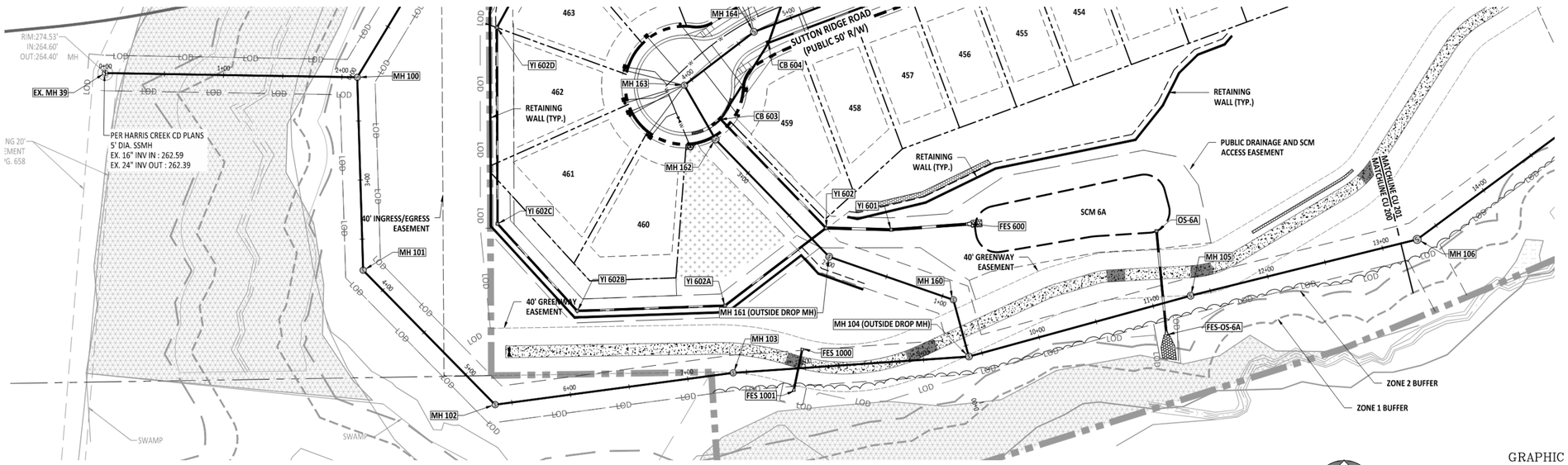
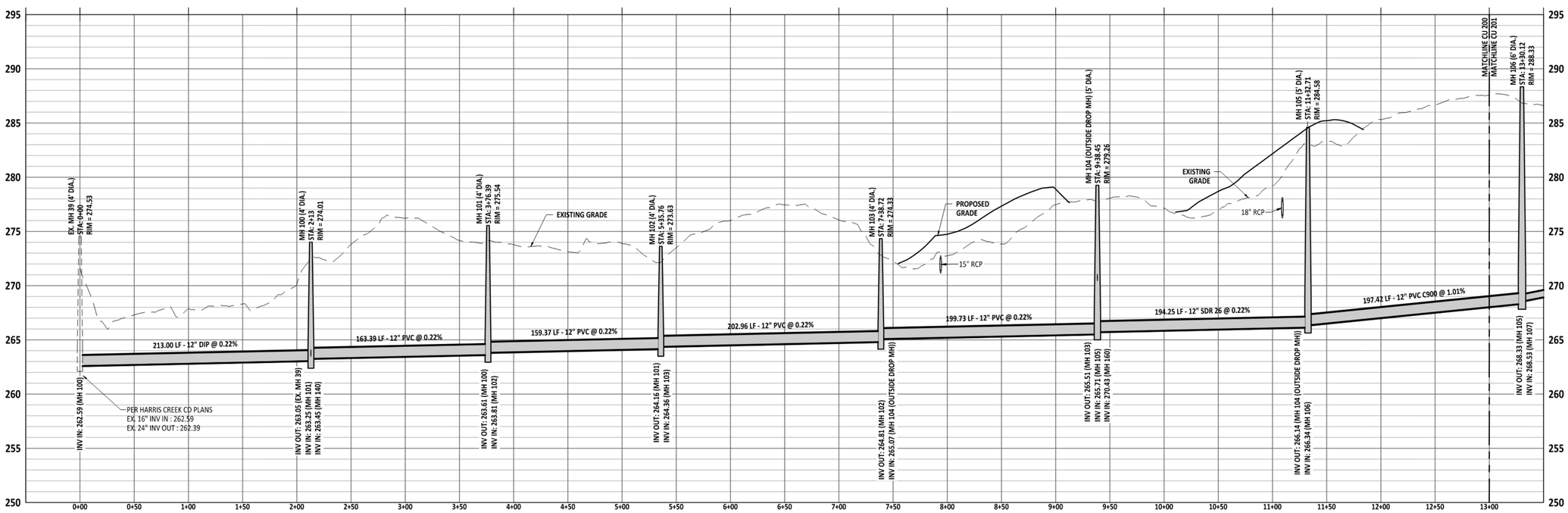


EX. MH 39 TO MH 106 PLAN
AND PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft



PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:29:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

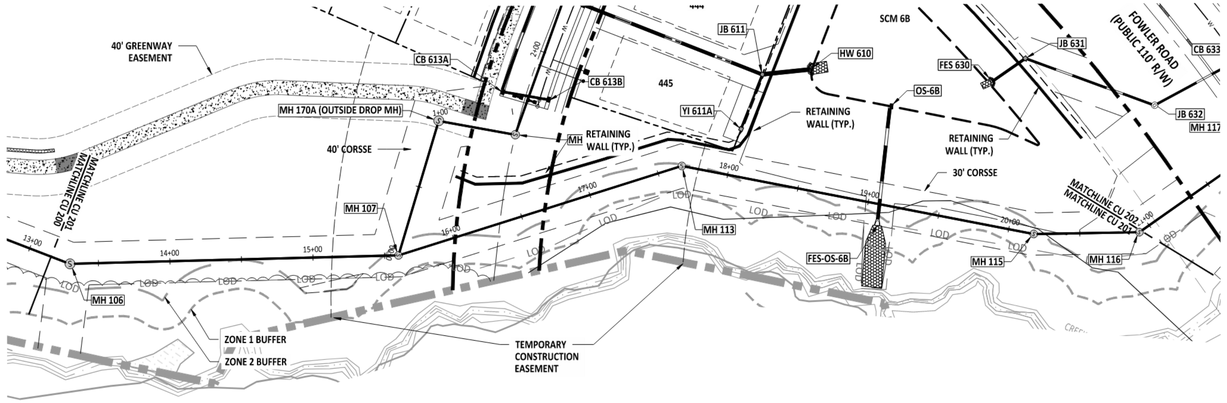
SHEET TITLE:

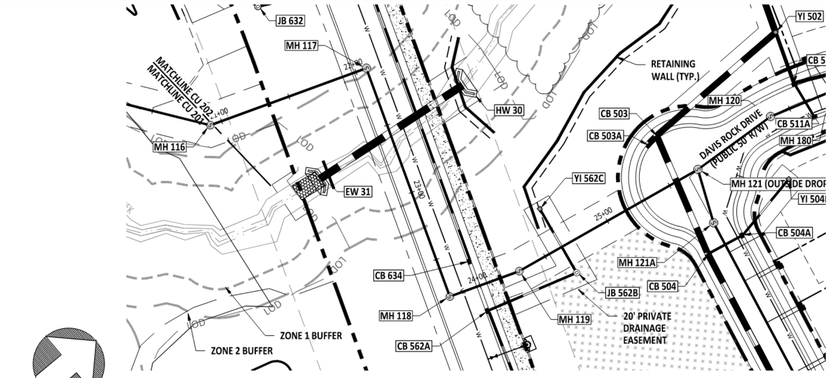
SANITARY SEWER PLAN & PROFILE

SHEET NO.: CU-200

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\50. CU-200-203 PLAN & PROFILE.dwg

2025-12-12





GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

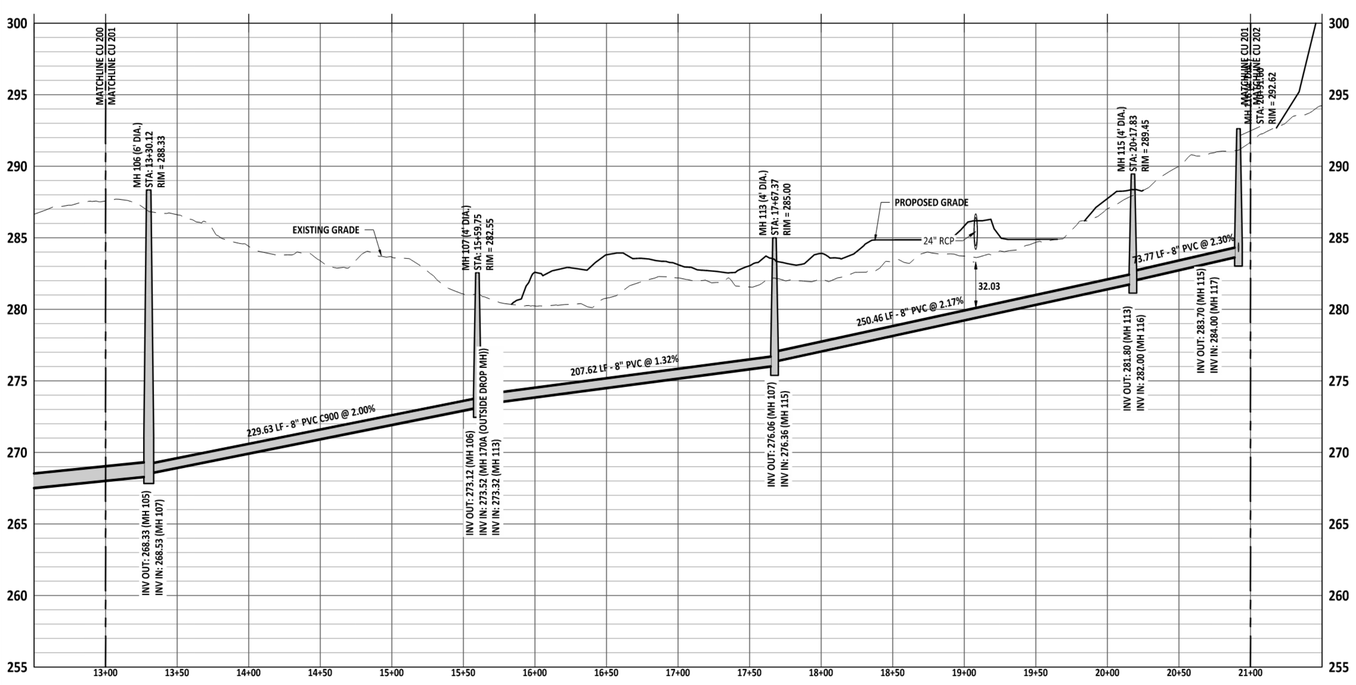
MH 117 TO MH 120 PLAN AND PROFILE

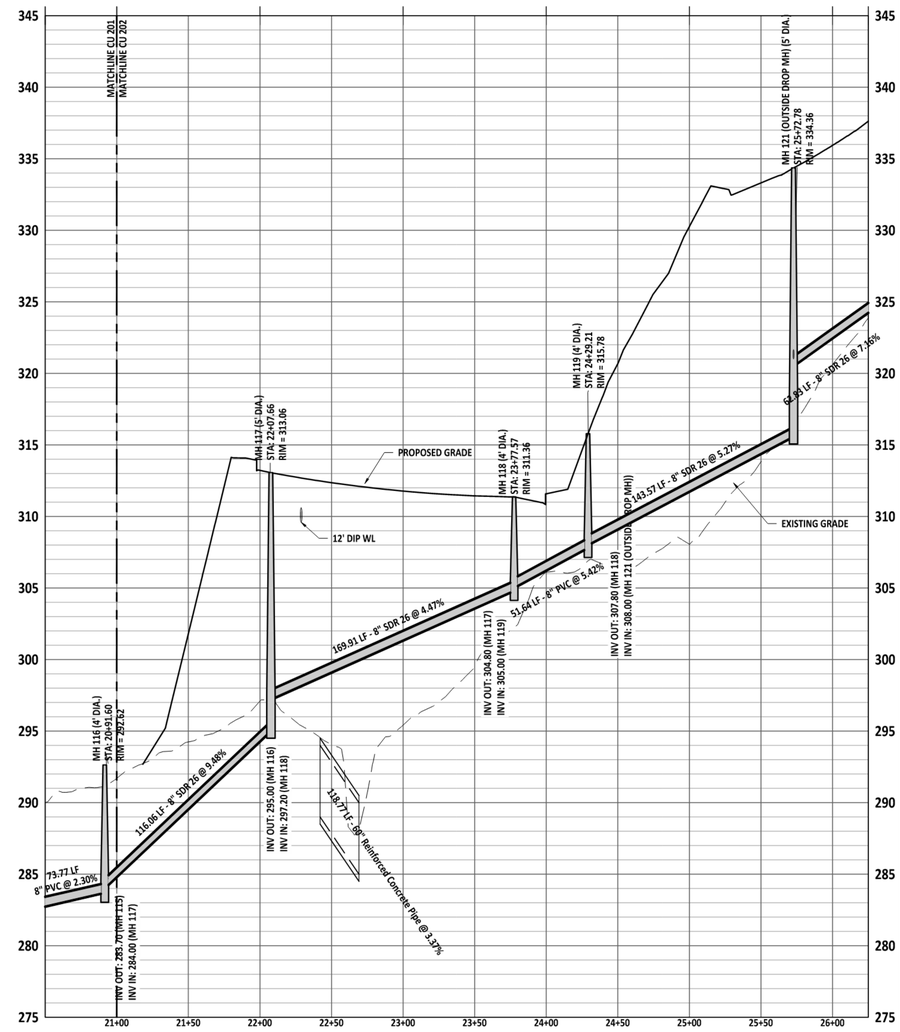
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

MH 106 TO MH 116 PLAN AND PROFILE





PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 12:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

SANITARY SEWER PLAN & PROFILE

SHEET NO.:

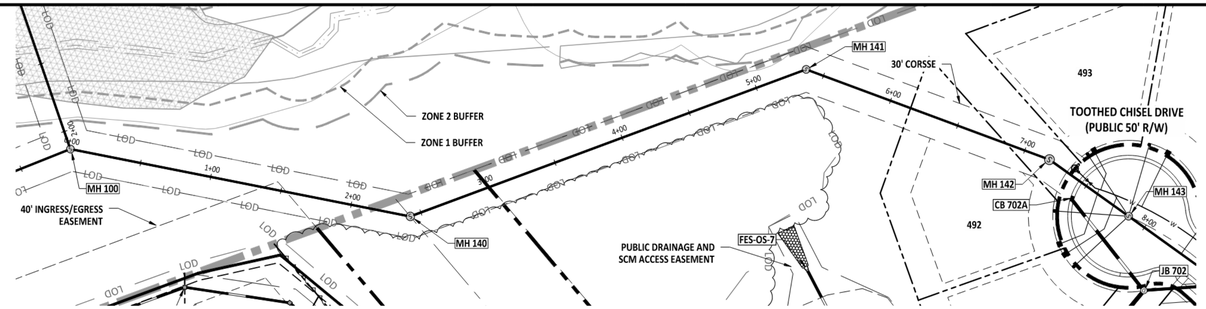
CU-201

North Carolina 811

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

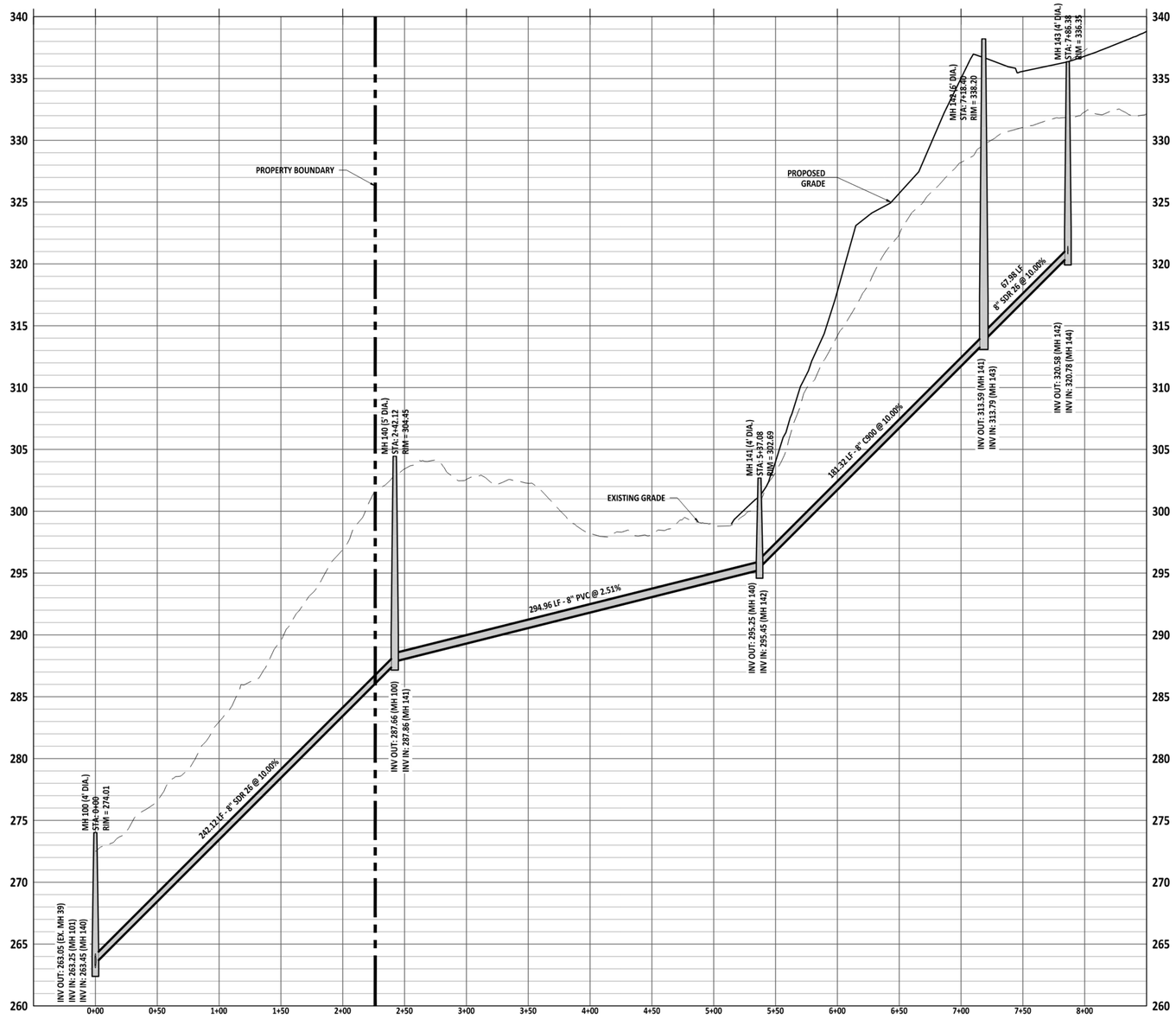
Z:\Jobs\23-0004 Merritt Property BRP\dwg_Working Dwgs\Sheets\Construction Set\CU- CU-200-203 PLAN & PROFILE.dwg

2025-12-12



MH 100 TO MH 143 PLAN
AND PROFILE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft



PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

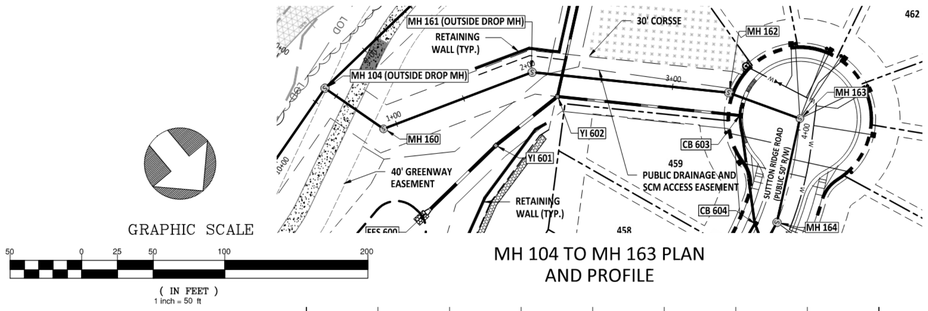
MERRITT RESERVE
SANITARY SEWER PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

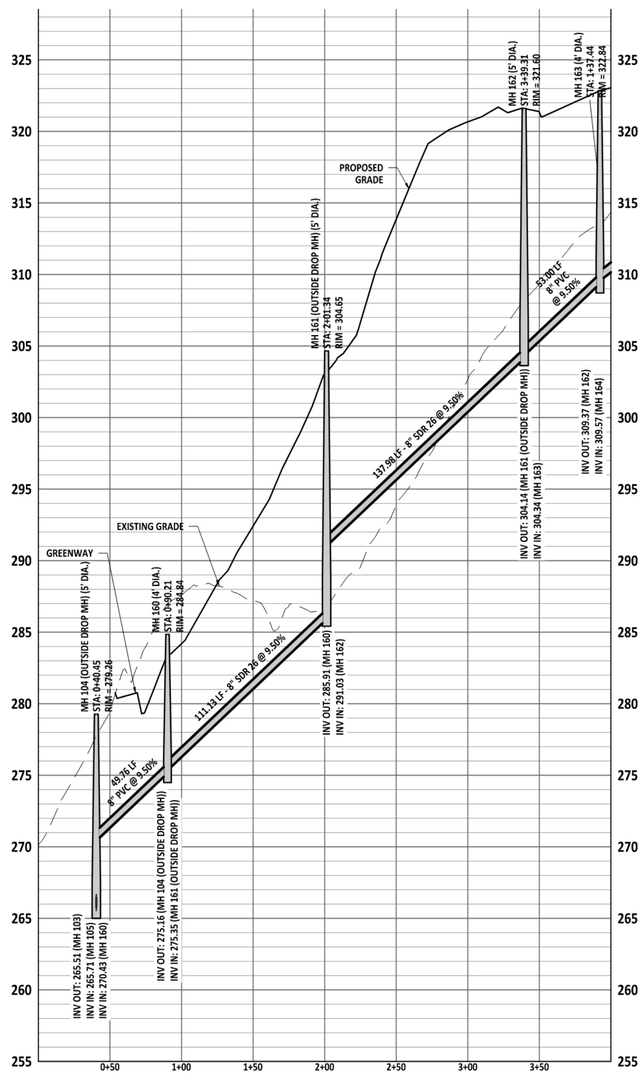
SHEET TITLE:
SANITARY SEWER PLAN & PROFILE

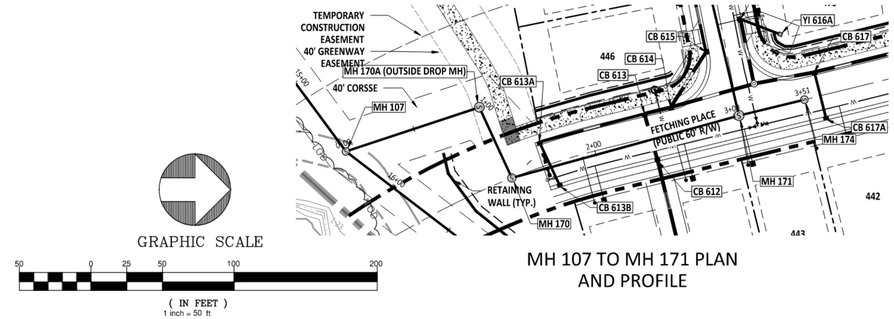
SHEET NO.:
CU-202

Z:\Jobs\23-0004 Merrit Property BRV\Revit_Working Dwgs\Sheets\Construction Set\CU_CU-200-203 PLAN & PROFILE.dwg
2025-12-12

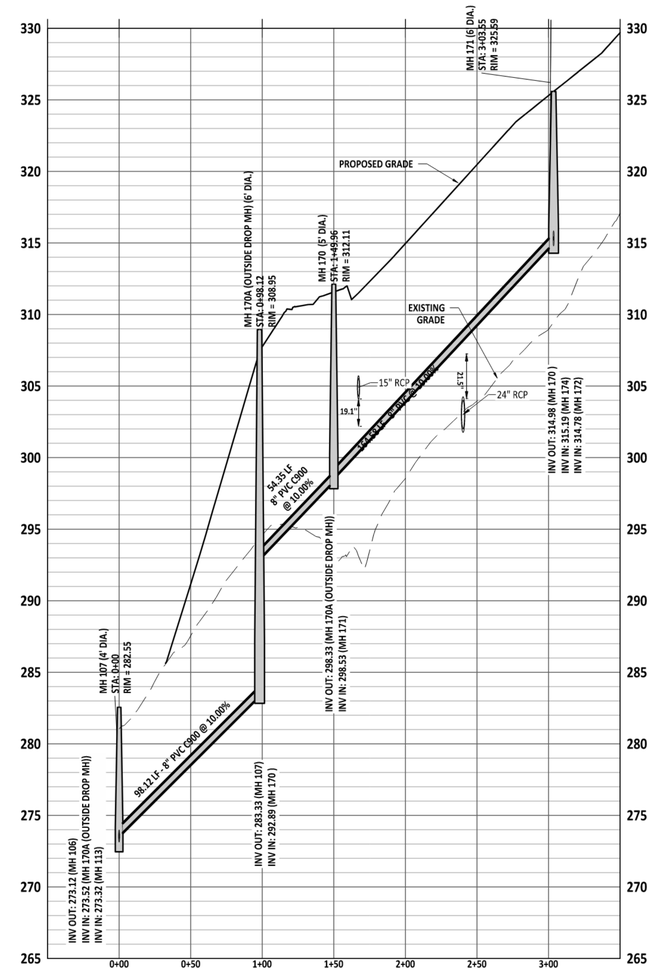


MH 104 TO MH 163 PLAN AND PROFILE





MH 107 TO MH 171 PLAN AND PROFILE



PROJECT NUMBER = CID-25-02

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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 12:34:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

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MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

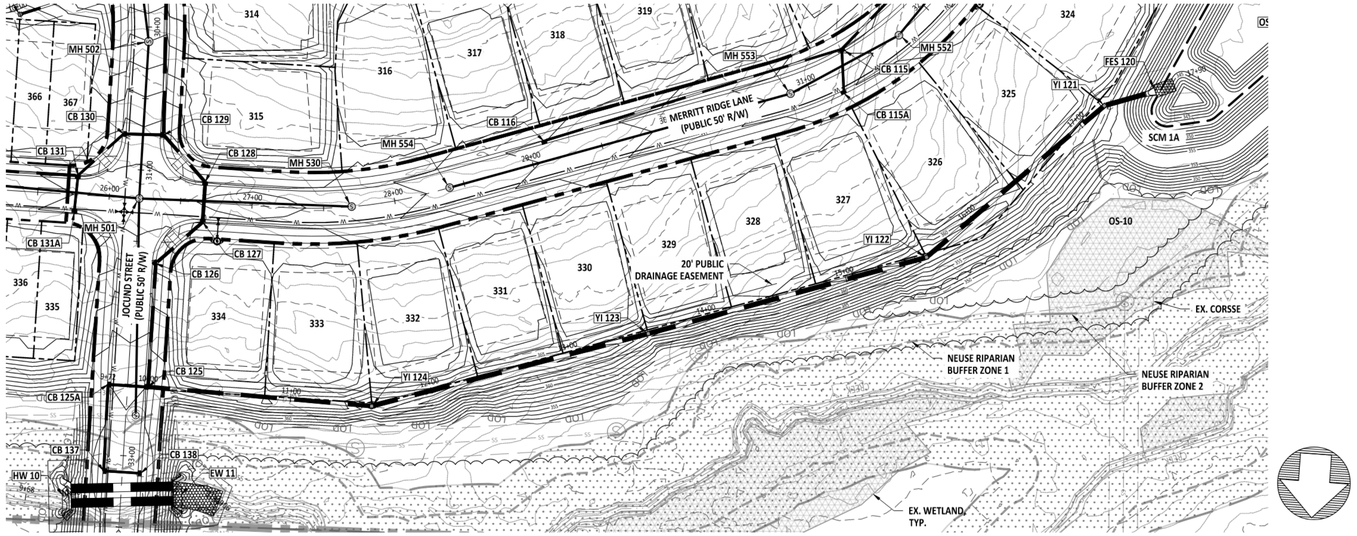
SANITARY SEWER PLAN & PROFILE

SHEET NO.: **CU-203**

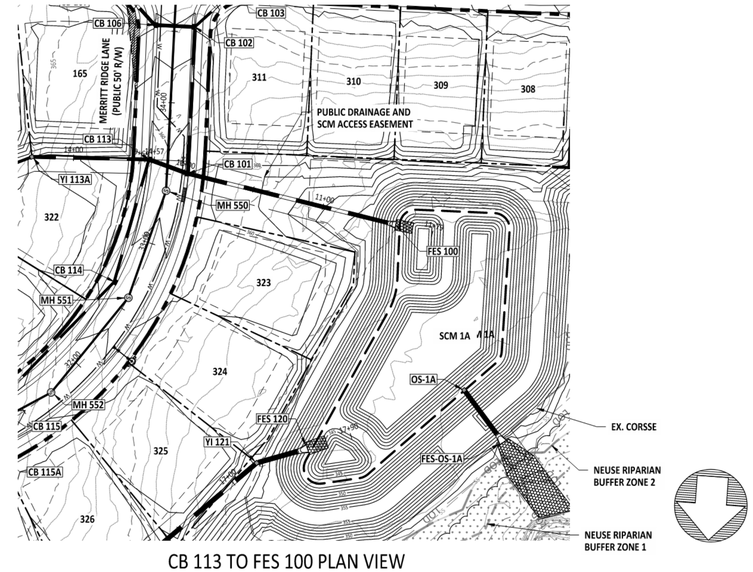
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property (BRD)\Dwg_Working Dwgs\Sheets\Construction Set\50. CU-200-203 PLAN & PROFILE.dwg

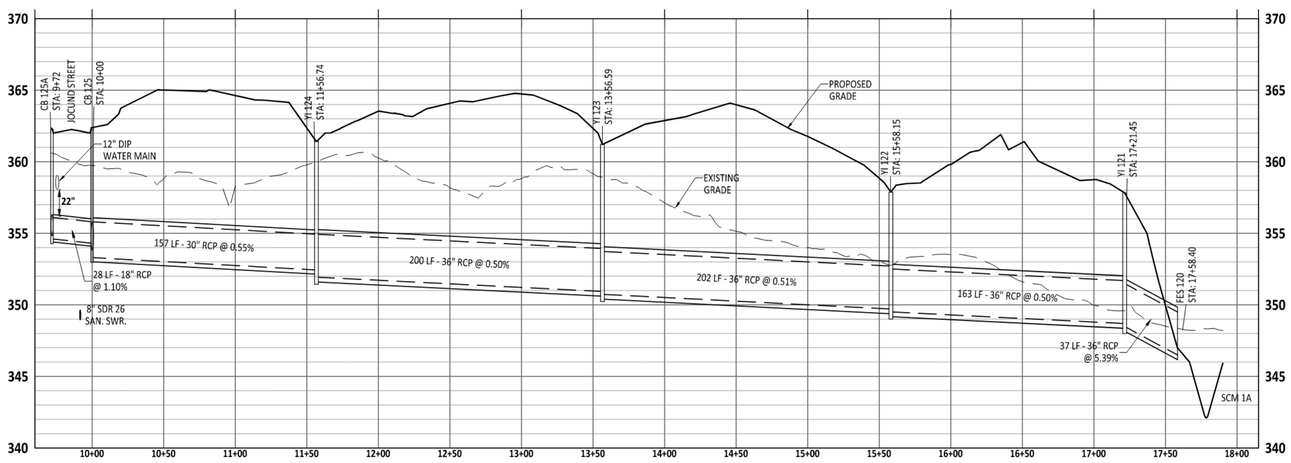
2025-12-12



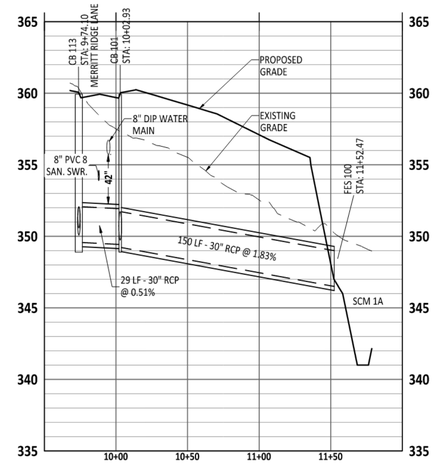
CB 125A TO FES 120 PLAN VIEW



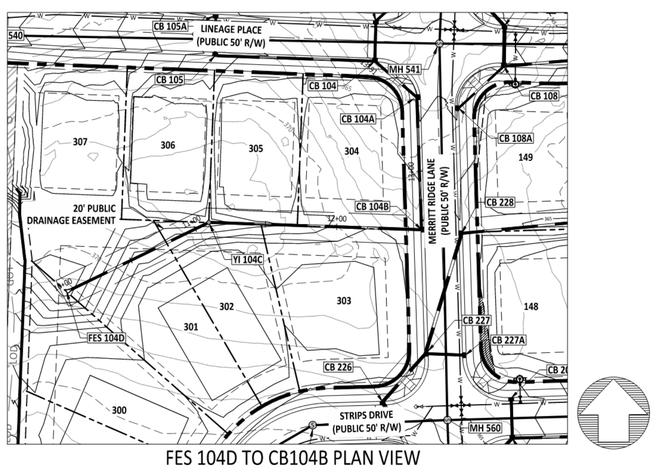
CB 113 TO FES 100 PLAN VIEW



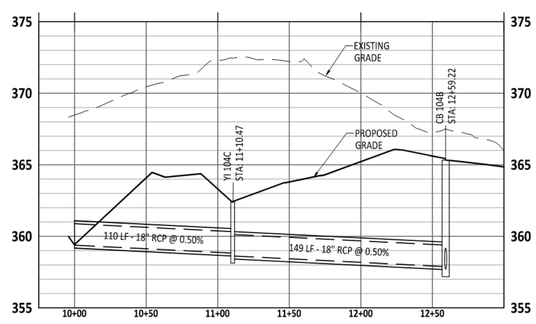
CB 125A TO FES 120 PROFILE



CB 113 TO FES 100 PROFILE



FES 104D TO CB104B PLAN VIEW



FES 104D TO CB104B PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881

Digitally signed by Jakob Klein
Date: 2026.01.09 12:25:00-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

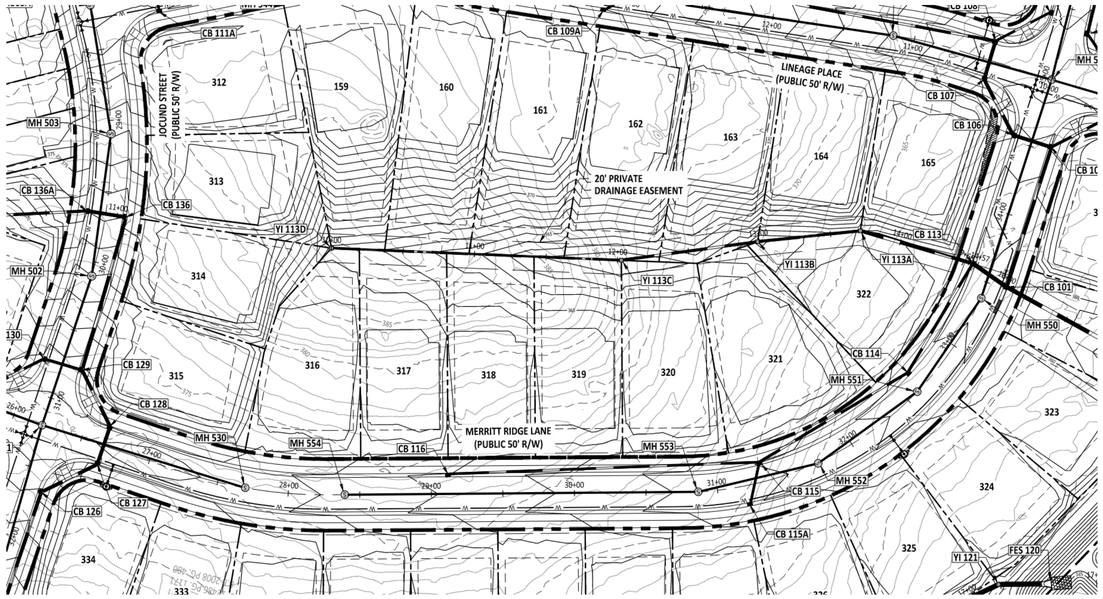
SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

SHEET NO.: **CU-300**

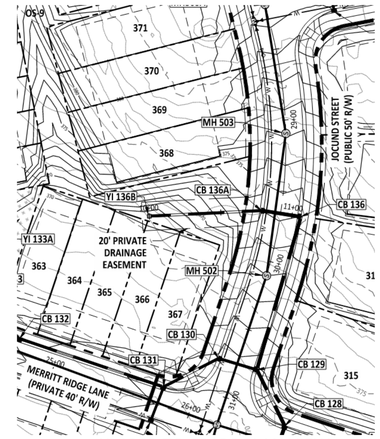
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property (BRD)\dwg_Working Dwgs\Sheets\Construction Set\50s, CU-500-505 PLAN & PROFILE.dwg

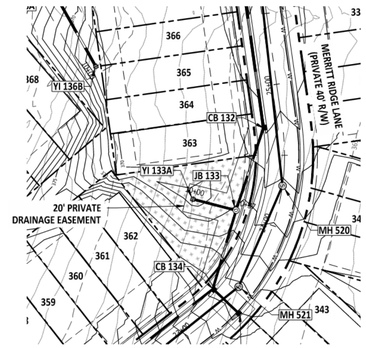
2025-12-12



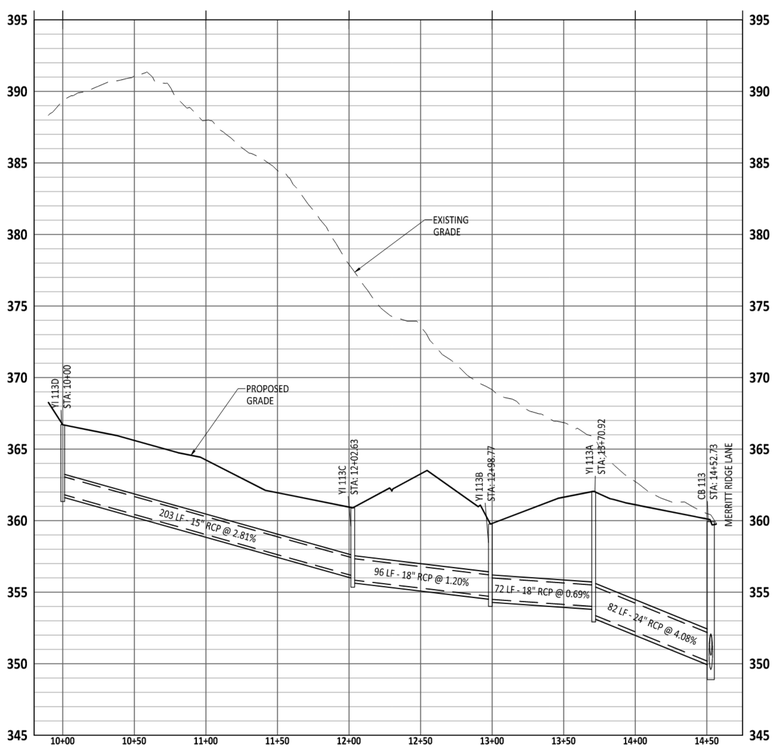
YI 113D TO CB 113 PLAN VIEW



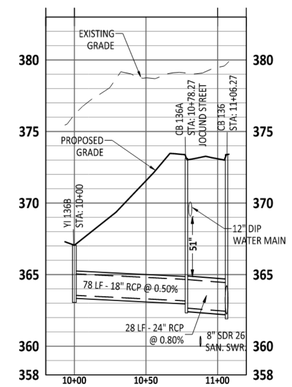
YI 136B TO CB136 PLAN VIEW



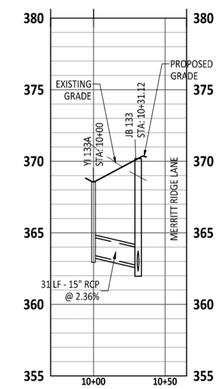
YI 133A TO JB 133 PLAN VIEW



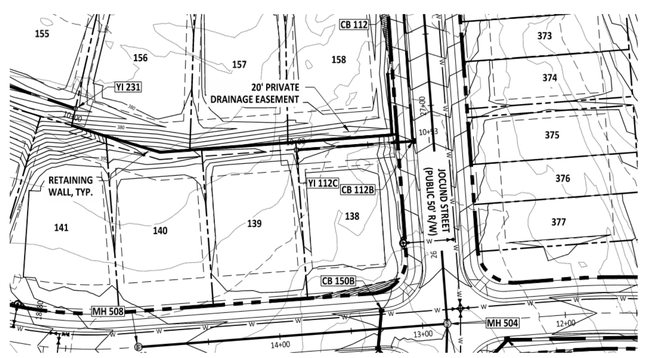
YI 113D TO CB 113 PROFILE



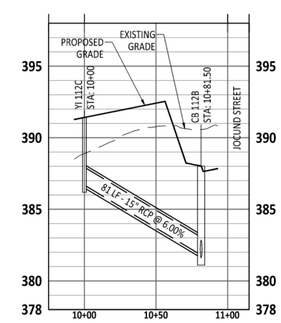
YI 136B TO CB136 PROFILE



YI 133A TO JB 133 PROFILE



YI 112C TO CB 112B PLAN VIEW



YI 112C TO CB 112B PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 12:27:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

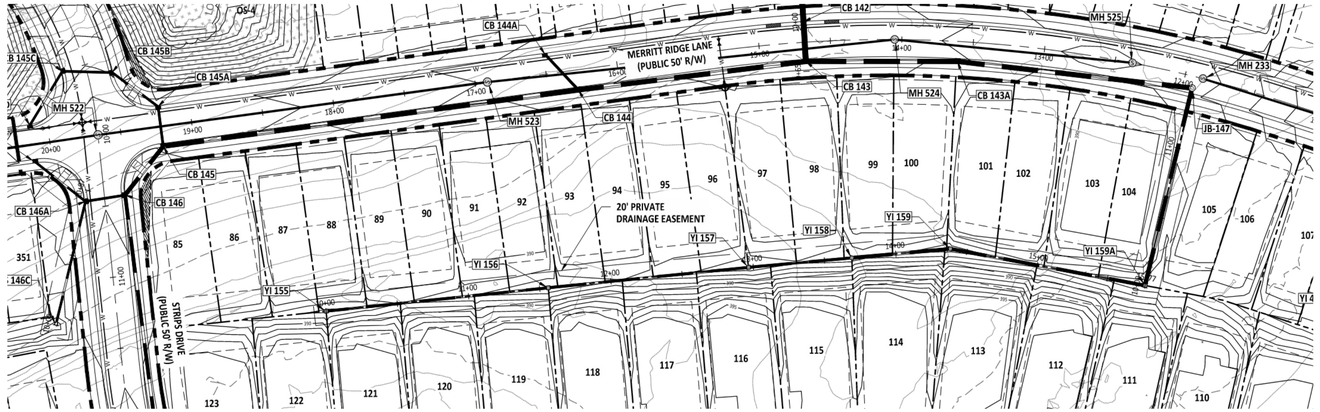
SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

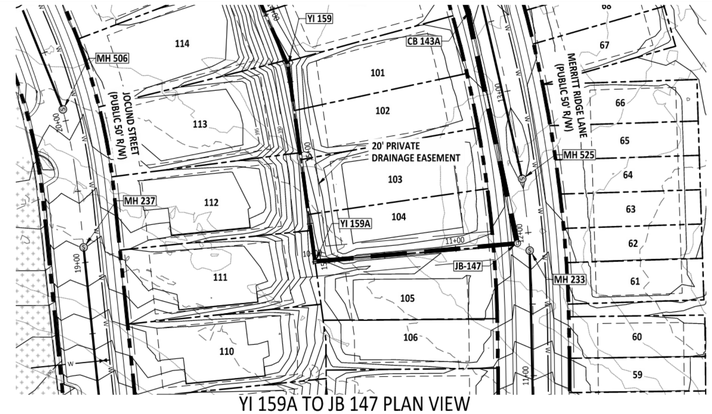
SHEET NO.: **CU-301**

Z:\Jobs\23-0004 Merrit Property (BIG)\dwg_Working Dwgs\Sheets\Construction Set\50s CU-500-505 PLAN & PROFILE.dwg

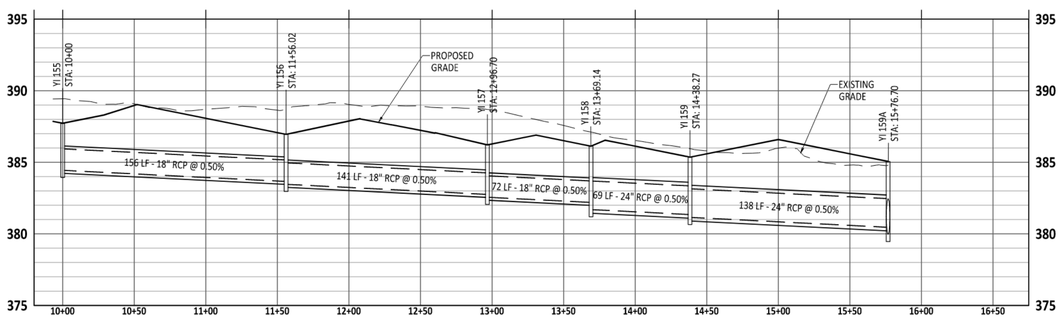
2025-12-12



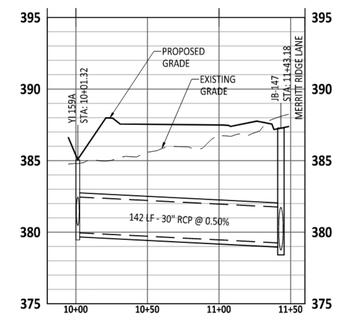
YI 155 TO YI 159 PLAN VIEW



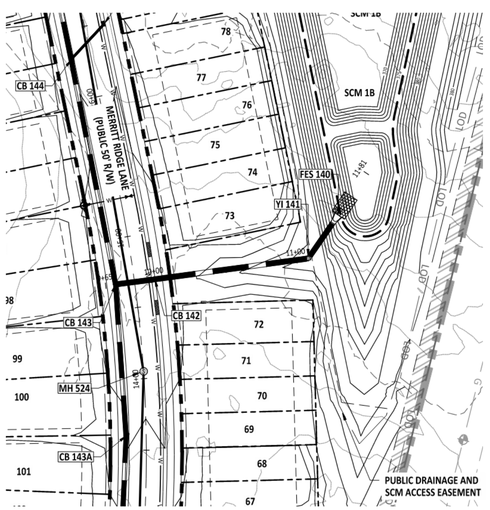
YI 159A TO JB 147 PLAN VIEW



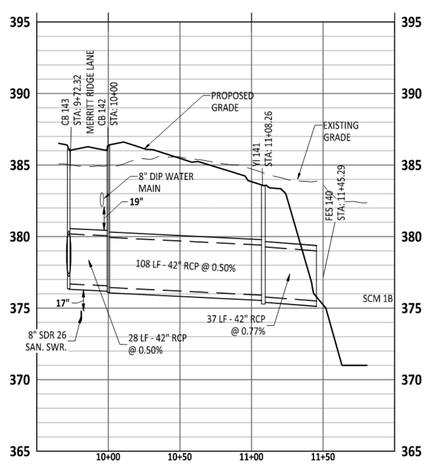
YI 155 TO YI 159 PROFILE



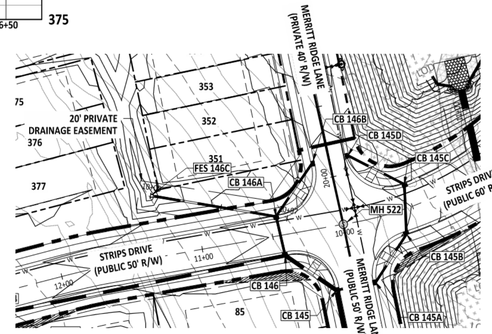
YI 159A TO JB 147 PROFILE



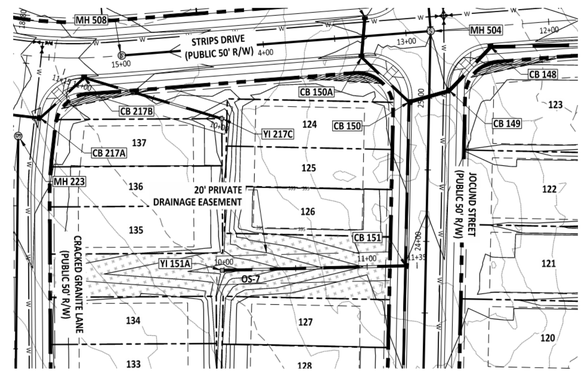
CB 143 TO FES 140 PLAN VIEW



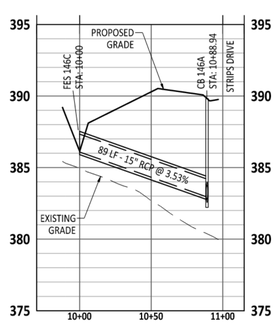
CB 143 TO FES 140 PROFILE



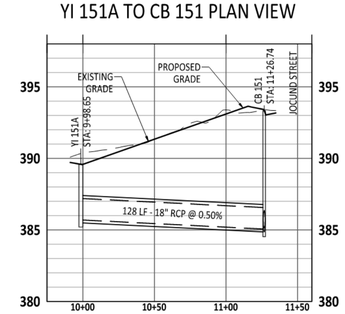
FES 146C TO CB 146A PLAN VIEW



YI 151A TO CB 151 PLAN VIEW



FES 146C TO CB 146A PROFILE



YI 151A TO CB 151 PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

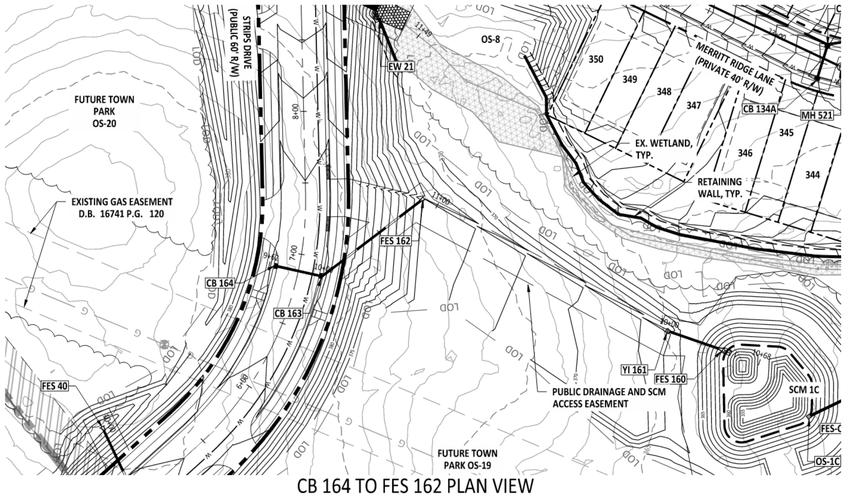
JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

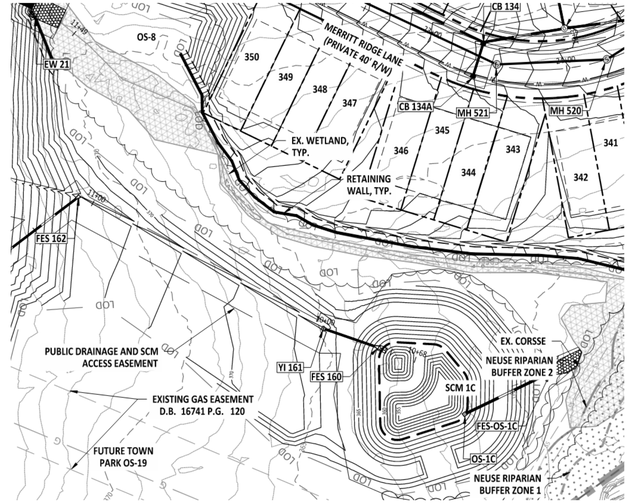
SHEET NO.:
CU-302

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

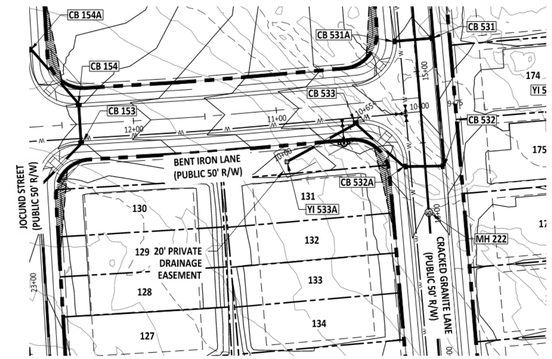
Z:\Jobs\23-0004 Merritt Property BBD\dwg_Working Dwgs\Sheets\Construction Set\CU-300-305 PLAN & PROFILE.dwg
2025-12-12



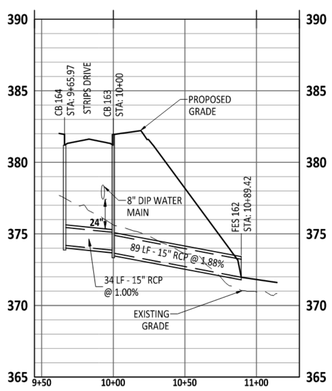
CB 164 TO FES 162 PLAN VIEW



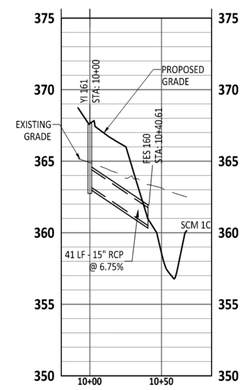
YI 161 TO FES 160 PLAN VIEW



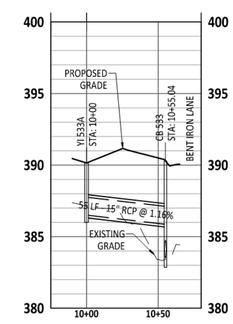
YI 533A TO CB 533 PLAN VIEW



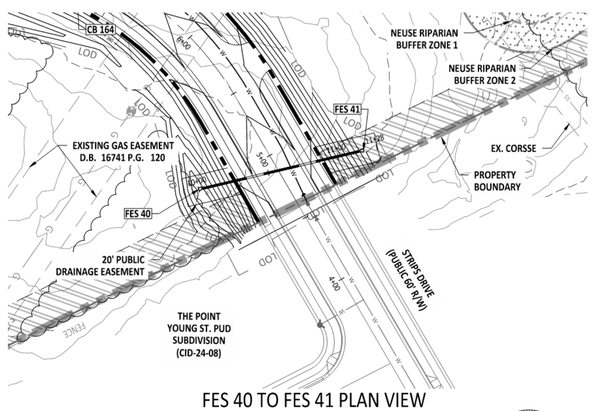
CB 164 TO FES 162 PROFILE



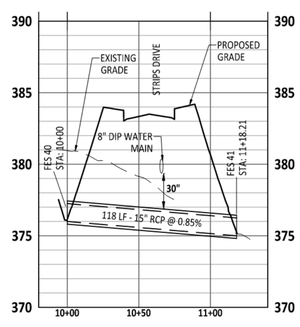
YI 161 TO FES 160 PROFILE



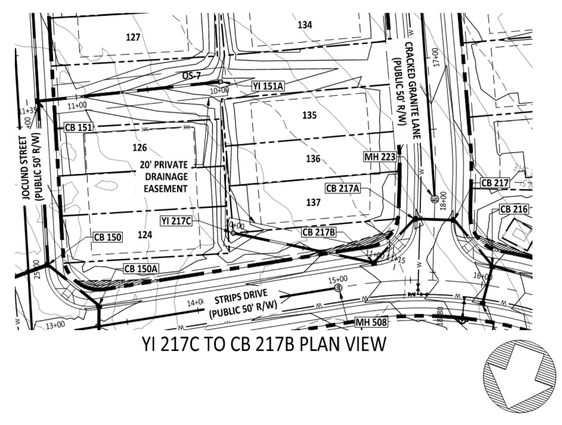
YI 533A TO CB 533 PROFILE



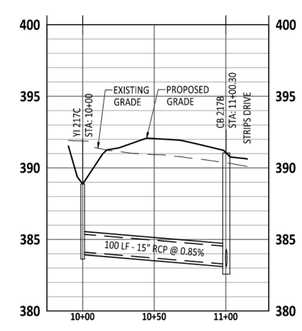
FES 40 TO FES 41 PLAN VIEW



FES 40 TO FES 41 PROFILE



YI 217C TO CB 217B PLAN VIEW



YI 217C TO CB 217B PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

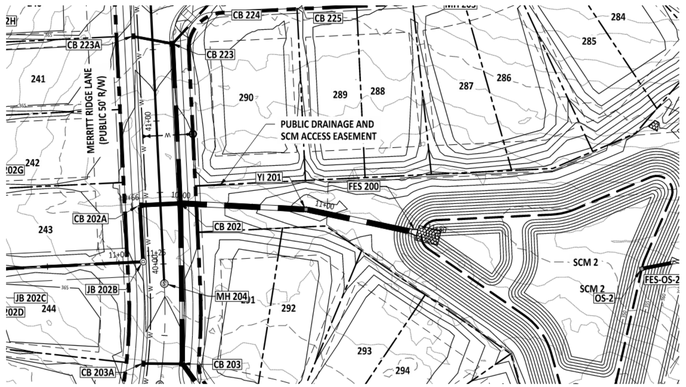
STORM OUTFALL PLAN & PROFILE

SHEET NO.: **CU-303**

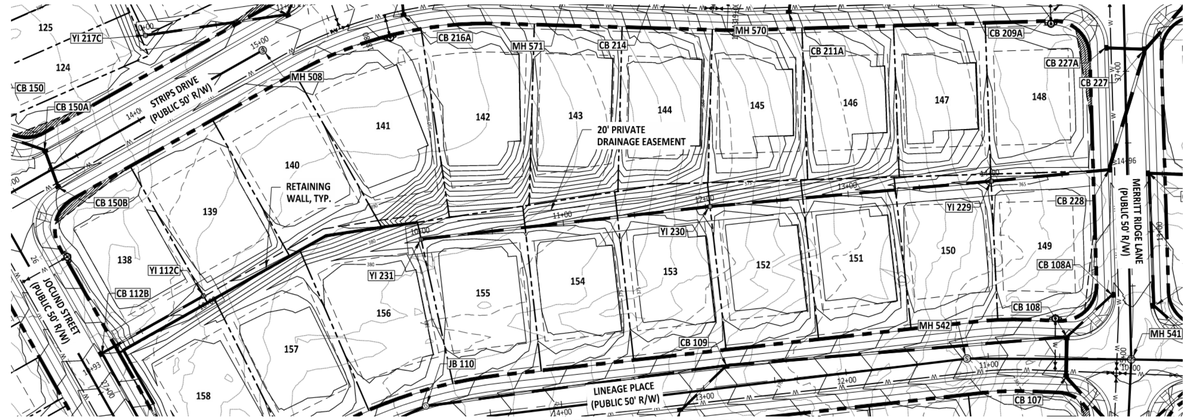
North Carolina 811 Call Before You Dig!
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\05b_CU-300-305 PLAN & PROFILE.dwg

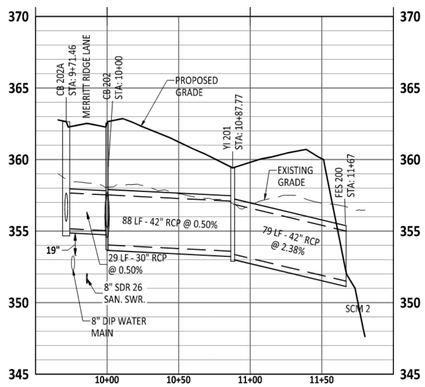
2025-12-12



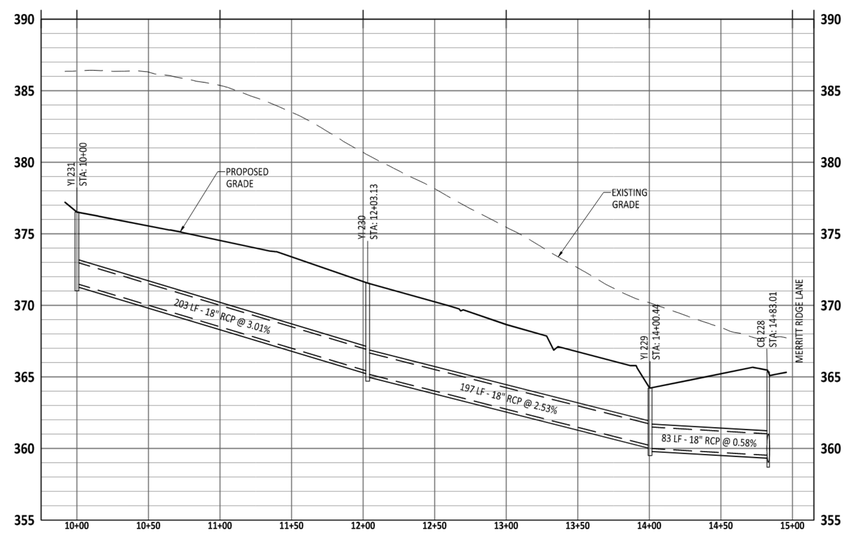
CB 202A TO FES 200 PLAN VIEW



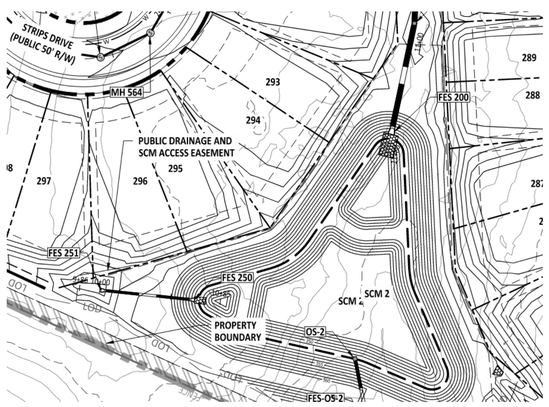
YI 231 TO CB 228 PLAN VIEW



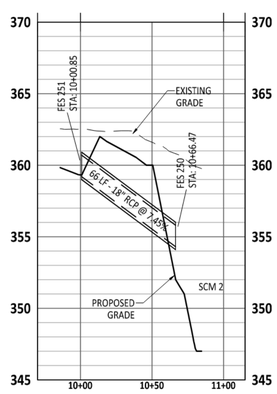
CB 202 TO FES 200 PROFILE



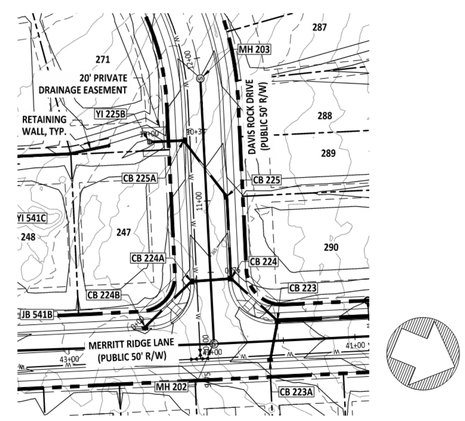
YI 231 TO CB 228 PROFILE



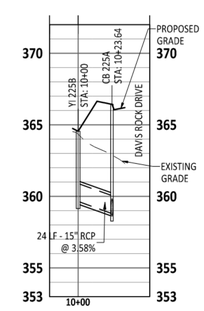
FES 251 TO FES 250 PLAN VIEW



FES 251 TO FES 250 PROFILE



YI 225B TO JB 225A PLAN VIEW



YI 225B TO JB 225A PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:45:05-05'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528 JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

SHEET NO.:

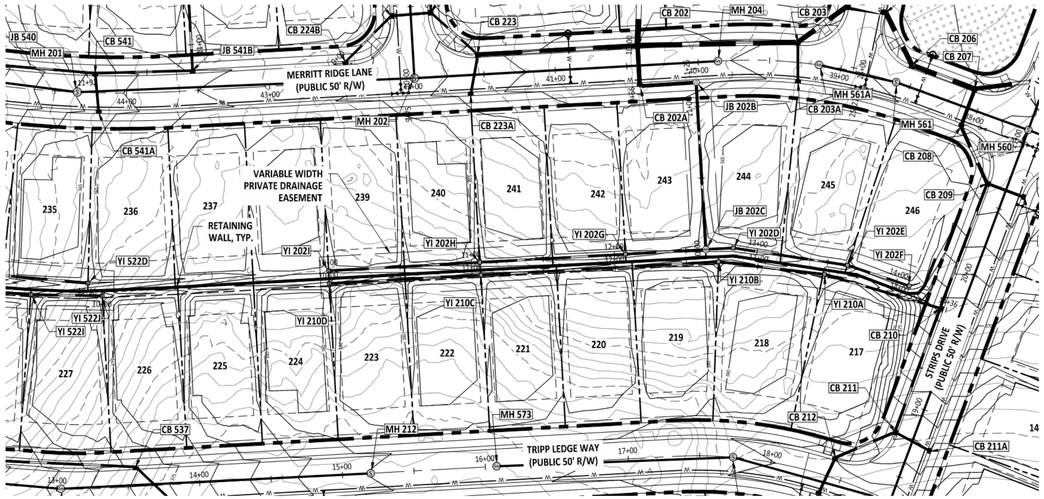
CU-304

North Carolina 811

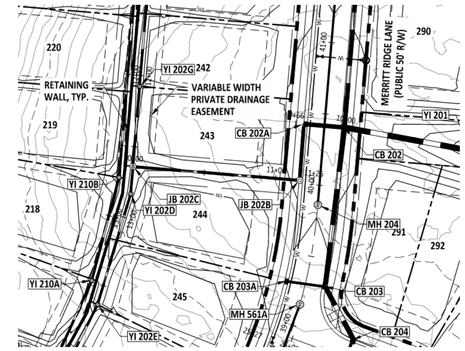
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property BRP\dwg_Working Dwgs\Sheets\Construction Set\Sta. CU-300-305 PLAN & PROFILE.dwg

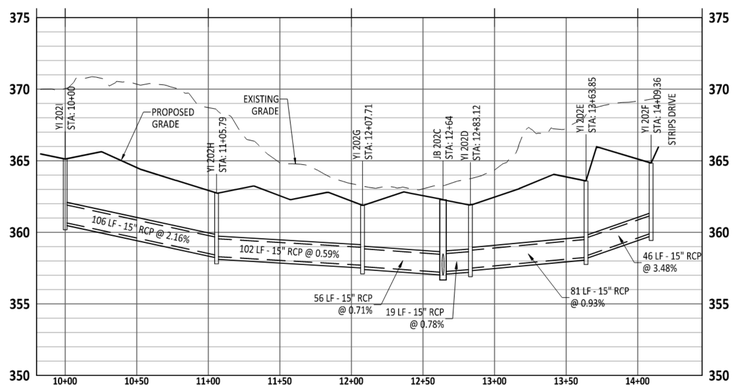
2025-12-12



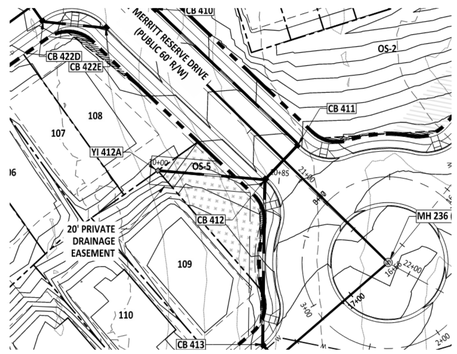
YI 202I TO YI 202F PLAN VIEW
AND YI 210D TO CB 210 PLAN VIEW



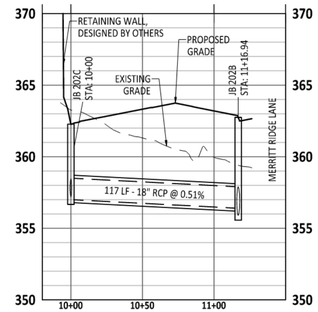
JB 202C TO JB 202B PLAN VIEW



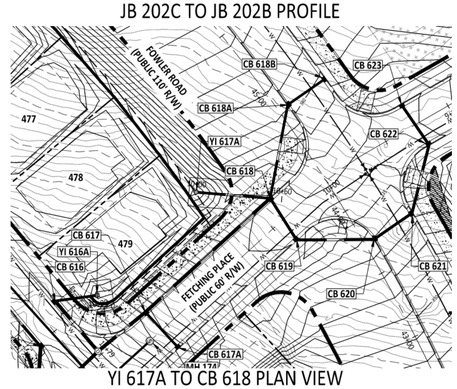
YI 202I TO YI 202F PROFILE



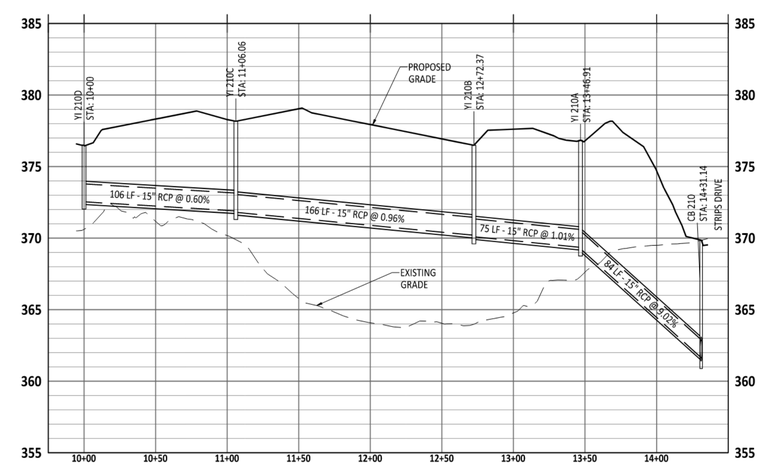
YI 412A TO CB 412 PLAN VIEW



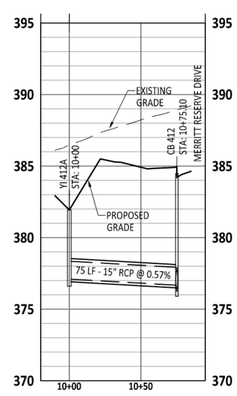
JB 202C TO JB 202B PROFILE



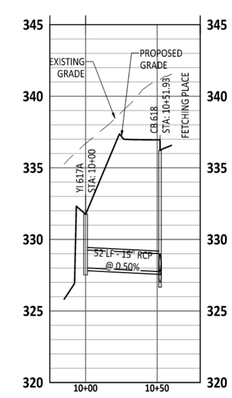
YI 617A TO CB 618 PLAN VIEW



YI 210D TO CB 210 PROFILE



YI 412A TO CB 412 PROFILE



YI 617A TO CB 618 PROFILE

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3861

Digitally signed by Jakob Klein
Date: 2026.01.09 12:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

SHEET NO.: CU-305

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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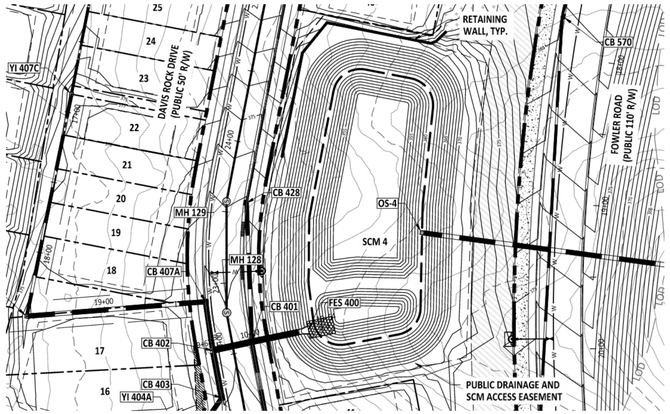
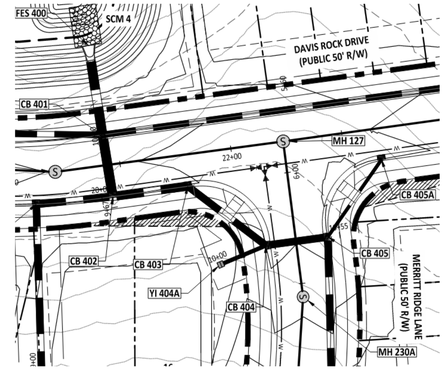
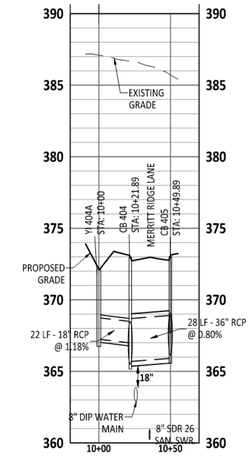
2025-12-12



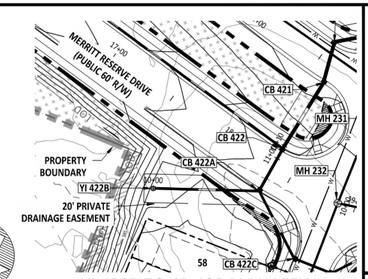
CB 402 TO FES 400 PLAN VIEW



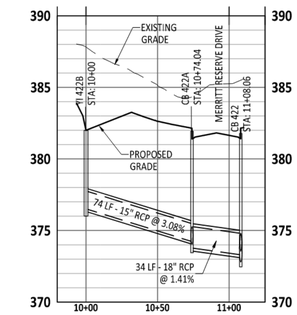
YI 404A TO CB 405 PLAN VIEW



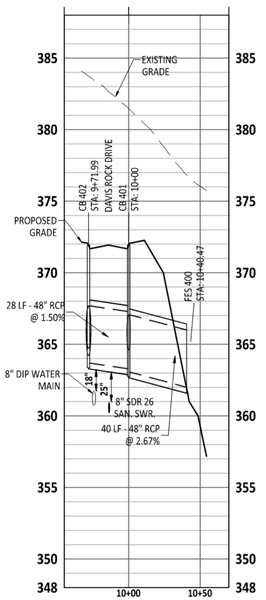
YI 404A TO CB 404 PROFILE



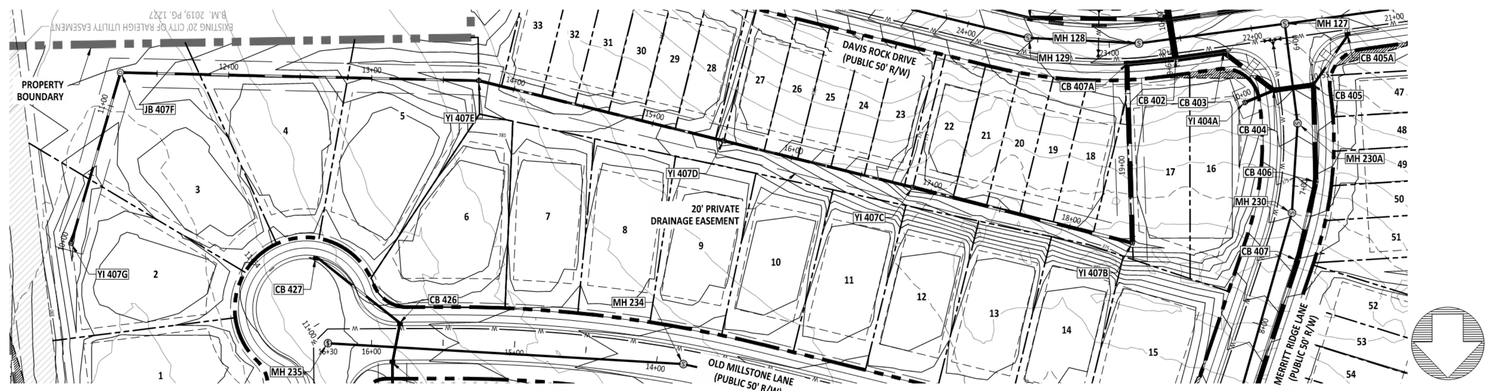
YI 422B TO CB 422 PLAN VIEW



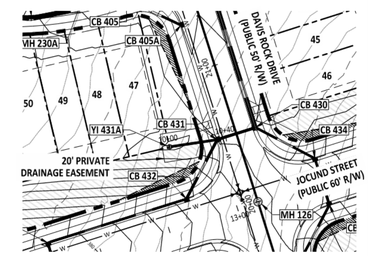
YI 422B TO CB 422 PROFILE



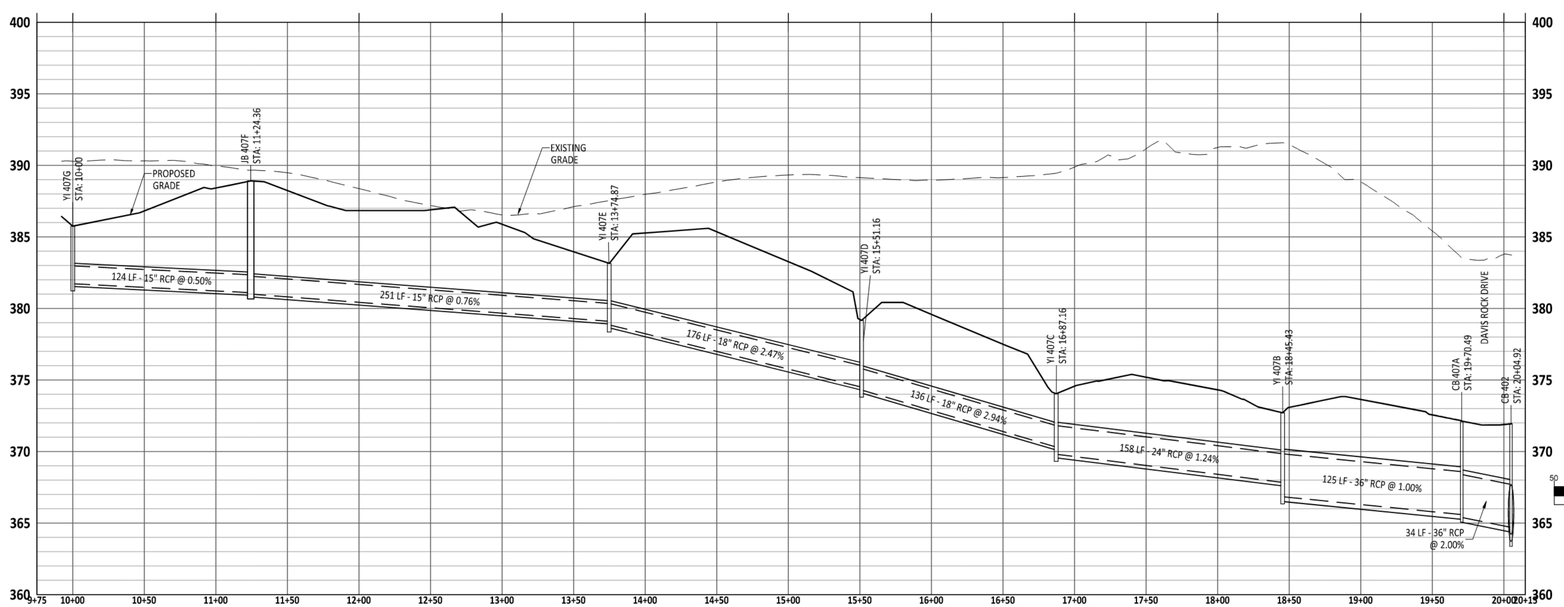
CB 402 TO FES 400 PROFILE



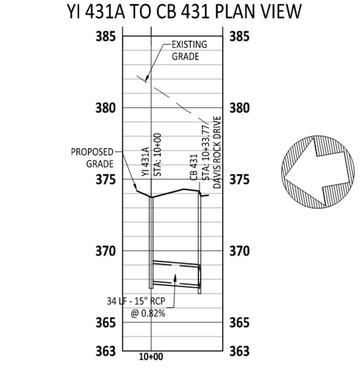
YI 407G TO CB 407 PLAN VIEW



YI 431A TO CB 431 PLAN VIEW



YI 407G TO CB 407 PROFILE



YI 431A TO CB 431 PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 14:45:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

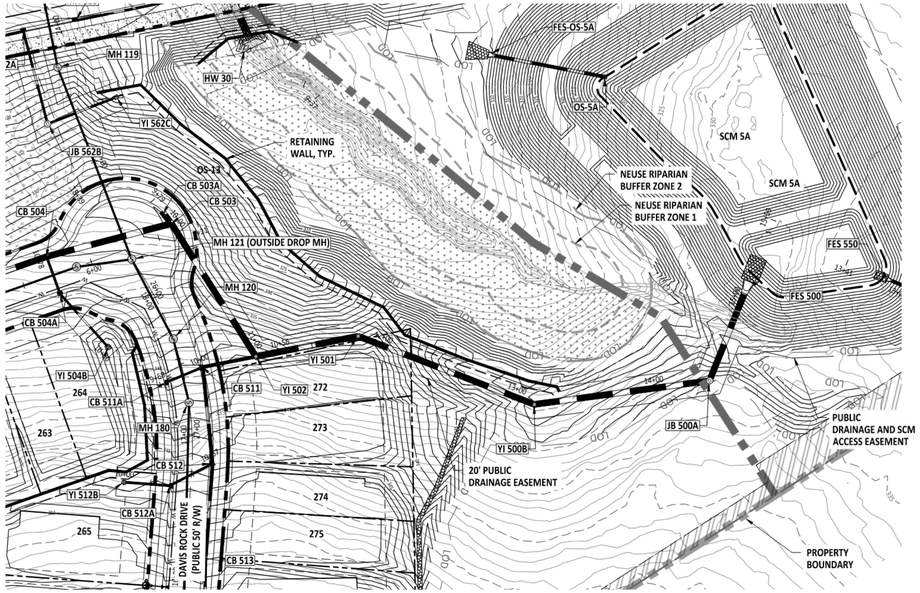
SHEET NO.:

CU-306

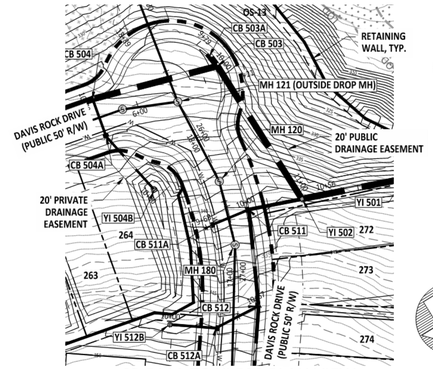
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property BRP\dwg_Working Dwgs\Sheets\Construction Set\SDK_CU-305-310 PLAN & PROFILE.dwg

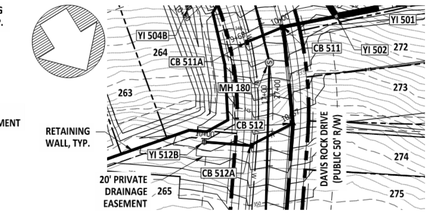
2025-12-12



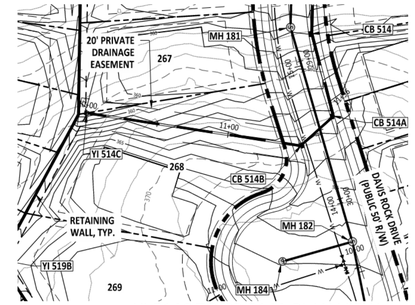
CB 503A TO FES 500 PLAN VIEW



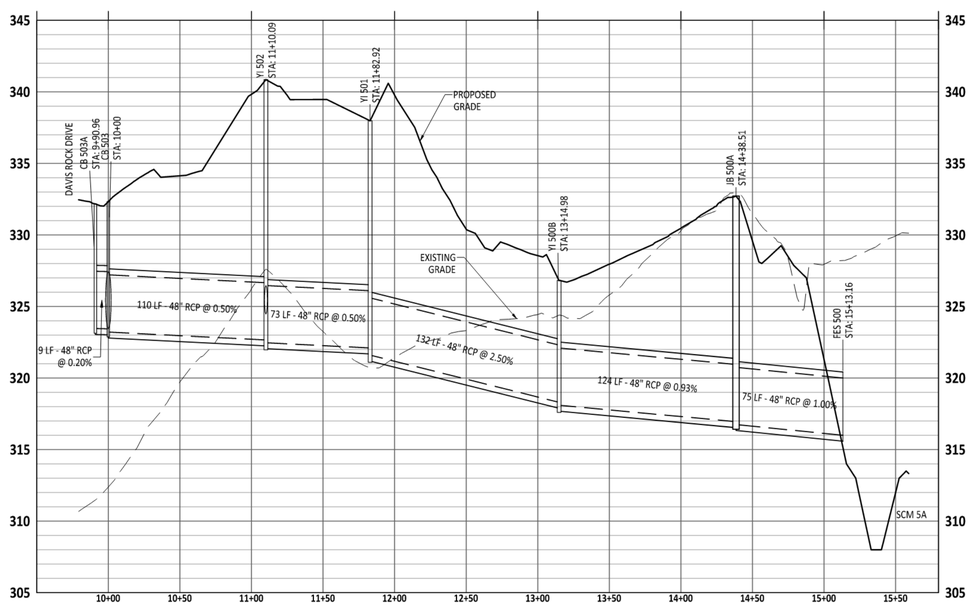
CB 511A TO YI 502 PLAN VIEW



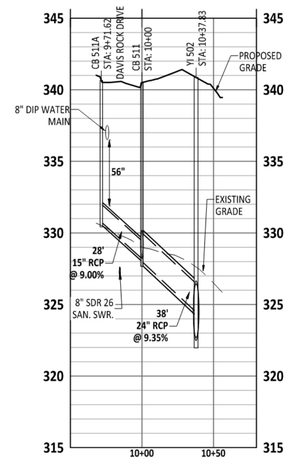
YI 512B TO CB 512 PLAN VIEW



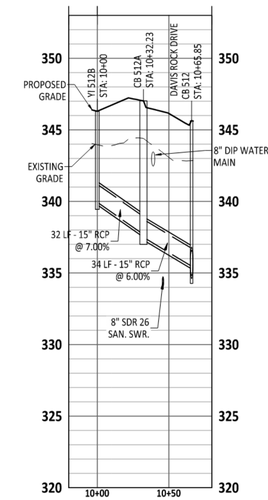
YI 514C TO CB 514A PLAN VIEW



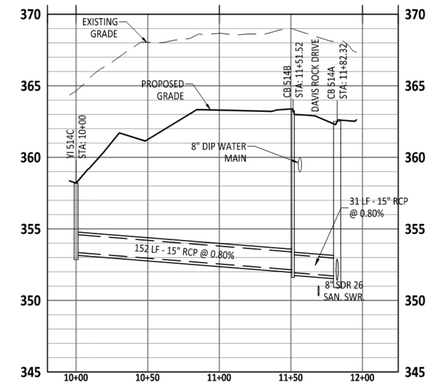
CB 503A TO FES 500 PROFILE



CB 511A TO YI 502 PROFILE

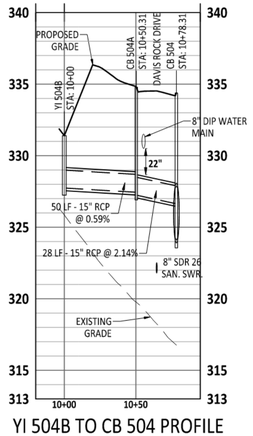


YI 512B TO CB 512 PROFILE



YI 514C TO CB 514A PROFILE

YI 504B TO CB 504 PLAN VIEW



YI 504B TO CB 504 PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:00

NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 56528
JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

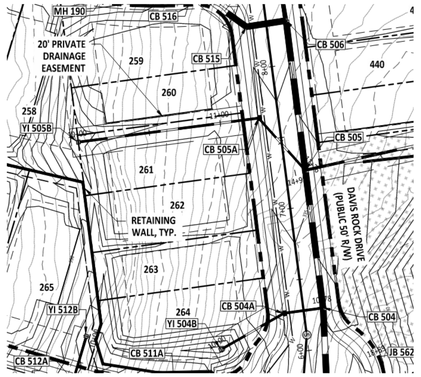
SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

SHEET NO.:
CU-307

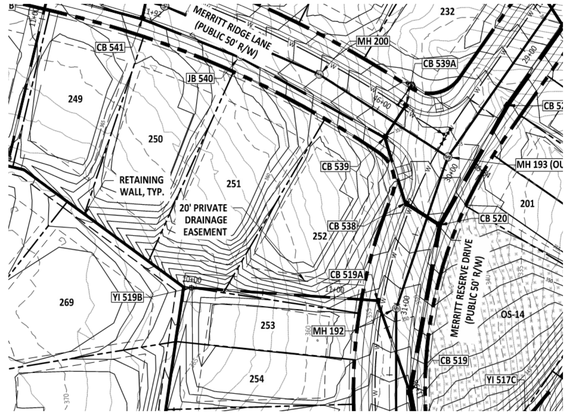
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs-23-0004 Meant Property BRP(Reg)_Working Dwgs\Sheets\Construction Set\CU5b_CU-305-310 PLAN & PROFILE.dwg

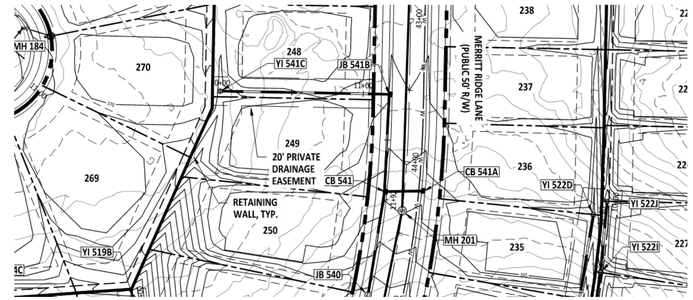
2025-12-12



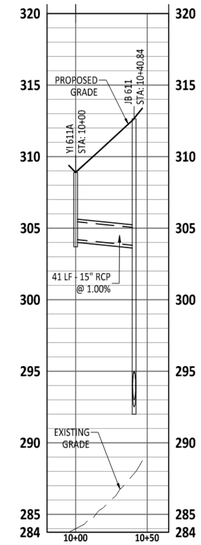
YI 505B TO CB 505 PLAN VIEW



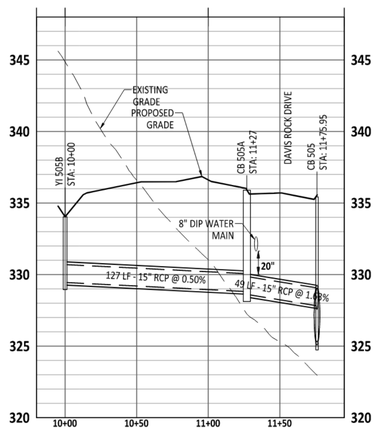
YI 519B TO CB 519 PLAN VIEW



YI 541C TO CB 541 PLAN VIEW



YI 611A TO JB 611 PROFILE



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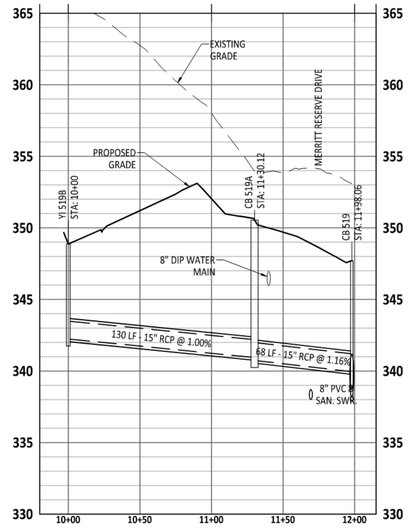

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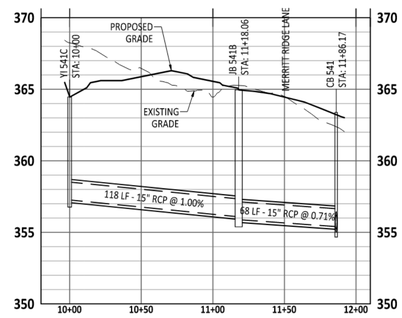
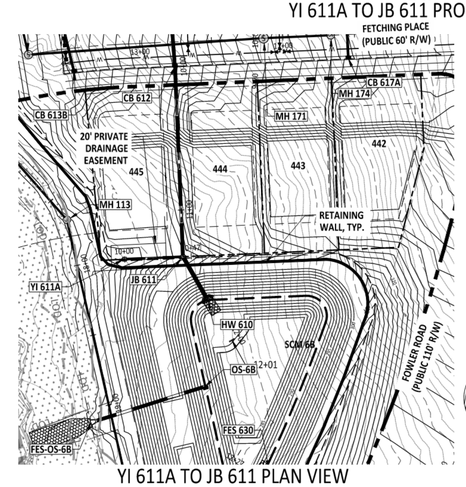
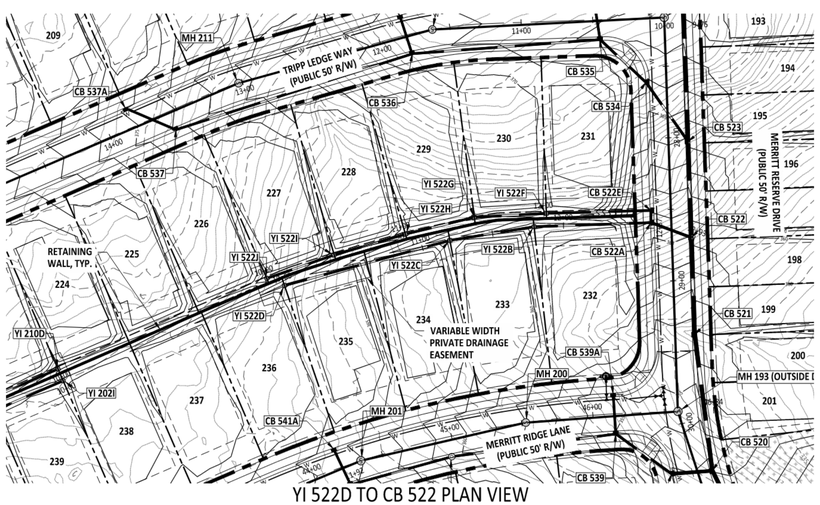


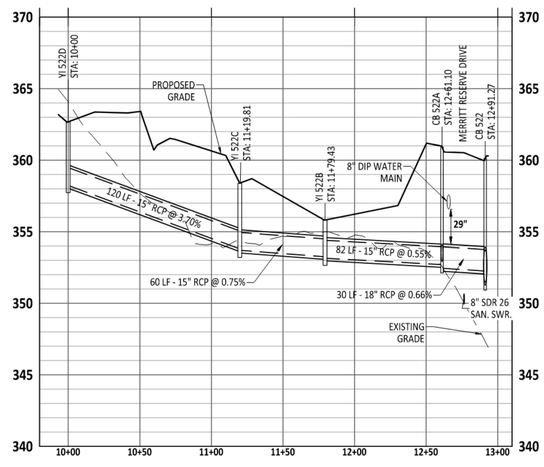
YI 541C TO CB 541 PROFILE



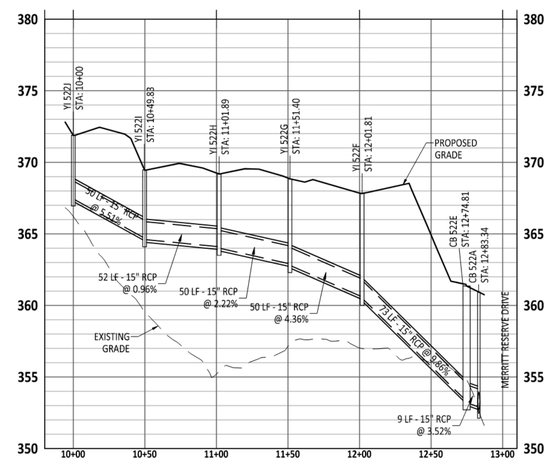
YI 611A TO JB 611 PLAN VIEW



YI 522D TO CB 522 PLAN VIEW
AND YI 522J TO CB 522A PLAN VIEW



YI 522D TO CB 522 PROFILE



YI 522J TO CB 522A PROFILE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR DIAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

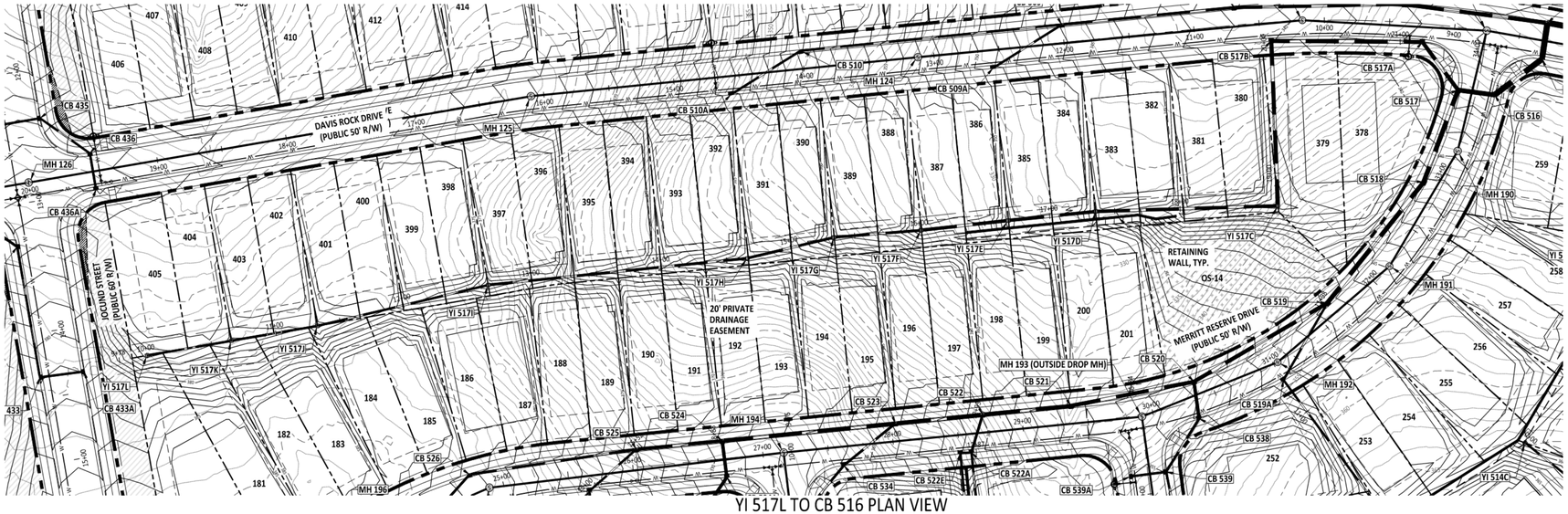
SHEET NO.:

CU-308

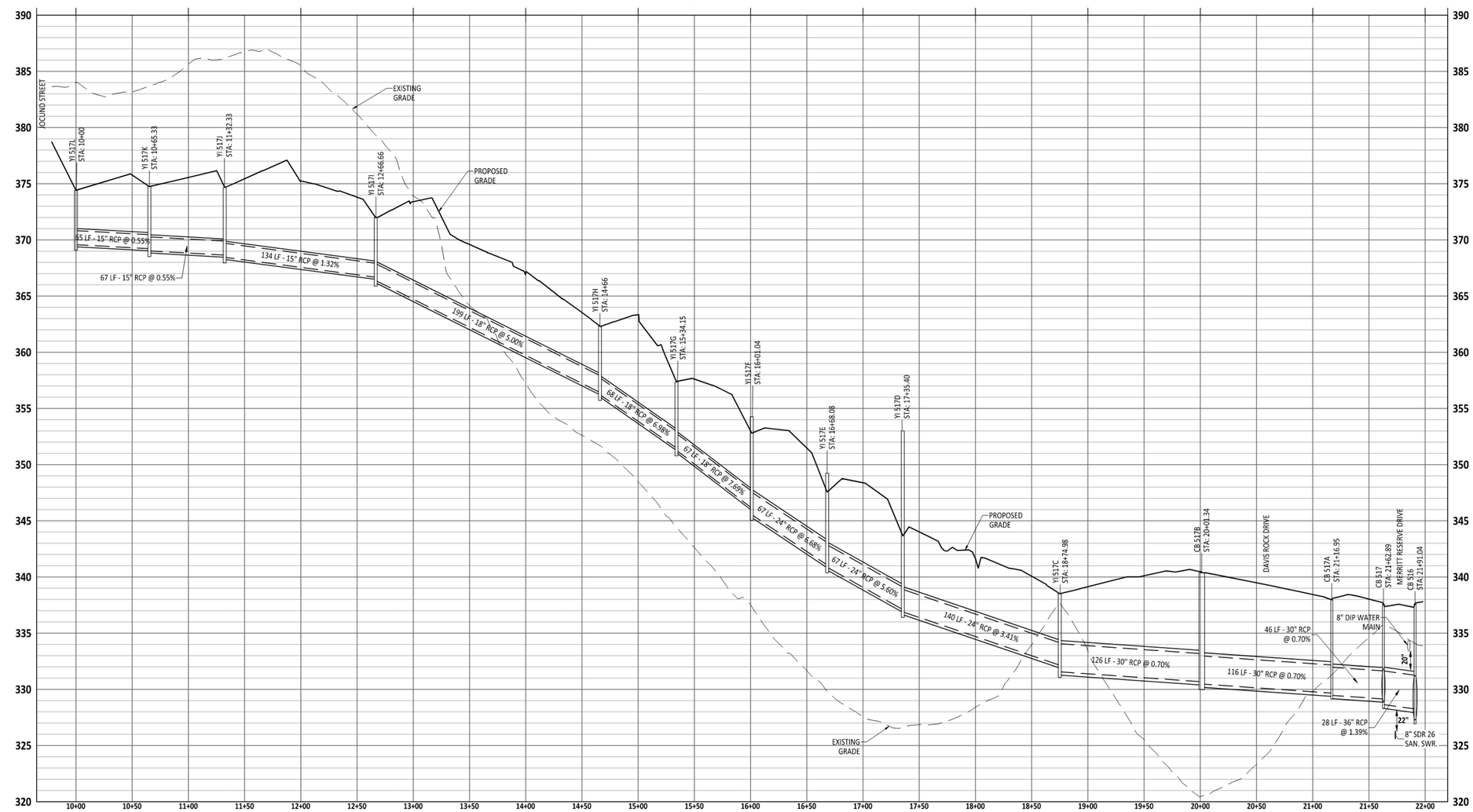
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Job\23-0004 Merritt Property BBD\Dwg_Working Dwgs\Sheet\Construction Set\06- CU-305-310 PLAN & PROFILE.dwg

2025-12-12



YI 517L TO CB 516 PLAN VIEW



YI 517L TO CB 516 PROFILE

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:15:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

SHEET NO.:

CU-309

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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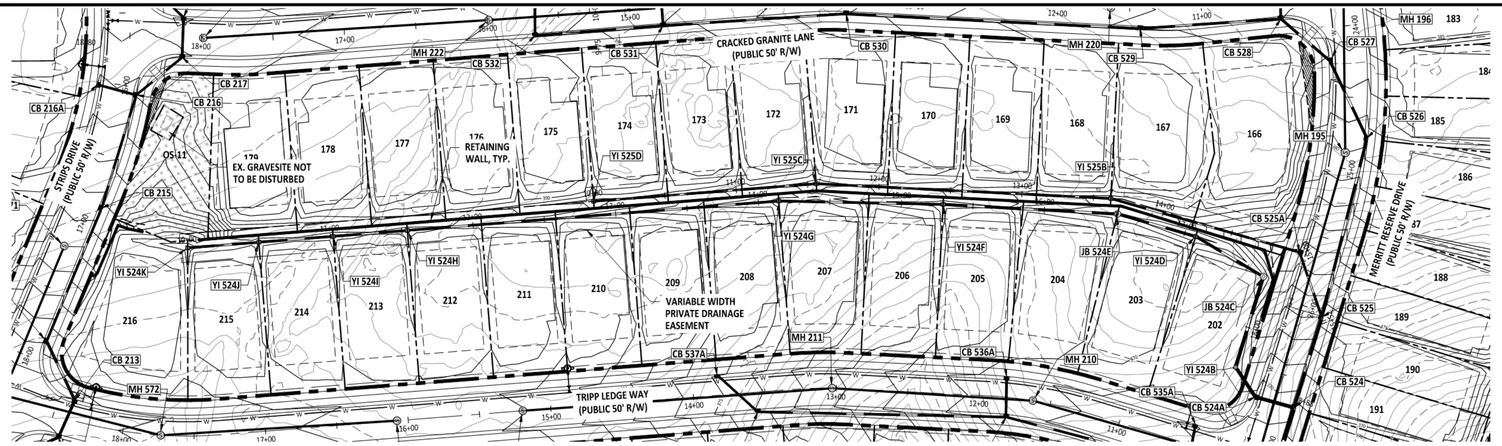
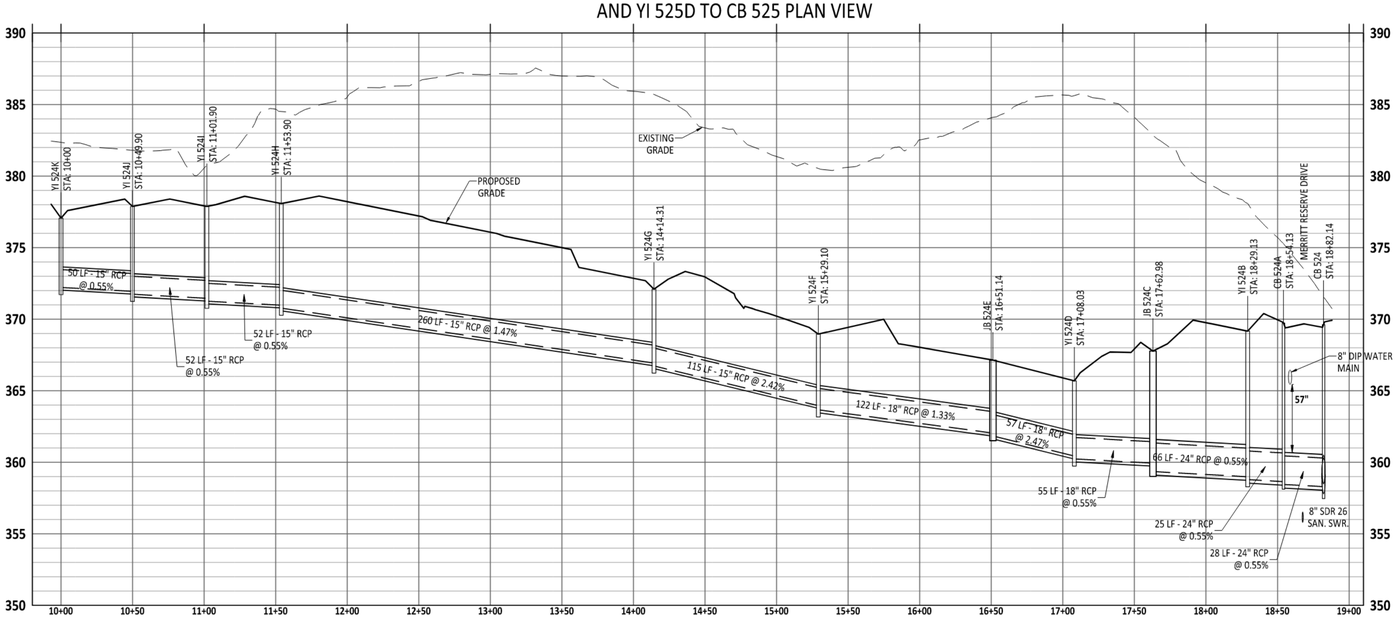
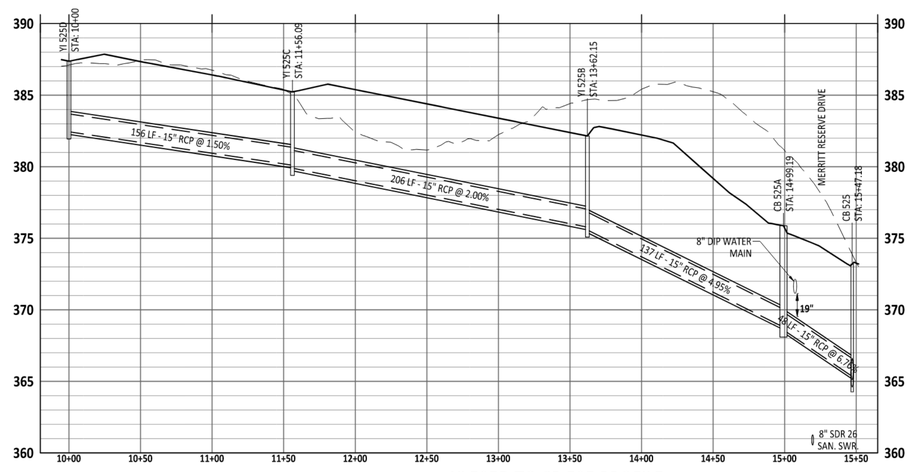
2025-12-12



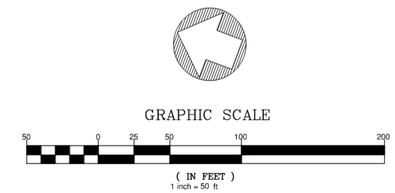
YI 524K TO CB 524 PLAN VIEW
AND YI 525D TO CB 525 PLAN VIEW



YI 524K TO CB 524 PROFILE



YI 525D TO CB 525 PROFILE



PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3861

Digitally signed by Jakob Klein
Date: 2026.01.09 12:46:05-05'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528
JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

SHEET NO.:
CU-310

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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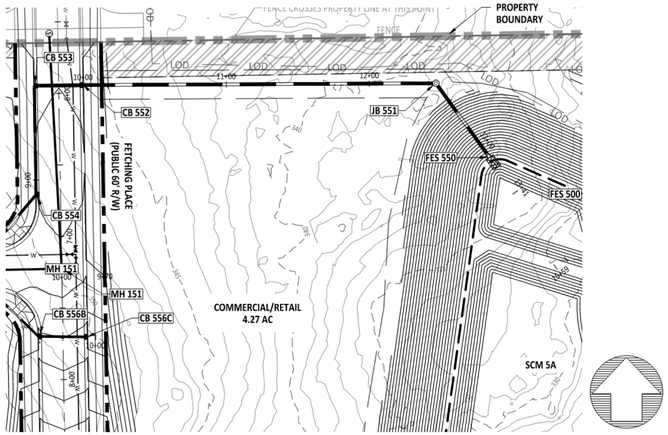
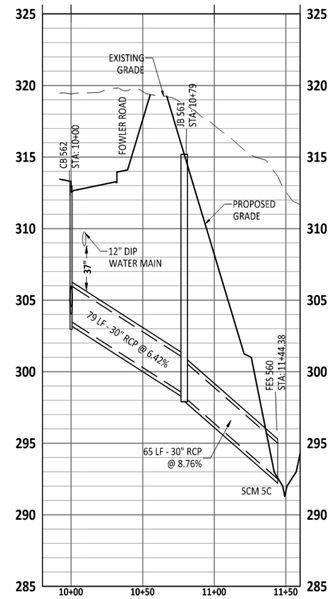
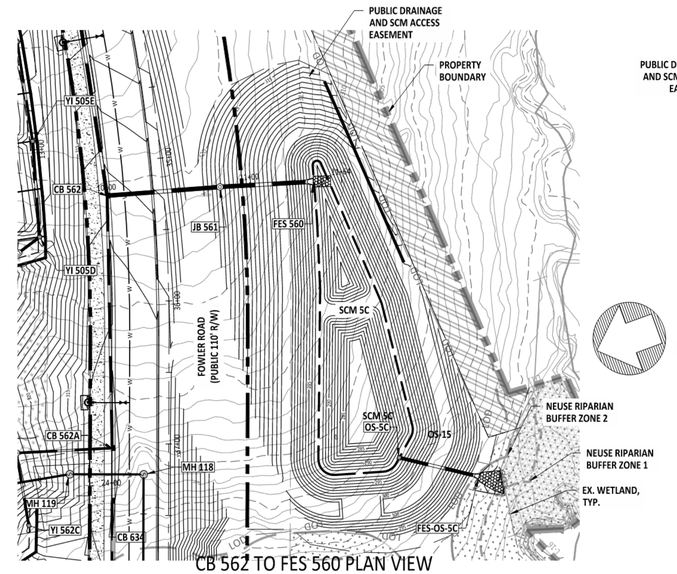
2025-12-12



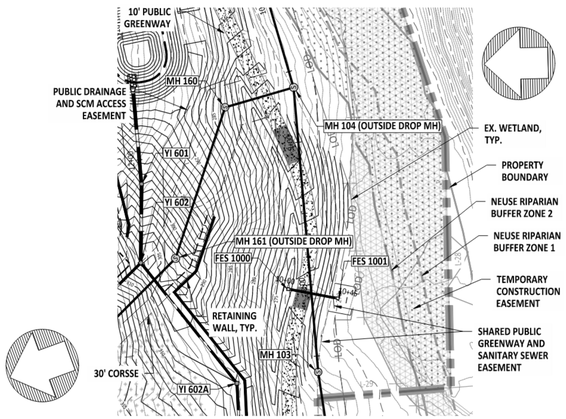
CB 552 TO FES 550 PLAN VIEW



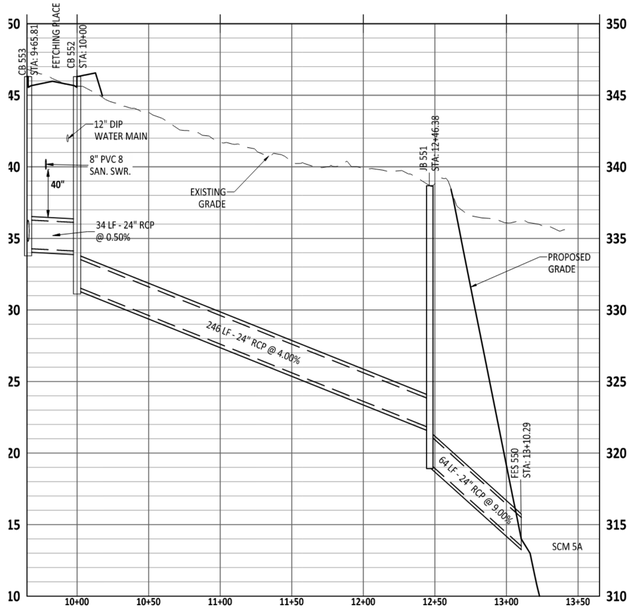
CB 562 TO FES 560 PROFILE



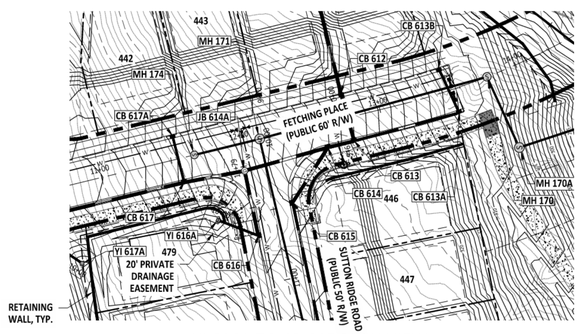
CB 562 TO FES 560 PLAN VIEW



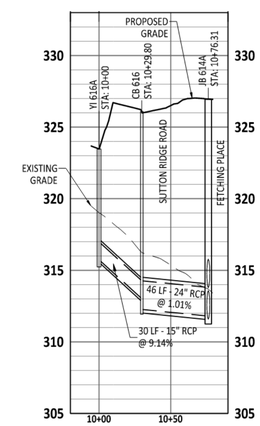
FES 1000 TO FES 1001 PLAN VIEW



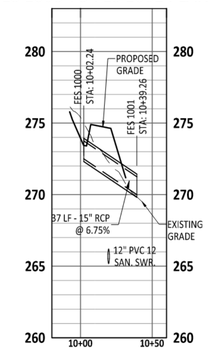
CB 552 TO FES 550 PROFILE



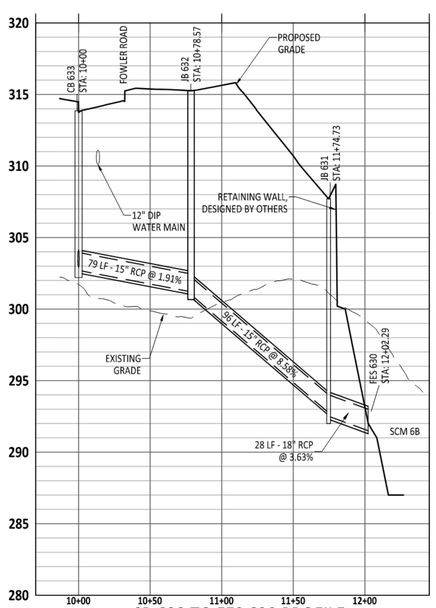
YI 616A TO CB 615 PLAN VIEW



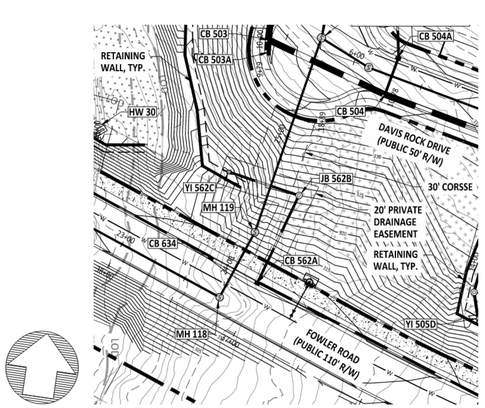
YI 616A TO CB 615 PROFILE



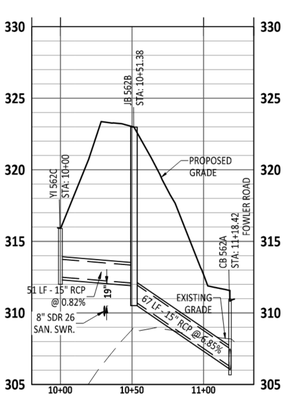
FES 1000 TO FES 1001 PROFILE



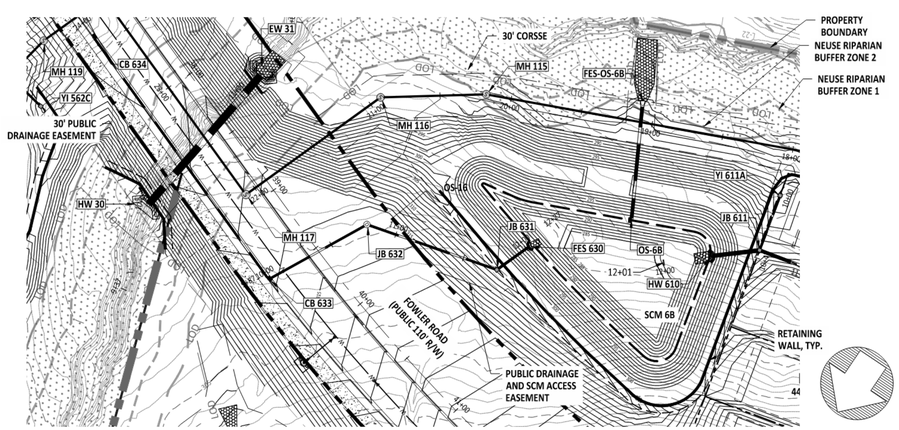
CB 633 TO FES 630 PROFILE



YI 562C TO CB 562A PLAN VIEW



YI 562C TO CB 562A PROFILE



CB 633 TO FES 630 PLAN VIEW

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

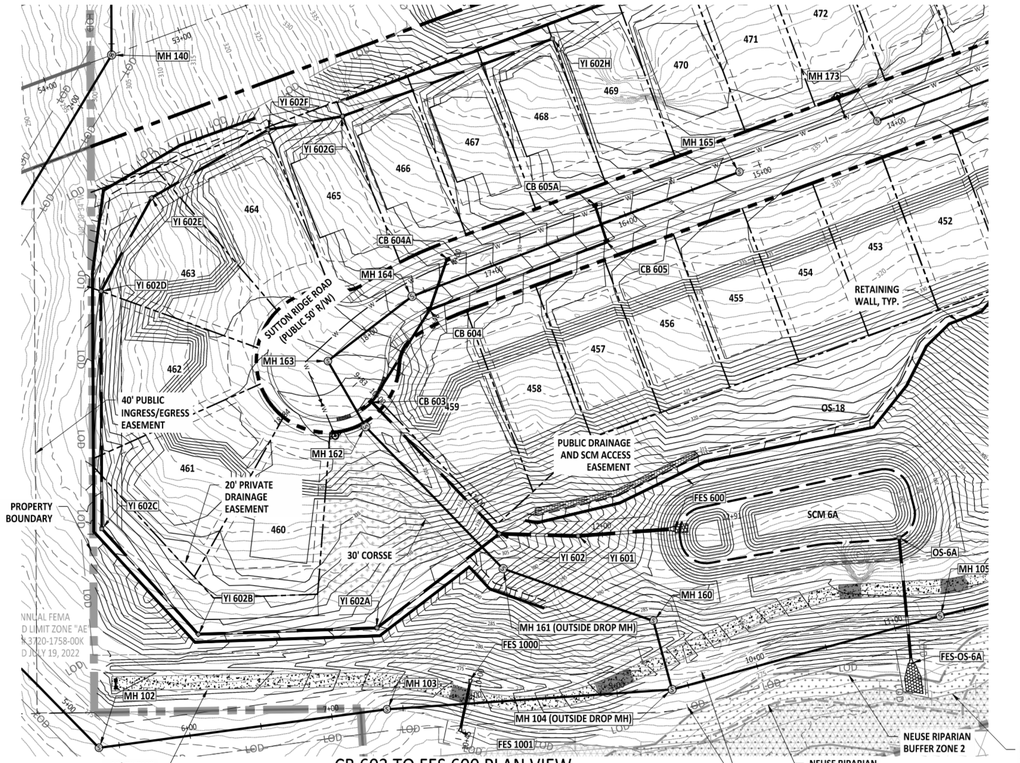
SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

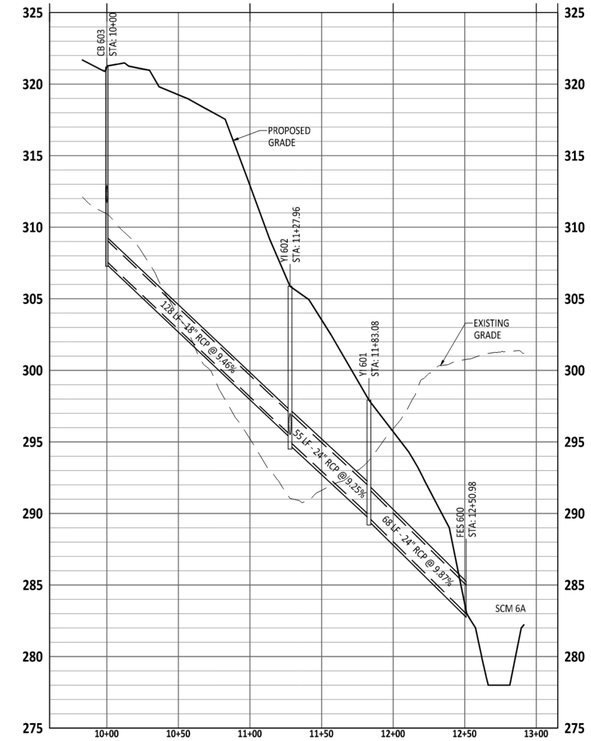
SHEET NO.: **CU-311**

Z:\Jobs\23-0004 Merrit Property BED\dwg_Working Dwgs\Sheet\Construction Set\SDC_CU-311-313-PLAN & PROFILE.dwg

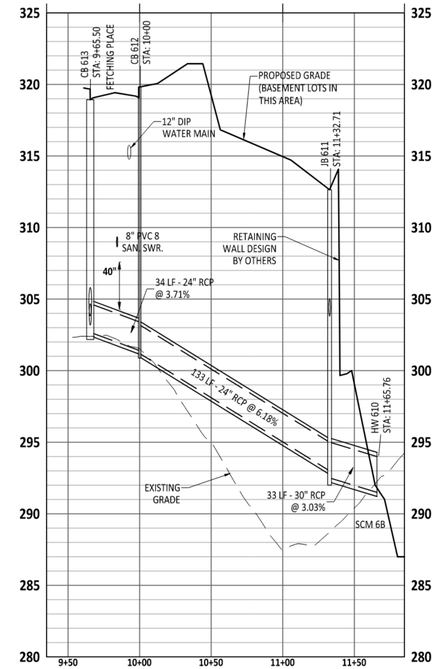
2025-12-12



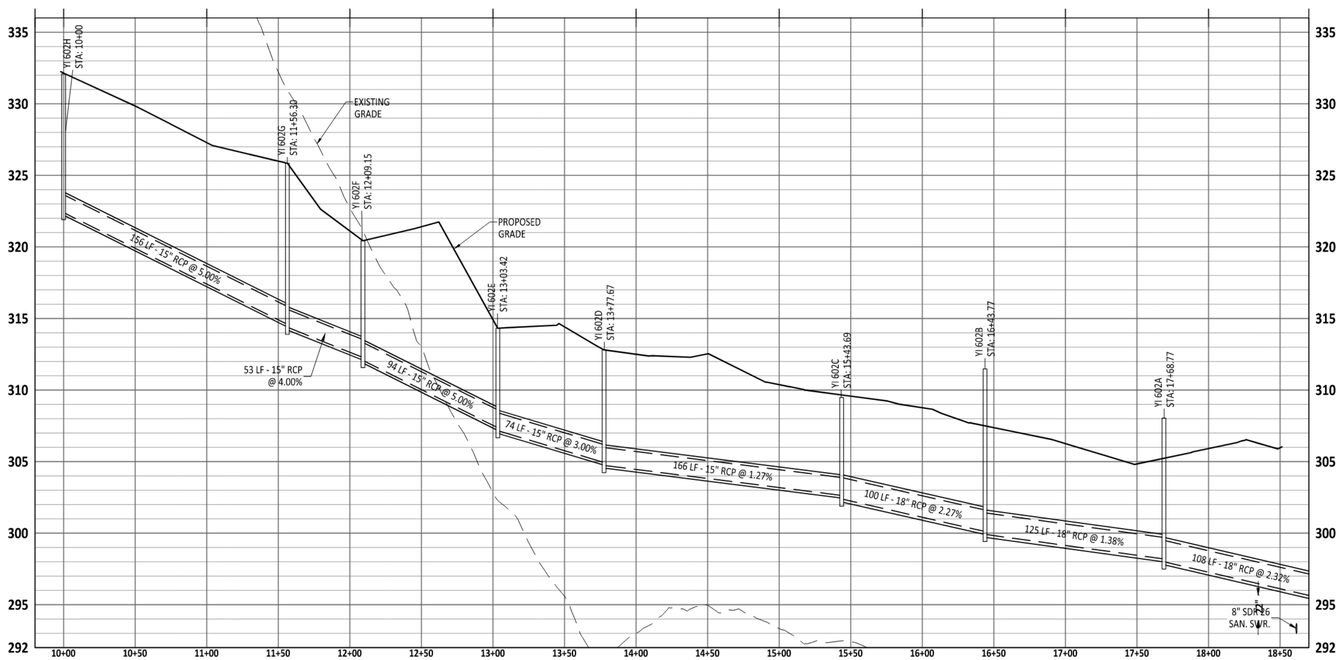
CB 603 TO FES 600 PLAN VIEW
AND YI 602H TO YI 602 PLAN VIEW



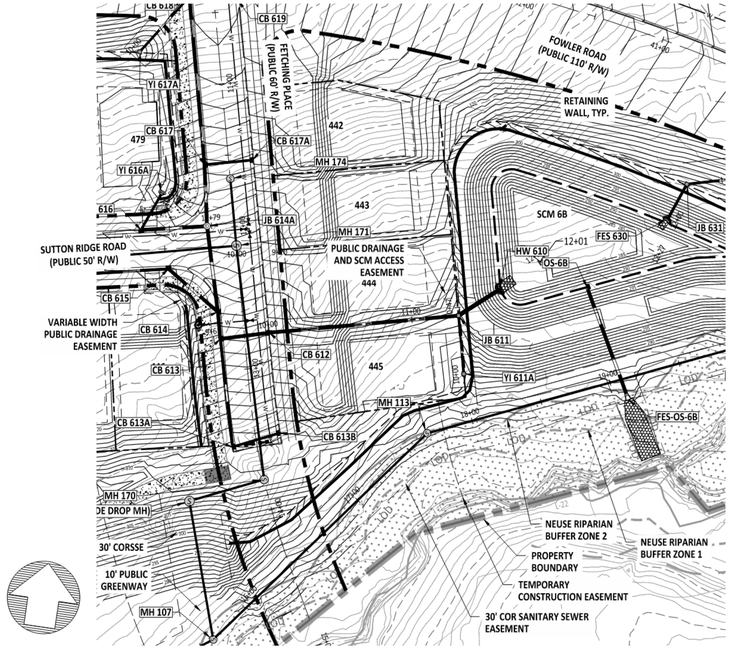
CB 603 TO FES 600 PROFILE



CB 613 TO FES 610 PROFILE



YI 602H TO YI 602 PROFILE



CB 613 TO FES 610 PLAN VIEW

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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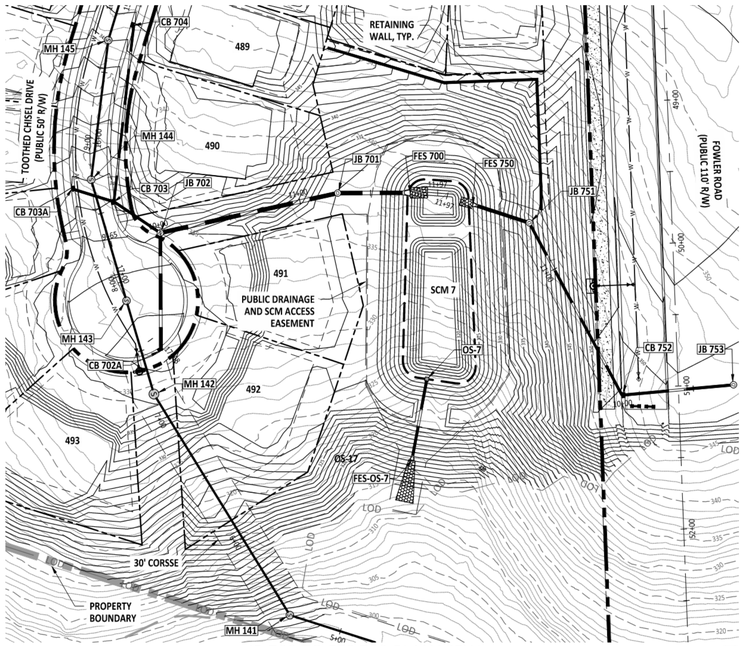
MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

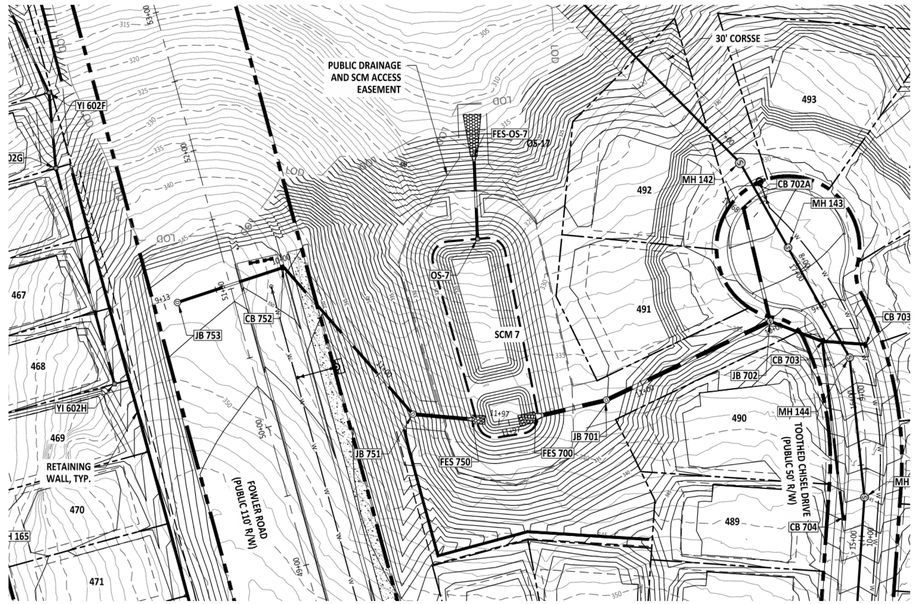
SHEET TITLE:
STORM OUTFALL PLAN & PROFILE

SHEET NO.:
CU-312

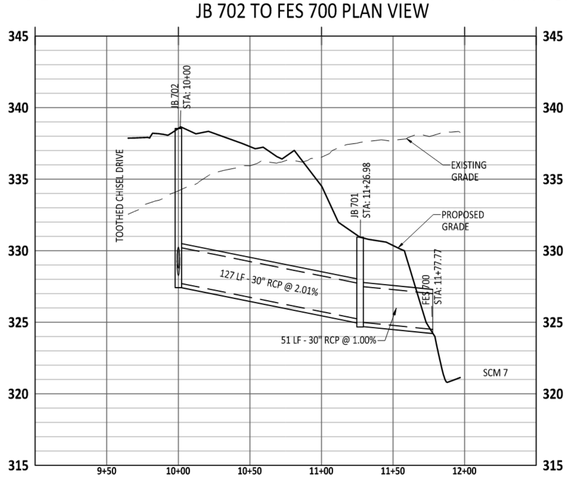
Z:\Jobs\23-0004 Merritt Property BRP\Dwg_Working Dwgs\Sheets\Construction Set\Ste. CU-313 PLAN & PROFILE.dwg
2025-12-12



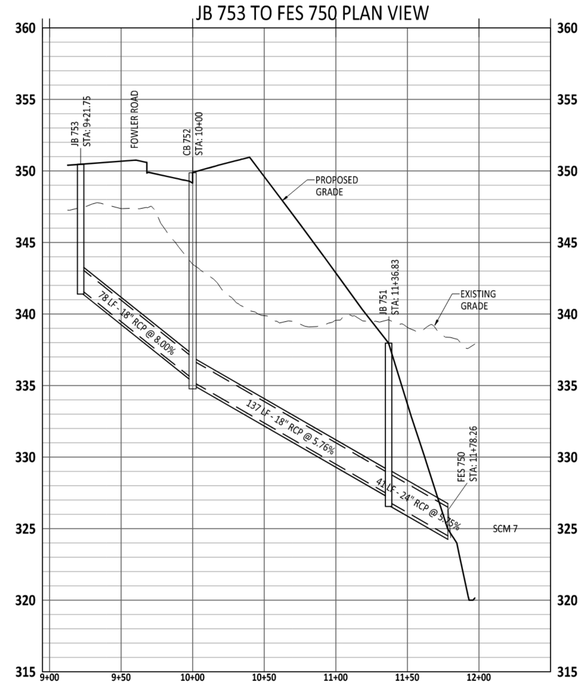
JB 702 TO FES 700 PLAN VIEW



JB 753 TO FES 750 PLAN VIEW



JB 702 TO FES 700 PROFILE



JB 753 TO FES 750 PROFILE

GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

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NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

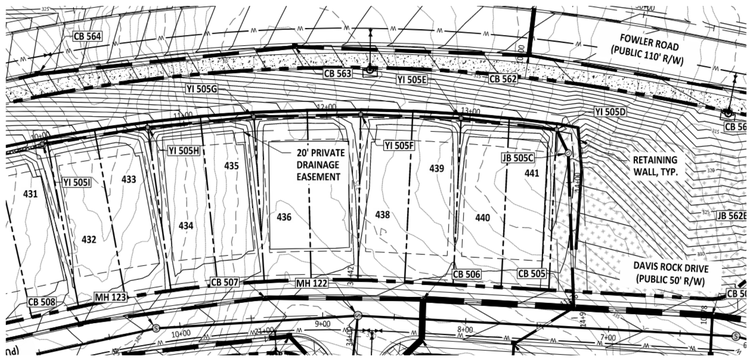
SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

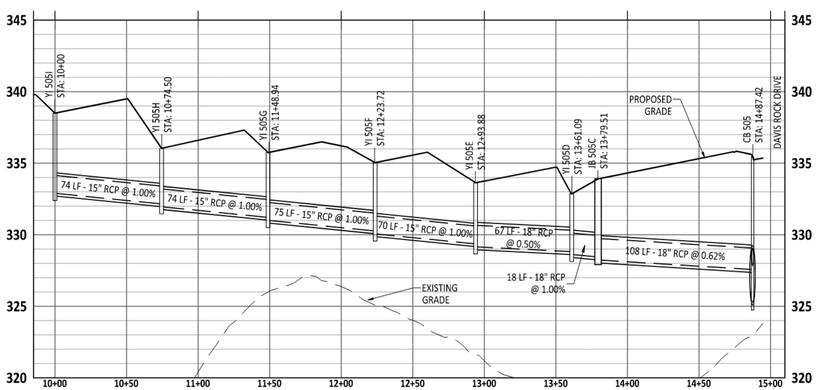
SHEET NO.: **CU-313**

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\CSc_CU-311-313 PLAN & PROFILE.dwg

2025-12-12



YI 505I TO CB 505 PLAN VIEW



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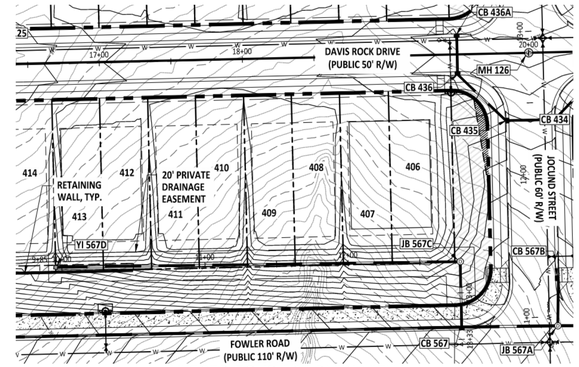
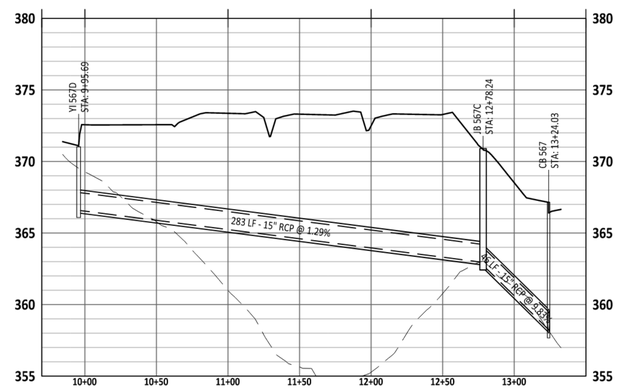


YI 567D TO JB 567 PLAN VIEW



YI 567D TO JB 567 PROFILE

GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

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4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

Digitally signed by Jakob Klein
Date: 2026.01.09 15:45:05-05'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528
JAKOB P. KLEIN

NO.	DATE	REVISION:

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

STORM OUTFALL PLAN & PROFILE

SHEET NO.:

CU-314

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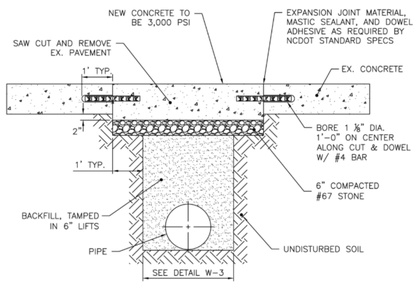
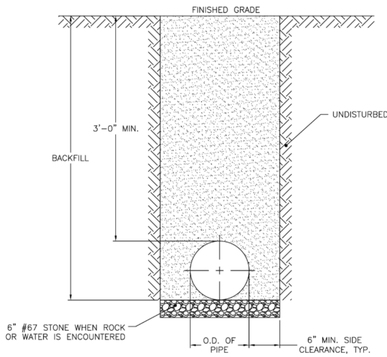
2025-12-12



NOTES:
1. SEE DETAIL W-3 FOR ADDITIONAL TRENCH AND PIPE BEDDING DETAILS.
2. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
3. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 99 AS MODIFIED BY NCDOT.
5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 180 AS MODIFIED BY NCDOT.

CITY OF RALEIGH
STANDARD DETAIL

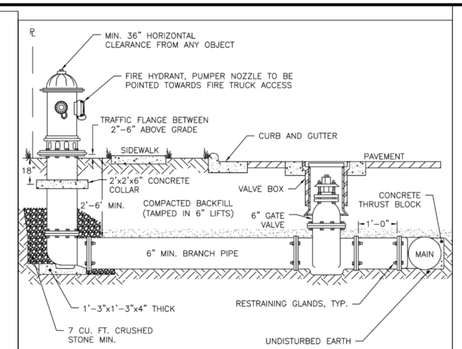
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD CONCRETE PAVEMENT PATCH	
	W-1	



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

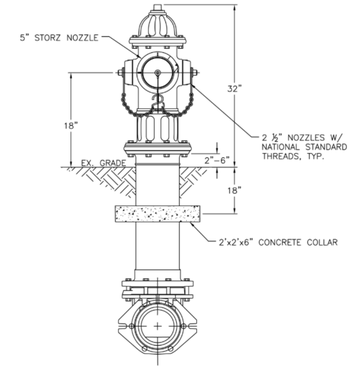
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR DUCTILE IRON	
	W-3	



NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY OR CLOW.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150.
3. 6" GATE VALVE SHALL BE AWWA C500 OPEN LEFT.
4. RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
6. RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
7. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2.5 FOOT EASEMENT (ON ALL SIDES OF HYDRANT) FOOT EASEMENT ADJACENT TO ROW.
8. ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
STANDARD DETAIL

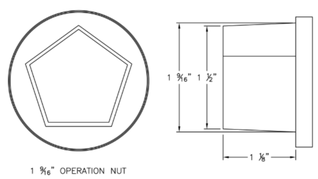
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD FIRE HYDRANT INSTALLATION (RESTRAINT GLANDS)	
	W-4	



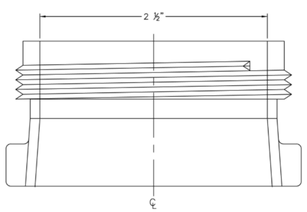
NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE	
	W-5	



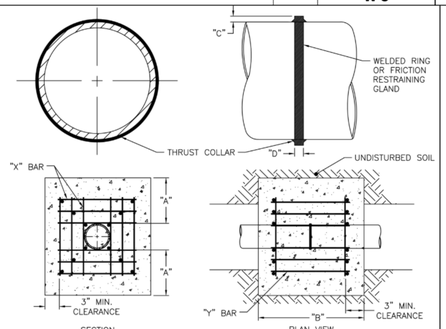
1 9/16" OPERATION NUT



2 ½" NATIONAL STANDARD OUTLET THREADS

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	HYDRANT OPERATING NUT AND 2 ½" OUTLET THREADS	
	W-6	



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6"–36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24 Y-12
≥48"	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24 Y-12

THRUST COLLAR AND THRUST SCHEDULE

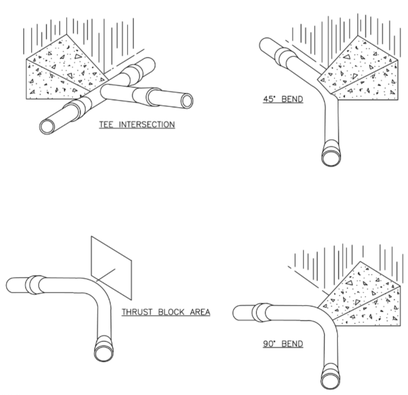
I.D. PIPE	"A"	"B"	"C"	"D"
6"–16"	1'-4"	1'-7"	2"	⅜"
20"–24"	1'-4"	1'-7"	3"	½"
30"–36"	1'-4"	1'-7"	4"	⅝"
≥48"	1'-8"	1'-9"	6"	⅞"

NOTES:
1. SEE DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3,000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS, SEE DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING DESIGN DATA FOR WATER MAINS	
	W-7	

THRUST BLOCKING



NOTES:
1. CONCRETE SHALL BE 3,000 PSI.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO DETAIL W-3.
4. SEE DETAIL W-10 & W-11 (THRUST BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING VIEWS	
	W-9	

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS BASED ON TEST PRESSURE OF 200 PSI

ALL AREAS GIVEN IN SQUARE FEET

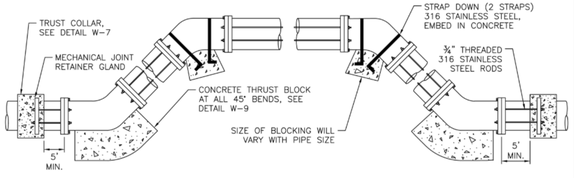
SIZE OF BEND	DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4,000 LBS/FT²	SOFT CLAY 2,000 LBS/FT²	1,600 LBS/FT² GRAVEL/ COARSE SAND	8,000 LBS/FT² DRY CLAY (ALWAYS DRY)	SAND, COMPACT FIRM 8,000 LBS/FT²	SAND–CLEAN DRY 4,000 LBS/FT²	SOIL 1,000 LBS/FT² QUICKSAND (VERY POOR)	ROCK–POOR 10,000 LBS/FT²
6"	11 ¼°	1,108	1	1	1	1	1	1	2	1
	22 ½°	2,207	1	2	2	1	1	1	3	1
	45°	4,328	2	3	3	1	1	2	5	1
	90°	7,996	2	4	5	1	1	2	8	1
	PLUG	5,655	2	3	4	1	1	2	6	1
8"	11 ¼°	1,970	1	1	2	1	1	1	2	1
	22 ½°	3,922	1	2	3	1	1	1	4	1
	45°	7,694	2	4	5	1	1	2	8	1
	90°	14,215	4	8	9	2	2	4	15	2
	PLUG	10,053	3	5	6	2	2	3	10	1
12"	11 ¼°	4,433	2	3	3	1	1	2	5	1
	22 ½°	8,826	3	5	6	2	2	3	9	1
	45°	17,312	5	9	11	3	3	5	18	2
	90°	31,983	8	16	19	4	4	8	32	4
	PLUG	22,619	6	12	14	3	3	6	23	3
16"	11 ¼°	7,881	2	4	5	1	1	2	8	1
	22 ½°	15,691	4	8	10	2	2	4	16	2
	45°	30,779	8	16	19	4	4	8	31	4
	90°	56,861	15	29	35	8	8	15	57	6
	PLUG	40,213	10	21	25	5	5	10	41	5

NOTES:
1. REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.
2. USE 6" 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING DESIGN QUANTITY TABLE	
	W-10	

TOP OF GROUND



ROD REQUIREMENTS

SIZE OF 45° BEND	STATIC TRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

STRAP REQUIREMENTS

STRAP WIDTH	STRAP THICKNESS
1"	3/16"
1.5"	3/16"
2"	¼"
2"	½"
4"	½"

RESTRAINT REQUIREMENTS

PIPE DIA	RODDING	RJ GLANDS	THRUST COLLAR	THRUST BLOCKING
<12"	X	X	X	
≥12"	X	X	X	X

"X" DENOTES REQUIRED RESTRAINT.

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED.
6. EXTERNAL RESTRAINT REQUIRED. INTEGRAL BELL RESTRAINT REQUIRES DIRECTOR'S APPROVAL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD VERTICAL BEND	
	W-12	

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2025-12-12

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Date: 2026.01.09 15:36:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

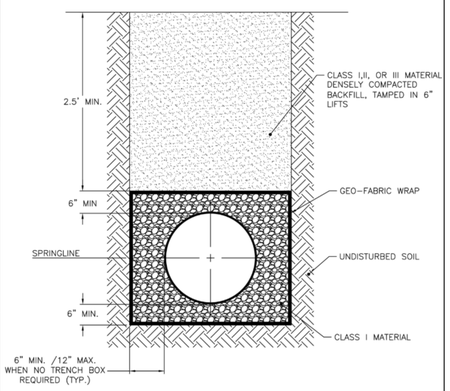
STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

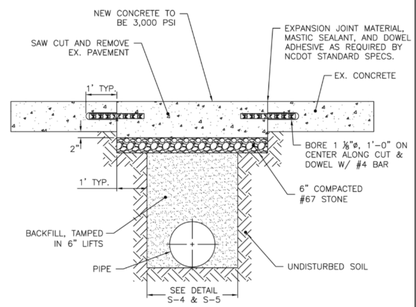
SHEET TITLE:
UTILITY DETAILS

SHEET NO.: **CU-500**



CITY OF RALEIGH
STANDARD DETAIL

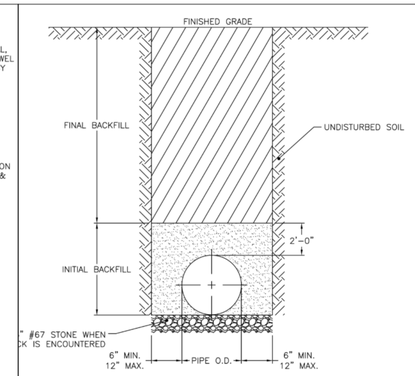
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD BEDDING DETAIL FOR CCFRPM PIPES	
	S-1	



NOTES:
1. SEE DETAIL S-4 & S-5 FOR ADDITIONAL TRENCH AND PIPE BEDDING DETAILS.
2. PAVEMENT CUTS OVER 5'-0" IN WIDTH SHALL BE REINFORCED TO NCDOT OR MERGER COMMUNITY STANDARDS.
3. PAVEMENT CUTS SHALL BE MADE WITH AN APPROPRIATE SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 99 AS MODIFIED BY NCDOT.
5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 180 AS MODIFIED BY NCDOT.

CITY OF RALEIGH
STANDARD DETAIL

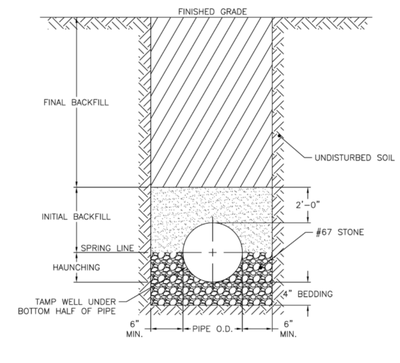
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD CONCRETE PAVEMENT PATCH	
	S-2	



ES:
FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
IF IN EASEMENT, 4" TOPSOIL AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON	
	S-4	

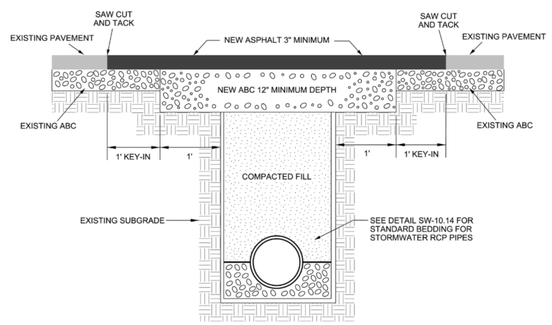


TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS, 4" OR LARGER, TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN	
	S-5	

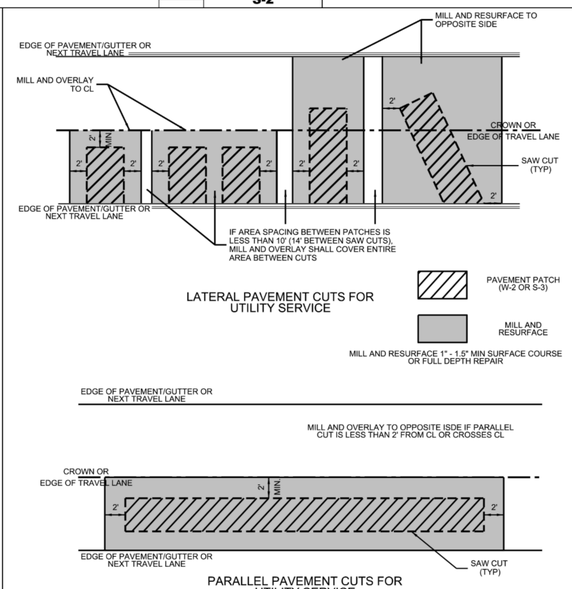


NOTES:
1. THE PAVEMENT EDGE SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT. BITUMINOUS BASE OR BINDER MAY BE SUBSTITUTED IF APPROVED BY TRANSPORTATION DIRECTOR OR DESIGNEE.
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH, LEVEL PATCH.

SHEET 1 OF 2

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
DATE: 08/2023	ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL	
	T-10.05.1	



NOTES:
1. THE PAVEMENT EDGES SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT OR MILLIING MACHINE
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT
3. THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL COMPCATED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED, COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRUM ROLLER TO LEVEL PATCH

SHEET 2 OF 2

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2023	NOT TO SCALE
	ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL	
	T-10.05.2	

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:27:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:
UTILITY DETAILS

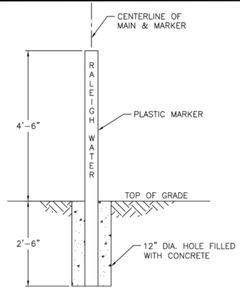
SHEET NO.:
CU-501

PROJECT NUMBER = CID-25-02

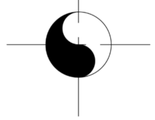
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property BRP\Dwgs_Working Dwgs\Sheets\Construction Set\51. CU-500-503 UTILITY DETAILS.dwg

2025-12-12



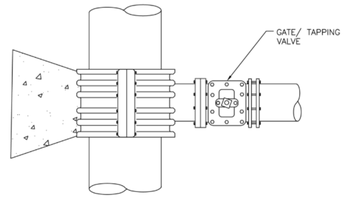
NOTES:
1. POTABLE WATER MARKER TO BE BLUE IN COLOR.
2. POTABLE WATER MARKER TO BE LABELED "RALEIGH WATER"
3. TO BE SPACED ALONG CENTERLINE OF MAIN EVERY 300 FEET.
4. MARKERS TO BE ROUND AND 4" IN DIAMETER.



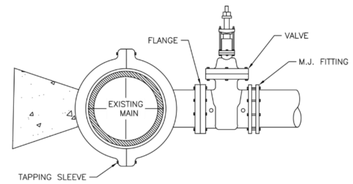
WATER MAIN

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	MAIN & VALVE MARKER FOR POTABLE WATER IN EASEMENTS	
	W-13	



TOP VIEW

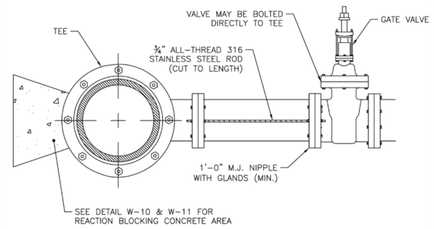


SIDE VIEW

NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE DETAIL W-10 & W-11 (REACTION BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
3. 3,000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
4. FULL CIRCUMFERENCE SLEEVE, STAINLESS STEEL MATERIAL REQUIRED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	4"-24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY	
	W-14	



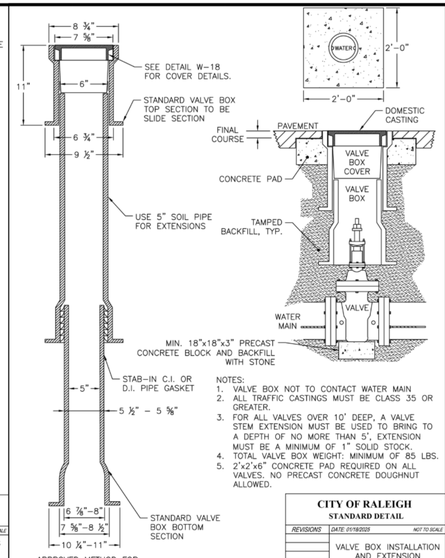
ROD REQUIREMENTS

BRANCH SIZE	NO. OF RODS
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. SEE DETAIL W-10 AND W-11 (THRUST BLOCK TABLES) FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"-24")	
	W-15	

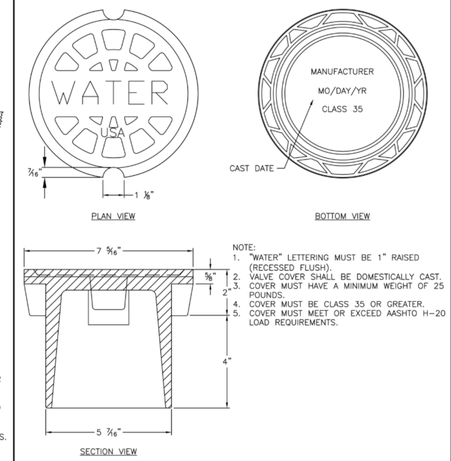


APPROVED METHOD FOR EXTENSION OF VALVE BOX

NOTES:
1. VALVE BOX NOT TO CONTACT WATER MAIN
2. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3. FOR ALL VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4. TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.
5. 2'x2'x6" CONCRETE PAD REQUIRED ON ALL VALVES. NO PRECAST CONCRETE DOUGHNUT ALLOWED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	VALVE BOX INSTALLATION AND EXTENSION	
	W-17	

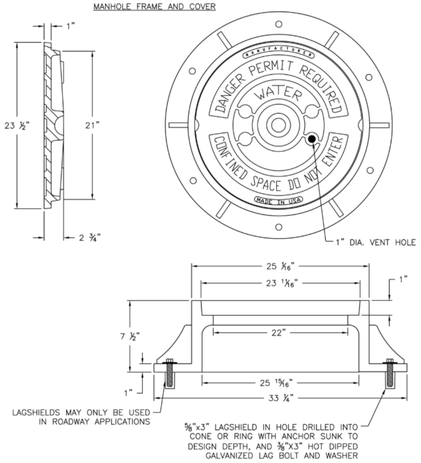


NOTE:
1. "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH).
2. VALVE COVER SHALL BE DOMESTICALLY CAST.
3. COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4. COVER MUST BE CLASS 35 OR GREATER.
5. COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	5 ¼" VALVE BOX DROP LID WITH 4" SKIRT	
	W-18	

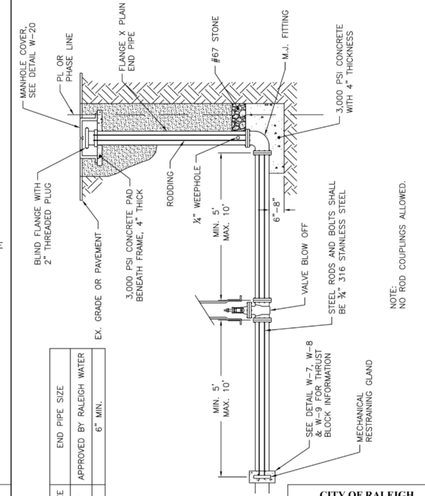
MANHOLE FRAME AND COVER



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3. COVER SHALL WEIGH A MIN. OF 120 LBS.
4. MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED ACCORDANCE WITH DETAIL S-29.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	STANDARD MANHOLE COVER	
	W-20	

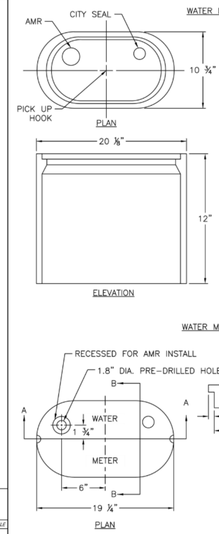


END PIPE SIZE	
MAIN SIZE	APPROVED BY RALEIGH WATER
6"-12"	6" MIN.
≥16"	

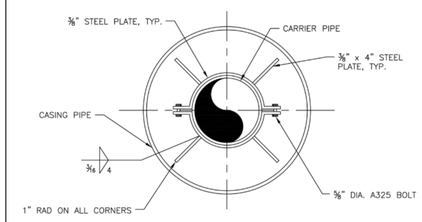
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	TEMPORARY WATER MAIN BLOW OFF ASSEMBLY	
	W-21	

WATER METER BOX



NOTES:
1. COVER WEIGHT: 13 LBS ± 5%.
2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING.
3. HOLE SHALL BE FITTED WITH A METAL GROMMET.
4. BOXES AND LIDS MUST BE MANUFACTURED FROM THE SAME DOMESTIC FOUNDRY.
5. HEIGHT ADJUSTMENTS ALLOWED BY PRECAST RISERS OR BRICK AND MORTAR. DRY STACKING OF BLOCK IS NOT ALLOWED.



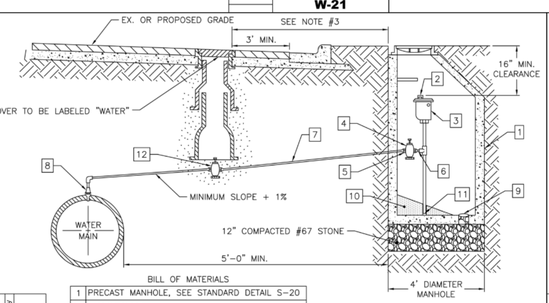
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	WATER METER BOX	
	W-25	

NOTE:
USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	PIPE ALIGNMENT GUIDE	
	W-40	



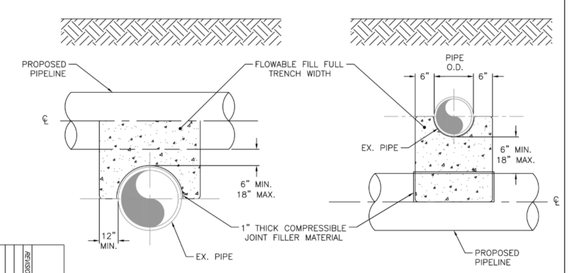
BILL OF MATERIALS

1	PRECAST MANHOLE, SEE STANDARD DETAIL S-20
2	TRASH HOOD
3	2" AIR RELEASE VALVE
4	2" CURB STOP BALL VALVE
5	ADAPTER
6	2" MECHANICAL JOINT BRASS PIPE AND FITTINGS
7	2" TYPE "K", SOFT COPPER WITH FLARED ELBOW
8	CORPORATION COCK
9	6" DIAMETER DRAIN
10	GROUT, 1/8" TO 1'-0" MIN. SLOPE TO DRAIN
11	PIPE CAP
12	2" GATE VALVE

NOTE:
1. AIR VALVE TO BE P-20 WITH VACUUM CHECK BY CRISPIN OR VAL MATIC VM 45.
2. THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER.
3. FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE BETWEEN THE MANHOLE AND THE VALVE BOX SHOULD BE 3 FEET.
4. MAIN SHALL BE DEEP ENOUGH TO ACCOMMODATE INSTALLATION AS SHOWN.
5. SEE DETAIL W-3 TO INSURE PROPER BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	WATER AIR RELEASE VALVE	
	W-19	



PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

NOTE:
NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 18" FOR WATER LINES.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS	
	W-41	

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

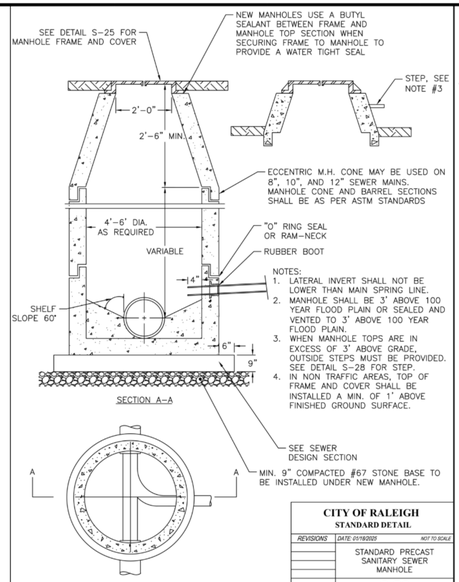
SHEET TITLE:
UTILITY DETAILS

SHEET NO.: **CU-502**

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property (BIG)\Big_Working Dwgs\Sheets\Construction Set\51. CU-500-503 UTILITY DETAILS.dwg

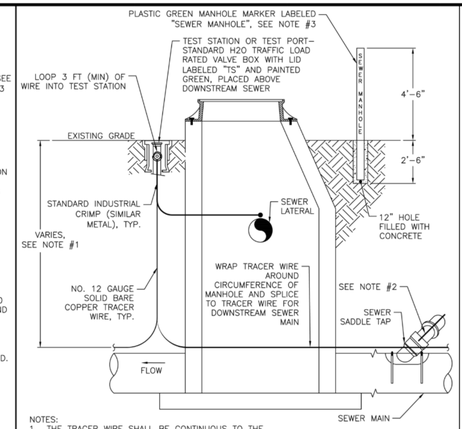
2025-12-12



NOTES:
1. LATERAL INVERT SHALL NOT BE LOWER THAN MAIN SPRING LINE.
2. MANHOLE SHALL BE 3' ABOVE 100 YEAR FLOOD PLAIN OR SEALED AND VENTED TO 3' ABOVE 100 YEAR FLOOD PLAIN.
3. WHEN MANHOLE TOPS ARE IN EXCESS OF 3' ABOVE GRADE, OUTSIDE STEPS MUST BE PROVIDED. SEE DETAIL S-28 FOR STEP.
4. IN NON TRAFFIC AREAS, TOP OF FRAME AND COVER SHALL BE INSTALLED A MIN. OF 1' ABOVE FINISHED GROUND SURFACE.

CITY OF RALEIGH
STANDARD DETAIL

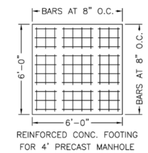
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD PRECAST SANITARY SEWER MANHOLE	
	S-20	



NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

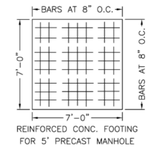
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER	
	S-20A	



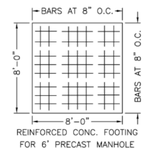
REINFORCED CONC. FOOTING FOR 4' PRECAST MANHOLE

BILL OF MATERIAL FOR 4' MANHOLE BASE			
BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	5'-6"	18	103
CL. "A" CONCRETE TOTAL CU. YDS.			1.0



REINFORCED CONC. FOOTING FOR 5' PRECAST MANHOLE

BILL OF MATERIAL FOR 5' MANHOLE BASE			
BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	6'-6"	20	136
CL. "A" CONCRETE TOTAL CU. YDS.			1.4



REINFORCED CONC. FOOTING FOR 6' PRECAST MANHOLE

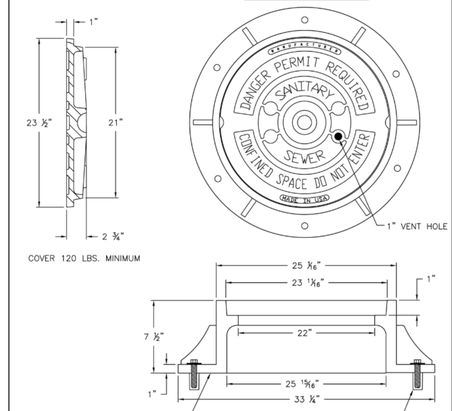
BILL OF MATERIAL FOR 6' MANHOLE BASE			
BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	7'-6"	24	165
CL. "A" CONCRETE TOTAL CU. YDS.			1.8

* ALL BASES ARE MINIMUM 9" THICK

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	EXTENDED BASE OR CAST-IN-PLACE REINFORCED CONCRETE BASE	
	S-21	

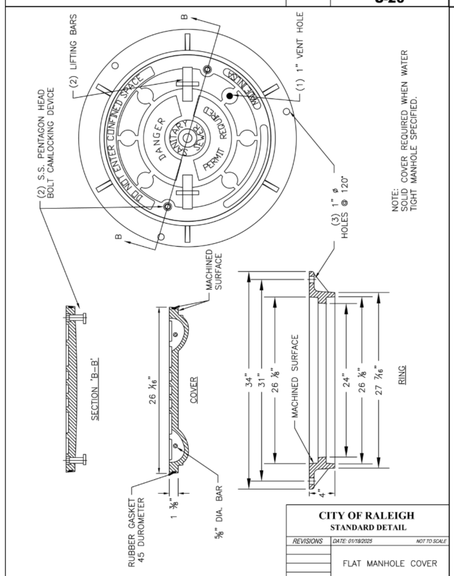
MANHOLE FRAME AND COVER



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3. COVER SHALL WEIGH A MIN. OF 120 LBS.
4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

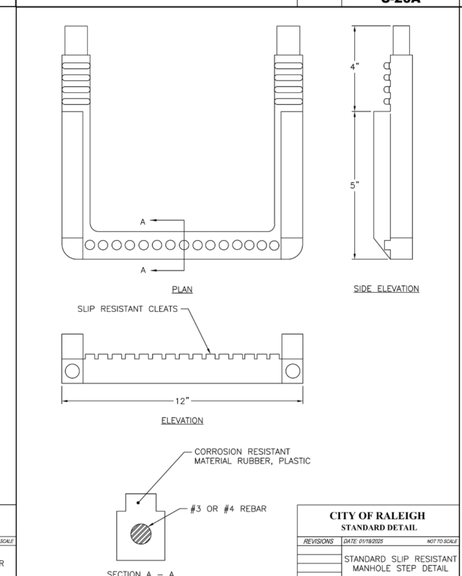
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD MANHOLE COVER	
	S-25	



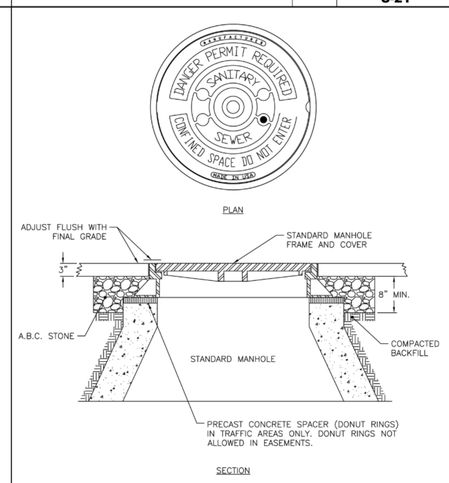
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	FLAT MANHOLE COVER	
	S-25A	



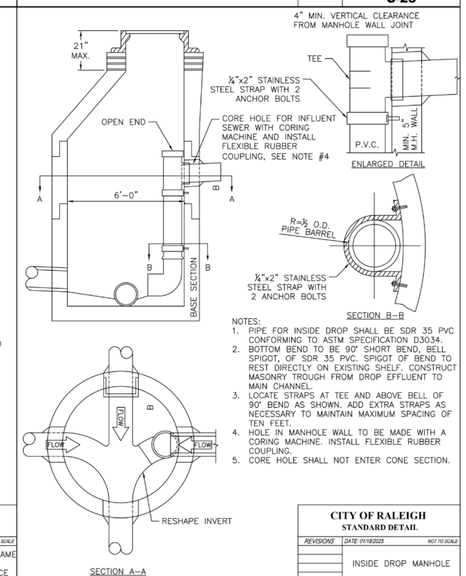
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD SLIP RESISTANT MANHOLE STEP DETAIL	
	S-28	



CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN FRAME SURFACE	
	S-29	



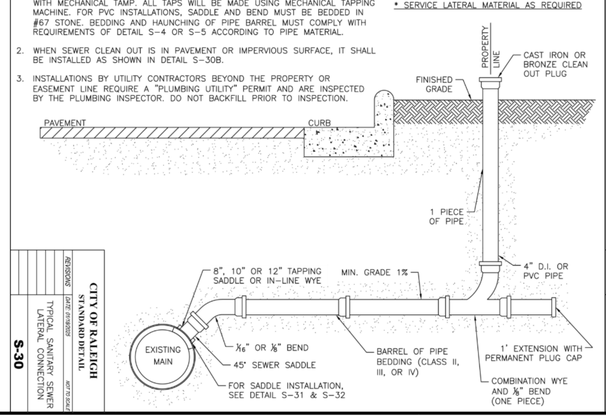
NOTES:
1. PIPE FOR INSIDE DROP SHALL BE SDR 35 PVC CONFORMING TO ASTM SPECIFICATION D3034.
2. BOTTOM BEND TO BE 90° SHORT BEND, BELL SPIGOT, OF SDR 35 PVC. SPIGOT OF BEND TO REST DIRECTLY ON EXISTING SHELF. CONSTRUCT MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNEL.
3. LOCATE STRAPS AT TEE AND ABOVE BELL OF 90° BEND AS SHOWN. ADD EXTRA STRAPS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF TEN FEET.
4. HOLE IN MANHOLE WALL TO BE MADE WITH A CORING MACHINE. INSTALL FLEXIBLE RUBBER COUPLING.
5. CORE HOLE SHALL NOT ENTER CONE SECTION.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	INSIDE DROP MANHOLE	
	S-53	

NOTES:
1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAIL S-4 OR S-5 ACCORDING TO PIPE MATERIAL.
2. WHEN SEWER CLEAN OUT IS IN PAVEMENT OR IMPERVIOUS SURFACE, IT SHALL BE INSTALLED AS SHOWN IN DETAIL S-30B.
3. INSTALLATIONS BY UTILITY CONTRACTORS BEYOND THE PROPERTY OR EASEMENT LINE REQUIRE A "PLUMBING UTILITY" PERMIT AND ARE INSPECTED BY THE PLUMBING INSPECTOR. DO NOT BACKFILL PRIOR TO INSPECTION.

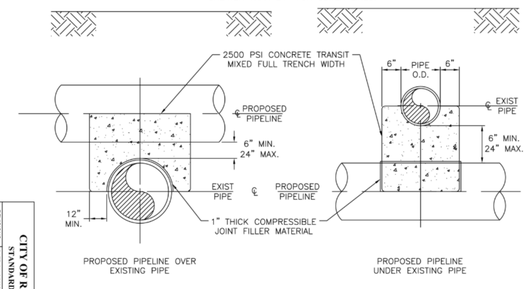
* SERVICE LATERAL MATERIAL AS REQUIRED



CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TYPICAL SANITARY SEWER LATERAL CONNECTION	
	S-30	

NOTE:
NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 24" FOR SEWER LINES.



PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS	
	S-49	

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

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MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

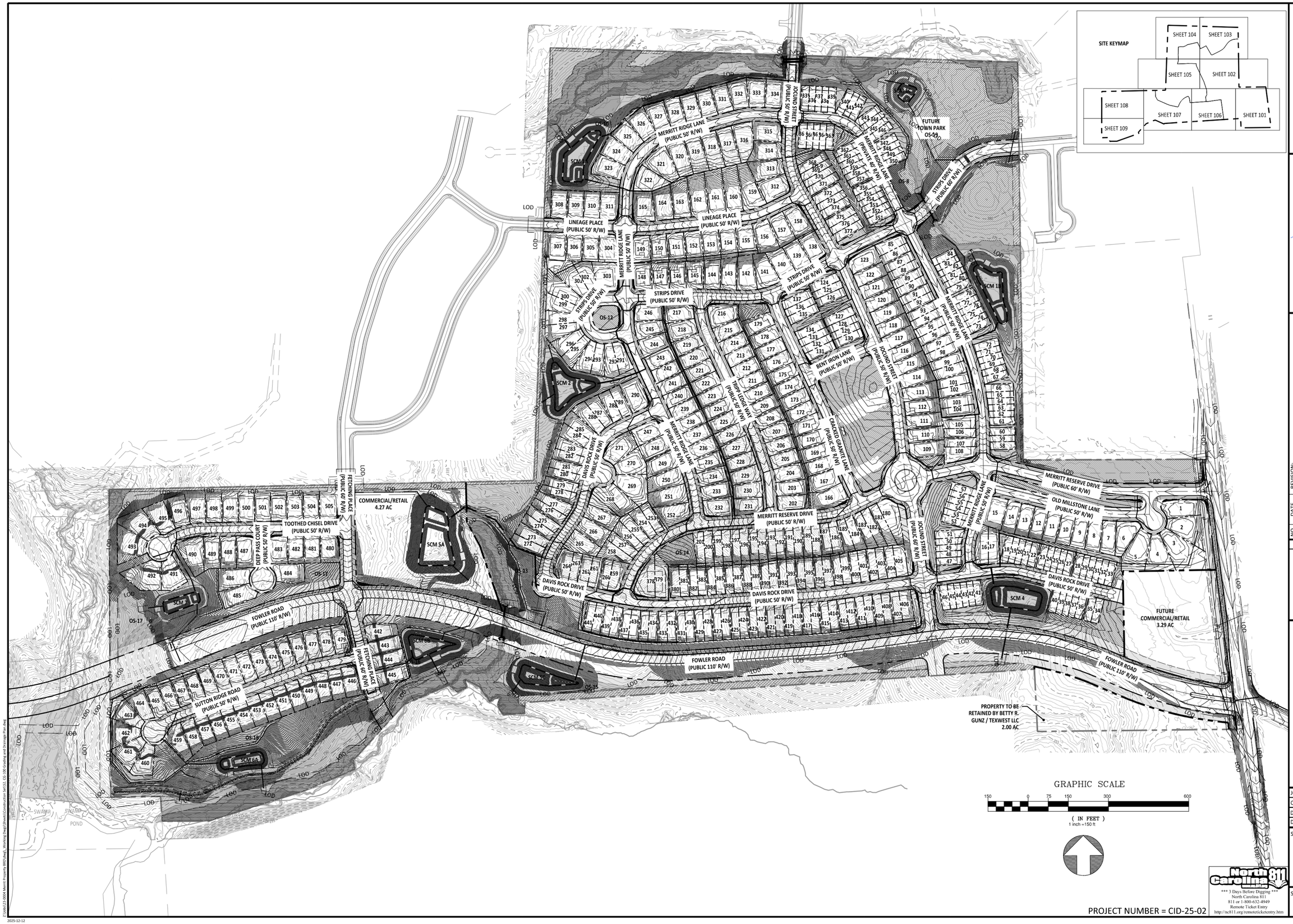
SHEET TITLE:
UTILITY DETAILS

SHEET NO.:
CU-503

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property BRP\Dwgs_Working Dwgs\Sheets\Construction Set\31. CU-500-503 UTILITY DETAILS.dwg

2025-12-12



PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528
JAKOB P. KLEIN

NO.	DATE	REVISION:

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MERRITT RESERVE

GRADING AND DRAINAGE OVERALL PLAN

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

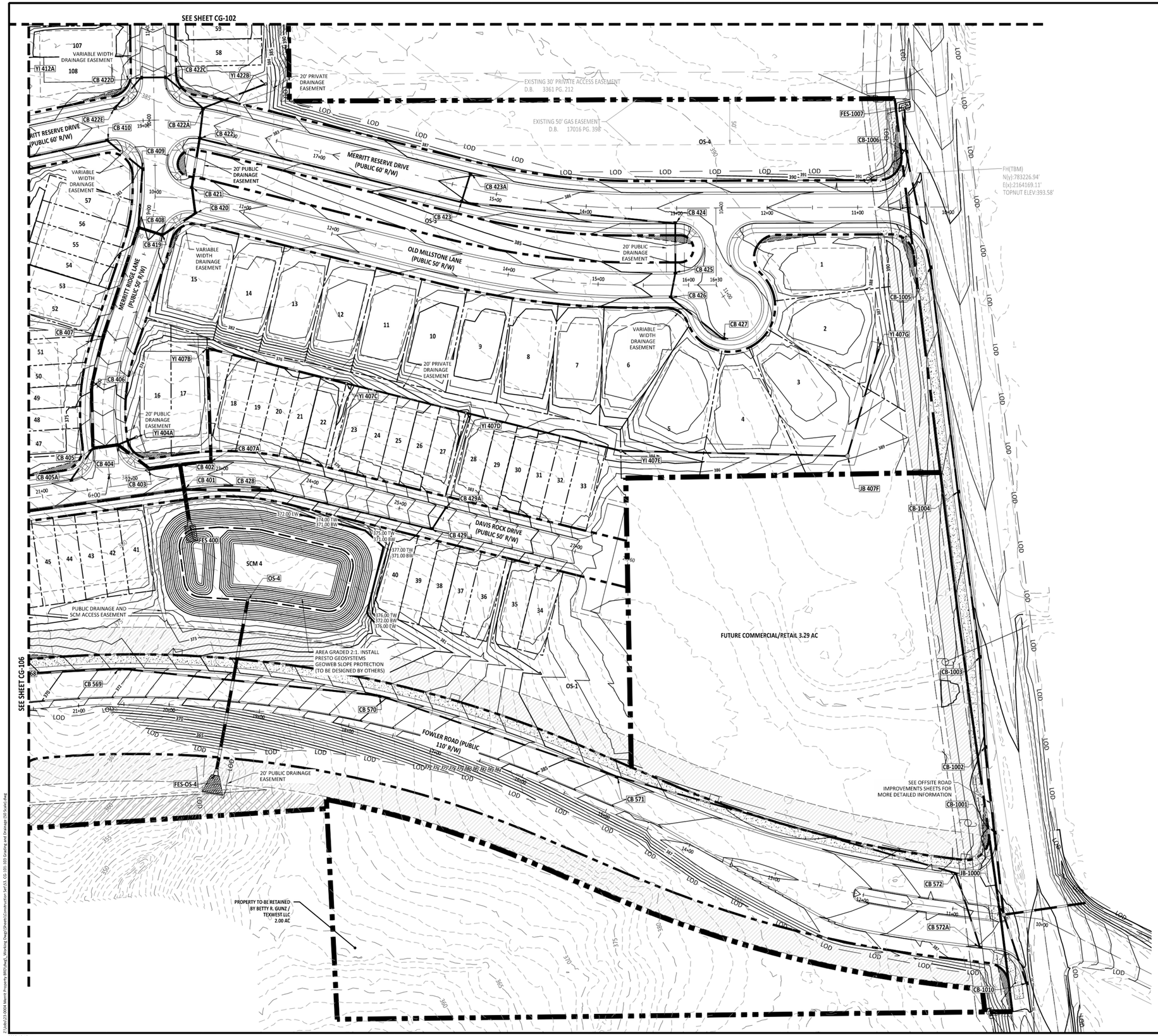
GRADING AND DRAINAGE OVERALL PLAN

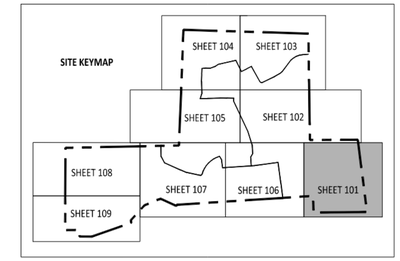
SHEET NO.:

CG-100

Z:\Jobs\23-0004 Merrit Property BBD\dwg_Working Dwgs\Sheets\Construction Set\CS2. CG-100 Grading and Drainage Plan.dwg

2025-12-12





GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

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Date: 2026.01.09 14:25:05'00'

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GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

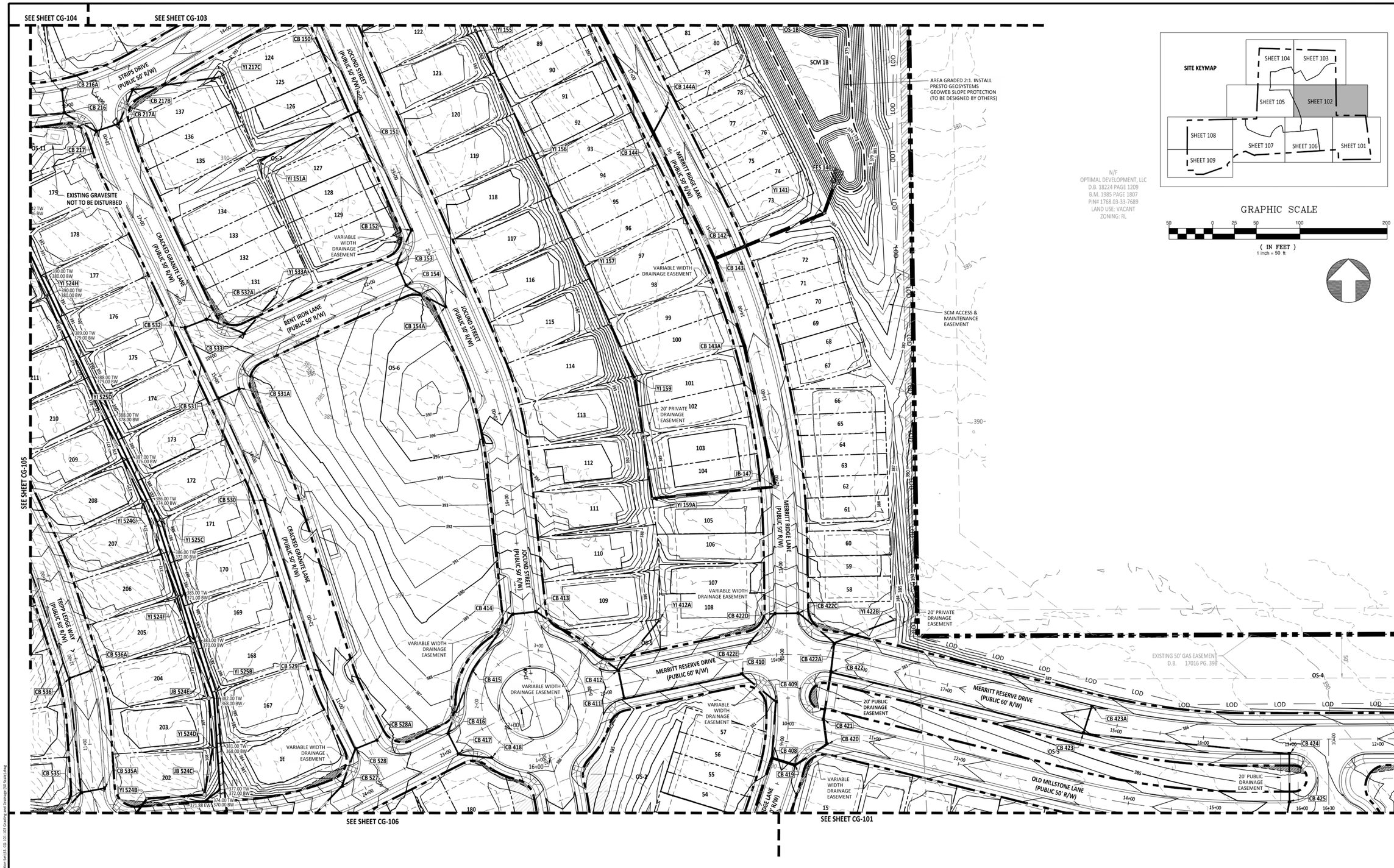
SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.: **CG-101**

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\13. CG-101-103 Grading and Drainage (50 Scale).dwg

2025-12-12



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

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GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.:

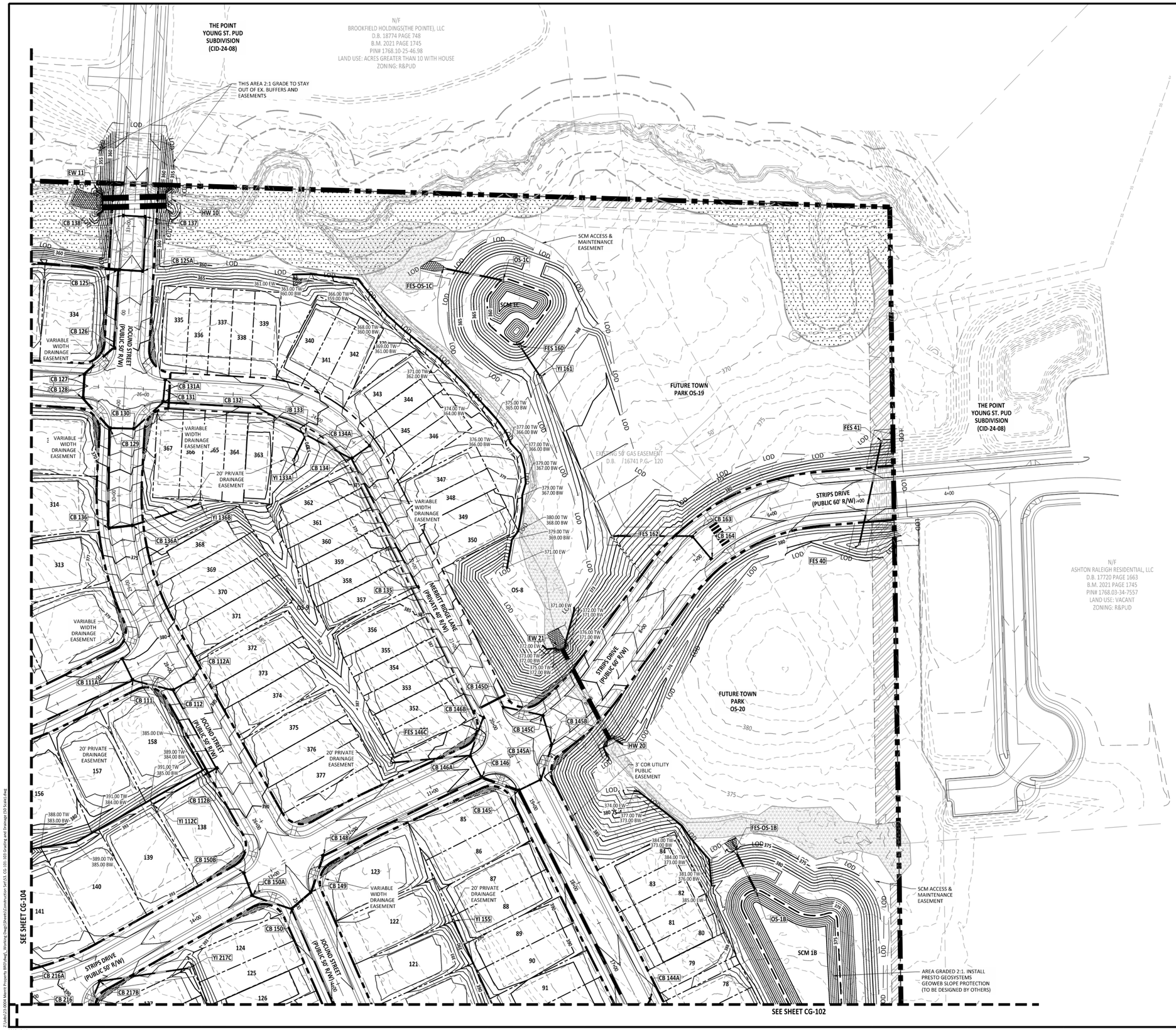
CG-102

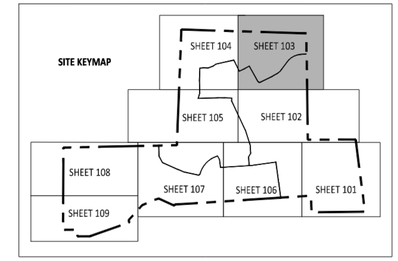
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

PROJECT NUMBER = CID-25-02

Z:\0004-23-0004 Maerit Property BRP\Dwgs_Working Dwgs\Sheets\Construction Set\CS. CG-101-103 Grading and Drainage (50 Scale).dwg

2025-12-12





GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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Raleigh, NC 27607
919-469-1101

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C-3881

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GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

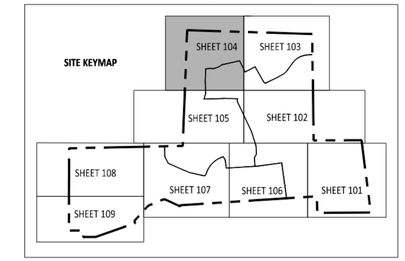
JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.: **CG-103**

Z:\Jobs\23-0004 Merrit Property BBD\Dwg_Working Dwgs\Sheets\Construction Set\CG-101-103 Grading and Drainage (50-Scale).dwg
2025-12-12



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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919-469-1101

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GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

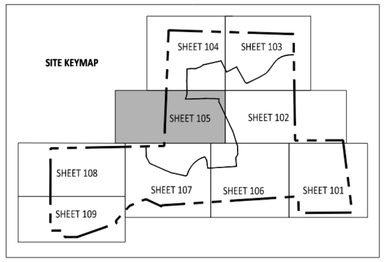
SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.: **CG-104**

Z:\Jobs\23-0004 Merritt Property BBP\Dwg_Working Dwgs\Sheets\Construction Set\L4_CG-104-106 Grading and Drainage (50 Scale).dwg

2025-12-12



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

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GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

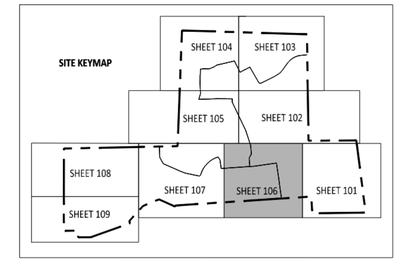
GRADING AND DRAINAGE

SHEET NO.: **CG-105**

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs-23-0004 Merritt Property BRP(Reg)_Working Dwgs\Sheets\Construction Set\CG_CG-105 Grading and Drainage (50 Scale).dwg

2025-12-12



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

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Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

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MERRITT RESERVE

GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

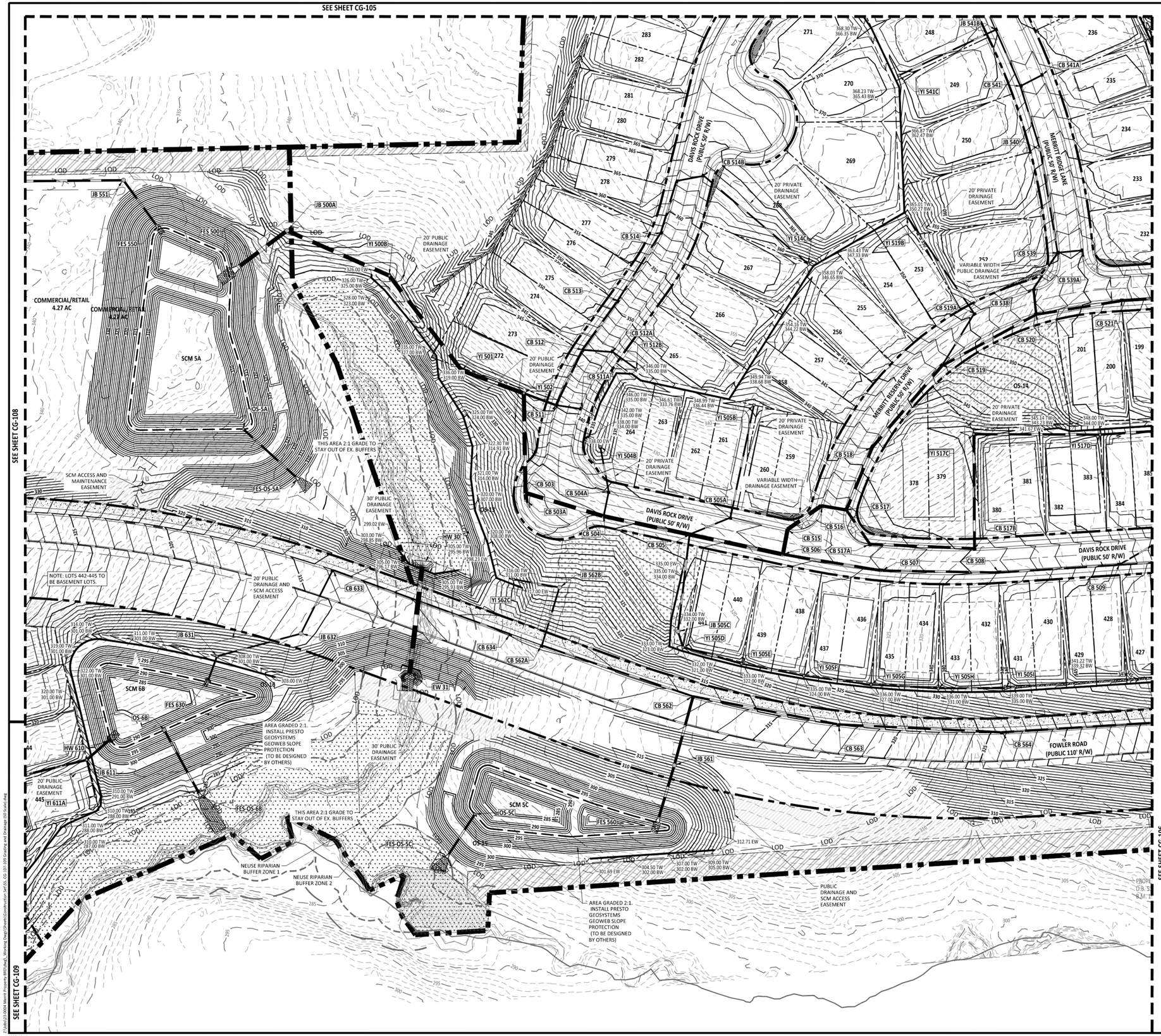
GRADING AND DRAINAGE

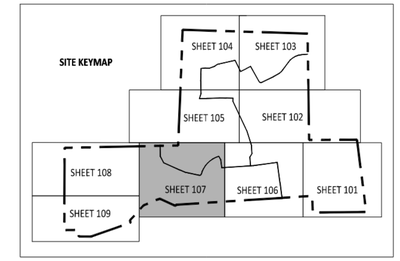
SHEET NO.: **CG-106**

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property (BRG)\Dwg_Working Dwgs\Sheets\Construction Set\CG-104-106 Grading and Drainage (OS-5xlsx).dwg

2025-12-12





GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

Digitally signed by Jakob Klein
Date: 2026.01.09 15:45:05-05'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528
JAKOB P. KLEIN

NO.	DATE	REVISION:

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MERRITT RESERVE

GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

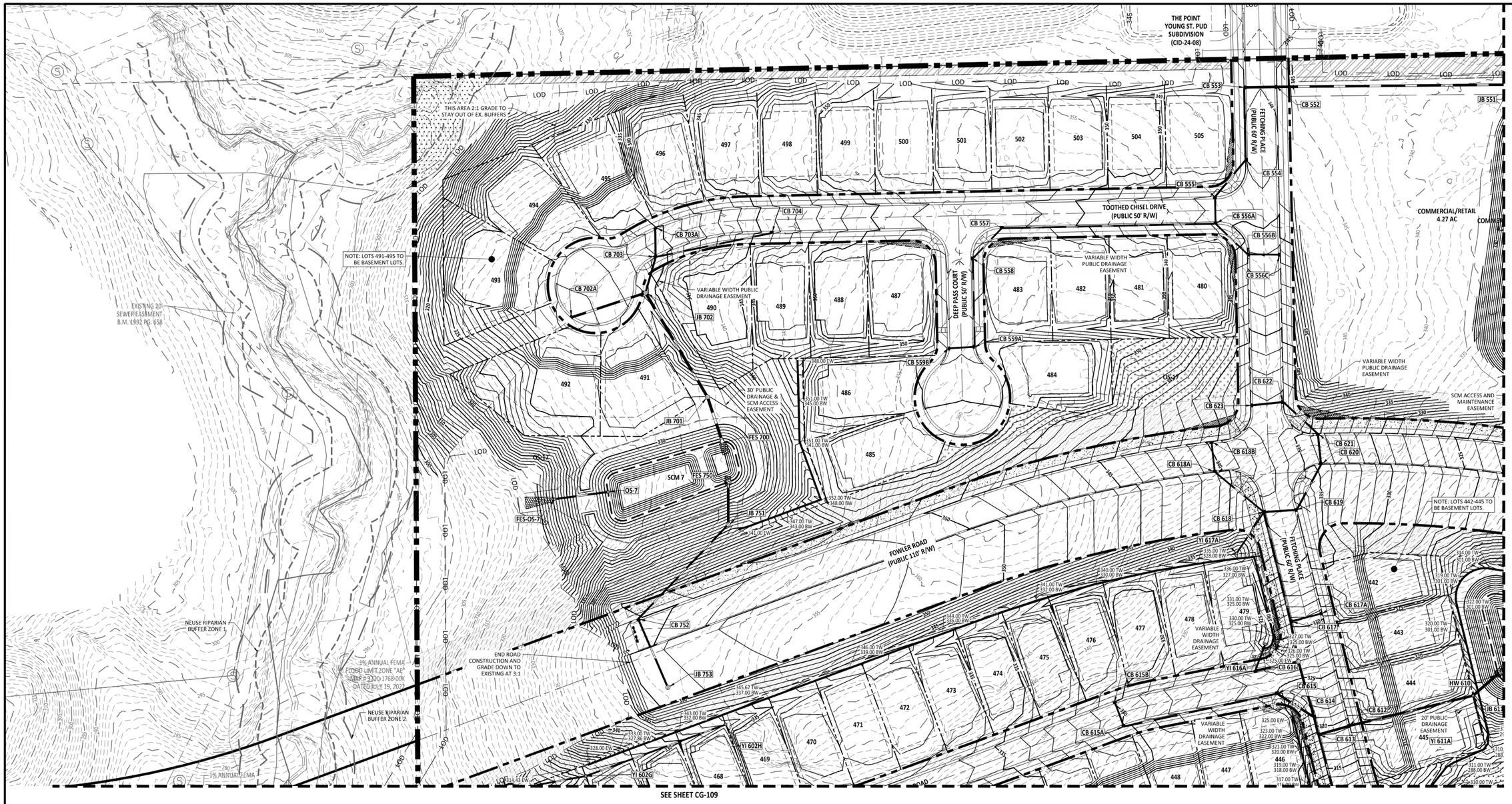
SHEET TITLE:

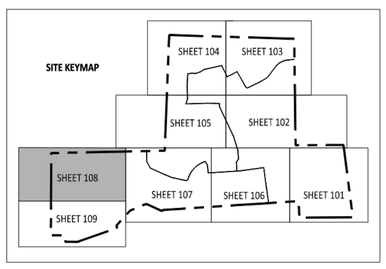
GRADING AND DRAINAGE

SHEET NO.: **CG-107**

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\CG-107-109 Grading and Drainage (50-Scale).dwg

2025-12-12





GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:05:00

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE

GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

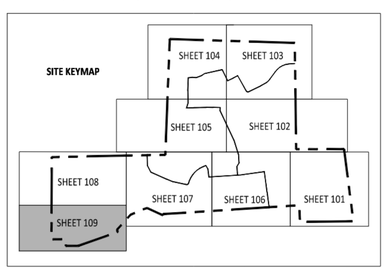
SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.: **CG-108**

Z:\Jobs\23-0004 Merrit Property (BRD)\Dwg_Working Dwgs\Sheets\Construction Set\SS_CG-107-109 Grading and Drainage (SS-Sets).dwg

2025-12-12



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 08:05:00 -05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE

GRADING AND DRAINAGE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

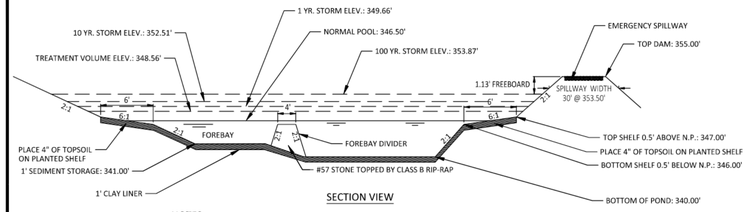
SHEET TITLE:

GRADING AND DRAINAGE

SHEET NO.: **CG-109**

Z:\Jobs\23-0004 Merritt Property BBP\Dwg_Working Dwgs\Sheets\Construction Set\CG_CG-107-109 Grading and Drainage [SD Scale].dwg

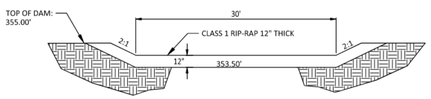
2025-12-12



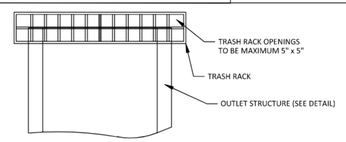
SECTION VIEW

NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS

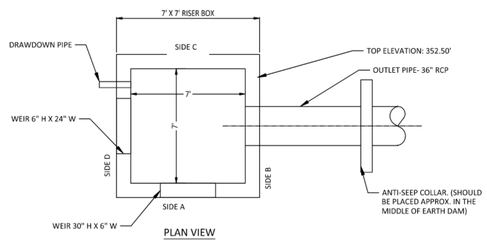


EMERGENCY SPILLWAY SECTION
NTS



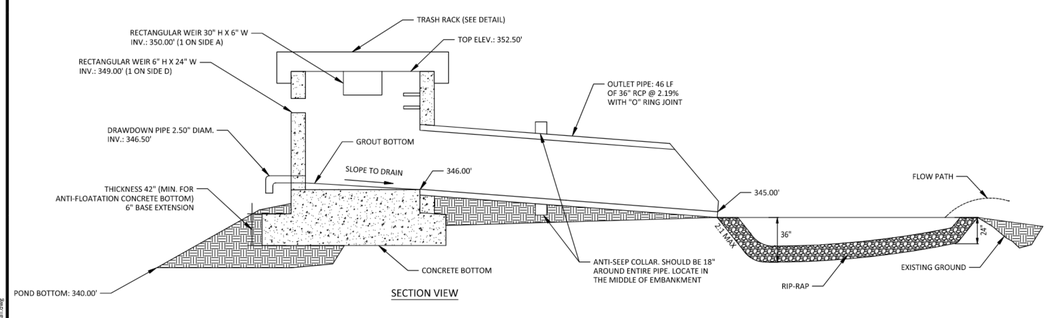
NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS



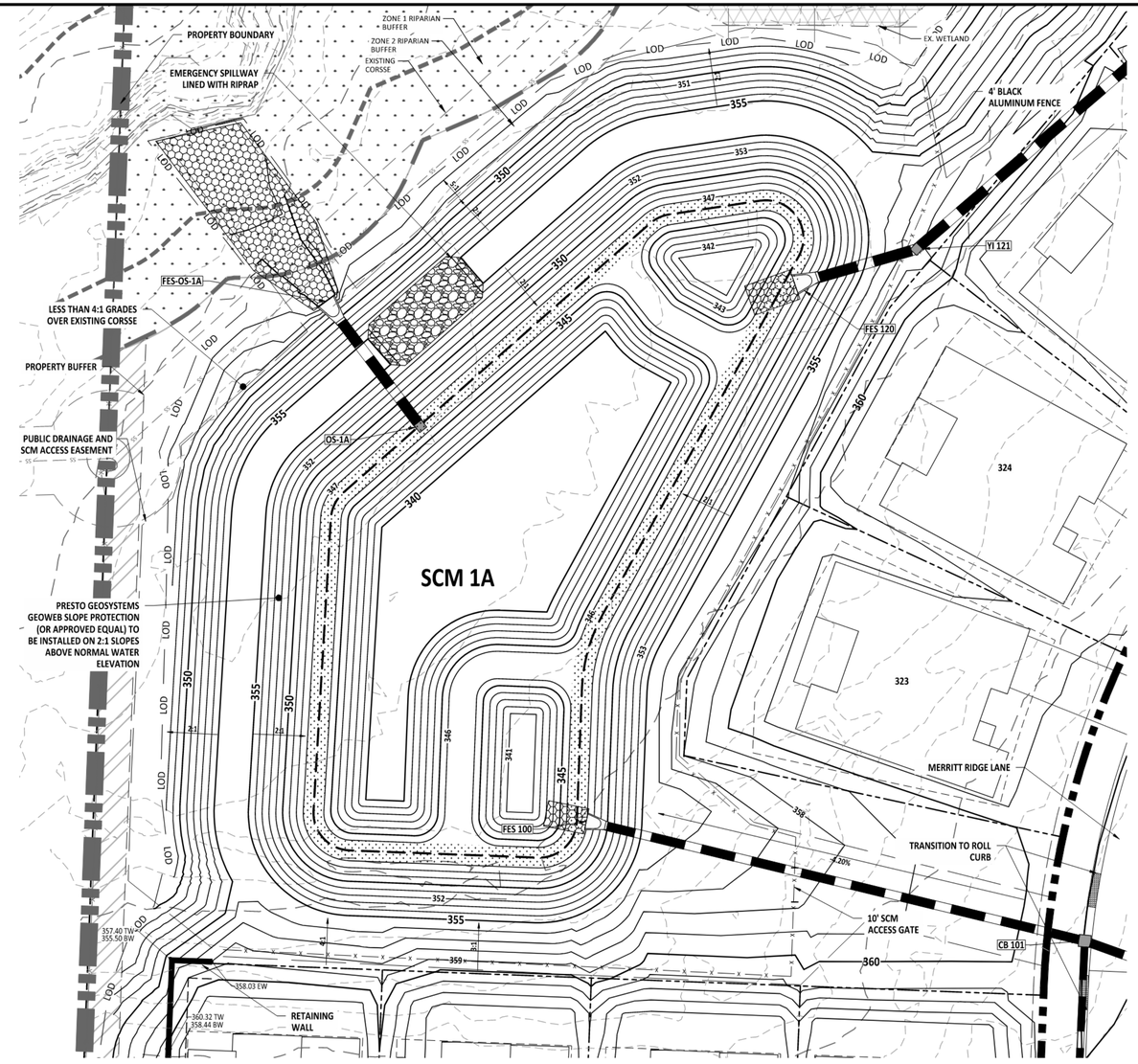
PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 1A
NTS



SCM 1A PLAN VIEW

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF (HERB.)

EF	EUPATORIADELPHUS DUBIUS	DWARF JOE PYE WEED	4-6" POT @ 3' SPACING
RC	RHYNCHOSPORA COLORATA	STARRUSH WHITETOP	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3,246 sf (USE 812 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
5. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE ENSURING THAT ALL JOINTS ARE PROPERLY SEALED.
6. EXAMINE EMERGENCY OVERFLOW AND RIP-RAP OUTLET TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
7. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:24:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
SCM 1A DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

SCM 1A DETAIL

SHEET NO.:
CG-401

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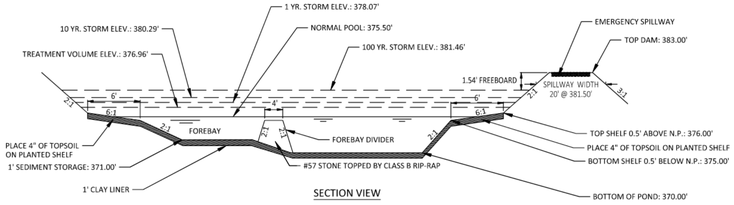
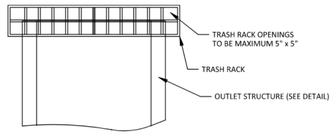
2025-12-12



SECTION VIEW

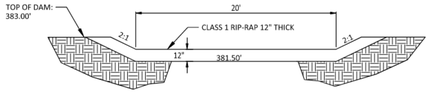
NOTES:
1. SEE SHEET 2.0 FOR SCM CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS

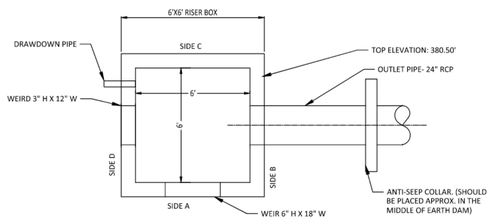


NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS



EMERGENCY SPILLWAY SECTION
NTS



PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
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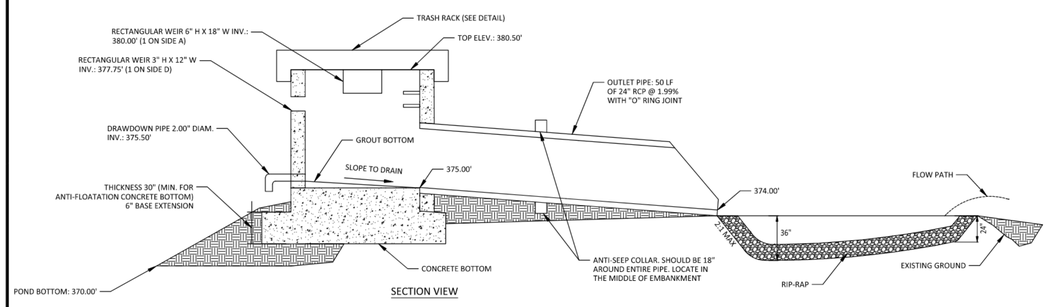
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 1B
NTS

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
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8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

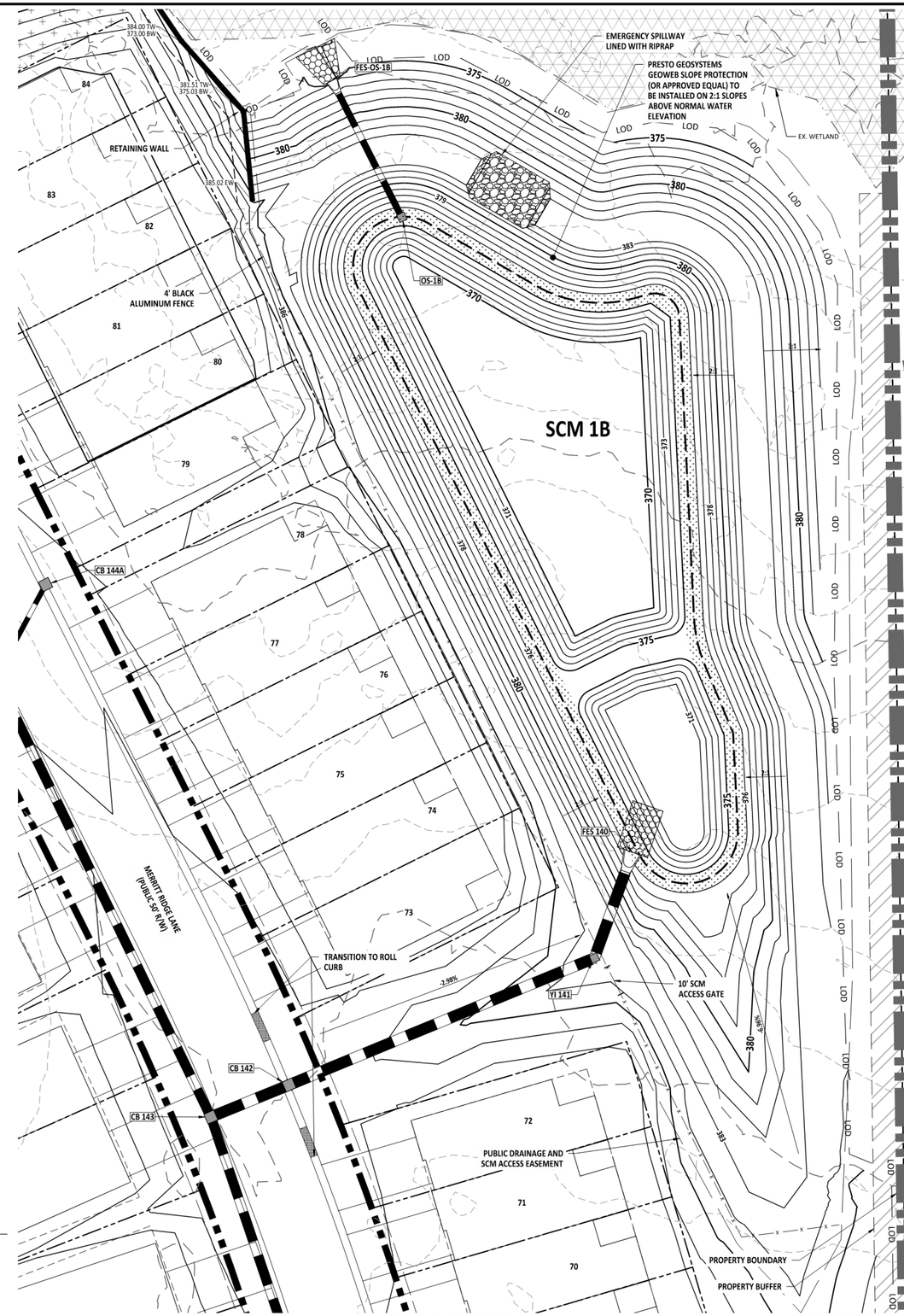
VEGETATED SHELF
(HERB.)
CT CAREX TENERA QUILL SEDGE 4-6" POT @ 3' SPACING
LS LOBELIA SIPHILITICA GREAT BLUE LOBELIA 4-6" POT @ 3' SPACING
RC RHYNCHOSPORA COLORATA STARRUSH WHITETOP 4-6" POT @ 3' SPACING
LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3,364 sf (USE 841 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.



SCM 1B PLAN VIEW

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE
SCM 1B DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025
SHEET TITLE:	SCM 1B DETAIL
SHEET NO.:	CG-402

North Carolina 811
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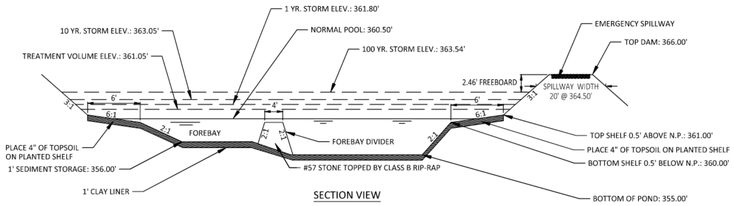
Z:\Jobs\23-0004 Merritt Property BBD\Dwg_Working Dwgs\Sheets\Construction Set\SB_CG-401 SCM 1A-2 Detail.dwg

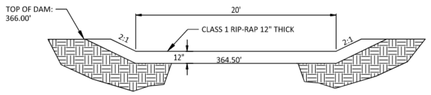
2025-12-12



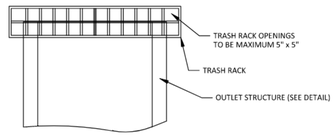
SECTION VIEW

NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS



EMERGENCY SPILLWAY SECTION
NTS



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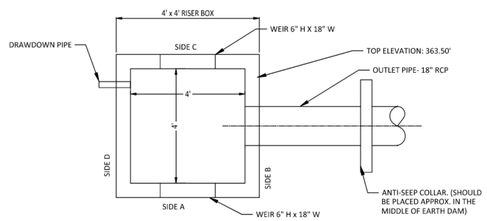
TRASH RACK
NTS



PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
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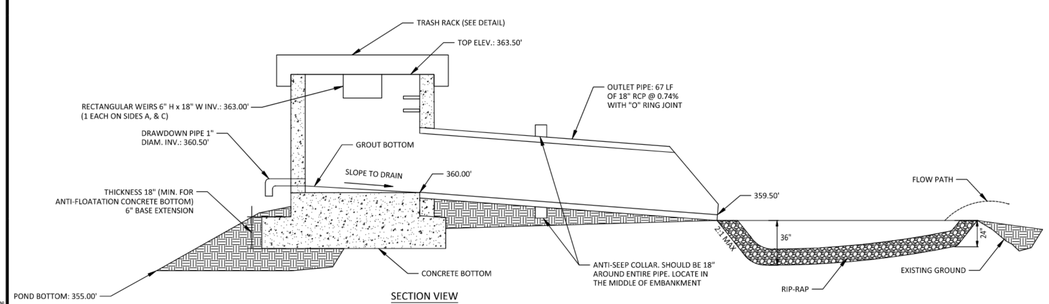
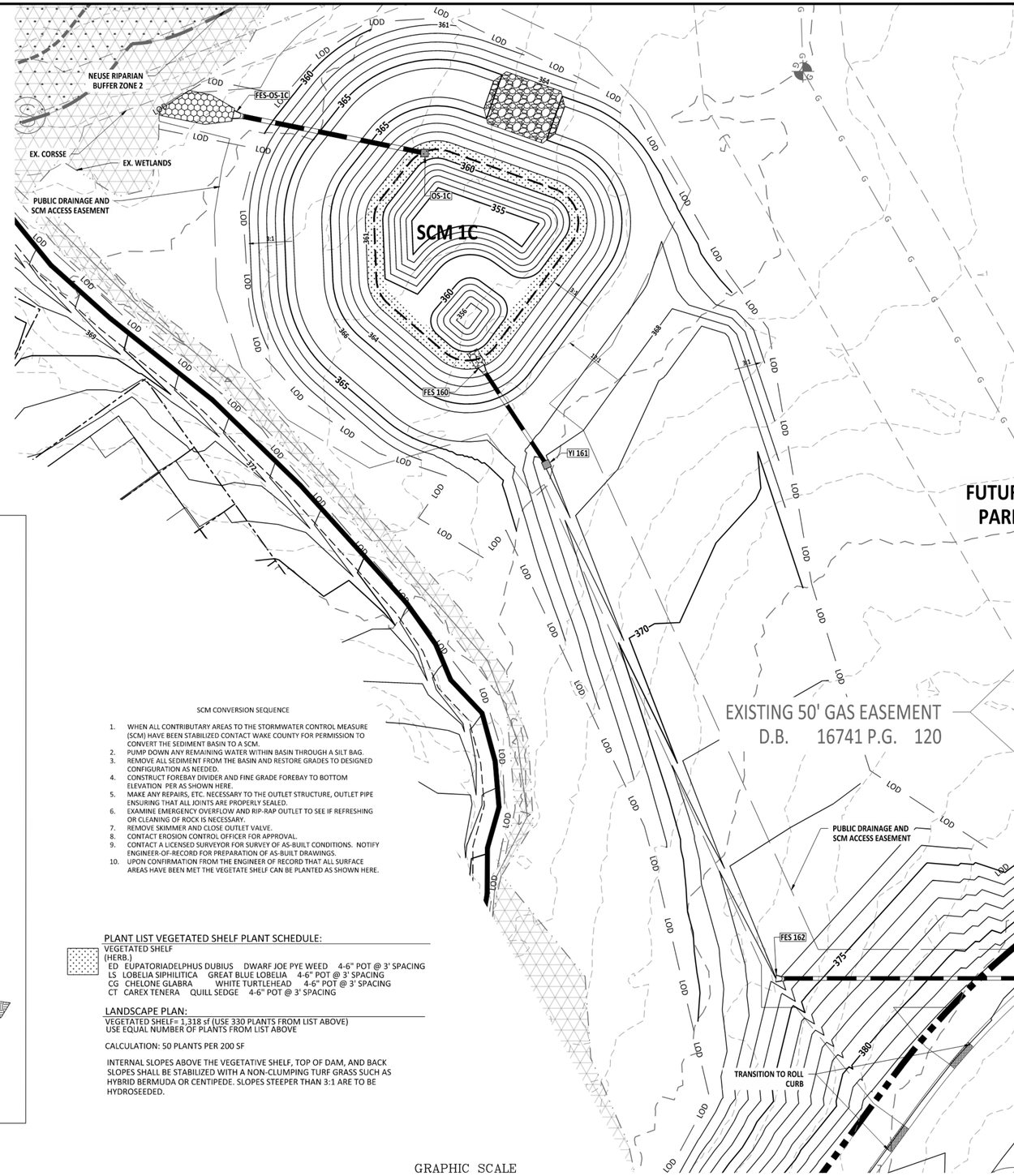


SECTION VIEW

OUTLET STRUCTURE 1C
NTS



SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
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3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
5. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE ENSURING THAT ALL JOINTS ARE PROPERLY SEALED.
6. EXAMINE EMERGENCY OVERFLOW AND RIP-RAP OUTLET TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
7. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(HERB.)
ED EUPATORIADELPHUS DUBIUS DWARF JOE PYE WEED 4-6" POT @ 3' SPACING
LS LOBELIA SIPHILITICA GREAT BLUE LOBELIA 4-6" POT @ 3' SPACING
CG CHELONE GLABRA WHITE TURTLEHEAD 4-6" POT @ 3' SPACING
CT CAREX TENERA QUILL SEDGE 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 1,318 sf (USE 330 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

GRAPHIC SCALE
30 0 10 20 40 80
(IN FEET)
1 inch = 20

SCM 1C PLAN VIEW

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
SCM 1C DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

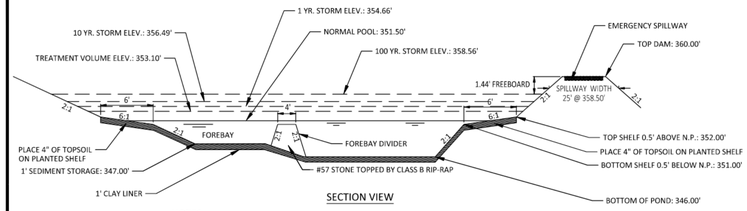
SHEET TITLE:

SCM 1C DETAIL

SHEET NO.:
CG-403

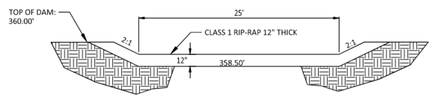
Z:\Jobs\23-0004 Merritt Property BBD\dwg_Working Dwgs\Sheets\Construction Set\CG_401 SCM 1A-2 Detail.dwg

2025-12-12

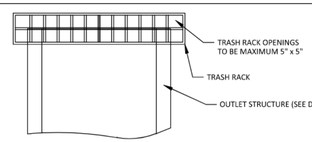


NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS



EMERGENCY SPILLWAY SECTION
NTS



NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
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10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF (HERB.)

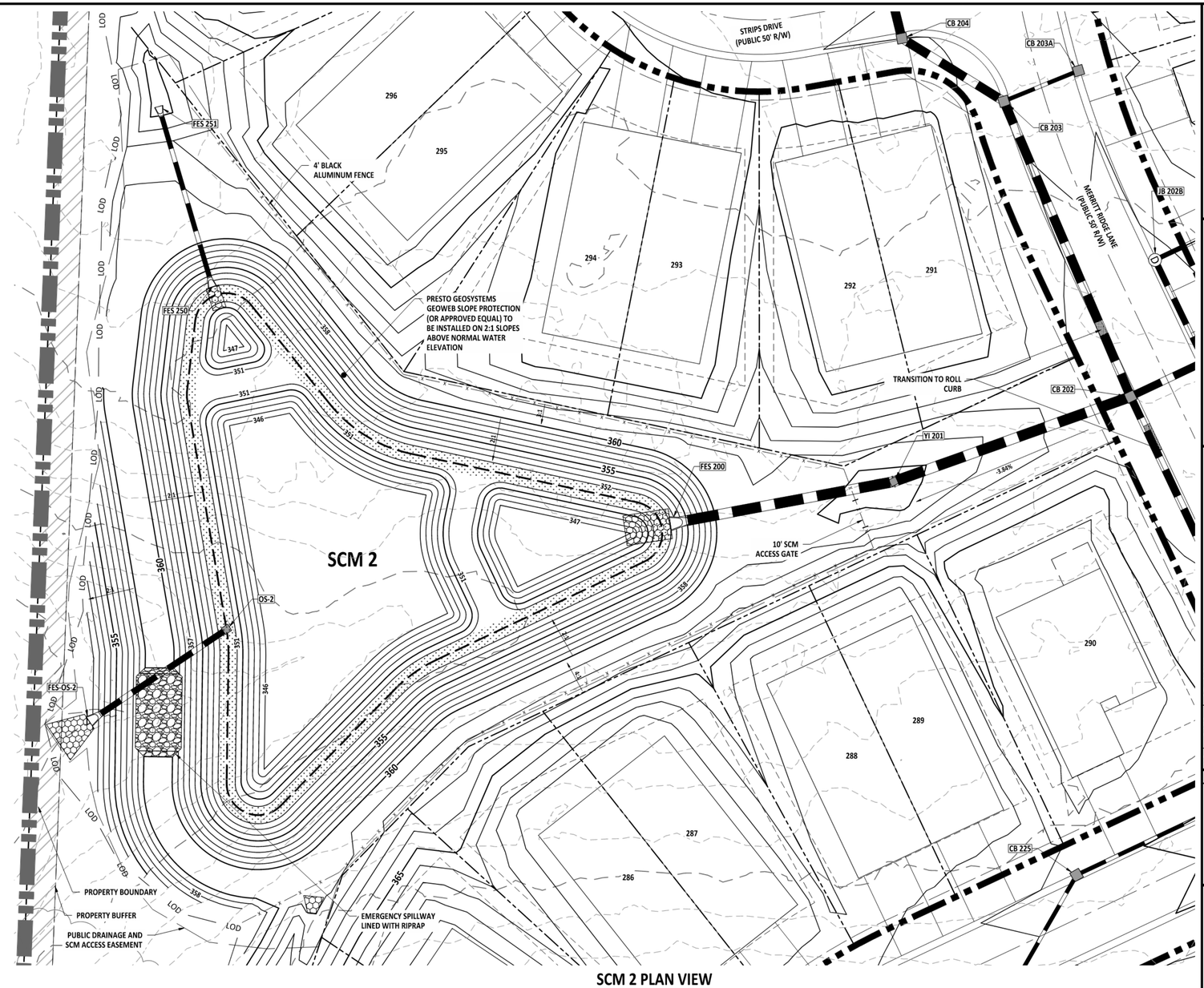
AI	ASCLEPIAS INCARNATA	SWAMP MILKWEED	4-6" POT @ 3' SPACING
SB	SACCHARUM BALDWINII	NARROW PLUMEGRASS	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LE	LOBELIA ELONGATA	LONGLEAF LOBELIA	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

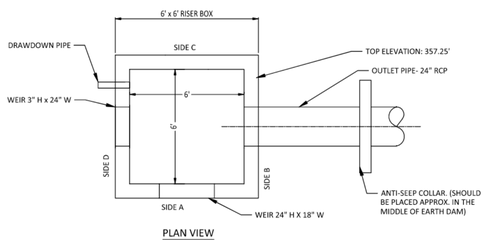
VEGETATED SHELF= 3,333 sf (USE 833 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

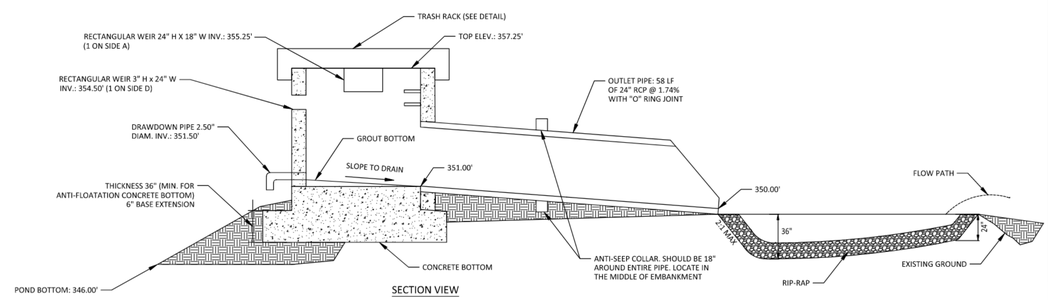


SCM 2 PLAN VIEW



PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 2
NTS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
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AMERICAN Engineering
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4020 Westchase Boulevard, Suite 450
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919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

MERRITT RESERVE
SCM 2 DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

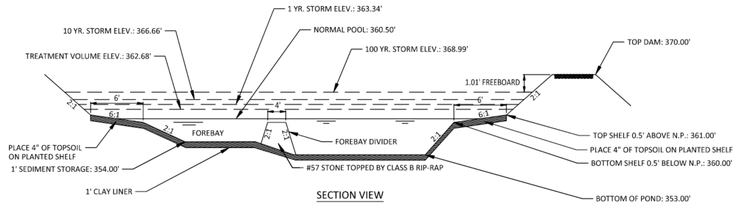
SCM 2 DETAIL

SHEET NO.:

CG-404

Z:\Job\23-0004 Merritt Property BID\Dwg_Working\Dwgs\Sheets\Construction Set\CG_CG-401 SCM 1 & 2 Detail.dwg

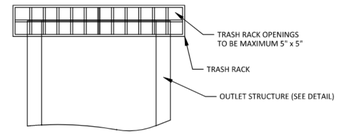
2025-12-12



SECTION VIEW

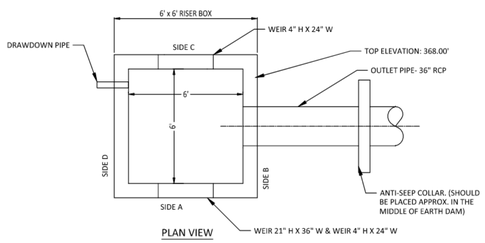
NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS



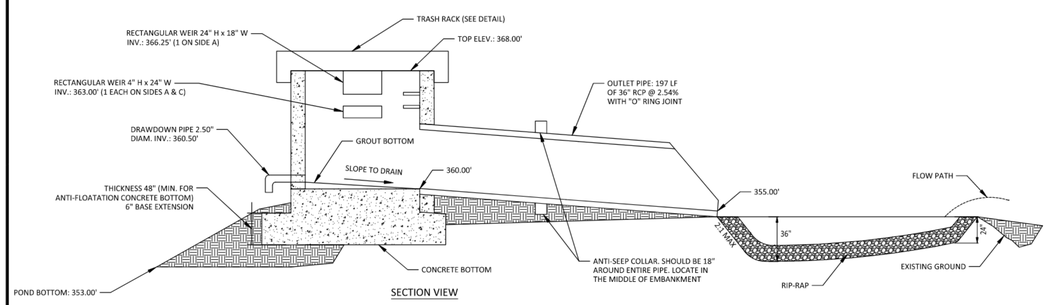
NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS



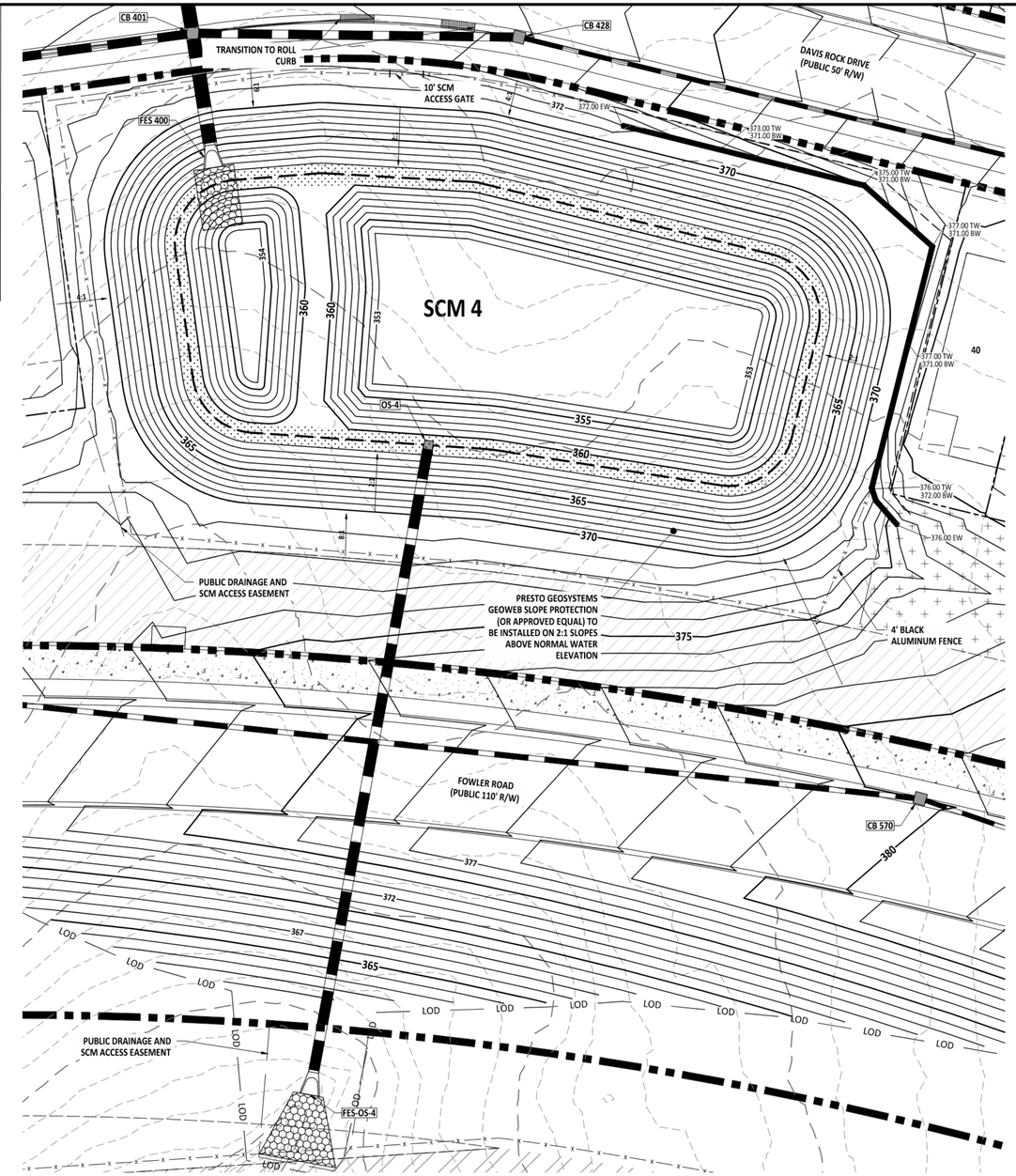
PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 4
NTS



SCM 4 PLAN VIEW

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
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6. EXAMINE EMERGENCY OVERFLOW AND RIP-RAP OUTLET TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
7. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(HERB.)
AI ASCLEPIAS INCARNATA SWAMP MILKWEED 4-6" POT @ 3' SPACING
EM EUPATORIADELPHUS MACULATUS SPOTTED TRUMPETWEED 4-6" POT @ 3' SPACING
CT CAREX TENERA QUILL SEDGE 4-6" POT @ 3' SPACING
TC RHYNCHOSPORA COLORATA STARRUSH WHITETOP 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 2,939 sf (USE 735 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
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AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:56:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE
SCM 4 DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

SCM 4 DETAIL

SHEET NO.:
CG-405

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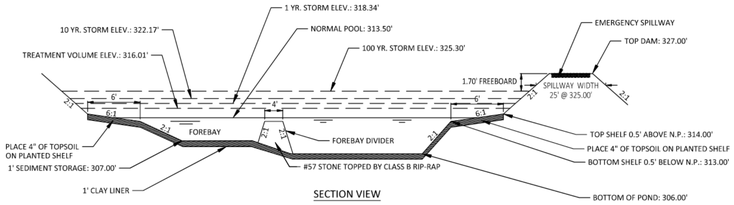
2025-12-12



SECTION VIEW

NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND
NTS

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
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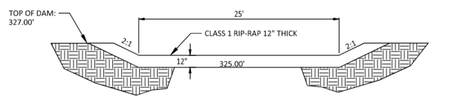
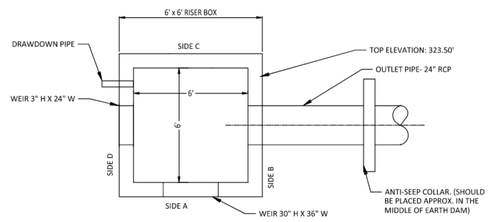
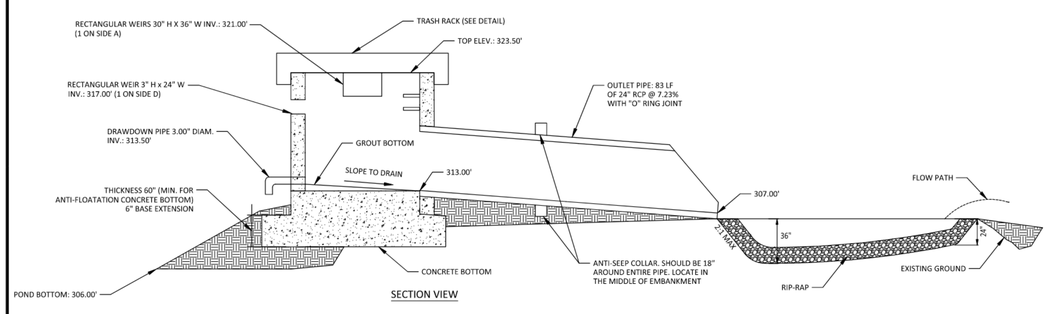


EMERGENCY SPILLWAY SECTION
NTS



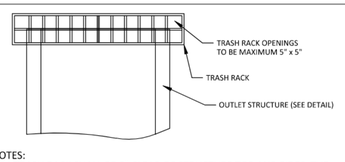
PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 5A
NTS



NOTES:
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5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS

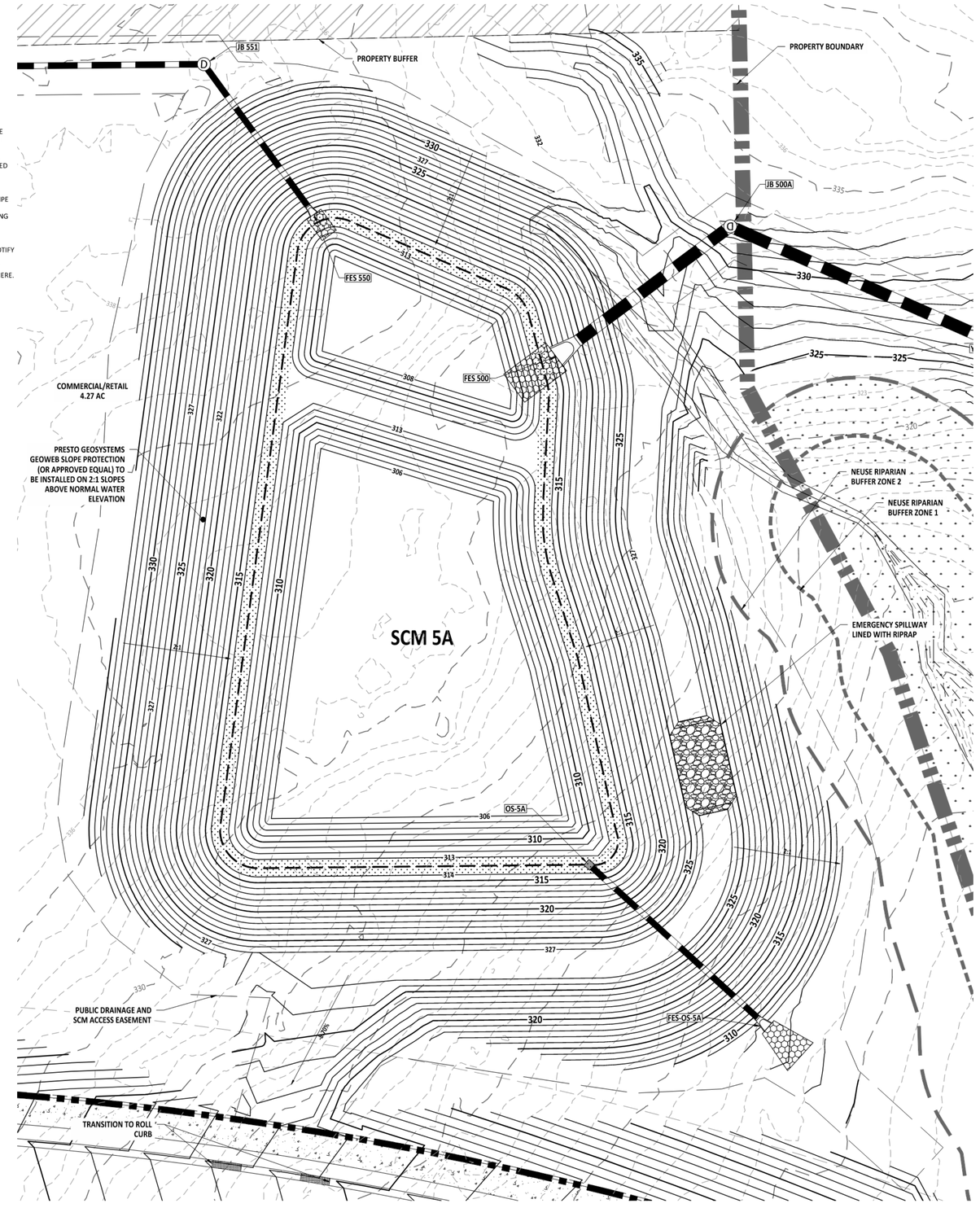
PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF (HERB.)
- EM EUPATORIUDELPHUS MACULATUS SPOTTED TRUMPETWEED 4-6" POT @ 3' SPACING
- SB SACCHARUM BALDWINII NARROW PLUMEGRASS 4-6" POT @ 3' SPACING
- LS LOBELIA SIPHILITICA GREAT BLUE LOBELIA 4-6" POT @ 3' SPACING
- LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3,784 sf (USE 946 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF
INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.



SCM 5A PLAN VIEW

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:26:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

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STIPULATION FOR REUSE

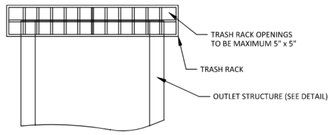
MERRITT RESERVE
SCM 5A DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:
SCM 5A DETAIL

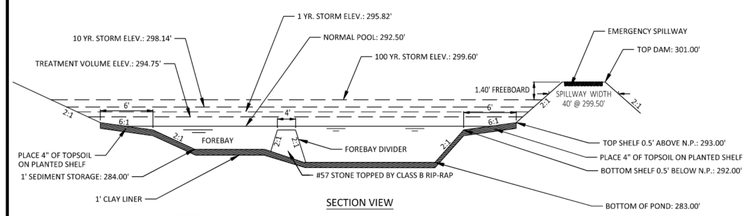
SHEET NO.:
CG-406

Z:\Jobs\23-0004 Merrit Property BBD\dwg_Working Dwgs\Sheets\Construction Set\57- CG- 406 SCM 5A-5C Detail.dwg
2025-12-12



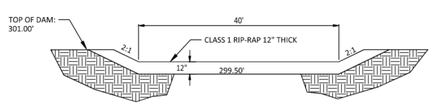
NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS

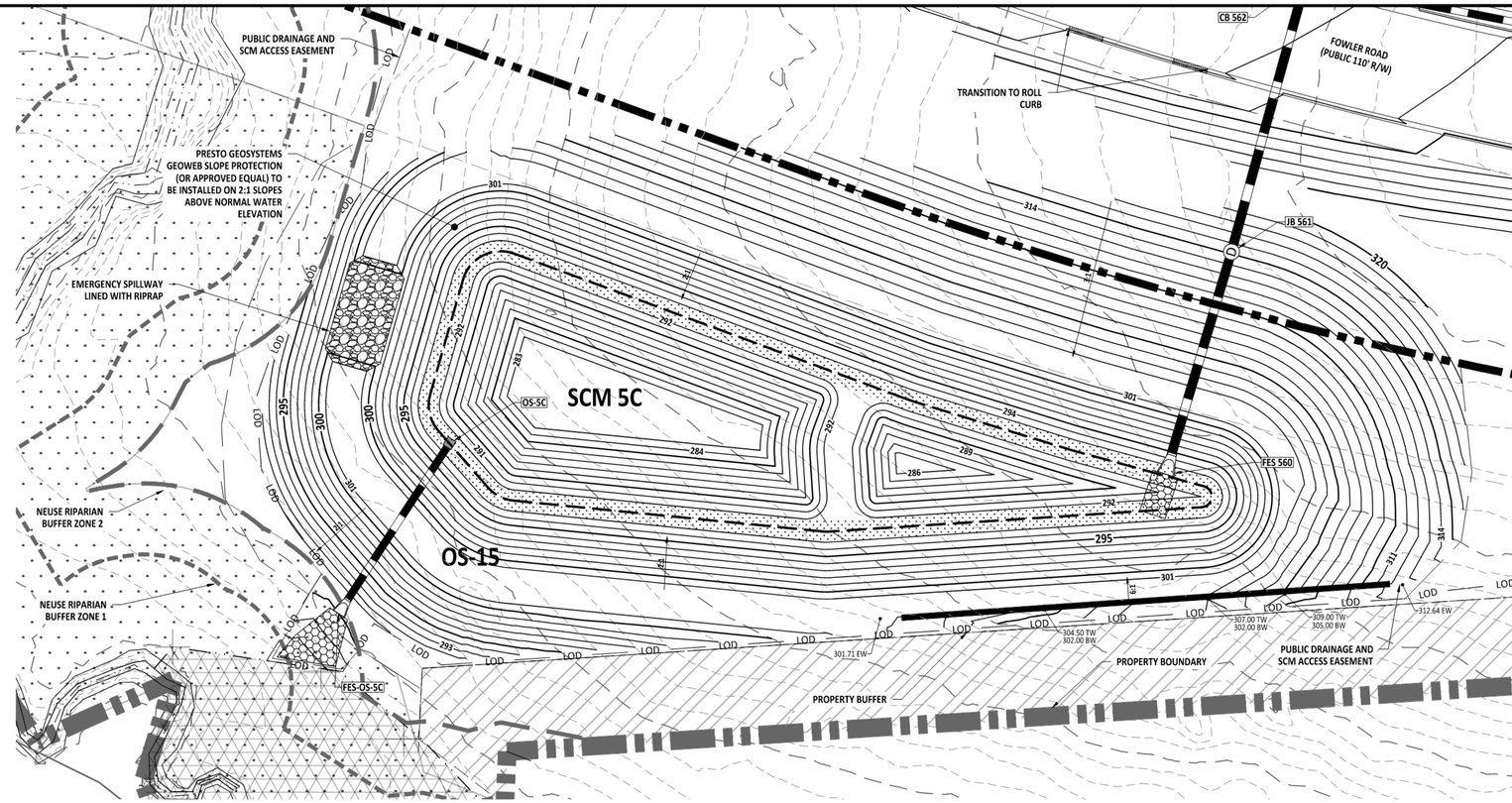


NOTES:
1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

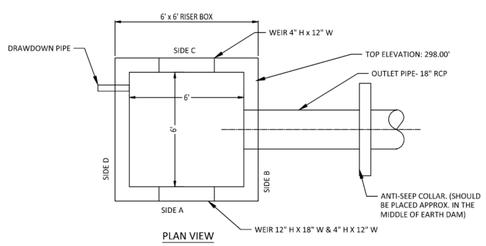
RETENTION POND
NTS



EMERGENCY SPILLWAY SECTION
NTS

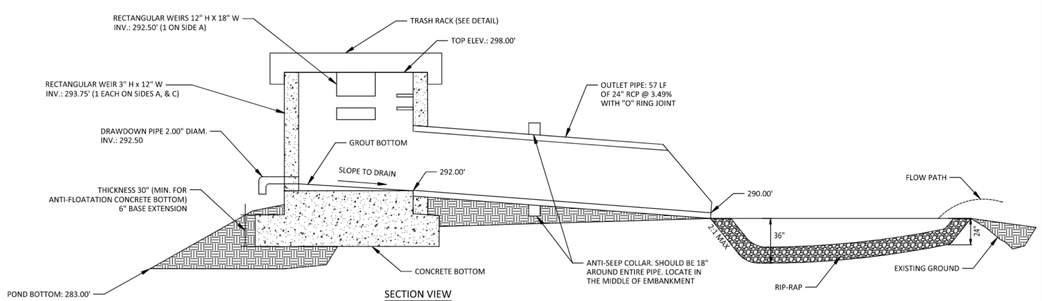


SCM 5C PLAN VIEW



PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



OUTLET STRUCTURE 5C
NTS

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. PUMP DOWN ANY REMAINING WATER WITHIN BASIN THROUGH A SILT BAG.
3. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION AS NEEDED.
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
5. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE ENSURING THAT ALL JOINTS ARE PROPERLY SEALED.
6. EXAMINE EMERGENCY OVERFLOW AND RIP-RAP OUTLET TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
7. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(HERB.)
CT CAREX TENERA QUILL SEDGE 4-6" POT @ 3' SPACING
SB SACCHARUM BALDWINII NARROW PLUMEGRASS 4-6" POT @ 3' SPACING
LE LOBELIA ELONGATA LONGLEAF LOBELIA 4-6" POT @ 3' SPACING
RC RHYNCHOSPORA COLORATA STARRUSH WHITETOP 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3,004 sf (USE 751 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05'00'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 56528 JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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SCM 5C DETAIL
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WAKE COUNTY NC 27312

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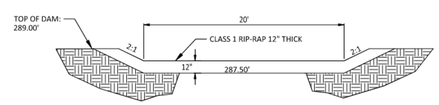
SCM 5C DETAIL

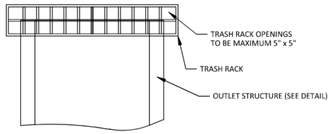
SHEET NO.:
CG-407

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheet\Construction Set\57- CG- 405 SCM 5A-5C Detail.dwg
2025-12-12



EMERGENCY SPILLWAY SECTION

NTS



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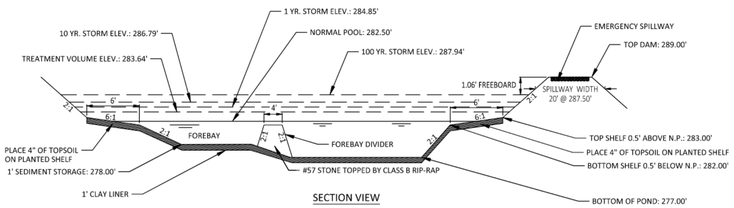
TRASH RACK

NTS



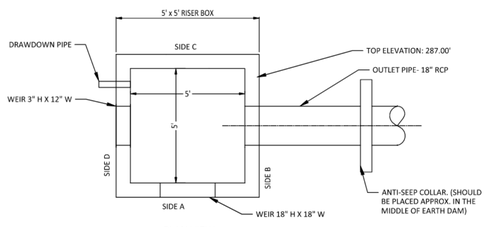
SECTION VIEW

NOTES:

1. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

RETENTION POND

NTS



PLAN VIEW

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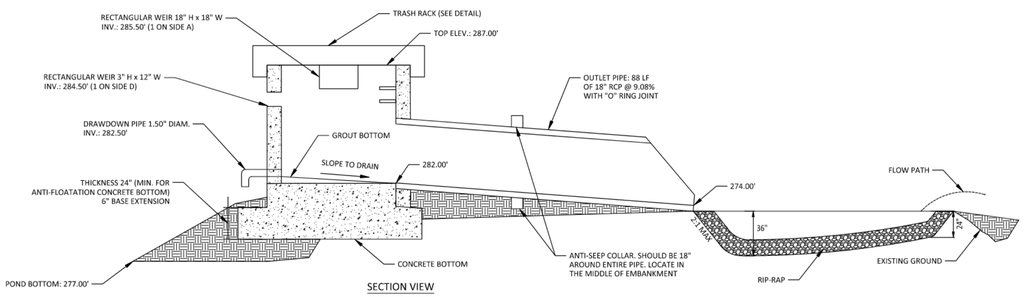
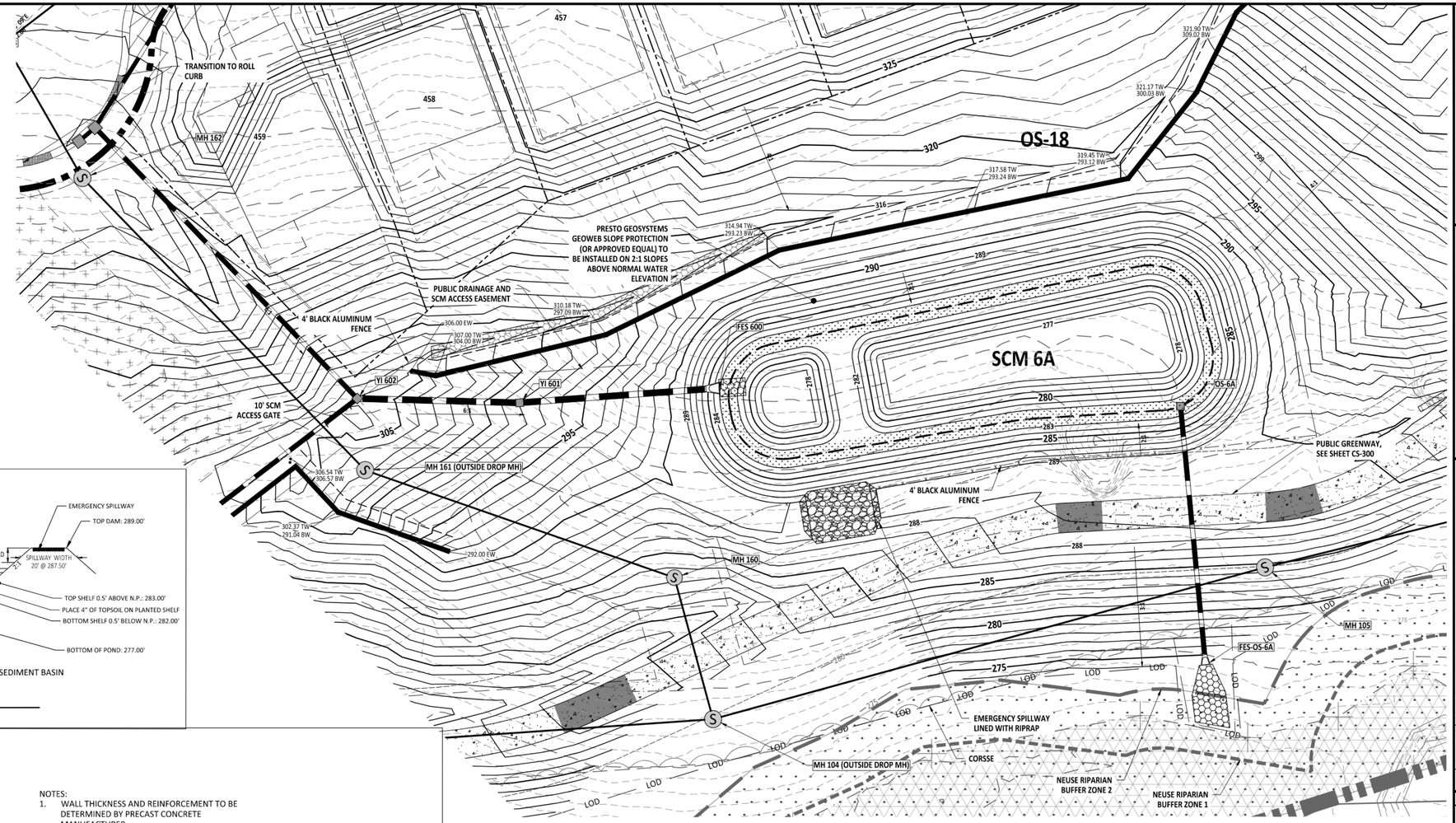


SECTION VIEW

OUTLET STRUCTURE 6A

NTS



SCM 6A PLAN VIEW

SCM CONVERSION SEQUENCE

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PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(HERB.)

CT	CAREX TENERA	QUILL SEDGE	4-6" POT @ 3' SPACING
HL	HIBICUS LAEVIS	HALBERDLEAF ROSE MALLOW	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 2,322 sf (USE 581 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

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SCM 6A DETAIL
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
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SHEET TITLE:

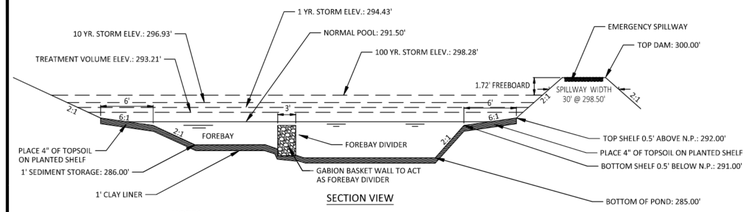
SCM 6A DETAIL

SHEET NO.:

CG-408

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\SB_CG -409 SCM 6A-7 Detail.dwg

2025-12-12



NOTES:
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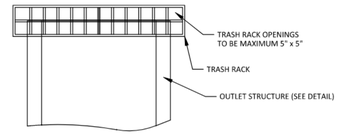
RETENTION POND
NTS



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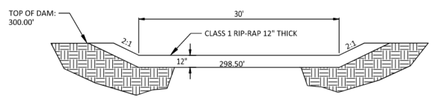
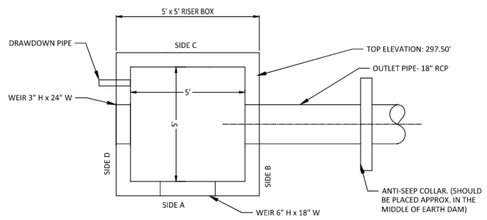
TRASH RACK
NTS



EMERGENCY SPILLWAY SECTION
NTS



PLAN VIEW

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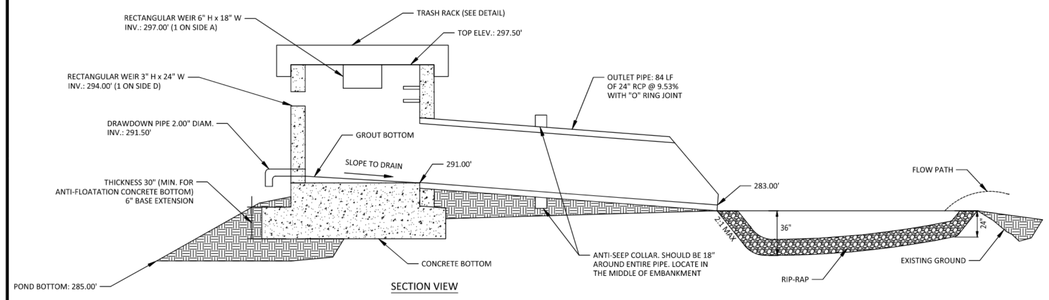
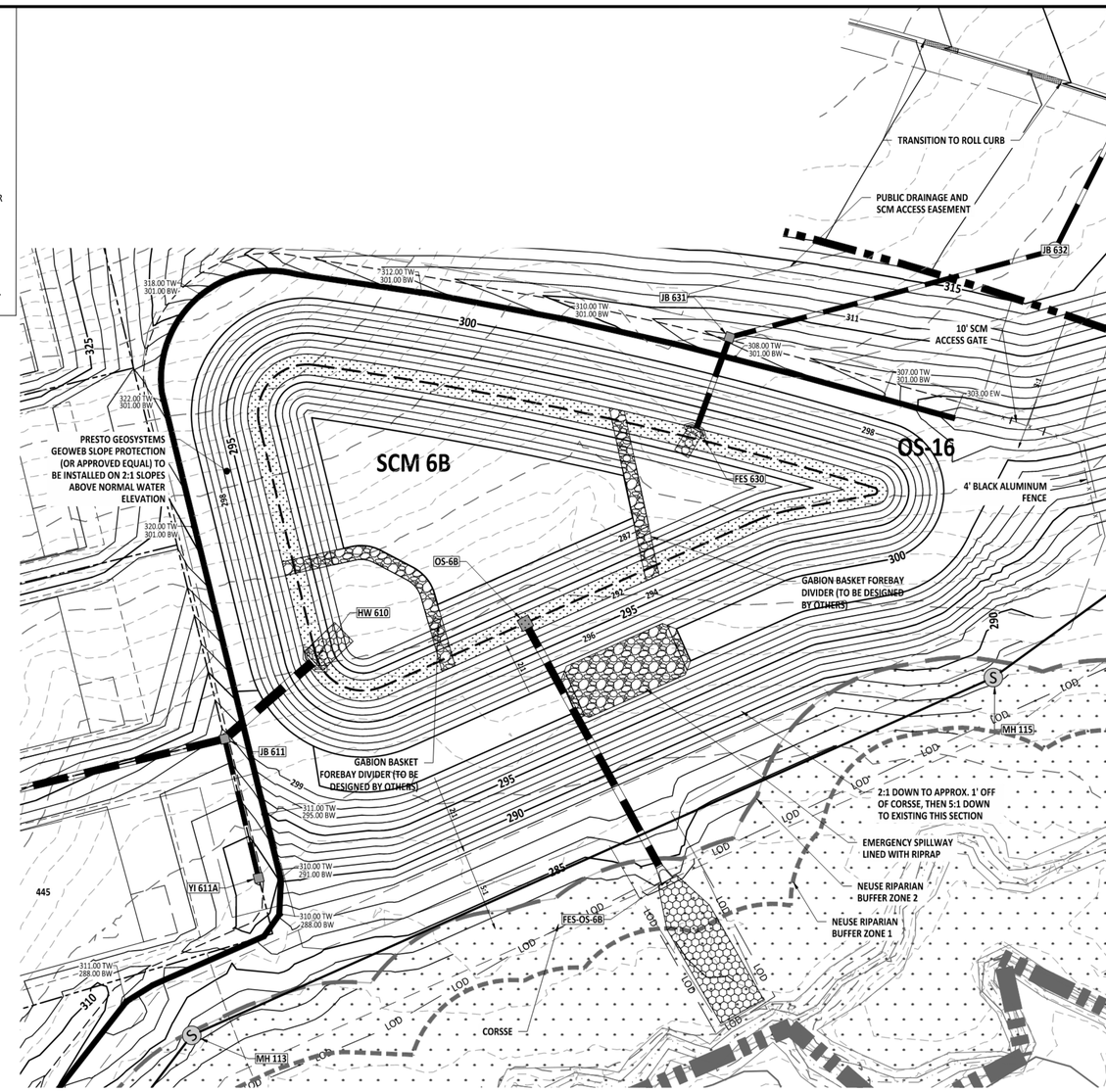


OUTLET STRUCTURE 6B
NTS



SCM 6B PLAN VIEW

SCM CONVERSION SEQUENCE

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GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(HERB.)
ED EUPATORIADELPHUS DUBIUS DWARF JOE PYE WEED 4-6" POT @ 3' SPACING
SB SACCHARUM BALDWINII NARROW PLUMEGRASS 4-6" POT @ 3' SPACING
RC RHYNCHOSPORA COLORATA STARRUSH WHITETOP 4-6" POT @ 3' SPACING
LE LOBELIA ELONGATA LONGLEAF LOBELIA 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:
VEGETATED SHELF= 2,509 sf (USE 628 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.

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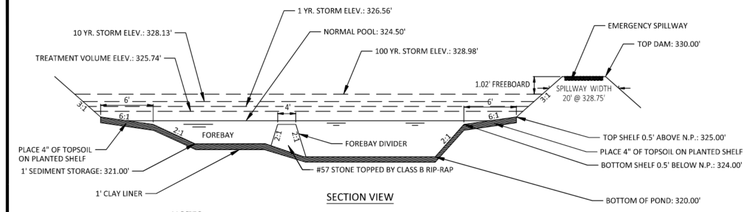
SHEET TITLE:
SCM 6B DETAIL

SHEET NO.:
CG-409

Z:\Jobs-23-0004 Merritt Property BRP\Dwg_Working Dwgs\Sheets\Construction Set\SB, CG, 409 SCM 6A 7 Detail.dwg
2025-12-12



SECTION VIEW

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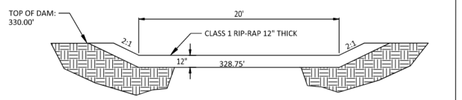
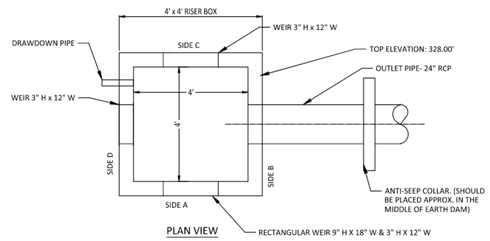
4. CONSTRUCT FOREBAY DIVIDER AND FINE GRADE FOREBAY TO BOTTOM ELEVATION PER AS SHOWN HERE.
5. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE ENSURING THAT ALL JOINTS ARE PROPERLY SEALED.
6. EXAMINE EMERGENCY OVERFLOW AND RIP-RAP OUTLET TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
7. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
8. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
9. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.
10. UPON CONFIRMATION FROM THE ENGINEER OF RECORD THAT ALL SURFACE AREAS HAVE BEEN MET THE VEGETATE SHELF CAN BE PLANTED AS SHOWN HERE.

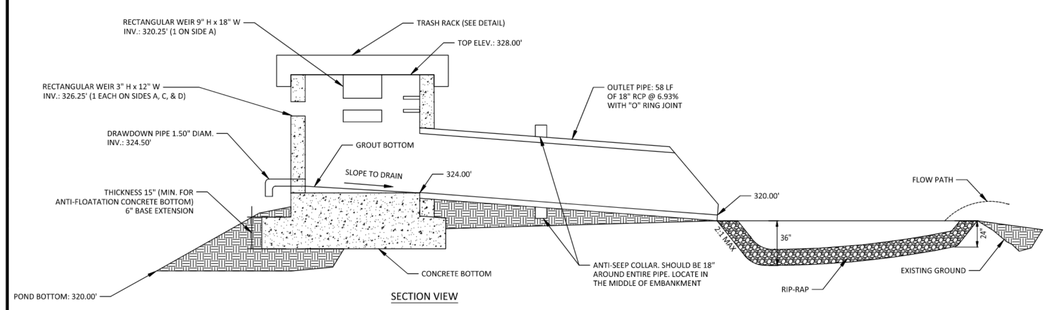


EMERGENCY SPILLWAY SECTION
NTS



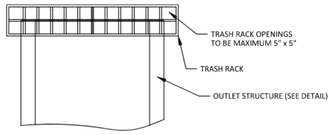
PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.



SECTION VIEW

OUTLET STRUCTURE 7
NTS



NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

TRASH RACK
NTS

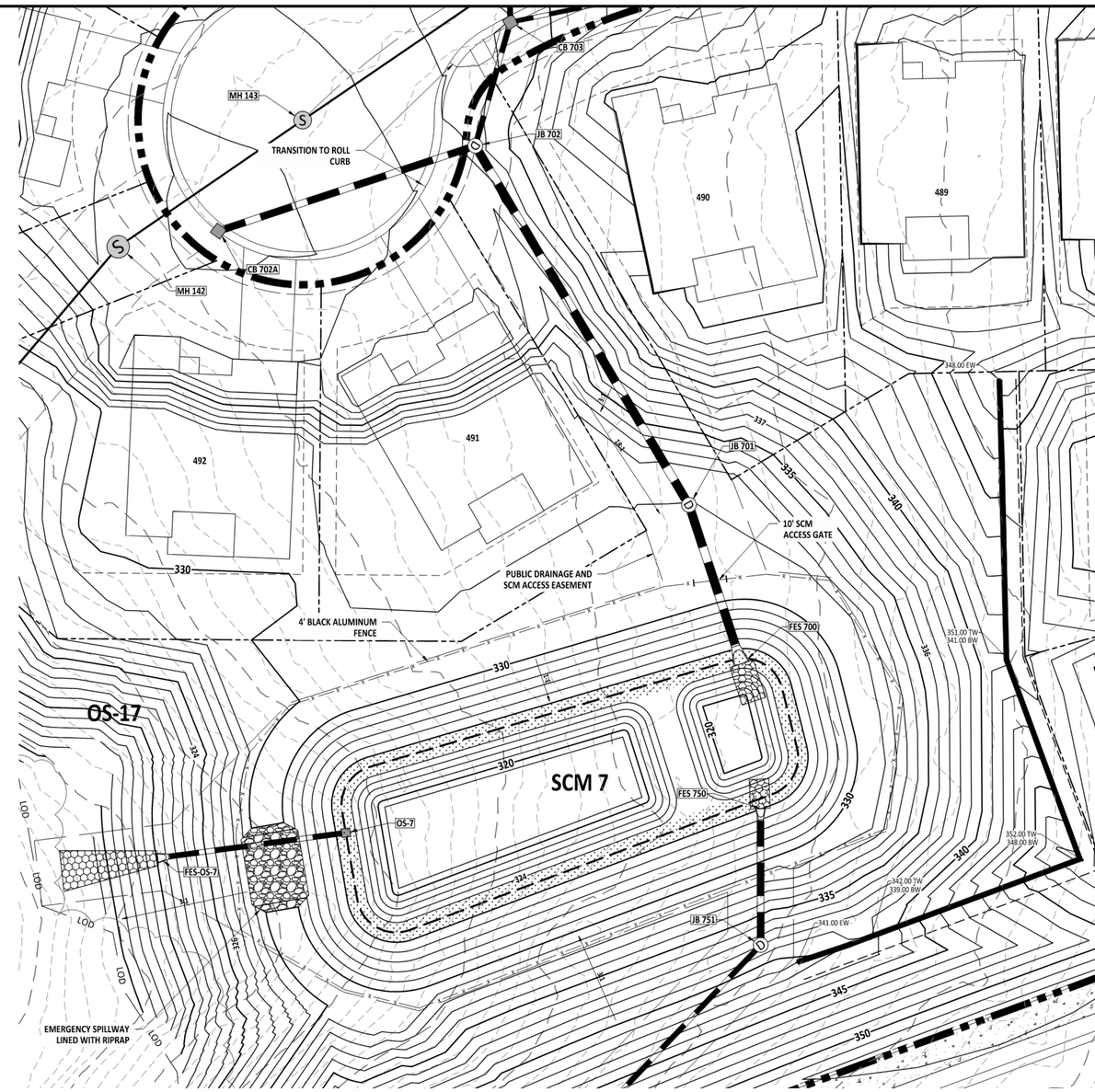
PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF (HERB.)
CT CAREX TENERA QUILL SEDGE 4-6" POT @ 3' SPACING
SB SACCHARUM BALDWINII NARROW PLUMEGRASS 4-6" POT @ 3' SPACING
HL HIBISCUS LAEVIS HALBERDLEAF ROSE MALLOW 4-6" POT @ 3' SPACING
LE LOBELIA ELONGATA LONGLEAF LOBELIA 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:
VEGETATED SHELF= 2,122 sf (USE 531 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

INTERNAL SLOPES ABOVE THE VEGETATIVE SHELF, TOP OF DAM, AND BACK SLOPES SHALL BE STABILIZED WITH A NON-CLUMPING TURF GRASS SUCH AS HYBRID BERMUDA OR CENTIPEDE. SLOPES STEEPER THAN 3:1 ARE TO BE HYDROSEEDED.



SCM 7 PLAN VIEW

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

Digitally signed by Jakob Klein
Date: 2026.01.09 15:25:05-05'00'

NORTH CAROLINA PROFESSIONAL SEAL 56528 ENGINEER JAKOB P. KLEIN

NO.	DATE	REVISION:

STIPULATION FOR REUSE

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MERRITT RESERVE
ROLESVILLE RD
WAKE COUNTY NC 27312

SCM 7 DETAIL

JOB NUMBER:	23-0004
CHECKED BY:	JK
DRAWN BY:	DH/MA/LL
DATE:	12/12/2025

SHEET TITLE:

SCM 7 DETAIL

SHEET NO.:
CG-410

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs-23-0004 Merritt Property BRP\Dwgs_Working Dwgs\Sheets\Construction Set\CG_CG - 409 SCM 6A-7 Detail.dwg
2025-12-12