

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

SP 21-01
9th Submittal
rcvd 05/17/2022

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

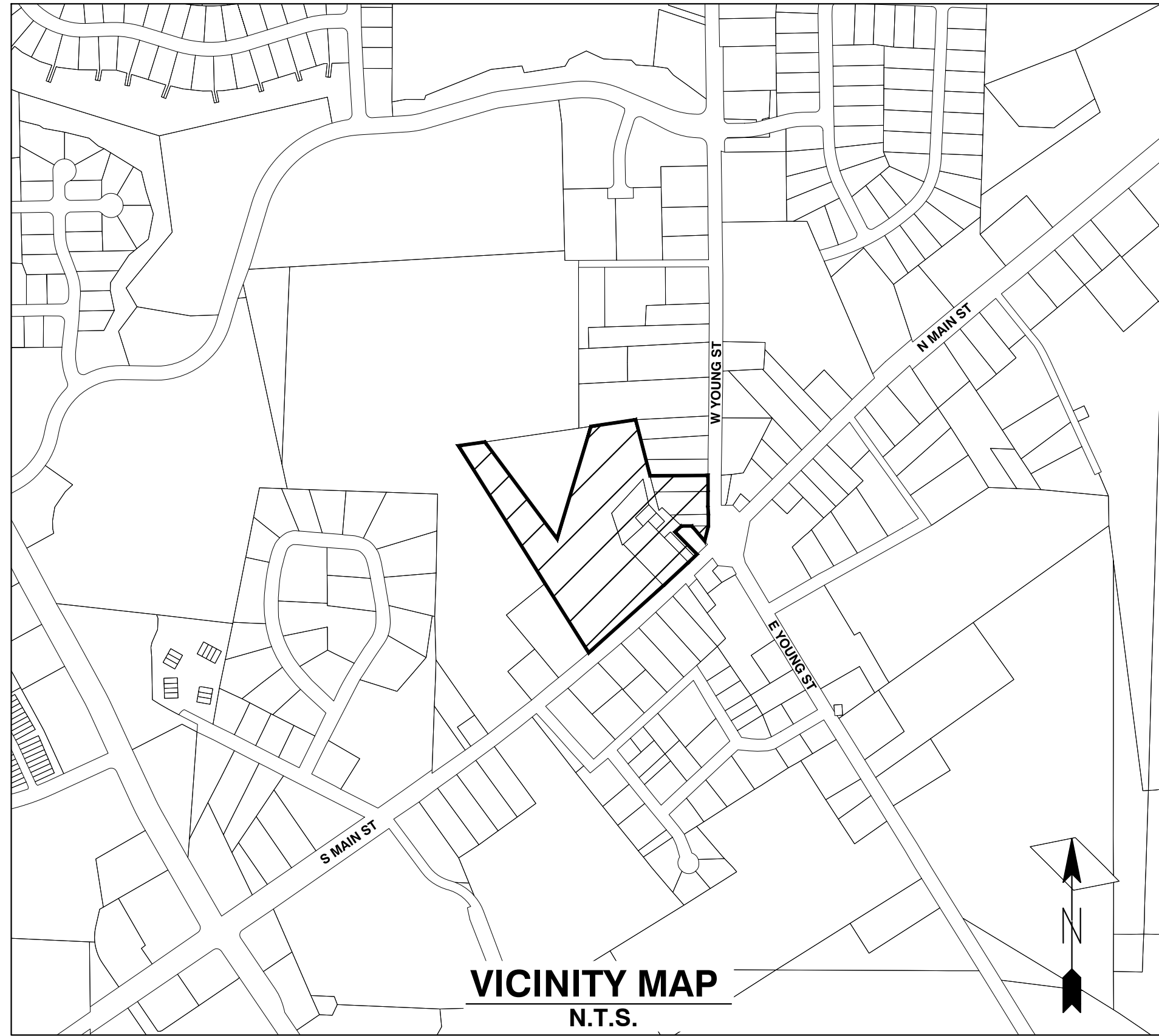
COBBLESTONE VILLAGE MIXED USE DEVELOPMENT

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 if 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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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 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 4% 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)	3.48
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 _____

ENVIRONMENTAL CONSULTANT SIGNATURE

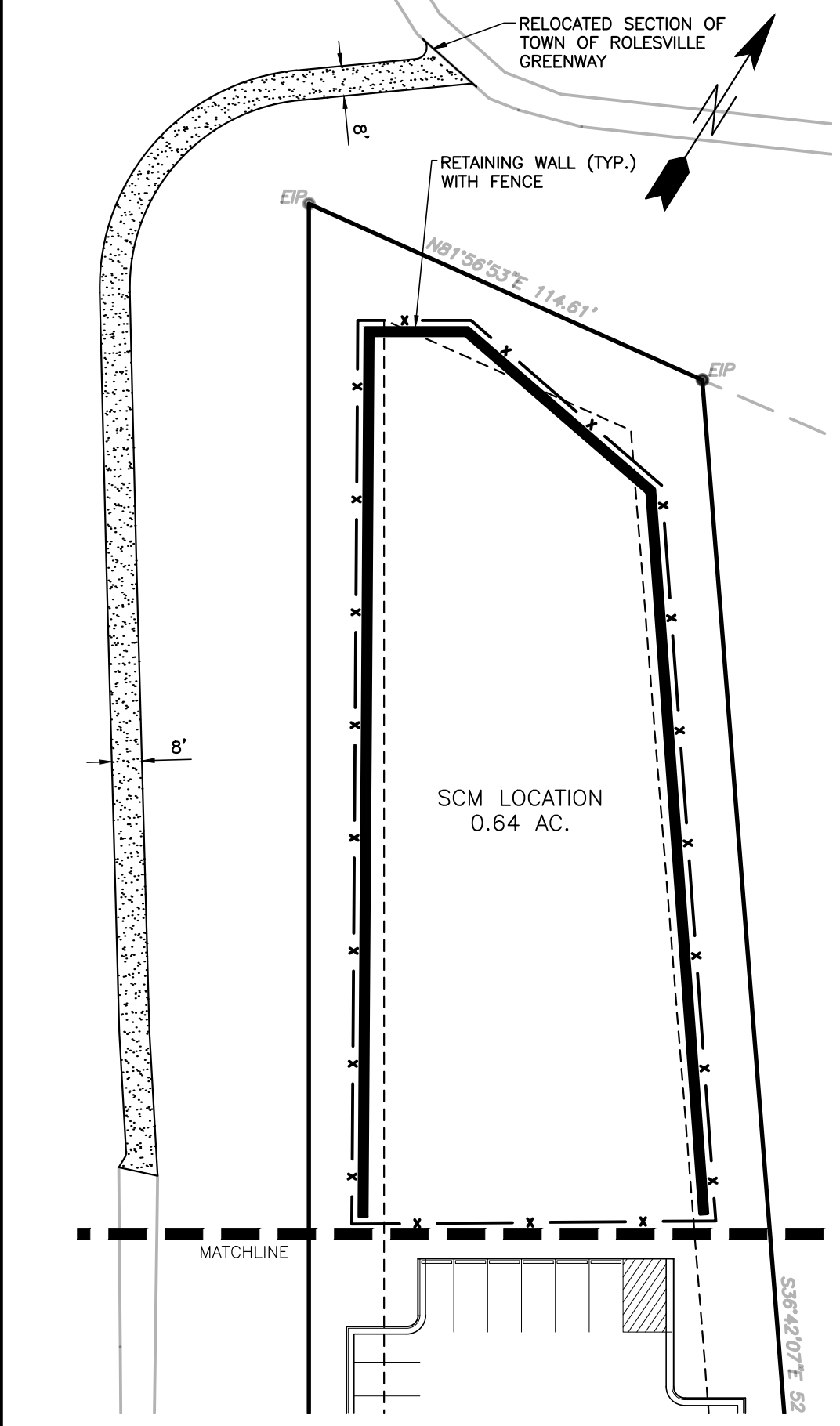


BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHARLETT HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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.

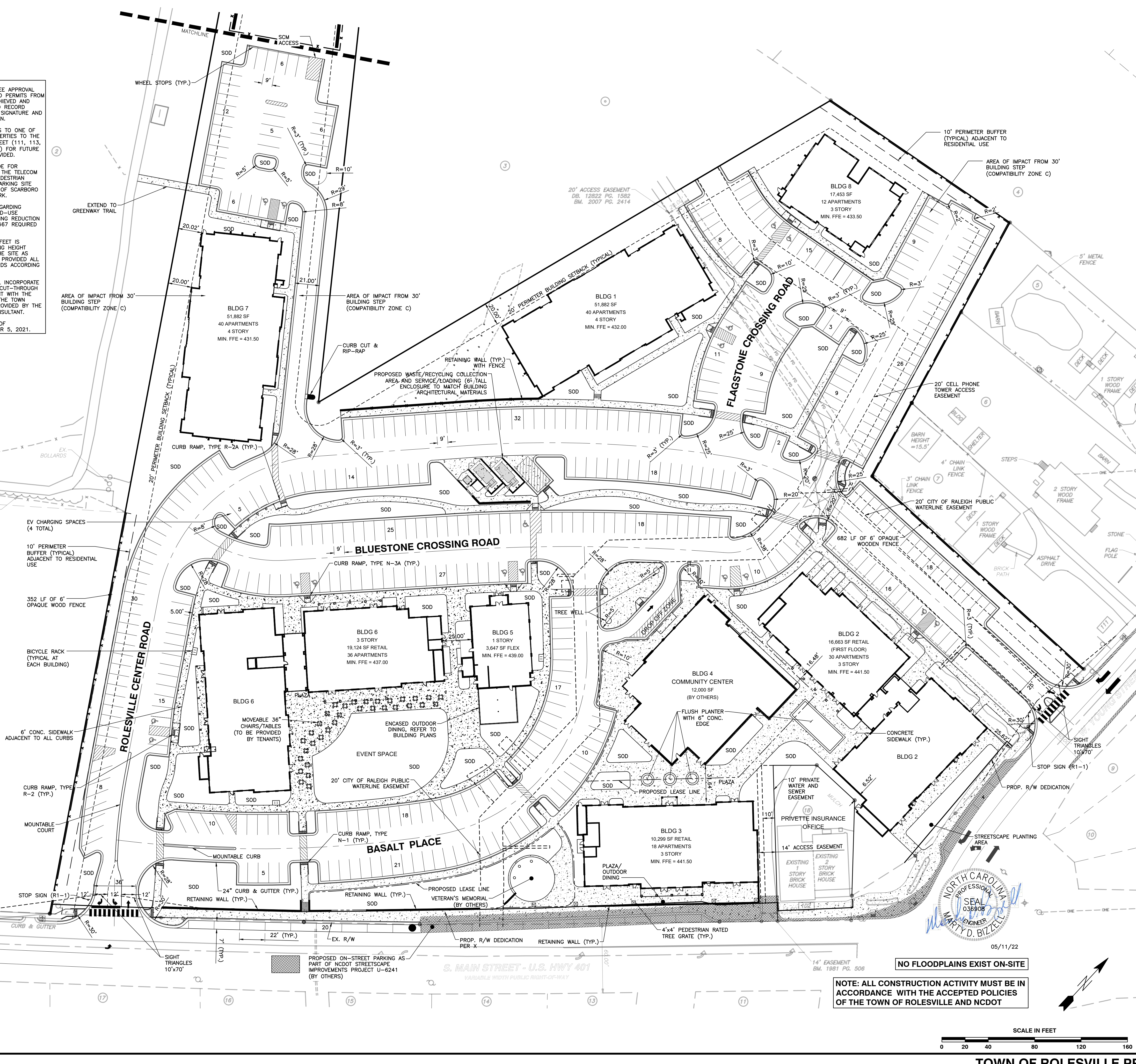


OVERALL SITE DATA

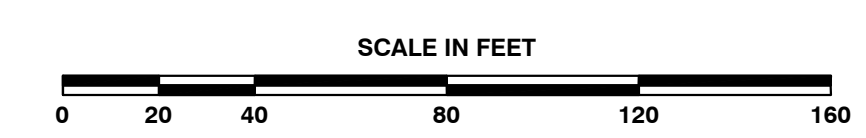
SITE AREA	10.96 AC (477,418 SF±)
P.I.N.	1769-01-0454, 1769-01-4357, 1769-01-3355 1769-01-3468, 1769-01-2542, 1769-01-3520 1769-01-4654, 1769-01-5454, 1769-01-5408, 1769-01-4576
ZONING DISTRICT:	TOWN CENTER (TC) RESIDENTIAL, MIXED USE
OPEN SPACE AREA:	3.48 AC (1.64 REQUIRED, 15%)
IMPERVIOUS AREA:	7.48 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

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 Raleigh Water Review Officer



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R:\2021\051917 - Rolesville Town Center CIVIL\04 Construction\02 - 1917_Site.dwg, Site Plan, 5/13/2022 12:34:39 PM, mncw.mweller

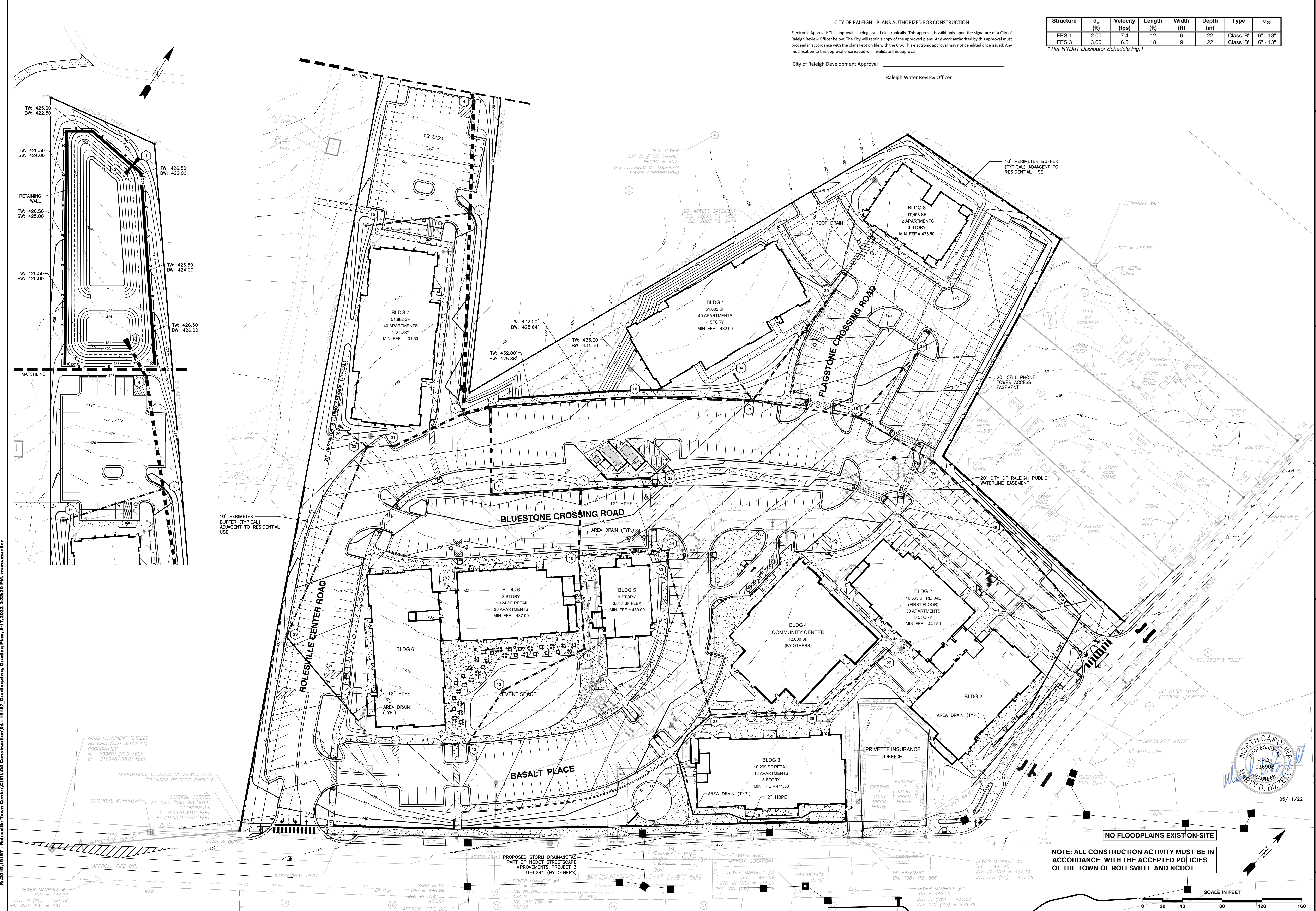
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City of Raleigh Development Approval _____
Raleigh Water Review Officer _____

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\19157 - Rolesville Town Center CIVIL\04 Construction\04 - 19157_Grading.dwg, Grading Plan, 5/17/2023 3:33:20 PM, marc.mueller

NCGS MONUMENT "STREET"
NC GRID (NAD '83/2011)
COORDINATES
N: 790603.2300 FEET
E: 2159767.9640 FEET

APPROXIMATE LOCATION OF POWER POLE
(PROVIDED BY DUKE ENERGY)

EIP CONTROL CORNER
NC GRID (NAD '83/2011)
COORDINATES
N: 790920.3912 FEET
E: 2160071.2846 FEET

PROPOSED STORM DRAINAGE AS
PART OF NCDOT STREETSCAPE
IMPROVEMENTS PROJECT 3
U-6241 (BY OTHERS)

NORTH CAROLINA
PROFESSIONAL
SEAL
036908
WARRANTY
D. BIZELLE

05/11/22

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

SCALE IN FEET

0 20 40 80 120 160



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

GRADING PLAN

SCALE: 1" = 40'

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

SHEET
C3.1

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

TOWN OF ROLESVILLE PROJECT NO.

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 1, 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)	4.61	4.61	0.6
Q1(CFS)	(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"	0.5"	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

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 _____

DITCH/CHANNEL CALCULATIONS

DIVERSION DITCH ID	LENGTH (LF)	DA (Ac)	Q10 (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

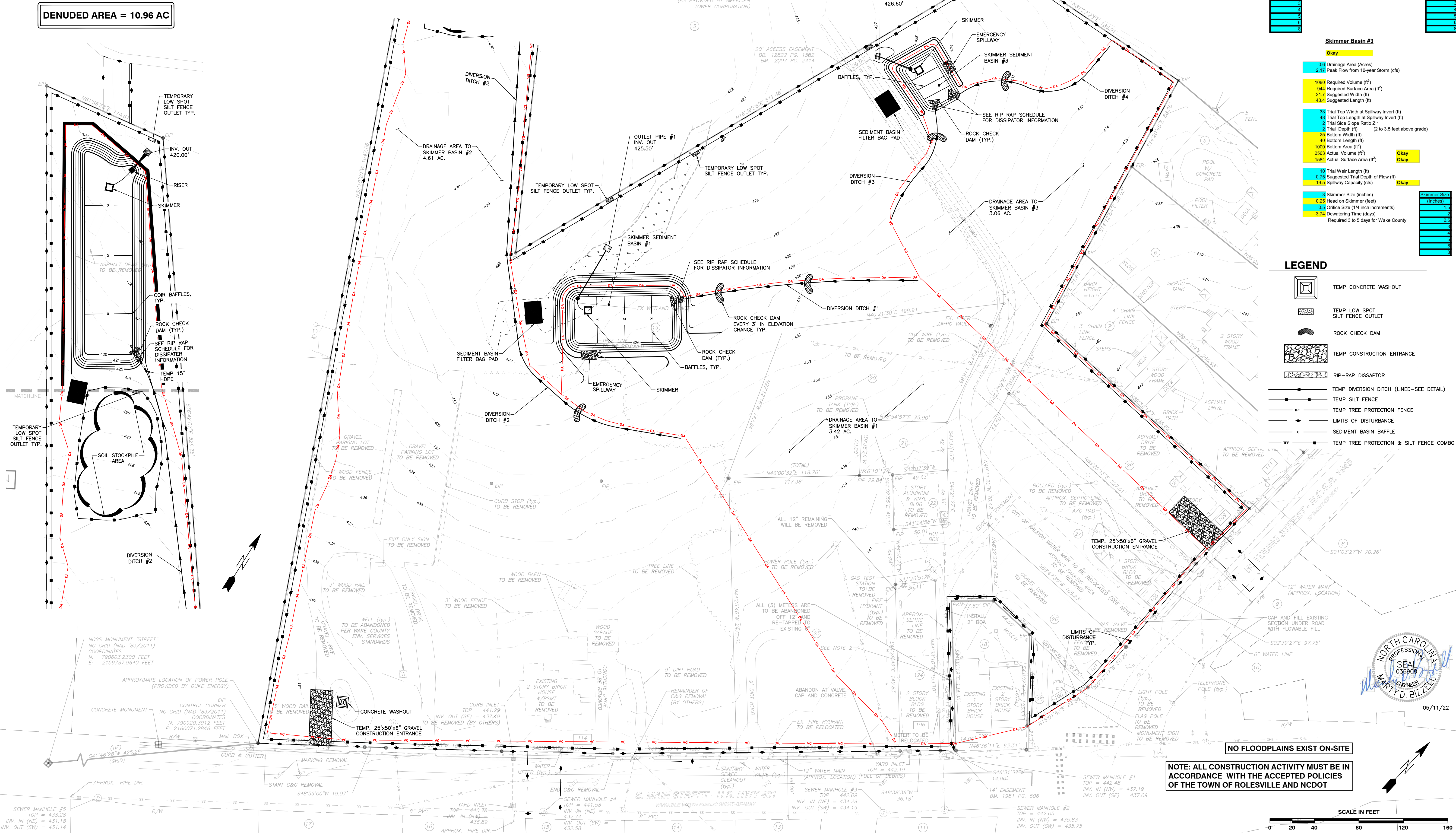
- 4.61 Drainage Area (Acres)
- 12.35 Peak Flow from 10-year Storm (cfs)
- 6156 Required Volume (ft³)
- 6372 Required Surface Area (ft²)
- 51.8 Suggested Width (ft)
- 103.7 Suggested Length (ft)
- 54 Trial Top Width at Spillway Invert (ft)
- 100 Trial Top Length at Spillway Invert (ft)
- 2 Trial Side Slope Ratio Z:1
- 3 Trial Depth (ft) (2 to 3.5 feet above grade)
- 48 Bottom Width (ft)
- 48 Bottom Length (ft)
- 3606 Bottom Area (ft²)
- 1572 Actual Volume (ft³)
- 5400 Actual Surface Area (ft²)
- 10 Trial Weir Length (ft)
- 0.75 Suggested Trial Depth of Flow (ft)
- 30.0 Spillway Capacity (cfs)

Skimmer Basin #2

- 4.61 Drainage Area (Acres)
- 16.64 Peak Flow from 10-year Storm (cfs)
- 8298 Required Volume (ft³)
- 7238 Required Surface Area (ft²)
- 60.2 Suggested Width (ft)
- 120.3 Suggested Length (ft)
- 56 Trial Top Width at Spillway Invert (ft)
- 190 Trial Top Length at Spillway Invert (ft)
- 2 Trial Side Slope Ratio Z:1
- 3 Trial Depth (ft) (2 to 3.5 feet above grade)
- 44 Bottom Width (ft)
- 48 Bottom Length (ft)
- 3606 Bottom Area (ft²)
- 2736 Actual Volume (ft³)
- 10640 Actual Surface Area (ft²)
- 20 Trial Weir Length (ft)
- 0.75 Suggested Trial Depth of Flow (ft)
- 39.0 Spillway Capacity (cfs)

Skimmer Basin #3

- 0.6 Drainage Area (Acres)
- 2.17 Peak Flow from 10-year Storm (cfs)
- 1080 Required Volume (ft³)
- 944 Required Surface Area (ft²)
- 21.7 Suggested Width (ft)
- 43.4 Suggested Length (ft)
- 33 Trial Top Width at Spillway Invert (ft)
- 48 Trial Top Length at Spillway Invert (ft)
- 2 Trial Side Slope Ratio Z:1
- 2 Trial Depth (ft) (2 to 3.5 feet above grade)
- 23 Bottom Width (ft)
- 40 Bottom Length (ft)
- 1000 Bottom Area (ft²)
- 2563 Actual Volume (ft³)
- 1584 Actual Surface Area (ft²)
- 10 Trial Weir Length (ft)
- 0.75 Suggested Trial Depth of Flow (ft)
- 19.3 Spillway Capacity (cfs)
- Skimmer Size (inches)
- 0.333 Head on Skimmer (feet)
- 176 Orifice Size (1/4 inch increments)
- 3.98 Dewatering Time (days)
- 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



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHASE HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4422 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NC(0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

PROGRESS DATE DRAWN BY: 03-19-17 MRM

EROSION CONTROL PLAN - STAGE 1

SCALE: 1" = 40'

CHK BY: MDB

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

SHEET C3.3

TOWN OF ROLESVILLE PROJECT NO.

CONSTRUCTION SEQUENCE - STAGE 2

- BEGIN CONSTRUCTION OF ALL BUILDINGS.
 - STABILIZE SITE AS NEW DISTURBED AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENODED AREAS PER GROUND STABILIZATION TIME FRAMES.
 - WHEN CONSTRUCTION OF PARKING LOTS ARE COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
 - IF THE SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
 - WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT, OBTAIN A CERTIFICATE OF COMPLETION.
- 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 = 10.96 AC
- ENVIRONMENTAL CONSULTANT: JEEVAN NEUPANE (919-819-8907)

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 II, 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 ADVISE 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.

Skimmer Basin #2

Item	Value	Status
6.99 Drainage Area (Acres)	6.99	Okay
25.23 Peak Flow from 10-year Storm (cfs)	25.23	Okay
12582 Required Volume (ft ³)	12582	Okay
10975 Required Surface Area (ft ²)	10975	Okay
74.1 Suggested Width (ft)	74.1	Okay
148.2 Suggested Length (ft)	148.2	Okay
58 Trial Top Width at Spillway Invert (ft)	58	Okay
190 Trial Top Length at Spillway Invert (ft)	190	Okay
2 Trial Side Slope Ratio 2:1	2:1	Okay
3 Trial Depth (ft) (2 to 3.5 feet above grade)	3	Okay
46 Bottom Width (ft)	46	Okay
178 Bottom Length (ft)	178	Okay
8188 Bottom Area (ft ²)	8188	Okay
28740 Actual Volume (ft ³)	28740	Okay
11020 Trial Weir Length (ft)	11020	Okay
0.75 Suggested Trial Depth of Flow (ft)	0.75	Okay
39.9 Spillway Capacity (cfs)	39.9	Okay
4 Skimmer Size (inches)	4	Okay
0.333 Head on Skimmer (feet)	0.333	Okay
156 Orifice Size (1/4 inch increments)	156	Okay
4.20 Dewatering Time (days)	4.20	Okay

Skimmer Size (Inches)	Days
4	4.20
6	2.80
8	2.10
10	1.60
12	1.30
15	1.00
18	0.80
24	0.60
30	0.50
36	0.45
42	0.40
48	0.35
60	0.30
72	0.25
90	0.20
108	0.18
126	0.16
144	0.15
162	0.14
180	0.13
210	0.12
240	0.11
270	0.10
300	0.10

SEDIMENT BASIN SUMMARY CHART

Sediment Basin Number	1	2
Drainage Area (Acres)	1.74	6.99
Q10(CFS)	(0.5)(7.22)(1.74)=6.28	(0.5)(7.22)(6.99)=25.23
Weir Size (ft)	10 x 1.5	10 x 1.5
Surface Area Required (SF)	(435)(6.28)=2,732	(435)(25.23)=10,975
Volume Required (CF)	(1800)(1.74)=3,132	(1800)(6.99)=12,582
Dimensions (ft)	see plans	see plans
Surface Area Provided (SF)	2,800	11,000
Volume Provided (CF)	5,646	27,900
Skimmer Size	4"	4"
Orifice Radius	0.4"	0.75"
Orifice Diameter	0.75"	1.5"
Drawdown Time (Days)	4.18	4.2
Number of Baffles	3	3

DITCH/CHANNEL CALCULATIONS

DIVERSION DITCH ID	LENGTH (LF)	DA (Ac)	Q10 (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	0.94
DV-3	442	0.52	1.19	1.80	0.92	SC150	1.80	0.29
DV-4	167	0.06	0.13	2.90	0.96	SC150	1.80	0.38

* NAG = NORTH AMERICAN GREEN OR EQUIVALENT

LEGEND

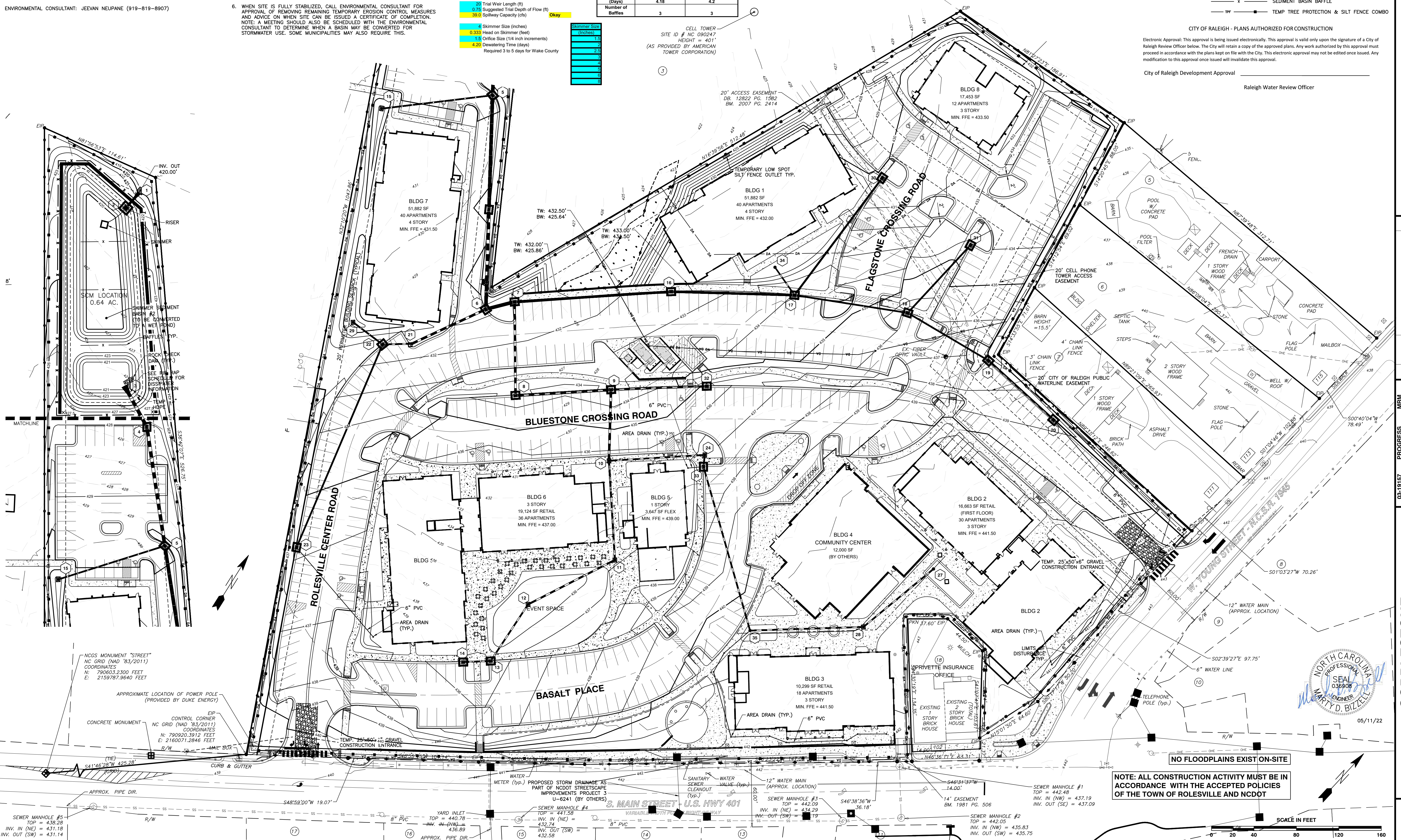
- TEMP CONSTRUCTION ENTRANCE
- TEMP LOW SPOT SILT FENCE OUTLET
- TEMP INLET PROTECTION
- RIP-RAP DISSIPATOR
- TEMP SILT FENCE
- TEMP TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- SEDIMENT BASIN BAFFLE
- TEMP TREE PROTECTION & SILT FENCE COMBO

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval

Raleigh Water Review Officer



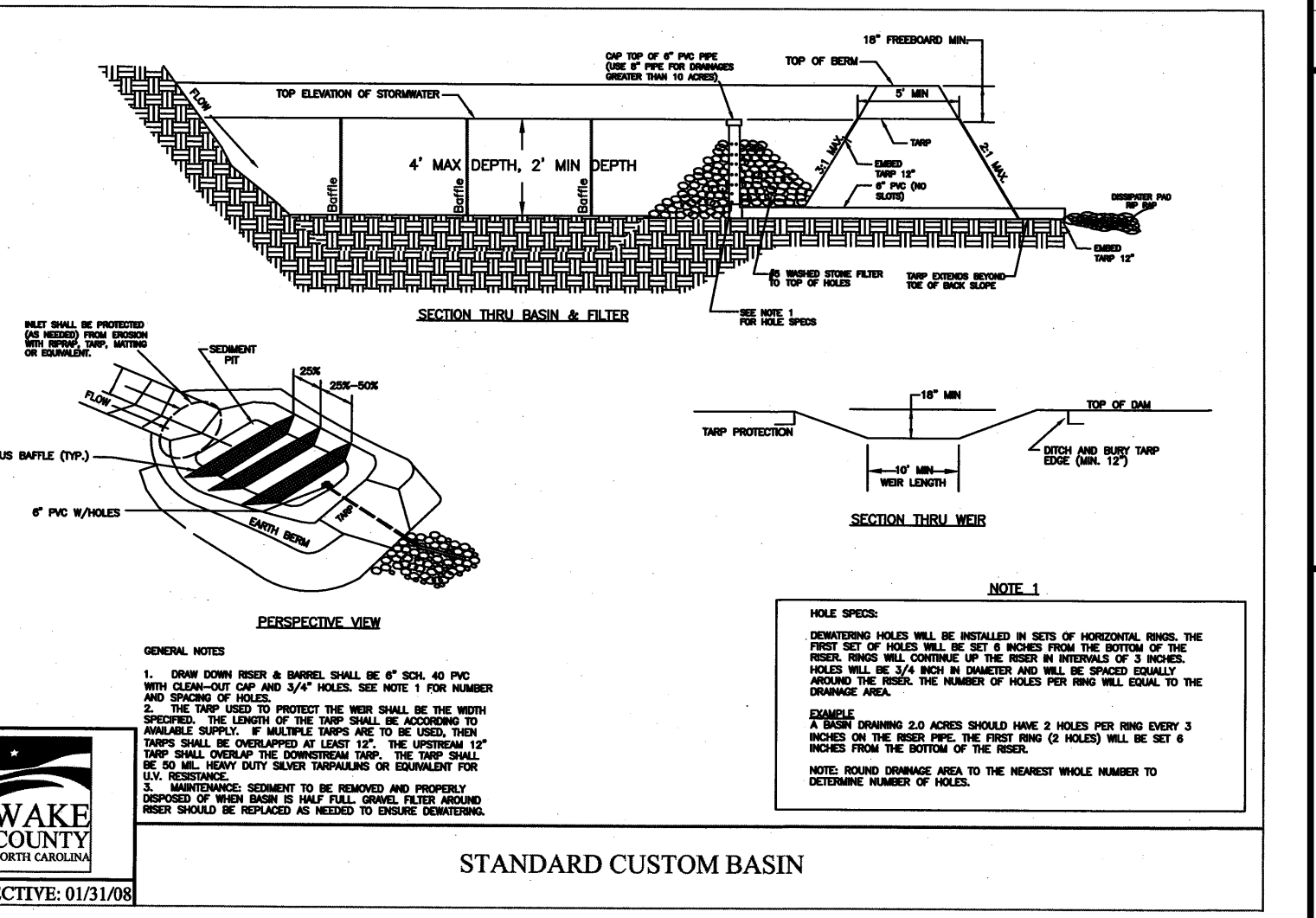
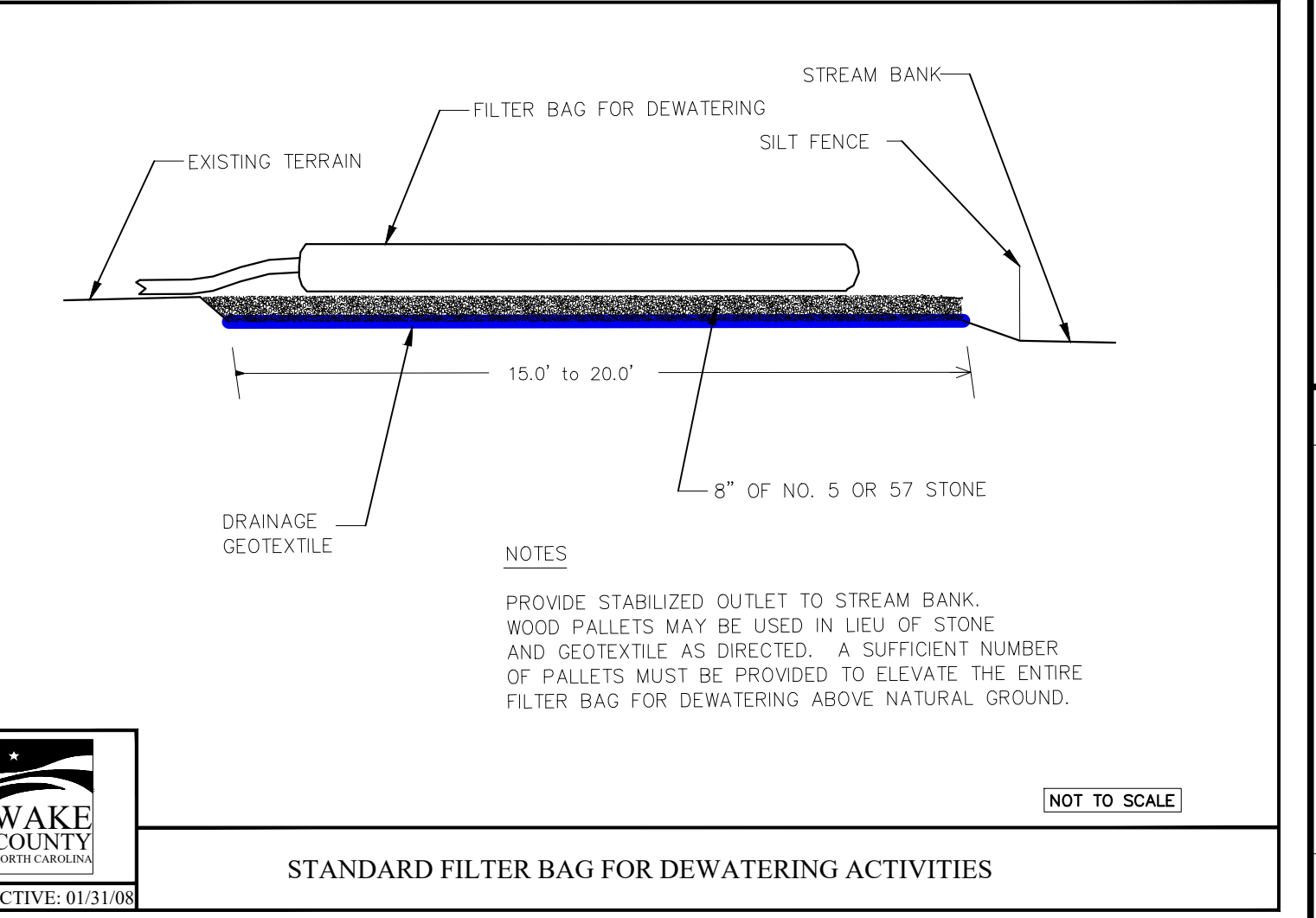
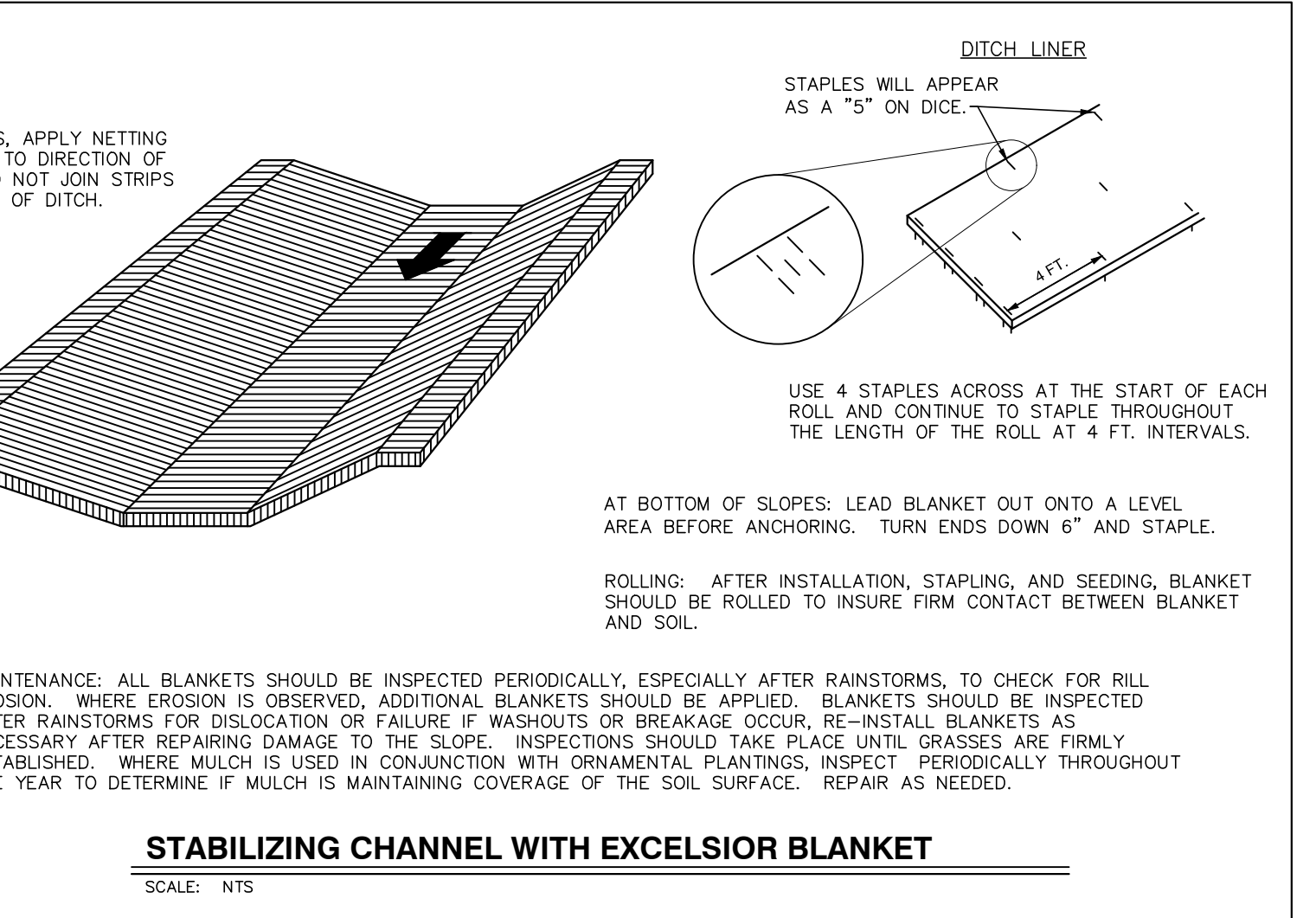
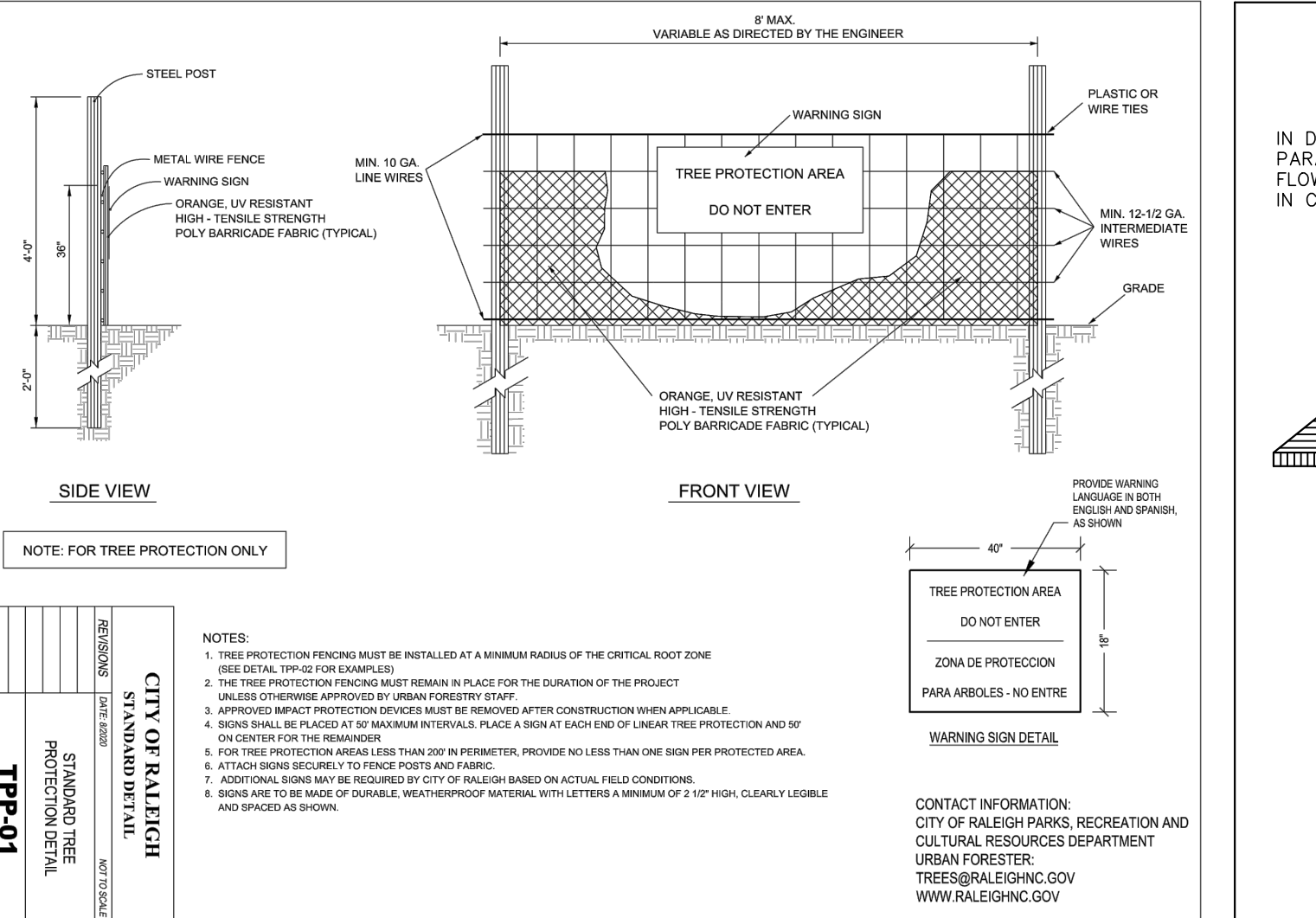
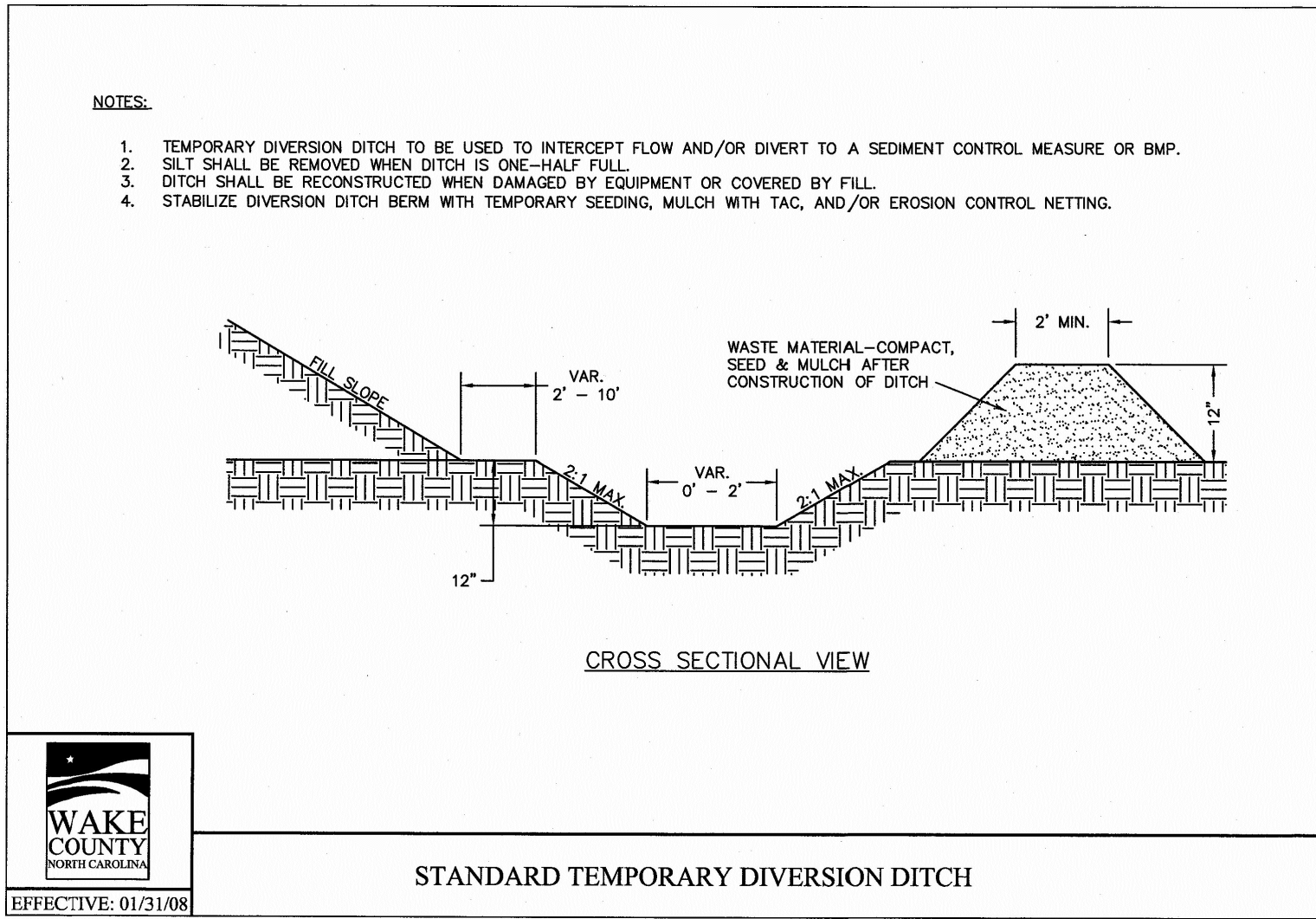
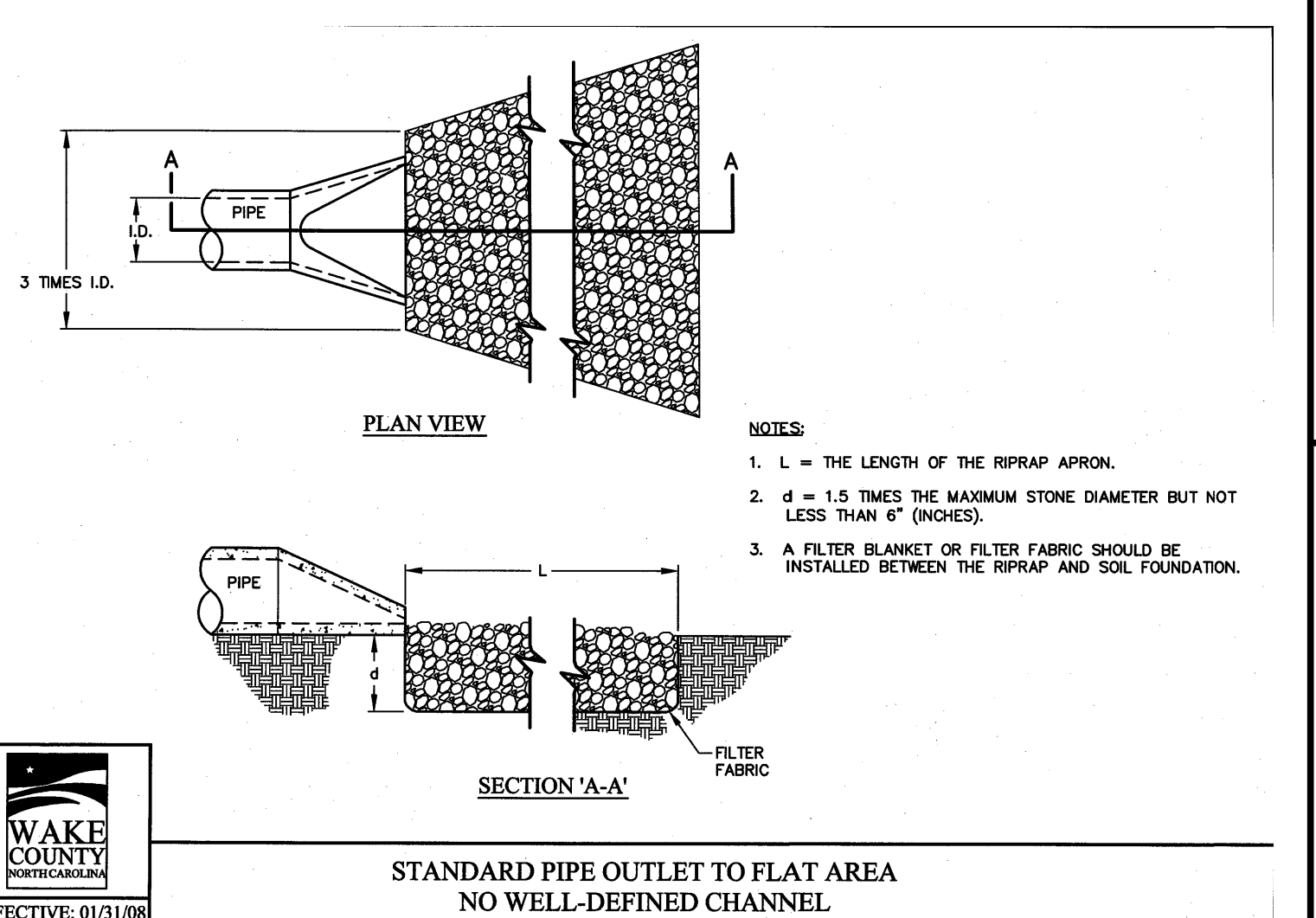
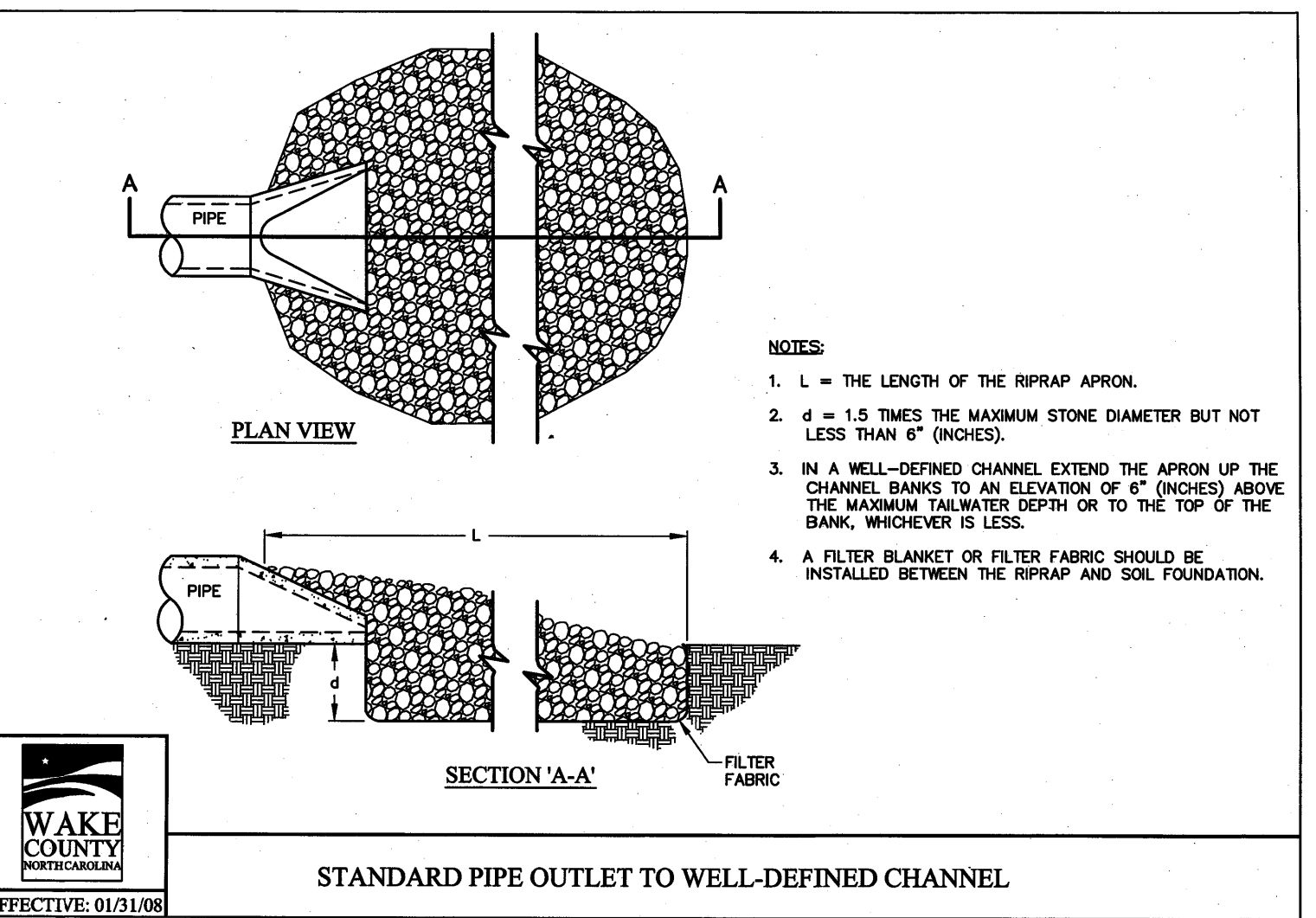
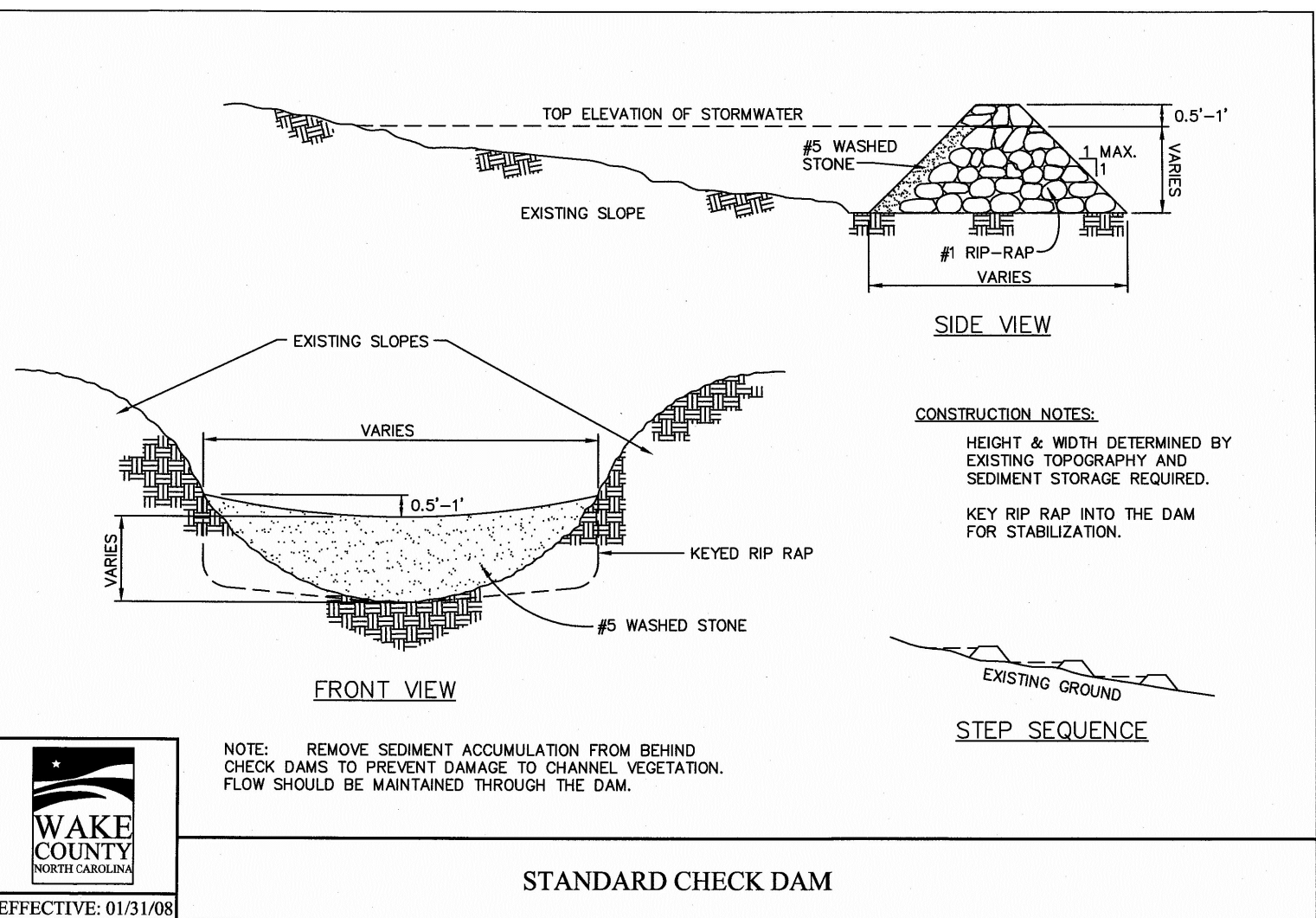
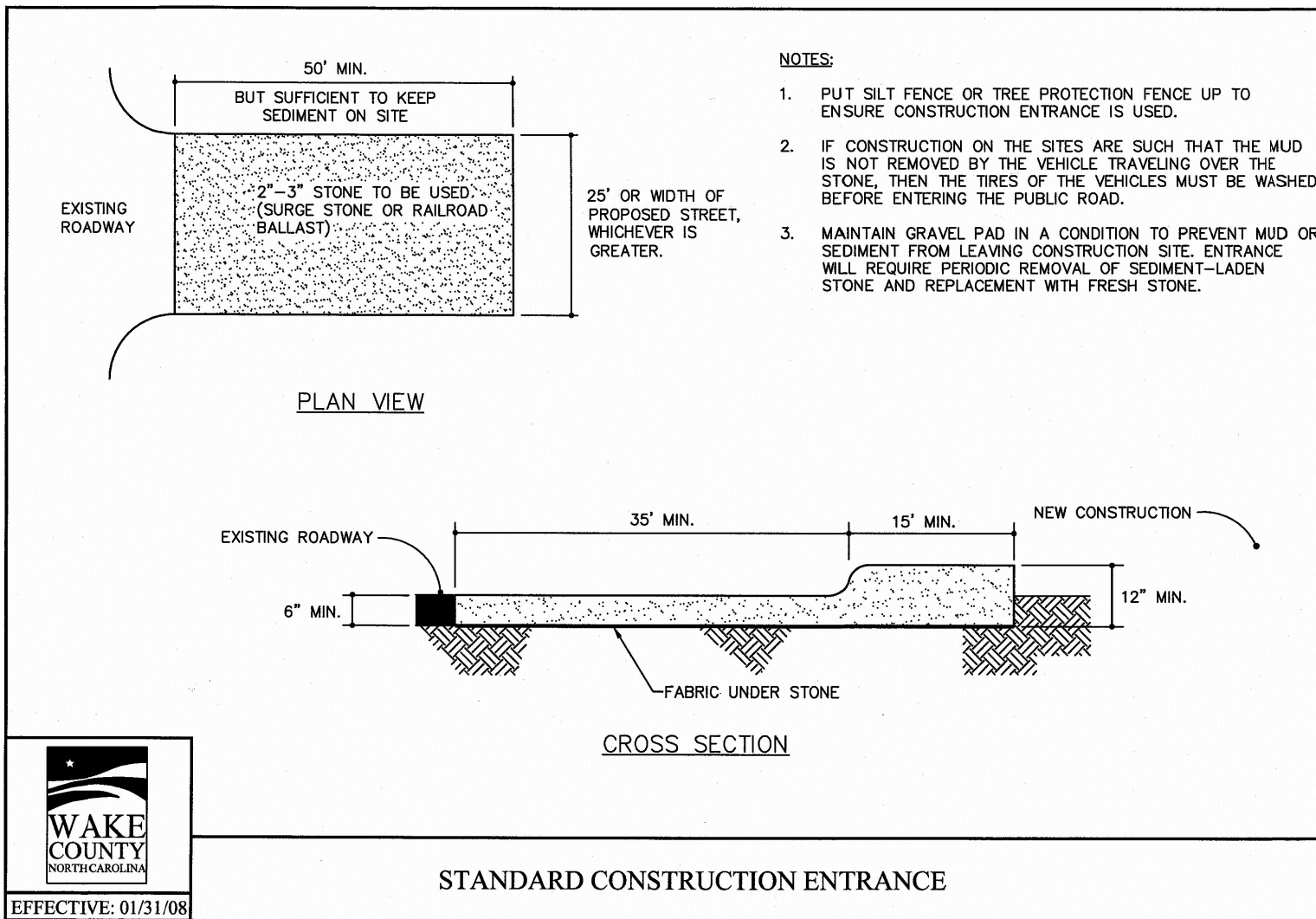
BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA
 SHEET C3.4
 SCALE: 1" = 40'
 CHK BY: MDB



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



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CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919) 881-1122 FAX: (919) 881-6888
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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

EROSION CONTROL DETAILS

NO.	DATE	DESCRIPTION	BY

PROGRESS DRAWN BY: MRM
 DATE: 03-19-17
 JOB NO.: 19157
 SCALE: N.T.S.
 CHK BY: MDB

WAKE COUNTY
 NORTH CAROLINA
 PROFESSIONAL SEAL
 036908
 ENGINEER
 W. D. BIZELL

05/11/22

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

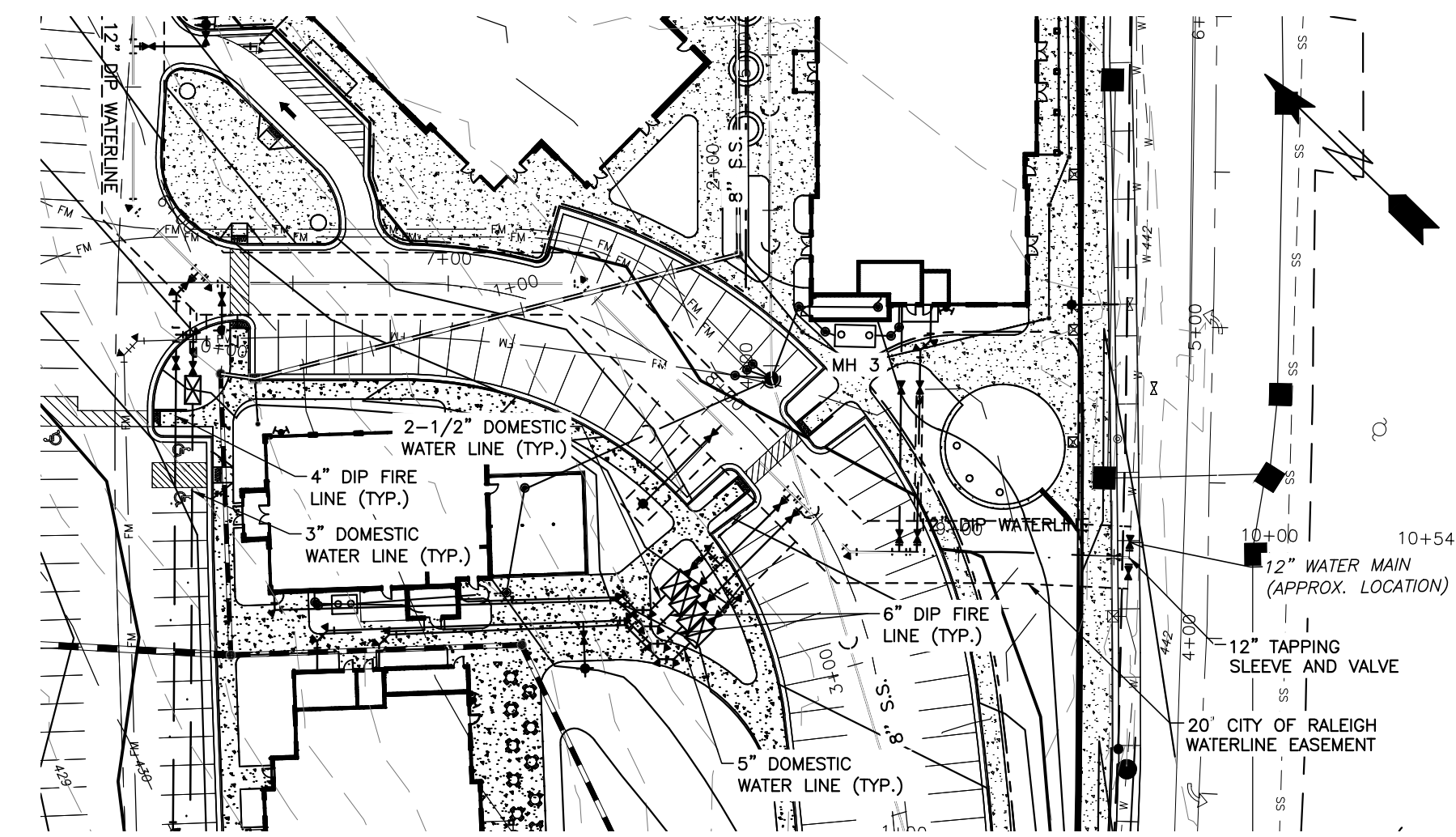
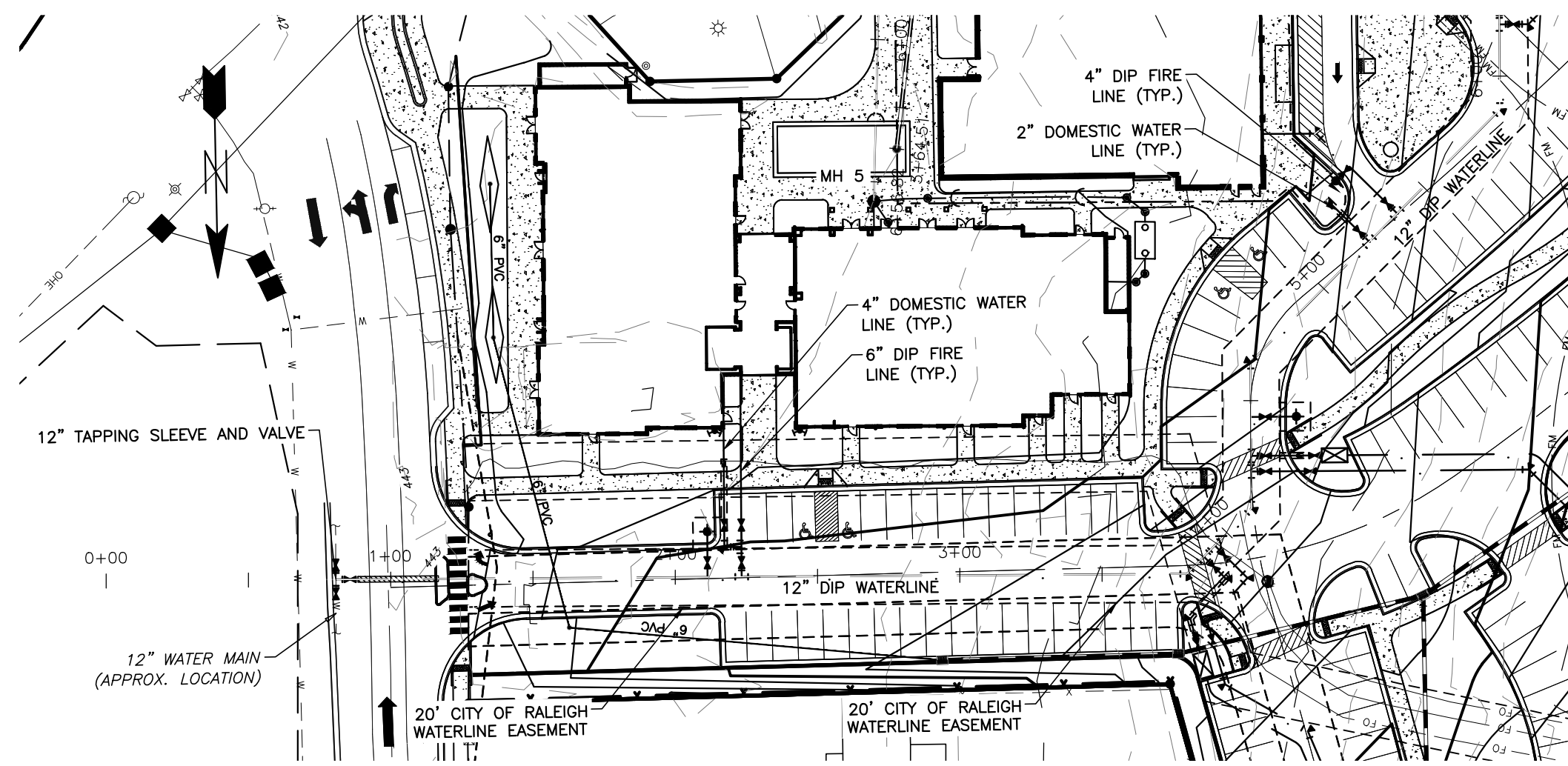
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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____



05/11/22



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
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 City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

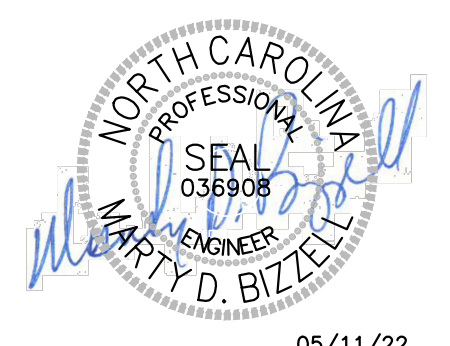
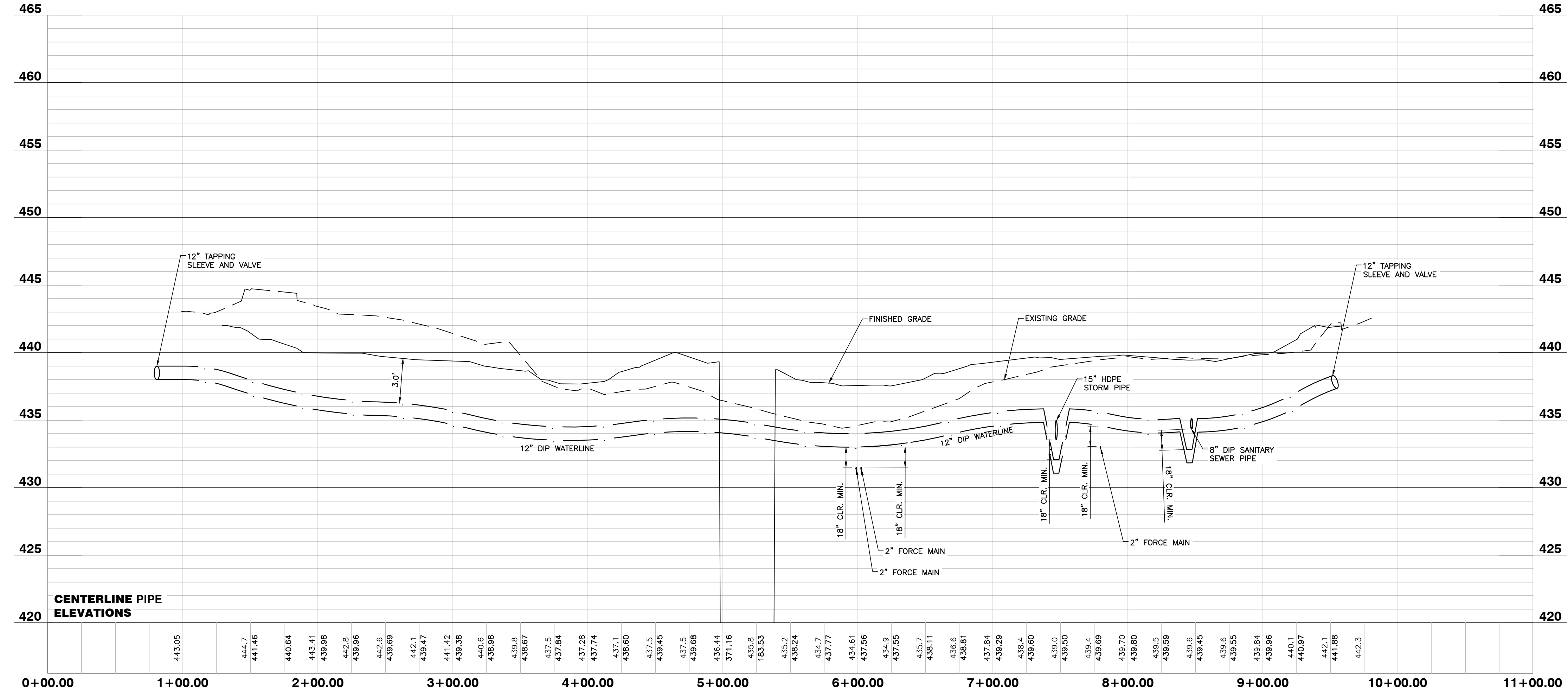


BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1422 FAX: (919)881-6868
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

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

PUBLIC WATERLINE PROFILE

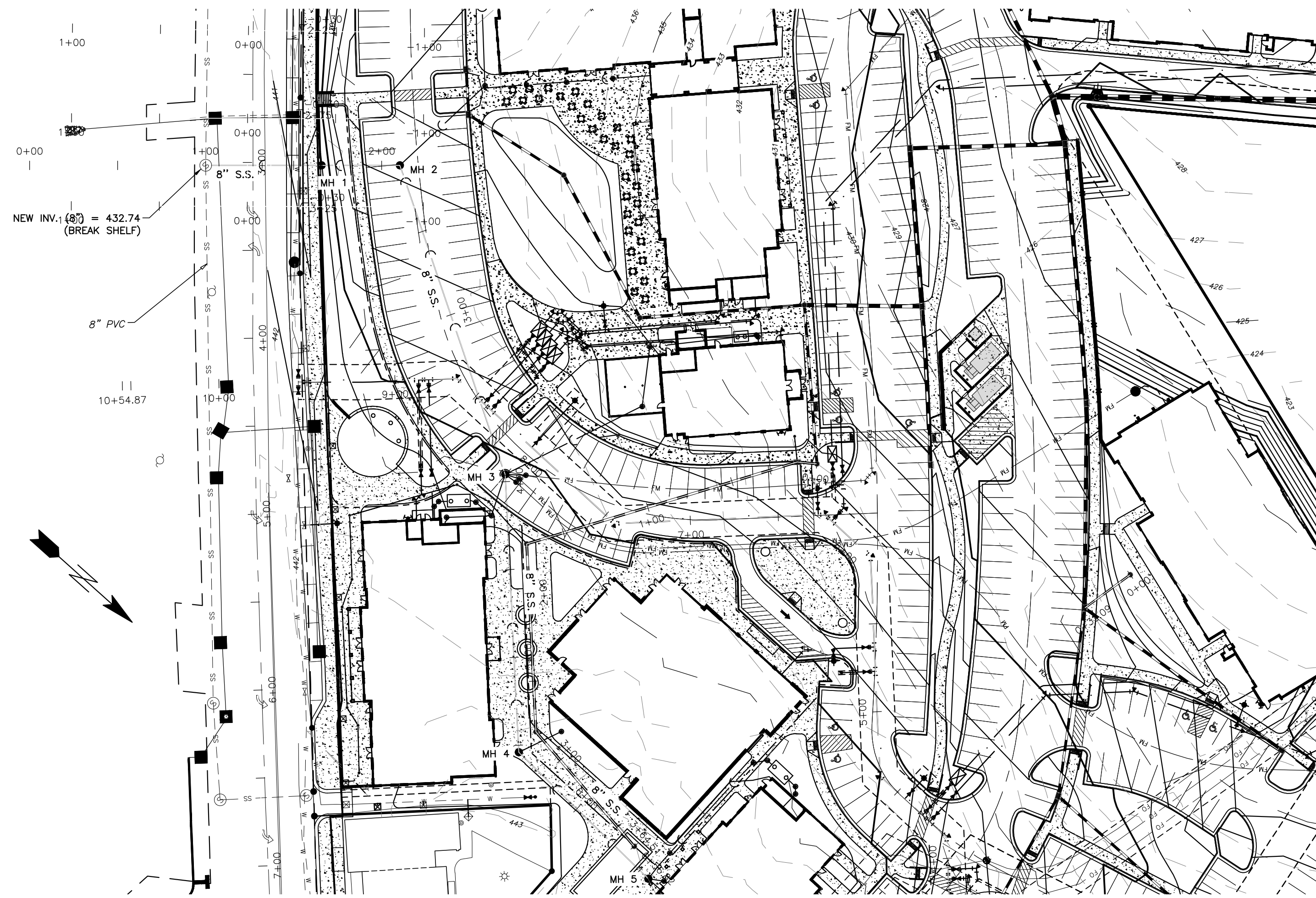


05/11/22

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

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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 City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____



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NO.	DATE	DESCRIPTION	BY

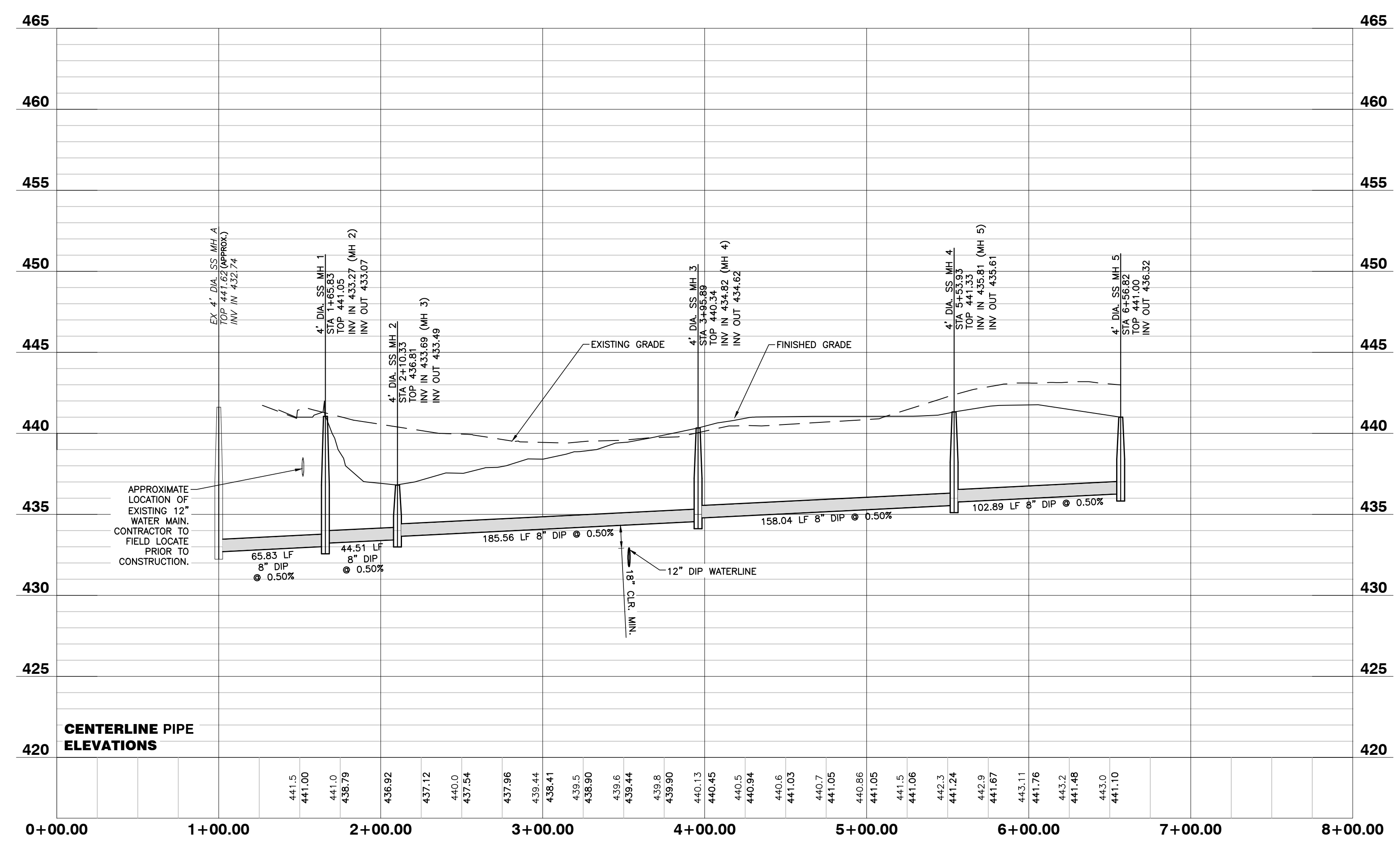
03-19157 PROGRESS MRM
 JOB NO. DATE DRAWN BY
SANITARY SEWER PROFILE
 SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

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

SHEET
C4.2

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

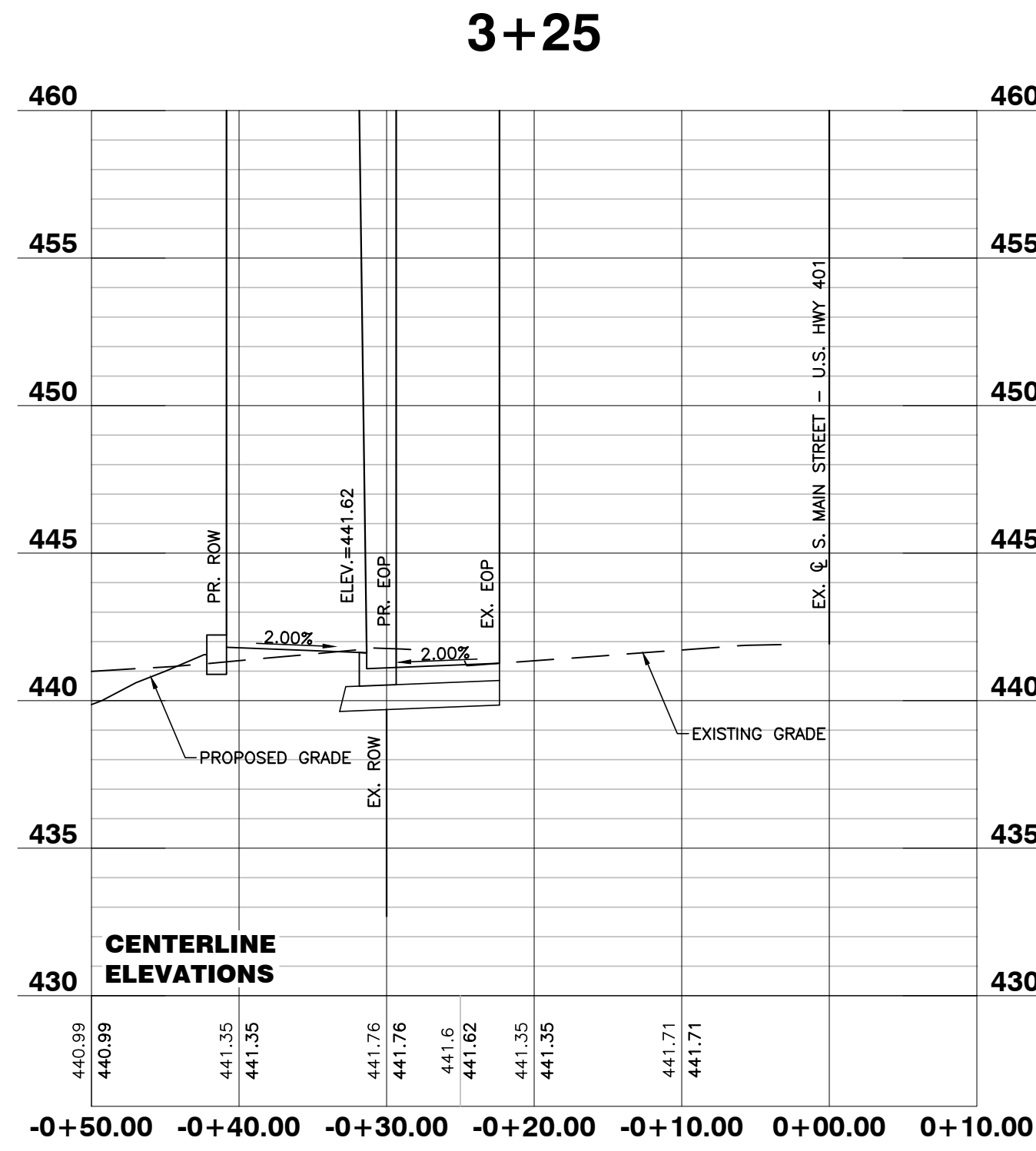
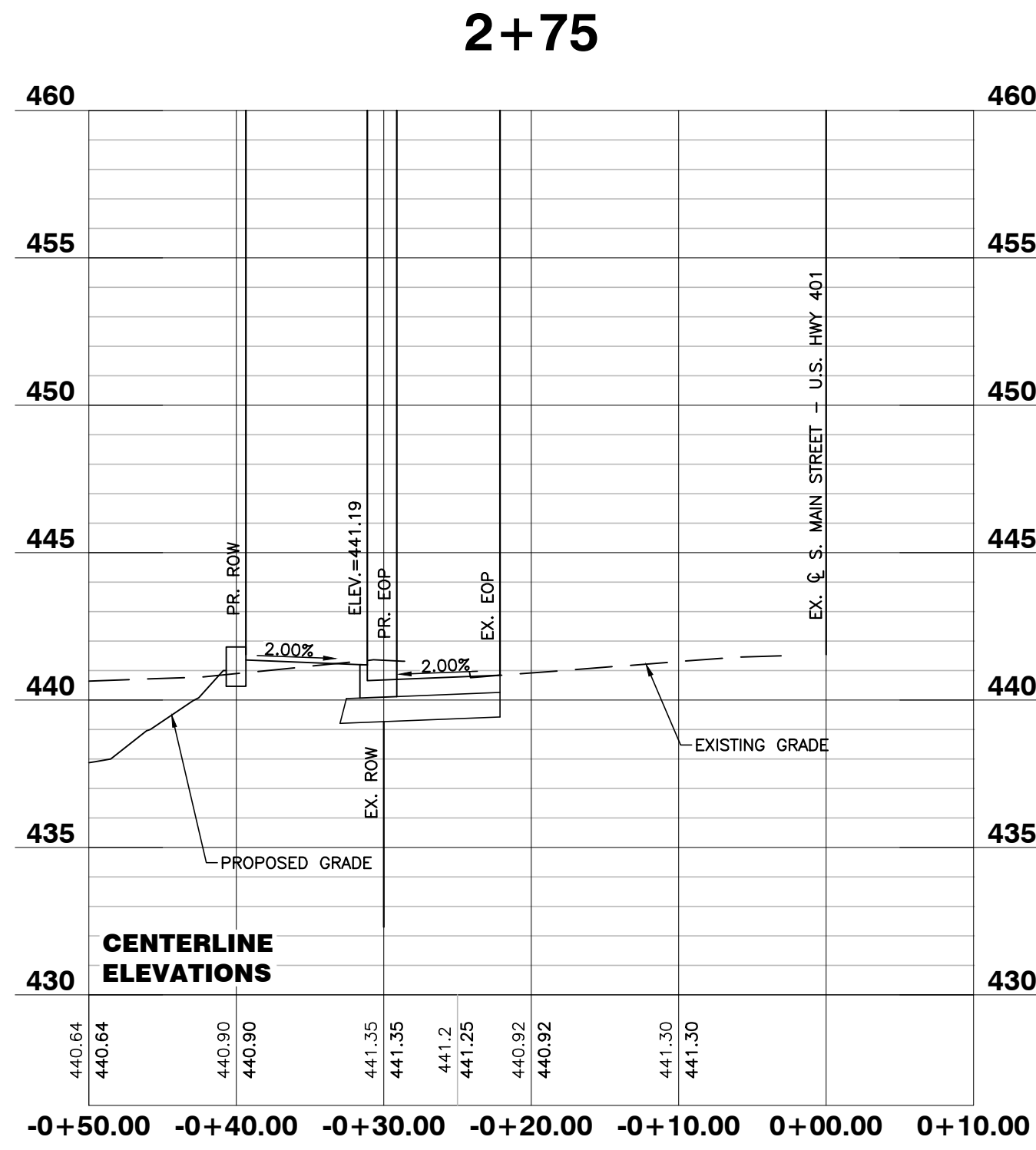
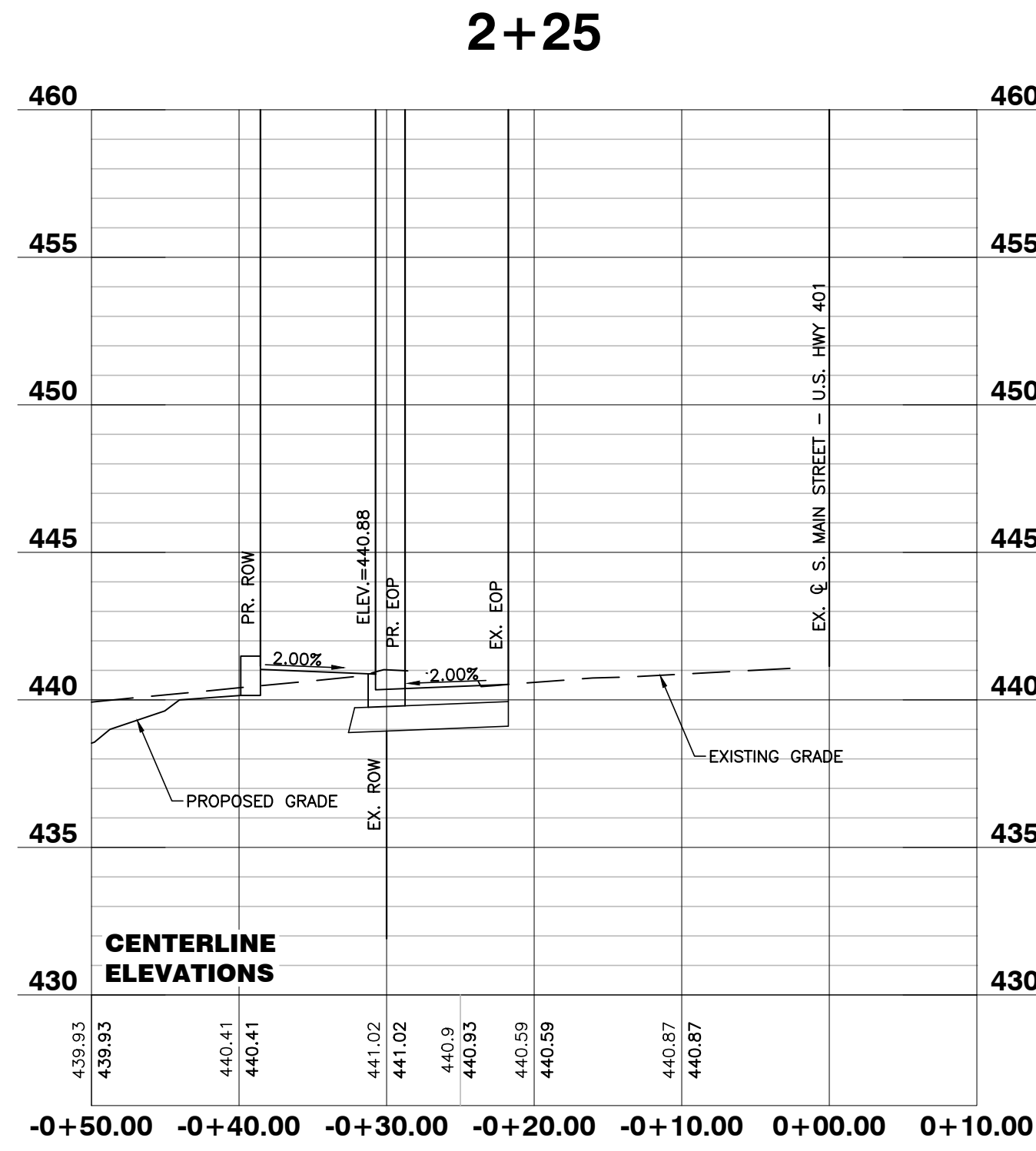
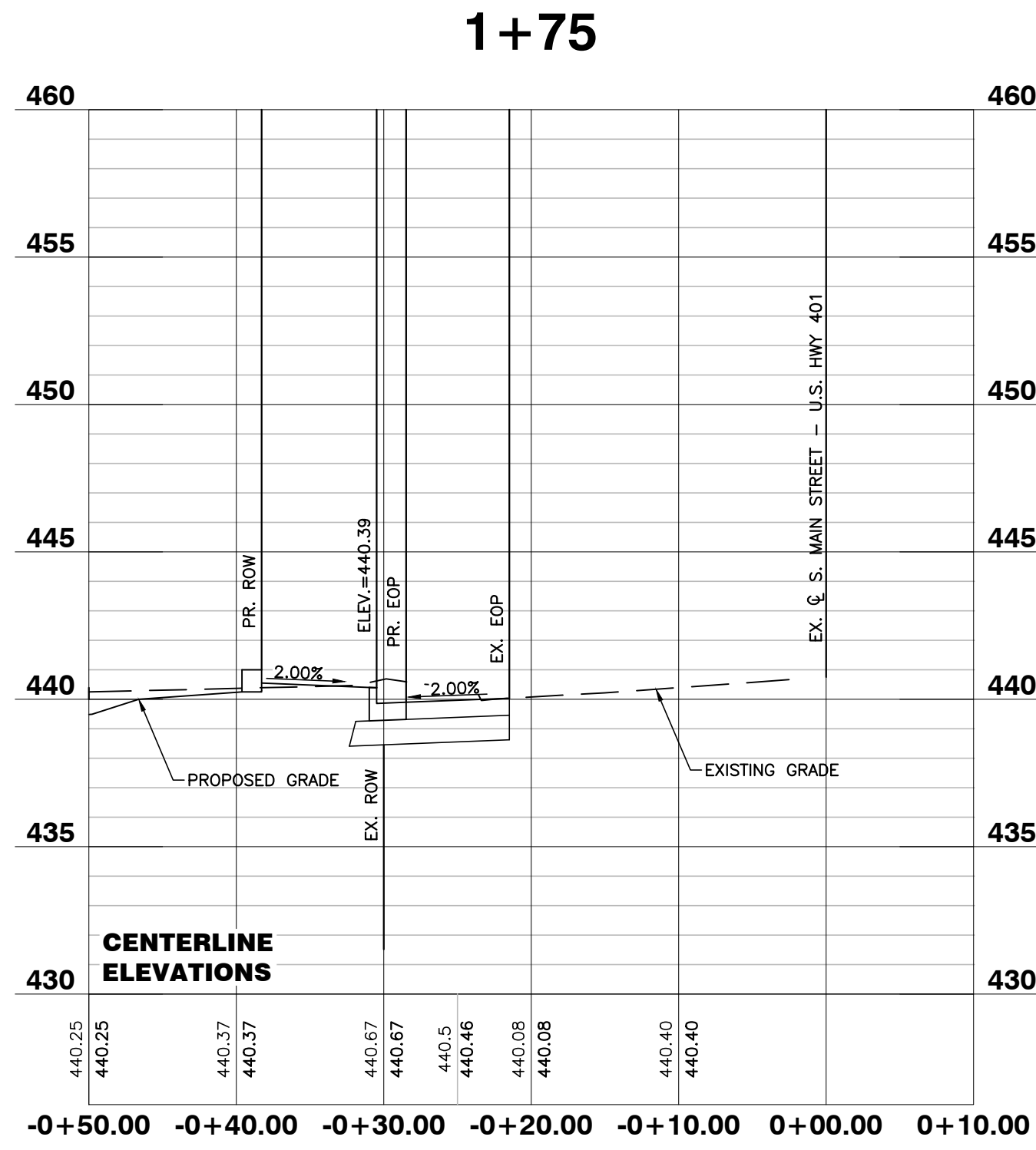
SANITARY SEWER PROFILE



05/11/22

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

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



05/11/22

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)881-8888
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

03-19187 PROGRESS MRN
 JOB NO. 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

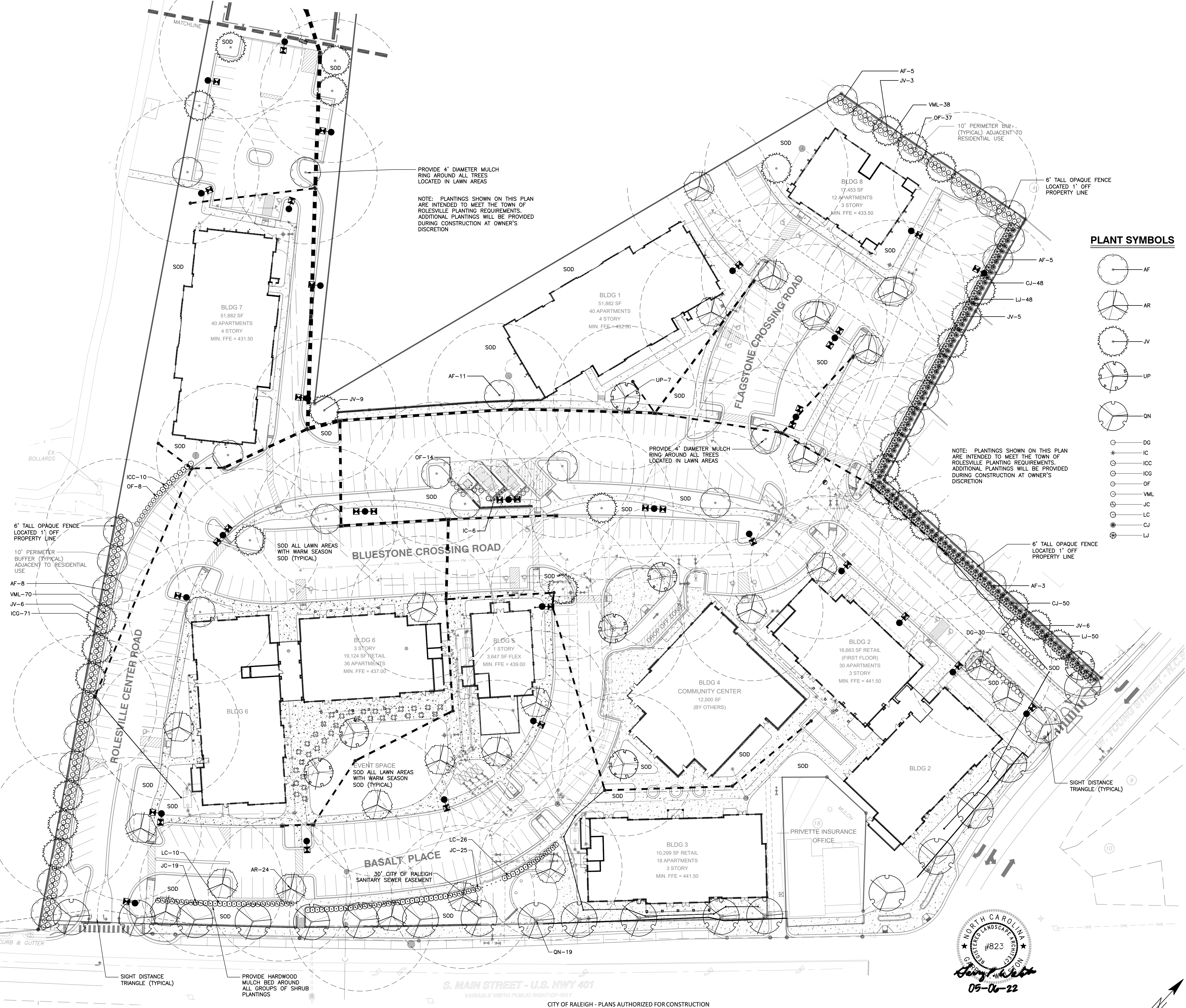
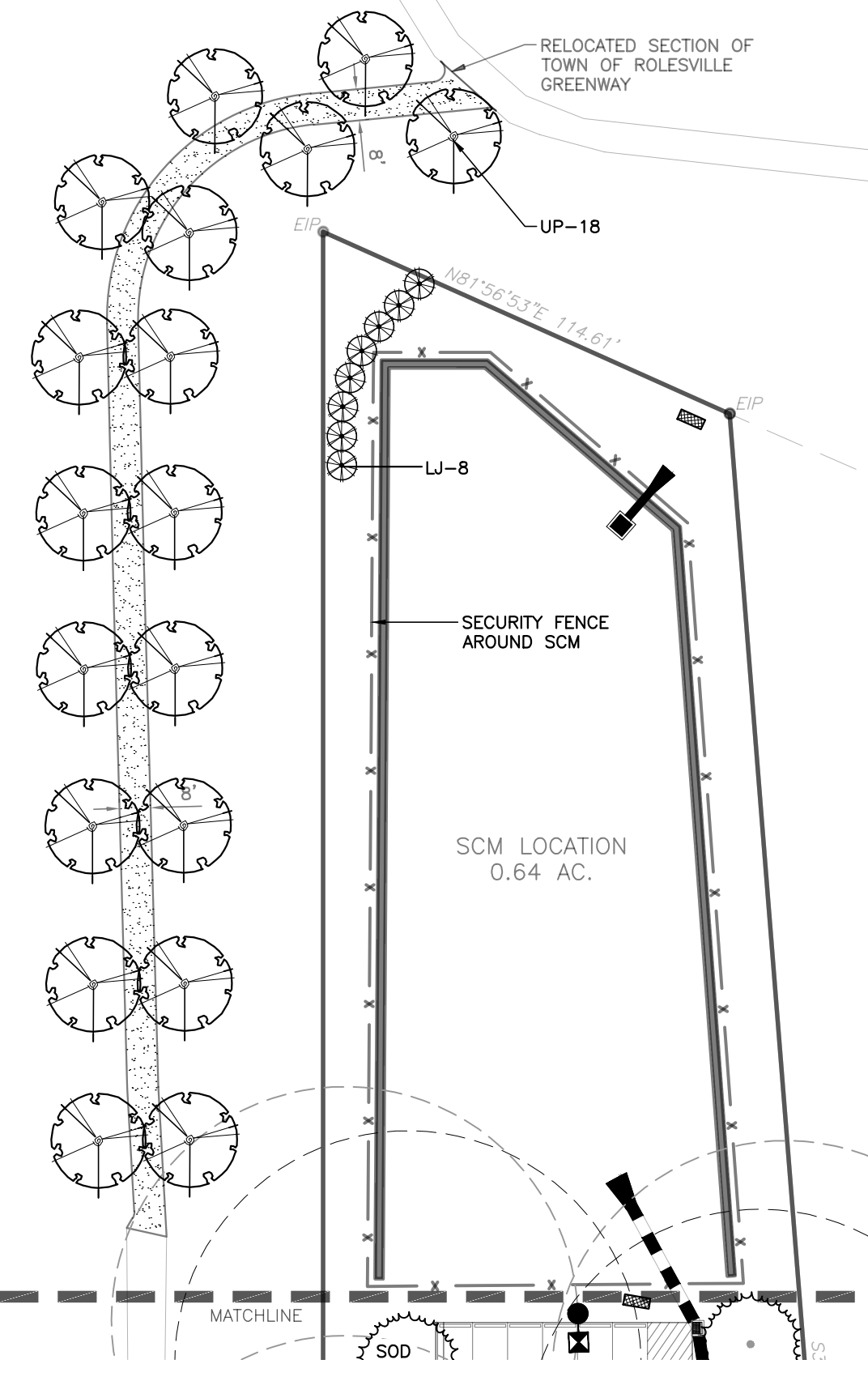


BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

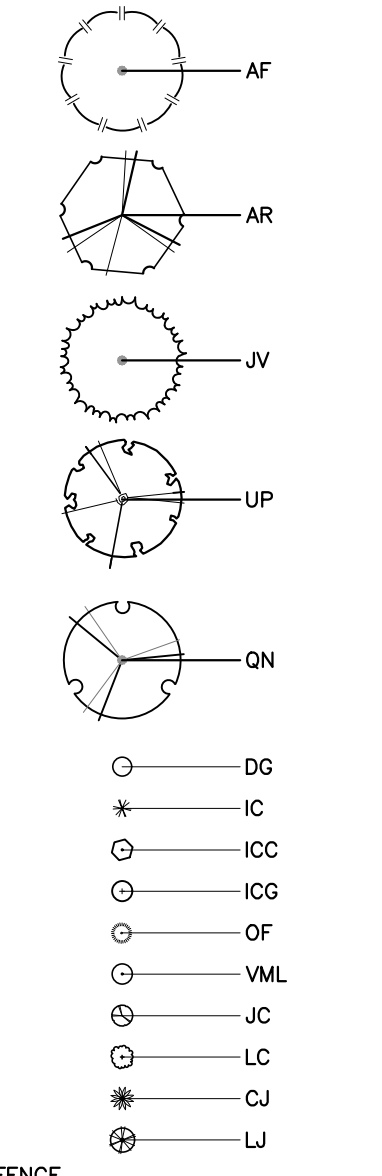
NO.	DATE	DESCRIPTION	BY
3	05-12-22	PER TOR COMMENTS	GW
2	04-20-22	PER TOR COMMENTS	GW
1	5-28-21	PER TOR COMMENTS	GW
		NO. DATE DESCRIPTION	

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

03-19157 PROGRESS DATE DRAWN BY
 LANDSCAPE PLAN
 SCALE: 1" = 40'
 CHK BY: GPW



PLANT SYMBOLS



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	19	2.5"	8'	B&B	Street Tree
UP	Ulmus parvifolia 'Allee'	Allee Elm	25	2.5"	8'	B&B	VUA
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 Holly	71		24"	CONT.	Buffer
JC	Juniperus chinensis 'Saybrook Gold'	Saybrook Gold Juniper	44		24"	CONT.	VUA Screen
LC	Loropetalum chinense 'Daruma'	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



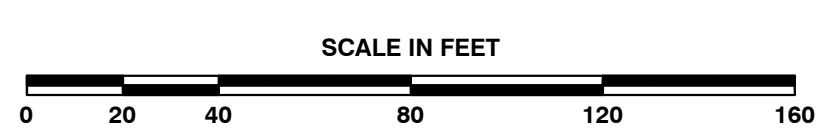
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

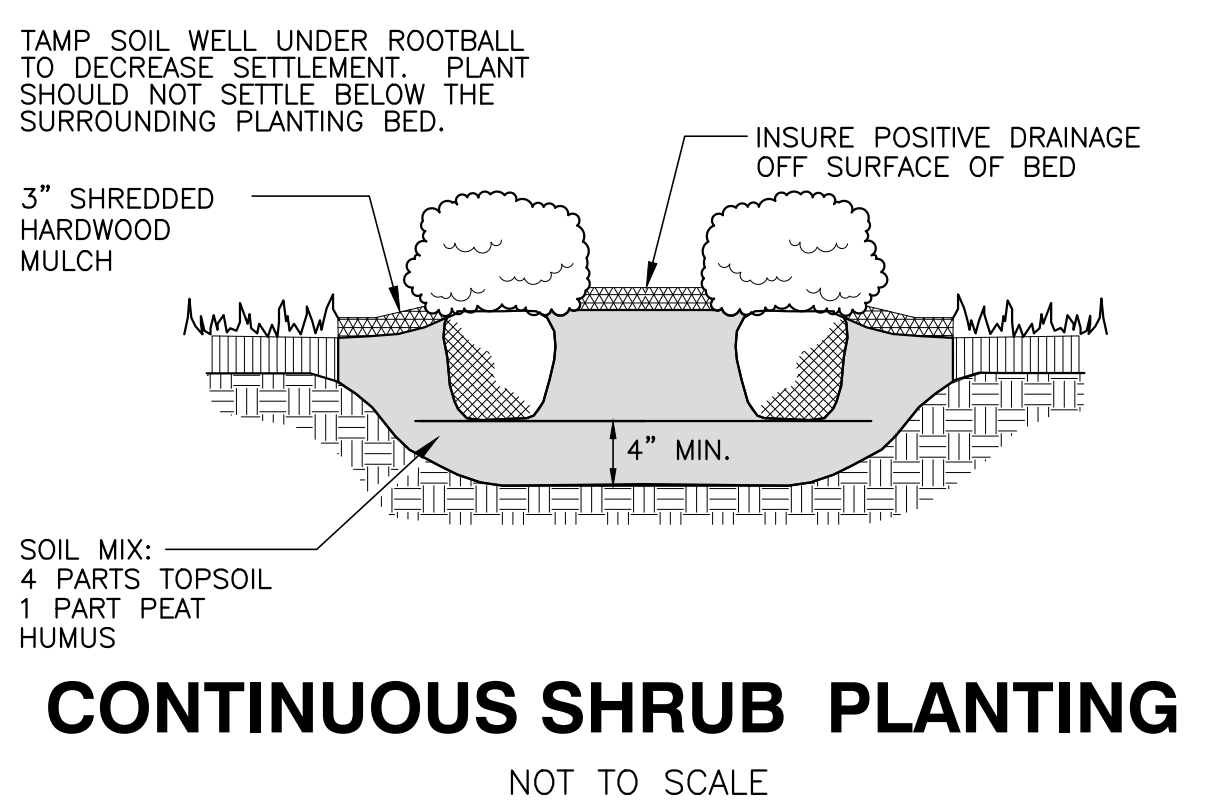
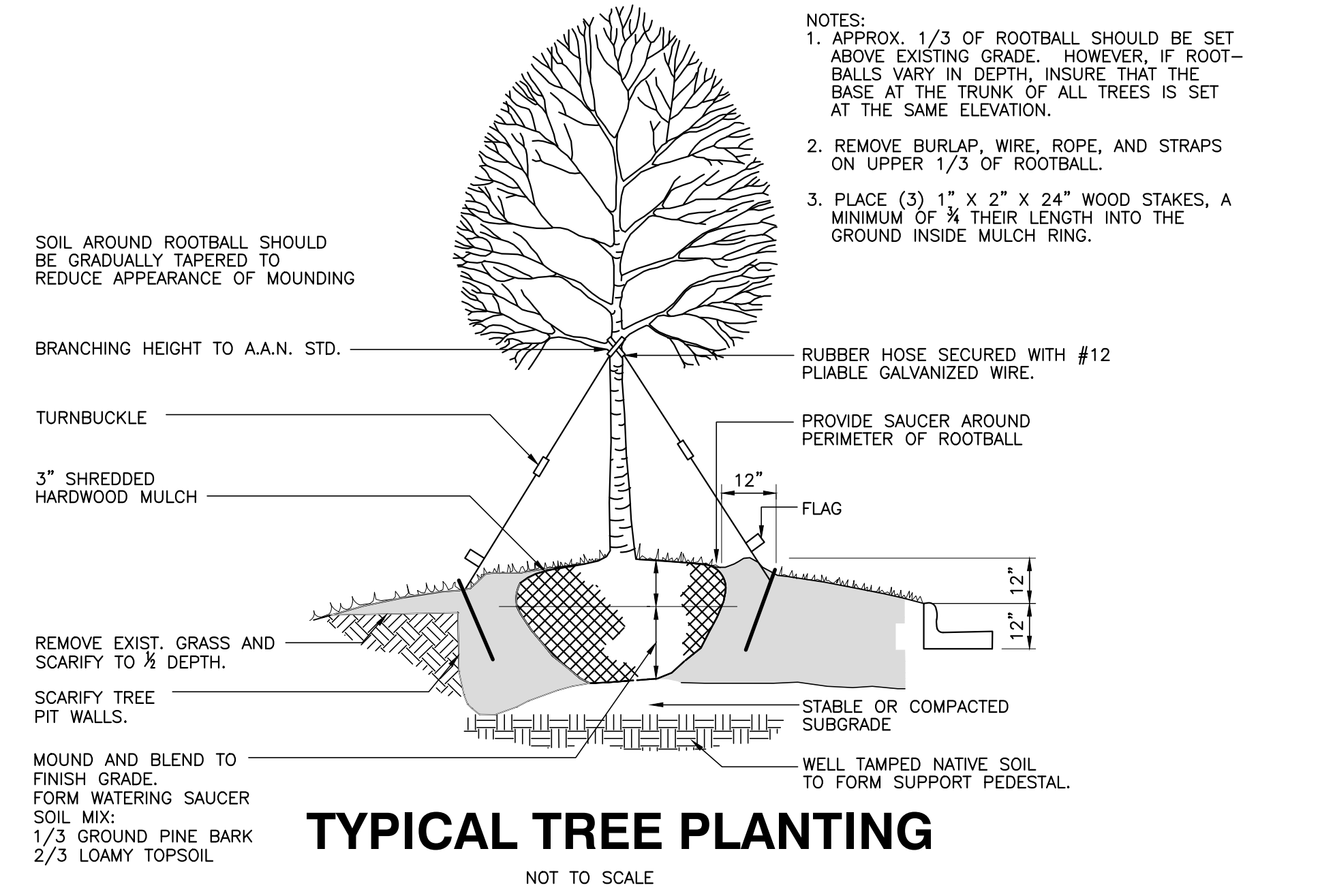
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 Raleigh Water Review Officer

NO FLOODPLAINS EXIST ON-SITE

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BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 950, RALEIGH, NC 27607
TELEPHONE: (919) 851-1122 FAX: (919) 851-6868
CERTIFICATION NUMBERS: NCBOLS (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).

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

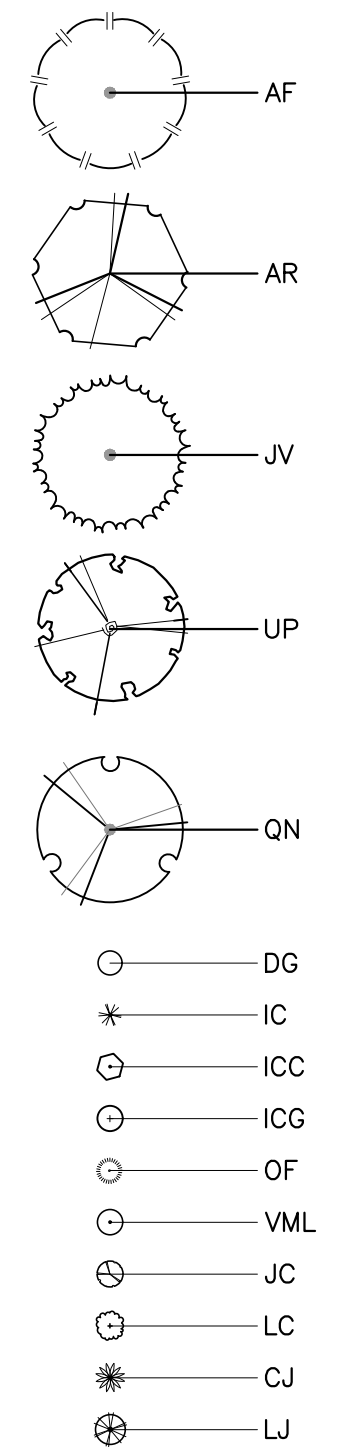
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 Raleigh Water Review Officer

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PLANT SYMBOLS



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

LANDSCAPE DETAILS

NO. DESCRIPTION

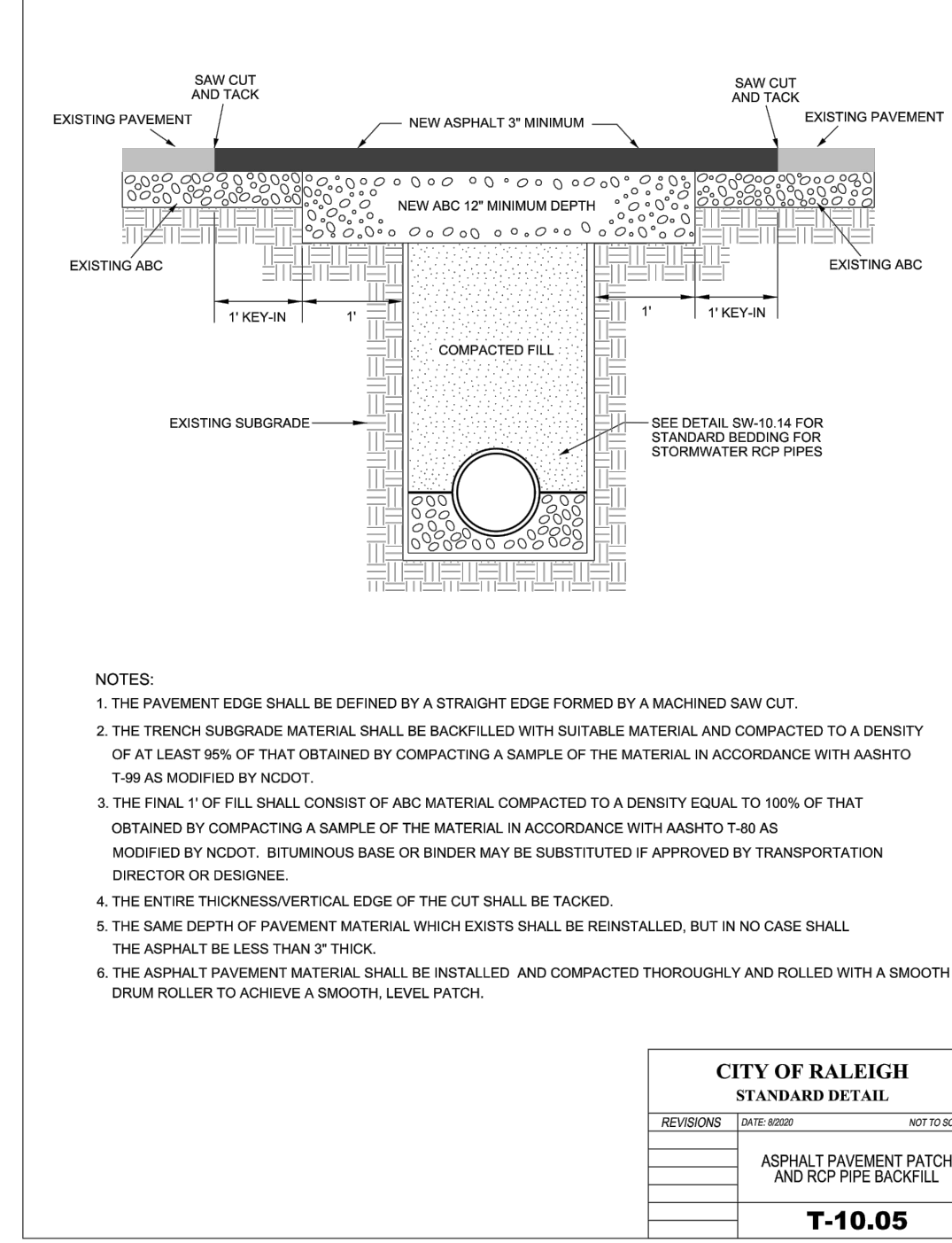
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COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA



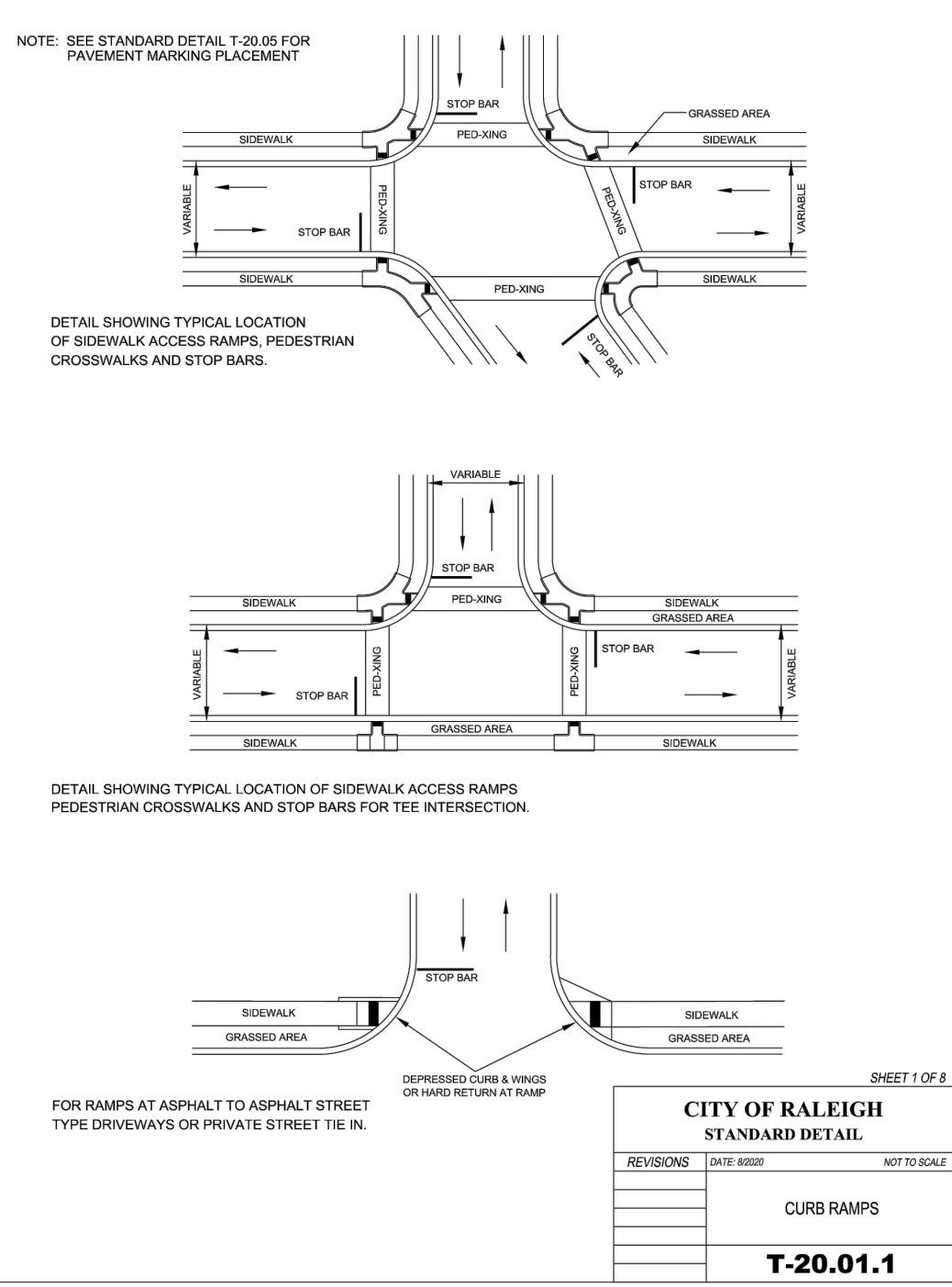
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SHEET L1.2

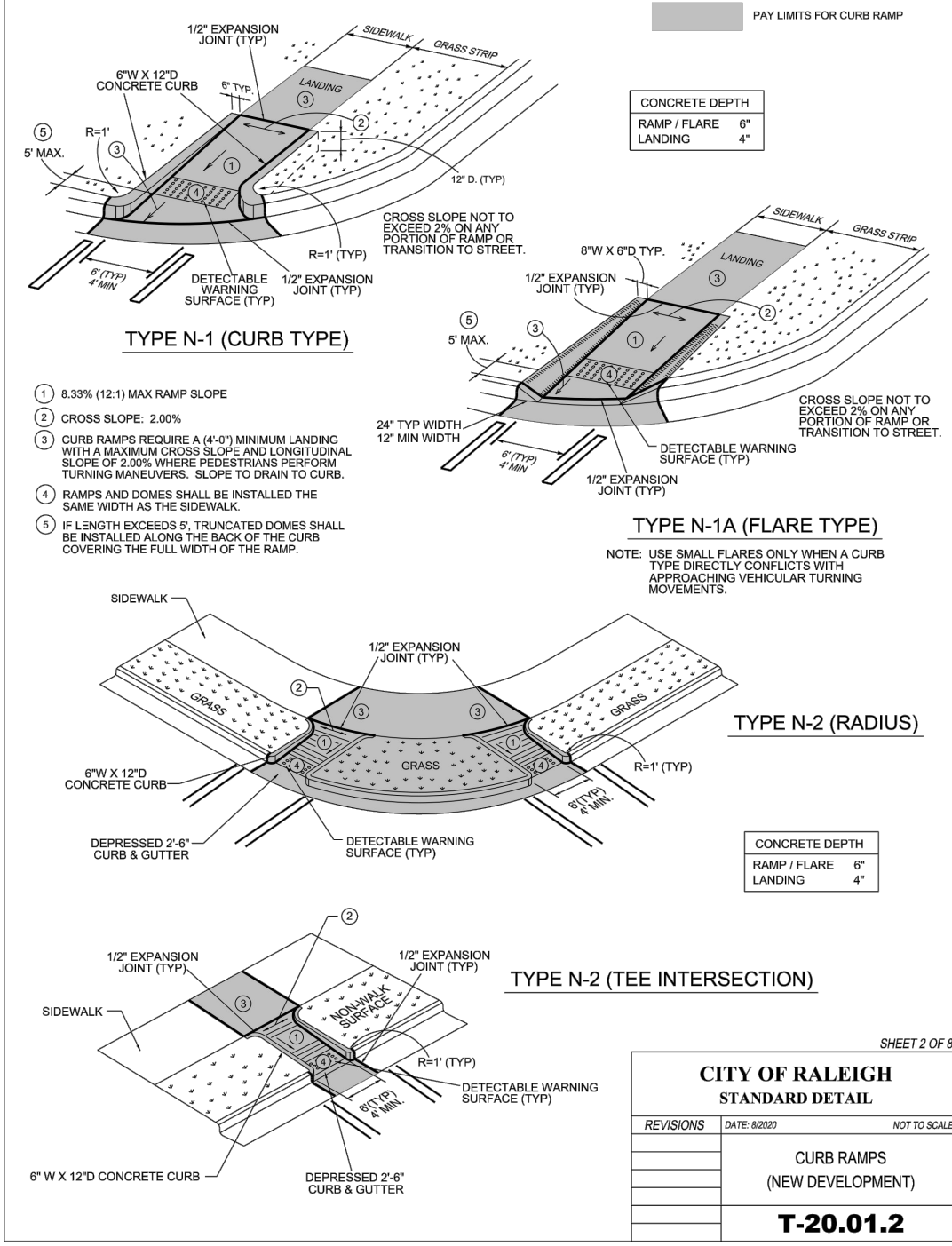


- NOTES:
1. THE PAVEMENT EDGE SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT.
 2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 98% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 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 DESIGNER.
 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.

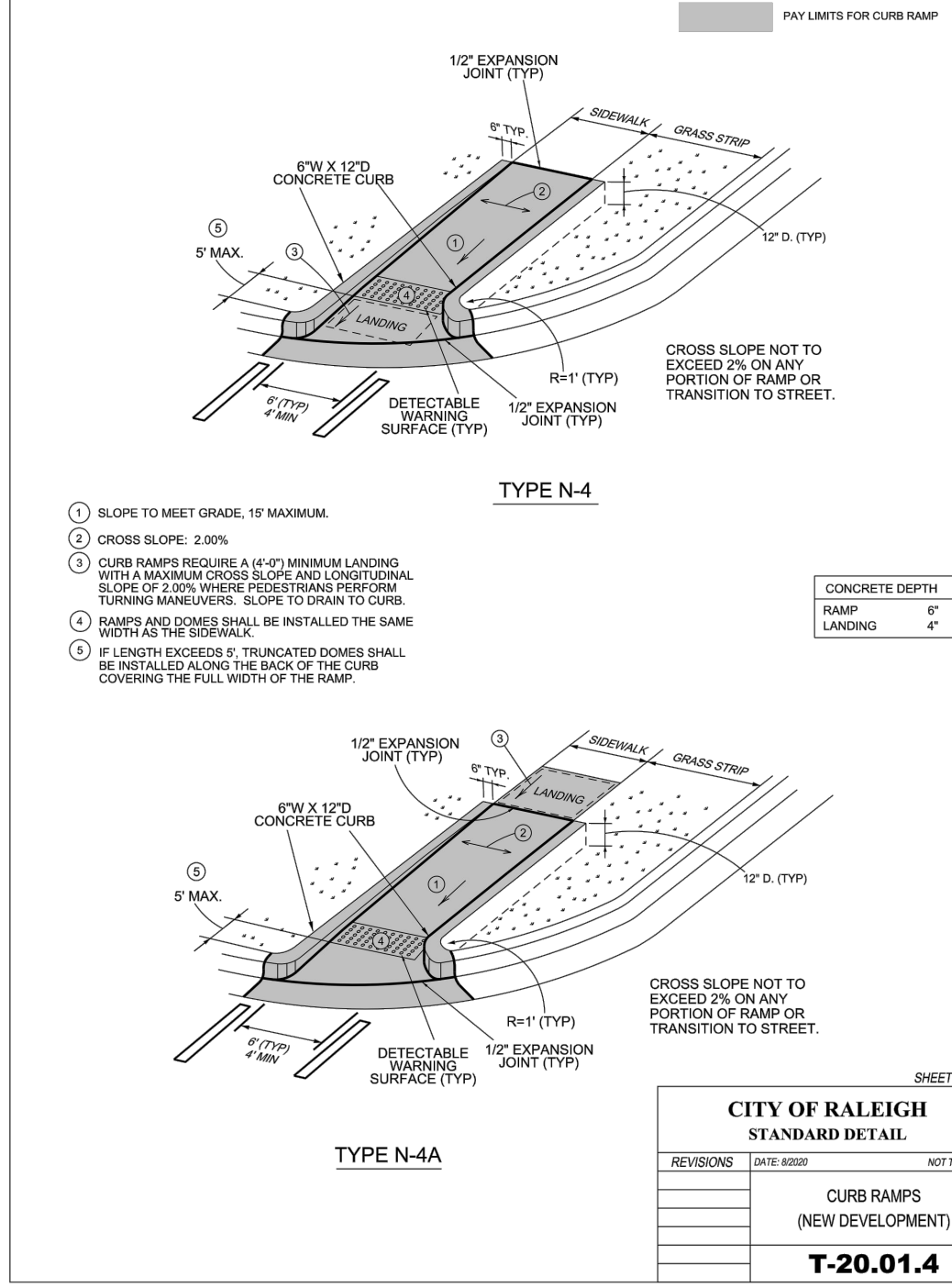
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL			
T-10.05			



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 (NEW DEVELOPMENT)			
T-20.01.4			

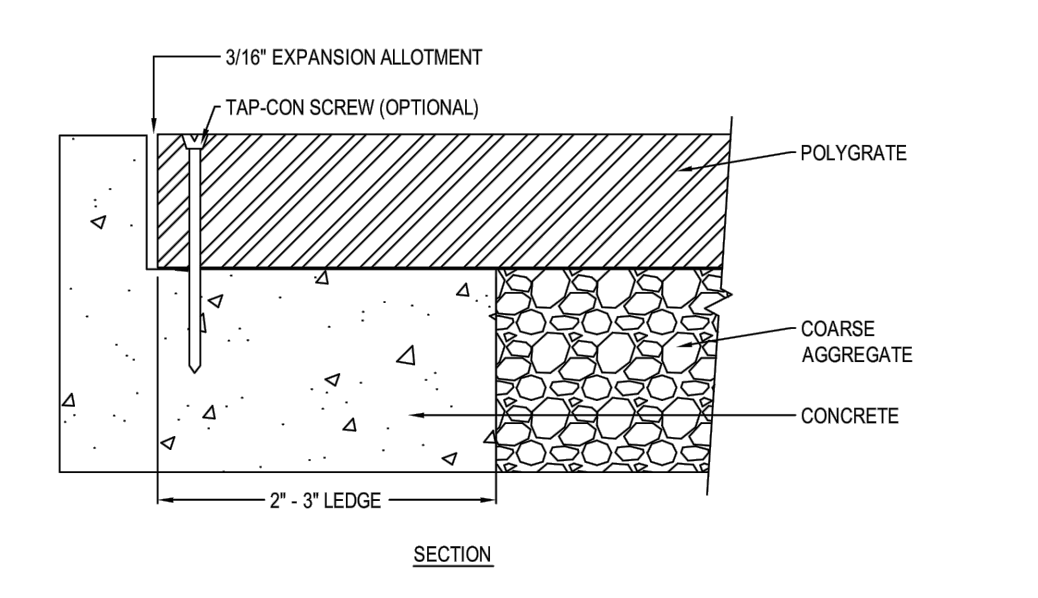
**CITY OF RALEIGH
CURB RAMPS
GENERAL NOTES**

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			

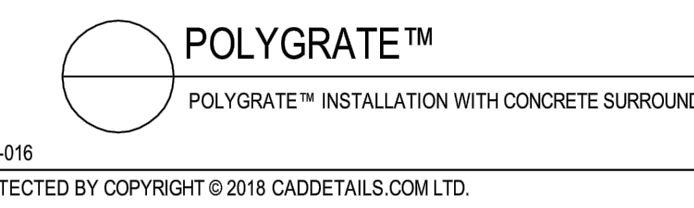


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HOLLY, MI 48442-9333
TOLL FREE: 1-800-523-6899
PHONE: (810) 953-9400
FAX: (810) 953-9440
www.polygrate.com



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

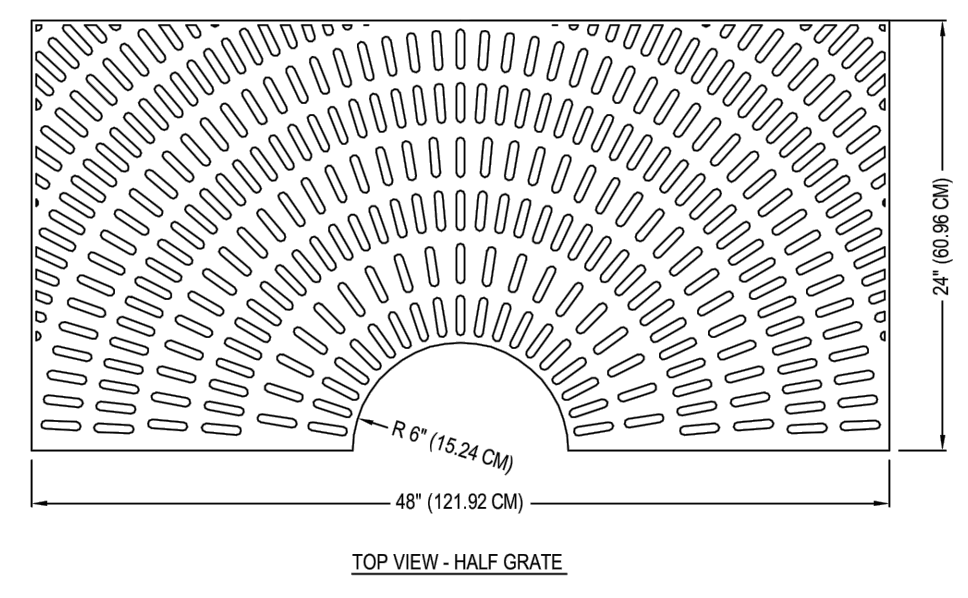


1063-016
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REVISION DATE: 01/26/2018
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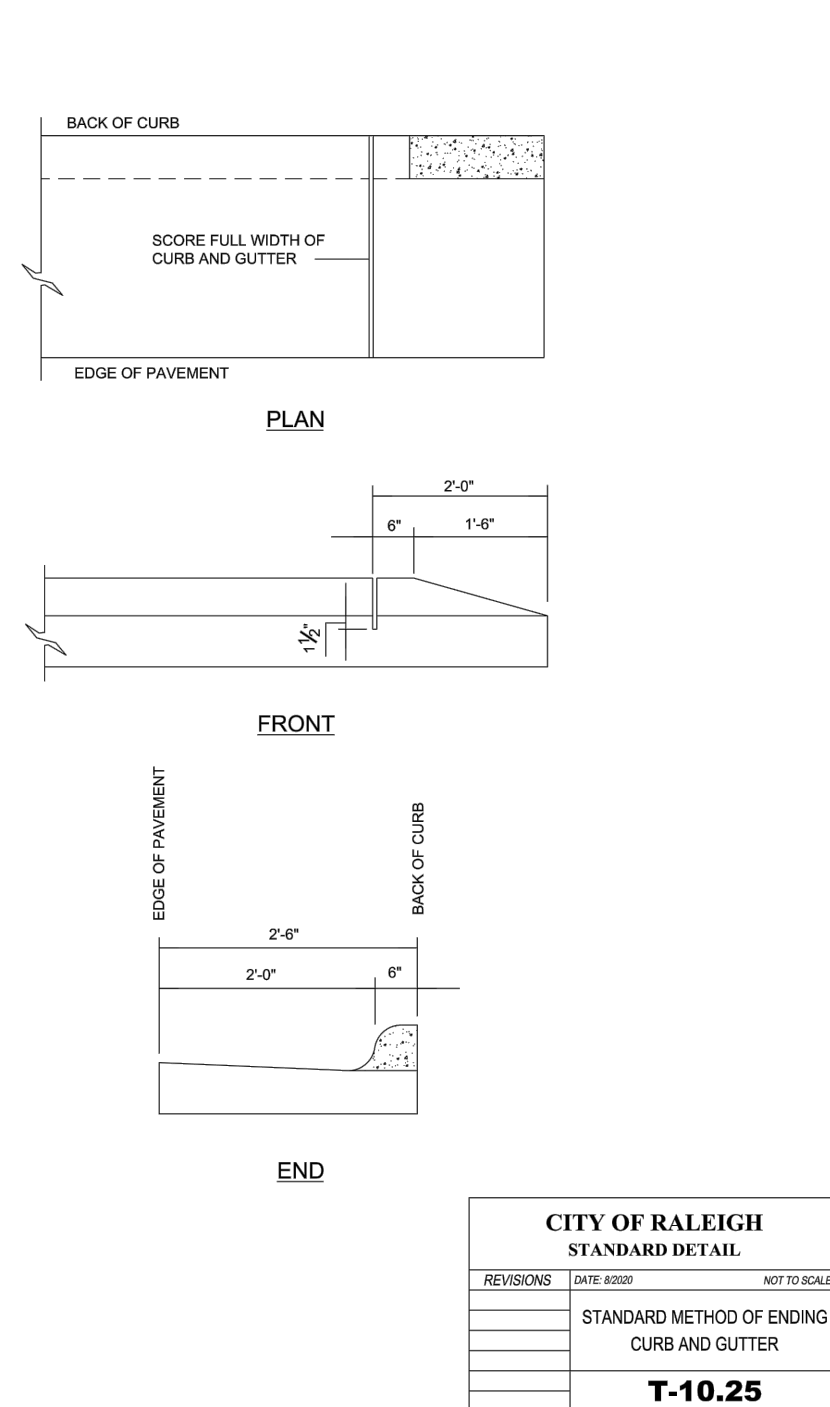
PRODUCT AND MATERIAL TEST DATA			
RESIN PROPERTIES	ASTM TEST	UNITS	TYPICAL VALUES
DENSITY	D-1505	G / CC	0.957
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 5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 1063-006

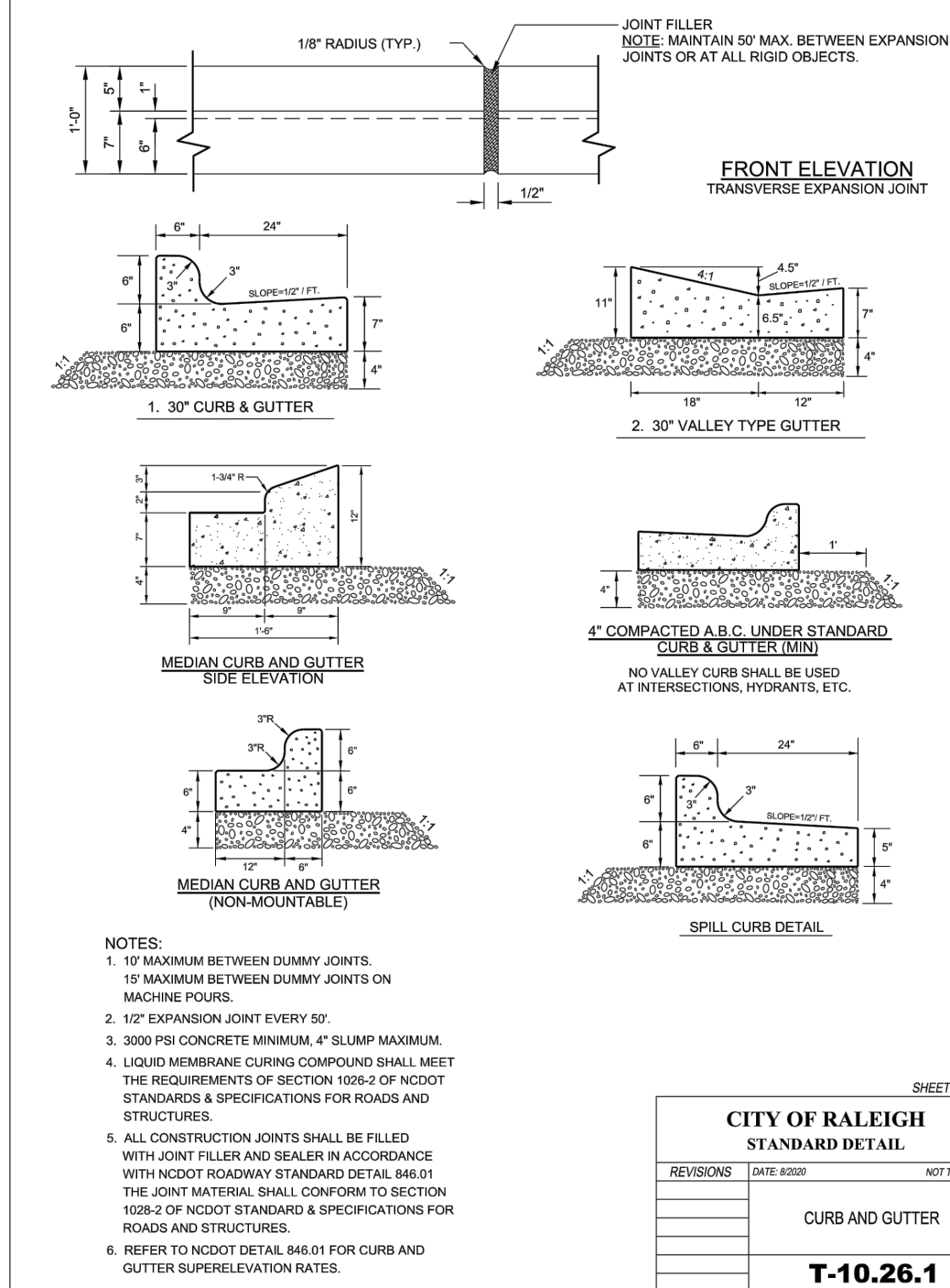


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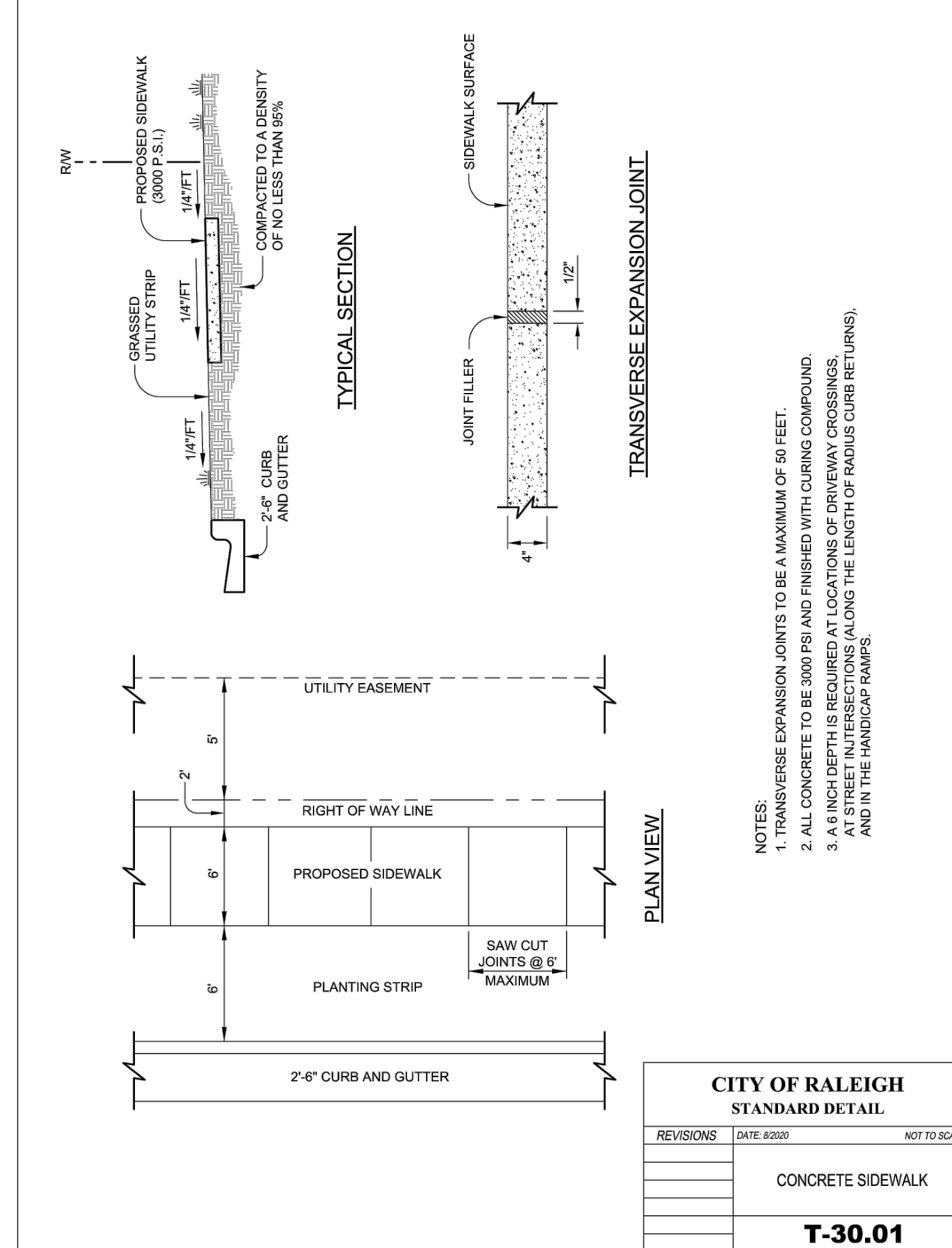
REVISION DATE: 01/26/2018
CADdetails.com



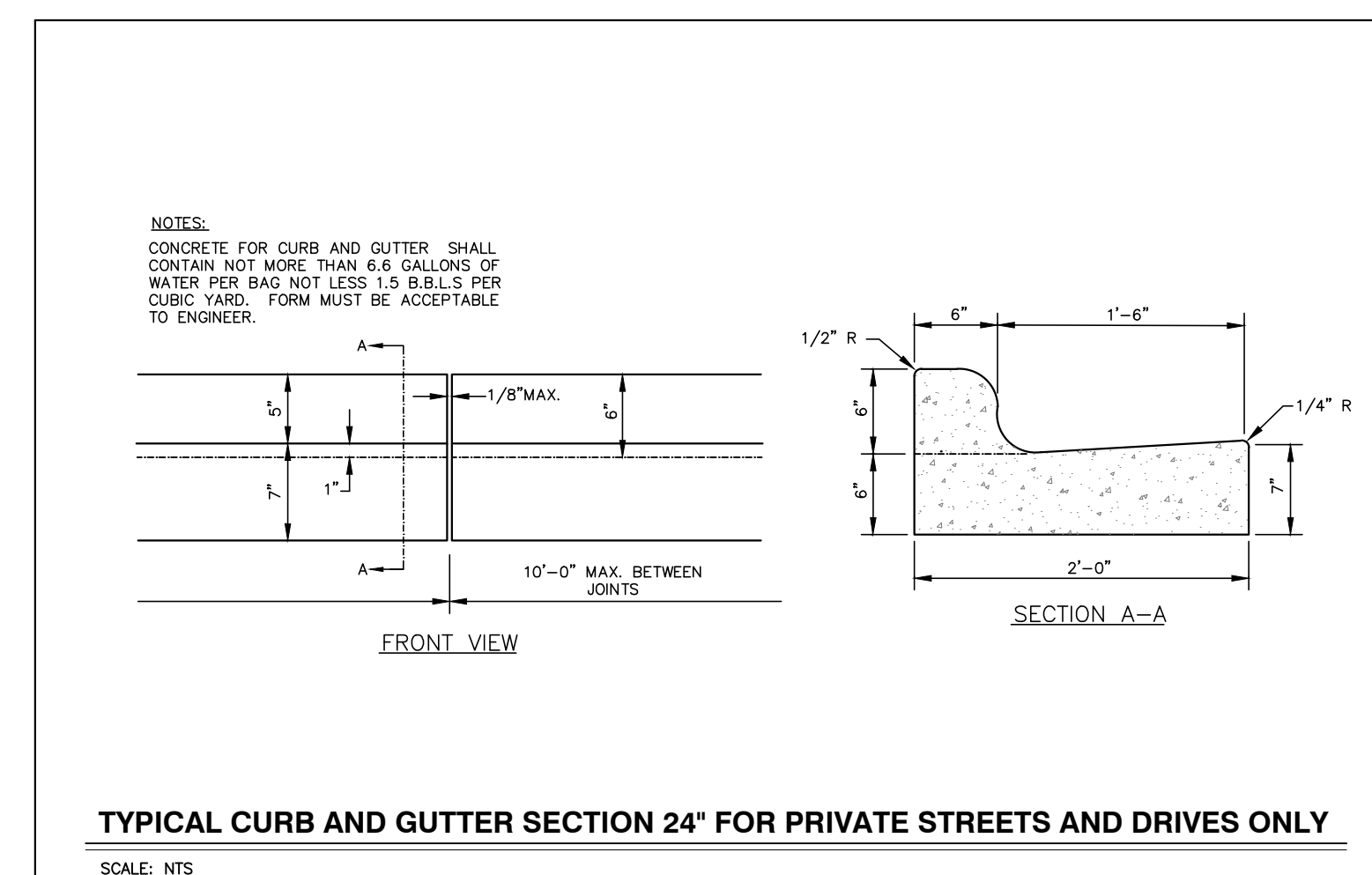
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
STANDARD METHOD OF ENDING CURB AND GUTTER			
T-10.25			



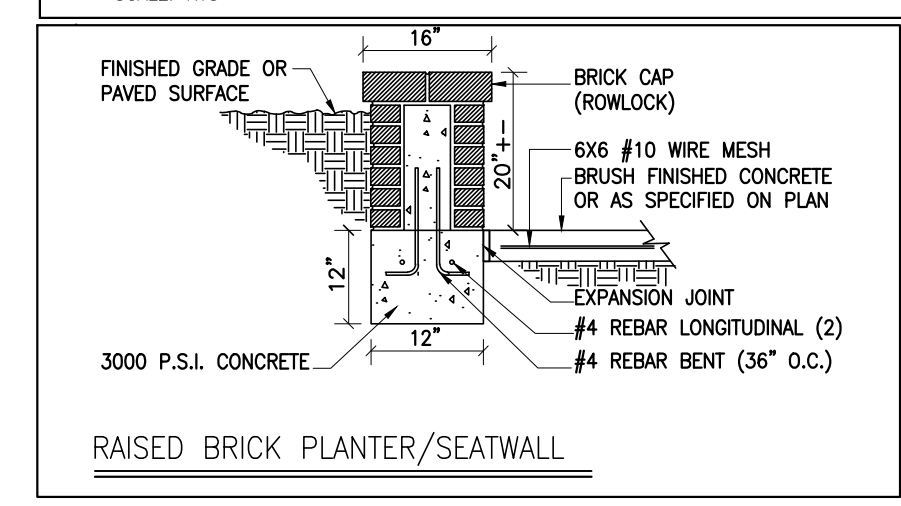
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CURB AND GUTTER			
T-10.26.1			



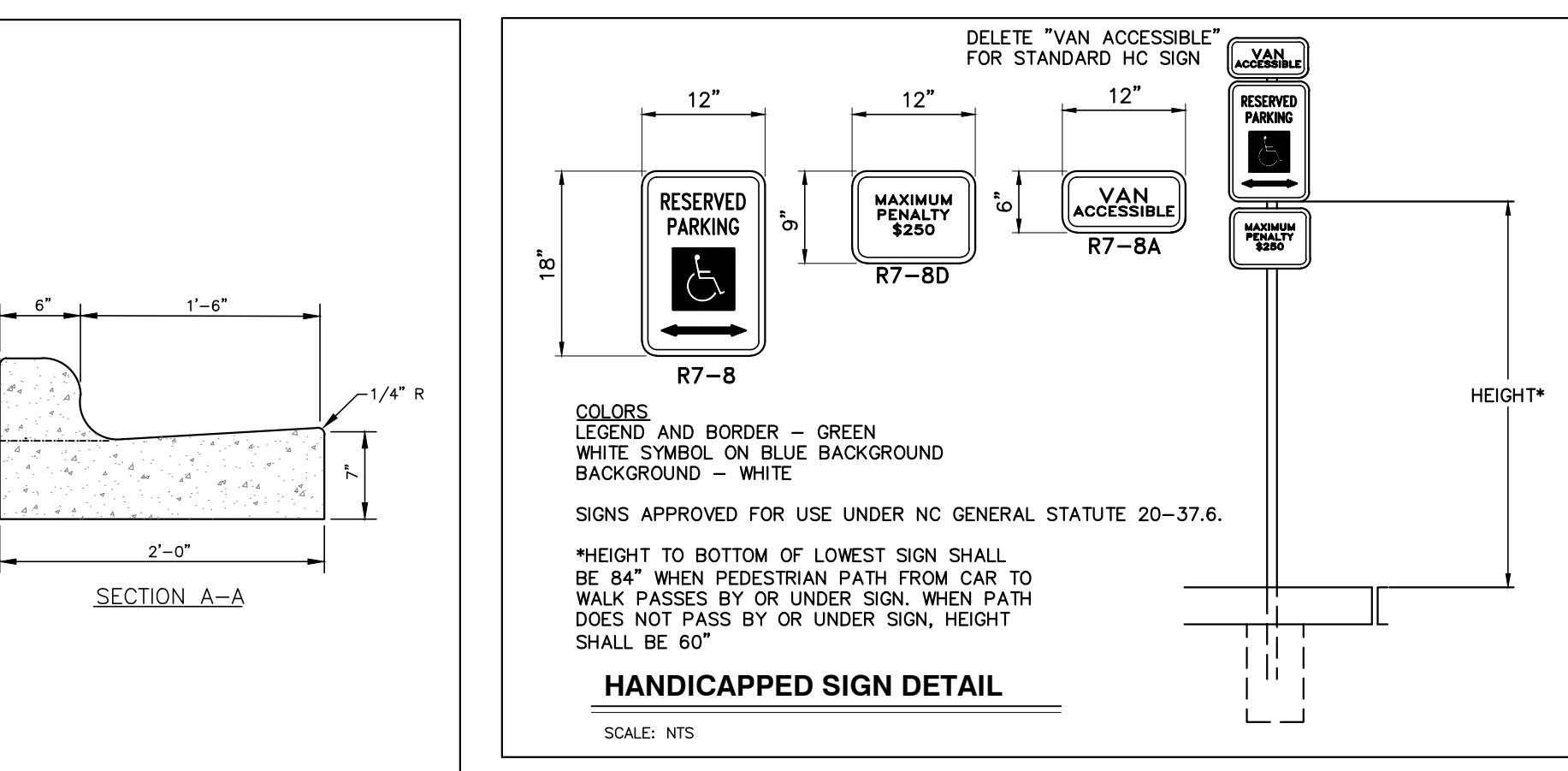
CITY OF RALEIGH STANDARD DETAIL			
REVISIONS	DATE	BY	NOT TO SCALE
CONCRETE SIDEWALK			
T-30.01			



TYPICAL CURB AND GUTTER SECTION 24\"/>



RAISED BRICK PLANTER/SEATWALL



HANDICAPPED SIGN DETAIL

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City of Raleigh Development Approval _____

Raleigh Water Review Officer



05/11/22

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 950, RALEIGH, NC 27607
TELEPHONE: (919) 881-1122 FAX: (919) 881-6868
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

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

SHEET C5.1

NO.	DATE	DESCRIPTION	BY

PROGRESS	MRI	DATE	DRAWN BY
03-19157			

DETAILS

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

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

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

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 2'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB, OVER 2'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
 CONSTRUCT WITH PIPE GRINGS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

SECTION X-X
SECTION Y-Y
SECTION J-J
SECTION M-M
DETAIL SHOWING METHOD OF RISER CONSTRUCTION

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD DROP INLET
SW-10.03

SHEET 1 OF 2
840.02

TYPICAL MH FOR STORM SEWER

PIPE SIZE	MH DIAMETER
12" & 15"	4'-0"
18"	5'-0"
24"	6'-0"
30"	8'-0"

SECTION A-A
SECTION B-B
TYPE A SECTION C-C

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD CLASS "1" MANHOLE
SW-10.05

SHEET 1 OF 2
840.02

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

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

SIDE ELEVATION
PLAN OF COVER
SECTION A-A
SECTION B-B
TOP VIEW
DETAIL OF HANDLE
END ELEVATION

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 CATCH BASIN CASTINGS
SW-10.06.1

SHEET 1 OF 2
840.02

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

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

PLAN OF TOP SLAB
SECTION S-S
SECTION R-R
DOWEL
ELEVATION
ELEVATION

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, N, WITH NO RISER) *																								
PIPE DIA.	DIMENSIONS OF BOX AND PIPE			COVER DIMENSION		BARS-U			BARS-V			BARS-W			TOTAL			CU. YDS. CONC. IN BOX						
	SPAN	WIDTH	HEIGHT	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	C.M.	R.C.			
12"	3'-0"	2'-2"	2'-9"	3'-0"	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.235	0.772	0.015	0.026	
15"	3'-0"	2'-2"	3'-0"	3'-0"	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.235	0.809	0.023	0.036	
18"	3'-0"	2'-2"	3'-3"	3'-0"	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.235	0.887	0.033	0.049	
24"	3'-0"	2'-2"	3'-9"	3'-0"	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.235	1.001	0.059	0.085	
30"	3'-0"	2'-2"	4'-3"	4'-3"	4'-3"	4	1'-5"	2	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.133	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	4'-9"	4'-9"	4'-9"	4	1'-11"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	3	3'-0"	0.161	0.359	1.714	0.132	0.178
42"	3'-0"	2'-2"	5'-3"	5'-3"	5'-3"	4	1'-8"	2	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-2"	5'-9"	5'-9"	5'-9"	4	2'-3"	3	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	3	2'-11"	0.148	0.392	2.062	0.235	0.317
54"	3'-0"	2'-2"	6'-3"	6'-3"	6'-3"	4	2'-10"	5	2'-11"	3	2'-11"	4	2'-11"	4	2'-11"	4	2'-11"	4	2'-11"	0.180	0.389	2.387	0.297	0.401

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

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 DROP INLET CASTING
SW-10.08

SHEET 2 OF 2
840.02

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

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

SECTION A-A
SECTION B-B
STANDARD 24" X 24" DROP INLET CASTING

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.02

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

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

PLAN
SECTION AA
SECTION BB
SECTION PP
SECTION NN
SECTION KK
SECTION JJ
SECTION LL
SECTION MM
SECTION RR
HOOD ELEVATION

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.02

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

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

DETAIL SHOWING TYPES OF GRATES
 USE ACCORDING TO WATER FLOW.

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 1 OF 2
840.03

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

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

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.03

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

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

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.03

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

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

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 1 OF 2
840.02

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

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

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.03

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

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

SECTION A-A
SECTION B-B
SECTION A-A
SECTION A-A

REVISIONS: DATE REVISION NOT TO SCALE

CITY OF RALEIGH STANDARD DETAIL
 STANDARD STORM MANHOLE COVER
SW-10.10

SHEET 2 OF 2
840.03

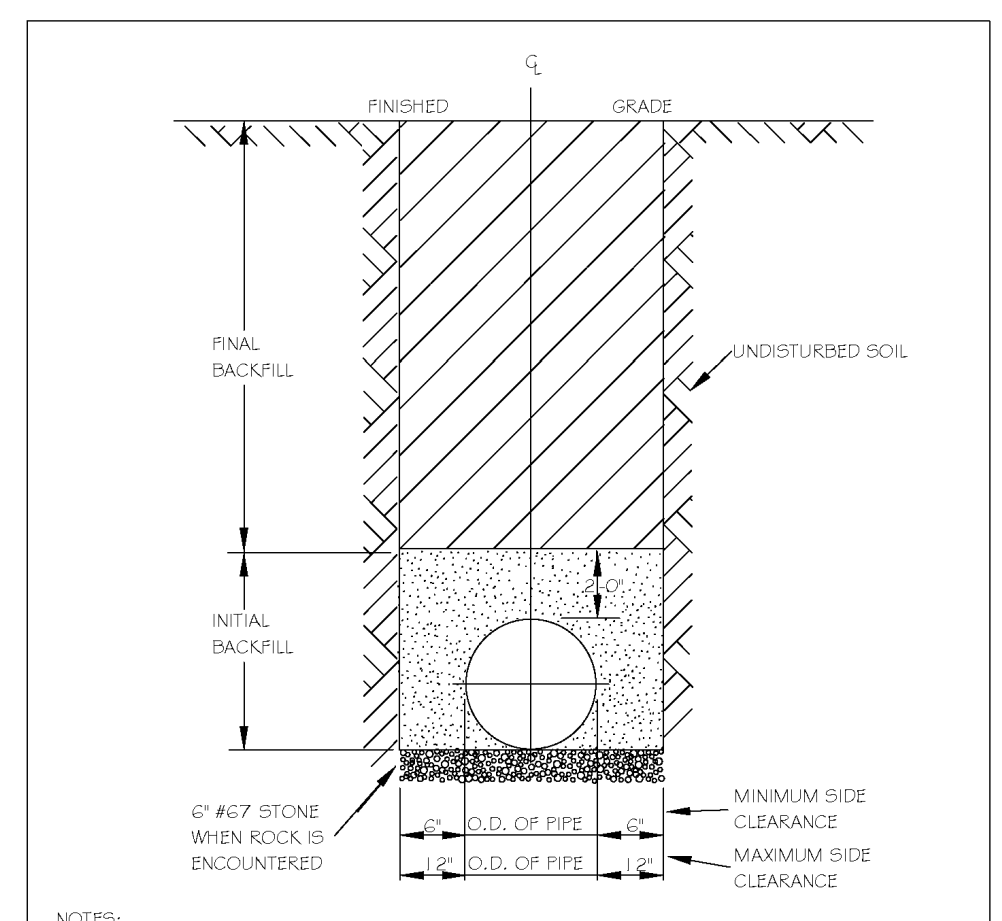
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

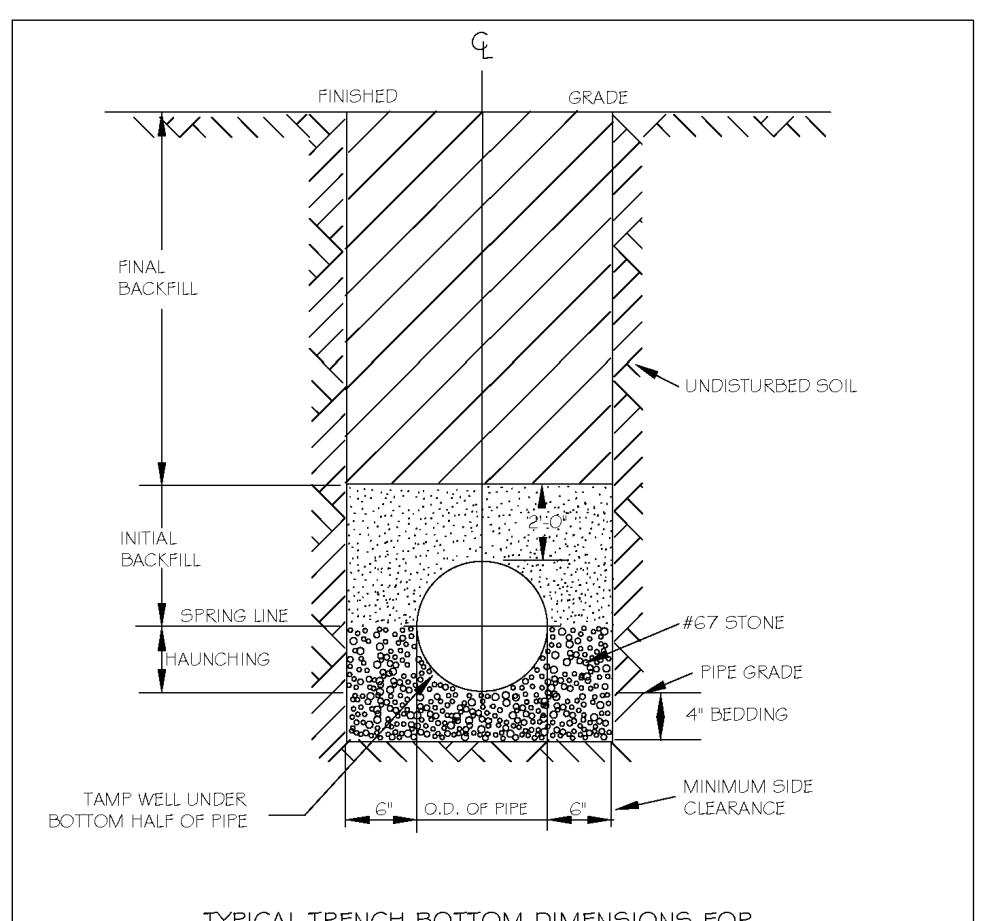
05/11/22



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

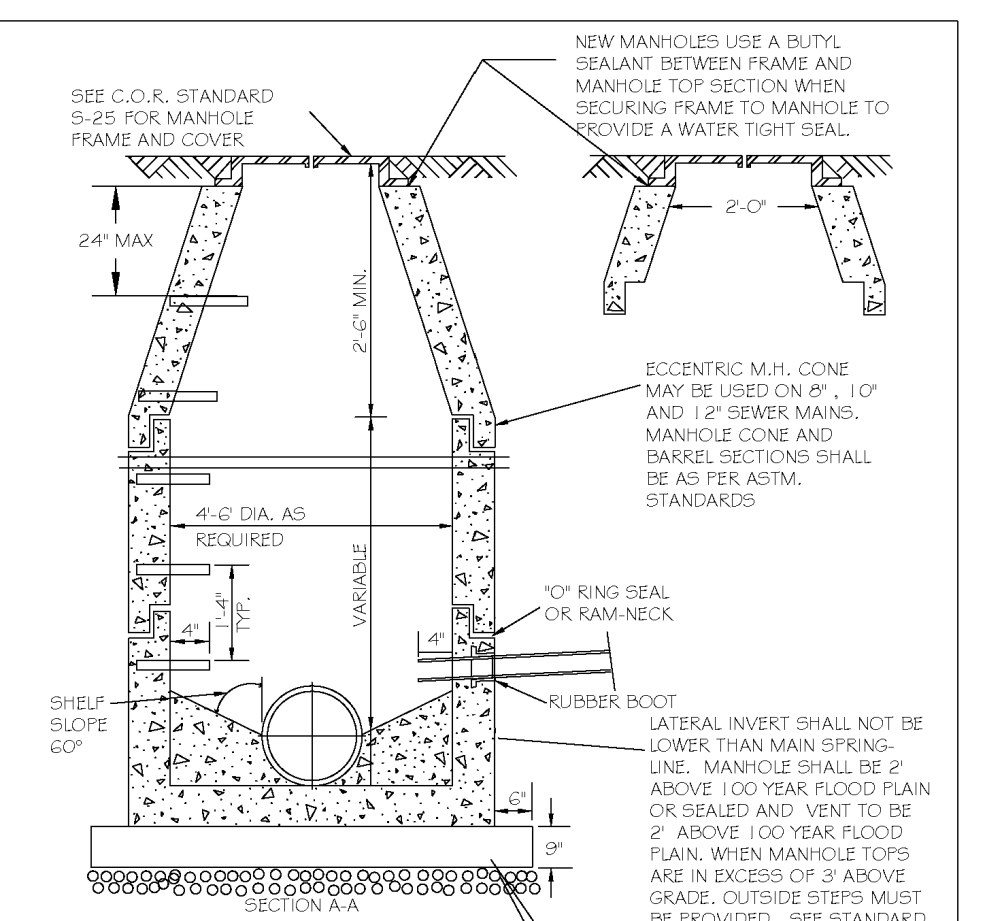
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	KRT	3-2-00		



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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

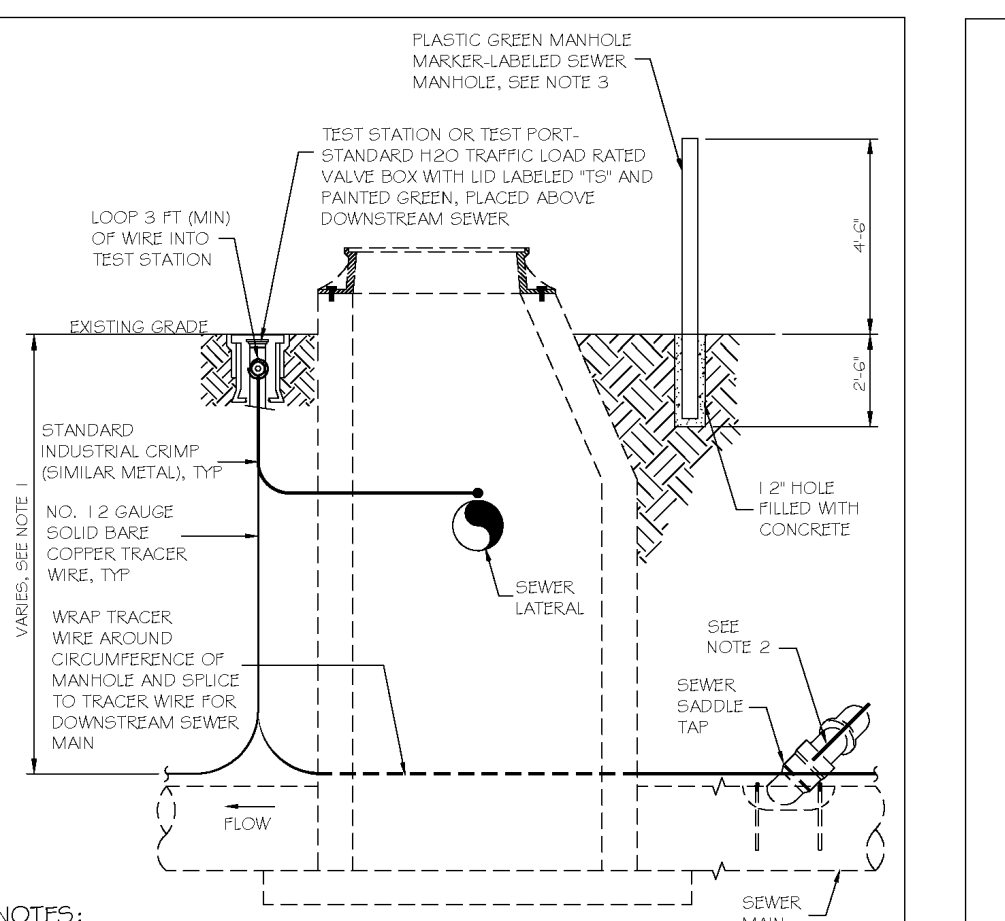
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	KRT	7-2-02		



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 ADDED AND SECURELY ATTACHED 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.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SAIDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SAIDLE AND MAIN.
3. 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

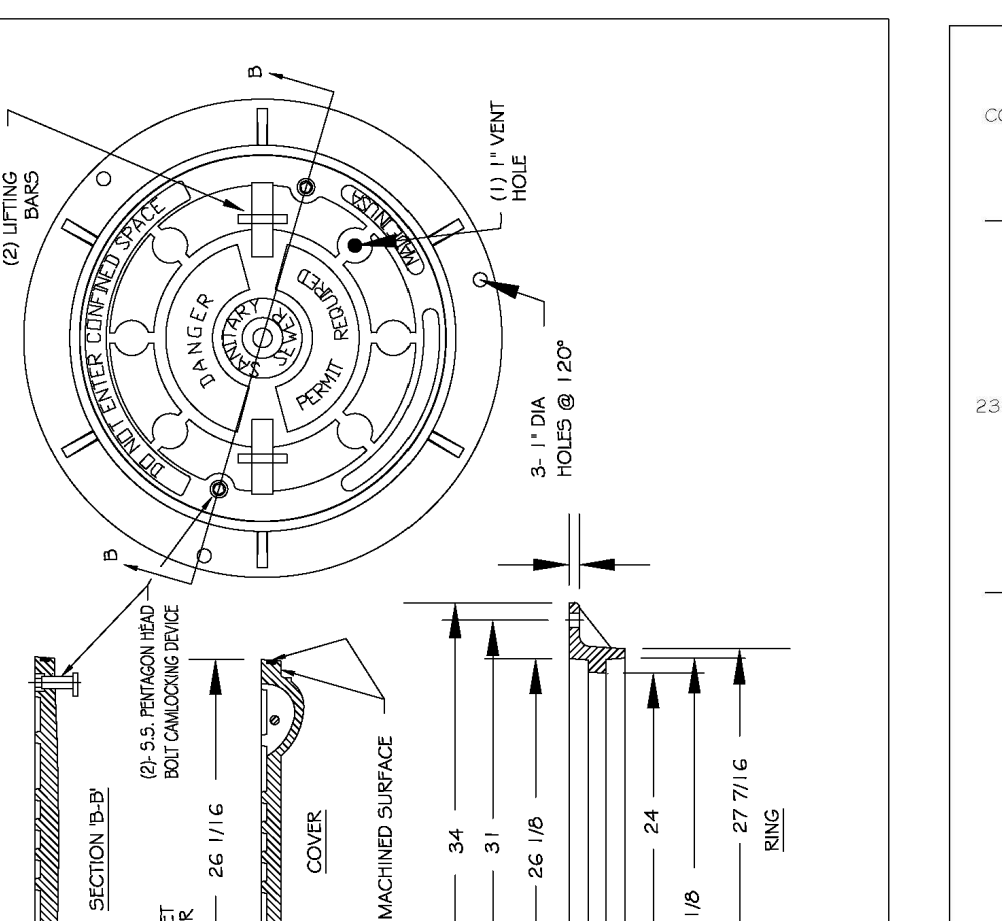
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	T.C.A.	12-31-02	AKB	2-21-05
	KRT	3-30-00	DTL	6-14-08



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 ADDED AND SECURELY ATTACHED 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.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SAIDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SAIDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL CONNECTION

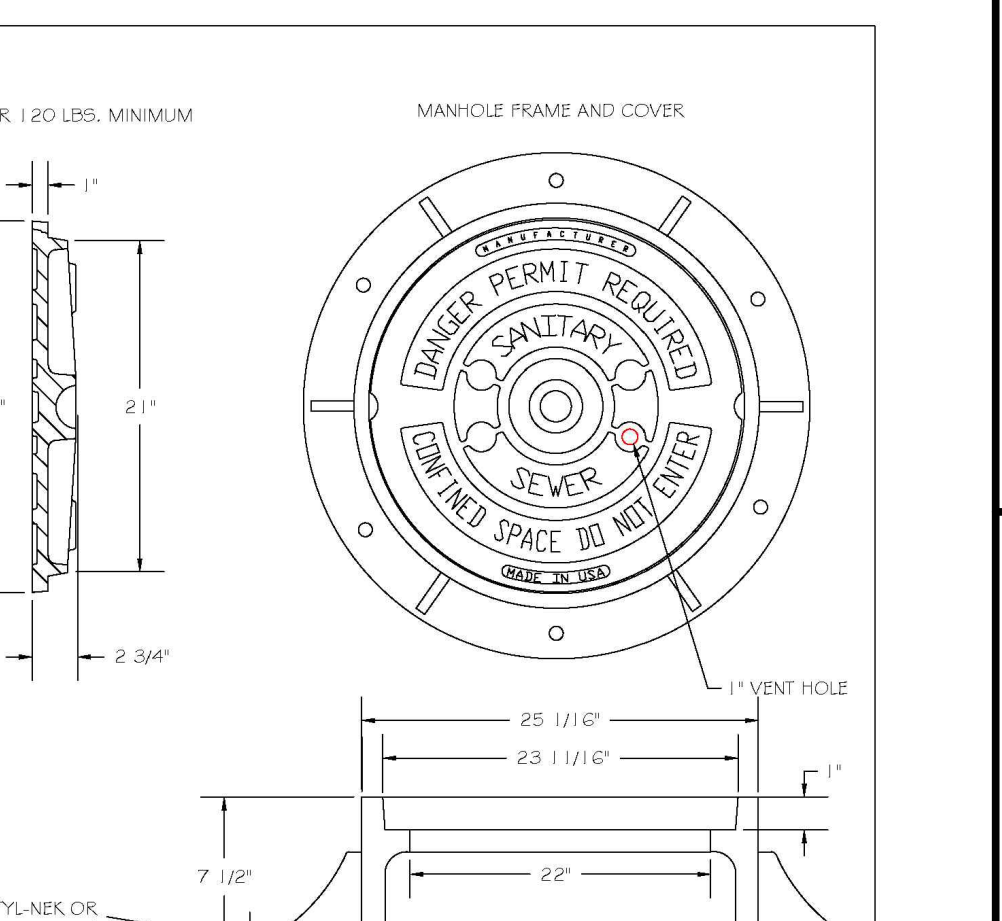
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	W.E.	09-11		



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 180 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

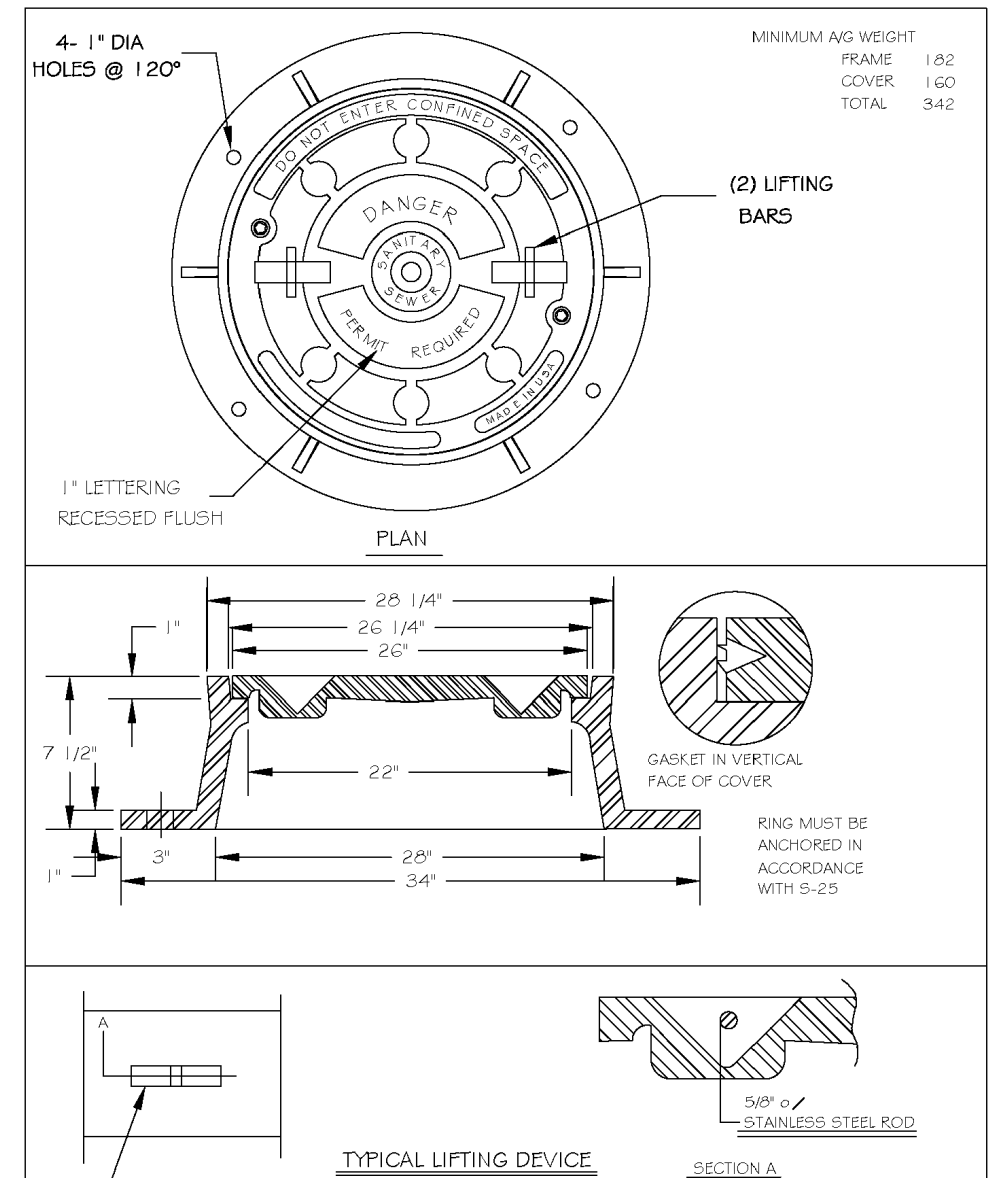
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25.01	KRT	3-1-07	A.B.B.	2-9-05
			D.H.L.	6-18-08



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 180 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.

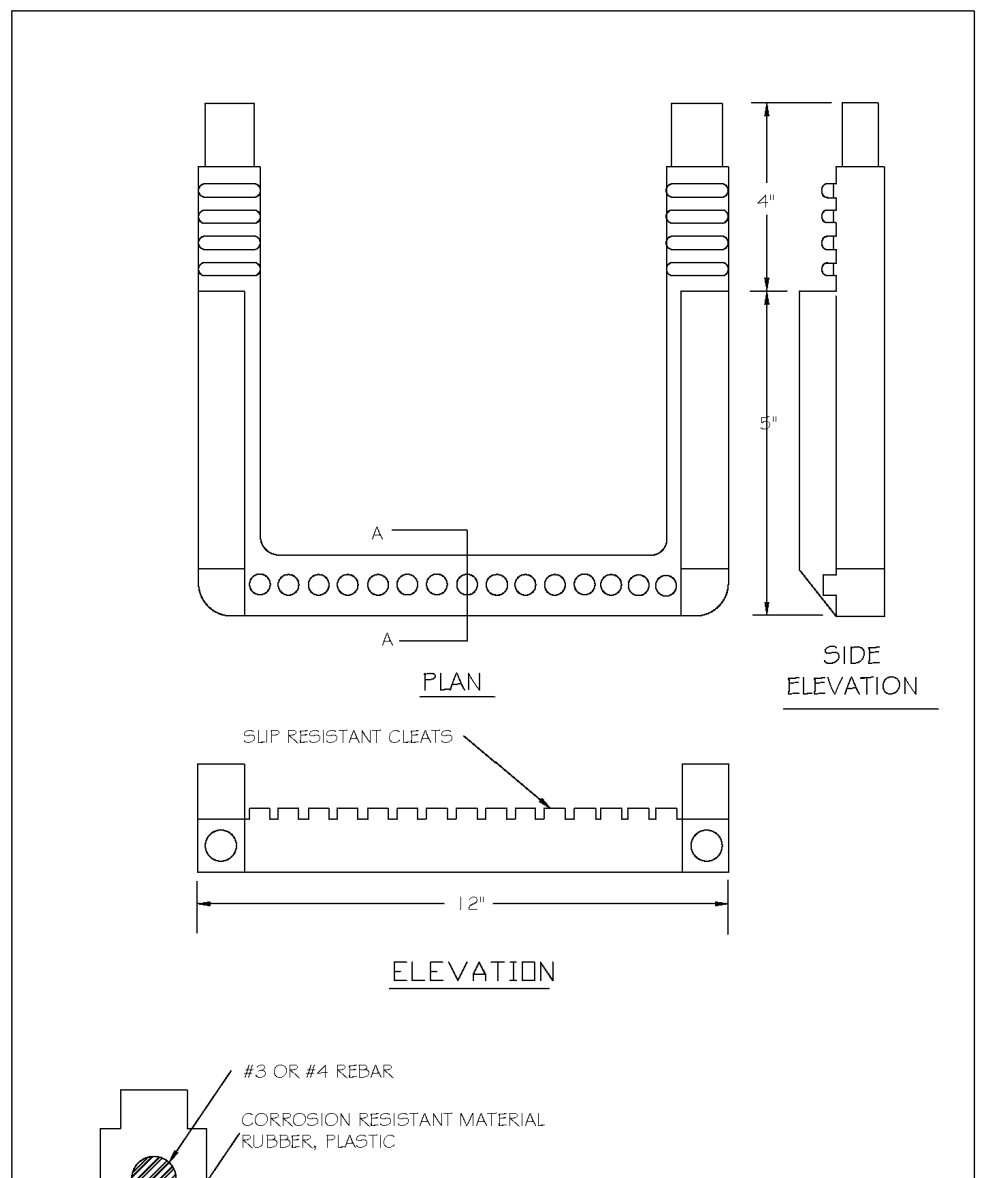
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	KRT	3-1-07	A.B.B.	2-9-05
			D.H.L.	6-18-08



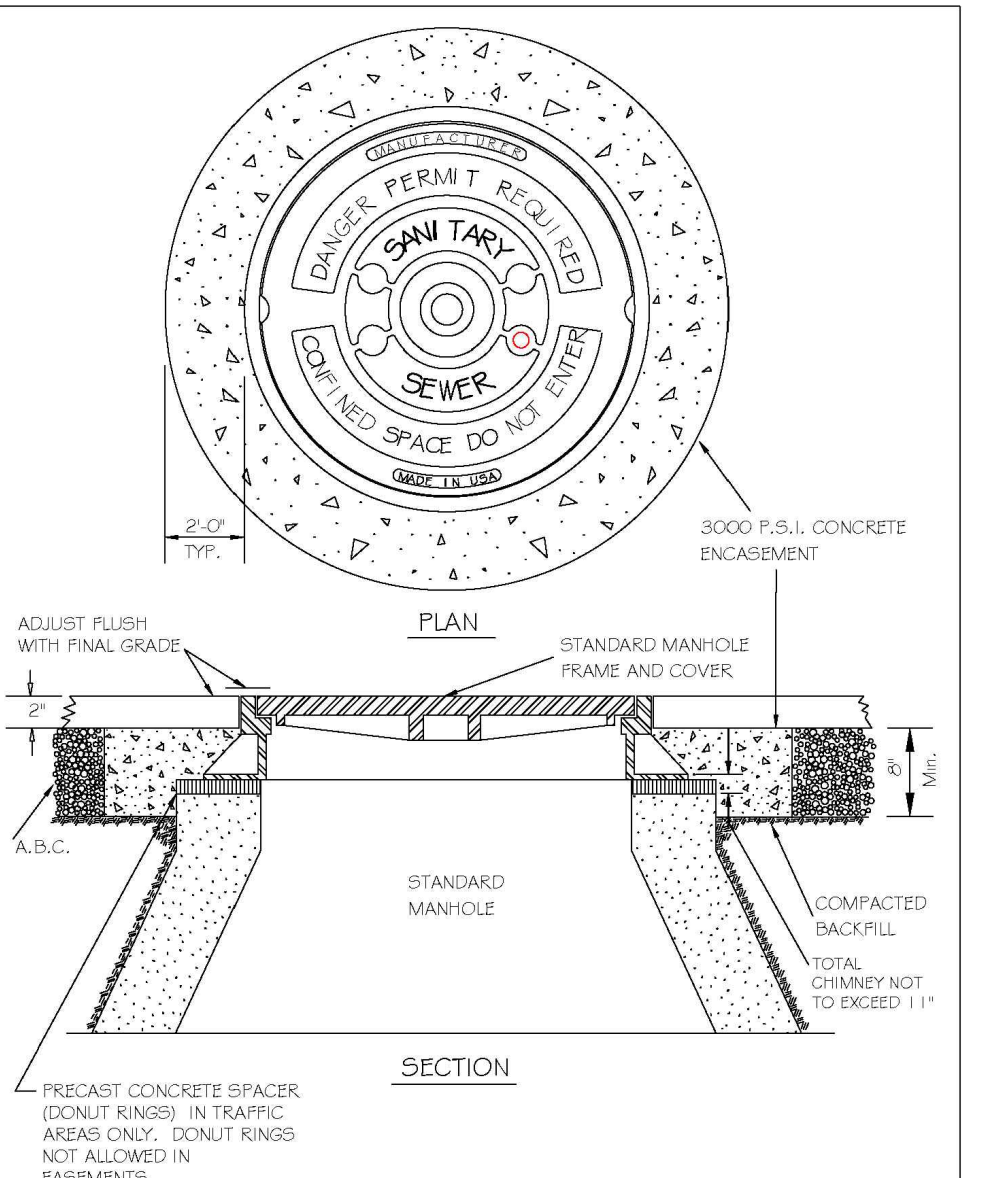
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
MANHOLE FRAME AND WATERTIGHT COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-26	KRT	3-1-07	AKB	2-23-05
			DTL	6-17-08



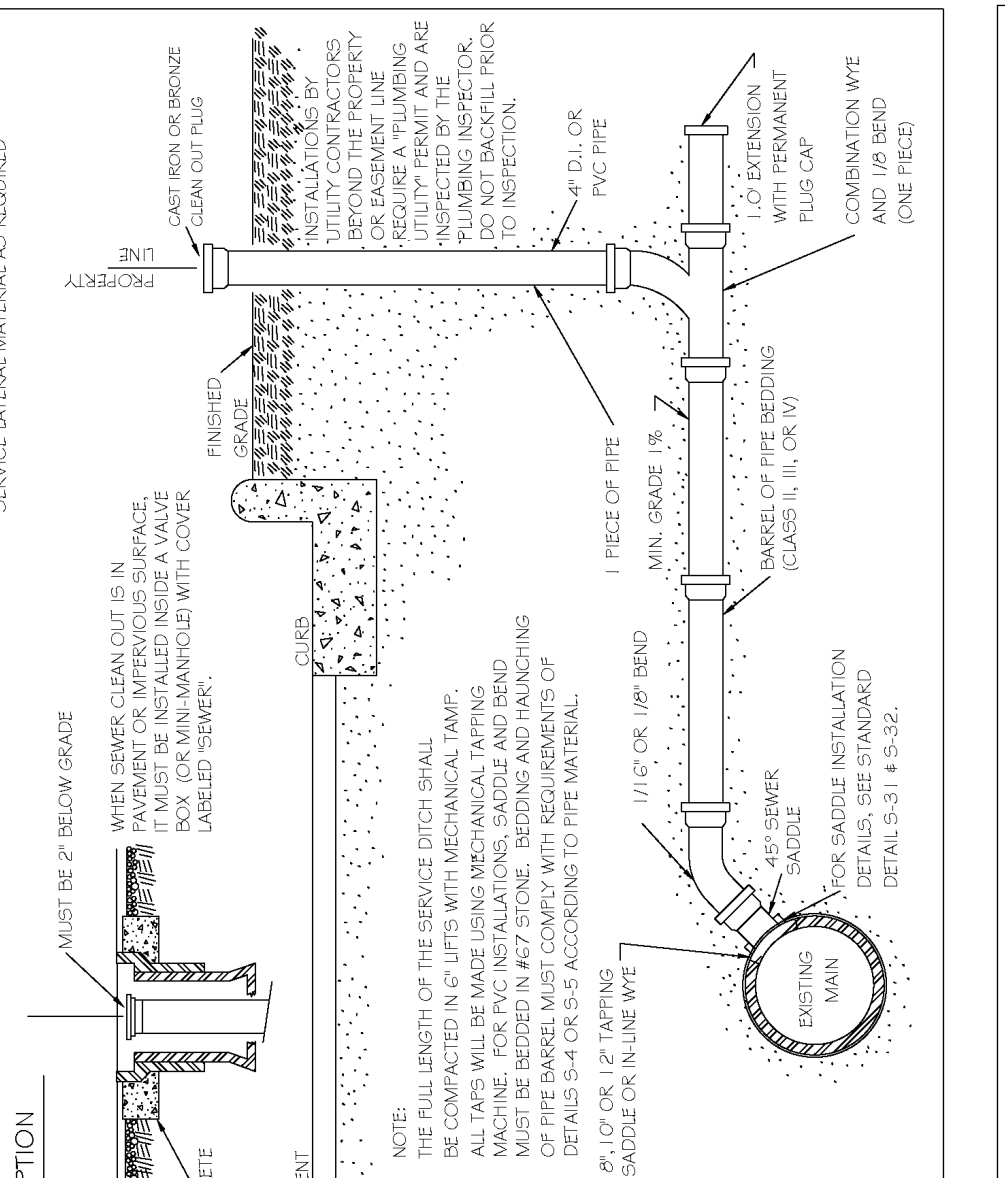
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28	KRT	3-30-00		



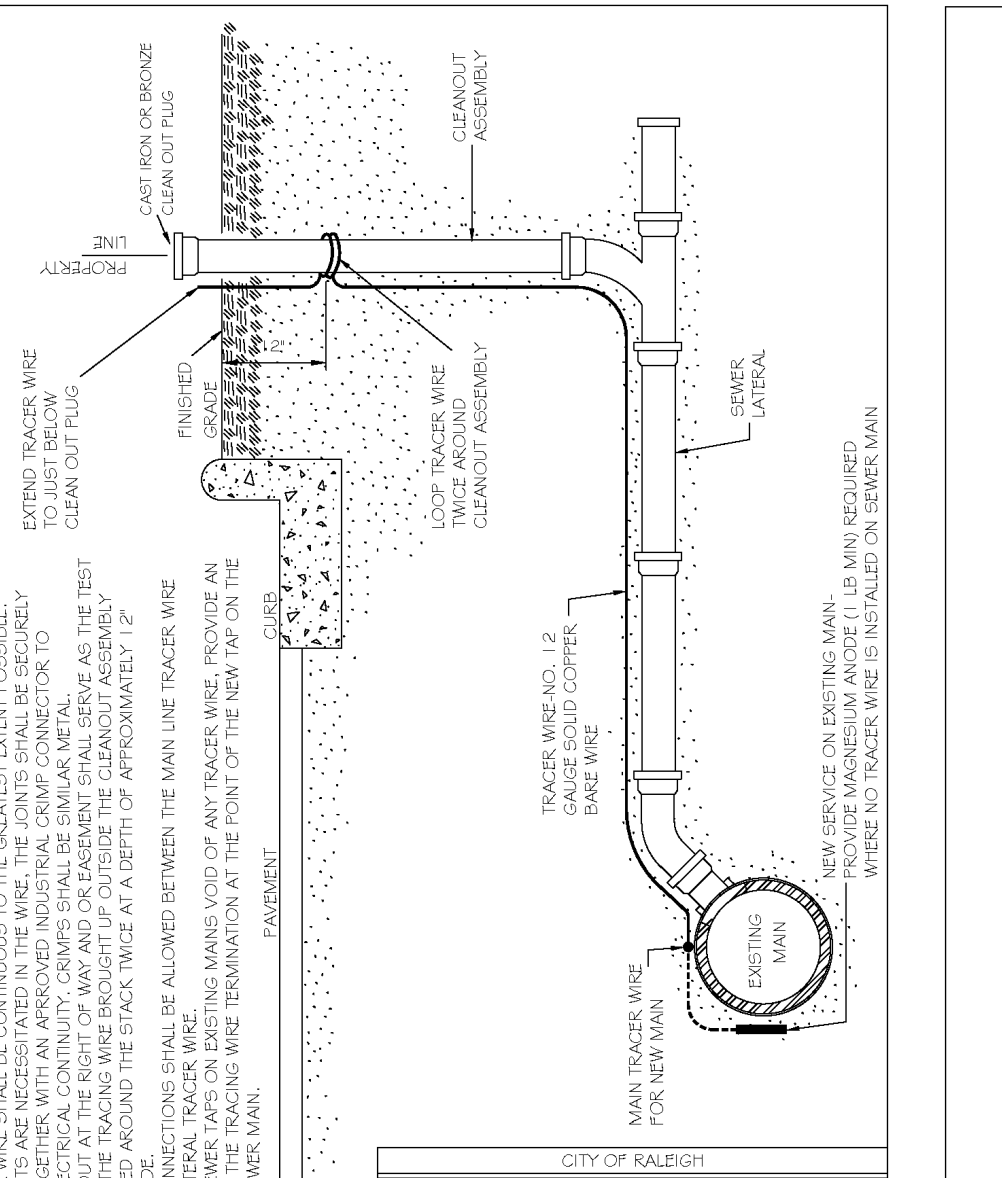
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	T.C.A.	2-21-05	AKB	3-23-05
	KRT	3-30-00	DTL	11-29-07



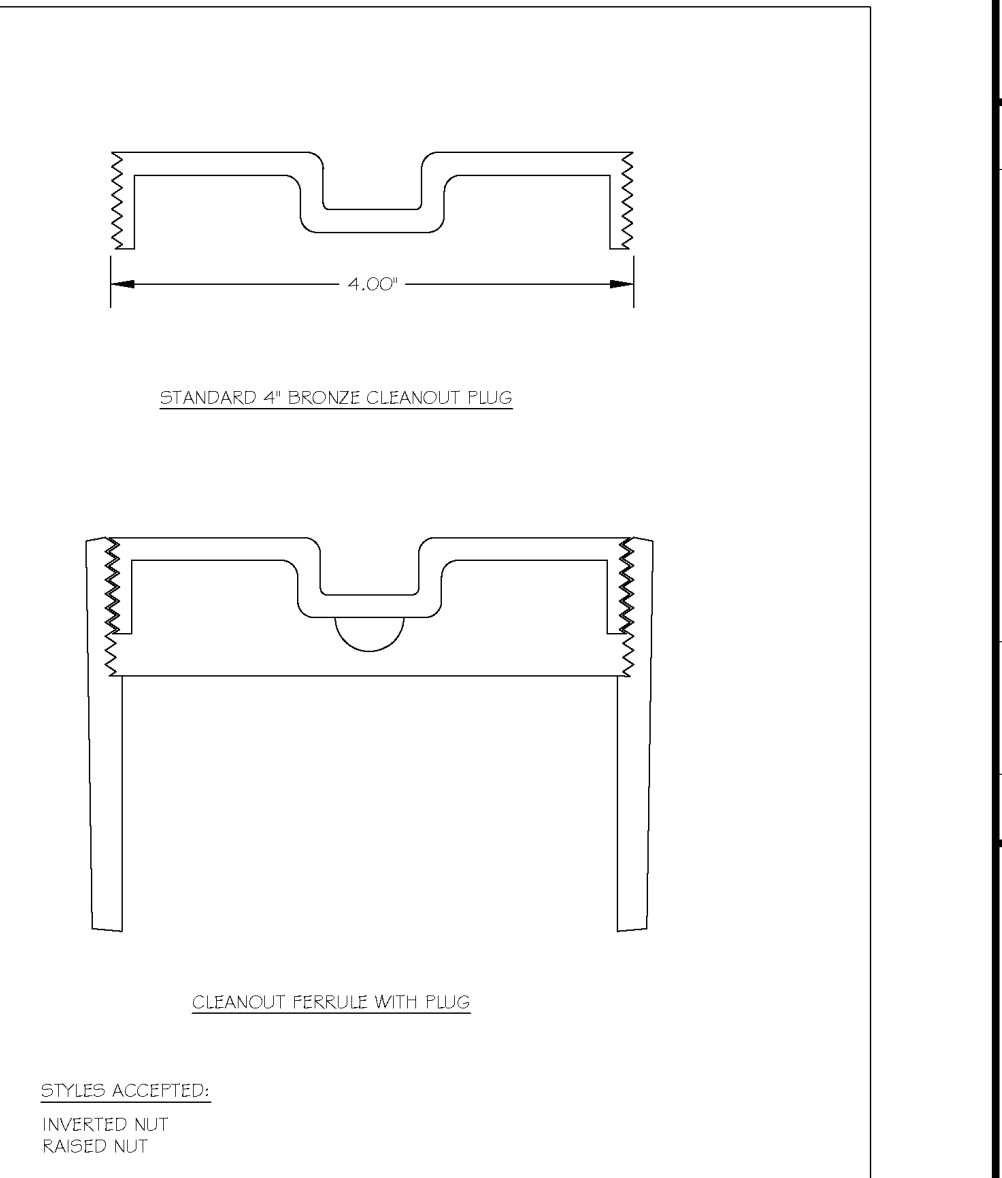
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL CONNECTION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30	T.C.A.	8-31	A.B.B.	4-24-06
	KRT	3-30-00	DTL	11-18-08



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL CONNECTION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30A	W.E.	09-11		



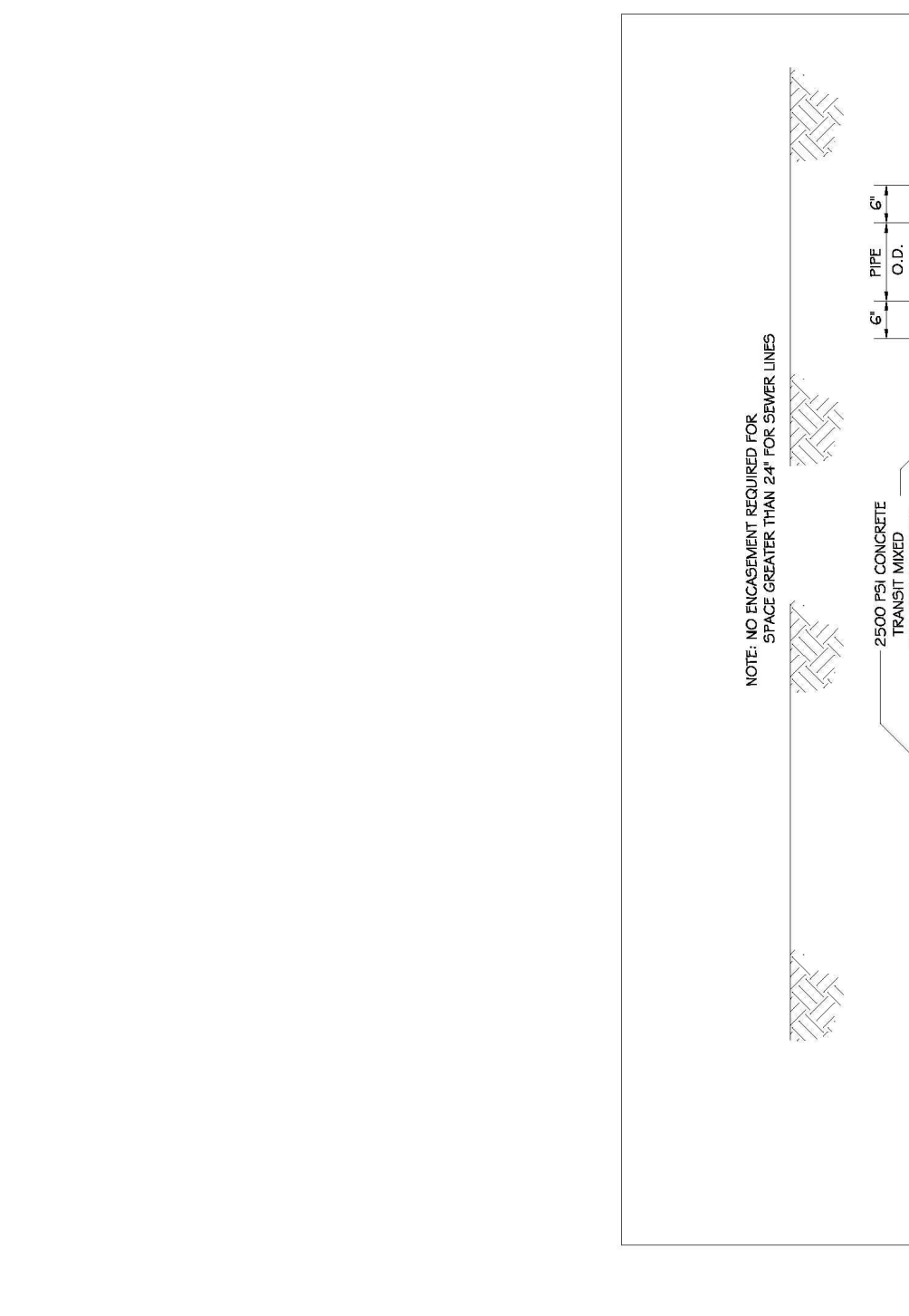
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" CLEANOUT PLUG

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34	T.W.C.	3-27-05		



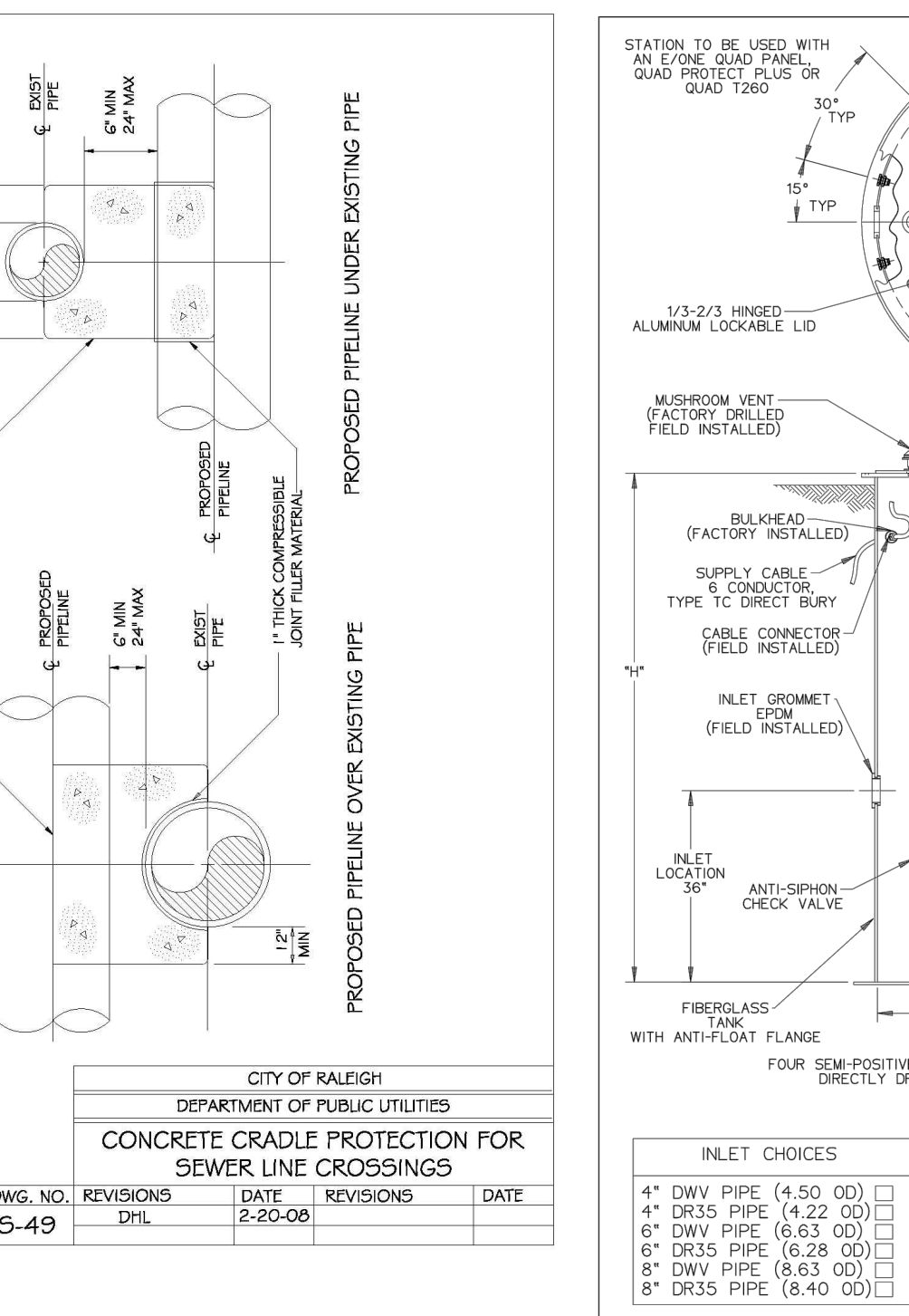
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	PH	2-20-00		



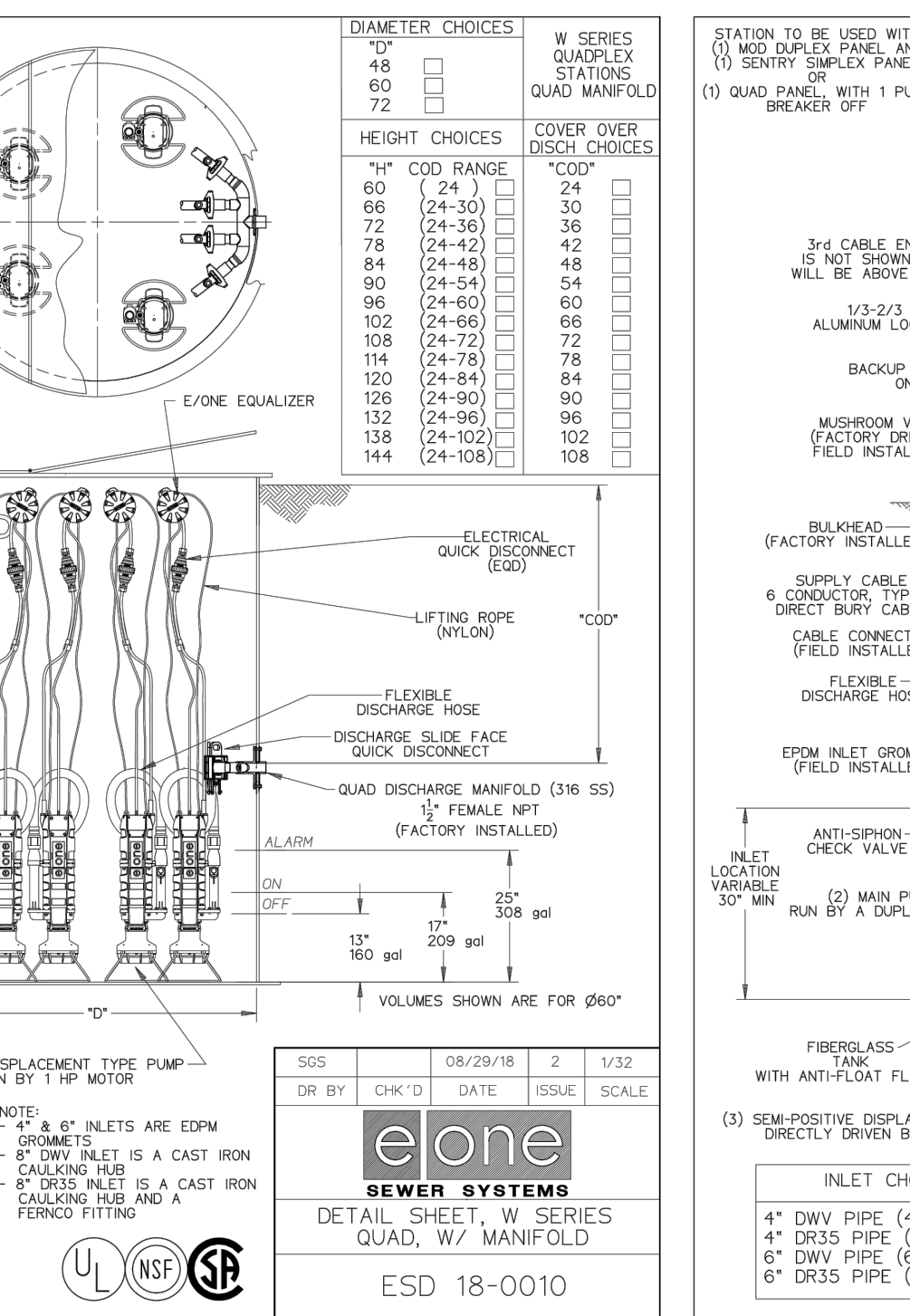
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	PH	2-20-00		



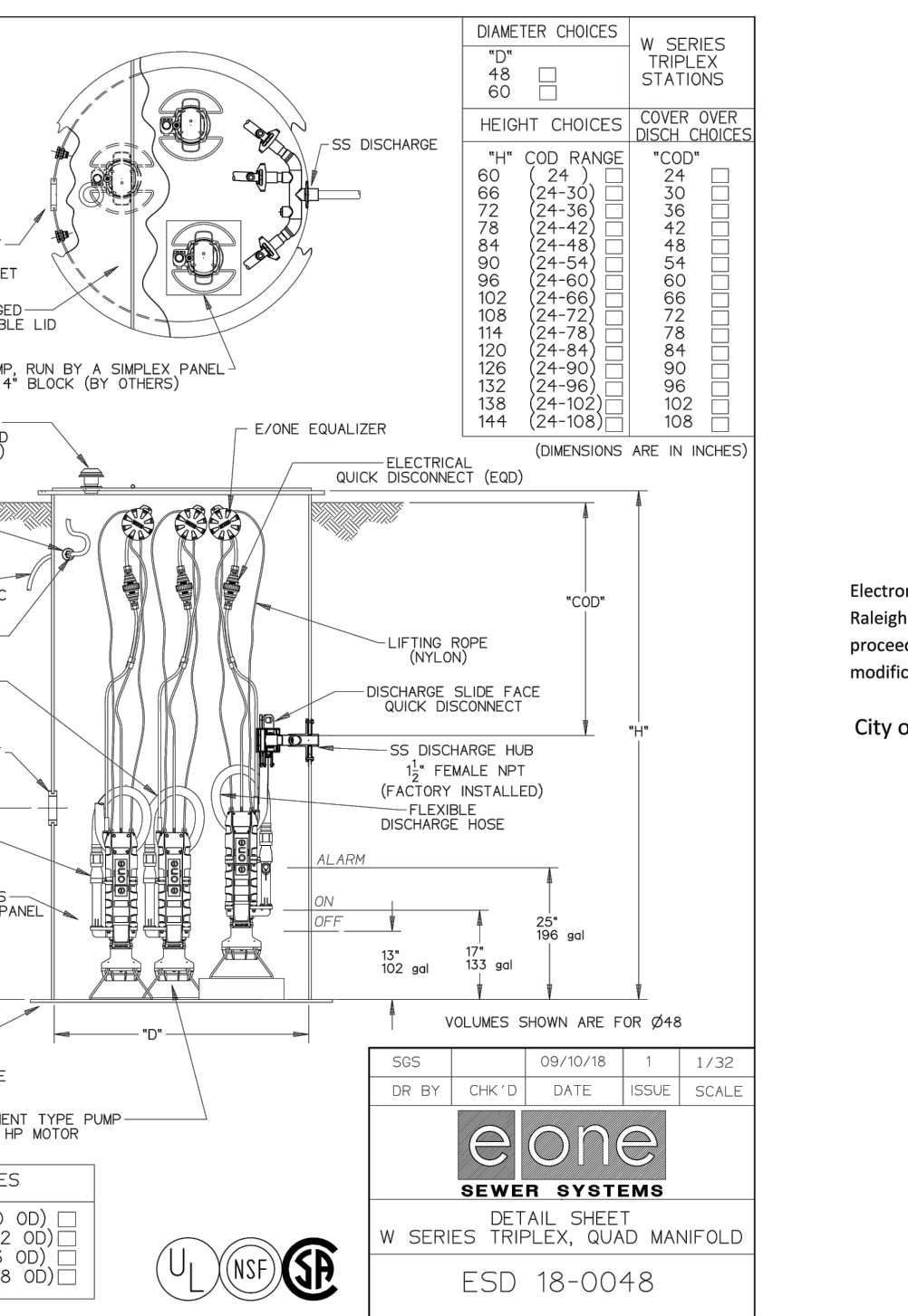
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STATION TO BE USED WITH AN EXISTING QUAD PANEL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	PH	2-20-00		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STATION TO BE USED WITH A DUPLEX PANEL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	PH	2-20-00		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STATION TO BE USED WITH A DUPLEX PANEL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	PH	2-20-00		

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHASE HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 871-1122 FAX: (919) 871-6886
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
JOB NO. 19187

DETAILS
SCALE: N.T.S.
CHK BY: M.B.

NO. DATE DESCRIPTION REVISIONS

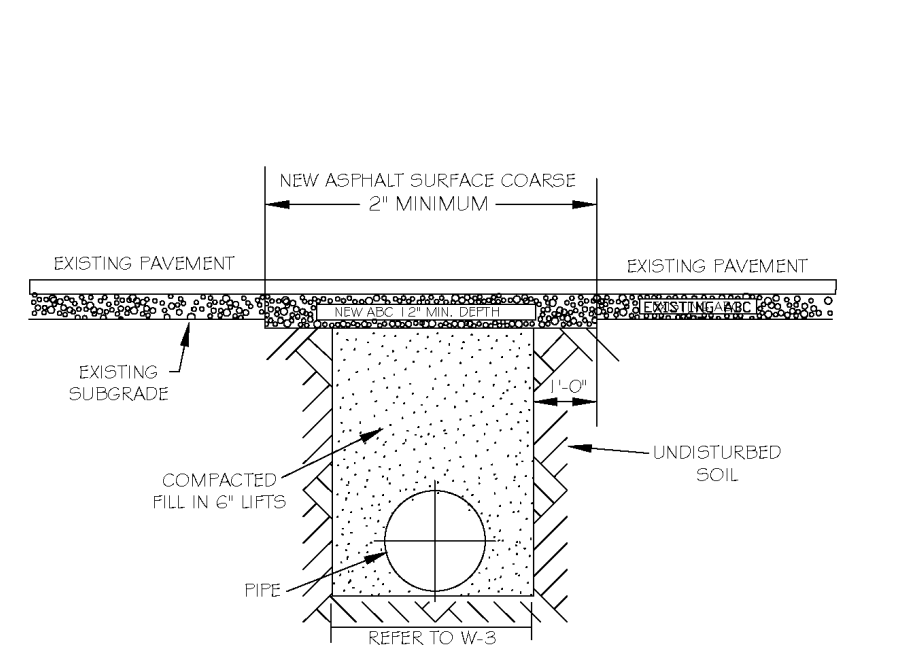
NO.	DATE	DESCRIPTION	REVISIONS

SHEET C5.3

TOWN OF ROLESVILLE PROJECT NO.

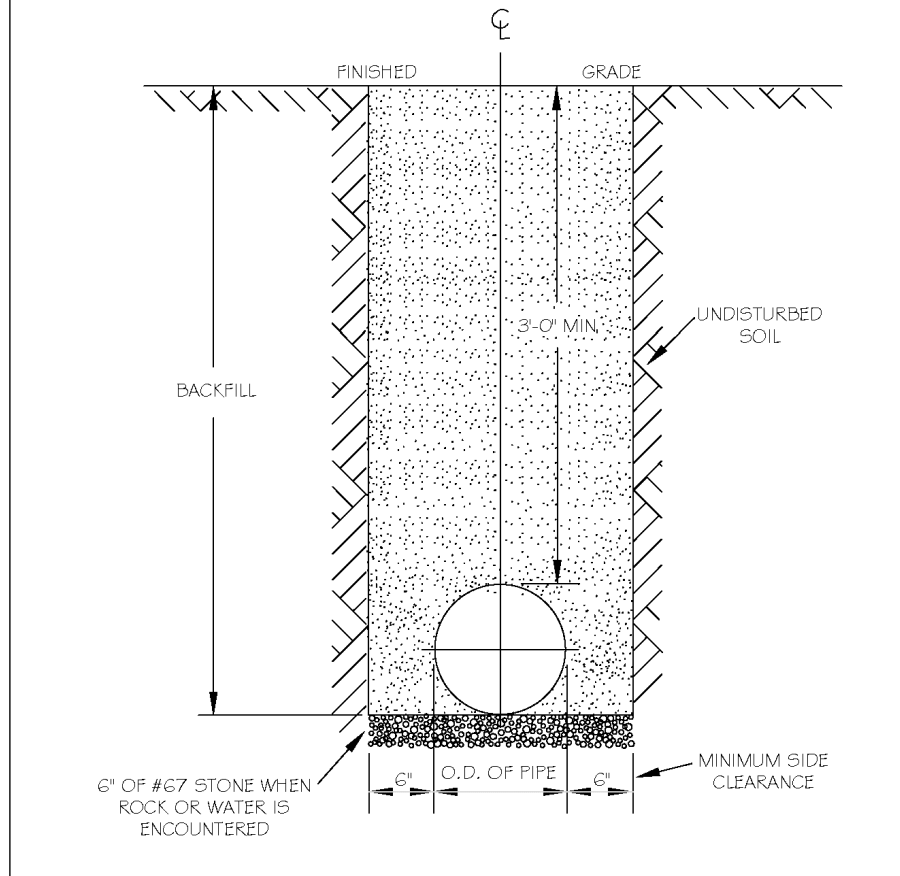
R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\07 - 19187_Details.dwg, CS-3, 5/1/2022 14:48:19 PM, mnc-mueller

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



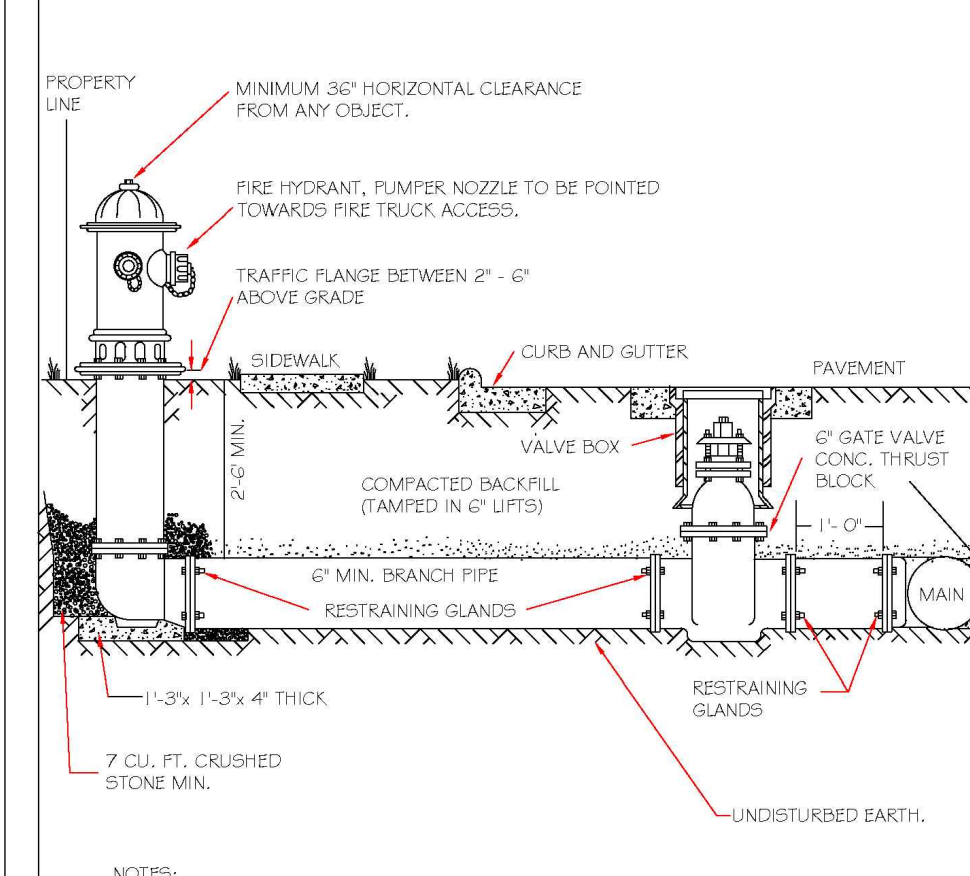
NOTES:
 1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
 2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY 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 AASHTO 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		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.



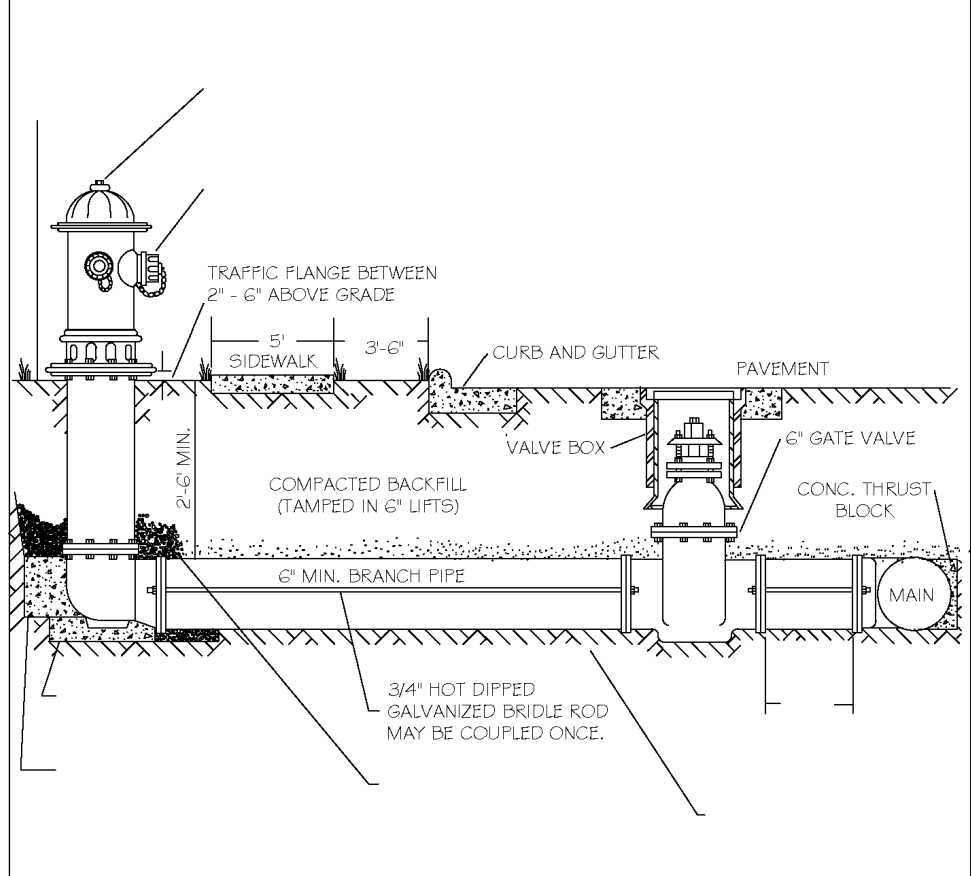
NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR Boulders 4" OR LARGER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE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

CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
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.



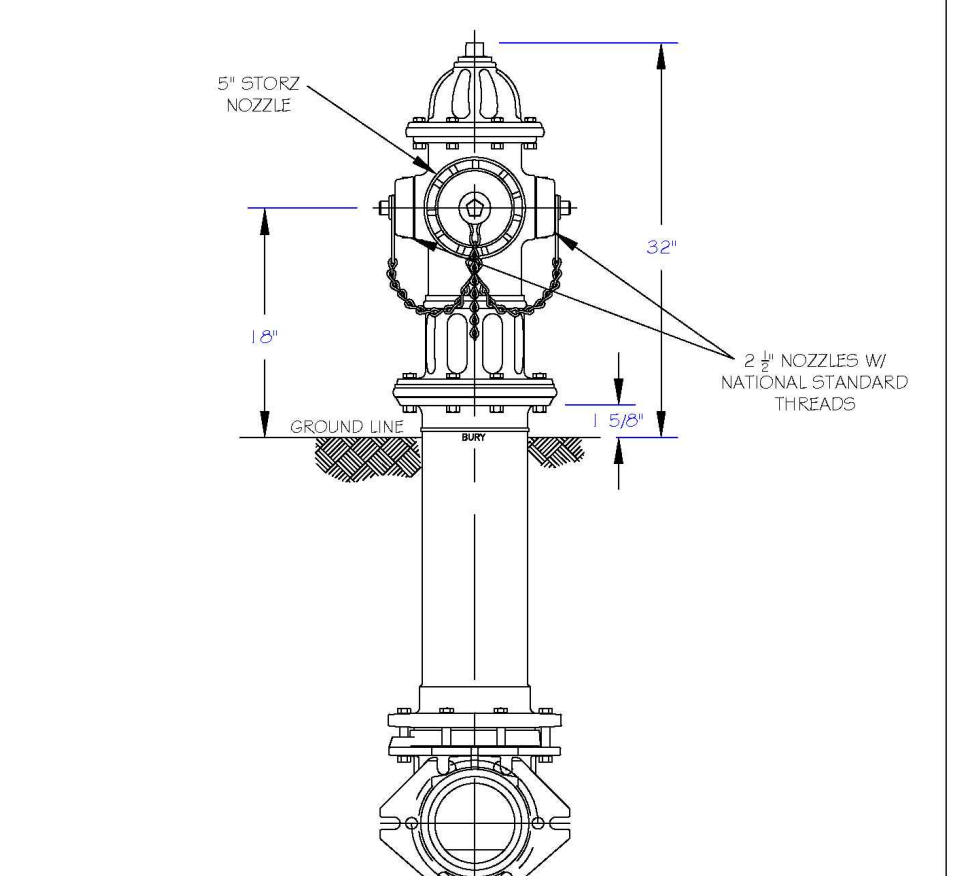
NOTES:
 1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MHI, WATERLOUS, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-8.
 3. 6" GATE VALVE SHALL BE ANMA C200-85 OPEN LEFT.
 4. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
 6. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 7. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
 8. ROSS 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.
 9. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 10. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 11. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-4	RRH	4-6-04	J.P.S.
	D.W.C.	3-7-08	J.P.S.



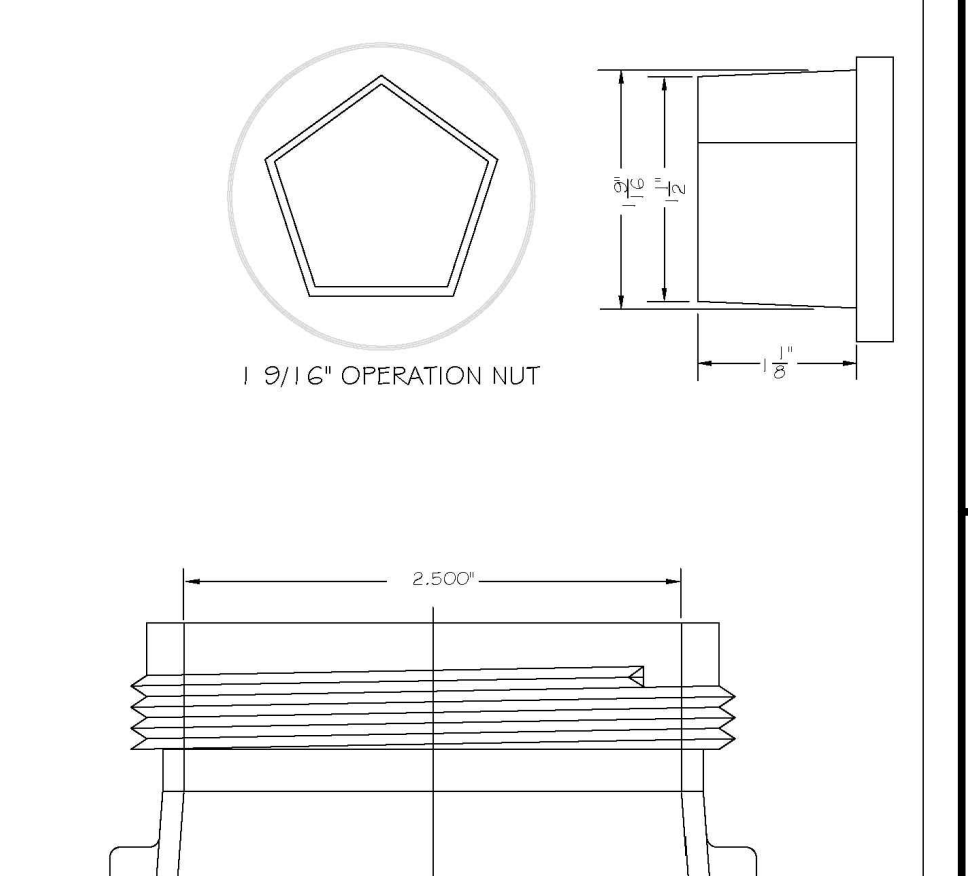
NOTES:
 1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MHI, WATERLOUS, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-8.
 3. 6" GATE VALVE SHALL BE ANMA C200-85 OPEN LEFT.
 4. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
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 9. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 10. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 11. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-4-0	RRH	4-6-04	J.P.S.
	D.W.C.	3-7-08	J.P.S.



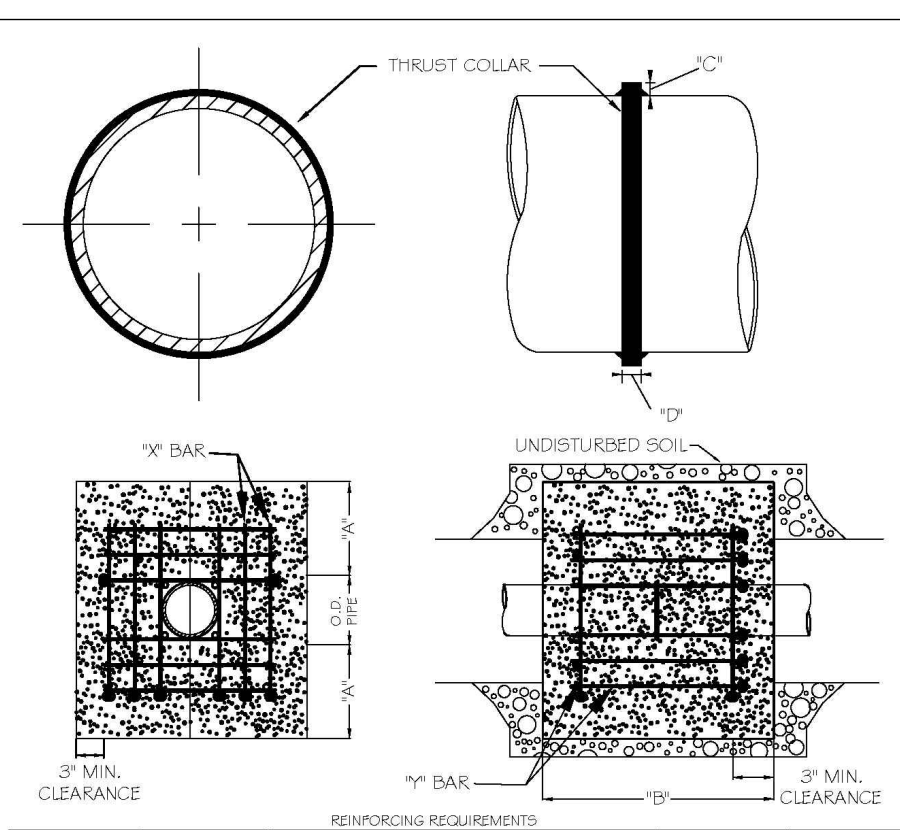
NOTES:
 1. RALEIGH PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
 2. KNIGHTDALE, 4 ROLESVILLE PUBLIC HYDRANTS SHALL BE PAINTED RED W/ SILVER OPERATING NUTS.
 3. ZEBULON PUBLIC HYDRANTS SHALL BE PAINTED RED W/ SILVER BONNETS AND OPERATING NUTS.
 4. WAKE FOREST AND GARNER, AND WENDELL PUBLIC AND PRIVATE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

CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD FIRE HYDRANT WITH 5\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-5	RRH	3-1-07	ARR
	A.B.S.	3-31-00	D.H.L.



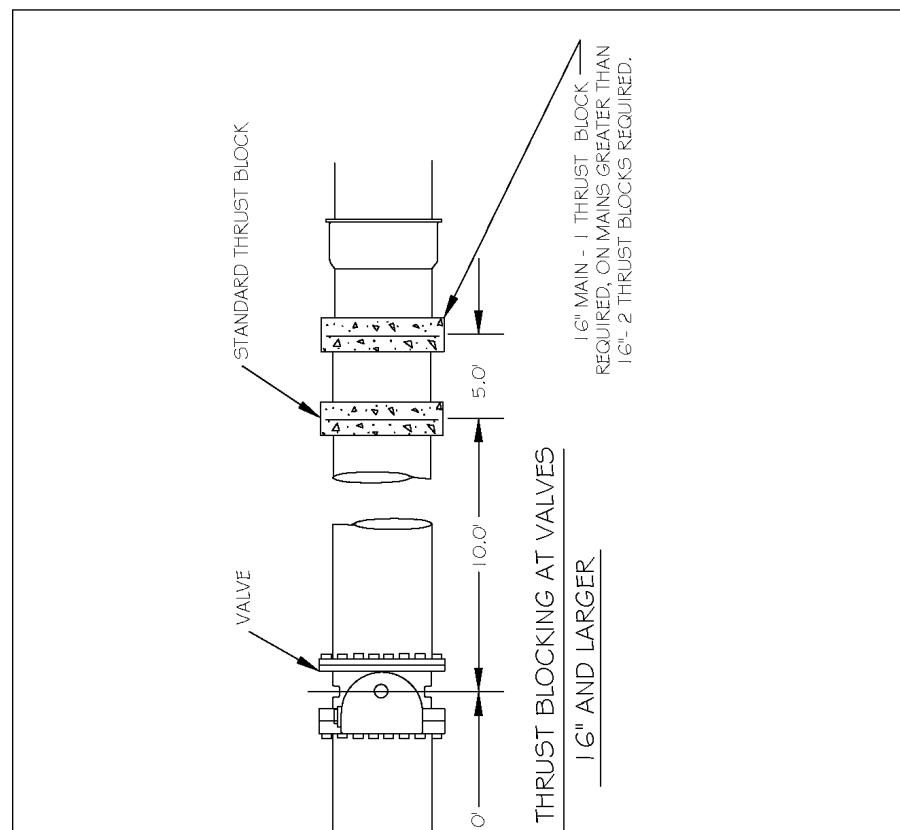
NOTES:
 1. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
 2. RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 3. RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 4. RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 5. RESTRAINING MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.

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



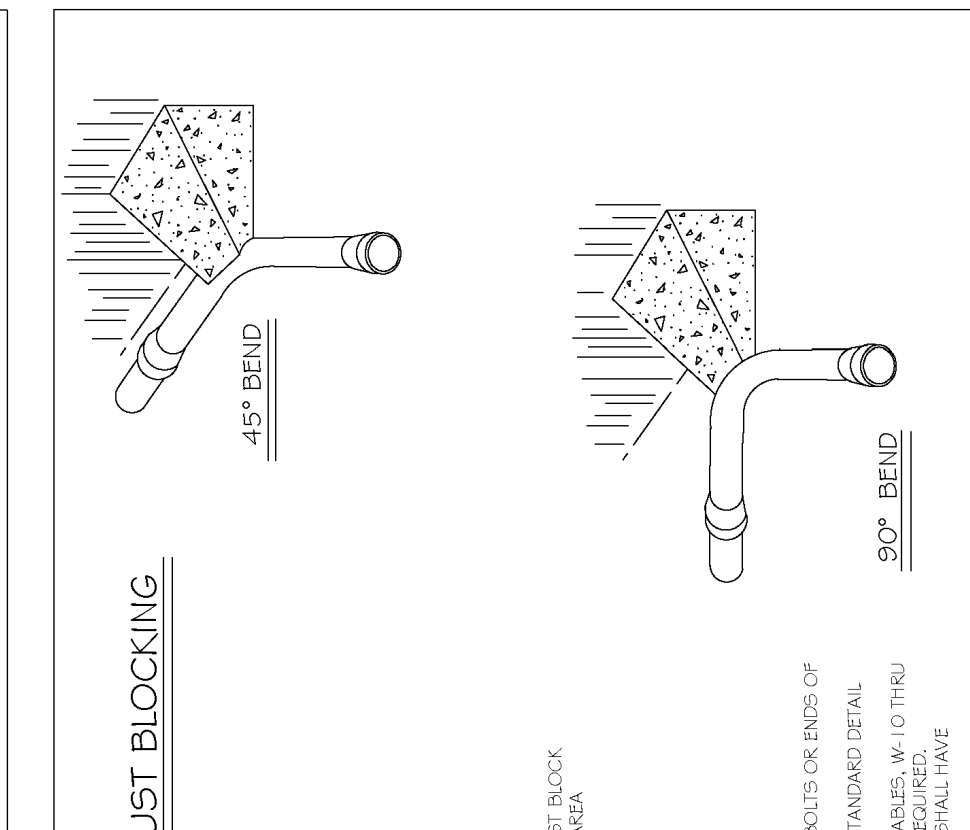
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-7	RRH	3-1-00	J.P.S.
	D.W.C.	12-18-03	J.P.S.

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



CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-8	RRH	4-7-00	RRH
	D.W.C.	4-7-00	RRH

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



CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
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.

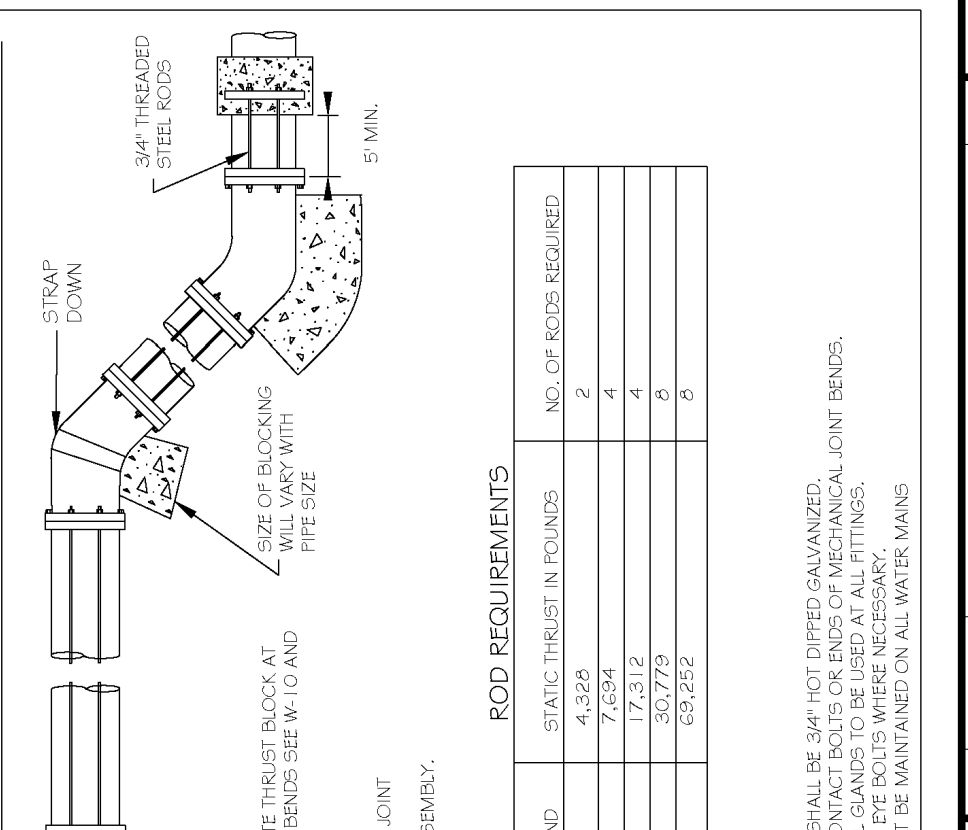
NOTES:
 1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 2. CONCRETE SHALL BE 3000 PSI AND RANSIT MAND.
 3. REINFORCING BARS SHALL BE DROPPED AND TIED TOGETHER.
 4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 5. BACKFILL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

CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-10	RRH	3-23-09	J.P.S.

NOTES:
 1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 2. CONCRETE SHALL BE 3000 PSI AND RANSIT MAND.
 3. REINFORCING BARS SHALL BE DROPPED AND TIED TOGETHER.
 4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
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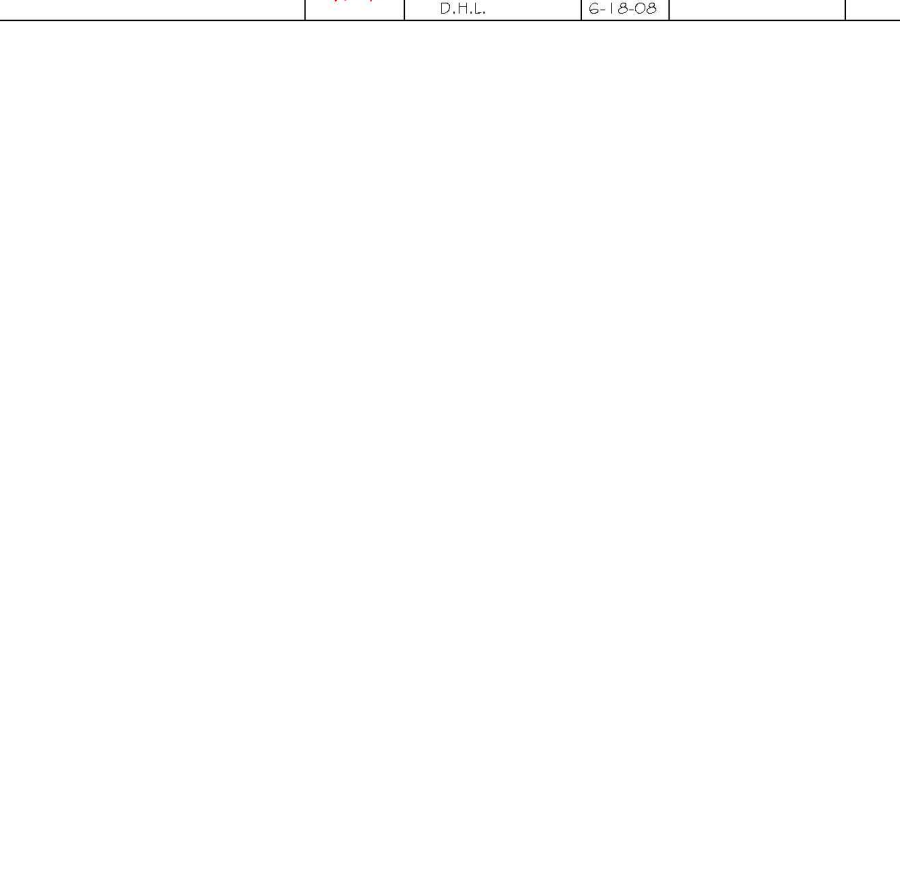
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-11	D.W.C.	3-23-09	J.P.S.

NOTES:
 1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 2. CONCRETE SHALL BE 3000 PSI AND RANSIT MAND.
 3. REINFORCING BARS SHALL BE DROPPED AND TIED TOGETHER.
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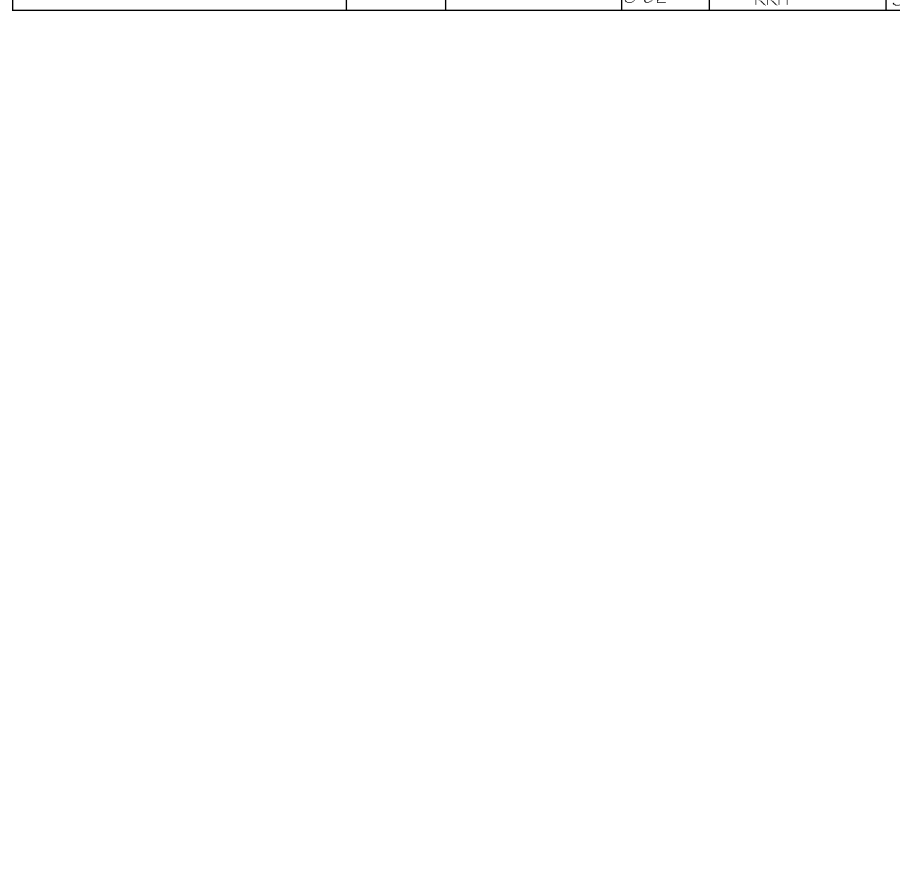
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD VERTICAL BEND			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-12	RRH	4-6-04	J.P.S.
	D.H.L.	12-18-03	J.P.S.

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



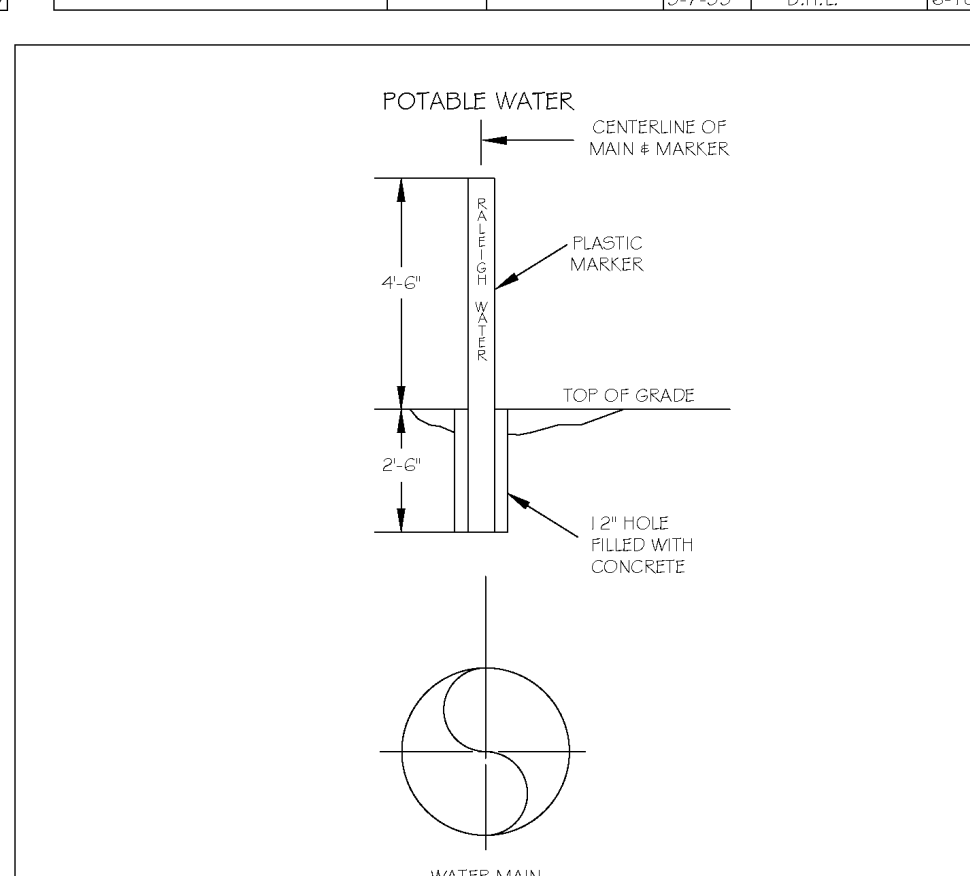
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD MAIN 4 VALVE MARKERS FOR POTABLE & REUSE WATER IN BASEMENTS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-13	RRH	3-7-99	D.H.L.
	D.W.C.	3-31-00	J.P.S.

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



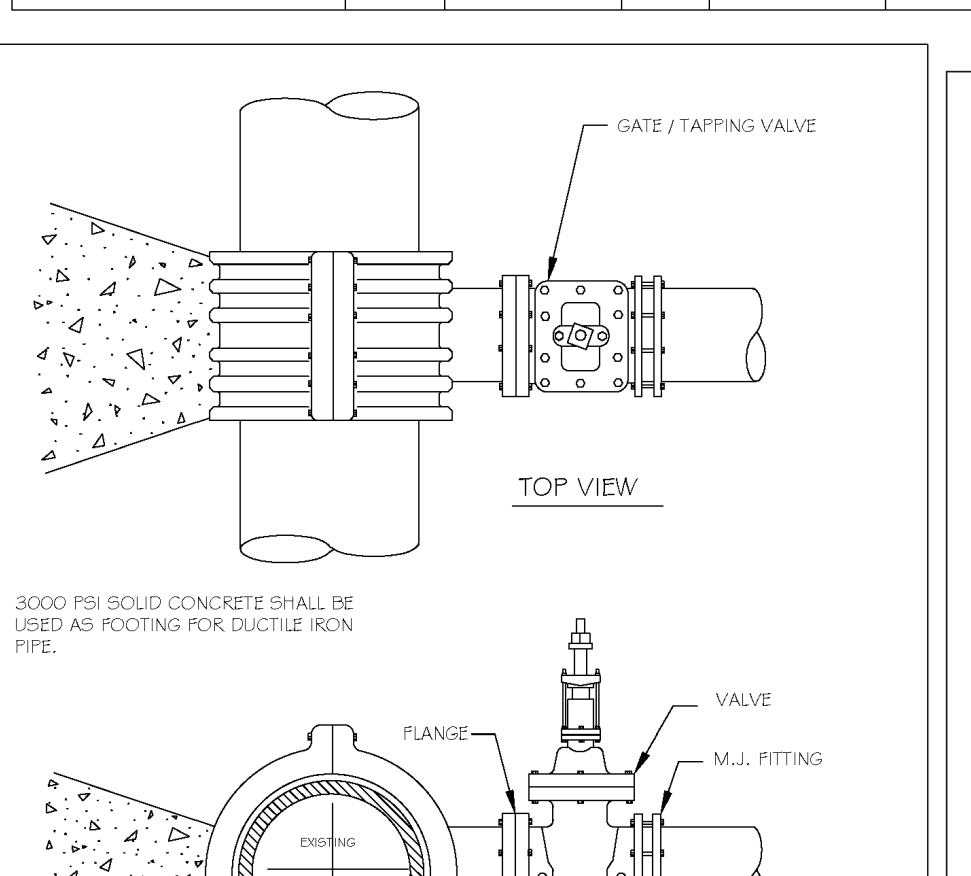
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD MAIN 4 VALVE MARKERS FOR POTABLE & REUSE WATER IN BASEMENTS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-13	RRH	3-7-99	D.H.L.
	D.W.C.	3-31-00	J.P.S.

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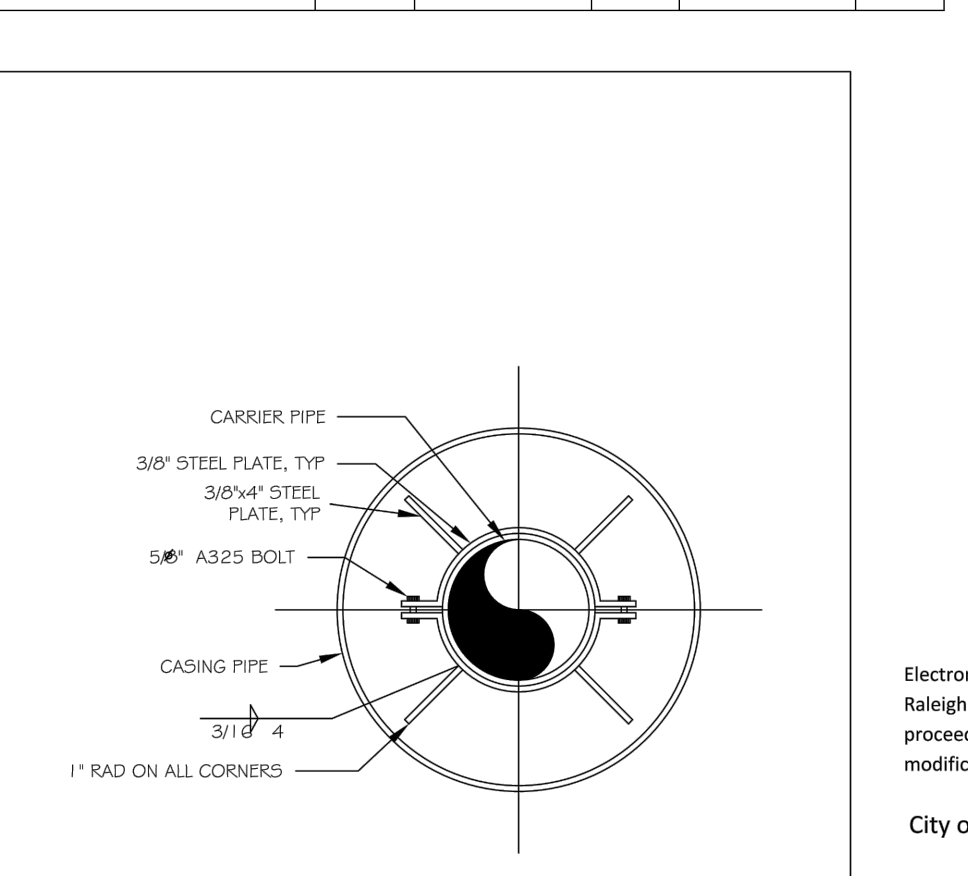
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
STANDARD MAIN 4 VALVE MARKERS FOR POTABLE & REUSE WATER IN BASEMENTS			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-13	RRH	3-7-99	D.H.L.
	D.W.C.	3-31-00	J.P.S.

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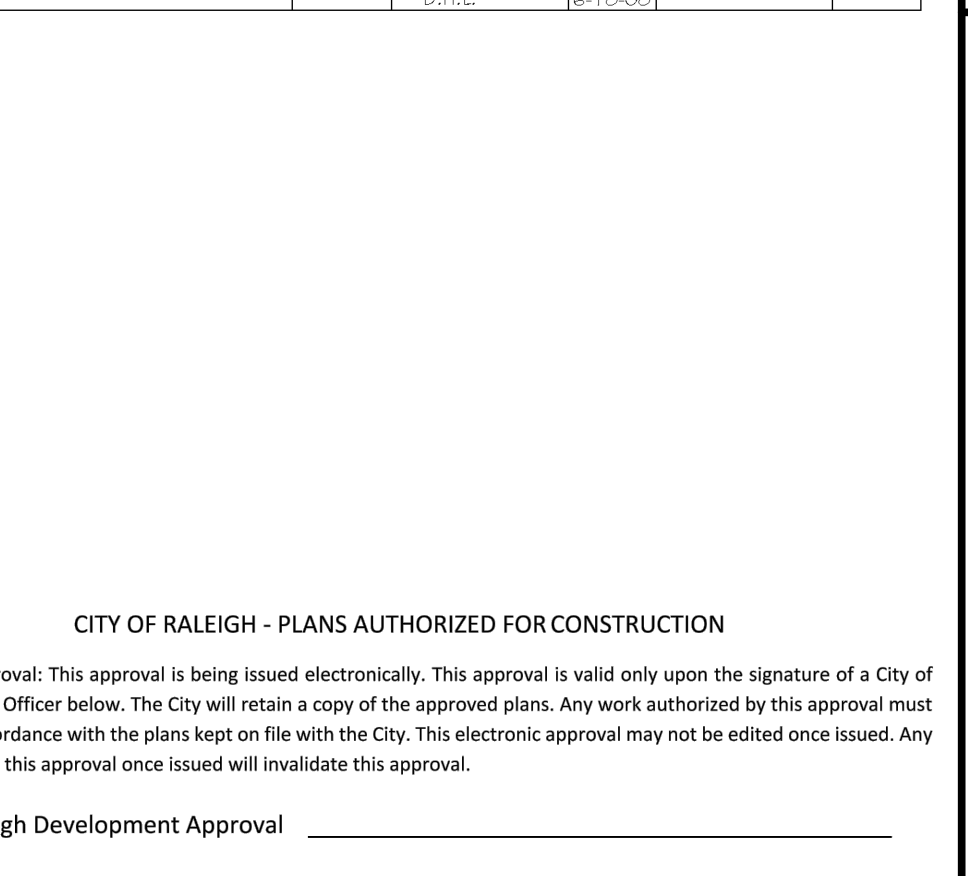
CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
4\"/>			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-14	RRH	2-31-09	RRH
	D.W.C.	3-7-99	J.P.S.

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



CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
PIPE ALIGNMENT GUIDE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-40	RRH	2-31-00	RRH
	A.B.S.	4-16-04	J.P.S.

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



CITY OF RALEIGH		DEPARTMENT OF PUBLIC UTILITIES	
PIPE ALIGNMENT GUIDE			
DWG. NO.	REVISIONS	DATE	REVISIONS
W-40	RRH	2-31-00	RRH
	A.B.S.	4-16-04	J.P.S.

NOTES:
 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.

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)

NO.	DATE	DESCRIPTION	BY

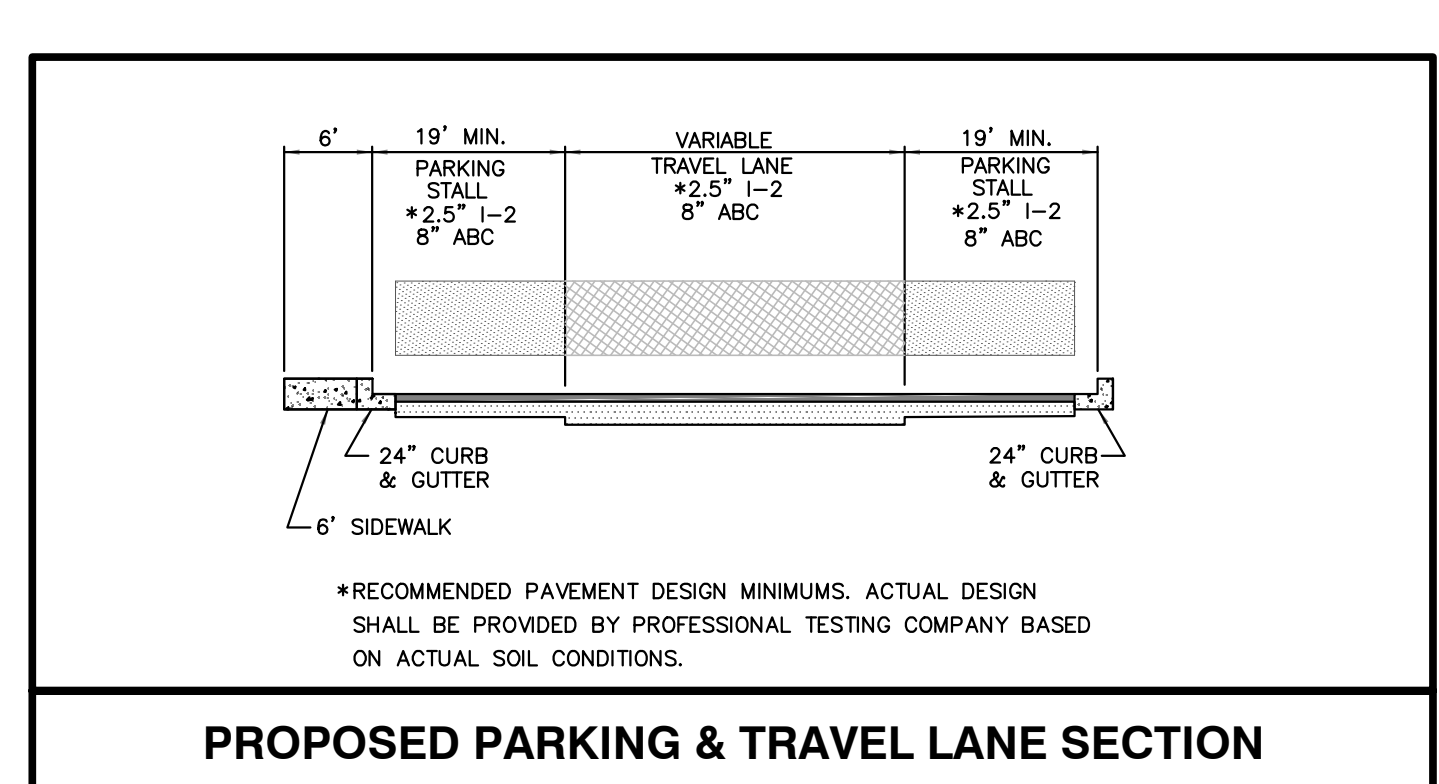
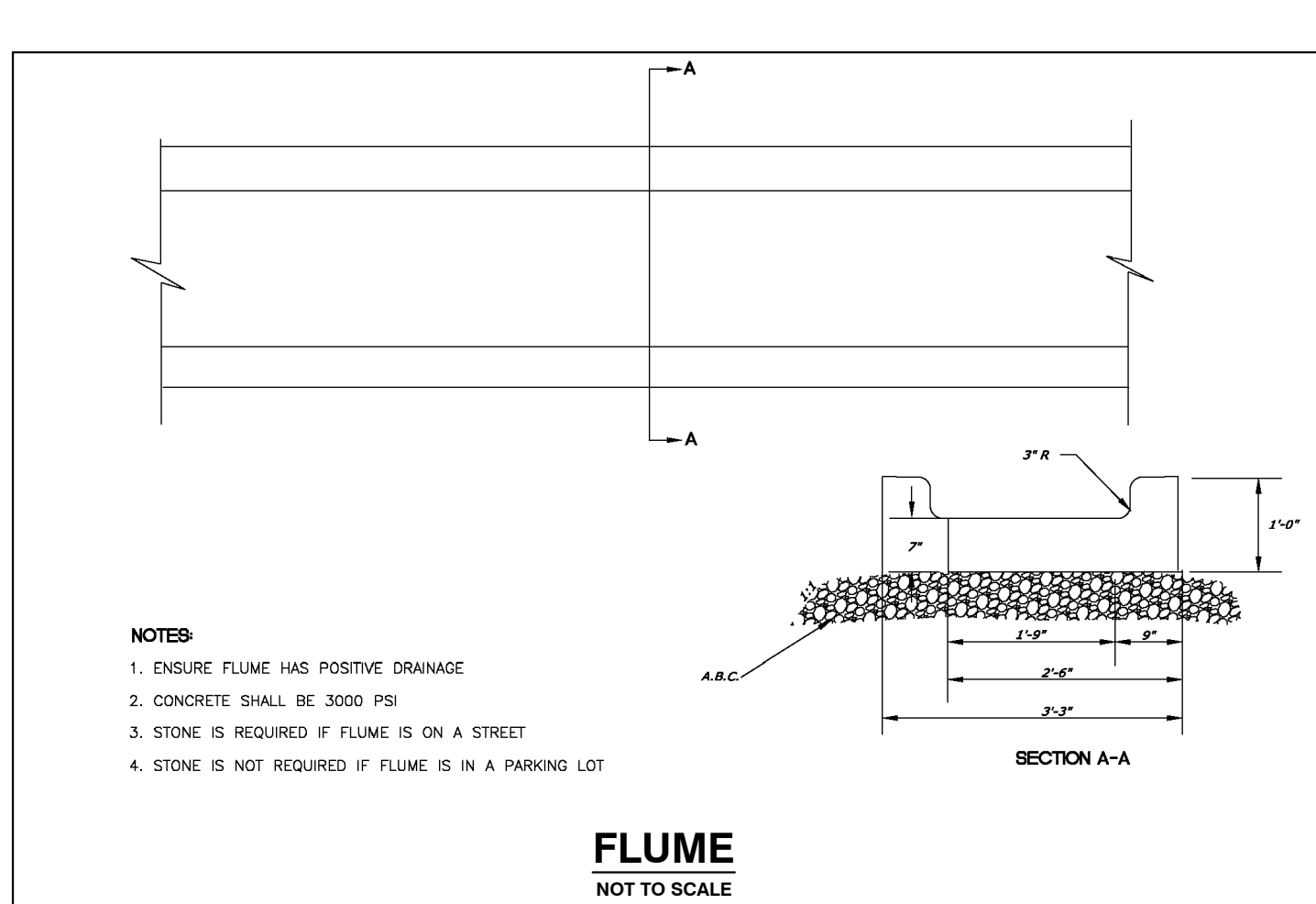
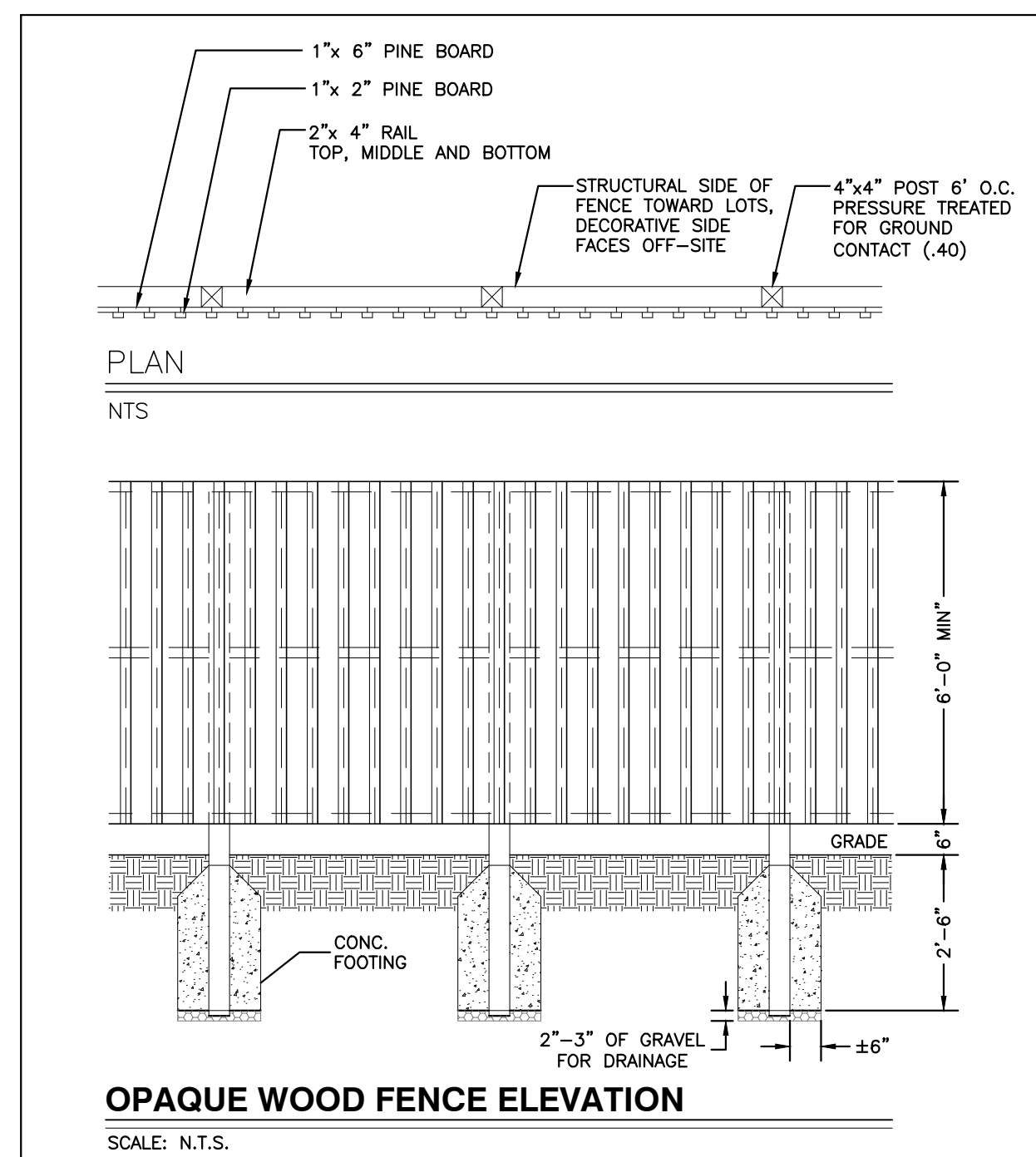
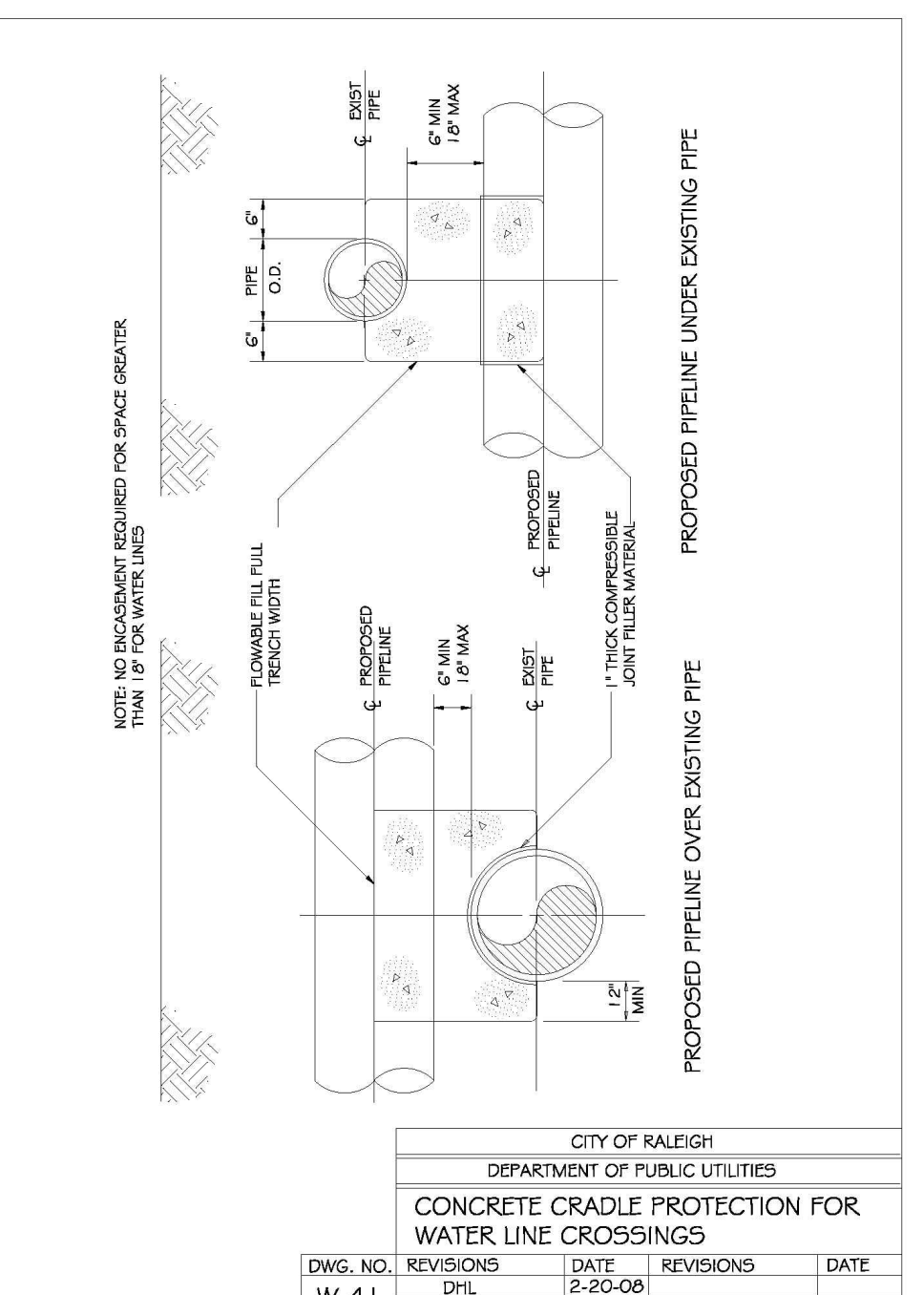
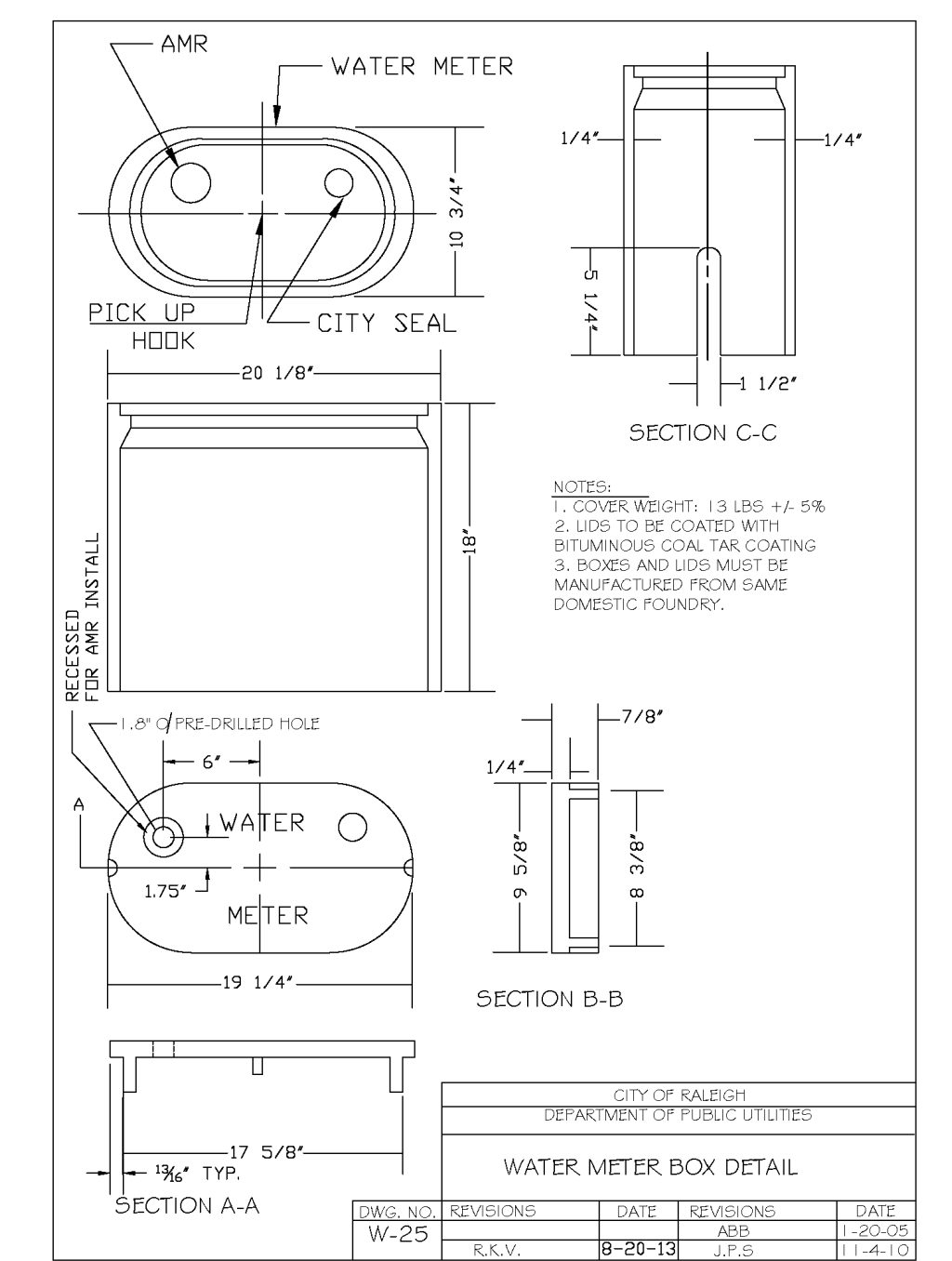
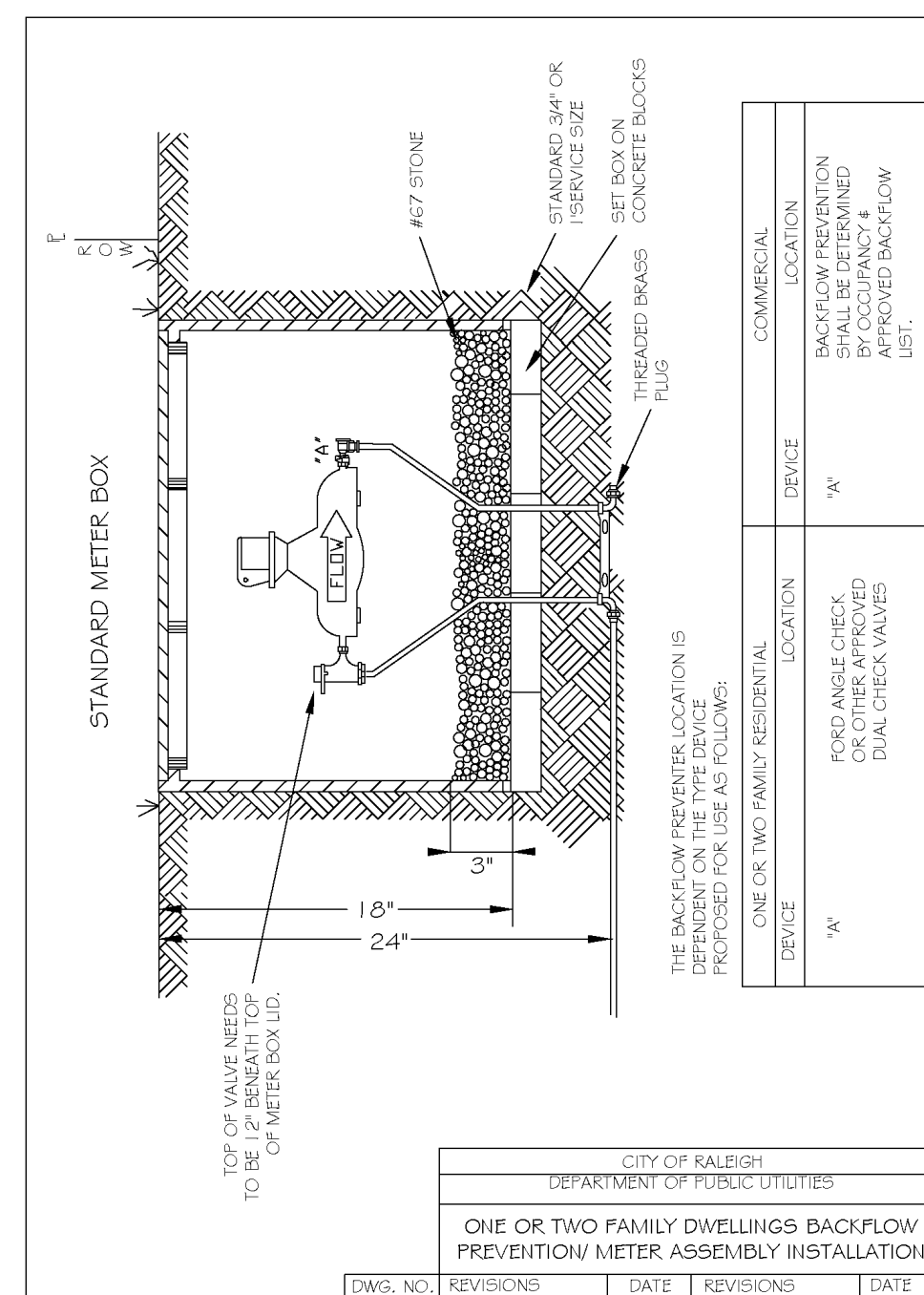
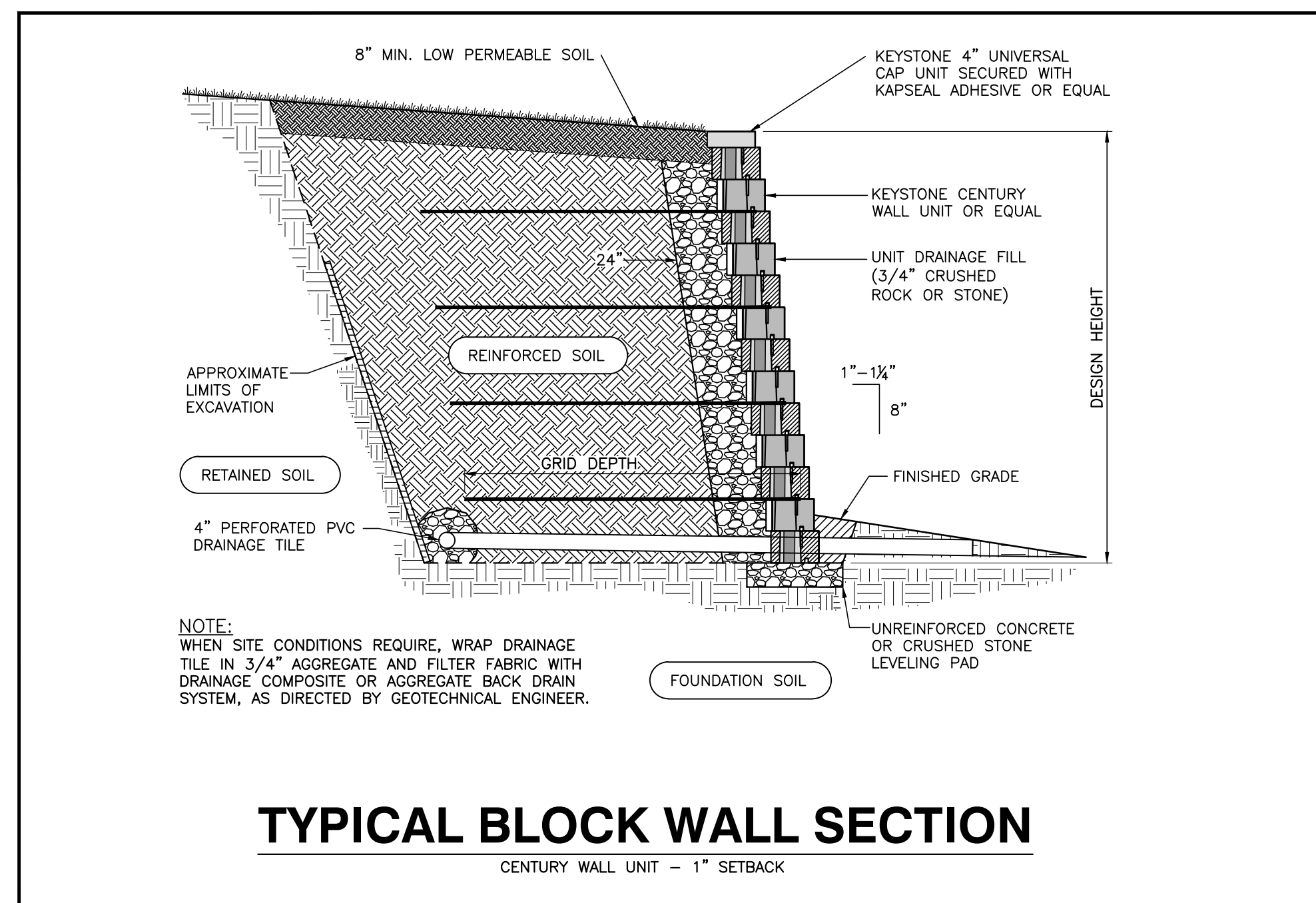
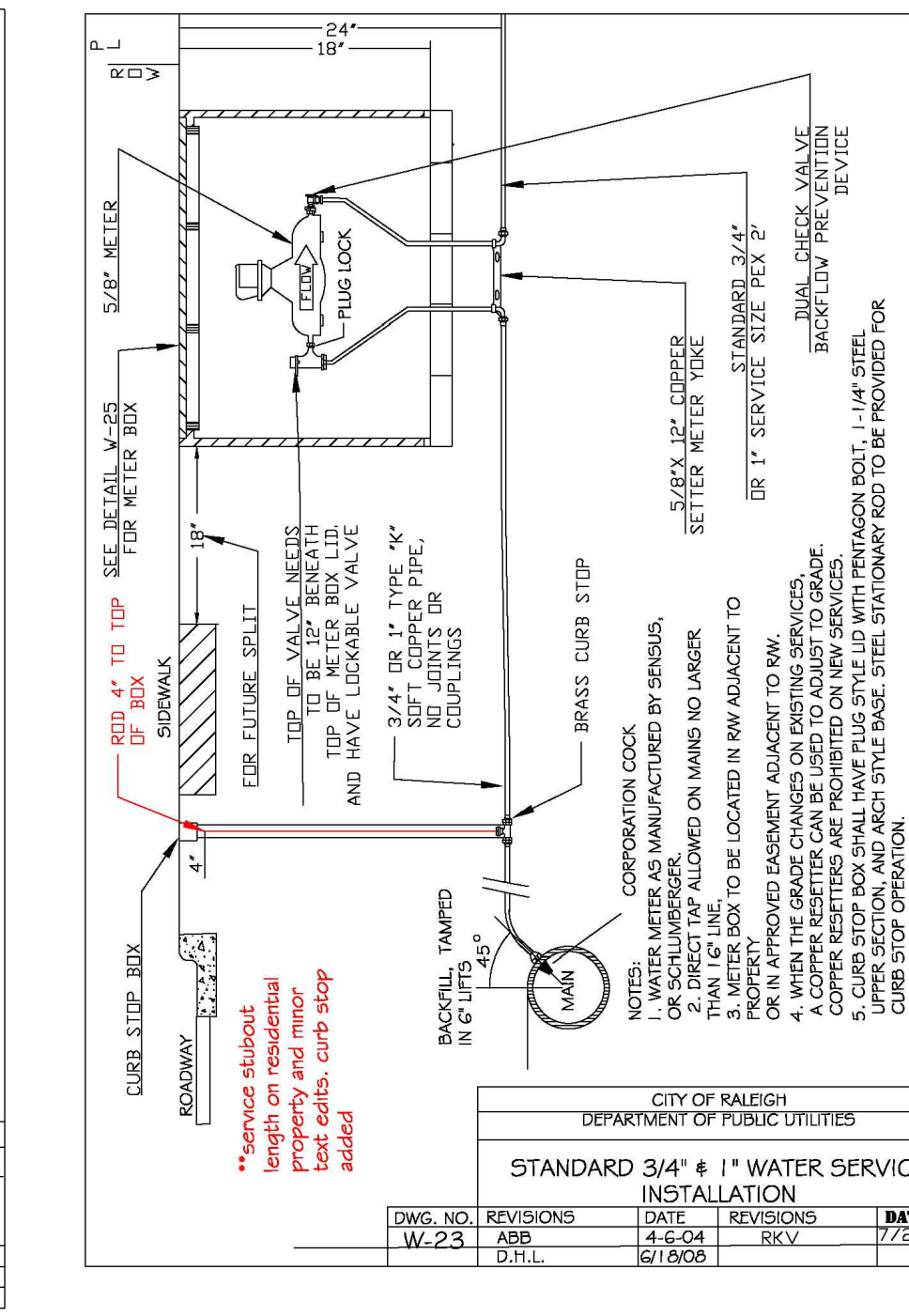
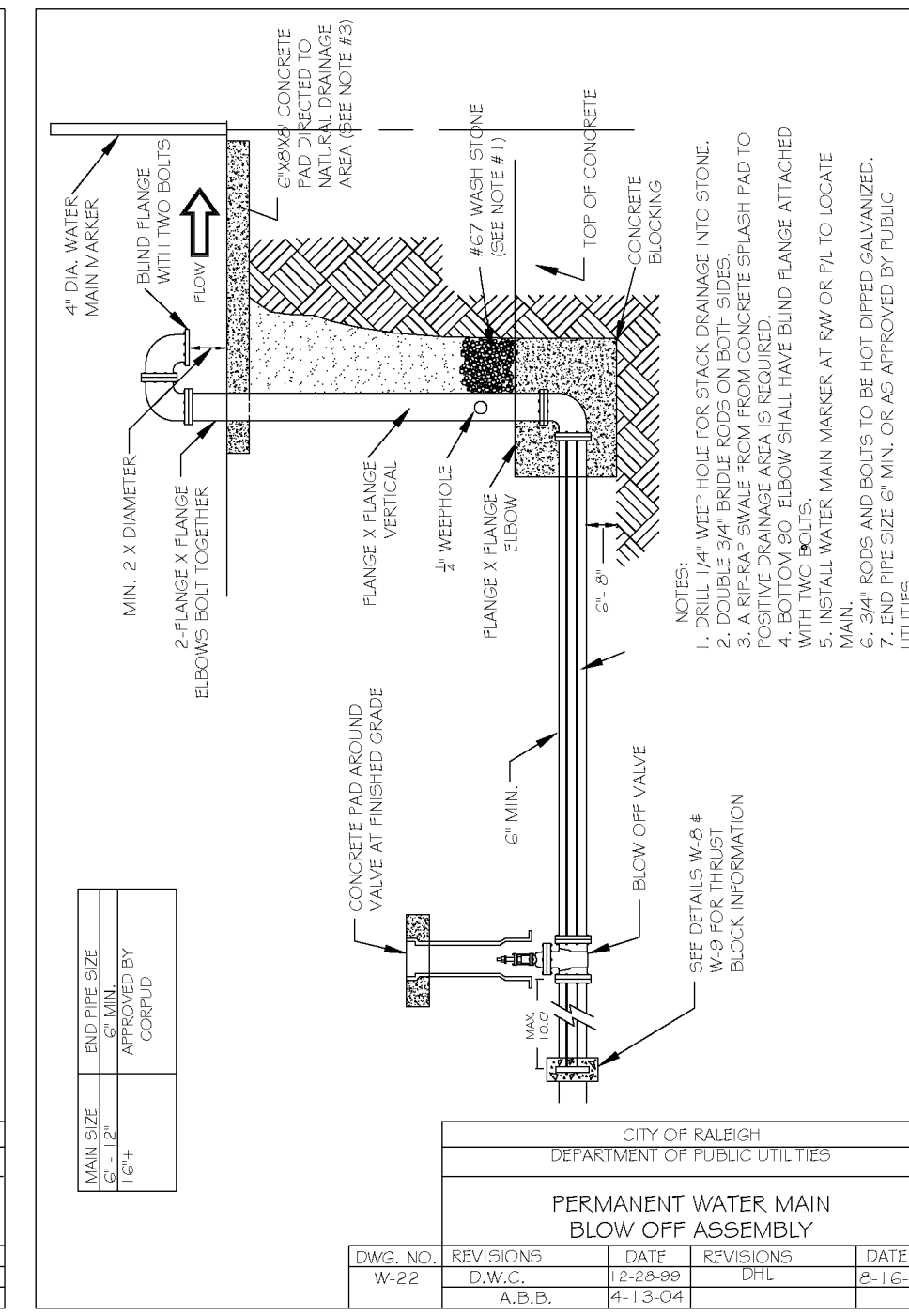
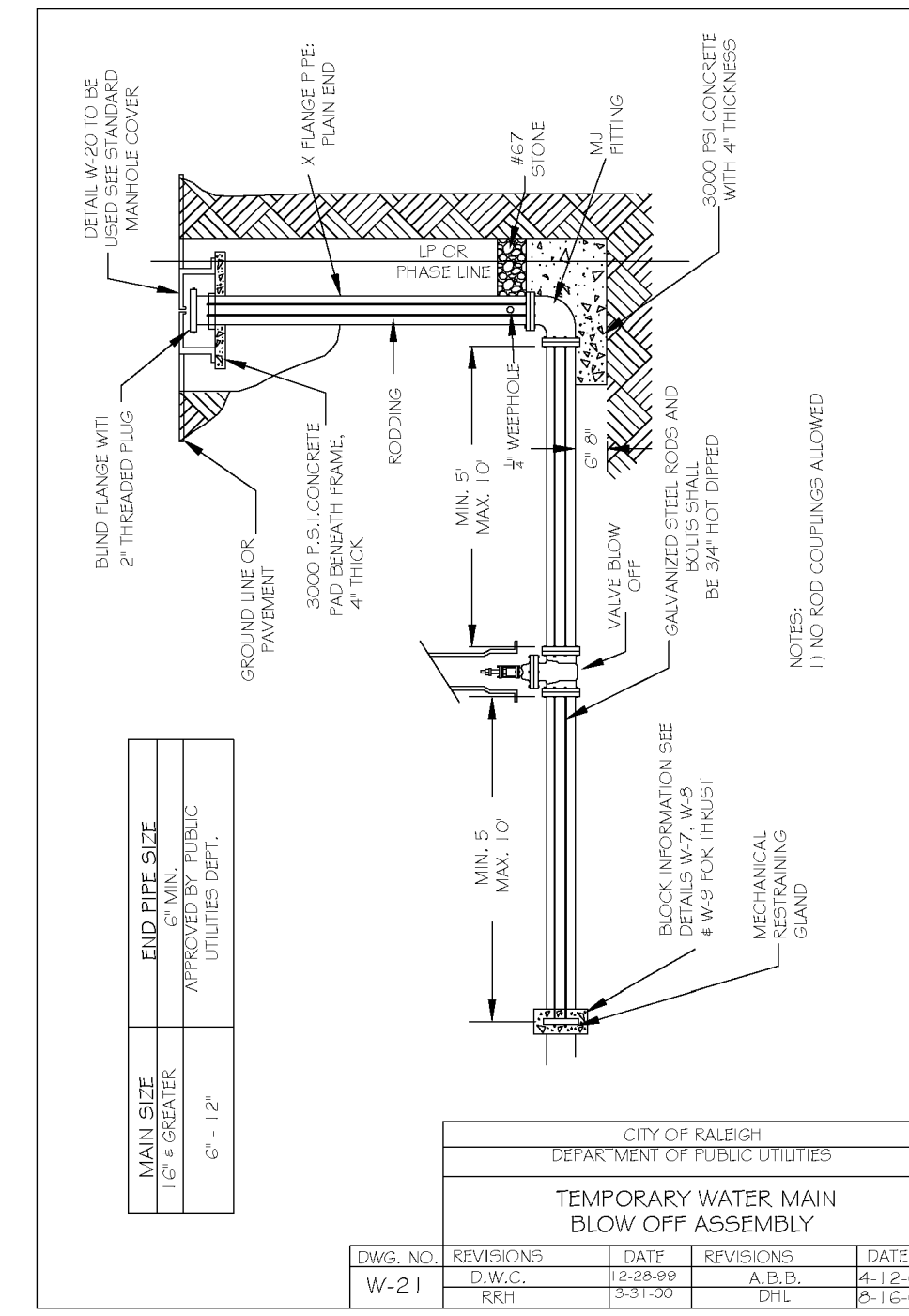
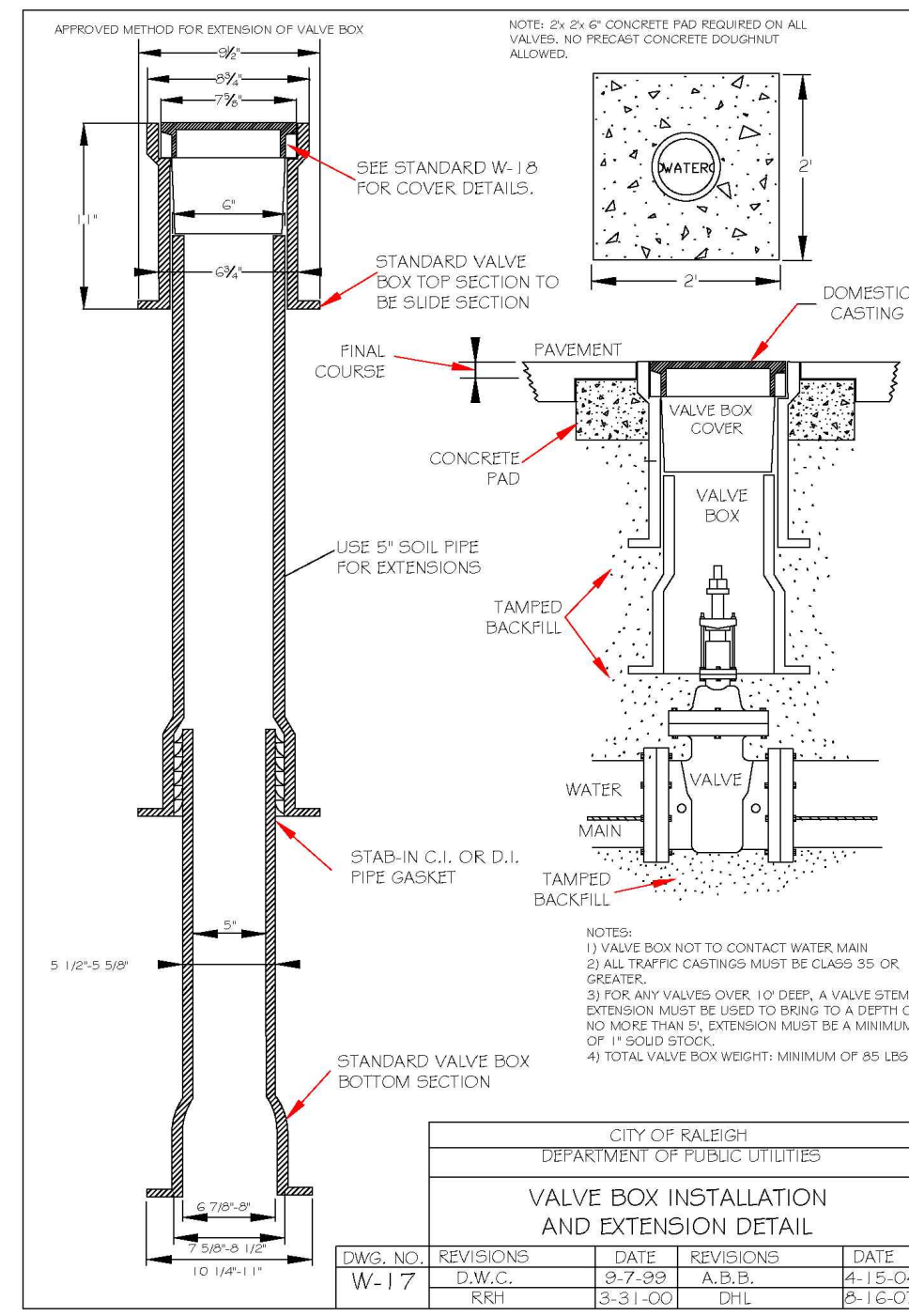
COBBLESTONE VILLAGE MIXED USE DEVELOPMENT
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PROGRESS DATE DRAWN BY
 03-19-17
 SCALE: N.T.S.
 CHK BY: MDB

DETAILS



05/11/22



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 _____



05/11/22

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)

PROGRESS	MRI	DATE	DRAWN BY	NO.	DATE	DESCRIPTION	BY
03-1917							

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

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

SHEET C5.5

