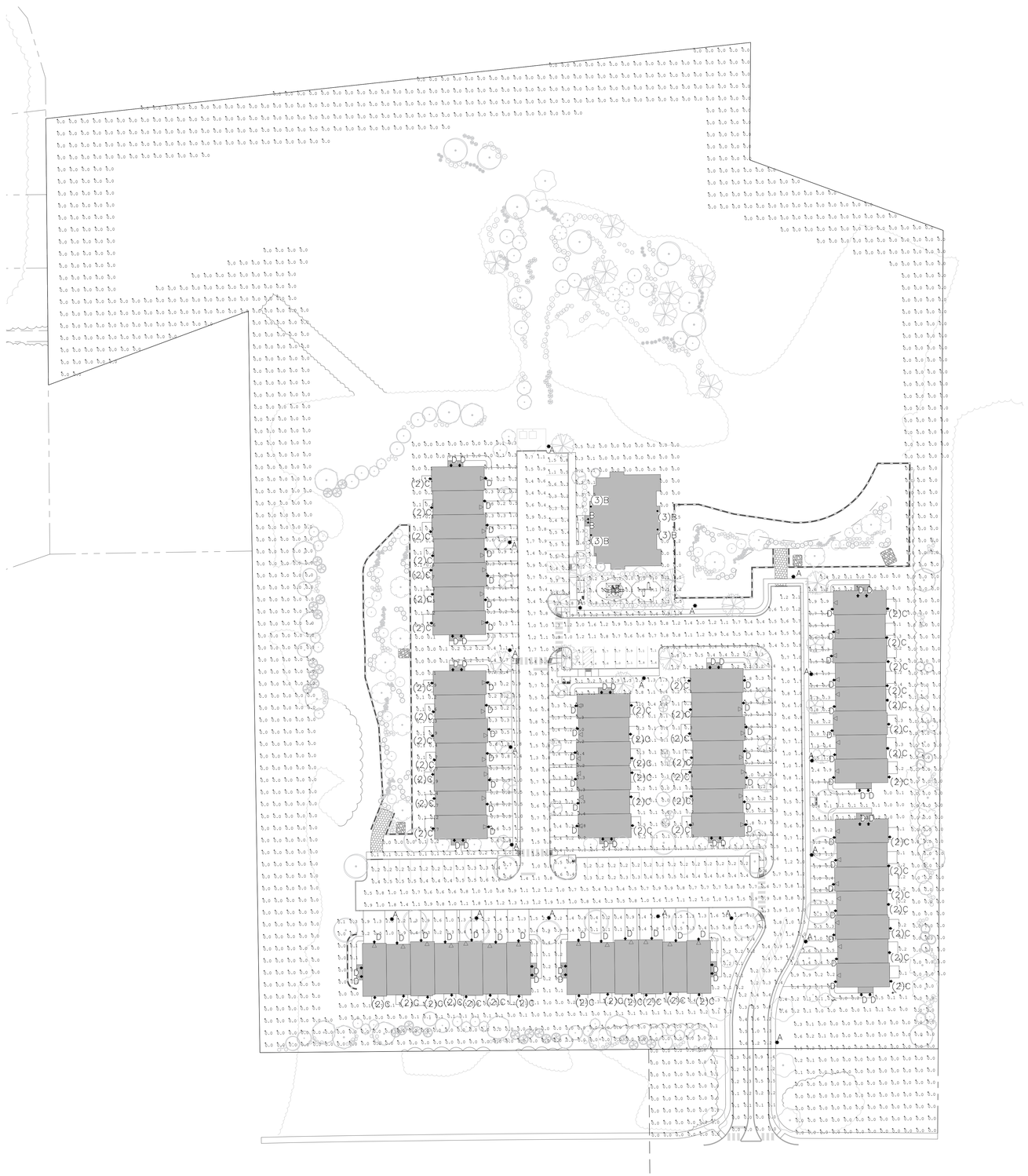
BEAM, ltd.
2220 Mount Carmel Avenue
Glenside, PA 19038
T. 215.508.0900
www.beamltd.com

LIGHTING CERTIFIED BY NCQLP
EXPIRATION 12.31.24

11/02/2023
DATE OF SIGN:

DB 2865 P 132

GRAPHIC SCALE
1 inch = 40 feet
(40 20 0 40 80 120; 30 10)



BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

American Revolution Full Cutoff LED
Series 247CL

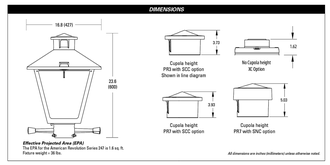
PRODUCT OVERVIEW

Features:
- Colonial LED lantern, replaces up to 250W HID models for street and area lighting applications
- Fifteen (15) LED performance packages deliver just the right amount of light for any given application up to 9,300 lumens
- Available in color temperature choices of 2700K, 3000K and 4000K
- Four IdO distinct light distribution options provide design flexibility, available in Type III, Type III, Type IV, and Type V
- Die-cast aluminum housing, engineered for sturdy lifelong performance
- Luminaire is rated for 3g vibration per ANSI C136.31
- Die-cast aluminum hood features a trigger latch (TL) option and captive thumb screws for fast, easy electrical and optical chamber access
- Standard paint finish is smooth gloss
- Housing is tenon pole-mounted and designed for use with a 3" tall by 2-3/8" to 3" diameter tenon, and secured by three set screws
- Rated LED and driver life greater than 100,000 hours at 25°C
- Surge protection device (standard) exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Enhanced (10kV/5kA). 20kV Option exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Extreme (20kV/10kA)
- Equipped with LED electronic 0-10V dimmable driver with DALI driver option

Applications:
Streetscapes
Walkways
Pathways
Parks

Standards:
- Complies with all applicable ANSI C136 standards.
- CSA listed and suitable for up to 40°C ambient
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the American Revolution Series 247 is 1.6 sq. ft.
Fixture weight = 38 lbs.

Note: Specifications subject to change without notice.
American Revolution Series 247CL LED

AEL American Electric Lighting

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

American Revolution LED
Series 247CL

ORDERING INFORMATION

Example: 247CL P154 MVOLT 30K R3 BK SCC PR7

Series	Performance Package	Input Watts	Lumens (nominal)	Voltage	Color Temperature (CCT)
247CL American Revolution LED	Package			MVOLT 120-277V	27K 2700K
	P101	20	2,300	HVOLT 347-480V	30K 3000K
	P102	30	3,100	XVOLT 277-480V with enhanced power quality protection	40K 4000K
	P103	40	4,000		
	P104	49	4,800		
	P113	30	3,500		
	P112	40	4,300		
	P113	50	5,200		
	P114	60	6,000		
	P115	70	6,800		
	P201	70	7,400		
	P202	80	8,100		
	P300	41	4,800		
	P301	60	7,000		
	P302	70	7,800		
	P303	80	8,600		

Distribution	Paint (smooth gloss)	Cupola	Photocontrol Receptacle
R2 Type II	BK Black	SCC Standard cupola	NE No photocontrol receptacle
R3 Type III	GY Gray	SNC Smart node cupola	PR3 1 pin NEMA photocontrol
R4 Type IV	DGR Dark Bronze	NC No cupola	PR7 7 pin NEMA photocontrol
R5 Type V	WH White		
	BZ Bronze		

Options

Options	Miscellaneous	Prewired leads	Accessory
P2LC Solid State Long Life Photocontrol, 120V (full off)	SS Stainless steel hardware	L10W 1.5 ft. prewire leads	House Side Shield shipped separately and installed in the field
P3LC Solid State Long Life Photocontrol, 347V (full off)	TL Tool-less trigger latch	L03 3 ft. prewire leads	FHSSLBK10-15RD/RS P10b or P15x package, R2 or R3 optic
P4LC Solid State Long Life Photocontrol, 480V (full off)	NL1W1 2" x 2" NEMA label	L06 6 ft. prewire leads	FHSSLBK10-30RD/RS P10b or P15x package, R4 optic
PCSL Solid state photocontrol, 120-277V (Not CSA Listed) (full off)	NL1W2 2" x 2" NEMA label	L10 10 ft. prewire leads	FHSSLBK20-30RD/RS P20b or P30x package, R2 or R3 optic
SH Shorting cap	BL Not CSA Listed	L15 15 ft. prewire leads	
AD Anti-glare/light output module	LBR Ladder Rest	L20 20 ft. prewire leads	
DALI DALI driver (IRD required)	CR Epoxy Pre-Coat Finish	L30 30 ft. prewire leads	
	20KP 20kV/10kA surge protection device	Special Packaging	
	House-Side Shields	SOP Sample pack (GPS)	
	HSS House Side Shield		

Note: Check the OPTIONS NOTES on Page 3 for compatibility & restrictions

Warranty: Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/terms-conditions-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values when measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

AEL American Electric Lighting
AEL headquarters, One Lithonia Way, Conyers Georgia 30013
Customer Service: Phone: 1-800-705-SERVICE (7378) Fax: 800-705-SERVICE (7378)
Email: TechSupportHD@AcuityBrands.com.
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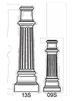
BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

HOLOPHANE

SMA
Salem Aluminum Pole



Catalog Number
Notes
Type

SPECIFICATIONS

General Description
The lighting post shall be all aluminum or cast aluminum, one-piece construction, with a classic square base design.

Materials
- The base and fluted tapered cast shaft shall be heavy wall, cast aluminum produced from certified ASTM 356.1 ingot meeting ASTM B179 specs.
- The straight shaft shall be extruded from aluminum, ASTM 6063 alloy.
- The tapered shaft shall be extruded from aluminum, ASTM 6063 alloy, cast to a tapered shape.
- Anchor bolts shall be hot dipped galvanized steel
- Anchor bolts to be complete in one pig galvanized.
- Utilize a polyester powder coat paint to ensure maximum durability.
- Rigorous multi-stage pre-treating and painting process ensures long-lasting color and finish integrity. Paint is cured per ASTM D5894 after over 5,000 hours exposure in salt fog chamber (operated per ASTM B117). Are standard and RAL finish options.
- RAL/DELxxxxCOATC paint colors are Super Durable Corrosion Resistant, 80% gloss.

Construction
- The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity.
- The shaft shall be welded inside the base casting at the top of the access door, and externally where the shaft rests the base.
- All welding shall be per AWS/ RWS.

Dimensions
- The post height shall range from 8' to 22' with a 9" or 12" diameter base.
- At the top of the post, an integral tenon with a transitional donut shall be provided for luminaire mounting.

Installation
- The post shall be provided with four, hot dip galvanized 1-1/2inr anchor bolts.
- A 4 gauge ground lug shall be provided in the base for anchorage and wiring access.
- A grounding screw shall be provided inside the base opposite the door.

Warranty
5 year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/terms-and-conditions

IMPORTANT INSTALLATION NOTES:
- Do not erect pole without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Acuity Brands Lighting is not responsible for the foundation design.

Note: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

HOLOPHANE

SMA
Salem Aluminum Pole

ORDERING INFORMATION

Example: SMA 14 SAC 13S C33 BK

Pole	Height	Shaft Style	Base	Finish
SMA Salem Aluminum Pole	06 6' 07 7' 08 8' 09 9' 10 10' 11 11' 12 12' 13 13' 14 14' 15 15' 16 16' 17 17' 18 18' 19 19' 20 20' 21 21' 22 22' NOTE: Refer to Pole Guide on page 3 for height based on Shaft Style	Fluted Shaft FTD Fluted Tapered (Cast), 20 FAC 3" Diameter, 12 Wall FHC 4" Diameter, 12 Wall FHD 4" Diameter, 20 Wall FSD 5" Diameter 20 Wall Smooth Shaft SAC 3" Diameter 12 wall SHC 4" Diameter 12 Wall SHD 4" Diameter 20 Wall SSD 5" Diameter 20 Wall Tapered Shaft TSC 8" to 6" Diameter, 12 Wall TLC 3" to 3" Diameter, 12 Wall Double SLH 4.5SF, 7.5U wall	09 9" Base, Square Pattern Bolt Circle 13S 13" Base, Square Pattern Bolt Circle	BWT Tenon, 2.38 O.D. x 4" LG. C03 2.63 Tenon, (actual size 2.88 O.D. x 3" LG.) C04F 3.00 Tenon, (actual size 2.88 O.D. 4" LG.) C07 3.50 Tenon, (actual size 2.88 O.D. 7.5" LG.) C09F 3.50 Tenon, (actual size 2.88 O.D. 9" LG.) C09T 3.50 Tenon, (actual size 2.88 O.D. 9.5" LG.) C12F 3.50 Tenon, (actual size 2.88 O.D. 12" LG.) C15T 3.50 Tenon, (actual size 2.88 O.D. 15.5" LG.) C14F 3.50 Tenon, (actual size 2.88 O.D. 14" LG.) E09F 5 1/2SB Tenon, (actual size 5.5 O.D. 9.5" LG.) G12F 4 1/8SQ Tenon, (actual size 4.38 O.D. 12" LG.) H10F 4 1/2SQ Tenon, (actual size 4.5 O.D. 10" LG.) PWP Pole Cap WQP WQC Plate NOTE: 1 Only available with SLH 2 Not available with FSC or SHC shaft 3 Only available with FSC & SSD shaft

Finish	Options	Welded Provisions	Accessories: Order as separate catalog number
BK Black BZ Bronze CMC Customer matched color CTED Standard color to be determined DB Dark Blue GR Graphite GN Green GR Gray PP Primer Painted RALxxxxCOATC RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number. SL Silver WH White	DBB Factory Installed Direct Burial Base LRD 1/2 Brass Grounding Lug	EXXXXP Provision for eye bolt LXXXXP Large provision. Accommodates 1.25" and 1.50" Regipole holder and accommodates 1.25" and 1.50" fastener arm RXXXXP Reregipole Provision in shaft SXXXXP Reregipole provision accepts .75" and 1.00" Regipole holder and accommodates .75" and 1.00" fastener arm SXXXXXXP Occupancy sensor provision NOTE: 1 Not available with FSC, SLH or SHC shaft options 2 Replace "XXXX" with height from grade (inches), can be up to 4 digits. Most our whole numbers (ending zero are not used). Replace "XXX" with installation from hand hole (6=6.0, 90=1.5 ft). Example: 1.25" provision located 1.5 ft above hand hole would be: Xxxx. Most radials EPA restrictions for tenons.	AB-36-4 3/4" Anchor bolt set, galvanized steel. A1000151 5' Galvanized steel direct burial base. A1000153 10' Galvanized steel direct burial base. TMP-AB 6' Bolt Circle, (for PRS Base Option) TMP-BB 10' Bolt Circle, (for 13S Base Option) TMPN6BB 6' Bolt Circle, (for RRS Base Option) TMPN9BB 10' Bolt Circle, (for 13S Base Option)

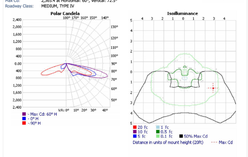
BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

5/4/23, 3:38 PM — 247CL, P103 XXXX 27K R4

OUTDOOR PHOTOMETRIC REPORT
CATALOG: 247CL P103 XXXX 27K R4

Test #: ISF 2211-HAAY
Test Lab: SCALED PHOTOMETRY
Catalog: 247CL P103 XXXX 27K R4
Description: 247CL American Revolution LED Full Cutoff, P103 Performance Package, 27K CCT, R4 Distribution, Bronze Finish, Photocontrol Ready
Series: 1
Lamp Output: Total luminaire Lumens: 3651.6, absolute photometry *
Input Wattage: 40
Luminous Opening: Rectangle (L: 9", W: 9")
Max Cd: 2,365.4 at horizontal: 60°, Vertical: 72.5°
Roadway Class: MEDIUM, TYPE IV

Polar Candela



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment factors such as voltage, temperature, and ballast/driver performance characteristics may affect actual lighting performance. Results may differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

ISF 2211-HAAY
VISUAL PHOTOMETRIC TOOL — PAGE 1 OF 4

https://www.visual-3d.com/tools/photometricviewer/default.aspx?sessionid=799805 1/4

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE A

5/4/23, 3:38 PM — 247CL, P103 XXXX 27K R4

OUTDOOR PHOTOMETRIC REPORT
CATALOG: 247CL P103 XXXX 27K R4

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	198.3	5.4%
0-40	500.6	13.7%
0-60	2,361.2	64.8%
60-90	2,086.4	57.2%
70-120	1,080.5	29.6%
90-120	0.000	0%
0-80	3,651.6	100%
90-180	0.000	0%
0-180	3,651.6	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	0.4	0.0%	90-100	0.000	0%
10-20	33.1	0.9%	100-110	0.000	0%
20-30	164.8	4.5%	110-120	0.000	0%
30-40	302.3	8.3%	120-130	0.000	0%
40-50	498.3	13.6%	130-140	0.000	0%
50-60	645.8	17.7%	140-150	0.000	0%
60-70	1,004.3	27.5%	150-160	0.000	0%
70-80	925.0	25.4%	160-170	0.000	0%
80-90	151.1	4.1%	170-180	0.000	0%

Roadway Summary
Distribution: TYPE IV, MEDIUM
Max Cd, 90 Deg Vert: 3,100
Max Cd, 80 to +90 Deg: 1,200

	Lumens	% Lamp
Downward Street Side:	3,851.5	78.1%
Downward House Side:	798.6	21.9%
Downward Total:	3,651.1	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	3,651.1	100%

LCS Table
Roadway Lighting
Forward Light

	Lumens	%Lamp
Low(0-30):	117.7	3.3%
Medium(30-60):	959.2	26.3%
High(60-80):	1,646.6	45.1%
Very High(80-90):	138.0	3.5%

Back Light

Low(30-90):	80.3	2.2%
Medium(90-60):	403.4	11%
High(60-80):	203.6	6%
Very High(80-90):	22.4	0.6%

Uplight

Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.5	0%

ISF 2211-HAAY
VISUAL PHOTOMETRIC TOOL — PAGE 2 OF 4

https://www.visual-3d.com/tools/photometricviewer/default.aspx?sessionid=799805 2/4

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	JEB	CMS
07/13/23	GENERAL REVISIONS	MB	AJF
05/11/23	GENERAL REVISIONS	MB	AJF

RELEASED BY: N/A
VERTICAL SCALE: N/A
HORIZONTAL SCALE: 1"=40'
CHECKED BY: CMS
DRAWN BY: JEB
DATE: 05/11/23
PROJECT No.: APR-2203
DRAWING NAME: BEAM 09-LAL.DWG

Date 11-02-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE04-050043

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
LIGHTING PLAN – INITIAL & LIGHTING DETAILS

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MacFarlane Associates, Inc.
Certificate of Authorization No. 24GA28018400
Louis L. Zwarger IV P.E. PE No. GE045250500
William J. Parkhill II P.E. PE No. GE047503600
20000 Bridge Road, Suite 300
Mount Laurel, NJ 08054
609-910-4300

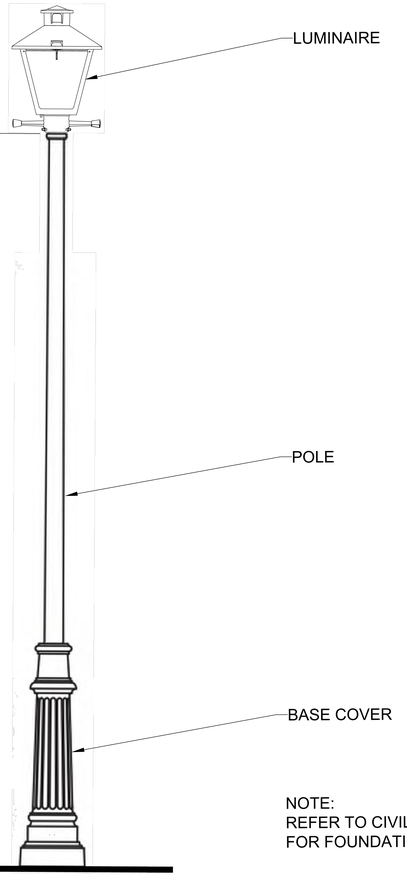
File Name: G:\Users\beam\AppData\Local\Temp\AcPublish_33920\BEAM 09-LAL.DWG
Plot Date: Nov 02, 2023 – 3:50pm

BEAM
ILLUMINATING ARCHITECTURE

BEAM, ltd.
2220 Mount Carmel Avenue
Glenside, PA 19038
T. 215.508.0900
www.beamltd.co

LIGHTING CERTIFIED BY NCQLP
EXPIRATION 12.31.24

11/02/2023
DATE OF SIGN:



NOTE:
REFER TO CIVIL DRAWINGS
FOR FOUNDATION DETAILS

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **B**

01.24.23

JUNO

4" BASICS SERIES™
LED SURFACE MOUNT FIXTURE
FOR J-BOX INSTALLATION

Project:
Fixture Type:
Location:
Contact/Phone:

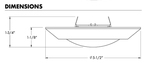
4RLS G2 07LM

PRODUCT DESCRIPTION
Sleek, ultra-low profile energy efficient LED surface mount fixture • Installs directly to standard junction box • Easy installation • Tool less lens • Replaces incandescent/halogen fixtures • Superior performance, delivering 700 lumens • Dimmable with most standard incandescent dimmers and electronic low voltage dimmer • LED surface mount fixture is designed to provide over 50,000 hours of life • 5 year warranty

PRODUCT SPECIFICATIONS
Construction Decorative beveled aluminum trim frame with white finish and frosted acrylic lens conceals the LEDs from direct view and provides uniform light distribution
LED Light Engine LED board mounted directly to aluminum housing designed to provide superior thermal management and ensure long life • 2700K or 3000K LED color temperature • LED's binned for 3-step MacAdham ellipse color consistency • CRI 90 • Minimum initial lumens: 700 • 120V, 60 or 50Hz • Dimmable with most standard incandescent, magnetic low voltage and electronic low voltage dimmers • For a list of compatible dimmers, see JUNOFIXTURE/DOC/LDIM
Electrical Connections Fixture provided with leads for direct wire connection to junction box • Fixture housing provides room for internal electrical components, so j-box volume and box fill is not compromised
Life Rated for 50,000 hours at >70% lumen maintenance
Labels ENERGY STAR® Certified • Certified to the high efficacy requirements of California T24 • UL listed for US and Canada • Suitable for damp locations
Mounting Fixture mounts to standard 4" junction box • Mounting strap is sealed to ceiling with field applied caulk (see instruction sheet for details)
Testing All reports are based on published industry procedures; field performance may differ from laboratory performance
Specifications subject to change without notice.

INSTALLATION
Junction Box Mounting Installs directly to industry standard junction boxes (not included) • Fixture housing fits in 2-1/8" minimum depth j-box (2-3/4" minimum depth) round mud ring • Ø 2-3/4" mounting centers, and 3" & 4" diameter non-metallic boxes • Quick-mount drop and spring securement system provides flat installation of fully assembled fixture to junction box • Suitable for ceiling or wall mount • Suitable for use within closet storage spaces when installed per NEC requirements

DIMENSIONS



PERFORMANCE DATA

	27K 90CRI	30K 90CRI
Input Voltage	120V	120V
Input Power Typical	11W	11W
Frequency	60Hz	60Hz
DALI ID#	FC 15a AC Part 15 Class B (assumed)	FC 15a AC Part 15 Class B (assumed)
Minimum starting temp	-40°C (-40°F)	-40°C (-40°F)
CRI	90 min.	90 min.
CCT	2700K	3000K

ORDERING TREE

Catalog Number	Description
4RLS G2 07LM 27K 90CRI 120 FRPC WH	4" Jbox Basics Surface Mount, 2700K
4RLS G2 07LM 30K 90CRI 120 FRPC WH	4" Jbox Basics Surface Mount, 3000K

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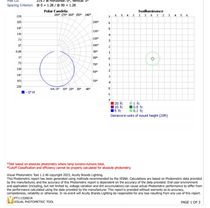
BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **B**

10/31/23, 4:08 PM 4RLS-927-6-WH

INDOOR PHOTOMETRIC REPORT
CATALOG: RLS-927-6-WH
Test: 191008
Test Lab: BEAM PHOTOMETRY
Test Date: 11/30/2013
Luminaire: 4RLS-927-6-WH
Description: 4IN SURFACE MOUNT LED FIXTURE
Series: RLS Downlight
Finish: White
Lamp Output: Total Initial Lumens: 690.4, absolute photometry *
Input Wattage: 9.5W
Luminous Opening: Circular Dia. 5.96"
Cut Diameter: Round
Dimensions: Ø 7.47 at Horizontal 0°, Vertical 0°
Spacing Criteria: Ø 1.5 (.28 H) x 1.25

AcuityBrands. Juno

Polar Candela



*Test based on absolute photometry where lamp lumens/watts data is unavailable. Efficacy calculations are based on absolute photometry.

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Visual Photometric Tool

Page 1 of 3

https://www.visual-3d.com/tools/photometricviewer/default.aspx?sessionid=218556 1/3

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **B**

10/31/23, 4:08 PM 4RLS-927-6-WH

Roadway Summary

Distribution:		TYPE V
Max Cd, 90 Deg Vert:		18.8
Max Cd, 80 to +90 Deg:		41.9
	Lumens	% Lamp
Downward Street Side:	345.2	50%
Downward House Side:	345.2	50%
Downward Total:	690.4	100%
Total Lumens:	690.4	100%

LCS Table

BUG Rating	B0 - U0 - G1	
Forward Light	Lumens	Lumens %
Low(0-30):	86.2	12.5%
Medium(30-60):	169.0	24.5%
High(60-80):	73.9	10.7%
Very High(80-90):	16.1	2.3%
Back Light		
Low(0-30):	86.2	12.5%
Medium(30-60):	169.0	24.5%
High(60-80):	73.9	10.7%
Very High(80-90):	16.1	2.3%
Trapped Light:	0.000	0%

Flood Summary

	Efficiency Lumens	Horizontal Spread	Vertical Spread
Field (10%):	99.3% 685.8	176.7	176.7
Beam (50%):	71.7% 494.9	117.5	117.5
Total:	100% 690.2		

Illuminance at a Distance

	Center Beam	Beam Spread(M)		Field Spread(M)	
Height(M)	Footcandle	Horizontal	Vertical	Horizontal	Vertical
1.00	219.73 LUX	3.3	3.3	69.4	69.4
2.00	54.93 LUX	6.6	6.6	138.9	138.9
3.00	24.41 LUX	9.9	9.9	208.3	208.3
4.00	13.73 LUX	13.2	13.2	277.7	277.7
5.00	8.79 LUX	16.5	16.5	347.2	347.2
6.00	6.10 LUX	19.8	19.8	416.6	416.6
		Beam Angle		Field Angle	
		117.5°	117.5°	176.7°	176.7°

https://www.visual-3d.com/tools/photometricviewer/default.aspx?sessionid=218556 2/3

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **C**

PROGRESS LIGHTING

DATE: TYPE:
NAME:
PROJECT:

Incandescent

P6084-31

Wish

Small wall lantern with etched white linen glass. Includes dark sky models for a cultivated appearance or remove for a traditional lighting effect.

Category: Outdoor
Finish: Black (powdercoat)
Construction: Aluminum construction
Glass: Etched White Linen glass cylindrical diffuser

Width: 7"
Height: 10-1/2"
Depth: 8-5/8"
HCTR: 3-1/8"

Glass: 4-5/8" dia.
Height: 5-7/8"

MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Wall mounted Mounting strap for outlet box included Backplate covers a standard 4" hexagonal recessed outlet box 4-11/16" W, 6-1/4", 1"	Pre-wired 6" of wire supplied 120V	Quantity: 1 75W Medium Base Medium porcelain socket	cCSAus Wet location listed 1 year warranty Companion Chain hung lantern, Post top lantern, Wall lantern fixtures are available

701 Millennium Blvd. Greenville, South Carolina 29607 www.progresslighting.com Rev. 10/15

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **C**

SATCO | NUVO

Project Name:
Location: Prepared By:

SATCO S12412
9A19/5W/LED/E26/927/120V

Notes

General	
Status	Active
Watts	5W
Incandescent Equivalent	40W
Volts	120V
Shape	A19
Base	Medium
ANSI Base	E26
Finish	Soft White
CCT (Kelvin)	2700K
Temperature	Warm White
CRI	90
Lumens	450L
Beam Spread	320
Dimmable	Yes Dimmable
Hours Rated	15000
Lamp Type	Type A
Technology	LED
Electrical	
Operating Frequency	60Hz
Candlepower	40
Power Factor	0.7
Operating Temperature	-20C (-4F) to +45C (+113F)
Physical	
MOL	4.02
MOD	2.36
Weight (lb.)	0.07
Additional Information	
Rated For Enclosed Fixture	Yes
Warranty	3 Year Limited
Compliance	
Safety Listing	cULus - Listed
Location Rating	Wet
Energy Star	Yes
ES Unique ID	ESID-2386991
CA T20 / T24 Rationale	T20 Listed
California Status	Lawful for sale in California
Title 20 / 24 Status	Lawful for sale
Colorado Status	Lawful for sale
Hawaii Status	Lawful for sale
Washington Status	Lawful for sale
Nevada Status	Lawful for sale
Vermont Status	Lawful for sale
RoHS Compliant	Yes
SDS Sheet	LED_Lamp

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http://www.satco.com/

BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **D**

PROGRESS LIGHTING

DATE: TYPE:
NAME:
PROJECT:

Incandescent

P6085-31

Wish

Medium wall lantern with etched white linen glass. Includes dark sky models for a cultivated appearance or remove for a traditional lighting effect.

Category: Outdoor
Finish: Black (powdercoat)
Construction: Aluminum construction
Glass: Etched White Linen glass cylindrical diffuser

Width: 9"
Height: 12-1/2"
Depth: 10-1/2"
HCTR: 3-1/8"

Glass: 4" dia.
Height: 7-3/8"

MOUNTING	ELECTRICAL	LAMPING	ADDITIONAL INFORMATION
Wall mounted Mounting strap for outlet box included Backplate covers a standard 4" hexagonal recessed outlet box 4-11/16" W, 6-3/4", 1"	Pre-wired 6" of wire supplied 120V	Quantity: 1 100W Medium Base Medium porcelain socket	cCSAus Wet location listed 1 year warranty Companion Chain hung lantern, Post top lantern, Wall lantern fixtures are available

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BEAM ILLUMINATING ARCHITECTURE — FIXTURE TYPE **D**

SATCO | NUVO

Project Name:
Location: Prepared By:

SATCO S12419
8.2A19/5W/LED/E26/927/120V

Notes

General	
Status	Active
Watts	8.2W
Incandescent Equivalent	60W
Volts	120V
Shape	A19
Base	Medium
ANSI Base	E26
Finish	Soft White
CCT (Kelvin)	2700K
Temperature	Warm White
CRI	90
Lumens	800L
Beam Spread	320
Dimmable	Yes Dimmable
Hours Rated	15000
Lamp Type	Type A
Technology	LED
Electrical	
Operating Frequency	60Hz
Candlepower	60
Power Factor	0.7
Operating Temperature	-20C (-4F) to +45C (+113F)
Physical	
MOL	4.02
MOD	2.36
Weight (lb.)	0.07
Additional Information	
Additional Info	S11356 (cAR-T24) for CA / S12419 (T20 only)
Rated For Enclosed Fixture	Yes
Warranty	3 Year Limited
Compliance	
Safety Listing	cULus - Listed
Location Rating	Wet
Energy Star	Yes
ES Unique ID	ESID-2386998
CA T20 / T24 Rationale	T20 Listed
California Status	Lawful for sale in California
Title 20 / 24 Status	Lawful for sale
Colorado Status	Lawful for sale
Hawaii Status	Lawful for sale
Washington Status	Lawful for sale
Nevada Status	Lawful for sale
Vermont Status	Lawful for sale
RoHS Compliant	Yes
SDS Sheet	LED_Lamp

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For More Information Visit:

DRAWN BY: JEB	CHECKED BY: CMS	RELEASED BY:	
DATE: 05/31/23	HORIZONTAL SCALE: 1"=40'	VERTICAL SCALE: N/A	
PROJECT No.:	APR-2203		
DRAWING NAME:	BEAM 08-LAB.DWG		

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	JEB	CMS
07/13/23	GENERAL REVISIONS	LAB	JMF
05/31/23	GENERAL REVISIONS	LAB	JMF

William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE04-050690

Date 11-02-2023

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
LIGHTING DETAILS

STUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MacAtlantic Engineering Consultants, Inc.
Certificate of Authorization No. 24GA28184000
Louis L. Zeegers IV P.E. PE No. GE04-050690
William J. Parkhill II P.E. PE No. GE04-050690
20280 Bridge Road, Suite 300
Mount Laurel, NJ 08054
609-410-4800

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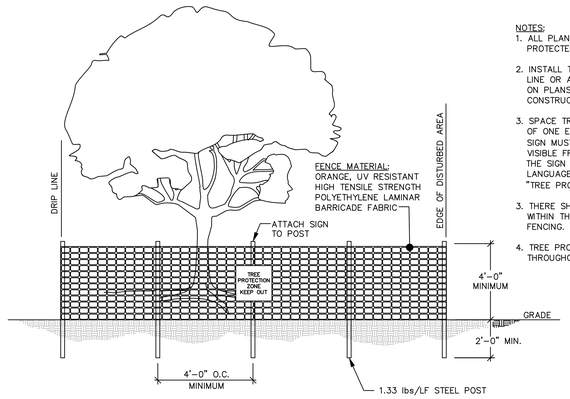
Plot Time: Nov 02, 2023 - 3:50pm

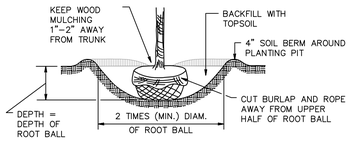


NOTES:
1. ALL PLANTS DESIGNATED TO BE SAVED SHALL BE PROTECTED BY FENCING, AS ILLUSTRATED.
2. INSTALL TREE PROTECTION FENCE AT TREE DRIP LINE OR AT EDGE OF DISTURBED AREA, AS SHOWN ON PLANS, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SPACE TREE PROTECTION ZONE SIGNS A MINIMUM OF ONE EVERY 300 FEET. THE SIZE OF EACH SIGN MUST BE A MINIMUM OF 2' x 2' AND BE VISIBLE FROM BOTH SIDES OF THE FENCE. THE SIGN MUST CONTAIN THE FOLLOWING LANGUAGE IN BOTH ENGLISH & SPANISH: "TREE PROTECTION ZONE, KEEP OUT".
3. THERE SHALL BE NO STORAGE OF MATERIAL WITHIN THE BOUNDARIES OF THE TREE PROTECTION FENCING.
4. TREE PROTECTION FENCING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

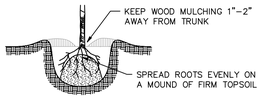
TREE PROTECTION FENCE

NOT TO SCALE

NOTE: SILT FENCE AND TREE PROTECTION FENCE MAY BE FASTENED TO THE SAME POST WHERE THEY ARE COINCIDENTAL



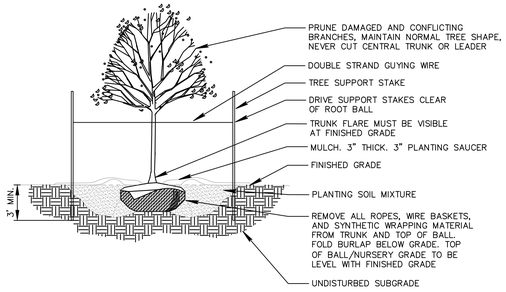
B & B MATERIAL



BARE ROOT MATERIAL

TREE & SHRUB PLANTING DETAIL

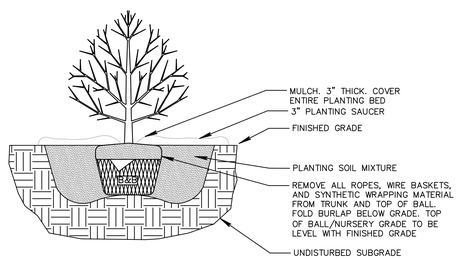
NOT TO SCALE



DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

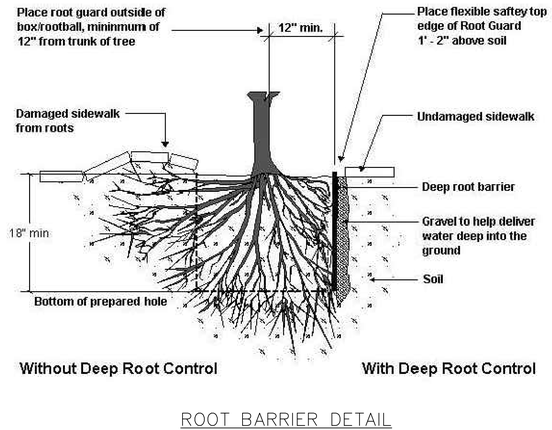
NOTE: 1. HEIGHT OF GUYING WIRES BETWEEN ½ AND ½ TREE HEIHT
2. ALL WIRE BASKETS MUST BE CUT A MINIMUM OF ⅓ DOWN AND REMOVED FROM THE PLANTING PIT AS PER THE LATEST INDUSTRY BESTMANAGEMENT PRACTICES.



SHRUB PLANTING DETAIL

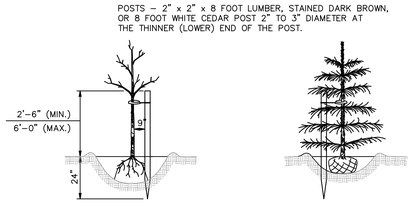
NOT TO SCALE

NOTE: ALL WIRE BASKETS MUST BE CUT A MINIMUM OF ⅓ DOWN AND REMOVED FROM THE PLANTING PIT AS PER THE LATEST INDUSTRY BESTMANAGEMENT PRACTICES.



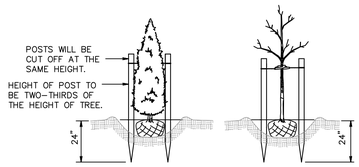
ROOT BARRIER DETAIL

NOT TO SCALE



TREES REQUIRING ONE STAKE

DECIDUOUS TREES (EXCEPT SALIX) 1" TO 1" CALIPER, INCLUSIVE.
CONE TYPE (PYRAMIDAL) TREES 3 FEET TO 5 FEET HIGH, AND
COLUMNAR EVERGREEN TREES 4 FEET TO 7 FEET HIGH, INCLUSIVE.



TREES REQUIRING TWO STAKES

DECIDUOUS TREES OVER 1" TO 2" CALIPER, INCLUSIVE. ALL SALIX REGARDLESS OF HEIGHT, CALIPER, BARE ROOT OR BALLED AND BURLAPPED. CONE TYPE (PYRAMIDAL) TREES 5 FEET TO 7 FEET HIGH AND COLUMNAR EVERGREEN TREES 7 FEET TO 9 FEET HIGH, INCLUSIVE.

STAKING DETAILS

NOT TO SCALE

STANDARD FOR DEWATERING

DEFINITION

THE REMOVAL AND DISCHARGE OF SEDIMENT-LADEN WATER FROM AN EXCAVATED AREA, CONSTRUCTION SITE OR SEDIMENT BASIN.

PURPOSE

TO PROPERLY REMOVE SUSPENDED SEDIMENTS AND WATER FROM EXCAVATED AREAS THROUGH FILTRATION AND/OR SETTLEMENT PRIOR TO DISCHARGING WATER TO A RECEIVING WATER COURSE OR BODY.

CONDITIONS WHERE PRACTICE APPLIES

DURING CONSTRUCTION EXCAVATED FACILITIES NEED TO BE DEWATERED TO FACILITATE OR COMPLETE THE CONSTRUCTION PROCESS. THE WATER PUMPED OUT OF THE EXCAVATED AREAS CONTAIN SEDIMENTS THAT MUST BE REMOVED PRIOR TO DISCHARGING TO RECEIVING BODIES OF WATER. THIS STANDARD DOES NOT ADDRESS THE REMOVAL OF GROUND WATER THROUGH WELL POINTS ETC. THIS STANDARD DESCRIBES THE FOLLOWING PRACTICES FOR THE REMOVAL OF SEDIMENT LADEN WATERS FROM EXCAVATION AREAS: REMOVABLE PUMPING STATIONS, SUMP PITS, PORTABLE SEDIMENTATION TANKS AND SILT CONTROL BAGS.

WATER QUALITY ENHANCEMENT

WATER DISCHARGED FROM EXCAVATED AREAS ON CONSTRUCTION SITES MAY BE A SIGNIFICANT CONTRIBUTOR OF SEDIMENT TO SURFACE WATERS DURING CONSTRUCTION. WATER MUST BE REMOVED AND DISPOSED OF IN ORDER FOR CONSTRUCTION TO MOVE FORWARD. TYPICALLY, WATER IS PUMPED OR CONTAINMENT BERMS ARE BREACHED AND SEDIMENT LADEN WATERS ARE PERMITTED TO FLOW UNCONTROLLED INTO SURFACE WATERS SUCH AS STREAMS OR LAKES. BY EMPLOYING PRACTICES DESCRIBED IN THIS STANDARD, THE MAJORITY OF SEDIMENT SUSPENDED IN WATERS MAY EASILY BE REMOVED PRIOR TO LEAVING THE SITE. FILTERS AND MATERIALS DESCRIBED HEREIN ARE READILY AVAILABLE AND ARE EASY TO INSTALL AND MAINTAIN.

DESIGN CRITERIA

1. REMOVABLE PUMPING STATIONS ARE USED WHEN LONG DURATIONS OF PUMPING ARE REQUIRED. THE NUMBER OF REMOVABLE STATIONS AND THEIR LOCATIONS SHALL BE SHOWN ON THE PLANS AND SHALL CONFORM TO DETAIL 14-1 (REMOVABLE PUMPING STATION). WATER PUMPED FROM THE STATION SHALL BE DISCHARGED INTO A SEDIMENT BASIN OR SUITABLE FILTER AREA.

CONSTRUCTION SPECIFICATIONS

A. THE SUCTION HOSE FROM THE PUMP SHALL BE PLACED INSIDE THE INNER PIPE TO BEGIN DEWATERING.

B. MAINTENANCE- THE INNER PIPE CAN EASILY BE REMOVED TO FACILITATE CHANGING THE GEOTEXTILE WHEN IT CLOGS. MAINTENANCE MUST BE PERFORMED WHEN THE PUMP RUNS DRY AND BACKED UP WATER REMAINS.

C. SEE DETAIL 14-1 FOR ADDITIONAL SPECIFICATIONS.

2. SUMP PITS ARE TEMPORARY PITS WHICH ARE USED TO REMOVE EXCESS WATER WHILE MINIMIZING SEDIMENTATION. THE NUMBER OF SUMP PITS AND THEIR LOCATIONS SHALL BE INCLUDED ON THE PLANS. PITS MAY BE RELOCATED TO OPTIMIZE USE BUT DISCHARGE LOCATION CHANGES MUST BE COORDINATED WITH THE LOCAL CONSERVATION DISTRICT. THE DESIGN MUST CONFORM TO THE GENERAL CRITERIA OUTLINED ON DETAIL 14-2 (SUMP PIT).

A PERFORATED VERTICAL STANDPIPE IS WRAPPED WITH 2" HARDWARE CLOTH AND GEOTEXTILE FABRIC THEN PLACED IN THE CENTER OF AN EXCAVATED PIT WHICH IS THEN BACKFILLED WITH FILTER MATERIAL CONSISTING OF ANYTHING FROM CLEAN GRAVEL (MINIMAL FINES) TO ASTM C 33 STONE (1 2" MAXIMUM DIAMETER). WATER IS THEN PUMPED FROM THE CENTER OF THE STANDPIPE TO A SUITABLE DISCHARGE AREA SUCH AS INTO A SEDIMENT BASIN OR SUITABLE FILTER.

3. SEDIMENT TANK / SILT CONTROL BAGS ARE CONTAINERS THROUGH WHICH SEDIMENT LADEN WATER IS PUMPED TO TRAP AND RETAIN THE SEDIMENT. A SEDIMENT TANK OR A SILT CONTROL BAG IS TO BE USED ON SITES WERE EXCAVATIONS ARE DEEP, AND SPACE IS LIMITED AND WHERE DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO STREAM AND STORM DRAINAGE SYSTEMS IS TO BE AVOIDED.

CONSTRUCTION SPECIFICATIONS

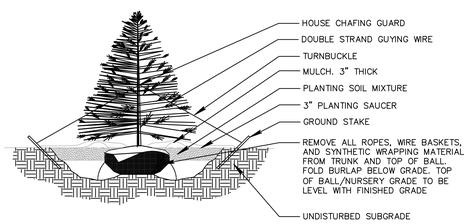
A. LOCATION. CONTAINERS (TANKS OR BAGS) SHALL BE LOCATED FOR EASE OF CLEAN-OUT AND DISPOSAL OF THE TRAPPED SEDIMENT AND TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND PEDESTRIAN TRAFFIC. BAGS SHALL NOT BE PLACE DIRECTLY INTO RECEIVING WATERS.

B. TANK SIZE. THE FOLLOWING FORMULA SHOULD BE USED IN DETERMINING THE STORAGE VOLUME OF THE TANK: 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP DISCHARGE CAPACITY. TYPICAL TANK CONFIGURATION IS SHOWN ON DETAIL 14-3 (PORTABLE SEDIMENT TANK). TANKS MAY BE CONNECTED IN SERIES TO INCREASE EFFECTIVENESS.

C. TANKS CONSIST OF TWO CONCENTRIC CIRCULAR PIPES (CMP), ATTACHED TO A WATERTIGHT BASEPLATE. THE INNER CMP IS PERFORATED WITH 1" HOLES ON 6" CENTERS AND IS WRAPPED WITH GEOTEXTILE AND HARDWARE CLOTH. PUMPED WATER IS DISCHARGED INTO THE INNER CMP WHERE IT FLOWS THROUGH THE GEOTEXTILE INTO THE SPACE BETWEEN THE TWO CMP=S. A DISCHARGE LINE IS ATTACHED TO THE OUTER CMP AND DRAWS FILTERED WATER FROM THE ANNULUS BETWEEN THE TWO CONCENTRIC CMP=S. THE DISCHARGE LINE MAY BE CONNECTED TO ANOTHER TANK WHERE IT DRAINS TO THE INNER CMP OF THE SECOND TANK. THIS SERIES CONNECTION MAY BE CONTINUED INDEFINITELY.

D. SEDIMENT CONTROL BAGS MUST BE LOCATED AWAY FROM RECEIVING WATERS AND DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. SEE DETAIL 14-4 (SEDIMENT CONTROL BAG FOR DEWATERING). BAGS MAY BE COMBINED WITH TEMPORARY FILTERS (ITEM 4, FOLLOWING) FOR ENHANCED FILTRATION.

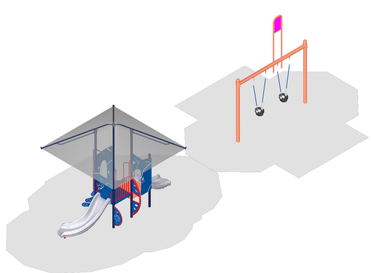
4. TEMPORARY FILTERS FOR SMALL IMPOUNDMENTS FOR SMALL QUANTITIES OF PONDED WATER SUCH AS MAY BE FOUND IN SHALLOW EXCAVATIONS (SMALL TRENCHES, MANHOLE INSTALLATIONS ETC.) A SEDIMENT FILTER MAY BE CONSTRUCTED USING COMBINATIONS OF HAY BALES, SMALL CLEAN STONE AND FILTER FABRIC. THIS METHOD IS LIMITED TO SMALL QUANTITIES OF TRAPPED SURFACE WATER (PUMPING OF WELL POINTS IS EXCLUDED FROM THIS STANDARD) AND WHERE SEDIMENTS ARE NOT HIGHLY COLLOIDAL IN NATURE.

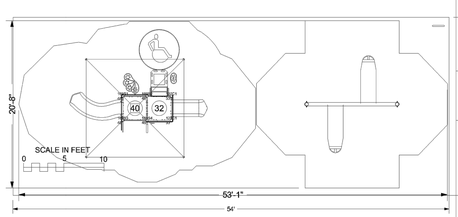


EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

NOTE: 1. HEIGHT OF GUYING WIRES BETWEEN ⅔ AND ⅔ TREE HEIGHT
2. ALL WIRE BASKETS MUST BE CUT A MINIMUM OF ⅓ DOWN AND REMOVED FROM THE PLANTING PIT AS PER THE LATEST INDUSTRY BESTMANAGEMENT PRACTICES.





INFORMATION
MINIMUM FALL ZONE
SURFACED WITH
RESILIENT MATERIAL
AREA
806 SQ.FT.
PERIMETER
160 FT.
STRUCTURE SIZE
20' 8" x 53' 1"
STRUCTURE IS DESIGNED
4 FOR CHILDREN AGES:
☐ 6-23 MONTH OLDS
☒ 2-5 YEAR OLDS
☐ 5-12 YEAR OLDS
☐ 13 + YEAR OLDS

NSF Registered to ISO 9001 — NSF Registered to ISO 14001

IPEMA CERTIFIED ASTM F1487 PLAY EQUIPMENT FOR PUBLIC USE
To verifiy product certification, visit www.ipema.org

The play components identified in this plan are IPEMA certified. The use and layout of these components conform to the requirements of ASTM F1487. To verify product certification, visit www.ipema.org

The space requirements shown here are ASTM F1487 standards. Requirements for other standards may be different.

The use and layout of play components identified in this plan conform to ASTM standards. U.S. CPSC recommends the separation of age groups in playground layouts.

ADA ACCESSIBILITY GUIDELINE (ADAAG CONFORMANCE)

NUMBER OF PLAY EVENTS	7	
NUMBER OF ELIVATED PLAY EVENTS	3	
NUMBER OF ELEVATED PLAY EVENTS ACCESSIBLE BY RAMP	PROVIDED: 0	REQ'D: 0
NUMBER OF ELEVATED PLAY EVENTS ACCESSIBLE BY TRANSFER SYSTEM	PROVIDED: 3	REQ'D: 2
NUMBER OF ELEVATED PLAY EVENTS ACCESSIBLE BY RAMP OR TRANSFER SYSTEM		REQ'D: 2
%NUMBER OF GROUND LEVEL PLAY EVENTS	PROVIDED: 4	REQ'D: 1
NUMBER OF TYPES OF GROUND LEVEL PLAY EVENTS	PROVIDED: 3	REQ'D: 1

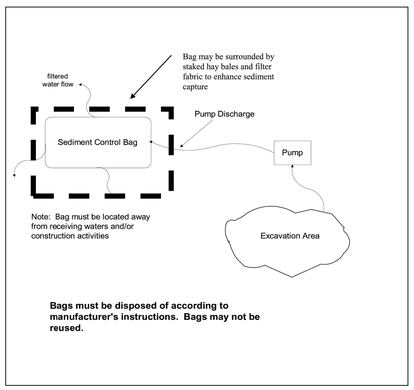
WARNING!

ACCESSIBLE SAFETY SURFACING MATERIAL IS REQUIRED BENEATH AND AROUND THIS EQUIPMENT.
FOR SLIDE FALL ZONE SURFACING AREA SEE CPSC's Handbook for Public Playground Safety.
PLATFORM HEIGHTS ARE IN INCHES ABOVE RESILIENT MATERIAL.

TOT LOT LAYOUT

NOT TO SCALE

Detail 14-4 Sediment Control Bag for Dewatering



SEDIMENT CONTROL BAG FOR DEWATERING

NOT TO SCALE

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/06/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: N/A
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 08-Details.dwg

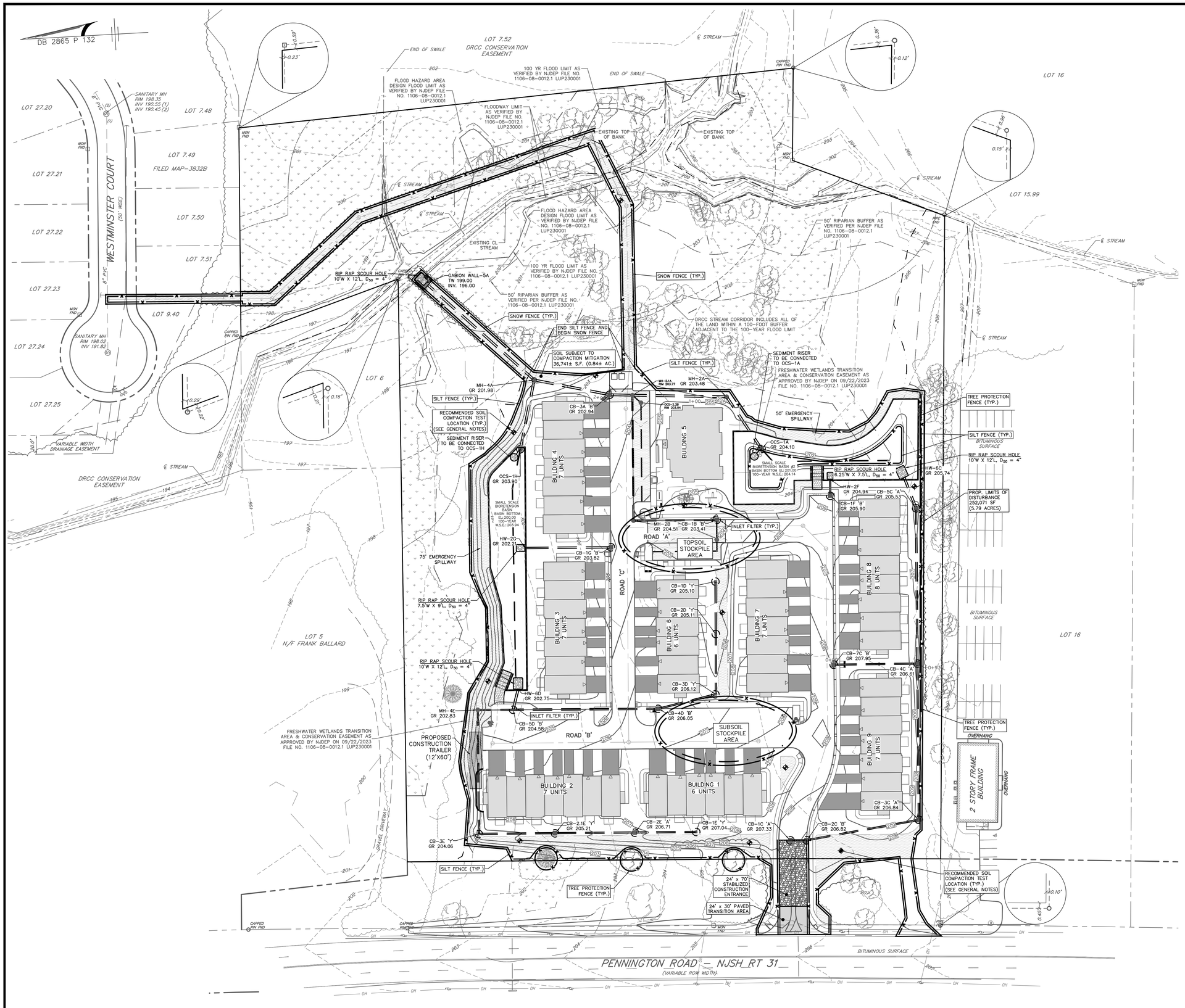
Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. License No. 24GE03503600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
LANDSCAPING DETAILS

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MacAtlantic Engineering Partners, LLC
20298 Briggs Road, Suite 200
Mount Laurel, NJ 08054
609-910-4450
Certificate of Authorization No. 24GA28184000
Louis L. Zungre III P.E. — PE No. GE042600
William J. Parkhill P.E. — PE No. GE043503600

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\08-Details.dwg
Plot Time: Nov 27, 2023 - 1:06pm



SINCE THE BIORETENTION BASIN IS BEING USED AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION, THE BIORETENTION SOILS, SAND AND GRAVEL SHOULD NOT BE INSTALLED UNTIL THE CONTRIBUTING DRAINAGE AREA TO THE BASIN HAS BEEN STABILIZED. IN THE INTERIM CONDITION, THE BASINS SHOULD INITIALLY BE CUT TO THE TOP OF THE BIORETENTION SOIL ELEVATION AND COVERED WITH A FILTER FABRIC.

THIS PLAN WAS PREPARED TO ADDRESS EROSION AND SEDIMENT CONTROL COMPONENT OF THE STORMWATER POLLUTION PREVENTION PLAN (SPPP) AT TIME OF DESIGN. ALL OTHER COMPONENTS OF THE SPPP AND GENERAL STORMWATER PERMIT TO BE RESPONSIBILITY OF THE DEVELOPER AND/OR SITE CONTRACTOR.

SOIL EROSION & SEDIMENT CONTROL NOTES:

1. PROJECT SITE BEING KNOWN AND DESIGNATED AS BLOCK 78, LOT 17, AS SHOWN ON THE CURRENT TAX ASSESSMENT MAP OF HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY (SHEET 20), CONTAINING 11.08 ACRES.
2. BOUNDARY, TOPOGRAPHIC INFORMATION AND EXISTING CONDITIONS SHOWN BASED UPON MAP ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY, BLOCK 78, LOT 17, SITUATED IN HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY" PREPARED BY MIDATLANTIC ENGINEERING PARTNERS, LLC AND DATED 8/30/22.
3. SITE COORDINATES: N 535866, E 413214
4. HORIZONTAL DATUM: NAD 83 VERTICAL DATUM: NAVD 88
5. TRACKING PAD TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED SESC PLAN AND MUST BE IN OPERATION AT ALL TIMES. ADDITIONAL TRACKING PADS, CONFORMING TO SESC STANDARDS MAY BE ADDED AS THE CONTRACTOR DEEMS NECESSARY.
6. SOIL STOCKPILES TO BE PLACED AS REQUIRED WITHIN THE PROJECT SITE AND SILT FENCE LIMITS WITH SILT FENCE PLACED AROUND THE PERIMETER IN ACCORDANCE WITH THE SOIL EROSION AND SEDIMENT CONTROL DETAILS.
7. SHOULD ADDITIONAL STOCKPILE AREA BE NEEDED, THE CONTRACTOR SHALL CONFORM TO THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
8. ALL CONTRACTORS MUST CALL THE NEW JERSEY ONE CALL SYSTEM (800-272-4000) IN ACCORDANCE WITH THE UNDERGROUND FACILITIES CONTROL ACT LAW PRIOR TO ANY SUBSURFACE ACTIVITY.
9. THIS PLAN PREPARED TO ADDRESS EROSION AND SEDIMENT CONTROL COMPONENT OF THE STORMWATER POLLUTION PREVENTION PLAN (SPPP) AT TIME OF DESIGN. ALL OTHER COMPONENTS OF THE SPPP AND GENERAL STORMWATER PERMIT NO. NJG0088323 TO BE RESPONSIBILITY OF THE DEVELOPER AND/OR SITE CONTRACTOR.
10. THIS PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL MEASURES ONLY. THIS PLAN IS NOT TO BE USED FOR SITE CONSTRUCTION.
11. TRUCK WHEELS WILL BE WASHED AS NECESSARY ON THE TRACKING PAD. CONTRACTOR IS SOLELY RESPONSIBLE FOR SECURING A SOURCE OF ON-SITE WATER.

LEGEND

EXISTING CONTOUR
PROPOSED CONTOUR
EXISTING SPOT ELEVATION x 57.6
PROPOSED SPOT ELEVATION x 57.6
EXISTING SANITARY SEWER LINE
PROPOSED SANITARY SEWER LINE
EXISTING STORM SEWER LINE
PROPOSED STORM SEWER LINE
EXISTING INLET
PROPOSED INLET
EXISTING MANHOLE
PROPOSED MANHOLE
EXISTING WATER LINE
PROPOSED WATER LINE
EXISTING WATER VALVE
PROPOSED WATER VALVE
EXISTING GAS LINE
PROPOSED GAS LINE
EXISTING SAN CLEAN OUT
PROPOSED SAN CLEAN OUT
EXISTING SIGN
PROPOSED SIGN
EXISTING LIGHT
PROPOSED LIGHT
EXISTING FENCELINE
PROPOSED FENCELINE
PROPOSED LIMIT OF DISTURBANCE
PROPOSED SILT FENCE
PROPOSED INLET PROTECTION
PROPOSED SOIL STOCKPILE AREA
PROPOSED TRACKING PAD

40 20 0 40 80 120
30 10
GRAPHIC SCALE
1 inch = 40 feet

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	IAB
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07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: 1"=40'
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 07-SESC.dwg

William J. Parkhill II, P.E.
Date 11-22-2023
PROFESSIONAL ENGINEER
N.J. Lic. No. GE49258

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
SOIL EROSION & SEDIMENT CONTROL PLAN
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
220B Bridge Road, Suite 300
Mount Laurel, NJ 08054
856-914-4400
Certificate of Authorization No. 24GA28184000
Louis L. Zwigner IV P.E. PE No. GE54026500
William J. Parkhill II P.E. PE No. GE49258300

Sheet Number
19 OF 24

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\07-SESC.dwg
Plot Time: Nov 22, 2023 - 10:49am

MERCER COUNTY SOIL EROSION AND SEDIMENT CONTROL NOTES

1. The Mercer County Soil Conservation District shall be notified 48 hours prior to starting land disturbance activity. Notice may be mailed, faxed or emailed to:
   MCSCD, 590 Hughes Drive, Hamilton Square, NJ 08690
   Phone: 609-586-9603 Fax: 609-586-1117 Email: Paula1mercer@aol.com
2. If applicable to this project, the owner should be aware of his or her obligation to file for a NJPDES Construction Activity Stormwater 5G3 Permit (NJG0088323) via the NJDEP online permitting system (www.nj.gov/dep/online) and to maintain the associated best management practices and Stormwater Pollution Prevention Plan self-inspection logbook onsite at all times. This permit must be filed prior to the start of soil disturbance. The online application process will require entry of an SCD certification code, which is provided by the Soil Conservation District upon certification of the Soil Erosion and Sediment Control Plan.
3. The Mercer County Soil Conservation District shall be notified of any changes in ownership.
8. Any changes to the Certified Soil Erosion and Sediment Control Plan, including an increase in the limit of disturbance, will require the submission of revised Soil Erosion and Sediment Control Plans to the District for recertification. The revised plans must meet all current State Soil Erosion & Sediment Control STANDARDS.
5. A copy of the certified Soil Erosion and Sediment Control plan shall be maintained on site at all times.
6. All Soil Erosion and Sediment Control practices shall be installed prior to any major soil disturbances, or in their proper sequence as outlined within the Sequence of Construction on the Certified Soil Erosion and Sediment Control Plan, and maintained until permanent protection is established.
7. All work shall be done in accordance with the current STANDARDS for Soil Erosion and Sediment Control in NJ. If language contained within any other permit for this project is more restrictive than (but not contradictory to) what is contained within these notes or on the Certified Soil Erosion and Sediment Control Plan, then the more restrictive permit requirements shall be followed.
8. The Standard for Stabilized Construction Access requires the installation of a 1½" to 2½" clean stone tracking pad at all construction driveways immediately after initial site disturbance, whether identified on the certified plan or not. The width shall span the full width of egress, and length shall be 50 ft. or more, depending on site conditions and as required by the STANDARD. This shall include individual lot access points within residential subdivisions. If the egress is to a County road, then a 20 ft. long paved transition shall be provided between the edge of pavement and the stone access pad.
9. A sub-base course will be applied immediately following rough grading and installation of improvements in order to stabilize streets, roads, driveways and parking areas. In areas where no utilities are present, the sub-base shall be installed within 15 days of preliminary grading, provided that all other requirements related to detention basins, swales and the Sequence of Construction have been met.
10. Any disturbed areas that will be left exposed more than 14 days and not subject to construction activity will immediately receive temporary stabilization. If the season prevents establishment of a temporary vegetative cover, or if the area is not topsoiled, then the disturbed areas will be mulched with straw, or equivalent material, at a rate of two (2) tons per acre, according to State STANDARDS. Sloped areas in excess of 3H:1V shall be provided with erosion control blankets. Critical areas subject to erosion (i.e. steep slopes, roadway embankments, environmentally sensitive areas) will receive temporary stabilization immediately after initial disturbance or rough grading.
11. Any steep slopes (i.e. slopes greater than 3:1) receiving pipeline or utility installation will be backfilled and stabilized daily, as the installation proceeds.
12. Permanent vegetation shall be seeded or sodded on all exposed areas within ten (10) days after final grading and topsoiling. All agronomic requirements contained within the STANDARDS and on the Certified Plan shall be employed. Mulch with binder, in accordance with the STANDARDS, shall be used on all seeded areas. Save all tags and/or bags used for seed, lime and fertilizer, and provide them to the District inspector to verify that mixtures and rates meet the STANDARDS.
13. At the time when the site preparation for permanent vegetative stabilization is going to be accomplished, any soil that will not provide a suitable environment to support adequate vegetative ground cover, shall be removed or treated in such a way that will permanently adjust the soil conditions and render it suitable for vegetative ground cover. If the removal or treatment of the soil will not provide suitable conditions, then non-vegetative means of permanent ground stabilization will have to be employed.
14. During the course of construction, soil compaction may occur within haul routes, staging areas and other project areas. In accordance with the Standard for Topsoiling, compacted surfaces should be scarified 6" to 12" immediately prior to topsoil application. This will help ensure a good bond between the topsoil and subsoil. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).
15. Prior to seeding, topsoil shall be worked to prepare a proper seedbed. This shall include raking of the topsoil and removal of debris and stones, along with other requirements of the Standard for Permanent Vegetative Cover for Soil Stabilization.
16. In accordance with the STANDARD for Management of High Acid Producing Soils, any soil having a pH of 4 or less or containing iron sulfides shall be buried with limestone in accordance with the STANDARD and be covered with a minimum of 12" of soil having a pH of 5 or more prior to topsoil application and seedbed preparation. If the area is to receive tree or shrub plantings, or is located on a slope, then the area shall be covered with a minimum of 24" of soil having a pH of 5 or more.
17. Mulching to the STANDARDS is required for obtaining a Conditional Report of Compliance. Conditional ROC's are only issued when the season prohibits seeding. Permanent stabilization must then be completed during the optimum seeding season immediately following the Conditional ROC, or the completion of work in a given area.
18. Hydroseeding is a two-step process. The first step includes seed, fertilizer, lime, etc., along with minimal amounts of mulch to promote consistency, good seed-to-soil contact, and give a visual indication of coverage. Upon completion of the seeding operation, hydromulch should be applied at a minimum rate of 1500 lbs. per acre in second step. The use of hydro-mulch, as opposed to straw, is limited to optimum seeding dates as listed in the STANDARDS. The use of Hydromulch on sloped areas is discouraged.
19. The contractor is responsible for keeping all adjacent roads clean during life of the construction project. All sediment washed, dropped, tracked or spilled onto paved surfaces shall be immediately removed.
20. The developer shall be responsible for remediating any erosion or sediment problems that arise as a result of ongoing construction, and for employing additional erosion and sediment control measures at the request of the Mercer County Soil Conservation District.
21. Conduit Outlet Protection must be installed at all required outfalls prior to the drainage system becoming operational.
22. All detention / retention basins must be fully constructed (inclusive of all structural components and liners) and permanently stabilized prior to paving or prior to the addition of any impervious surfaces. Permanent stabilization includes, but may not be limited to: topsoil, seed, straw mulch and binders or erosion control blankets on all seeding, all agronomic requirements as specified on the Certified Soil Erosion and Sediment Control Plan, installation of the outflow control structures and discharge storm drainage piping, low flow channels, conduit outlet protection, emergency spillways, and lap ring protection.
23. The riding surface of all utility trenches within paved areas shall be 3/4" clean stone or base pavement until such time as final pavement has been installed. Temporary soil riding surfaces are prohibited.
24. All construction dewatering (trenches, excavations, etc.) must be done through an inlet or outlet filter in accordance with the Standard for Dewatering or as depicted on the Certified Soil Erosion and Sediment Control Plan. Discharge locations for the dewatering operation must contain perennial vegetation or similar stable surface.
25. All swales or channels that will receive runoff from paved surfaces must be permanently stabilized prior to the installation of pavement. If the season prohibits the establishment of permanent stabilization, the swales or channels may be temporarily stabilized in accordance with the STANDARDS.
26. NJSA 4:24-39 et seq. requires that no Certificate of Occupancy or Temporary Certificate of Occupancy be issued by the Municipality before the processes of the Certified Soil Erosion and Sediment Control Plan have been satisfied. Therefore, all site work for site plans and all work around individual lots in subdivisions must be completed before the District issues a Report of Compliance or Conditional Report of Compliance, which must be forwarded to the Municipality prior to the issuance of a Certificate of Occupancy or Temporary Certificate of Occupancy, respectively.

STANDARD FOR STABILIZATION WITH MULCH ONLY

DEFINITION

STABILIZING EXPOSED SOILS WITH NON-VEGETATIVE MATERIALS EXPOSED FOR PERIODS LONGER THAN 14 DAYS.

PURPOSE

TO PROTECT EXPOSED SOIL SURFACES FROM EROSION DAMAGE AND TO REDUCE OFFSITE ENVIRONMENTAL DAMAGE.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO EROSION, WHERE THE SEASON AND OTHER CONDITIONS MAY NOT BE SUITABLE FOR GROWING AN EROSION RESISTANT COVER OR WHERE STABILIZATION IS NEEDED FOR A SHORT PERIOD UNTIL MORE SUITABLE PROTECTION CAN BE APPLIED. WOOD CHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM.

METHODS AND MATERIALS

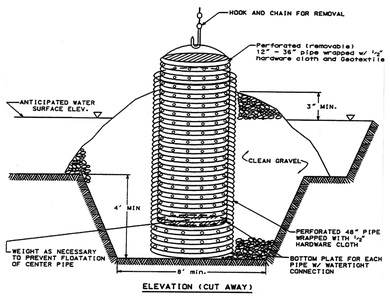
I. SITE PREPARATION
   A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, PAGE 19.1.
   B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.

II. PROTECTIVE MATERIALS
   A. UNROTTED SMALL GRAIN STRAW, AT 2.0 TO 2.5 TONS PER ACRE IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH BINDERS OR NETTING TIEDOWN. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT.
   B. SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED – UNDER SUITABLE CONDITIONS AND IN SUFFICIENT QUANTITIES.
   C. WOOD-FIBER OR PAPER-FIBER MULCH AT A RATE OF 1,500 POUNDS PER ACRE MAY BE APPLIED BY A HYDROSEEDER OR HYDROMULCHING.
   D. MULCH NETTING, SUCH AS PAPER JUTE, EXCELSIOR, COTTON OR PLASTIC MAY BE USED.
   E. WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED.
   F. GRAVEL, CRUSHED STONE OR SLAG AT THE RATE OF 9 CUBIC YARDS PER 1000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.

III. MULCH ANCHORING
   A. MULCH ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS OF SLOPE.
   B. PEG AND TWINE – DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
   C. MULCH NETTING – STAPLE PAPER, COTTON, OR PLASTIC NETTINGS OVER HAY OR STRAW MULCH. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND UP TO 300 FEET LONG.
   D. MULCH ANCHORING TOOL – A TRACTOR DRAWN IMPLEMENT ESPECIALLY DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THE PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT IT'S USE IS LIMITED TO THOSE SLOPES UPON WHICH THE TRACTOR CAN OPERATE SAFELY. TOOL PENETRATION SHOULD BE ABOUT 3 TO 4 INCHES. ON SLOPING LAND, THE OPERATION SHOULD BE DONE ON THE CONTOUR.
   E. LIQUID MULCH-BINDERS
      1. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
      2. USE OF ONE OF THE FOLLOWING:
         o. ORGANIC AND VEGETABLE BASED BINDERS – NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS. VEGETABLE BASED GELS SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER.
         b. SYNTHETIC OR ORGANIC BINDERS – BINDERS SUCH AS CURASOL, DCA-70, PETRO-SET AND TERRA TACK MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

DUST CONTROL NOTE

DUST GENERATION SHALL BE CONTROLLED ON A CONSTANT BASIS BY WETTING THE SURFACE AND/OR APPLICATION OF CALCIUM CHLORIDE



NOTES:
1. THE OUTER PIPE SHOULD BE 48" DIA. OR SHALL IN ANY CASE BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH ½" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
3. THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE ½" x 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH ½" HARDWARE CLOTH FIRST THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

FILTERED DEWATERING DETAIL

NOT TO SCALE

STANDARD FOR SEEDING SPECIFICATIONS

SITE PREPARATION

SITE PREPARATION IS REQUIRED FOR ENTIRE SITE AND SHALL BE ACCOMPLISHED AS FOLLOWS:

1. GARDE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARD FOR LAND GRADING
2. INSTALL NEEDED EROSION CONTROL PRACTICES PRIOR TO SEEDING A TO SEEDING AS SPECIFIED IN STANDARDS 11 THROUGH 42
3. SOIL SHALL BE EVALUATED FOR COMPACTION AND GRADING DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING 19-1.

SOIL TEXTURE

SOIL PREPARATION IS REQUIRED ON ALL SEEDINGS AND SHALL BE ACCOMPLISHED AS FOLLOWS:

1. SUITABLE EQUIPMENT WILL BE USED TO PREPARE A REASONABLE, UNIFORM, FINE SEED BED TO A MINIMUM DEPTH OF 4 INCHES.
2. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET USING 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. LIME SHALL BE PULVERIZED DOLOMITIC LIMESTONE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.
3. WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT.

MULCHING

MULCHING IS REQUIRED ON ALL SEEDING AND SHALL BE ACCOMPLISHED AS FOLLOWS:

1. MULCH MATERIALS WILL BE UNROTTED SALT HAY, HAY, OR SMALL GRAIN STRAW AT A RATE OF 1-1/2 TO 2 TONS PER ACRE, OR 70 TO 90 POUNDS PER 1,000 SQUARE FEET. MULCH BLOWERS SHOULD NOT GRIND OR CHOP THE MATERIAL.
2. SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 85 PERCENT OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FOOT SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.
3. MULCH ANCHORING SHALL BE ACCOMPLISHED USING EITHER PEG AND TWINE, MULCH NETTING, MULCH ANCHORING COULTER TOOL OR LIQUID MULCH-BINDERS, PER THE ACCOMPANYING "STABILIZATION WITH MULCH ONLY" SPECIFICATION.

* OPTIMUM SEEDING DATES 3/1 – 5/15 AND 8/15 – 10/1

TEMPORARY SEEDING

TEMPORARY VEGETATIVE COVER SHALL BE DETERMINED BY SOIL TESTING SITE AT TIME OF INITIAL SEEDBED PREPARATION. LIME REQUIREMENT SHOULD BE DETERMINED BY SOIL TESTING EVERY 2 OR 3 YEARS. FERTILIZATION MAY INCREASE THE NEED FOR LIMING. A MINIMUM OF 2 TONS/ACRE IS REQUIRED. FERTILIZER (10-20-10 OR EQUIVALENT UNLESS SOIL TEST INDICATES OTHERWISE) SHALL BE APPLIED AT THE RATE OF 11 lbs/1,000 SQ. FT. (500 lbs./Ac.)

PERMANENT SEEDING

1. TOPSOIL TO BE PLACED TO A DEPTH OF 4 INCHES ON EXPOSED SOILS UPON COMPLETION OF FINAL GRADING.
2. SEED IS TO BE UNIFORMLY APPLIED TO THE NORMAL DEPTH OF 1/4 INCH TO 1/2 INCH (EXCEPT HYDRO SEEDING). SEED MIXTURE SHALL BE DETERMINED BASED UPON SOIL TESTING AT TIME OF SEEDBED PREPARATION.
3. PERMANENT SEED MIXTURE:
   - 70% TURF TYPE TALL FESCUE
   - 20% PERENNIAL RYE GRASS
   - 10% KENTUCKY BLUE GRASS
4. APPLY A TOTAL RATE OF 200 LBS/ACRE
5. MULCHING WILL BE ACCOMPLISHED PER THE BELOW TEMPORARY SEEDING SPECIFICATIONS.

* MAY BE PLANTED THROUGHOUT SUMMER IF SOIL MOISTURE IS ADEQUATE OR SOIL CAN BE IRRIGATED.

6. WET SEED MIXTURE 9, AS SHOWN ON PAGE 4-8 IN THE SOIL EROSION STANDARDS.

SEED MIXTURE	PLANTING RATE LBS PER ACRE	PLANTING RATE LBS PER 1,000 SF
DEER TONGUE	20	0.45
	2	0.05
WILD RYE (ELYMUS)	15	0.35
SWITCH GRASS	25	0.60

* OPTIMAL SEEDING DATES: 8/15-10/15
* ACCEPTABLE SEEDING DATES: 3/1-4/30 AND 5/1-8/14

ADDITIONAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PERMANENT SOIL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION. THE PROPERTY OWNERS SHALL ASSUME THIS RESPONSIBILITY AFTER CONSTRUCTION IS COMPLETED AND CERTIFICATES OF OCCUPANCY ARE ISSUED.
2. THE SOIL EROSION INSPECTOR MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.
3. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE ROADWAYS CLEAN AT ALL TIMES. ANY SEDIMENT SPILLED OR TRACKED ON THE ROADWAY WILL BE CLEANED UP IMMEDIATELY, OR AT A MINIMUM, BY THE END OF EACH WORK DAY.
4. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ON INDIVIDUAL SITES SHALL APPLY TO ANY SUBSEQUENT OWNER.
5. STEEP SLOPES TO RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR SUITABLE EQUAL. (SEE ANCHORING NOTES & NOTE No. 6 OF SOIL EROSION & SEDIMENT CONTROL NOTES.)

STANDARD FOR TOPSOILING

METHODS AND MATERIALS

1. MATERIALS
   A. TOPSOIL SHOULD BE FRIABLE[1], LOAMY[2], FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE OR ADVERSE CHEMICAL OR PHYSICAL CONDITION THAT MAY BE HARMFUL TO PLANT GROWTH. SOLUBLE SALTS SHOULD NOT BE EXCESSIVE (CONDUCTIVITY LESS THAN 0.5 MILLIMHOS PER CENTIMETER. MORE THAN 0.5 MILLIMHOS MAY DESICCATE SEEDLINGS AND ADVERSELY IMPACT GROWTH). IMPORTED TOPSOIL SHALL HAVE HAVE A MINIMUM ORGANIC MATTER CONTENT OF 2.75 PERCENT. ORGANIC MATTER CONTENT MAY BE RAISED BY ADDITIVES.
   B. TOPSOIL SUBSTITUTE IS A SOIL MATERIAL WHICH MAY HAVE BEEN AMENDED WITH SAND, SILT, CLAY, ORGANIC MATTER, FERTILIZER OR LIME AND HAS THE APPEARANCE OF TOPSOIL. TOPSOIL SUBSTITUTES MAY BE UTILIZED ON SITES WITH INSUFFICIENT TOPSOIL FOR ESTABLISHING PERMANENT VEGETATION. ALL TOPSOIL SUBSTITUTE MATERIALS SHALL MEET THE REQUIREMENTS OF TOPSOIL NOTED ABOVE. SOIL TESTS SHALL BE PERFORMED TO DETERMINE THE COMPONENTS OF SAND, SILT, CLAY, ORGANIC MATTER, SOLUBLE SALTS AND PH LEVEL.

1 FRIABLE MEANS EASILY CRUMBLES IN THE FINGERS, AS DEFINED IN MOST SOILS TEXTS.
2 LOAMY MEANS TEXTURE GROUPS CONSISTING OF COARSE LOAMY SANDS, SANDY LOAM, FINE AND VERY FINE SANDY LOAM, LOAM, SILT LOAM, CLAY LOAM, SANDY CLAY LOAM AND SILTY CLAY LOAM TEXTURES AND HAVING LESS THAN 35% COARSE FRAGMENTS (PARTICLES LESS THAN 2MM IN SIZE) AS DEFINED IN THE GLOSSARY OF SOIL SCIENCE TERMS, 1996, SOIL SCIENCE SOCIETY OF AMERICA.

2. STRIPPING AND STOCKPILING
   A. FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.
   B. STRIPPING SHOULD BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA.
   C. WHERE FEASIBLE, LIME MAY BE APPLIED BEFORE STRIPPING AT A RATE DETERMINED BY SOIL TESTS TO BRING THE SOIL PH TO APPROXIMATELY 6.5.
   D. A 4-6 INCH STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.
   E. STOCKPILES OF TOPSOIL SHOULD BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.
   F. STOCKPILES SHOULD BE VEGETATED IN ACCORDANCE WITH STANDARDS PREVIOUSLY DESCRIBED HEREIN; SEE STANDARDS FOR PERMANENT (PG. 4-1) OR TEMPORARY (PG.7-1) VEGETATIVE COVER FOR SOIL STABILIZATION. WEEDS SHOULD NOT BE ALLOWED TO GROW ON STOCKPILES.
3. SITE PREPARATION
   A. GRADE AT THE ONSET OF THE OPTIMAL SEEDING PERIOD SO AS TO MINIMIZE THE DURATION AND AREA OF EXPOSURE OF DISTURBED SOIL TO EROSION. IMMEDIATELY PROCEED TO ESTABLISH VEGETATIVE COVER IN ACCORDANCE WITH THE SPECIFIED SEED MIXTURE. TIME IS OF THE ESSENCE.
   B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE. SEE THE STANDARD FOR LAND GRADING, PG. 19-1.
   C. AS GUIDANCE FOR IDEAL CONDITIONS, SUBSOIL SHOULD BE TESTED FOR LIME REQUIREMENT. LIMESTONE, IF NEEDED, SHOULD BE APPLIED TO BRING SOIL TO A PH OF APPROXIMATELY 6.5 AND INCORPORATED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES.
   D. PRIOR TO TOPSOILING, THE SUBSOIL SHALL BE IN COMPLIANCE WITH THE STANDARD FOR LAND GRADING, PG. 19-1.
   E. EMPLOY NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENTATION BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.
4. APPLYING TOPSOIL
   A. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE; I.E., LESS THAN FIELD CAPACITY (SEE GLOSSARY).
   B. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES, MINIMUM OF 4 INCHES, FIRMED IN PLACE IS REQUIRED. ALTERNATIVE DEPTHS MAY BE CONSIDERED WHERE SPECIAL REGULATORY AND/OR INDUSTRY DESIGN STANDARDS ARE APPROPRIATE SUCH AS ON GOLF COURSES, SPORTS FIELDS, LANDFILL CAPPING, ETC. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12 INCHES OF SOIL HAVING A PH OF 5.0 OR MORE, IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOIL (PG. 1-1).
   C. PURSUANT TO THE REQUIREMENTS IN SECTION 7 OF THE STANDARD FOR PERMANENT VEGETATIVE STABILIZATION, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT PERMANENT VEGETATIVE COVER BECOMES ESTABLISHED ON AT LEAST 80% OF THE SOILS TO BE STABILIZED WITH VEGETATION. FAILURE TO ACHIEVE THE MINIMUM COVERAGE MAY REQUIRE ADDITIONAL WORK TO BE PERFORMED BY THE CONTRACTOR TO INCLUDE SOME OR ALL OF THE FOLLOWNG: SUPPLEMENTAL SEEDING, RE-APPLICATION OF LIME AND FERTILIZERS, AND/OR THE ADDITION OF ORGANIC MATTER (I.E. COMPOST) AS A TOP DRESSING. SUCH ADDITIONAL MEASURES SHALL BE BASED ON SOIL TESTS SUCH AS THOSE OFFERED BY RUTGERS COOPERATIVE EXTENSION SERVICE OR OTHER APPROVED LABORATORY FACILITIES QUALIFIED TO TEST SOIL SAMPLES FOR AGRONOMIC PROPERTIES.

STANDARD FOR MANAGEMENT OF HIGH ACID-PRODUCING SOILS

DEFINITION

HIGH ACID-PRODUCING SOILS ARE SOILS WITH A PH OF 4.0 OR LESS OR CONTAIN IRON SULFIDE.

PURPOSE

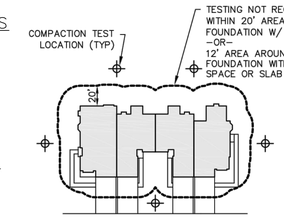
TO PREVENT OR LIMIT EXPOSURE AREA TIME AND SPREADING BY EQUIPMENT OR RAINFALL ON AND OFFSITE AND TO MINIMIZE EROSION SEDIMENTATION AND ACID LEACHATE-RELATED DAMAGES.

CONDITIONS WHERE PRACTICE APPLIES

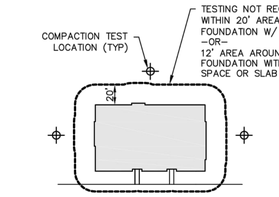
THIS PRACTICE IS APPLICABLE TO ANY HIGH ACID-PRODUCING SOIL MATERIALS. SUCH MATERIALS HAVE BEEN FOUND IN COASTAL PLAIN AREAS OF BURLINGTON, CAMDEN, CUMBERLAND, GLOUCESTER, MERCER, MIDDLESEX, MONMOUTH, OCEAN, SALEM AND SOMERSET COUNTIES.

METHODS AND MATERIALS

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID-PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF THE SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID-PRODUCING SOIL.
5. HIGH ACID-PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE EXCEPTS AS FOLLOWS:
   A. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A OH OF 5 OR MORE.
   B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHERS, TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID-PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID-PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
7. NON-VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOODCHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING), MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID-PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS EXIST, THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.

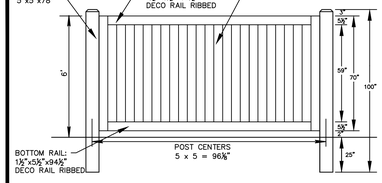


B. TOWNHOUSE BUILDING



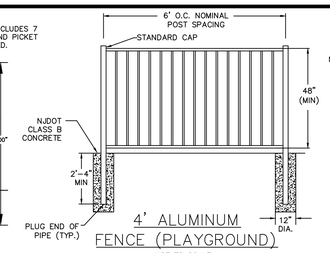
C. MULTIFAMILY HOUSING OR OTHER NON-RESIDENTIAL BUILDING/STRUCTURE

NOTE: SOIL COMPACTION TESTING LOCATIONS IDENTIFIED ARE RECOMMENDED LOCATIONS FOR GRADED/DISTURBED AREAS WITHIN THE VICINITY OF BUILDINGS AND STRUCTURES OR ON INDIVIDUAL LOTS. FOR GRADED/DISTURBED AREAS WITHIN OPEN OR COMMON SPACES, SOIL COMPACTION TESTING SHALL BE PERFORMED IN AC



VINYL PRIVACY FENCE

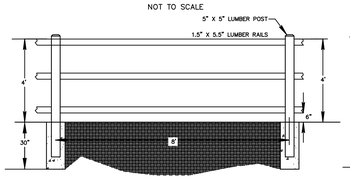
NOT TO SCALE



NOTES:
1. PROPOSED ALUMINUM FENCE ENCLOSURE SHALL BE EQUIPPED WITH SELF-CLOSING AND SELF-LATCHING GATES.
2. OPENINGS IN THE FENCE SHALL NOT PERMIT THE PASSAGE OF A 4 INCH DIAMETER SPHERE.

4' ALUMINUM FENCE (PLAYGROUND)

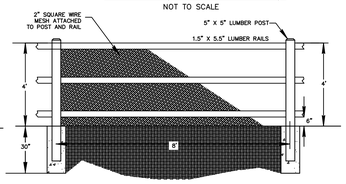
NOT TO SCALE



NOTE:
1. POSTS, FOOTINGS, HORIZONTAL SUPPORTS & FENCING ARE TO BE PER MANUFACTURING SPECIFICATIONS AND CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO CONSTRUCTION.
2. FENCE POSTS AND RAILS TO BE PRESSURE TREATED LUMBER.

WOODEN SPLIT RAIL FENCE (AROUND WETLANDS)

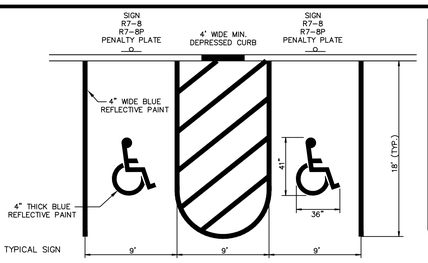
NOT TO SCALE



NOTE:
1. POSTS, FOOTINGS, HORIZONTAL SUPPORTS & FENCING ARE TO BE PER MANUFACTURING SPECIFICATIONS AND CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO CONSTRUCTION.
2. FENCE POSTS AND RAILS TO BE PRESSURE TREATED LUMBER.

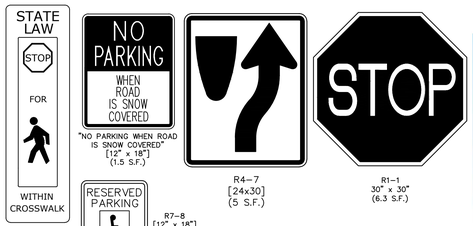
WOODEN SPLIT RAIL FENCE (AROUND STORMWATER BASIN)

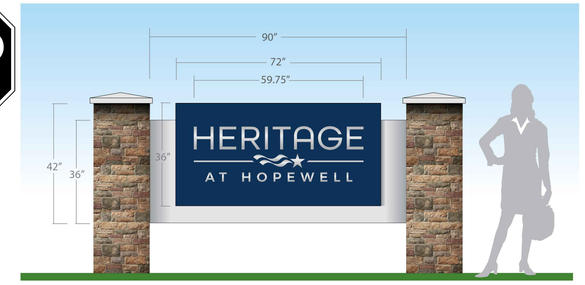
NOT TO SCALE



HANDICAP PARKING STALL STRIPING

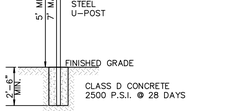
NOT TO SCALE





MONUMENT SIGN

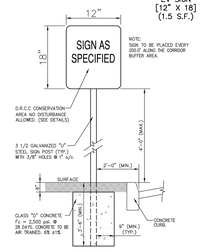
NOT TO SCALE



TRAFFIC CONTROL SIGN DETAIL

NOT TO SCALE

EV SIGN [12" X 18"] (1.5 S.F.)



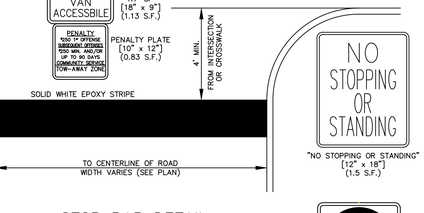
NOTE: SIGN TO BE PLACED EVERY 200'-0" ALONG THE CORRIDOR BUFFER AREA.

TYPICAL SIGN POST DETAIL

N.T.S.

DRCC CONSERVATION AREA SIGN [12" x 18"] (1.5 S.F.)

W11-2 [30" x 30"] (6.3 S.F.)

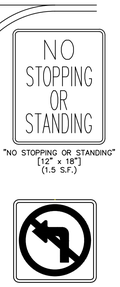


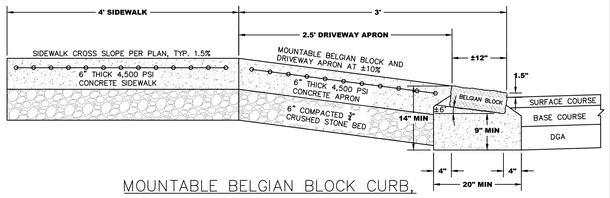
STOP BAR DETAIL

NOT TO SCALE

NOTE:

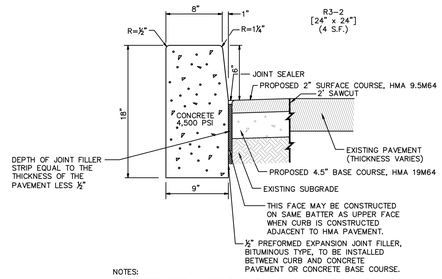
IF A CROSSWALK EXISTS AT THE INTERSECTION, THEN THE STOP BAR SHALL BE PLACED A MINIMUM OF 4 FEET AWAY FROM THE CROSSWALK. IF NO CROSSWALK EXISTS, THEN THE STOP BAR SHALL BE PLACED A MINIMUM OF 4 FEET AWAY FROM THE INTERSECTION.





MOUNTABLE BELGIAN BLOCK CURB, DRIVEWAY APRON AND SIDEWALK

NOT TO SCALE

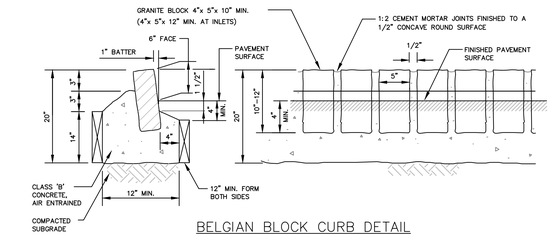


NOTES:

TRANSVERSE JOINTS ½" WIDE SHALL BE INSTALLED IN THE CURB 20 FEET APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED ¼" IN FROM FRONT FACE AND TOP OF CURB.
EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.
CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 4500 PSI.

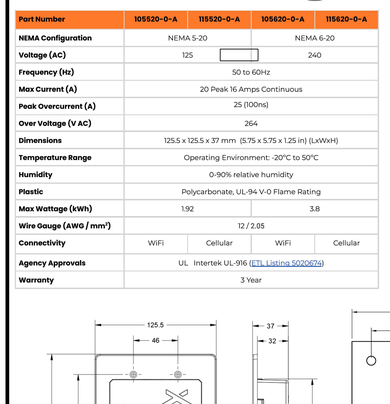
CONCRETE VERTICAL CURB & SAWCUT PAVEMENT REPLACEMENT

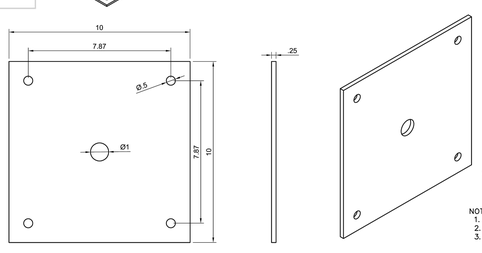
NOT TO SCALE



BELGIAN BLOCK CURB DETAIL

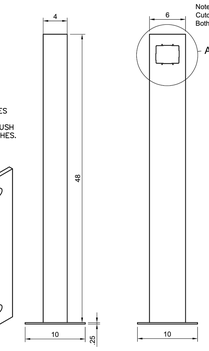
N.T.S.



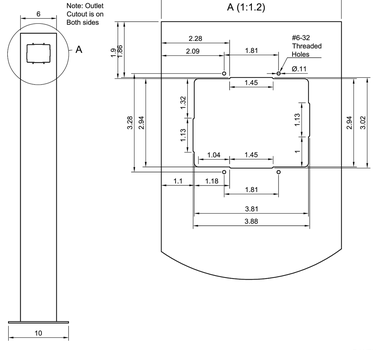


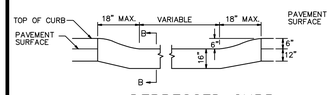
DOUBLE PEDESTAL ELECTRIC VEHICLE CHARGER

NOT TO SCALE



NOTES:
1. 1 MM TOLERANCES ON CUTOUT.
2. 1/4 IN. THICK METAL TUBING.
3. ALL MEAUREMENTS ARE IN MILLIMETERS.

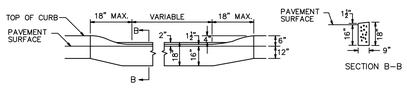




DEPRESSED CURB (PAVEMENT FLUSH FOR ADA)

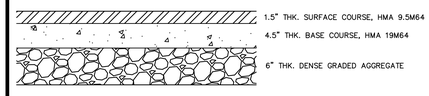
NOT TO SCALE

NOTE: MAX. CURB LIP SEPARATION UP TO ¼" PER ADA SECTION 303.2.



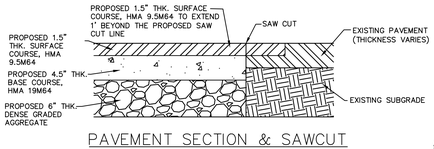
DEPRESSED CURB (DRIVEWAY ACCESS NON-ADA)

NOT TO SCALE



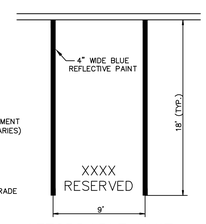
PAVEMENT SECTION

NOT TO SCALE



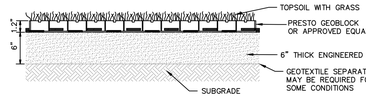
PAVEMENT SECTION & SAWCUT PAVEMENT REPLACEMENT

NOT TO SCALE



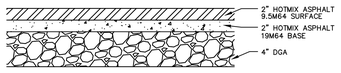
AFFORDABLE UNIT PARKING STALL STRIPING

NOT TO SCALE



STABILIZED BASIN ACCESS DETAIL

NOT TO SCALE

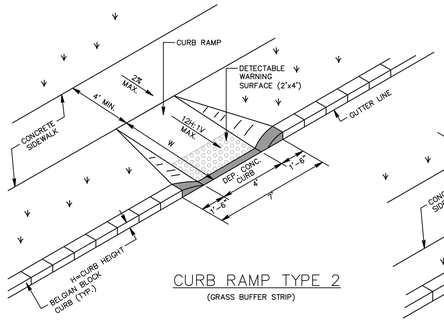


DRIVEWAY PAVEMENT SECTION

NOT TO SCALE

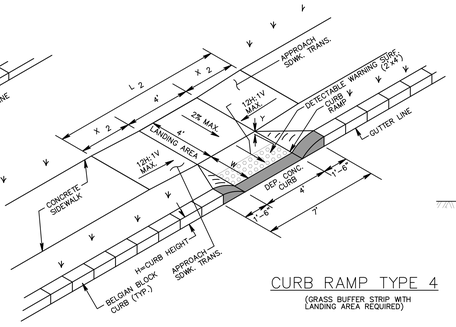
CURB RAMP TYPE 3

(LANDING AREA REQUIRED)



CURB RAMP TYPE 2

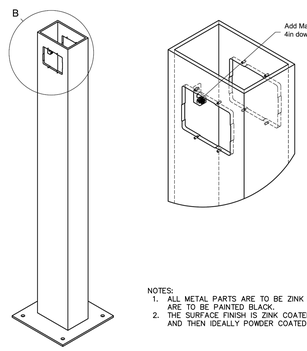
(GRASS BUFFER STRIP)



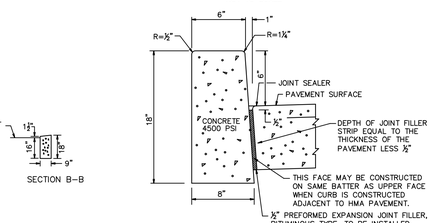
CURB RAMP TYPE 4

(GRASS BUFFER STRIP WITH LANDING AREA REQUIRED)

Part Number	105520-0-A	115520-0-A	105620-0-A	115620-0-A
NEMA Configuration	NEMA 5-20		NEMA 6-20	
Voltage (AC)	125		240	
Frequency (Hz)	50 to 60Hz			
Max Current (A)	20 Peak 16 Amps Continuous			
Peak Overcurrent (A)	25 (100ns)			
Over Voltage (V AC)	264			
Dimensions	125.5 x 125.5 x 37 mm (5.75 x 5.75 x 1.25 in) (LxWxH)			
Temperature Range	Operating Environment: -20°C to 50°C			
Humidity	0-90% relative humidity			
Plastic	Polycarbonate, UL-94 V-0 Flame Rating			
Max Wattage (kWh)	1.92		3.8	
Wire Gauge (AWG / mm²)	12 / 2.05			
Connectivity	WiFi	Cellular	WiFi	Cellular
Agency Approvals	UL Intertek UL-916 (ETL Listing 5020674)			
Warranty	3 Year			



NOTES:
1. ALL METAL PARTS ARE TO BE ZINK PLATED. EXTERNAL SURFACES ARE TO BE PAINTED BLACK.
2. THE SURFACE FINISH IS ZINK COATED TO PROTECT FROM THE RUSH AND THEN IDEALLY POWDER COATED TO PROTECT FROM SCRATCHES.

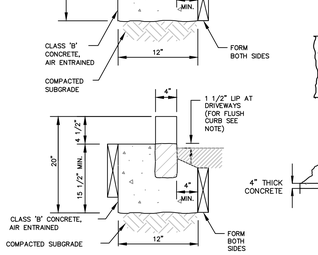


NOTES:

TRANSVERSE JOINTS ½" WIDE SHALL BE INSTALLED IN THE CURB 20 FEET APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED ¼" IN FROM FRONT FACE AND TOP OF CURB.
EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.
CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 4500 PSI.

CONCRETE VERTICAL CURB (6" WIDE)

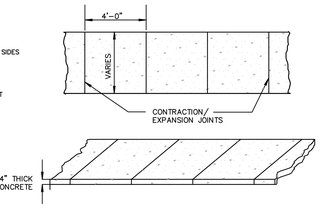
NOT TO SCALE



BELGIAN BLOCK CURB DETAIL ABUTTING SIDEWALK

SIMILAR TO STD. GRANITE BLOCK CURB EXCEPT AS SHOWN

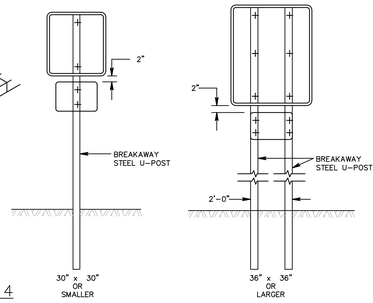
N.T.S.



CONCRETE SIDEWALK

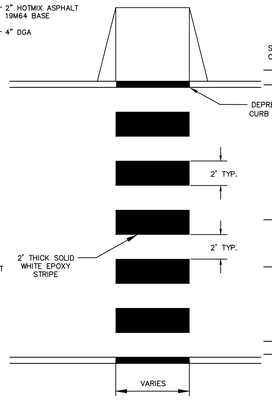
NOT TO SCALE

NOTES:
1. PREFORMED BITUMINOUS EXPANSION JOINTS, 1/2" THICK SHALL BE INSTALLED EVERY 20 FEET. CONTRACTION JOINTS SHALL BE INSTALLED EVERY 4 FEET.
2. CONCRETE SHALL BE CLASS "B" PORTLAND CEMENT HAVING A 28 DAY STRENGTH OF 4000 PSI.



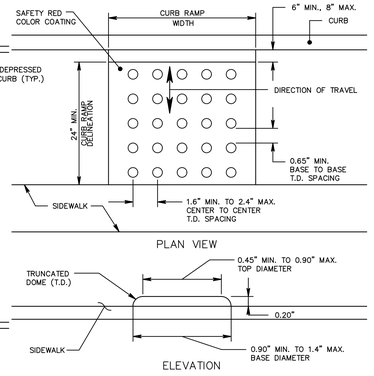
BREAKAWAY SIGN POST

NOT TO SCALE



CROSSWALK DETAIL

NOT TO SCALE



DETECTABLE WARNING SURFACE

DATE	REVISIONS	DRAWN BY	CHECKED BY
11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
PROJECT No.: APR-2203
RELEASED BY:
VERTICAL SCALE: N/A
HORIZONTAL SCALE: N/A
DRAWING NAME: 08-Details.dwg

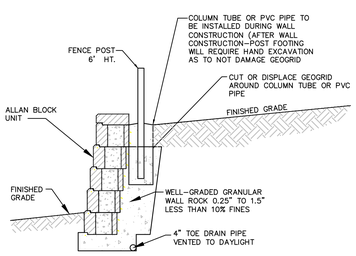
11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE047453600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
CONSTRUCTION DETAILS
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

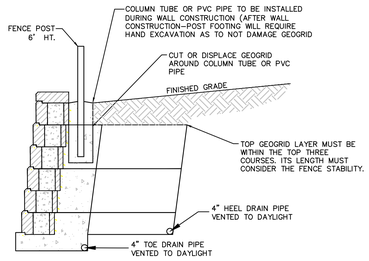
MidAtlantic Engineering Partners, LLC
2109B Briggs Road, Suite 300
Mount Laurel, NJ 08054
609-914-0476
Certificate of Authorization No. 24GA28185000
Louis J. Zangrari IV P.E. PE No. GE042600
Wassim J. Fawaz II P.E. PE No. GE047453600

Sheet Number
21 OF 24

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\08-Details.dwg
Plot Time: Nov 22, 2023 - 9:39am



WALL HEIGHT 3 FT. OR LESS



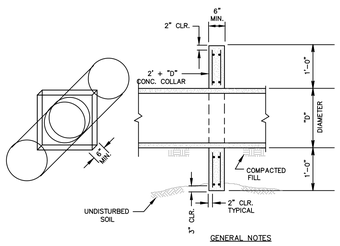
WALL HEIGHT OVER 3 FT.

FALL PROTECTION (MIN. 42" TALL) REQUIRED ON ANY RETAINING WALL OVER 30" IN HEIGHT IN ACCORDANCE WITH IBC, NJ EDITION, SECTION 1015.

*CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION

RETAINING WALL AND FENCE DETAIL (TYP.)

NOT TO SCALE

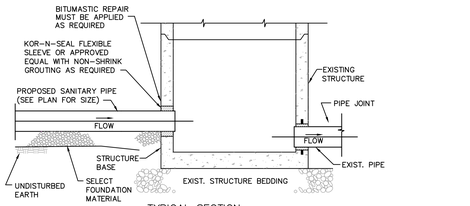


GENERAL NOTES

1. POUR COLLAR AROUND PIPE WITH CLASS "C" AIR-ENTRAINED CONCRETE
2. A MINIMUM OF TWO ANTI-SEEP COLLARS SHALL BE PROVIDED ON THE OUTLET PIPES

ANTI-SEEP COLLAR

NOT TO SCALE



TYPICAL SECTION

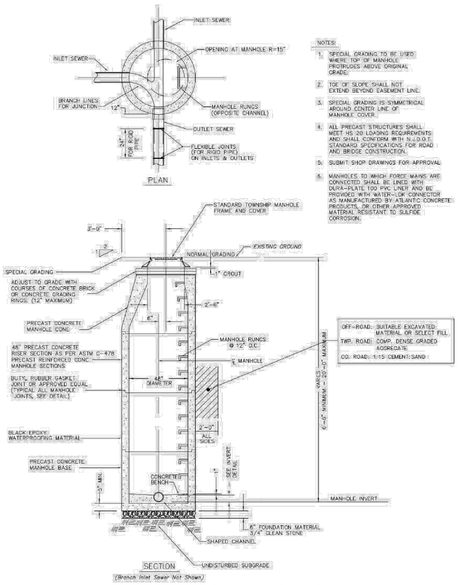
CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF THE EXISTING PIPES CONNECTED TO THE EXISTING STRUCTURE. AT NO TIME SHALL THE CONSTRUCTION OF THE NEW SANITARY SEWER MAIN IMPEDE THE OPERATION OF THE EXISTING SANITARY SEWER.
2. WHERE NEW PIPE IS TO BE CONNECTED INTO AN EXISTING STRUCTURE, THE CONTRACTOR SHALL CORE DRILL ALL HOLES INTO STRUCTURE WALL AND SHALL PERFORM ALL CUTTING AND PATCHING NECESSARY.

   PIPE SHALL BE SEALED USING KOR-N-SEAL ADAPTERS OR APPROVED EQUAL AND ON-SHRINK GROUT.
3. ANY DAMAGE TO THE EXISTING STRUCTURE CAUSED BY THE CONSTRUCTION OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

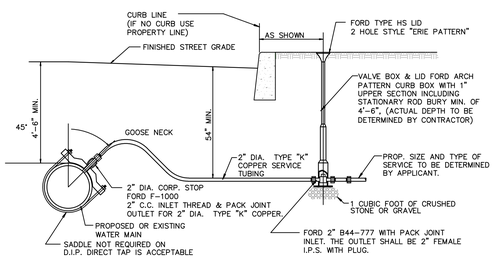
CONNECTION TO EXISTING STRUCTURE DETAIL

NOT TO SCALE



STANDARD PRECAST MANHOLE

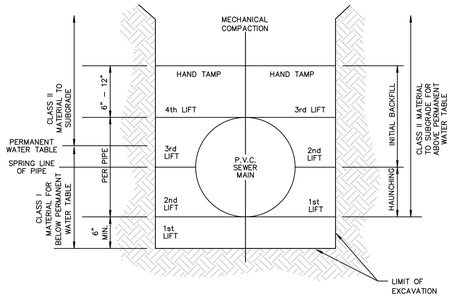
N.T.S.



IRRIGATION SERVICE CONNECTION – COAH BUILDING

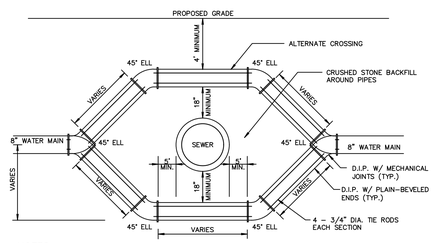
NOT TO SCALE

NOTE:
CLASS I MATERIAL – 3/4" CLEAN CRUSHED STONE
CLASS II MATERIAL – COARSE SAND AND GRAVEL



P.V.C. BEDDING DETAIL

NOT TO SCALE

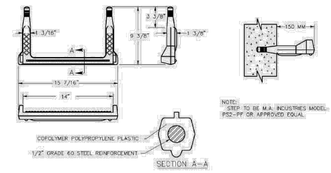


NOTES:

1. AT CROSSINGS OF SEWER LINES AND WATER MAINS, THE TOP OF THE SEWER LINES SHALL BE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN (SEWER SERVICE LATERALS ARE NOT SUBJECT TO THIS REQUIREMENT). IF SUCH VERTICAL SEPARATION IS NOT POSSIBLE, THE SEWER LINE SHALL BE OF WATERTIGHT CONSTRUCTION (THAT IS, DUCTILE IRON OR REINFORCED CONCRETE PIPE). WITH WATERTIGHT JOINTS THAT ARE A MINIMUM OF TEN FEET FROM THE WATER MAIN (7:10–11.10(E)5).
2. THRUST BLOCKS REQUIRED FOR ALL BENDS AND FITTINGS.

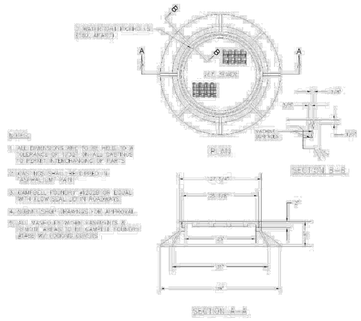
WATER MAIN – SANITARY SEWER CROSSING

NOT TO SCALE



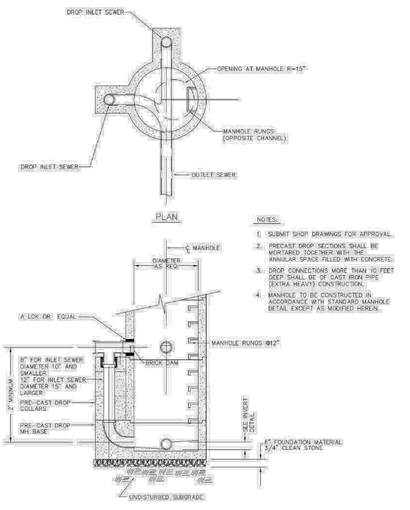
LADDER RUNG DETAIL

N.T.S.



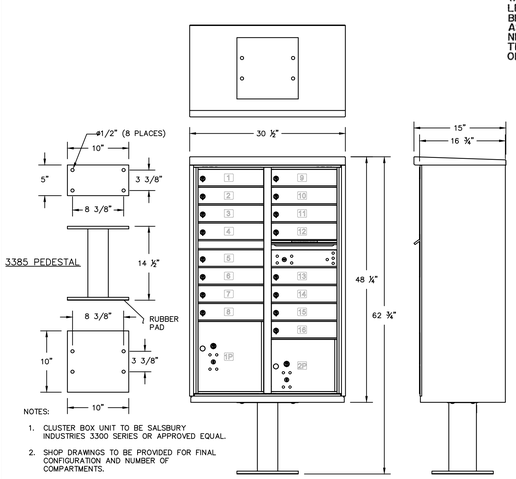
STANDARD FRAME AND COVER

N.T.S.



DROP CONNECTION

N.T.S.

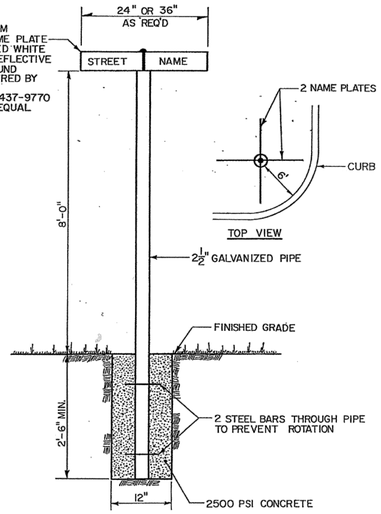


NOTES:

1. CLUSTER BOX UNIT TO BE SALSBURY INDUSTRIES 3300 SERIES OR APPROVED EQUAL.
2. SHOP DRAWINGS TO BE PROVIDED FOR FINAL CONFIGURATION AND NUMBER OF COMPARTMENTS.

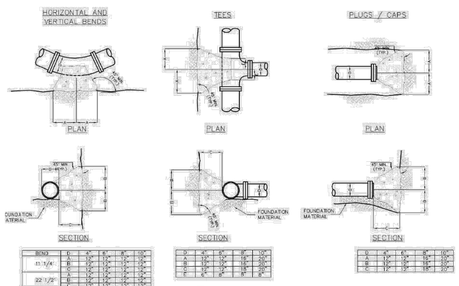
MAILBOX CLUSTER UNIT

NOT TO SCALE



STREET SIGN

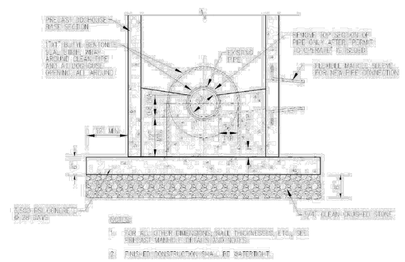
NOT TO SCALE



BEND	A	B	C	D	E	F	G	H
11 1/4°	1'	1'	1'	1'	1'	1'	1'	1'
22 1/2°	1'	1'	1'	1'	1'	1'	1'	1'
45°	1'	1'	1'	1'	1'	1'	1'	1'
90°	1'	1'	1'	1'	1'	1'	1'	1'

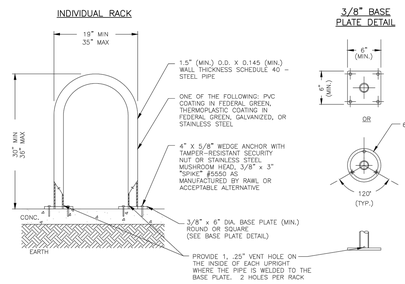
THRUST BLOCK DETAILS

N.T.S.



DOGHOUSE MANHOLE

NOT TO SCALE



NOTES:

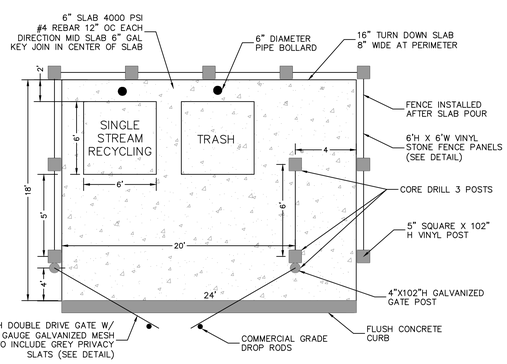
1. RACK SHALL NOT BE WELDED IN SECTIONS.
2. BASE PLATE SHALL BE WELDED TO STEEL PIPE.
3. RACK DIMENSIONS MAY VARY BY MANUFACTURER.

MOUNTING (CONCRETE):

1. BASE PLATE SHALL BE MOUNTED TO CONCRETE VIA EXPANSION ANCHOR: 4" X 5/8" WEDGE ANCHOR WITH TAMPER-RESISTANT SECURITY NUT, OR STAINLESS STEEL MUSHROOM HEAD 3/8" X 3" "SPIKE" #5550 AS MANUFACTURED BY RAWL OR APPROVED EQUAL.
2. RACK SHALL BE SET FIRM AND ALIGNED WITH A TOLERANCE PLUS OR MINUS 1/4" FROM PLUMB.
3. STEEL SHIMS SHALL BE INSTALLED PRIOR TO ANCHORING IN PLACE WHEN NEEDED.

BIKE RACK DETAIL

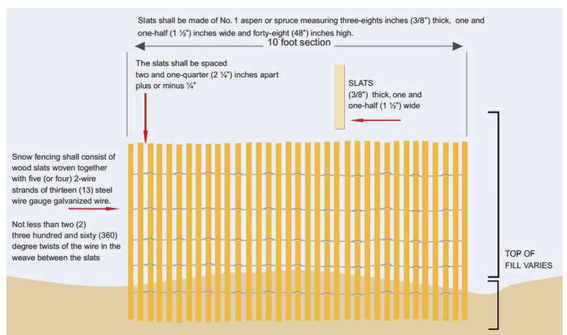
NOT TO SCALE



NOTE: DUMPSTER ENCLOSURE CONFIGURATION AS SHOWN FOR DUMPSTER ENCLOSURE #2 & #4. DUMPSTER ENCLOSURE CONFIGURATION SHALL BE MIRRORED FOR DUMPSTER ENCLOSURE #1 & #3.

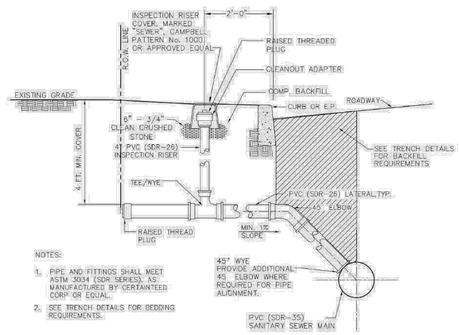
DUMPSTER PAD & ENCLOSURE DETAIL

NOT TO SCALE



TYPICAL WOODEN SNOW FENCE DETAIL

NOT TO SCALE



LATERAL

N.T.S.

11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF		
11/02/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF		
10/06/23	GENERAL REVISIONS	AFS	IAB		
09/01/23	GENERAL REVISIONS	EMD	IAB		
07/28/23	SWM CHANGES PER MCSCD & DRCC	EMD	IAB		
07/13/23	GENERAL REVISIONS	IAB	JMF		
05/11/23	GENERAL REVISIONS	IAB	JMF		
DATE	REVISIONS	DRAWN BY	CHECKED BY		

DRAWN BY: IAB	CHECKED BY: JMF	RELEASED BY:	
DATE: 08/31/23	HORIZONTAL SCALE: N/A	VERTICAL SCALE: N/A	
PROJECT No.:	APR-2203		
DRAWING NAME:	08-Details.dwg		

Date 11-22-2023

William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. License No. 24GE04616400

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
CONSTRUCTION DETAILS
SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20265 Bridge Road, Suite 301
Mount Laurel, NJ 08054
609-910-4450

Certificate of Authorization No. 24GA28184000

Louis L. Zuagner IV P.E. PE No. GE04263500
William J. Parkhill P.E. PE No. GE042616400

Sheet Number
22 OF 24

File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\08-Details.dwg
Plot Date: Nov 27, 2023 - 12:25pm

1.4 M-94 FIRE HYDRANTS

Rev. 10-15 Shaded area indicates change

M-94 Fire Hydrant Features & Benefits

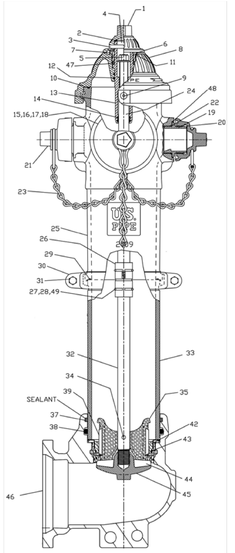
The METROPOLITAN/M-94 is designed around the needs of the people who maintain and repair it. That's why we've kept the number of parts to a minimum and designed the hydrant so it is easily repairable by one person.

- Made to comply with the requirements of ANSI/AWWA C502, UL 246, FM 1510, and made in a U.S. ISO 9001 certified factory.
- A Ductile Iron bonnet is securely fastened to the upper standpipe with inter-locking "breech lock" lugs for tamper resistance. It is easily removed for access to the main valve.
- The bonnet locking screw is tamper resistant, assuring security of the bonnet by preventing its rotation.
- The Ductile Iron operating nut with a weather shield weatherproofs the hydrant. Ductile Iron provides durability and wear resistance. A tamper resistant alloy steel locking pin fastens the operating nut to the revolving nut.
- The bronze hold down nut is totally enclosed by the skirt of the weather shield and is locked in the bonnet for extra security. It is O-ring sealed for added protection.
- A stop nut provides a positive halt to movement of the valve rod while opening. The rod cannot be placed in compression if the hydrant is "over-opened."
- An anti-friction bearing ensures easy operation by reducing friction. It is made of tough, reliable Acetal Polymer for strength and wear resistance.
- A lubrication chamber is filled with all-temperature grease ensuring positive lubrication each time the hydrant is opened.
- The revolving nut has three channels to allow the grease to move around the rod threads as well as above and below the thrust collar during operation.
- The bronze revolving nut is the direct connection between the operating nut and the rod threads. True dry-top design is double O-ring sealed.
- A bronze rod sheath provides a smooth bronze-to-bronze non corrodible sealing surface for reliable, positive sealing by O-rings.
- The Ductile Iron upper standpipe resists traffic impact damage.
- The hydrant has streamlined curves. Both the nozzle section and the nozzles have sweeping curves to provide maximum flow and minimum head loss.
- The threaded-in nozzles are O-ring sealed and mechanically secured with stainless steel nozzle locks.
- PROTECTOP™ ground line coupling ensuring reliable fracture and quick repair after traffic impact. The coupling can be easily removed to install an extension section or loosened to rotate the hydrant to any position after installation.
- The cast iron rod coupling is designed to break with traffic impact, leaving no loose pieces that could drop into the main valve area.
- The upper valve plate is all bronze construction with specially formulated rubber drain valve facings.
- The hydrant has a bronze drain outlet. To ensure a non clogging drain way which leads to double drains in the sides of the shoe. Drains are forced flushed during opening and closing of the main valve.
- The compression main valve opens against pressure.
- The Ductile Iron shoe is epoxy coated on both the interior and exterior surfaces for maximum corrosion protection.

M-94 FIRE HYDRANTS PARTS

Shaded area indicates change Rev. 10-15

1.5



Item #	Part Name	Qty.	Material
1	Operating Nut with Lubrication Port	1	Ductile Iron
2	Operating Nut Seal	1	Rubber
3	Operating Nut Locking Pin	1	Steel
4	Hydrant Lubricant (in chamber)	1	Diana 2100
5	Travel Stop Nut	1	Steel
6	Hold Down Nut	1	Bronze
7	Hold Down Nut Screw	1	Steel
8	Bonnet	1	Ductile Iron
9	Bonnet Locking Screw	1	Stainless Steel
10	Bonnet Seal	1	Rubber
11	Hold Down Nut O-ring	1	Rubber
12	Bonnet - Revolving Nut O-rings	2	Rubber
13	Revolving Nut	1	Bronze
14	Inner Revolving Nut O-rings	2	Rubber
15	Pumper Nozzle	1	Bronze
16	Pumper Nozzle Cap Gasket	1	Rubber
17	Pumper Nozzle Cap	1	Cast Iron
18	Pumper Nozzle O-ring	1	Rubber
19	Hose Nozzle†	2	Bronze
20	Hose Nozzle Cap Gasket	2	Rubber
21	Hose Nozzle Cap	2	Cast Iron
22	Hose Nozzle O-ring	2	Rubber
23	Chain Assembly	1	Steel
24	Valve Rod Upper, Including Copper Sheath with O-ring and Shear Proof Rod Pin	1	Steel
25	Standpipe Upper	1	Ductile Iron
26	Valve Rod Coupling (Frangible)	1	Gray Iron
27	Coupling Retaining Rings	2	Stainless Steel
28	Rod Coupling Pins	2	Stainless Steel
29	Standpipe Coupling Seal	1	Rubber
30	Standpipe Coupling Halves (Frangible)	2	Gray Iron
31	Standpipe Coupling Bolt and Nut	2	Stainless Steel
32	Standpipe Lower	1	Ductile Iron
33	Valve Rod Lower	1	Steel
34	Top Plate Pin - Shear Proof	1	Steel
35	Valve Top Plate	1	Bronze
37	Shoe Locking Key	4	Stainless Steel
38	O-ring Gasket	1	Rubber
39	Drain Valve Facing	2	Rubber
42	Seat Ring	1	Bronze
43	Seat Ring O-ring	2	Rubber
44	Main Valve	1	Rubber
45	Valve Bottom Plate	1	Ductile Iron
46	Shoe, Including Bronze Sub-Seat	1	Ductile Iron
47	Anti-Friction Bearing	1	Acetal
*Not shown	Nozzle Wedge Lock	3	Bronze
** Not shown	Dampener	1	Rubber

†Hydrants dated 2008 and prior use the original U.S. Pipe hydrant style nozzles and caps; those dated 2009 and after use Mueller® style nozzles, nozzle locks and caps which are not interchangeable with the original style.

1.6 M-94 KITS AND ACCESSORIES

Rev. 10-15 Shaded area indicates change

Safety Flange Repair Kit

Safety Flange Repair Kit consists of (4000001719):
Used for both 4-1/2" and 5-1/4"
- (2) Frangible standpipe coupling
- (2) Frangible standpipe bolts & nuts
- (1) Upper standpipe O-ring
- (1) Frangible rod Coupling
- (2) Rod Coupling pins
- (1) Dampener O-ring

Main Valve Kit

Main Valve Kit consists of:
4-1/2" - 240629
5-1/4" - 240630
- (1) Valve Seat Ring
- (2) Drain Valve Facing
- (2) Seat Ring O-ring
- (1) Main Valve

Extension Kit

Extension Kit consists of (Order by length):
Used for both 4-1/2" & 5-1/4"
- (1) Rod
- (1) Standpipe
- (1) Stainless steel extension rod coupling
- (1) Extension flange
- (1) Bonnet/Upper standpipe O-ring
- (2) Bolts and nuts
- (2) Clevis pins
- (2) Spring retainer rings
- (1) Instruction sheet
- Extension lengths: 0'-6", 1'-0", 1'-6", 2'-0", 2'-6", 3'-0", 3'-6", 4'-0"

Gasket Kit

Gasket Kit consists of (240628):
- (1) Operating Nut Seal
- (1) Bonnet Seal
- (1) Revolving Nut O-ring
- (2) Hold Down Nut O-ring
- (1) Inner Revolving Nut O-ring
- (1) Standpipe Coupling Seal
- (1) Dampener
- (1) Thrust washer

Disassembly Tool Kit

Disassembly Tool Kit consists of (4000001726):
- (1) Seat removal wrench & handle
- (1) Spanner wrench
- (1) Allen wrench (1/8")
- (1) Allen wrench (7/32")

A-316 & A-317

A-316 Nozzle wrench: Used to remove and install threaded in hose and pumper nozzles. **Sizes**: 2-1/2", 3", 3-1/2", 4", 4-1/2", and 5"

A-317 Nozzle lock installation tool: Used to install nozzle locking device.

Integral Storz Wrench

Used to remove the integral Storz Pumper Connection. **Sizes**: 4" - 287402 & 5" - 287403

Integral Storz Pumper Connection and Storz adaptor:

Used to quickly connect to hydrants. Available on Sentinel 250™ or M-94 hydrant.

adapters necessary for the 4 1/2-in nozzles on the TWW hydrants.

Mueller also offers 5" Storz adaptors for connection to 4-1/2" NST nozzles. Mueller Storz adaptors meet the requirements of NFPA 1963 and are rated for 250 psig operating pressure.

TWW requests 20 wrenches (5-in). These are necessary for future repair, maintenance, and flushing.

1.7 ORDERING INSTRUCTIONS

4 1/2-in for 10-in and smaller mains, 5 1/4-in for 12-in and larger mains.

Shaded area indicates change Rev. 2-14

Ordering - Directions for Ordering.

When ordering the ~~Sentinel 250™~~ or METROPOLITAN®/M-94 Ductile Iron hydrant, please specify the following:

1. Quantity required.
2. Size of main valve opening (4-1/2" or 5-1/4").
3. Opening direction.
4. Operating nut size and shape.
5. Number and size of nozzles.
6. Nozzle thread detail (NST or other).
7. Depth of bury-distance from ground line to the bottom of the hydrant inlet (same as depth of trench).
8. Type and size of inlet connection.
9. Color code. Unless otherwise specified the hydrant will be painted fire engine red from the ground line up.

Refer to TWW Developers Packet Hydrant specifications and detail "Standard Hydrant Installation"

Information Necessary When Ordering Spare Parts

When ordering parts for the ~~Sentinel 250~~ or METROPOLITAN/M-94 METROPOLITAN/M-94 hydrant, please provide the following information:

1. Size of main valve opening (4-1/2" or 5-1/4"). This is cast in raised letters on the back of the upper standpipe section number 25.
2. Opening direction clockwise (right) or counterclockwise (left).
3. Size and shape of operating nut (standard AWWA pentagon is 1-1/2" point to flat). Nozzle caps take same size and shape as specified for operating nut.
4. Size and thread detail for hose and pumper nozzle or caps. If other than National Standard, refer to previous orders or send drawings and complete thread detail or send sample nozzle.
5. Depth of trench (also called depth of bury). It is the distance from the ground line to the bottom of the connecting pipe. All spare parts are painted black except above ground line items, which are prime coated for finish painting by customer.

250 psig working pressure and 500 psig test pressure. Conforms to AWWA Standard C502, UL Listed & FM Approved.

Nominal Size of Main Valve Openings	Two Way				Three Way	
	Two Pumper Nozzles		Two Hose Nozzles		Two Hose Nozzles and One Pumper Nozzle	
	~~Sentinel 250~~	M-94	~~Sentinel 250~~	M-94	~~Sentinel 250~~	M-94
4-1/2"	A-451	A-494	A-451	A-494	A-451	A-494
5-1/4"	A-453	A-495	A-453	A-495	A-453	A-495

Hydrant bury lengths are as follows: 1'6", 2'0", 2'6", 3'0", 3'6", 4'0", 4'6", 5'0", 5'6", 6'0", 6'6", 7'0"

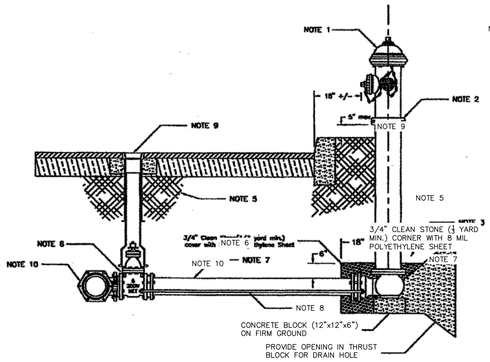
Size of Hydrant	Size and Types of Inlet Connections							
	Flanged		Mechanical Joint		D-150		Slip-On®	
	M-94	~~Sentinel 250~~	M-94	~~Sentinel 250~~	M-94	~~Sentinel 250~~	M-94	~~Sentinel 250~~
4-1/2"	6"	4" and 6"	6"	4" and 6"	6"	4" and 6"	-	6"
5-1/4"	6"	4" and 6"	6"	4", 6", and 8"	6"	4" and 6"	6"	6"

Flanged Inlet
For flanged end pipe or when used with a flanged end auxiliary gate valve. The flange is faced and drilled to the 125 lbs. American Standard - ANSI B16.1. Option for ISO drilling available (PN 10/16).

Mechanical Joint Inlet
For use on Ductile Iron, C900 PVC and Cast Iron pipe with end dimension compliant with ANSI/AWWA C11. Furnished with the connecting gland, plain rubber gasket, and bolts and nuts, unless otherwise specified. Inlet has two strapping lugs. Can also be furnished on order with set screws in the gland for bonding.

D-150 Mechanical Joint Inlet
This is an enlarged connection suitable for use with class 150 Cast Iron pipe or Class D Pit Cast pipe by using one of two type gaskets available. For Class 150 Cast Iron pipe use Duck Tipped gasket. For Class D Pit Cast pipe use Plain Rubber gasket. Complete with gland, cast iron bolts and nuts, and gasket specified. These gaskets and glands will not interchange with those on the Standardized Mechanical Joint. Can be furnished with set screws in the gland for electrical bonding upon order. Inlet has two strapping lugs.

Slip-On Joint Inlet
The Slip-on ends fit plain end of classes 150, 200 and 250 cast iron; ductile iron and classes 150 and 200 cast iron O.D. PVC. Classes 150, 200 and 250 manufactured to ANSI A21.6 and ANSI A21.8 including the plain end of all makes of cast iron pipe of the slip connection type. Inlet has two strapping lugs. The regular Slip-On gasket may be ordered.

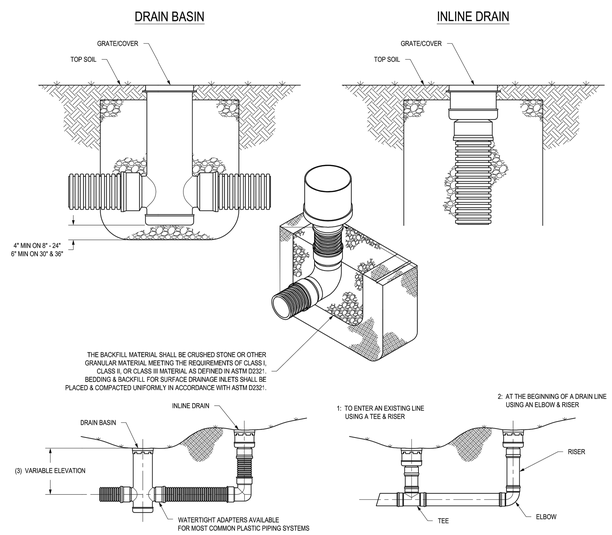


FIRE HYDRANT

NOT TO SCALE

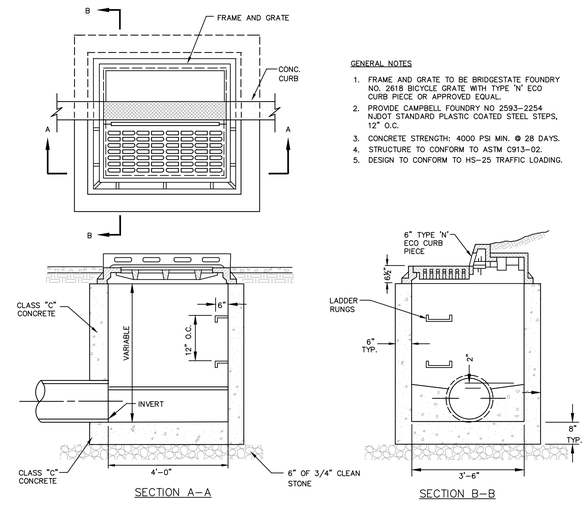
NOTES

1. HYDRANT SHALL BE T.W.W. STANDARD U.S. PIPE
NOTE METROPOLITAN 250 DRY-BARREL TRAFFIC MODEL DESIGN WITH THE FOLLOWING SPECIFICATION.
   a. SAFETY COUPLED STANDPIPE.
   b. 6" MECHANICAL JOINT INLET CONNECTION.
   c. TWO 2 1/2 " NATIONAL STANDARD THREAD HOSE NOZZLES.
   d. ONE 4 1/2" NATIONAL STANDARD THREAD STEAMER NOZZLE.
18" +/- DRANT OPERATORS AND [illegible] NOZZLE CUP [illegible]TS SHALL BE IN ACCORD[illegible] NOTE 2 [illegible]TH AWWA/ANSI STANDARD C502.
   f. 5" MAX[illegible]T HOSE CAPS SHALL BE ATTACHED BY MEANS OF CHAINS.
   g. HYDRANT BARRELS SHALL BE PAINTED-RED, BONNETS-YELLOW, AND NOZZLE CAPS-BLACK.
   h. HYDRANTS SHALL OPEN COUNTER CLOCKWISE.
2. STANDPIPE (BREAK-AWAY) COUPLING SHALL NOT EXCEED A MAXIMUM OF 5 INCHES FROM THE TOP OF THE CURB TO THE BOTTOM OF THE COUPLING.
3. THE DRAIN VALVE SHALL BE CLEAR OF ANY OBSTRUCTIONS, AND 3/4" CLEAN GRAVEL BE PLACED FROM THE BOTTOM OF THE HYDRANT TO A POINT 5" ABOVE THE HYDRANT LATERAL PIPE.
4. THRUST BLOCKS SHALL BE MAD NOTE 3 ASS 8 CONCRETE (3300 PSI).
5. BACK[illegible]TERIAL SHALL BE IN ACCORDANCE WITH THE 18" ROD JRISDICTION.
6" T.W.W. 6" U.S. PIPE METROSEAL 250 R/S (RESILIENT SEATED MECHANICAL JOINT END GATE VALVE (RIGHT HAND).
7. 6" DUCTILE IRON CEMENT LINED CLASS 52 PIPE.
8. 3/4" DIAMETER TIE ROD WITH EYE BOLTS- 2 REQUIRED (SIDE VIEW SHOWN).
9. SEE ROADWAY BOX INSTALLATION DETAIL.
10. HYDRANT TEE SHALL BE U.S. PIPE CATALOG /U-592 TRIM-TYTE DUCTILE IRON MECHANICAL JOINT OR A T.W.W. APPROVED SUBSTITUTE.
11. MODIFICATIONS OF THE FIRE HYDRANT LOCATION SHALL BE THE DETERMINATION OF THE T.W.W. REPRESENTIVE.
12. FOREMAN MUST NOTE ON THIS PLAN THE LOCATION OF ANY ALTERATIONS (WITHDRAWALS, SUBSTITUTIONS, OR ADDITIONS TO THE ITEMIZED MATERIALS USED IN THIS PROJECT.)



TYPE 'Y' 24"x24" YARD INLET

NOT TO SCALE
AS SHOWN BY NYLOPLAST DETAILS OR APPROVED EQUAL

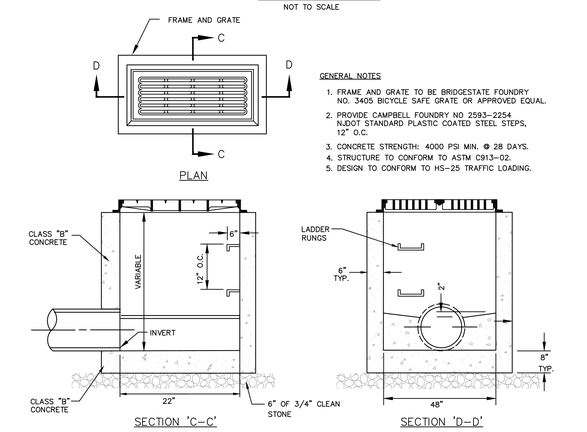


GENERAL NOTES

1. FRAME AND GRATE TO BE BRIDGESTATE FOUNDRY NO. 2618 BICYCLE GRATE WITH TYPE 'N' ECO CURB PIECE OR APPROVED EQUAL.
2. PROVIDE CAMPBELL FOUNDRY NO 2593-2254 NJDOT STANDARD PLASTIC COATED STEEL STEPS, 12" O.C.
3. CONCRETE STRENGTH: 4000 PSI MIN. @ 28 DAYS.
4. STRUCTURE TO CONFORM TO ASTM C913-02.
5. DESIGN TO CONFORM TO HS-25 TRAFFIC LOADING.

TYPE 'B' INLET

NOT TO SCALE

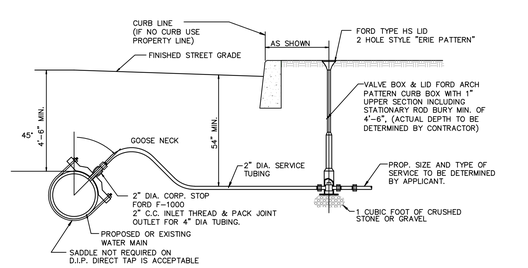


GENERAL NOTES

1. FRAME AND GRATE TO BE BRIDGESTATE FOUNDRY NO. 3405 BICYCLE SAFE GRATE OR APPROVED EQUAL.
2. PROVIDE CAMPBELL FOUNDRY NO 2593-2254 NJDOT STANDARD PLASTIC COATED STEEL STEPS, 12" O.C.
3. CONCRETE STRENGTH: 4000 PSI MIN. @ 28 DAYS.
4. STRUCTURE TO CONFORM TO ASTM C913-02.
5. DESIGN TO CONFORM TO HS-25 TRAFFIC LOADING.

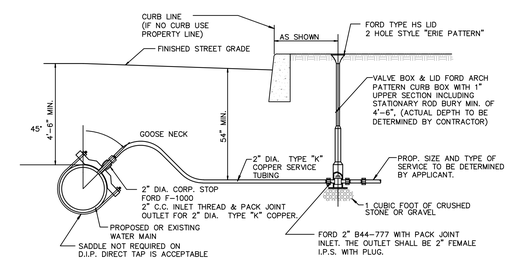
TYPE 'A' INLET

NOT TO SCALE



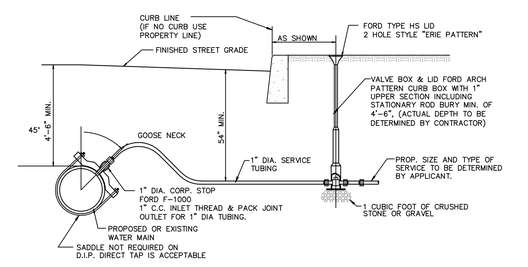
FIRE SERVICE CONNECTION - COAH BUILDING

NOT TO SCALE



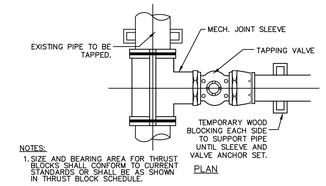
WATER SERVICE CONNECTION - COAH BUILDING

NOT TO SCALE



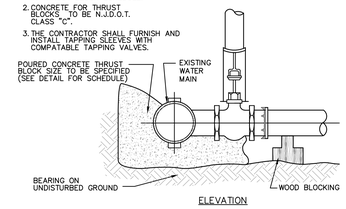
WATER SERVICE CONNECTION - RESIDENTIAL UNITS

NOT TO SCALE



NOTES:
1. SIZE AND BEARING AREA FOR THRUST BLOCKS SHALL CONFORM TO CURRENT STANDARDS OR SHALL BE AS SHOWN IN THRUST BLOCK SCHEDULE.
2. CONCRETE FOR THRUST BLOCKS TO BE N.J.D.O.T. CLASS "C".
3. THE CONTRACTOR SHALL FURNISH AND INSTALL TAPPING SLEEVES WITH COMPATABLE TAPPING VALVES.

PLAN



ELEVATION

WET TAP ASSEMBLY

NOT TO SCALE

11/22/23	REVISED PER RESOLUTION COMPLIANCE	BHS	JMF
11/20/23	REVISED PER TOWNSHIP LETTER 10/20/23	BHS	JMF
10/05/23	GENERAL REVISIONS	AFS	IAB
08/08/23	REVISED PER NJDEP EMAIL 09/18/2023	MJB	JMF
09/01/23	GENERAL REVISIONS	EMD	IAB
07/28/23	DRM CHANGES PER MCSCD & DRCC	EMD	IAB
07/13/23	GENERAL REVISIONS	IAB	JMF
05/11/23	GENERAL REVISIONS	IAB	JMF
DATE	REVISIONS	DRAWN BY	CHECKED BY

DRAWN BY: IAB
DATE: 08/31/23
CHECKED BY: JMF
HORIZONTAL SCALE: N/A
RELEASED BY:
VERTICAL SCALE: N/A
PROJECT No.: APR-2203
DRAWING NAME: 08-Details.dwg

Date 11-22-2023
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE04250600

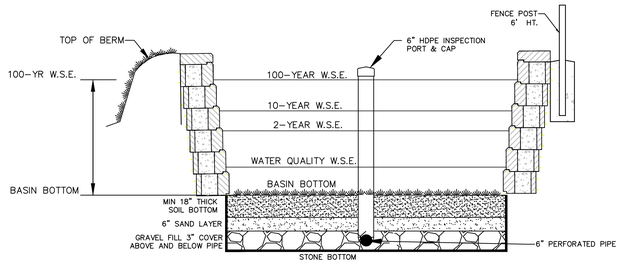
PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 17
2500 PENNINGTON ROAD
CONSTRUCTION DETAILS

SITUATED IN
HOPEWELL TOWNSHIP, MERCER COUNTY, NEW JERSEY

MidAtlantic Engineering Partners, LLC
20298 Bridge Road, Suite 300
Mount Laurel, NJ 08054
609-410-4450
Certificate of Authorization No. 24GA28194000
Louis L. Zungner N.P.E. PE No. GE04280500
William J. Parkhill II P.E. PE No. GE04250600

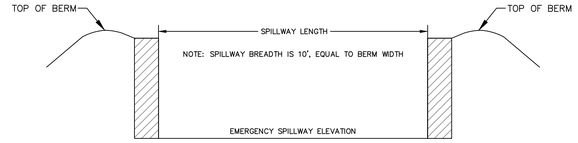
File Name: G:\American Properties\JOBS\APR-2203 - Hopewell Township\DWG\08-Details.dwg
Plot Time: Nov 27, 2023 - 1:02pm

BASIN CROSS SECTIONS												
BASIN #	BASIN BOTTOM	GRAVEL BOTTOM LAYER INVERT	LOWEST ORIFICE ELEV.	WQ (W.S.E.)	2-YR (W.S.E.)	10-YR (W.S.E.)	100-YR (W.S.E.)	SPILLWAY ELEV.	WSE OVER SPILLWAY	SPILLWAY LENGTH	TOP OF BERM	SHWT
BASIN 1	200.00	197.00	200.81	200.81	201.81	202.47	203.94	203.95	204.19	75	205.20	194.6
BASIN 2	201.00	198.00	201.91	201.91	202.78	203.22	204.14	204.15	204.39	50	205.40	198.7



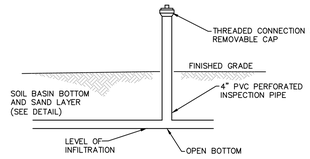
BASIN CROSS SECTION (TYP.)

NOT TO SCALE



EMERGENCY SPILLWAY CROSS SECTION

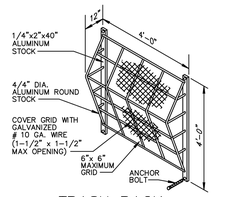
NOT TO SCALE



INSPECTION PORT AT BIORETENTION BASIN DETAIL

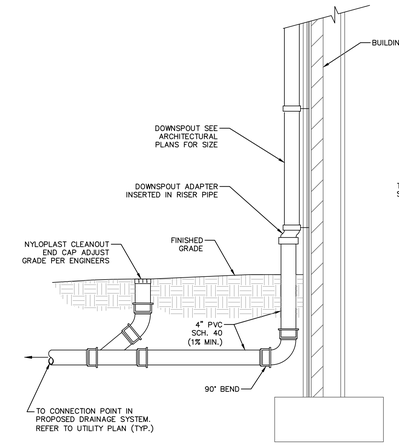
NOT TO SCALE

NOTE: INSPECTION PORTS MUST BE LOCATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE PERFORATED SECTION OF THE NETWORK OF PIPES AND EXTEND ABOVE THE SURFACE OF THE SOIL BED. THE INSPECTION PORT EXTERIOR MUST BE COVERED IN SUCH A WAY AS TO PREVENT THE MIGRATION OF MATERIAL INTO THE STRUCTURE. THE DEPTH OF RUNOFF GENERATED BY THE MAXIMUM DESIGN STORM MUST BE MARKED ON ALL INSPECTION PORTS. SEE TABLE OF 100-YEAR STORM WATER SURFACE ELEVATION



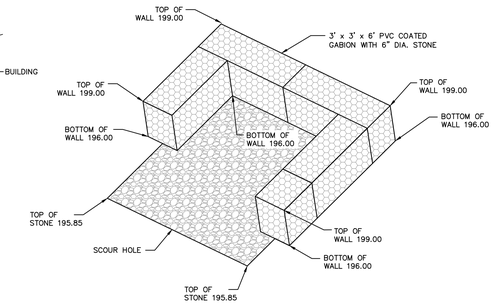
TRASH RACK (FOR OUTLET STRUCTURES)

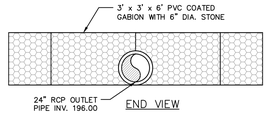
NOT TO SCALE



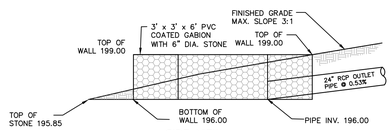
ROOF LEADER DOWNSPOUT CONNECTION DETAIL

NOT TO SCALE





END VIEW



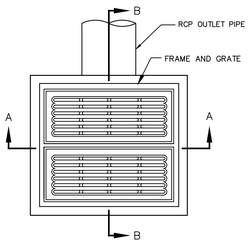
SIDE VIEW

NOTES:

1. GABIONS TO BE AS MANUFACTURED BY MACCAFERRI INC. OR APPROVED EQUAL.
2. ROWS OF GABIONS TO BE STAGGERED SO THAT JOINTS BETWEEN ADJACENT BASKETS ARE LOCATED APPROXIMATELY AT CENTER OF THE LOWER BASKETS.
3. BASKETS TO BE TIRED TOGETHER ON ALL SIDES USING HAND FASTENING TOOLS AND 13 GAUGE LACING WIRE, OR BY USING PNEUMATIC TOOLS AND STAINLESS STEEL RINGS. ALL INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

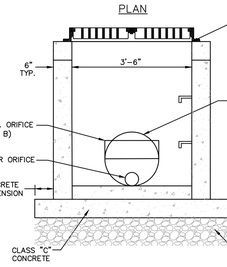
GABION WALL DETAIL

NOT TO SCALE

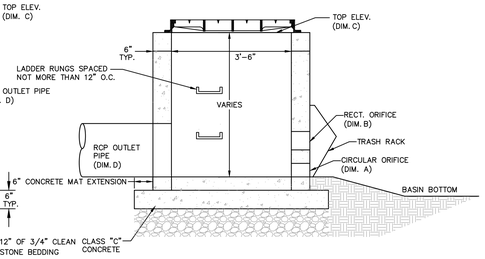


PLAN

OCS	DIMENSION	OUTLET TYPE	ELEVATION
OCS-1H (BASIN #1)	A	4.5" ORIFICE	200.81 FT.
	B	3.5"H X 19.5"W ORIFICE	201.81 FT.
	C	OVERFLOW GRATE	203.90 FT.
	D	24" RCP	197.20 FT.
OCS-1A (BASIN #2)	A	2.5" ORIFICE	201.91 FT.
	B	3"H X 7"W ORIFICE	202.78 FT.
	C	OVERFLOW GRATE	204.10 FT.
	D	24" RCP	198.18 FT.



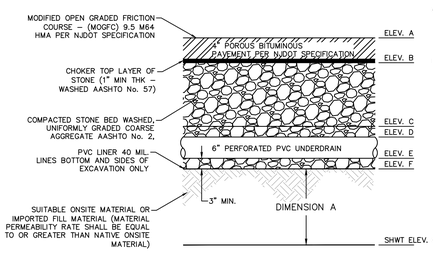
SECTION 'A-A'

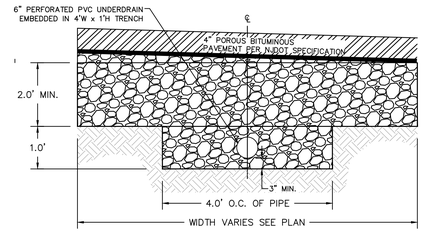


SECTION 'B-B'

TYPICAL BIORETENTION BASIN OUTLET STRUCTURE

NOT TO SCALE





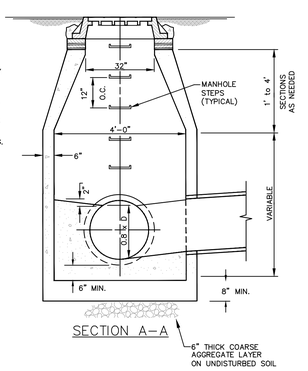
NOTES:

1. FOR A SYSTEM DESIGNED TO PROVIDE TREATMENT FOR THE WQDS, THE MINIMUM TESTED INFILTRATION RATE OF THE SURFACE COURSE IS 6.4 INCHES PER HOUR. SYSTEMS DESIGNED TO ADDRESS THE STORMWATER RUNOFF QUANTITY CONTROL DESIGN STANDARD MUST HAVE A MINIMUM TESTED INFILTRATION RATE OF THE SURFACE COURSE OF 20 INCHES PER HOUR.
2. SEALANT, PRIME COAT AND OTHER TREATMENTS THAT COULD REDUCE THE RATE OF INFILTRATION MAY NOT BE APPLIED TO THE SURFACE COURSE.
3. THE MAXIMUM SURFACE COURSE SLOPE IS 5%.
4. THE CHOKER COURSE MUST CONSIST OF CLEAN, WASHED BROKEN STONE WHOSE THICKNESS IS APPROPRIATE FOR THE SURFACE COURSE DESIRED AND DESIGN LOAD CONDITIONS.
5. THE CHOKER COURSE MUST CONSIST OF CLEAN, WASHED AASHTO NO. 57 BROKEN STONE.
6. STORAGE BED AGGREGATE MUST BE CLEAN, OPEN-GRADED BROKEN STONE WITH A SIZE DESIGNATION APPROPRIATE FOR THE DESIRED SURFACE COURSE AND DESIGN LOAD CONDITIONS. THE STONE MUST BE WASHED, PRIOR TO PLACEMENT, TO MINIMIZE THE AMOUNT OF STONE DUST AND OTHER FINE PARTICLES.
7. STORAGE BED AGGREGATE MUST BE PLACED IN LIFTS AND COMPACTED USING PLATE COMPACTORS. THE MAXIMUM RECOMMENDED LOOSE LIFT THICKNESS IS 6 INCHES.

POROUS (PERVIOUS) PAVEMENT SECTION

NOT TO SCALE

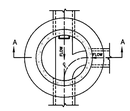
	POROUS PAVEMENT AREA #1	POROUS PAVEMENT AREA #2
POROUS PAVEMENT SECTION AREA	2,437 SF	3,275 SF
POROUS PAVEMENT (ELEV. A)	202.94	203.41
TOP OF STONE STORAGE (ELEV. B)	202.53	203.00
BOTTOM OF STONE STORAGE (ELEV. C)	200.53	201.00
TOP OF UNDERDRAIN (ELEV. D)	200.28	200.75
UNDERDRAIN INVERT (ELEV. E)	199.78	200.25
BOTTOM OF STONE (ELEV. F)	199.53	200.00
SHWT (ELEV. G)	198.30	199.00
SHWT SEPARATION (DIMENSION A)	1.23 FT.	1.00 FT.
WATER QUALITY WATER SURFACE ELEV.	200.73	201.16
2-YEAR STORM WATER SURFACE ELEV.	200.95	201.43
10-YEAR STORM WATER SURFACE ELEV.	201.42	201.95
100-YEAR STORM WATER SURFACE ELEV.	201.85	202.63



SECTION A-A

GENERAL NOTES

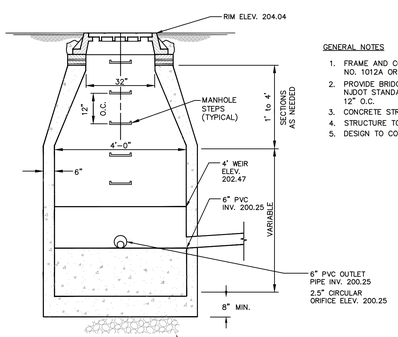
1. FRAME AND COVER TO BE BRIDGESTATE FOUNDRY NO. 1012A OR APPROVED EQUAL.
2. PROVIDE BRIDGESTATE FOUNDRY NO 2593-2254 NJDOT STANDARD PLASTIC COATED STEEL STEPS, 12" O.C.
3. CONCRETE STRENGTH: 4000 PSI MIN. @ 28 DAYS.
4. STRUCTURE TO CONFORM TO ASTM C913-02.
5. DESIGN TO CONFORM TO HS-25 TRAFFIC LOADING.



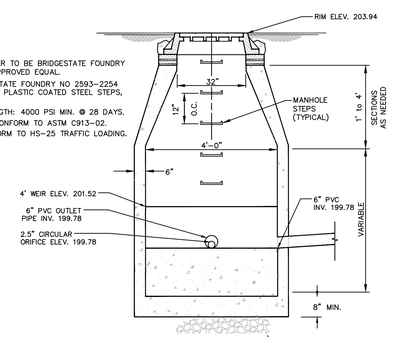
PLAN

DRAINAGE MANHOLE 4' DIAMETER

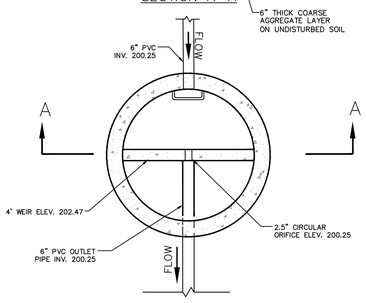
NOT TO SCALE



SECTION A-A



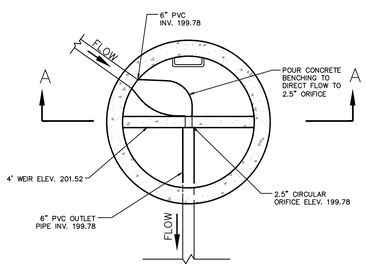
SECTION A-A



PLAN

OUTLET STRUCTURE OCS-1.1B

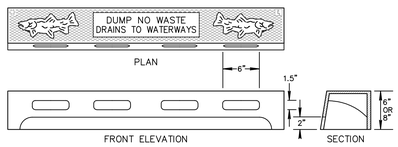
NOT TO SCALE



PLAN

OUTLET STRUCTURE OCS-2.2B

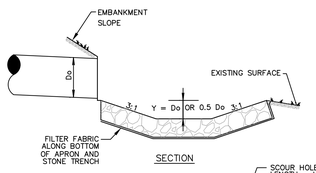
NOT TO SCALE

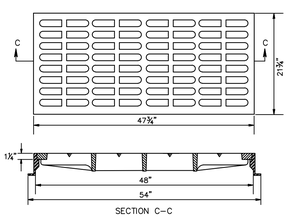


1. MATERIAL TO BE GRAY CAST IRON ASTM A48-83, CLASS 30B

TYPE 'N' ECO CURB PIECE

NOT TO SCALE



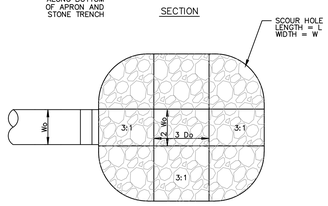


SECTION C-C

NOTE:
-FOR TYPE 'B' INLETS BRIDGESTATE FOUNDRY NO 2618 BICYCLE SAFE GRATE OR APPROVED EQUAL
-FOR TYPE 'E' INLETS BRIDGESTATE FOUNDRY NO 3425 BICYCLE SAFE GRATE OR APPROVED EQUAL
-FOR TYPE 'A' INLETS BRIDGESTATE FOUNDRY NO 3405 BICYCLE SAFE GRATE OR APPROVED EQUAL

BICYCLE SAFE GRATE

NOT TO SCALE



PLAN VIEW

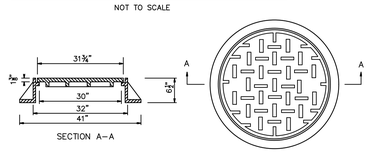
	Do	Q100	L	W	d50
GABION WALL-5A	24" RCP @ 0.53%	9.84 CFS	12 FT.	10 FT.	d50 = 4" 8" THICK*
HW-6C	24" RCP @ 0.20%	6.44 CFS	12 FT.	10 FT.	d50 = 4" 8" THICK*
HW-6D	24" RCP @ 0.50%	9.16 CFS	12 FT.	10 FT.	d50 = 4" 8" THICK*
HW-2F	15" RCP @ 0.50%	3.15 CFS	7.5 FT.	6.25 FT.	d50 = 4" 8" THICK*
HW-2G	18" RCP @ 0.50%	3.26 CFS	9 FT.	7.5 FT.	d50 = 4" 8" THICK*

* OVER FILTER FABRIC

NOTE: SCOUR HOLES DESIGNED PER SECTION 12, CONDUIT OUTLET PROTECTION, SOIL EROSION MANUAL

PREFORMED SCOUR HOLE DETAIL

NOT TO SCALE

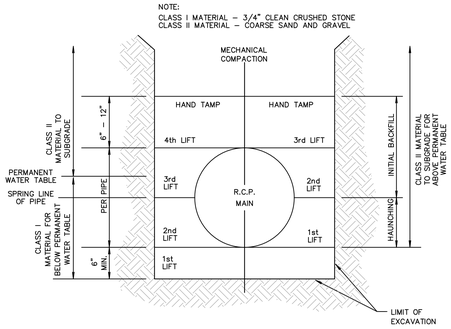


NOTE:
FRAME AND COVER TO BE BRIDGESTATE FOUNDRY PATTERN NUMBER 1012A OR APPROVED EQUAL

DRAINAGE MANHOLE FRAME AND COVER

NOT TO SCALE

NOTE:
CLASS I MATERIAL - 3/4" CLEAN CRUSHED STONE
CLASS II MATERIAL - COARSE SAND AND GRAVEL



R.C.P. BEDDING DETAIL

NOT TO SCALE

		11/22/23	REVISED PER RESOLUTION COMPLIANCE
DATE	REVISIONS	DRAWN BY	CHECKED BY
		BHS	JMF

RELEASED BY:

VERTICAL SCALE: N/A

CHECKED BY: JMF

HORIZONTAL SCALE: N/A

DRAWN BY: BHS

DATE: 11/02/23

PROJECT No.: APR-2203

DRAWING NAME: 08-Details.dwg

11-22-2023
Date
William J. Parkhill II, P.E.
PROFESSIONAL ENGINEER
N.J. Lic. No. GE46258600

PRELIMINARY/FINAL MAJOR SITE PLAN
HERITAGE AT HOPEWELL
BLOCK 78, LOT 7
2500 PENNINGTON ROAD
CONSTRUCTION DETAILS
SITUATED IN

MidAtlantic
Engineering Partners, LLC
20298 Bridge Road, Suite 300
Mount Laurel, NJ 08054
856-910-4450
Certificate of Authorization No. 24GA28194000
Louis L. Zungre IV P.E. PE No. GE04226500
William J. Parkhill II P.E. PE No. GE04258600

Sheet Number
24 OF 24

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Plot Time: Nov 22, 2023 - 9:43am