

# CAMDEN PARK

## CONSTRUCTION DRAWINGS

ZMA-8-21 / ORDINANCE #23-01-18-002 / SEC-000004-2024

PROFESSIONAL DESIGN ENGINEER CERTIFICATION. THESE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND WITH THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

I, \_\_\_\_\_, PE, CERTIFY THAT THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE HAVE BEEN THOROUGHLY CHECKED AND FOUND TO BE APPLICABLE TO THIS PROJECT. ALL EXCEPTIONS TO THE APPLICABLE TOWN STANDARDS HAVE BEEN PREVIOUSLY APPROVED BY THE TOWN OF KNIGHTDALE AND SAID EXCEPTIONS ARE SHOWN ON SHEET(S) \_\_\_\_\_ OF THESE DRAWINGS.

BY: \_\_\_\_\_, PE

DATE: \_\_\_\_\_

TOWN APPROVED STANDARDS SHALL CONTROL. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THESE CONSTRUCTION DRAWINGS AND THE TOWN OF KNIGHTDALE'S APPROVED STANDARDS FOR THIS PROJECT, THE APPROVED STANDARDS SHALL CONTROL. TOWN OF KNIGHTDALE APPROVED STANDARDS SHALL MEAN ALL DEVELOPMENT DOCUMENTS NECESSARY FOR APPROVAL FOR THE PROPERTY INCLUDING, BUT NOT LIMITED TO, ANY SPECIAL USE PERMIT, SUBDIVISION PLAN, SITE PLAN, SUBDIVISION PLAT(S), PHASING SCHEDULE, DEVELOPMENT AGREEMENT, UTILITY ALLOCATION AGREEMENT, ANNEXATION AGREEMENT, THE TOWN OF KNIGHTDALE STANDARD SPECIFICATION AND DETAILS MANUAL AND APPLICABLE PROVISIONS OF THE NORTH CAROLINA STATE BUILDING CODE.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ TOWN ENGINEER DATE: \_\_\_\_\_

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ LAND USE ADMINISTRATOR DATE: \_\_\_\_\_

### SITE DESIGN MODIFICATIONS

#### UDO SECTION 3.4 - BULK AND DIMENSIONAL STANDARDS

- LOT WIDTH/UNIT - ALLEY LOADED: 20 FT
- MINIMUM RESIDENTIAL DRIVEWAY LENGTH: 22 FT

#### UDO SECTION 6.6 - TOWNHOUSE BUILDING TYPE STANDARD

- YARD SETBACK SIDE MINIMUM: 3 FT (0 FT WHERE PARTI WALL EXISTS)
- MAXIMUM TOWNHOME CLUSTER: 7

#### UDO SECTION 11.1.B - REQUIRED DISTRIBUTION OF USES

- TOWNHOME USE MAXIMUM DISTRIBUTION: 100%

### WATER AND SEWER PERMITS

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 # 5-5425

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-4099

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 \_\_\_\_\_

### ATTENTION CONTRACTORS

THE CONSTRUCTION CONTRACTOR RESPONSIBLE FOR THE EXTENSION OF THE WATER AND SEWER, 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 JOB SITE, 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.



CAMDEN PARK CONSTRUCTION QUANTITIES	
PUBLIC STREETS (LF)	781
PUBLIC ALLEYS (LF)	873
PRIVATE ALLEYS (LF)	1,344
NC DOT WIDENINGS (LF)	1,571
PUBLIC SIDEWALK (LF)	4,089
CURB & GUTTER (LF)	3,779
STORM DRAINAGE (LF)	3,080
TREE PROTECTION FENCING (LF)	3,943
CORPUS PUBLIC WATER (LF)	840
CORPUS PUBLIC SEWER (LF)	1,923
CORPUS WATER STUBS (EA)	73
CORPUS SEWER STUBS (EA)	72

### PARKING CALCULATION:

REQUIRED PARKING - 142  
71 UNITS X 2 SPACES PER UNIT  
PROPOSED PARKING - 165 SPACES  
71 UNITS X 2 SPACES PER UNIT (TOWNHOME PARKING)  
71 UNITS X 0.25 SPACES PER UNIT (GUEST PARKING)  
MAIL KIOSK - 3 SPACES  
ON-STREET PARKING - 2 SPACES

### TREE CANOPY CALCULATION:

PERIMETER LENGTH = 2,686 LF  
REQUIRED AREA = 53,720 SF (1.23 AC)  
(2,686' X 20' = 53,720 SF)  
REQUIRED AREA IS GREATER THAN 10% OF SITE AREA  
(1.23 AC > 0.92 AC (10% OF 9.23 AC))  
TREE CANOPY REQUIRED = 0.92 AC  
TREE CANOPY PROVIDED = 1.01 AC

### RECREATIONAL OPEN SPACE CALCULATION:

DENSITY - 7.69 UNITS/ACRE  
71 UNITS X 2.5 BEDROOMS/UNIT = 178 BEDROOM  
(SITE IS WITHIN 1/4 MILE OF TOWN PARKS)  
SO 178 BEDROOMS X 275 SF/BEDROOM = 48,950 SF  
RECREATIONAL OPEN SPACE REQUIRED = 1.12 AC  
RECREATIONAL OPEN SPACE PROVIDED = 1.21 AC

ACTIVE SPACE - COMMUNITY BACKYARD (0.62 AC)  
CONCEPT IS TO PROVIDE AREAS FOR COMMUNITY GATHERING BY OFFERING A PLAYGROUND, PICNIC AREA AND/OR BENCHES

PASSIVE SPACE - COMMUNITY CORNER & OPEN SPACE (0.59 AC)  
CONCEPT IS TO PROVIDE PASSIVE SPACE TO BUILD COMMUNITY BY OFFERING A GAZEBO AND/OR BENCHES AS WELL AS A PUBLIC ART DISPLAY

### TOWNHOME BUILDINGS:

TOTAL NUMBER OF BUILDINGS - 15  
3-UNIT BUILDING - 2  
4-UNIT BUILDINGS - 3  
5-UNIT BUILDINGS - 8  
6-UNIT BUILDINGS - 1  
7-UNIT BUILDINGS - 1

### BUILDING SETBACKS:

FRONT - 0' (MIN), 25' (MAX)  
SIDE - 3' (MIN)\*  
REAR - 15' (MIN)  
BUILDING TO BUILDING - 10' (MIN)  
\* 0' SIDE YARD MINIMUM WHERE PARTI WALL EXISTS

### CONNECTIVITY INDEX (CI)

NUMBER OF NODES - 11  
NUMBER OF LINKS - 17  
CI PROVIDED - 1.5  
CI MINIMUM - 1.4 (UR-12)

### SITE DATA

PROJECT NAME	CAMDEN PARK
PREPARER'S CONTACT INFORMATION	JONES & CNOSSEN ENGINEERING, PLLC P.O. BOX 1062 APEX, NORTH CAROLINA 27502 PHONE - (919) 387-1174 FAX - (919) 387-3375 CONTACT PERSON - PETER D. CNOSSEN
OWNER / DEVELOPER CONTACT INFORMATION	DOS BROS. LLC & FRIENDLY CAPITAL, LLC 7101 CREEDMOOR ROAD, SUITE 122 RALEIGH, NORTH CAROLINA 27613 PHONE - (919) 845-6688 FAX - (919) 845-6639 CONTACT PERSON - ANDREW SANDMAN
PROJECT SITE ADDRESS	0 FAYETTEVILLE STREET 120 BROADWAY STREET
PROJECT PROPERTY ZONING	UR12
PROPERTY ZONING	UR12-PUD
PROJECT WAKE COUNTY PIN NO.S	1753- 59-4934, 59-6807 & 59-4750
PROJECT TOTAL SITE AREA	9.23 ACRES
FAYETTEVILLE STREET RAW DEDICATION	0.07 ACRE
BROADWAY STREET RAW DEDICATION	0.22 ACRE
NET SITE DEVELOPMENT AREA	8.94 ACRES
RESIDENTIAL LOTS & DENSITY	71 LOTS & 7.69 UNITS PER ACRE
EXISTING LAND USE	VACANT
PROPOSED LAND USE	TOWNHOMES
TOTAL LAND DISTURBANCE	9.1 AC
WATERSHED	NEUSE RIVER BASIN
FEMA FIRM MAP NUMBER	3720175300K & 3720175400K (DATED JULY 19, 2022)

### WAP NARRATIVE:

THE DEVELOPMENT PROPOSES TO MEET THE TOWN OF KNIGHTDALE WATER ALLOCATION POLICY (WAP) BY COMBINING BONUS POINTS FROM ARCHITECTURAL ELEMENTS, RECREATION ELEMENTS AND STORMWATER. OUR PRELIMINARY ACCOUNTING IS AS FOLLOWS:

BASE POINTS	MAJOR SUBDIVISION	15 POINTS
BONUS POINTS	SECTION 1B - NEARBY INTERSECTION IMPROVEMENTS	5 POINTS
	SECTION 2B - FOUNTAIN WITHIN BMP	4 POINTS
	SECTION 2B - ON-STREET PARKING	2 POINTS
	SECTION 2C - ARCHITECTURAL STANDARDS	15 POINTS
	SECTION 3A - ROADSIDE LANDSCAPING	2 POINTS
	SECTION 3A - PUBLIC ART DISPLAY	4 POINTS
	SECTION 4F - PLAYGROUND	4 POINTS
TOTAL POINTS		51 POINTS

### CONSTRUCTION DRAWING SHEET INDEX

1	COVER SHEET
2	EROSION CONTROL SEQUENCES & NOTES
3	STREET SIGN & MARKING PLAN
4	EROSION CONTROL PLAN 1
5	EROSION CONTROL PLAN 2
6	EROSION CONTROL PLAN 3
7	EROSION CONTROL DETAILS
8A	EXISTING CONDITIONS PLAN
8B	DEMOLITION PLAN
9	LOT LAYOUT PLAN
10	UTILITY PLAN
11	GRADING & STORM DRAINAGE PLAN
12A	FAYETTEVILLE STREET WIDENING
12B-12D	FAYETTEVILLE STREET CROSS-SECTIONS
13A	BROADWAY STREET WIDENING
13B-13E	BROADWAY STREET CROSS-SECTIONS
14	WISCASSET WAY & PRIVATE ALLEY 4
15	PRIVATE ALLEY 1 & SEWER OUTFALL A
16	PUBLIC ALLEY 2 & PRIVATE ALLEY 3
17A	WET POND #1 - PLAN VIEW
17B	WET POND #1 - PROFILE VIEW
LA-2	POND LANDSCAPE PLAN
18	CONSTRUCTION DETAILS 1
19	CONSTRUCTION DETAILS 2
20	CONSTRUCTION DETAILS 3
LA-1	LANDSCAPE PLAN
LP-1	LIGHTING PLAN

### TOWN OF KNIGHTDALE CONTACTS

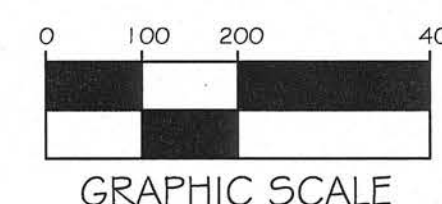
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Ike Archer  
Stormwater Manager  
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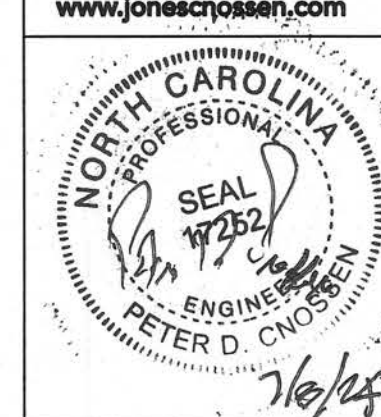
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Donovan Applewhite  
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### NARRATIVE

THE PURPOSE OF THESE CONSTRUCTION DRAWINGS IS TO APPROVE THE INFRASTRUCTURE FOR THE PROPOSED TOWNHOME DEVELOPMENT.



Peter D. Cnossen



**PERMITTING & ENVIRONMENTAL REGULATION NOTES:**

1. ESC PERMITTING AND INSPECTIONS:
  - a. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.
  - b. AN NCGO1 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILING OUT THE ELECTRONIC NOTICE OF INTENT (e-NOI) FORM AT DEQ.NC.GOV/INGGO1. PLEASE NOTE, THE e-NOI FORM MAY ONLY BE COMPLETED ONCE THE ESC PLANS HAVE BEEN APPROVED (a).
  - c. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRE-COM) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.
  - d. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.
  - e. FOLLOWING SITE MOBILIZATION, ROUTINE CONSTRUCTION SITE INSPECTIONS BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, COMPLIANT/SATISFACTORY INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
    - i. INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) - PERIMETER CONTROL INSPECTION.
    - ii. INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES - CERTIFICATE OF COMPLIANCE INSPECTION. IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT BY THE TOK.
    - f. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE - THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH APPROVED PLAN.

2. PERMIT BOX CONTENTS - A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCGO1 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE - MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS - APPROVAL OF THIS EROSION AND SEDIMENT CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
  - a. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION. SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
    - ii. IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
    - iii. FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES BEFORE ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC).

5. FILL/BORROW - ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

**CONSTRUCTION SEQUENCE-PHASE 1:**

1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 25' RIBBON AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS.
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. RISER BASIN CONSTRUCTION SHALL INCLUDE INSTALLATION OF STORM DRAINAGE THROUGH DOWNSTREAM GLENMERE LOTS AS SHOWN HEREON. THE OFF-SITE STORM DRAINAGE EASEMENT FOR THE STORM DRAINAGE SHALL BE RECORDED PRIOR TO CONSTRUCTION DRAWING APPROVAL.
7. STOCKPILE OF EXCESS SOIL MATERIAL SHALL NOT EXCEED 35' IN HEIGHT NOR EXCEED SLOPES OF 2:1. SEEDING OR MULCHING OF THE STOCKPILE IS REQUIRED TO MINIMIZE EROSION PROBLEMS.
8. STABILIZE DENUDEED AREAS WITH SEED AND STRAW WITHIN FOURTEEN (14) CALENDAR DAYS OF TEMPORARY OR PERMANENTLY SUSPENDING LAND DISTURBING ACTIVITY. PERMANENT GROUND COVER SHALL BE INSTALLED 14 DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT. LANDSCAPE CONTRACTOR TO REFERENCE DWG SEEDING CHART FOR SEEDING SPECIFICATIONS BEFORE SEEDING.
9. UPON COMPLETION OF PHASE 1, CONTRACTOR MAY COMMENCE WITH THE PHASE 2 EROSION CONTROL PLAN ON SHEET 5.

**SCM INSPECTION NOTES:**

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.

- PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
- 1) SITE SUPERVISOR
  - 2) GEOTECH
  - 3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION
- THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
  2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
    - a. CONCRETE CRADLE
    - b. ANTI-SEEP COLLAR
    - c. SEEPAGE DIAPHRAGM
  3. OUTLET STRUCTURE
  4. ANTI-FLOTATION BALLAST
  5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES
- THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
- a. SUBGRADE OR CONSTRUCTED FOUNDATION
  - b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
  - c. FILTER MEDIA
  - d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICATION  
 ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION REQUIRED  
 GEOTECHNICAL RECORDS INCLUDE:

- 1) DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
- 2) MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
- 3) DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAGM, RELIEF DRAINS, ETC., BEING INSTALLED.

**PHASE 2 CONSTRUCTION SEQUENCE:**

1. UPON APPROVAL OF PHASE 1, COMMENCE PERMITTED LAND DISTURBING ACTIVITY AND ROUGH GRADE SITE.
1. 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.
2. ONCE THE SITE IS ROUGH GRADED, CONSTRUCT SITE UTILITIES INCLUDING SEWER, WATER AND STORM DRAINAGE.
3. DURING STORM DRAINAGE INSTALLATION, CONSTRUCT RETAINING WALL AT RISER BASIN #1.
4. RISER BASIN #1 SHALL REMAIN IN-PLACE AS CONSTRUCTED IN PHASE 1 AS LONG AS PRACTICAL. FOR THIS REASON, STORM DRAINAGE CONSTRUCTION SHALL BEGIN AT DI#23 AND DI#32 WITH SHORT LENGTH OUTLET PIPES TO THE RISER. INSTALLATION OF DI#33 AND STORM DRAINAGE PIPE CONNECTIONS TO THESE DROP INLETS SHALL OCCUR AT THE TIME OF RETAINING WALL CONSTRUCTION.
5. THE EXTENSION OF EXISTING UTILITIES ALONG BROADWAY STREET WILL IMPACT THE TEMPORARILY CONSTRUCTION ENTRANCE. FOR THIS REASON, THE CONTRACTOR SHALL ADJUST THE WORK SCHEDULE TO LIMIT SITE ACCESS AS EACH UTILITY IS INSTALLED PAST THE CONSTRUCTION ENTRANCE, AND THE CONSTRUCTION ENTRANCE IS REPAIRED.
6. THE LAND DISTURBANCE FOR GRADING, STORM DRAINAGE AND CURB & GUTTER CONSTRUCTION NORTH OF BROADWAY STREET ON FAYETTEVILLE STREET SHALL BE STABILIZED WITH SEED & STRAW IMMEDIATELY AFTER COMPLETION.
7. AS THE STORM DRAINAGE SYSTEM IS INSTALLED, CONSTRUCT INLET PROTECTION AROUND EACH YARD INLET, DROP INLET AND CATCH BASIN. AT THIS TIME, THE CONTRACTOR SHALL DIVERT AS MUCH RUNOFF TO EACH INLET AS PRACTICAL.
8. ONCE THE STORM DRAINAGE SYSTEM IS INSTALLED, THE DIVERSION DITCHES MAY BE REMOVED.
9. INSTALL ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES AND/OR INCREASE MAINTENANCE FREQUENCY WHERE APPROVED MEASURES FAIL TO PREVENT ACCELERATED EROSION, OFF-SITE SEDIMENTATION OR REPETITIVE NON-COMPLIANCE ISSUES.
10. MODIFICATIONS TO THE APPROVED AND PERMITTED PLANS SHALL BE APPROVED BY STORMWATER INSPECTIONS PRIOR TO REMOVAL OR INSTALLATION. CONTACT THE STORMWATER INSPECTIONS REGIONAL COORDINATOR TO REQUEST AN INSPECTION TO OBTAIN A STORMWATER INSPECTOR'S SIGN-OFF ON THE PLANS OR AN APPROVED FIELD-REVISION.
11. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER. SILT FENCE, INLET PROTECTION AND OTHER SIMILAR MEASURES MUST BE CLEANED OUT BEFORE THEY ARE HALF FULL. CLOGGED STONE FILTERS MUST BE REFRESHED/REPLACED. SILT FENCE CANNOT HAVE HOLES OR TEARS.
12. AT COMPLETION OF PHASE 2, CONTRACTOR SHALL REFER TO SHEET 6 FOR PHASE 3 EROSION CONTROL ACTIVITY.

**REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE:**

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ - RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE #ASC JURISDICTION: TOWN OF KNIGHTDALE, TOK PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: A) REASON FOR CONVERSION, B) BASIN #, C) DEWATERING METHOD, AND D) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCGO1. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
3. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON-CLUMPING TURF GRASS (CENTIPEDE / HYBRID BERMUDA) INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
4. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR 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 EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.

**CONSTRUCTION SEQUENCE-PHASE 3:**

1. COMPLETE INFRASTRUCTURE CONSTRUCTION FOLLOWED BY STABILIZATION OF REMAINING DENUDEED AREAS WITH SEED & STRAW.
2. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
3. IF 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.
4. REMOVAL OF THE TEMPORARY RISER BASIN SHALL BE AS FOLLOWS:
  - A) REMOVE AND PROPERLY DISPOSE THE COIR BAFFLES AND ANY ACCUMULATED SEDIMENT.
  - B) GRADE TO FINAL CONTOUR ELEVATIONS AS SHOWN HEREON.
5. CONTACT THE STORMWATER INSPECTOR TO REVIEW ANY CHANGES TO THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN TO DETERMINE IF A REVISED PLAN IS REQUIRED.
6. MODIFICATIONS TO THE APPROVED AND PERMITTED PLANS SHALL BE APPROVED BY STORMWATER INSPECTIONS PRIOR TO REMOVAL OR INSTALLATION. CONTACT THE STORMWATER INSPECTIONS REGIONAL COORDINATOR TO REQUEST AN INSPECTION TO OBTAIN A STORMWATER INSPECTOR'S SIGN-OFF ON THE PLANS OR AN APPROVED FIELD-REVISION.
7. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER. SILT FENCE, INLET PROTECTION AND OTHER SIMILAR MEASURES MUST BE CLEANED OUT BEFORE THEY ARE HALF FULL. CLOGGED STONE FILTERS MUST BE REFRESHED/REPLACED. SILT FENCE CANNOT HAVE HOLES OR TEARS.
8. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

Sed. Basin (#)	Drainage Area (ac)	Q10 (cfs)	Length of Dam (ft)	Width of Dam (ft)	Dam Height (ft)	Side Slopes	Sed. Depth (ft)	Weir Length (ft)	Volume (cf)	Skimmer Size (in)	Orifice Size (in)	Dewatering Time (days)
1	14.4	44.6	262	10	2	3:1	3	10	51,840	4	3.8	3

Ditch (#)	Bottom Width (ft)	Depth (ft)	Side Slopes	Length (ft)	Drainage Area (ac)	Q10 (cfs)	Velocity (ft/s)	Matting Type
1	2	1	3:1	225	2.5	5.4	3.5	Turf Reinf. Mat
2	2	1	3:1	100	1.3	2.8	2.7	Turf Reinf. Mat
3	2	1	3:1	50	2	4.3	3.2	Turf Reinf. Mat
4	2	1	3:1	60	8.6	12.5	3	Rip-Rap D50-H"

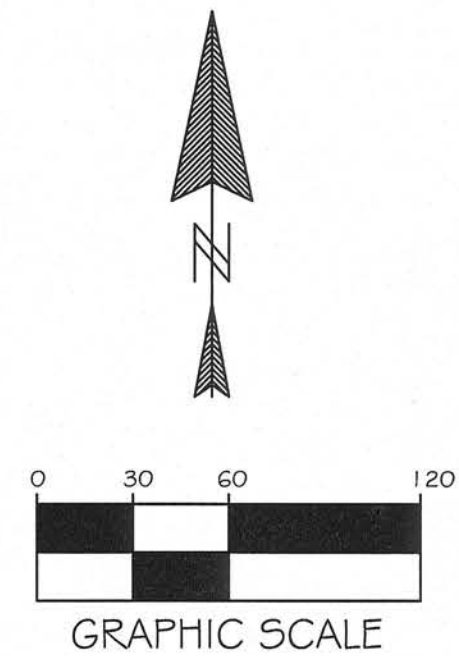
THE TOTAL DISTURBED AREA FOR THE CAMDEN PARK DEVELOPMENT IS 9.1 ACRES.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LAND USE ADMINISTRATOR



221 N. SALEM ST.  
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 www.jonesclossen.com



CAMDEN PARK  
 CONSTRUCTION DRAWINGS

EROSION CONTROL SEQUENCE SHEET

SCALE	NTS	DRAWN	PDC
DATE	FEBRUARY 8, 2024		
REVISION	02/08/24	1st CD COMMENTS	
	03/20/24	1st EC COMMENTS	
SHEET	2		
PROJECT	1516		





**SIGN LEGEND:**

25 MPH SPEED LIMIT SIGN (R2-1)		STOP SIGN (R1-1)	
SCM IDENTIFICATION SIGN		HIC PARKING SIGN	
W1-2 PEDESTRIAN CROSSING SIGN		W16-7P PEDESTRIAN CROSSING SIGN	

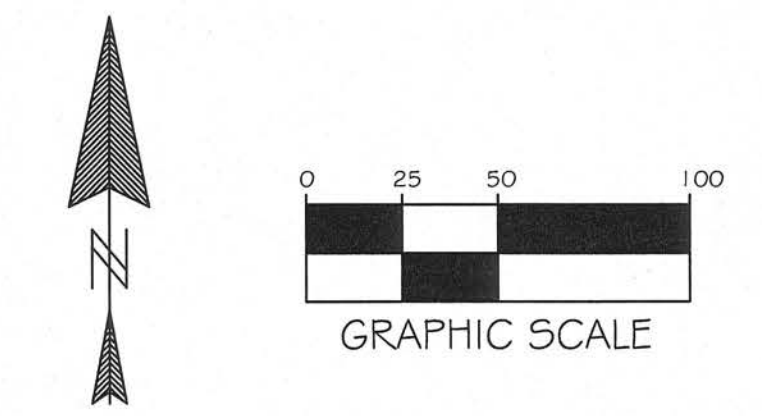
- GENERAL NOTES:**
- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  - BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THIS SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY DL SCOTT LAND SURVEYING.
  - TOPOGRAPHIC INFORMATION WAS TAKEN FROM LIDAR SPATIAL DATA.
  - THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMAL MAP #3720175300J EFFECTIVE DATE MAY 2, 2006.
  - WETLAND AND NEUSE RIVER BUFFER DELINEATIONS WERE REVIEWED BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST ON THIS SITE. THE NEUSE RIVER BUFFER DELINEATION WAS CONFIRMED NOT TO EXIST BY NCDWR (BUFFER DETERMINATION LETTER NBRRO #22-145).
  - NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
  - CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
  - ALL PAVEMENT MARKINGS INCLUDING PARKING LINES SHALL BE THERMOPLASTIC.

**TOWN CERTIFICATION.** THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

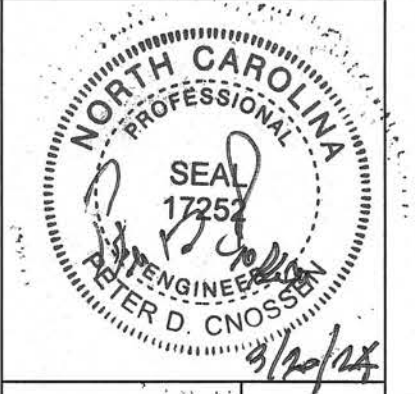
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

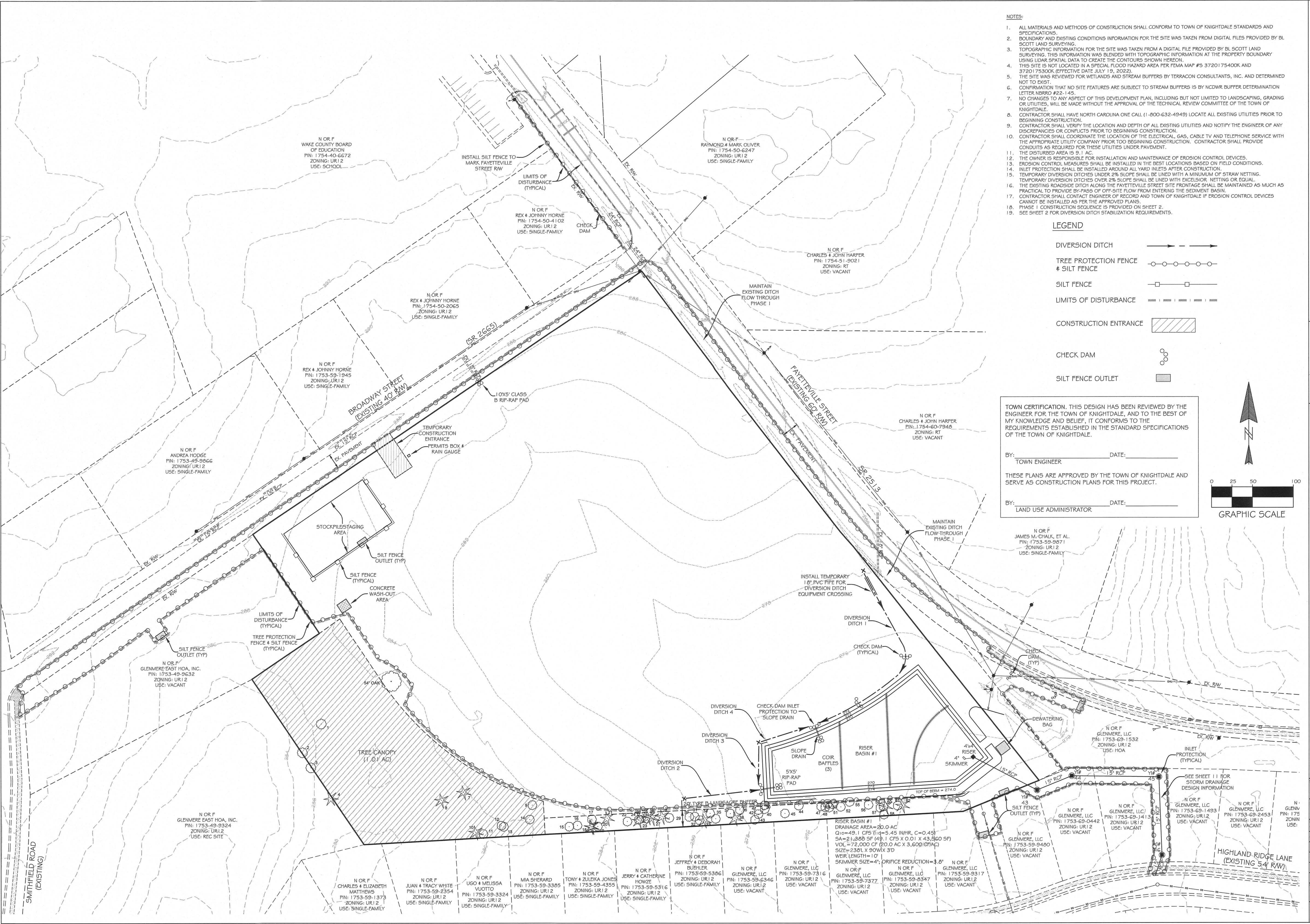


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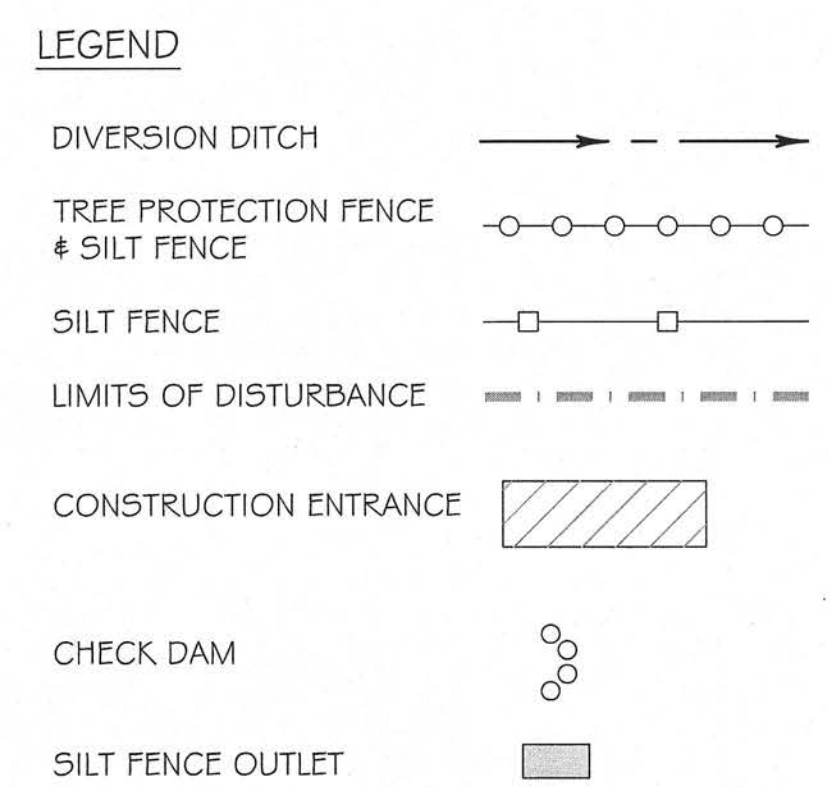


SCALE	1"=50'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st EC COMMENTS	
	03/20/24	2nd CD COMMENTS	
SHEET	3		
PROJECT	1516		





- NOTES:**
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  2. BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THE SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY BL SCOTT LAND SURVEYING.
  3. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY BL SCOTT LAND SURVEYING. THIS INFORMATION WAS BLENDED WITH TOPOGRAPHIC INFORMATION AT THE PROPERTY BOUNDARY USING LIDAR SPATIAL DATA TO CREATE THE CONTOURS SHOWN HEREON.
  4. THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #5 3720175400K AND 3720175300K (EFFECTIVE DATE JULY 19, 2022).
  5. THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
  6. CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCDWR BUFFER DETERMINATION LETTER NBR02-145.
  7. NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
  8. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
  9. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
  10. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRICAL, GAS, CABLE TV AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE WITH CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVEMENT.
  11. THE DISTURBED AREA IS 9.1 AC.
  12. THE OWNER IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF EROSION CONTROL DEVICES.
  13. EROSION CONTROL MEASURES SHALL BE INSTALLED IN THE BEST LOCATIONS BASED ON FIELD CONDITIONS.
  14. INLET PROTECTION SHALL BE INSTALLED AROUND ALL YARD INLETS AFTER CONSTRUCTION.
  15. TEMPORARY DIVERSION DITCHES UNDER 2% SLOPE SHALL BE LINED WITH A MINIMUM OF STRAW NETTING. TEMPORARY DIVERSION DITCHES OVER 2% SLOPE SHALL BE LINED WITH EXCELISOR, NETTING OR EQUAL.
  16. THE EXISTING ROADSIDE DITCH ALONG THE FAYETTEVILLE STREET SIDE FRONTAGE SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE BY-PASS OF OFF-SITE FLOW FROM ENTERING THE SEDIMENT BASIN.
  17. CONTRACTOR SHALL CONTACT ENGINEER OF RECORD AND TOWN OF KNIGHTDALE IF EROSION CONTROL DEVICES CANNOT BE INSTALLED AS PER THE APPROVED PLANS.
  18. PHASE 1 CONSTRUCTION SEQUENCE IS PROVIDED ON SHEET 2.
  19. SEE SHEET 2 FOR DIVERSION DITCH STABILIZATION REQUIREMENTS.

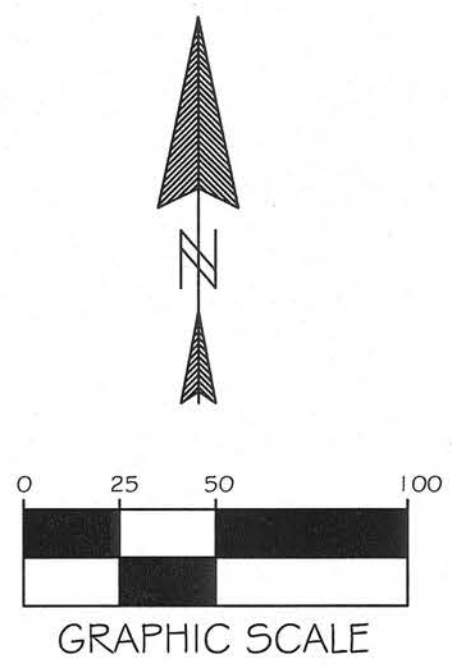


TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

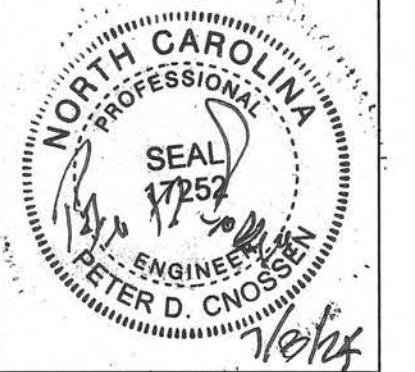
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

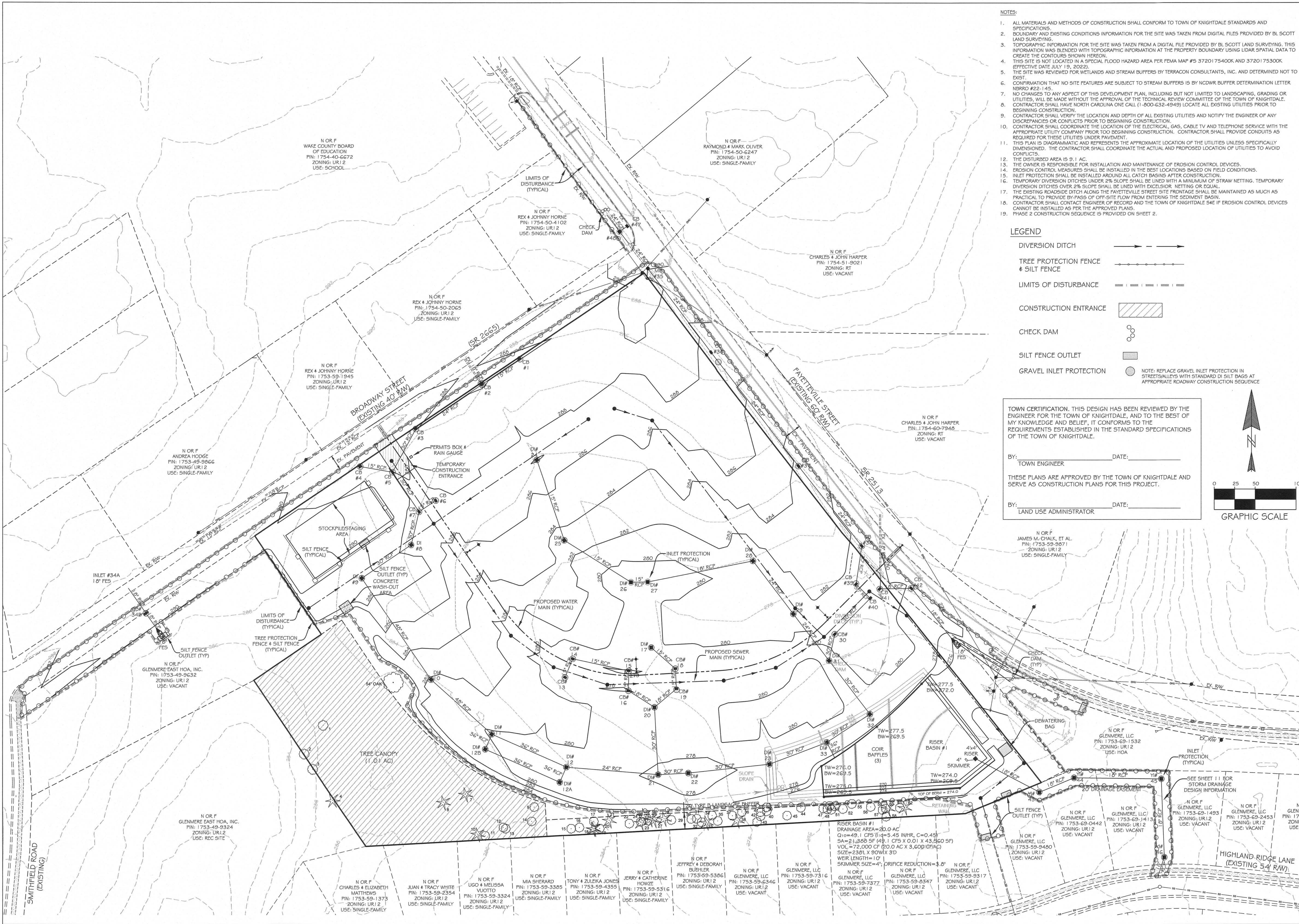


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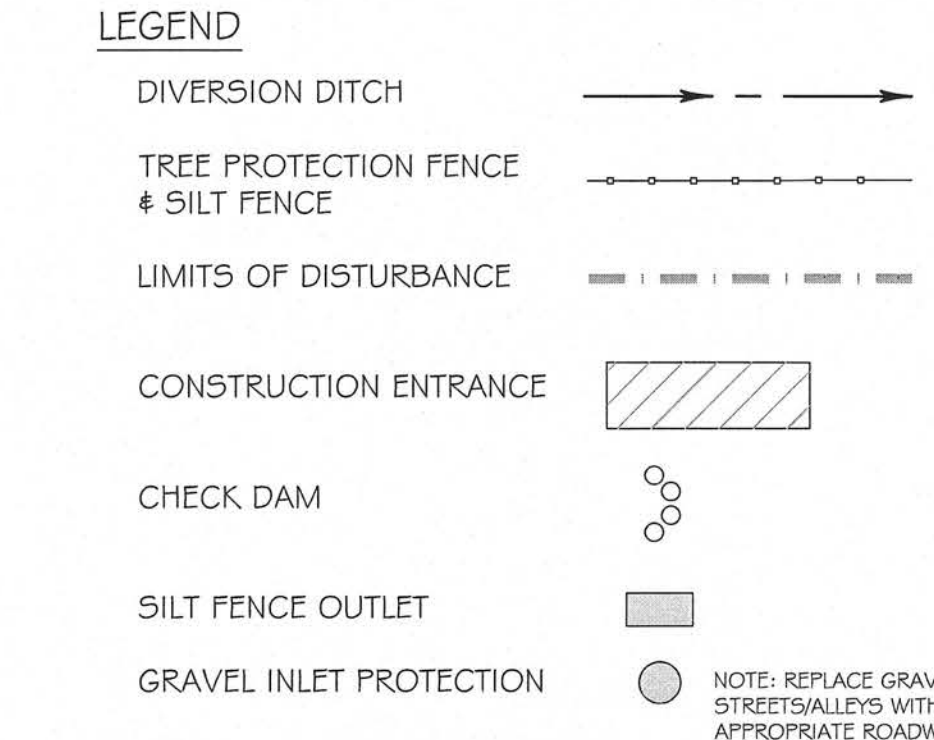


SCALE	1" = 50'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/09/24	1st CD COMMENTS	
	03/20/24	1st EC COMMENTS	
SHEET	4		
PROJECT	1516		





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  17. CONTRACTOR SHALL CONTACT ENGINEER OF RECORD AND THE TOWN OF KNIGHTDALE IF EROSION CONTROL DEVICES CANNOT BE INSTALLED AS PER THE APPROVED PLANS.
  18. PHASE 2 CONSTRUCTION SEQUENCE IS PROVIDED ON SHEET 2.

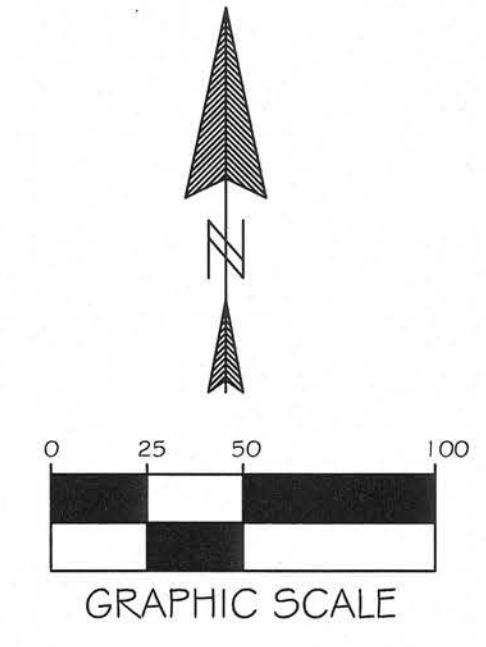


TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

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BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

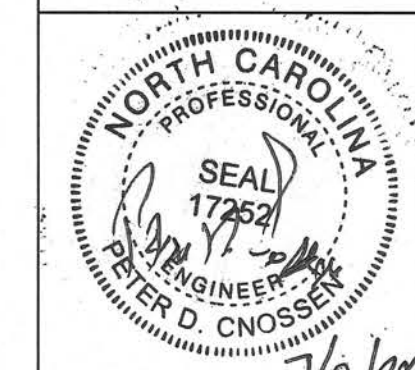


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SCALE	1"=50'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st CD COMMENTS	
	03/20/24	1st EC COMMENTS	
	04/09/24	INLET PROTECTION	
SHEET	5		
PROJECT	1516		





**NOTES:**

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4. THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #S 37201 75400K AND 37201 175300K (EFFECTIVE DATE JULY 19, 2022).
5. THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
6. CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCDWR BUFFER DETERMINATION LETTER NDBRO #22-145.
7. NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
8. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
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18. CONTRACTOR SHALL CONTACT ENGINEER OF RECORD AND TOWN OF KNIGHTDALE S&E IF EROSION CONTROL DEVICES CANNOT BE INSTALLED AS PER THE APPROVED PLANS.
19. PHASE 3 CONSTRUCTION SEQUENCE IS PROVIDED ON SHEET 2.

**LEGEND**

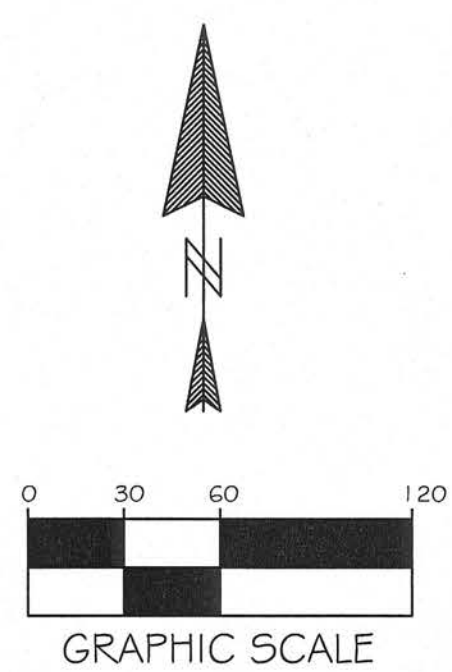
- DIVERSION DITCH
- TREE PROTECTION FENCE & SILT FENCE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- CHECK DAM
- SILT FENCE OUTLET
- INLET PROTECTION

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

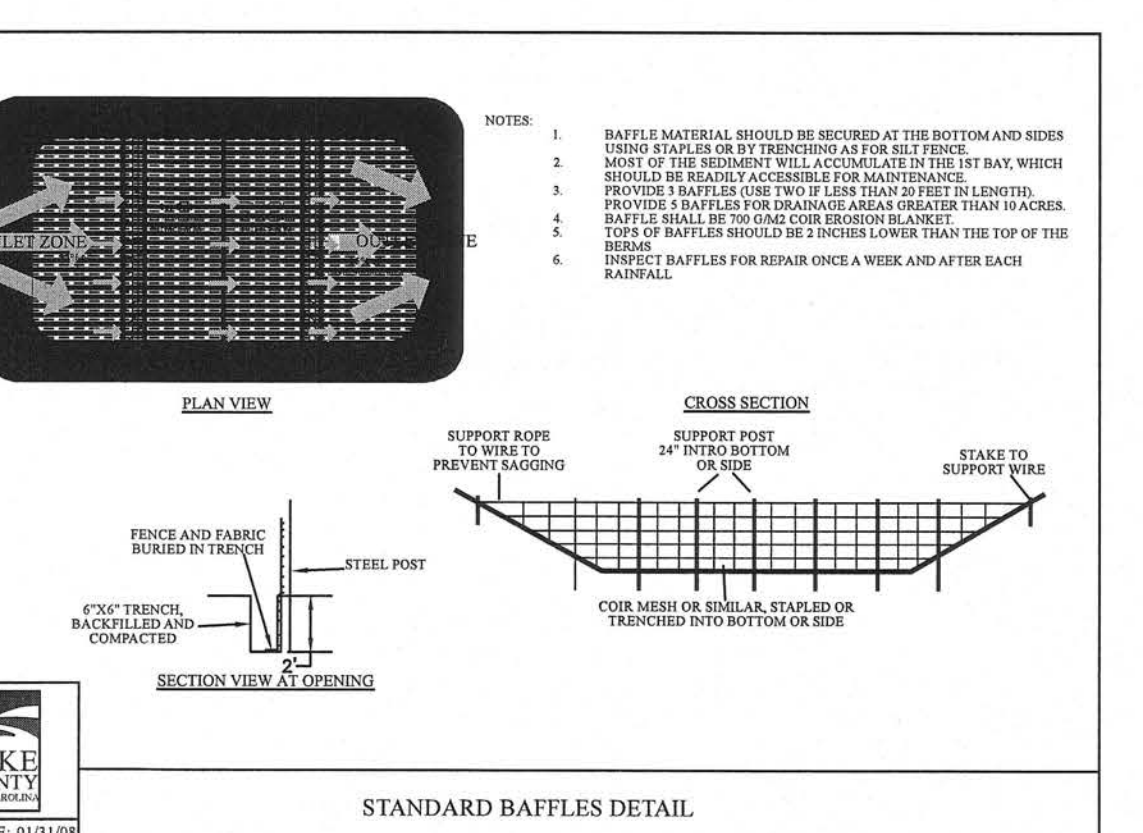
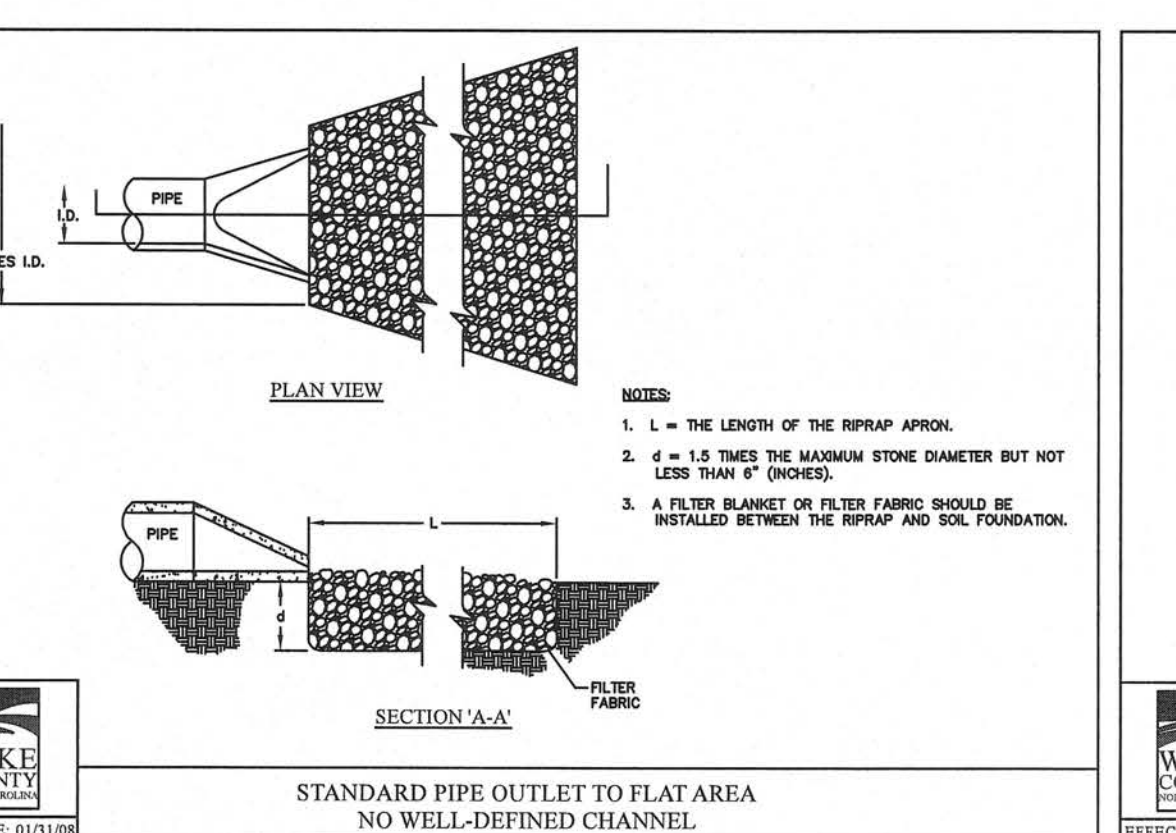
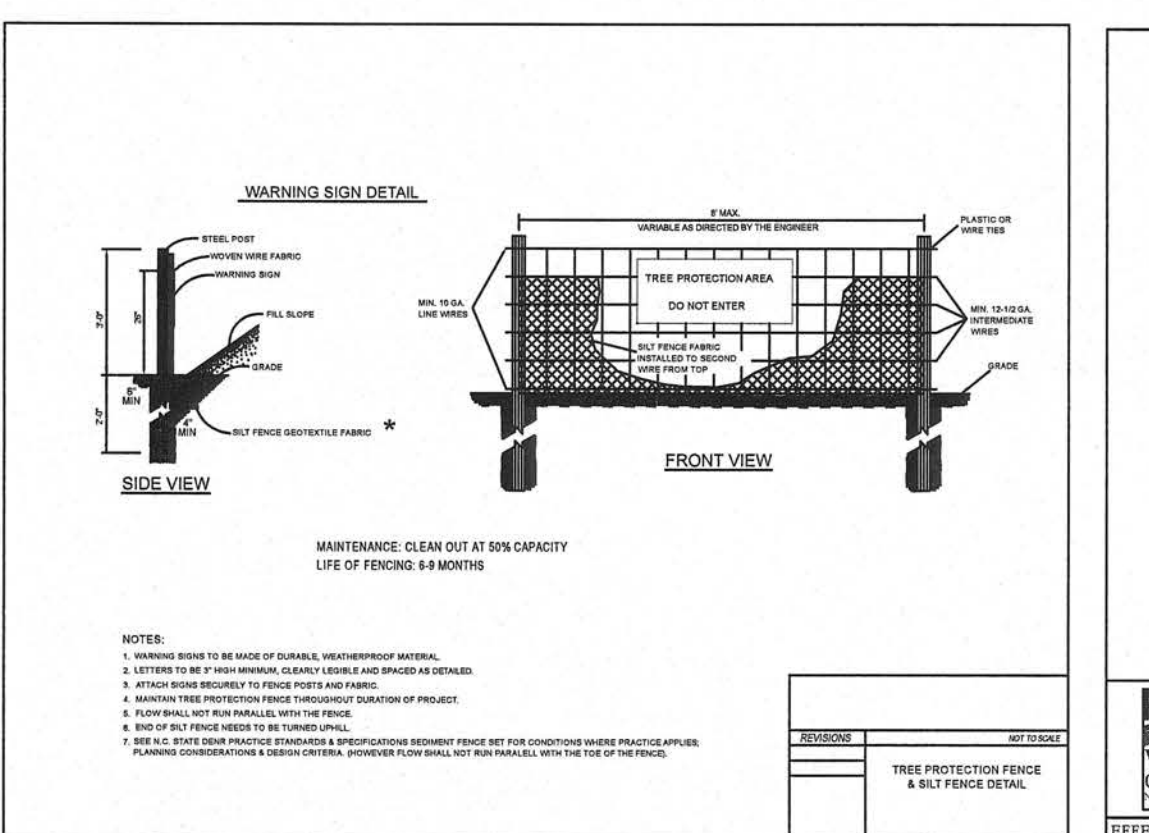
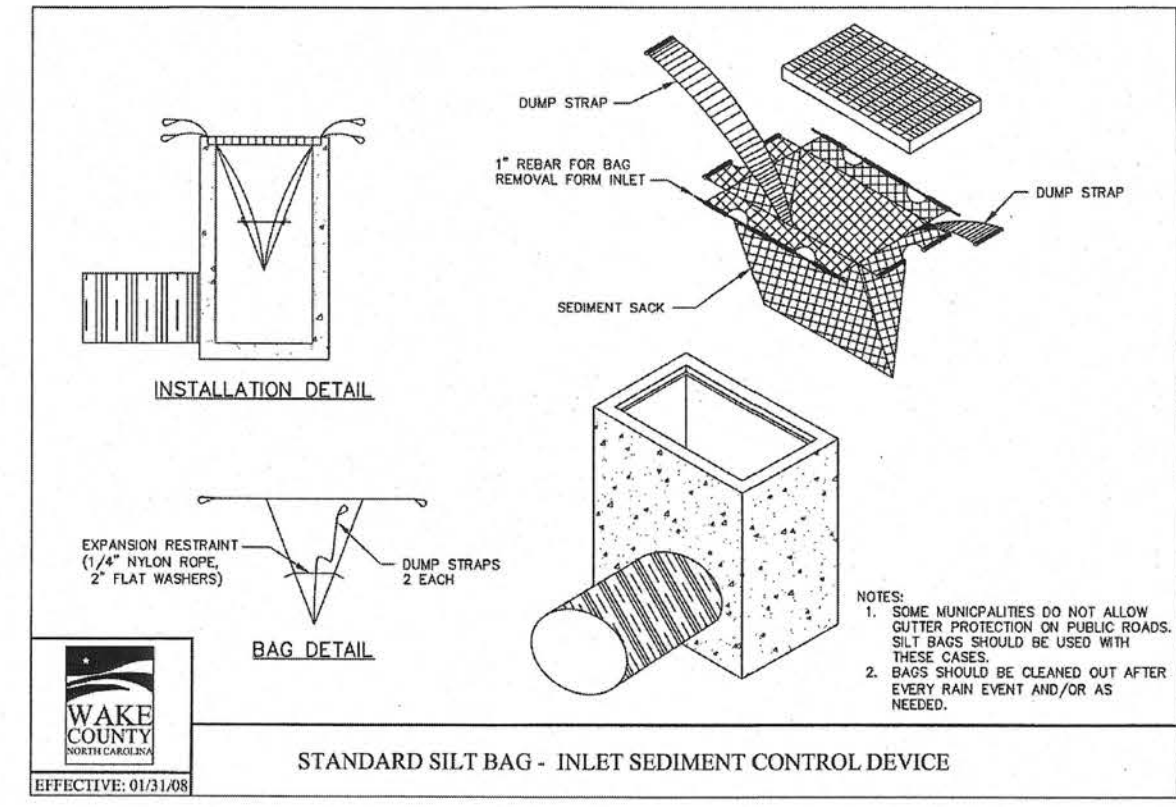
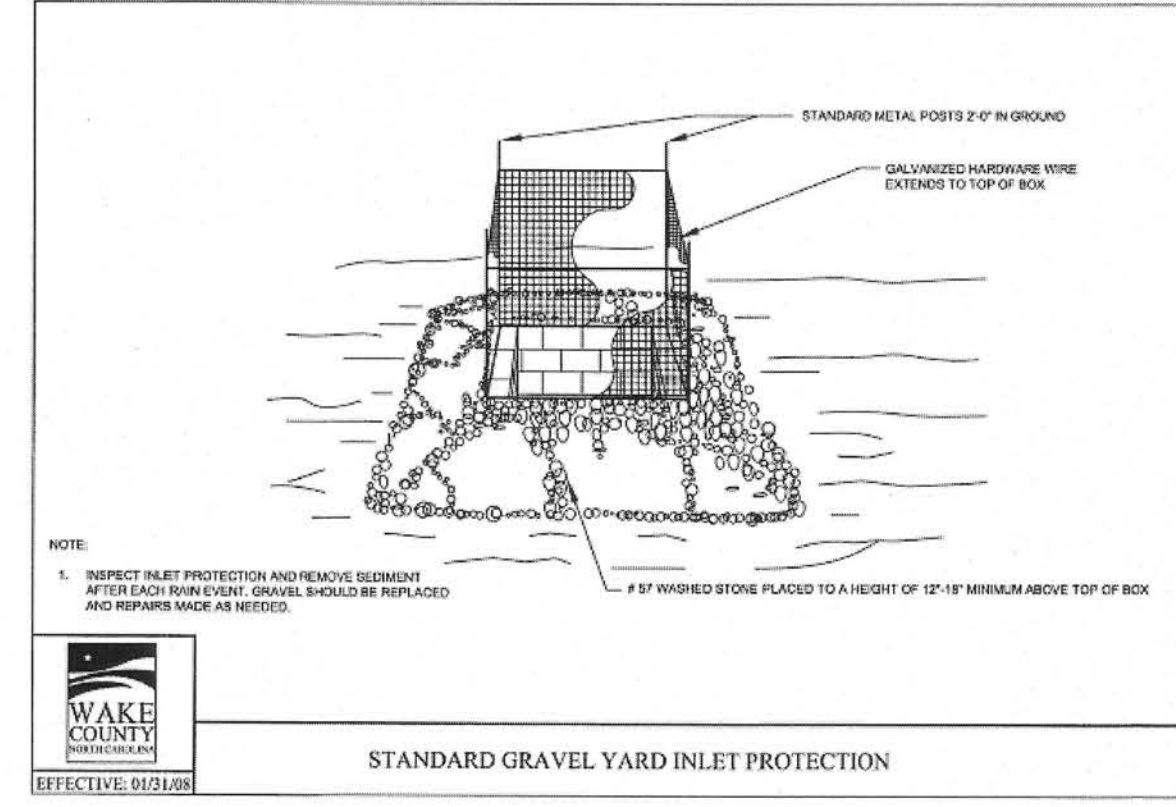
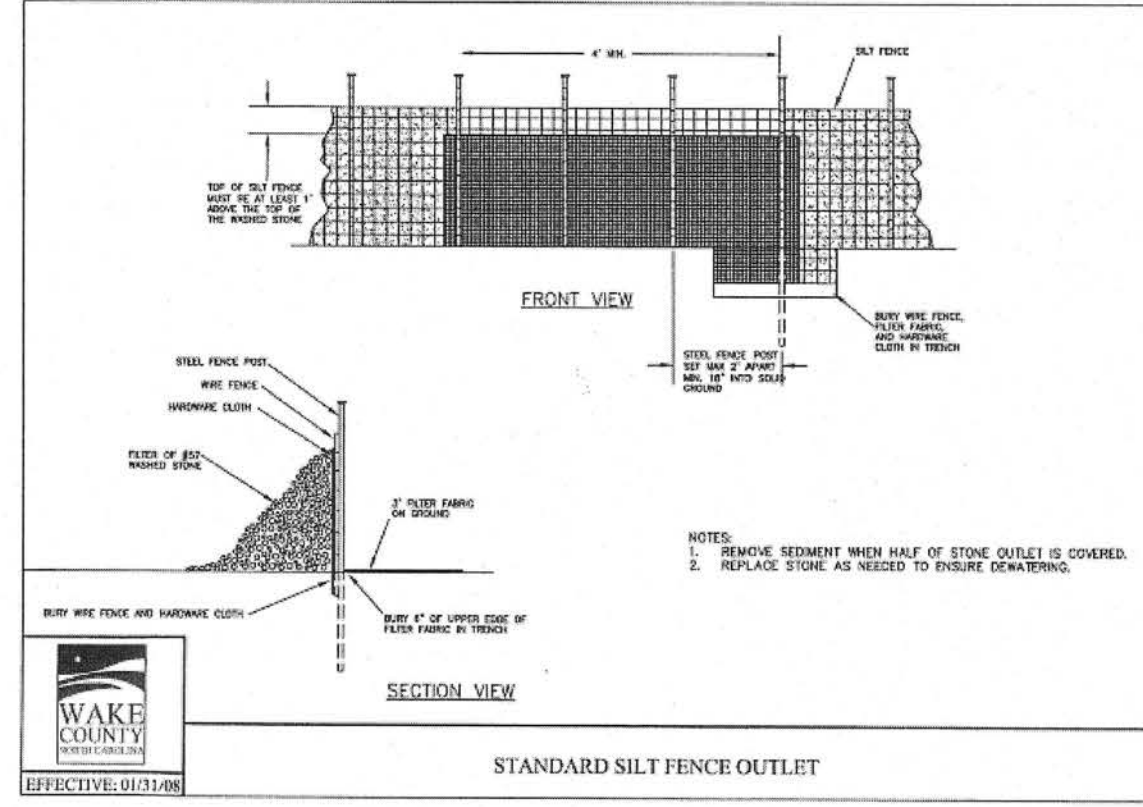
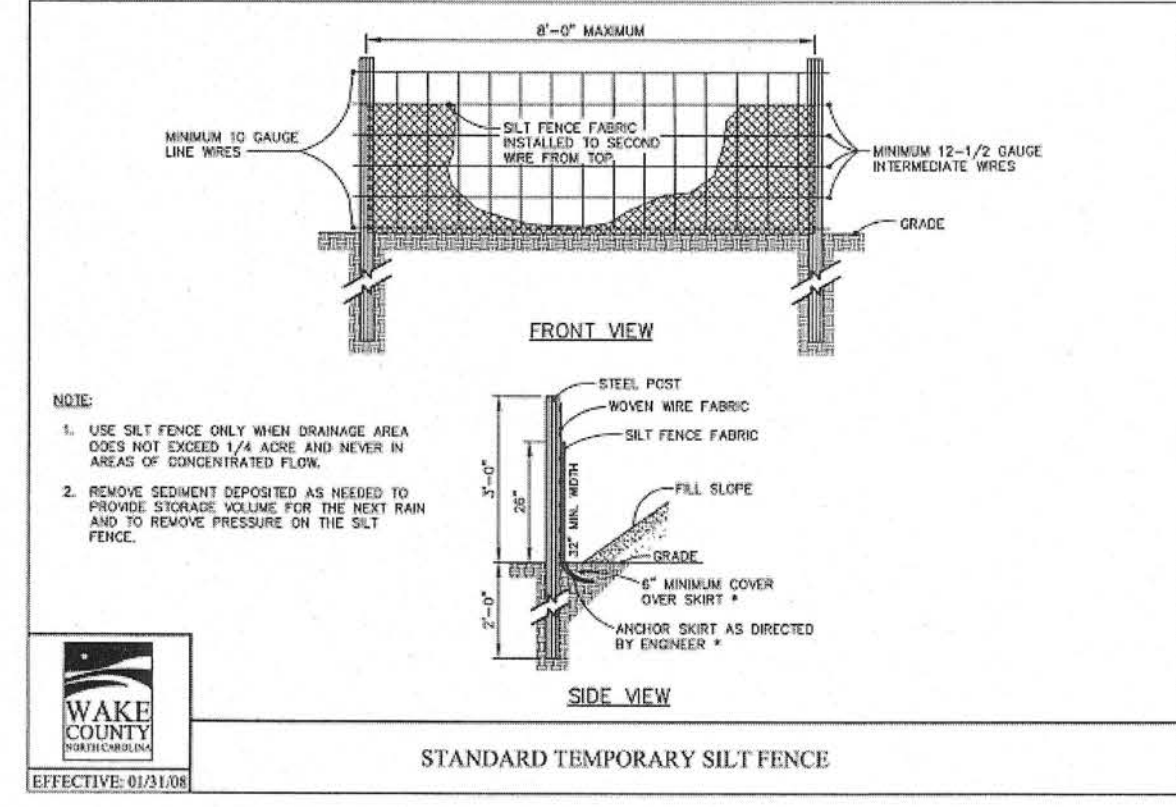
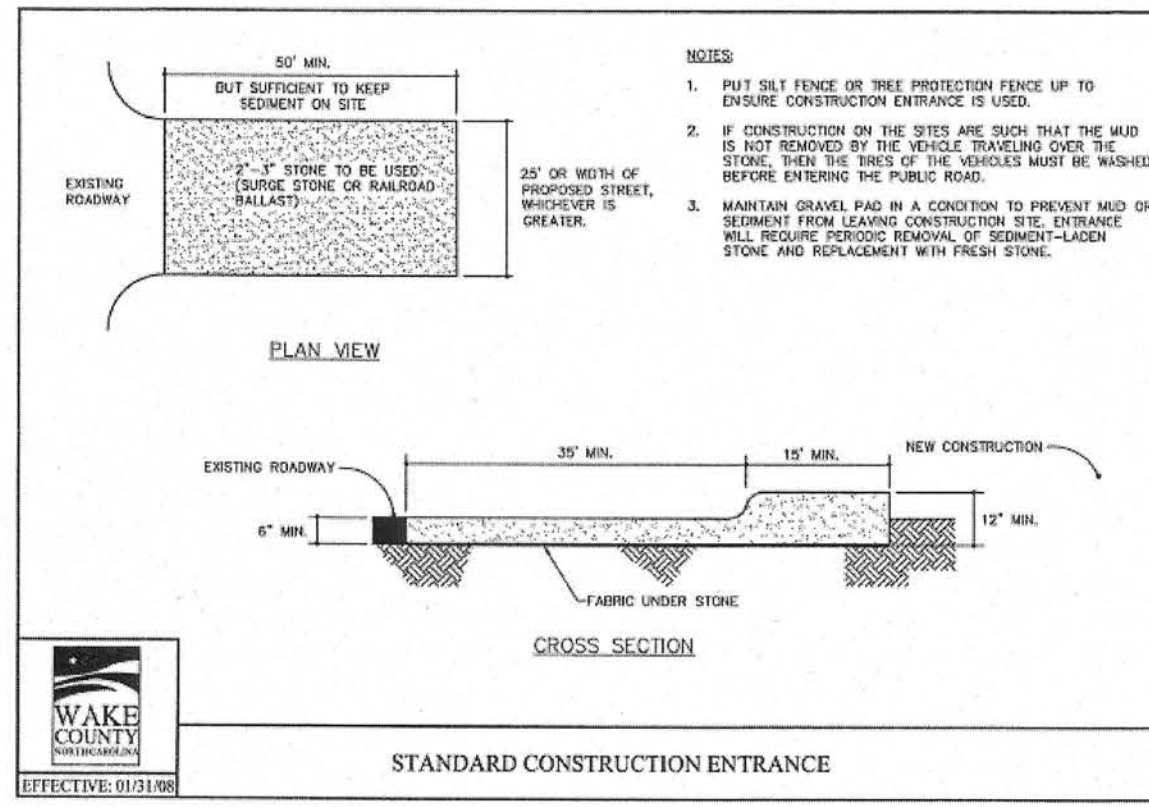
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



SCALE	1"=60'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st CD COMMENTS	
	03/20/24	1st EC COMMENTS	
	04/08/24	INLET PROTECTION	
SHEET	6		
PROJECT	1516		





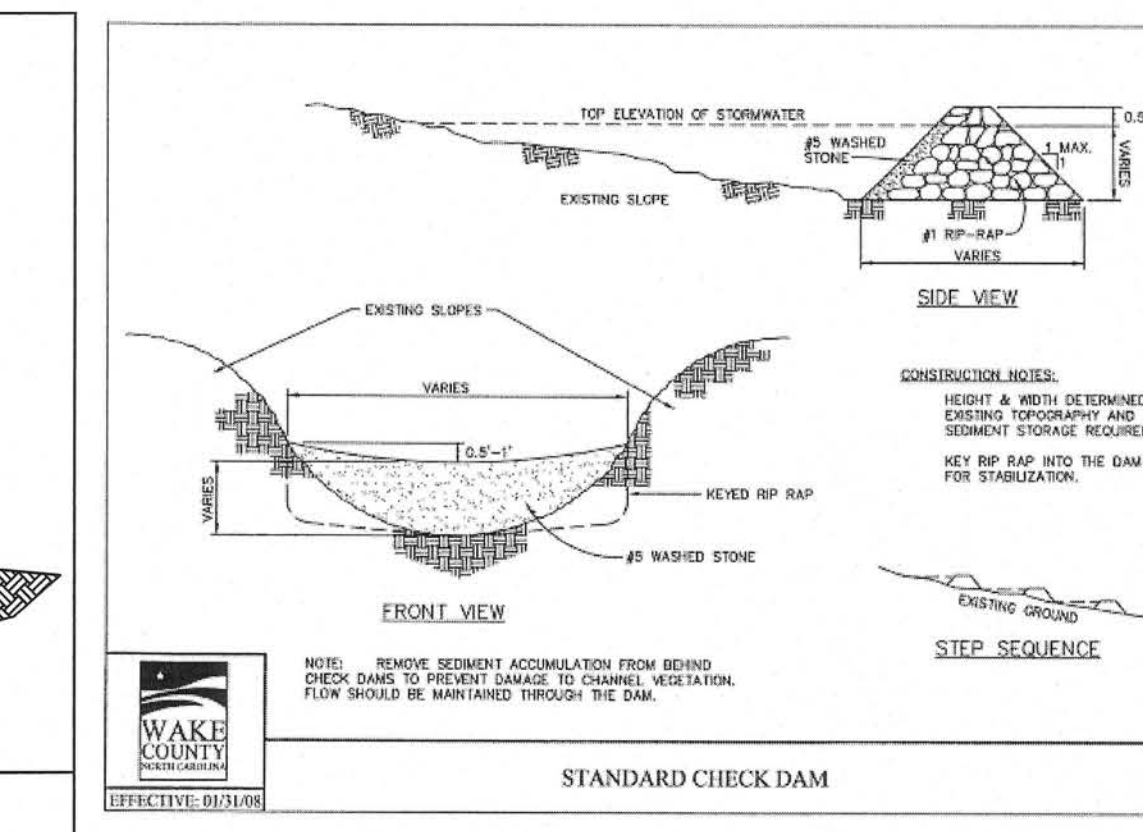
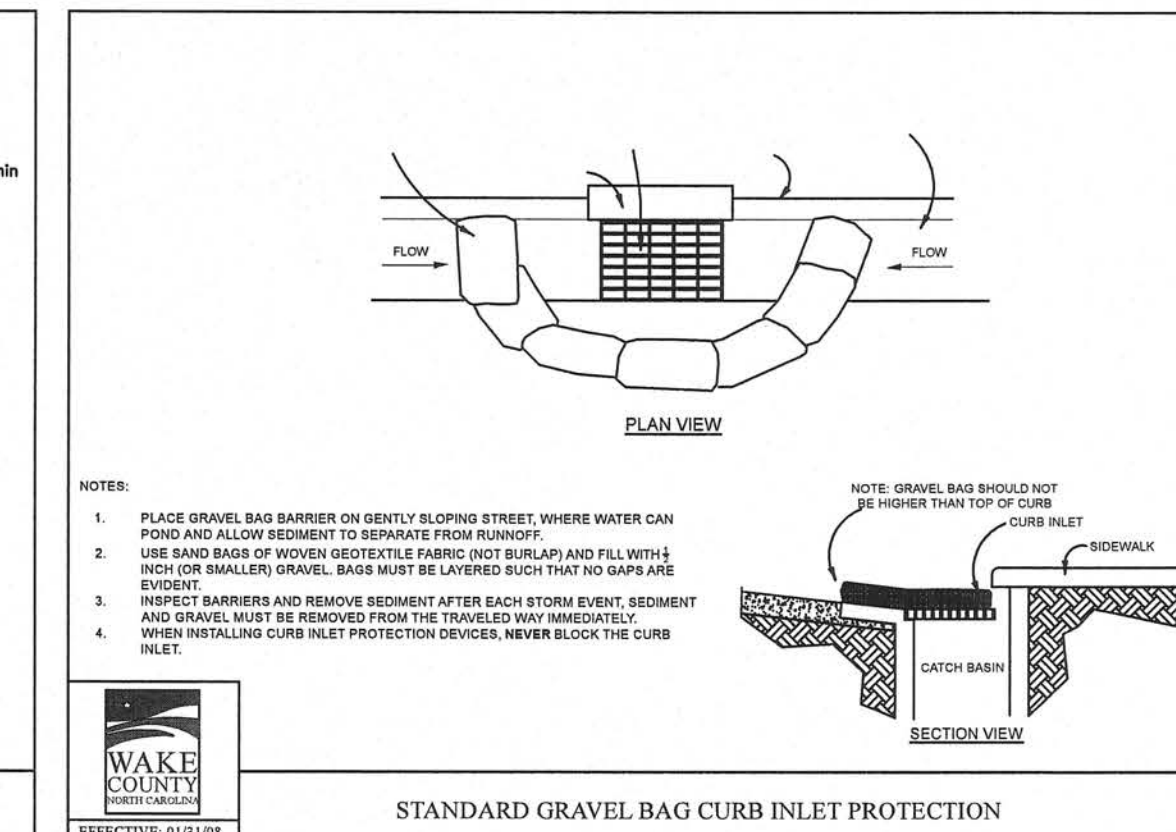
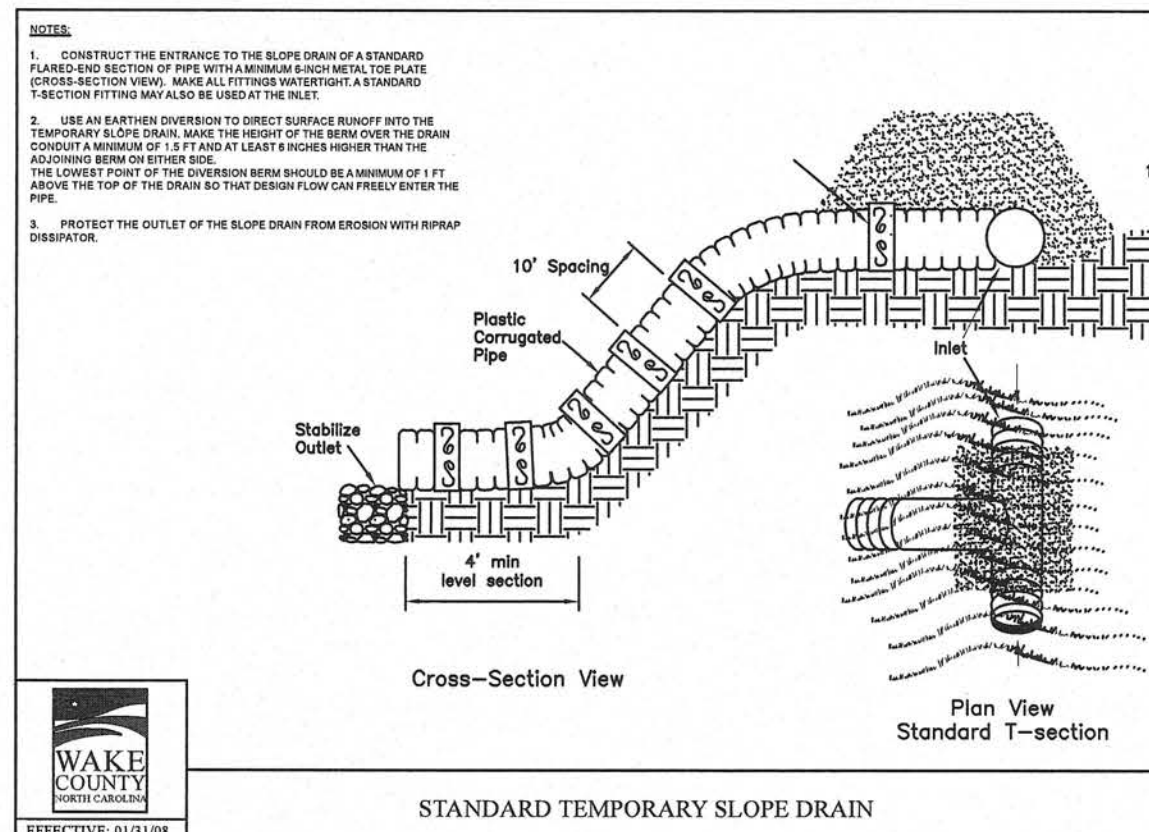
**SEEDBED PREPARATION**

- 1.) Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, if available.
- 2.) Rip the entire area to 6 inches deep.
- 3.) Remove all loose rock, roots, and other obstructions leaving surface reasonably smooth and uniform.
- 4.) Apply agricultural lime, fertilizer, and superphosphate uniformly and mix with soil. (see below)
- 5.) Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 4 to 6 inches deep.
- 6.) Seed on freshly prepared seedbed and cover seed lightly with seeding equipment or outpack after seeding.
- 7.) Mulch immediately after seeding and anchor mulch.
- 8.) Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be over 80% damaged, reestablish following original lime, fertilizer, and seeding rates.
- 9.) Consult Conservation Inspector for maintenance treatment and fertilization after permanent cover is established.

Apply: Agricultural Limestone - 2 tons / acre (3 tons / acre in clay soils), Fertilizer - 1000 lbs. / acre 10-10-10, Superphosphate - 500 lbs. / acre - 20%, Mulch - 2 tons / acre - small grain straw. Anchor - Asphalt Emulsion @ 300 gals. / acre.

**ESC PLAN MAINTENANCE NOTES:**

1. PROVIDE A PLAN DETAIL, CONSTRUCTION SPECIFICATIONS, AND SPECIFIC MAINTENANCE REQUIREMENTS FOR ALL PROPOSED SEDIMENT AND EROSION CONTROL STRUCTURES INCLUDED ON THE PLAN. RECOMMEND PLACING MAINTENANCE REQUIREMENTS WITH THE ASSOCIATED CONSTRUCTION DETAIL.
2. MAINTENANCE AND/OR CLEAN OUT, IS NECESSARY ANYTIME THE DEVICE IS AT 50% CAPACITY. ALL SEDIMENT STORAGE MEASURES WILL REMAIN ON SITE AND FUNCTIONAL UNTIL ALL GRADING AND FINAL LANDSCAPING OF THE PROJECT IS COMPLETE.
3. AS DESIGNATED BY NCEM/NGO1 PERMITTING, SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF 1 INCH OR GREATER. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED.
4. PROVIDE THE MINIMUM MAINTENANCE STANDARDS AS SPECIFIED BELOW:
  - SURVEYOR FLAG/FASTENERS
  - REPLACE IDENTIFIERS IF DAMAGED OR KNOCKED DOWN DURING DEVELOPMENT.
  - ENSURE KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES MAINTAIN IDENTIFIERS.
  - COLORS SHOULD ADHERE TO THE APWA UNIFORM COLOR CODE. USE ACCEPTED SURVEY SYMBOLS AND ENSURE OPERATORS UNDERSTAND DESIGNATIONS. UTILITY LINE OWNERS/OPERATORS SHALL IDENTIFY THE DESIGNATING FIRM.
  - PERMITS/NGO1 INSPECTIONS BOX:
    - CONFIRM BOX IS SECURELY FASTENED TO A POST OR WALL IN A VISIBLE LOCATION IN PROXIMITY TO THE CONSTRUCTION ENTRANCE.
    - MAINTAIN RELEVANT IDENTIFICATION ON THE EXTERIOR OF THE BOX.
    - ENSURE PAPER DOCUMENTS REMAIN DRY / LEGIBLE (LAMINATION, TICKET HOLDERS, BINDERS, ETC.)
    - REPLACE ANY MISSING DOCUMENTS IMMEDIATELY. CONSIDER PLACING TIES OR FASTENERS IF NECESSARY.
  - CHECK AND REMOVE ANY ITEMS FROM THE RAIN FUNNEL AND THE DEBRIS FILTER (E.G., DUST, BUGS AND OTHER DEBRIS).
  - OPEN THE RAIN GAUGE AND REMOVE ANY FOREIGN OBJECTS.
  - PERFORM ROUTINE MAINTENANCE AS SPECIFIED BY THE MANUFACTURER.
  - CHECK THAT THE GAUGE IS NOT BEING OBSTRUCTED FROM RAIN CAPTURE AND IS LEVEL BEFORE AND AFTER REASSEMBLY.



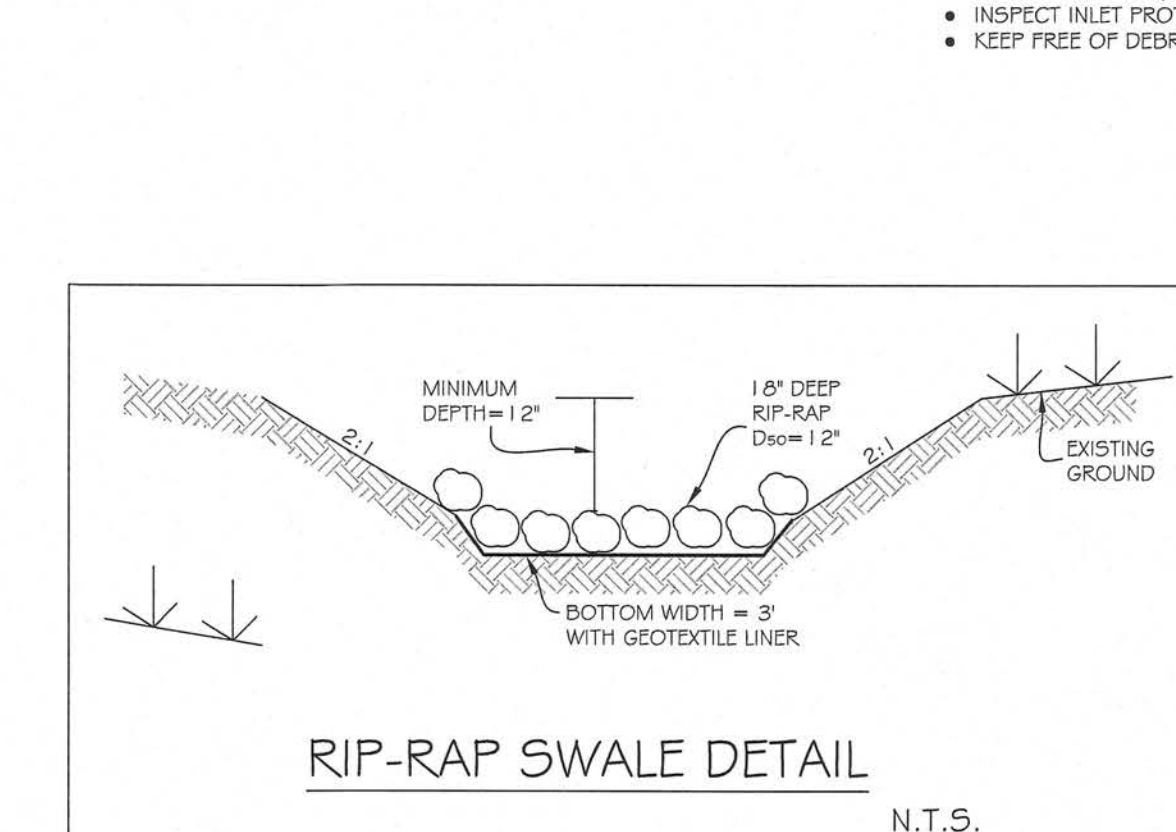
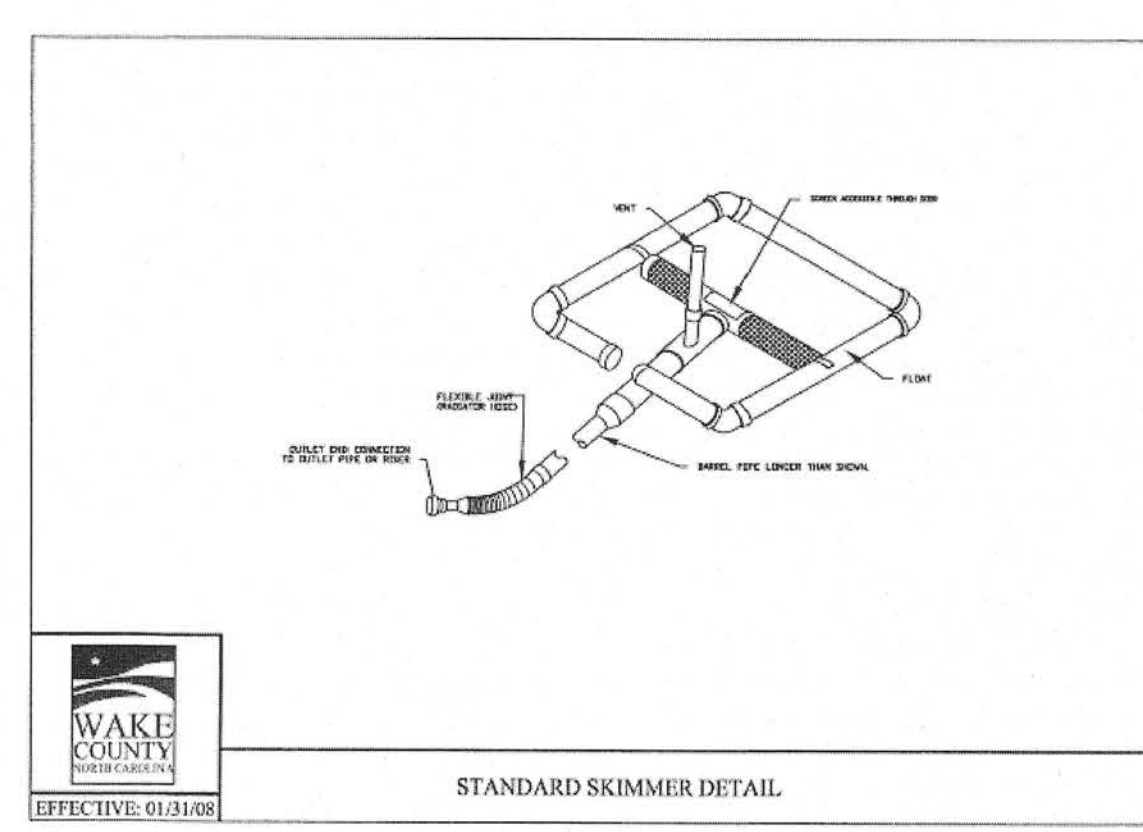
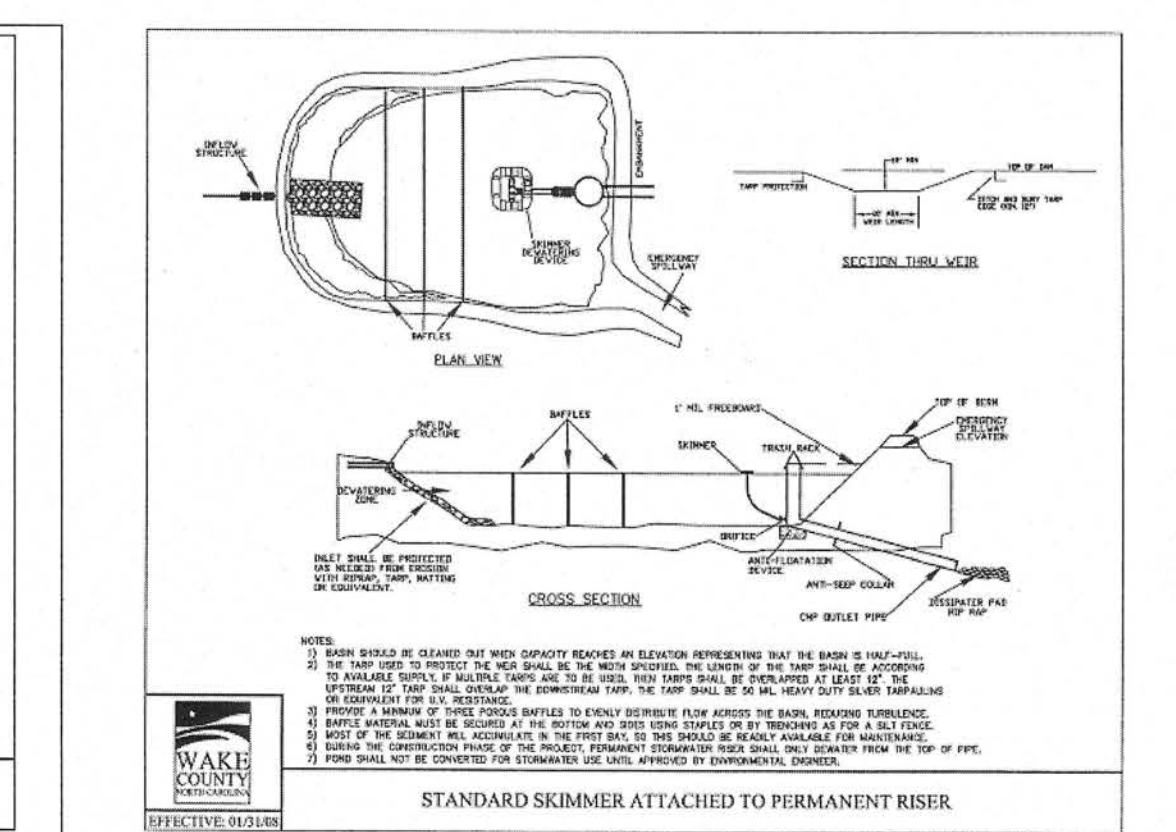
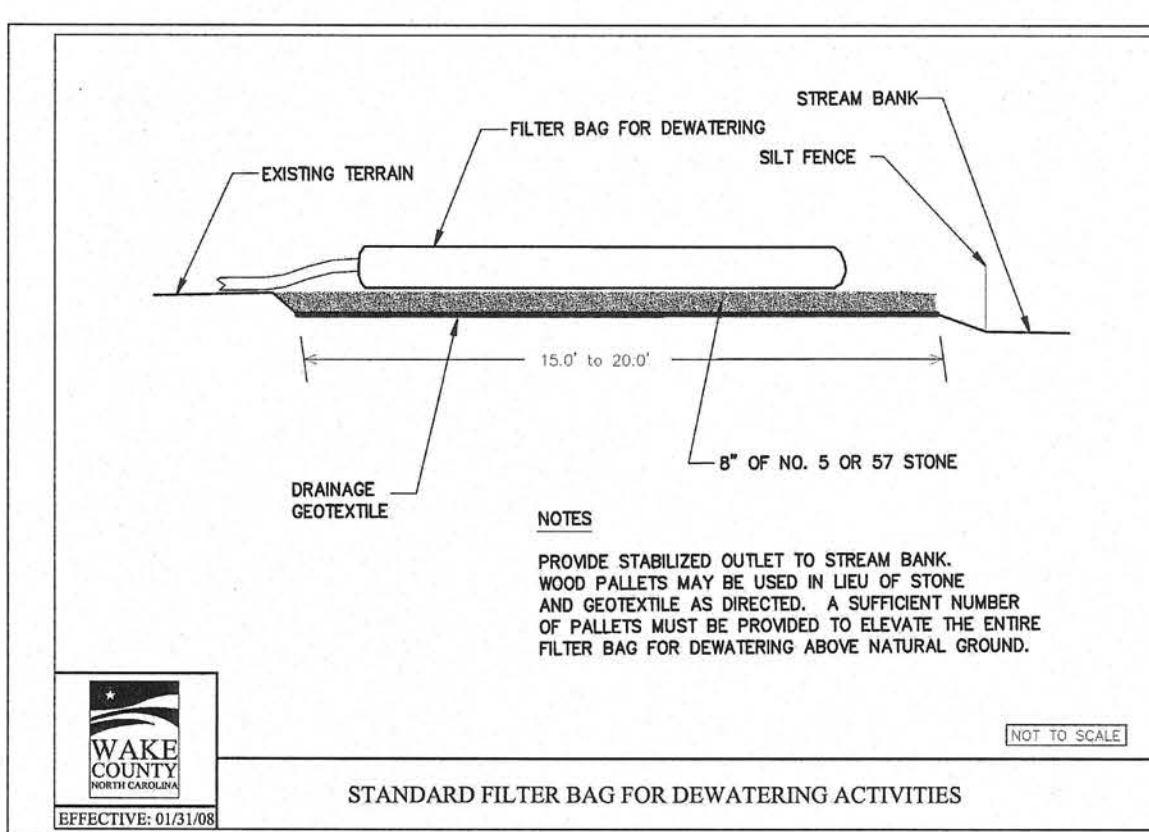
ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

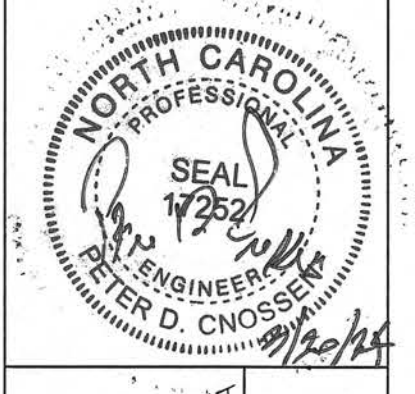
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



**SKIMMER CALCULATION**

REFERENCE: SKIMMER DESIGN BY PARCLOTI, 2007

SKIMMER BASH #1  
BASH VOLUME - 51,640 CF  
DRAIN OVER A 3 - 4 DAY PERIOD  
PER PARCLOTI  
USE 4" SKIMMER (DRAINS 54,000 CF IN 3 DAYS)  
CHECK ORIFICE SIZE  
4" SKIMMER FACTOR IS 4.362 FOR 3 DAYS  
FIND ORIFICE RADIUS  
S1 = 440 (7.562 \* 5750 IN) = 11.88 SQ-IN  
R = SQRT(11.88 SQ-IN / 3.14)  
R = 1.94 IN (DIAMETER = 3.87")  
THEREFORE, USE 4" SKIMMER WITH 3.87" ORIFICE REDUCTION.

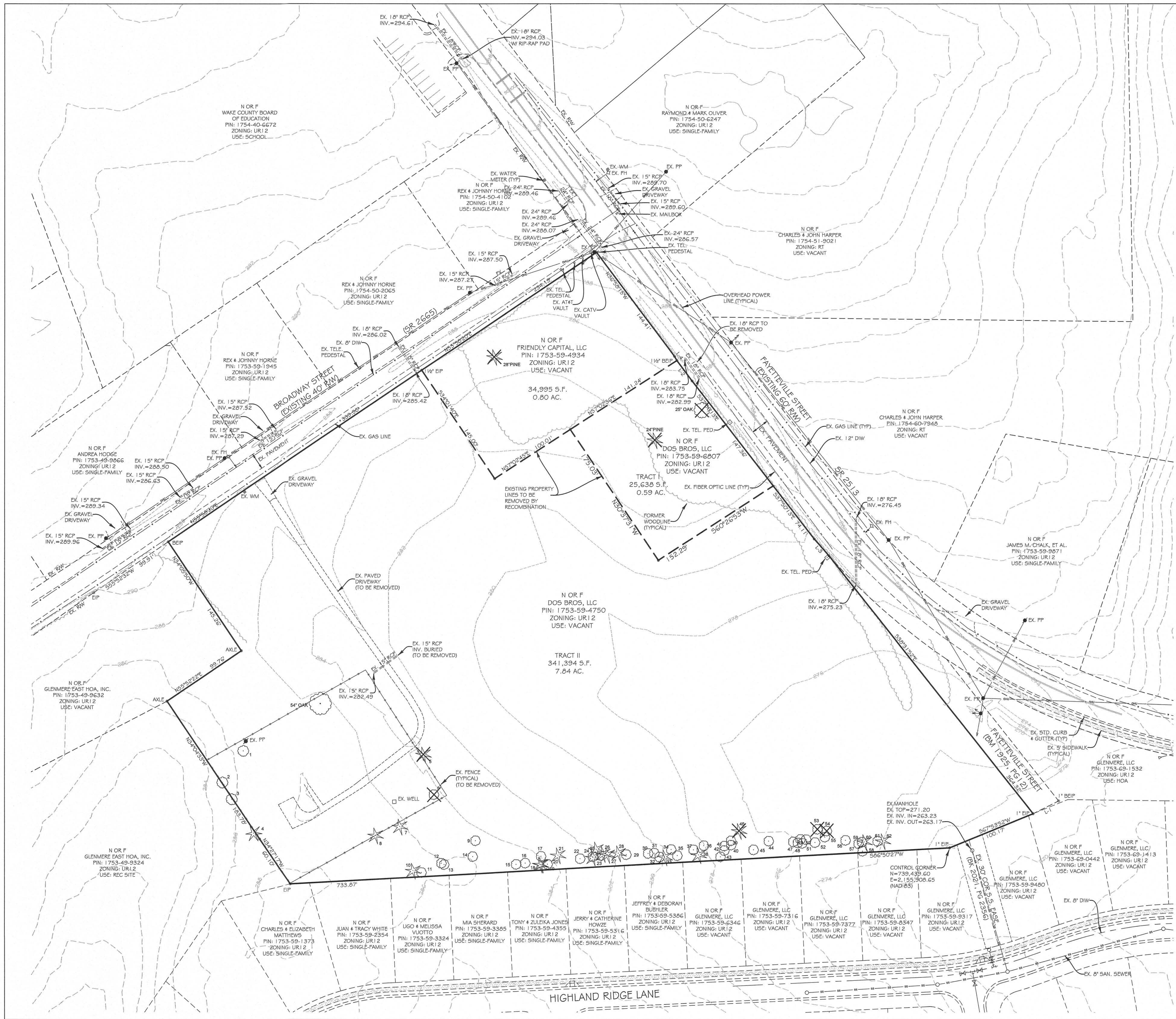


SCALE	NT5	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	03/20/24	1st EC COMMENTS	
SHEET	7		
PROJECT	1516		









- NOTES:**
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  2. BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THE SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY BL SCOTT LAND SURVEYING.
  3. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY BL SCOTT LAND SURVEYING. THIS INFORMATION WAS BLENDED WITH TOPOGRAPHIC INFORMATION AT THE PROPERTY BOUNDARY USING LIDAR SPATIAL DATA TO CREATE THE CONTOURS SHOWN HEREON.
  4. THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #5 3720175400K AND 3720175300K (EFFECTIVE DATE JULY 19, 2022).
  5. THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
  6. CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCOWR BUFFER DETERMINATION LETTER NBR00 #22-145.
  7. A TREE SURVEY WAS COMPLETED ALONG THE SOUTHERN PROPERTY BOUNDARY BY BL SCOTT LAND SURVEYING AND THE EXISTING TREES ARE LISTED BELOW.
  8. THE SITE WAS CLEARED OF TREES TO PROVIDE SURVEYED TOPO. THE FORMER WOODLINE OF PINES AND HARDWOODS IS SHOWN FOR INFORMATION ONLY.
  9. ALL EXISTING STRUCTURES HAVE BEEN REMOVED FROM THE SITE. ANY REMAINING BUILDING DEBRIS INCLUDING DRIVEWAY MATERIALS SHALL ALSO BE REMOVED.
  10. REMOVAL OF DEMOLITION DEBRIS SHALL BE IN ACCORDANCE WITH REQUIRED ENVIRONMENTAL REGULATIONS. AN ENVIRONMENTAL CONSULTANT SHOULD BE RETAINED TO EVALUATE THE PRESENCE OF ASBESTOS OR OTHER HAZARDOUS MATERIALS PRIOR TO DEMOLITION AND ENSURE PROPER DISPOSAL.
  11. ANY EXISTING WELL AND SEPTIC TANK SHALL BE ABANDONED ACCORDING TO WAKE COUNTY HEALTH DEPARTMENT STANDARDS.
  12. THE EXISTING INTERIOR PROPERTY LINES SHALL BE REMOVED BY RECOMBINATION.
  13. ALL EXISTING UTILITIES WITHIN THE FAYETTEVILLE STREET AND BROADWAY STREET FRONTAGE REQUIRING IMPROVEMENT SHALL BE RELOCATED IF REQUIRED. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE LOCAL UTILITY COMPANIES.

**EXISTING TREES**

1-41' OAK	32-8' GUM
2-34' BOXELDER	33-26' PINE
3-10' BOXELDER	34-8' OAK
4-37' PINE	35-8' GUM
5-17' PINE	36-12' OAK
6-28' DOUBLE MAGNOLIA	37-6' GUM
7-27' PINE	38-18' PINE
8-24' PINE	39-6' GUM
9-15' MAPLE	40-8' GUM
10-17' PINE	41-10' GUM
11-6' REDBUD	42-12' OAK
12-6' OAK	43-10' GUM
13-6' OAK	44-14' GUM
14-18' POPLAR	45-18' OAK
15-10' OAK	46-6' PINE
16-6' BOXELDER	47-36' GUM
17-8' OAK	48-24' GUM
18-18' PINE	49-20' GUM
19-18' PINE	50-18' GUM
20-6' BOXELDER	51-20' DOUBLE GUM
21-8' PINE	52-8' GUM
22-10' OAK	53-8' GUM
23-32' PINE	54-6' GUM
24-6' GUM	55-20' GUM
25-11' GUM	56-18' GUM
26-29' PINE	57-12' GUM
27-17' PINE	58-6' GUM
28-38' PINE	59-6' GUM
29-22' HICKORY	60-12' PINE
30-6' OAK	61-6' GUM
31-6' OAK	62-16' PINE

NOTE: TREES 5, 6, 46, 53 & 54 AND 24' & 28' PINE AND 25' OAK TO BE REMOVED (SEE 'X').

**LINE DATA**

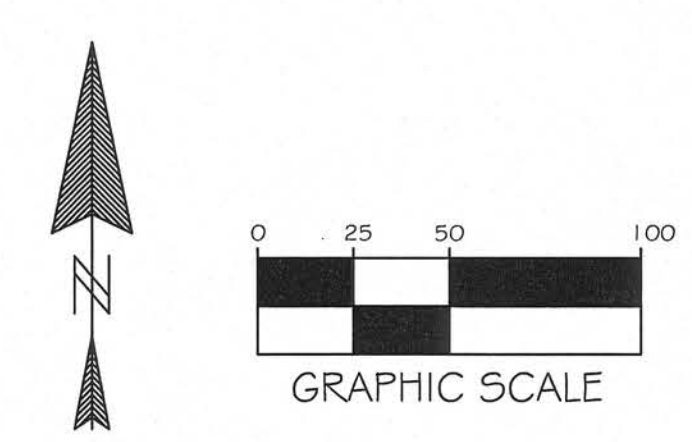
NUMBER	BEARING	DIST.
L-1	N63°37'06"E	31.81'
L-2	S36°36'32"E	28.23'
L-3	S41°21'01"E	24.85'
L-4	N29°42'46"W	5.31'

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

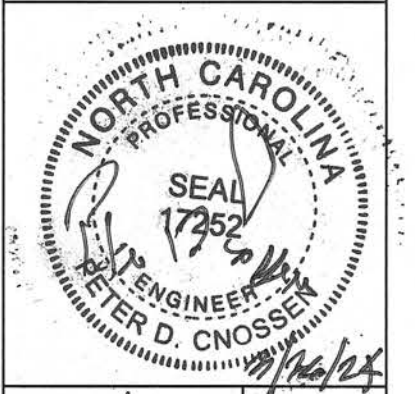
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



**Jones & Crossen**  
ENGINEERING, PLLC  
Civil Engineering | Construction Management | Land Planning

221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
www.jonescrossen.com



**CAMDEN PARK**  
CONSTRUCTION DRAWINGS  
DEMOLITION PLAN

TOWN OF KNIGHTDALE

SCALE: 1"=50'  
DRAWN: PDC

DATE: DECEMBER 5, 2023

REVISION: 02/08/24 1st CD COMMENTS  
03/26/24 2nd CD COMMENTS

SHEET: 8B  
PROJECT: 1516

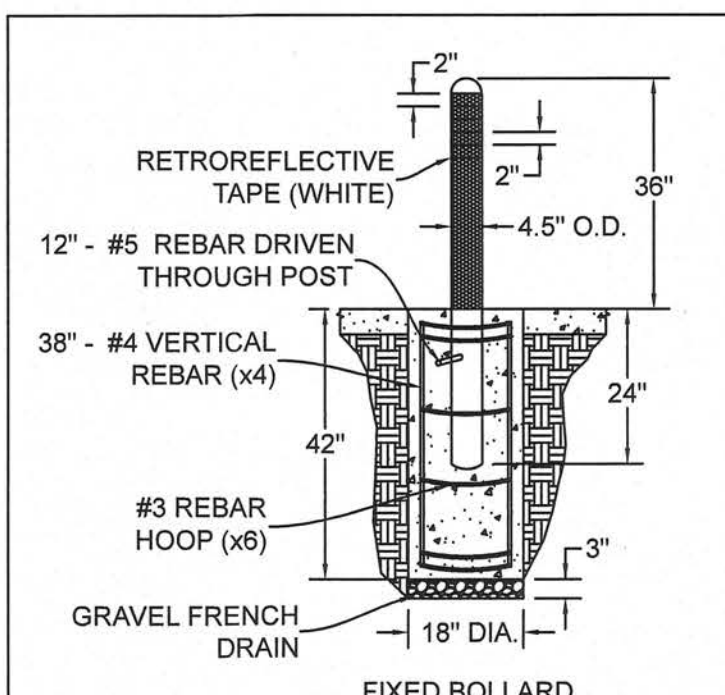




- NOTES:**
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS AND SPECIFICATIONS FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY DL SCOTT LAND SURVEYING.
  2. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY DL SCOTT LAND SURVEYING. THIS INFORMATION WAS BLENDED WITH TOPOGRAPHIC INFORMATION AT THE PROPERTY BOUNDARY USING LIDAR SPATIAL DATA TO CREATE THE CONTOURS SHOWN HEREON.
  3. THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #5 3720175400K AND 3720175300K (EFFECTIVE DATE JULY 19, 2022).
  4. THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
  5. CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCDWR BUFFER DETERMINATION LETTER NDR80 #22-145.
  6. STREET TREES SHALL BE REQUIRED 40' ON-CENTER ALONG ALL TOWN PUBLIC ROADS. ALL VEHICLE PARKING AREAS SHALL BE SCREENED PER THE TOWN OF KNIGHTDALE UDO.
  7. THE TOWNHOMES FRONTING FAYETTEVILLE STREET AND BROADWAY STREET SHALL PROVIDE HARDSCAPE ELEMENTS SUCH AS SIDEWALK, WALLS, FENCING AND/OR GATES.
  8. FAYETTEVILLE STREET AND BROADWAY STREET SHALL DEDICATE THE REQUIRED RW ALONG THE SITE FRONTAGE AND CONSTRUCT 1/2 OF A TOWN OF KNIGHTDALE MAIN STREET SECTION.
  9. BROADWAY STREET IMPROVEMENTS ALONG THE FRONTAGE OF PIN 1753-49-9632 ARE DEPENDENT ON AGREEMENT WITH EXISTING PROPERTY OWNER TO DEDICATE THE REQUIRED RW AND TEMPORARY CONSTRUCTION EASEMENT. ALL OFF-SITE CONSTRUCTION COSTS SHALL BE ELIGIBLE FOR REIMBURSEMENT BY THE TOWN OF KNIGHTDALE.
  10. THE OFF-SITE SIDEWALK EXTENSION SHALL BE CONSTRUCTED WITHIN THE EXISTING FAYETTEVILLE STREET RW.
  11. THE INSTALLATION OF THE OFF-SITE SIDEWALK EXTENSION MAY REQUIRE ADJUSTMENT OF THE EXISTING DITCH ALONG FAYETTEVILLE STREET. IF THE EXISTING DITCH CANNOT BE ALTERED, WE REQUEST REVIEW OF ALTERNATIVE OPTIONS FOR SIDEWALK EXTENSION WITH THE TOWN OF KNIGHTDALE.
  12. ALL WORK WITHIN FAYETTEVILLE STREET AND BROADWAY STREET RW SHALL BE DONE UNDER TWO-PARTY ENCROACHMENT AGREEMENTS WITH NCDOT.
  13. A ROW OF SHRUBS AND/OR FENCING SHALL BE PROVIDED BETWEEN THE COMMUNITY CORNER SIDEWALK AND DRIVEWAYS FOR LOTS 18 & 19 TO SERVE AS A SAFETY BARRIER.

**COMMUNITY CORNER/BACKYARD NOTE:**

THE PROGRAMMING FOR THE COMMUNITY CORNER, COMMUNITY BACKYARD AND ENHANCED LANDSCAPING ALONG FAYETTEVILLE STREET AND BROADWAY STREET TOWNHOME PROSPECTS IS BEING CEPTUALLY FINALIZED WITH THE PROPOSED BUILDER AND REVIEWED IN CONJUNCTION WITH THE TOWN OF KNIGHTDALE PRIOR TO CONSTRUCTION DRAWING APPROVAL. FINAL APPROVAL OF THE PROGRAMMING TO BE HANDLED WITH BUILDING PERMIT SUBMITTALS.



- NOTES:**
1. FIXED BOLLARDS SHALL BE TRAFFICGUARD RFP SERIES OR APPROVED EQUAL. BOLLARDS SHALL BE FINISHED WITH POWDER COATED BLACK PAINT.
  2. BOLLARDS AND SIGNS SHALL BE INSTALLED PER MANUFACTURER DETAILS AND SPECIFICATIONS.
  3. CONCRETE FOUNDATIONS SHALL BE CONSTRUCTED TO WITHSTAND 6,000 LBS OF STATIC LOAD AT 27 INCHES ABOVE GRADE PER MANUFACTURER SPECIFICATIONS.

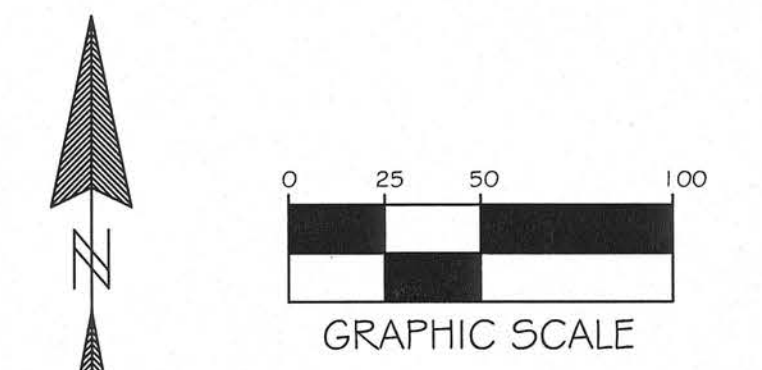
**BOLLARD DETAIL**

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



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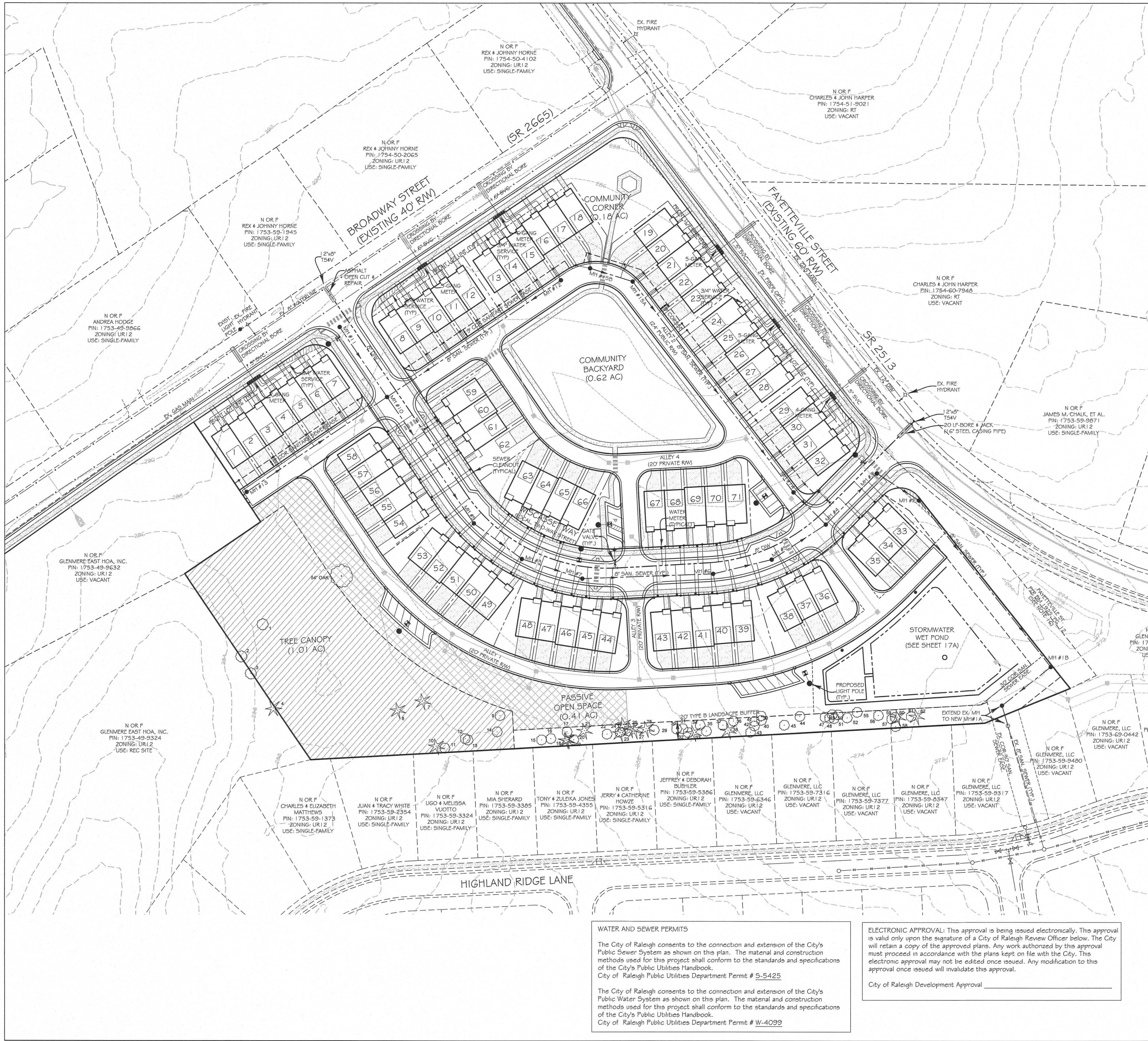
CAMDEN PARK  
CONSTRUCTION DRAWINGS

LOT LAYOUT PLAN

TOWN OF KNIGHTDALE

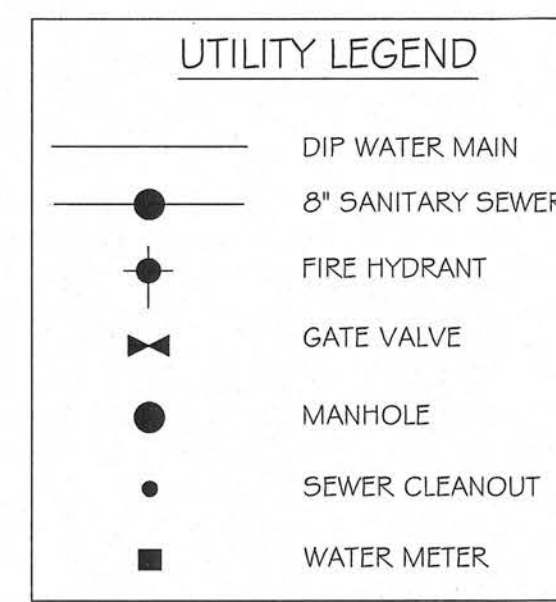
SCALE	1"=50'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st CD COMMENTS	
	03/26/24	2nd CD COMMENTS	
	07/08/24	NCDOT 3rd REVIEW	
SHEET	9		
PROJECT	1516		





- NOTES:**
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  2. ALL SEWER AND WATER UTILITY CONSTRUCTION SHALL CONFORM TO CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND SPECIFICATIONS.
  3. BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THE SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY BL SCOTT LAND SURVEYING.
  4. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY BL SCOTT LAND SURVEYING. THIS INFORMATION WAS BLENDED WITH TOPOGRAPHIC INFORMATION AT THE PROPERTY BOUNDARY USING LIDAR SPATIAL DATA TO CREATE THE CONTOURS SHOWN HEREON.
  5. THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #5 37201 75400K AND 37201 75300K EFFECTIVE DATE JULY 19, 2022.
  6. THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
  7. CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCDWR BUFFER DETERMINATION LETTER NBR02 #22-45.
  8. NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
  9. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
  10. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
  11. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRICAL, GAS, CABLE TV AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVEMENT.
  12. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE WATER AND SEWER SERVICES TO THE TOWNHOME UNITS WITH THE OWNER AND BUILDING PLANS.
  13. ALL SANITARY SEWER SERVICES TO TOWNHOME LOTS SHALL BE INDIVIDUAL 4" SERVICES.
  14. ALL WATER SERVICES TO TOWNHOME LOTS 1-32 SHALL BE BY GANG METERS.
  15. ALL WATER SERVICES TO TOWNHOME LOTS 33-71 SHALL BE INDIVIDUAL 3/4" SERVICES.
  16. THE NCDOT SHALL BE CONSULTED TO ABANDON THE FAYETTEVILLE STREET RW FOR PLACEMENT OF THE PROPOSED SEWER OUTFALL.
  17. NCDOT THREE PARTY ENCROACHMENT AGREEMENTS REQUIRED FOR UTILITY EXTENSIONS ALONG FAYETTEVILLE STREET AND BROADWAY STREET.

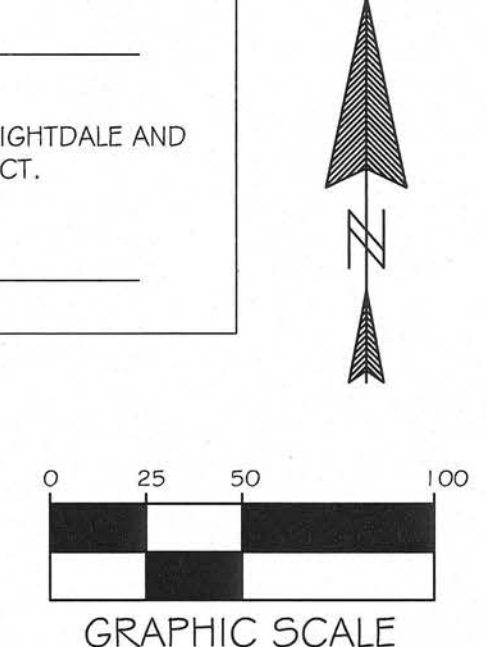
- STANDARD UTILITY NOTES:**
1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
  2. UTILITY SEPARATION REQUIREMENTS:
    - a. A DISTANCE OF 1'00" SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 2'00" FROM A PRIVATE WATER MAIN OR 5'00" FROM A PUBLIC WATER MAIN.
    - b. WHEN INSTALLING WATER OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 1'0". 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 1'0" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
    - c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASING OR CONCRETE CRADLE EXTENDED 1'0" ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
    - d. 5'0" MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
    - e. MAINTAIN 1'0" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 1'0" 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 CONCRETE DETAILS W-41 & S-49.
    - f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 1'0" MIN. VERTICAL SEPARATION REQUIRED.
  3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN WORK PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
  4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVELING PRIVATE PROPERTY.
  5. 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.
  6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
  7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS 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.
  8. INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
  9. INSTALL 4" PVC SEWER SERVICES AT 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75' LINEAR FEET MAXIMUM.
  10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKFLOW VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1'0" ABOVE THE NEXT UPSTREAM MANHOLE.
  11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDMQU, USACE OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND WORK FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
  12. NCDOT RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS OR SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
  13. GREASE INTERCEPTOR OR WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALIGHNC.GOV FOR MORE INFORMATION.
  14. 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.
  15. THESE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
  16. THE DEVICES AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
  17. 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 CROSS.CONNECTION@RALIGHNC.GOV FOR MORE INFORMATION.
  18. NOTICE FOR PROJECTS WITH REPLACED OR OVERSIZED MAINS: IF THE CITY'S REIMBURSEMENT FOR AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT PROJECT IS \$250,000 OR GREATER, THE PROJECT MUST BE PUBLICLY BID.



TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



**WATER AND SEWER PERMITS**

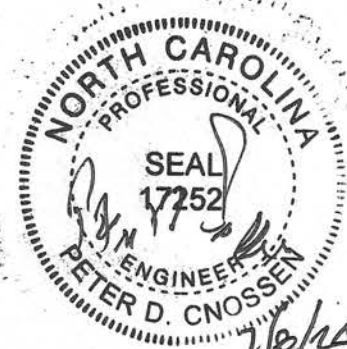
The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
City of Raleigh Public Utilities Department Permit # S-5425

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-4099

**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 \_\_\_\_\_

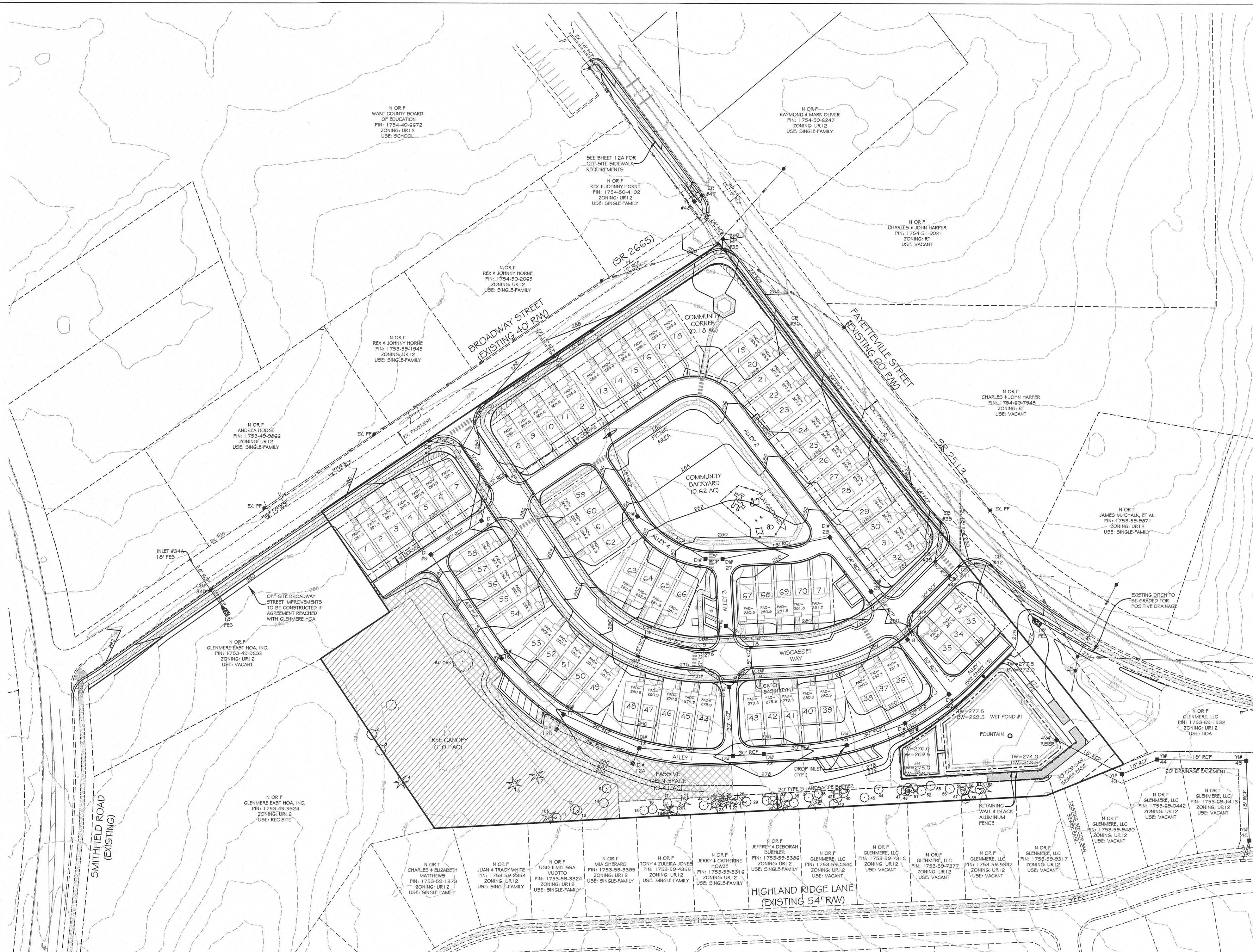
221 N. SALEM ST.  
SUITE 001  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
www.jonescrossen.com



CAMDEN PARK  
CONSTRUCTION DRAWINGS  
UTILITY PLAN

SCALE	1"=50'	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st CD COMMENTS	
	03/11/24	NCDOT 1st REVIEW	
	03/26/24	2nd CD COMMENTS	
	07/08/24	NCDOT 3rd REVIEW	
SHEET	10		
PROJECT	1516		





Storm Drainage Information									
Inlet #	Inlet DA (ac)	Total DA (ac)	I 10 (in/hr)	C	Q 10 (cfs)	Q 10 With Pipe Storage (cfs)	Pipe (in)	Pipe Slope (%)	
1	0.28	0.28	7.04	0.75	1.5		15	0.6	
2	0.28	6.46	7.04	0.34	15.5		24	2.5	
3	0.02	6.48	7.04	0.34	15.5		30	0.5	
4	0.31	0.31	7.04	0.75	1.6		15	0.5	
5	0.05	6.84	7.04	0.36	17.3		30	0.6	
6	0.06	0.06	7.04	0.75	0.3		15	0.8	
7	0.05	6.95	7.04	0.37	18.1		30	0.6	
8	0.14	7.09	7.04	0.38	19.0		30	0.7	
9	0.10	7.19	7.04	0.39	19.7		48	0.5	
10	0.67	7.86	7.04	0.41	22.7		48	0.5	
11	0.42	8.28	7.04	0.41	23.9	15.3	36	0.5	
12	0.50	8.78	7.04	0.41	25.3	12.8	24	0.5	
13	0.38	0.38	7.04	0.75	2.0		15	0.8	
14	0.37	0.75	7.04	0.75	4.0		15	0.6	
15	0.14	0.89	7.04	0.75	4.7		15	0.8	
16	0.16	1.05	7.04	0.75	5.5		18	0.8	
17	0.08	0.08	7.04	0.75	0.4		15	0.5	
18	0.23	0.31	7.04	0.75	1.6		15	0.8	
19	0.28	0.59	7.04	0.75	3.1		18	0.8	
20	0.05	1.69	7.04	0.75	8.9		30	0.5	
21	0.35	10.82	7.04	0.46	35.0	22.9	30	0.5	
22	0.32	11.14	7.04	0.42	32.9	24.3	30	0.5	
23	0.12	11.26	7.04	0.43	34.1	24.9	30	0.5	
24	0.37	0.37	7.04	0.75	2.0		15	2.8	
25	0.14	0.51	7.04	0.75	2.7		15	4.0	
26	0.47	0.98	7.04	0.70	4.8		18	0.5	
27	0.30	1.28	7.04	0.70	6.3		18	0.5	
28	0.69	1.97	7.04	0.70	9.7		24	0.5	
29	0.19	2.16	7.04	0.70	10.6		24	0.5	
30	0.05	5.84	7.04	0.62	25.5		24	0.6	
31	0.01	8.01	7.04	0.62	35.0		30	0.5	
32	0.18	8.19	7.04	0.62	35.7		30	0.8	
33	0.07	19.52	7.04	0.51	70.1	61.9	36	0.5	
34A	1.30	1.30	7.04	0.40	3.7		18	0.5	
34B	0.25	1.55	7.04	0.40	4.4		18	0.7	
35	---	5.20	7.04	0.60	22.0		24	1.8	
36	0.19	5.39	7.04	0.61	23.1		24	2.1	
37	0.27	5.66	7.04	0.61	24.3		24	1.7	
38	---	5.66	7.04	0.61	24.3		30	1.3	
39	0.05	5.71	7.04	0.62	24.9		30	1.3	
40	0.08	5.79	7.04	0.62	25.3		30	0.5	
41	3.00	3.00	7.04	0.35	7.4		18	0.5	
42	---	---	---	---	7.4		18	0.8	
43	0.05	0.05	7.04	0.50	3.3		18	1.1	
44	0.05	0.10	7.04	0.50	3.5		18	1.0	
45	0.05	0.15	7.04	0.50	3.7		18	2.6	
46	0.05	0.20	7.04	0.50	3.9		18	2.1	
47	0.20	0.20	7.04	0.90	1.3		15	0.8	
48	0.10	5.20	7.04	0.60	22.0		24	3.8	

Notes:  
1. Pipe storage is provided at D# 11 and 12.

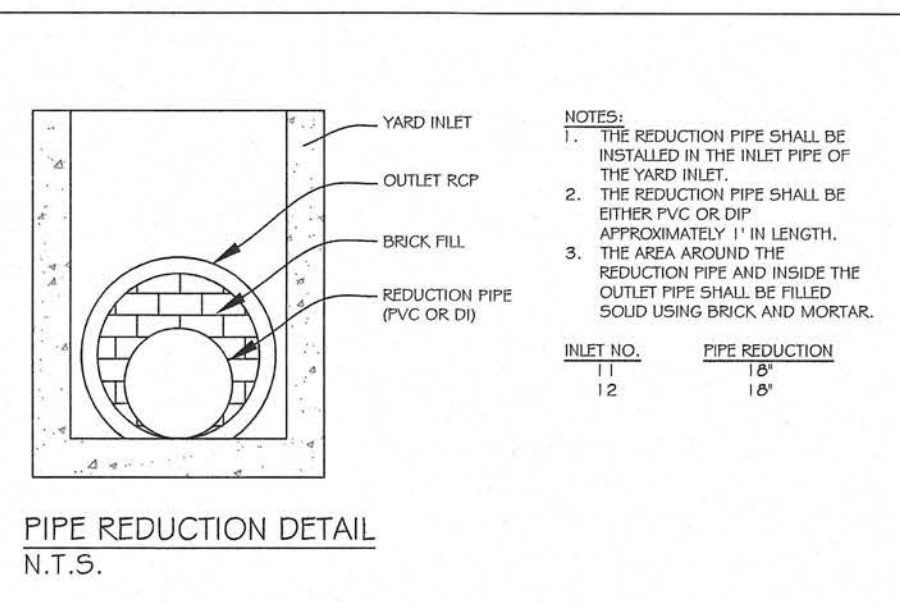
- STORM DRAINAGE NOTES:**
- PIPE STORAGE IS PROVIDED AT D#S 11 & 12 TO HELP MEET PRE-POST-DEVELOPMENT FLOW REQUIREMENTS.
  - THE STORM DRAINAGE OUTFALL FROM THE WET POND WILL REQUIRE RECORDING OF AN OFF-SITE STORM DRAINAGE EASEMENT PRIOR TO CONSTRUCTION DRAWING APPROVAL.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



- NOTES:**
- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  - BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THE SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY BL SCOTT LAND SURVEYING.
  - TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A DIGITAL FILE PROVIDED BY BL SCOTT LAND SURVEYING. THIS INFORMATION WAS BLENDED WITH TOPOGRAPHIC INFORMATION AT THE PROPERTY BOUNDARY USING LIDAR SPATIAL DATA TO CREATE THE CONTOURS SHOWN HEREON.
  - THIS SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #5 37201 175400K AND 37201 175500K (EFFECTIVE DATE JULY 19, 2022).
  - THE SITE WAS REVIEWED FOR WETLANDS AND STREAM BUFFERS BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST.
  - CONFIRMATION THAT NO SITE FEATURES ARE SUBJECT TO STREAM BUFFERS IS BY NCDWR BUFFER DETERMINATION LETTER NDRRO 422-145.
  - NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
  - CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
  - CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
  - CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRICAL, GAS, CABLE TV AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVEMENT.
  - THIS PLAN IS DIAGRAMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF THE UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
  - THIS PROJECT SHALL BE REQUIRED TO ADHERE TO ALL APPLICABLE TOWN OF KNIGHTDALE STORMWATER REQUIREMENTS INCLUDING LIMITING THE POST-DEVELOPMENT RUNOFF EQUAL TO OR LESS THAN PRE-DEVELOPMENT RUNOFF LEVELS FOR THE 1-YEAR, 2-YEAR AND 10-YEAR, 24 HOUR STORM EVENTS.
  - THE MAXIMUM CROSS SLOPE FOR HANDICAP PARKING SPACES SHALL NOT EXCEED 1:48.
  - THE MAXIMUM SLOPE OF SIDEWALK IN THE DIRECTION OF TRAVEL SHALL NOT EXCEED 1:20.
  - THE RETAINING WALL FOR THE WET POND SHALL BE A SEGMENTED BLOCK WALL.
  - THE RETAINING WALL SHALL PROVIDE FENCING ALONG THE TOP FOR FALL PROTECTION.

221 N. SALEM ST.  
SUITE 001  
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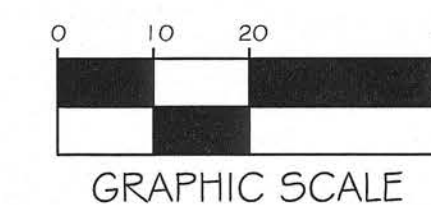
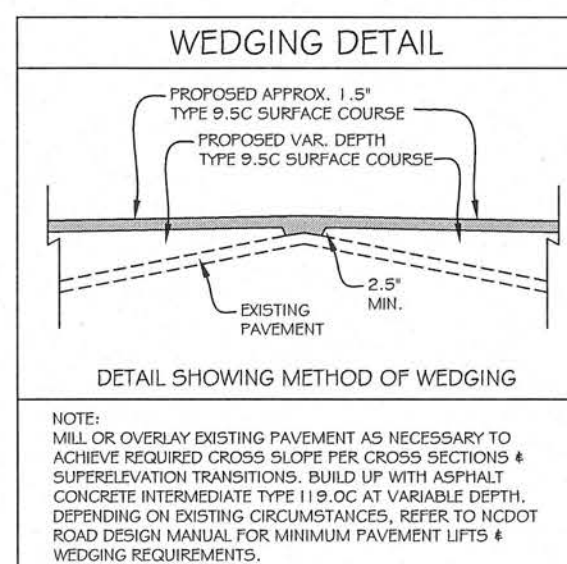
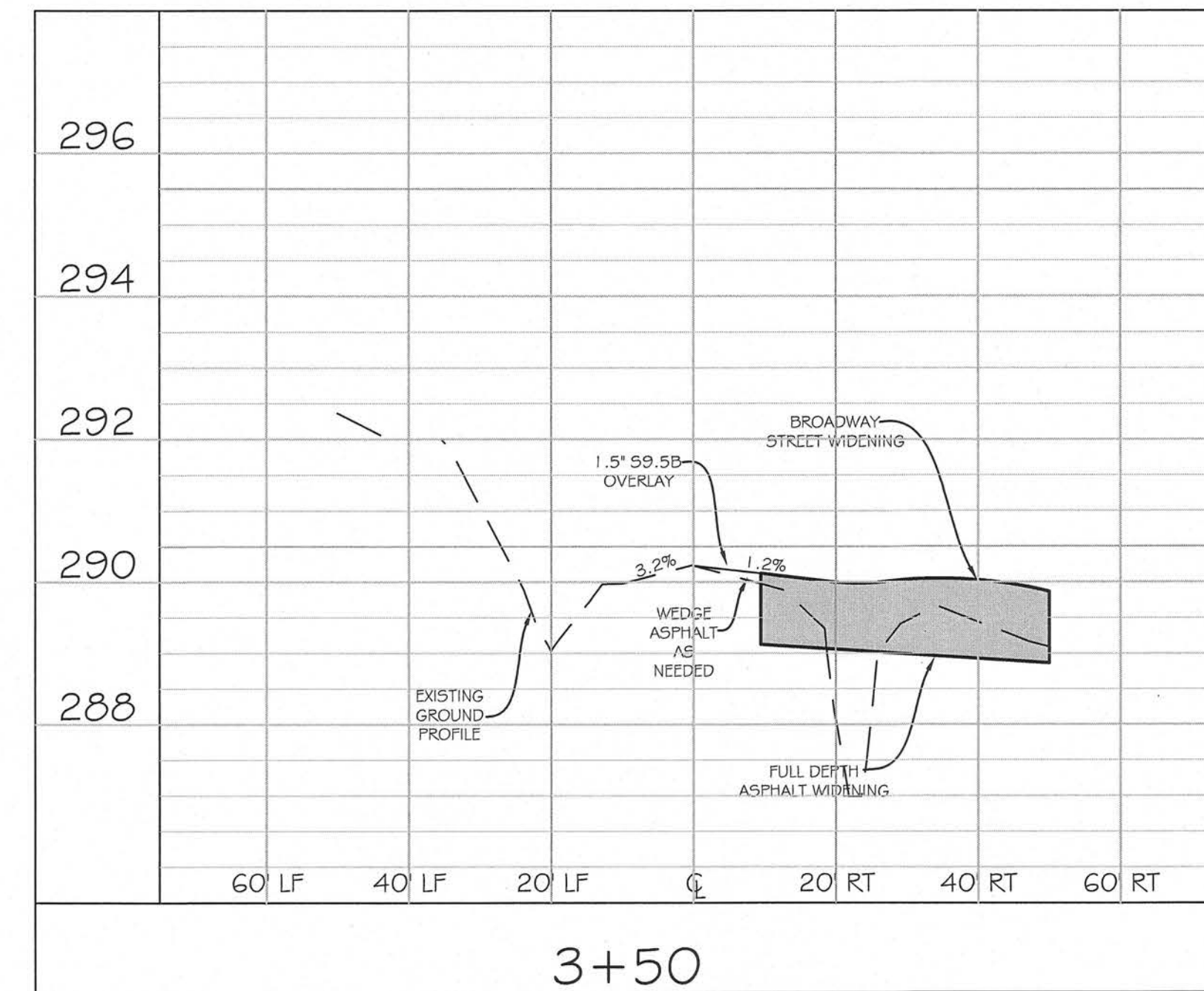
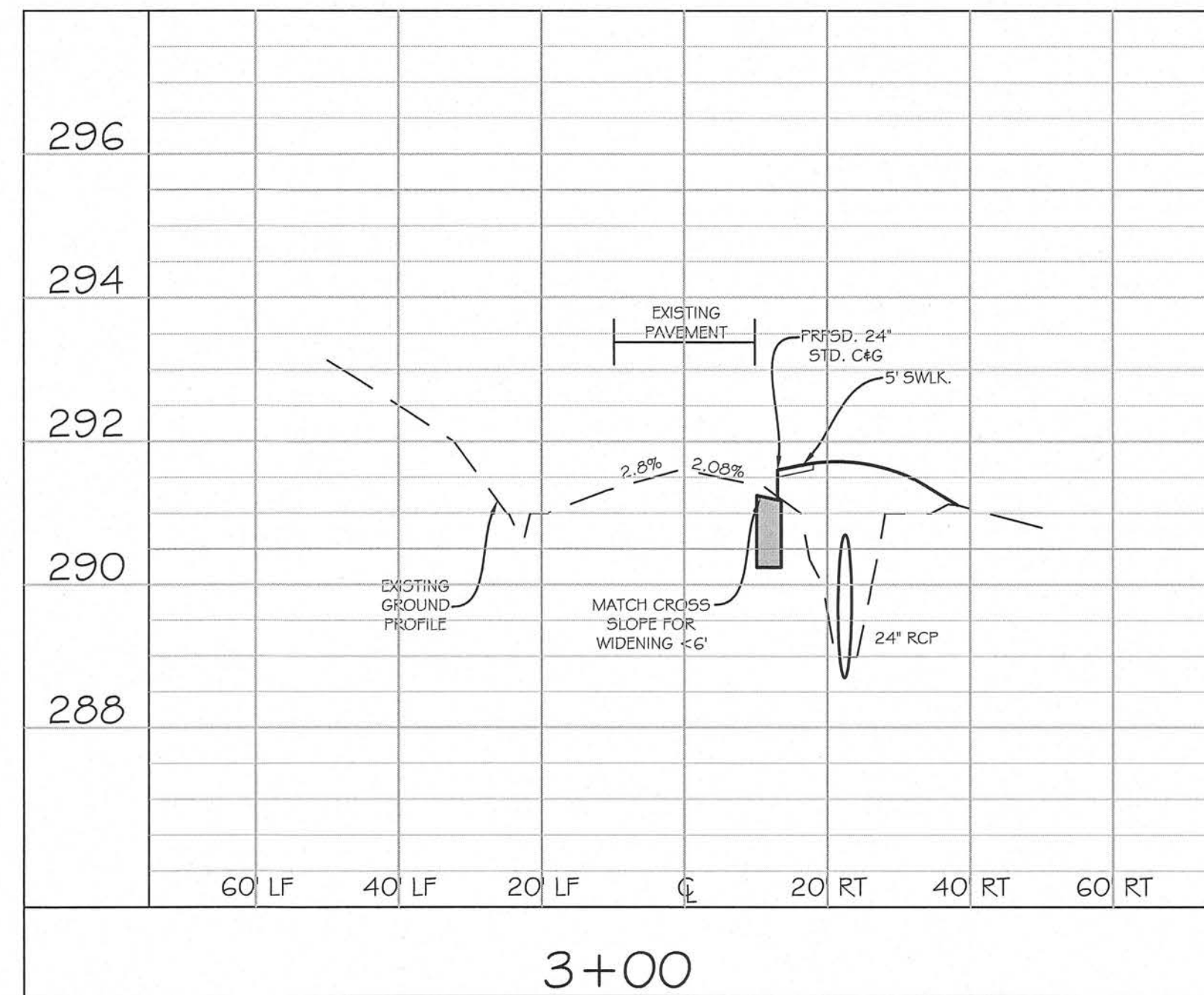
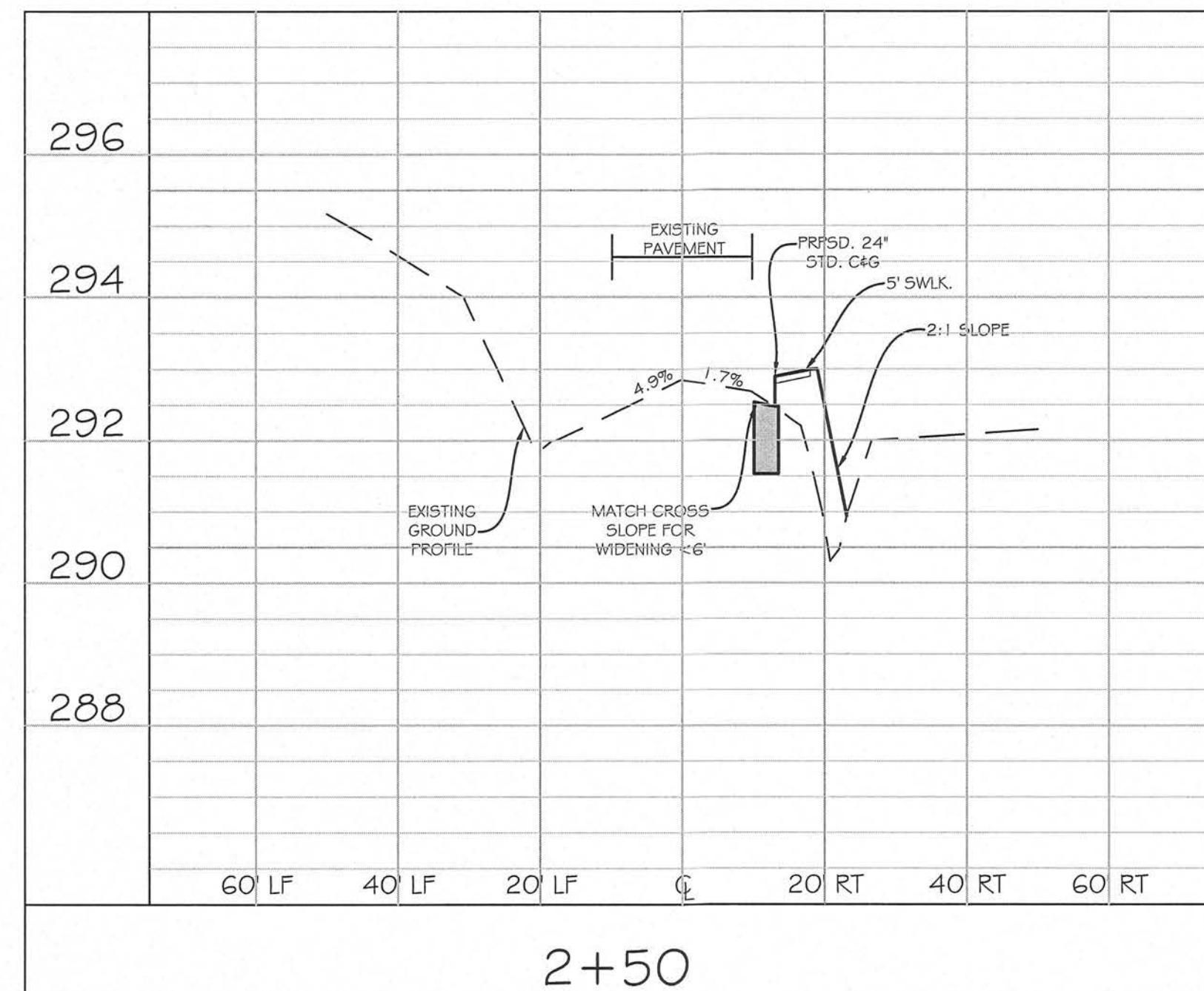
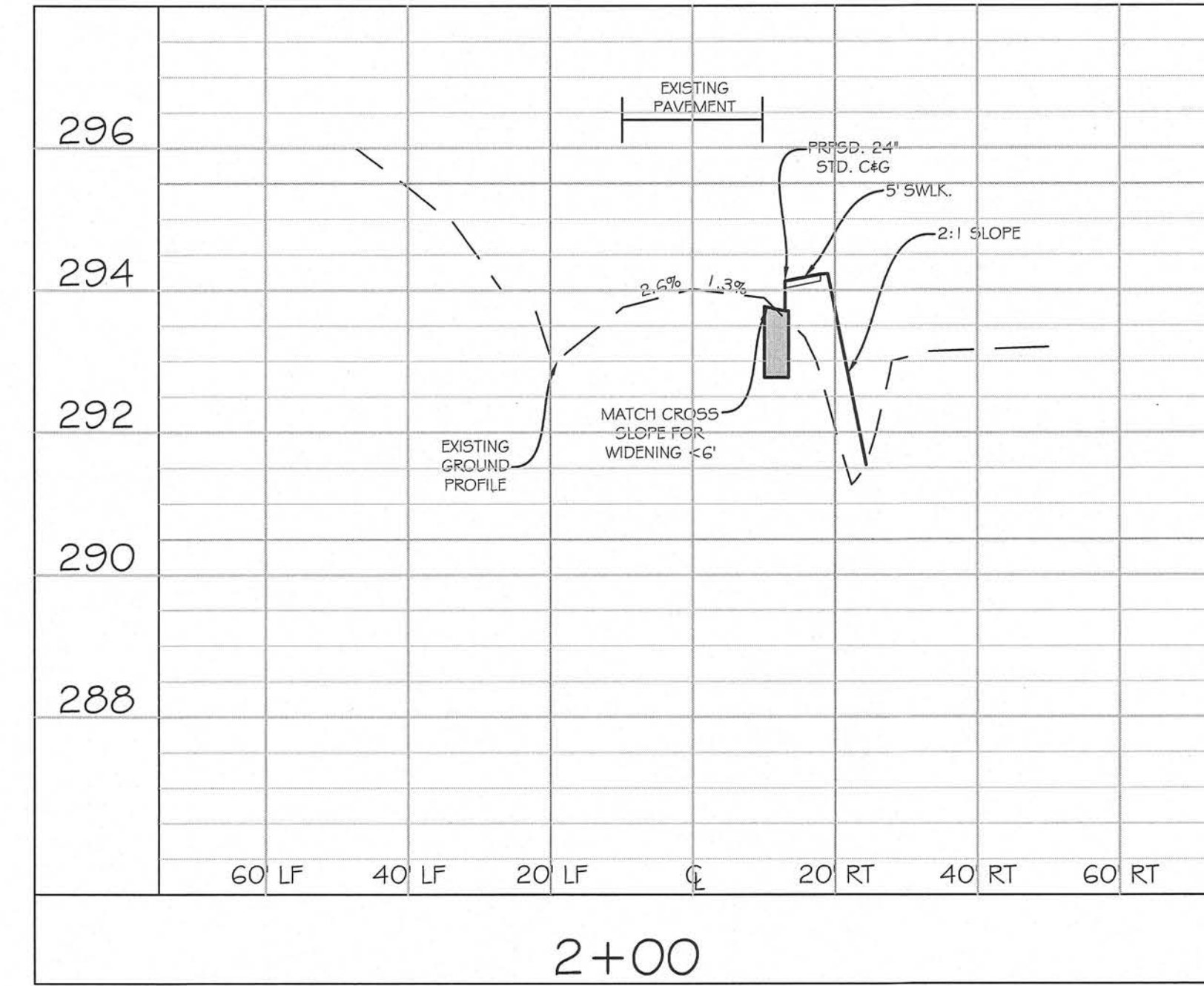
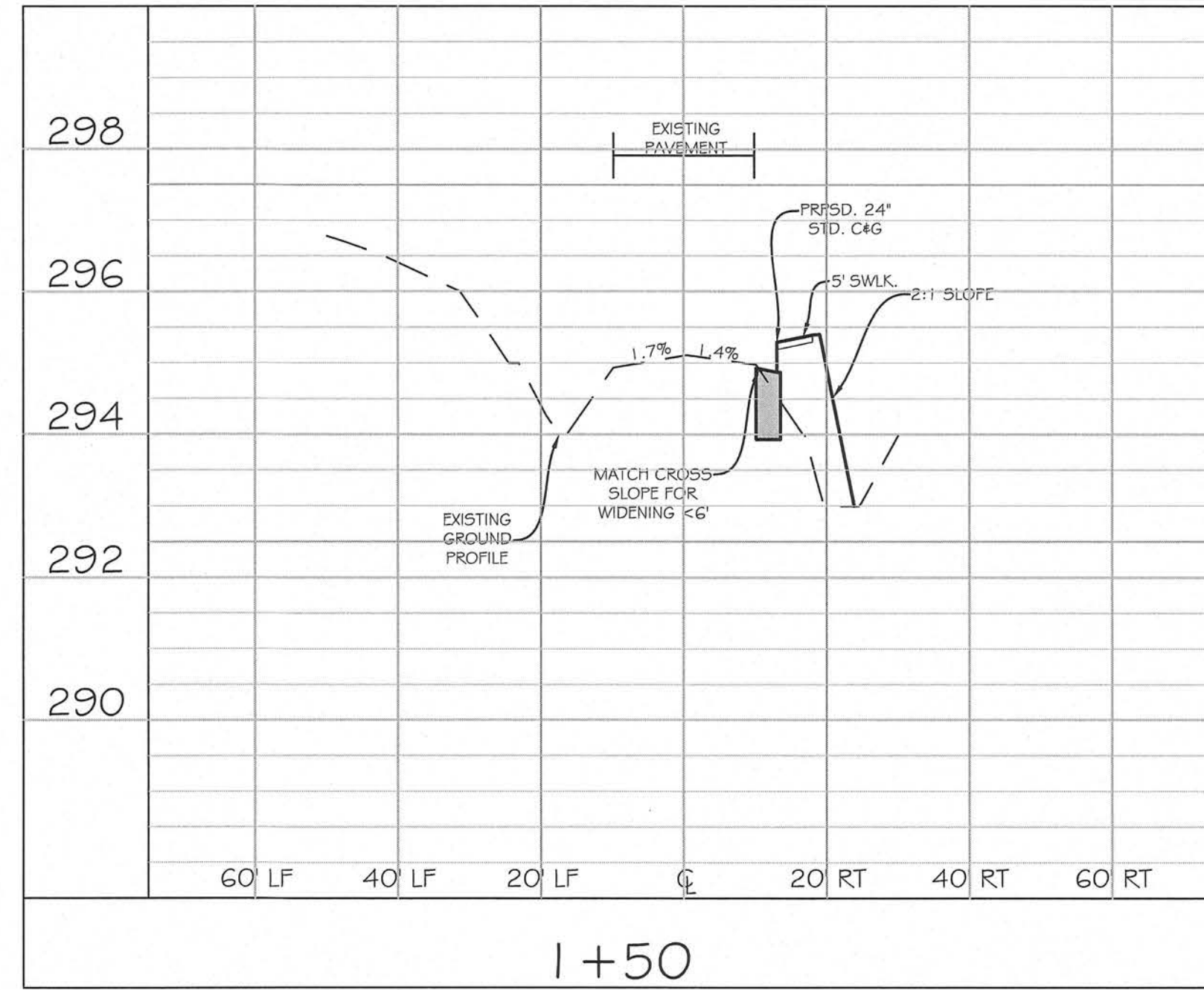
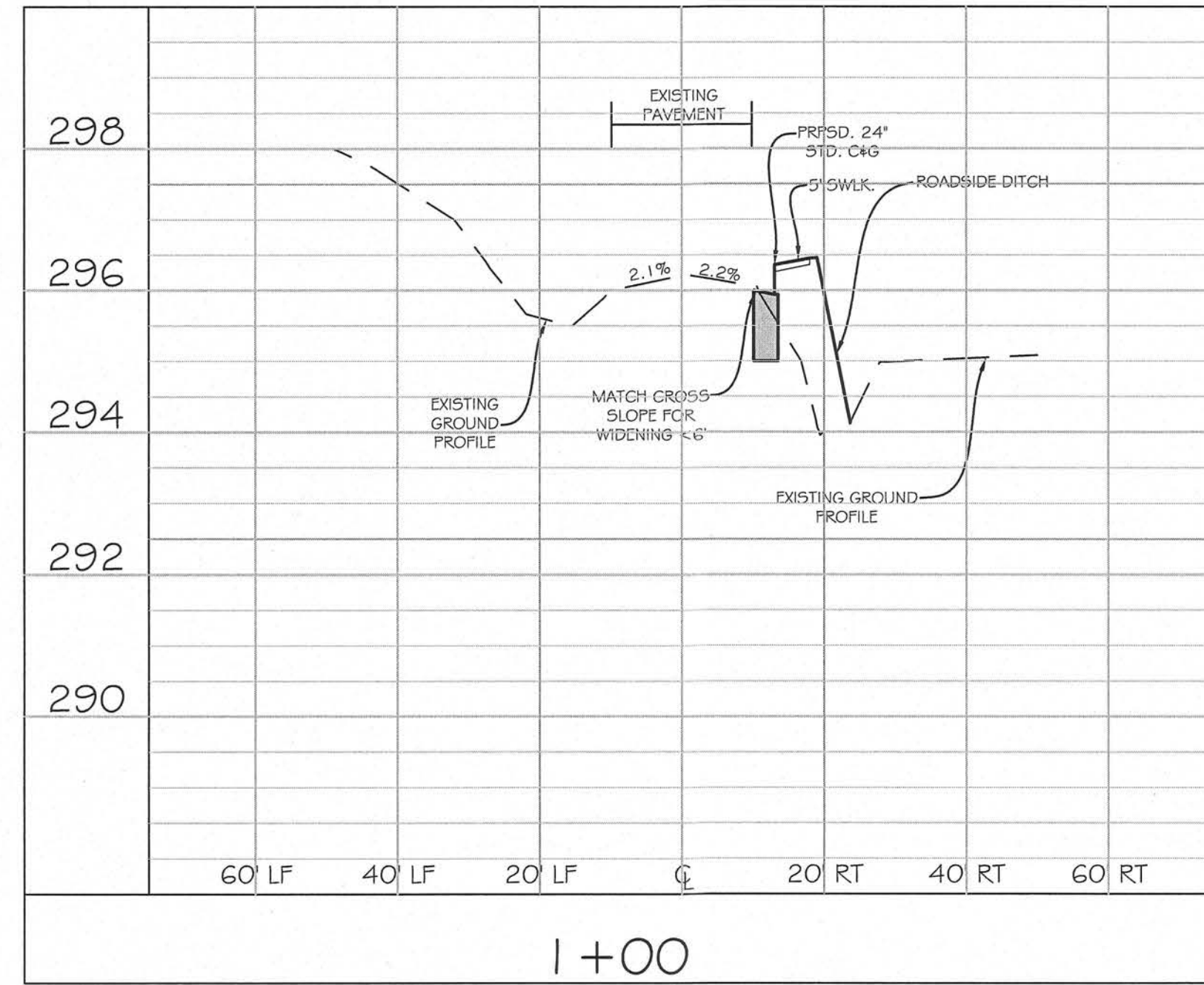








# CROSS SECTIONS - FAYETTEVILLE STREET



**NOTES:**

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

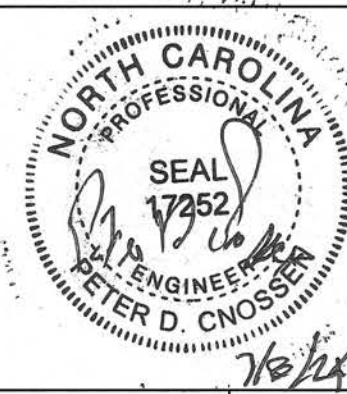
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
www.jonescrossen.com



CAMDEN PARK  
CONSTRUCTION DRAWINGS  
WAKE COUNTY, NORTH CAROLINA  
TOWN OF KNIGHTDALE  
FAYETTEVILLE ST. CROSS SECTIONS

SCALE: H=20 V=2 DRAWN: PDC

DATE: FEBRUARY 8, 2024

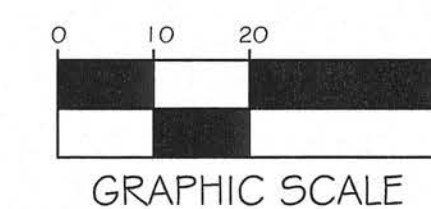
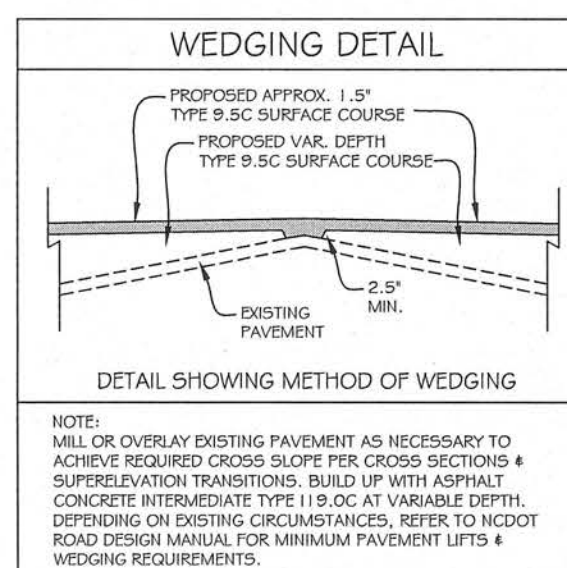
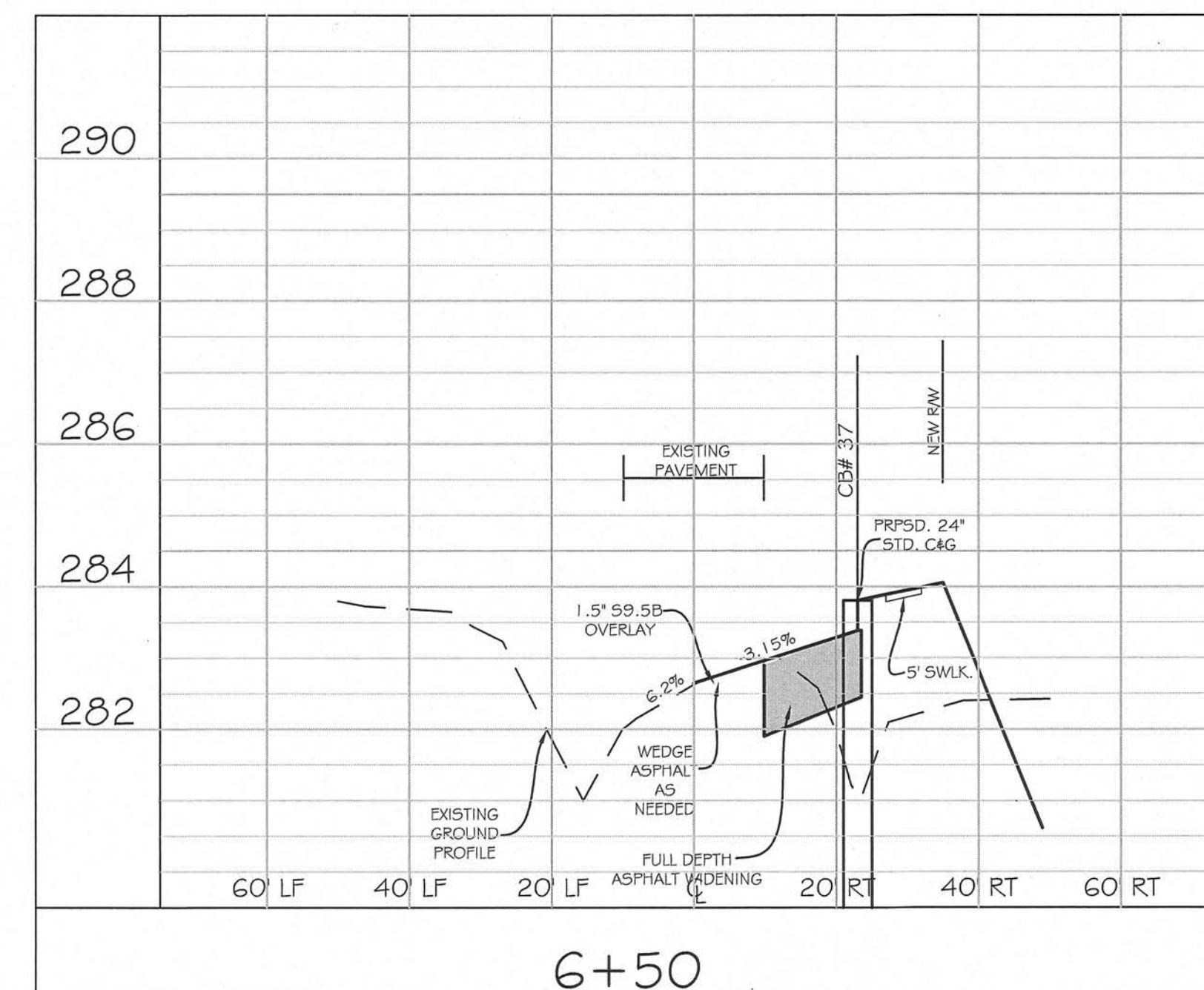
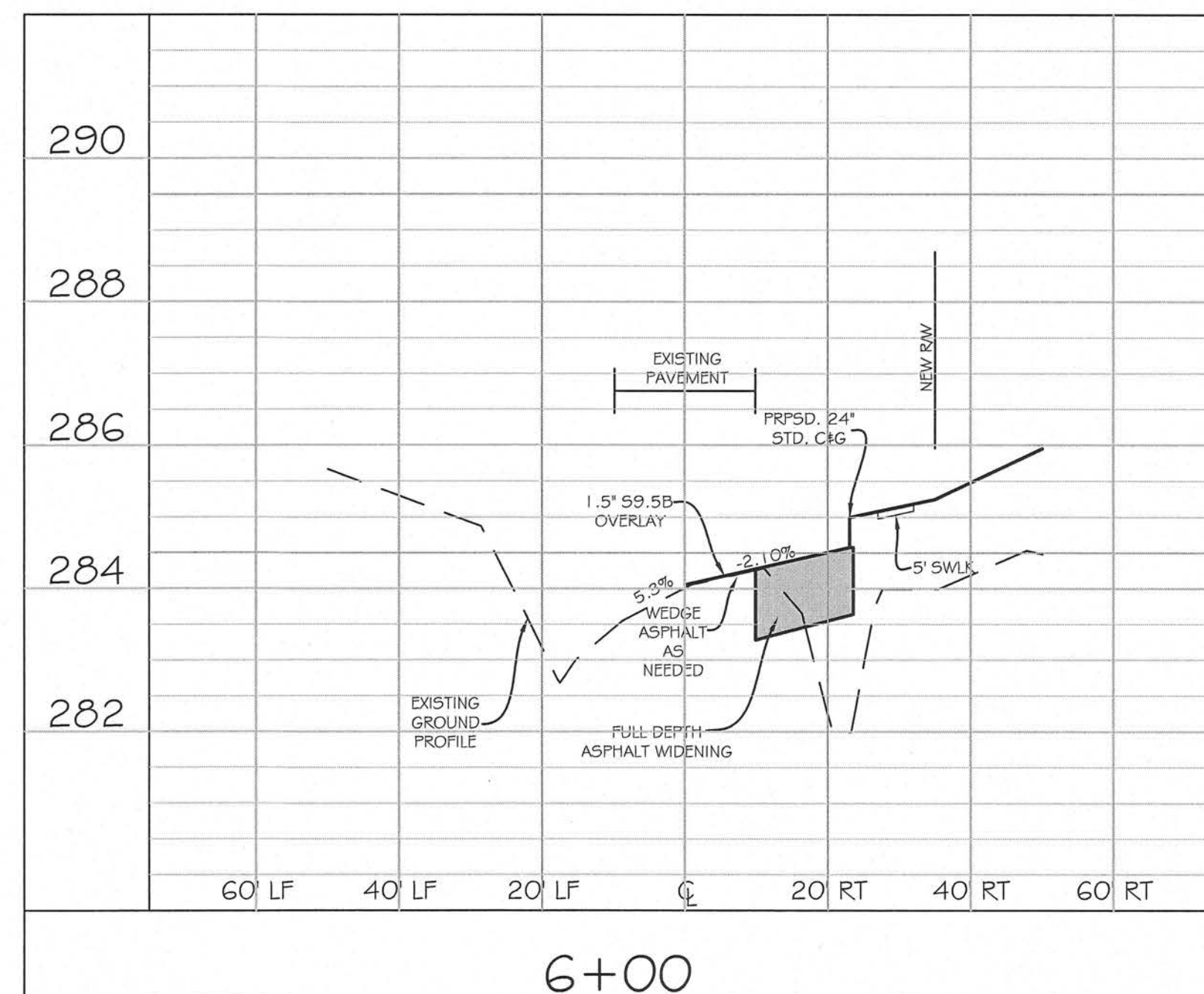
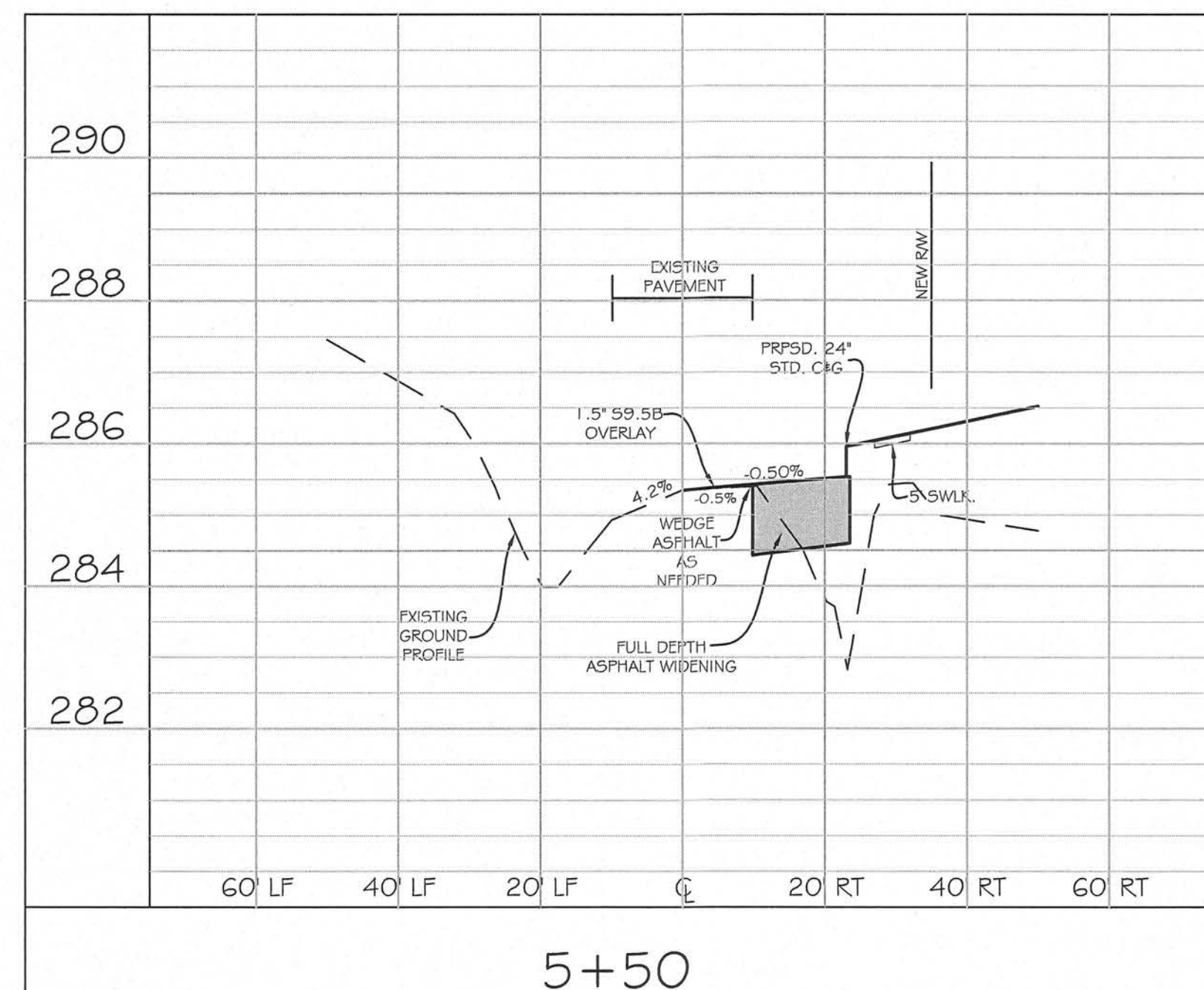
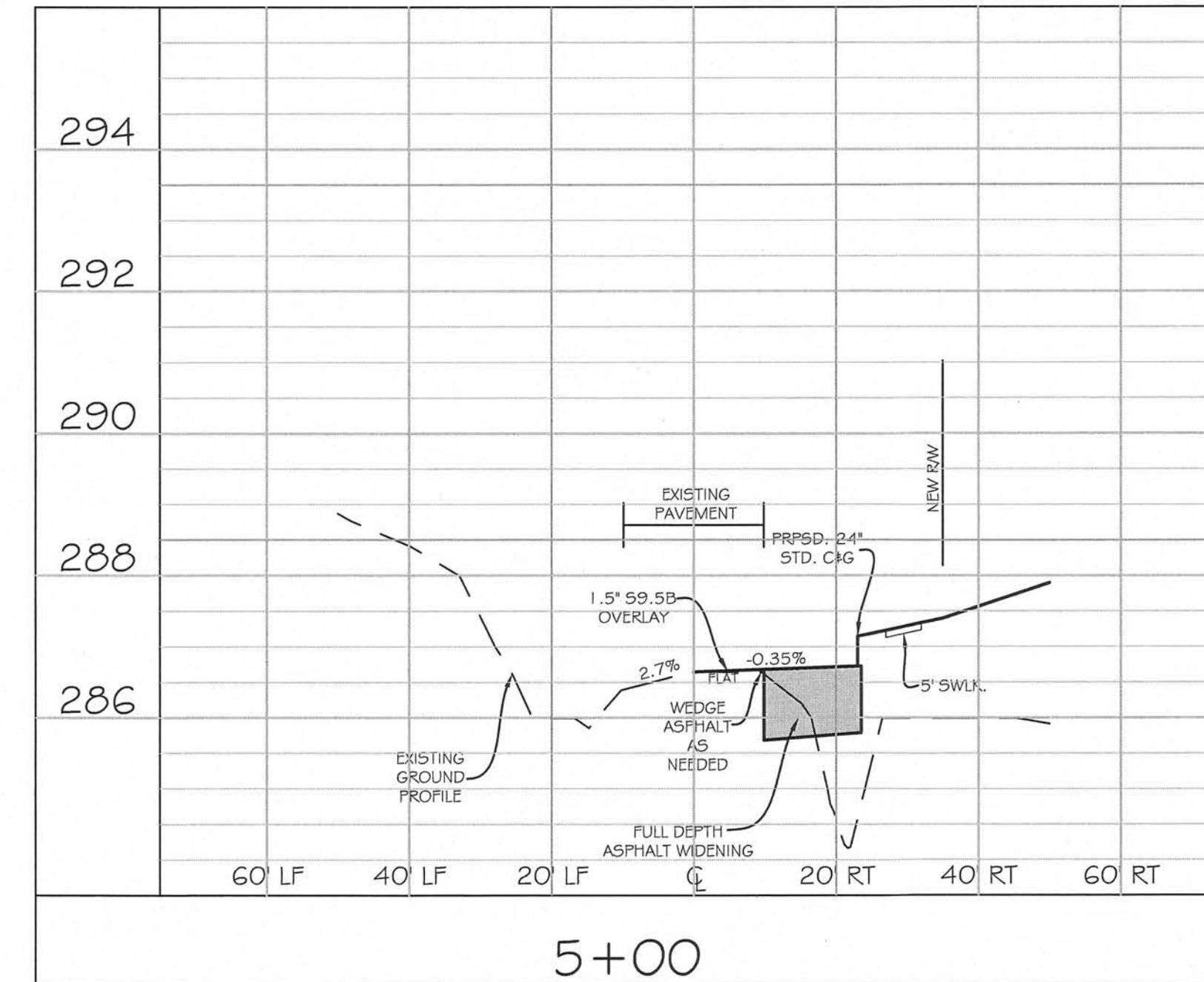
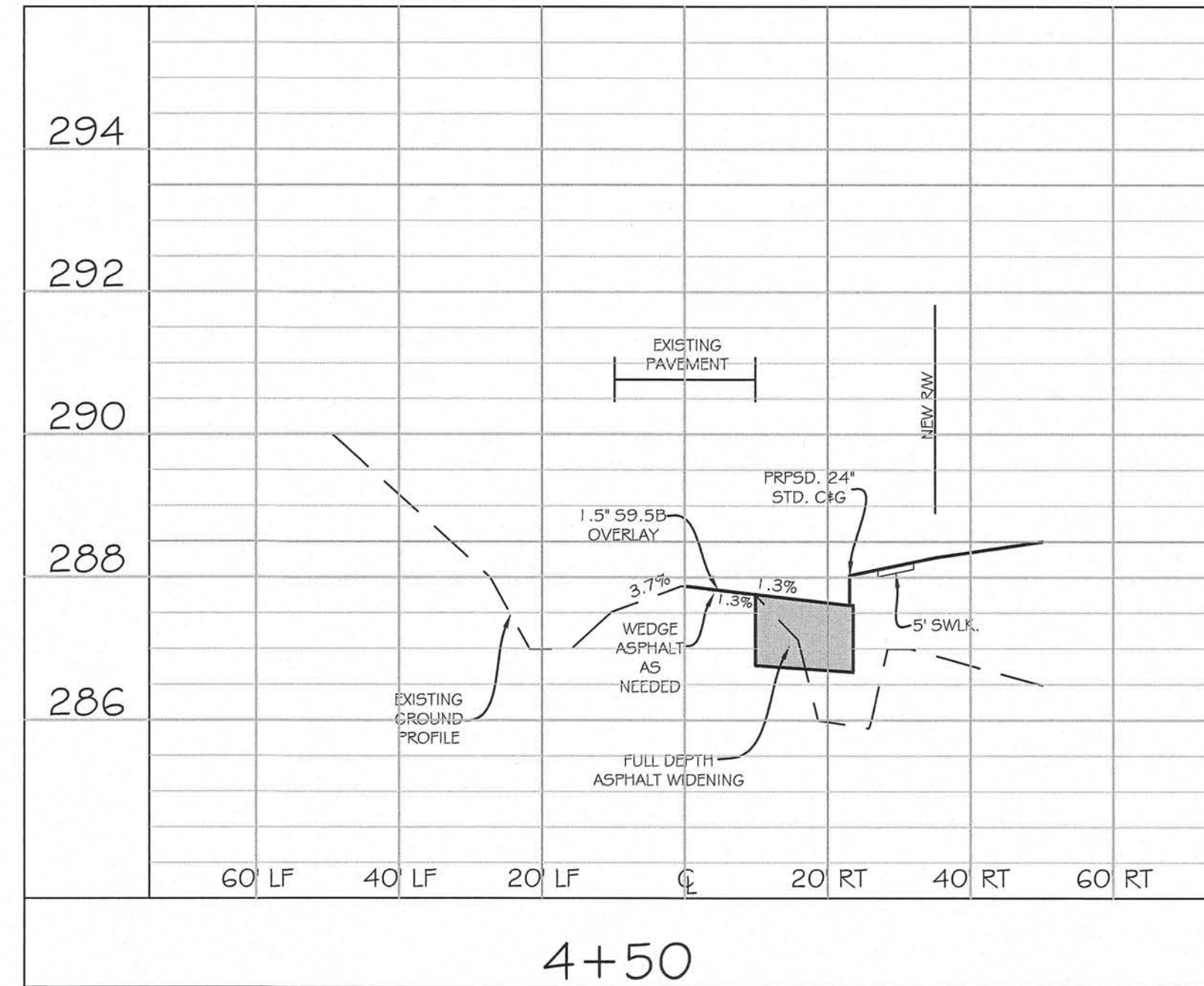
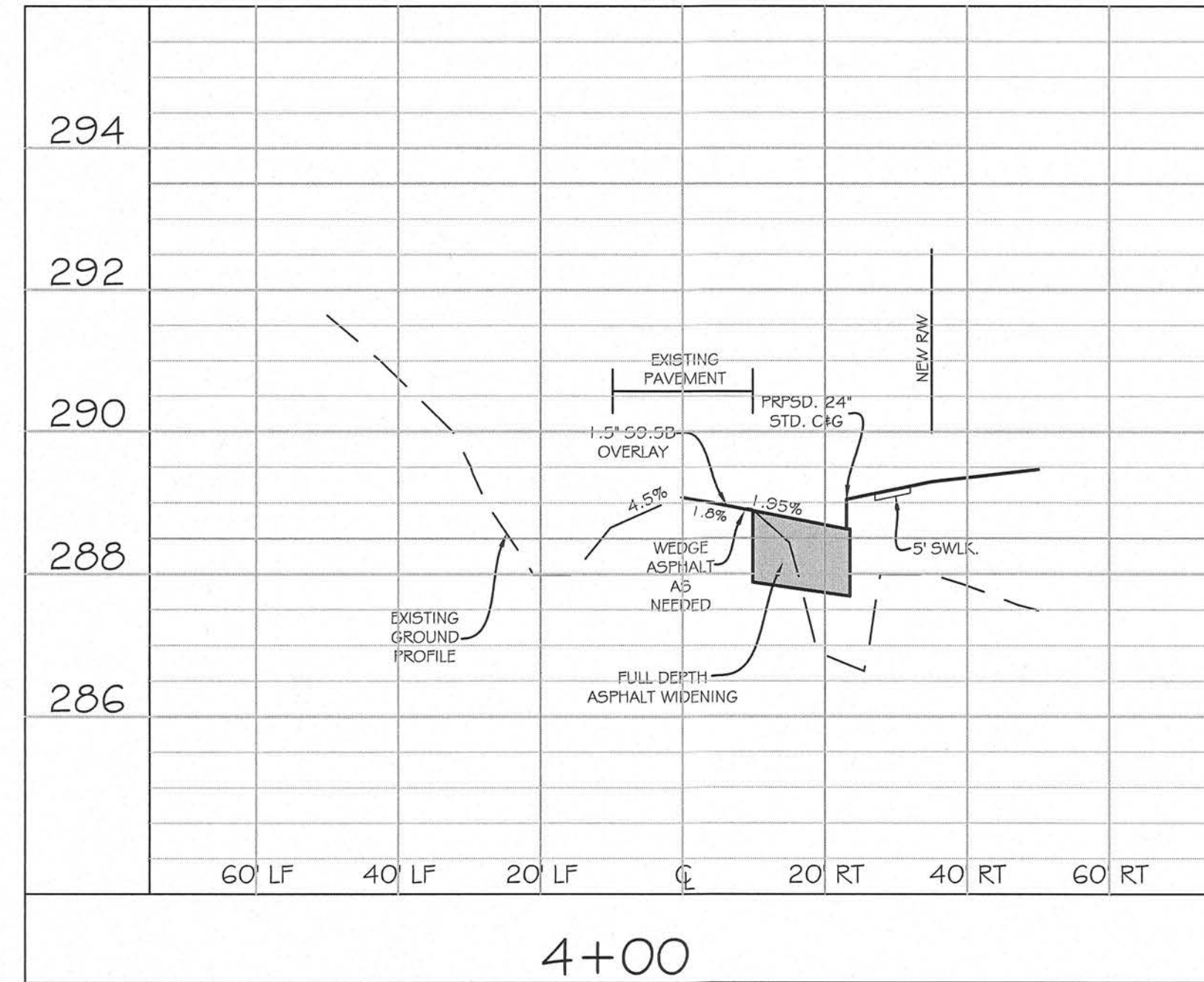
REVISION: 4/16/24 NCDOT 2nd REVIEW  
07/03/24 NCDOT 3rd REVIEW

SHEET: 12B

PROJECT: 1516



# CROSS SECTIONS - FAYETTEVILLE STREET



**NOTES:**

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

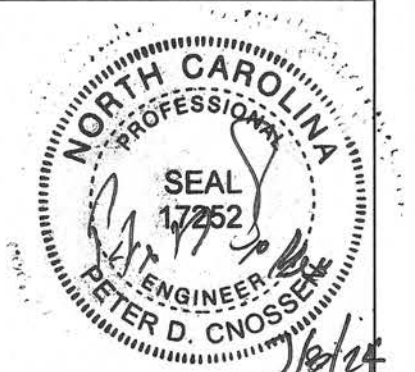
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

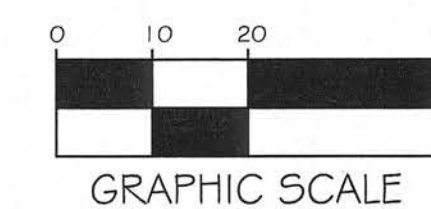
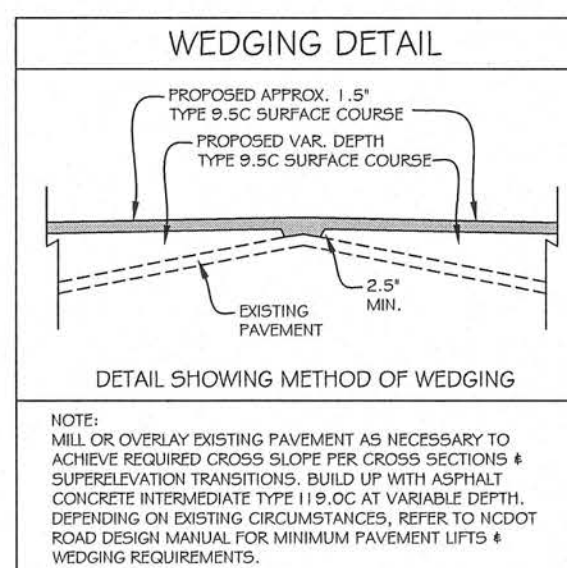
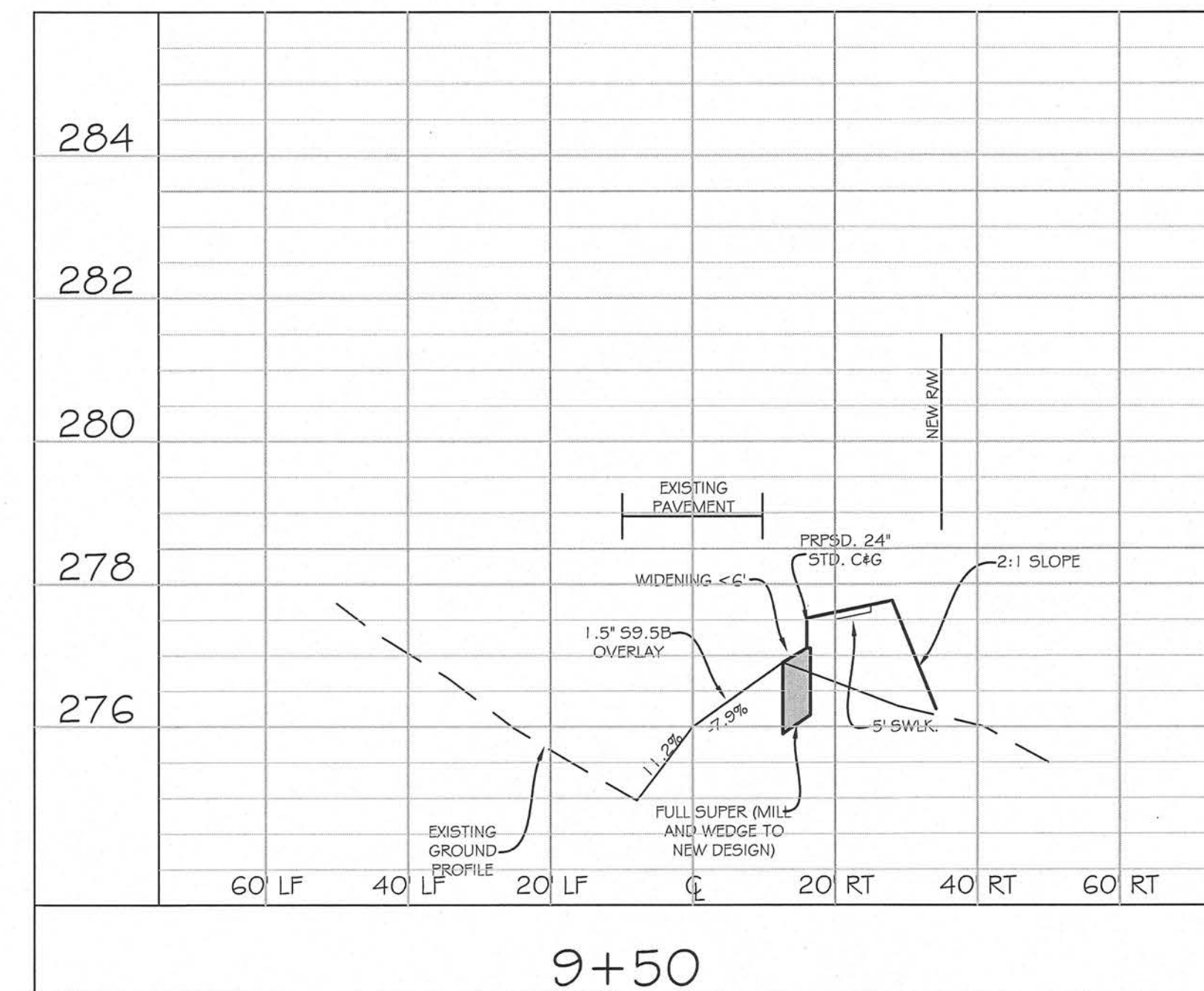
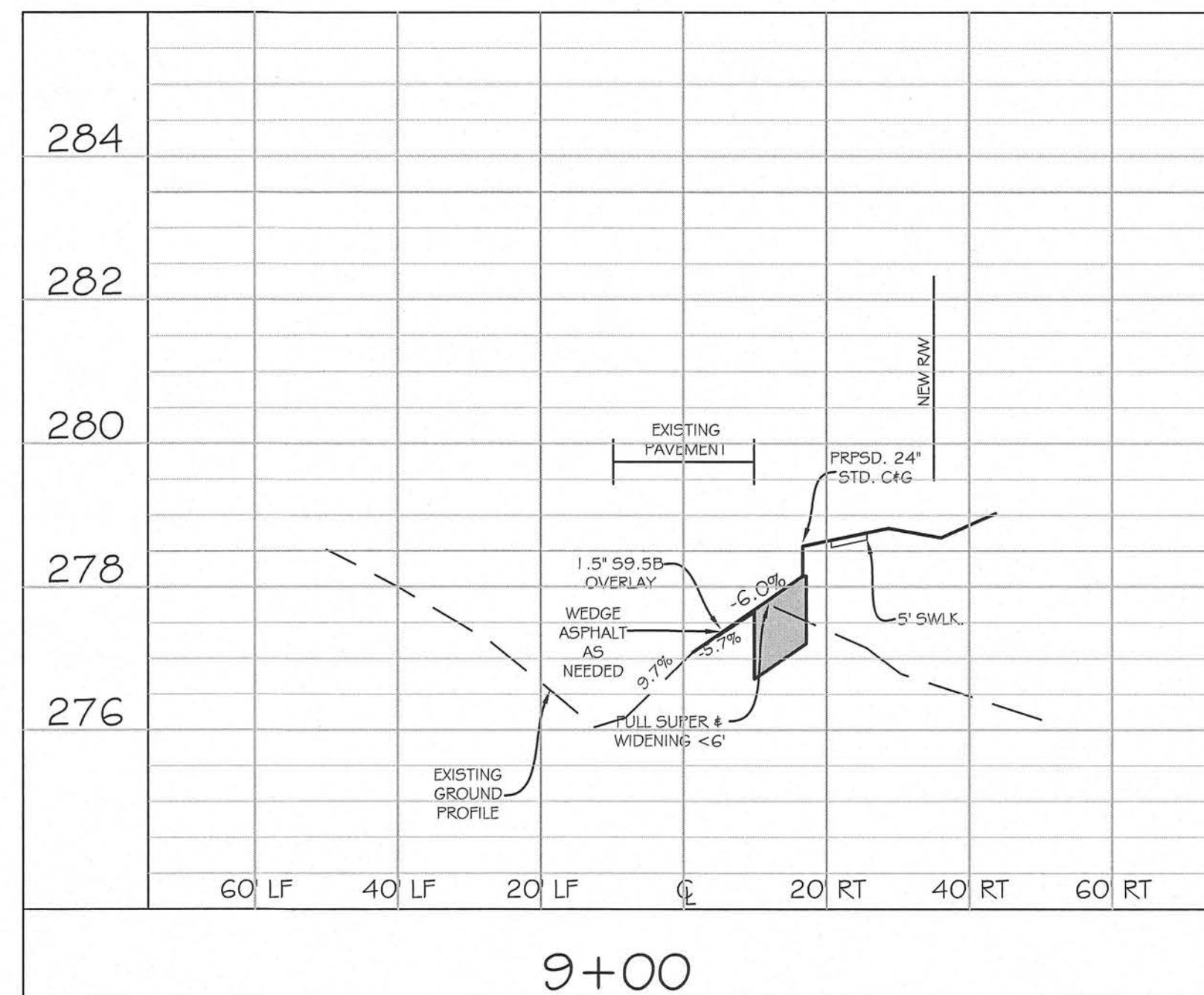
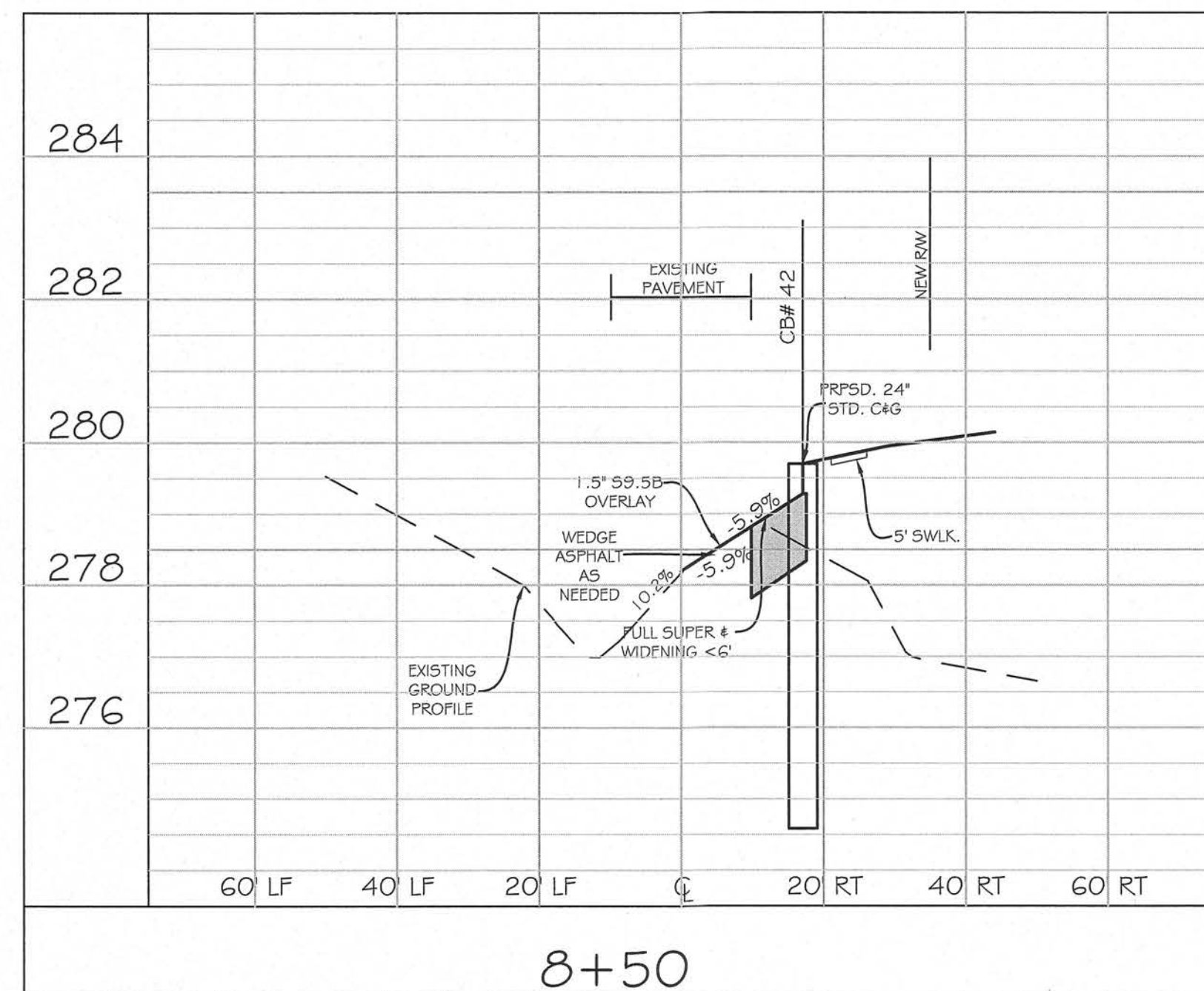
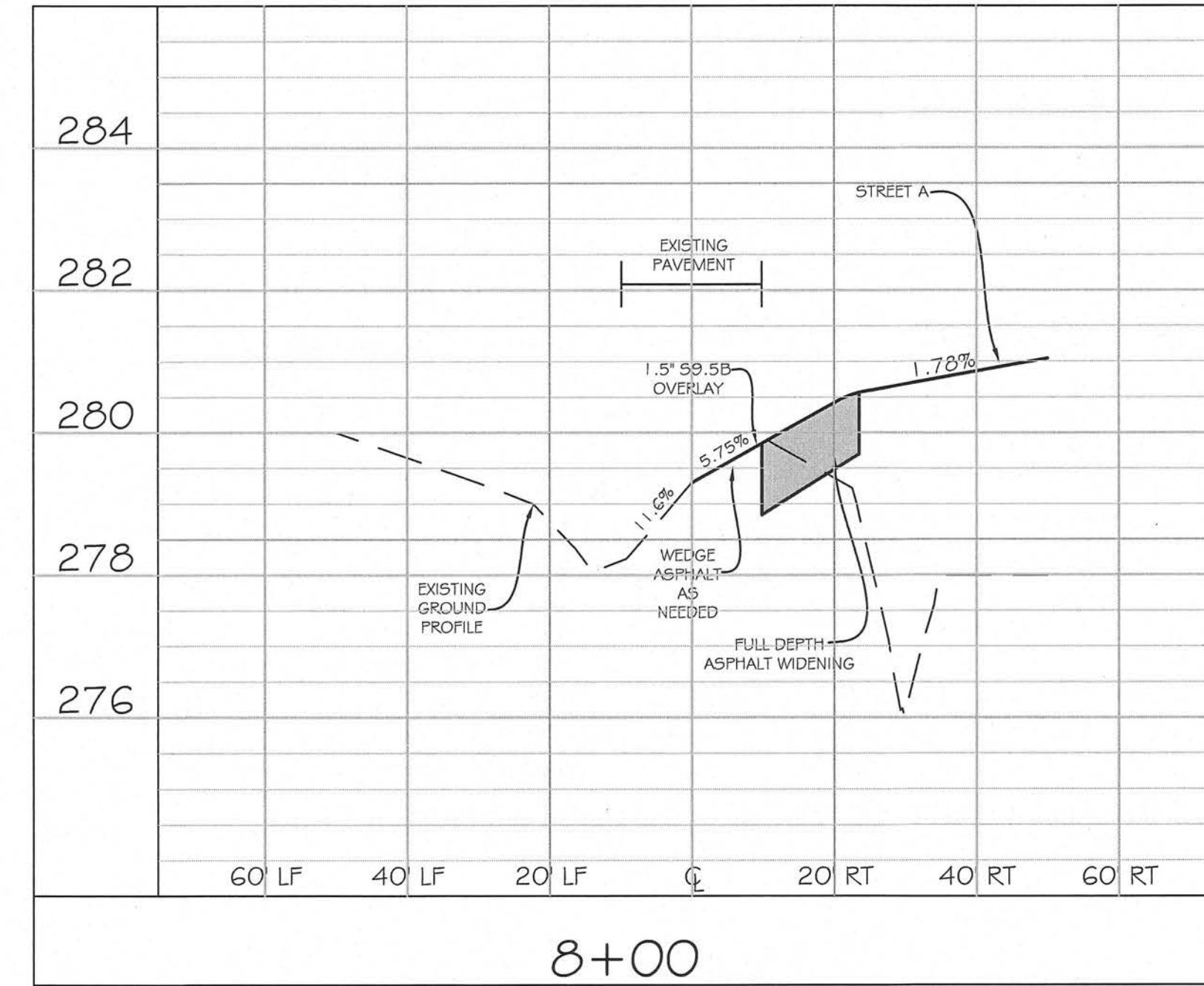
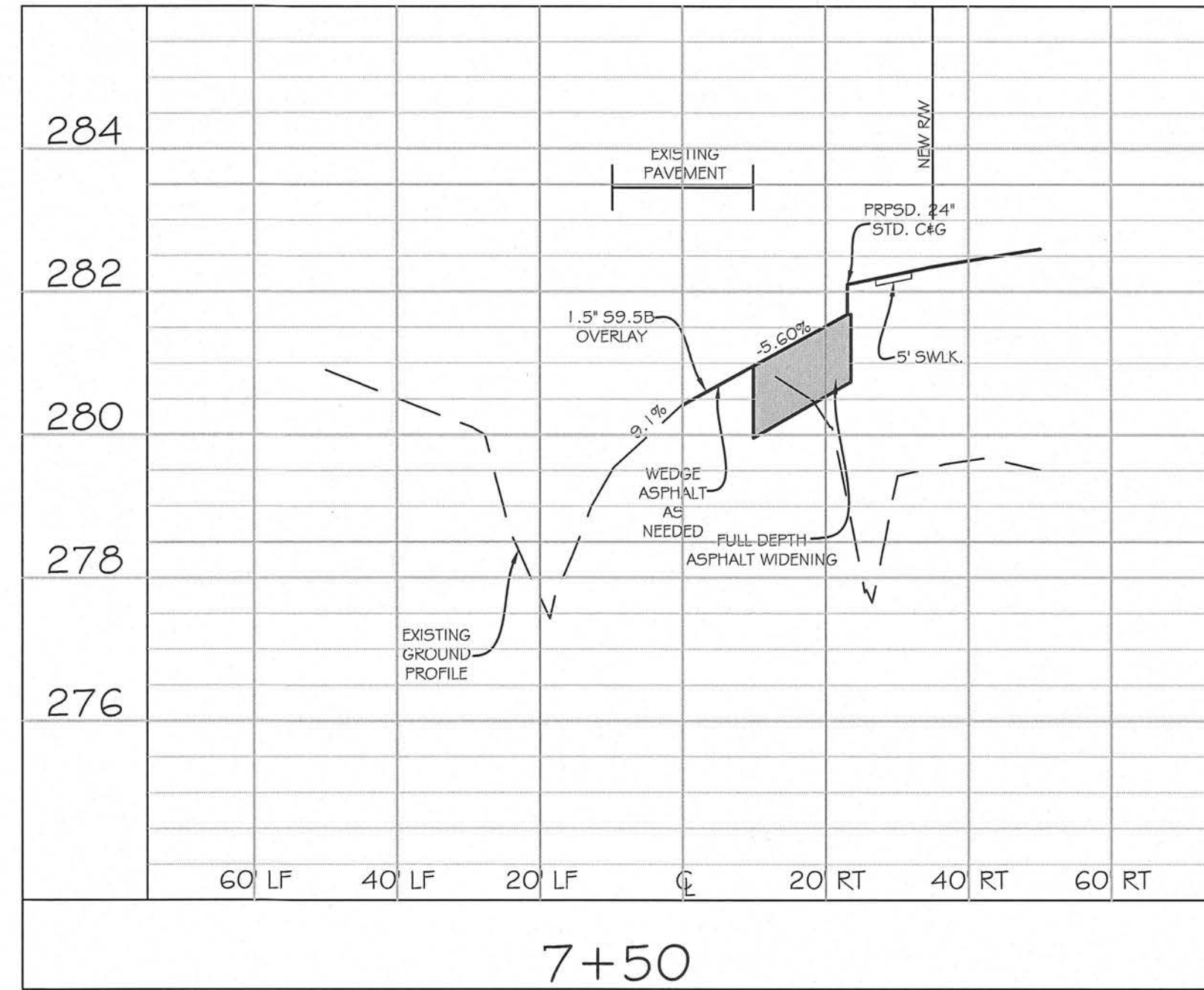
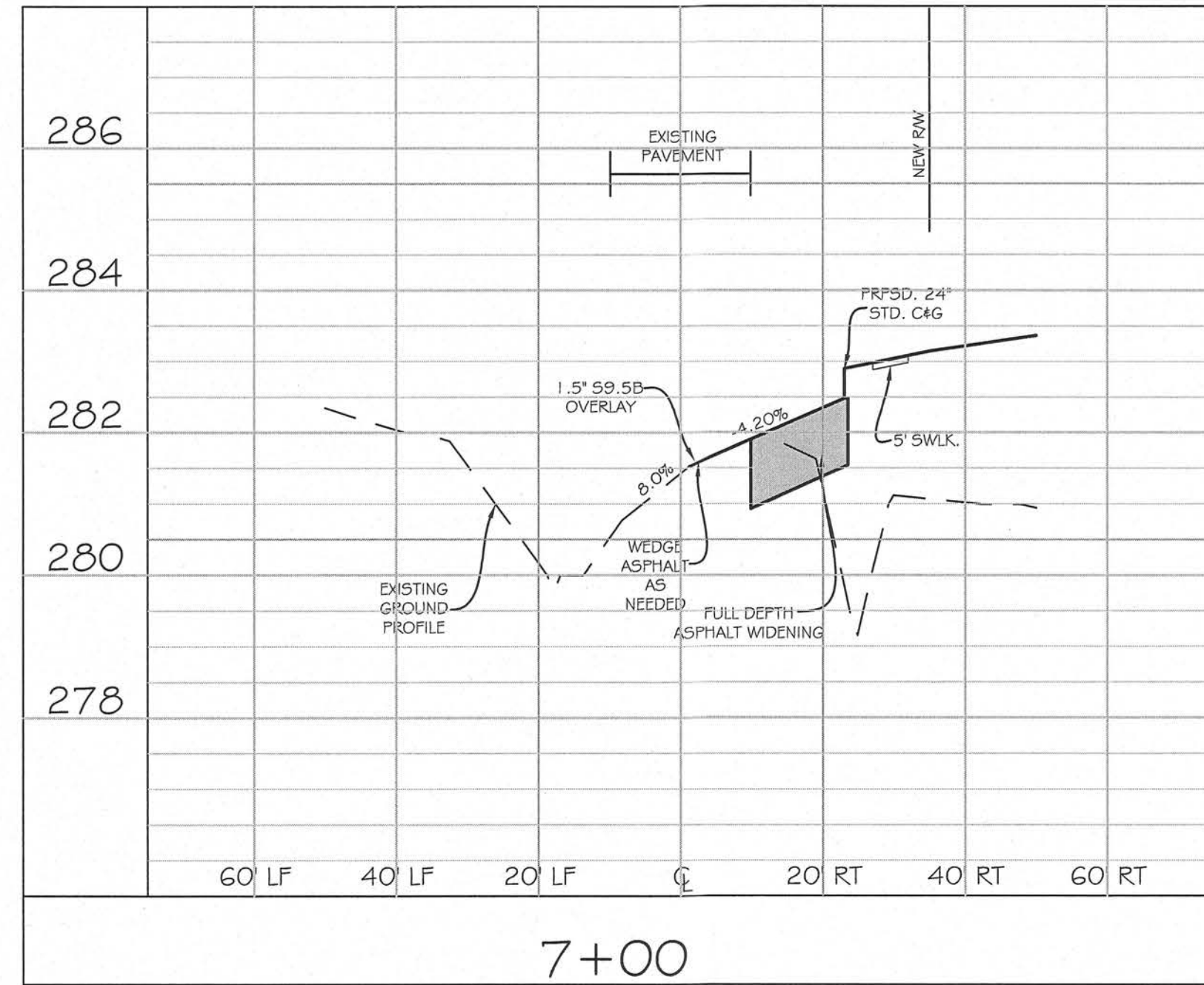
221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
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SCALE	H=20 V=2	DRAWN	PDC
DATE	FEBRUARY 8, 2024		
REVISION	4/16/24	NCDOT 2nd REVIEW	
	07/03/24	NCDOT 3rd REVIEW	
PROJECT	12C		
	1516		



# CROSS SECTIONS - FAYETTEVILLE STREET



NOTES:  
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

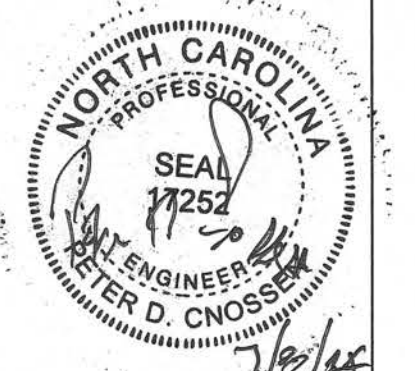
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

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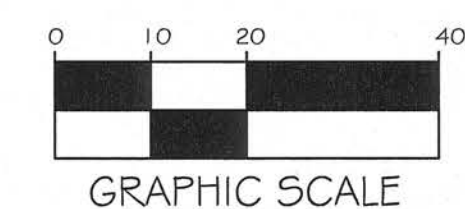
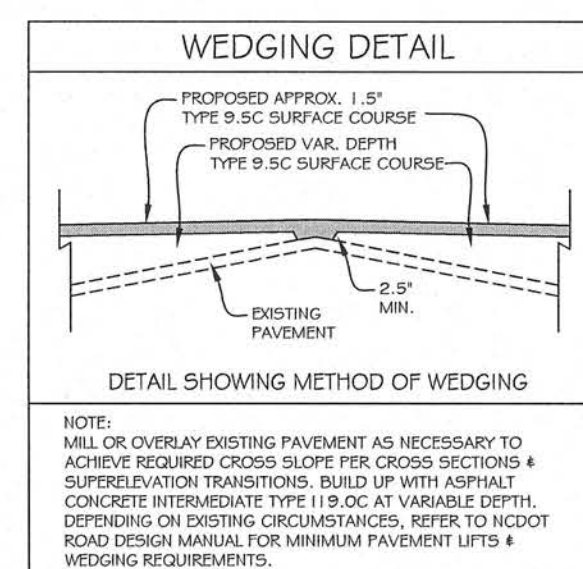
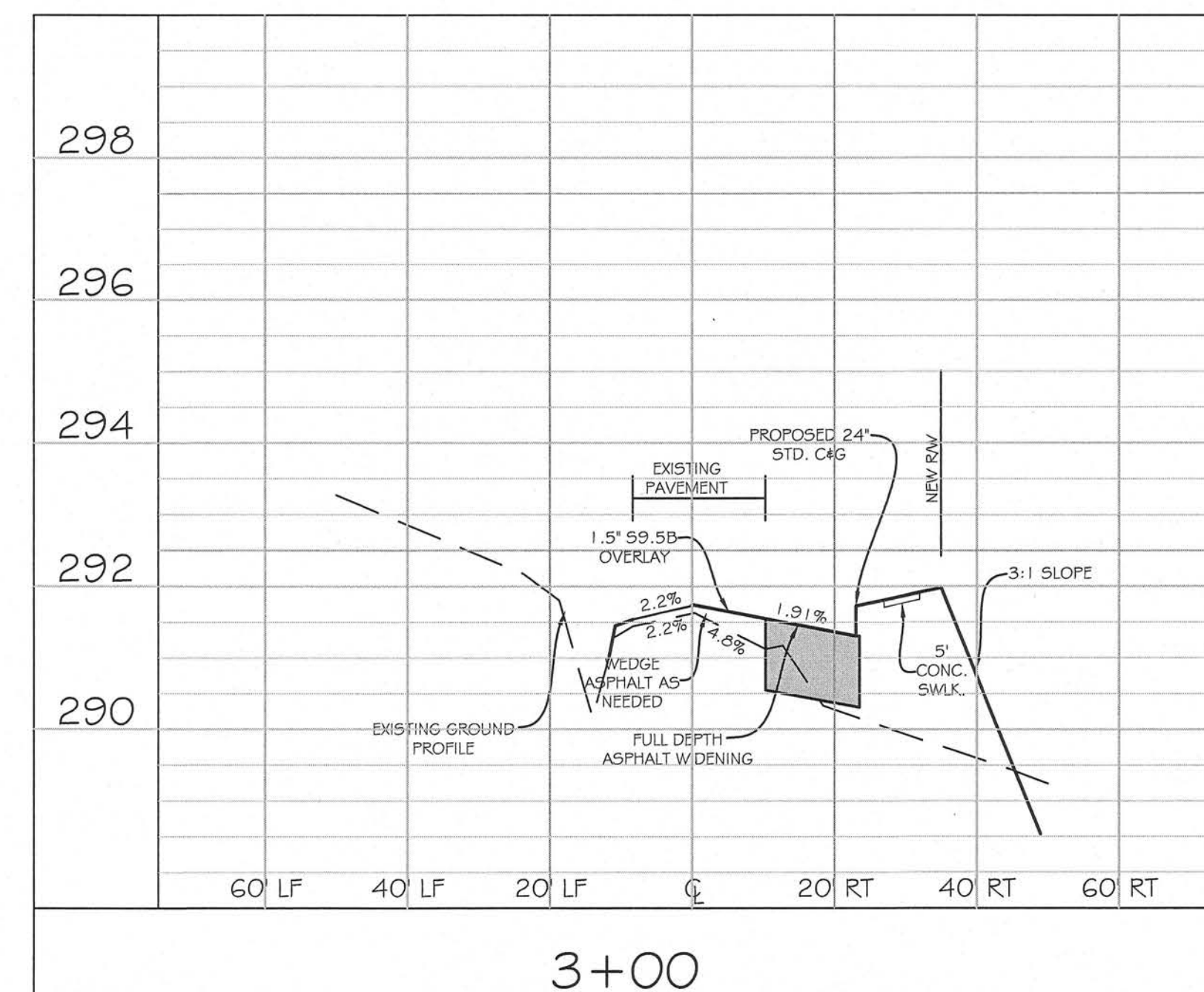
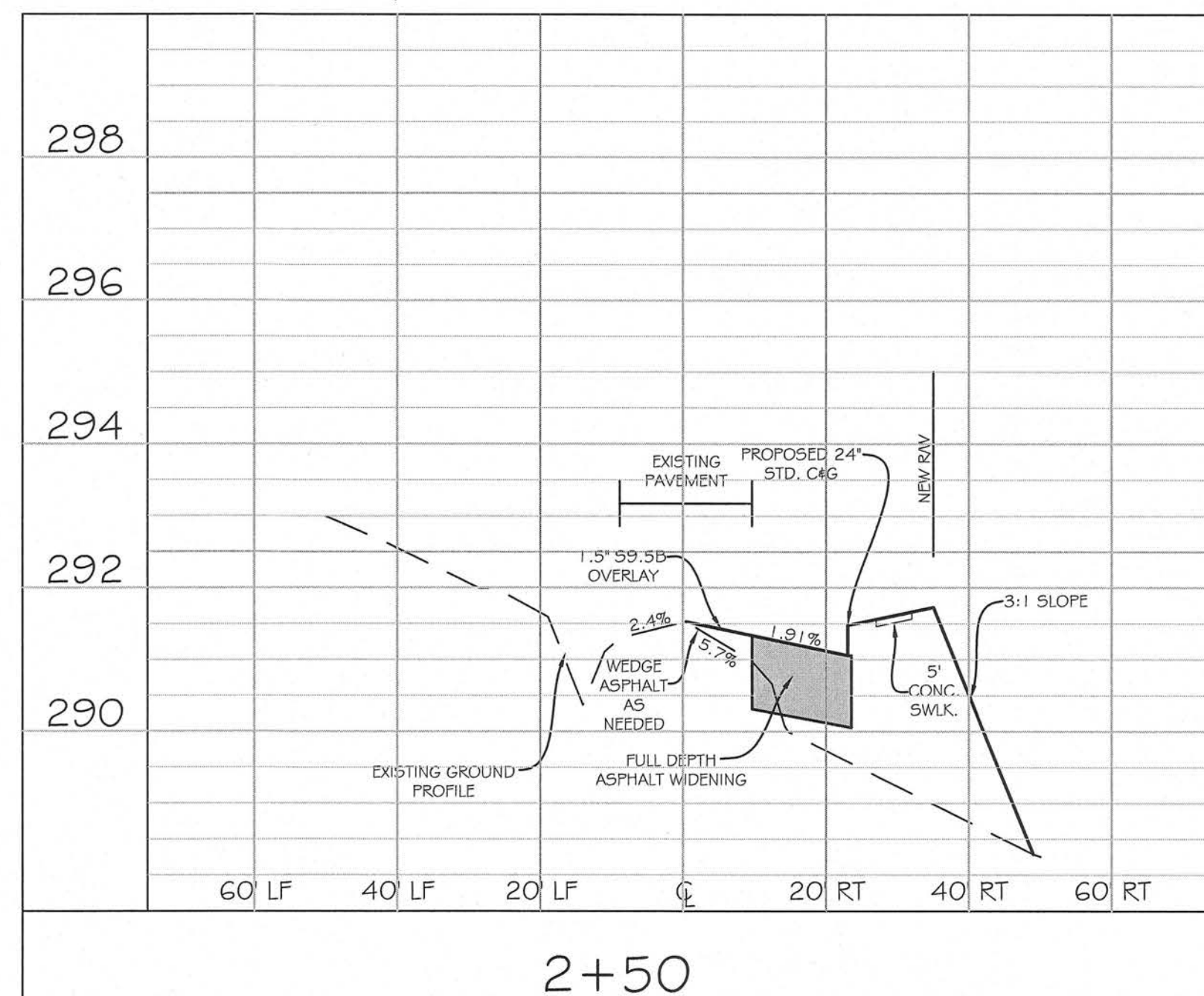
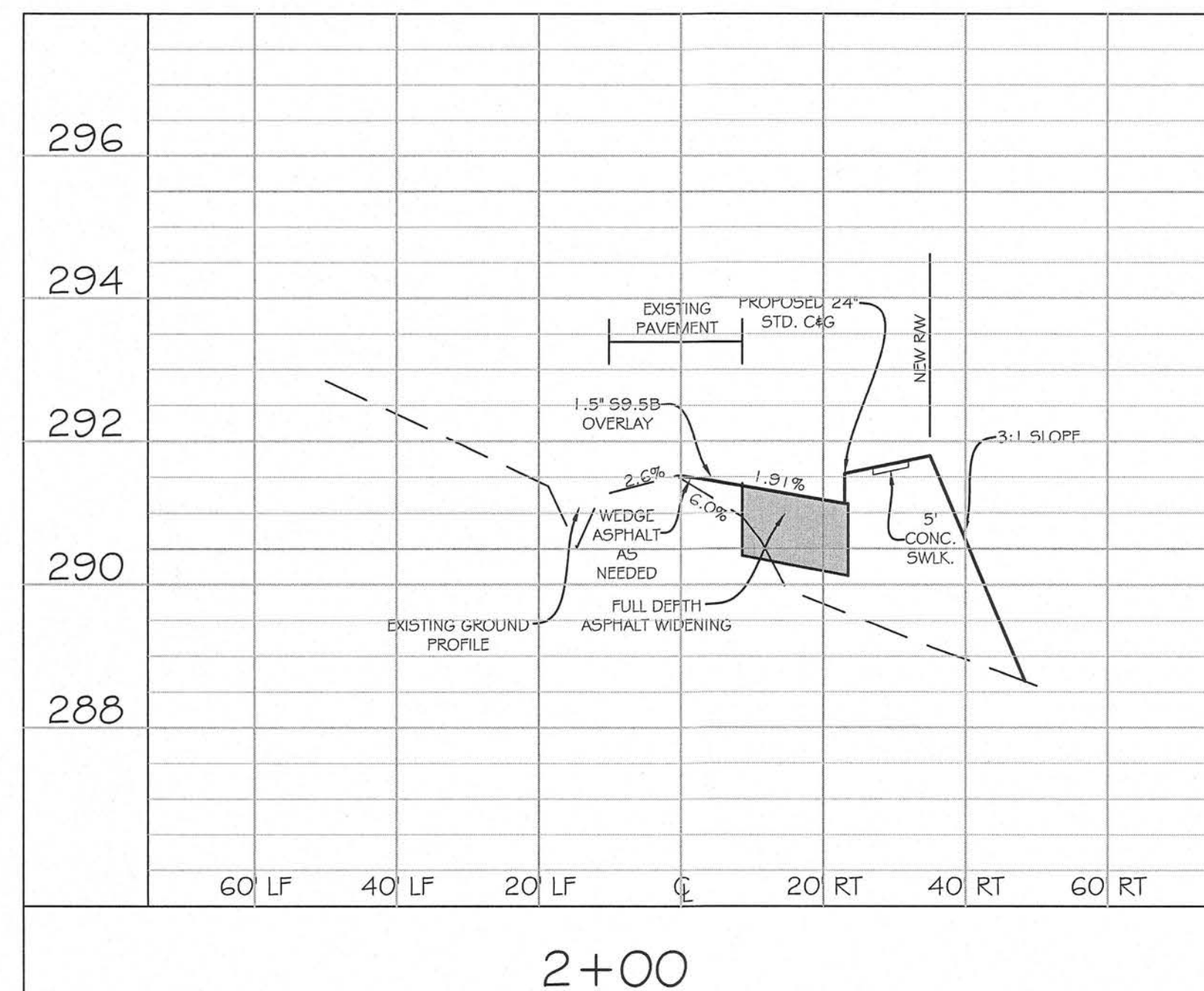
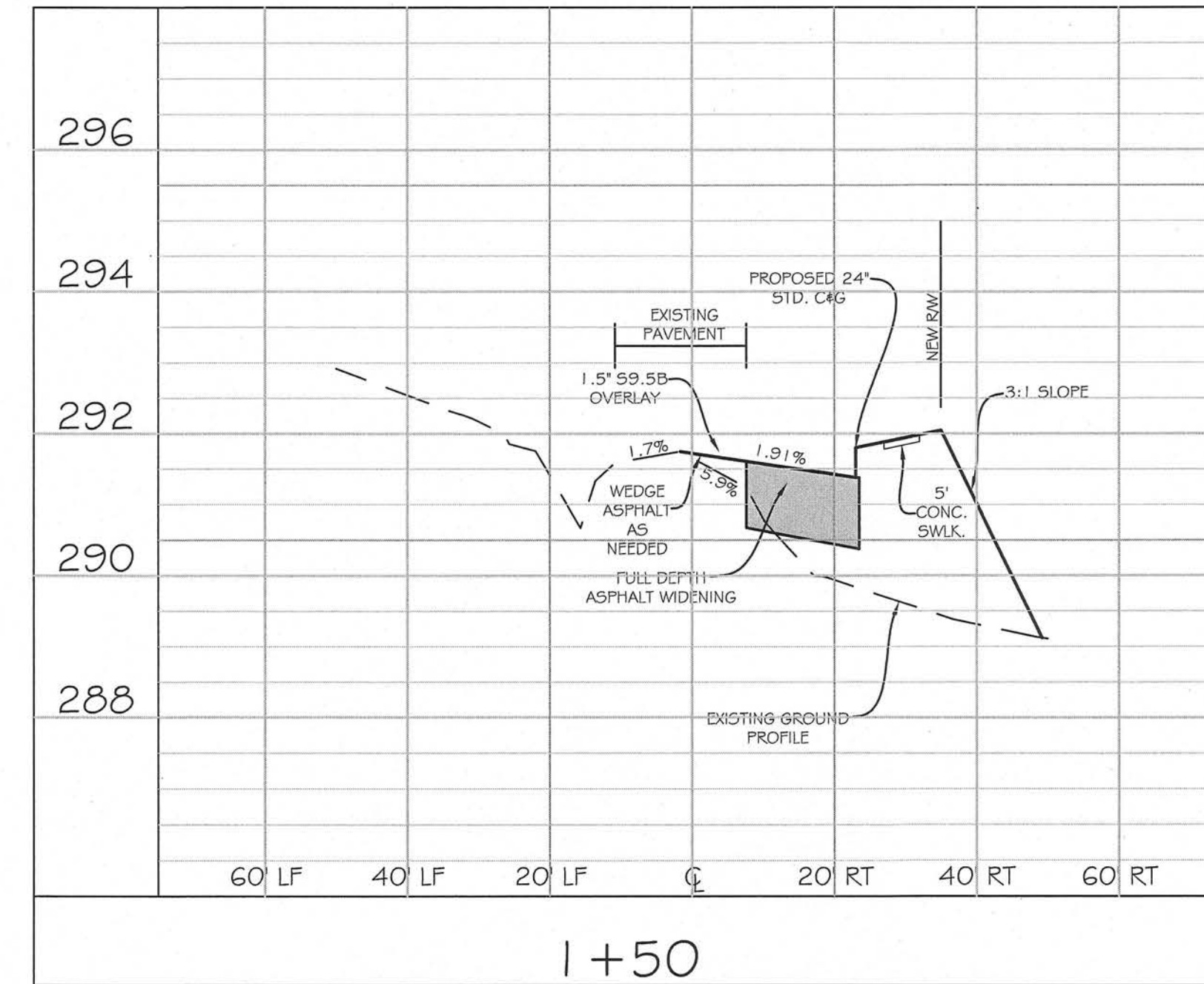
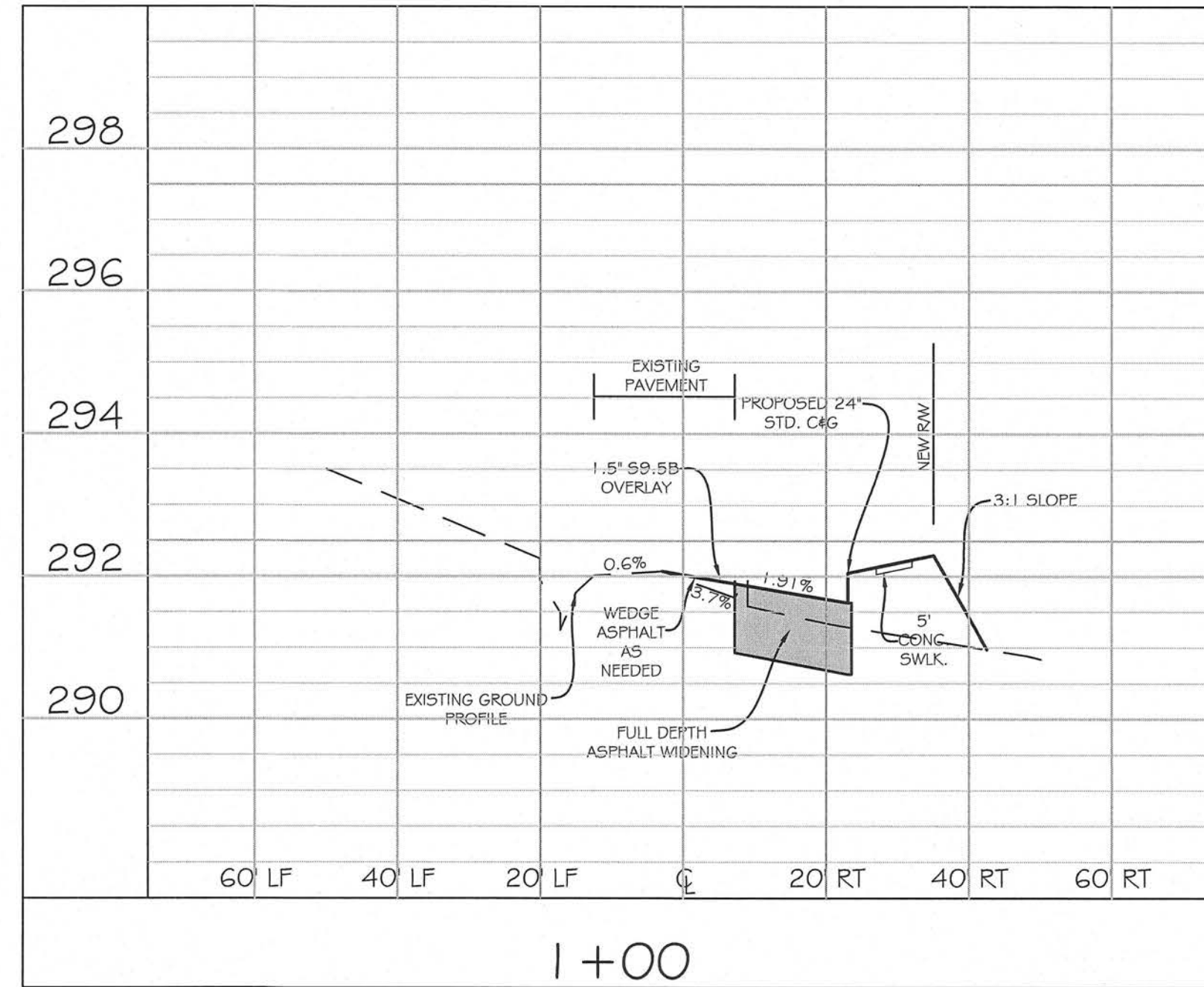
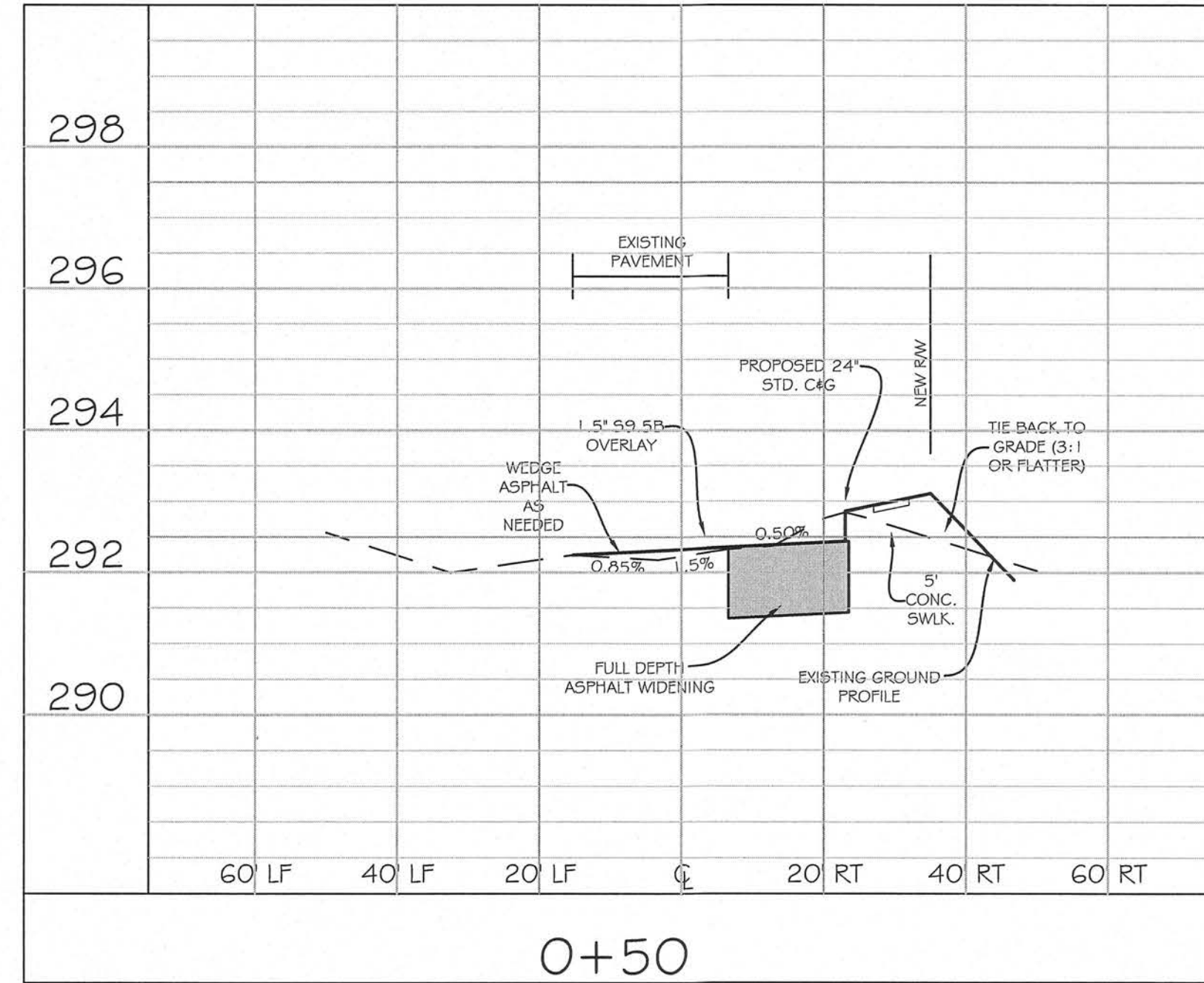








# CROSS SECTIONS - BROADWAY STREET



NOTES:  
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

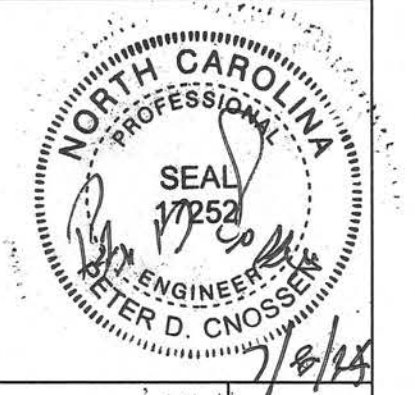
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

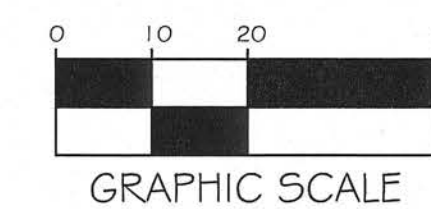
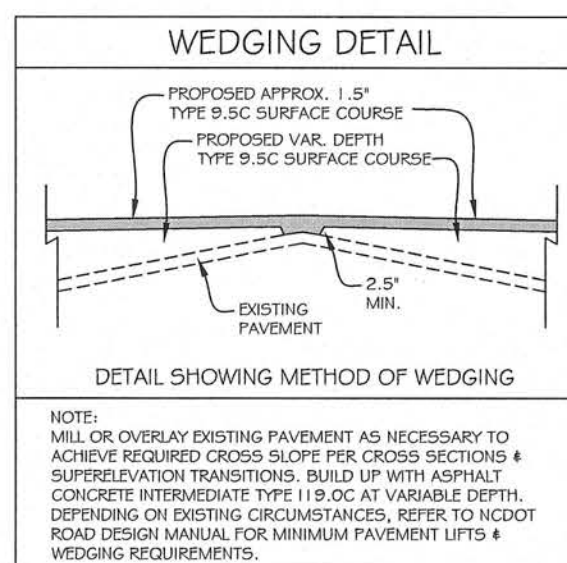
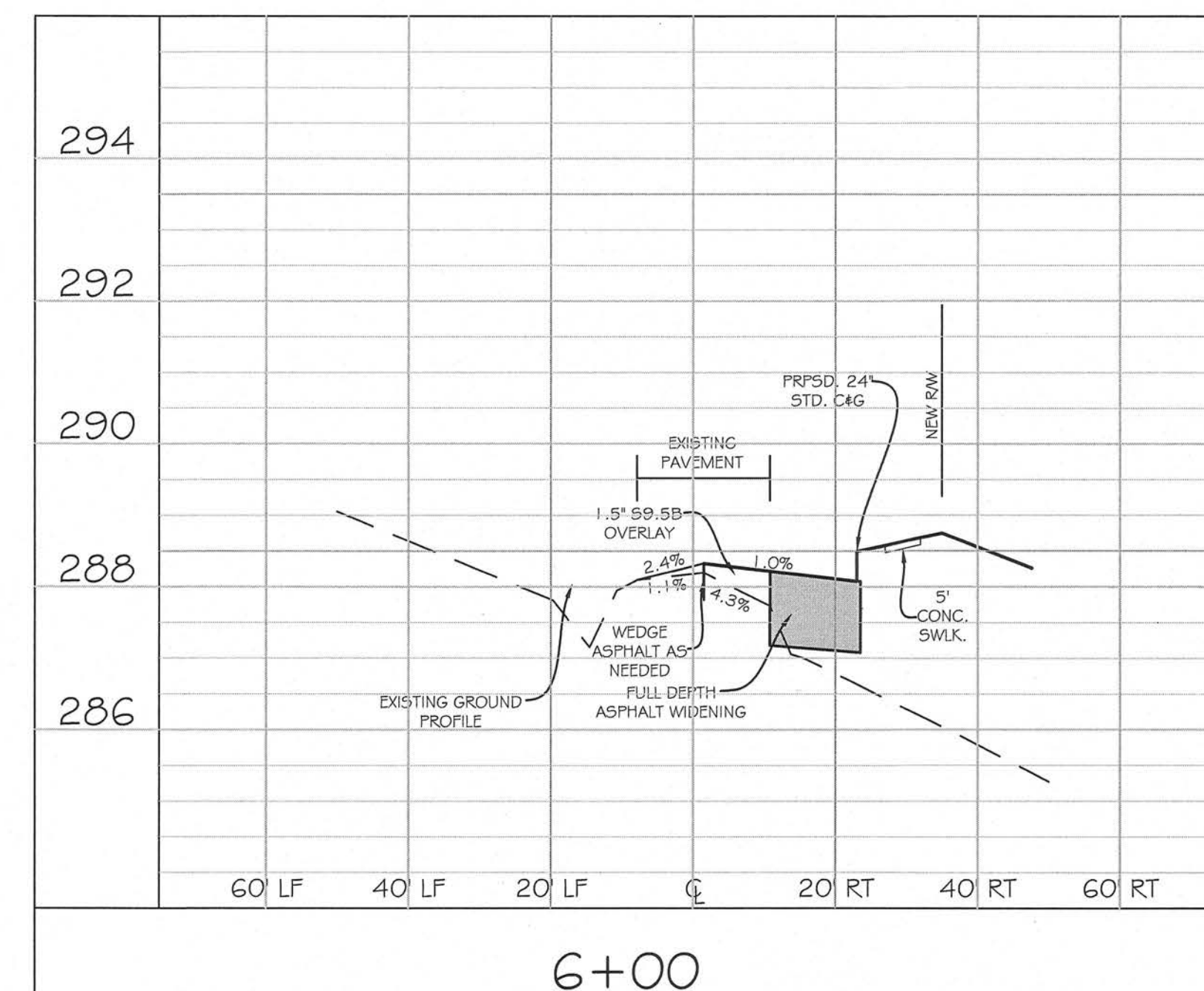
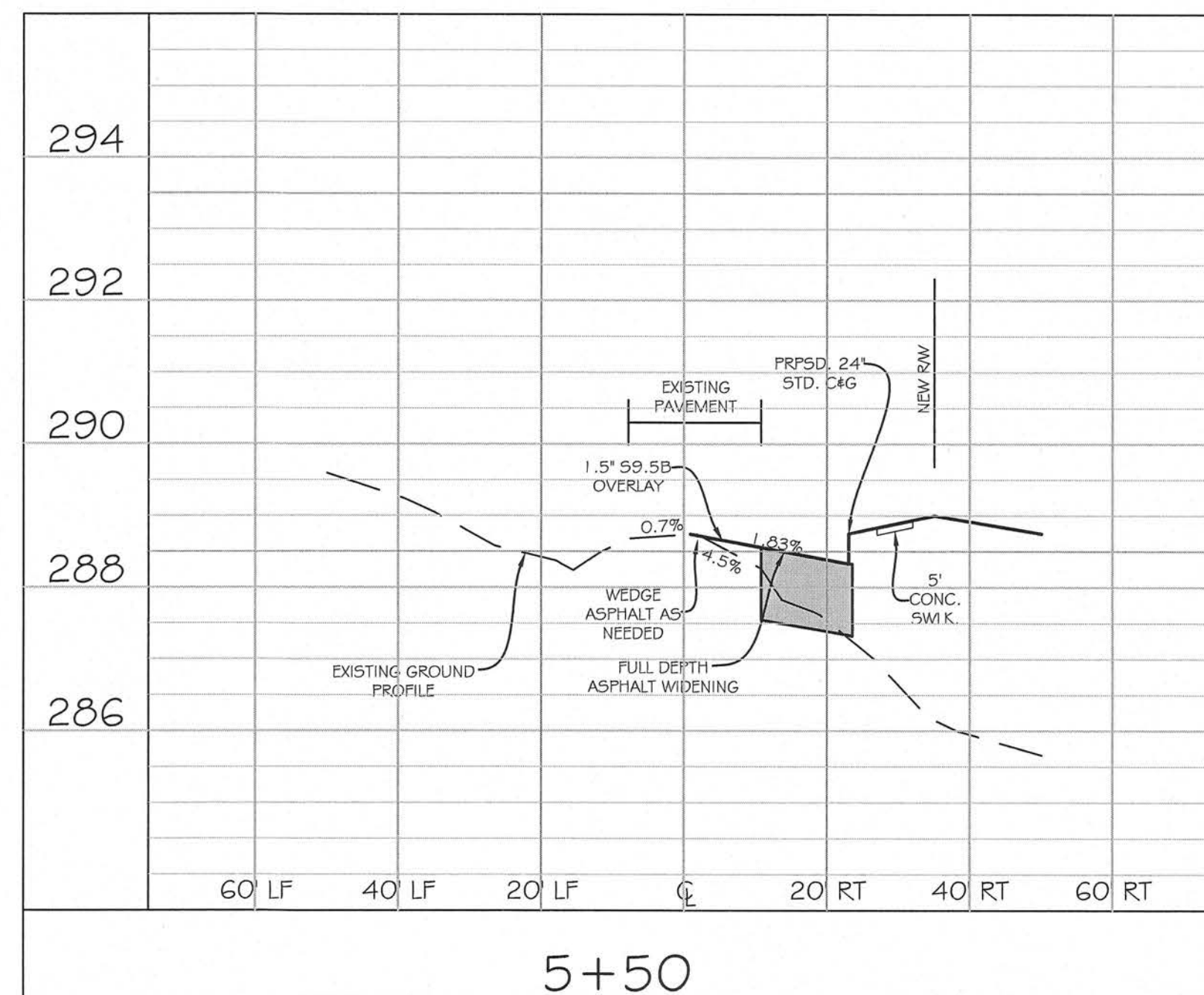
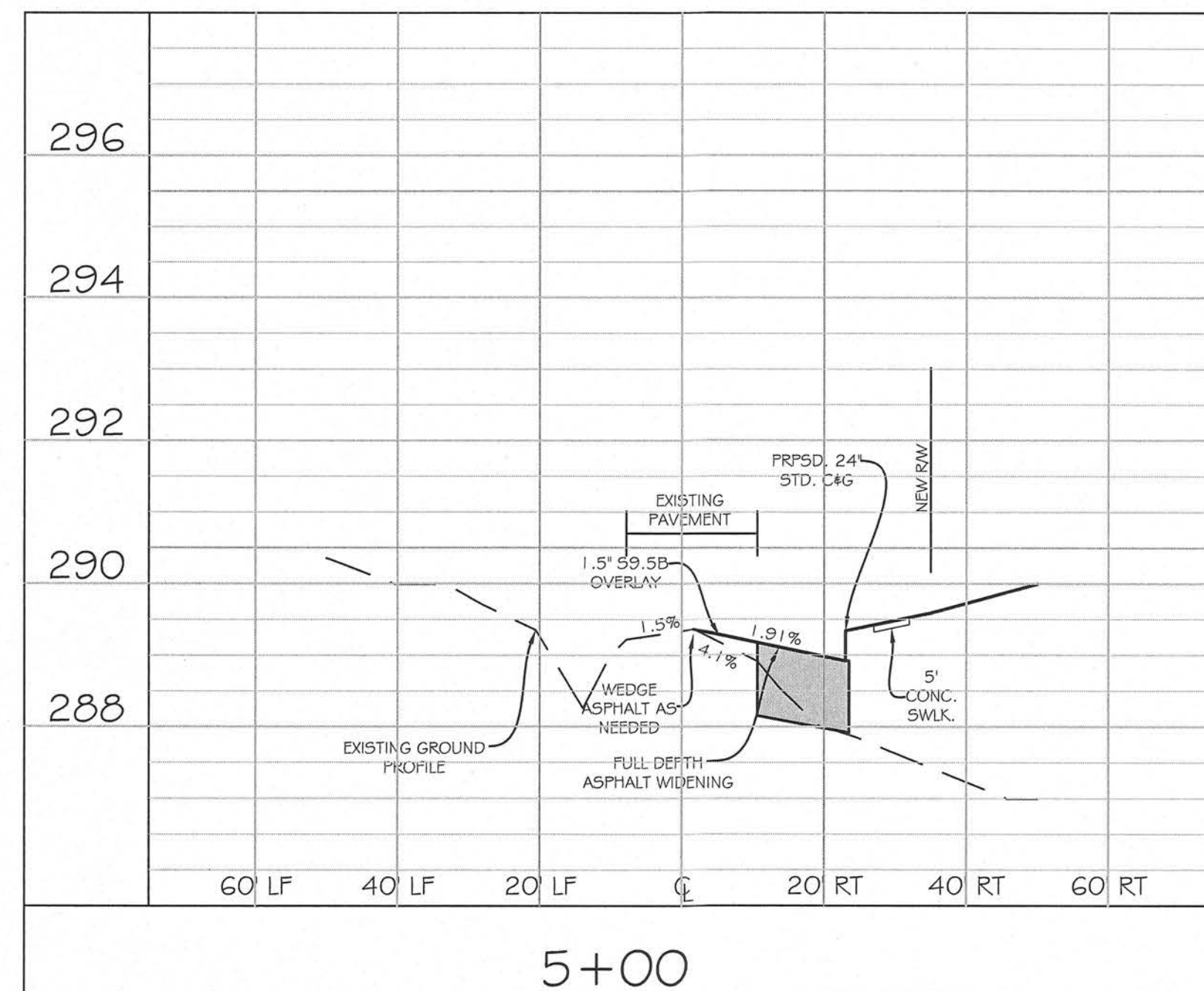
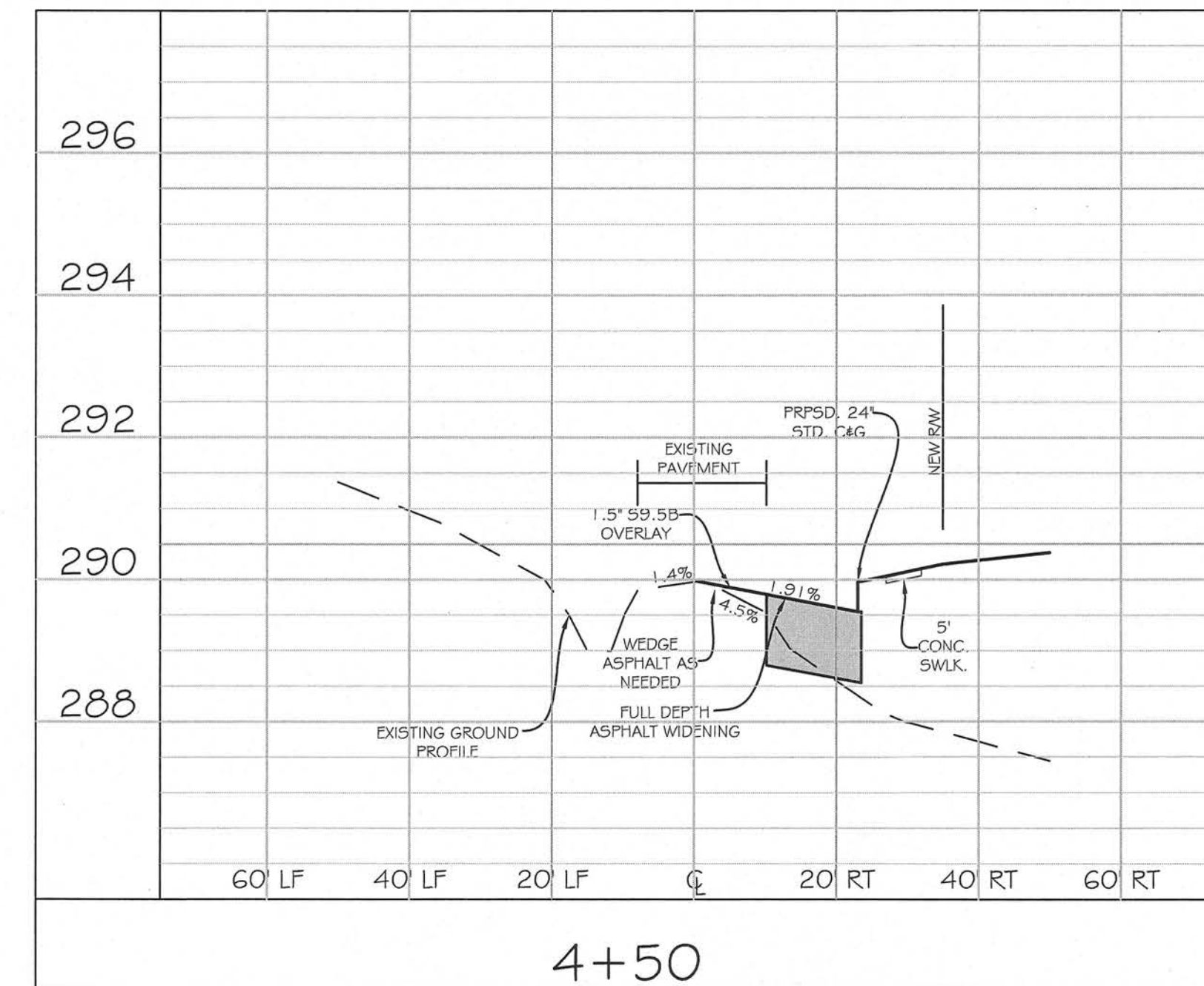
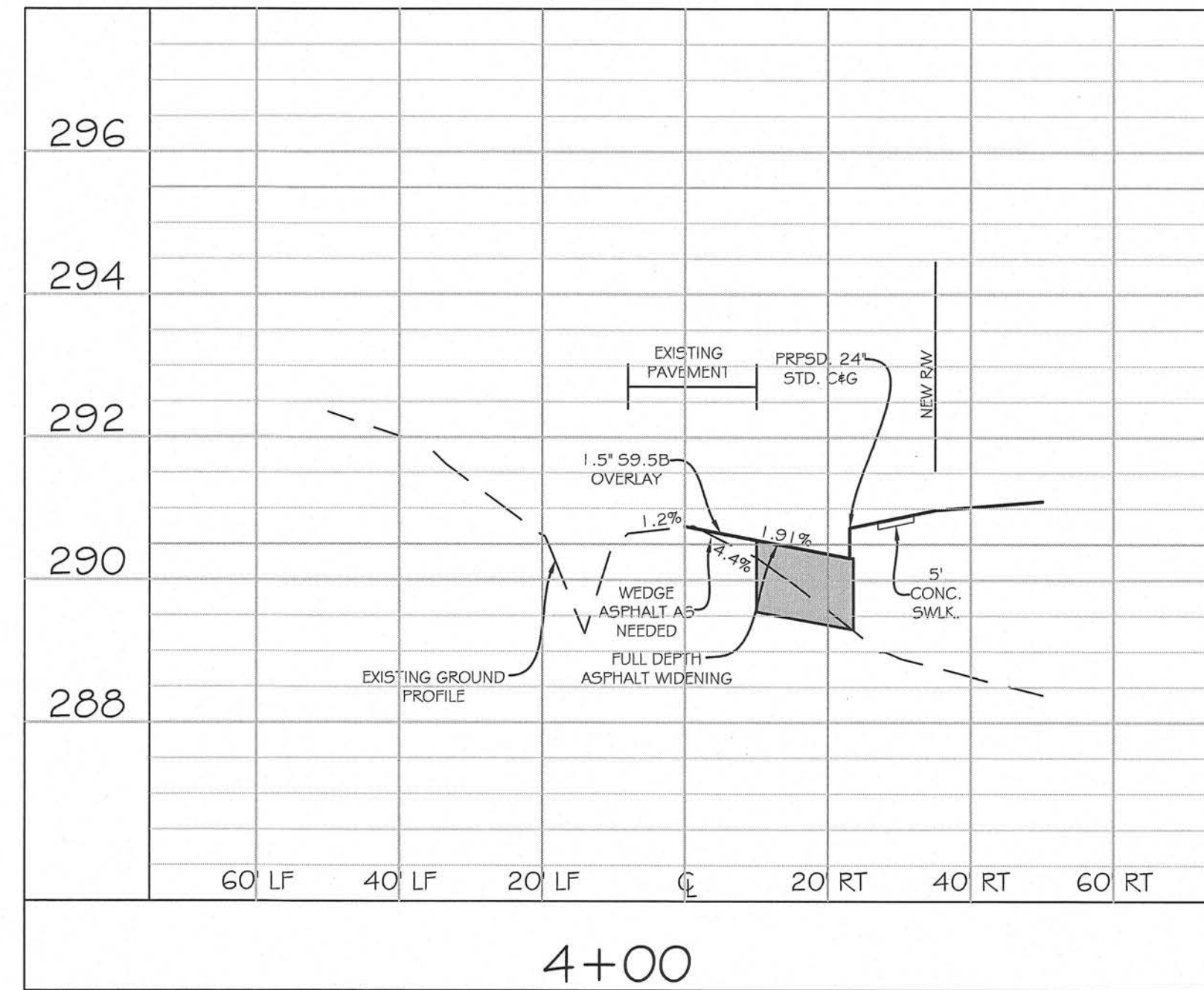
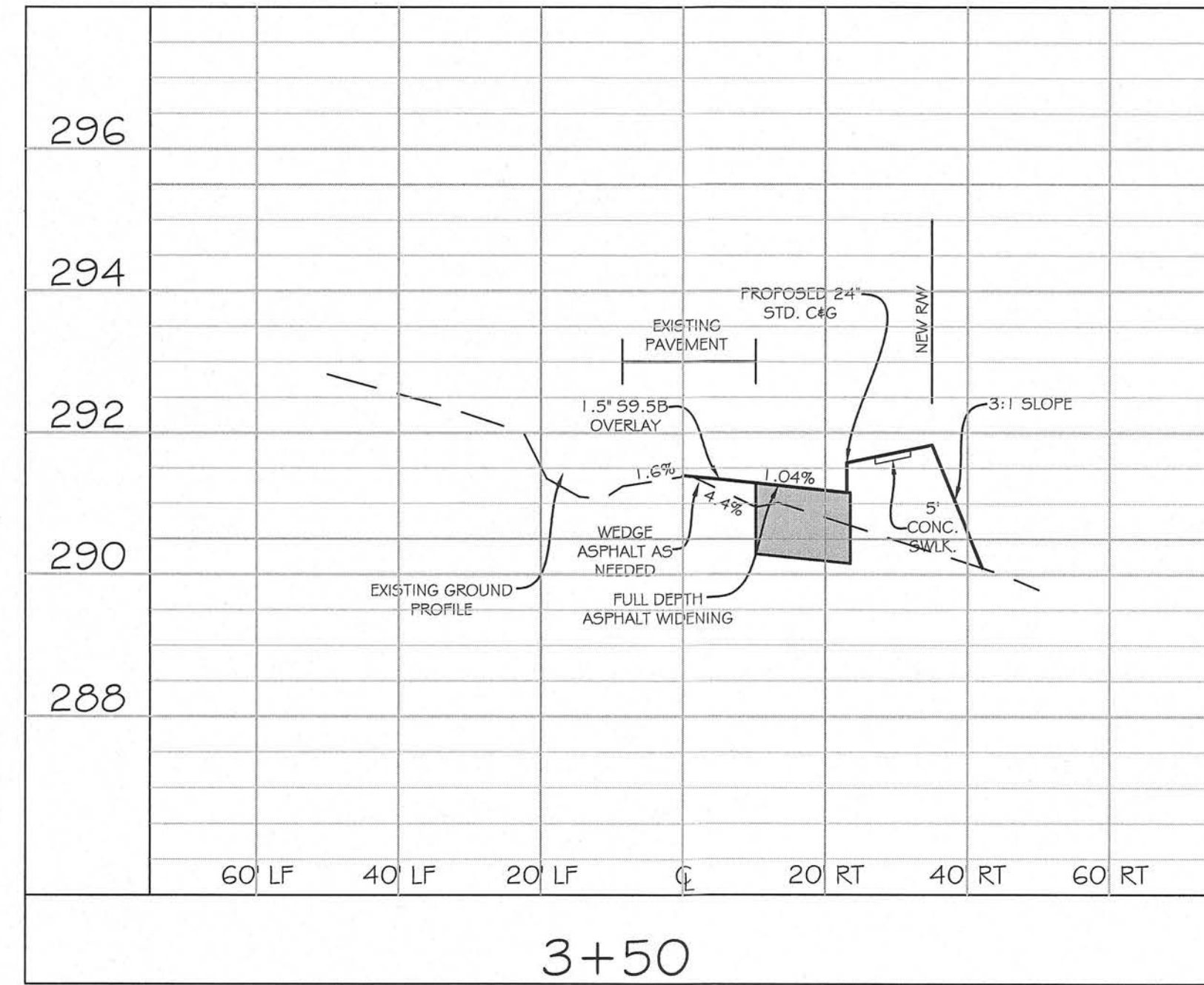
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
www.jonescrossen.com





# CROSS SECTIONS - BROADWAY STREET



**NOTES:**

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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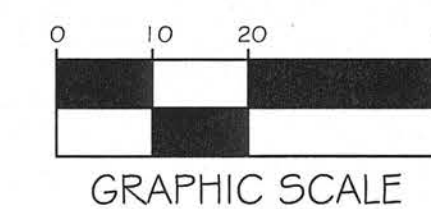
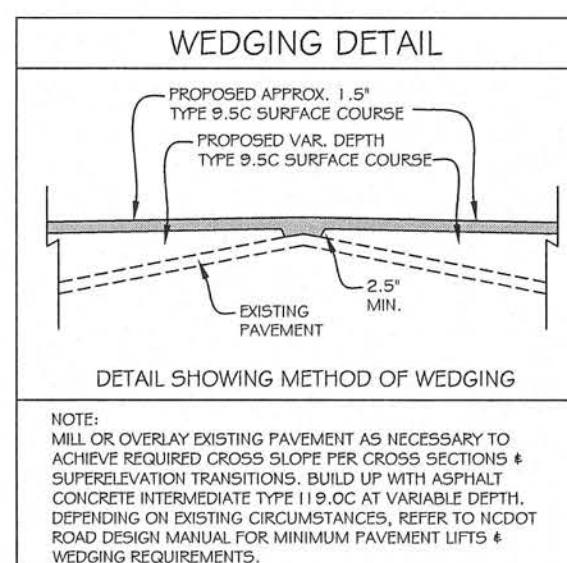
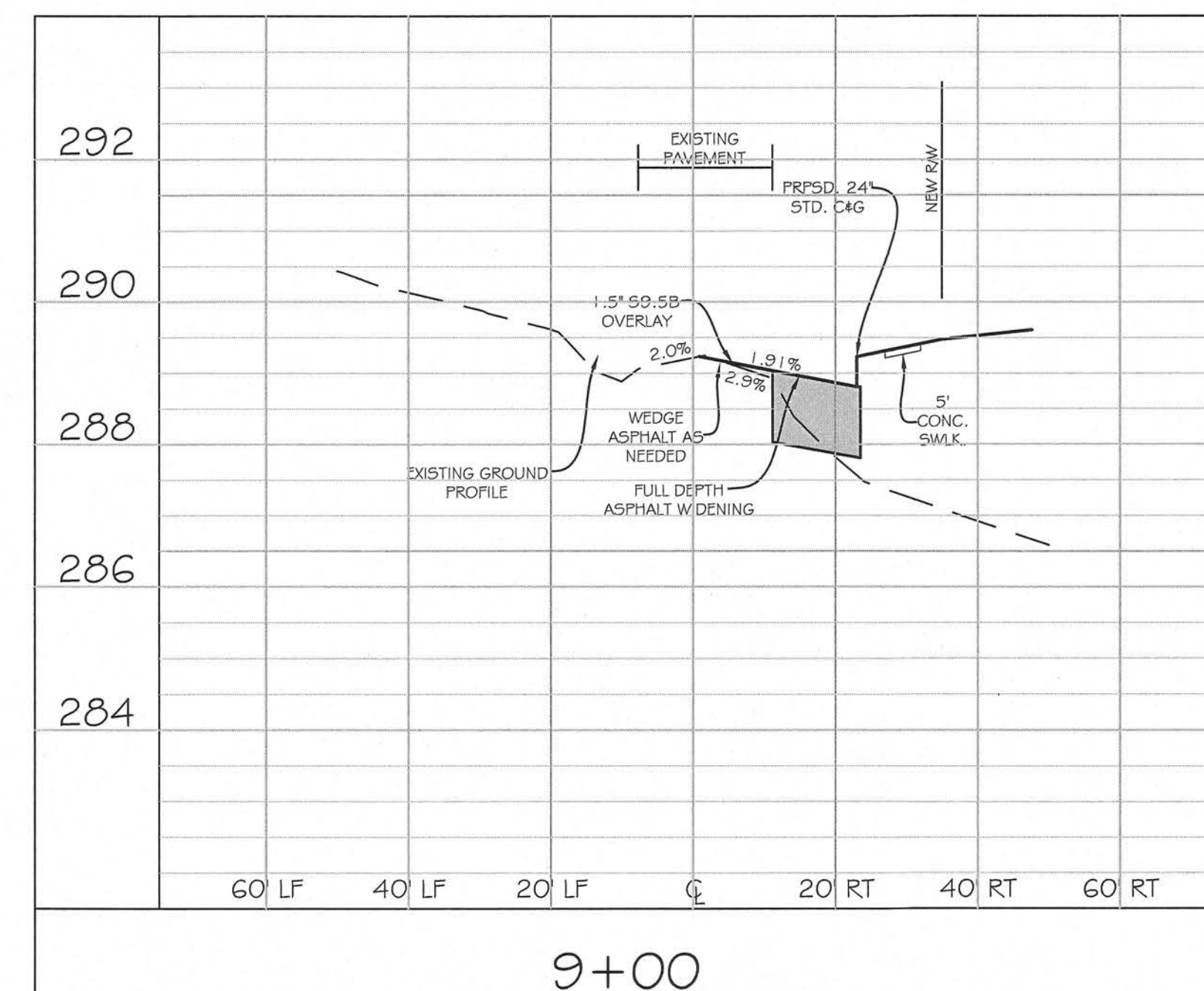
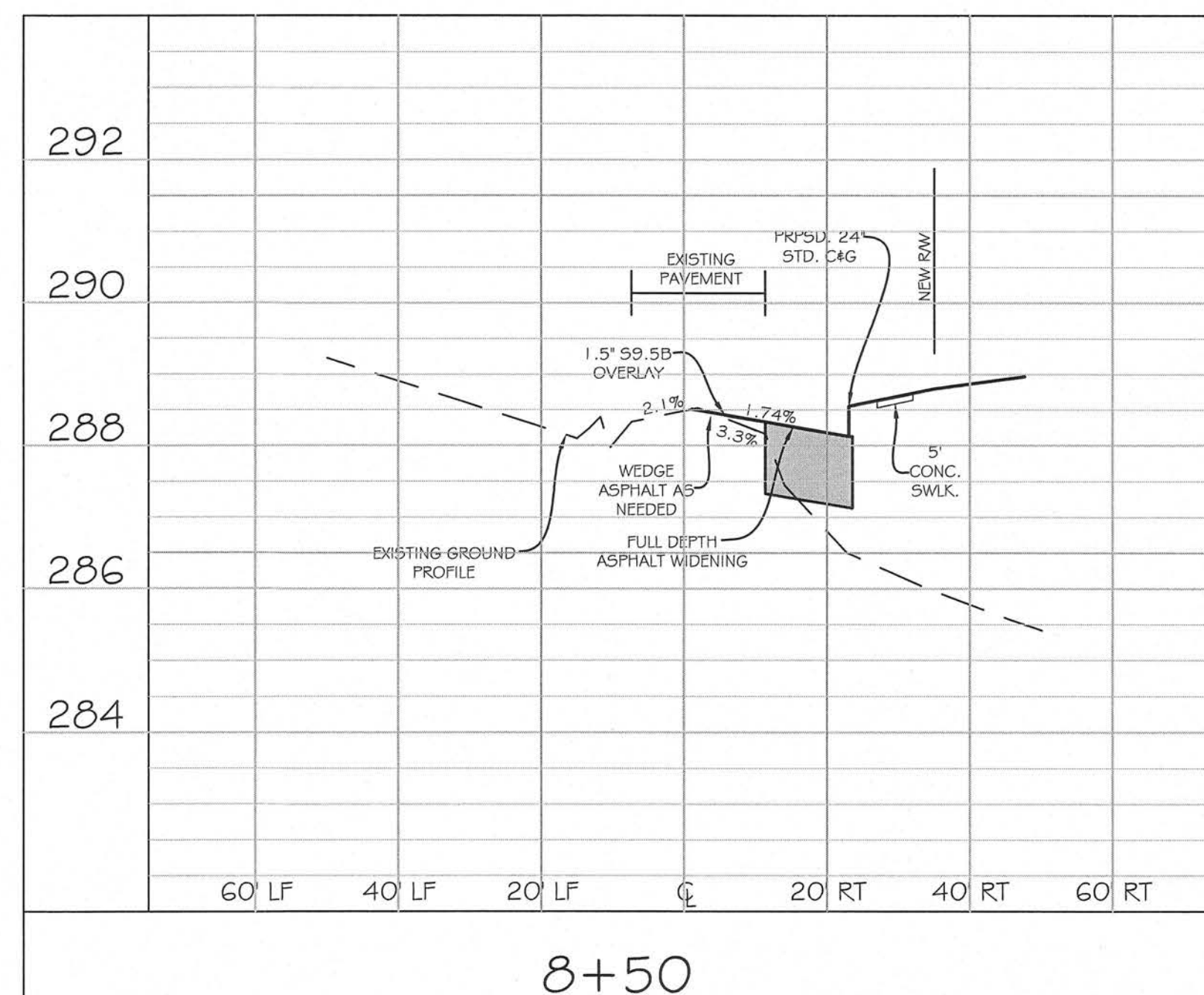
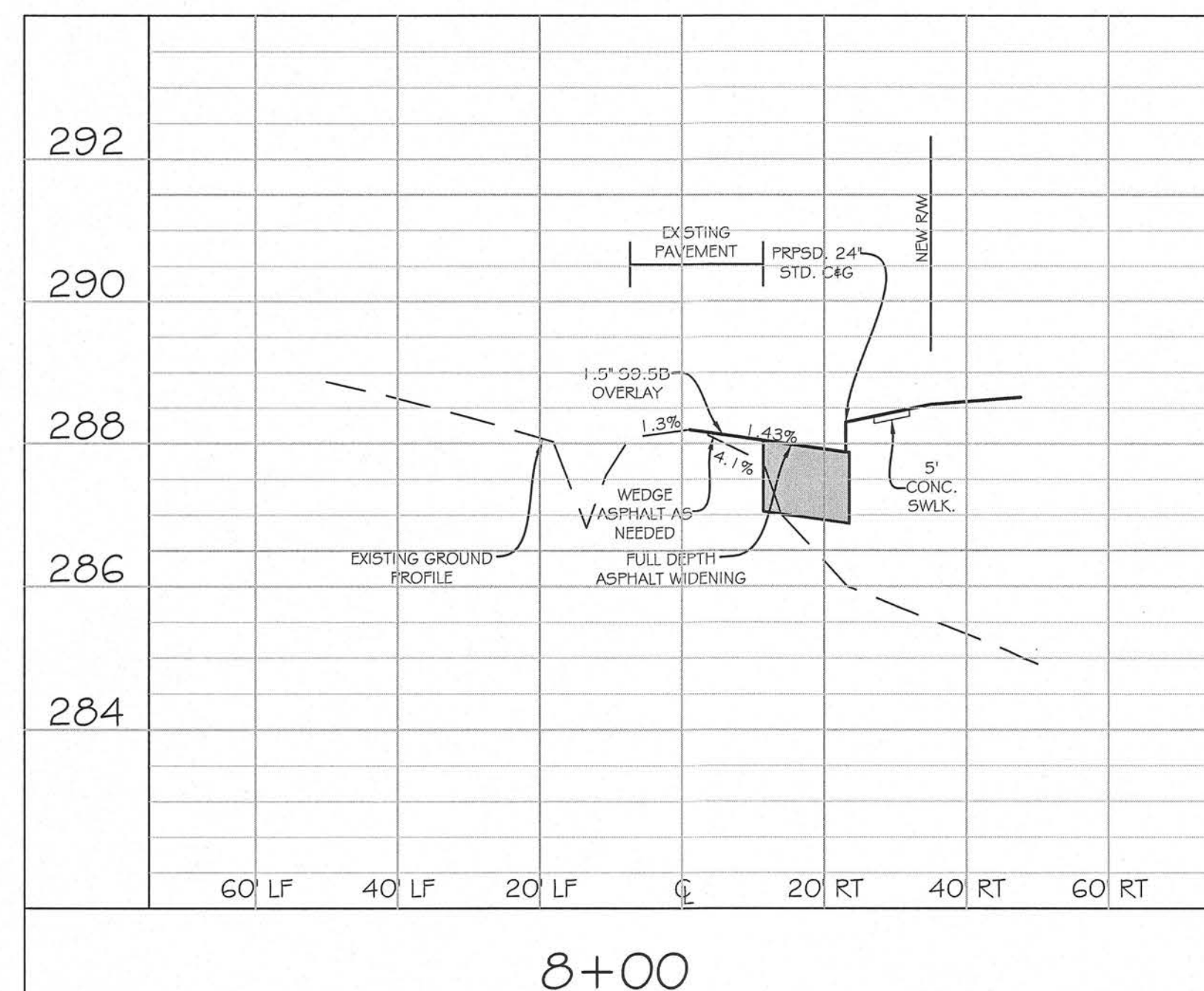
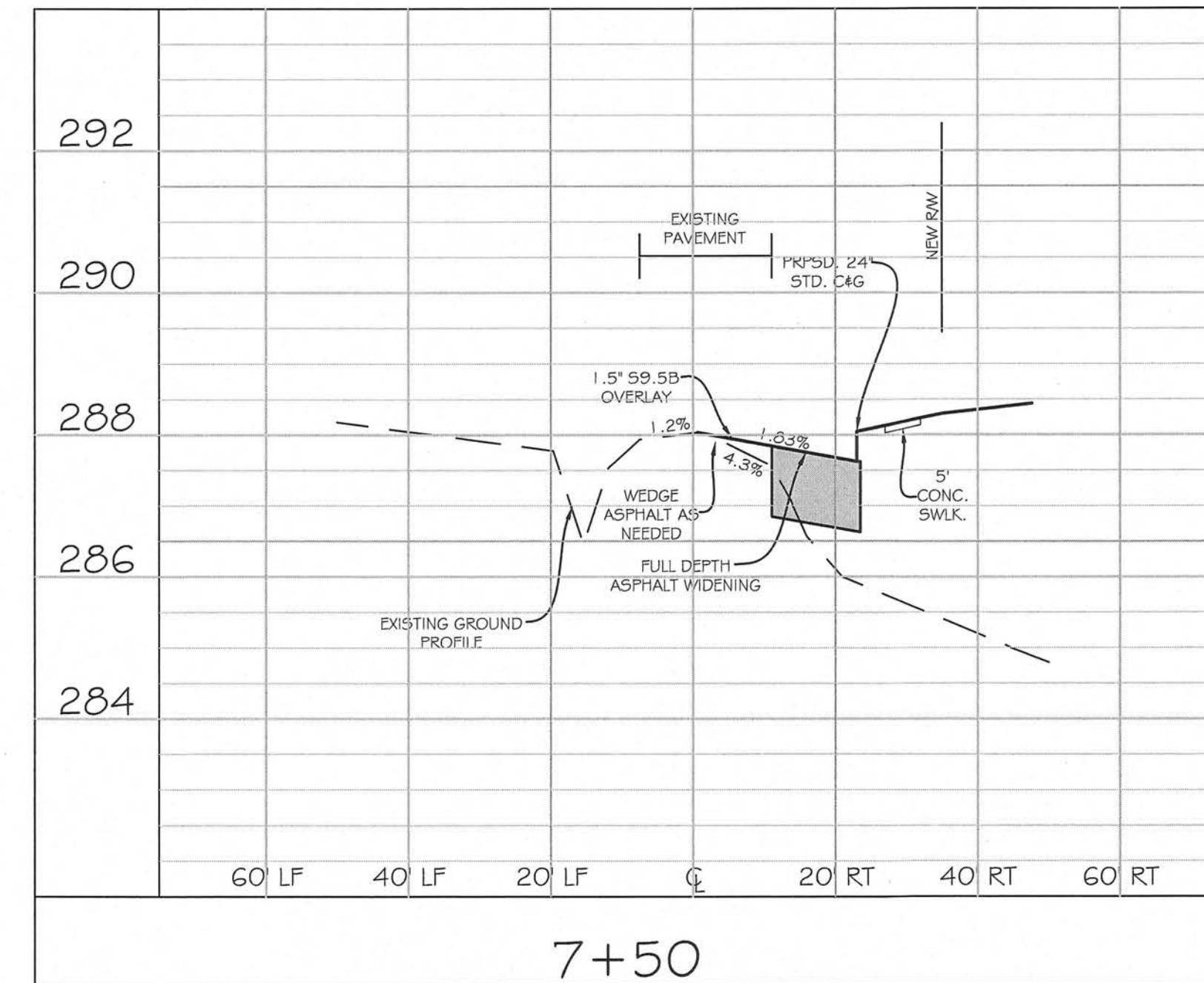
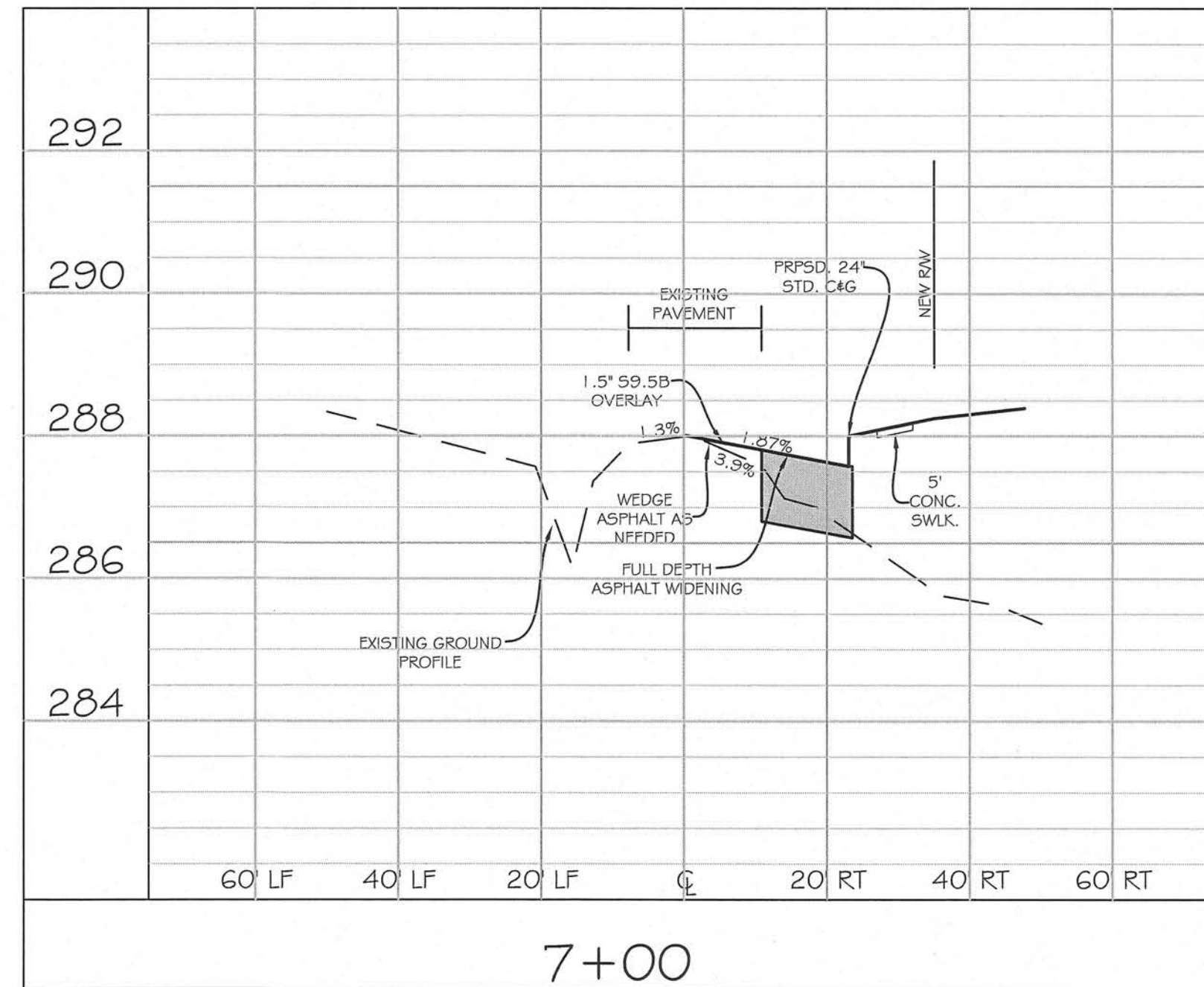
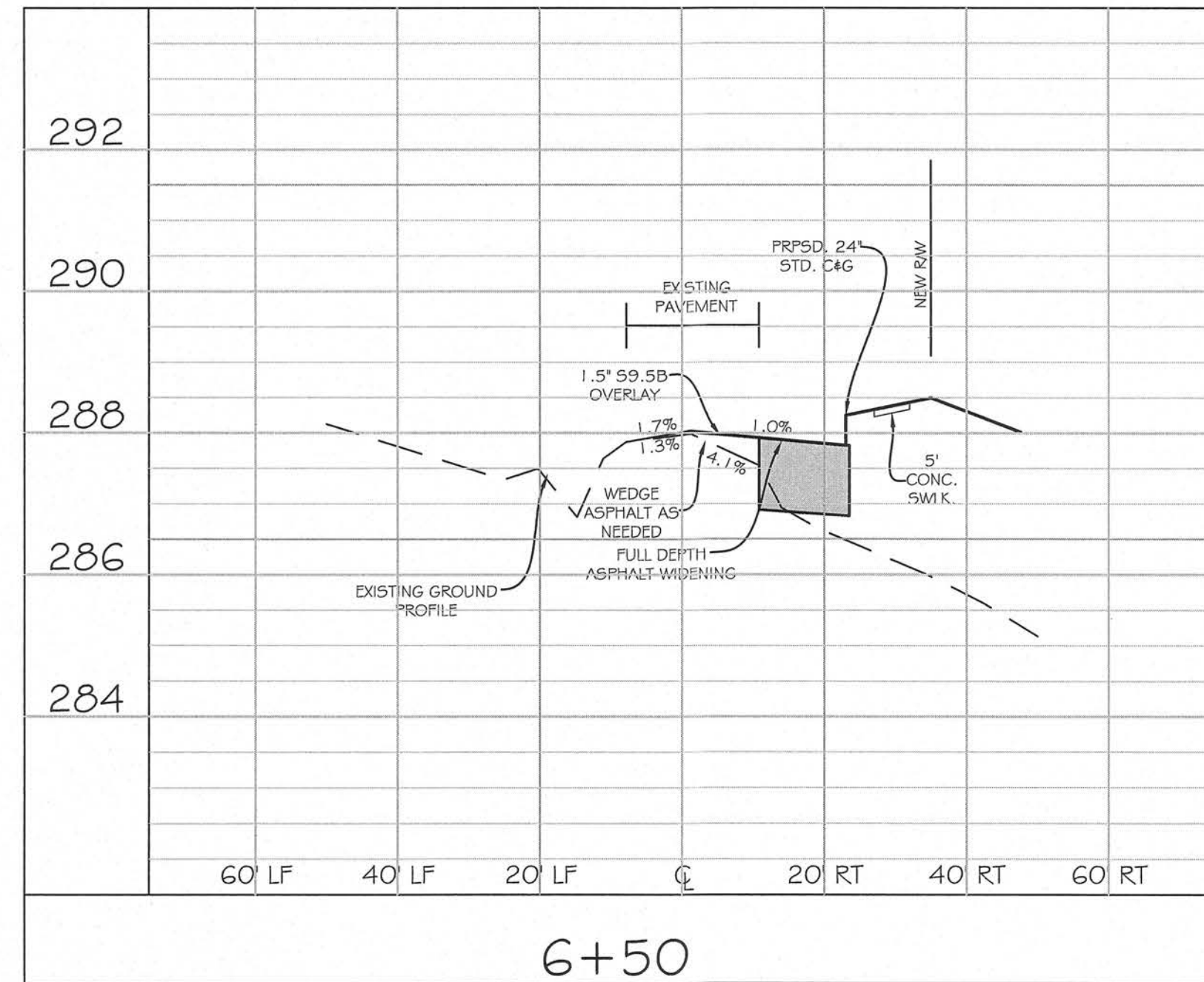


CAMDEN PARK  
CONSTRUCTION DRAWINGS  
WAKE COUNTY, NORTH CAROLINA  
TOWN OF KNIGHTDALE  
BROADWAY ST. CROSS SECTIONS

SCALE	H=20 V=2	DRAWN	PDC
DATE	FEBRUARY 8, 2024		
REVISION	4/16/24	NCDOT 2nd REVIEW	
	07/03/24	NCDOT 3rd REVIEW	
SHEET	13C		
PROJECT	1516		



# CROSS SECTIONS - BROADWAY STREET



**NOTES:**

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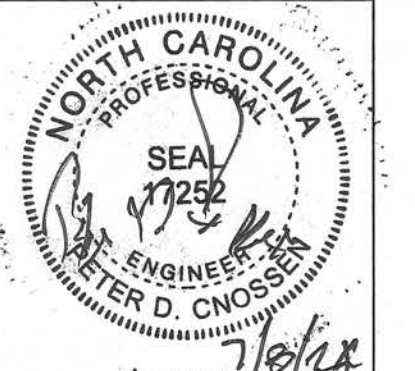
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

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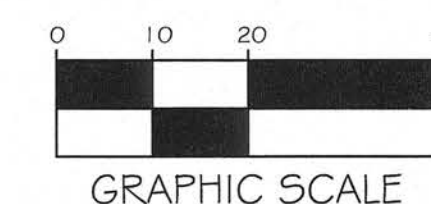
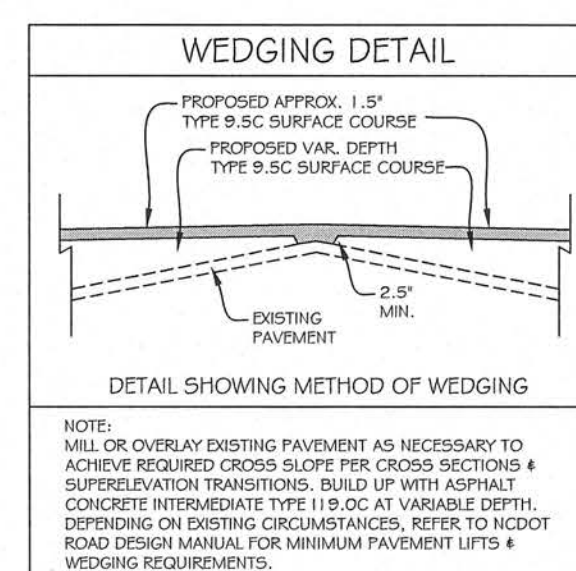
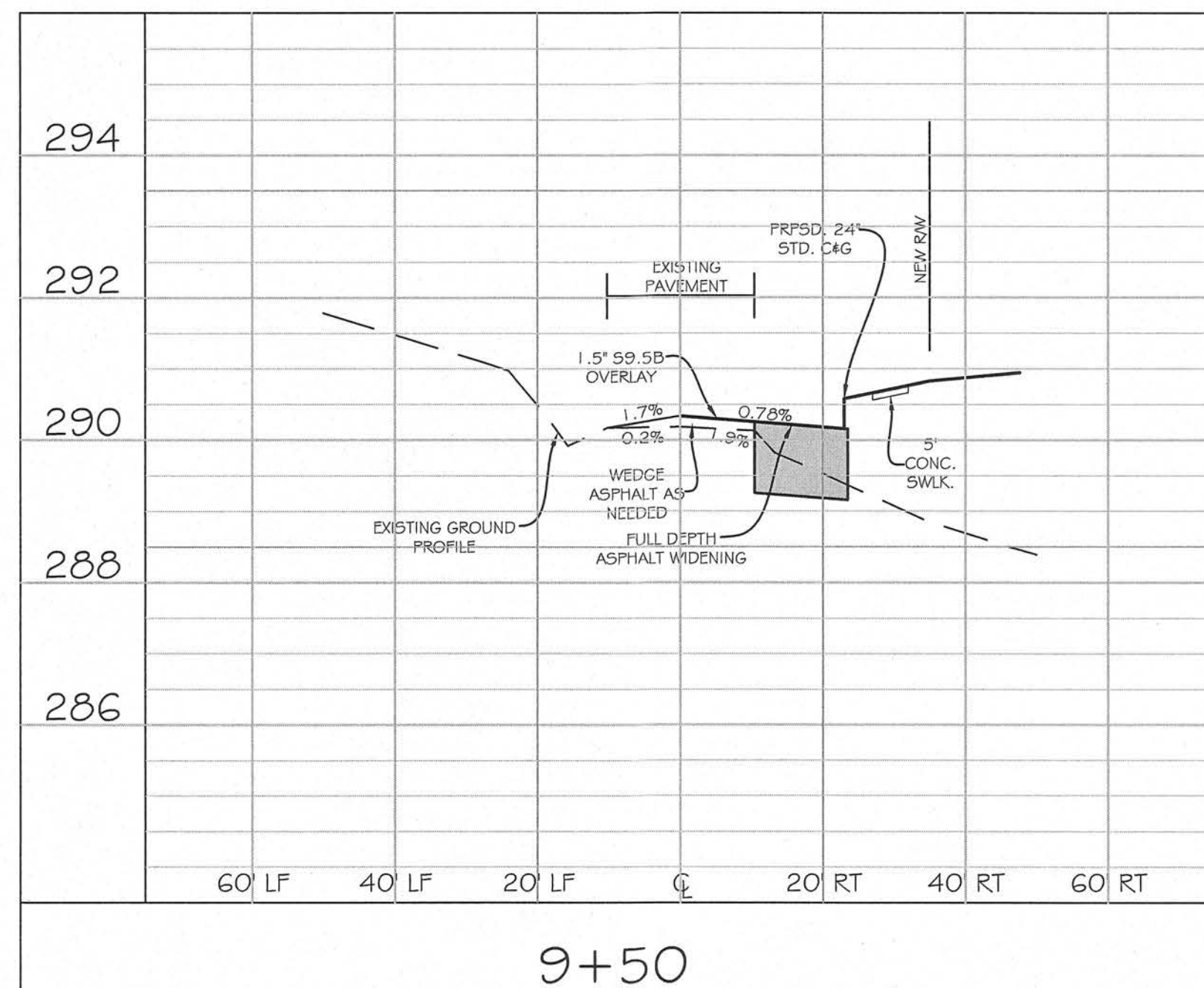
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

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# CROSS SECTIONS - BROADWAY STREET



**NOTES:**

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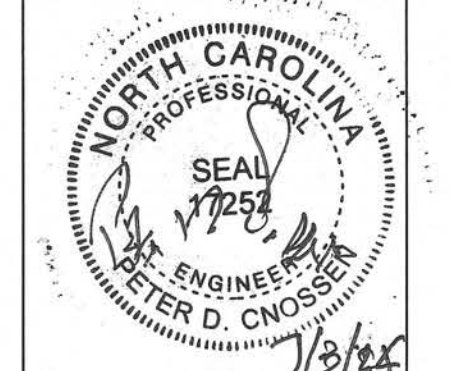
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CAMDEN PARK  
CONSTRUCTION DRAWINGS  
WAKE COUNTY, NORTH CAROLINA

BROADWAY ST. CROSS SECTIONS

SCALE: H=20 V=2 DRAWN: PDC

DATE: FEBRUARY 8, 2024

REVISION: 4/16/24 NCDOT 2nd REVIEW  
07/03/24 NCDOT 3rd REVIEW

SHEET: 13E  
PROJECT: 1516





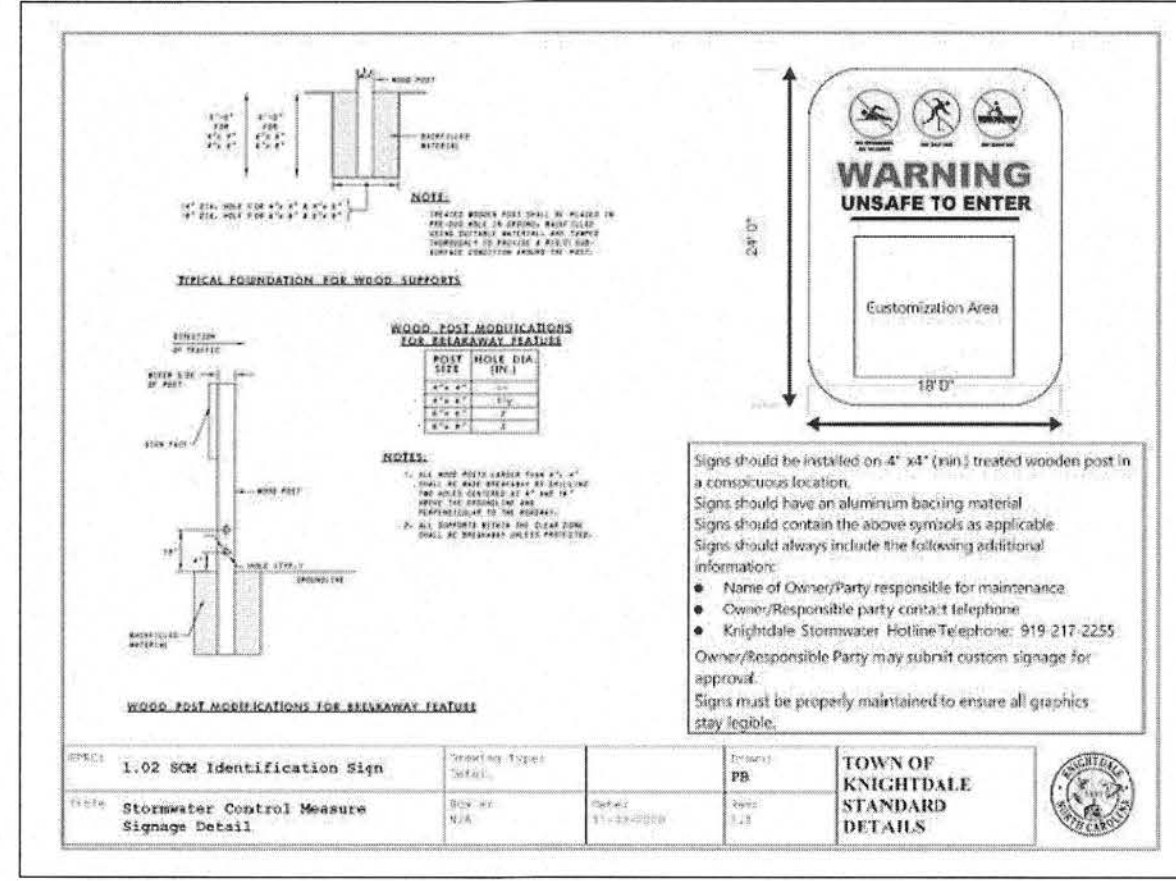
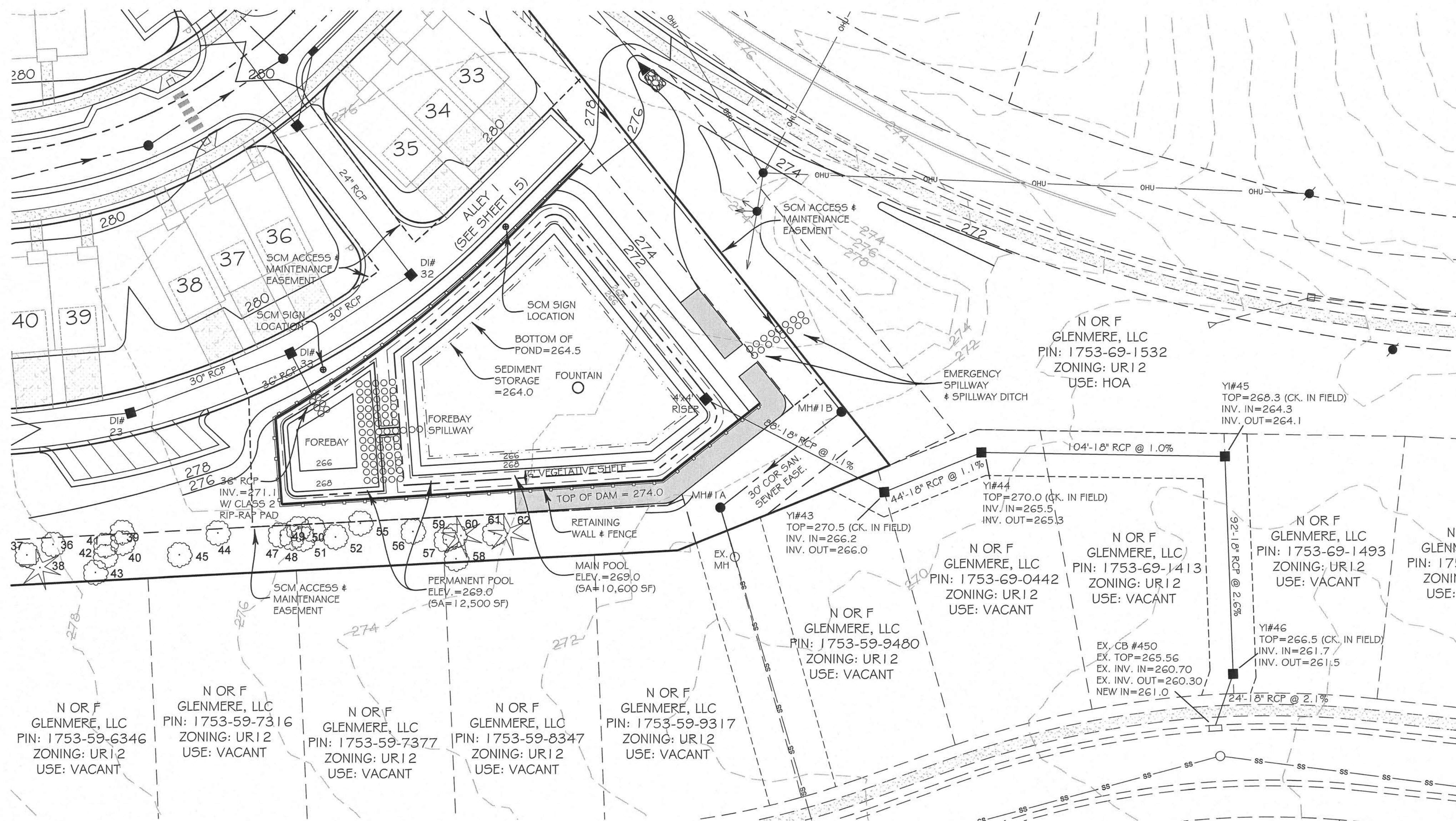












**GENERAL NOTES:**

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- BOUNDARY AND EXISTING CONDITIONS INFORMATION FOR THIS SITE WAS TAKEN FROM DIGITAL FILES PROVIDED BY B. SCOTT LAND SURVEYING.
- TOPOGRAPHIC INFORMATION WAS TAKEN FROM LIDAR SPATIAL DATA.
- THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP 437201753001 EFFECTIVE DATE MAY 2, 2006.
- WETLAND AND NEUSE RIVER BUFFER DELINEATIONS WERE REVIEWED BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST ON THIS SITE.
- THE NEUSE RIVER BUFFER DELINEATION WAS CONFIRMED NOT TO EXIST BY NCDWR (BUFFER DETERMINATION LETTER NBR02 #22-145).
- NO CHANGES TO ANY ASPECT OF THIS DEVELOPMENT PLAN, INCLUDING BUT NOT LIMITED TO LANDSCAPING, GRADING OR UTILITIES, WILL BE MADE WITHOUT THE APPROVAL OF THE TECHNICAL REVIEW COMMITTEE OF THE TOWN OF KNIGHTDALE.
- CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
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- THIS PLAN IS DIAGRAMMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF THE UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
- THIS PROJECT SHALL BE REQUIRED TO ADHERE TO ALL APPLICABLE TOWN OF KNIGHTDALE STORMWATER REQUIREMENTS INCLUDING LIMITING THE POST-DEVELOPMENT RUNOFF EQUAL TO OR LESS THAN PRE-DEVELOPMENT RUNOFF LEVELS FOR THE 1-YEAR, 2-YEAR AND 10-YEAR, 24 HOUR STORM EVENTS.
- A STORMWATER WET POND SHALL BE USED TO MEET THE TOWN OF KNIGHTDALE STORMWATER REQUIREMENTS.
- THE OFF-SITE STORM DRAINAGE OUTFALL WITHIN GLENMERE LOTS WILL REQUIRE RECORDING OF A STORM DRAINAGE EASEMENT. THIS IS EASEMENT SHALL BE RECORDED PRIOR TO CONSTRUCTION DRAWING APPROVAL.

**POND CONSTRUCTION NOTES:**

- THE CONTRACTOR SHALL PREPARE THE ENTIRE FOOTPRINT OF THE POND AREA BY REMOVING ALL ORGANIC TOPSOIL MATERIAL, STONES LARGER THAN 4" IN SIZE OR ANY OTHER UNSUITABLE MATERIAL FOR POND CONSTRUCTION.
- POND FILL MATERIAL SHALL CONSIST OF PREDOMINANTLY CLAY SOILS. A GEOTECHNICAL ENGINEER SHALL BE CONSULTED TO CONFIRM THE SUITABILITY OF THE ON SITE SOILS FOR POND CONSTRUCTION.
- THE CONTRACTOR SHALL KEY THE DAM FILL AREA INTO ORIGINAL GRADE BY AT LEAST 12" AND PLACE FILL MATERIAL FOR THE DAM IN LIFTS OF 8" OR LESS. THE POND DAM SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 95% MAXIMUM DRY DENSITY AS MEASURED BY THE STANDARD PROCTOR METHOD.
- THE OUTLET BARREL SHALL BE PLACED ON A 4" BLOCK AND ENCASED IN FLOWABLE FILL TO THE SPRINGLINE BETWEEN THE RISER AND ANTI-SEEP COLLAR (CONCRETE CRADLE).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE TESTING AND PHOTOGRAPHICAL EVIDENCE DURING PLACEMENT OF THE CONCRETE CRADLE, FILL AND SAND DRAIN. THESE RECORDS SHALL BE MADE AVAILABLE TO THE ENGINEER FOR AS-BUILT REVIEW.

**BASIN REMOVAL / CONVERSION SEQUENCE**

SCM CONVERSION THRESHOLD

WHERE SEDIMENT BASINS ARE TO BE CONVERTED TO STORMWATER CONTROL MEASURES, BASIN CONVERSION SHALL NOT TAKE PLACE UNTIL 70% OF UNITS HAVE BEEN SOLD. ALL BASIN COMPONENTS (SKIMMER, BAFFLES, INLETS, STONE PAD, GROUND COVER, ETC.) AND THE MAINTENANCE OF THE BASIN WILL NEED TO CONTINUE UNTIL THE CONVERSION THRESHOLD IS MET.

REQUIRED CONSTRUCTION SEQUENCE - BASIN REMOVAL

- SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- CONTACT NCDOT - RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDOT-DEMUR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ON SITE. THE EMAIL SHOULD INCLUDE EASC JURISDICTION; TOWN OF KNIGHTDALE; TOK PROJECT NAME; NUMBER AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME AND ADDRESS THE FOLLOWING: A. REASON FOR CONVERSION, B. BASIN #, C. DEWATERING METHOD AND D. ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCGO1 (KEEP EMAIL FOR YOUR OWN MONITORING DOCUMENTATION).
- AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDOT-DEMUR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
- PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON-CLUMPING TURF GRASS (CENTIPEDE / HYBRID BERMUDA).
- INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
- WHEN THE SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION.

NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.

**SCM INSPECTIONS SEQUENCE:**

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATION ASSISTANT AT (919) 217-2250. PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:

- SITE SUPERVISOR
- GEOTECH
- AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM

- KEY TRENCH EXCAVATION
- PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS: a. CONCRETE CRADLE, b. ANTI-SEEP COLLAR, c. SEEPAGE DIAPHRAGM
- OUTLET STRUCTURE
- ANTI-FLOTATION BALLAST
- ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIO-RETENTION DEVICES

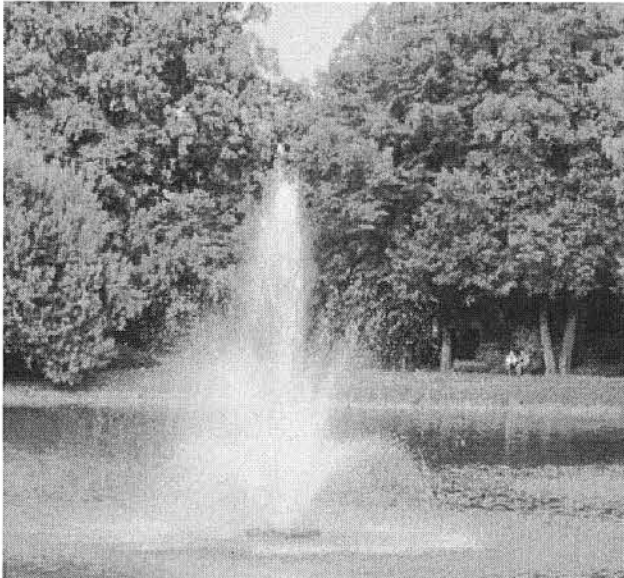
- SUBGRADE OR CONSTRUCTED FOUNDATION
- OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
- FILTER MEDIA
- DAM ITEMS ON PREVIOUS LIST IF APPLICABLE GEOTECHNICAL TESTING AND CERTIFICATION. ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION. REQUIRE GEOTECHNICAL RECORDS INCLUDE:
  - DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
  - MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
  - DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAGM, RELIEF DRAINS, ETC. BEING INSTALLED.

**MDC 9: FOUNTAINS.**  
If fountains are proposed, then documentation shall be provided that they will not resuspend sediment or cause erosion in the pond.

Fountains are optional, decorative wet pond amenities. DEQ advises that fountains be designed as follows:

- The fountain should draw water from fewer than two feet below the permanent pool to avoid resuspending solids.
- Separated units (where the nozzle, pump and intake are connected by tubing) should be used only if they draw water from the surface in the deepest part of the pond.
- The falling water from the fountain should be centered in the pond, away from the shoreline.

Figure 6: Fountain in a Wet Pond



**Aqua Control Evolution 1/2 HP Aerating Pond Fountain**  
\*\*\*\*\* (2)

BY AQUA CONTROL

- Aerates up to 1/2 acre
- 2 spray pattern nozzles included
- Simple plug & play mechanism
- Zero maintenance motor

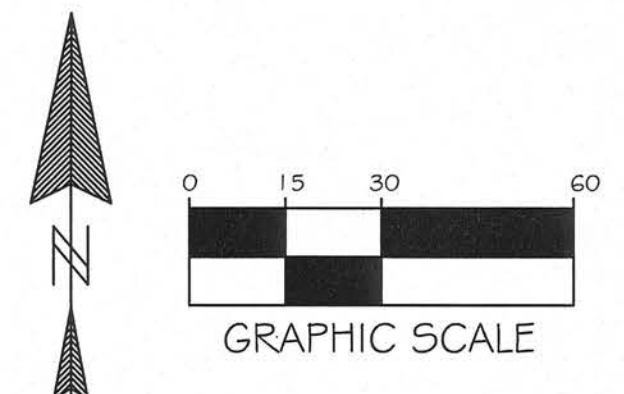
**FOUNTAIN NOTE:**  
THE WET POND FOUNTAIN SHALL MEET THE REQUIREMENTS OF THE STORMWATER DESIGN MANUAL. AN AQUA CONTROL EVOLUTION 1/2 HP AERATING POND FOUNTAIN OR EQUIVALENT SHALL BE USED.

TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

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BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR



**Jones & Crossen ENGINEERING, PLLC**  
Civil Engineering | Construction Management | Land Planning

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**CAMDEN PARK CONSTRUCTION DRAWINGS**  
WAKE COUNTY, NORTH CAROLINA

**WET POND 1 - PLAN VIEW**

TOWN OF KNIGHTDALE

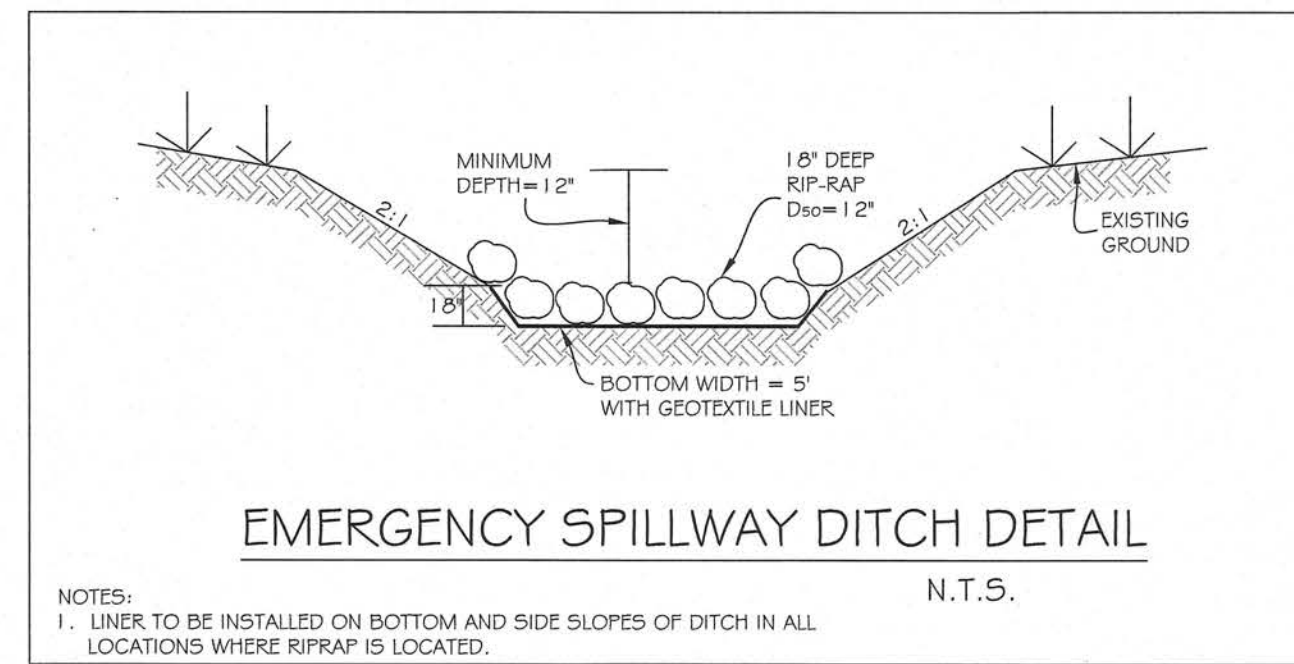
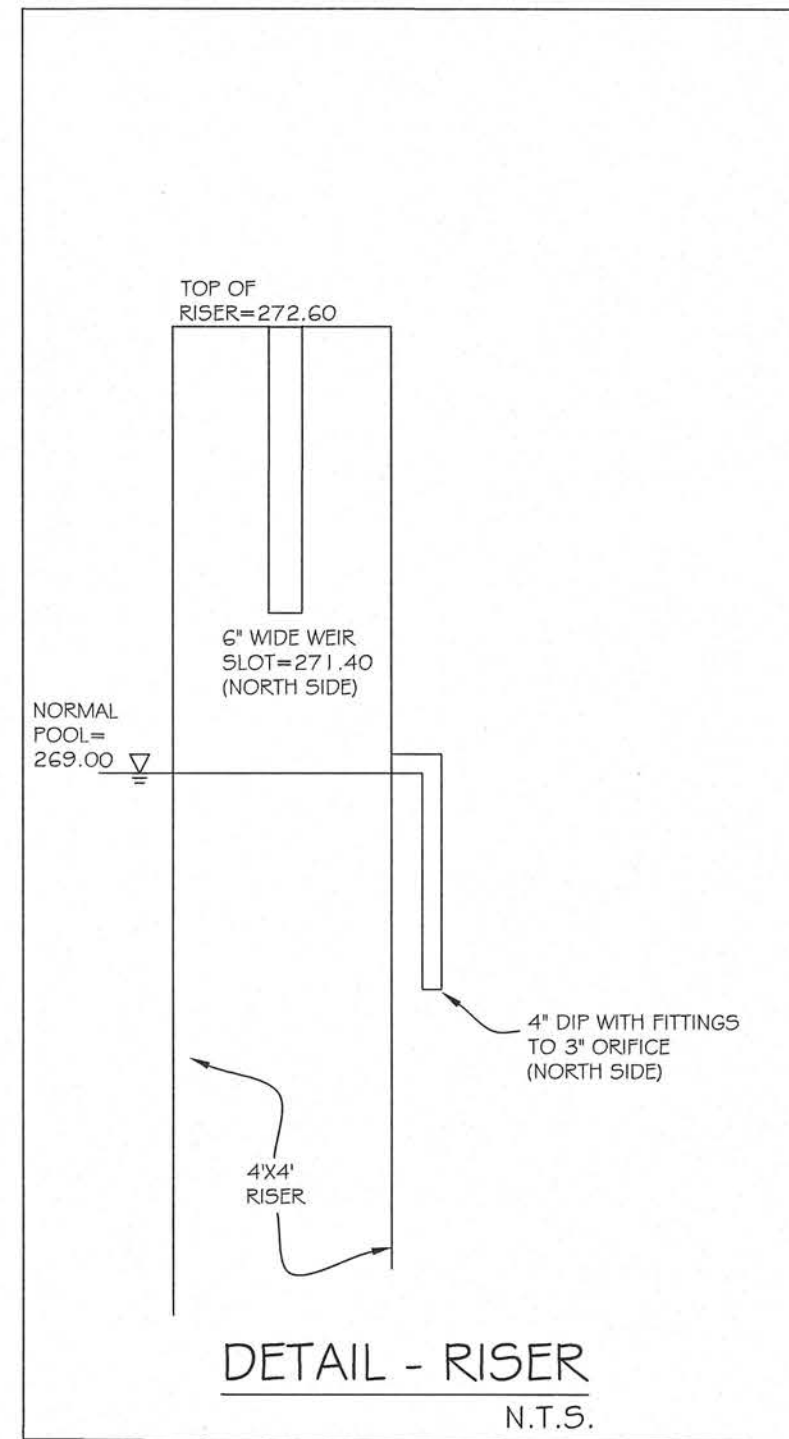
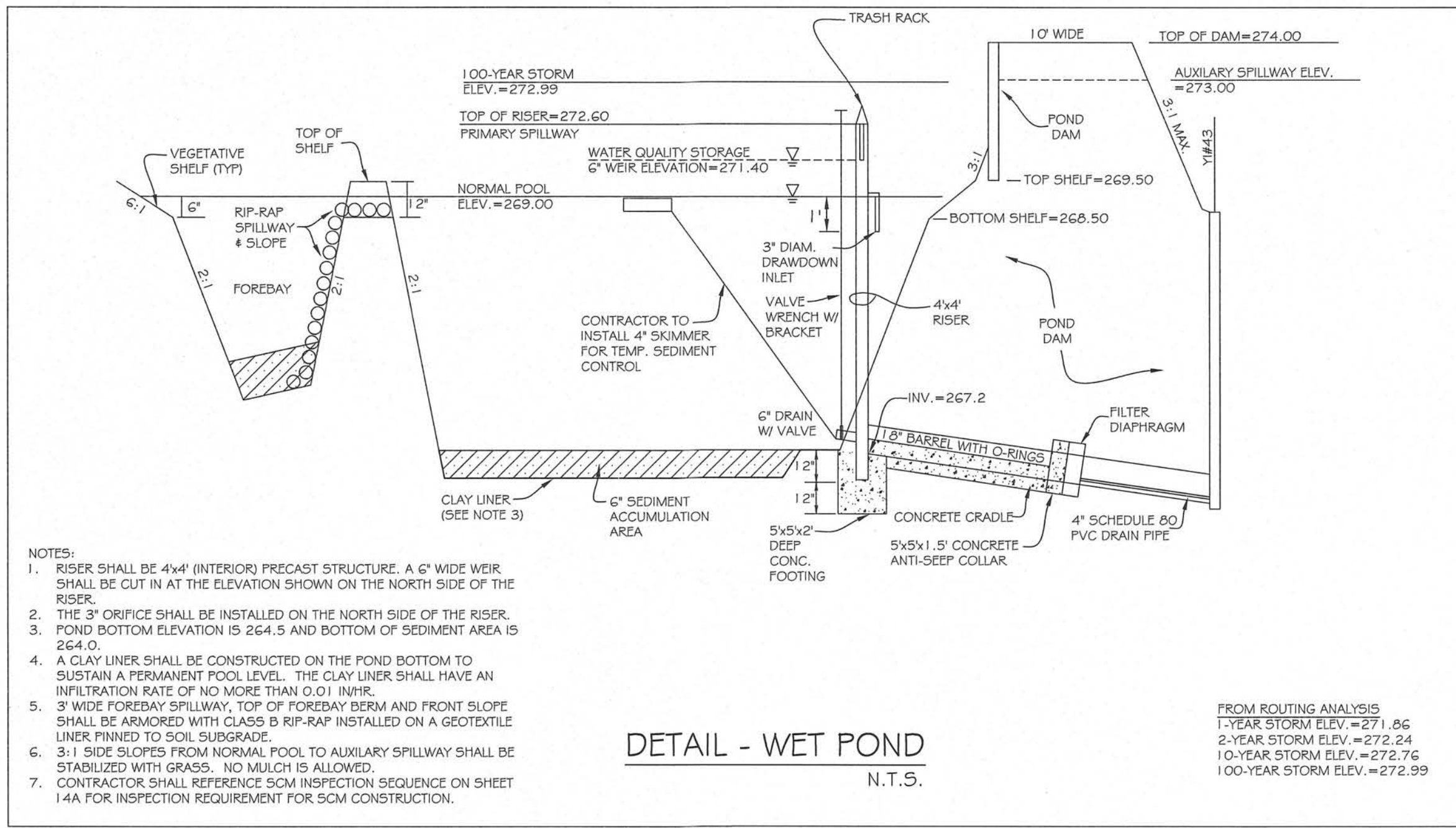
SCALE 1"=30' DRAWN FDC

DATE DECEMBER 5, 2023

REVISION 02/08/24 1st CD COMMENTS  
03/26/24 2nd CD COMMENTS  
07/09/24 NCDOT 3rd REVIEW

SHEET 17A  
PROJECT 1516



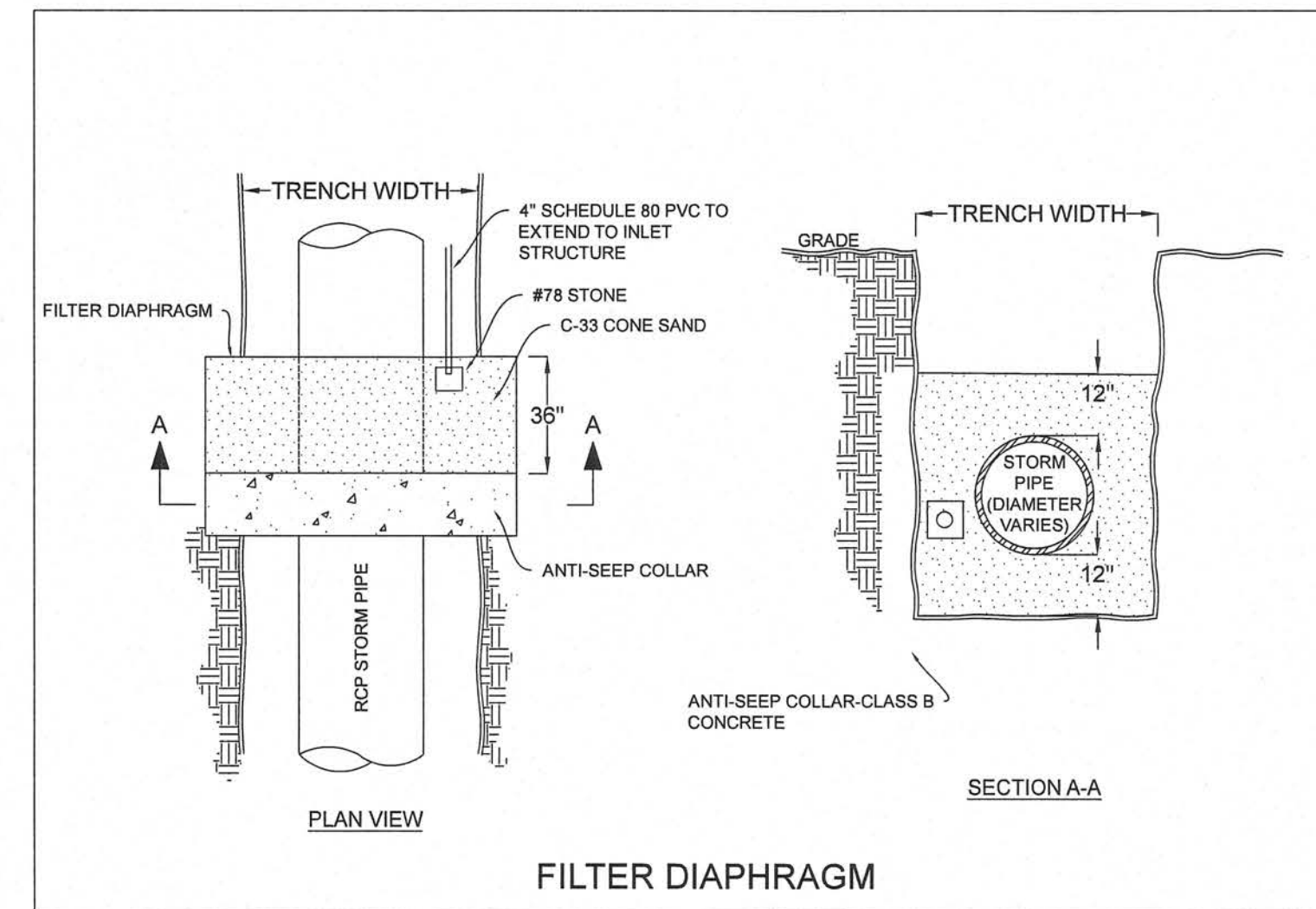
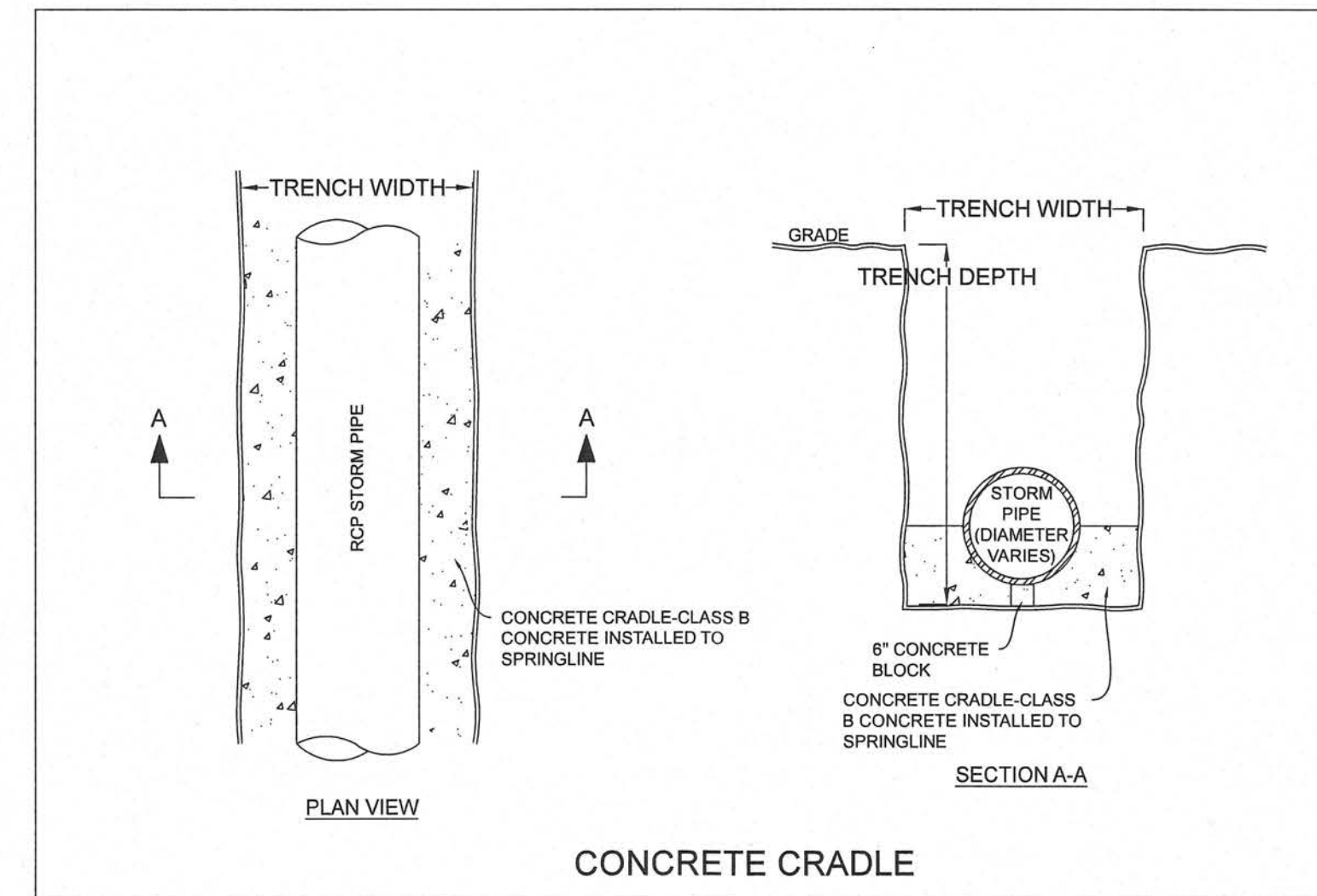
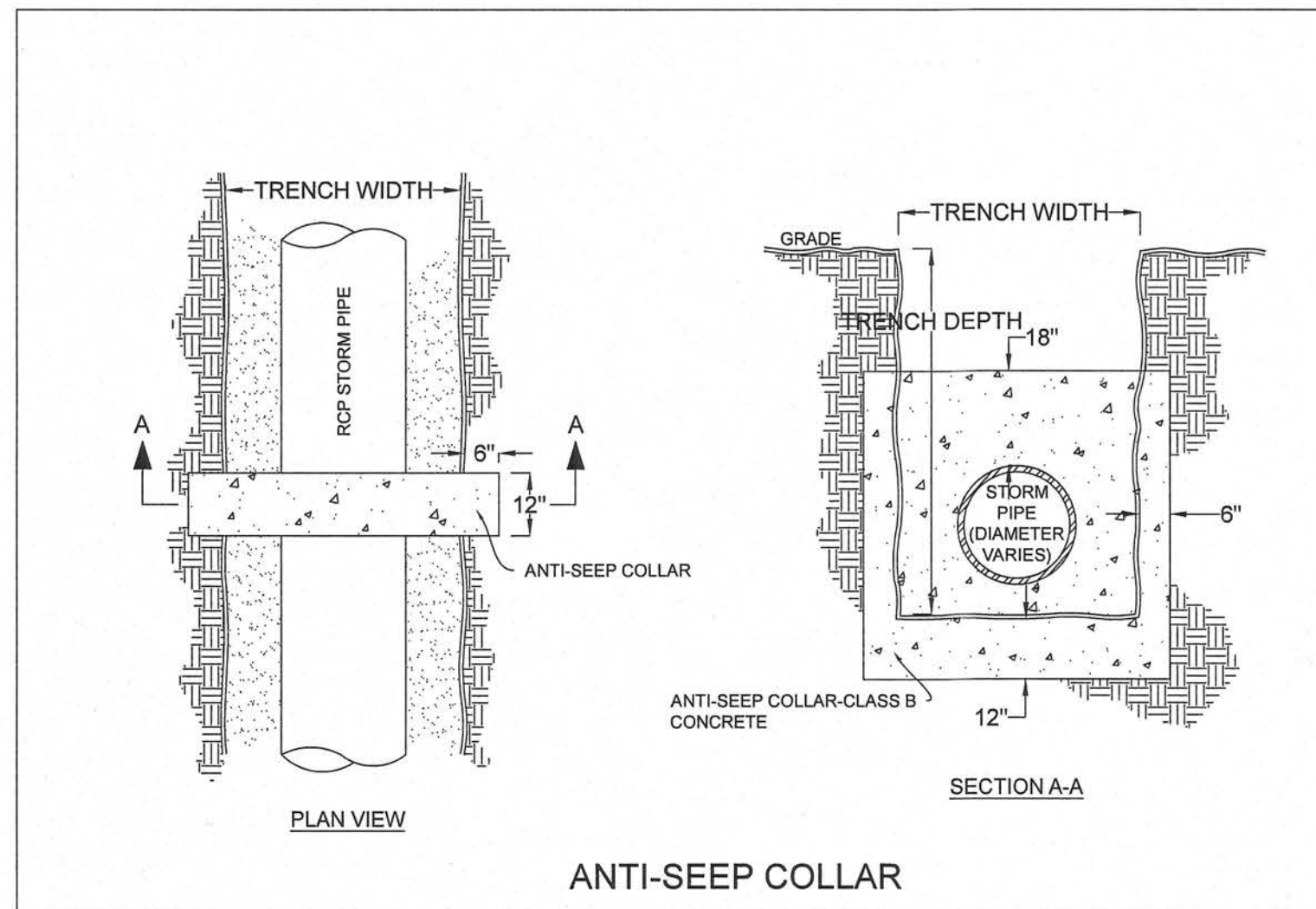
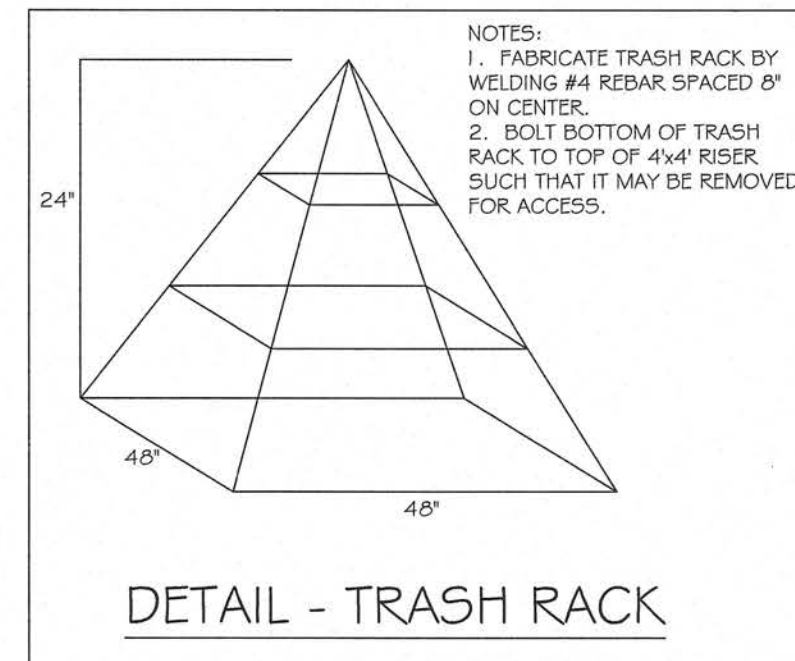
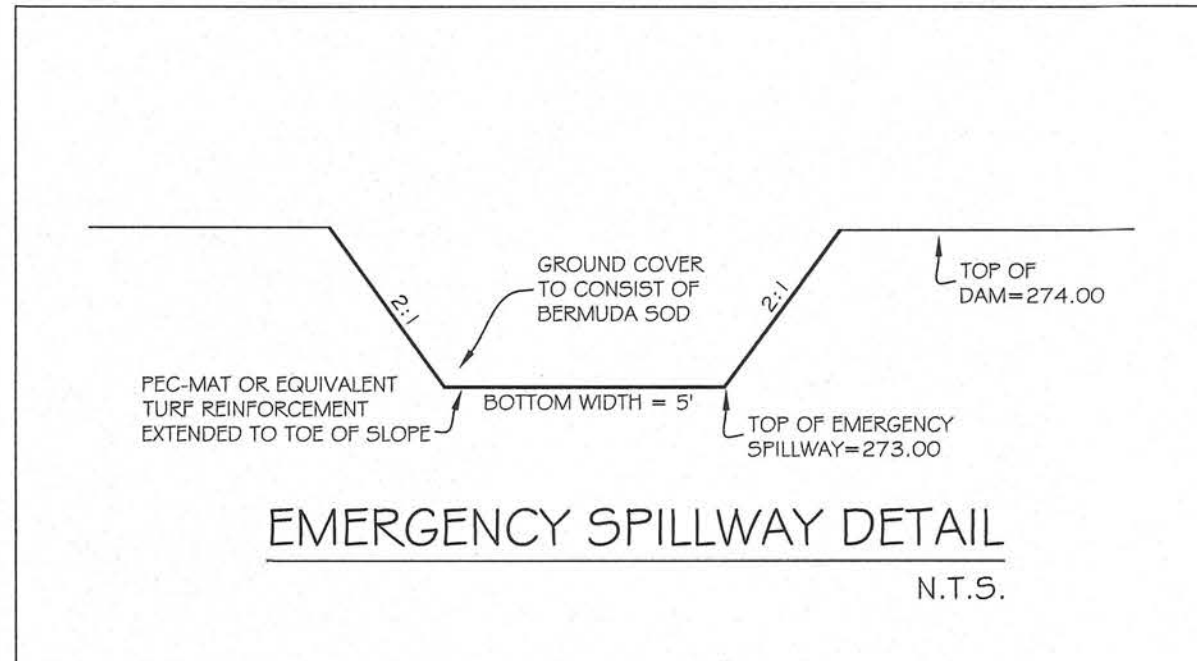


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3. TOPOGRAPHIC INFORMATION WAS TAKEN FROM LIDAR SPATIAL DATA.
4. THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAP #3720175300 (EFFECTIVE DATE MAY 2, 2006).
5. WETLAND AND NEUSE RIVER BUFFER DELINEATIONS WERE REVIEWED BY TERRACON CONSULTANTS, INC. AND DETERMINED NOT TO EXIST ON THIS SITE.
6. THE NEUSE RIVER BUFFER DELINEATION WAS CONFIRMED NOT TO EXIST BY NCDWR (BUFFER DETERMINATION LETTER NDRRO #22-145).
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10. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRICAL, GAS, CABLE TV AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVEMENT.
11. THIS PLAN IS DIAGRAMMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF THE UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
12. THIS PROJECT SHALL BE REQUIRED TO ADHERE TO ALL APPLICABLE TOWN OF KNIGHTDALE STORMWATER REQUIREMENTS INCLUDING LIMITING THE POST-DEVELOPMENT RUNOFF EQUAL TO OR LESS THAN PRE-DEVELOPMENT RUNOFF LEVELS FOR THE 1-YEAR, 2-YEAR AND 10-YEAR, 24 HOUR STORM EVENTS.
13. A STORMWATER WET POND SHALL BE USED TO MEET THE TOWN OF KNIGHTDALE STORMWATER REQUIREMENTS.
14. THE OFF-SITE STORM DRAINAGE OUTFALL WITHIN GLENMERE LOTS WILL REQUIRE RECORDING OF A STORM DRAINAGE EASEMENT. THIS IS EASEMENT SHALL BE RECORDED PRIOR TO CONSTRUCTION DRAWING APPROVAL.
15. ALL CONCRETE STRUCTURES SHALL HAVE A MINIMUM STRENGTH OF 3,000 PSI.



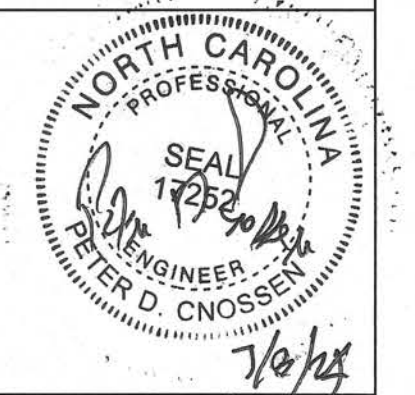
TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LAND USE ADMINISTRATOR

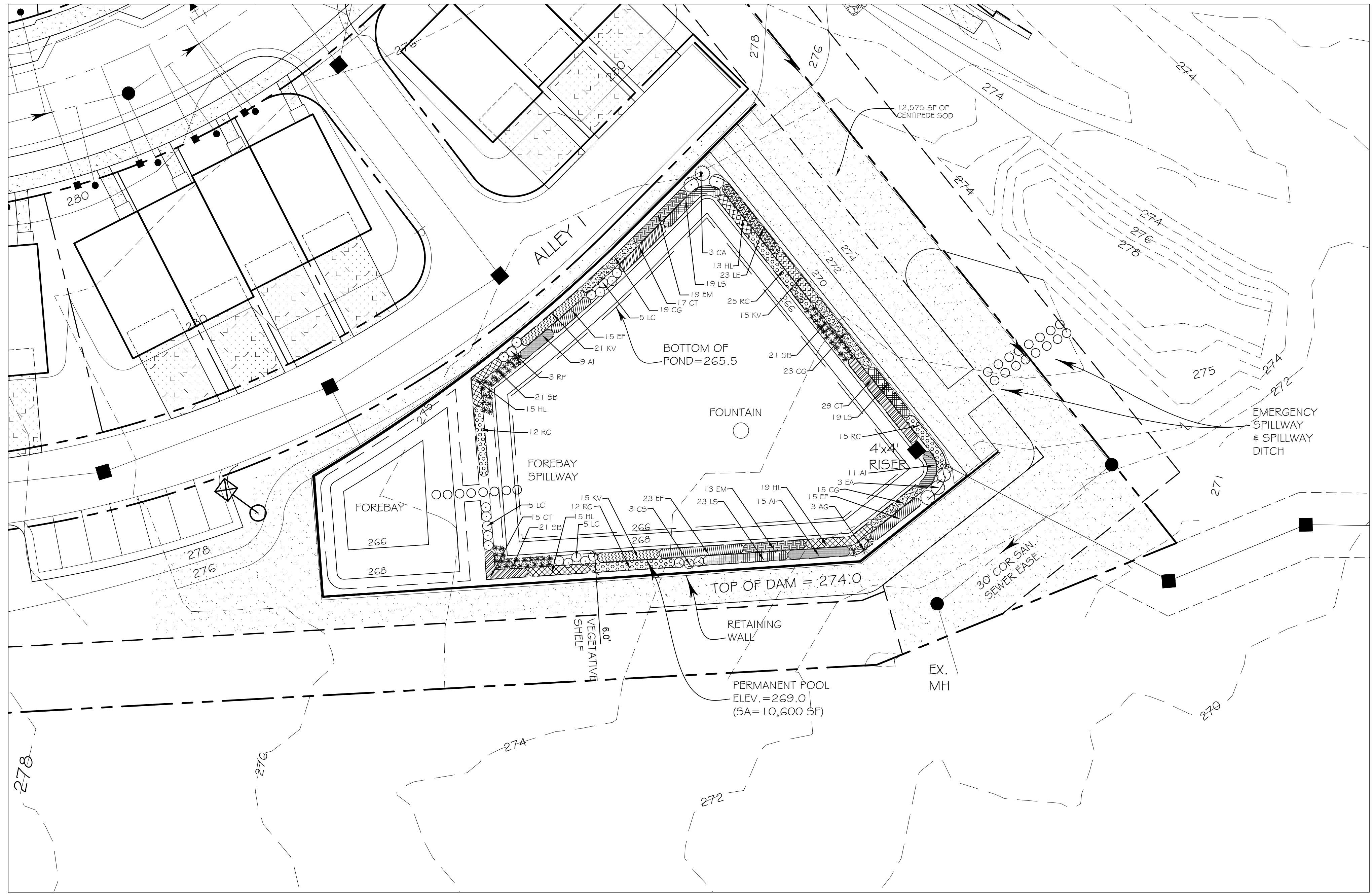
221 N. SALEM ST.  
 SUITE 001  
 PO BOX 1062  
 APEX, NC 27502  
 Office: 919-387-1174  
 Registration: P-0151  
 www.jonescrossen.com



CAMDEN PARK  
 CONSTRUCTION DRAWINGS  
 WAKE COUNTY, NORTH CAROLINA  
 TOWN OF KNIGHTDALE  
 WET POND 1 - PROFILE VIEW

SCALE	NTS	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	02/08/24	1st REVIEW	COMMENTS
	03/26/24	2nd CD	COMMENTS
	07/09/24	NCDOT	3rd REVIEW
SHEET	17B		
PROJECT	1516		



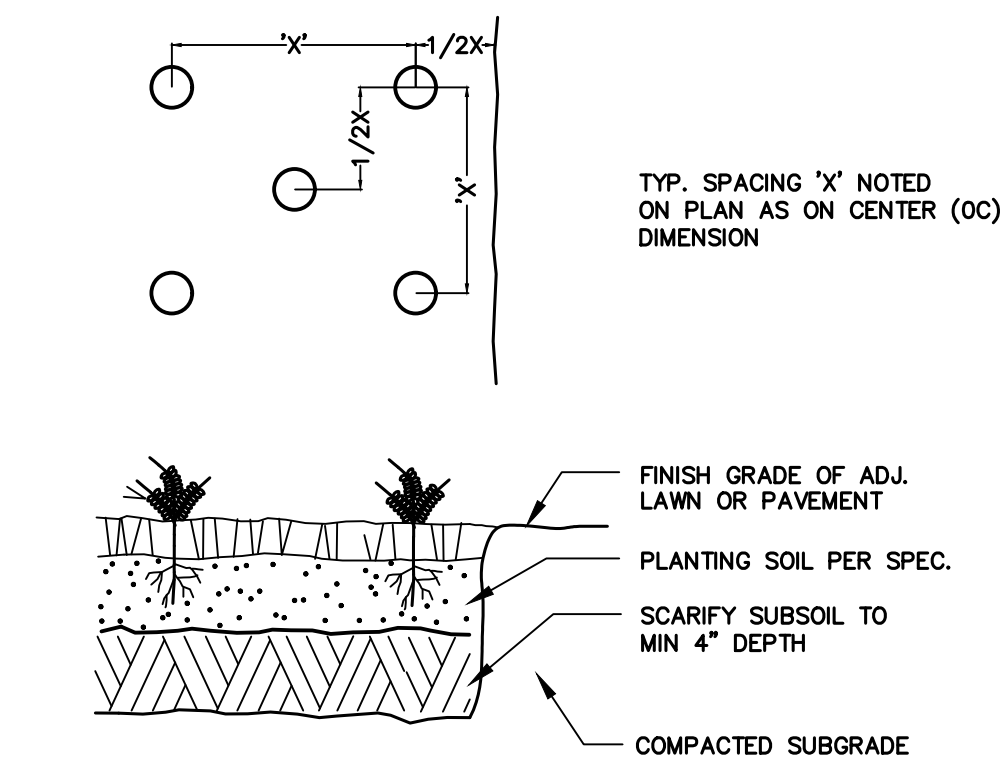


- GENERAL NOTES:**
1. ALL CONSTRUCTION TO CONFORM TO TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
  2. CONTRACTOR TO LOCATE AND VERIFY ALL UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES. CALL NC ONE CALL AT 919-465-4090 FOR LOCATION OF UNDERGROUND UTILITIES.
  3. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES.

- LANDSCAPE NOTES:**
1. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF UTILITIES PRIOR TO INSTALLATION.
  2. ALL PLANT MATERIAL TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. THE PLANT MATERIAL MUST STAY MOIST AT ALL TIMES FROM THE TIME IT LEAVES THE NURSERY UNTIL IT IS PLANTED.
  3. LOCATION OF PLANT MATERIAL TO BE REVIEWED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
  4. ALL CONSTRUCTION TO CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
  5. ALL PLANTS TO BE COMPACT, UNIFORM AND WELL GROWN.
  6. GRAPHIC DEPICTION SUPERCEEDS QUANTITIES LISTED IN PLANT LIST AND PLANT LABELS.
  7. ALL TREES SHOULD BE PLANTED IN THE FALL, FROM SEPTEMBER TO DECEMBER.
  8. ALL WETLAND SPECIES SHOULD BE PLANTED IN THE LATE SPRING FROM MARCH TO JUNE.
  9. DURING THE FIRST GROWING SEASON, THE HERBACEOUS PLANTS MAY BE SUBJECT TO DEPREDATION, IF THERE ARE KNOWN FLOCKS OF DUCKS OR GEESE IN THE AREA, PRECAUTIONS MUST BE TAKEN TO INSURE PLANTS SURVIVAL. PLEASE CONTACT LANDSCAPE ARCHITECT FOR INFORMATION IF NEEDED.
  10. THE LANDSCAPE ARCHITECT AND A LICENSED SOIL SCIENTIST TO BE ON-SITE PRIOR TO THE EXCAVATION OF POND. APPROPRIATE SOIL SHOULD BE IDENTIFIED BY THE LANDSCAPE ARCHITECT OR SOIL SCIENTIST.
  11. WHEN POND IS UNDER EXCAVATION, THE SOIL IN THE MIDDLE OF THE SWALE SHOULD BE STOCKPILED AND USED AS TOPSOIL FOR THE VEGETATED SHELF. THIS SAME EXCAVATED SOIL SHOULD BE USED AS BACKFILL FOR THE TREES, OR AMENDED SOIL SHOULD BE USED.
  12. THE VEGETATED SHELF SHOULD BE OVER-EXCAVATED BY 9-12" AND AMENDED WITH ABOVE MENTIONED SOIL FROM THE UPPER 9-12" FROM THE CENTER OF THE SWALE.

- INSPECTION AND MAINTENANCE SCHEDULE**
1. IMMEDIATELY AFTER THE WET DETENTION BASIN IS ESTABLISHED, THE PLANTS OF THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF NEEDED, UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS.)
  2. NO PORTION OF THE WET DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED SHELF. FERTILIZER USED SHOULD BE A SLOW RELEASE FERTILIZER SUCH AS AN AGRI-FORM TABLET OR APPROVED EQUAL.
  3. STABLE GROUND COVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE WET DETENTION BASIN.
  4. IF THE BASIN MUST BE DRAINED FOR AN EMERGENCY OR TO PERFORM MAINTENANCE, THE FLUSHING OF SEDIMENT THROUGH THE EMERGENCY DRAIN SHOULD BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICAL.
  5. ONCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT.
  6. AFTER THE WET DETENTION POND IS ESTABLISHED, IT SHOULD BE INSPECTED ONCE A MONTH AND WITHIN 24 HOURS AFTER EVERY STORM EVENT GREATER THAN 1.0 INCHES. RECORDS OF INSPECTION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

- PLANTING NOTES:**
1. All plant materials to comply with American Standard for Nursery Stock ANSI Z60.
  2. Plant locations to be approved in field prior to installation.
  3. Substitutions of plant materials specified can only occur with prior approval by Landscape Architect.
  4. Establish plant bed configurations. Landscape Architect to approve bed layout in field.
  5. Install plants and mulch beds with 4" of pine straw.
  6. Areas disturbed by grading to be seeded and strawed.
  7. Landscape Contractor to maintain plant materials for a one year period following substantial completion per specifications.
  8. Areas damaged from plant relocation or other activities of Landscape Contractor to be re-seeded and established at no additional cost to the owner.
  9. All plant material shown is minimum required by the Town Code.



**1 LA-2 GROUND COVER PLANTING**  
NTS

**PLANT SCHEDULE**

KEY	#	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING ( <sup>1/4</sup> " ref. detail above)	PLANTING SEASON	
SW	EM	32	EUPATORIADELPHUS MACULATUS / SPOTTED TRUMPETWEED	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	CT	61	CAREX TENERA / QUILL SEDGE	24" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	CG	57	CHELONE GLABRA / WHITE TURTLEHEAD	6" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	HL	62	HIBISCUS LAEVIS / HALBERDLAF ROSEMALLOW	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	EF	53	EUPATORIADELPHUS FISTULOSUS / JOE PYE WEED	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	KV	51	KOSTELETZKYA VIRGINICA / SEASHORE MALLOW	12" HT.	1 QT. POTS	2' O.C.	LATE SPRING
SW	AI	35	ASCLEPIAS INCARNATA / SWAMP MILKWEED	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	LC	15	LOBELIA CARDINALIS / CARDINAL FLOWER	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	LE	23	LOBELIA ELONGATA / LONGLEAF LOBELIA	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	LS	61	LOBELIA SIPHILITICA / GREAT BLUE LOBELIA	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	RC	64	RHYNCHOSPORA COLORATA / STARRUSH WHITETOP	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SW	SB	63	SACCHARUM BALDWINII / NARROW PLUMEGRASS	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SL	RP	3	ROSA PALUSTRIS / SWAMP ROSE	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SL	AG	3	ANDROPOGON GLOMERATUS / BUSHY BEARD GRASS	12" HT.	1 QT. POTS	4' O.C.	FALL
SL	EA	3	ERYNGIUM AQUATICUM / MARSH SEA HOLLY	12" HT.	1 QT. POTS	3' O.C.	LATE SPRING
SL	CS	3	CORNUS STOLONIFERA / RED OSIER DOGWOOD	12" HT.	CONT.	3' O.C.	FALL
SL	CA	3	CLETHRA ALNIFOLIA / SUMMERSWEET	24" HT.	CONT.	8' O.C.	FALL

SW SHALLOW WATER  
SL SHALLOW LAND  
VEGETATIVE SHELF AREA = 2,283 SF, 50 PLANTS / 200 SF  
2,283 SF / 200 = 11.42 X 50 = 571 SW PLANTS REQUIRED; 577 SW PLANTS PROVIDED.  
571 SW PLANTS PROVIDED AND 15 SL PLANTS PROVIDED = 586 TOTAL PLANTS PROVIDED.

TOWN APPROVED STANDARDS SHALL CONTROL. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THESE CONSTRUCTION DRAWINGS AND THE TOWN OF KNIGHTDALE'S APPROVED STANDARDS FOR THIS PROJECT, THE APPROVED STANDARDS SHALL CONTROL. TOWN OF KNIGHTDALE APPROVED STANDARDS SHALL MEAN ALL DEVELOPMENT DOCUMENTS NECESSARY FOR APPROVAL FOR THE PROPERTY INCLUDING, BUT NOT LIMITED TO, ANY SPECIAL USE PERMIT, SUBDIVISION PLAN, SITE PLAN, SUBDIVISION PLAT(S), PHASING SCHEDULE, DEVELOPMENT AGREEMENT, UTILITY ALLOCATION AGREEMENT, ANNEXATION AGREEMENT, THE TOWN OF KNIGHTDALE STANDARD SPECIFICATION AND DETAILS MANUAL AND APPLICABLE PROVISIONS OF THE NORTH CAROLINA STATE BUILDING CODE.

TOWN CERTIFICATION, THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

**SCM WET POND #1**

**Jones & Crossen**  
ENGINEERING, PLLC  
Civil Engineering | Construction Management | Land Planning

**Coaly**  
DESIGN  
LANDSCAPE ARCHITECTURE  
LAND PLANNING  
337 E. Morris Street  
Raleigh, NC 27601  
919.530.0012

**CAMDEN PARK**  
WET POND #1  
CONSTRUCTION DRAWINGS  
KNIGHTDALE, NC

**Professional Seals**

**Revisions**

No.	Description	Date	By
1	Town Comments	2.2.24	KJS
2	Town Comments	3.25.24	KJS

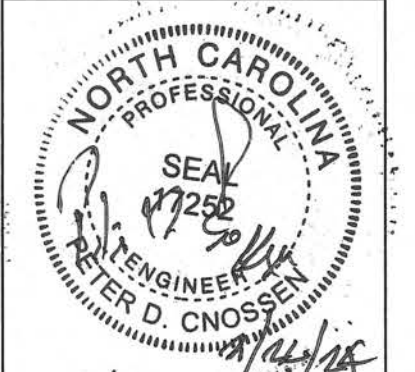
Date Issued: 11.9.23  
Scale: 1"=20'  
Drawn by: RAP  
Checked by: KJS

**LA-2**



ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

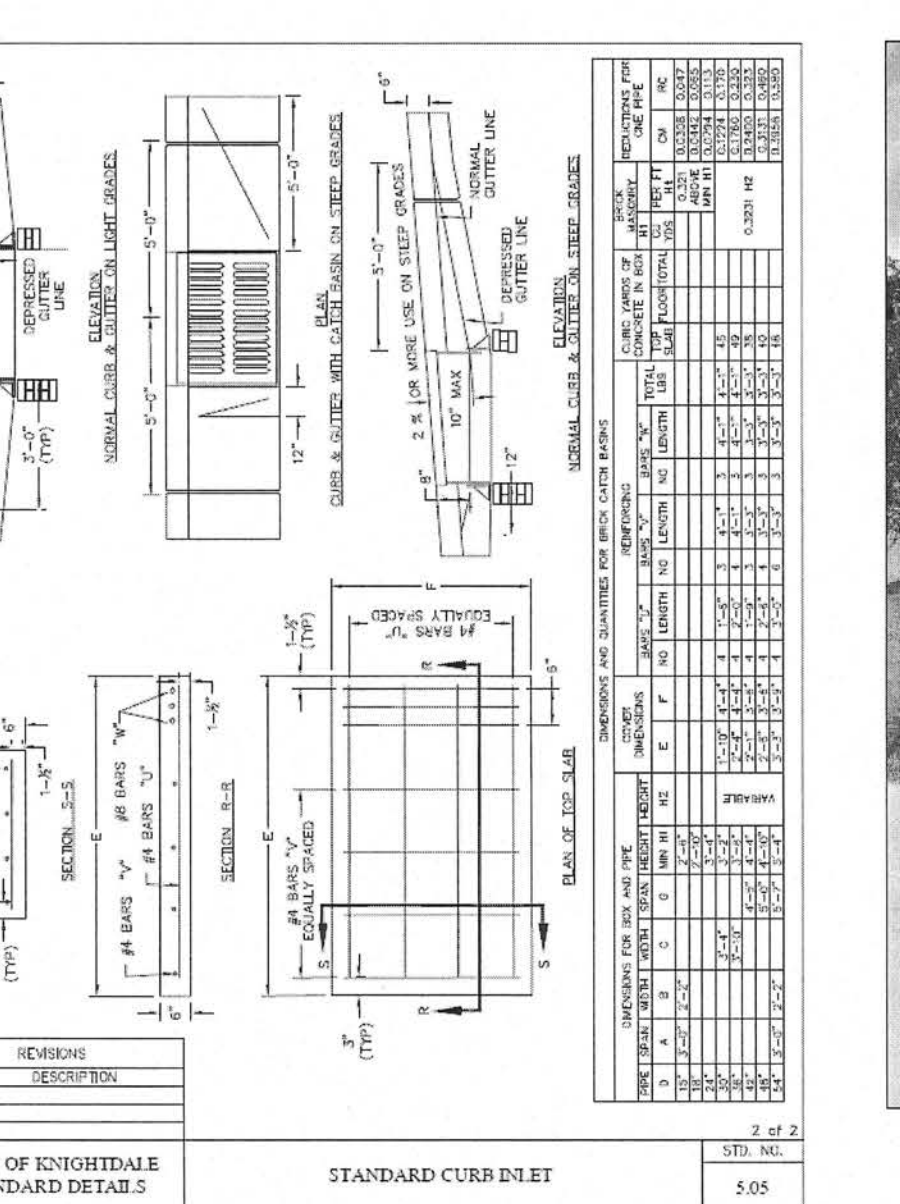
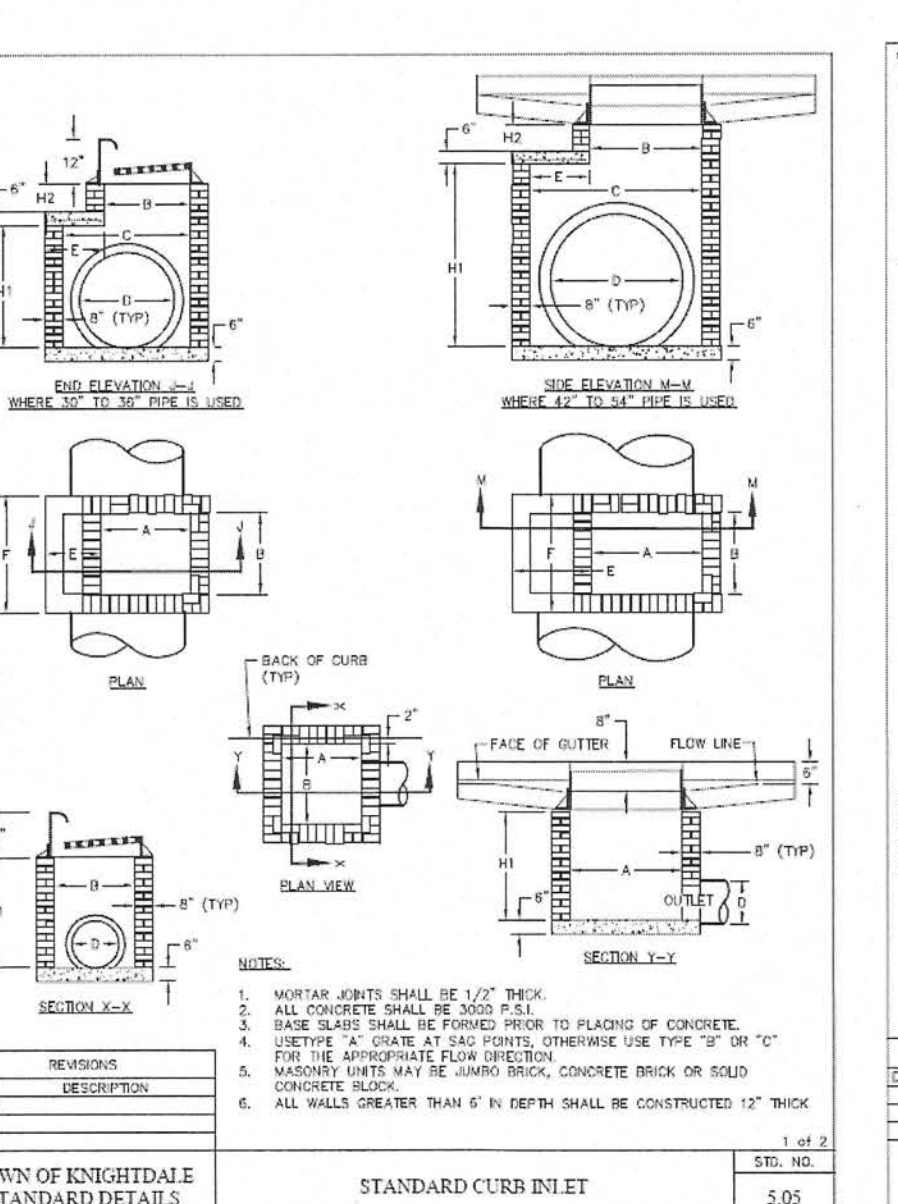
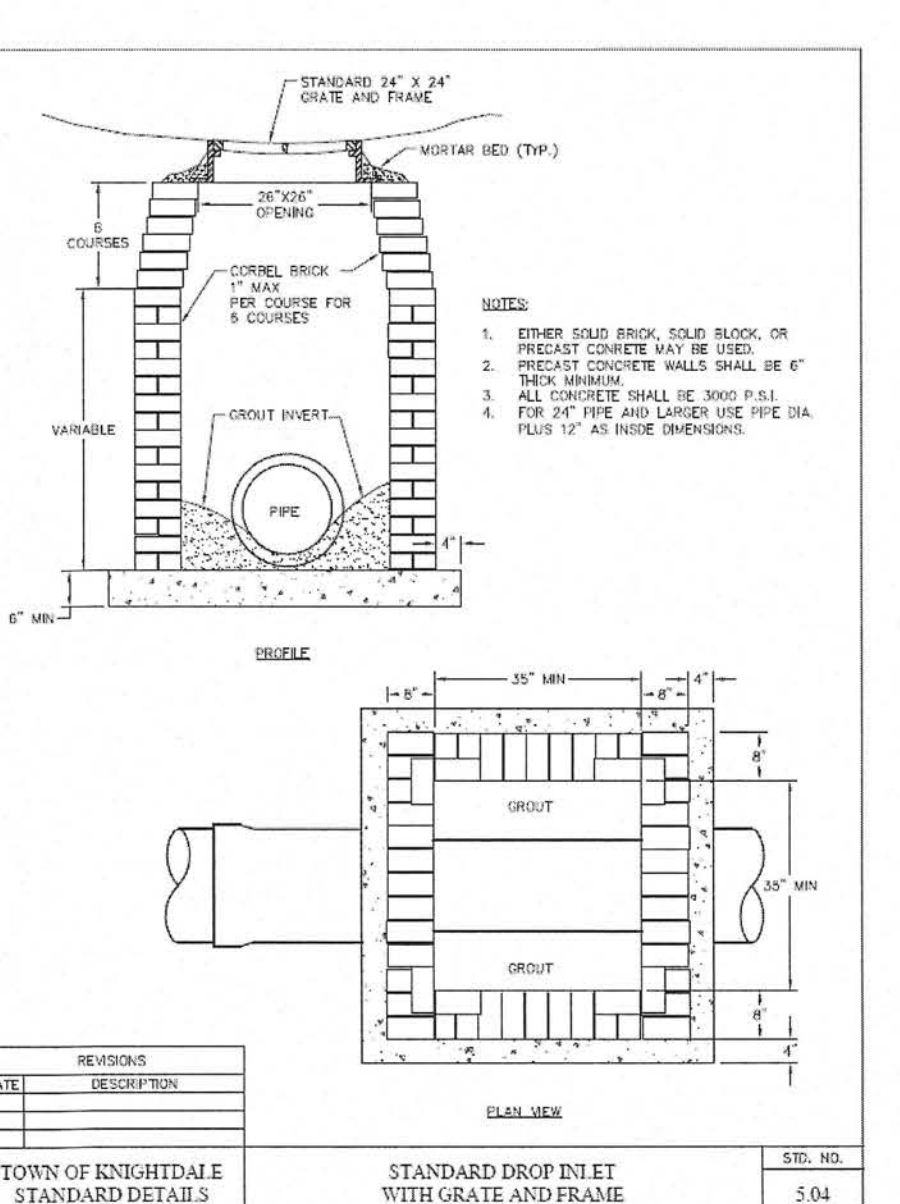
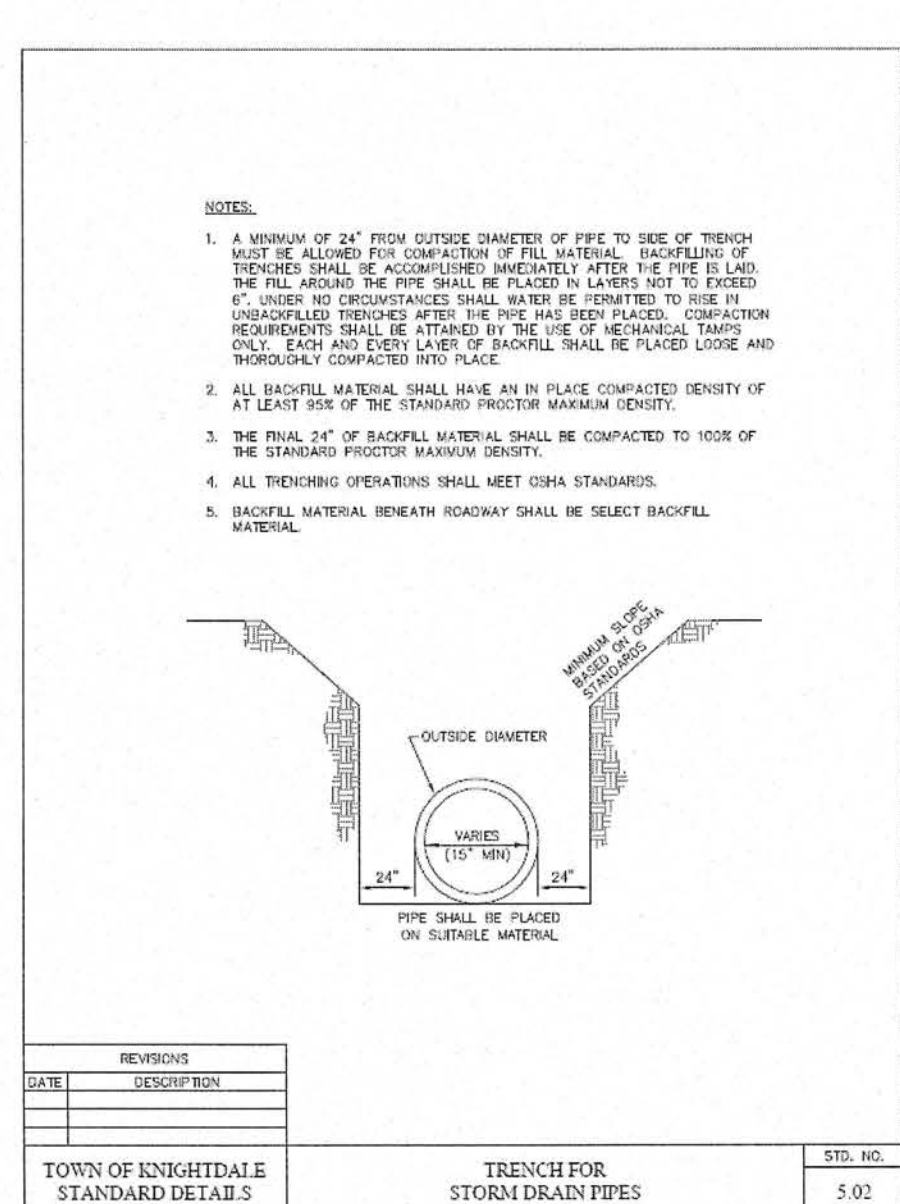
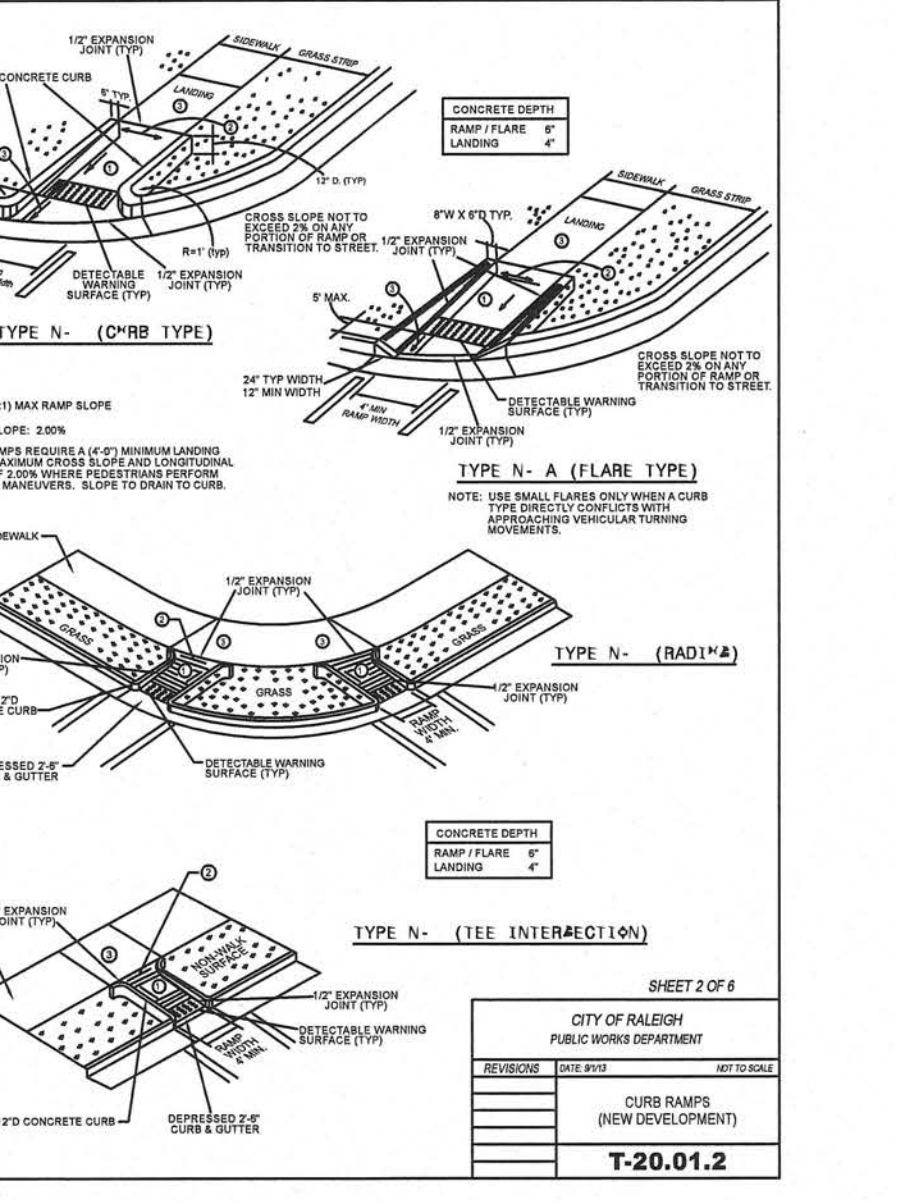
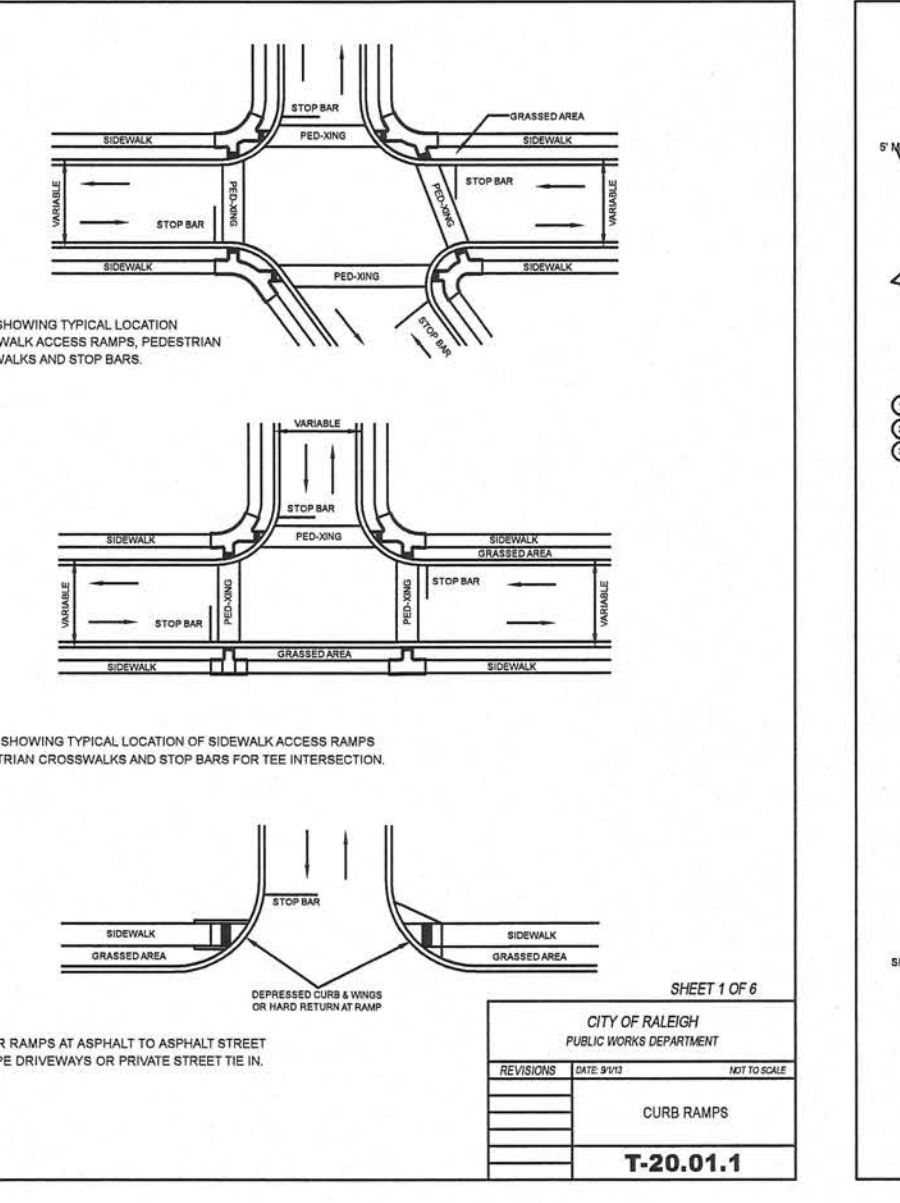
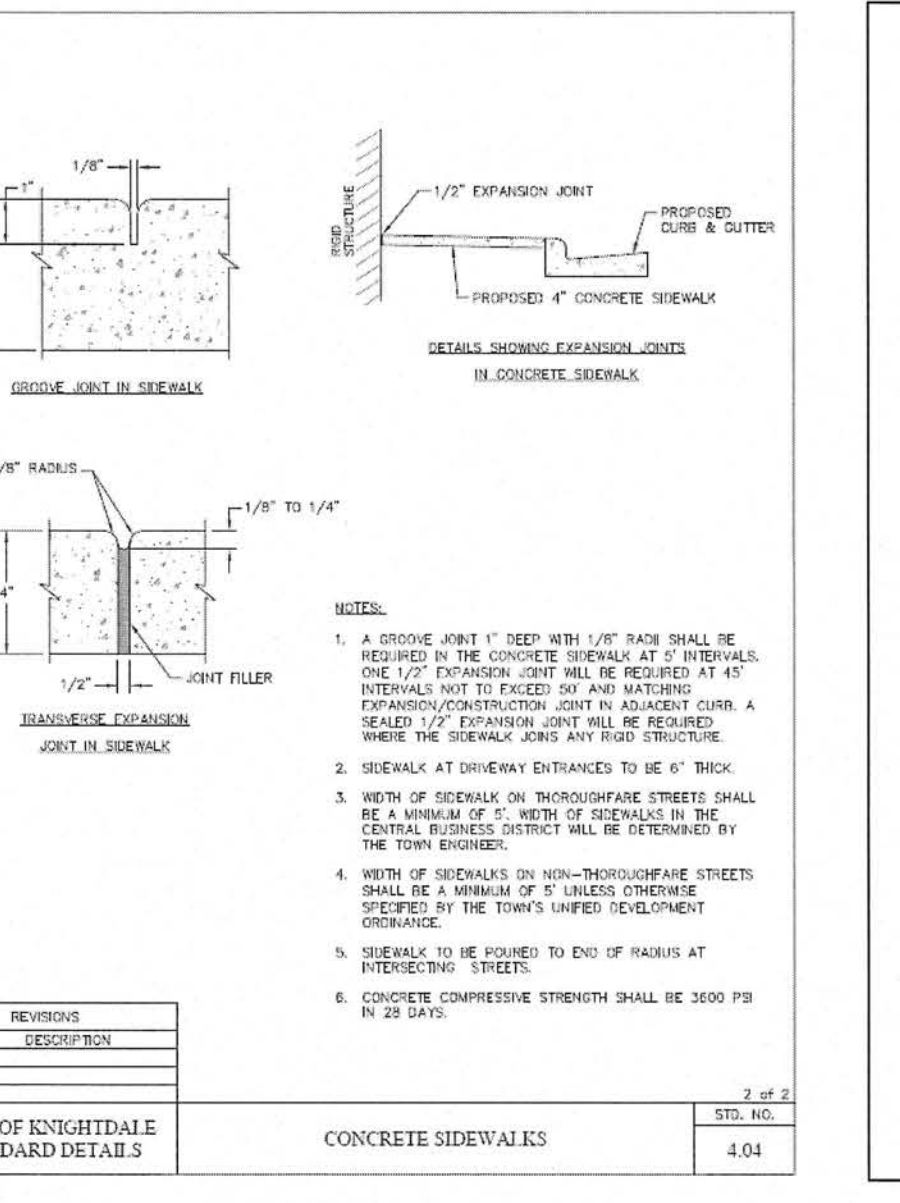
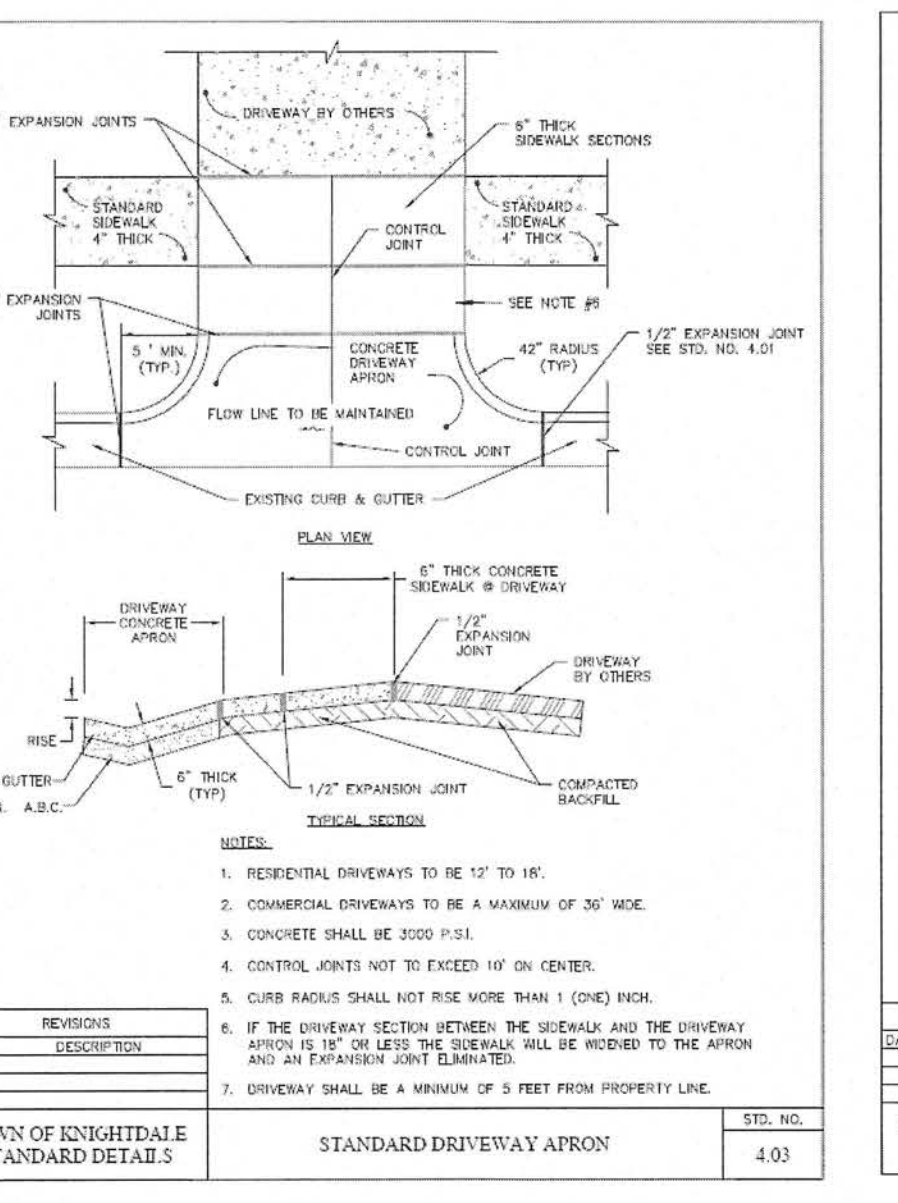
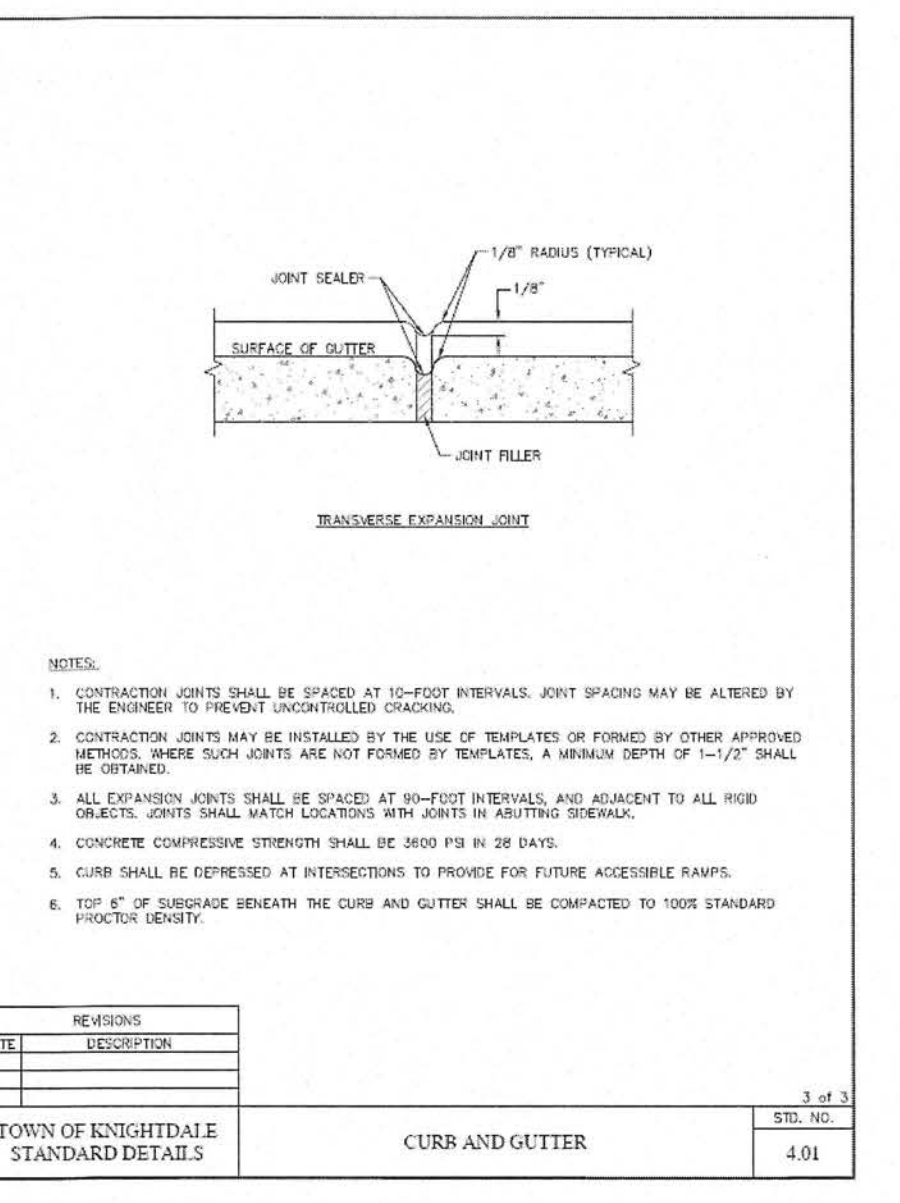
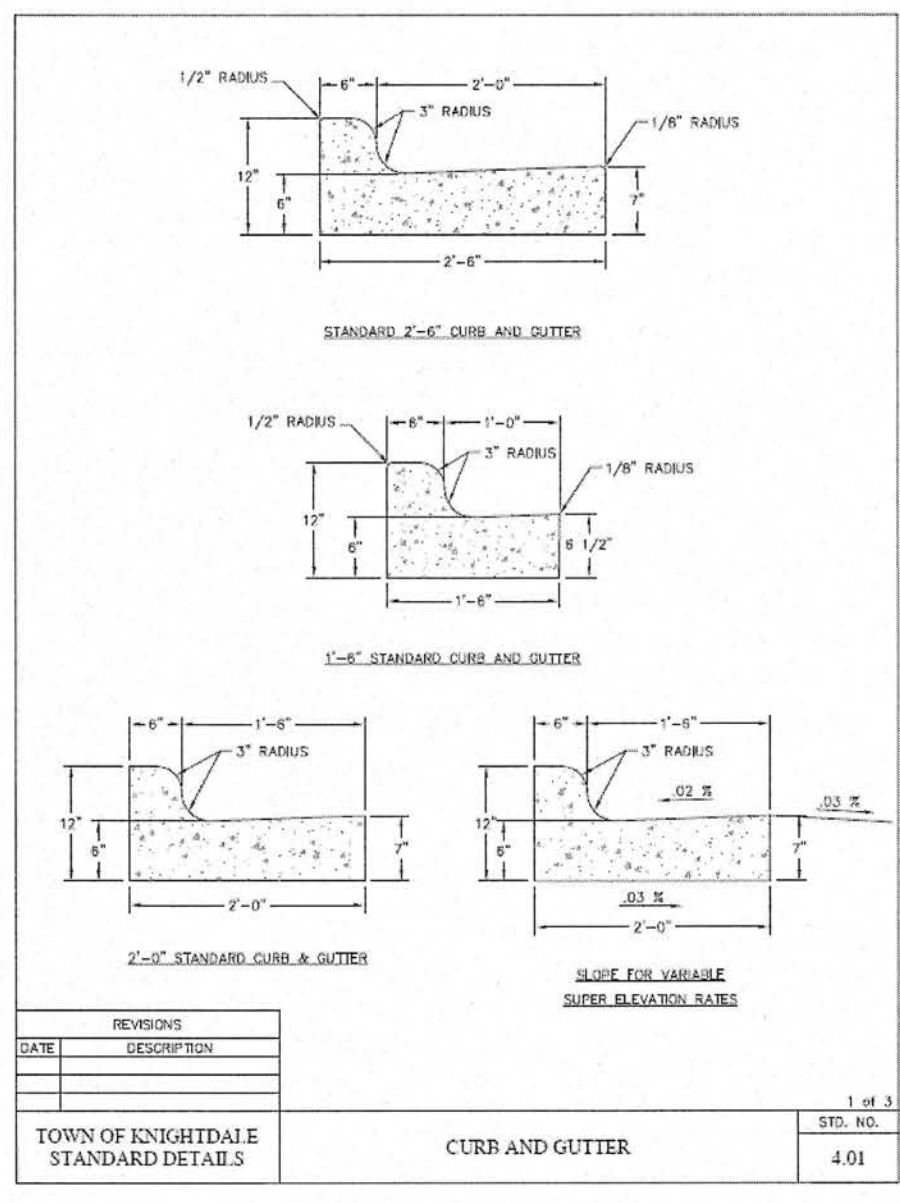
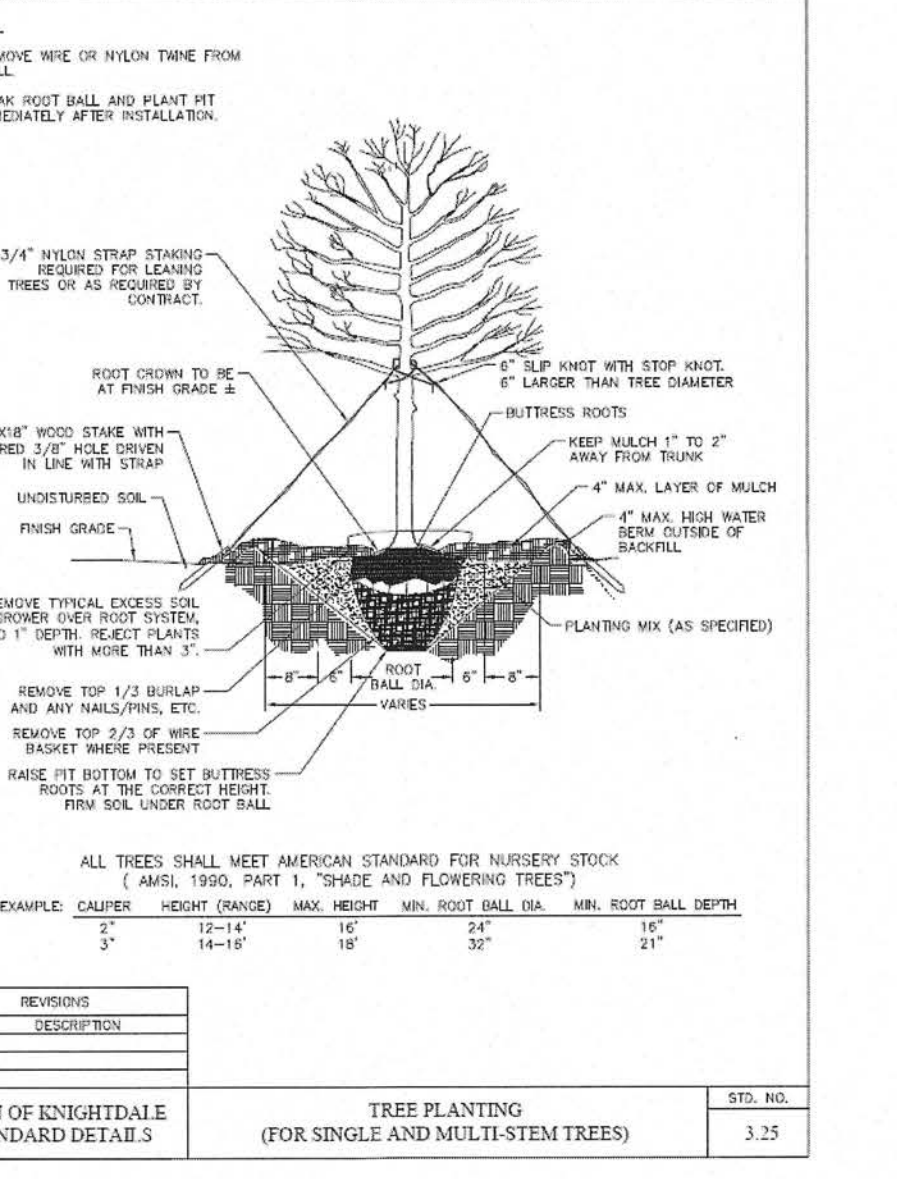
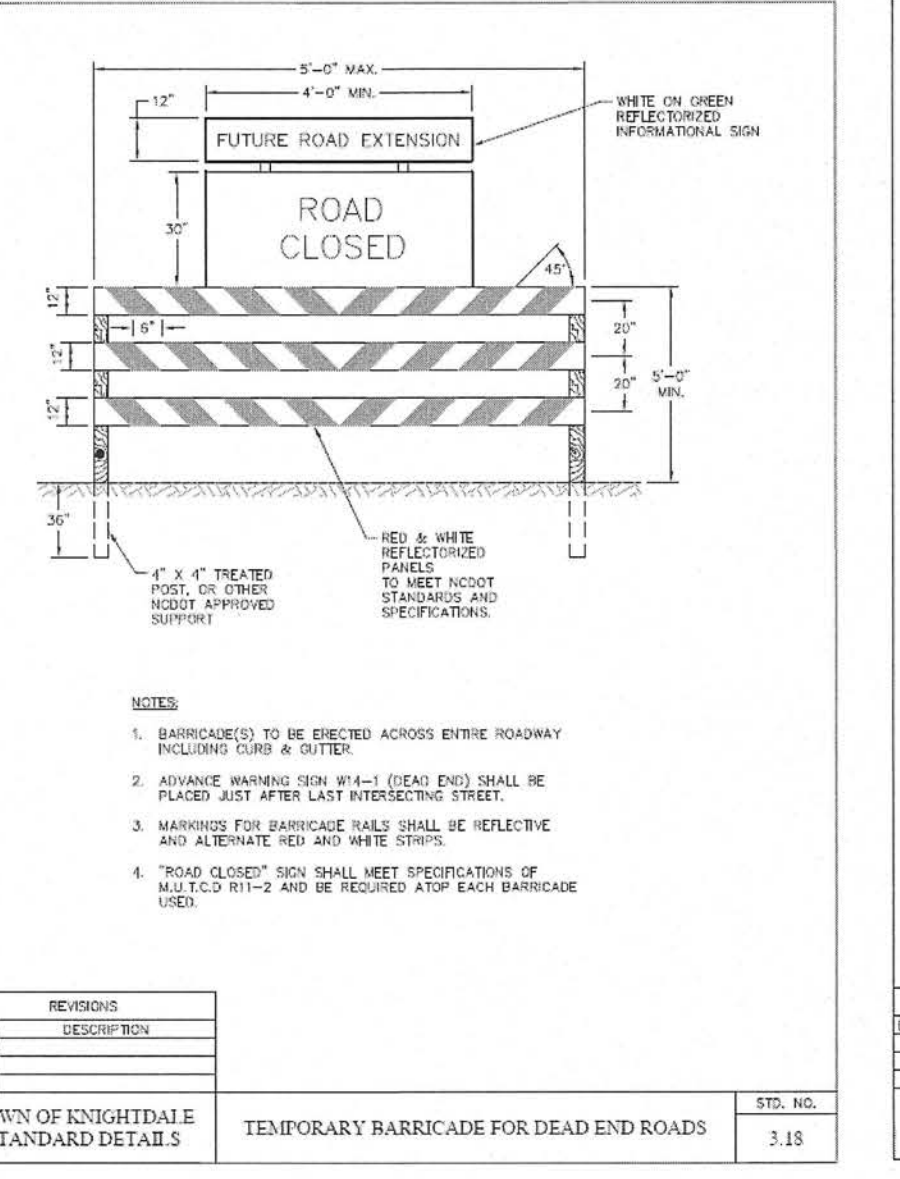
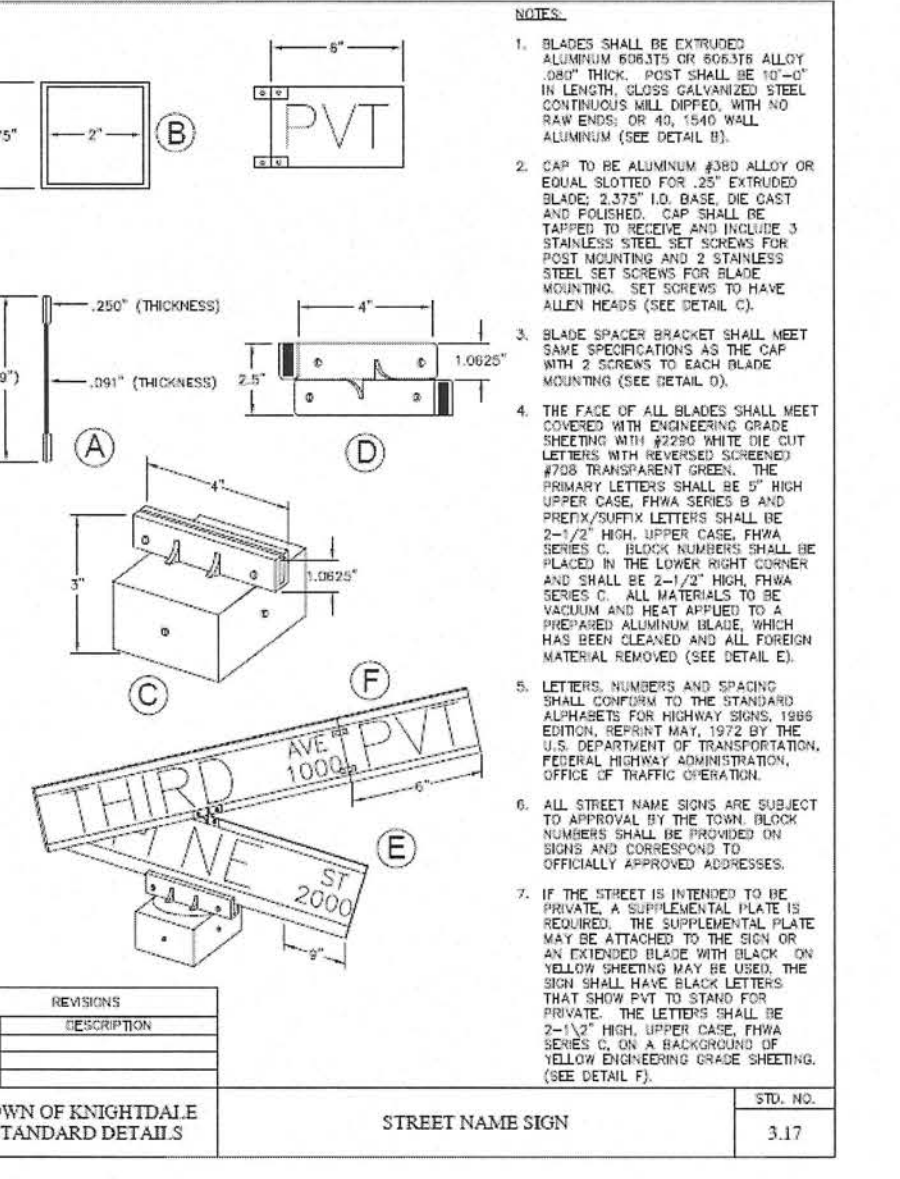
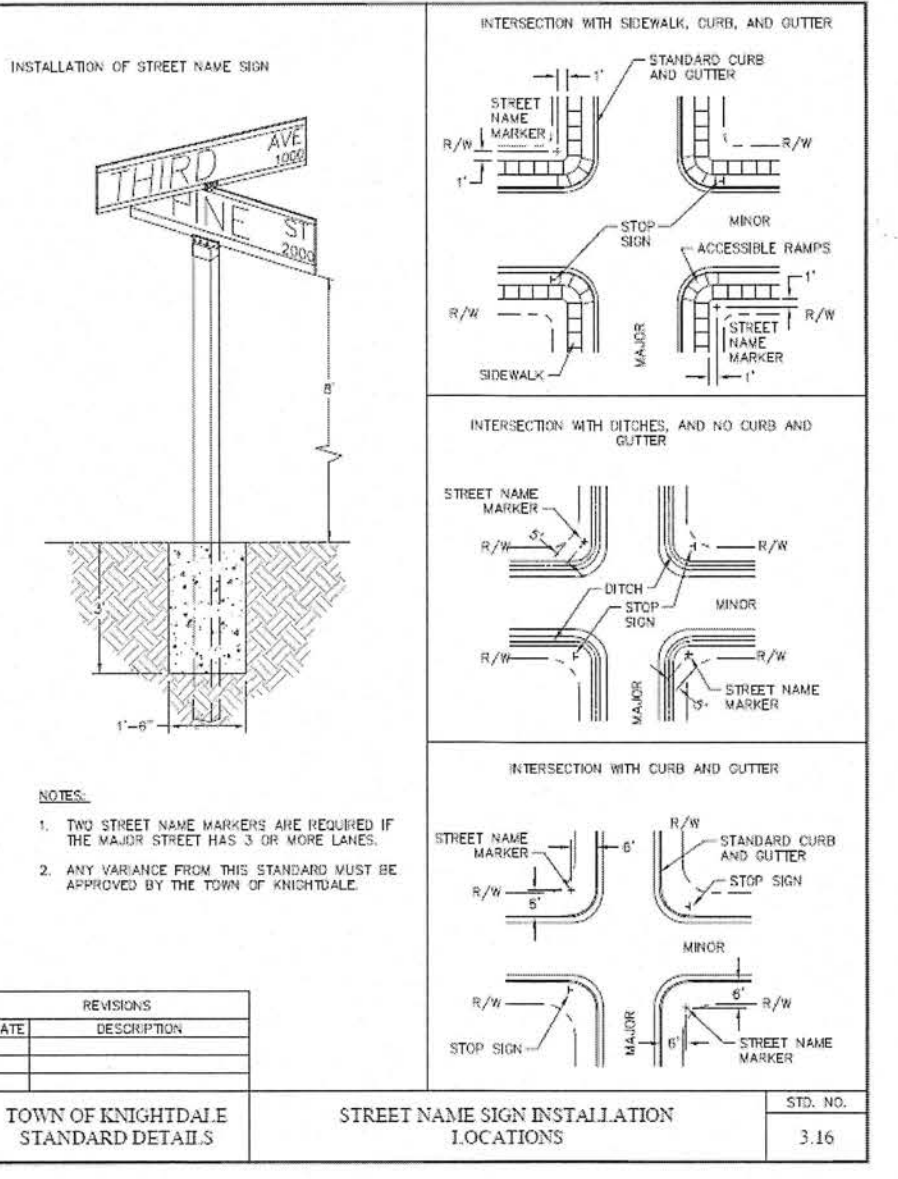
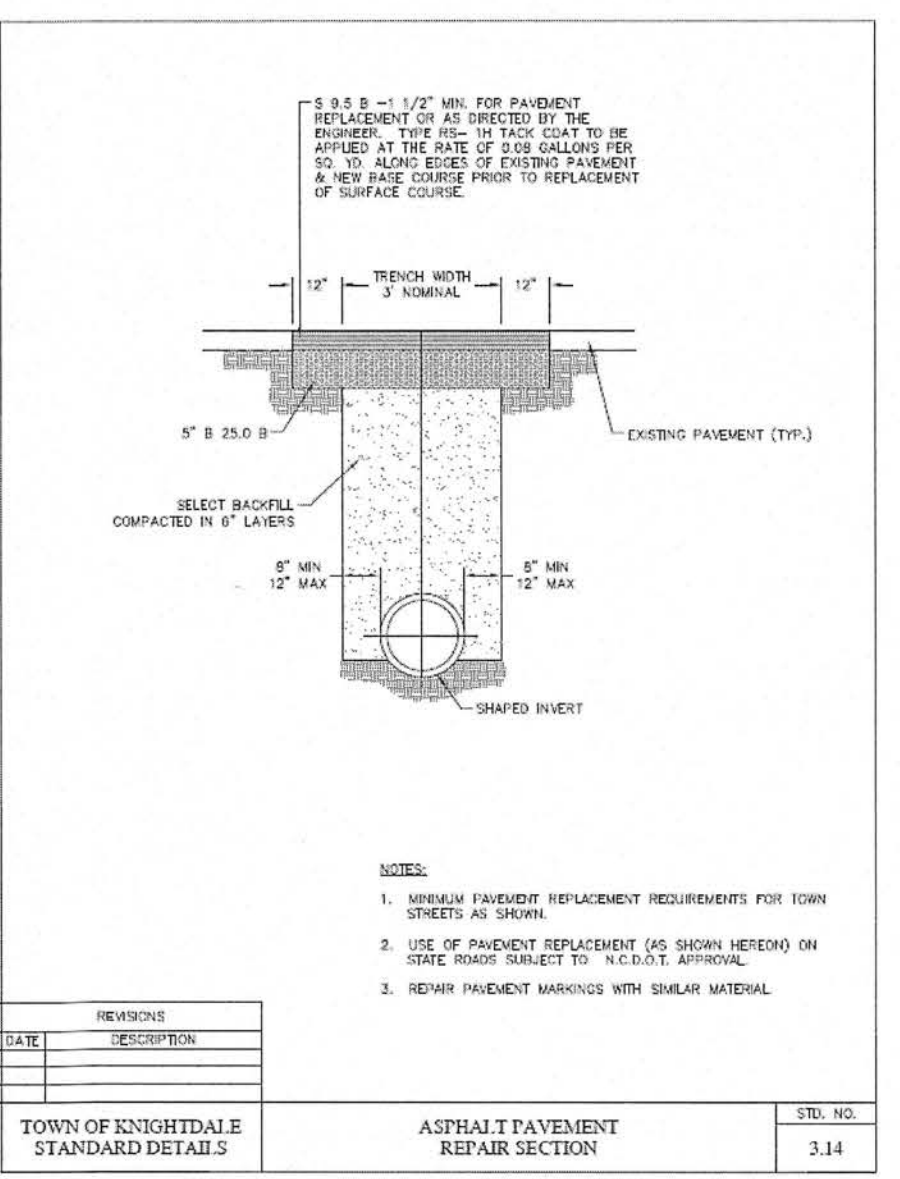
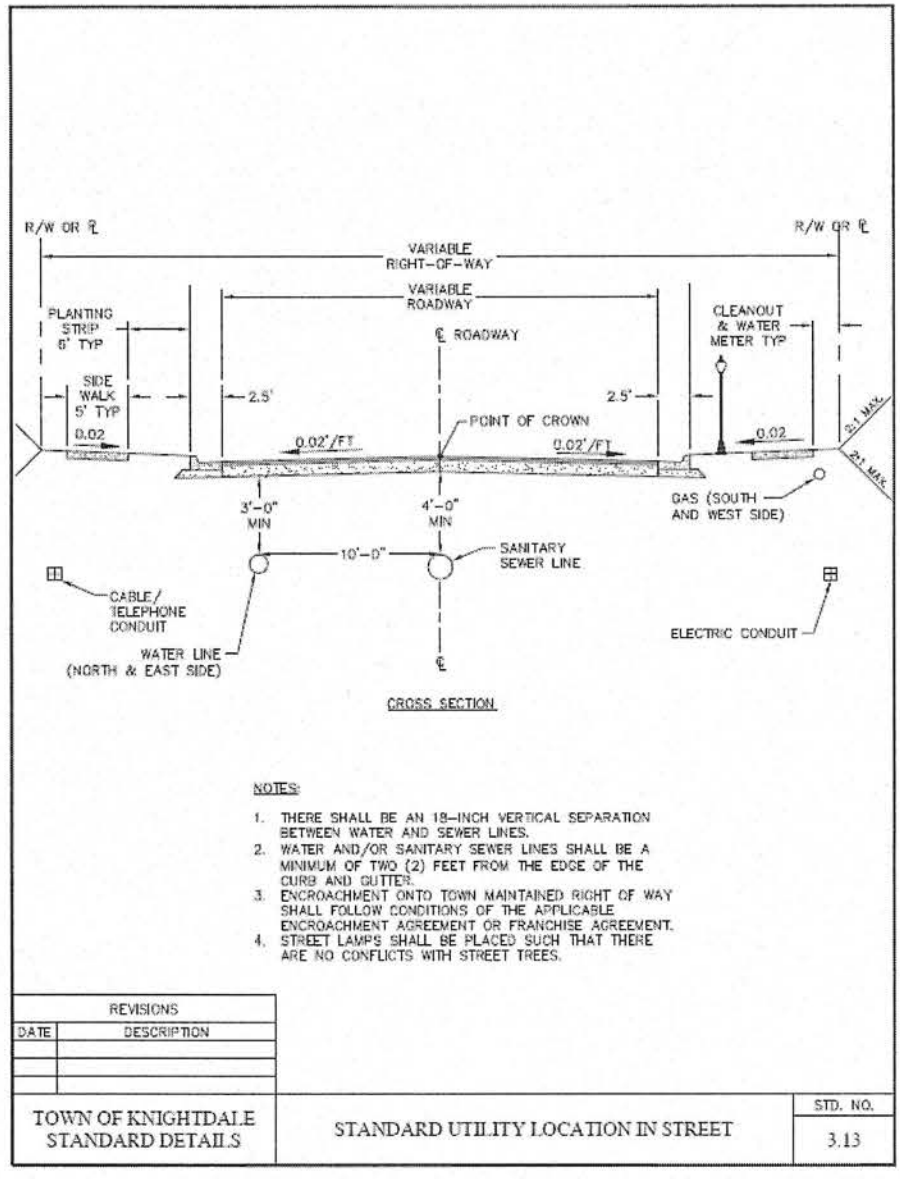
221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
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Office: 919-387-1174  
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www.jonescrossen.com



CAMDEN PARK  
CONSTRUCTION DRAWINGS  
WAKE COUNTY, NORTH CAROLINA

CONSTRUCTION DETAILS I

TOWN OF KNIGHTDALE



MAIL KIOSK DETAIL

FINAL APPROVAL OF MAIL KIOSK TO BE HANDLED WITH BUILDING PERMIT SUBMITTAL

TOWN CERTIFICATION: THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

By: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

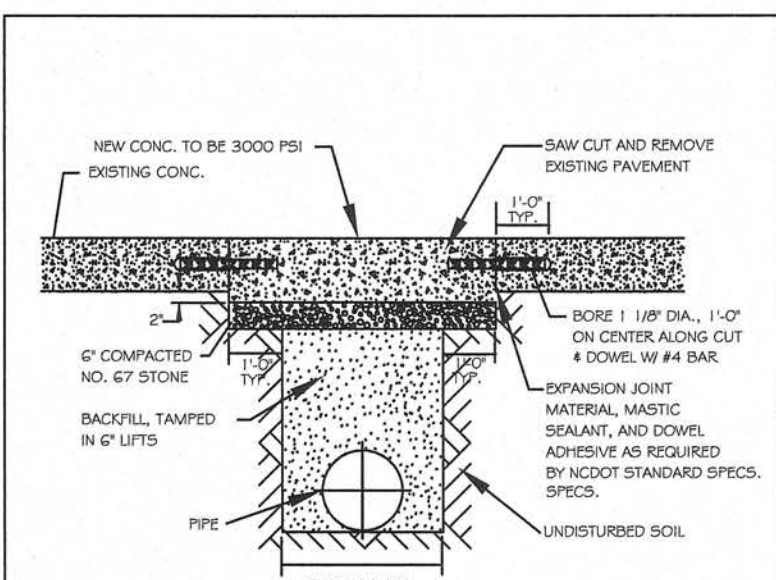
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

By: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

SCALE	NTS	DRAWN	PDC
DATE	DECEMBER 5, 2023		
REVISION	03/26/24	2nd cd	CD COMMENTS
SHEET	18		
PROJECT	1516		



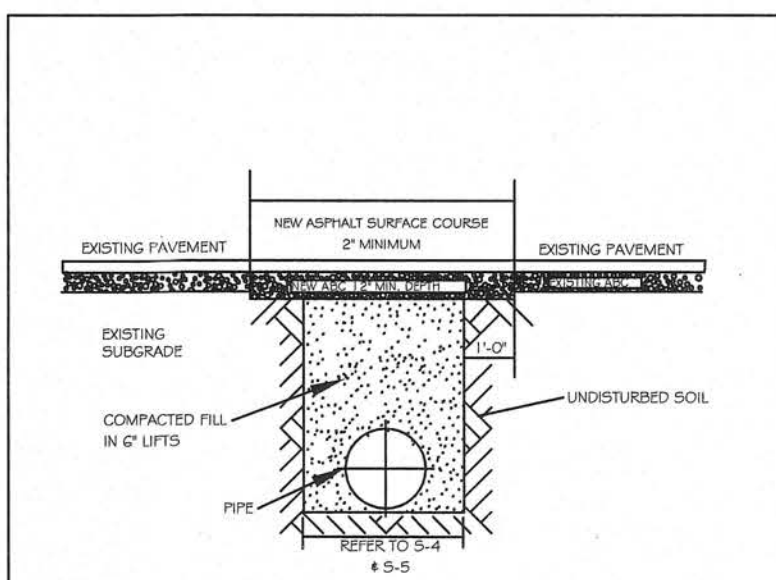
REFERENCE TOK DETAIL 3.14 FOR ASPHALT REPAIR FOR UTILITY PAVEMENT CUTS.



NOTES:  
 1. See City of Raleigh standards for trenches and pipe bedding (S-4 & S-5) for additional details.  
 2. Pavement cuts over 5'-0" in width shall be reinforced to N.C.D.O.T. standards.  
 3. Pavement cuts shall be made with an appropriate saw cut machine.  
 4. Pavement cuts within NCDOT ROW shall conform to the approved on site encroachment permit.

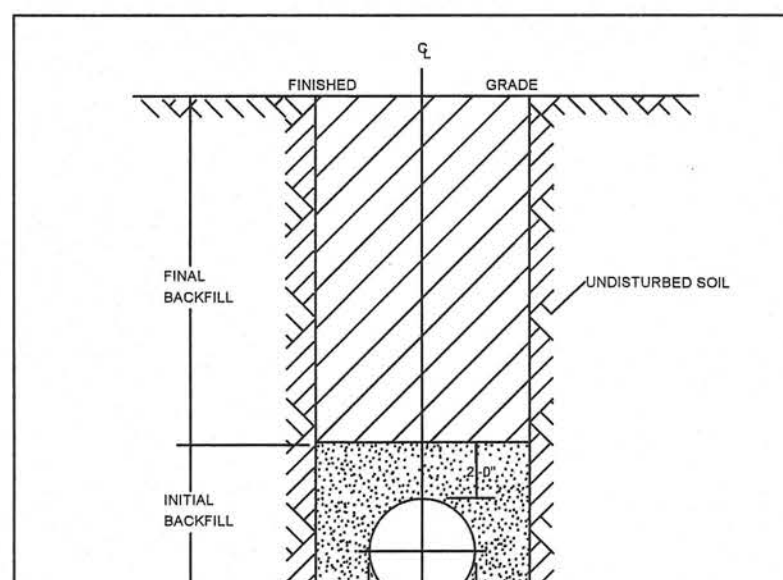
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD CONCRETE PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-2	BRH	11-20-01	7-25-12

REFERENCE TOK DETAIL 3.14 FOR ASPHALT REPAIR FOR UTILITY PAVEMENT CUTS.



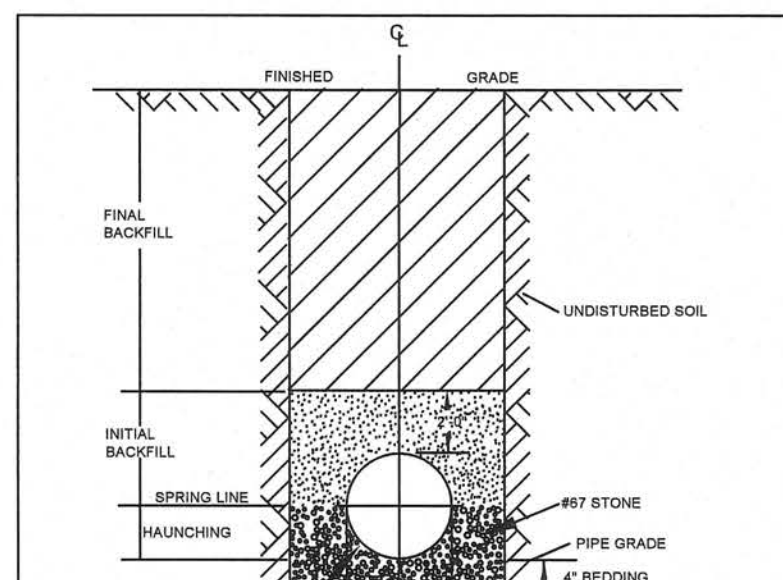
NOTES:  
 1. IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.  
 2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.  
 3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 98% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH METHOD T-99 AS MODIFIED BY NCOT.  
 4. THE TRENCH 1/2" TOP FINISH SHALL CONSIST OF A/C MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH METHOD T-99 AS MODIFIED BY NCOT.  
 5. THE ENTIRE THICKNESS AND VERTICAL EDGE OF CUT SHALL BE TACED.  
 6. THE SAME PORTION OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 2" THICK.  
 7. THE ASPHALT PAVEMENT MATERIAL SHALL BE HOTMAILED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.  
 8. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING (S-4 & S-5) FOR ADDITIONAL DETAILS.  
 9. NO ROAD PATCHING ALLOWED.  
 10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD ASPHALT PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-3	BRH	11-20-01	7-25-12



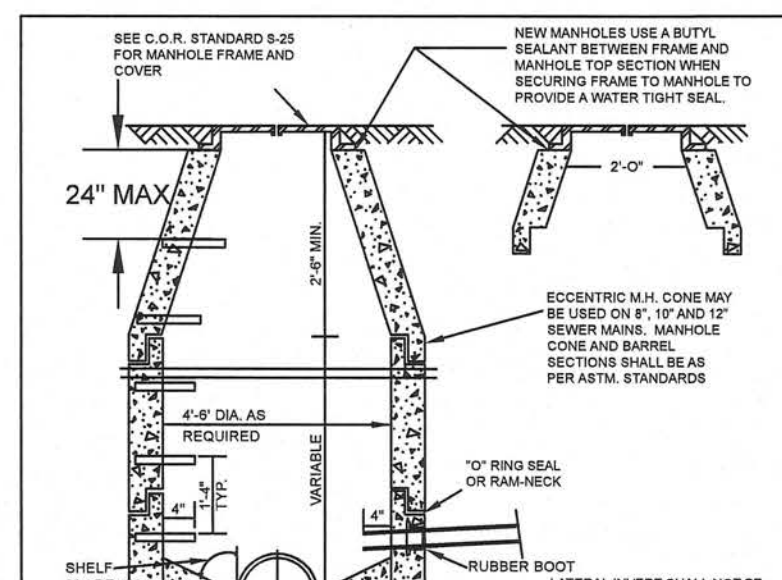
NOTES:  
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.  
 2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.  
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.  
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.  
 5. ACHIEVE 90% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.  
 6. IF IN EASEMENT 4" TOPICAL AND 12" CLEAN SELECT FILL MAY BE REQUIRED.  
 7. NO BouldERS 8" 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
S-4	BRH	11-20-01	7-25-12



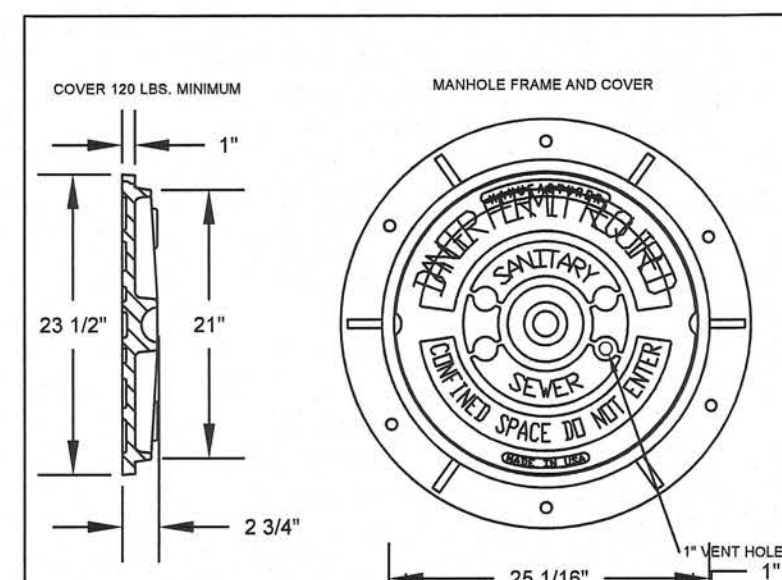
NOTES:  
 1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.  
 2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.  
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.  
 4. BACKFILL SHALL BE TAMPED IN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

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR SDR 35 PVC GRAVITY PIPE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-5	BRH	11-20-01	7-25-12



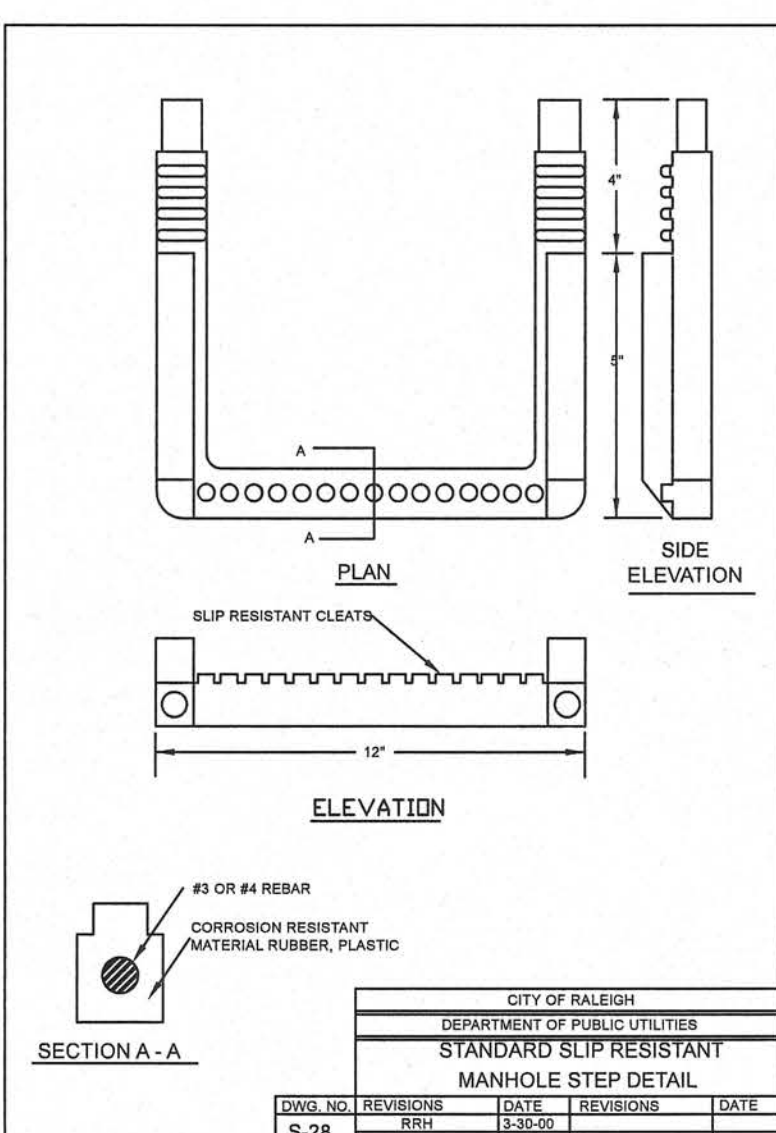
NOTES:  
 1. ALL MANHOLE FRAMES SHALL BE DISINFECTED.  
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 140 LBS. WITHIN PUBLIC ROW AND 180 LBS. WITHIN EASEMENTS.  
 3. COVER SHALL WEIGH A MIN. OF 120 LBS.  
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OF ROAD WITH A MINIMUM OF 4" SECTION PER FRAME.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD PRECAST SANITARY SEWER MANHOLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-6	BRH	11-20-01	7-25-12

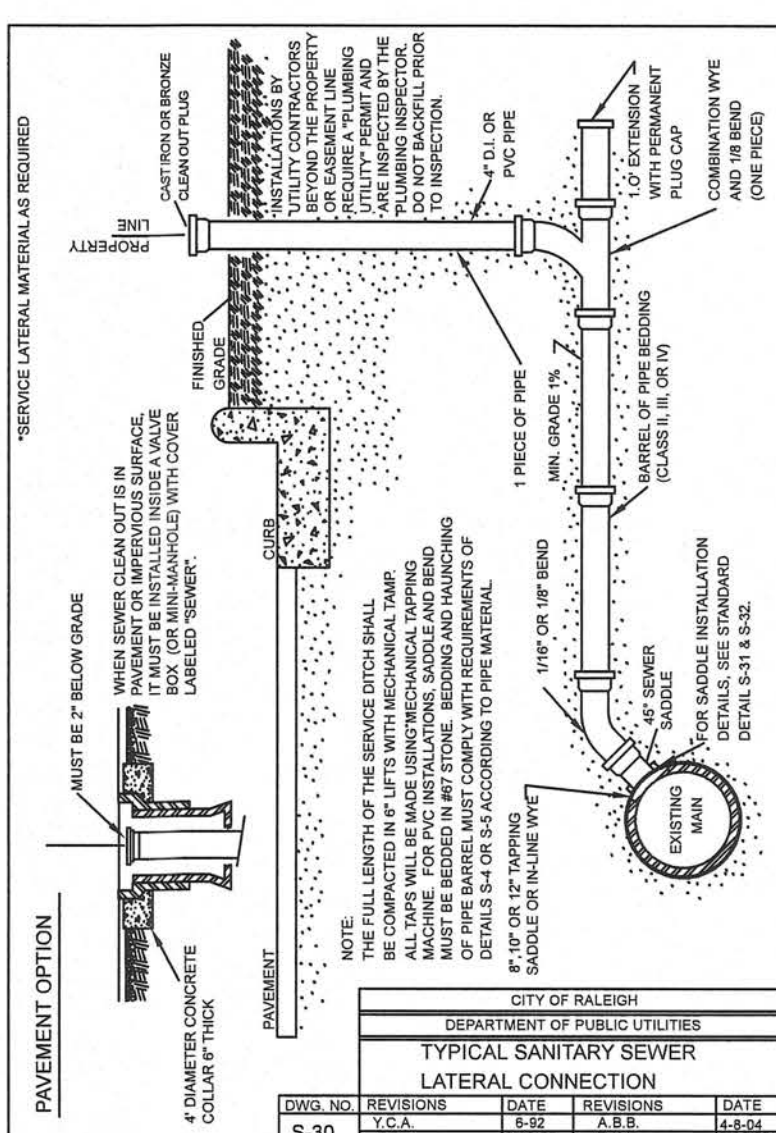


NOTES:  
 1. ALL MANHOLE FRAMES SHALL BE DISINFECTED.  
 2. FRAME SHALL BE A MINIMUM WEIGHT OF 140 LBS. WITHIN PUBLIC ROW AND 180 LBS. WITHIN EASEMENTS.  
 3. COVER SHALL WEIGH A MIN. OF 120 LBS.  
 4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OF ROAD WITH A MINIMUM OF 4" SECTION PER FRAME.

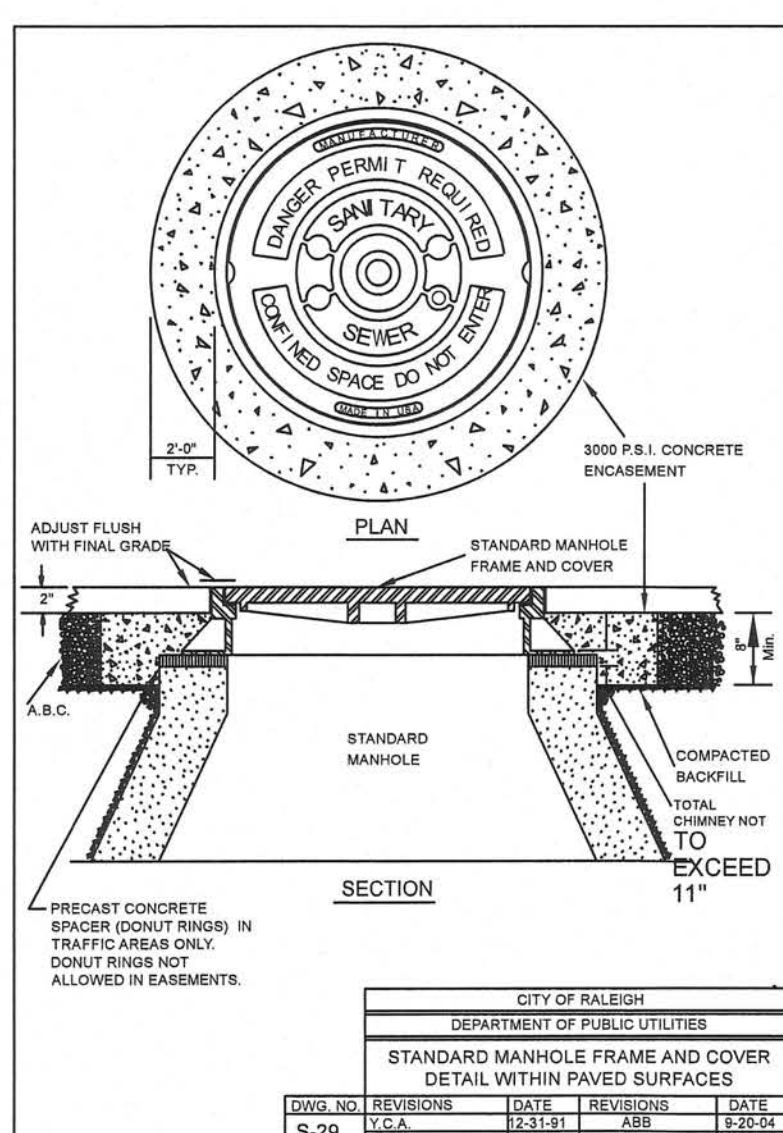
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE COVER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-7	BRH	11-20-01	7-25-12



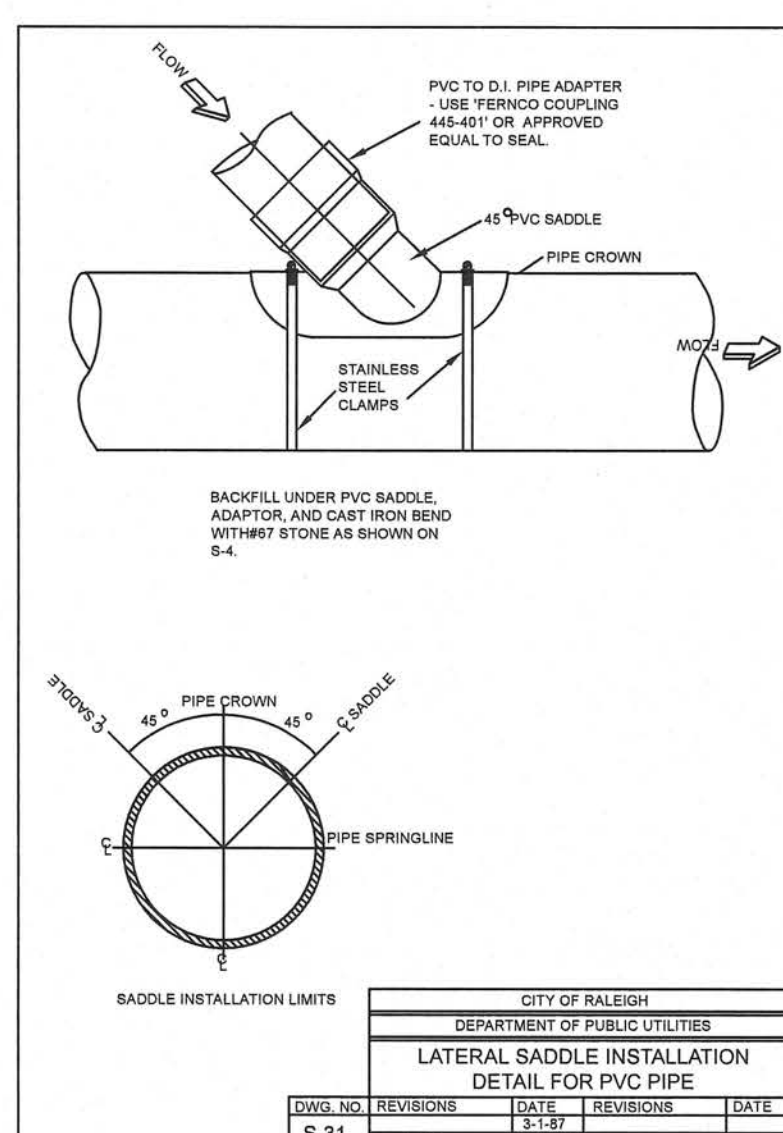
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD SLIP RESISTANT MANHOLE STEP DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-28	BRH	11-20-01	7-25-12



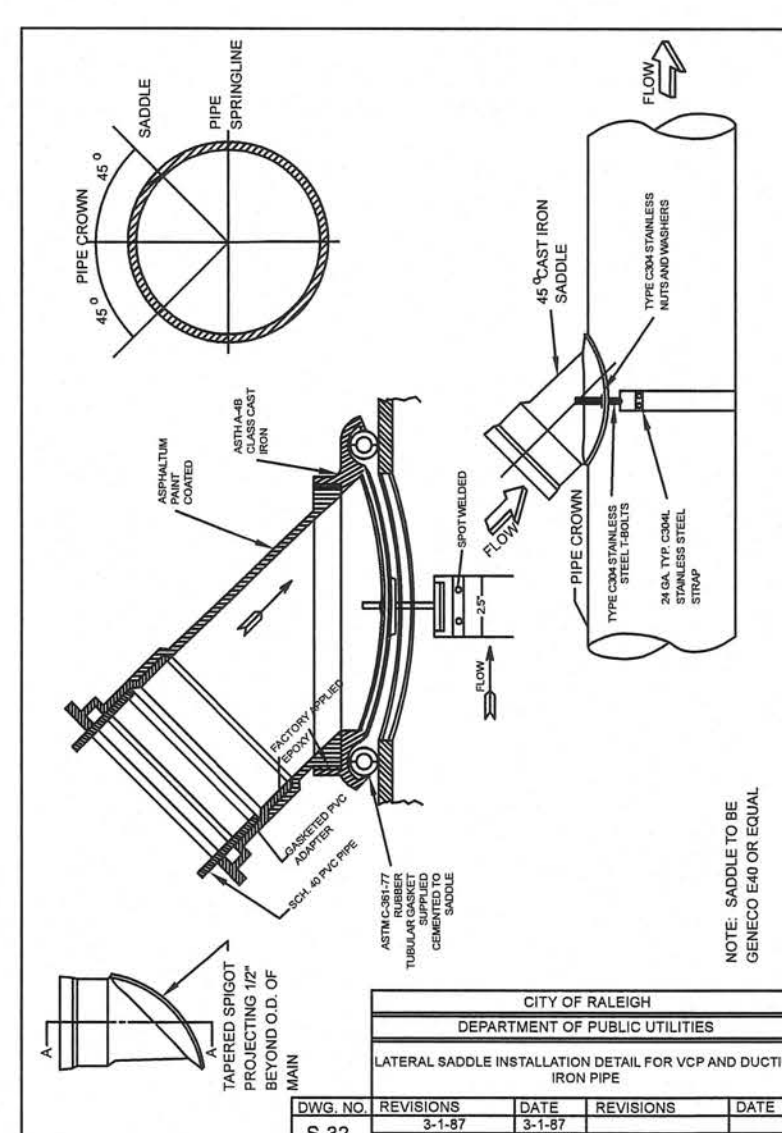
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-30	BRH	11-20-01	7-25-12



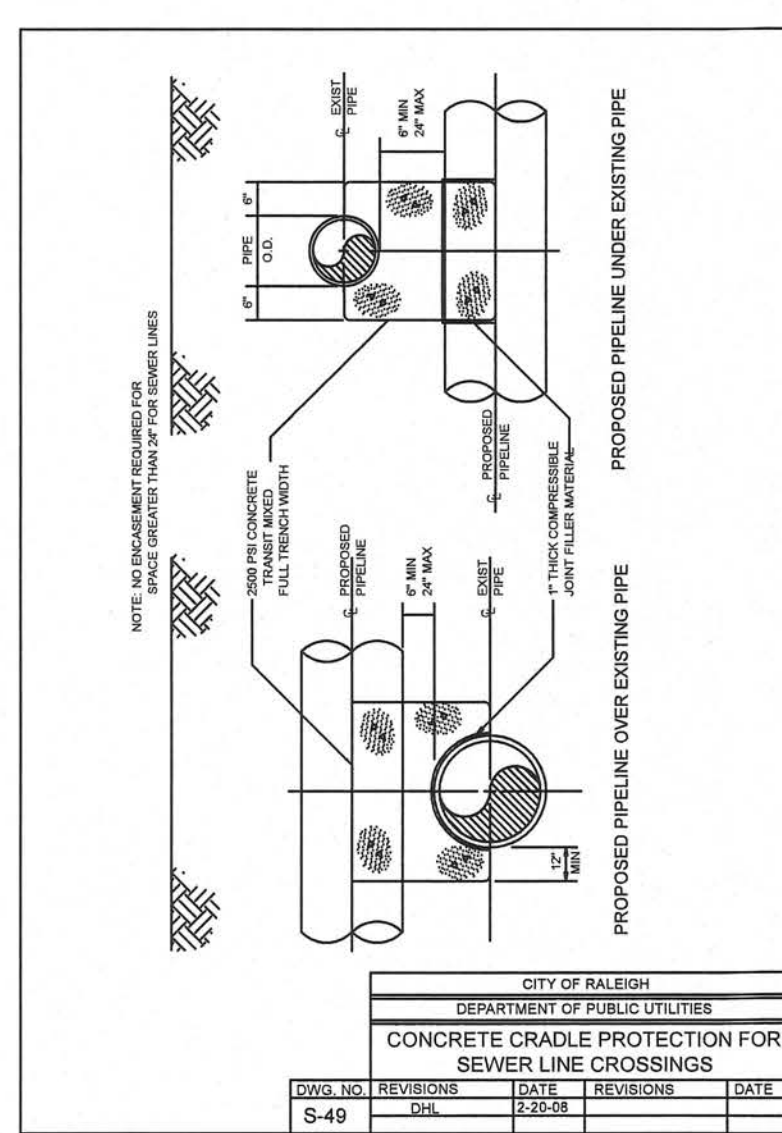
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-29	BRH	11-20-01	7-25-12



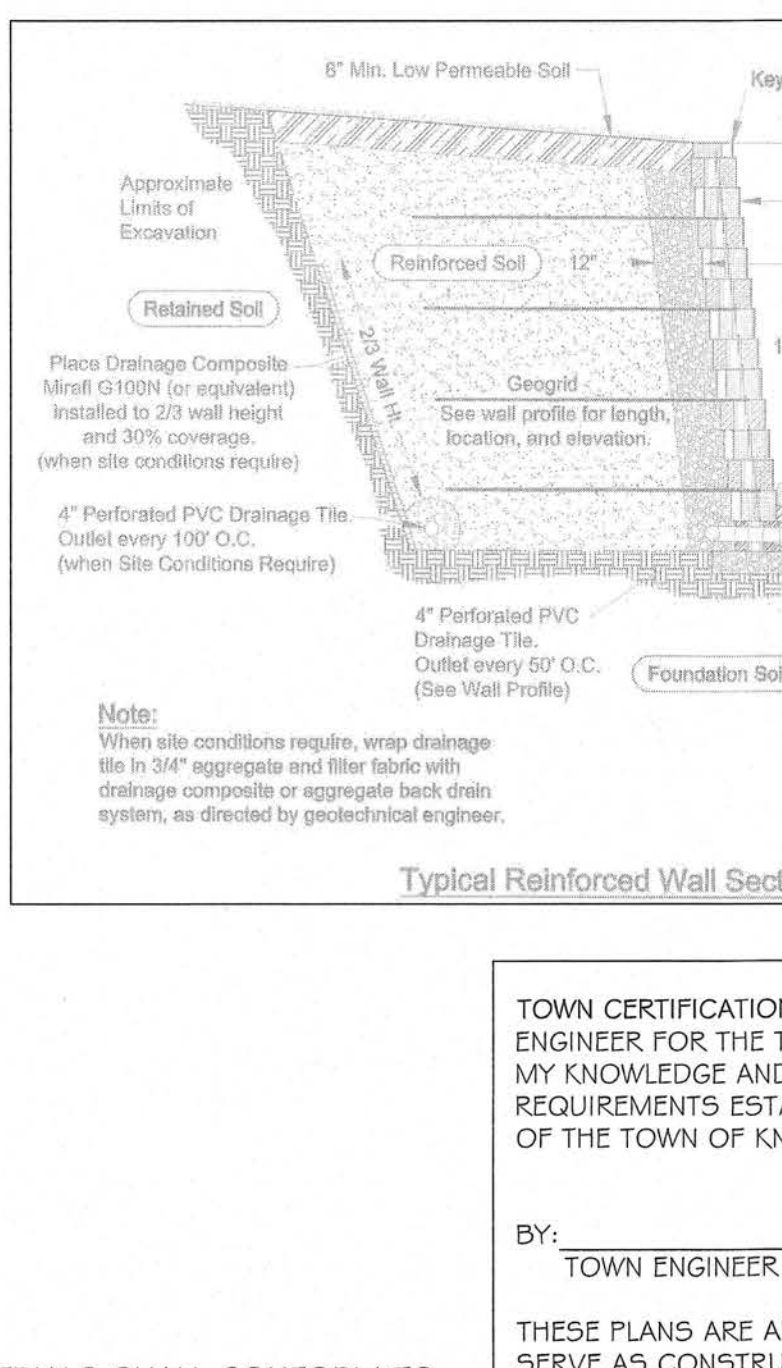
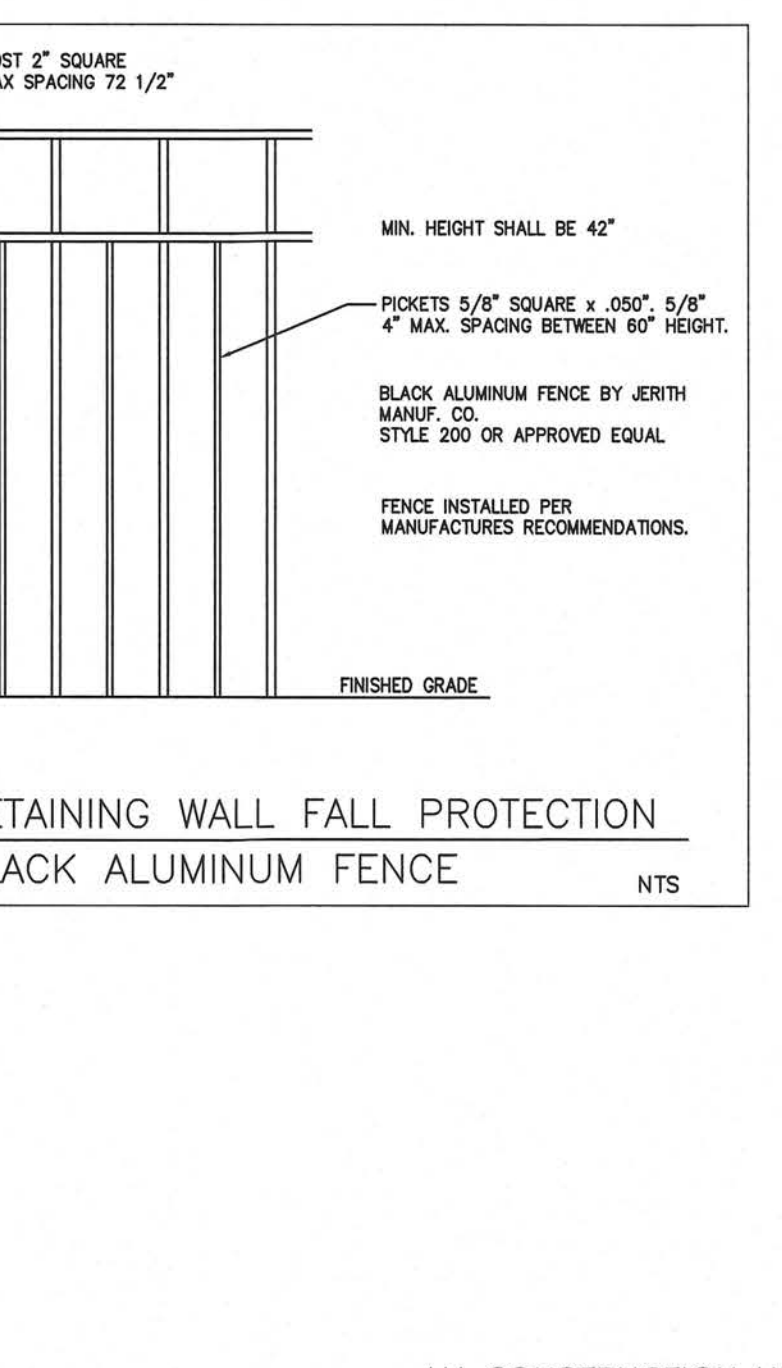
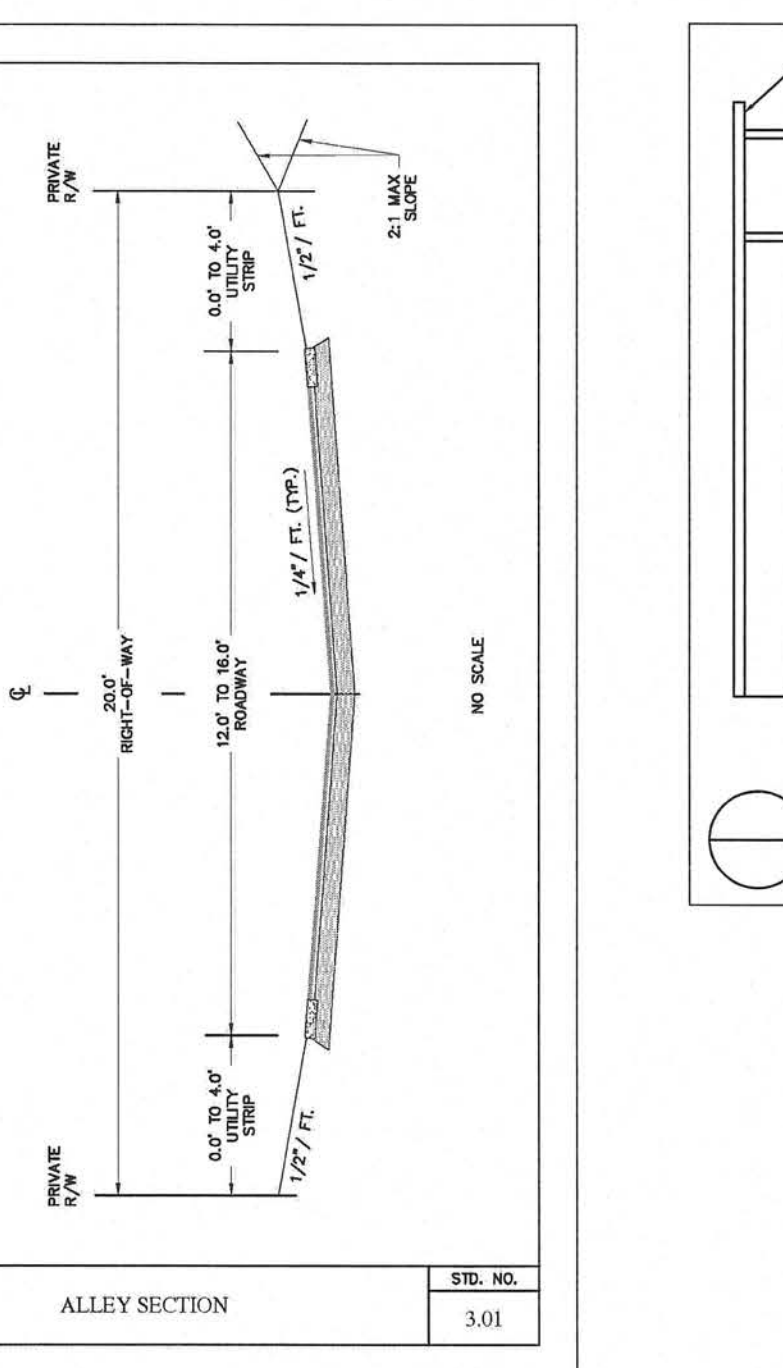
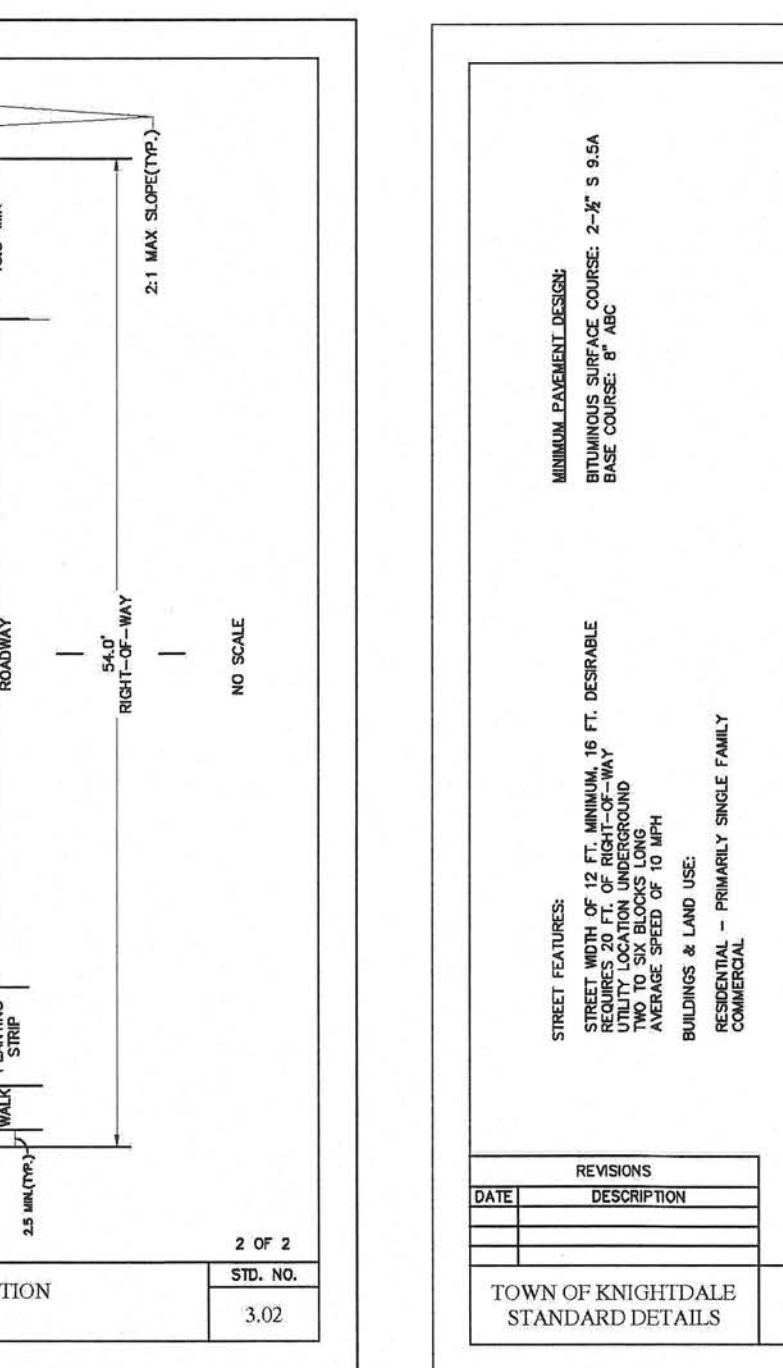
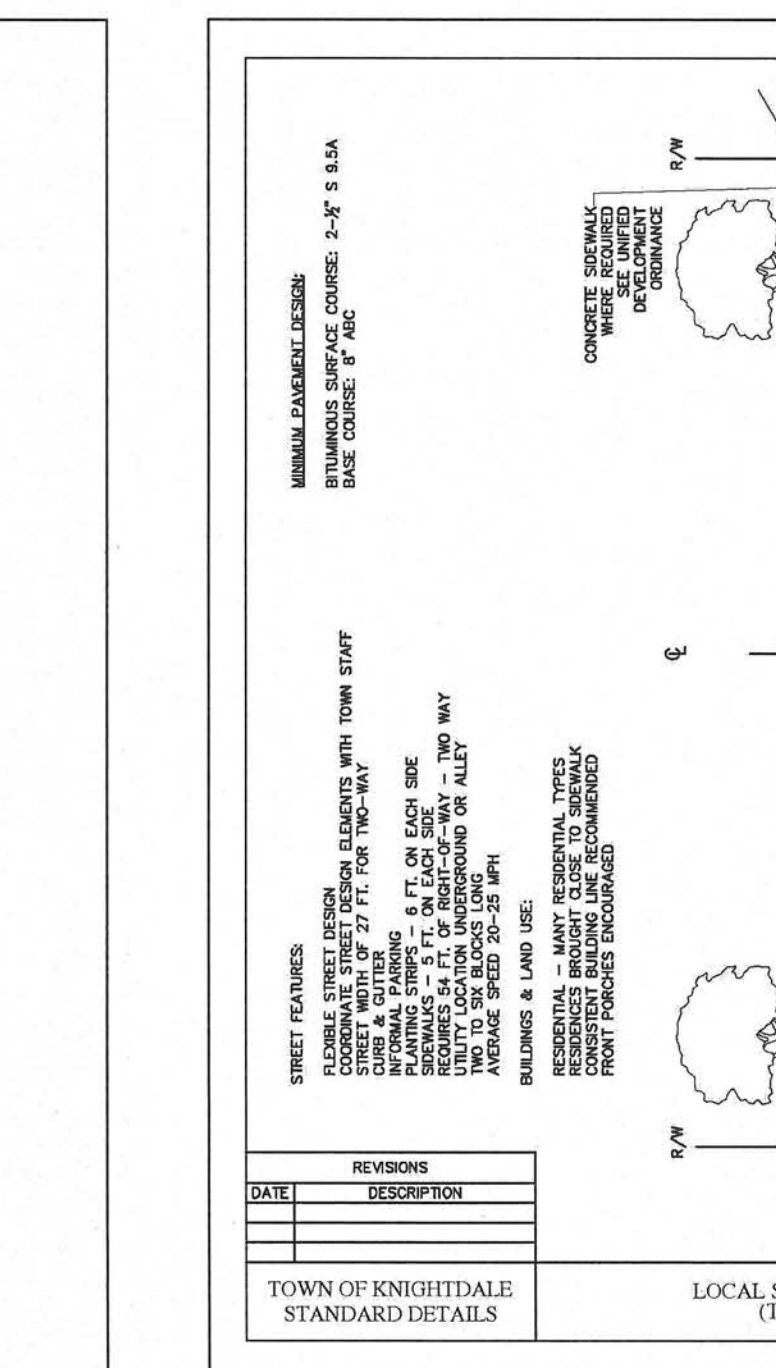
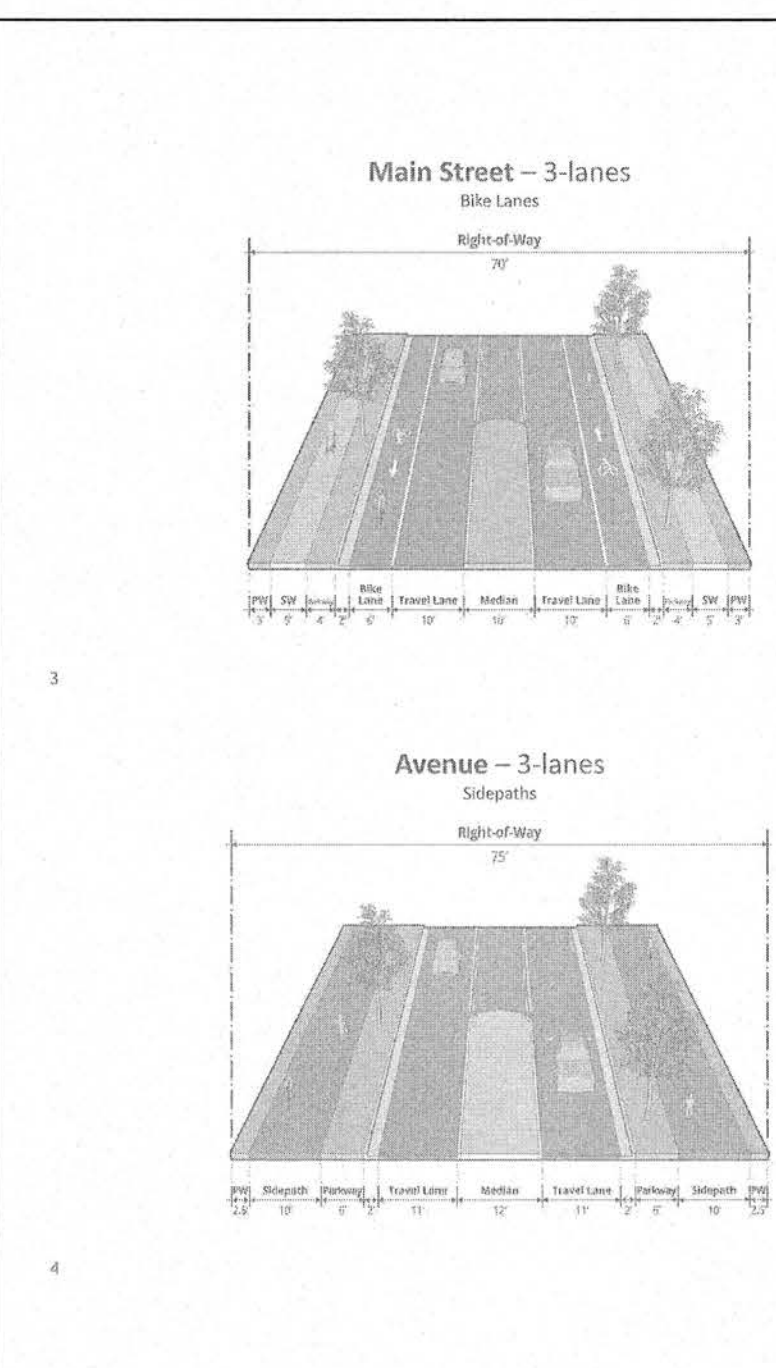
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-31	BRH	11-20-01	7-25-12



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-32	BRH	11-20-01	7-25-12



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-49	BRH	11-20-01	7-25-12

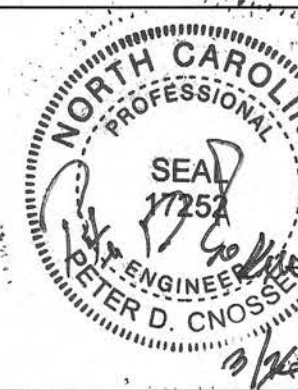


TOWN CERTIFICATION. THIS DESIGN HAS BEEN REVIEWED BY THE ENGINEER FOR THE TOWN OF KNIGHTDALE, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT CONFORMS TO THE REQUIREMENTS ESTABLISHED IN THE STANDARD SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

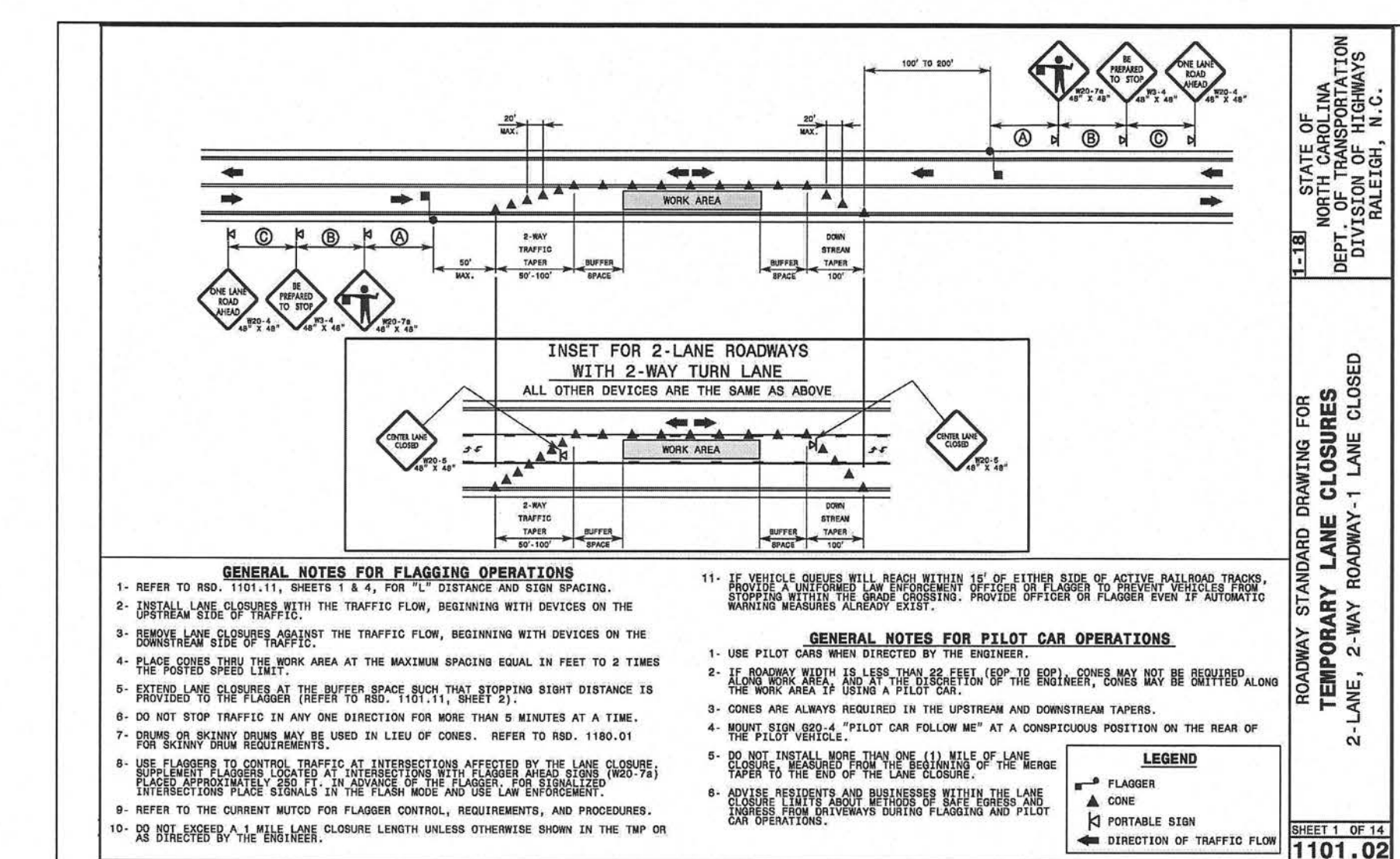
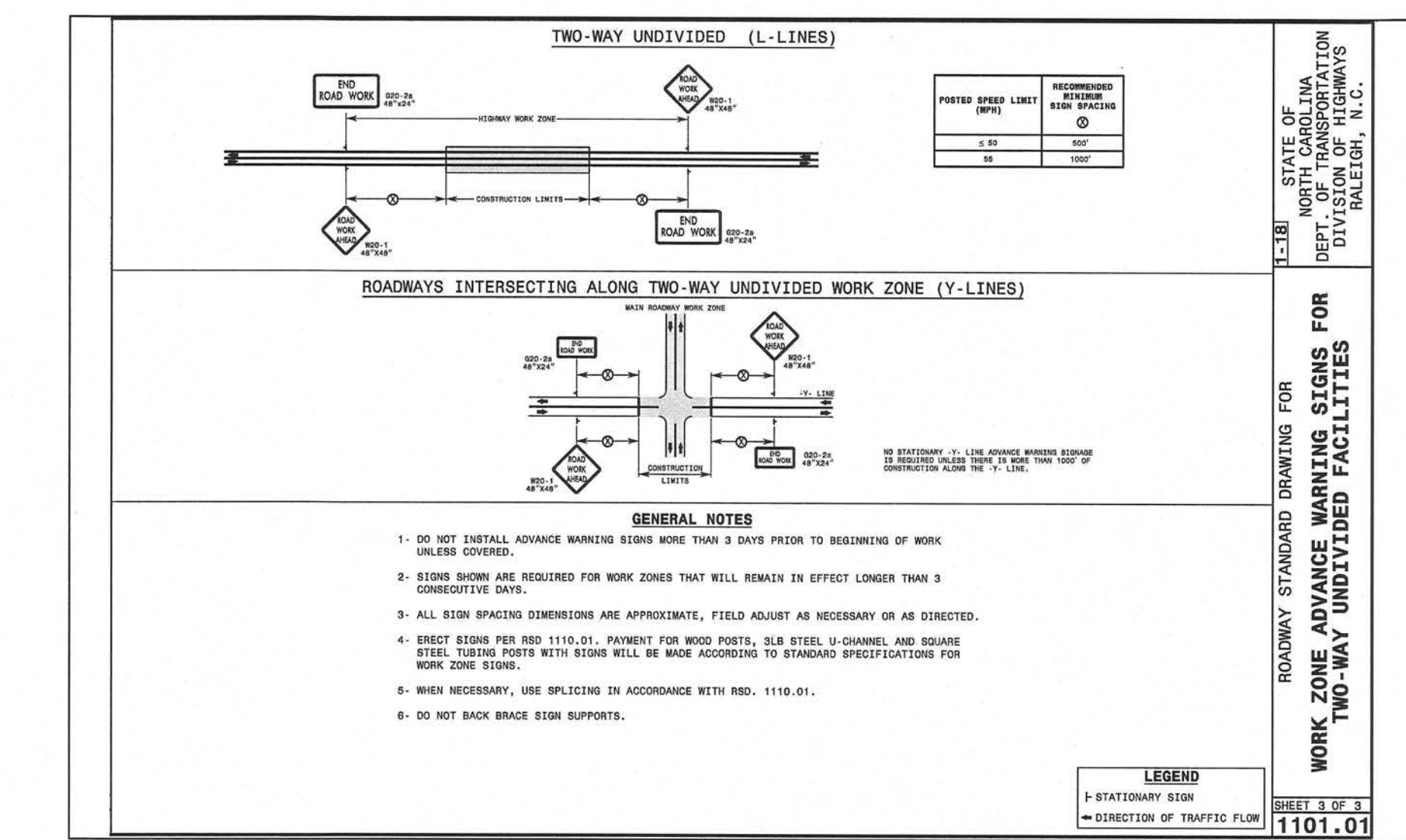
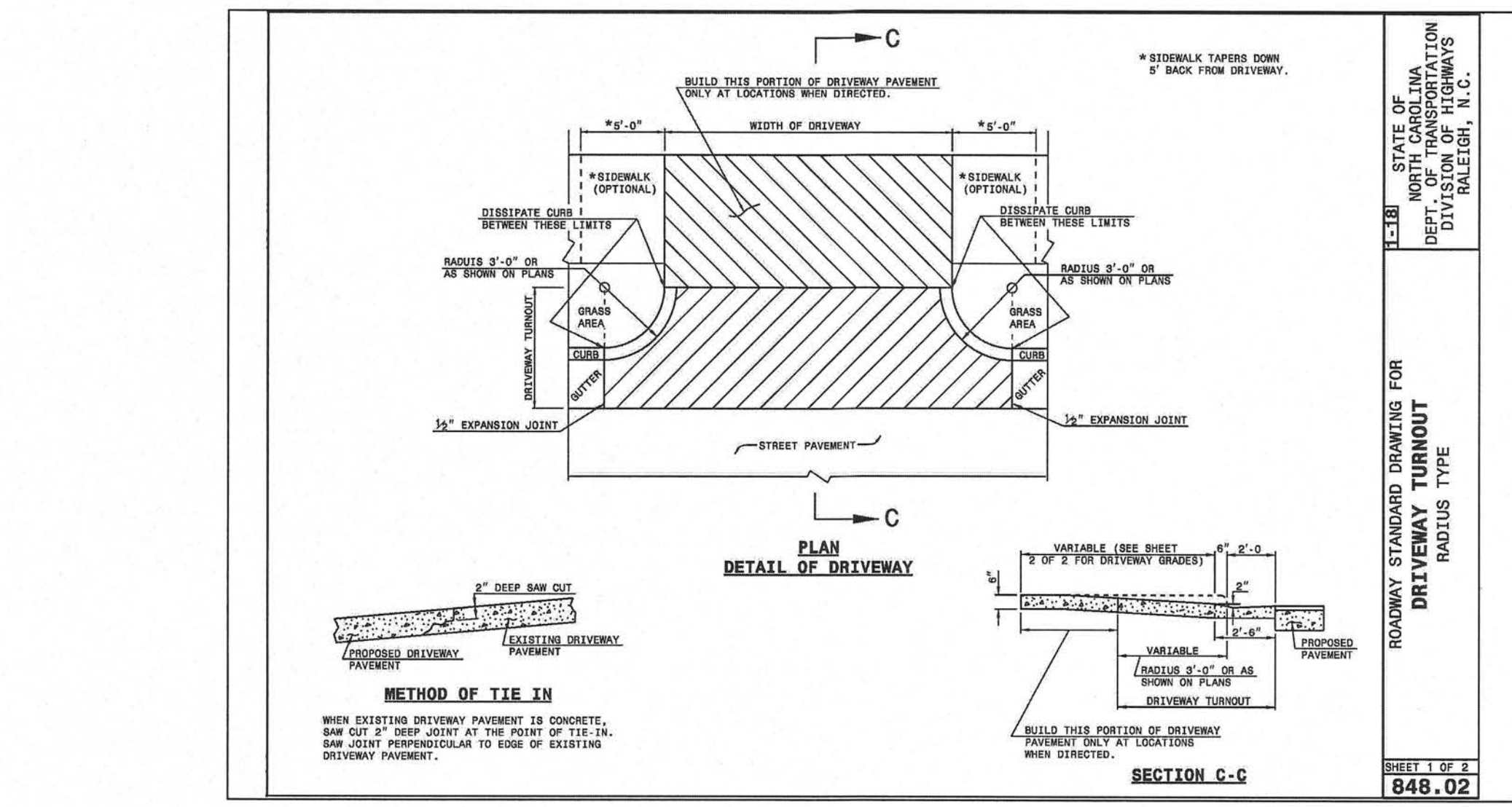
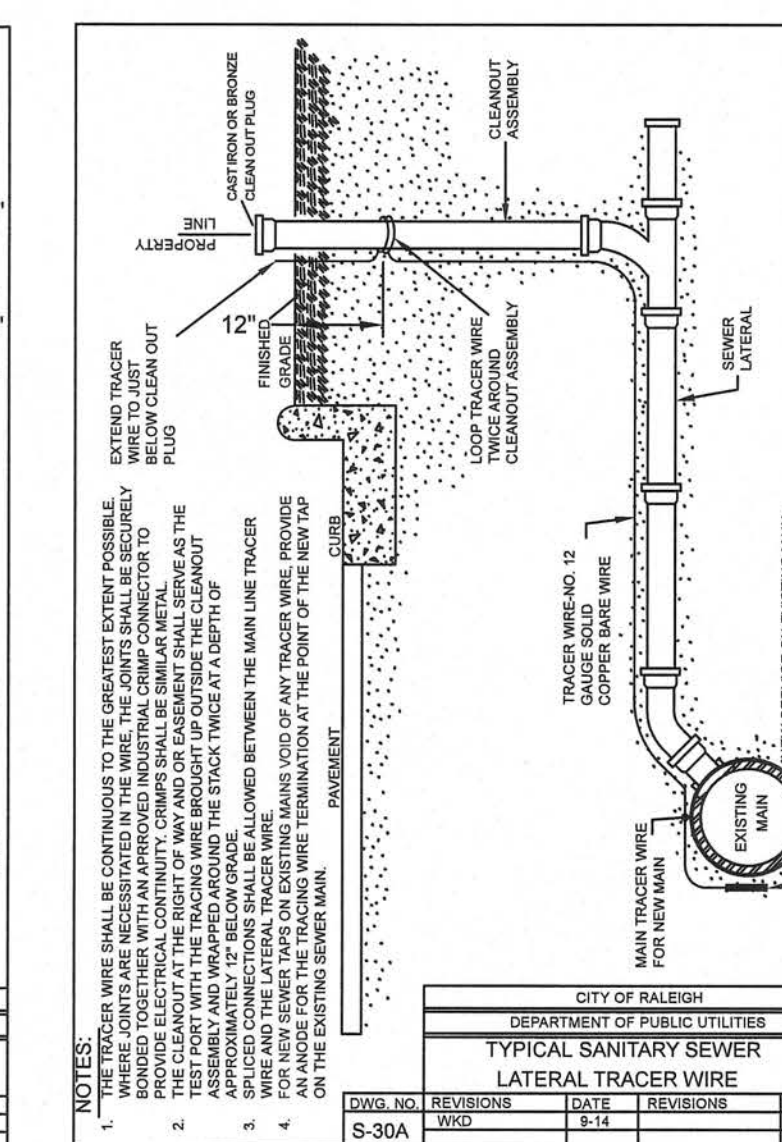
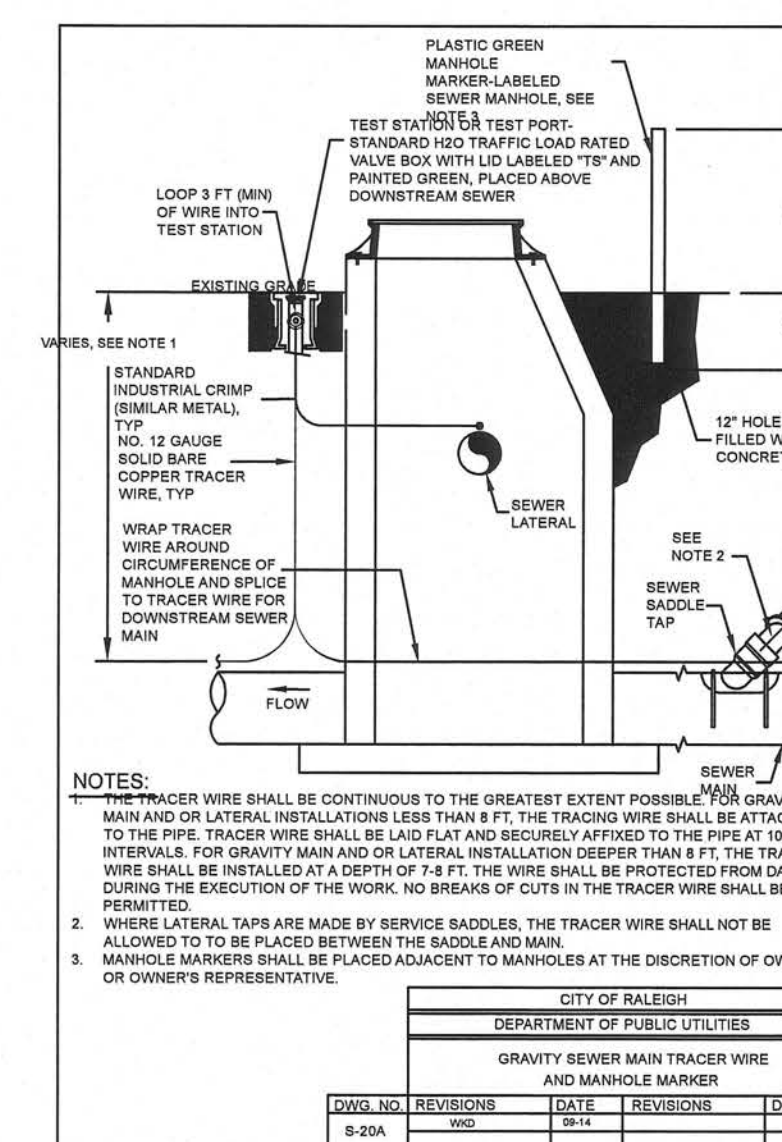
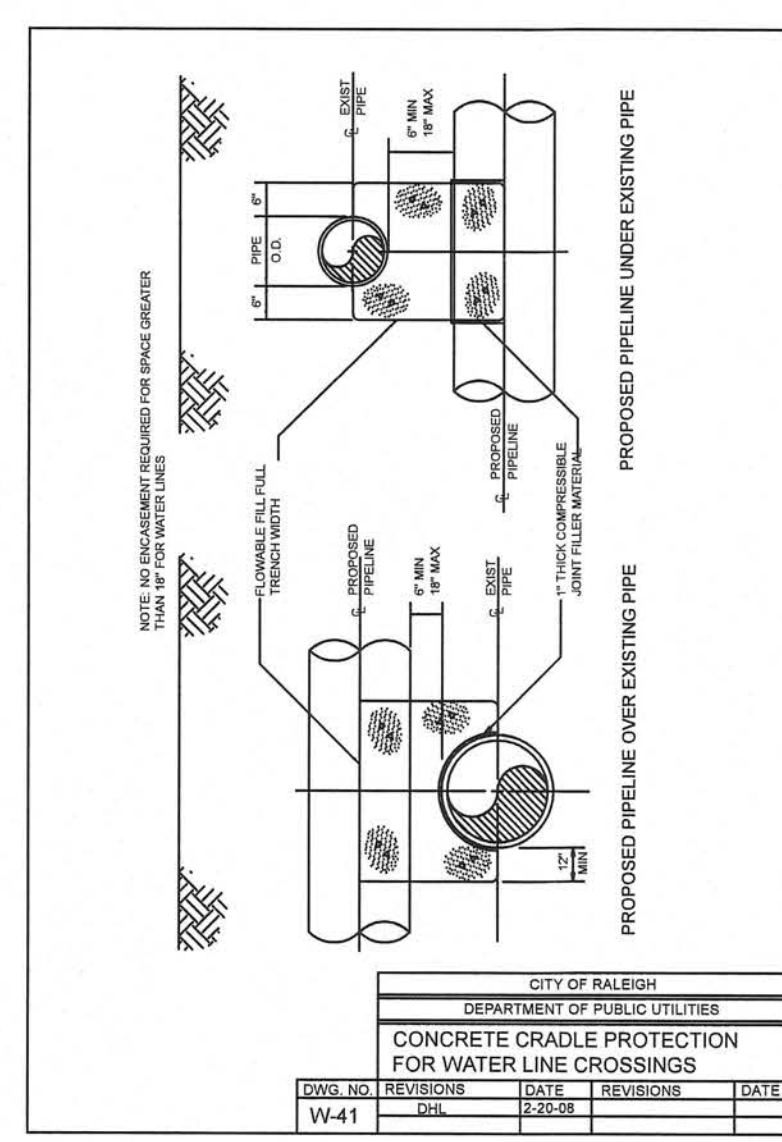
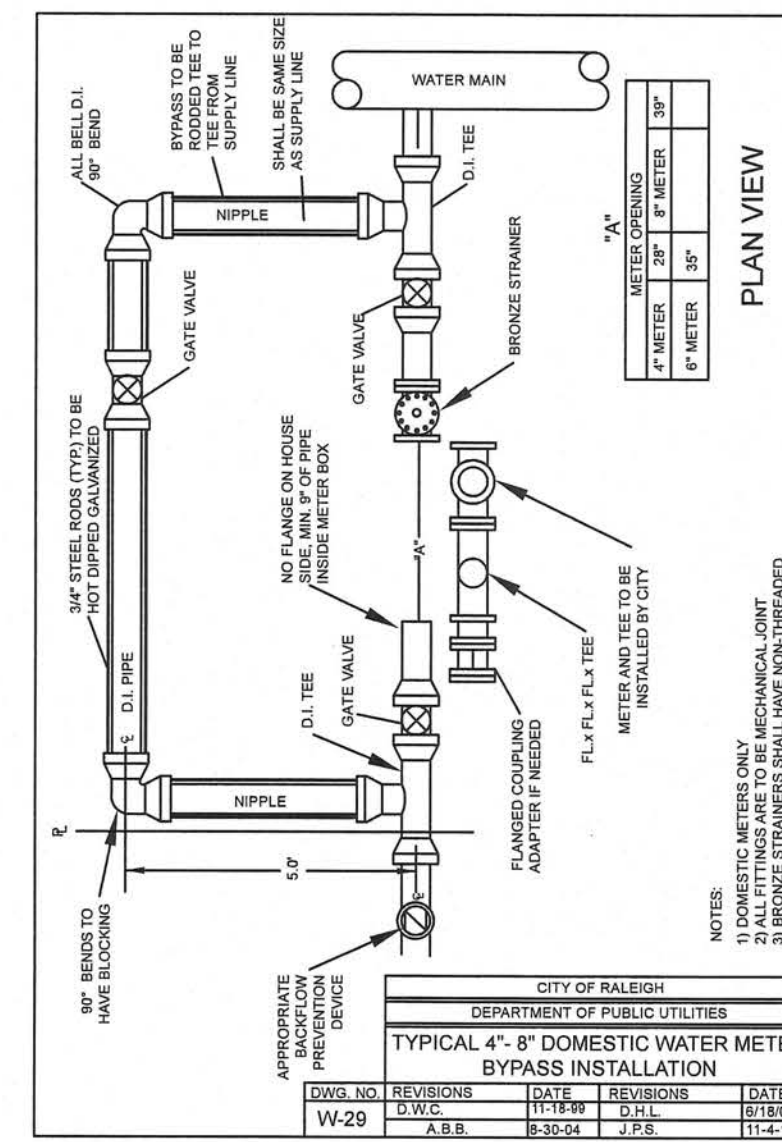
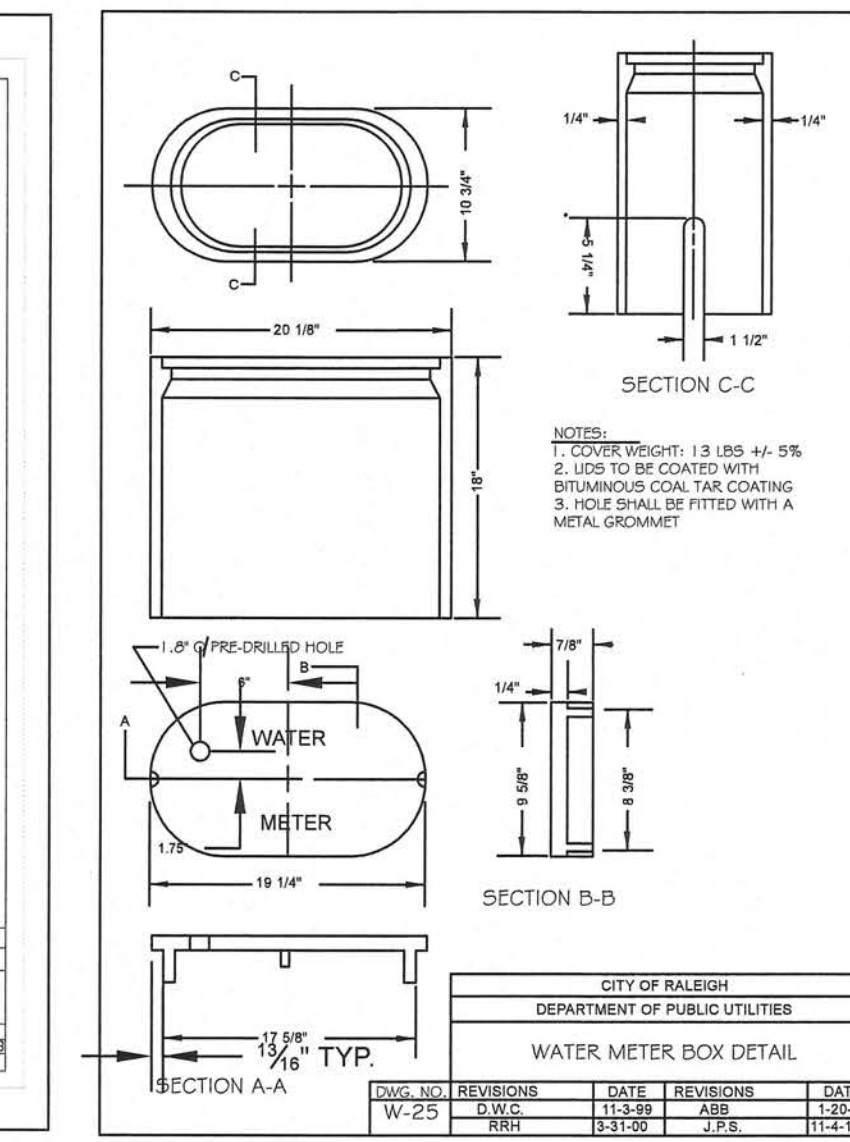
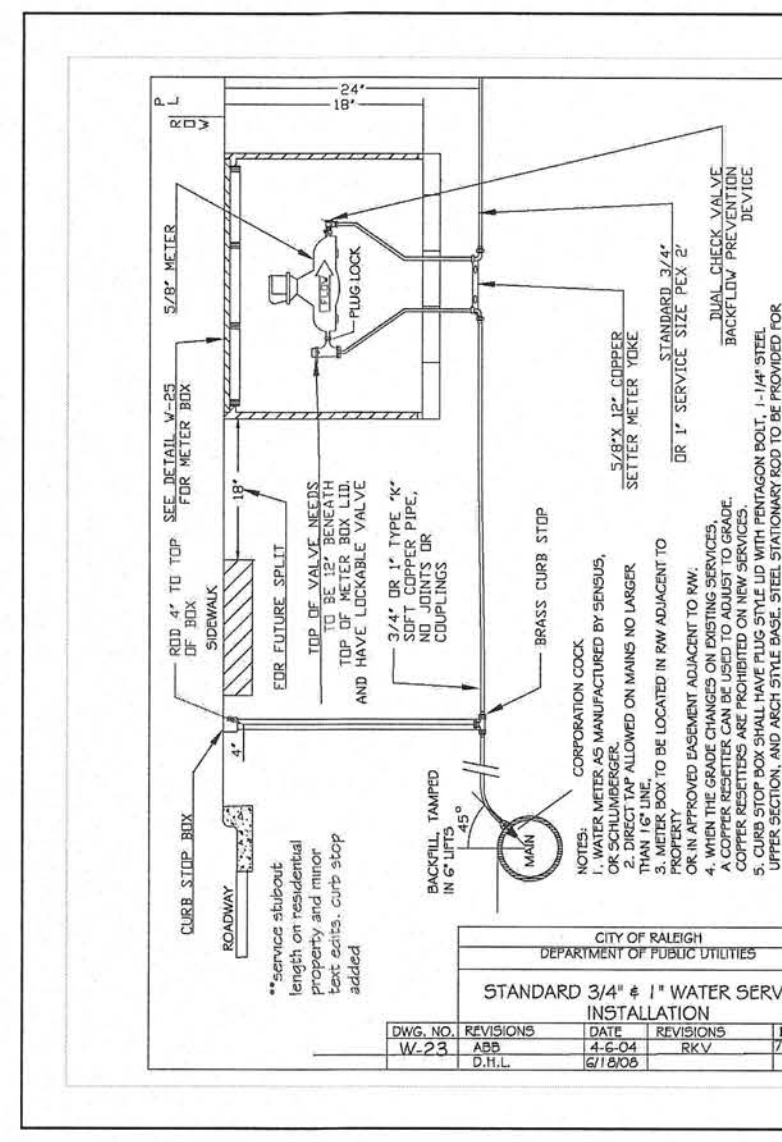
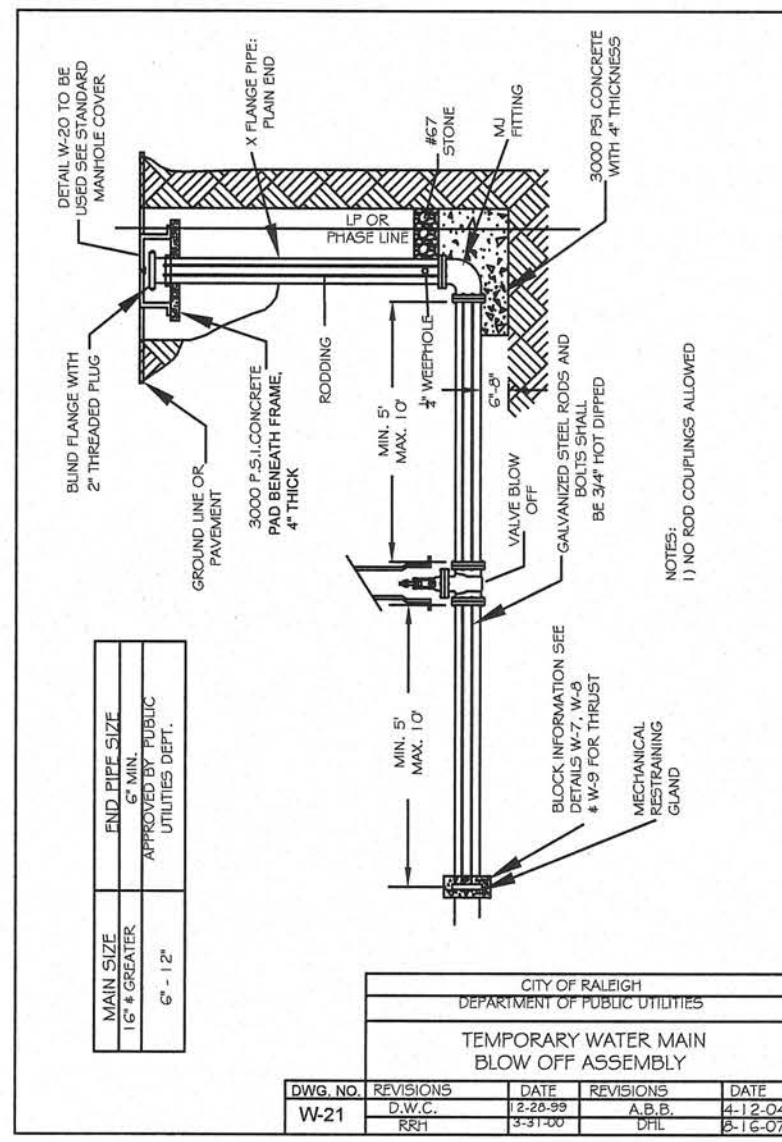
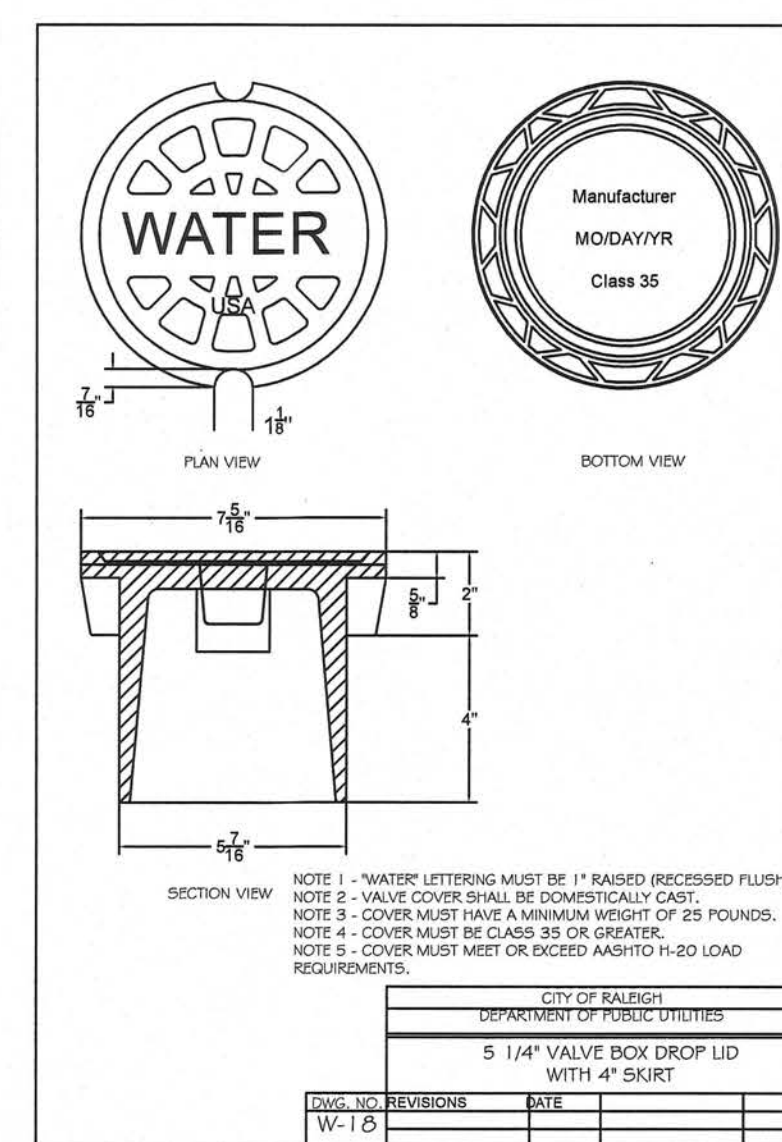
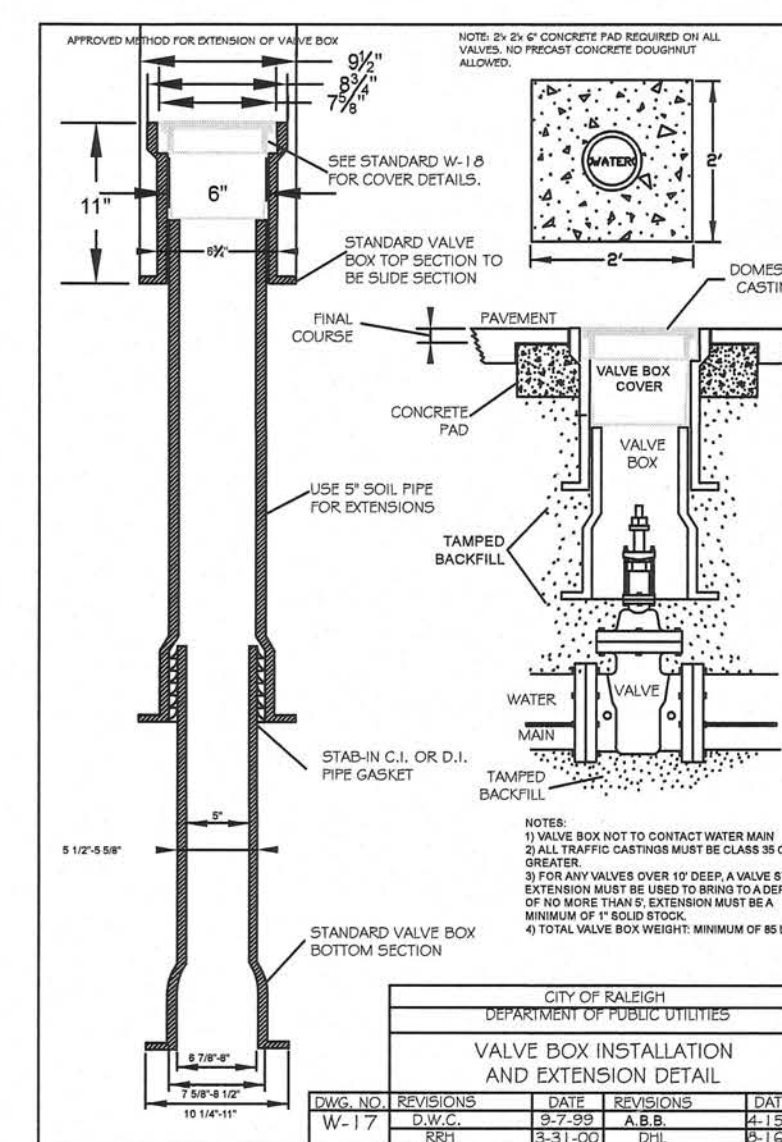
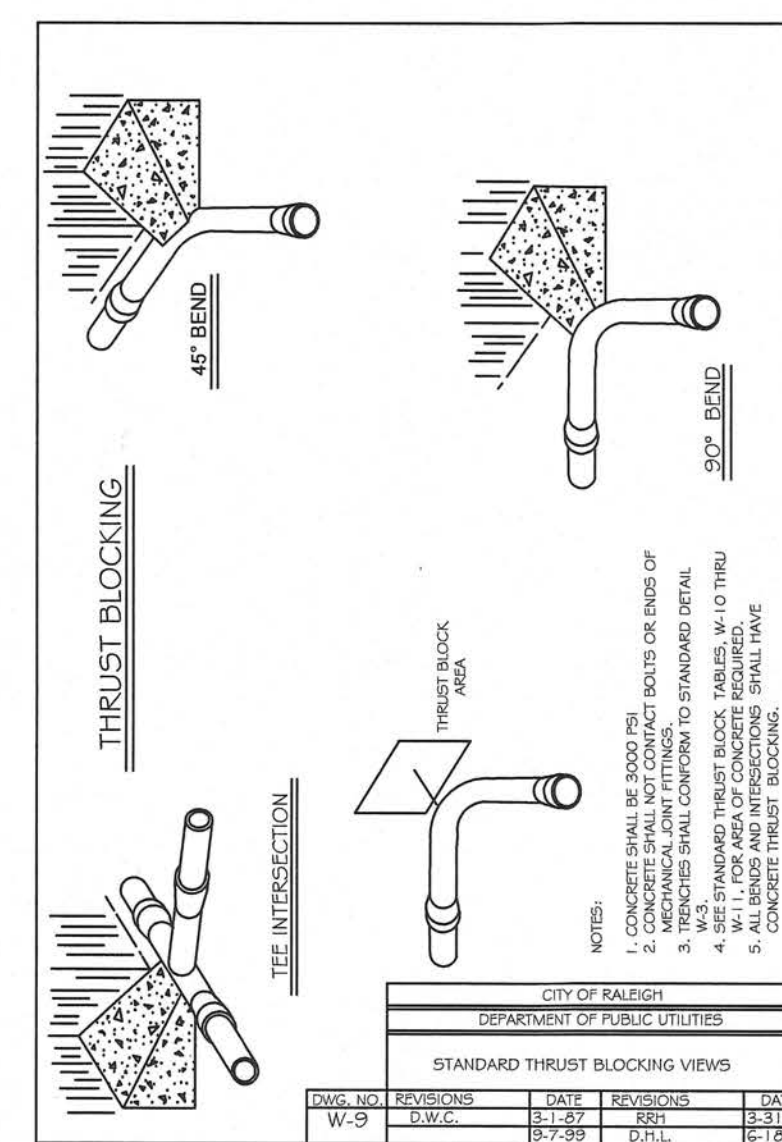
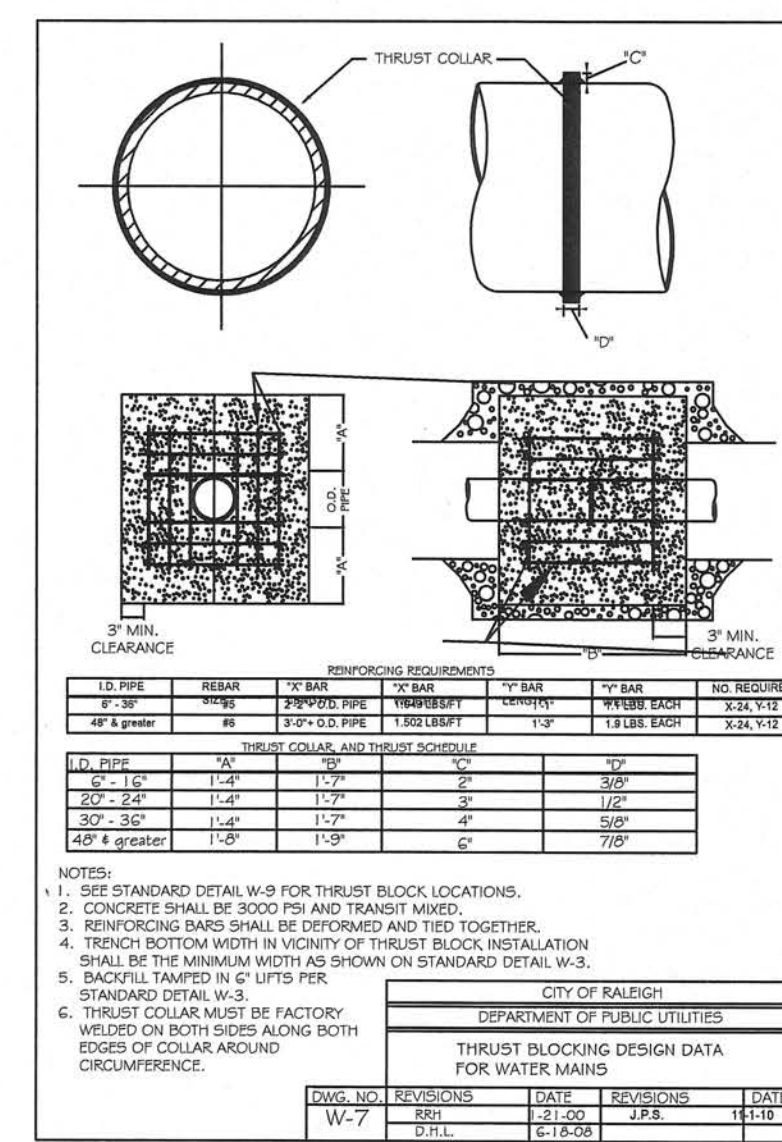
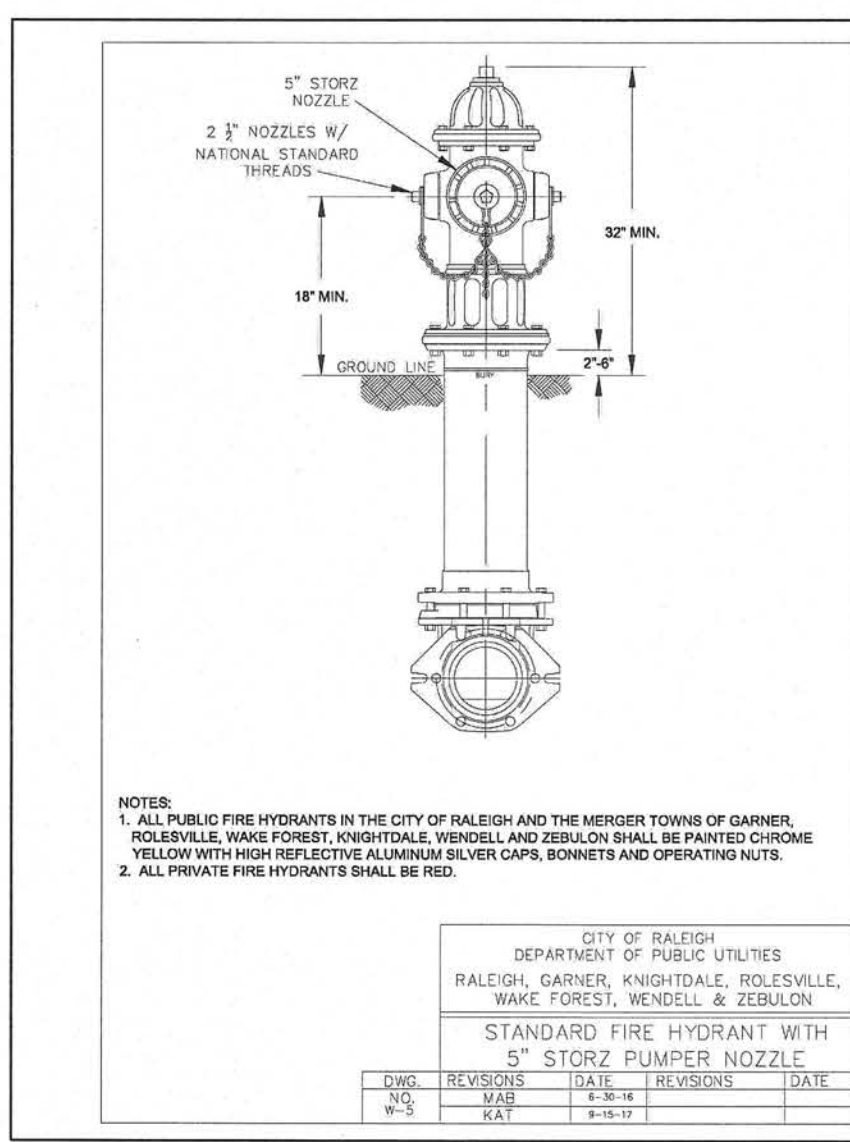
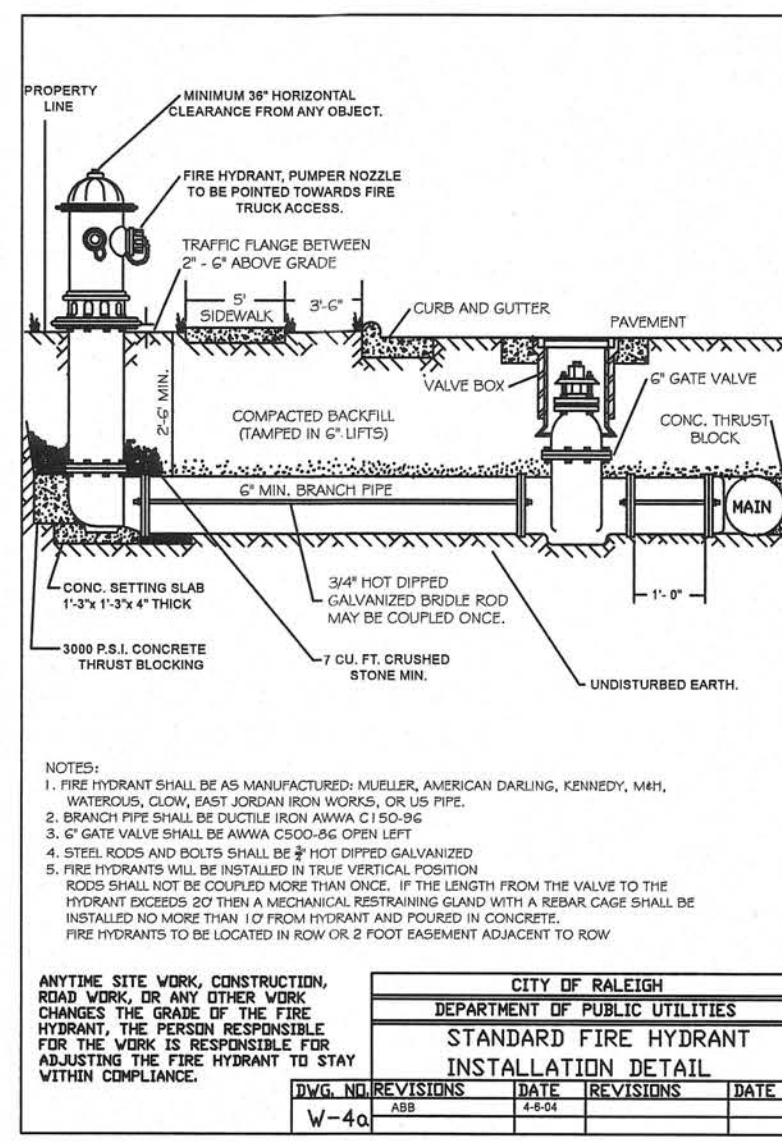
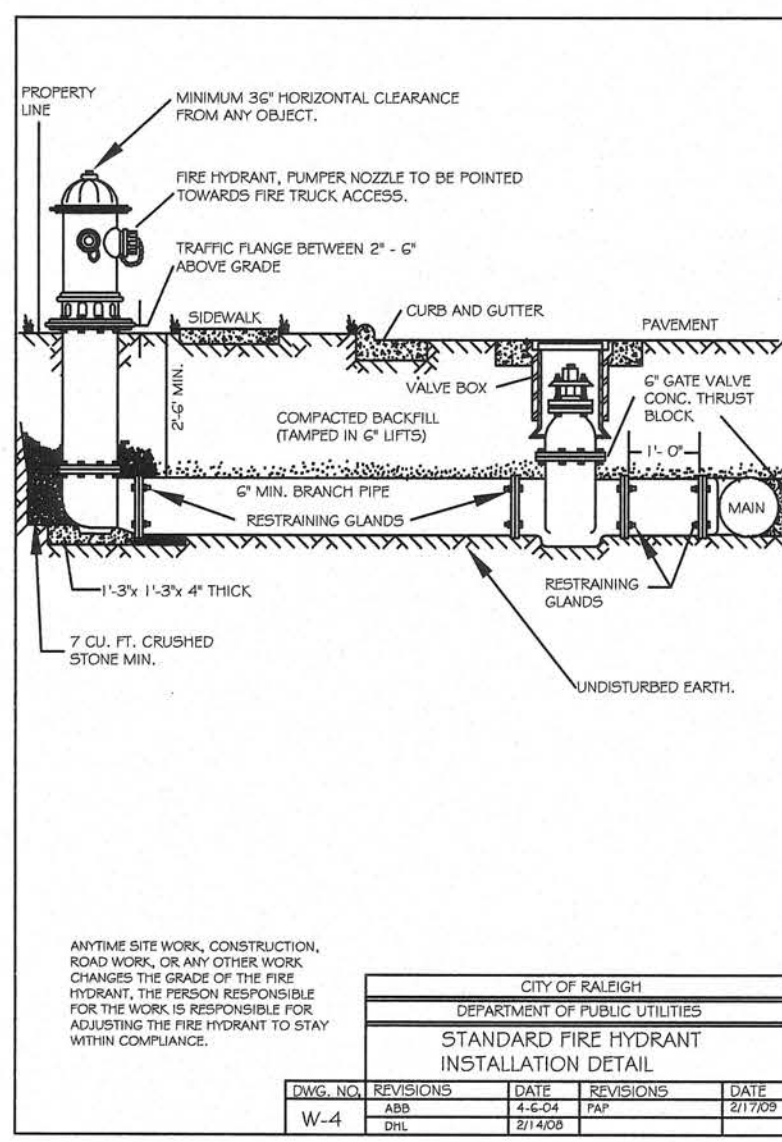
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LAND USE ADMINISTRATOR



SCALE	DRAWN
NTS	PDC
DATE	DECEMBER 5, 2023
REVISION	02/08/24 1st CD COMMENTS
REVISION	03/26/24 2nd CD COMMENTS
SHEET	19
PROJECT	1516

ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.



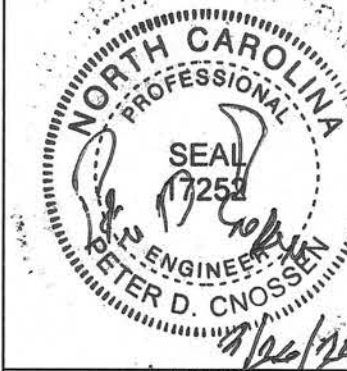


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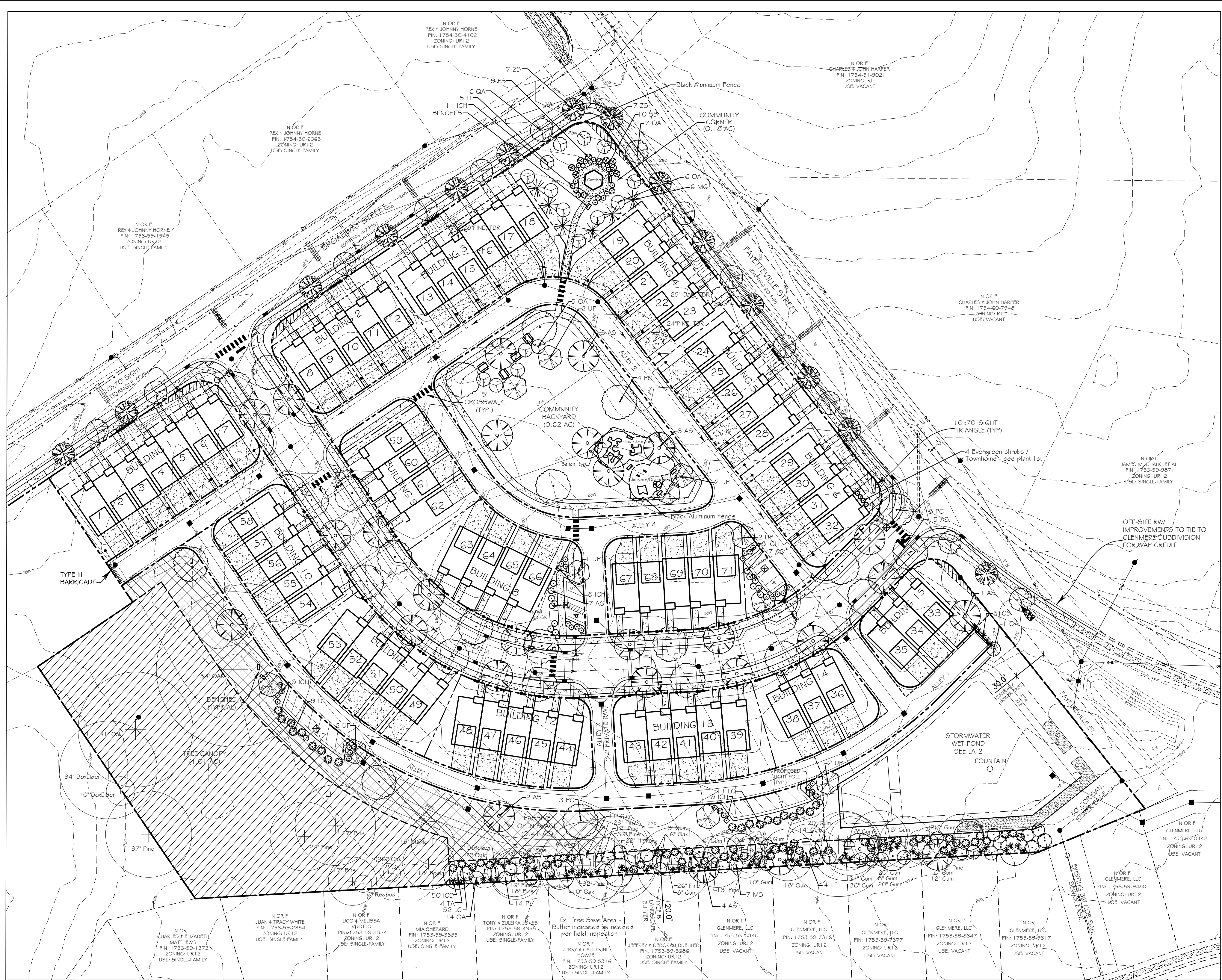
BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR







- Town of Knightdale Planting Requirements:**
- VEHICLE USE AREA:**  
 Required: All portions of vehicle use area within 60 feet of a trunk of a canopy tree  
 Canopy tree placed at the end of all parking rows  
 Provided: Large deciduous trees (UP and PC)  
 A row of evergreen shrubs provided to screen parking from ROW / drive isles  
**OTHER VEHICLE USE AREAS: Section 7.5.B.2**  
 Required: 20' Type B Buffer - 24 LF, 3 canopy trees, 5 understory trees, and 20 shrubs / 100 lf  
 Provided: 1 canopy tree, 1 understory tree, and 5 shrubs  
 (30' Sanitary Sewer Easement adjoins the buffer area)
  - BUILDING LANDSCAPE REQUIREMENTS:**  
 Required: Evergreen shrubs along foundation wall  
 Provided: A mix of shrubs: ICH, AG, ND, RAA, RAC, EJ, DV
  - STREET TREES:**  
 Required: 1 canopy tree / 40 lf of public ROW  
 Provided: Broadway Street and Fayetteville Street (25 and QA) 40' O.C. in 6' planting strip  
 Street A (PC and AS) 40' O.C. in 6' planting strip
  - TREE CANOPY COVERAGE:**  
 Required: 10% of site area  
 402,078.09 sf x 10% = 40,207.80  
 Provided: 43,909.45 sf provided
  - PERIMETER BUFFER YARDS:**  
 Required: South property line 512 LF - Existing trees to remain as shown  
 20' Type B Buffer, 3 canopy trees, 5 understory trees, and 20 shrubs / 100 lf  
 Provided: 12 canopy trees, 15 understory trees, and 102 shrubs
  - REPLACEMENT TREES:**  
 Required: Replacement trees required for trees greater than or equal to 15" Caliper  
 For every 12" of tree diameter removed, one new canopy tree (8' tall, 2" caliper) is required.  
 Provided: Trees removed: 24" Pine, 25" Oak, 28" Pine, 28" Magnolia, as noted on this sheet  
 Total - 105" caliper removed; 8 trees at 2" caliper proposed for replacement  
 Replacement trees in amenity area - total of 8 trees to replace caliper (PC and AS)

- PLANTING NOTES:**
- All plant materials to comply with American Standard for Nursery Stock ANSI Z60.
  - Plant locations to be approved in field prior to installation.
  - Substitutions of plant materials specified can only occur with prior approval by Landscape Architect.
  - Establish plant bed configurations. Landscape Architect to approve bed layout in field.
  - Install plants and mulch beds with 4" of pine straw.
  - Areas disturbed by grading to be seeded and strawed.
  - Landscape Contractor to maintain plant materials for a one year period following substantial completion per specifications.
  - Areas damaged from plant relocation or other activities of Landscape Contractor to be re-seeded and established at no additional cost to the owner.
  - All plant material shown is minimum required by the Town Code.

**PLANT SCHEDULE - CANOPY TREES**

QTY	KEY	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING
25	PC	PISTACIA CHINENSIS / CHINESE PISTACHIO	2" CAL. 8' HT.	B # B	40' O.C.
28	AS	ACER SACCHARUM 'BONFIRE' / MAPLE	2" CAL. 8' HT.	B # B	40' O.C.
4	TA	TILIA AMERICANA / AMERICAN LINDEN	2" CAL. 8' HT.	B # B	AS SHOWN
4	LT	LIRIODENDRON TULIPIFERA / TULIP POPLAR	2" CAL. 8' HT.	B # B	AS SHOWN
13	QA	QUERCUS ACUTISSIMA / SAW TOOTH OAK	2" CAL. 8' HT.	B # B	40' O.C.
14	ZS	ZELKOVA SERRATA 'VILLAGE GREEN' / ZELKOVA	2" CAL. 8' HT.	B # B	40' O.C.
11	UP	ULMUS PARVIFOLIA 'ALLEE' / CHINESE ELM	2" CAL. 8' HT.	B # B	AS SHOWN

**PLANT SCHEDULE - UNDERSTORY TREES**

QTY	KEY	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING
25	OA	OXYDENDRUM ARBOREUM / SOURWOOD	1.25" CAL. 6' HT.	B # B	AS SHOWN
14	PV	PINUS VIRGINIANA / VIRGINIA PINE	1.25" CAL. 6' HT.	B # B	AS SHOWN
7	MS	MAGNOLIA VIRGINIANA 'SWEETBAY' / SWEETBAY MAGNOLIA	1.25" CAL. 6' HT.	CONT.	AS SHOWN

ST = STREET TREE; PT = PARKING TREE; BT = BUFFER TREE

**PLANT SCHEDULE - SHRUBS**

QTY	KEY	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING
72	LC	LOROPETALUM CHINENSIS 'RUBY' / FRINGE FLOWER	30" HT. / 4 GAL.	CONT.	5' O.C.
55	ICS	ILEX CRENATA 'STEEDS' / JAPANESE HOLLY	30" HT. / 4 GAL.	CONT.	5' O.C.
43	ICH	ILEX CRENATA 'HELLERI' / JAPANESE HOLLY	18" HT. / 3 GAL.	CONT.	4' O.C.
56	AG	ABELIA X GRANDIFLORA 'KALEIDOSCOPE' / GLOSSY ABELIA	18" HT. / 3 GAL.	CONT.	5' O.C.
42	ND	NAIDNIA DOMESTICA 'GULF STREAM' / NAIDNIA	18" HT. / 3 GAL.	CONT.	3' O.C.
42	RAA	RHOODODENDRON 'AUTUMN ANGEL' / AZALEA	18" HT.	CONT.	3' O.C.
42	RAC	RHOODODENDRON 'AUTUMN CHIFFON' / AZALEA	18" HT./3 GAL.	CONT.	3' O.C.
43	EJ	ELONYMUS JAPONICA 'GREENSPIRE' / ELONYMUS	18" HT./3 GAL.	CONT.	2' O.C.
43	DV	DISTYLIUM 'VINTAGE JADE' / JADE BLUE ISU TREE	18" HT./3 GAL.	CONT.	4' O.C.

○ REPRESENTS A FOUNDATION SHRUB - A MIX OF THOSE NOTED SHALL BE USED ALONG THE FOUNDATION OF THE BUILDINGS

**PLANT SCHEDULE - COMMUNITY CORNER and COMMUNITY BACKYARD**

QTY	KEY	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING
6	MG	MAGNOLIA GRANDIFLORA 'BRACKENS BROWN BEAUTY' / MAGNOLIA	1.25" CAL. 6' HT.	B # B	AS SHOWN
10	SB	SPIRAEA X BUMALDA 'ANTHONY WATERER' / SPIRAEA	18" HT./3 GAL.	CONT.	4' O.C.
9	PS	PANICUM VIRGATUM 'SHENANDOAH' / RED SWITCH GRASS	18" HT./3 GAL.	CONT.	5' O.C.
5	LI	LAGERSTROEMIA INDICA 'NATCHEZ' / CRAPE MYRTLE	1.25" CAL. 6' HT.	B # B	AS SHOWN

- Residential Landscaping and Plat Notes:**  
 The following paragraphs shall be noted on an approved Preliminary Plat and Final Plat:
- Each single-family or duplex lot shall contain a minimum of one (1) canopy tree for every two-thousand (2,000) square feet of lot area or fraction thereof up to twenty-thousand (20,000) square feet in lot area. Any portion of the residential lot occupied by a recorded utility easement shall not be included as part of the total lot area. The location of planting to account for physical conditions may be adjusted by the Land Use Administrator.
  - The use of existing trees meeting the following standards to satisfy this requirement is encouraged. Existing large shade trees measuring more than six (6) inches in DBH may be counted towards fulfilling this requirement.
  - Required street trees (Section 7.4 (J)) may not be counted towards the fulfillment of the residential landscaping requirement. Apart from required street trees, all other trees required under this Chapter shall be planted within the private lot.
  - Foundation plantings consisting of evergreen shrubs shall be installed along the entire foundation wall of the building. Plant installation shall be a minimum of two (2) feet in height planted at four (4) foot intervals.

**Landscape Plan Sheet(s):** The Land Use Administrator may allow the following Certificate to be placed on the Landscape Plan sheets for Construction Drawings for Site Plans and Major Subdivisions if a reasonable amount of time has passed, and a Lighting Plan has not yet been able to be procured from the lighting utility provider:

**a. Lighting Plan Certification:** I hereby certify I am the applicant and that a Lighting Plan shall be submitted by the utility provider to the Knightdale Development Services Department for approval prior to the installation of all required lighting. The lighting plan shall designate the proposed location of all light poles and shall be in compliance with Section 7.7 of the Town of Knightdale UDO. If a proposed light pole location should present a conflict with existing or proposed vegetation according to the approved construction drawings, the Landscaping Plan shall be revised to comply with the Town of Knightdale UDO requirements. All revisions are subject to Town of Knightdale approval.

Date: \_\_\_\_\_ Applicant: \_\_\_\_\_  
 I (officer authorized to take acknowledgments) do hereby certify that \_\_\_\_\_ personally appeared before me this day and acknowledged the due execution of this certificate. Witness my hand and (where an official seal is required by law) official seal this \_\_\_\_ day of \_\_\_\_\_, A.D., \_\_\_\_ (year).

Official Seal: \_\_\_\_\_ Notary: \_\_\_\_\_  
 Commission Expires: \_\_\_\_\_

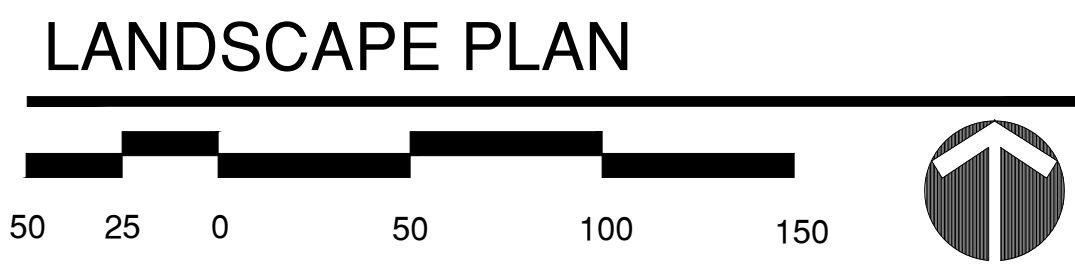
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By: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

By: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LAND USE ADMINISTRATOR

TOWN APPROVED STANDARDS SHALL CONTROL. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THESE CONSTRUCTION DRAWINGS AND THE TOWN OF KNIGHTDALE'S APPROVED STANDARDS FOR THIS PROJECT, THE APPROVED STANDARDS SHALL CONTROL. TOWN OF KNIGHTDALE APPROVED STANDARDS SHALL MEAN ALL DEVELOPMENT DOCUMENTS NECESSARY FOR APPROVAL FOR THE PROPERTY INCLUDING, BUT NOT LIMITED TO, ANY SPECIAL USE PERMIT, SUBDIVISION PLAN, SITE PLAN, SUBDIVISION PLAT(S), PHASING SCHEDULE, DEVELOPMENT AGREEMENT, UTILITY ALLOCATION AGREEMENT, ANNEXATION AGREEMENT, THE TOWN OF KNIGHTDALE STANDARD SPECIFICATION AND DETAILS MANUAL AND APPLICABLE PROVISIONS OF THE NORTH CAROLINA STATE BUILDING CODE.



**Jones & Crossen ENGINEERING, PLLC**  
 Civil Engineering | Construction Management | Land Planning

**Coaly DESIGN**  
 LANDSCAPE ARCHITECTURE  
 537 E. Martin Street  
 Raleigh, NC 27601  
 919.539.0012

**CAMDEN PARK**  
 CONSTRUCTION DRAWINGS  
 LANDSCAPE PLAN  
 KNIGHTDALE, NC

**Professional Seals**

**Revisions**

No.	Description	Date	By	Scale
1	Town Comments 2.2.24	KJS	3/26/24	RBS
2	Town Comments 3.26.24	KJS	3/26/24	KJS

Date issued: 11.9.23  
 Scale: 1"=60'  
 Drawn by: RBS  
 Checked by: KJS

**LA-1**





### Outdoor Lighting Roadway LED



The Roadway LED is a green solution and great fit for streets, roads, long, narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose low to medium light output on wood or fiberglass poles (or mount on an existing pole). Available with one to four fixtures per pole, depending on the fixture/pole combination selected.

LED (Light Emitting Diode)	50   75   105   150   215   280 watts
Mounting heights	25', 30', 35'
Color	Gray, Black
Poles	Fiberglass Metal (special conditions) Wood

For additional information, visit us at [duke-energy.com/OutdoorLighting](http://duke-energy.com/OutdoorLighting) or call us toll free at 866.768.6477.



### Outdoor Lighting Roadway LED

Light source: LED (white)	IESNA Backlight-Illumin - Glare (BUG) Rating	
Lumens: 4,807 - 25,050 (fixture dependent)		
Wattage	Light Pattern	
LED 50	IESNA Type III (medium oval)	B1-U0-G1
LED 75	IESNA Type II (long oval)	B2-U0-G2
LED 105	IESNA Type II (long oval)	B2-U0-G3
LED 150	IESNA Type III (medium oval)	B2-U0-G2
LED 215	IESNA Type III (medium oval)	B3-U0-G3
LED 280	IESNA Type III (medium oval)	B3-U0-G4



Color temperature: 4,000K  
Warm-up and restrike time: Instant on (no warm-up or restrike time)

Poles available:	Mounting height	Color
Fiberglass	25', 30', 35'	Gray
	25', 30', 35'	Black (additional cost)
Wood	25', 30', 35'	Standard
Metal (special conditions)*	25', 30', 35'	Gray

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

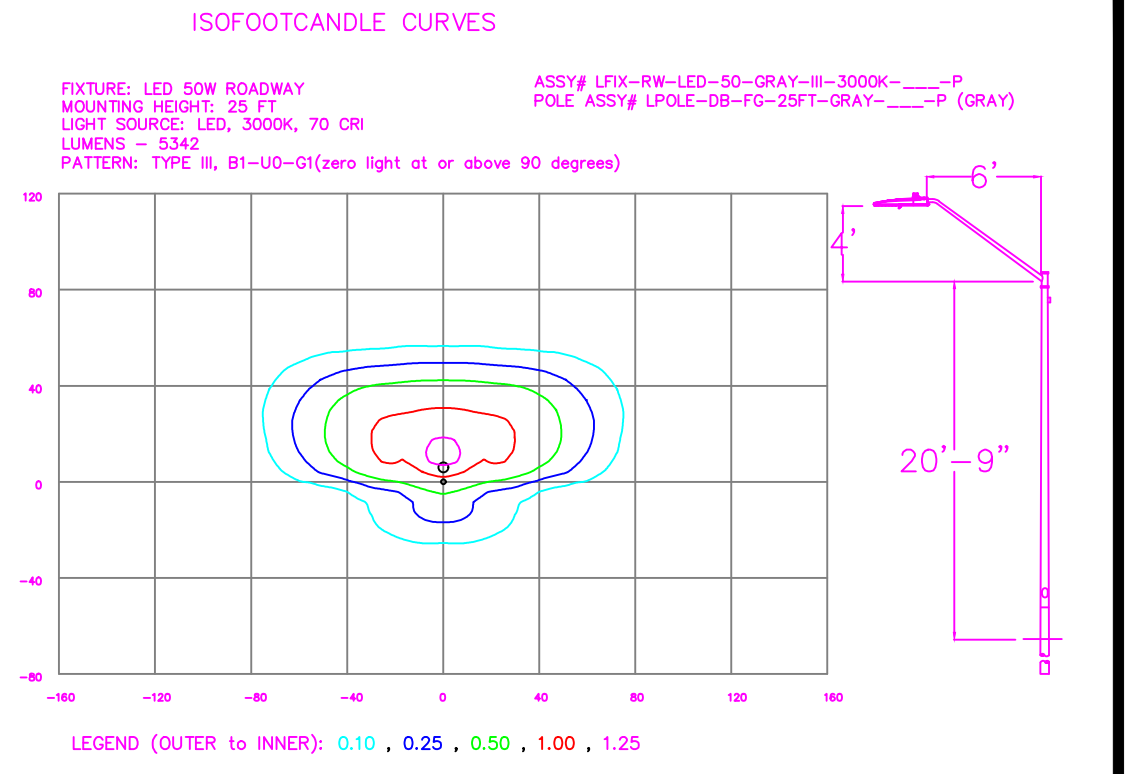
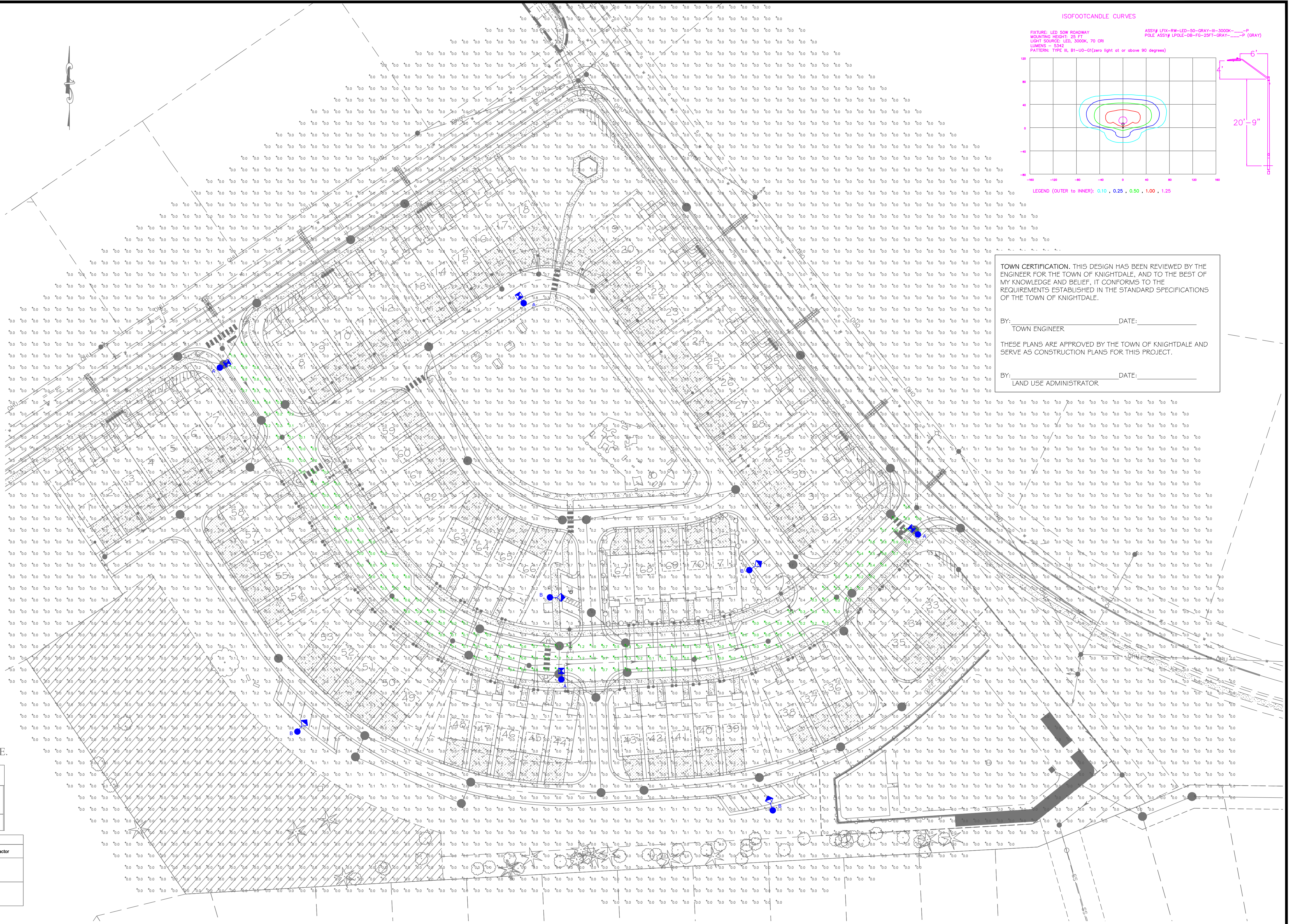
\*2" raised foundation available when required

ALL SITE LIGHTING SHALL BE DESIGNED TO PREVENT OFF-SITE GLARE.

### Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Road	✕	0.3 fc	1.2 fc	0.0 fc	N/A	N/A

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
✕	A	4	LED 50w Roadway - Type III - 3000K - Street	1	5312	0.85
●	B	4	LED 50w Roadway - Type III - 3000K - Parking	1	5312	0.85



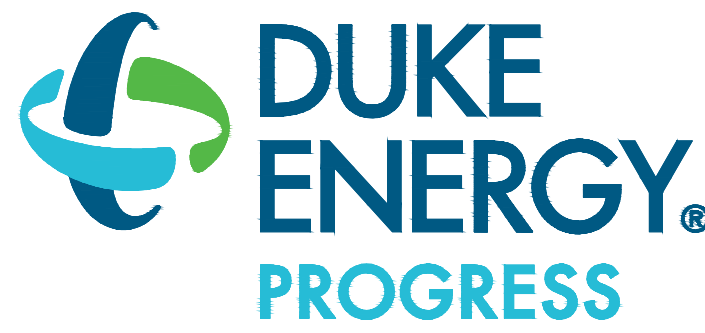
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BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
LAND USE ADMINISTRATOR

**LIGHTING DESIGN TOLERANCE**  
The calculated footcandle light levels in 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.



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NO.	DATE	REVISION	BY
Rev B	02/07/24	UPDATED SITE PLAN	NJ

CAMDEN PARK Cary, NC	
SITE LIGHTING ARRANGEMENT	
Designed by	DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by	N. Johnson Scale 1" = 40'
Date	02/07/2024 Size Drawing size "D"
Description	LED 50w Roadway
Drawing No.	22-0362B Sht. 1 OF 1