

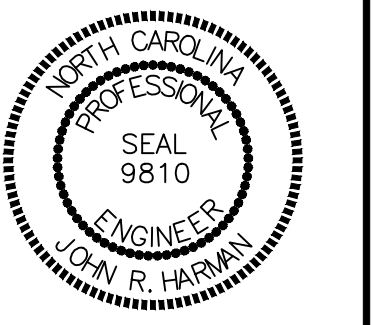
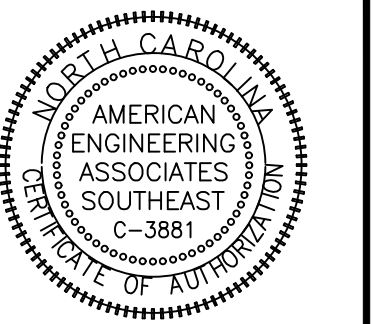
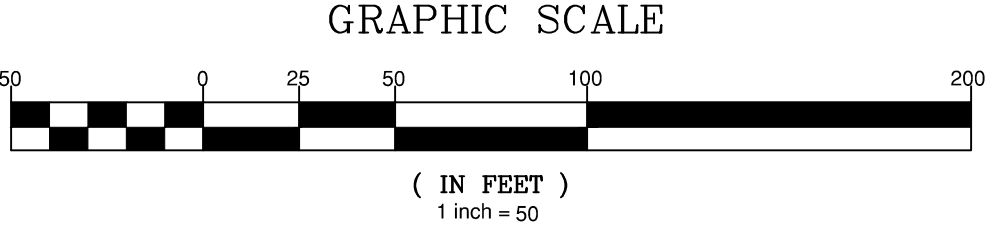
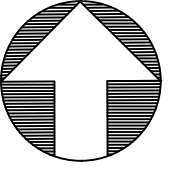
GRAPHIC SCALE 1"=100'

UTILITIES LEGEND	
---	EXISTING BOUNDARY
---	EXISTING 50' NEUSE RIVERIAN BUFFER
---	EXISTING BUFFER ZONES
---	PROPOSED LOT LINE
---	PROPOSED ROW
---	PROPOSED SIDEWALK
---	PROPOSED BOC
---	PROPOSED EOP
---	PROPOSED CENTERLINE
---	PROPOSED EASEMENT
---	PHASELINE
---	RIP RAP
---	BASIN WEIR
---	JUNCTION BOX
---	PROPOSED CATCH BASIN
---	PROPOSED YARD INLET
---	PROPOSED DROP INLET
---	PROPOSED FLARED END SECTION
---	PROPOSED WATER METER
---	PROPOSED SEWER SERVICE
---	PROPOSED MANHOLE
---	PROPOSED FIRE HYDRANT
---	PROPOSED WATER VALVE
---	PROPOSED WATER REDUCER
---	PROPOSED SEWER LINE
---	PROPOSED WATER LINE
---	PROPOSED STORM WATER
---	OPEN SPACE
---	FUTURE PHASING
---	EXISTING PHASING
---	100 YEAR FLOOD EASEMENT

ATTENTION CONTRACTORS
 The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Inspector at 919-996-3245 or <https://cityworks.raleighnc.gov/contractors/New> and schedule a Pre-construction meeting prior to beginning any construction. Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

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NO.	DATE	REVISION
1	7/2/2025	ISSUE FOR TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	REVISED PER TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

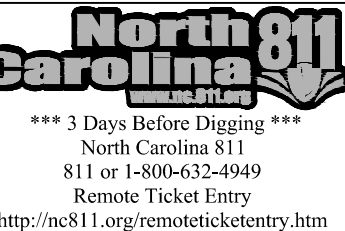
STIPULATION FOR REUSE
 THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES 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.

KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

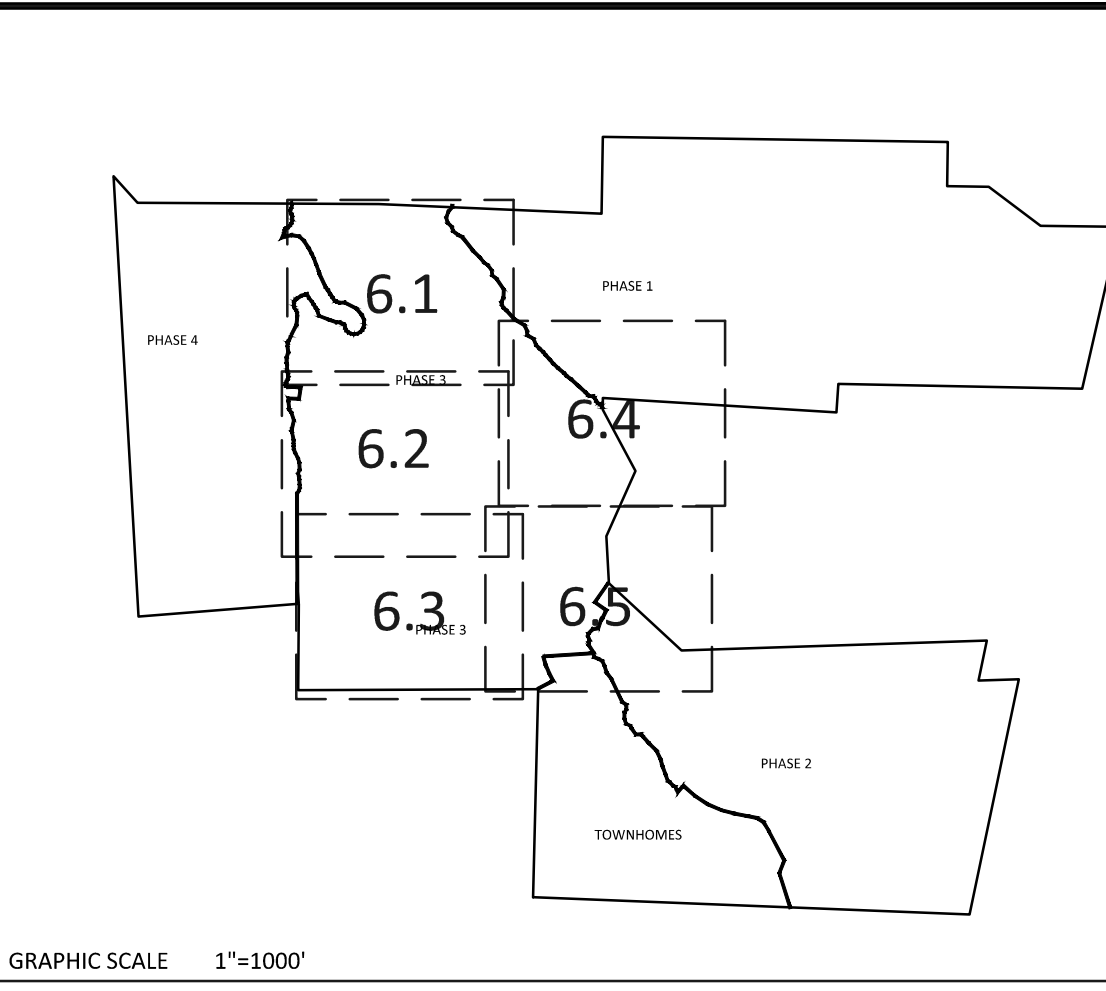
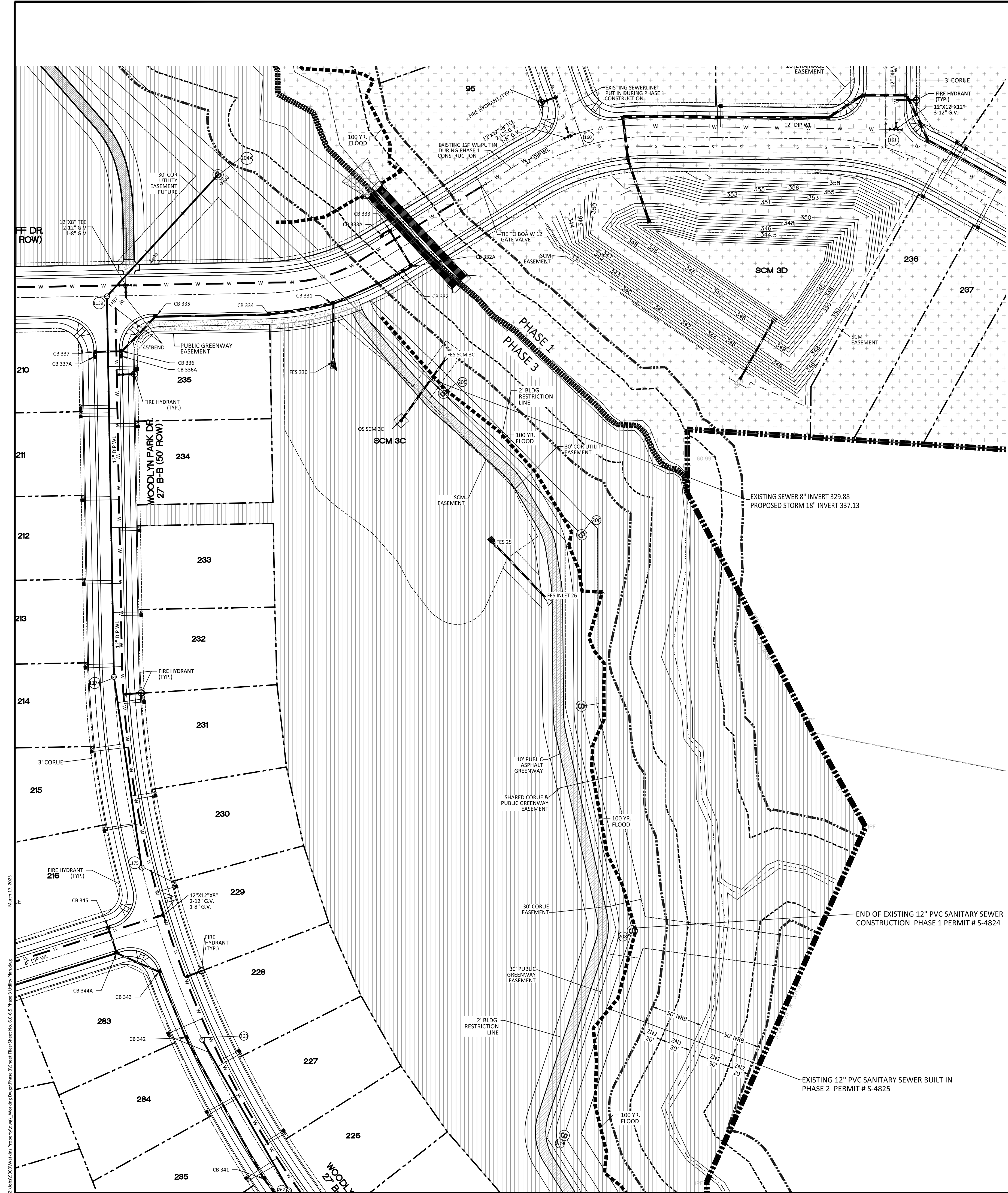
JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MALL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	PHASE 3 UTILITY PLAN (50 SCALE)
SHEET NO.:	6.3

Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

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 City of Raleigh
 Public Utilities Department Permit # _____



March 17, 2025
 Z:\Info\0000\0000\Projects\Phase 3\Phase 3\Sheet No. 6.3 S Phase 3 Utility Plan.dwg



UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIVERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
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	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

ATTENTION CONTRACTORS

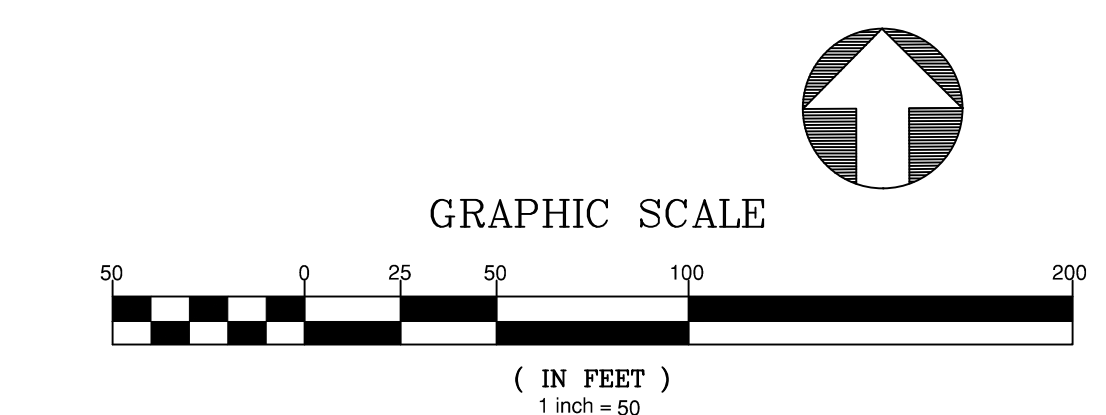
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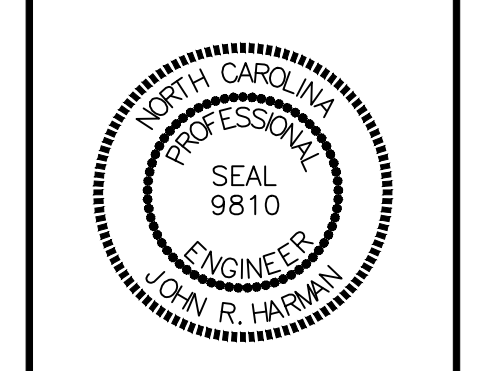
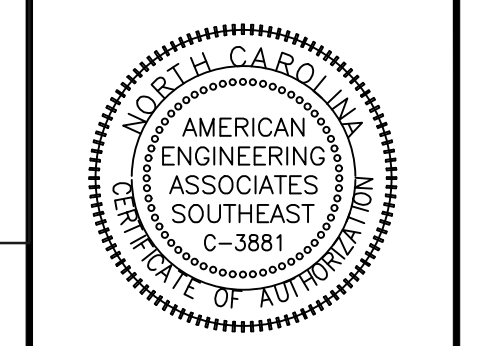
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NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.



<p>Public Sewer Collection / Extension System</p> <p>The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.</p> <p>City of Raleigh Public Utilities Department Permit # _____</p>	<p>Public Water Distribution / Extension System</p> <p>The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.</p> <p>City of Raleigh Public Utilities Department Permit # _____</p>	<p>North Carolina 811</p> <p>*** 3 Days Before Digging ***</p> <p>North Carolina 811 811 or 1-800-432-4949 Remote Ticket Entry http://nc811.org/remoteticketentry.htm</p>
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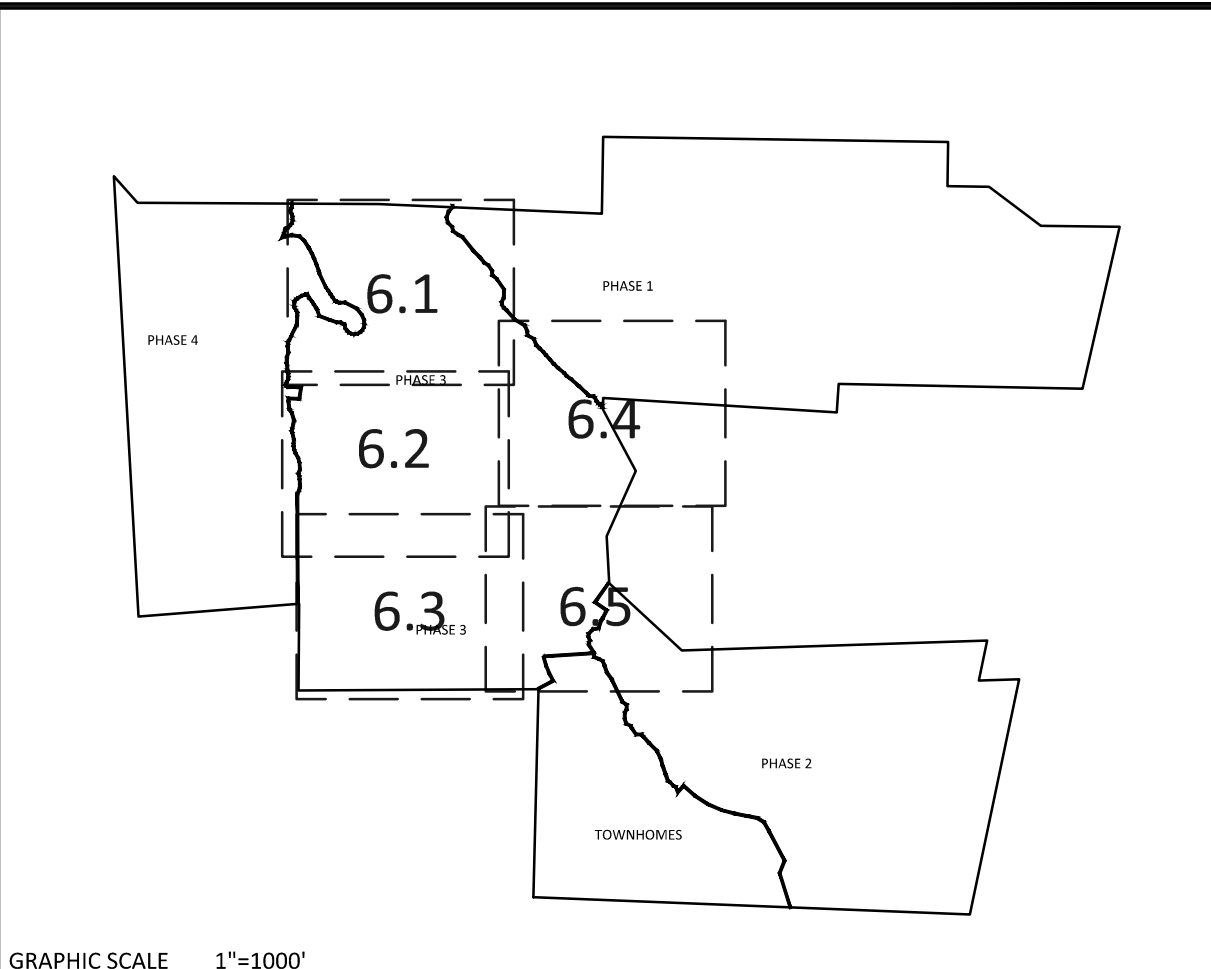
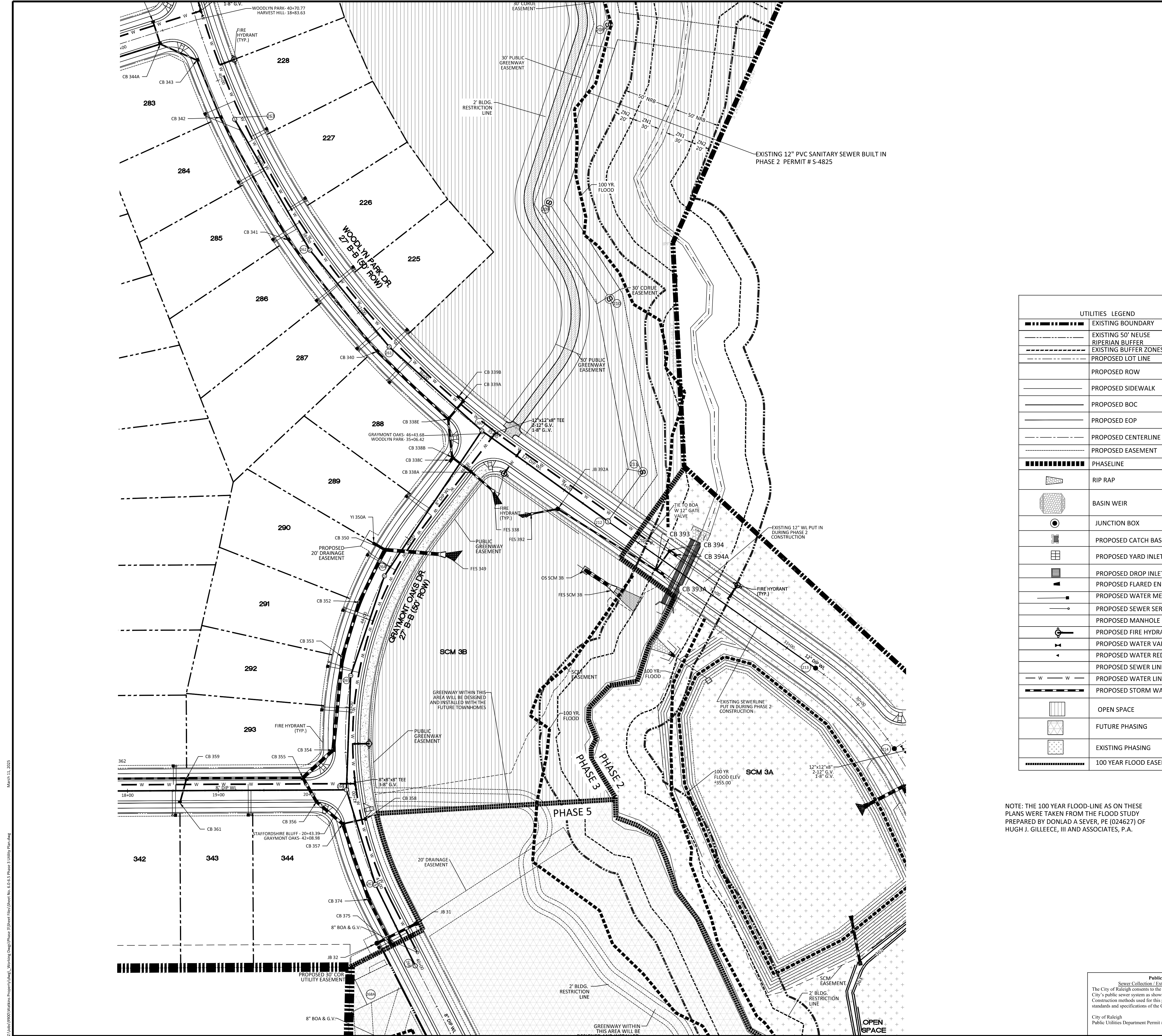
NO.	DATE	REVISION
1	7/21/2025	ISSUED FROM TOWN OF ROLESVILLE, CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	REVISED FOR ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MALL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	PHASE 3 UTILITY PLAN (50 SCALE)
SHEET NO.:	6.4

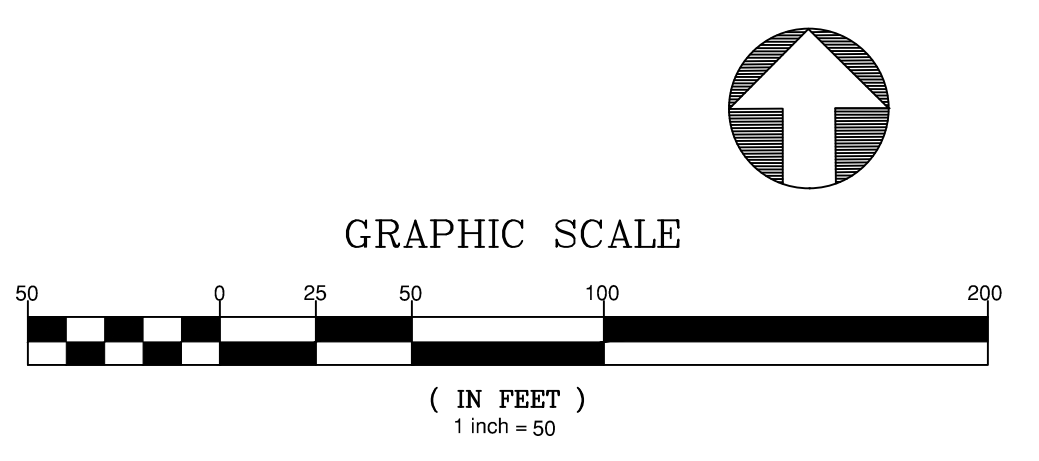


GRAPHIC SCALE 1"=100'

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
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	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
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	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

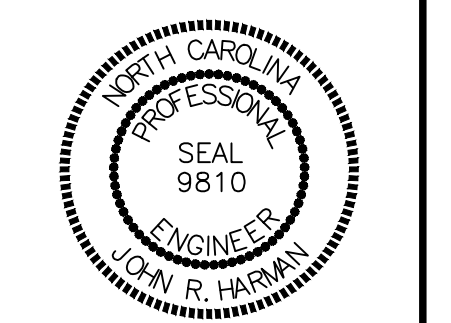
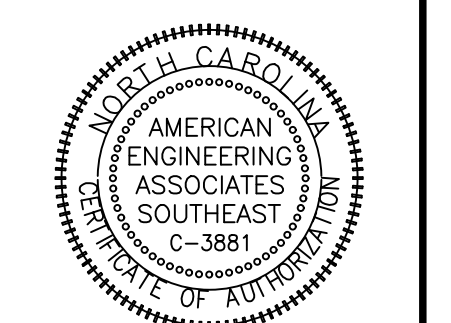
NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

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



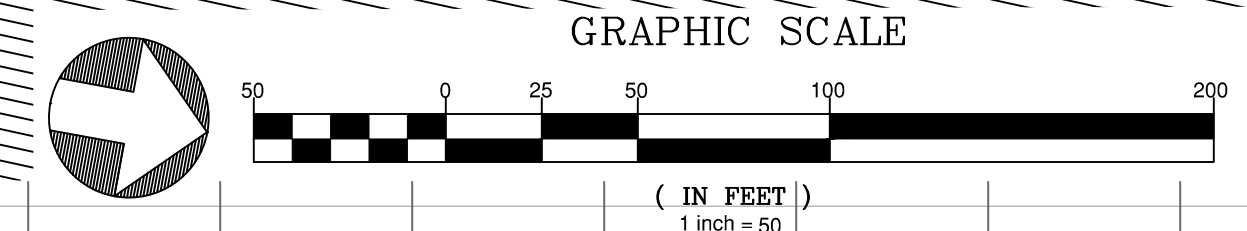
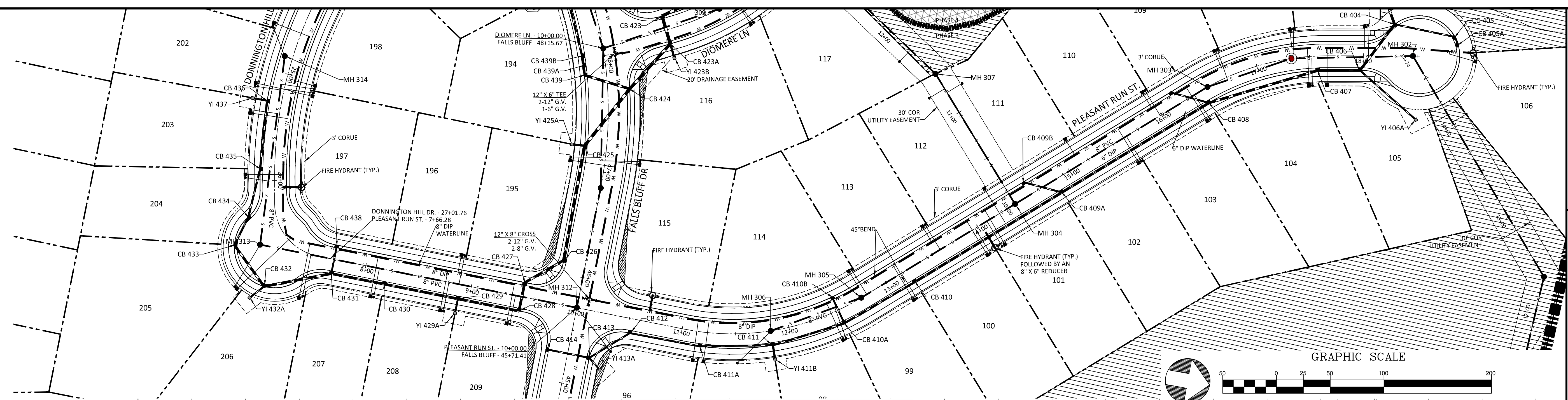
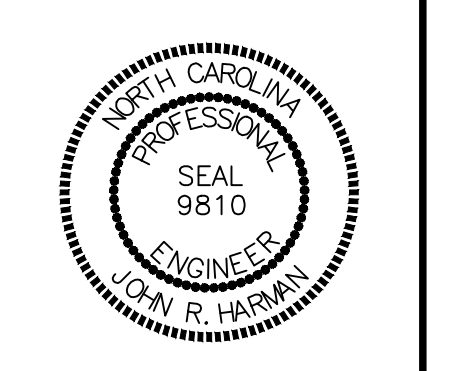
NO.	DATE	REVISION
1	7/21/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVISIONS MADE BY ME AND CITY OF RALEIGH
2	9/14/2024	REVISED FROM ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	11/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

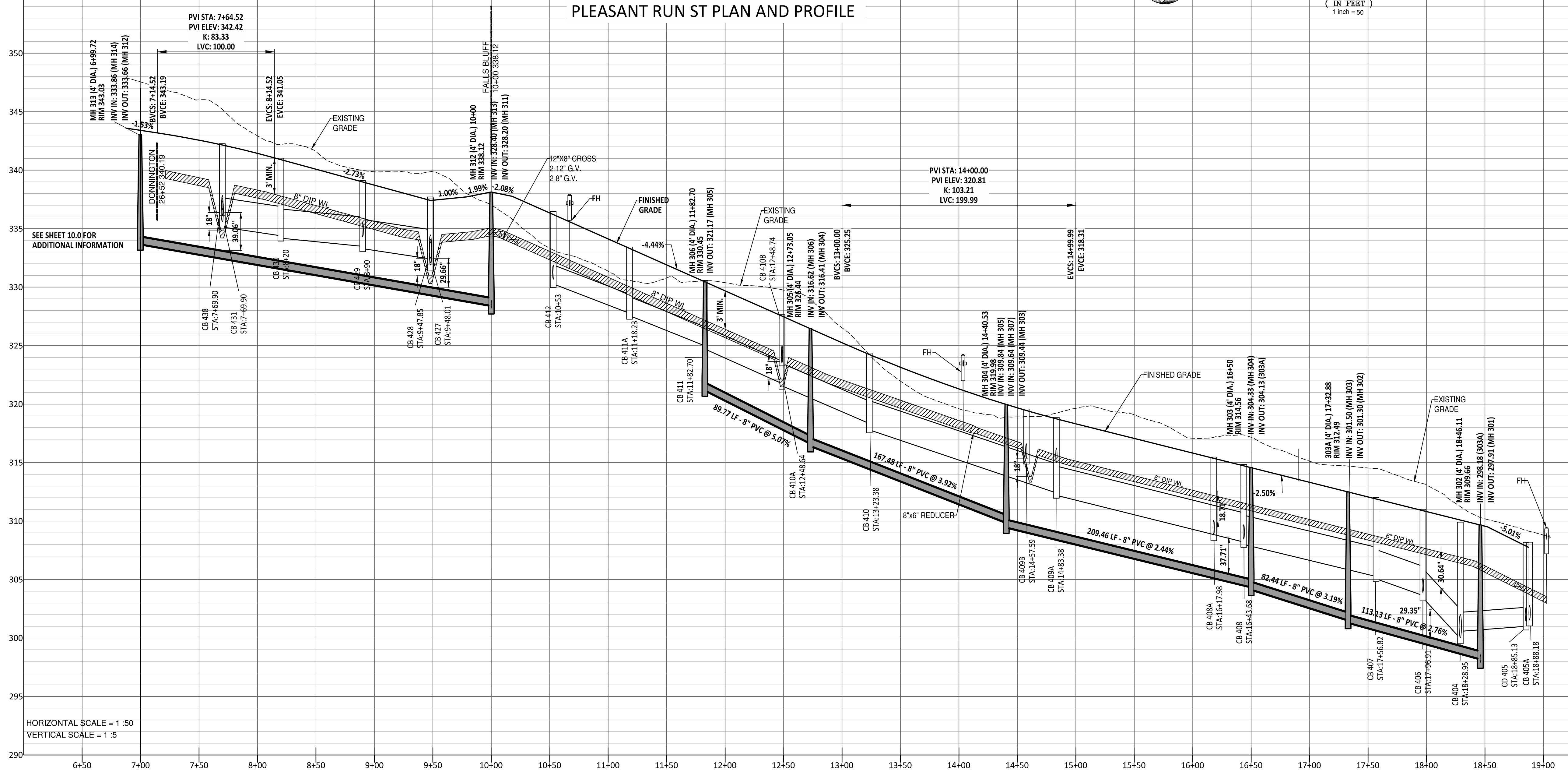
JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: **PHASE 3 UTILITY PLAN (50 SCALE)**
 SHEET NO.: **6.5**

2:\Projects\00000\00000\Working\Drawings\Phase 3\Sheet 6.5.S Phase 3 Utility Plan.dwg
 March 11, 2025



PLEASANT RUN ST PLAN AND PROFILE

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
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	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
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	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

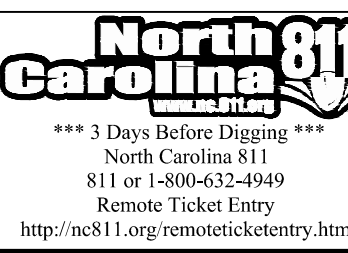


HORIZONTAL SCALE = 1 : 50
 VERTICAL SCALE = 1 : 5

- GENERAL NOTE:**
- ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 - TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 - PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

Public Sewer Collection / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

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 City of Raleigh
 Public Utilities Department Permit # _____



NO.	DATE	REVISION
1	7/27/2021	ISSUED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	REVISED BY ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

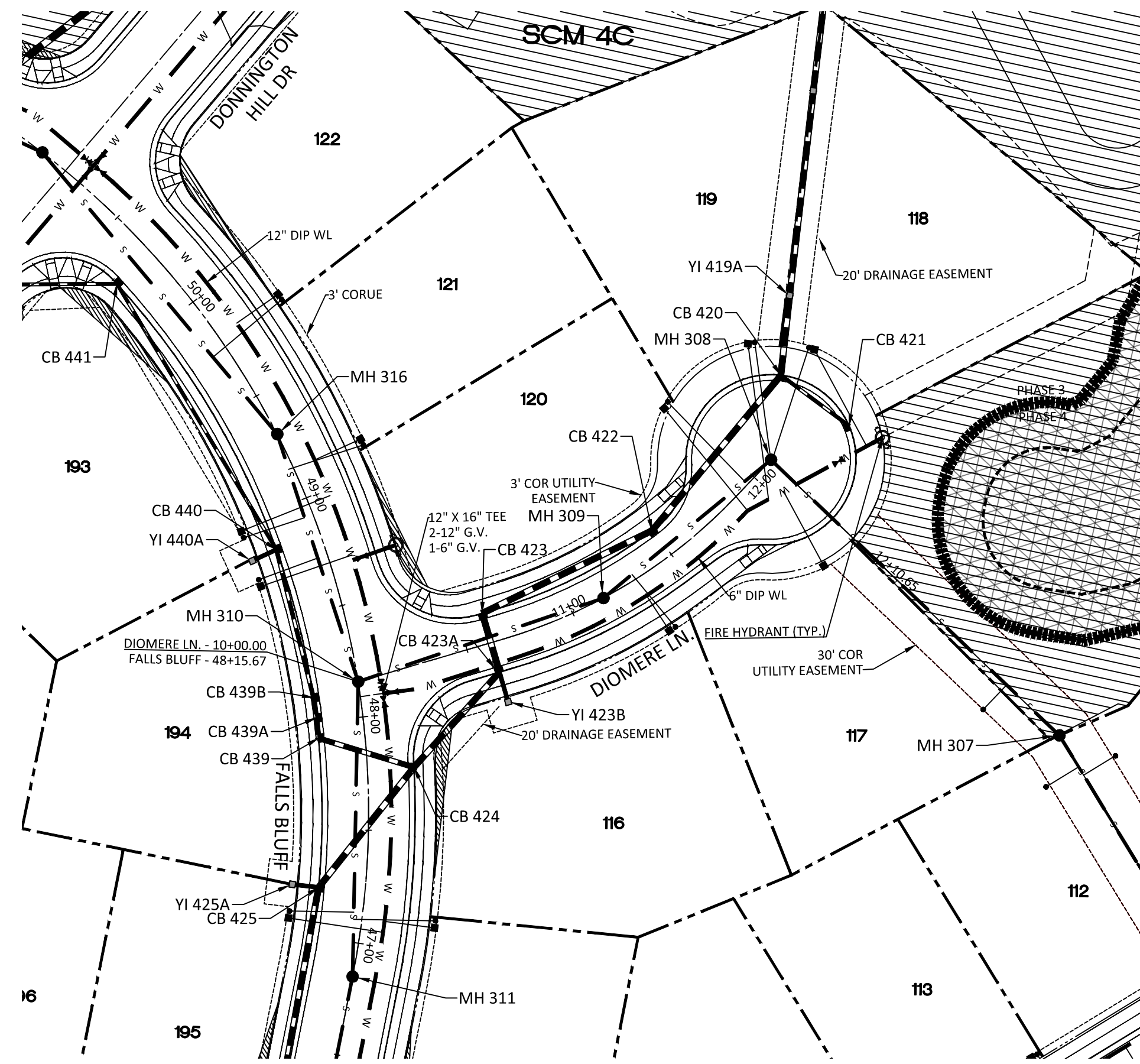
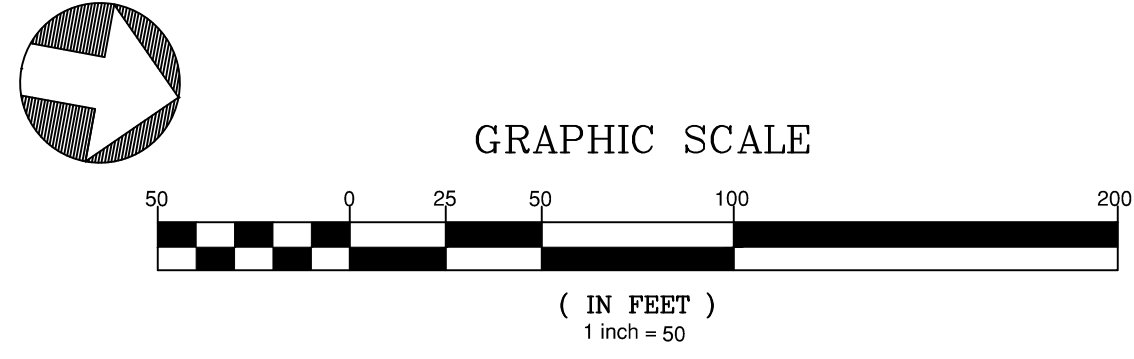
STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

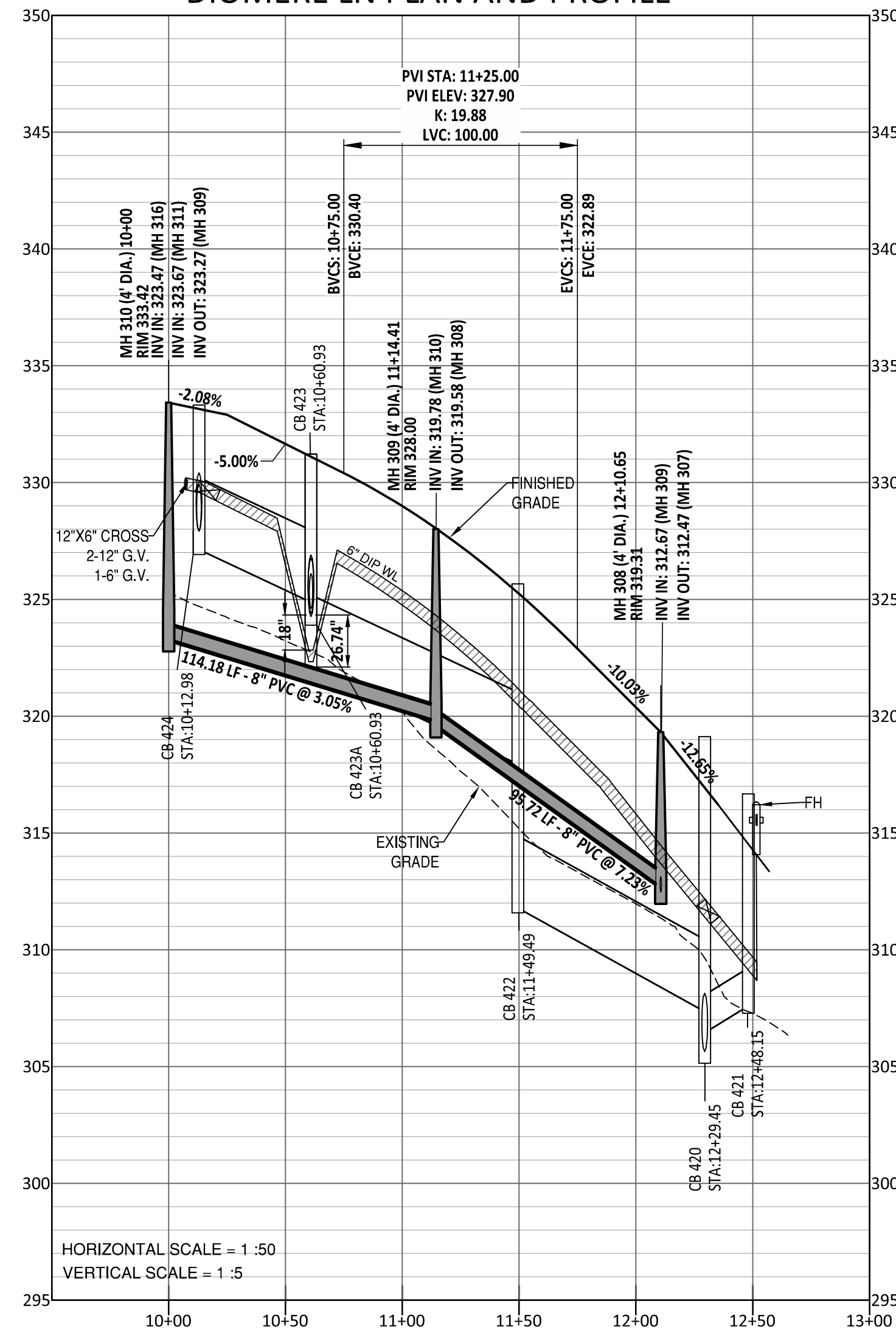
JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MAL/ES/AH/DH
 DATE: NOV 1, 2024

PLEASANT RUN STREET PLAN & PROFILE

SHEET TITLE:
 SHEET NO.: 7.0

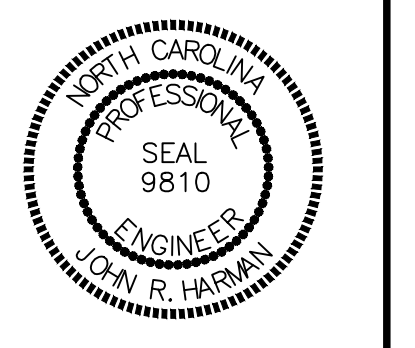
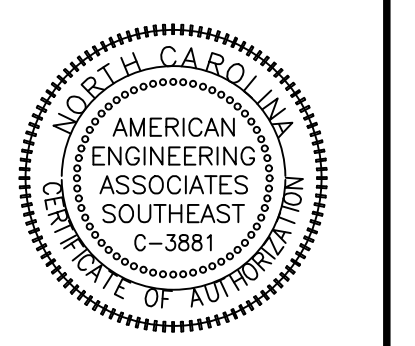


DIOMERE LN PLAN AND PROFILE



- GENERAL NOTE:
1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET C010
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 3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
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	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVIEW AND CITY OF RALEIGH TAKE OVER
2	9/14/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	10/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024

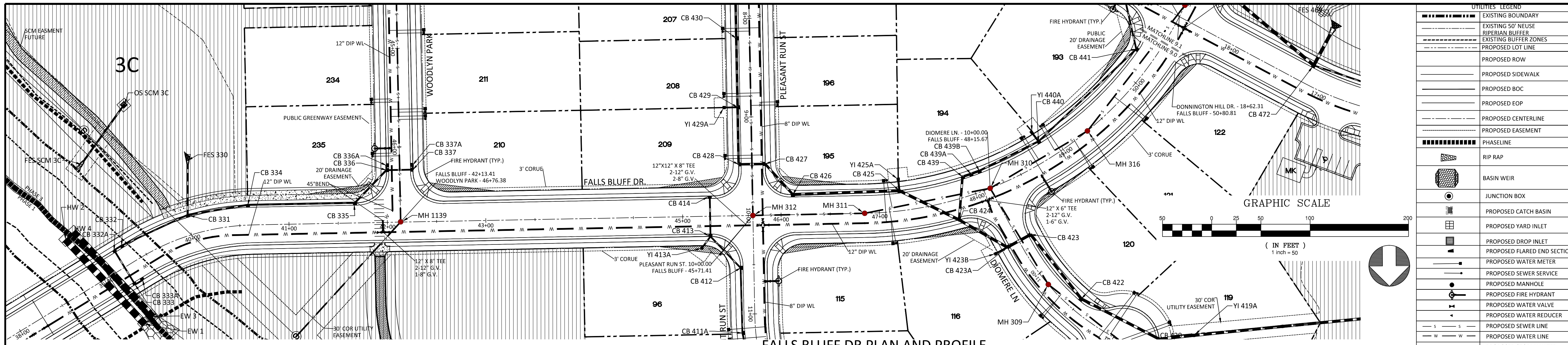
SHEET TITLE:
DIOMERE LANE PLAN & PROFILE

SHEET NO.:
8.0

Public Sewer Collection / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

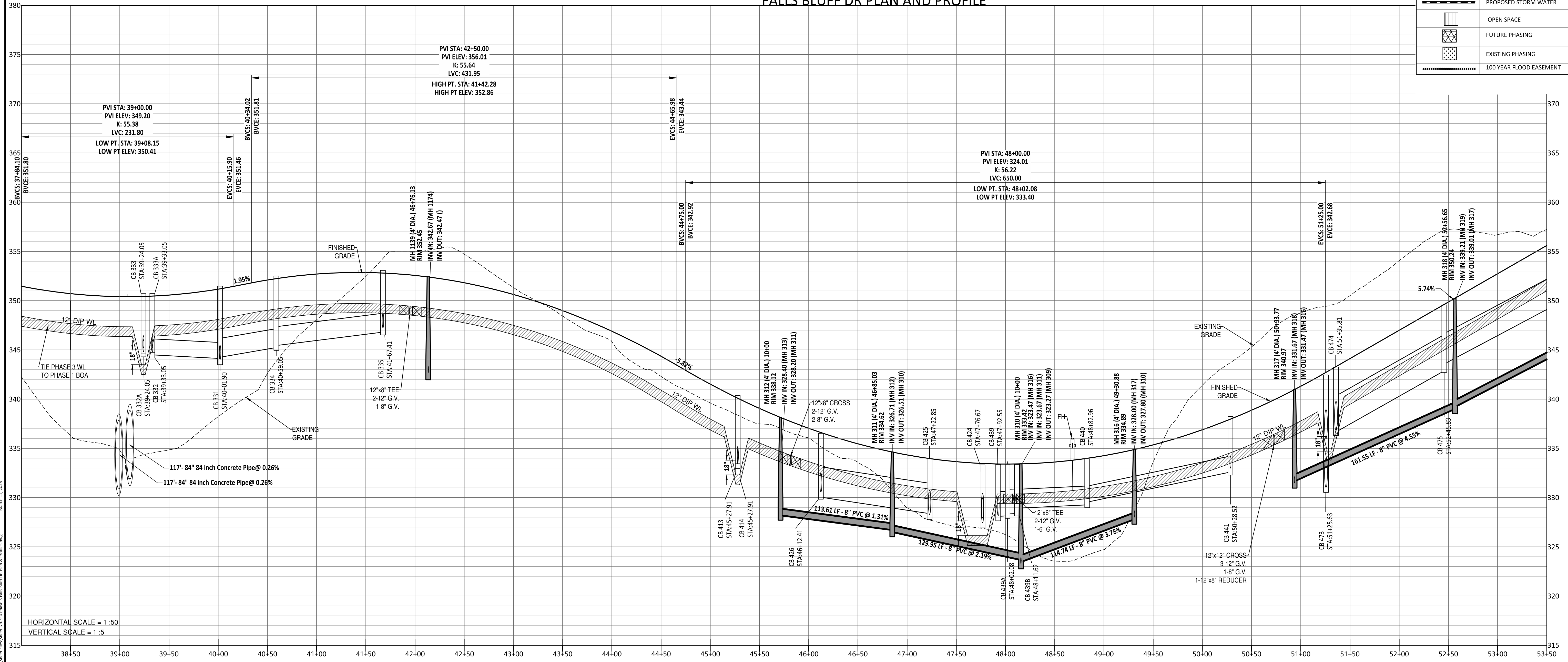
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 City of Raleigh
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UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIVERIAN BUFFER
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	PROPOSED LOT LINE
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	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

FALLS BLUFF DR PLAN AND PROFILE



HORIZONTAL SCALE = 1:50
VERTICAL SCALE = 1:5

- GENERAL NOTE:
- ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 - TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 - PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

Public Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
City of Raleigh
Public Utilities Department Permit # _____

Public Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
City of Raleigh
Public Utilities Department Permit # _____

North Carolina
811 or 1-800-432-4949
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

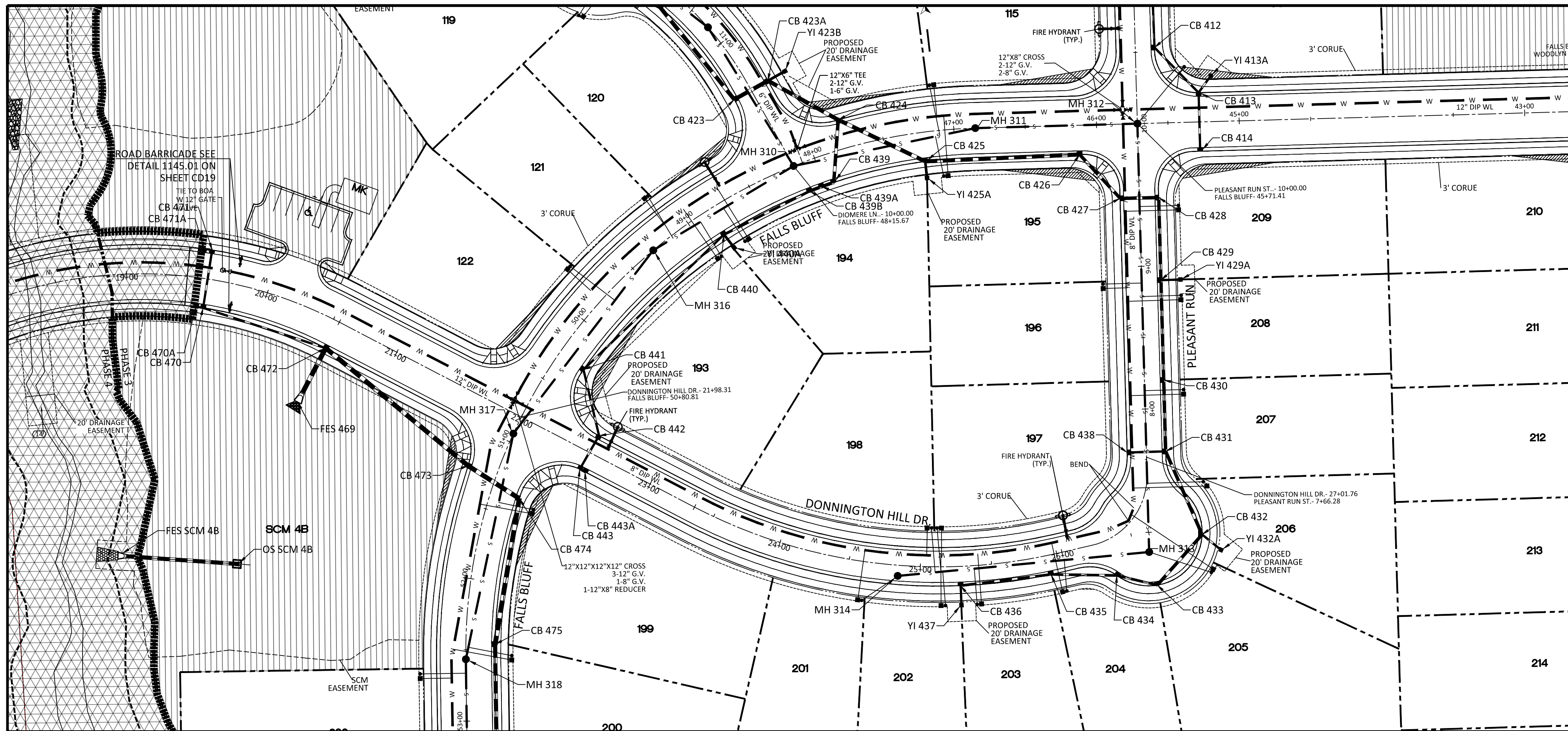
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881
NORTH CAROLINA PROFESSIONAL ENGINEERING SEAL 9810
LION R. HARRISON

NO.	DATE	REVISION
1	7/27/2024	REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/08/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	11/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

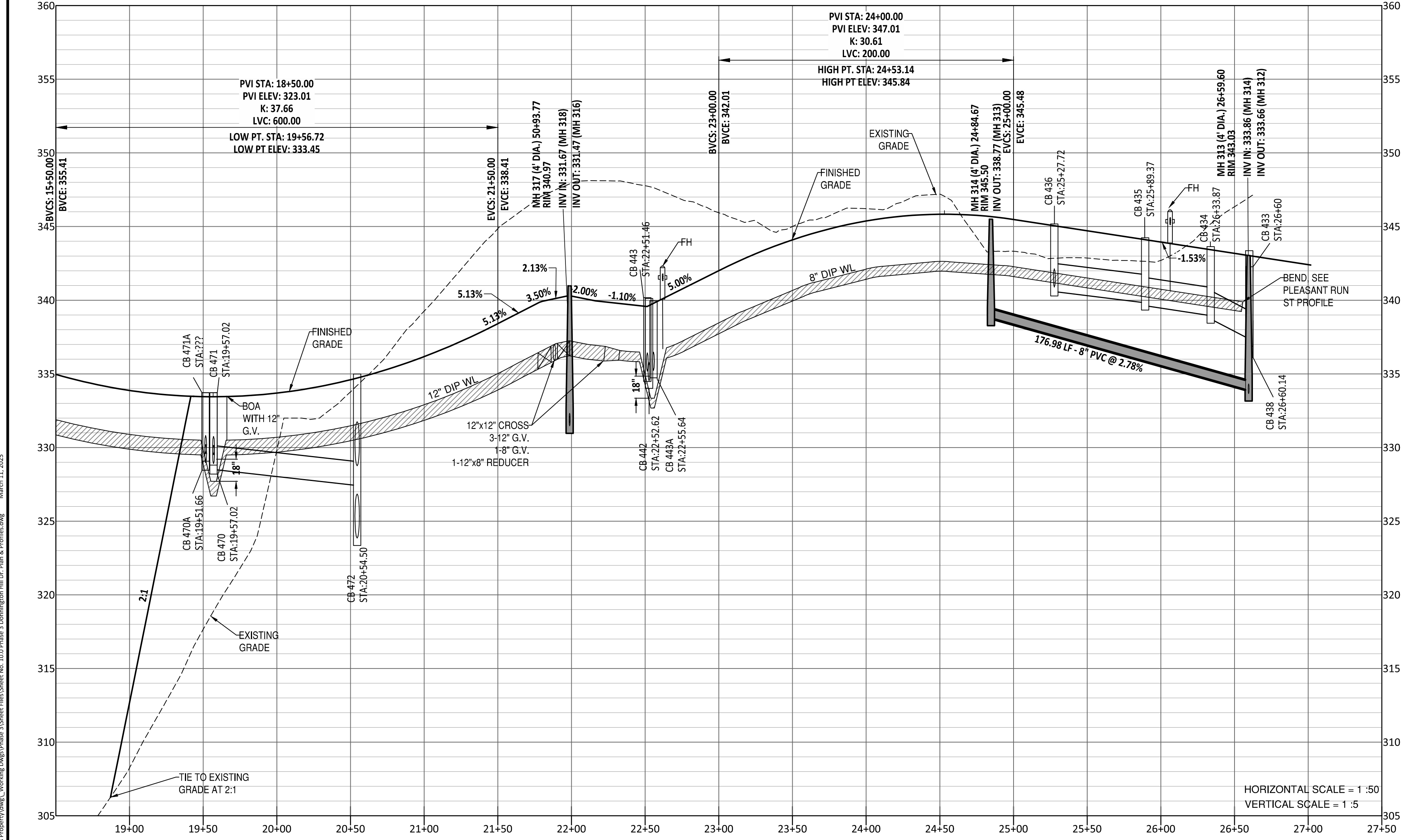
STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTAMINATED BY THE CITY OF RALEIGH. IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. THE USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

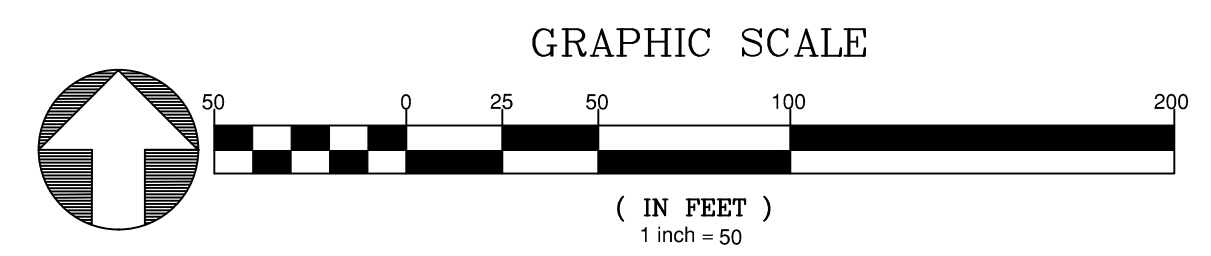
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
FALLS BLUFF DRIVE PLAN & PROFILE
SHEET NO.:
9.0



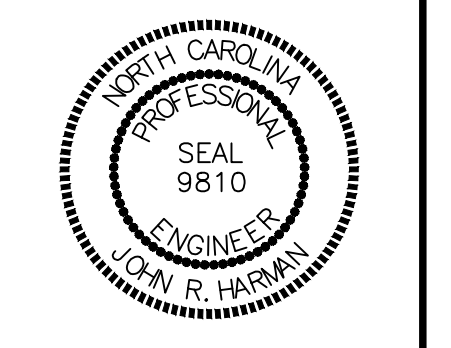
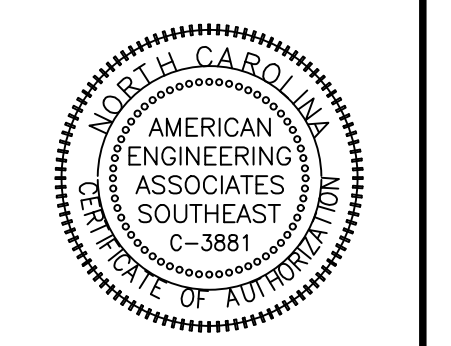
DONNINGTON HILL DR PLAN AND PROFILE



GENERAL NOTE:
 1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES). PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.



UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVIEW AND CITY OF RALEIGH
2	9/14/2024	REVISED FROM ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	10/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

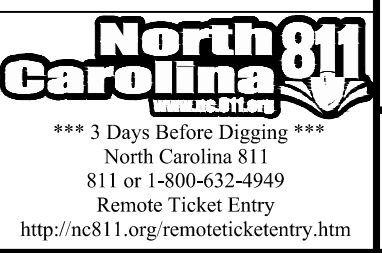
STIPULATION FOR REUSE
 THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE NAMED HEREON. CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE 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.

KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

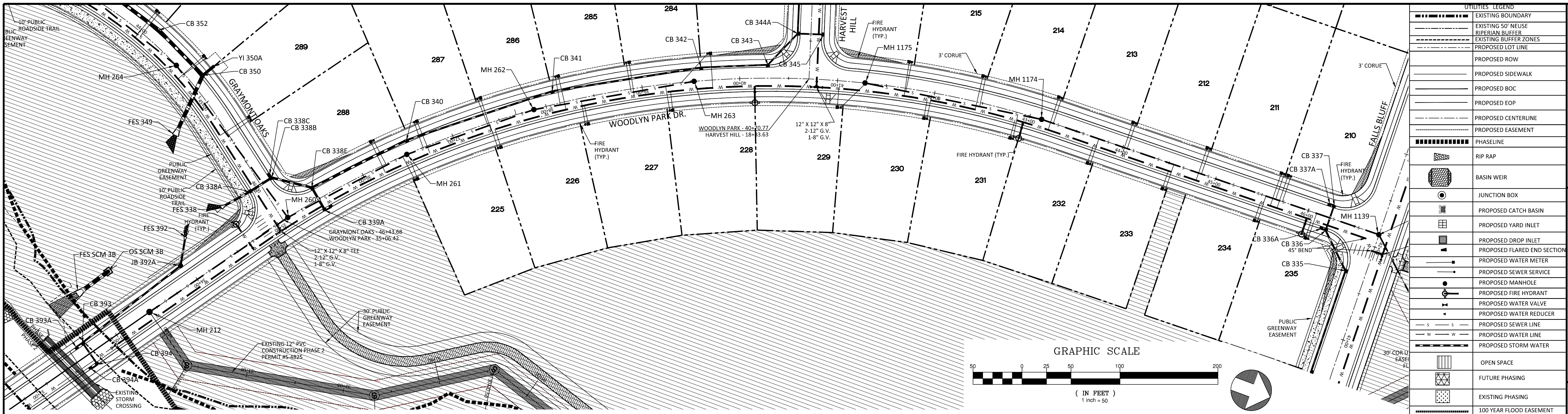
JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
DONNINGTON HILL DRIVE PLAN & PROFILE
 SHEET NO.: 10.0

Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

Public Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

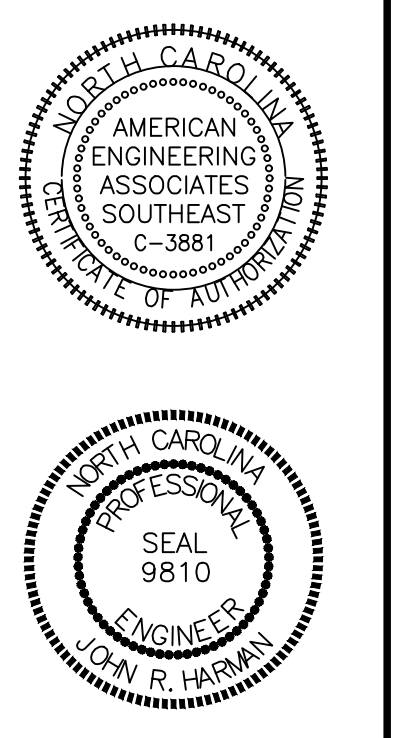


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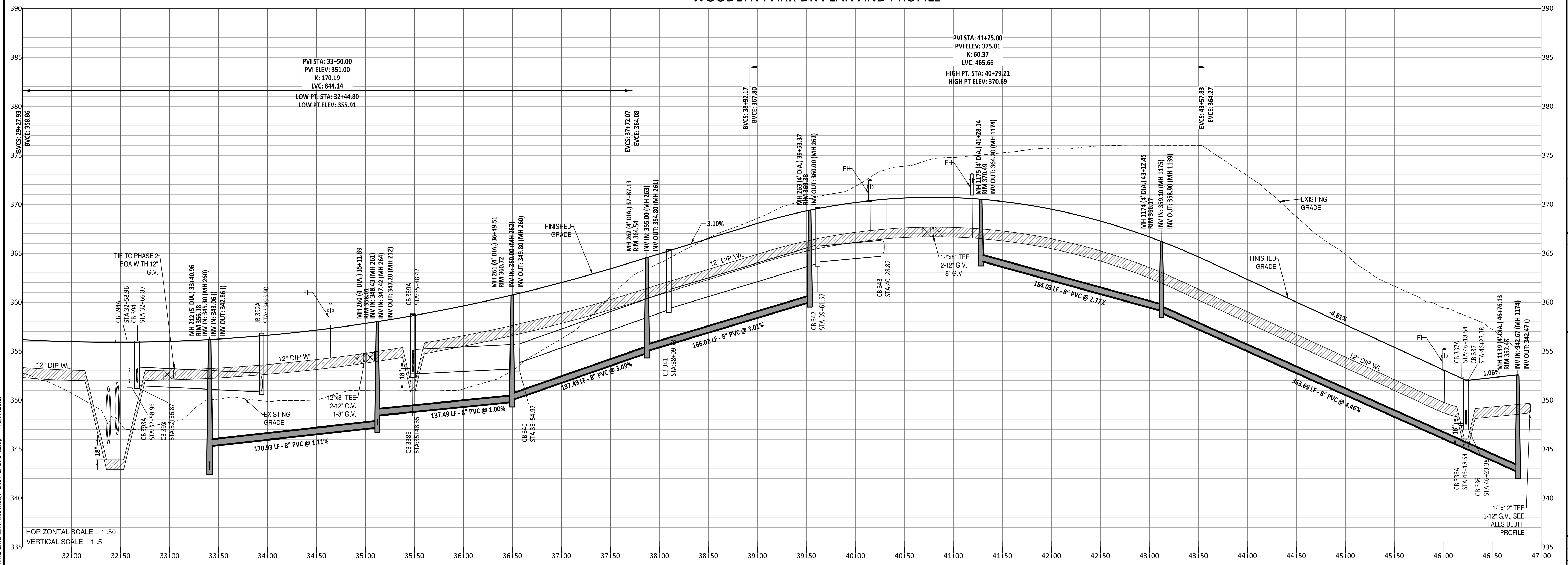


UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

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



WOODLYN PARK DR PLAN AND PROFILE



NO.	DATE	REVISION
1	7/21/2021	ISSUED FROM TOWN OF ROLESVILLE CONSULTANT, TAKE CORRECTIONS AND CITY OF RALEIGH COMMENTS
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/02/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. THE 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.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ESA/HDH
DATE: NOV 1, 2024
SHEET TITLE:
WOODLYN PARK DRIVE PLAN & PROFILE
SHEET NO.: 11.0

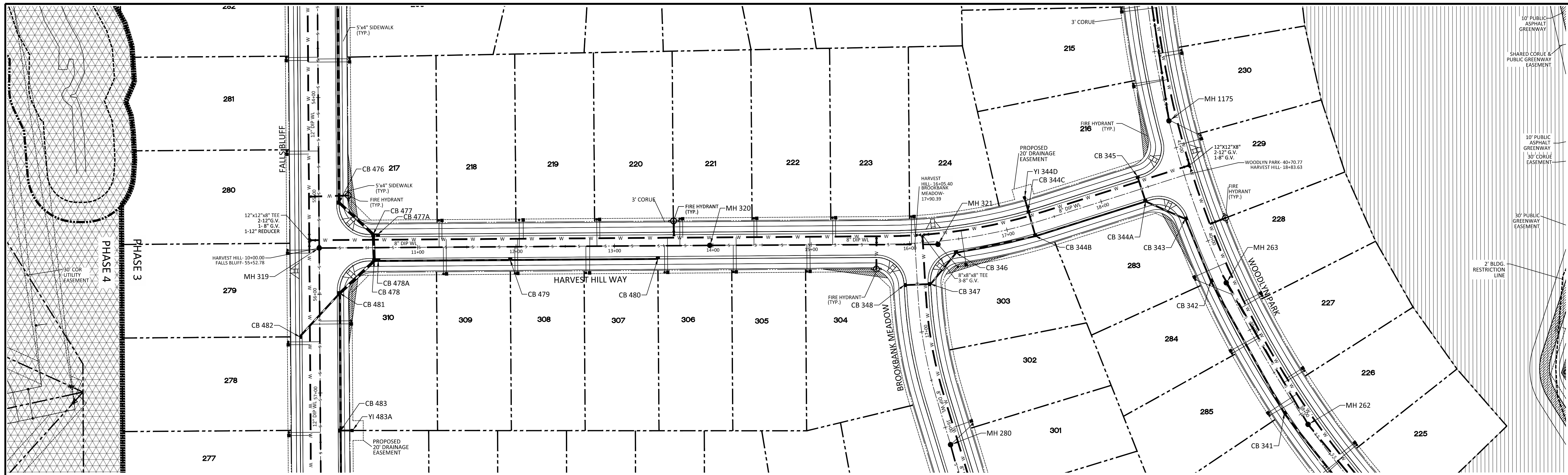
GENERAL NOTE:
1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNING GRADES).
3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

Public Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

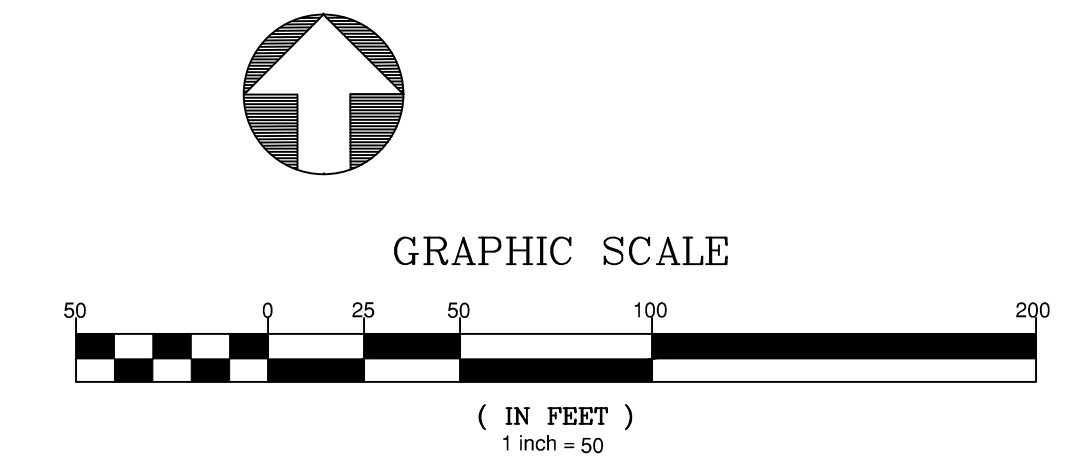
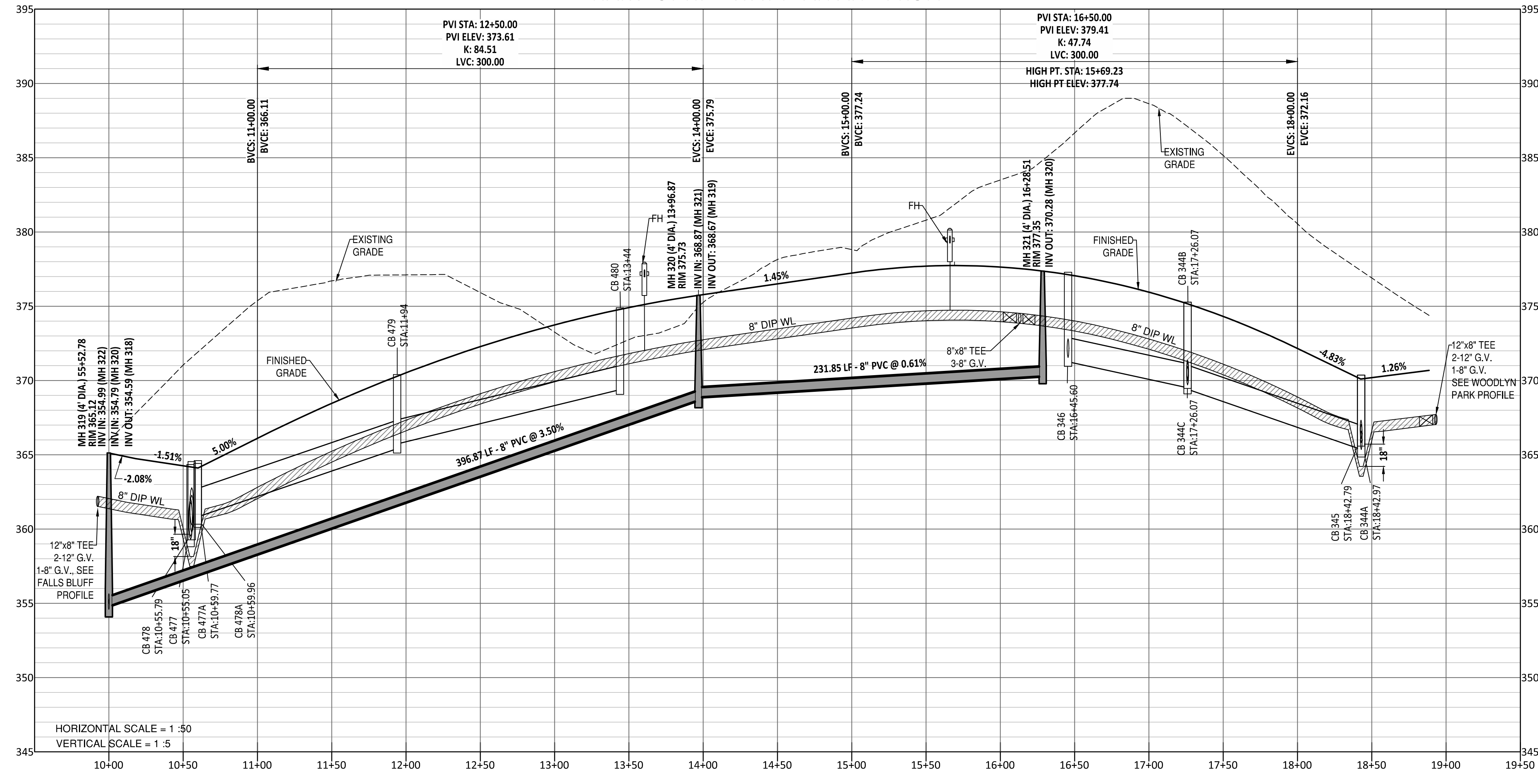


Z:\06\0000\Marketing\Programs\Plan\Woodlyn Park Dr - Plan & Profile.dwg March 11, 2025



HARVEST HILL WAY PLAN AND PROFILE

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



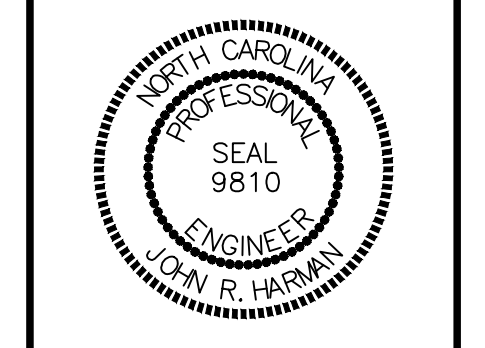
- GENERAL NOTE:
- ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 - TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 - PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

Public Sewer Collection / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

Public Water Distribution / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

North Carolina 811
 *** 3 Days Before Digging ***
 North Carolina 811
 811 on 1-800-432-4949
 Remote Ticket Entry
<http://nc811.org/remotetickeentry.htm>

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



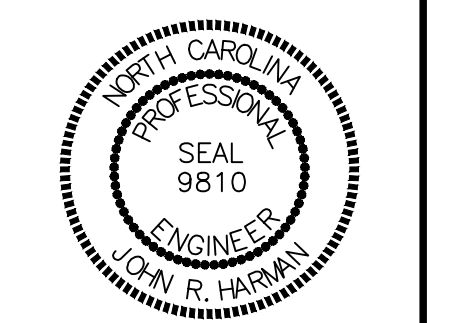
NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, TAKE REVIEW AND CITY OF RALEIGH CONSULTANT COMMENTS
2	9/4/2021	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/07/2021	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MAL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
HARVEST HILL WAY PLAN & PROFILE
 SHEET NO.:
12.0

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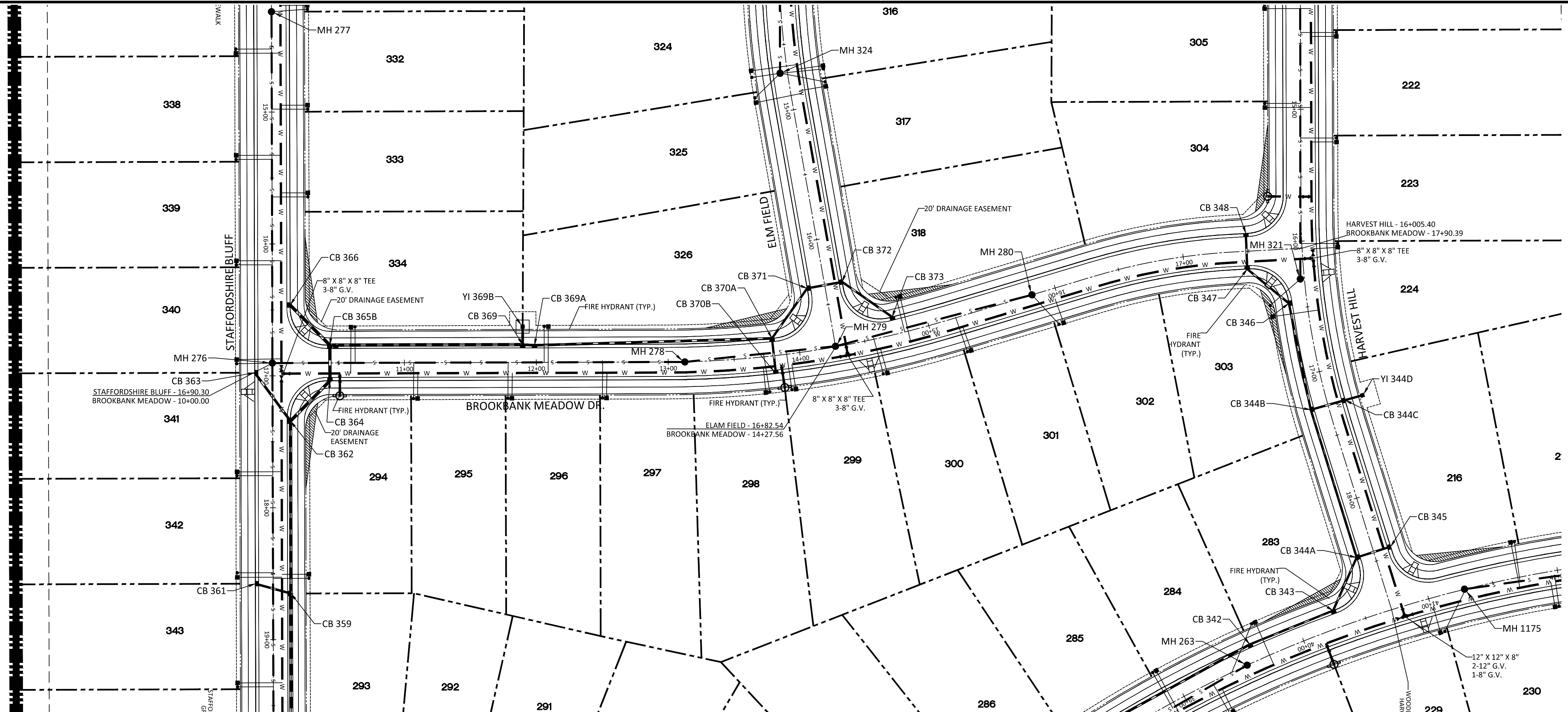


NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT,
2	9/4/2023	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT COMMENTS,
3	1/10/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

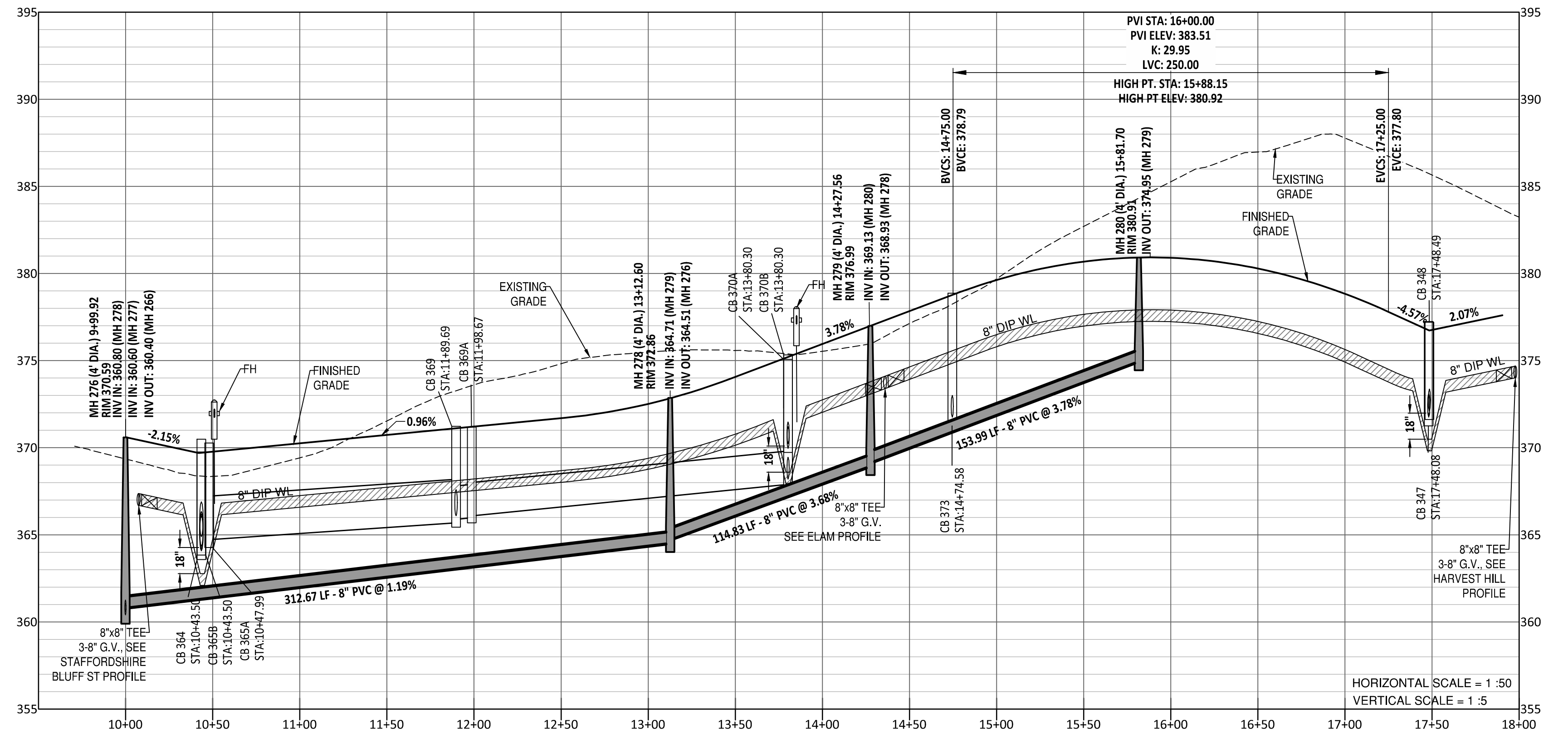
STIPULATION FOR REUSE
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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

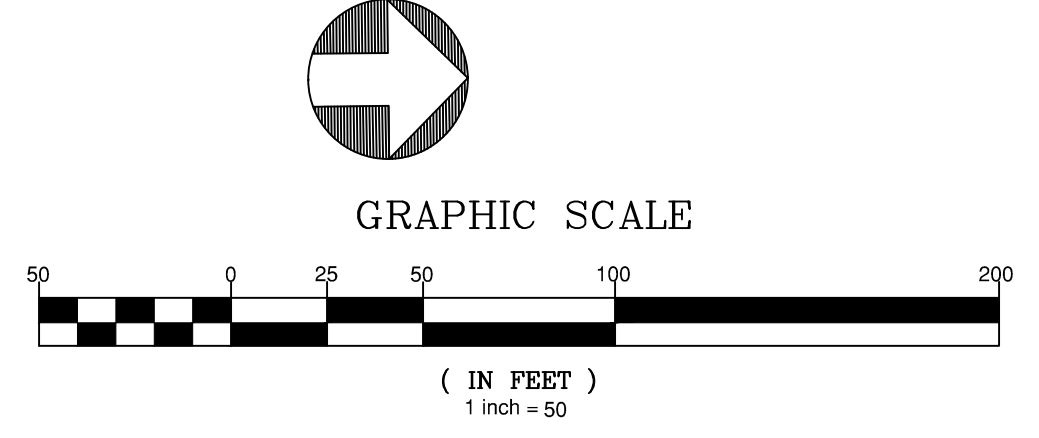
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
**BROOKBANK
MEADOW
DRIVE
PLAN & PROFILE**
SHEET NO.:
14.0



BROOKBANK MEADOW DR PLAN AND PROFILE



GENERAL NOTE:
1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES)
3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

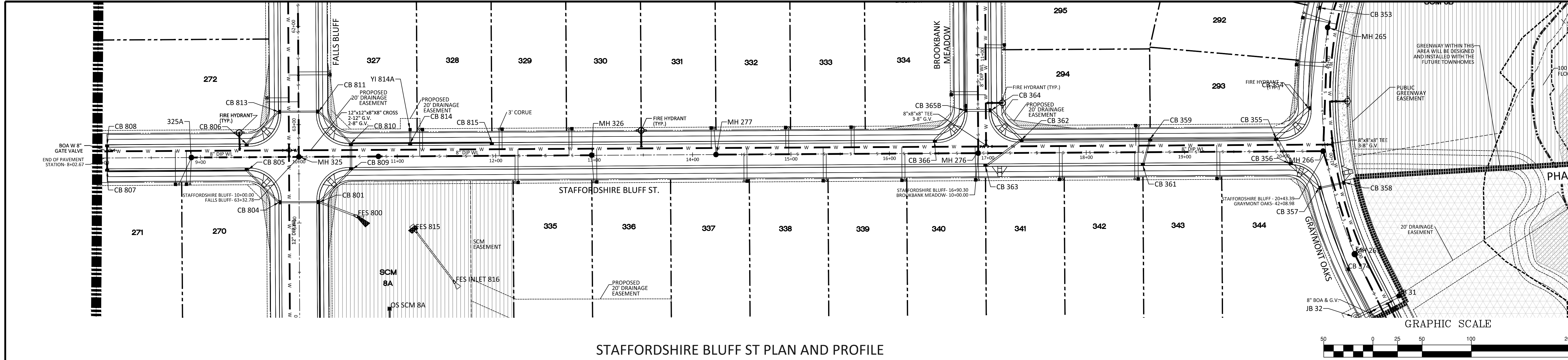


UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASILINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

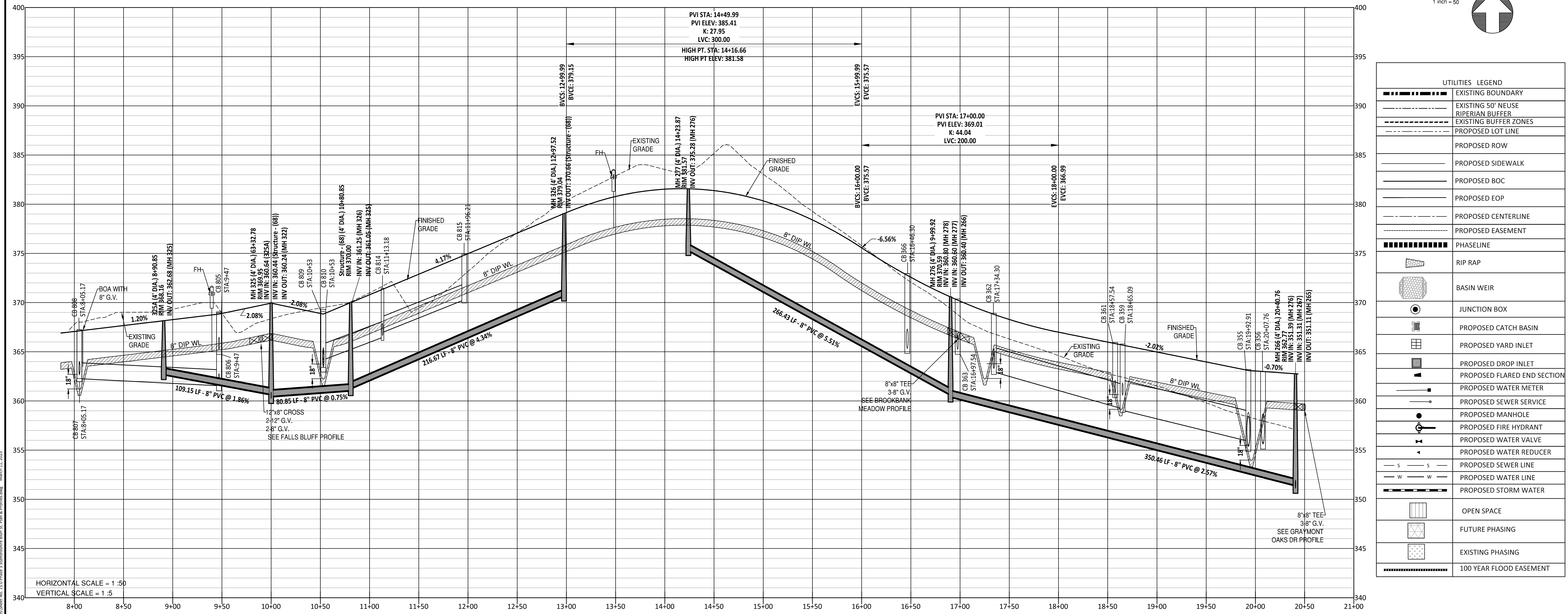
Public Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
City of Raleigh
Public Utilities Department Permit # _____

Public Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____





STAFFORDSHIRE BLUFF ST PLAN AND PROFILE



UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASILINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

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

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 9810
JOAN R. HARRISON

NO. DATE REVISION
1 7/2/2021 AS REVIEWED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2 9/4/2021 TOWN OF ROLESVILLE CONSULTANT COMMENTS
3 1/10/2022 CONSTRUCTION DRAWING COMMENT RESPONSES
4 3/17/2023 CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE: STAFFORDSHIRE BLUFF STREET PLAN & PROFILE
SHEET NO.: 15.0

GENERAL NOTE:
1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET C010
2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

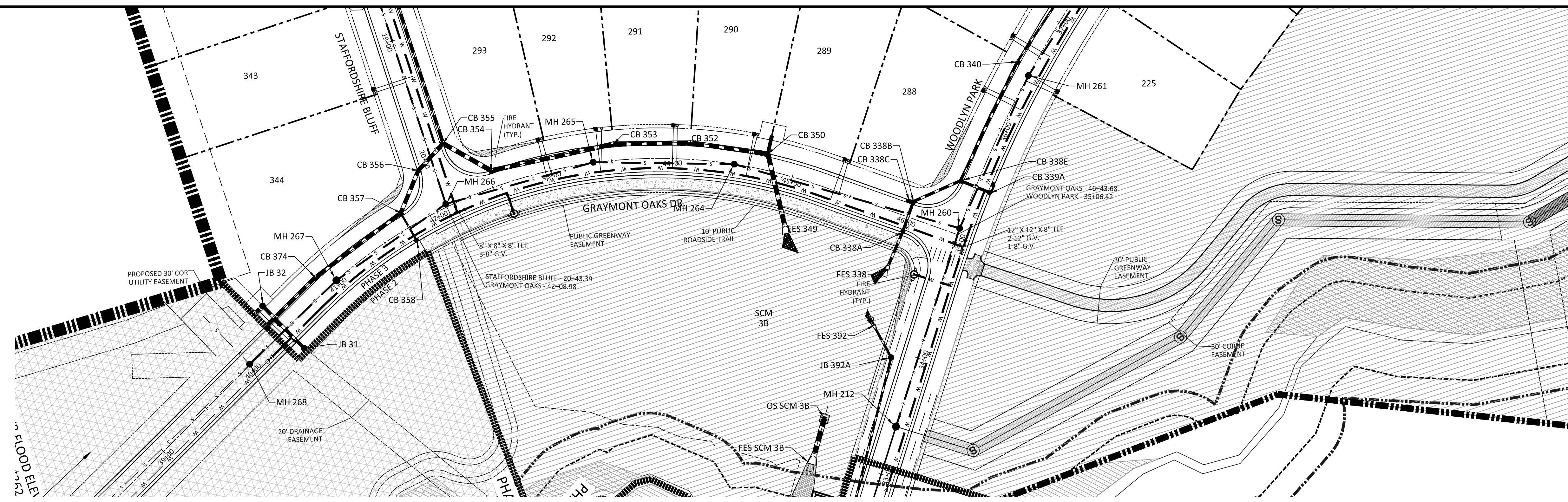
NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

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City of Raleigh
Public Utilities Department Permit # _____

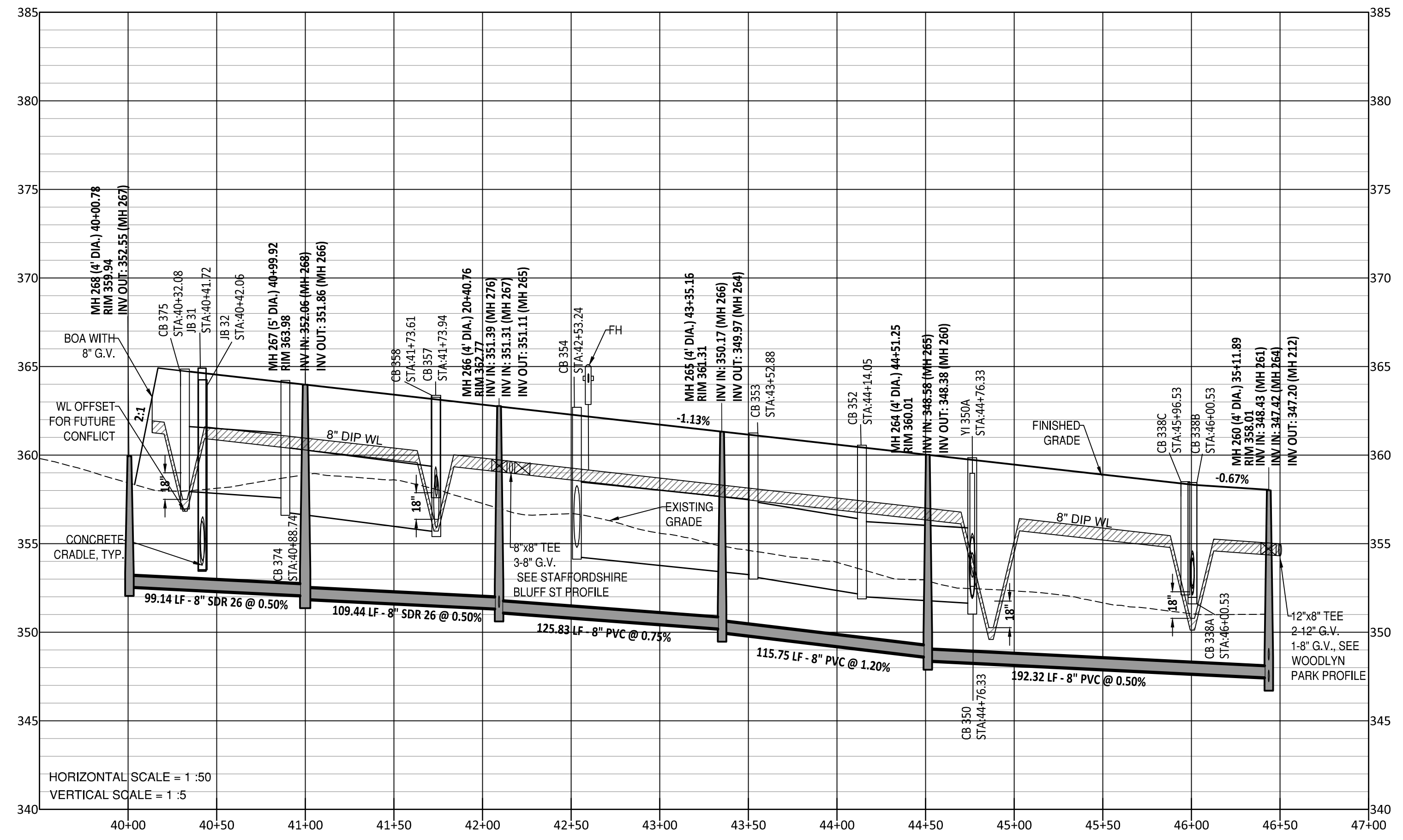
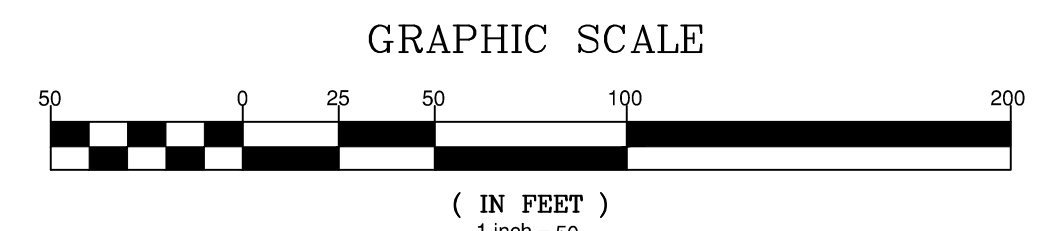
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North Carolina 811
Call Before You Dig
811 or 1-800-432-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\ah\99000\Workshop\Program\Drawings\Working\Drawings\Phase 3\Staffordshire Bluff St Plan & Profile.dwg March 11, 2025



GRAYMONT OAKS DR PLAN AND PROFILE



UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

GENERAL NOTE:
 1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CDD1 TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 2. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

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North Carolina 811
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-432-4949
 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

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881
 NORTH CAROLINA PROFESSIONAL ENGINEERING BOARD

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 9810
 IAN R. HARRISON

NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2021	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/7/2021	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/7/2023	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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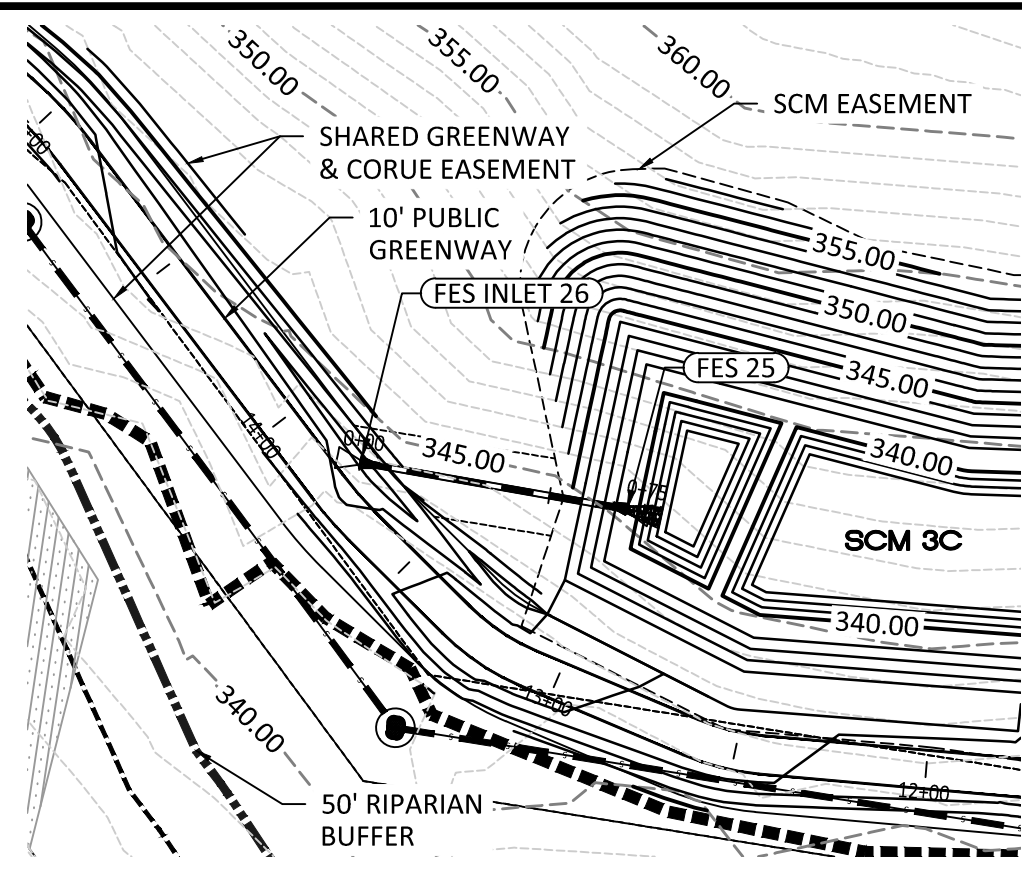
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MAL/ES/AH/DH
 DATE: NOV 1, 2024

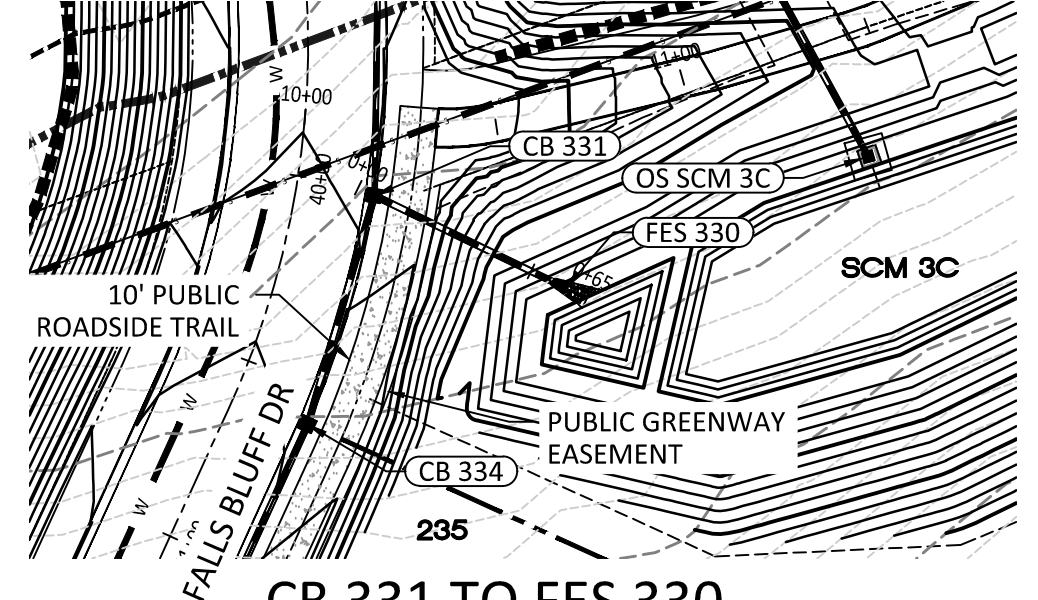
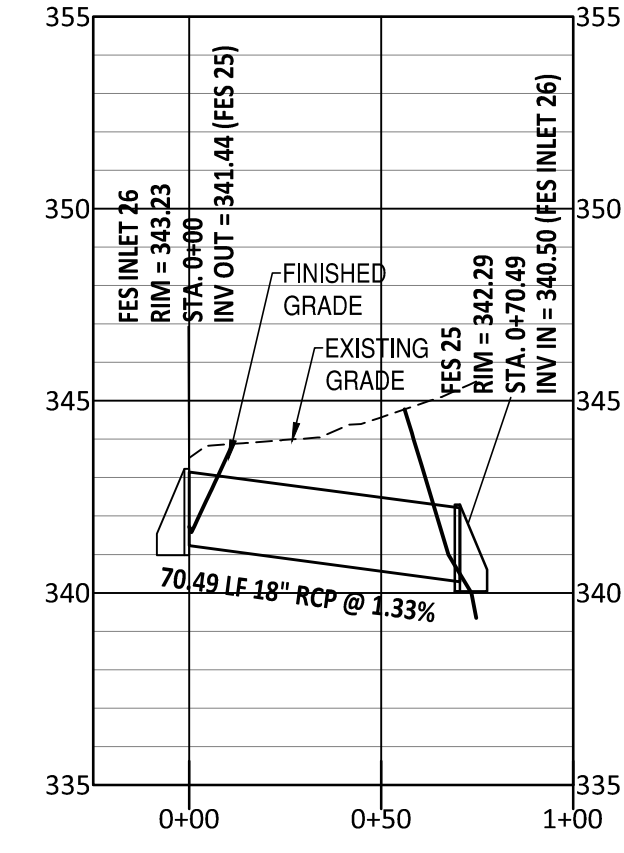
GRAYMONT OAKS DRIVE PLAN & PROFILE

SHEET NO.: 16.0

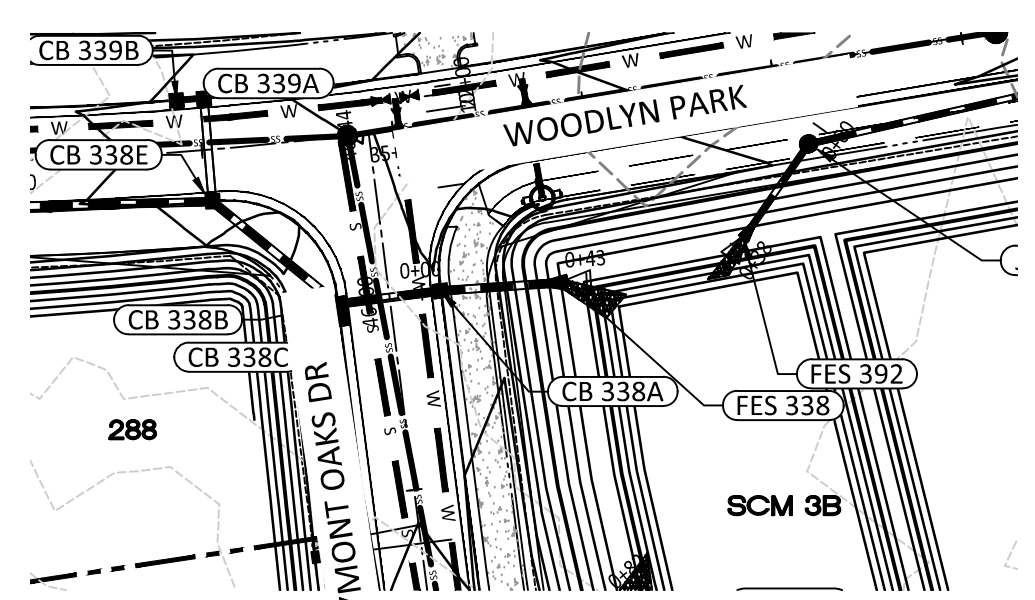
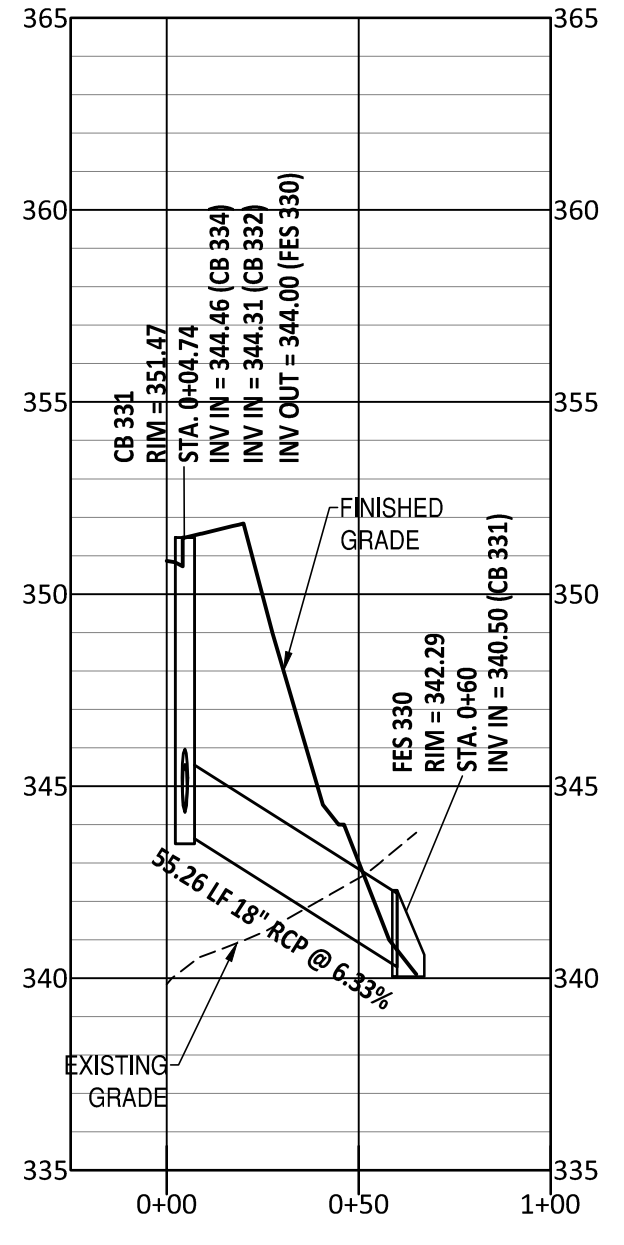
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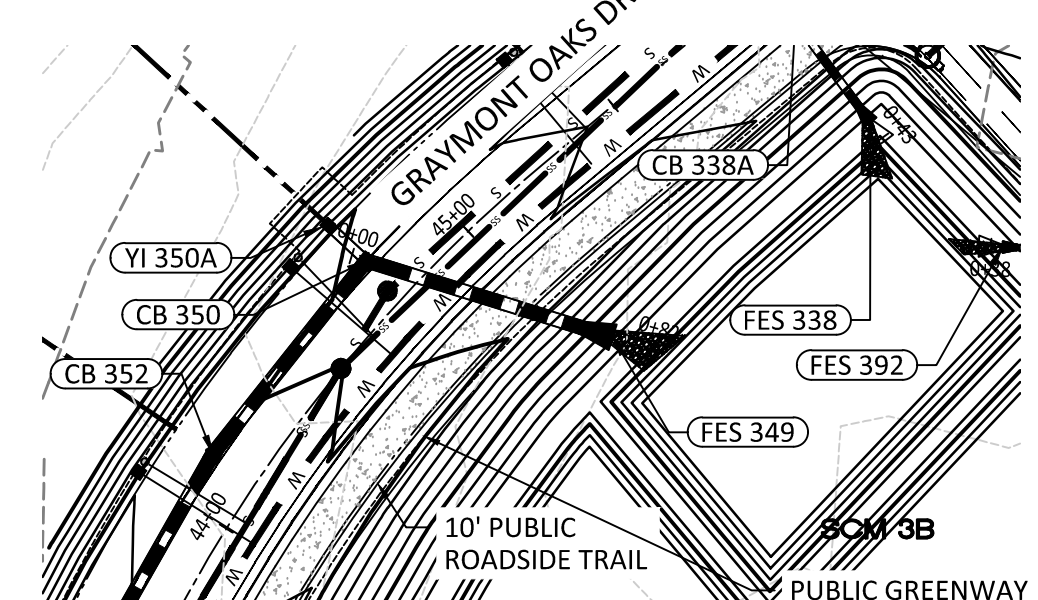
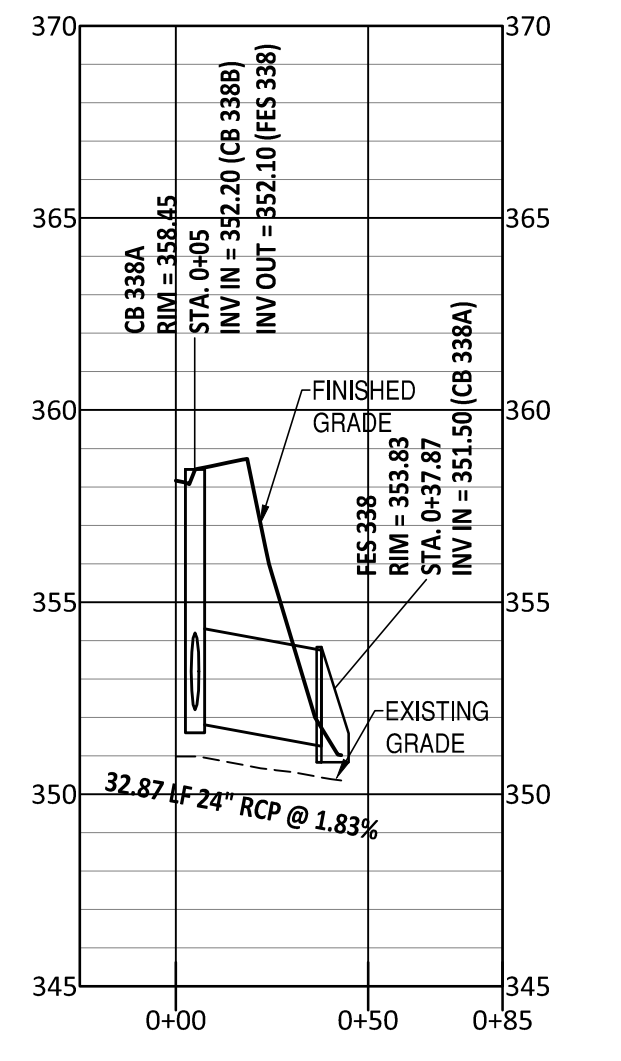
FES 26 TO FES 25



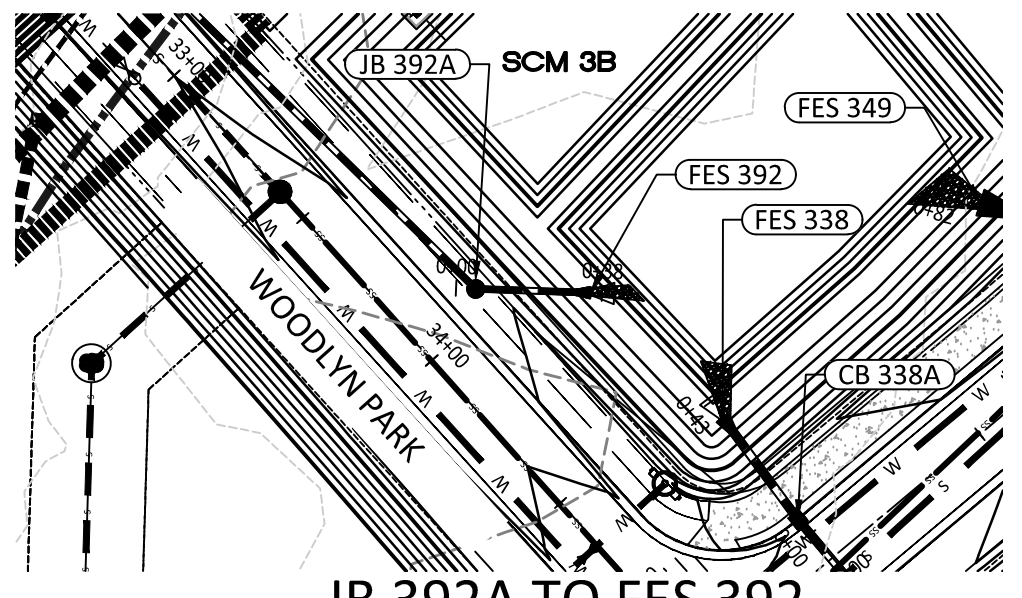
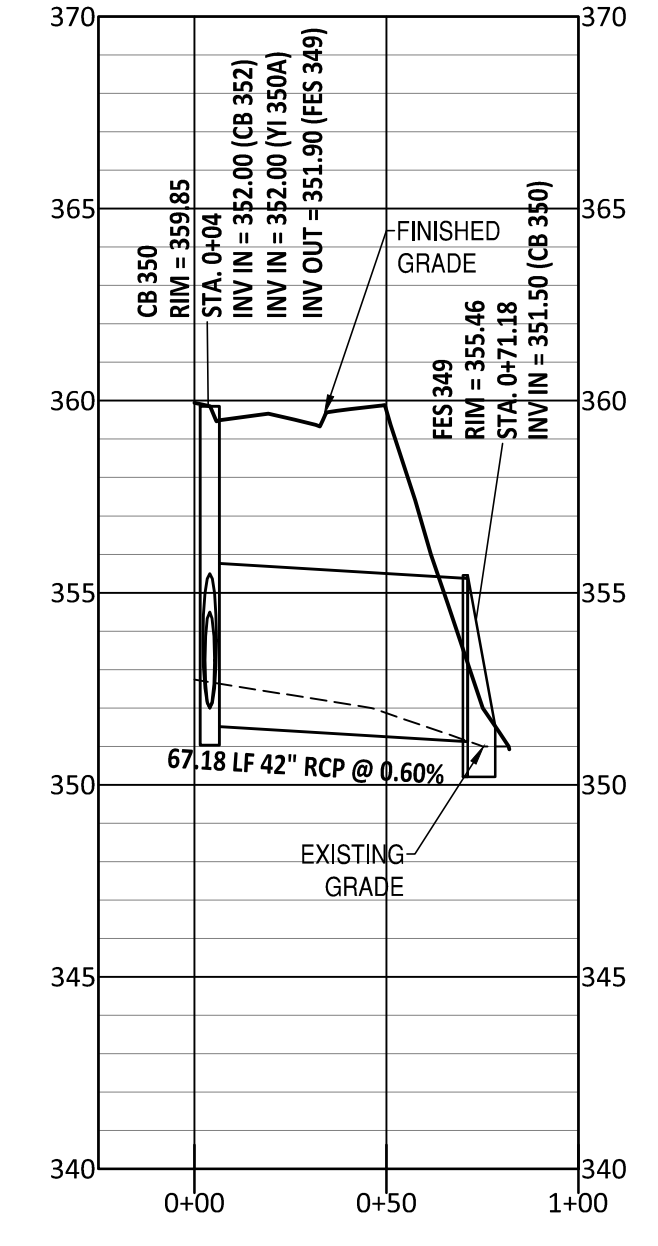
CB 331 TO FES 330



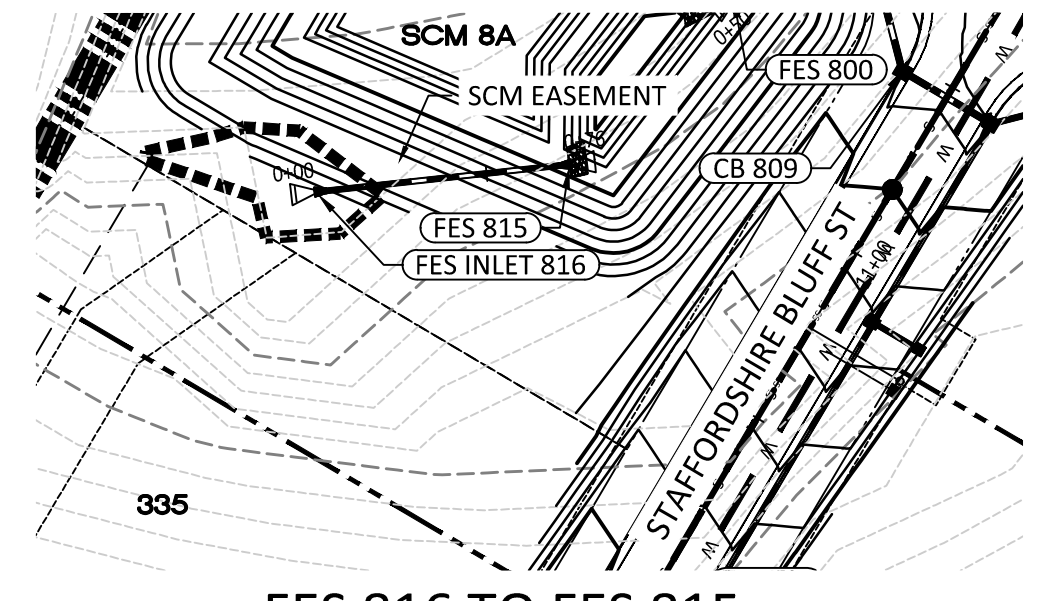
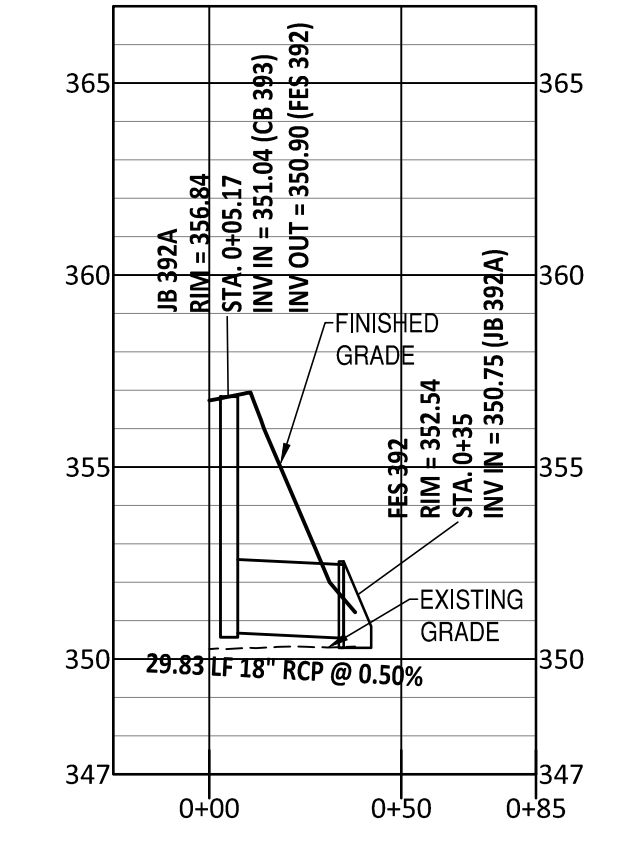
CB 338A TO FES 338



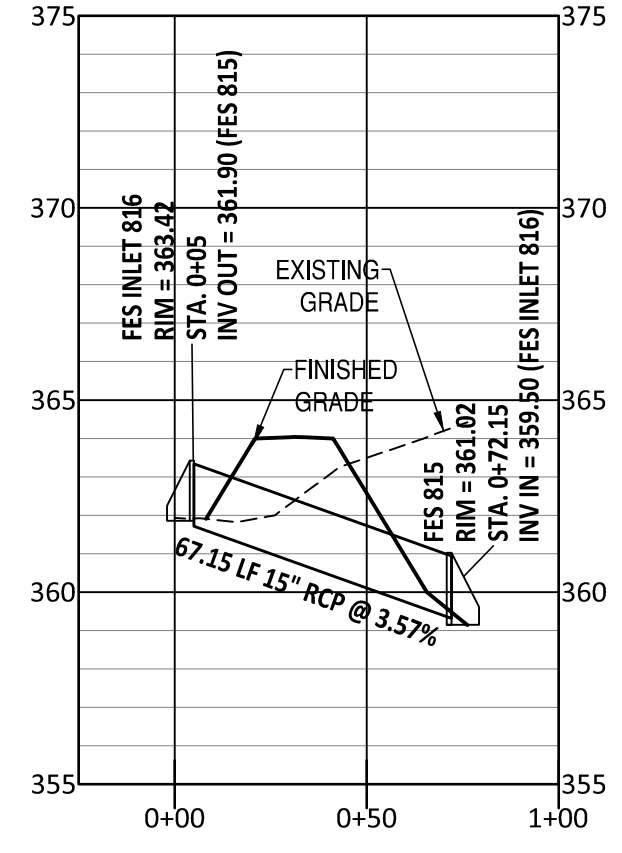
CB 350 TO FES 349



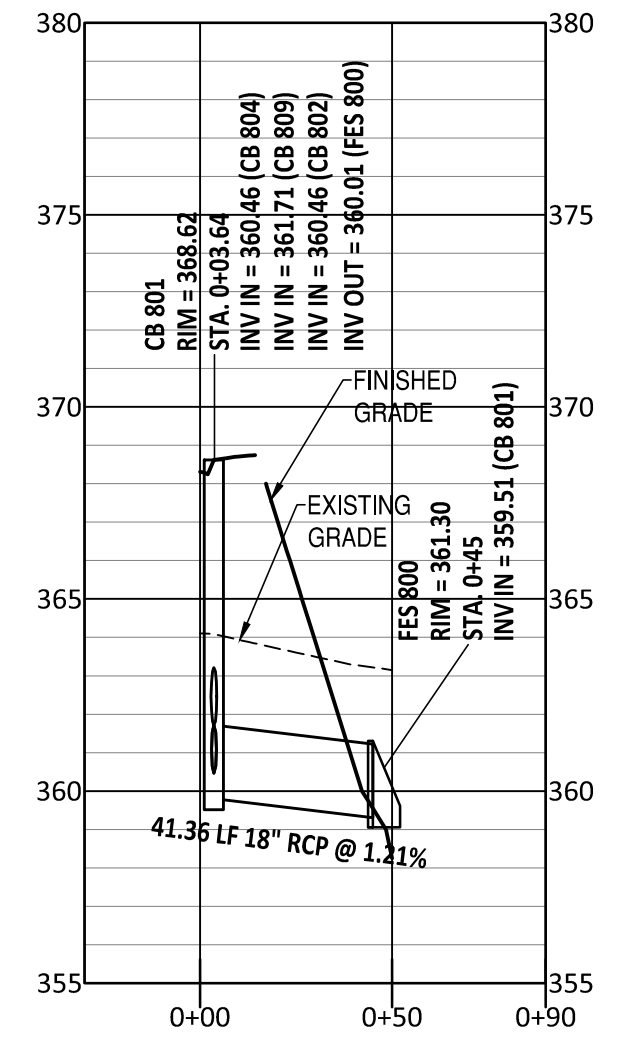
JB 392A TO FES 392



FES 816 TO FES 815



CB 801 TO FES 800



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	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
PHASELINE	
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
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AMERICAN Engineering
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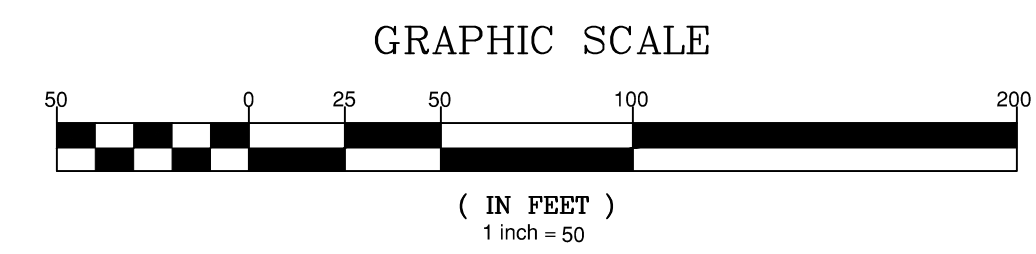
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST, P.A.
Professional Engineer
Seal 9810
Ivan R. Harwin

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

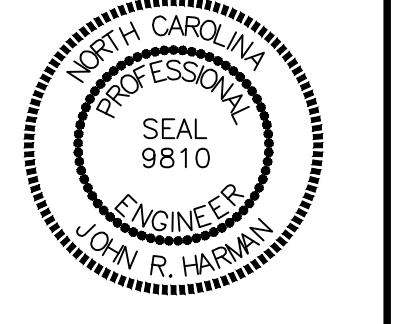
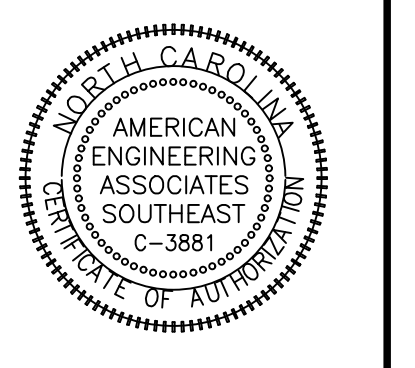
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE: OFF STREET STORM PLAN & PROFILE
SHEET NO.: 17.0



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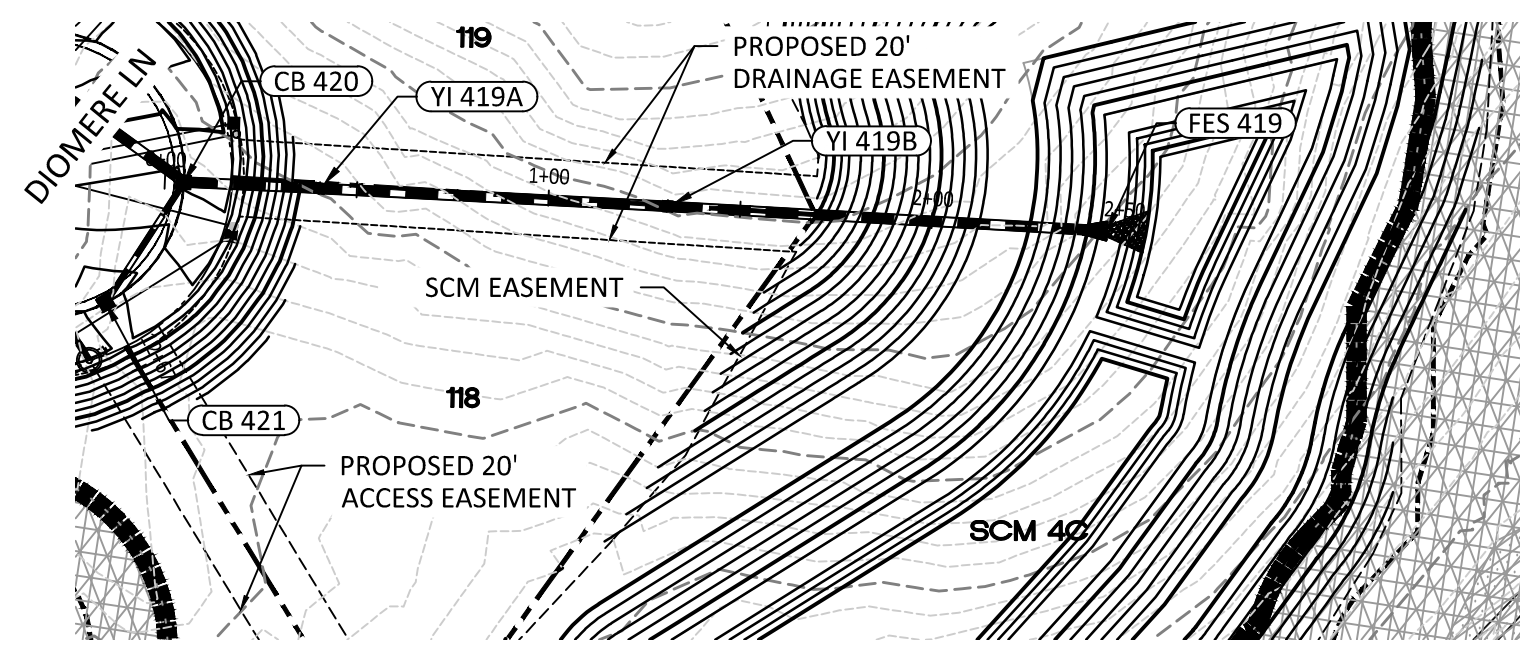
NO.	DATE	REVISION	TOWN OF ROLESVILLE CONSULTANT,
1	7/21/2024	ISSUE FOR REVIEW	WAKE COUNTY AND CITY OF RALEIGH
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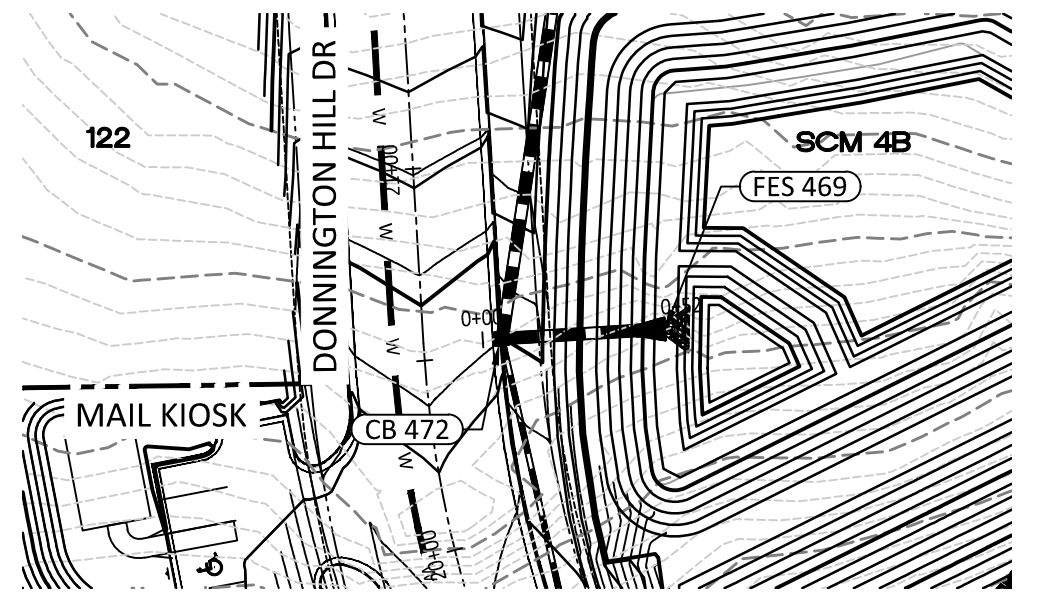
**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024

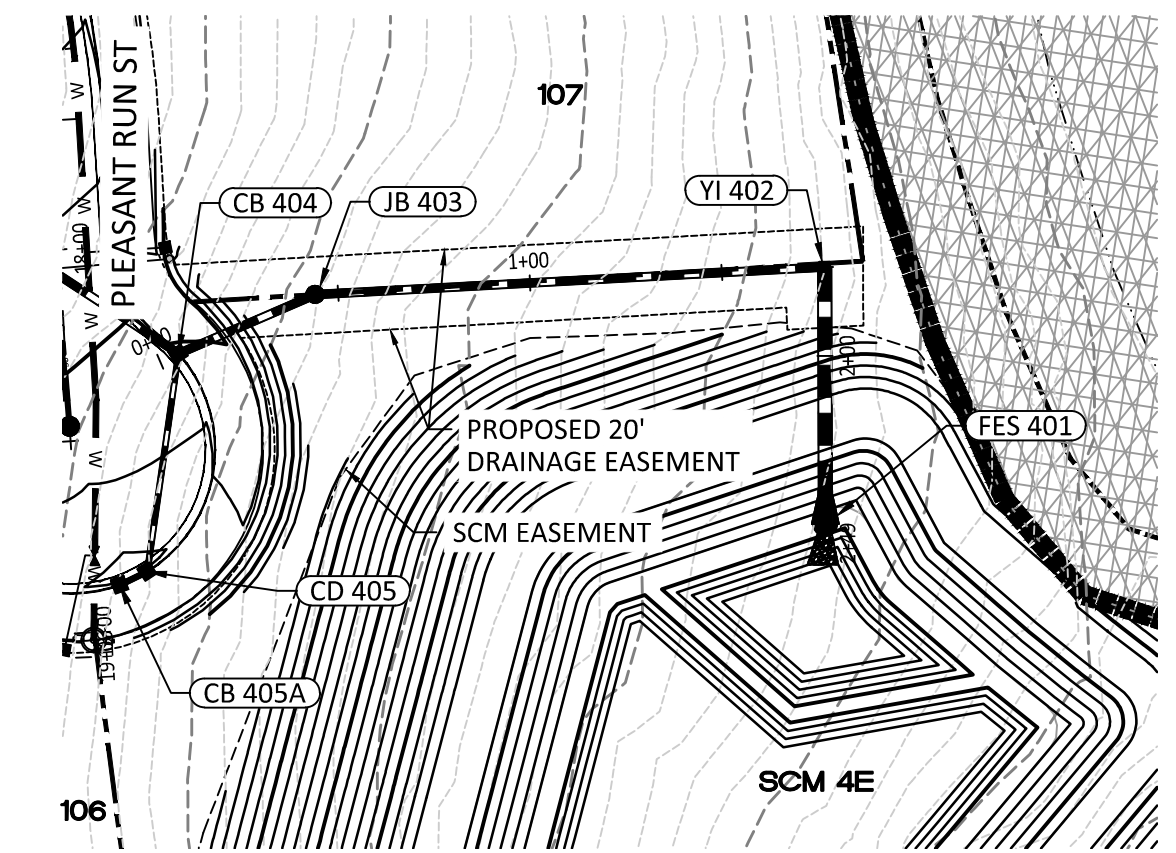
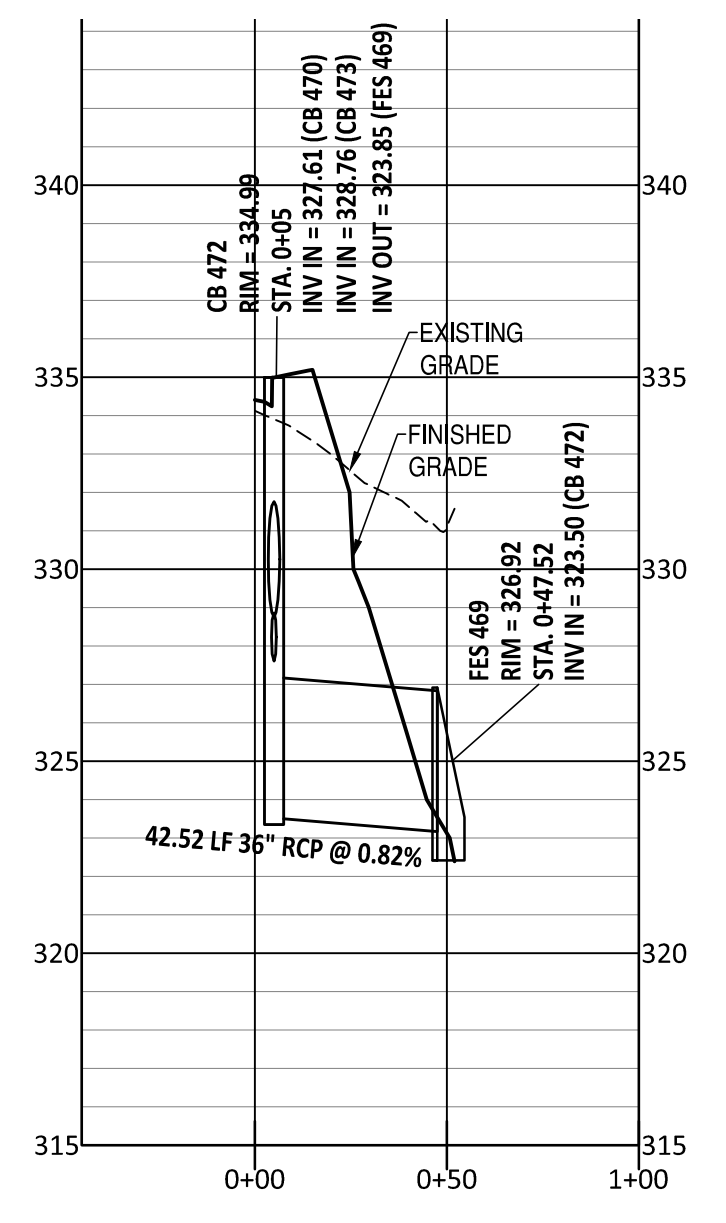
SHEET TITLE:
**OFF STREET
STORM
PLAN & PROFILE**
SHEET NO.:
17.1



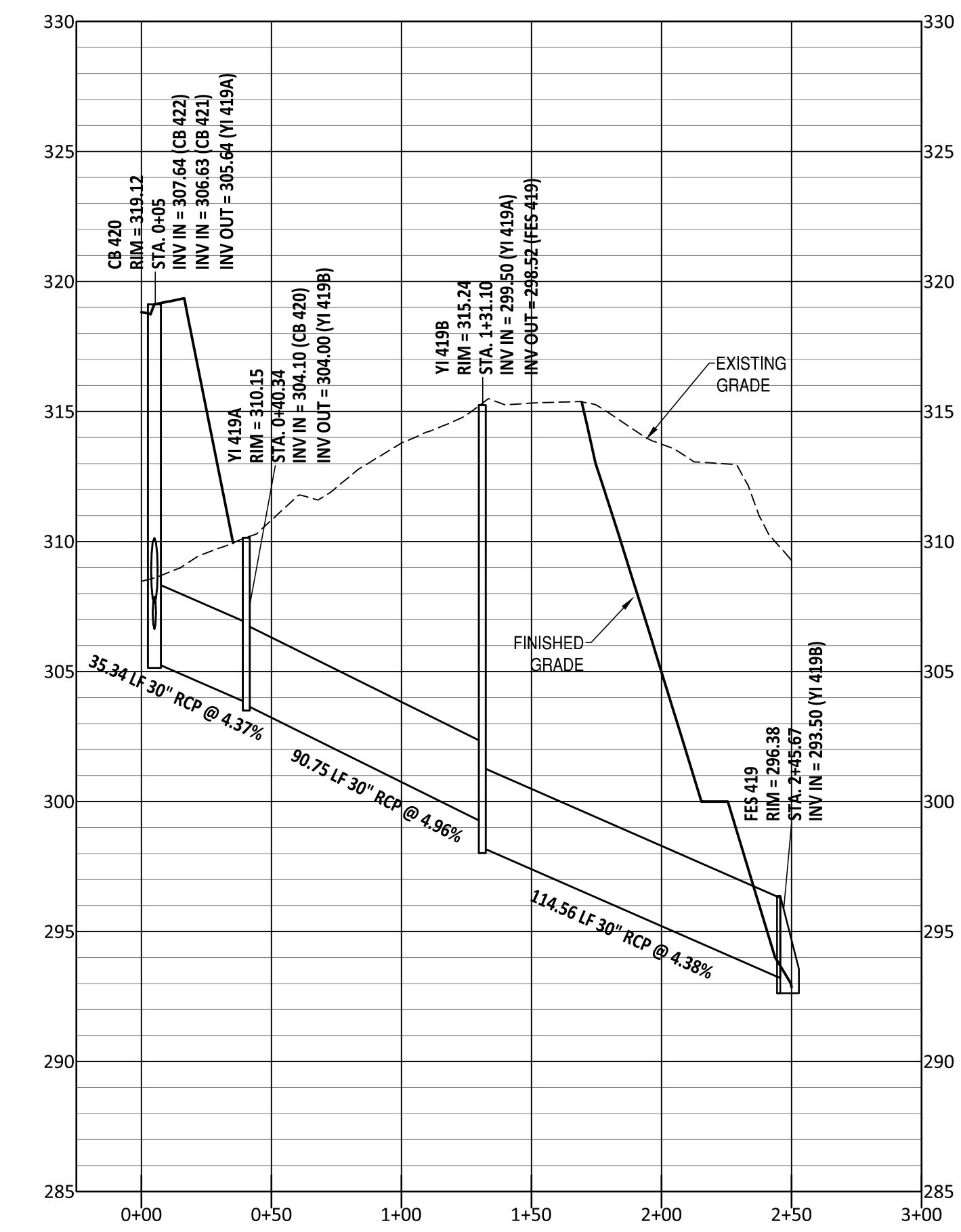
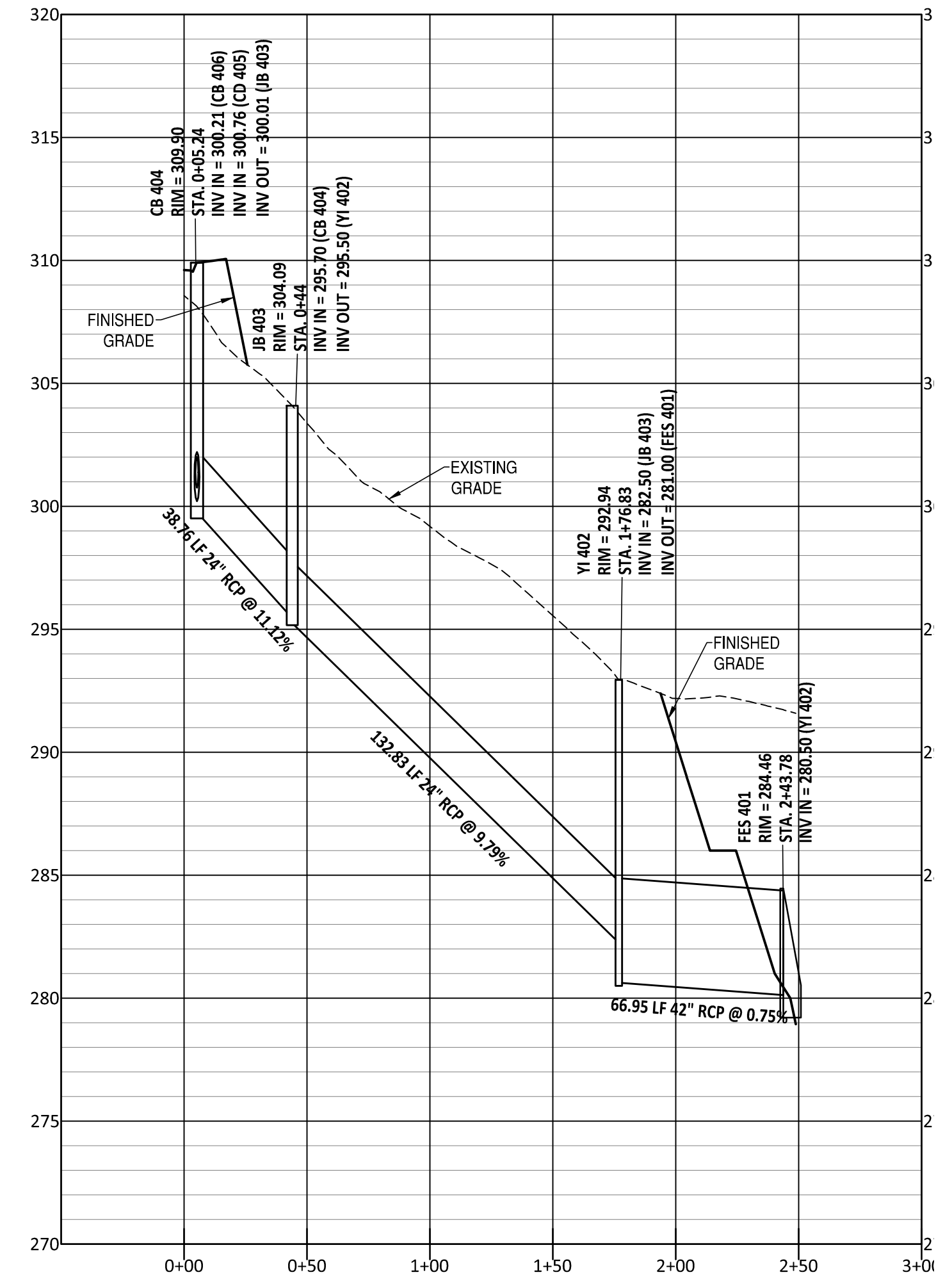
CB 420 TO FES 419



CB 472 TO FES 469

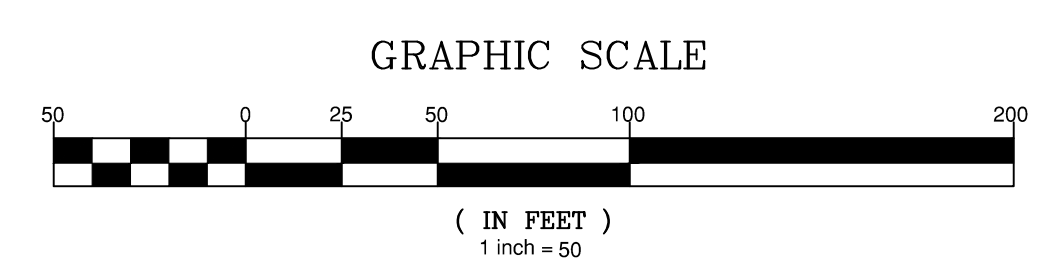


CB 404 TO FES 401



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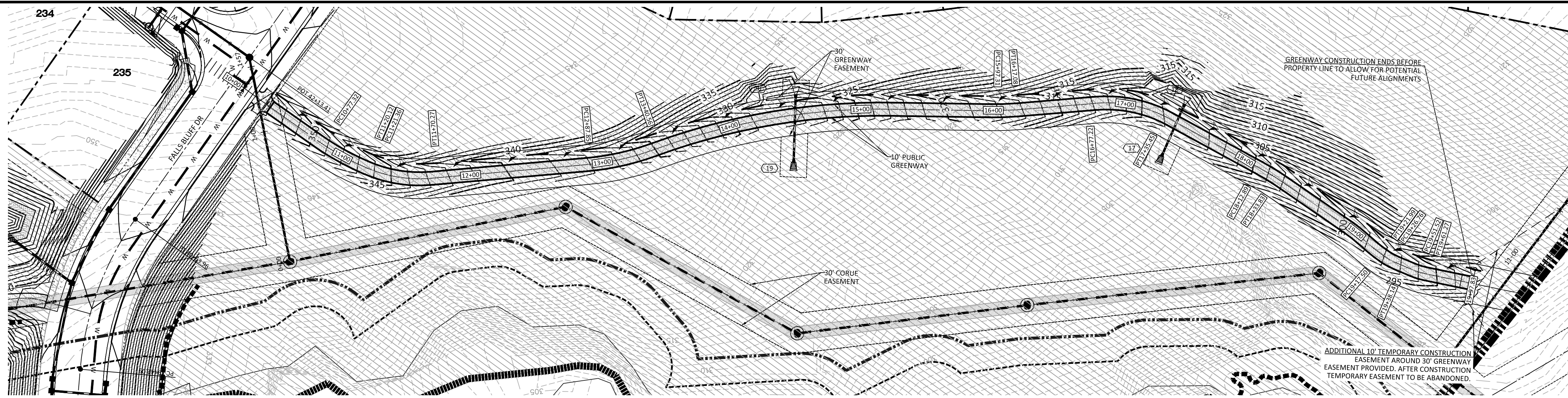
UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER ZONES
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
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	PROPOSED EASEMENT
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	BASIN WEIR
	JUNCTION BOX
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	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



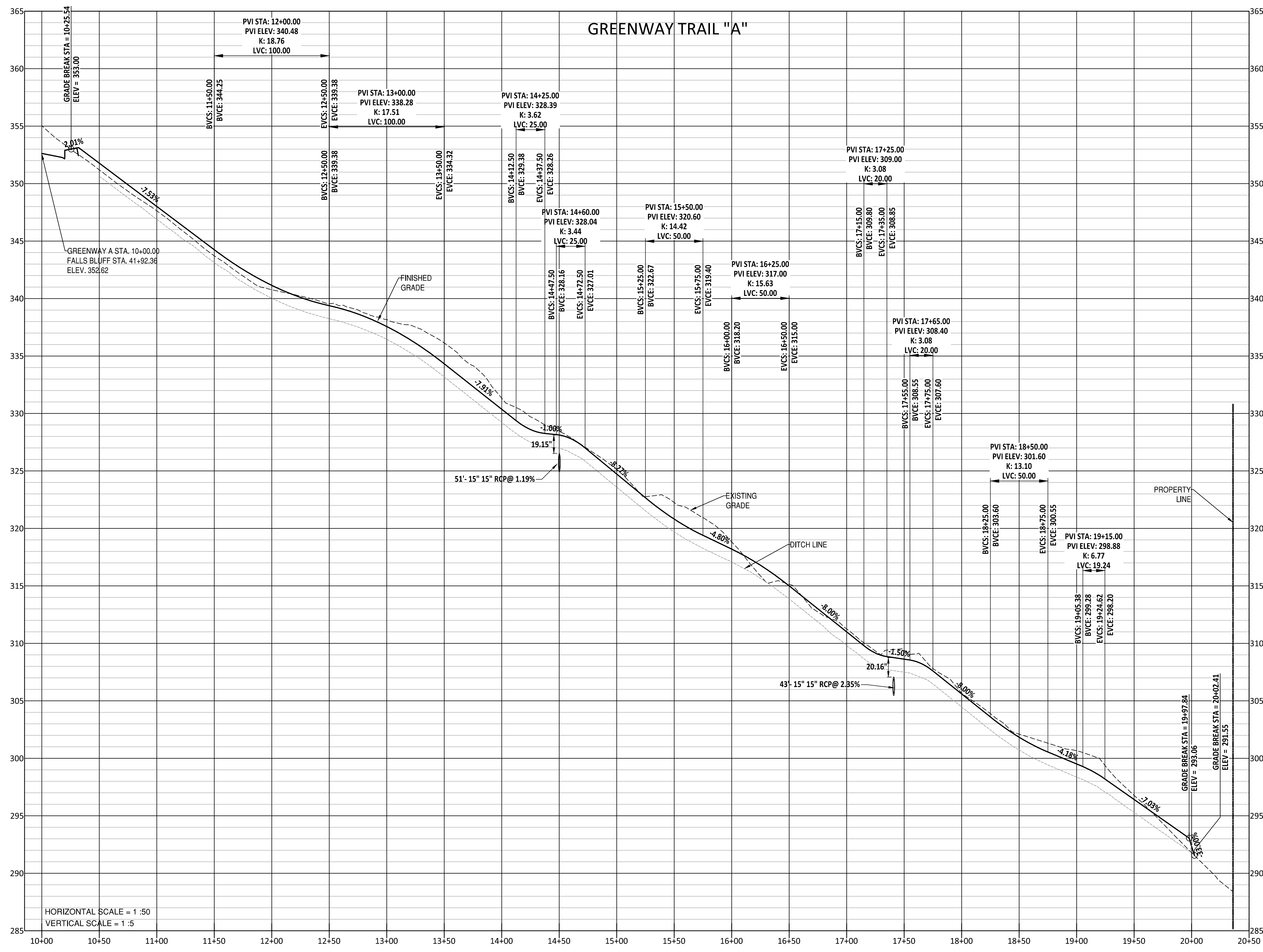
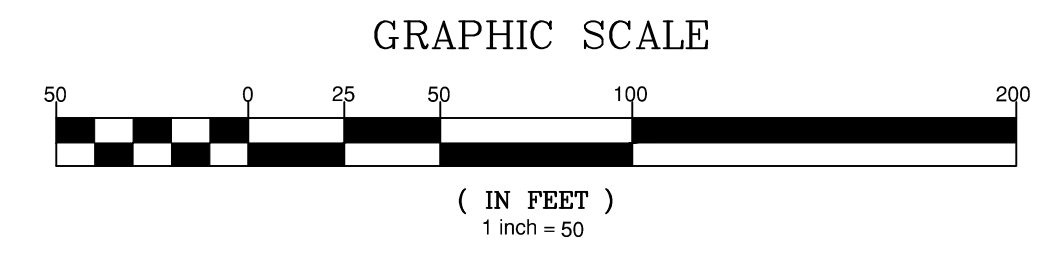
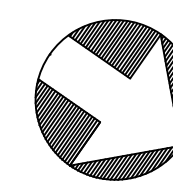
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HORIZONTAL SCALE = 1:50
VERTICAL SCALE = 1:5

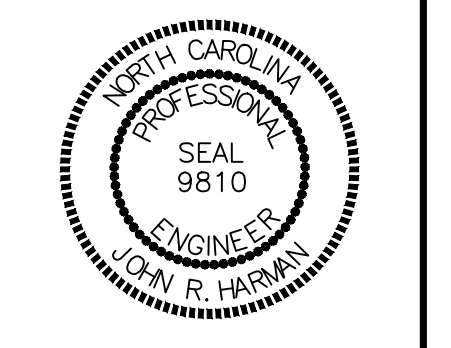
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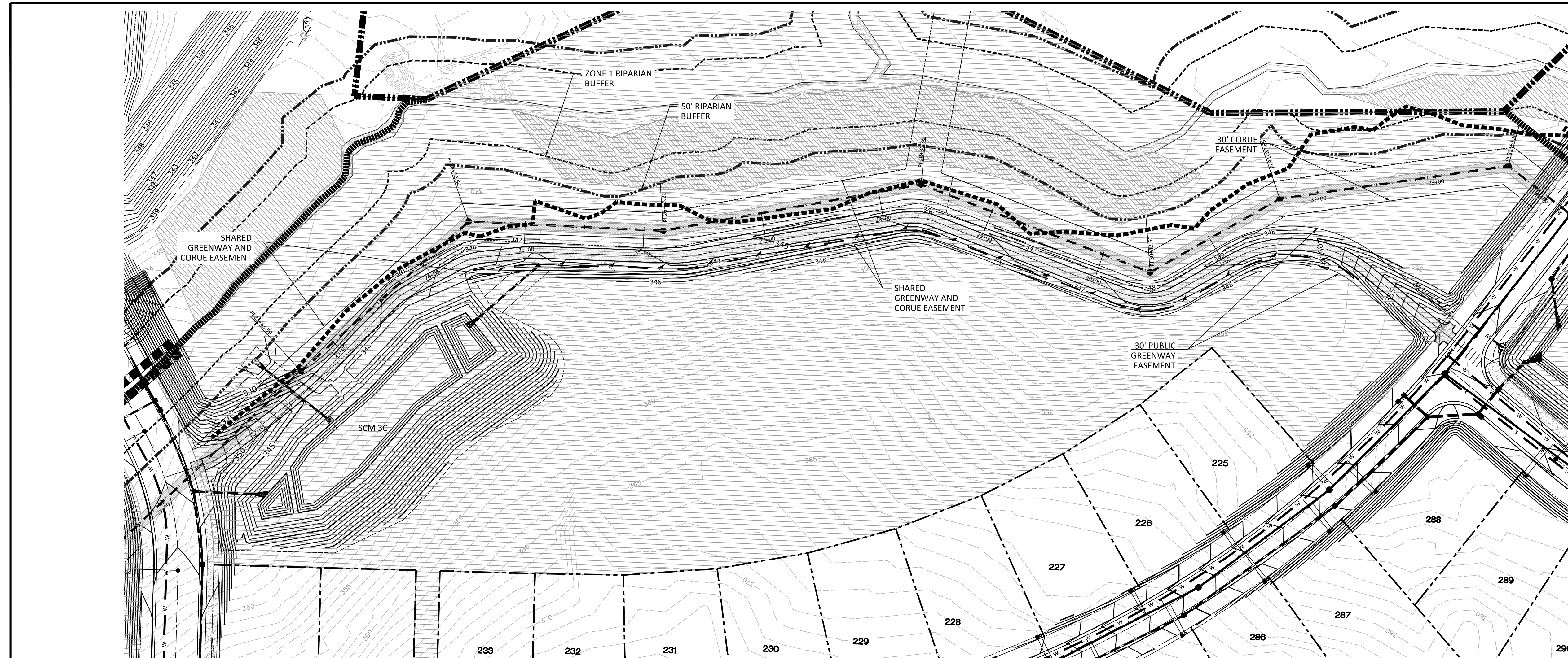
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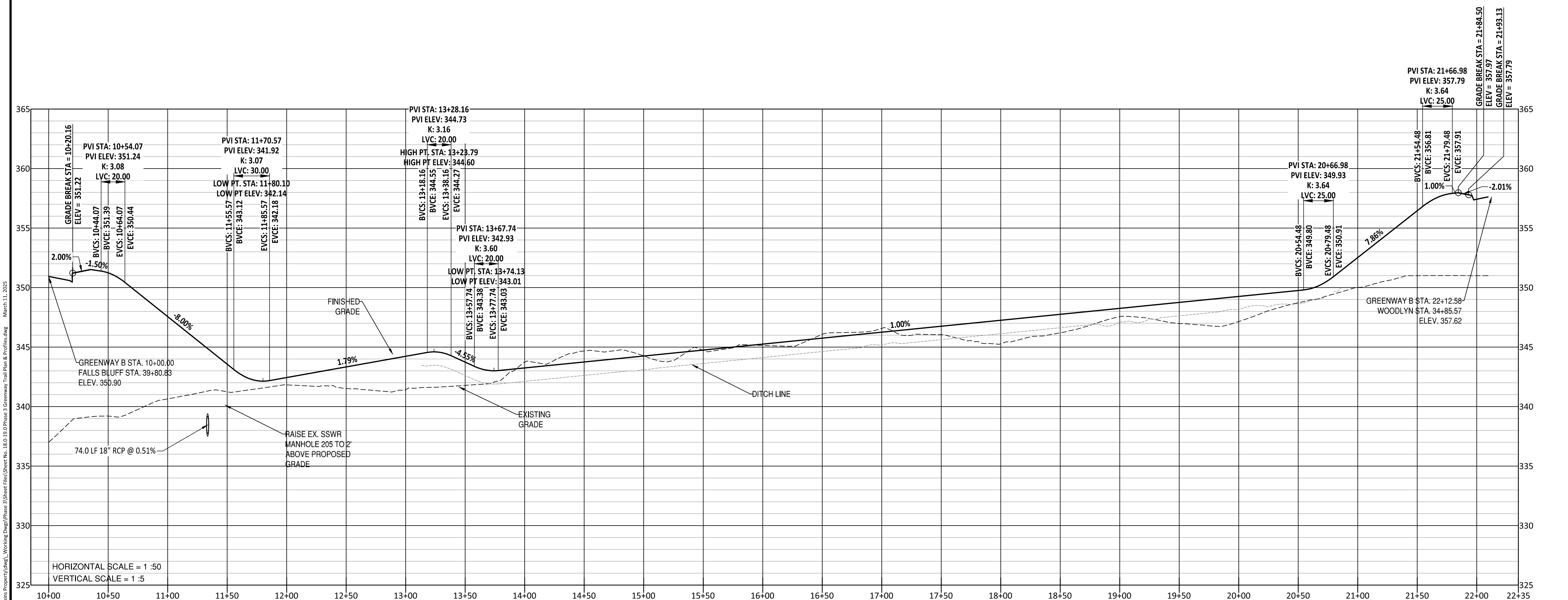
**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
GREENWAY TRAIL "A" PLAN & PROFILE
SHEET NO.: 18.0

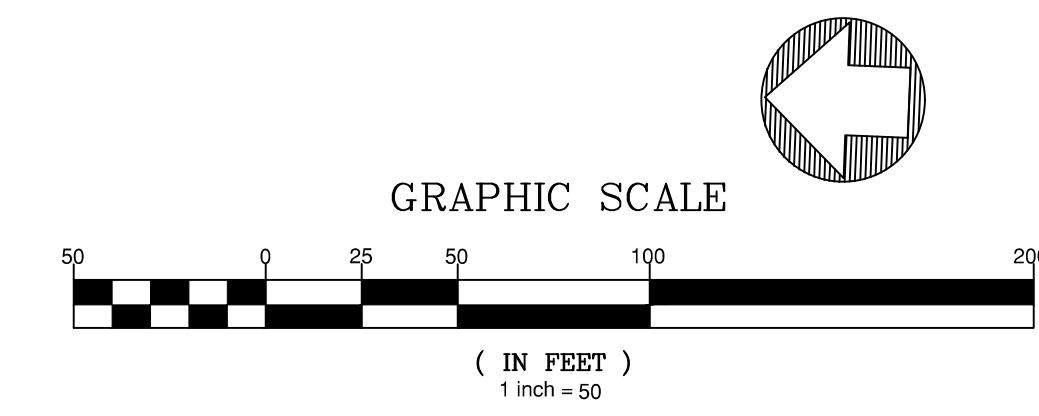




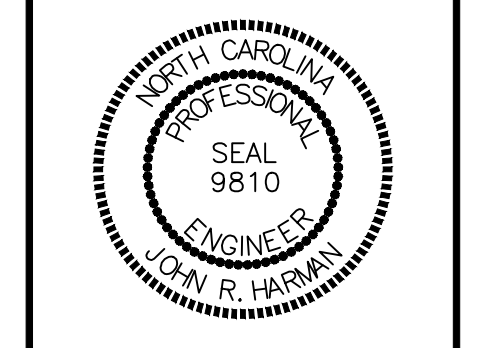
GREENWAY TRAIL "B"



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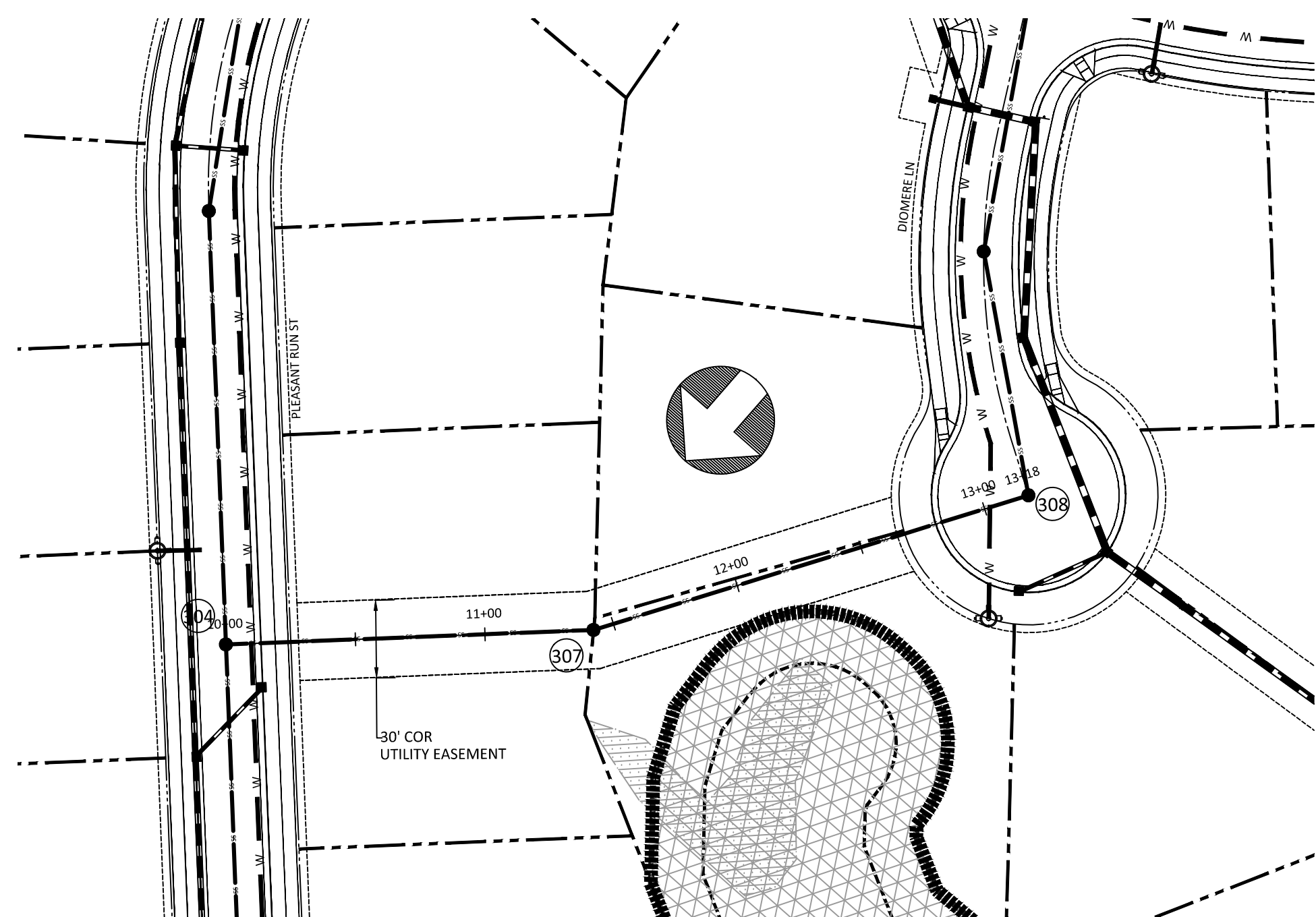
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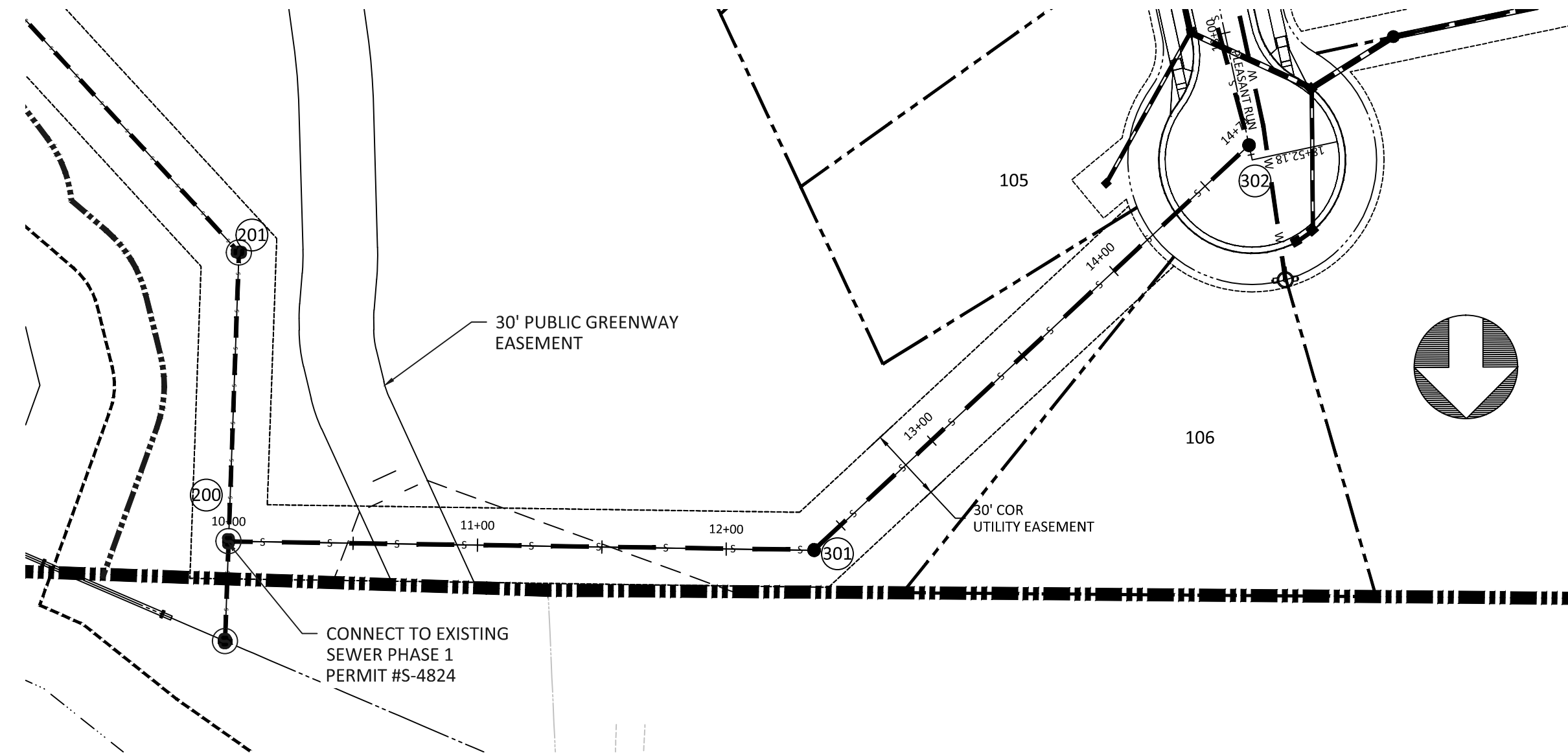
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
GREENWAY TRAIL "B"
PLAN & PROFILE
 SHEET NO.: 19.0

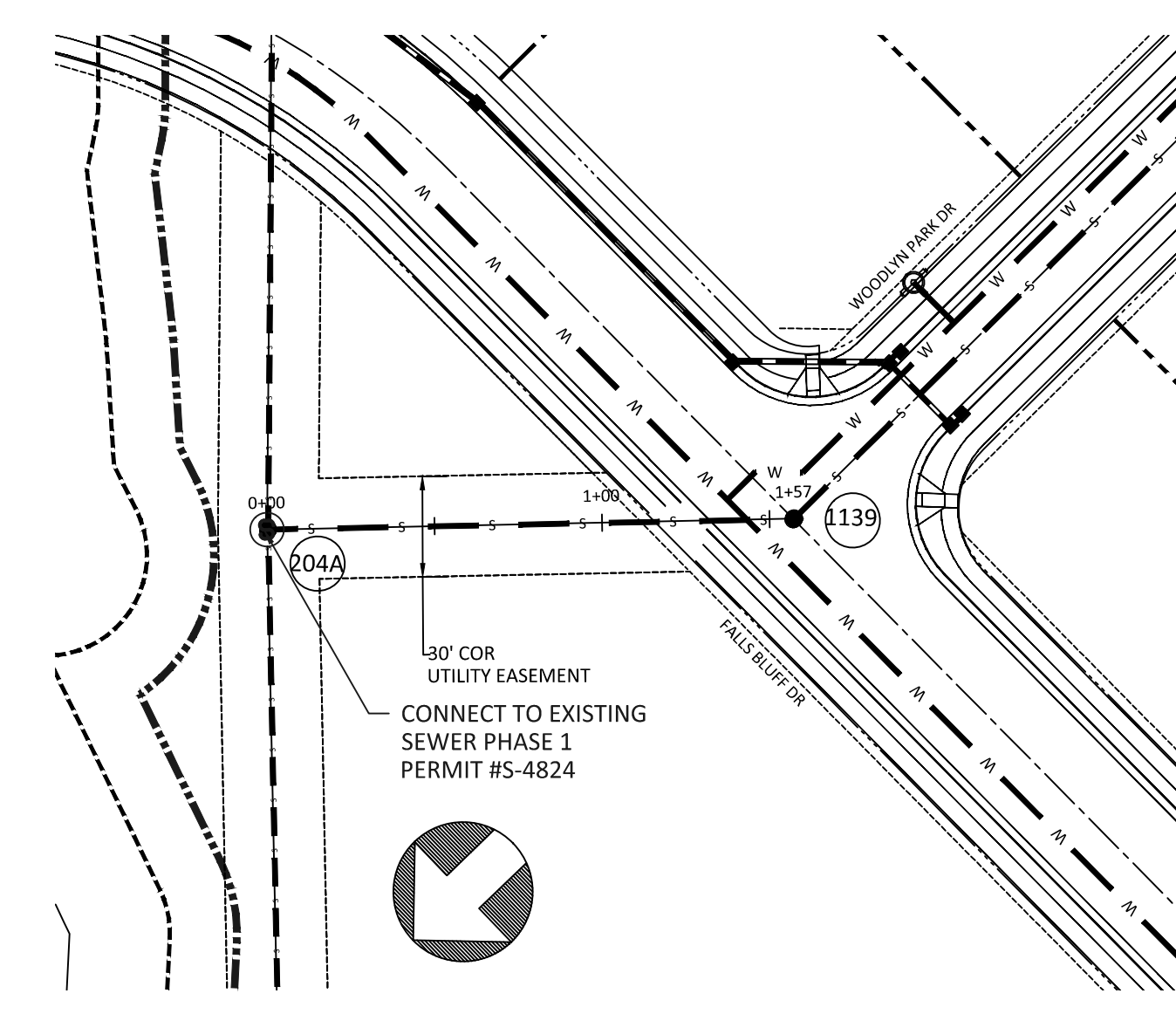




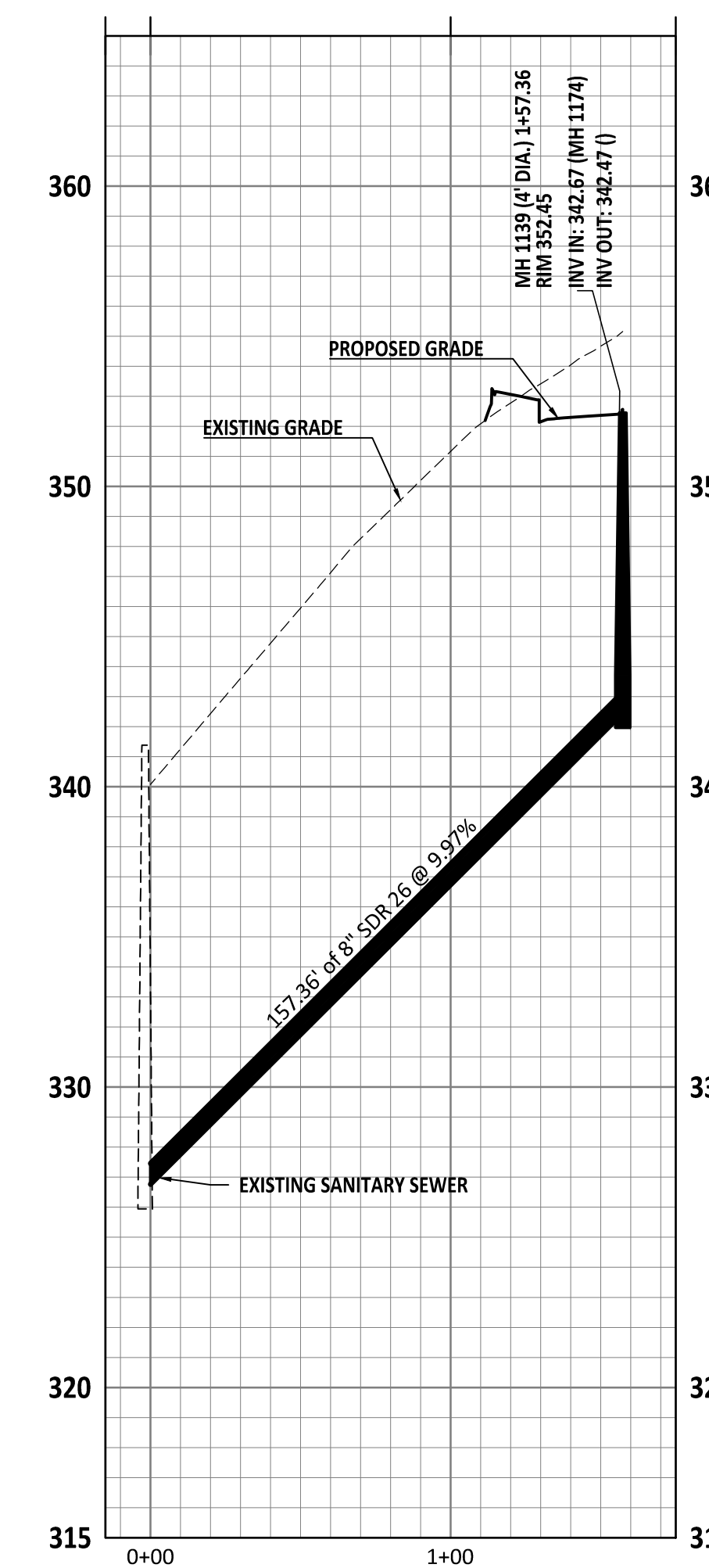
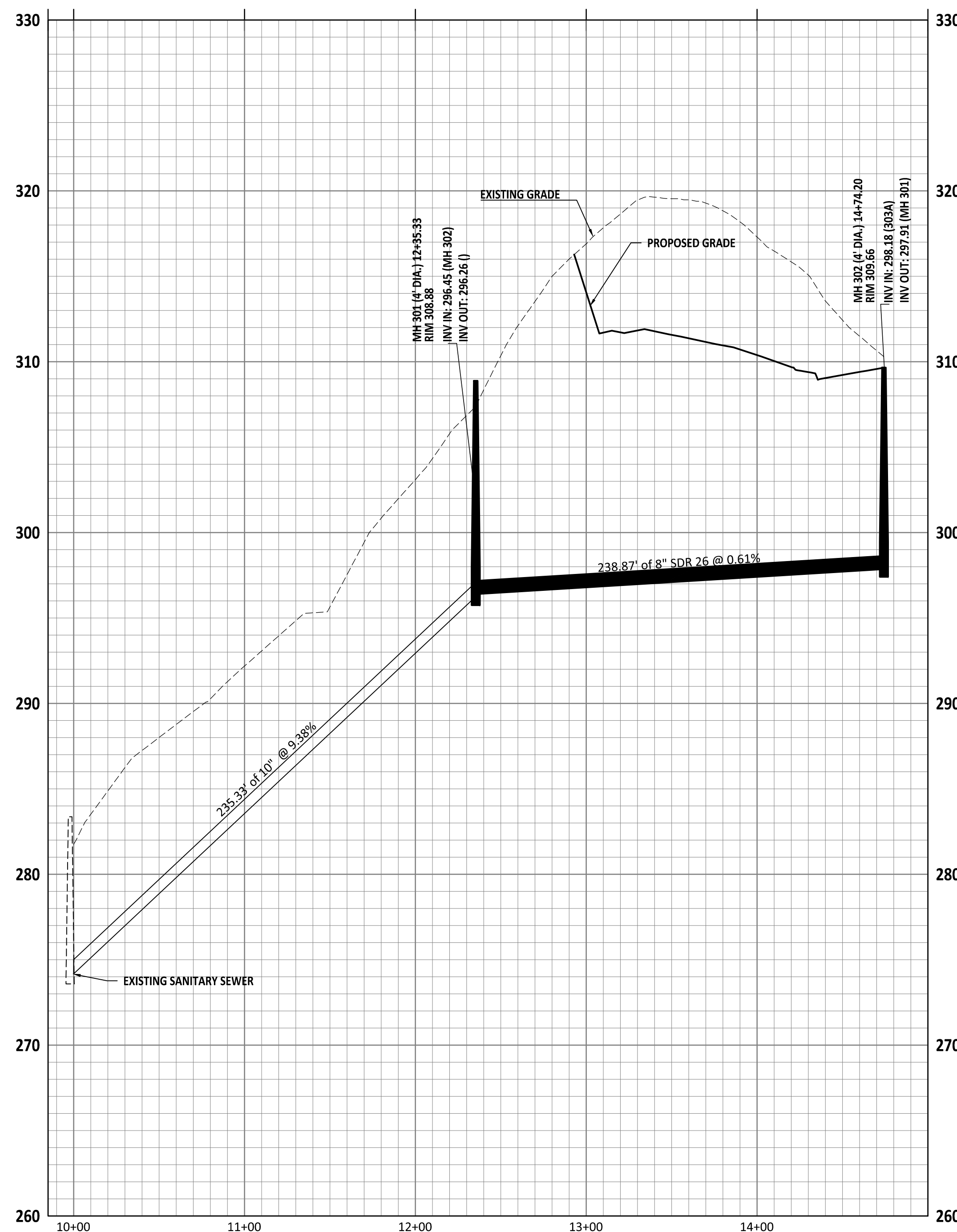
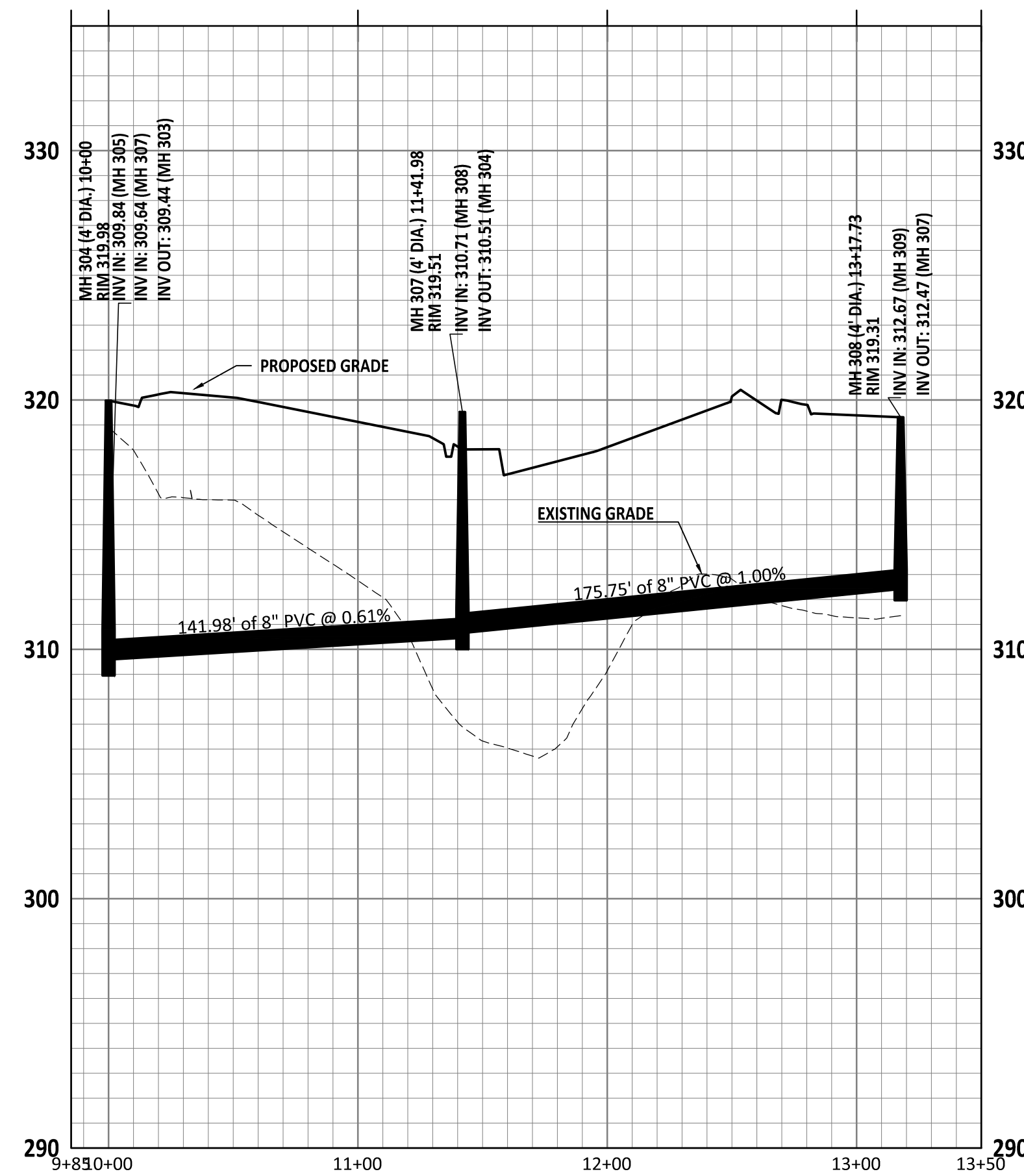
MH# 304 TO MH# 308



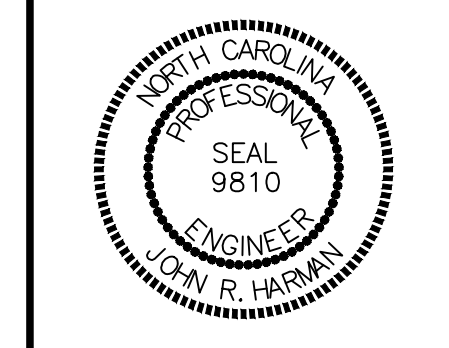
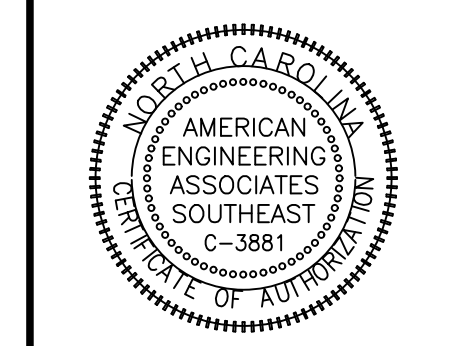
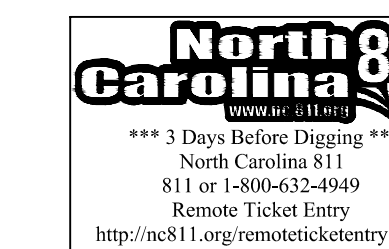
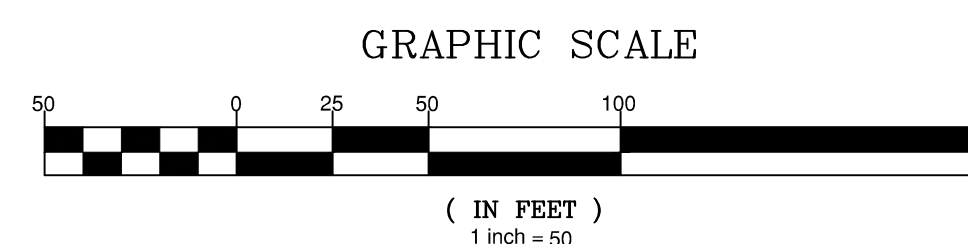
MH# 200 TO MH# 302



MH# 204A TO MH# 1139



- GENERAL NOTE:
1. ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.



NO.	DATE	REVISION

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024

SHEET TITLE:
SANITARY OUTFALL PLAN AND PROFILE
 SHEET NO.:
20.0

2:\sh\9900\Working\Drawings\Phase 3\Sheet 20.0\Phase 3 Sewer Outfall.dwg March 11, 2025

Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

Public Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

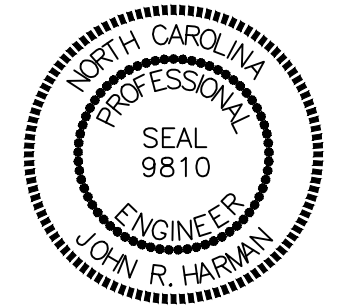
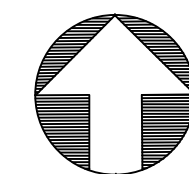
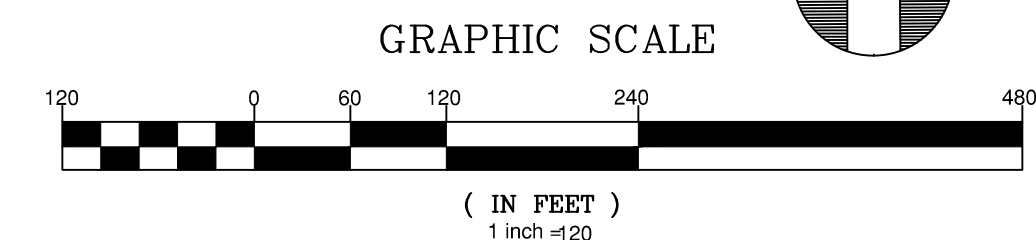


NOTE:

- SIGHT DISTANCE IS THE LENGTH OF ROADWAY AHEAD VISIBLE TO THE DRIVER. THE MINIMUM SIGHT DISTANCE AVAILABLE ON THE ROADWAY SHOULD BE SUFFICIENTLY LONG TO ENABLE A VEHICLE TRAVELING AT OR NEAR THE DESIGN SPEED TO STOP BEFORE REACHING A STATIONARY OBJECT IN ITS PATH.
- MINIMUM STOPPING SIGHT DISTANCES SHALL BE PROVIDED IN BOTH THE HORIZONTAL AND VERTICAL PLANES FOR PLANNED ROADWAYS AS RELATED TO ASSUMED DRIVER'S EYE HEIGHT AND POSITION.
- ADEQUATE SIGHT DISTANCE SHOULD BE PROVIDED AT ALL DRIVEWAY ACCESS POINTS AND SHALL BE IN ACCORDANCE WITH THE STANDARDS PROVIDED IN THIS MANUAL.
- SIGHT TRIANGLES EASEMENTS SHALL BE SHOWN ON ALL NCDOT MAINTAINED ROADWAYS FOR ANY DRIVEWAY ACCESS ACCORDING TO THE MANUAL "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS," AS ADOPTED AND AMENDED BY NCDOT.
- THIS NOTE MUST BE PLACED ON ALL PLANS "WITHIN THE AREA OF ABOVE DEFINED SIGHT TRIANGLE. THERE SHALL BE NO SIGHT OBSTRUCTING OR PARTLY OBSTRUCTING WALL, FENCE, SIGN, FOLIAGE, BERMS, OR PARKED VEHICLES BETWEEN THE HEIGHTS OF 24 INCHES AND EIGHT FEET ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY IF NO CURBING EXISTS."
- OBJECTS THAT CAN BE PERMITTED IN THE SIGHT DISTANCE TRIANGLE ARE UTILITIES SUCH AS HYDRANTS, UTILITY POLES, UTILITY BOXES, GSI PRACTICES, AND TRAFFIC CONTROL DEVICES. THOSE OBJECTS MUST BE LOCATED TO MINIMIZE VISUAL OBSTRUCTION.

TRANSPORTATION LEGEND	
	PROPOSED LOT LINE
	FLOODLINE
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED PHASELINE

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.



NO.	DATE	REVISION
1	7/27/2021	STATE REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

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**KALAS FALLS
PHASE 3**
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900

CHECKED BY: BH/JH

DRAWN BY: SM/MALL/ES/AH/DH

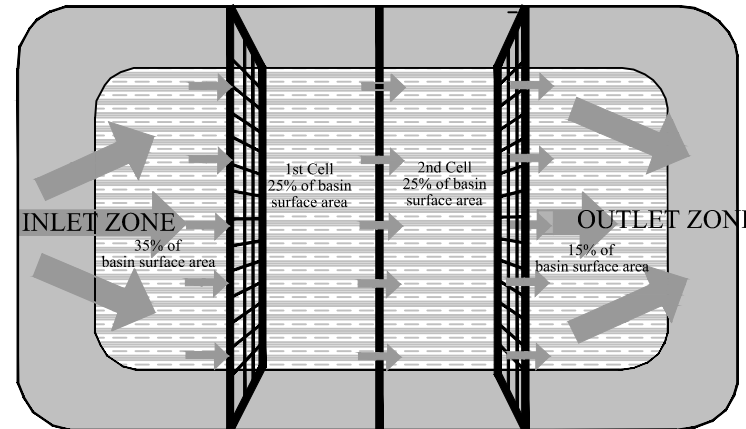
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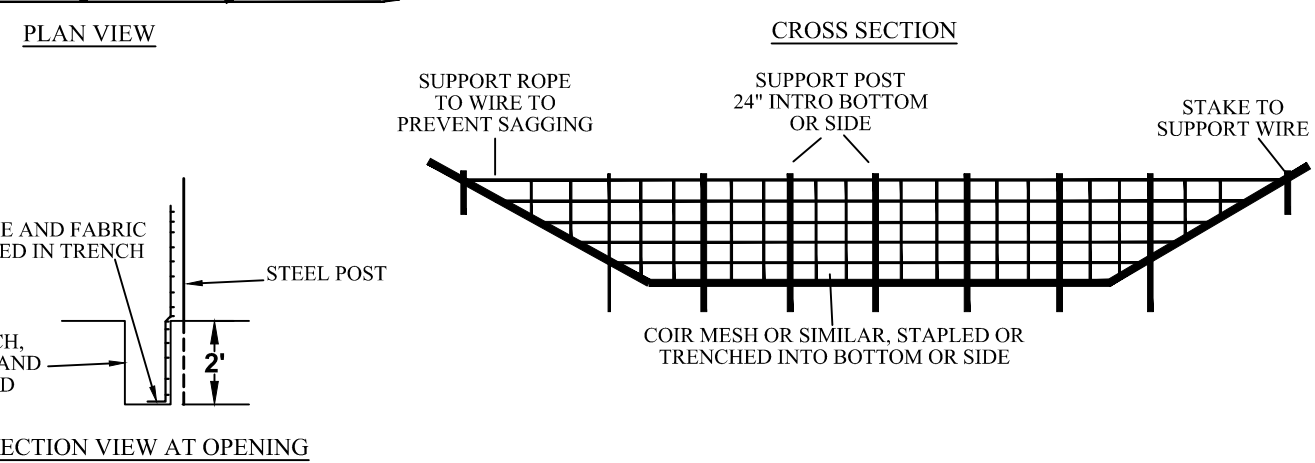
**TRANSPORTATION
PLAN**

SHEET NO.:

21.0

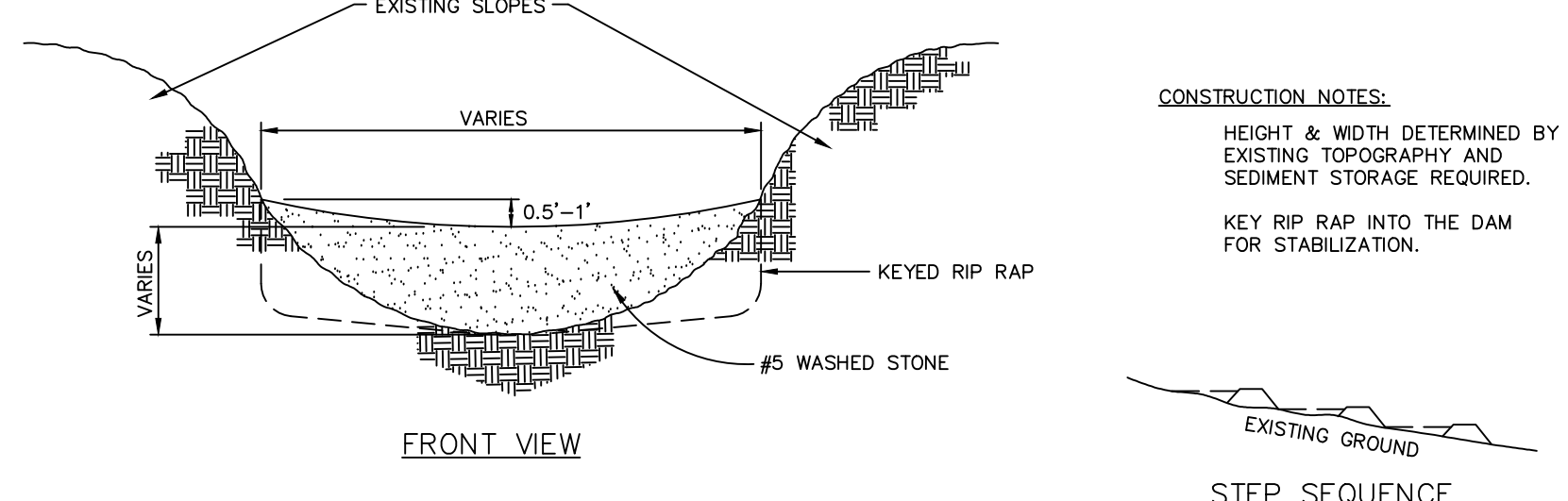
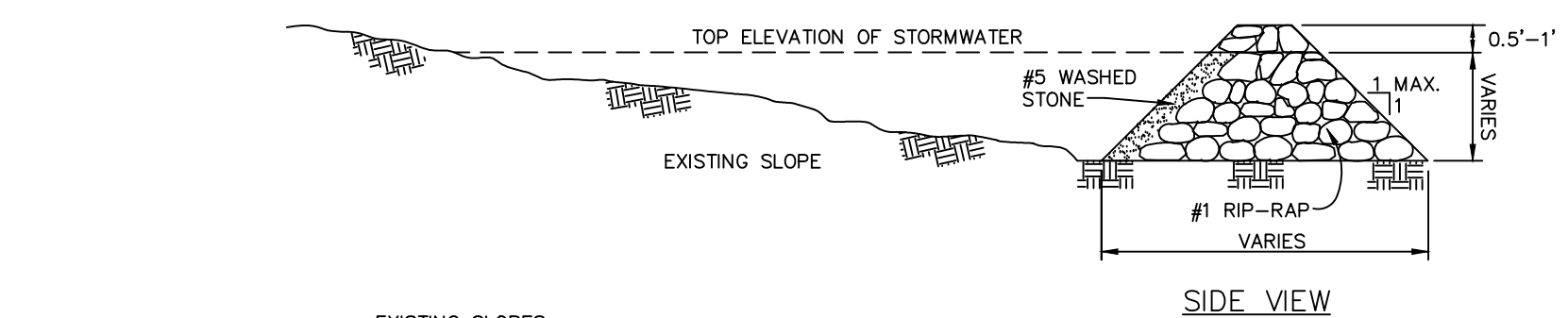


- NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
 2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
 3. PROVIDE 3 BAFFLES (SIZE TWO FEET LESS THAN 20 FEET IN LENGTH), PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
 4. BAFFLES SHALL BE 700 G/M2 COIR EROSION BLANKET.
 5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
 6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK, AND AFTER EACH RAINFALL.



STANDARD BAFFLES DETAIL

EFFECTIVE: 01/31/08

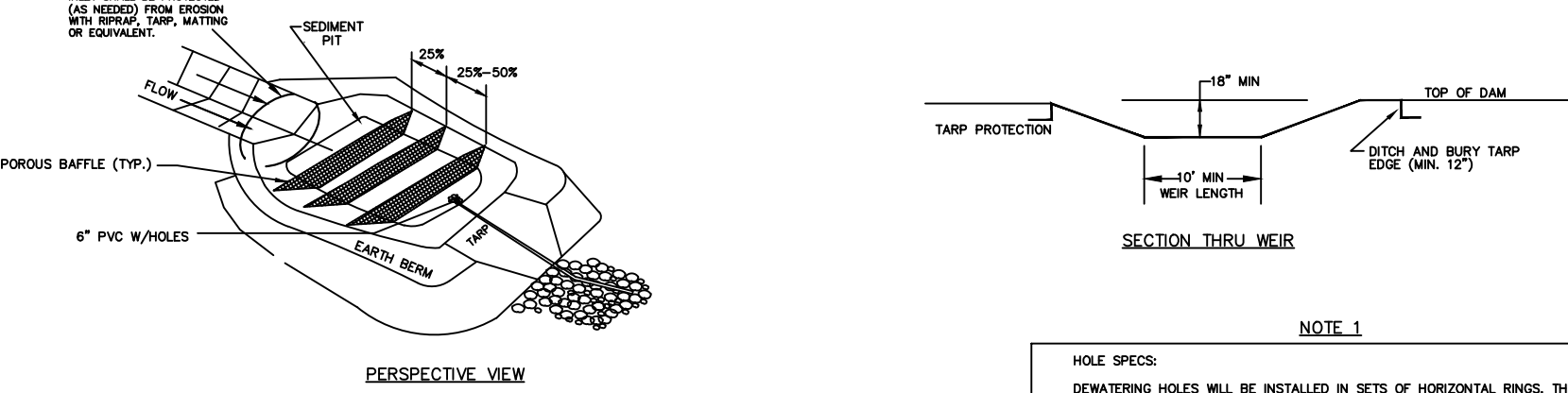
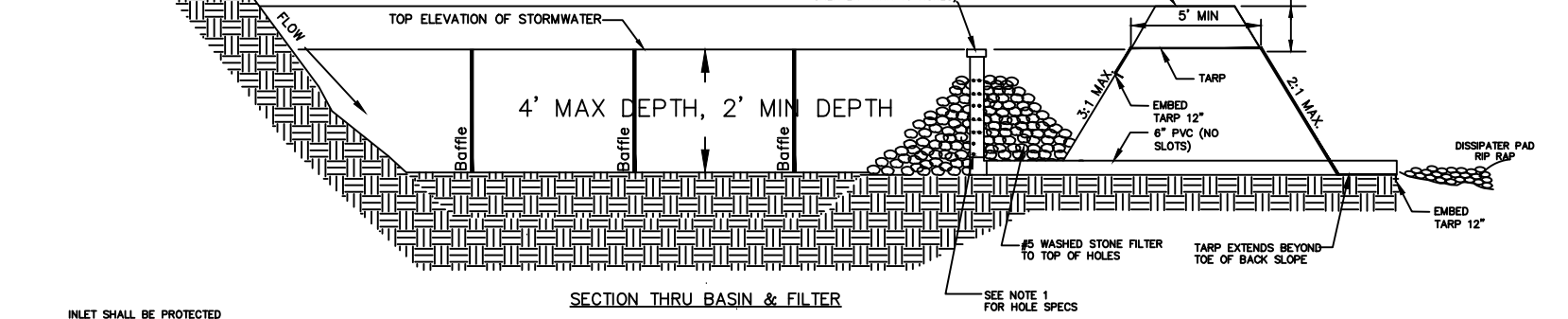


- CONSTRUCTION NOTES:
- HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
 - KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

STANDARD CHECK DAM

EFFECTIVE: 01/31/08



- GENERAL NOTES:
1. DRAW DOWN RISER & BARRISL SHALL BE 6" DIA. 40 PVC WITH CLEAN-OUT CAP AND 3/4" HOLES. SEE NOTE 1 FOR NUMBER AND SPACING OF HOLES.
 2. THE TAPPS USED TO PROTECT THE RISER SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TAPP SHALL BE ACCORDING TO AVAILABLE SUPPORT. IF MULTIPLE TAPPS ARE TO BE USED, TAPP SPACING SHALL BE MAINTAINED AT LEAST 12". THE UPSTREAM TAPP SHALL OVERLAP THE DOWNSTREAM TAPP. THE TAPP SHALL BE 1/2" MIN. HEAVY DUTY U.V. STABILIZED OR EQUIVALENT FOR U.V. RESISTANCE.
 3. MAINTENANCE: SEDIMENT TO BE REMOVED AND PROPERLY DISPOSED OF WHEN BASIN IS HALF FULL. GRAVEL FILTER AROUND RISER SHOULD BE REPLACED AS NEEDED TO ENSURE DEWATERING.

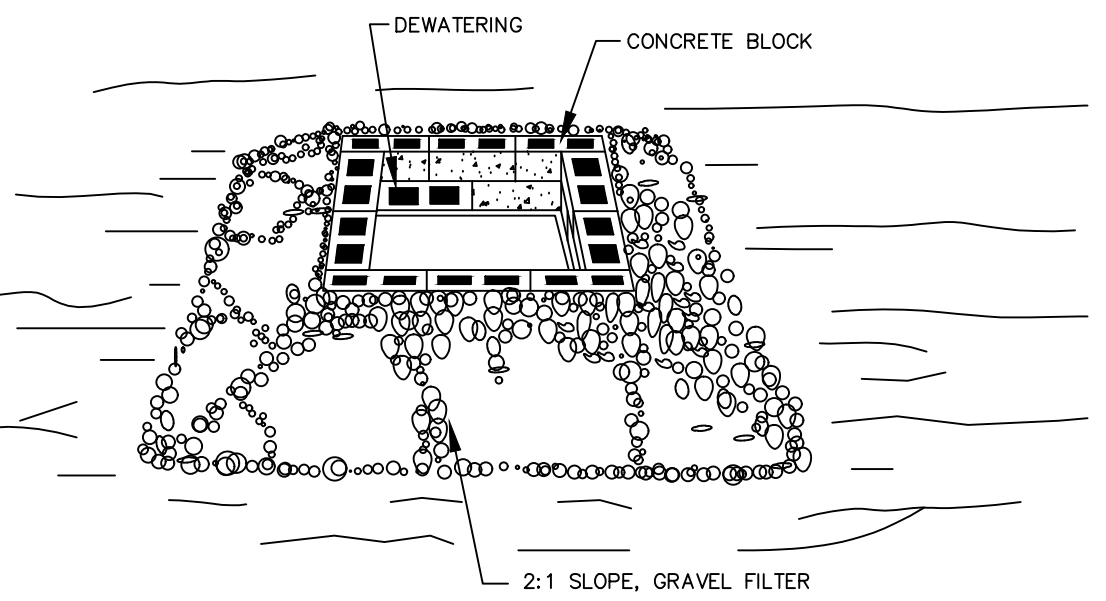
NOTE 1: DEWATERING HOLES WILL BE INSTALLED IN SETS OF HORIZONTAL PIPES. THE FIRST SET OF HOLES WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER. THE FIRST SET OF HOLES WILL BE SPACED EQUALLY AROUND THE RISER. THE NUMBER OF HOLES PER RISER WILL BE EQUAL TO THE DRAINAGE AREA.

EXAMPLE: A BASIN DRAINING 2.0 ACRES SHOULD HAVE 2 HOLES PER RISER EVERY 3 INCHES ON THE RISER PIPE. THE FIRST SET OF HOLES WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER.

NOTE: ROUND DRAINAGE AREA TO THE NEAREST WHOLE NUMBER TO DETERMINE NUMBER OF HOLES.

STANDARD CUSTOM BASIN

EFFECTIVE: 01/31/08



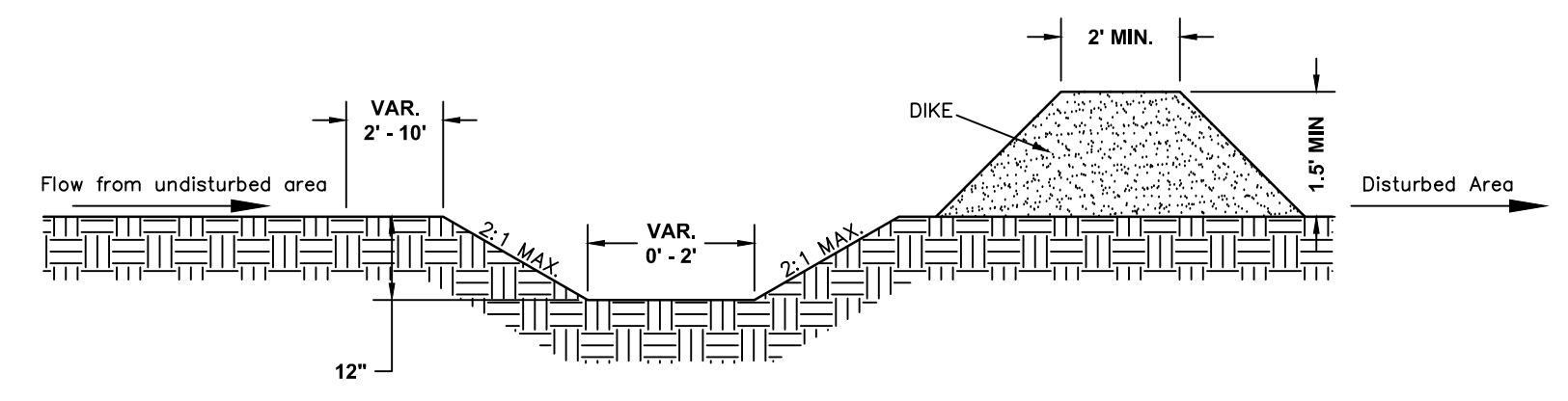
- CONSTRUCTION SPECIFICATIONS:
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASH-OUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.
 2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2 INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
 3. USE CLEAN GRAVEL 3/4 TO 1 1/2 INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.

MAINTENANCE: INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

STANDARD BLOCK & GRAVEL DROP INLET PROTECTION

EFFECTIVE: 01/31/08

- NOTES:
1. DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORM RUNOFF FROM ENTERING THE DISTURBED AREA. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS (STABILIZATION MUST OCCUR BEFORE ISSUANCE OF A CERTIFICATE OF COMPLIANCE). STABILIZATION METHOD IS BASED ON VELOCITY OF OFFSITE DRAINAGE.
 2. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGES 5 ACRES OR LESS.
 3. ANY SEDIMENT LADEN WATER PRIOR TO STABILIZATION OF THE DIVERSION MUST BE DIVERTED INTO AN APPROVED EROSION AND SEDIMENT CONTROL BMP. CLEAN WATER SHOULD EMPTY INTO AN APPROVED OUTLET DEVICE.

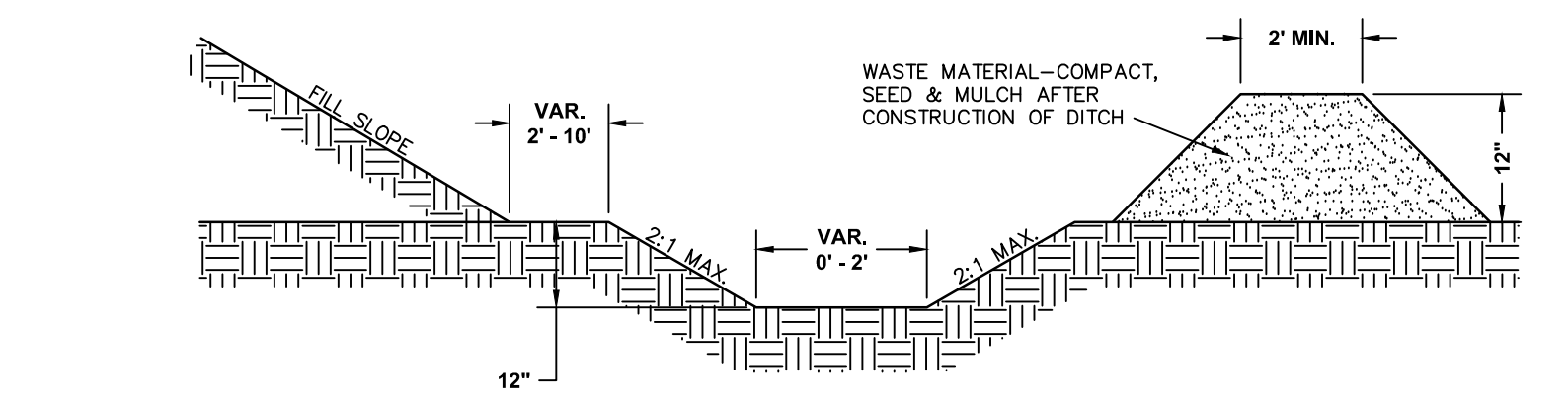


CROSS SECTIONAL VIEW

STANDARD CLEAN WATER DIVERSION

EFFECTIVE: 01/31/08

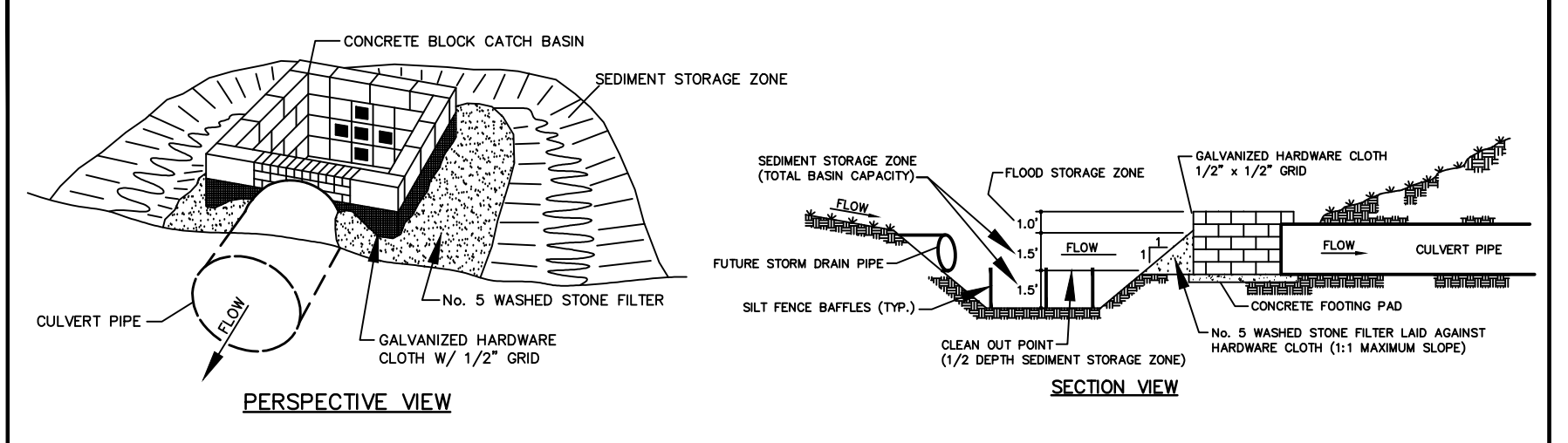
- NOTES:
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
 2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
 3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
 4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.



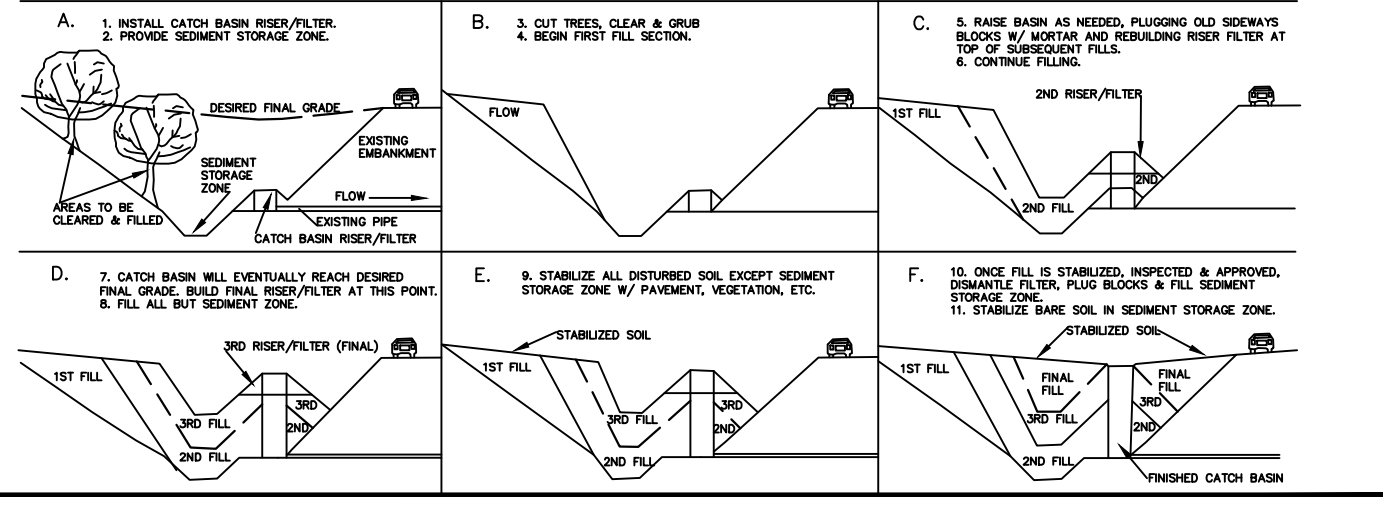
CROSS SECTIONAL VIEW

STANDARD TEMPORARY DIVERSION DITCH

EFFECTIVE: 01/31/08

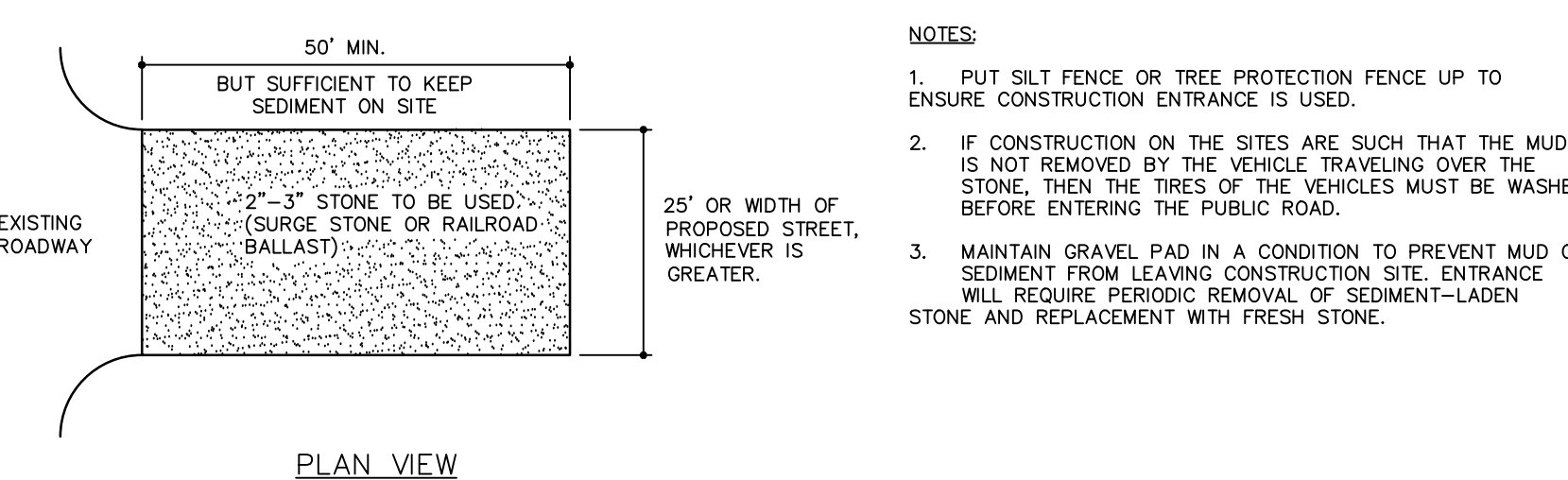


USE OF CATCH BASIN RISER/FILTER ON FILL SITES



STANDARD CATCH BASIN RISER/FILTER

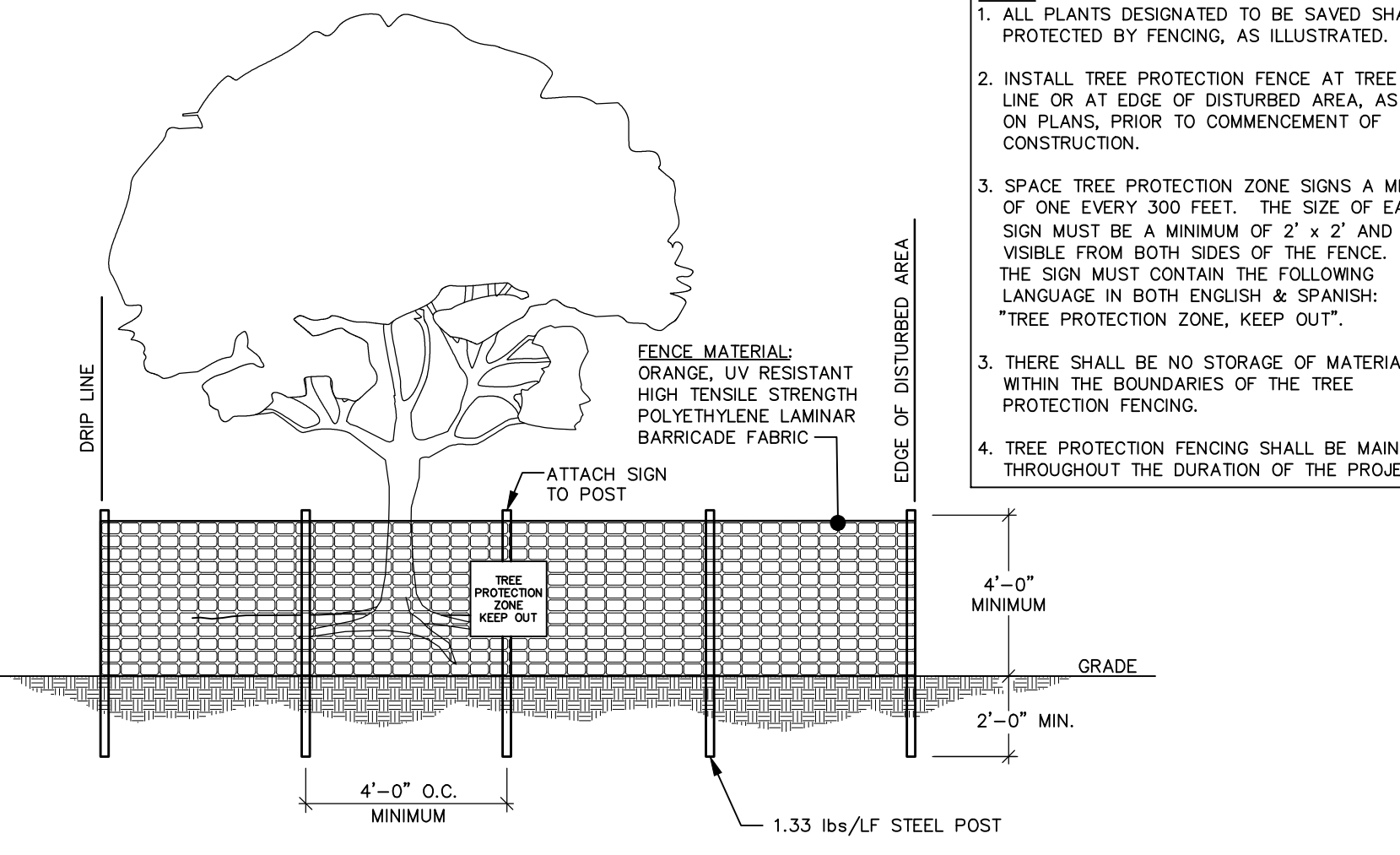
EFFECTIVE: 01/31/08



CROSS SECTION

STANDARD CONSTRUCTION ENTRANCE

EFFECTIVE: 01/31/08



TREE PROTECTION FENCE

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



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/27/2024	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
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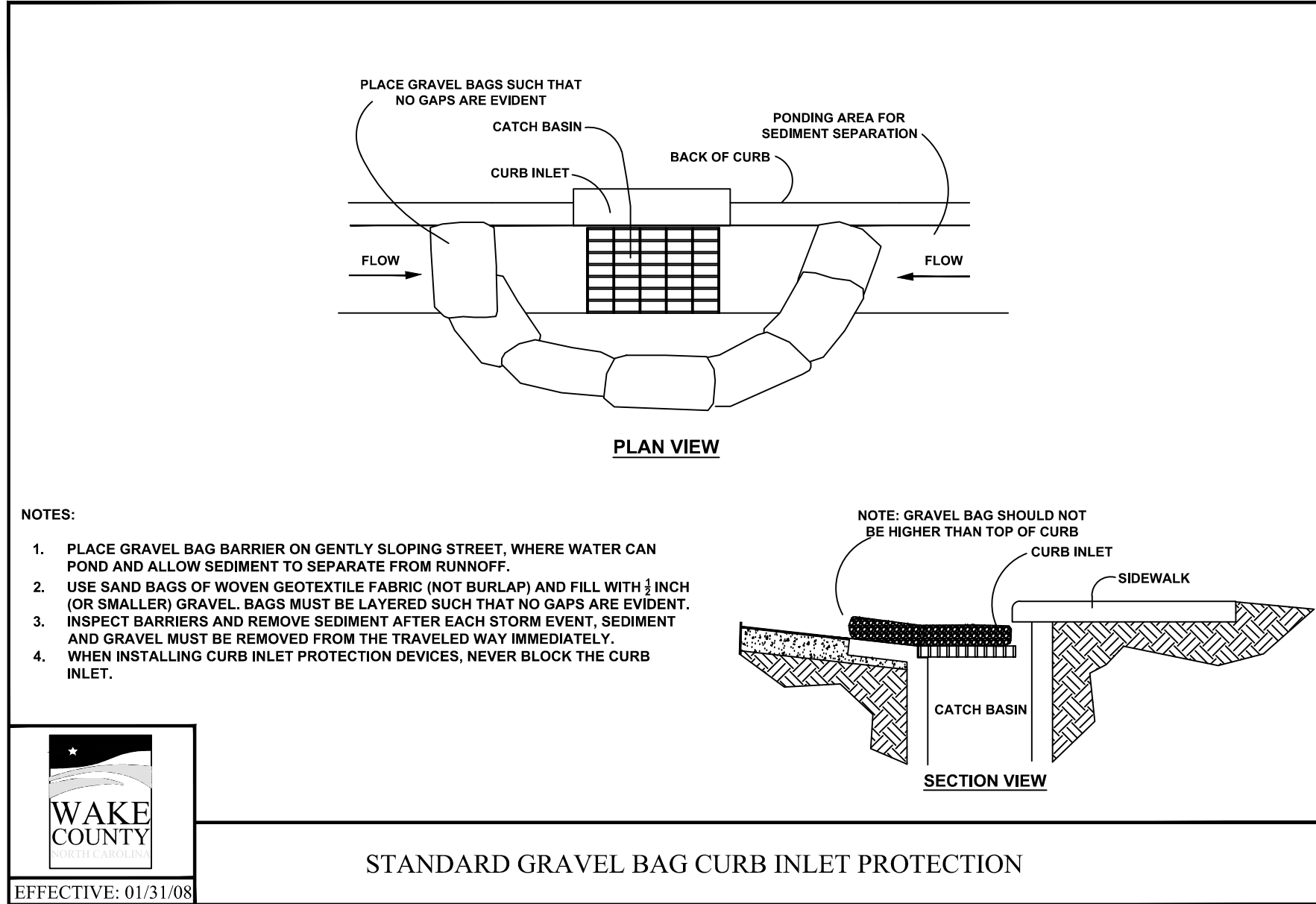
KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 11, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS

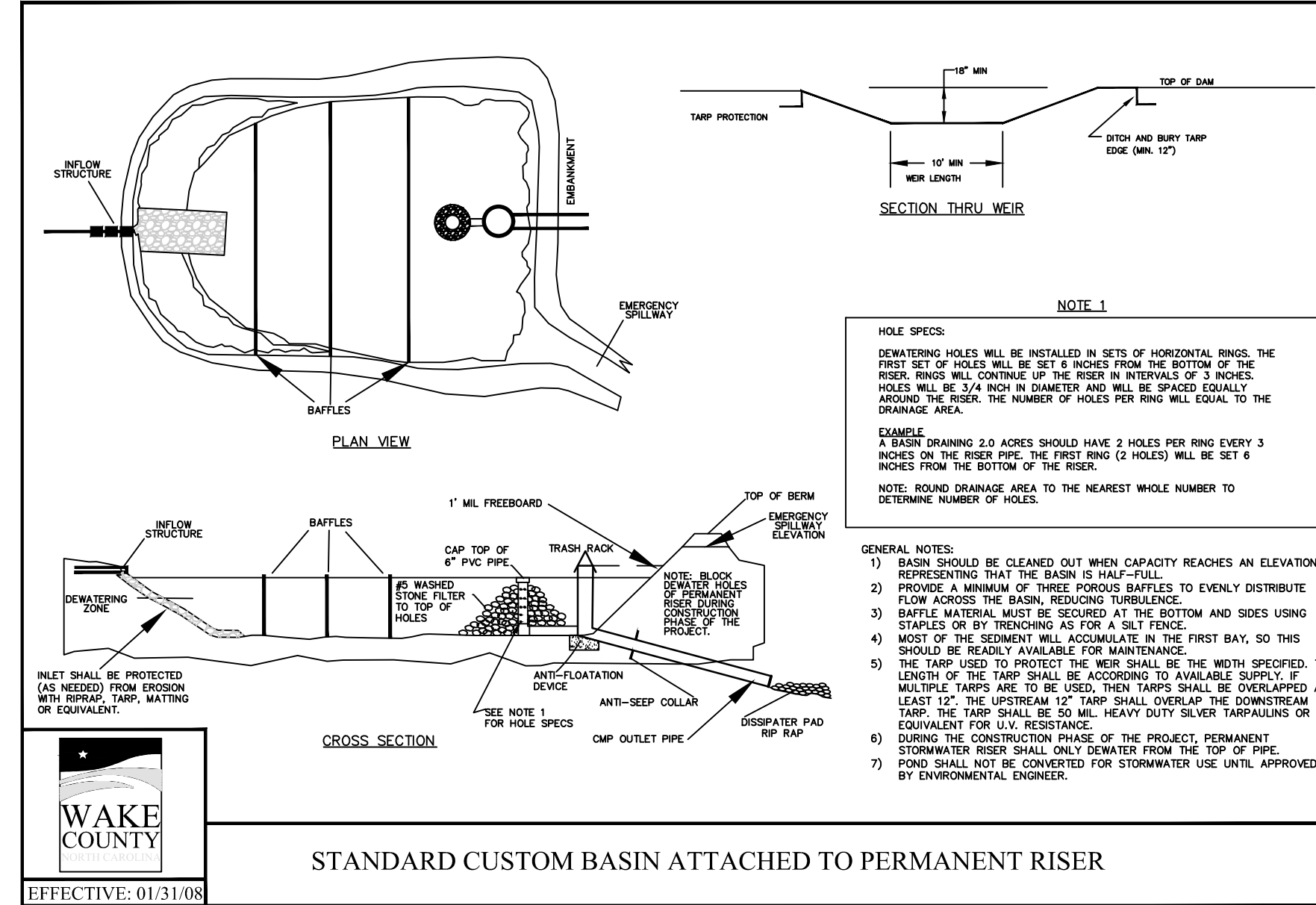
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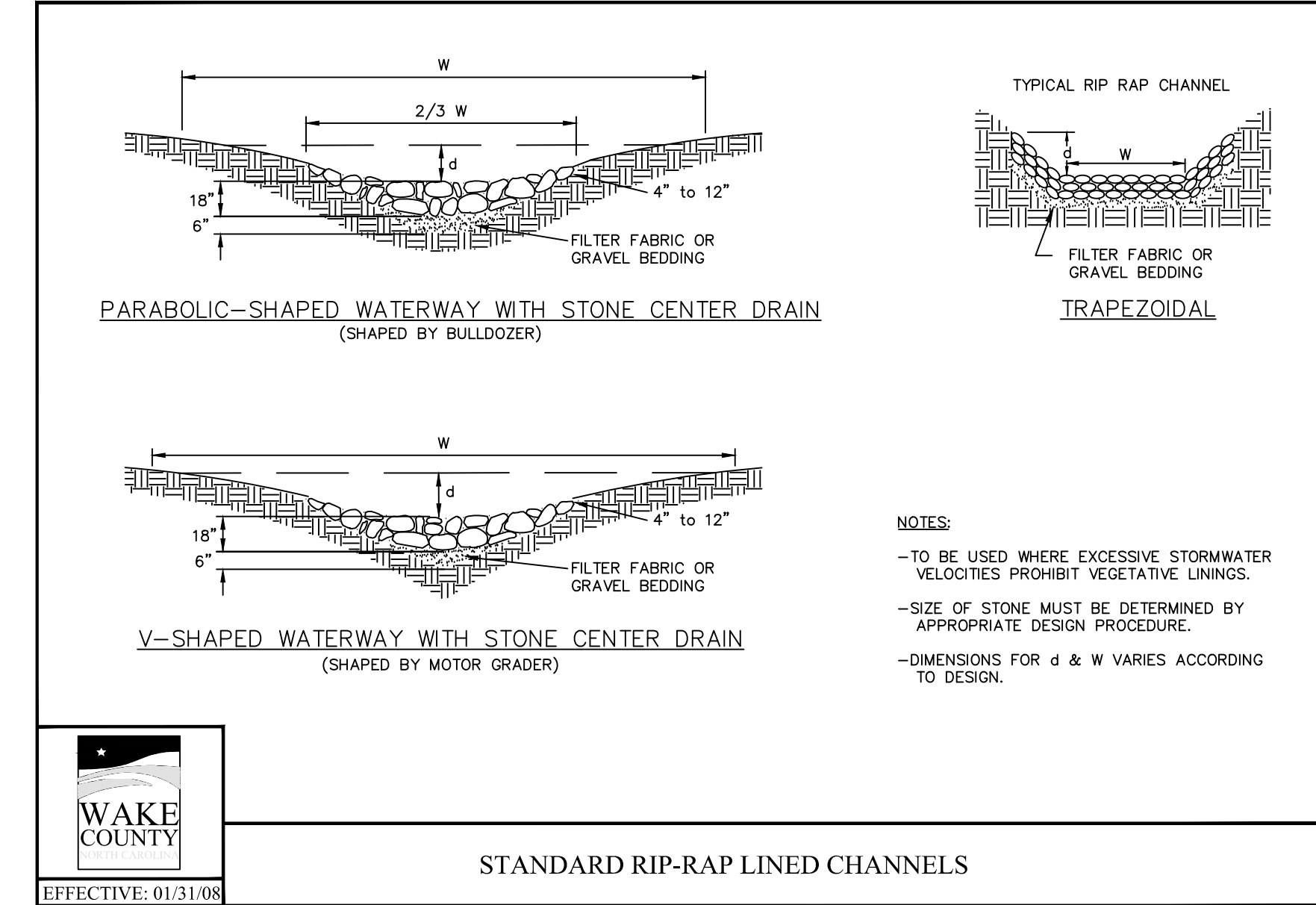
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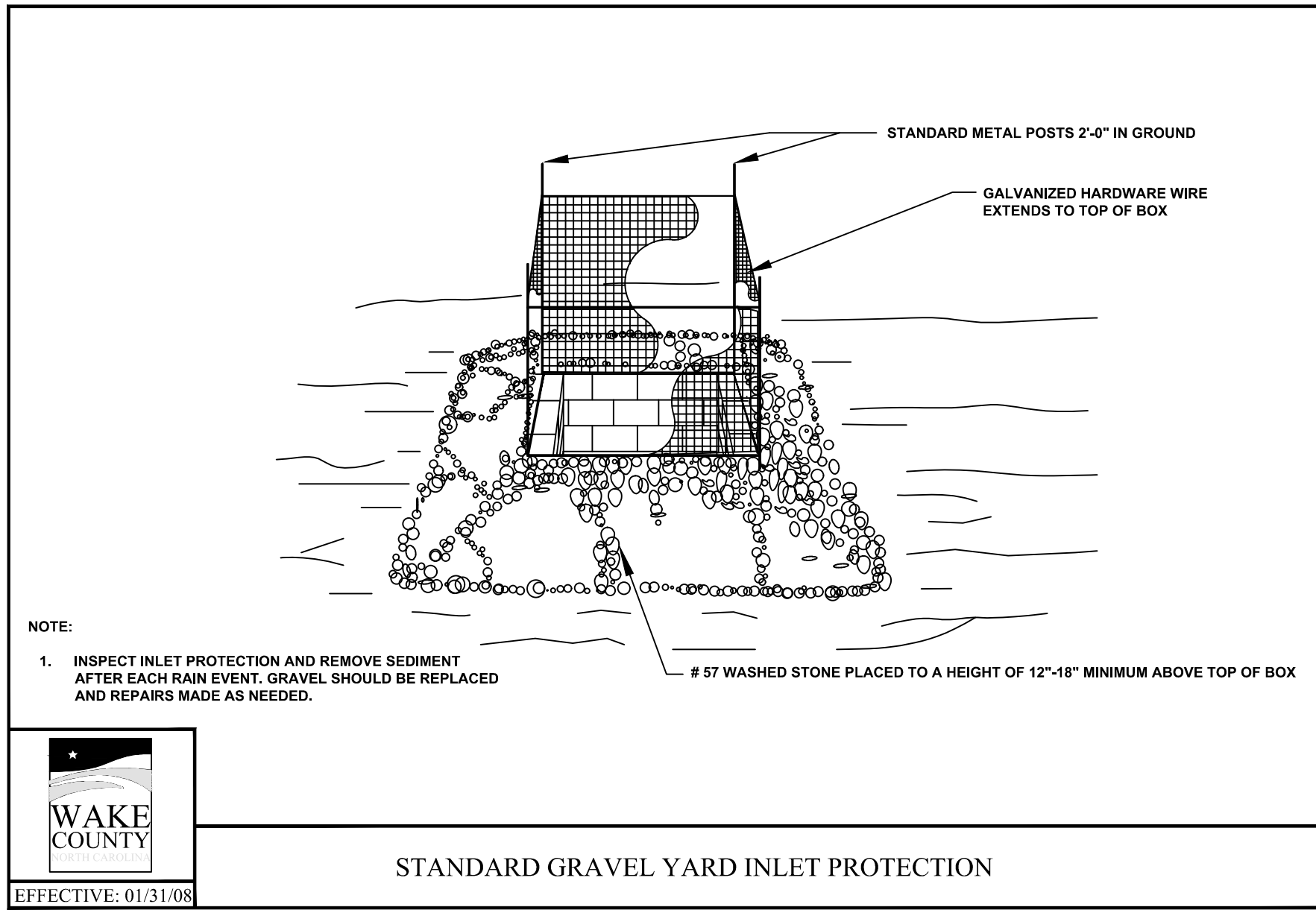
STANDARD GRAVEL BAG CURB INLET PROTECTION



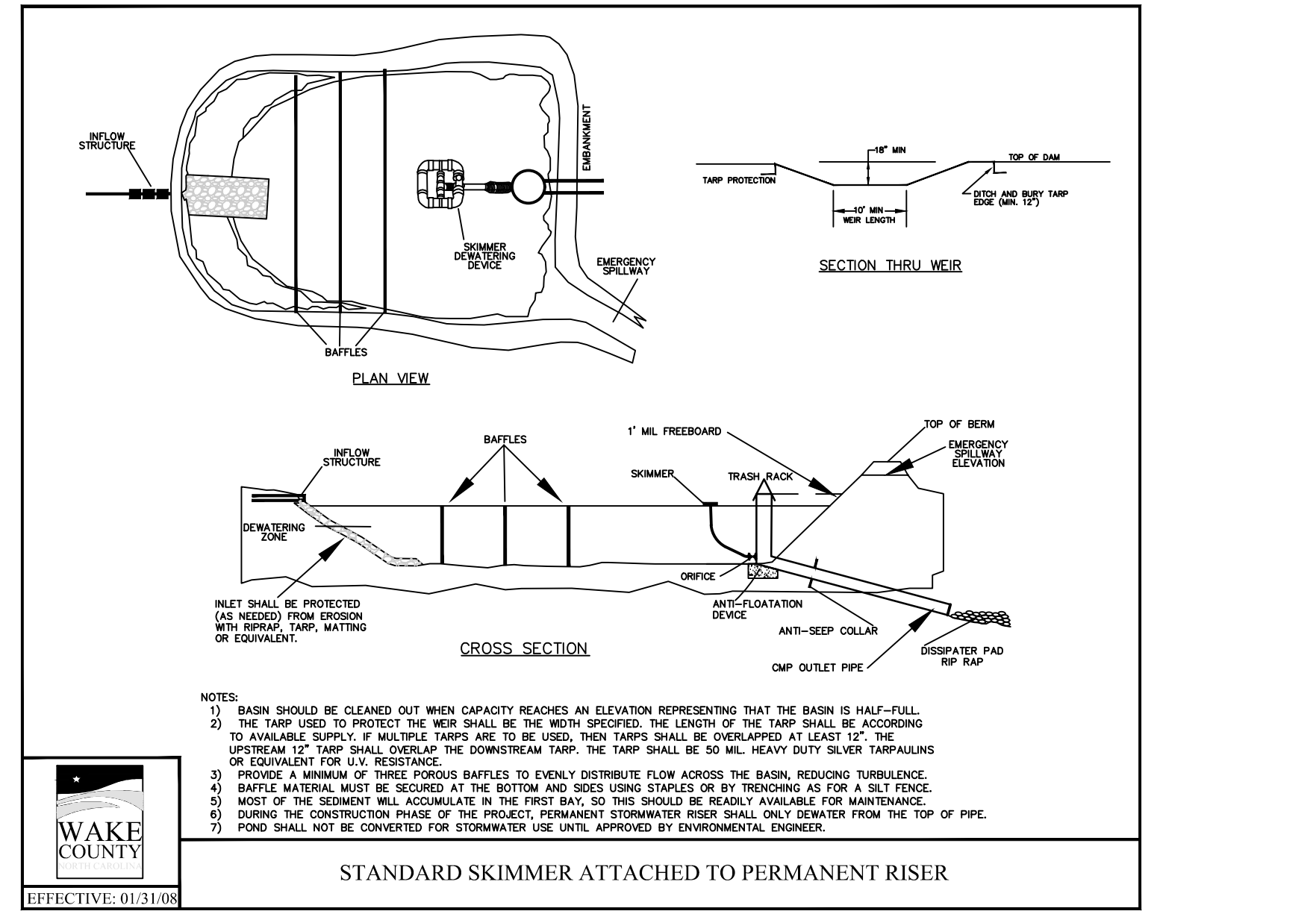
STANDARD CUSTOM BASIN ATTACHED TO PERMANENT RISER



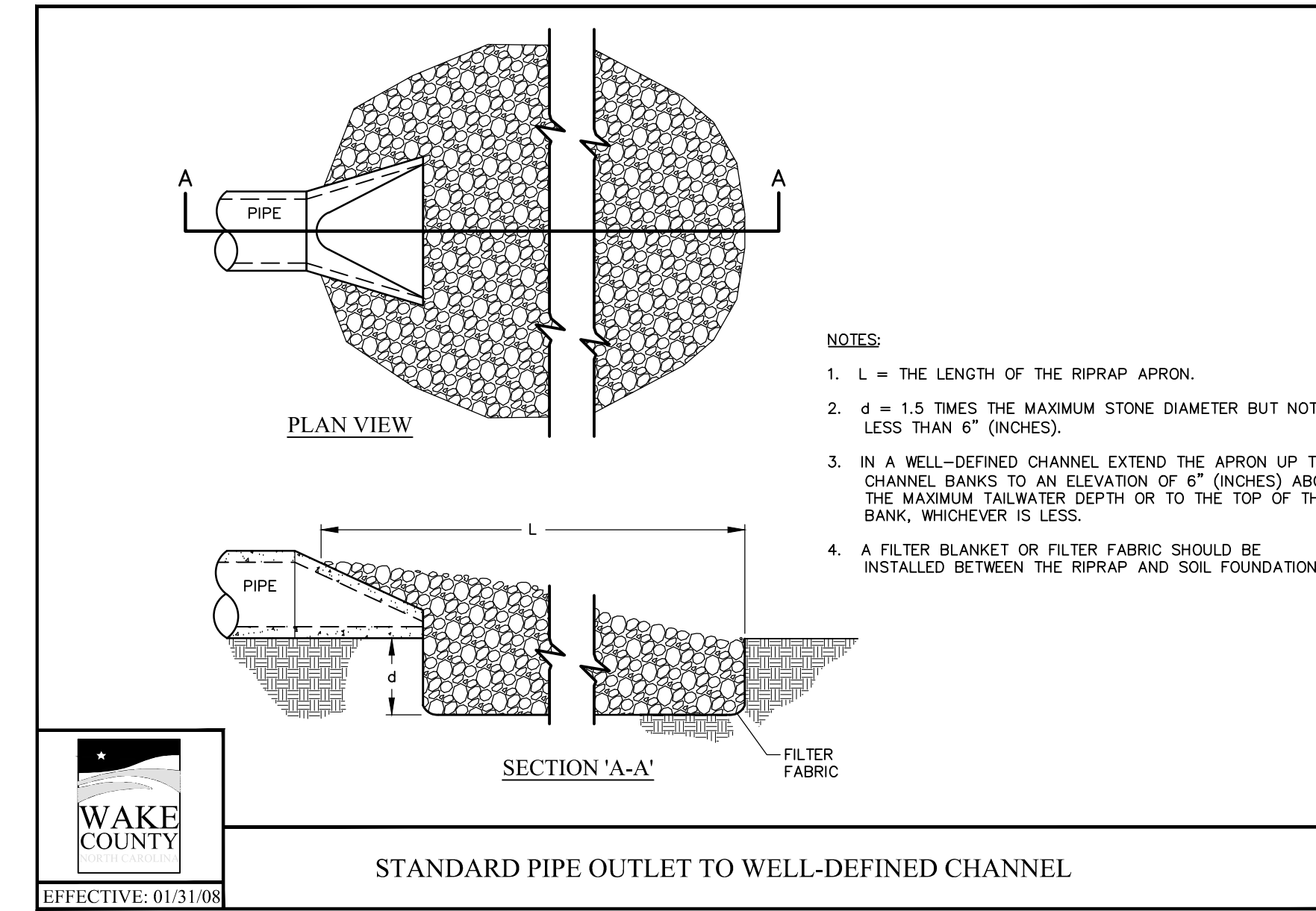
STANDARD RIP-RAP LINED CHANNELS



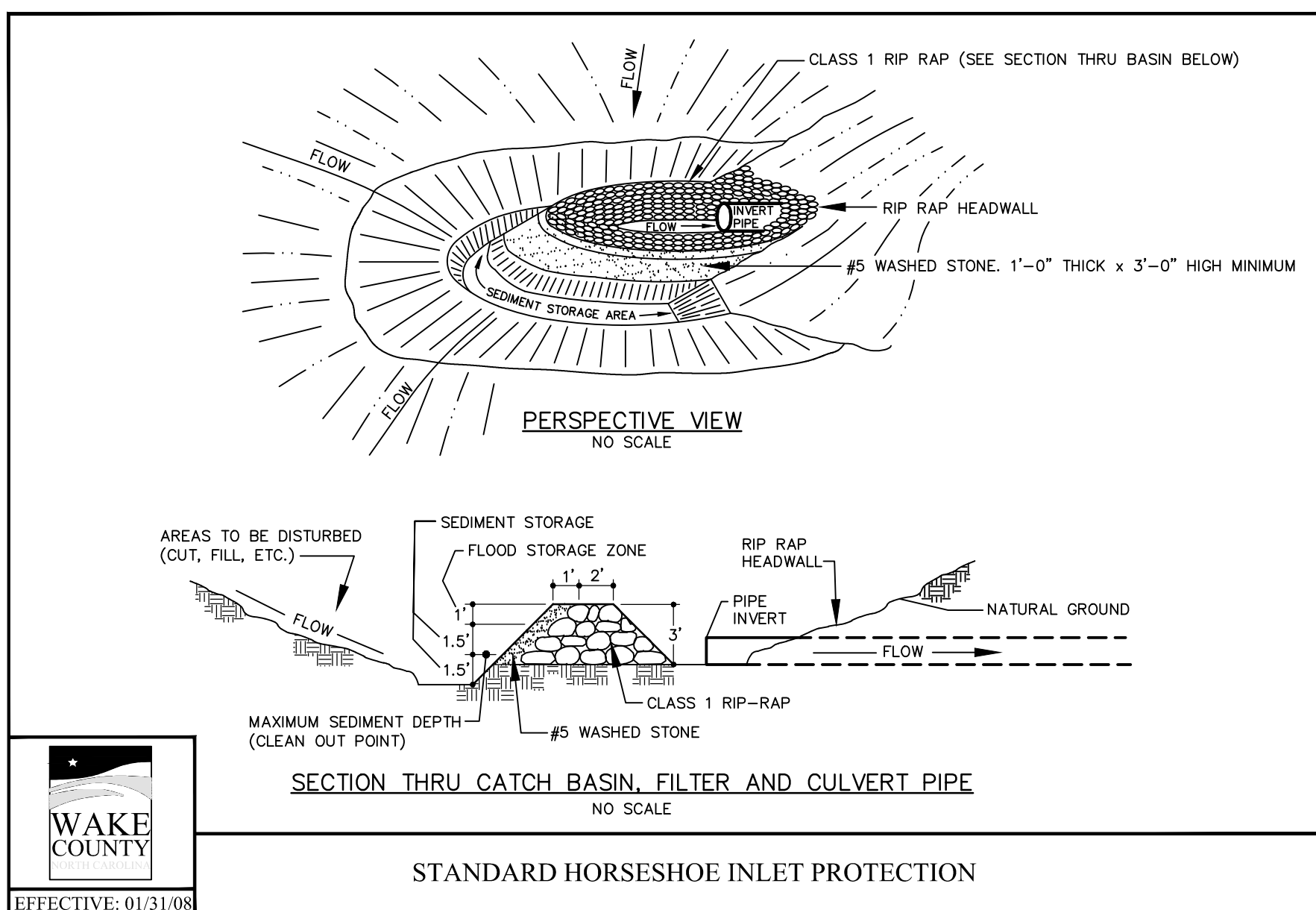
STANDARD GRAVEL YARD INLET PROTECTION



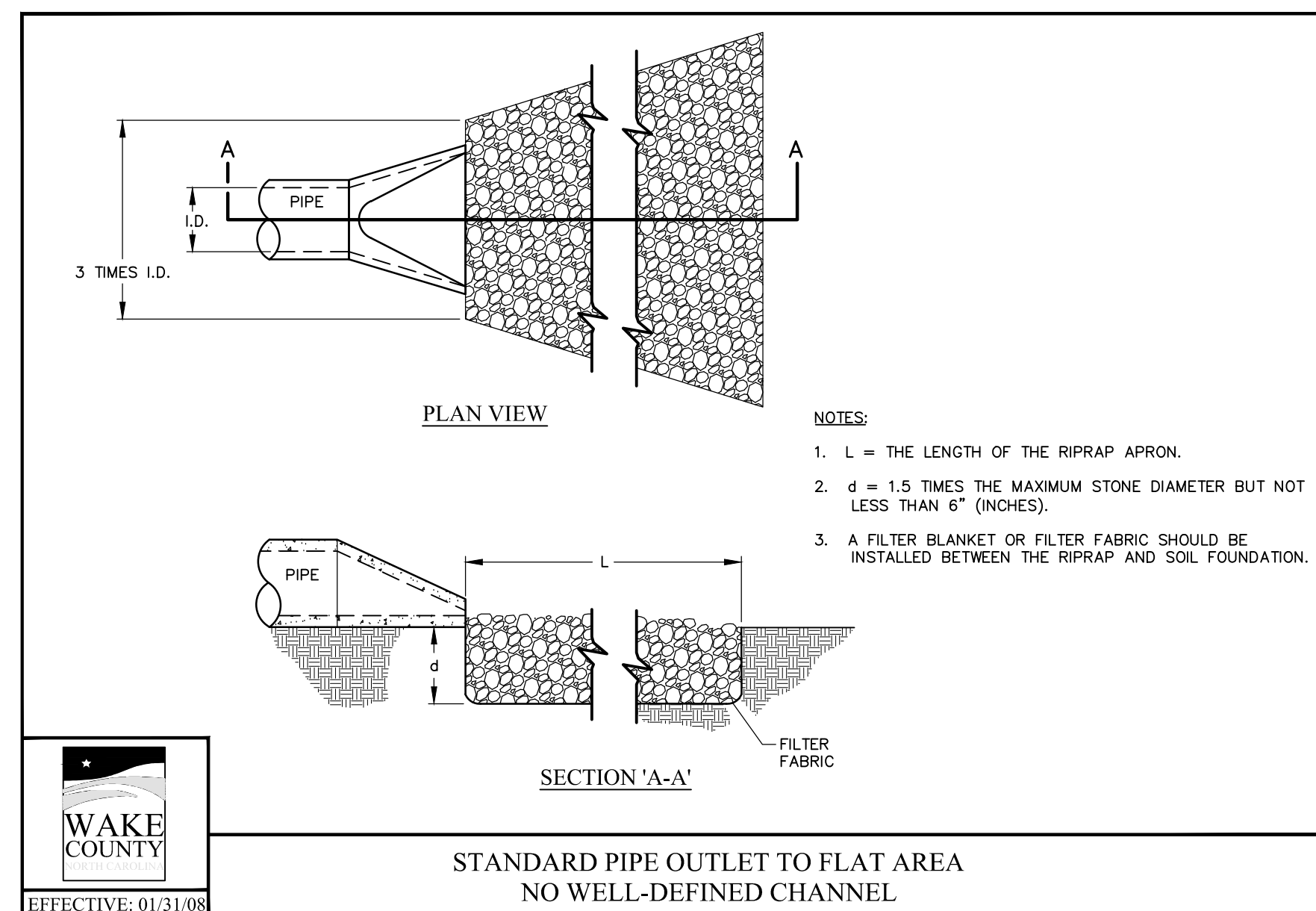
STANDARD SKIMMER ATTACHED TO PERMANENT RISER



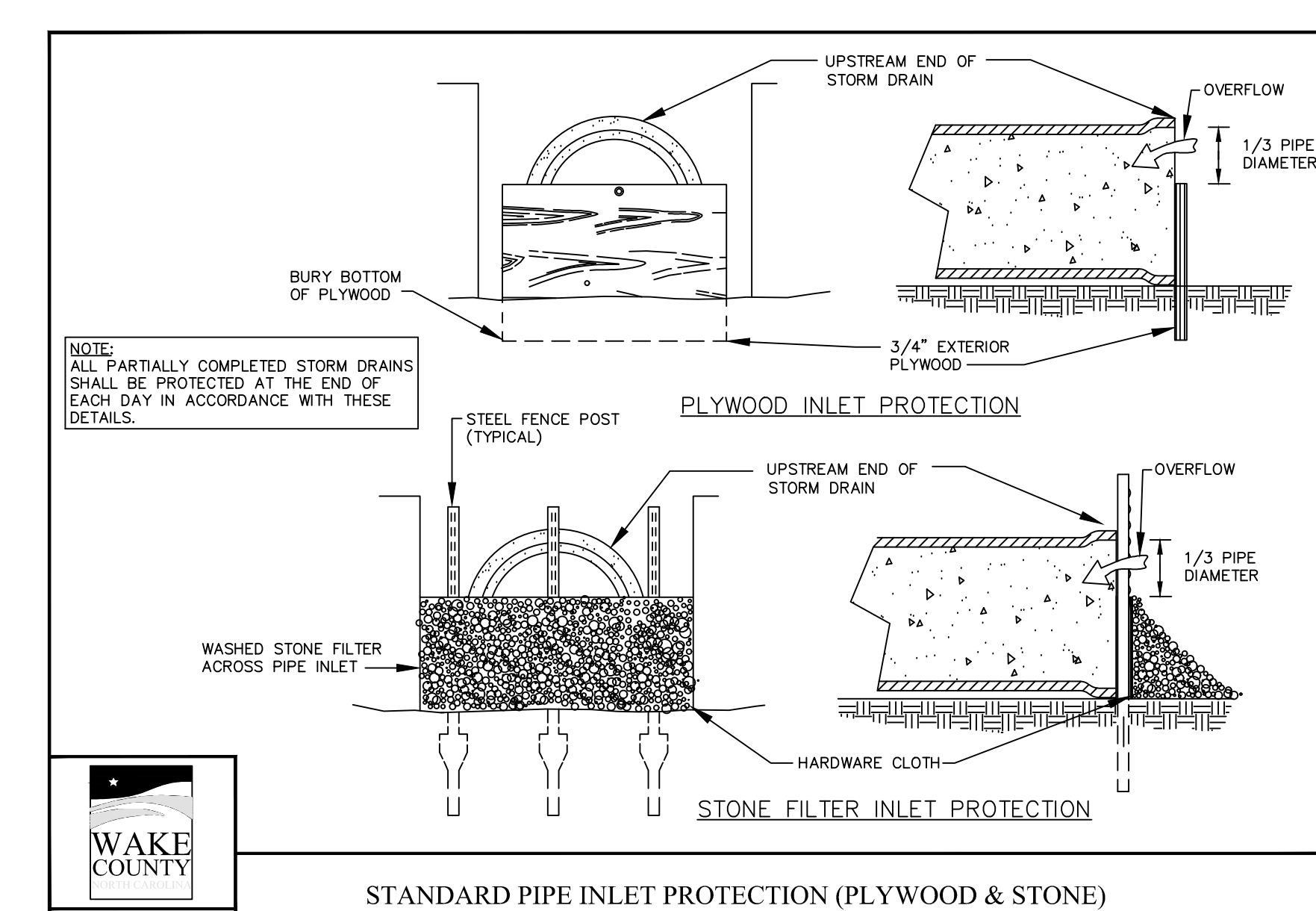
STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL



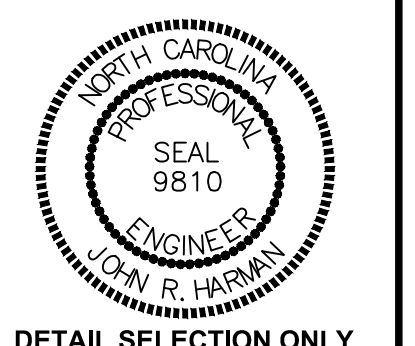
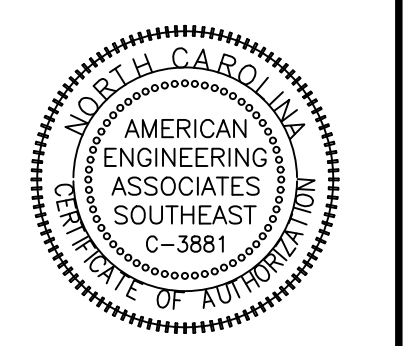
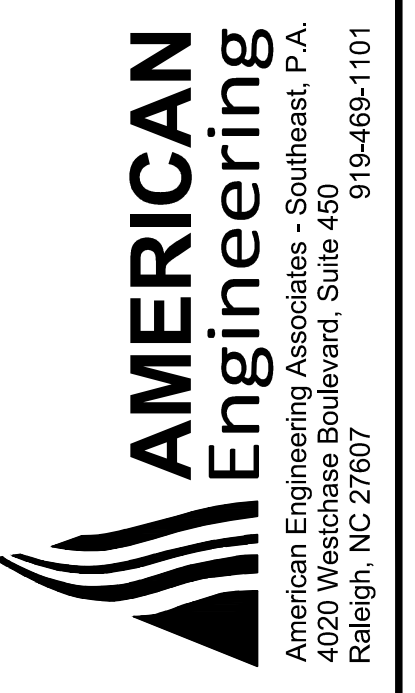
STANDARD HORSESHOE INLET PROTECTION



STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL



STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



DETAIL SELECTION ONLY

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3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
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STIPULATION FOR REUSE

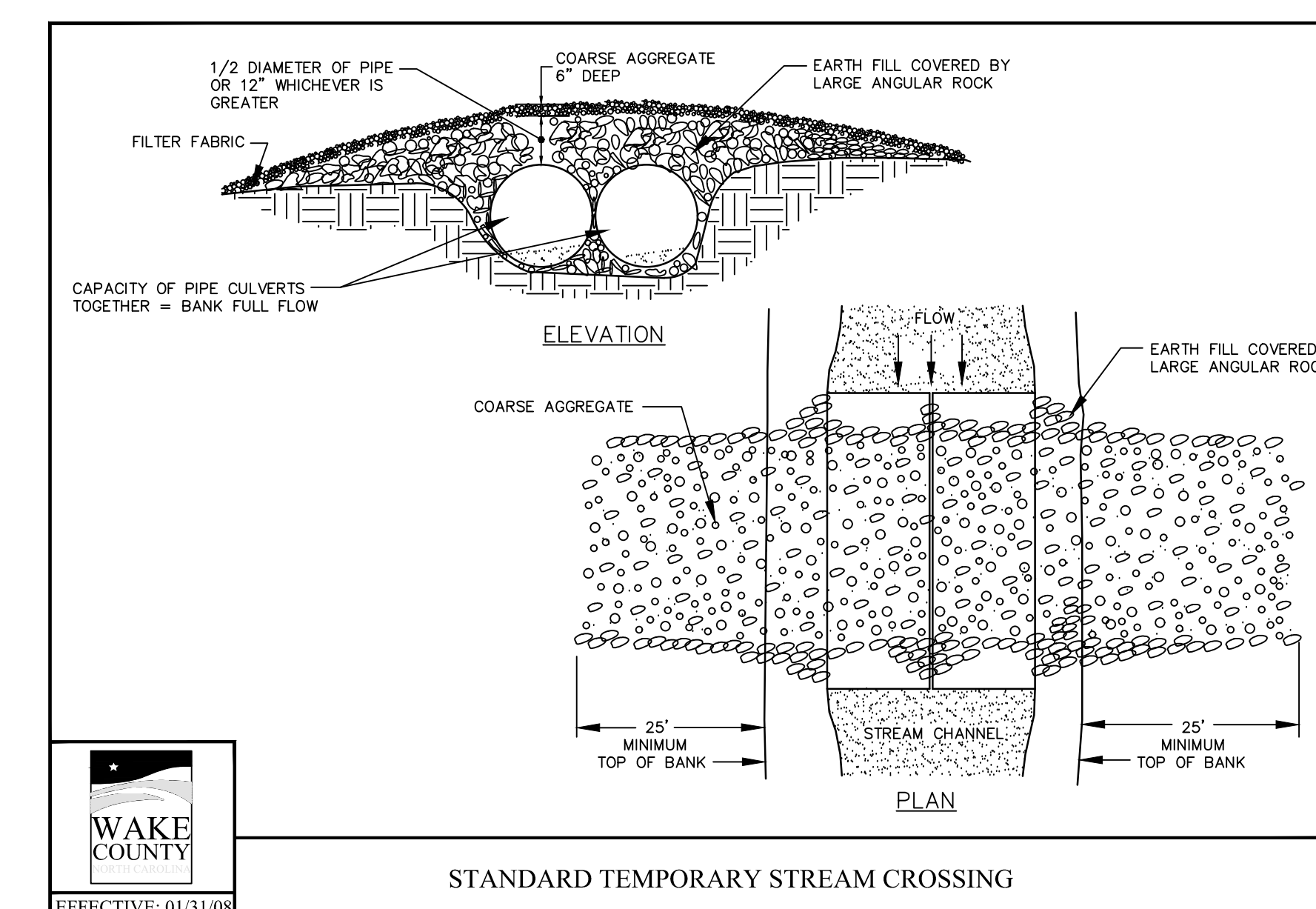
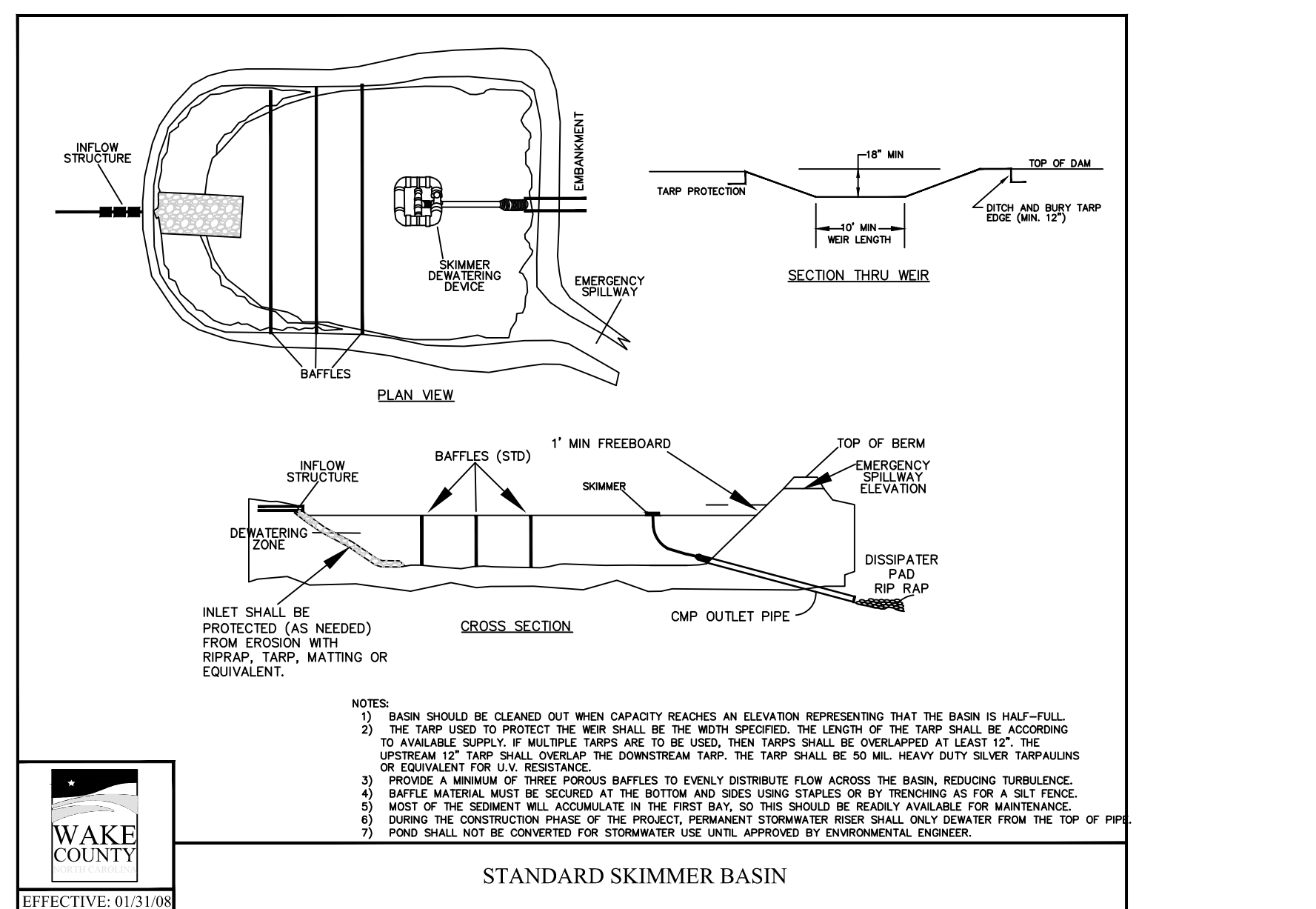
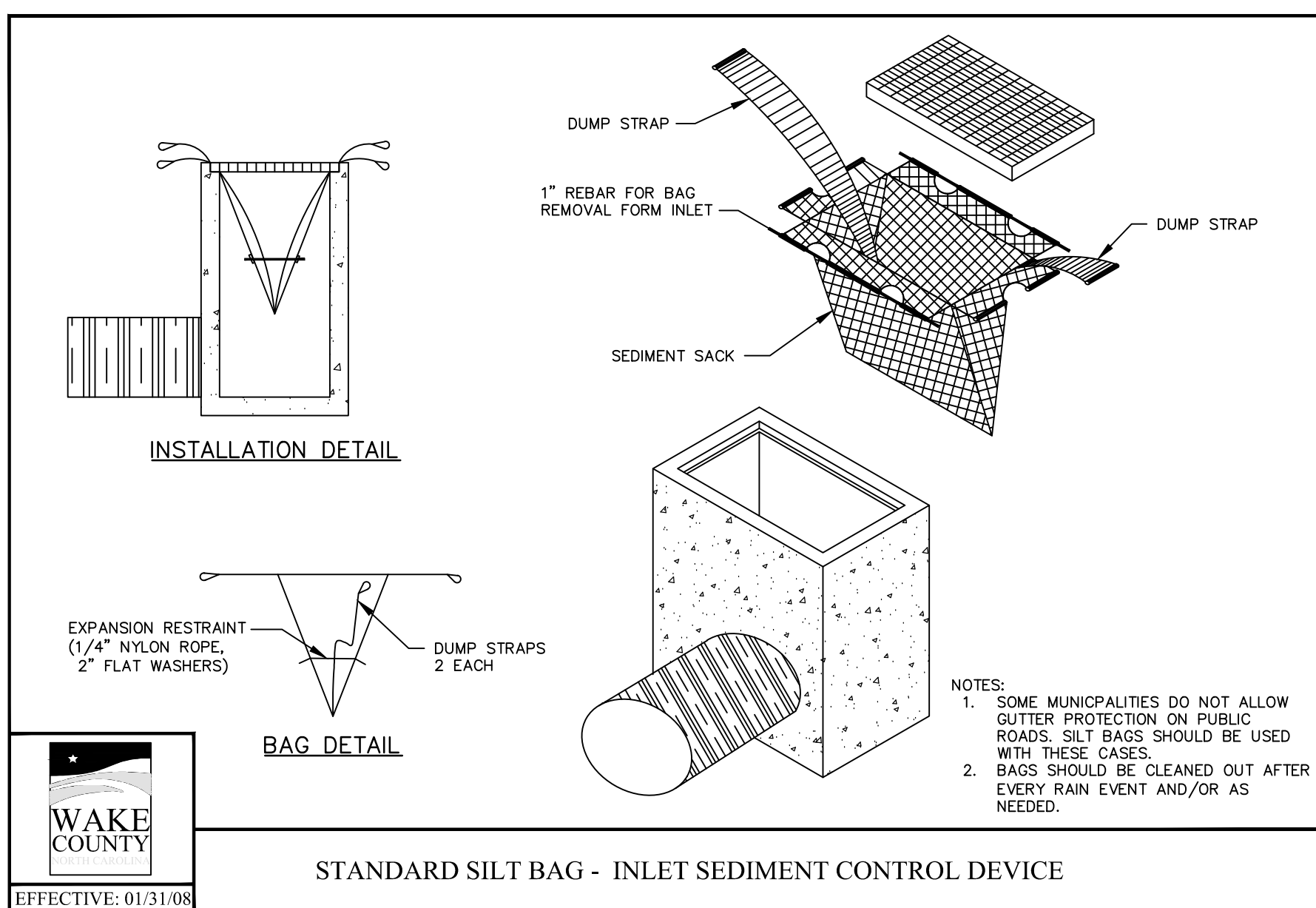
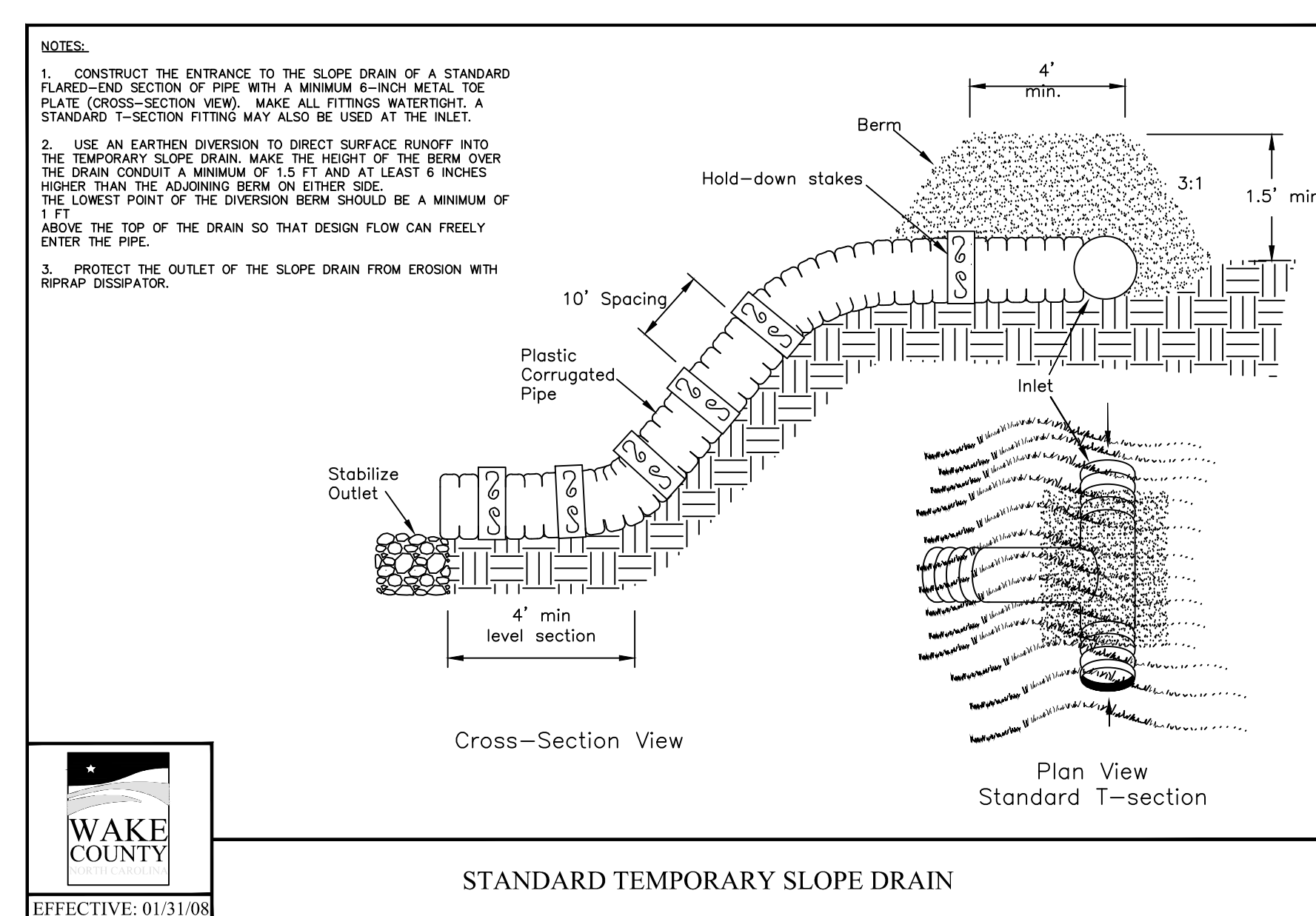
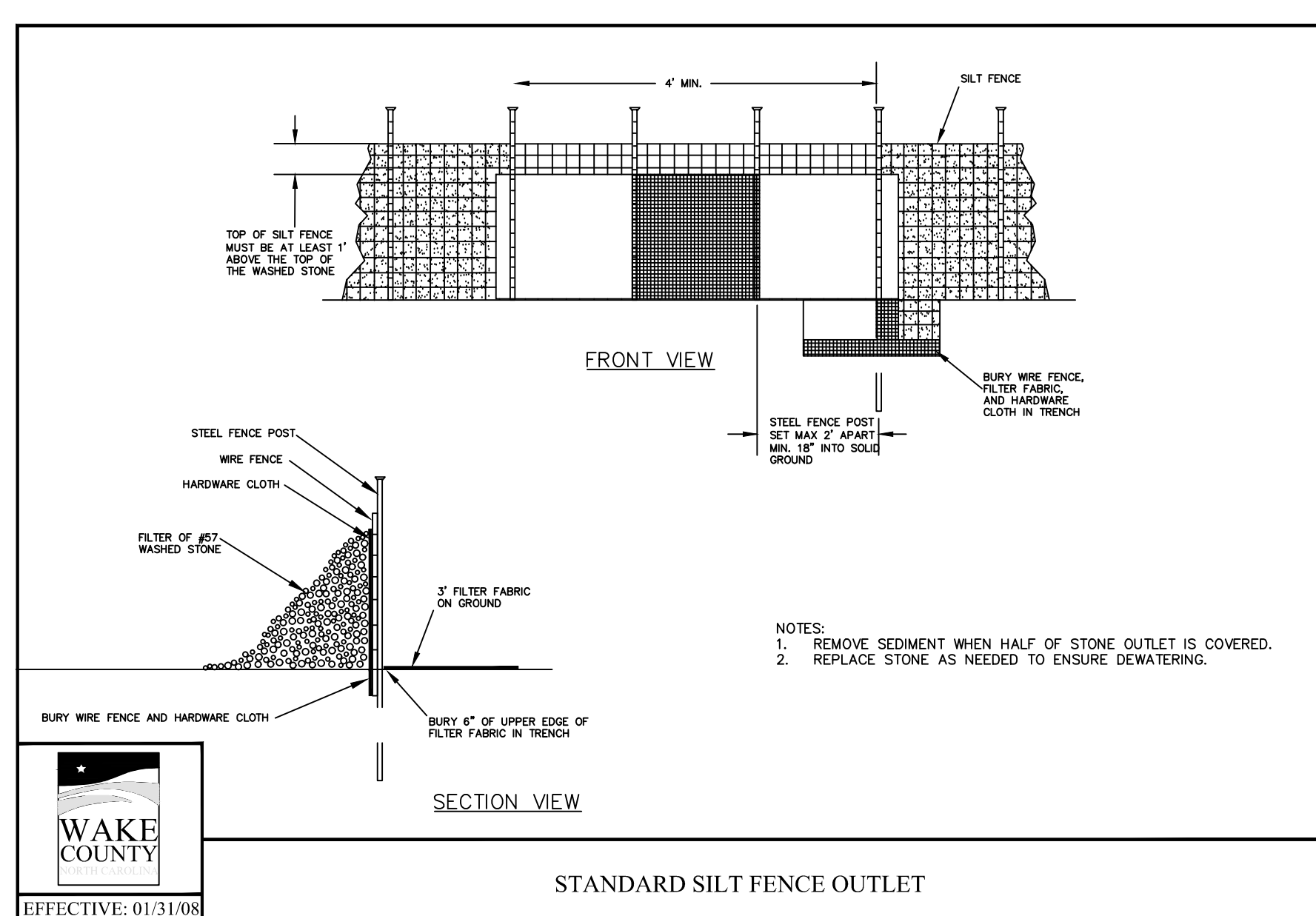
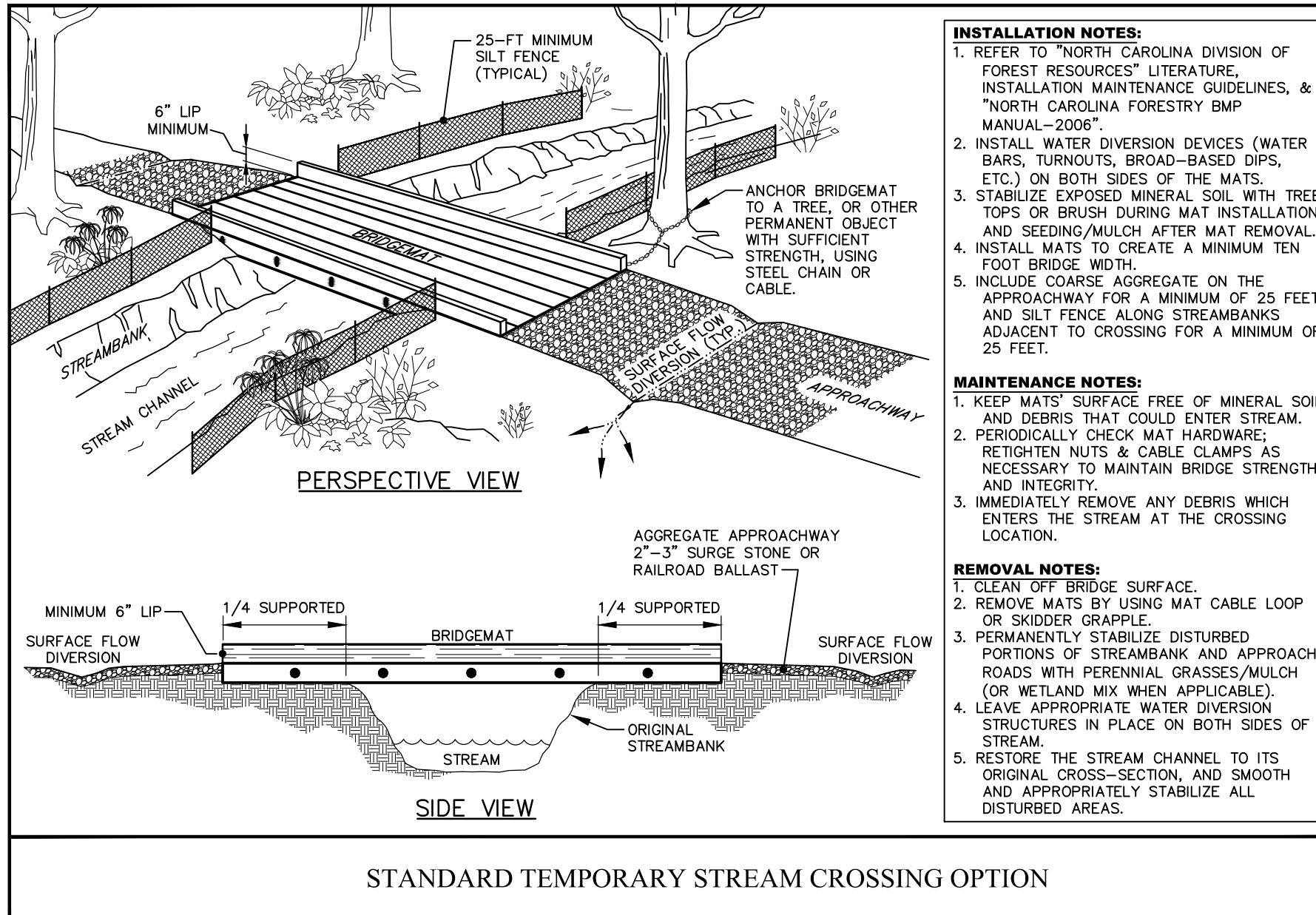
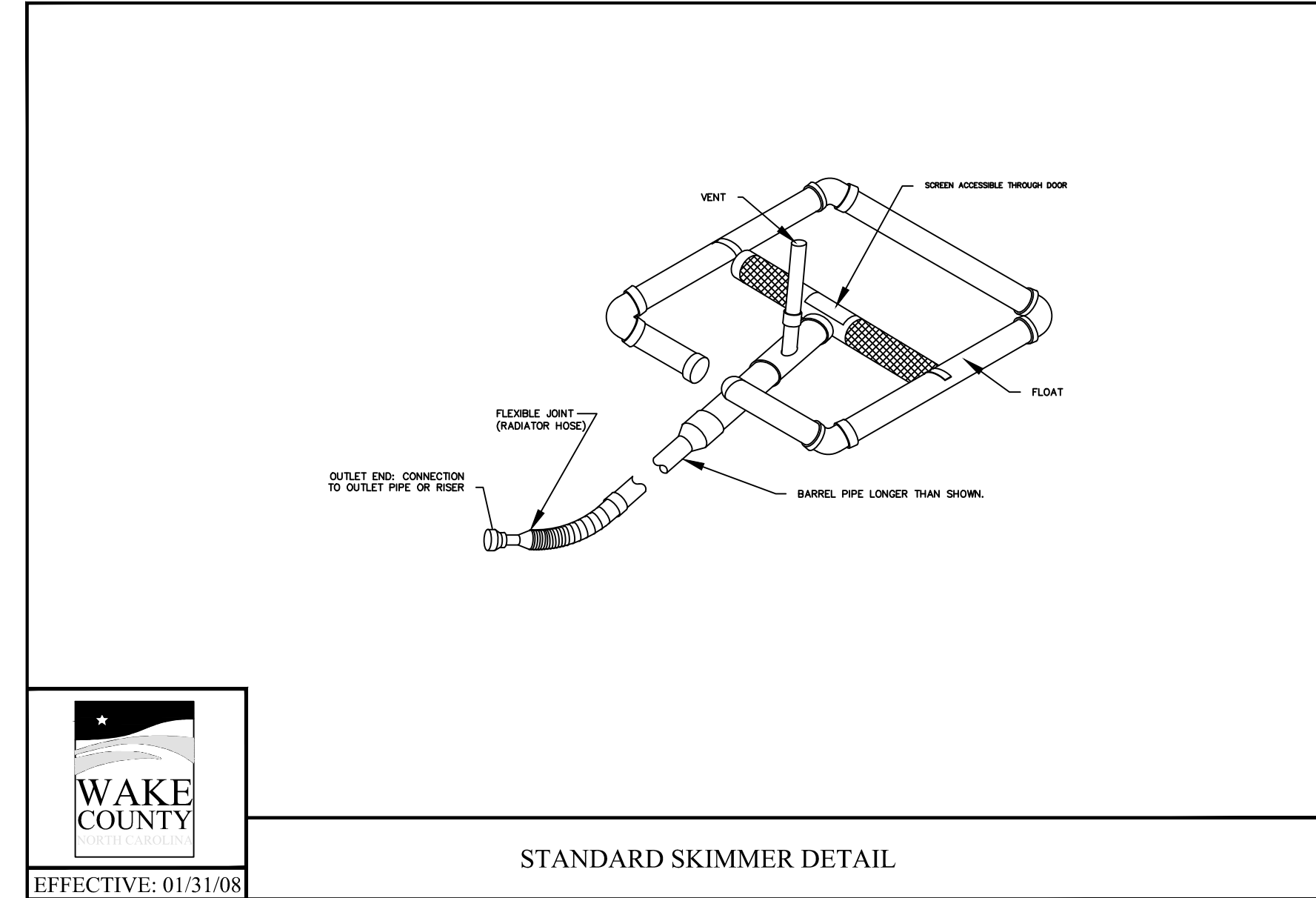
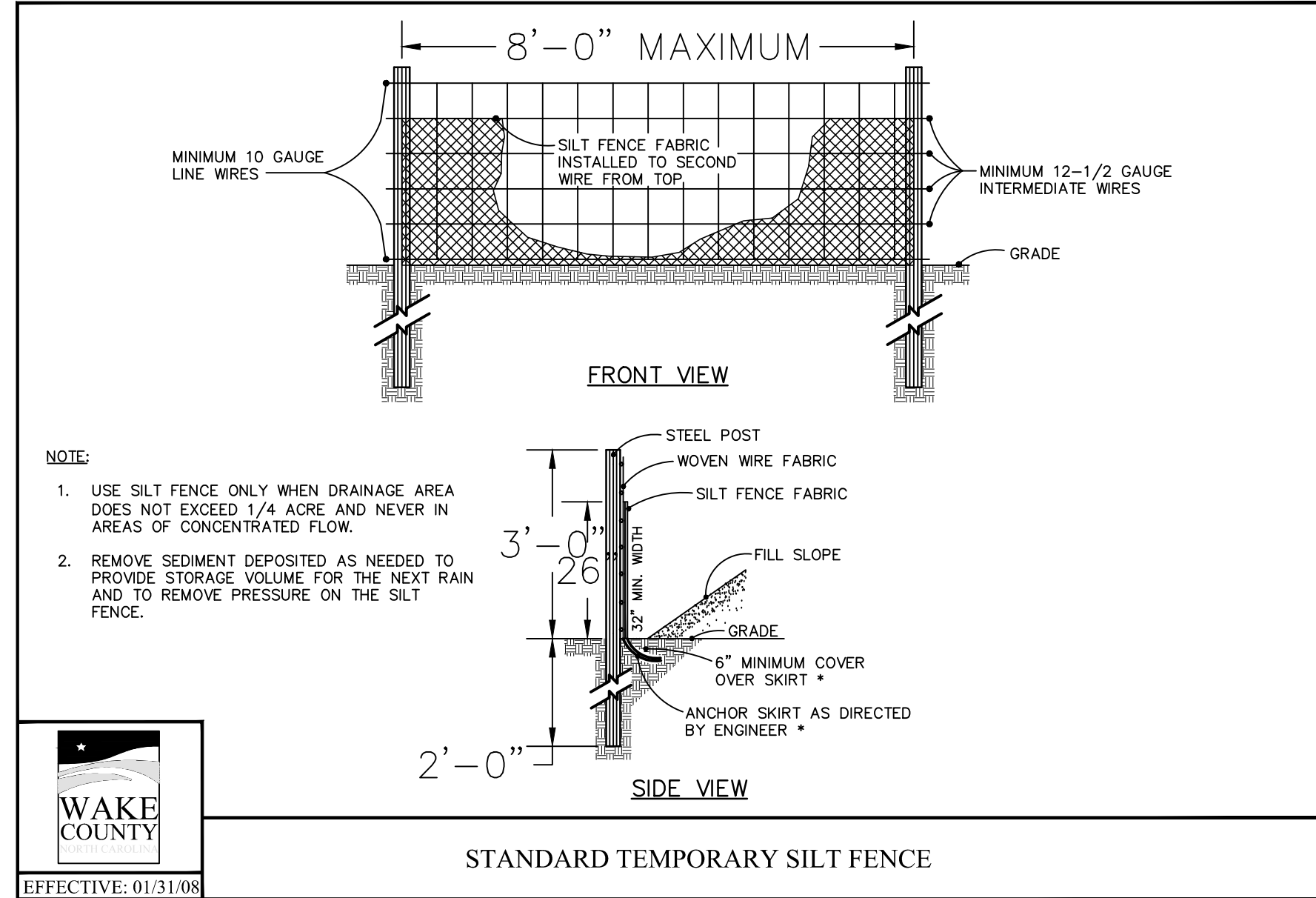
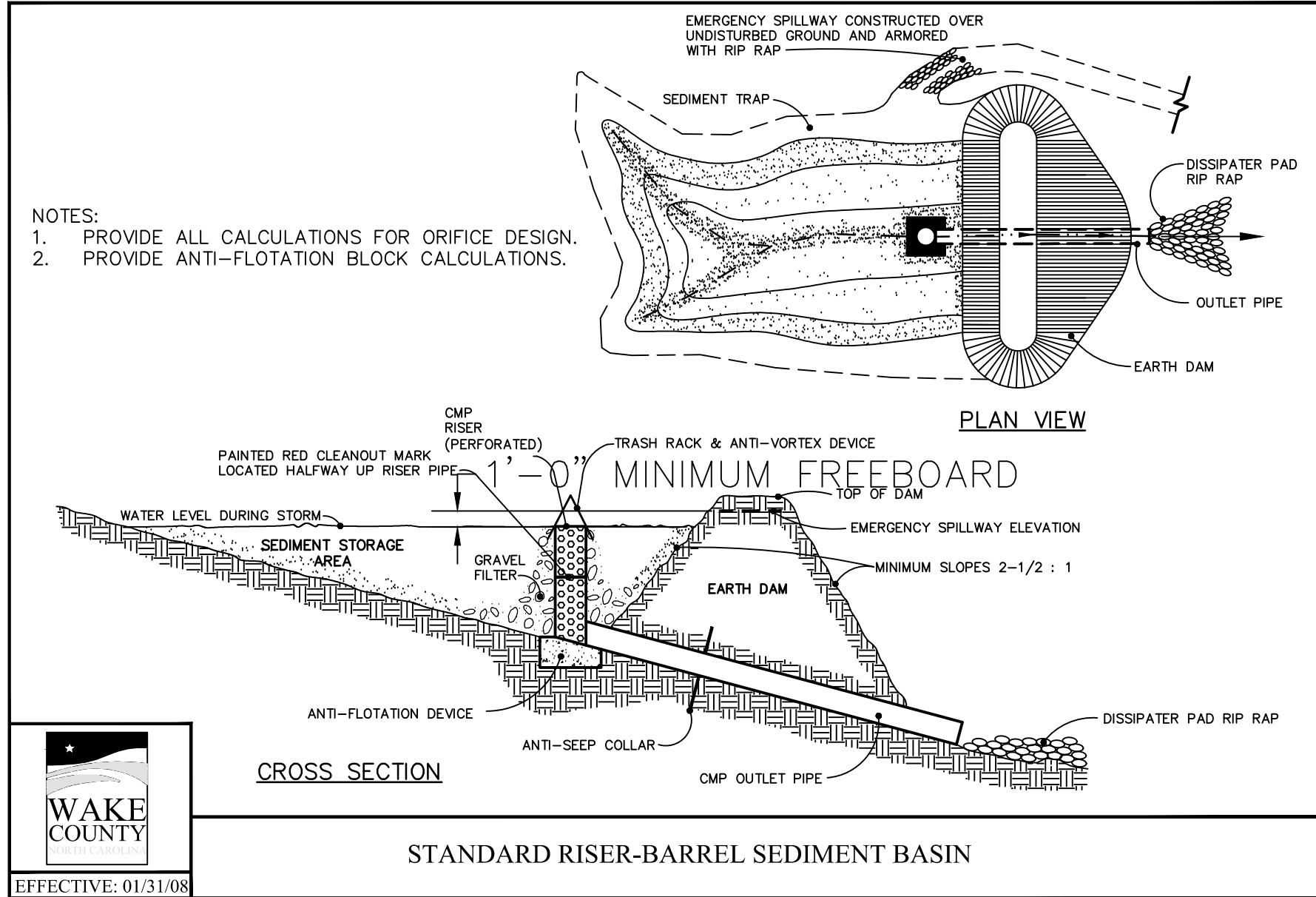
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SMM/MAL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	KALAS FALLS CIVIL DETAILS
SHEET NO.:	CD2



2:00pm 10/20/2024: Wake County - Project: Kalas Falls, Wake County - Phase: 3 - Sheet: 3 - Detail: 2
 11/11/2024

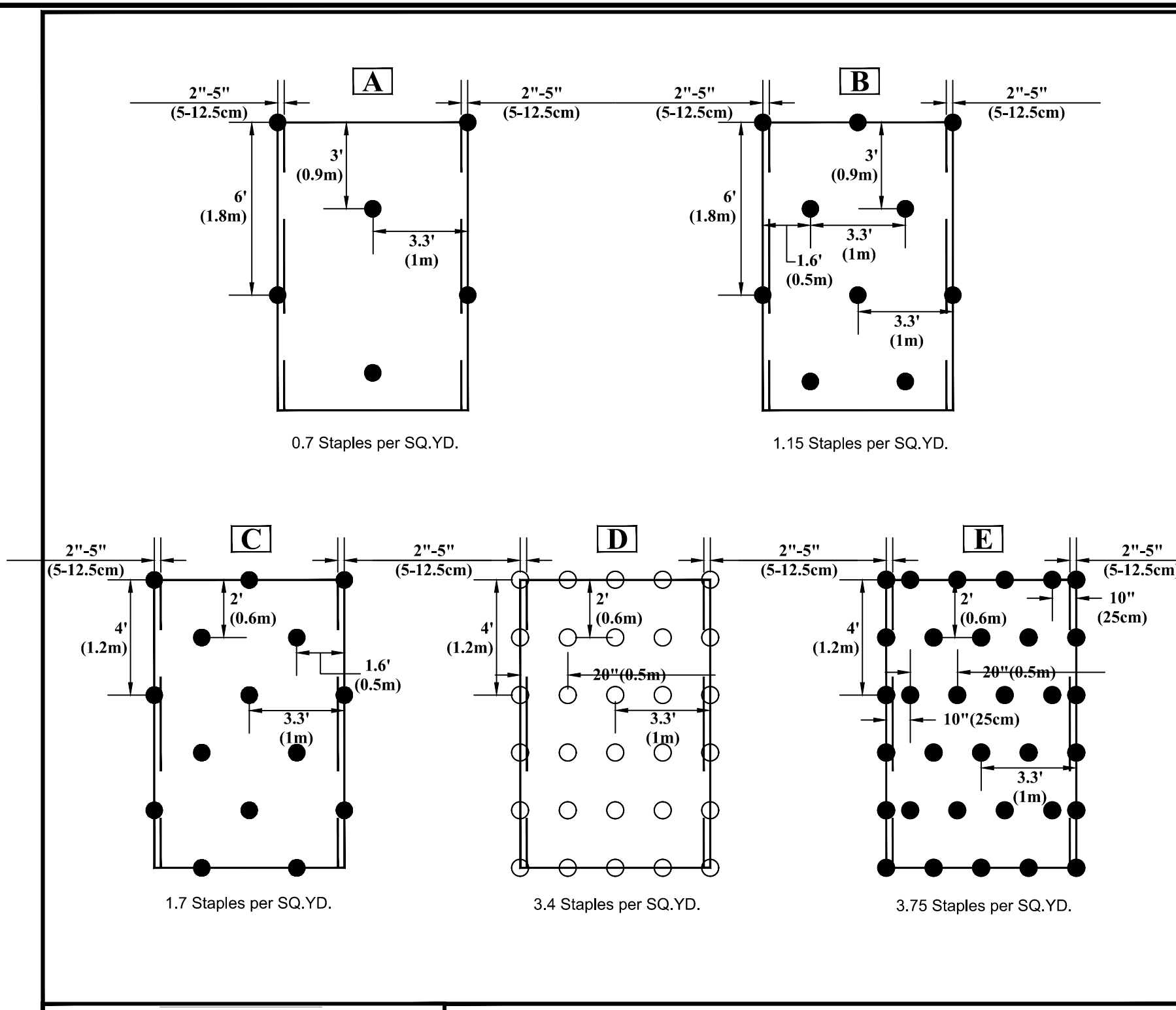


NO.	DATE	REVISION
1	7/27/2021	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 11, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD3

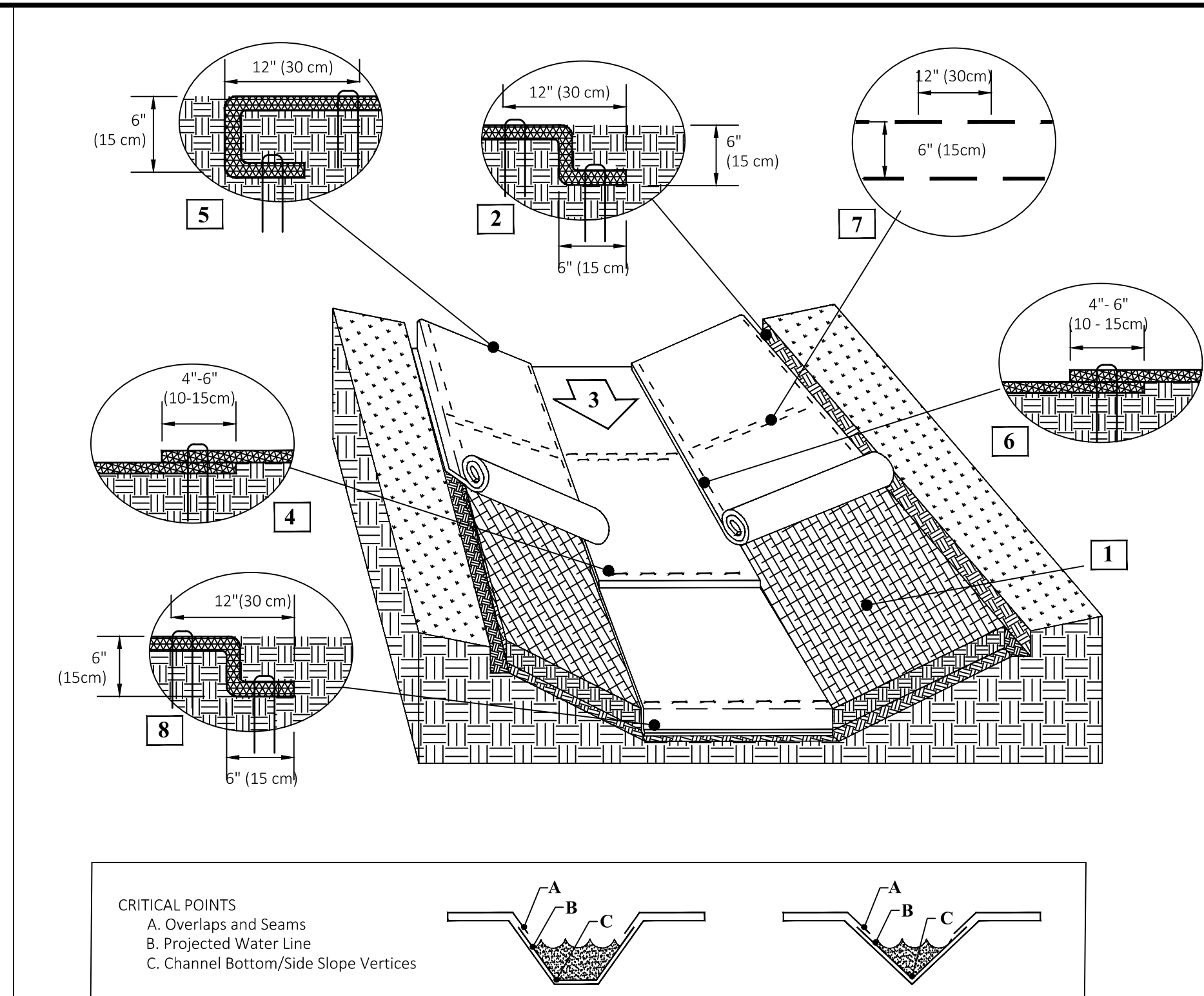


STAPLE PATTERN GUIDE

● 4:1 Slopes (A)
 ● 3:1 Slopes (B)
 ● 2:1 Slopes (C)
 ○ 1:1 & Steeper Slopes (D)
 ○ Medium/High Flow Channel (D)
 ● High Flow Channel And Shoreline (E)

NOTES:

- * Use ECMDs for more accurate staple pattern selection.



Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the channel by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench with approximately 12" (30 cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes/pins approximately 12" (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12" (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced approximately 12" (30 cm) apart across the width of the RECPs.
- Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide.
- Place consecutive RECPs end-over-end (Shingle style) with a 4" - 6" (10 - 15 cm) overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
- Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
- Adjacent RECPs must be overlapped approximately 4" - 6" (10 - 15 cm) and secured with staples/stakes/pins at S_T .
- In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 - 12m) intervals. Use a double row of staples staggered 6" (15 cm) apart and 12" (30 cm) on center over entire width of the channel.
- The terminal end of the RECPs must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

Unroll Direction

Underneath Roll
Roll Overlap
Upper Roll

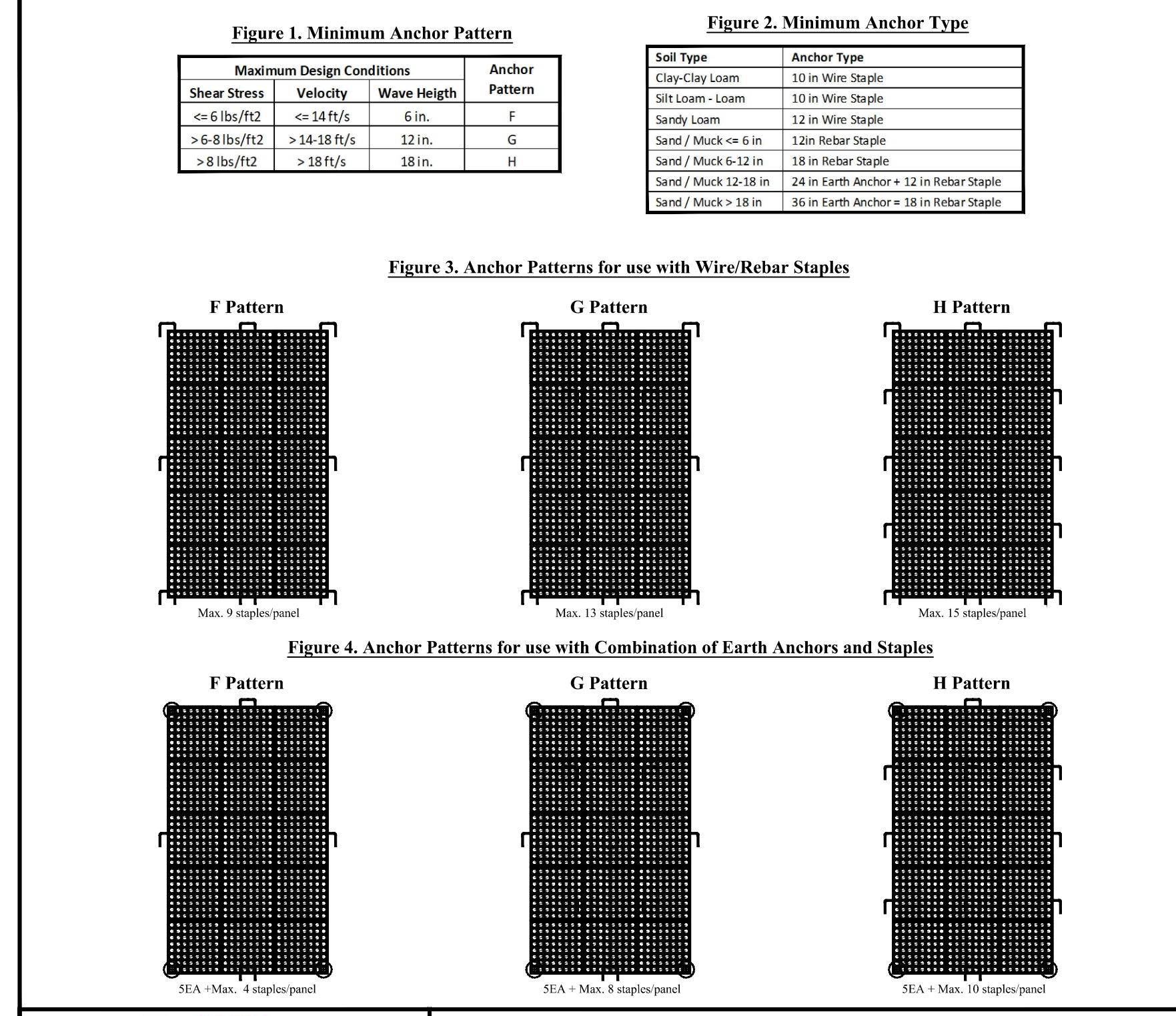
Staple Pattern	
Dimension	E
W_T	20" (50 cm)
L_T	20" (50 cm)
S_T	18" (45 cm)
Nominal Frequency	3.8 / SY

● Pin / Staple / Twist Pin, as appropriate for field conditions

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 Poseyville, IN 47633
 PH: 800-722-2040
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Disclaimer: The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17
 Drawing Not To Scale



ShoreMax

ANCHORING GUIDE

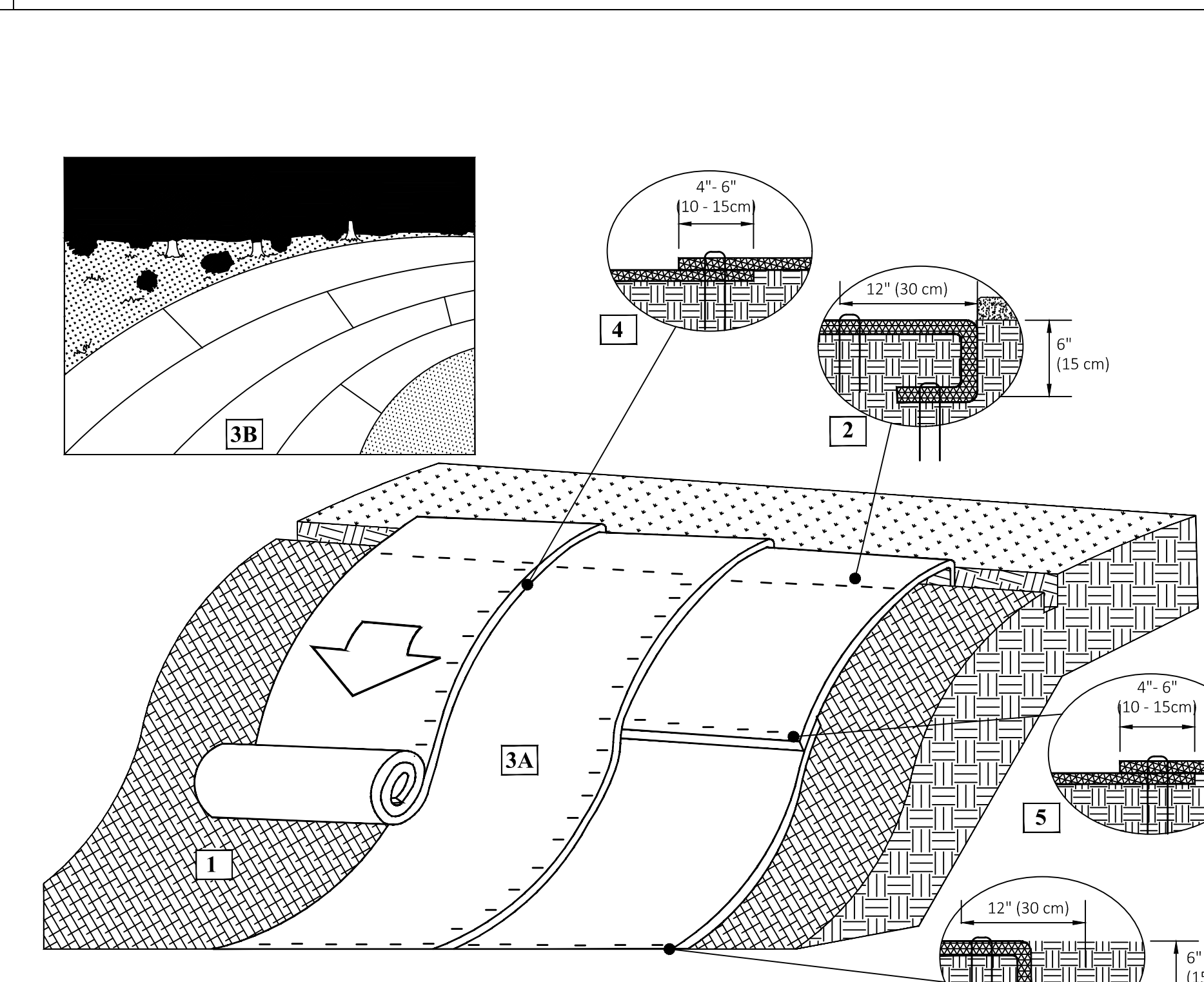
- When installing ShoreMax mat, the anchor pattern (figure 3 or 4) should be selected based on the expected maximum design conditions (shear stress, velocity, or wave impact) (figure 1).
- Anchor selection should be based on the soil type and pull-out strength required (figure 2). In soft, highly erodible soils percussion earth anchors may be necessary. Earth anchors can be installed in conjunction with rebar staples (figure 4).
- When using percussion earth anchors, position anchors in each corner and the center of the panel. Place staples in the appropriate pattern through remainder of mat. Staples can be shared between two adjacent panels.

Note: Number of staples used per panel can be reduced by 30-40% when sharing staples between panels.

Legend:
 □ - Wire/Rebar Staple
 ⊙ - Percussion Earth Anchor

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Drawn on: 5-4-17
 Drawing Not To Scale



Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
- Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
- The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
- Consecutive RECPs spliced down the slope must be overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
- At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T . If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

Unroll Direction

Underneath Roll
Roll Overlap
Upper Roll

Staple Pattern	
Dimension	C
W_T	30" (75 cm)
L_T	30" (75 cm)
S_T	18" (45 cm)
Nominal Frequency	1.7 / SY
Application	ECB (Degradable) TRM (Permanent)

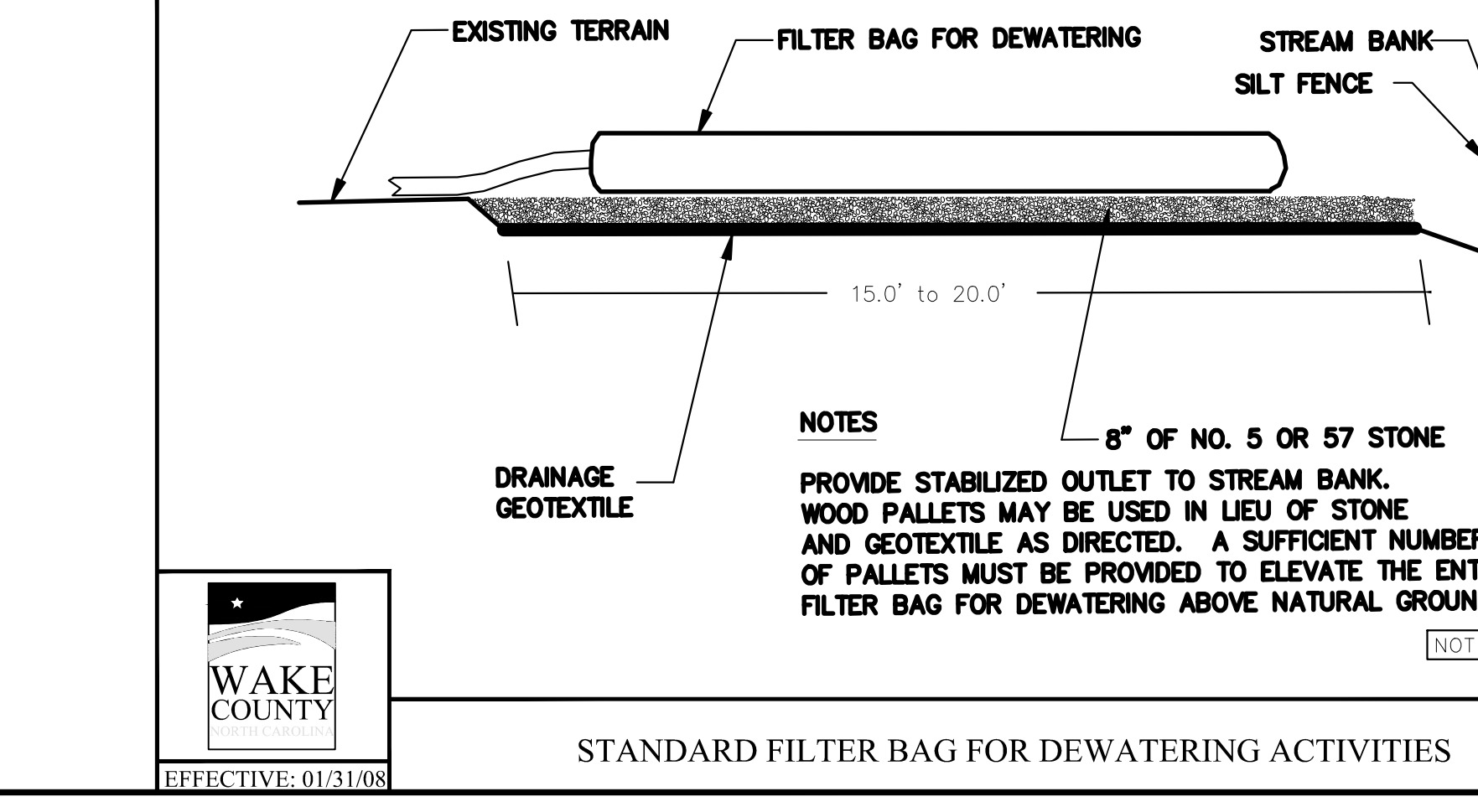
● Pin / Staple / Twist Pin, as appropriate for field conditions

*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.

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 5401 St. Wendel - Cynthiana Rd.
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 PH: 800-772-2040
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Drawn on: 5-4-17
 Drawing Not To Scale



ShoreMax

ANCHORING GUIDE

- When installing ShoreMax mat, the anchor pattern (figure 3 or 4) should be selected based on the expected maximum design conditions (shear stress, velocity, or wave impact) (figure 1).
- Anchor selection should be based on the soil type and pull-out strength required (figure 2). In soft, highly erodible soils percussion earth anchors may be necessary. Earth anchors can be installed in conjunction with rebar staples (figure 4).
- When using percussion earth anchors, position anchors in each corner and the center of the panel. Place staples in the appropriate pattern through remainder of mat. Staples can be shared between two adjacent panels.

Note: Number of staples used per panel can be reduced by 30-40% when sharing staples between panels.

Legend:
 □ - Wire/Rebar Staple
 ⊙ - Percussion Earth Anchor

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 Drawing Not To Scale

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 American Engineering Associates, Southeast, P.A.
 4020 Westbase Boulevard, Suite 450
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 919-469-1101

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST -3881
 NORTH CAROLINA PROFESSIONAL SEAL 9810
 JOHN R. HARRMAN
 ENGINEER

DETAIL SELECTION ONLY

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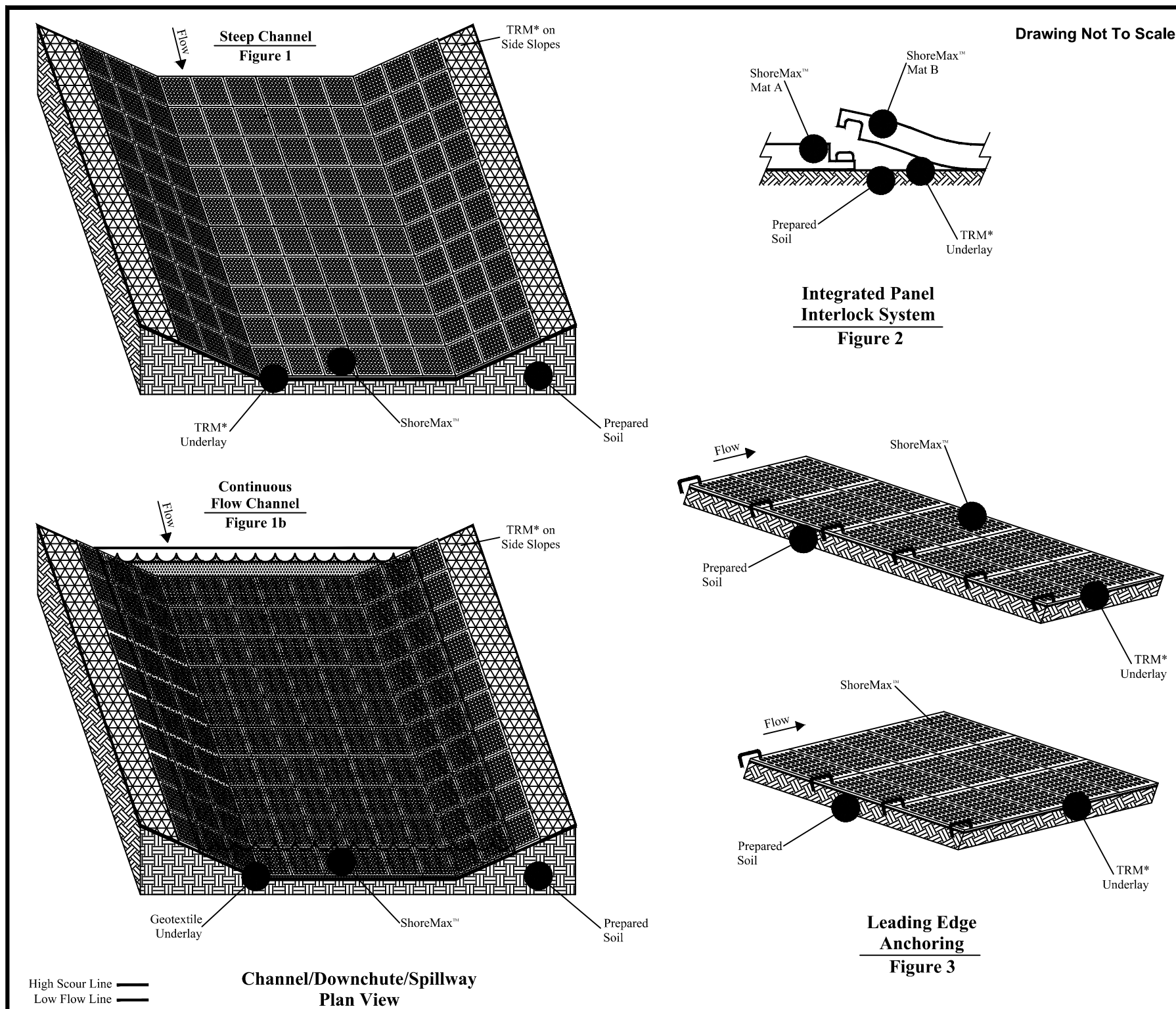
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

NO. DATE

1	7/7/2024	LIST REVIEW	FRIM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.	
3	11/21/2024	CONSTRUCTION DRAWING RESPONSES	
4	3/11/2025	CONSTRUCTION DRAWING RESPONSES	

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE: KALAS FALLS CIVIL DETAILS
SHEET NO.: CD4

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



ShoreMax™

STEEP CHANNEL/CHUTE/SPILLWAY DETAIL

* ShoreMax mats can be installed over a variety of underlayments including: sod, turf reinforcement mats (TRMs), geotextiles, and in some cases erosion control blankets (ECBs).

- Prepare soil before installing erosion control products, including any necessary application of lime, fertilizer, and seed (when installing TRM or ECB underlayment).
- Install turf reinforcement mat (TRM) over prepared soils according to manufacturer's recommendations.
- Place ShoreMax mat in the bottom of the channel over the installed TRM (figure 1). The ShoreMax mat should be installed up to the appropriate elevation on the side slope as determined by the engineer. When using multiple panels, connect the panels using the Integrated Panel Interlock System (figure 2). ShoreMax mat can be laid in either direction.
- For channels carrying continuous water flows, an appropriate geotextile should be placed between two adjacent panels. In soft or highly erodible soils, percussion earth anchors may be required. View ShoreMax Anchoring Guide, for additional details.
- Place staples/anchors in the appropriate pattern. Perimeter staples can be shared between two adjacent panels. In soft or highly erodible soils, percussion earth anchors may be required. View ShoreMax Anchoring Guide, for additional details.
- At beginning of channel and areas where significant concentrated flows are directed onto the ShoreMax mat, place 1 staple/pin per linear foot along the leading edge of the ShoreMax system, resulting in 1 staple/pin on each corner and gridline (figure 3).

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Drawn on: 5-4-17

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

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

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

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

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

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

PART II, SECTION 6, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items.
- The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.
- Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sized, designed and maintained dewatering tanks, wet tanks, and filtration systems.
- Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above.
- Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- Sediment removed from the dewatering treatment devices described in item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

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

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Roller erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Roller erosion control products with grass seed

POLYACRYLAMIDES (PAMs) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

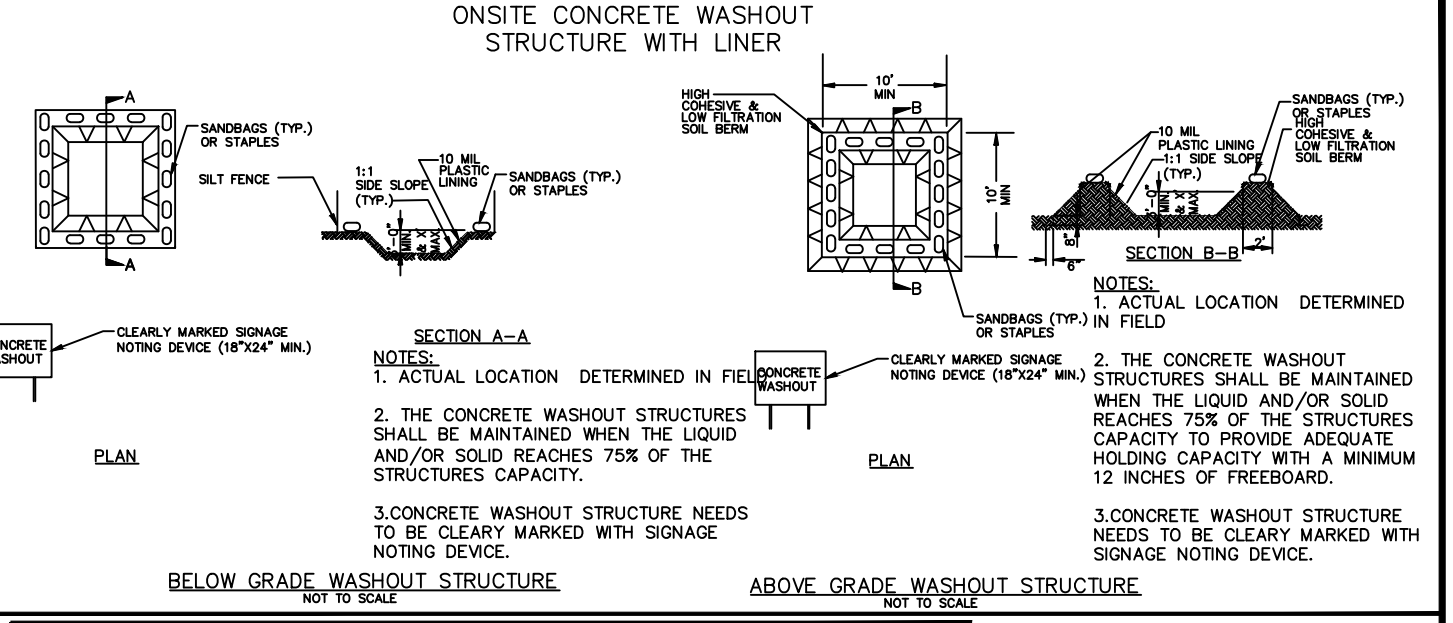
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

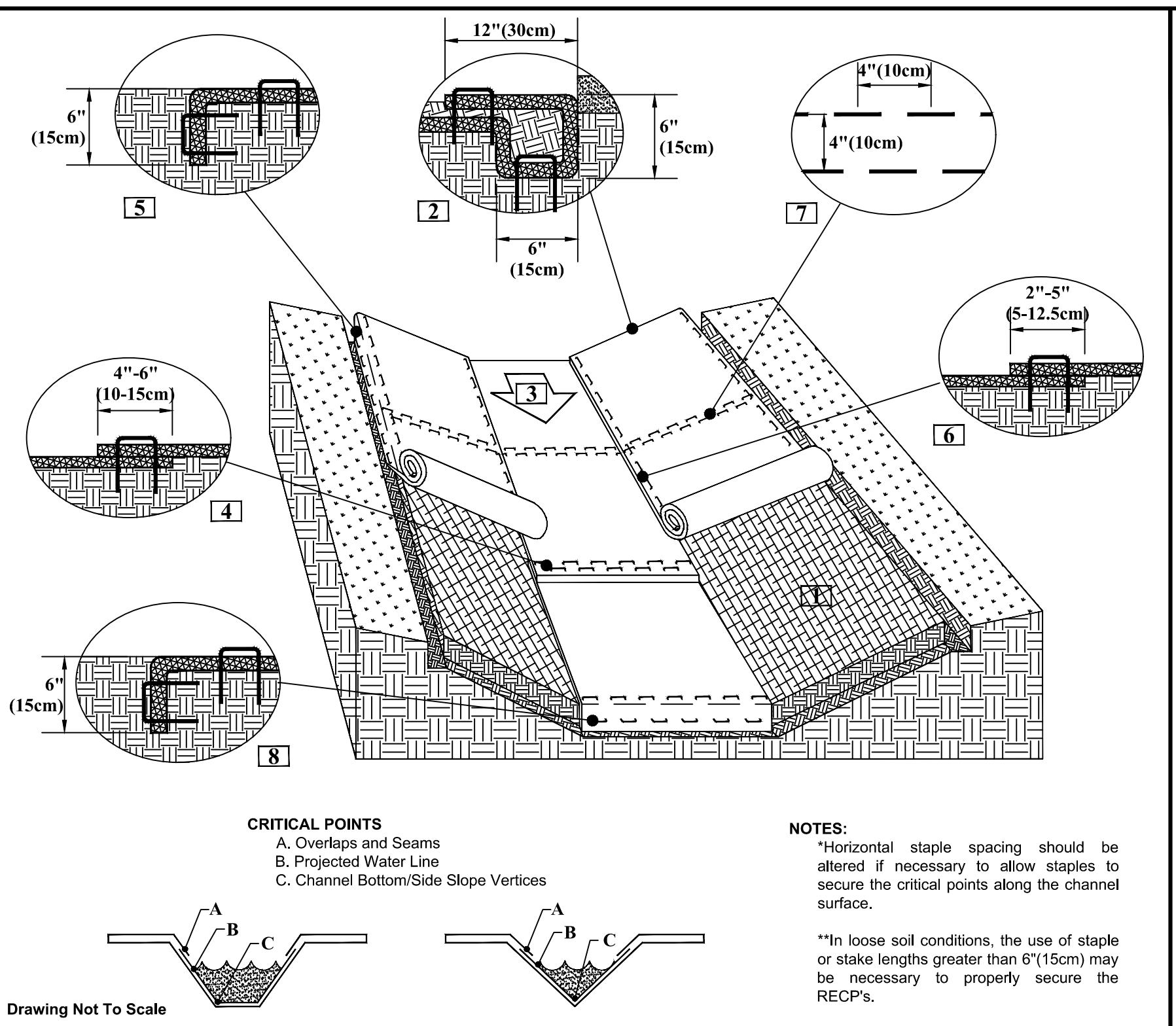
- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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



CHANNEL INSTALLATION DETAIL

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
- Begin at the top of the channel by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPs.
- Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
- Place consecutive RECPs end-over-end (Shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
- Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.
- Adjacent RECPs must be overlapped approximately 2"-5" (5-12.5cm) (Depending on RECPs type) and staked.
- In high flow channel applications a staple check list is recommended at 30 to 40 foot (9-12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center over entire width of the channel.
- The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12" (30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.

Notes: *Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface. **In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECPs.

Drawing Not To Scale

NORTH AMERICAN GREEN
 5401 St. Wendel - Cynthiana Rd.
 Poseyville, IN 47633
 PII: 800-772-2040
 www.nagreen.com

Disclaimer:
 The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

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.

KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

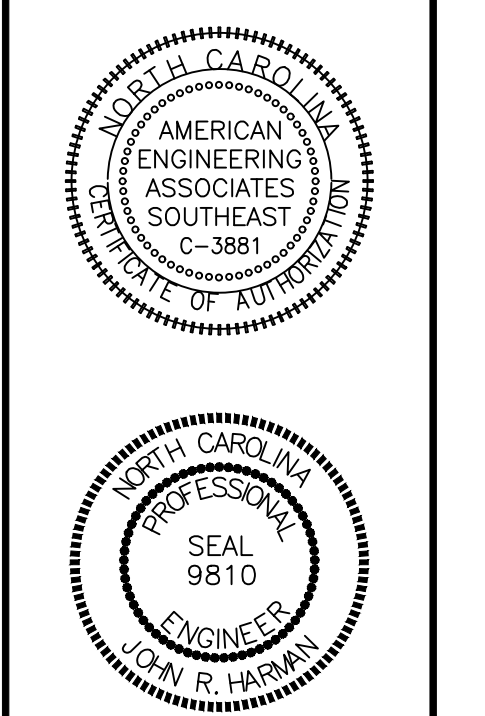
JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/LLS/AH/DH

DATE: NOV 1, 2024
 SHEET TITLE:

KALAS FALLS CIVIL DETAILS

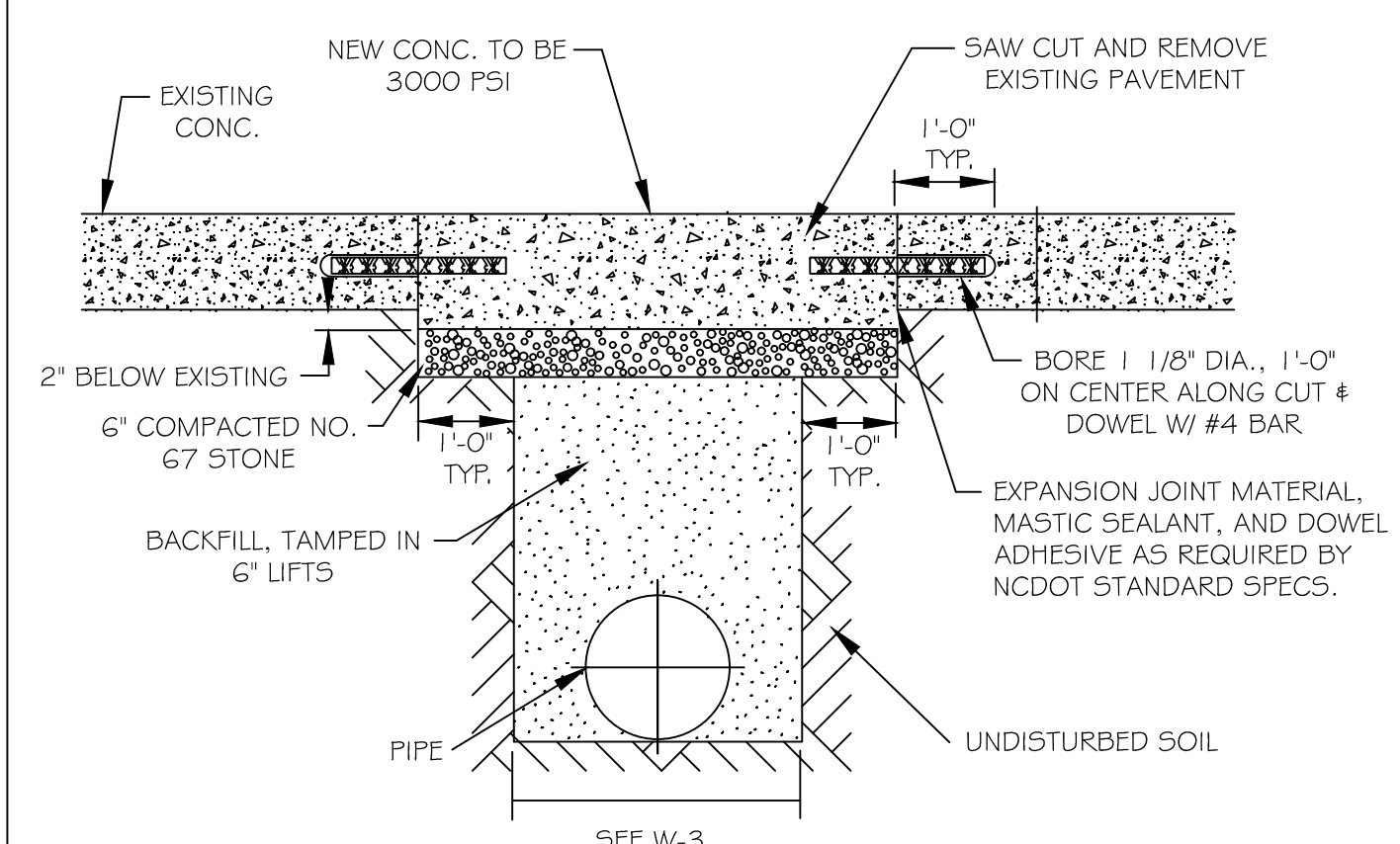
SHEET NO.: CD5

North Carolina
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-0949
 Remote Ticket Entry
 http://nc811.org/remoteticketentry.htm



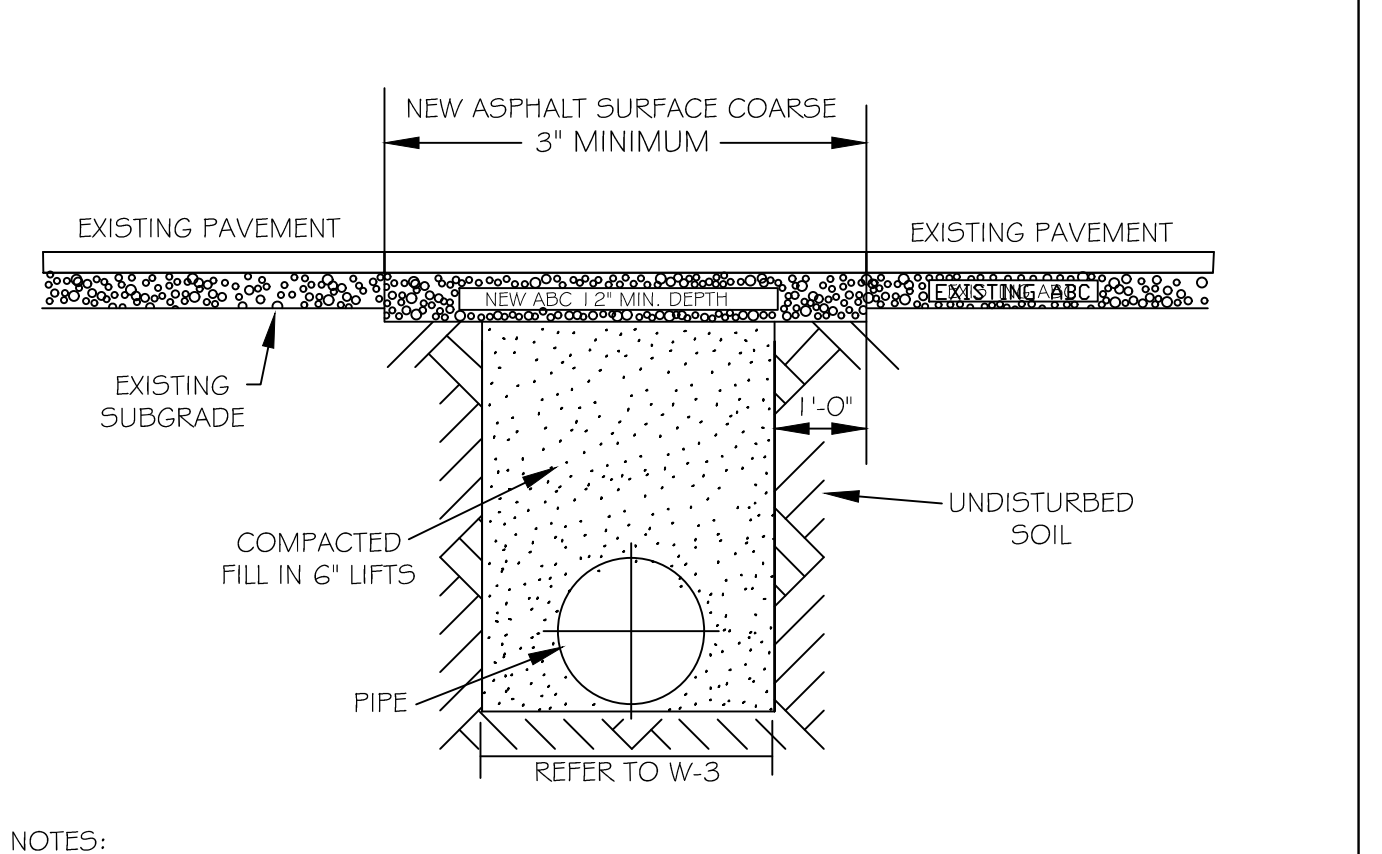
DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/8/2018	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES



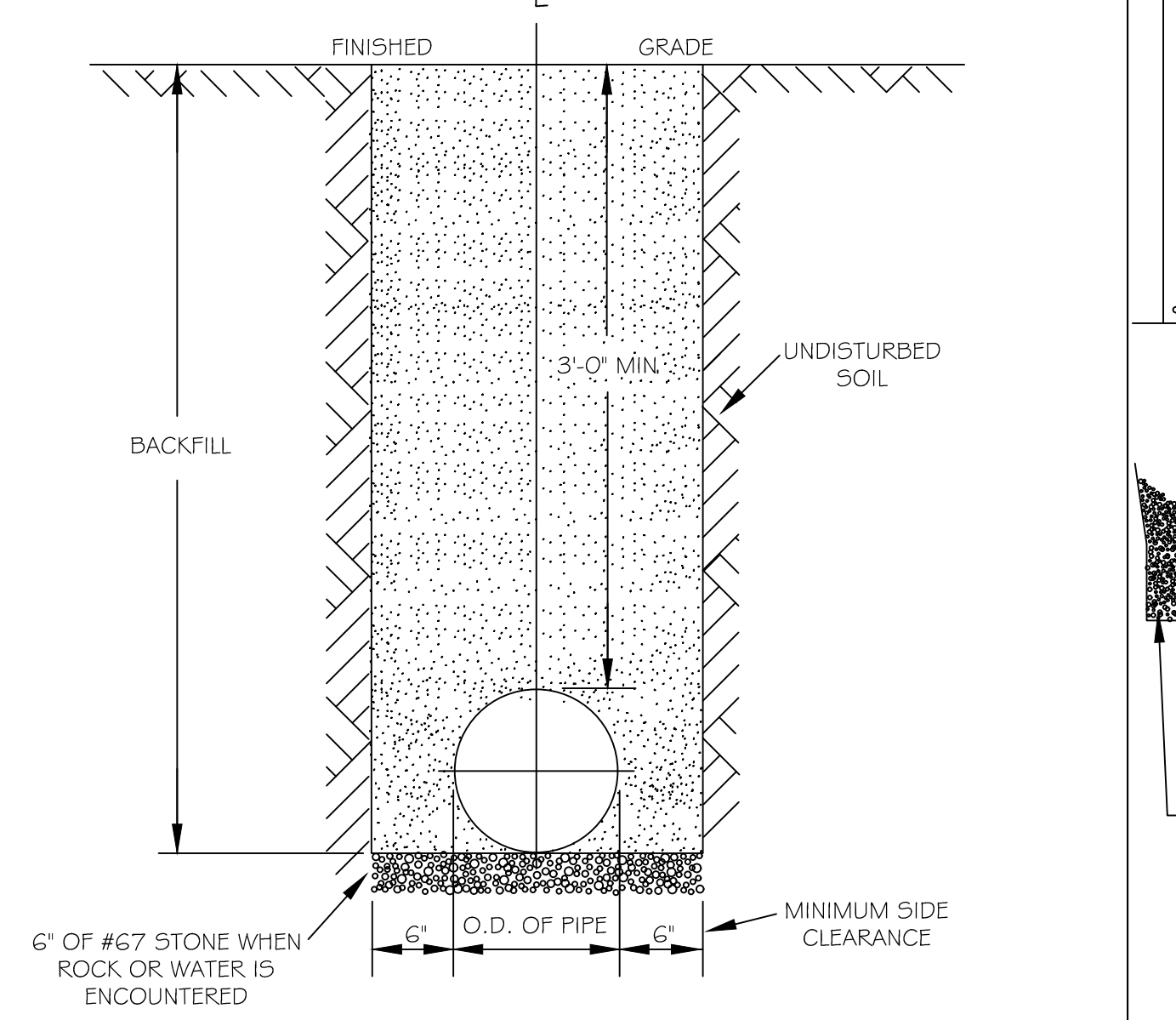
NOTES:
 1. SEE CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING W-3 FOR ADDITIONAL DETAILS
 2. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
 3. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
 4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO 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. 5. THE FINAL 6" 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.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD CONCRETE PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-1	RRH	3-31-00	A.B.B.	10-29-10
	A.B.B.	2-8-05	MAB	10-31-13



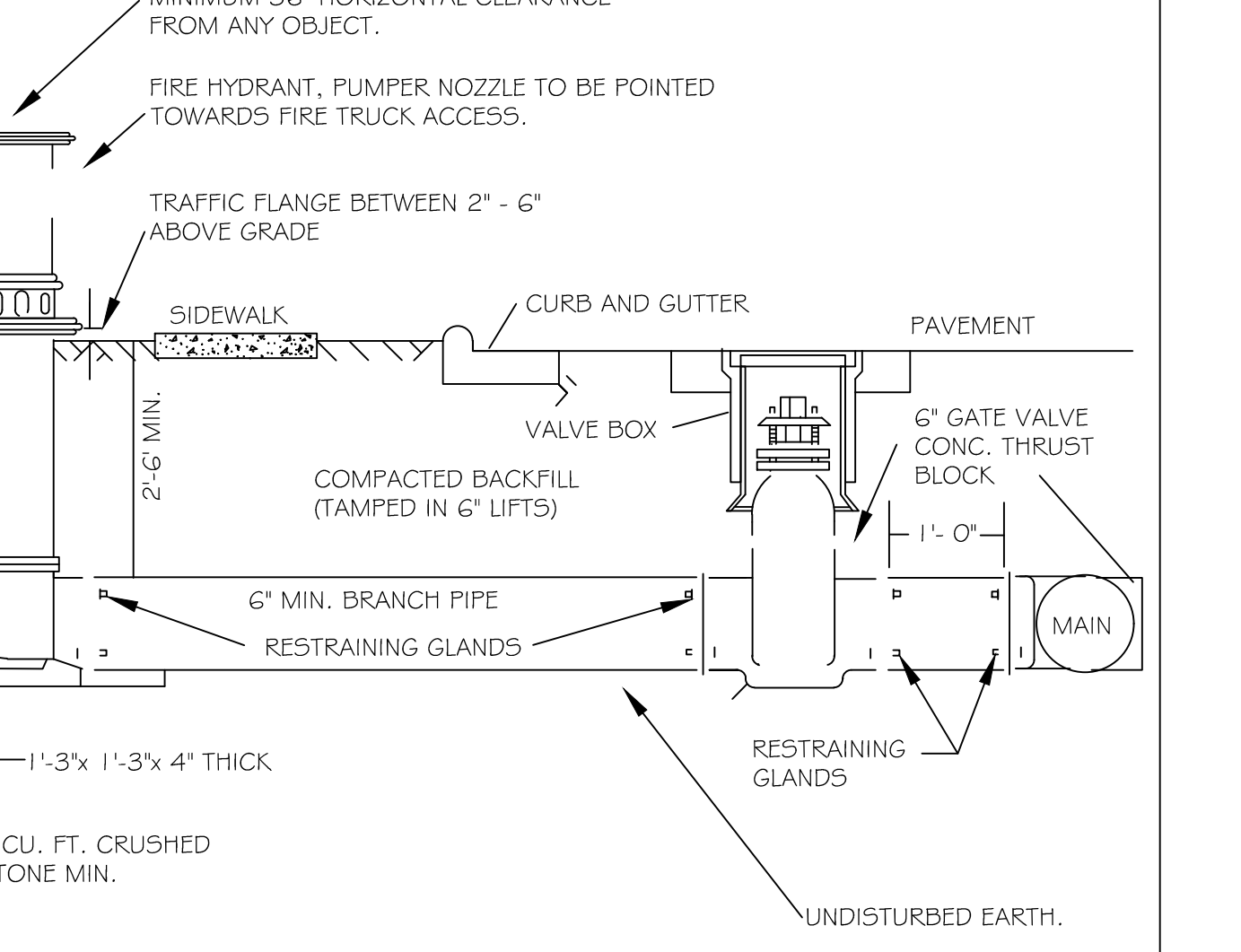
NOTES:
 1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
 2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
 3. THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL 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.
 4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF 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 WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
 7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3, FOR ADDITIONAL DETAILS.
 8. NO HAND PATCHING ALLOWED.
 9. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD ASPHALT PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-2	RRH	5-31-00	A.B.B.	4-16-04
	D.W.C.	11-1-99	J.P.S.	10-29-10



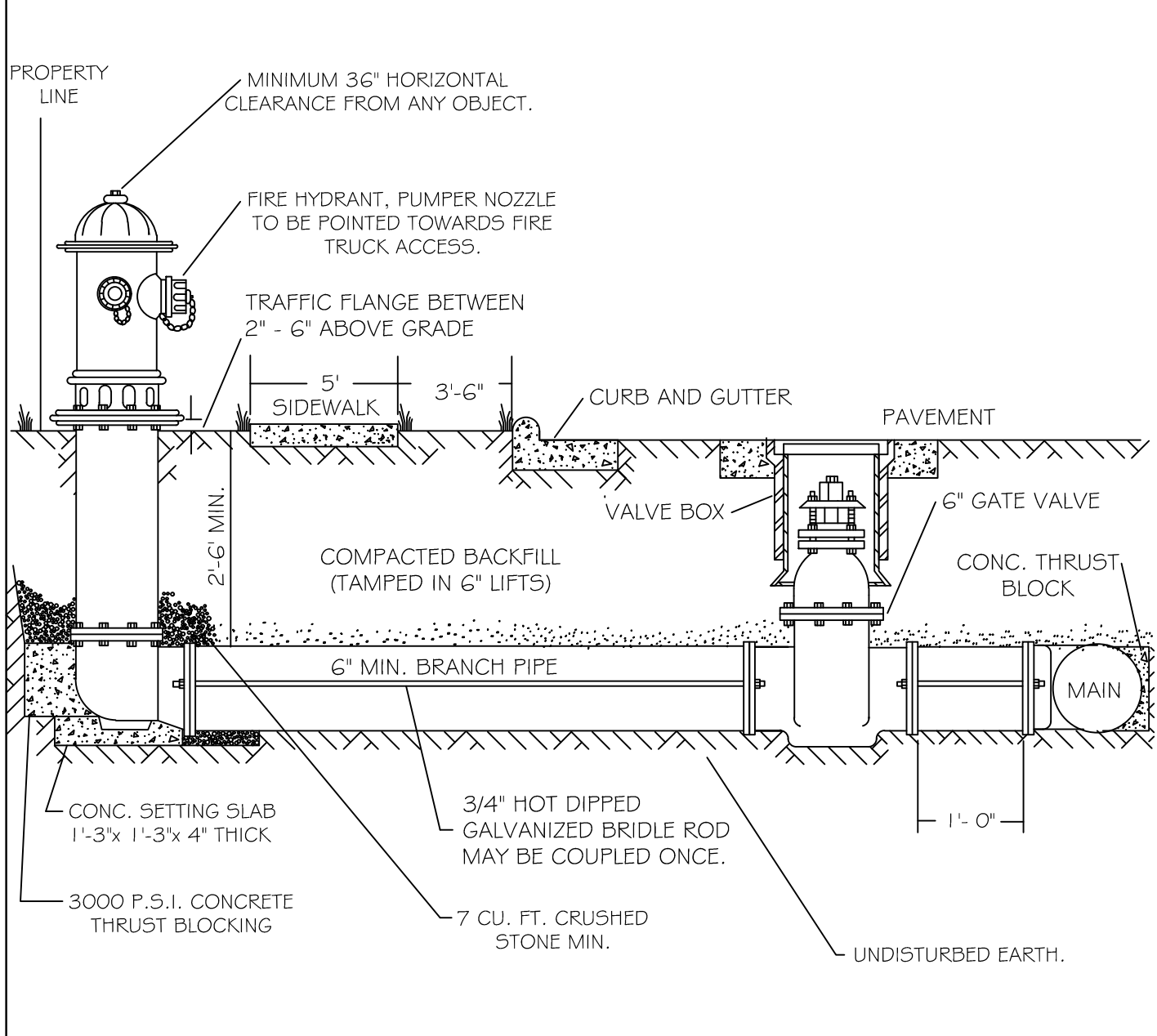
NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE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

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C.	9-3-99	ABB	2-15-05
	RRH	3-31-00	J.P.S.	10-29-10



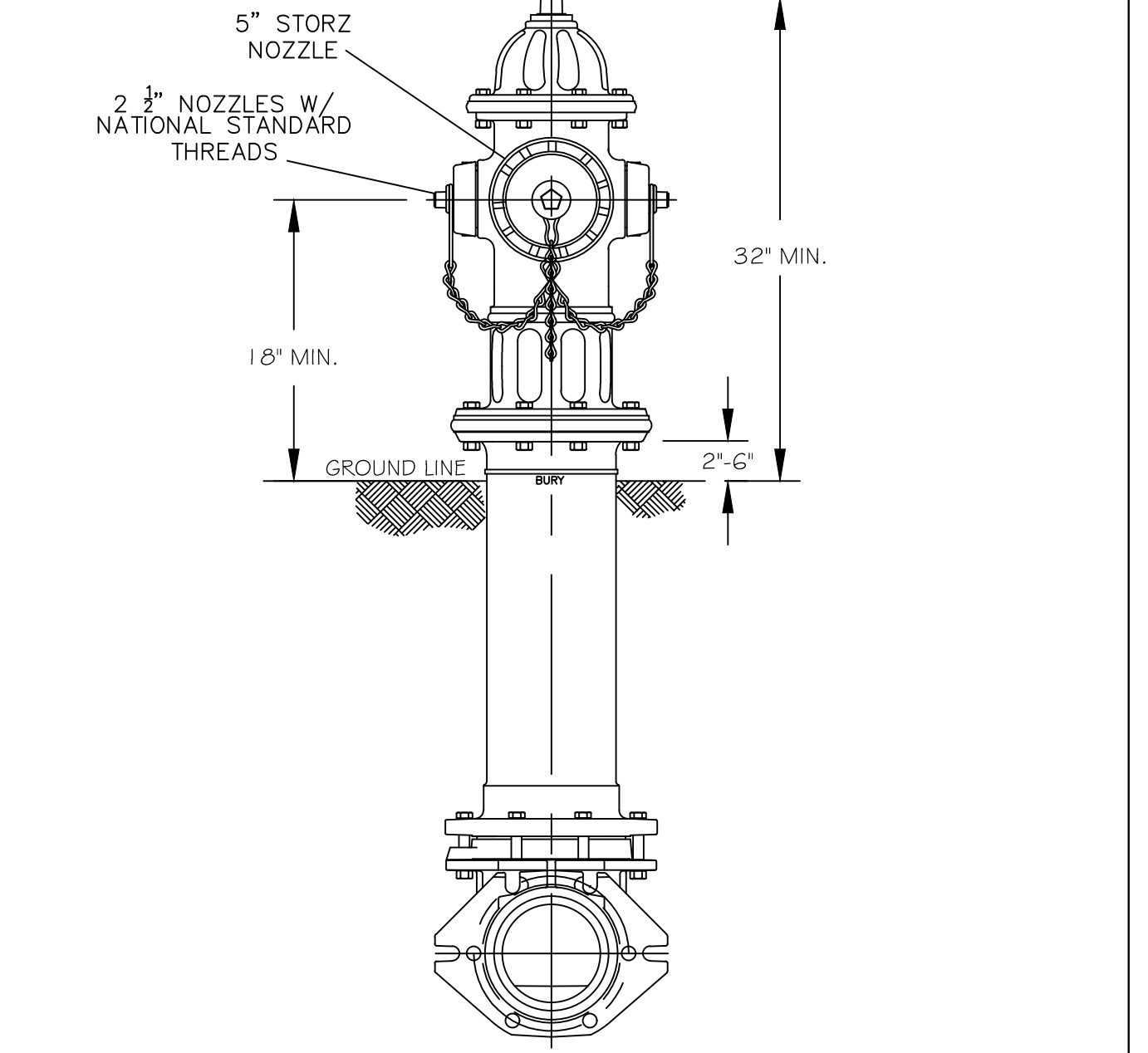
NOTES:
 1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
 3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
 4. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED
 5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
 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.
 FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABB	4-6-04	FAP	2/17/09
	DHL	2/14/08		



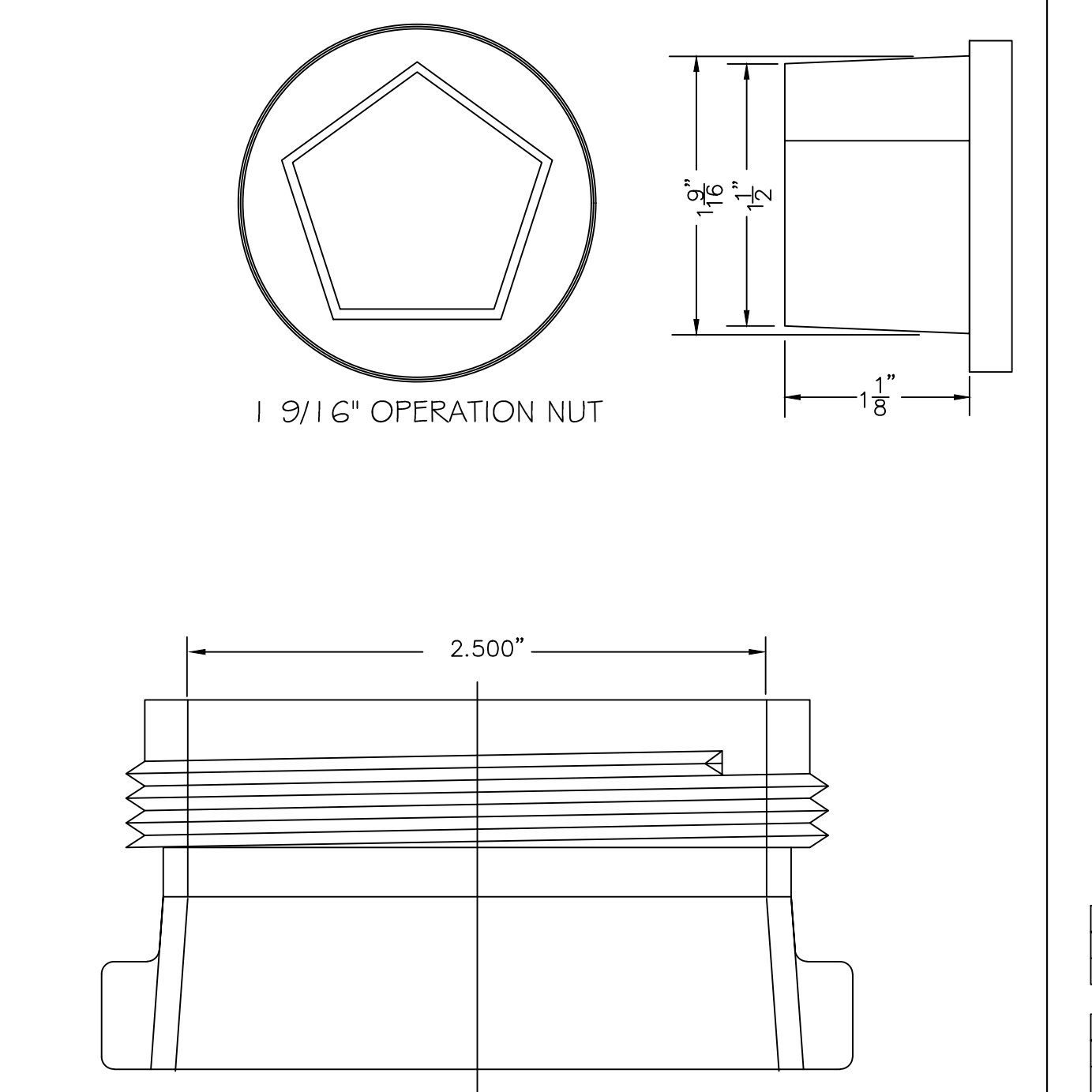
NOTES:
 1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
 3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
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 FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4a	ABB	4-6-04		



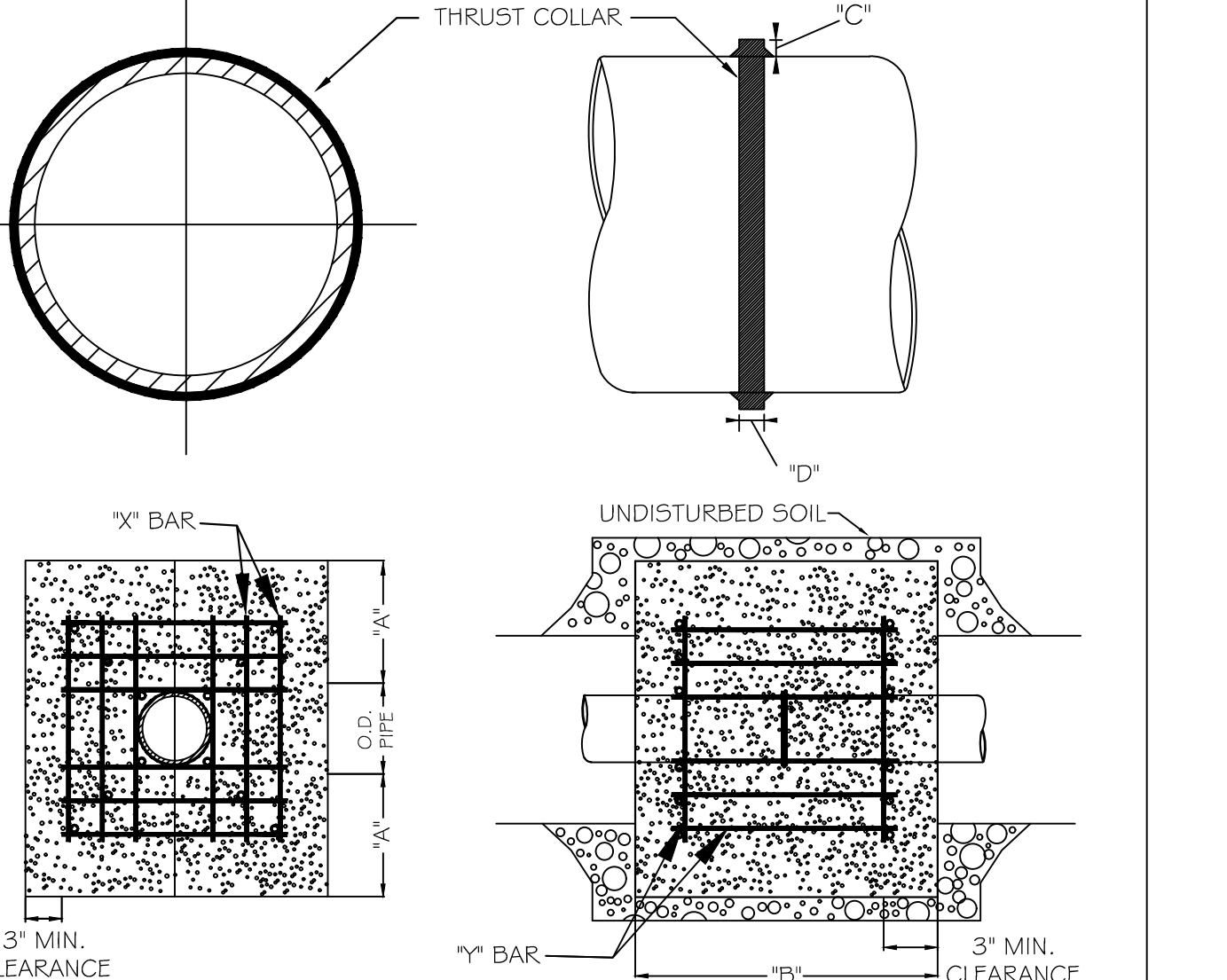
NOTES:
 1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
 2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT WITH 5\"/>				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	MAB	6-30-16		
	KAT	9-15-17		



2 1/2" NATIONAL STANDARD OUTLET THREADS

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
HYDRANT OPERATING NUT AND 2 1/2\"/>				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RRH	5-31-00	DTL	2-18-08
	A.B.B.	4-13-04	J.P.S.	11-1-10

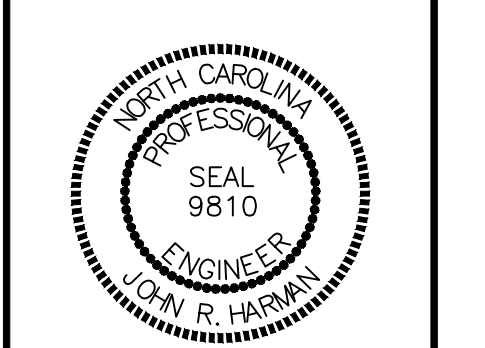
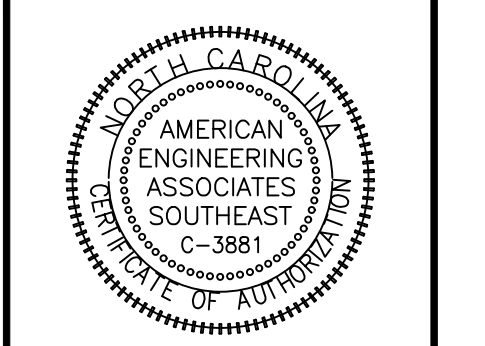


REINFORCING REQUIREMENTS					
OD PIPE	REBAR SIZE	"X" BAR LENGTH	"Y" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT
6" - 30"	#5	2'-2" O.D. PIPE	1.93 LBS/FT	1'-1"	11 LBS EACH
48" & greater	#6	3'-0" O.D. PIPE	1.92 LBS/FT	1'-3"	18 LBS EACH

THRUST COLLARS AND THRUST SCHEDULE				
O.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2'	3/8"
20" - 24"	1'-4"	1'-7"	3'	1/2"
30" - 36"	1'-4"	1'-7"	4'	5/8"
48" & greater	1'-8"	1'-9"	6'	7/8"

NOTES:
 1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 2. CONCRETE SHALL BE 3000 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 STANDARD DETAIL W-3.
 5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
 6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
THRUST BLOCKING DESIGN DATA FOR WATER MAINS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	1-21-00	J.P.S.	11-1-10
	D.H.L.	6-18-08		



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/27/2021	REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/LLS/AH/DH
 DATE: NOV 1, 2024

SHEET TITLE:
 KALAS FALLS CIVIL DETAILS

SHEET NO.:
 CD6

Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

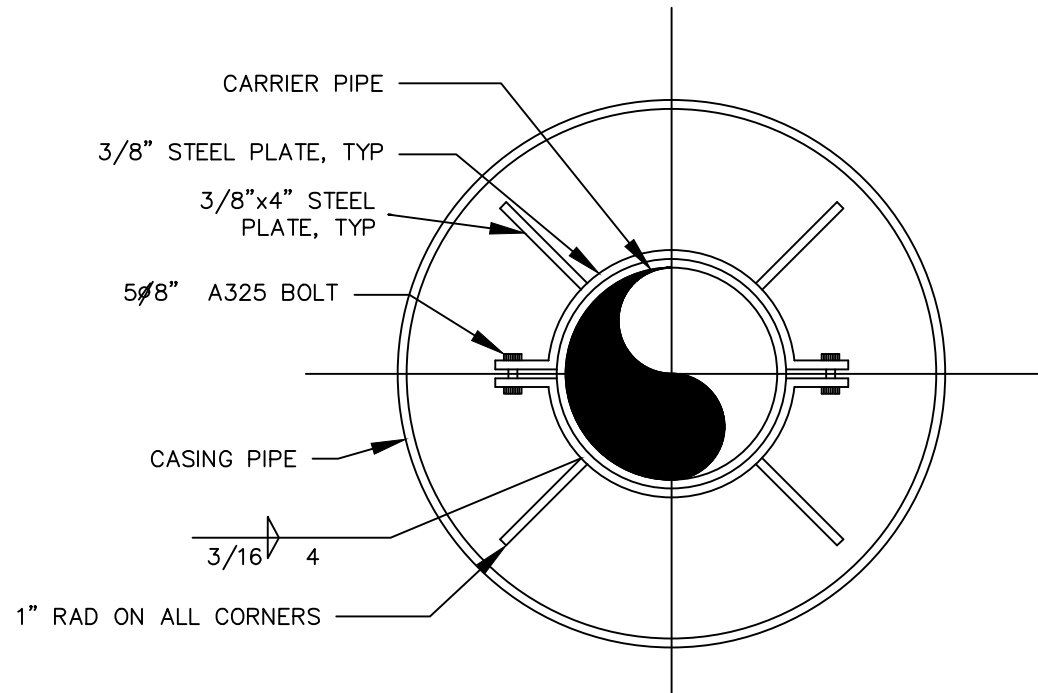
Public Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____

City of Raleigh
 Public Utilities Department Permit # _____

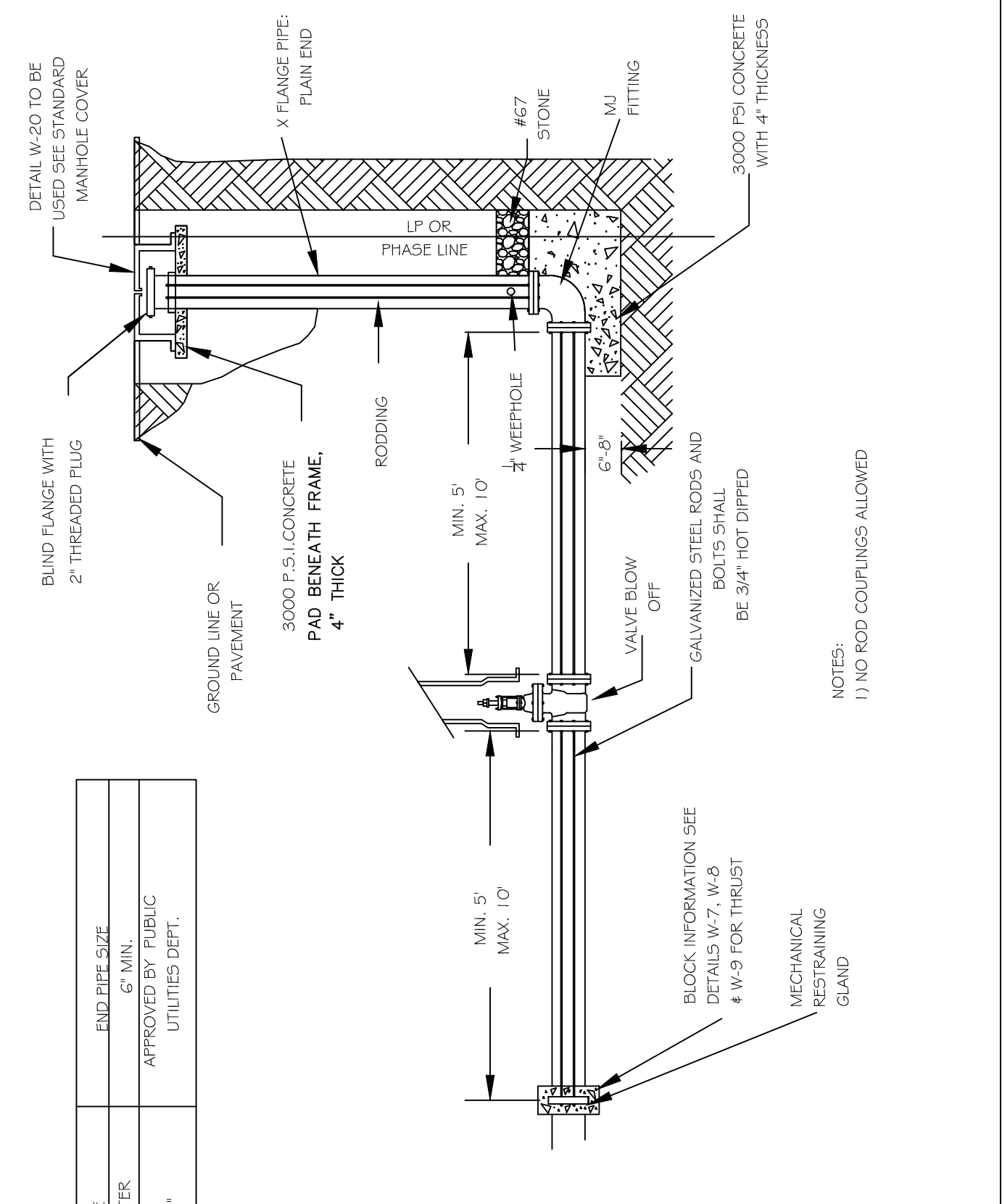
North 811
 Carolina
 3 Days before Digging ***
 811 or 1-800-452-4949
 Remote Ticket Entry
 http://nc811.org/remoteticketentry.htm

March 11, 2025
 C:\Users\jharman\OneDrive\Desktop\Projects\KALAS Falls\Phase 3\Drawings\CD6 - Standard Fire Hydrant Installation Detail.dwg

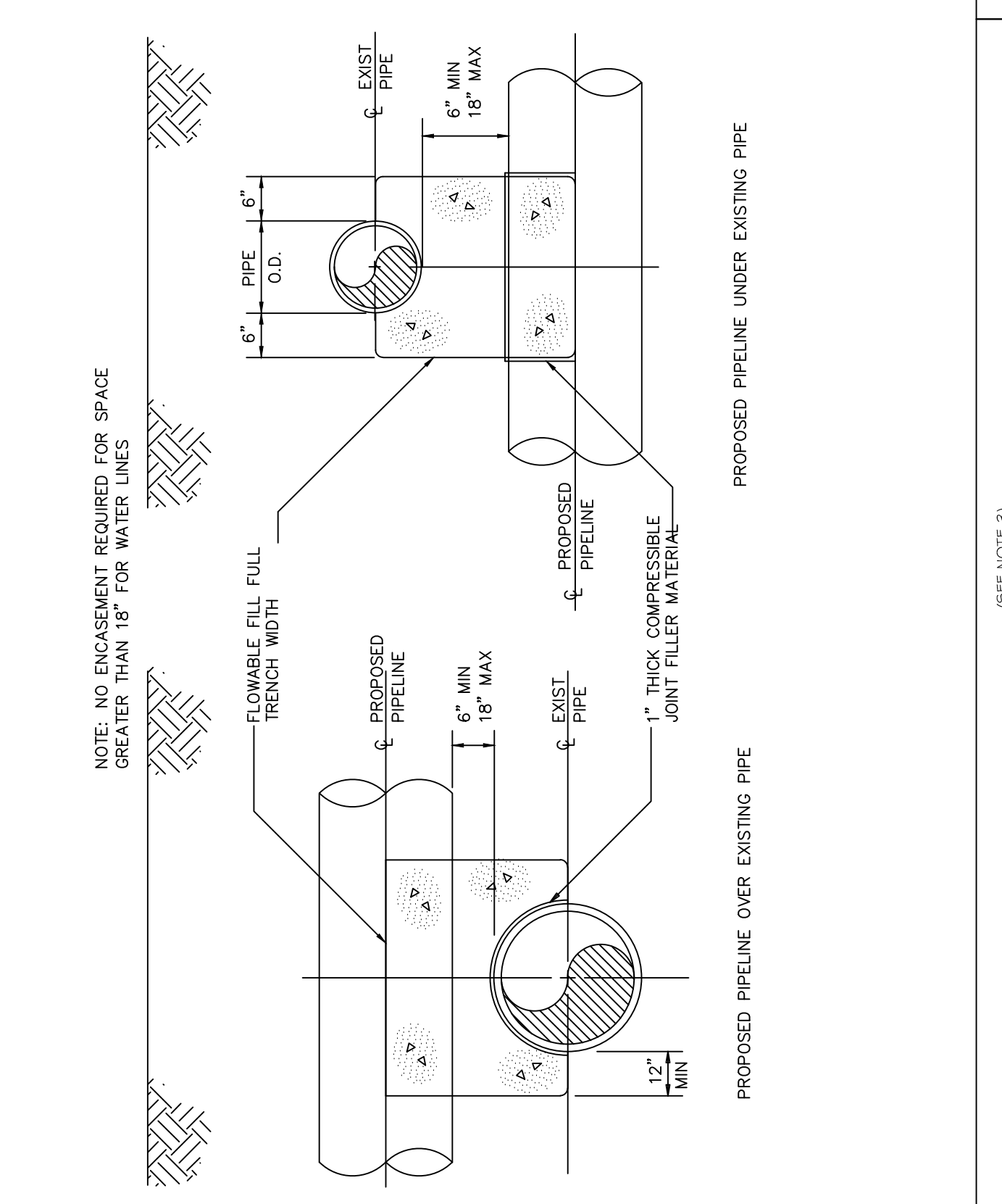


NOTE:
1) USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

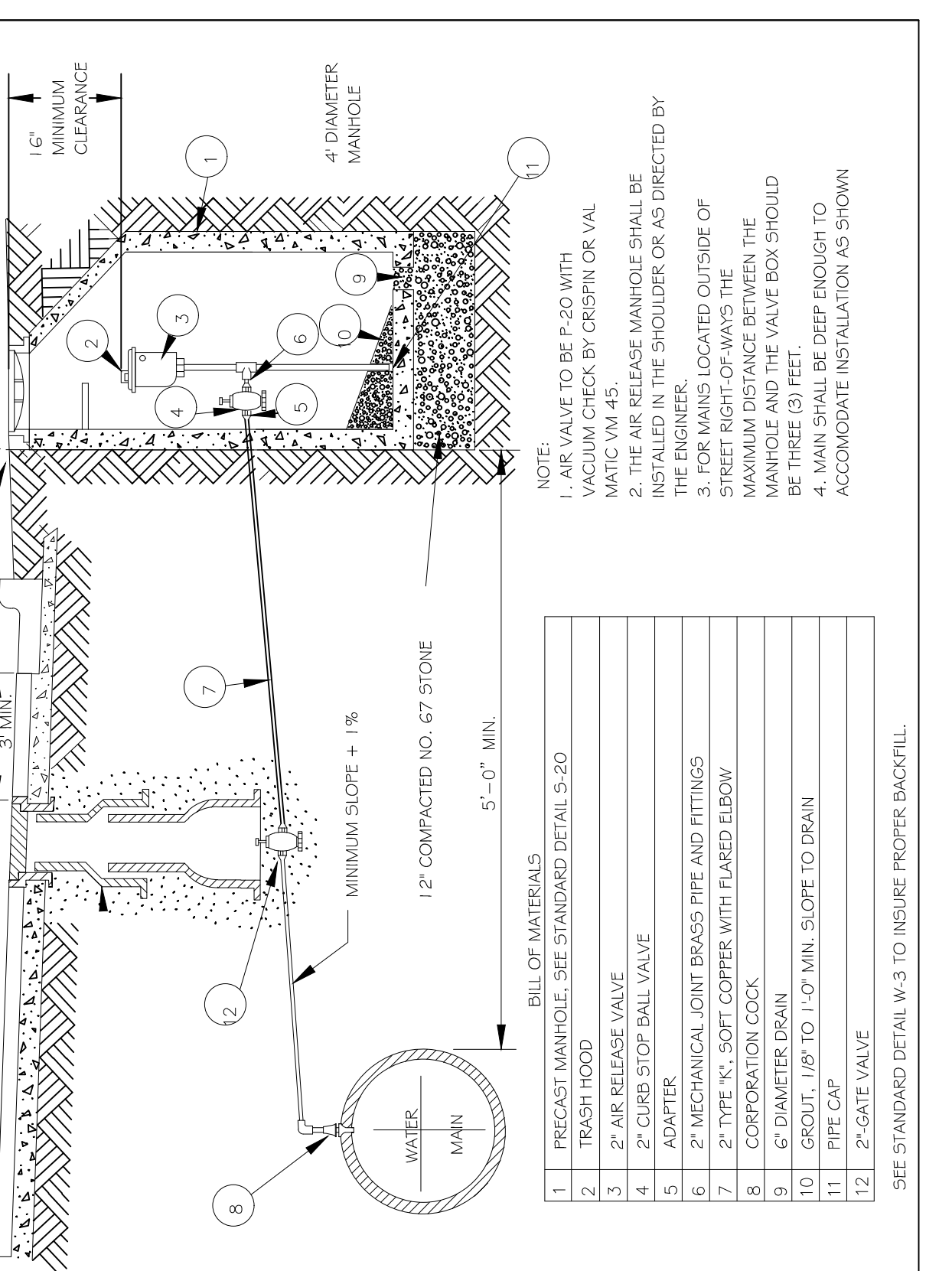
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
PIPE ALIGNMENT GUIDE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-40	RRH	3-31-00		
	A.B.B.	4-16-04		



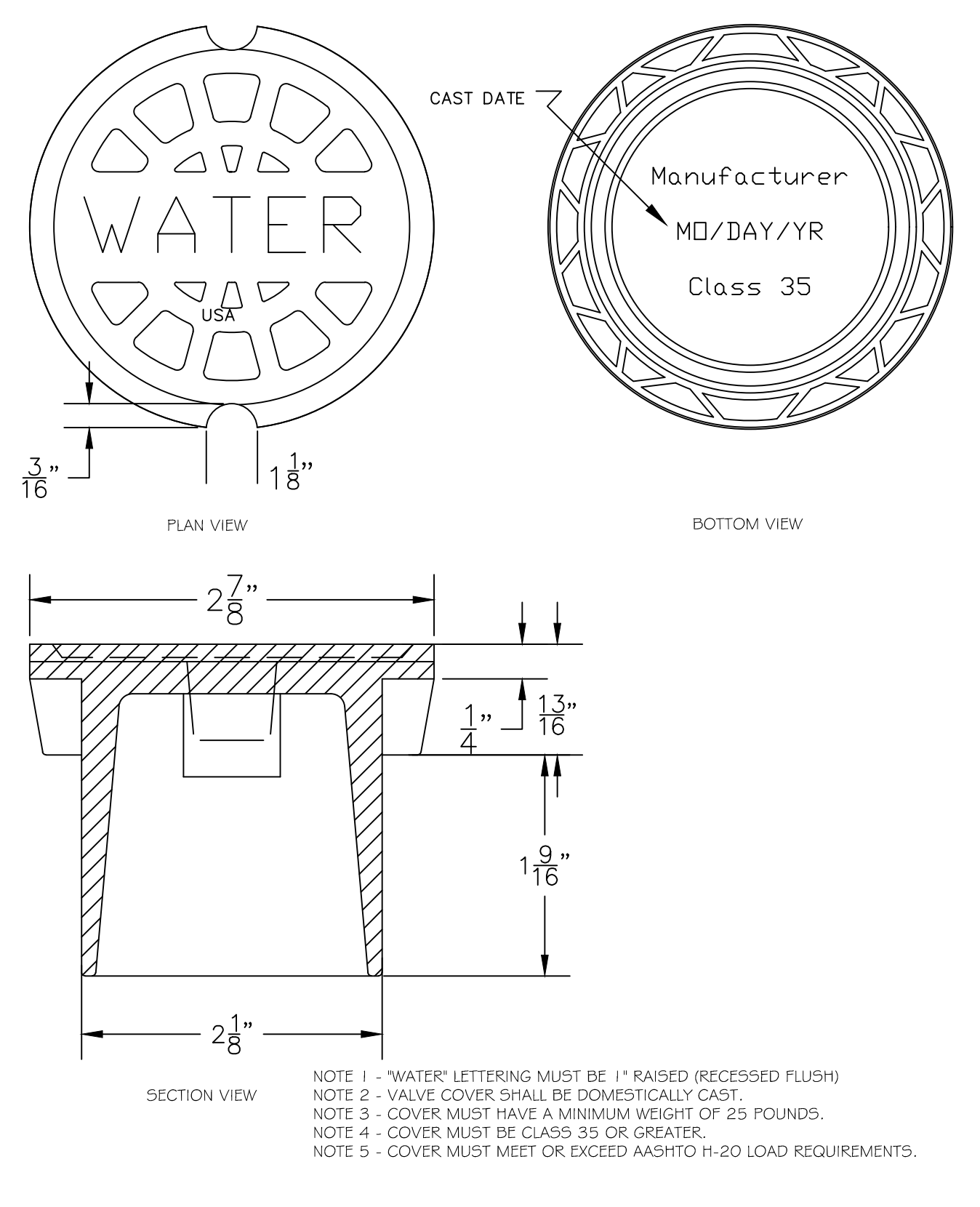
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	D.W.C.	12-28-99	A.B.B.	4-12-04
	RRH	3-31-00	DHL	9-16-07



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	DHL	2-20-08		

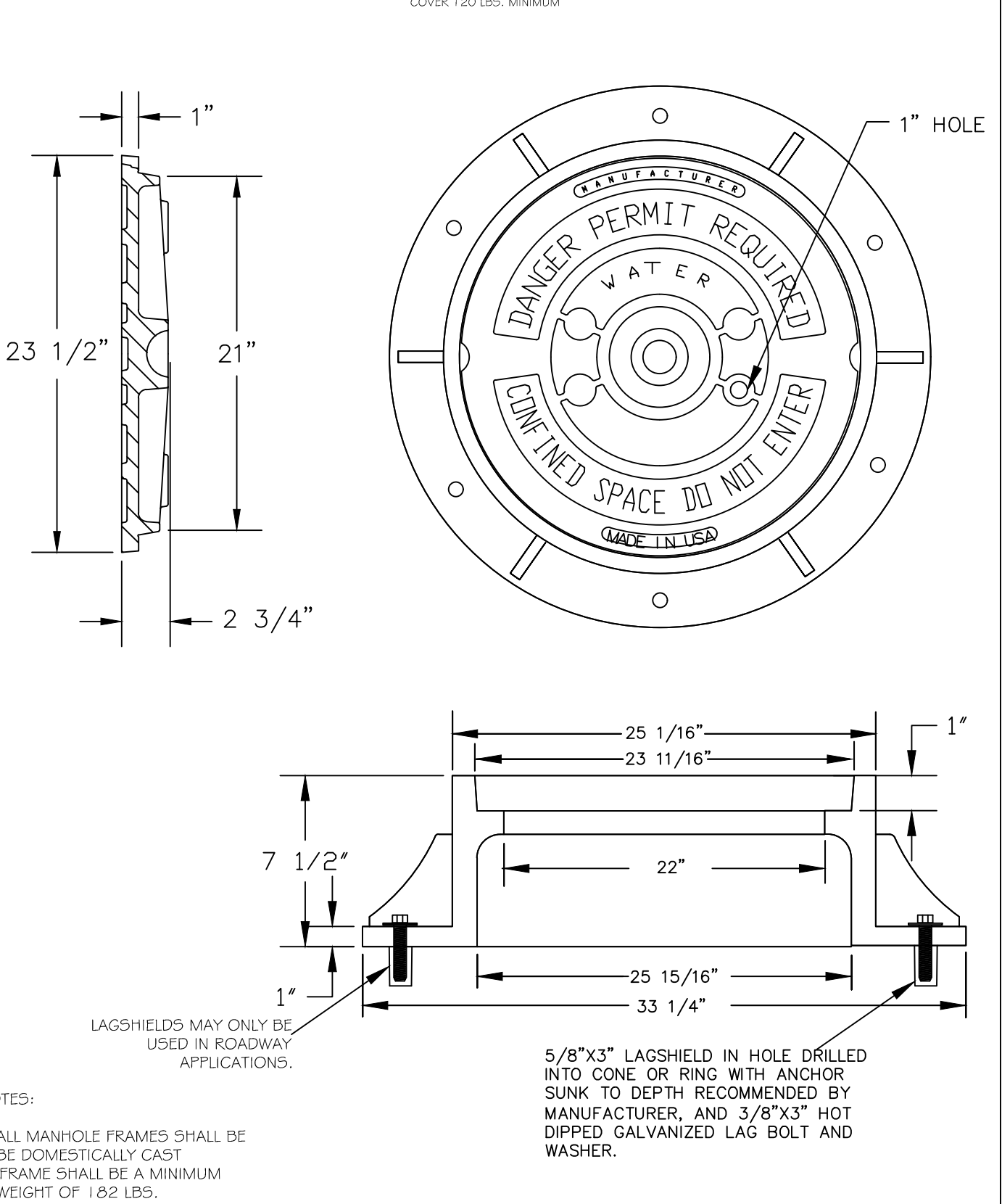


CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD WATER AIR RELEASE VALVE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-19	ABB	10-4-04		
	J.P.S.	11-1-10	RRH	2-31-91
				6-7-00



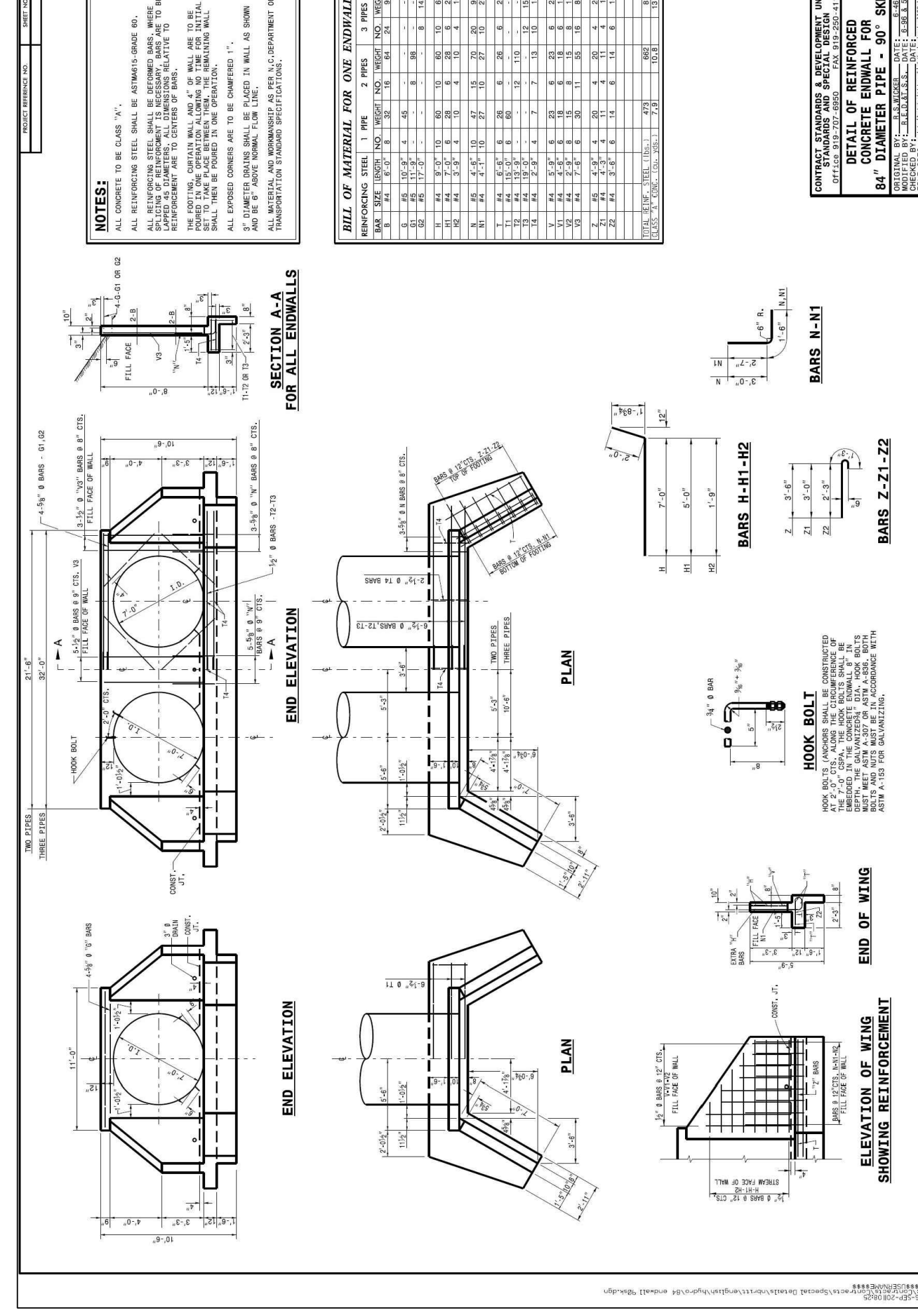
NOTE 1 - "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

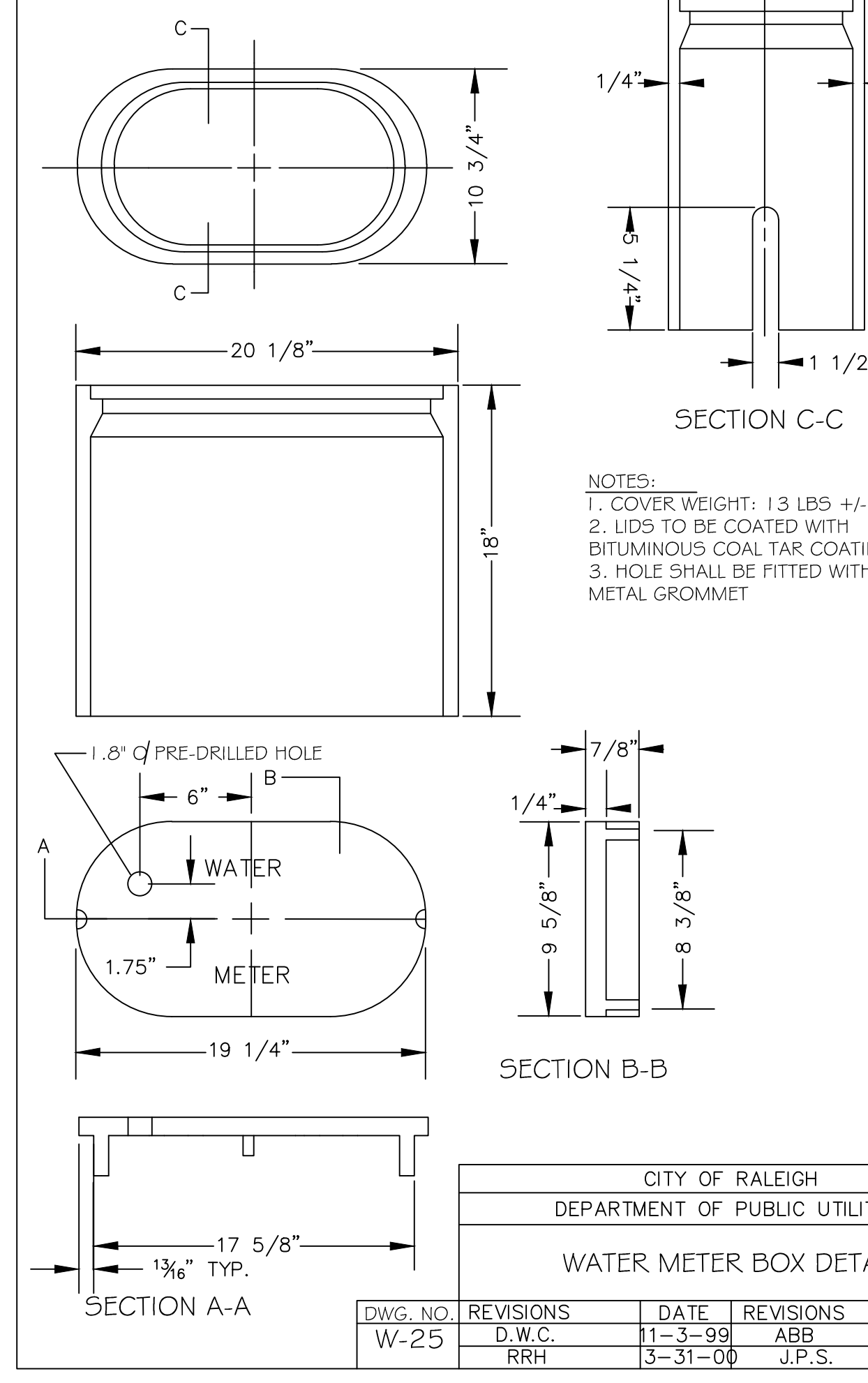


NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH 5-29.

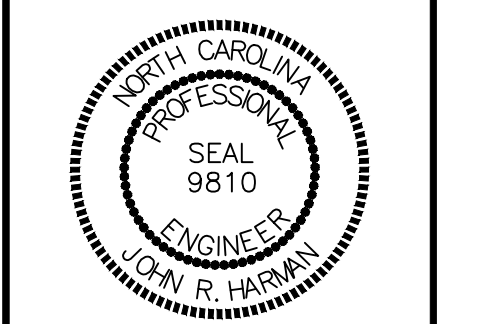
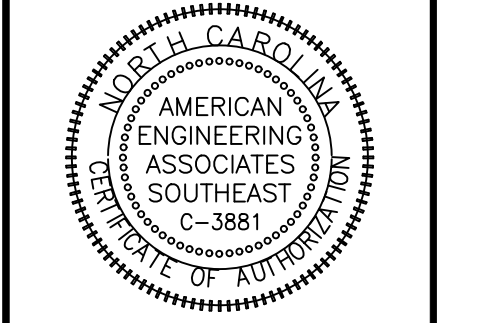
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20	A.B.B.	4-6-04		
	D.H.L.	6-18-08		



BILL OF MATERIAL FOR ONE MANHOLE	
NO.	DESCRIPTION
1	MANHOLE FRAME
2	MANHOLE COVER
3	VALVE BOX
4	VALVE BOX SKIRT
5	VALVE BOX LID
6	VALVE BOX GASKET
7	VALVE BOX BOLT
8	VALVE BOX NUT
9	VALVE BOX WASHER
10	VALVE BOX SKIRT BOLT
11	VALVE BOX SKIRT NUT
12	VALVE BOX SKIRT WASHER



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
WATER METER BOX DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25	D.W.C.	11-3-99	ABB	1-20-05
	RRH	3-31-00	J.P.S.	11-4-10



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/8/2002	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2004	WAKE COUNTY AND CITY OF RALEIGH TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2004	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2005	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SMM/LL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	KALAS FALLS CIVIL DETAILS

SHEET NO.:
CD8

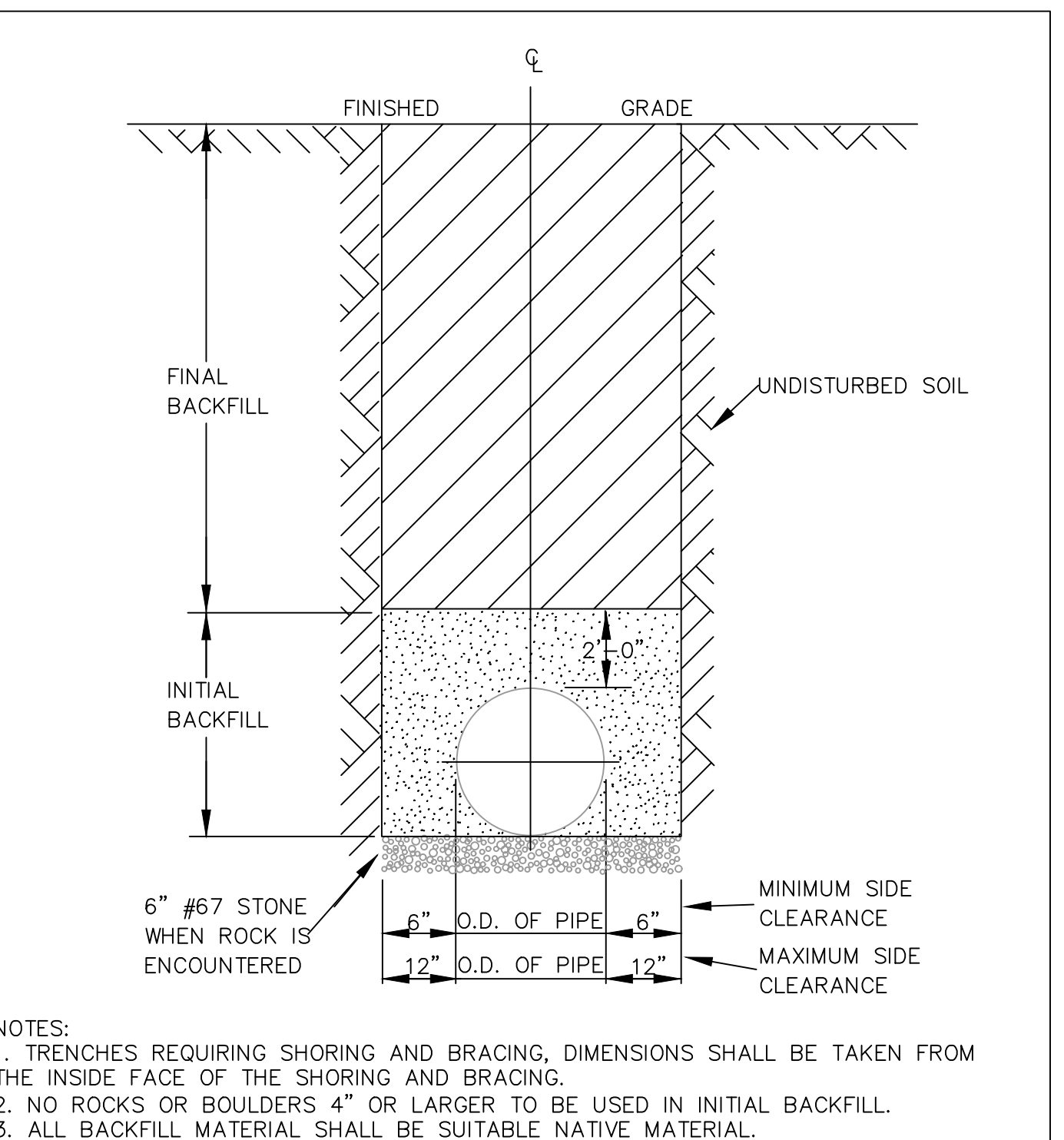
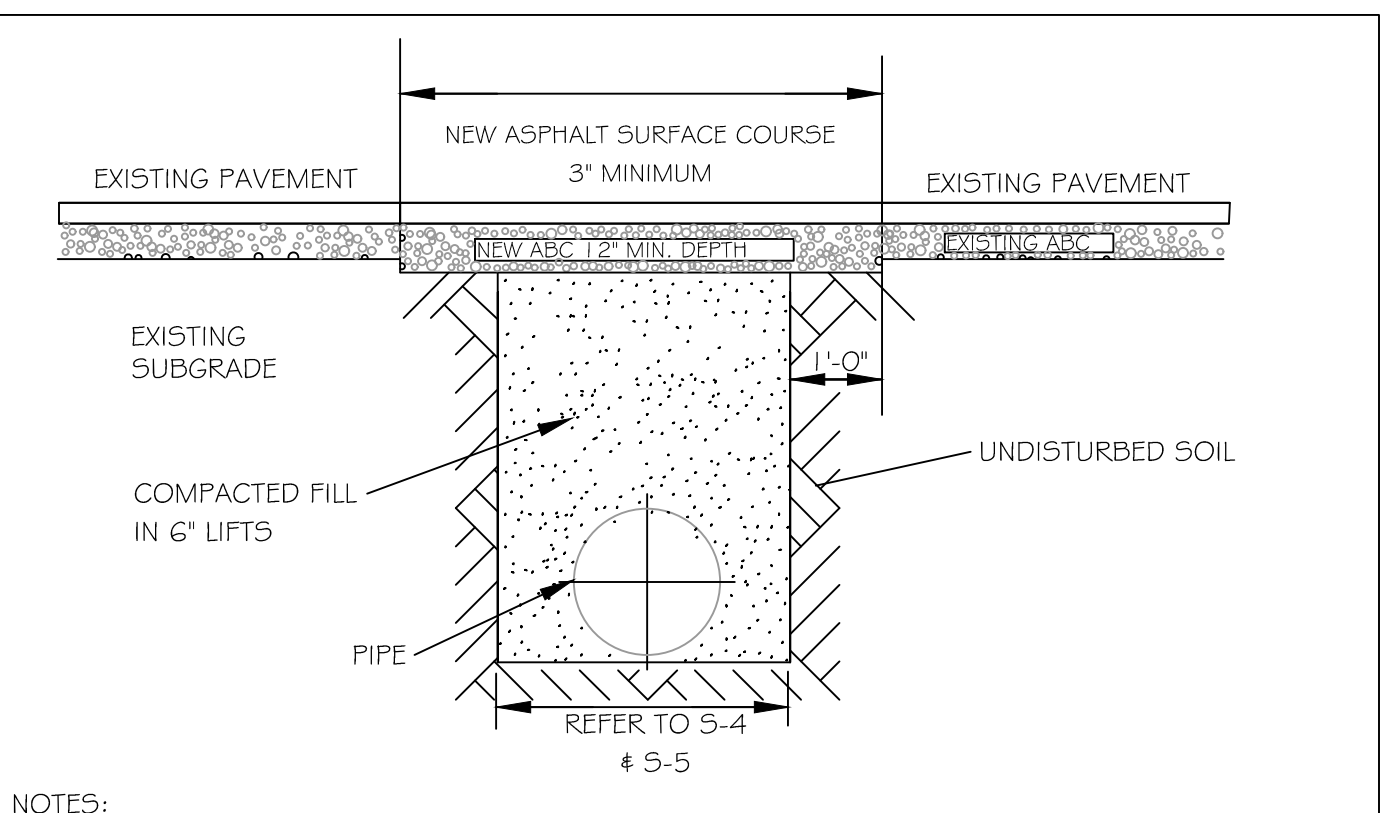
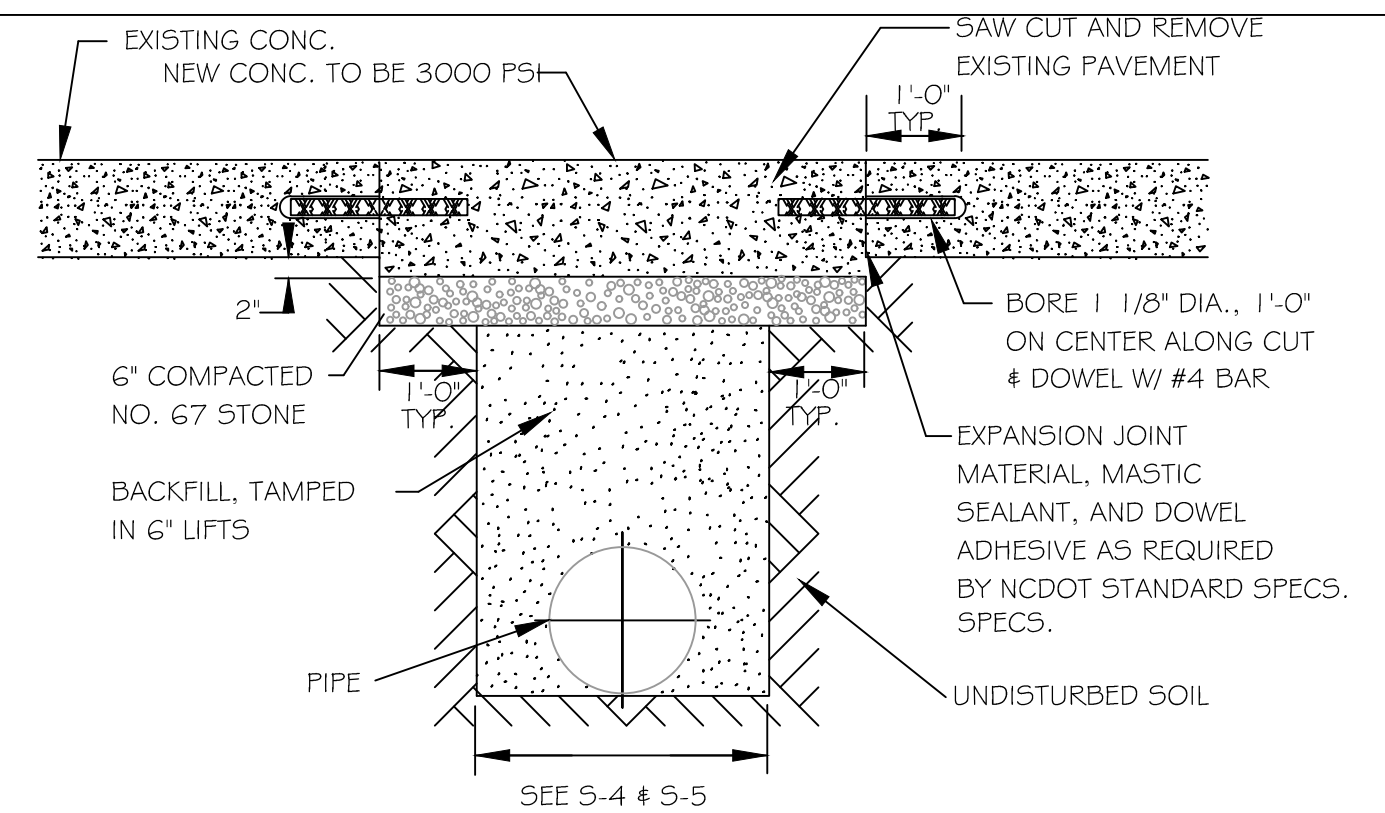
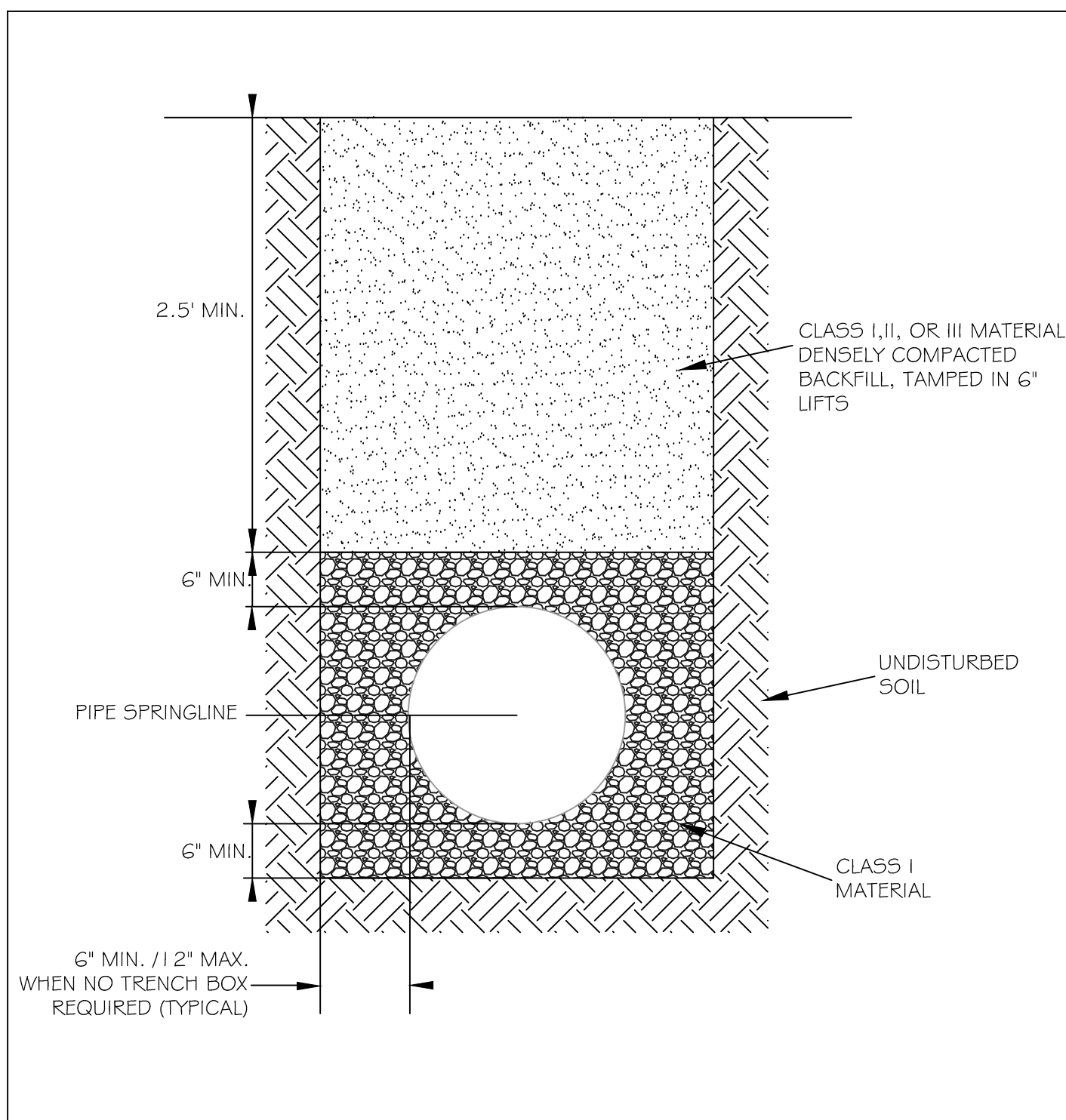
Public Sewer Collection / Extension System
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Public Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

City of Raleigh
Public Utilities Department Permit # _____

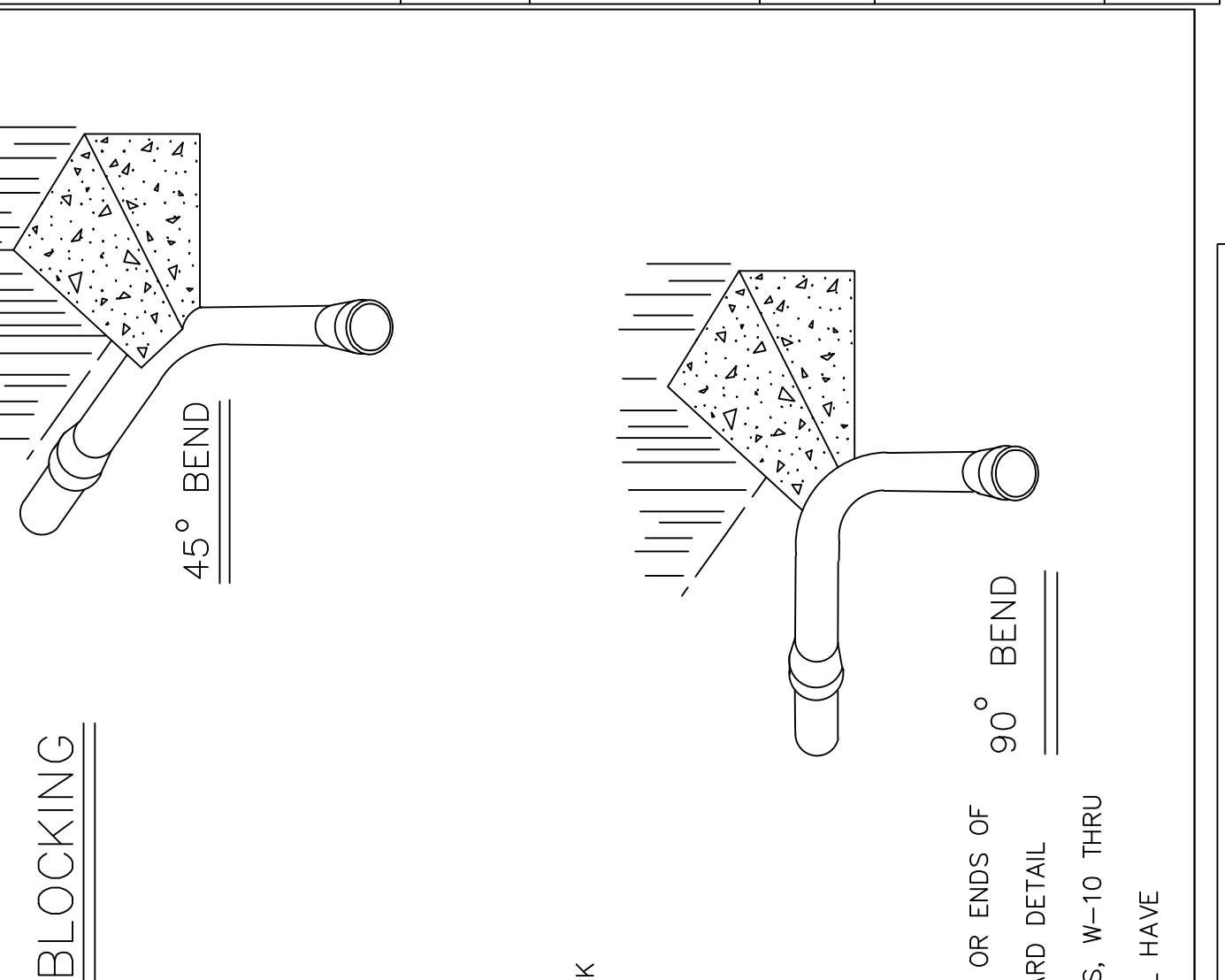
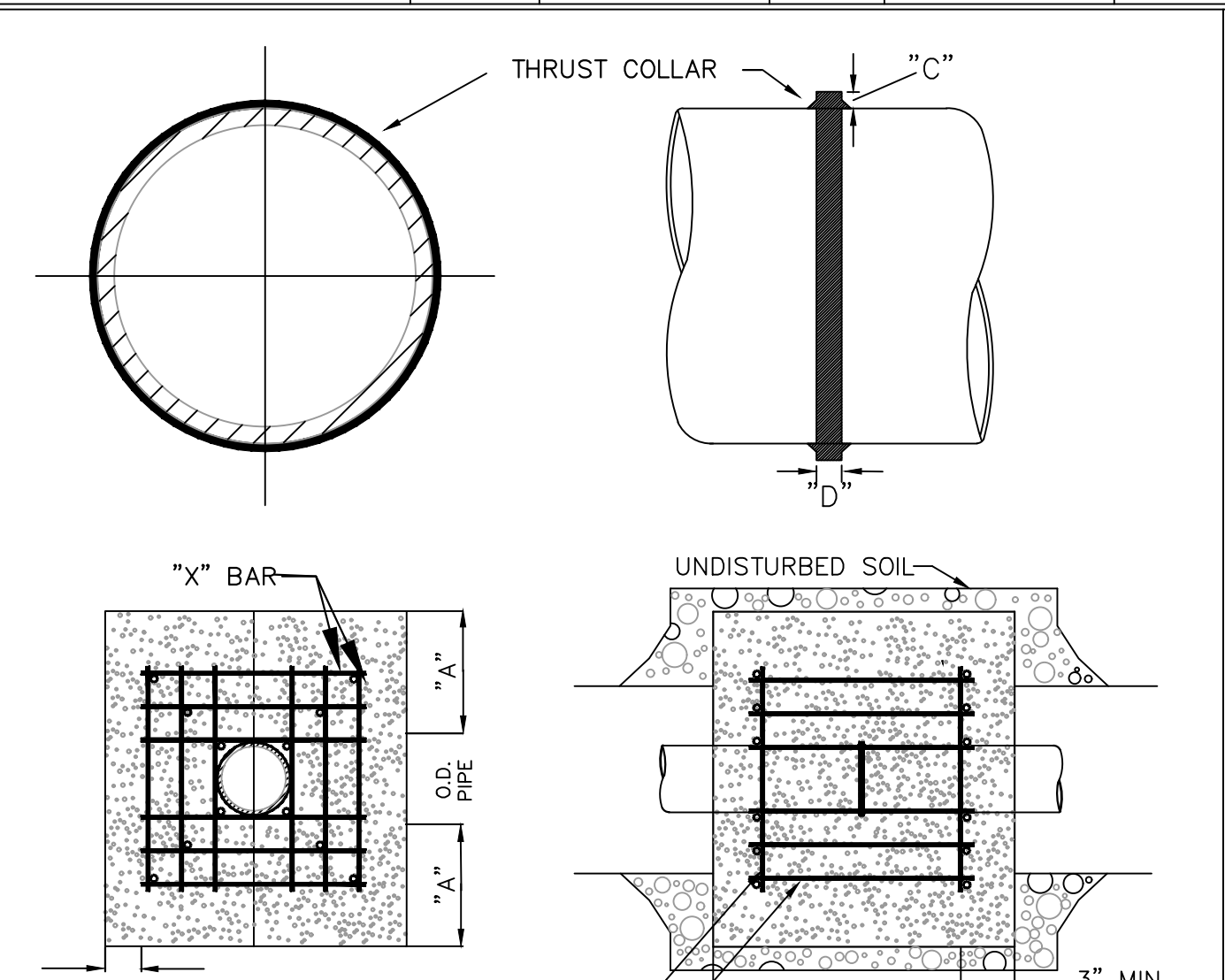
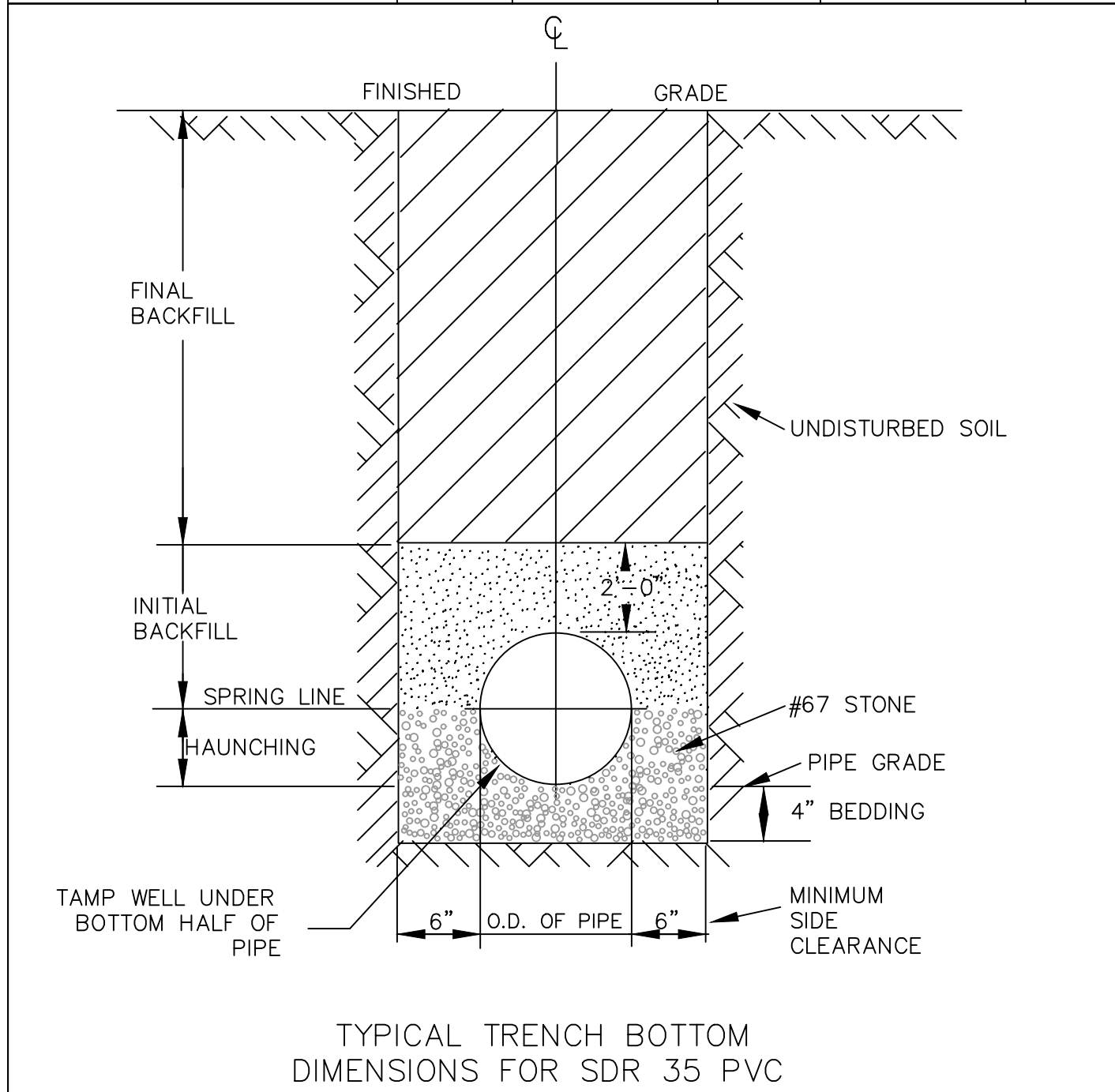
North Carolina
*** 3 Days Before Digging ***
811 or 1-800-632-4949
North Carolina 811
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD BEDDING DETAILS FOR CCFRPM PIPES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-1	J.P.S	10-8-10		

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD CONCRETE PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-2	D.W.C.	6-23-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S	10-8-10

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD ASPHALT PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-3	D.W.C.	11-1-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:

- 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 NON-TRAFFIC AREAS.

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.	PIPE1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0" + O.D.	PIPE1.502 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"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

RESTRAINING COLLAR DESIGN DATA FOR SEWER FORCE MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-6	RRH	1-21-00		
	D.H.L.	6-18-08		

STANDARD THRUST BLOCKING VIEWS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-7	D.W.C.	9-7-99	D.H.L.	6-18-08

TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00

TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	8-30-00		

AERIAL PIPE CROSSING GENERAL NOTES:

- ALL MATERIALS UTILIZED ON THESE DETAIL SHEETS SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE CITY OF RALEIGH PUBLIC UTILITIES HANDBOOK UNLESS NOTED OTHERWISE HEREIN.
- RESTRAINED JOINT PIPE AND FITTINGS SHALL CONSIST OF BOLTED RETAINER RINGS AND WELDED RETAINER BARS OR BOLTLESS TYPE WHICH INCLUDE DUCTILE IRON LOCKING SEGMENTS AND RUBBER RETAINERS. BOLTS FOR RESTRAINED JOINTS (IF APPLICABLE) SHALL CONFORM TO ANSI B18.2. RESTRAINED PIPE AND FITTINGS SHALL BE FLEX-RING OR LOK-RING TYPE JOINTS AS MANUFACTURED BY AMERICAN CAST IRON PIPE CO.; TR FLEX AS MANUFACTURED BY US PIPE, SUPER-LOCK AS MANUFACTURED BY CLOW, BOLT-LOK OR SNAP-LOK AS MANUFACTURED BY GRIFFIN PIPE PRODUCTS, OR EQUAL.

CONCRETE PROPERTIES SHALL BE AS FOLLOWS:
 CONCRETE COMPRESSIVE STRENGTH = 4000 PSI
 NOMINAL SLUMP = 4 INCHES
 WATER/CEMENTITIOUS MATERIALS RATIO = 0.45 (MAX)
 AIR CONTENT = 6% ± 1.5%

CONCRETE SHALL BE COMPOSED OF CEMENT, WATER, COARSE AGGREGATES, FINE AGGREGATES AND AIR. CEMENT SHALL BE TYPE I/II OR II IN ACCORDANCE WITH ASTM C-150. MATERIAL REQUIREMENTS FOR ALL FINE AND COARSE AGGREGATES SHALL CONFORM TO ASTM C-33. COARSE AGGREGATE SHALL BE SIZE NO. 57 OR 67. AN APPROVED CLASS "F" FLYASH MAY BE SUBSTITUTED FOR AN EQUAL AMOUNT OF CEMENT BY WEIGHT UP TO 25%.

ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".

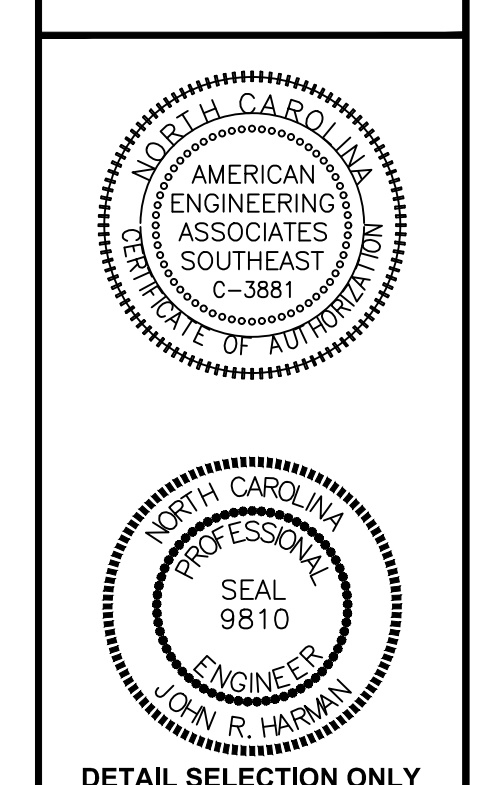
CONVENTIONAL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND SHALL BE PLACED IN ACCORDANCE WITH "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS" (LATEST EDITION) AS PUBLISHED BY THE CONCRETE REINFORCING INSTITUTE. SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".

NEOPRENE BEARING PADS SHALL BE FORMED FROM PREVIOUSLY UNVULCANIZED, 100% VIRGIN NEOPRENE, WITH DUROMETER HARDNESS = 50.

PILES SHALL BE STRUCTURAL STEEL HP12x53 PILES AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. PILES SHALL BE DRIVEN TO DEPTHS REQUIRED TO OBTAIN AN ULTIMATE BEARING CAPACITY OF NOT LESS THAN TWO TIMES THE DESIGN LOADING OF 30 TONS. PILES SHALL PENETRATE A MINIMUM OF FIFTEEN FEET INTO UNDISTURBED SOIL. IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED. IF REQUESTED BY THE ENGINEER, PILES SHALL BE TESTED TO DETERMINE THE ULTIMATE CAPACITY OF THE PILES. THE METHOD OF LOAD TESTING SHALL CONFORM TO ASTM D1143 AND THE NORTH CAROLINA STATE BUILDING CODE, WHERE PILES ARE EXPOSED, PILES SHALL BE PAINTED AND/OR COATED IN ACCORDANCE WITH THE CITY SPECIFICATIONS.

CITY OF RALEIGH
 DEPARTMENT OF PUBLIC UTILITIES
 AERIAL PIPE CROSSING
 GENERAL NOTES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-10	D.H.L.	6/16/08		



REVISIONS

NO.	DATE	REVISION
1	7/21/00	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2004	WAKE COUNTY AND CITY OF RALEIGH
3	11/07/04	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
4	3/11/05	CONSTRUCTION DRAWING COMMENT RESPONSES
		CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/ALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD9

March 21, 2025

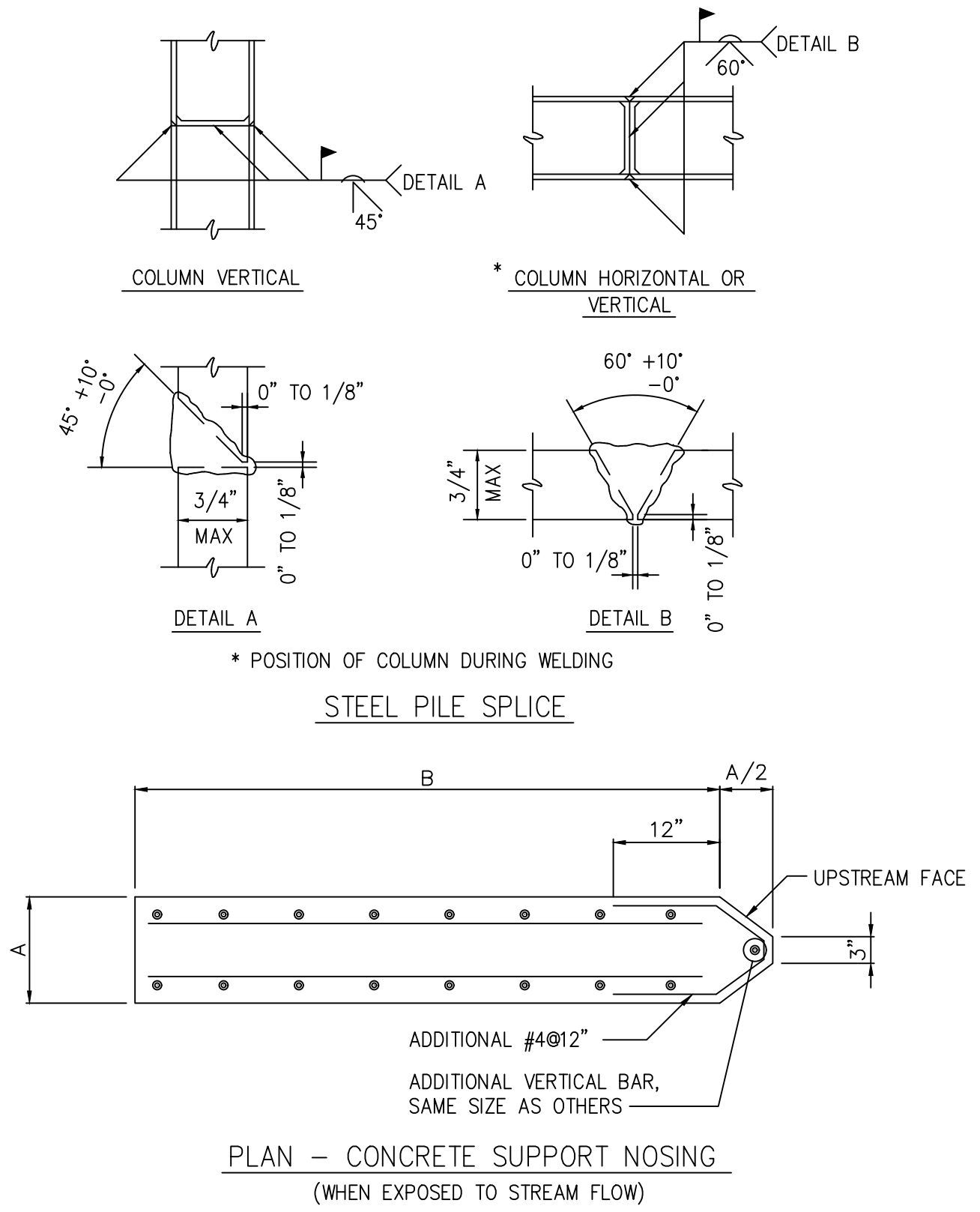
Public Sewer Collection / Extension System
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Public Water Distribution / Extension System
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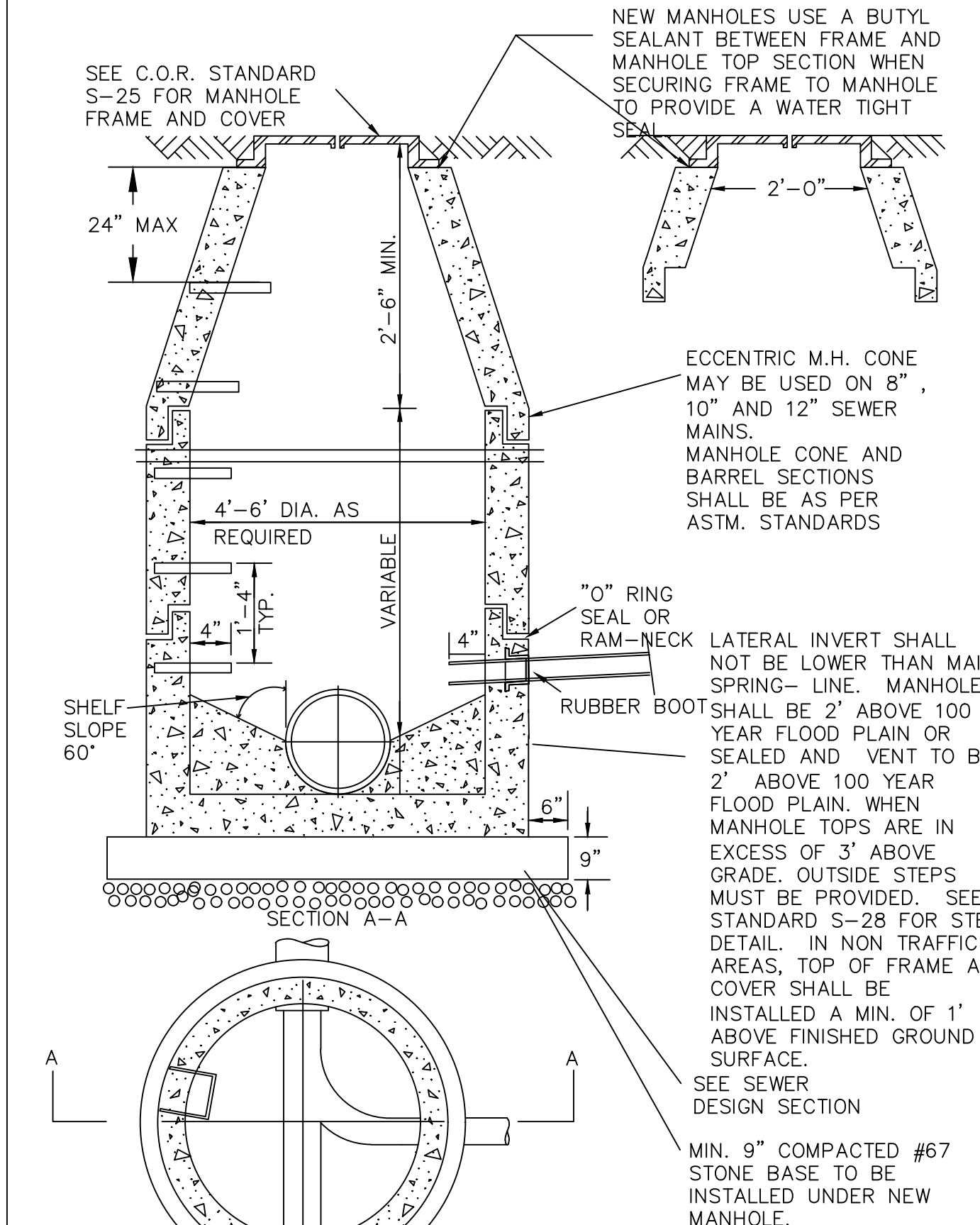
City of Raleigh
 Public Utilities Department Permit # _____

City of Raleigh
 Public Utilities Department Permit # _____

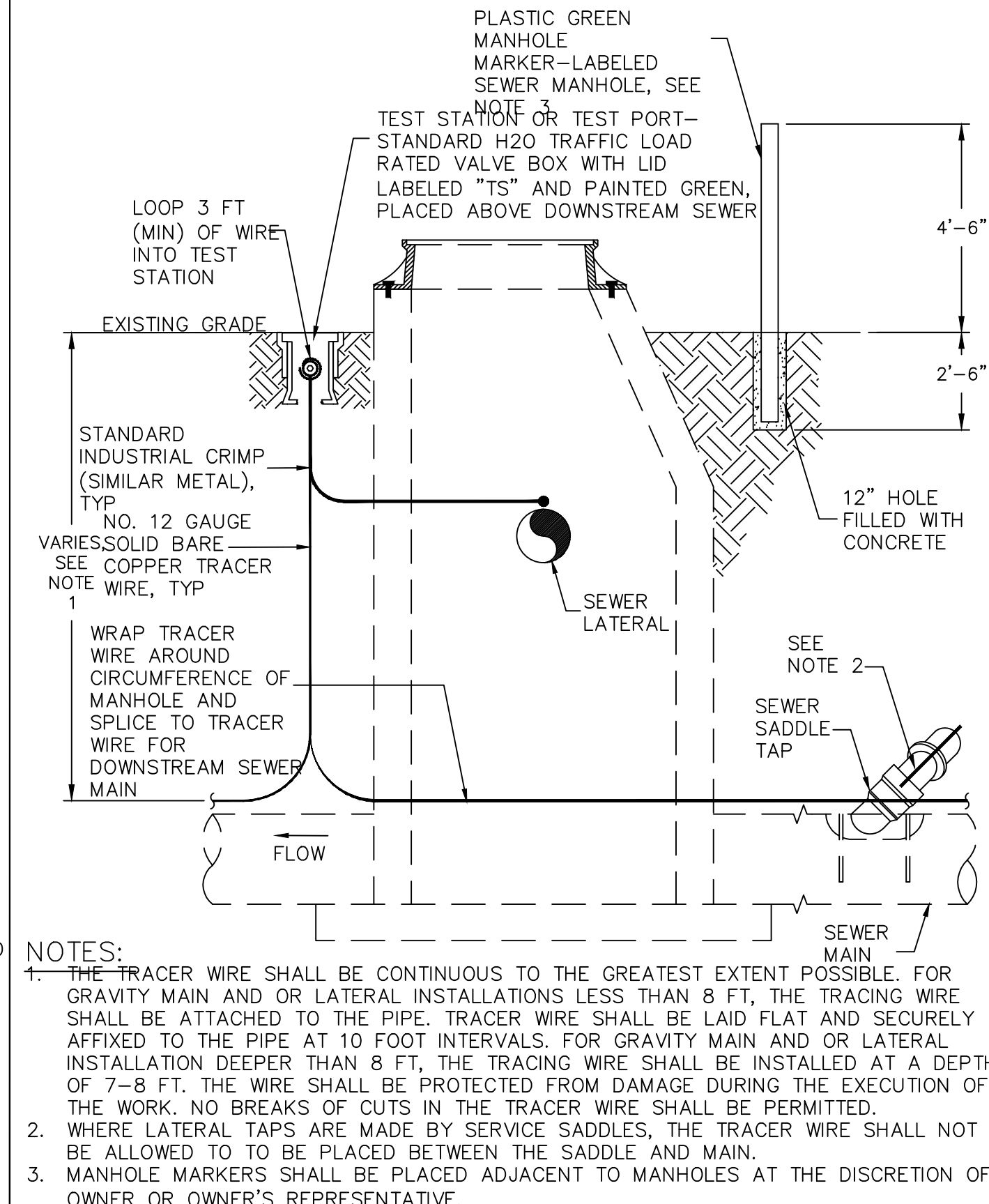
North Carolina 811
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-4939
 Remote Ticket Entry
 http://nc811.org/remoteticketentry.htm



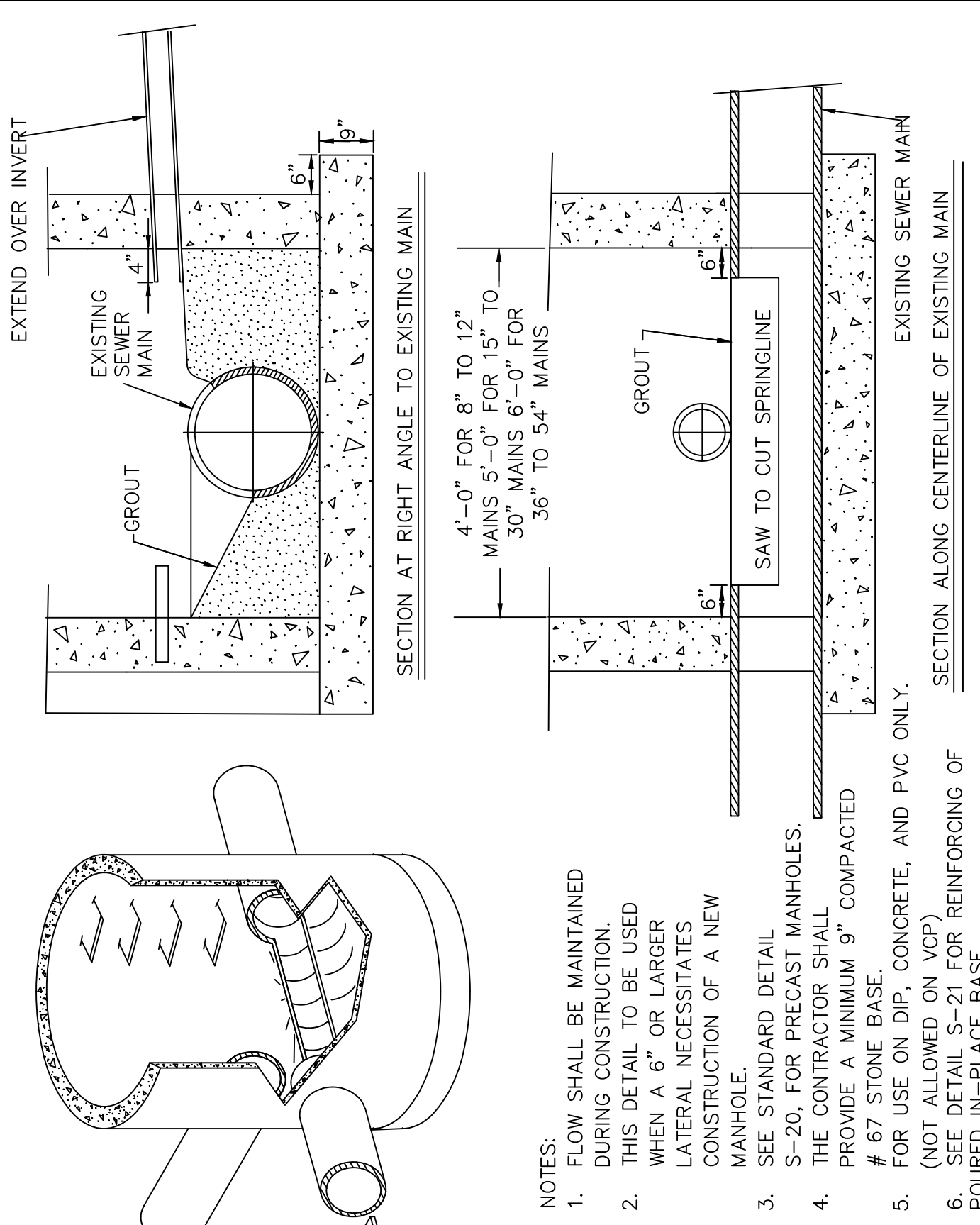
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
AERIAL PIPE CROSSING CONCRETE SUPPORT DETAILS			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-19	D.H.L.	6/16/08	



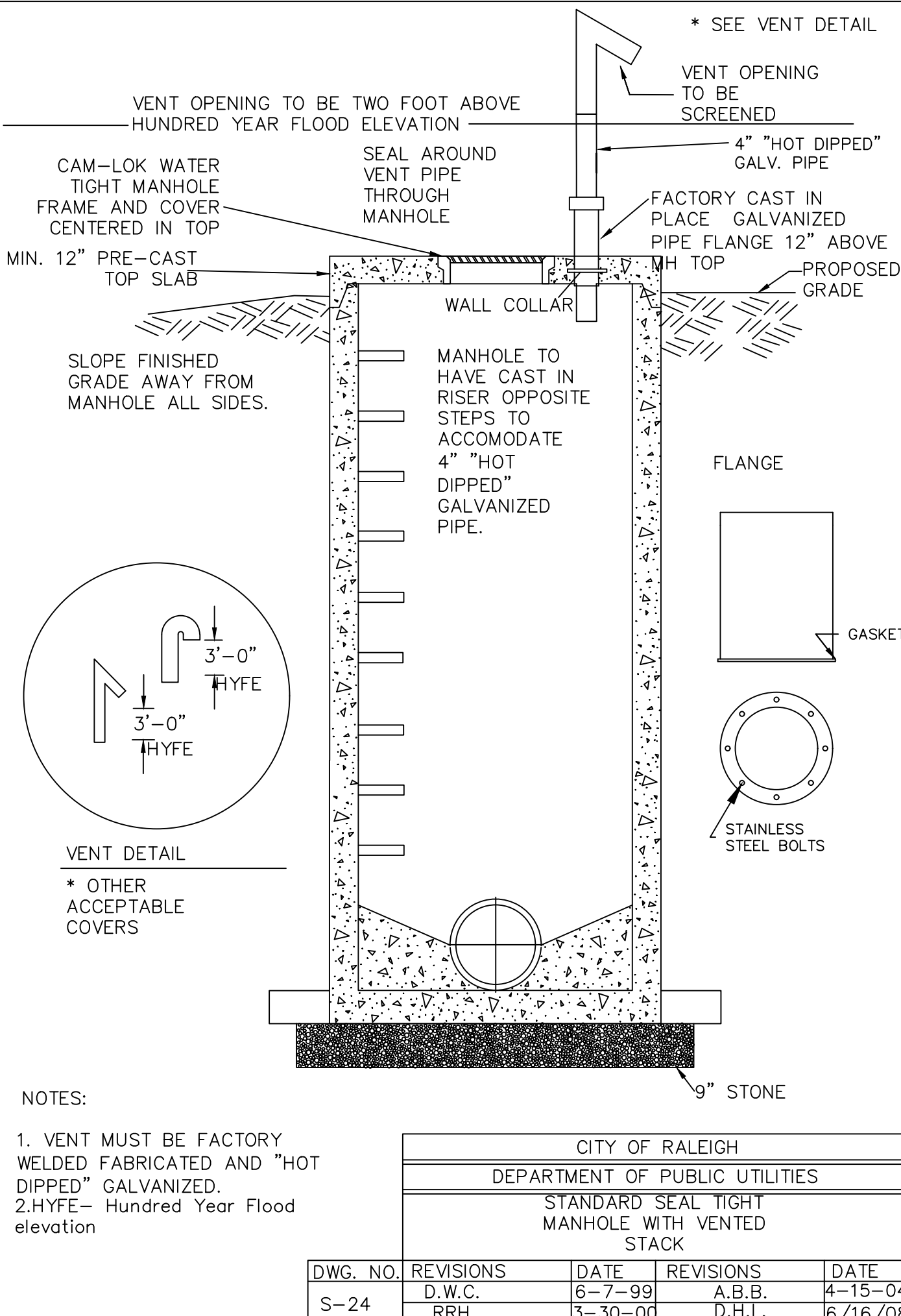
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD PRECAST SANITARY SEWER MANHOLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-20	Y.C.A.	12-31-92	ABB
	RRH	3-30-00	D.H.L.
		2-21-05	
		6-16-08	



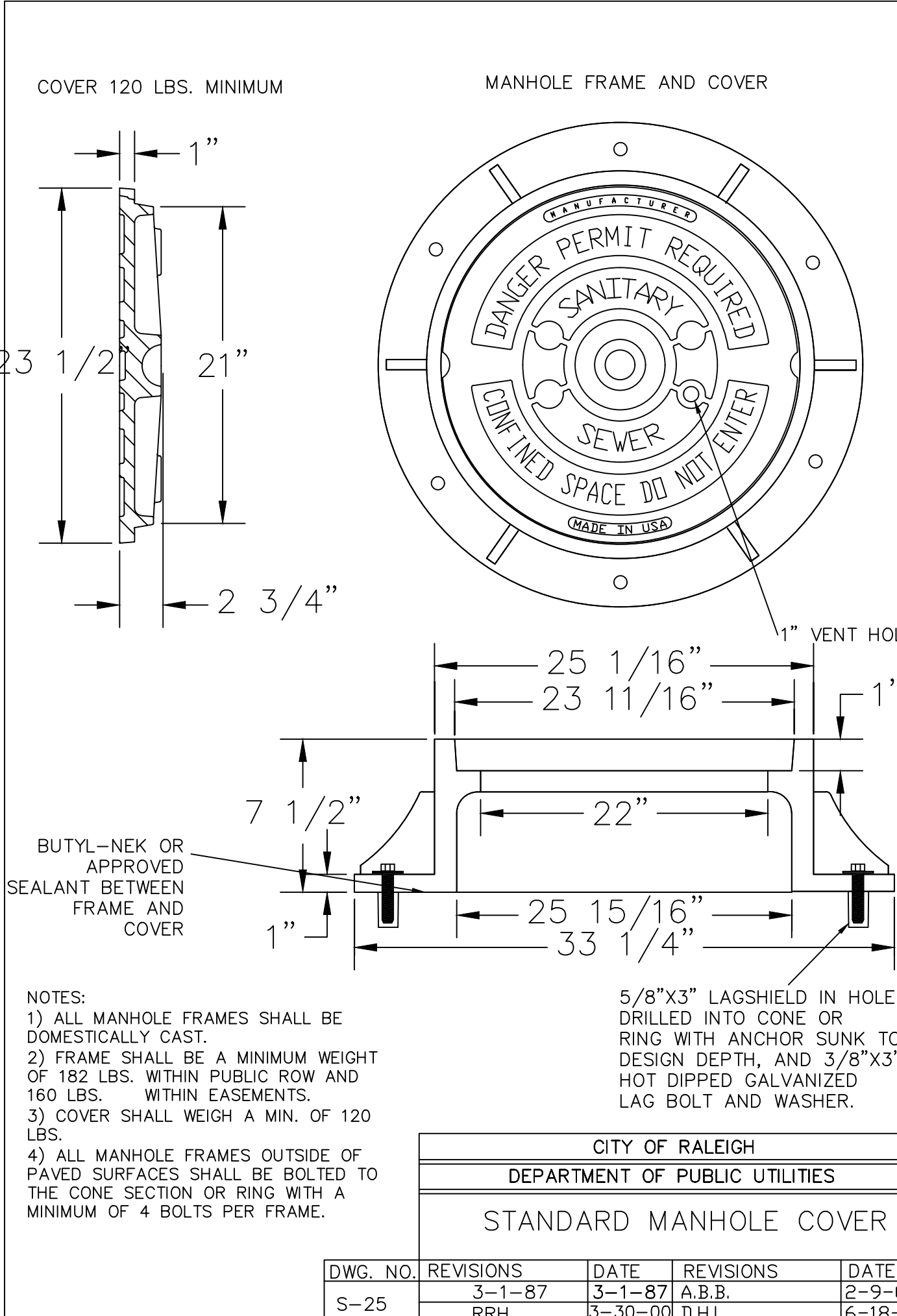
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-20A	WKD	09-14	



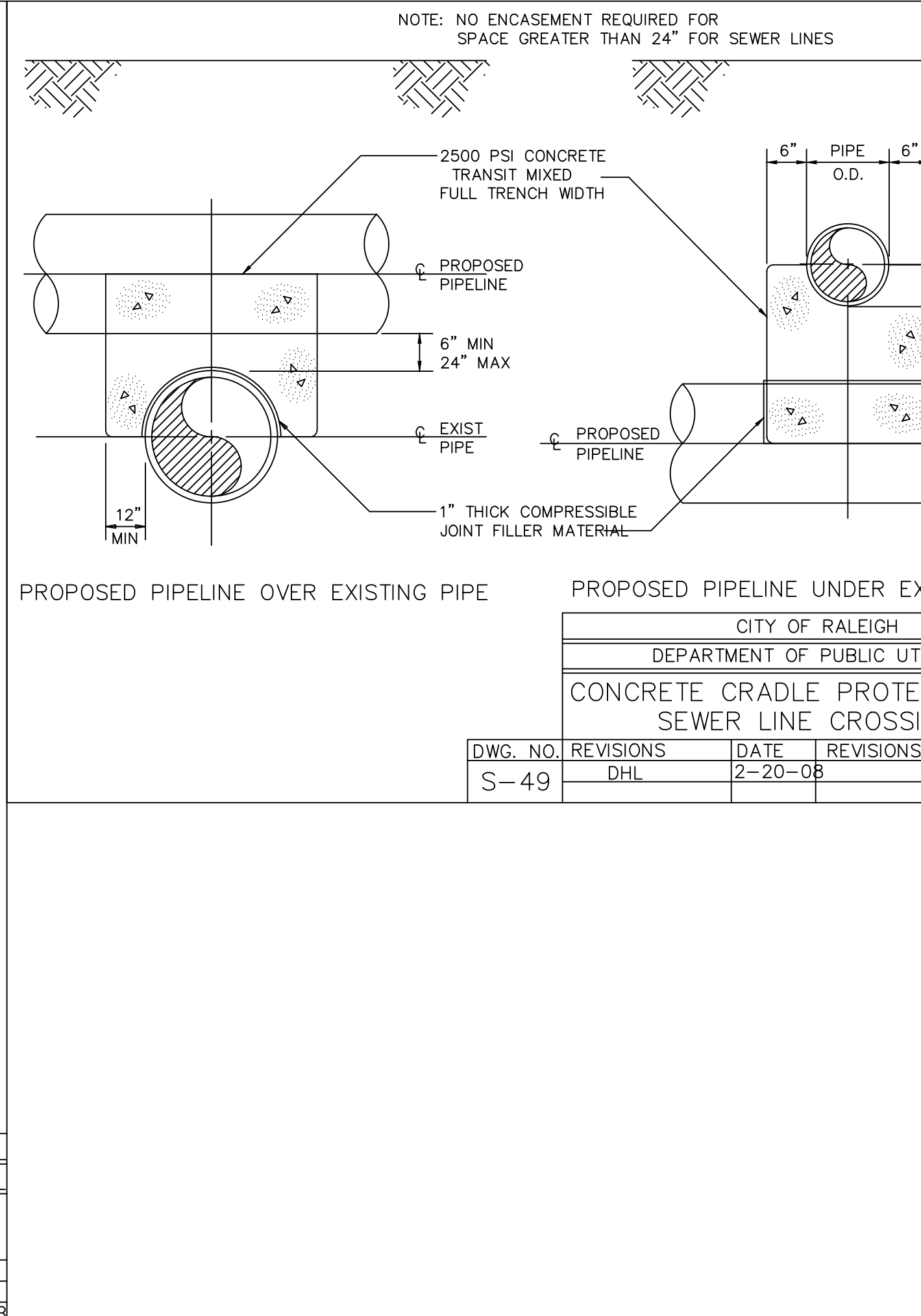
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE INSTALLATION OVER EXISTING SEWER MAIN			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-22	Y.C.A.	12-31-91	A.B.B.
	RRH	3-30-00	D.H.L.
		1-19-05	
		6/16/08	



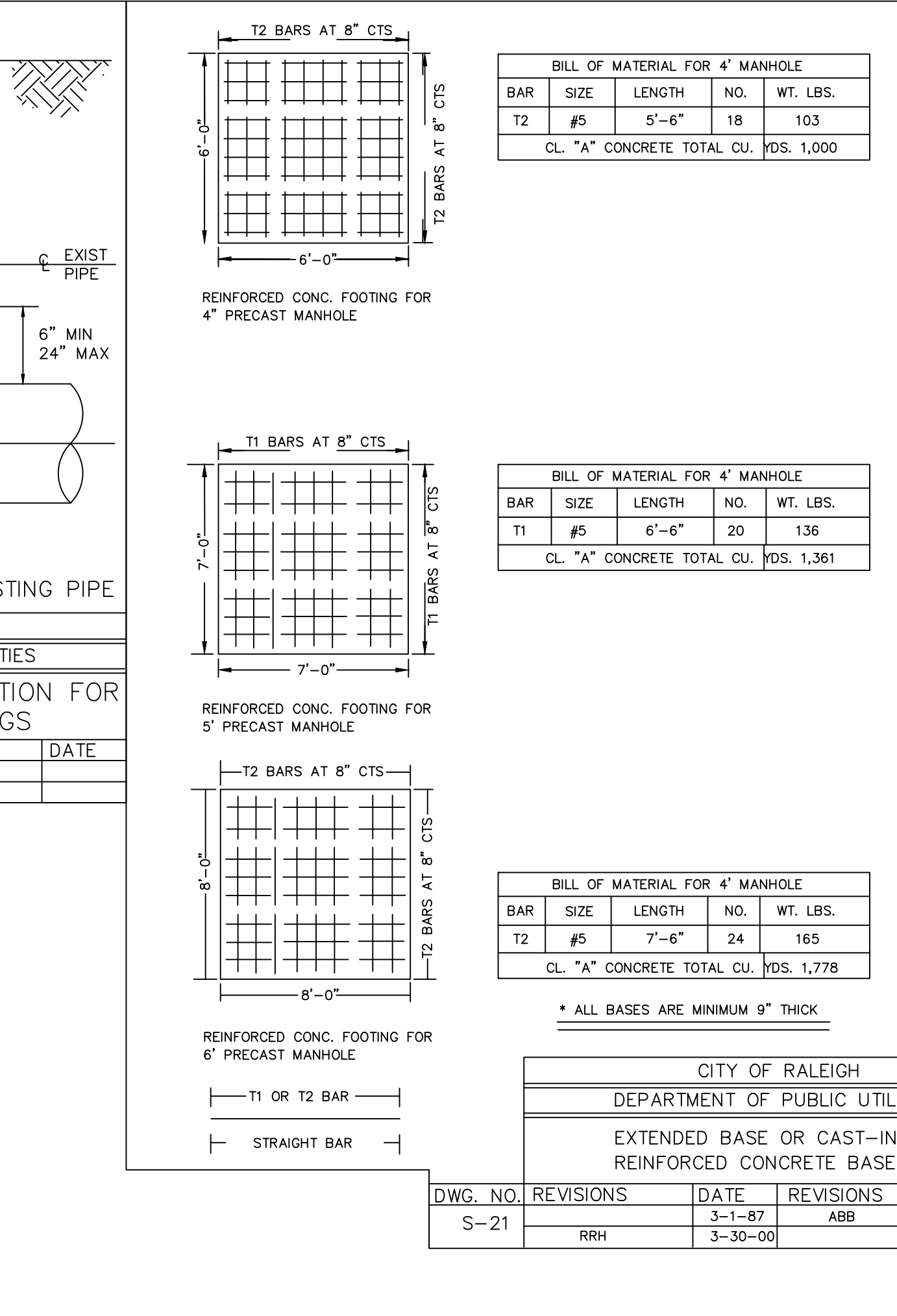
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DEPARTMENT OF PUBLIC UTILITIES			
STANDARD SEAL TIGHT MANHOLE WITH VENTED STACK			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-24	D.W.C.	6-7-99	A.B.B.
	RRH	3-30-00	D.H.L.
		4-15-04	
		6/16/08	



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE COVER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-25		3-1-87	3-1-87
	RRH	3-30-00	D.H.L.
		2-9-05	
		6-18-08	



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-49	DHL	2-20-08	



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
EXTENDED BASE OR CAST-IN-PLACE REINFORCED CONCRETE BASE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-21	RRH	3-1-87	ABB
		3-30-00	

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

REGISTERED PROFESSIONAL ENGINEER
 STATE OF NORTH CAROLINA
 NO. 8814
 SEAL 9810
 JOHN HARMAN

DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/21/08	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	TOWN OF ROLESVILLE DRAWING COMMENT RESPONSES
4	9/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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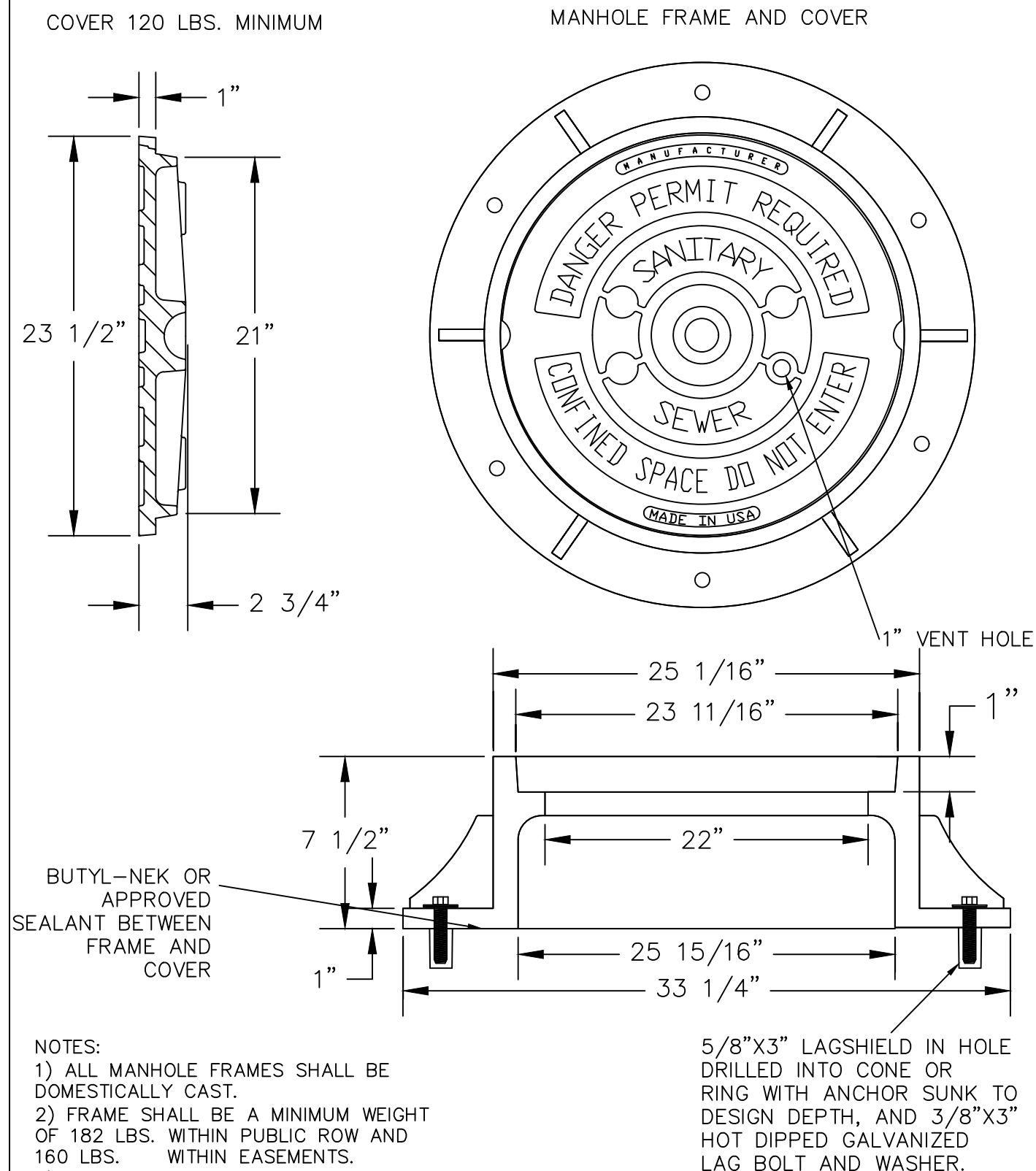
KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BHJ/H
 DRAWN BY: MM/ALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD10

Public Sewer Collection / Extension System
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 City of Raleigh
 Public Utilities Department Permit #

Public Water Distribution / Extension System
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 City of Raleigh
 Public Utilities Department Permit #

North 811
 3 Days Before Digging
 North Carolina 811
 811 or 1-800-632-4949
 Remote Ticket Entry
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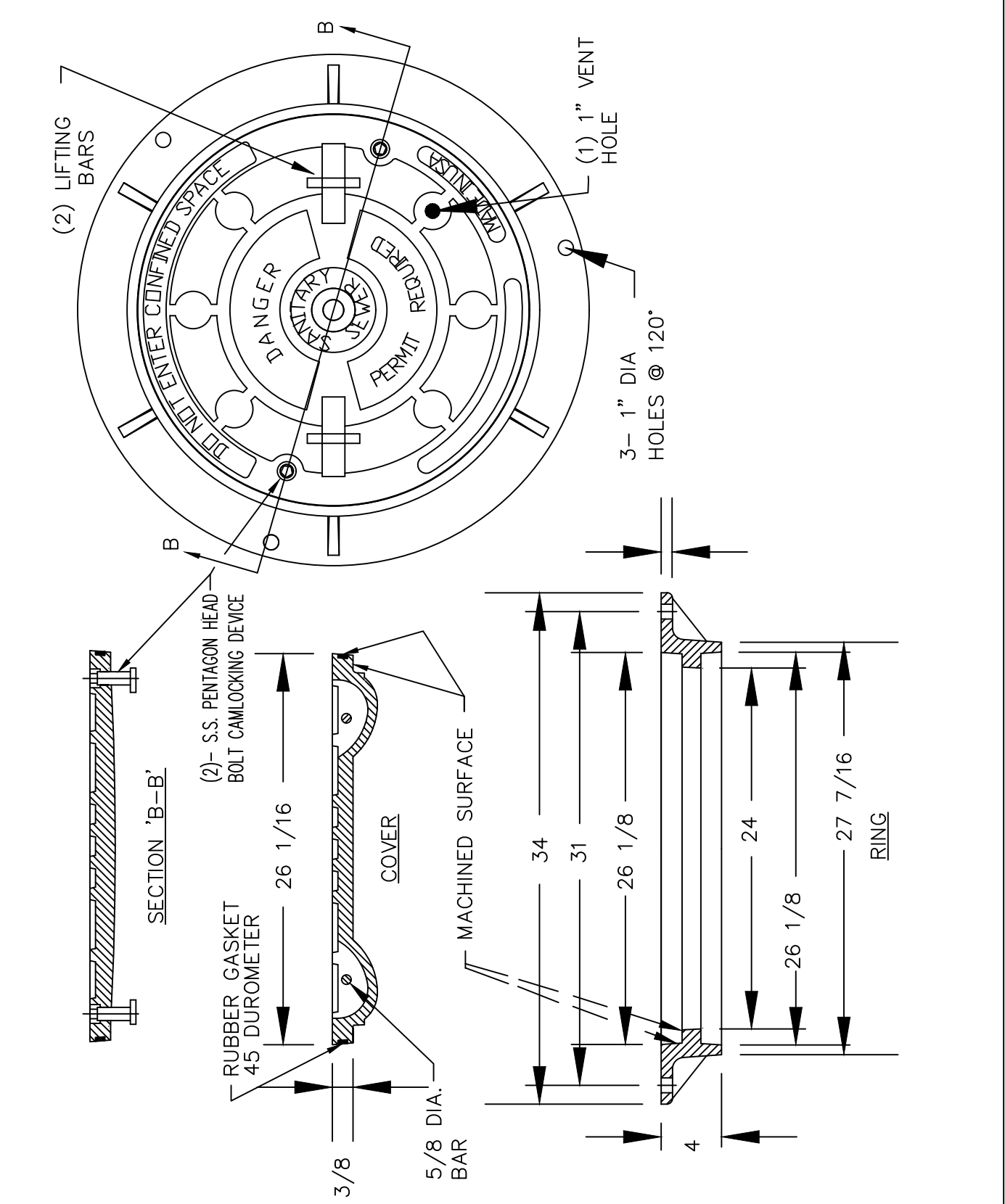


NOTES:

- 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.

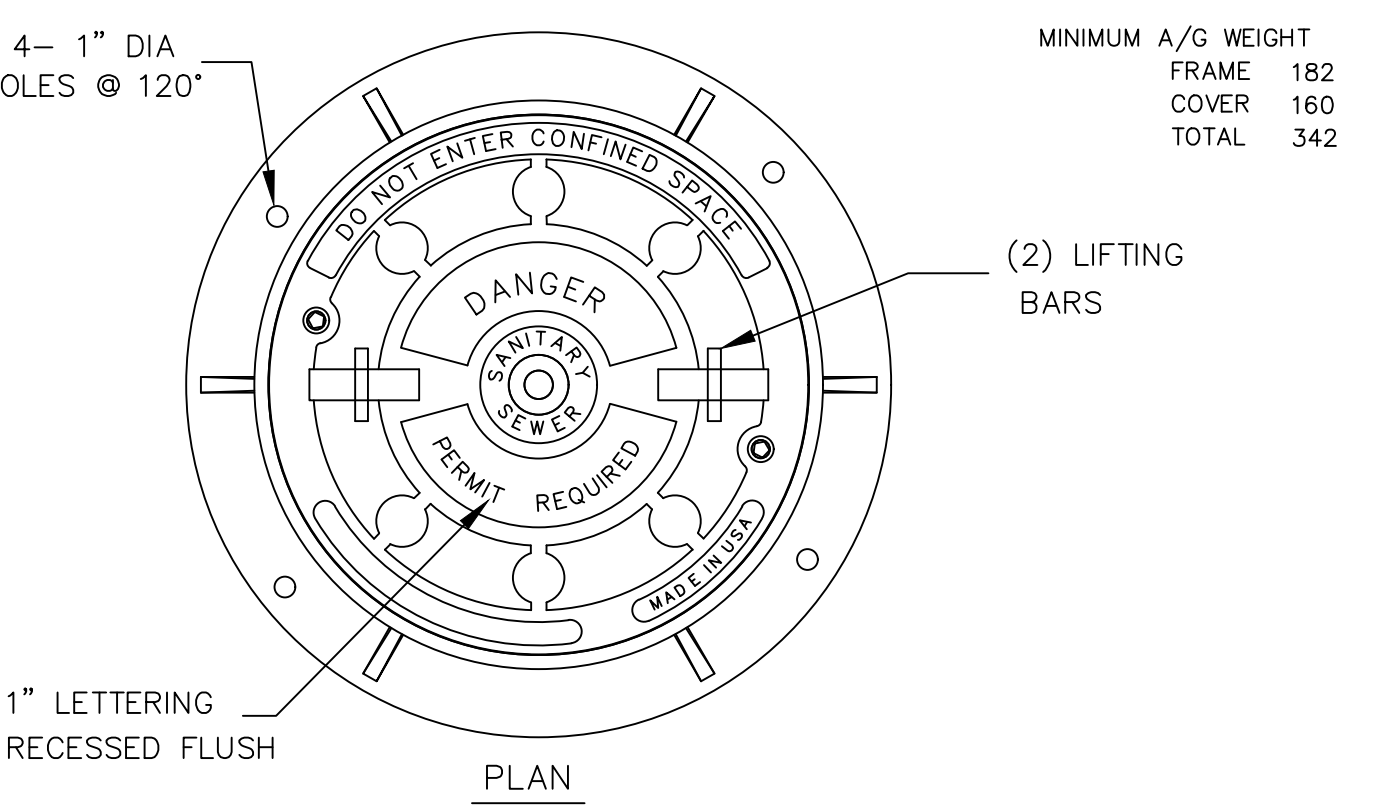
5/8"x3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 3/8"x3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25		3-1-87		2-9-05
		3-1-87	A.B.B.	
		3-30-00	D.H.L.	6-18-08



Note: solid cover required when water tight manhole specified.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
FLAT TOP MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25a		3-1-87		2-9-05
		3-1-87	A.B.B.	
		3-30-00	D.H.L.	6-18-08



MINIMUM A/G WEIGHT
FRAME 182
COVER 160
TOTAL 342

1" LETTERING RECESSED FLUSH

(2) LIFTING BARS

1" VENT HOLE

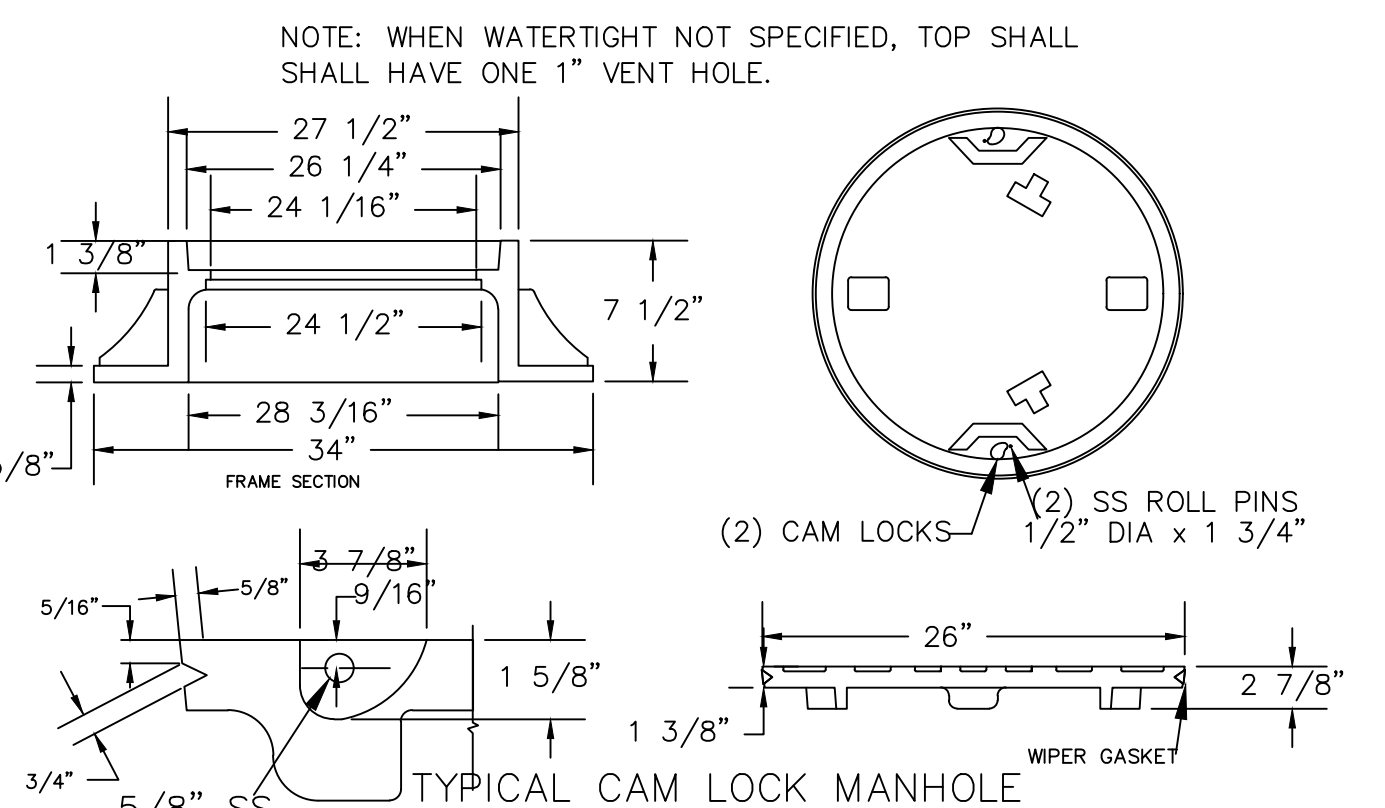
3- 1" DIA HOLES @ 120"

SECTION A-A

5/8" STAINLESS STEEL ROD

RING MUST BE ANCHORED IN ACCORDANCE WITH S-25

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
MANHOLE FRAME AND WATERTIGHT COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-26		3-1-87		8-29-05
		3-30-00	D.H.L.	6/18/08



NOTE: WHEN WATERTIGHT NOT SPECIFIED, TOP SHALL HAVE ONE 1" VENT HOLE.

(2) CAM LOCKS

(2) SS ROLL PINS 1/2" DIA x 1 3/4"

WIPER GASKET

FINNED GASKET IN VERTICAL FACE OF COVER TO MAKE WATERTIGHT.

BOTTOM OF FRAME

OPEN POSITION

COVER

1 1/4"

BOTTOM OF COVER

CLOSED POSITION

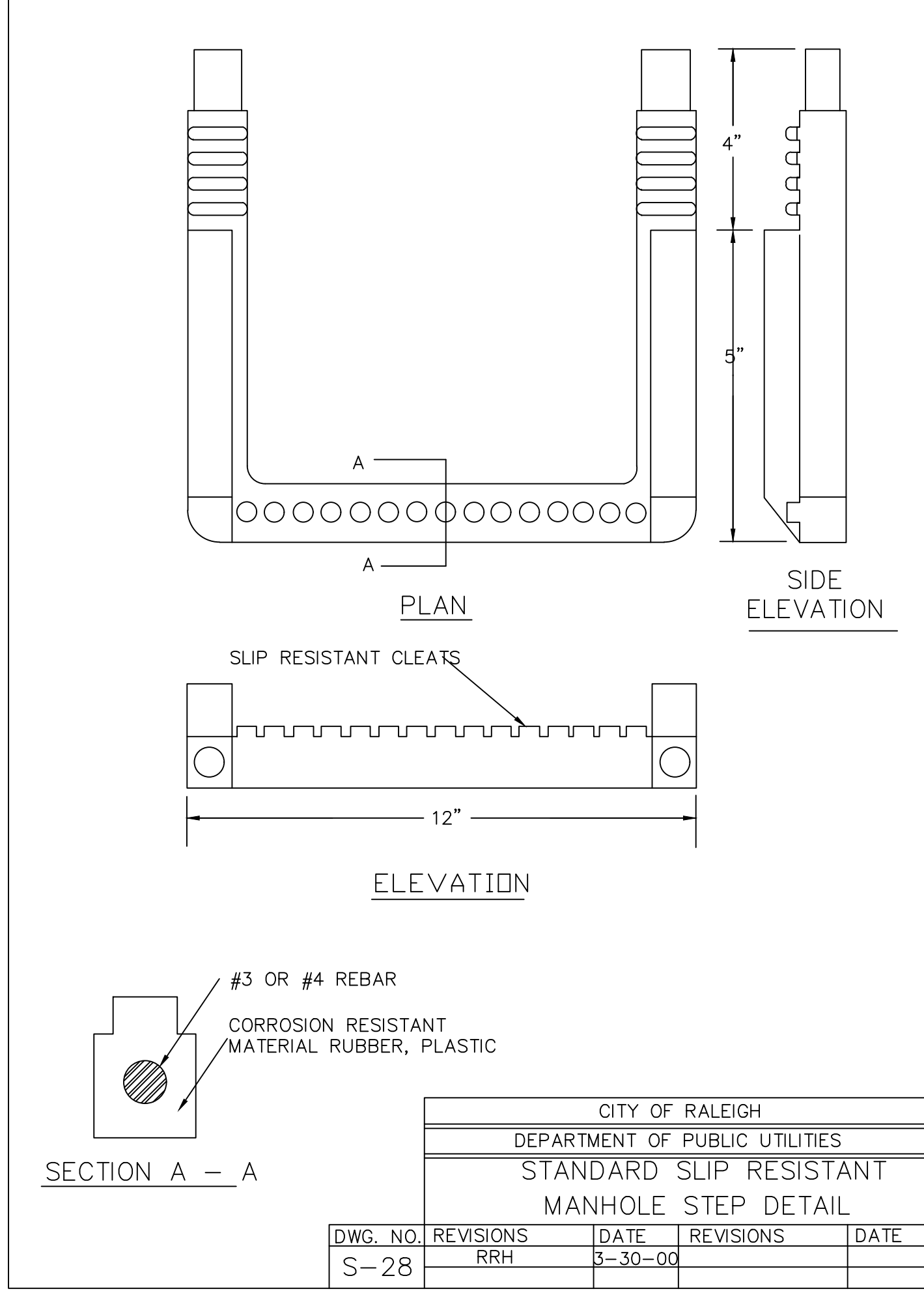
LOCKING DEVICE

FRAME

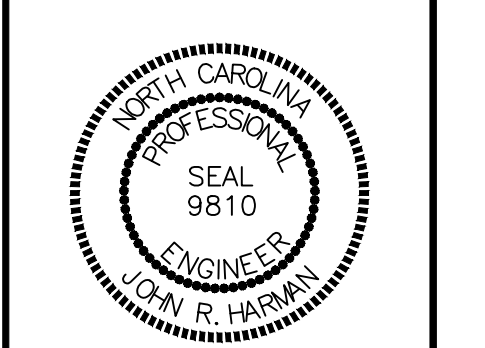
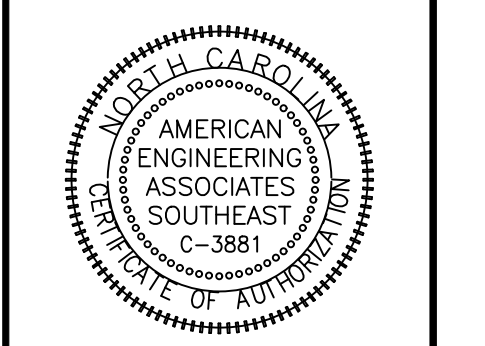
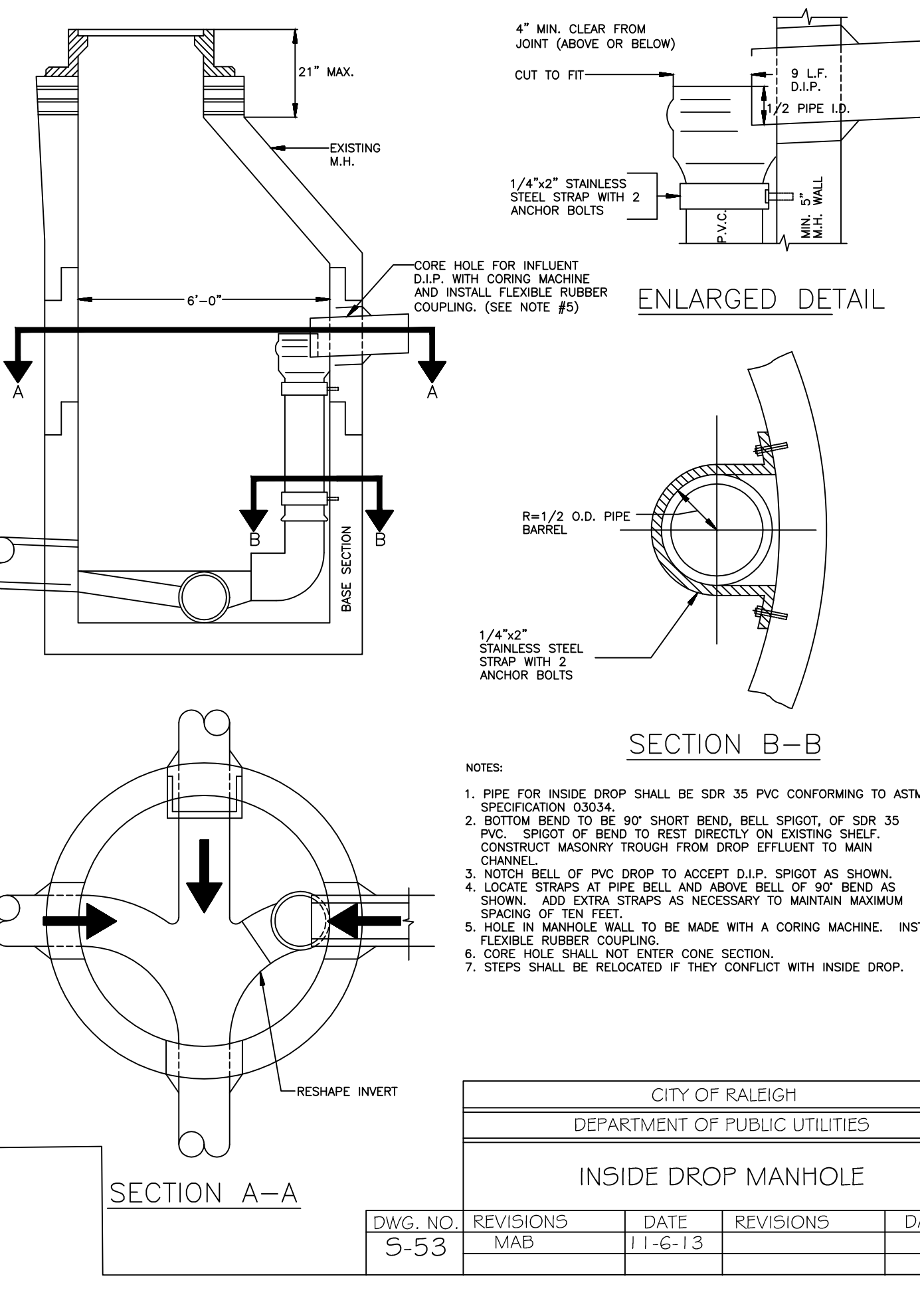
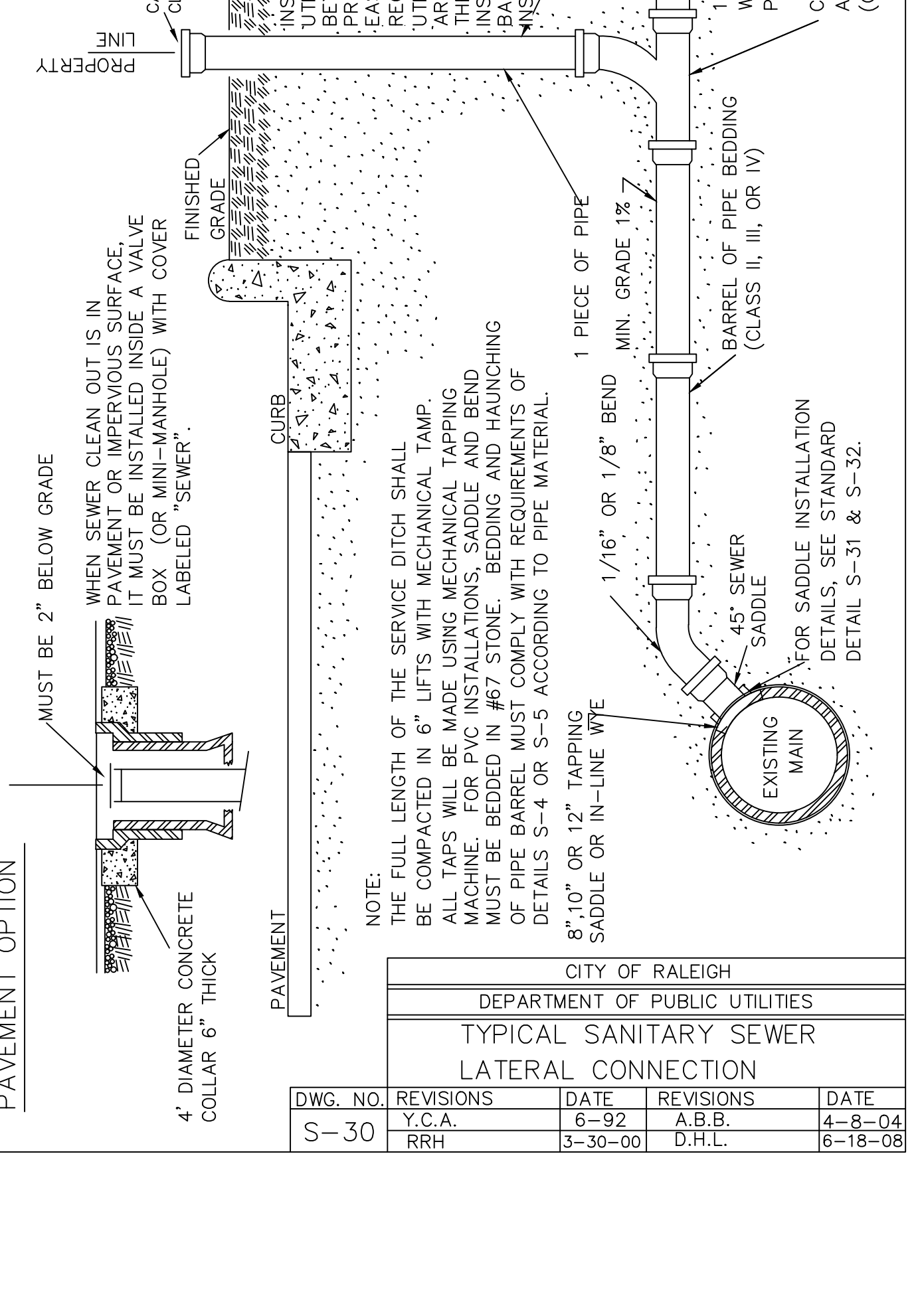
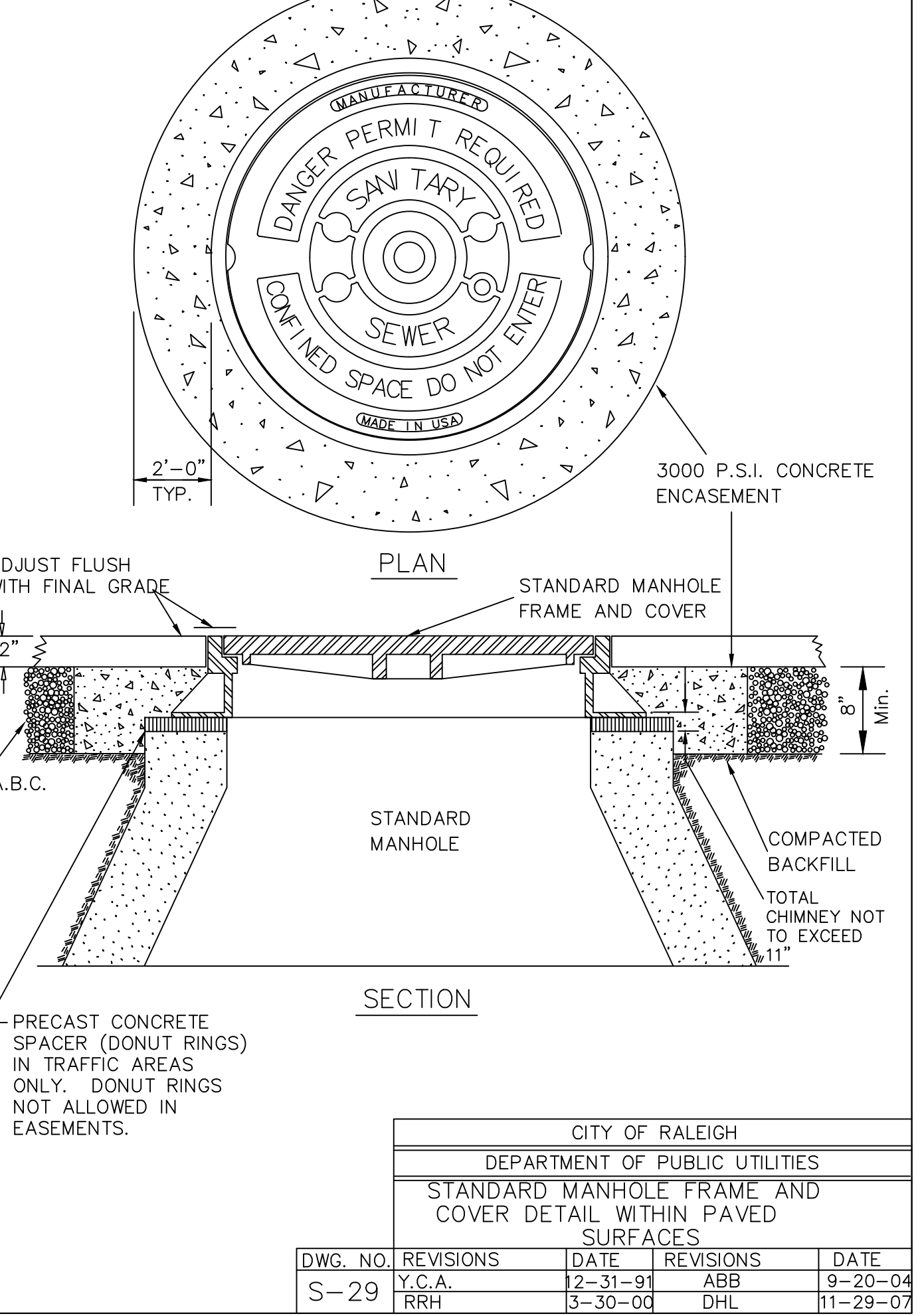
STANDARD - PENTAGON HEAD S.S.
OPTIONAL - S.S. HEX HEAD BOLT

RING MUST BE ANCHORED IN ACCORDANCE WITH S-25

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
WATER-TIGHT MANHOLE FRAME WITH CAM LOCK COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-27		3-30-00		6-18-08
		6-18-08	D.H.L.	



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28		3-30-00		
			RRH	



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/27/2001	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2004	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2004	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2005	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MALL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	KALAS FALLS CIVIL DETAILS
SHEET NO.:	CD11

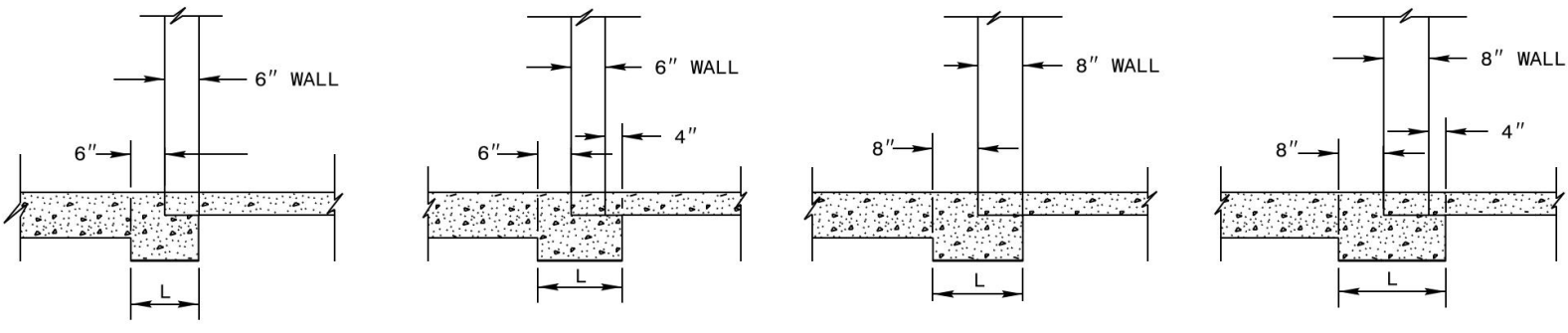
Public Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

Public Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

City of Raleigh
Public Utilities Department Permit # _____

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



TABLES OF QUANTITIES FOR PIPE SET IN PAD

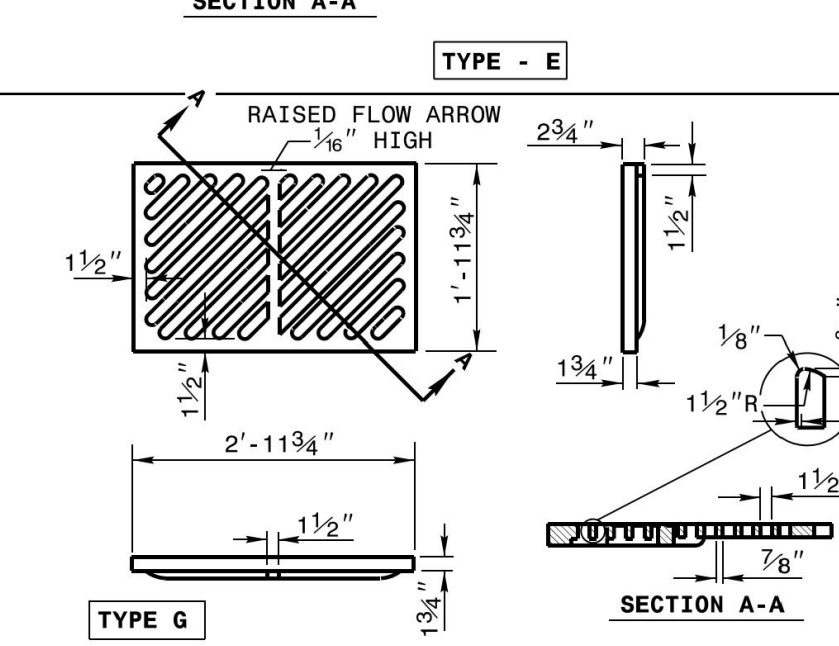
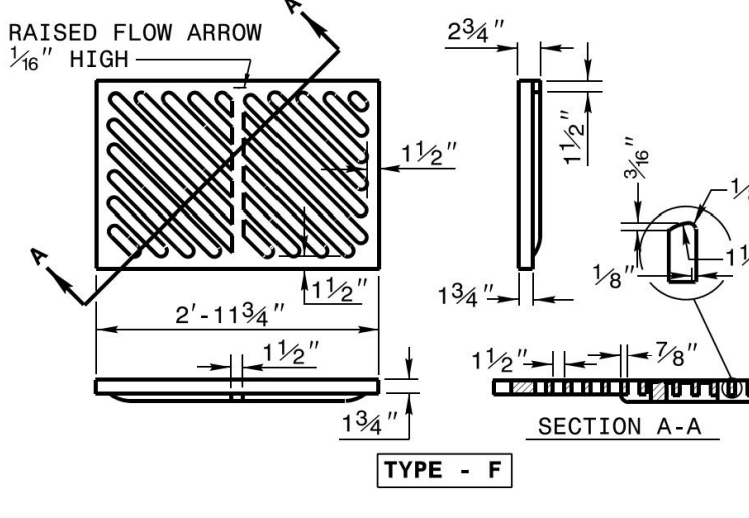
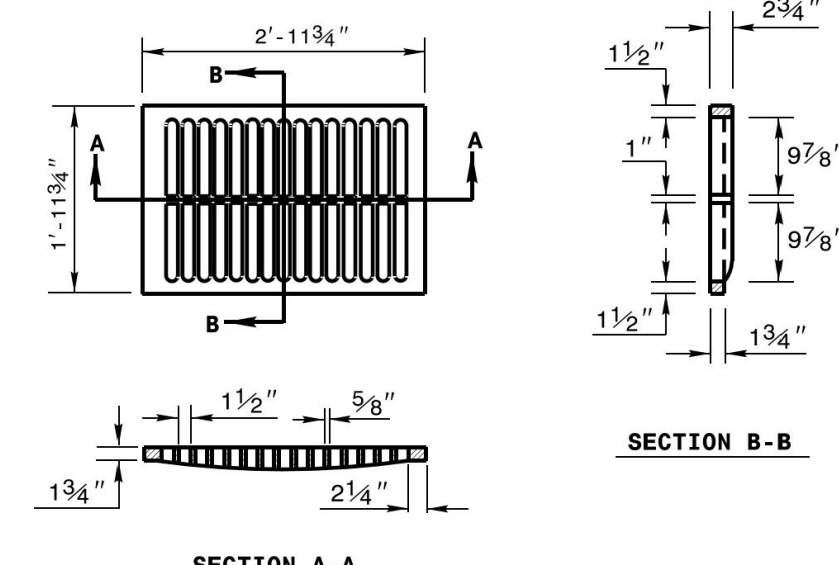
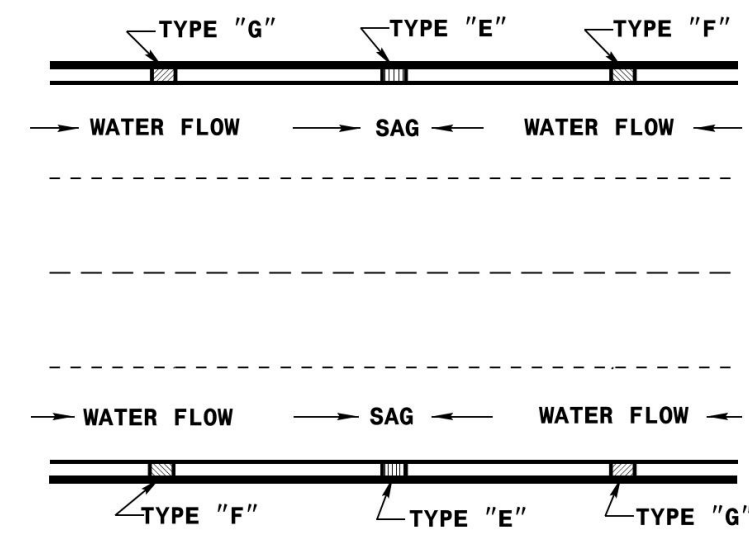
PIPE DIA	CY QUANTITIES PER LINEAL FT.			CY QUANTITIES PER LIN. FT. 12"	CY QUANTITIES PER LIN. FT. 16"	CY QUANTITIES PER LIN. FT. 20"
	WALL	WALL WITH LIP	FRAMING			
12"	0.005	0.007	0.008			
15"	0.006	0.008	0.010			
18"	0.007	0.010	0.012			
24"	0.011	0.014	0.018			
30"	0.014	0.018	0.023			
36"	0.017	0.022	0.025			
42"	0.021	0.028	0.033			
48"	0.028	0.038	0.047			
54"	0.035	0.047	0.058			
60"	0.042	0.056	0.071			
66"	0.050	0.067	0.084			
72"	0.059	0.078	0.098			

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

ROADWAY STANDARD DRAWING FOR
CONCRETE BASE PAD
FOR DRAINAGE STRUCTURES

11-181
SHEET 1 OF 1
840.00

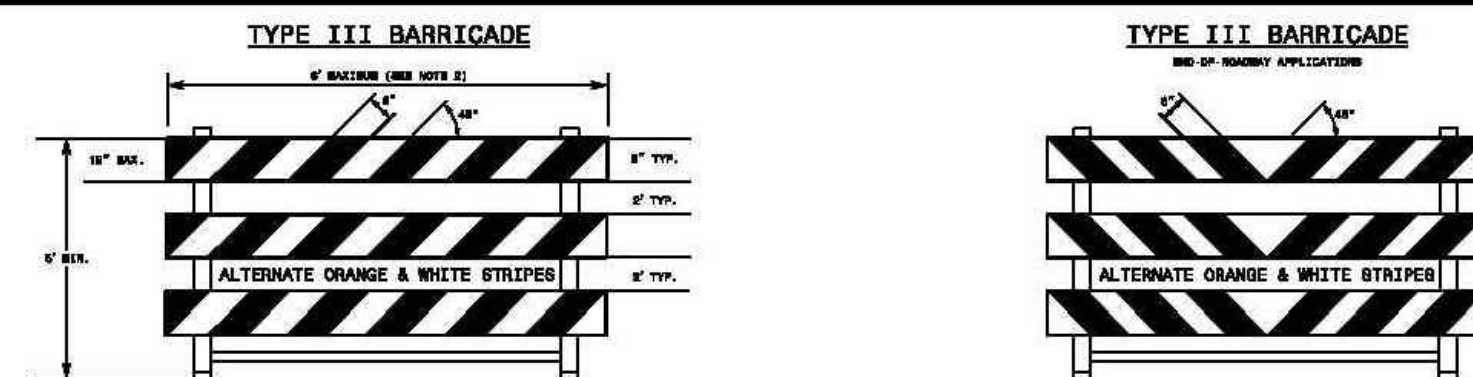
DETAIL SHOWING TYPES OF GRATES
USE ACCORDING TO WATER FLOW.



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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

11-181
SHEET 2 OF 2
840.03



- GENERAL NOTES**
- HORIZONTAL BAILS FOR BARRICADES MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/COMBUSTIBLE EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER HOOD APPROVED MATERIAL.
 - BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 6 FT UNLESS HOOD APPROVED.
 - ONLY HOOD APPROVED COMPOSITE AND ROLL-UP BARRICADE SHALL BE MOUNTED ON THE BARRICADE BAILS. MOUNT BARRICADE BARRICADE BAILS TO ENSURE BARRICADE WILL NOT BECOME DETACHED UNDER NORMAL LOAD AND TRAFFIC CONDITIONS.
 - SLABS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE BARRICADE UNLESS R11-3 IS REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
 - ASSEMBLY OF THE BARRICADE MUST BE SELF CERTIFIED BY THE ASSEMBLER.
 - BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY, WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
 - STRIPES ON WORK ZONE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES. SLOPE DOWNWARD TOWARD THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
 - USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
 - ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
 - PLACE BARRICADES ON OTHER APPROVED BALLASTING METHOD ON THE FEET OF THE FRAME. DO NOT PLACE BARRICADES ON TOP OF A STRIPED BAIL OR STABILIZER BAIL. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CLUMPS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE TO THE BARRICADE IF STRUCK BY A VEHICLE.

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

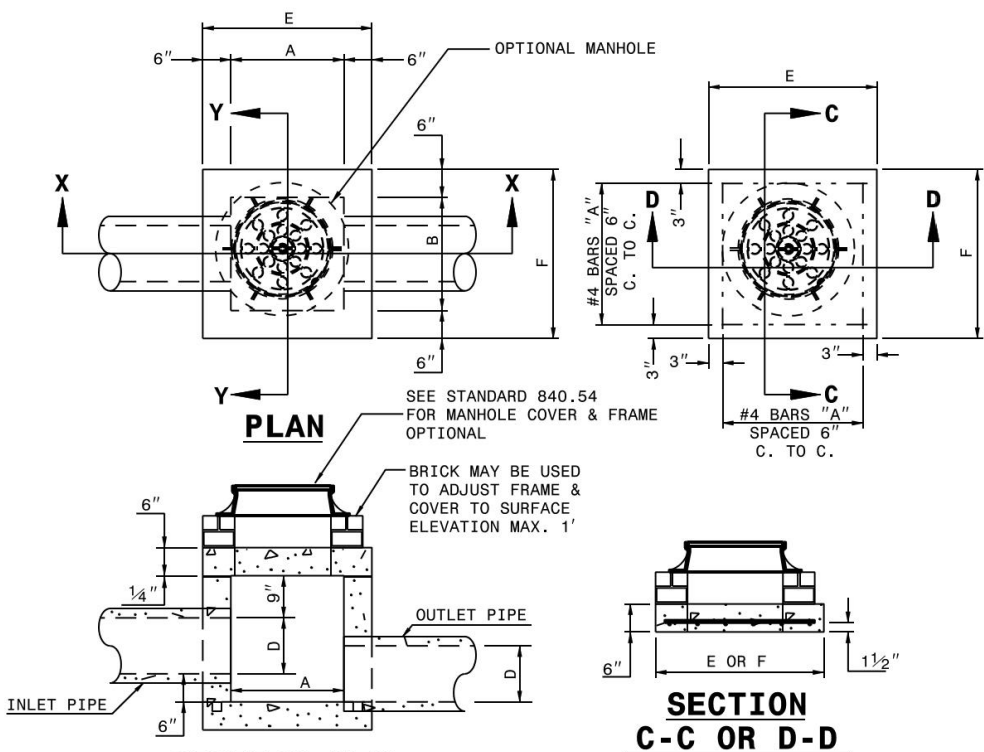
ROADWAY STANDARD DRAWING FOR
BARRICADES
TYPE - III

11-181
SHEET 1 OF 1
1145.01

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

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

11-181
SHEET 1 OF 2
840.02



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

PIPE DIA	SPAN	WIDTH	HEIGHT	REINFORCEMENT BARS			TOTAL QUANTITIES FOR ONE BOX		DEFLECTIONS FOR ONE PIPE		
				NO.	LENGTH	NO.	LENGTH	LBS.	CU. YD.	LBS.	C.Y.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	0.187	0.187	0.185	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	0.198	0.198	0.204	0.020	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	0.227	0.227	0.232	0.023	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	0.298	0.298	0.299	0.029	0.065
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	0.375	0.375	0.396	0.039	0.085
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	0.463	0.463	0.533	0.051	0.132
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	0.560	0.560	0.730	0.077	0.243
48"	5'-0"	5'-0"	5'-3"	24	5'-9"	6'-0"	0.671	0.671	0.907	0.101	0.317
54"	5'-6"	5'-6"	5'-9"	26	6'-3"	6'-6"	0.794	0.794	1.111	0.131	0.417
60"	6'-0"	6'-0"	6'-3"	30	7'-3"	7'-6"	1.042	1.042	1.481	0.180	0.571
66"	6'-6"	6'-6"	6'-9"	32	7'-9"	8'-0"	1.210	1.210	1.758	0.221	0.697

GENERAL NOTES:
CHAMFER ALL EXPOSED CORNERS 1".
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BARS DOBELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
PROVIDE ALL JOINT BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.06.
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHOWN AT THE TOP OF THE MANHOLE, ADDITIONAL VERTICAL BRICK MASONRY, OPENING IN TOP SLAB.)
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

STATE OF NORTH CAROLINA
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RALEIGH, N. C.

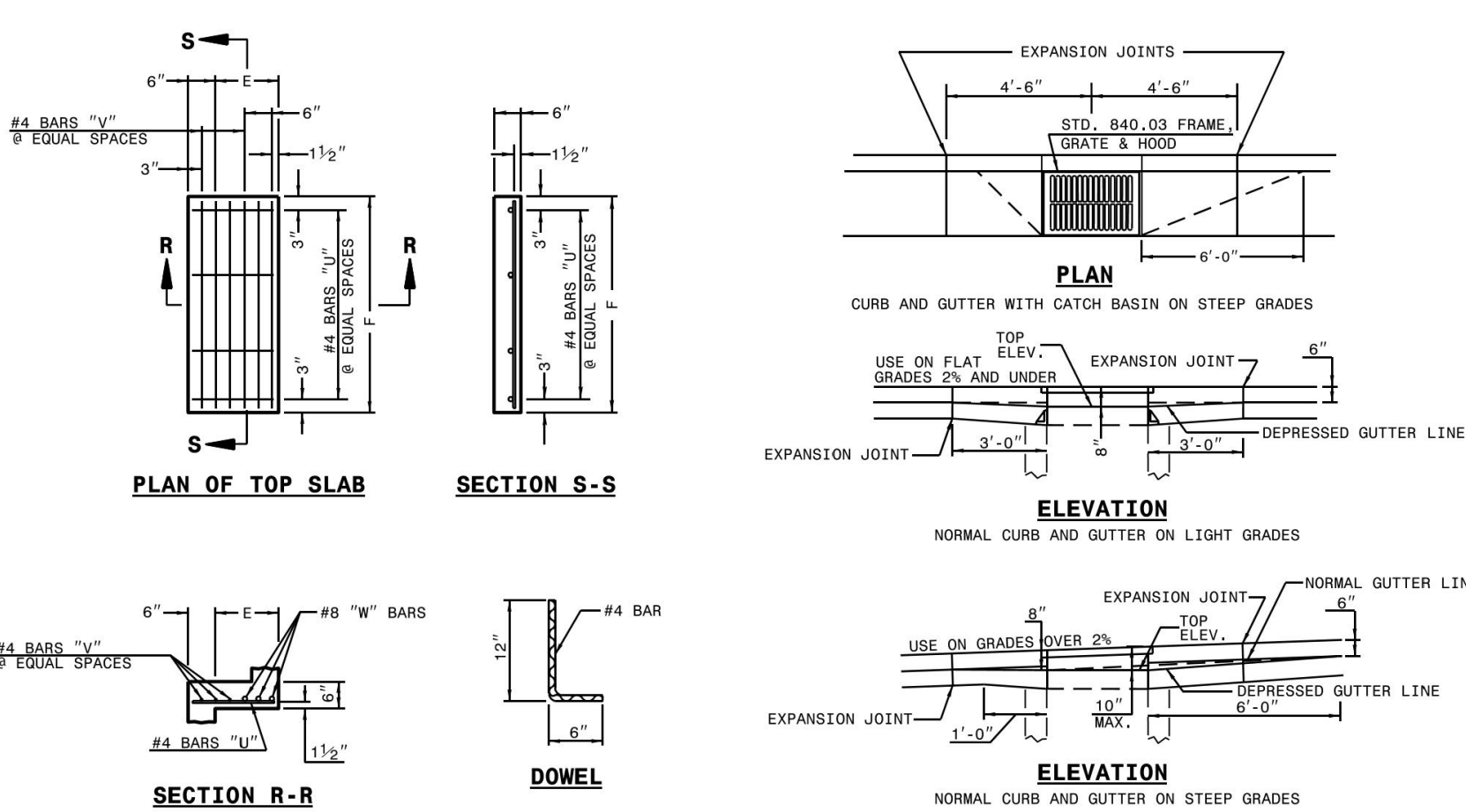
ROADWAY STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

11-181
SHEET 1 OF 1
840.31

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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

11-181
SHEET 1 OF 2
840.03



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, W. WITH NO RISERS)

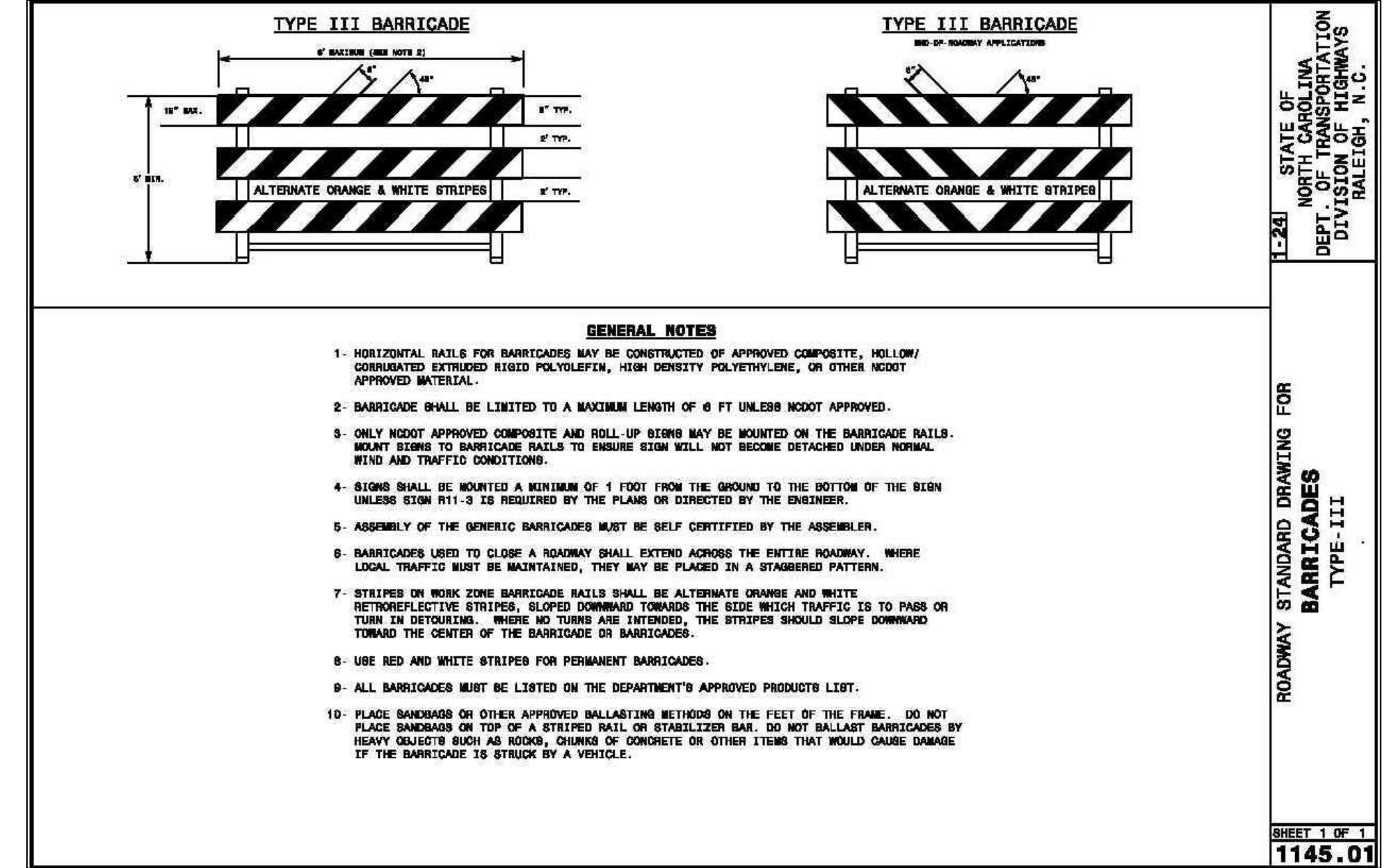
PIPE DIA	SPAN	WIDTH	MIN. HEIGHT	COVER DIMENSION			TOTAL QUANTITIES FOR ONE BOX		DEFLECTIONS FOR ONE PIPE		
				NO.	LENGTH	NO.	LENGTH	LBS.	C.Y.	LBS.	C.Y.
12"	3'-0"	2'-2"	2'-9"	4	1'-11"	3	0.235	0.235	0.235	0.015	0.036
15"	3'-0"	2'-2"	3'-0"	4	1'-11"	3	0.235	0.235	0.235	0.023	0.058
18"	3'-0"	2'-2"	3'-9"	4	1'-11"	3	0.235	0.235	0.235	0.033	0.089
24"	3'-0"	2'-2"	4'-6"	4	1'-11"	3	0.235	0.235	0.235	0.050	0.132
30"	3'-0"	2'-2"	5'-3"	4	1'-11"	3	0.235	0.235	0.235	0.077	0.200
36"	3'-0"	2'-2"	6'-0"	4	1'-11"	3	0.235	0.235	0.235	0.111	0.299
42"	3'-0"	2'-2"	6'-9"	4	1'-11"	3	0.235	0.235	0.235	0.157	0.422
48"	3'-0"	2'-2"	7'-6"	4	1'-11"	3	0.235	0.235	0.235	0.203	0.571
54"	3'-0"	2'-2"	8'-3"	4	1'-11"	3	0.235	0.235	0.235	0.250	0.721

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

11-181
SHEET 2 OF 2
840.02



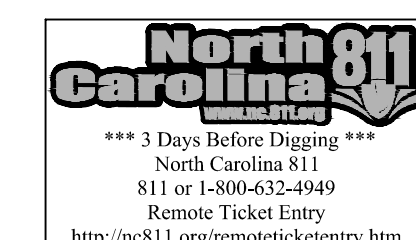
REVISION

NO.	DATE	REVISION
1	7/27/2025	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

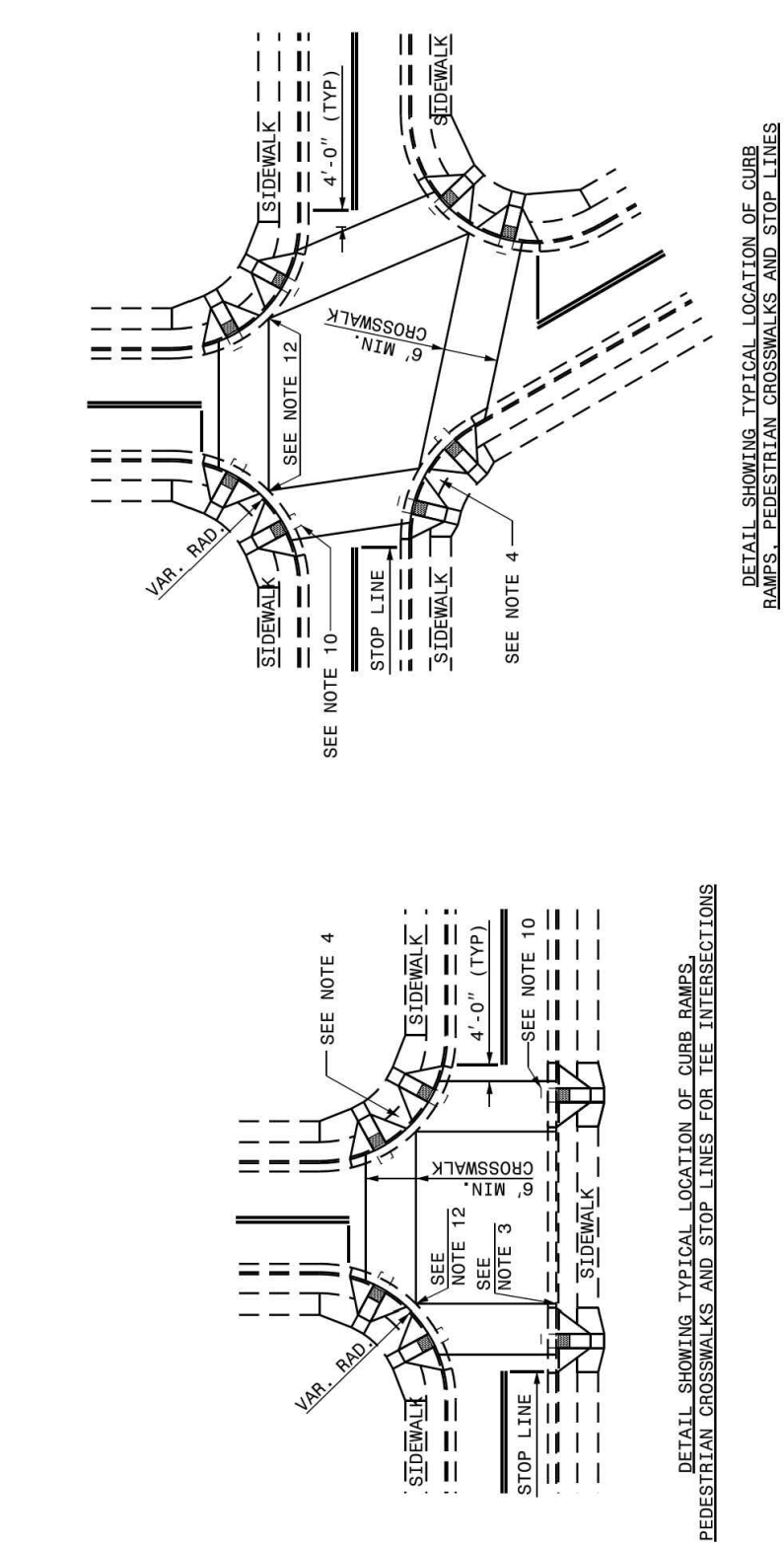
STIPULATION FOR REUSE
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 11, 2024
SHEET TITLE: KALAS FALLS CIVIL DETAILS
SHEET NO.: CD13



CURB RAMPS AND EXISTING SIDEWALK

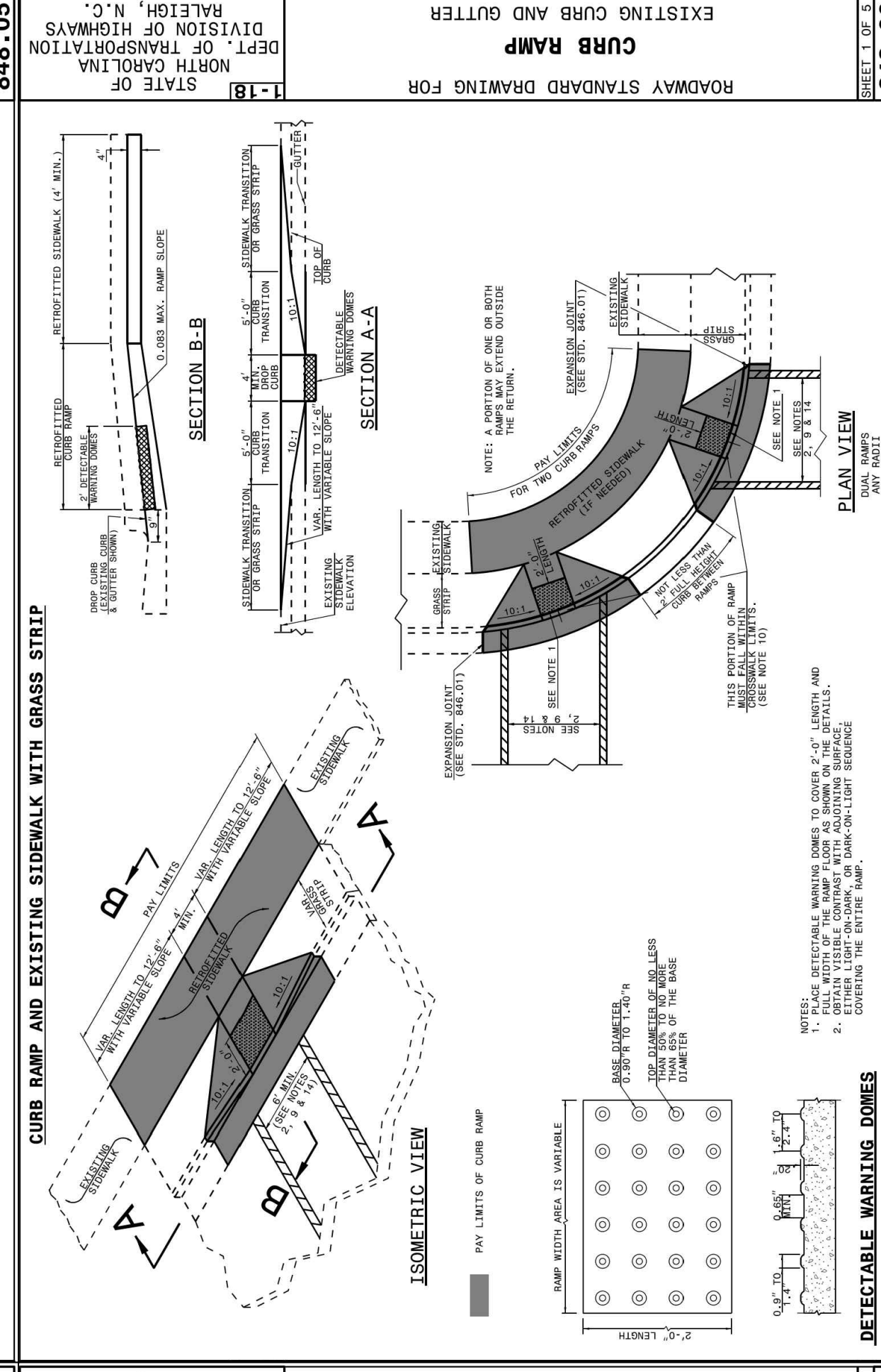


NOTES: 1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT... 2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS...

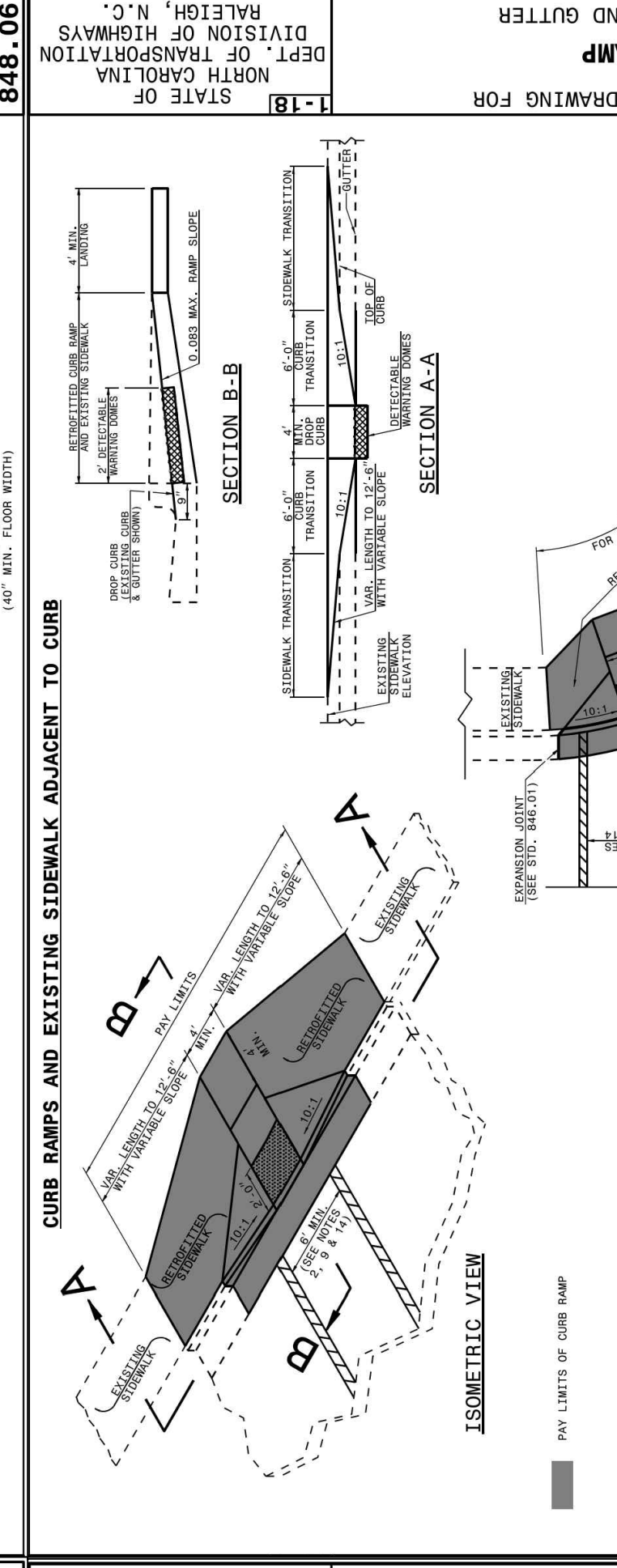
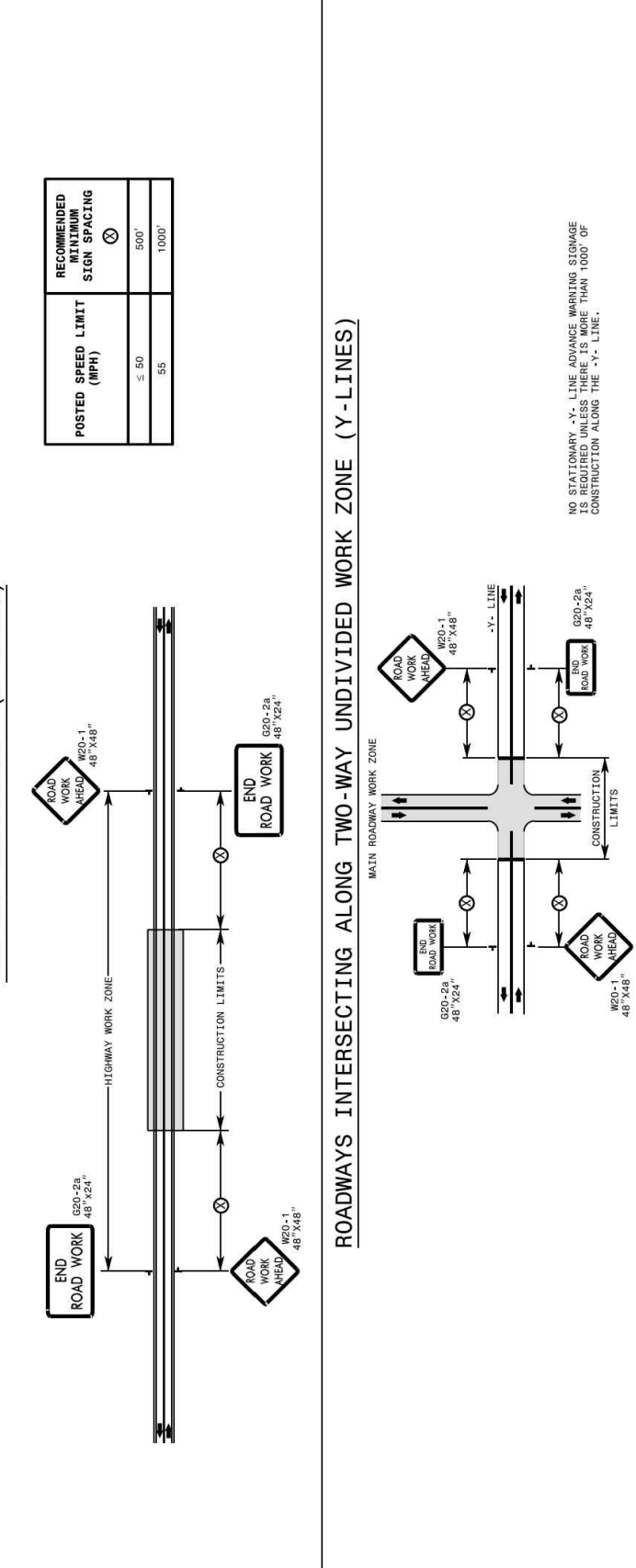
NOTES: 1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT... 2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS...

CURB RAMP AND EXISTING SIDEWALK

NOTES: 1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT... 2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS...



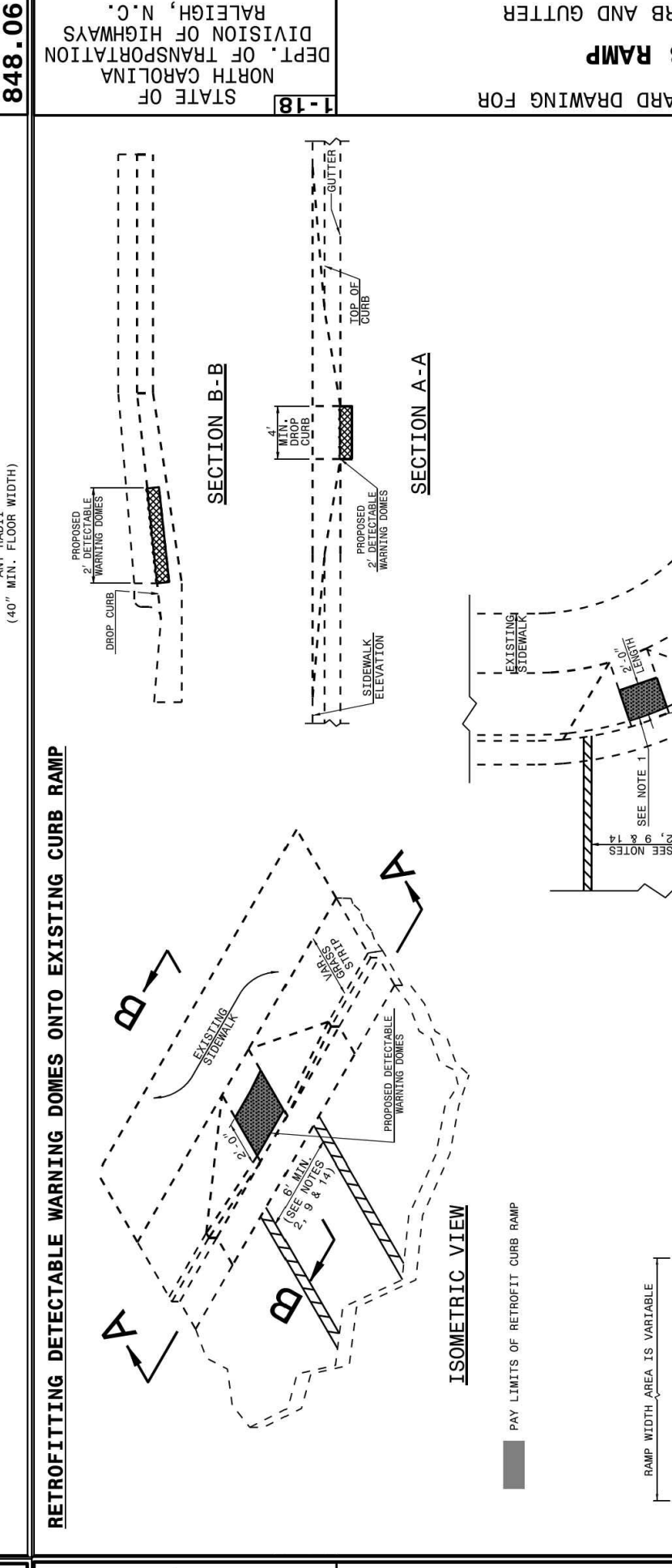
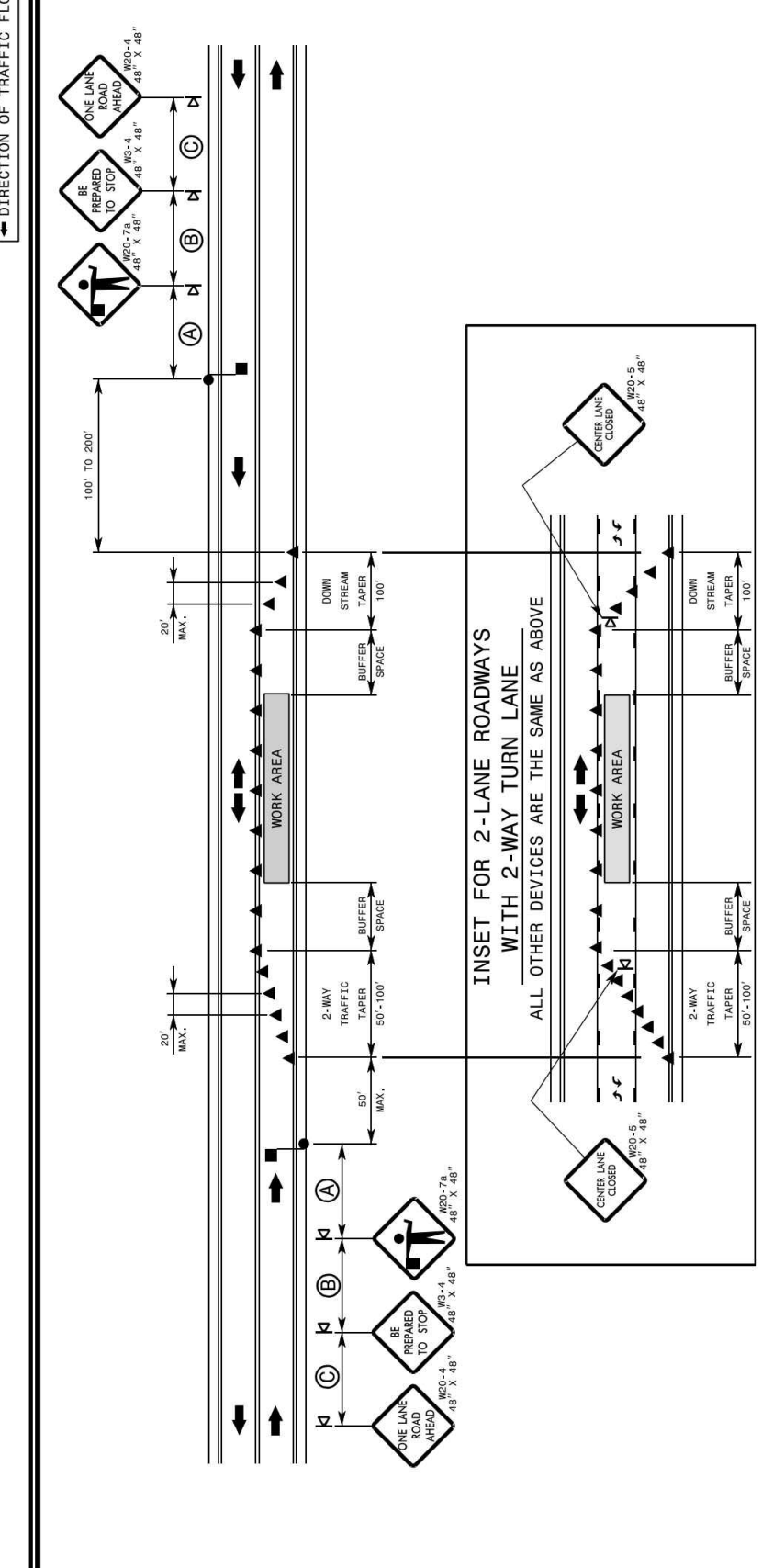
TWO-WAY UNDIVIDED (L-LINES)



WORK ZONE ADVANCE WARNING SIGNS FOR TWO-WAY UNDIVIDED FACILITIES

GENERAL NOTES: 1. DO NOT INSTALL ADVANCE WARNING SIGNS UNTIL 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS OTHERWISE NOTED.

TEMPORARY LANE CLOSURES



TEMPORARY LANE CLOSURES

GENERAL NOTES FOR FLAGGING OPERATIONS: 1. REFER TO RSD-1101, SHEETS 1 & 4, FOR 'L' DISTANCE AND STATIONING.

TEMPORARY LANE CLOSURES

GENERAL NOTES FOR FLAGGING OPERATIONS: 1. REFER TO RSD-1101, SHEETS 1 & 4, FOR 'L' DISTANCE AND STATIONING.

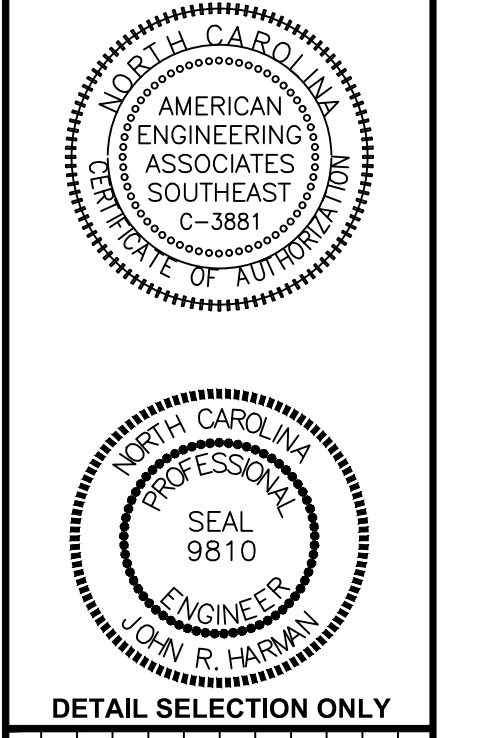


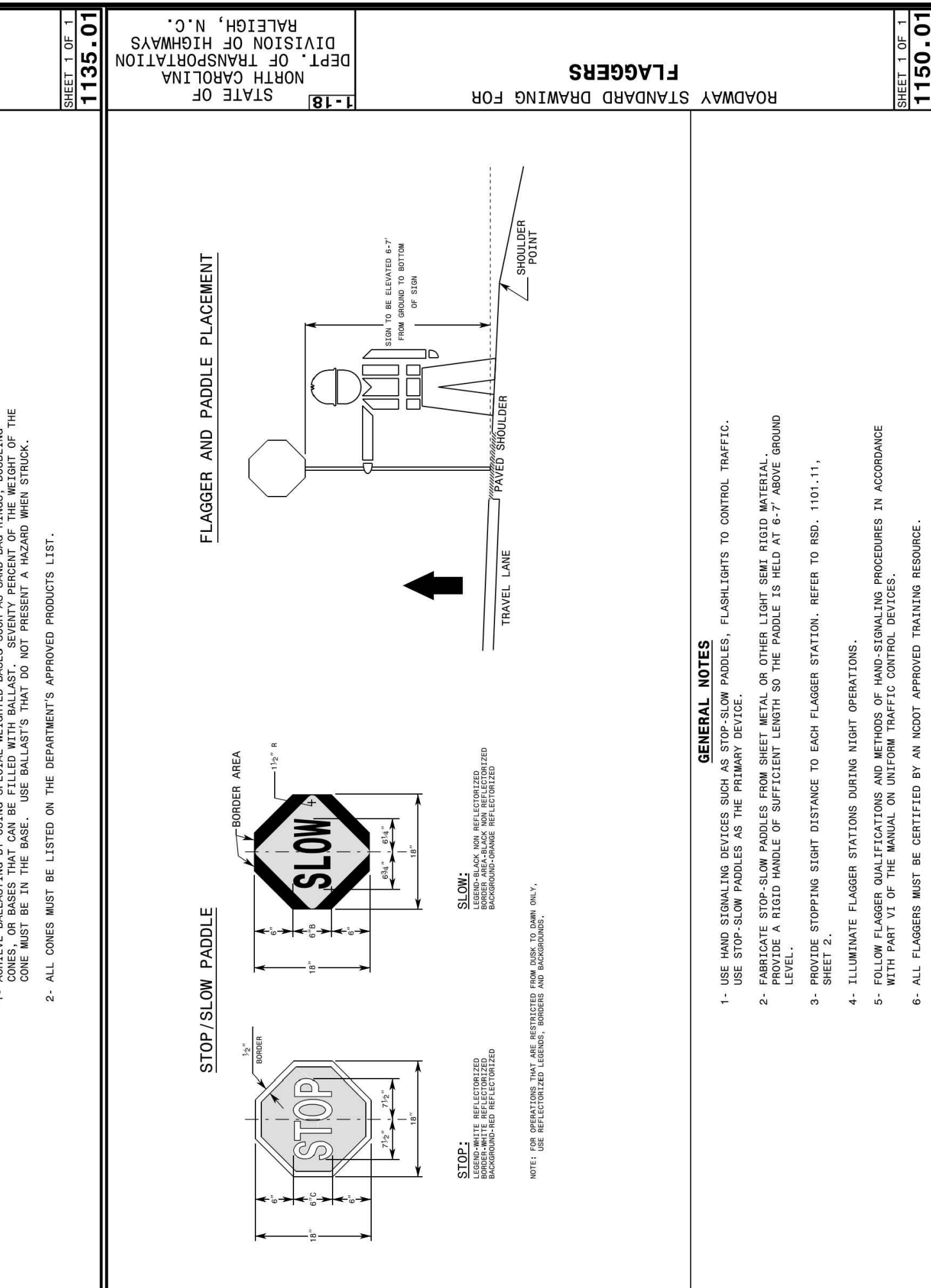
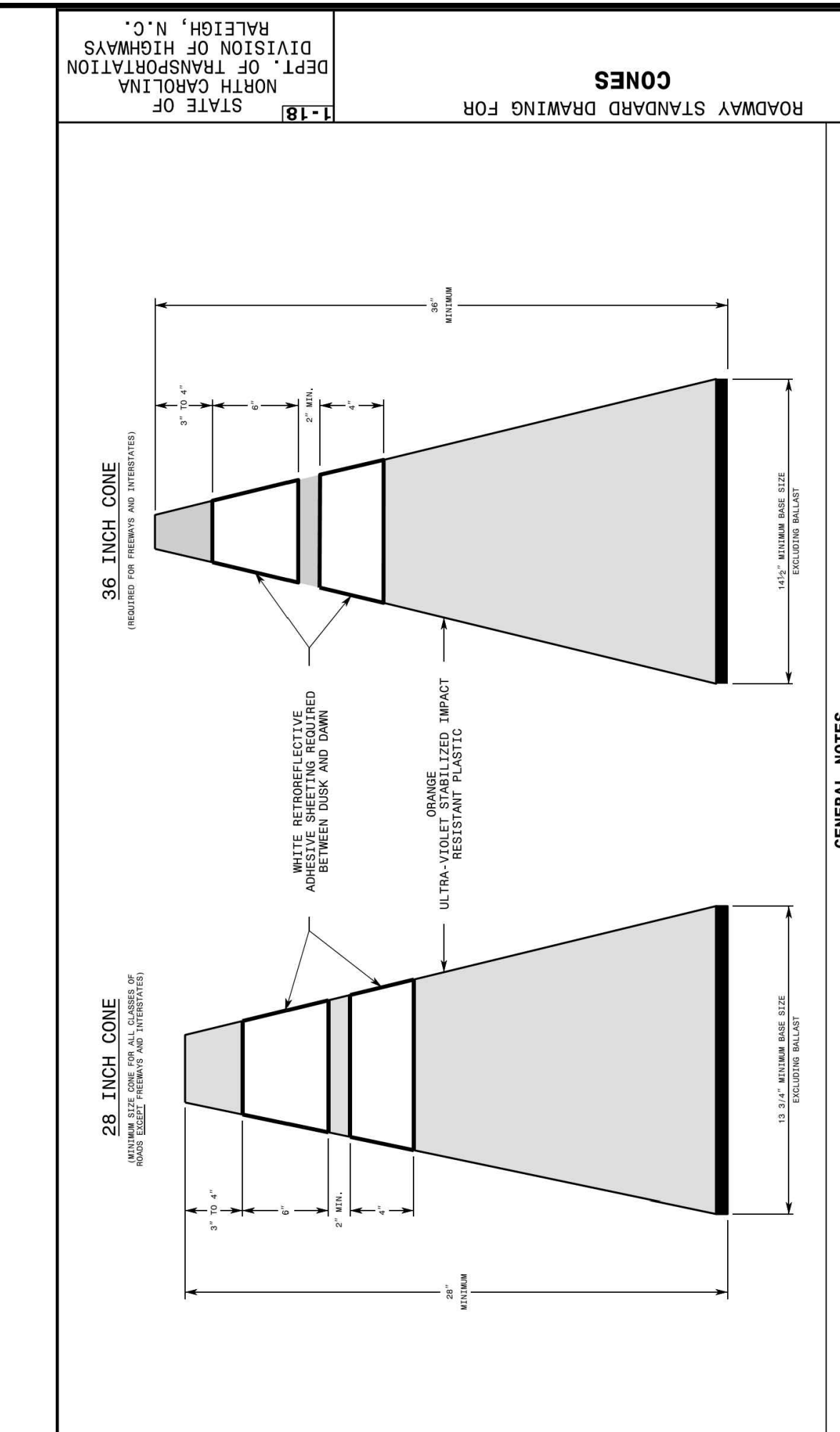
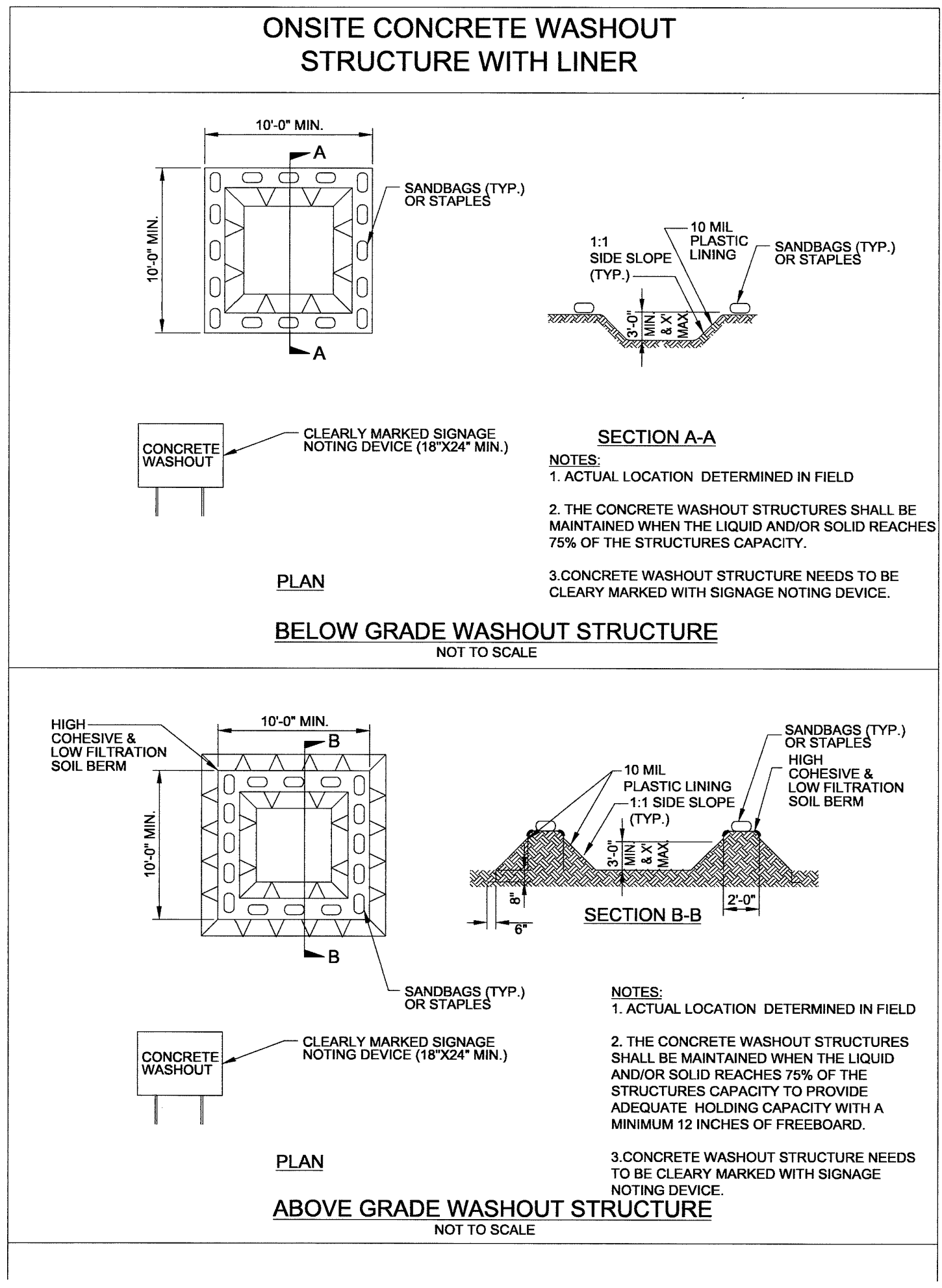
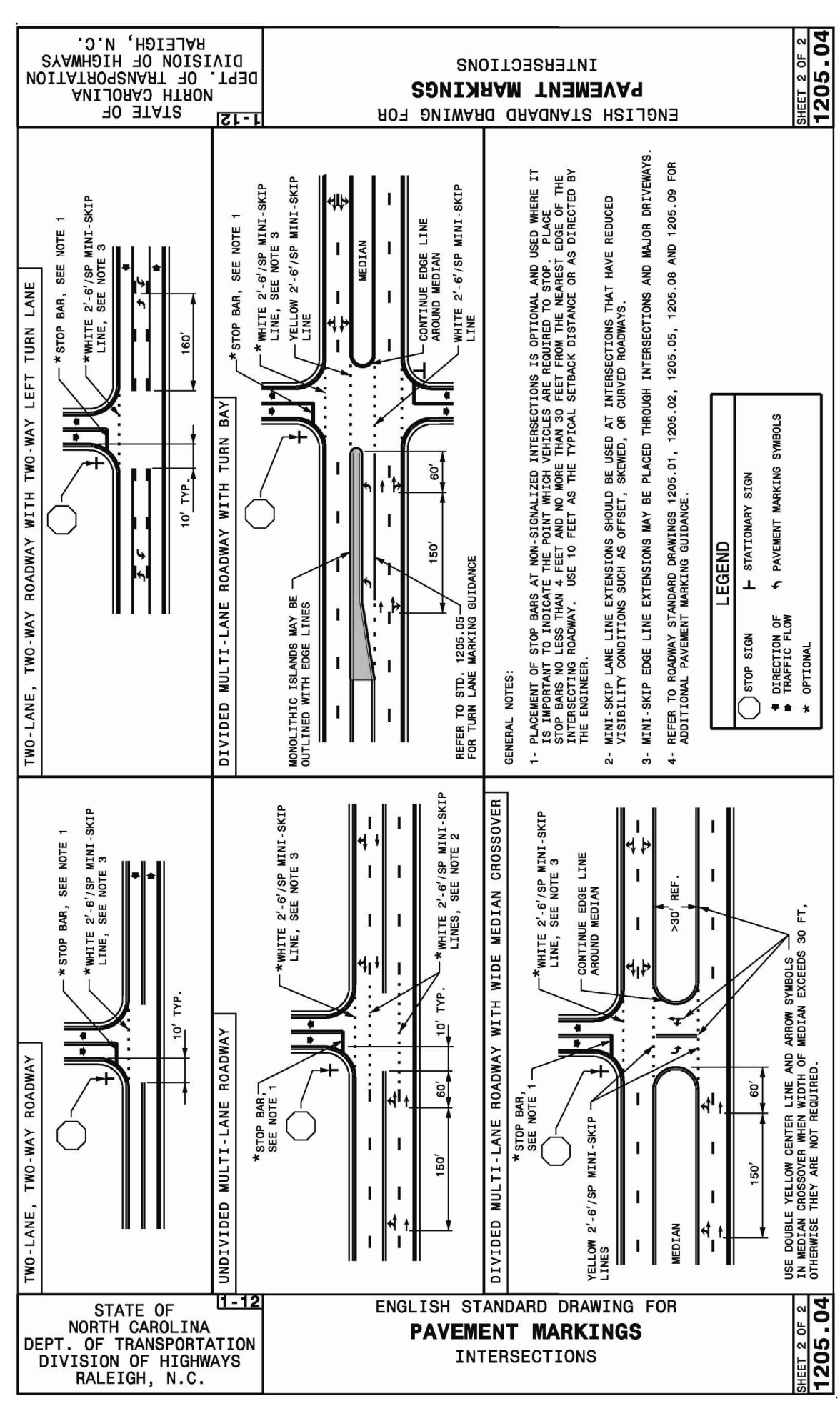
JOB NUMBER: 9900 CHECKED BY: BH/JH DRAWN BY: SMM/LL/ES/AH/DH DATE: NOV 11, 2024 SHEET TITLE: KALAS FALLS CIVIL DETAILS SHEET NO.: CD15

KALAS FALLS PHASE 3 1832 ROLESVILLE ROAD WAKE COUNTY, NC

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.

Table with columns: NO., DATE, REVISION. Contains revision history for the drawing.



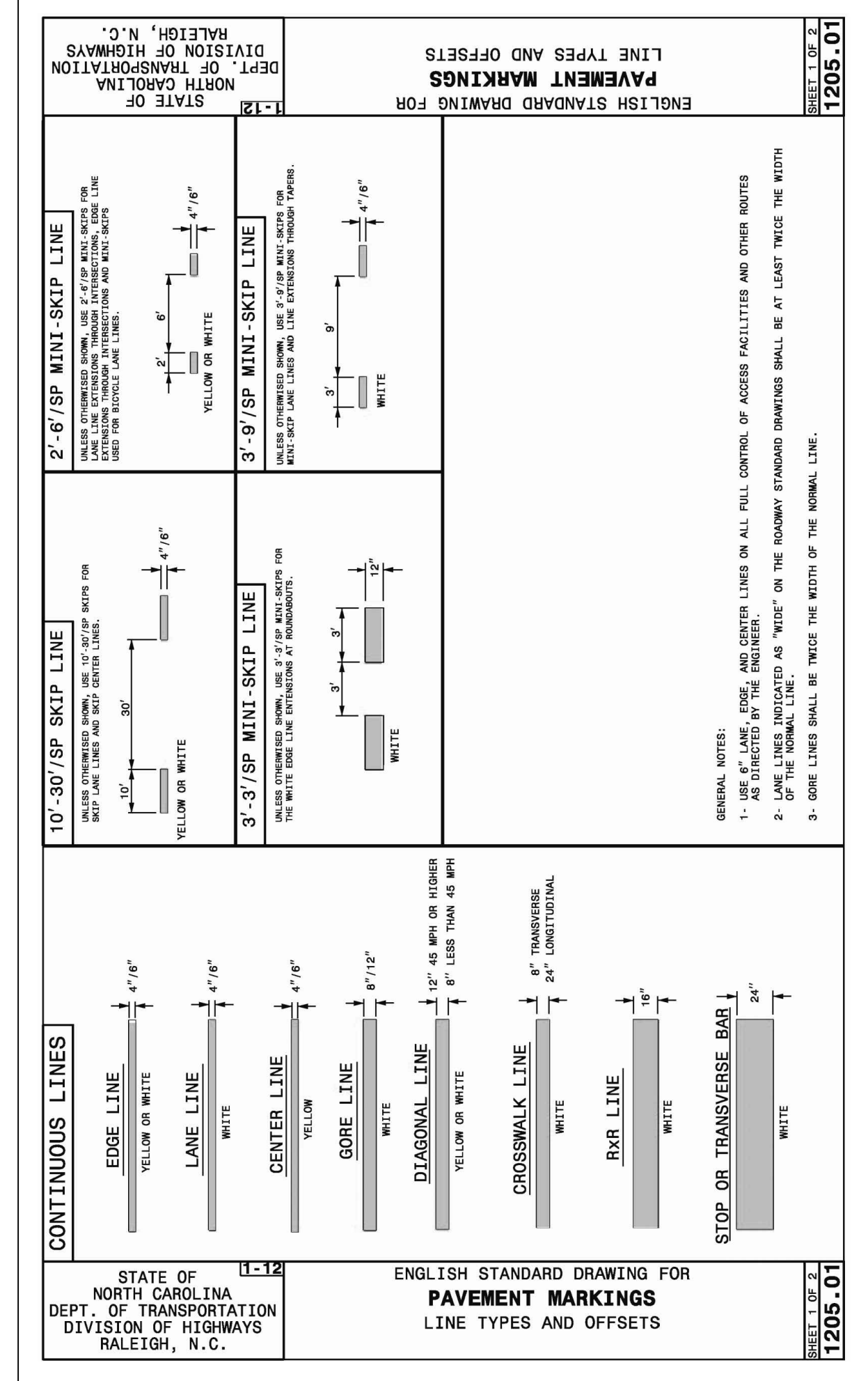


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1205.04

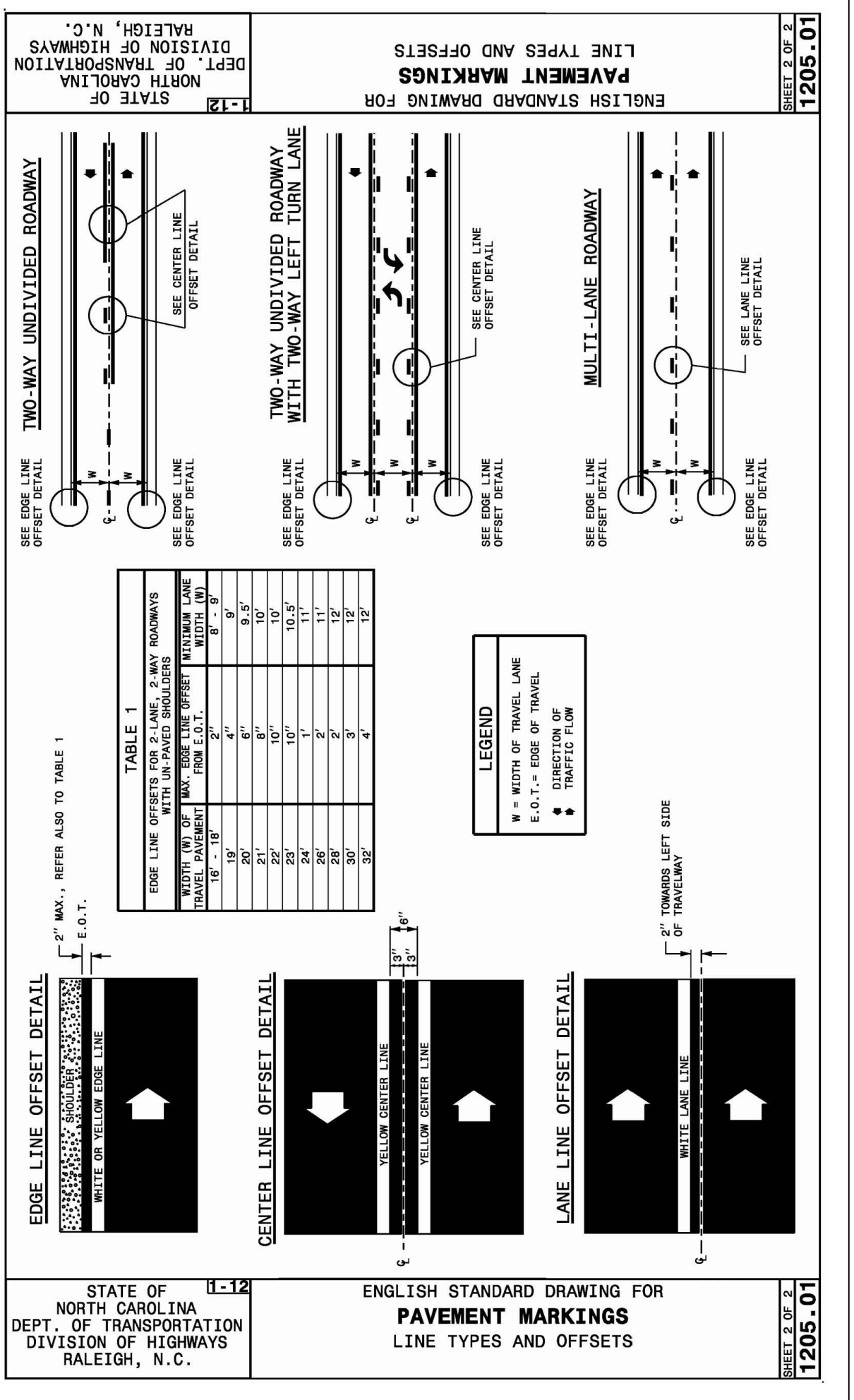
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1150.01



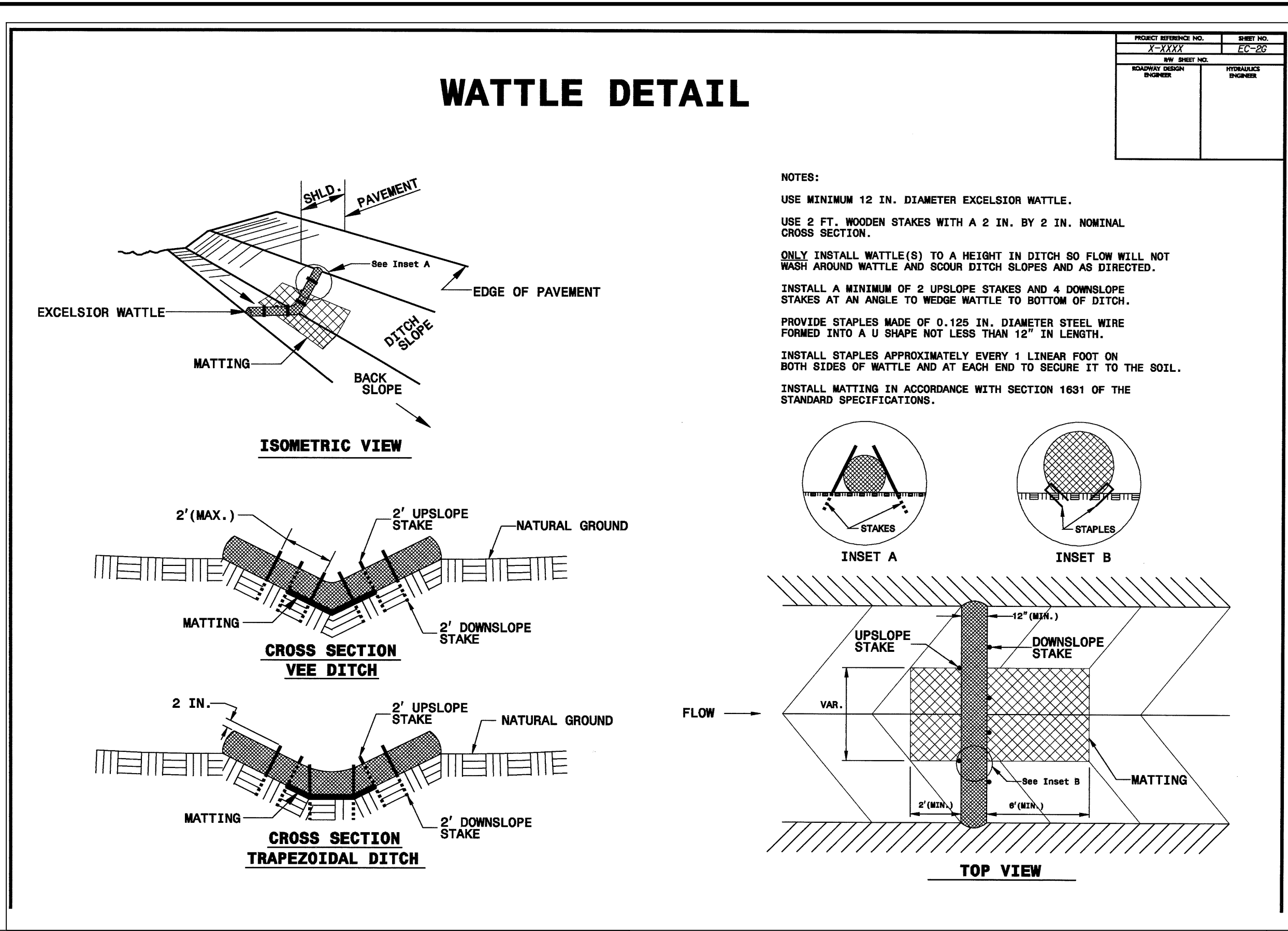
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1205.01



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

1205.01

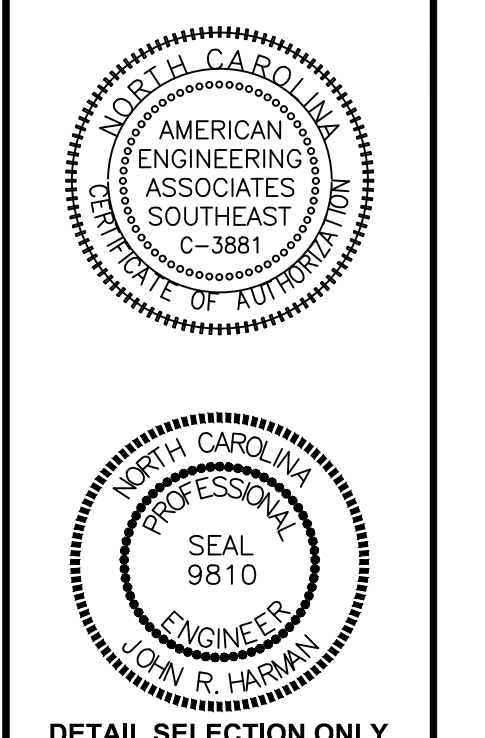


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1205.01

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

1205.01



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/17/2025	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH
3	11/01/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

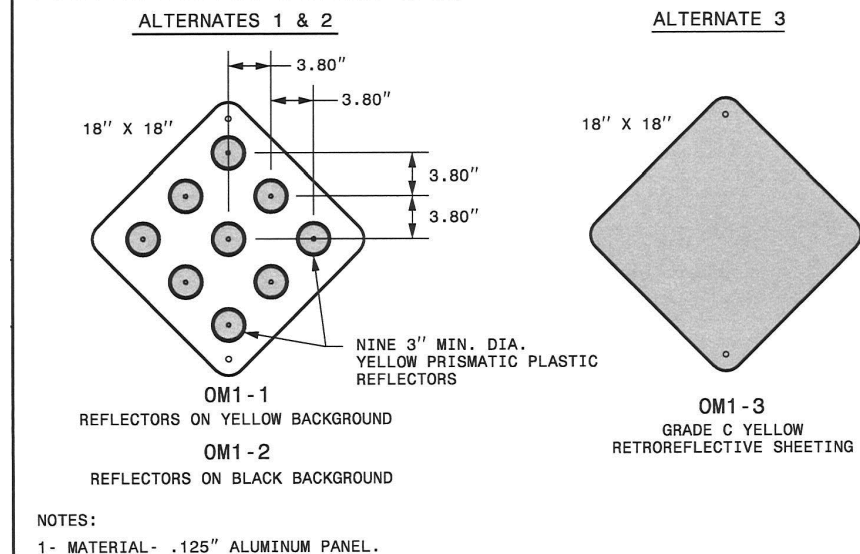
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KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

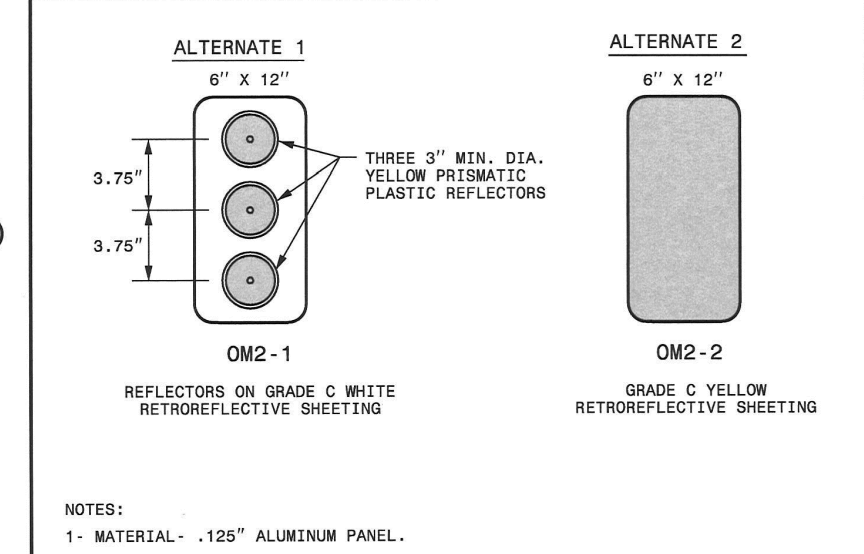
JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 11, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD17



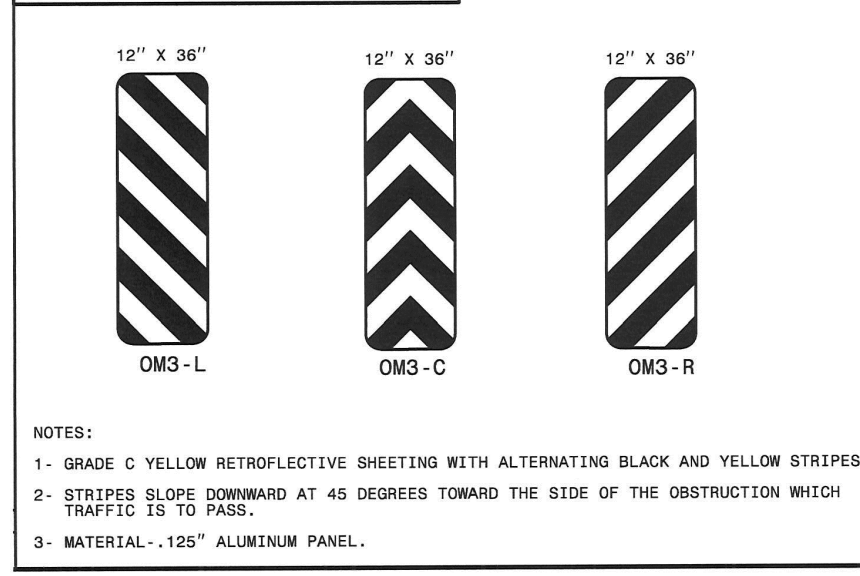
TYPE I OBJECT MARKERS



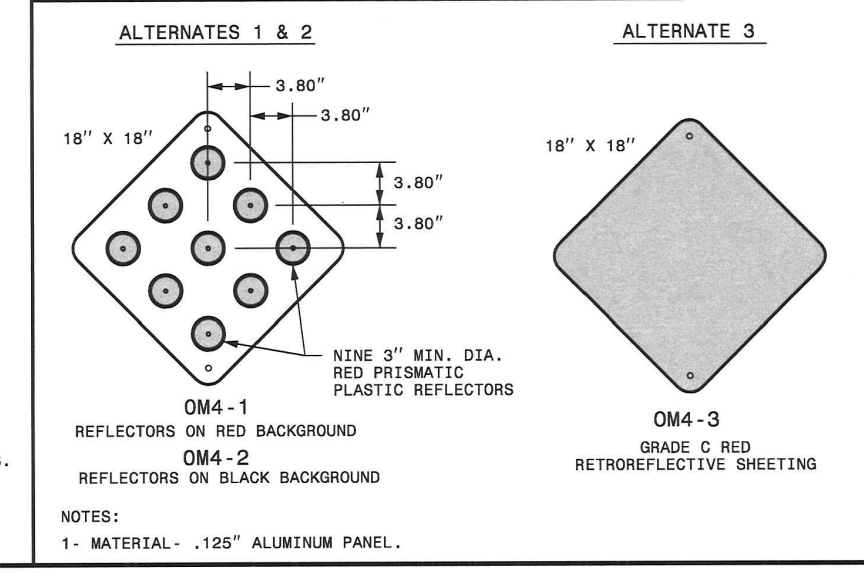
TYPE 2 OBJECT MARKERS



TYPE 3 OBJECT MARKERS

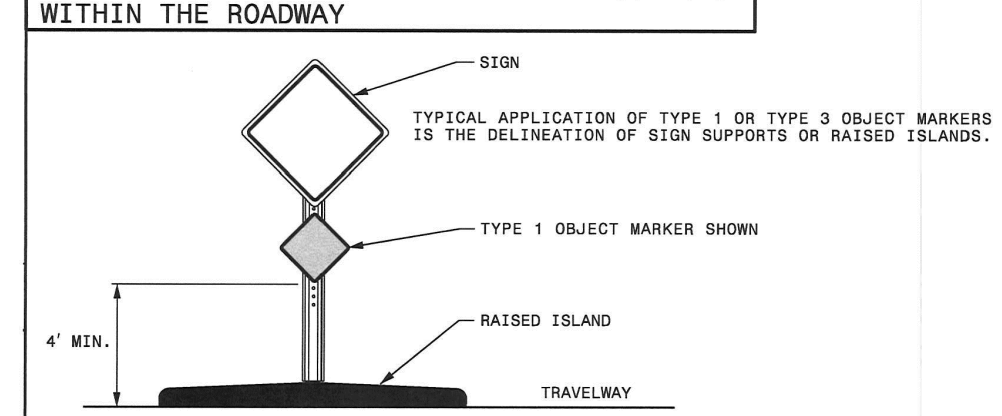


TYPE 4 OBJECT MARKERS (END OF ROAD)

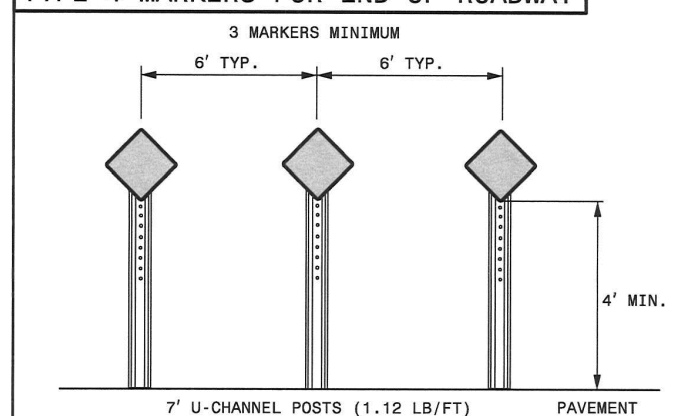


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR OBJECT MARKER TYPES 1264.01

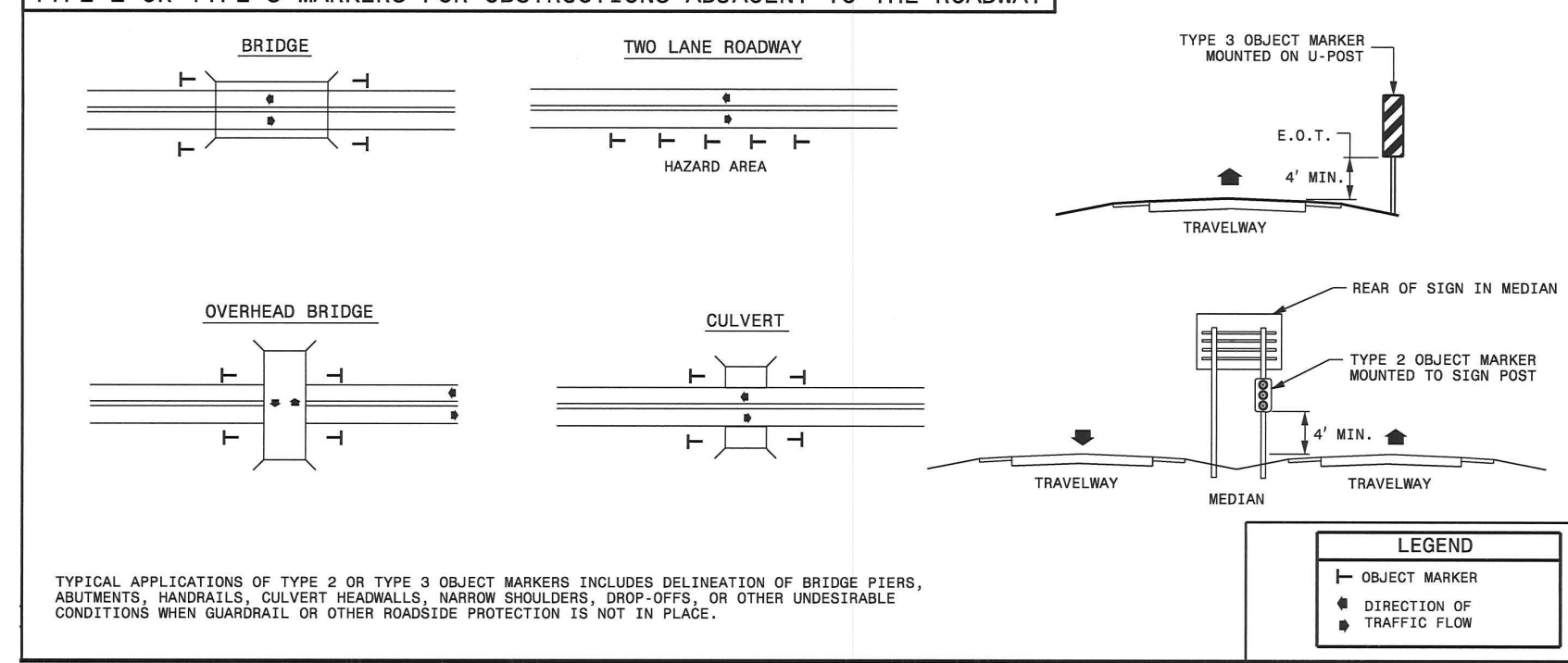
TYPE 1 OR TYPE 3 MARKERS FOR OBSTRUCTIONS WITHIN THE ROADWAY



TYPE 4 MARKERS FOR END OF ROADWAY



TYPE 2 OR TYPE 3 MARKERS FOR OBSTRUCTIONS ADJACENT TO THE ROADWAY



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR OBJECT MARKER INSTALLATION 1264.02

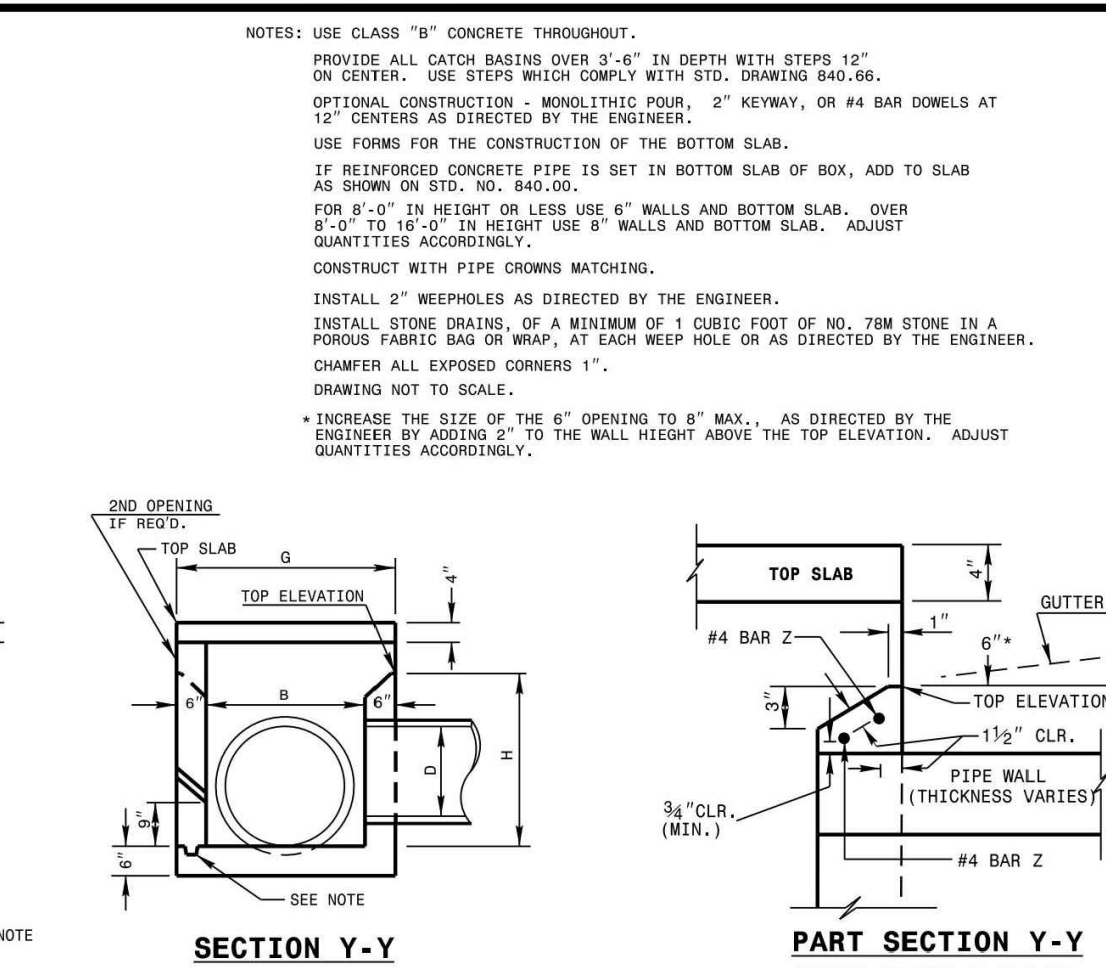
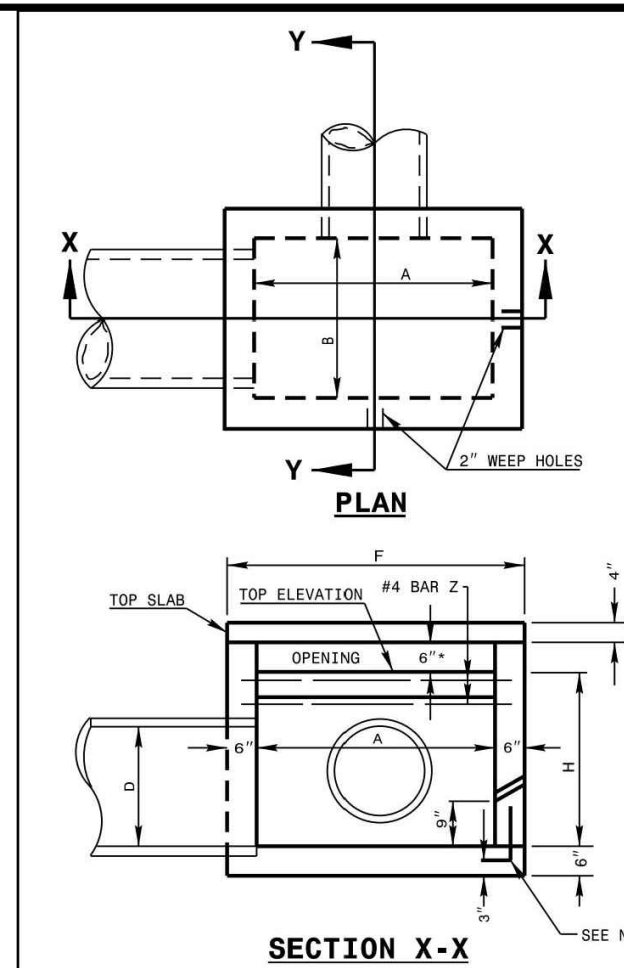


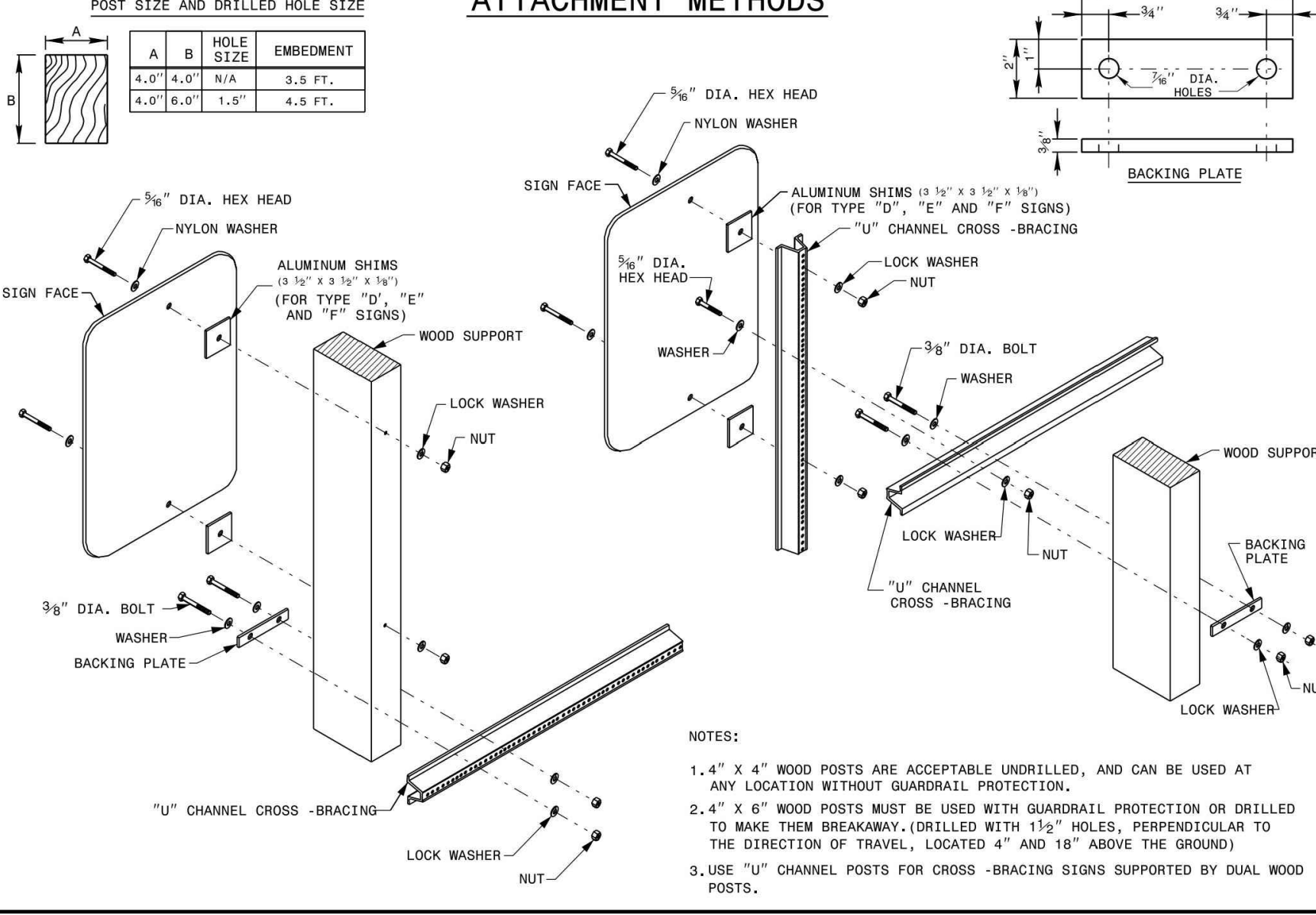
Table with columns: DIMS OF BOX & PIPE, REINFORCING, MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN, etc.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE 840.04

POST SIZE AND DRILLED HOLE SIZE

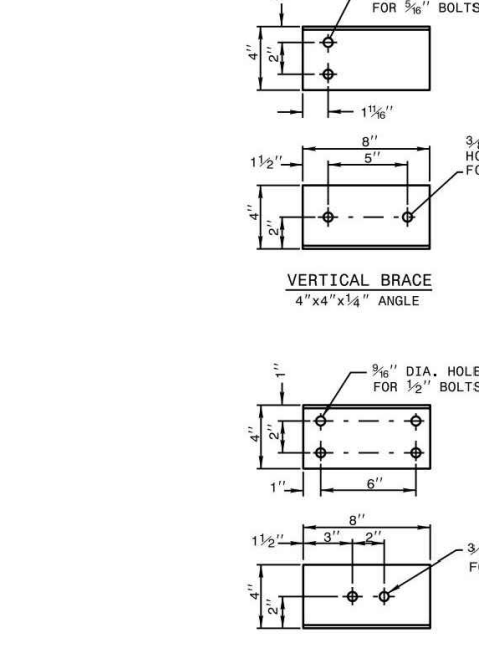
Table with columns: A, B, HOLE SIZE, EMBEDMENT. Rows for 4.0" x 4.0", 4.0" x 6.0", 6.0" x 6.0", 6.0" x 1.5", 4.5 FT., 4.5 FT.

ATTACHMENT METHODS

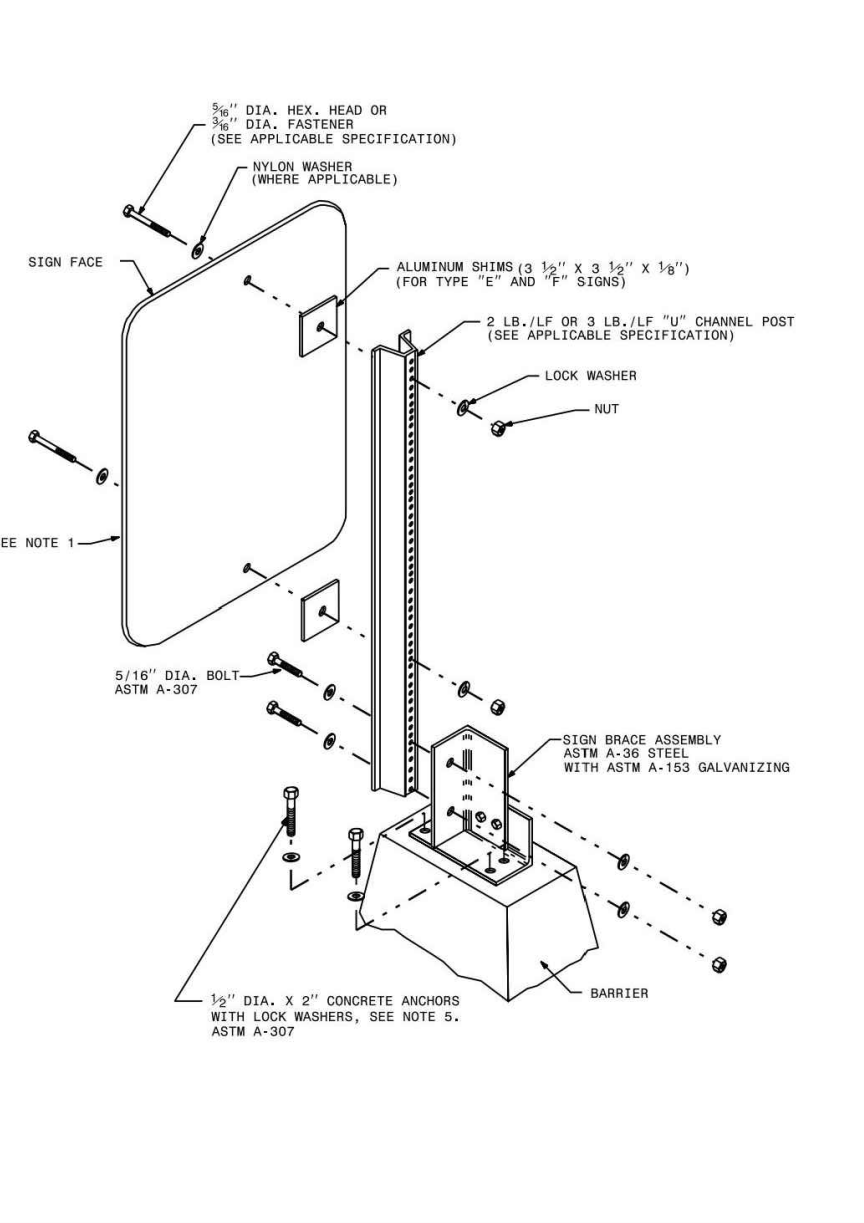
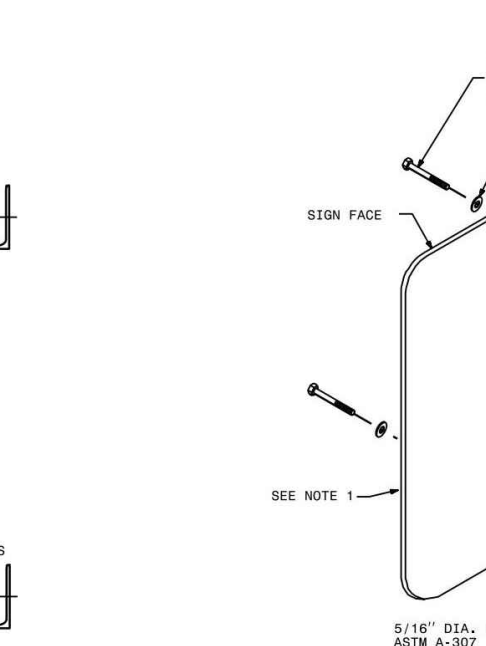


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON WOOD POSTS 903.20

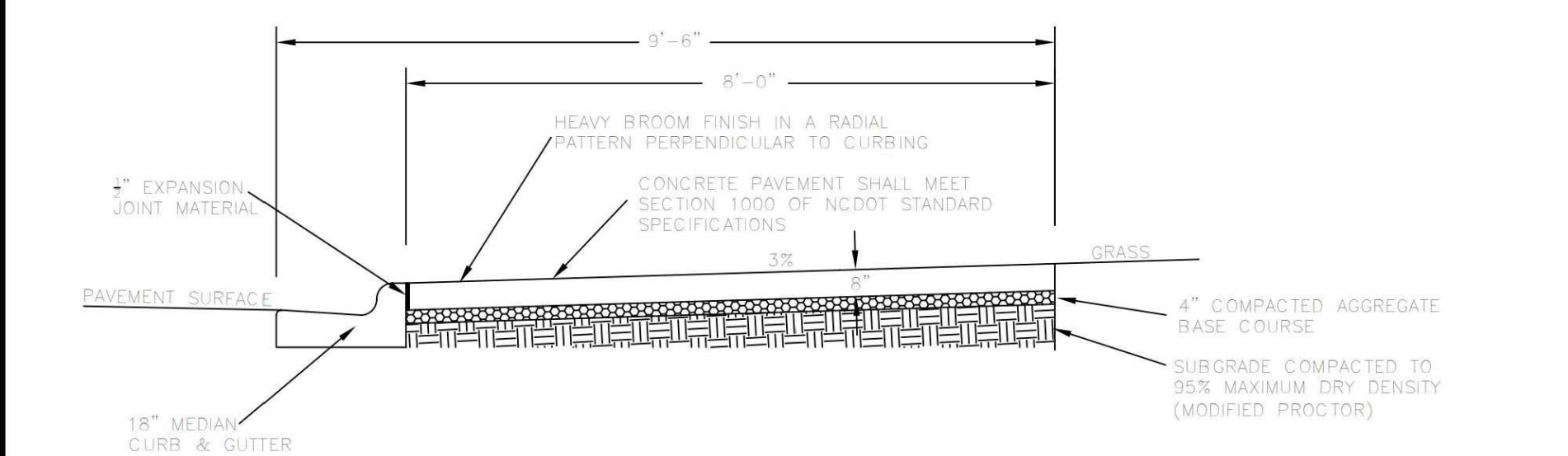
VERTICAL BRACE



HORIZONTAL BRACE

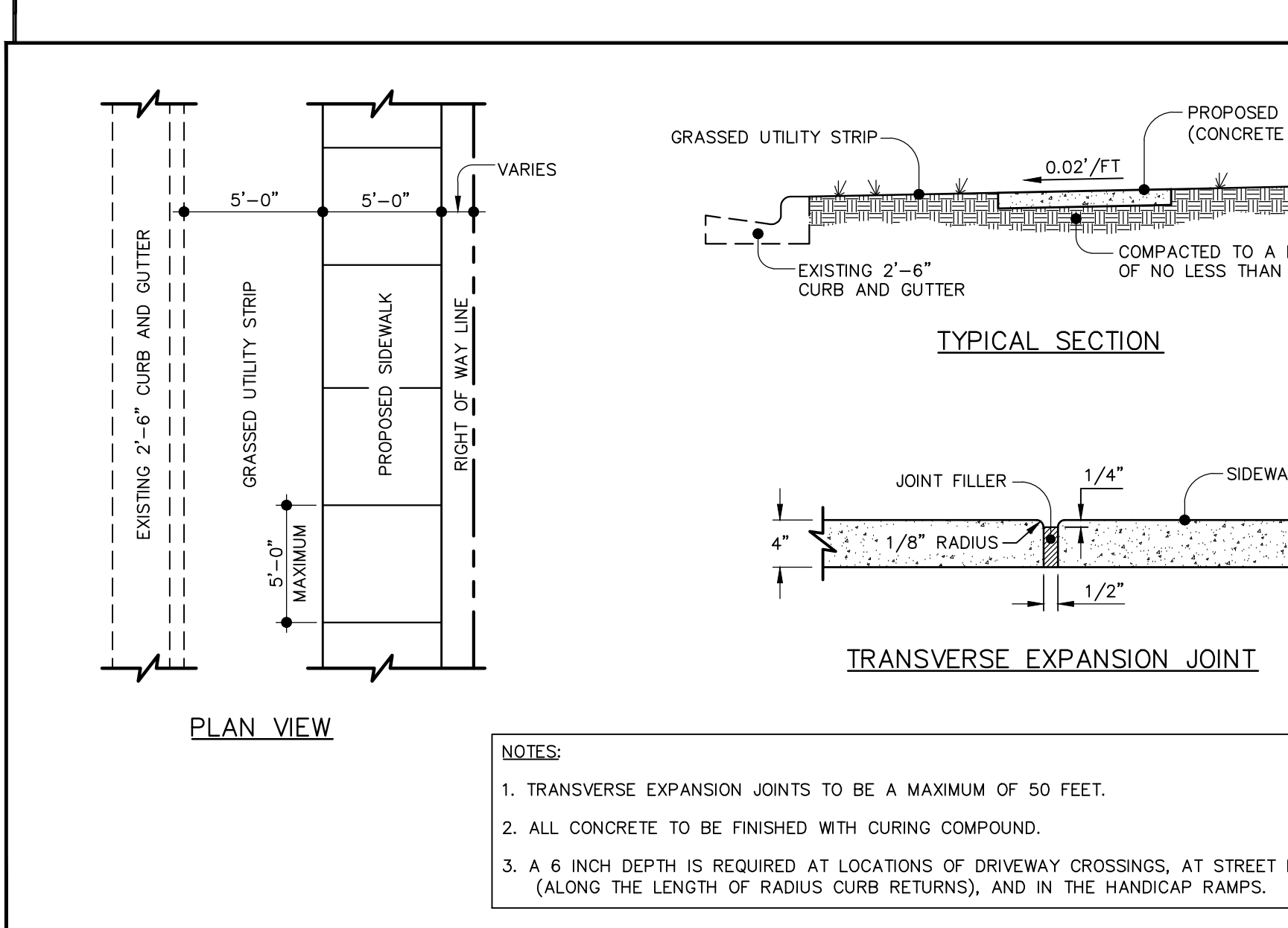
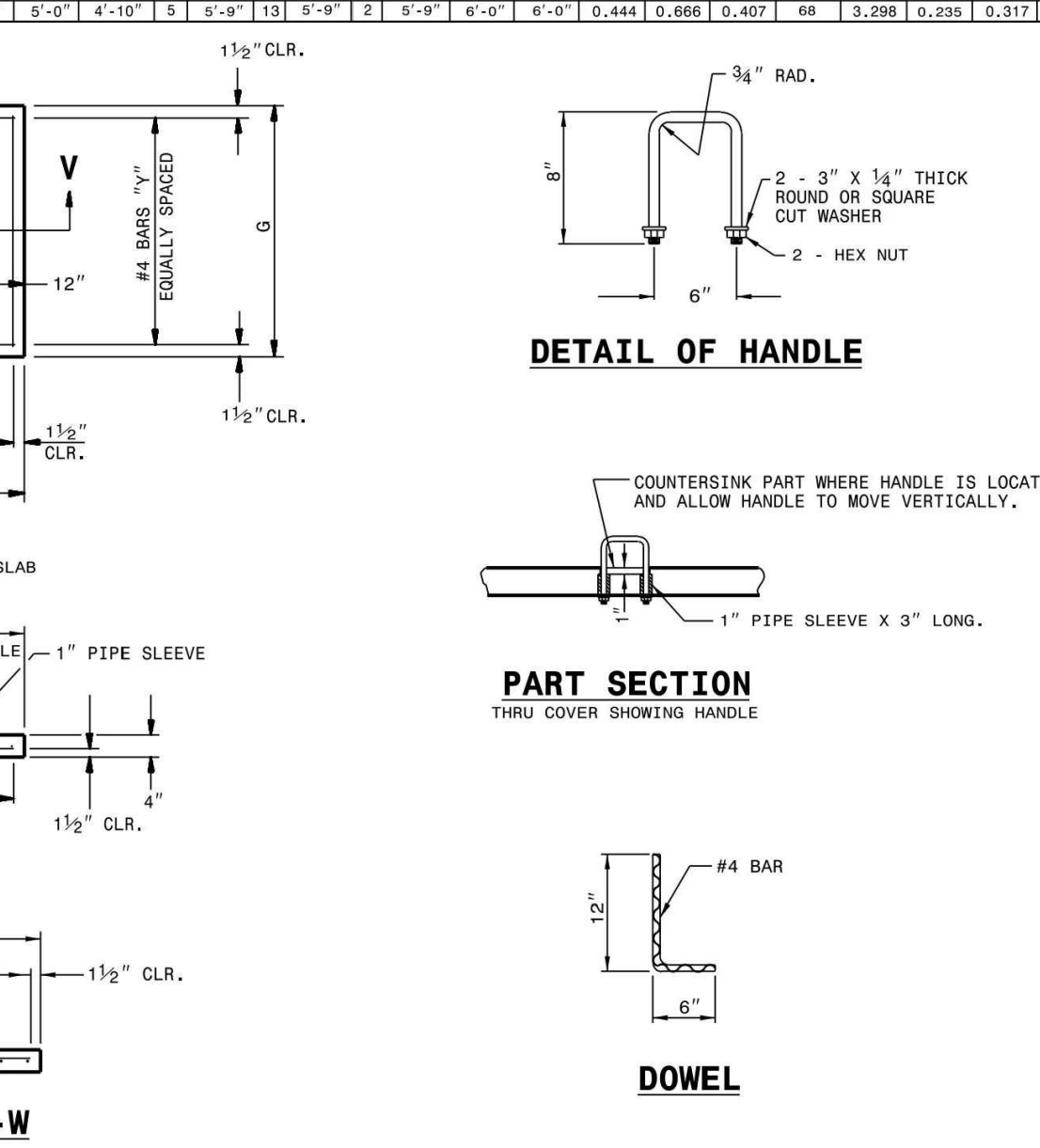
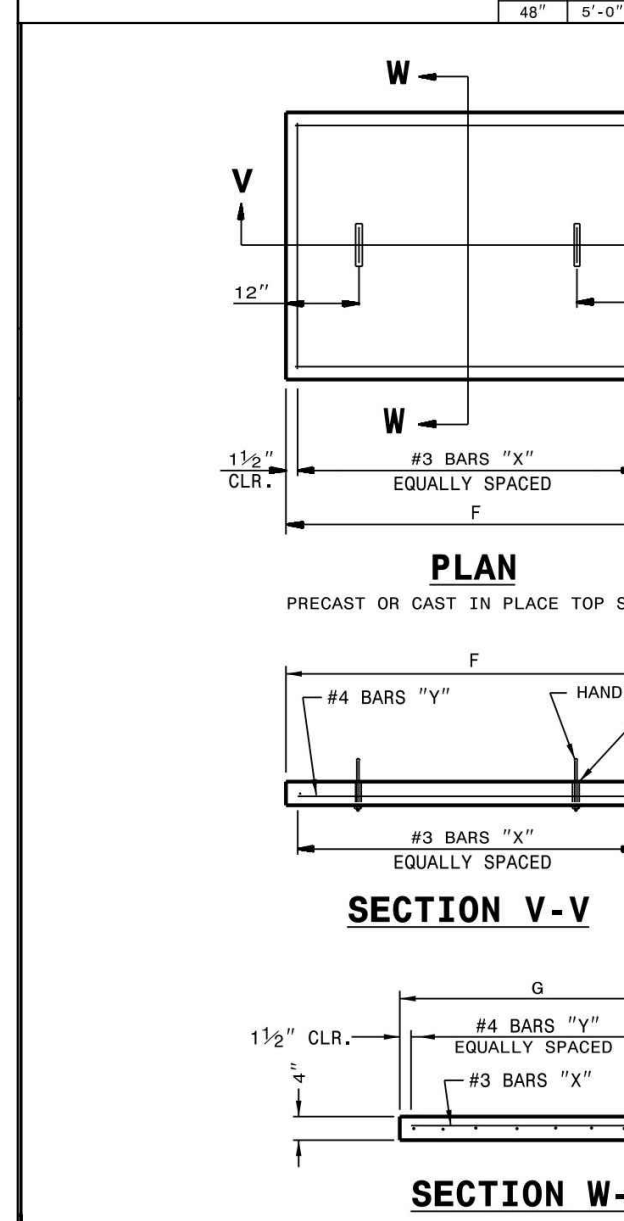


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR BARRIER SIGN SUPPORT ASSEMBLY 903.30



NOTES: 1. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION. 2. NO ABOVE GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN TRAIL... 3. ALL TRAILS SHALL BE LOCATED MINIMUM 5 FEET FROM THE BACK OF CURB.

STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL



STANDARD CONCRETE SIDEWALK

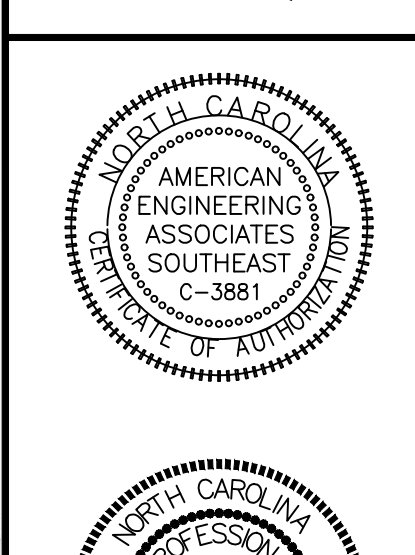
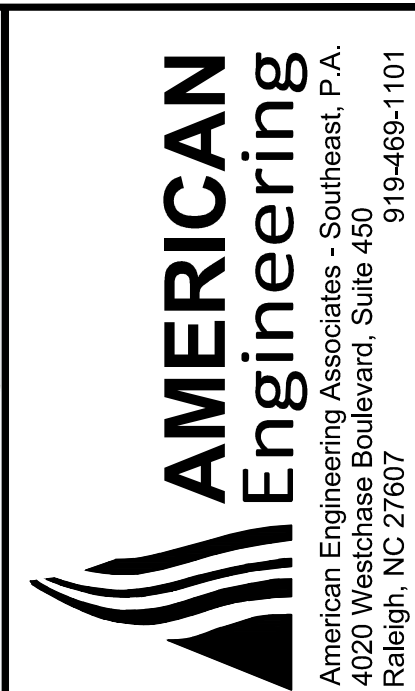
NOTES: 1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET. 2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND. 3. A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS...

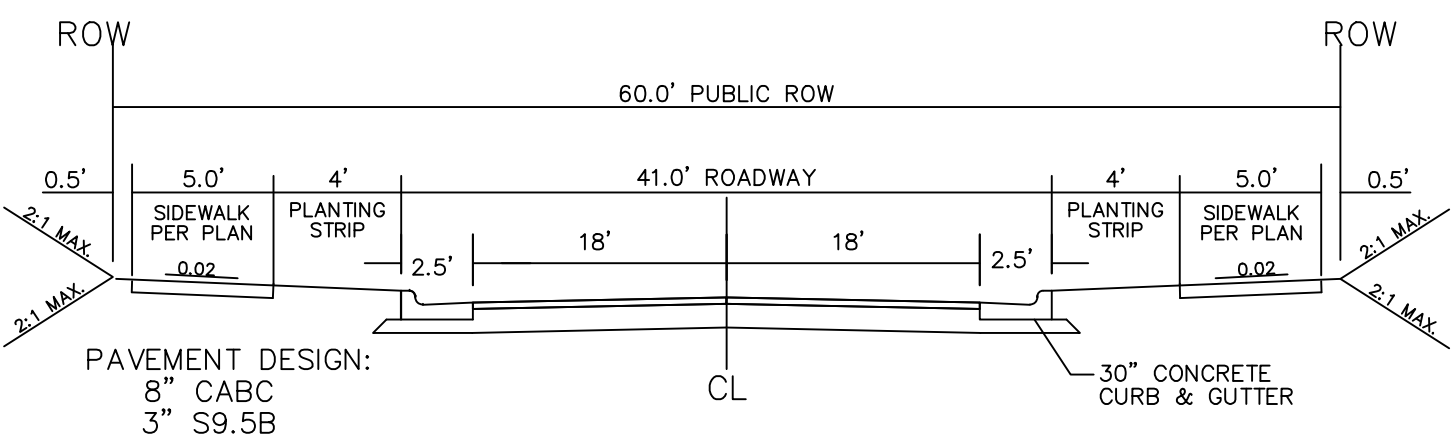
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ROADWAY STANDARD DRAWING FOR CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE 840.04

Table with columns: NO., DATE, REVISION, etc. for drawing 840.04.

NOTICE 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.

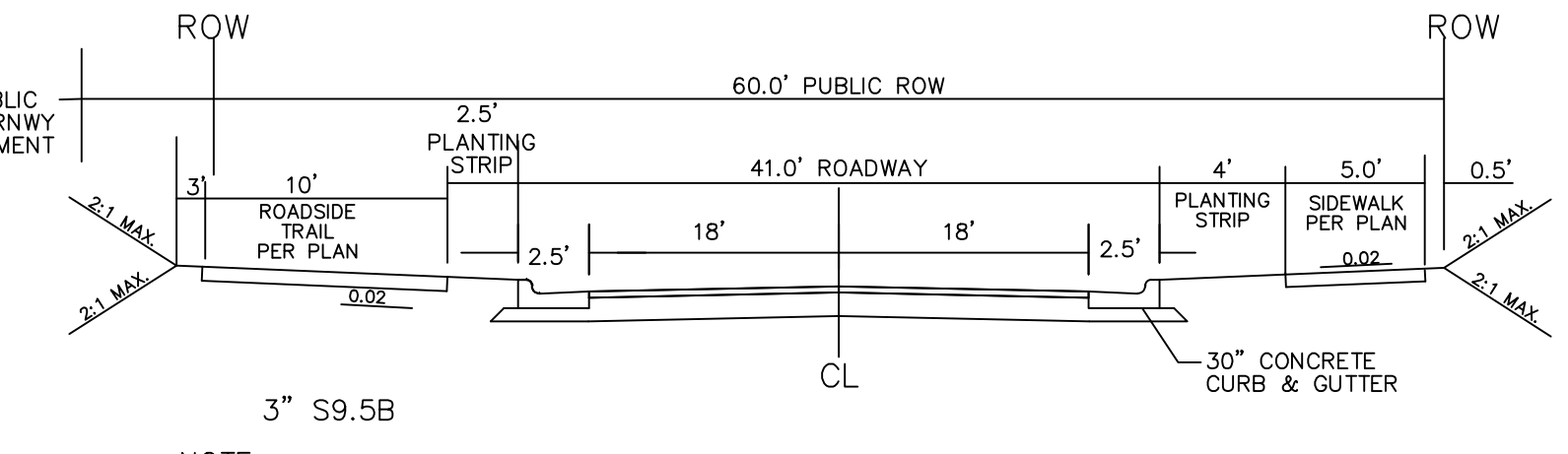
KALAS FALLS PHASE 3 1832 ROLESVILLE ROAD WAKE COUNTY, NC. SHEET NO. CD18





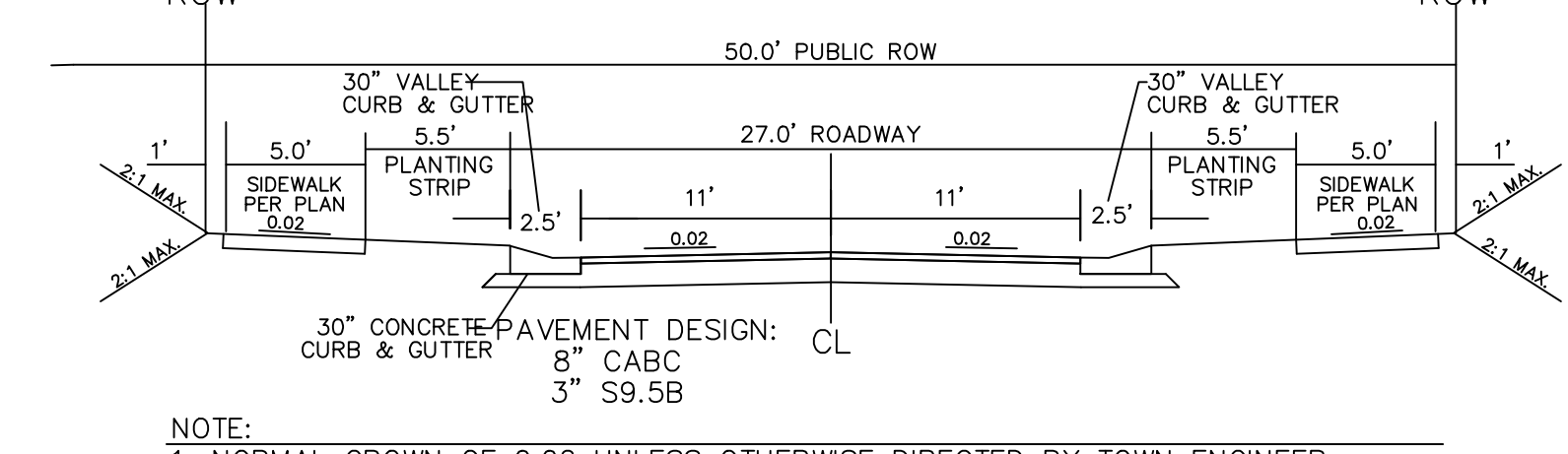
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

41' B-B ON A 60' R/W
TYPICAL SECTION



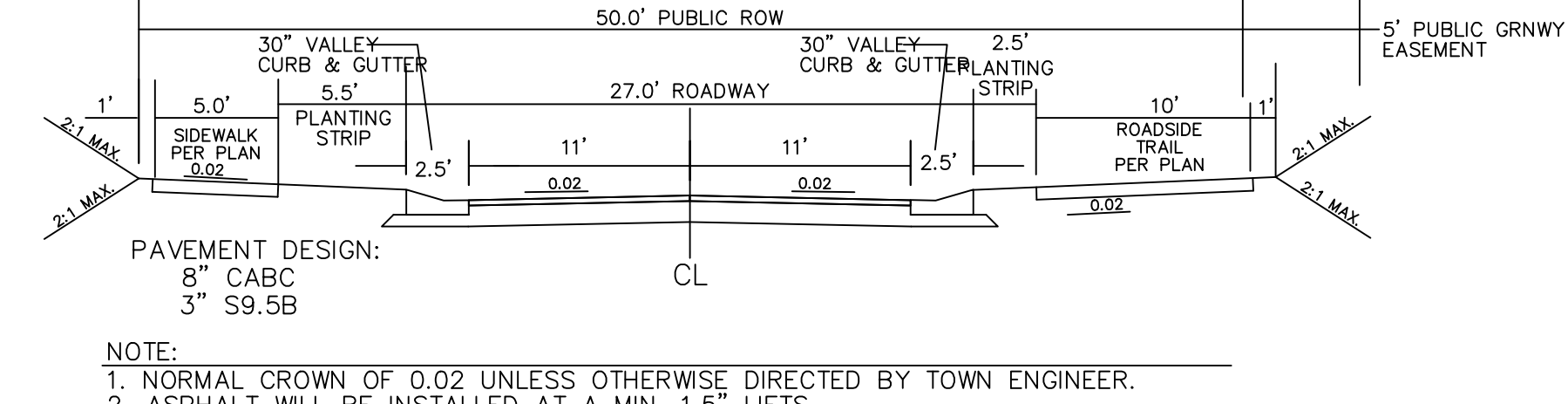
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

41' B-B ON A 60' R/W
TYPICAL SECTION



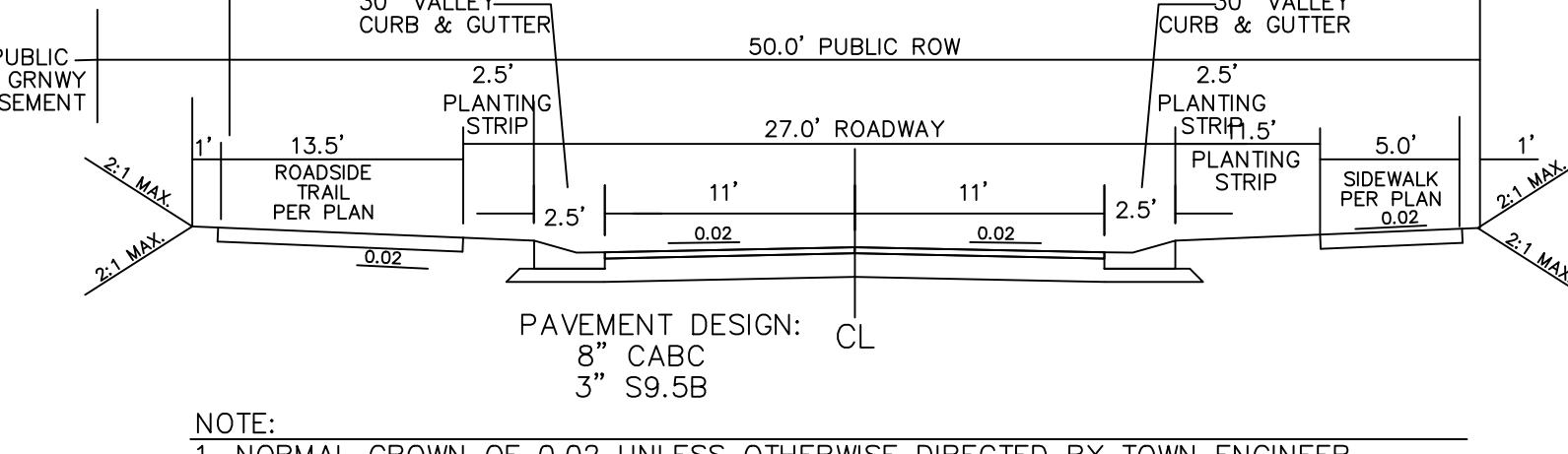
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



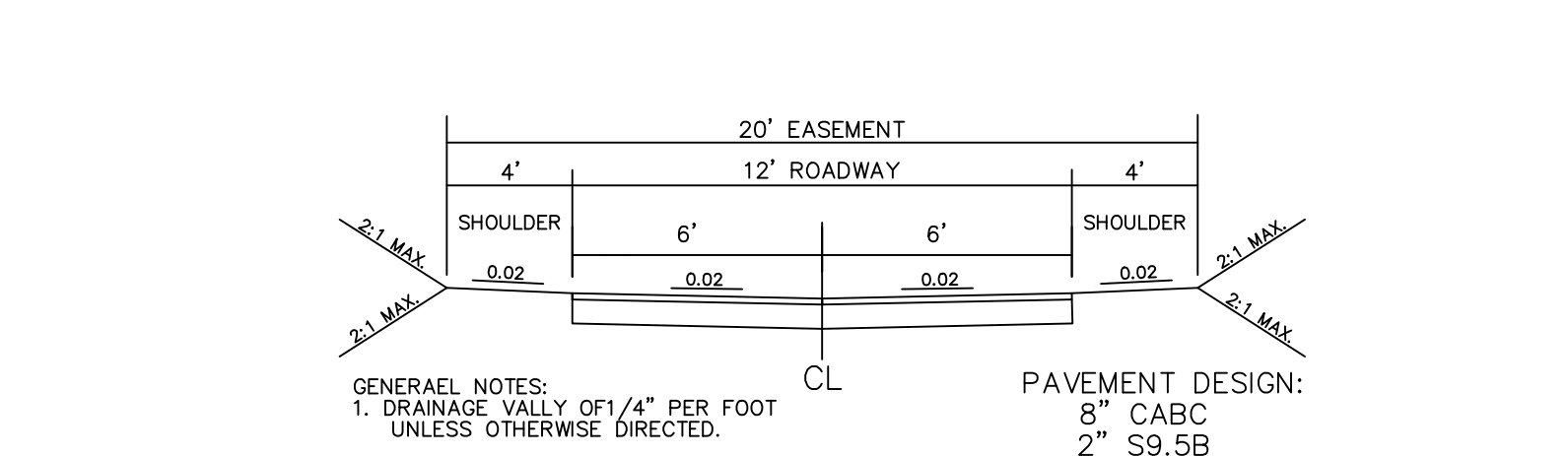
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



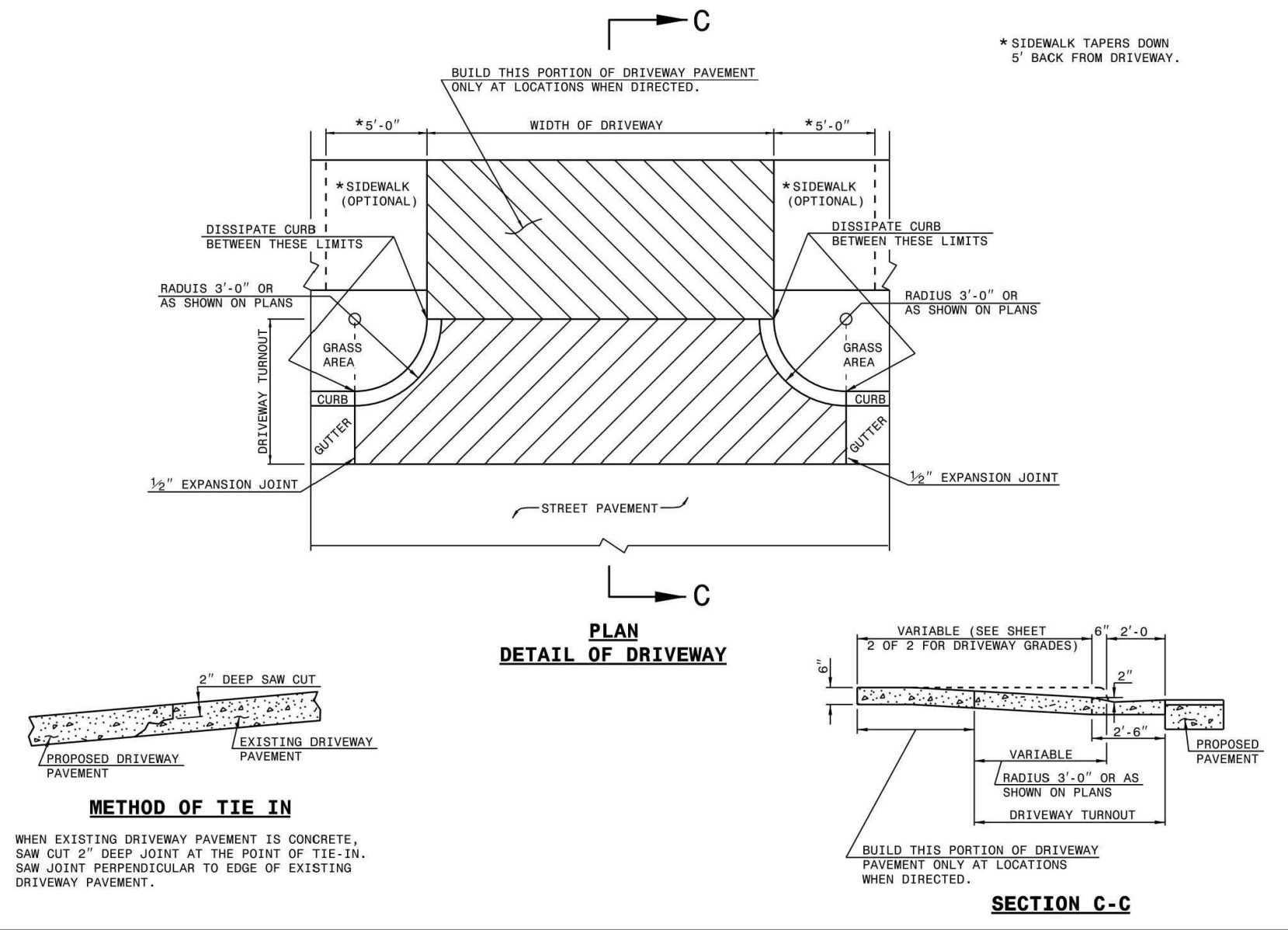
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



GENERAL NOTES:
1. DRAINAGE VALLEY OF 1/4" PER FOOT UNLESS OTHERWISE DIRECTED.
2. PAVEMENT DESIGN AS NOTED.
3. SEE DRIVEWAY DETAIL FOR ROAD INTERSECTIONS.

12' E-E IN A 20' EASEMENT
TYPICAL SECTION

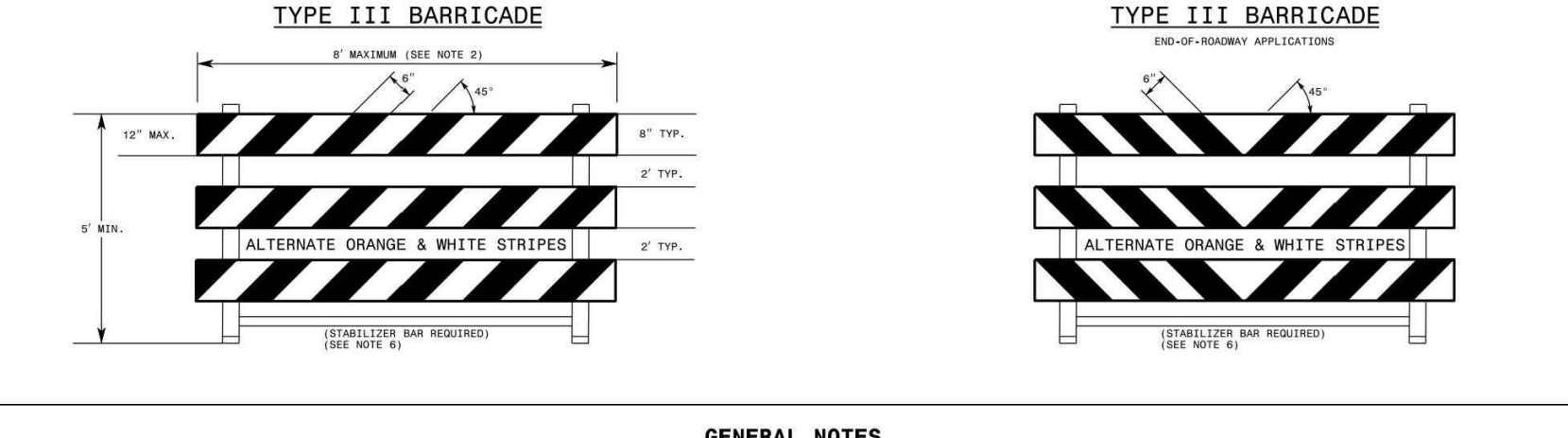
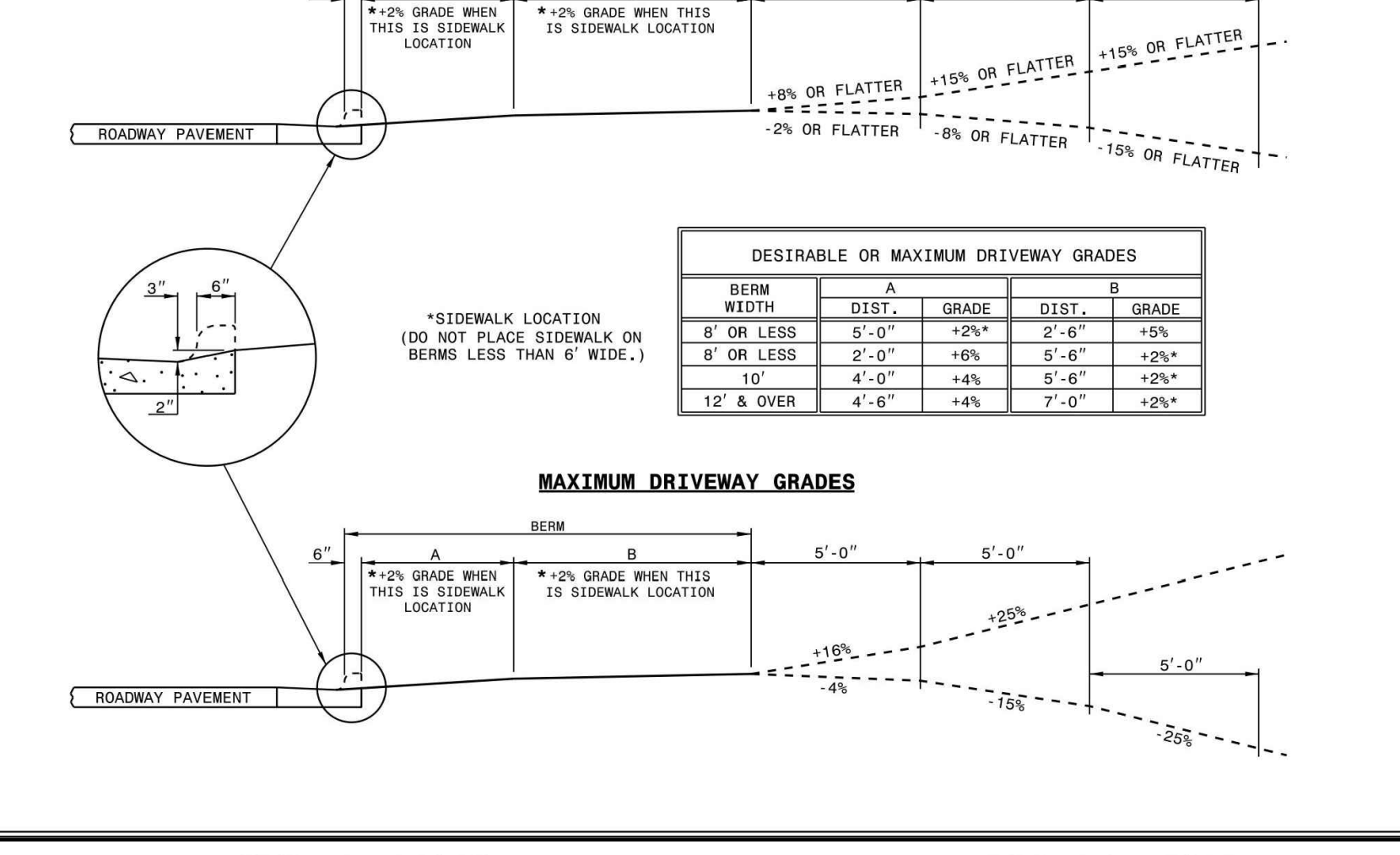


PLAN
DETAIL OF DRIVEWAY

SECTION C-C

METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.



GENERAL NOTES

- HORIZONTAL RAILS FOR MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/CONCRETE EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED MATERIAL.
- BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCDOT 350 CRASH TESTED FOR CATEGORY II DEVICES AND NCDOT APPROVED.
- ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.
- SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE BOTTOM OF THE SIGN UNLESS SIGNS R11-3 OR R11-4 ARE REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
- BARRICADE MUST BE NCDOT 350 FOR CATEGORY II DEVICES AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.
- ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.
- BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY, WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
- STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE (RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING, WHERE NO TURNS ARE EXTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES).
- USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
- ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
- PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCDOT 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.
- PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS TRUCKS, CRANKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

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

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 2
848.02

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

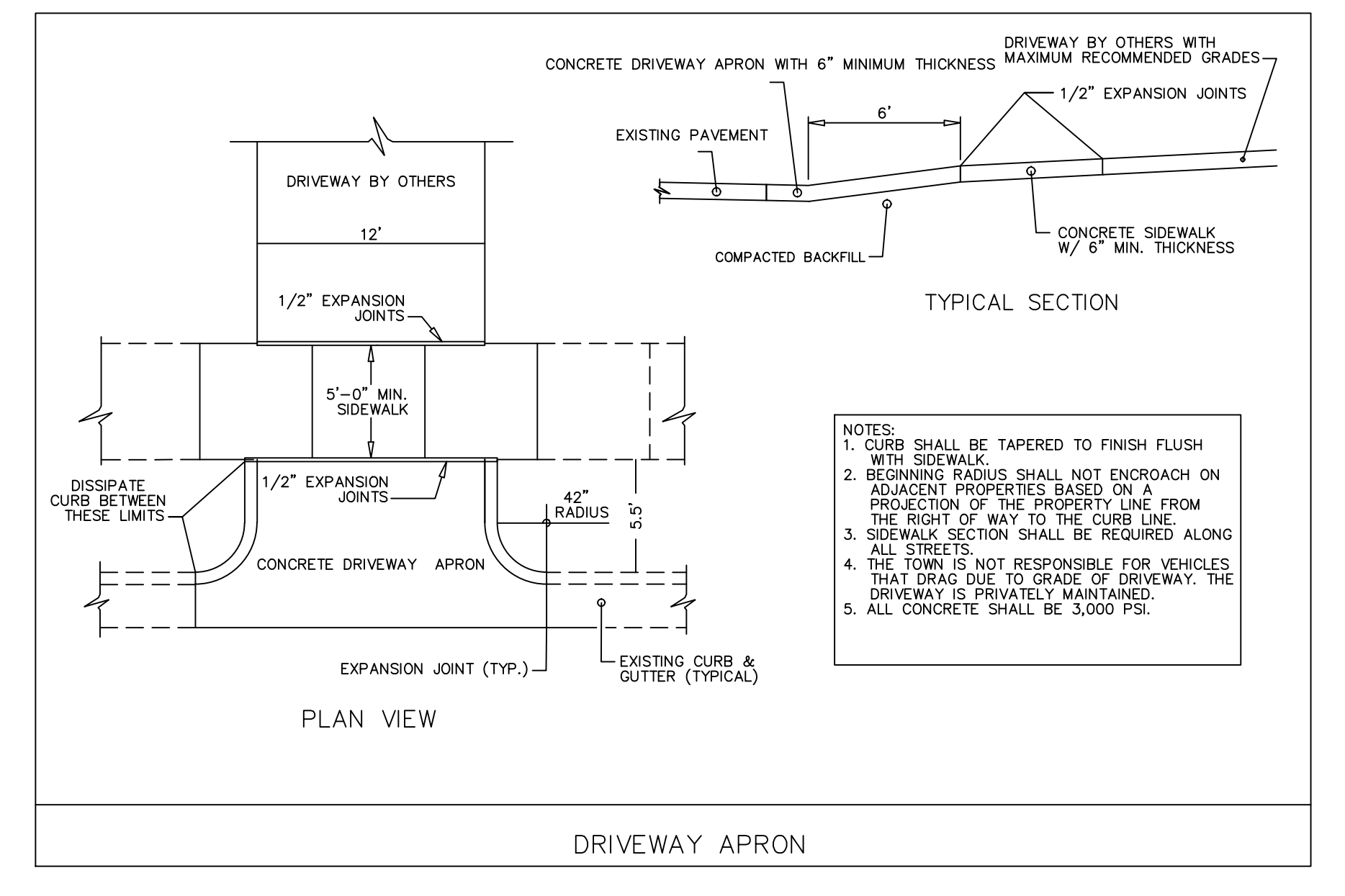
ROADWAY STANDARD DRAWING FOR
DRIVEWAY GRADES

SHEET 2 OF 2
848.02

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

ROADWAY STANDARD DRAWING FOR
BARRICADES
TYPE - III

SHEET 1 OF 1
1145.01

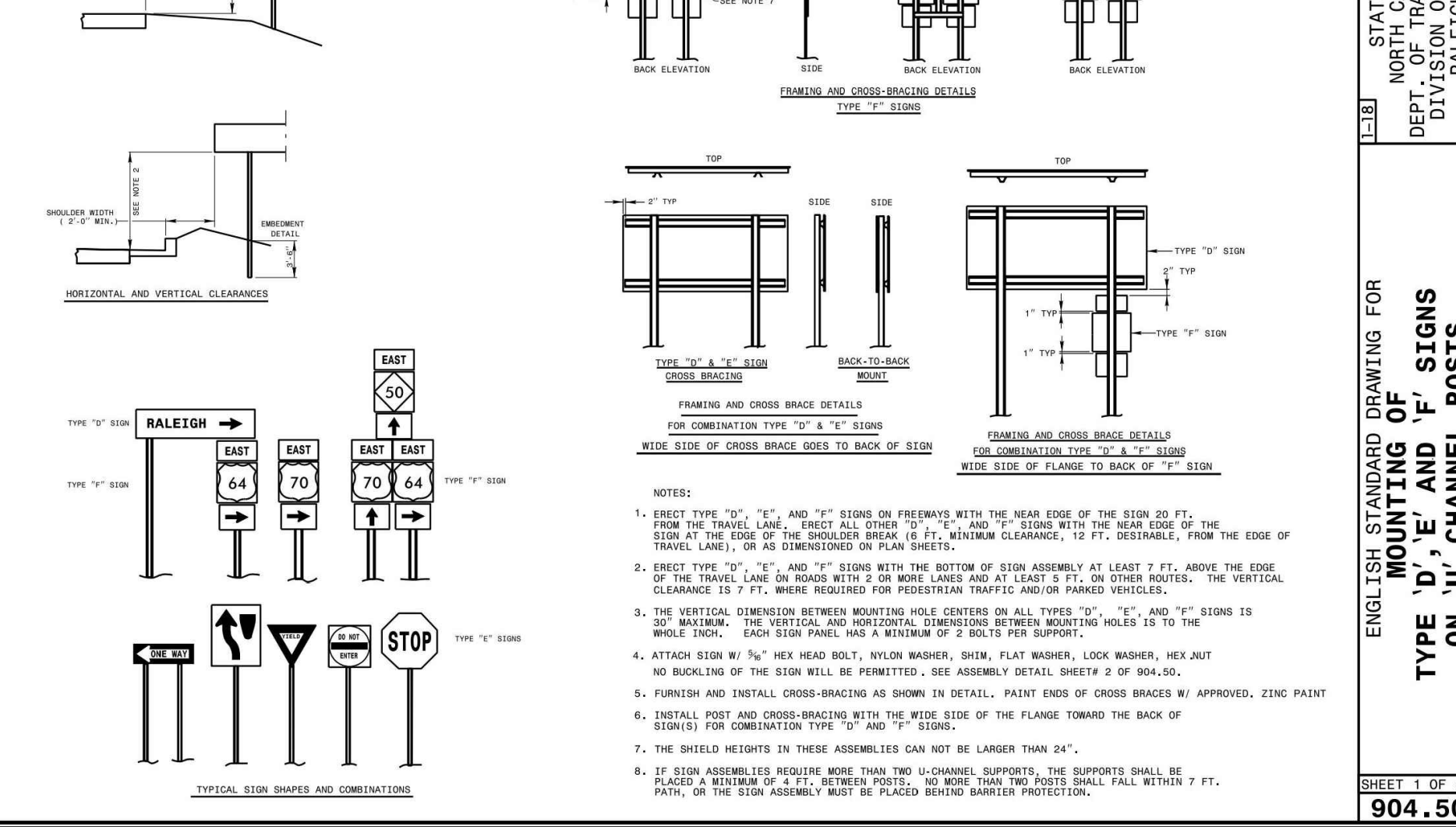


PLAN VIEW

TYPICAL SECTION

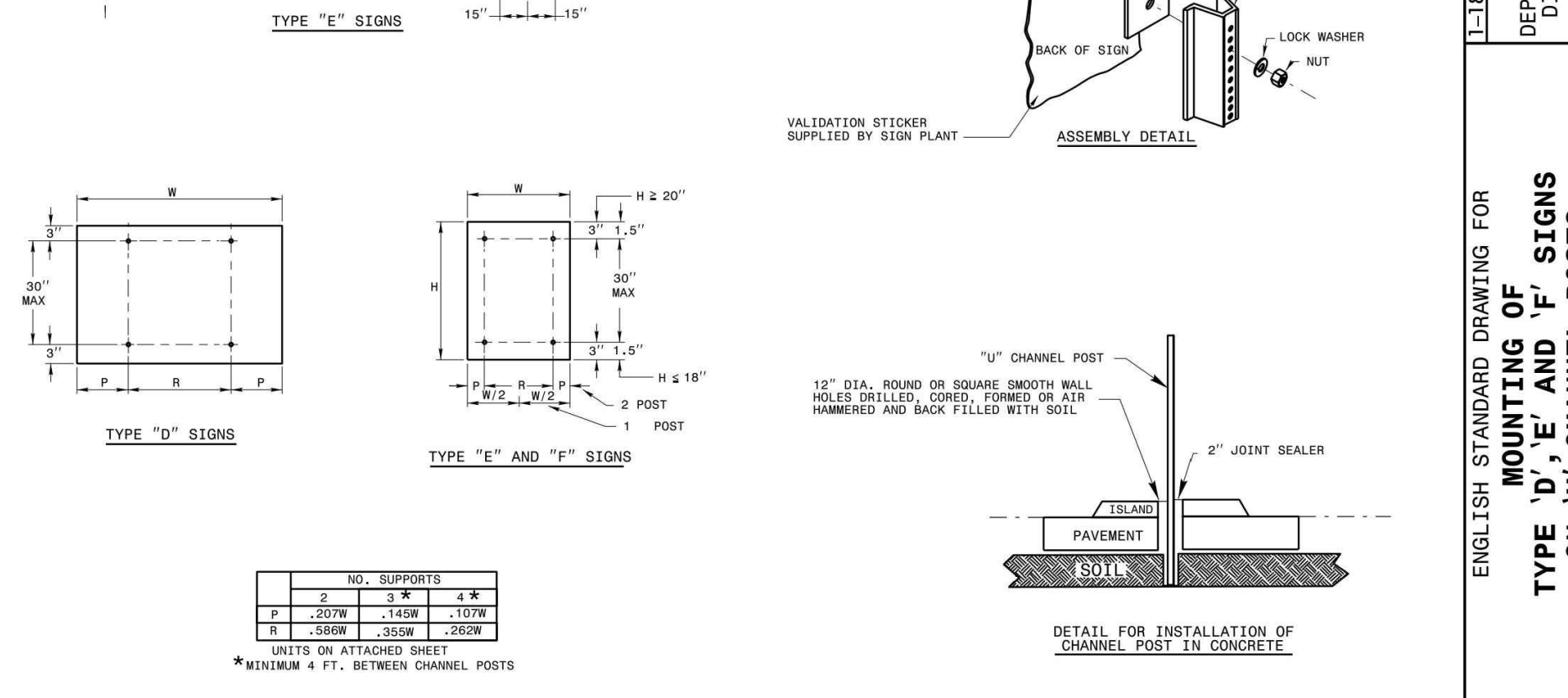
DRIVEWAY APRON

NOTES:
1. CURBS SHALL BE TAPERED TO FINISH FLUSH WITH SIDEWALK.
2. BEGINNING RADIUS SHALL NOT ENCRUSH ON ADJACENT PROPERTIES BASED ON A PROJECTION OF THE PROPERTY LINE FROM THE RIGHT OF WAY TO THE CURB LINE.
3. SIDEWALK SECTION SHALL BE REQUIRED ALONG ALL STREETS.
4. THE TOWN IS NOT RESPONSIBLE FOR VEHICLES THAT DRAG DUE TO GRADE OF DRIVEWAY. THE DRIVEWAY IS PRIVATELY MAINTAINED.
5. ALL CONCRETE SHALL BE 3,000 PSI.



ENGLISH STANDARD DRAWING FOR
MOUNTING OF
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 1 OF 2
904.50



ENGLISH STANDARD DRAWING FOR
MOUNTING OF
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 2 OF 2
904.50

AMERICAN Engineering
American Engineering Associates, Southeast, P.A.
4020 Westbase Boulevard, Suite 450
Raleigh, NC 27607

STATE OF NORTH CAROLINA
PROFESSIONAL SEAL
9810
LOAN R. HARMAN
ENGINEER

REVISIONS

NO.	DATE	REVISION
1	7/27/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH CONSULTANT COMMENTS.
3	11/07/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

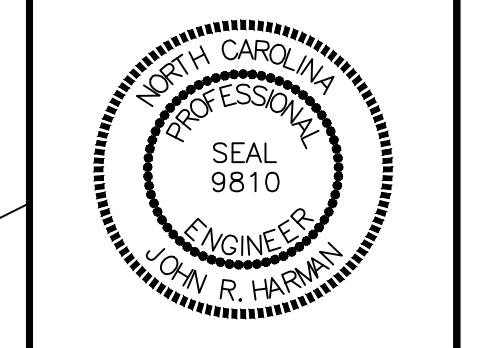
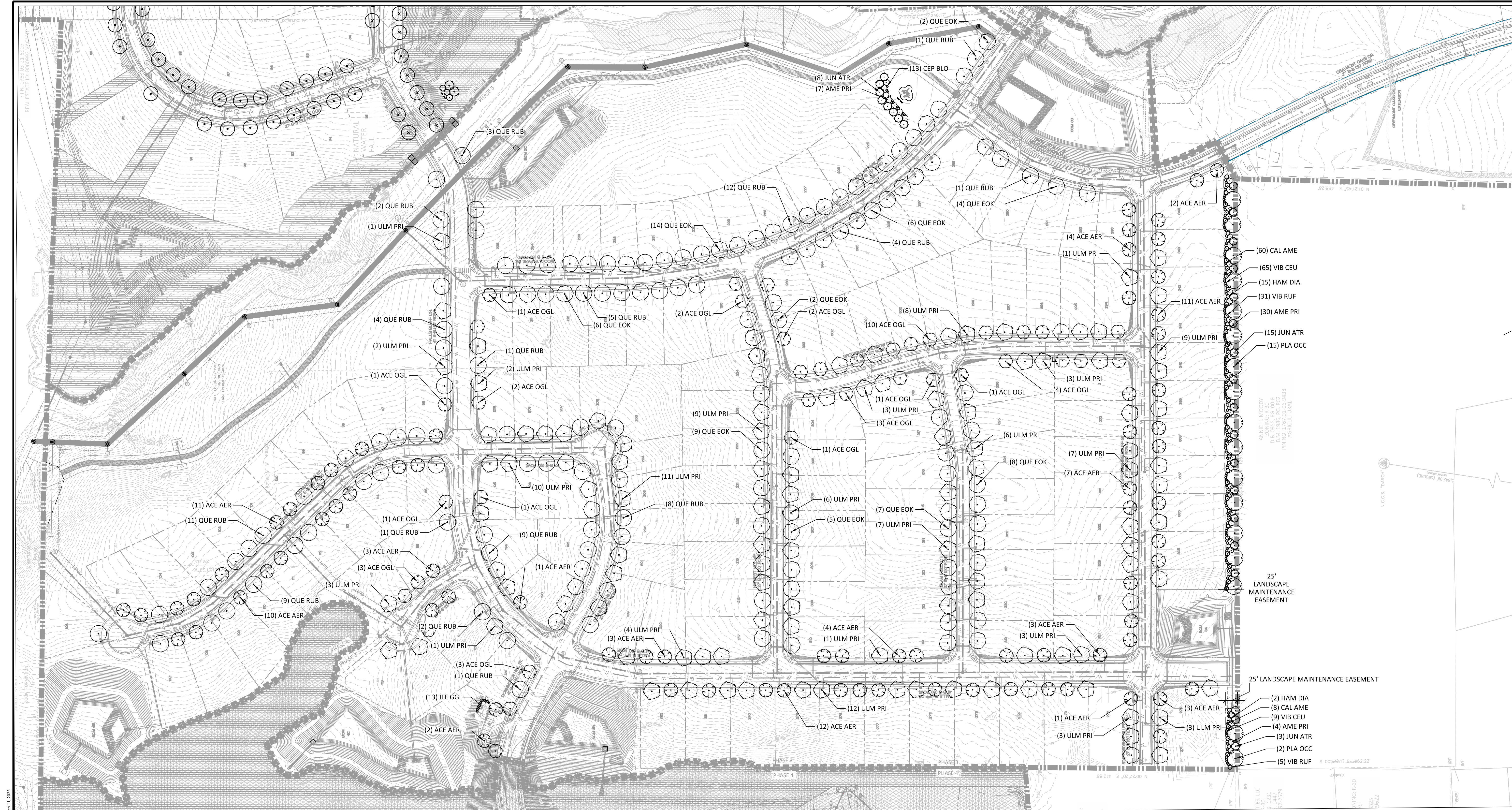
KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 11, 2024

SHEET TITLE:
KALAS FALLS
CIVIL DETAILS

SHEET NO.:
CD19

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



NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2023	REVISED FOR ROLESVILLE CONSULTANT COMMENTS
3	10/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	11/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

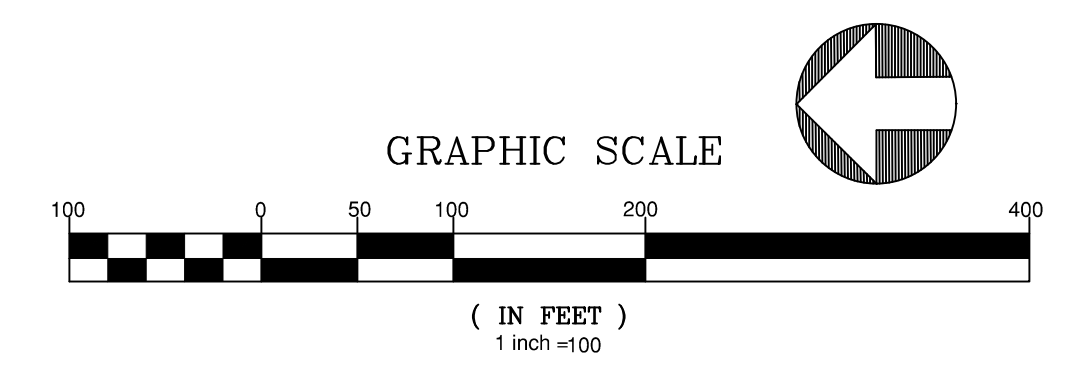
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024

**LANDSCAPE
PLAN**

L1

PLANT SCHEDULE

CODE	BOTANICAL / COMMON NAME	CAL	CONT	SIZE	QTY	REMARKS
LARGE TREES						
JUN ATR	Juniperus virginiana 'Minaret' / Minaret Eastern Redcedar	2.5" Cal.	B&B	8' Height Min.	26	Single Stem
PLA OCC	Platanus occidentalis / American Sycamore	2.5" Cal.	B&B	8' Height Min.	17	Single Stem
STREET TREES						
ACE AER	Acer buergerianum 'ABMTF' / Aeryn® Trident Maple	2.5" Cal.	B&B	8' Height Min.	77	Single Stem
ACE OGL	Acer rubrum 'October Glory' / October Glory Red Maple	2.5" Cal.	B&B	8' Height Min.	36	Single Stem
QUE EOK	Quercus phellos 'QPSTA' / Hightower® Willow Oak	2.5" Cal.	B&B	8' Height Min.	63	Single Stem
QUE RUB	Quercus rubra / Northern Red Oak	2.5" Cal.	B&B	8' Height Min.	74	Single Stem
ULM PRI	Ulmus americana 'Princeton' / Princeton American Elm	2.5" Cal.	B&B	8' Height Min.	115	Single Stem
UNDERSTORY TREES						
AME PRI	Amelanchier x grandiflora 'Princess Diana' / Princess Diana Apple Serviceberry	1.5" Cal.		8' Height Min.	41	
SHRUBS						
CAL AME	Calliandra americana / American Beautyberry	18" Height Min.	3 gal		68	Fully Rooted
CEP BLO	Cephalanthus occidentalis 'Bailoptics' / Fiber Optics® Buttonbush	18" Height Min.	3 gal		13	Fully Rooted
HAM DIA	Hamamelis x intermedia 'Diane' / Diane Witch Hazel	18" Height Min.	3 gal		17	Fully Rooted
ILE GGI	Ilex glabra 'SMNIGAB17' / Gem Box® Inkberry Holly	18" Height Min.	3 gal		13	Fully Rooted
VIB RUF	Viburnum rufidulum / Southern Rusty Blackhaw	18" Height Min.	3 gal		36	Fully Rooted
VIB CEU	Viburnum x 'SpG-3-024' / Moonlit Lace® Viburnum	18" Height Min.	3 gal		74	Fully Rooted

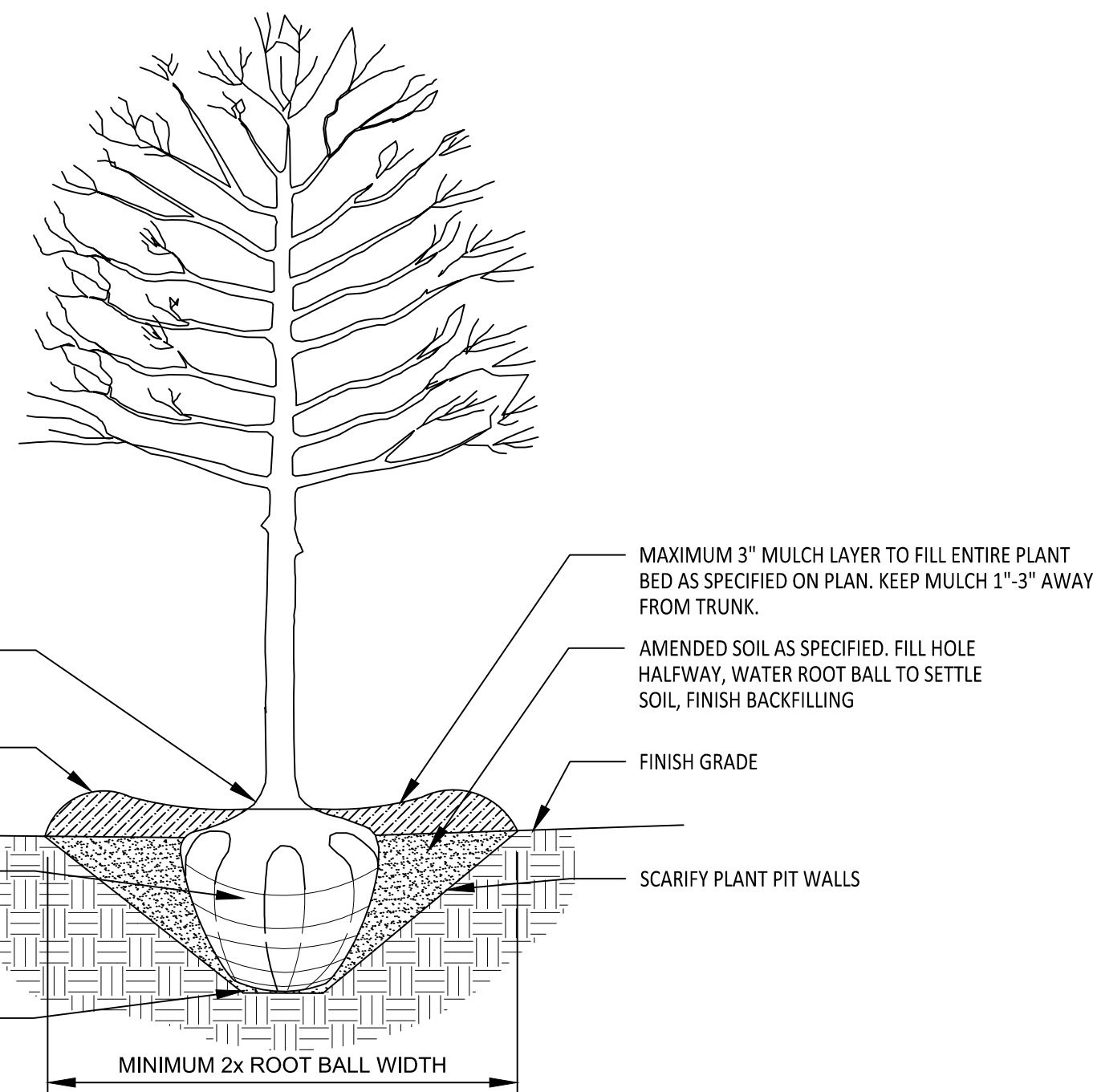


March 11, 2025
Z:\Projects\9900\Working\Drawings\Phase 3\Phase 3 Landscape Plan.dwg

PLANT DETAILS

NOTES

- REMOVE WIRE AND NYLON TWINE FROM BALL AND CANOPY.
- SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.
- DO NOT STAKE OR WRAP TRUNK UNLESS:
 - TREE HAS A LARGE CROWN
 - PLANTING SITE IS CONSISTENTLY WINDY OR IS A STEEP SLOPE
 - PLANTING SITE IS SUSCEPTIBLE TO VANDALISM.
- REMOVE ALL TAGS AND LABELS FROM PLANT MATERIAL.
- PRUNE DEAD, BROKEN, RUBBING OR CROSSING BRANCHES, AND ANY SUCKERS AFTER PLANTING. DO NOT TOP TREES.



ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004)
 FOR EXAMPLE:

CALIPER	HEIGHT (RANGE)	MAX. HEIGHT	MIN. ROOT BALL DIA.	MIN. ROOT BALL DEPTH
2"	12'-14'	16'	24"	16"
3"	14'-16'	18'	32"	21"

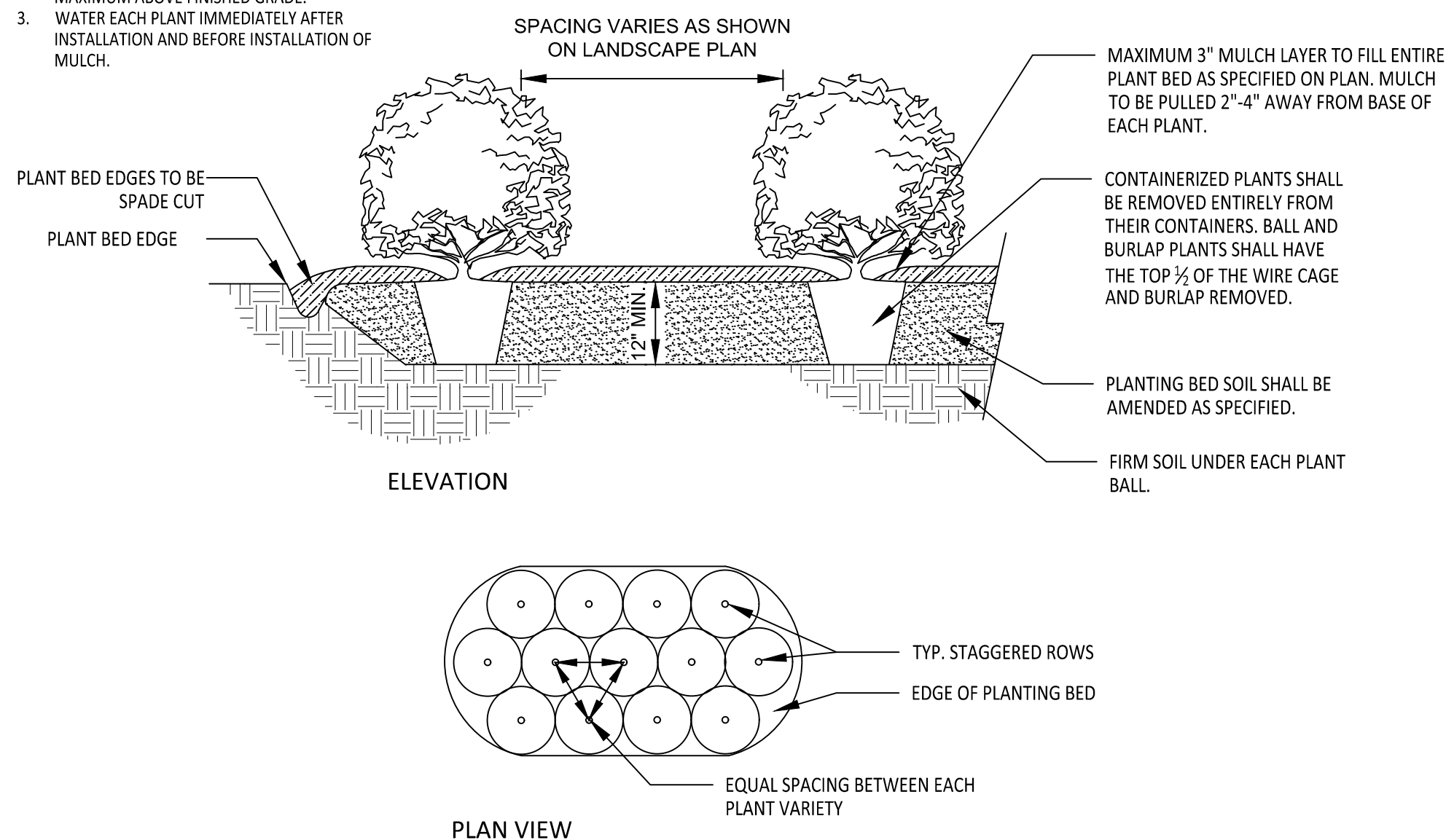
TYPICAL TREE PLANTING

(FOR SINGLE AND MULTI-STEM TREES)

NOT TO SCALE

NOTES

- SCARIFY ROOT MASS OF CONTAINERIZED PLANTS.
- PLANT ROOT BALL SHOULD BE INSTALLED 1"-3" MAXIMUM ABOVE FINISHED GRADE.
- WATER EACH PLANT IMMEDIATELY AFTER INSTALLATION AND BEFORE INSTALLATION OF MULCH.



TYPICAL SHRUB PLANTING

NOT TO SCALE

PLANT NOTES

PLANT INSTALLATION & MAINTENANCE NOTES:

- ALL LANDSCAPING SHALL BE OF NURSERY STOCK QUALITY AND SHALL BE INSTALLED IN A SOUND, WORKMANLIKE MANNER AND ACCORDING TO ACCEPTED GOOD PLANTING PROCEDURES.
- ALL LANDSCAPING SHALL BE ADAPTABLE TO CLIMATIC CONDITIONS OF THE AREA.
- LARGE TREES SHOULD NOT BE PLANTED WITHIN EASEMENTS AND A MINIMUM OF 6' FROM UTILITY LINES, UNLESS OTHERWISE SPECIFIED BY REVIEWING AGENCY. SHRUBS MAY BE PLANTED IN EASEMENTS, BUT A MINIMUM OF 3' FROM UTILITY LINES, UNLESS OTHERWISE SPECIFIED BY REVIEWING AGENCY.
- ALL LANDSCAPING SHALL BE MAINTAINED IN GOOD CONDITION.
- ALL LANDSCAPING SHALL AT ALL TIMES PRESENT A HEALTHY, NEAT, CLEAN, ORDERLY, DISEASE-FREE AND PEST-FREE APPEARANCE.
- ALL LANDSCAPING SOIL AND FILL SHALL BE FREE FROM WEEDS, REFUSE, AND DEBRIS AT ALL TIMES.
- EXCESS SOIL SHALL BE DISPOSED OF IN A LEGAL MANNER.
- ANY DEAD PLANT MATERIAL OR MATERIAL THAT FAILS TO SHOW HEALTHY GROWTH MUST BE REMOVED WITHIN 30 DAYS.
- REPLACEMENT OF REMOVED PLANT MATERIAL MUST TAKE PLACE WITHIN 90 DAYS OF REMOVAL OR NOTIFICATION BY THE CITY, WHICHEVER OCCURS FIRST.
- ANY REPLACEMENT PLANT MATERIAL MUST MEET THE SIZE AND OTHER CHARACTERISTICS OF NEWLY PLANTED MATERIAL.
- IF USING STAKES AND GUYS SUCH SUPPORTS SHALL BE DESIGNED SO AS TO PROTECT TREES AND SHRUBS FROM INJURY. TREES AND SHRUBS SHALL BE FASTENED TO THE SUPPORT WITH AN ACCEPTABLE COMMERCIAL TREE TIE OF PLASTIC OR HOSE-COVERED WIRE. AFTER THE WARRANTY PERIOD HAS ENDED, STAKES AND GUYS SHALL BE REMOVED.
- CONTRACTOR IS RESPONSIBLE TO CONTACT MISS UTILITIES (811) 48 HOURS PRIOR TO COMMENCEMENT OF WORK. CONTACT LANDSCAPE ARCHITECT IF FIELD CONFLICTS/DISCREPANCIES ARISE.
- CONTRACTOR RESPONSIBLE TO VERIFY PLANT COUNTS. PLANTING PLAN SHALL GOVERN IN THE CASE OF A CONFLICT.
- ALL PLANTS SHALL MEET OR EXCEED STANDARDS AS DETERMINED BY THE AMERICAN STANDARD OF NURSERY STOCK.
- CONTRACTOR SHALL WARRANTY ALL PLANTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- WHEN POSSIBLE, PLANTING SHALL BE INSTALLED BETWEEN SEPTEMBER 1 - JUNE 30TH AND IN FAVORABLE WEATHER CONDITIONS. WHEN PLANTING MUST BE PERFORMED OUTSIDE OF SPECIFIED DATES, PLANTS MUST BE WATERED ON A REGULAR BASIS TO ENSURE VIABILITY.
- PLANT VARIETIES, SIZES AND LAYOUT SHALL CONFORM ACCURATELY TO THE LANDSCAPE PLAN. CONTACT LANDSCAPE ARCHITECT FOR FIELD CONFLICTS.
- DISTURBED AREAS SHALL BE SEEDED ACCORDING TO THE NOTES FOUND ON THIS PAGE.
- PLANT SUBSTITUTIONS SHALL BE BROUGHT TO THE ATTENTION OF AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- MULCH USED ON-SITE SHALL BE OF A NON-DYED, NATURAL HARDWOOD VARIETY TO BE INSTALLED AT A MAXIMUM DEPTH OF 3", MINIMUM DEPTH OF 2".

TOPSOIL / PLANTING MIX MINIMUM REQUIREMENTS:

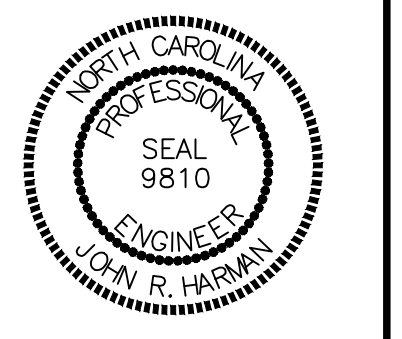
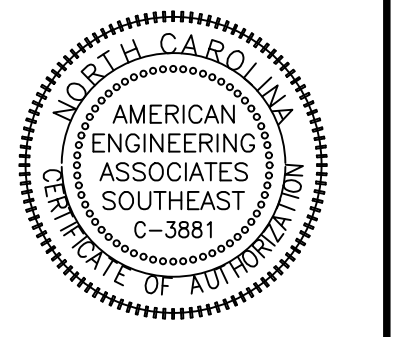
- TOPSOIL/PLANTING MIX SHOULD BE NATURAL, FERTILE, AGRICULTURAL SOIL CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH. IT SHOULD BE UNIFORM COMPOSITION THROUGHOUT, WITH ADMIXTURE OF SUBSOIL. IT SHOULD BE FREE OF STONES, LUMPS, LIVE PLANTS AND THEIR ROOTS, STICKS AND OTHER EXTRANEEOUS MATTER. TOPSOIL SHOULD NOT BE USED WHILE IN A FROZEN OR MUDDY CONDITION.
- TOPSOIL/PLANTING MIX SHALL HAVE AN ACIDITY RANGE OF PH 5.5-7.0 AND THE FOLLOWING COMPOSITION:

CLAY (RED CLAY, WELL PULVERIZED)	MINIMUM 10%; MAXIMUM 35%
COMPOST*/ORGANIC	MINIMUM 5%; MAXIMUM 10%
SILT	MINIMUM 30%; MAXIMUM 50%
COARSE SAND (FREE OF ROCKS, 0.5 TO 1.0 MM F)	MINIMUM 30%; MAXIMUM 45%
- ORGANIC MATERIAL SUCH AS SAWDUST OR LEAF MOLD THAT HAS COMPLETED THE DECOMPOSITION PROCESS
- RECOMMENDATIONS:
- ALL PLANTING AREAS SHOULD BE TESTED FOR PROPER DRAINAGE. DRAINAGE SHOULD BE CORRECTED AS NECESSARY TO INSURE PROPER TREE GROWTH AND SURVIVAL. THE FOLLOWING LEVEL OF NUTRIENT ELEMENTS IS RECOMMENDED FOR PROPER GROWTH:

CALCIUM	55 - 80%
MAGNESIUM	10 - 30%
POTASSIUM	5 - 8%

SEEDING SCHEDULE FOR LAWNS & SLOPES (MAXIMUM 3:1):

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE AND ABRUZZI RYE	300 LBS/ACRE OR ANNUAL RYE
MAR 1 - APR 15	TALL FESCUE OR HARD FESCUE	300 LBS/ACRE
MAR 1 - JUL 15	HULLED COMMON BERMUDA GRASS OR HYBRID BERMUDA GRASS OR CENTIPEDE GRASS OR ZOYSIA GRASS OR ST. AUGUSTINE GRASS	200 LBS/ACRE
APR 15 - JUN 30	WEeping LOVE GRASS OR BAHIA GRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE AND *** BROWNTOP MILLET *** OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE



NO.	DATE	REVISION
1	7/27/2021	REVISED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/14/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	10/17/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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.

KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024

LANDSCAPE NOTES AND DETAIL

L2

