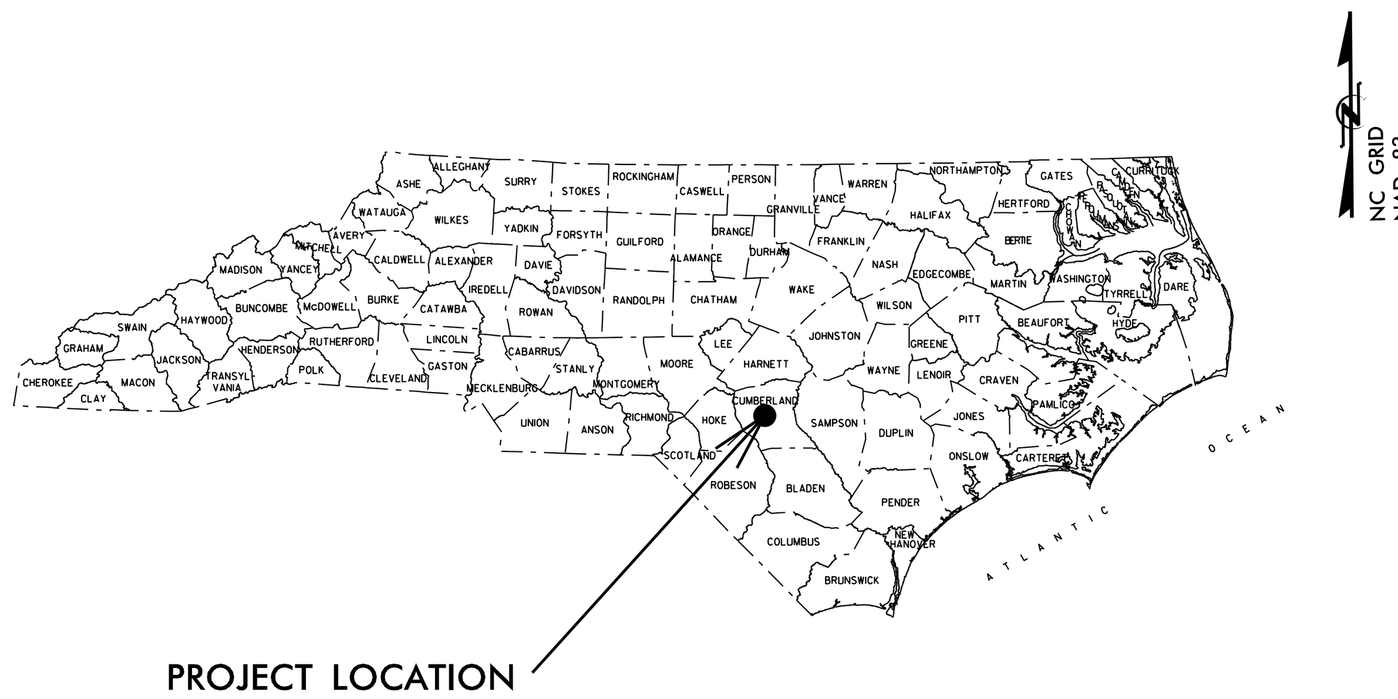
HIGHWAY LANDSCAPE DEVELOPMENT PROJECT

T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
W-5514		LT	24
FED. PROJ. #	DESCRIPTION		DIVISION
-	ENHANCEMENT		6

PROJECT: W-5514, OWEN DR, FAYETTEVILLE, NC



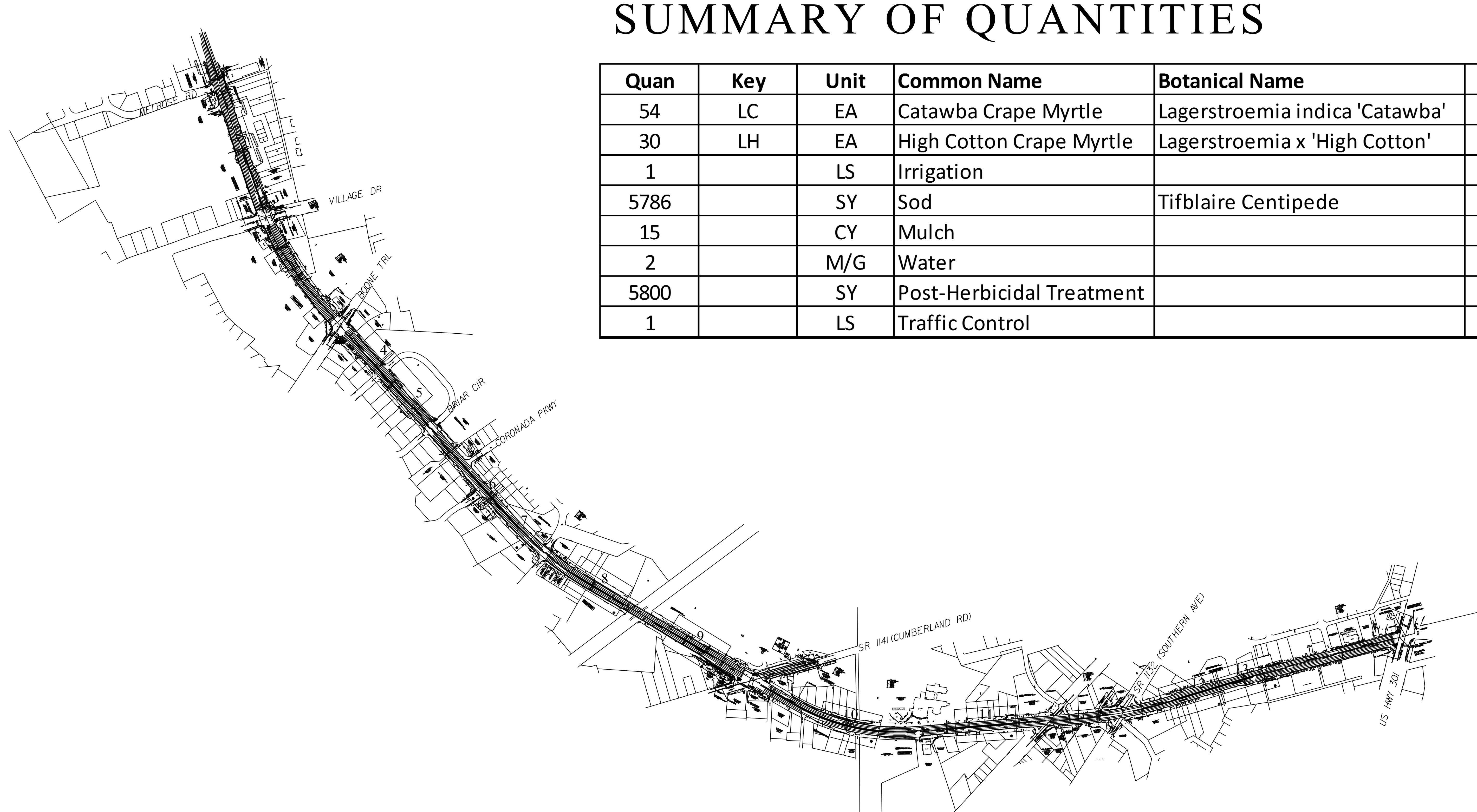
CUMBERLAND COUNTY
LANDSCAPE ENHANCEMENT

LOCATION: OWEN DRIVE, FAYETTEVILLE, NC

TYPE OF WORK: LANDSCAPE ENHANCEMENT PLANTING

SUMMARY OF QUANTITIES

Quan	Key	Unit	Common Name	Botanical Name	Notes
54	LC	EA	Catawba Crape Myrtle	Lagerstroemia indica 'Catawba'	10-12', B&B, Full
30	LH	EA	High Cotton Crape Myrtle	Lagerstroemia x 'High Cotton'	10-12', B&B, Full
1		LS	Irrigation		
5786		SY	Sod	Tifblaire Centipede	
15		CY	Mulch		
2		M/G	Water		
5800		SY	Post-Herbicidal Treatment		
1		LS	Traffic Control		



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 SHEETS:

PREPARED BY: BK DATE: 12/2016

REVISIONS

DATE	DESCRIPTION

STATE OF
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

LOCATION: OWEN DR., FAYETTEVILLE, NC

TYPE of WORK: LANDSCAPE PLANTING & IRRIGATION

COUNTY: CUMBERLAND

2014 American Standard for Nursery Stock

2018 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

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IRRIGATION NOTES & LEGEND

*Irrigation contractor must be licensed by the NCICLB under chapter (2008-177, S.1; 2013-383, S.3).

*All materials may be of comparable manufacture and performance to the brand listed.

GENERAL NOTES

- The irrigation design provided in the plans is schematic in nature, and the irrigation contractor may be required to make minor adjustments in the field as necessary. These adjustments shall be made at no additional cost to the owner and shall be made only after notification is made to the owner (NCDOT).

- The contractor(s) shall familiarize themselves with the site so that they are aware of any special conditions that may exist that could affect their bid proposal and shall hereafter be responsible for all cost incurred by themselves in relation to the installation.

- Place valves & boxes in plant beds where-ever possible.

- The contractor is to minimize disturbance in sod areas (cut and replace sod when necessary).

- Place pressure reducing valves in discreet locations.

- All irrigation products are to be Hunter or comparable brand (as approved by the Division Roadside Environmental Engineer).

- If there is an existing system in place, be sure to use irrigation heads that are consistent with the existing system.

- The contractor is responsible for providing 'as built' plans to the owner (NCDOT) at the time of project approval. The plans shall be clear, concise, and show all elements of the irrigation system, the location of all equipment, irrigation lines, numbered zones, controller(s), heads and valves.

BACKFLOW PREVENTION

- The reduced pressure backflow preventer assembly shall be the responsibility of the irrigation contractor. The backflow shall be 1.5" in size. The backflow assembly shall be installed downstream of the irrigation meter. The unit must be installed in accordance with all local and state code requirements and shall have an approved cover.

CONTROLLER W/ BATTERY POWERED TIMER

- Controller may be of comparable manufacture and performance to the brand named.

-The controller shall be a Hunter i-core Modular unit. The controller shall incorporate a 24 VAC with the approximate location shown on the plans. Location must be approved by the NCDOT Environmental Roadside Engineer.

- The battery operated controller is to be placed in Carson valve boxes model #910-1 with #910-2 covers.

- All 120 VAC wiring shall be installed in accordance with all applicable electrical code requirements.

- The contractor shall install a wired Hunter rain sensor that is compatible with the make and model of the controller.

DRIP IRRIGATION

- Drip irrigation is to be1/2" Netafim Techline DL tubing (or comparable manufacture and performance) with emitters spaced at 18" intervals at 1 gpm. An approved inline emitter drip line is to be installed under mulch in landscape areas as shown on the irrigation plan. (Install drip line before mulch is installed.)

- Drip Valve Assembly, which includes a Hunter pcz-101 remote control valve with flow control feature, an inline emitter Dripline /Techline 200 mesh filter , and an inline emitter Dripline /Techline pressure regulator. The flow control valves shall be noted on boxes with lids mounted at grade level.

- A minimum of 2 emitters per shrub and 3 emitters per tree shall be installed.

HEADS

- Hunter Pro-Spray series Pop-up sprinkler head fitted with adjustable nozzles or 90° and 180° Spray Series spray nozzles with the following radii: 12' - 15'.

- All heads with a 6"-12" pop-up stroke, if installed with less than1#3 of the sprinkler body exposed above grade, shall be installed on polyethylene flex swing joint poly pipe fitted with elbows (3/8" insert by 1/2" M.P.T. and/or 3/8" insert by 3/4" M.P.T.)

-If greater than 1/3 of the sprinkler body is exposed, then the 6"-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 6"-12" pop-up heads on shrub type risers, care shall be taken to install the head in such a manner that the 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 1 1/2" from the edges of all paved areas to provide for edging and maintenance operations. Heads installed on shrub risers or with the top of the head more than 1 1/2" above the grade shall be installed with a minimum 6" clearance from paved areas.

- All threaded pipe connections shall be assembled using Teflon thread sealing tape.

PIPE

- PR 200 PVC Lateral Piping

-Minimum depth of cover over lateral piping to be 12". Lateral pipe sizing schedule and summation of gallonage demand on a particular branch 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 irrigation products' catalog. Pipe sizes for the lateral lines shall be as follows:

- For 0 to 15 gpm accumulated flow use 3/4" PR 200 PVC pipe.
- For 15 up to 35 gpm use 1" PVC pipe.
- Allow for friction loss.

- PR 200 Main Line Piping.

- Size of pipe to be a minimum of 1 1/2"
- Depth of cover of mainline piping to be 18"

- Piping shall be PR 200 solvent weld PVC pipe with schedule 40 PVC solvent weld fittings unless otherwise noted.

- The contractor shall take all precautions necessary to avoid damaging existing plantings and their roots during the installation of the irrigation system and shall coordinate their efforts with the landscape contractor to optimize the efficiency and the aesthetic quality of the installation.

SLEEVES

- Sleeves shall be 4" PVC. The irrigation contractor shall coordinate with the landscape contractor to insure proper installation of the irrigation system with the landscape and hardscape.

ELECTRIC CONTROL VALVE

- Valves may be of comparable manufacture and performance to the brand named.

- Location of electric 24 VAC remote control valve with flow control feature (Hunter PGV-ASV valves).

- 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 a Carson model #910-1 valve box with cover, while multiple valves (up to, 2 - 1" valves or 1 - 1 1/2") shall be installed in Carson model #1419-1 box with #1419-2 cover.

WATER SUPPLY/METER

- The meter shall be the owner's/town's responsibility.

- The meter is 1.5" in size. Since the water supply for the system will be potable water, the contractor will be required to install a backflow prevention device which will be located downstream of the irrigation meter.

- This irrigation system shall be capable of delivering 33 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.

24 VAC CONTROLLER WIRING

- All 24 VAC control wiring shall be single strand copper wire with Polyethylene PE direct burial insulation rated for 300 VAC valve "common" wires shall have white insulation while valve "hot" wires shall have red insulation. Both the "common" and "hot" wires shall be #14 AWG. Valve wiring shall follow mainline piping where feasible and shall be laid in the bottom of the trench line with the mainline piping. Wiring shall be "bundled" and taped at intervals of approximately ten feet. All wiring shall be installed in accordance with local code requirements.

- Wire splices shall be kept to an absolute minimum. Where major concentrations of splices are necessary, they shall be placed in a approved valve box, with #910-2 cover installed at grade level. Splices at valve locations shall be made inside of the valve box. All splice locations shall be noted on the as built plan.

- Wire runs shall be installed with enough slack and/or expansion loops to prevent excessive strain due to thermal contraction.

- All wire splices shall be made using UL approved direct burial connectors and waterproof materials. All electrical work shall be installed according to code.

ESTIMATED IRRIGATION QUANTITIES

METER LOCATIONS - 7
BACK FLOW PREVENTERS - 7
BATTERY POWERED CONTROLLERS- 7
ZONE VALVES - 37
MAIN LINE PIPE - 4398'
LATERIAL PIPE - 7096'
SPRAY HEADS - 567

Quantities are estimated based on design drawings. Refer to plans for any decrepencies. Plans take priority over these estimated quatities. Estimated quantities do not cover all materials necessary for installation. Quantities may be adjusted slightly due to site conditions, specific irrigation equipment and implementation, or as directed by the NCDOT Engineer.

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NCDOT - Roadside Environmental Unit
Aesthetic Engineering Section
1557 Mail Service Center Raleigh NC 27699-1557
ph: 919-707-2920 fax: 919-715-2554
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W-5514 Owen Dr
Landscape Development Plan
Fayetteville NC

RN Kopetsky

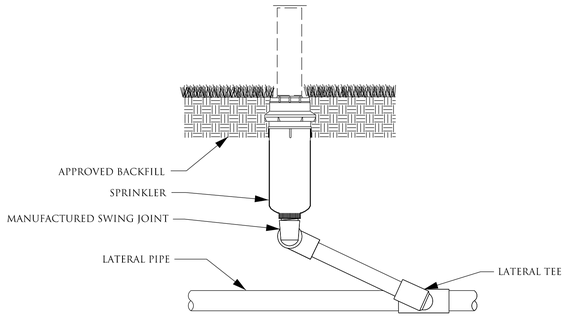
sheet description:

prel. design date : Dec/2016
checked by & date :
final design date :

Roadside Enhancements
Irrigation Specs

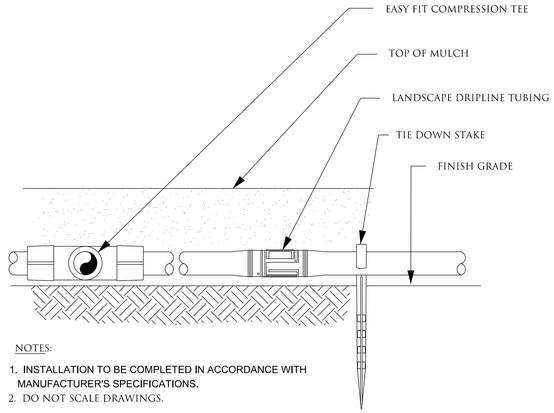
T.I.P. # W-5514
WBS #
FED I.D. #

sheet no : I-02
total sheet no : 24



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. INSTALL SPRINKLER AT FINISHED GRADE.

POP-UP SPRAY HEADS
SINGLE-STREAM SPRINKLER, SWING JOINT (NOT TO SCALE)



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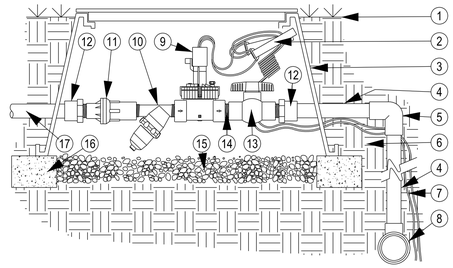
LANDSCAPE DRIPLINE ON GRADE
POTABLE SYSTEM (NOT TO SCALE)



LEGEND

1. FINISHED GRADE
2. WATERPROOF DRY SPLICE CONNECTORS
3. 12" VALVE BOX WITH COVER
4. PVC LATERAL LINE
5. SCH 40 PVC 90° ELL JOINT
6. NATIVE SOIL PER SPECIFICATIONS.
7. CONTROL WIRES TO CONTROLLER.
8. PVC MAINLINE FITTING.
9. REMOTE CONTROL VALVE
10. MESH SCREEN FILTER WITH FLUSH CAP
11. ADJUSTABLE PRESSURE REGULATOR
12. PVC SCH 40 FEMALE ADAPTER
13. MANUAL VALVE
14. PVC SCH 40 TRANSITION NIPPLE
15. WASHED GRAVEL SUMP (MIN. 3")
16. BRICK SUPPORTS
17. LATERAL LINE TO DRIP SYSTEM.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
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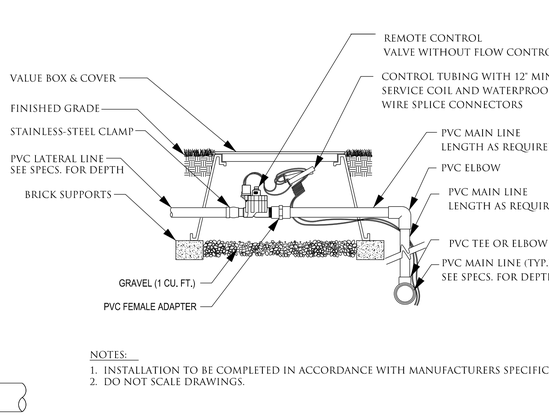
DRIP ZONE ASSEMBLY
VALVE ASSEMBLY (NOT TO SCALE)



LEGEND

1. NOZZLE (SIZE PER PLAN)
2. APPROVED BACKFILL
3. SPRINKLER
4. LATERAL PIPE
5. LATERAL TEE
6. MANUFACTURED SWING JOINT

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. INSTALL SPRINKLERHEAD AT FINISHED GRADE

ROTOR SPRINKLER
4 INCH POP-UP (SWING JOINT) (NOT TO SCALE)

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
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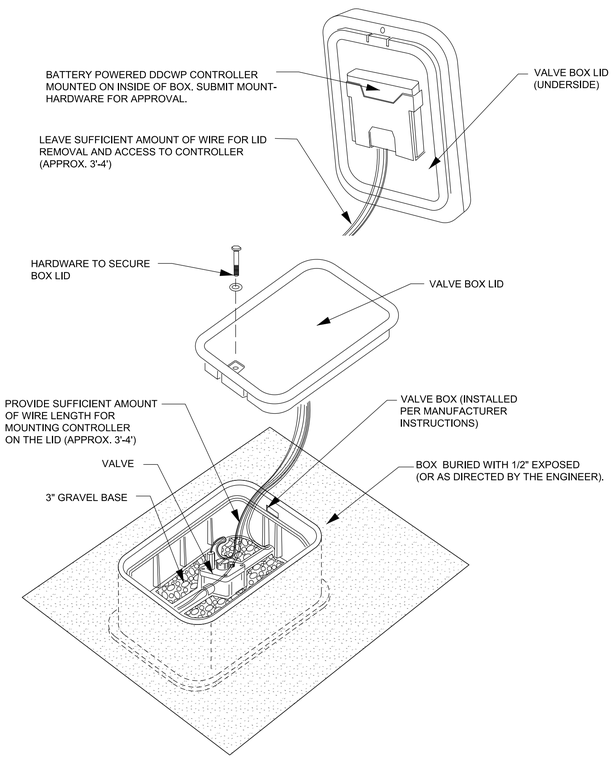
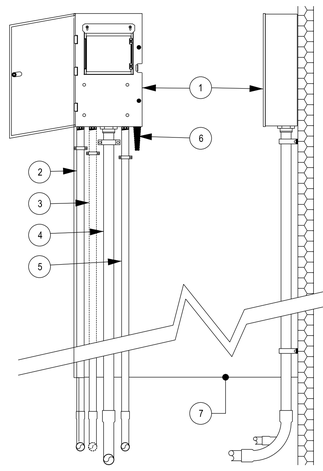
VALVES & BOX
1" PLASTIC VALVE (NOT TO SCALE)



DDCWP CONTROLLER BOX LID MOUNT
BATTERY POWERED CONTROLLER (NOT TO SCALE)



1. SMALL METAL CABINET WALL MOUNT IRRIGATION CONTROLLER SEE PLAN FOR NUMBER OF STATIONS.
2. 1/2" CONDUIT FOR ELECTRICAL POWER PER LOCAL AND NATIONAL ELECTRICAL CODES. OPTIONAL 3/4" KNOCK-OUT IF LARGER CONDUITS ARE USED.
3. OPTINOAL 1/2" KNOCK-OUT FOR RAIN SENSOR WIRE.
4. 2" CONDUIT FOR REMOTE CONTROL WIRES AND MV OR PUMP START WIRES. OPTIONAL 3" KNOCK-OUT IF LARGER WIRES ARE USED. SECURE TO WALL WITH APPROPRIATE PIPE CLAMPS.
5. 3/4" KNOCKOUT FOR EARTH GROUND WIRES.
6. MOUNTED NARROWBAND ANTENNA
7. FINISHED GRADE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. MOUNT CONTROLLER ON EXISTING POST NEW PRESSURE TREATED POST, OR AS DIRECTED BY THE NCDOT ENGINEER.
3. DRAWING NOT TO SCALE.

CONTROLLER WALL MOUNT
WALL-MOUNT CONTROLLER, METAL (NOT TO SCALE)

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Aesthetic Engineering Section
1557 Mail Service Center Raleigh NC 27699-1557
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W-5514 Owen Dr
Landscape Development Plan
Fayetteville NC

RN Kopetsky

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prel. design date : Dec/2016	Roadside Enhancements
checked by & date :	Irrigation Details
final design date :	

T.I.P. # W-5514
WBS #
FED I.D. #
sheet no : I-03
total sheet no : 24

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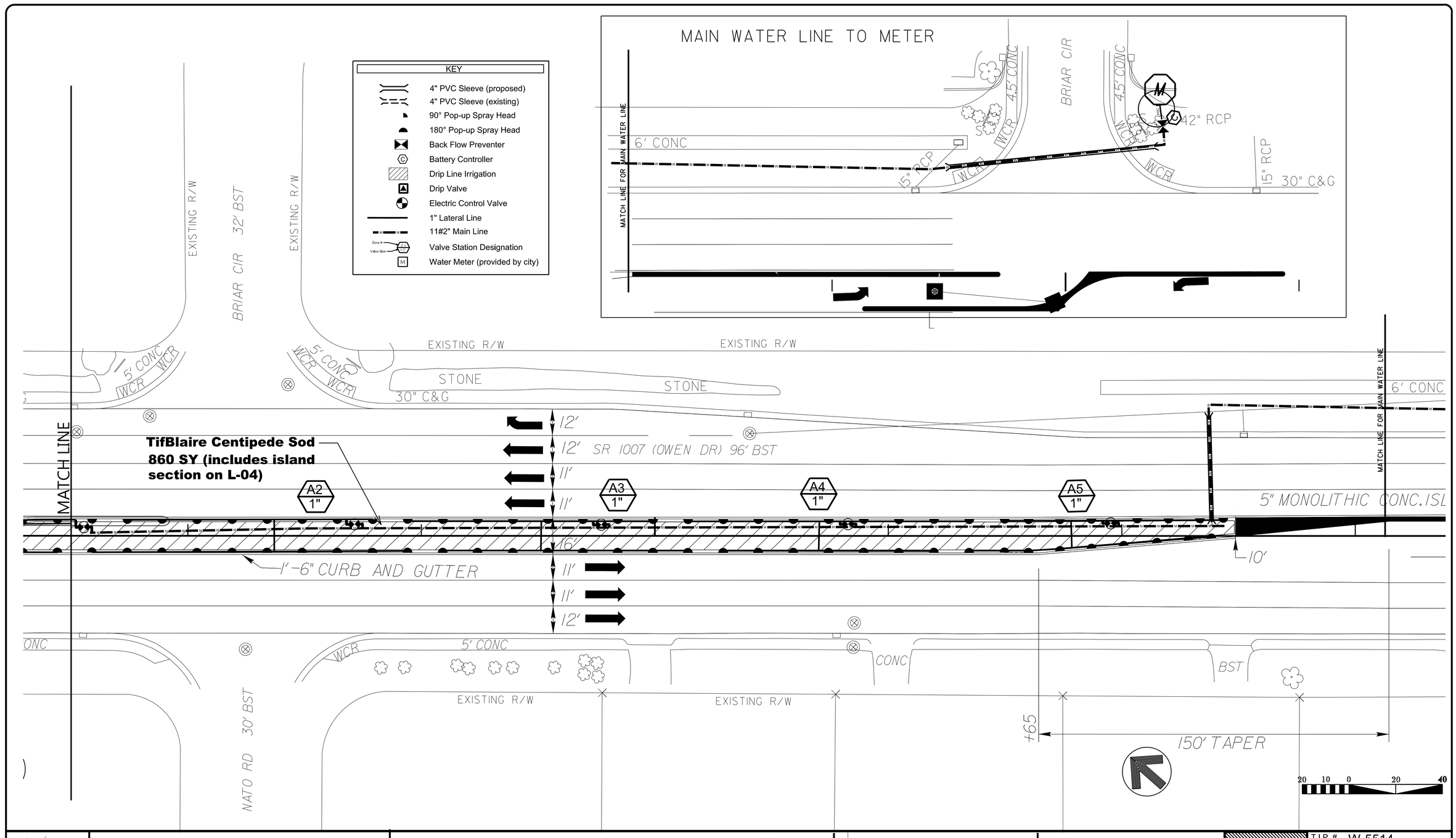

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Roadside Enhancements

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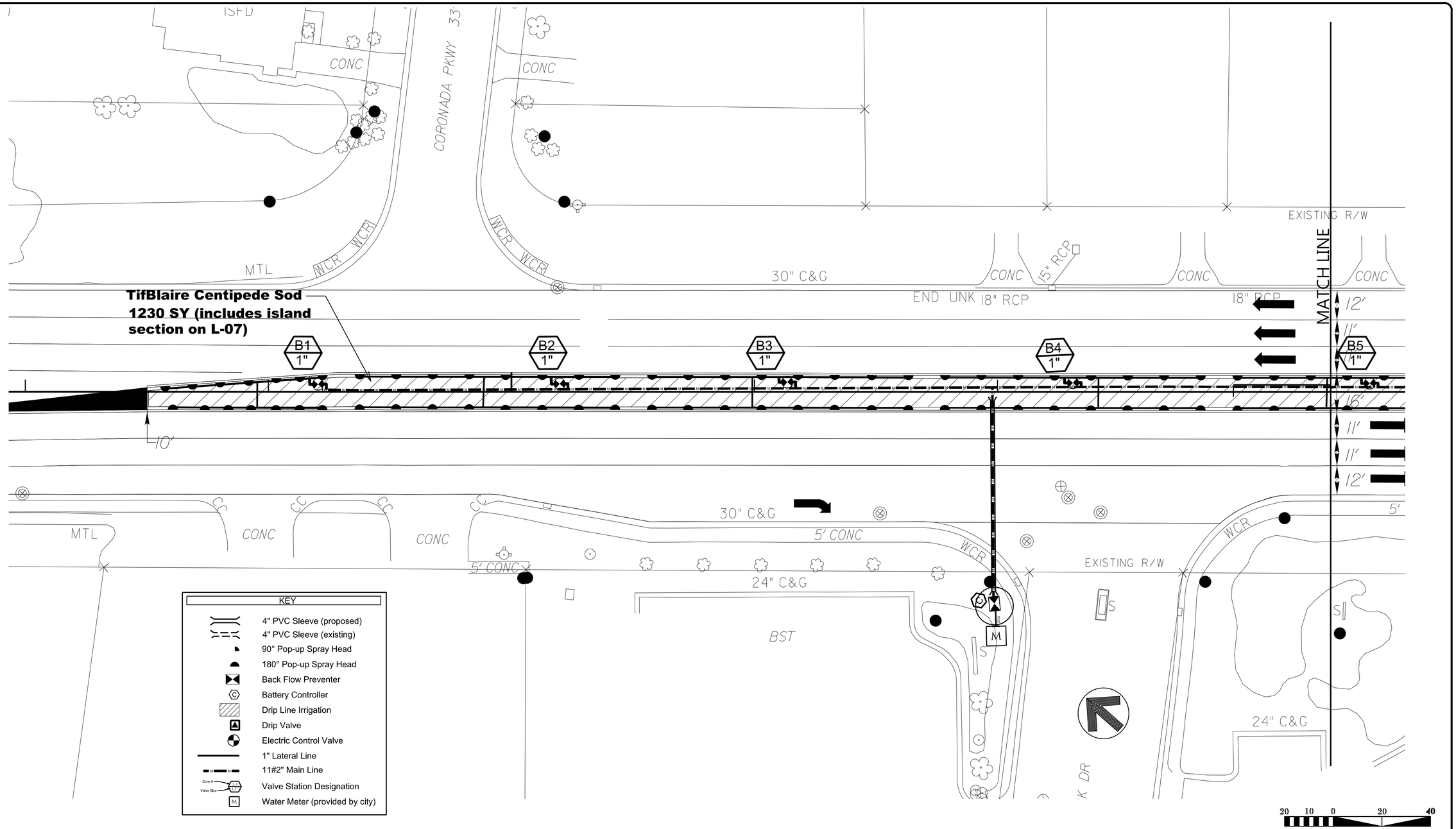

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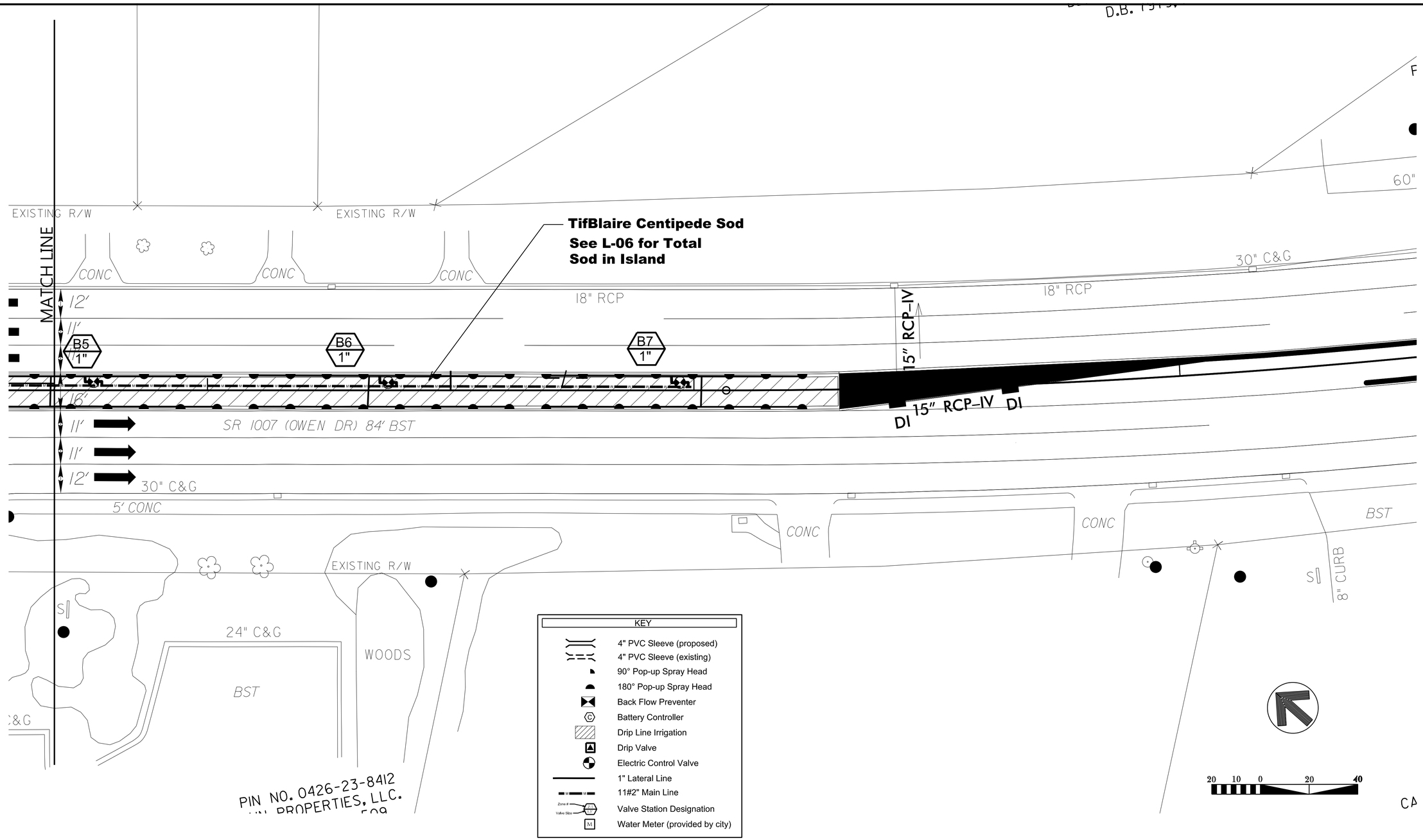

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Roadside Enhancements

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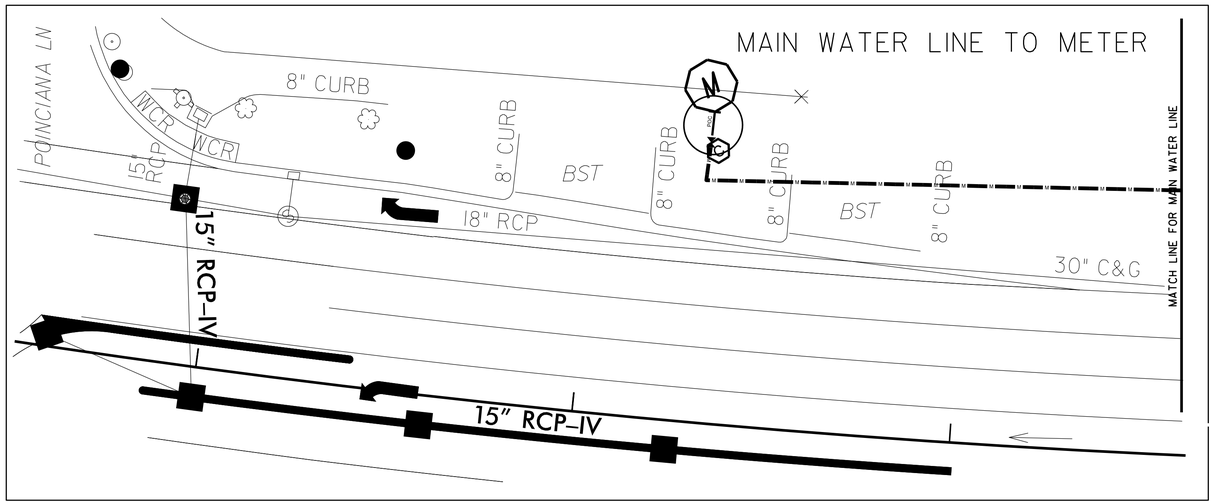
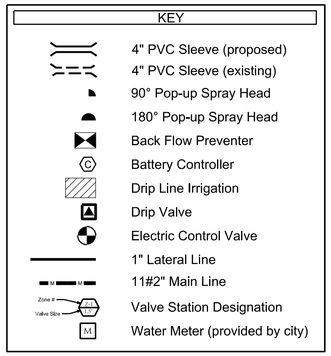
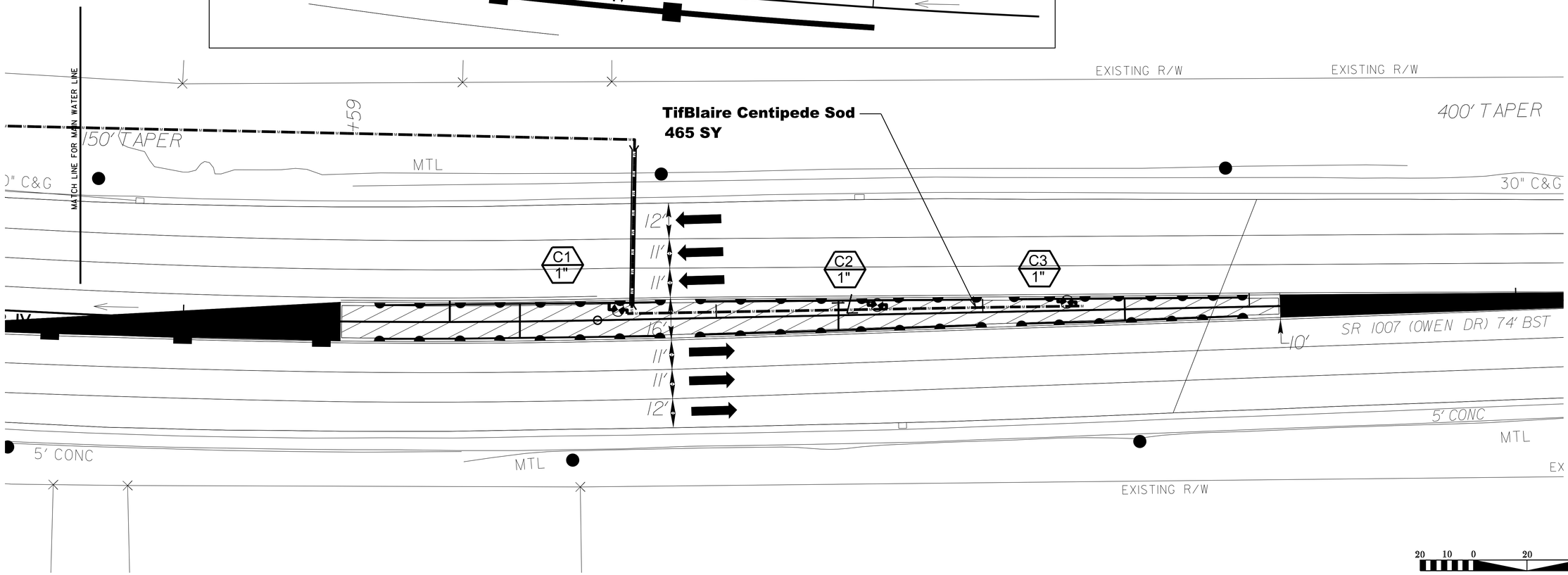
sheet no : I-07
total sheet no : 24







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T.I.P. # W-5514
WBS #
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sheet no : I-08
total sheet no : 24

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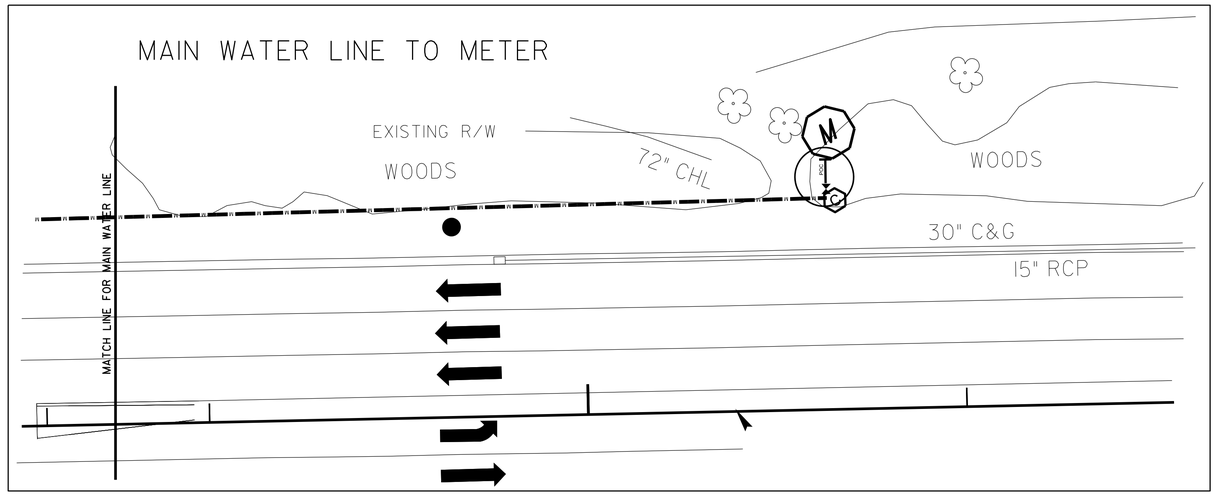
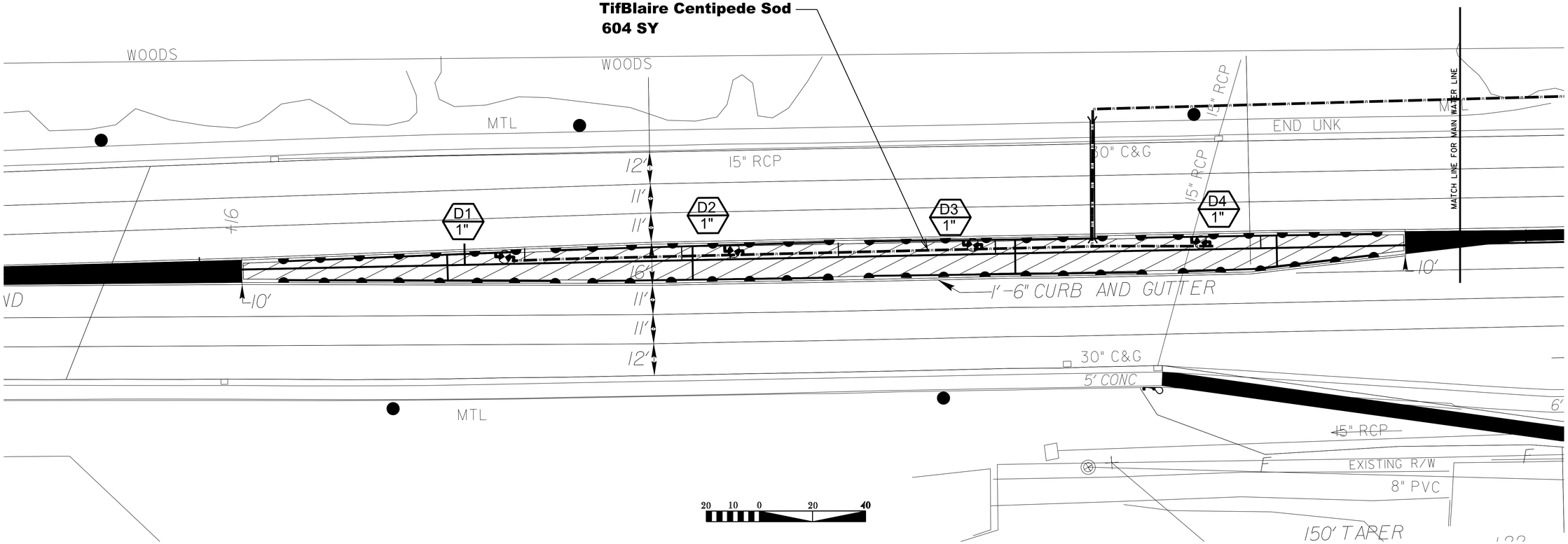
KEY	
	4" PVC Sleeve (proposed)
	4" PVC Sleeve (existing)
	90° Pop-up Spray Head
	180° Pop-up Spray Head
	Back Flow Preventer
C	Battery Controller
	Drip Line Irrigation
	Drip Valve
	Electric Control Valve
	1" Lateral Line
	11#2" Main Line
Zone # / Valve Size	Valve Station Designation
M	Water Meter (provided by city)



TifBlaire Centipede Sod
604 SY



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checked by & date :		WBS #
final design date :		FED I.D. #
		sheet no : I-09 / total sheet no : 24

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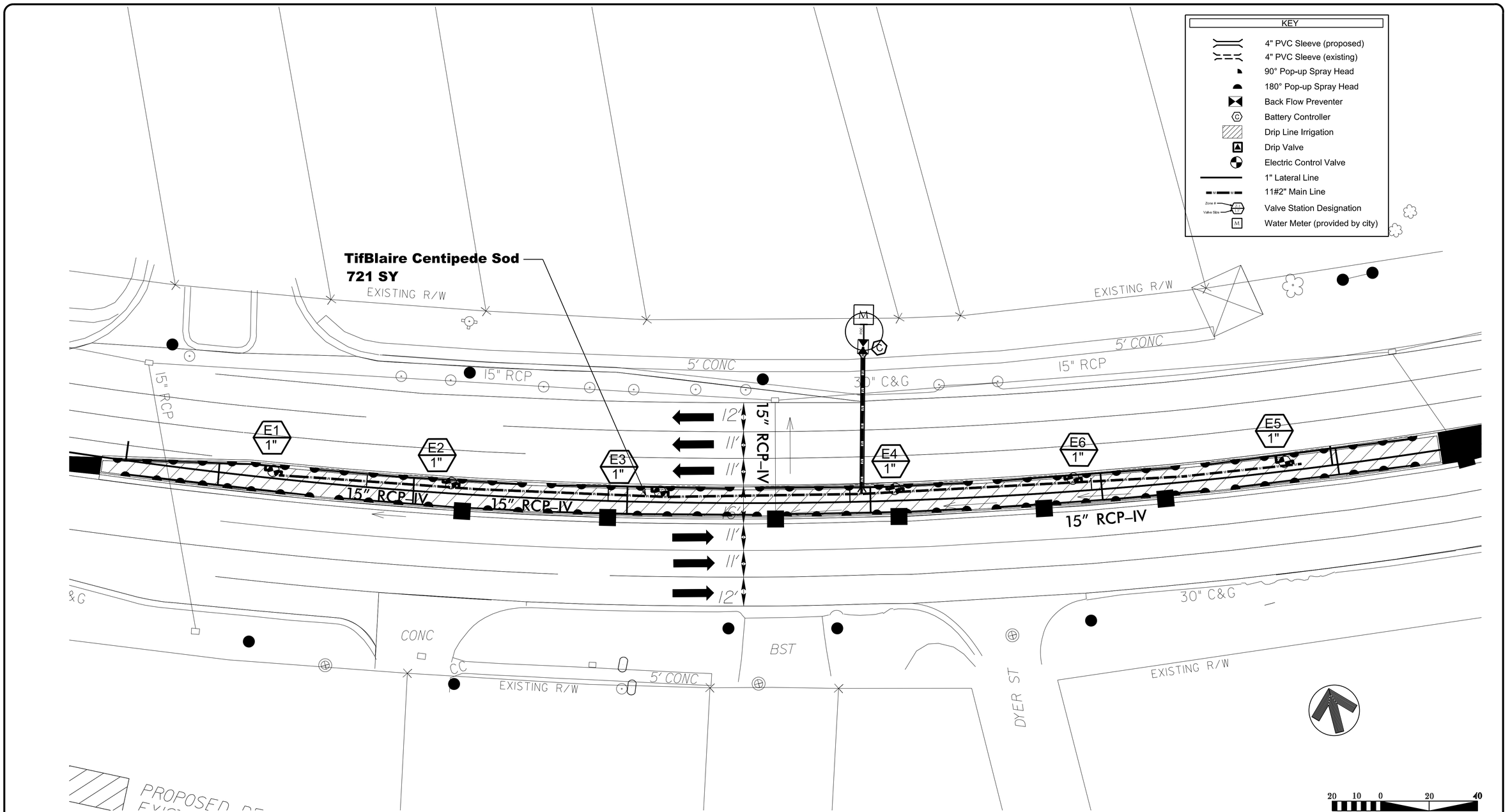

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W-5514 Owen Dr
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Fayetteville NC

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prel. design date : Dec/2016
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final design date :

Roadside Enhancements

T.I.P. # W-5514
WBS #
FED I.D. #
sheet no : I-10
total sheet no : 24

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$$$$$$$$USERNAME$$$$$$

KEY

- 4" PVC Sleeve (proposed)
- 4" PVC Sleeve (existing)
- 90° Pop-up Spray Head
- 180° Pop-up Spray Head
- Back Flow Preventer
- Battery Controller
- Drip Line Irrigation
- Drip Valve
- Electric Control Valve
- 1" Lateral Line
- 11#2" Main Line
- Valve Station Designation (Zone #, Valve Size)
- Water Meter (provided by city)

MARKWILL INC.
D.B. 7679, PG.

TifBlaire Centipede Sod
763 SY

EXISTING R/W
EXISTING R/W
+21
100' TAPER
30" C&G
30" C&G
30" C&G
BST
GR
BST
GR
BST
GR
S
S
F1 1"
F2 1"
F3 1"
F4 1"
F5 1"
10'
10'
24" C&G
CONC
24" C&G
EXISTING R/W
EXISTING R/W
20 10 0 20 40

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W-5514 Owen Dr
Landscape Development Plan
Fayetteville NC

RN Kopetsky

sheet description:

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Roadside Enhancements

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WBS #
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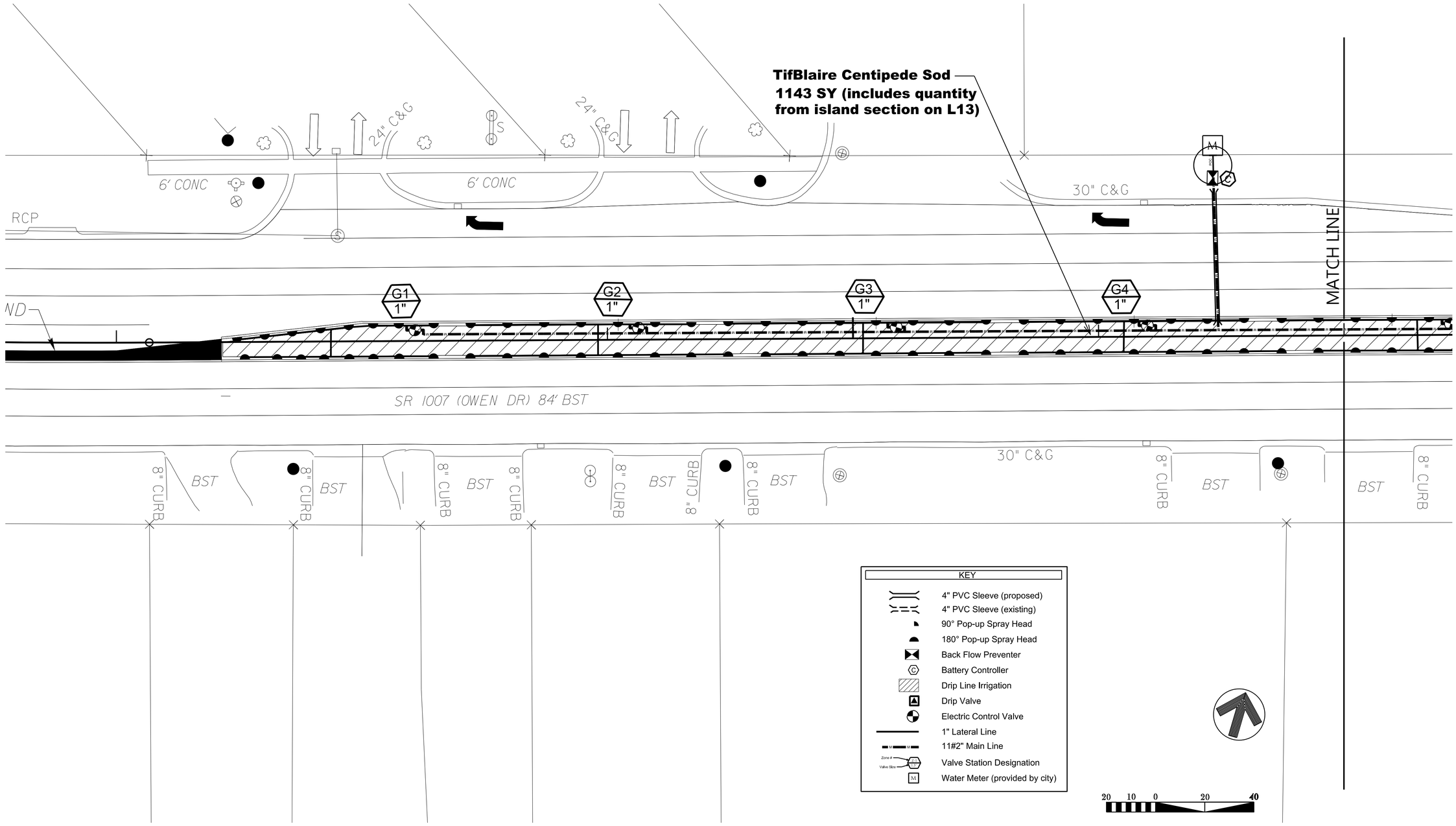
total sheet no : 24



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FED I.D. #

sheet no : I-12
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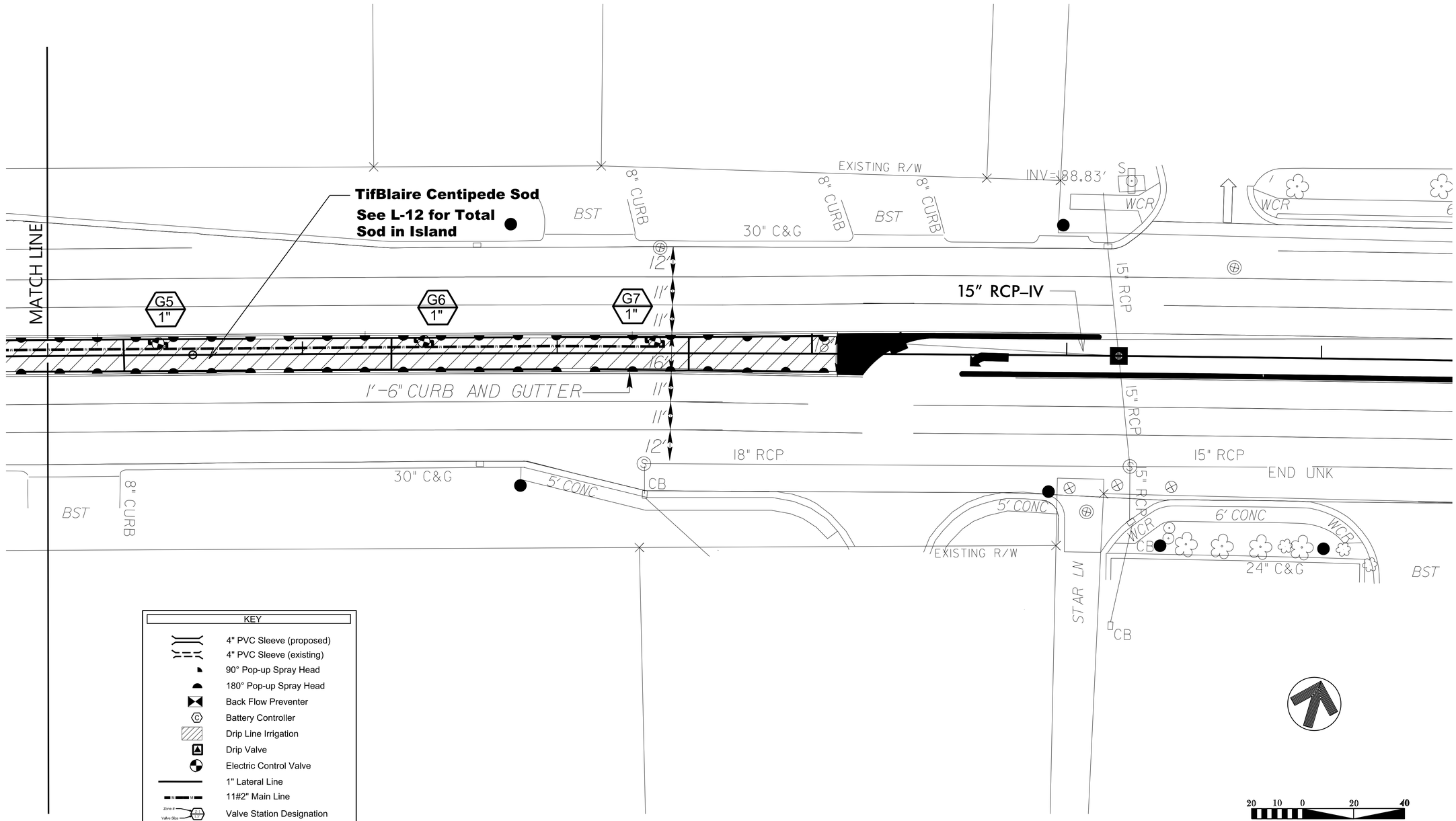

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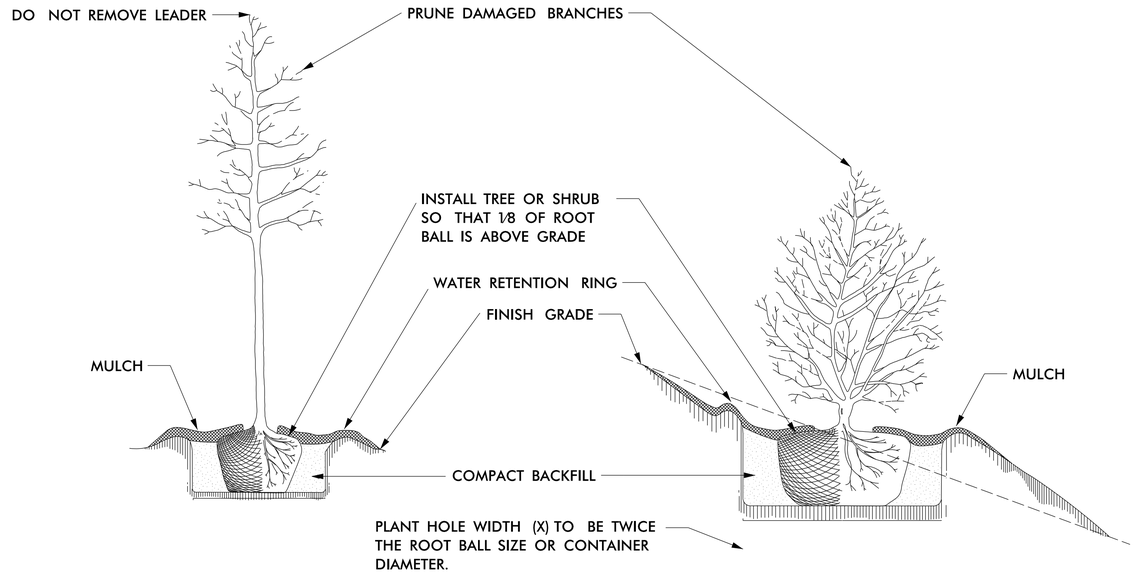
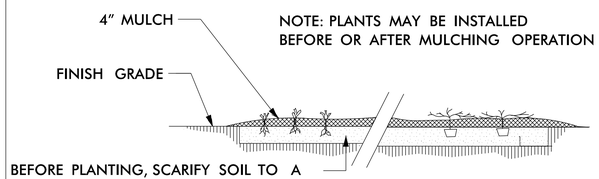
I-13	24

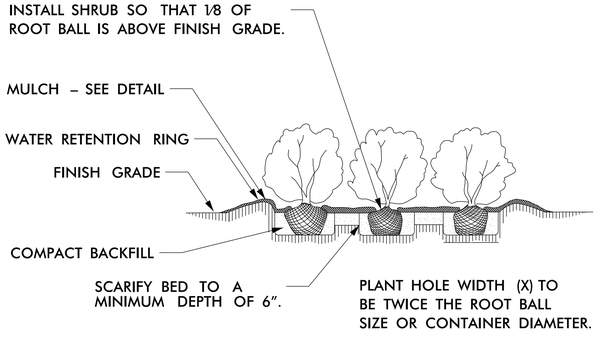


TREE OR SHRUB PLANTING DETAIL
(LEVEL GROUND)

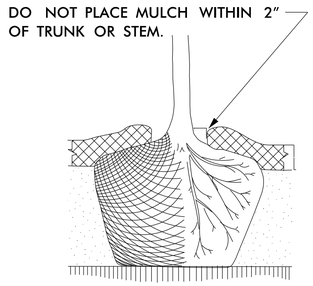
TREE OR SHRUB PLANTING DETAIL
(SLOPING GROUND)



GROUND COVER/BEDDING PLANT DETAIL



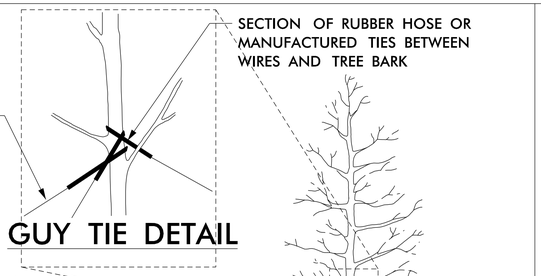
SHRUB BED PLANTING DETAIL



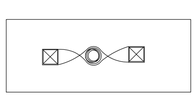
MULCH DETAIL

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.



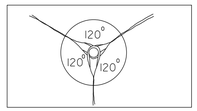
GUY TIE DETAIL



PLAN VIEW

STAKING DETAIL
(TREES 6'–10')

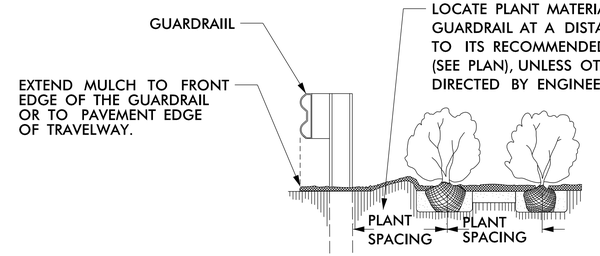
USE AS DIRECTED BY FIELD ENGINEER



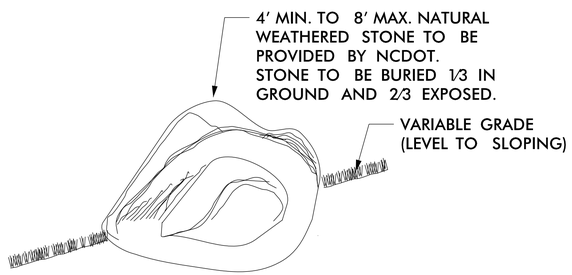
PLAN VIEW

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

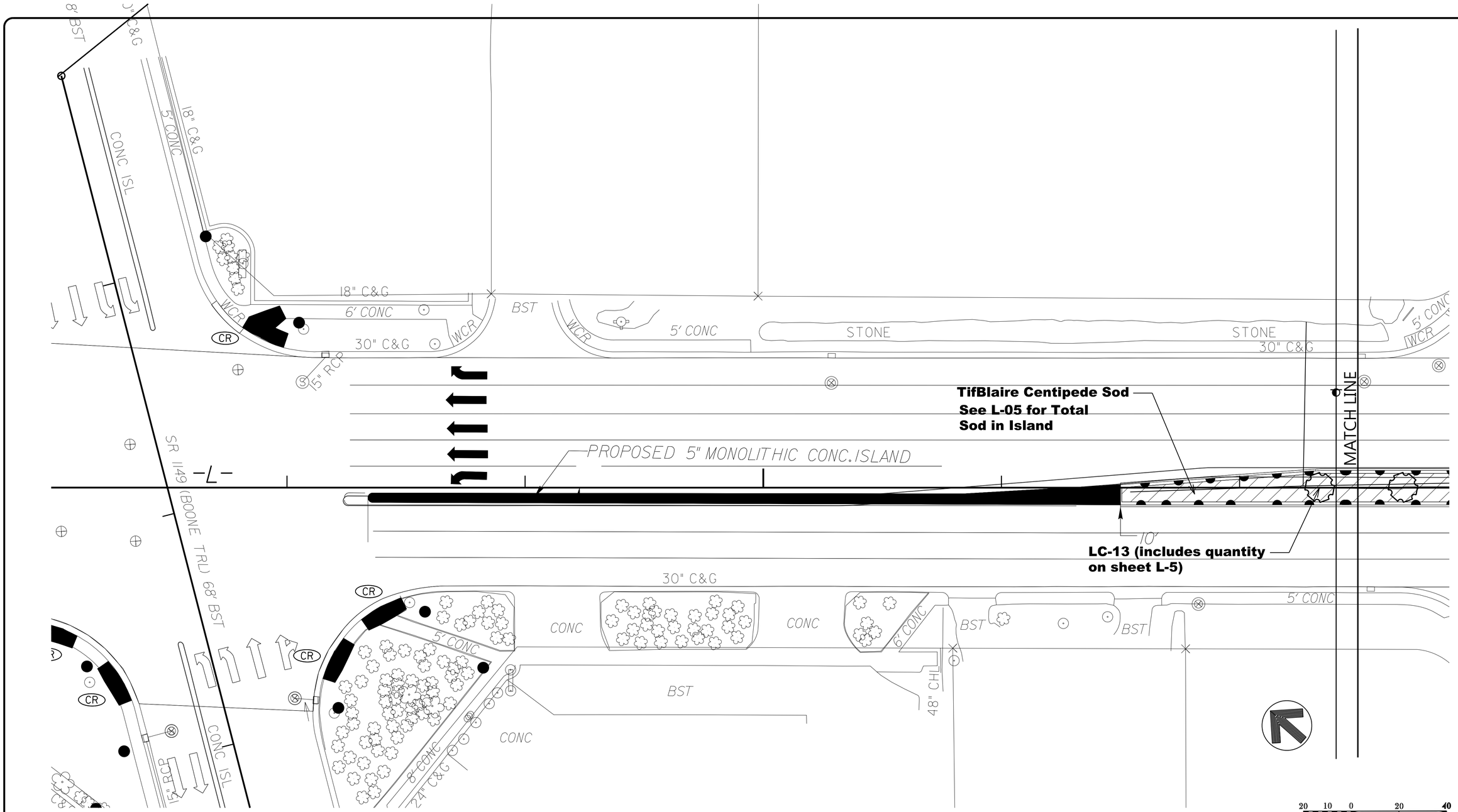
MIN. 12" DEEP CLASS "A" STONE ON FILTER FABRIC LINER IN DITCH. PLACE STONE FLUSH WITH DITCH GRADE FOR MAXINUM WATER FLOW.

CLASS "A" STONE DITCH LINING DETAIL

North Carolina Department of Transportation
Roadside Environmental Unit
Aesthetic Enineering & Landscape Architectural Design

PROJECT TITLE :
Owen Dr
W-5514
Landscape Development Plan
Fayetteville NC

Plans Drawn By: bk
Scale:
Date: 12 / 12 / 2016
Sheet Description: Planting Details
T.I.P. # W-5514
Sheet # L3 OF 24



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Fayetteville NC

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sheet description:

prel. design date : Dec/2016	Roadside Enhancements
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T.I.P. # W-5514
WBS #
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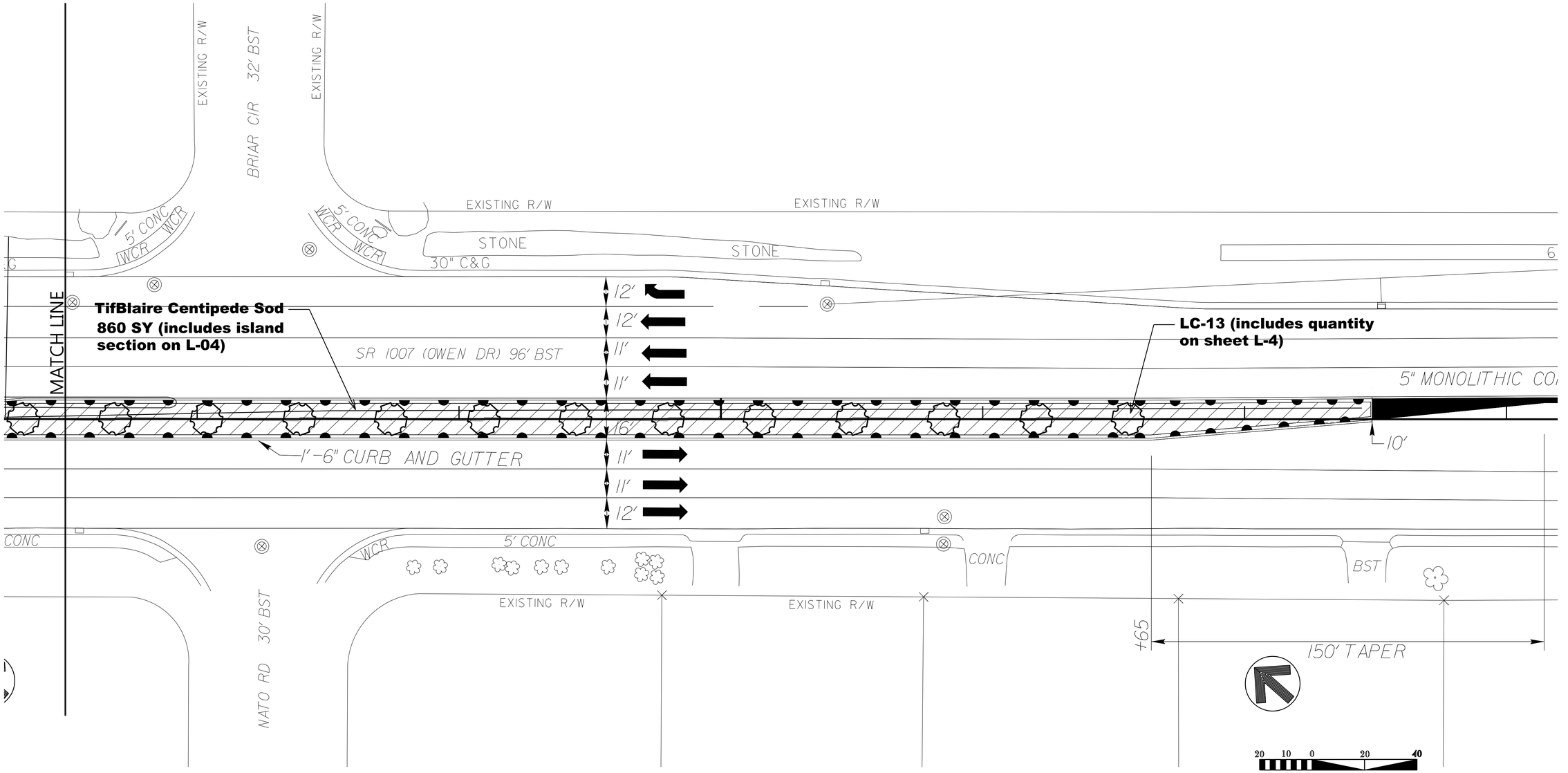
sheet no : L-04
total sheet no : 24



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Fayetteville NC

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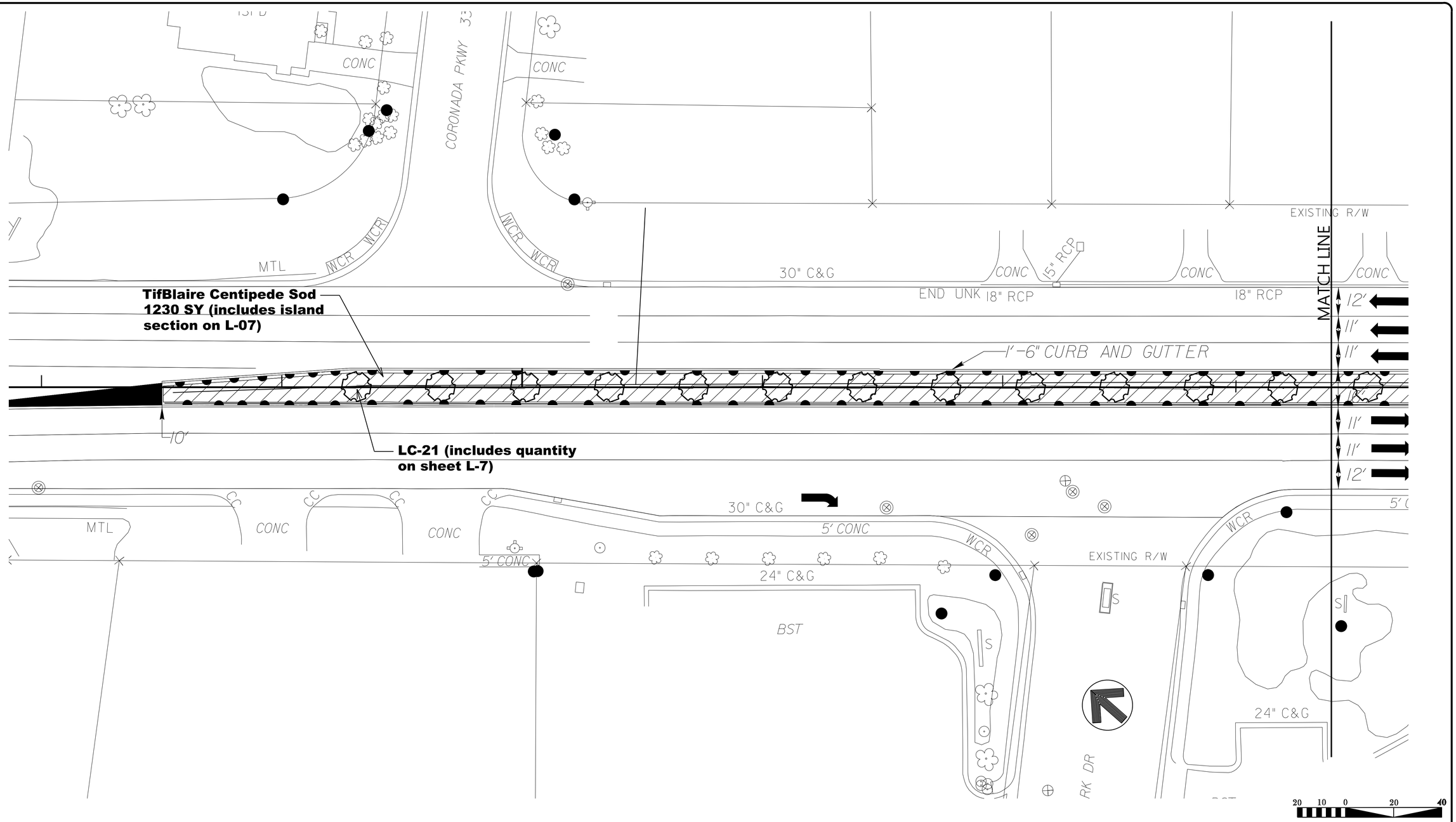

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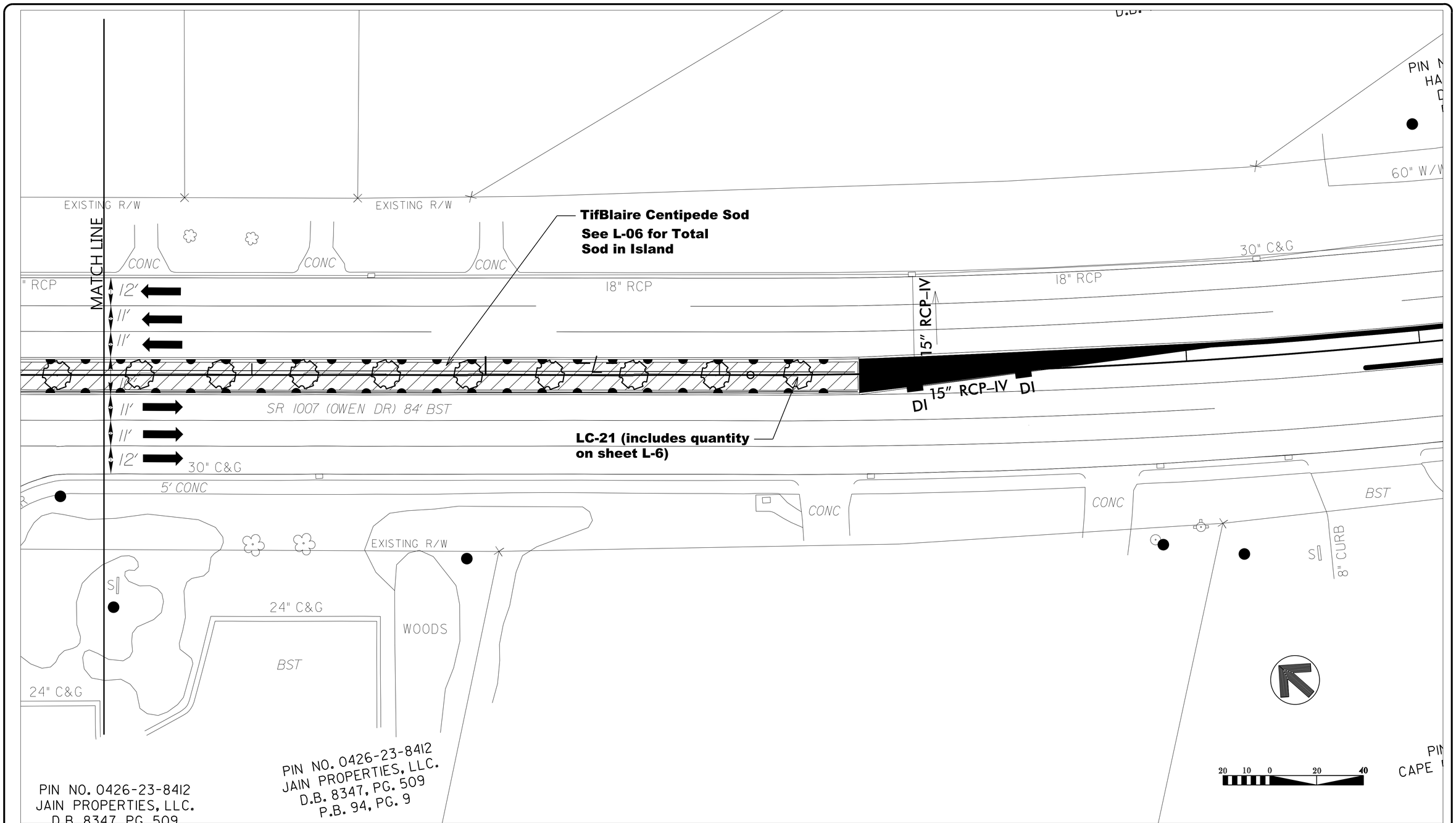

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Roadside Enhancements	

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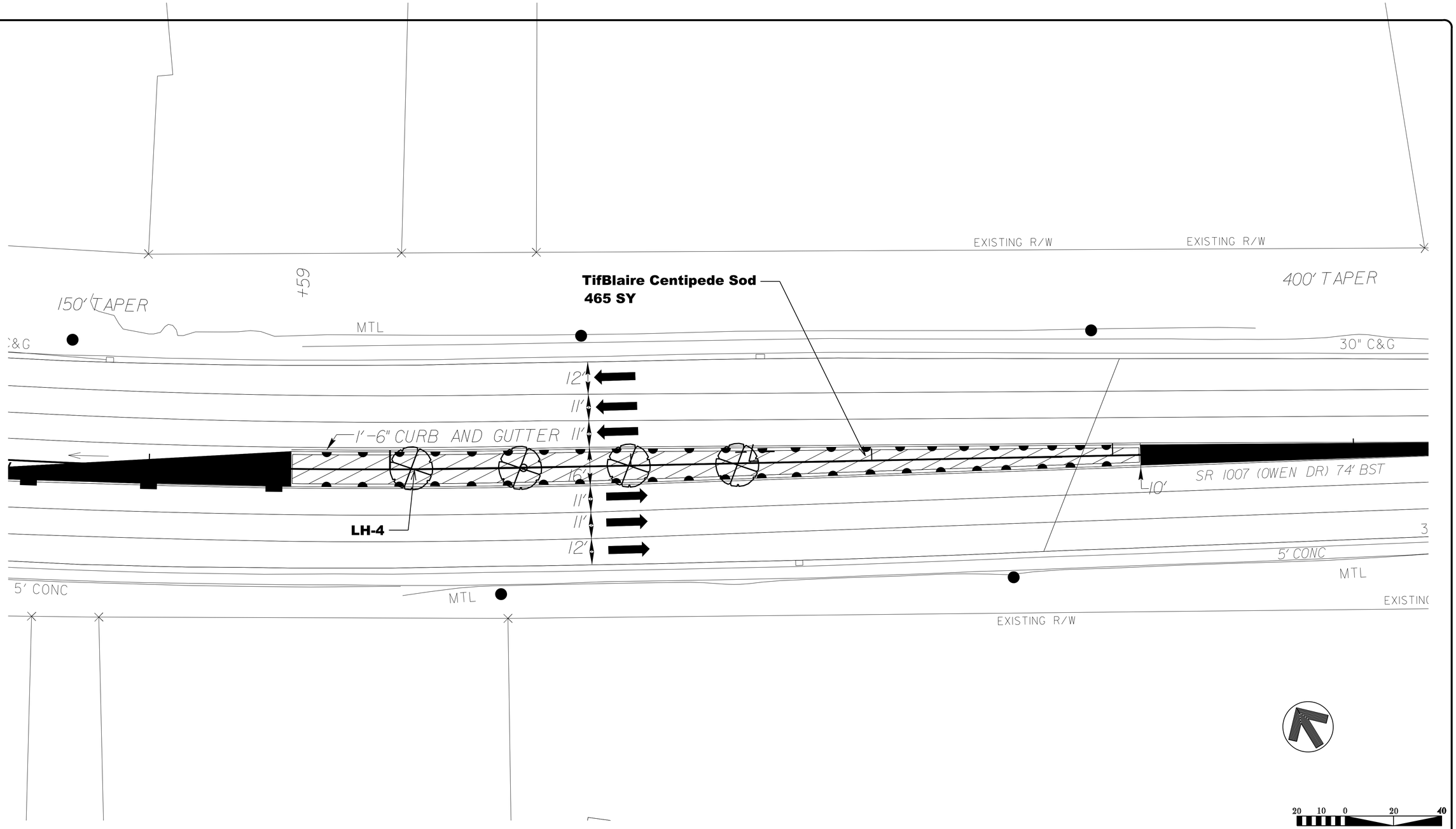

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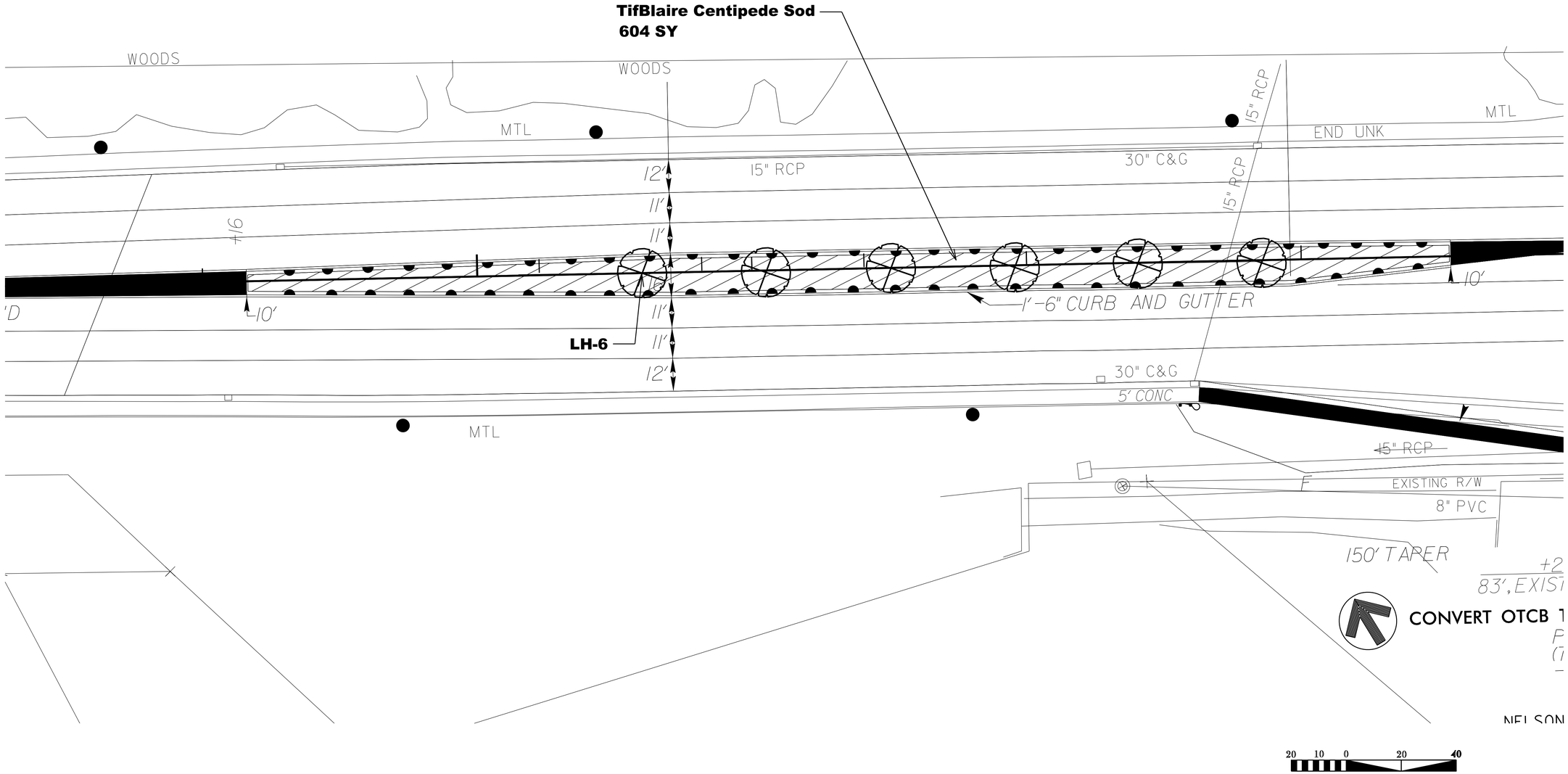

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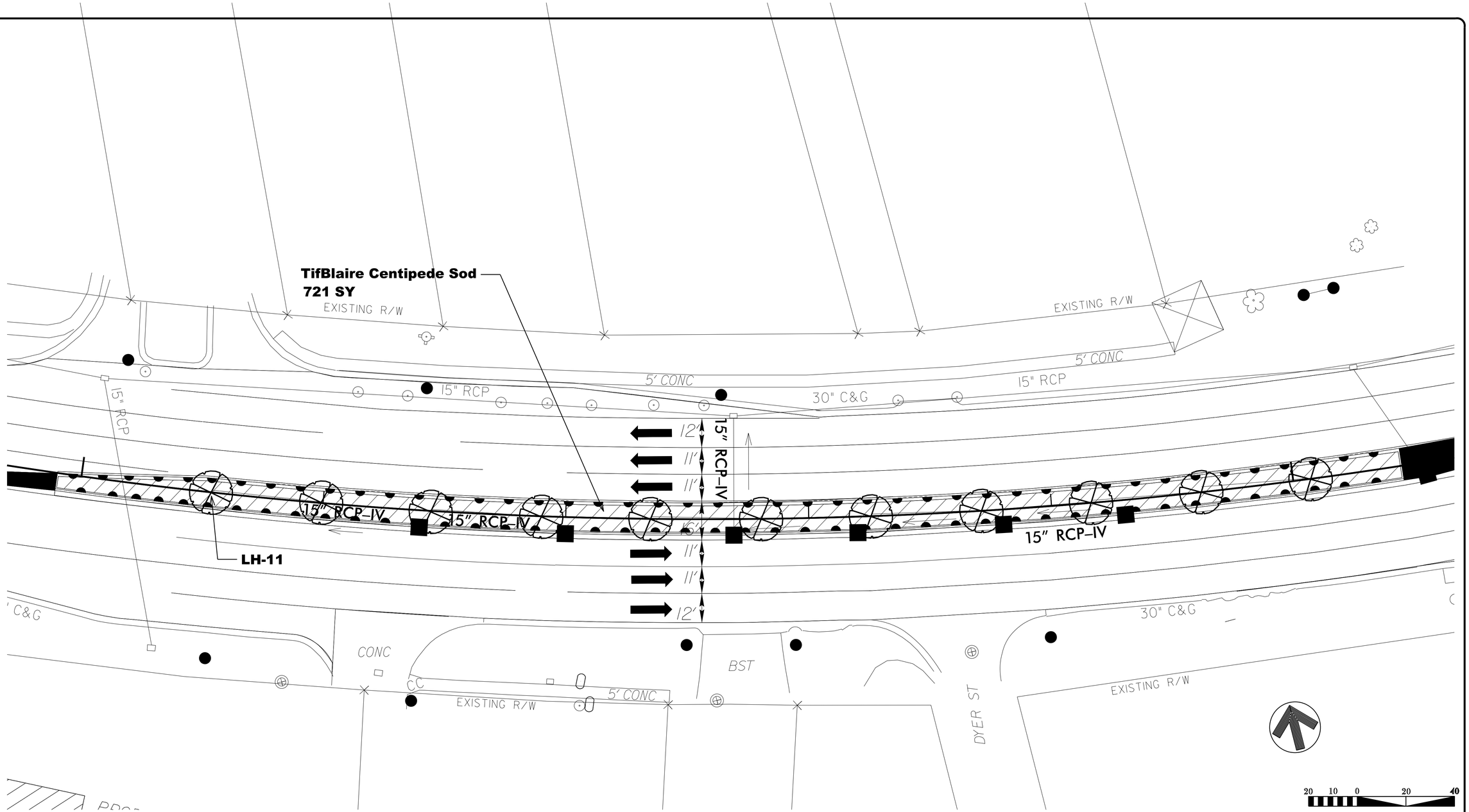
sheet no : L-09
total sheet no : 24



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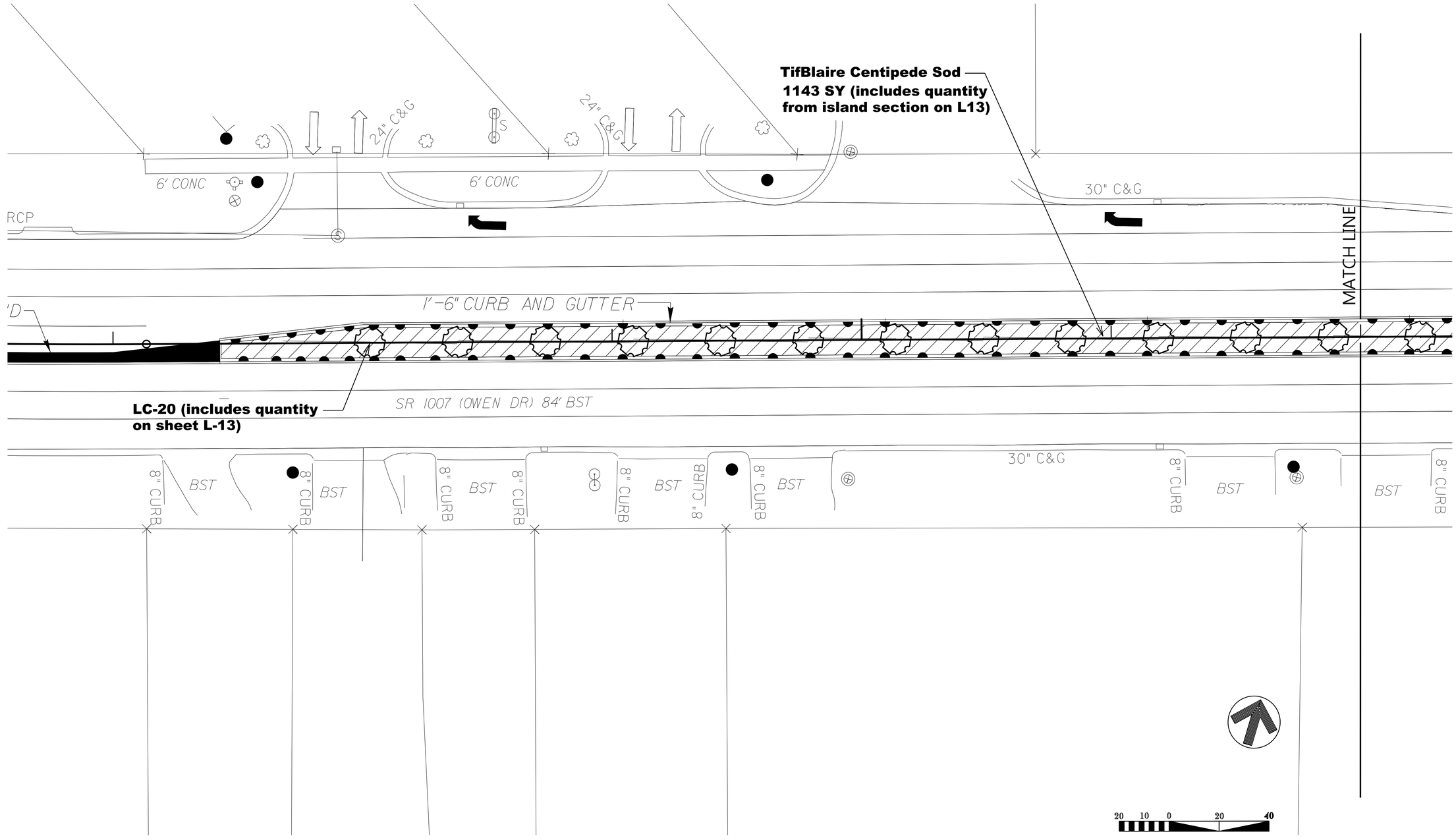

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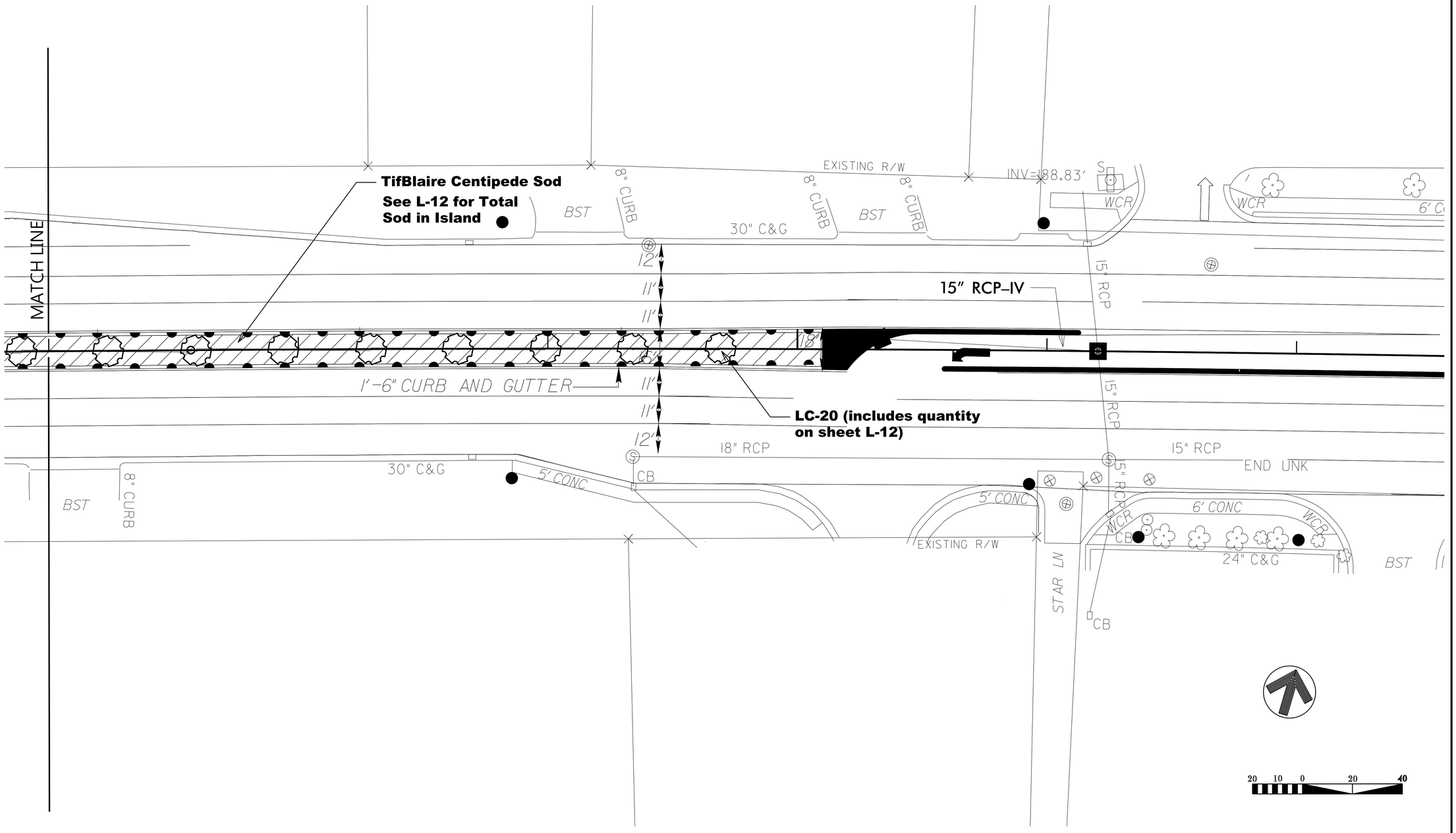

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