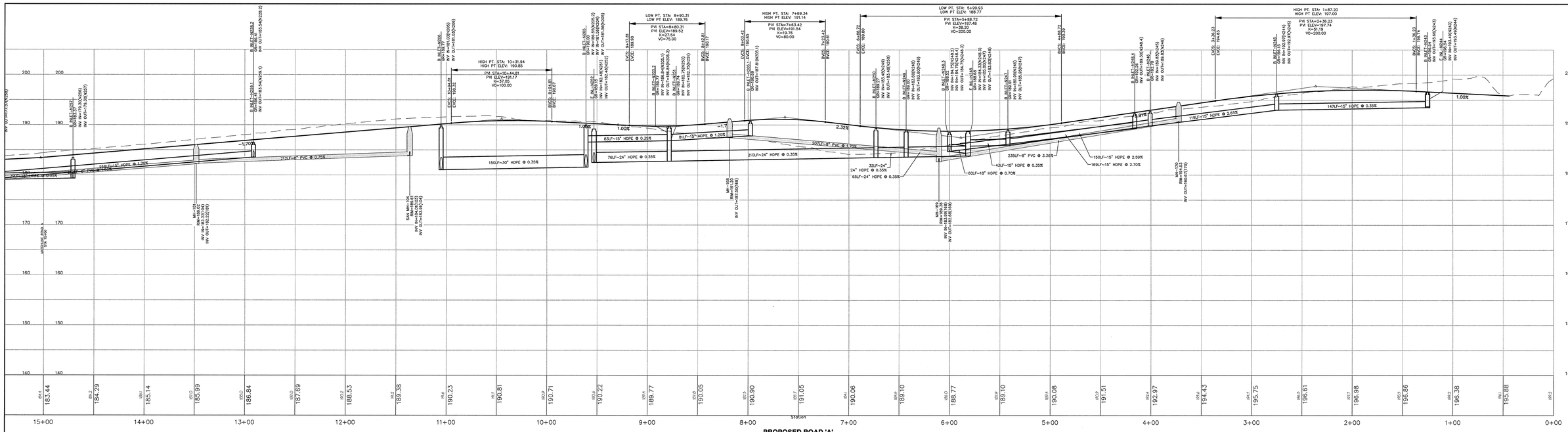

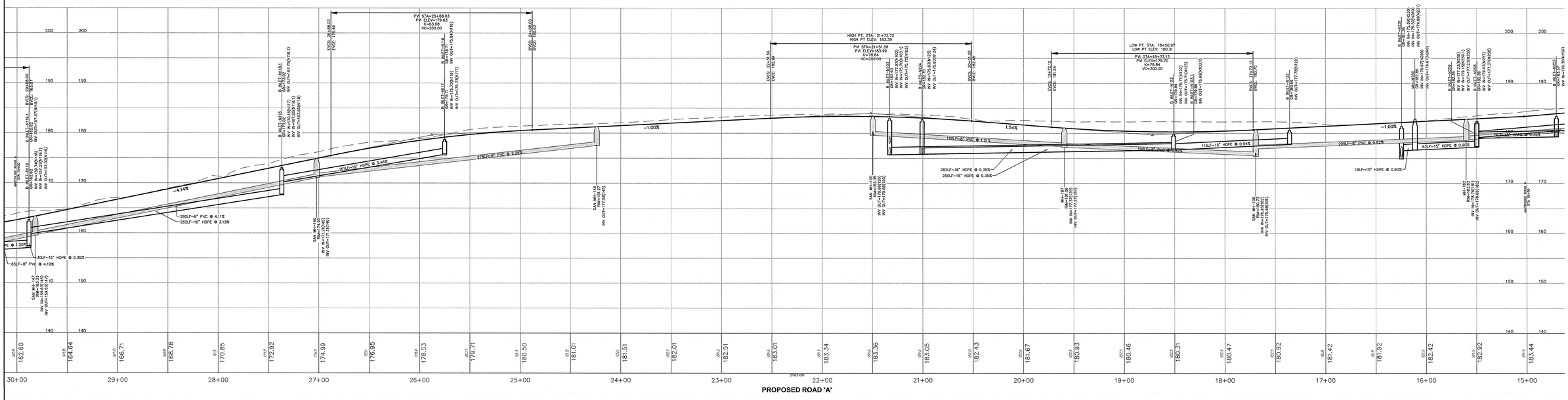

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
www.vannoteharvey.com Certificate of Authorization No. 24GA28271300
van note-harvey associates - Since 1894 -

PROPOSED ROAD PROFILES 1
OF
NORTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"+ 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051-410-21	FILE No. 203-A-1 203-B-1	SHEET No. CE-88
CHECKED BY BRP DATE 12/16/20	PAGE			

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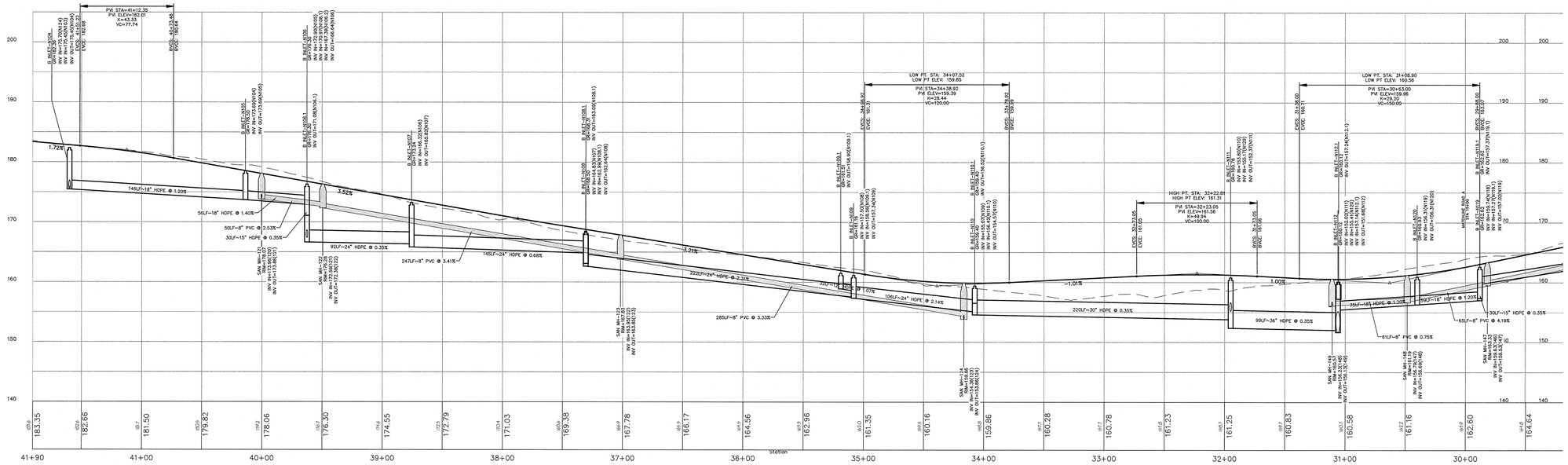

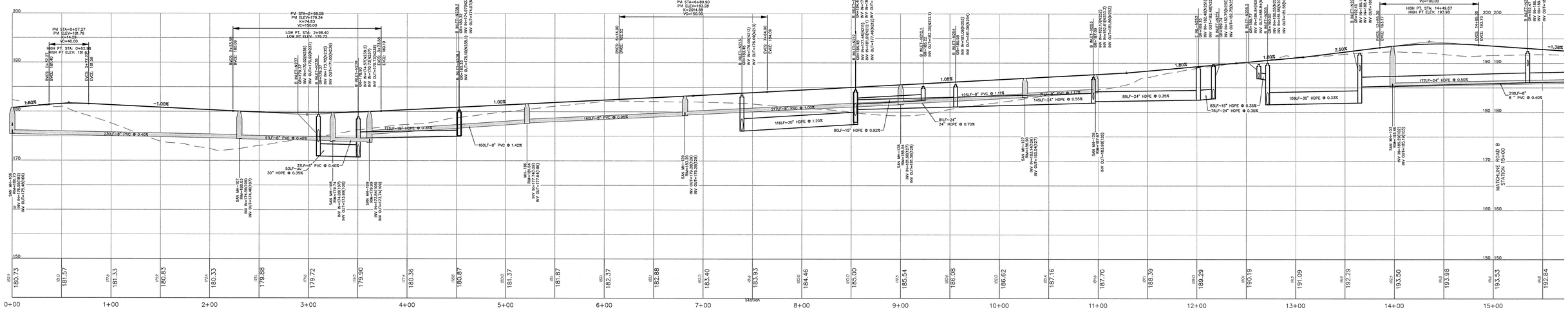

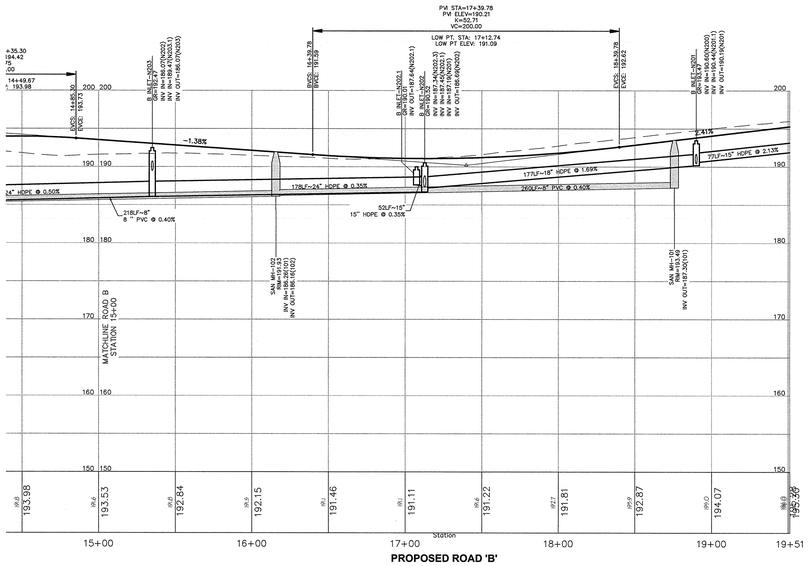

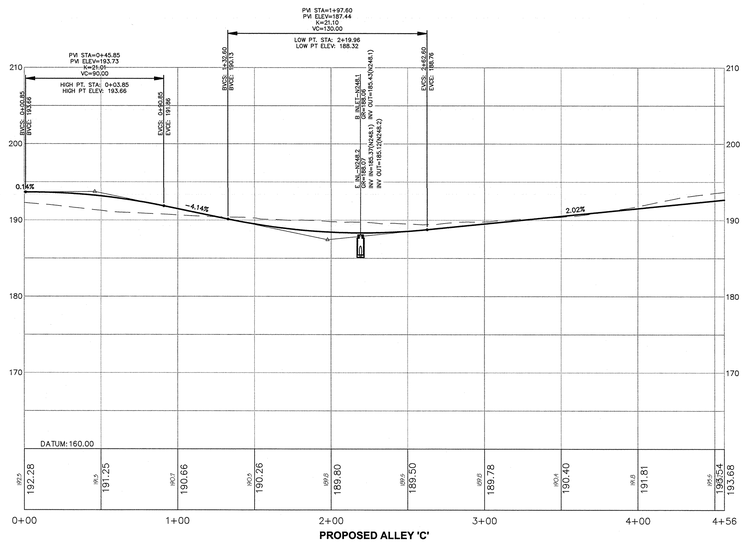

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
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PROPOSED ROAD PROFILES 2
OF
NORTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"+ 8' V.
MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-89

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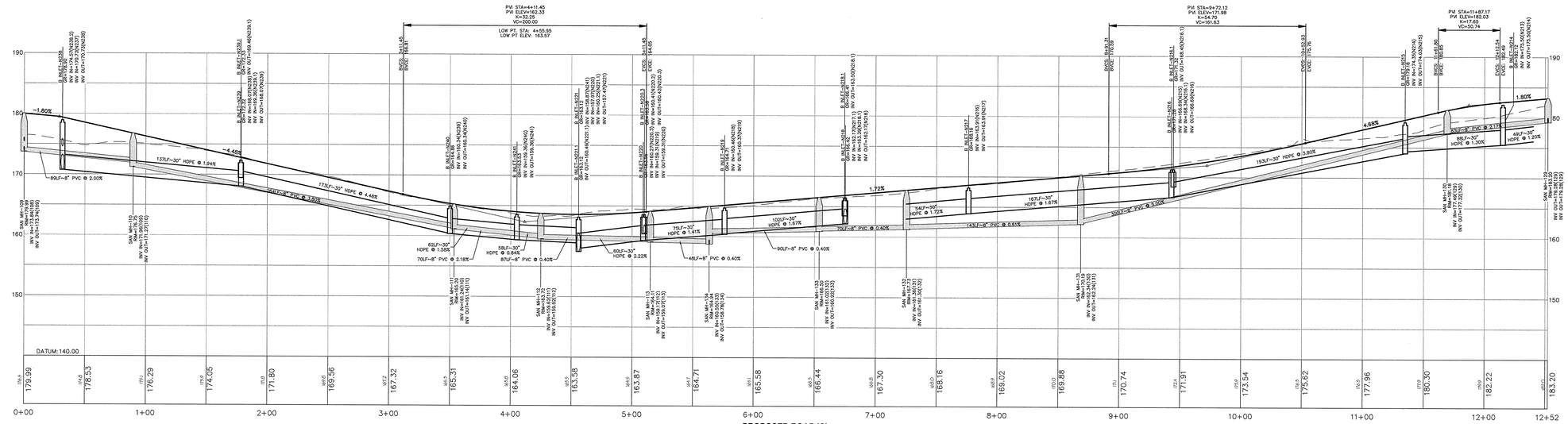

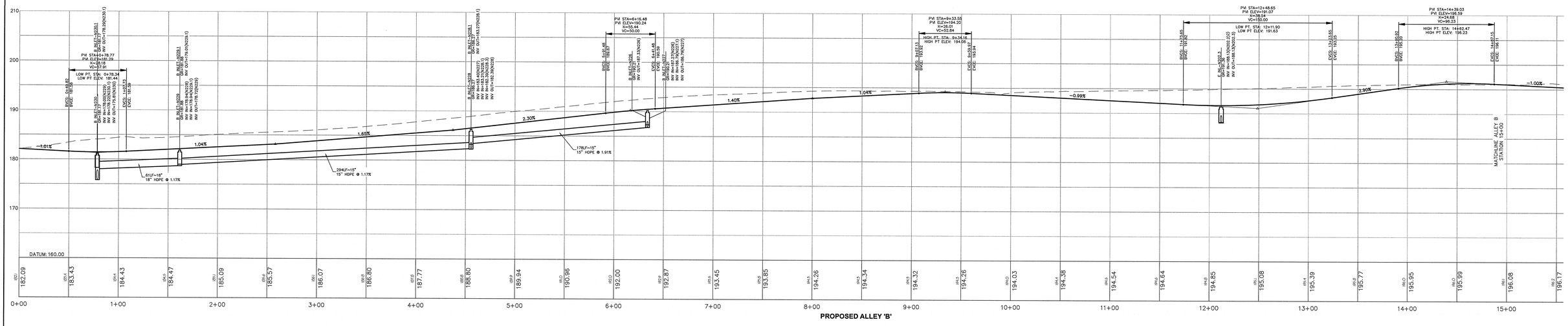

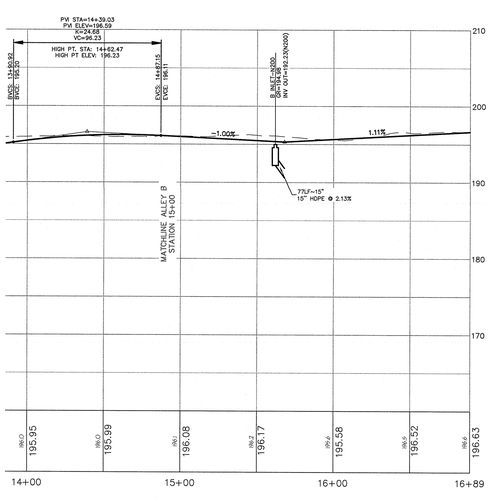

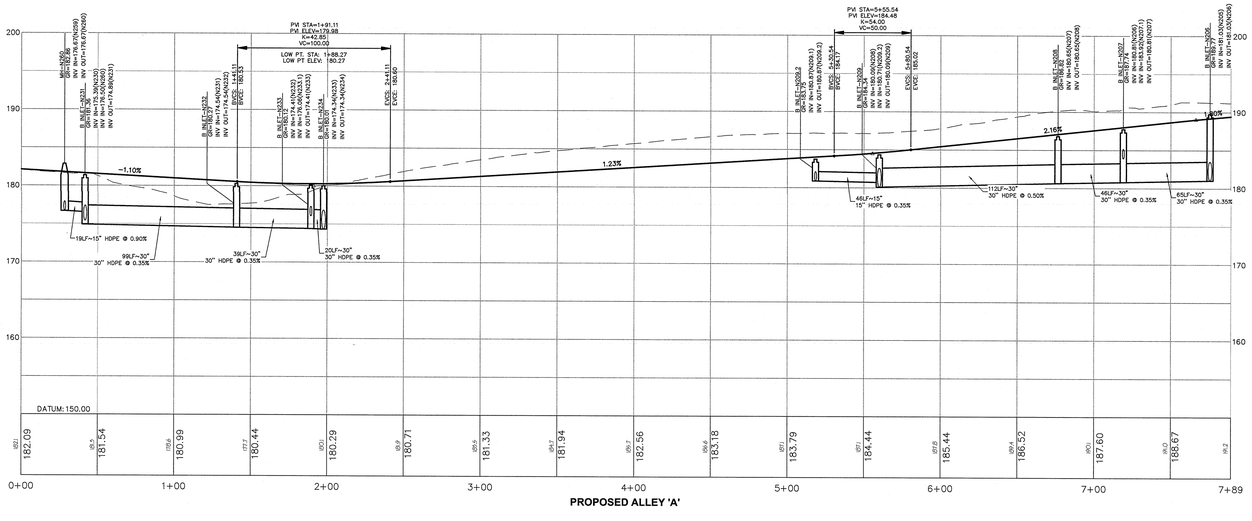

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920
12/16/2020
DATE OF SIGN

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consulting engineers, planners & land surveyors
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van note-harvey associates - Since 1894 -

PROPOSED ROAD PROFILES 3
OF
NORTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"= 8' V.

MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051-410-21	FILE No. 203-A-1 203-B-1	SHEET No. CE-90
CHECKED BY BRP DATE 12/16/20	PAGE			

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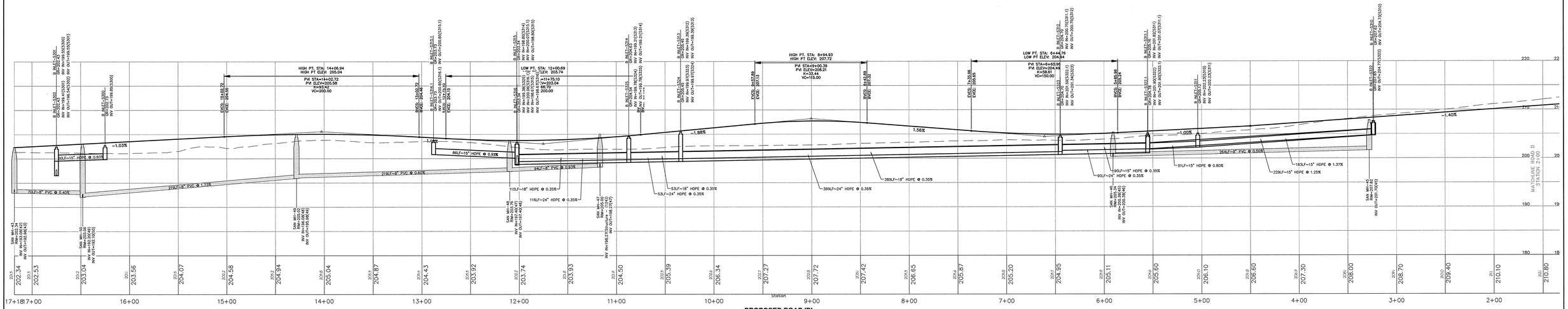
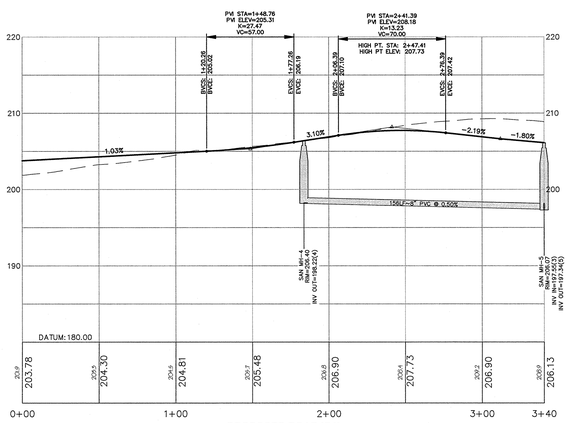
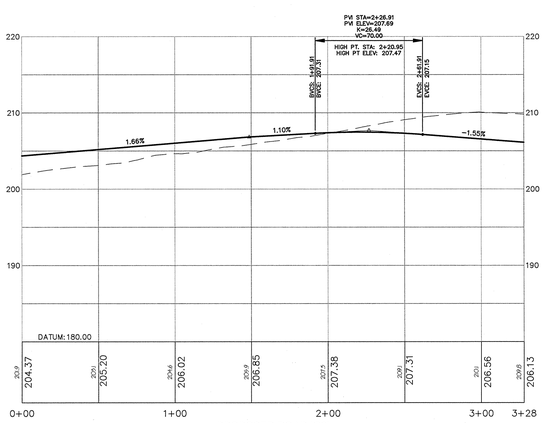


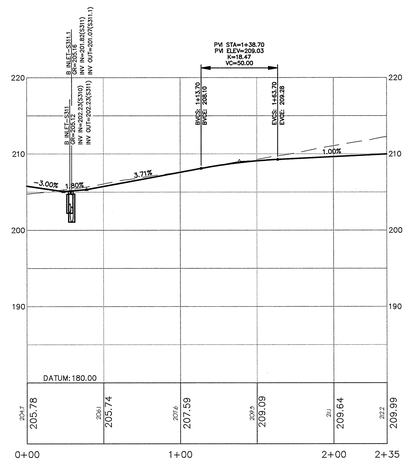
PROPOSED ROAD 'D'



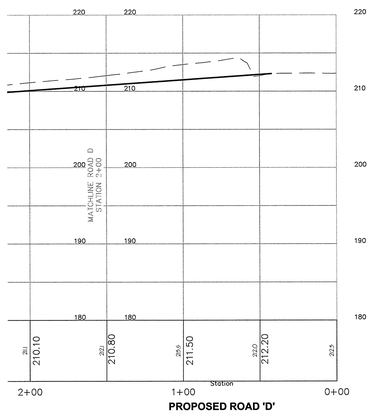
PROPOSED ROAD 'G1'



PROPOSED ROAD 'G2'



PROPOSED ROAD 'E'



PROPOSED ROAD 'D'

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WOV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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consulting engineers, planners & land surveyors
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PROPOSED ROAD PROFILES 4
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"= 8' V.
MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WOV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051-410-21	FILE No. 203-A-1 203-B-1	SHEET No. CE-91
CHECKED BY BRP DATE 12/16/20	PAGE			

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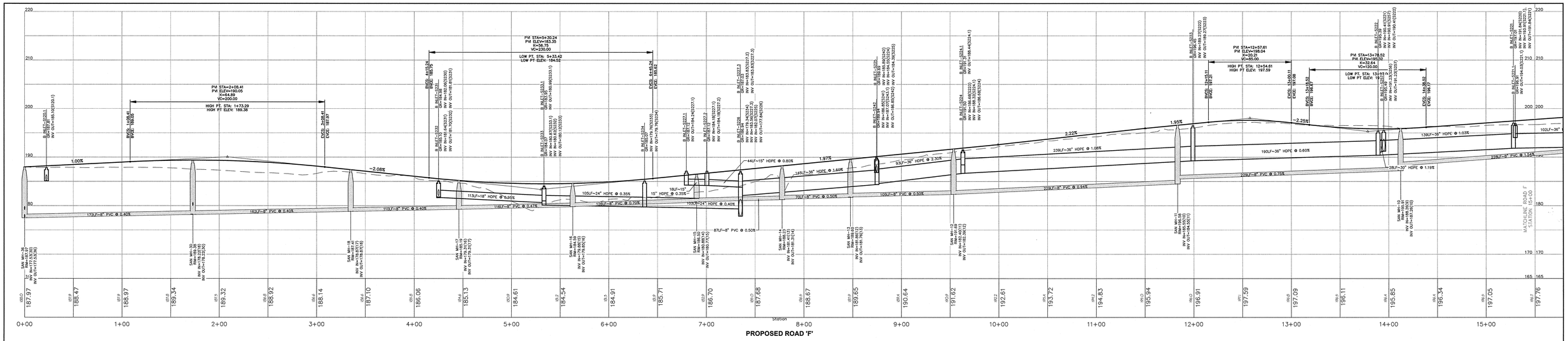

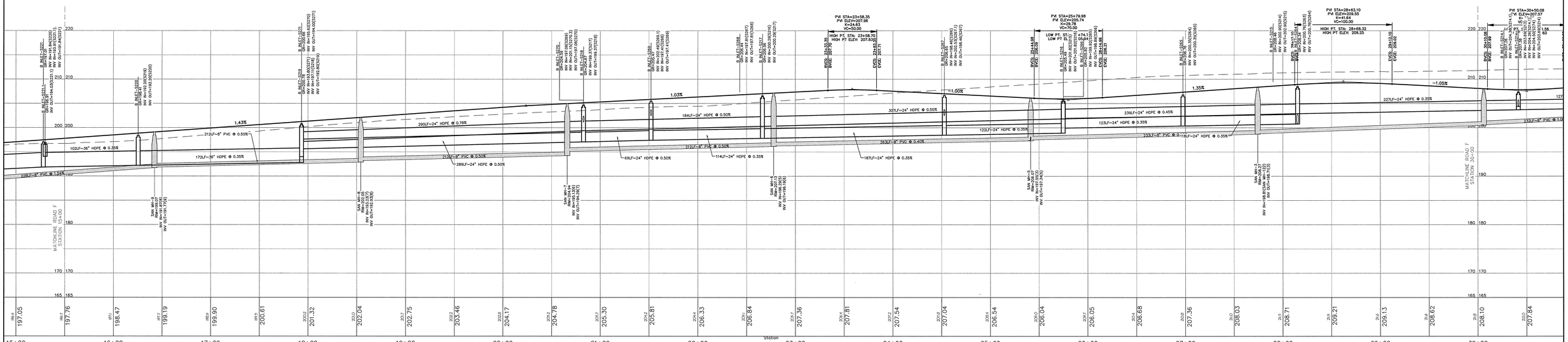

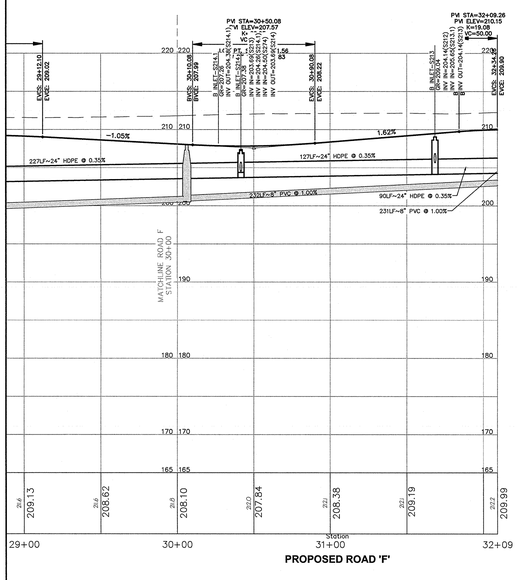

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
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PROPOSED ROAD PROFILES 5
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"+ 8' V.

MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-92

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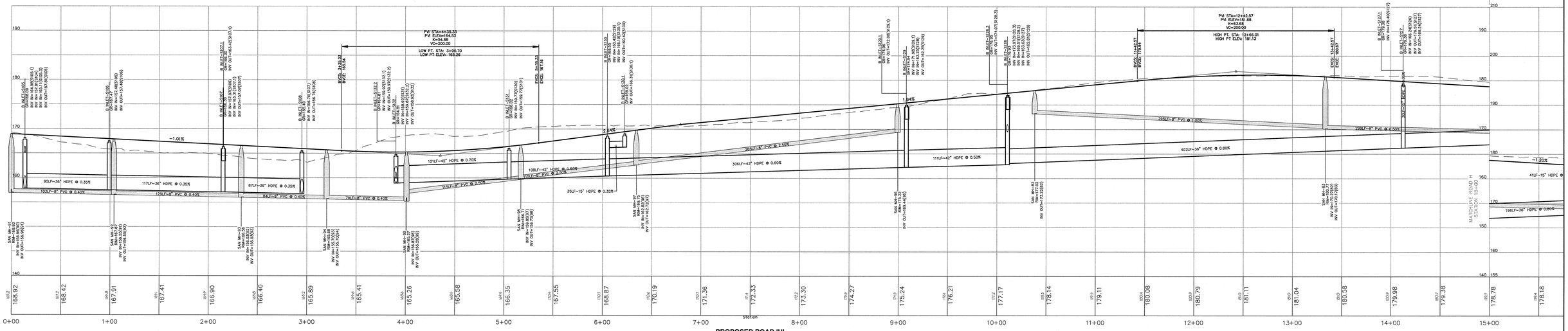

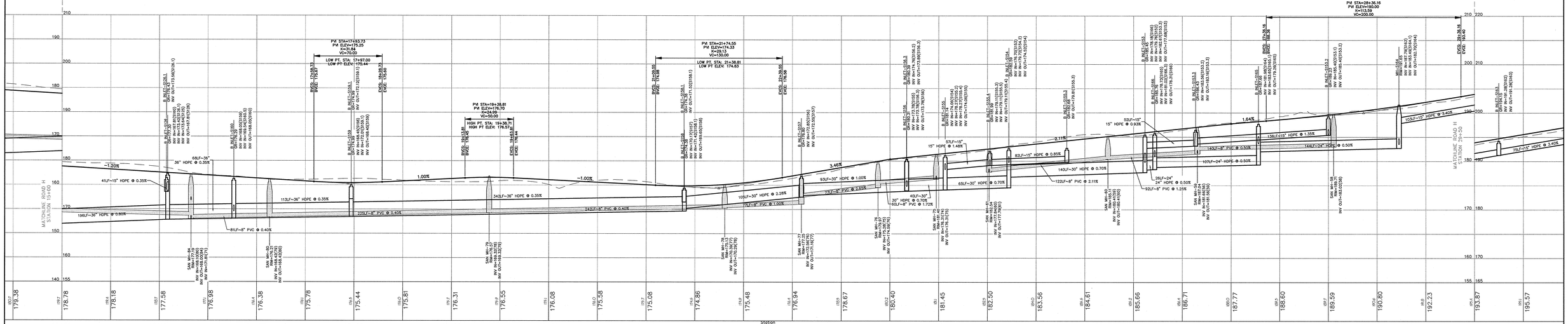

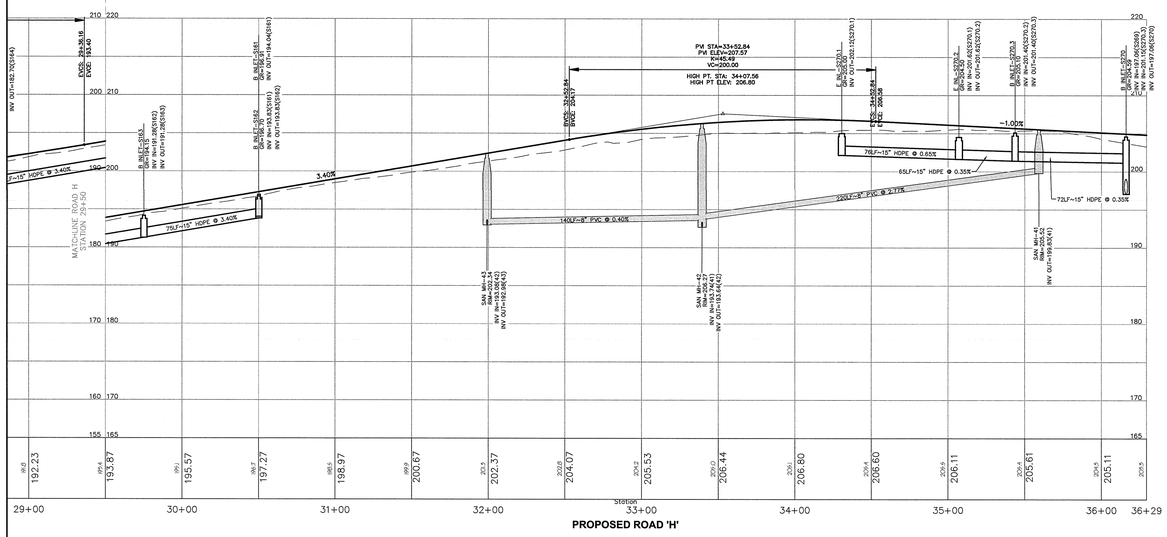

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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consulting engineers, planners & land surveyors
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PROPOSED ROAD PROFILES 6
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"+ 8' V.

MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-- 410--21	203--A--1 203--B--1	CE-93

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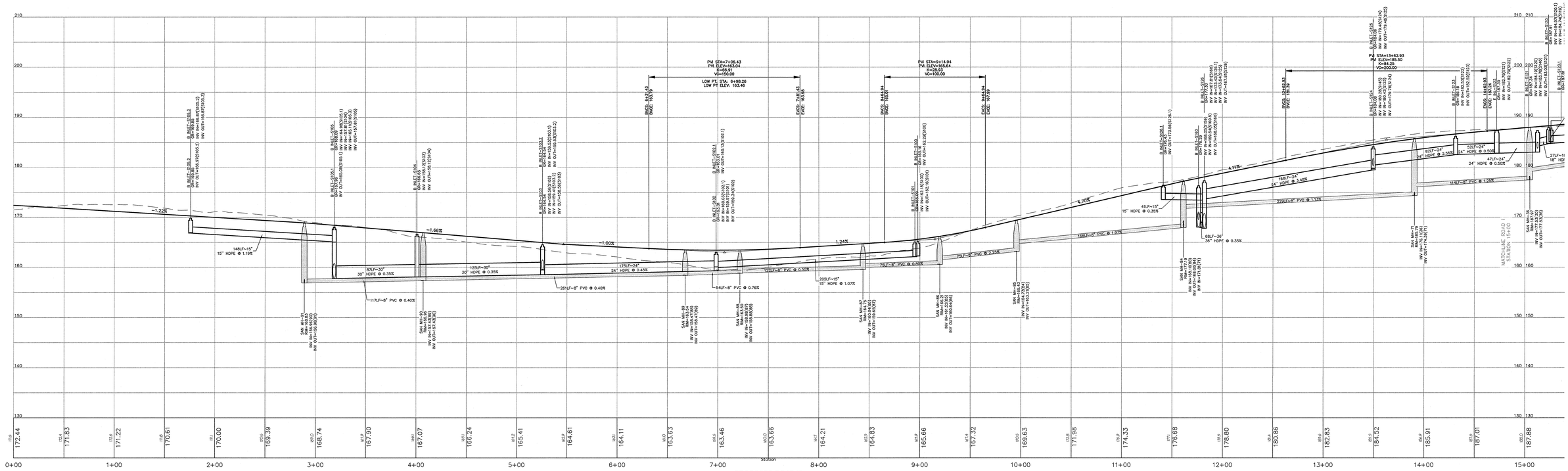

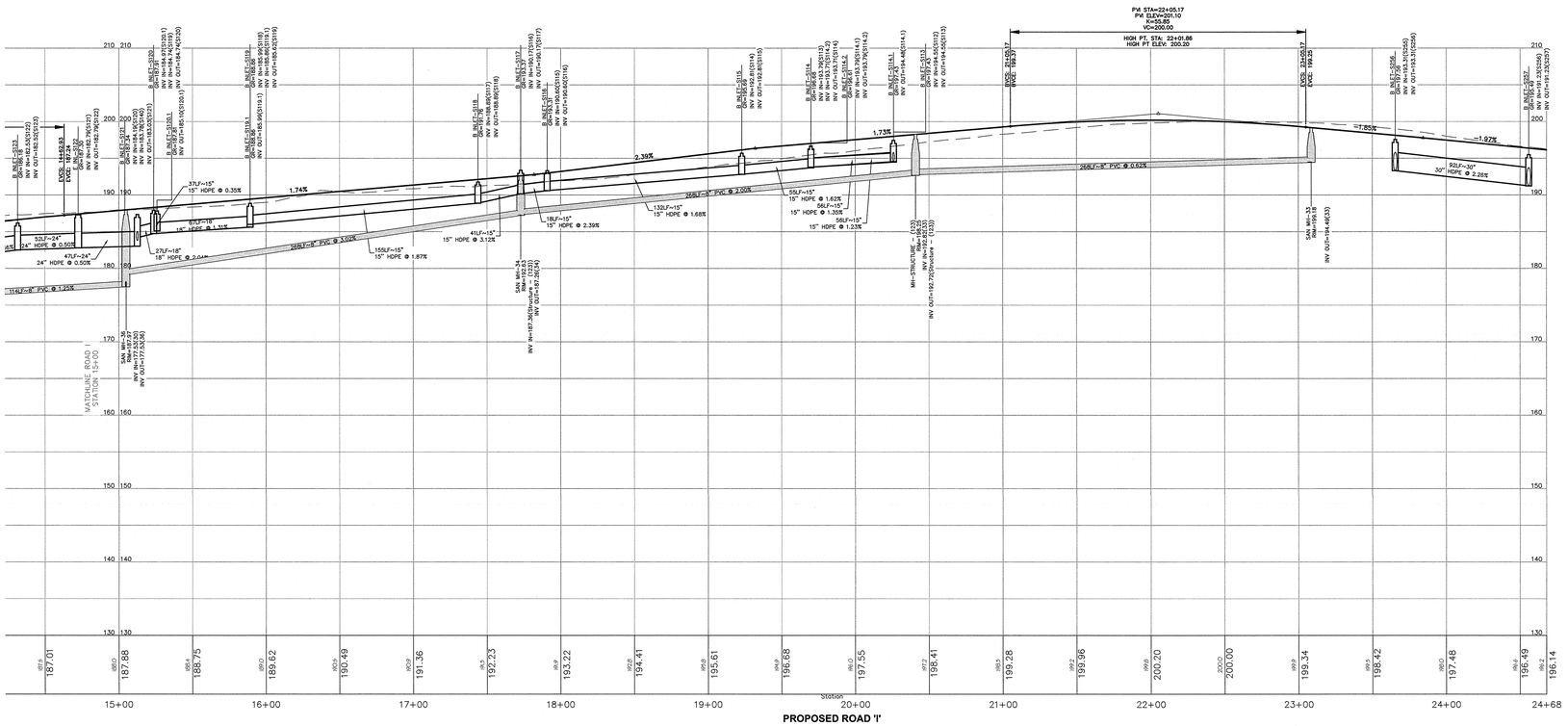

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
www.vannoteharvey.com Certificate of Authorization No. 24GA28271300
van note-harvey associates - Since 1894 -

PROPOSED ROAD PROFILES 7
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"+ 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-94

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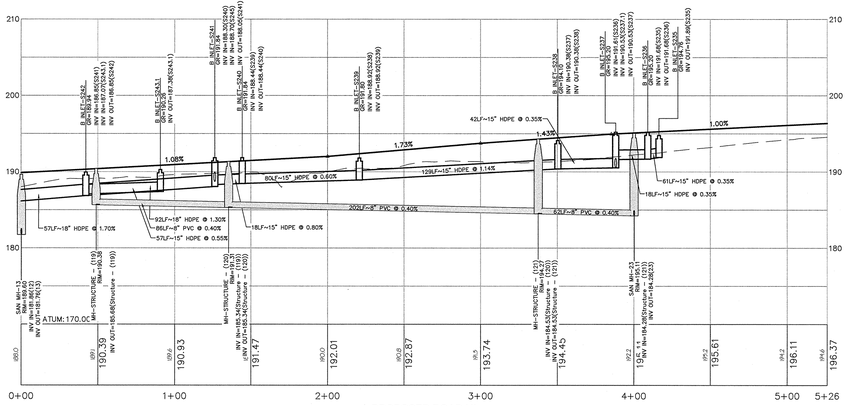

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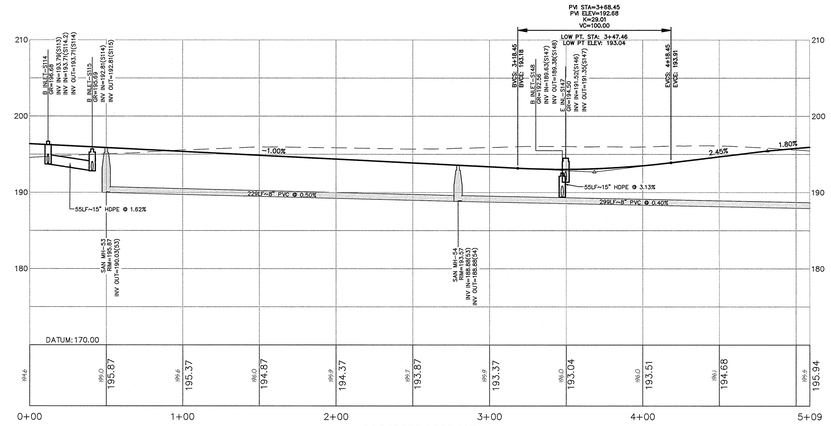
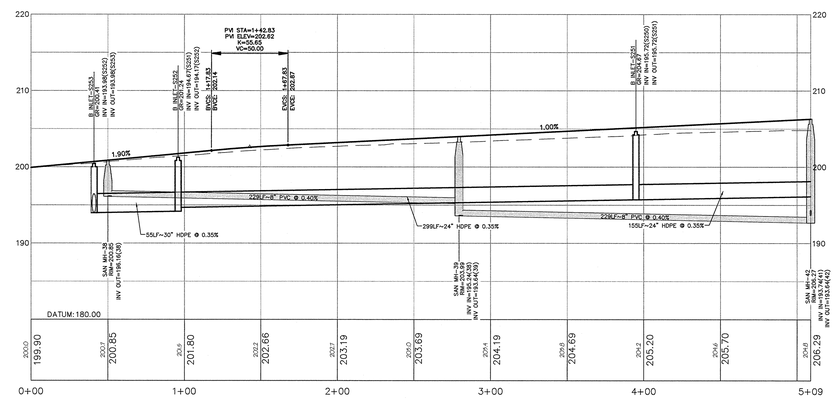


PROPOSED ROAD 'K1'



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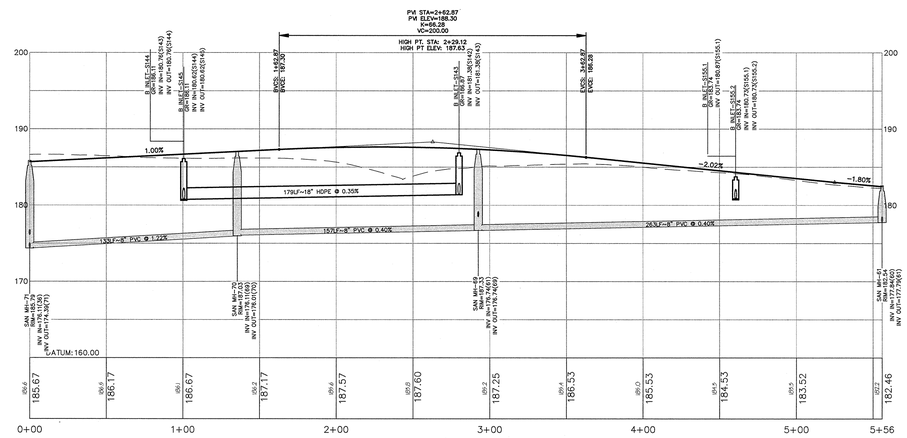
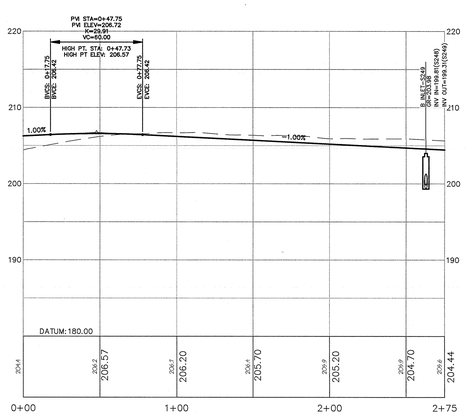
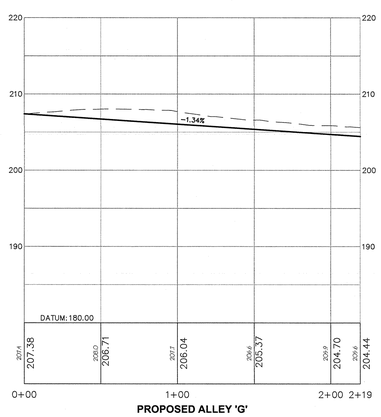


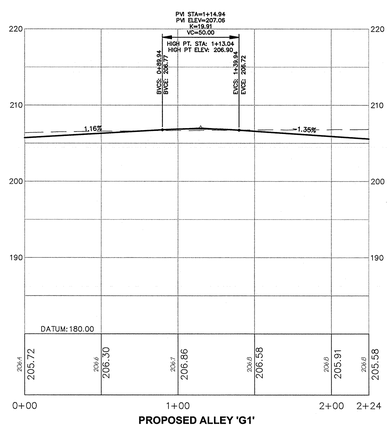
PROPOSED ROAD 'L'



PROPOSED ALLEY 'F'



PROPOSED ALLEY 'G'



PROPOSED ALLEY 'G1'

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

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PROPOSED ROAD PROFILES 8
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"= 8' V.

MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-95

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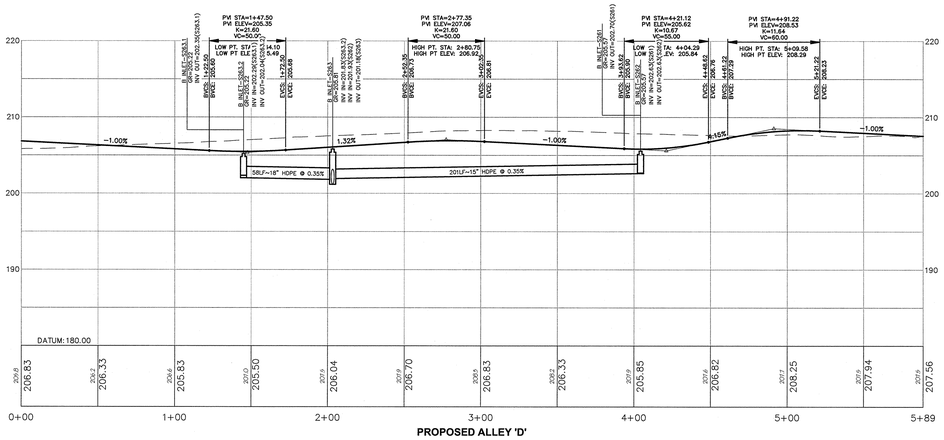
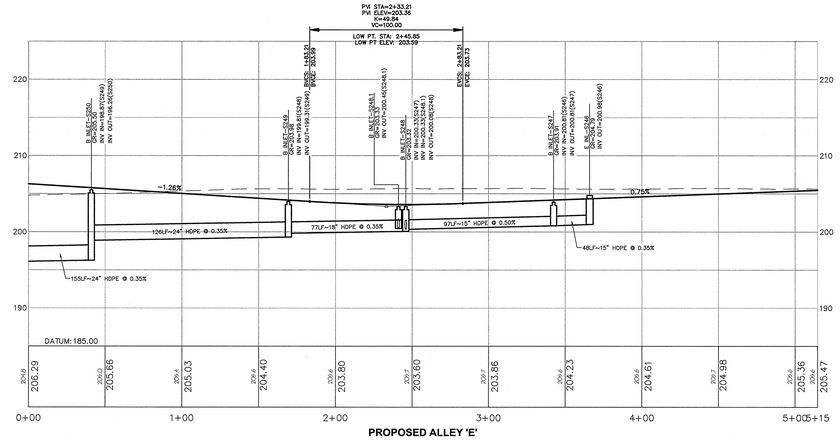


PROPOSED ALLEY 'D'



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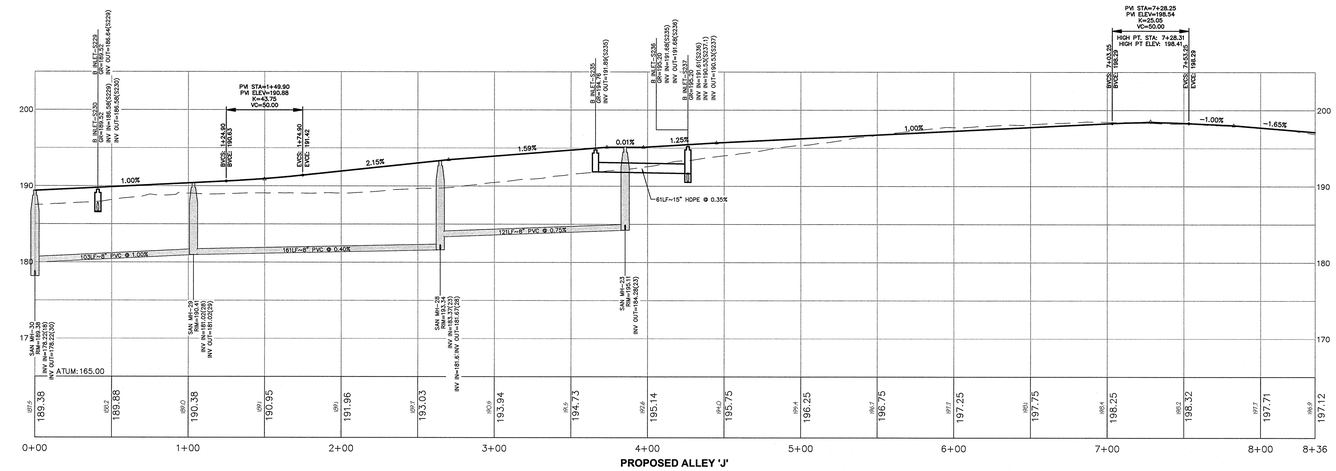

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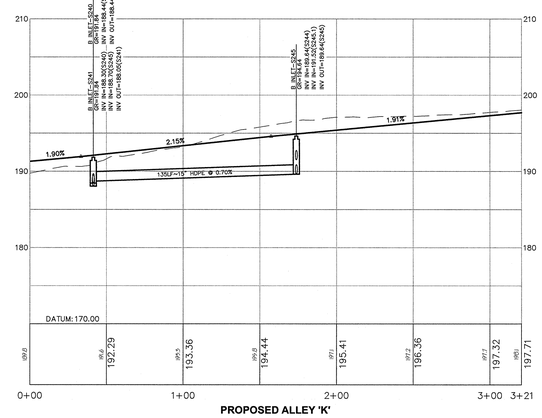

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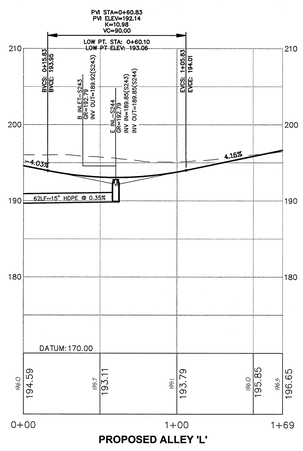
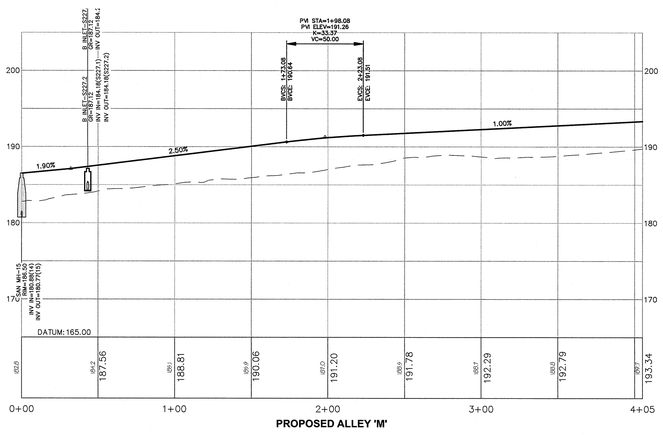


PROPOSED ALLEY 'L'



PROPOSED ALLEY 'M'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
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van note-harvey associates - Since 1894 -

PROPOSED ROAD PROFILES 9
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP
SCALE 1"= 40' H., 1"= 8' V.

MERCER CO., N.J.
DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-96

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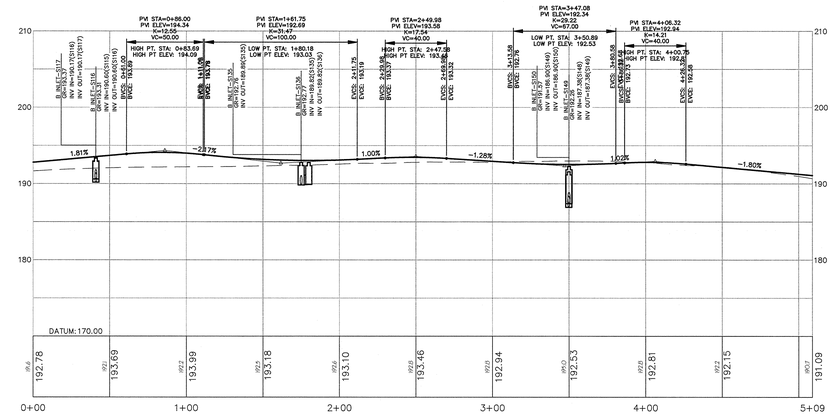
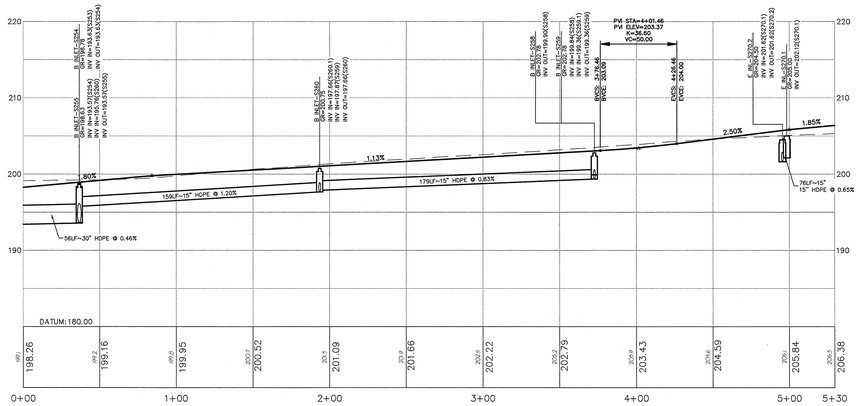
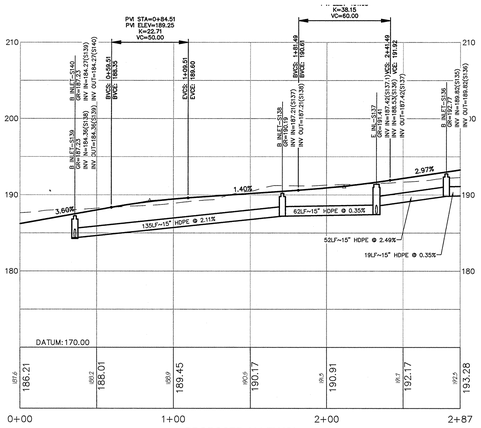


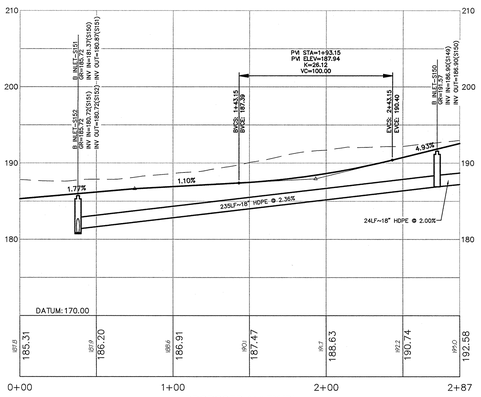
PROPOSED ALLEY 'N'



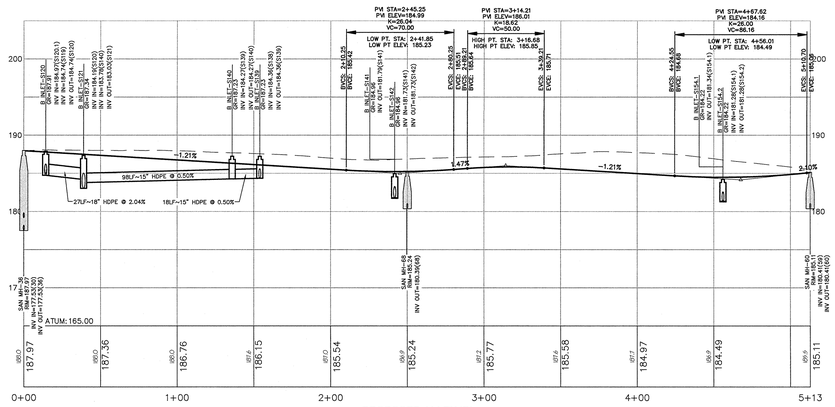
PROPOSED ALLEY 'I'



PROPOSED ALLEY 'O'



PROPOSED ALLEY 'P'



PROPOSED ALLEY 'R'

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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PROPOSED ROAD PROFILES 10
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"= 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-97

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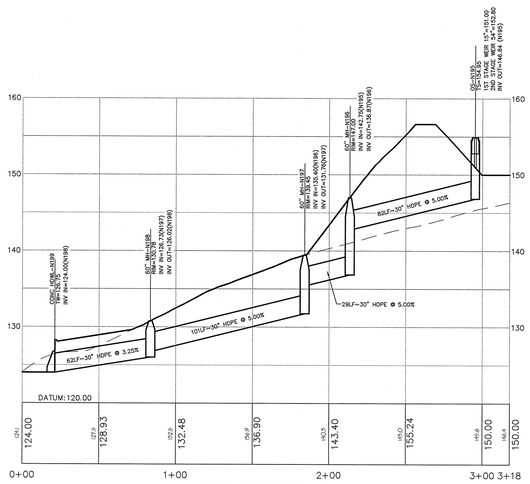
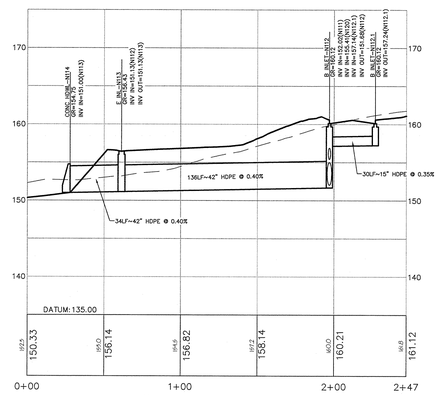
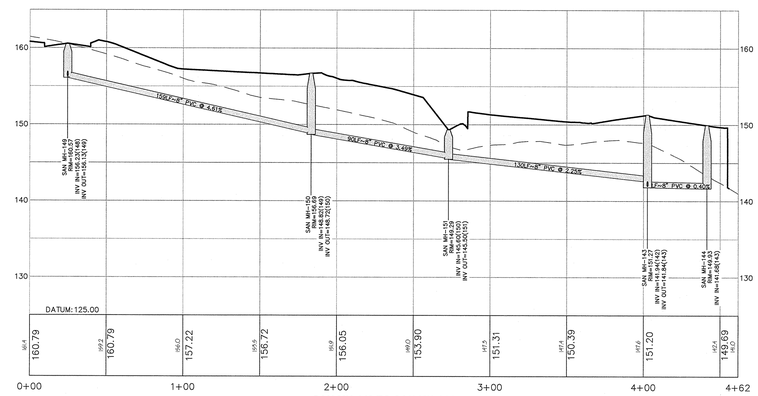


HDWL-N199 TO OS-N195



HDWL-N111 TO B INLET-N204



SAN MH-149 TO SAN MH-144

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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DRAINAGE AND UTILITY PROFILES 1
OF
NORTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"= 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051-410-21	FILE No. 203-A-1 203-B-1	SHEET No. CE-98
CHECKED BY BRP DATE 12/16/20	PAGE			

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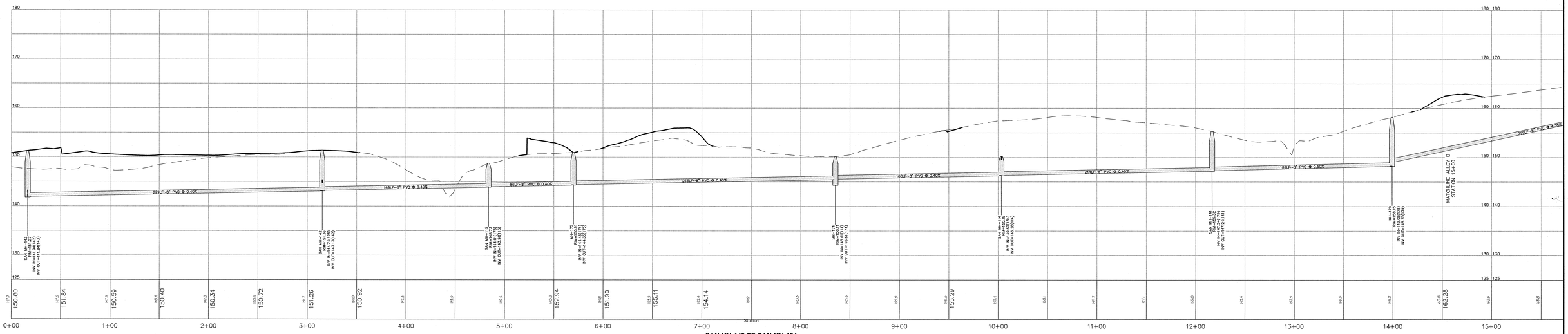
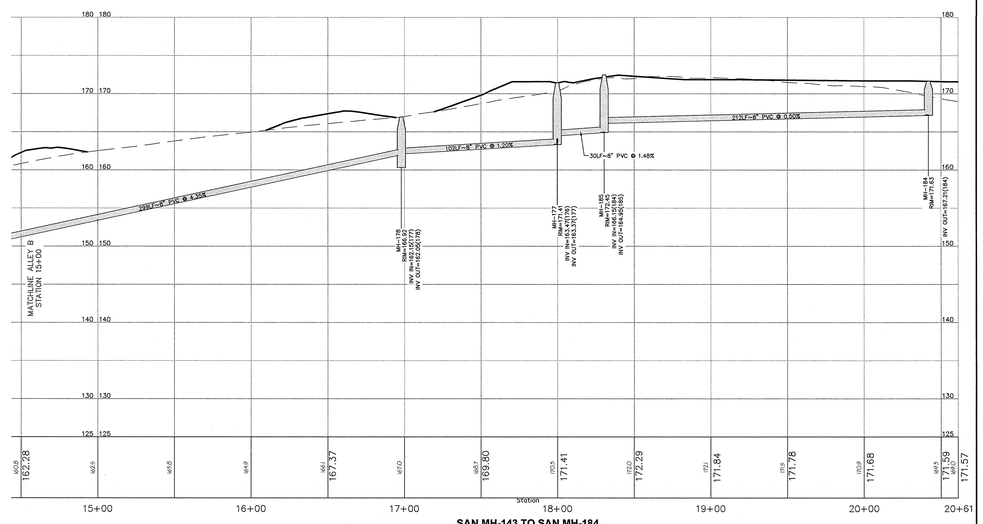


SAN MH-143 TO SAN MH-184



SAN MH-143 TO SAN MH-184

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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DRAINAGE AND UTILITY PROFILES 2
OF
NORTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"= 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-99

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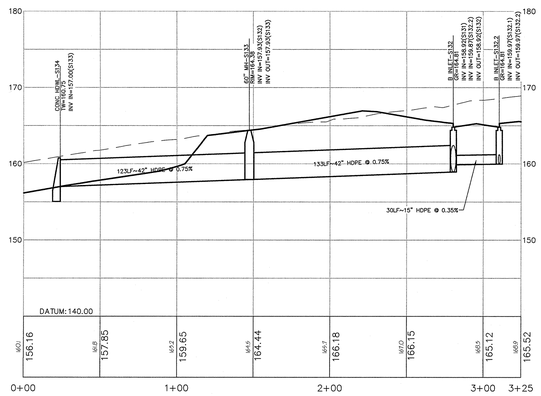
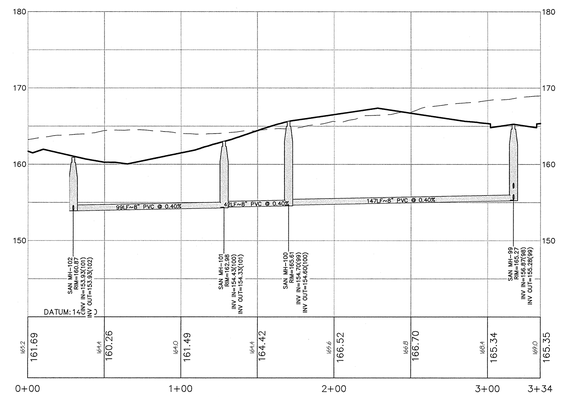
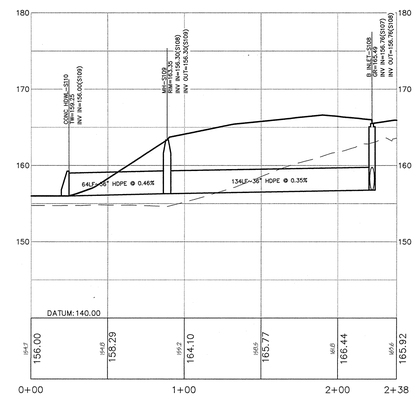


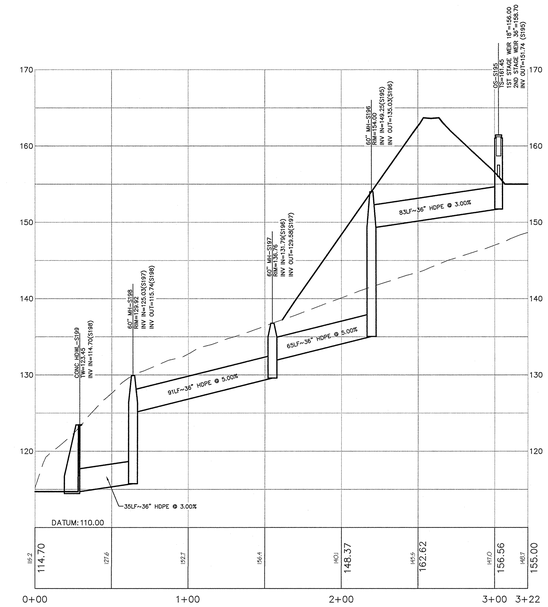
HDWL-S134 TO B INLET-S132.2



SAN MH-102 TO SAN MH 99



HDWL-S110 TO B INLET-S108



HDWL-S194 TO OS-S190

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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DRAINAGE AND UTILITY PROFILES 3
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"+ 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	**CE-100**

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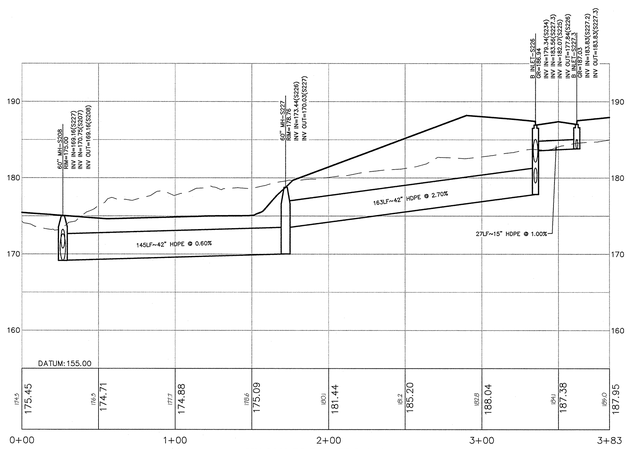
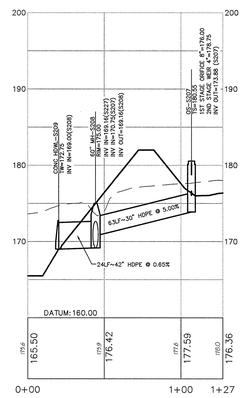
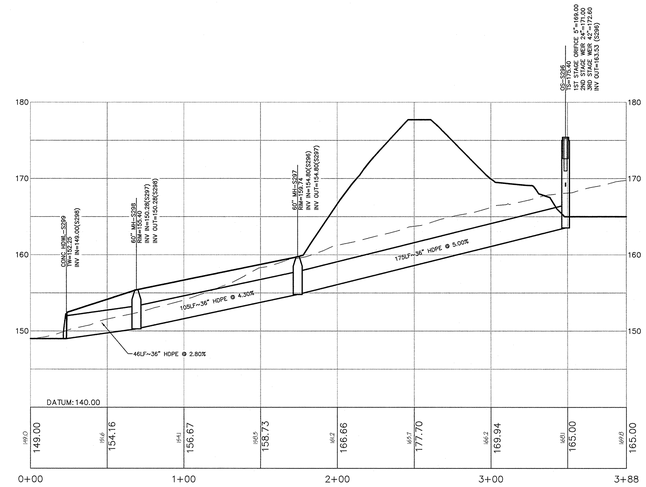


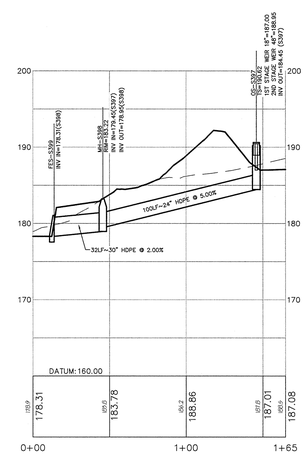
MH-S208 TO B INLET-S227.3



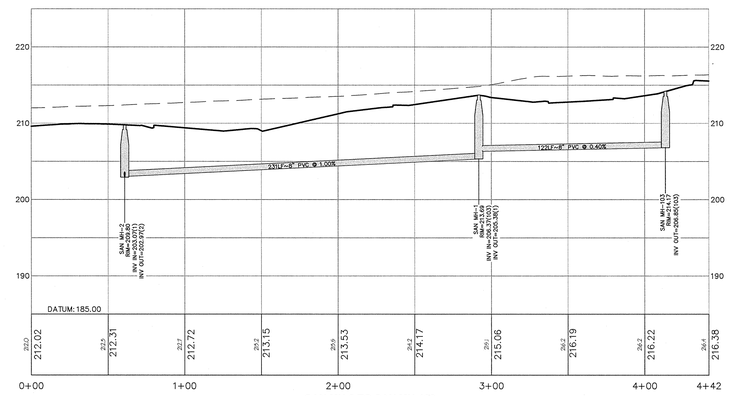
HDWL-S209 TO OS-207



HDWL-S299 TO OS-296



FES-S333 TO OS-S331



SAN MH-2 TO SAN MH-103

GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet (HORIZONTAL)

GRAPHIC SCALE

(IN FEET)
1 inch = 8 feet (VERTICAL)

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
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DRAINAGE AND UTILITY PROFILES 4
OF
SOUTH SECTION
HOPEWELL PARC
SITUATED IN

HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE 1"= 40' H., 1"+ 8' V. — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY BRP DATE 12/16/20	PAGE	45051-410-21	203-A-1 203-B-1	CE-101

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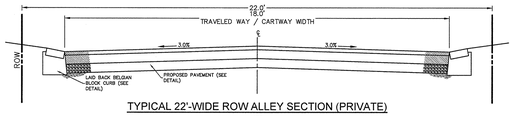
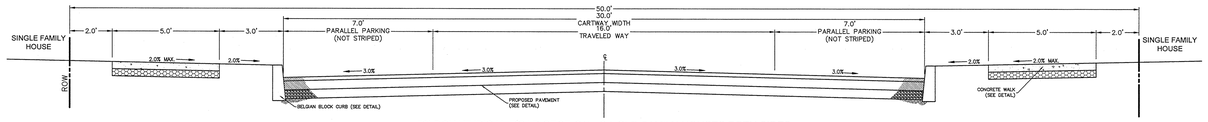


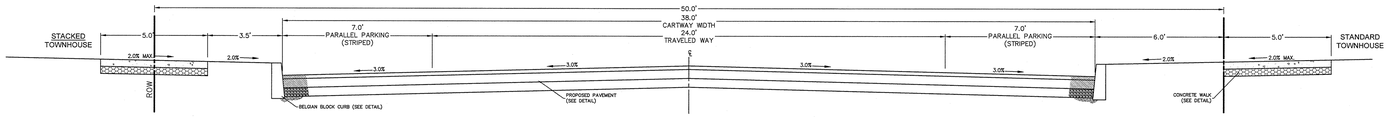
TYPICAL 22'-WIDE ROW ALLEY SECTION (PRIVATE)

NTS



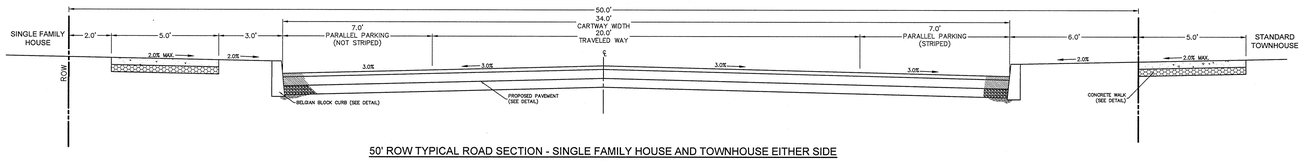
50' ROW TYPICAL ROAD SECTION - SINGLE FAMILY HOUSES BOTH SIDES

NTS



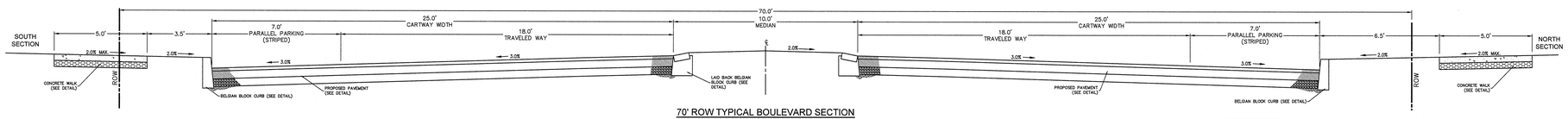
50' ROW TYPICAL ROAD SECTION - TOWNHOUSES BOTH SIDES

NTS



50' ROW TYPICAL ROAD SECTION - SINGLE FAMILY HOUSE AND TOWNHOUSE EITHER SIDE

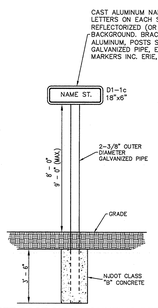
NTS



70' ROW TYPICAL BOULEVARD SECTION

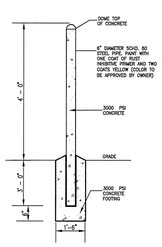
NTS

NOTE:
TYPICAL DIMENSIONS/ OFFSETS SHOWN.
REFER TO PLANS FOR EXACT LOCATIONS.



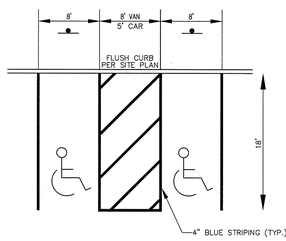
STREET POST SIGN MOUNTING DETAIL

NTS

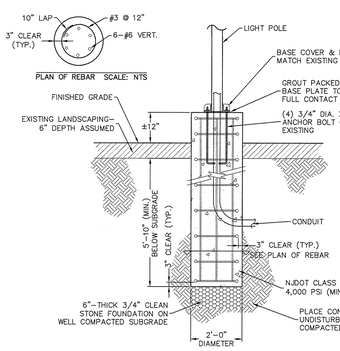


CONCRETE FILLED BOLLARD DETAIL

NTS



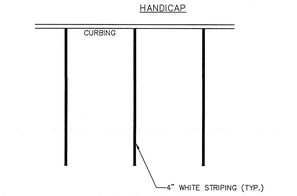
HANDICAP



NOTES:
1. THE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60 KSI.
2. ANCHOR BOLT PER ASTM A576 WITH (1) NUT, (1) FLAT WASHER, AND (2) SHIMS. NUTS, WASHERS AND THREADED PORTION OF BOLT SHALL BE HOT DIP GALVANIZED.
3. IN AREAS OUTSIDE OF PROPOSED PARKING LOTS THE LIGHT POLE BASE SHALL BE INSTALLED AT GRADE (NO EXPOSED CONCRETE)

LIGHT POLE FOUNDATION DETAIL

NTS

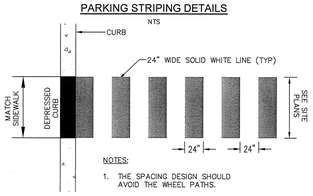


STANDARD (AT CURB)

NOTES:
STRIPING TO BE LONG LIFE THREMOPLASTIC

PARKING STRIPING DETAILS

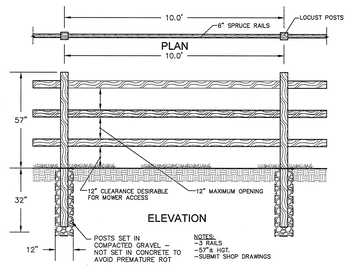
NTS



NOTES:
1. THE SPACING DESIGN SHOULD AVOID THE WHEEL PATHS.
2. PROVIDE DETECTABLE WARNING SURFACE AT FLUSH CURBS.

CROSSWALK STRIPING DETAILS

NTS



NOTE:
FENCES AT DOG PARKS SHALL BE PROVIDED WITH A BLACK WIRE MESH ATTACHED AT POSTS AND RAILS.

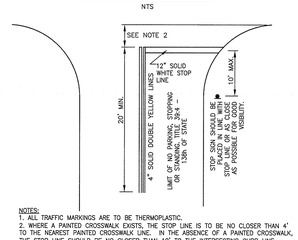
SPLIT RAIL FENCE DETAIL

NTS

NOTE:
ALL TRAFFIC MARKINGS ARE TO BE THERMO PLASTIC.

STOP LETTERING DETAIL

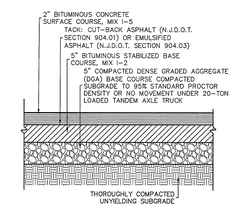
NTS



NOTES:
1. ALL TRAFFIC MARKINGS ARE TO BE THERMOPLASTIC.
2. WHERE A PAINTED CROSSWALK EXISTS, THE STOP LINE IS TO BE NO CLOSER THAN 4' TO THE NEAREST PAINTED CROSSWALK LINE. IN THE ABSENCE OF A PAINTED CROSSWALK, THE STOP LINE SHOULD BE NO CLOSER THAN 10' TO THE INTERSECTING CURB LINE.
3. IF STOP BAR PLACEMENT INTERFERES WITH A PARKING SPACE, THE STOP BAR SHALL BE PLACED AS FAR AWAY FROM THE INTERSECTING CURB LINE AS POSSIBLE WITHOUT BEING PLACED IN FRONT OF A PARKING SPACE.

STOP LINE DETAIL

NTS



TYPICAL PAVEMENT SECTION DETAIL

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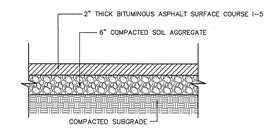
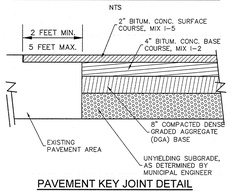


ASPHALT DRIVEWAY PAVEMENT DETAIL

NTS



PAVEMENT KEY JOINT DETAIL

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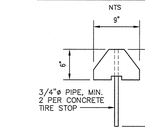
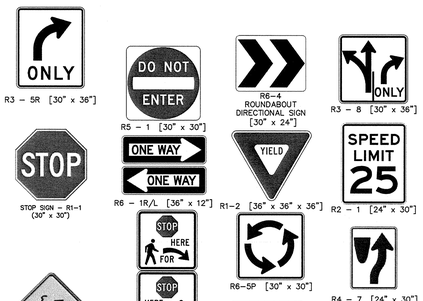


NOTES:
1. WHEEL STOP SHALL BE 7'-0" WIDE AND CENTERED IN PARKING STALL.
2. WHEEL STOPS SHALL BE PROVIDED AT ALL PARKING STALLS THAT ABUT FLUSH CURB.

WHEEL STOP DETAIL

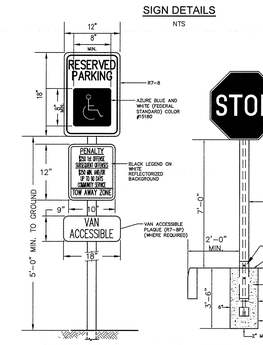
NTS



NOTES:
1. THE W16-7P PLAQUE MUST ACCOMPANY THE W11-2 SIGN WHEN INSTALLED AT A PEDESTRIAN CROSSING.
2. SIGNS W11-2, W16-7P(L/R), AND W16-9P SHALL BE COLOR "FLUORESCENT YELLOW-GREEN."

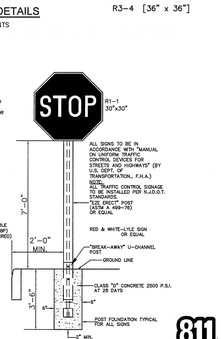
SIGN DETAILS

NTS



HANDICAP SIGN DETAIL

NTS



TYPICAL SIGN MOUNTING DETAIL

NTS

Know what's below. Call before you dig.

EXISTING CONDITIONS NOTES (APPLIES TO ALL PLANS):

1. BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1927. CONTOURS AND SPOT ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
2. THE PLANIMETRIC FEATURES SHOWN HEREON WERE PROVIDED BY KMA CONSULTING ENGINEERS, P.C. ON 5-21-07, BASED UPON AERIAL PHOTOGRAPHY DATED 3-28-07
3. REFER TO PRELIMINARY/FINAL MAJOR SUBDIVISION PLANS, SHEETS 1 OF 13 THROUGH 13 OF 13 FOR ADDITIONAL NOTES.

GENERAL NOTES: (FOR ALL SITE/CIVIL DRAWINGS)

1. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED FOR CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS.
2. NO RESPONSIBILITY OR LIABILITY IS ASSUMED BY THE SURVEYOR FOR LOCATION OF UTILITIES OR EASEMENTS, IF ANY, LOCATED BELOW THE SURFACE OF THE LANDS OR NOT VISIBLE ON THE SURFACE OF THE LANDS SHOWN HEREON.
3. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COMPILED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITY INFORMATION PRIOR TO ANY EXCAVATION.
4. ON-SITE UNDERGROUND UTILITIES HAVE NOT BEEN FIELD MARKED/DELINEATED AT TIME OF OUR FIELD SURVEY. MARKED-OUT/DELINEATED UTILITIES IN ADJOINING STREETS HAVE BEEN FIELD SURVEYED AND MARPPED HEREON. NO CERTIFICATION/REPRESENTATION IS MADE BY VNHA AS TO THE ACTUAL UNDERGROUND LOCATION AND/OR ELEVATION OF ANY UNDERGROUND UTILITIES.
5. ALL CONSTRUCTION MATERIALS AND METHODS FOR ROADWAY, PARKING AREAS, PAVING, SITE WORK, AND DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH NJDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST REVISION, EXCEPT AS MODIFIED HEREON AND IN THE SPECIFICATIONS.
6. ALL CONTRACTORS ARE REQUIRED TO NOTIFY THE ENGINEER (VNHA) IMMEDIATELY (AND PRIOR TO CONSTRUCTION) OF ANY PLAN/SPECIFICATION DISCREPANCIES, LAYOUT/ELEVATION DISCREPANCIES, CONFLICTS, APPARENT ERRORS, OMISSIONS OR OF ANY OTHER INFORMATION CONTAINED HEREIN WHICH THE CONTRACTOR FEELS IS UNCLEAR AS TO MEANING. THE ENGINEER WILL PROVIDE CLARIFICATION AND, IF NECESSARY, CORRECTIONS AS REQUIRED BY THE CONTRACTOR FOR PERFORMANCE OF CONTRACTORS WORK.
7. SEE ARCHITECTURAL PLANS FOR ALL BUILDING DIMENSIONS.
8. IF BLASTING OR JACK HAMMERING OF ROCK IS REQUIRED, IT SHALL BE SUBJECT TO THE PRIOR SUBMISSION OF A BLASTING PLAN FOR THE REVIEW OF THE TOWNSHIP ENGINEER AND THE FIRE PROTECTION OFFICIAL, AND IT SHALL SHOW THE AREAS WHERE BLASTING MAY BE REQUIRED AND THE PROTECTIVE MEASURES TO BE USED TO MINIMIZE AND MITIGATE ENVIRONMENTAL, STRUCTURAL, AND NOISE IMPACTS.
9. CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH THE MUNICIPAL REQUIREMENTS AND COORDINATED WITH OWNER. CONSTRUCTION WORK SHALL NOT COMMENCE UNTIL 8 AM WHEN WORKING CLOSE TO EXISTING RESIDENCES. THE APPLICANT WILL COMPLY WITH THE TOWNSHIP'S NOISE ORDINANCE.
10. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION LOGISTICS/TRAFFIC CONTROL PLAN. IT SHALL BE APPROVED BY THE POLICE DEPARTMENT AND THE TOWNSHIP ENGINEER.
11. THE APPLICANT SHALL PROVIDE MEASURES TO COMPLY WITH THE MERCER COUNTY AND LAWRENCE TOWNSHIP RECYCLING REQUIREMENTS.
12. FINAL CONSTRUCTION PLANS SHALL BE REVIEWED AND APPROVED BY THE TOWNSHIP ENGINEER FOR COMPLIANCE WITH THE ENGINEERING STANDARDS, DETAILS & DESIGN CRITERIA OF HOPEWELL TOWNSHIP, INCLUDING BUT NOT LIMITED TO: LOCATION & DESIGN OF SANITARY SEWER AND STORM DRAINAGE SYSTEMS, CONSTRUCTION DETAILS FOR IMPROVEMENTS TO EXISTING AND PROPOSED ROADWAYS, AND ALL OTHER ENGINEERING SITE IMPROVEMENT ITEMS THAT MAY BE MODIFIED OR INCREASED.
13. MERCER COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 72 HOURS BEFORE ANY LAND DISTURBANCE. THE ENGINEER (VNHA) AND THE MUNICIPAL UTILITIES AUTHORITY, AS APPLICABLE, ARE TO BE NOTIFIED 72 HOURS BEFORE ANY UTILITY INSTALLATION AND/OR TESTING.
14. ALL TRAFFIC CONTROL SIGNAGE, PAVEMENT MARKINGS, STRIPING, BIKE LANES, ETC. SHALL BE IN CONFORMANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, 2009 EDITION OR LATER REVISION AND LAWRENCE TOWNSHIP STANDARDS.

GRADING CONSTRUCTION NOTES:

1. TOPSOIL TO BE SPREAD AND ALL DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTES.
2. ALL STRUCTURAL FILL REQUIRED IN AREAS OF PROPOSED AND FUTURE IMPROVEMENTS SUCH AS UTILITIES, SANITARY SEWER, STORM DRAINAGE, BUILDINGS, PAVEMENTS, WALKS, ETC. MUST BE PLACED AND COMPACTED ETC. IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER FOR THE TYPE OF MATERIAL UTILIZED.
3. ALL SOIL AND STONE AGGREGATES BROUGHT TO THE SITE AND REMOVED FROM THE SITE SHALL BE CERTIFIED BY A LICENSED SITE REMEDIATION PROFESSIONAL (LSRP) OR OTHER APPROPRIATE LICENSED PROFESSIONAL IN THE STATE OF NEW JERSEY AS MEETING NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) "CLEAN SOIL STANDARDS."
4. HANDICAP RAMPS SHALL BE PROVIDED AT ALL SIDEWALK INTERSECTIONS AT DRIVEWAYS, PARKING AREAS, ETC., AND SHALL COMPLY WITH A.D.A. REQUIREMENTS.
5. MAXIMUM LAWN GRADE SHALL BE 3:1 SLOPE.
6. SIDEWALKS AND PATHS SHALL BE PROVIDED CROSS SLOPE OF 2%, MAXIMUM RUNNING SLOPE OF 5% UNLESS OTHERWISE NOTED ON THE SITE PLANS.

UTILITY CONSTRUCTION AND STORM SEWER NOTES:

1. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS/HER SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
2. THE CONTRACTOR SHALL CALL THE "ONE NUMBER TO CALL SYSTEM" 1- 800-272-1000, NOT LESS THAN 72 HOURS NOR MORE THAN 10 WORKING DAYS PRIOR TO PLANNED WORK TO NOTIFY UTILITY OWNERS OF THE INTENT TO START WORK. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING NON- MEMBER UTILITY OWNERS INDIVIDUALLY. ALL WORK SHALL BE COORDINATED WITH UTILITY OWNERS INCLUDING, BUT NOT LIMITED TO, PUBLIC SERVICE ELECTRIC AND GAS CO., VERIZON TELEPHONE CO., NEW JERSEY AMERICAN WATER COMPANY, PRIOR TO THE START OF CONSTRUCTION. (IF REQUIRED)
3. ALL PROPOSED ELECTRIC AND TELEPHONE SHALL BE INSTALLED UNDERGROUND AND COORDINATED WITH APPLICABLE UTILITY COMPANY.
4. ALL WATER MAIN CONSTRUCTION MATERIALS AND TESTING SHALL BE PROVIDED IN ACCORDANCE WITH THE WATER COMPANY STANDARDS AND CRITERIA AS CONTRACTED BY THE OWNER.
5. ALL PROPOSED DOMESTIC WATER LINES AND SANITARY SEWER SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 10' AND MINIMUM CLEAR VERTICAL DISTANCE OF 18" AT CROSSINGS.
6. IF REQUIRED, WATER MAIN SIZING SHALL BE AS DETERMINED BY THE WATER COMPANY AS NECESSARY TO PROVIDE ADEQUATE FIRE PROTECTION AND POTABLE WATER REQUIREMENTS.
7. IF REQUIRED, ALL WATER MAINS, SERVICES, AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE WATER COMPANY.
8. STORM SEWER PIPE SHALL BE HDPE EXCEPT WHERE NOTED. MINIMUM COVER OVER STORM SEWER SHALL BE PROVIDED PER MANUFACTURERS RECOMMENDATIONS.
9. PIPE LENGTHS SHOWN ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
10. PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE STRUCTURES MAY BE UTILIZED FOR DRAINAGE, AND SANITARY SEWER SYSTEMS UPON SUBMISSION OF AND APPROVAL OF SHOP DRAWINGS BY ENGINEER. ALL PRECAST DRAINAGE STRUCTURE SHOP DRAWINGS SHALL BE CERTIFIED BY A NEW JERSEY PROFESSIONAL ENGINEER AS TO THEIR ABILITY TO WITHSTAND AASHTO HS-20 LOADINGS AND SUITABILITY FOR INTENDED USE. STRUCTURES SHALL COMPLY WITH NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST REVISION.
11. ALL UTILITIES ARE TO BE COORDINATED WITH THE ARCHITECTURAL, AND LANDSCAPE PLANS.
12. PIPE BRIDGING SHALL BE PROVIDED AT CROSSINGS WHERE SEPARATION BETWEEN PIPES IS LESS THAN ONE (1) FOOT.
13. THE SANITARY SEWER SHALL BE ENCASED IN CONCRETE WHEREVER THERE IS LESS THAN 18 INCHES VERTICAL SEPARATION BETWEEN THE SEWER AND ANOTHER UTILITY. ENCASEMENT SHALL EXTEND 5 FEET ON EACH SIDE OF CASING.
14. ALL STORM SEWER CONSTRUCTION SHALL BEGIN AT LOWEST ELEVATION.
15. ALL CHANGES IN DIRECTION OF PRESSURE WATER/SANITARY PIPING SHALL BE RESTRAINED WITH EBAA IRON WORKS "MEGA-LUGS" OR APPROVED EQUAL. ENTIRE INSTALLATION SHALL BE AS REQUIRED BY MANUFACTURER.
16. ANY DRAINAGE STRUCTURE THAT IS TO BE LEFT UNCOVERED FOR MORE THAN 8 HOURS SHALL BE PROTECTED WITH BARRICADES IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND OSHA STANDARDS.

GENERAL PAVING NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE MUNICIPAL ENGINEER IN WRITING 48 HOURS PRIOR TO PAVING.
2. ON THE DAY OF PAVING, THE SUBGRADE SHALL BE PROOF ROLLED WITH A LOADED TANDEM DUMP TRUCK AND APPROVED BY THE MUNICIPAL ENGINEER. THE SUBGRADE SHALL BE WELL GRADED, FREE OF LARGE ROCKS AND ORGANIC MATERIALS, AND SHALL BE COMPACTED. THE MUNICIPAL ENGINEER MAY REQUEST THAT A DENSE GRADED AGGREGATE SUBBASE BE INSTALLED IF CONDITIONS WARRANT THE SAME.
3. ALL SUBGRADES SHALL CONFORM TO THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
4. ALL CURBING SHALL BE INSTALLED OR REPAIRED AND APPROVED PRIOR TO THE INSTALLATION OF ANY PAVING.
5. INSTALLATION METHODS AND MATERIALS FOR ALL BITUMINOUS CONCRETE SHALL FOLLOW THE PROCEDURES AND SPECIFICATIONS OF THE NEW JERSEY DEPARTMENT OF TRANSPORTATION.
6. PAVING SHALL NOT TAKE PLACE WHILE RAINING.
7. ALL BITUMINOUS STABILIZED BASE MATERIAL SHALL BE HOT MIX I-2 CONFORMING TO THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
8. ALL F.A.B.C. WEARING SURFACE (TOP COURSE) MATERIAL SHALL BE HOT MIX I-5 CONFORMING TO THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
9. PRIOR TO THE PLACEMENT OF THE TOP COURSE, THE PAVEMENT SHALL BE SWEPT, ANY AREAS OF DISTRESSED PAVEMENT SHALL BE REPLACED AT THE DIRECTION OF THE MUNICIPAL ENGINEER, AND A TACK COAT OF 0.10 GALLONS PER SQUARE YARD OR AS CONDITIONS WARRANT SHALL BE APPLIED.
10. WHEN AN EXISTING PAVEMENT IS TO BE OVERLAID, ALL DISTRESSED AREAS OF THE EXISTING PAVEMENT SHALL BE REPLACED AS DESCRIBED IN NOTE NO. 9 ABOVE. THE EXISTING PAVEMENT SHALL BE SWEPT, TACKED WITH 0.10 GALLONS OF TACK OIL PER SQUARE YARD AND RECEIVE A LEVELING COURSE OF FABC SURFACE COURSE MIX I-5. THE TOP COURSE SHALL BE APPLIED IMMEDIATELY FOLLOWING THE LEVELING COURSE TO ASSURE A GOOD BONDING OF THE SURFACES.

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
www.vannoteharvey.com Certificate of Authorization No. 24GA28037200
- Since 1894 -

CONSTRUCTION DETAILS-1
OF
NORTH AND SOUTH SECTIONS
HOPEWELL PARC
BLOCK 93, LOTS 5.01, 5.02, AND 6.02
SITUATED IN
HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE: AS SHOWN — DECEMBER 16, 2020

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051-410-21	FILE No. 203-A-1 203-B-1	SHEET No. CE-102
CHECKED BY BRP DATE 12/16/20	PAGE			

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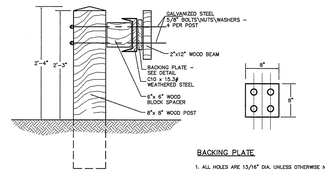
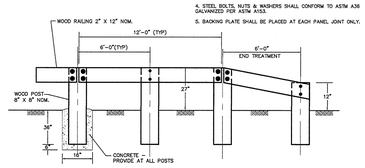


SECTION

BACKING PLATE

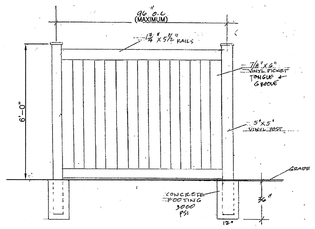
1. ALL HOLES ARE 13/16" DIA. UNLESS OTHERWISE NOTED.
2. ALL LUMBER SHALL BE SOUTHERN YELLOW PINE AND SHALL CONFORM TO THE RULES OF THE SOUTHERN PINE INSPECTION BUREAU AND SHALL BE PRESSURE TREATED WITH ACCEPTABLE ARSENATE COAL IN ACCORDANCE WITH AMERICAN WOOD PRESERVERS ASSOCIATION STANDARD P-5 IN AN AMOUNT NOT LESS THAN 0.40 POUNDS PER CUFT. OF WOOD AS SPECIFIED BY AWPA STANDARD C-14, AND SHALL BEAR THE AMERICAN WOOD PRESERVERS BUREAU QUALITY MARK, LP22M "GROUND CONTACT USE."
3. STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A36.
4. STEEL BOLTS, NUTS & WASHERS SHALL CONFORM TO ASTM A36 GALVANIZED PER ASTM A153.
5. BACKING PLATE SHALL BE PLACED AT EACH PANEL JOINT ONLY.



ELEVATION

WOOD BEAM GUIDE RAIL DETAIL

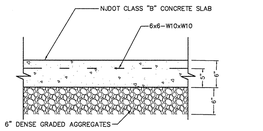
NTS



NOTES:
1. FENCE SHALL BE WHITE VINYL PICKET FENCE.
2. FENCE STYLE "BONNEVILLE" BY NATIONAL FENCE SYSTEMS, INC., AVENEL, NJ OR APPROVED EQUAL.

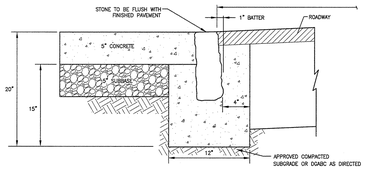
TRASH ENCLOSURE FENCE DETAIL

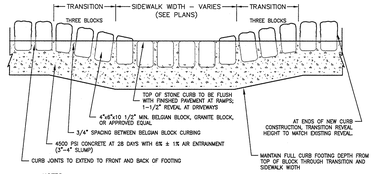
NTS



TRASH ENCLOSURE CONCRETE PAD DETAIL

NTS

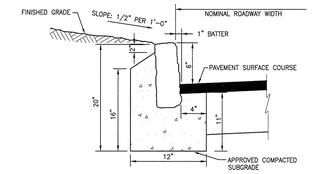




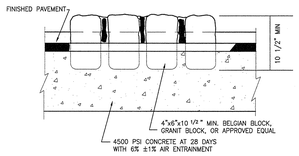
NOTES:
1. CONSTRUCT FULL DEPTH FOOTING AT CURB DEPRESSIONS SEE BELGIAN BLOCK CURB DETAIL. THIS SHEET. 1 1/2" FINISHED CURB REVEAL AT DRIVEWAYS, FLUSH WITH FINISHED PAVEMENT AT SIDEWALK RAMPS
2. MEASURES SHALL BE PROVIDED BY THE CONTRACTOR TO MAINTAIN THE CONCRETE TEMPERATURE BETWEEN 40°F AND 80°F DURING "COLD WEATHER" PERIODS.
3. FINISHED CURB SHALL NOT VARY FROM PRESCRIBED LINE AND GRADE MORE THAN 1/4" AT ANY POINT.
4. ALL NEW CURB ON PRIVATE PROPERTY AND IN THE MUNICIPAL RIGHT OF WAY SHALL BE BELGIAN BLOCK UNLESS DIRECTED BY THE ENGINEER.
5. ASPHALT SHALL NOT BE USED TO SET FORMS FOR CURBING.
6. FORMS FOR THE CURBING ARE TO BE FULL SIZE; 16" FOR THE BACK OF THE CURB AND 11" FOR THE FRONT OF THE CURB.
7. FULL SIZE BLOCKS ARE TO BE USED AT THE TRANSITION AREAS AND AT THE DEPRESSED CURB LOCATIONS. BROKEN OR CUT BLOCKS WILL NOT BE PERMITTED.

BELGIAN BLOCK CURB AT ACCESSIBLE RAMPS / DRIVEWAYS DETAIL

NTS



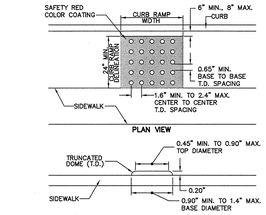
JOINTS TO BE 3/4" WIDE MAX. AND POINTED WITH NON–SHRINK CEMENT MORTAR.



NOTES:
1. CONSTRUCT FULL DEPTH FOOTING AT CURB DEPRESSIONS SEE DETAIL. THIS SHEET. 1 1/2" FINISHED CURB REVEAL AT DRIVEWAYS, FLUSH WITH FINISHED PAVEMENT AT SIDEWALK RAMPS
2. JOINTS TO BE CLEANED AND DAMP PRIOR TO POINTING.
3. MEASURES SHALL BE PROVIDED BY THE CONTRACTOR TO MAINTAIN THE CONCRETE TEMPERATURE BETWEEN 40°F AND 80°F DURING "COLD WEATHER" PERIODS.
4. FINISHED CURB SHALL NOT VARY FROM PRESCRIBED LINE AND GRADE MORE THAN 1/4" AT ANY POINT.
5. ALL NEW CURB ON PRIVATE PROPERTY AND IN THE MUNICIPAL RIGHT OF WAY SHALL BE BELGIAN BLOCK UNLESS DIRECTED BY THE ENGINEER.
6. ASPHALT SHALL NOT BE USED TO SET FORMS FOR CURBING.
7. FORMS FOR THE CURBING ARE TO BE FULL SIZE; 16" FOR THE BACK OF THE CURB AND 11" FOR THE FRONT OF THE CURB.
8. FULL SIZE BLOCKS ARE TO BE USED AT THE TRANSITION AREAS AND AT THE DEPRESSED CURB LOCATIONS. BROKEN OR CUT BLOCKS WILL NOT BE PERMITTED.

BELGIAN BLOCK CURB END TRANSITION DETAIL

NTS

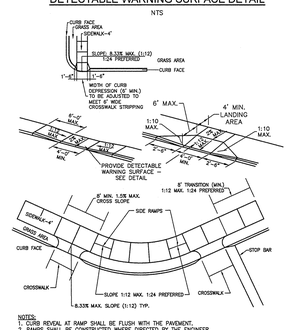


ELEVATION

NOTES:
1. THE SYSTEM SHALL INCORPORATE RESILIENT RUBBER DOMES OF THE DIMENSIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ADA REGULATIONS FOR DETECTABLE WARNING ON CURB RAMPS.
2. THE SYSTEM SHALL BE ADA "CONCRETE CAST IN PLACE" SYSTEM AS MANUFACTURED BY ADA SOLUTIONS, INC. OR APPROVED EQUAL. (WWW.ADA-SOLUTIONS.COM) P.O. BOX 3, NORTH BILLERICA, MA. TELEPHONE: 800–372–0509 (OR APPROVED EQUAL)
3. THE DETECTABLE WARNING SURFACES SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S RECOMMENDATIONS TO THE ENGINEER BEFORE INSTALLATION BEGINS.

DETECTABLE WARNING SURFACE DETAIL

NTS



NOTES:
1. CURB REVEAL AT RAMP SHALL BE FLUSH WITH THE PAVEMENT.
2. RAMPS SHALL BE CONSTRUCTED WHERE DIRECTED BY THE ENGINEER.
3. RAMPS SHALL BE CLASS B 4500 PSI CONCRETE WITH 6% ± 1% AIR ENTRAINMENT: 4" THICK CONCRETE ON 4" BASE.
4. CONCRETE TO BE PLACED AND CURED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED HEREIN.
5. SLUMP TEST: 3"–4".
6. EXPANSION JOINTS EVERY 20 FT. AND CONSTRUCTION JOINTS EVERY 4 FT. WITH A DEPTH OF 1/4" THICKNESS OF CONCRETE.
7. THE PUBLIC SIDEWALK CURB RAMP DELINEATION SHALL BE PAINTED SAFETY RED IN COLOR AND BE FINISHED WITH A DETECTABLE WARNING SURFACE IN ACCORDANCE WITH ADA REQUIREMENTS & STANDARDS.

ACCESSIBLE SIDEWALK RAMPS DETAIL

NTS

NOTES:
1. PROVIDE EXPANSION JOINTS WITH 1/2" THICK NJDOT APPROVED PREMOLDED JOINT FILLERS AS SHOWN ON THE PLANS WITH MAXIMUM SPACING OF 20 FT. & COLD POUR, SELF LEVELING ELASTOMERIC OR SILICONE JOINT SEALANT. PROVIDE SEALANT SPECIFICATION TO ENGINEER FOR APPROVAL. COORDINATE JOINTS WITH CONCRETE SCORING PATTERN.
2. CONTRACTION JOINTS EVERY 5 FT.
3. ALL CONCRETE SHALL BE 4500 PSI MINIMUM.
4. ENTIRE INSTALLATION TO CONFORM WITH THE PROJECT SPECIFICATIONS.

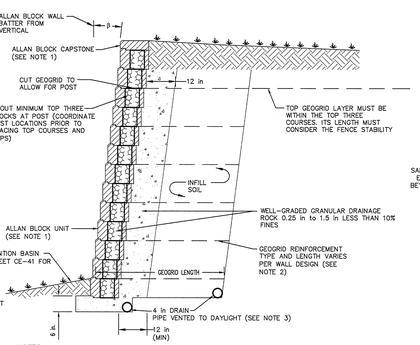
REINFORCED CONCRETE WALK AT DRIVEWAYS DETAIL

NTS

NOTES:
1. ALL NEW CURB ON PRIVATE PROPERTY AND IN THE MUNICIPAL RIGHT OF WAY SHALL BE BELGIAN BLOCK UNLESS DIRECTED BY THE ENGINEER.
2. ASPHALT SHALL NOT BE USED TO SET FORMS FOR CURBING.
3. FORMS FOR THE CURBING ARE TO BE FULL SIZE; 16" FOR THE BACK OF THE CURB AND 11" FOR THE FRONT OF THE CURB.
4. FULL SIZE BLOCKS ARE TO BE USED AT THE TRANSITION AREAS AND AT THE DEPRESSED CURB LOCATIONS. BROKEN OR CUT BLOCKS WILL NOT BE PERMITTED.

ACCESSIBLE CURB RAMP NOTES

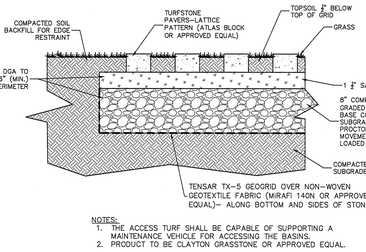
NTS



NOTES:
1. PROVIDE SHOP DRAWINGS FOR ALLAN BLOCK UNIT TYPES, CAPSTONE AND COLORS TO BE REVIEWED BY THE ENGINEER/OWNER. FINAL UNIT TYPE AND COLOR SHALL BE SELECTED BY OWNER. CONTRACTOR TO COORDINATE.
2. PROVIDE NJPE SIGNED AND SEALED SHOP DRAWINGS FOR WALL DESIGN TO ENGINEER FOR REVIEW AND APPROVAL.
3. 4 in DRAIN PIPE SHALL BE VENTED TO DAYLIGHT OR CONNECTED TO THE NEAREST STROM STRUCTURE AT HIGHEST ELEVATION PER PIPE MANUFACTURER'S MINIMUM COVER REQUIREMENTS.

TYPICAL ALLAN BLOCK RETAINING WALL DETAIL

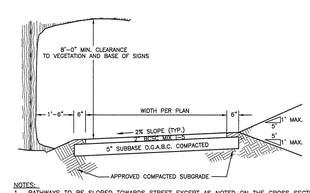
NTS



NOTES:
1. THE ACCESS TURF SHALL BE CAPABLE OF SUPPORTING A MAINTENANCE VEHICLE FOR ACCESSING THE BASINS.
2. PRODUCT TO BE CLAYTON GRASSTONE OR APPROVED EQUAL.

CONCRETE GRASS PAVERS DETAIL

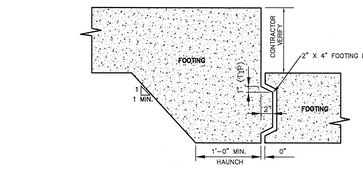
NTS



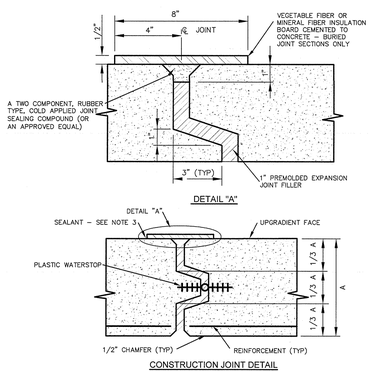
NOTES:
1. PATHWAYS TO BE SLOPED TOWARDS STREET EXCEPT AS NOTED ON THE CROSS SECTIONS/PLANS
2. BOTTOM OF SIGNAGE SHALL BE 8' VERTICAL FROM TOP OF PATHWAY
3. BOTTOM OF VEGETATION SHALL BE 8' VERTICAL FROM TOP OF PATHWAY
4. ALL PATHWAY RADII SHALL BE A MINIMUM OF 95' ON CENTER LINE
5. A MINIMUM OF 2' WIDTH GRADED AREA SHALL BE MAINTAINED ADJACENT TO THE PATHWAY TO PROVIDE CLEARANCE FROM LATERAL OBSTRUCTIONS.

BITUMINOUS PATHWAY DETAIL

NTS



TYPICAL FOOTING STEP CONSTRUCTION DETAIL



CONSTRUCTION JOINT DETAIL

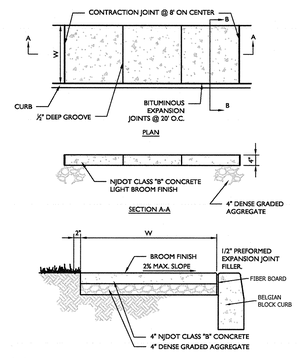
CONCRETE WALL DETAIL

NTS

NOTES:
1. BELGIAN BLOCK SHALL BE 4" x 4" x 10.5" MIN.
2. CONCRETE BENCH SHALL BE 4500 PSI AT 28 DAYS WITH 6% ±1% AIR ENTRAINMENT
3. JOINTS TO BE CLEANED AND DAMP PRIOR TO POINTING. JOINTS TO BE 3/4" MAX. AND POINTED WITH NON–SHRINK CEMENT.

LAID BACK BELGIAN BLOCK CURB DETAIL

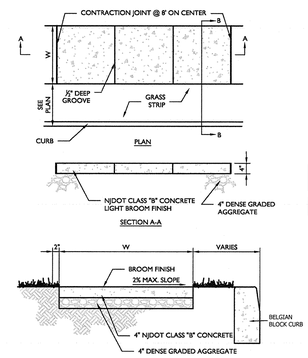
NTS



NOTES:
1. 1/2" EXPANSION JOINT FILLER, INSTALLED BETWEEN THE CURB AND CONCRETE SIDEWALK AT 10' MAXIMUM SPACING, RECESS TO 1/4" FROM THE TOP OF SIDEWALK.
2. 1/2" CONTRACTION JOINTS INSTALLED AT AN INTERVAL 24 TO 30 TIMES THE THICKNESS OF THE SLAB, TO A DEPTH OF 1/4 OF THE THICKNESS OF THE SLAB, RECESS TO 1/4" FROM THE TOP OF SIDEWALK, FOR THE FULL WIDTH OF THE SIDEWALK. SCORE A 1/4" GROOVED JOINT HALF WAY BETWEEN THE CONTRACTION JOINTS.
3. JOINT FILLER SHALL CONFORM TO AASHTO M-33. SURFACE OF CONCRETE SHALL BE BROOM FINISH. ROUND EDGES USING AN EDGING TOOL WITH A 1/4" RADIUS.
4. CONCRETE SIDEWALK SHALL BE CONSTRUCTED PER THE LATEST ADA REQUIREMENTS.

CONCRETE SIDEWALK (NEXT TO CURB) DETAIL

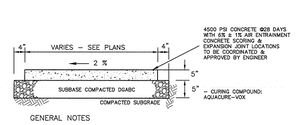
NTS



NOTES:
1. 1/2" CONTRACTION JOINTS INSTALLED AT AN INTERVAL 24 TO 30 TIMES THE THICKNESS OF THE SLAB, TO A DEPTH OF 1/4 OF THE THICKNESS OF THE SLAB, RECESS TO 1/4" FROM THE TOP OF SIDEWALK, FOR THE FULL WIDTH OF THE SIDEWALK. SCORE A 1/4" GROOVED JOINT HALF WAY BETWEEN THE CONTRACTION JOINTS.
2. JOINT FILLER SHALL CONFORM TO AASHTO M-33. SURFACE OF CONCRETE SHALL BE BROOM FINISH. ROUND EDGES USING AN EDGING TOOL WITH A 1/4" RADIUS.
3. CONCRETE SIDEWALK SHALL BE CONSTRUCTED PER THE LATEST ADA REQUIREMENTS.

CONCRETE SIDEWALK (NEXT TO GRASS) DETAIL

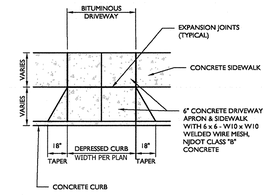
NTS



GENERAL NOTES
1. ANY CONCRETE PLACED BETWEEN NOVEMBER 15 AND APRIL 1 MUST CONFORM TO ARTICLES 501.11 AND 501.17 OF THE N.J.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1996 EDITION, HOT WATER, COVERED W/SALT HAY.
2. SLUMP TEST: 3"–4"
3. EXPANSION JOINTS EVERY 20', CONSTRUCTION JOINTS EVERY 4' AT A DEPTH OF 1/4 THE THICKNESS OF CONCRETE. EXPANSION JOINT MATERIAL TO MATCH DEPTH OF CONCRETE. (3"–4")
4. SUBGRADE AND CLEAN STONE SHALL BE COMPACTED TO WITHIN 1/2" OF GRADE AND CONTOUR, WITH NO AREAS CONSISTENTLY HIGH.

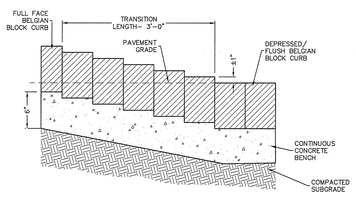
CONCRETE SIDEWALK DETAIL

NTS



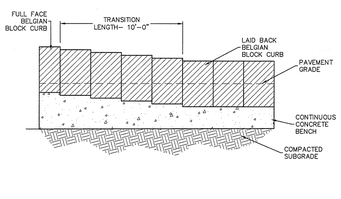
CONCRETE APRON AT DRIVEWAY DETAIL

NTS



DEPRESSED BELGIAN BLOCK CURB TRANSITION DETAIL

NTS



LAID BACK BLOCK CURB TRANSITION DETAIL

NTS

CONCRETE FINISHING NOTE:
ALL CONCRETE SHALL HAVE A CURING AND SEALING COMPOUND APPLIED WITHIN 2 HOURS OF FINISHING CONCRETE. VOCOMP–25 SHALL BE USED. ALL COSTS ASSOCIATED WITH THIS WORK ARE TO BE INCLUDED WITH UNIT PRICES FOR VARIOUS CONCRETE BID ITEMS.

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920
12/16/2020
DATE OF SIGN.

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
www.vannoteharvey.com Certificate of Authorization No. 24GA28271300
van note-harvey associates - Since 1894 -

CONSTRUCTION DETAILS–2
OF
NORTH AND SOUTH SECTIONS
HOPEWELL PARC
ON
BLOCK 93, LOTS 5.01, 5.02, AND 6.02
SITUATED IN
HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE: AS SHOWN — DECEMBER 16, 2020

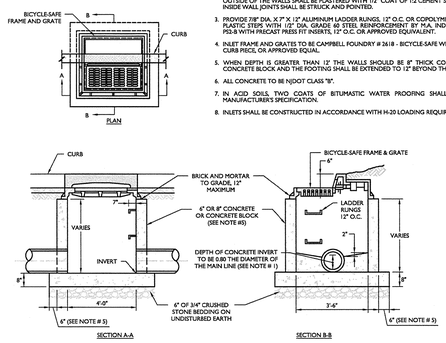
DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051–410–21	FILE No. 203–A–1 203–B–1	SHEET No. CE-103
CHECKED BY BRP DATE 12/16/20	PAGE			

N:\P\45051\DWG\45051-DTLS.DWG

N:\P\45051\dwg\45051-DTLS.dwg, DET-2, 12/14/2020 9:49:21 AM, cadadmin

NOTES:

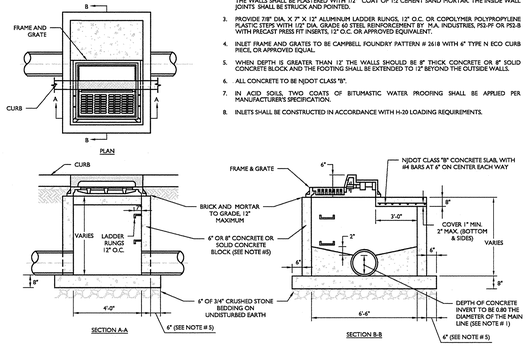
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF CONCRETE, PRECAST CONCRETE OR SOLID CONCRETE BLOCK. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12" ALUMINUM LADDER RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT BY M.A. INDUSTRIES, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, 12" O.C. OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY # 2618 - BICYCLE-SAFE WITH 6" TYPE N ECO CURB PIECE, OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12' THE WALLS SHOULD BE 8" THICK CONCRETE OR SOLID CONCRETE BLOCK AND THE FOOTING SHALL BE EXTENDED TO 12" BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.



TYPE 'B' INLET DETAIL
NTS

NOTES:

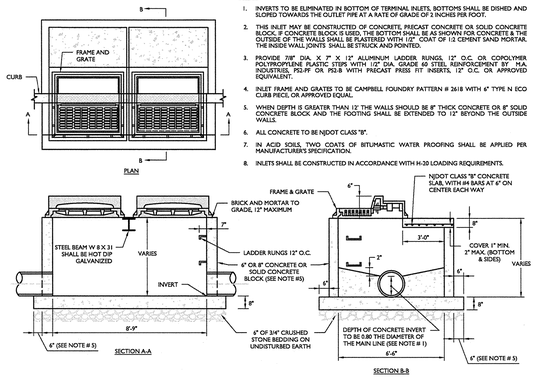
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF CONCRETE, PRECAST CONCRETE OR SOLID CONCRETE BLOCK. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12" ALUMINUM LADDER RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT BY M.A. INDUSTRIES, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, 12" O.C. OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY PATTERN # 2618 WITH 6" TYPE N ECO CURB PIECE, OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12' THE WALLS SHOULD BE 8" THICK CONCRETE OR 8" SOLID CONCRETE BLOCK AND THE FOOTING SHALL BE EXTENDED TO 12" BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.



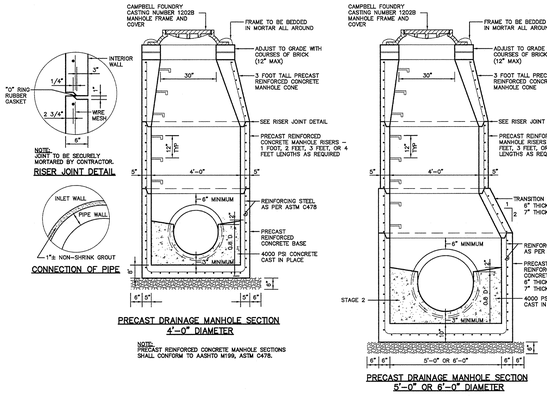
TYPE 'B-3' INLET DETAIL
NTS

NOTES:

1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF CONCRETE, PRECAST CONCRETE OR SOLID CONCRETE BLOCK. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12" ALUMINUM LADDER RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT BY M.A. INDUSTRIES, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, 12" O.C. OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY PATTERN # 2618 WITH 6" TYPE N ECO CURB PIECE, OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12' THE WALLS SHOULD BE 8" THICK CONCRETE OR 8" SOLID CONCRETE BLOCK AND THE FOOTING SHALL BE EXTENDED TO 12" BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.

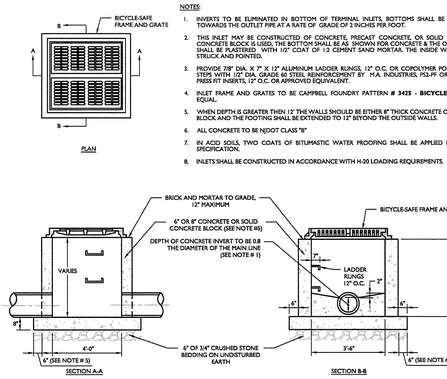


TYPE "DOUBLE B-3" INLET DETAIL
NTS



NOTES:

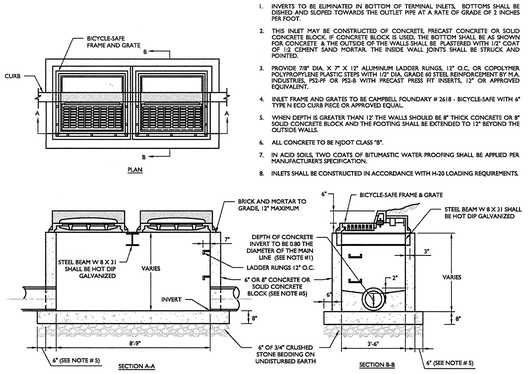
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF CONCRETE, PRECAST CONCRETE OR SOLID CONCRETE BLOCK. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12" ALUMINUM LADDER RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT BY M.A. INDUSTRIES, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, 12" O.C. OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY PATTERN # 3425 - **BICYCLE-SAFE** OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12' THE WALLS SHOULD BE EITHER 8" THICK CONCRETE OR 8" SOLID CONCRETE BLOCK AND THE FOOTING SHALL BE EXTENDED TO 12" BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.



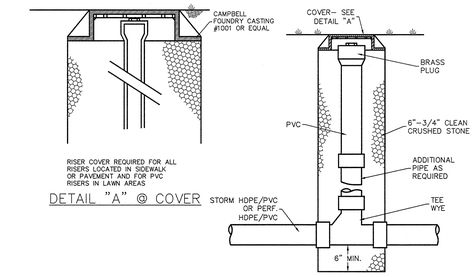
TYPE "E" INLET DETAIL
NTS

NOTES:

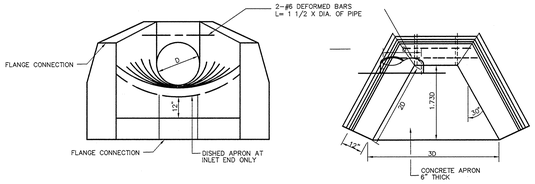
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF CONCRETE, PRECAST CONCRETE OR SOLID CONCRETE BLOCK. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12" ALUMINUM LADDER RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT BY M.A. INDUSTRIES, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, 12" O.C. OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY # 2618 - BICYCLE-SAFE WITH 6" TYPE N ECO CURB PIECE OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12' THE WALLS SHOULD BE 8" THICK CONCRETE OR 8" SOLID CONCRETE BLOCK AND THE FOOTING SHALL BE EXTENDED TO 12" BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.

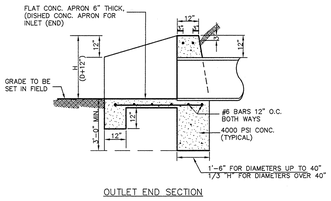


TYPE "DOUBLE B" INLET DETAIL
NTS



STORM CLEANOUT DETAIL
NTS

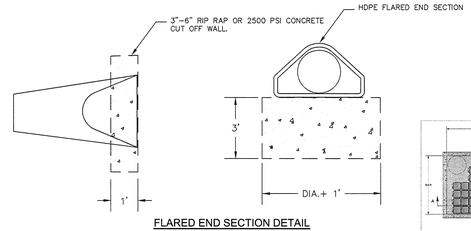


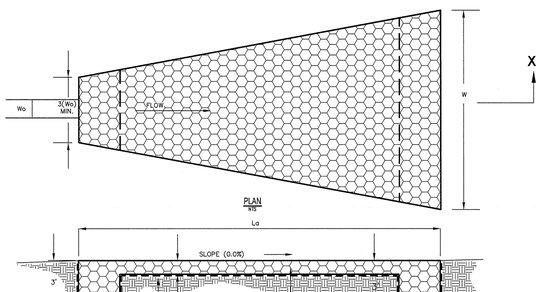


HEADWALLS IN CUBIC YARDS			APRON IN CUBIC YDS
PIPE SIZE	C.M.P./C.A.P.	R.C.P.	
12"	1.4	1.4	0.2
15"	1.7	1.7	0.2
18"	2.1	2.1	0.3
21"	2.5	2.5	0.4
24"	2.9	2.9	0.5
27"	3.3	3.4	0.6
30"	3.7	3.8	0.7
36"	4.7	4.8	0.9
42"	5.8	6.3	1.2
48"	7.0	7.9	1.5
54"	8.4	9.7	1.8
60"	12.2	13.4	2.1
66"	15.5	16.4	2.3
72"	18.1	19.9	3.0

NOTES:
1. ALL EXPOSED EDGES TO BE CHAMFERED 1"
2. CONCRETE TO BE N.J.D.O.T. CLASS "B"
3. SURFACE OF APRON TO BE SMOOTH, FLAT AT OUTLET AND SLOPED TO DRAIN FREELY
4. EXPOSED PORTIONS OF WALL TO BE RUBBED AND AND FLOATED
5. FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR "D"

CONCRETE HEADWALL WITH WINGWALLS DETAIL
NTS





NOTES:

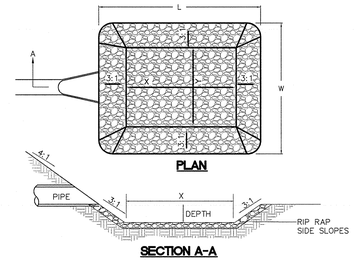
1. MATERIALS: GREY CAST IRON ASTM A48-83, CLASS 30B
2. IN RETROFIT SITUATIONS THIS CURB PIECE (HEAD) WILL FIT EXISTING CAMPBELL FOUNDARY CO. MANUFACTURED CURB INLETS FOR NJDOT TYPES B, B-1, B-2, D, D-1, AND D-2.
3. NAMEPLATE MESSAGE CAN BE MODIFIED TO PROJECT SPECIFIC NEEDS WITHIN AREA SHOWN.
4. CASTING SUPPLIED WITHOUT SURFACE COATING.
5. TYPE "N" ECO CURB PIECE PER LOCAL REQUIREMENTS.

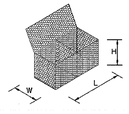
ECO CURB PIECE DETAIL
NTS

RIP-RAP SPECIFICATION CHART

LOCATION	AVERAGE STONE SIZE	MAXIMUM STONE SIZE	LENGTH OF STONE	WIDTH OF STONE	STONE THICKNESS W/ FILTER FABRIC	STONE THICKNESS W/O FILTER FABRIC	PIPE SIZE
	D_{50}		La	W			Do/Wo
HDWL S-206	4"	6"	34'	21'	12"	8"	30"
FES S-309	4"	6"	16'	11'	12"	8"	18"
FES S-321	4"	6"	44'	25'	12"	8"	30"
FES S-330	4"	6"	11'	8'	12"	8"	15"

TYPICAL CONDUIT OUTLET PROTECTION DETAIL
NTS





TYPICAL GABION BASKET DETAIL
NTS

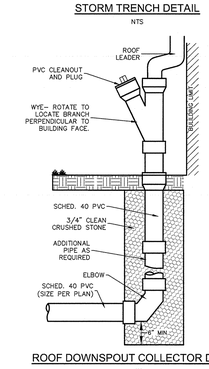
NOTES:
1. RIP-RAP SPECIFICATION SHOWN ON THIS SHEET ARE ONLY TO ESTABLISH MINIMUM GABION THICKNESS AND LAYOUT (LENGTH & WIDTH) OF THE CHANNEL PROTECTION. THICKNESS SHALL BE 18" MINIMUM.
2. THE GEOTEXTILE SHALL BE OVERLAPPED A MINIMUM OF TWO (2) FEET AT ALL LONGITUDINAL AND TRANSVERSE JOINTS. THE GEOTEXTILE SHALL BE PLACED SO THAT THE UPSTREAM ROLL OF GEOTEXTILE WILL OVERLAP THE NEXT DOWNSTREAM ROLL. WHERE PLACED ON SLOPES, EACH ROLL SHALL OVERLAP THE NEXT DOWNSTREAM ROLL.
2. THE GEOTEXTILE SHALL BE KEYED IN AT THE HEAD AND TOE OF THE APRON. THE GEOTEXTILE SHALL BE SECURED TO UNDERLYING EARTH, SO AS TO MAKE INTIMATE CONTACT WITH IT. IT SHALL NOT BE SO TIGHT, HOWEVER, SO AS TO CAUSE TEARING WHEN THE GABIONS ARE PLACED ON THE GEOTEXTILE. THE GEOTEXTILE SHALL NOT BE KEYED AT THE HEAD AND TOE OF THE APRON UNTIL THE GABIONS ARE IN PLACE TO THE HEAD OF THE APRON.
2. GABIONS SHALL BE 'BLACK' OR 'DARK GREY'. PVC-COATED, WOVEN WIRE MESH, FILLED WITH STONE SIZE AS SPECIFIED OR AS DIRECTED BY ENGINEER.
5. PLACEMENT OF THE GABIONS ON THE GEOTEXTILE SHALL START AT THE TOE OF THE APRON AND PROCEED UPWARDS. INSTALLATION PER MANUFACTURER SPECIFICATIONS.
6. GABIONS SHALL BE KEYED IN AT THE HEAD AND TOE OF THE APRON AS SHOWN.
7. STONE SIZE USED TO FILL GABIONS SHALL BE 4" TO 7" OR AS DIRECTED BY ENGINEER. ALL VOIDS IN THE GABION BASKETS THAT ALLOW THE GEOTEXTILE TO BE VISIBLE SHALL BE BACKFILLED WITH SMALLER STONES, AS DIRECTED BY THE ENGINEER, SO THAT THE GEOTEXTILE IS COMPLETELY COVERED.

RIP-RAP SPECIFICATION CHART

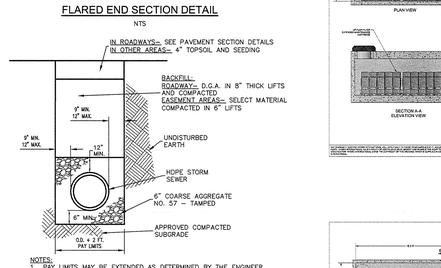
LOCATION	AVERAGE STONE SIZE	MAXIMUM STONE SIZE	BOTTOM LENGTH OF STONE	BOTTOM WIDTH OF STONE	LENGTH OF STONE	WIDTH OF STONE	STONE THICKNESS W/ FILTER FABRIC	STONE THICKNESS W/O FILTER FABRIC	PIPE SIZE
	Dso		X	Y	L	W			Do
N-114	3"	5"	10.5'	7.0'	21.0'	17.5'	6"	9"	42"
N-223 (FOREBAY)	3"	5"	36.8'	36.8'	51.8'	51.8'	6"	9"	36"
N-313	3"	5"	7.5'	5.0'	15.0'	12.5'	6"	9"	30"
N-331	3"	5"	7.5'	5.0'	15.0'	12.5'	6"	9"	30"
S-110	3"	5"	9.0'	6.0'	18.0'	15.0'	6"	9"	36"
S-134	3"	5"	10.5'	7.0'	21.0'	17.5'	6"	9"	42"
S-209 (FOREBAY)	3"	5"	41.5'	41.5'	62.5'	62.5'	6"	9"	42"
N-199 (OUTFALL)	10"	15"	7.5'	5.0'	22.5'	20.0'	20"	30"	30"
N-299 (OUTFALL)	17"	26"	9.0'	6.0'	27.0'	24.0'	34"	51"	36"
N-399 (OUTFALL)	7"	11"	6.0'	4.0'	18.0'	16.0'	14"	21"	24"
S-199 (OUTFALL)	12"	18"	9.0'	6.0'	27.0'	24.0'	24"	36"	36"
S-299 (OUTFALL)	13"	20"	9.0'	6.0'	27.0'	24.0'	8"	12"	36"
S-399 (OUTFALL)	7"	11"	7.5'	5.0'	22.5'	20.0'	14"	21"	30"

NOTES:
1. SCOUR HOLES SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORM EVENTS.
2. SCOUR HOLES SHALL BE REMOVED OF ALL SEDIMENT ANNUALLY OR WHEN SEDIMENT REACHES 50% OF CAPACITY.

SCOUR HOLE DETAIL
NTS

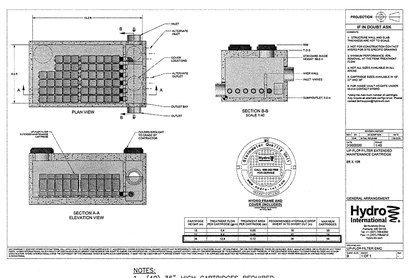


ROOF DOWNSPOUT COLLECTOR DETAIL
NTS



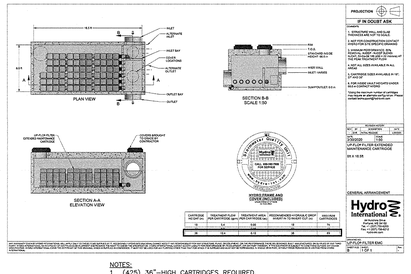
NOTES:
1. PAY LIMITS MAY BE EXTENDED AS DETERMINED BY THE ENGINEER.
2. TEMPORARY SHEETING AND SHORING MUST BE PROVIDED IN COMPLIANCE WITH O.S.H.A.
3. TRENCH BACKFILL FOR ALL UTILITIES SHALL BE IN ACCORDANCE WITH THIS DETAIL.
4. ALL TRENCHES GREATER THAN FIVE FEET (5') IN DEPTH SHALL BE SHORED, SLOPED OR BENCHED.
5. ALL TRENCHES GREATER THAN FOUR FEET (4') IN DEPTH SHALL BE PROVIDED WITH A FIXED MEANS OF EGRESS.

STORM TRENCH DETAIL
NTS



NOTES:
1. (40) 36"-HIGH CARTRIDGES REQUIRED.
2. HOUSED IN 8' x 15' VAULT.

MTD- S303 DETAIL

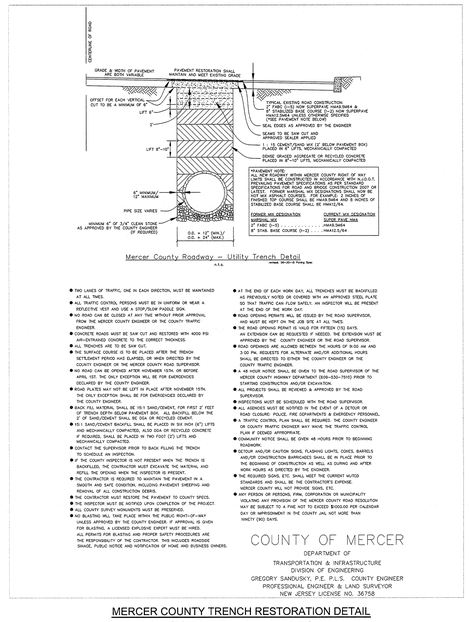


NOTES:
1. (425) 36"-HIGH CARTRIDGES REQUIRED.
2. HOUSED IN (6) 8' x 15.5' VAULTS AND (1) 6' x 8' VAULT OR SIMILAR CONFIGURATION.

MTD- S318 DETAIL

MTD NOTES:
1. MANUFACTURED TREATMENT DEVICES TO BE UP-FLO FILTER BY HYDRO INTERNATIONAL OR APPROVED EQUAL.

MANUFACTURED TREATMENT DEVICE DETAILS
NTS


CENTERLINE OF ROAD
GRADE & WIDTH OF PAVEMENT AND DITCH SERVICES
PAVEMENT RESTORATION SHALL MAINTAIN ANY MEET EXISTING GRADE
OFFSET FOR EACH VERTICAL CUT TO BE A MINIMUM OF 8"
TYPICAL EXISTING ROAD CONSTRUCTION 4" PAVED (1-1/2 NOW SURFACE HMA/BMB & 2" STAINLESS BASE COURSE (1-0) NOW SURFACE
SEAL EDGES AS APPROVED BY THE ENGINEER
SEAMS TO BE HEAT CUT AND SEALED WITH SEALER
GRADE GRAVEL AGGREGATE MIX (7 BELOW PAVEMENT BOX) PLACED IN 6"-10" LIFTS, MECHANICALLY COMPACTED
GRADE GRAVEL AGGREGATE OR RECYCLED CONCRETE PLACED IN 6"-10" LIFTS, MECHANICALLY COMPACTED
PAVEMENT NOTE:
ALL NEW ROADWAY WITHIN MERCER COUNTY RIGHT OF WAY SHALL BE RESURFACED WITH A MINIMUM OF 1-1/2" OF ASPHALT. PREVIOUS PAVEMENT SPECIFICATIONS AS PER STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OR LATEST. FORMER MATERIAL AND SPECIFICATION SHALL NOW BE NOT MS ASPHALT COURSES. FOR EXAMPLE: 2 INCHES OF 1-1/2" MS ASPHALT, 1-1/2" MS ASPHALT, 1-1/2" MS ASPHALT,

CONSTRUCTION SEQUENCE FOR CONSTRUCTED WETLAND

1. EXCAVATION
A. THE AREA TO BE USED FOR THE CONSTRUCTED WETLAND SHOULD BE EXCAVATED TO THE REQUIRED DEPTH BELOW THE DESIRED BOTTOM ELEVATION TO ACCOMMODATE THE SYNTHETIC LINER, ORGANIC MATTER, SUBSOIL AND PLANTING SOIL.
B. THE COMPACTION OF THE SUBGRADE AND/OR THE INSTALLATION OF THE SYNTHETIC LINER SHALL FOLLOW IMMEDIATELY.

2. SUBSOIL PREPARATION
A. SUBSOIL SHALL BE FREE FROM ANGULAR STONE, HARD CLODS, STIFF CLAY, HARDPAN, ASHES, SLAG, CONSTRUCTION DEBRIS, PETROLEUM HYDROCARBONS, OR OTHER UNDESIRABLE MATERIAL. SUBSOIL MUST NOT BE DELIVERED IN A FROZEN OR MUDDY STATE.
B. SCARIFY THE SUBSOIL TO A DEPTH OF 8 TO 10 INCHES WITH A DISK, ROTOTILLER, OR SIMILAR EQUIPMENT.
C. ROLL THE SUBSOIL UNDER OPTIMUM MOISTURE CONDITIONS TO A DENSE SEAL LAYER WITH FOUR TO SIX PASSES OF A SHEEPSFOOT ROLLER OR EQUIVALENT. THE COMPACTED SEAL LAYER SHALL BE AT LEAST 8 INCHES THICK.
D. SETTLEMENT OF SOIL SHOULD BE CONSIDERED WHEN ESTABLISHING THE FINISHED GRADE OF THE CONSTRUCTED WETLAND SURFACE.
E. ANY FILL SHOULD BE GENERALLY PLACED AT MOISTURE CONTENTS RANGING FROM ITS OPTIMUM UP TO THREE PERCENT HIGHER THAN ITS OPTIMUM MOISTURE CONTENT FOR COMPACTION. ANY MATERIALS WHICH ARE TOO MOIST TO BE COMPACTED TO A RELATIVE FIRM CONDITION, OR WHICH ARE NOT SUFFICIENT TO ALLOW PASSAGE OF EQUIPMENT WITHOUT DISTURBING OR RUTTING THE LINER SHOULD NOT BE USED.

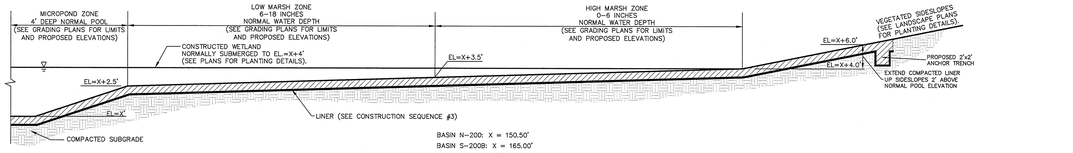
3. SYNTHETIC LINER
A. INSTALL SYNTHETIC LINER IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES
B. SYNTHETIC LINER SHALL BE FABRICATED FROM 30 MIL POLYVINYLCHLORIDE (PVC) AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ANY EXPOSED ANGULAR OR BROKEN STONES SHOULD BE REMOVED PRIOR TO PLACEMENT OF SYNTHETIC LINER TO PREVENT PUNCTURES. THE INSTALLED LINER SHALL BE COVERED WITH 9-12 INCHES OF SUBSOIL TO PREVENT THE ROOTS OF THE CONSTRUCTED WETLAND VEGETATION FROM PENETRATING THE LINER.
C. SETTLEMENT OF SOIL AND TOPSOIL SHOULD BE CONSIDERED WHEN ESTABLISHING THE FINISHED GRADE OF THE CONSTRUCTED WETLAND SURFACE.
D. PLACE A MINIMUM 9-12 INCHES OF SUBSOIL ON TOP OF SYNTHETIC LINER PRIOR AND IN ADDITION TO 12" OF PLANTING SOIL FOR A TOTAL DEPTH OF 21"-24" OF SOIL OVER THE LINER. REFER TO LANDSCAPE PLANS FOR SOIL PROFILE.
E. CARE SHOULD BE TAKEN TO CONTROL THE MATERIAL AT THE SOURCE AND LIMIT THE AMOUNT OF ROCK FRAGMENTS THAT MAY BE IN THE EXCAVATED CLAYEY SOILS. REMOVAL OF ROCKY MATERIALS FROM THE SUBGRADES MAY ALSO HAVE TO BE PREPARED PRIOR TO THE INSTALLATION OF THE LINER SO AS NOT TO IMPACT THE INTEGRITY OF THE LINER.
F. ANY FILL SHOULD BE GENERALLY PLACED AT MOISTURE CONTENTS RANGING FROM ITS OPTIMUM UP TO THREE PERCENT HIGHER THAN ITS OPTIMUM MOISTURE CONTENT FOR COMPACTION. ANY MATERIALS WHICH ARE TOO MOIST TO BE COMPACTED TO A RELATIVE FIRM CONDITION, OR WHICH ARE NOT SUFFICIENT TO ALLOW PASSAGE OF EQUIPMENT WITHOUT DISTURBING OR RUTTING THE LINER SHOULD NOT BE USED.

NOTE: INSTALLATION OF THE SYNTHETIC LINER SHALL INCLUDE ALL SUBGRADE PREPARATION, INSTALLATION, THERMAL WELDING/TESTING OF FIELD SEAMS ON 30 MIL PVC LINER, AND SEALING/ATTACHING TO ALL CONCRETE STRUCTURES.

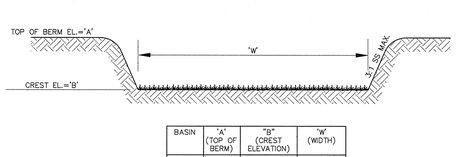
4. PLANTING SOIL (TOPSOIL)
A. USE A MINIMUM OF 12 INCHES OF TOPSOIL IN MARSH AREAS OF THE WETLAND. REFER TO LANDSCAPE PLANS FOR SOIL REQUIREMENTS.
B. IF PLANTING SOIL IS BEING IMPORTED, IT SHOULD BE MADE UP OF EQUIVALENT PROPORTIONS OF ORGANIC AND MINERAL MATERIALS.
C. LIME SHOULD NOT BE ADDED TO PLANTING SOIL UNLESS ABSOLUTELY NECESSARY AS IT MAY ENCOURAGE THE PROPAGATION OF INVASIVE SPECIES.
  1. IF LIME SUPPLEMENTS ARE ADDED TO ANY SOILS IN CONTACT WITH THE SYNTHETIC LINER, THEY MUST CONFORM TO THE FOLLOWING PARAMETERS: PVC GEO-MEMBRANE WILL BE COMPATIBLE WITH SOIL CONTAINING 3% LIME CONCENTRATION.
D. THE FINAL ELEVATIONS AND HYDROLOGY OF THE WETLAND ZONES SHOULD BE EVALUATED PRIOR TO PLANTING TO DETERMINE IF GRADING OR PLANTING CHANGES ARE REQUIRED.
E. SETTLEMENT OF SOIL AND TOPSOIL SHOULD BE CONSIDERED WHEN ESTABLISHING THE FINISHED GRADE OF THE CONSTRUCTED WETLAND SURFACE.
F. ANY FILL SHOULD BE GENERALLY PLACED AT MOISTURE CONTENTS RANGING FROM ITS OPTIMUM UP TO THREE PERCENT HIGHER THAN ITS OPTIMUM MOISTURE CONTENT FOR COMPACTION. ANY MATERIALS WHICH ARE TOO MOIST TO BE COMPACTED TO A RELATIVE FIRM CONDITION, OR WHICH ARE NOT SUFFICIENT TO ALLOW PASSAGE OF EQUIPMENT WITHOUT DISTURBING OR RUTTING THE LINER SHOULD NOT BE USED.

5. VEGETATION
A. THE CONSTRUCTED WETLAND SHALL BE PLANTED USING THE APPROPRIATE NATIVE SEED MIX (SEE LANDSCAPE PLANS). PLANTING MATERIALS SHALL BE REVIEWED AND APPROVED BY THE TOWNSHIP LANDSCAPE CONSULTANT PRIOR TO PLANTING.
B. ALL WETLAND PLANT STOCK SHALL EXHIBIT LIVE BUDS OR SHOOTS. ALL PLANT STOCK SHALL BE TURGID, FIRM, AND RESILIENT. INTERNODES OF RHIZOMES MAY BE FLEXIBLE AND NOT NECESSARILY RIGID. SOFT OR MUSHY STOCK SHALL BE REJECTED. THE STOCK SHALL BE FREE OF DELETERIOUS INSECT INFESTATION, DISEASE AND DEFECTS SUCH AS KNOTS, SUN-SCALD, INJURIES, ABRASIONS, OR DISFIGUREMENT THAT COULD ADVERSELY AFFECT THE SURVIVAL OR PERFORMANCE OF THE PLANTS.
C. ALL STOCK SHALL BE FREE FROM INVASIVE OR NUISANCE PLANTS OR SEED.
D. DURING ALL PHASES OF THE WORK, INCLUDING TRANSPORT AND ON-SITE HANDLING, THE PLANT MATERIALS SHALL BE CAREFULLY HANDLED AND PACKED TO PREVENT BRUISES AND DESICCATION. DURING TRANSIT AND ON-SITE HANDLING, THE PLANT MATERIAL SHALL BE KEPT FROM FREEZING AND SHALL BE KEPT COVERED, MOIST, COOL, OUT OF THE WEATHER, AND OUT OF THE WIND AND SUN. PLANTS SHALL BE WATERED TO MAINTAIN MOIST SOIL AND/OR PLANT CONDITIONS UNTIL ACCEPTED.
E. PLANTS NOT MEETING THESE SPECIFICATIONS OR DAMAGED DURING HANDLING, LOADING, AND UNLOADING WILL BE REJECTED. REFER TO PLANTING SPECIFICATIONS.

1. OUTLET CONTROL STRUCTURE
A. OUTLET CONTROL STRUCTURES SHALL BE CONSTRUCTED OF NON-CORRODIBLE MATERIAL.
B. OUTLETS SHALL BE RESISTANT TO CLOGGING BY DEBRIS, SEDIMENT, FLOATABLES, PLANT MATERIAL, OR ICE.
C. MATERIALS SHALL COMPLY WITH APPLICABLE SPECIFICATIONS.

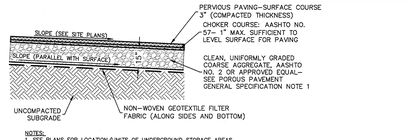


CONSTRUCTED WETLAND TYPICAL SECTION
NTS



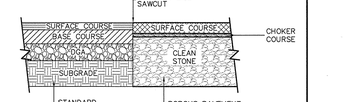
BASIN	'A' (TOP OF BERM)	'B' (CREST ELEVATION)	'W' (WIDTH)
N-100	92.50	90.90	150'
N-200	84.70	83.30	190'
N-300	92.50	90.90	150'
S-100	84.70	83.30	190'
S-200A	92.50	90.90	150'
S-200B	84.70	83.30	190'
S-300	92.50	90.90	150'

EMERGENCY SPILLWAY DETAIL
NTS



NOTES:
1. SEE PLANS FOR LOCATION/LIMITS OF UNDERGROUND STORAGE AREAS.
2. FINISHED GRADES AS INDICATED ON GRADING PLANS.
3. POROUS PAVEMENT CONSISTS OF A PERMEABLE SURFACE COURSE UNDERLAIN BY AN OPEN-GRADED STONE SUBBASE WHICH PROVIDES STORMWATER MANAGEMENT. THE SURFACE COURSE SHALL CONSIST OF A PERMEABLE ASPHALT OR PERMEABLE INTERLOCKING CONCRETE PAVERS.
4. CLEAN UNIFORMLY GRADED COARSE AGGREGATE SHALL NOT EXTEND UNDER PARKING LOT ISLANDS.
5. PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE PAVEMENT AND UNCOMPACTED SUBGRADE AREA INFILTRATION RATE SHALL BE TESTED IN AT LEAST THREE LOCATIONS TO ENSURE THAT IT IS TWICE THE DESIGN RATE REQUIRED FOR THAT AREA.

POROUS PAVEMENT SECTION DETAIL
NTS



NOTE:
AT THE TIME OF CONSTRUCTION, SAWCUT ALL TRANSVERSE JOINTS, REHEAT JOINT AND SEAL.

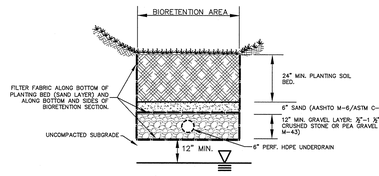
POROUS PAVEMENT KEY JOINT
NTS

POROUS PAVEMENT CONSTRUCTION SEQUENCE

1. THE POROUS PAVEMENT SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD, IF POSSIBLE.
2. THE EXCAVATION OF THE FINAL DESIGN ELEVATION OF THE STORAGE BED MAY ONLY OCCUR AFTER ALL CONSTRUCTION WITHIN ITS DRAINAGE AREA IS COMPLETED AND THE DRAINAGE AREA IS STABILIZED. IF CONSTRUCTION OF PERVIOUS PAVING SYSTEM CANNOT BE DELAYED, DURING ALL PHASES OF CONSTRUCTION ALL FLOWS MUST BE DIVERTED AWAY FROM THE PERVIOUS PAVING SYSTEM. THE DIVERSIONS MAY NOT BE REMOVED UNTIL ALL CONSTRUCTION WITHIN THE DRAINAGE AREA IS COMPLETED AND THE AREA STABILIZED.
3. THE EXISTING SUBGRADE UNDER THE STONE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT. CONTRACTOR TO UTILIZE LOW GROUND PRESSURE EQUIPMENT.
4. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE (OR EQUIVALENT) AND LIGHT TRACTOR. ALL FINE GRADING SHALL BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT A LEVEL GRADE UNLESS SPECIFIED OTHERWISE.
5. EARTHEN BERMS/TRAFFIC ISLANDS (WHERE APPLICABLE) BETWEEN STONE BED AREAS SHOULD BE LEFT IN PLACE DURING EXCAVATION. THESE BERMS DO NOT REQUIRE COMPACTION IF PROVEN STABLE DURING CONSTRUCTION.
6. GEOTEXTILE AND STONE BED AGGREGATE SHOULD BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION. GEOTEXTILE SHOULD BE PLACED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF GEOTEXTILE SHOULD OVERLAP A MINIMUM OF 16 IN. THE GEOTEXTILE SHOULD EXTEND AT LEAST 4 FEET OUTSIDE OF BED AND FOLDED BACK ALONG THE EDGES OF THE FINISHED BED TO PREVENT RUNOFF OR SEDIMENT FROM ENTERING THE STORAGE BED. THIS EDGE STRIP SHOULD REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO BEDS ARE STABILIZED AND VEGETATED. AS THE SITE IS FULLY STABILIZED, EXCESS GEOTEXTILE ALONG BED EDGES CAN BE CUT BACK TO BED EDGE.
7. CLEAN (WASHED) UNIFORMLY GRADED STONE AGGREGATE (AASHTO NO. 2) MUST BE PLACED IN LIFTS AND COMPACTED USING PLATE COMPACTORS ALONG CURB. THE MAXIMUM RECOMMENDED LOOSE LIFT THICKNESS IS 6-INCHES. WITH THE CONSTRUCTION EQUIPMENT KEPT OFF THE BED BOTTOM AS MUCH AS POSSIBLE. ONE PASS WITH VIBRATION IS ALLOWABLE (LOW AMPLITUDE, HIGH FREQUENCY) TO INTERLOCK AGGREGATES. CONTINUOUS VIBRATORY PASSES ARE NOT ALLOWED.
8. THE POROUS ASPHALT SHOULD BE PLACED DIRECTLY ON THE LEVELED STONE SUBBASE IN A SINGLE 4 INCH LIFT AND COMPACTED WITH ROLLERS SHALL BE OPERATED AT A SLOW, UNIFORM SPEED NOT EXCEEDING 2 1/2 MPH. IF NECESSARY TO PREVENT ADHESION OF THE POROUS ASPHALT TO THE ROLLERS, KEEP THE WHEELS MOISTENED WITH WATER MIXED WITH A VERY SMALL AMOUNT OF DETERGENT. STATIC ROLL ONLY.
9. FOLLOWING INSTALLATION OF THE POROUS ASPHALT SURFACE COURSE, THE FINISHED SURFACE SHOULD BE KEPT FREE OF TRAFFIC FOR AT LEAST 48 HOURS TO ALLOW FOR ADEQUATE CURING.
10. REMOVE AND REPLACE POROUS ASPHALT THAT BECOMES LOOSE, DAMAGE OR OTHERWISE DEFECTIVE.
11. THE PROPOSED POROUS PAVEMENT AREA OF THE SITE SHALL BE CORDONED OFF FROM HEAVY CONSTRUCTION EQUIPMENT AND THE STOCKPILING OF MATERIALS SHALL BE PROHIBITED.
12. DO NOT ALLOW TRAFFIC OR CONSTRUCTION EQUIPMENT ON THE POROUS ASPHALT UNTIL THE SURFACE TEMPERATURE IS LESS THAN 170°F.
13. POST-CONSTRUCTION TESTING OF THE PERMEABLE ASPHALT SURFACE COURSE IS REQUIRED AND MUST CONFORM TO THE METHODS OF EITHER ASTM C1701: STANDARD TEST METHOD FOR INFILTRATION RATE OF IN-PLACE PERVIOUS CONCRETE OR ASTM C1781: STANDARD TEST METHOD FOR SURFACE INFILTRATION RATE OF PERMEABLE UNIT PAVEMENT SYSTEMS. AT LEAST THREE LOCATIONS MUST BE USED FOR THE TEST, AND THEY SHOULD BE SPACED EVENLY ACROSS THE PERVIOUS PAVING SYSTEM. FAILURE TO ACHIEVE THE MINIMUM DESIGN INFILTRATION RATE OF THE SURFACE COURSE AT ONE OR MORE LOCATIONS INDICATE THE SYSTEM CANNOT BE PUT IN SERVICE UNTIL THE SYSTEM IS CORRECTED TO YIELD ALL PASSING VALUES. UNLIKE TEST METHODOLOGY OUTLINED IN THE ASTM STANDARDS, THE TEST RESULT MUST NOT AVERAGED. THE MAINTENANCE PLAN MUST INCLUDE A LOG FOR RECORDING EACH LOCATION AND ITS TEST RESULT FOR FUTURE REFERENCE. PER THE NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES MANUAL SECTION 9.7, FOR A SYSTEM DESIGNED FOR THE WATER QUALITY DESIGN STORM, THE MINIMUM TEST INFILTRATION RATE OF THE SURFACE COURSE IS 6.4 INCHES PER HOUR. SYSTEMS DESIGNED TO ADDRESS QUANTITY CONTROL MUST HAVE MINIMUM TESTED INFILTRATION RATE OF THE SURFACE COURSE OF 20 INCHES PER HOUR. CONTRACTOR TO BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH POROUS PAVEMENT TESTING AND TO NOTIFY AND COORDINATE WITH DESIGN ENGINEER 72 HOURS IN ADVANCE OF TESTING. ALL POST CONSTRUCTION PERMEABILITY TESTING MUST BE WITNESSED BY THE DESIGN ENGINEER.
14. THE PROPOSED AREA OF PERVIOUS PAVEMENT SYSTEM MUST BE KEPT FREE FROM SEDIMENT DURING THE ENTIRE CONSTRUCTION PROCESS. CONSTRUCTION MATERIALS CONTAMINATED BY SEDIMENTS MUST BE REMOVED AND REPLACED WITH CLEAN MATERIALS. THE CONTRIBUTING DRAINAGE AREA MUST BE COMPLETELY STABILIZED PRIOR TO PERVIOUS PAVING SYSTEM USE.

POROUS PAVEMENT GENERAL SPECIFICATIONS

1. STONE FOR INFILTRATION BEDS SHALL BE 2-INCH TO 1-INCH UNIFORMLY GRADED COARSE AGGREGATE, WITH A WASH LOSS OF NO MORE THAN 0.5%. AASHTO SIZE NUMBER 2 PER AASHTO SPECIFICATIONS OR APPROVED EQUIVALENT, PART I, 18TH ED., 1998, OR LATER AND SHALL HAVE VOIDS 40% AS MEASURED BY ASTM-C29. CHOKER BASE COURSE AGGREGATE FOR BEDS SMALL BE 3/8 INCH TO 3/4 INCH UNIFORMLY GRADED COARSE AGGREGATE AASHTO SIZE NUMBER 57 PER TABLE 4, AASHTO SPECIFICATIONS, PART I, 13TH ED., 1998 (P. 47).
2. NON-WOVEN GEOTEXTILE SHALL CONSIST OF NEEDLED NONWOVEN POLYPROPYLENE FIBERS AND MEET THE FOLLOWING PROPERTIES:
   A. GRAB TENSILE STRENGTH (ASTM-D4632) > 120 LBS
   B. MULLEN BURST STRENGTH (ASTM-D3786) > 225 PSI
   C. FLOW RATE (ASTM-D4491) > 95 GAL/MIN/FT SQ.
   D. UV RESISTANCE AFTER 500 HRS (ASTM-D4355) > 70%
   E. HEAT-SET OR HEAT-CALENDARED FABRICS ARE NOT PERMITTED.
3. ACCEPTABLE TYPES INCLUDE MIRAFI 140 N, GEOTEX 451, OR APPROVED OTHERS.
4. PIPE (WHERE APPLICABLE) SHALL BE CONTINUOUSLY PERFORATED, SMOOTH INTERIOR, WITH A MINIMUM INSIDE DIAMETER OF 6-INCHES. HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL MEET AASHTO M252, TYPE S OR AASHTO M294, TYPE S.
5. STORM DRAIN INLETS AND STRUCTURES
   A. CONCRETE CONSTRUCTION: CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT NJDOT SPECIFICATIONS.
   B. PRECAST CONCRETE INLETS AND MANHOLES: PRECAST CONCRETE INLETS MAY BE SUBSTITUTED FOR CAST-IN-PLACE STRUCTURES AND SHALL BE CONSTRUCTED AS SPECIFIED FOR CAST-IN-PLACE.
   C. ALL PVC CATCH BASINS/CLEANOUTS/INLINE DRAINS SHALL HAVE H-20 RATED GRATES.
   D. STEEL REINFORCING BARS OVER THE TOP OF THE OUTLET STRUCTURE, WHERE SPECIFIED, SHALL CONFORM TO ASTM A615, GRADES 60 AND 40.
6. PERVIOUS BITUMINOUS ASPHALT
   BITUMINOUS SURFACE COURSE FOR PERVIOUS PAVING SHOULD BE THREE (3) INCHES THICK (COMPACTED THICKNESS) WITH A BITUMINOUS MIX OF 5.75% TO 6.75% BY WEIGHT DRY AGGREGATE. IN ACCORDANCE WITH ASTM D6390, DRAIN DOWN OF THE BINDER SHALL BE NO GREATER THAN 0.3%. IF MORE ABSORPTIVE AGGREGATES, SUCH AS LIMESTONE, ARE USED IN THE MIX, THEN THE AMOUNT OF BITUMEN IS TO BE BASED ON THE TESTING PROCEDURES OUTLINED IN THE NATIONAL ASPHALT PAVEMENT ASSOCIATION'S INFORMATION SERIES 131 - "PERVIOUS ASPHALT PAVEMENTS" (2003) OR NJDOT EQUIVALENT.
7. USE NEAT ASPHALT BINDER MODIFIED WITH AN ELASTOMERIC POLYMER TO PRODUCE A BINDER MEETING THE REQUIREMENTS OF PG 64E-22 AS SPECIFIED IN AASHTO MP-1. THE ELASTOMERIC POLYMER SHALL BE STYRENE-BUTADIENE-STYRENE (SBS), OR APPROVED EQUAL, APPLIED AT A RATE OF 3% BY WEIGHT OF THE TOTAL BINDER. THE COMPOSITE MATERIALS SHALL BE THOROUGHLY BLENDED AT THE ASPHALT REFINERY OR TERMINAL PRIOR TO BEING LOADED INTO THE TRANSPORT VEHICLE. THE POLYMER MODIFIED ASPHALT BINDER SHALL BE HEAT AND STORAGE STABLE. FOR PARKING LOTS, POLYMER MODIFIED BINDER PG 64E-22 MUST BE SPECIFIED AS IT HAS BEEN SHOWN TO MINIMIZE SCUFFING CAUSED BY AUTOMOBILES WITH POWER STEERING.
8. AGGREGATE SHALL BE MINIMUM 90% CRUSHED MATERIAL AND HAVE A GRADATION OF:
   U.S. STANDARD SIEVE SIZE PERCENT PASSING 1/2 (12.5 MM) 100% 3/8 (9.5 MM)80%-100% 4 (4.75 MM)30%-50% 8 (2.36 MM)5%-15% 16 (1.18 MM)7%-13% 30 (0.60 MM)0%-4% 200 (0.075 MM) 2%-5%. ADD HYDRATED LIME AT A DOSAGE RATE OF 1.0% BY WEIGHT OF THE TOTAL DRY AGGREGATE TO MIXES CONTAINING GRANITE. HYDRATED LIME SHALL MEET THE REQUIREMENTS OF ASTM C 977. THE ADDITIVE MUST BE ABLE TO PREVENT THE SEPARATION OF THE ASPHALT BINDER FROM THE AGGREGATE AND ACHIEVE A REQUIRED TENSILE STRENGTH RATIO (TSR) OF AT LEAST 80% ON THE ASPHALT MIX WHEN TESTED IN ACCORDANCE WITH ASTM D-1664. IF THE ESTIMATED COATING AREA IS NOT ABOVE 95%, ANTI-STRIPPING AGENTS SHALL BE ADDED TO THE ASPHALT.
9. THE POROSITY OF THE PERMEABLE ASPHALT SURFACE COURSE MUST BE 15%-25% THE POROSITY OF ANY PERMEABLE BASE COURSE MUST BE ≥25%.
10. INSTALLATION OF PERMEABLE ASPHALT REQUIRES DIFFERENT TEMPERATURE GUIDELINES, AS FOLLOWS, THAN THAT THOSE OF IMPERVIOUS ASPHALT:
   A. ASPHALT BASE COURSE: 200° - 245°F
   B. FINISH ROLLING BASE COURSE: 140° - 150°F
   C. ASPHALT SURFACE COURSE: 200° - 220°F
   D. FINISH ROLLING SURFACE COURSE: 110° - 140°F
11. CONSTRUCTION MAY NOT TAKE PLACE DURING RAIN OR SNOW, NOR WHEN THE SUBSOIL IS FROZEN. FROZEN AGGREGATE MATERIALS MAY NOT BE INSTALLED. THE MINIMUM AIR TEMPERATURE FOR PAVING IS 50 DEGREES FAHRENHEIT.
12. SEALANT, PRIME COAT AND OTHER TREATMENTS THAT COULD REDUCE THE RATE OF INFILTRATION MAY NOT BE APPLIED TO THE SURFACE COURSE.
13. AFTER INSTALLATION, MEASURES MUST BE TAKEN TO ENSURE THE SURFACE COURSE DOES NOT BECOME CLOGGED UNTIL ALL ASPECTS OF THE PROJECT ARE COMPLETED.



BIORETENTION BASIN TYPICAL SECTION (BASINS N-100 AND S-100)
NTS

NOTES:
1. PLANTING BED DESIGNED TO DRAIN BASIN WITHIN 72 HOURS, INHIBITING THE POTENTIAL FOR MOSQUITO BREEDING.
2. SEE LANDSCAPE PLANS FOR BIORETENTION PLANTING DETAILS.
3. TESTING AND CERTIFICATION OF ALL SAND IS REQUIRED PRIOR TO INSTALLATION.
4. CONSTRUCTION EQUIPMENT MUST KEPT OFF BIORETENTION BASINS.
5. PREVENT ANY DEBRIS/SILT FROM ENTERING THE BASINS ONCE CONSTRUCTED.

SEED MIX SCHEDULE

Rain Garden Bottom	Seed with Rain Garden Mix: ERNMX-180 at 20 lbs/acre, by Ernst Conservation Seeds 814-336-240
	Seed with Rain Garden Grass Mix: ERNMX-180-1 at 15 lbs/acre with cover crop of grain rye at 30 lb/acre, by Ernst Conservation Seeds 814-336-240
Rain Garden Side Slopes	Plant with drought tolerant, low maintenance, National Seed Company Mix #25217 or approved equal at 6 lb/1000 sf of 40% creeping red fescue, 15% Bargena red fescue, 30% accent perennial rye grass, 15% Kenblue Kentucky bluegrass

BIORETENTION SPECIFICATION

A. GENERAL
THIS SUPPLEMENTAL SPECIFICATION IS PROVIDED TO SPECIFY THE METHODS OF CONSTRUCTION OF BIO-RETENTION SYSTEMS. UNLESS OTHERWISE STATED HEREIN, ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS PROVIDED ELSEWHERE HEREIN AND IN THE STANDARD SPECIFICATION FOR THE INDIVIDUAL ITEMS WHICH COLLECTIVELY MAKE UP THE BIO-RETENTION SYSTEMS. MEASUREMENT FOR COMPENSATION SHALL BE BASED UPON FIELD MEASUREMENT OF THE CONTRACT ITEMS.

B. GRAVEL LAYER AND UNDERDRAIN
THE GRAVEL LAYER SERVES AS A BEDDING MATERIAL AND A CONVEYANCE MEDIUM FOR THE UNDERDRAIN PIPES. IT MUST HAVE SUFFICIENT THICKNESS TO PROVIDE A MINIMUM OF 3 INCHES OF GRAVEL ABOVE AND BELOW THE PIPES. IT SHOULD CONSIST OF 0.5 TO 1.5 INCH CLEAN BROKEN STONE OR PEA GRAVEL (AASHTO M-43).

THE UNDERDRAIN PIPING MUST BE SCHEDULE 40 PVC PIPE (AASHTO M-278). FLEXIBLE ADS PIPE OR APPROVED EQUAL. THE PORTION OF DRAIN PIPING BENEATH THE PLANTING SOIL BED AND SAND LAYER MUST BE PERFORATED. ALL REMAINING UNDERDRAIN PIPING, INCLUDING CLEANOUTS, MUST BE NON-PERFORATED. ALL JOINTS MUST BE SEALED AND WATERTIGHT. CLEANOUTS MUST BE LOCATED AS SPECIFIED ON THE PLANS AND EXTEND TO OR ABOVE THE SURFACE OF THE PLANTING SOIL BED. CLEANOUTS CAN ALSO SERVE TO DRAIN STANDING WATER STORED ABOVE CLOGGED OR MALFUNCTIONING PLANTING SOIL BEDS.

THE UNDERDRAIN PIPING MAY CONNECT TO THE BASIN OUTLET STRUCTURE. BLIND CONNECTIONS TO DOWNSTREAM STORM SEWERS ARE PROHIBITED.

C. SAND LAYER
THE SAND LAYER SERVES AS A TRANSITION BETWEEN THE PLANTING SOIL BED AND THE GRAVEL LAYER AND UNDERDRAIN PIPES. IT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND CONSIST OF CLEAN MEDIUM AGGREGATE CONCRETE SAND (AASHTO M-6/ASTM C-33). TO ENSURE PROPER SYSTEM OPERATION, THE SAND LAYER MUST HAVE A PERMEABILITY RATE AT LEAST TWICE AS FAST AS THE PERMEABILITY RATE OF THE PLANTING SOIL BED.

D. PLANTING SOIL
THE PLANTING SOIL IS A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIO-RETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

BIO-RETENTION PLANTING SOIL MIX
(PERCENTAGE MIX BY WEIGHT)

FINE/VERY FINE SANDS	0.0 - 23.0%
GRANULAR SANDS	59.3 - 92.2%
CLAY	1.9 - 4.8%
SILT	2.9 - 12.6%
ORGANICS	3.0 - 7.0%
PH LEVEL	5.5 - 6.5
SOLUBLE SALTS	< 500 PPM

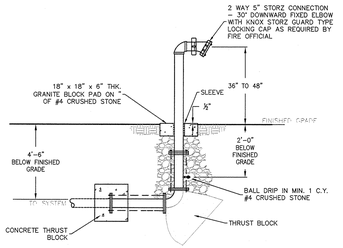
ALL BIO-RETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST PER 10,000 SF OF PLANTING SOIL AREA. PRIOR TO INSTALLATION EACH TEST SHALL CONSIST OF THE STANDARD SOIL TEST FOR PH, GRADATION AND ADDITIONAL TESTS OF ORGANIC MATTER, SOLUBLE SALTS, AND PERMEABILITY. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THE A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.

SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL OVER THE GRADATION ZONE TO FINAL GRADE.

WHEN BACKFILLING THE BIO-RETENT

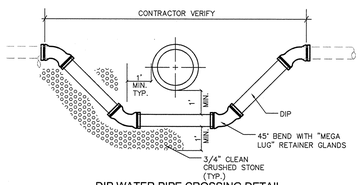


NOTES:
1. PROVIDE CHECK VALVE INSIDE BUILDING – COORDINATE WITH BUILDING UTILITY PLANS
2. ALL PIPING SHALL BE EXTERNALLY COATED AND WRAPPED PER NFPA24.
3. ALL EXPOSED PIPING SHALL BE FLANGED/GALVANIZED THREADED PIPE – COORDINATE SIZE WITH MECHANICAL PLANS.
4. PROVIDE FDC IDENTIFICATION SIGNAGE PER FIRE OFFICIAL'S REQUIREMENTS.
5. FDC MUST BE SUBMITTED FOR REVIEW AND COMMENTS TO FIRE OFFICIAL & OWNER PRIOR TO PLACING ORDER FOR MATERIALS.
6. FDC MUST BE FM APPROVED & UL LISTED.
7. ENTIRE INSTALLATION SHALL COMPLY WITH NFPA13 AND/OR NFPA24 AS REQUIRED BY JURISDICTIONAL AUTHORITIES/OWNER.
8. 8" FDC SHALL BE 2 WAY 5" STORZ CONNECTIONS WITH 30 DEGREE DOWNWARD DEFLECTION AND KNOX LOCKING CAP.
9. NO SHRUBS OR TREES SHALL BE PLACED WITHIN 2FEET ON EITHER SIDE OF THE FDC.

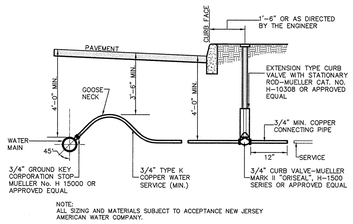
FIRE DEPARTMENT CONNECTION DETAIL (STORZ TYPE)
NTS

NOTE:
THE FDC SIGN LETTERING SHALL BE RED REFLECTIVE LETTERING, AT LEAST 2" HIGH PLACED ON A REFLECTIVE WHITE BACKGROUND AND INDICATE THE BUILDING IT PROVIDES COVERAGE/PROTECTION FOR.

FIRE DEPARTMENT CONNECTION (FDC) SIGN DETAIL
NTS

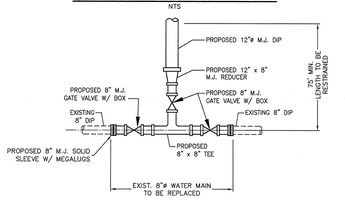


DIP WATER PIPE CROSSING DETAIL
(F/AS REQUIRED)
NTS

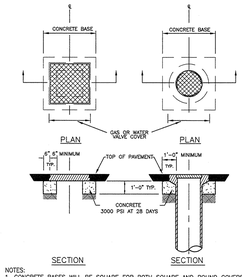


NOTE:
ALL SIZING AND MATERIALS SUBJECT TO ACCEPTANCE NEW JERSEY AMERICAN WATER COMPANY.

WATER SERVICE CONNECTION DETAIL
NTS



WATER MAIN CONNECTION DETAIL
NTS



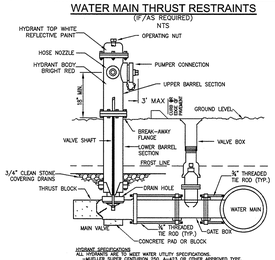
NOTES:
1. CONCRETE BASES WILL BE SQUARE FOR BOTH SQUARE AND ROUND COVERS.
2. PROVIDE TEMPORARY BITUMINOUS CONCRETE RAMP (1.5" WIDTH PER 1" OF LIP).
3. UTILITY BOXES ARE TO BE RESET AFTER THE CONSTRUCTION OF THE STABILIZED BASE COURSE.
4. RISER INSERTS WILL NOT BE PERMITTED IN SETTING THE UTILITY BOXES TO GRADE.

GAS VALVES, WATER VALVES & UTILITY COVER MOUNTING DETAIL
NTS

MINIMUM LENGTH OF WATER MAIN TO BE RESTRAINED, FEET*					
PIPE DIA.	TYPE OF BEND	DEPTH OF BURY, FEET			
		2–4	4–6	6–8	8–10
6"	90°	40	22	15	11
	45°	17	9	6	5
	22–1/2°	8	8	3	3
	11–1/4°	4	3	2	2
	TEE–BRANCH RUN	30/10	5/10	1/10	1/10
	DEAD END	72	38	26	20
8"	90°	52	28	19	15
	45°	22	12	8	6
	22–1/2°	11	6	3	3
	11–1/4°	6	3	2	2
	TEE–BRANCH RUN	56/10	16/10	1/10	1/10
	DEAD END	94	50	35	26
10"	90°	61	33	23	18
	45°	26	14	10	8
	22–1/2°	13	7	5	4
	11–1/4°	6	4	2	2
	TEE–BRANCH RUN	72/10	25/10	7/10	1/10
	DEAD END	111	60	42	32
12"	90°	68	37	26	20
	45°	28	16	11	9
	22–1/2°	14	8	6	4
	11–1/4°	7	4	3	3
	TEE–BRANCH RUN	90/10	35/10	15/10	4/10
	DEAD END	123	67	46	35

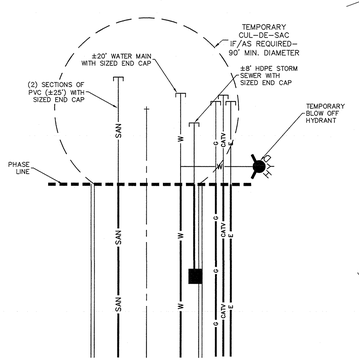
*LENGTH OF PIPE TO BE RESTRAINED ON EACH SIDE OF FITTING. PRESSURE NOT EXCEEDING 200 P.S.I.

WATER MAIN THRUST RESTRAINTS
(F/AS REQUIRED)
NTS

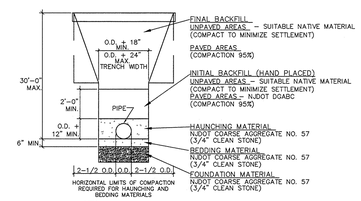


HYDRANT SPECIFICATIONS
ALL HYDRANTS ARE TO MEET WATER UTILITY SPECIFICATIONS.
–MUELLER MODEL A-423 CENTURION 250, A-423 OR OTHER APPROVED TYPE.
–AWWA C502 REVISIONS.
–5 1/4" VALVE OPENING
–2-2 1/2" HOSE CONNECTIONS (7 THREADS PER INCH. PITCH 2.96-2.98)
–1-4 1/2" I.D. PUMPER CONNECTION (NATIONAL STANDARD THREAD N.S.T.)
–BREAKABLE SAFETY FLANGE & COUPLING

FIRE HYDRANT DETAIL
NTS

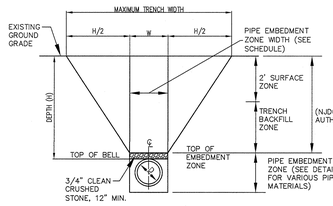


ROAD END AND UTILITY HANDLING AT PHASING LIMITS DETAIL
NTS



NOTES:
1) WHERE MOVABLE TRENCH SUPPORTS OR SHEETING EXTENDS BELOW THE TOP OF THE PIPE AND/OR HORIZONTALLY WITHIN 2–1/2 DIAMETERS OF THE PIPE ON EITHER SIDE, THE ENTIRE TRENCH WIDTH TO 2' OVER THE PIPE SHALL BE COMPACTED TO THE REQUIRED DENSITY AFTER REMOVAL OF ALL THE SUPPORTS.
2) THE MAXIMUM ALLOWABLE PIPE DEFLECTION (REDUCTION IN VERTICAL INSIDE DIAMETER) SHALL BE 5% OF THE PIPE BASE INSIDE DIAMETER.

PVC/DIP TRENCH DETAIL
NTS



PIPE EMBEDMENT ZONE WIDTH SCHEDULE

INSIDE DIA. OF PIPE (D)	4", 6", 8", 10", 12"	15"	18"	21"	24"	27"
EMBEDMENT ZONE WIDTH (W)	3'–0"	3'–6"	3'–6"	4'–0"	4'–0"	4'–6"

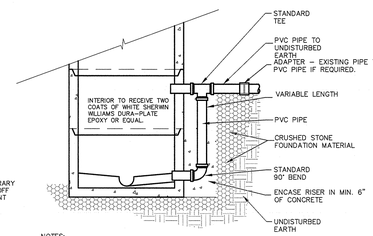
NOTES:
1. THE MAXIMUM DRY DENSITIES SHALL BE DETERMINED IN ACCORDANCE WITH ASTM DESIGNATION D1557. THE MINIMUM PERCENTAGE OF COMPACTION TO BE ACHIEVED BY THE CONTRACTOR IN THE VARIOUS ZONES IS AS FOLLOWS:

	PIPE MATERIAL	LOCATION	INTIAL COMPACTION
	ALL	ALL	
SURFACE ZONE:			95%
TRENCH BACKFILL ZONE:			90%
PIPE EMBEDMENT ZONE:			95%

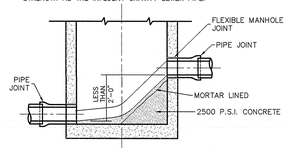
THE MINIMUM COMPACTION IN EMBANKMENTS SHALL BE 90%

2. THE PIPE EMBEDMENT ZONE WIDTH AND THE MAXIMUM TRENCH WIDTH SHALL NOT EXCEED THE PERMISSIBLE WIDTHS SHOWN. IF THE PERMISSIBLE WIDTH IS EXCEEDED, THE PIPE SHALL BE INSTALLED IN A HIGHER CLASS BEDDING THAN SHOWN ON THE DRAWINGS OR THE SPECIFIED PIPE SHALL BE REPLACED WITH PIPE OF GREATER CRUSHING STRENGTH OR BOTH, TO ACHIEVE SUITABLE CONDITIONS.
3. SUITABLE MATERIAL FROM EXCAVATIONS SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF ORGANIC MATTER, CLAYS, TREES, STUMPS, FROZEN MATERIAL, RUBBLE, REFUSE, CINDERS, ROCK AND OTHER MATERIALS CONSIDERED DELETERIOUS BY THE AUTHORITY AND SHALL NOT HAVE FINES IN EXCESS OF 10 PERCENT PASSING THE NO. 200 SIEVE NOR STONE OR GRAVEL LARGER THAN 2 INCHES.
4. FOR PIPE MATERIAL OTHER THAN PVC, PIPE EMBEDMENT ZONE MAY BE INCREASED BY 6 INCHES.

SANITARY PIPE EMBEDMENT DETAIL
NTS

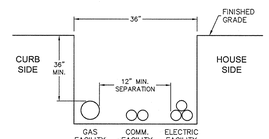


NOTES:
1. DROP FITTINGS SHALL BE OF THE SAME MATERIAL & CRUSHING STRENGTH AS THE INFLUENT GRAVITY SEWER PIPE.

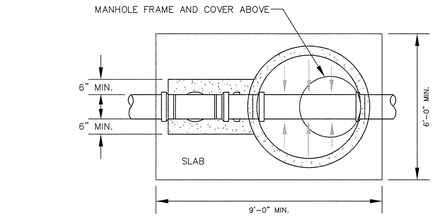


NOTE: MANHOLE CHUTE IS TO BE USED WHERE DIFFERENCE IN INVERT ELEVATIONS BETWEEN INCOMING PIPE AND OUTGOING PIPE IS LESS THAN 2'–0". IF THE DIFFERENCE IS 2'–0" OR GREATER, THEN DROP CONNECTION SHALL BE MADE AS SHOWN IN DETAIL ON THIS SHEET. CHANNELING SHALL BE DONE AS SHOWN IN DETAIL ON THIS SHEET.

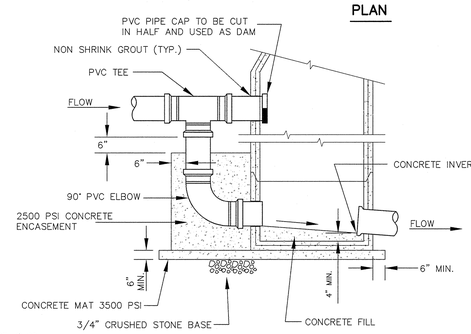
SANITARY SEWER MANHOLE CHUTE DETAIL
NTS



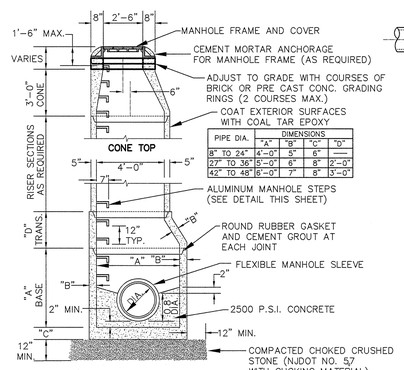
GAS / CATV/ TELECOM/ ELECTRIC TYPICAL TRENCH DETAIL
NTS



PLAN



SANITARY DROP MANHOLE DETAILS
NTS



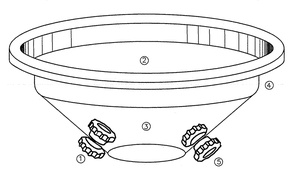
PIPE DIA.	DIMENSIONS "A"	"B"	"C"	"D"
8" TO 24"	4'–0"	5"	6"	—
27" TO 36"	5'–0"	6"	8"	2'–0"
42" TO 48"	6'–0"	7"	8"	3'–0"

GENERAL NOTES:
1. SHORTS SHALL BE USED AT MANHOLES.
2. EXTERIOR SURFACES SHALL BE PAINTED WITH TWO COATS OF BITUMINOUS WATERPROOFING MATERIAL.
3. ALL CONSTRUCTION SHALL MEET STANDARD SPECIFICATIONS; THE LATEST REVISIONS.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARD, WHERE POSSIBLE.

PRE CAST CONCRETE MANHOLE (ASTMC–478)
1. WHERE 5" AND 6" I.D. BASES ARE USED A TAPER SECTION CONNECTING BASE SECTION AND RISER SHALL BE REQUIRED AND SHALL HAVE A THICKNESS AS SHOWN. THE BASE SECTION AND RISER ALLOW FOR AT LEAST 6 FOOT MINIMUM VERTICAL CLEARANCE WHERE POSSIBLE.
2. BASES TO BE AS SHOWN IN THE SCHEDULE.

WORK AT EXISTING MANHOLES (IF/AS REQUIRED)
1. THE CONTRACTOR SHALL CUT INTO THE MANHOLE AND COMPLETE A CONNECTION USING A SUITABLE ADAPTER AS REQUIRED AND APPROVED BY THE AUTHORITY.
2. THE CONTRACTOR SHALL NOT INTERFERE WITH EXISTING SEWERAGE SERVICE DURING THE PERIOD OF CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO KEEP DEBRIS OUT OF MANHOLES

SANITARY SEWER MANHOLE DETAIL
NTS

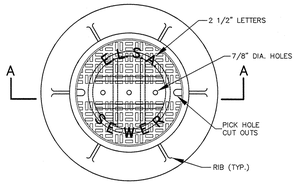


1. THE SPRING LOADED GAS RELIEF VALVE IS DESIGNED TO RELIEVE THE GAS PRESSURE BUILD–UP. THE VALVE IS AUTOMATICALLY ACTIVATED WHEN THE GAS PRESSURE DIFFERENTIAL IN THE MANHOLE REACHES APPROXIMATELY ½ PSI. THIS PREVENTS DANGEROUS ACCUMULATION OF SEWER GASES BY VENTING THEM THROUGH THE WATER, SAND AND DEBRIS COLLECTED IN THE INSERT.
2. SEWER GUARD'S BOWL SHAPE IS SPECIALLY DESIGNED TO PROTECT THE INSERT VALVES WHEN THE MANHOLE COVER IS REMOVED. IN ADDITION, THE SHAPE ALSO TRAPS AND HOLDS DIRT AND DEBRIS.
3. MADE OF SPECIALLY FORMULATED PLASTIC POLYMERS, THE INSERT WILL NOT CORRODE, AND CANNOT BE DAMAGED BY SEWER GASES OR ROAD OILS.
4. THE CLOSED–CELL CROSSLINKED POLYETHYLENE GASKET, HEATWELDED UNDER THE LIP, CONFORMS TO IRREGULARITIES IN THE FRAME, AND FORMS A TIGHT, VIRTUALLY LEAK PROOF SEAL.
5. THE SPRING–LOADED VACUUM RELIEF VALVE RELIEVES VACUUM PRESSURE BUILD–UP. THIS VALVE IS ACTIVATED WHEN THE VACUUM PRESSURE DIFFERENTIAL REACHES APPROXIMATELY 2.25 PSI.

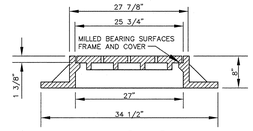
BOTH VALVES (1 AND 5) ARE SELF–CLEANING, AND ARE MADE OF NON–CORRODIBLE MATERIAL. THEY ARE ALSO INTENDED TO BE USED AS HANDLES FOR REMOVING THE INSERT.

NOTE: INSERT TO BE PRECO'S SEWER GUARD, PRECO INDUSTRIES. LTD, 55 SKYLINE DR., PLAINVIEW, N.Y. (OR APPROVED EQUAL) INSERT TO BE INSTALLED ON ALL EXISTING AND PROPOSED SANITARY MANHOLES.

SANITARY MANHOLE WATERTIGHT INSERT DETAIL
NTS



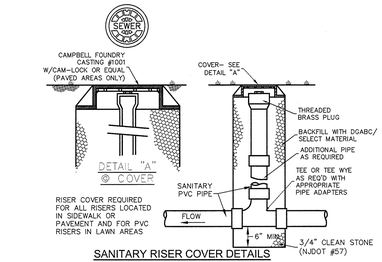
PLAN VIEW OF FRAME & COVER
MANHOLE FRAME AND COVER SHOWN ARE CIRCULAR AS MANUFACTURED BY CAMPBELL FOUNDRY CAT. No. 1009



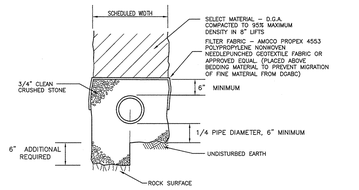
SECTION "A – A" (FRAME AND COVER)

STANDARD CAST IRON MANHOLE FRAME AND COVER
NOTE: PRIVATE SEWERS SHALL NOT HAVE THE NAME "ELSA" ON THE COVER

SANITARY MANHOLE FRAME & COVER DETAILS
NTS

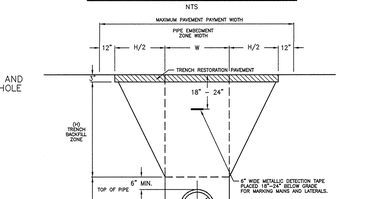


SANITARY RISER COVER DETAILS
NTS



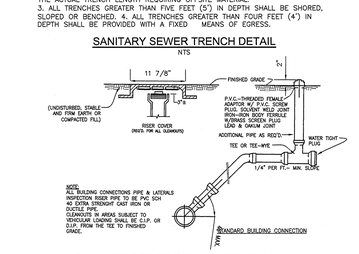
TRENCH WIDTH SCHEDULE											
PIPE DIAMETER	4", 6", 8", 10", 12"	15"	18"	21"	24"	27"	30"	36"	42"	48"
TRENCH WIDTH	3'–0"	3'–6"	3'–6"	4'–0"	4'–0"	4'–6"	4'–6"	5'–6"	6'–6"	

SANITARY SEWER EMBEDMENT DETAIL
NTS

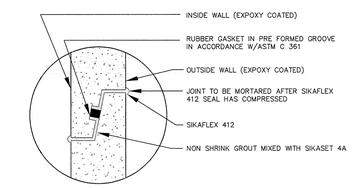


1. THE PAY LIMITS FOR WIDTH OF ROADWAY PAVEMENT MATERIAL SHALL BE THE DISTURBED WIDTH PLUS TWO (2) FEET TO A MAXIMUM LIMIT OF W+H+2.
2. THE MAXIMUM PAY LIMIT FOR OFFSITE SUITABLE OR SELECT MATERIAL SHALL BE THE ACTUAL AREA OF THE TRAPAZOIDAL SECTION SHOWN ON THE DETAIL. THE VOLUME FORMULA THERFORE SHALL BE: (H/2×W)×H×L, WHERE "L" EQUALS THE ACTUAL TRENCH LENGTH REQUIRING OFFSITE MATERIAL.
3. ALL TRENCHES GREATER THAN FIVE FEET (5') IN DEPTH SHALL BE SHORED, SLOPED OR BENCHED. 4. ALL TRENCHES GREATER THAN FOUR FEET (4') IN DEPTH SHALL BE PROVIDED WITH A FIXED MEANS OF EGRESS.

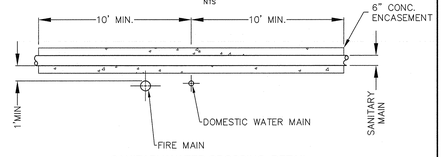
SANITARY SEWER TRENCH DETAIL
NTS



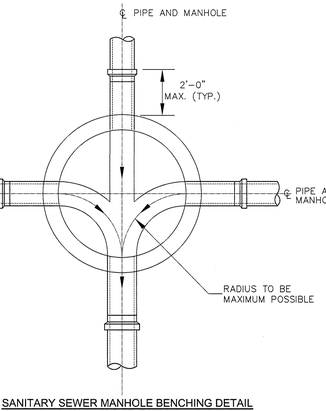
SANITARY SEWER CONNECTION DETAILS
NTS



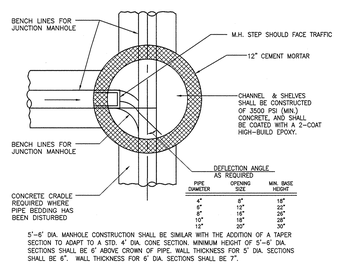
SANITARY MANHOLE JOINT TYPICAL DETAILS
NTS



SANITARY/WATER CROSSING DETAIL
NTS



SANITARY SEWER MANHOLE BENCHING DETAIL
NTS

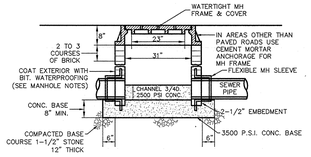


DEFLECTION ANGLE AS REQUIRED

PIPE DIAMETER	OPENING SIZE	MIN. BASE HEIGHT
4"	8"	18"
6"	12"	20"
8"	16"	24"
10"	18"	26"
12"	20"	30"

5'–6" DIA. MANHOLE CONSTRUCTION SHALL BE SIMILAR WITH THE ADDITION OF A TAPER SECTION TO ADAPT TO A STD. 4' DIA. CONE SECTION. MINIMUM HEIGHT OF 5'–6" DIA. SECTIONS SHALL BE 6' ABOVE CROWN OF PIPE. WALL THICKNESS FOR 5' DIA. SECTIONS SHALL BE 6". WALL THICKNESS FOR 6' DIA. SECTIONS SHALL BE 7".

SANITARY SEWER MANHOLE BASE DETAIL
NTS



NOTES:
1. SHALLOW MH (CIRCULAR) TO BE USED AT LOCATIONS WHERE DISTANCE FROM FINISHED GRADE TO PIPE INVERT IS 3'–0" OR LESS.
2. FOR DEPTHS 3'–0" AND LESS, MEASURED FROM THE TOP OF THE PIPE, CONTRACTOR SHALL INSTALL DUCTILE IRON PIPE, CLASS 54 UNDER TRAFFIC AREAS.

SANITARY SEWER SHALLOW MANHOLE DETAIL
NTS

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
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211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2800
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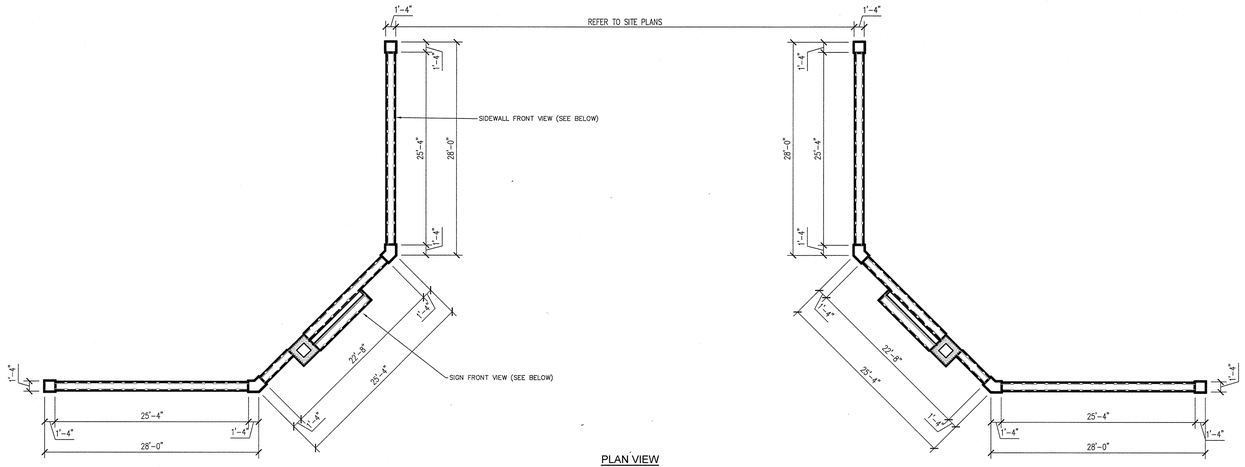
CONSTRUCTION DETAILS–5
OF
NORTH AND SOUTH SECTIONS
HOPEWELL PARC
ON
BLOCK 93, LOTS 5.01, 5.02, AND 6.02
SITUATED IN
HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE: AS SHOWN — DECEMBER 16, 2020

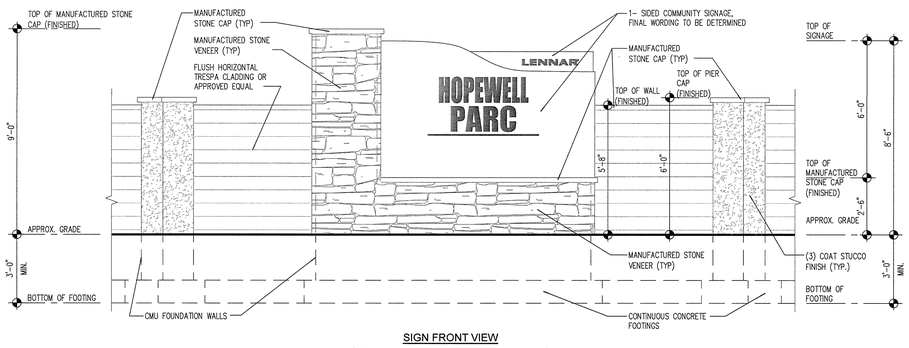
DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051– 410–21	FILE No. 203–A–1 203–B–1	SHEET No. CE-106
CHECKED BY BRP DATE 12/16/20	PAGE			

N:\P\45051\DWG\45051–DTLS.DWG

N:\P\45051\dwg\45051-DTLS.dwg, DET-5, 12/16/2020 5:50:23 AM, ccabalero

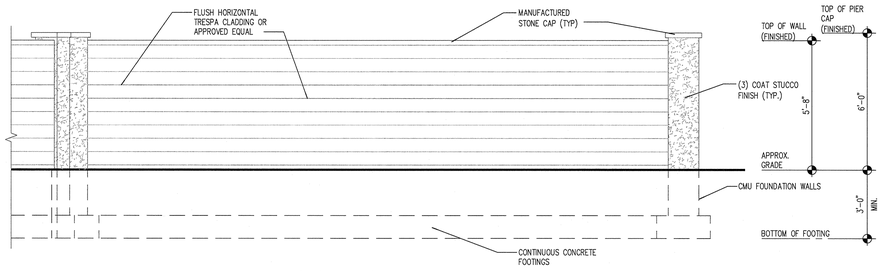


PLAN VIEW



SIGN FRONT VIEW

(LEFT SIDE SHOWN, MIRRORED DIMENSIONS FOR RIGHT SIDE)



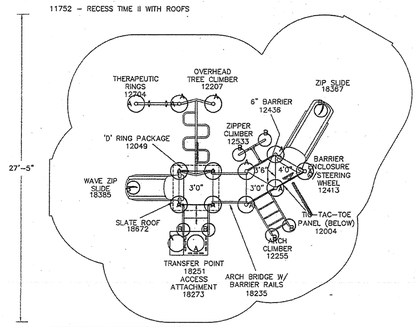
SIDEWALL FRONT VIEW

(REAR LEFT SIDE SHOWN, MIRRORED DIMENSIONS FOR FRONT AND RIGHT SIDES)

NOTES:
1. FINAL SIGN MESSAGE TO BE DETERMINED.

MONUMENT SIGN DETAIL

NTS



THIS DRAWING CANNOT BE ALTERED IN ANY WAY. IF CHANGES ARE REQUIRED PLEASE CONTACT YOUR GAMETIME REPRESENTATIVE @ 1-800-235-2440.

FOOTINGS TABLE					
TYPE	DIAMETER/SIDE		DEPTH		QTY.
A	1'-6"	(45.72cm)	2'-6"	(76.20cm)	14
B	1'-2"	(35.56cm)	2'-6"	(76.20cm)	8

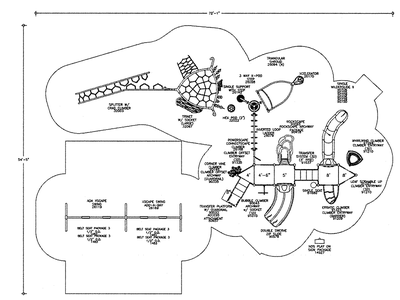
NOTE:
ON NON-LETTERED HOLES, TO ENSURE CONCRETE REQUIREMENTS PLEASE REFER TO EACH COMPONENTS INSTALLATION SHEETS.

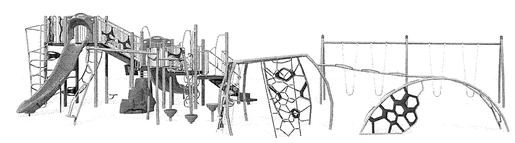
PLAN VIEW

NOTES:
1. PLAYGROUND EQUIPMENT "RECESS TIME II WITH ROOFS" MODEL NO. 11752 BY GAME TIME, FORT PAYNE, AL OR APPROVED EQUAL AS APPROVED BY OWNER.
2. PLAYGROUND SURFACE COMPLYING WITH ALL APPLICABLE CODES SHALL BE REQUIRED.

TOT LOT PLAYGROUND EQUIPMENT DETAIL

NTS

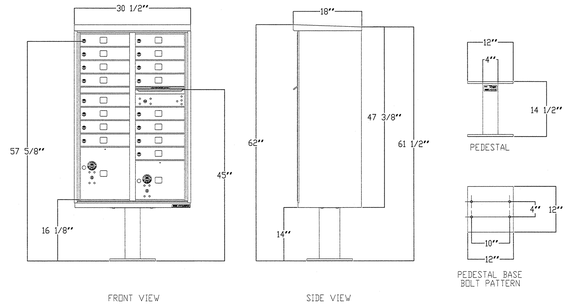




NOTES:
1. PLAYGROUND EQUIPMENT "SIRIUS" MODEL NO. PS20202 BY GAME TIME, FORT PAYNE, AL OR APPROVED EQUAL AS APPROVED BY OWNER.
2. PLAYGROUND SURFACE COMPLYING WITH ALL APPLICABLE CODES SHALL BE REQUIRED.

5-12 AGES PLAYGROUND EQUIPMENT DETAIL

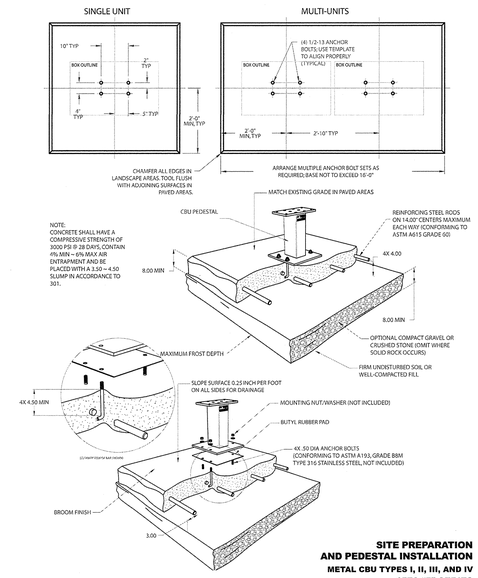
NTS



NOTES:
1. PRODUCT TO BE COLOR BLACK.
2. PEDESTAL SHALL BE INSTALLED WITH INCLUDED RUBBER PAD.
3. ENTIRE INSTALLATION SHALL BE PER MANUFACTURER'S SPECIFICATIONS.

16 DOOR CBU CLUSTER MAILBOX DETAIL

NTS



SITE PREPARATION AND PEDESTAL INSTALLATION
METAL CBU TYPES I, II, III, AND IV
1570 "F" SERIES

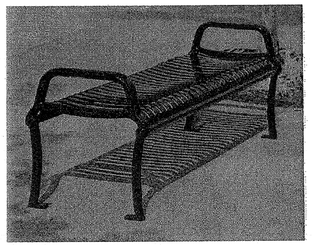
4 91194_F_INSTALL

AF PART # 91194 Rev B

OR APPROVED EQUAL

MAILBOX PAD DETAIL

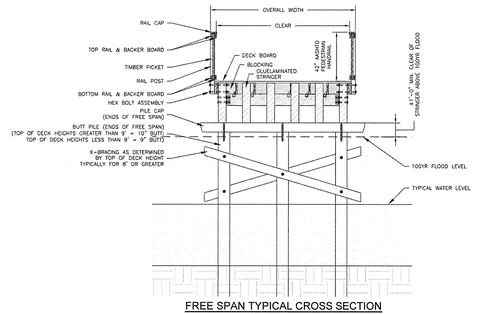
NTS



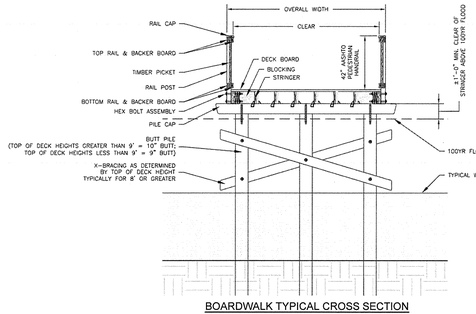
NOTE:
BENCH TO BE "ARLINGTON" SERIES AS MANUFACTURED BY GAMETIME OR APPROVED EQUAL.

BENCH DETAIL

NTS



FREE SPAN TYPICAL CROSS SECTION



BOARDWALK TYPICAL CROSS SECTION

CONNECTOR WALK BOARDWALK / FREE SPAN TYPICAL DETAILS

NTS

GENERAL NOTES:
(1) DRAWING IS CONCEPTUAL IN NATURE AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
(2) SITE INFORMATION IS GENERIC TO ILLUSTRATE GENERALIZED CONDITIONS.
(3) LOW CHORD TO BE A MINIMUM OF 12 INCHES CLEAR OF 100-YEAR FLOOD ELEVATION, REQUIRED.
(4) GRADING & RIP-RAP DESIGN & INSTALLATION BY OTHERS. NO STEEPER THAN 2:1 GRADING WITH AT LEAST 6" CLEAR OF THE BOTTOM OF PILE CAP IS PREFERRED. RIP-RAP IS RECOMMENDED FOR AREAS WHERE THE POTENTIAL FOR EROSION EXISTS.
(5) MINIMUM OF 5' OFFSET FROM EASEMENTS, FLOW EXTENTS, ENVIRONMENTAL BUFFERS, OR SIMILAR RECOMMENDED, UNLESS OTHERWISE ALLOWED AS CONFIRMED BY AHJ.
(6) CONSTRUCTION FROM GROUND OR FROM DECK CAN INFLUENCE DESIGN CONSIDERATIONS AND SHOULD BE NOTED IN DESIGN INTENT PER PROJECT.
(7) 42" PEDESTRIAN HANDRAIL DESIGNED TO MEET 4" SPHERE RULE.
(8) BRIDGE SLOPE NOT TO EXCEED 4.5% FOR A CONTINUOUS PATH OR 7.5% IN AN ADA RAMP & LANDING CONFIGURATION.
(9) DETAILS SHOWN FOR CONCEPT ONLY. CONTRACTOR TO PROVIDE A FULL SUBMITTAL TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

Know what's below. Call before you dig.

12/16/2020
DATE OF SIGN.

BRIAN R. PERRY
N.J. PROFESSIONAL ENGINEER LIC. NO. GE 45920

van note-harvey associates, inc.
consulting engineers, planners & land surveyors
103 College Road East • Princeton, NJ 08540 • 609-987-2323
211 Bayberry Drive • Cape May Court House, NJ 08210 • 609-465-2600
www.vannoteharvey.com Certificate of Authorization No. 24GA28271100
- Since 1894 -

CONSTRUCTION DETAILS–6
OF
NORTH AND SOUTH SECTIONS
HOPEWELL PARC
ON
BLOCK 93, LOTS 5.01, 5.02, AND 6.02
SITUATED IN
HOPEWELL TOWNSHIP — MERCER CO., N.J.
SCALE: AS SHOWN — DECEMBER 16, 2020

DRAWN BY WDV/MNK DATE 12/16/20	FIELD BK	ORDER No. 45051–410–21	FILE No. 203–A–1 203–B–1	SHEET No. CE-107
CHECKED BY BRP DATE 12/16/20	PAGE			

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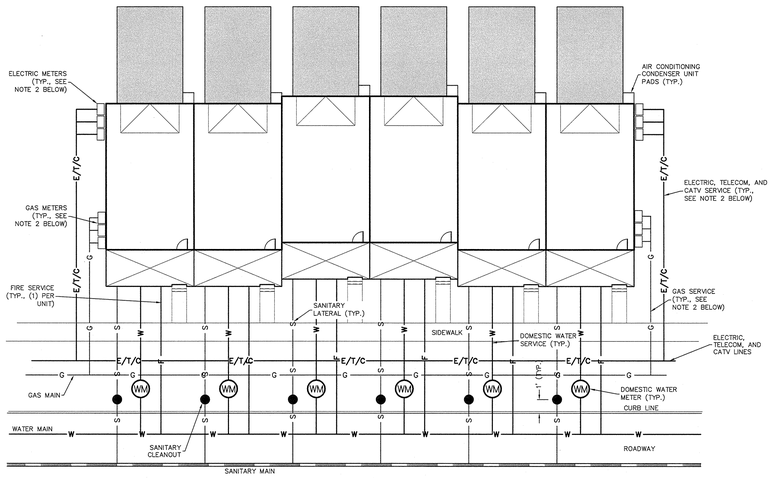
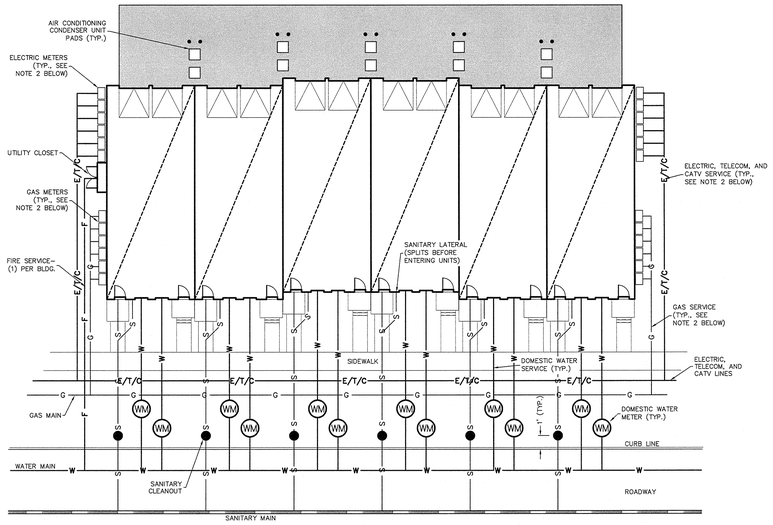


NOTES:
1. ABOVE CONFIGURATION SHOWN FOR TOWNHOMES WITH MORE THAN 4 UNITS.
2. FOR TOWNHOMES WITH 4 OR LESS UNITS: ONLY ONE GAS SERVICE AND SET OF METERS REQUIRED ON SIDE OF BUILDING; ONE ONE SET ELECTRIC/TELECOM/CATV SERVICE AND SET OF METERS REQUIRED ON SIDE OF BUILDING OPPOSITE OF GAS SERVICE AND METERS
3. INDIVIDUAL UNITS' GAS SERVICES ROUTED FROM METER TO FRONT OF UNITS; ELECTRIC, TLECOM, AND CATV SERVICES ROUTED FROM METER TO REAR OF UNITS.

TOWNHOME TYPICAL UTILITY CONNECTION DETAIL

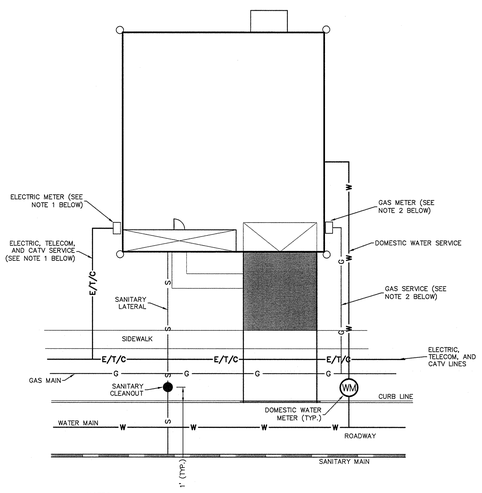
NTS



NOTES:
1. ABOVE CONFIGURATION SHOWN FOR STACKED TOWNHOMES WITH MORE THAN 4 UNITS.
2. FOR STACKED TOWNHOMES WITH 4 OR LESS UNITS: ONLY ONE GAS SERVICE AND SET OF METERS REQUIRED ON SIDE OF BUILDING; ONE ONE SET ELECTRIC/TELECOM/CATV SERVICE AND SET OF METERS REQUIRED ON SIDE OF BUILDING OPPOSITE OF GAS SERVICE AND METERS

STACKED TOWNHOME TYPICAL UTILITY CONNECTION DETAIL

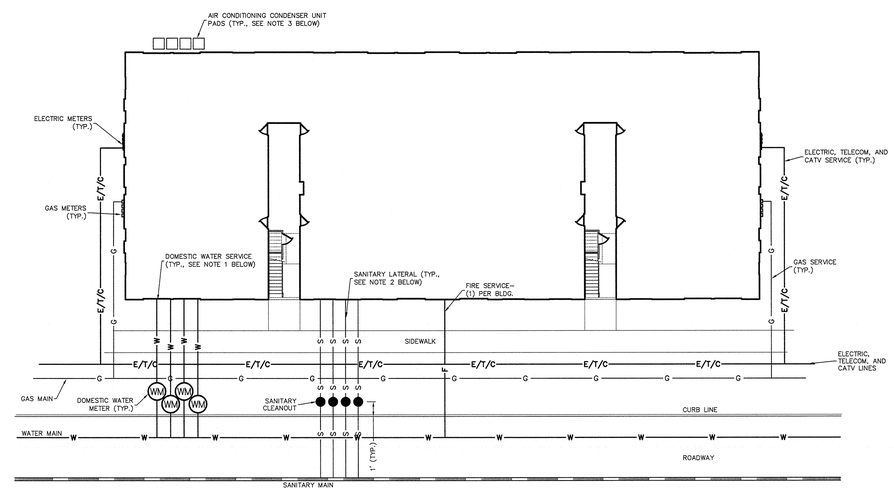
NTS



NOTES:
1. ELECTRIC SERVICE AND METER SHALL BE PLACED ON SIDE OPPOSITE OF GARAGE
2. GAS SERVICE AND METER SHALL BE PLACED ON SAME SIDE AS GARAGE

SINGLE FAMILY HOME TYPICAL UTILITY CONNECTION DETAIL

NTS



NOTES:
1. ONE DOMESTIC WATER SERVICE REQUIRED PER UNIT
2. ONE SANITARY LATERAL REQUIRED PER MODULE/STACK (3 PER UNIT)
3. AIR CONDITIONING CONDENSER UNITS MAY BE PLACED IN REAR OF UNITS OR IN REAR AND ALONG SIDES OF UNITS DEPENDING ON TYPE OF BUILDING.

APARTMENT / COAH UNIT BUILDINGS TYPICAL UTILITY CONNECTION DETAIL

NTS

GENERAL UTILITY CONNECTION NOTES (APPLIES TO ALL DETAILS ABOVE):
1. UTILITY CONNECTIONS SHOWN SCHEMATICALLY FOR PURPOSES OF PLANNING ONLY.
2. FINAL UTILITY CONNECTIONS TO BE AS COORDINATED WITH RESPECTIVE UTILITY PURVEYOR.

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY
1.	PRELIMINARY/FINAL SITE PLAN SUBMISSION	12/16/20	WDV	BRP

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CHECKED BY BRP DATE 12/16/20	PAGE			

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