

WRIGHTSVILLE BOULEVARD PHASE 2 WATER AND STORMWATER IMPROVEMENTS

KILL DEVIL HILLS - DARE COUNTY, NORTH CAROLINA

FOR THE TOWN OF KILL DEVIL HILLS



UNDERGROUND UTILITIES AS MARKED BY "UTILITY LOCATORS"
 COMMUNICATIONS (ORANGE PAINT)
 ELECTRIC (RED PAINT)
 GAS (YELLOW PAINT)
 IRRIGATION (PURPLE PAINT)
 SEWER (GREEN PAINT)
 WATER (BLUE PAINT)

NOTE:
 ALL WATER LINE WORK SHALL BE COMPLETED, TESTED AND ACTIVATED BEFORE ANY STORM DRAINAGE WORK IS BEGUN. WATER LINE ELEVATIONS SHALL BE COORDINATED SO AS NOT TO CONFLICT WITH NEW STORM DRAINAGE PIPES.

APPR. DATE	DATE	#	REVISION



**WRIGHTSVILLE BOULEVARD PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
 TOWN OF KILL DEVIL HILLS
 DARE COUNTY, NORTH CAROLINA



Project #	V23026	SHEET NAME	COVERSHEET
Drawn by	KYD	Submittal Date	03/01/2024
SWaM Certification	715559	SHEET #	G-001
NC Firm #	C-3881		

LEGEND	
EXISTING	PROPOSED
TOPOGRAPHIC FEATURES	
TOP ELEVATIONS BY OTHERS OR AERIAL	
ELEVATIONS	TC 16.35 EP 15.85 P 15.6
TOP OF BANK	
SWALE / DITCH	
TOE OF SLOPE	
EDGE OF WATER	
WOODS LINE	
TREE	
EXISTING UTILITY LOCATION & DEPTH	
BENCHMARK	
EDGE OF PAVEMENT	
CURB AND/OR GUTTER	
REVERSED OR TRANSITIONAL GUTTER PAN	
UTILITIES	
STORM DRAINAGE	
STORM MANHOLE	
CATCH BASIN	
DROP INLET	
LOW HEAD DROP INLET	
ITEMS TO BE REMOVED	
MATCH PAVEMENT GRADE	P 15.6 MG
PAVEMENT	EP
TOP OF CURB	TC
TOP OF BANK	TB
SIDE SLOPE	SS
MATCH EXISTING GRADE	MG
MATCH EXISTING INVERT	MI
WATER MAIN	W
BLOW OFF VALVE	
WATER VALVE	
FIRE HYDRANT	
WATER LINE BEND	
WATER REDUCER	
WATER METER	
WATER METER VAULT	
IRRIGATION SPRINKLER	
SANITARY SEWER	SAN
SANITARY FORCE MAIN	FM
SANITARY MANHOLE	
SANITARY CLEANOUT	
FORCEMAIN MANHOLE	
FORCEMAIN VENT	
FORCEMAIN VALVE	
GAS MARKER	
GAS VENT	
GAS CONTROL BOX	
GAS METER	
GAS VALVE	
CATV INTERFACE BOX	
CATV LONG PEDESTAL	
CATV PEDESTAL	
SATELLITE DISH	
CATV SURFACE PLATE	
TELEPHONE INTERFACE BOX	
TELEPHONE MANHOLE	
TELEPHONE PEDESTAL	
FIBER OPTIC MARKER	
ELECTRIC GUY WIRE	
ELECTRIC POWER POLE	
ELECTRIC TRANSFORMER	
ELECTRIC STREET LIGHT	
ELECTRIC PARKING LIGHT	
UNDERGROUND UTILITY PAINT MARKINGS	
CI	COMMUNICATIONS (ORANGE PAINT)
EI	ELECTRIC (RED PAINT)
GI	GAS (YELLOW PAINT)
SI	GRAVITY SEWER (GREEN PAINT)
FMI	SEWER FORCE MAIN (GREEN PAINT)
WI	WATER (BLUE PAINT)
MISCELLANEOUS	
	TRAFFIC BOLLARD
	TRAFFIC SIGN
	MAILBOX
	NEWSPAPER BOX
	FLAG POLE
PROPERTY MARKERS	
	PIN
	PIN IN CONCRETE
	PIPE
	DRILL HOLE
	DOT MONUMENT

DATUM NOTE:
 VERTICAL DATUM REFERENCE:
 NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

HORIZONTAL DATUM REFERENCE:
 NORTH CAROLINA COORDINATE SYSTEM OF 1983
 NAD 1983 (2001 HARN)

TOPOGRAPHICAL SURVEY INFORMATION:
 THE TOPOGRAPHICAL INFORMATION WAS PREPARED BY:
 AMERICAN ENGINEERING
 830 GREENBRIER CIRCLE, SUITE 110
 CHESAPEAKE, VIRGINIA 23320
 PHONE: (757) 468-6800
 FAX: (757) 468-4966

TOPOGRAPHICAL SURVEY INFORMATION:
 THE PLAN DOES NOT GUARANTEE THE EXISTENCE, SIZE, TYPE, LOCATION, ALIGNMENT OR DEPTH OF ANY OR ALL UNDERGROUND UTILITIES OR OTHER FACILITIES. WHERE SURFACE FEATURES (MANHOLES, CATCH BASINS, VALVES, ETC.) ARE UNAVAILABLE OR INCONCLUSIVE, INFORMATION SHOWN MAY BE FROM UTILITY OWNERS RECORDS AND/OR ELECTRIC LINE TRACING. THE RELIABILITY OF WHICH IS UNCERTAIN. THE CONTRACTOR SHALL PERFORM PRIOR TO INSTALLING AFFECTED PIPES, WHATEVER TEST EVACUATION OR OTHER INVESTIGATION IS NECESSARY TO VERIFY LOCATIONS AND CLEARANCE AND SHALL REPORT IMMEDIATELY AND DISCREPANCIES TO AMERICAN ENGINEERING, AT 1-757-468-6800.

North Carolina
One-Call Center Inc.

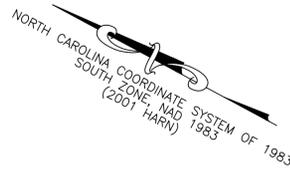


**Know what's below
Call before you dig.**
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-4949 (Toll Free)
 Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>

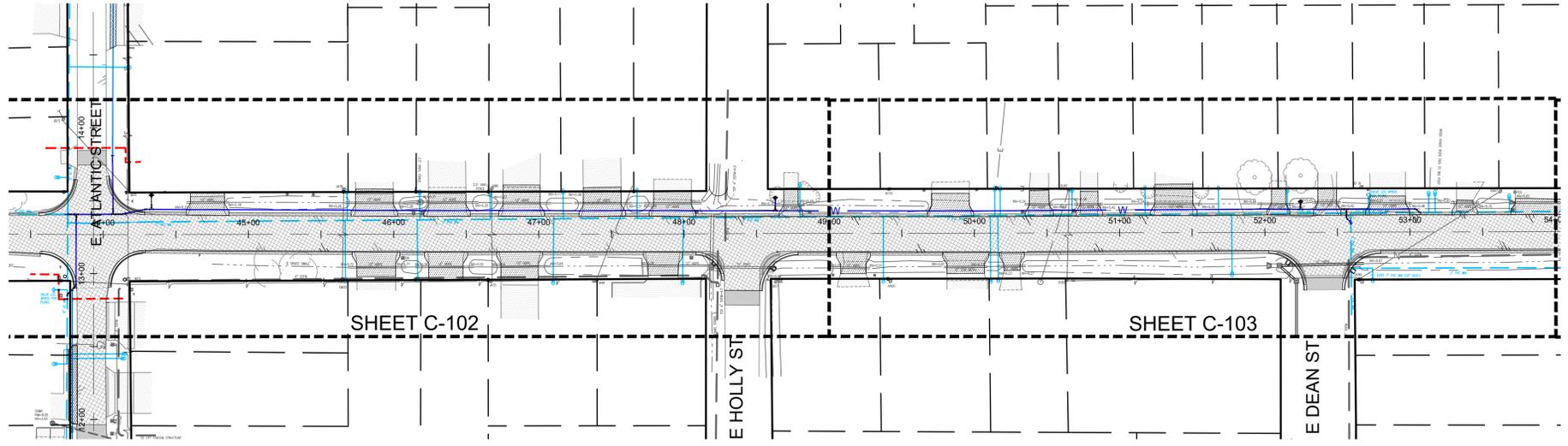
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V23026 - WRIGHTSVILLE BLVD, PHASE 2

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SEE
WRIGHTSVILLE
BOULEVARD
PHASE 1 PLANS
FOR
CONTINUATION

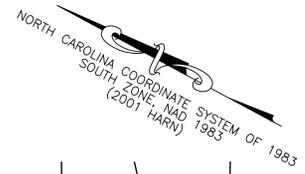


WRIGHTSVILLE BOULEVARD

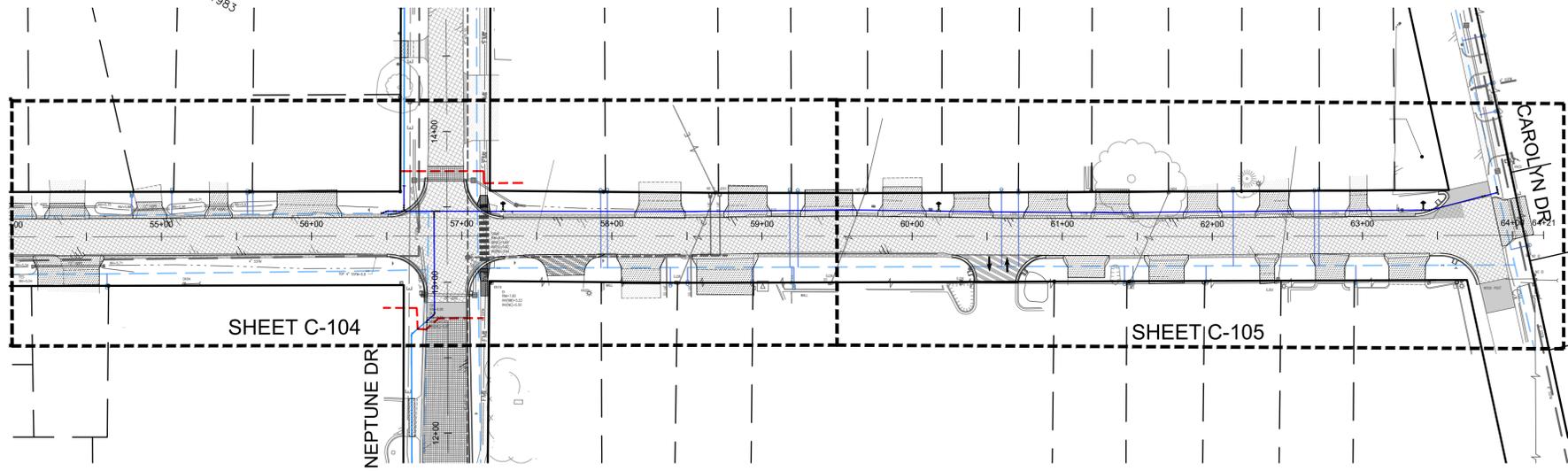
NO.	DATE	REVISIONS



Project #	V23026
Drawn by	KYD
Submittal Date	01/08/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994



SHEET C-104



WRIGHTSVILLE BOULEVARD

SHEET C-105

**WRIGHTSVILLE BOULEVARD
PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

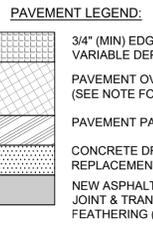
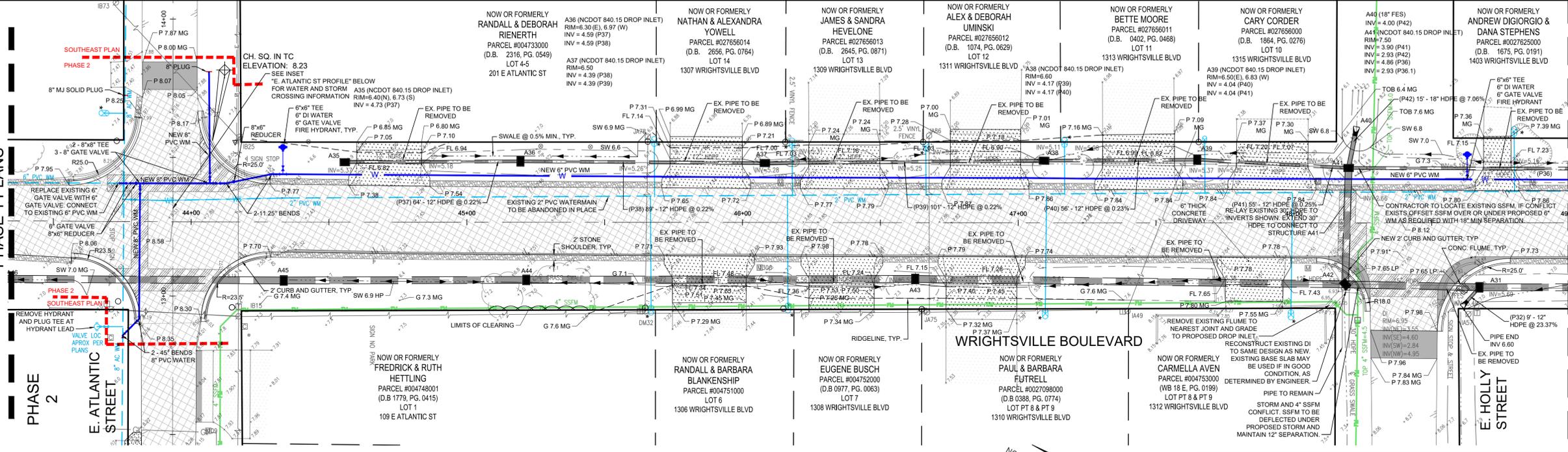
SHEET NAME
**PHASE 2
OVERALL
PLAN AND
SHEET INDEX**

SHEET #
C-101

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MATCH LINE STA 43+35
SEE WRIGHTSVILLE BOULEVARD
PHASE 1 PLANS

SEE SHEET C-103
MATCHLINE STA 49+00



PAVEMENT OVERLAY NOTE:
PLACE PAVEMENT OVERLAY WITH CONSTANT THICKNESS AND MAINTAIN EXISTING CROSS SLOPE, EXCEPT WHERE PROPOSED GRADES ARE SHOWN ALONG THE ROAD CENTERLINE. WHERE THESE PROPOSED GRADES ARE SHOWN, TRANSITION TO/FROM CONSTANT THICKNESS ALONG ROADWAY 25' IN BOTH DIRECTIONS FROM THE PROPOSED CENTERLINE GRADE, OR AS DIRECTED BY THE ENGINEER.

WRIGHTSVILLE BLVD: 3" PAVEMENT OVERLAY, INSTALLED IN TWO 1 1/2 LIFTS (EXCEPT WHERE OTHERWISE NOTED BY AN ASTERISK)

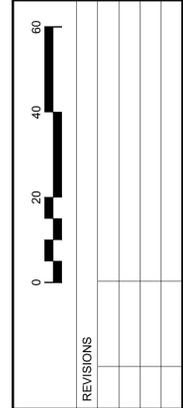
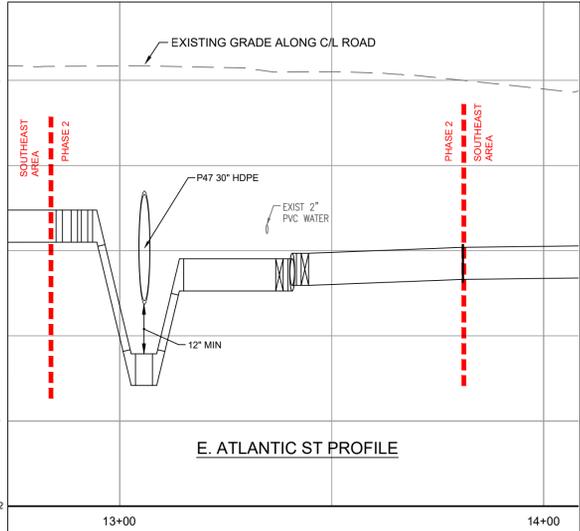
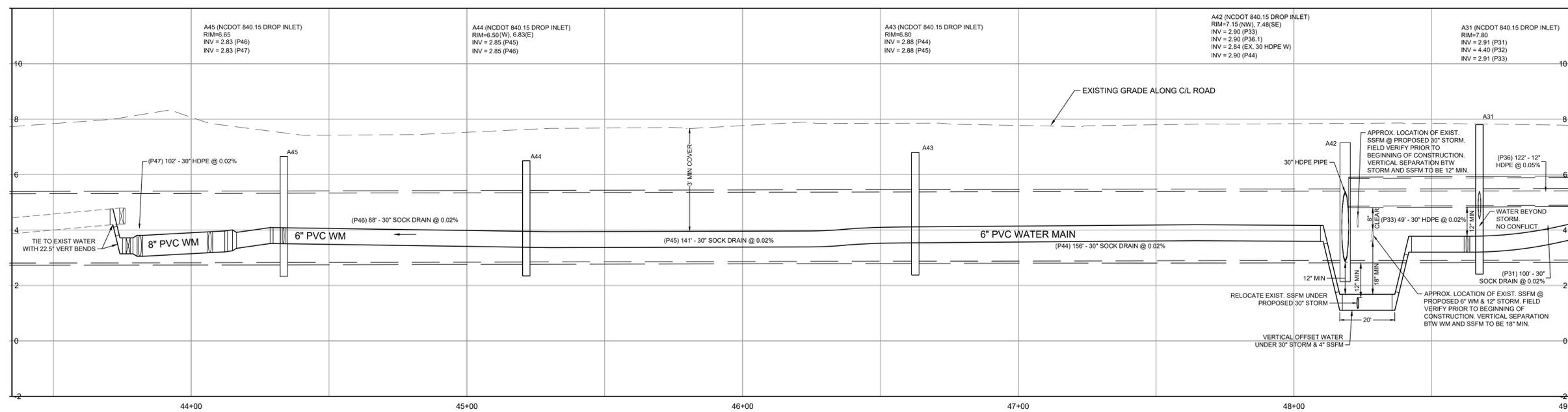
- NOTES:**
- DRIVEWAY GRADE CALLOUTS APPEAR ONLY ON THE SHEET FOR THE ROAD TO WHICH THE DRIVEWAY CONNECTS.
 - MAILBOXES SHALL BE REMOVED AND REINSTALLED PER THE MAILBOX RELOCATION DETAIL SHOWN ON SHEET C-501 AS NECESSARY TO INSTALL NEW STONE SHOULDERS, DRIVEWAYS, WATER MAIN AND STORM SYSTEMS.
 - DO NOT SAWCUT STREET PAVEMENT FOR STORM PIPE CROSSINGS UNTIL ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
 - PROVIDE CURB WIPEDOWN AT ALL NEW AND MODIFIED CURB RETURNS. TOP OF CURB SHALL TRANSITION FROM 6" HIGH TO 0" HIGH IN FIRST (OR LAST) 1' OF RETURN.
 - ALL NEW OR REPLACED CONCRETE WORK TO BE 4" THICK, EXCEPT 6" THICK WITHIN 3' OF ROAD UNLESS PROTECTED BY A CURB. MANY DI GRATES WILL NEED TO BE TILTED TO BEST SUIT SITE CONDITIONS. PLAN RIM ELEVATION = HIGH SIDE, NEAREST ROAD. LOW SIDE OF GRATE SHALL BE 4" LOWER THAN PLAN GRADE UNLESS OTHERWISE DIRECTED IN FIELD BY THE ENGINEER. NO EXTRA COMPENSATION FOR TILTED GRATE.
 - NO EXTRA COMPENSATION FOR TILTED GRATE.

- WATER SERVICE NOTE:**
- REPLACE EXISTING WATER SERVICES 2" AND SMALLER WITH NEW TAP TO MAIN AND SERVICE TUBE UP TO METER (MIN. 3/4" TAP AND SERVICE, REDUCE AT METER AS NECESSARY). SEE WATERLINE SPECIFICATIONS.
 - LONG SIDE SERVICES SHALL BE IN DRILLED 2" PVC CASING, SEE WATERLINE SPECS.
- AC VALVE BOXES, ON ABANDONED AC WM, LOCATED IN PAVEMENT ARE TO BE LEFT IN PLACE AND VALVE BOX TO BE FILLED WITH CONCRETE.

PAVING NOTE FOR INTERSECTIONS:
WHERE WRIGHTSVILLE BLVD INTERSECTS E. ATLANTIC ST, NEPTUNE DR AND CAROLYN DR, PAVING MACHINE SHALL PULL THROUGH THE INTERSECTION IN THE DIRECTION OF THE SIDE STREETS STATED ABOVE, SO THAT THE SIDE STREET CROWN IS MAINTAINED.

- EROSION AND SEDIMENT CONTROL NOTES:**
- SILT FENCE TO BE INSTALLED AS DIRECTED BY ENGINEER.
 - ALL EXISTING AND PROPOSED DROP INLETS WILL HAVE INLET PROTECTION VIA NON-WOVEN GEOTEXTILE UNDER GRATE, SECURED BETWEEN GRATE AND FRAME.
 - CULVERT INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING AND PROPOSED PIPE ENDS.

WRIGHTSVILLE BLVD PROFILE



AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
830 Greenbrier Circle - Suite 110
Chesapeake, Virginia 23320 (757) 468-6800



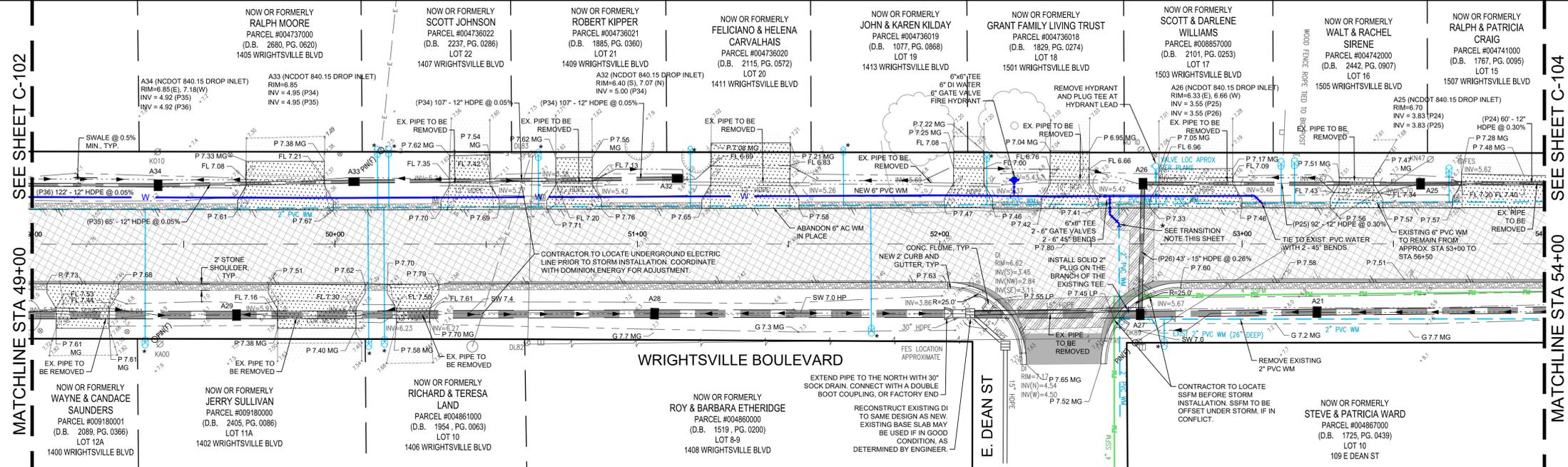
Project #	V23026
Drawn by	KYD
Submittal Date	03/01/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994

**WRIGHTSVILLE BOULEVARD
PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

SHEET NAME
**PHASE 2 PLAN
& PROFILE STA
43+35 - 49+00
WRIGHTSVILLE
BOULEVARD**

SHEET #
C-102

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PAVEMENT LEGEND:

- 3/4" (MIN) EDGE MILLING AND/OR VARIABLE DEPTH MILLING
- PAVEMENT OVERLAY (SEE NOTE FOR DETAILS)
- PAVEMENT PATCH & OVERLAY
- CONCRETE DRIVEWAY PATCH / REPLACEMENT
- NEW ASPHALT PAVEMENT, MILLED BUTT JOINT & TRANSITION OVERLAY, DRIVEWAY FEATHERING (AT DRIVEWAYS)

PAVEMENT OVERLAY NOTE:
PLACE PAVEMENT OVERLAY WITH CONSTANT THICKNESS AND MAINTAIN EXISTING CROSS SLOPE, EXCEPT WHERE PROPOSED GRADES ARE SHOWN ALONG THE ROAD CENTERLINE. WHERE THESE PROPOSED GRADES ARE SHOWN, TRANSITION TO/FROM CONSTANT THICKNESS ALONG ROADWAY 25' IN BOTH DIRECTIONS FROM THE PROPOSED CENTERLINE GRADE, OR AS DIRECTED BY THE ENGINEER.

WRIGHTSVILLE BLVD: 3" PAVEMENT OVERLAY, INSTALLED IN TWO 1 1/2 LIFTS (EXCEPT WHERE OTHERWISE NOTED BY AN ASTERISK)

NOTES:

- DRIVEWAY GRADE CALLOUTS APPEAR ONLY ON THE SHEET FOR THE ROAD TO WHICH THE DRIVEWAY CONNECTS.
- MAILBOXES SHALL BE REMOVED AND REINSTALLED PER THE MAILBOX RELOCATION DETAIL SHOWN ON SHEET C-501 AS NECESSARY TO INSTALL NEW STONE SHOULDERS, DRIVEWAYS, WATER MAIN AND STORM SYSTEMS.
- DO NOT SAWCUT STREET PAVEMENT FOR STORM PIPE CROSSINGS UNTIL ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
- PROVIDE CURB WIPEDOWN AT ALL NEW AND MODIFIED CURB RETURNS. TOP OF CURB SHALL TRANSITION FROM 6" HIGH TO 0" HIGH IN FIRST (OR LAST) 1' OF RETURN.
- ALL NEW OR REPLACED CONCRETE WORK TO BE 4" THICK, EXCEPT 6" THICK WITHIN 3' OF ROAD UNLESS PROTECTED BY A CURB. MANY DI GRATES WILL NEED TO BE TILTED TO BEST SUIT SITE CONDITIONS. PLAN RIM ELEVATION = HIGH SIDE, NEAREST ROAD. LOW SIDE OF GRATE SHALL BE 4" LOWER THAN PLAN GRADE UNLESS OTHERWISE DIRECTED IN FIELD BY THE ENGINEER. NO EXTRA COMPENSATION FOR TILTED GRATE.

WATER SERVICE NOTE:

- REPLACE EXISTING WATER SERVICES 2" AND SMALLER WITH NEW TAP TO MAIN AND SERVICE TUBE UP TO METER (MIN. 3/4" TAP AND SERVICE, REDUCE AT METER AS NECESSARY). SEE WATERLINE SPECIFICATIONS. LONG SIDE SERVICES SHALL BE IN DRILLED 2" PVC CASING, SEE WATERLINE SPECS.

AC VALVE BOXES, ON ABANDONED AC WM, LOCATED IN PAVEMENT ARE TO BE LEFT IN PLACE AND VALVE BOX TO BE FILLED WITH CONCRETE.

TRANSITION NOTE (NEW 8"x6" OR 6"x6" TEE TO EX. 2" PVC WM)

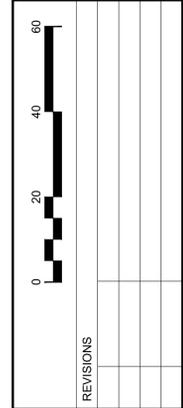
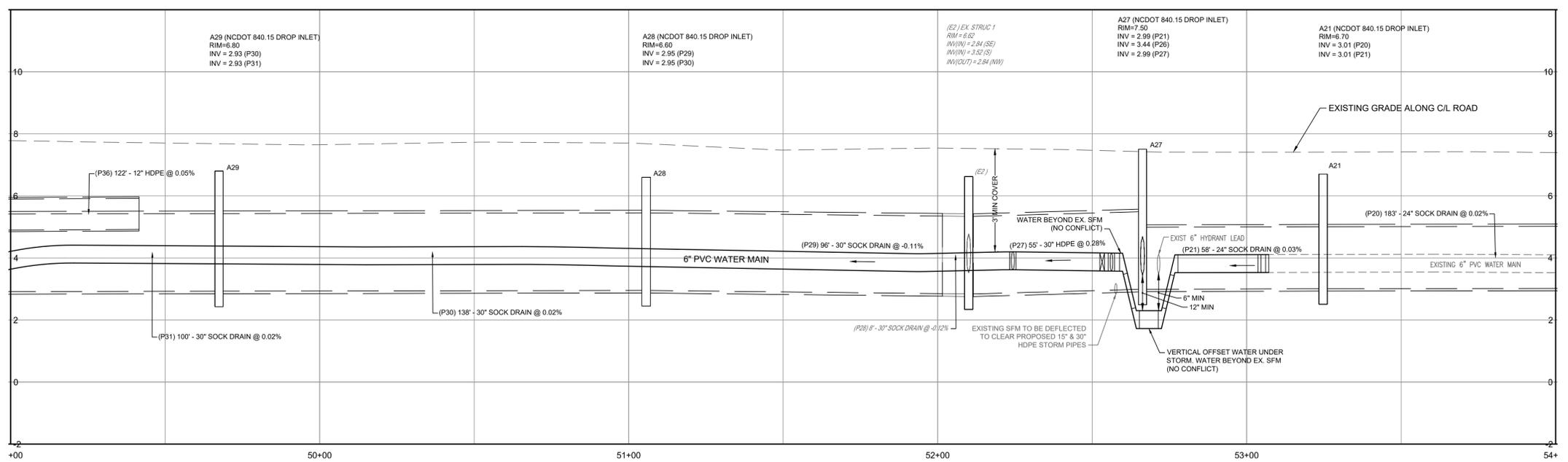
- 8" x 6" OR 6" x 6" TEE OR CROSS WITH BRANCH VALVE (6" GATE VALVE) AND EXTEND 6" WM AS SHOWN.
- 6" x 2" TAPPED PLUG ON 6" WM
- 2" MIP X BRASS COMPRESSION (FORD PACK JOINT COUPLING C87-77-NL)
- CONTINUE WITH 2" SCHEDULE 80 PVC, SOLVENT-WELDED WM
- (2) 2" SCHEDULE 80 BENDS AS REQD TO TIE TO EX. 2" PVC WM

PAVING NOTE FOR INTERSECTIONS:
WHERE WRIGHTSVILLE BLVD INTERSECTS E. ATLANTIC ST, NEPTUNE DR AND CAROLYN DR, PAVING MACHINE SHALL PULL THROUGH THE INTERSECTION IN THE DIRECTION OF THE SIDE STREETS STATED ABOVE, SO THAT THE SIDE STREET CROWN IS MAINTAINED.

EROSION AND SEDIMENT CONTROL NOTES:

- SILT FENCE TO BE INSTALLED AS DIRECTED BY ENGINEER.
- ALL EXISTING AND PROPOSED DROP INLETS WILL HAVE INLET PROTECTION VIA NON-WOVEN GEOTEXTILE UNDER GRATE, SECURED BETWEEN GRATE AND FRAME.
- CULVERT INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING AND PROPOSED PIPE ENDS.

WRIGHTSVILLE BLVD PROFILE



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American Engineering Associates - Southeast, P.A.
830 Greenbrier Circle - Suite 110
Chesapeake, Virginia 23320 (757) 468-6800



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**WRIGHTSVILLE BOULEVARD
PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

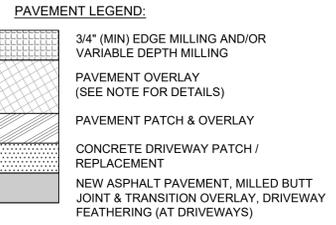
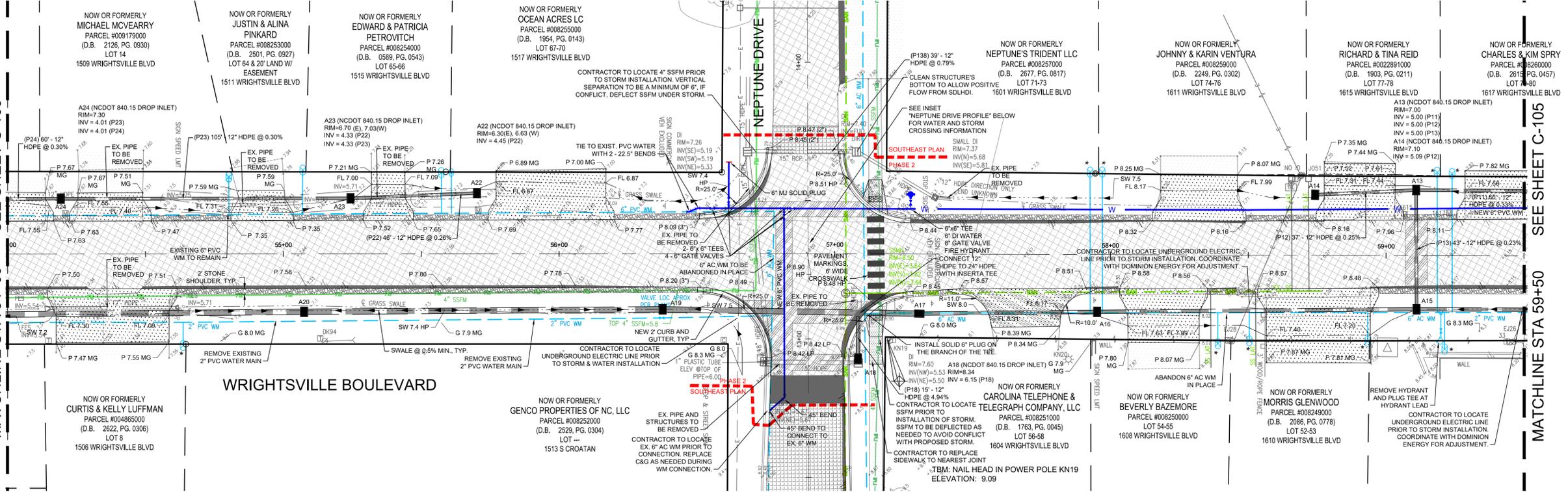
SHEET NAME
PHASE 2 PLAN & PROFILE STA 49+00 - 54+00 WRIGHTSVILLE BOULEVARD

SHEET #
C-103

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MATCHLINE STA 54+00 SEE SHEET C-103

MATCHLINE STA 59+50 SEE SHEET C-105



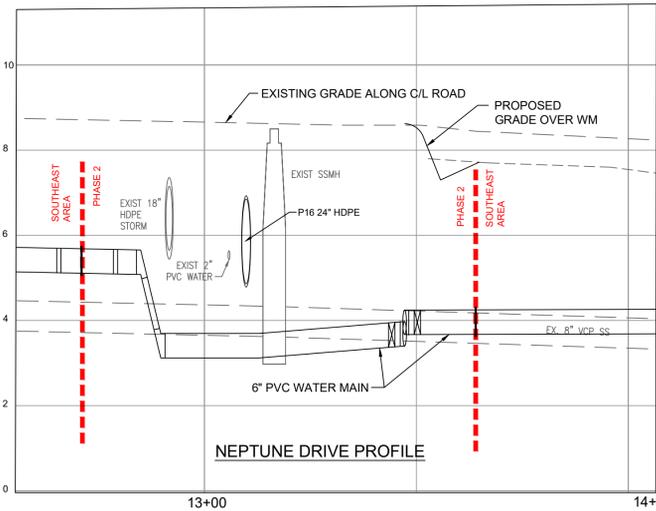
- NOTES:**
1. DRIVEWAY GRADE CALLOUTS APPEAR ONLY ON THE SHEET FOR THE ROAD TO WHICH THE DRIVEWAY CONNECTS. MAILBOXES SHALL BE REMOVED AND REINSTALLED PER THE MAILBOX RELOCATION DETAIL SHOWN ON SHEET C-501 AS NECESSARY TO INSTALL NEW STONE SHOULDERS, DRIVEWAYS, WATER MAIN AND STORM SYSTEMS.
 2. DO NOT SAWCUT STREET PAVEMENT FOR STORM PIPE CROSSINGS UNTIL ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
 3. PROVIDE CURB WIPEDOWN AT ALL NEW AND MODIFIED CURB RETURNS. TOP OF CURB SHALL TRANSITION FROM 6\"/>
 4. ALL NEW OR REPLACED CONCRETE WORK TO BE 4\"/>
 5. MANY DI GRATES WILL NEED TO BE TILTED TO BEST SUIT SITE CONDITIONS. PLAN RIM ELEVATION = HIGH SIDE, NEAREST ROAD. LOW SIDE OF GRATE SHALL BE 4\"/>
 6. NO EXTRA COMPENSATION FOR TILTED GRATE.

- WATER SERVICE NOTE:**
- * REPLACE EXISTING WATER SERVICES 2\"/>
- PAVING NOTE FOR INTERSECTIONS:**
- WHERE WRIGHTSVILLE BLVD INTERSECTS E. ATLANTIC ST, NEPTUNE DR AND CAROLYN DR, PAVING MACHINE SHALL PULL THROUGH THE INTERSECTION IN THE DIRECTION OF THE SIDE STREETS STATED ABOVE, SO THAT THE SIDE STREET CROWN IS MAINTAINED.

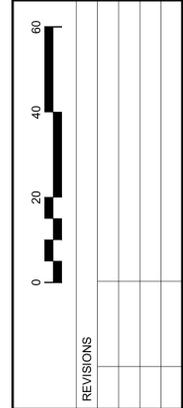
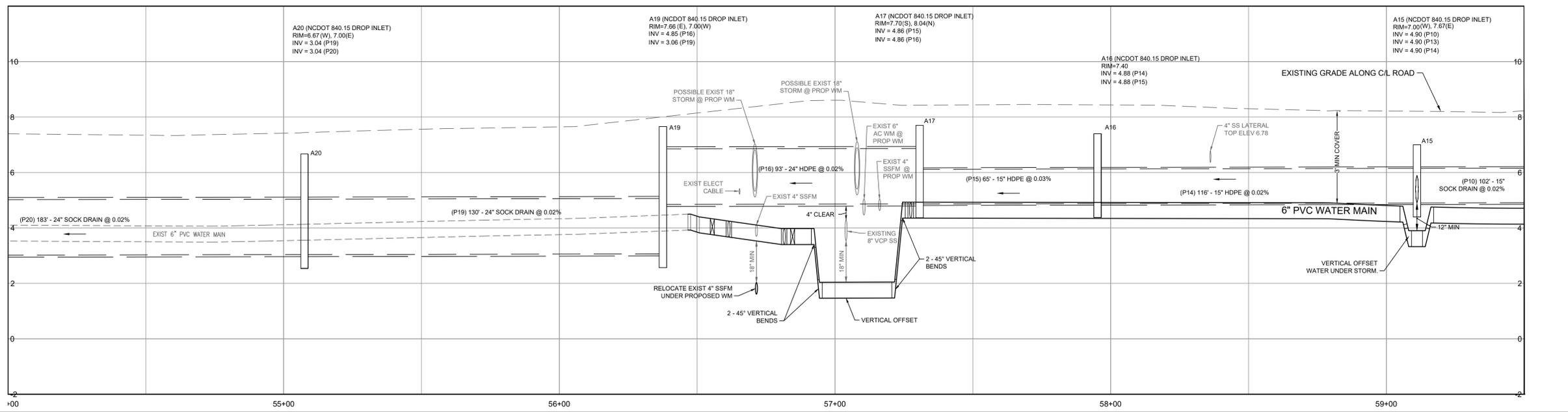
- EROSION AND SEDIMENT CONTROL NOTES:**
1. SILT FENCE TO BE INSTALLED AS DIRECTED BY ENGINEER.
 2. ALL EXISTING AND PROPOSED DROP INLETS WILL HAVE INLET PROTECTION VIA NON-WOVEN GEOTEXTILE UNDER GRATE, SECURED BETWEEN GRATE AND FRAME.
 3. CULVERT INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING AND PROPOSED PIPE ENDS.

PAVEMENT OVERLAY NOTE:
PLACE PAVEMENT OVERLAY WITH CONSTANT THICKNESS AND MAINTAIN EXISTING CROSS SLOPE, EXCEPT WHERE PROPOSED GRADES ARE SHOWN ALONG THE ROAD CENTERLINE. WHERE THESE PROPOSED GRADES ARE SHOWN, TRANSITION TO/FROM CONSTANT THICKNESS ALONG ROADWAY 25' IN BOTH DIRECTIONS FROM THE PROPOSED CENTERLINE GRADE, OR AS DIRECTED BY THE ENGINEER.

WRIGHTSVILLE BLVD: 3\"/>



WRIGHTSVILLE BLVD PROFILE



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DARE COUNTY, NORTH CAROLINA

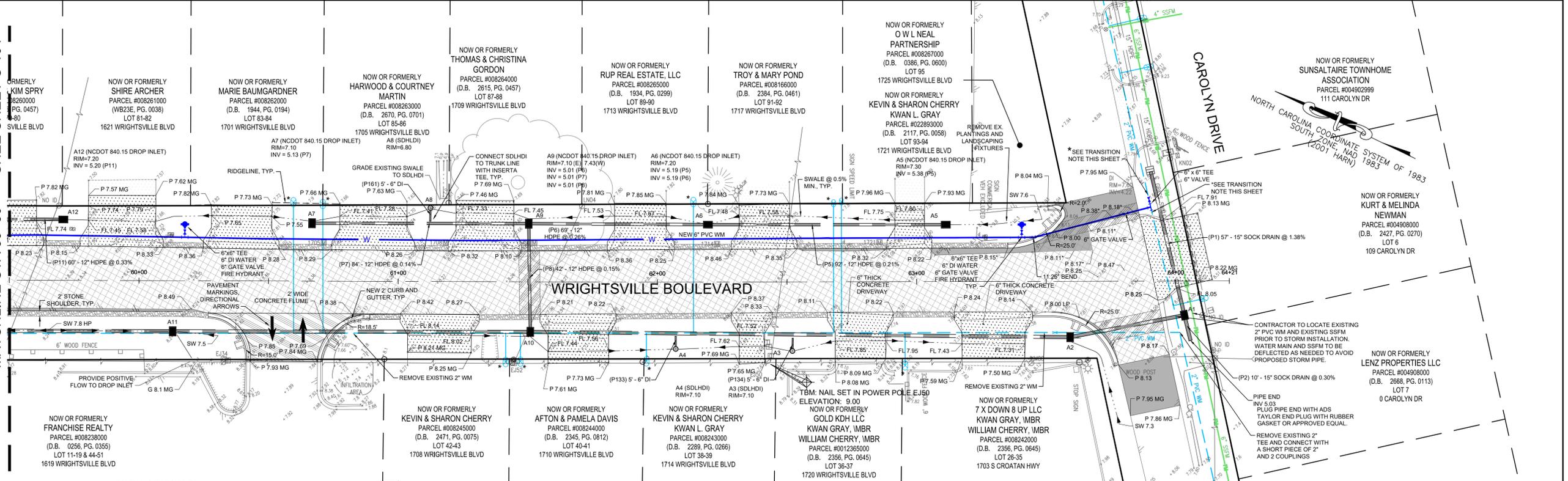
SHEET NAME
**PHASE 2 PLAN
& PROFILE STA
54+00 -59+50
WRIGHTSVILLE
BOULEVARD**

SHEET #
C-104

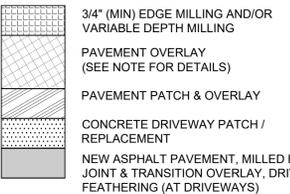
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SHEET C-104

MATCHLINE STA 59+50



PAVEMENT LEGEND:



PAVEMENT OVERLAY NOTE: PLACE PAVEMENT OVERLAY WITH CONSTANT THICKNESS AND MAINTAIN EXISTING CROSS SLOPE...

WRIGHTSVILLE BLVD: 3" PAVEMENT OVERLAY, INSTALLED IN TWO 1 1/2 LIFTS...

NOTES:

- 1. DRIVEWAY GRADE CALLOUTS APPEAR ONLY ON THE SHEET FOR THE ROAD TO WHICH THE DRIVEWAY CONNECTS.
2. MAILBOXES SHALL BE REMOVED AND REINSTALLED PER THE MAILBOX RELOCATION DETAIL SHOWN ON SHEET C-501...

WATER SERVICE NOTE:

- * REPLACE EXISTING WATER SERVICES 2" AND SMALLER WITH NEW TAP TO MAIN AND SERVICE TUBE UP TO METER (MIN. 3/4" TAP AND SERVICE, REDUCE AT METER AS NECESSARY)...

AC VALVE BOXES, ON ABANDONED AC WM, LOCATED IN PAVEMENT ARE TO BE LEFT IN PLACE AND VALVE BOX TO BE FILLED WITH CONCRETE.

* TRANSITION NOTE (NEW 8"x6" OR 6"x6" TEE TO EX. 2" PVC WM)

- A. 8" x 6" OR 6" x 6" TEE OR CROSS WITH BRANCH VALVE (6" GATE VALVE) AND EXTEND 6" WM AS SHOWN.
B. 6" x 2" TAPPED PLUG ON 6" WM
C. 2" MIP X BRASS COMPRESSION (FORD PACK JOINT COUPLING C87-77-NL)
D. CONTINUE WITH 2" SCHEDULE 80 PVC, SOLVENT-WELDED WM
E. (2) 2" SCHEDULE 80 BENDS AS REQ'D TO TIE TO EX. 2" PVC WM

PAVING NOTE FOR INTERSECTIONS: WHERE WRIGHTSVILLE BLVD INTERSECTS E. ATLANTIC ST, NEPTUNE DR AND CAROLYN DR, PAVING MACHINE SHALL PULL THROUGH THE INTERSECTION...

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- 1. SILT FENCE TO BE INSTALLED AS DIRECTED BY ENGINEER.
2. ALL EXISTING AND PROPOSED DROP INLETS WILL HAVE INLET PROTECTION VIA NON-WOVEN GEOTEXTILE UNDER GRATE, SECURED BETWEEN GRATE AND FRAME.
3. CULVERT INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING AND PROPOSED PIPE ENDS.

WRIGHTSVILLE BLVD PROFILE

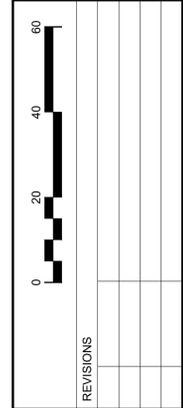
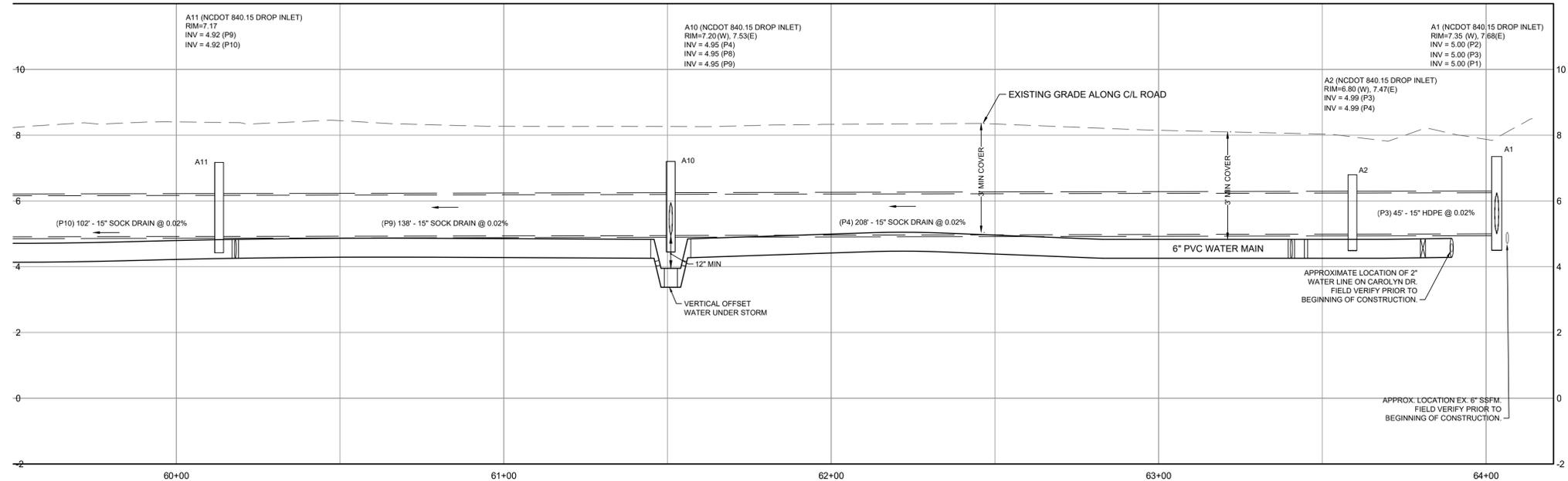


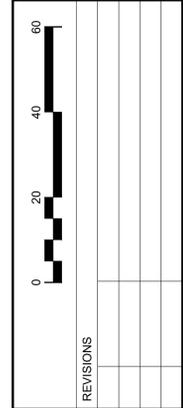
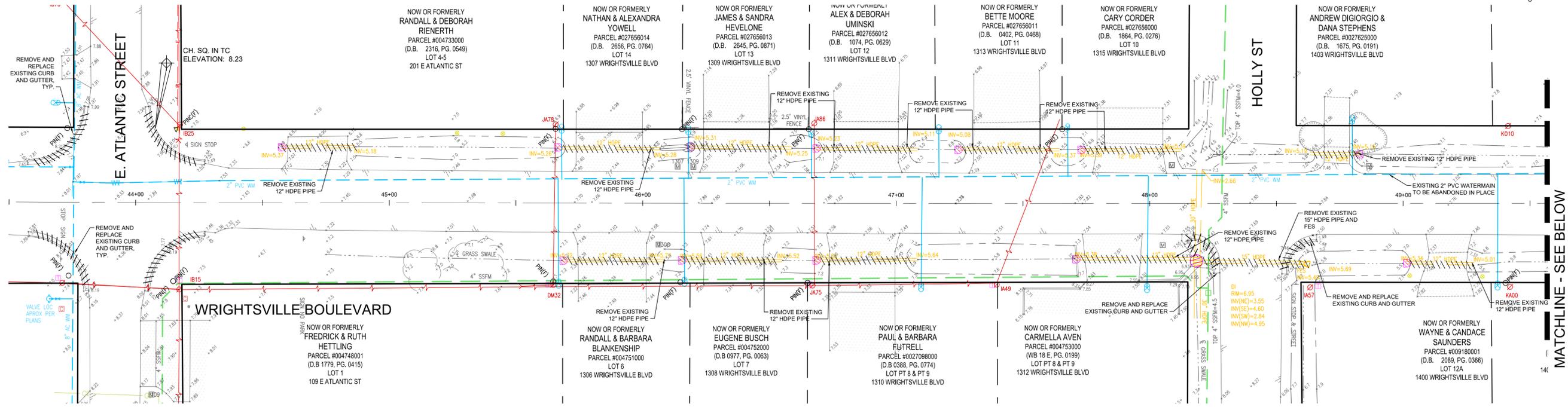
Table with project details: Project # V23026, Drawn by KYD, Submittal Date 03/01/2024, Scale AS NOTED, SWaM Certification 715559, VA Firm # 0405001994.

WRIGHTSVILLE BOULEVARD PHASE 2 WATER AND STORMWATER IMPROVEMENTS TOWN OF KILL DEVIL HILLS DARE COUNTY, NORTH CAROLINA

SHEET NAME PHASE 2 PLAN & PROFILE STA 59+50 - 64+20 WRIGHTSVILLE BOULEVARD

SHEET # C-105

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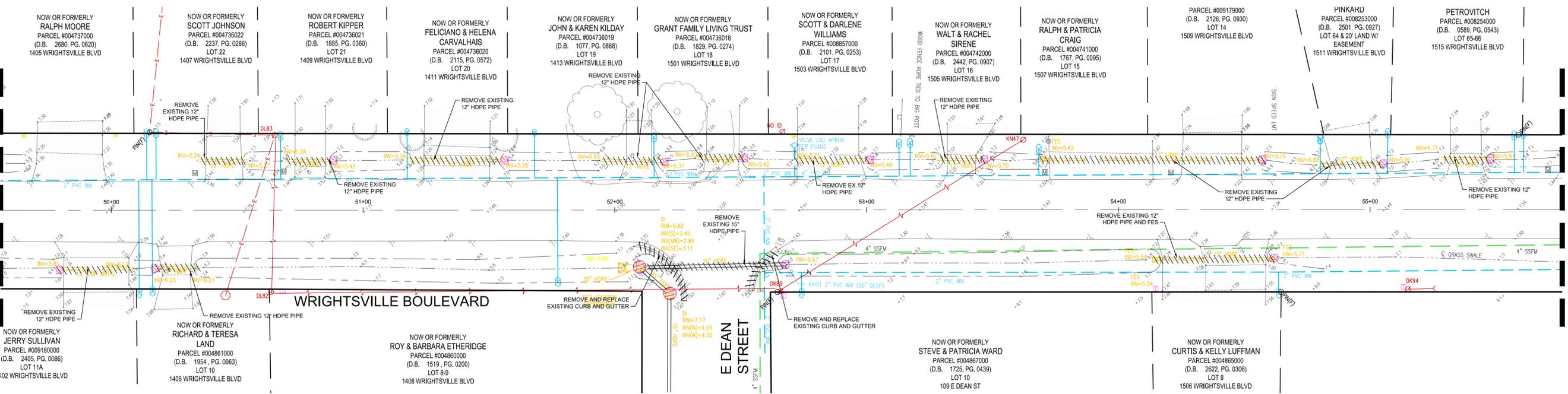
Professional Engineer
 EARLY R. ZELTMAN
 057308
 03/01/2024

Project #	V23026
Drawn by	KYD
Submittal Date	03/01/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994

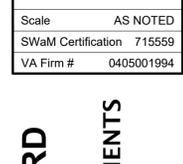
EROSION AND SEDIMENT CONTROL NOTES:

1. SILT FENCE TO BE INSTALLED AS DIRECTED BY ENGINEER.
2. ALL EXISTING AND PROPOSED DROP INLETS WILL HAVE INLET PROTECTION VIA NON-WOVEN GEOTEXTILE UNDER GRATE, SECURED BETWEEN GRATE AND FRAME.
3. CULVERT INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING AND PROPOSED PIPE ENDS.

MATCHLINE - THIS SHEET ABOVE



MATCHLINE STA 55+75 SEE SHEET C-107



**WRIGHTSVILLE BOULEVARD
 PHASE 2
 WATER AND STORMWATER IMPROVEMENTS**
 TOWN OF KILL DEVIL HILLS
 DARE COUNTY, NORTH CAROLINA

SHEET NAME
**PHASE 2
 EXISTING
 CONDITIONS**

SHEET #
C-106

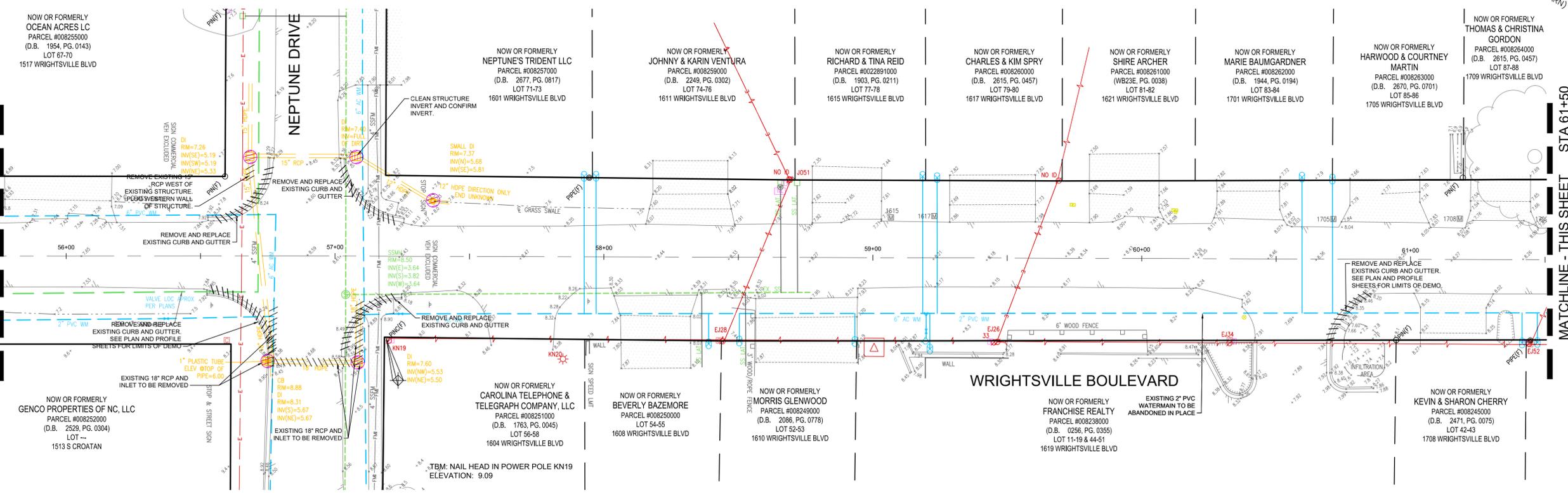
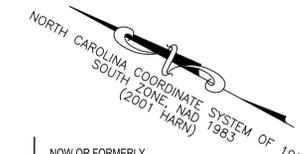
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SEE SHEET C-106

MATCHLINE STA 55+75

STA 61+50

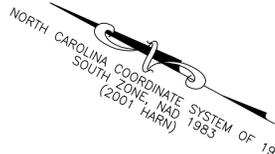
MATCHLINE - THIS SHEET



STA 61+50

MATCHLINE - THIS SHEET

- EROSION AND SEDIMENT CONTROL NOTES:**
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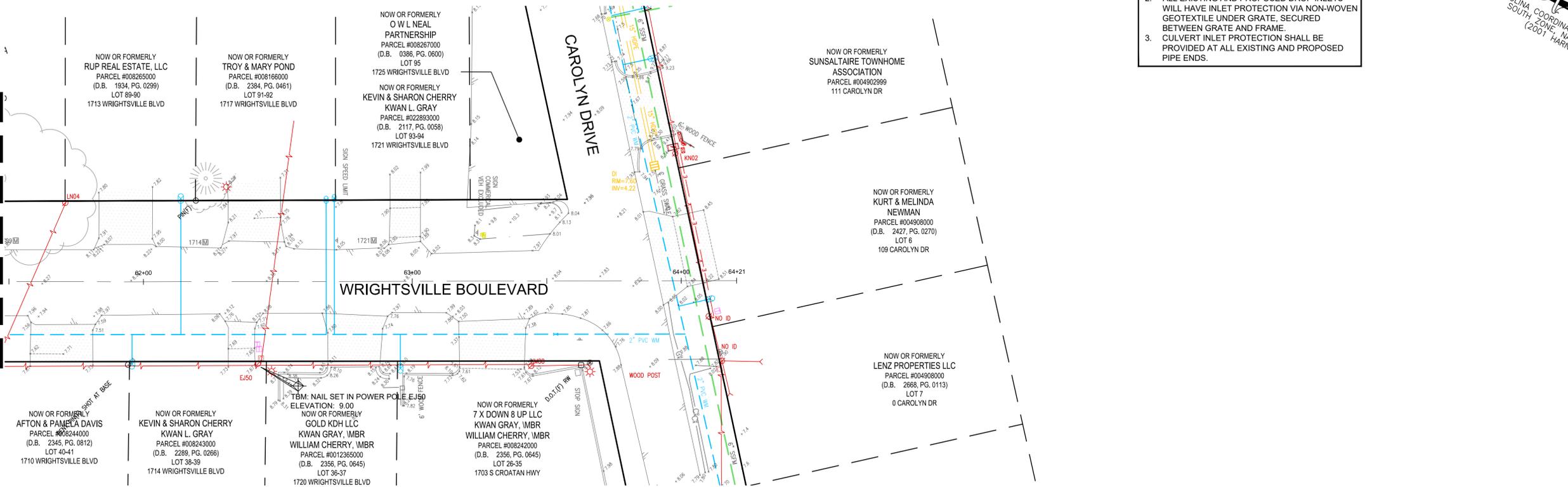


STA 61+50

MATCHLINE - THIS SHEET

STA 61+50

MATCHLINE - THIS SHEET



NO.	DATE	REVISIONS



Project #	V23026
Drawn by	KYD
Submission Date	03/01/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994

**WRIGHTSVILLE BOULEVARD
PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

SHEET NAME
**PHASE 2
EXISTING
CONDITIONS**

SHEET #
C-107

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NOTES: MORTAR JOINTS 1/2" +/- 1/8" THICK. USE CLASS "B" CONCRETE THROUGHOUT. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB. DUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY. USE #4 BAR DOWELS AT 12" CENTERS FOR ALL PIPE SIZES. PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66. USE TYPE "E", "F", AND "G" GRATES UNLESS OTHERWISE INDICATED. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00. FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY. CONSTRUCT WITH PIPE CROWNS MATCHING. CHAMFER ALL EXPOSED CORNERS 1". DRAWING NOT TO SCALE.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR BRICK CATCH BASIN 12' THRU 54' PIPE

SHEET 1 OF 2 840.01

GENERAL NOTES: MORTAR JOINTS 1/2" +/- 1/8" THICK. USE CLASS "B" CONCRETE THROUGHOUT. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB. DUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY. PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00. FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY. CONSTRUCT WITH PIPE CROWNS MATCHING. SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES. DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC. CHAMFER ALL EXPOSED CORNERS 1". DRAWING NOT TO SCALE.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR BRICK DROP INLET 12' THRU 30' PIPE

SHEET 1 OF 1 840.15

PIPE	DIMENSIONS OF BOX & PIPE			CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY	DEDUCTIONS FOR ONE PIPE	
	D	A	B			FOOT HT.	C.S.
12"	3'-0"	2'-2"	2'-0"	0.268	0.313	0.020	0.032
15"	3'-0"	2'-2"	2'-3"	0.268	0.313	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	0.268	0.313	0.044	0.065
24"	3'-0"	2'-2"	3'-0"	0.268	0.313	0.078	0.113
30"	3'-0"	2'-2"	3'-6"	0.268	0.313	0.091	0.170

EXPANSION JOINTS: 4'-8" and 4'-6" spacing. STD. 840.03 FRAME (GRATE & HOOD).

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES: USE ON FLAT GRADES 2% AND UNDER.

NORMAL CURB AND GUTTER ON LIGHT GRADES: USE ON GRADES OVER 2%.

NORMAL CURB AND GUTTER ON STEEP GRADES: USE ON GRADES OVER 2%.

MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)*

PIPE	DIMENSIONS OF BOX AND PIPE			TOP SLAB DIMENSIONS			CU. YDS. CONC. IN BOX			BRICK MASONRY			DEDUCTIONS ONE PIPE	
	D	A	B	E	F	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	C.W.	R.C.
12"	3'-0"	2'-2"	2'-0"	2'-9"	2'-9"	2'-9"	1	2'-9"	1	2'-9"	0.281	1.164	0.020	0.042
15"	3'-0"	2'-2"	2'-3"	3'-0"	3'-0"	3'-0"	1	3'-0"	1	3'-0"	0.281	0.963	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	3'-3"	3'-3"	3'-3"	1	3'-3"	1	3'-3"	0.281	1.043	0.044	0.065
24"	3'-0"	2'-2"	3'-0"	3'-9"	3'-9"	3'-9"	1	3'-9"	1	3'-9"	0.281	1.204	0.078	0.121
30"	3'-0"	2'-2"	3'-6"	4'-3"	4'-3"	4'-3"	1	4'-3"	1	4'-3"	0.281	1.485	0.122	0.184
36"	3'-0"	2'-2"	3'-10"	4'-9"	4'-9"	4'-9"	1	4'-9"	1	4'-9"	0.281	1.815	0.176	0.261
42"	3'-0"	2'-2"	4'-5"	5'-3"	5'-3"	5'-3"	1	5'-3"	1	5'-3"	0.281	2.192	0.240	0.371
48"	3'-0"	2'-2"	5'-0"	5'-9"	5'-9"	5'-9"	1	5'-9"	1	5'-9"	0.281	2.615	0.313	0.477
54"	3'-0"	2'-2"	5'-7"	6'-3"	6'-3"	6'-3"	1	6'-3"	1	6'-3"	0.281	3.096	0.396	0.595

* RISER HAS .321 CUBIC YARDS OF BRICK MASONRY PER FOOT HEIGHT

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR BRICK CATCH BASIN 12' THRU 54' PIPE

SHEET 2 OF 2 840.01

CAPITOL FOUNDRY OF VA, INC.
 2856 CRUSADER CIRCLE
 VIRGINIA BEACH, VA 23453
 PHONE: (757) 427-9431
 FAX: (757) 427-9308
 www.capitolfoundry.net

ALSO AVAILABLE IN 2-1/2" TALL STD FRAME

'ADA' COMPLIANT 24" X 36" X 4" TALL GRATE & REVERSIBLE FRAME

MATERIAL SPEC: ASTM A-48 CLASS 35B ITEM #CB-2436*SH-PED

PEDESTRIAN / BIKE SAFE GRATE

- Nominal Size 24" x 36" x 4".
- Traffic (HS20) Rated.
- No Opening Wider Than 5/8".
- Openings >= 35% of Grate area.

CATCH BASIN (CB)
NCDOT 840.04 & 840.02

MANHOLE (MH)
NCDOT 840.51 & 840.53

DROP INLET (DI)
NCDOT 840.14 & 840.15

STORM STRUCTURE STATION AND OFFSET REFERENCE CHART

NO.	DATE	REVISIONS

AMERICAN Engineering
 American Engineering Associates - Southeast, P.A.
 830 Greenbrier Circle - Suite 110
 Chesapeake, Virginia 23320 (757) 468-6800



Project #	V23026
Drawn by	KYD
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**WRIGHTSVILLE BOULEVARD
 PHASE 2
 WATER AND STORMWATER IMPROVEMENTS**
 TOWN OF KILL DEVIL HILLS
 DARE COUNTY, NORTH CAROLINA

SHEET NAME	DETAILS
SHEET #	C-503

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- PROPOSED AREA TO BE DISTURBED CONSISTS OF AREA WITHIN R/W OF THE FOLLOWING STREETS:
WRIGHTSVILLE BLVD, FROM E. ATLANTIC ST. TO CAROLYN DR.
- AFTER ACCEPTANCE OF ALL PROJECT WORK, AND FULL ESTABLISHMENT OF PERMANENT VEGETATION, CONTINUED MAINTENANCE OF PERMANENT VEGETATION SHALL BE THE RESPONSIBILITY OF OWNER.
- PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES, FOLLOWING COMPLETION OF ANY PHASE OF GRADING; AND, A PERMANENT GROUND COVER FOR ALL DISTURBED AREAS WITHIN THE TIME FRAMES SET FORTH IN THE GROUND STABILIZATION TIME REQUIREMENTS PROVISIONS ON THIS SHEET. IF SAID ACTIVITIES OCCUR OUTSIDE TEMPORARY VEGETATION SEEDING DATES (APRIL 1 THRU SEPT 30) THE TEMPORARY VEGETATION SEEDING SPECIFICATIONS SHALL BE FOLLOWED FOR PLANTING UNTIL THE NEXT APPROPRIATE PERMANENT SEEDING PERIOD, AT WHICH TIME PERMANENT VEGETATION SHALL BE ESTABLISHED ACCORDING TO PERMANENT VEGETATION SEEDING SPECIFICATIONS (SEE PERM AND TEMP SEEDING SPECIFICATIONS ON THIS SHEET).
- IF EXCESSIVE WIND EROSION OR STORM WATER RUNOFF EROSION DEVELOPS DURING TIME OF CONSTRUCTION IN ANY LOCATION ON THE PROJECT SITE, ADDITIONAL SAND OR SILT FENCING SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR LOCAL GOVERNING OFFICIAL SO AS TO PREVENT DAMAGE TO ADJACENT PROPERTY. SEE SAND AND FENCE DETAIL THIS SHEET.
- SOIL EROSION AND SEDIMENTATION CONTROLS TO BE INSPECTED, MAINTAINED AND REPAIRED AS NECESSARY UNTIL PERMANENT VEGETATION OR OTHER EFFECTIVE STABILIZATION IS ESTABLISHED.

CONSTRUCTION SCHEDULE

- OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS. NOTIFY ALL UTILITY COMPANIES (BY CONTRACTOR) AND PROPERTY OWNERS (BY OWNER).
- FLAG AND / OR ROUGH STAKE WORK LIMITS.
- HOLD PRE-CONSTRUCTION CONFERENCE (OWNER, CONTRACTOR, ENGINEER, AND APPROPRIATE GOVERNMENT OFFICIALS) AT LEAST ONE WEEK PRIOR TO START OF CONSTRUCTION ACTIVITIES.
- INSTALL SILT FENCE AS NEEDED.
- COMPLETE CLEARING AND GRUBBING PROCEDURES.
- INSTALL WATER IMPROVEMENTS.
- INSTALL STORM DRAINAGE PIPES AND STRUCTURES. INSTALL INLET PROTECTION ON NEW STRUCTURES, CUT DRIVEWAYS TO SUIT PIPE AND SWALE INSTALLATION.
- INSTALL NEW ROADSIDE SWALES BY CUTTING, OR BY PARTIALLY FILLING EXISTING DITCHES, AS APPROPRIATE. LEAVE SWALES 2" TO 4" LOW (PER SECTION F-F, SHEET C-501) AS ALLOWANCE FOR SEDIMENT DEPOSITION.
- REPLACE DRIVEWAYS AS SHOWN.
- INSTALL OVERLAY FOR ROADWAYS. FINE-GRADE SWALE AREAS. SEED AND MULCH ALL DISTURBED AREAS.
- ALL EROSION & SEDIMENTATION CONTROL PRACTICES WILL BE INSPECTED WEEKLY AND AFTER HEAVY RAINFALL EVENTS, NEEDED REPAIRS WILL BE MADE IMMEDIATELY.
- ONCE PROJECT AREA IS FULLY STABILIZED, REMOVE EROSION AND SEDIMENT CONTROL MEASURES.

GROUND STABILIZATION TIME REQUIREMENTS

FROM THE NC DENR/DWQ
GENERAL PERMIT - NCG 010000
TO DISCHARGE STORMWATER UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR
CONSTRUCTION ACTIVITIES

SECTION II.B. - STORMWATER POLLUTION PREVENTION REQUIREMENTS IN THE NC CONSTRUCTION GENERAL PERMIT

GROUND STABILIZATION

- A) SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
- ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3: 1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
 - ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
- B) CONDITIONS - IN MEETING THE STABILIZATION REQUIREMENTS ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY:
- EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
 - ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY THE GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE IS FLATTER THAN 4: 1. SLOPES LESS THAN 50' SHALL APPLY GROUND COVER WITHIN 14 DAYS EXCEPT WHEN SLOPES ARE STEEPER THAN 3: 1, THE 7 DAY-REQUIREMENT APPLIES.
 - ANY SLOPED AREA FLATTER THAN 4: 1 SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT.
 - SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT EXCEPT WHEN THE SLOPE IS STEEPER THAN 2: 1.
 - ALTHOUGH STABILIZATION IS USUALLY SPECIFIED AS GROUND COVER, OTHER METHODS, SUCH AS CHEMICAL STABILIZATION, MAY BE ALLOWED ON A CASE-BY-CASE BASIS.
 - FOR PORTIONS OF PROJECTS WITHIN THE SEDIMENT CONTROL COMMISSION-DEFINED "HIGH QUALITY WATER ZONE" (ISA NCAC 04A. 0105) , STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS OF THE SITE WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACT. PORTIONS OF A SITE THAT ARE LOWER IN ELEVATION THAN ADJACENT DISCHARGE LOCATIONS AND ARE NOT EXPECTED TO DISCHARGE DURING CONSTRUCTION MAY BE EXEMPT FROM THE TEMPORARY GROUND COVER REQUIREMENTS IF IDENTIFIED ON THE APPROVED E&S PLAN OR ADDED BY THE PERMITTING AUTHORITY.

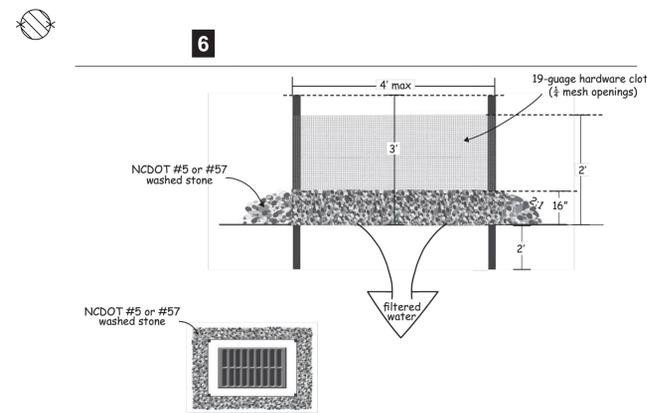


Figure 6.51a Hardware cloth and gravel inlet protection

- Construction Specifications**
- Uniformly grade a shallow depression approaching the inlet.
 - Drive 5-foot steel posts 2 feet into the ground surrounding the inlet. Space posts evenly around the perimeter of the inlet, a maximum of 4 feet apart.
 - Surround the posts with wire mesh hardware cloth. Secure the wire mesh to the steel posts at the top, middle, and bottom. Placing a 2-foot flap of the wire mesh under the gravel for anchoring is recommended.
 - Place clean gravel (NC DOT #5 or #57 stone) on a 2:1 slope with a height of 16 inches around the wire, and smooth to an even grade.
 - Once the contributing drainage area has been stabilized, remove accumulated sediment, and establish final grading elevations.
 - Compact the area properly and stabilize it with groundcover.

- Maintenance**
- Inspect inlets at least weekly and after each significant (1/2 inch or greater) rainfall event. Clear the mesh wire of any debris or other objects to provide adequate flow for subsequent rains. Take care not to damage or undercut the wire mesh during sediment removal. Replace stone as needed.

- References**
- Inlet Protection
 - 6.52, Block and Gravel Inlet Protection
 - 6.54, Rock Doughnut Inlet Protection
 - North Carolina Department of Transportation
 - Standard Specifications for Roads and Structures

6.51.2 **HARDWARE CLOTH AND GRAVEL INLET PROTECTION** Rev. 6/06
SCALE: NTS

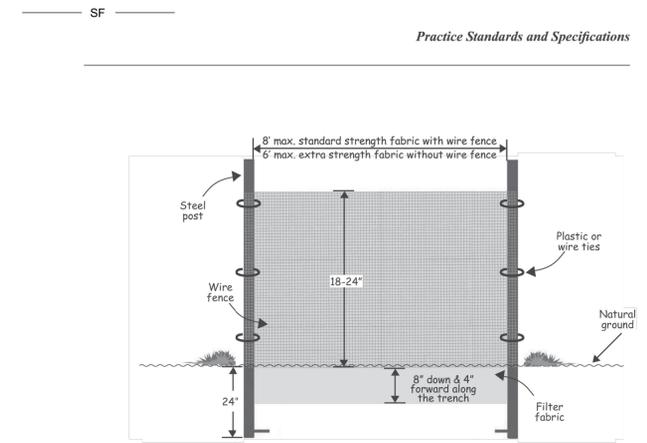


Figure 6.62a Installation detail of a sediment fence.

6.62.5 **SEDIMENT FENCE (SILT FENCE)** Rev. 5/13
SCALE: NTS

PERMANENT VEGETATION SEEDING SPECIFICATIONS			
SEEDING DATES: APRIL 1 - SEPTEMBER 30		TEMPORARY VEGETATION	
SEED MIXTURE	APPLICATION RATES / ACRE	SEEDING DATES: OCTOBER 1 - MARCH 31	
BAHIA	50 LBS	SEED MIXTURE	APPLICATION RATES / ACRE
COMMON BERMUDA (UN HULLED)	50 LBS	RYE GRAIN	175 LBS
GERMAN MILLETT	15 LBS	FERTILIZER	10-10-10 @ 1,000 LB/ACRE
FESCUE	20 LBS	MULCH	APPLY 4,000 LB/ACRE STRAW, ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.
FERTILIZER	26-13-13 @ 500 LB/ACRE		
MULCH	APPLY 4,000 LB/ACRE STRAW, ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.		

GENERAL:
FERTILIZER RATES SHOWN ARE GENERAL RECOMMENDATIONS. FREQUENCY AND AMOUNT OF FERTILIZATION CAN BEST BE DETERMINED THROUGH SITE SPECIFIC SOIL TESTING.
MAINTENANCE: SATISFACTORY STABILIZATION AND EROSION CONTROL REQUIRES A COMPLETE VEGETATIVE COVER. EVEN SMALL BREACHES IN VEGETATIVE COVER CAN EXPAND RAPIDLY AND, IF LEFT UNATTENDED, CAN ALLOW SERIOUS SOIL LOSS FROM AN OTHERWISE STABLE SURFACE. A SINGLE HEAVY RAIN IS OFTEN SUFFICIENT TO GREATLY ENLARGE BARE SPOTS, AND THE LONGER REPAIRS ARE DELAYED, THE MORE COSTLY THEY BECOME. PROMPT ACTION WILL KEEP SEDIMENT LOSS AND REPAIR COST DOWN. NEW SEEDLINGS SHOULD BE INSPECTED FREQUENTLY AND MAINTENANCE PERFORMED AS NEEDED. IF RILLS AND GULLIES DEVELOP, THEY MUST BE FILLED IN RE-SEEDING, AND MULCHED AS SOON AS POSSIBLE. DIVERSIONS MAY BE NEEDED UNTIL NEW PLANTS TAKE HOLD.
MAINTENANCE REQUIREMENTS EXTEND BEYOND THE SEEDING PHASE. (UNTIL FULL COMPLETION IS DECLARED)
WEAK OR DAMAGED SPOTS MUST BE RE-LIMED, FERTILIZED, MULCHED, AND RE SEEDING AS PROMPTLY AS POSSIBLE. REFERTILIZATION AND/OR WATERING MAY BE NEEDED TO FULLY ESTABLISH VEGETATIVE COVER.

⊗ E & S MEASURES, EXCEPT WHERE OTHERWISE NOTED, ARE TO BE INSTALLED BEFORE WORK BEGINS AND MAINTAINED UNTIL WORKSITE IS FULLY STABILIZED.
⊗¹ MEASURE REQUIRED DURING PHASE 1 ONLY.
⊗² MEASURE NOT TO BE PROVIDED UNTIL PHASE 2.

6.06 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

Definition
A gravelled area or pad located at points where vehicles enter and leave a construction site.

Purpose
To provide a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff, and to help control dust.

Conditions Where Practice Applies
Whenever traffic will be leaving a construction site and moving directly onto a public road or other paved off-site area. Construction plans should limit traffic to properly constructed entrances.

Design Criteria
Aggregate Size—Use 2-3 inch washed stone.
Dimensions of gravel pad—
Thickness: 6 inches minimum
Width: 12-foot minimum or full width at all points of the vehicular entrance and exit area, whichever is greater
Length: 50-foot minimum
Location—Locate construction entrances and exits to limit sediment from leaving the site and to provide for maximum utility by all construction vehicles (Figure 6.06a). Avoid steep grades, and entrances at curves in public roads.

Figure 6.06a Gravel entrance/exit keeps sediment from leaving the construction site (modified from VA SWCC).

CONSTRUCTION ENTRANCE 6.06.1
SCALE: NTS

STAGING AREAS
A CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT ALL STAGING / STORAGE AREAS THAT WILL HAVE CONSTRUCTION VEHICLES ENTERING / EXITING ALL PAVED STREETS.

6 Washing—If conditions at the site are such that most of the mud and sediment are not removed by vehicles traveling over the gravel, the tires should be washed. Washing should be done on an area stabilized with crushed stone that drains into a sediment trap or other suitable disposal area. A wash rack may also be used to make washing more convenient and effective.

Construction Specifications

- Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
- Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
- Provide drainage to carry water to a sediment trap or other suitable outlet.
- Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.

Maintenance
Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic tamping with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediately remove all objectionable materials spilled, washed, or tracked onto public roadways.

References

- Runoff Conveyance Measures
 - 6.30, Grass-lined Channels
- Sediment Traps and Barriers
 - 6.60, Temporary Sediment Trap

6.06.2 **CONSTRUCTION ENTRANCE NOTES** Rev. 6/06
SCALE: NTS

6

Figure 6.55a Rock pipe inlet protection plan view and cross-section view

6.55.2 **ROCK PIPE INLET PROTECTION** Rev. 6/06
SCALE: NTS

REVISIONS

NO.	DATE	DESCRIPTION

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PROFESSIONAL SEAL
NORTH CAROLINA
ENGINEER
057308
03/01/2024
EARLY R. ZELTMAN

Project #	V23026
Drawn by	KYD
Submittal Date	03/01/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994

**WRIGHTSVILLE BOULEVARD
PHASE 2
WATER AND STORMWATER IMPROVEMENTS**
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

SHEET NAME

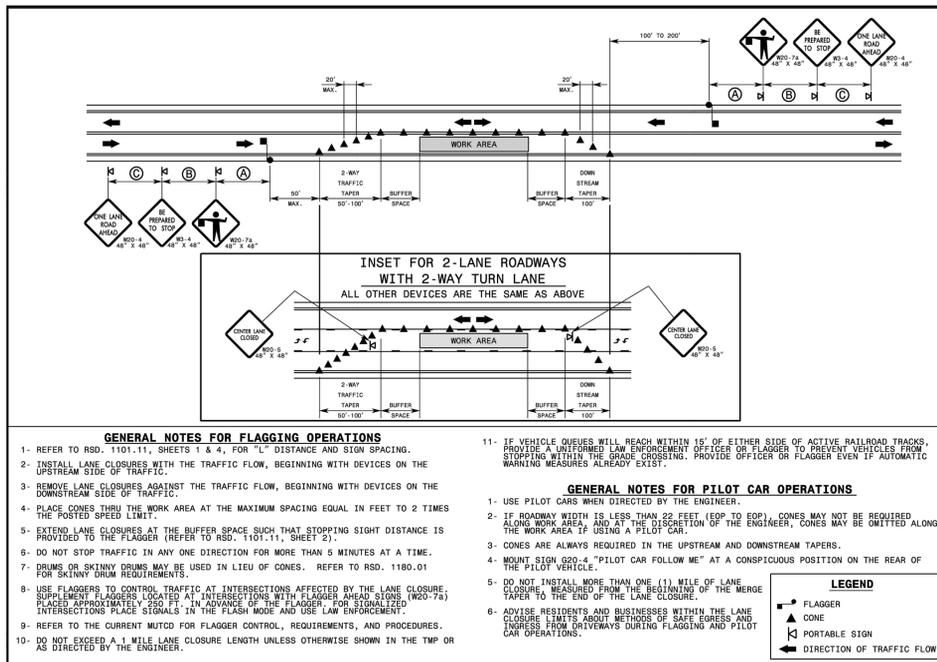
E AND S NOTES

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C-504

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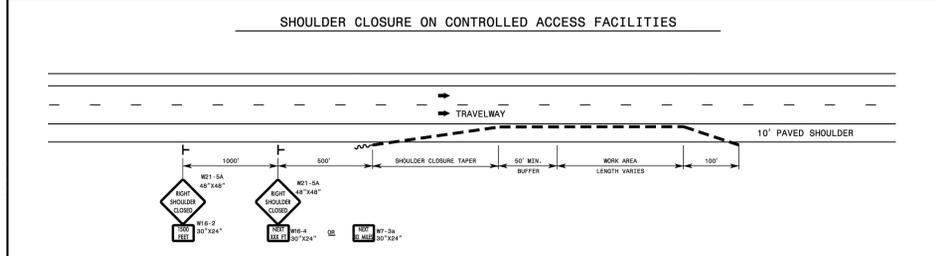
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY - 1 LANE CLOSED

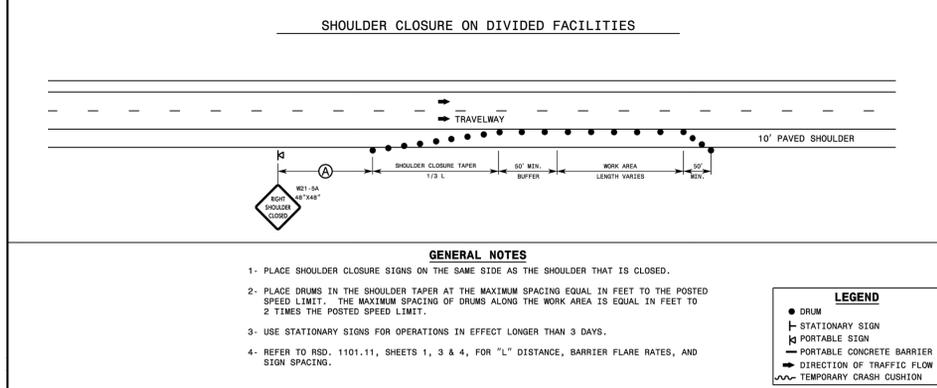
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

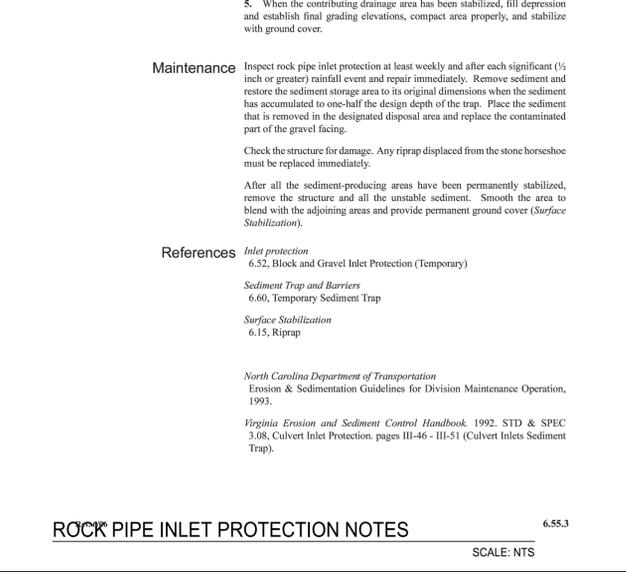
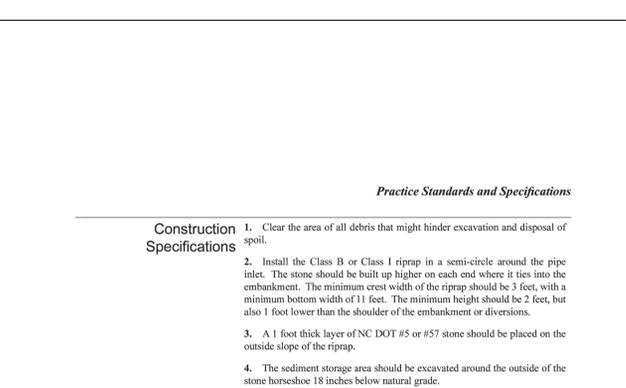
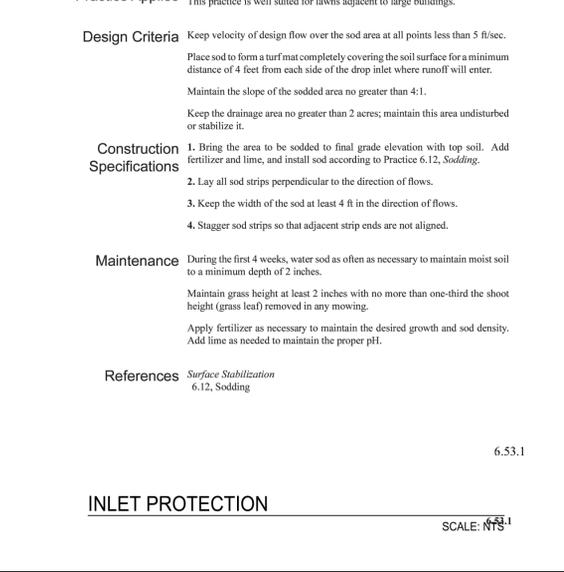
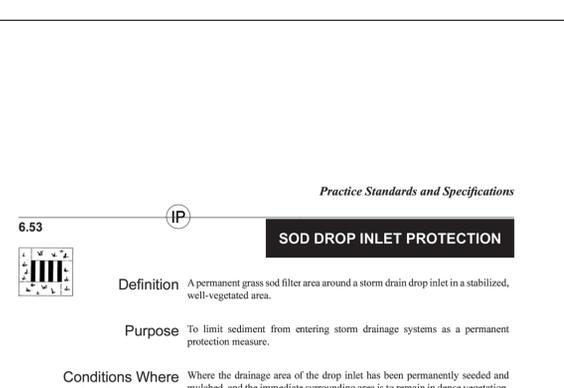
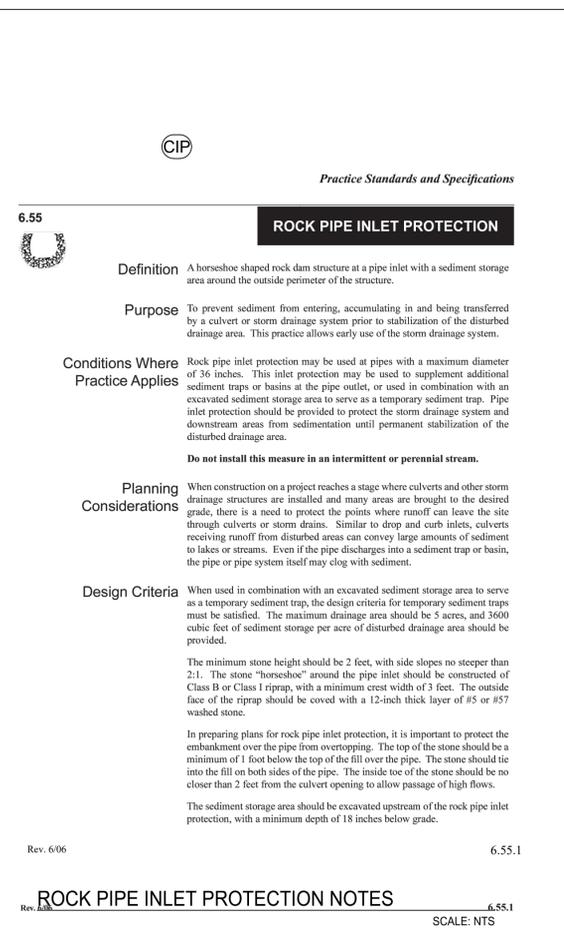
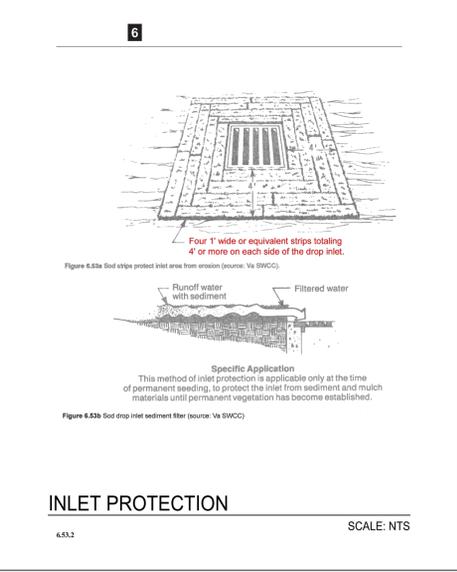
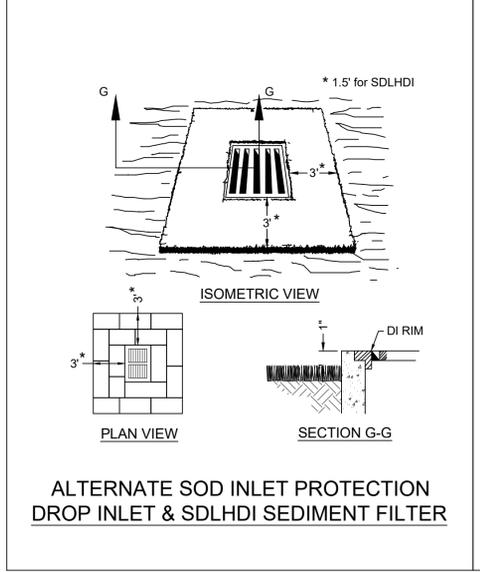
SHEET 1 OF 1
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

SHEET 1 OF 1
1101.04



REVISIONS	DATE	DESCRIPTION

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Project #	V23026
Drawn by	KYD
Submit Date	03/01/2024
Scale	AS NOTED
SWaM Certification	715559
VA Firm #	0405001994

WRIGHTSVILLE BOULEVARD PHASE 2
WATER AND STORMWATER IMPROVEMENTS
TOWN OF KILL DEVIL HILLS
DARE COUNTY, NORTH CAROLINA

SHEET NAME
E AND S & TRAFFIC CONTROL DETAILS

SHEET #
C-505

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GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT
Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION
Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none">Temporary grass seed covered with straw or other mulches and tackifiersHydroseedingRoller erosion control products with or without temporary grass seedAppropriately applied straw or other mulchPlastic sheeting	<ul style="list-style-type: none">Permanent grass seed covered with straw or other mulches and tackifiersGeotextile fabrics such as permanent soil reinforcement mattingHydroseedingShrubs or other permanent plantings covered with mulchUniform and evenly distributed ground cover sufficient to restrain erosionStructural methods such as concrete, asphalt or retaining wallsRoller erosion control products with grass seed

- POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**
- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
 - Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
 - Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
 - Provide ponding area for containment of treated Stormwater before discharging offsite.
 - Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

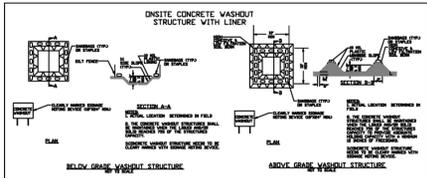
- EQUIPMENT AND VEHICLE MAINTENANCE**
- Maintain vehicles and equipment to prevent discharge of fluids.
 - Provide drip pans under any stored equipment.
 - Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
 - Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
 - Remove leaking vehicles and construction equipment from service until the problem has been corrected.
 - Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

- LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**
- Never bury or burn waste. Place litter and debris in approved waste containers.
 - Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
 - Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
 - Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
 - Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
 - Anchor all lightweight items in waste containers during times of high winds.
 - Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
 - Dispose waste off-site at an approved disposal facility.
 - On business days, clean up and dispose of waste in designated waste containers.

- PAINT AND OTHER LIQUID WASTE**
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
 - Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
 - Contain liquid wastes in a controlled area.
 - Containment must be labeled, sized and placed appropriately for the needs of site.
 - Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

- PORTABLE TOILETS**
- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
 - Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
 - Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

- EARTHEN STOCKPILE MANAGEMENT**
- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
 - Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
 - Provide stable stone access point when feasible.
 - Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



- CONCRETE WASHOUTS**
- Do not discharge concrete or cement slurry from the site.
 - Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
 - Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
 - Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
 - Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
 - Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
 - Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
 - Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
 - Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
 - At the completion of the concrete work, remove remaining leavings and dispose in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

- HERBICIDES, PESTICIDES AND RODENTICIDES**
- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
 - Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
 - Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
 - Do not stockpile these materials onsite.

- HAZARDOUS AND TOXIC WASTE**
- Create designated hazardous waste collection areas on-site.
 - Place hazardous waste containers under cover or in secondary containment.
 - Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING EFFECTIVE: 04/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION
Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SOOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands outside or offsite (before accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover), 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

- PART II, SECTION 6, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT**
- Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:
- The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items.
 - The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.
 - Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems.
 - Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above.
 - Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
 - Sediment removed from the dewatering treatment devices described in item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation
The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the location, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site
In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This General Permit as well as the Certificate of Coverage, after it is received.
- Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years
All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported
Permittees shall report the following occurrences:

- Visible sediment deposition in a stream or wetland.
- Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
- Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- Anticipated bypasses and unanticipated bypasses.
- Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none">Within 24 hours, an oral or electronic notification.Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis.If the stream is named on the NC 303(e) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and releases of hazardous substances per Item 1(b)-(e) above	<ul style="list-style-type: none">Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none">A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none">Within 24 hours, an oral or electronic notification.Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(h)(7)]	<ul style="list-style-type: none">Within 24 hours, an oral or electronic notification.Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(i)(6).Division staff may waive the requirement for a written report on a case-by-case basis.



NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING EFFECTIVE: 04/01/19

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WRIGHTSVILLE BOULEVARD PHASE 2 WATER AND STORMWATER IMPROVEMENTS
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SHEET NAME
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SHEET #
C-506