

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

SYMBOLS AND ABBREVIATIONS

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

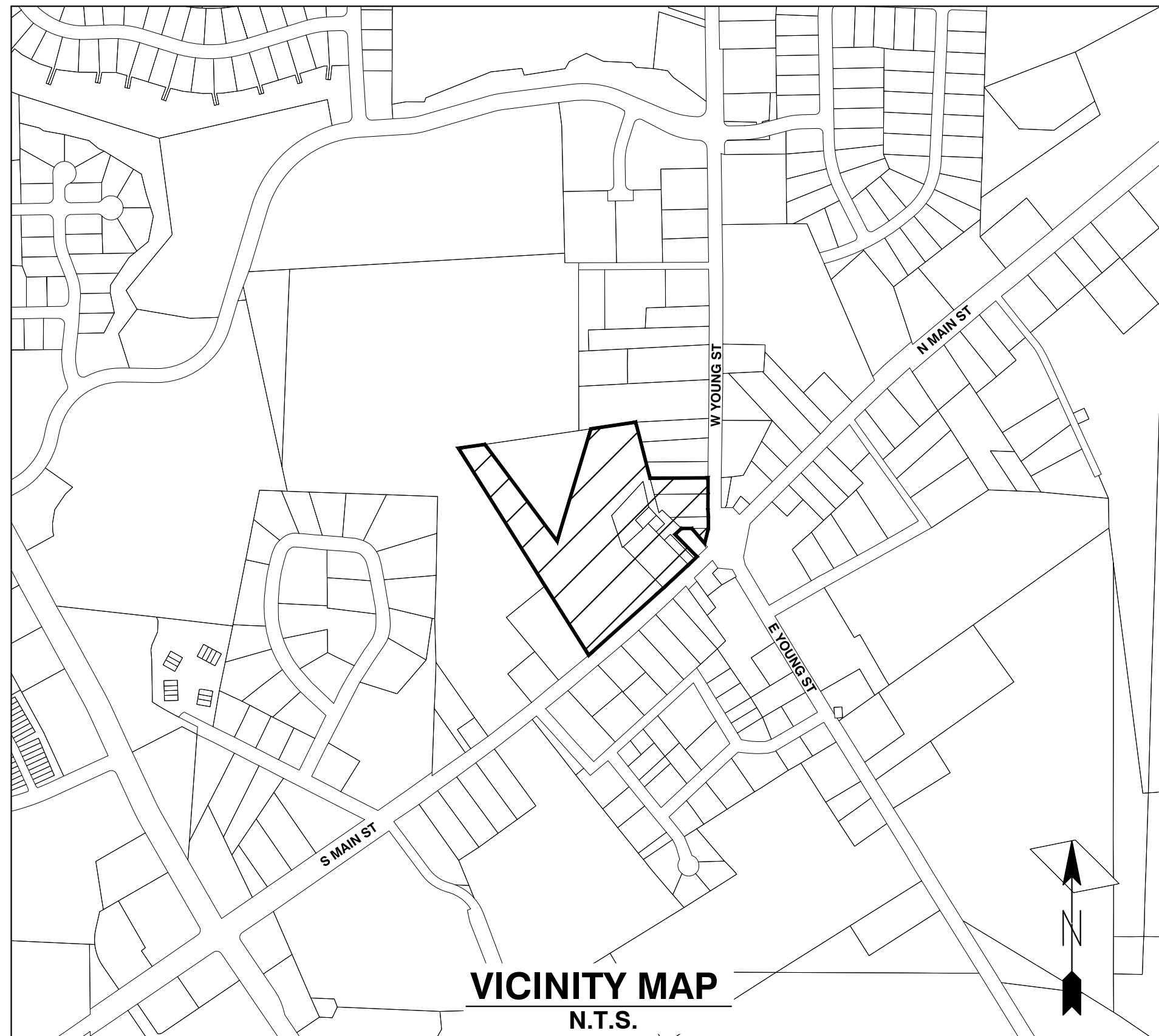
NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

CONSTRUCTION DRAWINGS

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



VICINITY MAP N.T.S.

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-2852 (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

SHEET INDEX

COVER	EXISTING CONDITIONS & DEMOLITION PLAN
C0.1	SITE PLAN
C1.1	UTILITY PLAN
C2.1	GRADING AND DRAINAGE PLAN
C3.1	BMP DETAILS
C3.2	EROSION CONTROL PLAN - STAGE 1
C3.3	EROSION CONTROL PLAN - STAGE 2
C3.4	EROSION CONTROL DETAILS
C3.5	EROSION CONTROL DETAILS
C3.6	NGC01 PLAN
C3.7	STORM DRAINAGE PIPE & STRUCTURE TABLE
C4.1	PUBLIC WATERLINE PROFILE
C4.2	SANITARY SEWER PROFILE
L1.1	LANDSCAPE PLAN
SL-101	LIGHTING PLAN
C5.1	DETAILS
C5.2	DETAILS
C5.3	DETAILS
C5.4	DETAILS
C5.5	DETAILS
C5.6	DETAILS
A2.21	EXTERIOR ELEVATIONS - BLDG 2
A2.22	EXTERIOR ELEVATIONS - BLDG 2
A2.31	EXTERIOR ELEVATIONS - BLDG 3
A2.32	EXTERIOR ELEVATIONS - BLDG 3
A2.51	EXTERIOR ELEVATIONS - BLDG 5
A2.61	EXTERIOR ELEVATIONS - BLDG 6
A2.62	EXTERIOR ELEVATIONS - BLDG 6
A2.71	EXTERIOR ELEVATIONS - BLDGS 1 & 7
A2.72	EXTERIOR ELEVATIONS - BLDGS 1 & 7
A2.81	EXTERIOR ELEVATIONS - BLDG 8

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 +/- 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.



BEFORE YOU DIG! CONTACT ONE-CALL CENTER 1-800-632-4949

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:



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



04/20/22

EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT

APPROVED

EROSION CONTROL S-

STORMWATER MGMT. S-

FLOOD STUDY S-

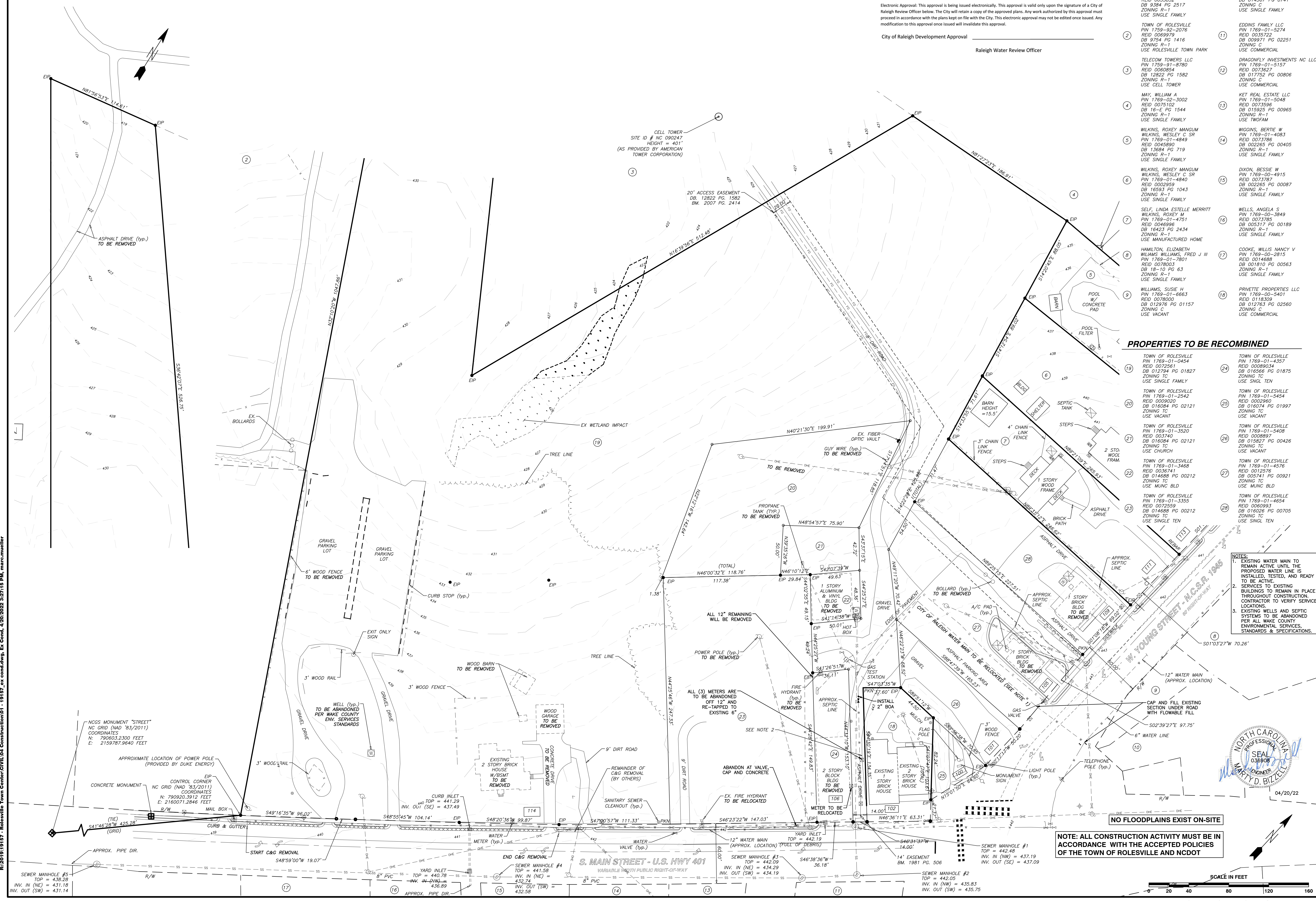
DATE _____



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 _____



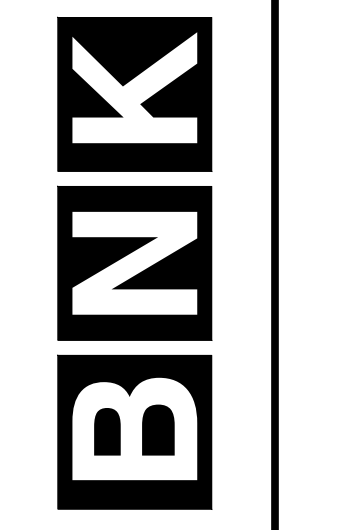
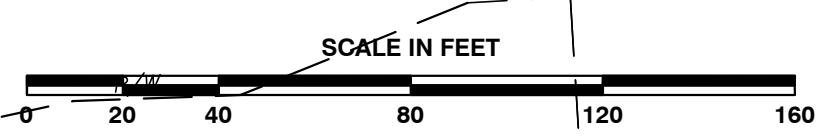
PROPERTIES TO BE RECOMBINED

- 19 TOWN OF ROLESVILLE PIN 1769-01-0454 REID 00069514 DB 012794 PG 01827 ZONING TC USE SINGLE FAMILY
- 20 TOWN OF ROLESVILLE PIN 1769-01-2542 REID 0009020 DB 016084 PG 02121 ZONING TC USE VACANT
- 21 TOWN OF ROLESVILLE PIN 1769-01-3520 REID 003740 DB 016084 PG 02121 ZONING TC USE CHURCH
- 22 TOWN OF ROLESVILLE PIN 1769-01-3468 REID 0036741 DB 014688 PG 00212 ZONING TC USE MUNC BLD
- 23 TOWN OF ROLESVILLE PIN 1769-01-3555 REID 0072559 DB 014688 PG 00212 ZONING TC USE SINGLE TEN
- 24 TOWN OF ROLESVILLE PIN 1769-01-4357 REID 00069514 DB 016566 PG 01875 ZONING TC USE SINGL TEN
- 25 TOWN OF ROLESVILLE PIN 1769-01-5454 REID 0009260 DB 016074 PG 01997 ZONING TC USE VACANT
- 26 TOWN OF ROLESVILLE PIN 1769-01-5408 REID 0008897 DB 015827 PG 00426 ZONING TC USE VACANT
- 27 TOWN OF ROLESVILLE PIN 1769-01-4576 REID 0012576 DB 005741 PG 00921 ZONING TC USE MUNC BLD
- 28 TOWN OF ROLESVILLE PIN 1769-01-4654 REID 0060993 DB 016026 PG 00705 ZONING TC USE SINGL TEN

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



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



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 881-4422 FAX: (919) 881-6886
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBLESTONE VILLAGE MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA
SHEET C0.1
NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

03-19157 - PROGRESS MRN
DATE DRAWN BY
JOB NO. EXISTING CONDITIONS & DEMOLITION PLAN
SCALE: 1" = 40'
CHK BY: MDB

NCGS MONUMENT "STREET"
NC GRID (NAD '83/2011)
COORDINATES
N: 790603.2300 FEET
E: 2159787.9640 FEET

APPROXIMATE LOCATION OF POWER POLE
(PROVIDED BY DUKE ENERGY)

SEWER MANHOLE #5
TOP = 438.28
INV. IN (NE) = 431.18
INV. OUT (SW) = 431.14

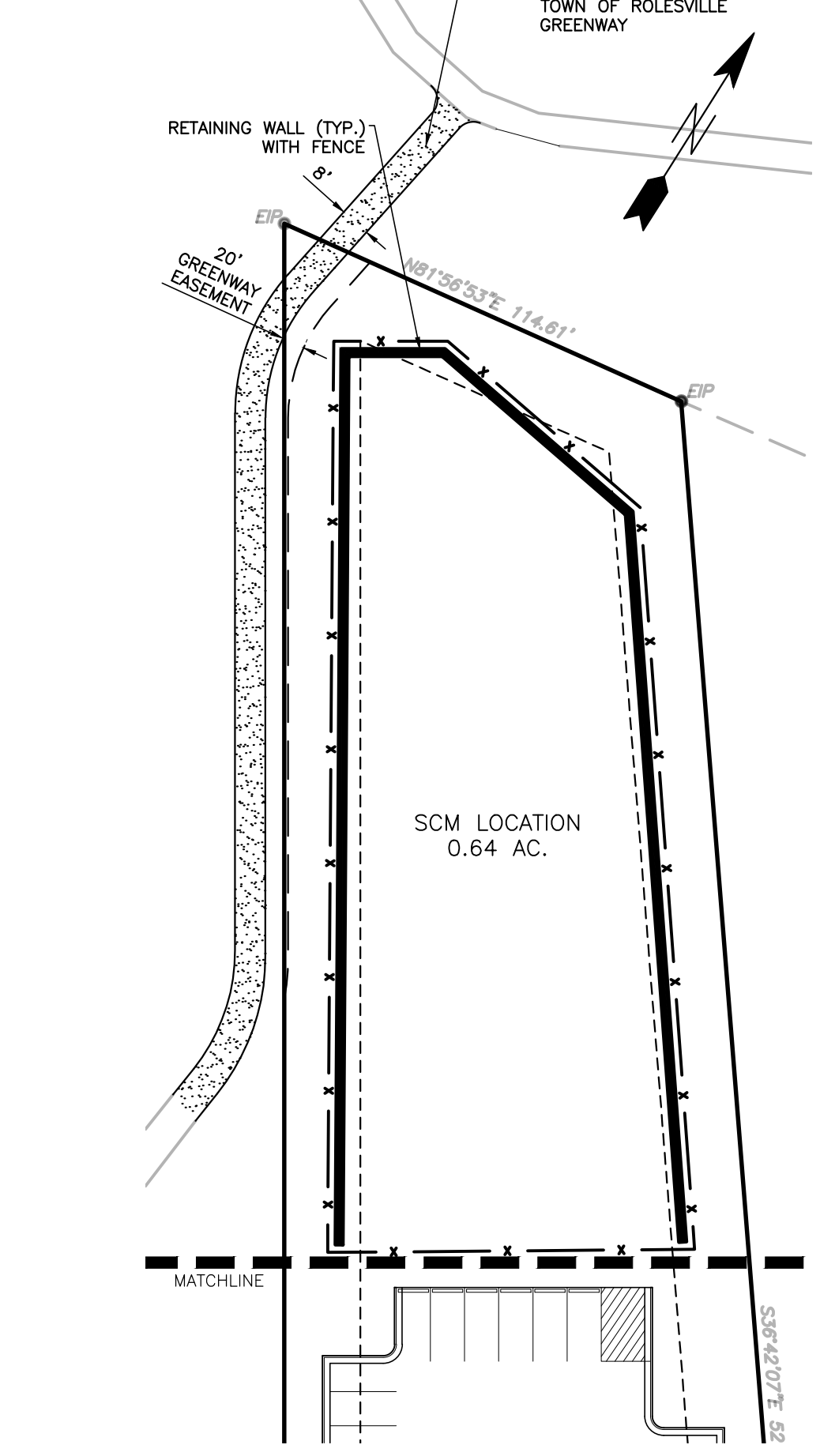
SEWER MANHOLE #4
TOP = 441.58
INV. IN (NE) = 432.74
INV. OUT (SW) = 432.58

SEWER MANHOLE #3
TOP = 442.09
INV. IN (NE) = 434.29
INV. OUT (SW) = 434.19

SEWER MANHOLE #2
TOP = 442.05
INV. IN (NW) = 435.83
INV. OUT (SW) = 435.75

NO.	DATE	DESCRIPTION	BY

- 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.



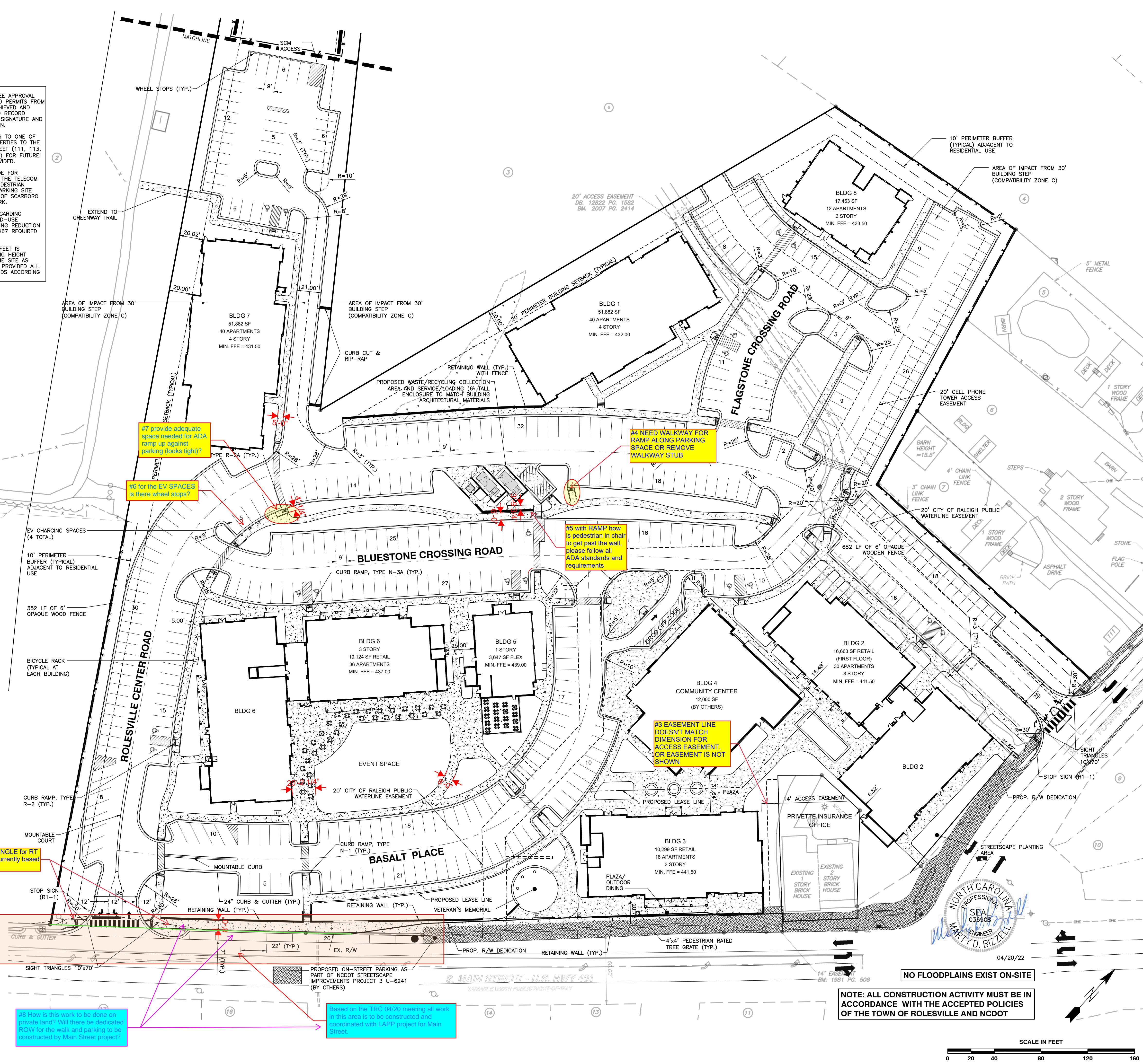
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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.

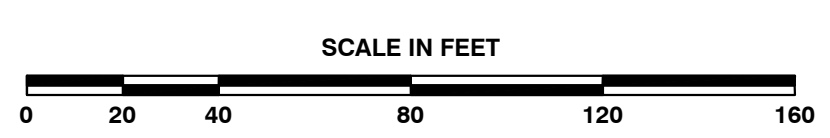
City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

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
IMPERVIOUS AREA (%):	
APARTMENT MIX	112 UNITS 64 UNITS 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:	176 x 2 = 352 SPACES REQUIRED
MIXED USE NON-RESIDENTIAL:	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



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 _____

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

City of Raleigh
Public Utilities Department Permit # W-3879
Authorization to Construct See digital signature

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

City of Raleigh
Public Utilities Department Permit # S-4962 (P)
Authorization to Construct See digital signature

ATTENTION CONTRACTORS

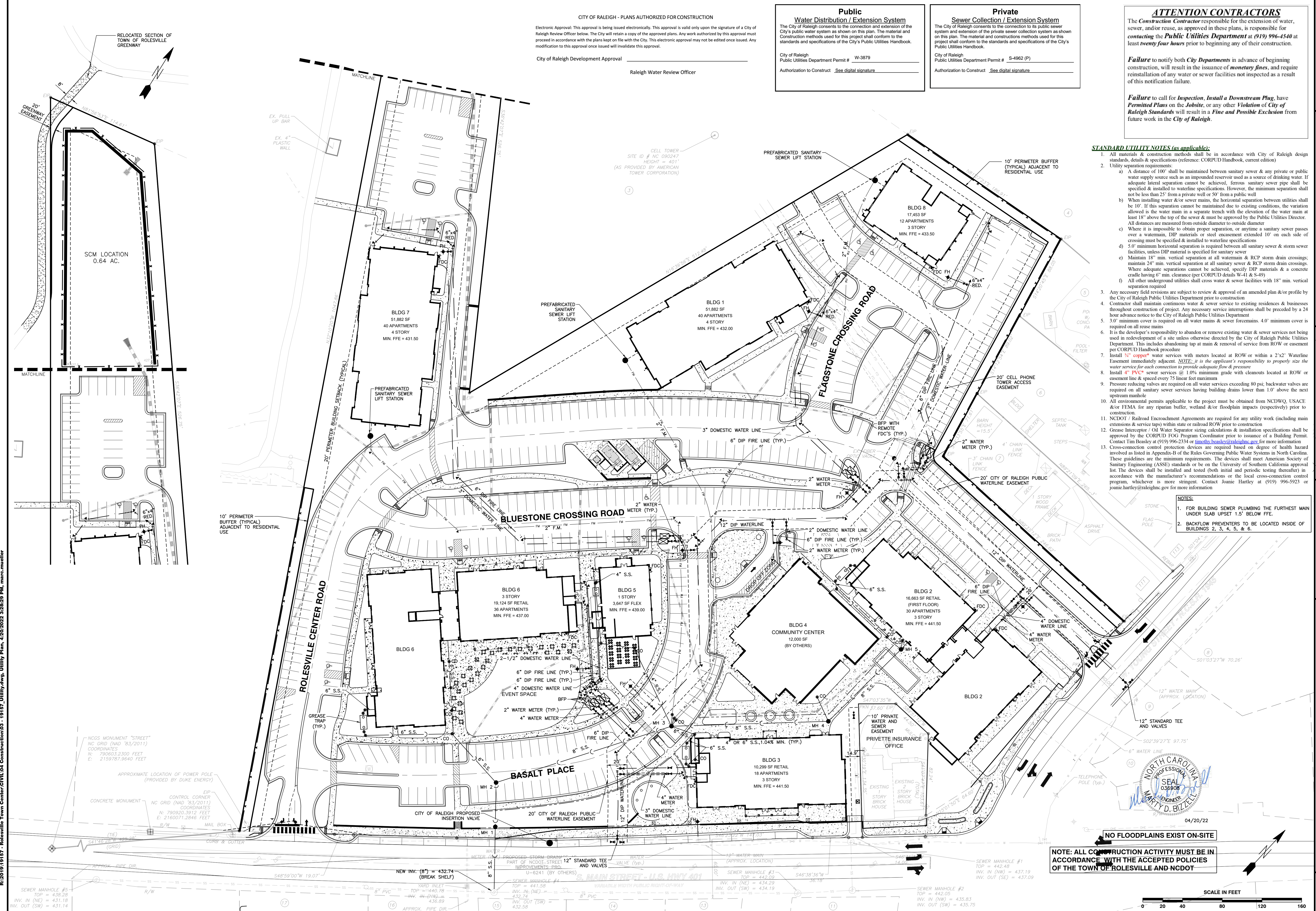
The *Construction Contractor* responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the *Public Utilities Department* at (919) 996-4540 at least *twenty four hours* prior to beginning any of their construction.

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

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

- STANDARD UTILITY NOTES (as applicable):**
- All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook, current edition)
 - Utility separation requirements:
 - A distance of 100' shall be maintained between sanitary sewer & any private or public water supply source such as an impounded reservoir used as a source of drinking water. If adequate lateral separation cannot be achieved, ferrous sanitary sewer pipe shall be specified & installed to watertight specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well
 - When installing water &/or sewer mains, the horizontal separation between utilities shall be 10'. If this separation cannot be maintained due to existing conditions, the variation allowed is the water main in a separate trench with the elevation of the water main at least 18" above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
 - Where it is impossible to obtain proper separation, or anytime a sanitary sewer passes over a watermain, DIP materials or steel encasement extended 10' on each side of crossing must be specified & installed to watertight specifications
 - 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer
 - Maintain 18" min. vertical separation at all watermain & RCP storm drain crossings; maintain 24" min. vertical separation at all sanitary sewer & RCP storm drain crossings. Where adequate separations cannot be achieved, specify DIP materials & a concrete cradle having 6" min. clearance (per CORPUD details W-41 & S-49)
 - All other underground utilities shall cross water & sewer facilities with 18" min. vertical separation required
 - Any necessary field revisions are subject to review & approval of an amended plan &/or profile by the City of Raleigh Public Utilities Department prior to construction
 - Contractor shall maintain continuous water & sewer service to existing residences & businesses throughout construction of project. Any necessary service interruptions shall be preceded by a 24 hour advance notice to the City of Raleigh Public Utilities Department
 - 3.0' minimum cover is required on all water mains & sewer force mains. 4.0' minimum cover is required on all reuse mains
 - It is the developer's responsibility to abandon or remove existing water & sewer services not being used in redevelopment of a site unless otherwise directed by the City of Raleigh Public Utilities Department. This includes abandoning tap at main & removal of service from ROW or easement per CORPUD Handbook procedure
 - Install 3/4" copper water services with meters located at ROW or within a 2'x2' Watertight Easement immediately adjacent **NOTE: It is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure**
 - Install 4" PVC sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
 - Pressure reducing valves are required on all water services exceeding 80 psi; backwater valves are required on all sanitary sewer services having building drains lower than 1.0' above the next upstream manhole
 - All environmental permits applicable to the project must be obtained from NCDWQ, USACE &/or FEMA for any riparian buffer, wetland &/or floodplain impacts (respectively) prior to construction.
 - NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
 - Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the CORPUD FOG Program Coordinator prior to issuance of a Building Permit. Contact Tim Besley at (919) 996-2334 or timothy.besley@raleighnc.gov for more information
 - Cross-connection control protection devices are required based on degree of health hazard involved as listed in Appendix-B of the Rules Governing Public Water Systems in North Carolina. These guidelines are the minimum requirements. The devices shall meet American Society of Sanitary Engineering (ASSE) standards or be on the University of Southern California approval list. The devices shall be installed and tested (both initial and periodic testing thereafter) in accordance with the manufacturer's recommendations or the local cross-connection control program, whichever is more stringent. Contact Joanie Hartley at (919) 996-5923 or joanie.hartley@raleighnc.gov for more information

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



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 851-1122 FAX: (919) 851-8986
CERTIFICATION NUMBERS: NCBELS (C-010); NCBOLA (C-0267)

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

UTILITY PLAN
SCALE: 1" = 40'

NO.	DATE	DESCRIPTION	BY

03-19187 JOB NO.
08-19187 DATE
MNR DRAWN BY
CHK BY: MDB
SCALE: 1" = 40'

SHEET C2.1

TOWN OF ROLESVILLE PROJECT NO.

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

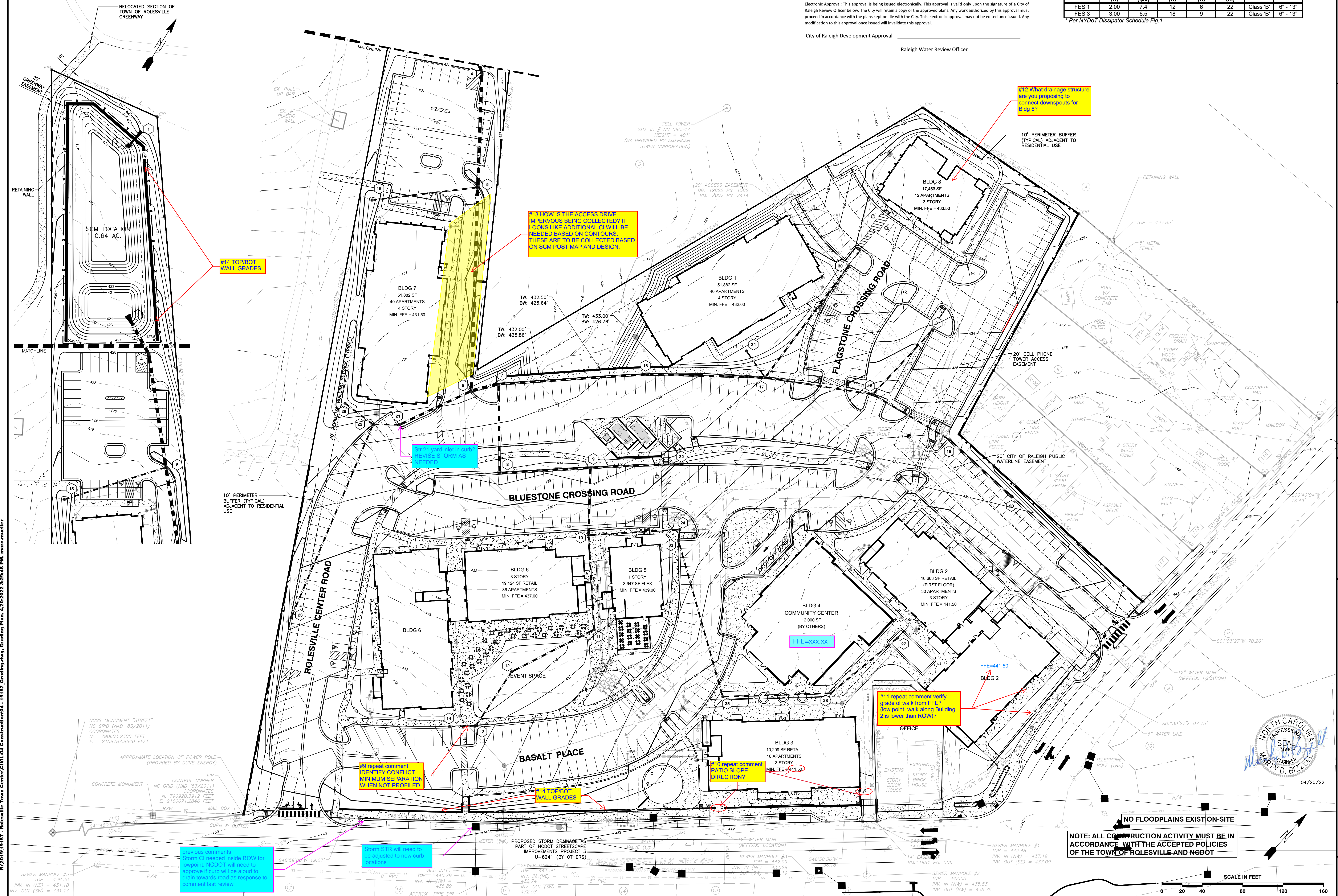
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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 _____

Structure	d ₅₀ (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 - Roleville Town Center CIVIL\04 Construction\04 - 19157_Grading\dwg, Grading Plan, 4/20/2023 3:29:48 PM, marc.mueller

BNK

BASS, NIXON & KENNEDY, INC.

CONSULTING ENGINEERS

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

TELEPHONE: (919)851-1122 FAX: (919)851-8686

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

NO.	DATE	DESCRIPTION	BY

03-19157
JOB NO.

PROGRESS
DATE

MRN
DRAWN BY

CHK BY: MDB

GRADING PLAN

SCALE: 1" = 40'

COBBLESTONE VILLAGE

MIXED USE DEVELOPMENT

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C3.1

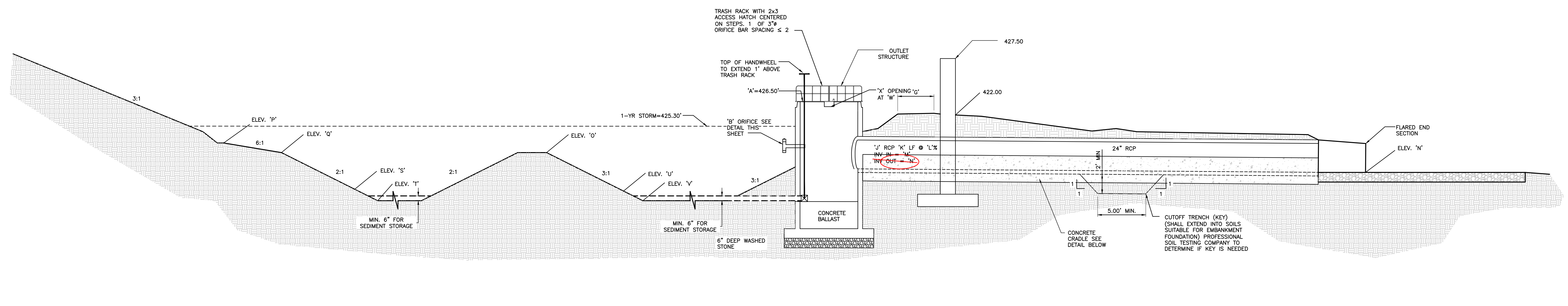
NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



04/20/22

NO FLOODPLAINS EXIST ON-SITE

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



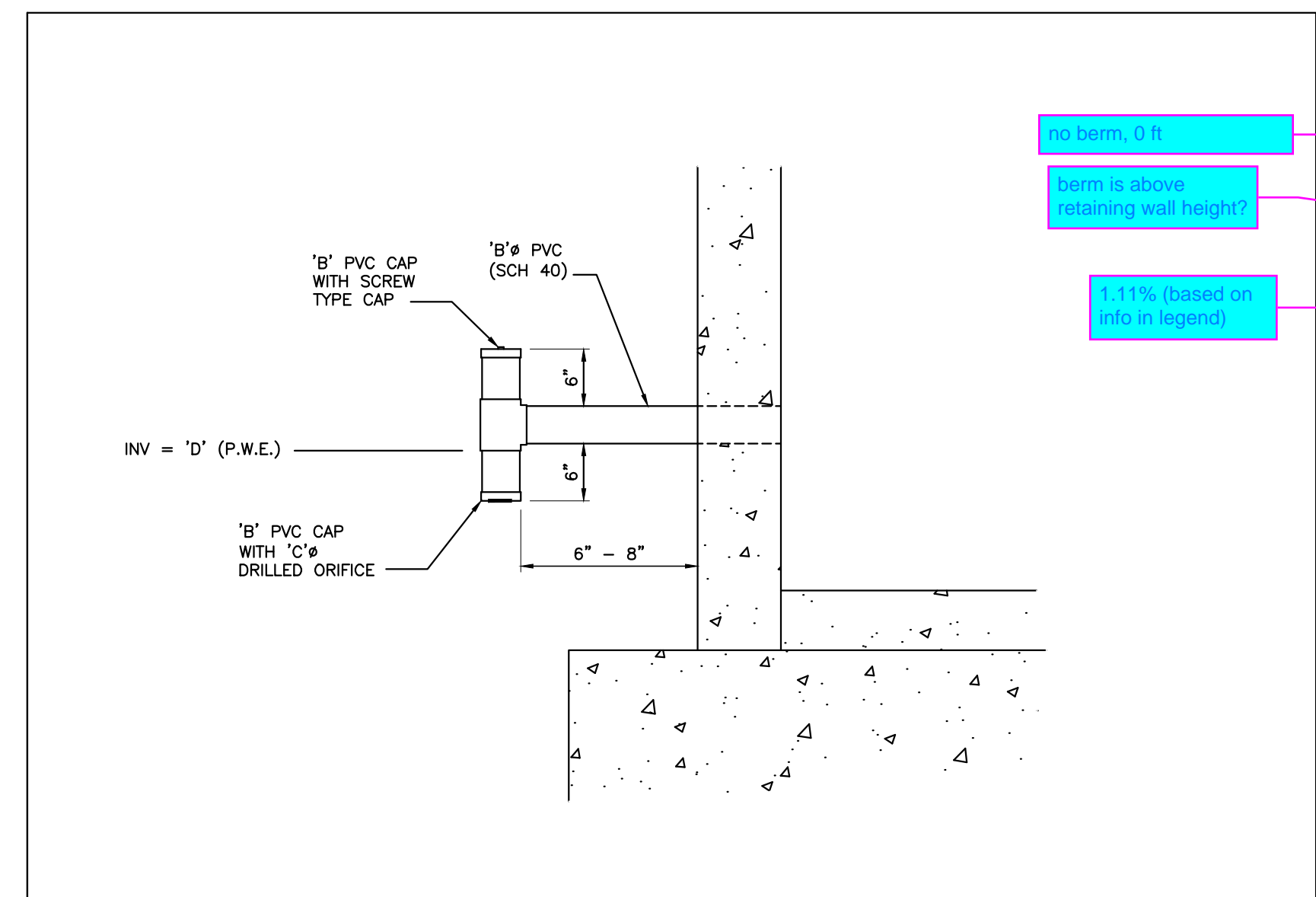
CROSS-SECTION OF WET POND A-A

NTS

BOUANCY CALCULATIONS FOR RISER/BARREL
COBBLESTONE VILLAGE
WET POND - SCM

Square Riser Inside Length (ft):	4.0
Riser Wall Thickness (in):	6
Pond Bottom Elevation (ft):	420.00
Riser Crest Elevation (ft):	426.50
Density of Riser Mat (lb/cf):	150.00
Pipe Inside Diameter (in):	24
Pipe Wall Thickness (in):	3
Length of Pipe Exposed (ft):	1.00
Density H2O (lb/cf):	62.40
Volume H2O Displaced by Riser (cf):	131.63
Weight H2O Displaced by Riser (lb):	8213.40
Volume H2O Displaced by Pipe (cf):	4.91
Weight H2O Displaced by Pipe (lb):	306.31
Total Uplift Force (lb):	8519.71
Weight of Riser (lb):	4,144
Weight of Pipe (lb):	265.07
Pipe/Riser Downward Force (lb):	4408.82

Ballast Concrete:	
Minimum Factor of Safety:	1.2
Required ballast thickness (in):	37.02
Provided Ballast Thickness (in):	40
Total Downward Force (lb):	10,692
Provided Factor of Safety:	1.25



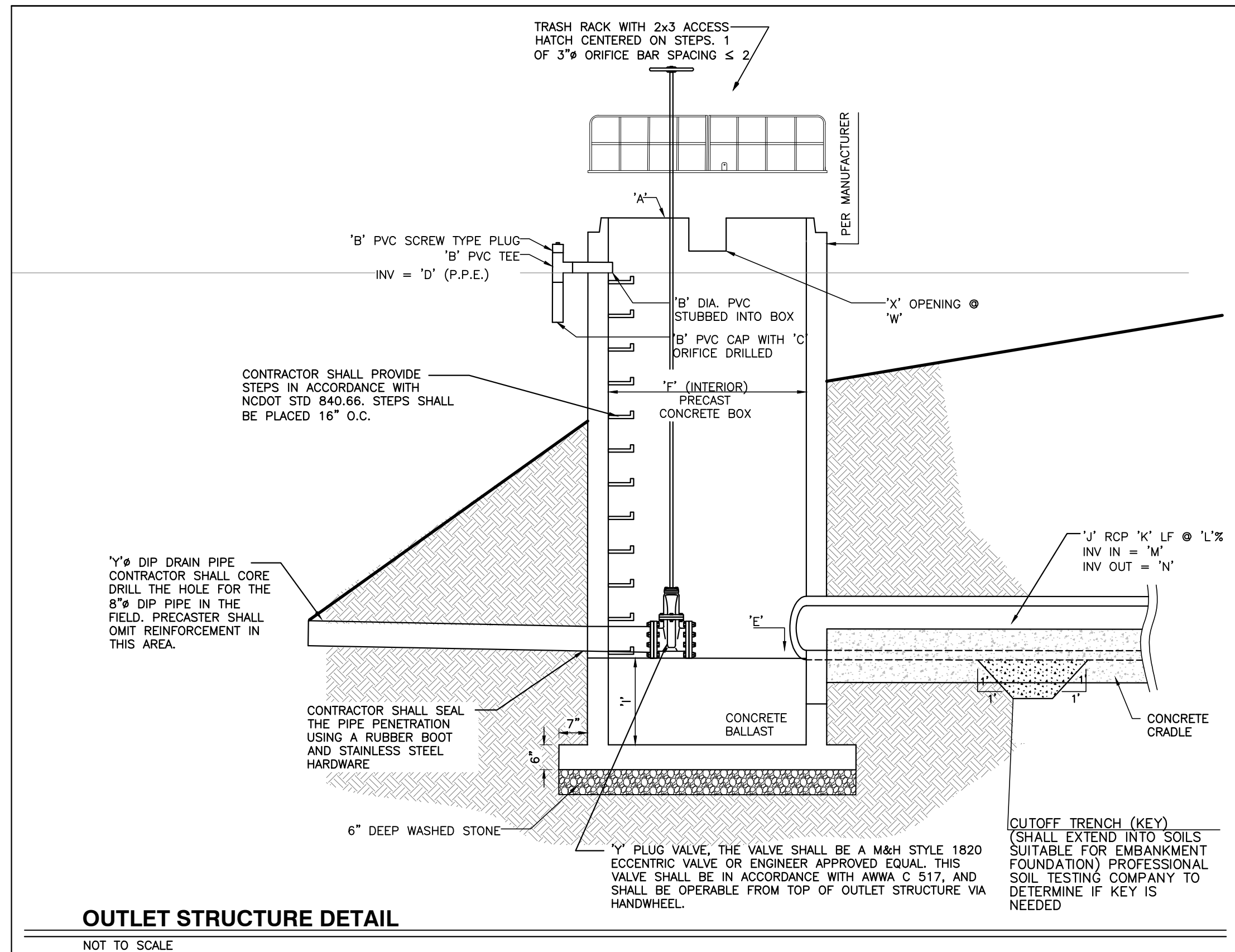
INVERTED INTAKE DETAIL (RISER)

NTS

POND LEGEND - SCM

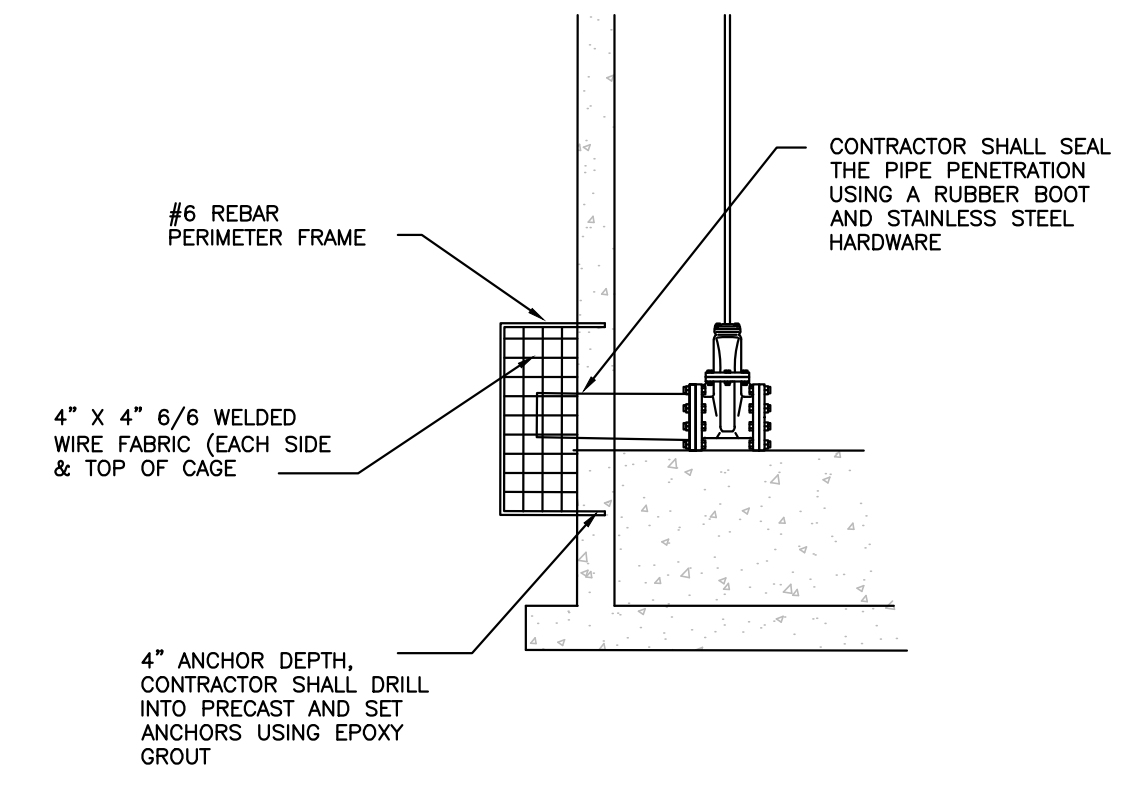
Description	Design	As-Built
A Top of Riser	426.50 ft	
B Diameter of PVC Drawdown Pipe	4 in	
C Drawdown Orifice Opening	2.5 in	
D Drawdown Pipe Elevation / Permanent Pool	424.50 ft	
E Inside Bottom-Riser Elevation	420.00 ft	
F Outlet Structure Size	4ft x 4ft	
G Top of Berm Width	19-ft	
H Top of Dam	428.00 ft	
I Ballast Thickness	40 in	
J Size of Outlet Pipe	24 in	
K Length of Outlet Pipe	18 ft	
L Slope of Outlet Pipe	2.78 %	
M Invert in Outlet Pipe	420.00 ft	
N Invert Out Outlet Pipe	419.80 ft	
O Top Elevation Forebay Berm	424.00 ft	
P Elevation Top of Litoral Shelf	425.00 ft	
Q Elevation Bottom of Litoral Shelf	424.00 ft	
R Slope of Litoral Shelf	6:1	
S Sediment Cleanout Elevation Forbay	422.00 ft	
T Bottom Elevation Forebay	421.00 ft	
U Sediment Cleanout Elevation Permanent Pool	421.00 ft	
V Bottom Elevation Permanent Pool	420.00 ft	
W Elevation Secondary Weir	426.20 ft	
X Width Secondary Weir	12 in	

Special Instructions
 Place Drawdown pipe opposite of outlet pipe and ensure a minimum of 12" clearance between drawdown pipe opening and ground elevation to allow for proper drainage. Place secondary weir above drawdown pipe on same side of outlet structure.



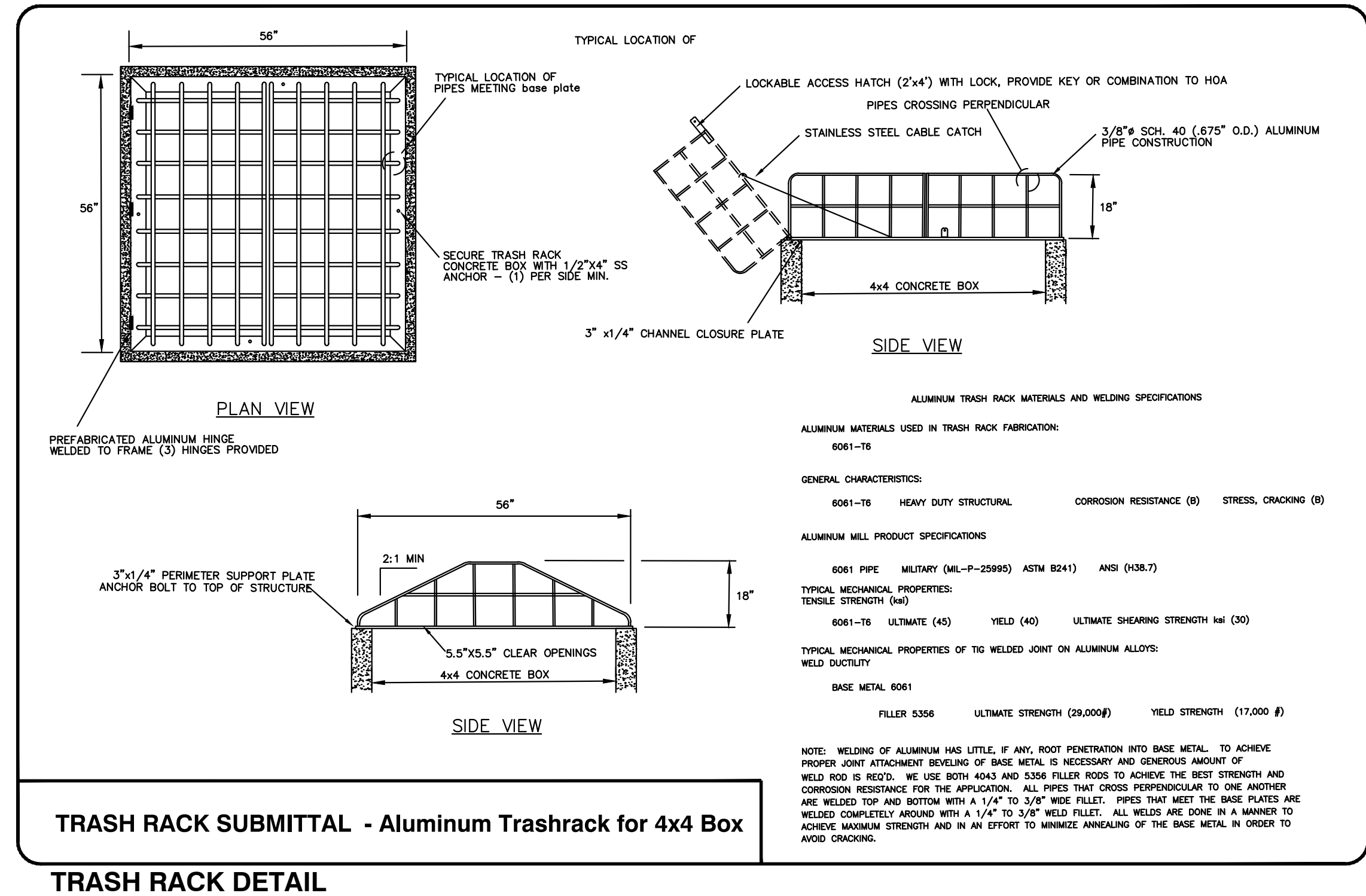
OUTLET STRUCTURE DETAIL

NOT TO SCALE



(IF APPLICABLE) EMERGENCY DRIP DRAIN TRASH RACK DETAIL

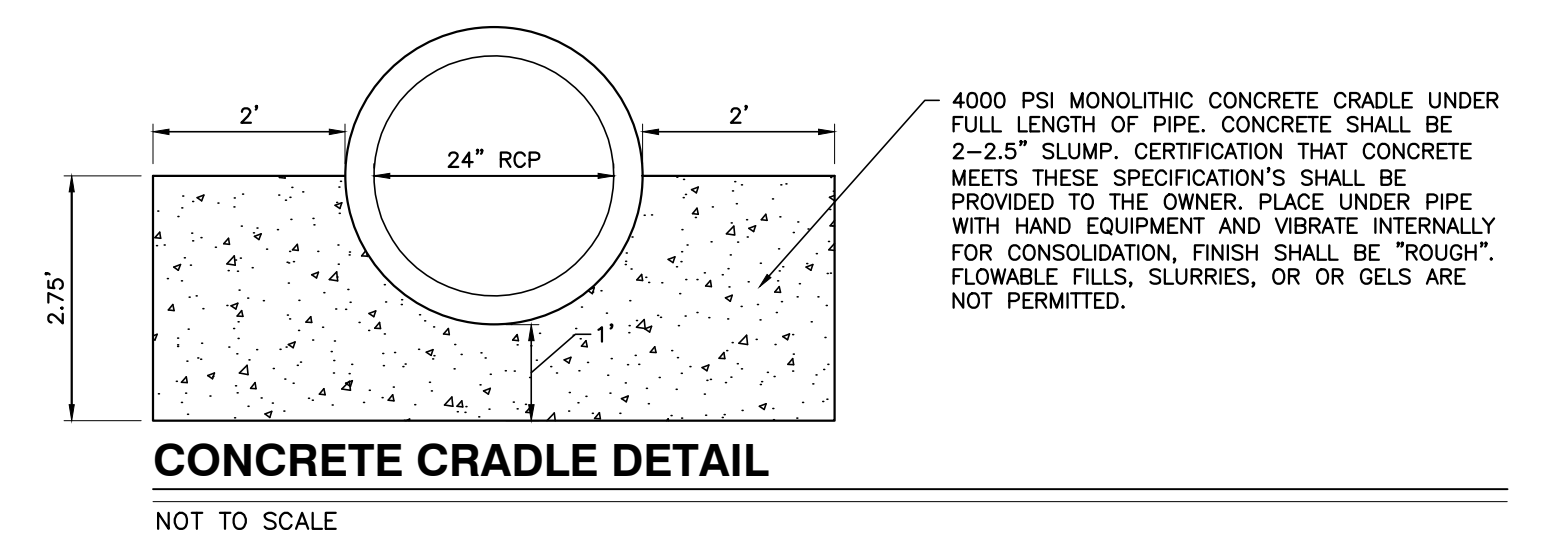
NOT TO SCALE



TRASH RACK SUBMITTAL - Aluminum Trashrack for 4x4 Box

TRASH RACK DETAIL

NTS



CONCRETE CRADLE DETAIL

NOT TO SCALE

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



04/20/22

NO FLOODPLAINS EXIST ON-SITE

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

NO.	DATE	DESCRIPTION	BY

03-19157

PROGRESS

DATE

MRM

DRAWN BY

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

BMP DETAILS

SCALE: N.T.S.

CHK BY: MDB

TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET

C3.2

CONSTRUCTION SEQUENCE - STAGE 1

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

NOTE: WAKE COUNTY MUST GRANT PERMISSION TO CONVERT THE SEDIMENT BASIN OVER TO THE STORMWATER USE PRIOR TO COMPLETING ANY RELATED WORK.

TOTAL DISTURBED AREA = 11.0 AC
DENUDED AREA = 10.96 AC

REQUIRED WAKE COUNTY BASIN REMOVAL AND/OR CONVERSION SEQUENCE

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

SEDIMENT BASIN SUMMARY CHART

Sediment Basin Number	1	2	3
Drainage Area (Acres)	3.42	4.61	0.6
Orifice (ft)	(0.5)(7.22)(3.42)=12.35	(0.5)(7.22)(4.61)=16.64	(0.5)(7.22)(0.60)=2.17
Weir Size (ft)	10 x 1.5	10 x 1.5	10 x 1.5
Surface Area Required (SF)	(435)(12.35)=5,372	(435)(16.64)=7,238	(435)(2.17)=944
Volume Required (CF)	(1800)(3.42)=6,156	(1800)(4.61)=8,298	(1800)(0.60)=1,080
Dimensions (ft)	see plans	see plans	see plans
Surface Area Provided (SF)	5,400	10,640	1,584
Volume Provided (CF)	13,572	27,636	2,563
Skimmer Size	4"	4"	3"
Orifice Radius	0.5"	0.5"	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

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	0.76
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

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 _____

Skimmer Basin #1

Okay

- 3.42 Drainage Area (Acres)
- 16.64 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

Okay

- 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)
- 178 Bottom Length (ft)
- 3606 Bottom Area (ft²)
- 2763 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)

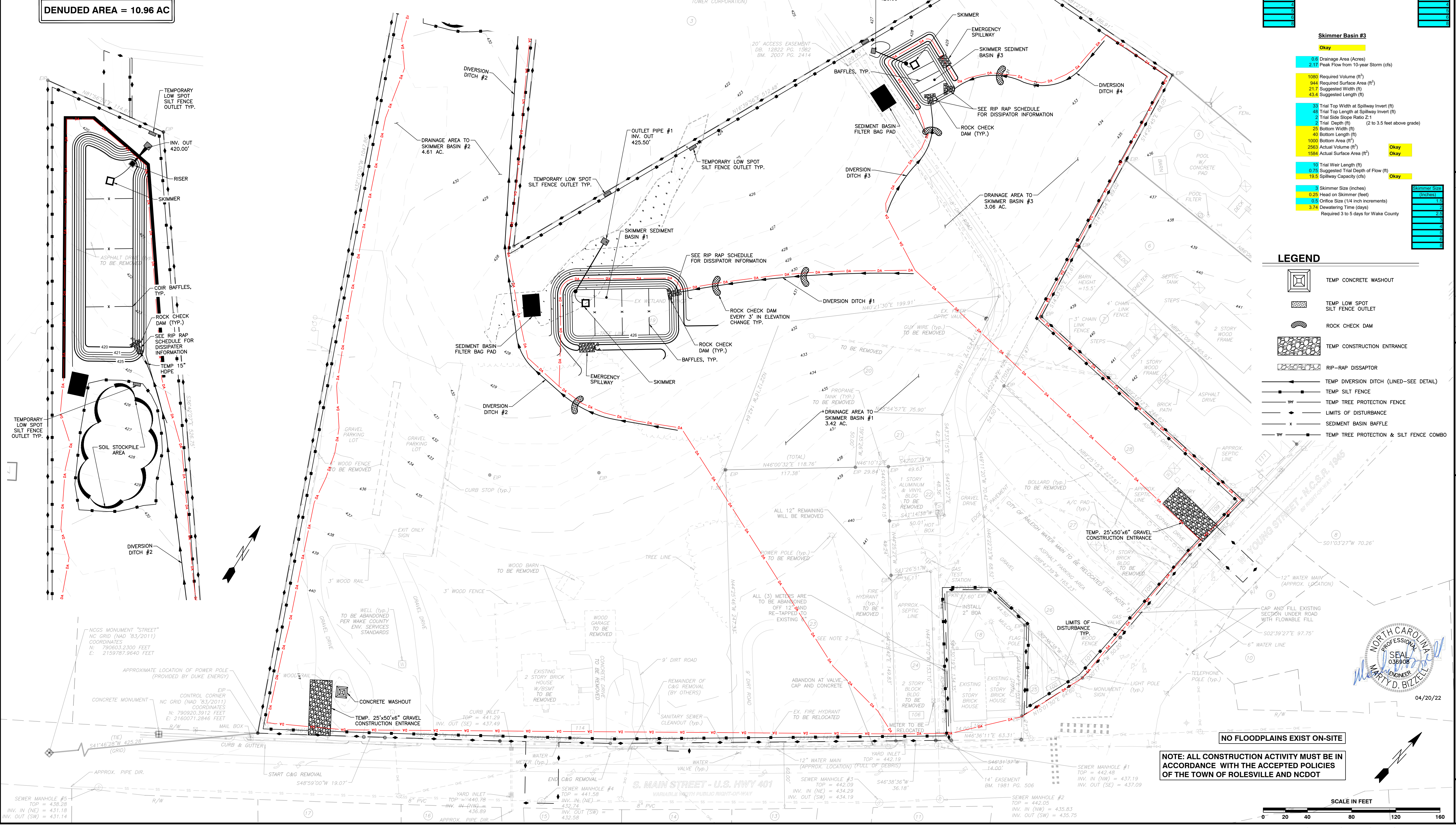
Skimmer Basin #3

Okay

- 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)
- 1.25 Orifice Size (1/4 inch increments)
- 4.62 Dewatering Time (days)
- Required 3 to 5 days for Wake County

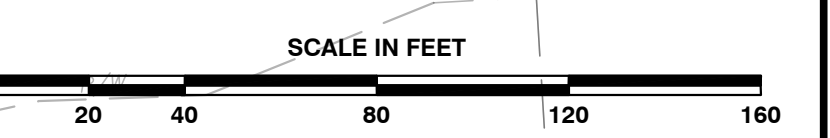


LEGEND

- 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

NO FLOODPLAINS EXIST ON-SITE

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



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHARLETTOWN ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4422 FAX: (919)881-6866
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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

EROSION CONTROL PLAN - STAGE 1

DATE: 04/20/22
 DRAWN BY: MRM
 CHECK BY: MDB
 SCALE: 1" = 40'

PROGRESS
 JOB NO. _____
 DATE _____

REVISIONS

NO.	DATE	DESCRIPTION	BY

SHEET C3.3

TOWN OF ROLESVILLE PROJECT NO.

R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\06 - 19187_Erosion Control Phase 1.dwg, Erosion Control Phase 1, 4/20/2022 3:23:07 PM, marc.mueller

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 DENuded 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

6.99 Drainage Area (Acres)	25.23 Peak Flow from 10-year Storm (cfs)	12582 Required Volume (ft ³)	10975 Required Surface Area (ft ²)	74.1 Suggested Width (ft)	148.2 Suggested Length (ft)	58 Trial Top Width at Spillway Invert (ft)	190 Trial Top Length at Spillway Invert (ft)	2 Trial Side Slope Ratio 2:1	3 Trial Depth (ft) (2 to 3.5 feet above grade)	46 Bottom Width (ft)	178 Bottom Length (ft)	6188 Bottom Area (ft ²)	28740 Actual Volume (ft ³)	11020 Spillway Capacity (cfs)	4 Skimmer Size (Inches)	0.333 Head on Skimmer (feet)	156 Orifice Size (1/4 inch increments)	4.20 Dewatering Time (days)
<p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p> <p>Okay</p>																		

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 Basins	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

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

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

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

EROSION CONTROL PLAN - STAGE 2

NO. DATE DESCRIPTION REVISIONS

03-19187 PROGRESS MRN
 JOB NO. DATE DRAWN BY

SCALE: 1" = 40'

CHK BY: MDB

SEAL
 W. MARY D. BIZELLE
 PROFESSIONAL ENGINEER
 N.C. 036908
 04/20/22

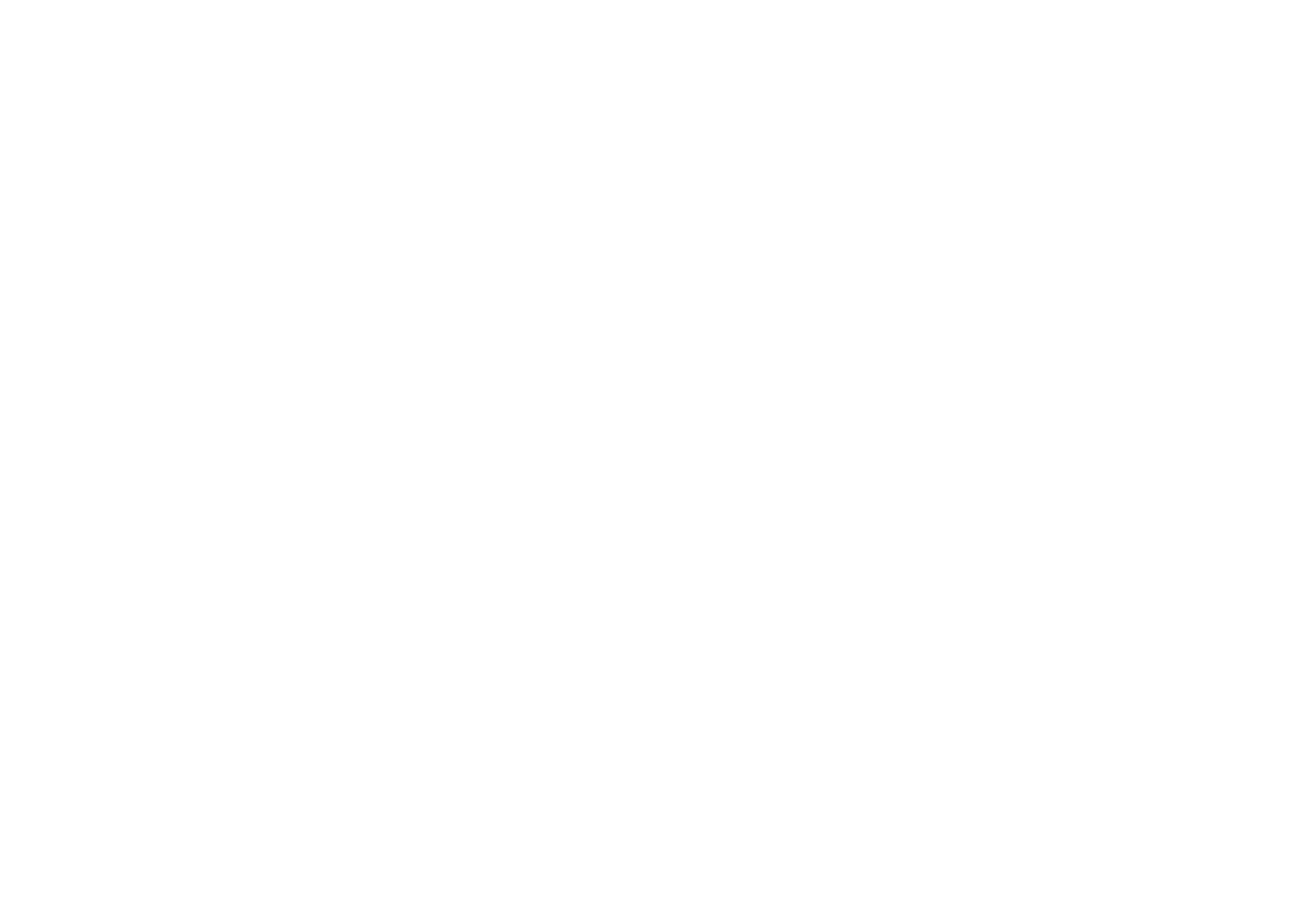
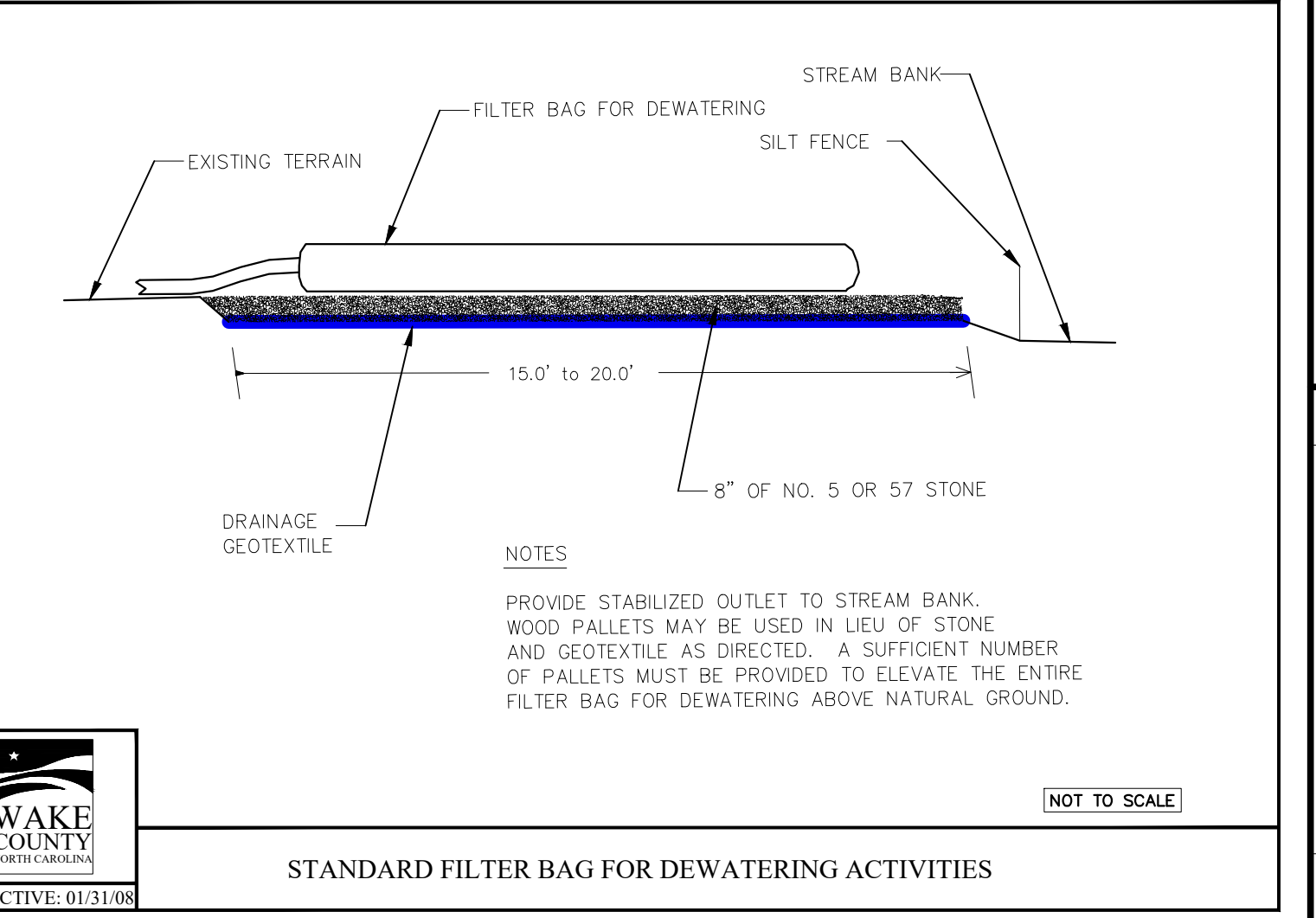
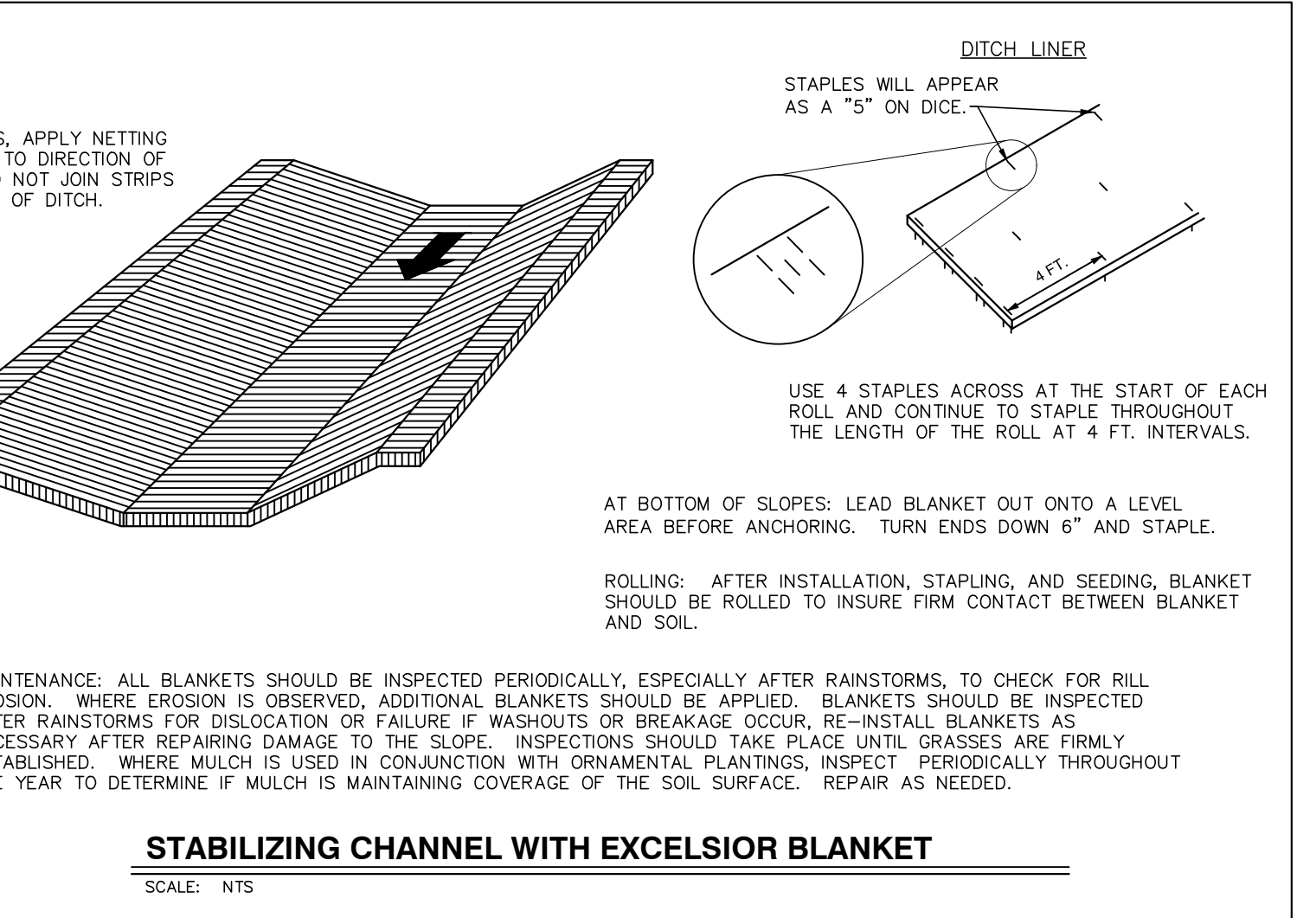
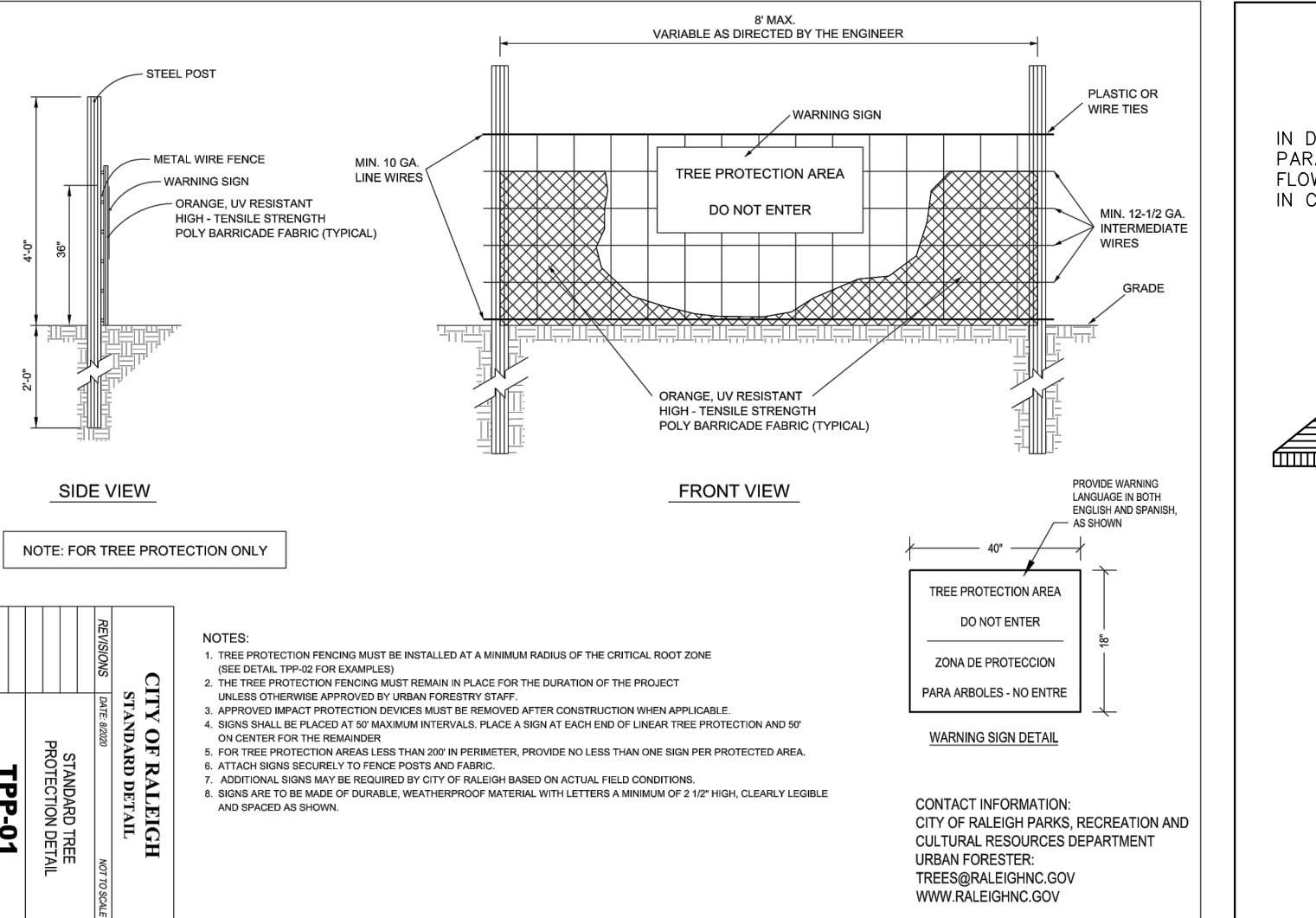
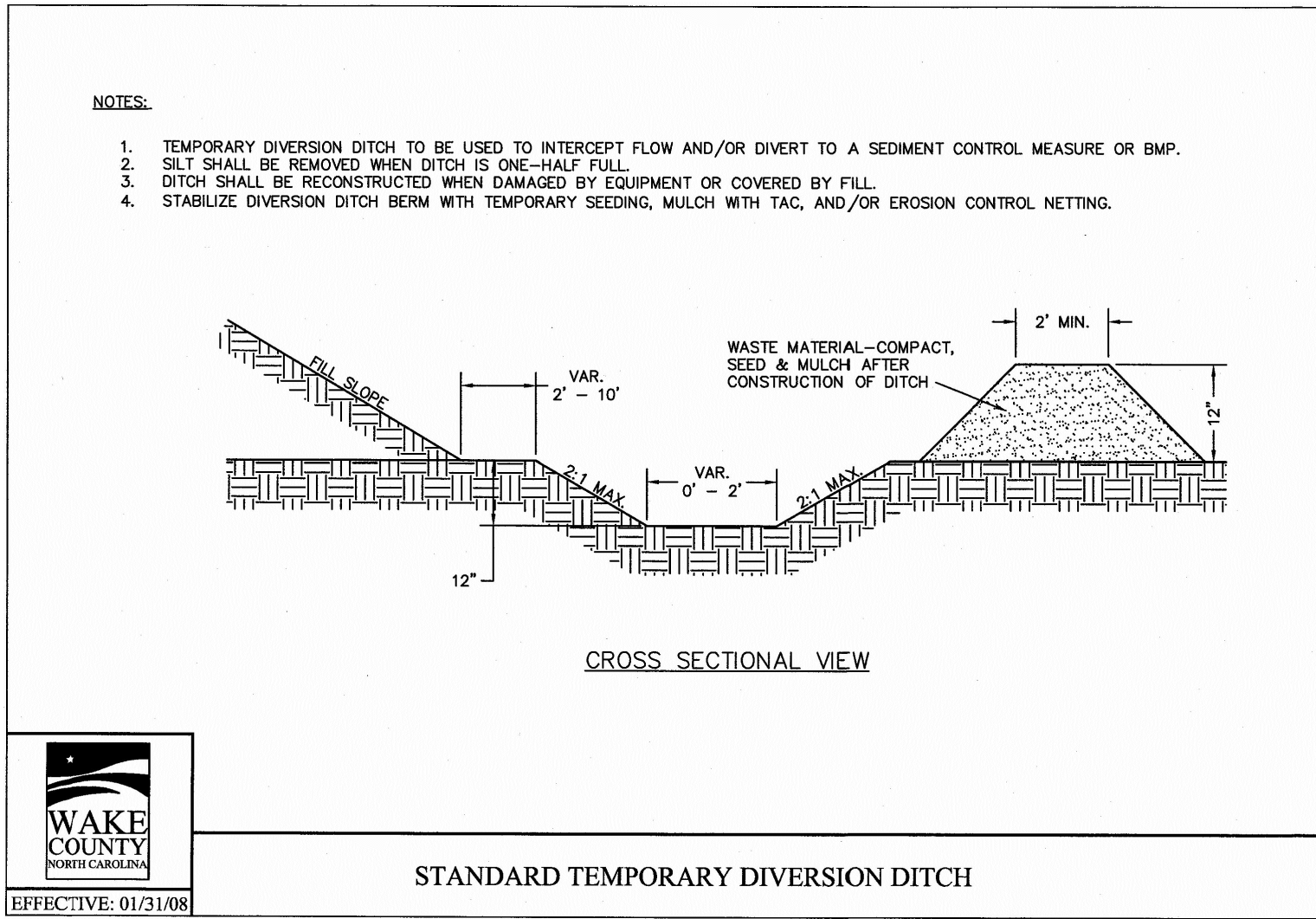
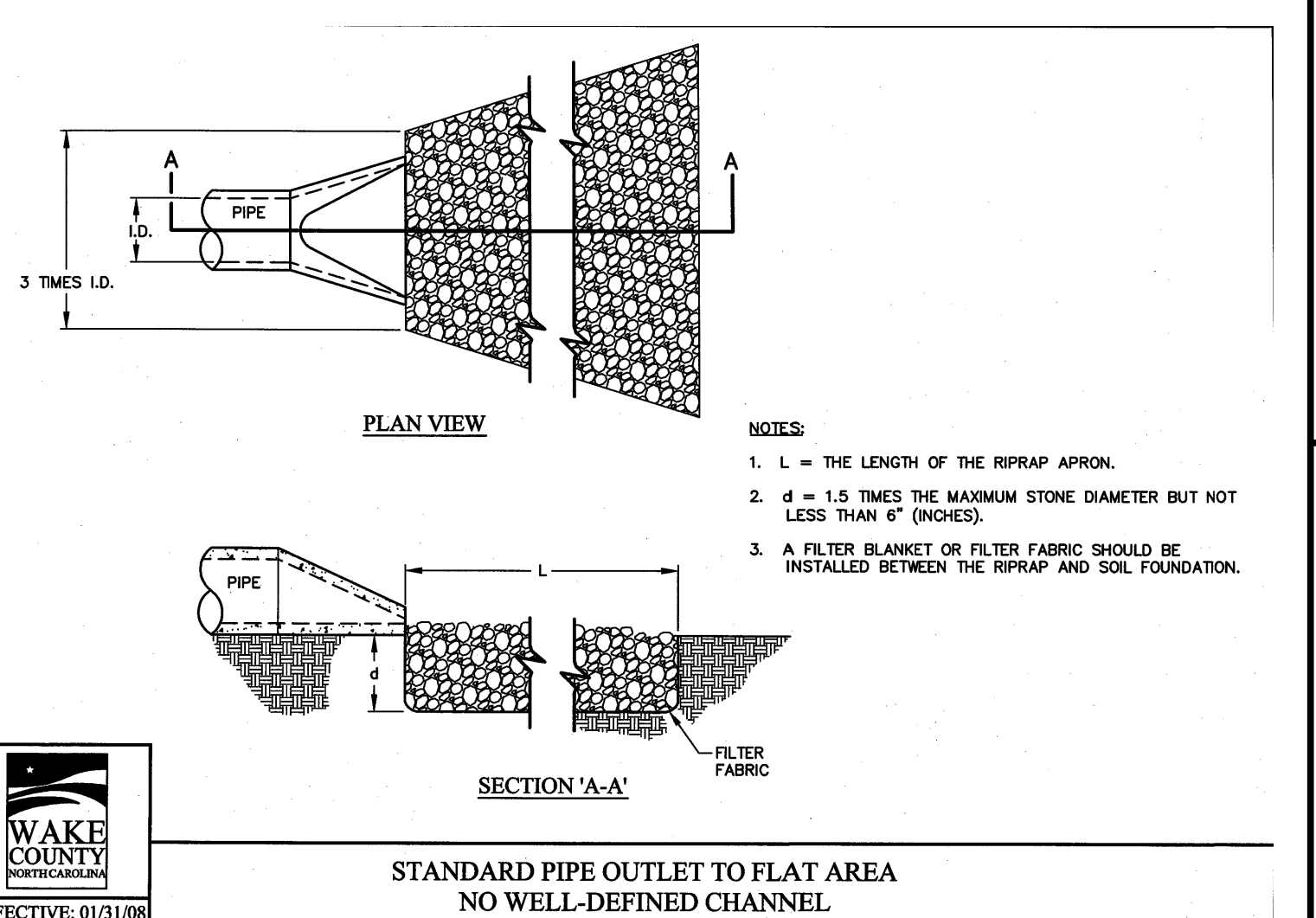
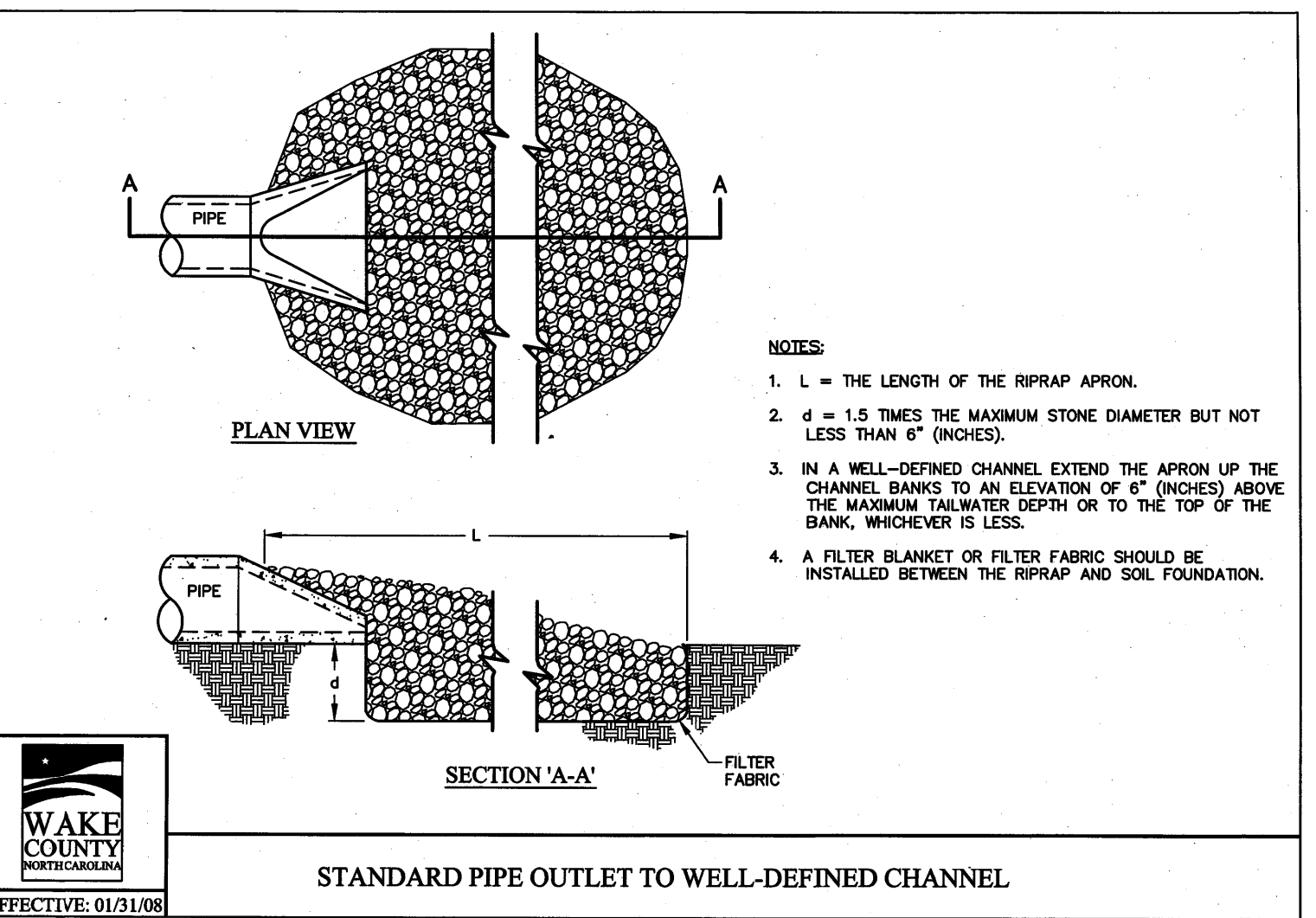
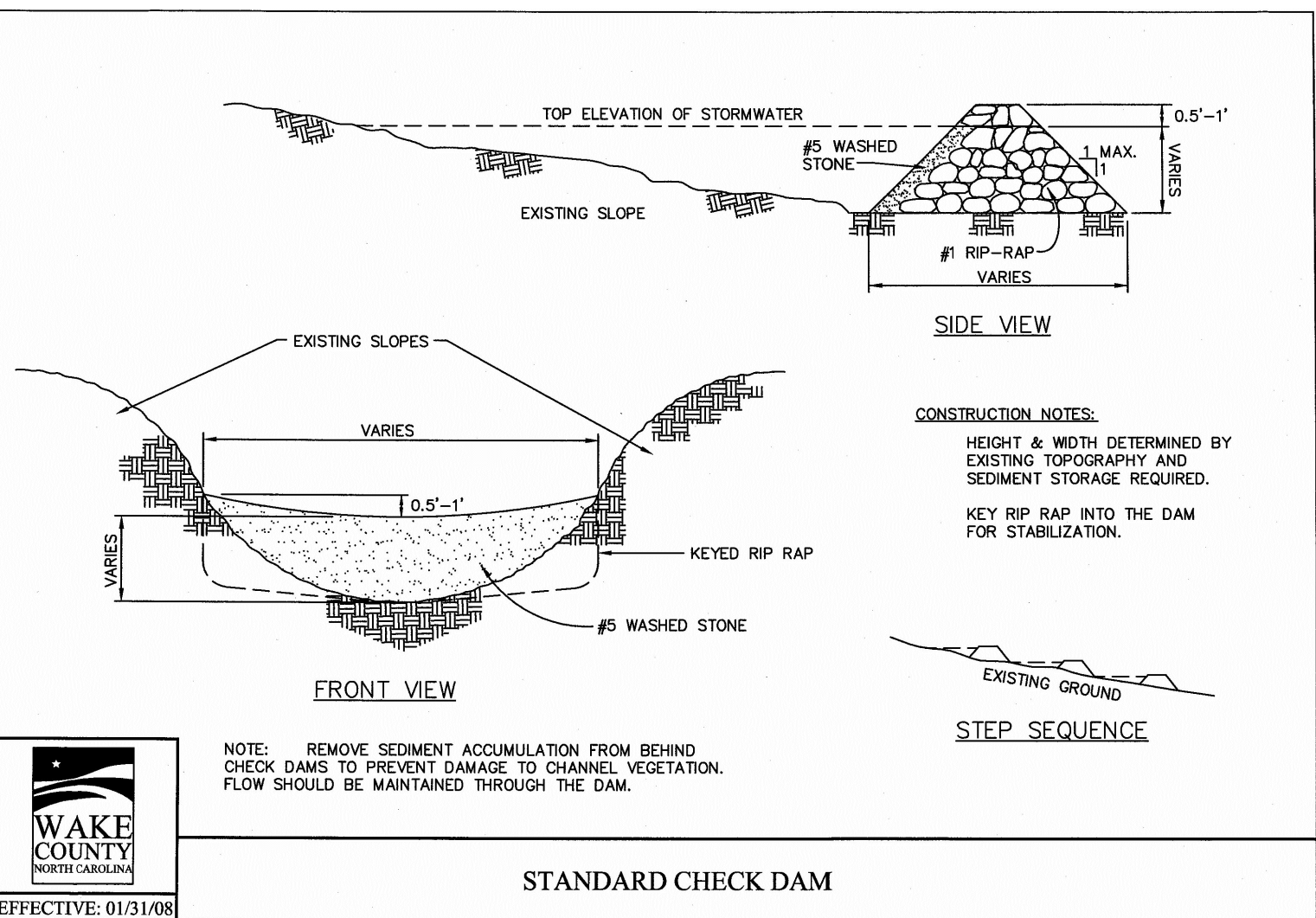
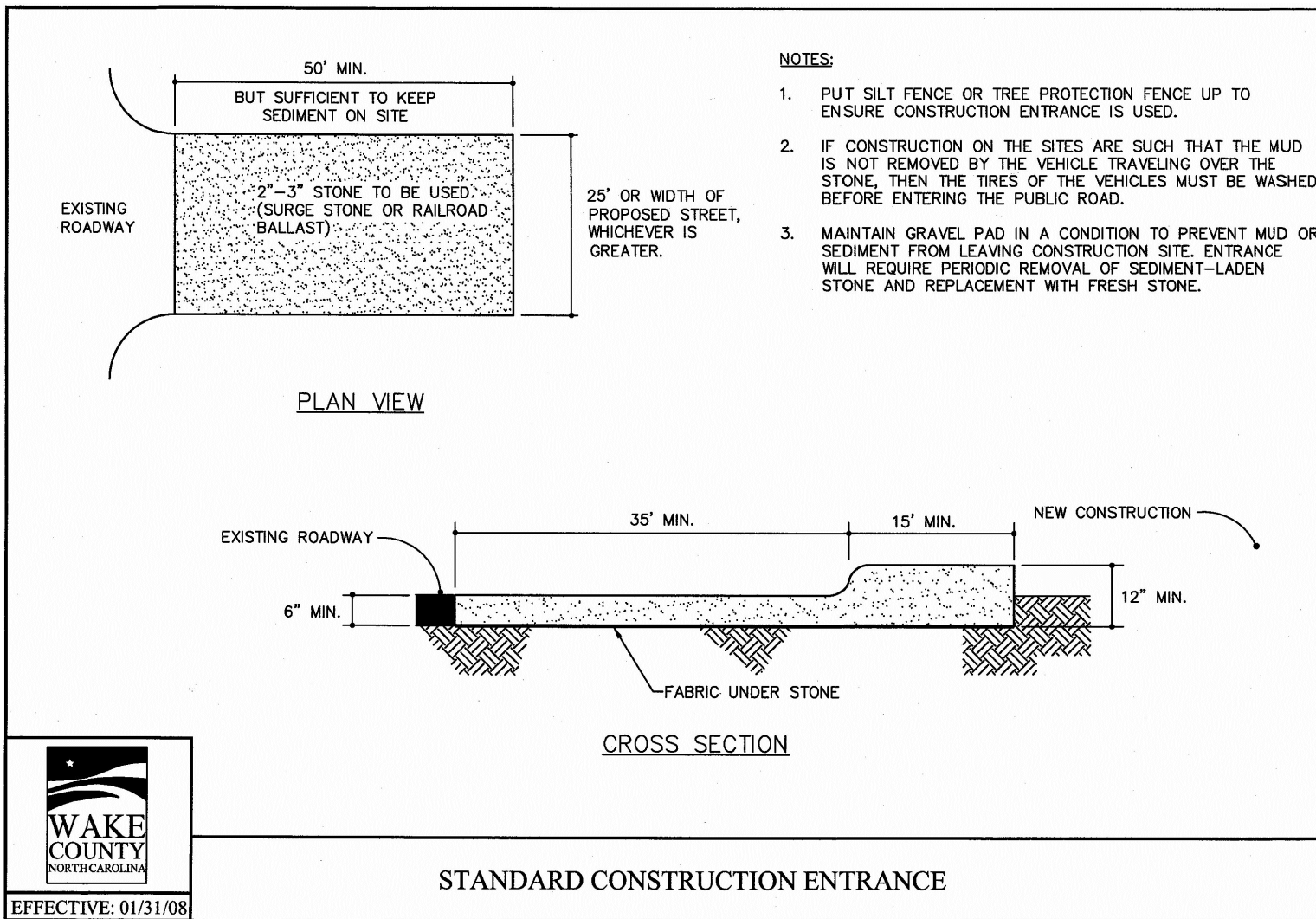
NO FLOODPLAINS EXIST ON-SITE

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

TOWN OF ROLESVILLE PROJECT NO. _____

SHEET C3.4

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



R:\2019\19157 - Rolesville Town Center\CIVIL\04 Construction\07 - 19157_Details.dwg, CS3, 4/20/2022 3:39:17 PM, mnc-muelter

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

NO.	DATE	DESCRIPTION	BY

PROGRESS: MRM
 DATE: DRAWN BY:
 JOB NO.: EROSION CONTROL DETAILS
 SCALE: N.T.S. CHK BY: MDB

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

PROFESSIONAL SEAL
 036908
 W. D. BIZELL
 ENGINEER

04/20/22

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.

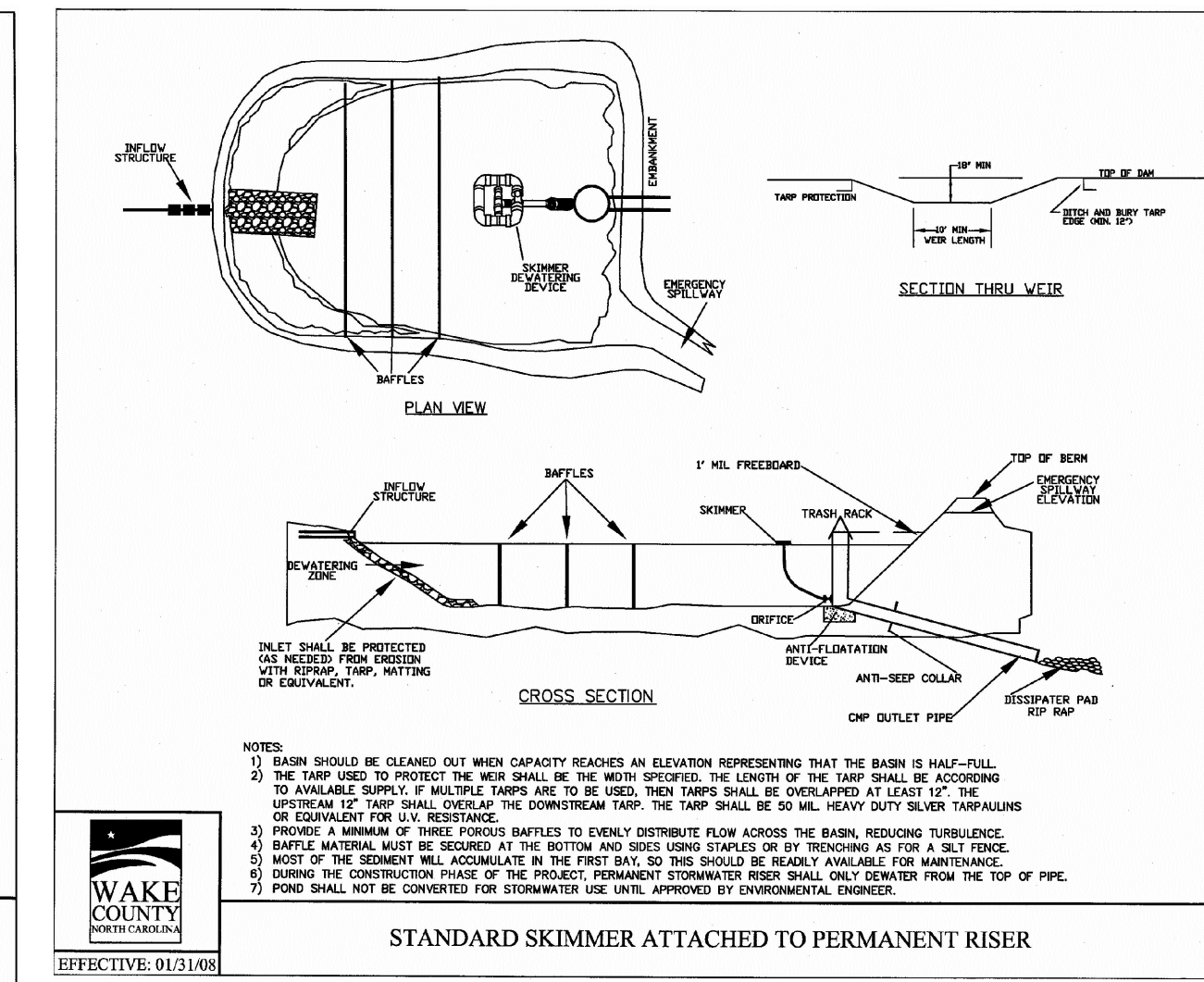
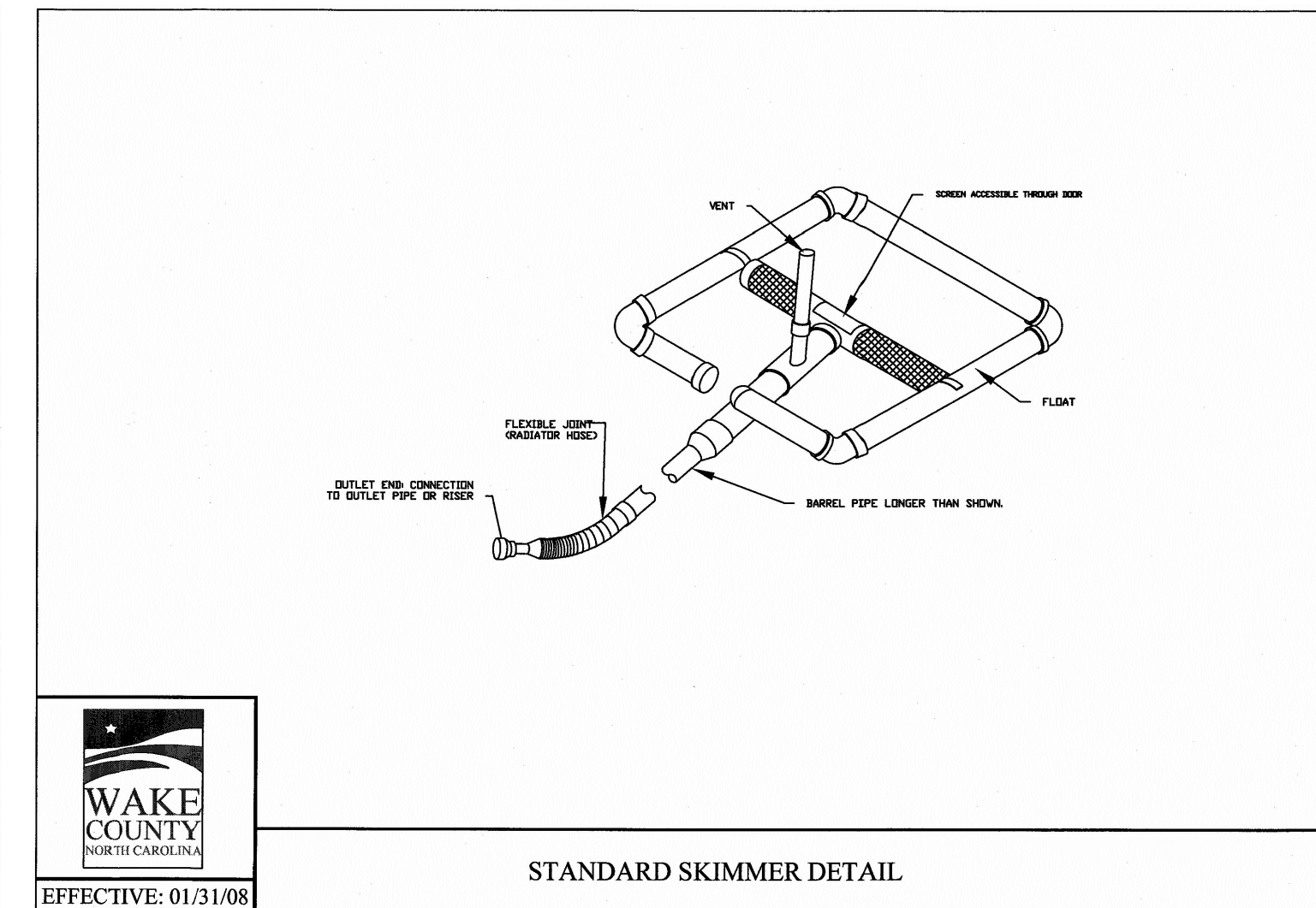
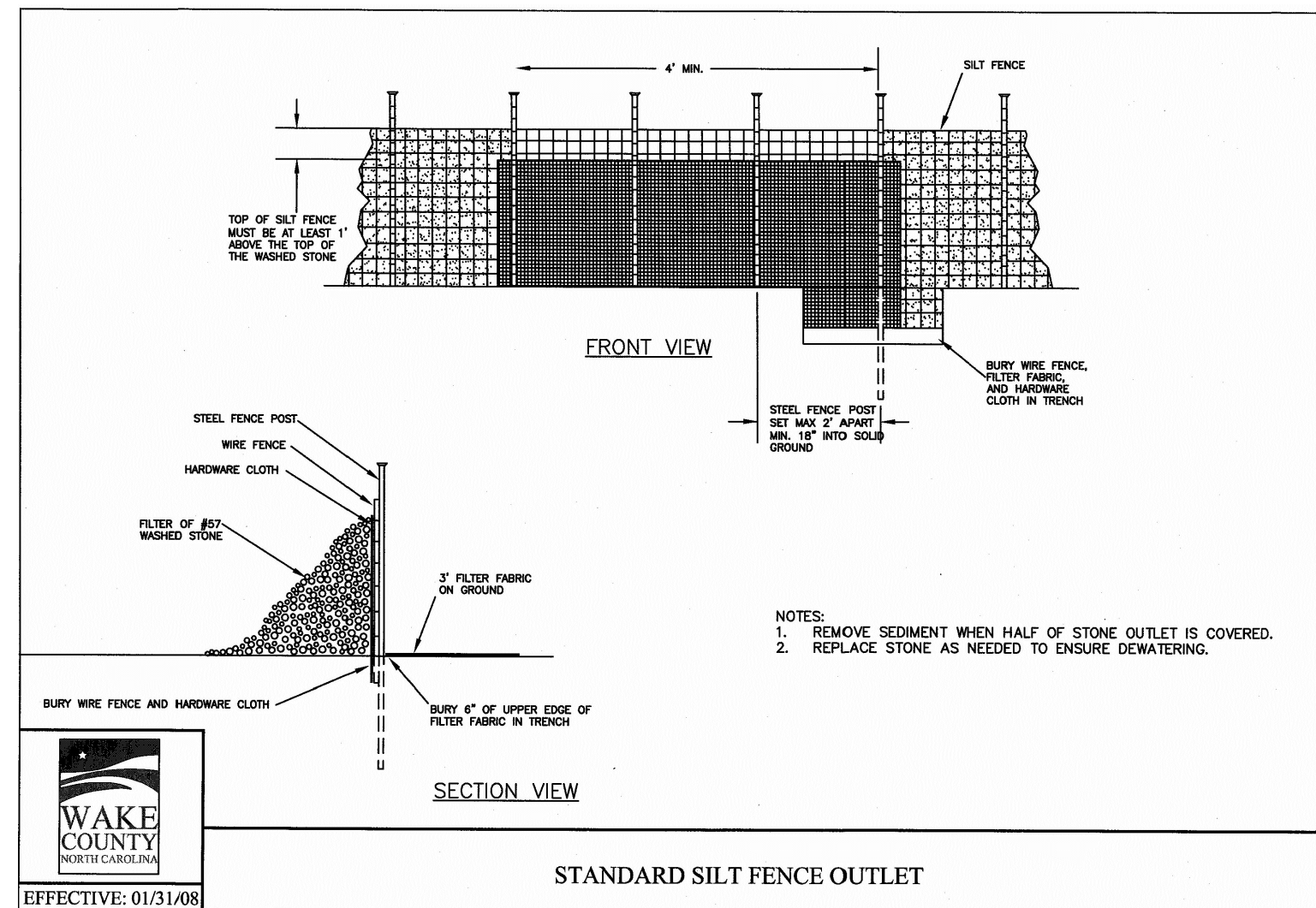
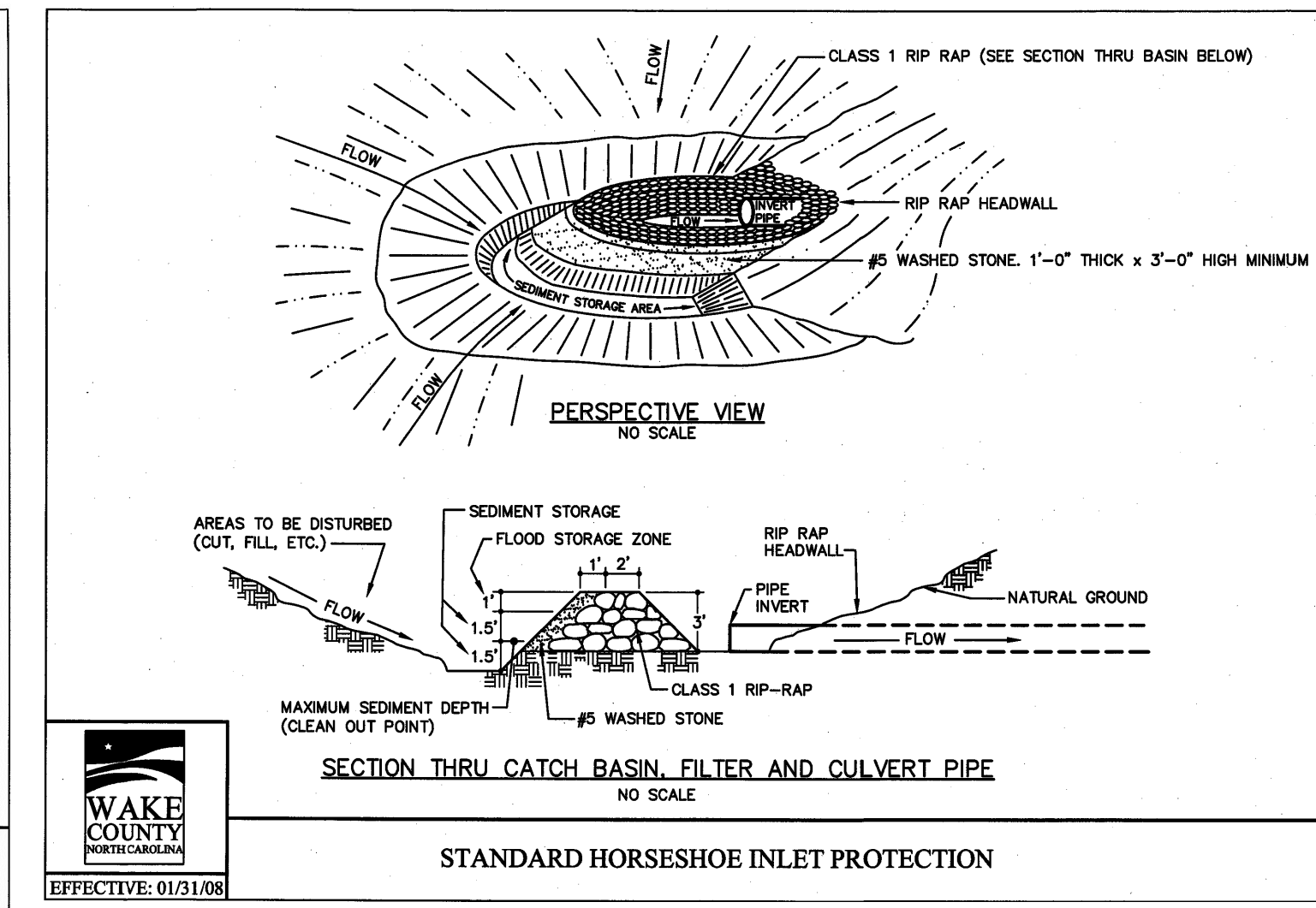
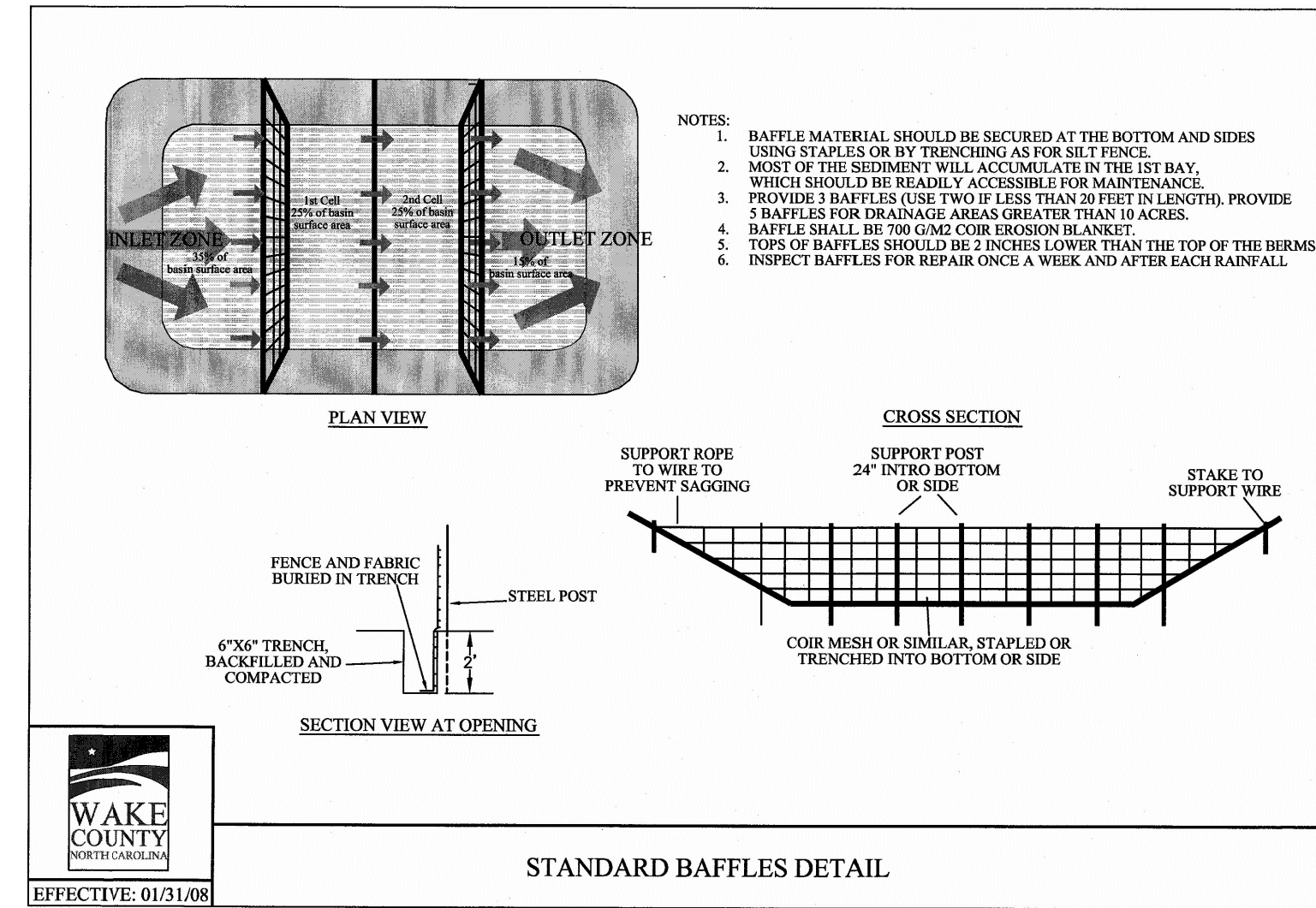
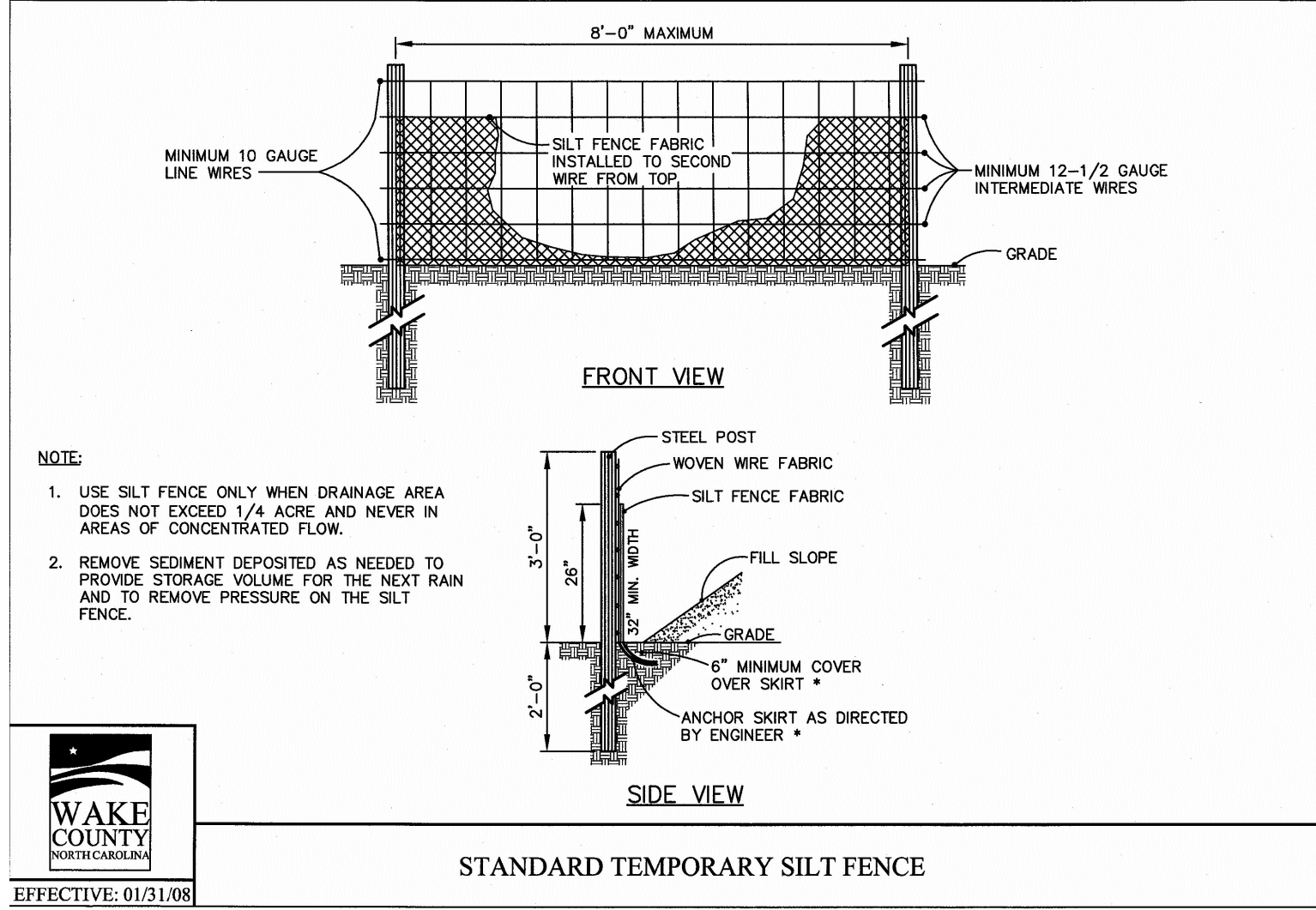
City of Raleigh Development Approval _____

Raleigh Water Review Officer _____



04/20/22

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



SEEDING INFORMATION:

SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- CONTINUE TILLAGE UNTIL A WELL PULVERIZED FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER LIGHTLY WITH SEEDING EQUIPMENT OR CULTPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 50% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
- APPLY AGRICULTURAL LIMESTONE - 2 TONS/ACRE
FERTILIZER - 10-10-10 ANALYSIS AT 800-1,000 LBS./ACRE
SUPER PHOSPHATE - 500 LBS/ACRE OF 20% ANALYSIS SUPER PHOSPHATE
MULCH - 2 TONS (APPROX. 80 BALES) SMALL GRAIN STRAW/ACRE
ANCHOR - TACK WITH LIQUID ASPHALT AT 400 GAL./ACRE OR EMULSIFIED ASPHALT AT 300 GALLONS/ACRE

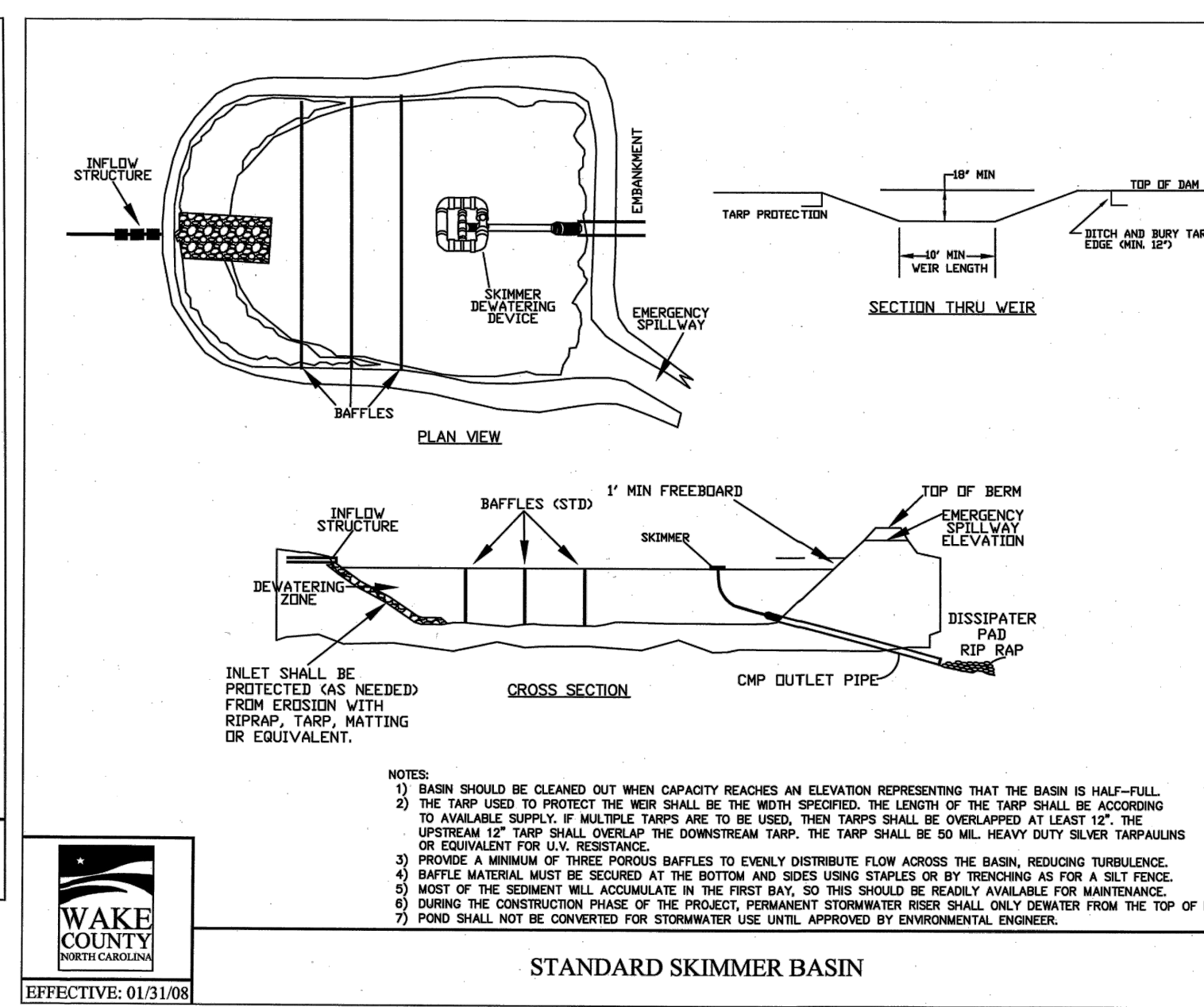
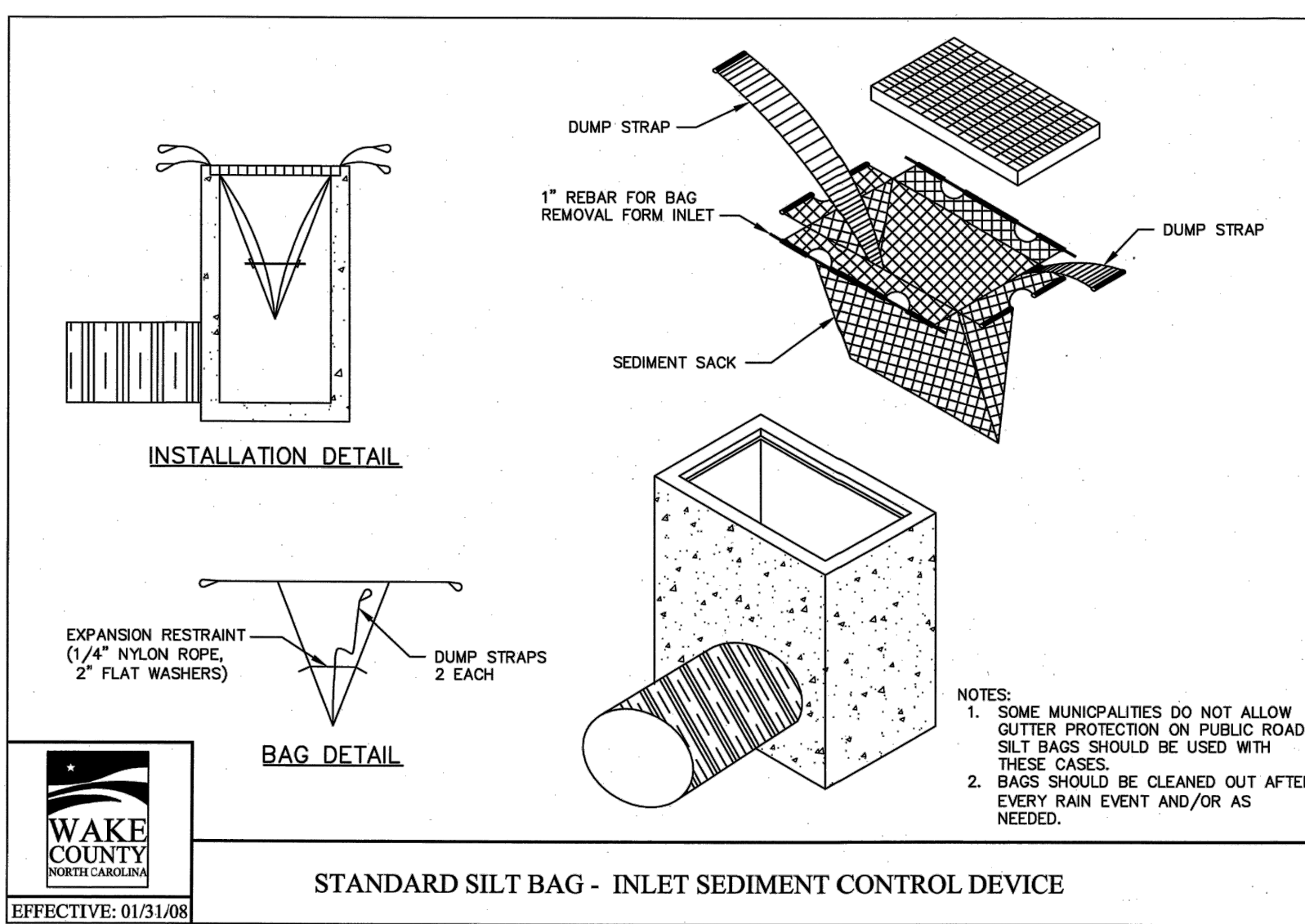
SEEDING SCHEDULE

DATE	TYPE	PLANTING RATE
PERMANENT SEEDING - SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1)		
AUG. 15 - NOV. 1	TALL FESCUE	200 LBS./ACRE
NOV. 1 - MAR. 1	TALL FESCUE AND ABRUZZI RYE (NURSE CROP)	200 LBS./ACRE
MAR. 1 - APR. 15	TALL FESCUE	200 LBS./ACRE
APR. 15 - JUN. 30	HULLED COMMON BERMUDAGRASS	15 LBS./ACRE
PERMANENT SEEDING - SLOPES (3:1 TO 2:1)		
AUG. 15 - NOV. 1	TALL FESCUE AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED)	200 LBS./ACRE
NOV. 1 - MAR. 1	TALL FESCUE AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED) AND ABRUZZI RYE	60 TO 70 LBS./ACRE
MAR. 1 - JUN. 1	TALL FESCUE AND SERICEA LESPEDEZA (SCARIFIED)	200 LBS./ACRE
MAR. 15 - JUN. 30	WEEPING LOVEGRASS AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS./ACRE
MAR. 15 - JUN. 30	HULLED COMMON BERMUDAGRASS AND SERICEA LESPEDEZA (SCARIFIED)	15 LBS./ACRE
MAR. 15 - JUN. 30	HULLED COMMON BERMUDAGRASS AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS./ACRE
TEMPORARY SEEDING		
JUNE 1 - SEPT. 1	TALL FESCUE AND BROWNTOP MILLET (NURSE CROP) OR SORGHUM-SUDAN HYBRIDS (NURSE CROP)	200 LBS./ACRE
		35 LBS./ACRE
		30 LBS./ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENIED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

*NURSE CROP/TEMPORARY-RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.

EFFECTIVE: 01/31/08



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4422 FAX: (919)881-8888
 CERTIFICATION NUMBERS: NCBELS (C-010); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

08-19187
 JOB NO. DATE

PROGRESS
 DRAWN BY
 EROSION CONTROL
 DETAILS

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

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

SHEET C3.6

TOWN OF ROLESVILLE PROJECT NO.

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

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 _____



04/20/22



BASS, NIXON & KENNEDY, INC. CONSULTING ENGINEERS 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607 TELEPHONE: (919)581-4422 FAX: (919)581-6986 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

Table with columns: NO., DATE, DESCRIPTION, REVISIONS

03-19187 PROGRESS DATE DRAWN BY NCG01 PLAN CHK BY: MDB

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

SHEET C3.7

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

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

Table: Temporary and Permanent Groundcover* with columns: SITE AREA DESCRIPTION, STABILIZATION, TIMEFRAME EXCEPTIONS

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

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

Table: Temporary Stabilization vs Permanent Stabilization

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS 1. Select flocculants that are appropriate for the soils being exposed during construction...



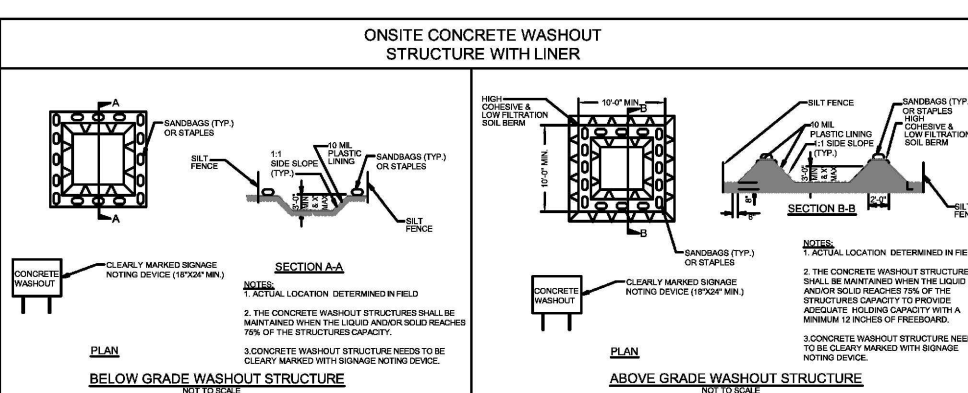
EQUIPMENT AND VEHICLE MAINTENANCE 1. Maintain vehicles and equipment to prevent discharge of fluids. 2. Provide drip pans under any stored equipment.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE 1. Never bury or burn waste. Place litter and debris in approved waste containers. 2. Provide a sufficient number of waste containers on site to manage the quantity of waste produced.

PAINT AND OTHER LIQUID WASTE 1. Do not dump paint and other liquid waste into storm drains, streams or wetlands. 2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.

PORTABLE TOILETS 1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available.

EARTHEN STOCKPILE MANAGEMENT 1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.



CONCRETE WASHOUTS 1. Do not discharge concrete or cement slurry from the site. 2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.

HERBICIDES, PESTICIDES AND RODENTICIDES 1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions. 2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.

HAZARDOUS AND TOXIC WASTE 1. Create designated hazardous waste collection areas on-site. 2. Place hazardous waste containers under cover or in secondary containment.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING EFFECTIVE: 03/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION Self-inspections are required during normal business hours in accordance with the table below.

Table: Self-Inspection Schedule with columns: Inspect, Frequency, Inspection records must include

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING 1. E&S Plan Documentation The approved E&S plan as well as any approved deviation shall be kept on the site.

Table: Item to Document vs Documentation Requirements

2. Additional Documentation to be Kept on Site In addition to the E&S plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours...

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING 1. Occurrences that Must be Reported Permitees shall report the following occurrences:

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

Table: Occurrence vs Reporting Timeframes (After Discovery) and Other Requirements



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

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible.

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

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

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



04/20/22

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval _____
Raleigh Water Review Officer



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 950, RALEIGH, NC 27607
TELEPHONE: (919)581-1122 FAX: (919)581-8686
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
2	1	420.00	419.80	18.80	24	HDPE	1.06%
4	3	421.26	421.00	43.91	36	HDPE	0.60%
5	4	422.04	421.36	113.45	36	HDPE	0.60%
6	5	423.35	422.14	201.82	36	HDPE	0.60%
7	6	423.62	423.45	28.04	36	HDPE	0.60%
8	7	425.82	424.94	88.24	24	HDPE	1.00%
9	8	426.82	425.92	90.21	24	HDPE	1.00%
10	9	427.59	426.92	87.14	24	HDPE	1.00%
11	10	428.63	427.69	93.66	18	HDPE	1.00%
12	11	429.65	428.73	91.93	18	HDPE	1.00%
13	12	430.39	429.75	63.96	15	HDPE	1.00%

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
14	13	430.75	430.49	25.95	15	HDPE	1.00%
15	5	424.10	423.05	105.41	15	HDPE	1.00%
16	7	424.61	423.72	147.77	24	HDPE	0.60%
17	16	425.41	424.71	116.44	24	HDPE	0.60%
18	17	428.85	427.77	107.92	15	HDPE	1.00%
19	18	431.57	430.69	88.39	15	HDPE	1.00%
20	19	432.50	431.67	83.01	15	HDPE	1.00%
21	6	424.24	423.45	78.65	24	HDPE	1.00%
22	21	424.60	424.34	26.08	15	HDPE	1.00%
23	22	426.78	424.70	207.76	15	HDPE	1.00%
24	10	432.22	430.86	90.55	15	HDPE	1.50%

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

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
1	422.45 INV. IN= 419.80 (2)	24" FES
2	425.18 INV. OUT= 420.00 (1)	RISER
3	424.83 INV. IN= 421.00 (4)	36" FES
4	428.06 INV. IN= 421.36 (5) INV. OUT= 421.26 (3)	NCDOT CURB INLET
5	429.08 INV. IN= 422.14 (6) INV. IN= 423.05 (15) INV. OUT= 422.04 (4)	NCDOT CURB INLET
6	430.99 INV. IN= 423.45 (7) INV. IN= 423.45 (21) INV. OUT= 423.35 (5)	NCDOT CURB INLET
7	431.15 INV. IN= 424.94 (8) INV. IN= 423.72 (16) INV. OUT= 423.62 (6)	NCDOT CURB INLET
8	433.95 INV. IN= 425.92 (9) INV. OUT= 425.82 (7)	NCDOT CURB INLET
9	433.95 INV. IN= 426.92 (10) INV. IN= 428.60 (32) INV. OUT= 426.82 (8)	NCDOT CURB INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
10	436.44 INV. IN= 427.69 (11) INV. IN= 430.86 (24) INV. OUT= 427.59 (9)	HDPE YARD INLET
11	437.44 INV. IN= 428.73 (12) INV. OUT= 428.63 (10)	HDPE YARD INLET
12	435.50 INV. IN= 429.75 (13) INV. OUT= 429.65 (11)	HDPE YARD INLET
13	436.00 INV. IN= 430.49 (14) INV. OUT= 430.39 (12)	NCDOT CURB INLET
14	436.00 INV. OUT= 430.75 (13)	NCDOT CURB INLET
15	428.50 INV. OUT= 424.10 (5)	HDPE YARD INLET
16	429.68 INV. IN= 424.71 (17) INV. OUT= 424.61 (7)	NCDOT CURB INLET
17	434.01 INV. IN= 427.77 (18) INV. IN= 425.51 (30) INV. IN= 427.77 (34) INV. OUT= 425.41 (16)	NCDOT CURB INLET
18	436.04 INV. IN= 430.89 (19) INV. IN= 428.95 (31) INV. OUT= 428.85 (17)	NCDOT CURB INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
19	437.52 INV. IN= 431.67 (20) INV. OUT= 431.57 (18)	NCDOT CURB INLET
20	438.65 INV. OUT= 432.50 (19)	NCDOT CURB INLET
21	431.60 INV. IN= 424.34 (22) INV. OUT= 424.24 (6)	HDPE YARD INLET
22	432.00 INV. IN= 424.70 (23) INV. IN= 424.70 (29) INV. OUT= 424.60 (21)	NCDOT CURB INLET
23	435.99 INV. OUT= 426.78 (22)	NCDOT CURB INLET
24	437.18 INV. IN= 432.32 (33) INV. OUT= 432.22 (10)	HDPE YARD INLET
27	441.00 INV. OUT= 436.27 (28)	HDPE YARD INLET
28	441.00 INV. IN= 435.41 (27) INV. OUT= 435.31 (35)	HDPE YARD INLET
29	428.50 INV. OUT= 425.05 (22)	HDPE YARD INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
30	430.12 INV. OUT= 426.34 (17)	NCDOT CURB INLET
31	434.05 INV. OUT= 429.82 (18)	NCDOT CURB INLET
32	436.72 INV. OUT= 429.50 (9)	NCDOT CURB INLET
33	437.87 INV. IN= 432.53 (35) INV. OUT= 432.43 (24)	NCDOT CURB INLET
34	430.03 INV. OUT= 428.09 (17)	HDPE YARD INLET
35	441.08 INV. IN= 434.24 (28) INV. OUT= 434.14 (33)	HDPE YARD INLET

15 add note:
All storm items should be as-built for the town Appendix B - Section 1.2.5.B specifies as-builts for storm

#16 Storm calcs (02/10/25 yr), drainage area maps (pre/post/inlet) will be required prior to approval. the storm calculation package does not include curb inlet area maps to verify gutter spread and other calcs. also pipe line (9,10,11,12) from 10YR are not part of current plan set.

update all table based on storm package

NO.	DATE	DESCRIPTION	BY

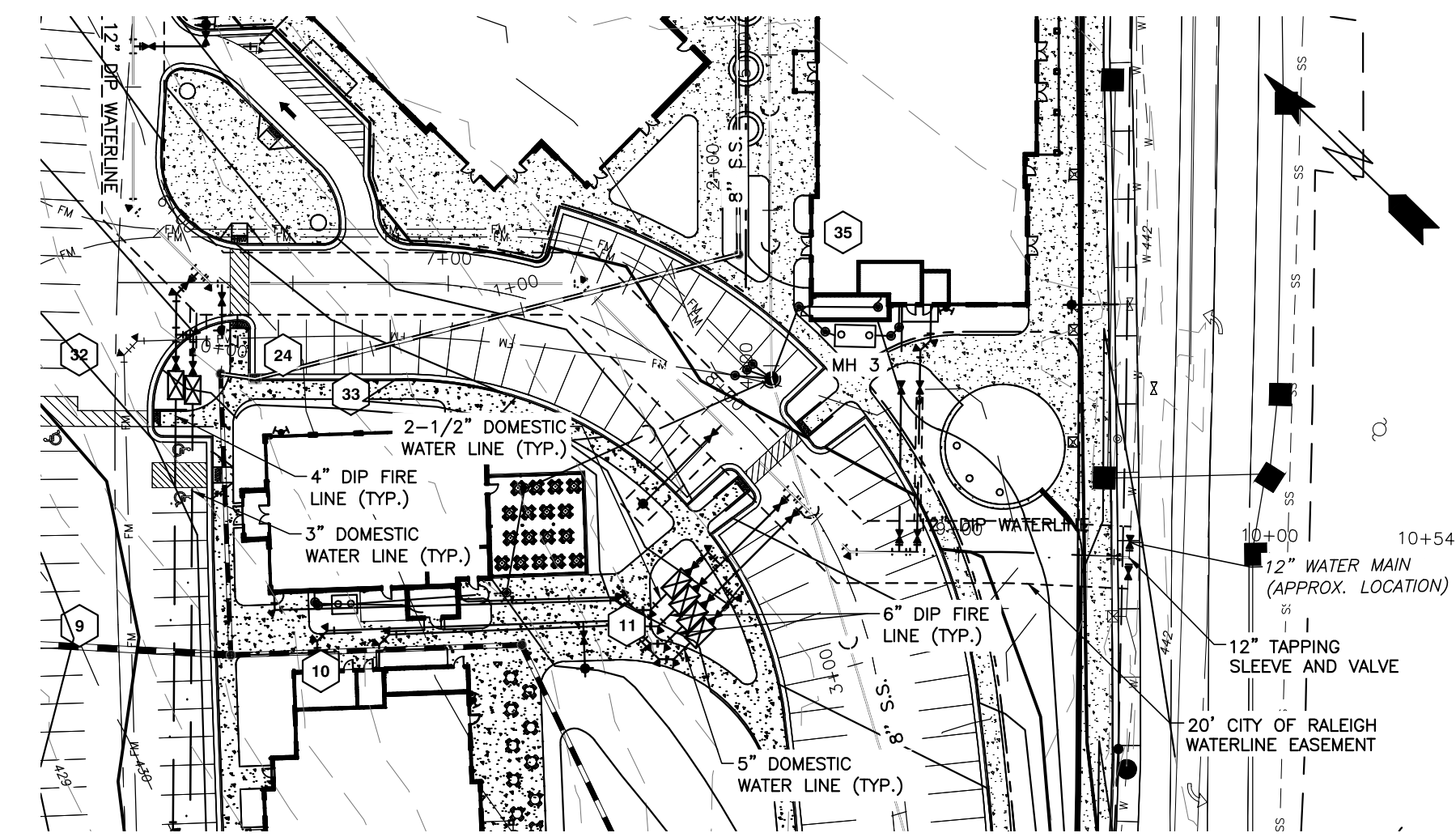
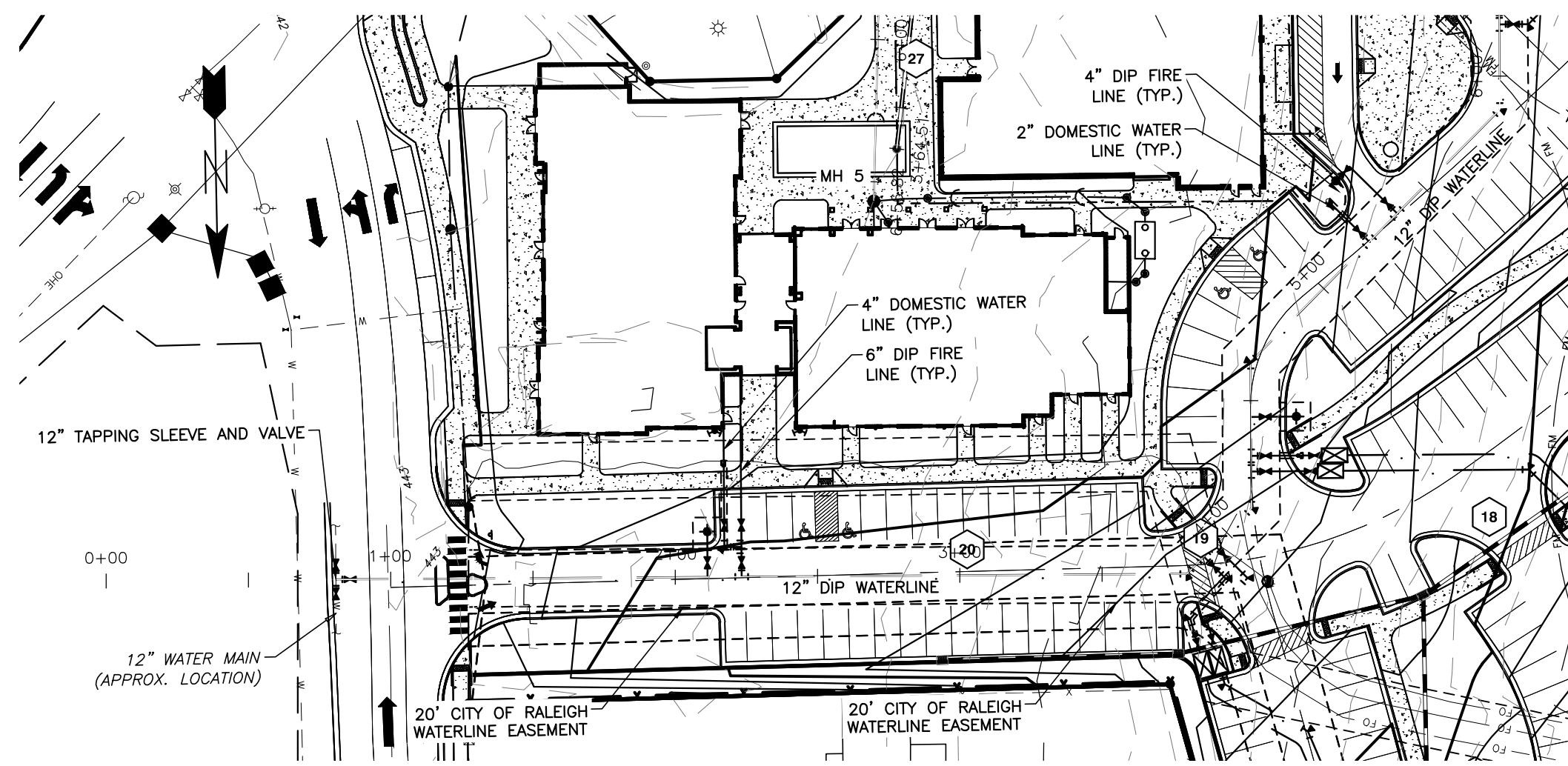
03-19157 - PROGRESS MRM DATE DRAWN BY
JOB NO. DATE DRAWN BY
STORM DRAINAGE PIPE & STRUCTURE TABLE
SCALE: CHK BY: MDB

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

SHEET C3.8



04/20/22



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
 Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.
 City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

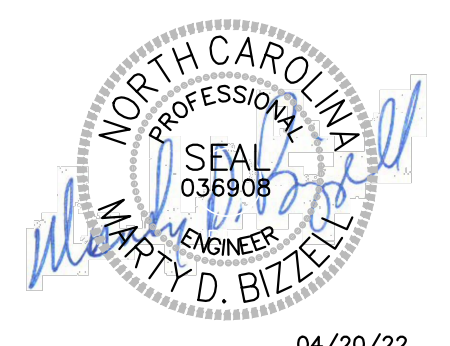
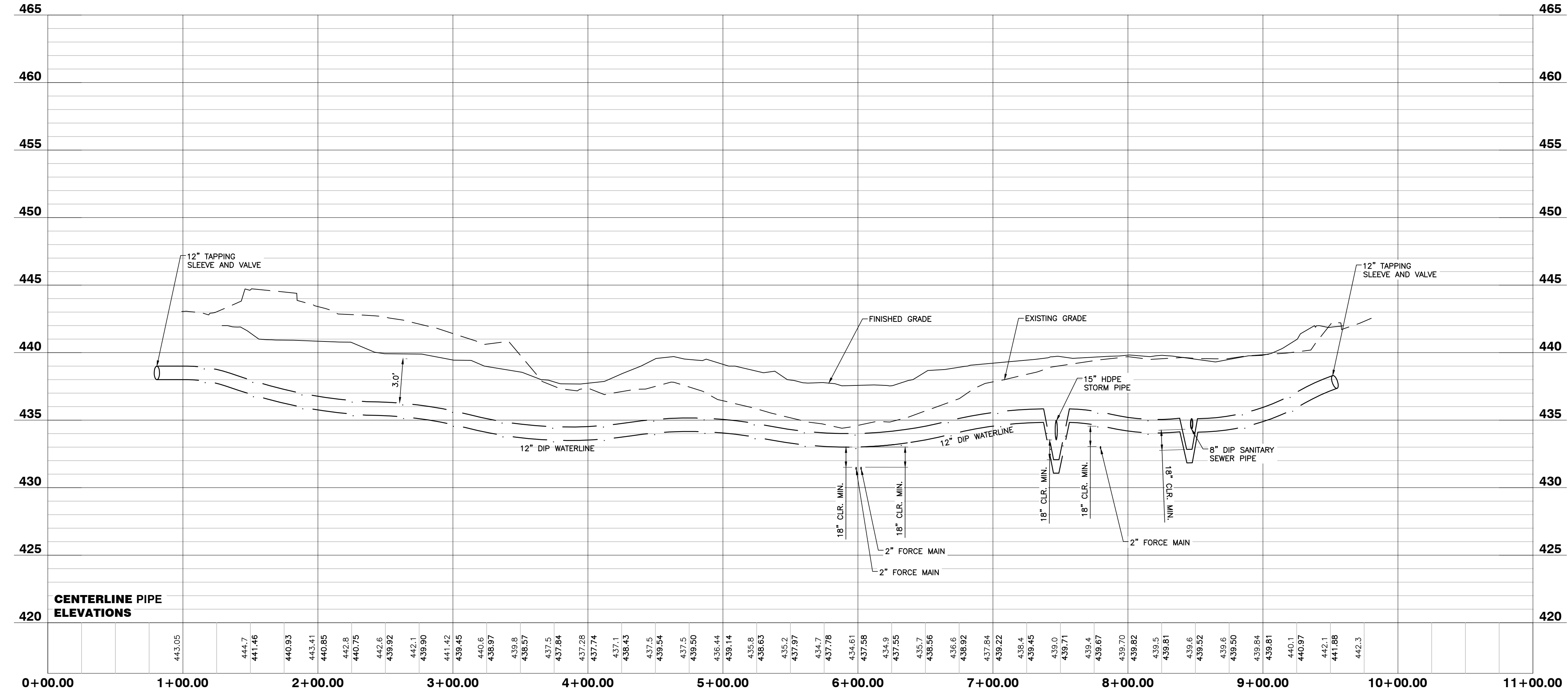


BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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



04/20/22

NO FLOODPLAINS EXIST ON-SITE

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

R:\2019\19157 - Rolesville Town Center\CIVIL\04 Construction\10 - 19157_Data.dwg, Waterline Profile, 4/20/2022 3:36:23 PM, marc.mueller

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

SHEET
C4.1

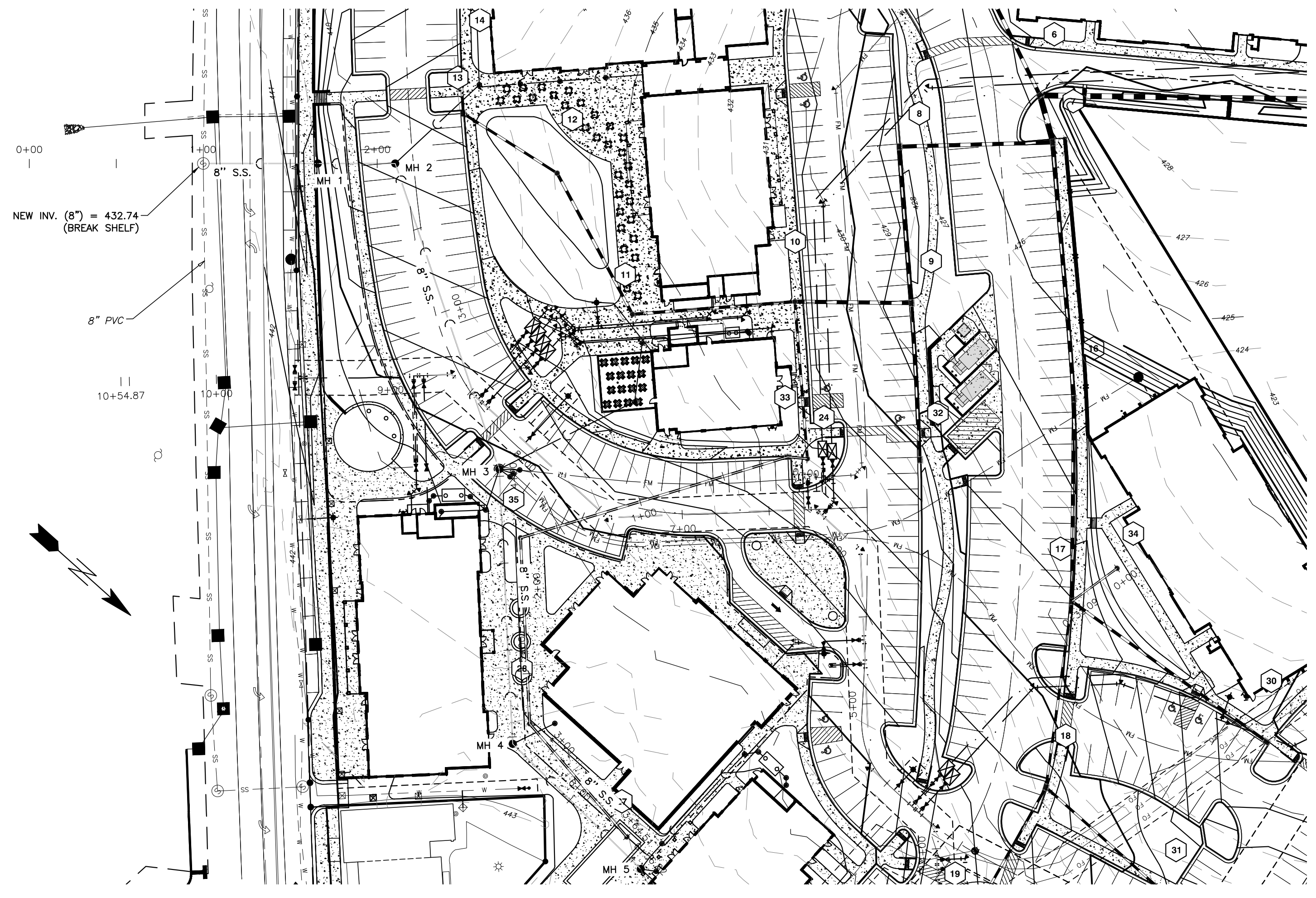
Private Sewer Collection / Extension System
 The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # S-4962 (P)
 Authorization to Construct See digital signature



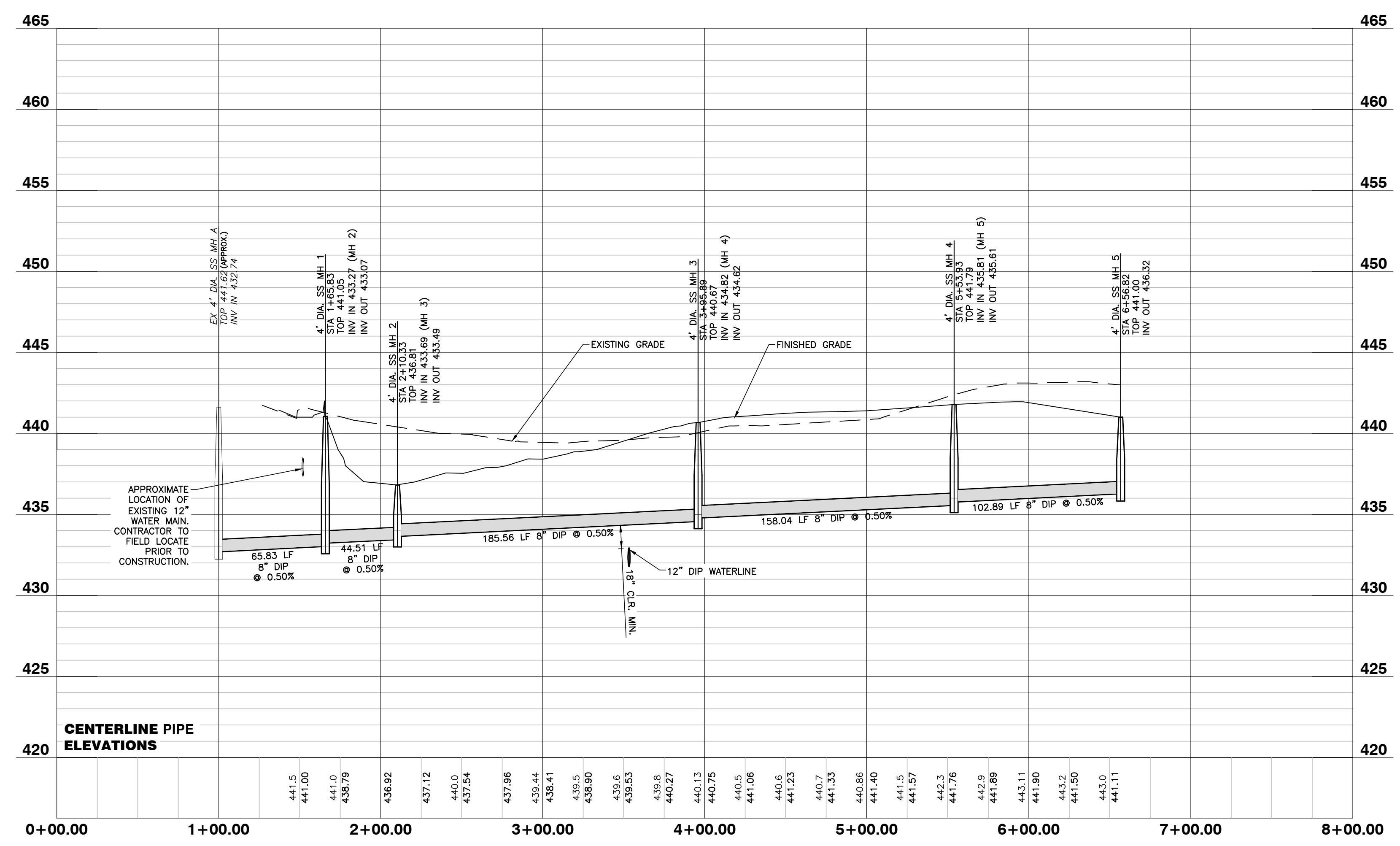
BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)851-1422 FAX: (919)851-8686
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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 _____



SANITARY SEWER PROFILE



04/20/22

NO FLOODPLAINS EXIST ON-SITE

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

NO.	DATE	DESCRIPTION	BY

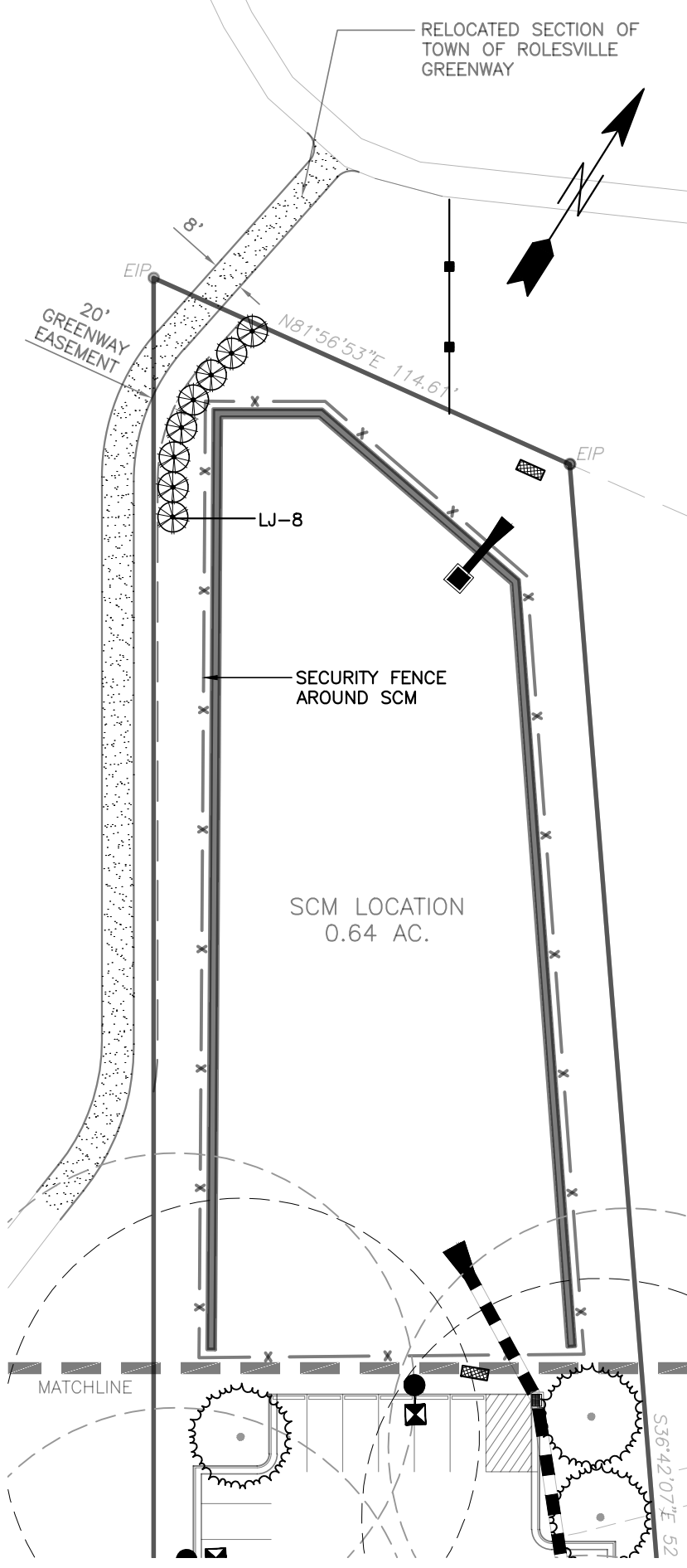
03-19157 PROGRESS MRM
 JOB NO. DATE DRAWN BY
SANITARY SEWER PROFILE
 SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

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

SHEET
C4.2

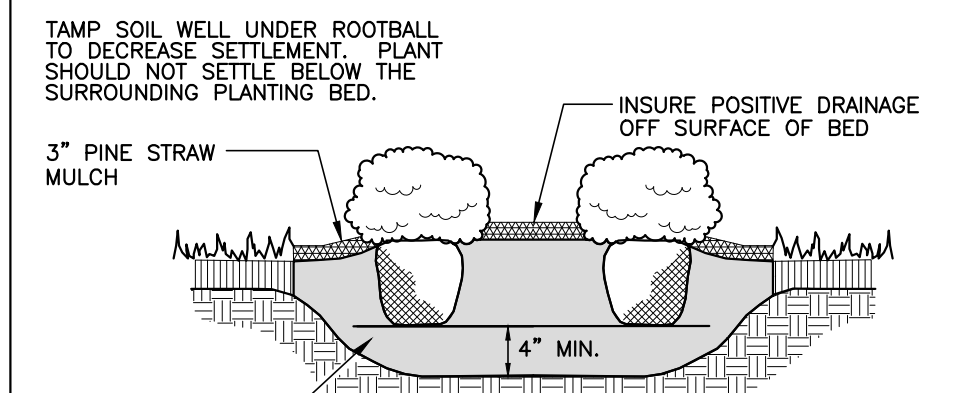
GENERAL NOTES

- 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 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 NURSERMEN.
- 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.



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	24	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	6	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 Holl	119		24"	CONT.	Buffer
JC	Juniperus chinensis 'Savbrook Gold'	Savbrook Gold Juniper	44		24"	CONT.	VUA Screen
LC	Loropetalum chinense 'Daruma'	Daruma Loropetalum	36		24"	CONT.	VUA Screen
LJ	Ligustrum japonicum	Wax Ligustrum	98		24"	CONT.	Buffer
OF	Osmanthus fragrans	Fragrant Tea Olive	51		24"	CONT.	Buffer/Screen
VML	Viburnum x 'Moonlit Lace'	Moonlit Lace Viburnum	158		24"	CONT.	Buffer



CONTINUOUS SHRUB PLANTING
NOT TO SCALE

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

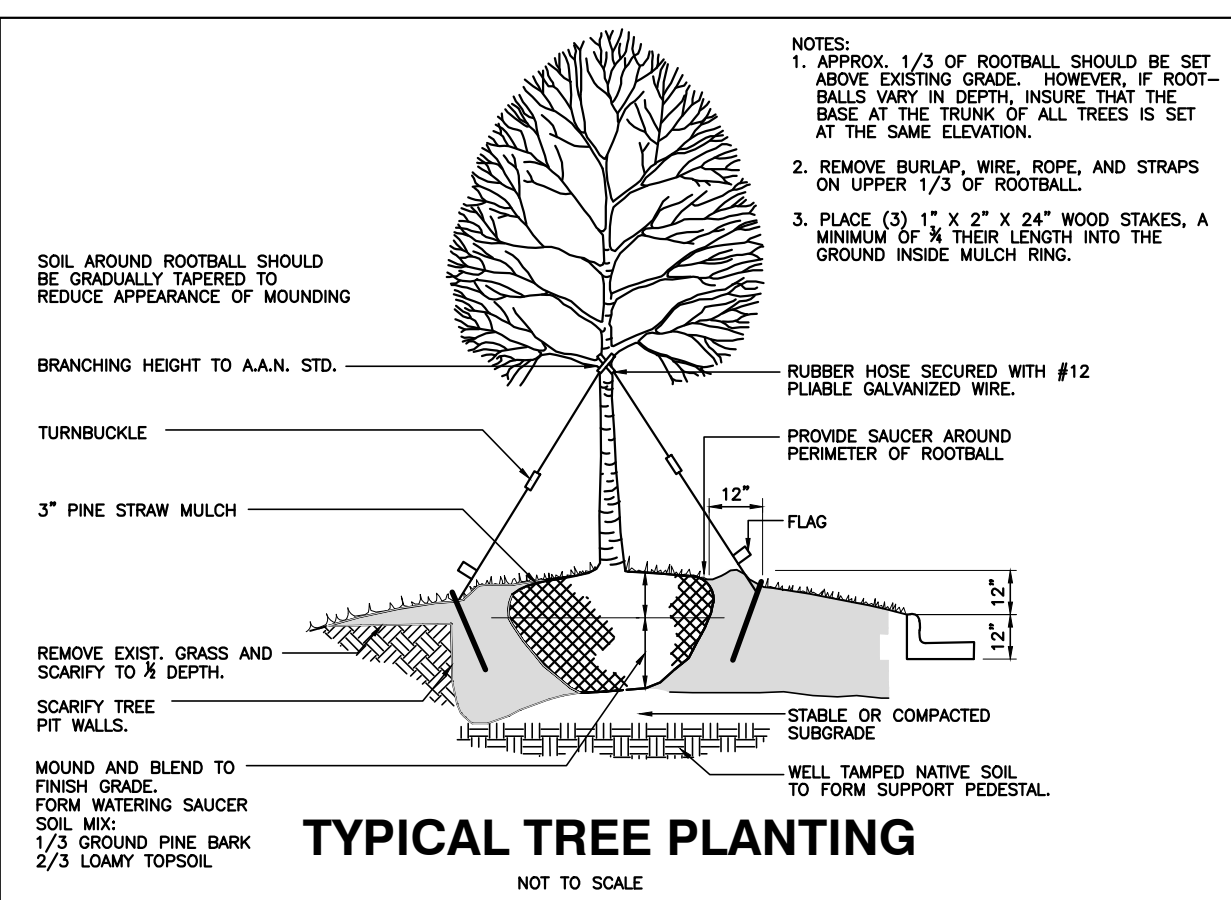
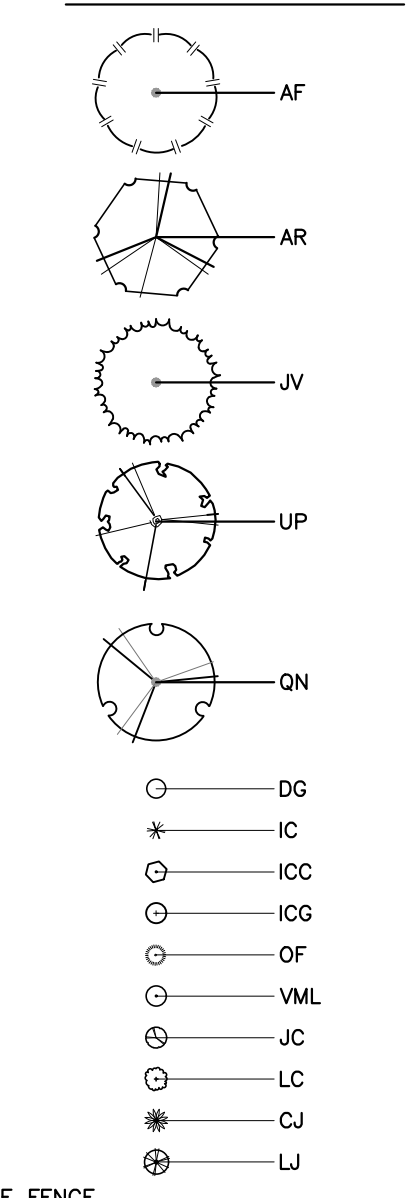
NORTHEAST (3) - 240 LF = 4 TREES / 100 LF = 10 TREES REQUIRED/PROVIDED
 = 40 SHRUBS / 100 LF = 96 SHRUBS REQUIRED/PROVIDED
 = 240 LF MIN. 6' TALL FENCE REQUIRED

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

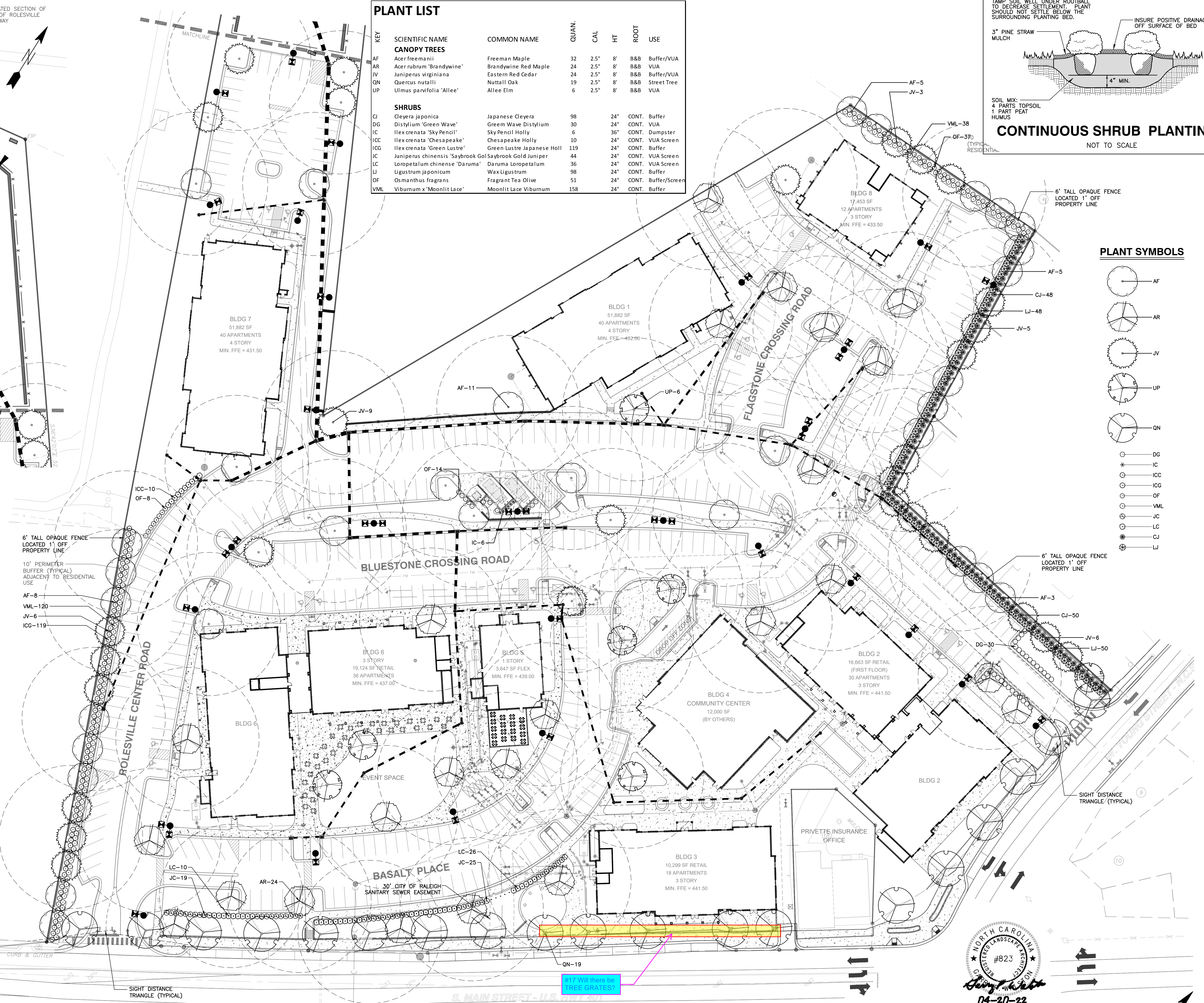
PLANT SYMBOLS



TYPICAL TREE PLANTING
NOT TO SCALE

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 NURSERMEN, 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).



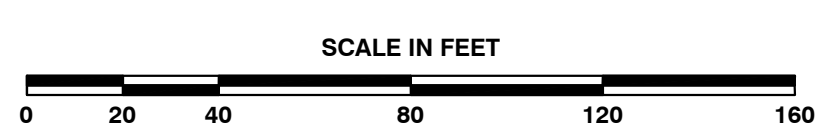
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

NO FLOODPLAINS EXIST ON-SITE

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



BASS, NIXON & KENNEDY, INC.
 CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-1122 FAX: (919)881-6888
 CERTIFICATION NUMBERS: NCBELS (C-010); NCBOLA (C-0267)

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

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

LANDSCAPE PLAN

SCALE: 1" = 40'

CHK BY: GPW

R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\08 - 19187_Landscape.dwg, Landscape Plan, 4/20/2022 3:34:31 PM, marc.mueller

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

Outdoor Lighting
Shoobox LED



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

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

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

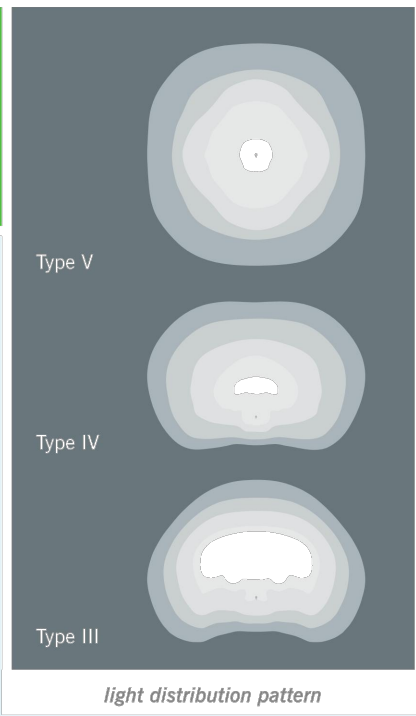


Outdoor Lighting
Shoobox LED

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

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

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

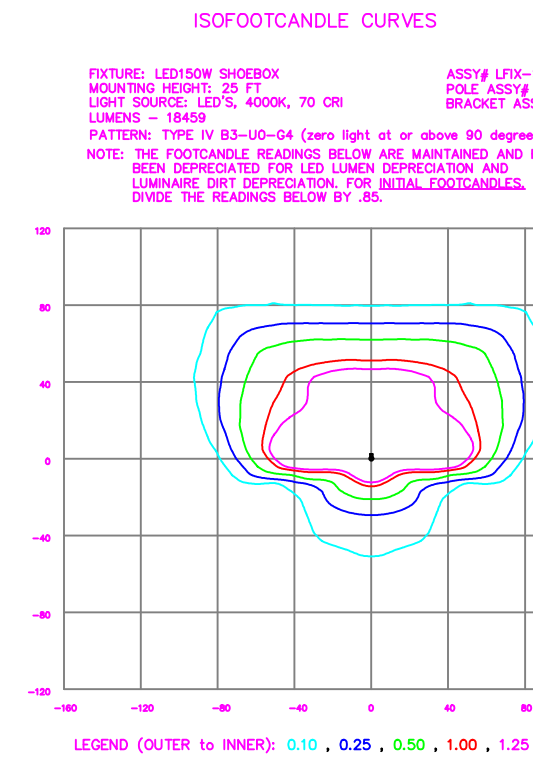
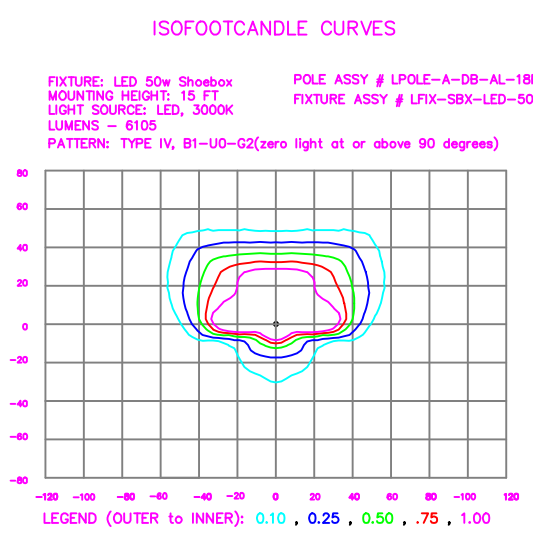
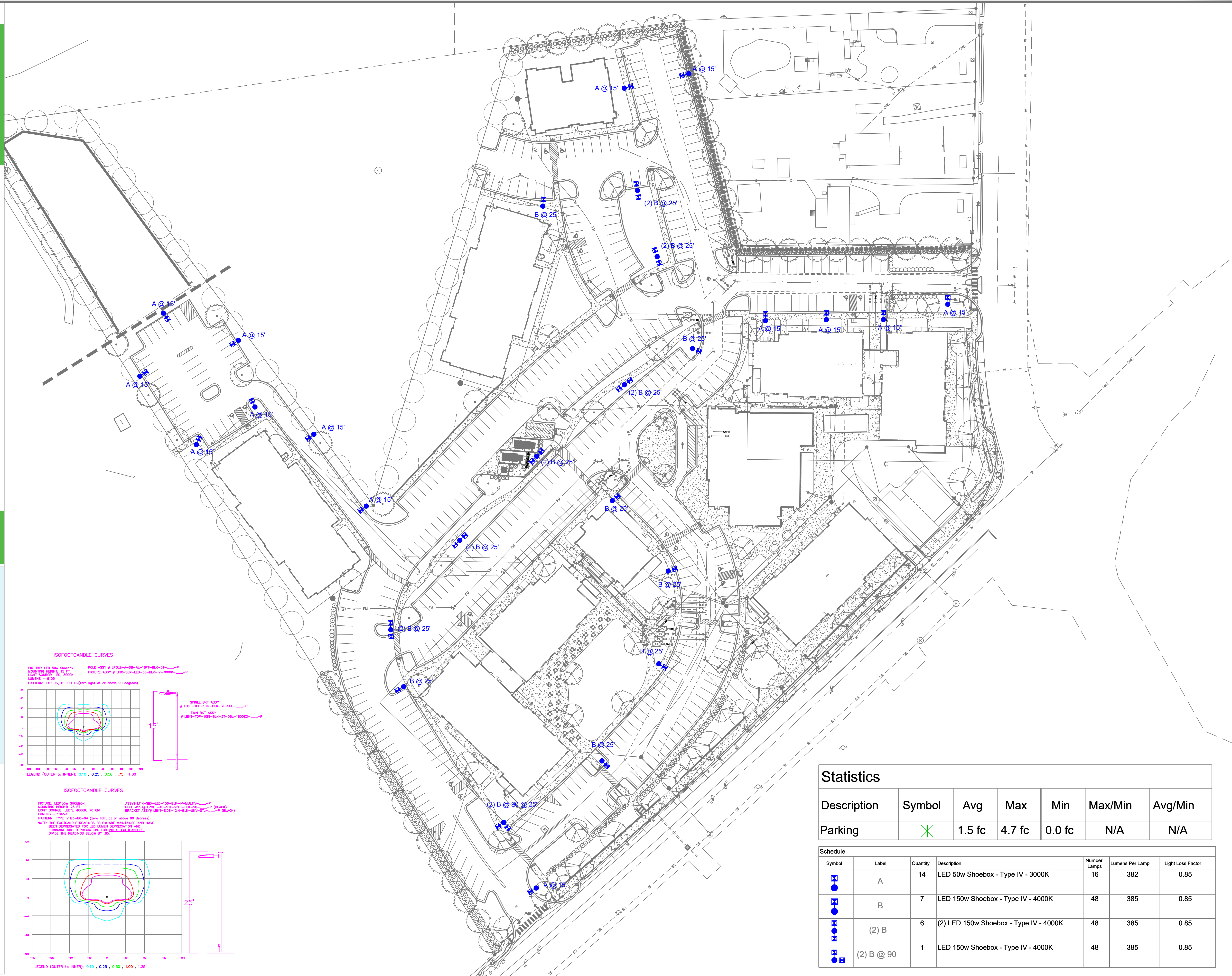


Poles available:

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

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

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



Statistics

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

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

Customer approval _____
Date _____

DISTANCE CALIBRATION (INCHES)

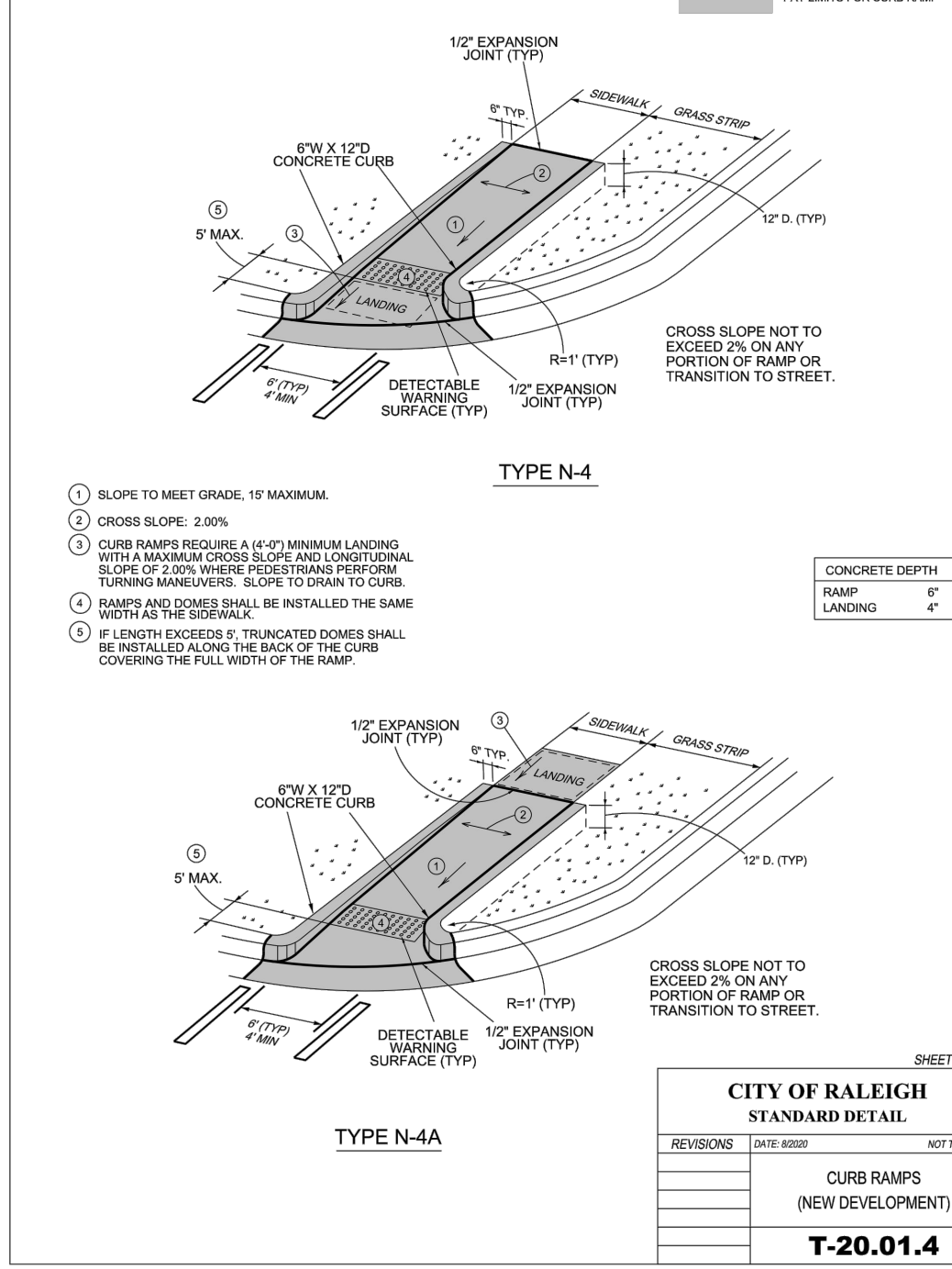
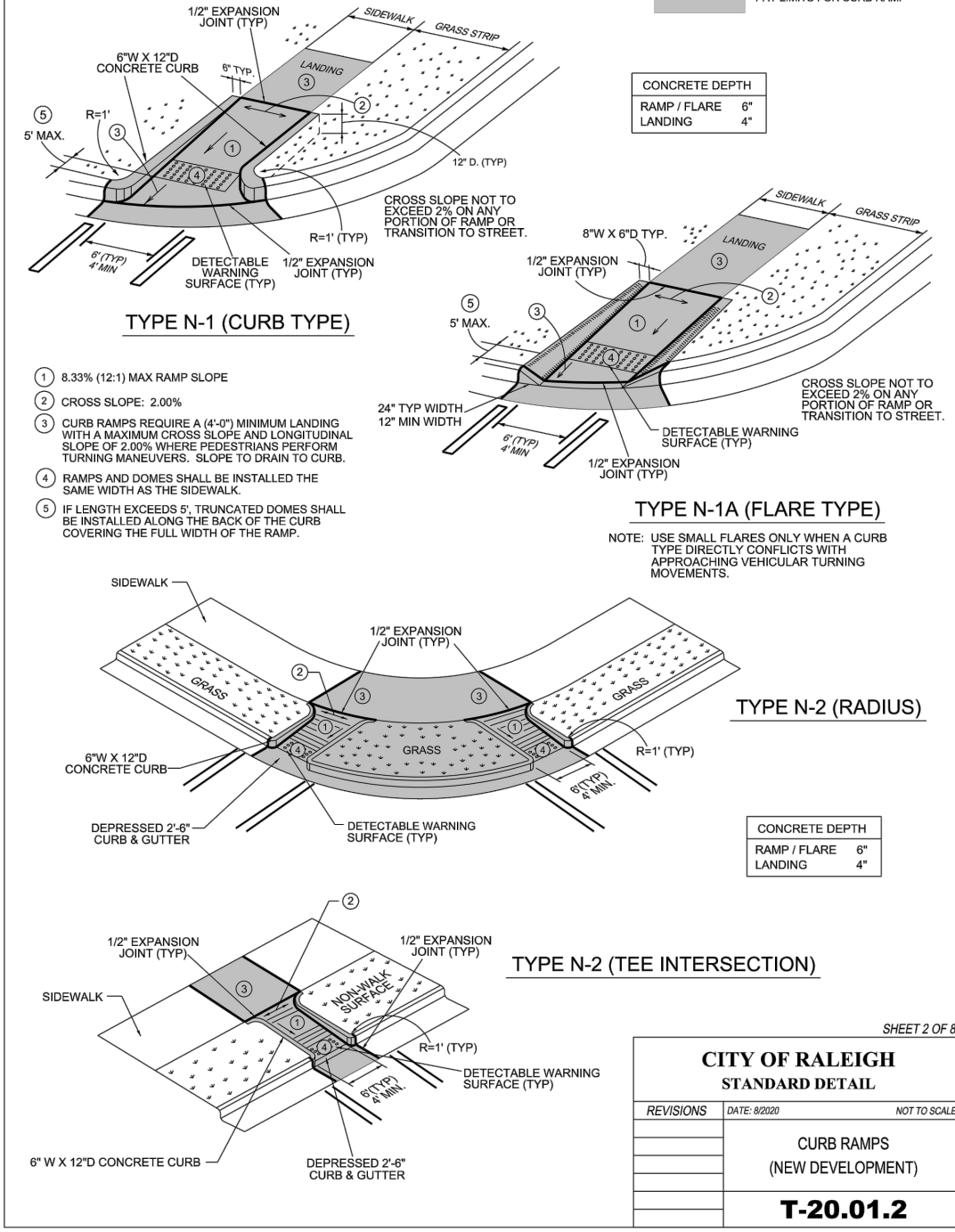
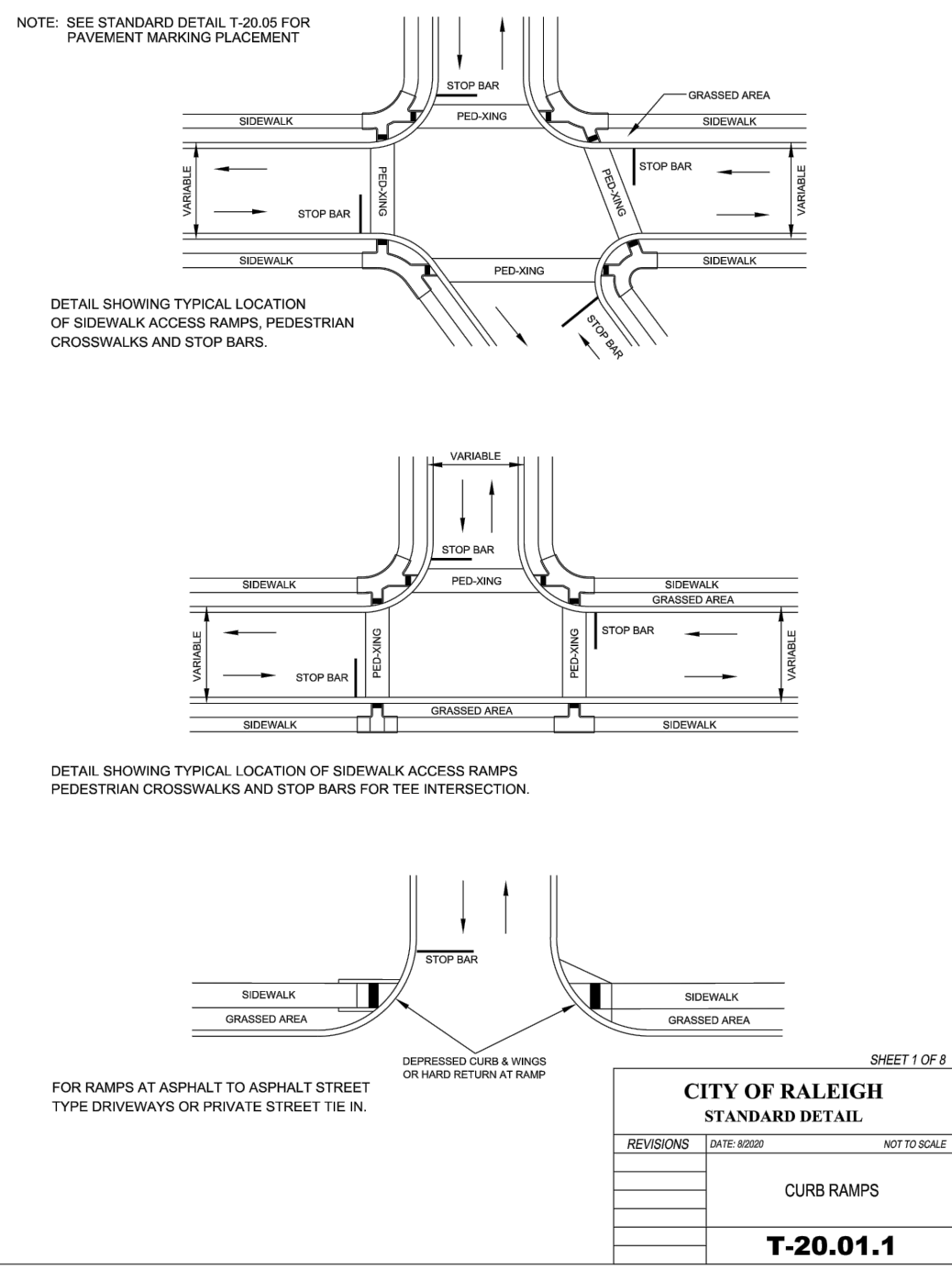
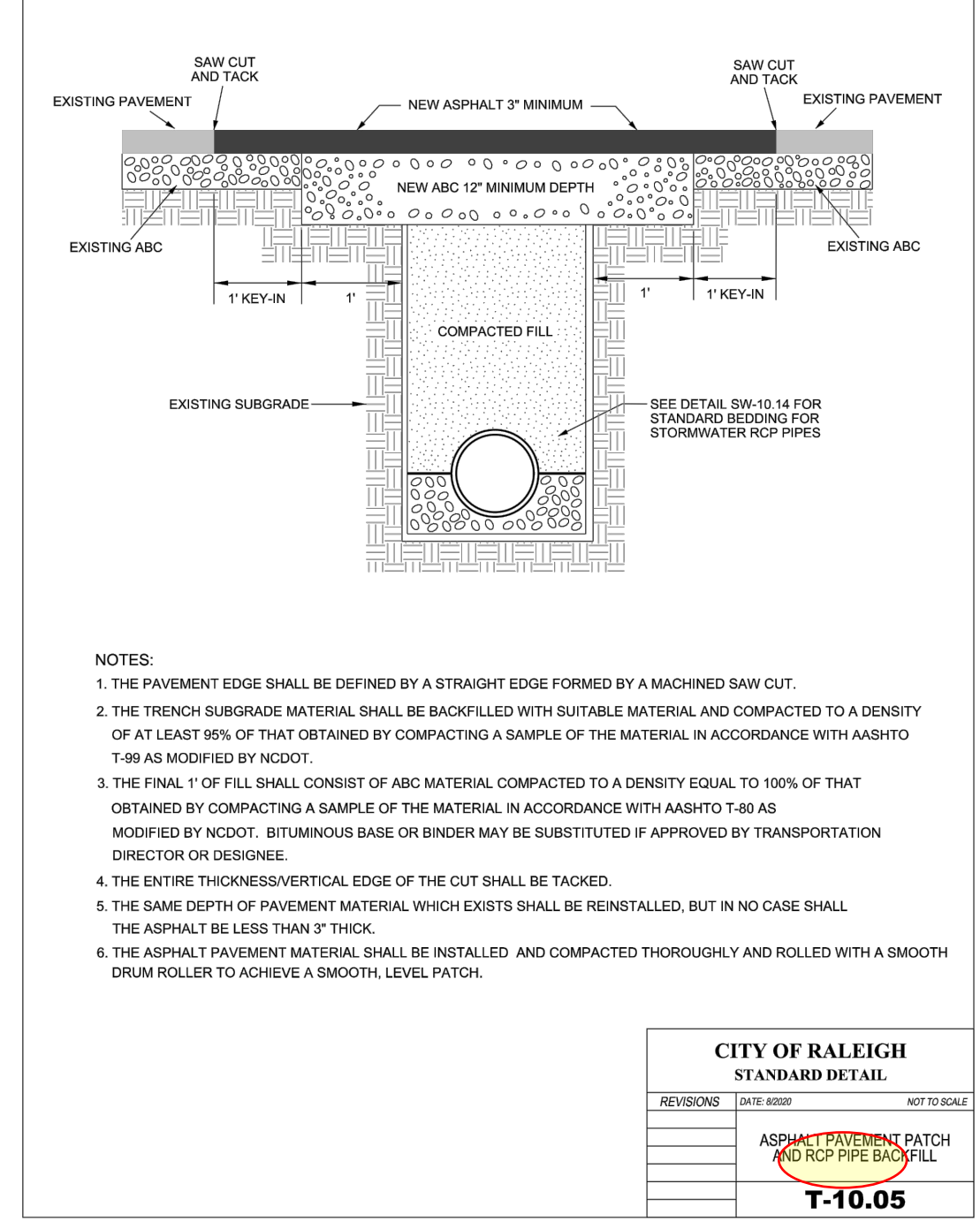
LIGHTING DESIGN TOLERANCE
The calculated footcandle light levels on this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including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



PROPRIETARY & CONFIDENTIAL
This document together with the concepts and designs presented herein, presented as an instrument of service, is the sole property of Duke Energy, and is intended only for the specific purpose and prospective client as stated in the title block of this drawing. Any use, copying, reproduction or disclosure of the drawing, design or any information contained herein by the prospective customer or other entities, including without limitation, architects, engineers, or equipment manufacturers is hereby expressly prohibited and shall not be permitted absent prior written consent from, and payment of compensation to Duke Energy. Duke Energy disclaims any liability or responsibility for any unauthorized use of or reliance on this document.

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

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

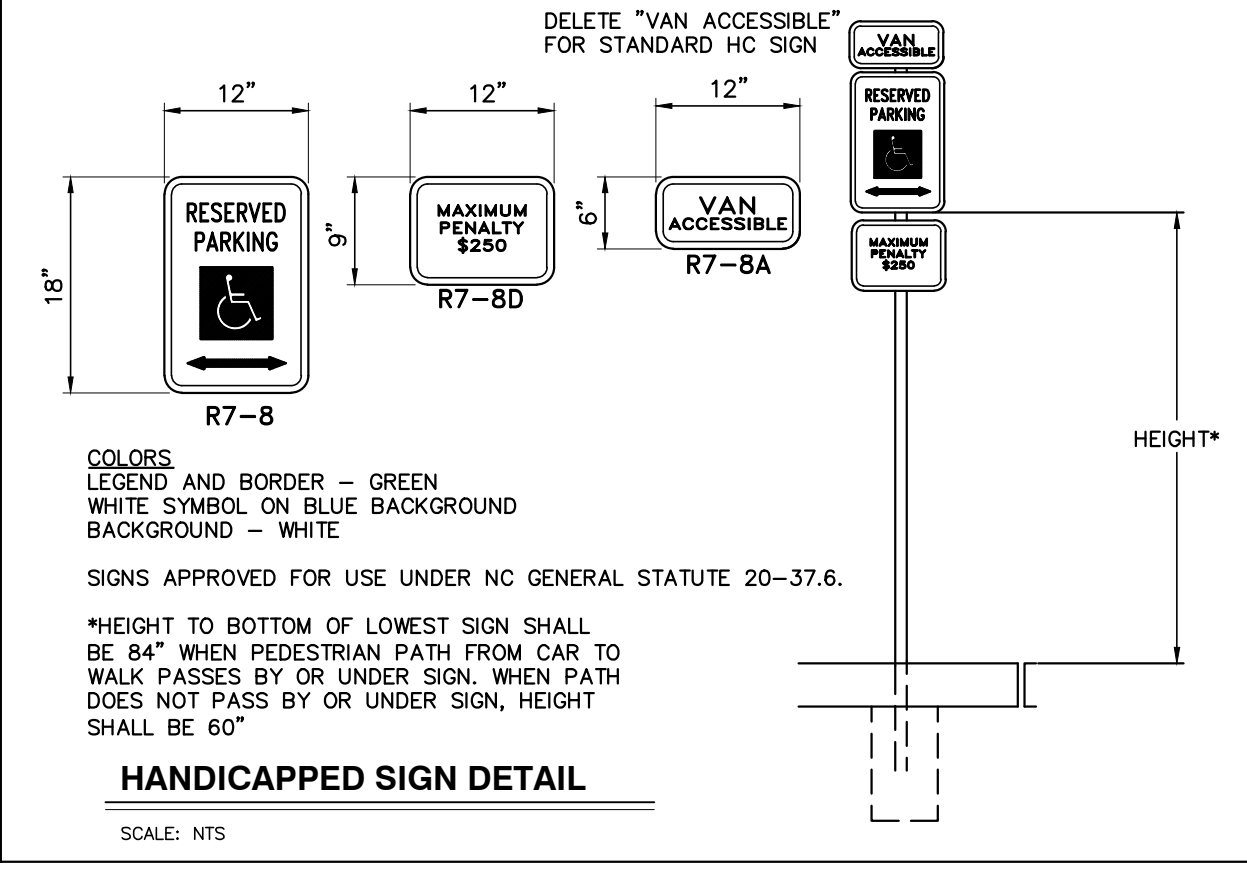
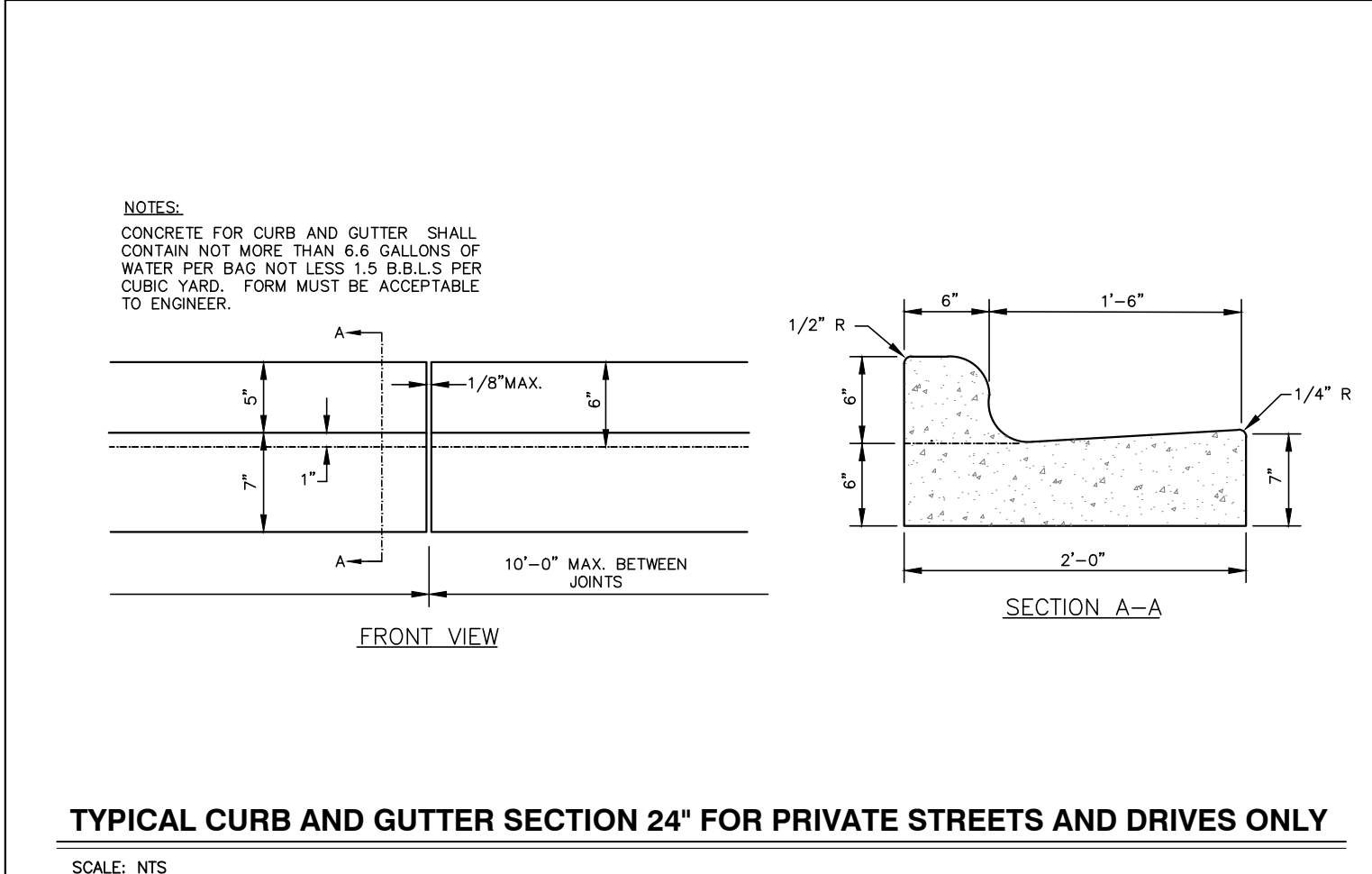
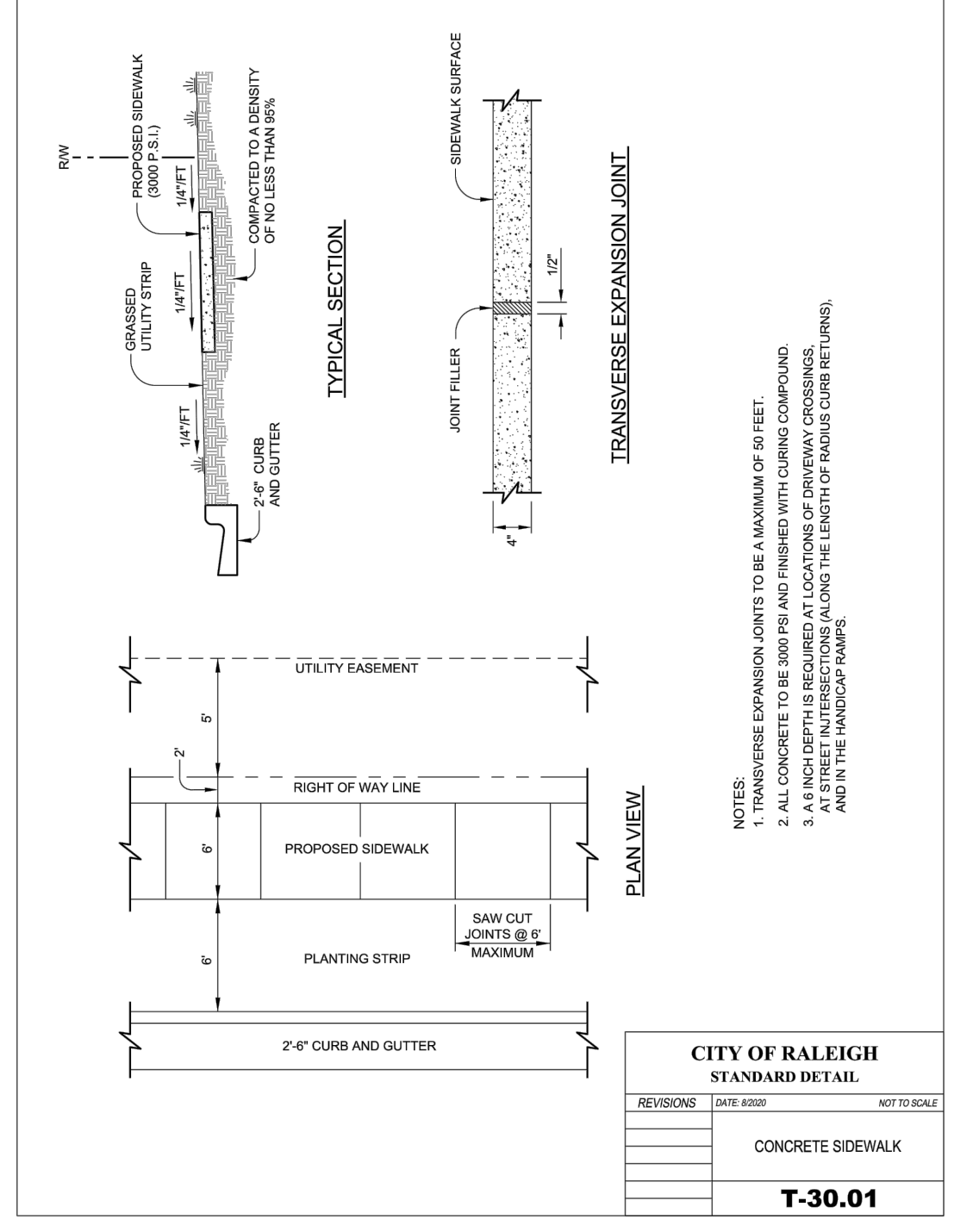
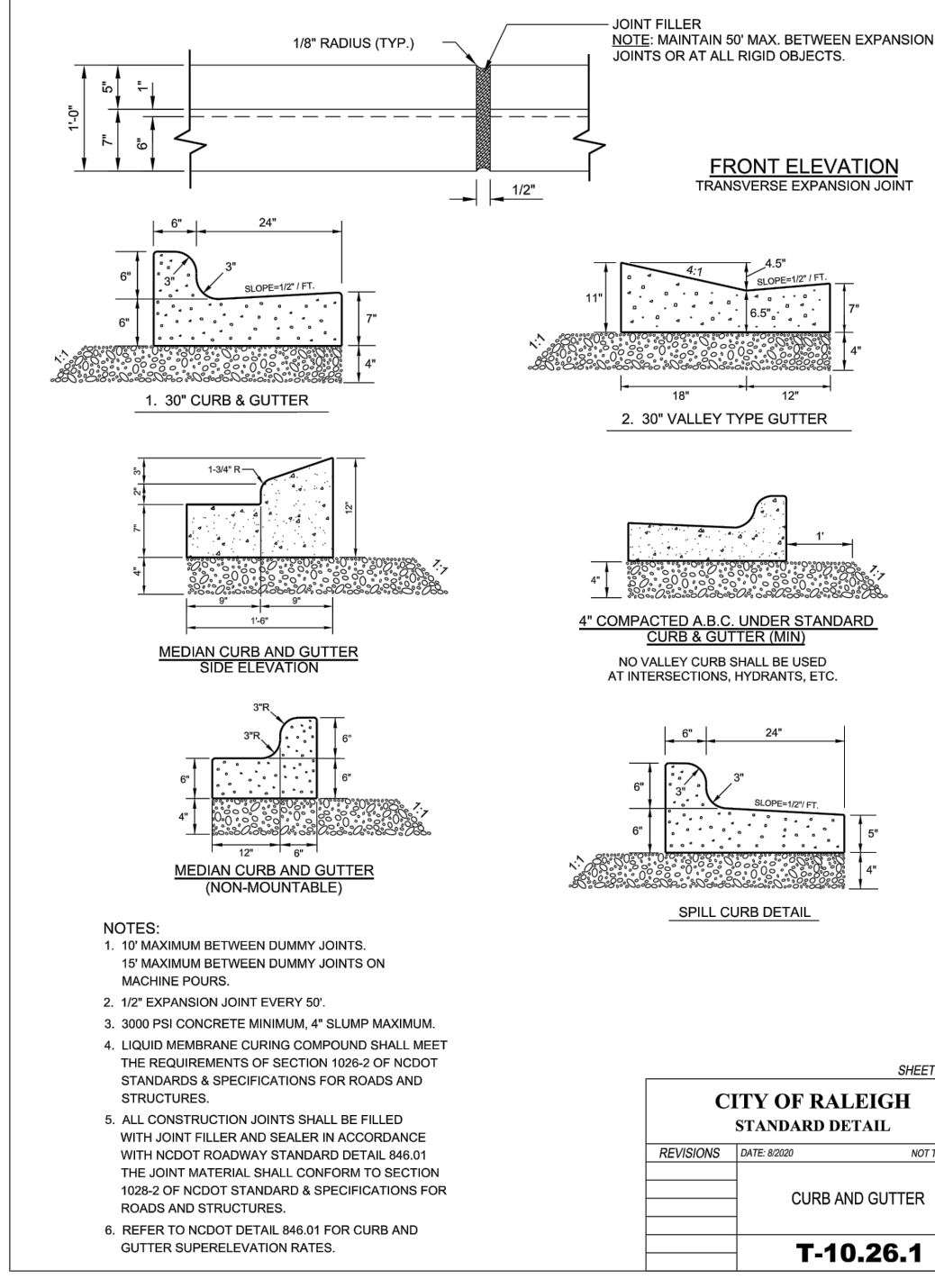
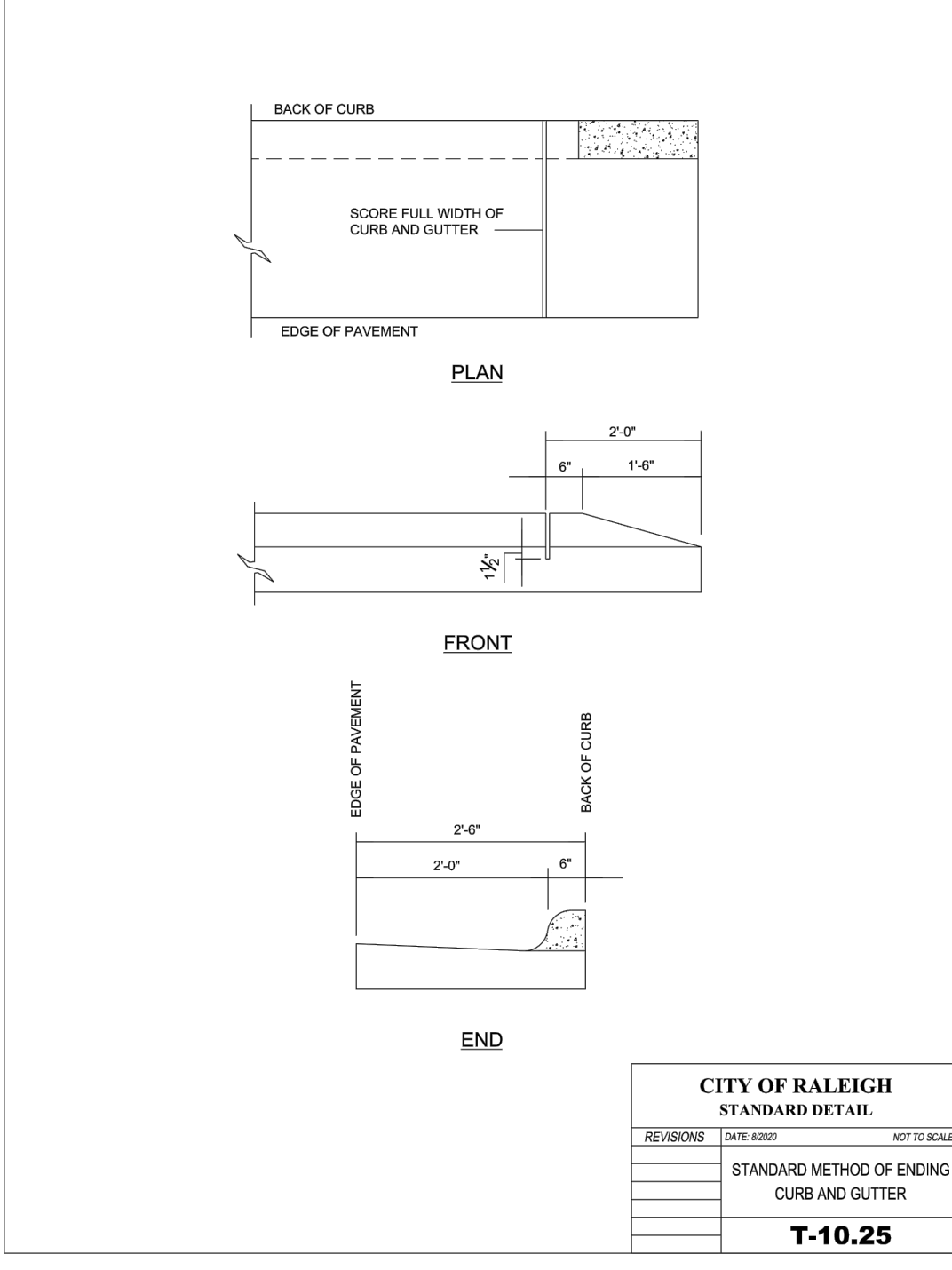


CITY OF RALEIGH CURB RAMPS GENERAL NOTES

- 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).
- 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.
- DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED.
- THE WALKING SURFACE SHALL BE SLIP RESISTANT. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE YELLOW FOR CONTRAST.
- NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1" (2:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
- 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.
- USE CLASS A (3000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NONSKID SURFACE.
- 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.
- CURB RAMPS SHOULD BE PLACED PARALLEL TO THE DIRECTION OF TRAVEL.

CITY OF RALEIGH STANDARD DETAIL
 T-20.01.8
 CURB RAMP NOTES

#19 WILL NEED NCDOT DETAILS ALONG THE ROW - STORM DRAINAGE (MUST MEET ALL NCDOT STANDARDS AND DETAILS) - SITE WORK (SIDEWALK/ADA RAMPS/CURBS/ETC (NCDOT STANDARDS AND DETAILS))



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 _____



04/20/22

BASS, NIXON & KENNEDY, INC.
 CONSULTING ENGINEERS
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
 TELEPHONE: (919)881-4242 FAX: (919)881-6868
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

PROGRESS MRM DATE DRAWN BY
 JOB NO. DETAILS
 SCALE: N.T.S. CHK BY: MDB

SHEET C5.1

NO.	DATE	DESCRIPTION	BY

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

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" KEYS, 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.

CITY OF RALEIGH STANDARD DETAIL
 STANDARD DROP INLET
SW-10.03

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

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, N, WITH NO RISER) *

PIPE DIA.	SPAN	WIDTH	HEIGHT	COVER DIMENSION	NO. BARS U	NO. BARS V	NO. BARS W	TOTAL NO. BARS	CU. YDS. CONC. IN BOX	NO. TOP REINFORCING BARS	NO. BOTTOM REINFORCING BARS	NO. REINFORCING BARS PER SQUARE FOOT	REDUCTIONS C.W. R.C.
12"	3'-0"	2'-2"	2'-9"	3'-0"	4	4	4	12	0.235	0.772	0.015	0.026	
15"	3'-0"	2'-2"	3'-0"	3'-0"	4	4	4	12	0.235	0.809	0.023	0.036	
18"	3'-0"	2'-2"	3'-3"	3'-0"	4	4	4	12	0.235	0.887	0.033	0.049	
24"	3'-0"	2'-2"	3'-9"	3'-0"	4	4	4	12	0.235	1.001	0.059	0.085	
30"	3'-0"	2'-2"	4'-3"	4'-3"	4	4	4	12	0.133	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	4'-9"	4'-9"	4	4	4	12	0.161	0.359	1.714	0.132	0.178
42"	3'-0"	2'-2"	5'-3"	5'-3"	4	4	4	12	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-2"	5'-9"	5'-9"	4	4	4	12	0.148	0.352	2.062	0.235	0.317
54"	3'-0"	2'-2"	6'-3"	6'-3"	4	4	4	12	0.180	0.389	2.387	0.297	0.401

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

CITY OF RALEIGH STANDARD DETAIL
 DROP INLET CASTING
SW-10.08

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

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

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

TYPICAL MH FOR STORM SEWER

PIPE SIZE	MH DIAMETER
12"	4'-0"
30"	5'-0"
48"	6'-0"
54"	8'-0"

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

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

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

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

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

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

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

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

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

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

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

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

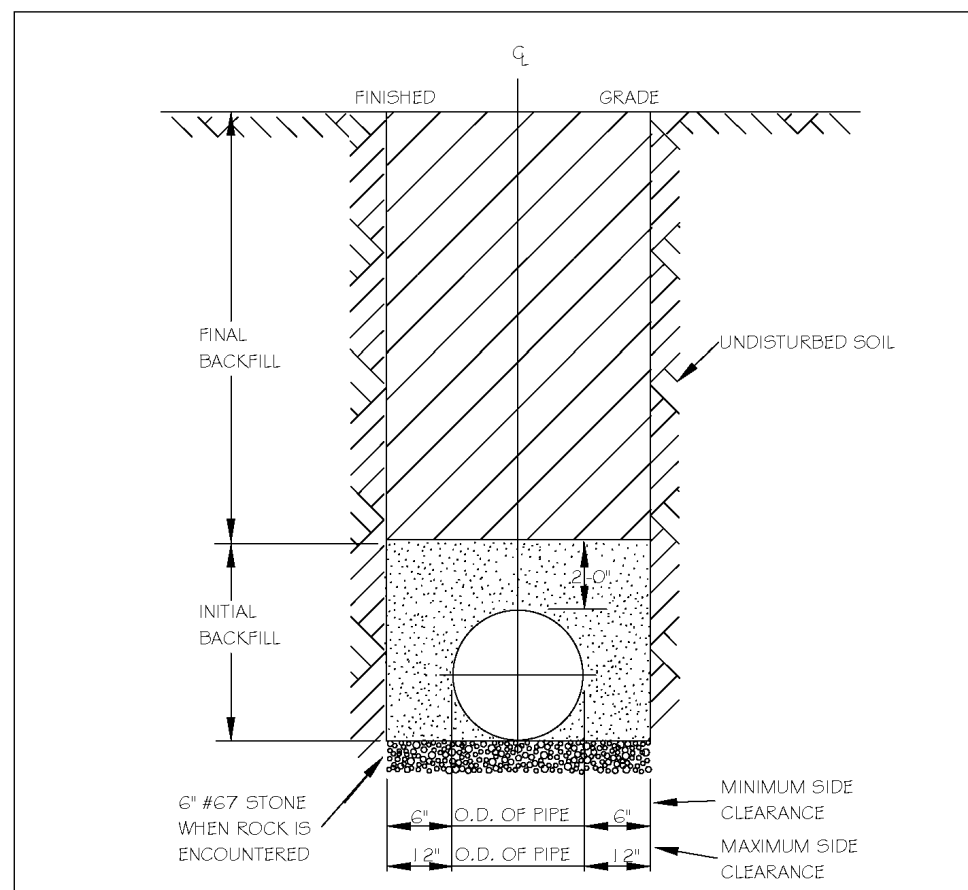
CITY OF RALEIGH STANDARD DETAIL
 CATCH BASIN CASTINGS
SW-10.06.1

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

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

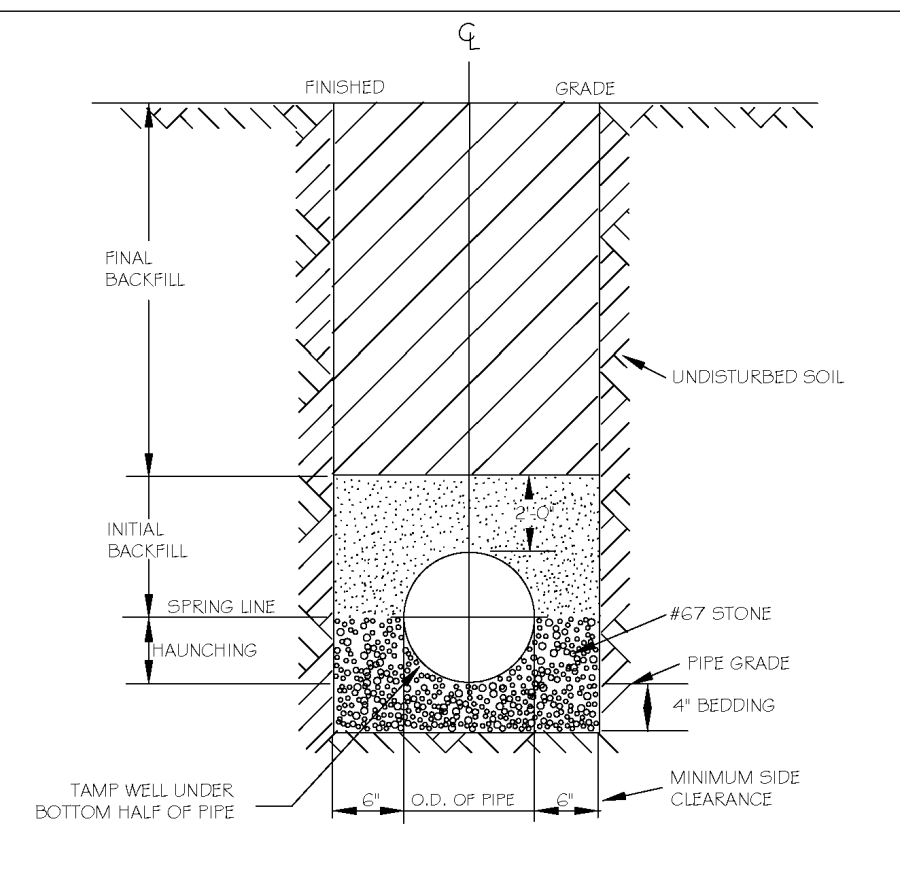
ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

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



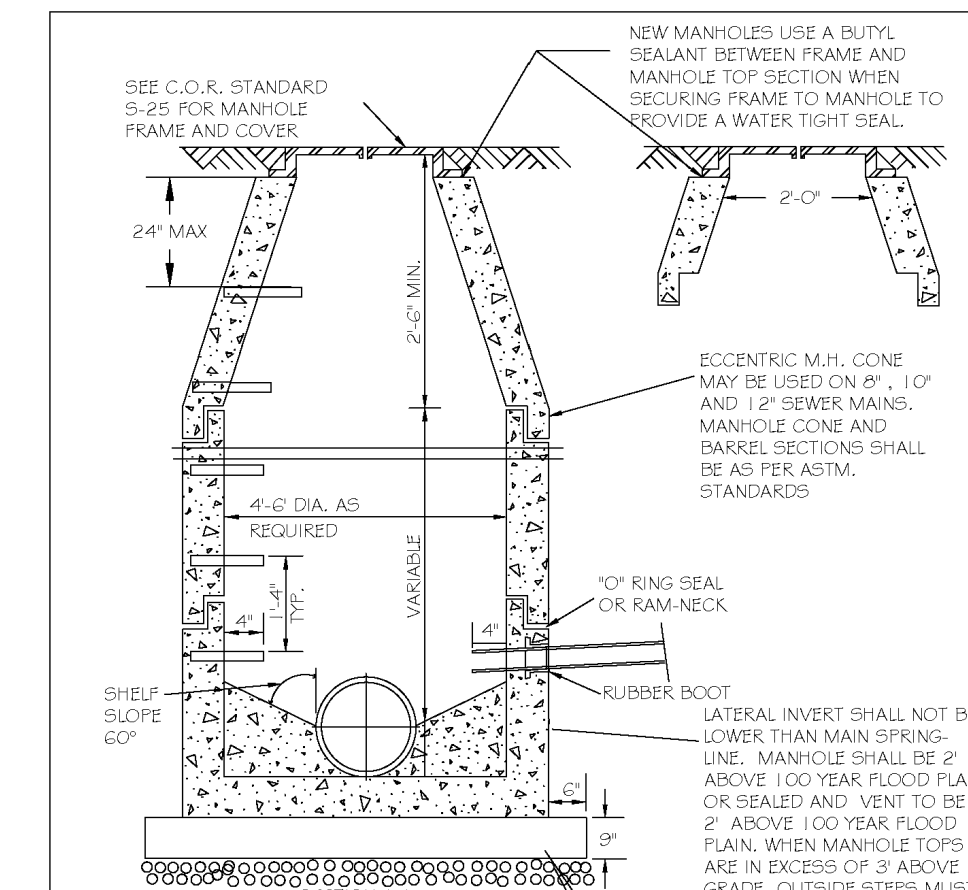
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN BASEMENT AT TOPSOIL, AND 1" CLEAN GRIEST FILL MAY BE REQUIRED.
7. NO BOULDERS 6" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

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



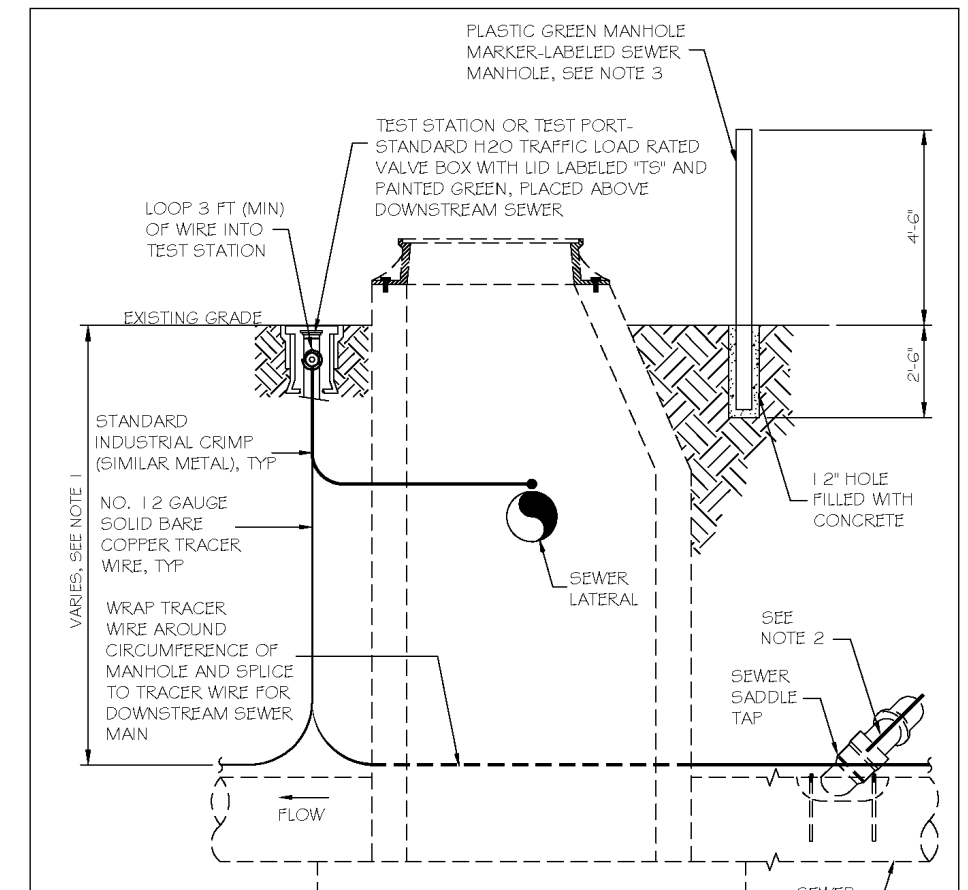
NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN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



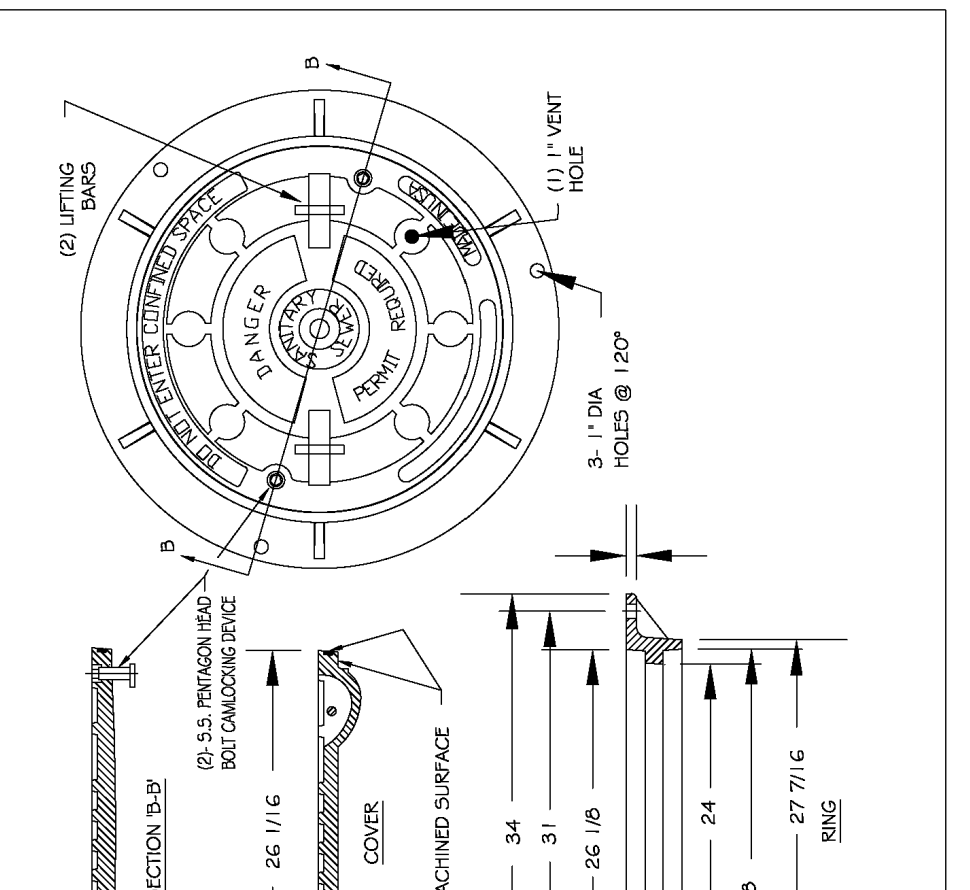
NEW MANHOLES USE A BUTYL SEALANT BETWEEN FRAME AND MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO ENSURE A WATER TIGHT SEAL.
ECCENTRIC M.H. CONE MAY BE USED ON 12" AND 18" SEWER MAINS. MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO ENSURE A WATER TIGHT SEAL.
LATERAL INVERT SHALL NOT BE LOWER THAN MAIN SPRINGS LINE. MANHOLE SHALL BE 2" ABOVE 100 YEAR FLOOD PLAIN OR SEALED AND VENT TO BE 2" ABOVE 100 YEAR FLOOD PLAIN. WHEN MANHOLE TOPS ARE IN EXCESS OF 3' ABOVE GRADE, OUTSIDE STEPS MUST BE PROVIDED. SEE STANDARD S-28 FOR STEP DETAIL IN NON TRAFFIC AREAS. TOP OF FRAME AND COVER SHALL BE INSTALLED A MIN. OF 1" ABOVE FINISHED GROUND SURFACE.
MIN. 8" COMPACTED #67 STONE BASE TO BE INSTALLED UNDER NEW MANHOLE.

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	



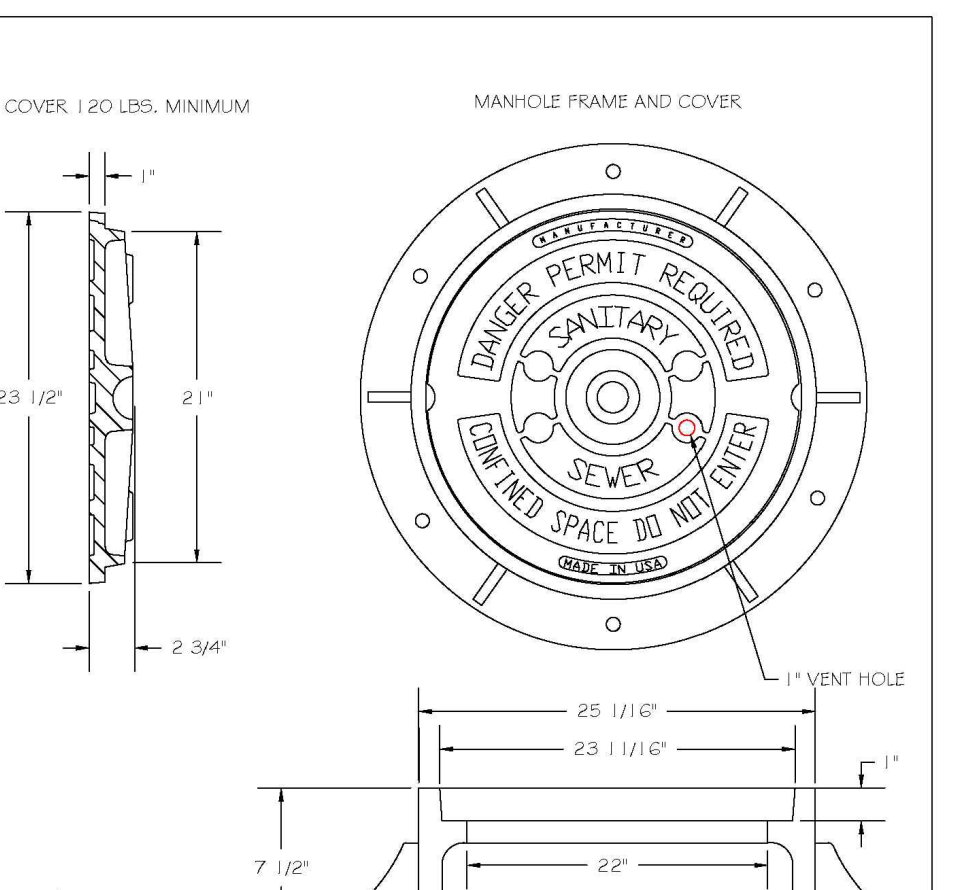
NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8' FT, THE TRACER WIRE SHALL BE ATTACHED TO THE PIPE TRACER WIRE SHALL BE ADDED AND SECURELY ATTACHED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL 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. WHEN 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 GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20A	WJE	09-11			



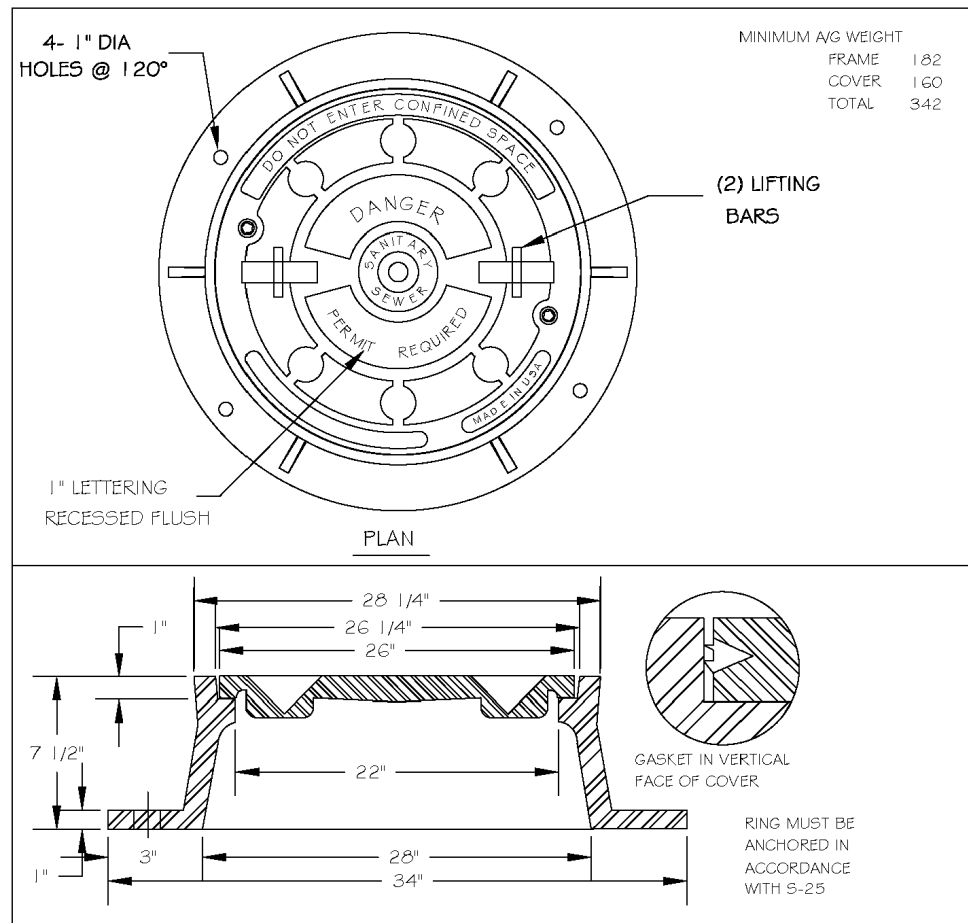
Notes: solid cover required when water tight manhole specified.

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



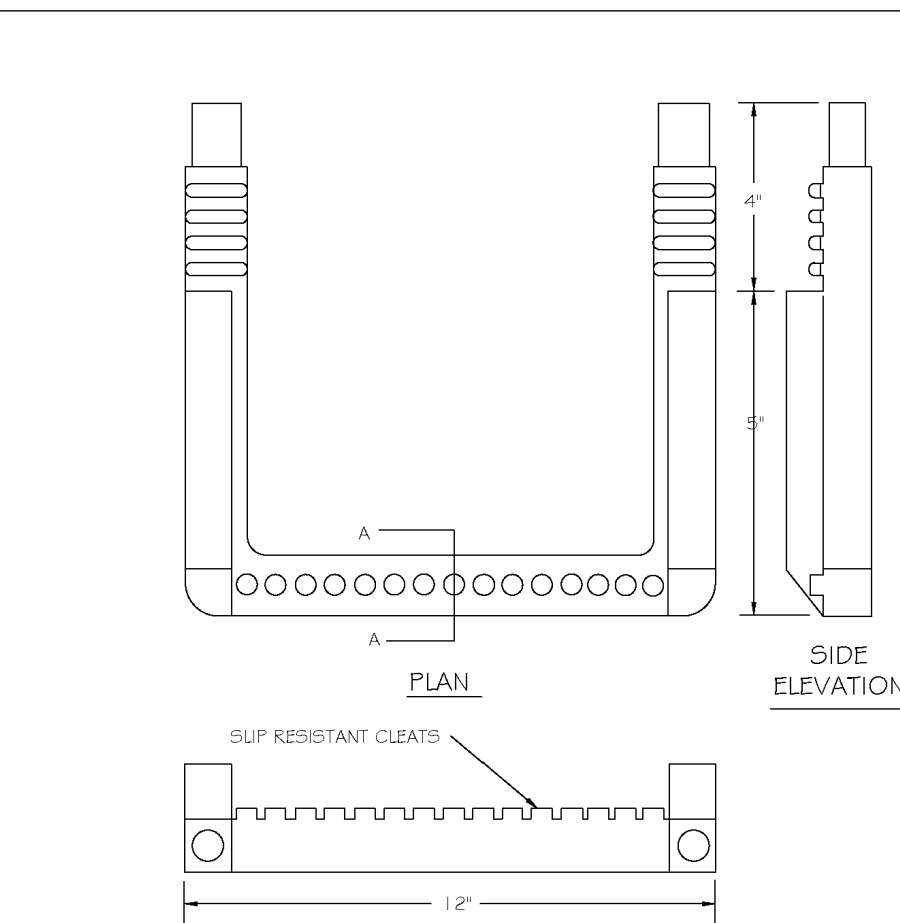
NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 120 LBS. WITHIN PUBLIC ROW AND 140 LBS. WITHIN EASEMENTS.
3) COVER SHALL BEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE COATED TO THE CORE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

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



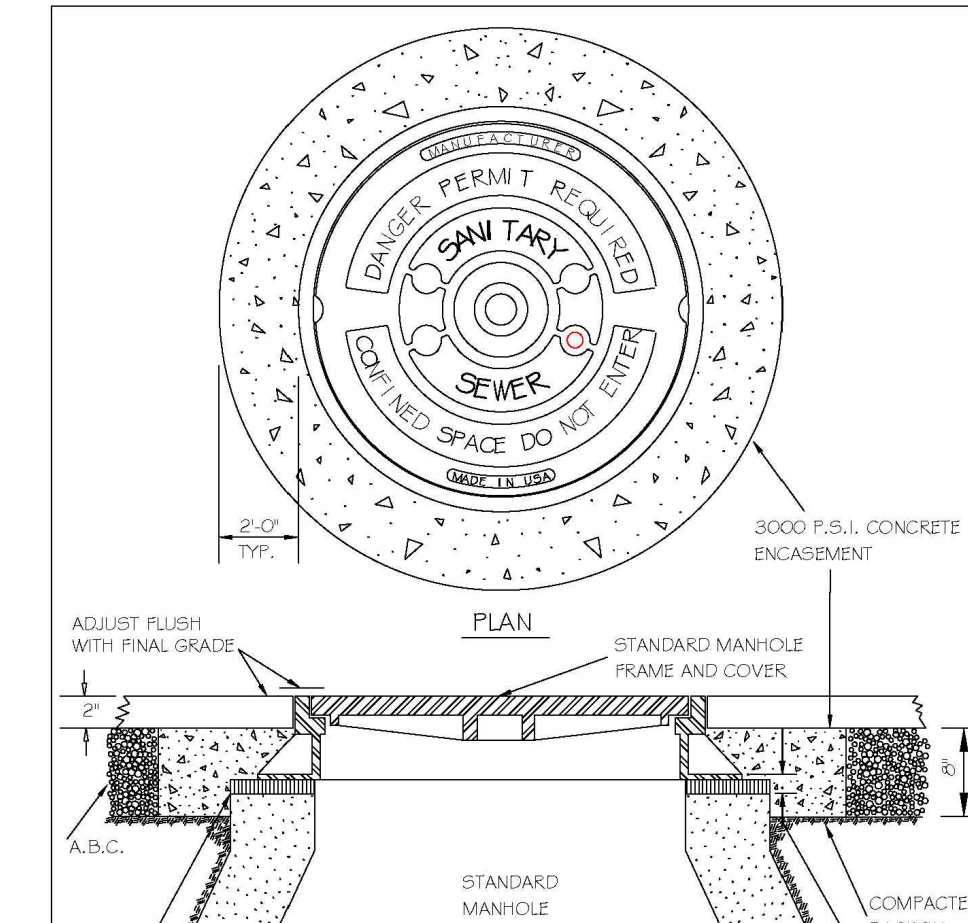
MINIMUM AG WEIGHT
FRAME 140
COVER 140
TOTAL 280

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



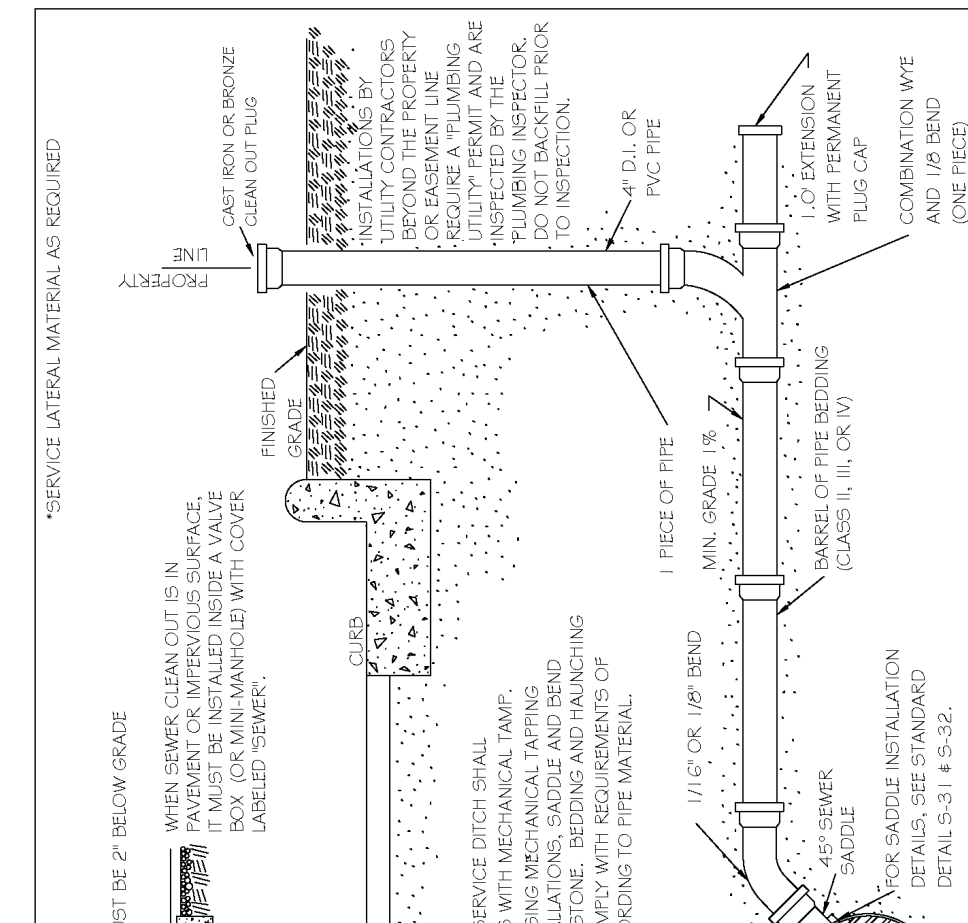
SECTION A - A

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			



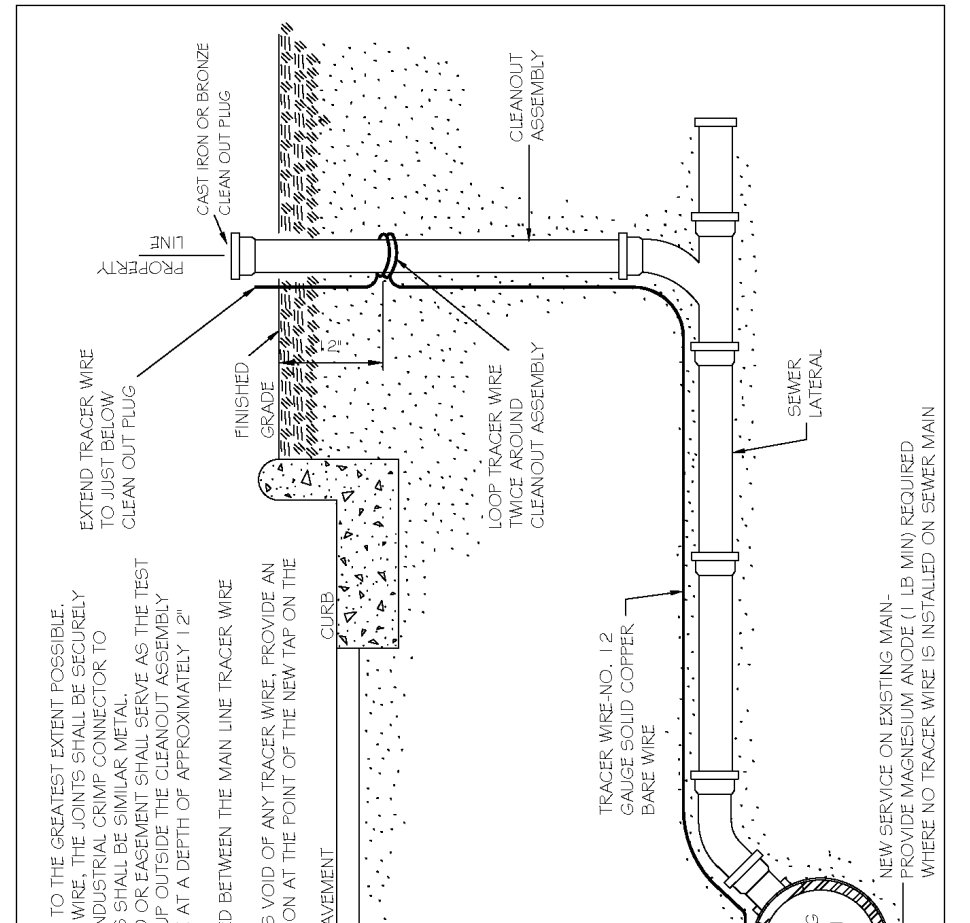
SECTION

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



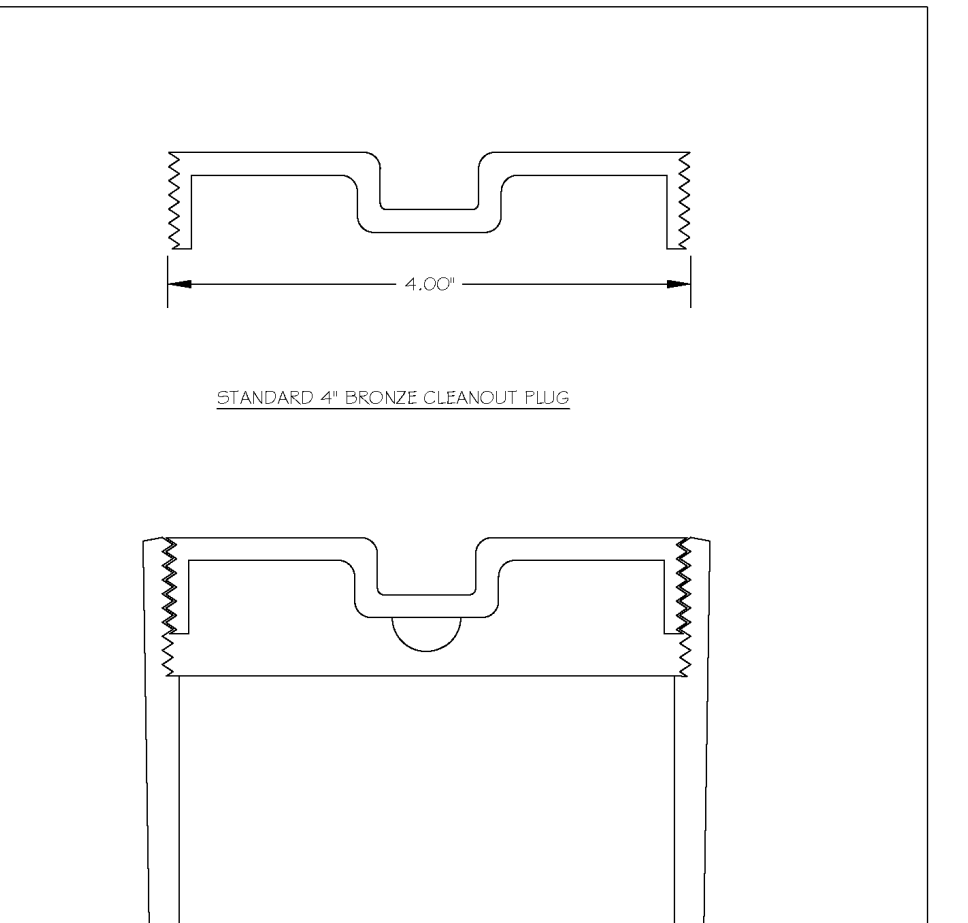
PAVEMENT OPTION

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30	KRT	3-1-07	A.B.B.	4-24-05	
	KRT	3-30-00	D.H.L.	11-18-08	



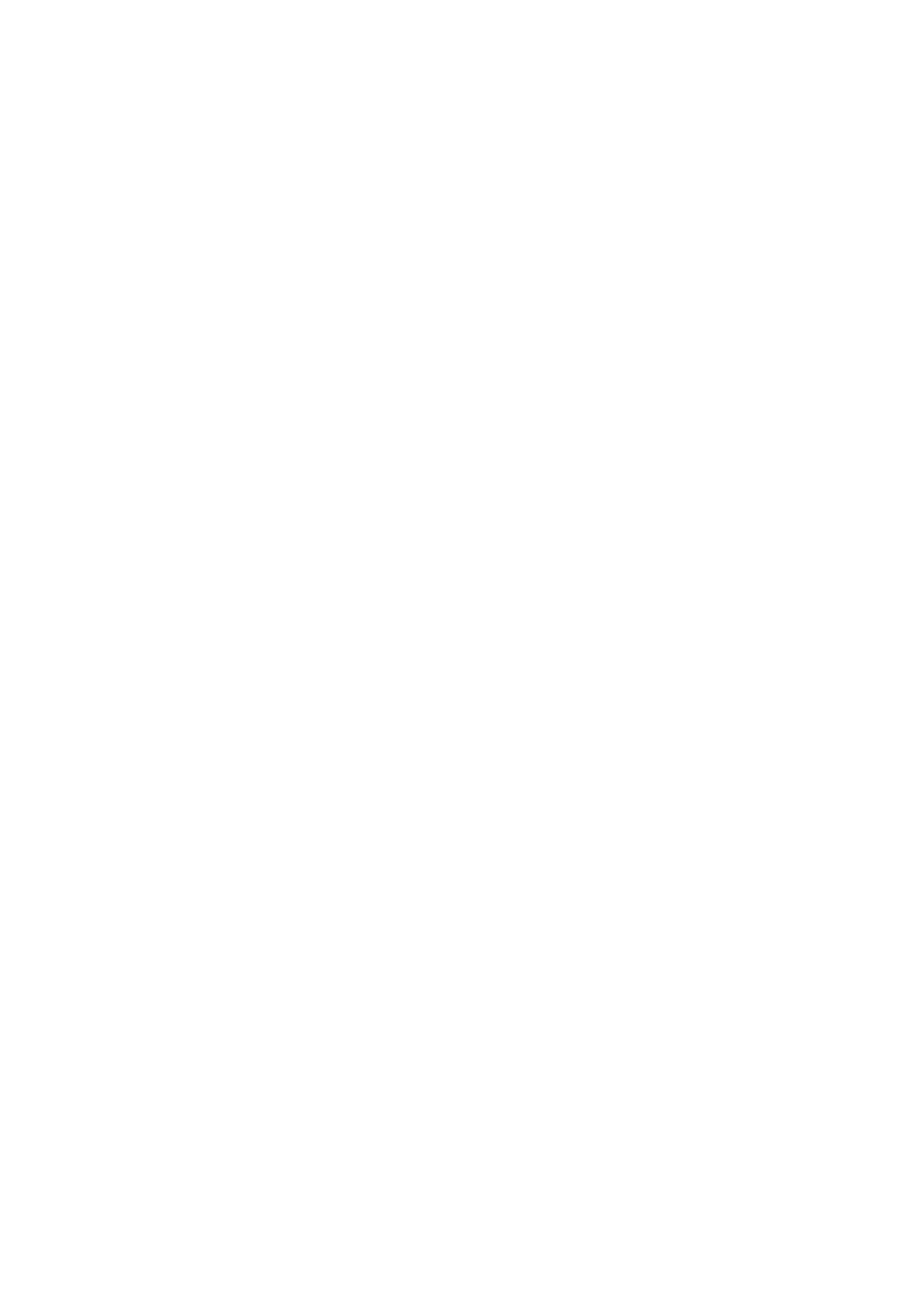
TYPICAL SANITARY SEWER
LATERAL CONNECTION

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30A	KRT	3-1-07	A.B.B.	4-24-05	
	KRT	3-30-00	D.H.L.	11-18-08	

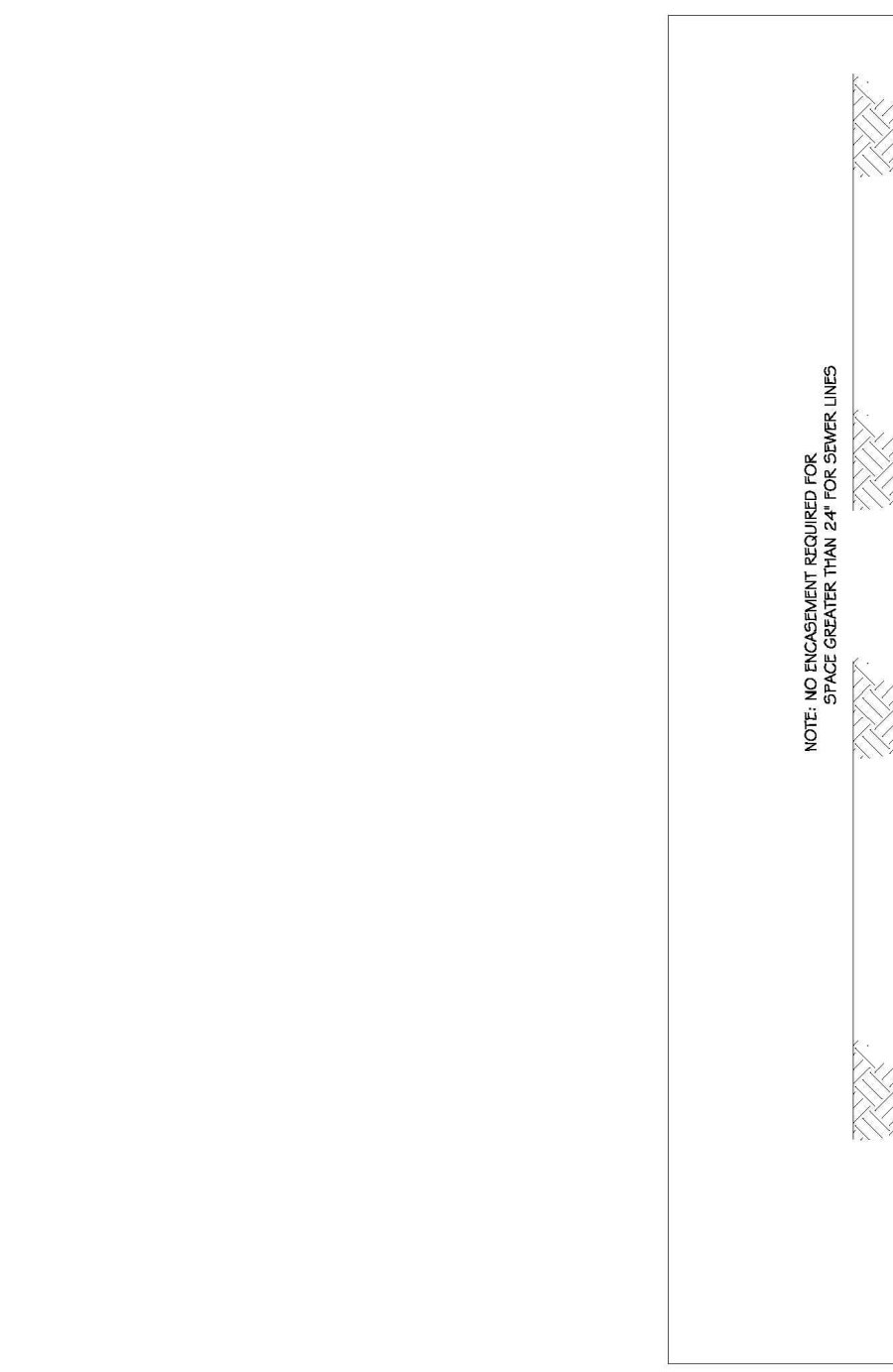


STYLES ACCEPTED:
INVERTED NUT
RAGGED NUT

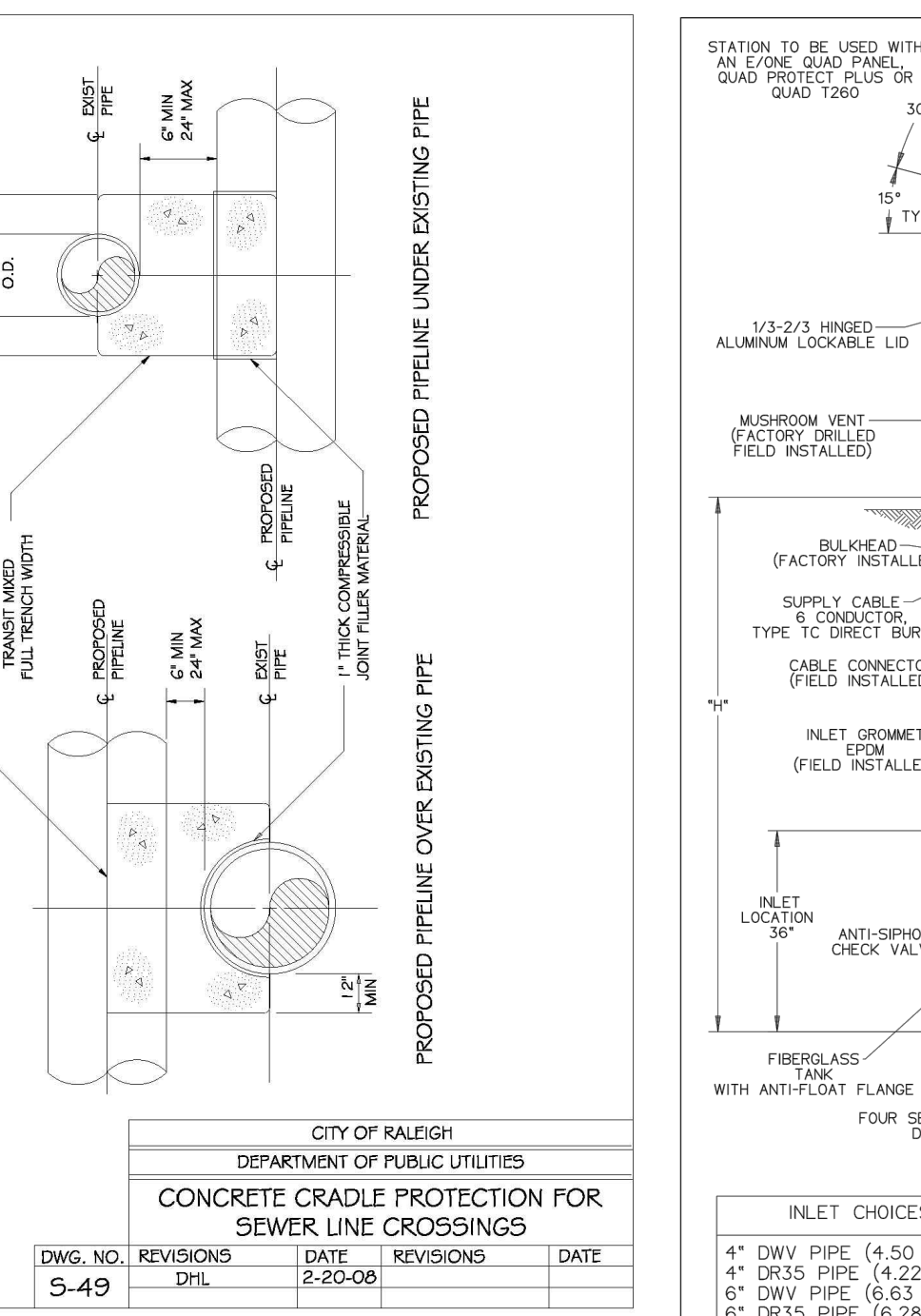
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES 4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34	T.W.C.	3-27-05			



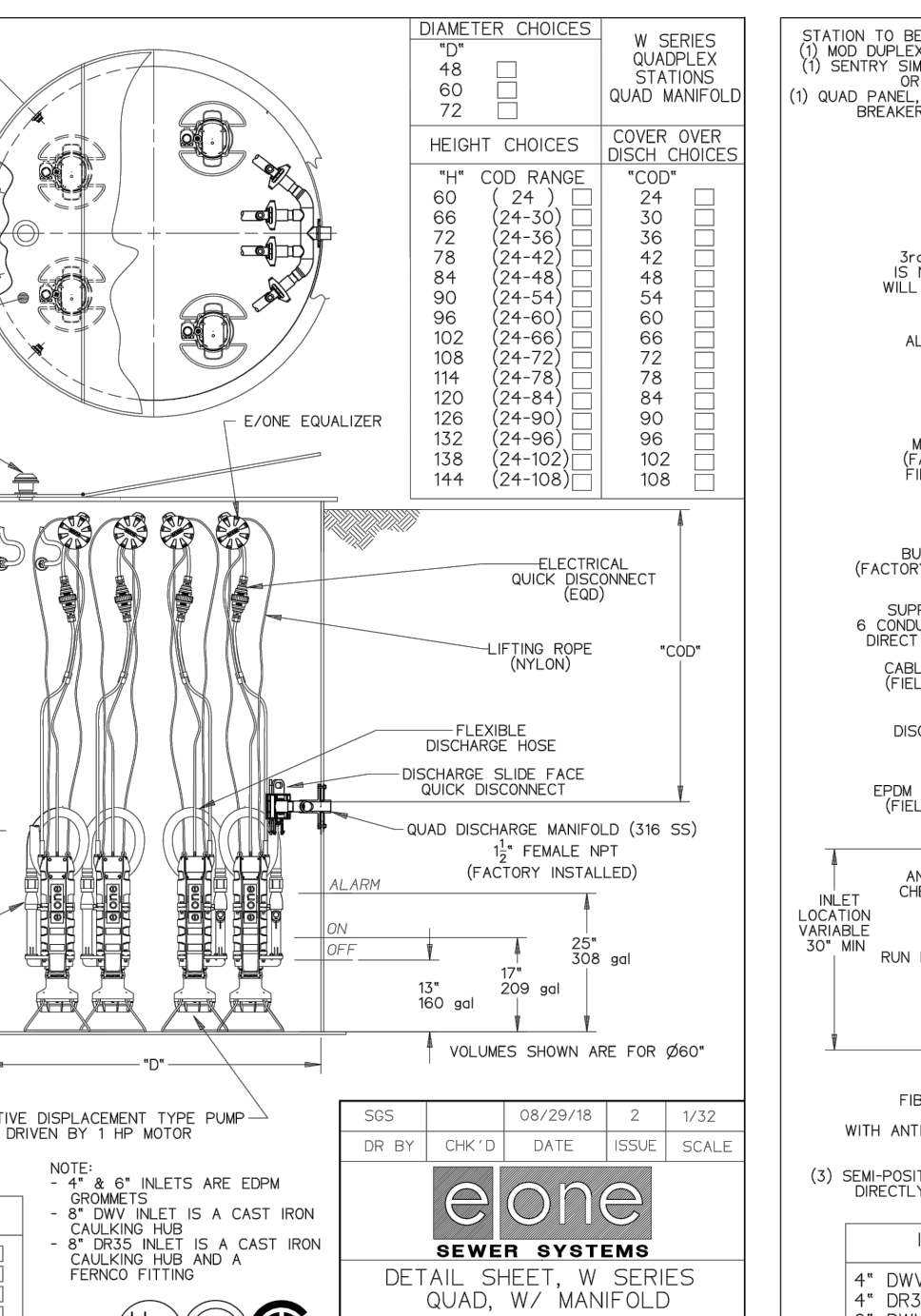
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-49	PH	2-20-00			



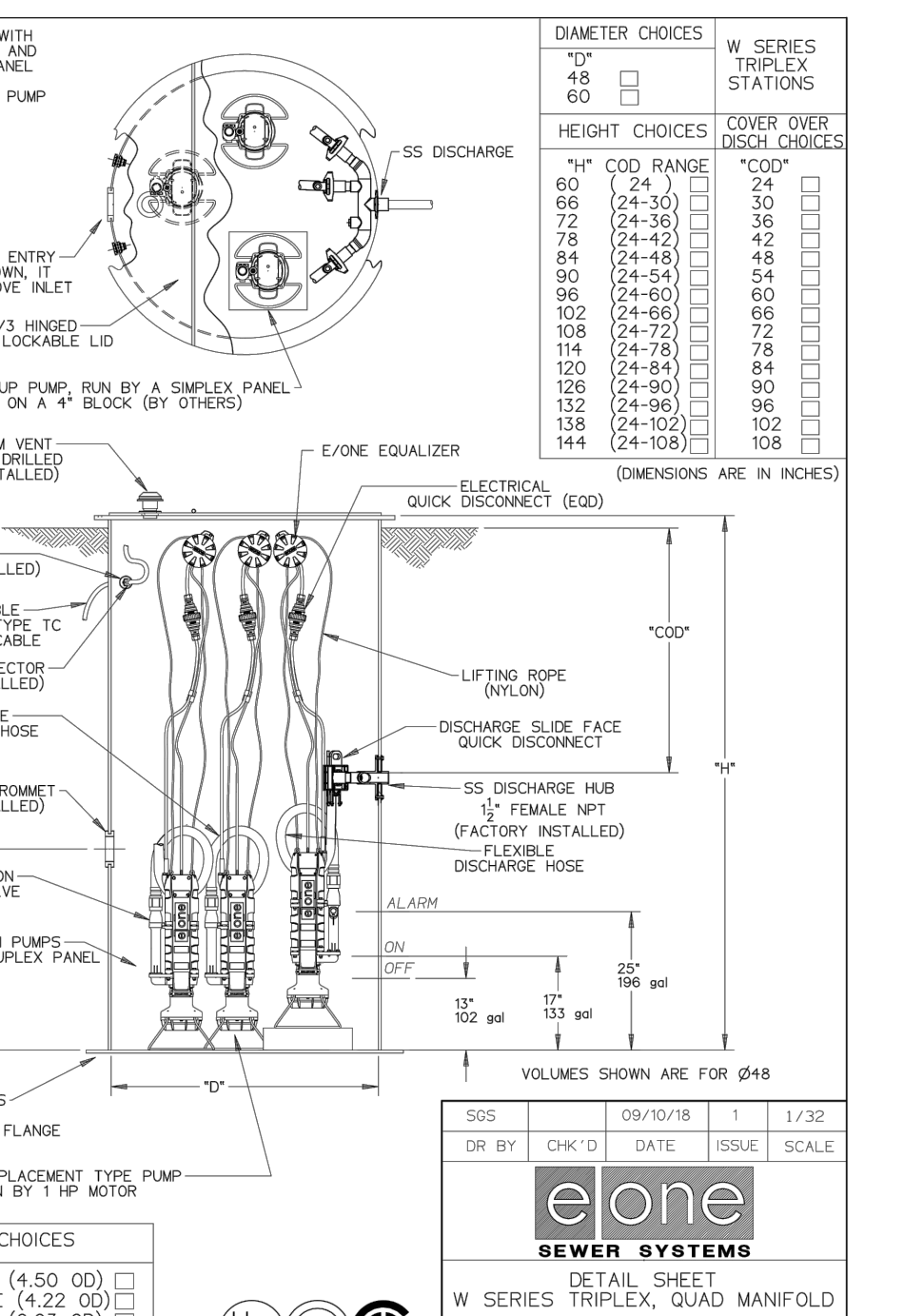
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES PROPOSED PIPELINE UNDER EXISTING PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-49	PH	2-20-00			



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES PROPOSED PIPELINE OVER EXISTING PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-49	PH	2-20-00			



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES MANHOLE WITH 4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34	T.W.C.	3-27-05			



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES MANHOLE WITH 4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34	T.W.C.	3-27-05			

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 881-7272 FAX: (919) 881-8888
CERTIFICATION NUMBERS: NCBELS (C-0119); NCBOLA (C-0267)

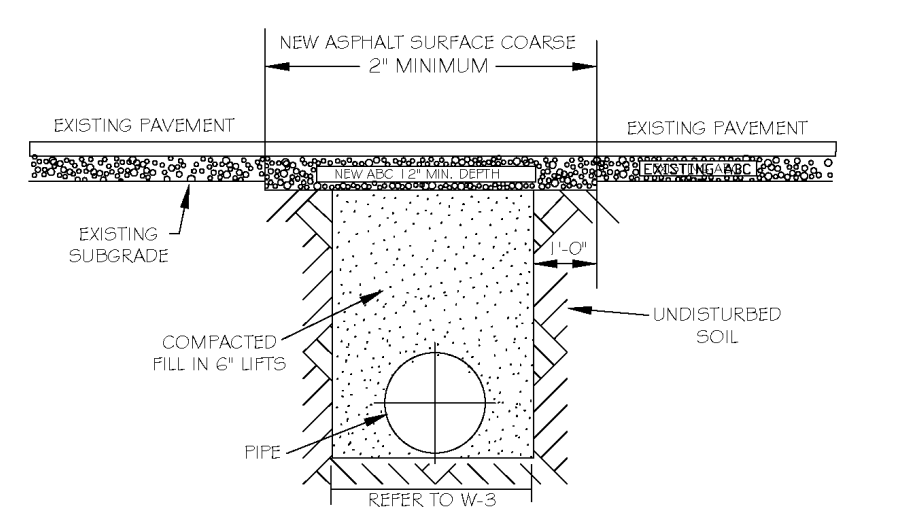
COBBLESTONE VILLAGE
MIXED USE DEVELOPMENT
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PROGRESS MRN
DATE DRAWN BY
NO. DESCRIPTION
DATE REVISIONS
BY

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

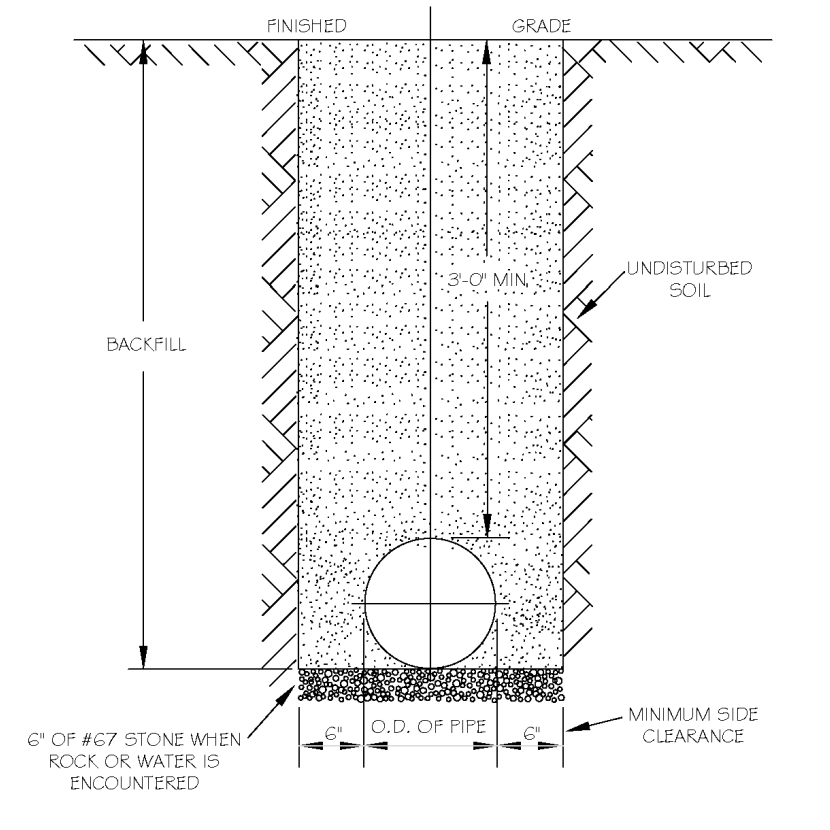
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
W. D. BIZELL
036908

04/20/22



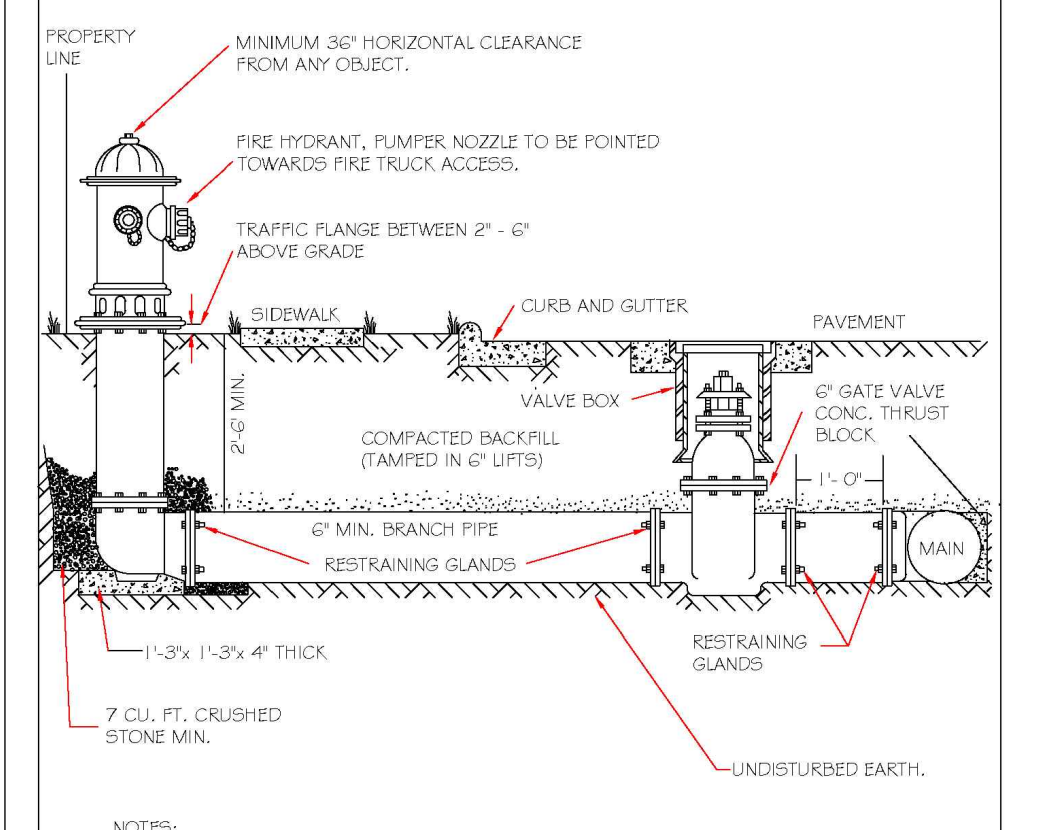
NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH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

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-2.



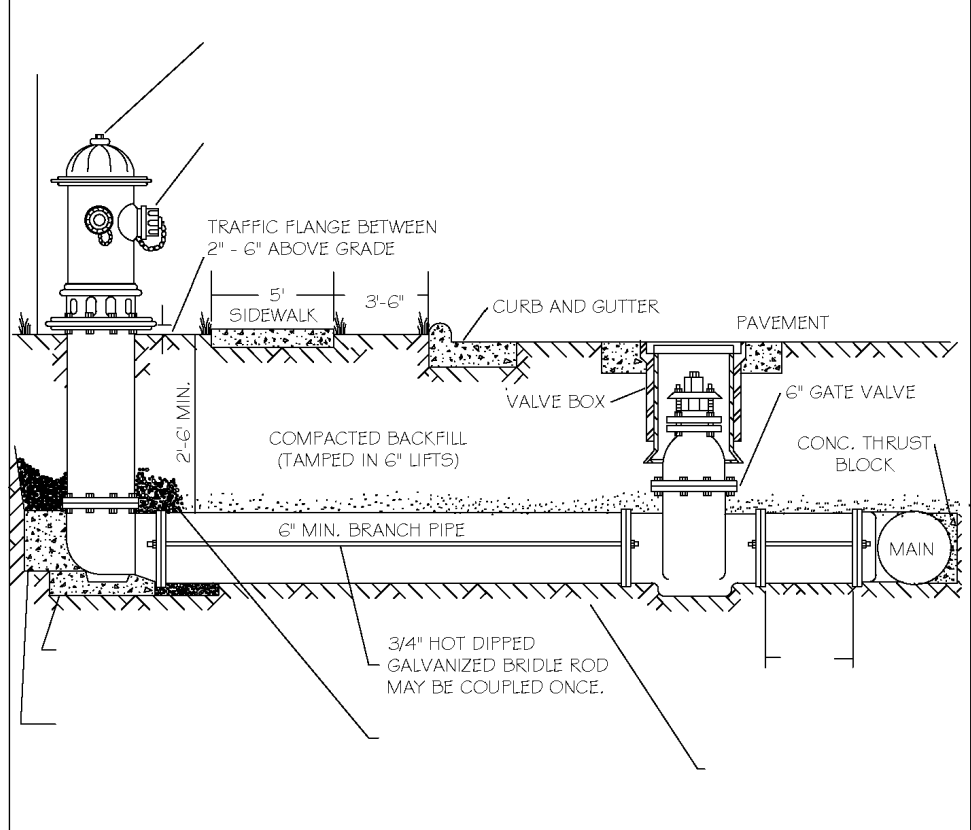
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95%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

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-3.



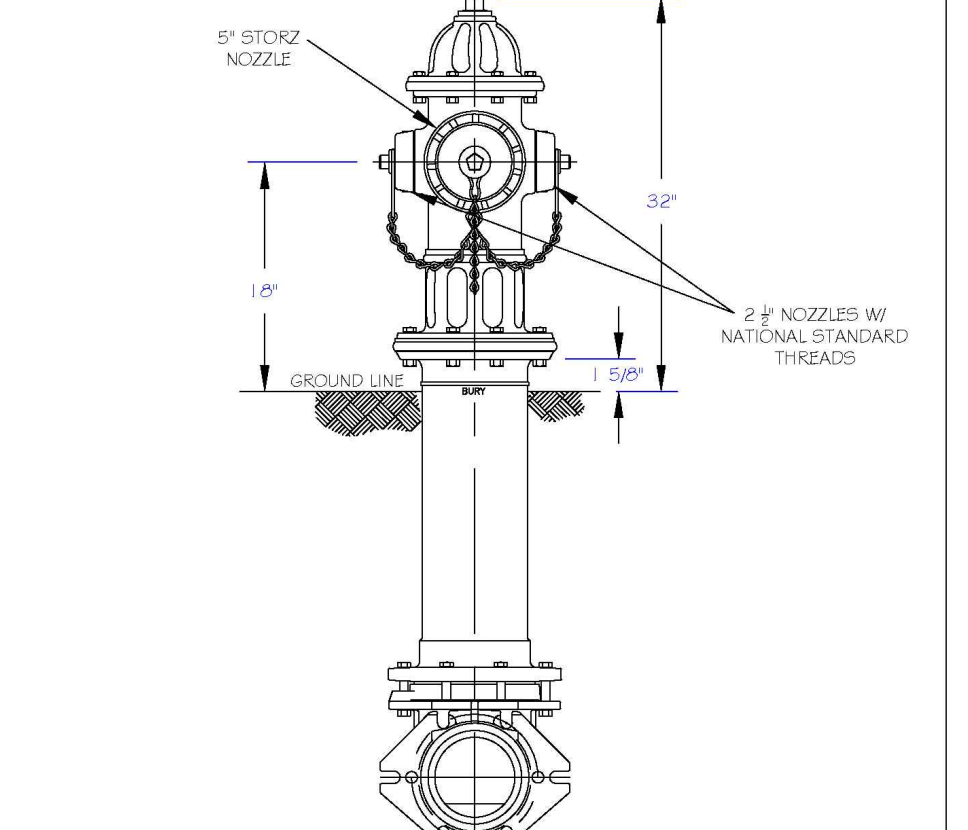
NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MPH, WATERLOUS, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-20.
3. 6" GATE VALVE SHALL BE ANMA C200-20 OPEN LEFT.
4. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CASE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-4.



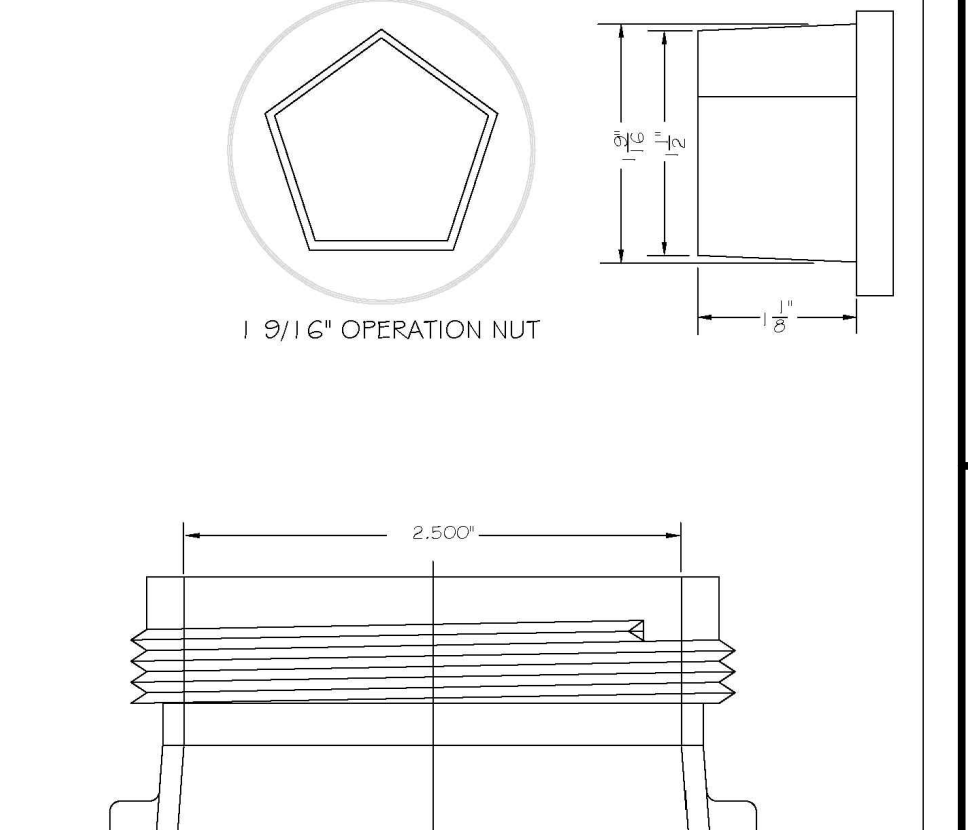
NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MPH, WATERLOUS, GLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON ANMA C150-20.
3. 6" GATE VALVE SHALL BE ANMA C200-20 OPEN LEFT.
4. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CASE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-4a.



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. ZIEGLER 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 1 1/2" SHALL BE PAINTED BLACK.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-5.



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. ZIEGLER 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 1 1/2" SHALL BE PAINTED BLACK.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-6.

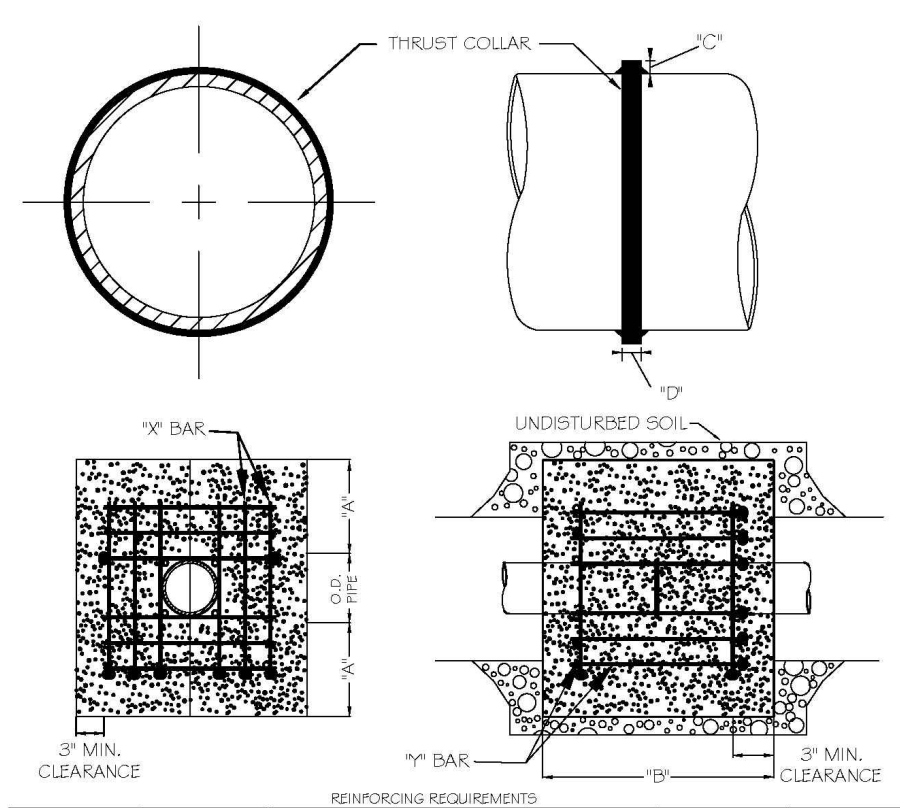


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-7.

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 COLLARS MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AND AROUND CIRCUMFERENCE.

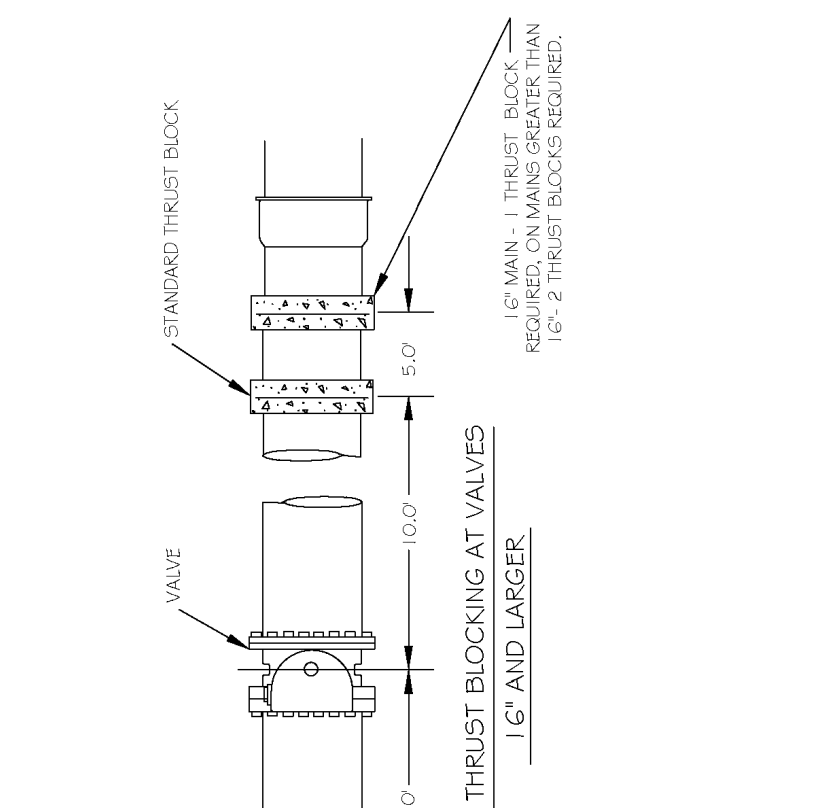


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-8.

NOTES:
1. CONCRETE SHALL BE 3000 PSI.
2. CONCRETE SHALL NOT CONTACT RODS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. W.S. SHALL BE MAINTAINED THROUGHOUT.
4. W-1 FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

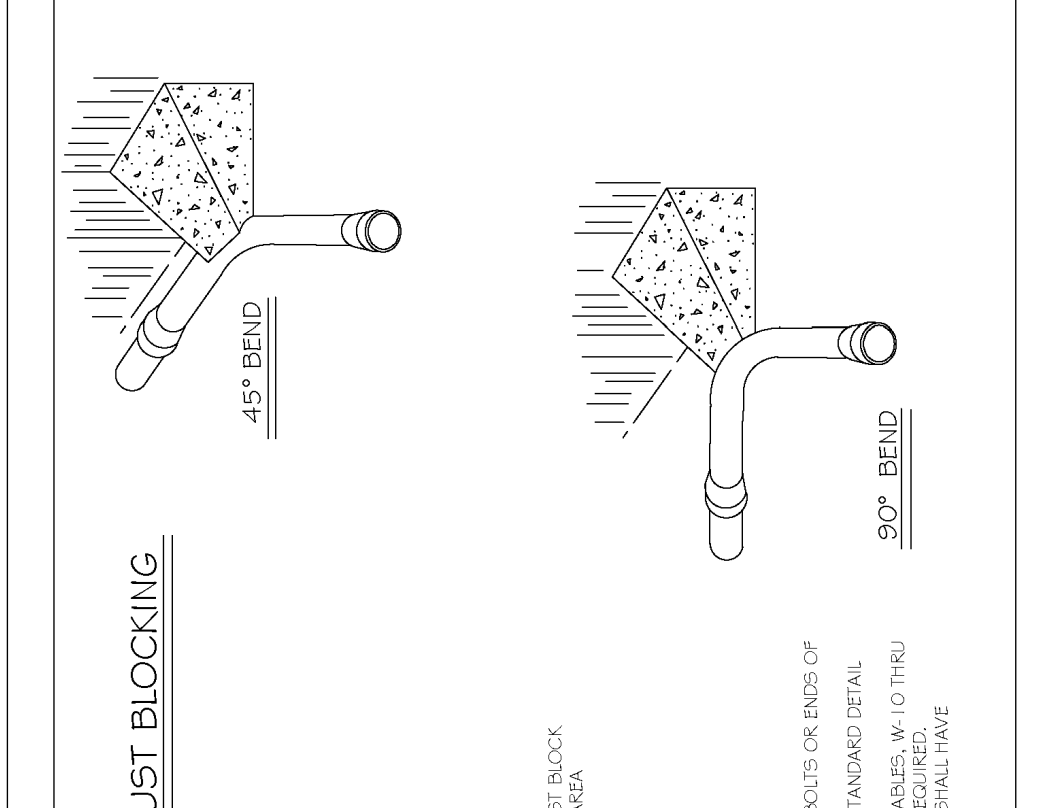


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-9.

NOTES:
1. CONCRETE SHALL BE 3000 PSI.
2. CONCRETE SHALL NOT CONTACT RODS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. W.S. SHALL BE MAINTAINED THROUGHOUT.
4. W-1 FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

Table with columns: SIZE AND DEGREE OF BEND, STATIC THRUST IN POUNDS, and various material/condition codes.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-10.

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.

Table with columns: SIZE AND DEGREE OF BEND, STATIC THRUST IN POUNDS, and various material/condition codes.

Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-11.

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

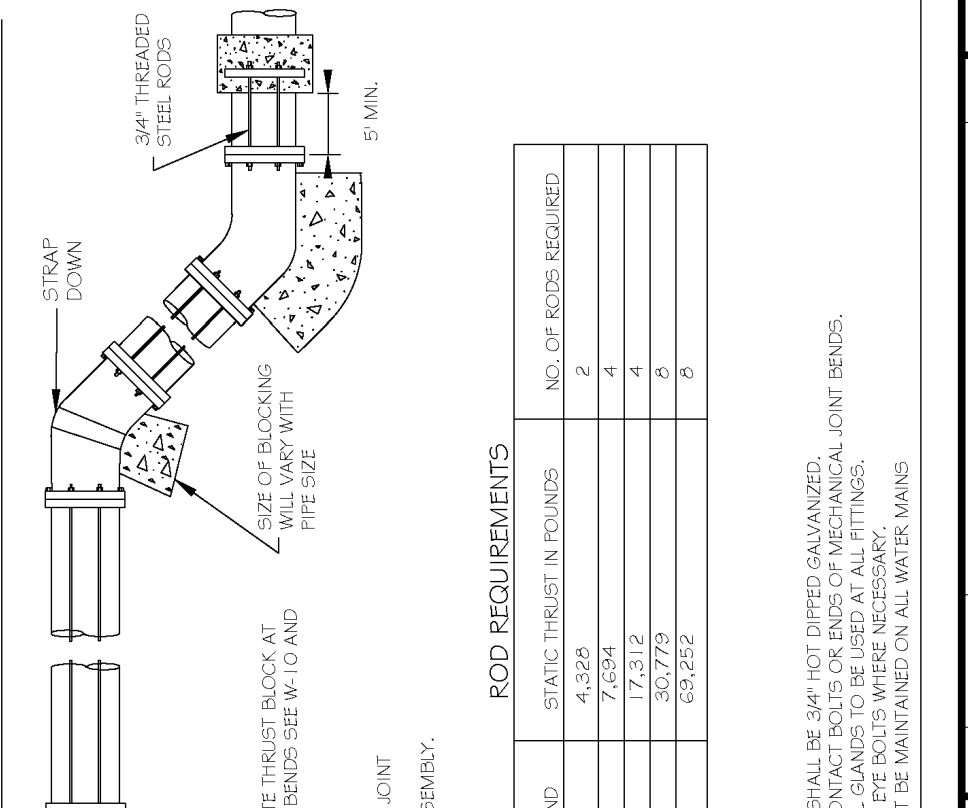


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-12.

NOTES:
1. STEEL RODS AND BOLTS SHALL BE #4 HOT DIPPED GALVANIZED.
2. CONCRETE SHALL BE 3000 PSI AND RANSIT MAND.
3. W.S. SHALL BE MAINTAINED THROUGHOUT.
4. W-1 FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.



Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-13.

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.



Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-14.

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



Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-14.

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

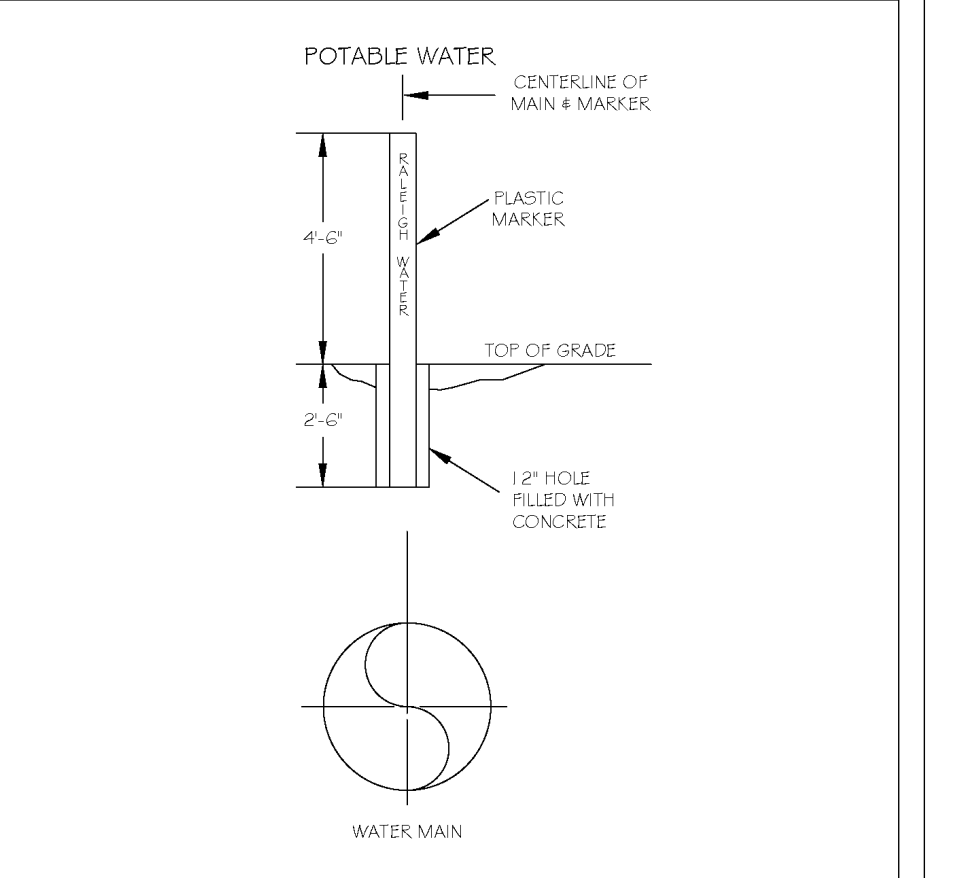


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-14.

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

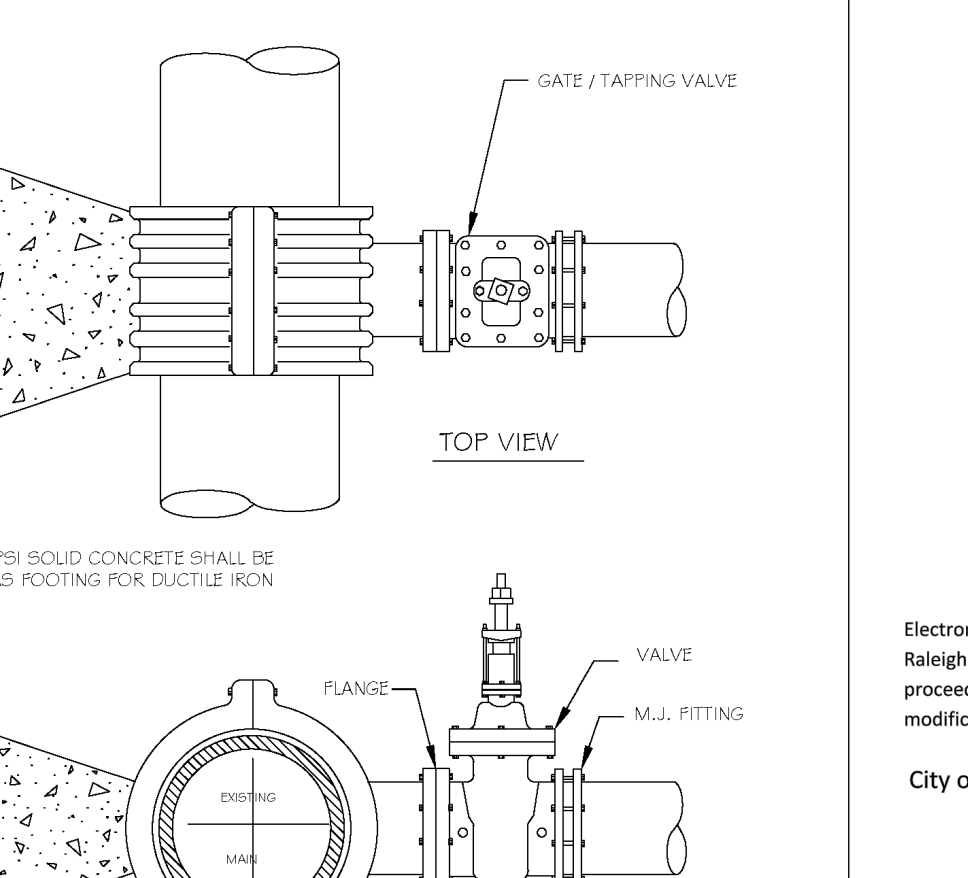


Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-14.

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

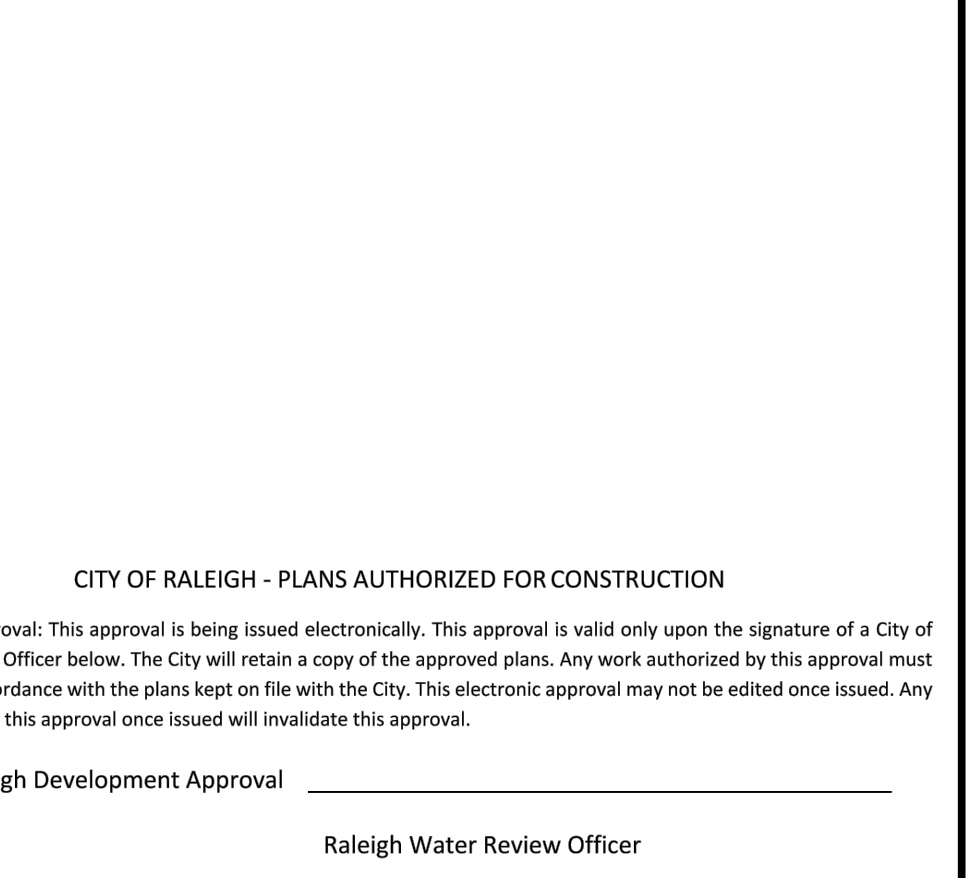
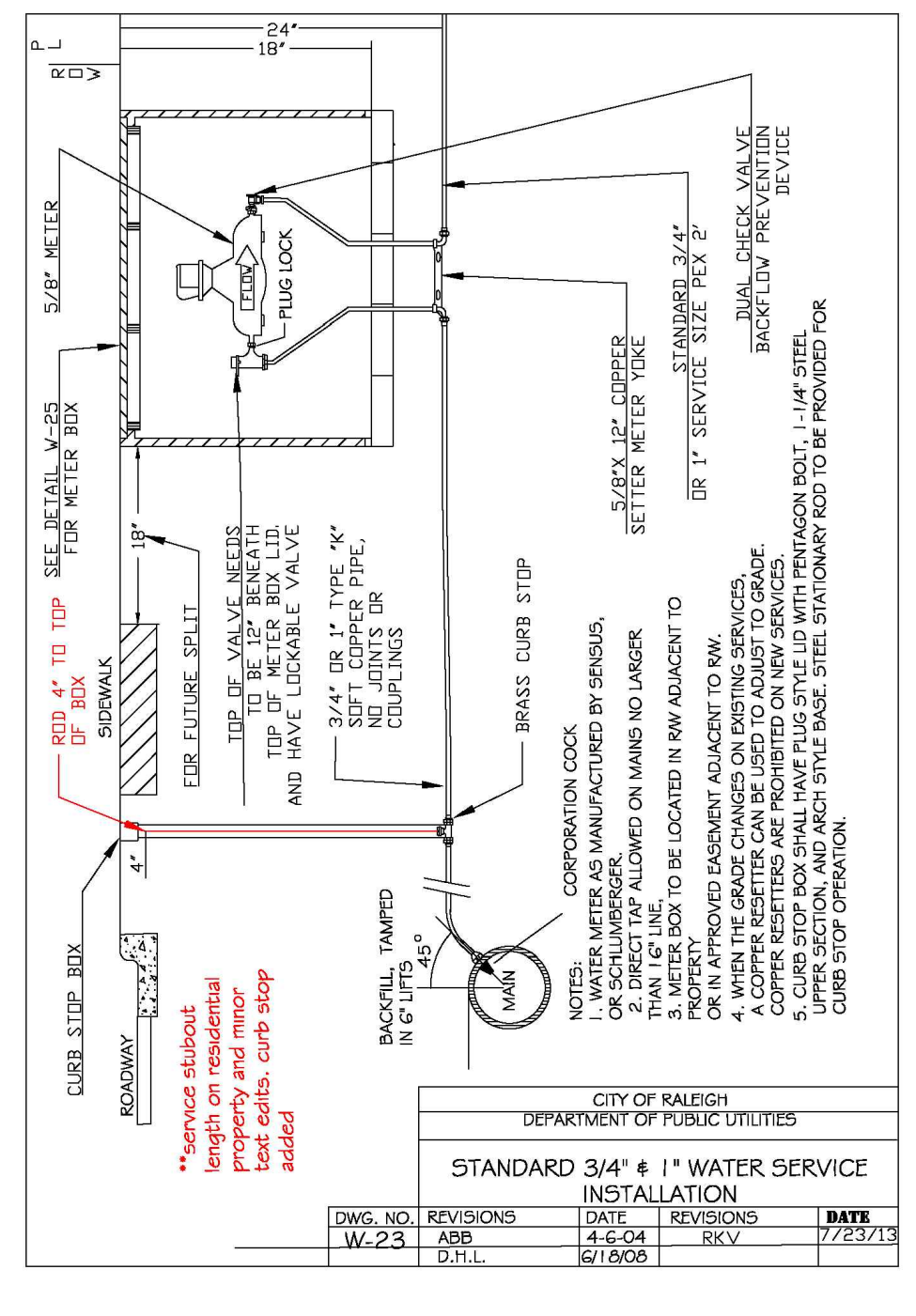
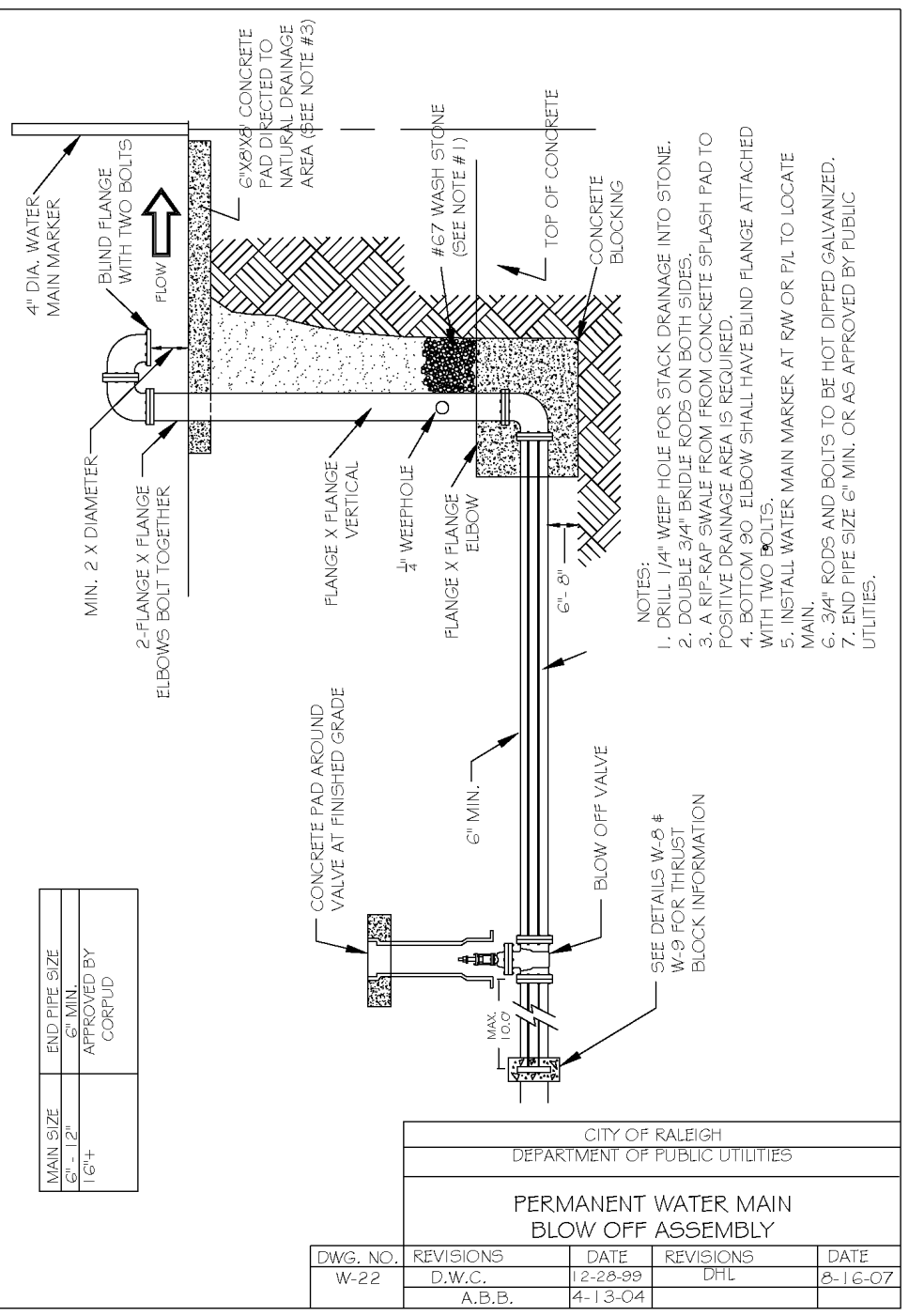
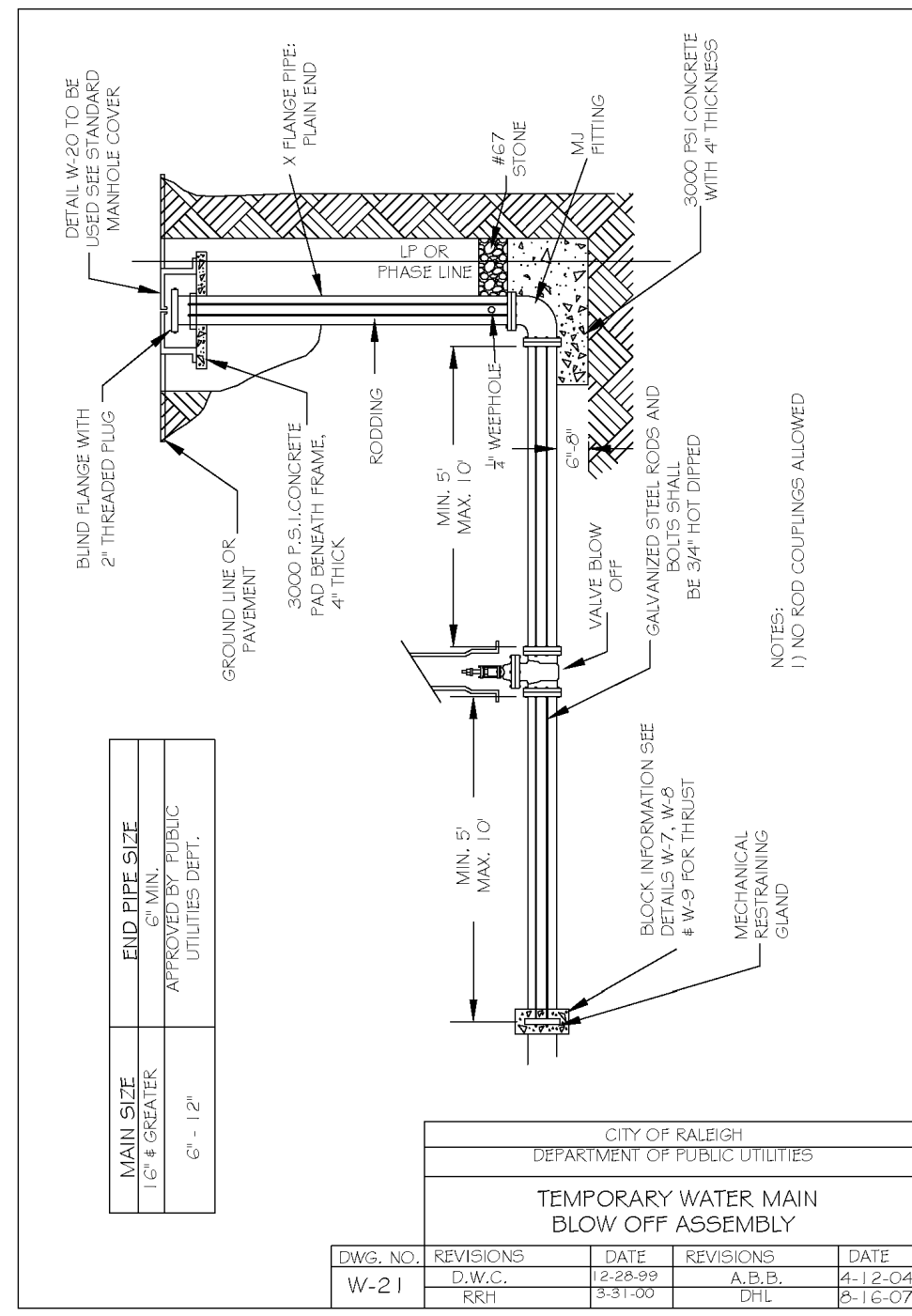
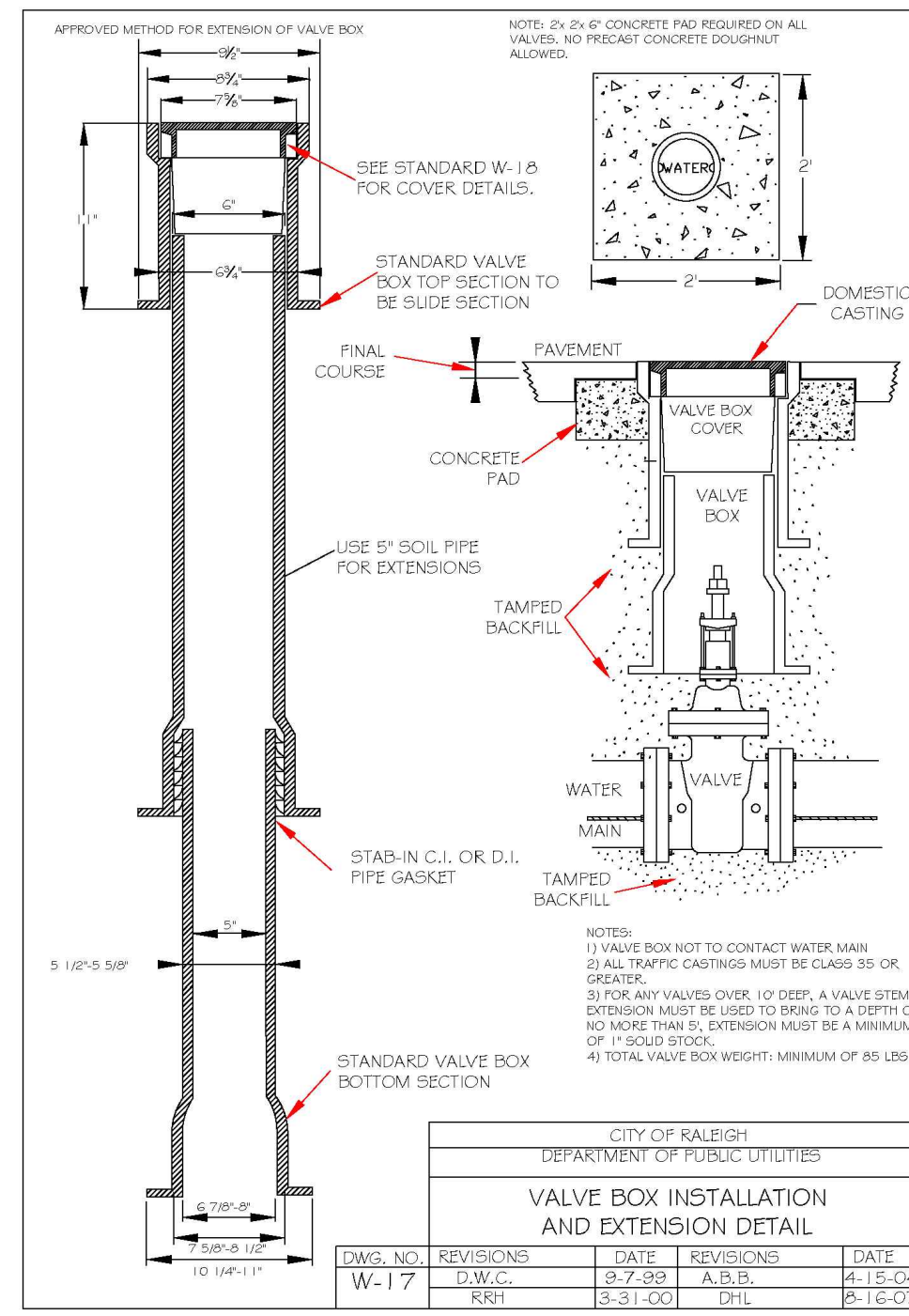


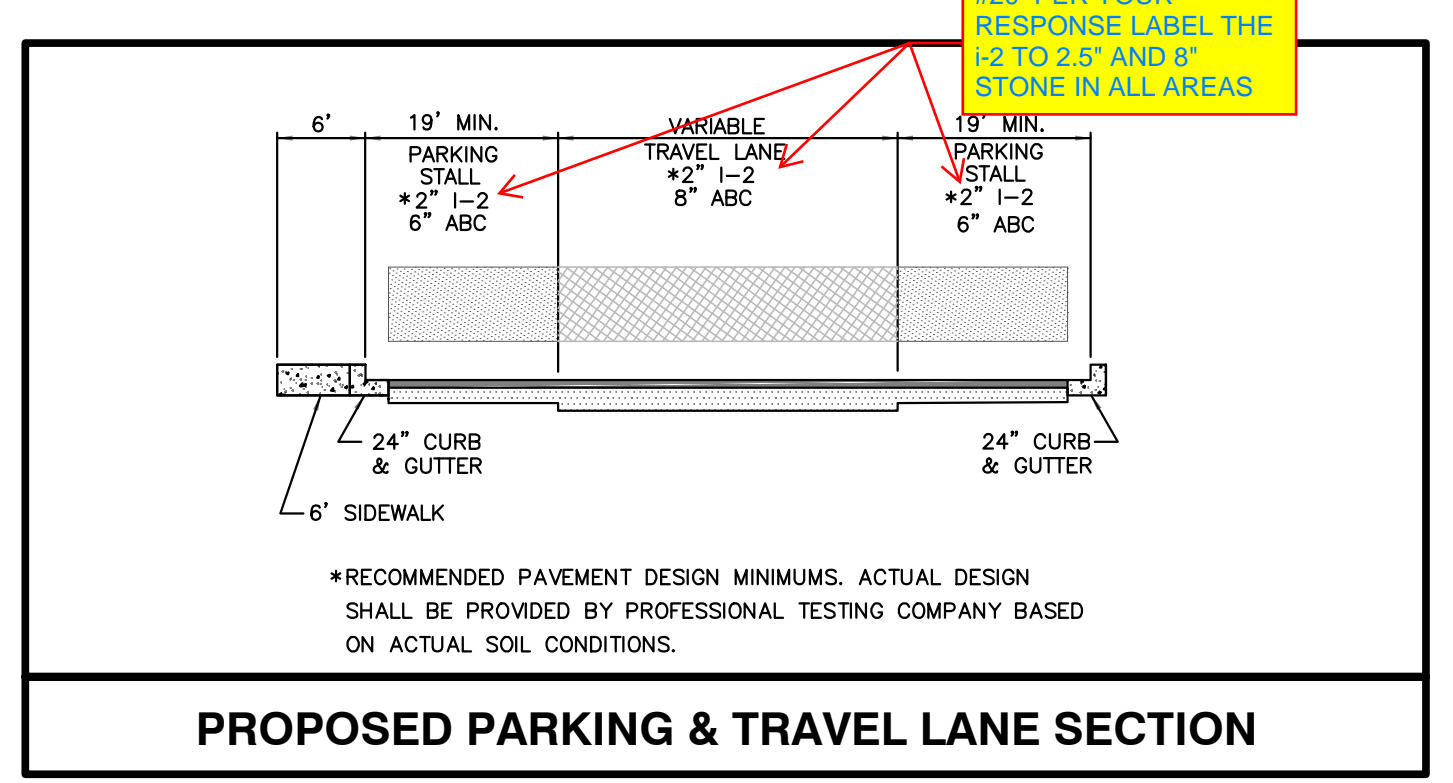
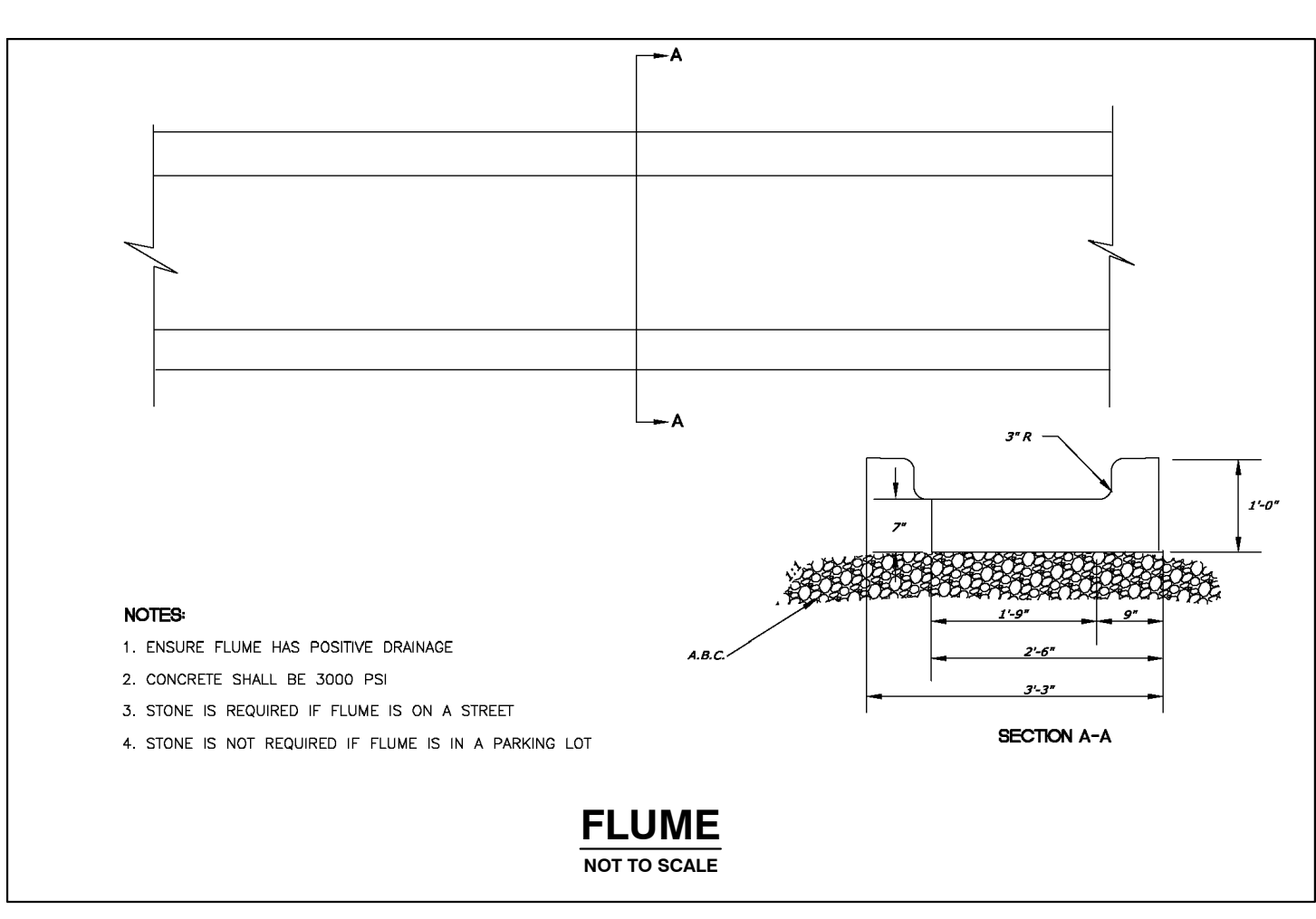
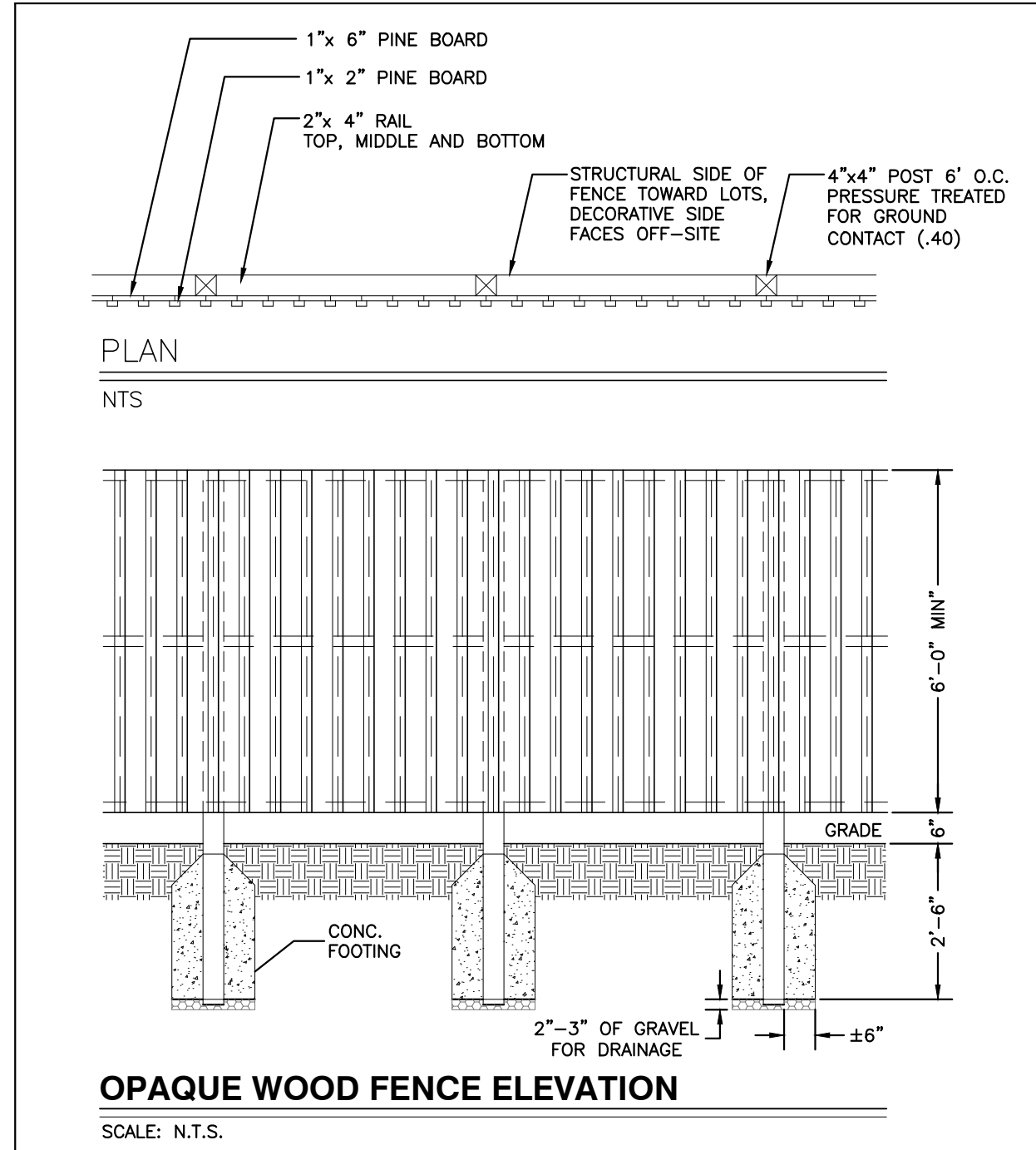
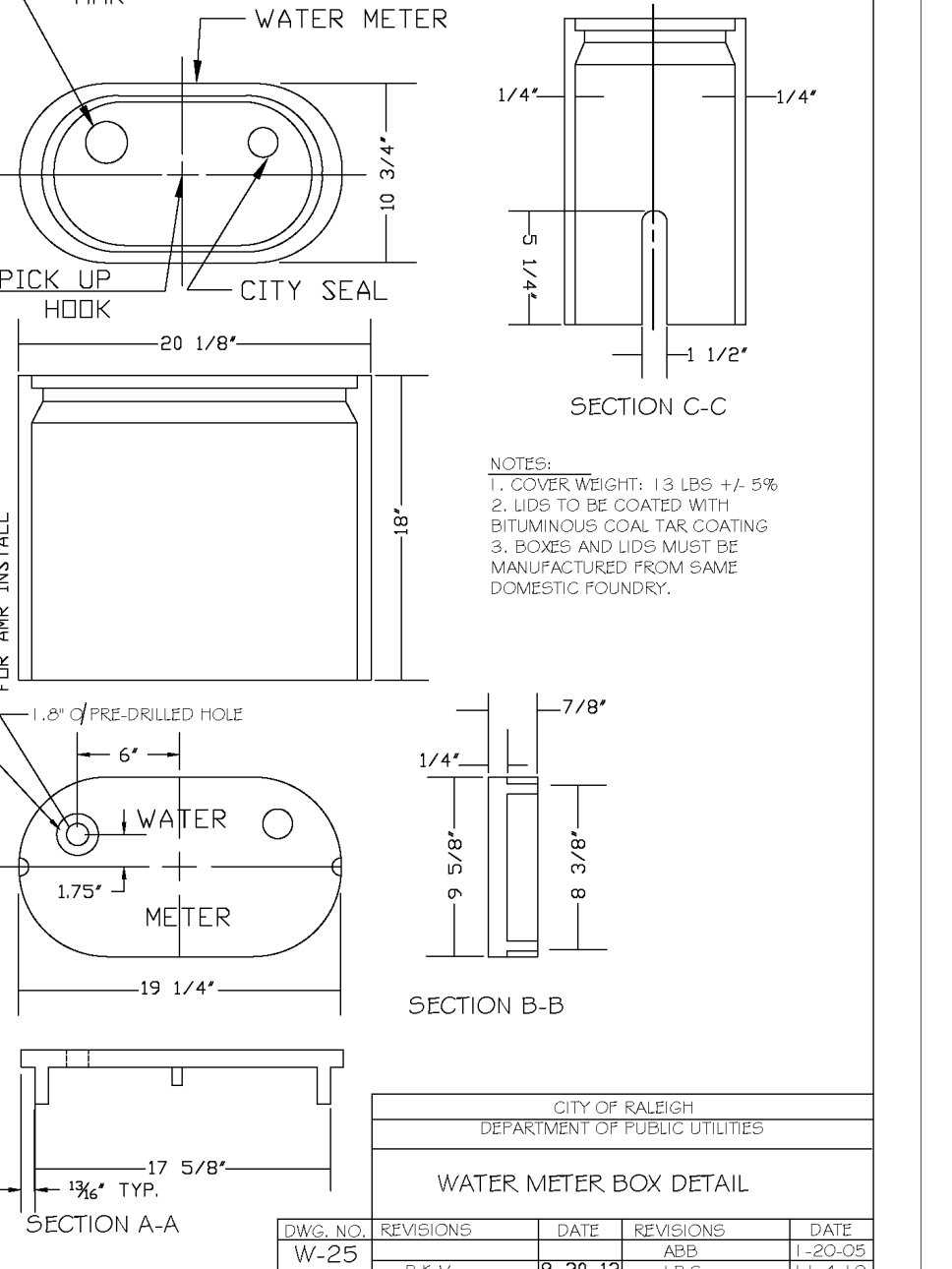
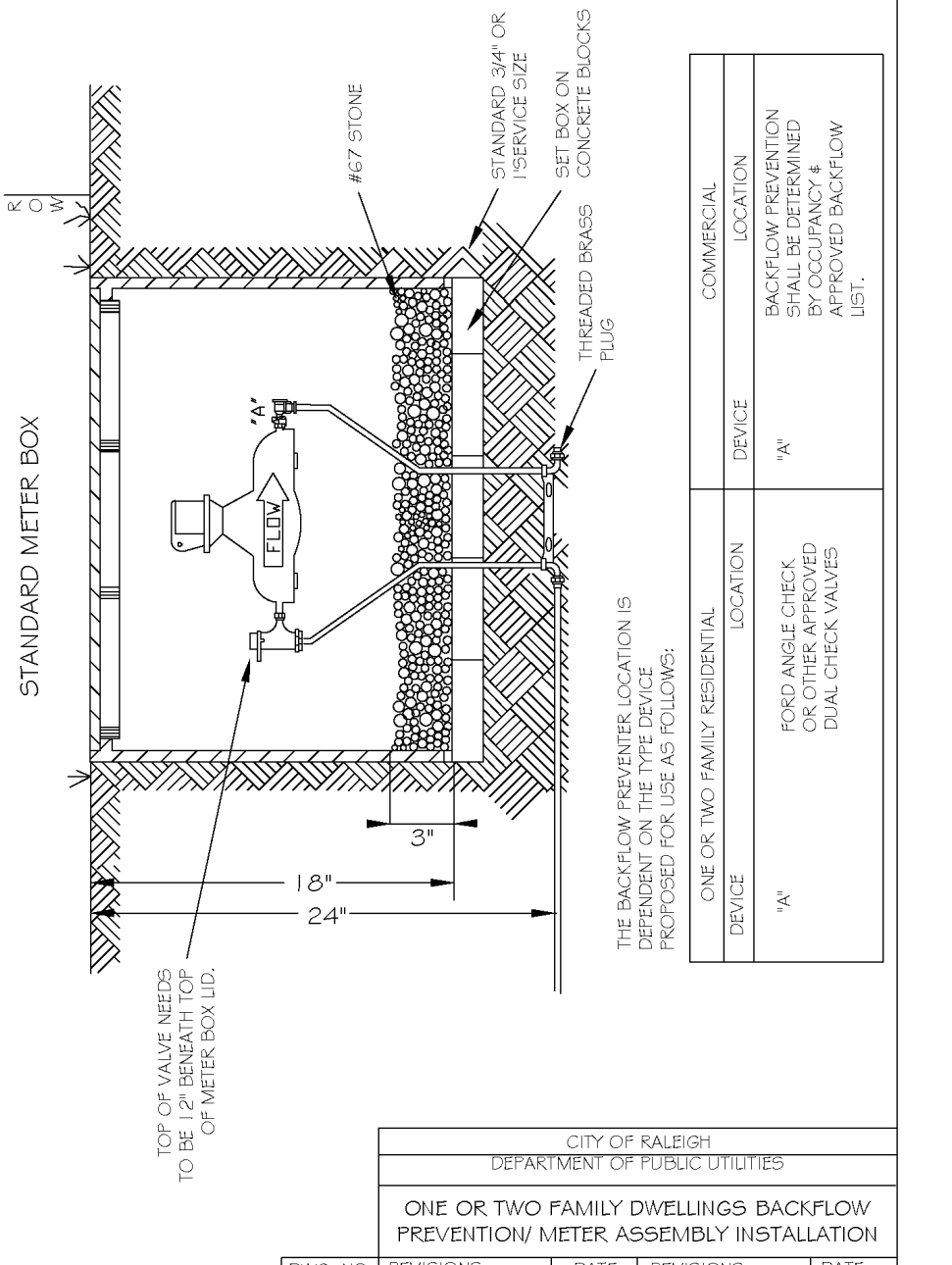
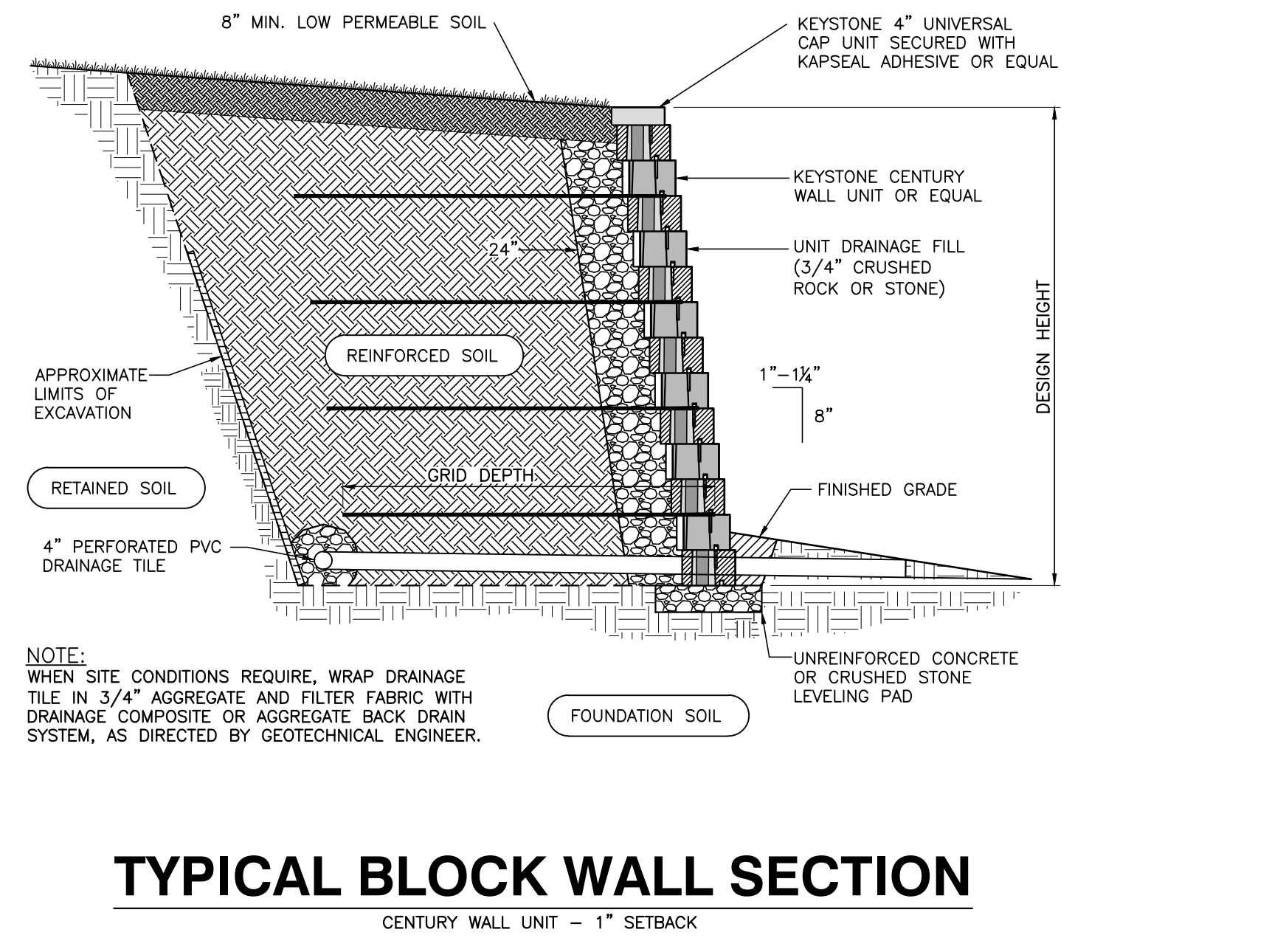
Table with 4 columns: DWG. NO., REVISIONS, DATE, REVISIONS, DATE. Includes revision W-14.

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

Vertical sidebar containing project information: SHEET C5.4, COBBLESTONE VILLAGE MIXED USE DEVELOPMENT, TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA. Includes logos for BNK and BASS, NIXON & KENNEDY, INC. CONSULTING ENGINEERS.



#19
1) WILL THE BLOCK WALL SECTION BE USED IN THE SCM WALL?
2) TYPICAL WALLS PROPOSED THROUGHOUT THE SITE?
3) ANY DESIGN FOR WALL ALONG MAINSTREET?



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 _____



04/20/22



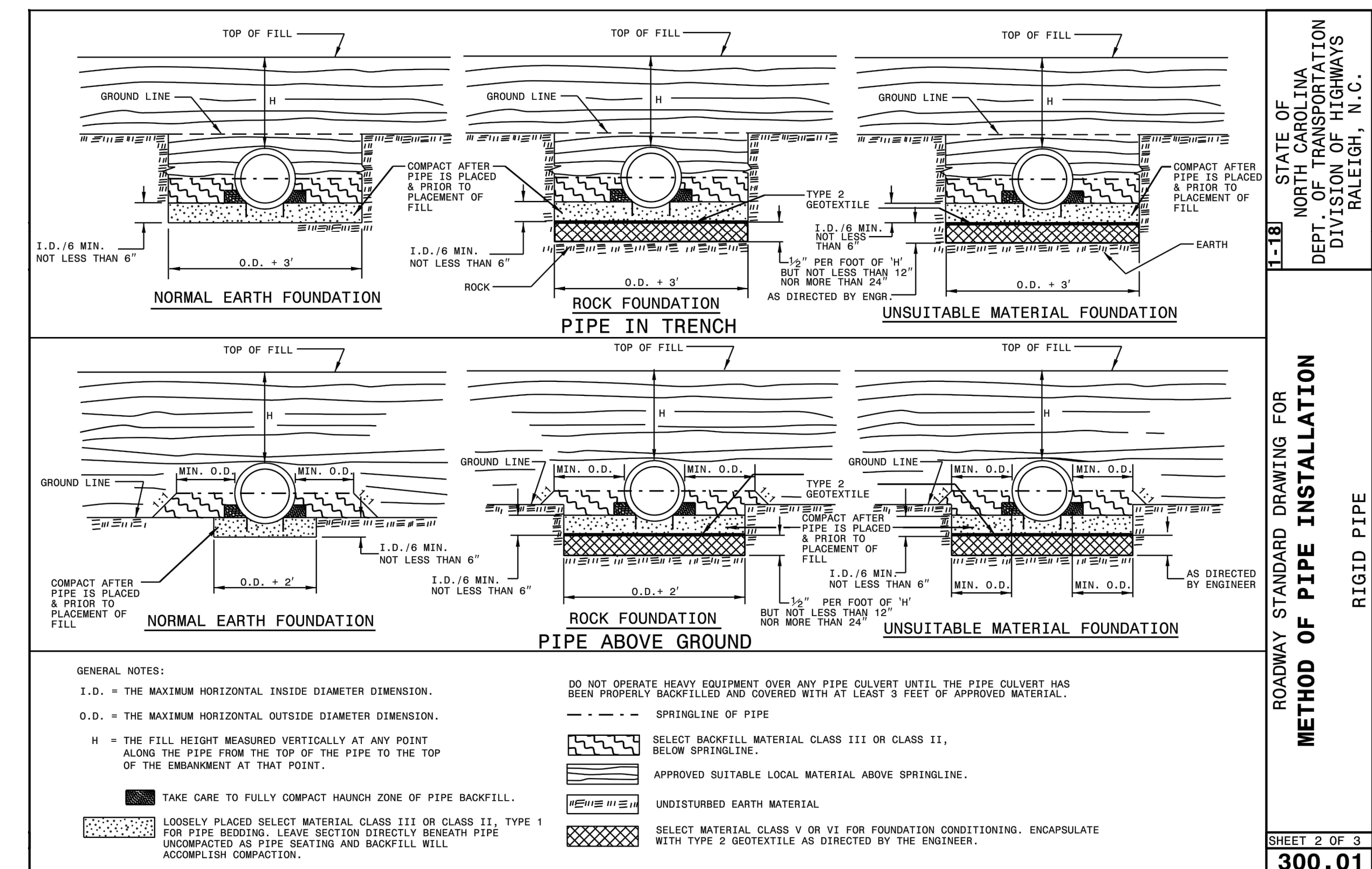
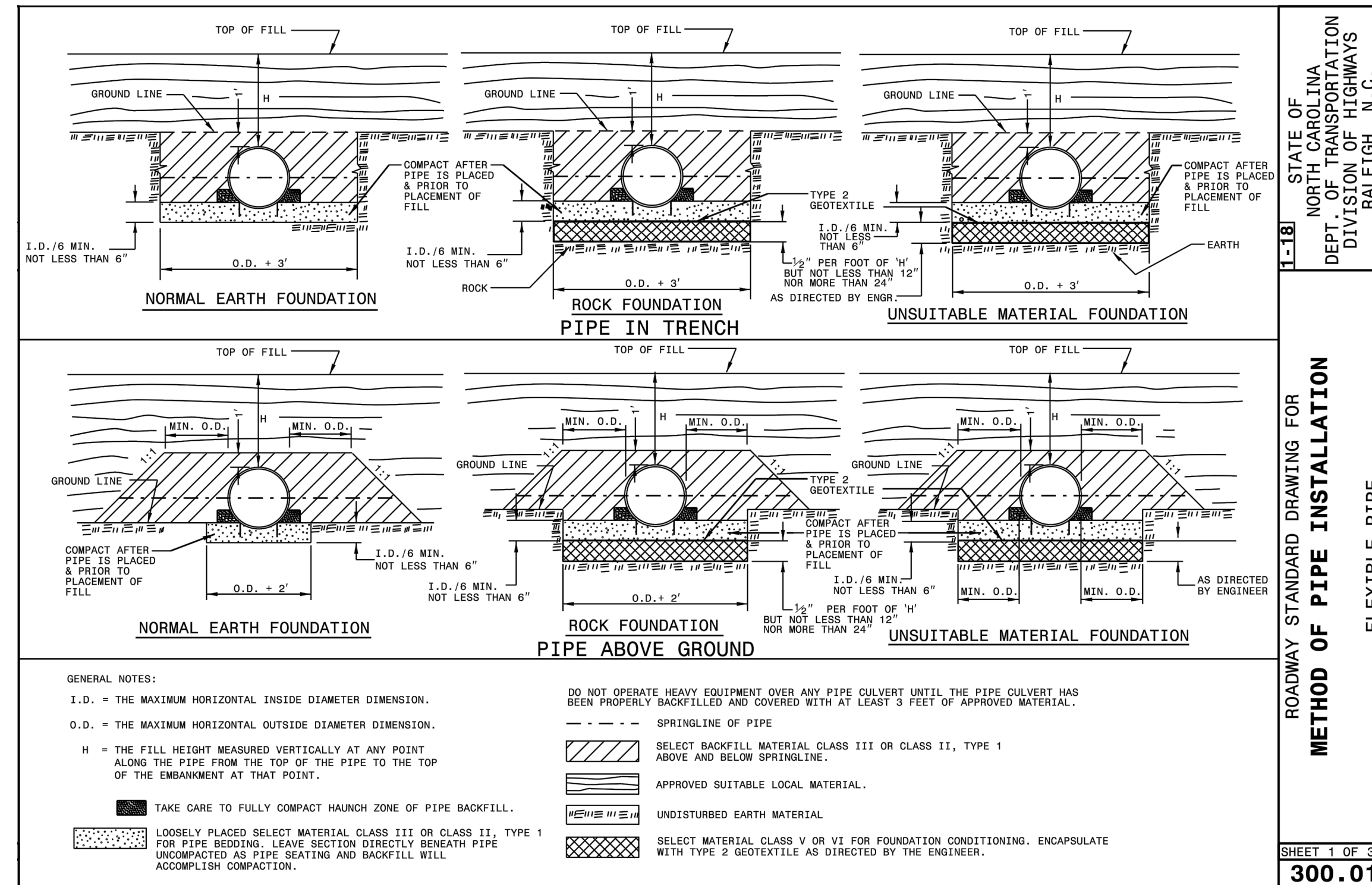
BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919)817-4222 FAX: (919)851-8686
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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

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

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

SHEET C5.5



FLEXIBLE PIPE

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12		69	90	111	
66	12			81	100	
72	12			74	91	
78	12				81	
84	12				69	

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12		60	78	96	
48	12		52	68	84	
54	12		46	50	74	
60	12			50	62	
66	12				51	
72	12				41	

RIGID PIPE

RCP - (Minimum fill) 1' for Class IV & Class V
2' for Class III & Class II
(Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe
(For fills > 40' & < 80' use LRFD Direct Design Method)

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS
RCP - AASHTO M170

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

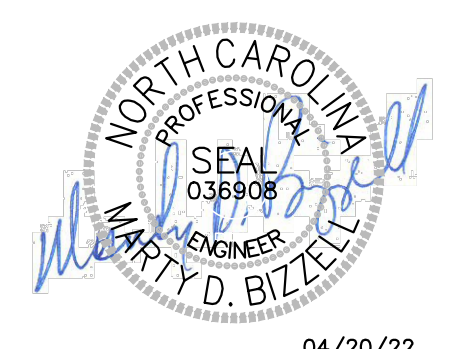
SHEET 3 OF 3
300.01

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval _____

Raleigh Water Review Officer



BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919)881-4242 FAX: (919)881-6868
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

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

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

PROGRESS DRAWN BY: MRM
DATE: _____

DETAILS

NO. DATE DESCRIPTION REVISIONS

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

SHEET C5.6

TOWN OF ROLESVILLE PROJECT NO. _____