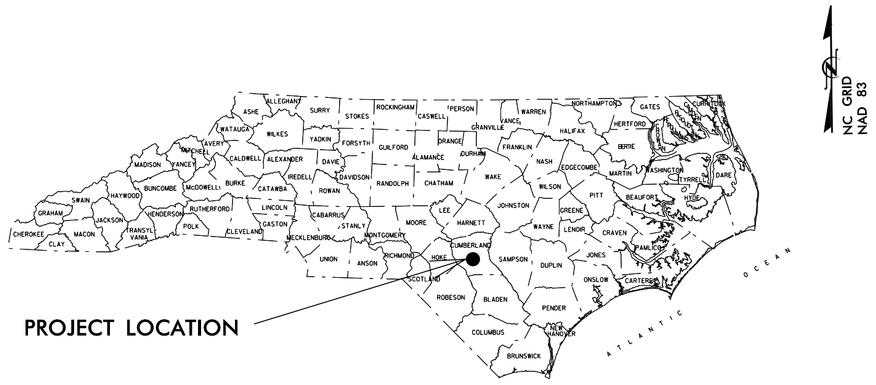
HIGHWAY LANDSCAPE DEVELOPMENT PROJECT

T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
	3706.1.25	L-1	11
FED. PROJ. #	DESCRIPTION		DIVISION
-	ENHANCEMENT		6

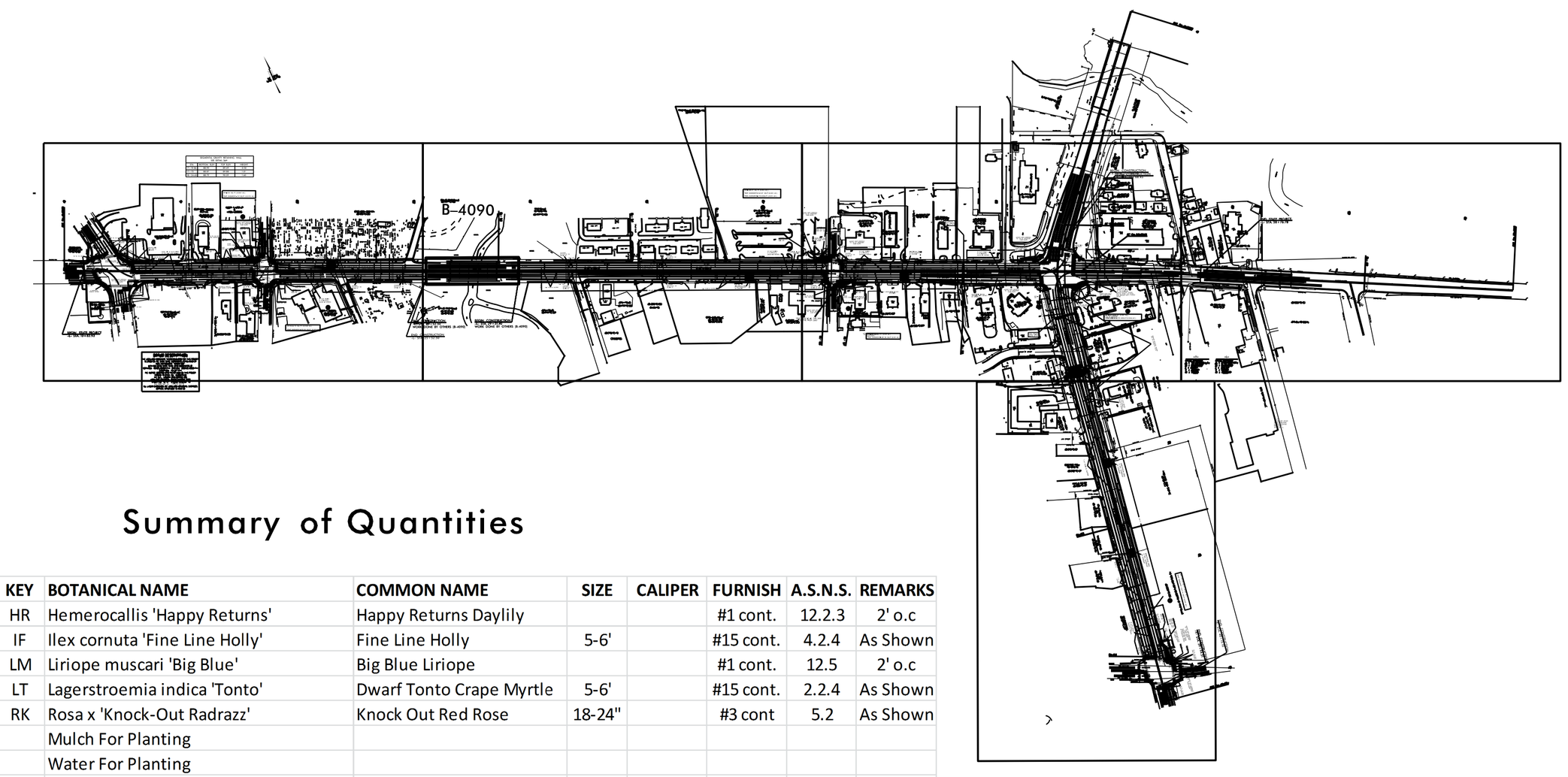
PROJECT: 3706.1.25 CUMBERLAND COUNTY



CUMBERLAND COUNTY

LOCATION: GROVE STREET (HWY 24 / 210)

TYPE OF WORK: ENHANCEMENT PLANTING - IRRIGATION



Summary of Quantities

DES	SEC	QTY.	UNIT	KEY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	FURNISH	A.S.N.S.	REMARKS
L	1670	625	EA	HR	Hemerocallis 'Happy Returns'	Happy Returns Daylily			#1 cont.	12.2.3	2' o.c
L	1670	88	EA	IF	Ilex cornuta 'Fine Line Holly'	Fine Line Holly	5-6'		#15 cont.	4.2.4	As Shown
L	1670	527	EA	LM	Liriope muscari 'Big Blue'	Big Blue Liriope			#1 cont.	12.5	2' o.c
L	1670	39	EA	LT	Lagerstroemia indica 'Tonto'	Dwarf Tonto Crape Myrtle	5-6'		#15 cont.	2.2.4	As Shown
L	1670	96	EA	RK	Rosa x 'Knock-Out Radrazz'	Knock Out Red Rose	18-24"		#3 cont	5.2	As Shown
L	1670	80	CY		Mulch For Planting						
L	1670	30	M/G		Water For Planting						
L	1670	2136	SY		Pre emergence Herbicidal treatment						
L	1670	2136	SY		Post emergence Herbicidal treatment						
L	1670	1532	SY		Tif Blair Bermuda Sod						
L	1670	1	Ea		Irrigation System						

CONVENTIONAL SYMBOLS

County Line
City or Town Line
Exist. Right of Way Line Marker
Prop. Right of Way Line Marker (By Others)
Prop Right of Way Line Marker (By Contract)
Exist. Control of Access Line
Prop. Control of Access Line
Property Line
Easement Line
Slope Stake Line
Exist. Fence
Prop. Woven Wire Fence
Prop. Chain Link Fence
Exist. Road
Prop. Road
Guardrail
Survey Line
Denotes Line Equality
Bridge
Culvert
Railroad
Woods
Exist. Telephone Pole
Prop. Telephone Pole
Tower Pole and Line
Exist. Power Pole
Prop. Power Pole
Sanitary Sewer Line
Water Line
Gas Line
Picnic Shelter
Regeneration
Reforestation

INDEX OF L SHEETS:

L-1 ... TITLE, DESCRIPTION, LOCATION
L-2 ... PLANTING DETAILS
L-3 - L-6 ... PLANTING PLANS
L-7 - L-11 ... IRRIGATION PLANS

PREPARED BY: BM DATE: JAN/2016

REVISIONS

DATE	DESCRIPTION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

LOCATION: GROVE STREET (HWY 24 / 210)

TYPE of WORK: Landscape Planting

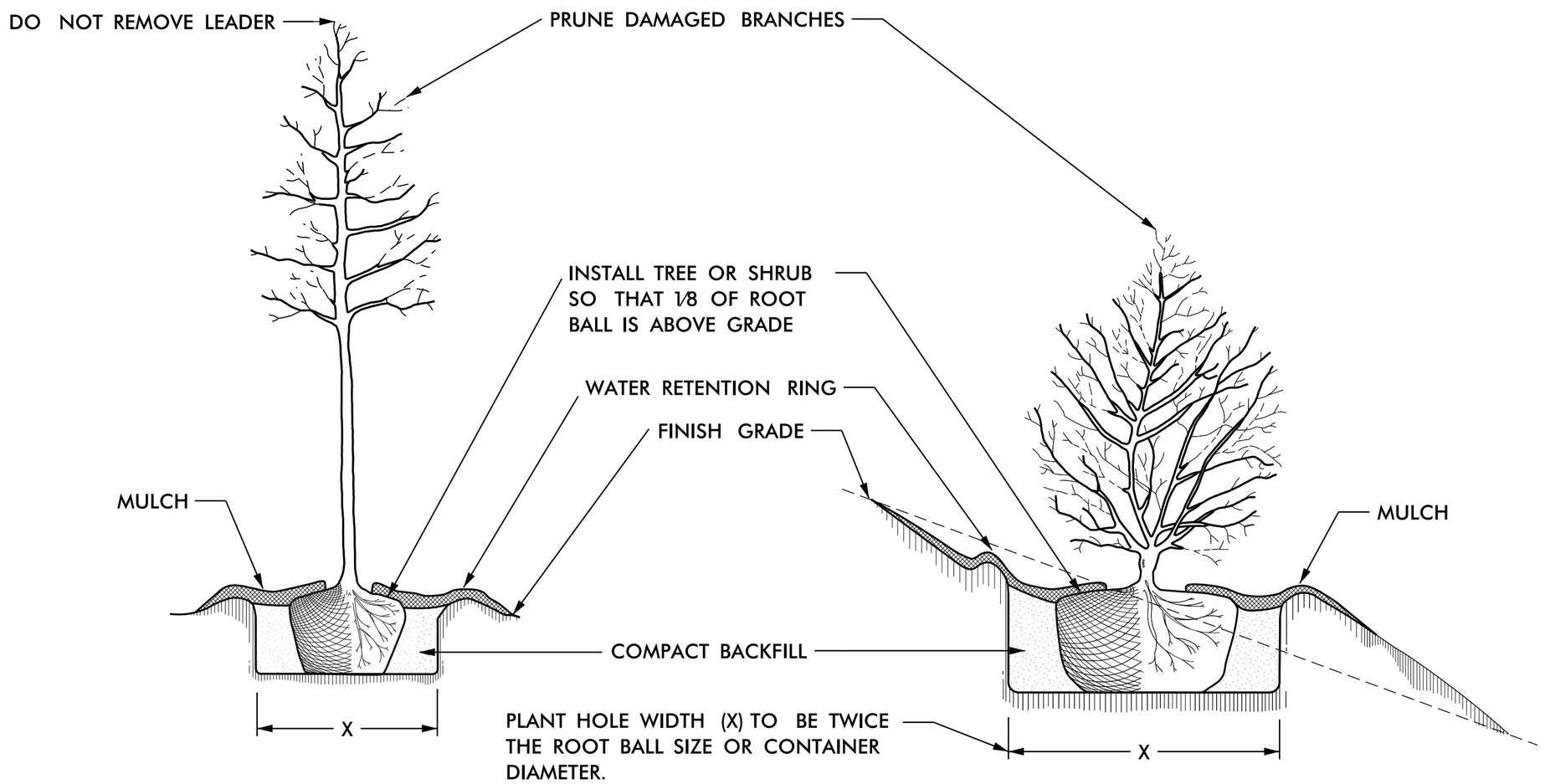
COUNTY: CUMBERLAND COUNTY

2004 American Standard for Nursery Stock

2012 NCDOT STANDARD SPECIFICATIONS

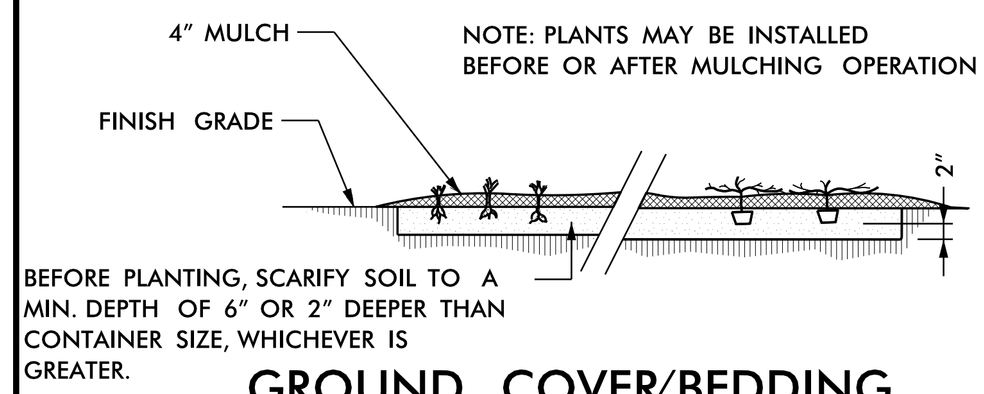
PREPARED IN THE OFFICE OF:
NCDOT- ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT SECTION
1557 MAIL SERVICE CENTER
RALEIGH NC 27699 919-707-2920

16-FEB-2016 13:27
C:\Users\dkbeverley\Documents\Documents\Projects\City of Fayetteville\Grove Street W-5335\Landscape Plans\Final Plans\5335 landscape pln..dgn
$$$$USERNAME$$$$

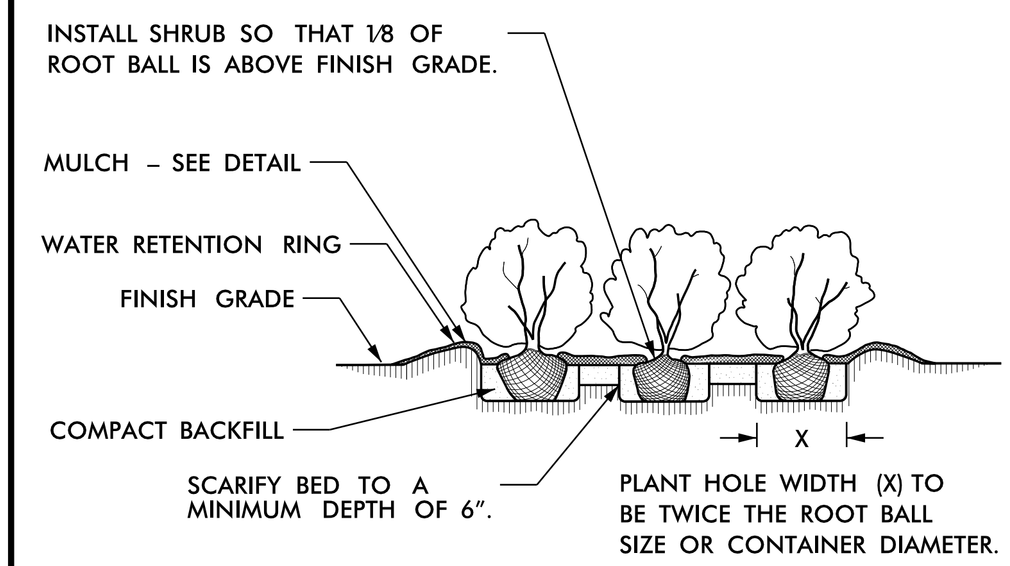


TREE OR SHRUB PLANTING DETAIL
(LEVEL GROUND)

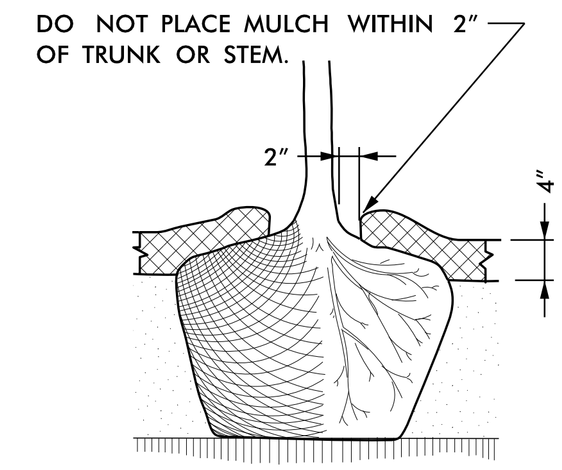
TREE OR SHRUB PLANTING DETAIL
(SLOPING GROUND)



GROUND COVER/BEDDING PLANT DETAIL



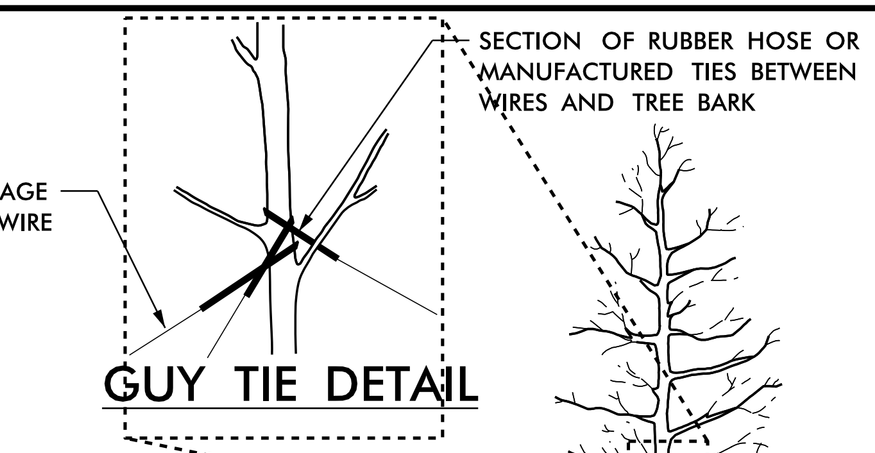
SHRUB BED PLANTING DETAIL



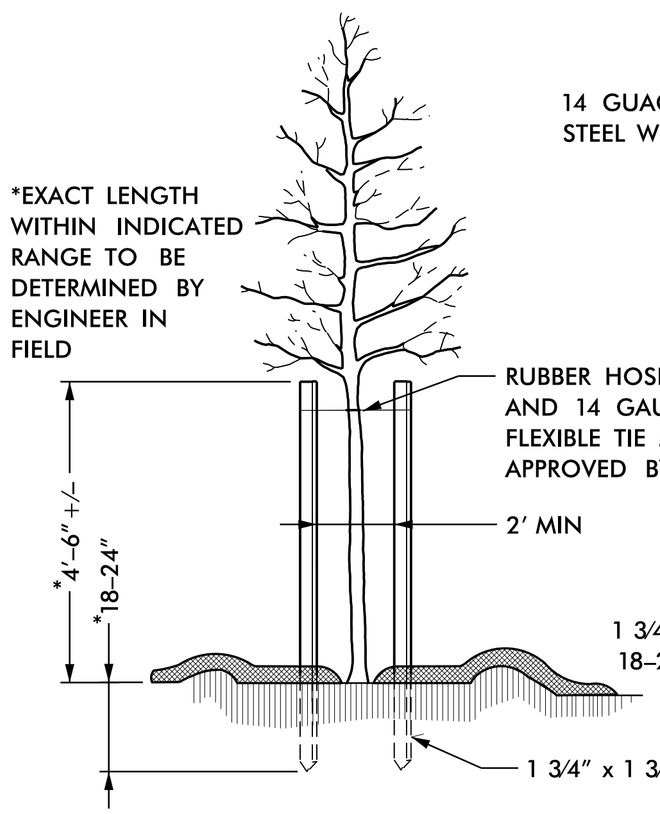
MULCH DETAIL

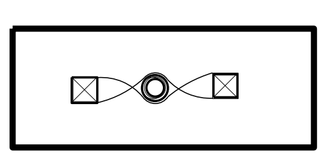
NOTES:

- SCHEDULE FOR PLANT HOLE SIZE: PLANT HOLE WIDTH (X) TO BE TWICE THE ROOT BALL SIZE OR CONTAINER DIAMETER.
- SEE STANDARD SPECIFICATIONS FOR PLANT BED FUMIGATION AND HERBICIDAL TREATMENT.
- APPLY FERTILIZER AT PLANTING TIME IN THE FORM OF A SLOW RELEASE PELLET OR TABLET. APPLY AT RATE RECOMMENDED BY MANUFACTURER. BOTH RATE AND FORMULATION MUST BE APPROVED BY FIELD ENGINEER PRIOR TO APPLICATION.
- REMOVE WIRE BASKET AND FOLD BURLAP BACK FROM TOP OF ROOT BALL BEFORE BACKFILLING IS COMPLETE.
- ALL PRUNING TO FOLLOW STANDARD ARBORICULTURAL PRACTICES AS SPECIFIED BY INTERNATIONAL SOCIETY OF ARBORICULTURE.
- DO NOT ATTEMPT TO STRAIGHTEN A TREE THAT HAS BEEN PLANTED AT AN ANGLE WITH THE USE OF STAKING OR GUYING. DIG TREE AND REPLANT TO UPRIGHT POSITION.



GUY TIE DETAIL

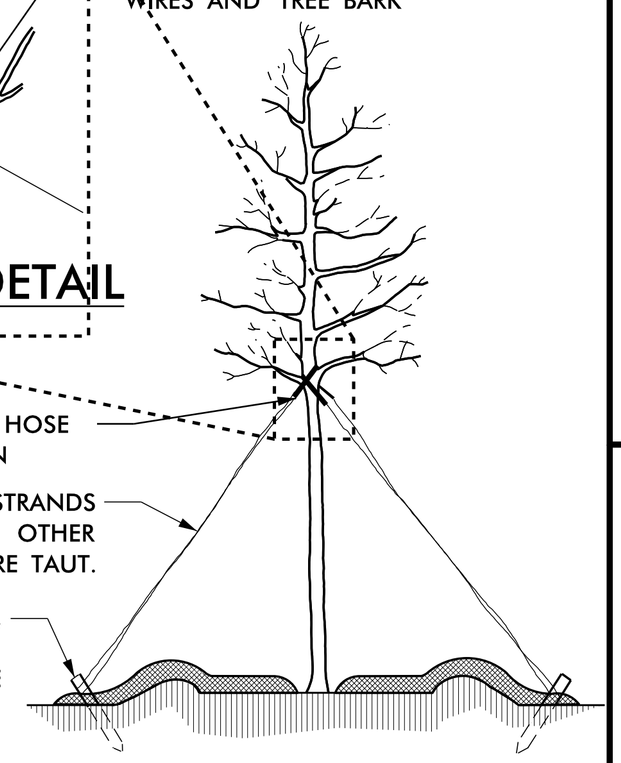


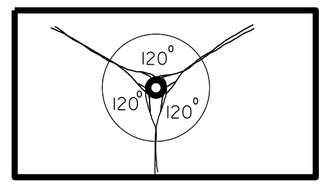


PLAN VIEW

STAKING DETAIL
(TREES 6'–10')

USE AS DIRECTED BY FIELD ENGINEER

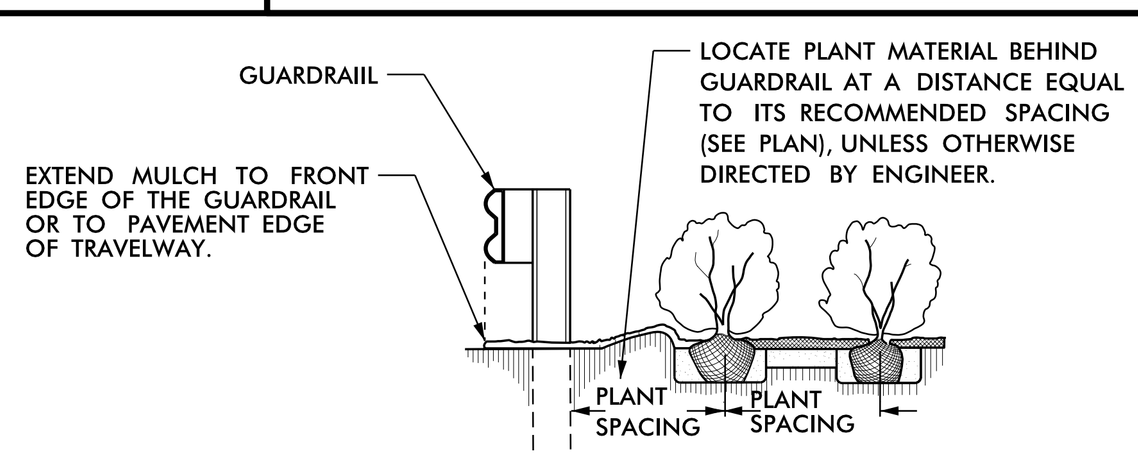




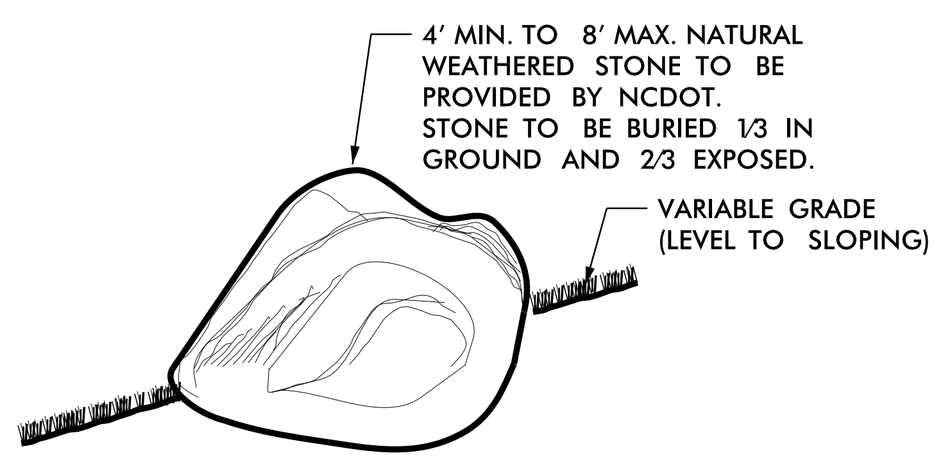
PLAN VIEW

GUYING DETAIL
(TREES 10' OR LARGER)

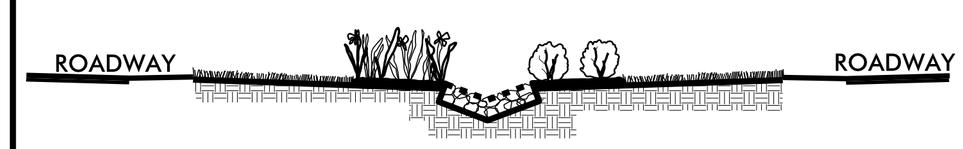
USE AS DIRECTED BY FIELD ENGINEER



GUARDRAIL MULCHING DETAIL
USE AS DIRECTED BY FIELD ENGINEER



BOULDER PLACEMENT DETAIL TYPICAL
SCALE: NTS



MIN. 12" DEEP CLASS "A" STONE ON FILTER FABRIC LINER IN DITCH. PLACE STONE FLUSH WITH DITCH GRADE FOR MAXINUM WATER FLOW.

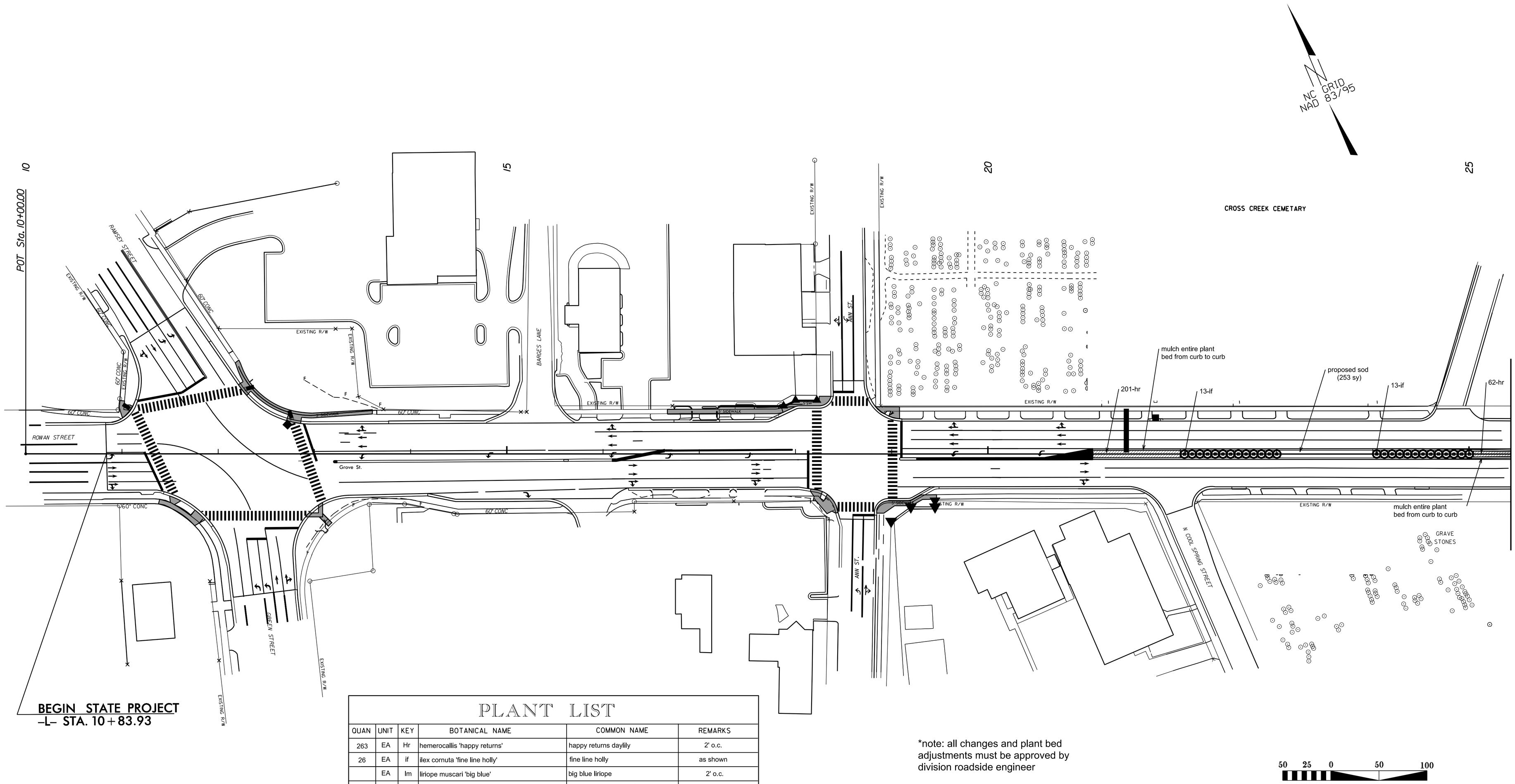
CLASS "A" STONE DITCH LINING DETAIL

Planting Details

North Carolina Department of Transportation
Roadside Environmental Unit
Landscape Design & Development Section

PROJECT TITLE :
GGROVE STREET
CUMBERLAND COUNTY

Plans Drawn By:	BM
Scale	AS NOTED
Date	1 / 31 /2016
Sheet Description	
T.I.P. #	3706.1.25
Sheet #	L-2



*note: all changes and plant bed adjustments must be approved by division roadside engineer

PLANT LIST

QUAN	UNIT	KEY	BOTANICAL NAME	COMMON NAME	REMARKS
263	EA	Hr	hemerocallis 'happy returns'	happy returns daylily	2' o.c.
26	EA	if	ilex cornuta 'fine line holly'	fine line holly	as shown
	EA	lm	liriope muscari 'big blue'	big blue liriope	2' o.c.
	EA	lt	lagerstroemia indica 'tonto'	dwarf tonto crape myrtle	as shown
	EA	rk	rosa x 'knock-out' radrazz	knock out red rose	4' o.c.
253	sy		tif blair bermuda sod		

NCDOT - ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT
1557 MAIL SERVICE CENTER, RALEIGH, NC 27699-1557
PH: 919-707-2920 FAX: 919-715-2554
http://www.ncdot.org/doh/operations/dp chief eng/roadside/

Grove Street (Hwy 24 / 210)
Cumberland County

project #: 3706.1.25

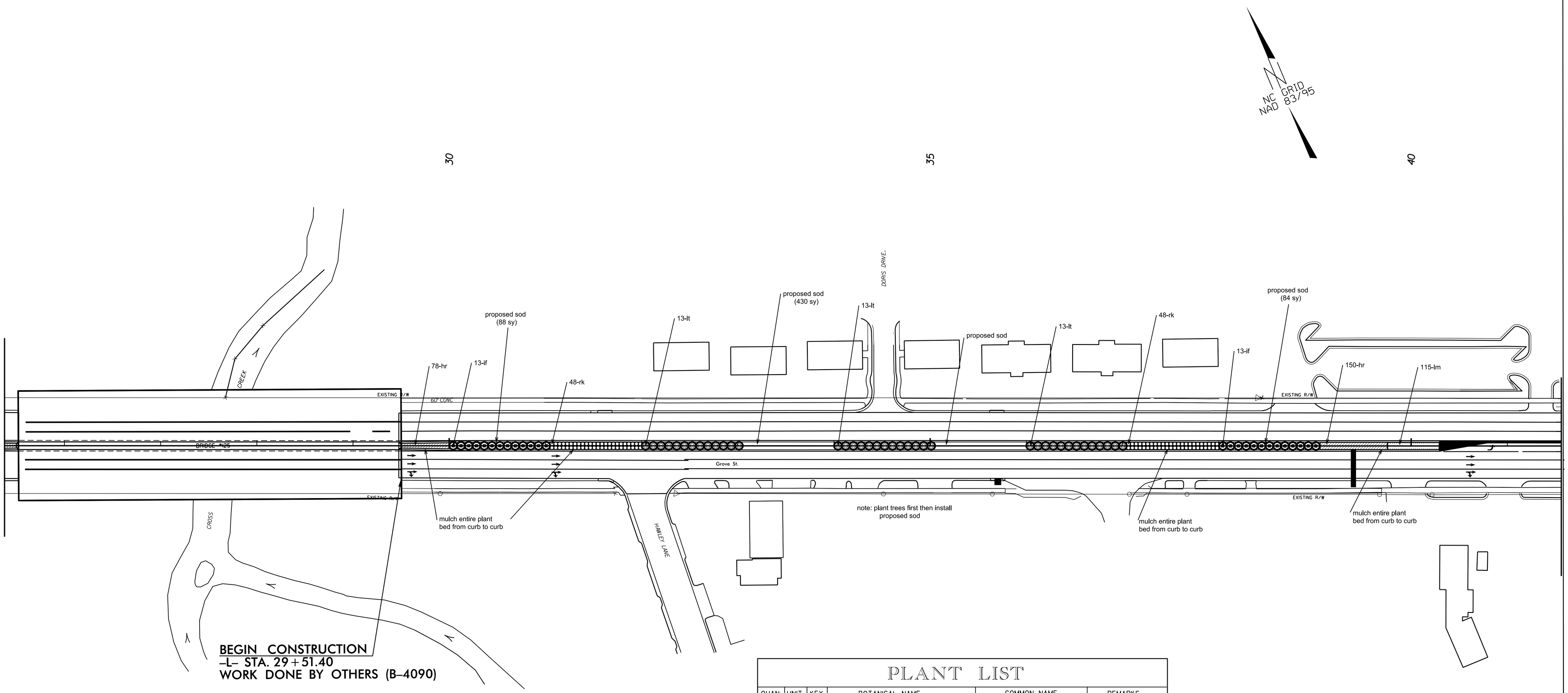
reu engineer: B. Minter Sr.

sheet description: landscape plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–3
total sheet no : 11



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PLANT LIST

QUAN	UNIT	KEY	BOTANICAL NAME	COMMON NAME	REMARKS
228	EA	Hr	hemerocallis 'happy returns'	happy returns daylily	2' o.c.
26	EA	if	ilex cornuta 'fine line holly'	fine line holly	as shown
115	EA	lm	liriope muscari 'big blue'	big blue liriope	2' o.c.
39	EA	lt	lagerstroemia indica 'tonto'	dwarf tonto crape myrtle	as shown
96	EA	rk	rosa x 'knock-out' radrazz	knock out red rose	4' o.c.
607	sy		tif blair bermuda sod		

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Grove Street (Hwy 24 / 210)
Cumberland County
project #: 3706.1.25

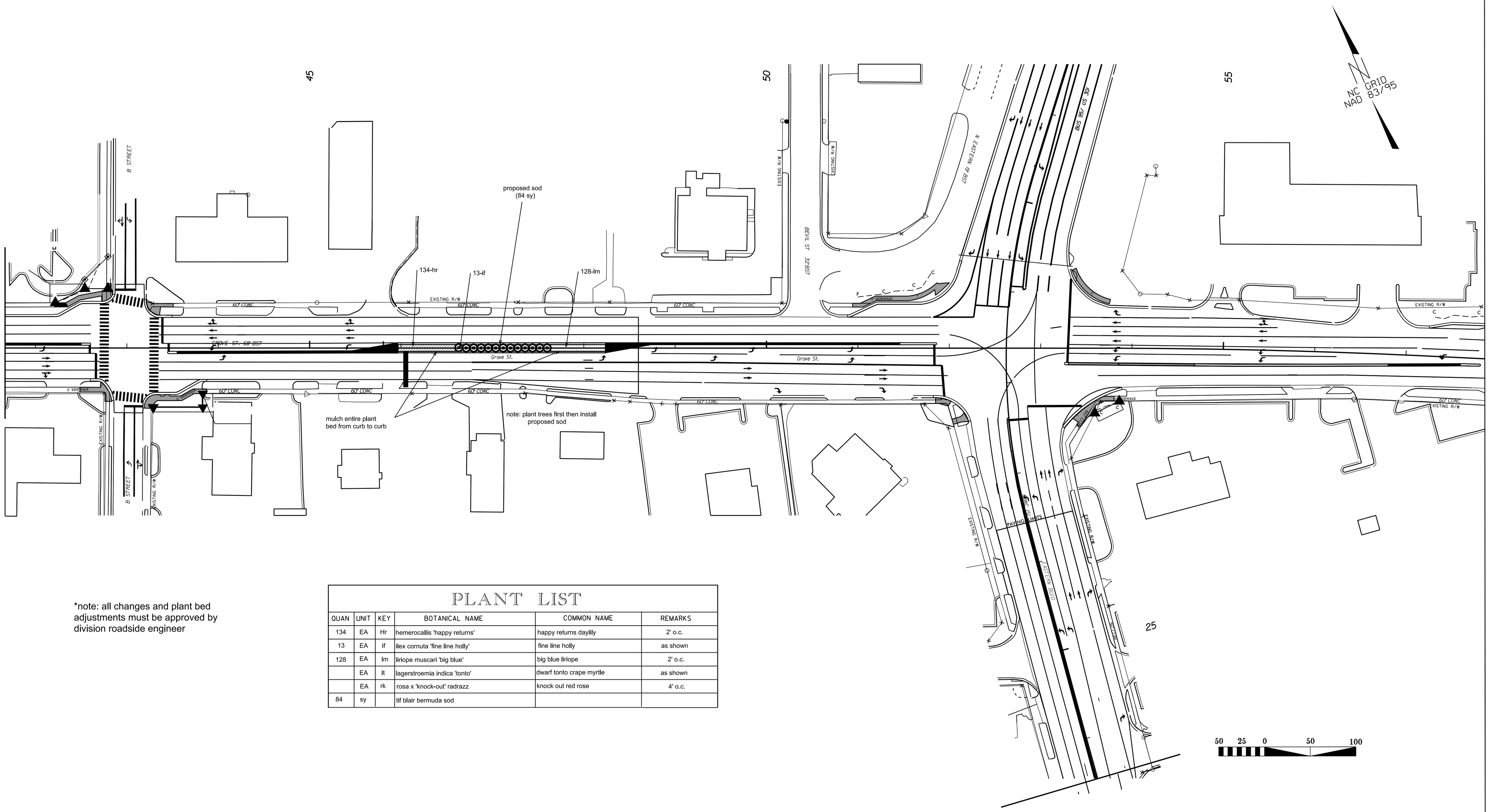
reu engineer: B. Minter Sr.

sheet description: landscape plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L-4
total sheet no : 11



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PLANT LIST

QUAN	UNIT	KEY	BOTANICAL NAME	COMMON NAME	REMARKS
134	EA	Hr	hemerocallis 'happy returns'	happy returns daylily	2' o.c.
13	EA	if	Ilex cornuta 'fine line holly'	fine line holly	as shown
128	EA	lm	liriope muscari 'big blue'	big blue liriope	2' o.c.
	EA	lt	lagerstroemia indica 'tonto'	dwarf tonto crape myrtle	as shown
	EA	rk	rosa x 'knock-out' radrazz	knock out red rose	4' o.c.
84	sy		tif blair bermuda sod		

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Grove Street (Hwy 24 / 210)
Cumberland County

project #: 3706.1.25

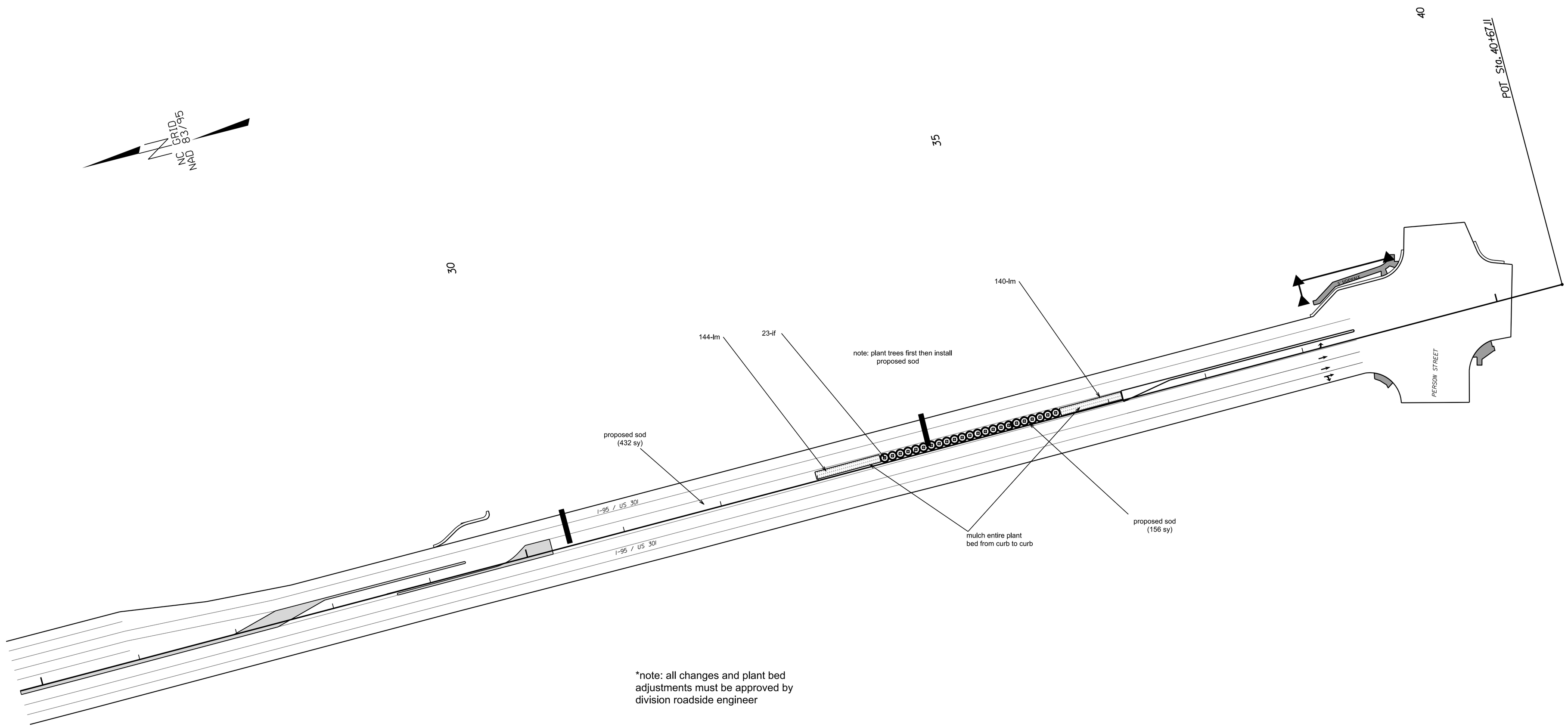
reu engineer: B. Minter Sr.

sheet description: landscape plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–5
total sheet no : 11



*note: all changes and plant bed adjustments must be approved by division roadside engineer

PLANT LIST

QUAN	UNIT	KEY	BOTANICAL NAME	COMMON NAME	REMARKS
	EA	Hr	hemerocallis 'happy returns'	happy returns daylily	2' o.c.
23	EA	if	ilex cornuta 'fine line holly'	fine line holly	as shown
284	EA	lm	liriope muscari 'big blue'	big blue liriope	2' o.c.
	EA	lt	lagerstroemia indica 'tonto'	dwarf tonto crape myrtle	as shown
	EA	rk	rosa x 'knock-out' radrazz	knock out red rose	4' o.c.
588	sy		tif blair bermuda sod		

50 25 0 50 100

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LANDSCAPE DESIGN & DEVELOPMENT
1557 MAIL SERVICE CENTER, RALEIGH, NC 27699-1557
PH: 919-707-2920 FAX: 919-715-2554
http://www.ncdot.org/doh/operations/dp chief eng/roadside/

Grove Street (Hwy 24 / 210)
Cumberland County

project #: 3706.1.25

reu engineer: B. Minter Sr.

sheet description: Landscape plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–6
total sheet no : 11

please note: all irrigation contractors must be licensed to perform work associated with the construction or contracting of irrigation systems.

NOTES & LEGENDS

HEADS: (May be of comparable manufacture and performance to Brand Named)

- TORO SERIES 570 PRX-6P POP UP - 6" POP UP SPRINKLER HEAD FITTED WITH PRECISION SPRAY 570 SERIES SPRAY NOZZLE
- TORO SERIES 570 PRX-6P POP UP - 6" POP UP SPRINKLER HEAD FITTED WITH toro 4cst center strip mpr specialty spray nozzle
- ALL HEADS WITH A 12" POP UP STROKE, IF INSTALLED WITH LESS THAN 1/3 OF THE SPRINKLER BODY EXPOSED ABOVE GRADE, SHALL BE INSTALLED ON POLYETHYLENE FLEX SWING JOINTS POLY PIPE FITTED WITH (3/8" INSERT BY ½" M.P.T. AND /OR⅜" INSERT BY ¾" M.P.T.) ELBOWS. IF GREATER THAN 1/3 OF THE SPRINKLER BODY IS EXPOSED THEN THE 12" POP -UP HEAD SHALL BE MOUNTED ON A SCHEDULE 40 PVC PIPE RISER AS DESCRIBED BELOW IN RELATION TO MOUNTING SHRUB HEAD MODELS. IN MOUNTING 12" POP UP HEADS ON SHRUBS TYPE RISERS CARE SHALL BE TAKEN TO INSTALL THE HEAD IN SUCH A MANNER THAT SURROUNDING PLANT MATERIAL (PLANNED OR EXISTING) WILL HIDE THE BODY OF THE SPRINKLER.
- ALL POP UP IRRIGATION HEADS DESIGNED ADJACENT TO CURBS OR PAVEMENT SHALL BE INSTALLED WITH A CLEARANCE OF 1½" FROM THE EDGES OF ALL PAVED AREAS TO PROVIDE FOR EDGING AND MAINTENANCE OPERATIONS. HEADS INSTALLED ON SHRUBS RISER OR WITH THE TOP OF THE HEAD MORE THAN ½" ABOVE GRADE SHALL BE INSTALLED WITH A MINIMUM 6" CLEARANCE FROM PAVED AREAS.
- ALL THREADED PIPE CONNECTIONS SHALL BE ASSEMBLED USING TEFLON THREAD SEALING TAPE.
- ALL HEADS MOUNTED IN THE LAWN AREAS SHALL BE MOUNTED ON TORO POLYETHYLENE PIPE FLEX SWING JOINTS COMPOSED OF MODEL #850-01 ⅜" I.D. POLY PIPE FITTED WITH #850-31 (3/8" INSERT BY ½" M.P.T.) AND / OR #850-32 (3/8" INSERT BY ¾" M.P.T.) ELBOWS.

PIPE

- DENOTES ROUTES OF PR 200 PVC LATERAL PIPING. SIZE OF LATERAL PIPING SHALL BE AS NOTED BELOW.
MINIMUM DEPTH OF COVER OVER LATERAL PIPING TO BE 12"

LATERAL PIPING SIZING SCHEDULE:
SUMMATION OF GALLONAGE DEMAND ON THE PARTICULAR BRANCHES OF PIPE WITHIN A CONTROL SECTION SHALL BE DETERMINED BY USING THE GPM FOR A NOZZLE BASED ON A 50 PSI BASE OF HEAD PRESSURE AND FULL RADIUS AT THAT PRESSURE AS REPORTED IN THE TORO 2010 IRRIGATION PRODUCTS CATALOG. PIPE SIZES FOR THE LATERALS SHALL BE AS FOLLOWS:
ZERO TO FIFTEEN GPM ACCUMULATED FLOW USE 1" PR 200 PVC PIPE
GREATER THAN FIFTEEN UP TO THIRTY -FIVE GPM USE 1" PR 200 PVC PIPE
FRICTION LOSS ALLOWANCES FOR THIS PROJECT HAVE BEEN DETERMINED USING THE ABOVE FLOW RANGES AND DEMANDS

- DENOTES ROUTE OF PR 200 MAIN LINE PIPING.
- SIZE OF PIPE TO BE 1 ½" IN MINIMUM
- DEPTH OF MAINLINE PIPING TO BE 18" MINIMUM
- PIPING SHALL BE PR 200 SOLVENT WELD PVC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTING UNLESS OTHERWISE NOTED.
- ALL PIPING RUNS SHALL BE "SNAKED" IN THE TRENCH DURING INSTALLATION TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL EXPANSION OR CONTRACTION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGING PLANTINGS (INCLUDING ROOTS) DURING INSTALLATION OF THE IRRIGATION SYSTEM AND SHALL COORDINATE HIS EFFORTS WITH THE LANDSCAPE CONTRACTOR SO AS TO OPTIMIZE THE EFFICIENCY AND THE AESTHETIC QUALITY OF THE INSTALLATION

HEAD RADII
- THE IRRIGATION CONTRACTOR SHALL ADJUST THE RADIUS AND THROW OF EACH SPRINKLER HEAD TO PROVIDE OPTIMUM COVERAGE WHILE MINIMIZING OVER SPRAY ONTO HARDSCAPES OR BUILDINGS. ADJUST HEADS TO ELIMINATE DRY SPOTS.
- APPROXIMATE ARC AND RADIUS OF INDIVIDUAL SPRINKLER HEAD COVERAGE SHALL BE AS ILLUSTRATED. INDIVIDUAL HEAD OR NOZZLE MODEL NUMBERS MAY BE DEPENDENT UPON THESE SPECIFIC CHARACTERISTICS

VALVES: (may be of comparable manufacture and performance to brand named)

- LOCATION OF ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE (MODEL # TPVF100DC SOLENOIDS). SIZE OF ZONE CONTROL VALVES TO BE AS NOTED ON THE IRRIGATION PLANS.
- ALL IN -LINE REMOTE CONTROL VALVES SHALL BE INSTALLED IN CARSON VALVE BOXES WITH LIDS MOUNTED AT GRADE LEVEL. SINGLE VALVES MAY BE INSTALLED IN CARSON MODEL #910-1 VALVE BOX WITH #910-2 COVER, WHILE MULTIPLE VALVES (UP TO, TWO 1" VALVES OR ONE, 1-1/2" SHALL BE INSTALLED IN CARSON MODEL #1419-1 BOX WITH #1419-2 COVER

BACK FLOW PREVENTION

- DENOTES THE LOCATION OF REDUCED PRESSURE BACK FLOW PREVENTER ASSEMBLY WHICH SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR. THE BACK FLOW SHALL BE 1" IN SIZE. THE BACK FLOW ASSEMBLY SHALL BE INSTALLED DOWNSTREAM OF THE IRRIGATION METER AS SHOWN ON THE LAYOUT. THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL LOCAL AND STATE CODE REQUIREMENTS AND SHALL HAVE AN APPROVED COVER.

WATER SUPPLY

CONTRACTOR SHALL TAP EXISTING WATER METER (1") provided by city of Fayetteville
- DENOTES THE LOCATION OF THE EXISTING IRRIGATION METER.

THE METER IS 1" IN SIZE. SINCE THE WATER SUPPLY FOR THE SYSTEM SHALL BE POTABLE WATER, THE CONTRACTOR WILL BE REQUIRED TO INSTALL BACK FLOW PREVENTION DEVICE WHICH WILL BE LOCATED DOWNSTREAM OF THE IRRIGATION METER AS NOTED ON PLAN.

THIS IRRIGATION SYSTEM SHALL BE CAPABLE OF DELIVERING 30 GPM MinIMUM WITH ONE CONTROL STATION OPERATING AT A TIME AT 60 PSI AT THE BASE OF THE HEAD FOR OPTIMUM PERFORMANCE OF THE IRRIGATION SYSTEM.

CONTROLLER: (may be of comparable manufacture and performance to named brand)

- LOCATION OF IRRIGATION CONTROLLER. THE CONTROLLER SHALL BE CUSTOM COMMAND (DDCWP-6-9V SERIES) SOLID STATE UNIT APPROXIMATE LOCATION SHOWN ON THE PLAN
BATTERY OPERATED CONTROLLER IS TO BE PLACED IN CARSON VALVE BOXES MODEL #910-1VALVE WITH #910-2 COVER

THE LANDSCAPE AND HARDSCAPE.

THE IRRIGATION SYSTEM IS DISPLAYED SCHEMATIC IN NATURE. THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO MAKE MINOR ADJUSTMENTS IN THE FIELD. THESE MINOR ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER BUT SHALL BE MADE ONLY AFTER NOTIFICATION IS MADE TO OWNER. (NC DOT)
- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE SO THAT HE IS AWARE OF ANY SPECIAL CONDITIONS WHICH EXIST THAT MAY AFFECT HIS BID PROPOSAL AND SHALL THEREAFTER BE RESPONSIBLE FOR ALL COST INCURRED BY HIMSELF IN RELATION TO THE INSTALLATION.

NCDOT - ROADSIDE ENVIRONMENTAL UNIT
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Grove Street (Hwy 24 / 210)
Cumberland County
project #: 3706.1.25

reu engineer: B. Minter Sr.

sheet description: irrigation plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

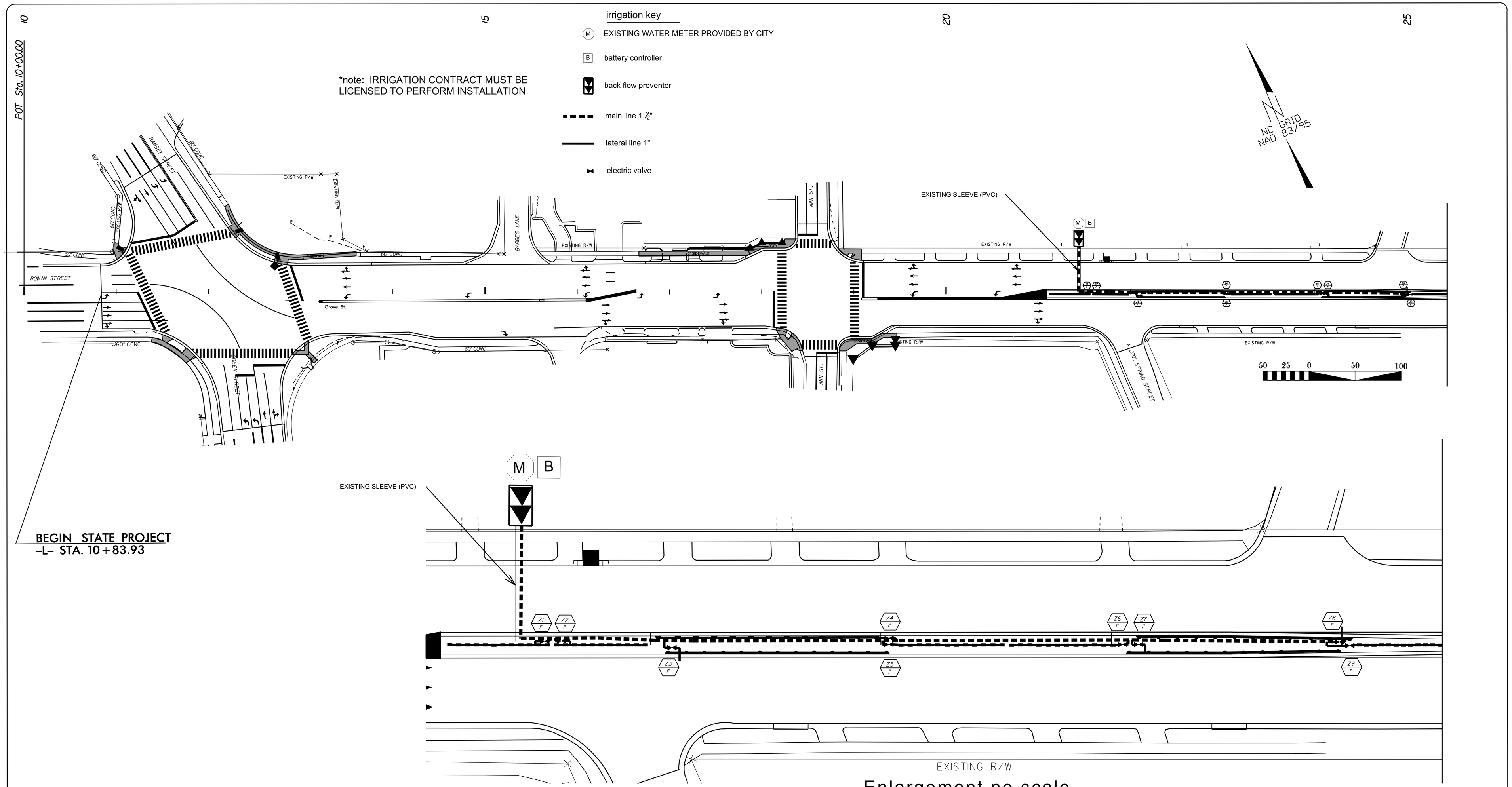
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–7
total sheet no : 11

irrigation key

- (M) EXISTING WATER METER PROVIDED BY CITY
- [B] battery controller
- back flow preventer
- main line 1 ½"
- lateral line 1"
- electric valve

*note: IRRIGATION CONTRACT MUST BE LICENSED TO PERFORM INSTALLATION



Enlargement no scale

NCDOT - ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT
1557 MAIL SERVICE CENTER, RALEIGH, NC 27699-1557
PH: 919-707-2920 FAX: 919-715-2554
http://www.ncdot.org/doh/operations/dp chief eng/roadside/

Grove Street (Hwy 24 / 210)
Cumberland County
project #: 3706.1.25

reu engineer: B. Minter Sr.

sheet description: irrigation plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

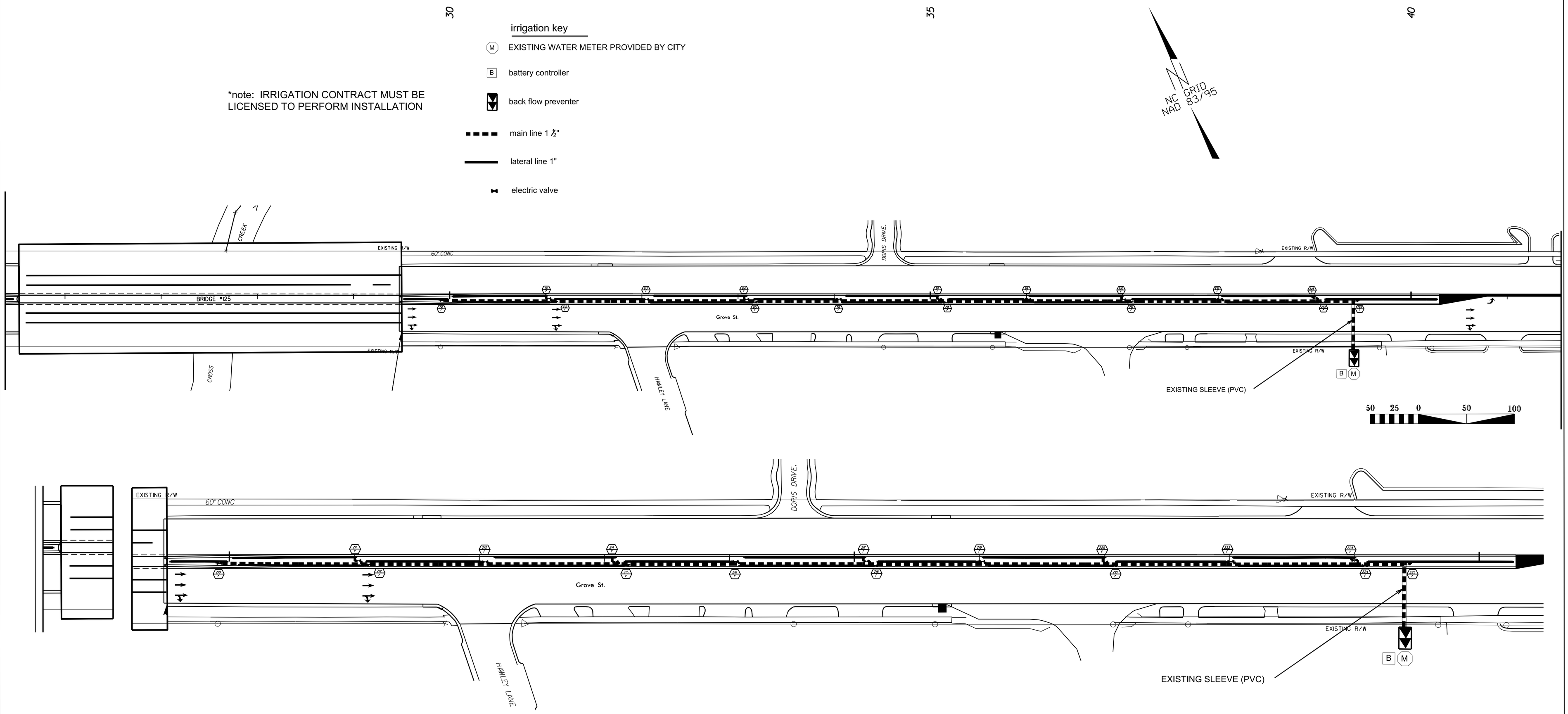
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–8
total sheet no : 11

irrigation key

- (M) EXISTING WATER METER PROVIDED BY CITY
- [B] battery controller
- back flow preventer
- main line 1 ½"
- lateral line 1"
- electric valve

*note: IRRIGATION CONTRACT MUST BE LICENSED TO PERFORM INSTALLATION



Enlargement no scale

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Grove Street (Hwy 24 / 210)
Cumberland County

project #: 3706.1.25

reu engineer: B. Minter Sr.

sheet description: irrigation plans

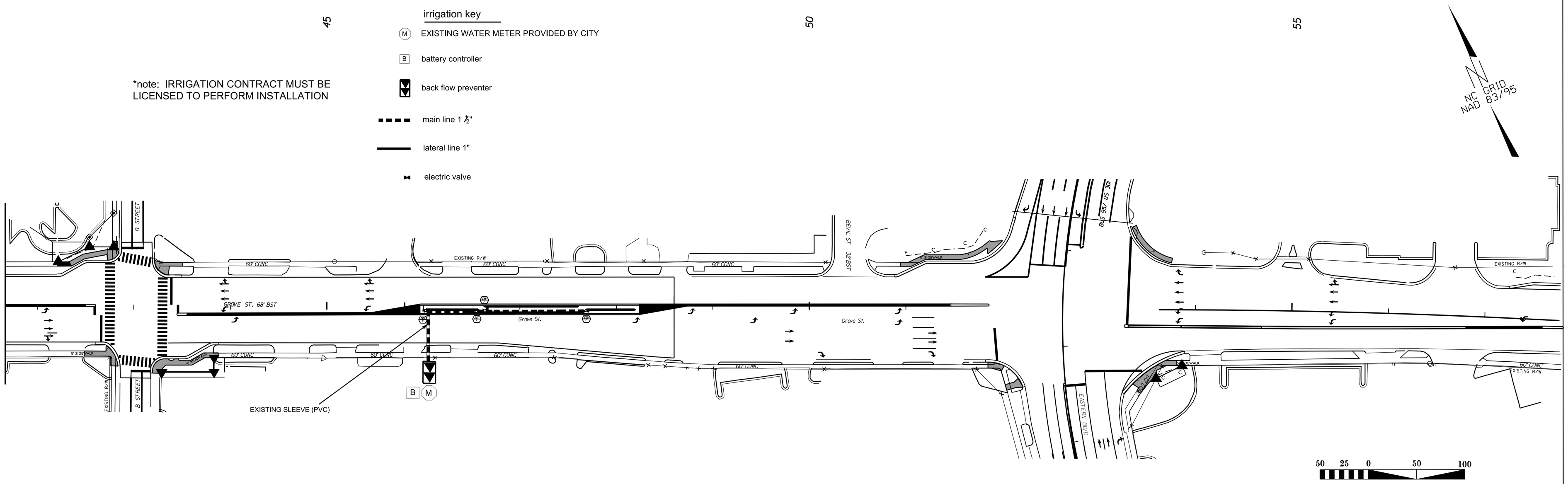
prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

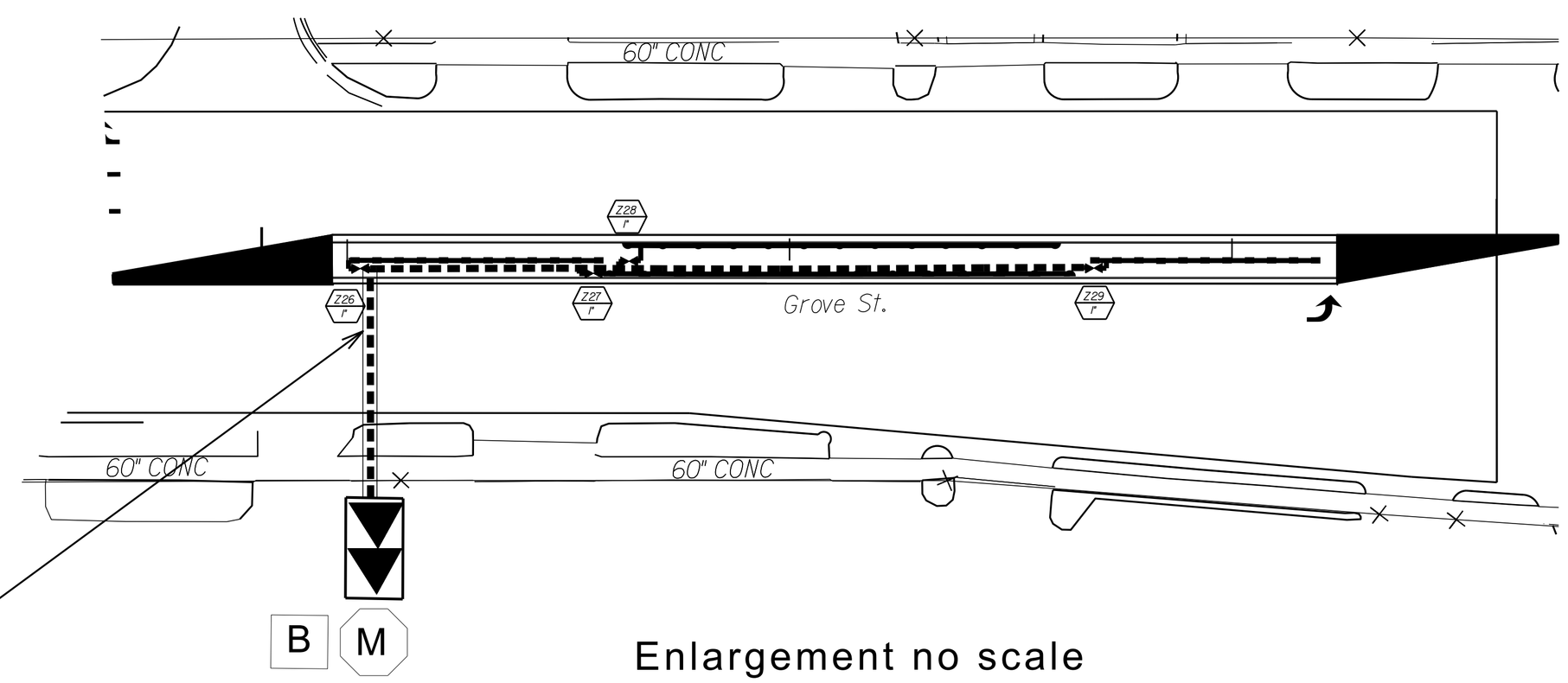
sheet no : L–9
total sheet no : 11

irrigation key

- (M) EXISTING WATER METER PROVIDED BY CITY
- [B] battery controller
- back flow preventer
- main line 1 ½"
- lateral line 1"
- electric valve

*note: IRRIGATION CONTRACT MUST BE LICENSED TO PERFORM INSTALLATION





Enlargement no scale

EXISTING SLEEVE (PVC)

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Grove Street (Hwy 24 / 210)
Cumberland County
project #: 3706.1.25

reu engineer: B. Minter Sr.

sheet description: irrigation plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

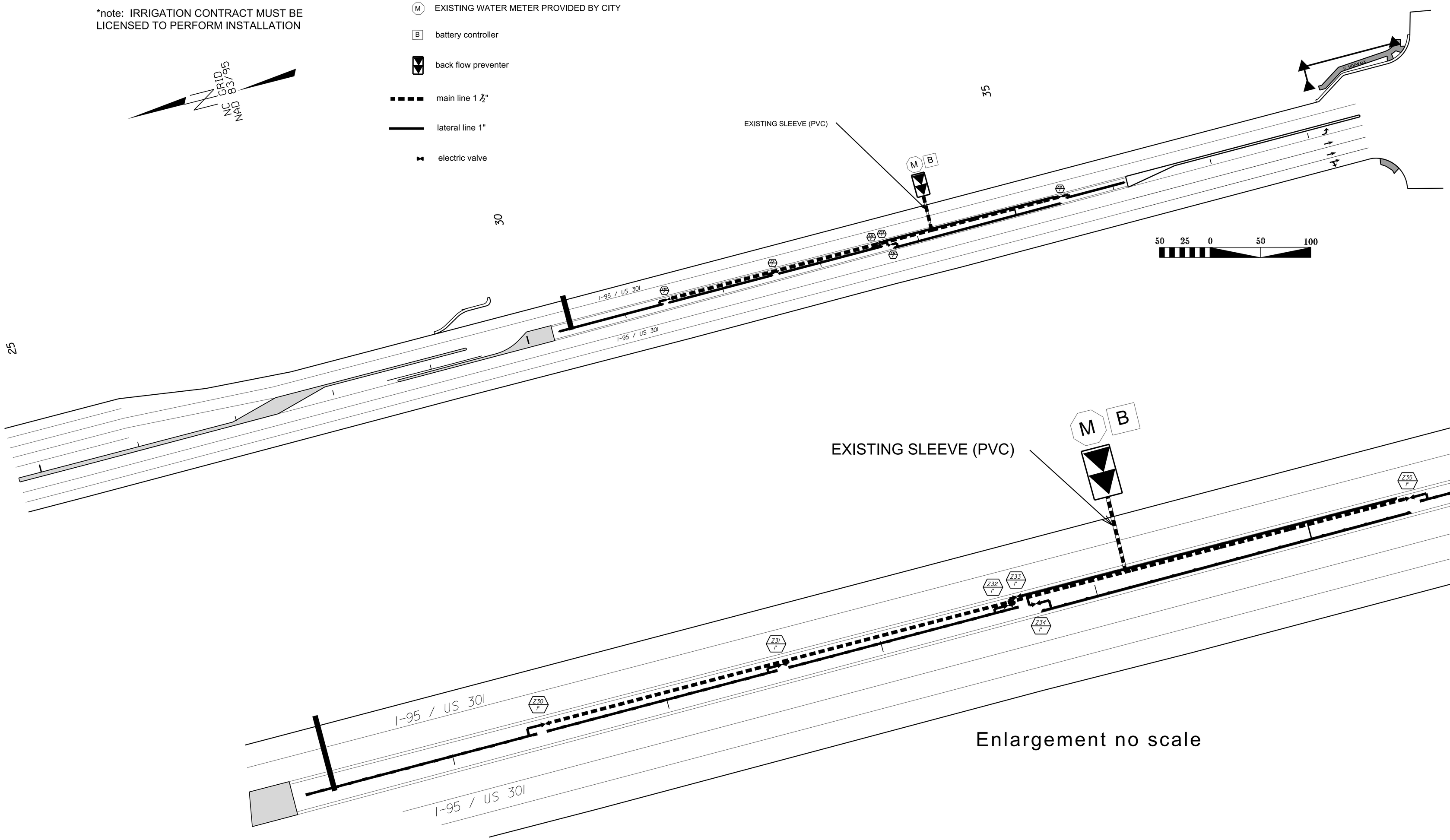
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

sheet no : L–10
total sheet no : 11

*note: IRRIGATION CONTRACT MUST BE LICENSED TO PERFORM INSTALLATION

irrigation key

- M — EXISTING WATER METER PROVIDED BY CITY
- B — battery controller
- back flow preventer
- main line 1 ½"
- lateral line 1"
- electric valve



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Grove Street (Hwy 24 / 210)
Cumberland County

project #: 3706.1.25

reu engineer: B. Minter Sr

sheet description: irrigation plans

prel design date: oct 2015
checked by & date : k cooper
final design date : jan 2016

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sheet no : L–11
total sheet no : 11