

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF ROLESVILLE STANDARDS AND SPECIFICATIONS

SYMBOLS AND ABBREVIATIONS

ABC	AGGREGATE BASE COURSE	—●—	EXISTING CURB INLET
ALUM	ALUMINUM	□	EXISTING GRATE INLET/YARD INLET
AST2	ALUMINIZED STEEL - TYPE 2	—	EXISTING FLARED END SECTION
B-B	BACK TO BACK	⊕	EXISTING FIRE HYDRANT
BOA	BLOW-OFF ASSEMBLY	—	EXISTING BLOW-OFF ASSEMBLY
C&G	CURB AND GUTTER	—	EXISTING GATE VALVE
CFS	CUBIC FEET PER SECOND	—	EXISTING REDUCER
CI	CURB INLET	—	EXISTING WATER METER
CL	CENTER LINE	—	EXISTING SAN SEWER MANHOLE
CMP	CORRUGATED METAL PIPE	—	EXISTING CLEAN OUT
CO	CLEAN OUT	—	EXISTING POWER POLE
COM	COMMUNICATION	—	EXISTING TELEPHONE PEDESTAL
CONC	CONCRETE	—	EXISTING AREA LIGHT
DCV	DOUBLE CHECK VALVE	—	EXISTING SIGN
DDCV	DOUBLE DETECTOR CHECK VALVE	—	NEW CURB INLET
DI	DROP INLET	—	NEW GRATE INLET/YARD INLET
DIP	DUCTILE IRON PIPE	—	NEW FLARED END SECTION
EASE	EASEMENT	—	NEW FIRE HYDRANT
ELEC	ELECTRIC	—	NEW BLOW-OFF ASSEMBLY
EX	EXISTING	—	NEW GATE VALVE
FES	FLARED END SECTION	—	NEW REDUCER
FH	FIRE HYDRANT	—	NEW WATER METER
FM	FORCE MAIN	—	NEW TEE
FT	FEET	—	NEW FLUG
FT/SEC	FEET PER SEC	—	NEW MANHOLE
GALV	GALVANIZED	—	NEW CLEAN OUT
GV	GATE VALVE	—	NEW SIGN
HDPE	HIGH DENSITY POLYETHYLENE	—	IRON PIPE
L	LENGTH	—	BENCHMARK
LF	LINEAR FEET	—	—
MH	MANHOLE	—	—
PAVE	PAVEMENT	—	—
PE	FINISHED PAD ELEVATION	—	—
PP	POWER POLE	—	—
PVC	POLYVINYL CHLORIDE	—	—
R	RADIUS	—	—
R/W	RIGHT-OF-WAY	—	—
RED	REDUCER	—	—
RCP	REINFORCED CONCRETE PIPE	—	—
RPZ	REDUCED PRESSURE ZONE	—	—
SS	SANITARY SEWER	—	—
STA	STATION	—	—
TDD	TEMPORARY DIVERSION DITCH	—	—
TELE	TELEPHONE	—	—
TSB	TEMPORARY SEDIMENT BASIN	—	—
UG	UNDERGROUND	—	—
WCR	WHEELCHAIR RAMP	—	—
W/L	WATER LINE	—	—
WM	WATER METER	—	—
YI	YARD INLET	—	—

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

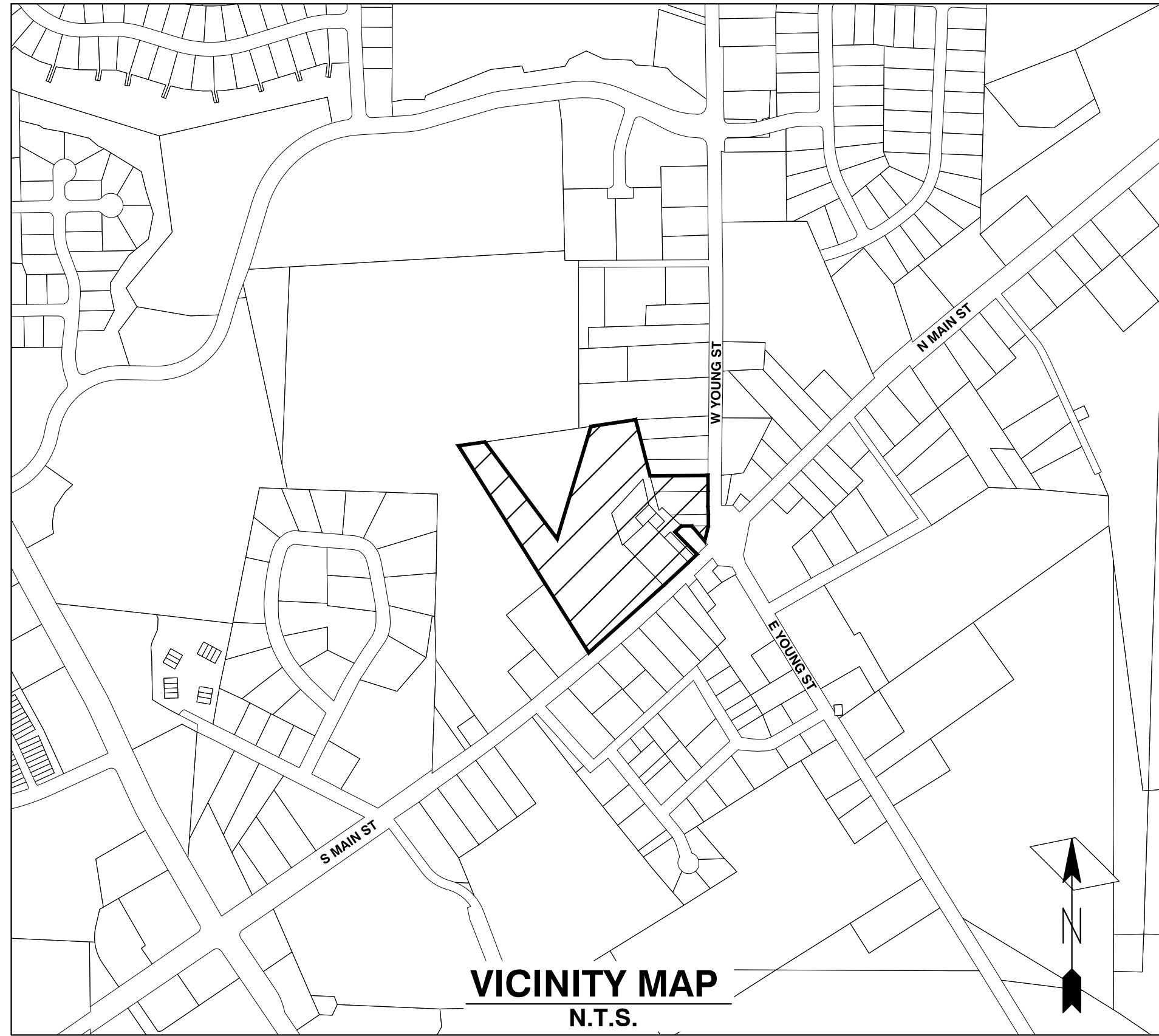
COBBLESTONE VILLAGE MIXED USE DEVELOPMENT

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

CONSTRUCTION DRAWINGS

TOWN OF ROLESVILLE PROJECT NO. SITE PLAN APPLICATION NO. CUP-SB-21-01

CASE NO. SP21-01



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 # W-3879
Authorization to Construct See digital signature

Private
Sewer Collection / Extension System
The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection 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 # S-4962 (P)
Authorization to Construct See digital signature

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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 # W-3879

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 # S-2892 (P)

The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection 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 - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh 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 relied upon issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval _____
Raleigh Water Review Officer

OWNER:
TOWN OF ROLESVILLE
P.O. BOX 250
ROLESVILLE, NC 27571-0250

DEVELOPER:
KDM DEVELOPMENT CORPORATION
1080 PITTSFORD VICTOR RD, STE 202
PITTSFORD NY 14534-3805

CONTACT: KENYON BURHNAM
PHONE: 585-465-0099
EMAIL: KBURNHA2@U.ROCHESTER.EDU

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C3.3	EROSION CONTROL PLAN - STAGE 1
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C5.4	DETAILS
C5.5	DETAILS
C5.6	DETAILS

CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE MUNICIPALITY STANDARDS, SPECIFICATIONS, AND DETAILS. WORK IN THIS PROJECT SHALL ALSO CONFORM TO THESE PLANS, THE LATEST EDITIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) ROAD AND BRIDGE SPECIFICATIONS, THE ROAD AND BRIDGE STANDARDS, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS, THE FINAL GEOTECHNICAL REPORT, AND GENERAL DESIGN STANDARDS. IN THE EVENT OF CONFLICT BETWEEN ANY OF THESE STANDARDS, SPECIFICATIONS, OR THE MOST STRINGENT SHALL GOVERN.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TRENCH SAFETY DURING ALL PHASES OF CONSTRUCTION.
- THE LOCATION AND SIZE OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR HORIZONTALLY AND VERTICALLY LOCATING AND PROTECTING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. AT LEAST 48 HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE NORTH CAROLINA ONE-CALL UTILITIES LOCATION SERVICE (1-800-632-4949 FOR PROPER IDENTIFICATION OF EXISTING UTILITIES WITHIN THE SITE.
- THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES. THE CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- TRAFFIC CONTROL ON PUBLIC STREETS SHALL BE IN CONFORMANCE WITH THE TRAFFIC CONTROL PLAN, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND AS FURTHER DIRECTED BY CITY AND STATE INSPECTORS.
- ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE BY THE CONTRACTOR AFTER HIS DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
- A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE THE MEETING WITH THE CITY ENGINEERING DIVISION.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL REQUIRED PERMITS AND APPROVALS PRIOR TO COMMENCING CONSTRUCTION.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE, AND AS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE SILT FENCES (OR OTHER METHODS APPROVED BY THE ENGINEER AND APPLICABLE MUNICIPALITY) AS REQUIRED TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM FLOWING ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL EROSION, CONSERVATION, AND SILTATION ORDINANCES. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF PERMANENT DRAINAGE FACILITIES AND THE ESTABLISHMENT OF A STAND OF GRASS OR OTHER GROWTH TO PREVENT EROSION.
- THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
- MATERIALS USED TO CONSTRUCT EMBANKMENTS FOR ANY PURPOSE, BACKFILL AROUND DRAINAGE STRUCTURES, OR IN UTILITY TRENCHES FOR ANY OTHER DEPRESSION REQUIRING FILL OR BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET OUT IN ASTM STANDARD D998. STONE BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST AS SET OUT IN ASTM STANDARD D1557. THE CONTRACTOR SHALL, PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IS REPRESENTATIVE OF THE MATERIALS TO BE USED ON THE PROJECT. TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATIONS MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY.
- PROPOSED CONTOURS AND GUTTER GRADIENTS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND ROADWAY PROFILES/SUPERELEVATIONS ARE TO BE USED IN CASE OF DISCREPANCY.
- THE CONTRACTOR SHALL REVIEW, VERIFY AND COORDINATE ALL DIMENSIONS SHOWN ON PLANS, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER PRIOR TO STARTING PROJECT.
- ALL CURB JOINTS SHALL EXTEND THROUGH THE CURB. MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS IS 1.5 FEET. ALL JOINTS SHALL BE SEALED WITH JOINT SEALANT.
- ALL HANDICAP RAMPING, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA REQUIREMENTS AND THE 'NORTH CAROLINA STATE BUILDING CODE, VOL. 1-C ACCESSIBILITY CODE.
- OWNER SHALL PROVIDE FENCING AND OTHER SAFETY MEASURES NECESSARY IN AND AROUND ANY PROPOSED STORMWATER MANAGEMENT MEASURES (PONDS, WETLANDS, ETC.) OBTAINING PROPER PERMITS SHALL BE THE RESPONSIBILITY OF THE OWNER.
- RETAINING WALLS EXCEEDING 30 INCHES IN HEIGHT SHALL INCLUDE FALL PROTECTION IN THE FORM OF A HANDRAIL OR FENCING ON THE HIGH SIDE OF THE RETAINING WALL.
- PROPER COMPACTION OF ALL FILL SOILS PLACED ON SITE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COMPACTION SHALL BE ADEQUATE TO SUPPORT THE PROPOSED USE OF AREAS IN WHICH FILL SOILS ARE PLACED. THE CONTRACTOR SHALL HIRE A GEOTECHNICAL ENGINEER TO TEST AND VERIFY THAT COMPACTION IS ADEQUATE FOR THE PROPOSED USE OF IN THE AREA OF FILL PLACEMENT.
- ALL ASPECTS OF THIS PROJECT SHALL BE IN FULL COMPLIANCE WITH CURRENT ADA STANDARDS. IF THE CONTRACTOR NOTES ANY ASPECTS OF THE PROJECT WHICH ARE NOT IN COMPLIANCE, THE ENGINEER SHALL BE NOTIFIED PRIOR TO ANY FURTHER WORK BEING PERFORMED. ANY WORK PERFORMED AFTER THE CONTRACTOR NOTES SUCH A NON COMPLIANCE IS SUBJECT TO REMOVAL AND REPAIR AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR OR OWNER SHALL EMPLOY A GEOTECHNICAL ENGINEER TO TEST ALL EMBANKMENTS AND FILL PLACEMENT FOR PROPER COMPACTION. PROPER COMPACTION SHALL BE PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS OR THESE PLANS, WHICHEVER IS MORE STRINGENT. EMBANKMENTS FOR PONDS SHALL BE PLACED IN 6 INCH LOOSE LAYERS AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF +/- OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D998. THE CONTRACTOR SHALL TAKE PHOTOGRAPHS OF THE OUTLET STRUCTURE AT ALL AT ALL PHASES OF INSTALLATION AND SHALL RETAIN WITH GEOTECHNICAL TESTING DATA. THE CONTRACTOR SHALL ALSO RETAIN ALL SHIPPING RECORDS AND SPECIFICATIONS FOR THE OUTLET STRUCTURE MATERIALS AND STRUCTURES. ALL OF THE ABOVE DATA MAY BE REQUIRED AS PART OF THE MUNICIPALITY AS-BUILT PROCESS AND SHALL BE MADE AVAILABLE TO THE ENGINEER UPON REQUEST. THE CONTRACTOR AND OWNER SHALL HAVE DOCUMENTATION OF THESE TESTS AVAILABLE UPON REQUEST.
- RETAINING WALLS SHOWN HEREIN SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER WITH EXPERIENCE DESIGNING RETAINING WALLS. AT LEAST 14 DAYS PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALLS, THE CONTRACTOR SHALL CONTACT THE OWNER'S GEOTECHNICAL ENGINEER TO SCHEDULE AND COORDINATE ALL APPROPRIATE INSPECTIONS, TESTING, AND VERIFICATION NECESSARY DURING RETAINING WALL CONSTRUCTION. THE GEOTECHNICAL ENGINEER SHALL PROVIDE CONTINUOUS INSPECTION, TESTING AND VERIFICATION FOR THE DURATION OF RETAINING WALL CONSTRUCTION. PROPER SCHEDULING, EXECUTION, AND RECORD KEEPING FOR ALL REQUIRED INSPECTIONS, TESTING, AND VERIFICATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH RECORDS SHALL BE RETAINED AND SHALL BE PROVIDED TO THE OWNER AND BASS, NIXON & KENNEDY, INC. ALL MONITORING, TESTING, AND VERIFICATION SHALL CONFORM TO THE MOST RECENT VERSION OF THE NC BUILDING CODE CHAPTER 18, SECTION 1806 OR THE WALL DESIGN ENGINEER'S SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.



QUANTITY SUMMARY

PHASE NUMBER(S)	1
NUMBER OF LOT(S)	1
LOT NUMBER(S) BY PHASE	N/A
NUMBER OF UNITS	180
LIVABLE BUILDINGS	6
OPEN SPACE (AC)	1.92
NUMBER OF OPEN SPACE LOTS	N/A
PUBLIC WATER (LF)	875
PRIVATE SEWER (LF)	550
PUBLIC STREET (LF)	0
PUBLIC SIDEWALK (LF)	255

ENGINEER:
BNK



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, NORTH CAROLINA 27607
TELEPHONE: (919) 851-4422
FAX: (919) 851-8968

CERTIFICATION NUMBERS: NCBELS (C-0110)
NCBOLA (C-0267)
CONTACT: MARTY D. BIZZELL, PE, CPESC
EMAIL: Marty.Bizzell@BNKinc.com

EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT

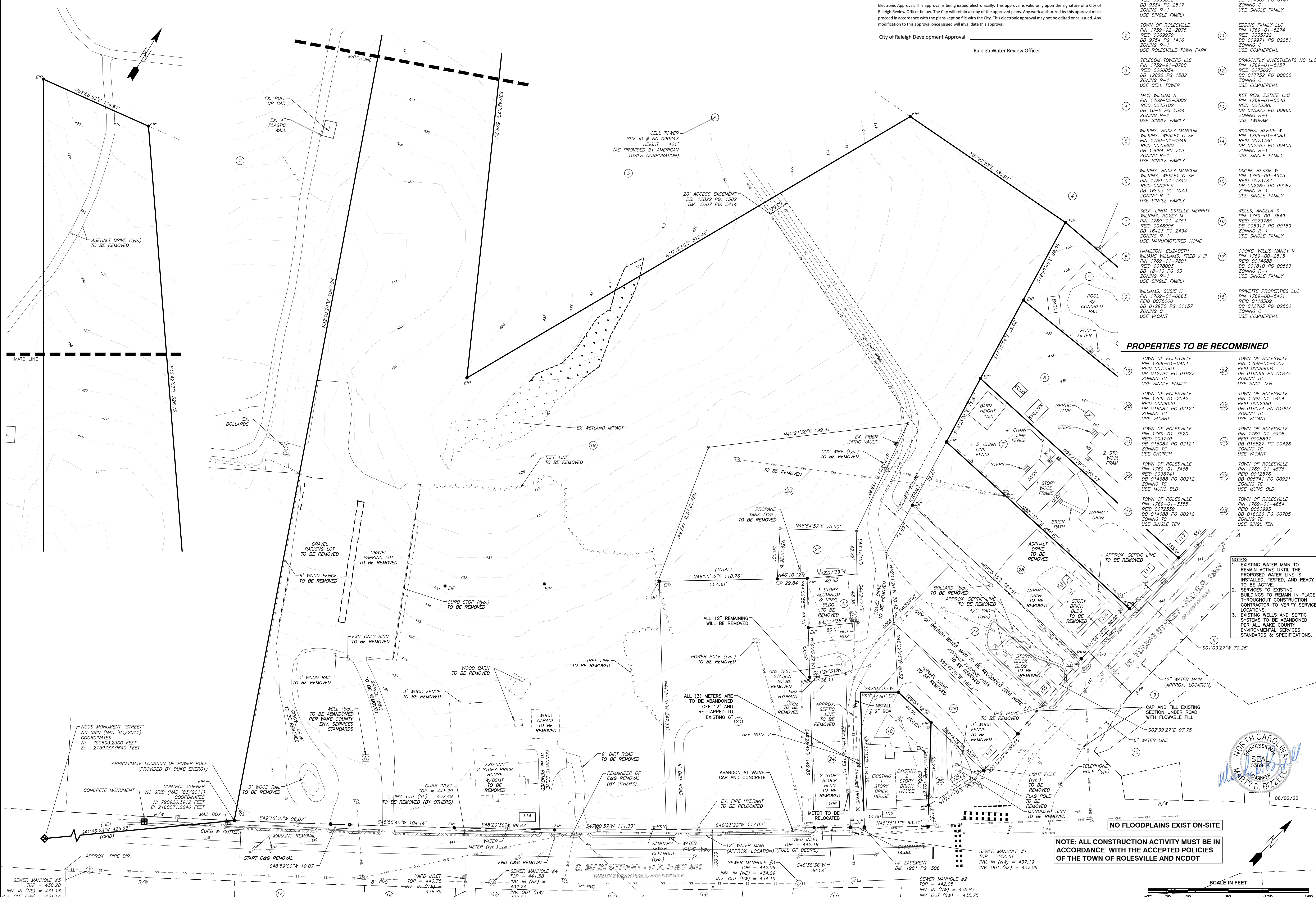
APPROVED
EROSION CONTROL S-_____
STORMWATER MGMT. S-_____
FLOOD STUDY S-_____
DATE _____



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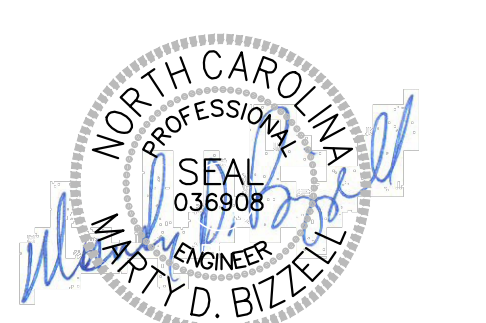
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Raleigh Water Review Officer _____



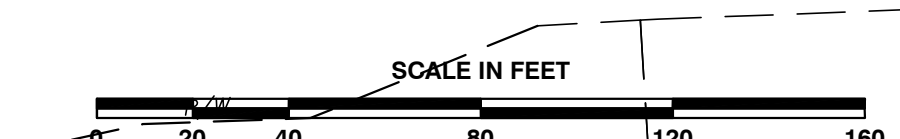
PROPERTIES TO BE RECOMBINED

- TOWN OF ROLESVILLE PIN 1769-01-0454 REID 00089614 DB 012794 PG 01827 ZONING TC USE SINGLE FAMILY
- TOWN OF ROLESVILLE PIN 1769-01-2542 REID 0009020 DB 016084 PG 02121 ZONING TC USE VACANT
- TOWN OF ROLESVILLE PIN 1769-01-3520 REID 003740 DB 016084 PG 02121 ZONING TC USE CHURCH
- TOWN OF ROLESVILLE PIN 1769-01-3468 REID 0036741 DB 014688 PG 00212 ZONING TC USE MUNC BLD
- TOWN OF ROLESVILLE PIN 1769-01-3468 REID 0036741 DB 014688 PG 00212 ZONING TC USE MUNC BLD
- TOWN OF ROLESVILLE PIN 1769-01-3555 REID 002559 DB 014688 PG 00212 ZONING TC USE SINGLE TEN
- TOWN OF ROLESVILLE PIN 1769-01-4357 REID 00089514 DB 016566 PG 01875 ZONING TC USE SINGL TEN
- TOWN OF ROLESVILLE PIN 1769-01-2542 REID 0009020 DB 016084 PG 02121 ZONING TC USE VACANT
- TOWN OF ROLESVILLE PIN 1769-01-5408 REID 0008897 DB 015827 PG 00426 ZONING TC USE VACANT
- TOWN OF ROLESVILLE PIN 1769-01-4576 REID 0012576 DB 005741 PG 00921 ZONING TC USE MUNC BLD
- TOWN OF ROLESVILLE PIN 1769-01-4654 REID 0006993 DB 016026 PG 00705 ZONING TC USE SINGL TEN
- TOWN OF ROLESVILLE PIN 1769-01-7654 REID 0007362 DB 014567 PG 0741 ZONING C USE SINGLE FAMILY
- EDDINS FAMILY LLC PIN 1769-01-5274 REID 0035722 DB 009971 PG 02251 ZONING C-1 USE COMMERCIAL
- DRAGONFLY INVESTMENTS NC LLC PIN 1769-01-5157 REID 0073627 DB 017752 PG 00806 ZONING C USE COMMERCIAL
- KET REAL ESTATE LLC PIN 1769-01-5048 REID 0075596 DB 015925 PG 00965 ZONING R-1 USE SINGLE FAMILY
- WIGGINS, BERTIE W PIN 1769-00-4915 REID 0073787 DB 002265 PG 00405 ZONING R-1 USE SINGLE FAMILY
- DIXON, BESSIE W PIN 1769-00-4915 REID 0073787 DB 002265 PG 00087 ZONING R-1 USE SINGLE FAMILY
- WELLS, ANGELA S PIN 1769-00-3849 REID 0073785 DB 003517 PG 00189 ZONING R-1 USE SINGLE FAMILY
- COOKE, WILLIS NANCY V PIN 1769-00-2815 REID 0014688 DB 001810 PG 00563 ZONING R-1 USE SINGLE FAMILY
- PRIVETTE PROPERTIES LLC PIN 1769-00-5401 REID 0118309 DB 012763 PG 02560 ZONING C USE COMMERCIAL

- NOTES:
- EXISTING WATER MAIN TO REMAIN ACTIVE UNTIL THE PROPOSED WATER LINE IS INSTALLED, TESTED, AND READY TO BE ACTIVE.
 - SERVICES TO EXISTING BUILDINGS TO REMAIN IN PLACE THROUGHOUT CONSTRUCTION. CONTRACTOR TO VERIFY SERVICE LOCATIONS.
 - EXISTING WELLS AND SEPTIC SYSTEMS TO BE ABANDONED PER ALL WAKE COUNTY ENVIRONMENTAL SERVICES, STANDARDS & SPECIFICATIONS.



NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919)881-4422 FAX: (919)881-6868
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

PROGRESS DRAWN BY: MRM
DATE: 03-19-27
JOB NO.: 19157
SCALE: 1" = 40'
CHK BY: MDB

COBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET **C0.1**

TOWN OF ROLESVILLE PROJECT NO. _____

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

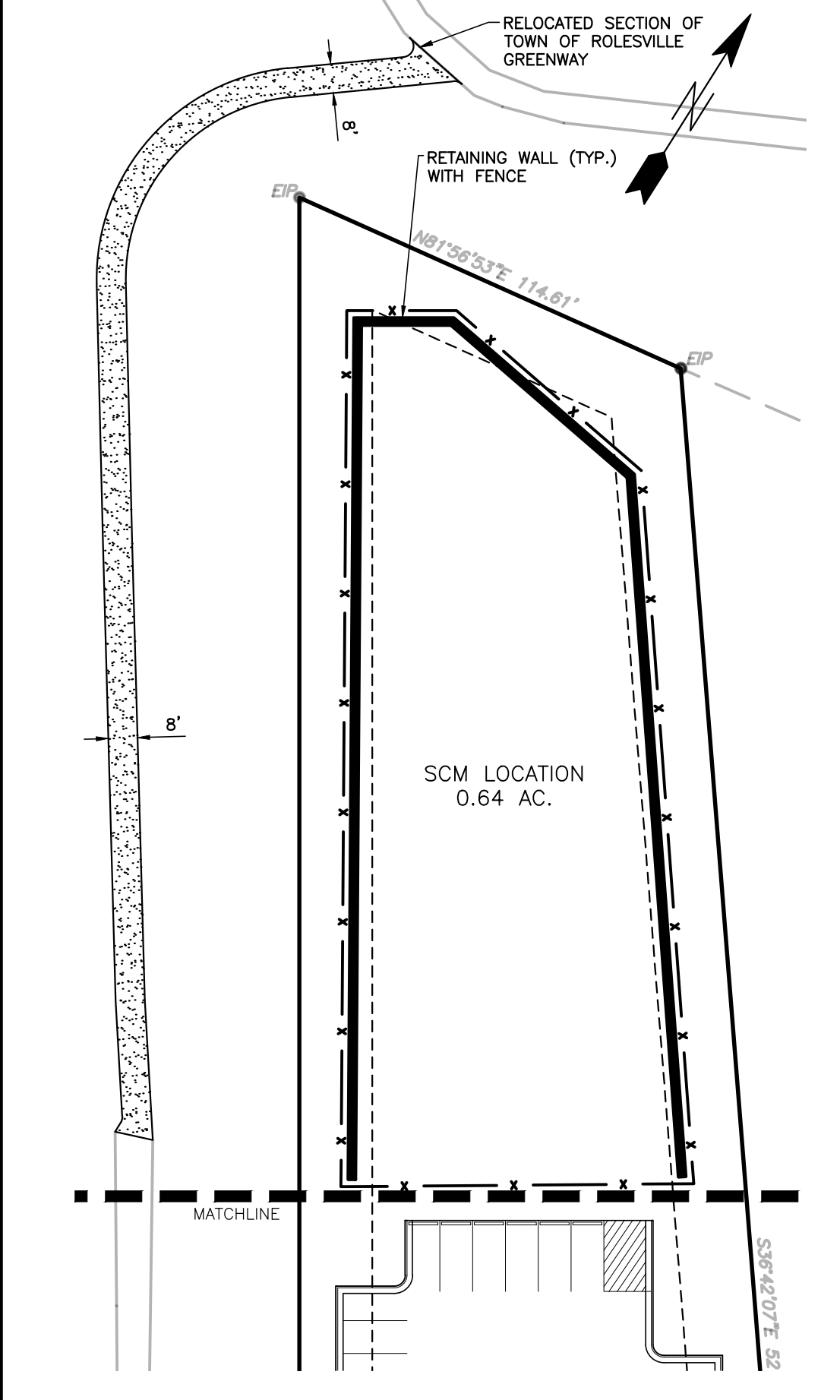


BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHARLETTOWN ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4222 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA
 NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

- CONDITIONS OF APPROVAL:**
1. TECHNICAL REVIEW COMMITTEE APPROVAL AND ISSUANCE OF REQUIRED PERMITS FROM ALL AGENCIES MUST BE ACHIEVED AND SUBMITTED FOR REVIEW AND RECORD RETENTION PRIOR TO FINAL SIGNATURE AND APPROVAL OF THE SITE PLAN.
 2. CROSS-CONNECTION ACCESS TO ONE OF THE THREE ADJACENT PROPERTIES TO THE EAST ALONG W. YOUNG STREET (111, 113, AND 115 W. YOUNG STREET) FOR FUTURE DEVELOPMENT WILL BE PROVIDED.
 3. BEST EFFORTS WILL BE MADE FOR GREENWAY ACCESS ACROSS THE TELECOM TOWERS, LLC SITE FOR PEDESTRIAN TRAFFIC FROM OVERFLOW PARKING SITE LOCATED AT THE TERMINUS OF SCARBORO STREET IN MAIN STREET PARK.
 4. BASED UPON TESTIMONY REGARDING SHARED PARKING IN A MIXED-USE DEVELOPMENT, A 15% PARKING REDUCTION IS GRANTED RESULTING IN 467 REQUIRED SPACES.
 5. A MAXIMUM HEIGHT OF 60 FEET IS APPROVED PER THE BUILDING HEIGHT DESIGN ALTERNATIVE FOR THE SITE AS SHOWN ON THE SITE PLAN, PROVIDED ALL OTHER APPLICABLE STANDARDS ACCORDING TO THE LDO ARE MET.
 6. FINAL STREET DESIGN SHALL INCORPORATE A ROUNDABOUT OR OTHER CUT-THROUGH FOR DROP-OFFS CONSISTENT WITH THE DESIGN REQUIREMENTS OF THE TOWN COMMUNITY BUILDING AS PROVIDED BY THE TOWN'S ARCHITECTURAL CONSULTANT.
 7. SLIP APPROVED BY BOARD OF COMMISSIONERS ON OCTOBER 5, 2021.



OVERALL SITE DATA

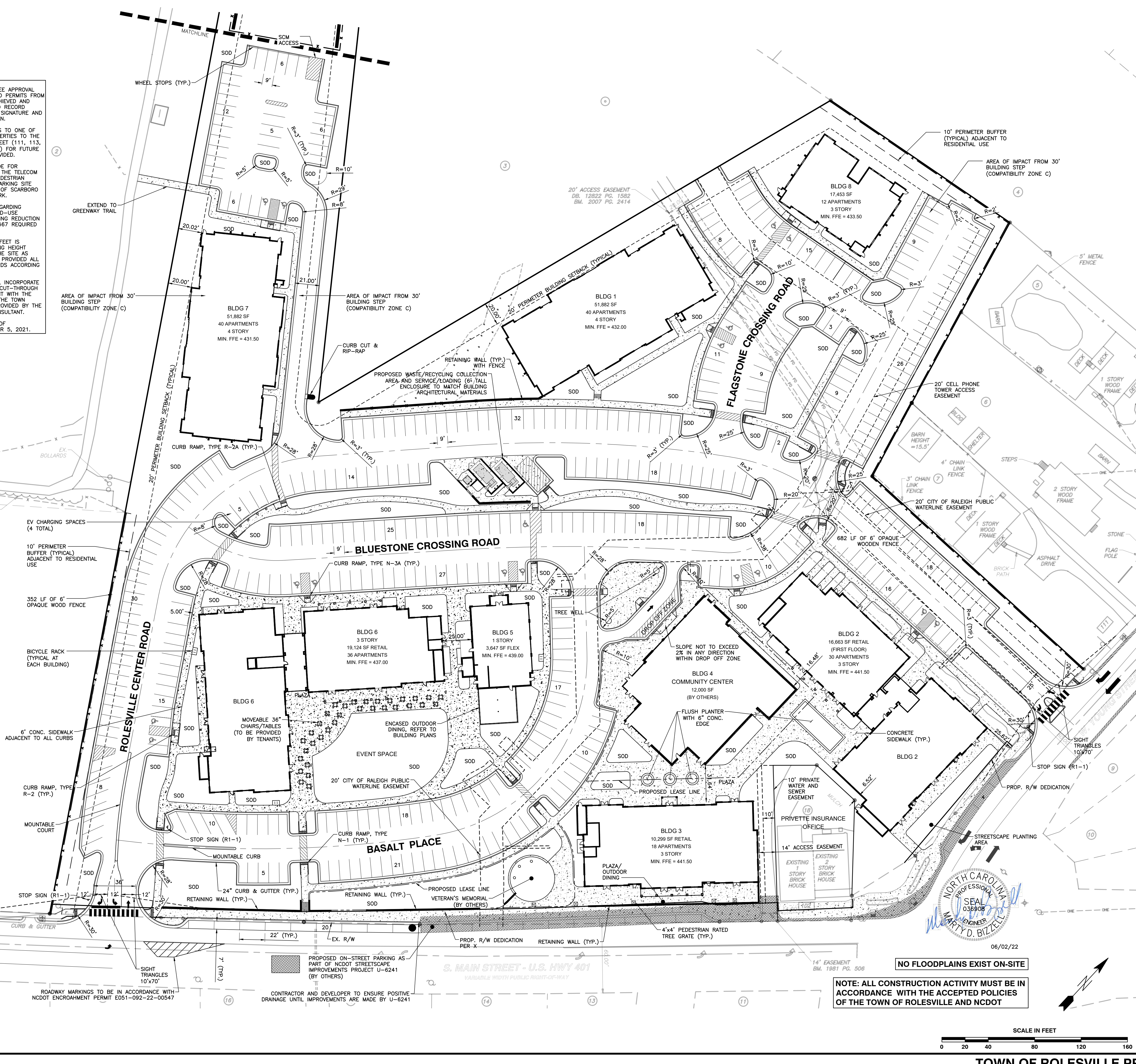
SITE AREA	10.96 AC (477,418 SF±)
P.I.N.	1769-01-0454, 1769-01-4357, 1769-01-3355 1769-01-3468, 1769-01-2542, 1769-01-3520 1769-01-4654, 1769-01-5454, 1769-01-5408, 1769-01-4576
ZONING DISTRICT:	TOWN CENTER (TC) RESIDENTIAL, MIXED USE
OPEN SPACE AREA:	1.92 AC PROVIDED (1.10 AC REQUIRED, 10%)
IMPERVIOUS AREA:	7.48 AC
IMPERVIOUS AREA (%):	68%
APARTMENT MIX	112 UNITS
1 BEDROOM	64 UNITS
2 BEDROOM	176 UNITS
TOTAL APARTMENTS	
RESIDENTIAL DENSITY:	16.06 UNITS/ACRE
RETAIL/COMMERCIAL:	49,830 SQUARE FEET
MUNICIPAL FLEX SPACE:	15,900 SQUARE FEET
TOTAL:	65,730 SQUARE FEET
EVENT SPACE:	0.44 ACRES/ 18,976 SQUARE FEET
PARKING REQUIREMENTS PER TC DISTRICT DEVELOPMENT STANDARDS	
MIXED USE RESIDENTIAL: 2.0 SPACES PER UNIT	176 x 2 = 352 SPACES REQUIRED
MIXED USE NON-RESIDENTIAL: 3 SPACES PER 1000 GSF	65,730/1000 x 3 = 197 SPACES REQUIRED
TOTAL PARKING REQUIRED/PROVIDED:	549 SPACES REQUIRED/ 468 PROVIDED
5% OF ON STREET PARKING MAY BE COUNTED AS REQUIRED PARKING (28 ALLOWED/ 24 PROVIDED)	
15% PARKING REDUCTION ALLOWED FOR SHARED PARKING: 549 x .85 = 467 REQUIRED	
BUILDING 1:	51,882 SF APARTMENTS
BUILDING 2:	16,641 SF RETAIL
BUILDING 3:	11,405 SF RETAIL
BUILDING 4:	15,900 SF MUNICIPAL
BUILDING 5:	3,816 FLEX
BUILDING 6:	18,148 SF RETAIL
BUILDING 7:	51,882 SF APARTMENTS
BUILDING 8:	17,453 SF APARTMENTS

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

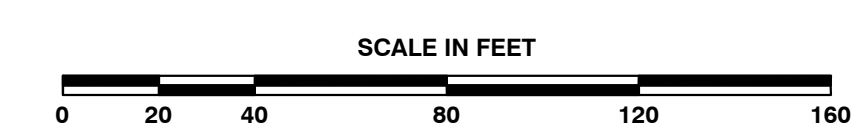
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with 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 Development Approval

Raleigh Water Review Officer

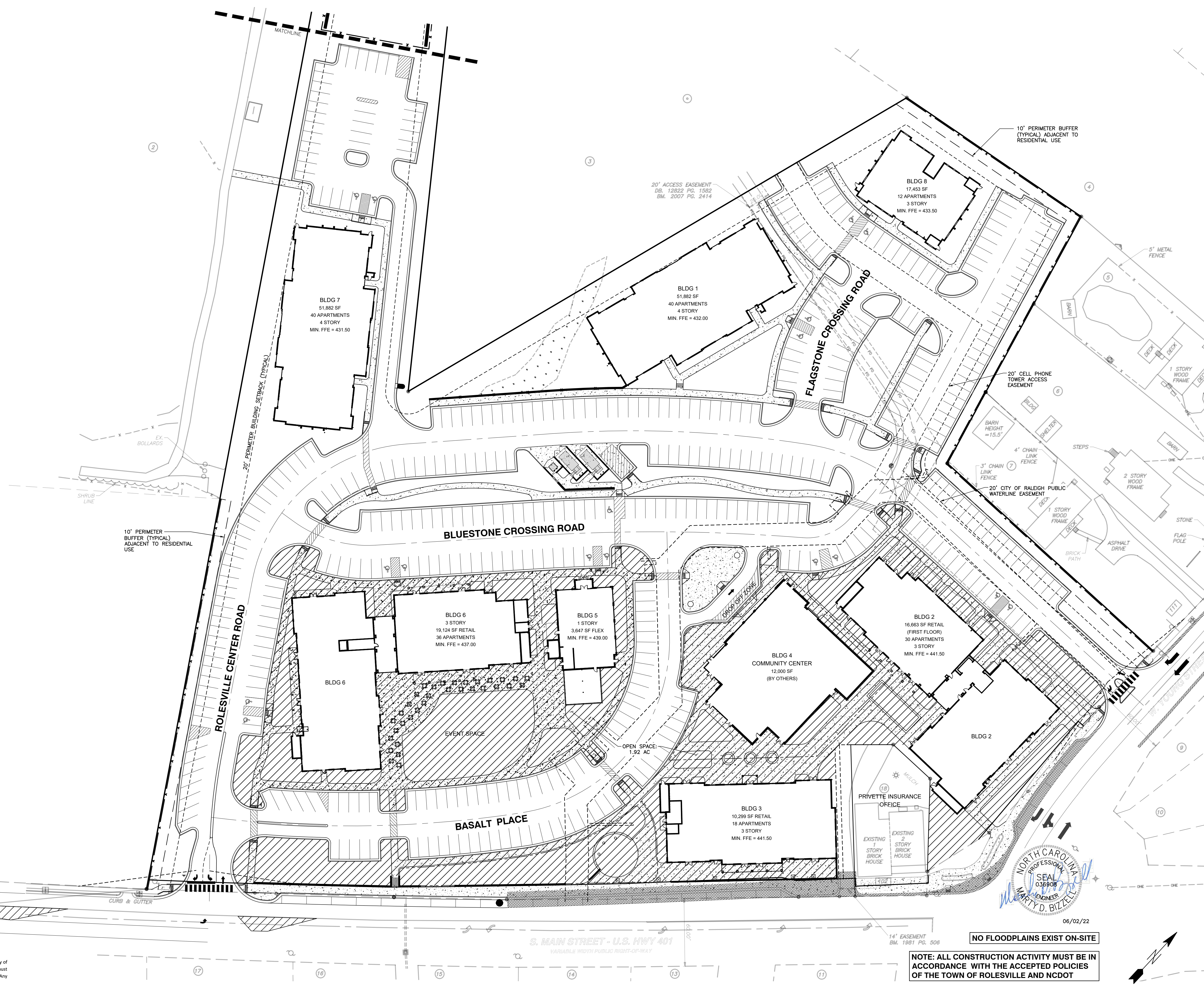
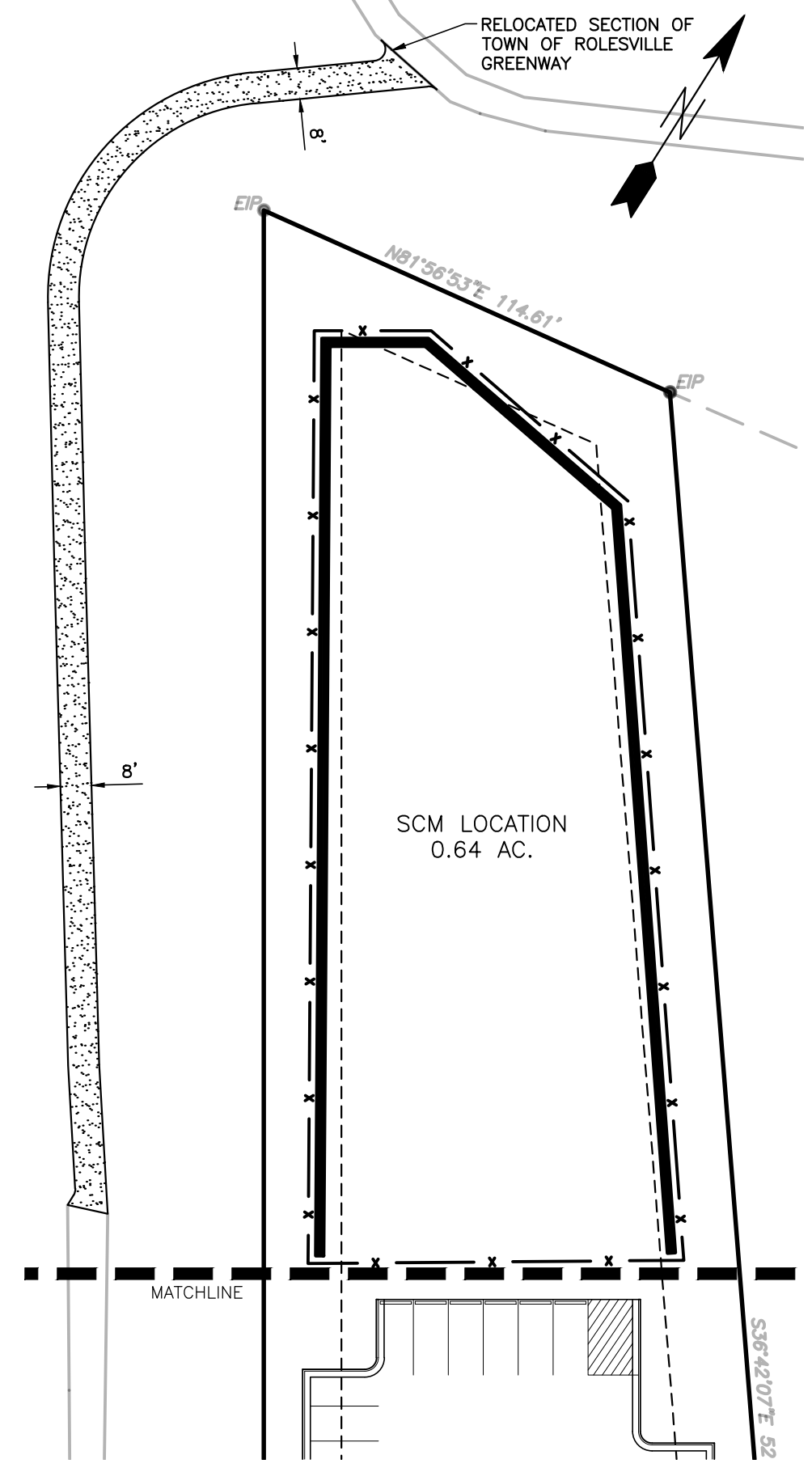


NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



SHEET C1.1

TOWN OF ROLESVILLE PROJECT NO.



R:\2021\19157 - Rolesville Town Center CIVIL\04 Construction\02 - 19157_Site.dwg, Open Space Plan, 6/2/2022 4:33:33 PM, mtrcmweller

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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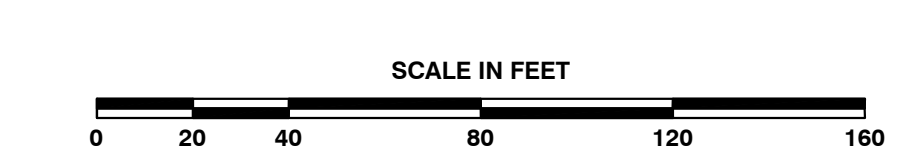
City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

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06/02/22



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 881-1122 FAX: (919) 881-8686
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

PROGRESS MRN
DATE DRAWN BY
03-19157
JOB NO. OPEN SPACE PLAN
SCALE: 1" = 40'
CHK BY: MDB

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET
C1.2
TOWN OF ROLESVILLE PROJECT NO.

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

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 # W-3879
 Authorization to Construct See digital signature

Private
 Sewer Collection / Extension System

The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection 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 # S-4962 (P)
 Authorization to Construct See digital signature

ATTENTION CONTRACTORS

The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Department at (919) 996-4540 at least twenty four hours prior to beginning any of their construction.

Failure to notify both City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

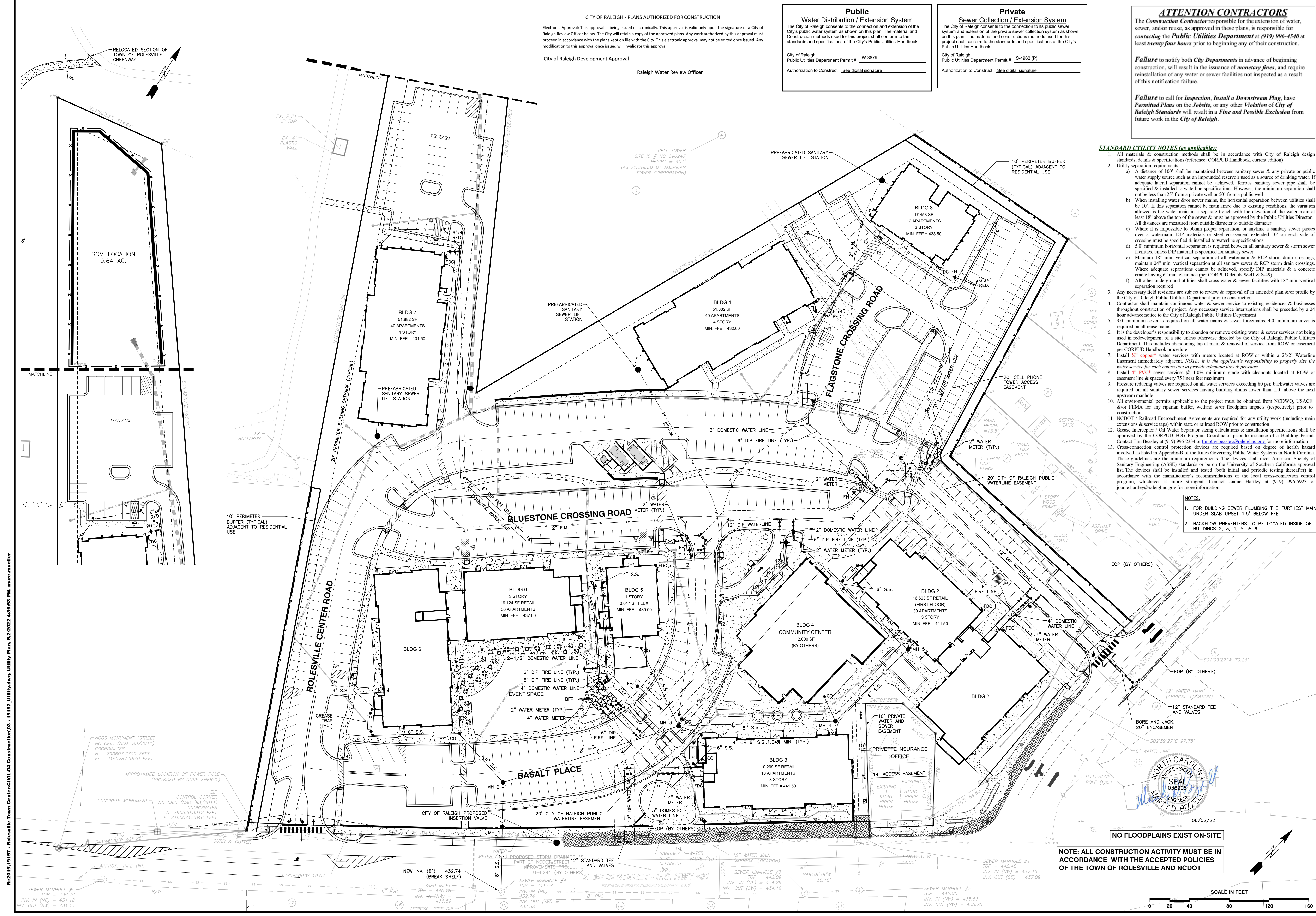
Failure to call for Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.

STANDARD UTILITY NOTES (as applicable):

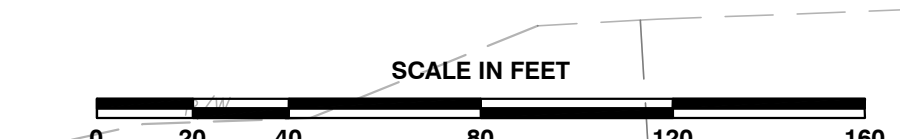
- All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook, current edition)
- Utility separation requirements:
 - A distance of 100' shall be maintained between sanitary sewer & any private or public water 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 watertight 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 encasement extended 10' on each side of crossing must be specified & installed to watertight 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 Raleigh 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 Raleigh Public Utilities Department
- 3.0' minimum cover is required on all water mains & sewer force mains. 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 Raleigh 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' Watertight 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
- All environmental permits applicable to the project must be obtained from NCDWQ, USACE &/or FEMA for any riparian buffer, wetland &/or floodplain impacts (respectively) prior to construction.
- NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
- Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the CORPUD FOG Program Coordinator prior to issuance of a Building Permit. Contact Tim Besley at (919) 996-2334 or timothy.besley@raleighnc.gov for more information
- 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

NOTES:

- FOR BUILDING SEWER PLUMBING THE FURTHEST MAIN UNDER SLAB UPSET 1.5' BELOW FFE.
- BACKFLOW PREVENTERS TO BE LOCATED INSIDE OF BUILDINGS 2, 3, 4, 5, & 6.



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R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\03 - 19187_Utility.dwg, Utility Plan, 6/2/2022 4:08:53 PM, marc.mueller

BNK

BASS, NIXON & KENNEDY, INC.

CONSULTING ENGINEERS

6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607

TELEPHONE: (919)811-4422 FAX: (919)811-6868

CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

PROGRESS

DATE

DRAWN BY

UTILITY PLAN

NO. DATE

DESCRIPTION

REVISIONS

03-19187

JOB NO.

SCALE: 1" = 40'

CHK BY: MDB

COBBLESTONE VILLAGE

MIXED USE DEVELOPMENT

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C2.1

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

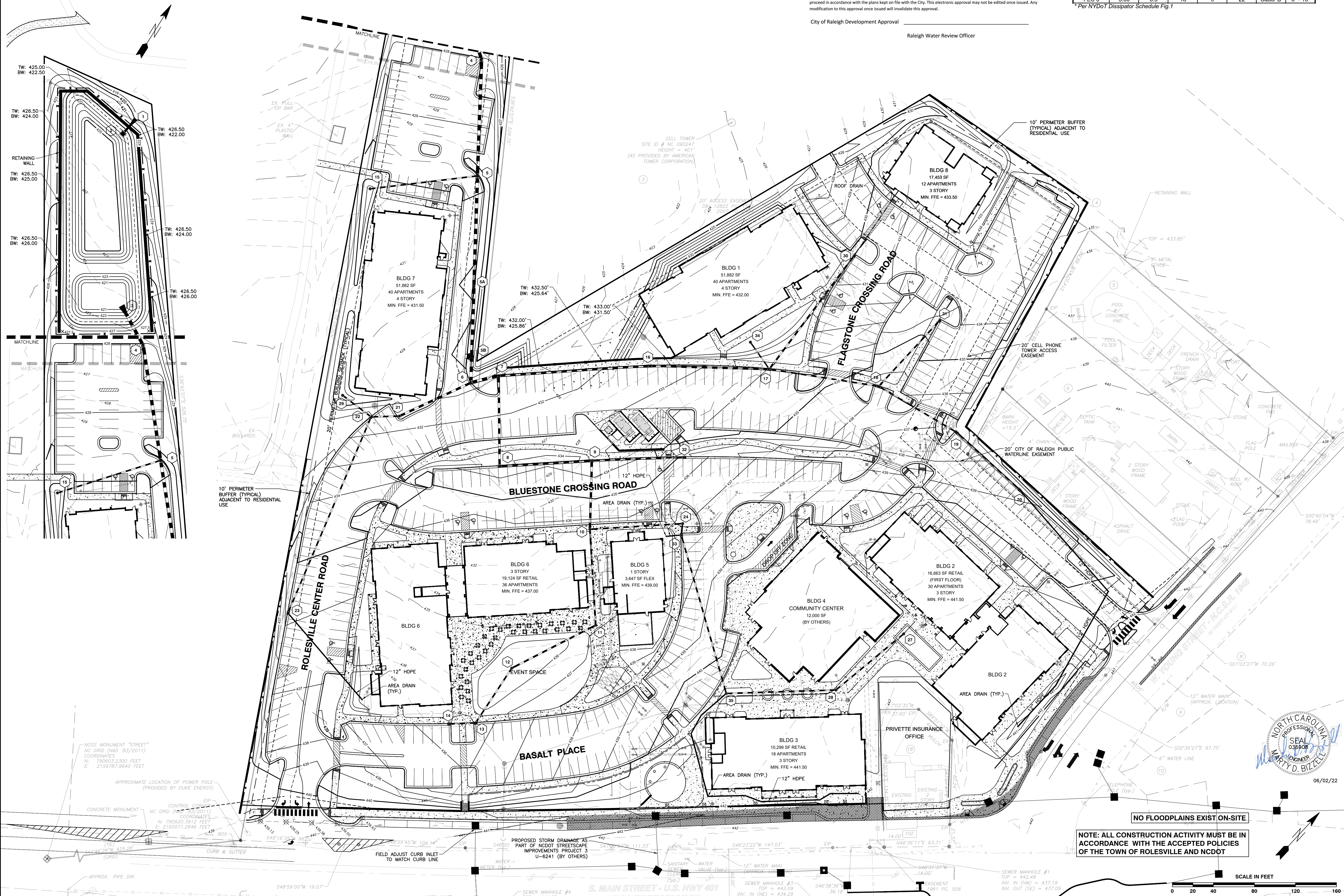
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City of Raleigh Development Approval _____
 Raleigh Water Review Officer

Structure	d ₁ (ft)	Velocity (fps)	Length (ft)	Width (ft)	Depth (in)	Type	d ₅₀
FES 1	2.00	7.4	12	6	22	Class 'B'	6" - 13"
FES 3	3.00	6.5	18	9	22	Class 'B'	6" - 13"

* Per NYDOT Dissipator Schedule Fig.1



R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\04 - 19187_Grading.dwg, Grading Plan, 6/2/2022 4:37:58 PM, mtrcmweller



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CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919) 851-1122 FAX: (919) 851-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

03-19187
 JOB NO.

MRN
 DRAWN BY

DATE

GRADING PLAN

SCALE: 1" = 40'

CHK BY: MDB

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

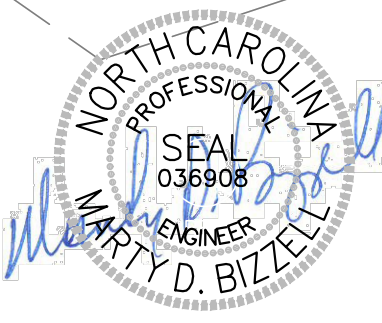
NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

COBBLESTONE VILLAGE

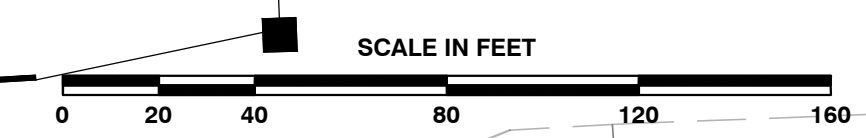
MIXED USE DEVELOPMENT

SHEET C3.1

TOWN OF ROLESVILLE PROJECT NO.



NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



CONSTRUCTION SEQUENCE - STAGE 1

- ONCE THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL AND NCG01 CERTIFICATE OF COVERAGE ARE OBTAINED, SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL CONSULTANT, OBTAIN A LAND-DISTURBING PERMIT.
- INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SKIMMER SEDIMENT BASINS AND OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
- CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
- BEGIN CLEARING AND GRUBBING, MAINTAIN DEVICES AS NEEDED, ROUGH GRADE SITE.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDEED AREAS PER GROUND STABILIZATION TIME FRAMES.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, ALLEY PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDEED AREAS PER GROUND STABILIZATION TIME FRAMES.
- CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT PRIOR TO THE REMOVAL OF SKIMMER SEDIMENT BASIN #1.
- CONTINUE TO SOIL EROSION PLAN STAGE 2 ONCE SKIMMER BASIN #1 HAS BEEN REMOVED.

NOTE: WAKE COUNTY MUST GRANT PERMISSION TO CONVERT THE SEDIMENT BASIN OVER TO THE STORMWATER USE PRIOR TO COMPLETING ANY RELATED WORK.
TOTAL DISTURBED AREA = 11.0 AC

DENUDED AREA = 10.96 AC

REQUIRED WAKE COUNTY BASIN REMOVAL AND/OR CONVERSION SEQUENCE

- SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED OR CONVERTED TO A PERMANENT STORMWATER POND, INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SEDIMENT BASIN SURFACE FOR DRAW DOWN OF WATER IN BASIN FOR MAINTENANCE OR CLOSE OUT UNLESS INFEASIBLE. SEE REQUIREMENTS OF NCG01 PERMIT PART I, SECTION C, ITEM (4) ENTITLED "DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT" AND REFER TO WAKE COUNTY "FILTER BAG FOR DEWATERING ACTIVITIES" CONSTRUCTION DETAIL.
- REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES, IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
- PERFORM SEEDBED PREPARATION, SEED, MULCH AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
- INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
- WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

SEDIMENT BASIN SUMMARY CHART

Structure Number	1	2	3
Drainage Area (Acres)	4.42	4.61	0.6
Orifice (ft)	(0.5)(7.22)(3.42)=12.35	(0.5)(7.22)(4.61)=16.64	(0.5)(7.22)(0.60)=2.17
Weir Size (ft)	10 x 1.5	10 x 1.5	10 x 1.5
Surface Area Required (SF)	(435)(12.35)=5,372	(435)(16.64)=7,238	(435)(2.17)=944
Volume Required (CF)	(1800)(3.42)=6,156	(1800)(4.61)=8,298	(1800)(0.60)=1,080
Dimensions (ft)	see plans	see plans	see plans
Surface Area Provided (SF)	5,400	10,640	1,584
Volume Provided (CF)	13,572	27,636	2,563
Skimmer Size	4"	4"	3"
Orifice Radius	0.5"	0.63"	0.25"
Orifice Diameter	1.0"	1.25"	0.5"
Drawdown Time (days)	4.62	3.98	3.74
Number of Baffles	3	3	3

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Raleigh Water Review Officer _____

DITCH/CHANNEL CALCULATIONS

DIVERSION DITCH ID	LENGTH (LF)	DA (Ac)	G10 (CFS)	SLOPE (%)	V10 (FPS)	LINER*	PERMISSIBLE SHEAR STRESS (PSF)	CALCULATED SHEAR STRESS (PSF)
DV-1	296	1.02	2.34	2.00	2.01	SC150	2.00	0.78
DV-2	495	1.00	2.30	2.60	2.29	SC150	2.00	0.84
DV-3	442	0.52	1.19	1.80	0.92	SC150	1.80	0.29
DV-4	167	0.08	0.13	2.90	0.96	SC150	1.80	0.38

* NAG = NORTH AMERICAN GREEN OR EQUIVALENT

Skimmer Basin #1

Skimmer Size (Inches)	Head on Skimmer (feet)	Orifice Size (1/4 inch increments)	Dewatering Time (days)
4	0.333	1.5	3.98
3	0.333	1.5	3.98
2	0.333	1.5	3.98
1.5	0.333	1.5	3.98
1	0.333	1.5	3.98
0.75	0.333	1.5	3.98
0.5	0.333	1.5	3.98
0.333	0.333	1.5	3.98

Required 3 to 5 days for Wake County

Skimmer Basin #2

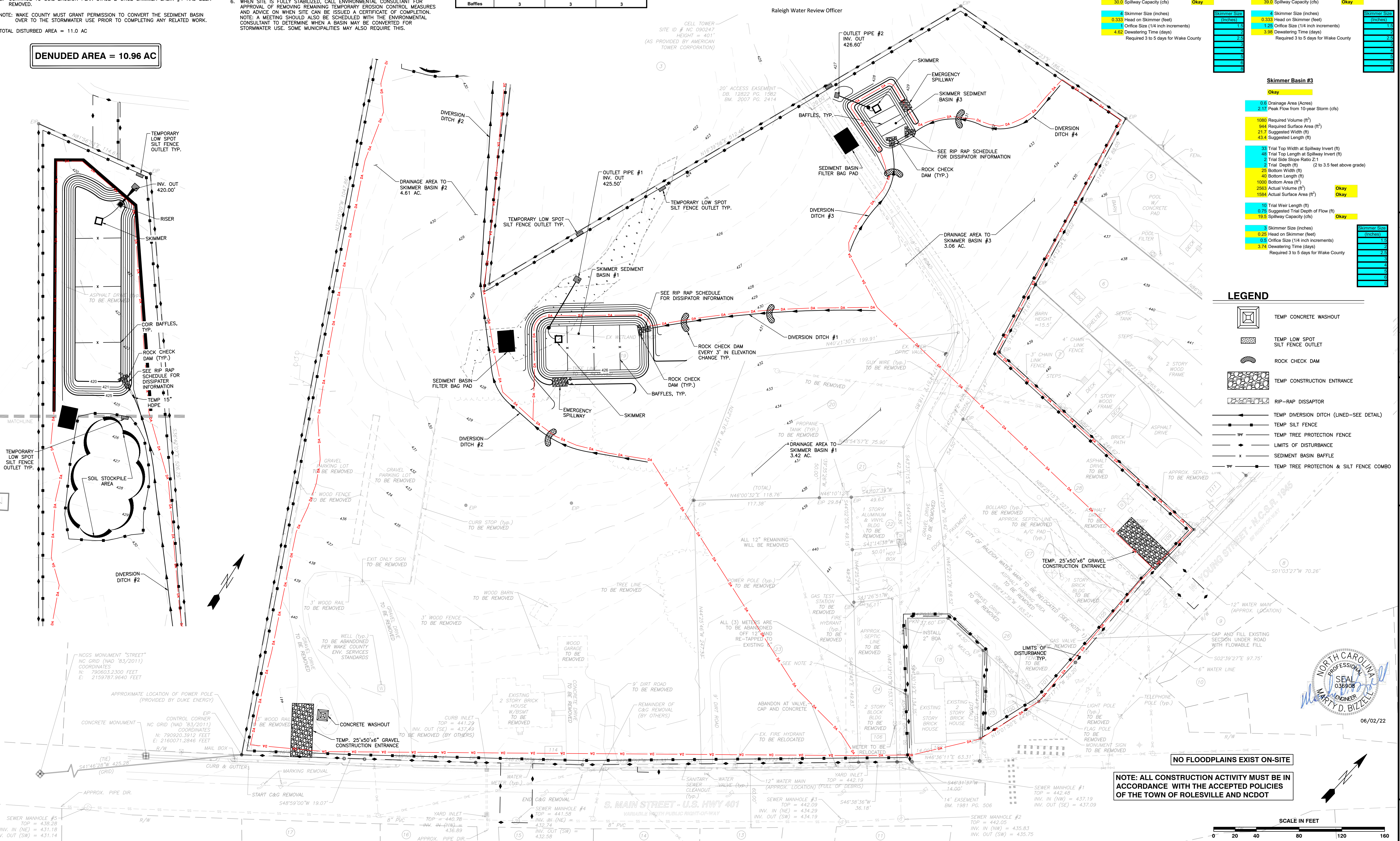
Skimmer Size (Inches)	Head on Skimmer (feet)	Orifice Size (1/4 inch increments)	Dewatering Time (days)
4	0.333	1.5	3.98
3	0.333	1.5	3.98
2	0.333	1.5	3.98
1.5	0.333	1.5	3.98
1	0.333	1.5	3.98
0.75	0.333	1.5	3.98
0.5	0.333	1.5	3.98
0.333	0.333	1.5	3.98

Required 3 to 5 days for Wake County

Skimmer Basin #3

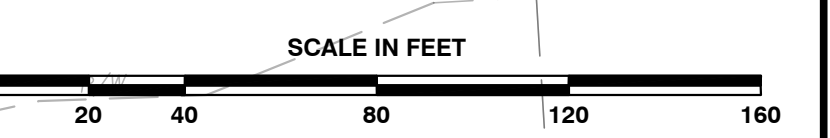
Skimmer Size (Inches)	Head on Skimmer (feet)	Orifice Size (1/4 inch increments)	Dewatering Time (days)
4	0.333	1.5	3.98
3	0.333	1.5	3.98
2	0.333	1.5	3.98
1.5	0.333	1.5	3.98
1	0.333	1.5	3.98
0.75	0.333	1.5	3.98
0.5	0.333	1.5	3.98
0.333	0.333	1.5	3.98

Required 3 to 5 days for Wake County



- LEGEND**
- TEMP CONCRETE WASHOUT
 - TEMP LOW SPOT SILT FENCE OUTLET
 - ROCK CHECK DAM
 - TEMP CONSTRUCTION ENTRANCE
 - RIP-RAP DISSIPATOR
 - TEMP DIVERSION DITCH (LINED-SEE DETAIL)
 - TEMP SILT FENCE
 - TEMP TREE PROTECTION FENCE
 - LIMITS OF DISTURBANCE
 - SEDIMENT BASIN BAFFLE
 - TEMP TREE PROTECTION & SILT FENCE COMBO

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



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CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PROGRESS MRN _____
DATE DRAWN BY _____
JOB NO. _____

EROSION CONTROL PLAN - STAGE 1

SCALE: 1" = 40'

CHK BY: MDB

NO. DATE DESCRIPTION REVISIONS

SEAL
NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
MARTY D. BIZELLE
06/02/22

SHEET C3.3

TOWN OF ROLESVILLE PROJECT NO.

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

NO.	DATE	DESCRIPTION	BY

03-19187	PROGRESS	MRM	DATE	DRAWN BY
	JOB NO.			

NCG01 PLAN
CHK BY: MDB
SCALE: N.T.S.

COBLESTONE VILLAGE MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C3.7

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

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.

Temporary and Permanent Groundcover*

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, seals, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 3:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

*For Falls Lake watershed, in disturbed areas where grading activities are incomplete, provide temporary groundcover no later than seven (7) days for slopes steeper than 3:1; ten (10) days for slopes equal to or flatter than 3:1; fourteen (14) days for areas with no slope.

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 Roll-on 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

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 off-site.
- 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 of waste containers on site to manage the quantity of waste produced.
- 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. Repair or replace damaged waste containers.
- Anchorage all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow.
- Dispose waste off-site at an approved disposal facility.

PAINT AND OTHER LIQUID WASTE

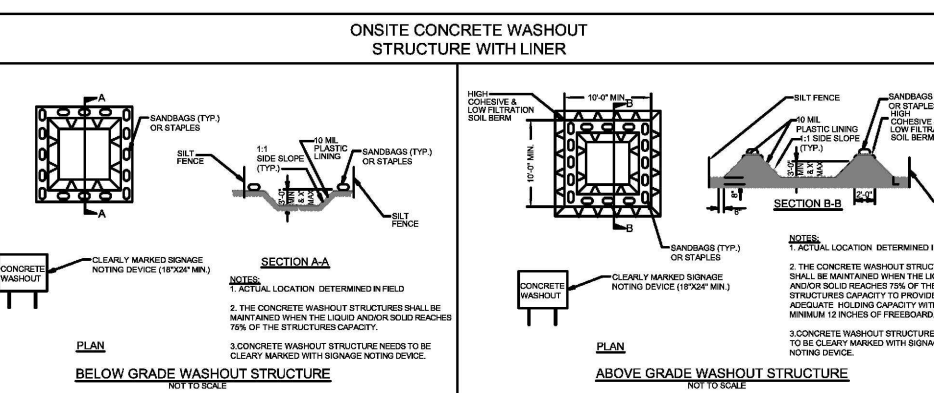
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the 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 on-site.

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 03/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-extended days (even this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&S Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (DOCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands on-site (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 III, Section C, Item 2(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of the stabilization activity, clearing and grubbing, installation of storm measures, clearing and grubbing, installation of storm activity, construction or redeveloped 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&S Plan Documentation

The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S 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&S measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S plan.	Initial and date each E&S measure on a copy of the approved E&S plan or complete, date and sign an inspection report that lists each E&S measure shown on the approved E&S plan. This documentation is required upon the initial installation of the E&S measures or if the E&S measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S 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&S plan.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&S measures	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S measures.	Initial and date a copy of the approved E&S 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&S plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

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

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. (40 CFR 122.41)

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

2. Reporting Timeframes and Other Requirements

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

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

PART II, SECTION G, 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&S 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&S plan authority has approved these items,
- The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item 2(c) and (d) of this permit,
- Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above,
- Velocity dissipation devices such as check dams, end-pirap 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



06/02/22

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh 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 Development Approval _____
 Raleigh Water Review Officer



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6510 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919) 851-4422 FAX: (919) 851-8988
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
2	1	420.00	419.80	18.80	24	HDPE	1.06%
4	3	421.26	421.00	43.91	36	HDPE	0.60%
5	4	422.04	421.36	113.45	36	HDPE	0.60%
5A	5	422.79	422.14	107.85	36	HDPE	0.60%
5B	5A	423.20	422.79	68.66	36	HDPE	0.60%
6	5B	423.35	423.20	25.31	36	HDPE	0.60%
7	6	423.62	423.45	28.04	36	HDPE	0.60%
8	7	425.82	424.94	88.24	24	HDPE	1.00%
9	8	426.82	425.92	90.21	24	HDPE	1.00%
10	9	427.59	426.92	67.14	24	HDPE	1.00%
11	10	428.63	427.69	93.66	18	HDPE	1.00%

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
12	11	429.65	428.73	91.93	18	HDPE	1.00%
13	12	430.39	429.75	63.96	15	HDPE	1.00%
14	13	430.75	430.49	25.95	15	HDPE	1.00%
15	5	424.10	423.05	105.41	15	HDPE	1.00%
16	7	424.61	423.72	147.77	24	HDPE	0.60%
17	16	425.41	424.71	116.44	24	HDPE	0.60%
18	17	428.85	427.77	107.92	15	HDPE	1.00%
19	18	431.57	430.69	88.39	15	HDPE	1.00%
20	19	432.50	431.67	83.01	15	HDPE	1.00%
21	6	424.22	423.45	76.89	24	HDPE	1.00%
22	21	424.60	424.32	27.60	15	HDPE	1.00%

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
23	22	426.78	424.70	207.76	15	HDPE	1.00%
24	10	432.22	430.86	90.55	15	HDPE	1.50%
27	28	436.27	435.41	85.76	15	HDPE	1.00%
28	35	435.31	434.24	106.92	15	HDPE	1.00%
29	22	425.05	424.70	34.83	15	HDPE	1.00%
30	17	426.34	425.51	137.91	18	HDPE	0.60%
31	18	429.82	428.95	87.08	15	HDPE	1.00%
32	9	429.50	428.60	90.23	15	HDPE	1.00%
33	24	432.43	432.32	11.23	15	HDPE	1.00%
34	17	428.09	427.77	32.09	12	HDPE	1.00%
35	33	434.14	432.53	160.60	15	HDPE	1.00%

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
1	422.45 INV. IN= 419.80 (2)	24" FES
2	425.18 INV. OUT= 420.00 (1)	RISER
3	424.83 INV. IN= 421.00 (4)	36" FES
4	428.06 INV. IN= 421.36 (5) INV. OUT= 421.26 (3)	NCDOT CURB INLET
5A	429.50 INV. IN= 422.79 (5B) INV. OUT= 422.79 (5)	NCDOT CURB INLET
5B	428.50 INV. IN= 423.20 (6) INV. OUT= 423.20 (5A)	HDPE YARD INLET
5	429.08 INV. IN= 422.14 (5A) INV. IN= 423.05 (15) INV. OUT= 422.04 (4)	NCDOT CURB INLET
6	430.99 INV. IN= 423.45 (7) INV. IN= 423.45 (21) INV. OUT= 423.35 (5B)	NCDOT CURB INLET
7	431.15 INV. IN= 424.94 (8) INV. IN= 423.72 (16) INV. OUT= 423.62 (6)	NCDOT CURB INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
8	433.95 INV. IN= 425.92 (9) INV. OUT= 425.82 (7)	NCDOT CURB INLET
9	433.95 INV. IN= 426.92 (10) INV. IN= 428.60 (32) INV. OUT= 426.82 (8)	NCDOT CURB INLET
10	436.44 INV. IN= 427.69 (11) INV. IN= 430.86 (24) INV. OUT= 427.59 (9)	HDPE YARD INLET
11	437.44 INV. IN= 428.73 (12) INV. OUT= 428.63 (10)	HDPE YARD INLET
12	435.50 INV. IN= 429.75 (13) INV. OUT= 429.65 (11)	HDPE YARD INLET
13	436.00 INV. IN= 430.49 (14) INV. OUT= 430.39 (12)	NCDOT CURB INLET
14	436.00 INV. OUT= 430.75 (13)	NCDOT CURB INLET
15	428.50 INV. OUT= 424.10 (5)	HDPE YARD INLET
16	429.68 INV. IN= 424.71 (17) INV. OUT= 424.61 (7)	NCDOT CURB INLET

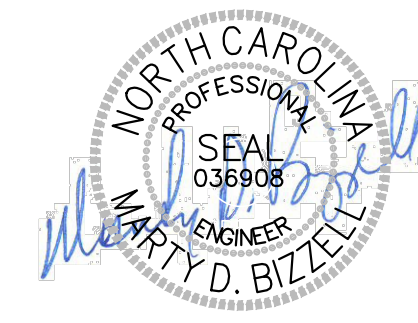
STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
17	434.01 INV. IN= 427.77 (18) INV. IN= 425.51 (30) INV. IN= 427.77 (34) INV. OUT= 425.41 (16)	NCDOT CURB INLET
18	436.04 INV. IN= 430.69 (19) INV. IN= 428.95 (31) INV. OUT= 428.85 (17)	NCDOT CURB INLET
19	437.52 INV. IN= 431.67 (20) INV. OUT= 431.57 (18)	NCDOT CURB INLET
20	438.65 INV. OUT= 432.50 (19)	NCDOT CURB INLET
21	431.60 INV. IN= 424.32 (22) INV. OUT= 424.22 (6)	HDPE YARD INLET
22	432.00 INV. IN= 424.70 (23) INV. IN= 424.70 (29) INV. OUT= 424.60 (21)	NCDOT CURB INLET
23	435.99 INV. OUT= 428.78 (22)	NCDOT CURB INLET
24	437.18 INV. IN= 432.32 (33) INV. OUT= 432.22 (10)	HDPE YARD INLET
27	441.00 INV. OUT= 436.27 (28)	HDPE YARD INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
28	441.00 INV. IN= 435.41 (27) INV. OUT= 435.31 (35)	HDPE YARD INLET
29	428.50 INV. OUT= 425.05 (22)	HDPE YARD INLET
30	430.12 INV. OUT= 426.34 (17)	NCDOT CURB INLET
31	434.05 INV. OUT= 429.82 (18)	NCDOT CURB INLET
32	435.72 INV. OUT= 429.50 (9)	NCDOT CURB INLET
33	437.87 INV. IN= 432.53 (35) INV. OUT= 432.43 (24)	NCDOT CURB INLET
34	430.03 INV. OUT= 428.09 (17)	HDPE YARD INLET
35	441.08 INV. IN= 434.24 (28) INV. OUT= 434.14 (33)	HDPE YARD INLET

NOTE: ALL STORM ITEMS SHALL BE AS-BUILT PER THE TOWN UDO SECTION 7.5.5, WHICH SPECIFIES REQUIREMENTS AS-BUILTS FOR STORM.

NO.	DATE	DESCRIPTION	BY

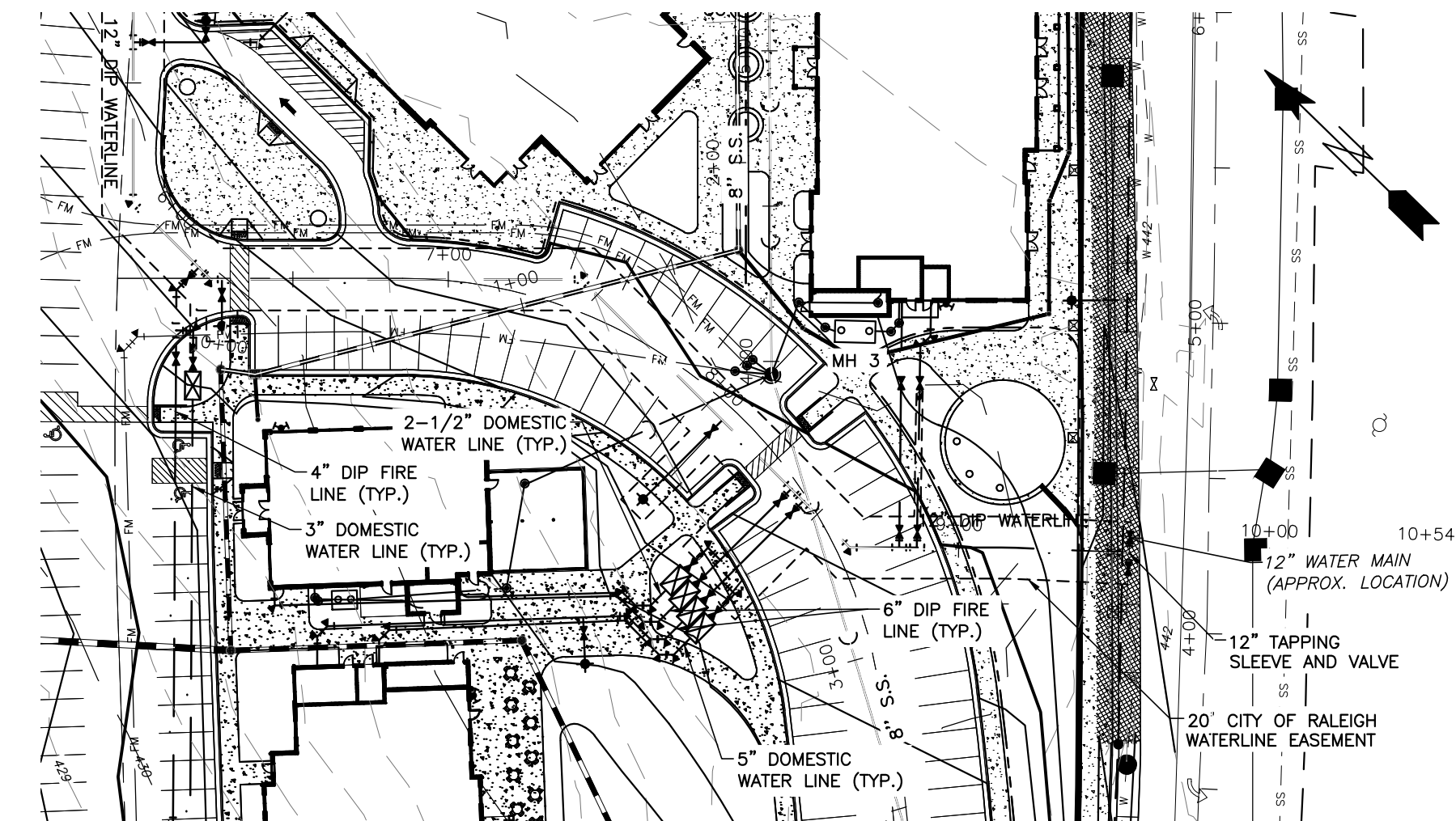
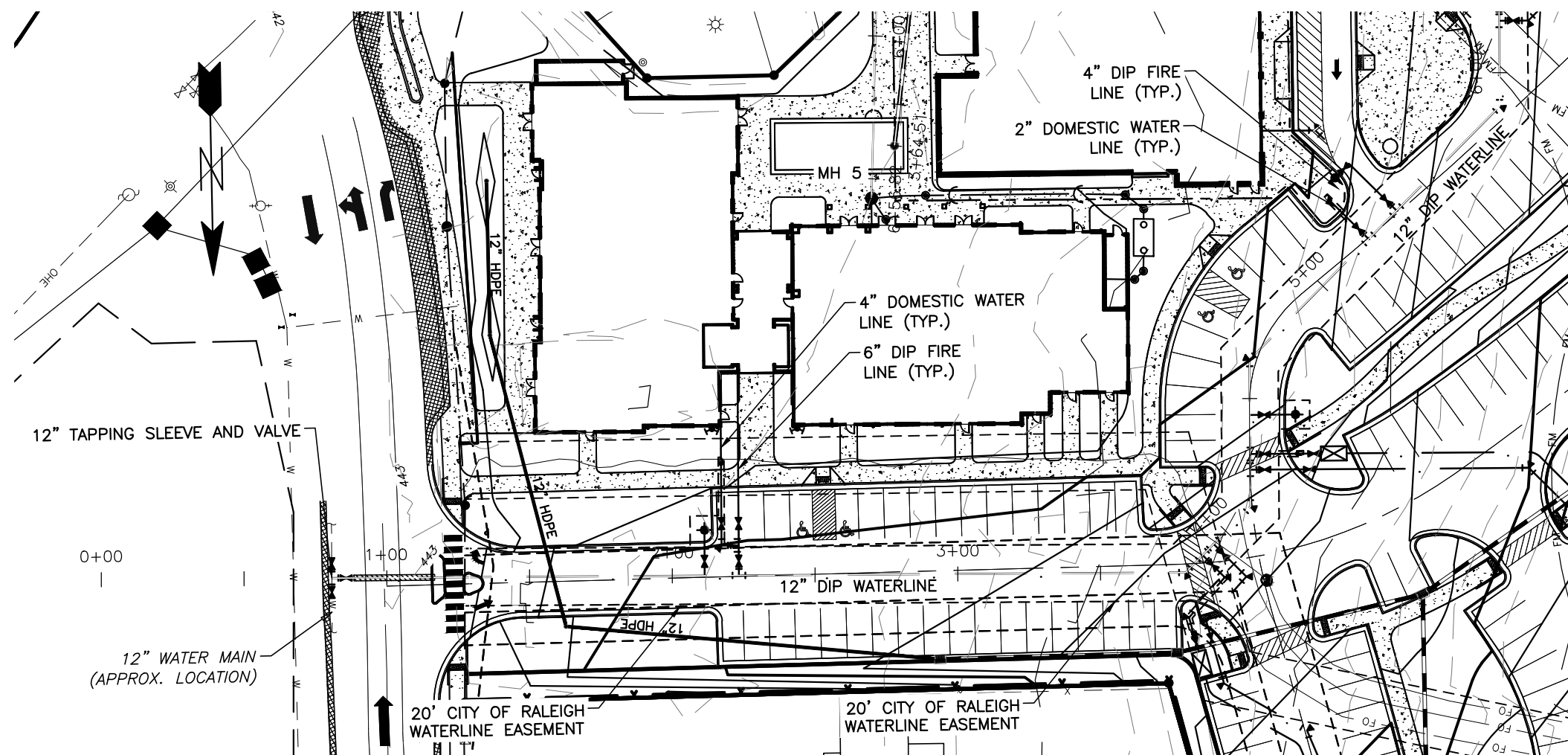
03-19157 - PROGRESS - MRM
 DATE - DRAWN BY
STORM DRAINAGE PIPE & STRUCTURE TABLE
 SCALE: _____
 CHK BY: MDB



06/02/22

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET **C3.8**



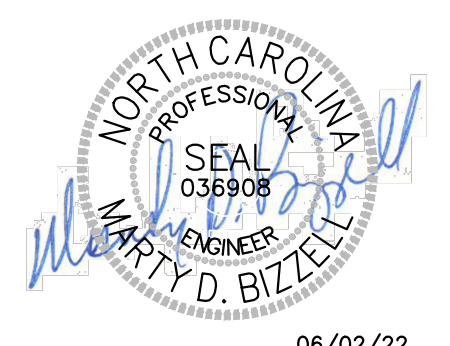
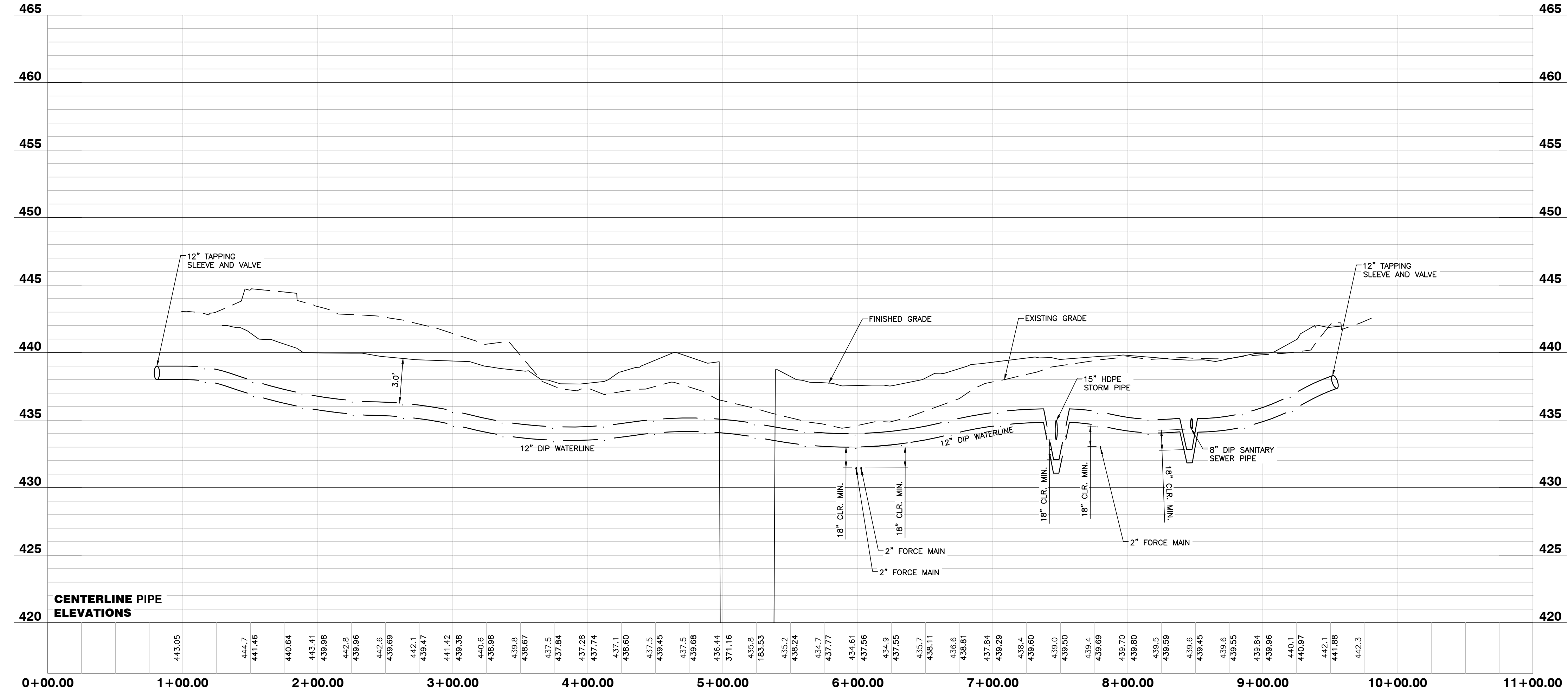
Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # W-3879
 Authorization to Construct See digital signature

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
 Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh 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 Development Approval _____
 Raleigh Water Review Officer _____



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1422 FAX: (919)881-6868
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

PUBLIC WATERLINE PROFILE



06/02/22

NO FLOODPLAINS EXIST ON-SITE
NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

NO.	DATE	DESCRIPTION	BY

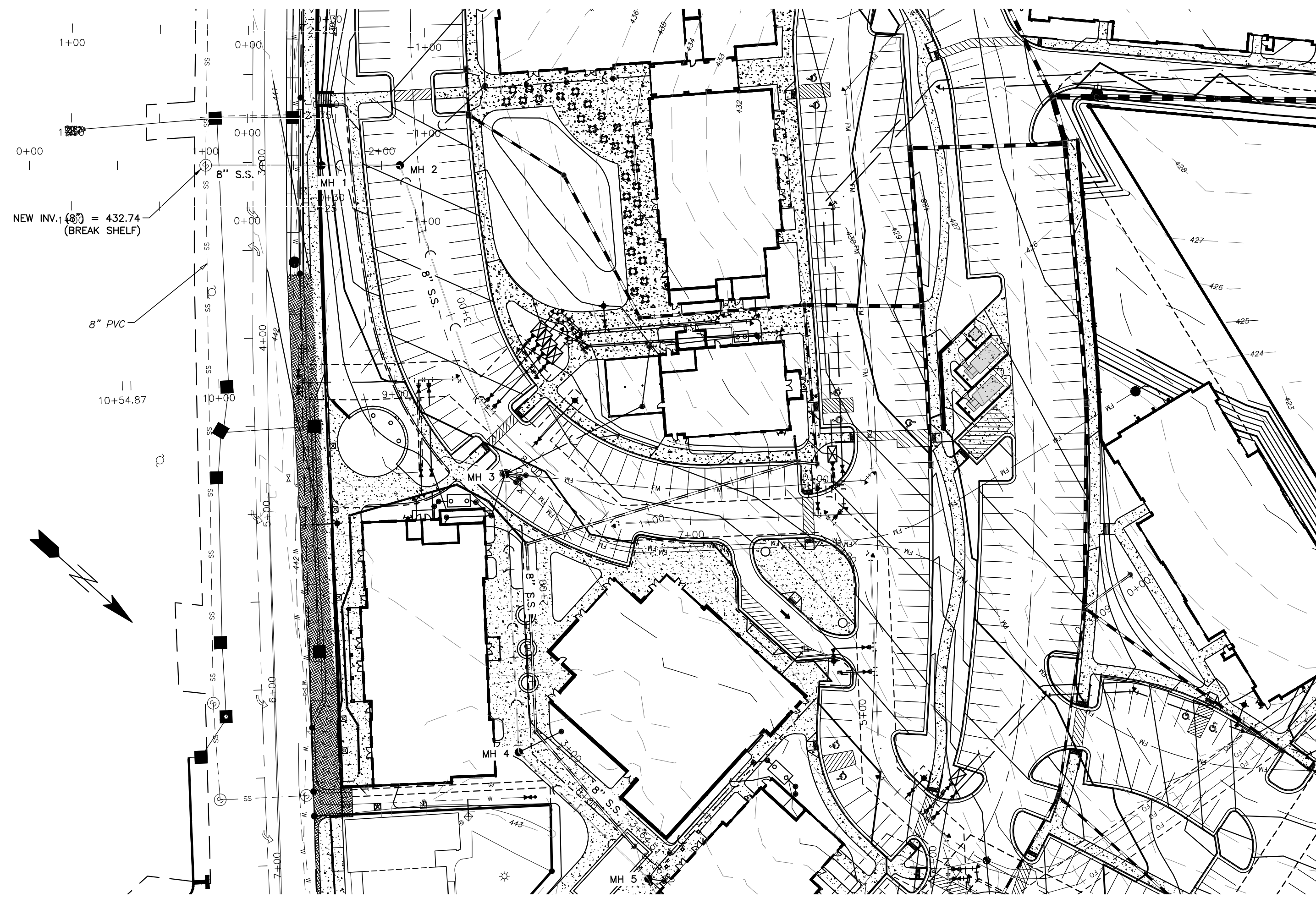
PROGRESS	MRM	DATE	DRAWN BY
03-19157			

PUBLIC WATERLINE PROFILE

SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C4.1



Private Sewer Collection / Extension System
 The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection 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 # S-4962 (P)
 Authorization to Construct See digital signature

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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 Raleigh Water Review Officer _____



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1422 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

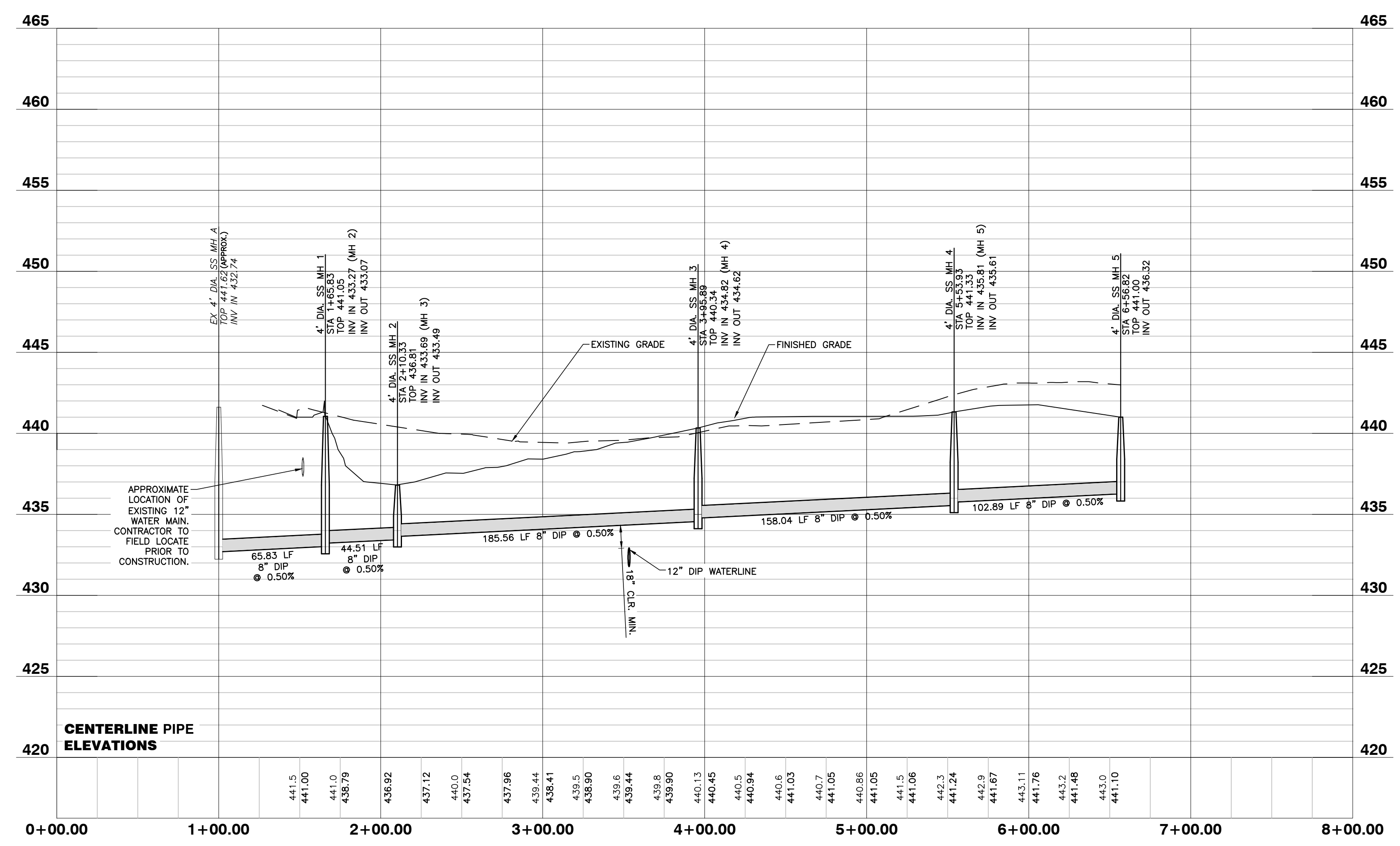
03-19157 PROGRESS MRN
 JOB NO. DATE DRAWN BY
SANITARY SEWER PROFILE
 SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET
C4.2

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

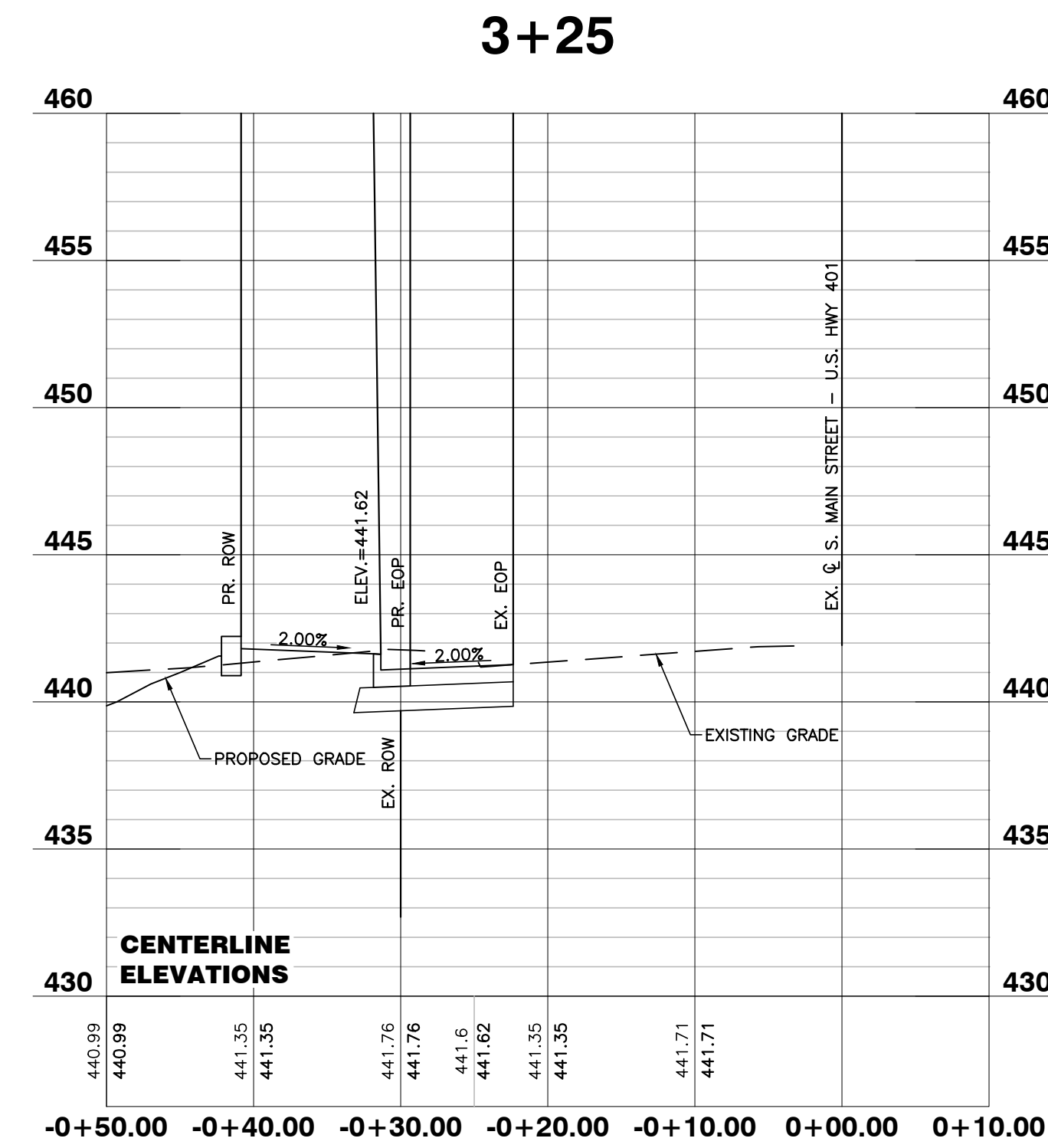
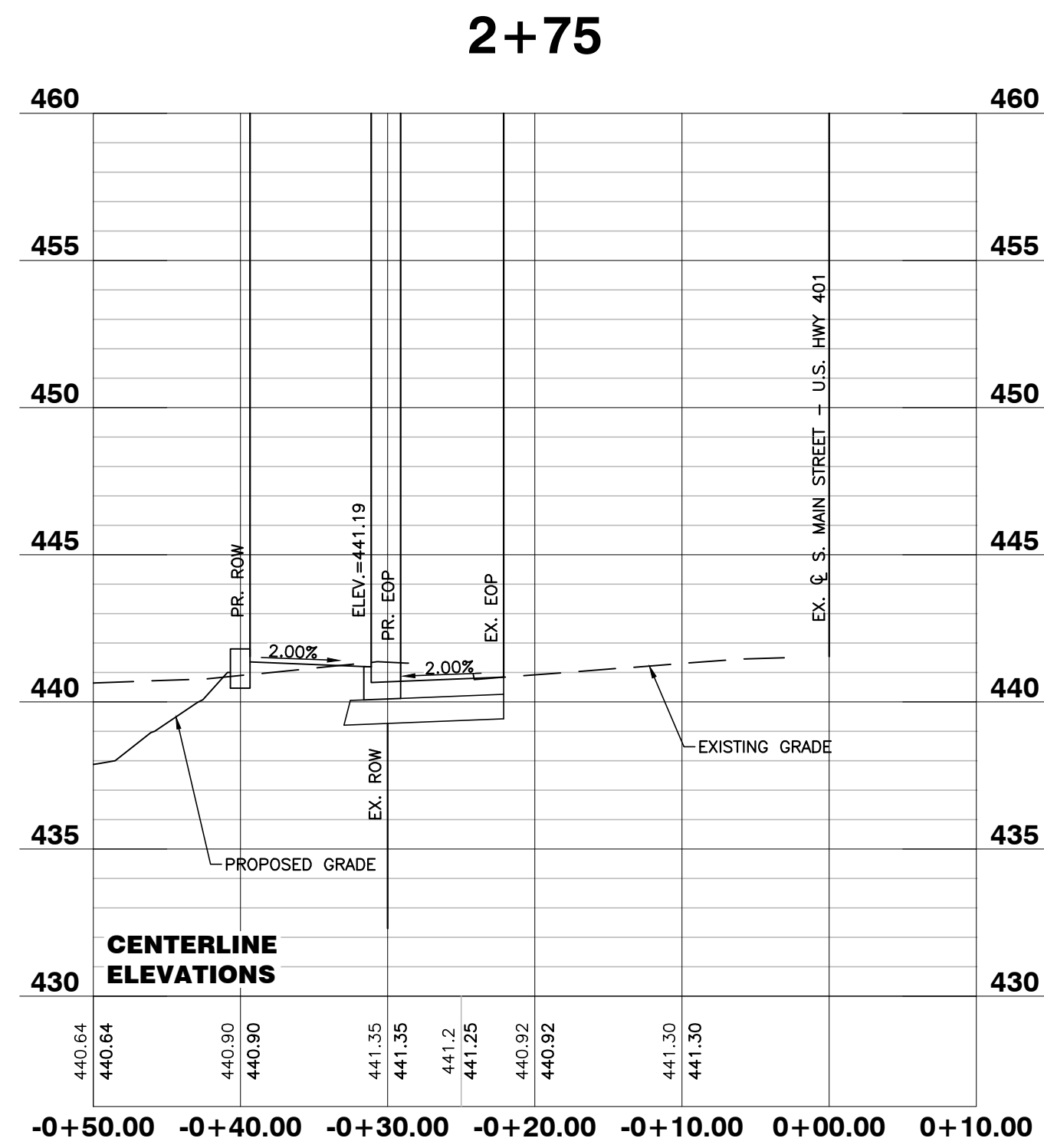
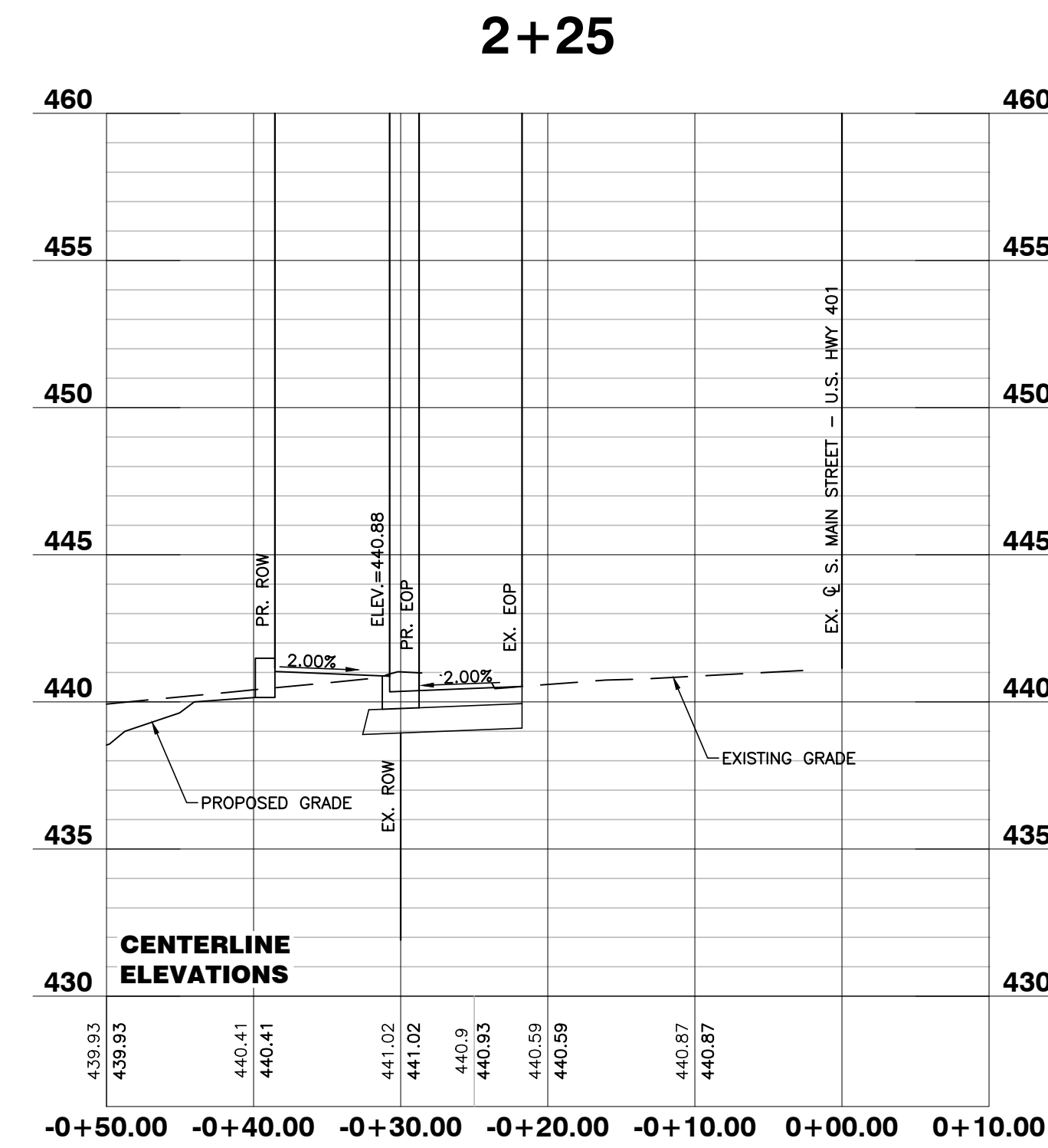
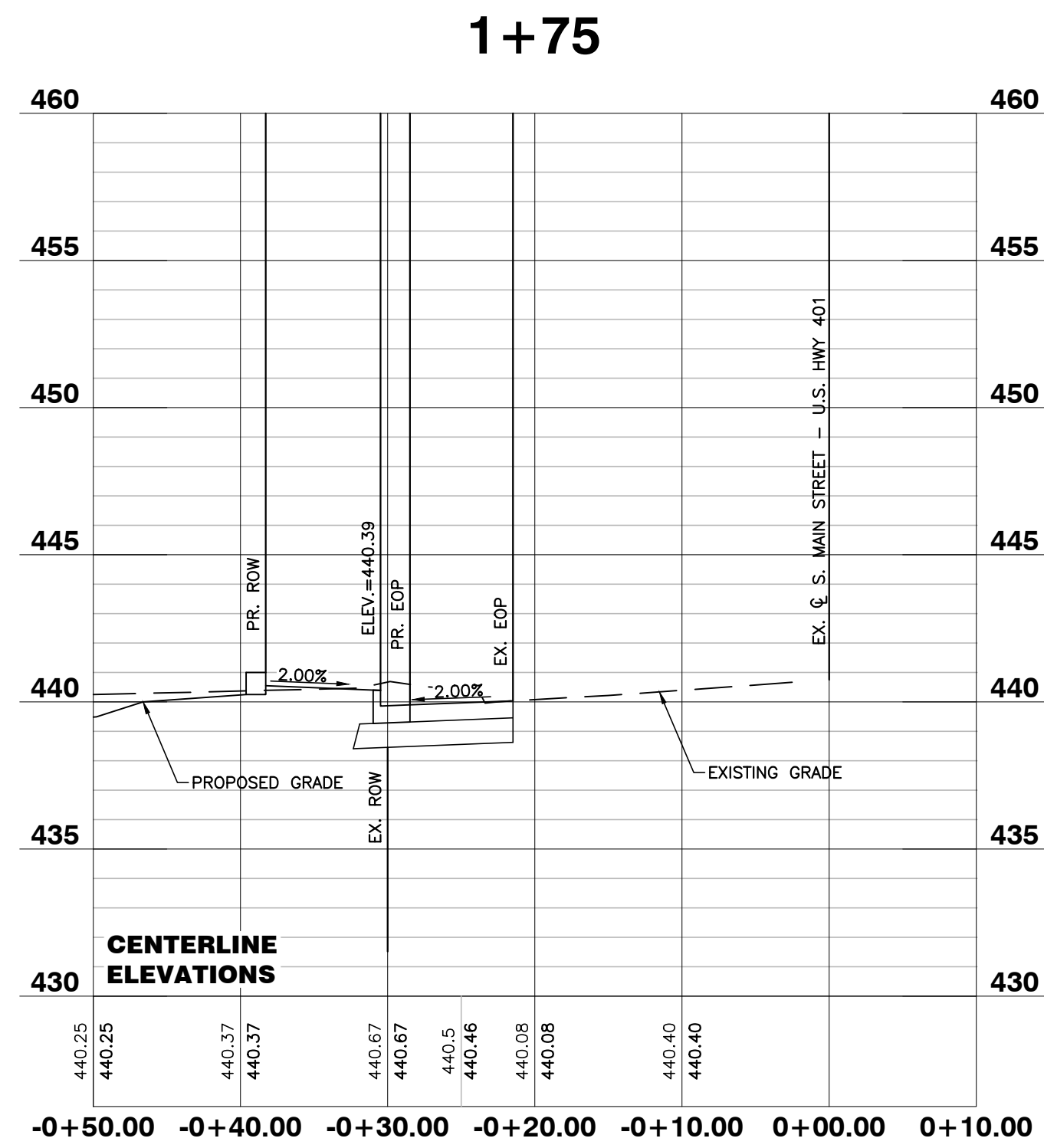
SANITARY SEWER PROFILE



06/02/22

NO FLOODPLAINS EXIST ON-SITE

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
 Raleigh Water Review Officer



06/02/22

NO FLOODPLAINS EXIST ON-SITE

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BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

03-19187 PROGRESS MRN
 DATE DRAWN BY
S. MAIN ST. - U.S. 401
WIDENING CROSS
SECTIONS
 SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET
C4.3



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4222 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

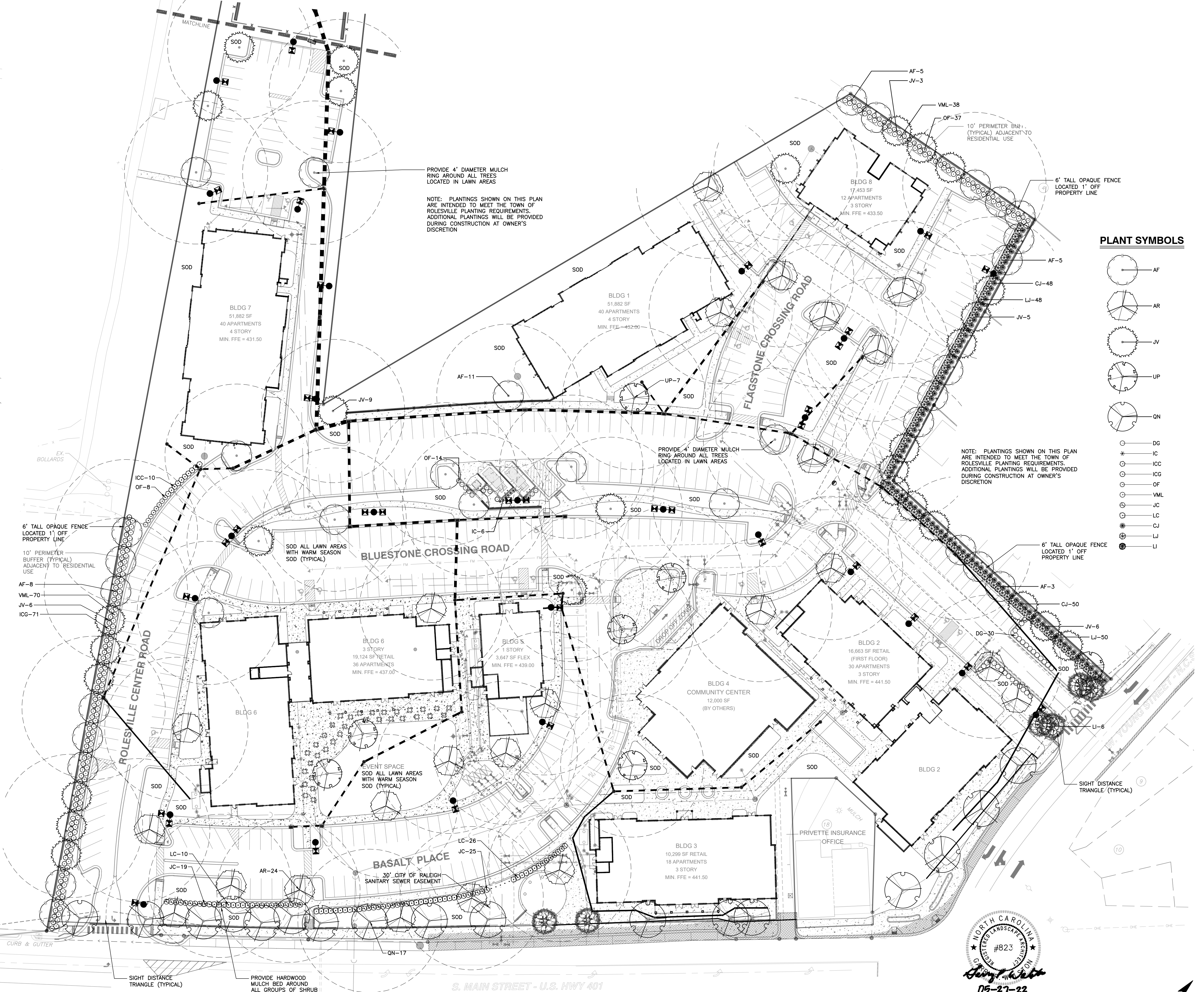
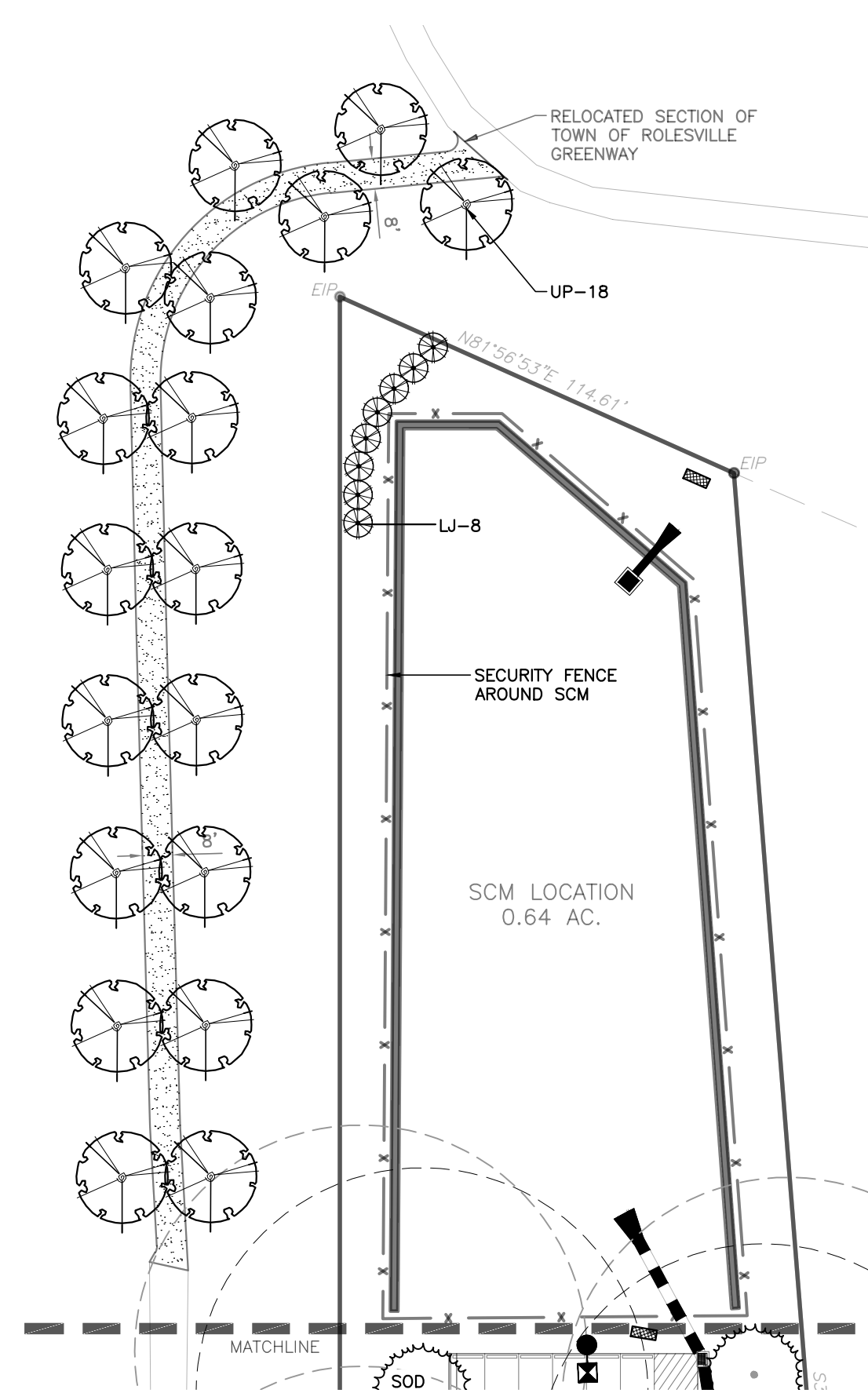
NO.	DATE	DESCRIPTION	BY
3	05-12-22	PER TOR COMMENTS	GW
2	04-20-22	PER TOR COMMENTS	GW
1	5-28-21	PER TOR COMMENTS	GW

PROGRESS	DATE	PER TOR COMMENTS	BY
3	05-12-22	PER TOR COMMENTS	GW
2	04-20-22	PER TOR COMMENTS	GW
1	5-28-21	PER TOR COMMENTS	GW

LANDSCAPE PLAN
 SCALE: 1" = 40'

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET L1.1
 NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



PLANT SYMBOLS

- AF
- AR
- JV
- UP
- QN
- DG
- IC
- ICC
- ICG
- OF
- VML
- JC
- LC
- CJ
- LJ
- LI

PLANT LIST

KEY	SCIENTIFIC NAME	COMMON NAME	QUAN.	CAL.	HT.	ROOT	USE
CANOPY TREES							
AF	Acer freemanii	Freeman Maple	32	2.5"	8'	B&B	Buffer/VUA
AR	Acer rubrum 'Brandywine'	Brandywine Red Maple	24	2.5"	8'	B&B	VUA
JV	Juniperus virginiana	Eastern Red Cedar	29	2.5"	8'	B&B	Buffer/VUA
QN	Quercus nuttallii	Nuttall Oak	17	2.5"	8'	B&B	Street Tree
UP	Ulmus parvifolia 'Allee'	Allee Elm	25	2.5"	8'	B&B	VUA
UNDERSTORY TREES							
LI	Lagerstroemia indica 'Tonto'	Crepe Myrtle	6	1.5"	6'	B&B	Street
SHRUBS							
CJ	Cleyera japonica	Japanese Cleyera	98		24"	CONT.	Buffer
DG	Distylium 'Green Wave'	Green Wave Distylium	30		24"	CONT.	VUA
IC	Ilex crenata 'Sky Pencil'	Sky Pencil Holly	6		36"	CONT.	Dumpster
ICC	Ilex crenata 'Chesapeake'	Chesapeake Holly	10		24"	CONT.	VUA Screen
ICG	Ilex crenata 'Green Lustre'	Green Lustre Japanese Holl	71		24"	CONT.	Buffer
JC	Juniperus chinensis 'Savbrook Gold'	Savbrook Gold Juniper	44		24"	CONT.	VUA Screen
LC	Loropetalum chinense 'Da ruma'	Daruma Loropetalum	36		24"	CONT.	VUA Screen
LJ	Ligustrum japonicum	Wax Ligustrum	106		24"	CONT.	Buffer
OF	Osmanthus fragrans	Fragrant Tea Olive	59		24"	CONT.	Buffer/Screen
VML	Viburnum x 'Moonlit Lace'	Moonlit Lace Viburnum	108		24"	CONT.	Buffer

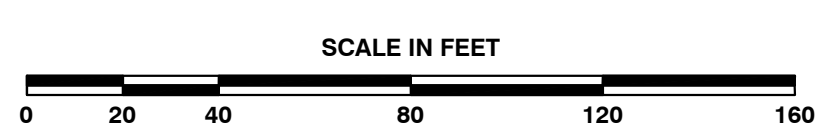


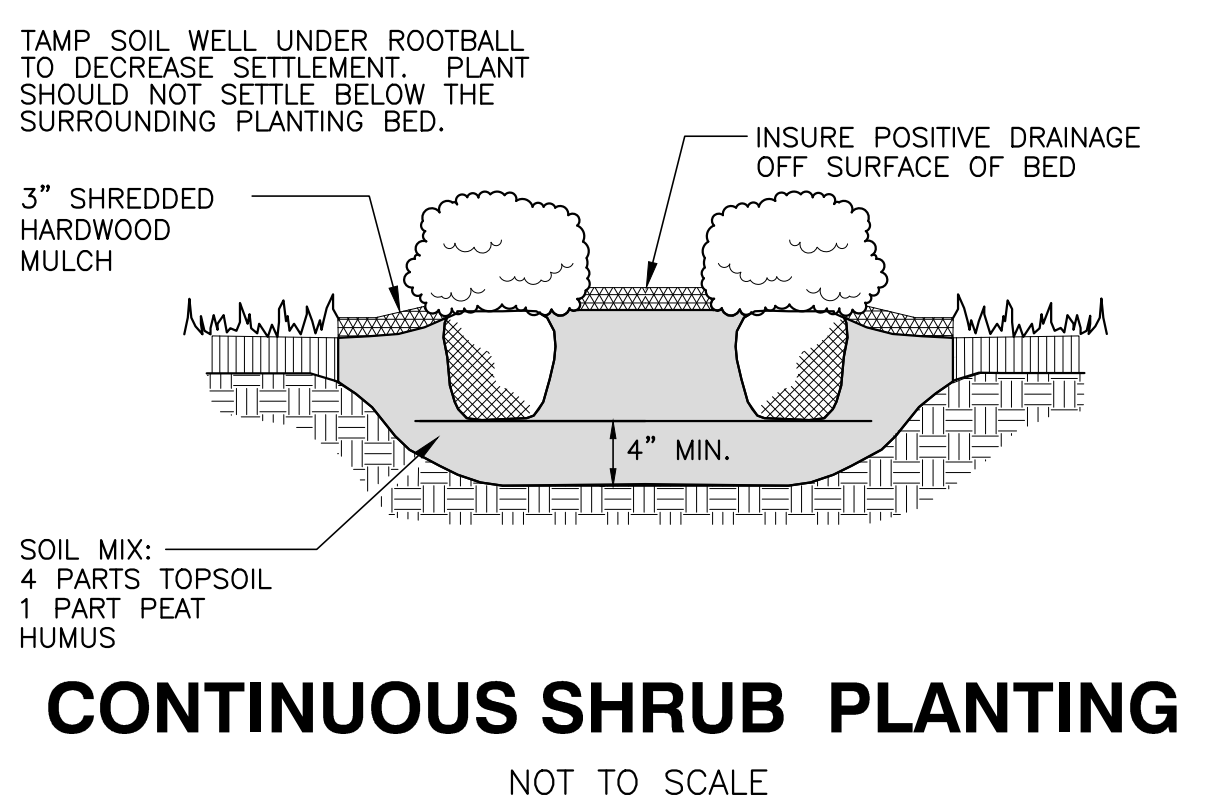
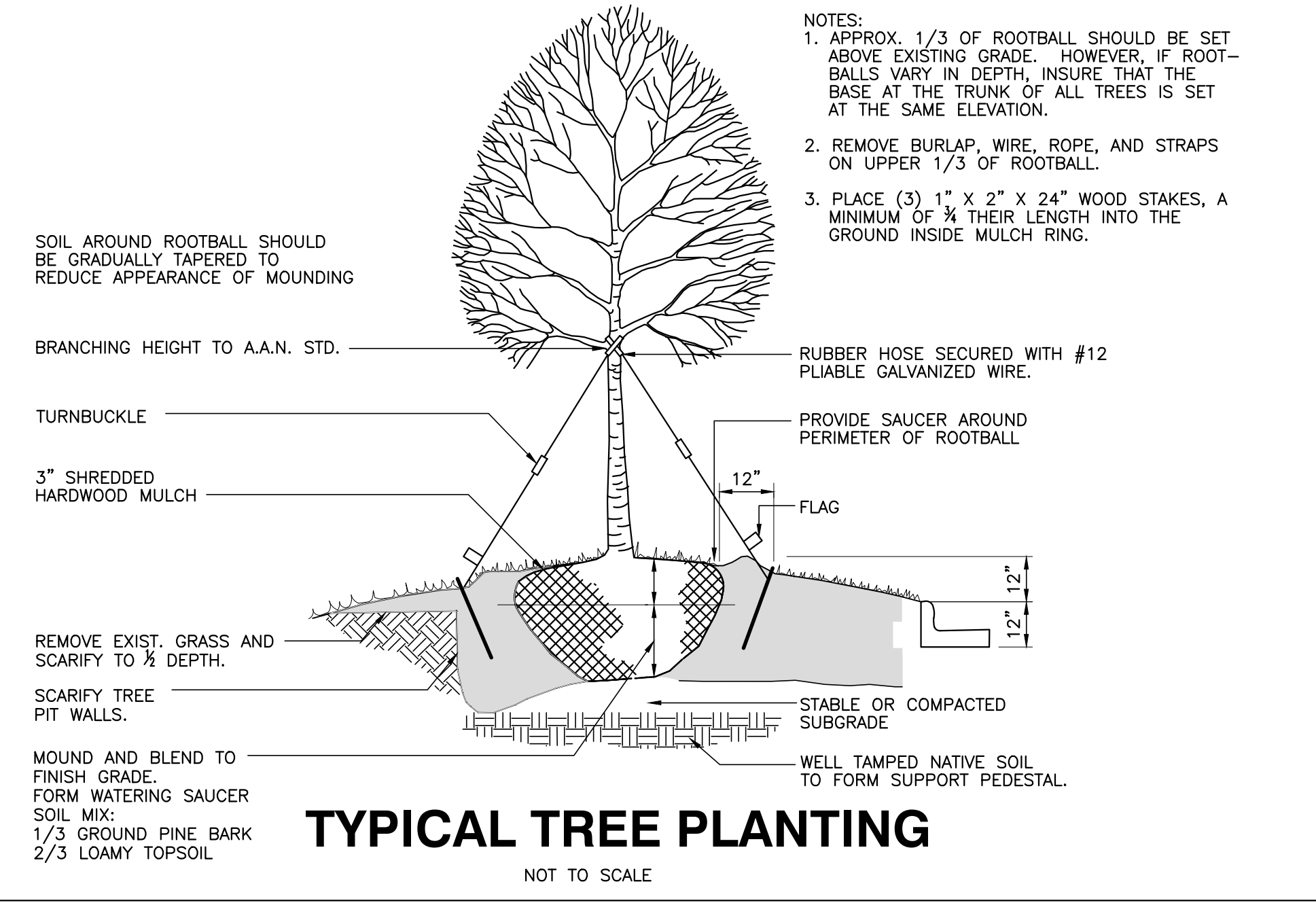
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City of Raleigh Development Approval _____
 Raleigh Water Review Officer

NO FLOODPLAINS EXIST ON-SITE

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BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919) 851-1122 FAX: (919) 851-6868
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

GENERAL NOTES

- A/C UNITS, TRANSFORMERS AND OTHER MECHANICAL OR UTILITY EQUIPMENT, NOT SHOWN ON THE PLAN, SHALL BE SCREENED FROM VIEW EITHER BY ADJUSTING PLANTINGS SHOWN IN CLOSE PROXIMITY TO EQUIPMENT OR BY THE ADDITION OF WAX MYRTLES @ 24" HT, 5" OC (SEE GENERAL NOTES FOR EQUIPMENT ACCESSIBILITY AND PLANTING PROXIMITY, ETC.). DUMPSTER IS SCREENED FROM OFF-SITE VIEWS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLANTING.
- MULCH SHALL BE 3" DEEP SHREDDED HARDWOOD MULCH UNLESS OTHERWISE NOTED.
- VERIFICATION OF TOTAL QUANTITIES AS SHOWN IN THE PLANT LIST AND ON THE PLAN SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES BETWEEN PLANT LIST AND PLANTING PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION.
- ALL TREES, SHRUBS, GROUNDCOVER, ETC. SHALL CONFORM TO ACCEPTED STANDARDS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL ROOTBALLS REMOVED FROM CONTAINERS SHALL BE SCARIFIED PRIOR TO PLANTING.
- B&B AS LISTED UNDER "ROOT" IN THE PLANT LIST INDICATES BALLED & BURLAPPED.
- ALL PLANTS/PLANTINGS SHALL BE MULCHED IMMEDIATELY AFTER PLANTING AND WATERED.
- ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THEY BORE TO PREVIOUS EXISTING GRADE (UNLESS OTHERWISE NOTED).
- ALL TREES AND SHRUBS SHALL REQUIRE MULCH RINGS AT THEIR BASE IF LEFT WITHIN LAWN AREAS.
- MULCH EDGES AND PROPOSED PLANTINGS SHALL NOT DISTURB ANY EXISTING GROUPS OF TREES TO REMAIN. EDGES ARE SHOWN FOR APPROXIMATION ONLY, BUT ARE TO INDICATE SMOOTH, CLEAN CURVES.
- CULVERTS, RIP-RAP STRUCTURES, AND OTHER STORMWATER DEVICES SHALL BE SCREENED WITH EVERGREEN SHRUBS. IF STRUCTURES ARE NOT SHOWN ON THE PLAN, INSTALL WAX MYRTLES @ 24" HT. - 5" OC.
- A 2' BUMPER OVERHANG, FROM THE BACK OF CURB, SHALL BE ALLOTTED FOR MATURE SHRUBS.
- TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY (C.O.). THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A (C.O.).
- UNLESS OTHERWISE NOTED ON THE PLAN, ALL DISTURBED AREAS ARE TO BE SEEDED WITH WARM SEASON GRASS, INCLUDING PARKING LOT PERIMETERS AND PARKING LOT ISLANDS.
- PERIMETER BUFFER AREAS ARE TO BE MULCHED TO A DEPTH OF THREE INCHES.

LANDSCAPE CALCULATIONS

PERIMETER BUFFERS (10' TYPICAL):
 WEST (1) - 352 LF = 4 TREES / 100 LF = 14 TREES REQUIRED/PROVIDED
 = 40 SHRUBS / 100 LF = 141 SHRUBS REQUIRED/PROVIDED
 = 352 LF MIN. 6' TALL FENCE REQUIRED

NORTH (2) - 187 LF = 4 TREES / 100 LF = 8 TREES REQUIRED/PROVIDED
 = 40 SHRUBS / 100 LF = 75 SHRUBS REQUIRED/PROVIDED
 = 187 LF MIN. 6' TALL FENCE REQUIRED

NORTHEAST (3) - 240 LF = 4 TREES / 100 LF = 10 TREES REQUIRED/PROVIDED
 = 40 SHRUBS / 100 LF = 96 SHRUBS REQUIRED/PROVIDED
 = 240 LF MIN. 6' TALL FENCE REQUIRED

EAST (4) - 247 LF = 4 TREES / 100 LF = 10 TREES REQUIRED/PROVIDED
 = 40 SHRUBS / 100 LF = 100 SHRUBS REQUIRED/PROVIDED
 = 247 LF MIN. 6' TALL FENCE REQUIRED

STREET YARDS:
 MAIN ST - 595 LF = 1 TREE / 50 LF = 12 TREES REQUIRED/PROVIDED
 WEST YOUNG ST - 242 LF = 1 TREE / 50 LF = 5 TREES REQUIRED/PROVIDED

VEHICULAR USE AREA COVERAGE: 1 TREE WITHIN 60' OF EACH PARKING SPACE

PLANTING NOTES:
 LOCATE PLANTS AND PLANTING BEDS BY USING SCALED DIMENSIONS FROM STREET, PROPERTY LINES, BACK OF CURB, BUILDINGS, WALLS, ETC. ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET BY THE U.S.D.A. FOR NURSERY STOCK SPONSORED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC., WASHINGTON, D.C. NO SUBSTITUTIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE OWNER AND/OR THE LANDSCAPE ARCHITECT. SYMBOLS: B&B = BALLED & BURLAPPED; B.R. = BARE ROOT; CONT. = CONTAINER, O.C. = ON-CENTER

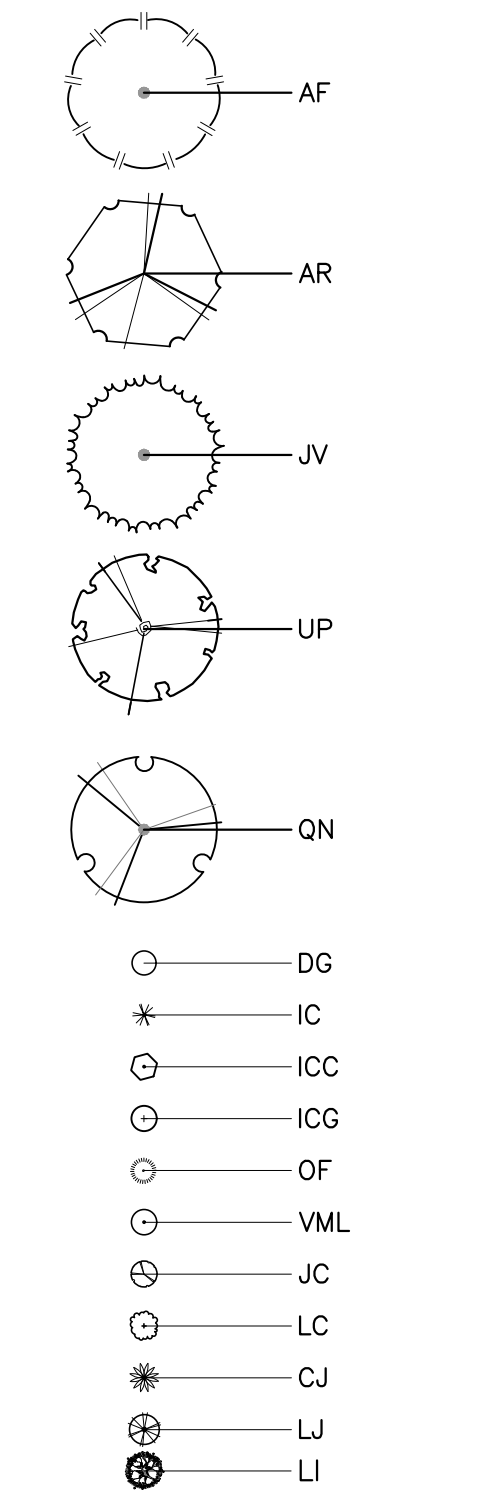
STREET TREE PLANTINGS TO BE COORDINATED IN CONCURRENCE WITH NCDOT STREETSCAPE IMPROVEMENT PROJECT ALONG S. MAIN AND YOUNG STREET(S).

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PLANT SYMBOLS



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R:\2019\191157 - Rolesville Town Center\CIVIL\04_Construction\08 - 191157_Landscape.dwg, Landscape Details, 5/27/2022 3:21:27 PM, marc.mueller

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PROGRESS	DATE	BY	DESCRIPTION
03-19-17		GW	
05-12-22		GW	PER TOR COMMENTS
04-20-22		GW	PER TOR COMMENTS
5-28-21		GW	PER TOR COMMENTS
		BY	

LANDSCAPE DETAILS

SCALE: N.T.S. CHK BY: GPW

SHEET L1.2

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

Outdoor Lighting
Shoebox LED



The energy-efficient Shoebox LED combines a decorative, contemporary style with versatility and ample lighting effect that is perfect for streets, parking lots, commercial buildings and residential communities. The Shoebox LED provides excellent color rendition along with a controlled light pattern that reduces glare and keeps the light directed only where you want it. Available in black, dark bronze, gray or white with one to four fixtures per pole.

- LED (Light Emitting Diode) 150, 220, 420, 530 watts
 - Mounting heights 25', 30', 35'
 - Colors Black, Bronze, Gray, White
 - Poles Fiberglass (1 or 2 fixtures per pole), Decorative tapered metal, Decorative square metal
- Note: 35' pole available in black or bronze only.

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

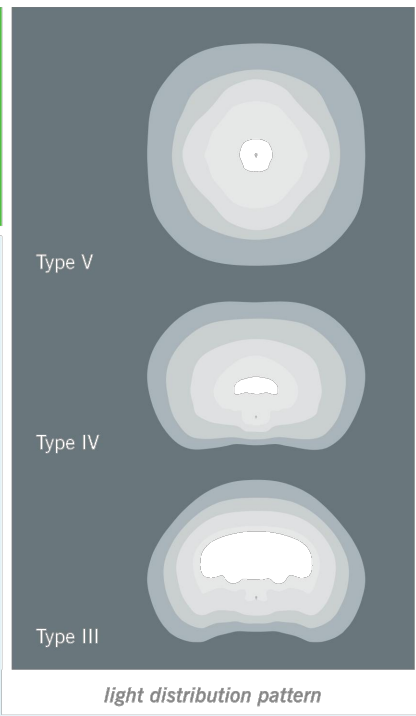


Outdoor Lighting
Shoebox LED

Light source: LED (white)
Replacement for* LED Wattage 150 – 250-watt HPS and metal halide;
LED Wattage 205 – up to 400-watt metal halide;
LED Wattage 530 – 1,000-watt metal halide

Warm-up and restrike time: Instant on (no warm-up or restrike time)

Wattage	BUG Rating	Light Pattern	Lumens	Color Temp
LED 150	B5-U0-G3	IESNA Type V (circular)	19580	4,000K
LED 150	B3-U0-G4	IESNA Type IV (forward throw)	18459	
LED 150	B2-U0-G3	IESNA Type III (oval)	19006	
LED 220	B5-U0-G3	IESNA Type V (circular)	25870	
LED 220	B3-U0-G4	IESNA Type IV (forward throw)	24390	
LED 220	B2-U0-G4	IESNA Type III (oval)	25114	
LED 420	B5-U0-G5	IESNA Type V (circular)	48514	
LED 420	B3-U0-G5	IESNA Type IV (forward throw)	43765	
LED 530	B5-U0-G5	IESNA Type V (circular)	60296	
LED 530	B3-U0-G5	IESNA Type IV (forward throw)	54395	

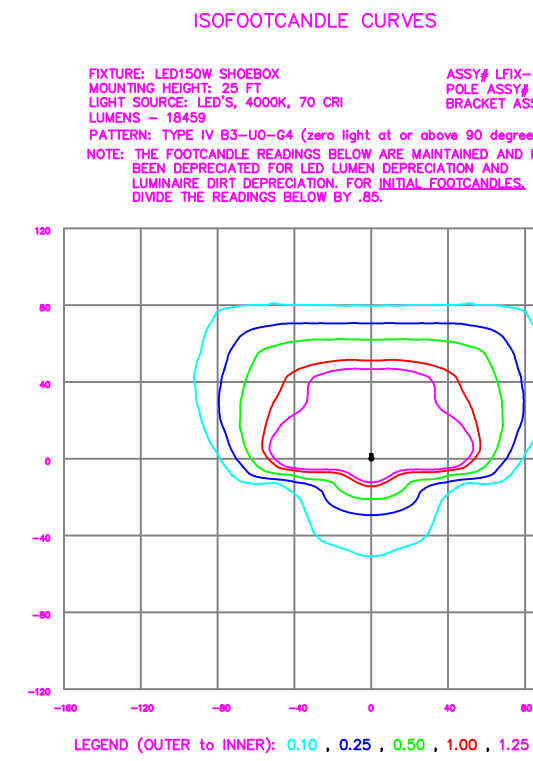
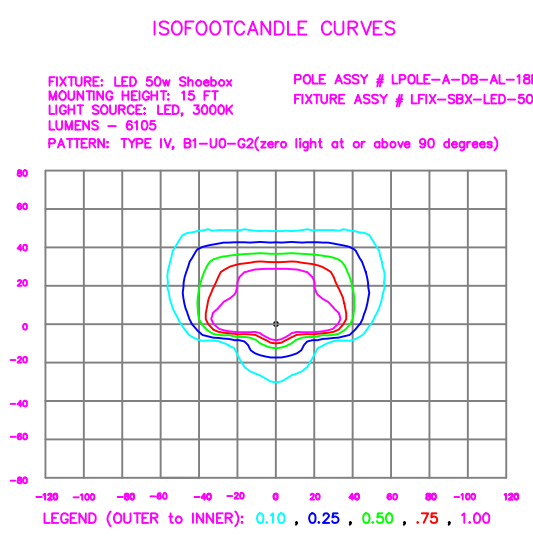
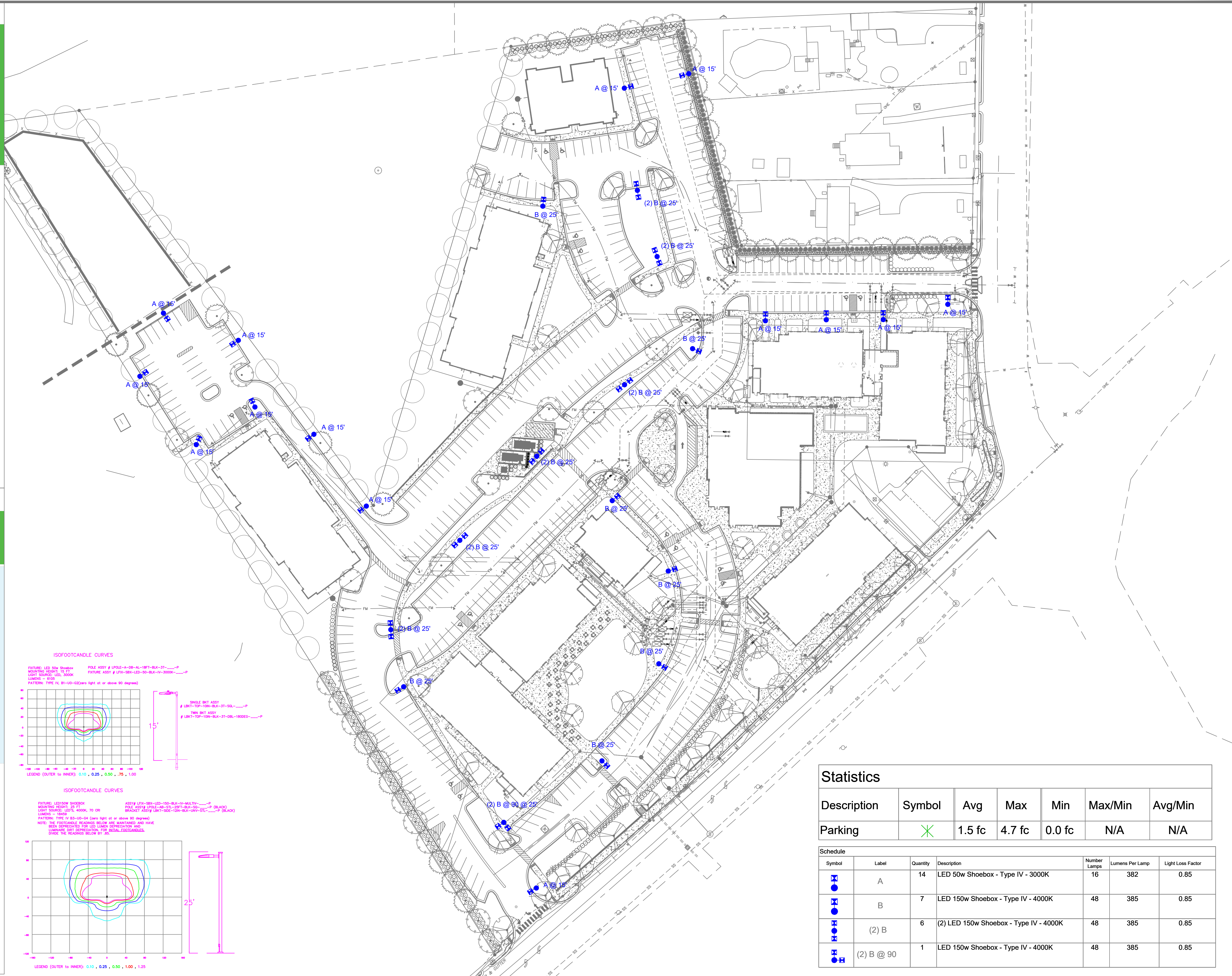


Poles available:

Name	Mounting height	Color
Round tapered decorative metal*	35'	Black, Bronze
Decorative square metal*	25' and 30'	Black, Bronze, Gray, White
Fiberglass	30'	Black (1 or 2 fixtures per pole), Gray (1 or 2 fixtures per pole)

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

*2" raised foundation available when required on metal poles only.



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking	X	1.5 fc	4.7 fc	0.0 fc	N/A	N/A

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
A	A	14	LED 50w Shoebox - Type IV - 3000K	16	382	0.85
B	B	7	LED 150w Shoebox - Type IV - 4000K	48	385	0.85
(2) B	(2) B	6	(2) LED 150w Shoebox - Type IV - 4000K	48	385	0.85
(2) B @ 90	(2) B @ 90	1	LED 150w Shoebox - Type IV - 4000K	48	385	0.85

Customer approval _____
Date _____

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

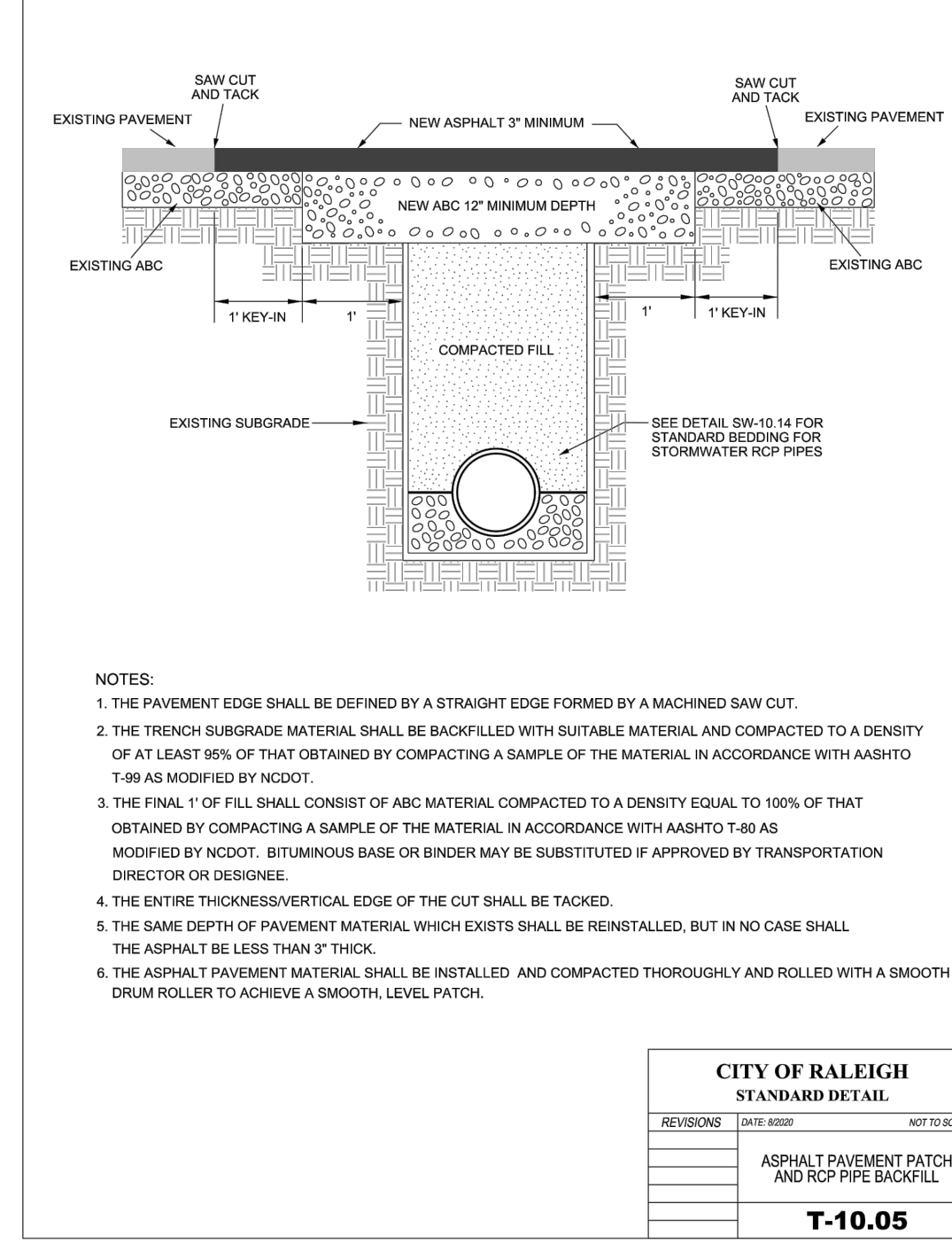
LIGHTING DESIGN TOLERANCE
The calculated footcandle light levels on this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (follage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.



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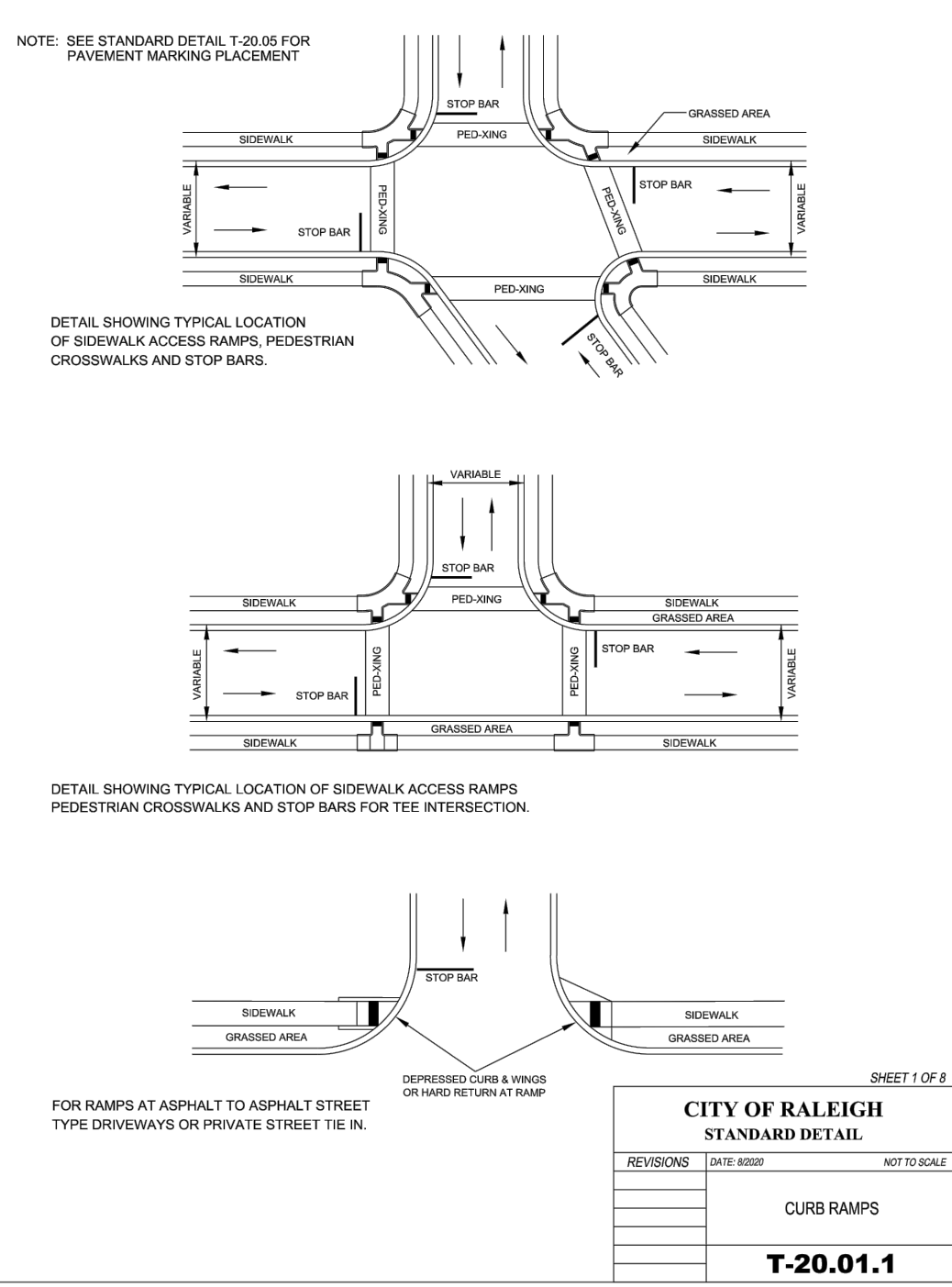
COBBLESTONE VILLAGE
Rosesville, NC
SITE LIGHTING PLAN
Designed by DEP LIGHTING SOLUTIONS
Reviewed by T. Ferguson Scale 1" = 50'
Date 02/14/2022 Size Arch D
Description LED Shoebox
Drawing No. 22-0047A Sht. 1 OF 1

REV#	DATE	REVISION	BY
Rev A	02/14/22	LED Shoebox	NJ

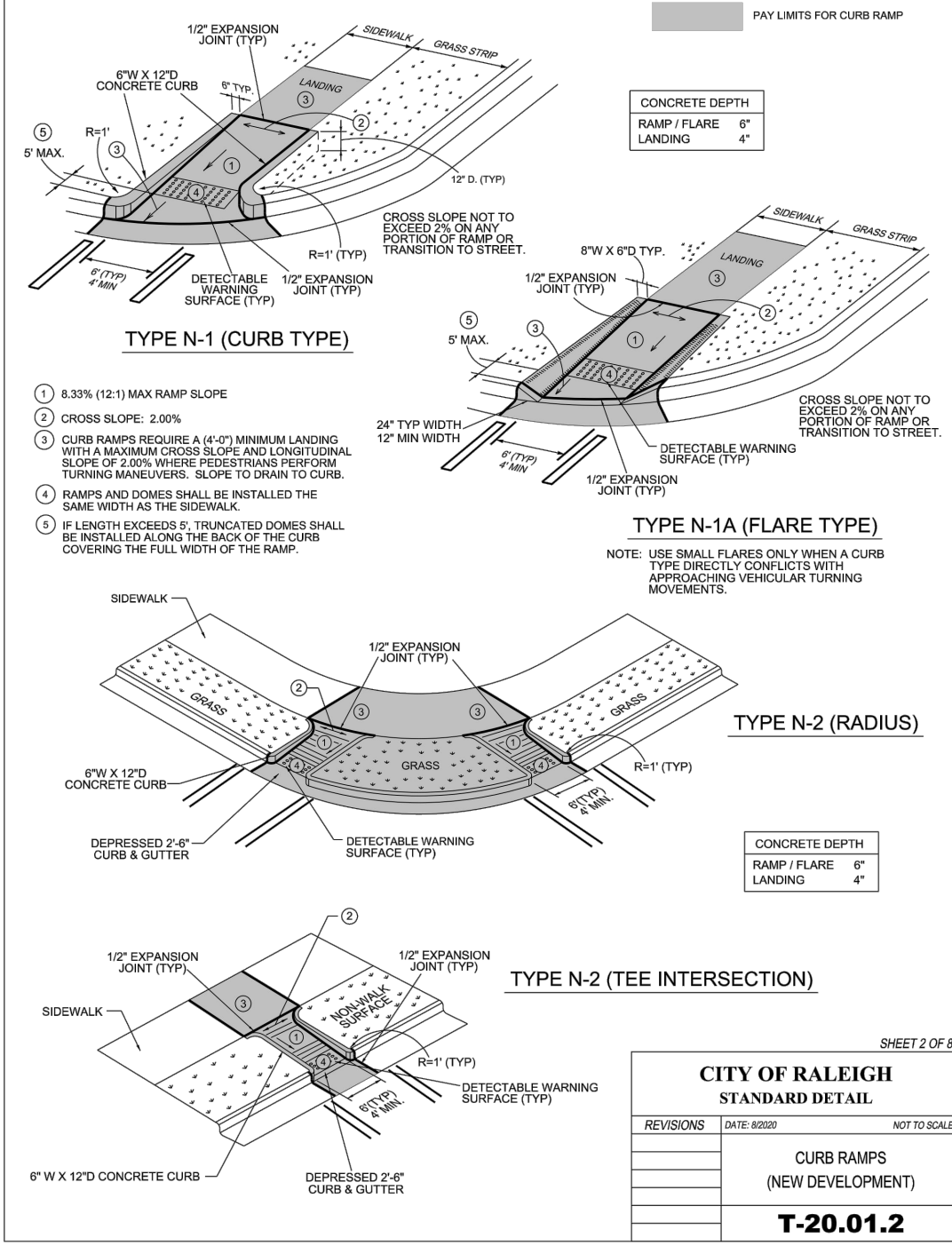


- NOTES:
1. THE PAVEMENT EDGE SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT.
 2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 98% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 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-99 AS MODIFIED BY NCDOT. BITUMINOUS BASE OR BINDER MAY BE SUBSTITUTED IF APPROVED BY TRANSPORTATION DIRECTOR OR DESIGNEE.
 4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
 5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
 6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRAIN ROLLER TO ACHIEVE A SMOOTH, LEVEL PATCH.

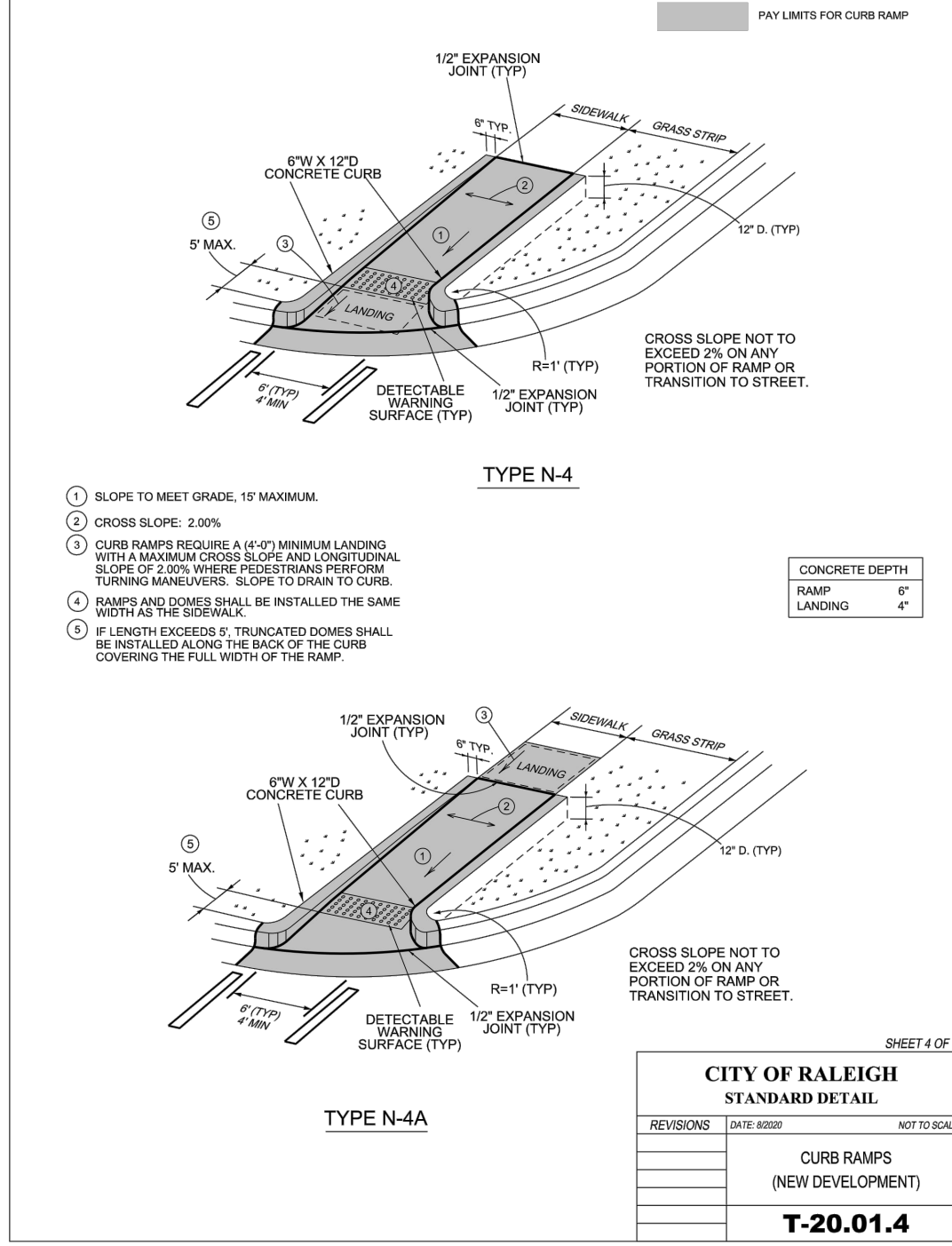
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL			
T-10.05			



CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB RAMPS			
T-20.01.1			



CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB RAMPS (NEW DEVELOPMENT)			
T-20.01.2			



CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB RAMPS			
T-20.01.4			

CITY OF RALEIGH CURB RAMPS GENERAL NOTES

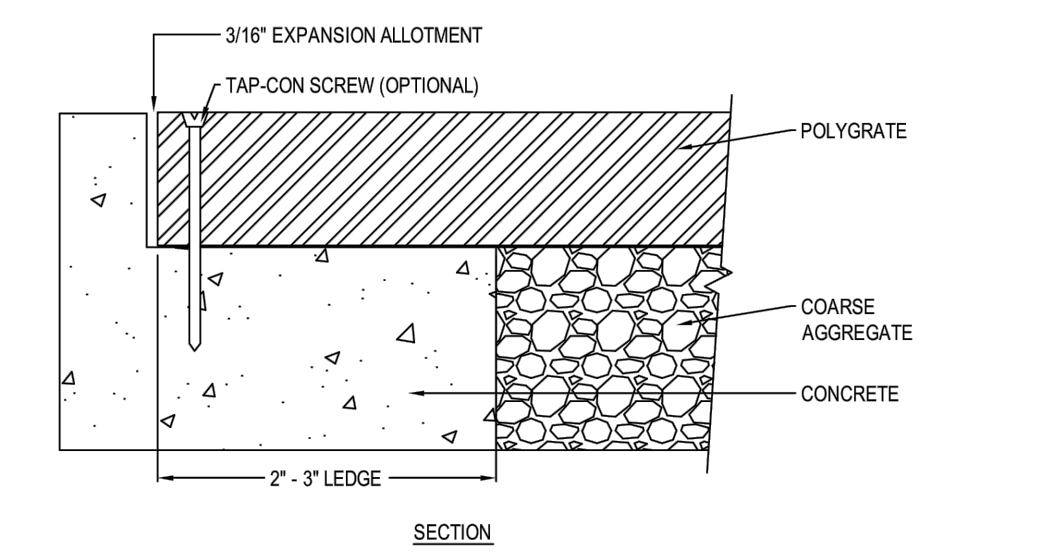
1. CITY OF RALEIGH STANDARD CURB RAMPS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHT OF WAY ACCESS GUIDELINES (PROWAG).
2. CURB RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SIDEWALK ACCESS RAMPS SHALL BE LOCATED AS INDICATED IN THE DETAIL, HOWEVER, THE LOCATION MAY BE ADJUSTED IN COORDINATION WITH THE CITY OF RALEIGH WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT.
3. DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED.
4. THE WALKING SURFACE SHALL BE SLIP RESISTANT. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE YELLOW FOR CONTRAST.
5. NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1" (12:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. IN NO CASE SHALL THE WIDTH OF THE SIDEWALK ACCESS RAMP BE LESS THAN 48" ALL RAMPS SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
7. USE CLASS 3 (3000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NONSKID SURFACE.
8. A 1/2" EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE SIDEWALK ACCESS RAMP JOINS THE CURB AND ALSO WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.
9. CURB RAMPS SHOULD BE PLACED PARALLEL TO THE DIRECTION OF TRAVEL.

CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB RAMP NOTES			
T-20.01.8			

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHARLETT HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 881-1122 FAX: (919) 881-6888
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

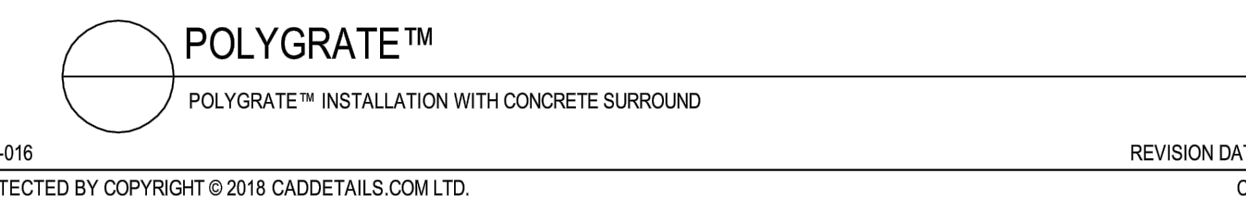


POLYGRATE
3401 CHIEF DRIVE
HOLLY, MI 48442-9333
TOLL FREE: 1-800-523-6899
PHONE: (810) 953-9400
FAX: (810) 953-9440
www.polygrate.com



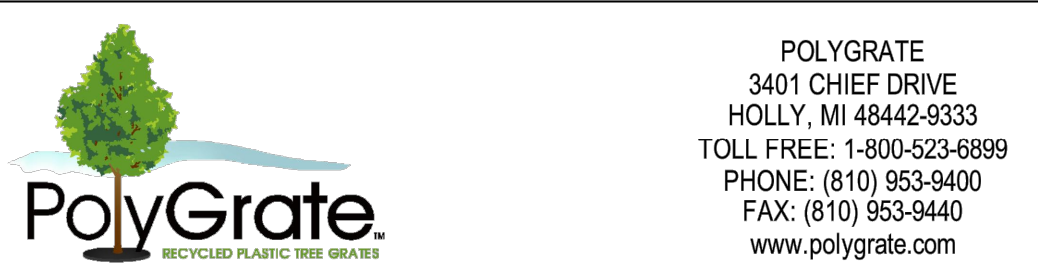
PRODUCT AND MATERIAL TEST DATA			
RESIN PROPERTIES	ASTM TEST	UNITS	TYPICAL VALUES
DENSITY	D-1505	G / CC	0.957
MELT INDEX	D-1238	G / 10 MIN	7
MOLDED PROPERTIES	ASTM TEST	UNITS	TYPICAL VALUES
MODULUS	D-638	PSI	198,000
TENSILE AT YIELD	D-638	PSI	430
ELONGATION AT BREAK	D-638	%	1,400
FLEXURAL MODULUS	D-790	PSI	194,000

- NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 2. DO NOT SCALE DRAWING.
 3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
 4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
 5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 1063-016

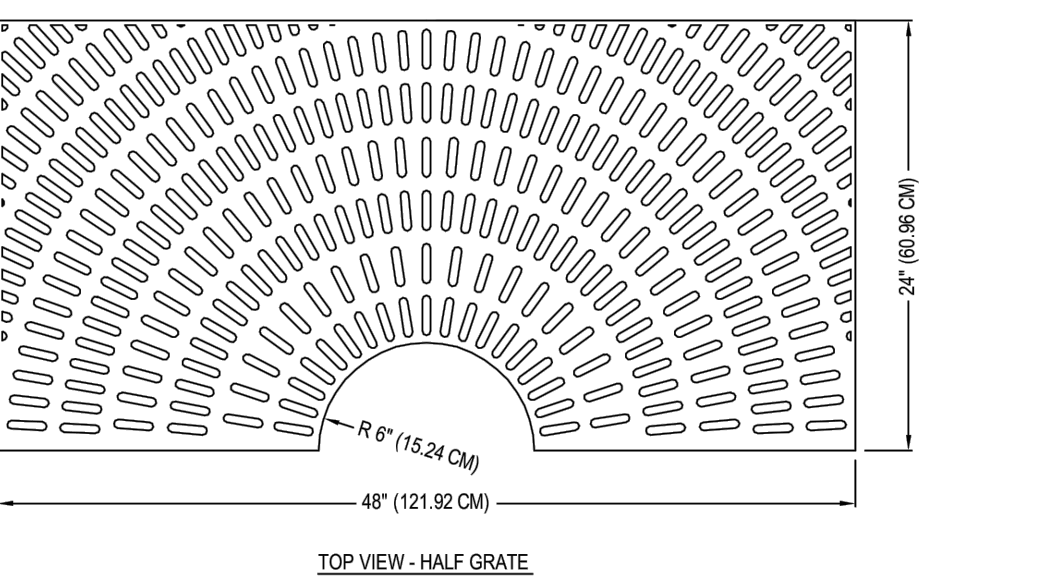


1063-016
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REVISION DATE: 01/26/2018
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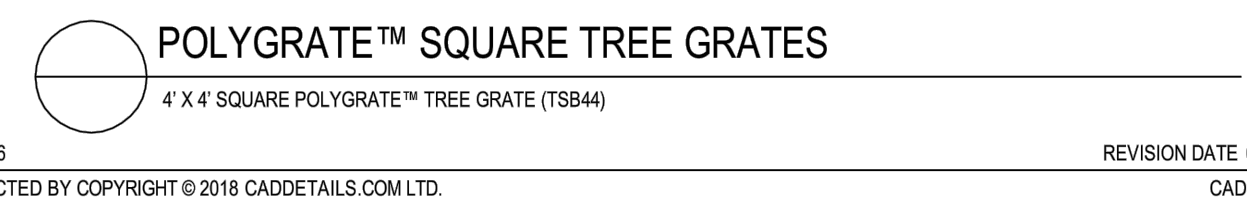


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TOLL FREE: 1-800-523-6899
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FAX: (810) 953-9440
www.polygrate.com



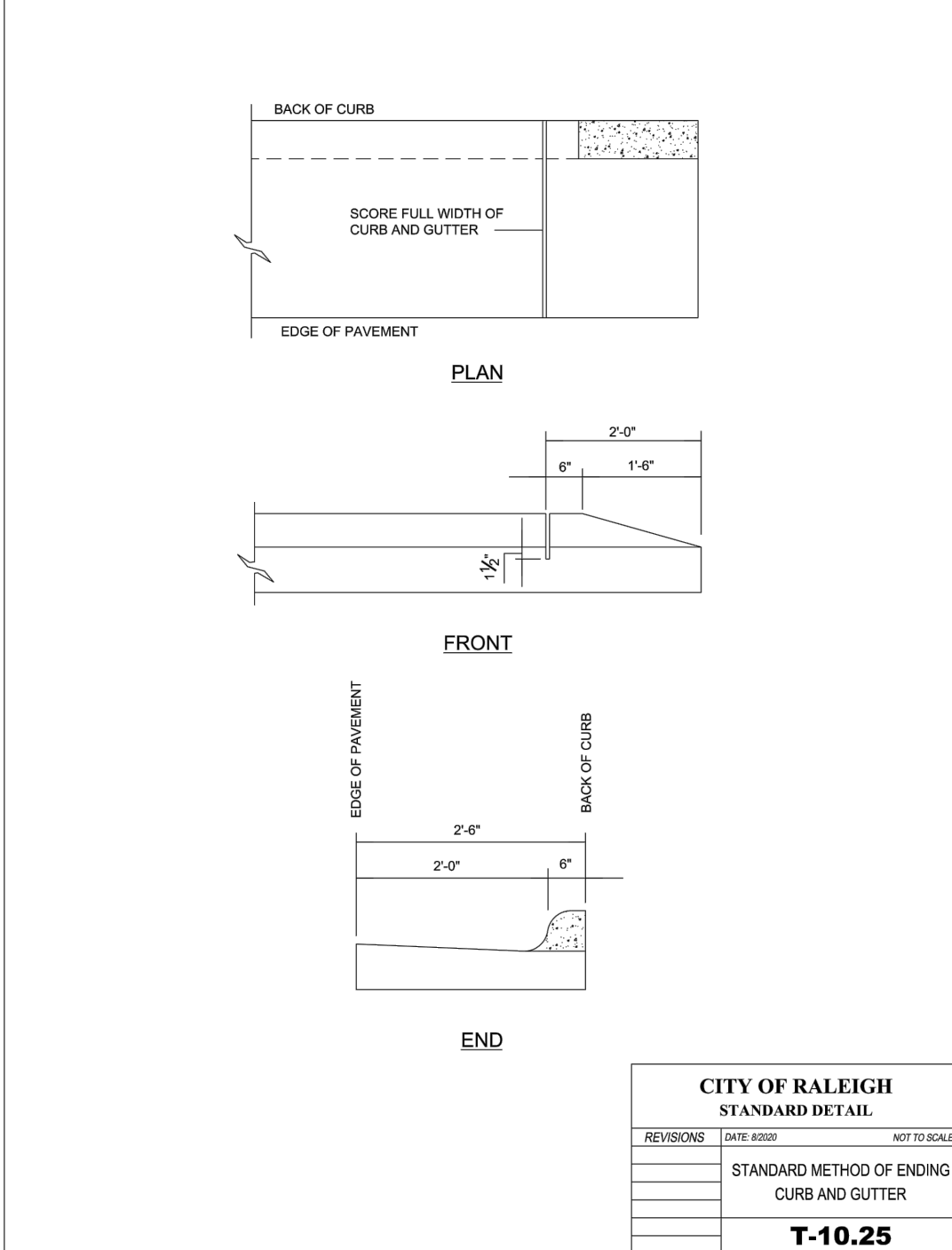
PRODUCT AND MATERIAL TEST DATA			
RESIN PROPERTIES	ASTM TEST	UNITS	TYPICAL VALUES
DENSITY	D-1505	G / CC	0.957
MELT INDEX	D-1238	G / 10 MIN	7
MOLDED PROPERTIES	ASTM TEST	UNITS	TYPICAL VALUES
MODULUS	D-638	PSI	198,000
TENSILE AT YIELD	D-638	PSI	430
ELONGATION AT BREAK	D-638	%	1,400
FLEXURAL MODULUS	D-790	PSI	194,000

- NOTES:
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 4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
 5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 1063-008

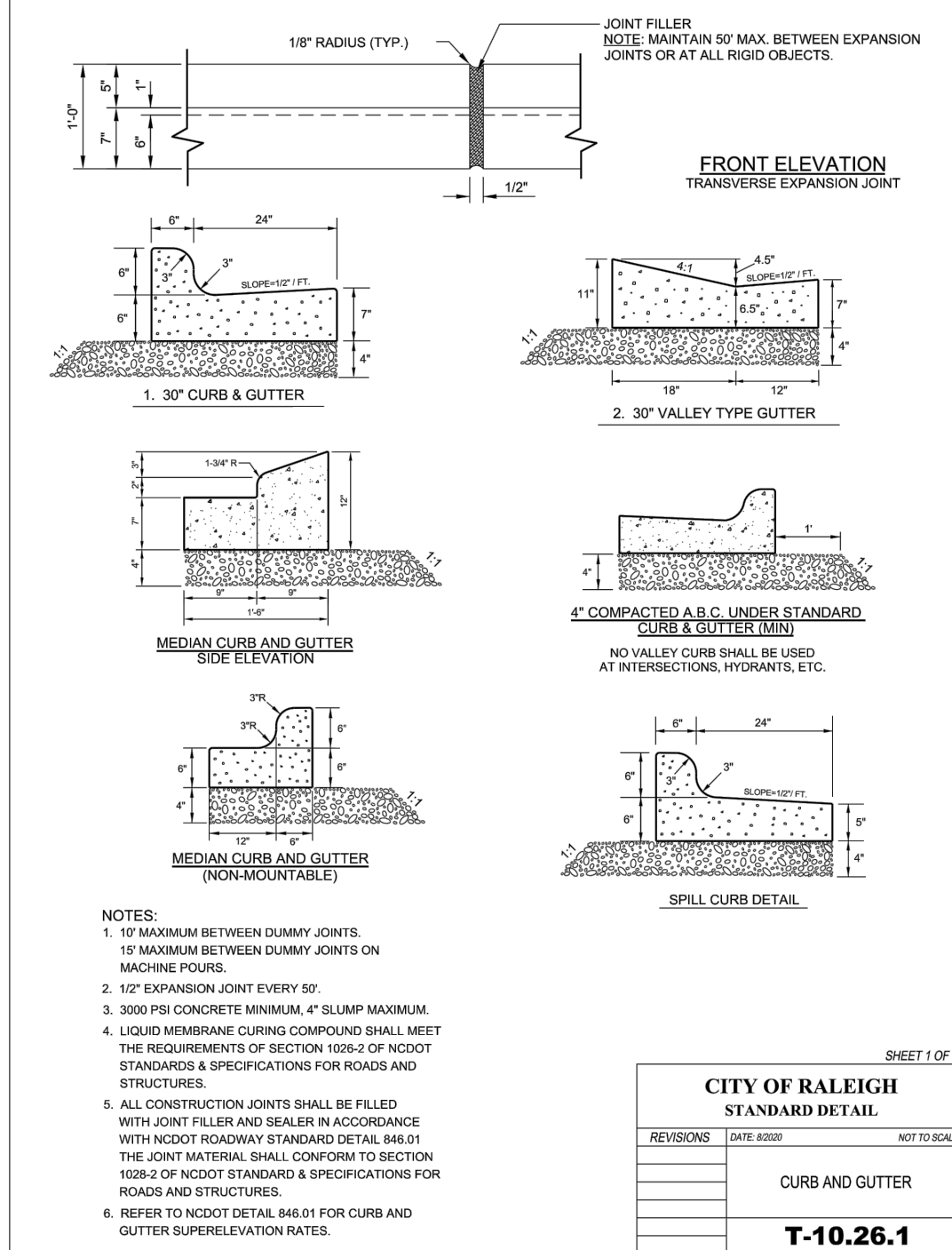


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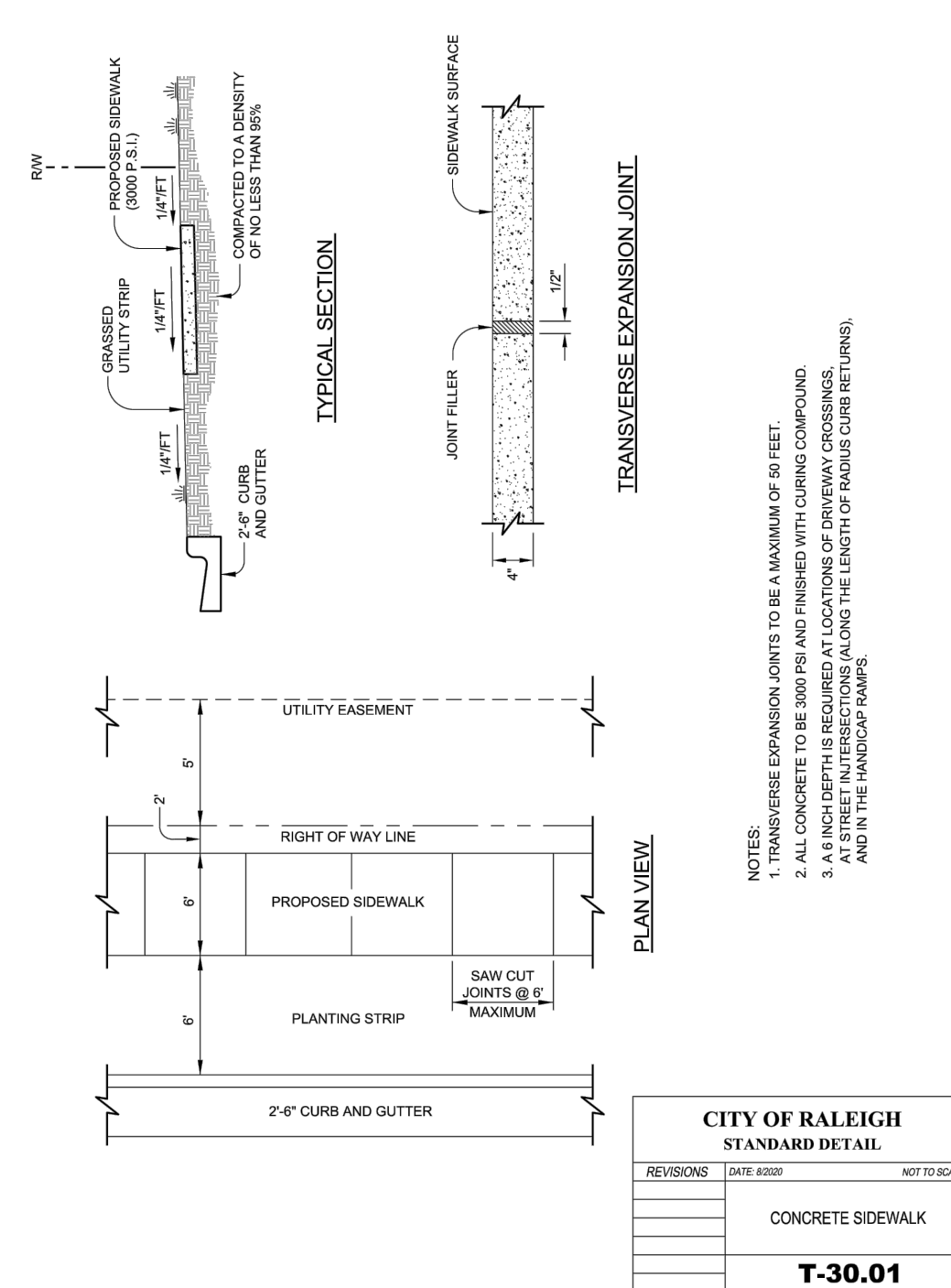
REVISION DATE: 01/26/2018
CADdetails.com



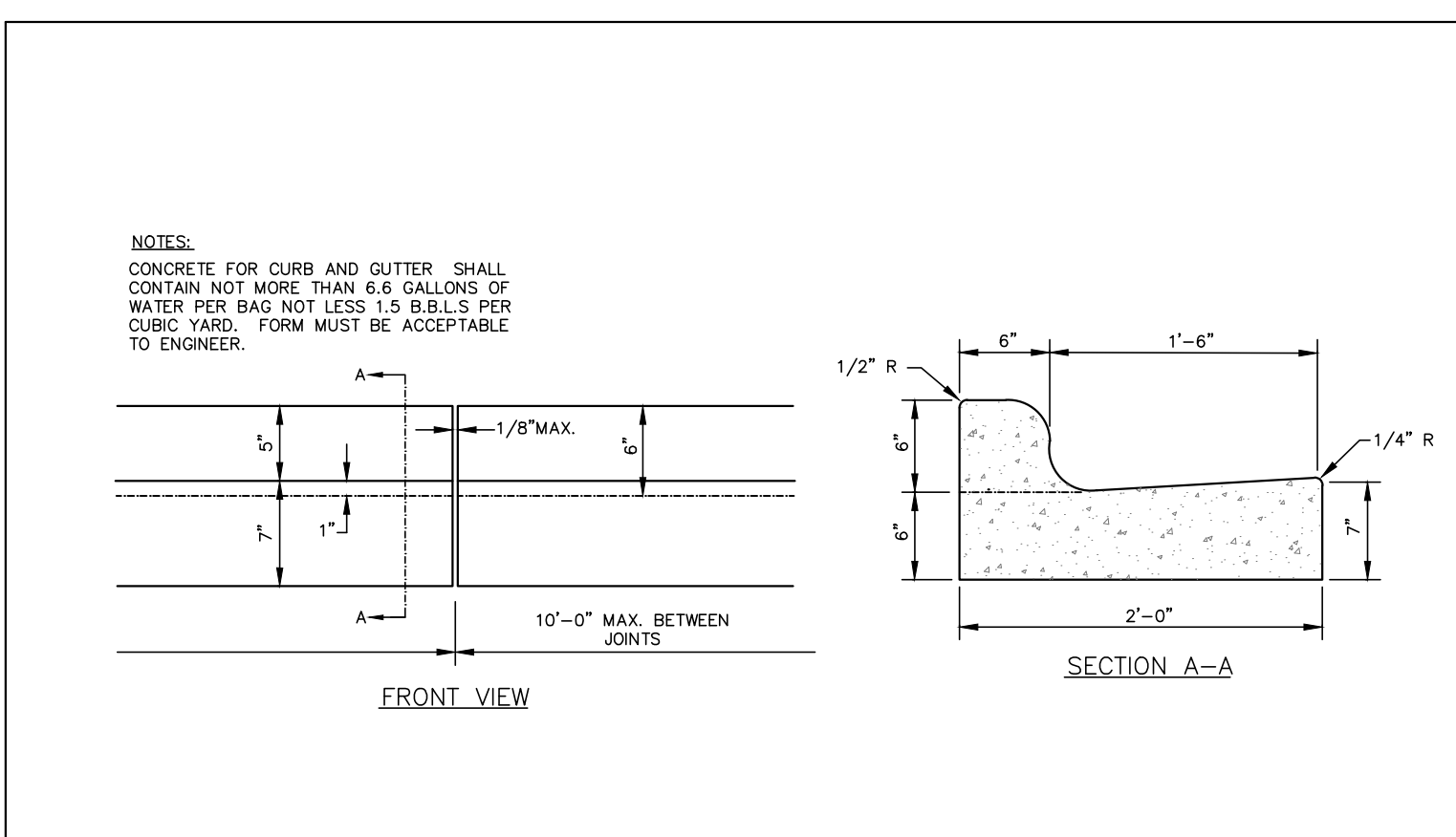
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
STANDARD METHOD OF ENDING CURB AND GUTTER			
T-10.25			



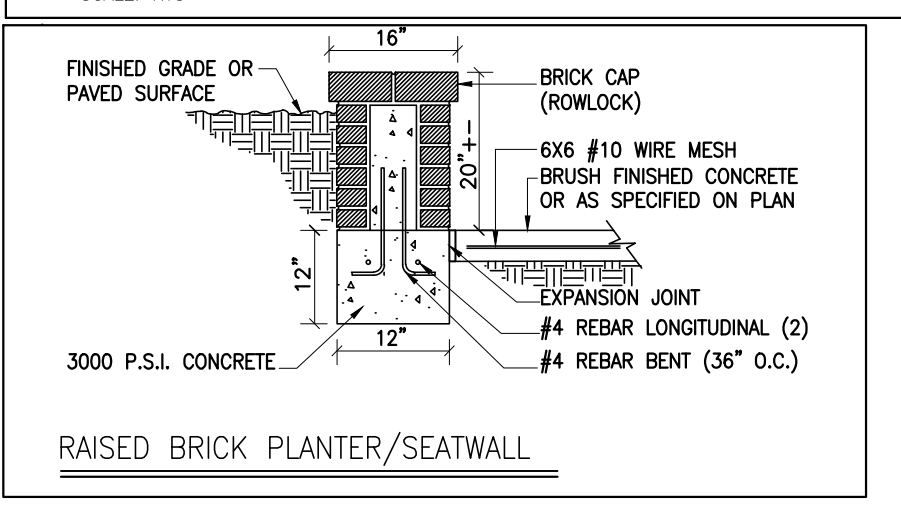
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB AND GUTTER			
T-10.26.1			



CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CONCRETE SIDEWALK			
T-30.01			



TYPICAL CURB AND GUTTER SECTION 24" FOR PRIVATE STREETS AND DRIVES ONLY
SCALE: NTS



RAISED BRICK PLANTER/SEATWALL

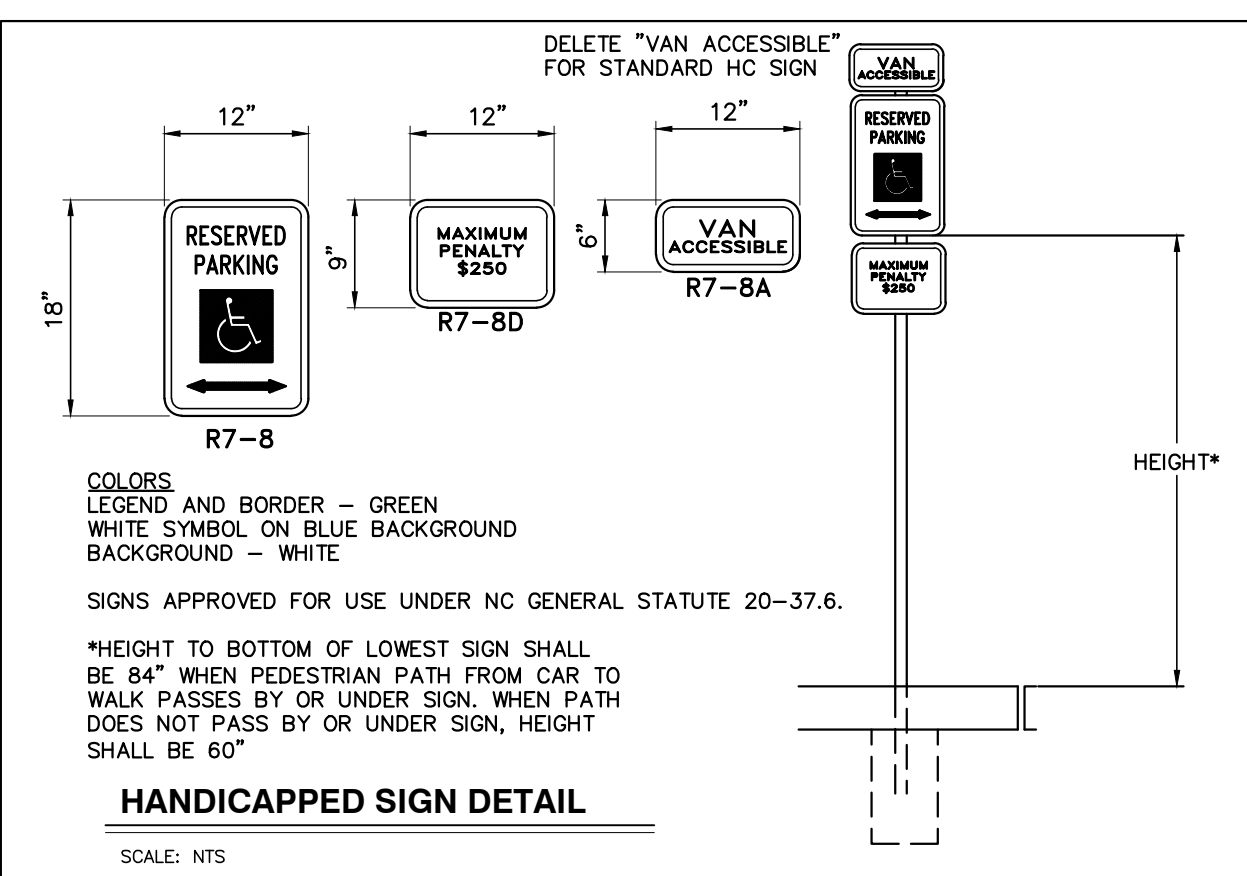
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh 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 Development Approval _____

Raleigh Water Review Officer _____

06/02/22

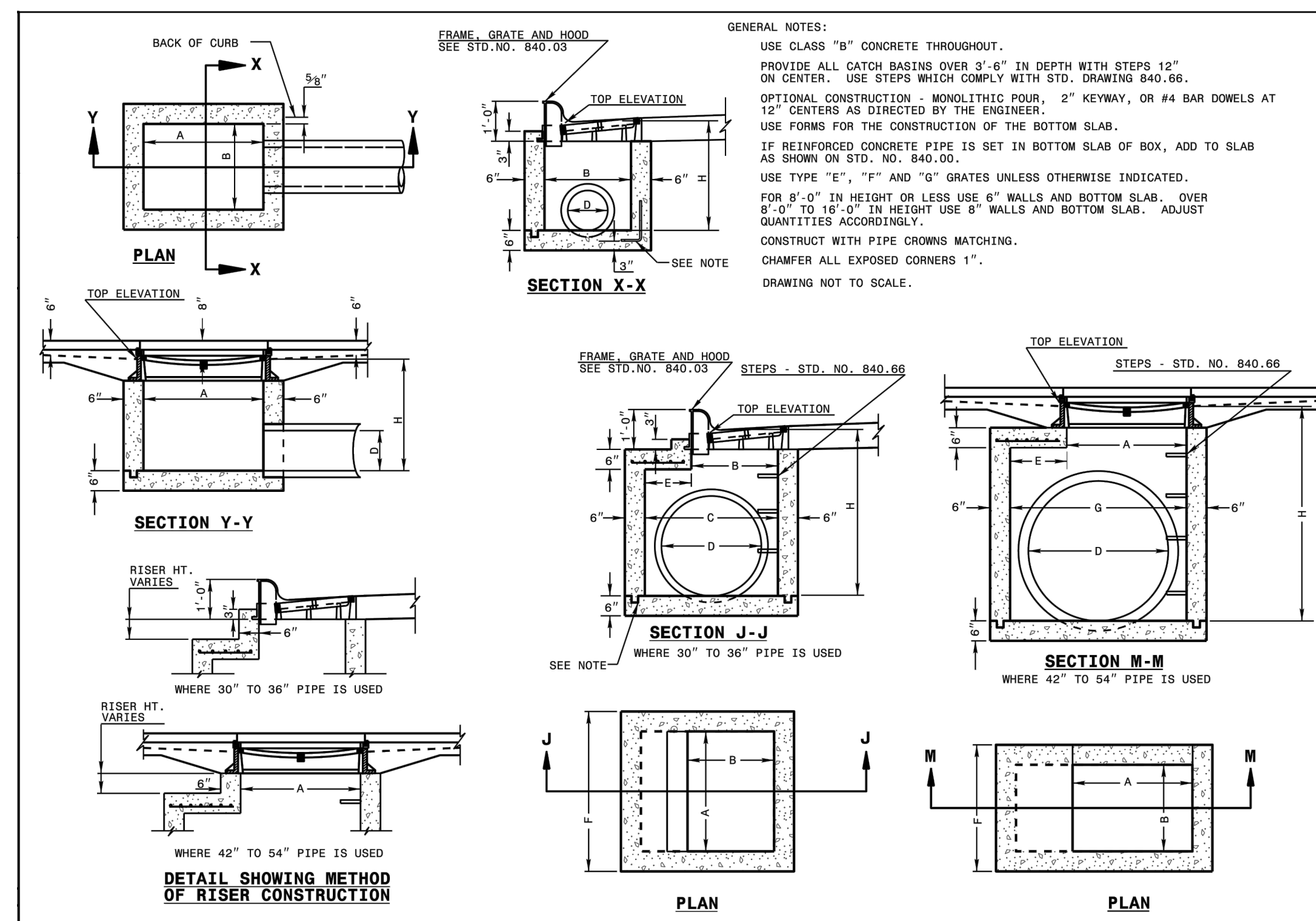


HANDICAPPED SIGN DETAIL
SCALE: NTS

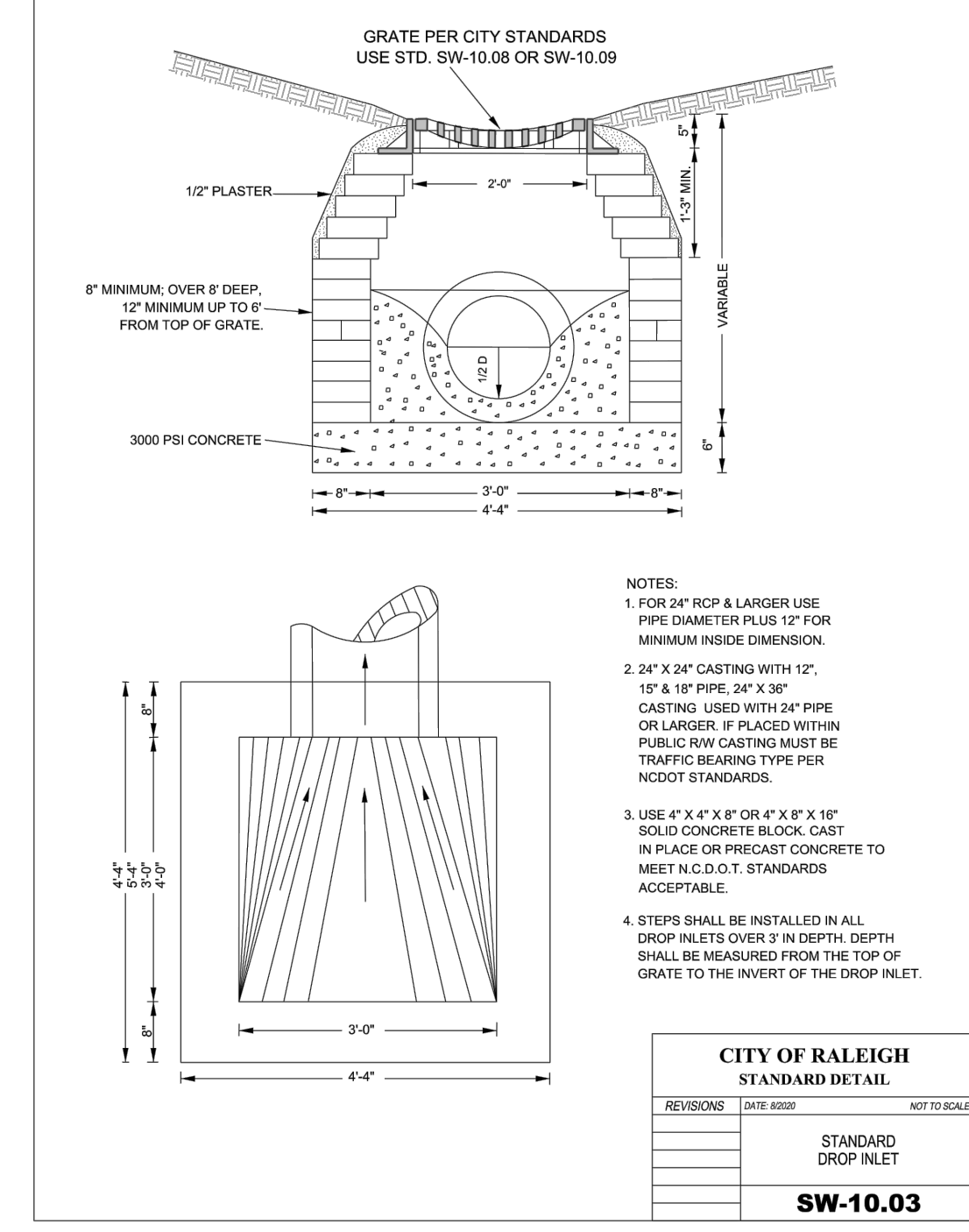
NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C5.1

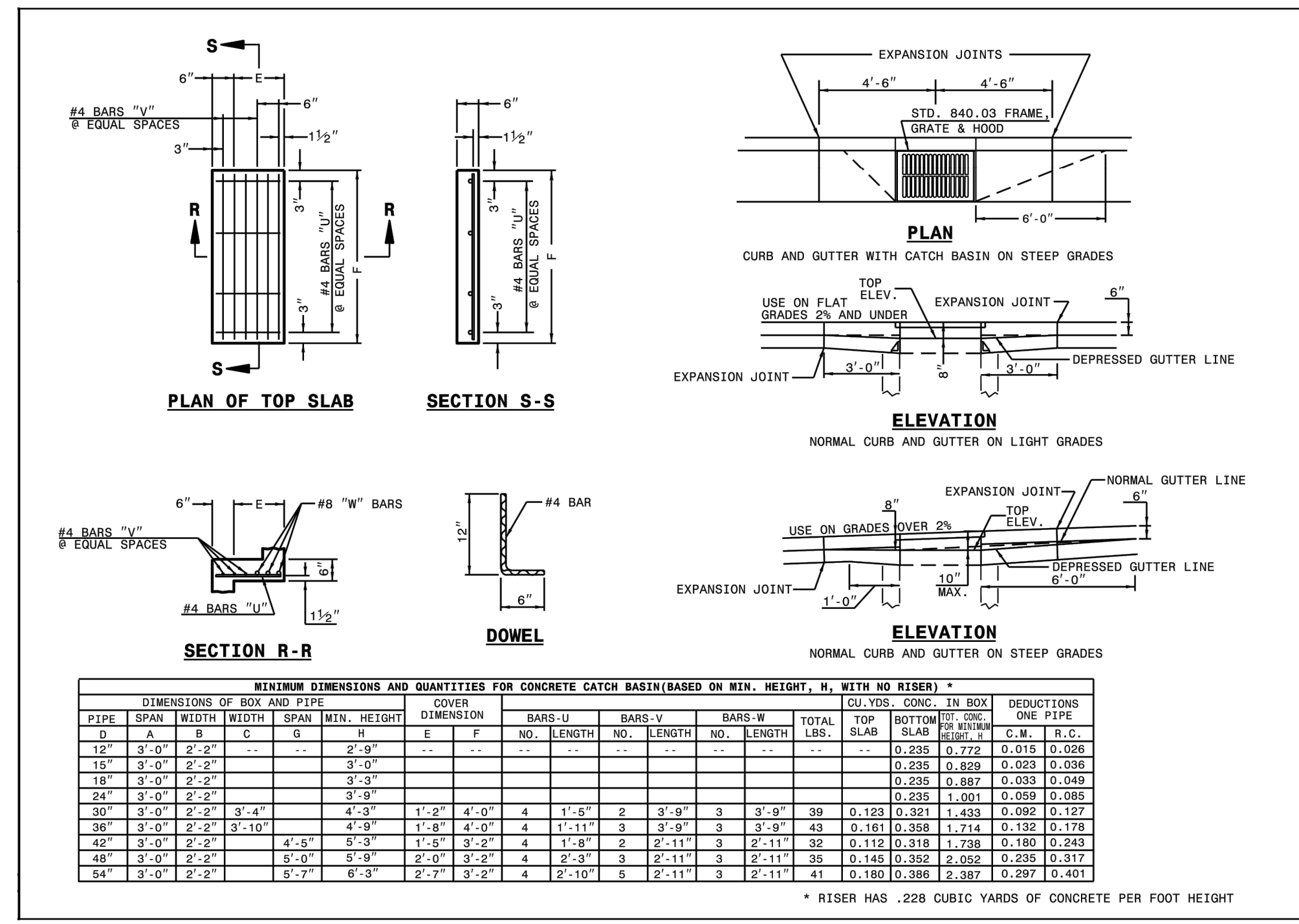
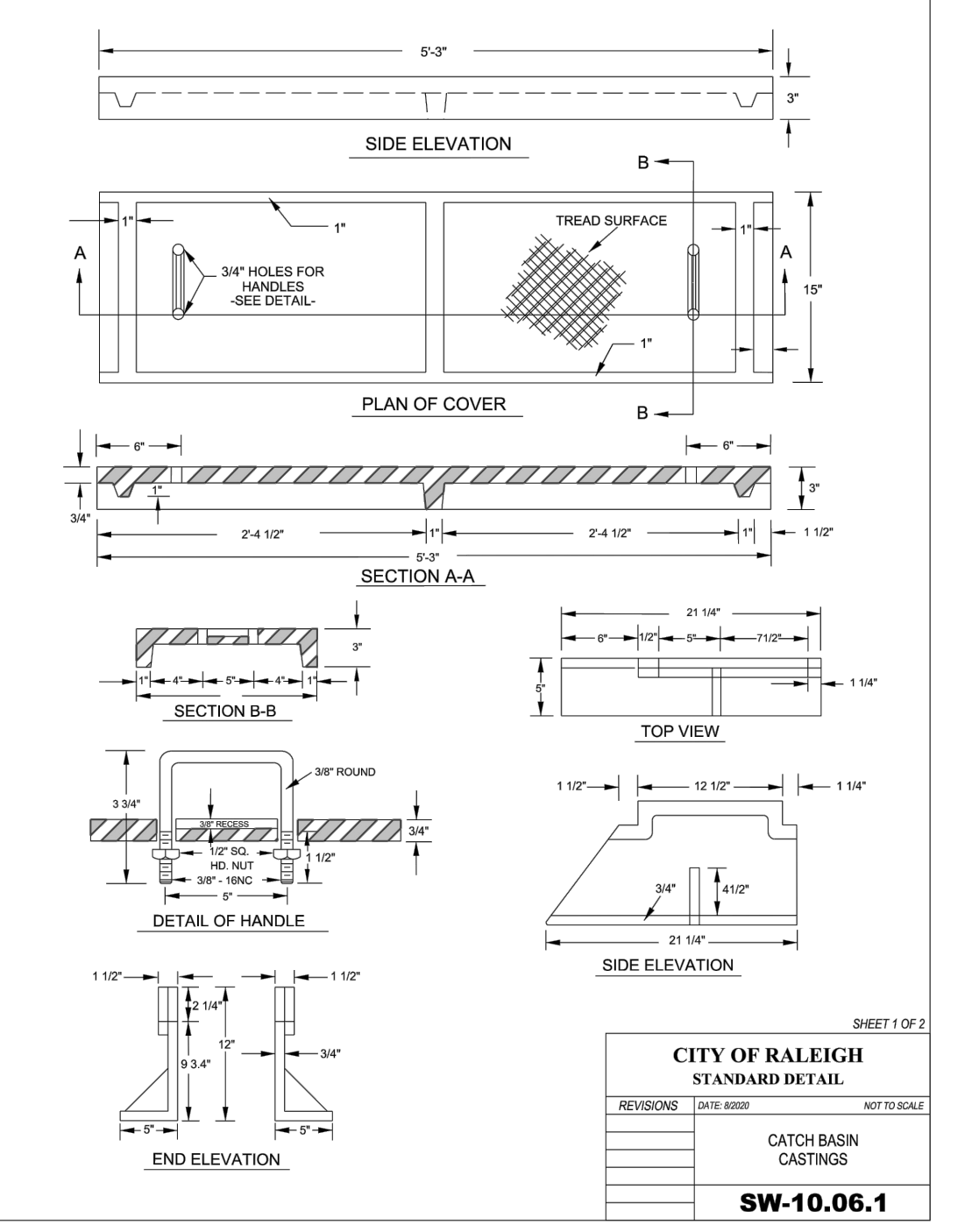


STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N. C.
 ROADWAY STANDARD DRAWING FOR
 CONCRETE CATCH BASIN
 12" THRU 54" PIPE
 SHEET 1 OF 2
840.02

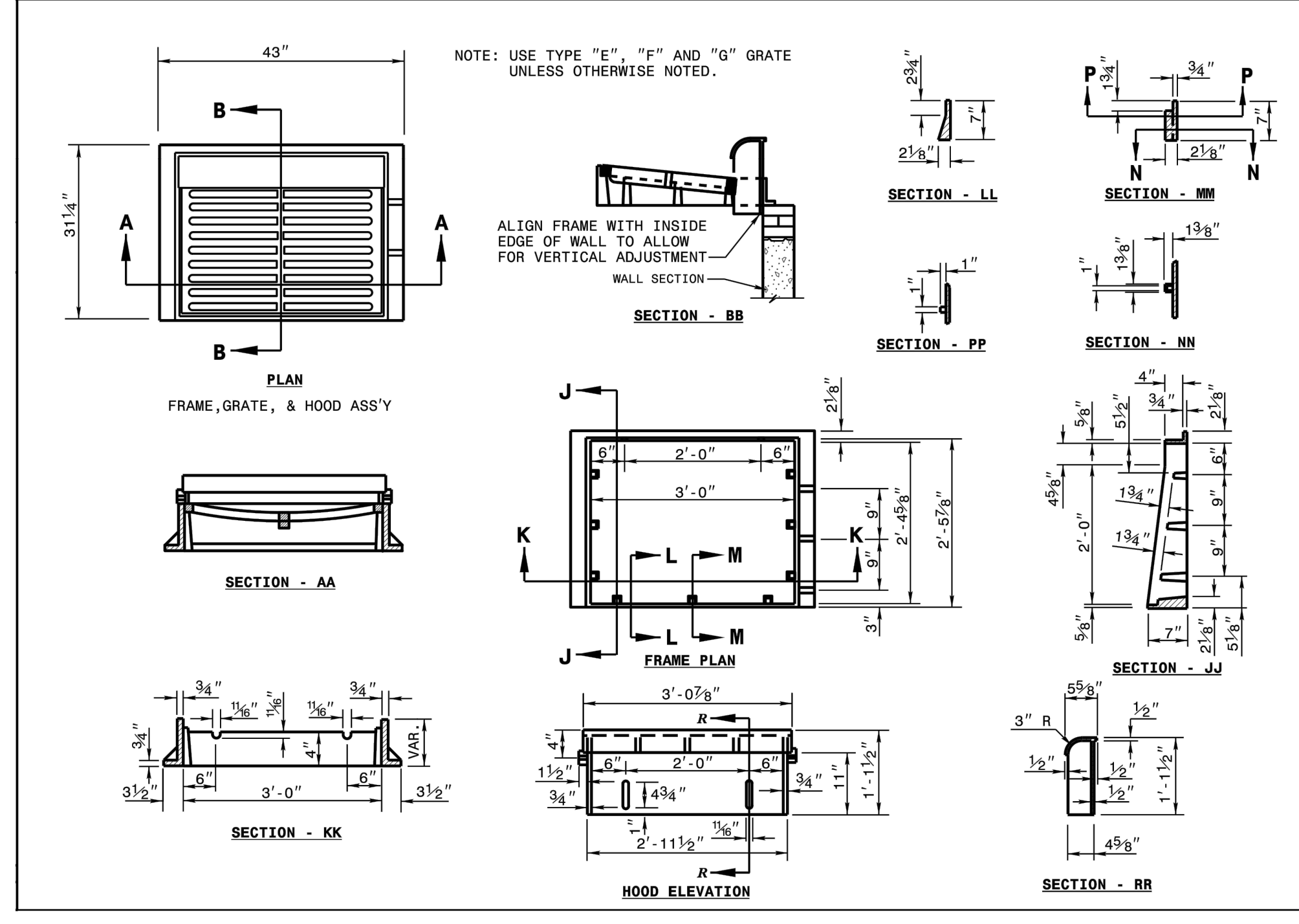
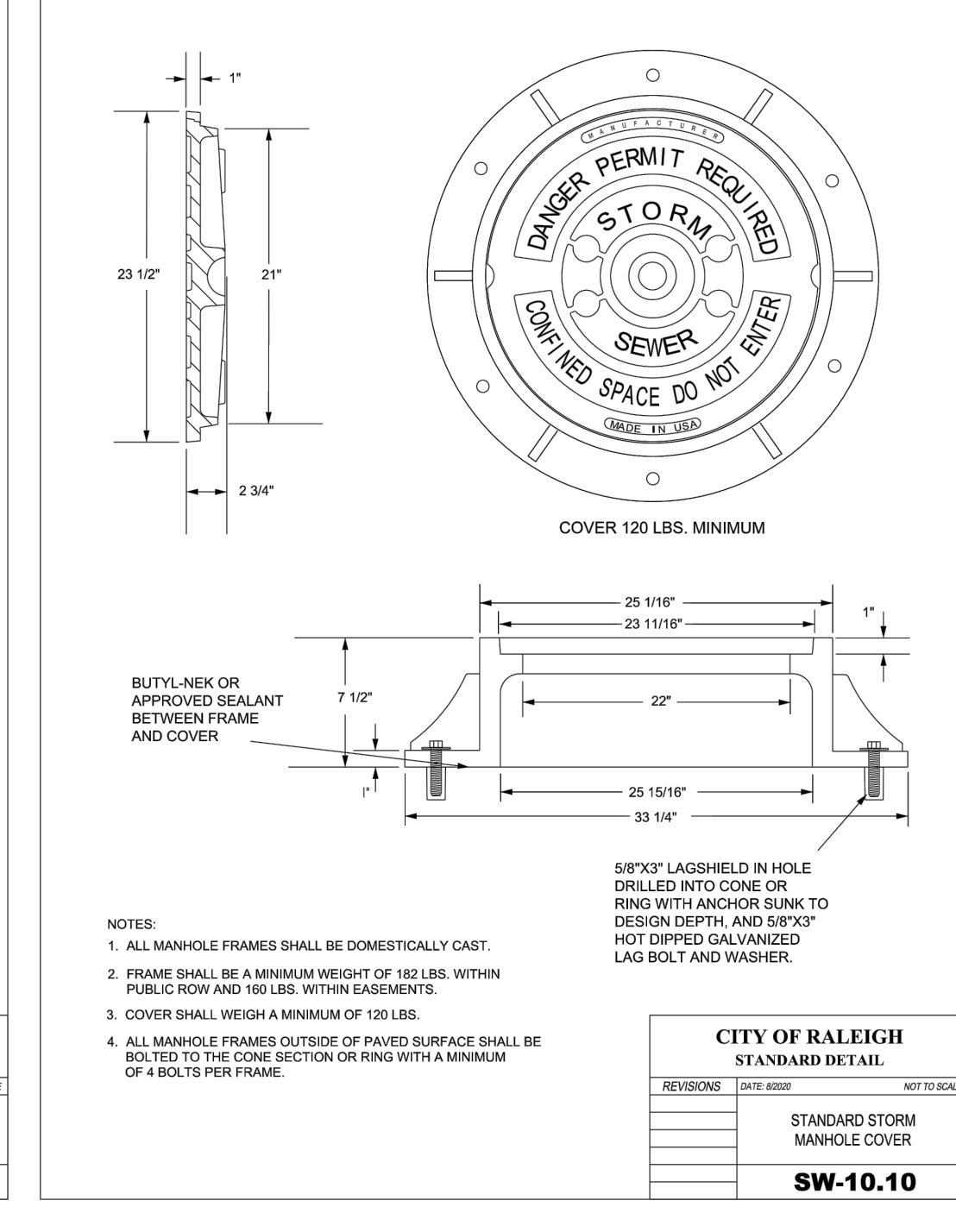
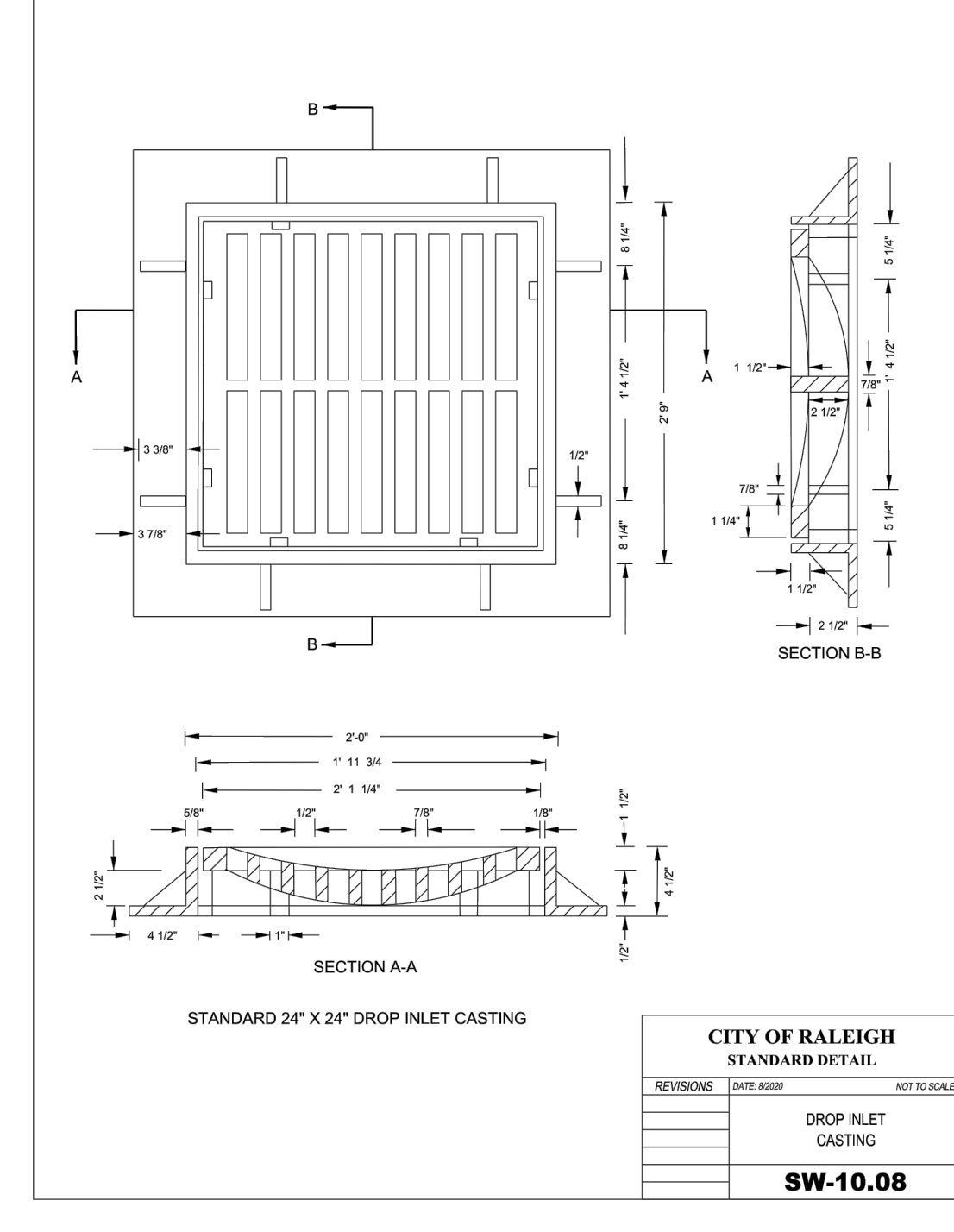


CITY OF RALEIGH
 STANDARD DETAIL
 STANDARD DROP INLET
SW-10.03

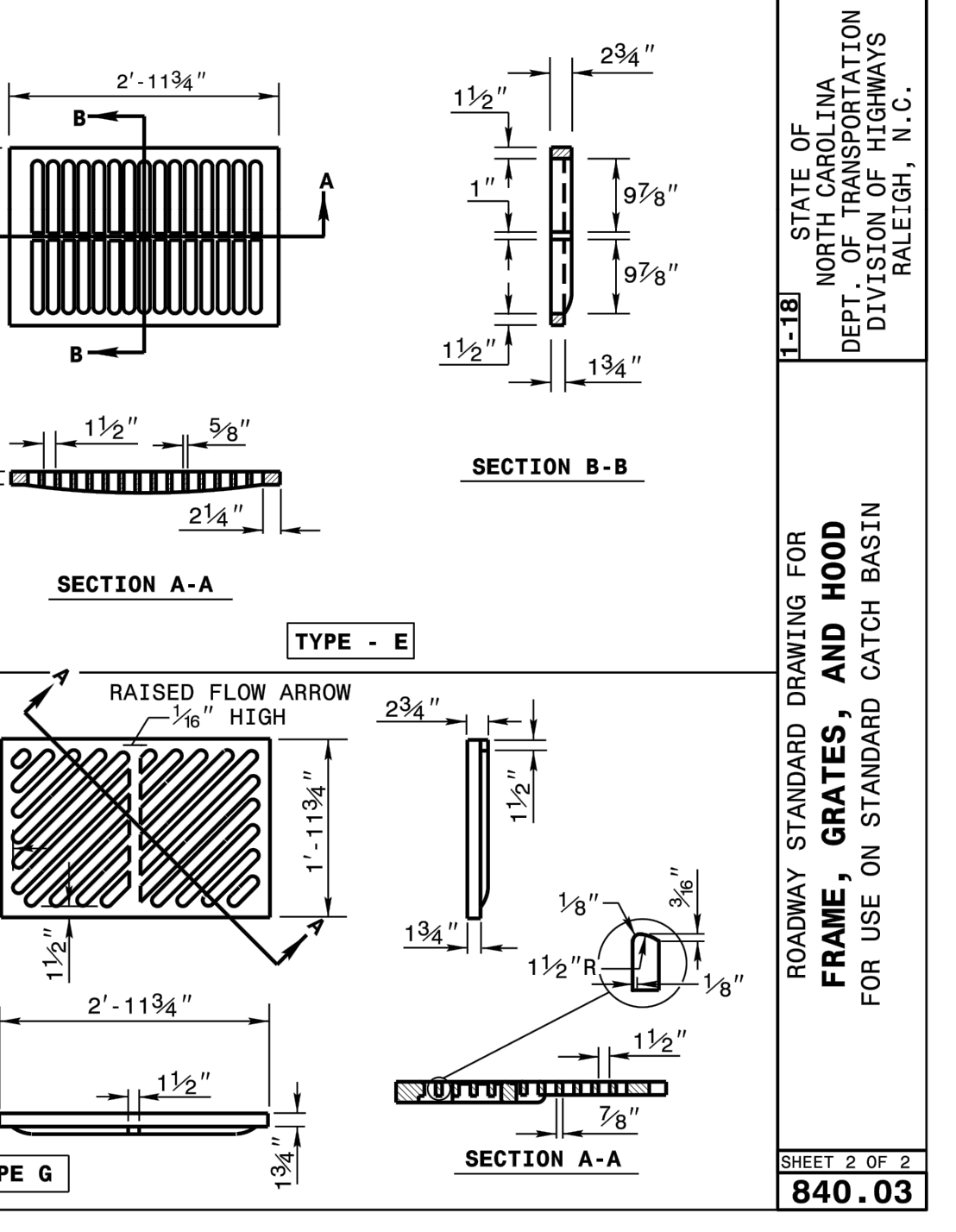
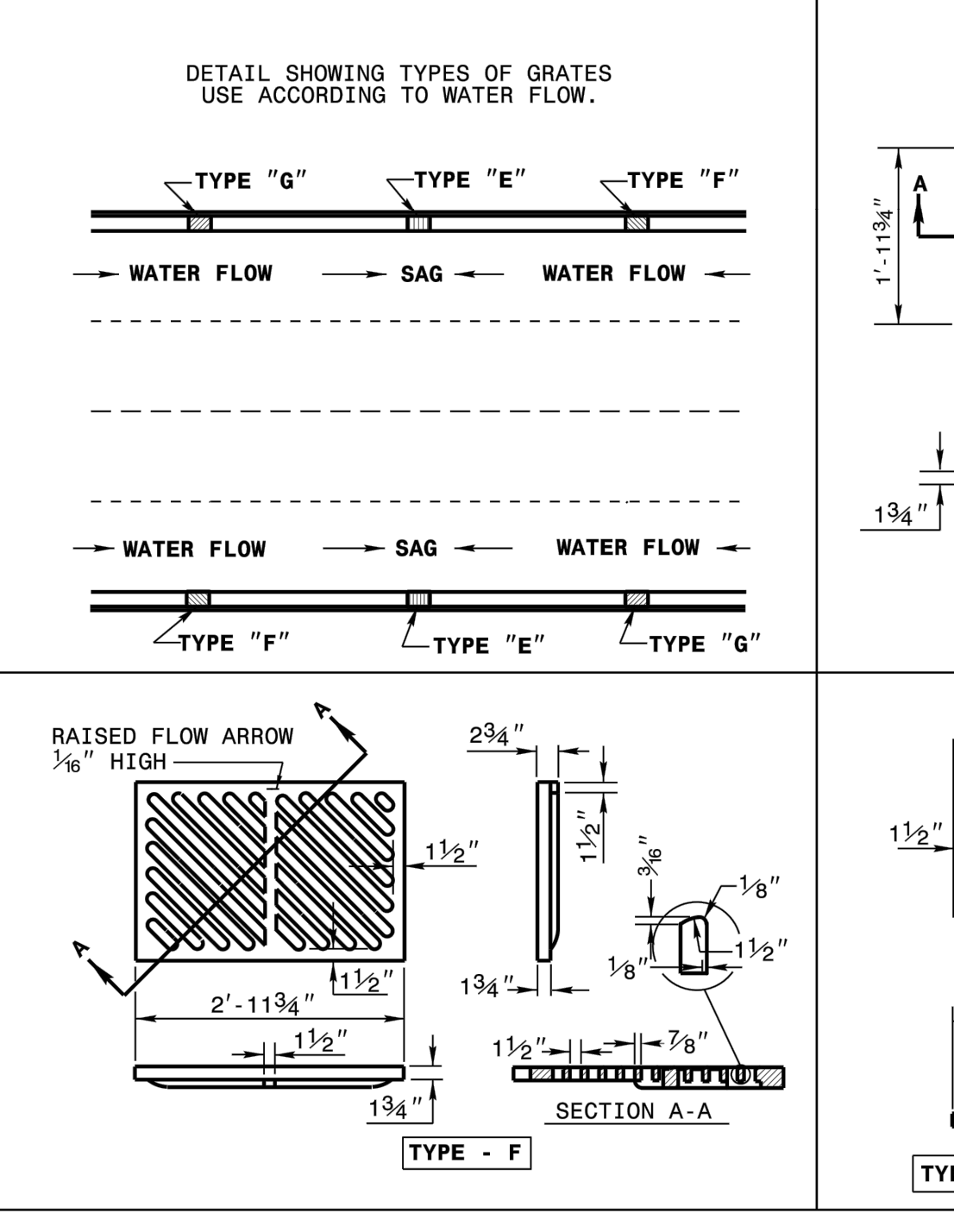
CITY OF RALEIGH
 STANDARD DETAIL
 STANDARD CLASS "A" MANHOLE
SW-10.05



STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N. C.
 ROADWAY STANDARD DRAWING FOR
 CONCRETE CATCH BASIN
 12" THRU 54" PIPE
 SHEET 2 OF 2
840.02



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
 SHEET 1 OF 2
840.03



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
 SHEET 2 OF 2
840.03

R:\2019\19157 - Rolesville Town Center\CIVIL\04 Construction\07 - 19157_Details.dwg, CS-2, 6/2/2022 4:43:49 PM, marcmueller

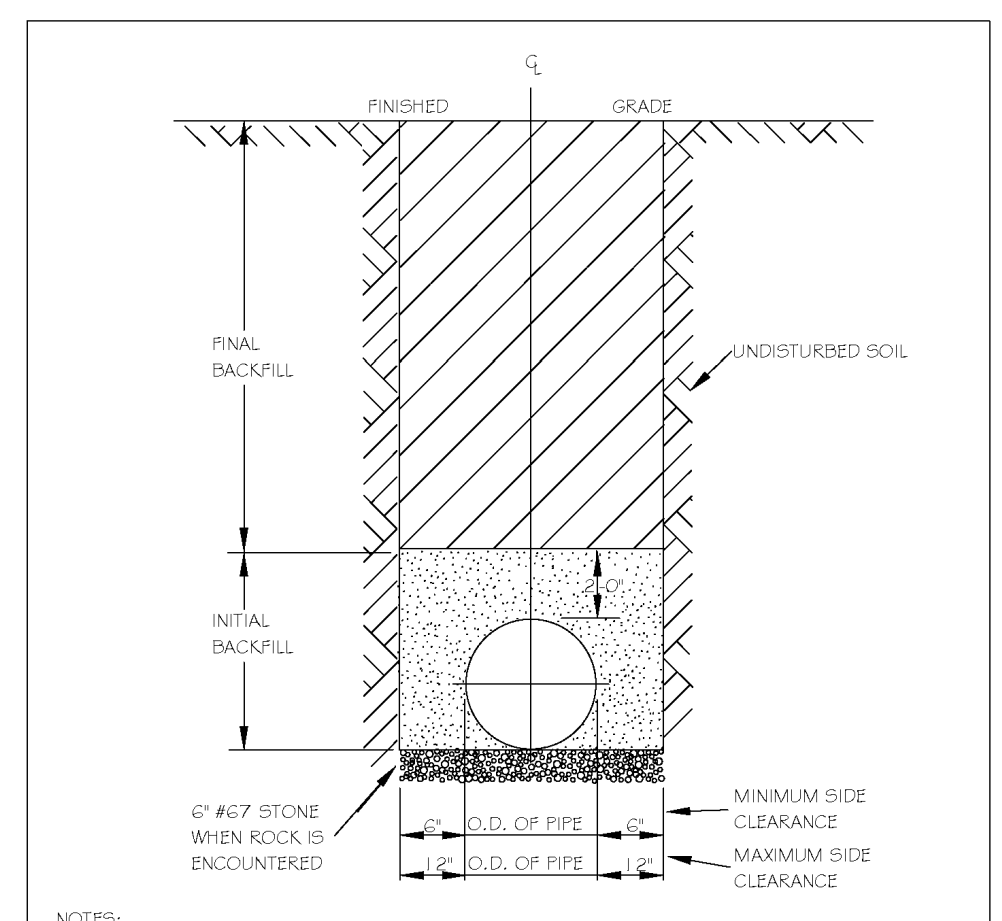
BASS, NIXON & KENNEDY, INC.
 CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-6868
 CERTIFICATION NUMBERS: NCBOLA (C-0110); NCBOLA (C-0267)

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

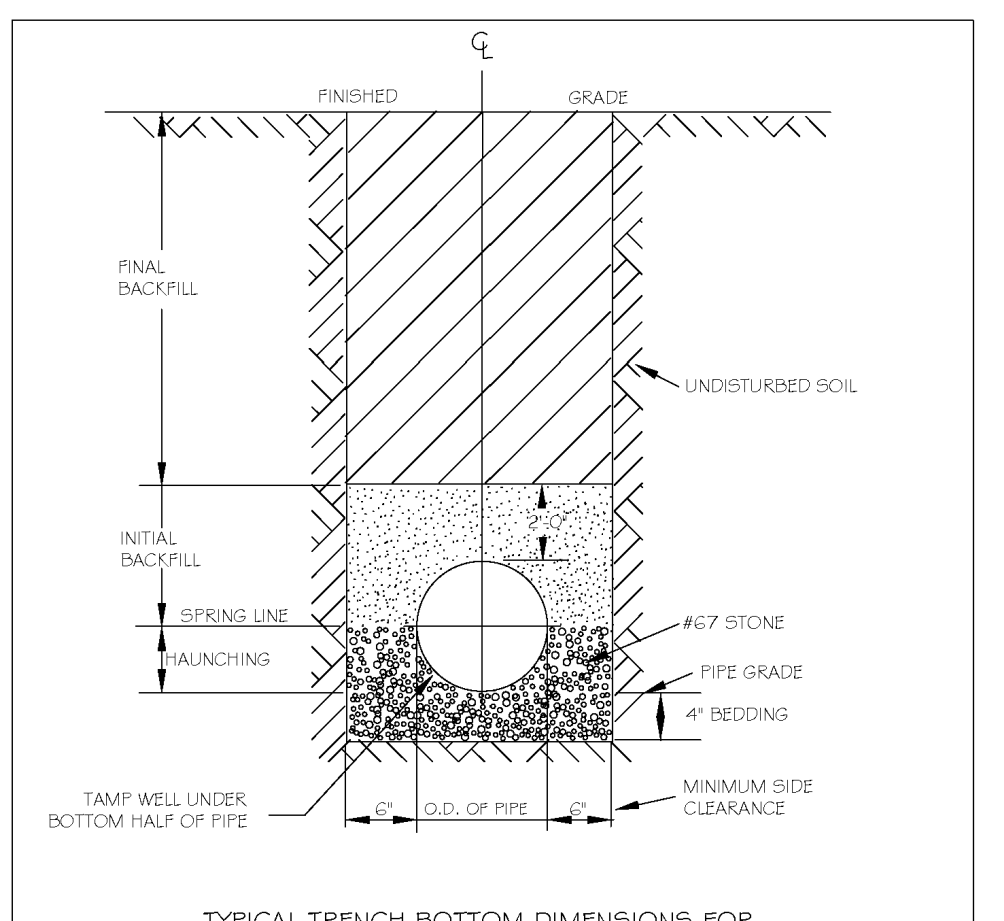
NO.	DATE	DESCRIPTION	BY

03-19157
 JOB NO.
 PROGRESS
 DATE
 DRAWN BY
 DETAILS
 SCALE: N.T.S.
 CHK BY: MDB



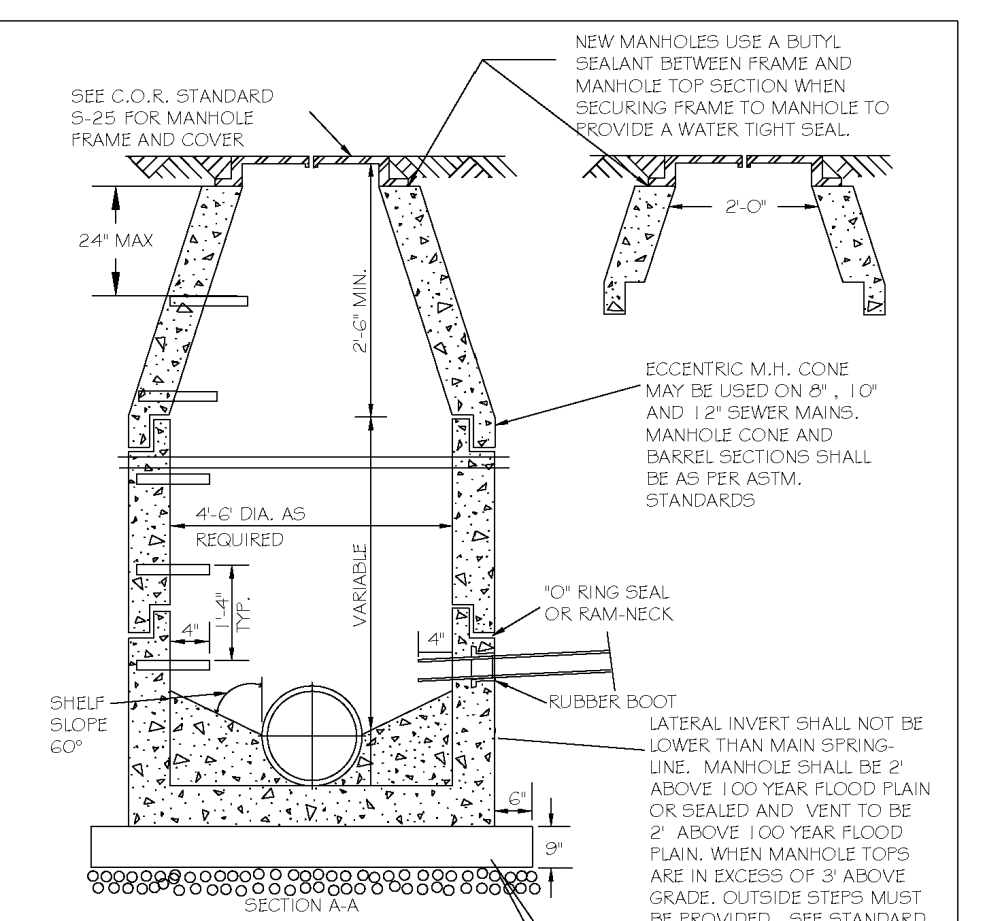
NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 5. ACHIEVE 90% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
 6. IF IN BASEMENT AT TOPSOIL, AND 1" CLEAN GRIEST FILL MAY BE REQUIRED.
 7. NO BouldERS 6" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	KRT	3-23-00		



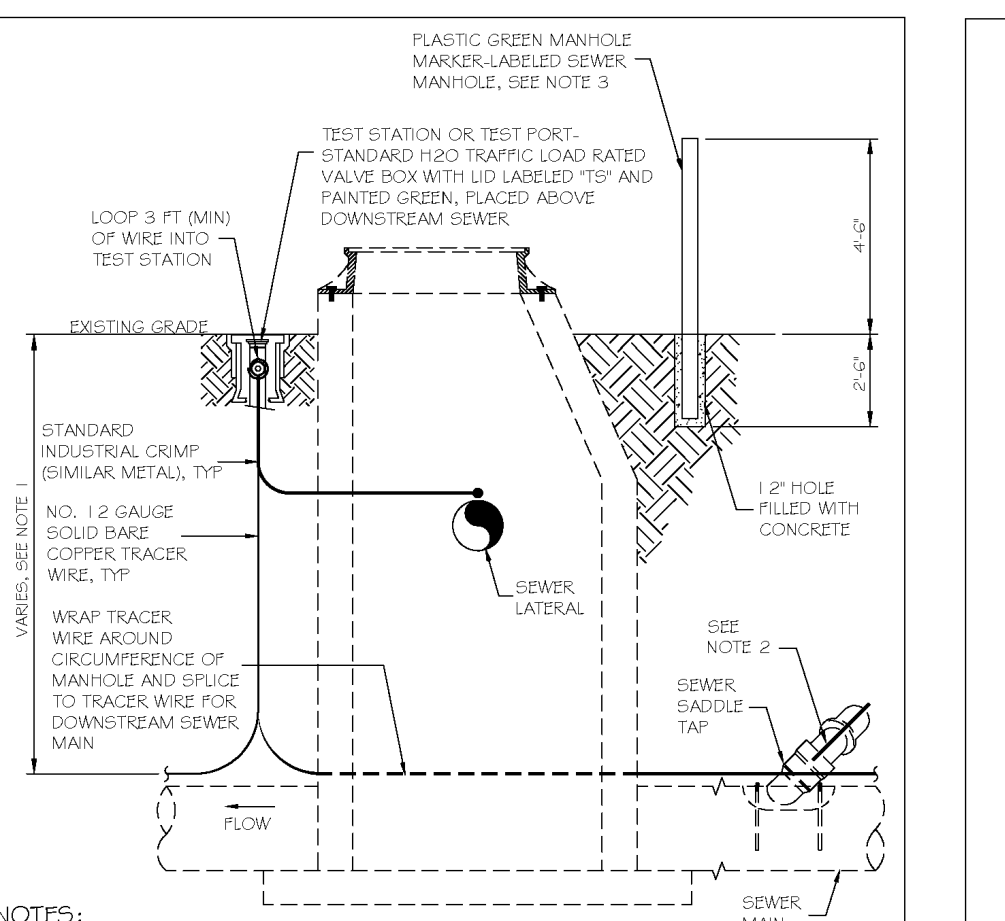
NOTES:
 1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
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 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	KRT	7-2-02		



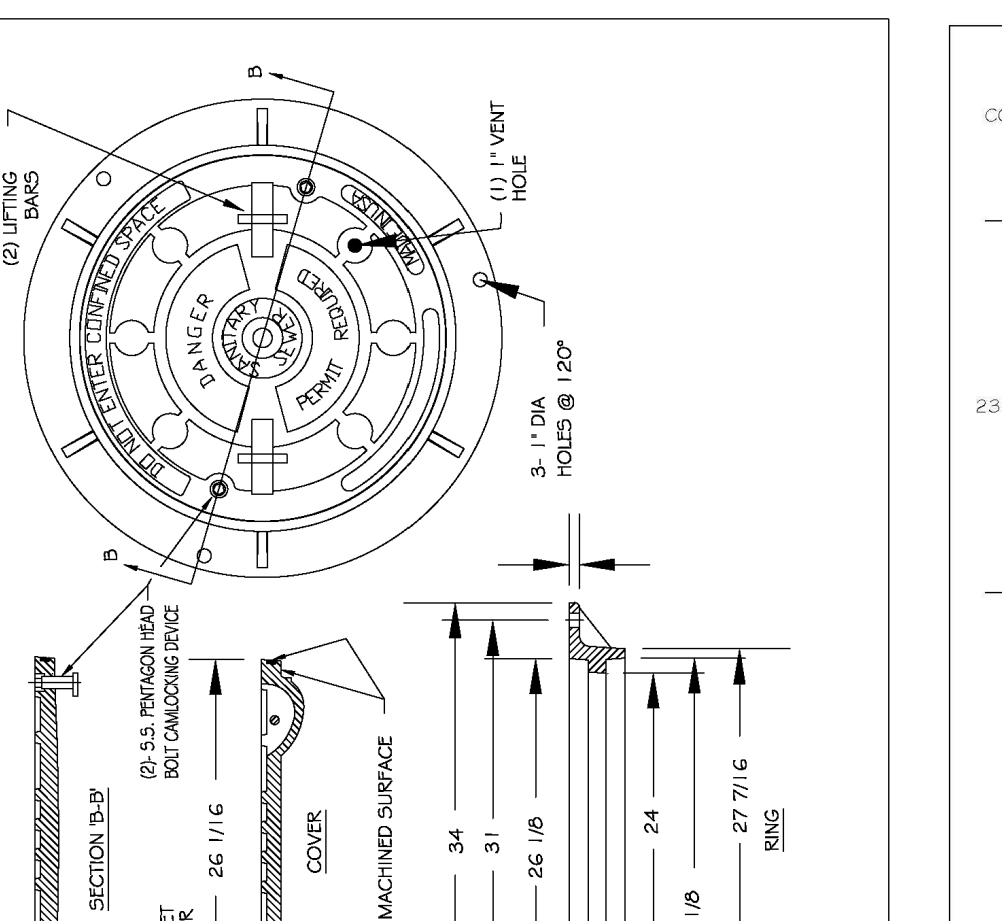
NOTES:
 1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACER WIRE SHALL BE ATTACHED TO THE PIPE TRACER WIRE SHALL BE ADJACENT TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACER WIRE SHALL BE INSTALLED AT A DEPTH OF 7.5 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE COURSE OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED. WHERE LATERAL TAPS ARE MADE BY SERVICE SAIDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SAIDLE AND MAIN.
 2. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD PRECAST SANITARY SEWER MANHOLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	T.C.A.	12-31-02	AKB	2-21-05
	KRT	3-30-00	D.H.L.	6-14-08



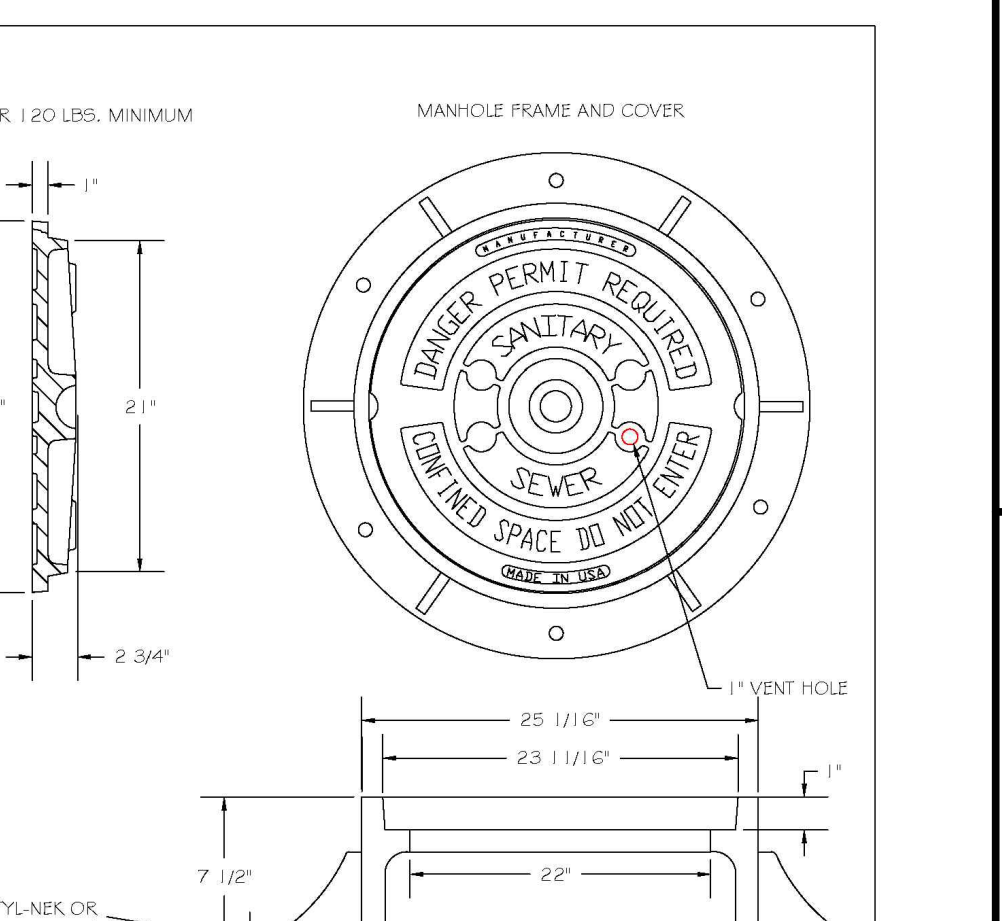
NOTES:
 1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACER WIRE SHALL BE ATTACHED TO THE PIPE TRACER WIRE SHALL BE ADJACENT TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACER WIRE SHALL BE INSTALLED AT A DEPTH OF 7.5 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE COURSE OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED. WHERE LATERAL TAPS ARE MADE BY SERVICE SAIDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SAIDLE AND MAIN.
 2. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	W.E.	09-11		



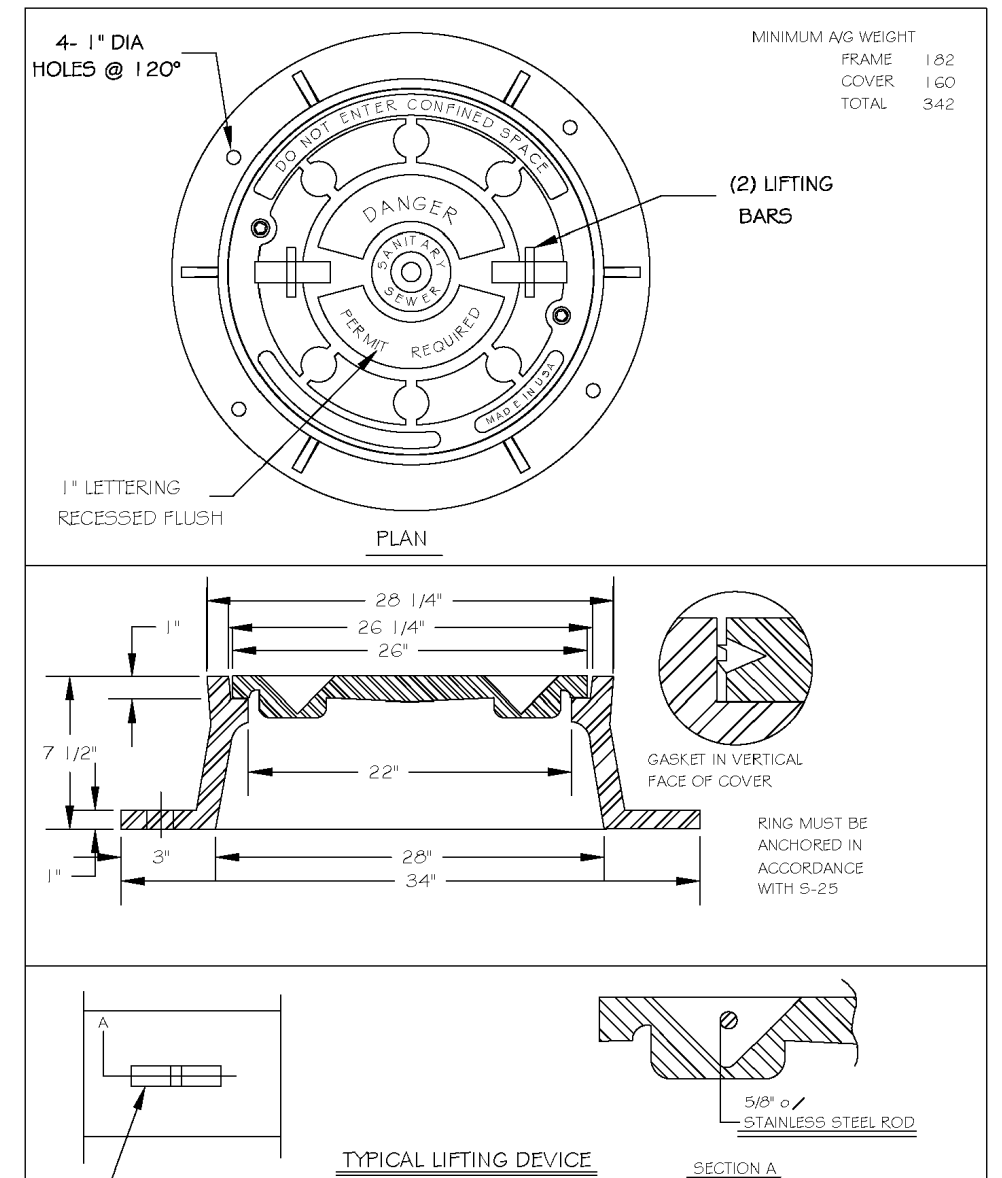
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
 3. COVER SHALL BE A MIN. OF 120 LBS. HOT DIPPED GALVANIZED LAGO BOOT AND WASHER.
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE SET TO THE CORNER SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
FLAT TOP MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25.01	KRT	3-1-07	A.B.B.	2-9-05
	KRT	3-30-00	D.H.L.	6-18-08



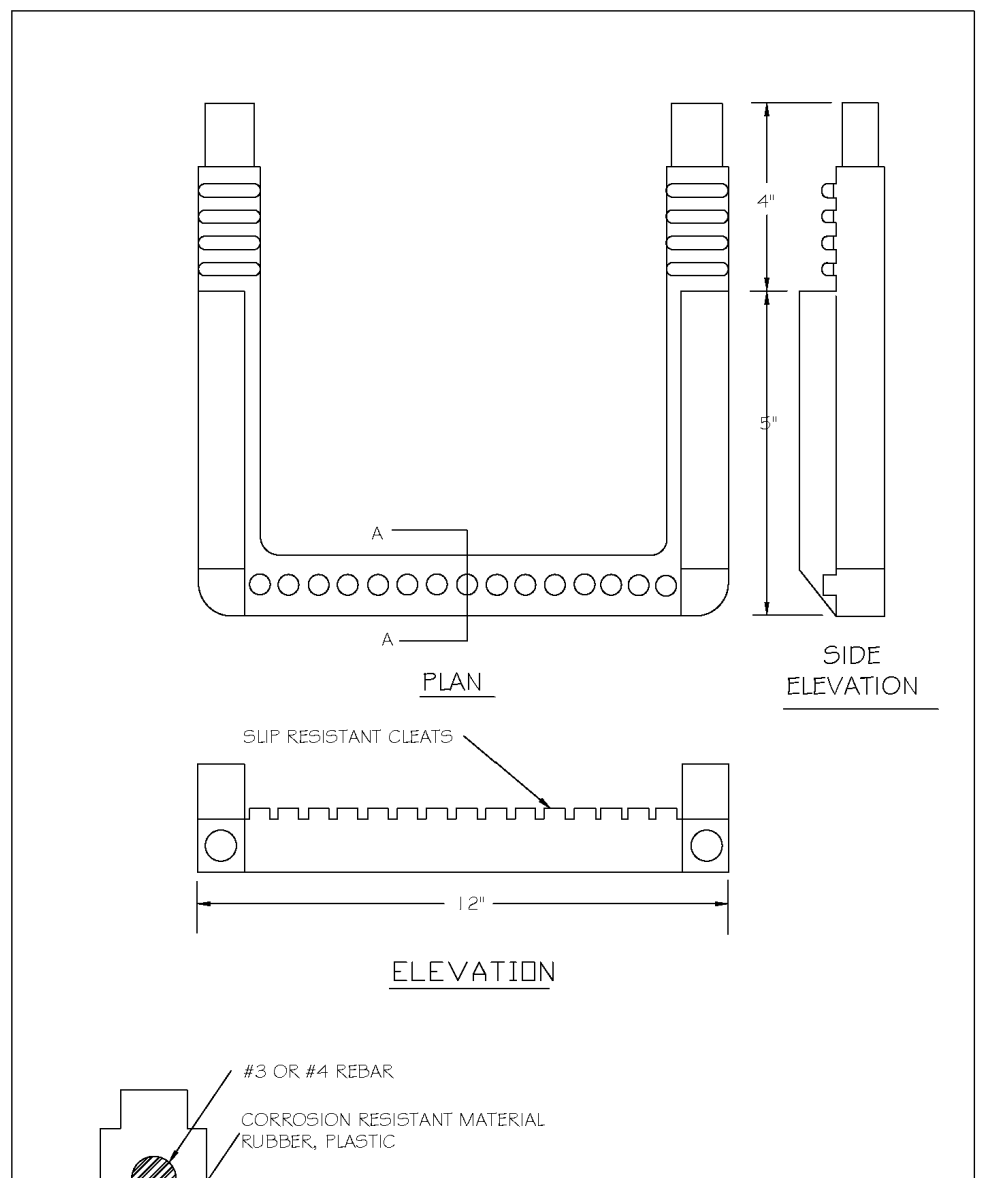
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
 3. COVER SHALL BE A MIN. OF 120 LBS. HOT DIPPED GALVANIZED LAGO BOOT AND WASHER.
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE SET TO THE CORNER SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	KRT	3-1-07	A.B.B.	2-9-05
	KRT	3-30-00	D.H.L.	6-18-08



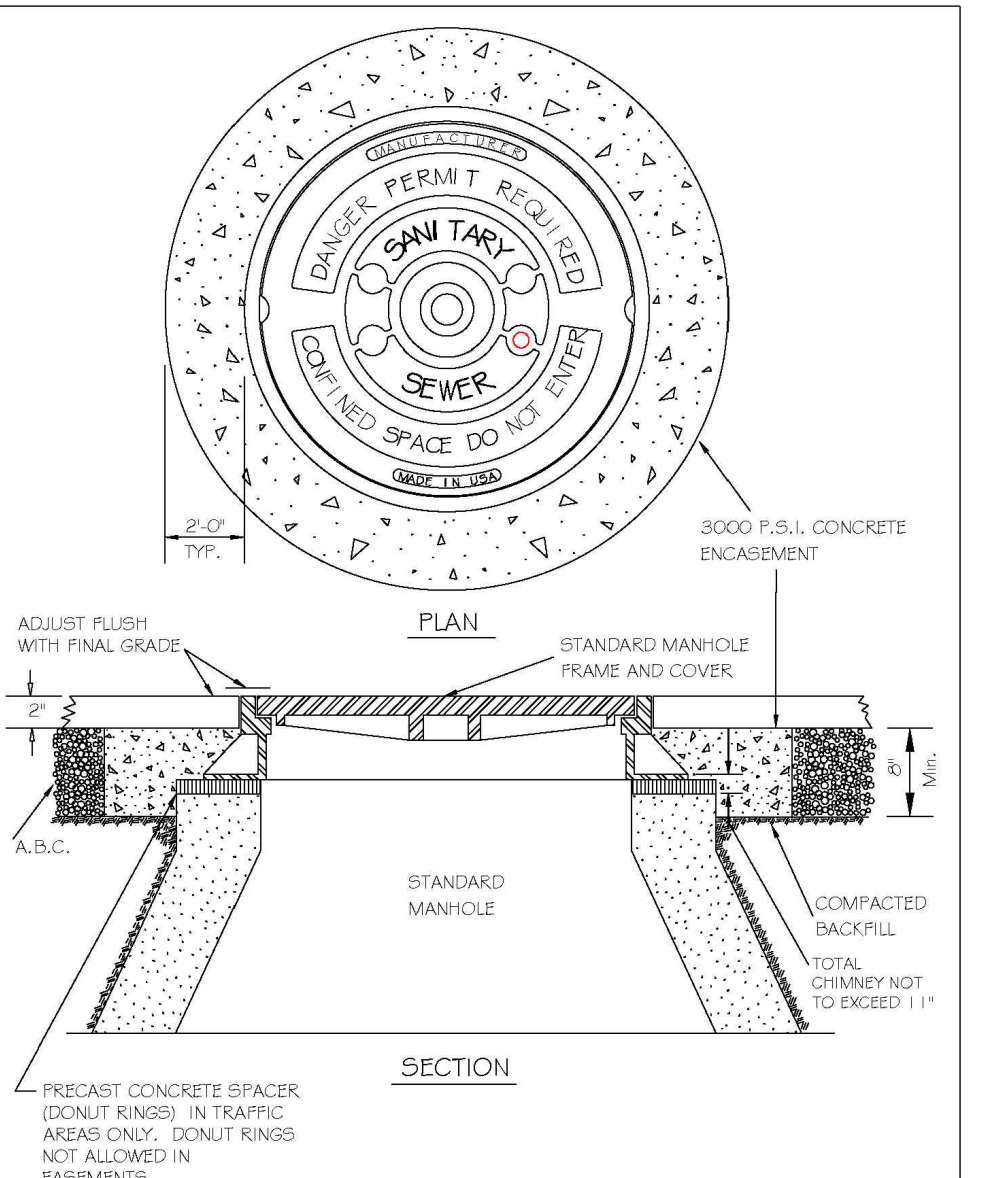
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
 3. COVER SHALL BE A MIN. OF 120 LBS. HOT DIPPED GALVANIZED LAGO BOOT AND WASHER.
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE SET TO THE CORNER SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
MANHOLE FRAME AND WATERTIGHT COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-26	KRT	3-1-07	AKB	2-23-05
	KRT	3-30-00	D.H.L.	6-18-08



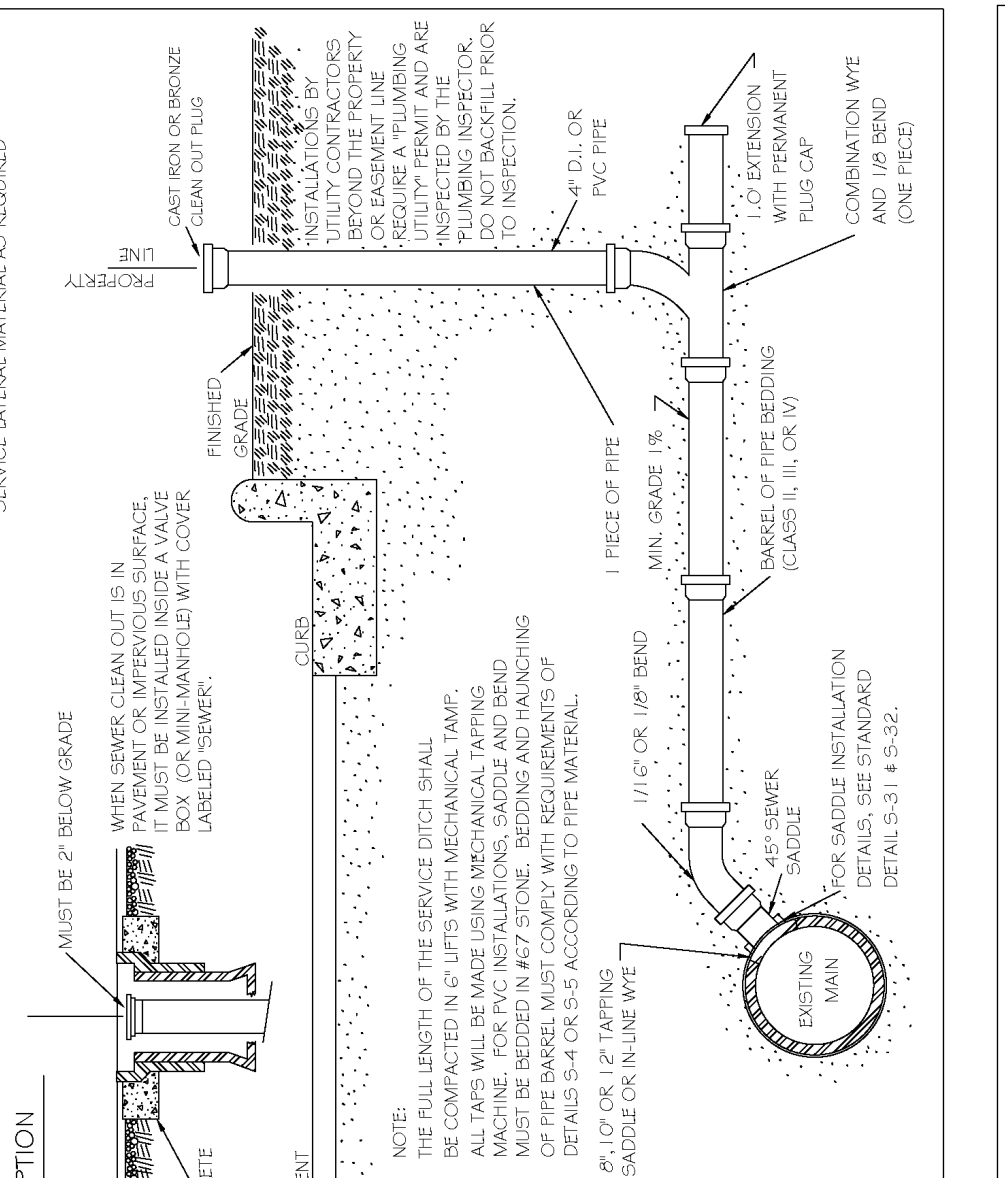
NOTES:
 1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
 3. COVER SHALL BE A MIN. OF 120 LBS. HOT DIPPED GALVANIZED LAGO BOOT AND WASHER.
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE SET TO THE CORNER SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

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

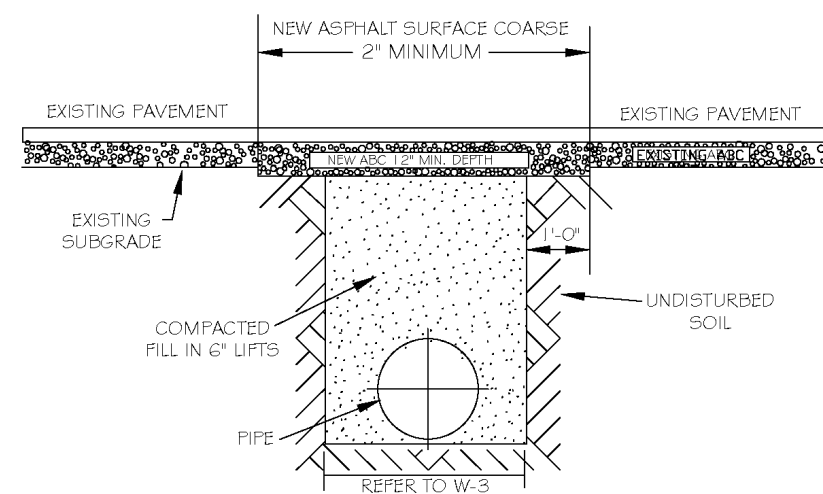


NOTES:
 1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
 3. COVER SHALL BE A MIN. OF 120 LBS. HOT DIPPED GALVANIZED LAGO BOOT AND WASHER.
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE SET TO THE CORNER SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	T.C.A.	2-21-05	AKB	3-30-00
	KRT	3-30-00	D.H.L.	11-28-07

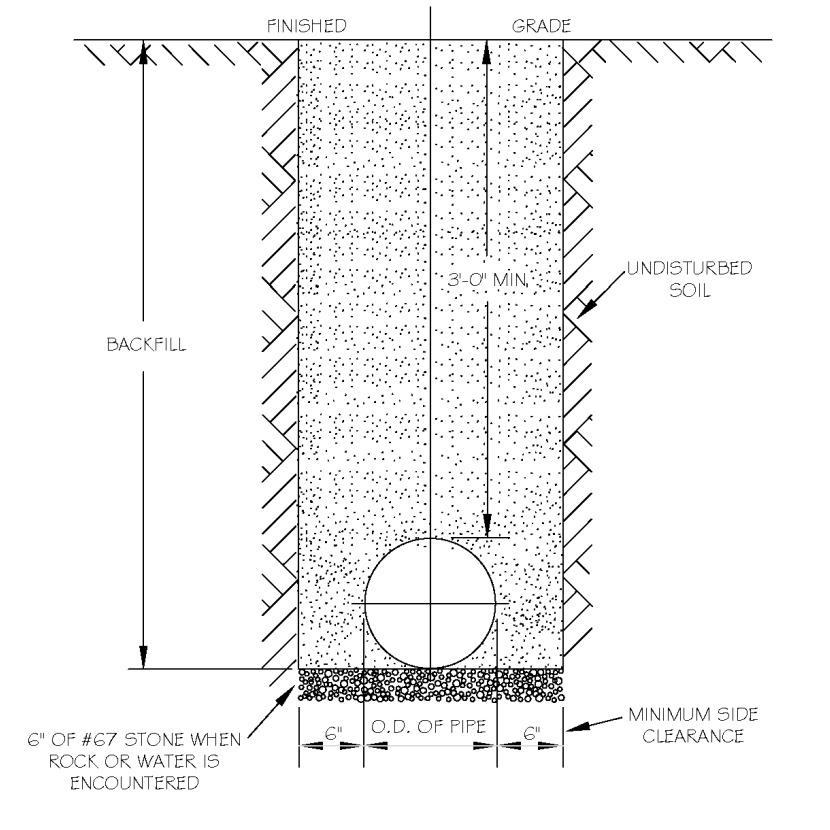


NOTES:
 1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. IT MUST BE INSTALLED NEAR A VALVE, MACHINE, JOCK, VALVE, AND/OR MANHOLES. DETAILS S-4, S-5, S-6, S-7, S-8, S-9, S-10, S-11, S-12, S-13, S-14, S-15, S-16, S-17, S-18, S-19, S-20, S-21, S-22, S-23, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-31, S-32, S-33, S-34, S-35, S-36, S-37, S-38, S-39, S-40, S-41, S-42, S-43, S-44, S-45, S-46, S-47, S-48, S-49, S-50, S-51, S-52, S-53, S-54, S-55, S-56, S-57, S-58, S-59, S-60, S-61, S-62, S-63, S-64, S-65, S-66, S-67, S-68, S-69, S-70, S-71, S-72, S-73, S-74, S-75, S-76, S-77, S-78, S-79, S-80, S-81, S-82, S-83, S-84, S-85, S-86, S-87, S-88, S-89, S-90, S-91, S-92, S-93, S-94, S-95, S-96, S-97, S-98, S-99, S-100, S-101, S-102, S-103, S-104, S-105, S-106, S-107, S-108, S-109, S-110, S-111, S-112, S-113, S-114, S-115, S-116, S-117, S-118, S-119, S-120, S-121, S-122, S-123, S-124, S-125, S-126, S-127, S-128, S-129, S-130, S-131, S-132, S-133, S-134, S-135, S-136, S-137, S-138, S-139, S-140, S-141, S-142, S-143, S-144, S-145, S-146, S-147, S-148, S-149, S-150, S-151, S-152, S-153, S-154, S-155, S-156, S-157, S-158, S-159, 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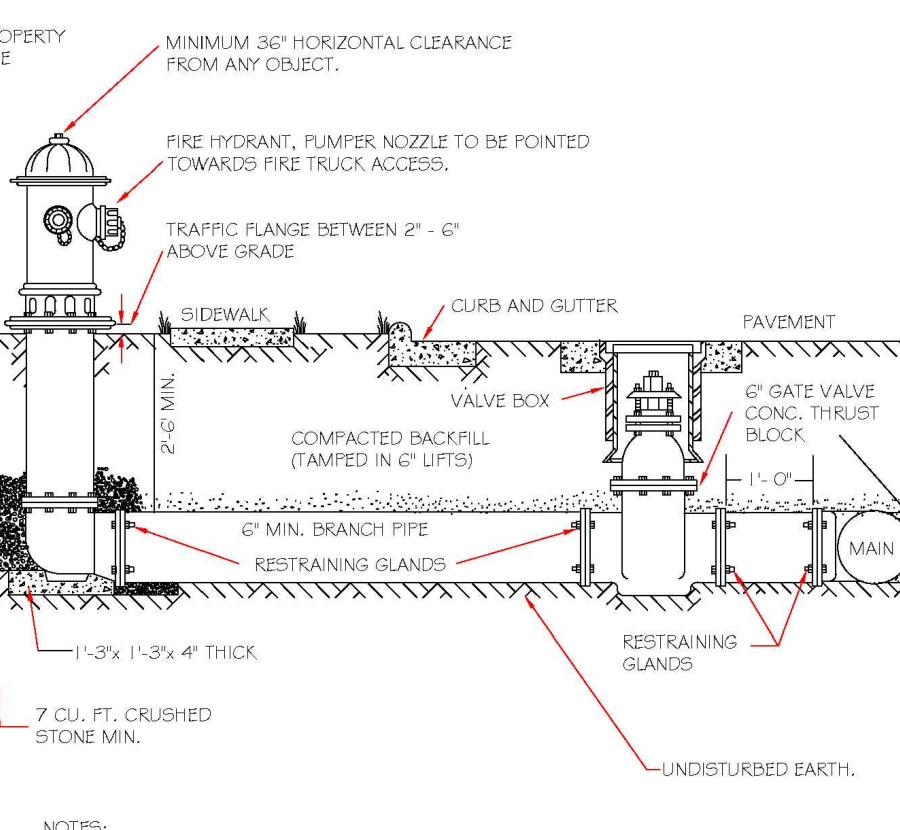
- NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
 2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASTHO T-99 AS MODIFIED BY NC DOT.
 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 AASTHO T-99 AS MODIFIED BY NC DOT.
 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 2" 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 WITH NC DOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD ASPHALT PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-2	RRH	3-31-00	A.B.S.
D.W.C.		11-1-04	J.P.S.



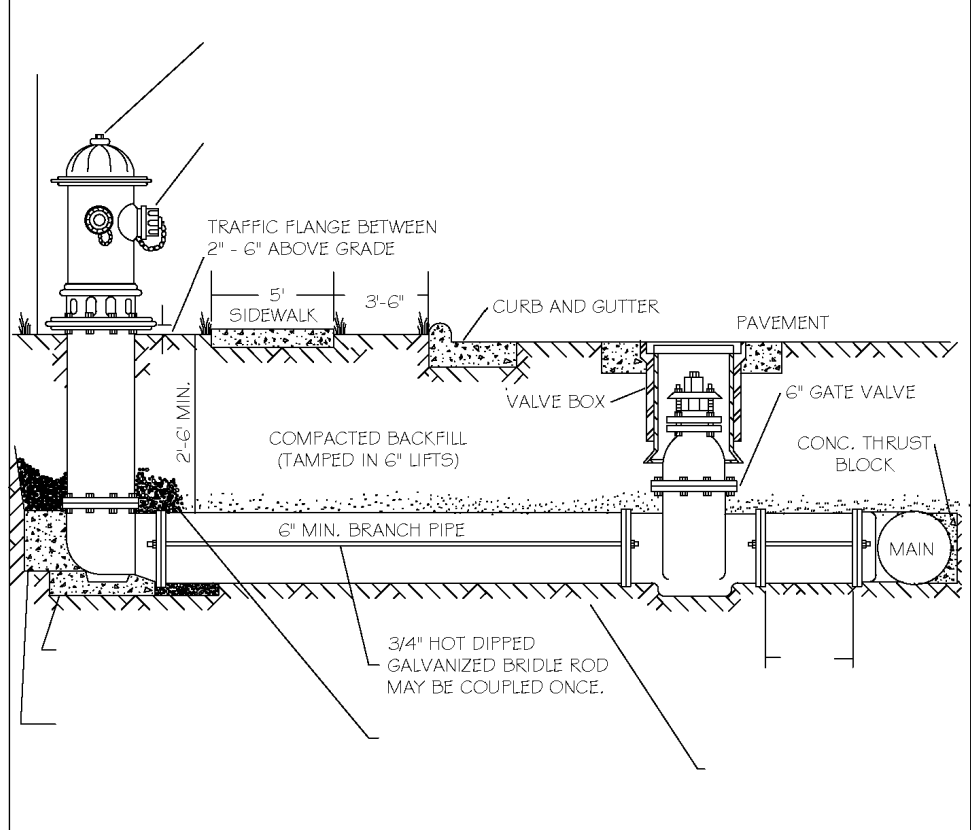
- NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR Boulders 4" OR LARGER TO BE USED IN BACKFILL.
 - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 - ACHIEVE 95%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

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-3	RRH	3-31-00	A.B.S.
D.W.C.		3-31-00	J.P.S.



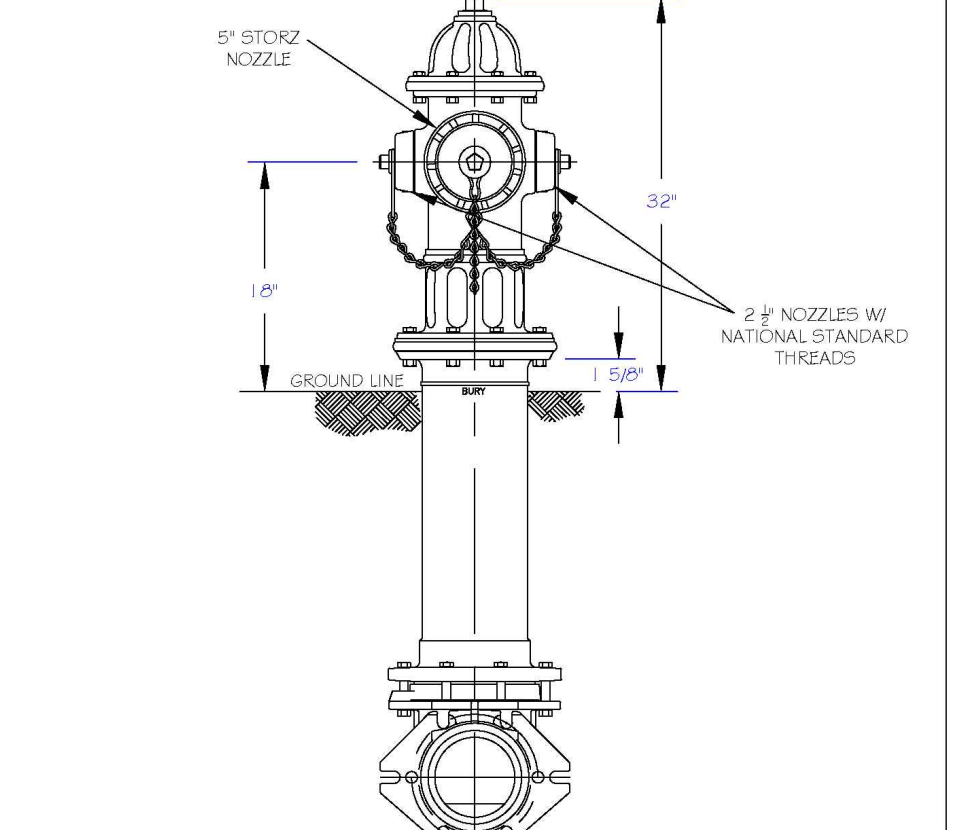
- NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MPH, WATERBURY, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 - BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-8.
 - 4" GATE VALVE SHALL BE ANMA C200-85 OPEN LEFT.
 - STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 - 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 CASE 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		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-4	RRH	4-6-04	F.W.
D.W.C.		2-14-08	J.P.S.



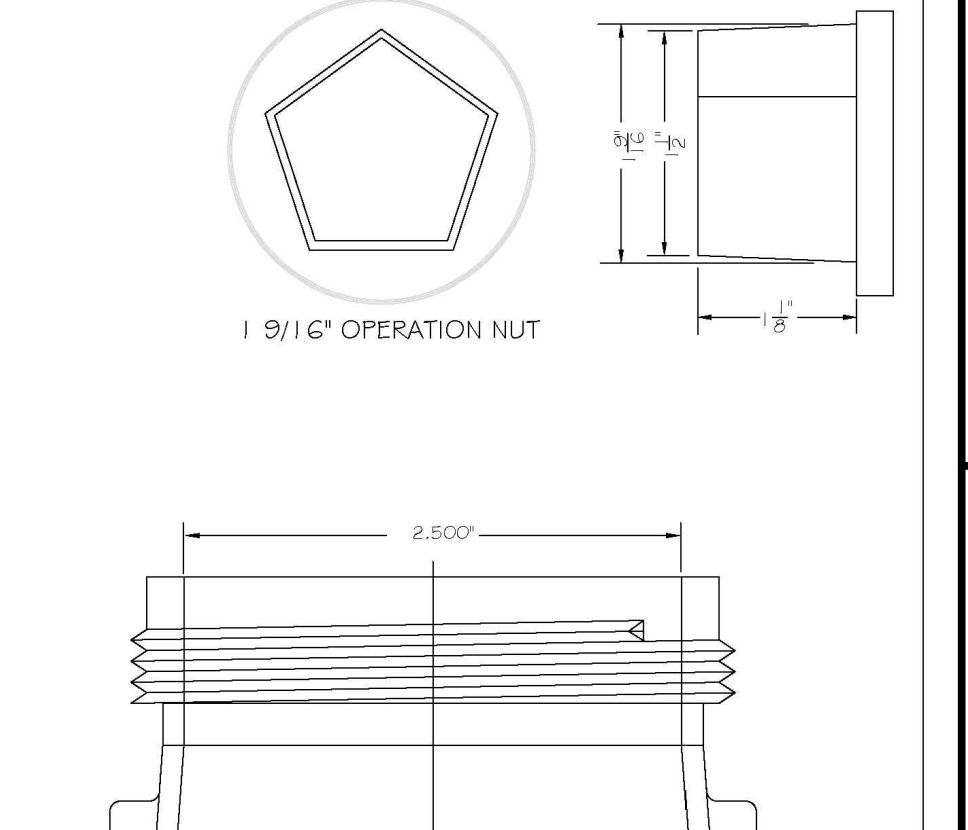
- NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MPH, WATERBURY, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 - BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-8.
 - 4" GATE VALVE SHALL BE ANMA C200-85 OPEN LEFT.
 - STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 - 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 CASE 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		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-4-0	RRH	4-6-04	F.W.
D.W.C.		2-14-08	J.P.S.



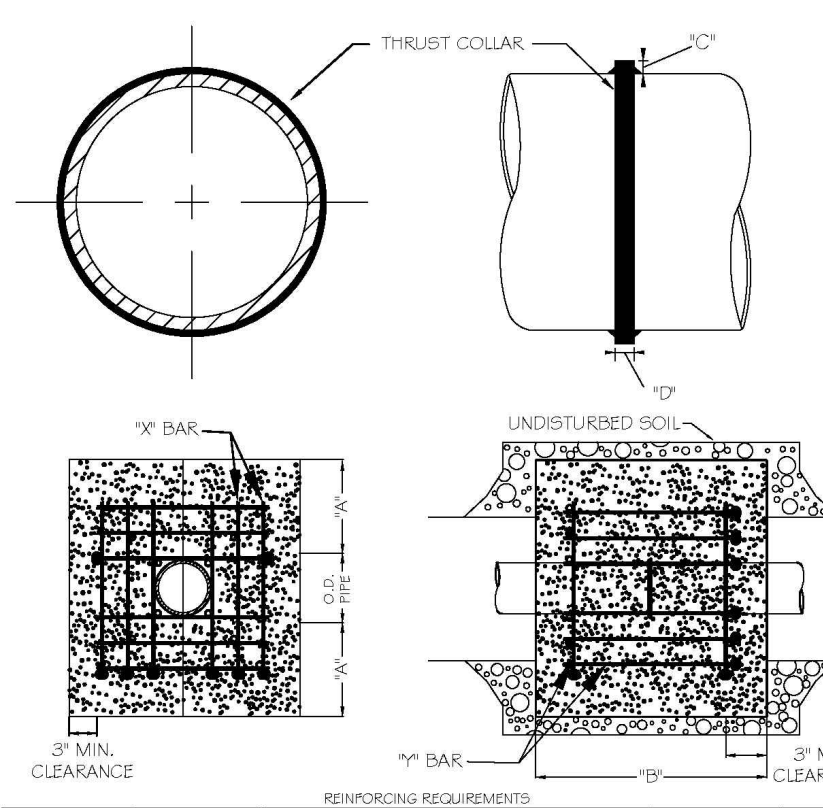
- NOTES:
1. RALEIGH PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
 - KNIGHTDALE, 4 ROLESVILLE PUBLIC HYDRANTS SHALL BE PAINTED RED W/ SILVER OPERATING NUTS.
 - ZEBULON PUBLIC HYDRANTS SHALL BE PAINTED RED W/ SILVER BONNETS AND OPERATING NUTS.
 - WAKE FOREST AND GARNER, AND WENDELL PUBLIC AND PRIVATE HYDRANTS TO BE PAINTED SAFETY YELLOW W/ SILVER CAPS AND OPERATING NUTS.
 - OPERATING NUTS ON HYDRANTS CONNECTED TO PUBLIC MAINS LARGER THAN 12" SHALL BE PAINTED BLACK.

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT WITH 5" STANDARD PUMPER NOZZLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-5	RRH	3-1-07	ARR
D.W.C.		3-31-00	D.H.L.



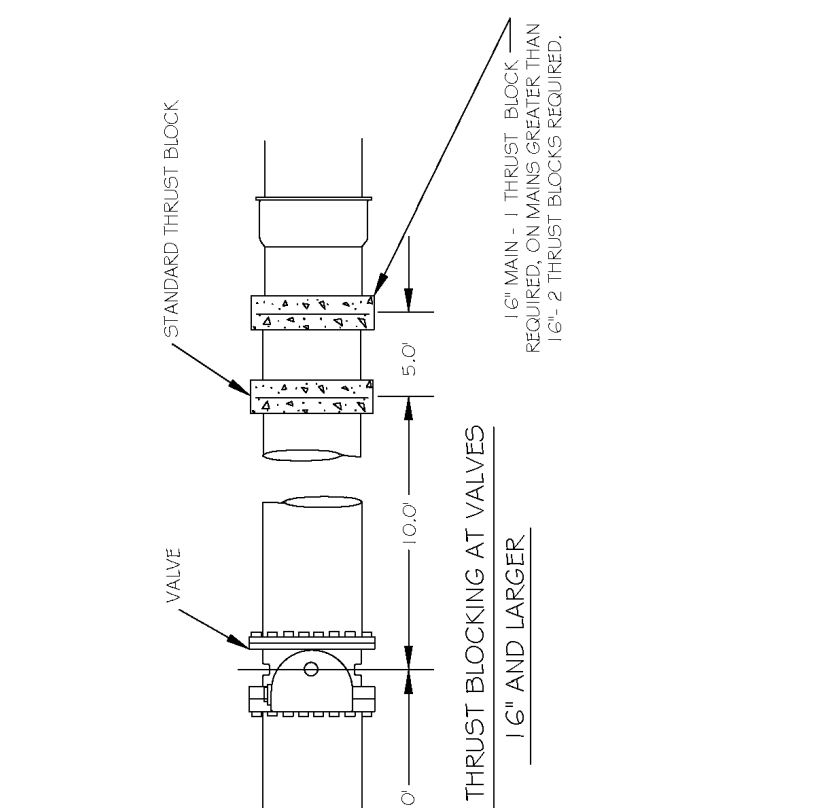
- NOTES:
1. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 - RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 - 3" MAINLINE COVER MUST BE MAINTAINED ON ALL WATER MAINS.

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-6	RRH	3-31-00	D.H.L.
D.W.C.		4-13-04	J.P.S.



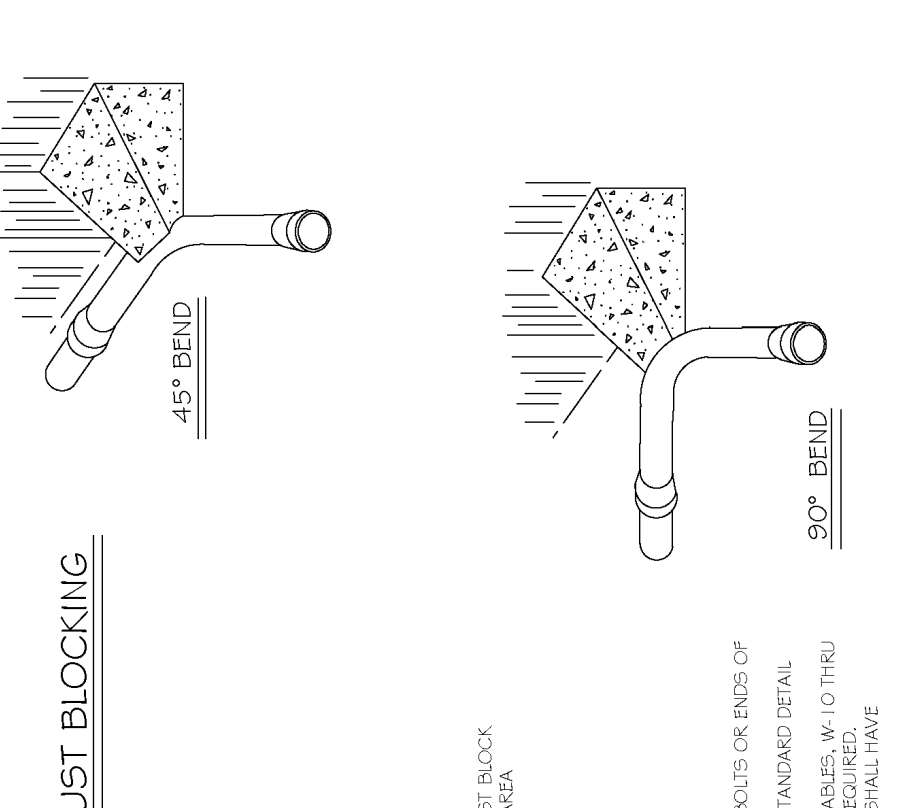
CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-7	RRH	3-1-00	J.P.S.
D.W.C.		12-18-08	

- NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 - CONCRETE SHALL BE 3000 PSI AND FINISH MTD.
 - REINFORCING BARS SHALL BE DROPPED AND TIED TOGETHER.
 - TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 - BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
 - THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AND END CIRCUMFERENCE.



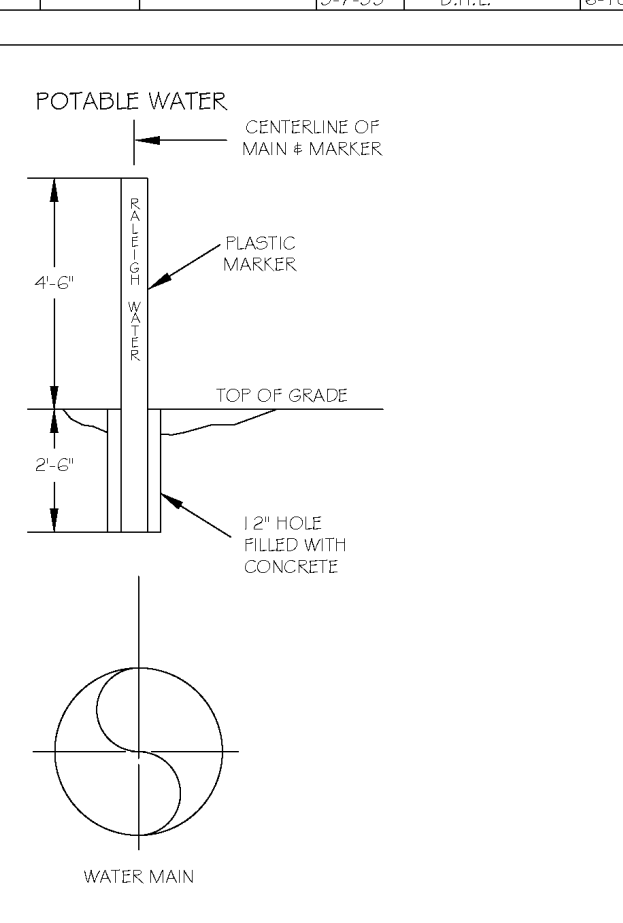
CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-8	RRH	4-1-00	RRH
D.W.C.		12-18-08	

- NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 - CONCRETE SHALL BE 3000 PSI AND FINISH MTD.
 - REINFORCING BARS SHALL BE DROPPED AND TIED TOGETHER.
 - TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 - BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
 - THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AND END CIRCUMFERENCE.



CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-9	D.W.C.	10-7-07	RRH
D.W.C.		3-7-09	D.H.L.

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



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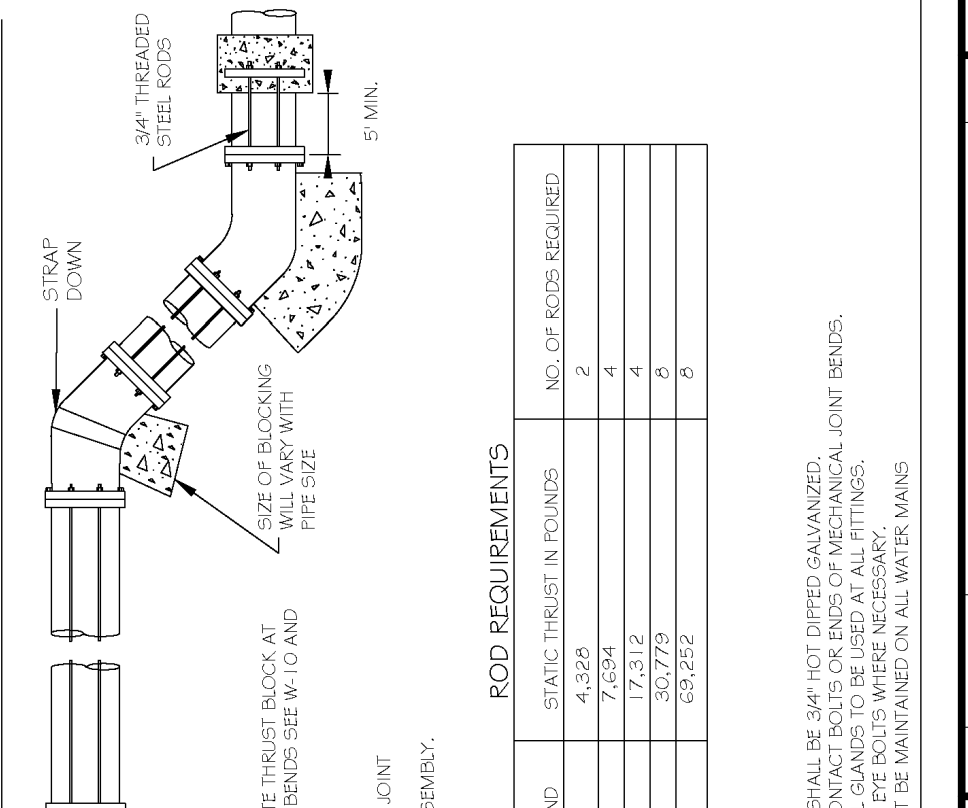
CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD MAIN 4 VALVE MARKERS FOR POTABLE & REUSE WATER IN BASEMENTS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-13	RRH	3-7-09	D.H.L.
D.W.C.		3-31-00	J.P.S.

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS		REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS	
BASED ON TEST PRESSURE OF 200 P.S.I.		BASED ON TEST PRESSURE OF 200 P.S.I.	
ALL AREAS GIVEN IN SQUARE FEET			
PIPE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	ALL METAL GATES IN SQUARE FEET	ALL METAL GATES IN SQUARE FEET
6"	1,108	1	1
8"	1,970	1	1
10"	2,832	1	1
12"	3,694	1	1
14"	4,556	1	1
16"	5,418	1	1
18"	6,280	1	1
20"	7,142	1	1
22"	8,004	1	1
24"	8,866	1	1
26"	9,728	1	1
28"	10,590	1	1
30"	11,452	1	1
32"	12,314	1	1
34"	13,176	1	1
36"	14,038	1	1
38"	14,900	1	1
40"	15,762	1	1
42"	16,624	1	1
44"	17,486	1	1
46"	18,348	1	1
48"	19,210	1	1
50"	20,072	1	1
52"	20,934	1	1
54"	21,796	1	1
56"	22,658	1	1
58"	23,520	1	1
60"	24,382	1	1
62"	25,244	1	1
64"	26,106	1	1
66"	26,968	1	1
68"	27,830	1	1
70"	28,692	1	1
72"	29,554	1	1
74"	30,416	1	1
76"	31,278	1	1
78"	32,140	1	1
80"	33,002	1	1
82"	33,864	1	1
84"	34,726	1	1
86"	35,588	1	1
88"	36,450	1	1
90"	37,312	1	1

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
THRUST BLOCKING DESIGN QUANTITY TABLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-10	D.W.C.	10-7-07	RRH
D.W.C.		3-7-09	D.H.L.

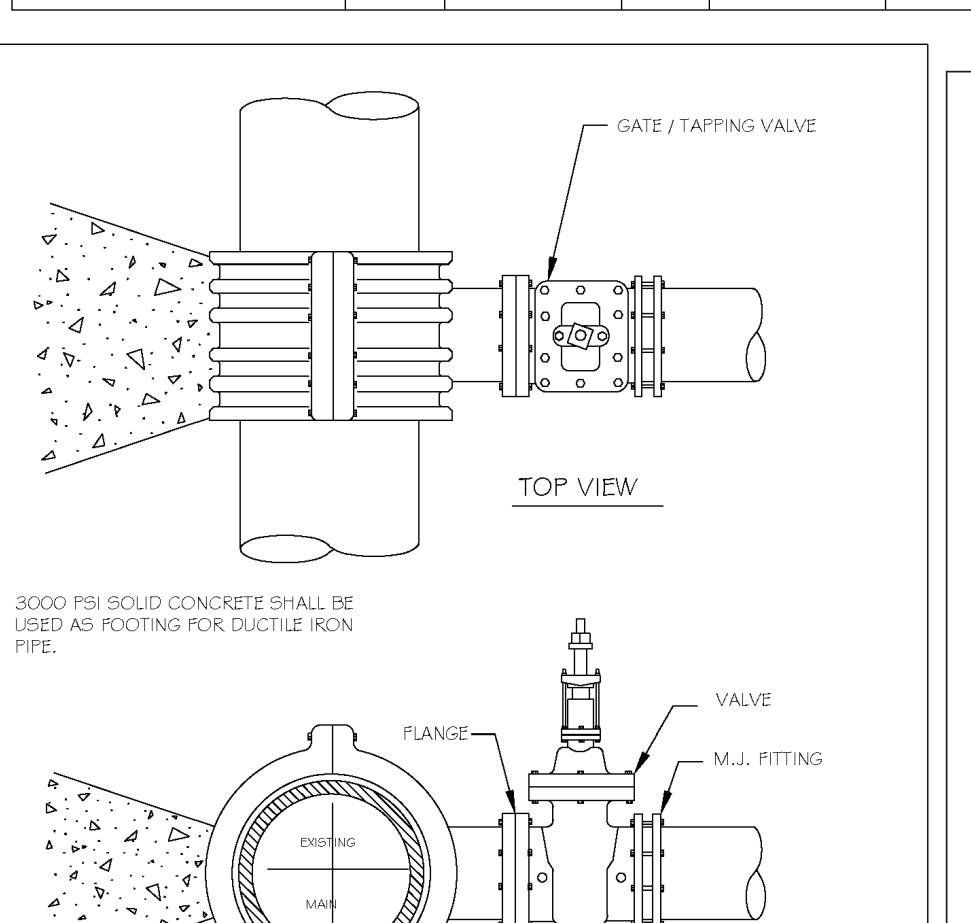
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS		REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS	
BASED ON TEST PRESSURE OF 200 P.S.I.		BASED ON TEST PRESSURE OF 200 P.S.I.	
ALL AREAS GIVEN IN SQUARE FEET			
PIPE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	ALL METAL GATES IN SQUARE FEET	ALL METAL GATES IN SQUARE FEET
24"	17,734	5	5
26"	18,596	5	5
28"	19,458	5	5
30"	20,320	5	5
32"	21,182	5	5
34"	22,044	5	5
36"	22,906	5	5
38"	23,768	5	5
40"	24,630	5	5
42"	25,492	5	5
44"	26,354	5	5
46"	27,216	5	5
48"	28,078	5	5
50"	28,940	5	5
52"	29,802	5	5
54"	30,664	5	5
56"	31,526	5	5
58"	32,388	5	5
60"	33,250	5	5
62"	34,112	5	5
64"	34,974	5	5
66"	35,836	5	5
68"	36,698	5	5
70"	37,560	5	5
72"	38,422	5	5
74"	39,284	5	5
76"	40,146	5	5
78"	41,008	5	5
80"	41,870	5	5
82"	42,732	5	5
84"	43,594	5	5
86"	44,456	5	5
88"	45,318	5	5
90"	46,180	5	5

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
THRUST BLOCKING DESIGN QUANTITY TABLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-11	D.W.C.	10-7-07	RRH
D.W.C.		3-7-09	D.H.L.



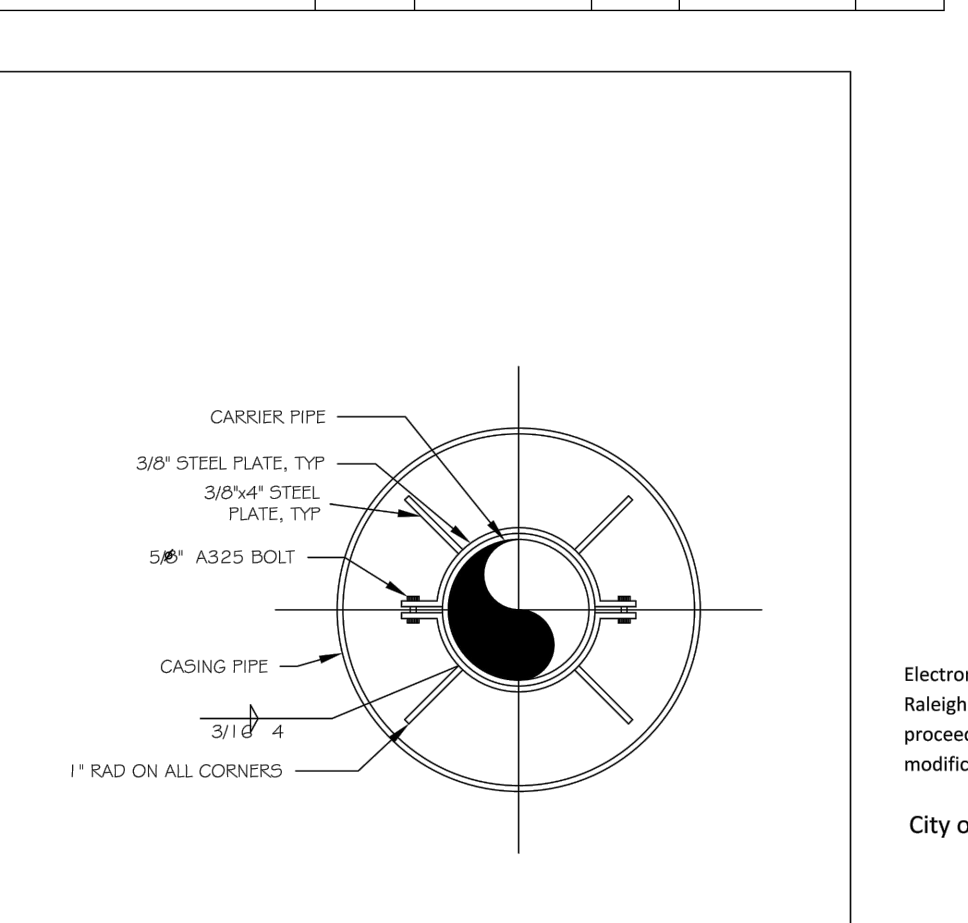
CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD VERTICAL BEND			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-12	RRH	4-6-04	J.P.S.
D.H.L.		12-18-08	

- NOTES:
1. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 - RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 - 3" MAINLINE COVER MUST BE MAINTAINED ON ALL WATER MAINS.



- NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 - SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

CITY OF RALEIGH		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-14	Y.C.A.	2-31-09	RRH
D.W.C.		3-7-09	J.P.S.



- 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		CITY OF RALEIGH	
DEPARTMENT OF PUBLIC UTILITIES		DEPARTMENT OF PUBLIC UTILITIES	
PIPE ALIGNMENT GUIDE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-40	RRH	2-31-00	
D.W.C.		4-16-04	

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6810 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

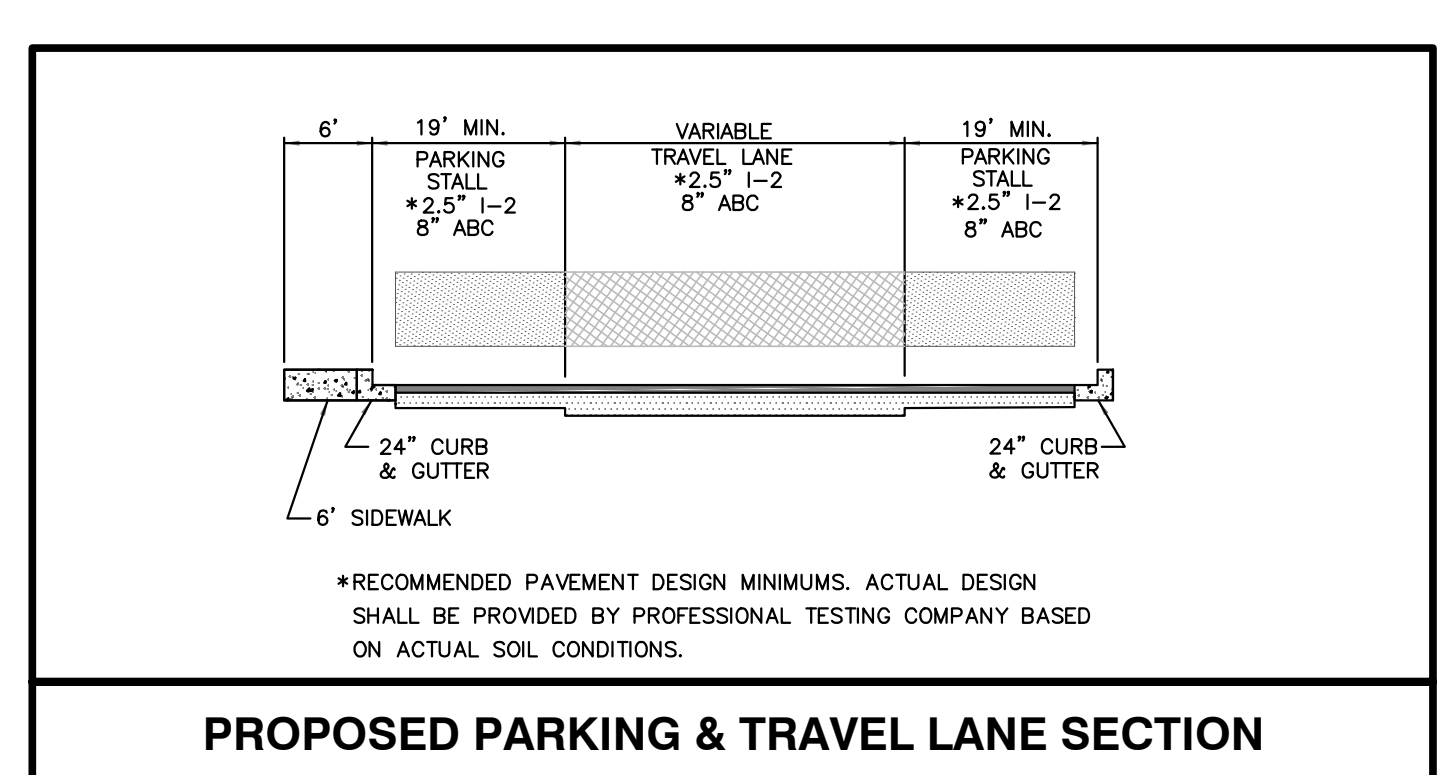
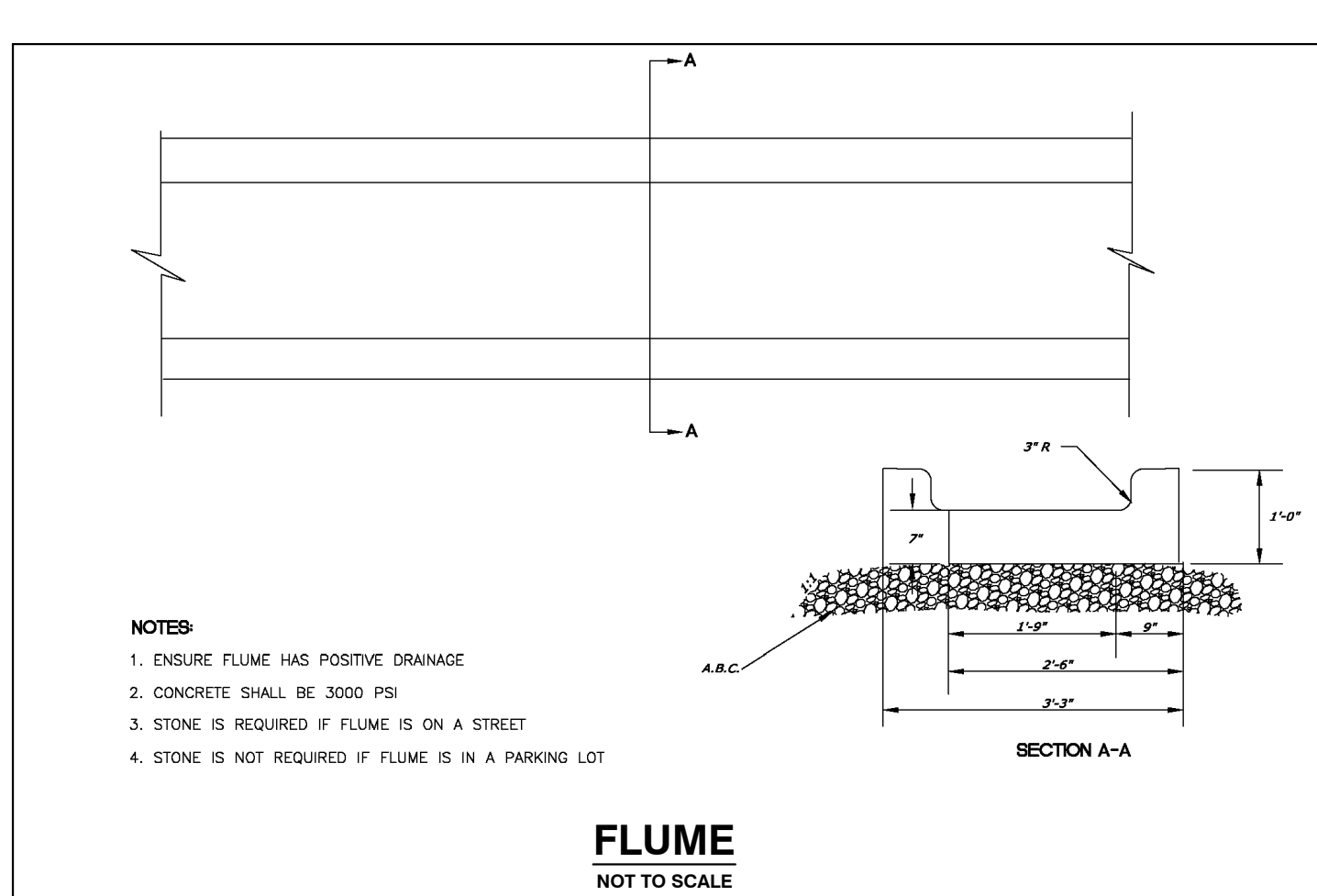
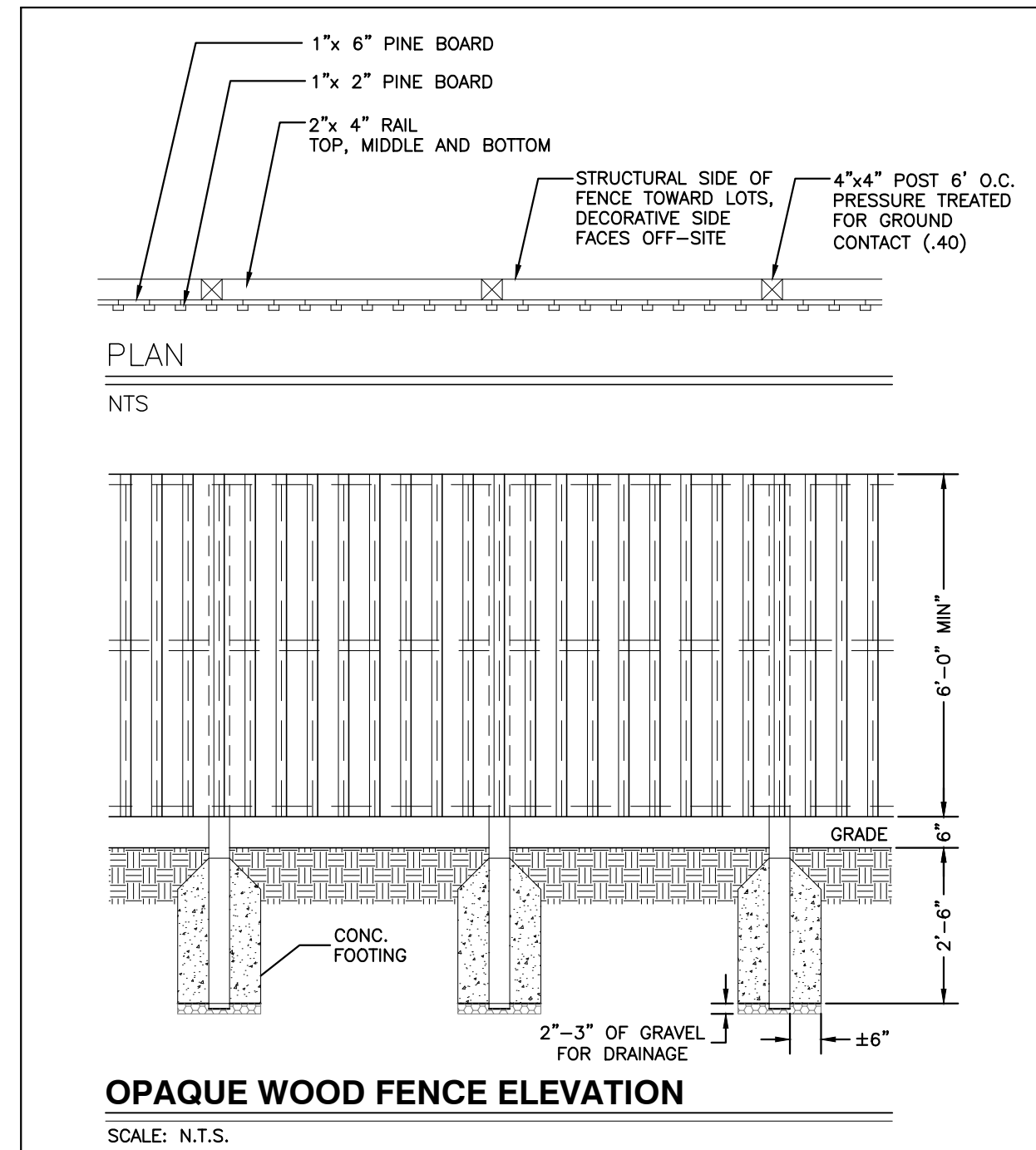
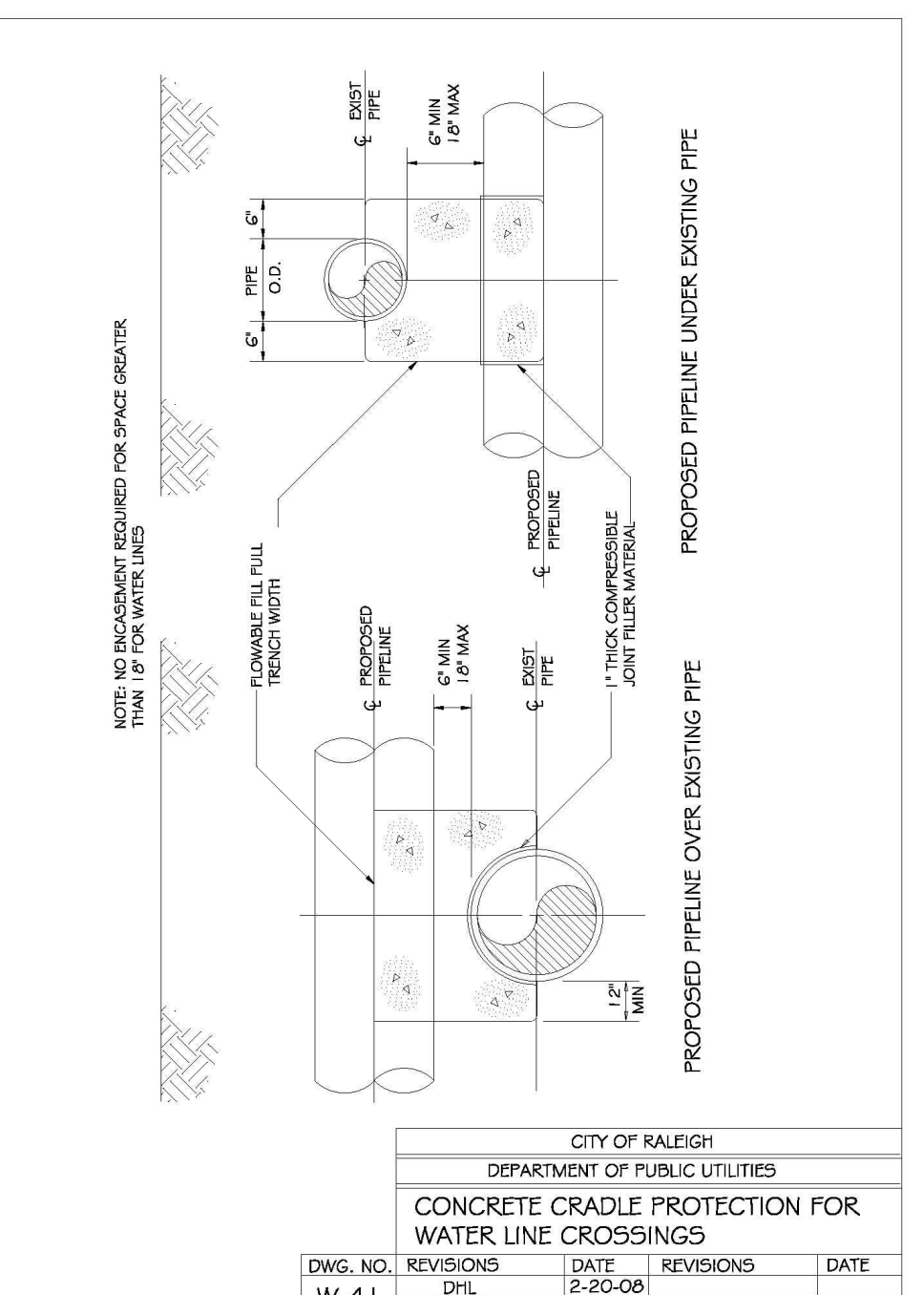
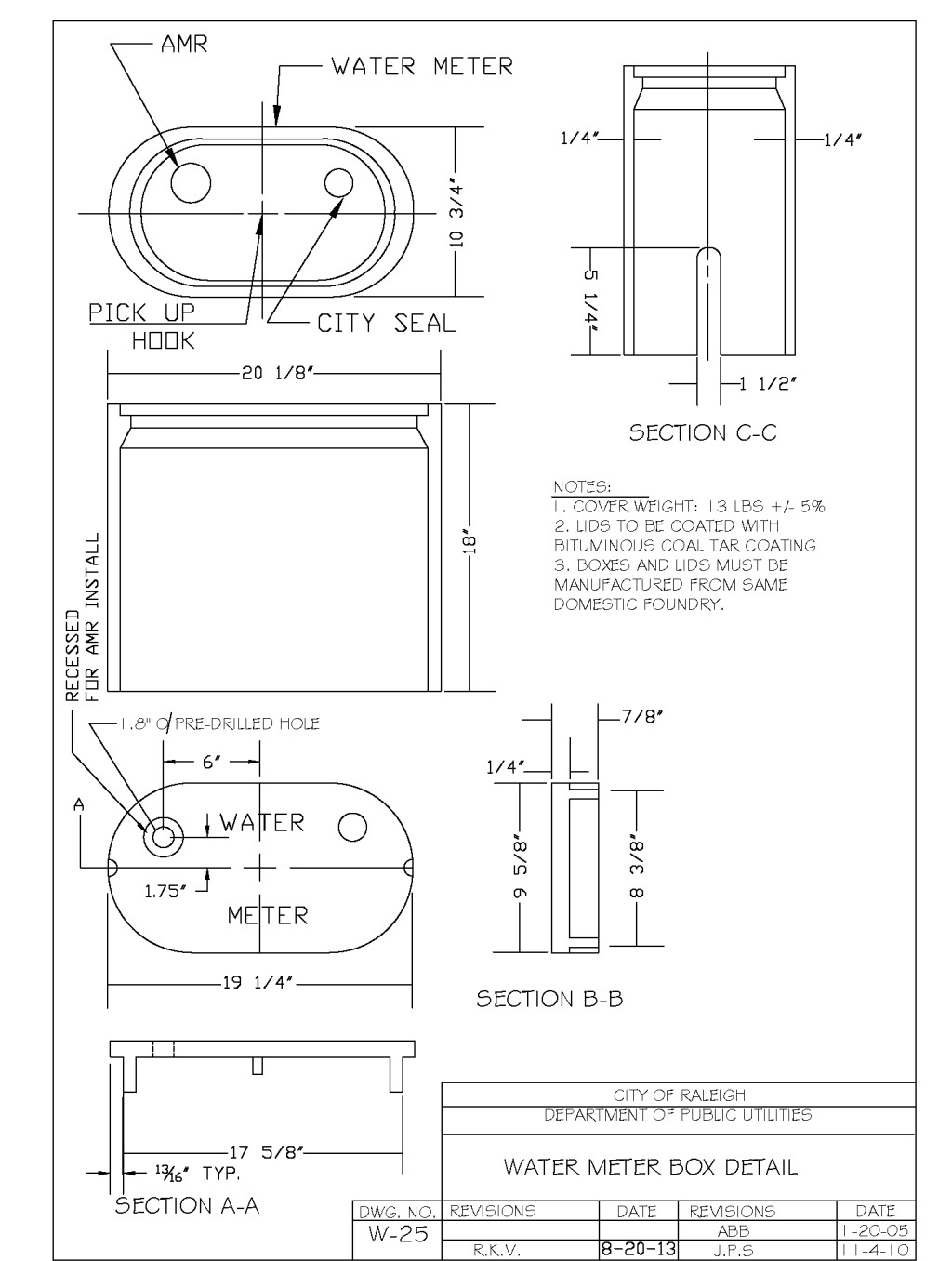
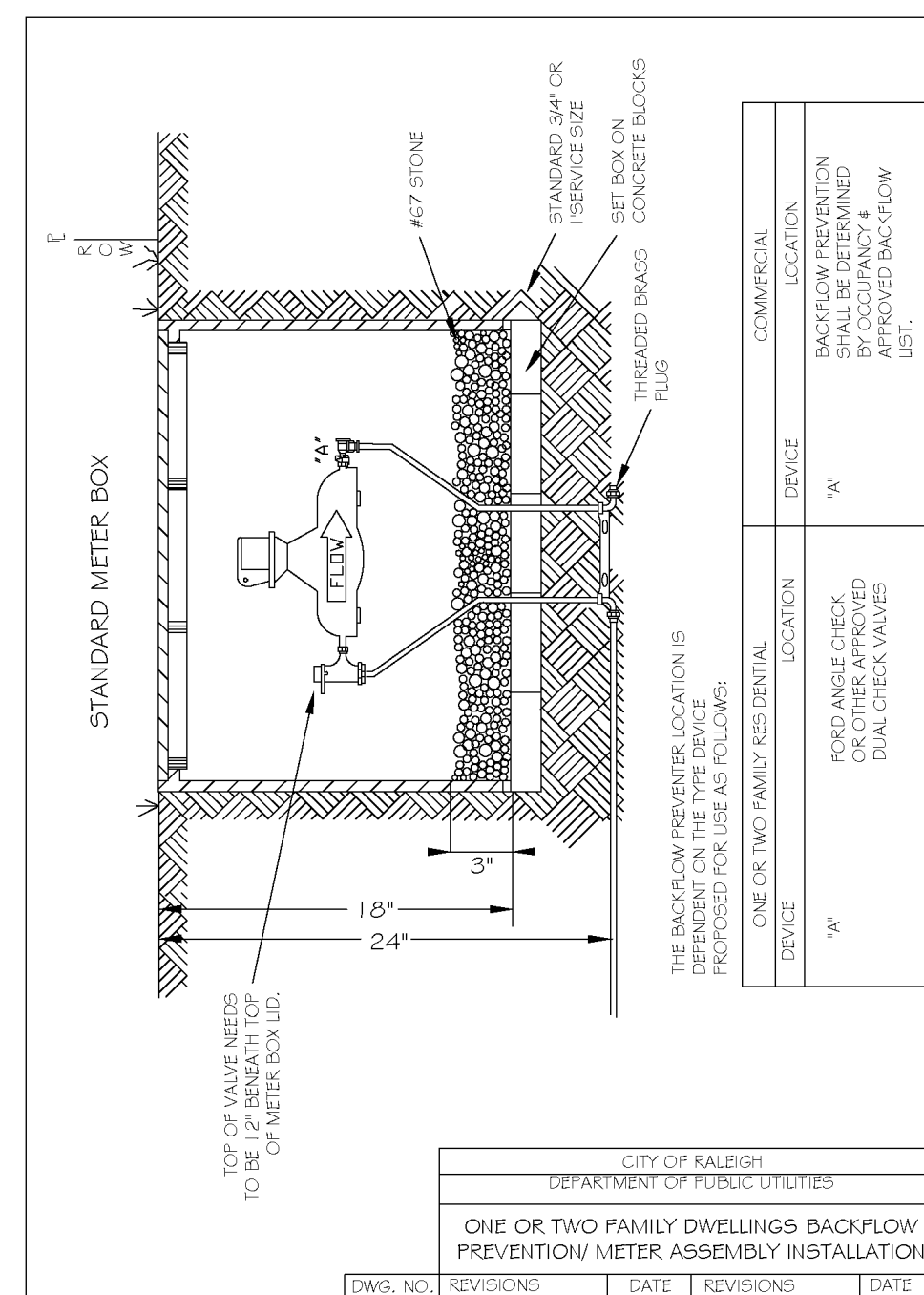
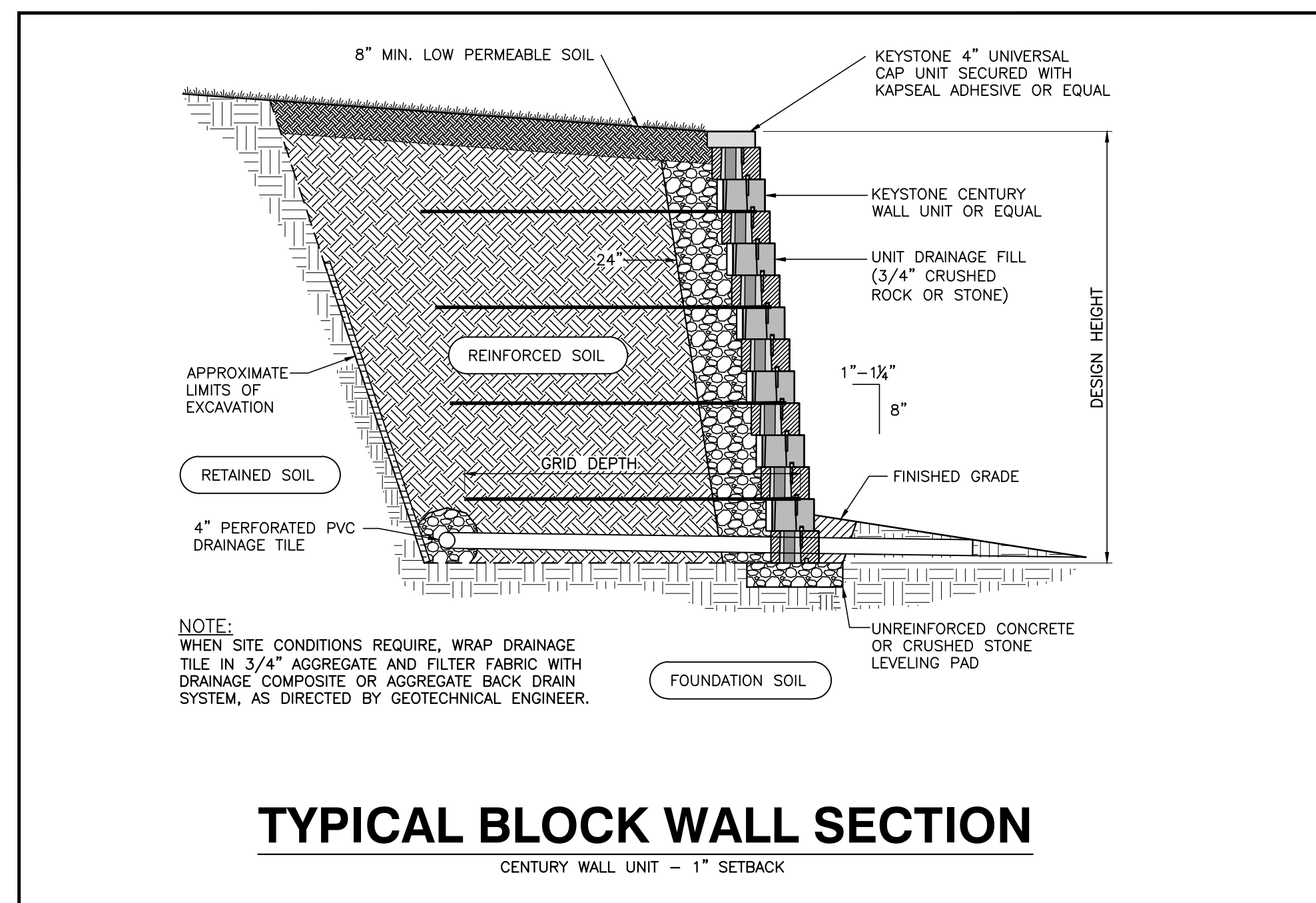
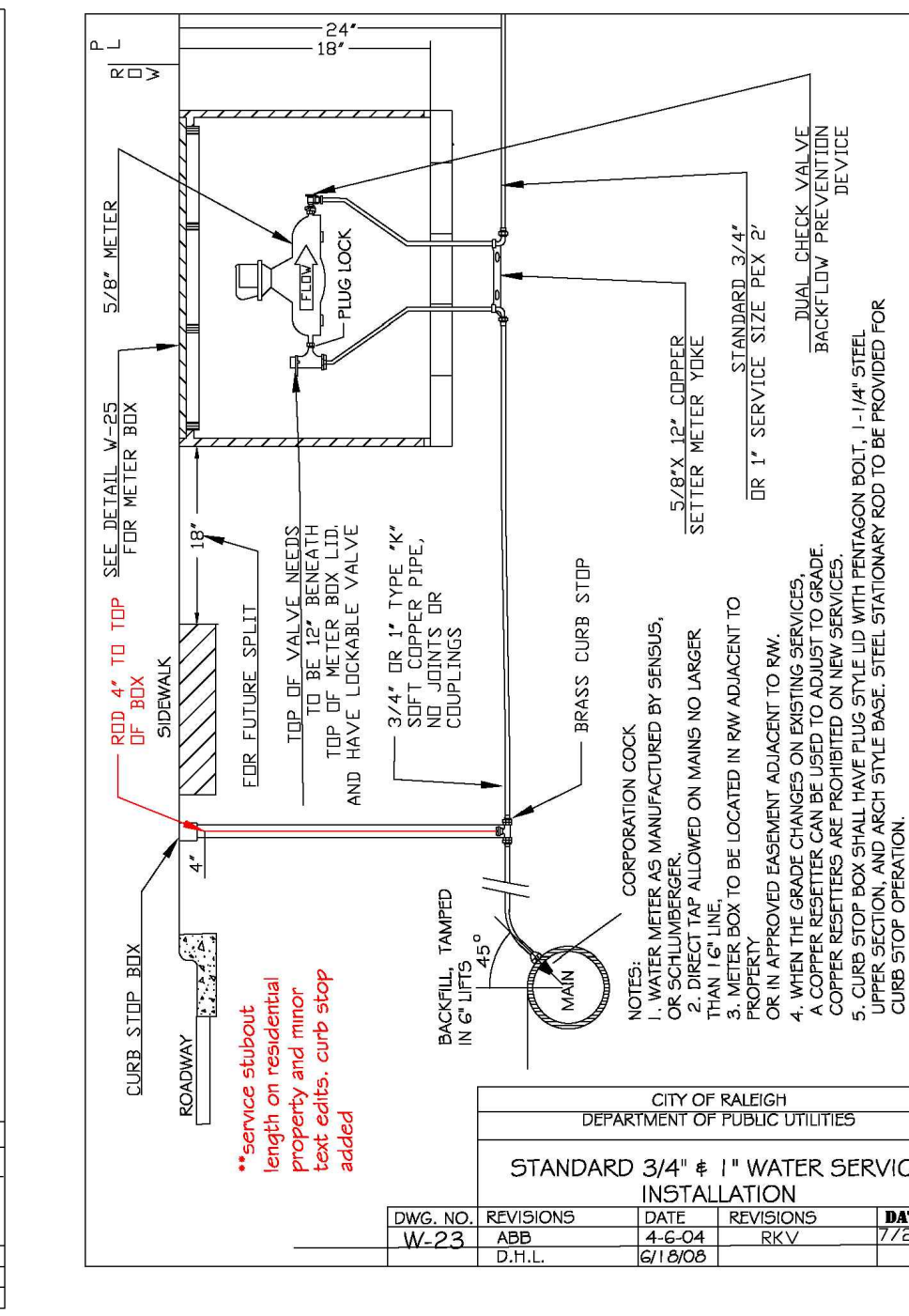
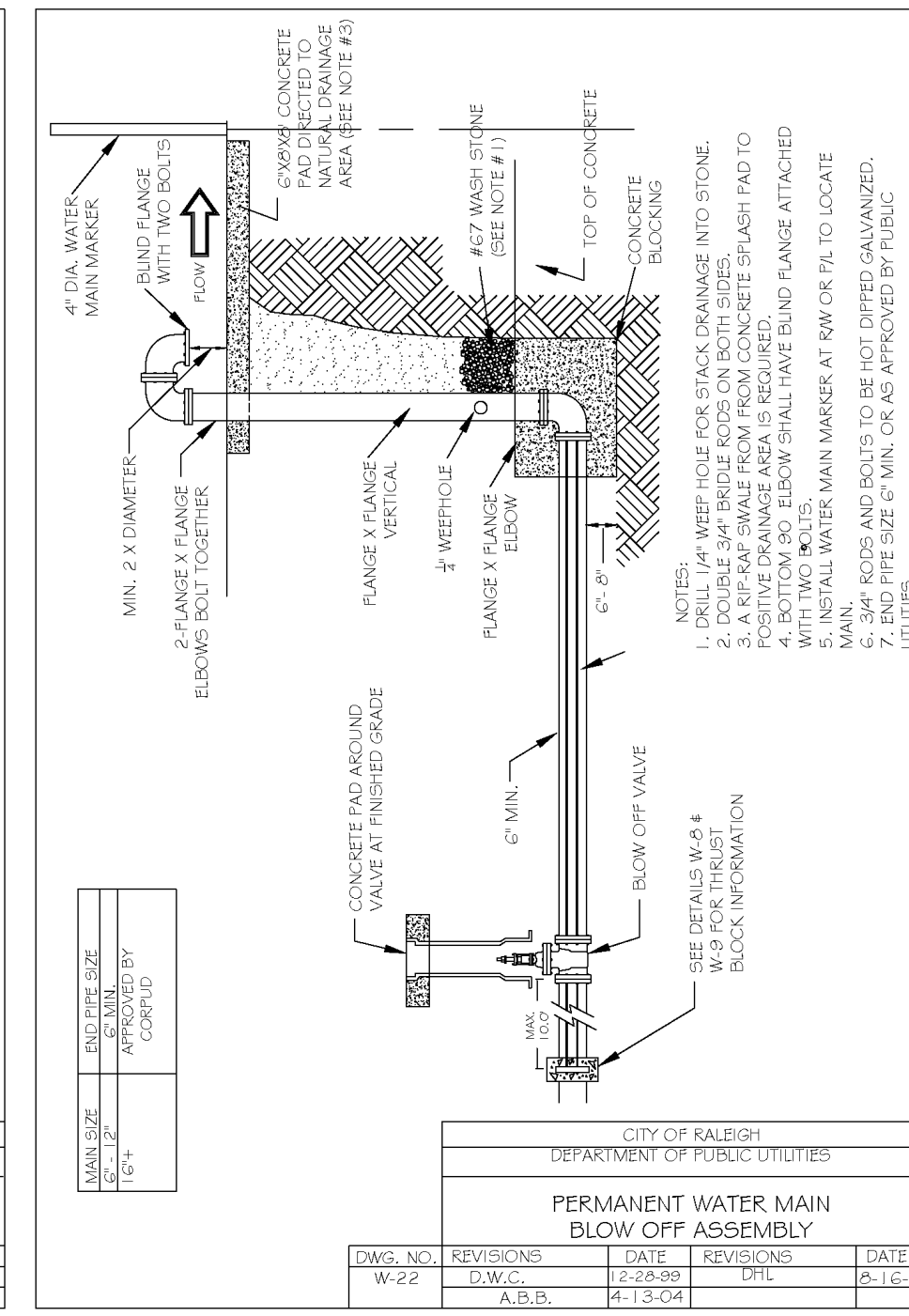
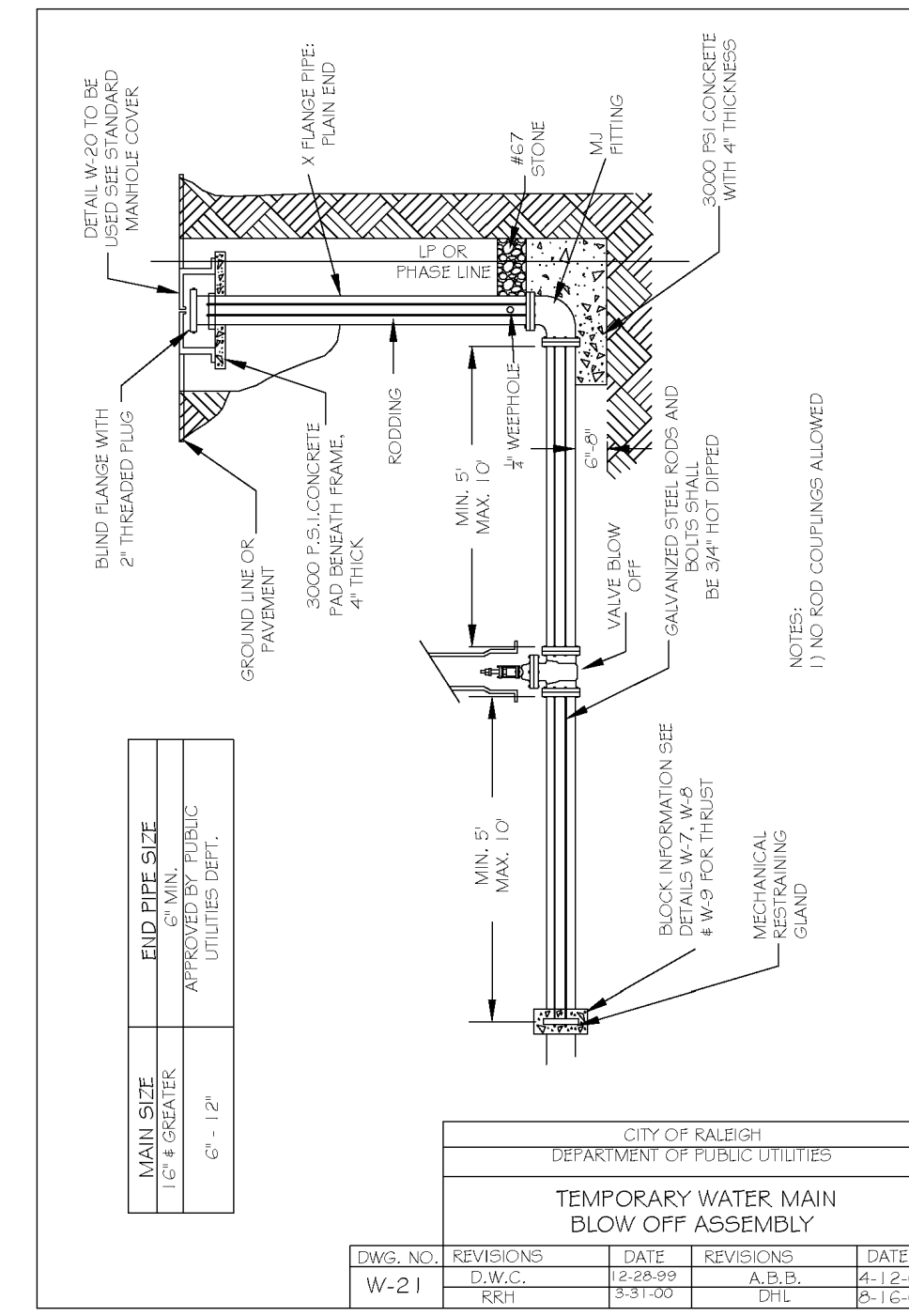
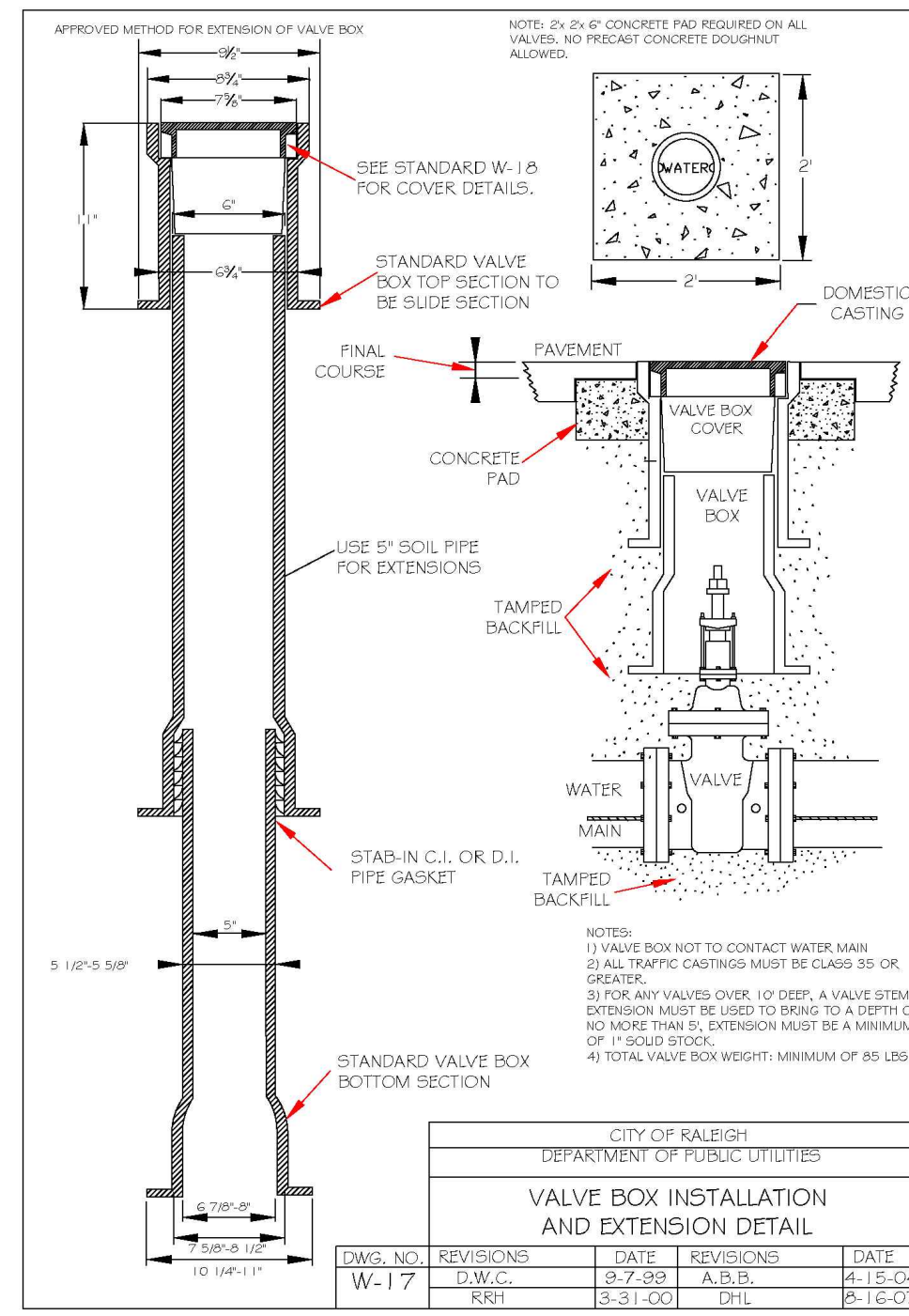
PROGRESS DRAWN BY
 DATE: 03-19-17
 DRAWN BY: MRM

DETAILS
 SCALE: N.T.S.
 CHK BY: MDB

NO. DATE DESCRIPTION REVISIONS

SHEET C5.4

TOWN OF ROLESVILLE PROJECT NO.



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh 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 Development Approval _____

Raleigh Water Review Officer _____



06/02/22

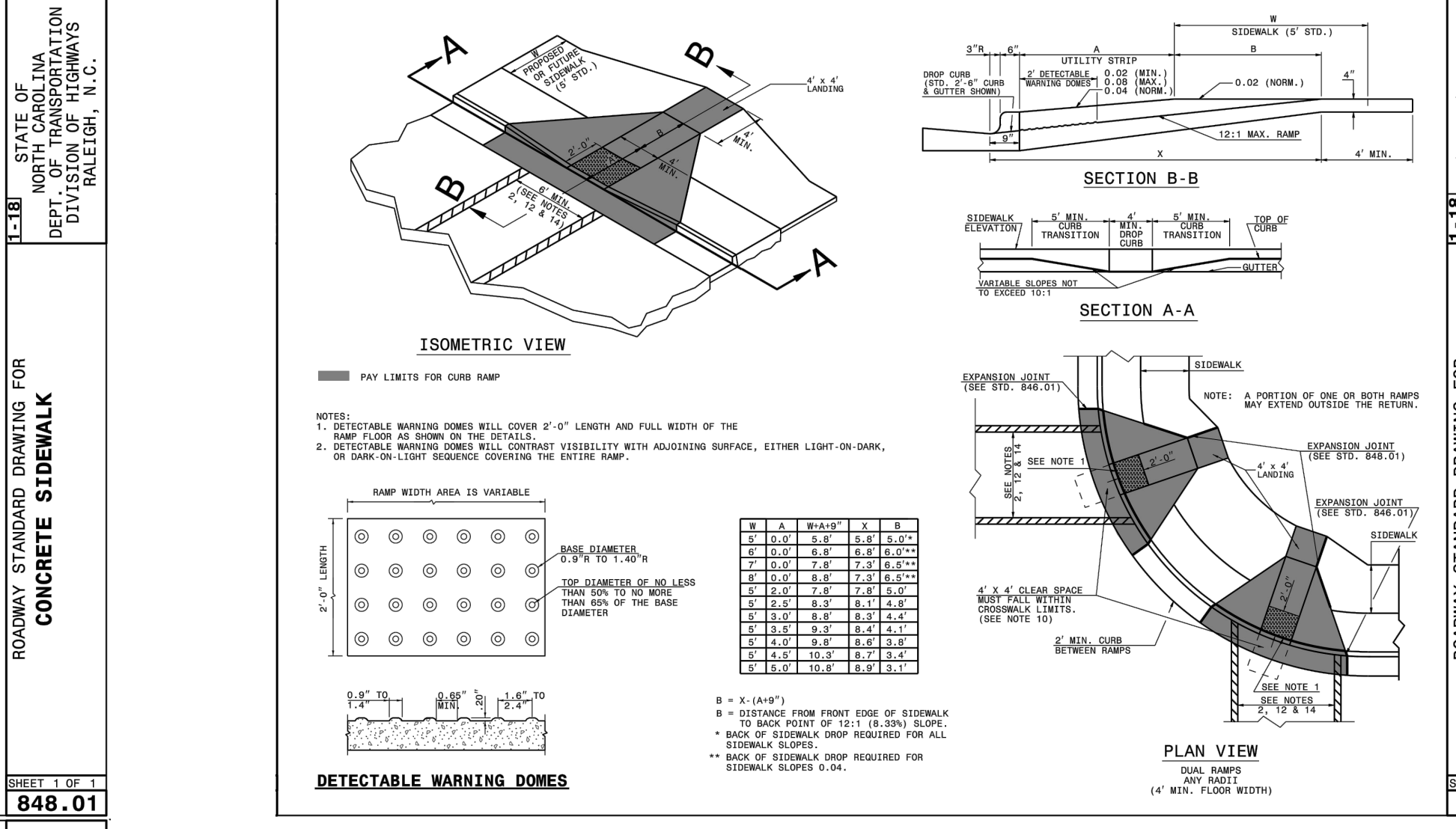
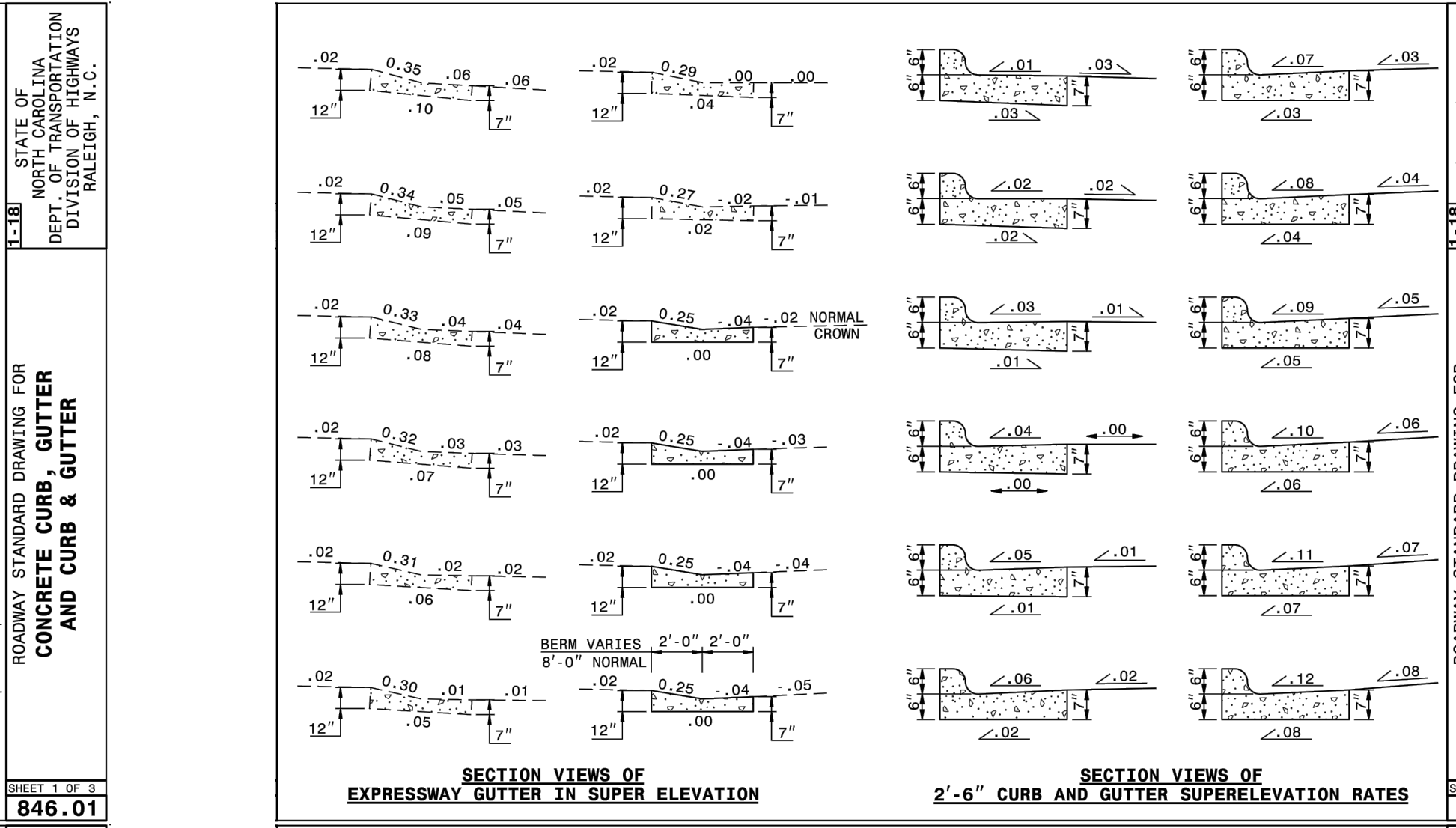
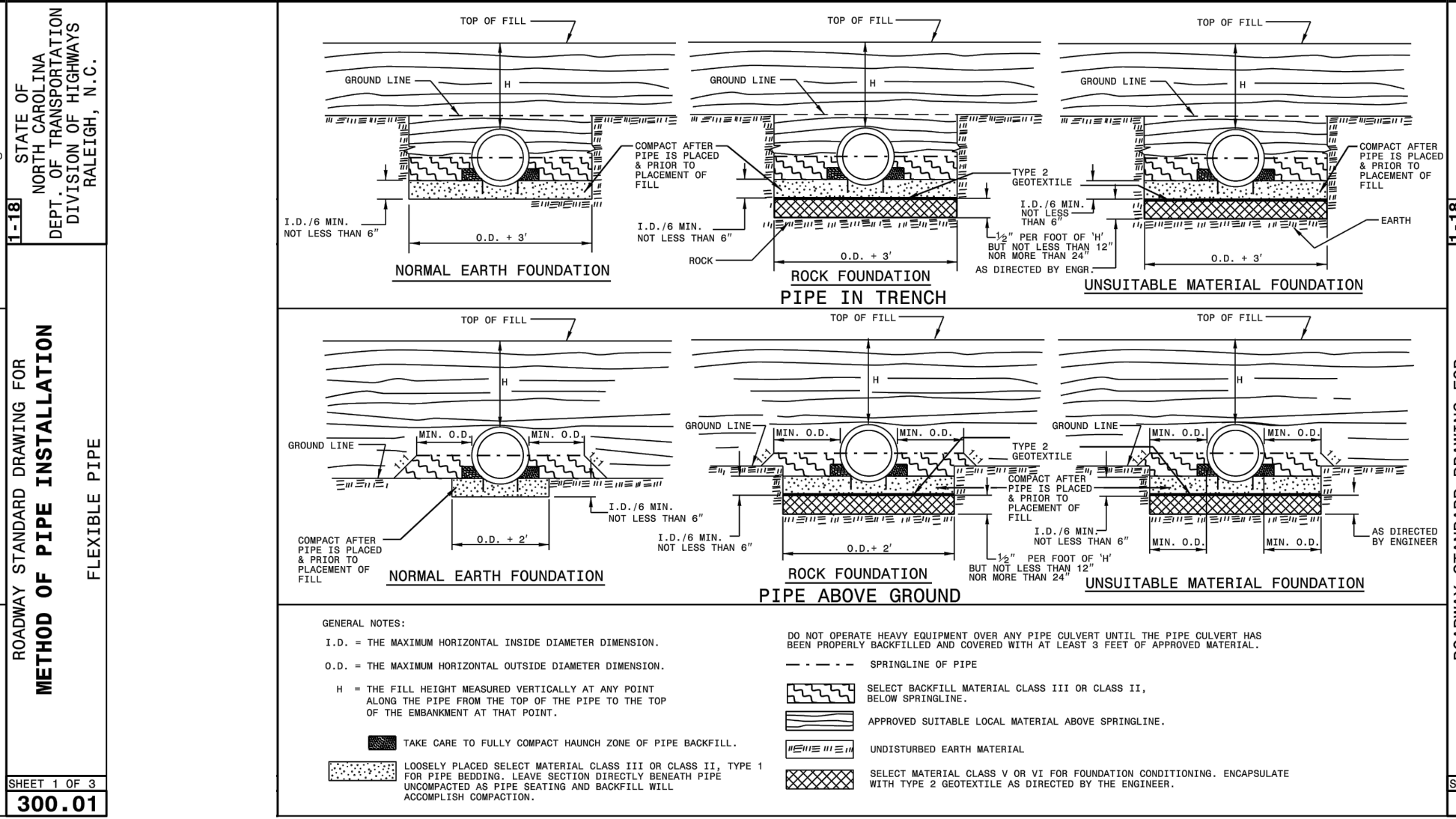
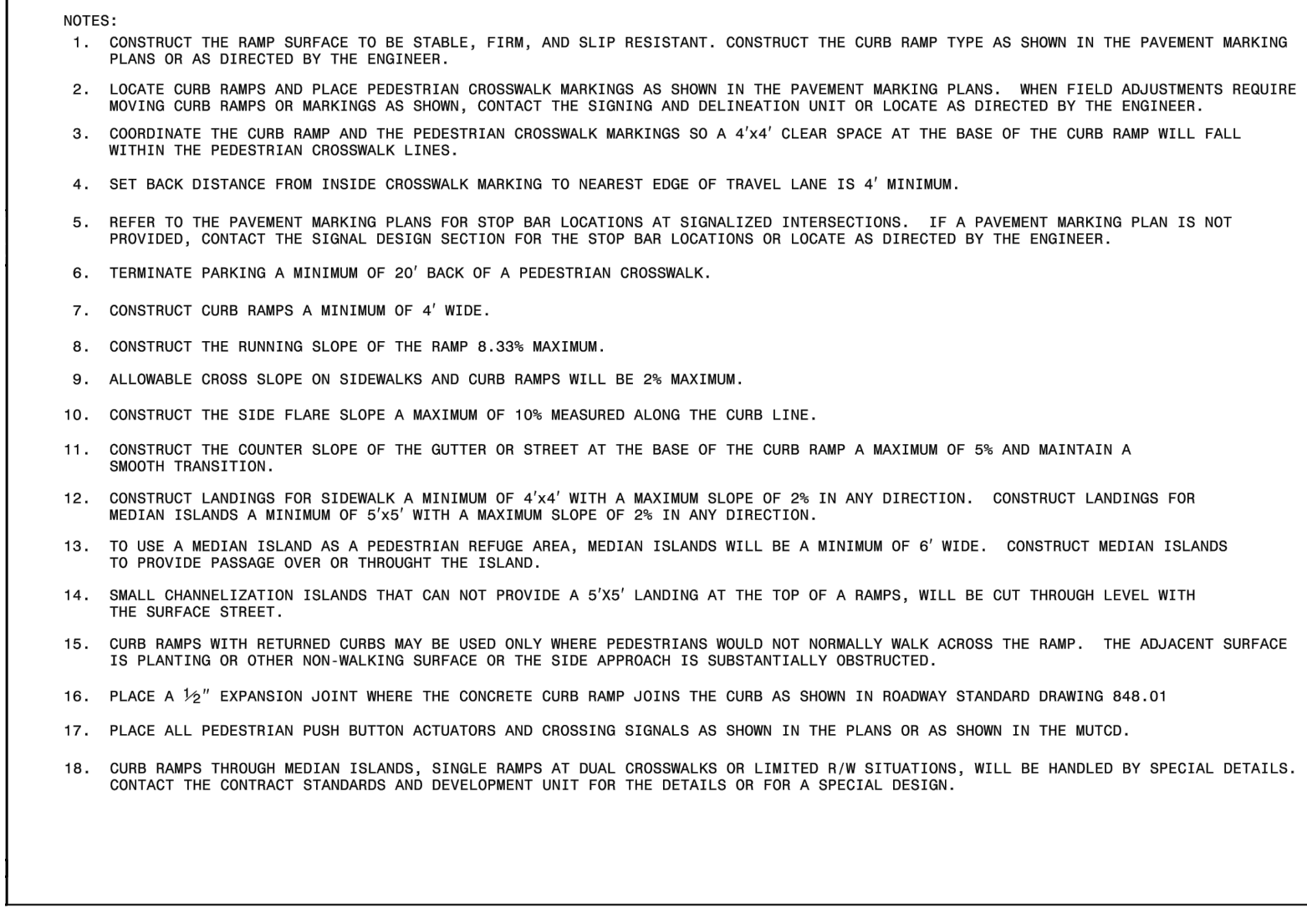
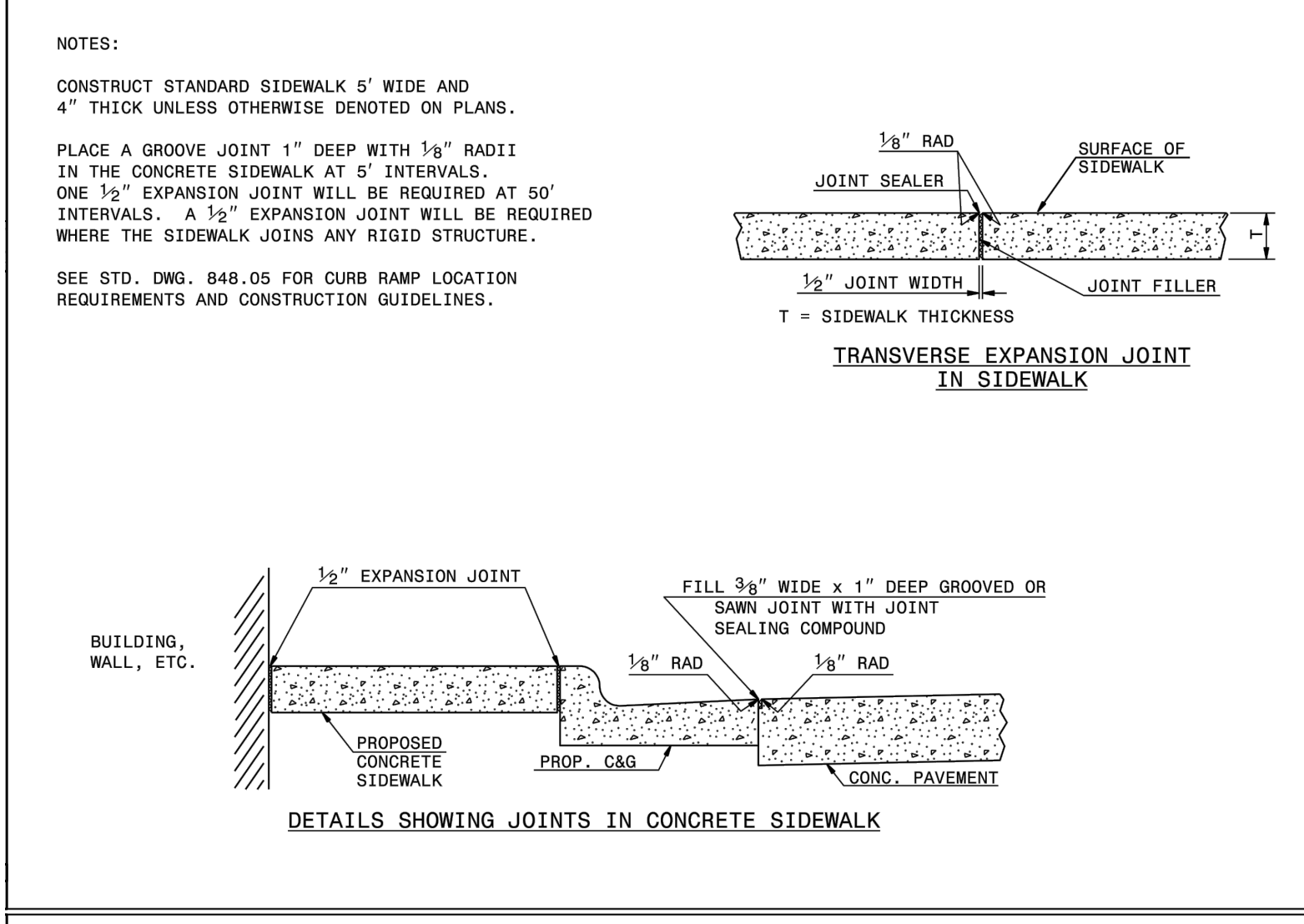
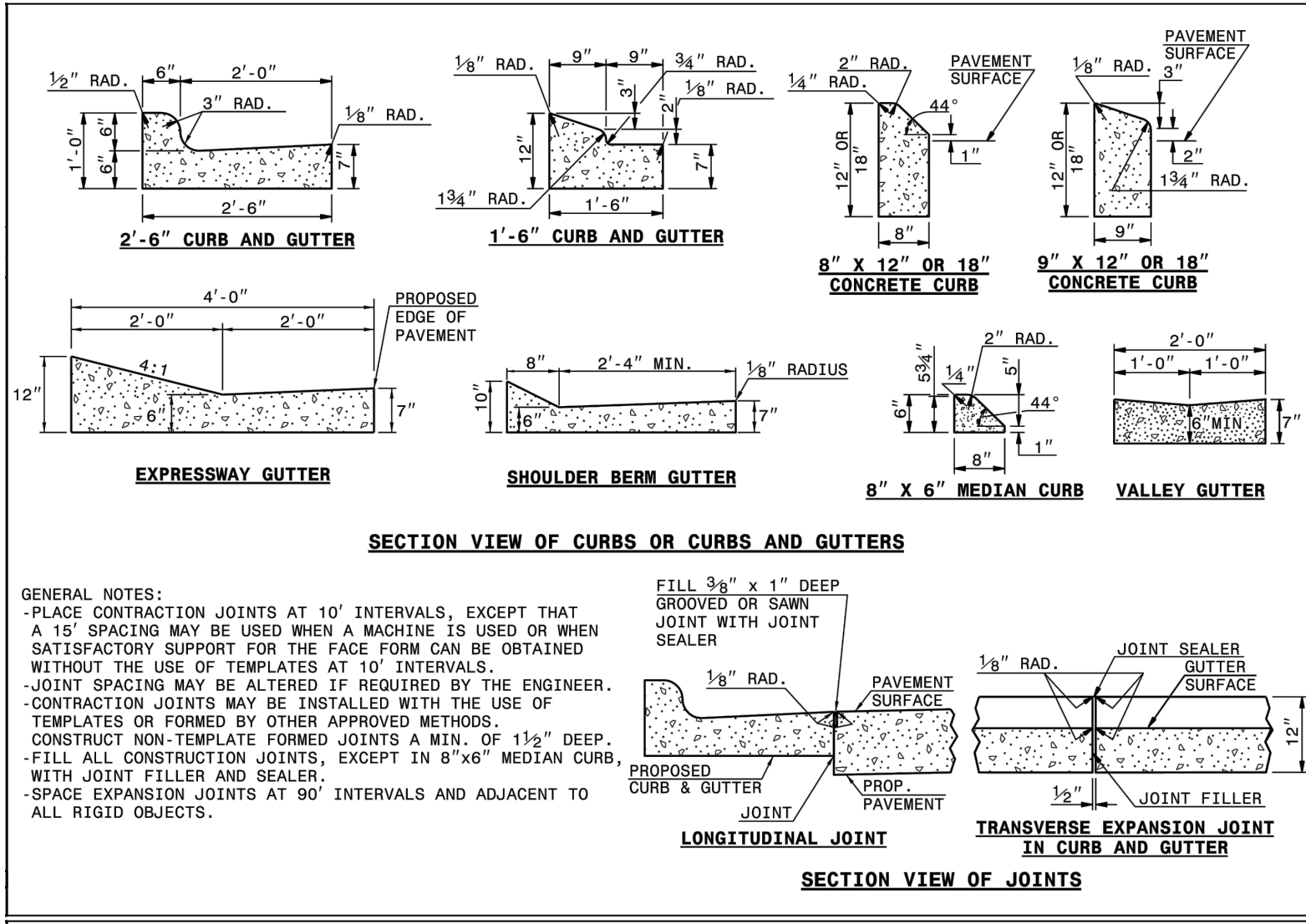
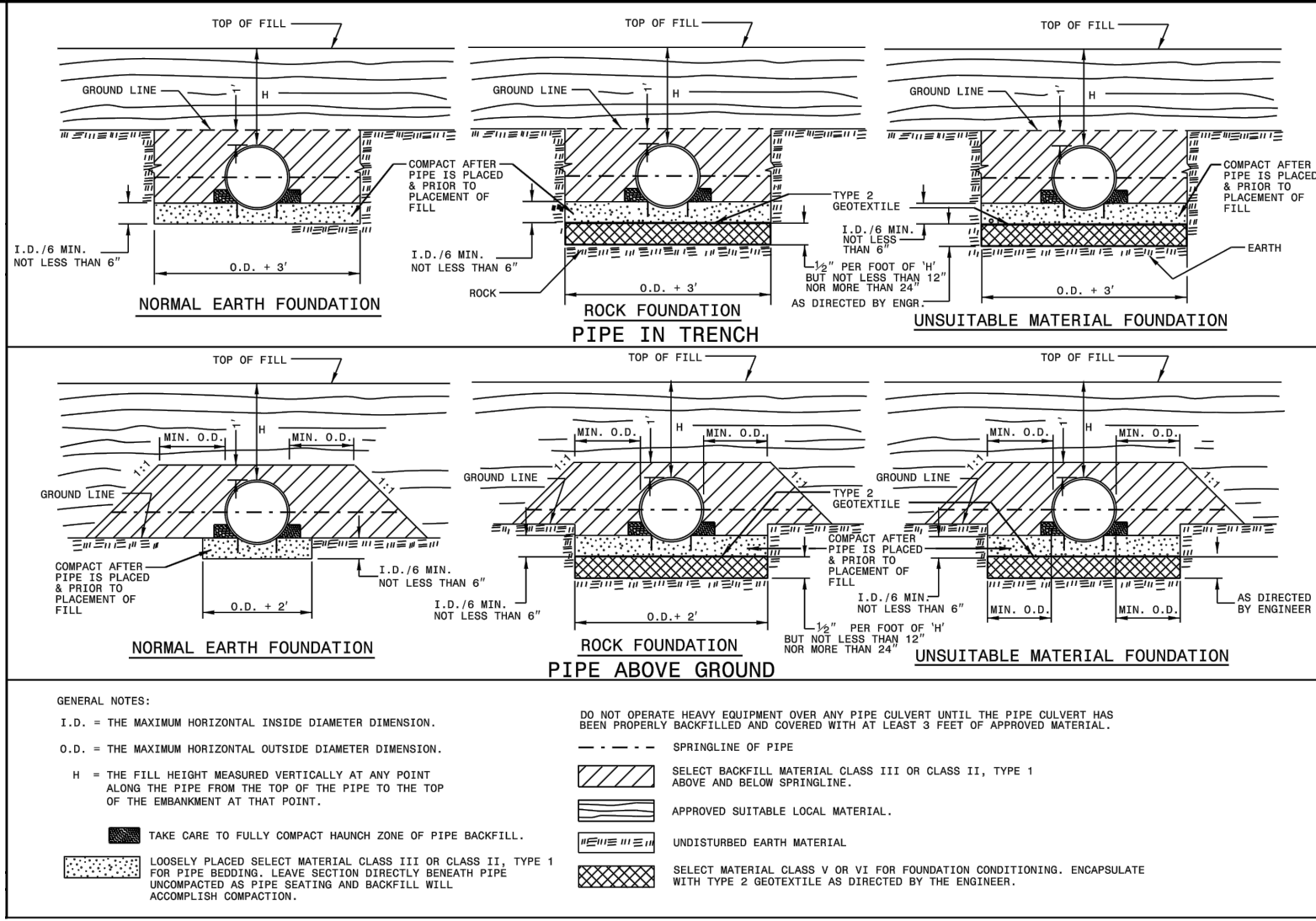
BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6810 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919)881-4242 FAX: (919)881-6888
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PROGRESS DRAWN BY: MRM
DATE: _____
SCALE: N.T.S.
CHK BY: MDB

SHEET C5.5

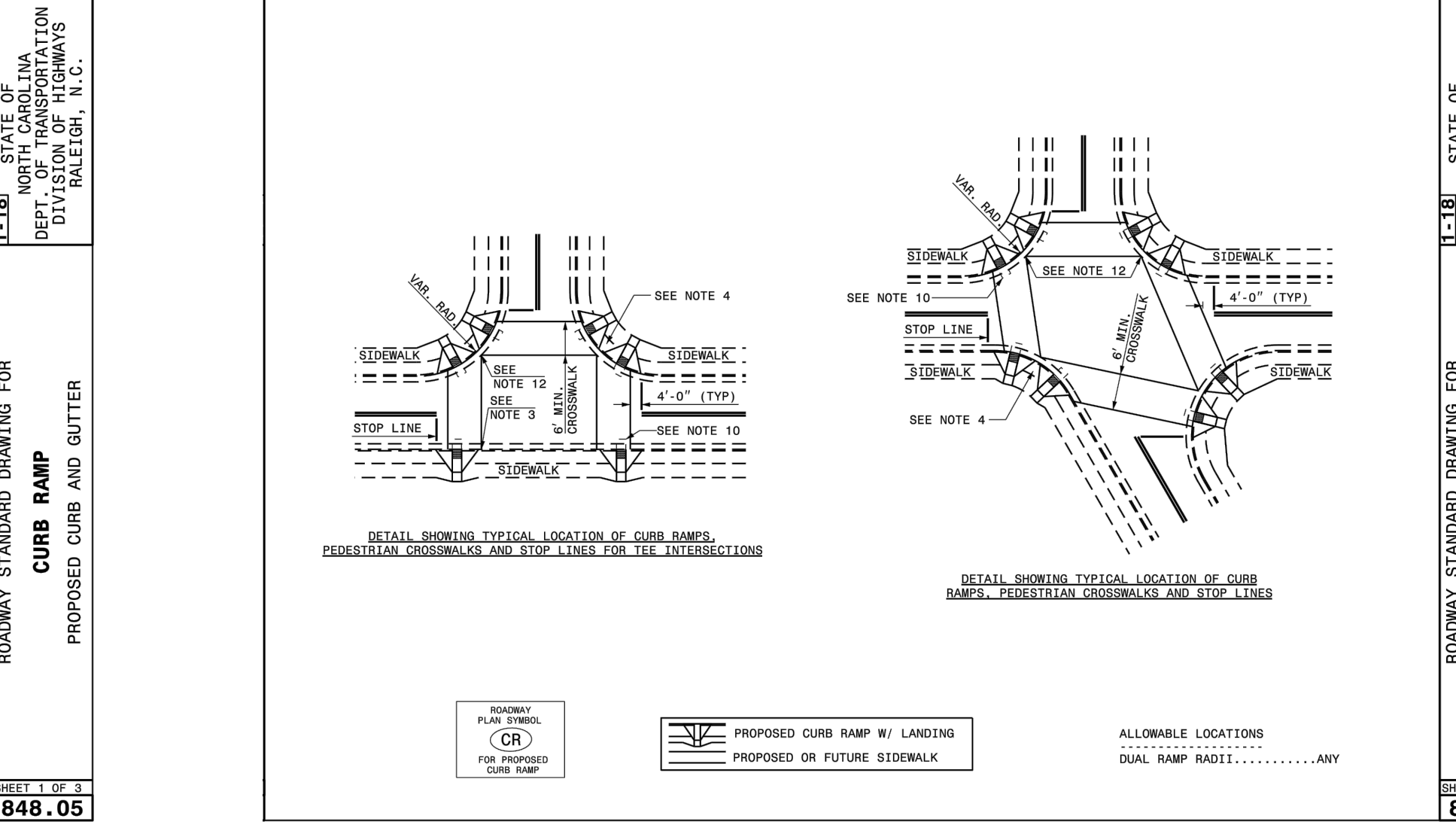
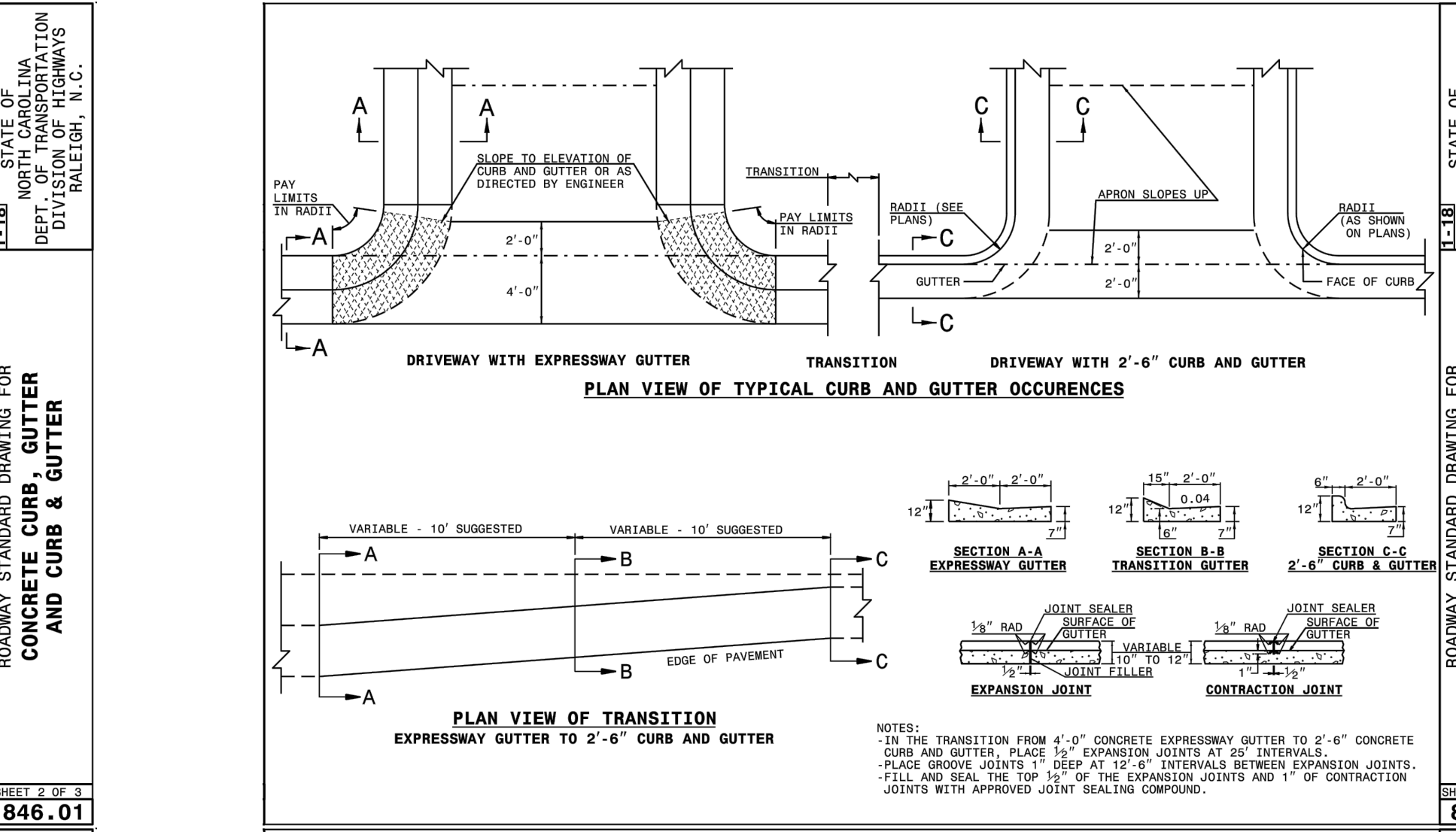


FLEXIBLE PIPE

Round Corrugated Steel Pipe 2 1/2 x 1/8 CORRUGATION		Round Corrugated Aluminum Pipe 2 1/2 x 1/8 CORRUGATION	
Diameter (Inches)	Minimum cover (feet)	Diameter (Inches)	Minimum cover (feet)
12	12	12	12
15	12	15	12
21	12	21	12
24	12	24	12
30	12	30	12
36	12	36	12
42	12	42	12
48	12	48	12
54	12	54	12
60	12	60	12
66	12	66	12
72	12	72	12
78	12	78	12
84	12	84	12

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS:
CSP - AASHTO M36
CAP - AASHTO M198
HOPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

06/02/22

PROGRESS DATE: 03-19-17
DRAWN BY: MRM
CHECK BY: MDB

NO. DATE DESCRIPTION REVISIONS

SCALE: N.T.S.

DETAILS

MRM
DATE
DRAWN BY
CHECK BY

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

ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION FLEXIBLE PIPE SHEET 3 OF 3 300.01

ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION RIGID PIPE SHEET 3 OF 3 300.01

ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER SHEET 3 OF 3 846.01

ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER SHEET 3 OF 3 846.01

ROADWAY STANDARD DRAWING FOR CONCRETE SIDEWALK SHEET 1 OF 1 848.01

ROADWAY STANDARD DRAWING FOR CURBS AND RAMP SHEET 1 OF 3 848.05

ROADWAY STANDARD DRAWING FOR CURBS AND RAMP SHEET 3 OF 3 848.05

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6810 CHASE HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 881-1122 FAX: (919) 881-6886
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

COBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

SHEET C5.6