



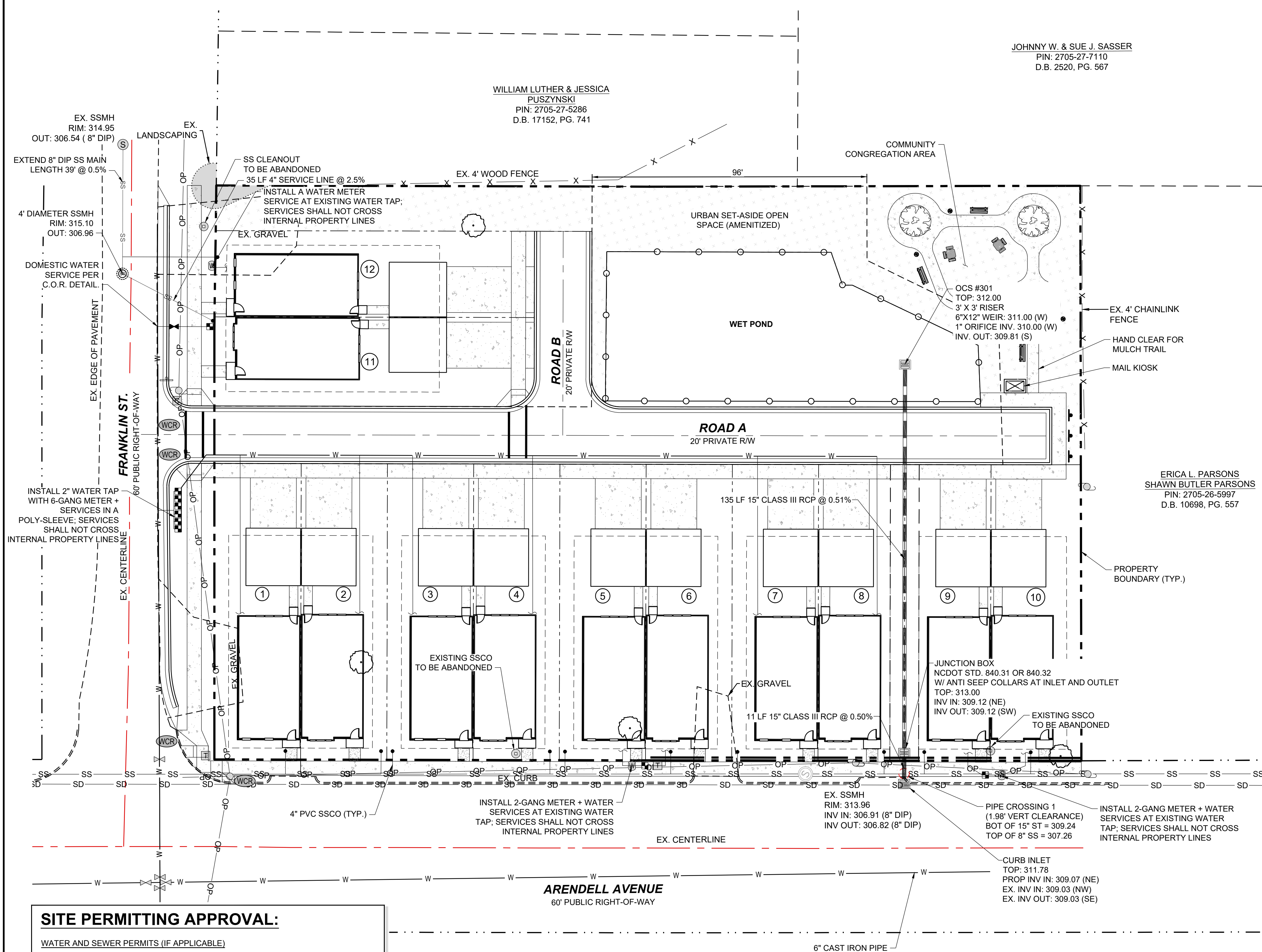




JOHNNY W. & SUE J. SASSER  
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D.B. 2520, PG. 567

WILLIAM LUTHER & JESSICA  
PUSZYNSKI  
PIN: 2705-27-5286  
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ERICA L. PARSONS  
SHAWN BUTLER PARSONS  
PIN: 2705-26-5997  
D.B. 10698, PG. 557



**UTILITY NOTES:**

- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF ZEBULON DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
  - UTILITY SEPARATION REQUIREMENTS (TAKEN FROM CORPUD HANDBOOK, 2014 EDITION, SEWER DESIGN, MATERIAL, & CONSTRUCTION STANDARDS, SECTION 1, a. 15.):
    - A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
    - WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
    - WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASUREMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
    - 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
    - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS. MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).
    - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
  - ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF ZEBULON PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF ZEBULON PUBLIC UTILITIES DEPARTMENT.
  - 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
  - IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF ZEBULON PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
  - INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
  - INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
  - PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
  - A 3-PARTY ENCROACHMENT AGREEMENT BETWEEN THE NCDOT, THE CITY OF ZEBULON PUBLIC UTILITIES, AND THE DEVELOPER MAY BE NEEDED FOR WATER AND SEWER SERVICE TAPS WITHIN THE NODOT MAINTAINED RIGHT OF WAY.
- CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
  - PROPOSED PRIVATE UTILITIES (POWER, TELEPHONE, NATURAL GAS, CABLE TV) ARE NOT SHOWN ON THIS PLAN. THE DEVELOPER SHALL COORDINATE THE INSTALLATION OF THOSE UTILITIES WHEN INSTALLING PUBLIC UTILITIES.
  - CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO ANY LAND DISTURBANCE ACTIVITIES. IF ANY EXISTING UTILITIES ARE LOCATED THAT CAUSE A CONFLICT WITH PROPOSED UTILITIES, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CIVIL ENGINEER OF RECORD IN WRITING. IF SUCH A SCENARIO ARISES, THE PROPOSED UTILITY IN QUESTION SHALL NOT BE INSTALLED UNTIL AN ACCEPTABLE SOLUTION IS PREPARED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.
  - CONTRACTOR SHALL ADJUST ALL CLEANOUTS, VALVE BOXES, MANHOLES, ETC. TO THE FINISHED GRADES ESTABLISHED BY THE PROJECT.
  - ALL UNDERGROUND ELECTRICAL CONDUITS SHALL HAVE A MINIMUM COVER OF 36"; GAS AND COMMUNICATION LINES SHALL HAVE DEPTH AND SPACING AS SPECIFIED BY SERVICE COMPANY.
  - MAXIMUM SPACING FOR SANITARY SEWER CLEANOUTS IS 75 FEET. ALL CLEANOUTS LOCATED IN DRIVE AISLES AND/OR PARKING AREAS SHALL TO BE TRAFFIC RATED.
  - INVERT AT CLEANOUT IS INVERT ELEVATION AT THE CONNECTION OF THE HORIZONTAL BEND.
  - A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS.
  - CONTRACTOR SHALL PROVIDE PROPER NOTIFICATION TO AUTHORITIES HAVING JURISDICTION AS SPECIFIED IN AGENCY PERMIT CONDITIONS. AS A COURTESY, CIVIL ENGINEER OF RECORD REQUESTS NOTIFICATION.
  - THRUST RESTRAINT SHALL BE IN ACCORDANCE WITH CITY OF ZEBULON STANDARD SPECIFICATIONS.
  - WATER LINE TESTING AND STERILIZATION SHALL BE IN ACCORDANCE WITH CITY OF ZEBULON STANDARD SPECIFICATIONS.
  - ALL NEW MANHOLES SHALL BE ECCENTRIC UNLESS OTHERWISE NOTED.
  - ALL WATER AND SEWER SERVICE CONNECTIONS SHALL BE INSTALLED BY A LICENSED PLUMBER.

**SITE PERMITTING APPROVAL:**

WATER AND SEWER PERMITS (IF APPLICABLE)

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT 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 PUBLIC UTILITIES DEPARTMENT PERMIT # S-3936

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT 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 PUBLIC UTILITIES DEPARTMENT PERMIT # N/A

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT - PLANS AUTHORIZED FOR CONSTRUCTION

ELECTRONIC APPROVAL: THIS APPROVAL IS BEING ISSUED ELECTRONICALLY. THIS APPROVAL IS VALID ONLY UPON THE SIGNATURE OF A TOWN OF ZEBULON REVIEW OFFICER BELOW. THE CITY WILL RETAIN A COPY OF THE APPROVED PLANS. ANY WORK AUTHORIZED BY THIS APPROVAL MUST PROCEED IN ACCORDANCE WITH THE PLANS KEPT ON FILE WITH THE CITY. THIS ELECTRONIC APPROVAL MAY NOT BE EDITED ONCE ISSUED. ANY MODIFICATION TO THIS APPROVAL ONCE ISSUED WILL INVALIDATE THIS APPROVAL.

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT DEVELOPMENT APPROVAL

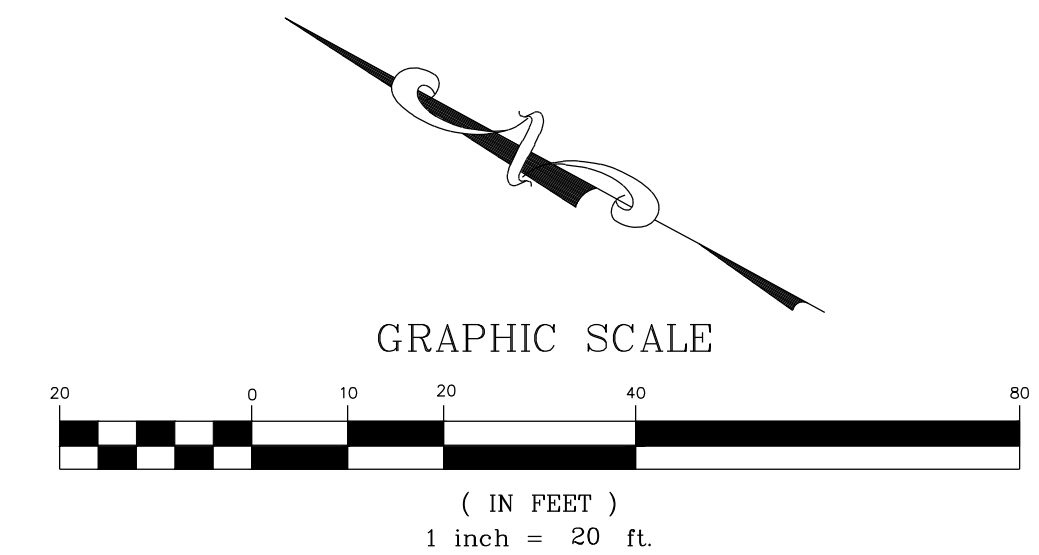
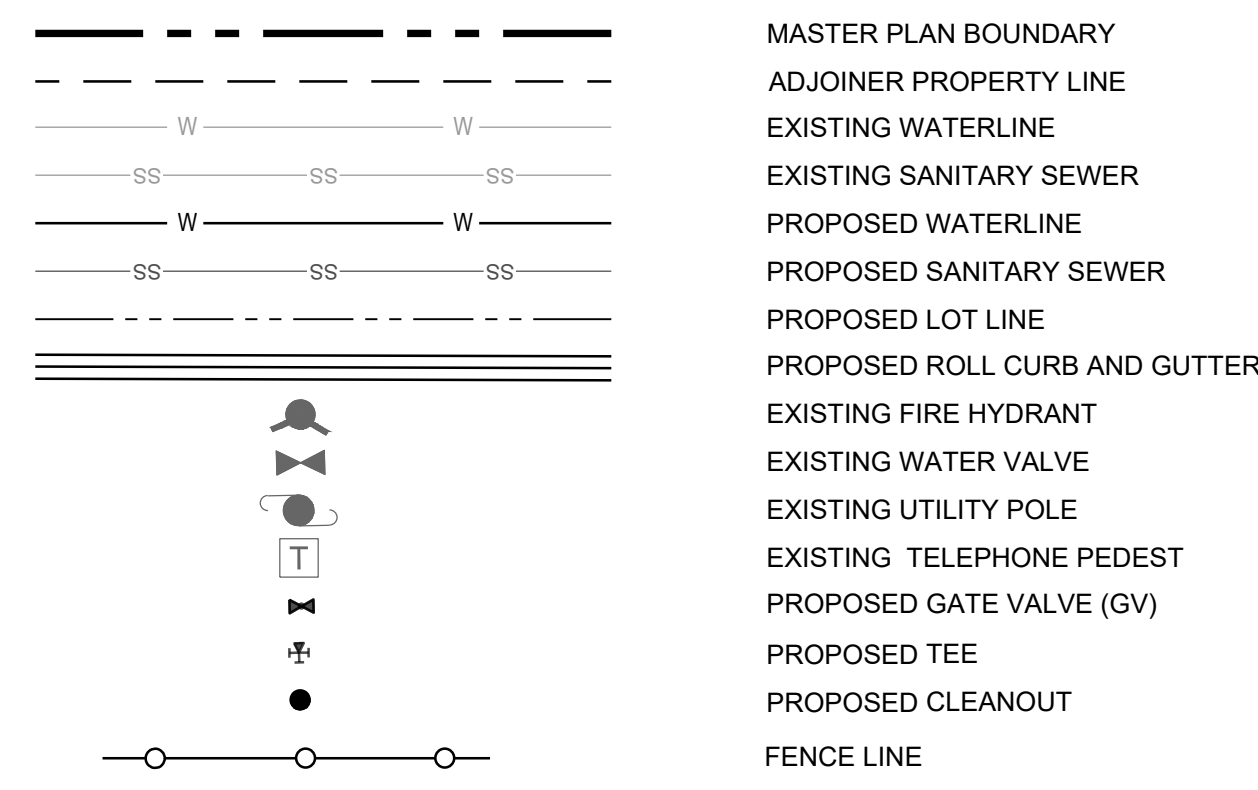
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT WATER REVIEW OFFICER

**NOTE:**

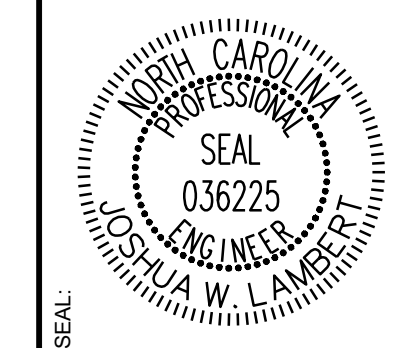
WHERE PROPOSED SS PASSES OVER WATER AND STORM, SS MUST BE DUCTILE IRON WITH CONCRETE COLLAR, REFER TO DETAIL S-49.

MAINTAIN 5' SEPARATION BETWEEN UTILITY SERVICE LINES AND TREE'S DRIPLINE.

**LEGEND:**



NO.	REVISIONS	DATE	BY



**STRONGROCK**  
ENGINEERING GROUP

STRONG ROCK ENGINEERING GROUP, PLLC | COMPANY LICENSE # P-2166  
6801 FALLS OF NEUSE RD, SUITE 108 RALEIGH, NC 27615 | INFORMATION@STRONGROCKGROUP.COM

STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	DRAWN BY SRG	CHECKED BY JWL
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TRUE-ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS

**UTILITY PLAN**

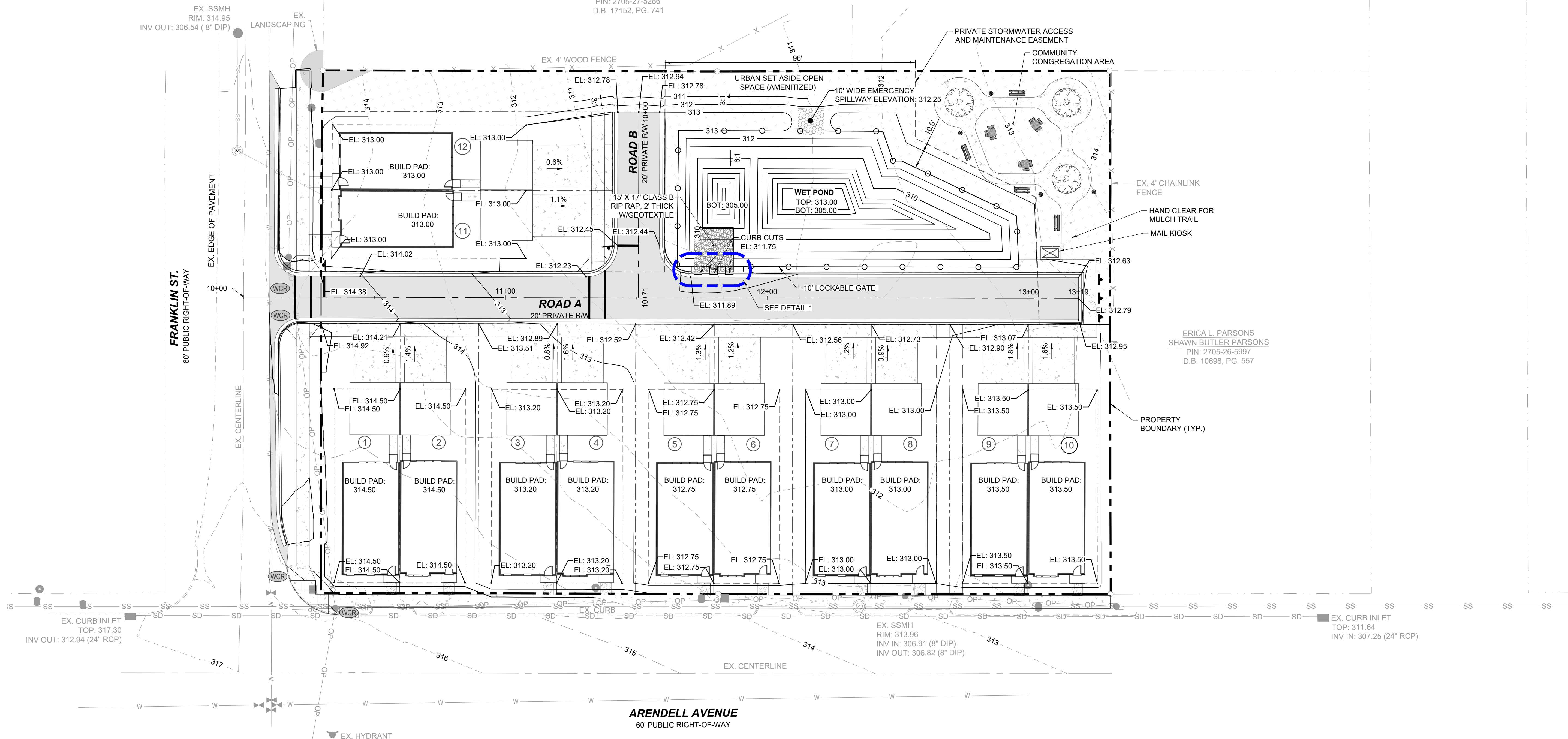
DRAWING SHEET  
**C-3.0**

04 OF 24



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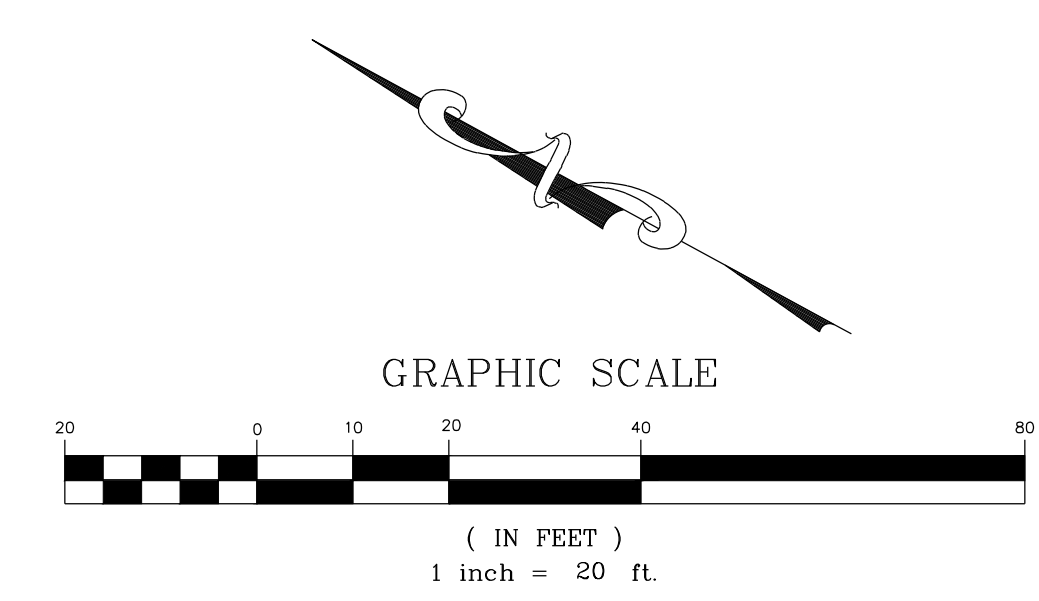
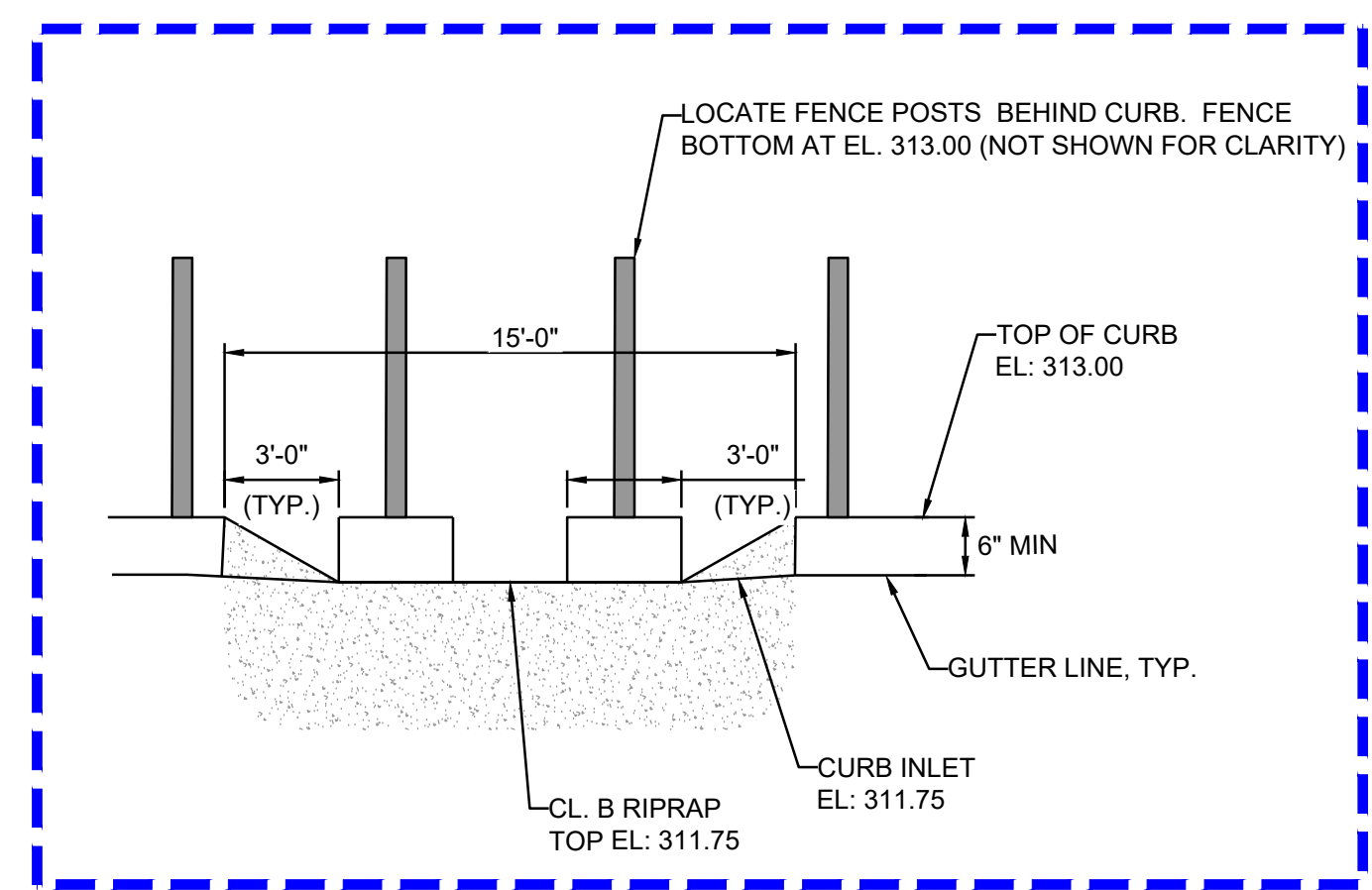


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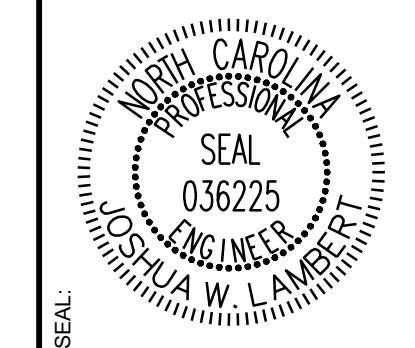
**LEGEND:**

	MASTER PLAN BOUNDARY
	ADJOINER PROPERTY LINE
	EXISTING WATERLINE
	EXISTING SANITARY SEWER
	PROPOSED LOT LINE
	PROPOSED ROLL CURB AND GUTTER
	EXISTING MAYOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAYOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING FIRE HYDRANT
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	EXISTING TELEPHONE PEDEST
	FENCE LINE

- GRADING NOTES:**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF ZEBULON, CITY OF ZEBULON, NCDOT, AND/OR WAKE COUNTY STANDARDS AS APPLICABLE.
  - CONTRACTOR SHALL COORDINATE ALL GRADING OPERATIONS WITH THE OWNERS GEOTECHNICAL ENGINEER.



NO.	REVISIONS	DATE	BY



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STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	DRAWN BY SRG	CHECKED BY JWL
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TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
**GRADING PLAN**

DRAWING SHEET  
**C-5.0**  
06 OF 24



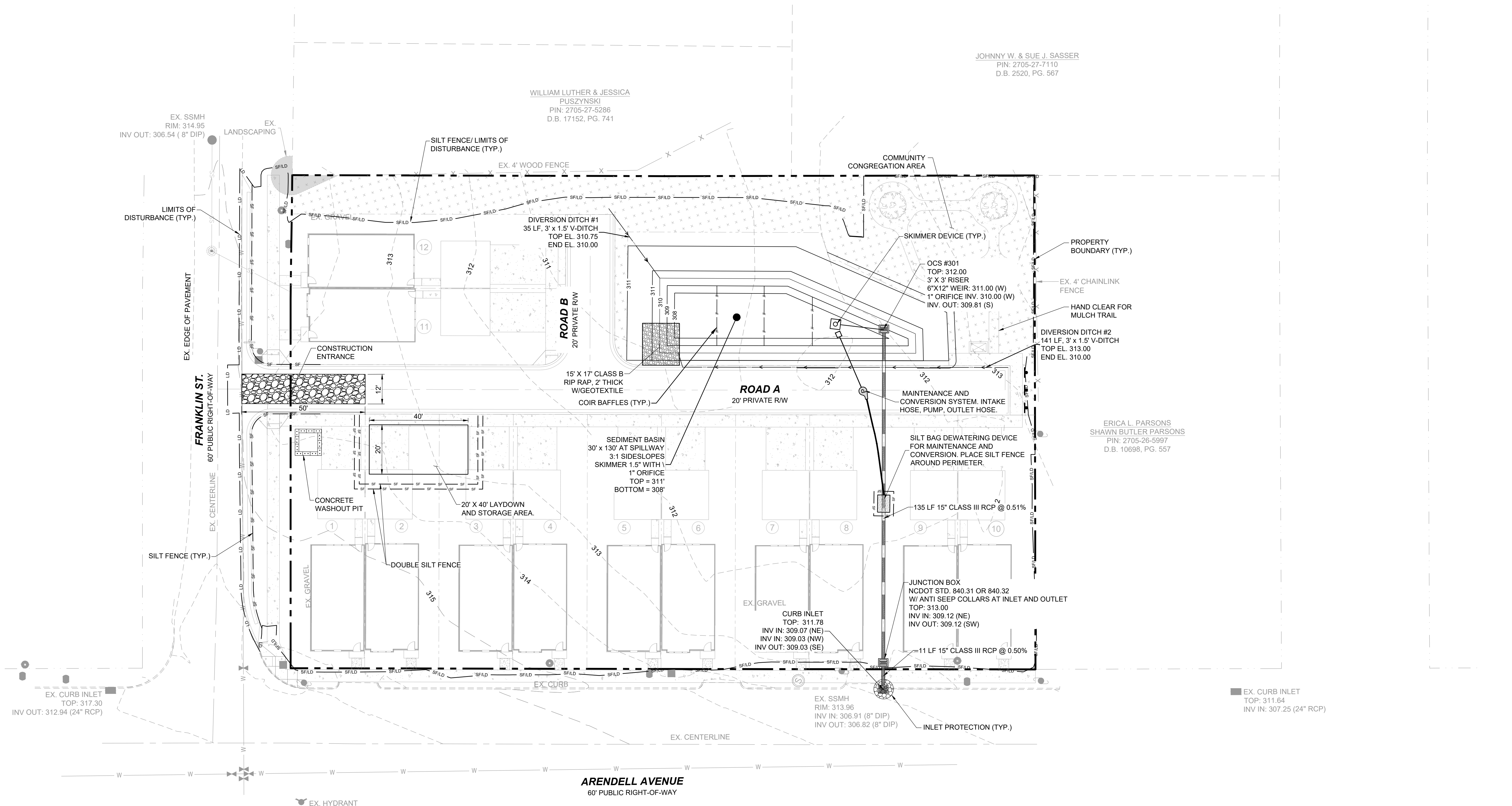




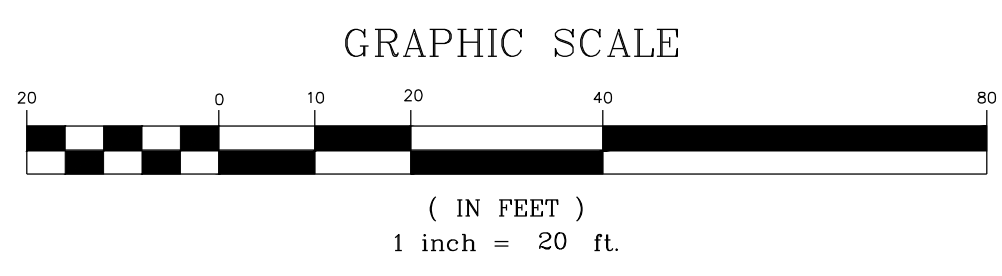
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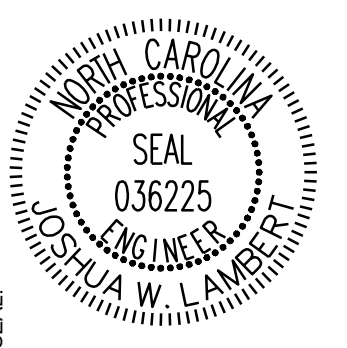
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LEGEND:	
	EXISTING PROPERTY LINE
	SILT FENCE / LIMITS OF DISTURBANCE
	LIMITS OF DISTURBANCE
	SILT FENCE
	CONSTRUCTION ENTRANCE
	PROPOSED STORM DRAIN LINE
	INLET PROTECTION



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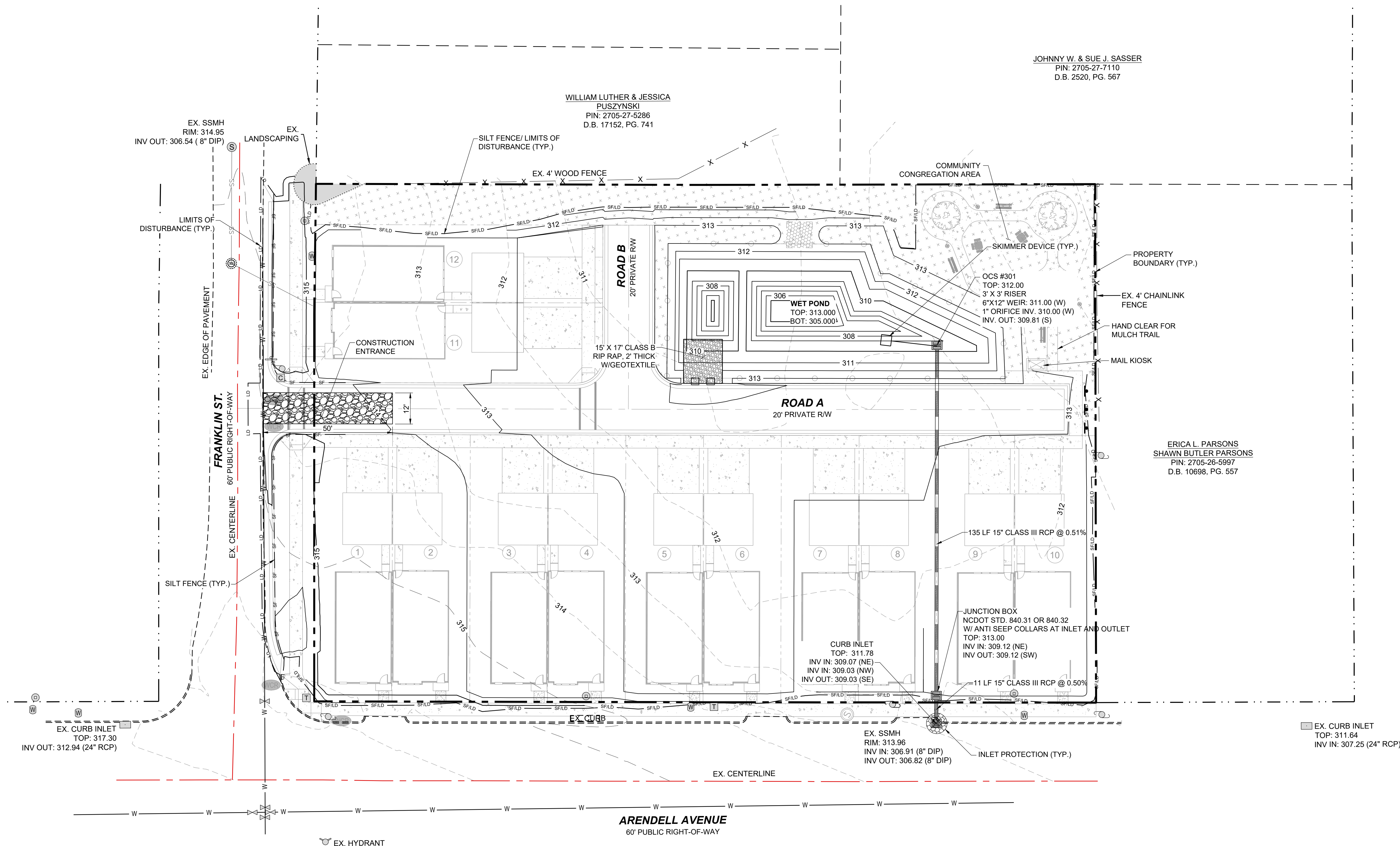
TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
EROSION CONTROL PLAN - STAGE 1

DRAWING SHEET  
C-7.1

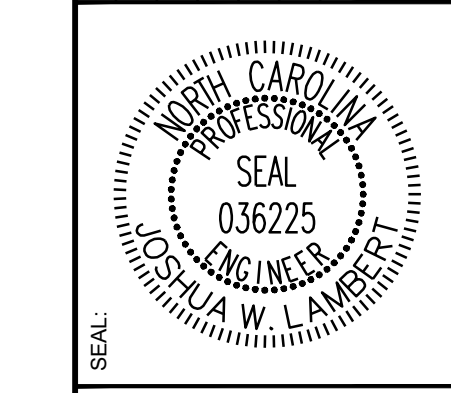
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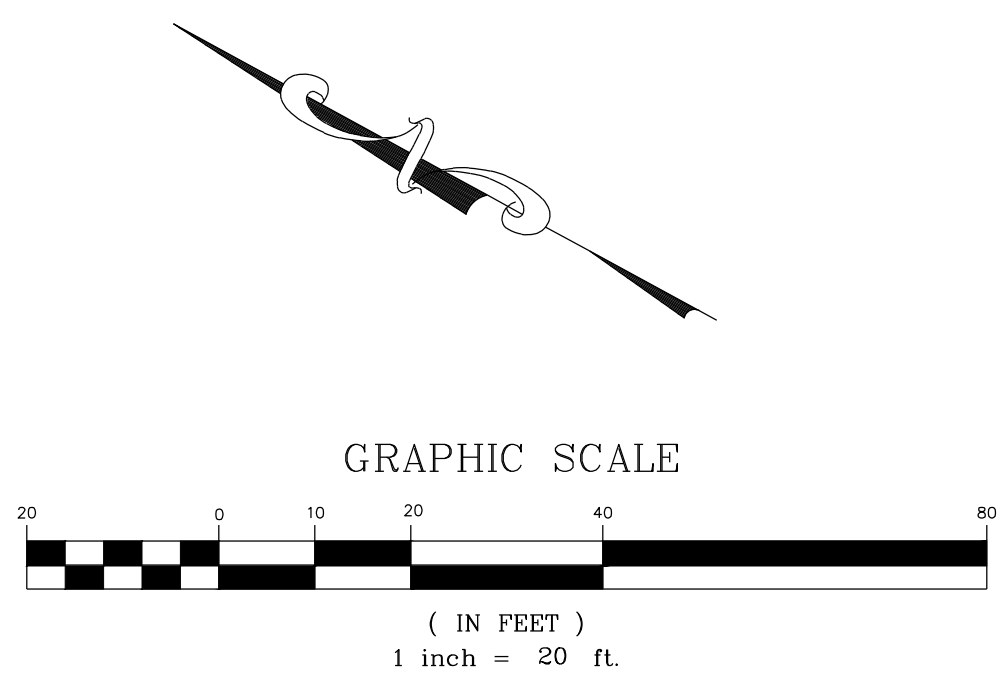
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			JWL	SRG	JWL

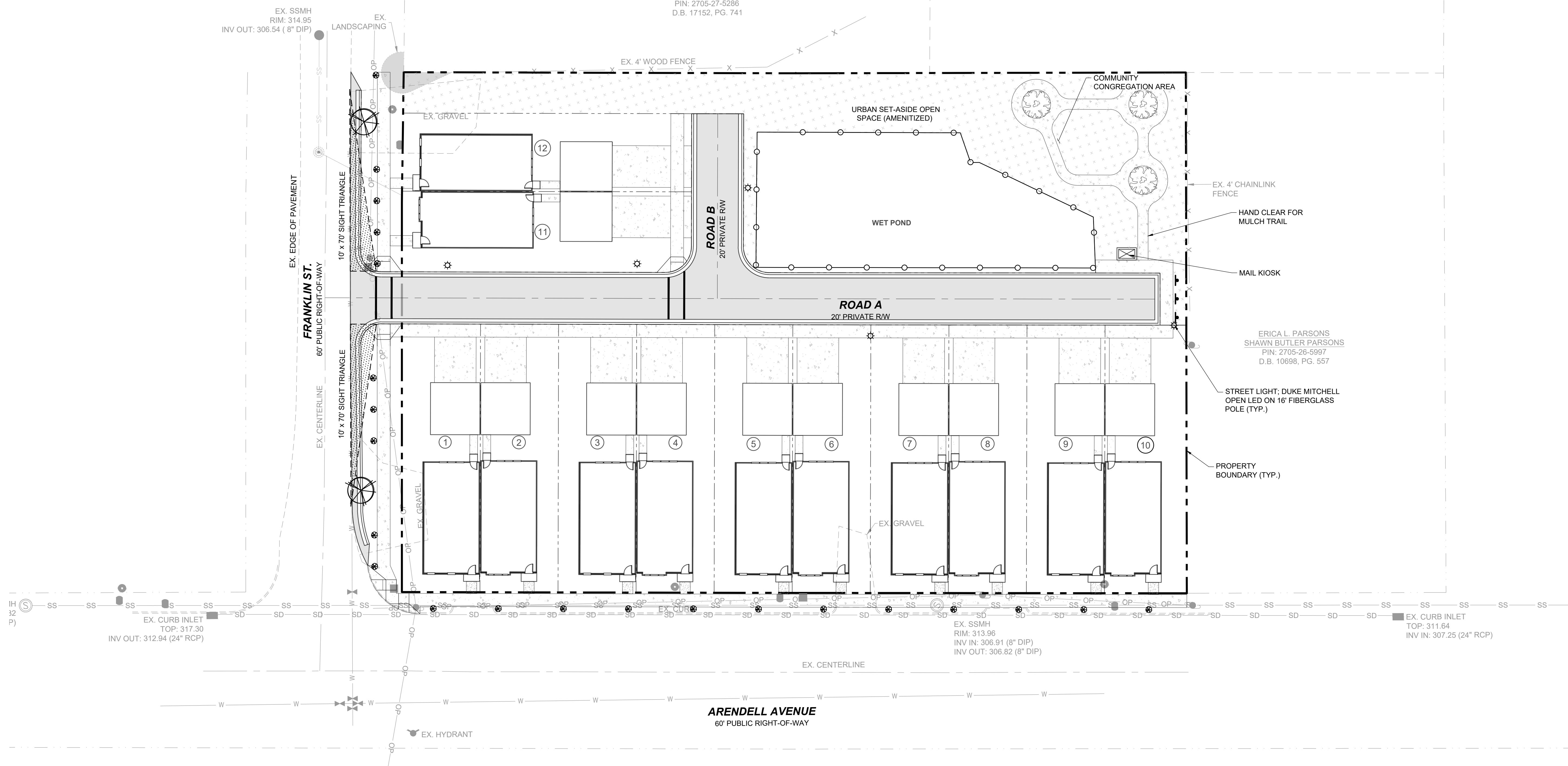
TRUE- ZEBULON-ARENDELL  
 TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
 CONSTRUCTION PLANS  
**EROSION CONTROL PLAN - STAGE 2**

**LEGEND:**

	EXISTING PROPERTY LINE
	SILT FENCE / LIMITS OF DISTURBANCE (TYP.)
	LIMITS OF DISTURBANCE
	SILT FENCE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	CONSTRUCTION ENTRANCE
	PROPOSED STORM DRAIN LINE
	INLET PROTECTION
	FENCE LINE



WILLIAM LUTHER & JESSICA  
 PUSZYNSKI  
 PIN: 2705-27-5286  
 D.B. 17152, PG. 741



**LEGEND:**



RED BUD  
 CHINESE PISTACIA

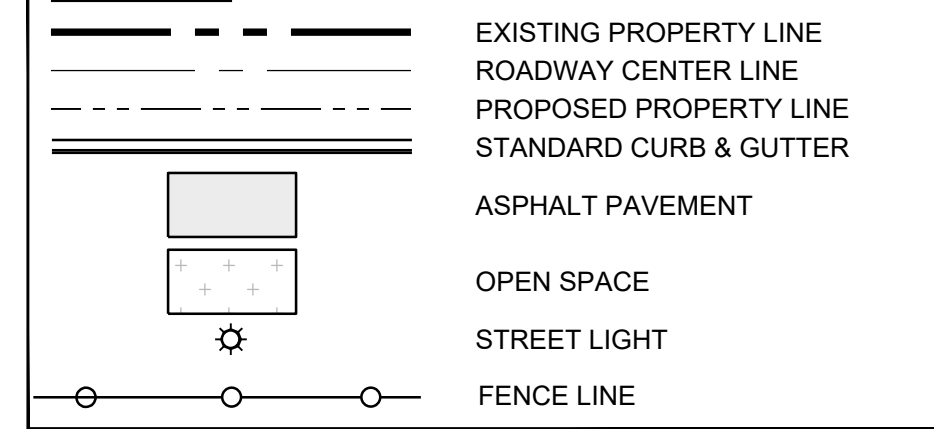
**PLANTING SCHEDULE:**

KEY	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	SIZE	HEIGHT
PERIMETER BUFFERS						
CP	2	CHINESE PISTACIA	BOTANICAL	B&B	1" CAL	6'
CJ	22	RED BUD	CERCIS CANADENSIS	GAL.	1" CAL	6'

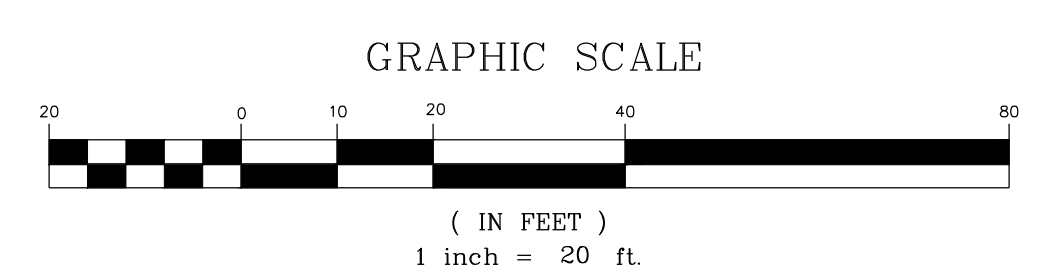
**GENERAL PLANTING NOTES:**

- STREET TREES SHALL BE INSTALLED SUCH THAT ONE TREE IS REQUIRED ALONG THE RESIDENTIAL STREET AS SHOWN, SPACED EVERY 40 FEET.
- DO NOT PLACE STREET TREES WITHIN A PUBLIC STORM OR UTILITY EASEMENT.
- ALL CANOPY TREES SHALL BE MIN. 8' TALL AND 2" CALIPER AT TIME OF PLANTING.
- ALL UNDERSTORY TREES SHALL BE MIN. 6' TALL AND 1" CALIPER AT TIME OF PLANTING.
- LANDSCAPING IN AREAS OUTSIDE OF RIGHT OF WAY ARE TO BE PROVIDED BY THE DEVELOPER. ANY LANDSCAPING INSTALLED WITHIN THESE AREAS ARE TO BE MAINTAINED BY THE DEVELOPER UNTIL HOME OWNERS ASSOCIATION (HOA) IS ESTABLISHED. HOA WILL BE RESPONSIBLE FOR CONTINUED MAINTENANCE OF LANDSCAPING AND ANY IMPROVEMENTS OUTSIDE THE RIGHT OF WAY.
- ADDITIONAL LANDSCAPING ON SITE MAYBE PROVIDED BY DEVELOPER.

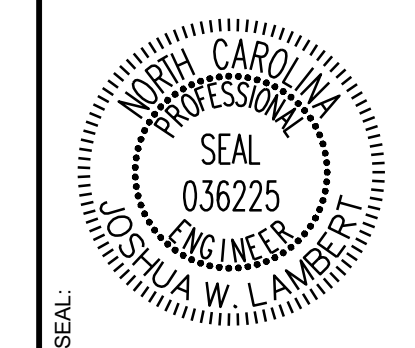
**LEGEND:**



EXISTING PROPERTY LINE  
 ROADWAY CENTER LINE  
 PROPOSED PROPERTY LINE  
 STANDARD CURB & GUTTER  
 ASPHALT PAVEMENT  
 OPEN SPACE  
 STREET LIGHT  
 FENCE LINE



No.	REVISIONS	DATE	BY

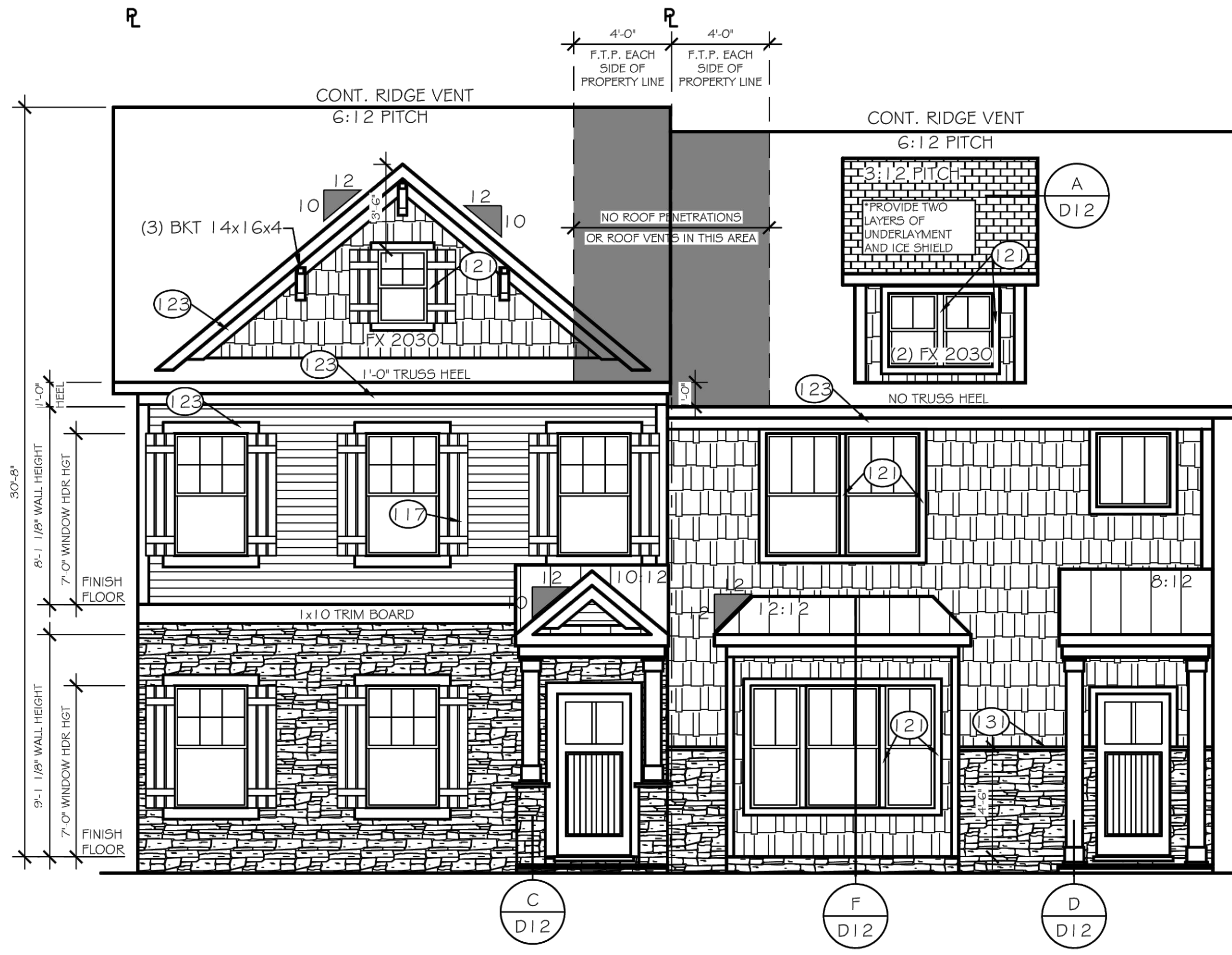


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STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	SRG	DRAWN BY	CHECKED BY JWL
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TRUE- ZEBULON-ARENDELL  
 TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
 CONSTRUCTION PLANS  
**LANDSCAPING PLAN**

DRAWING SHEET  
**C-8.0**



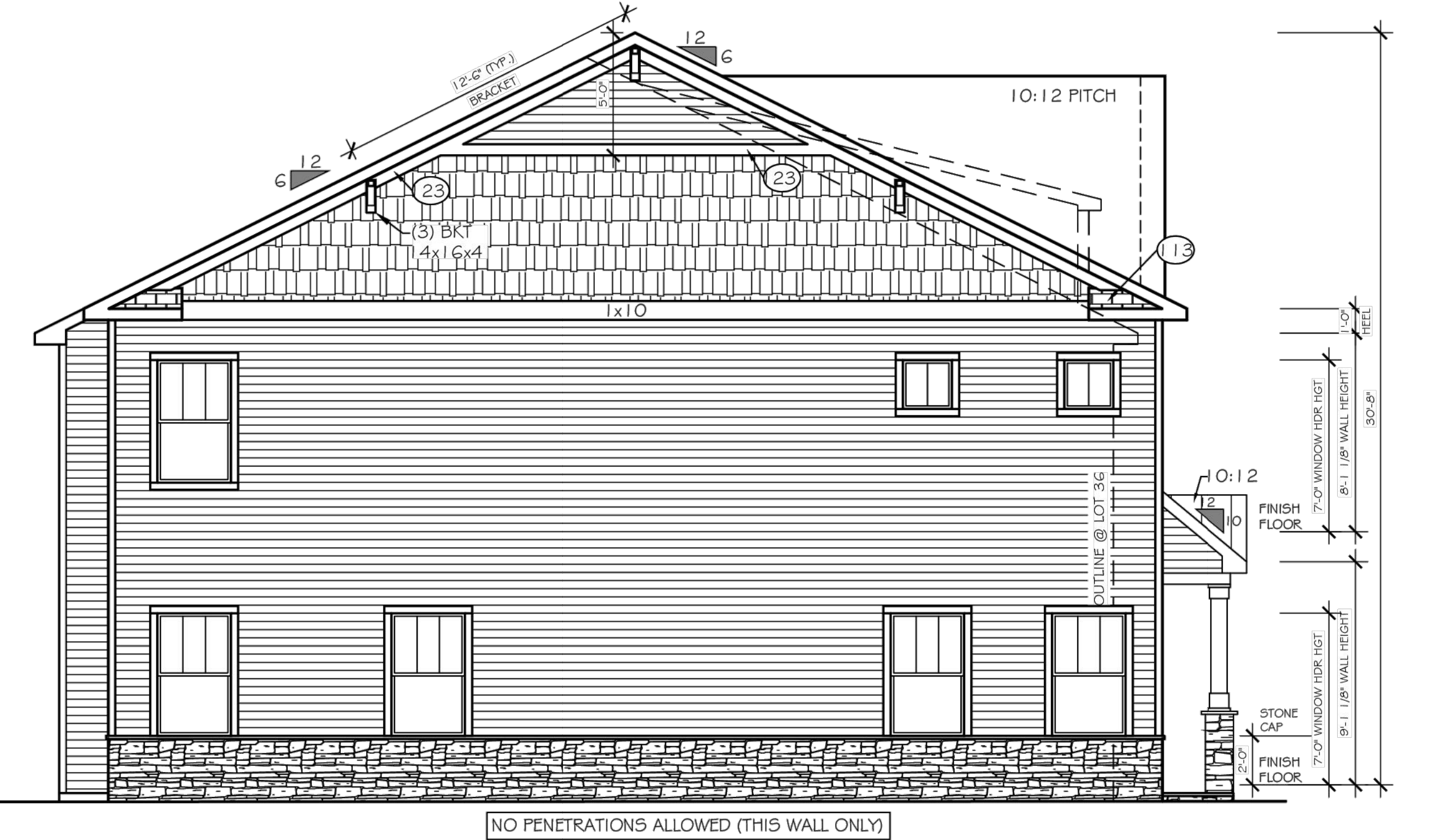
FRONT ELEVATION - A3F  
SCALE: 1/4" = 1'-0"

LOT - 1

FRONT ELEVATION - C3B  
SCALE: 1/4" = 1'-0"

LOT - 2

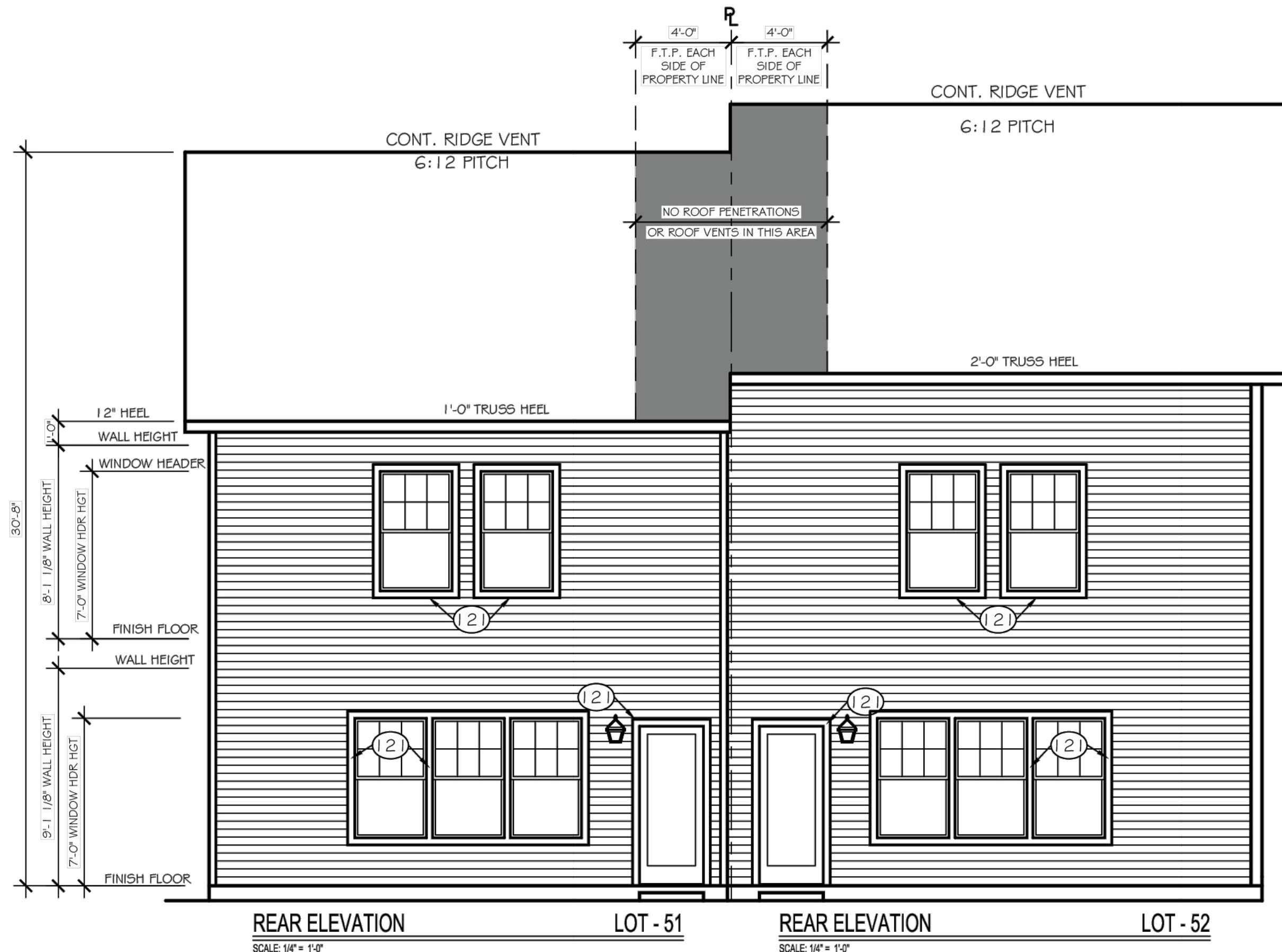
PE  
(WGS.)



LEFT ELEVATION  
SCALE: 1/4" = 1'-0"

LOT - 1

NO PENETRATIONS ALLOWED (THIS WALL ONLY)

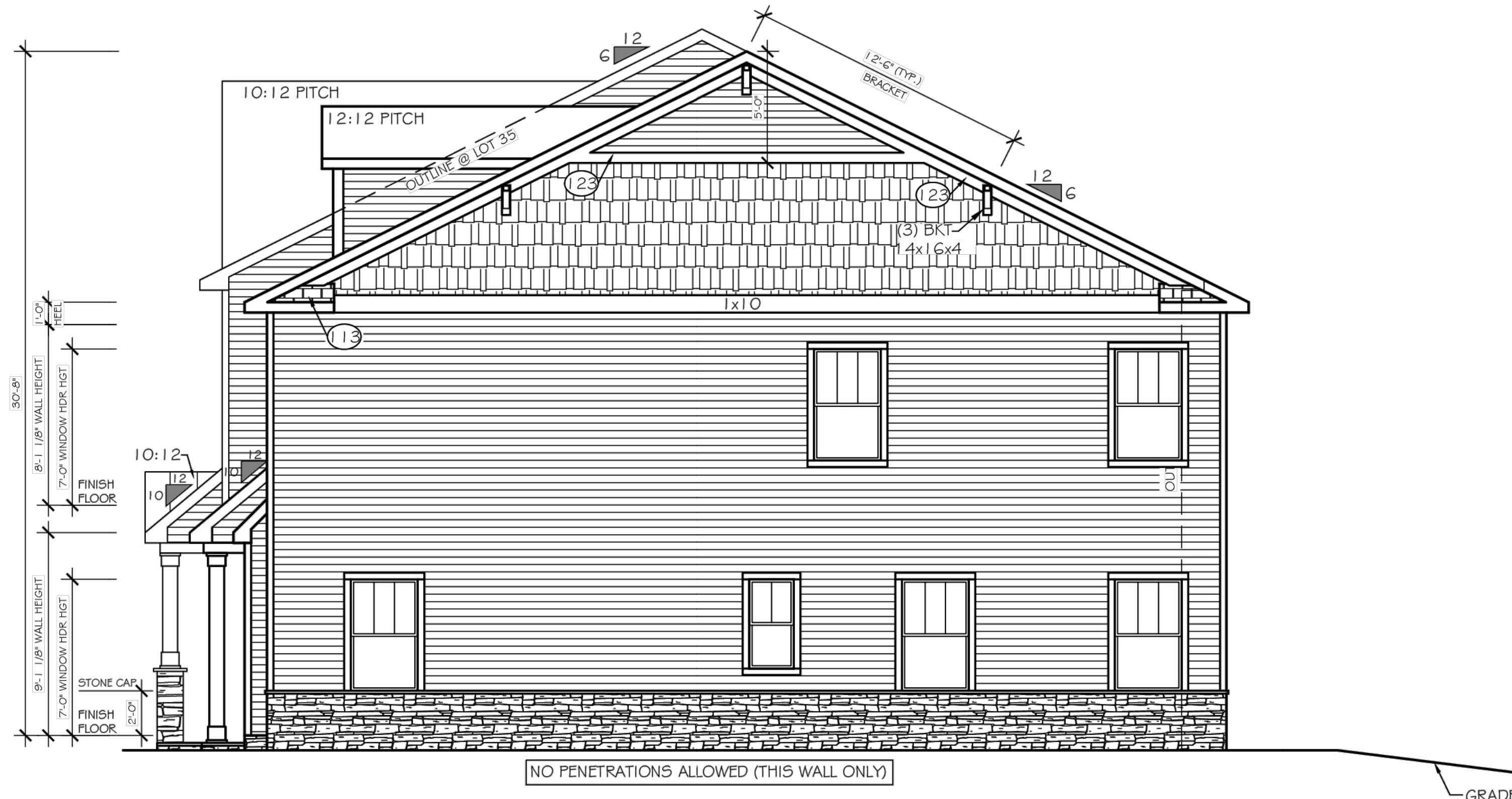


REAR ELEVATION  
SCALE: 1/4" = 1'-0"

LOT - 51

REAR ELEVATION  
SCALE: 1/4" = 1'-0"

LOT - 52



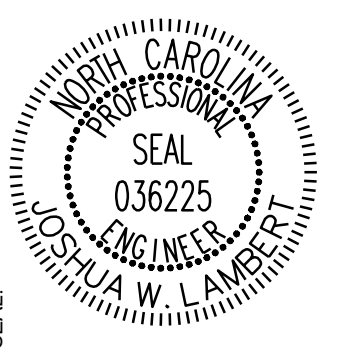
RIGHT ELEVATION  
SCALE: 1/4" = 1'-0"

LOT - 2

NO PENETRATIONS ALLOWED (THIS WALL ONLY)

GRADE  
(REF. C)

No.	REVISIONS	DATE	BY



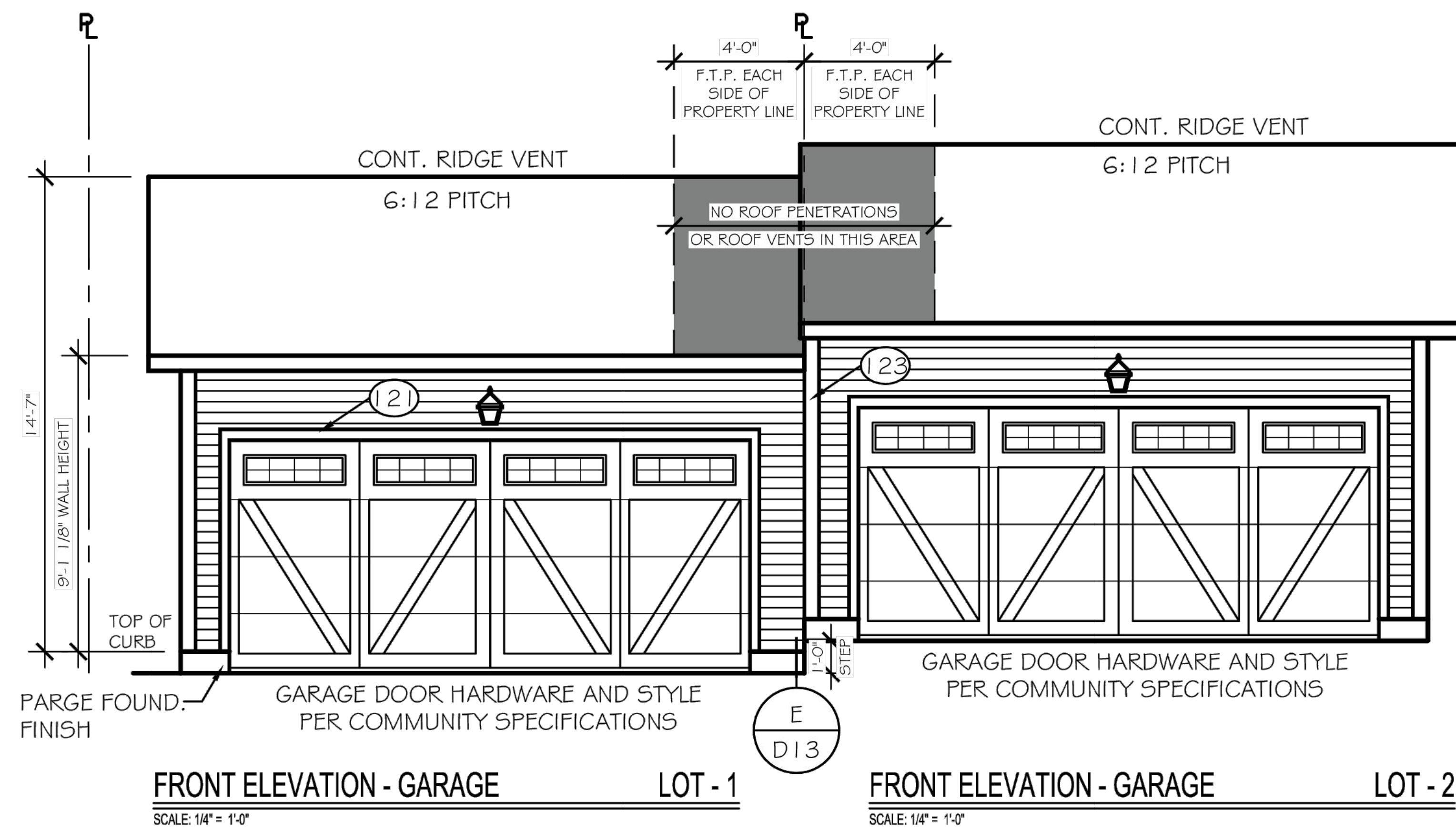
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STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY

TRUE-ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
BUILDING ELEVATIONS

DRAWING SHEET

D-1.0



No.	REVISIONS	DATE	BY



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STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JW/L	SRG	JW/L

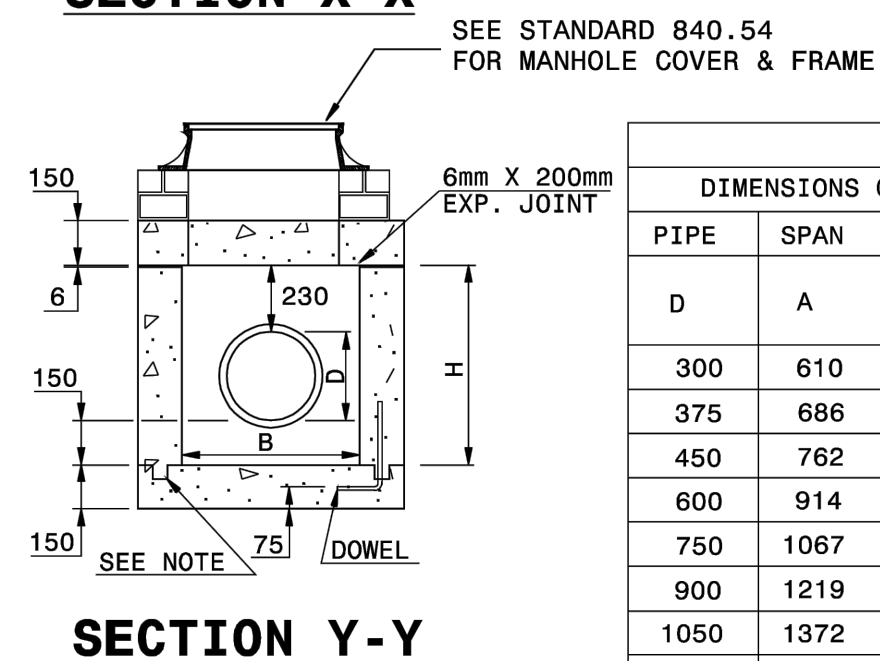
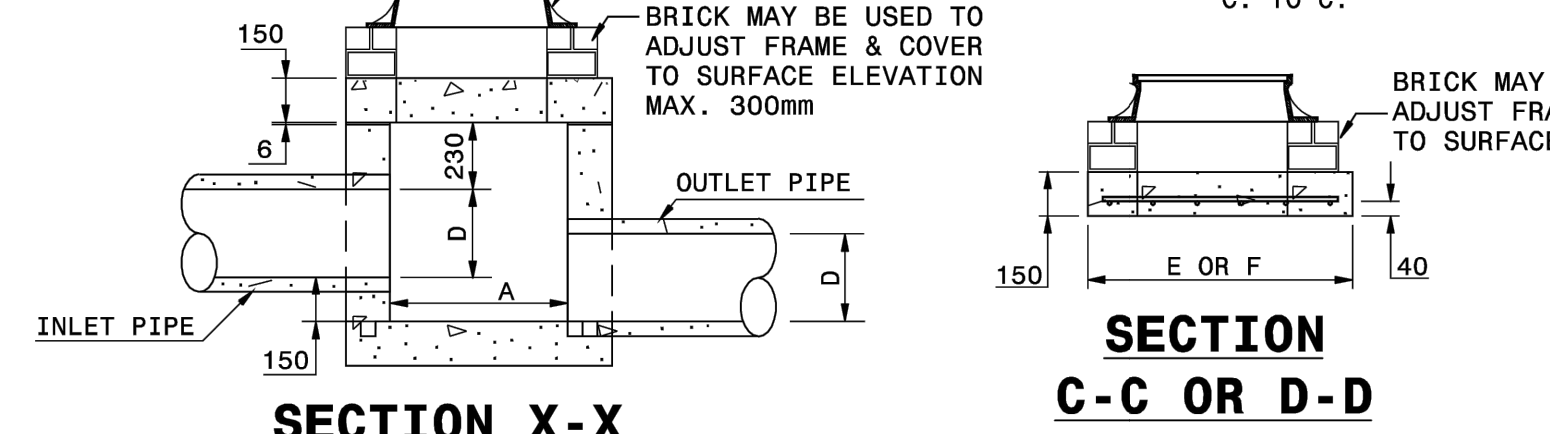
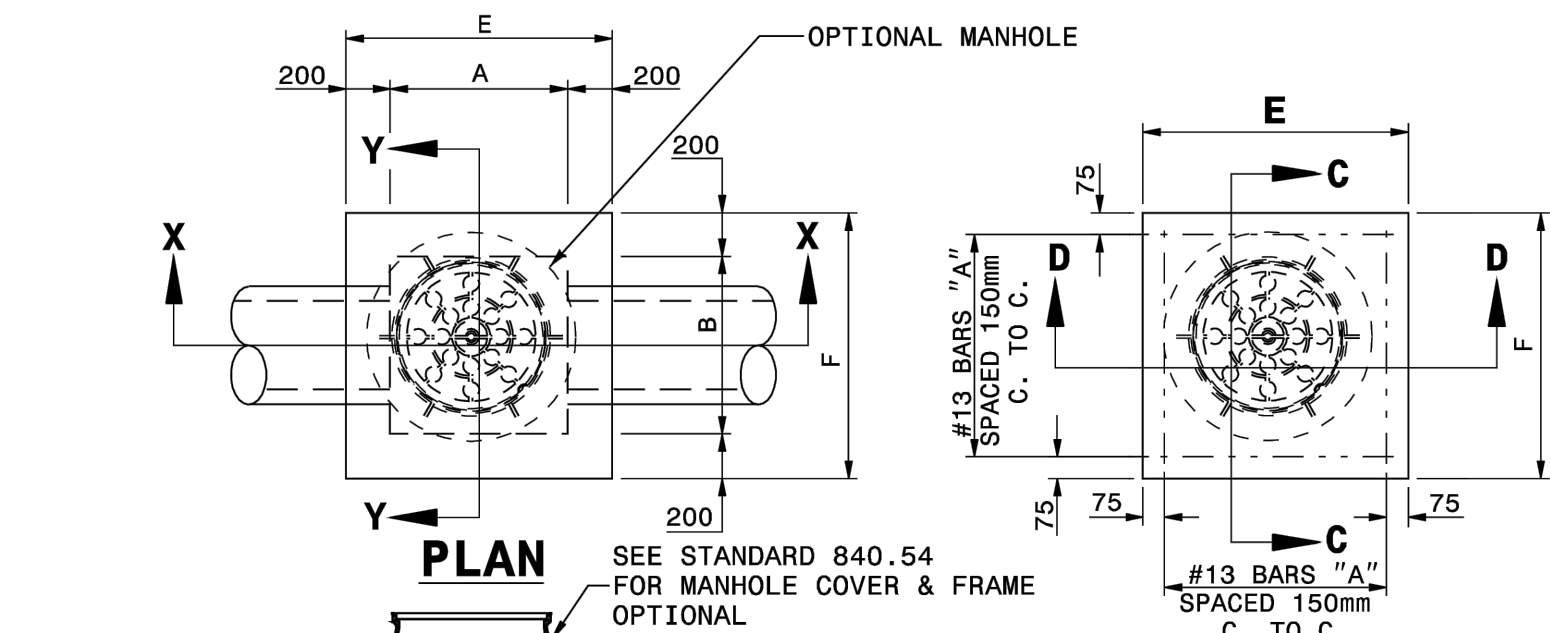
TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
BUILDING ELEVATIONS

DRAWING SHEET  
**D-1.1**

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

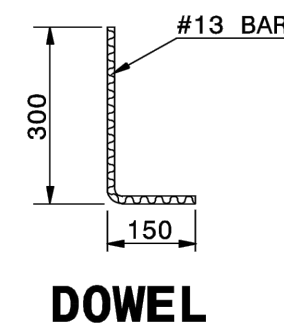
METRIC STANDARD DRAWING FOR  
**CONCRETE JUNCTION BOX**  
(WITH OPTIONAL MANHOLE)  
300mm THRU 1650mm PIPE

SHEET 1 OF 1  
**840.31**



GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 25mm.  
USE CLASS "B" CONCRETE THROUGHOUT.  
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 50mm KEYWAY, OR #13 BAR DOWELS AT 300mm CENTERS AS DIRECTED BY THE ENGINEER. USE FORMS TO CONSTRUCT THE BASE SLAB.  
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.  
PROVIDE ALL JUNCTION BOXES OVER 1.0m IN DEPTH WITH STEPS 300mm ON CENTERS IN ACCORDANCE WITH STD. DWG. 840.66.  
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)  
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 3.6 METERS.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES														
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		COVER DIMENSIONS		CUBIC METERS IN BOX			TOTAL QUANTITIES BOX AND COVER		DEDUCTIONS FOR ONE PIPE m. <sup>3</sup>	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	COVER	FLOOR	WALL/ m. OF H.	kg. REINF.	m <sup>3</sup> MIN. "H"	C.S.	R.C.
300	610	610	686	12	838	914	914	0.127	0.127	0.464	10	0.573	0.011	0.018
375	686	686	762	12	914	991	991	0.149	0.149	0.512	11	0.689	0.017	0.027
450	762	762	838	14	991	1067	1067	0.173	0.173	0.557	14	0.814	0.025	0.037
600	914	914	991	16	1143	1219	1219	0.226	0.226	0.650	18	1.096	0.045	0.065
750	1067	1067	1143	18	1295	1372	1372	0.286	0.286	0.742	23	1.422	0.070	0.097
900	1219	1219	1295	20	1448	1524	1524	0.354	0.354	0.835	29	1.789	0.100	0.136
1050	1372	1372	1448	22	1600	1676	1676	0.428	0.428	0.928	35	2.200	0.137	0.185
1200	1624	1624	1600	26	1853	1929	1929	0.558	0.558	1.021	48	2.653	0.179	0.242
1350	1776	1776	1753	28	2005	2081	2081	0.650	0.650	1.114	56	3.147	0.227	0.306
1500	1929	1929	1905	30	2207	2284	2284	0.782	0.782	1.207	66	3.685	0.280	0.378
1650	2081	2081	2057	32	2388	2464	2464	0.911	0.911	1.299	78	4.267	0.339	0.450

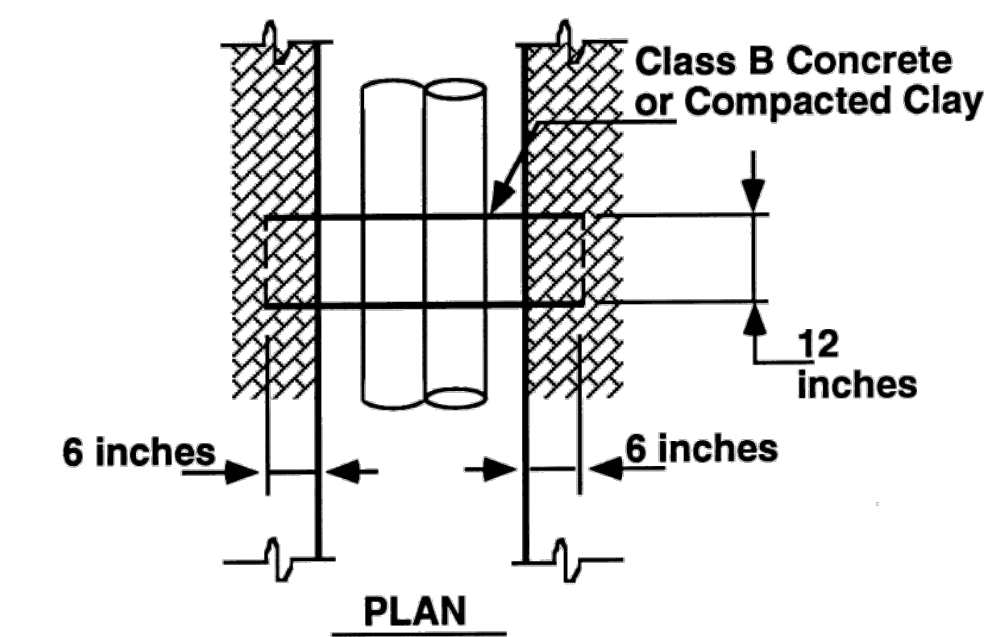
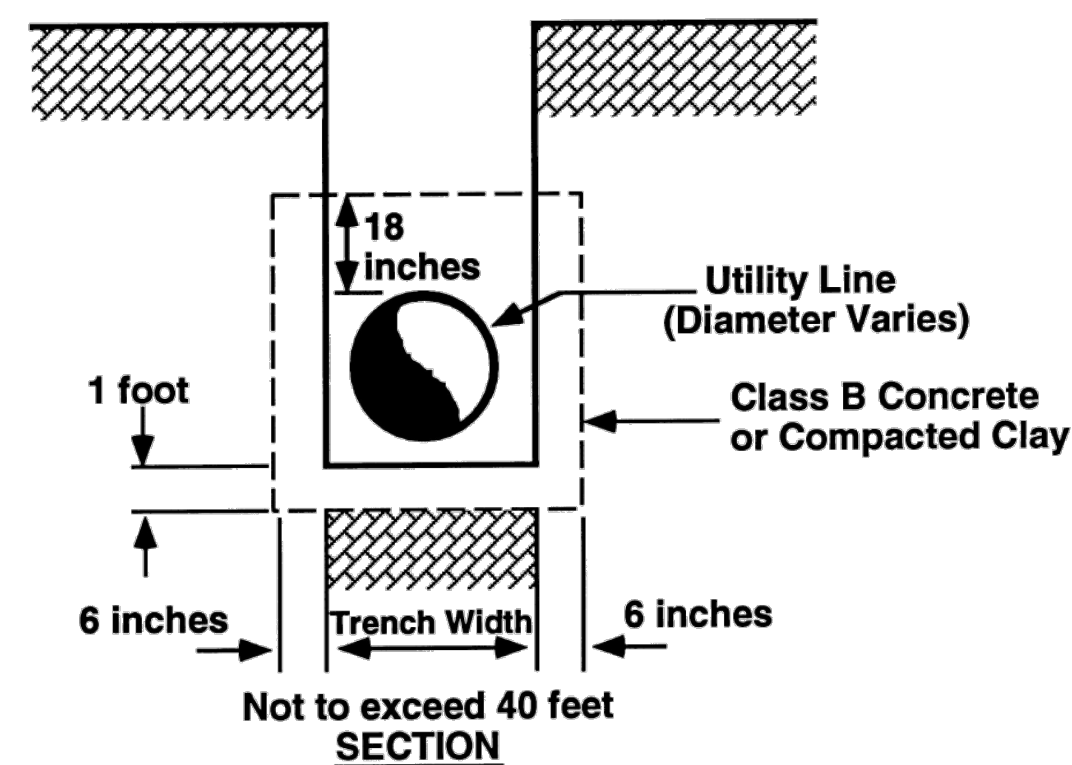
Note: This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

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

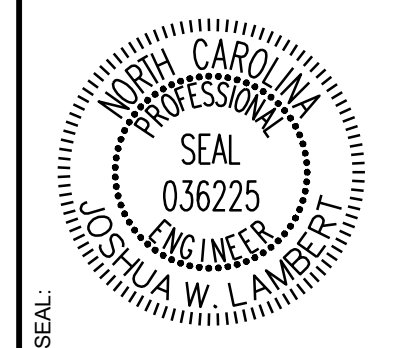
METRIC STANDARD DRAWING FOR  
**CONCRETE JUNCTION BOX**  
(WITH OPTIONAL MANHOLE)  
300mm THRU 1650mm PIPE

SHEET 1 OF 1  
**840.31**

DETAIL ANTI-SEEP COLLAR



NO.	REVISIONS	DATE	BY



**STRONGROCK**  
ENGINEERING GROUP  
STRONG ROCK ENGINEERING GROUP, PLLC | COMPANY LICENSE # P-2166  
6801 FALLS OF NEUSE RD. SUITE 108 RALEIGH, NC 27615 | INFORMATION@STRONGROCKGROUP.COM

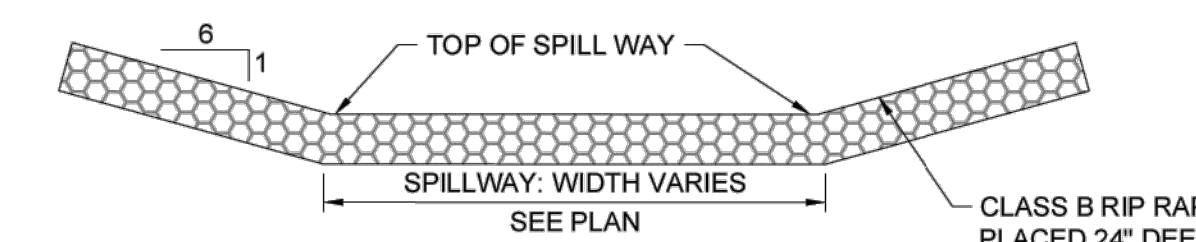
STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	DRAWN BY SRG	CHECKED BY JWL
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TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
**STORM DRAINAGE DETAILS**

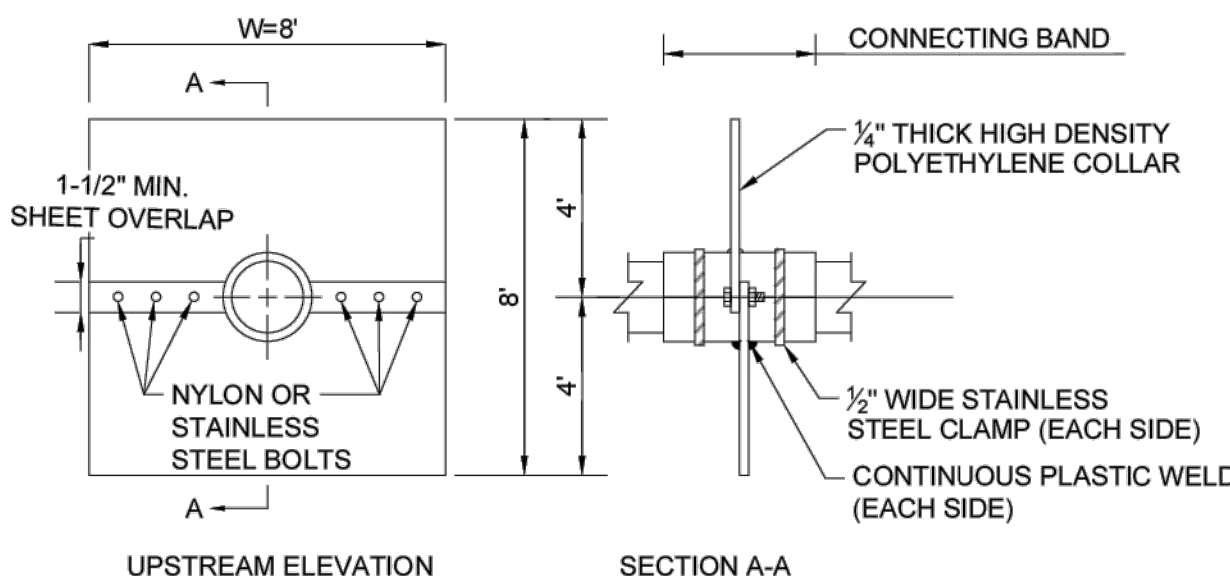
DRAWING SHEET  
**D-2.0**  
14 OF 24

PERMANENT DETENTION BASIN NOTES:

- 1. ALL FILL SOILS FOR BERM SECTION SHALL BE CLEAN, IMPERMEABLE MATERIAL AND COMPACTED TO AT LEAST 98% STANDARD PROCTOR MAXIMUM DRY DENSITY... 7. CONTRACTOR IS RESPONSIBLE TO CLEAN OUT SEDIMENT BASIN PRIOR TO CONVERTING TO PERMANENT STORMWATER BMP.

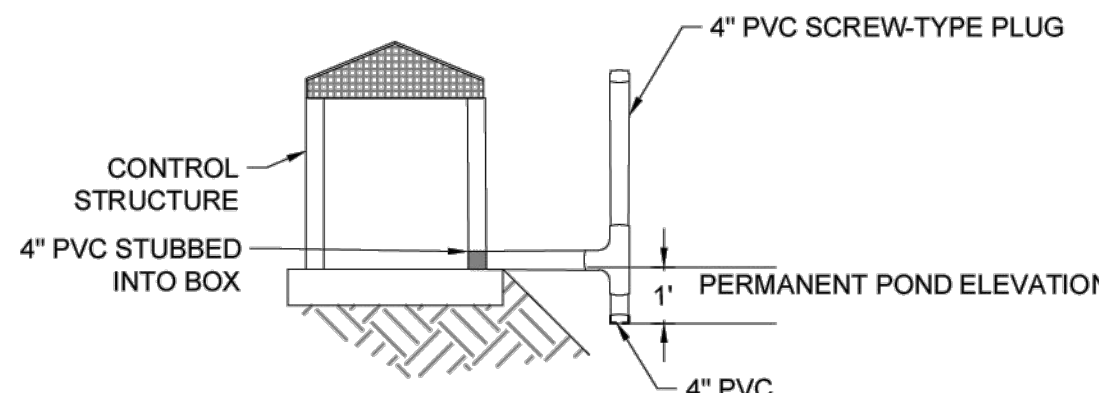


EMERGENCY SPILLWAY DITCH NOT TO SCALE



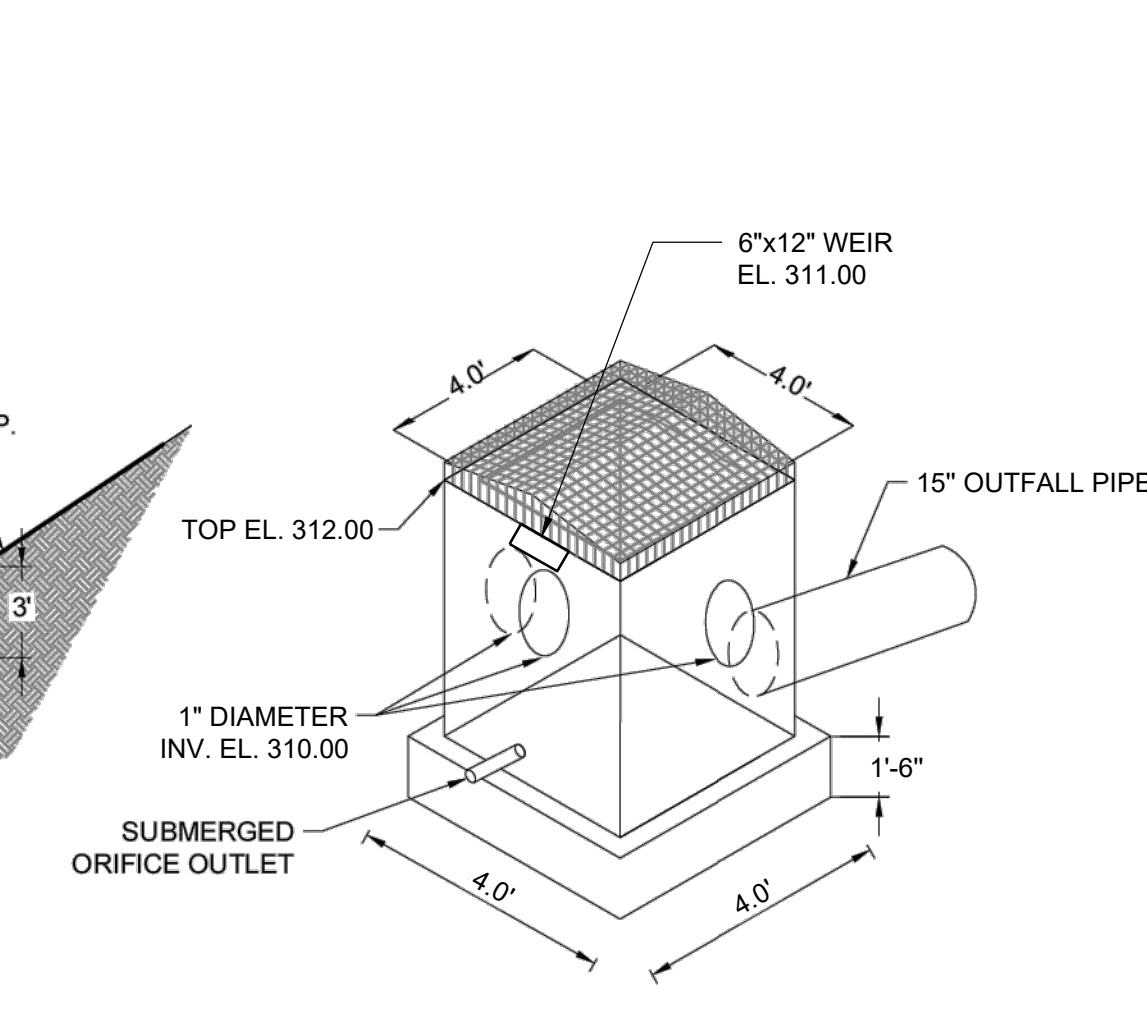
- NOTES: 1. THE PIPE, CONNECTING BAND, AND SEAM COATING SHOULD BE EITHER SILICON CAULKING (RECOMMENDED), TAR OR MASTIC... 4. APPLY SILICON CAULK, TAR, OR MASTIC ON THE SEAMS AS NEEDED TO INSURE A GOOD SEAL...

WET POND ANTI-SEEP COLLAR DETAIL



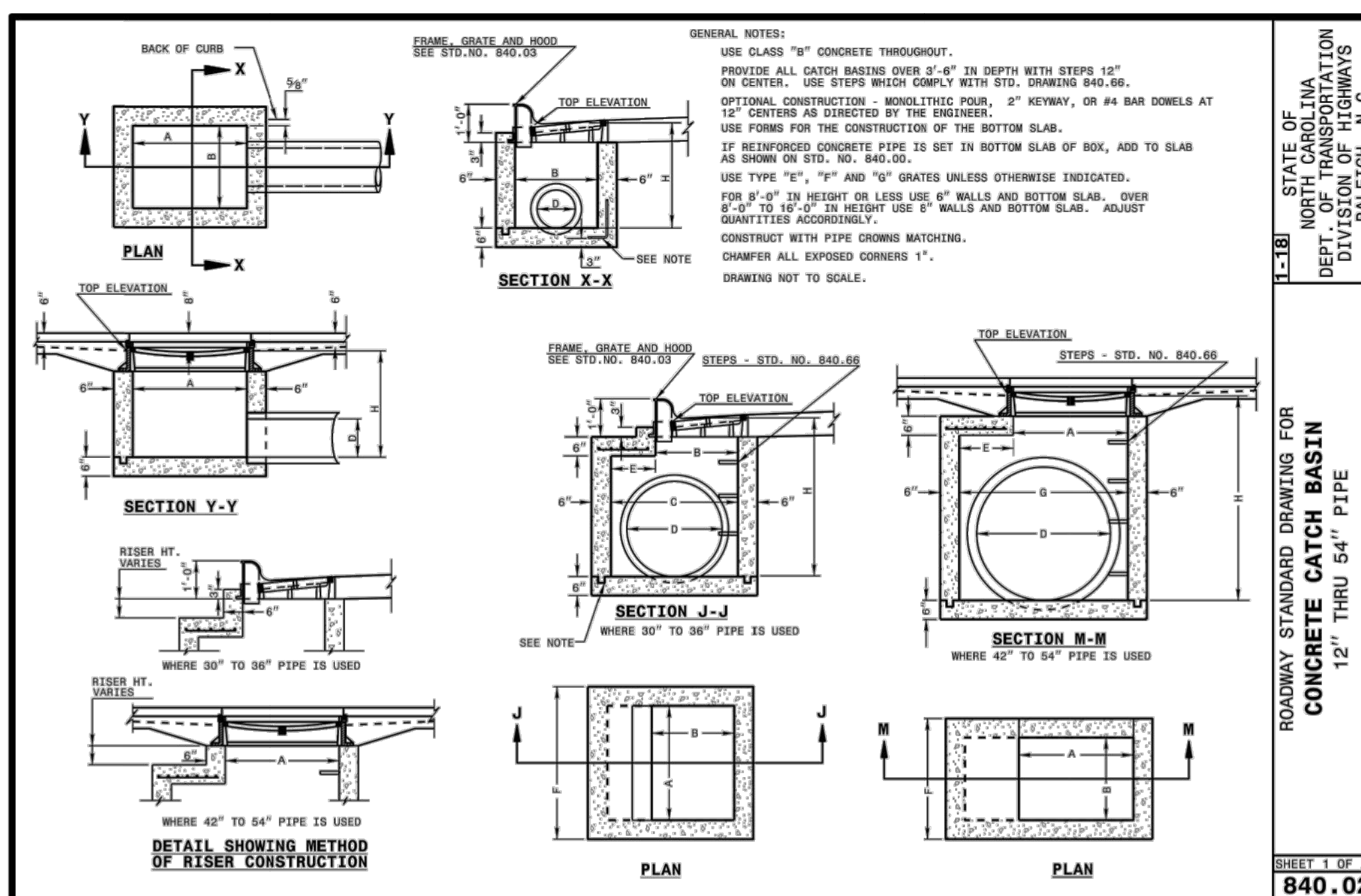
- NOTES: 1. THE RISER SHOULD BE PLACED IN OR AT THE FACE OF THE EMBANKMENT.

WET POND SUBMERGED ORIFICE OUTLET DETAIL NOT TO SCALE

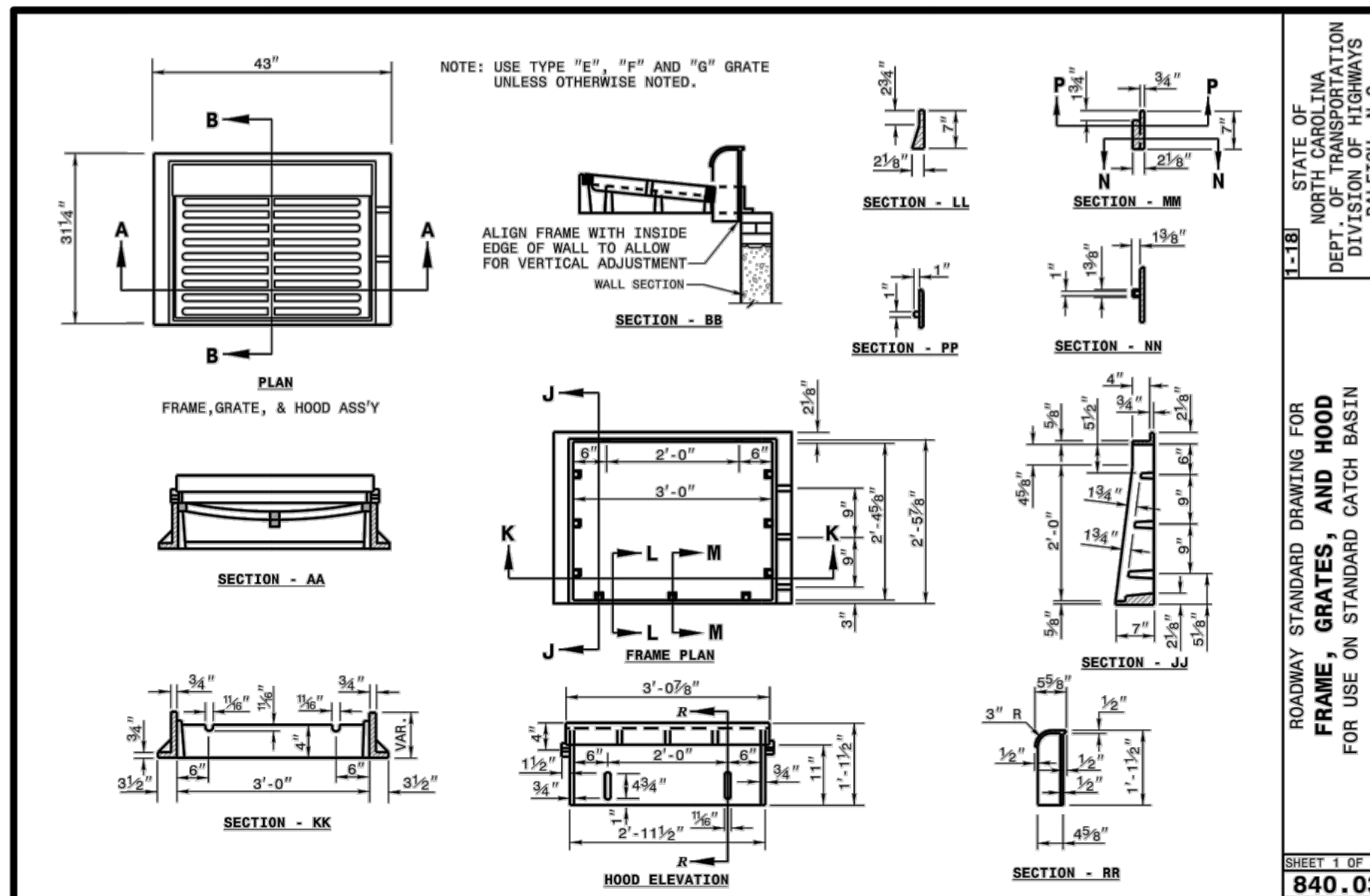


WET POND STORMWATER CONTROL BOX NOT TO SCALE

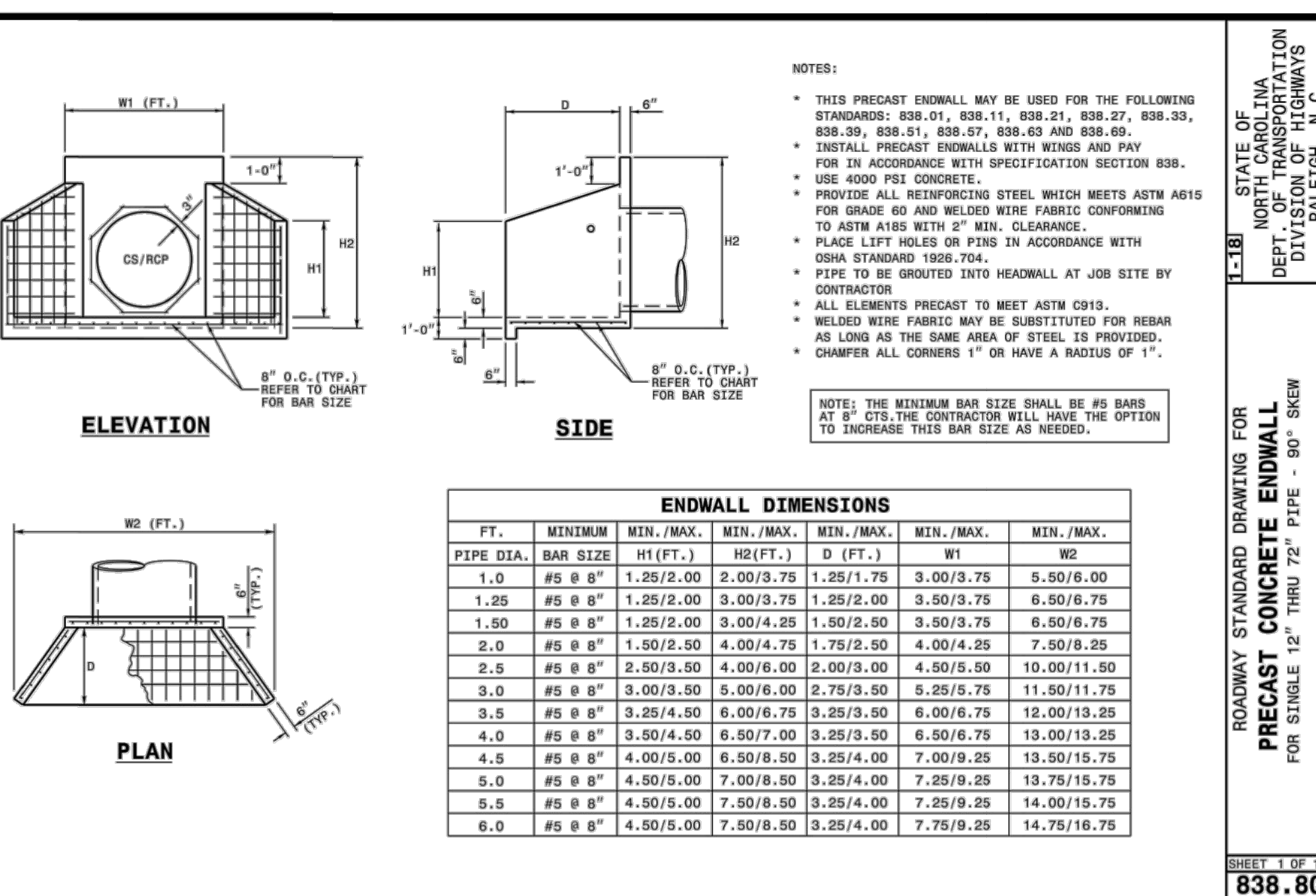
PRELIMINARY CONSTRUCTION DRAWINGS; THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNTIL APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND RELEASED BY THE ENGINEER OF RECORD.



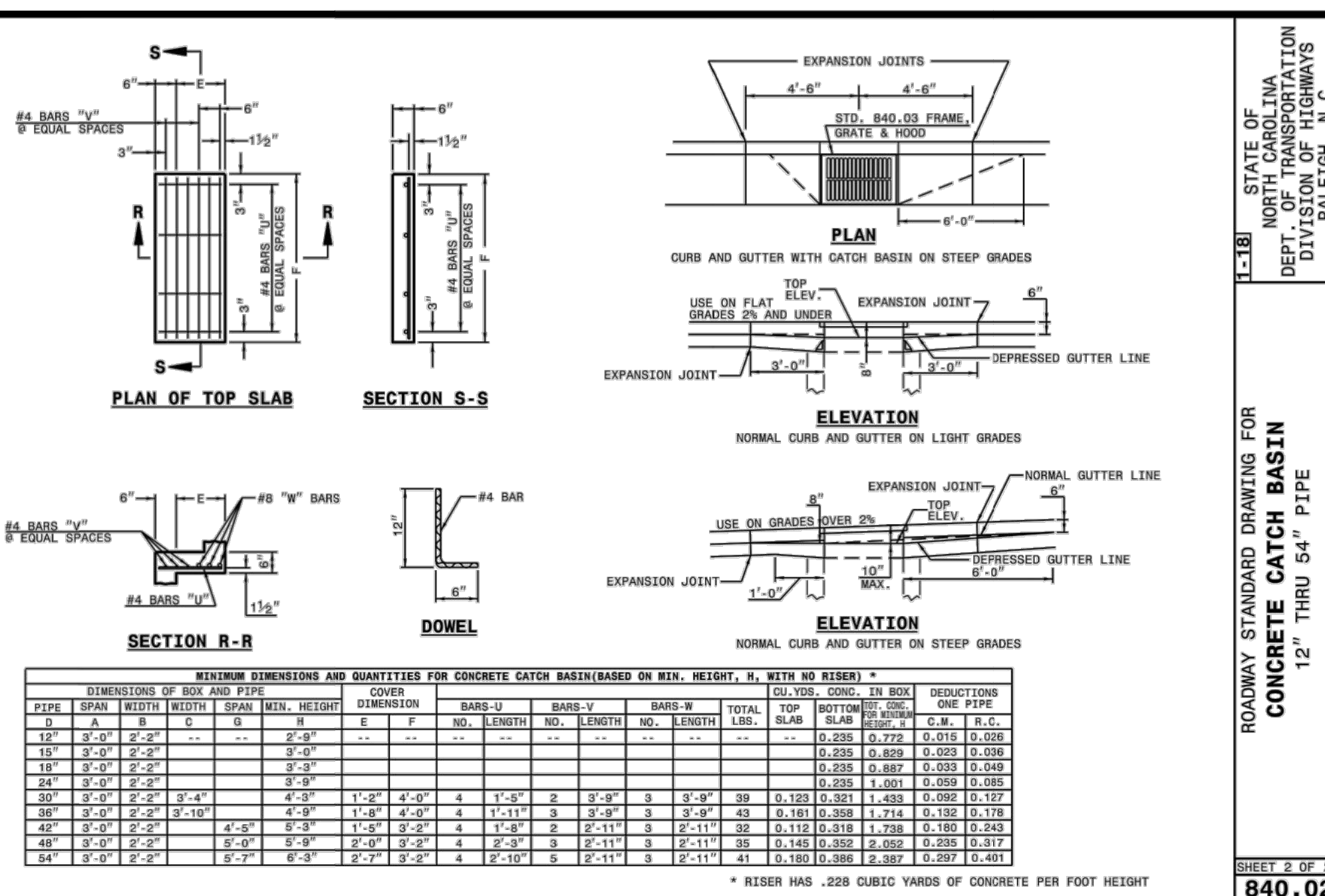
ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE SHEET 1 OF 2 840.02



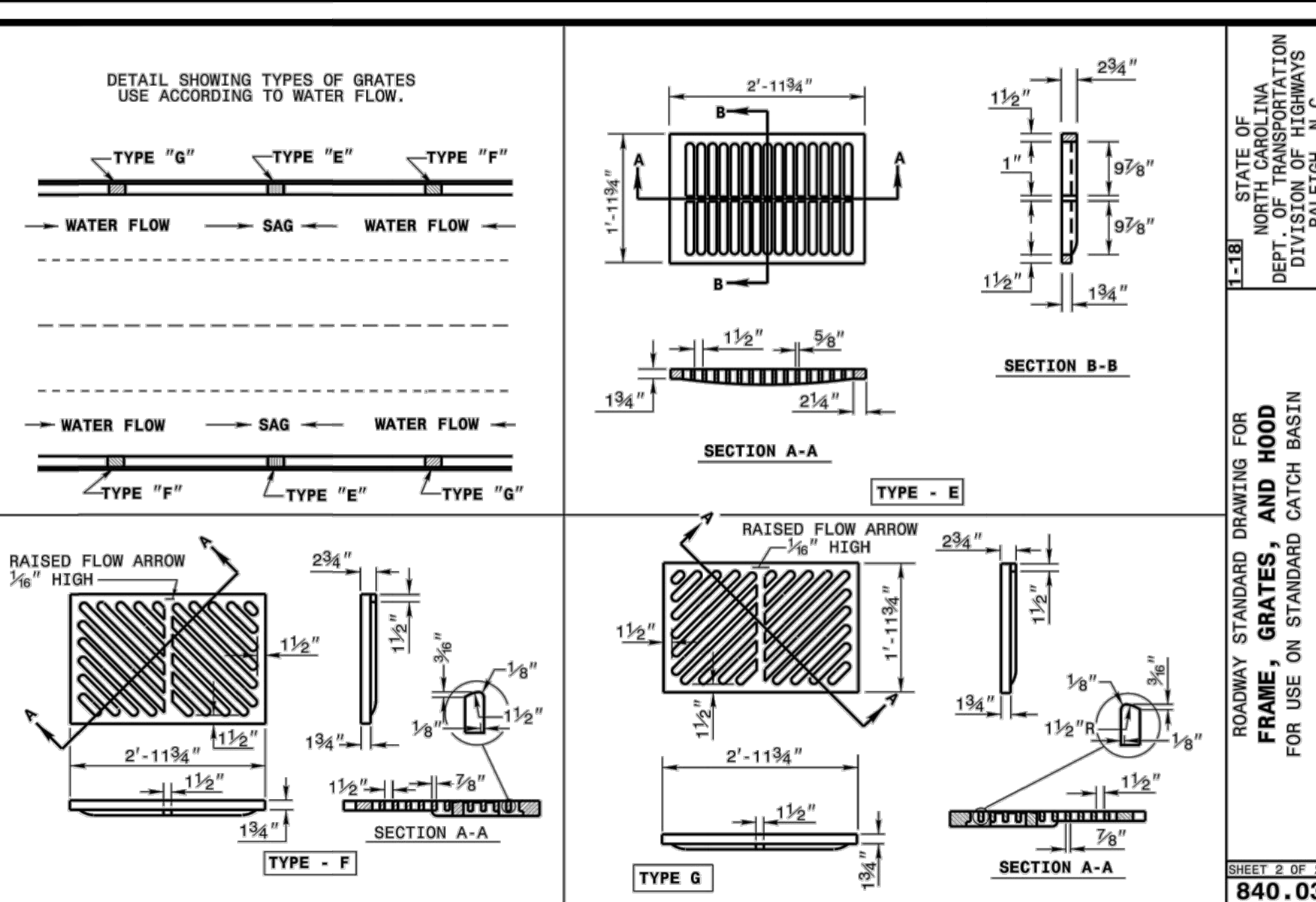
ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN SHEET 1 OF 2 840.03



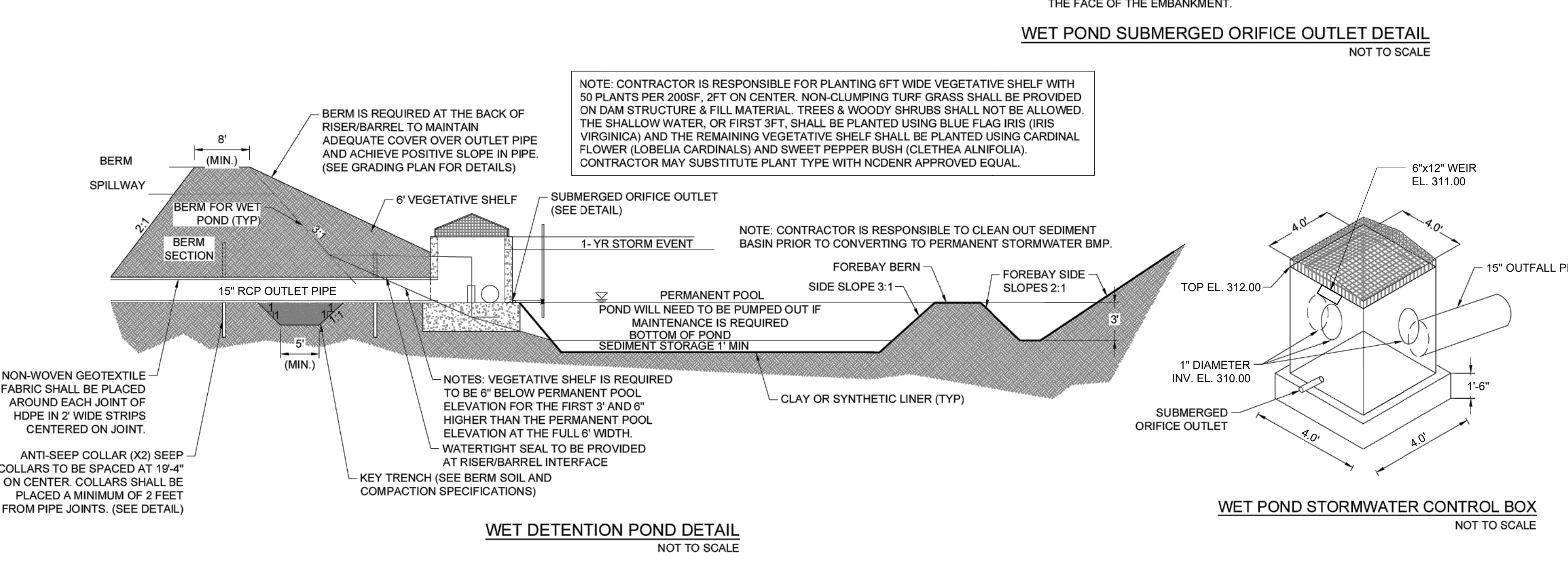
ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 90° SKEW SHEET 1 OF 1 838.80



ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE SHEET 2 OF 2 840.02



ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN SHEET 2 OF 2 840.03



WET DETENTION POND DETAIL NOT TO SCALE

Table with columns: NO., REVISIONS, DATE. Contains revision history entries.



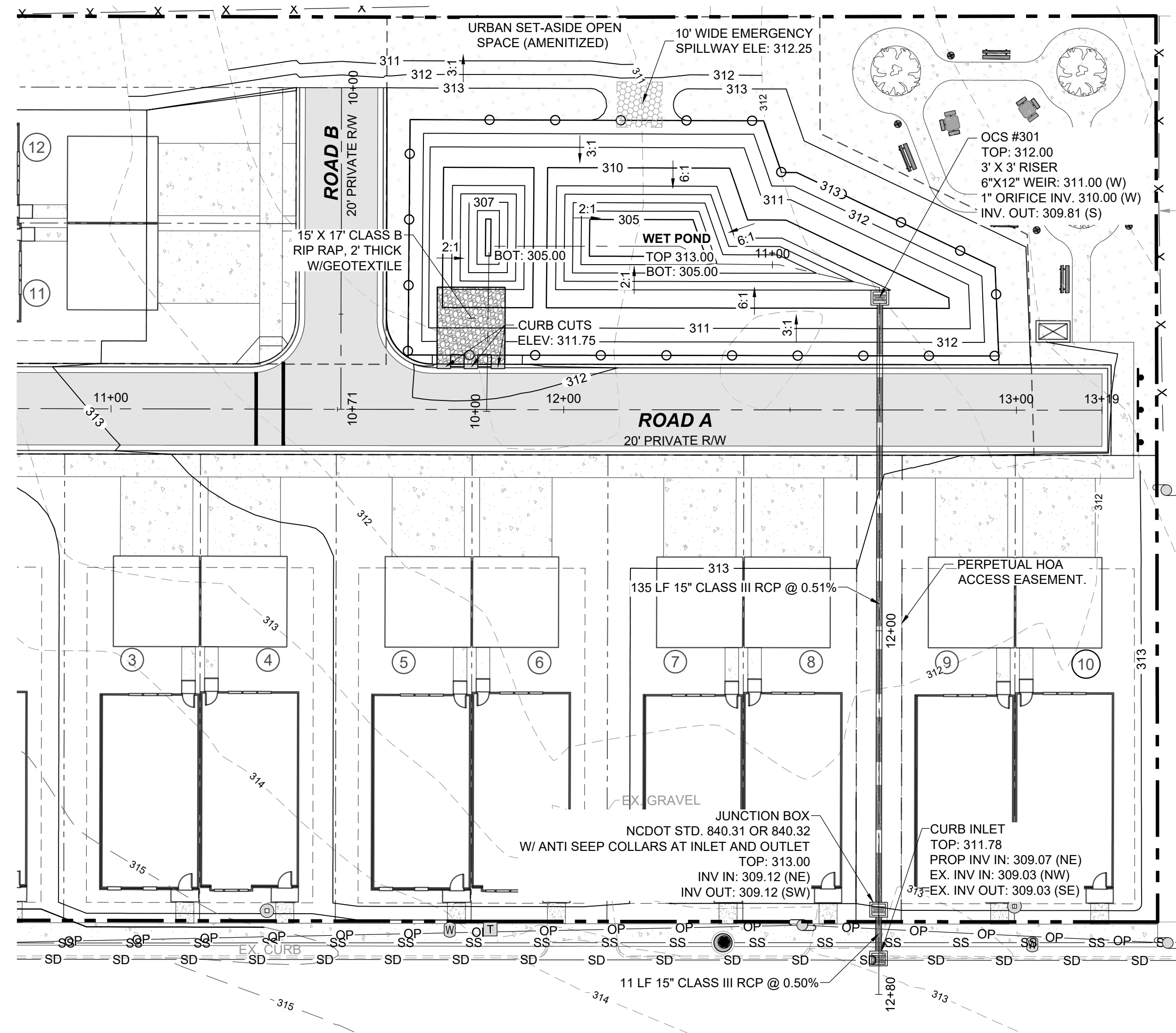
STRONGROCK ENGINEERING GROUP logo and contact information: STRONG ROCK ENGINEERING GROUP, PLLC, COMPANY LICENSE # P-2166, 6801 FALLS OF NEUSE RD., SUITE 108, RALEIGH, NC 27615 | INFORMATION@STRONGROCKGROUP.COM

Table with columns: PROJECT, NOT FOR CONSTRUCTION, SCALE, AS SHOWN, DESIGNED BY, DRAWN BY, CHECKED BY. Lists project details and personnel.

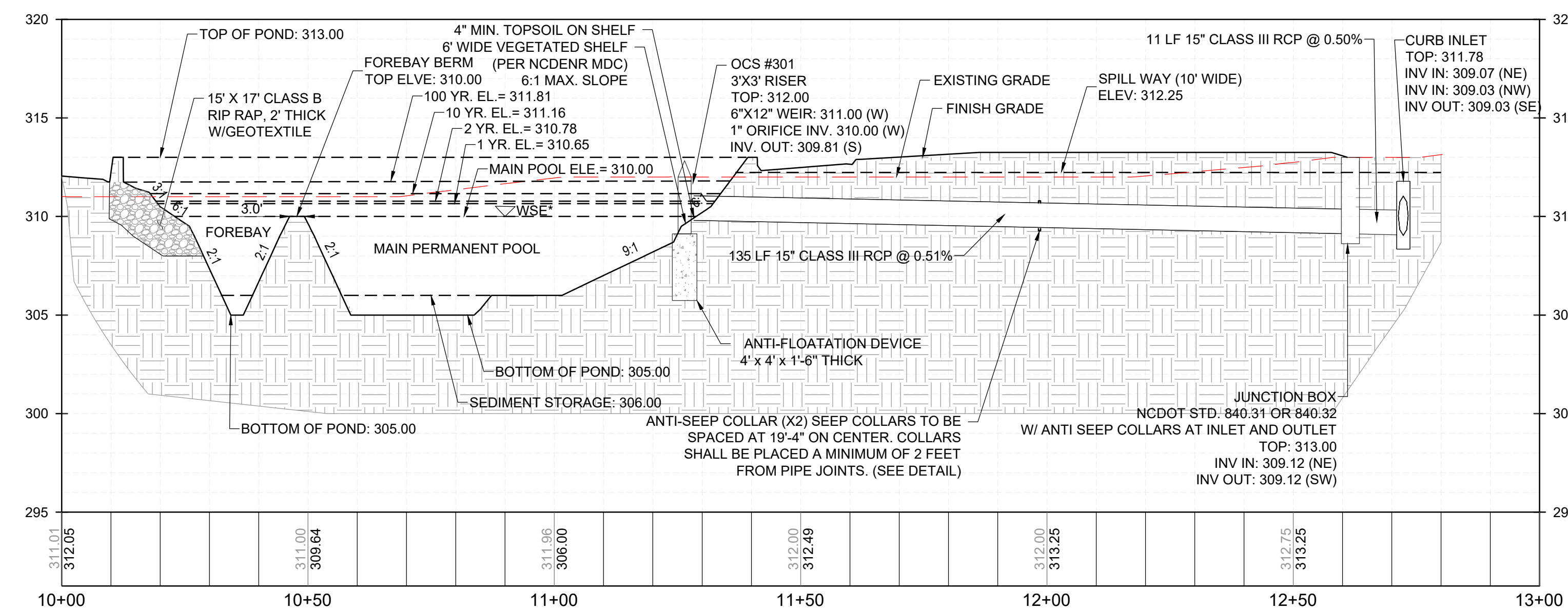
TRUE-ZEBULON-ARENDELL TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA CONSTRUCTION PLANS STORM DRAINAGE DETAILS

DRAWING SHEET

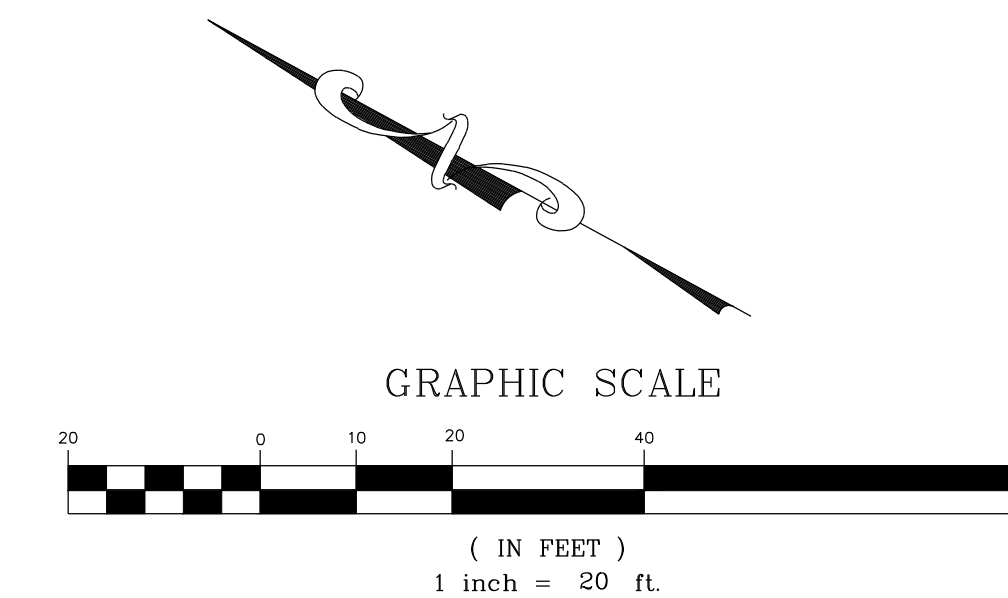
D-2.1



**WET POND - PLAN**  
HORIZONTAL: 1" = 20'



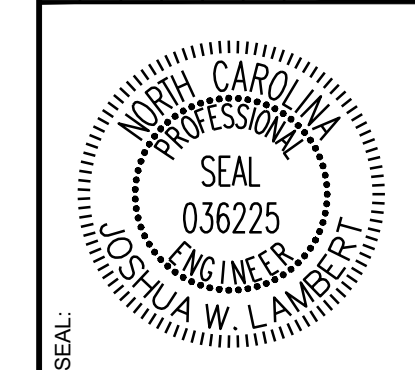
**WET POND - PROFILE**  
VERTICAL: 1" = 5'



**LEGEND:**

	EXISTING PROPERTY LINE
	ROADWAY CENTER LINE
	PROPOSED PROPERTY LINE
	STANDARD ROLL CURB & GUTTER
	PROPOSED STORM DRAIN LINE

No.	REVISIONS	DATE	BY



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ENGINEERING GROUP

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STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	DRAWN BY SRG	CHECKED BY JWL
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TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA

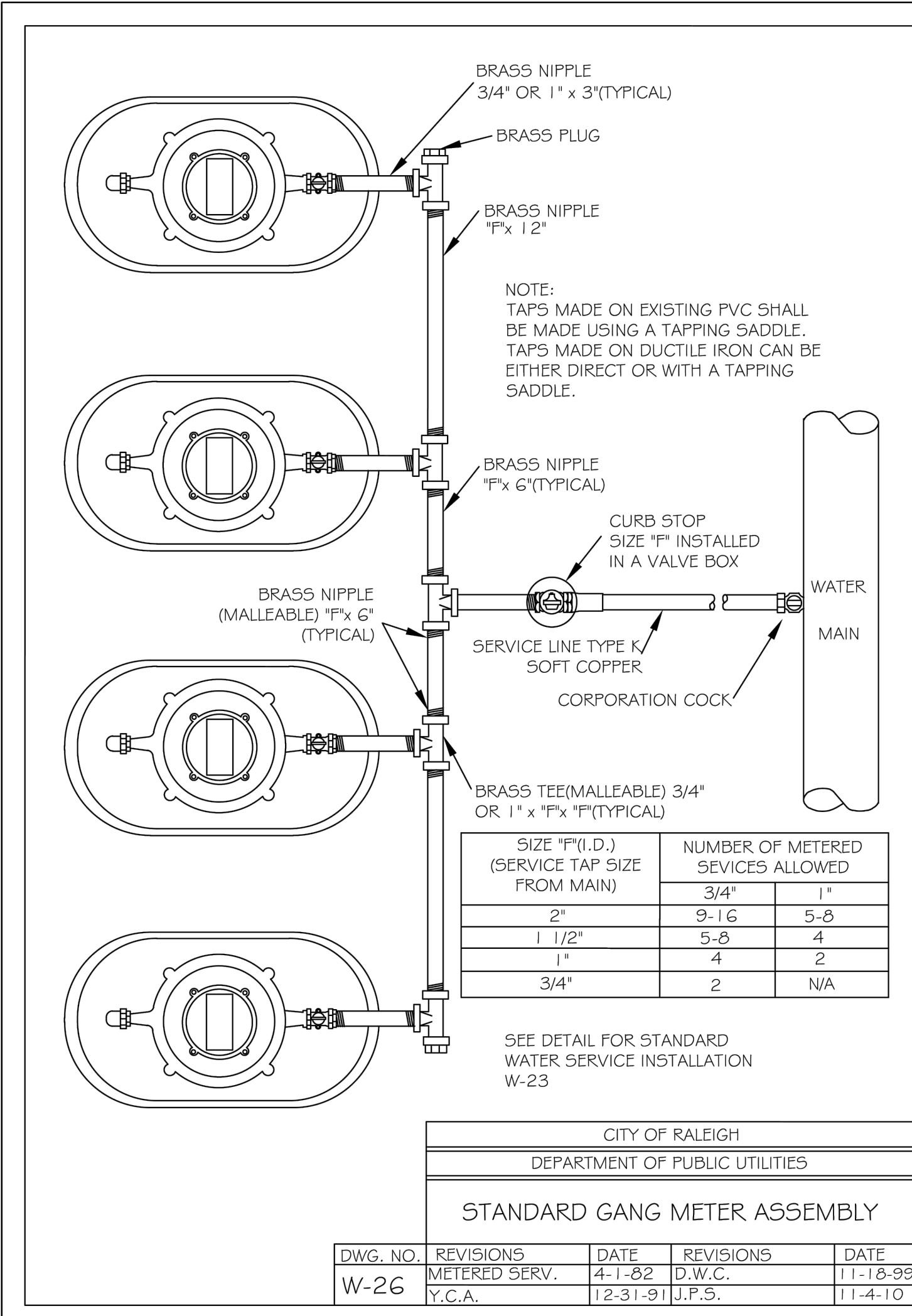
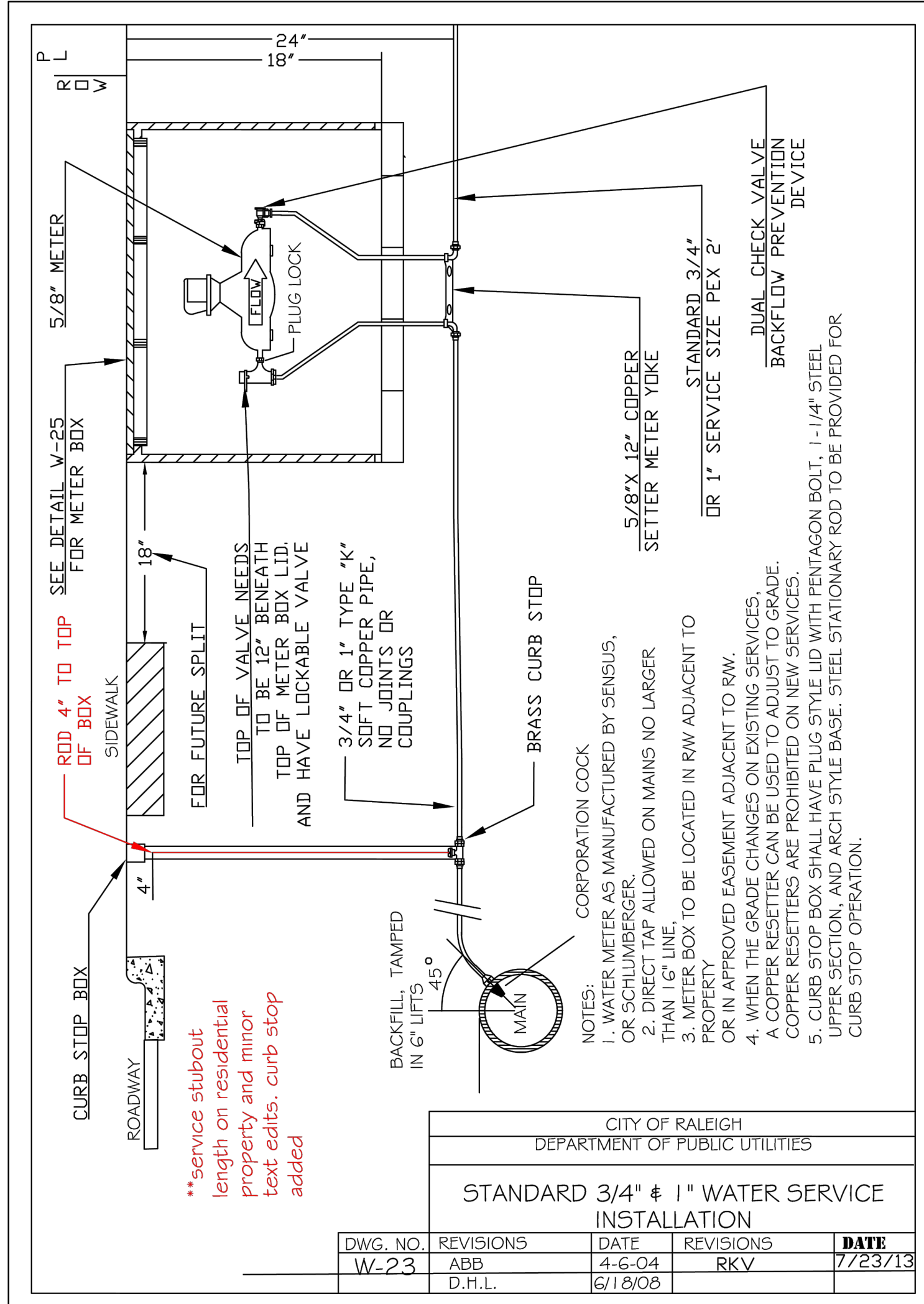
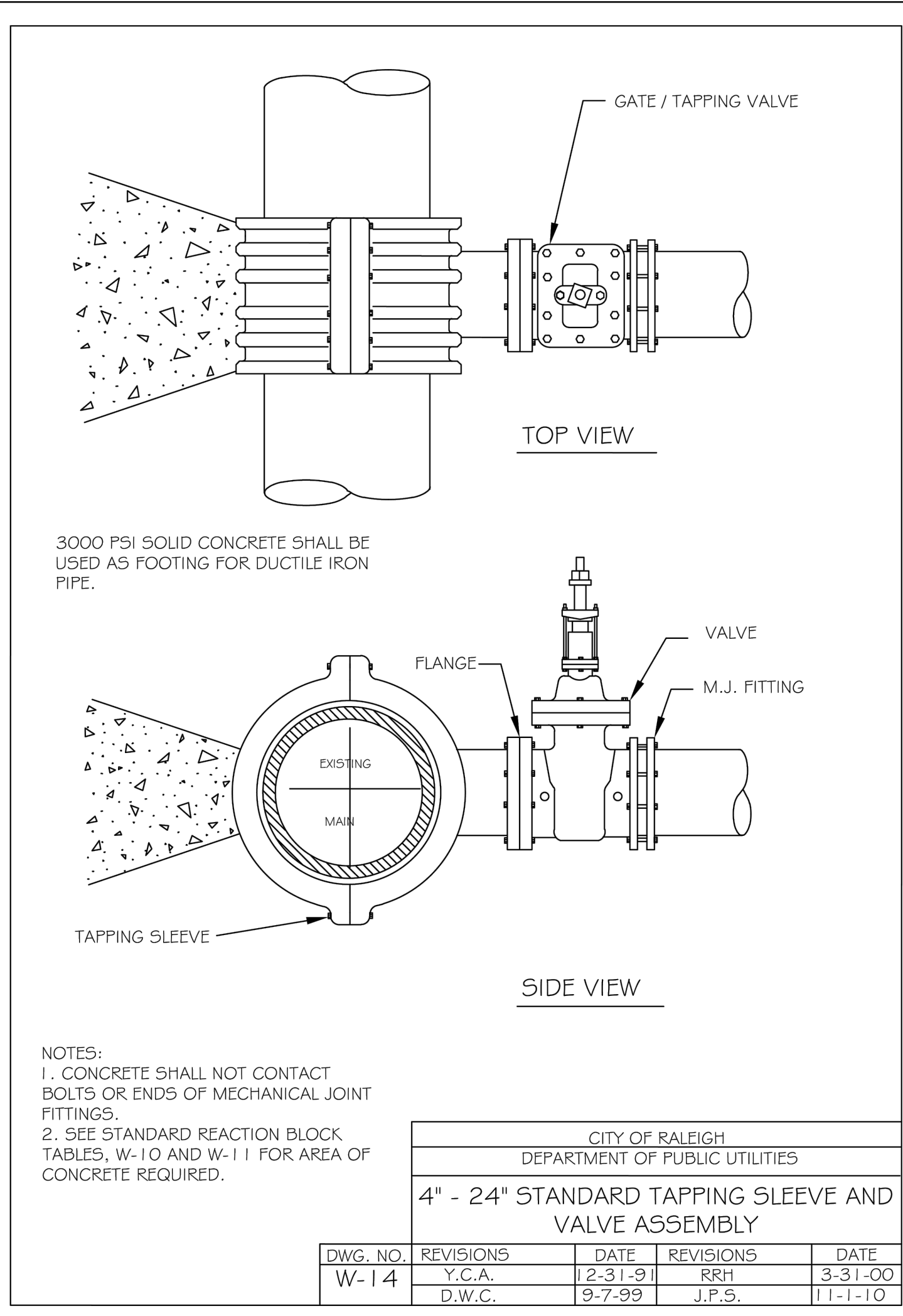
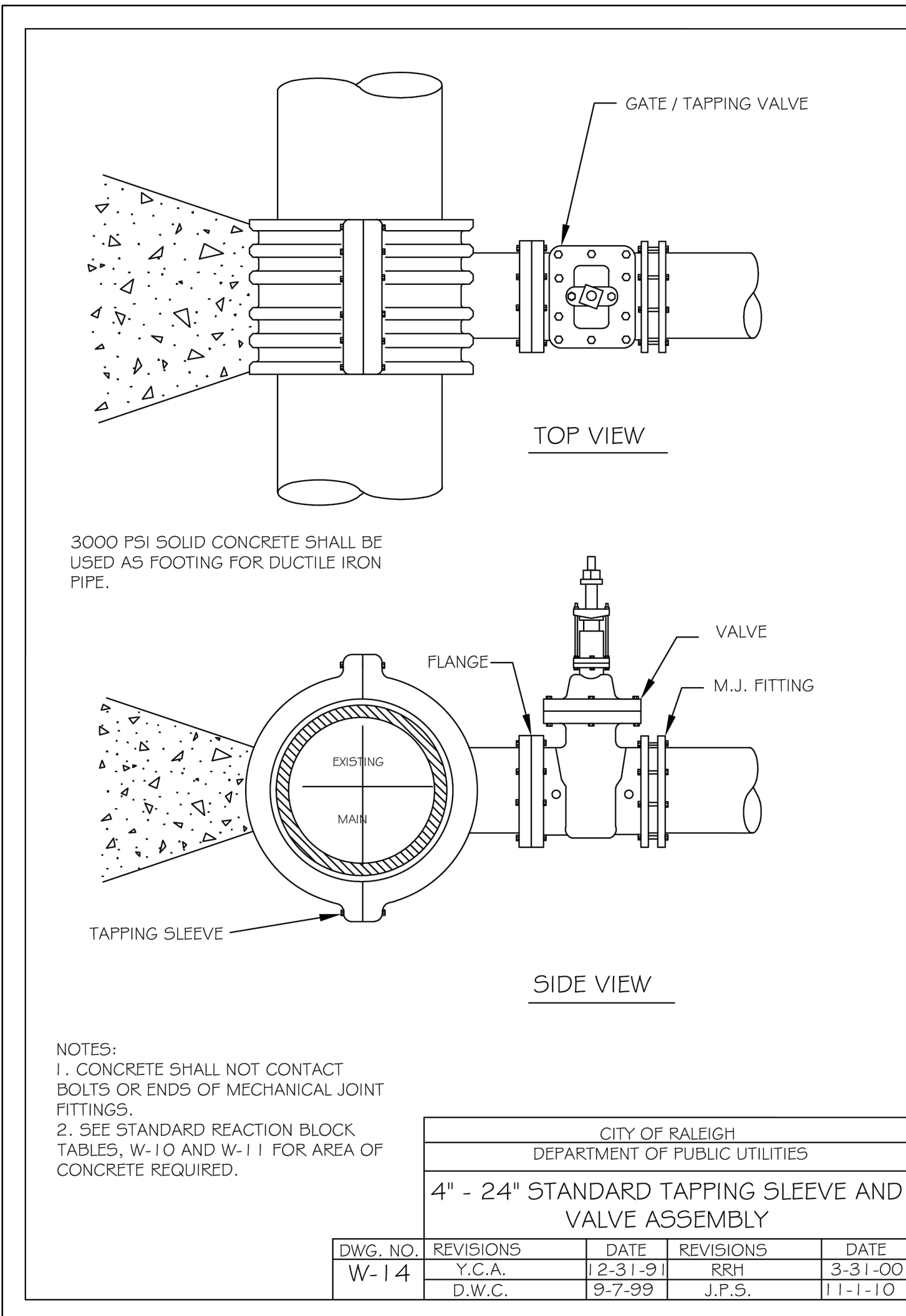
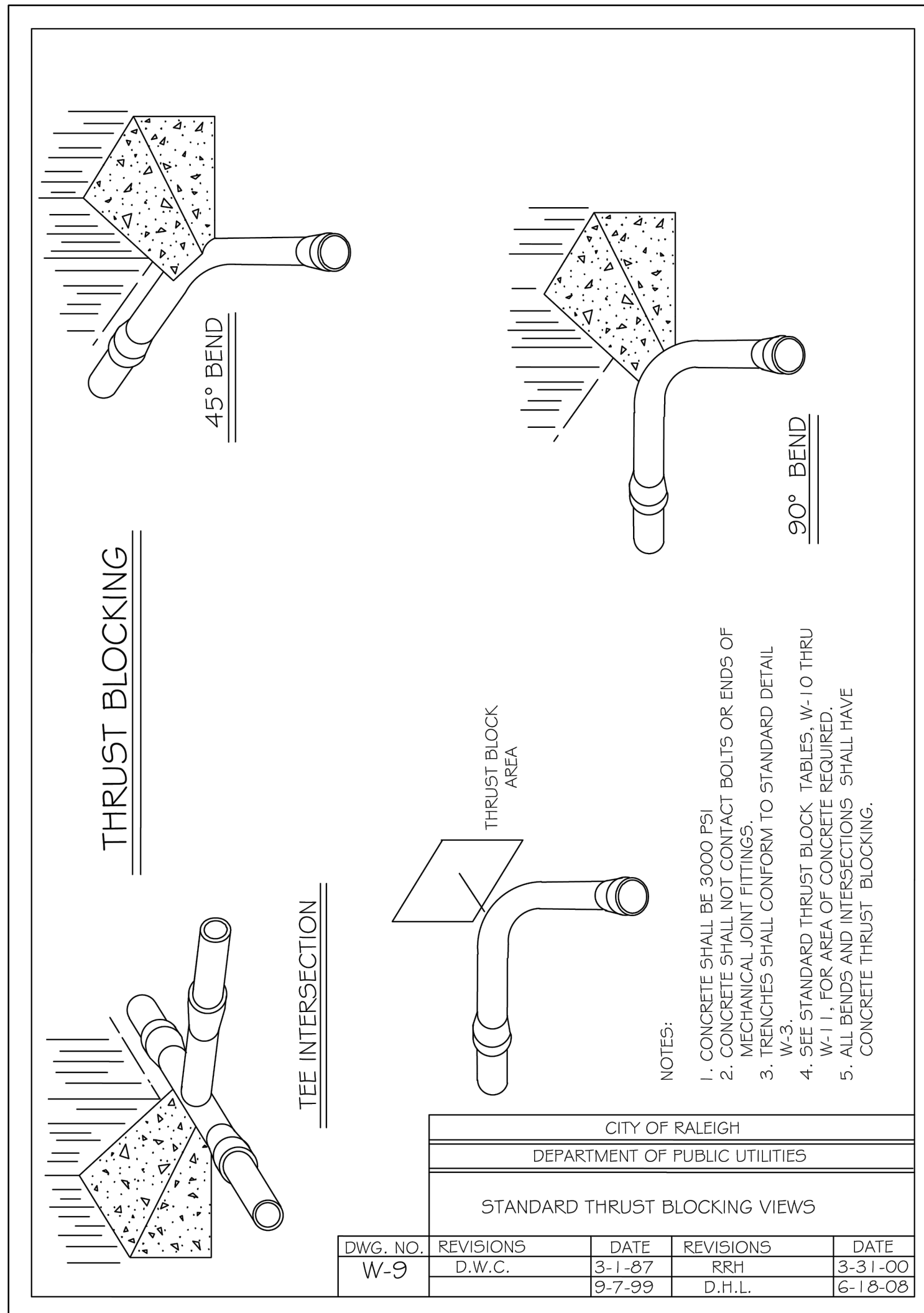
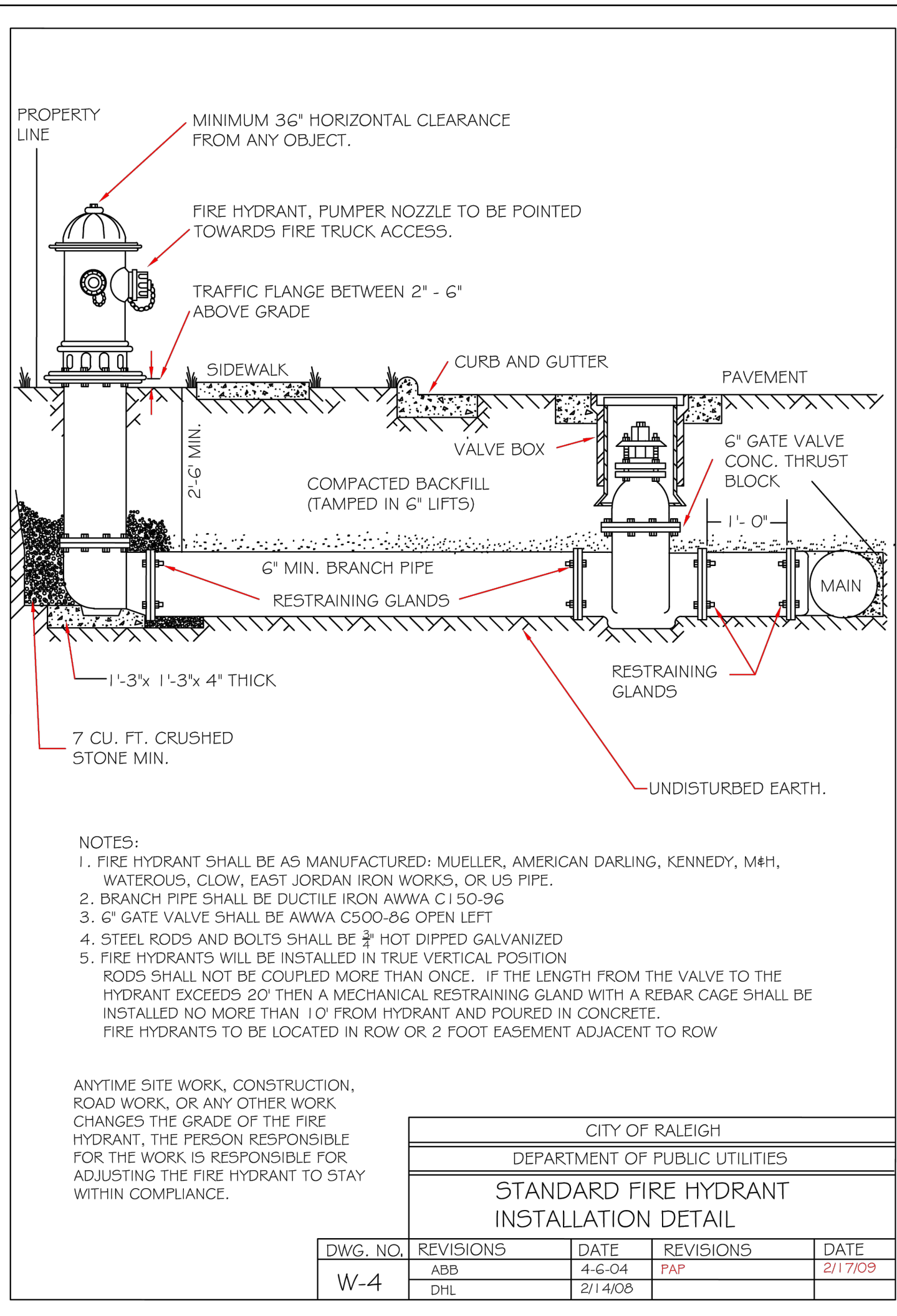
**CONSTRUCTION PLANS**

**STORM DRAINAGE DETAILS**

DRAWING SHEET  
**D-2.2**

16 OF 24





**SITE PERMITTING APPROVAL:**  
WATER AND SEWER PERMITS (IF APPLICABLE)

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT 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 PUBLIC UTILITIES DEPARTMENT PERMIT # S-3936.

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT 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 PUBLIC UTILITIES DEPARTMENT PERMIT # N/A

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT - PLANS AUTHORIZED FOR CONSTRUCTION

ELECTRONIC APPROVAL: THIS APPROVAL IS BEING ISSUED ELECTRONICALLY. THIS APPROVAL IS VALID ONLY UPON THE SIGNATURE OF A TOWN OF ZEBULON REVIEW OFFICER BELOW. THE CITY WILL RETAIN A COPY OF THE APPROVED PLANS. ANY WORK AUTHORIZED BY THIS APPROVAL MUST PROCEED IN ACCORDANCE WITH THE PLANS KEPT ON FILE WITH THE CITY. THIS ELECTRONIC APPROVAL MAY NOT BE EDITED ONCE ISSUED. ANY MODIFICATION TO THIS APPROVAL ONCE ISSUED WILL INVALIDATE THIS APPROVAL.

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT DEVELOPMENT APPROVAL

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT WATER REVIEW OFFICER

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**CITY OF ZEBULON - PLANS AUTHORIZED FOR CONSTRUCTION:**

ELECTRONIC APPROVAL: THIS APPROVAL IS BEING ISSUED ELECTRONICALLY. THIS APPROVAL IS VALID ONLY UPON THE SIGNATURE OF A CITY OF ZEBULON REVIEW OFFICER BELOW. THE CITY WILL RETAIN A COPY OF THE APPROVED PLANS. ANY WORK AUTHORIZED BY THIS APPROVAL MUST PROCEED IN ACCORDANCE WITH THE PLANS KEPT ON FILE WITH THE CITY. THIS ELECTRONIC APPROVAL MAY NOT BE EDITED ONCE ISSUED. ANY MODIFICATION TO THIS APPROVAL ONCE ISSUED WILL INVALIDATE THIS APPROVAL.

CITY OF ZEBULON DEVELOPMENT APPROVAL

ZEBULON WATER REVIEW OFFICER

DATE	REVISIONS	NO.

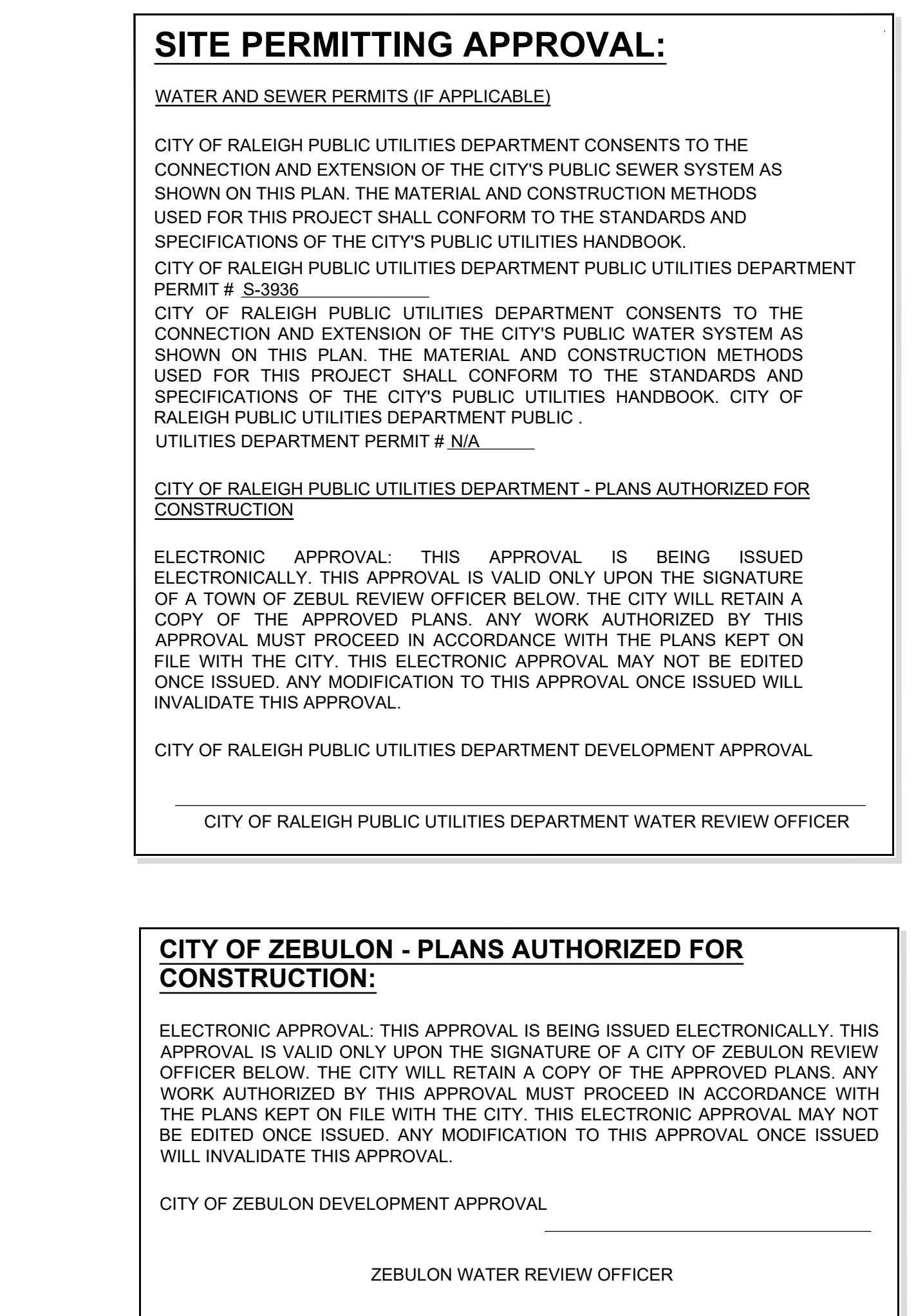
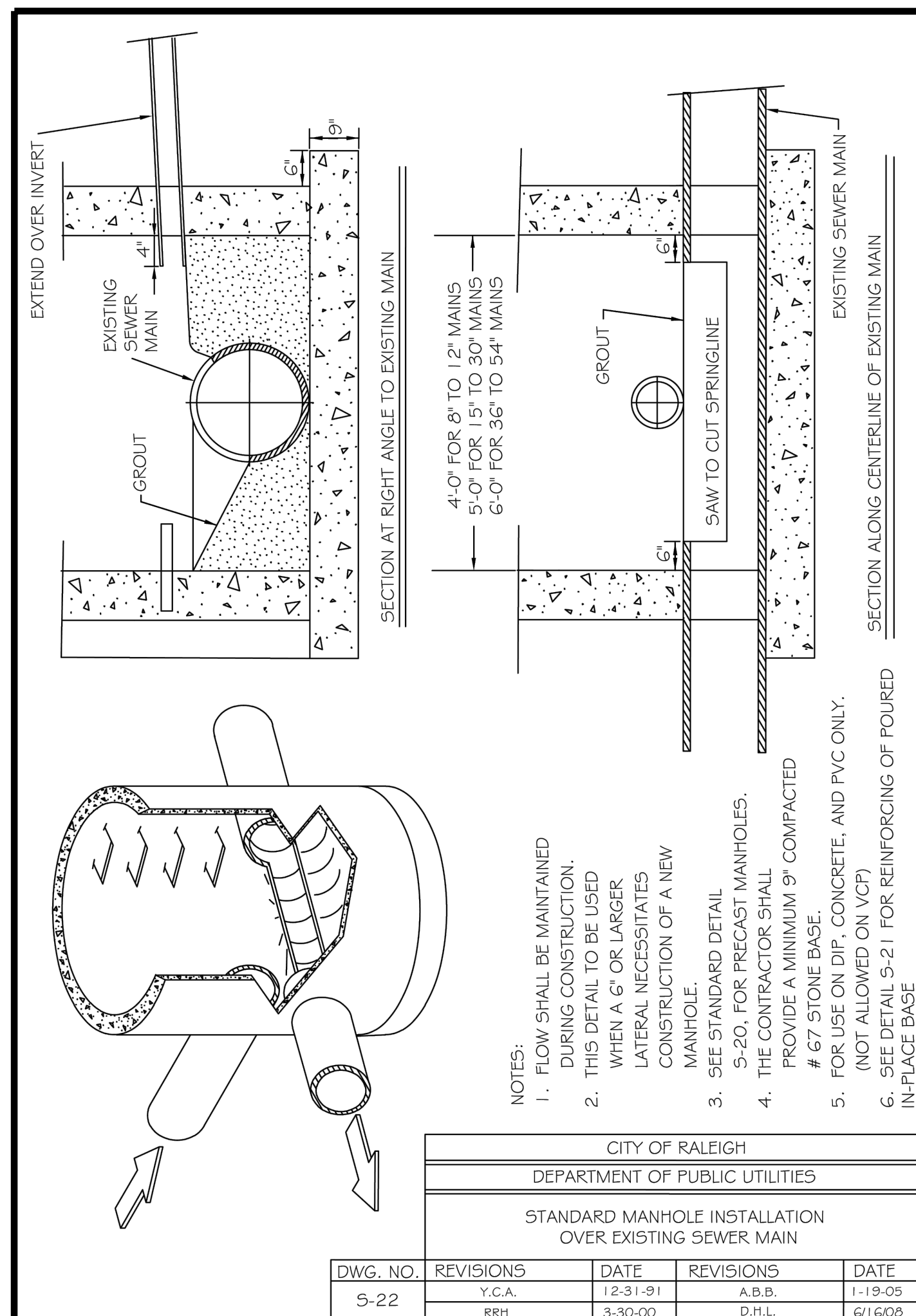
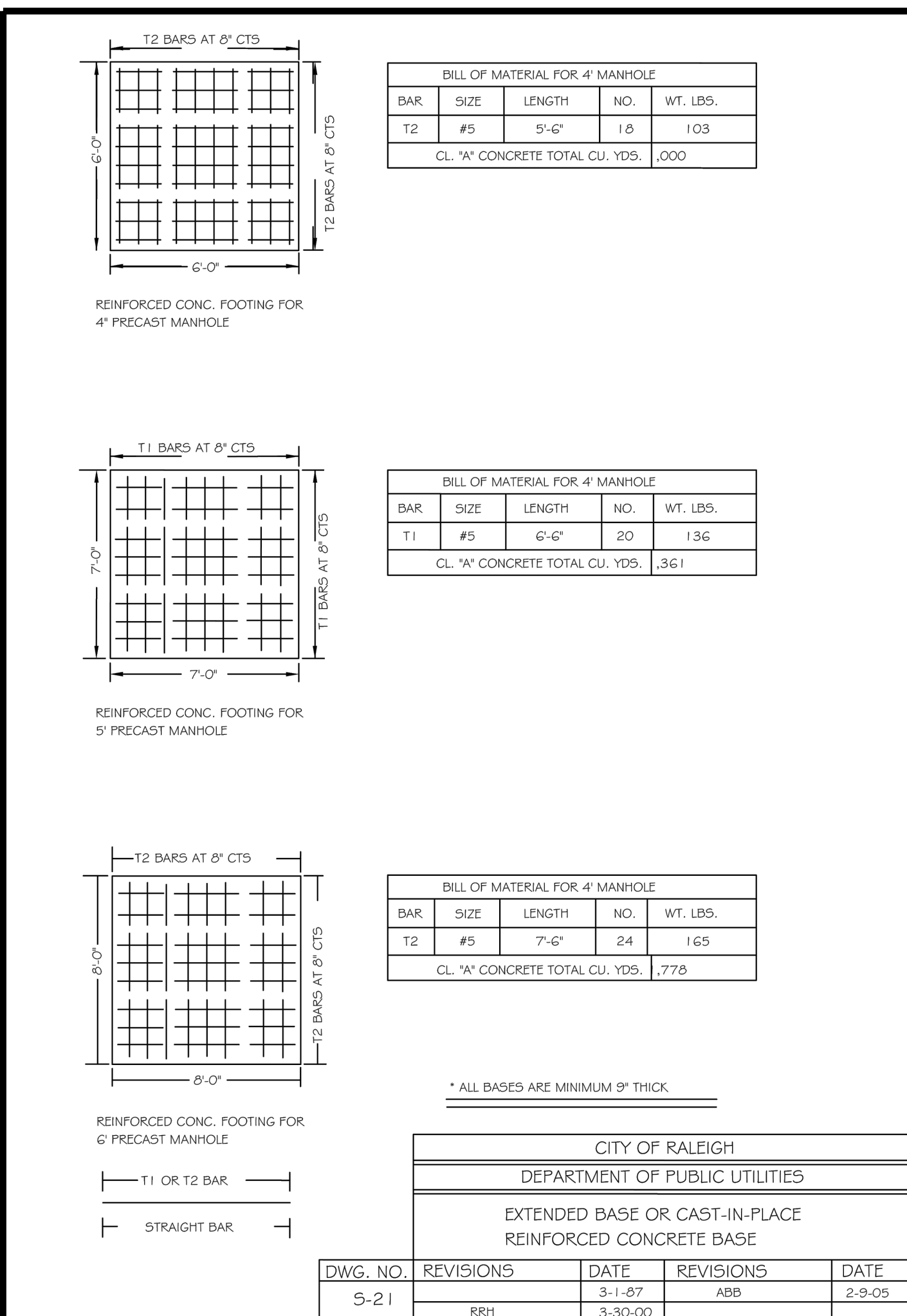
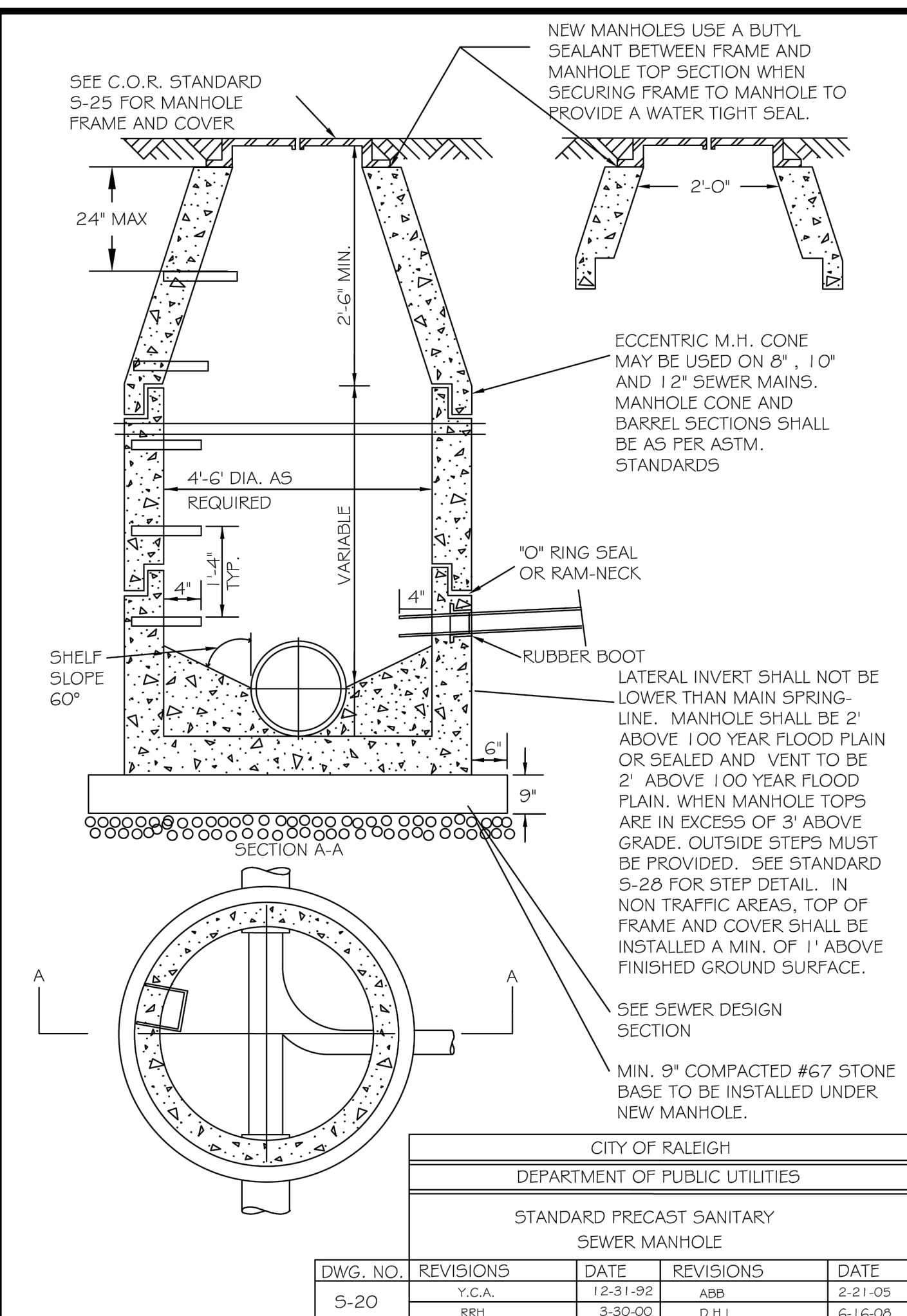
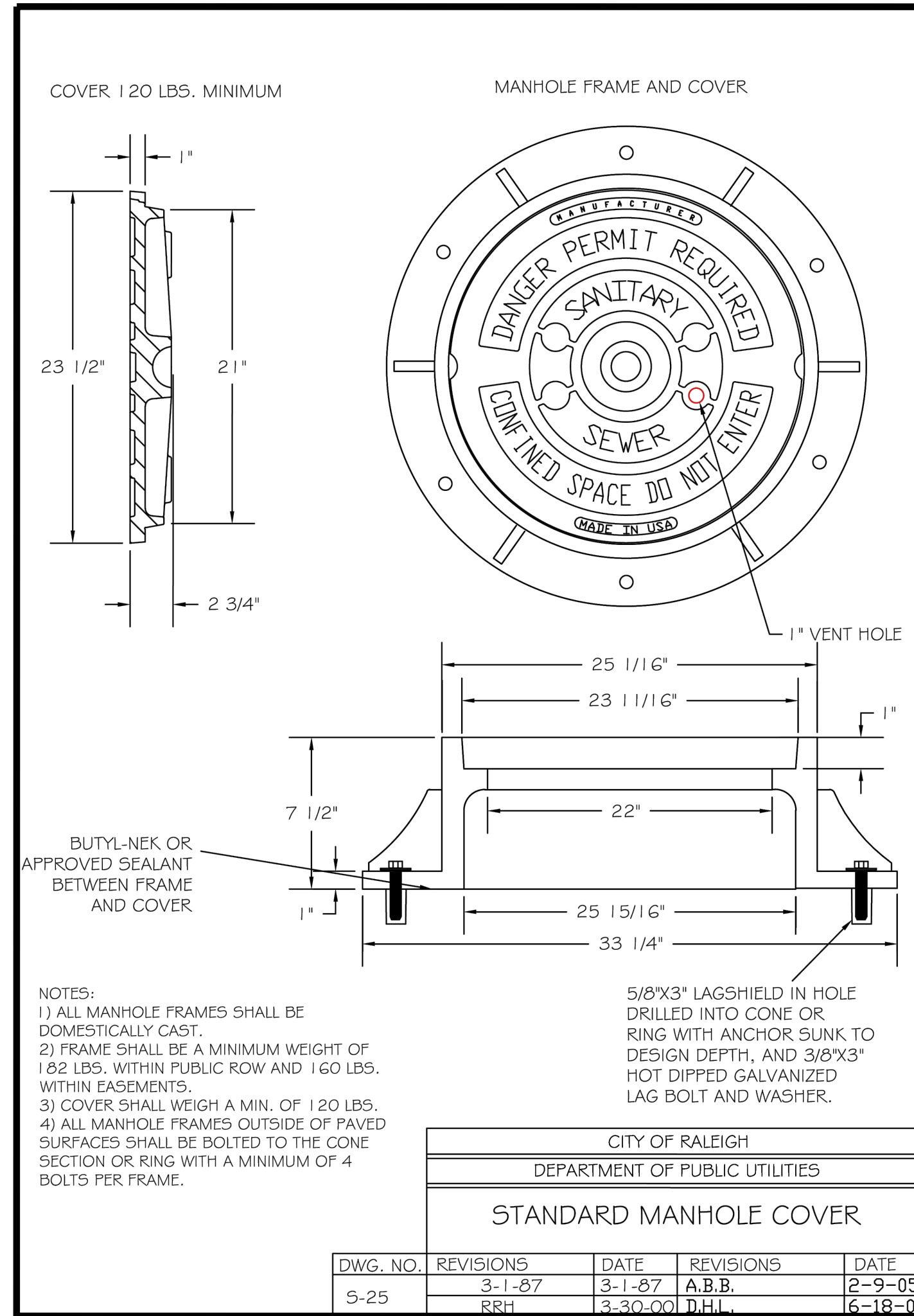
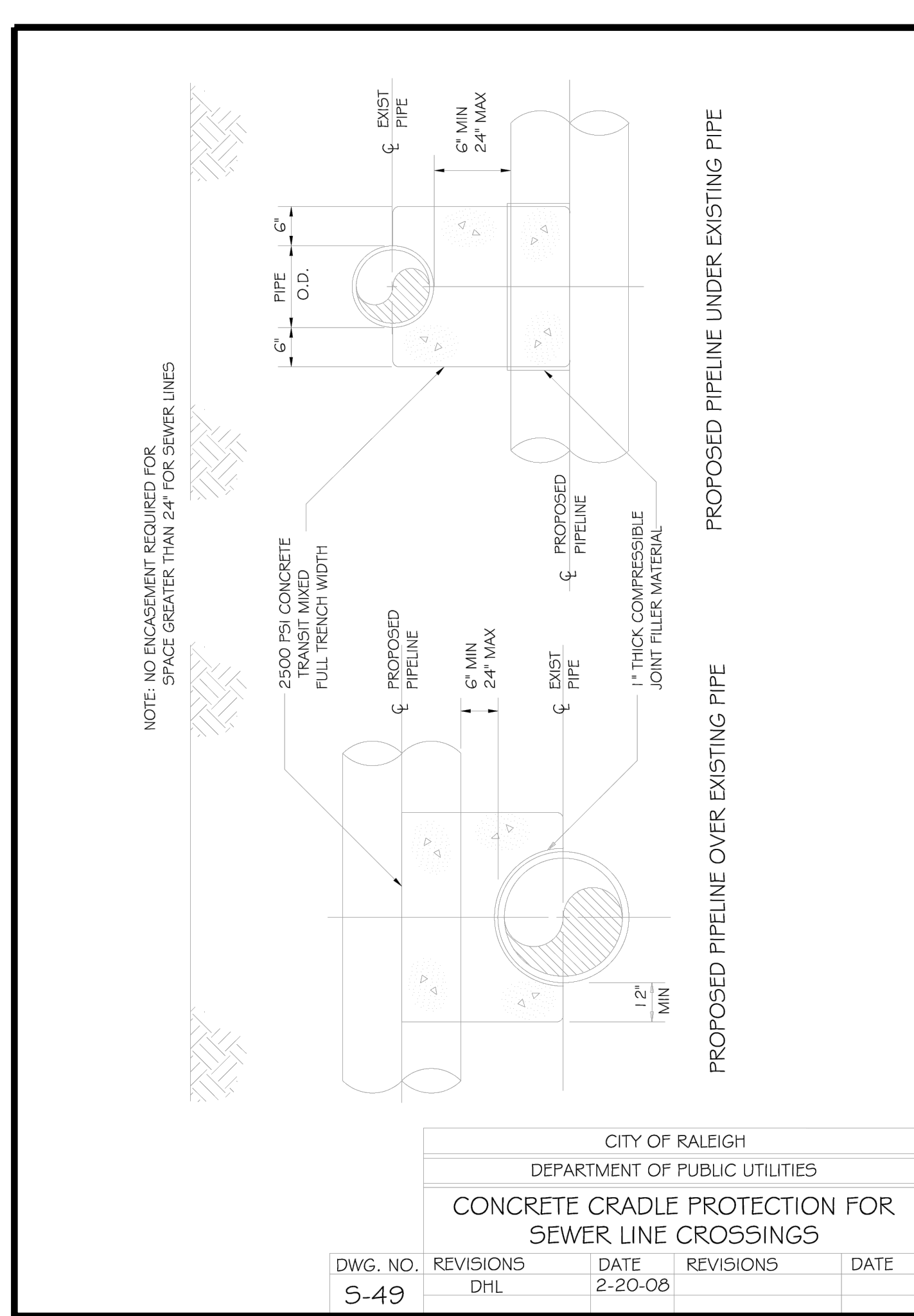
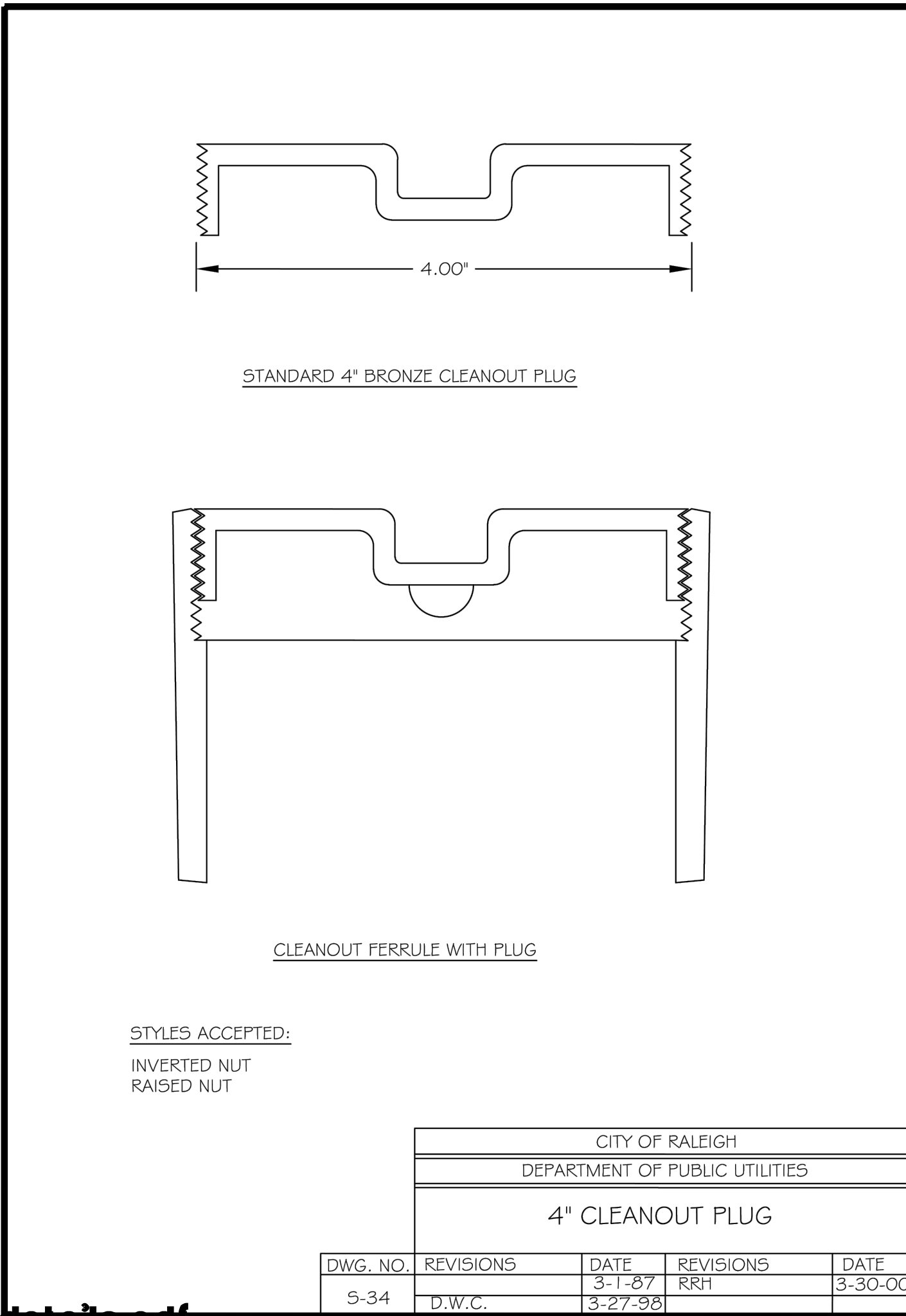
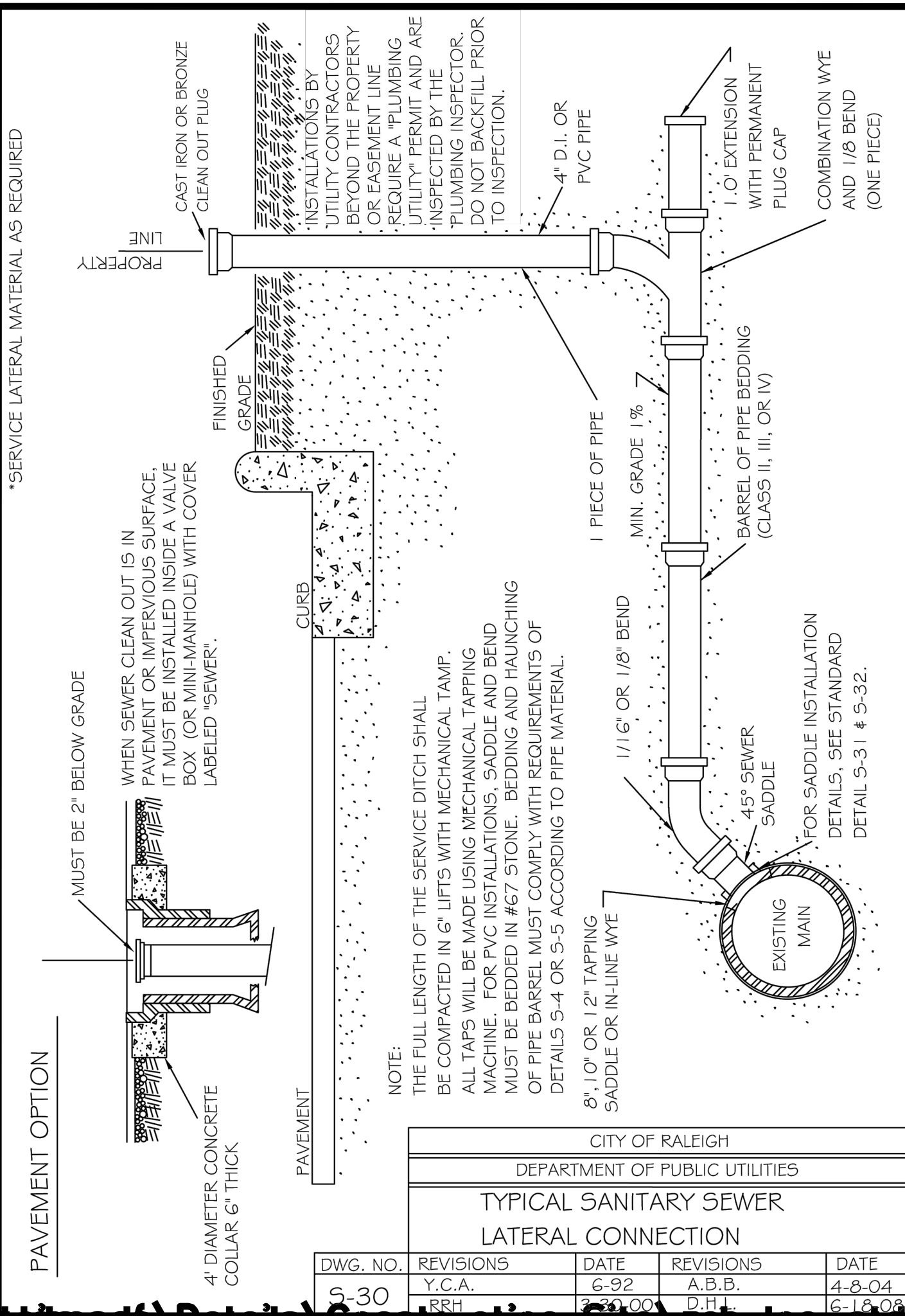
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036225 JUSTIA W. L. AREDELL

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CHECKED BY JWL

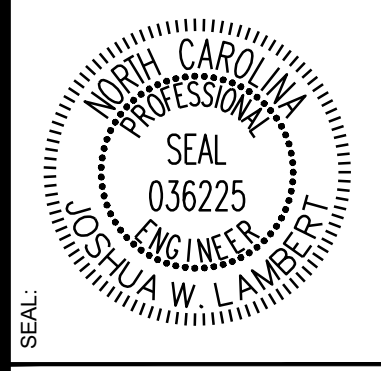
TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
WATER DETAILS

DRAWING SHEET  
**D-2.3**  
17 OF 24



A:\projects\Details\Construction Site\zebulon\_std\_details.pdf

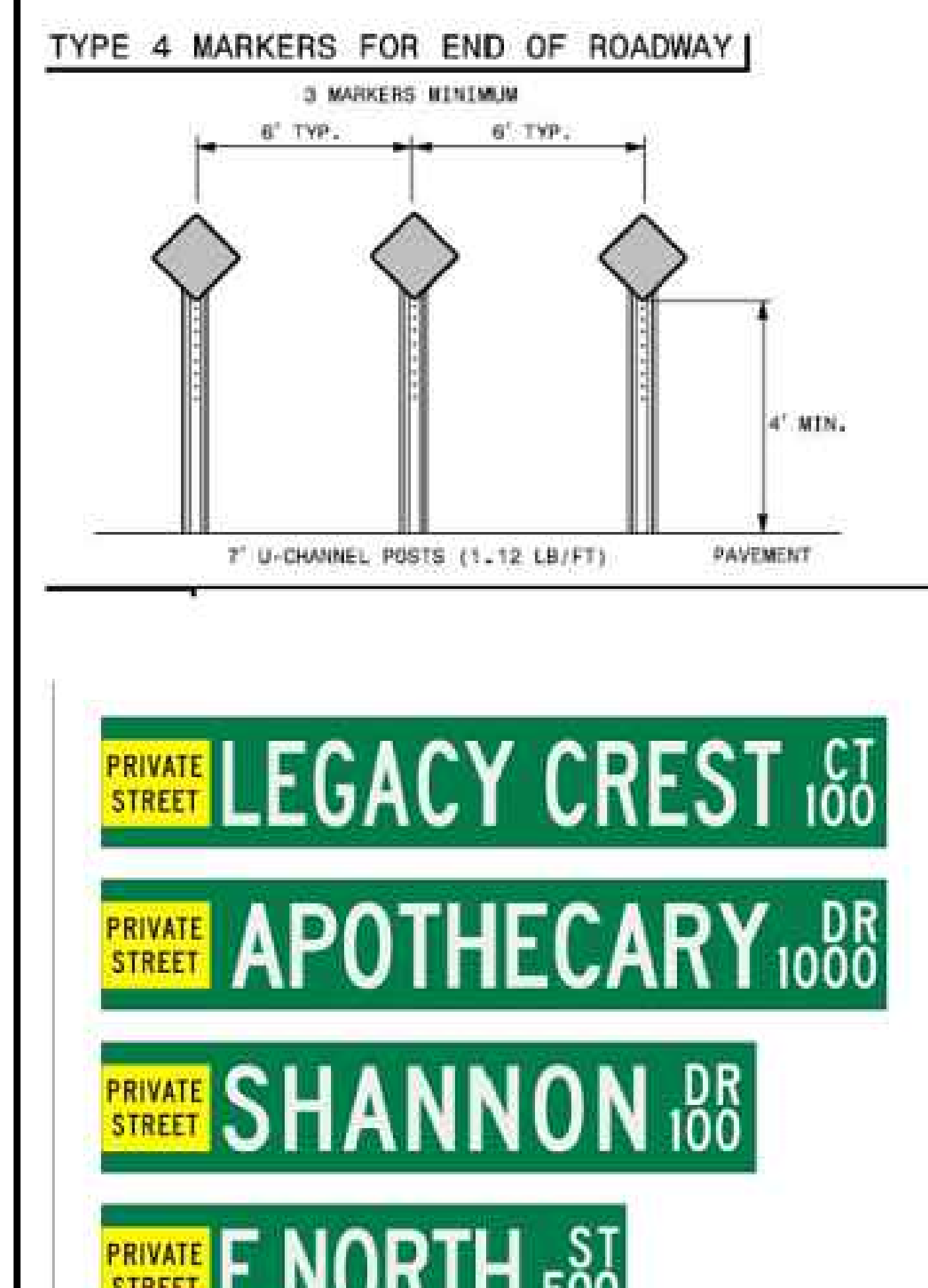
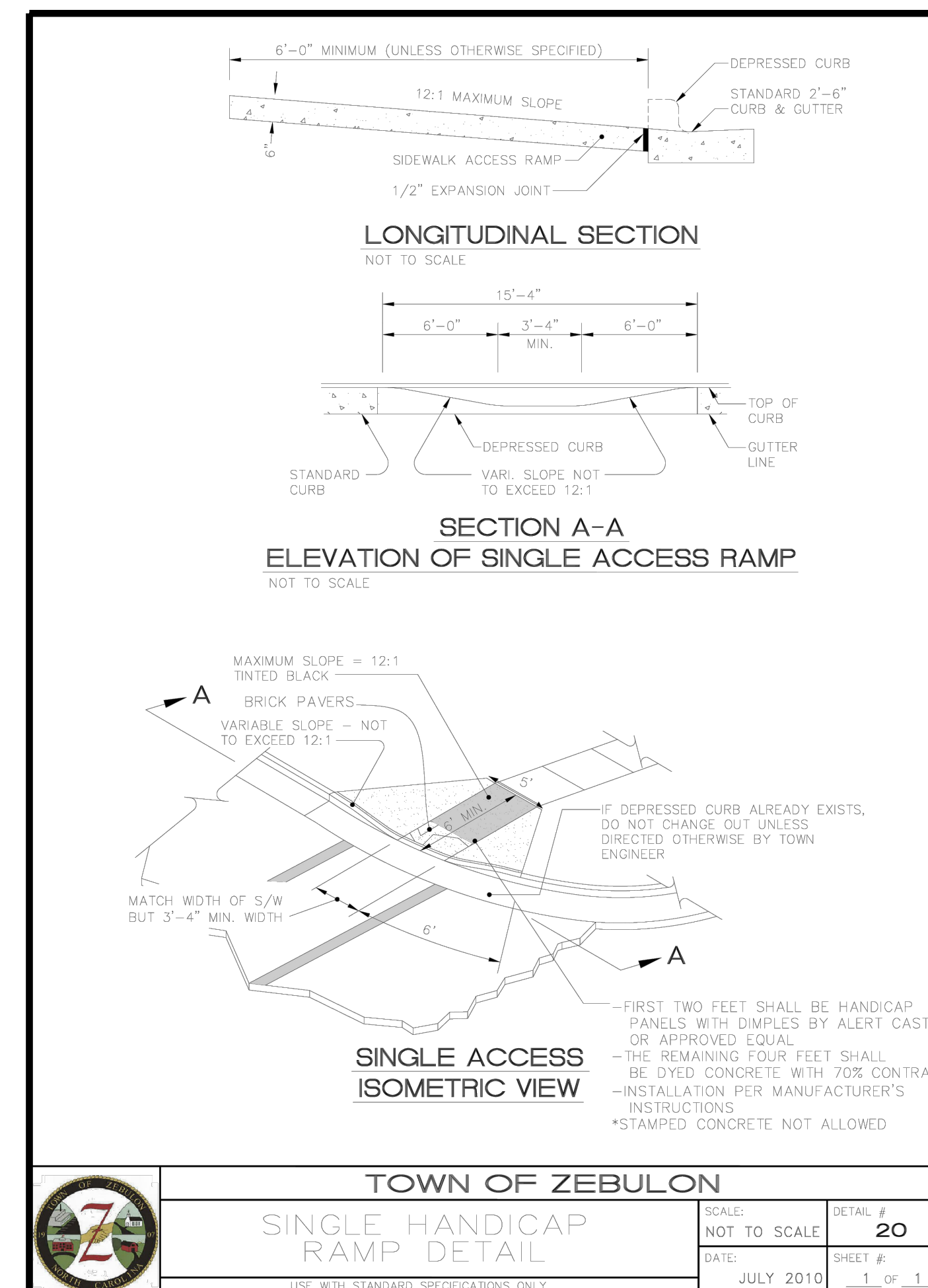
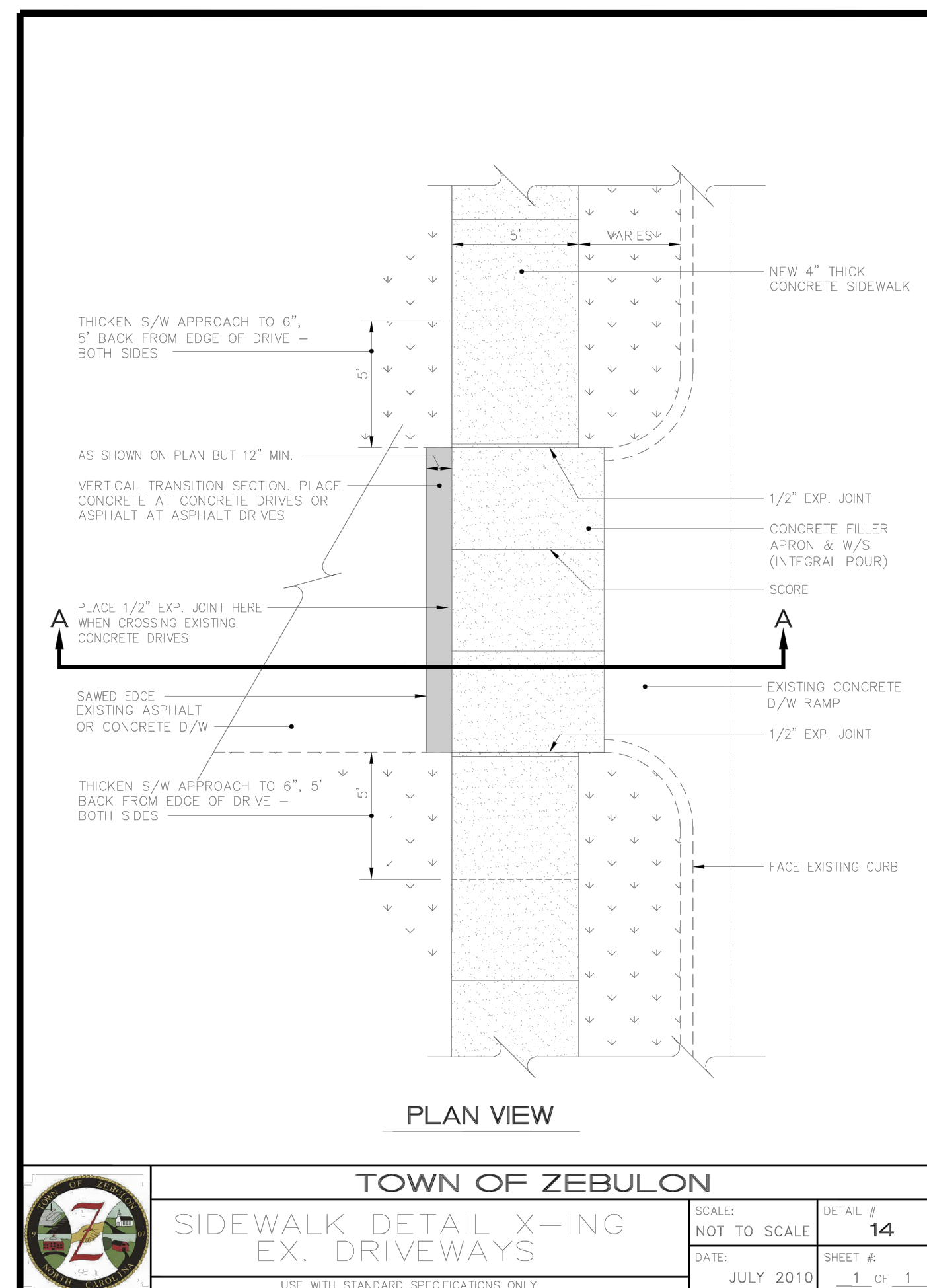
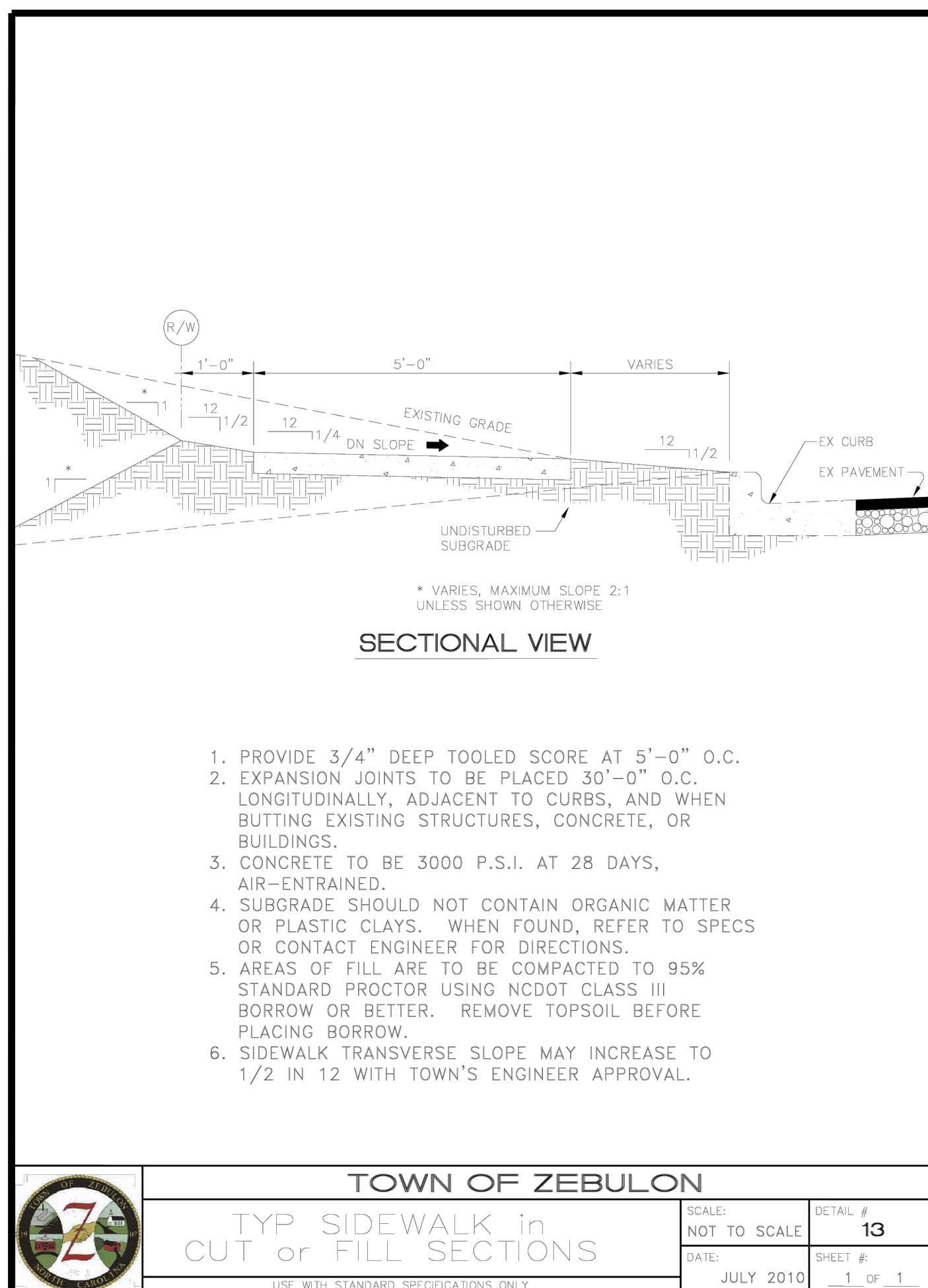
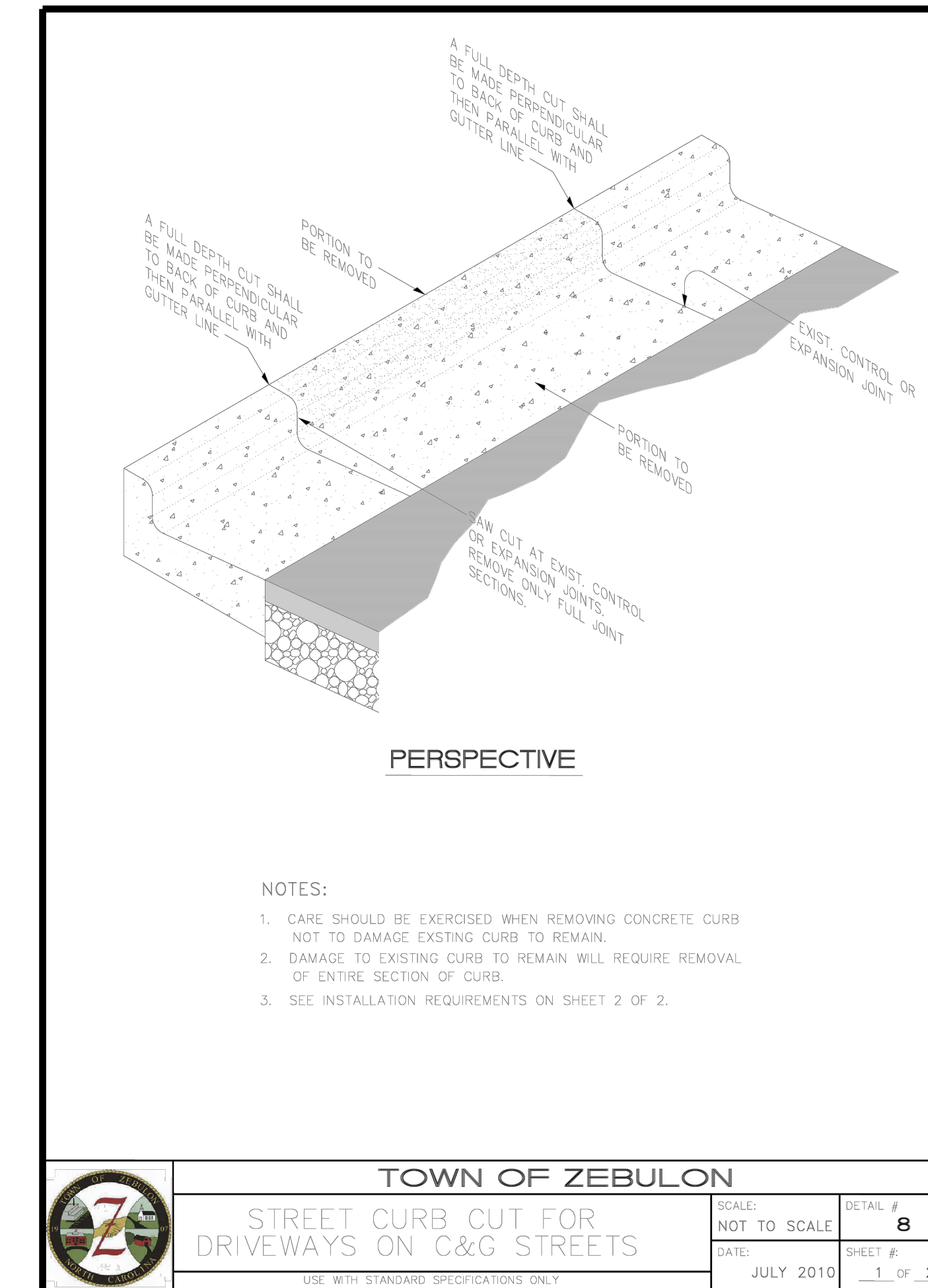
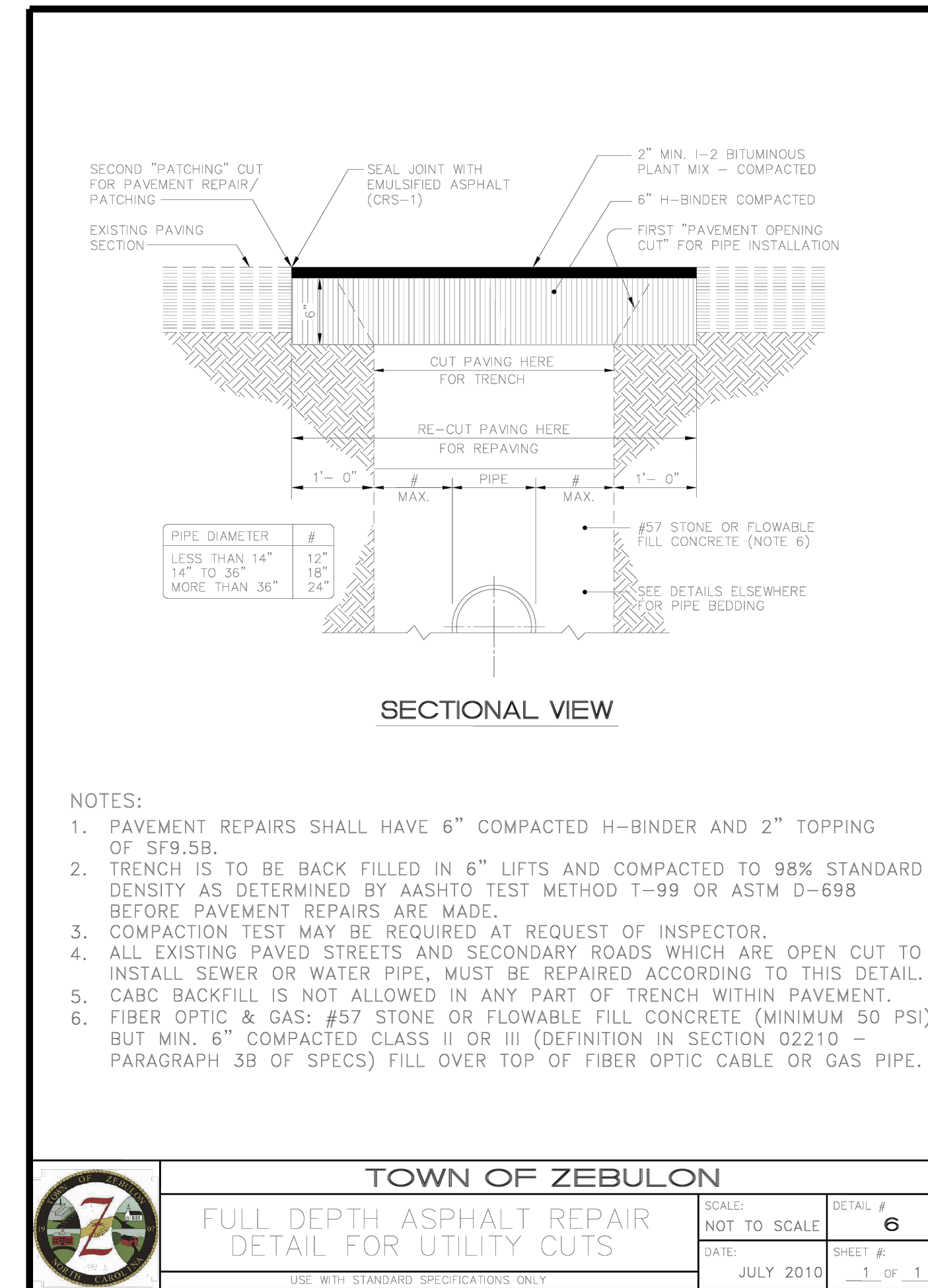
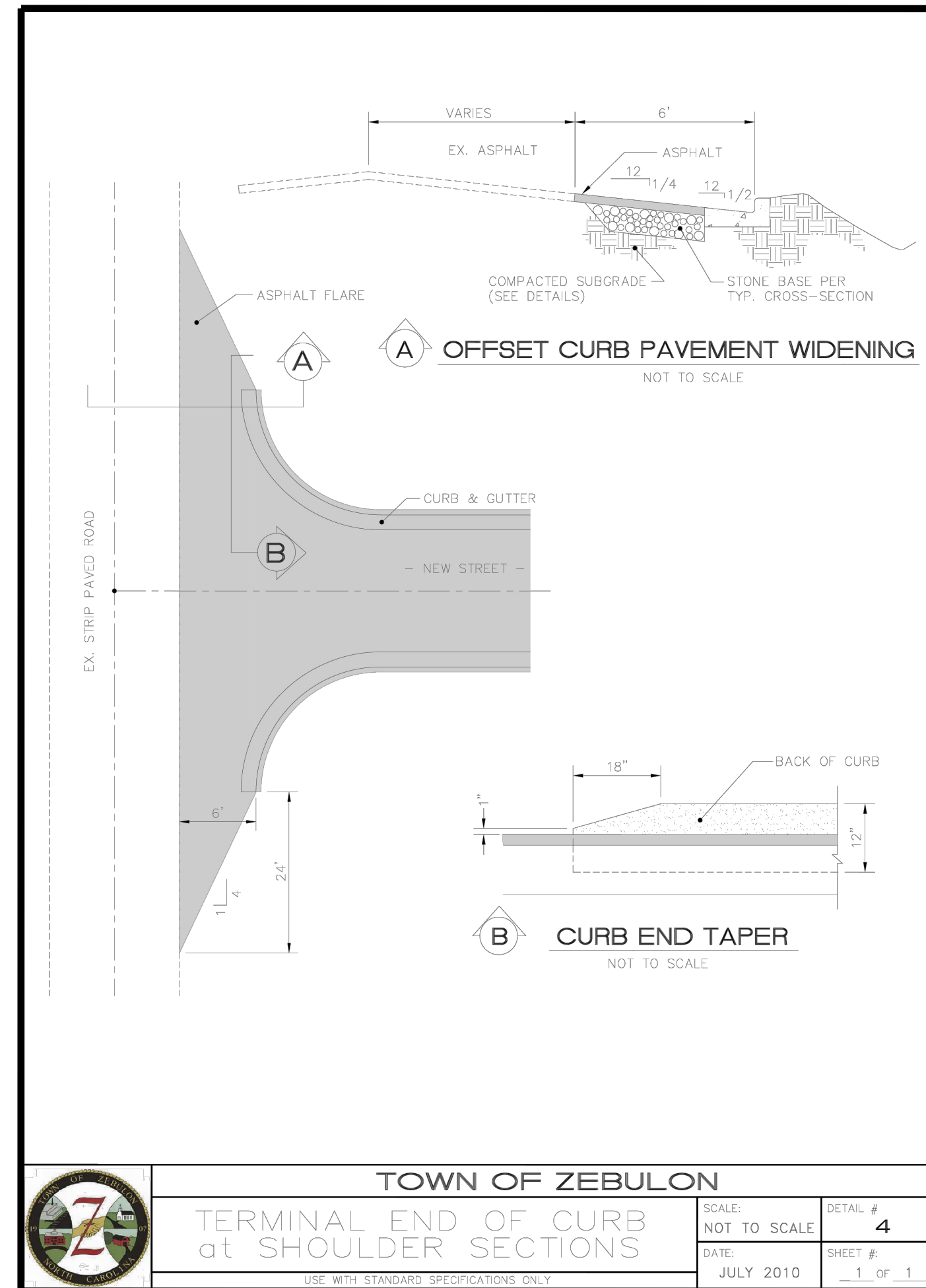
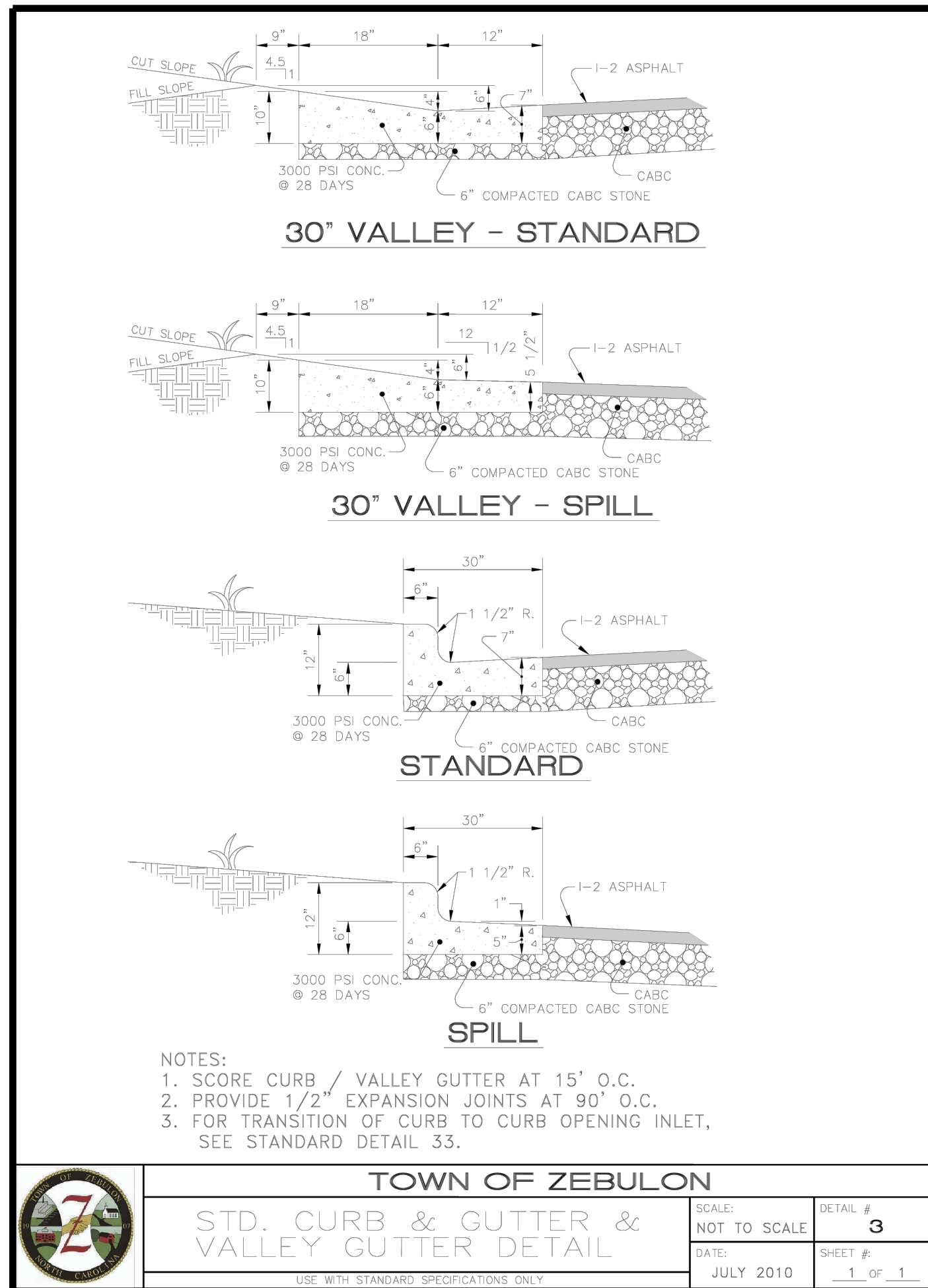
No.	REVISIONS	DATE	BY



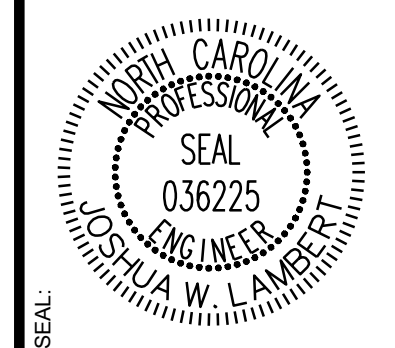
**STRONGROCK ENGINEERING GROUP**  
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6801 FALLS OF NEUSE RD. SUITE 108 RALEIGH, NC 27615 | INFORMATION@STRONGROCKGROUP.COM

STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	JWL	SRG
SCALE	AS SHOWN	DESIGNED BY	DRAWN BY
		CHECKED BY	

TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
**CONSTRUCTION PLANS**  
**SEWER DETAILS**  
DRAWING SHEET  
**D-2.4**



NO.	REVISIONS	DATE	BY



**STRONGROCK**  
 ENGINEERING GROUP  
 STRONG ROCK ENGINEERING GROUP, PLLC (COMPANY LICENSE # P-2166)  
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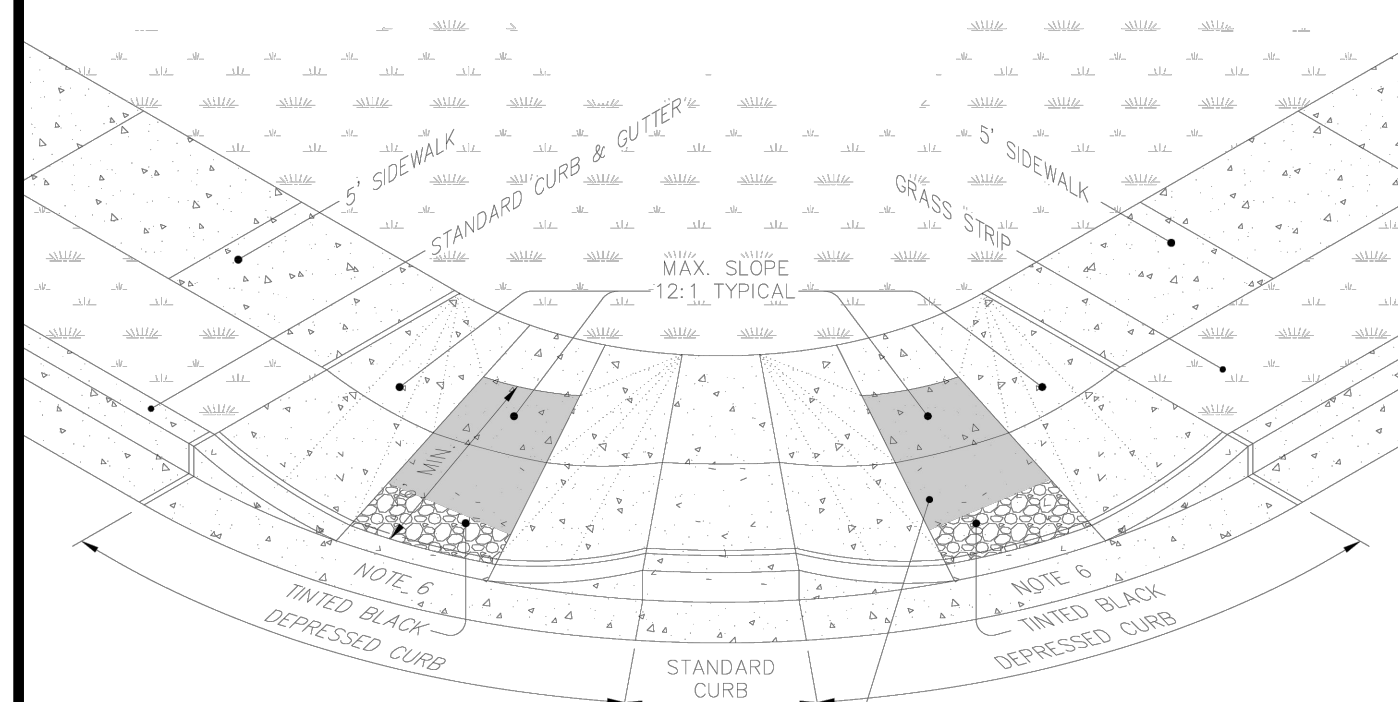
STRONG ROCK PROJECT	NOT FOR CONSTRUCTION	SCALE AS SHOWN	DESIGNED BY JWL	DRAWN BY SRG	CHECKED BY JWL
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TRUE- ZEBULON-ARENDELL  
 TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
 CONSTRUCTION PLANS  
**SITE DETAILS**

DRAWING SHEET  
**D-2.5**

NOTES:

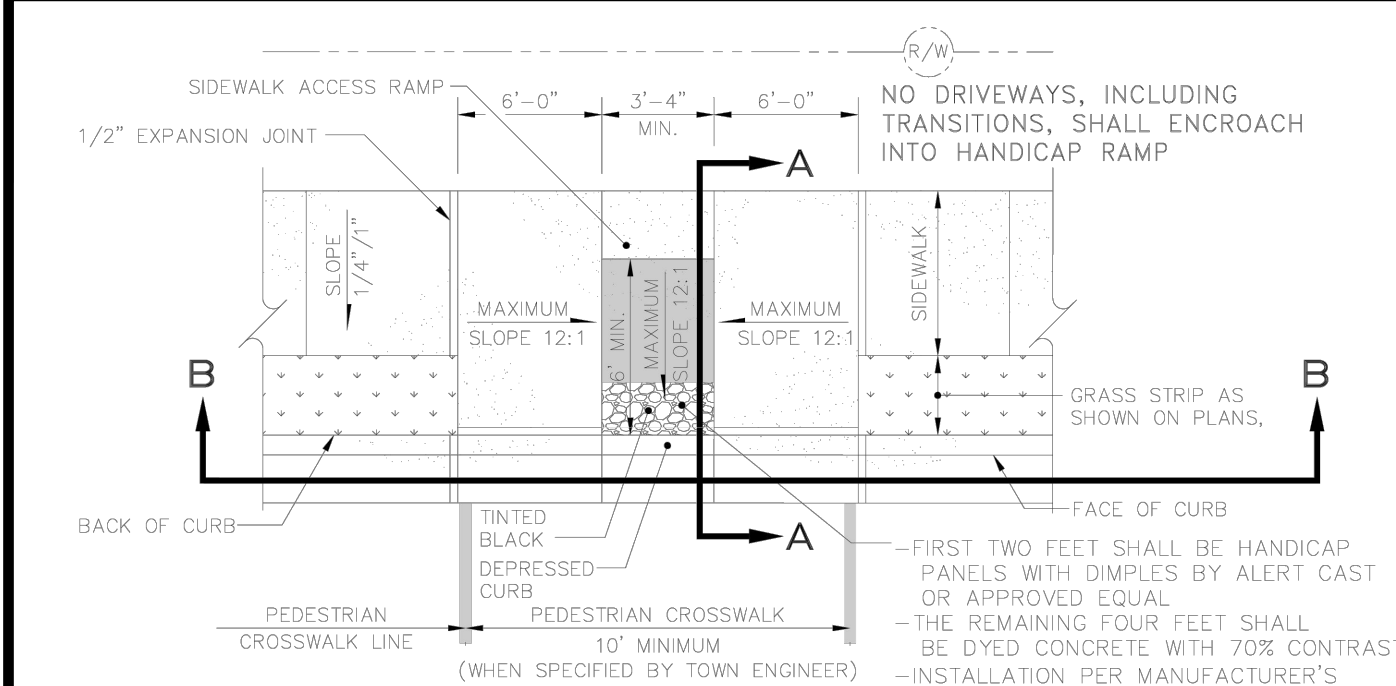
1. WHEELCHAIR RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THESE PLANS OR AS DIRECTED BY THE ENGINEER. WHEELCHAIR RAMPS SHALL BE LOCATED AS INDICATED IN THESE DETAILS; HOWEVER, THE LOCATION MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. AT THESE LOCATIONS, NOT LESS THAN 2 FEET OF FULL HEIGHT CURB SHALL BE PLACED BETWEEN ADJACENT RAMPS.
2. NO SLOPE ON THE WHEELCHAIR RAMP SHALL EXCEED 1 1/2" (12:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
3. IN NO CASE SHALL THE WIDTH OF THE WHEELCHAIR RAMP BE LESS THAN 40" (3'-4") HOWEVER, WIDTH MAY EXCEED 40".
4. USE AIR ENTRAINED 3000 PSI CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
5. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STANDARD DRAWINGS.
6. CURB DEPRESSION MUST GO IN WHETHER OR NOT SIDEWALK IS PLACED.



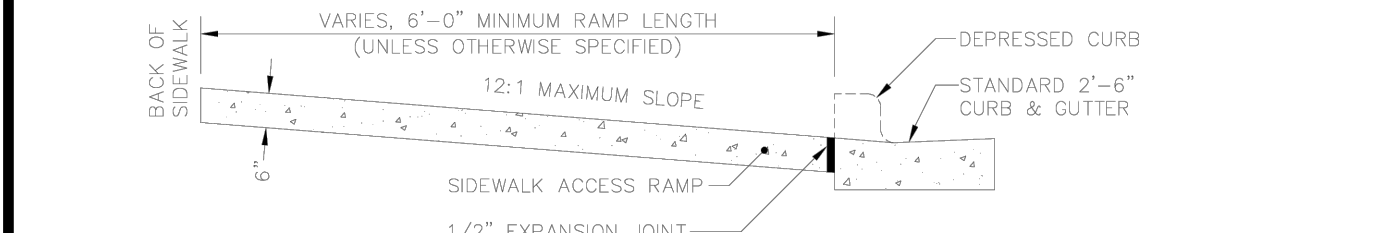
STANDARD ADA WHEELCHAIR  
SIDEWALK ACCESS AT CURB RETURNS

PERSPECTIVE

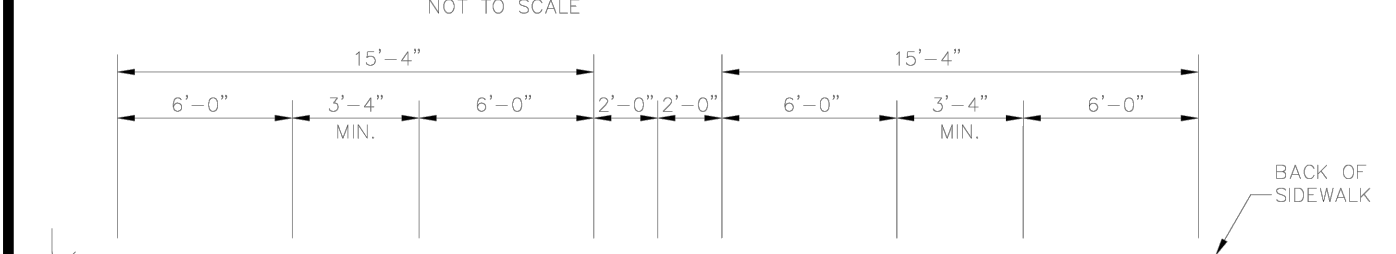
	TOWN OF ZEBULON	
	<b>DOUBLE HANDICAP RAMP DETAIL</b>	DETAIL # 21
	SCALE: NOT TO SCALE	DATE: JULY 2010
		SHEET # 1 OF 2



SIDEWALK ACCESS RAMP  
NOT TO SCALE (SHOWN W/SINGLE RAMP)



SECTION A-A  
PUBLIC STREET TIE-IN  
NOT TO SCALE



SECTION B-B  
NOT TO SCALE

	TOWN OF ZEBULON	
	<b>DOUBLE HANDICAP RAMP DETAIL</b>	DETAIL # 21
	SCALE: NOT TO SCALE	DATE: JULY 2010
		SHEET # 2 OF 2

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Sheet: 24

Sheet: 25

	TOWN OF ZEBULON	
	<b>TYPICAL CURB &amp; GUTTER STREET STANDARDS</b>	DETAIL # 1
	SCALE: NOT TO SCALE	DATE: JULY 2010
		SHEET # 1 OF 1

CLASSIFICATION	GEOMETRIC PROPERTIES		
	MAX. TO 1/2" (12:1)	MAX. TO 3/4" (9:1)	PAVEMENT SECTION (C) (12:1)
DL-05-SAC	26"	N/A	3"
LOCAL STREET	26"	1" FROM 1/4"	3"
RESIDENTIAL COLLECTOR	35"	1" FROM 1/4"	4"
THOROUGHFARE	SEE TYPICAL PLAN	VARIES	SEE TYPICAL STANDARDS

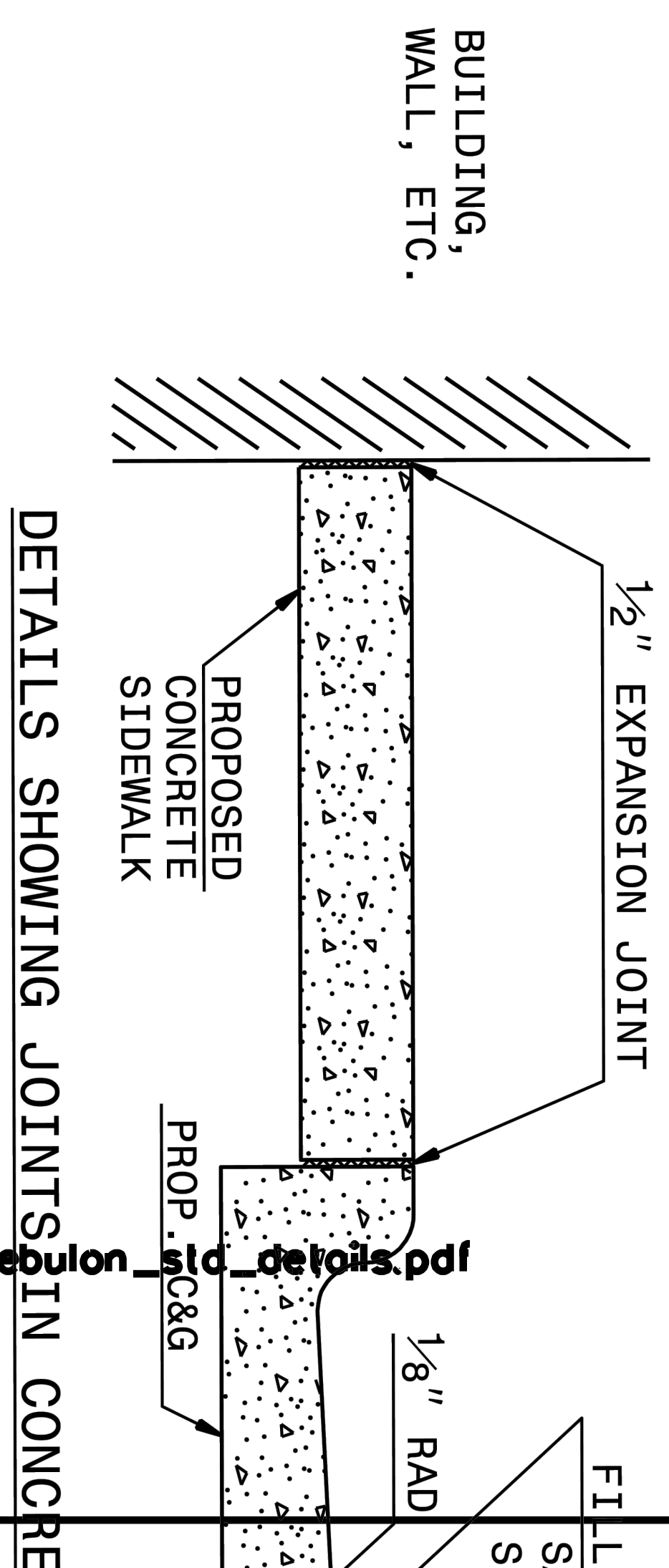
	TOWN OF ZEBULON	
	<b>TYPICAL ASYMMETRIC SECTION WITH SIDEWALK (ON CUT) (S.O.F.)</b>	DETAIL # 2
	SCALE: NOT TO SCALE	DATE: JULY 2010
		SHEET # 1 OF 1

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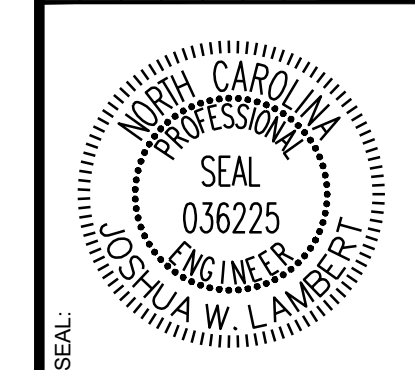
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Sheet: 35

Sheet: 65



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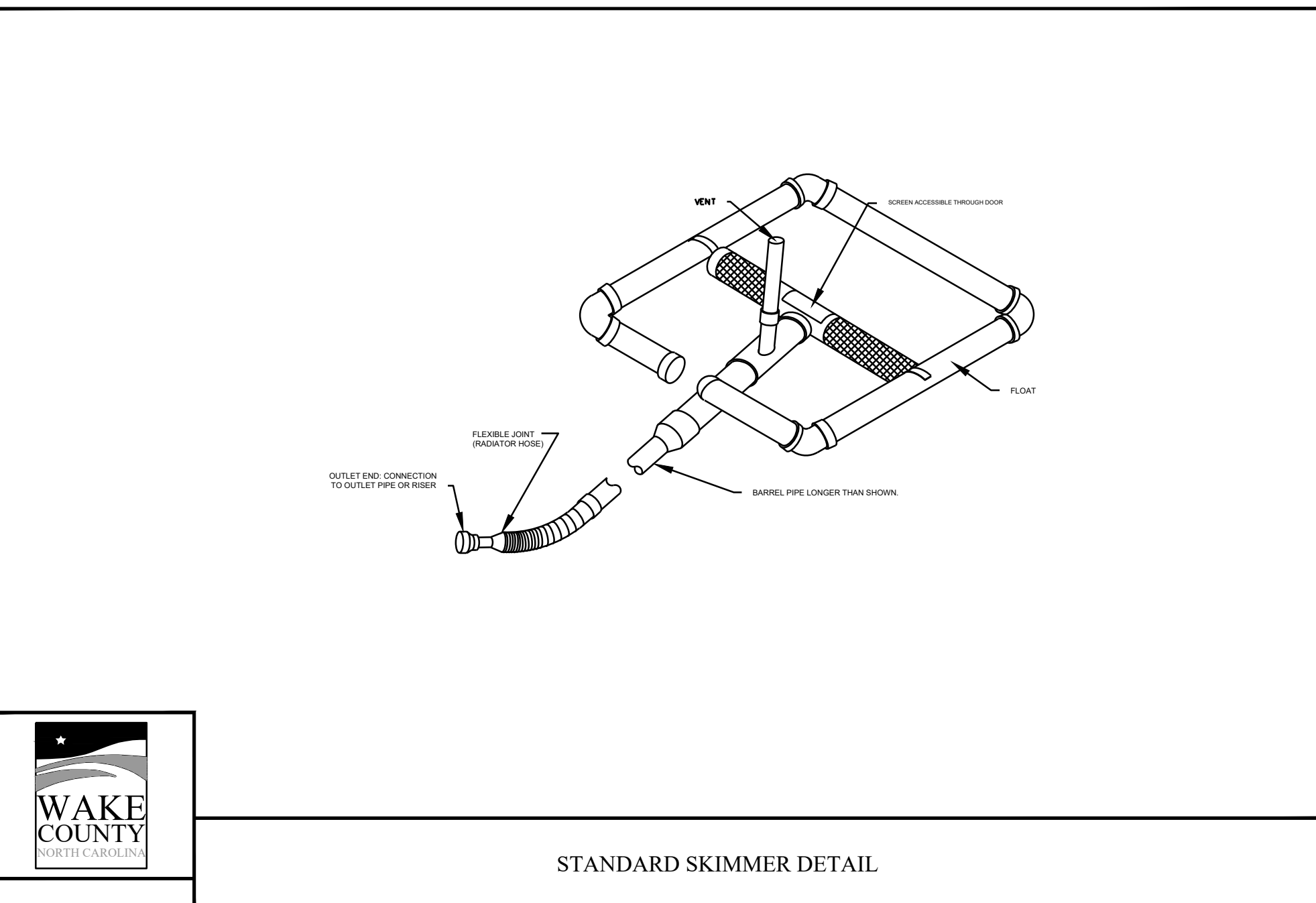
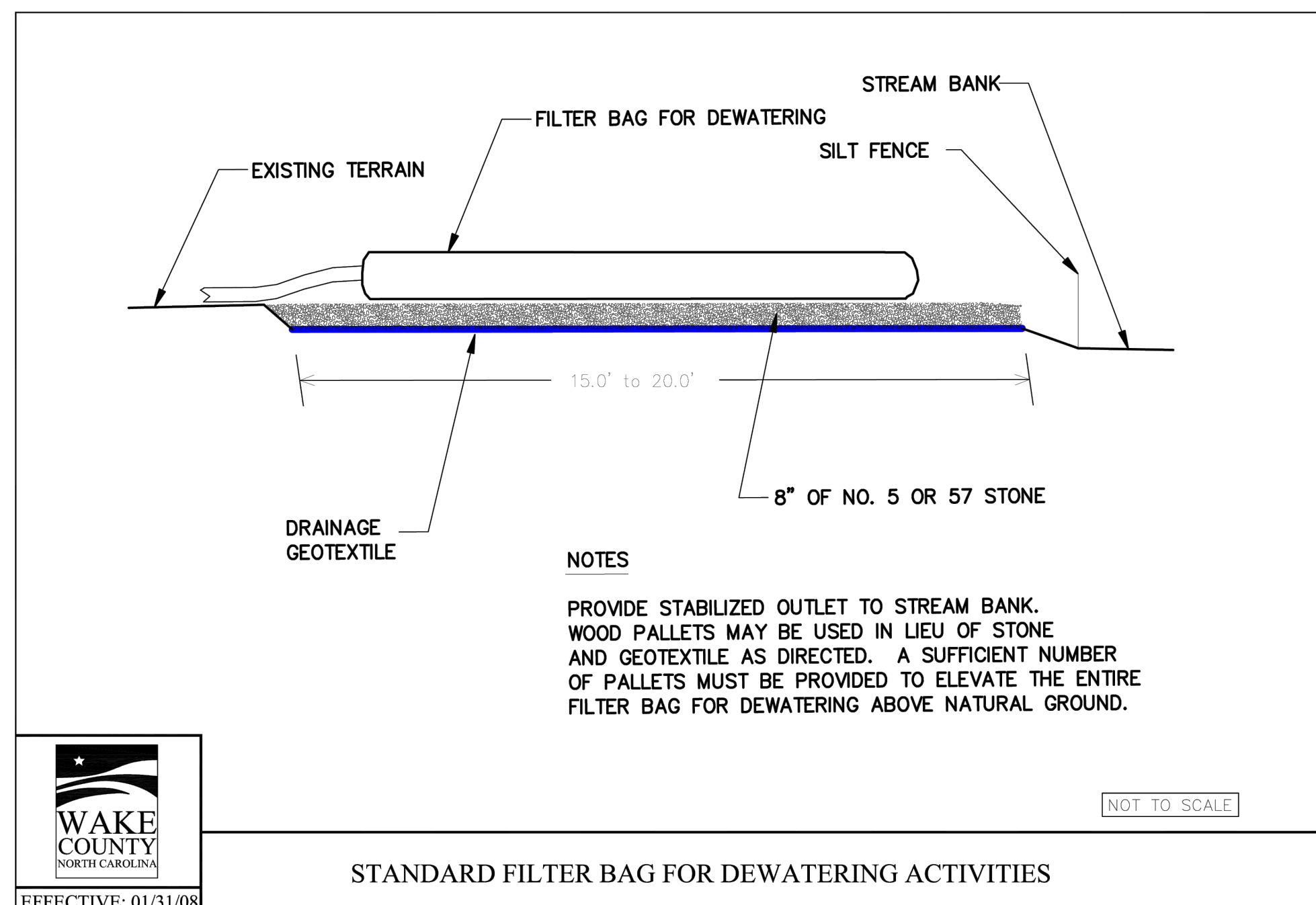
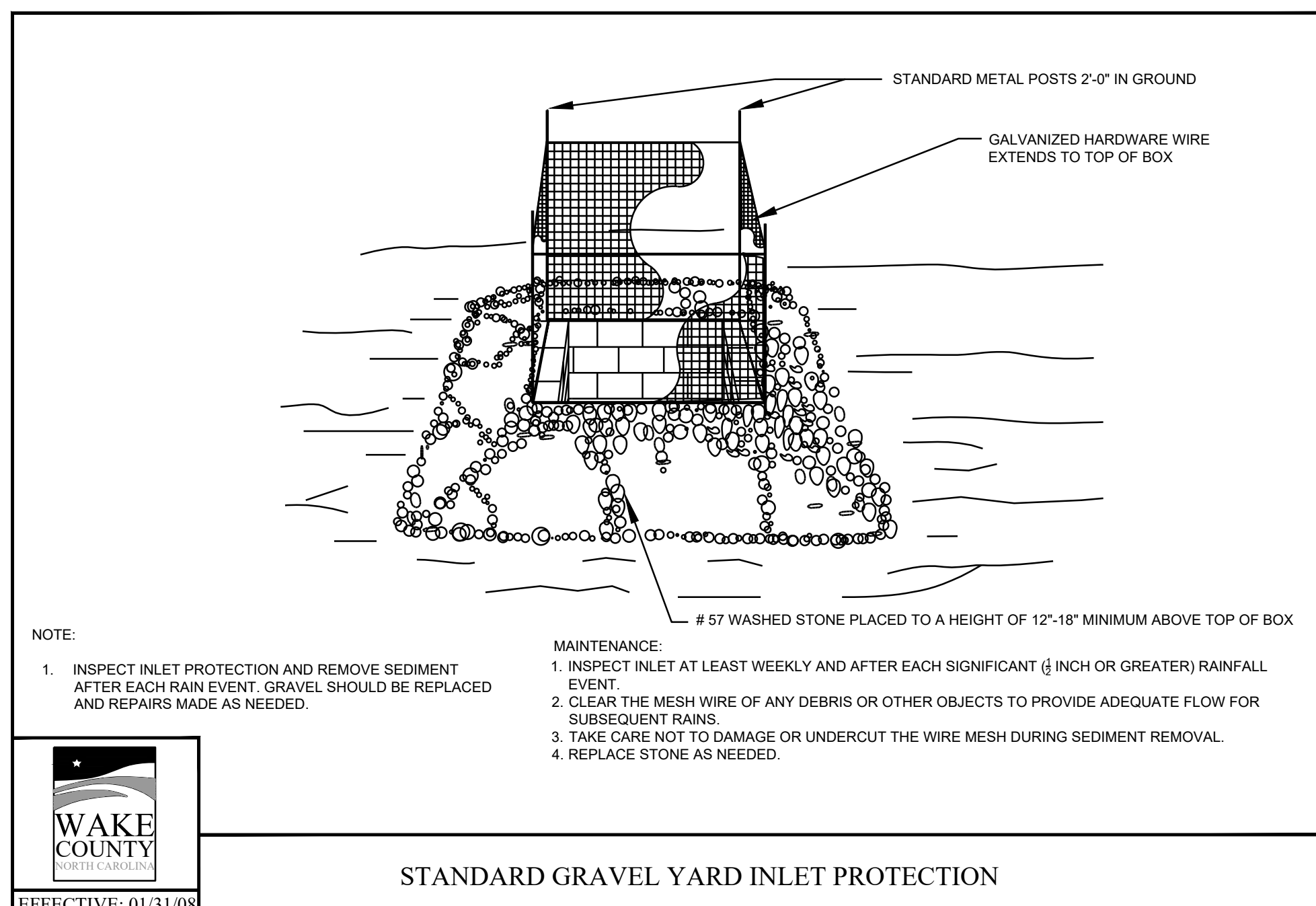
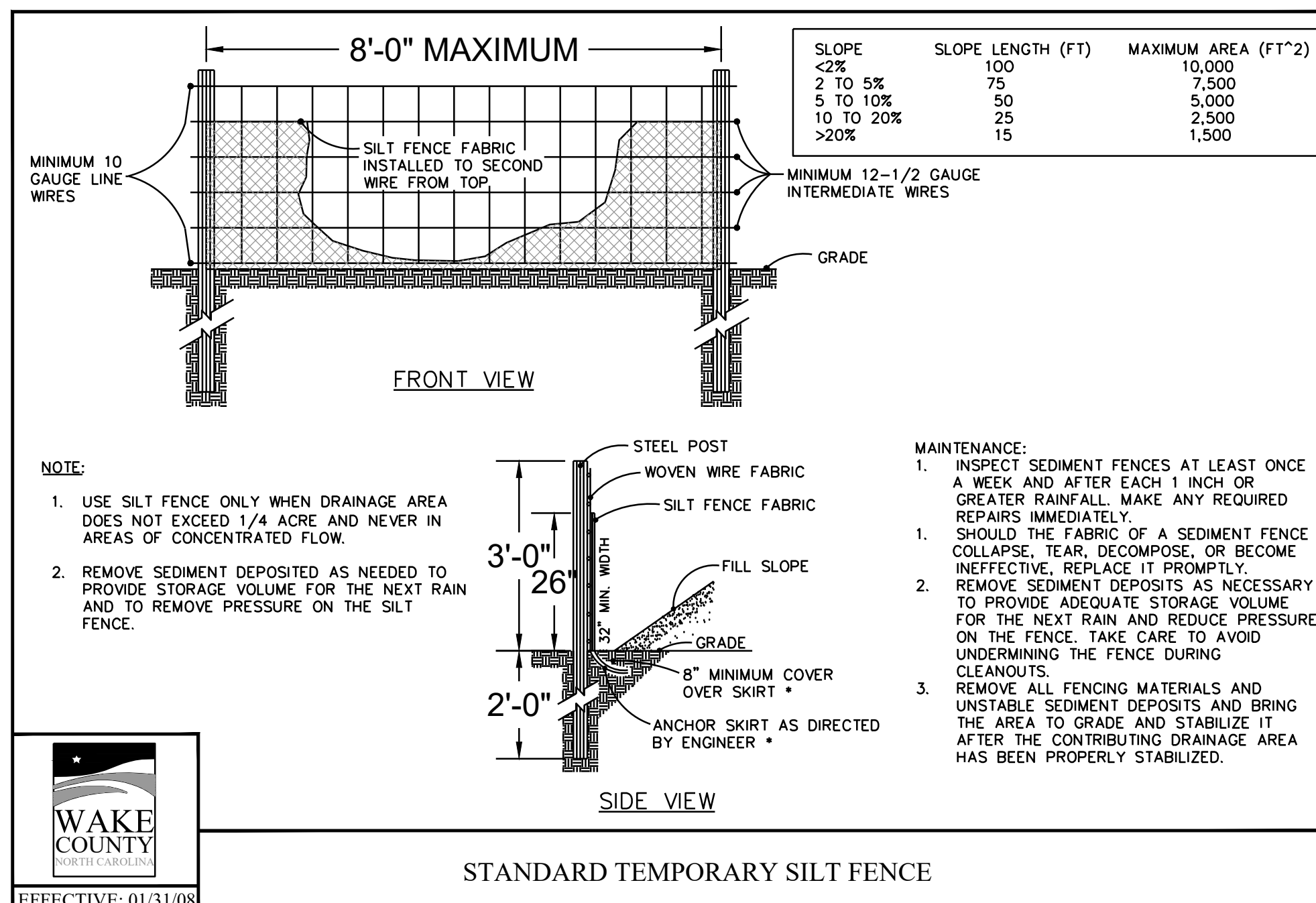
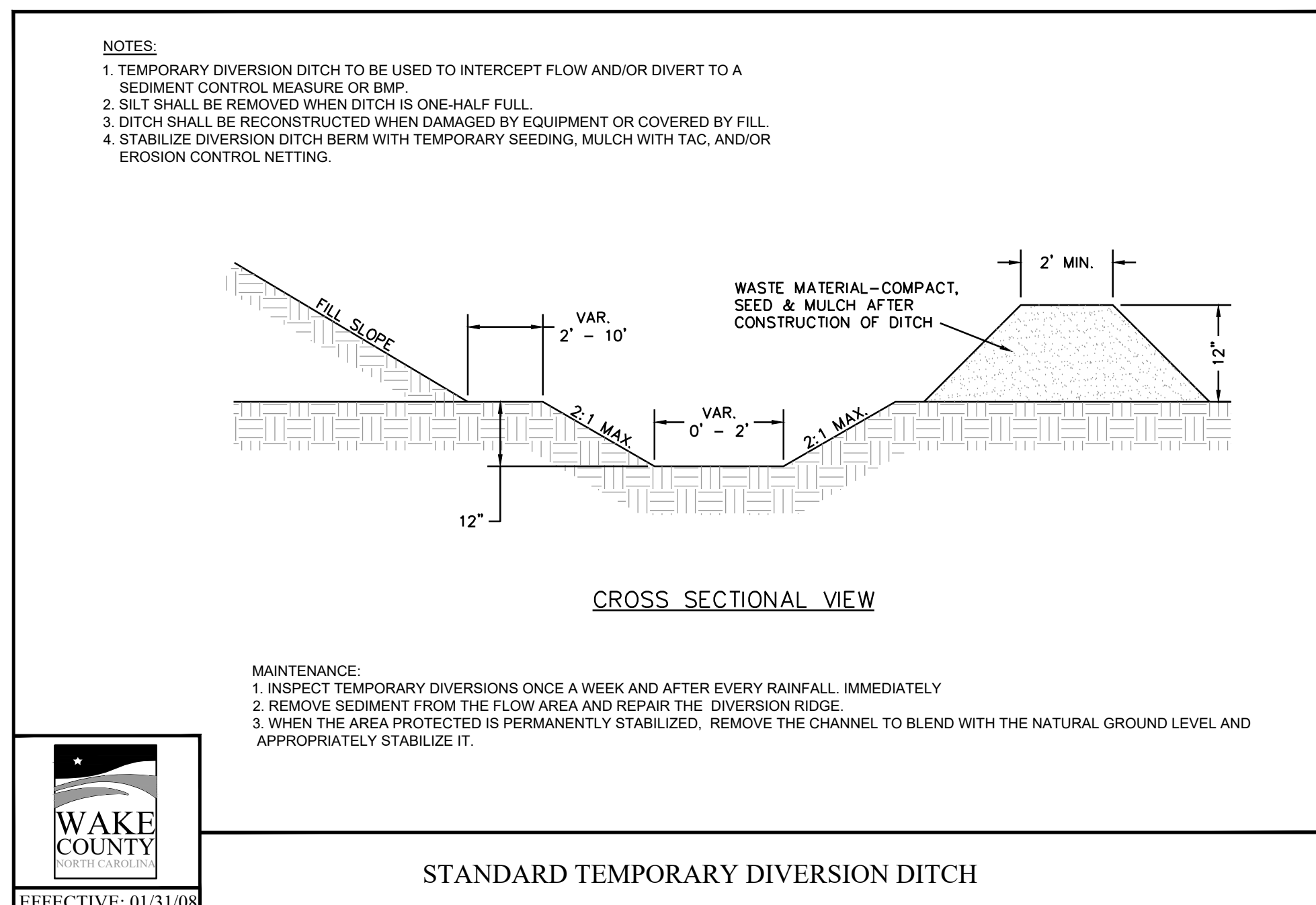
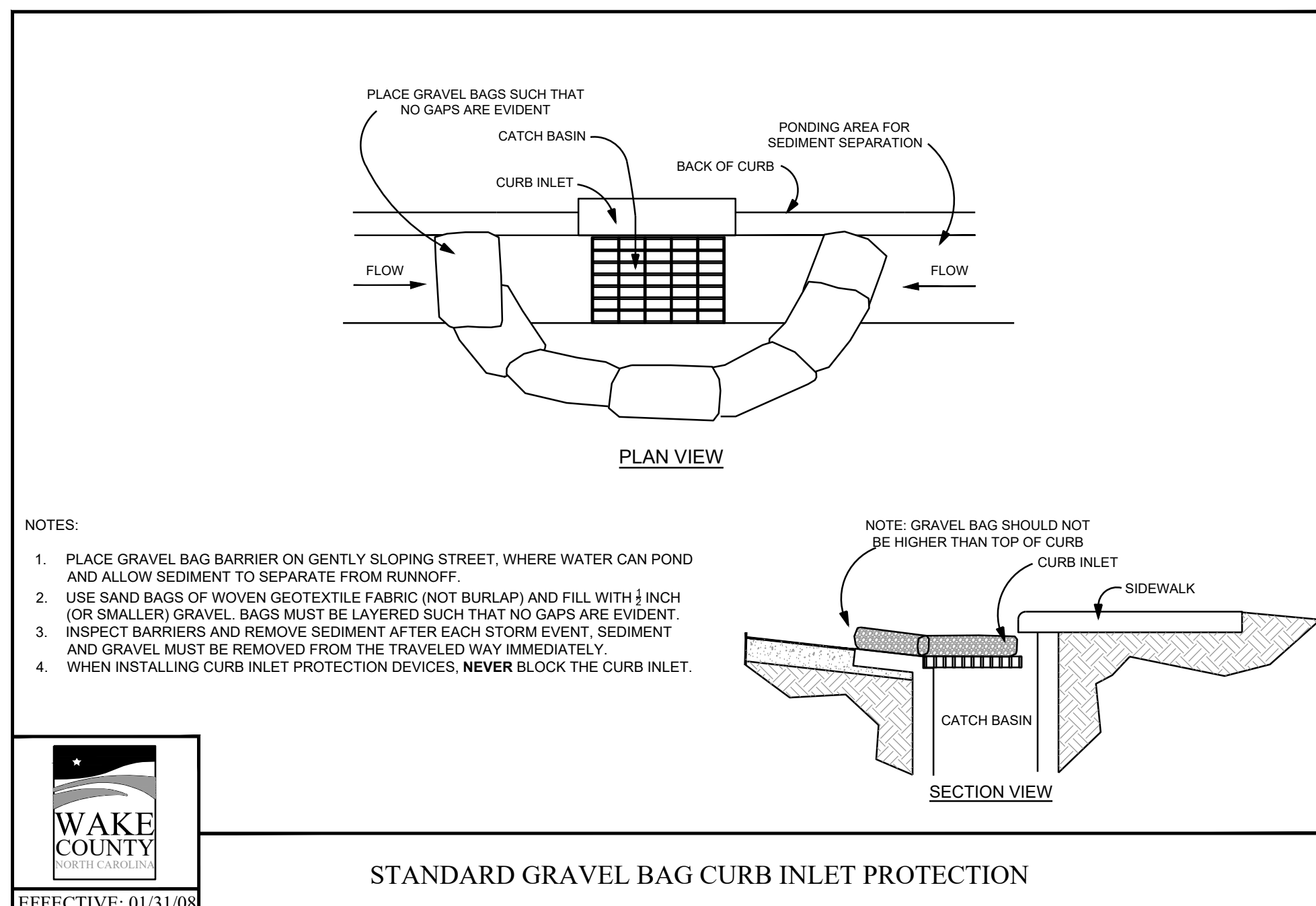
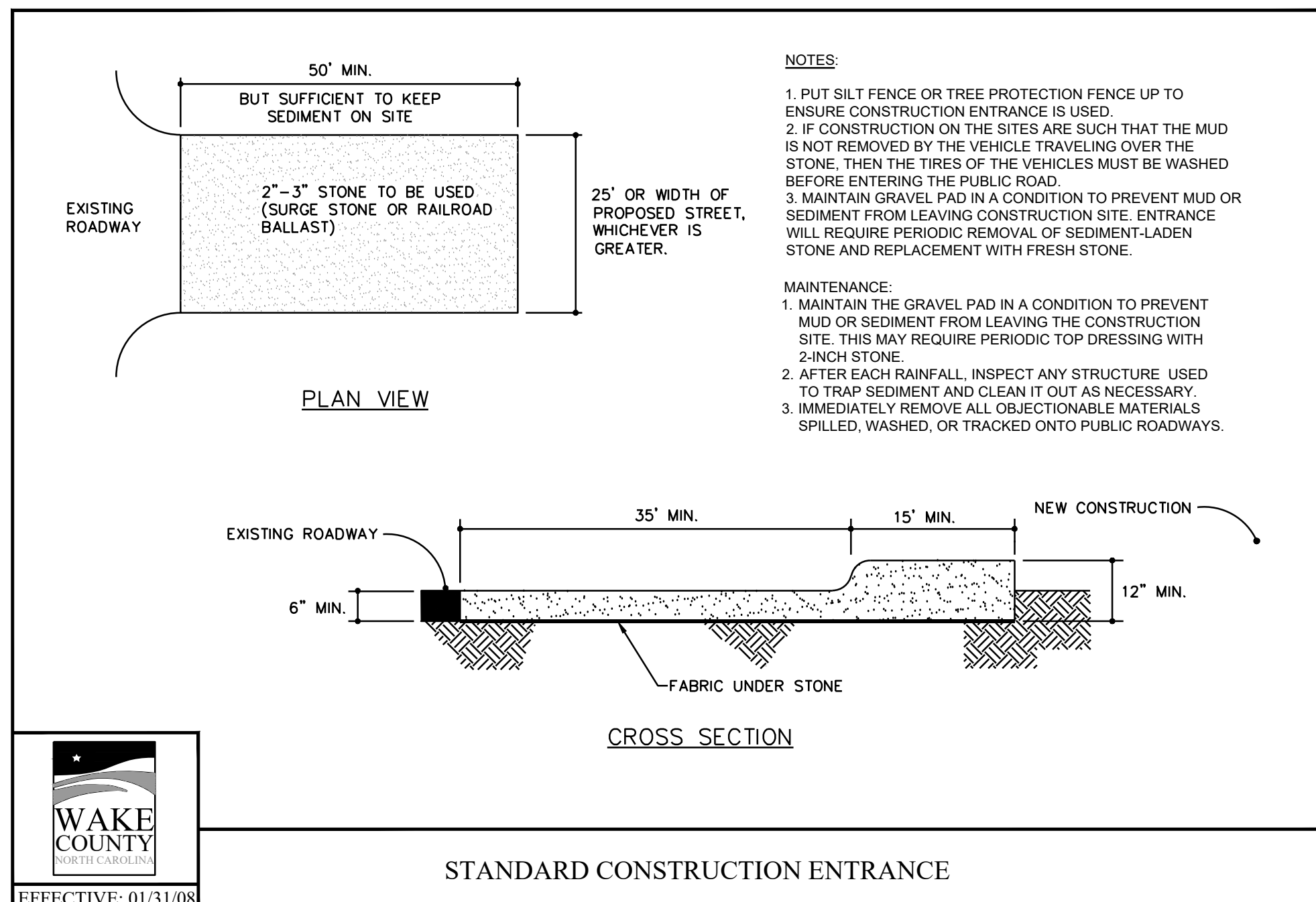
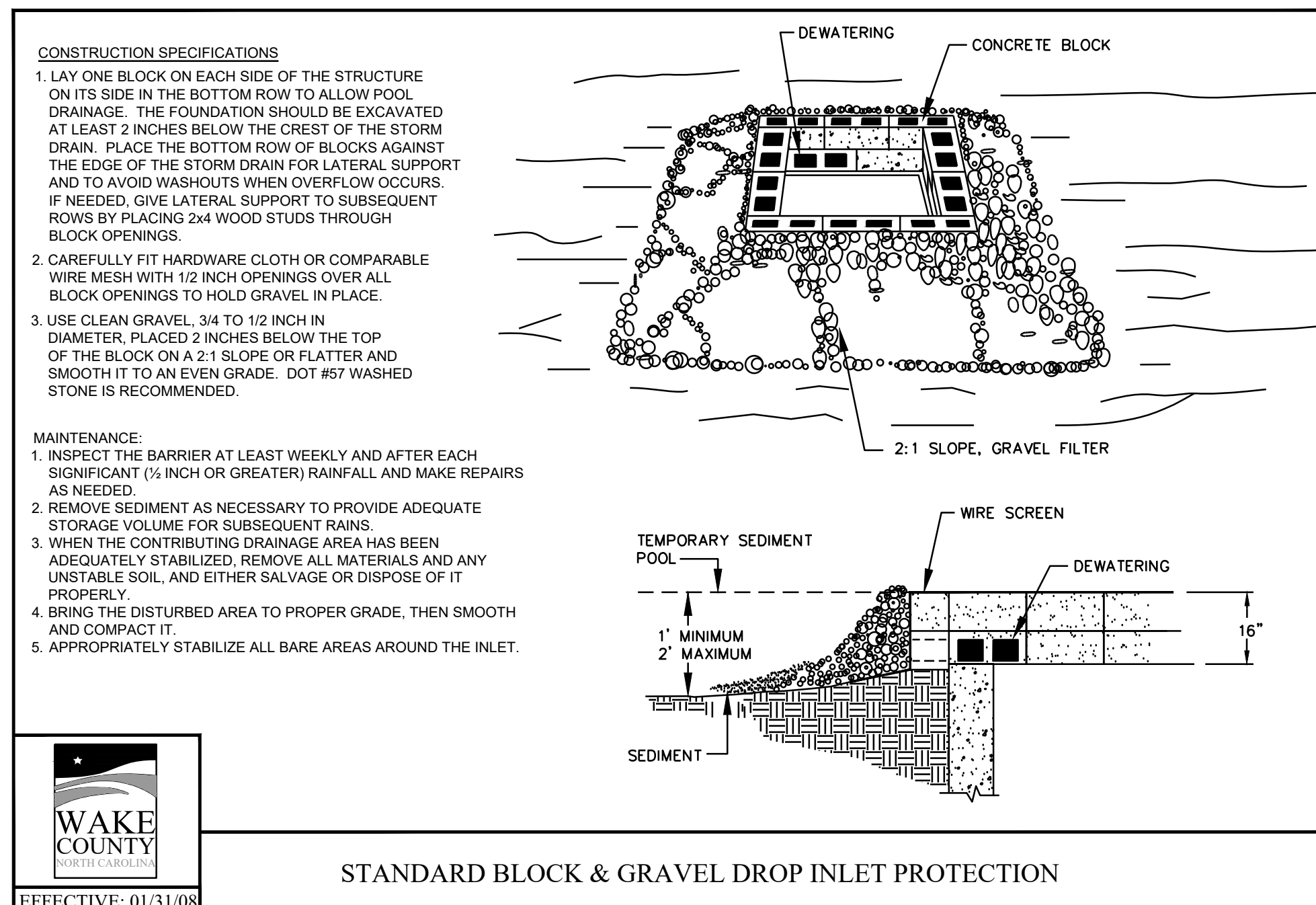
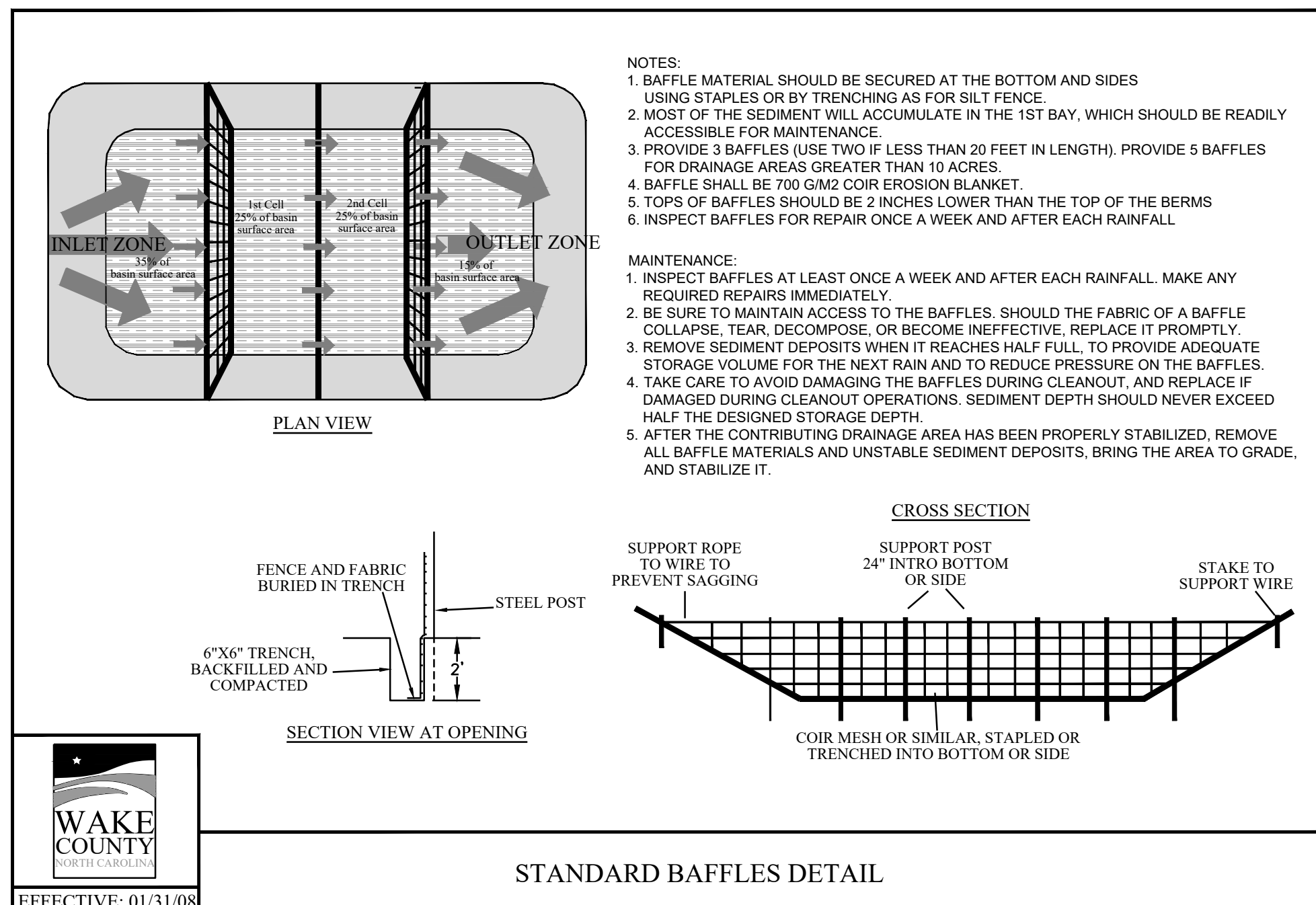
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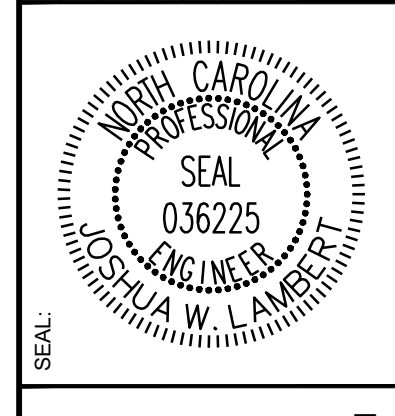
TRUE-ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS

**SITE DETAILS**

DRAWING SHEET	D-2.6
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TRUE-ZEBULON-ARENDELL TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA

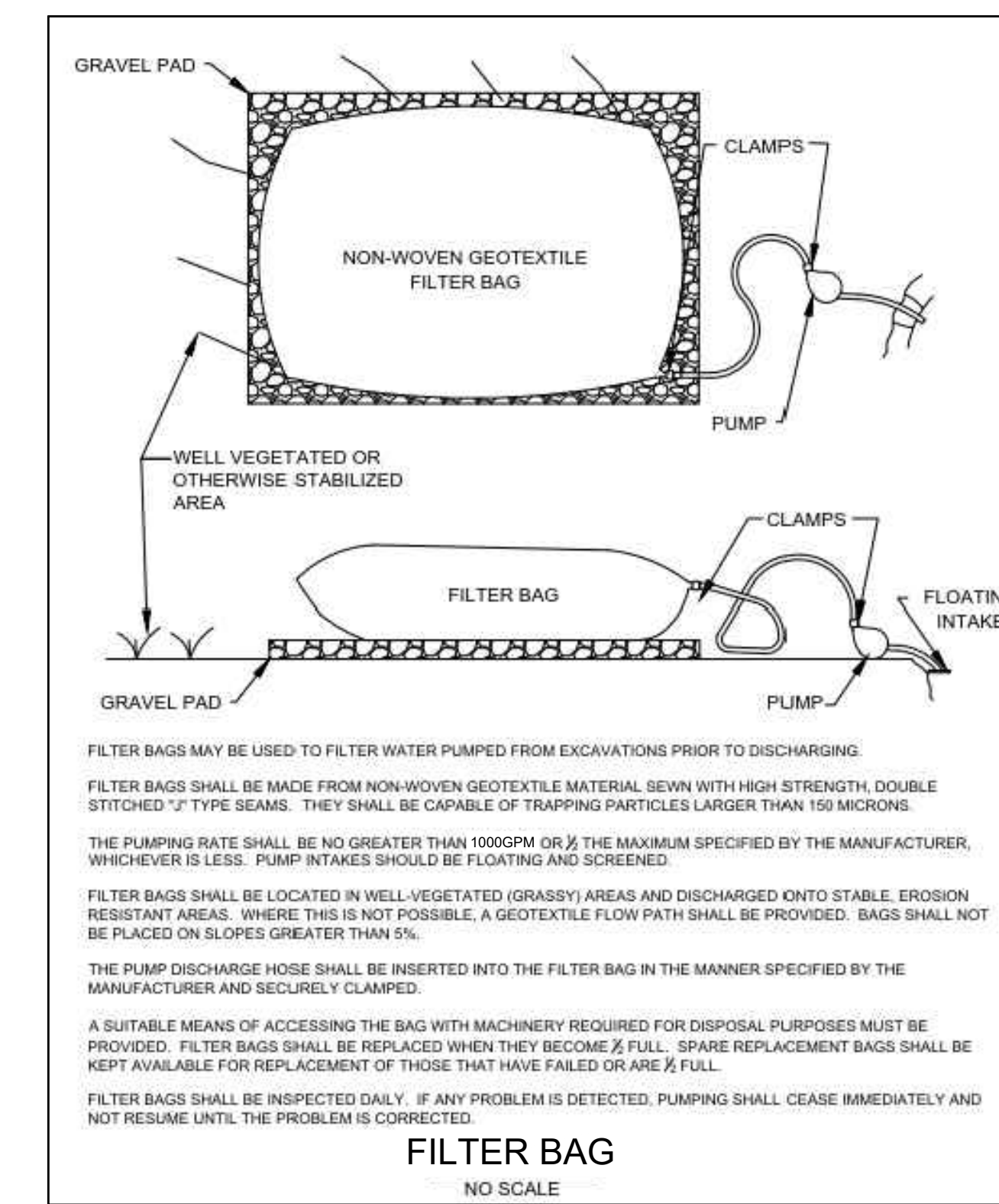
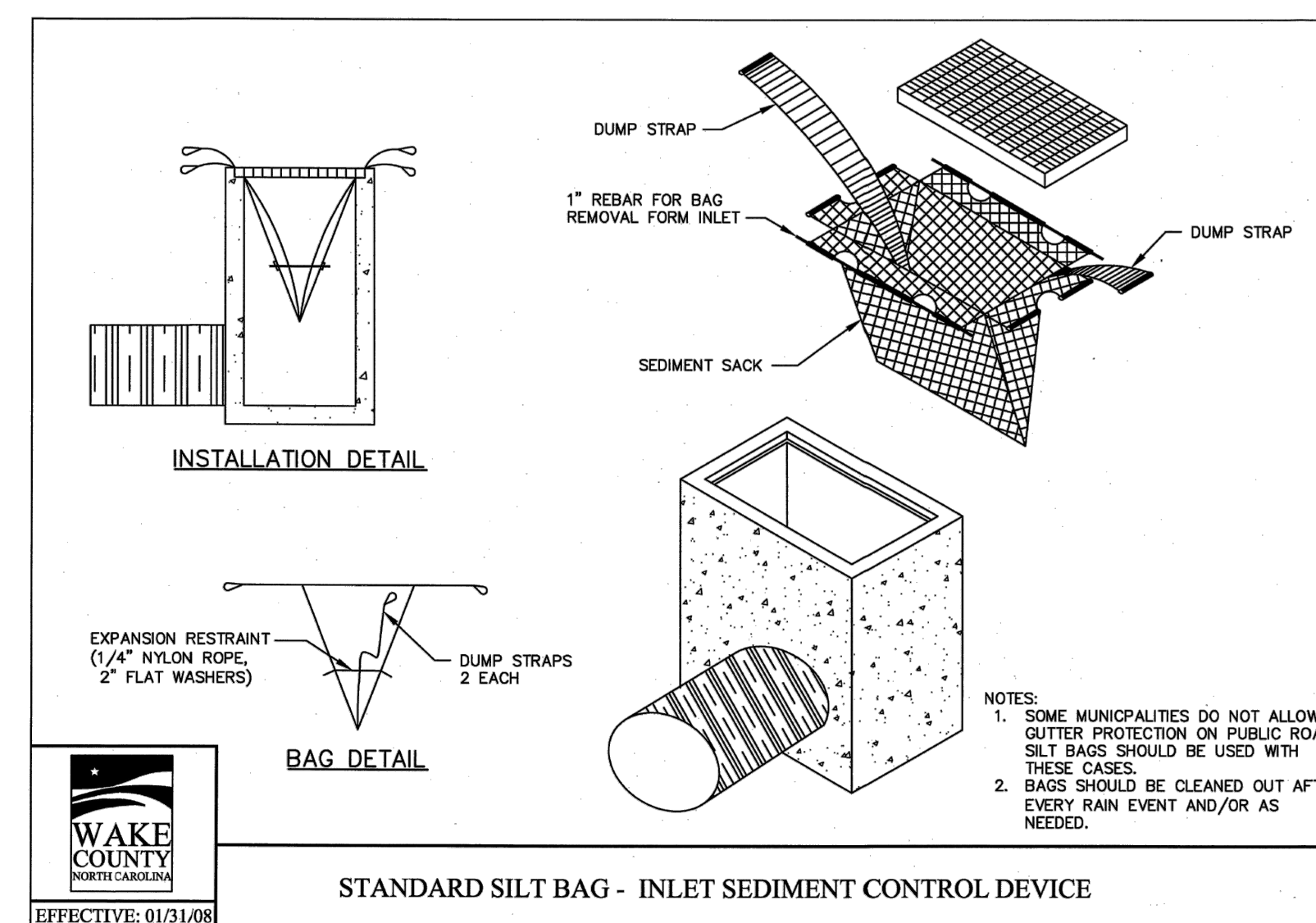
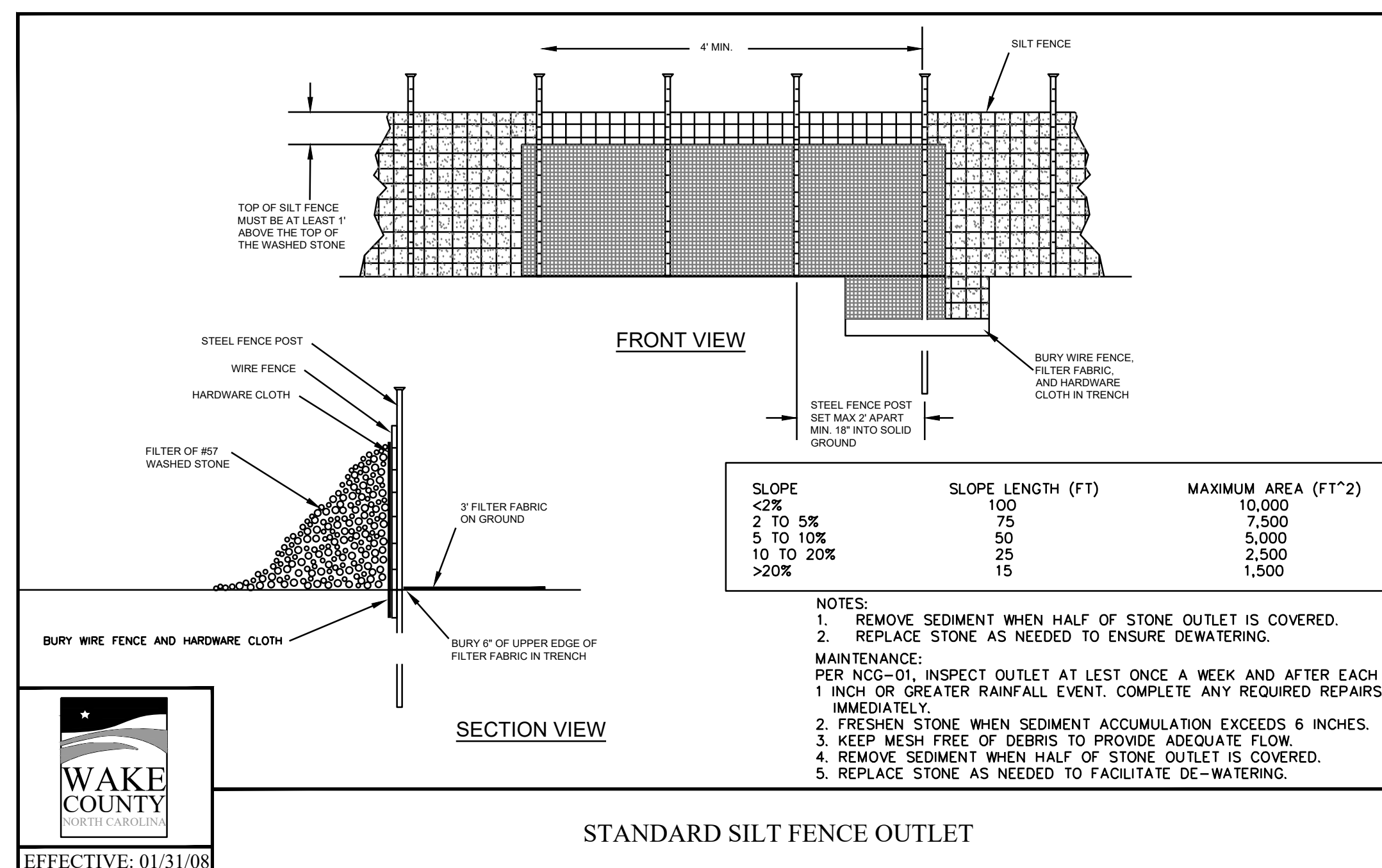
**CONSTRUCTION PLANS**

**EROSION CONTROL DETAILS**

DRAWING SHEET

**D-2.7**

21 OF 24

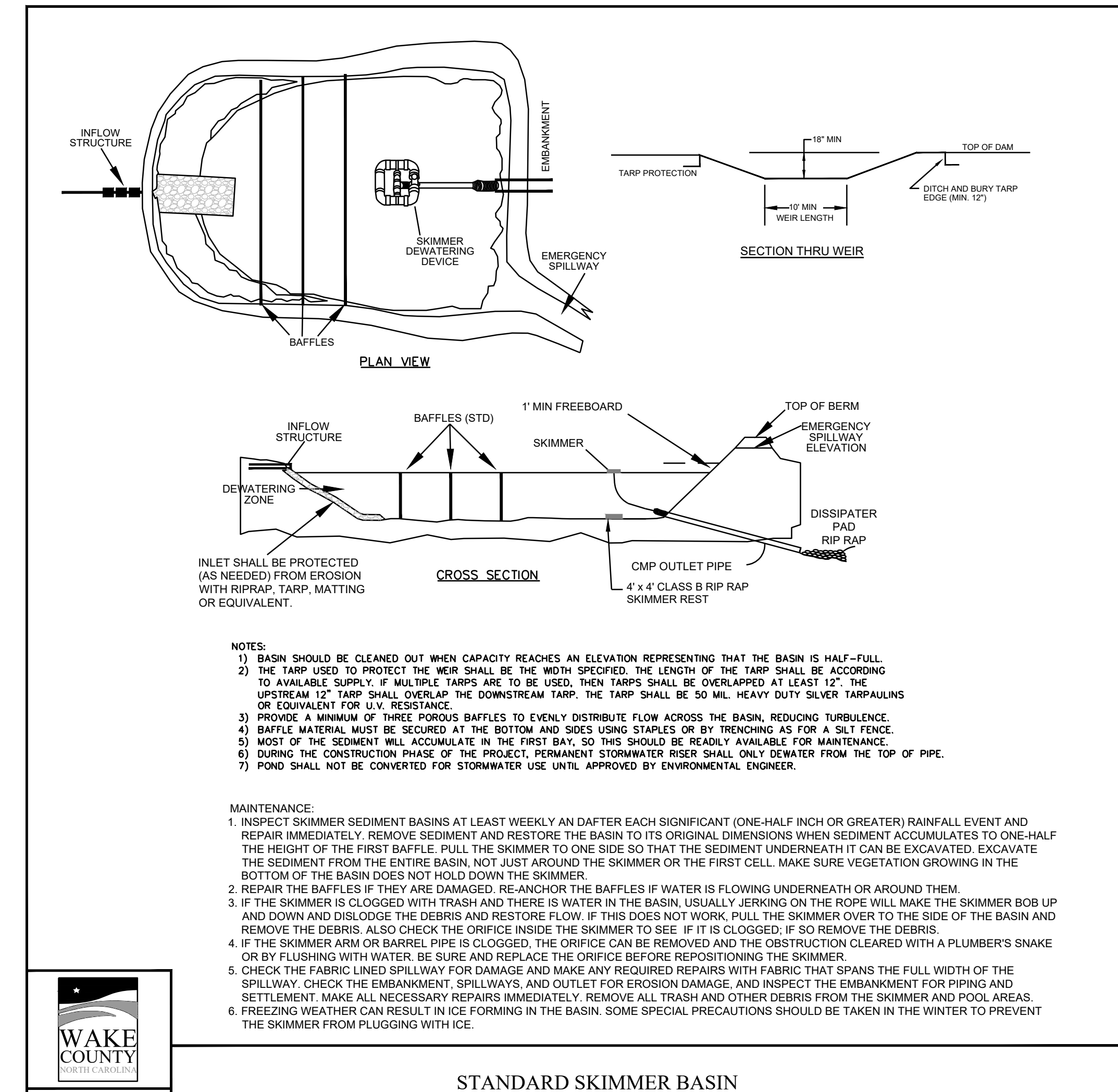
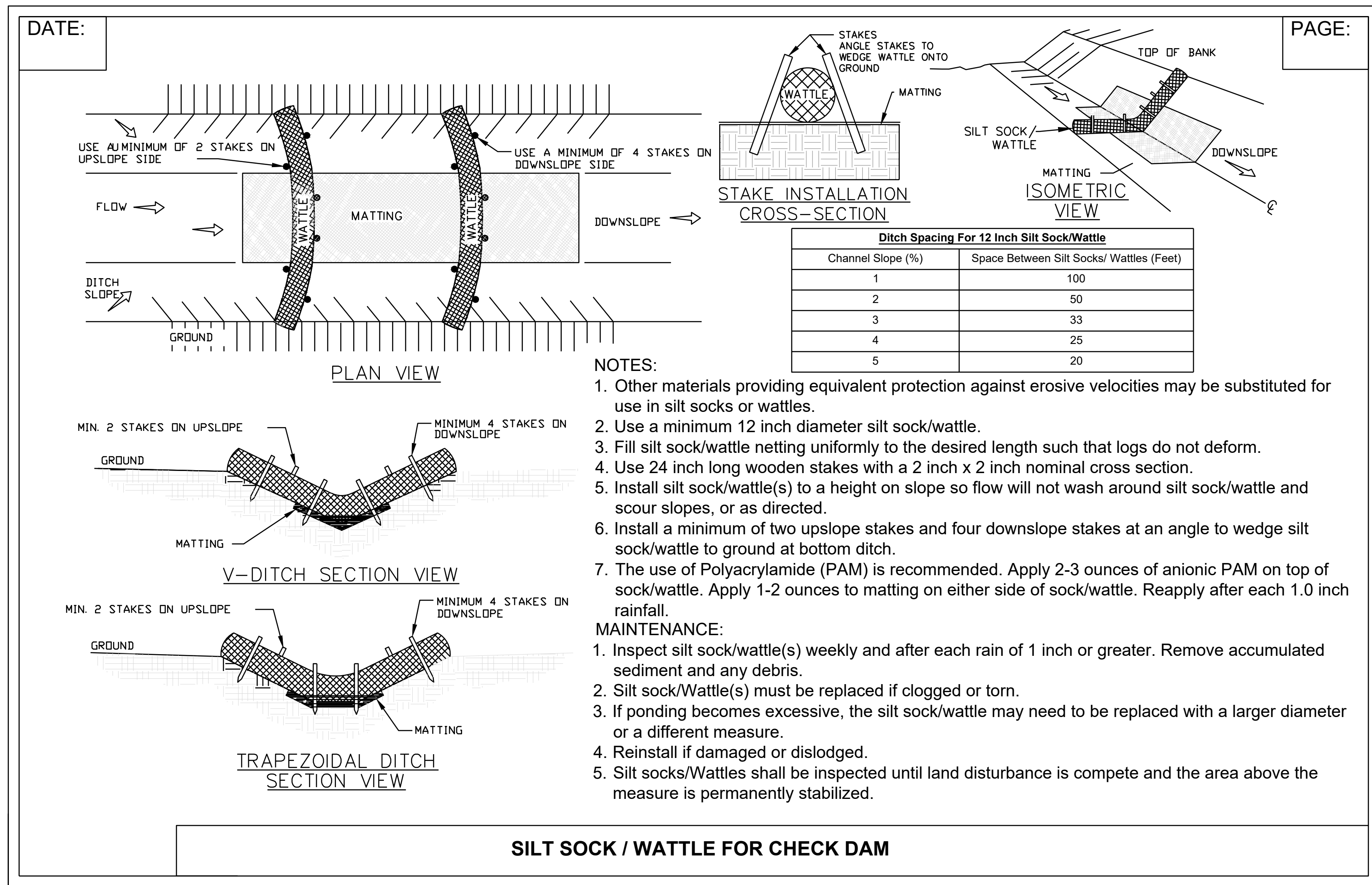


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**TRUE-ZEBULON-ARENDELL TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA CONSTRUCTION PLANS**

**EROSION CONTROL DETAILS**



### Outdoor Lighting Mitchell LED Series

*Mitchell LED*  
*Mitchell Top Hat LED*  
*Mitchell LED with ribs, bands and medallions*  
*Mitchell Open LED*  
*Mitchell Top Hat LED with ribs, bands and medallions*

The energy-efficient fixtures in the Mitchell LED Series enhance the character and prestige of streetscapes and parking lots, as well as pedestrian areas and greenways. These fixtures provide safety and security in commercial settings and complement any neighborhood with their classic, elegant design.

LED <i>(Light Emitting Diode)</i>	<b>50 watts</b> , 75 watts ( <i>Mitchell Open</i> )
Mounting heights	12', 13', <b>16'</b>
Color	<b>Black</b>
Poles	<b>Fiberglass</b> Smooth round concrete Style V Style VI Style VII

For additional information, visit us at [duke-energy.com/OutdoorLighting](http://duke-energy.com/OutdoorLighting) or call us toll free at 866.769.6417.

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### Outdoor Lighting Mitchell LED Series

Light source: LED (white)  
 Lumens: 4,332 – 5,678 (fixture dependent)  
 Color temperature: 4,000K

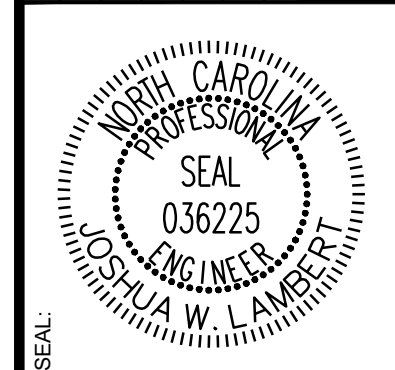
	Wattage	Light Pattern	IESNA Backlight – Uplight – Glare (BUG) Rating
Mitchell LED	50	IESNA Type V	B3-U4-G3
Mitchell Top Hat LED	50	IESNA Type V	B3-U3-G3
Mitchell Open LED	75	IESNA Type III	B1-U0-G1
Mitchell LED with Ribs, Bands and Medallions	50	IESNA Type V	B3-U4-G3
Mitchell Top Hat LED with Ribs, Bands and Medallions	50	IESNA Type V	B3-G3-U3

Poles available:

Name	Mounting height	Color
Smooth concrete	12', 16'	Black
Fiberglass	16'	Black
Style V	12', 16'	Black
Style VI	12'	Black
Style VII	13'	Black

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TRUE- ZEBULON-ARENDELL  
TOWN OF ZEBULON, WAKE COUNTY, NORTH CAROLINA  
CONSTRUCTION PLANS  
LIGHTING DETAILS

DRAWING SHEET  
**D-2.10**