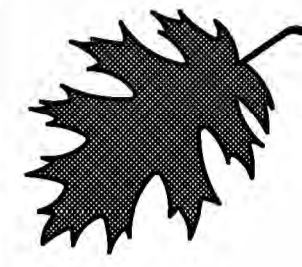


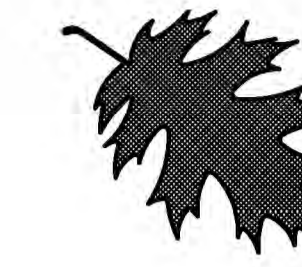
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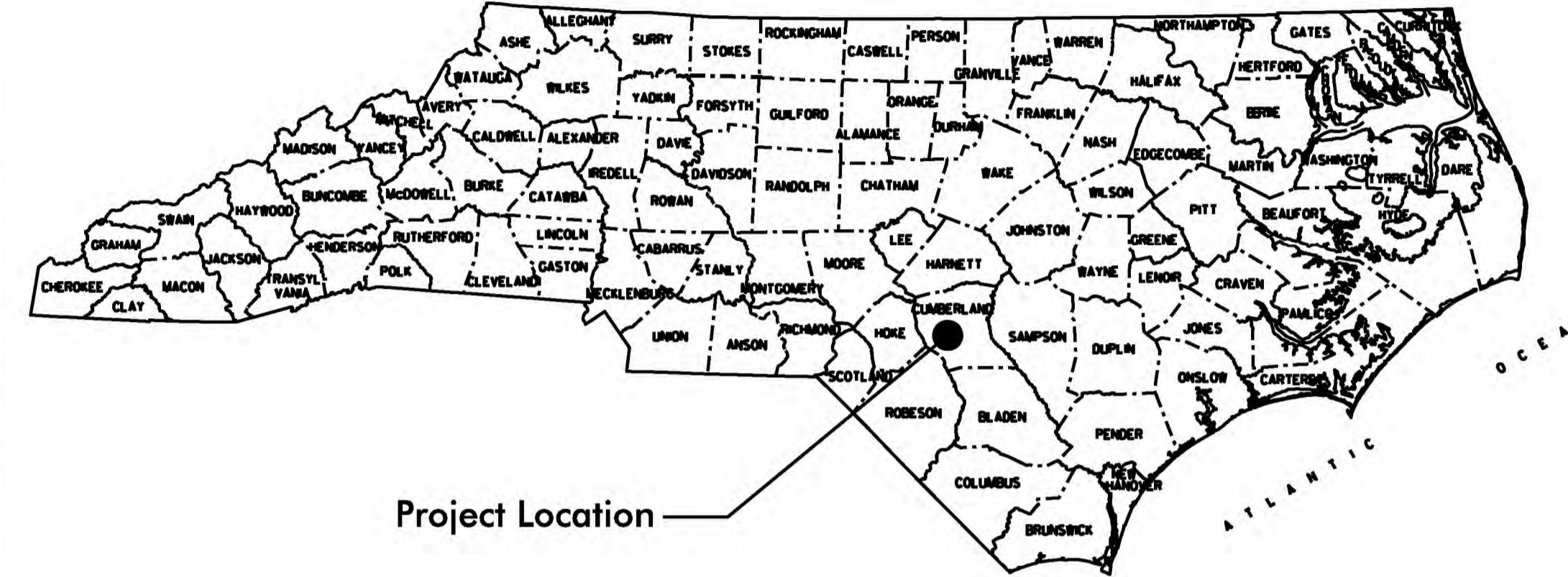
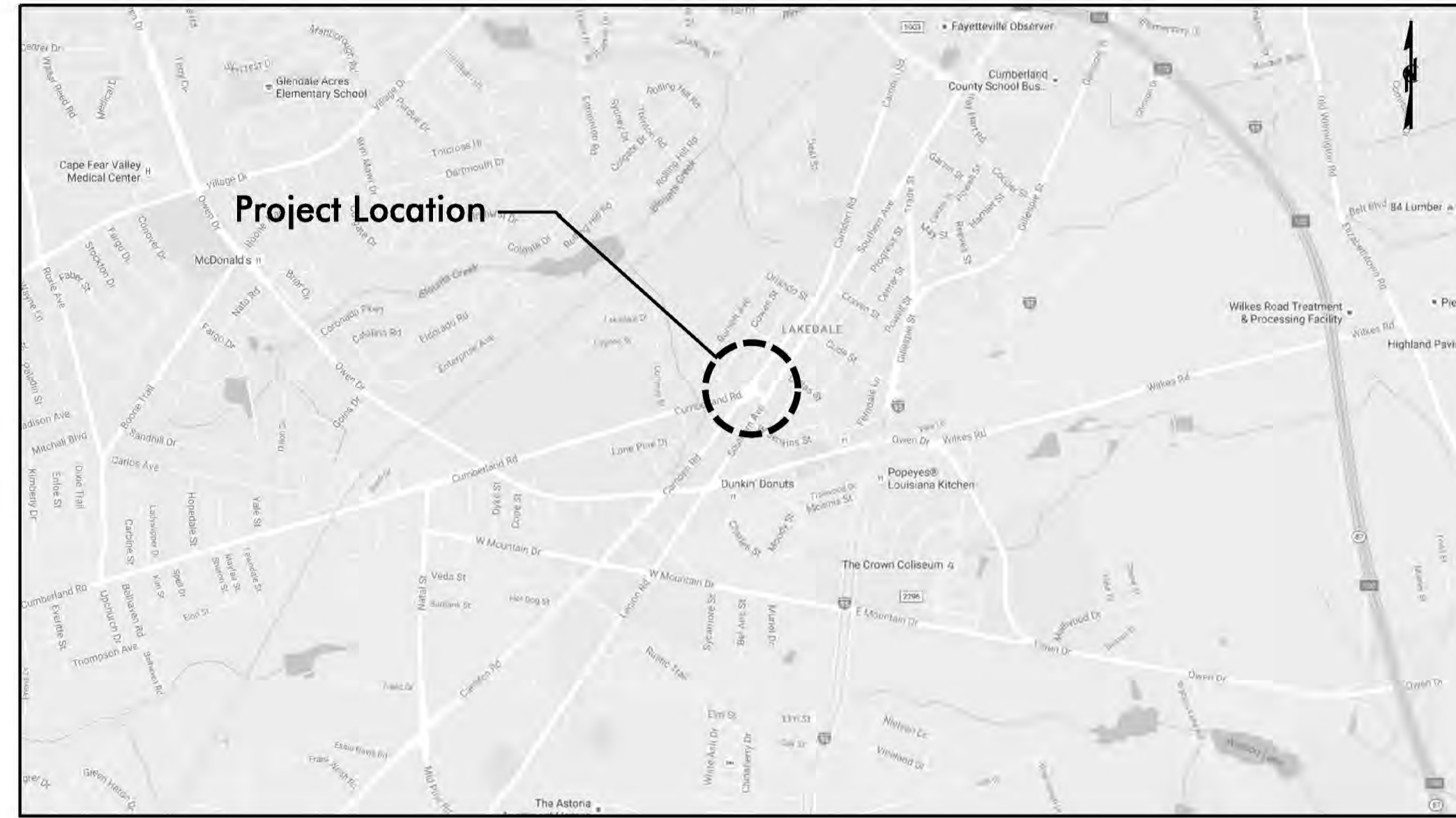


HIGHWAY LANDSCAPE DEVELOPMENT PROJECT



W-5206i Roundabout at Cumberland Rd & Camden Rd

| | | | |
|--------------|------------------------|---------|---------------|
| T.I.P. # | STATE PROJECT W.B.S. # | SHEET # | SHEET # TOTAL |
| W-5206i | - - - - - | L1 | 7 |
| FED. PROJ. # | DESCRIPTION | | DIVISION |
| - | TIP | | 6 |



Summary of Quantities
1 year establishment

| DES | SEC | QTY | UNIT | KEY | BOTANICAL NAME | COMMON NAME | SIZE | CALIPER | FURNISH | A.S.N.S. | REMARKS |
|---------------------------|------|-----|------|-----|-------------------------------------|--------------------------|--------|---------|----------|----------|-------------|
| Shrubs | | | | | | | | | | | |
| L | 1670 | 88 | ea | IS | <i>Ilex crenata</i> 'Soft Touch' | Soft Touch Compact Holly | 18-24" | | #3 Cont. | 5.5 | 2.5' O.C. |
| Grasses/Perennials | | | | | | | | | | | |
| L | 1670 | 192 | ea | FG | <i>Festuca glauca</i> 'Casca11' | Blue Beyond™ Fescue | 6-12" | | #1 Cont. | 13.4 | 1.5' O.C. |
| L | 1670 | 60 | ea | HH | <i>Hypericallis</i> 'Hyperion' | Hyperion Daylily | 6-12" | | #1 Cont. | 13.2.3 | 2' O.C. |
| L | 1670 | 32 | ea | MC | <i>Muhlenbergia capillaris</i> | Pink Muhly Grass | 18-24" | | #3 Cont. | 13.4 | 3' O.C. |
| L | SP | 385 | sqyd | ZO | <i>Zoysia sp.</i> (+10%) | Zoysia Sod | n/a | | Sod | n/a | Tight Seams |
| Other | | | | | | | | | | | |
| L | 1670 | 27 | cy | | Mulch for Planting | | | | | | 4" Depth |
| L | 1670 | 6 | m/g | | Water for Planting | | | | | | |
| L | 1670 | 594 | sqyd | | Pre Emergence Herbicidal Treatment | | | | | | |
| L | 1670 | 594 | sqyd | | Post Emergence Herbicidal Treatment | | | | | | |
| L | 1670 | 12 | ea | | Monthly Maintenance | | | | | | |
| L | SP | 1 | LS | | Irrigation | | | | | | |
| L | SP | 1 | LS | | Lighting | | | | | | |

CONVENTIONAL SYMBOLS

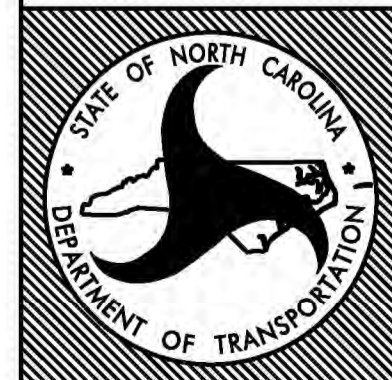
- County Line.....
- City or Town Line.....
- Exist. Right of Way Line Marker.....
- Prop. Right of Way Line Marker (By Other).....
- Prop Right of Way Line Marker (By Contract).....
- Exist. Control of Access Line.....
- Prop. Control of Access Line.....
- Property Line.....
- Easement Line.....
- Slope 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 1.0 - Title Sheet
- L 2.0 - Planting Details
- L 3.0 - Planting Plan
- L 4.0 - Irrigation Notes
- L 5.0 - Irrigation Details
- L 6.0 - Irrigation Plan
- L 7.0 - Lighting Plan and Notes

PREPARED BY: KC DATE: 01/2017
REVISIONS

| DATE | DESCRIPTION |
|------|-------------|
| | |
| | |
| | |



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

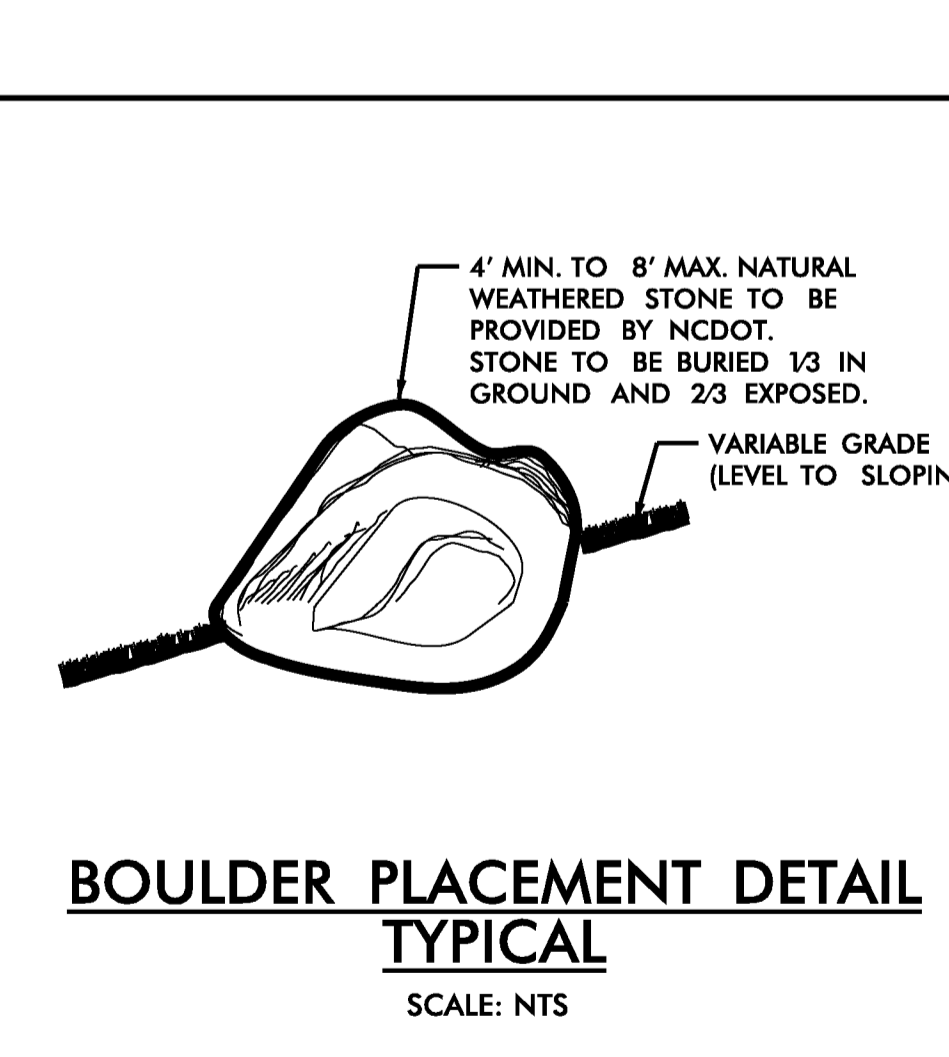
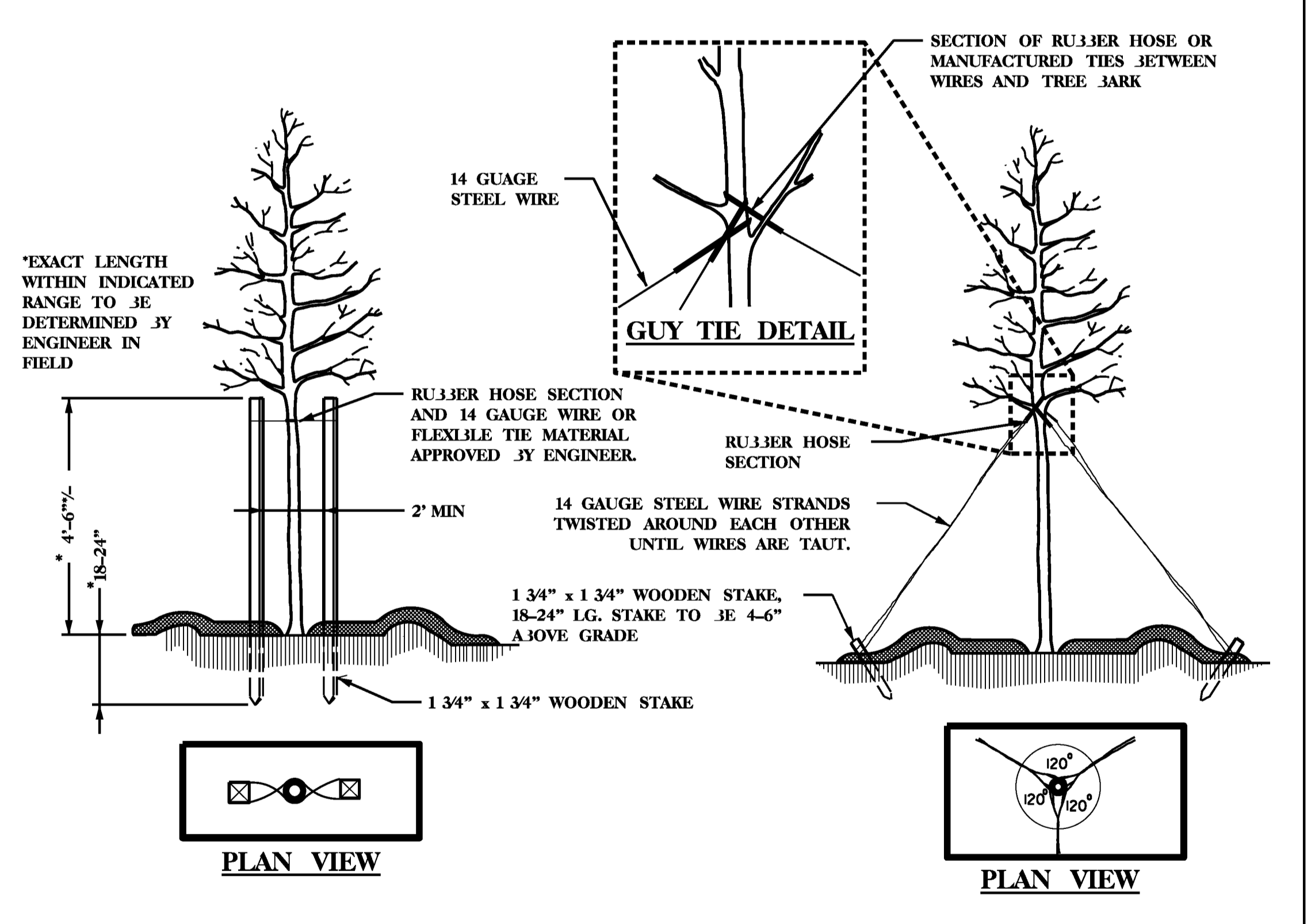
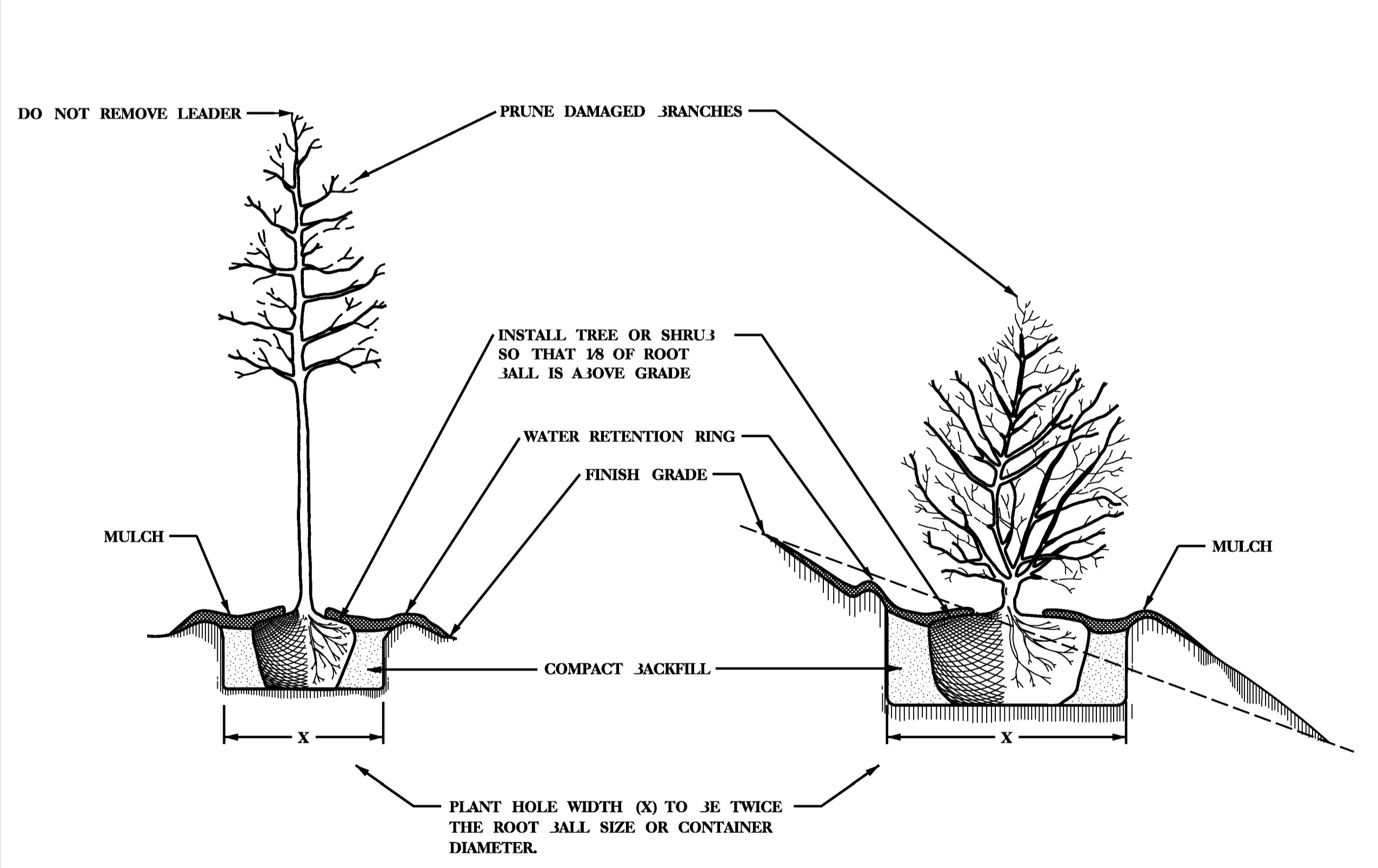
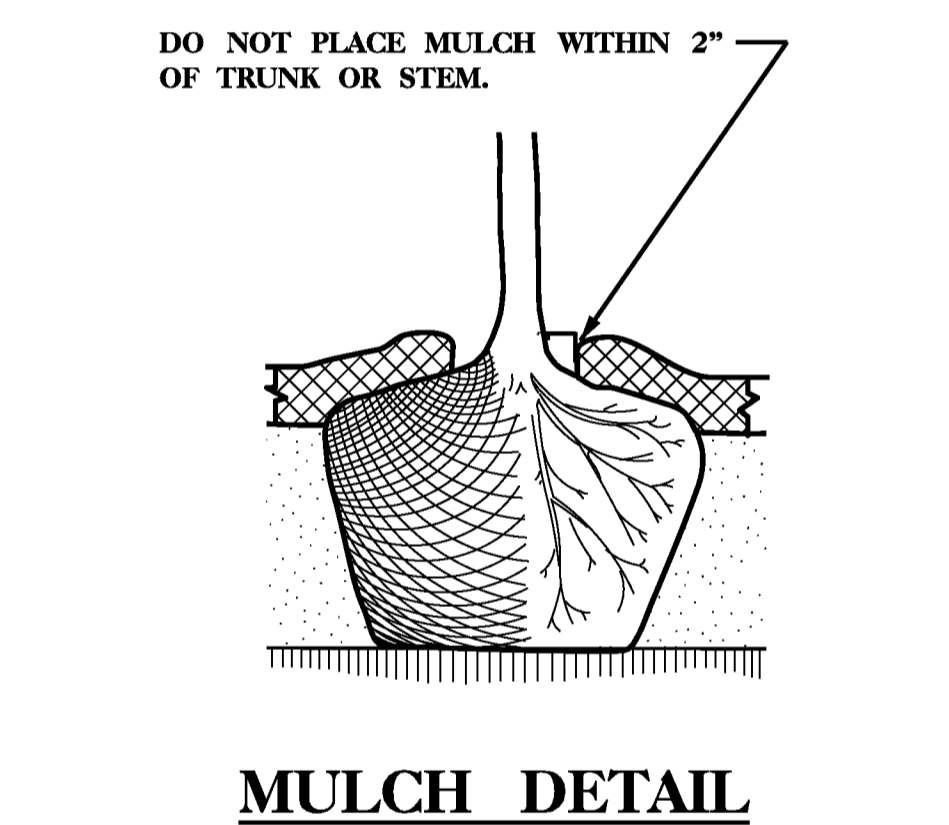
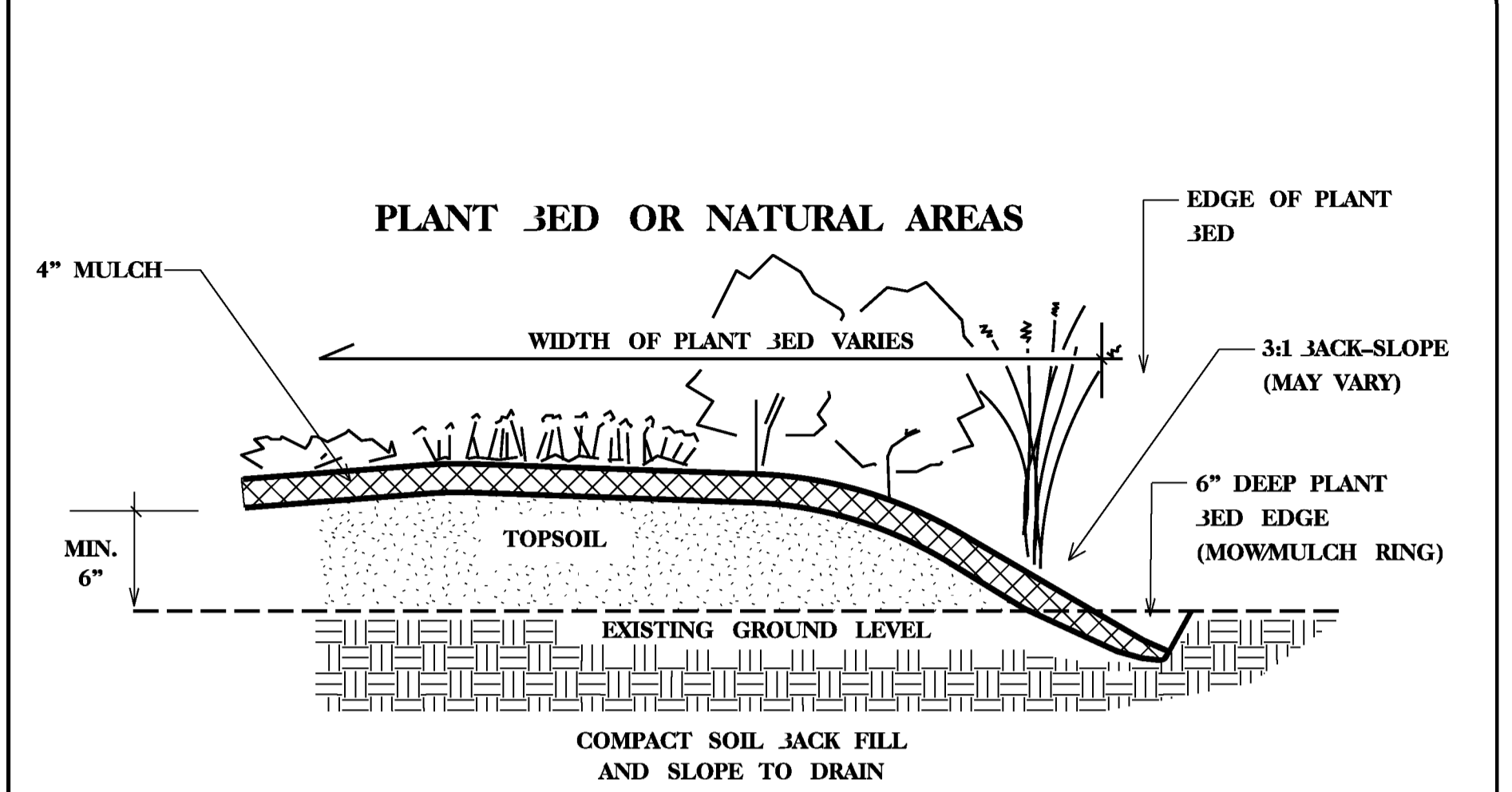
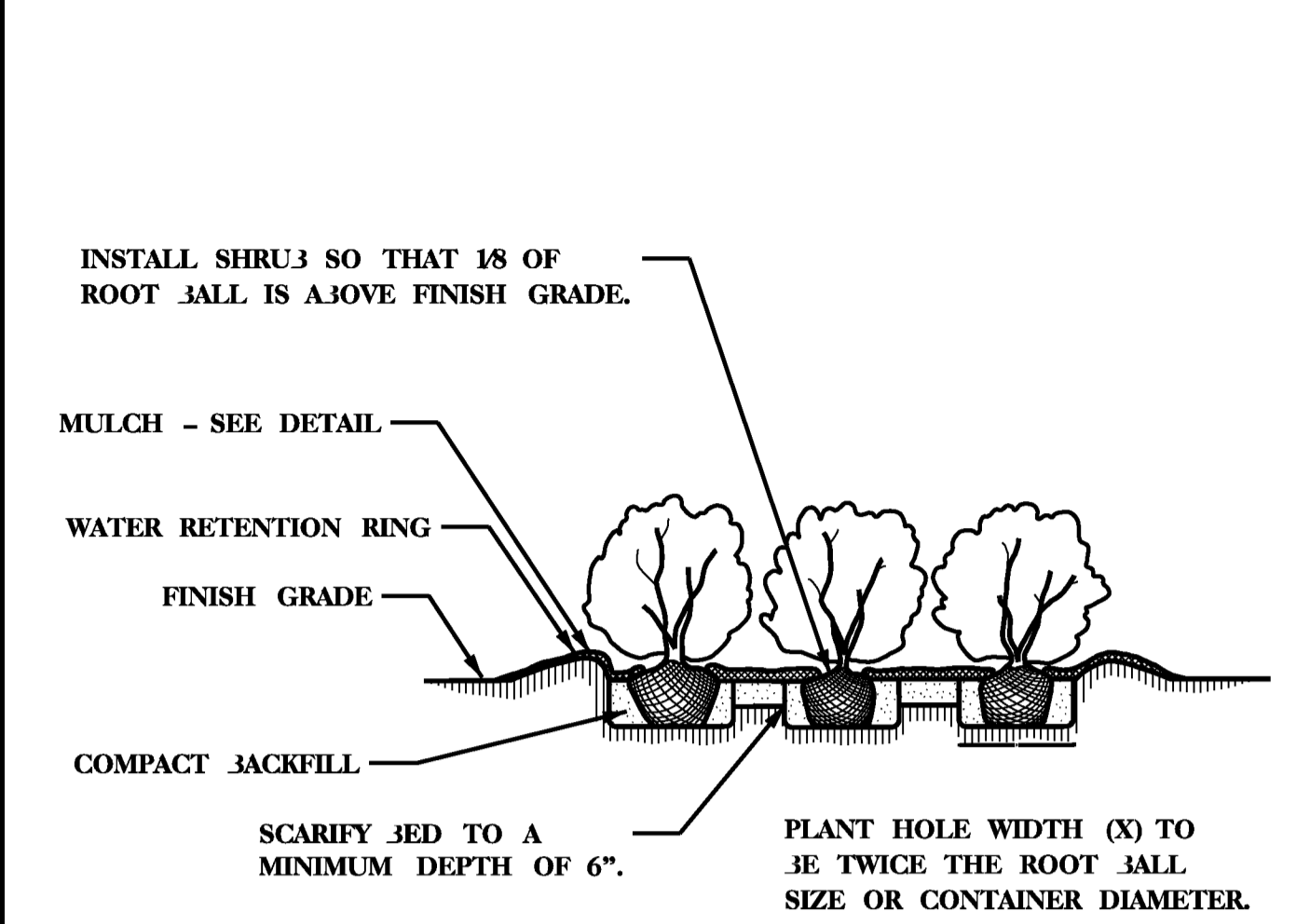
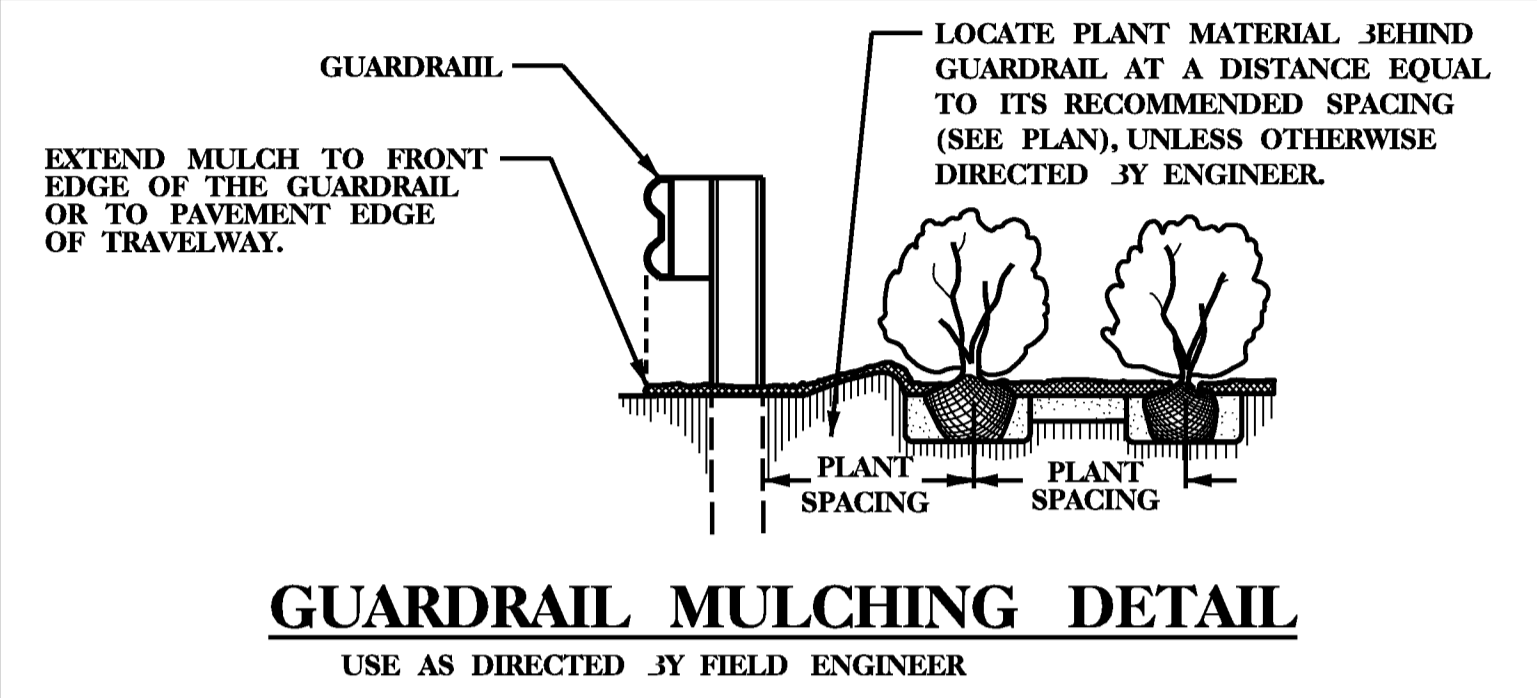
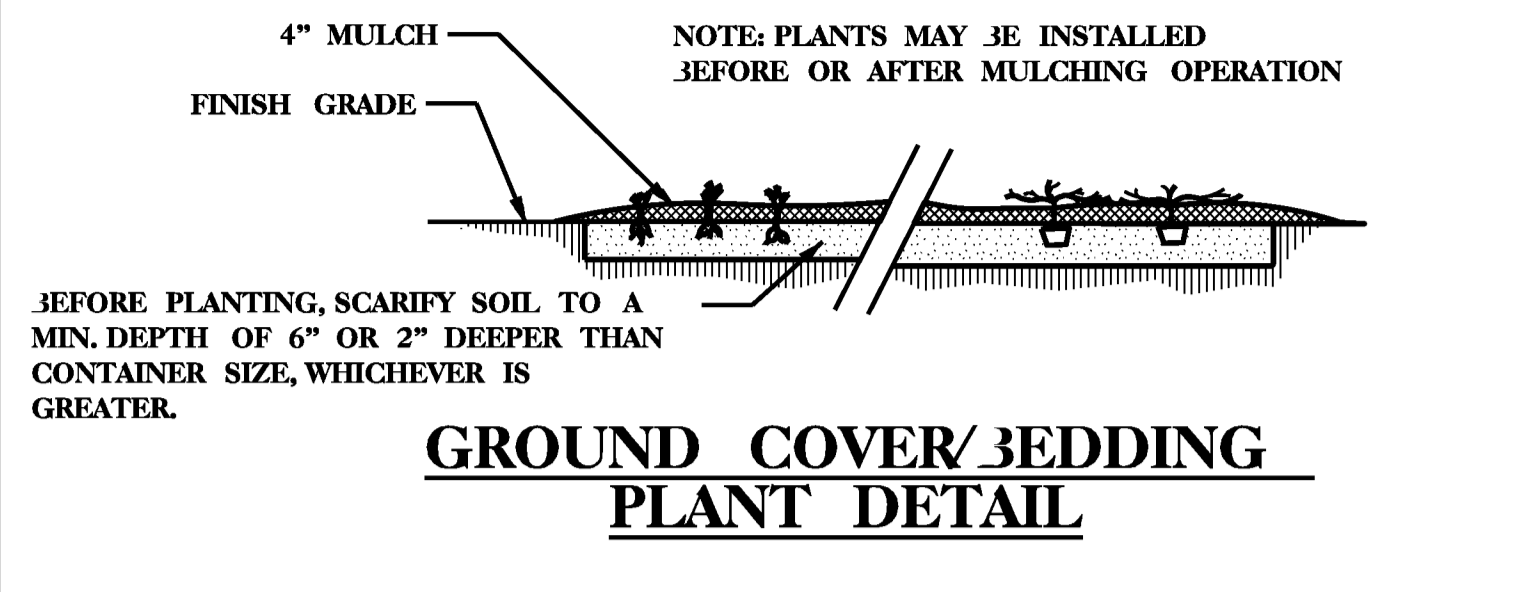
LOCATION: Roundabout at Cumberland Rd & Camden Rd

TYPE of WORK: T.I.P.

COUNTY: Cumberland County

2014 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

- 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 BASK 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.



TREE OR SHRUB PLANTING DETAIL (LEVEL GROUND)

TREE OR SHRUB PLANTING DETAIL (SLOPING GROUND)

STAKING DETAIL (TREES 6'-10')
USE AS DIRECTED BY FIELD ENGINEER

GUYING DETAIL (TREES 10' OR LARGER)
USE AS DIRECTED BY FIELD ENGINEER



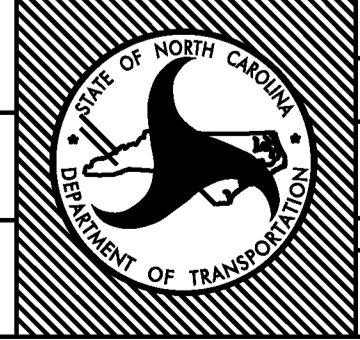
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
 PH: 919-707-2935 FAX: 919-715-2554
 HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

ROUNDBOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

REG. DESIGNER
 Kyle Cooper

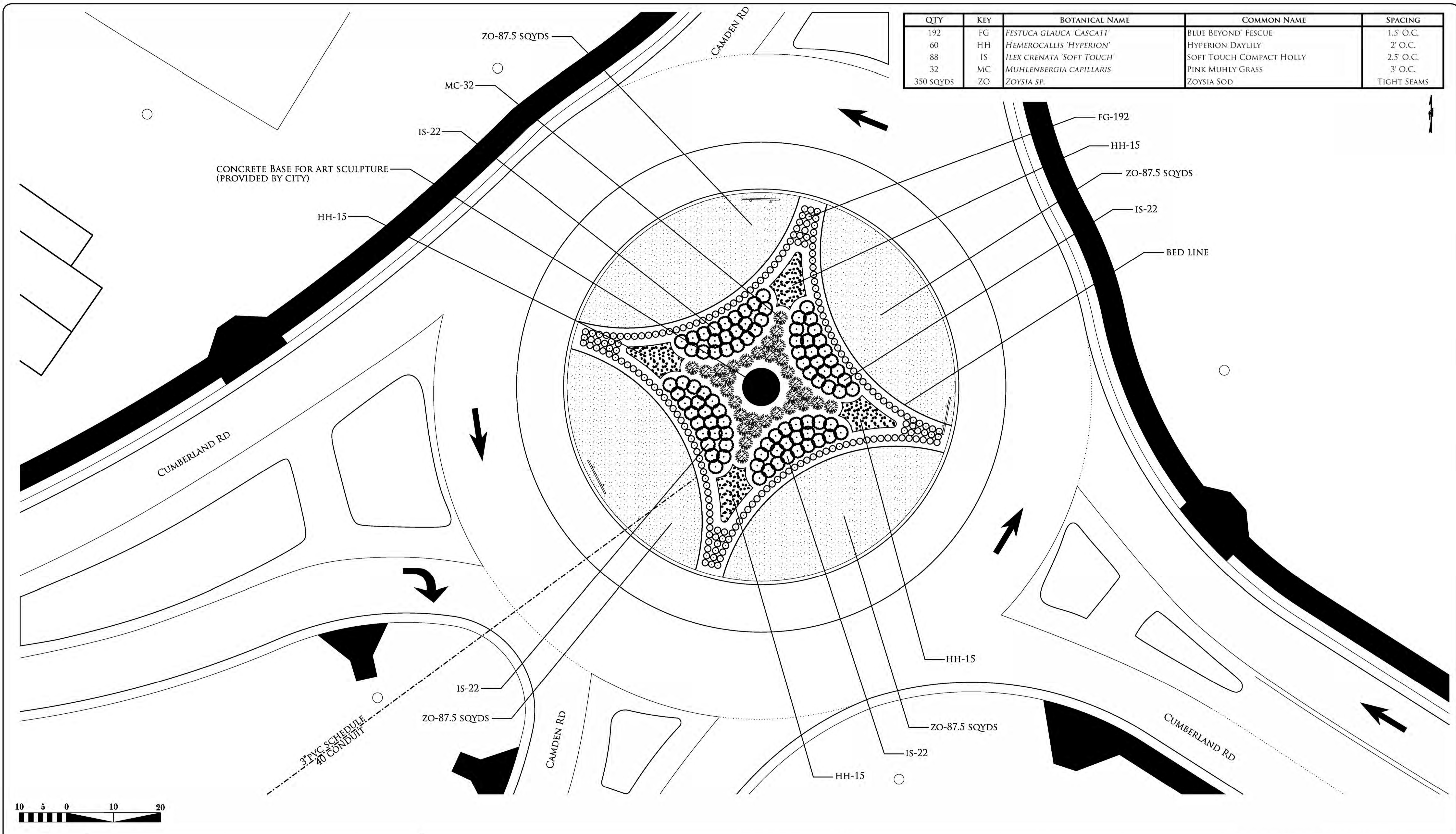
| | |
|--------------------|---------------|
| PREL. DESIGN DATE: | DEC. 7, 2016 |
| CHECKED BY & DATE: | |
| FINAL DESIGN DATE: | JAN. 13, 2017 |

PLANTING DETAILS



| | |
|------------------|----------|
| T.I.P. # | W-5206 I |
| WBS # | |
| FED I.D. # | |
| SHEET NO.: | L-2 |
| TOTAL SHEET NO.: | 7 |

| QTY | KEY | BOTANICAL NAME | COMMON NAME | SPACING |
|-----------|-----|---------------------------|--------------------------|-------------|
| 192 | FG | FESTUCA GLAUCA 'CASCAII' | BLUE BEYOND® FESCUE | 1.5' O.C. |
| 60 | HH | HEMEROCALLIS 'HYPERION' | HYPERION DAYLILY | 2' O.C. |
| 88 | IS | ILEX CRENATA 'SOFT TOUCH' | SOFT TOUCH COMPACT HOLLY | 2.5' O.C. |
| 32 | MC | MUHLENBERGIA CAPILLARIS | PINK MUHLY GRASS | 3' O.C. |
| 350 SQYDS | ZO | ZOYSIA SP. | ZOYSIA SOD | TIGHT SEAMS |



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[HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

ROUNDABOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

REV. DESIGNER
 Kyle Cooper

SHEET DESCRIPTION:
 PREL. DESIGN DATE: DEC. 7, 2016
 CHECKED BY & DATE:
 FINAL DESIGN DATE: JAN. 13, 2017

PLANTING PLAN
 LANDSCAPE PLAN SHEET



T.I.P. # W-5206 I
 WBS #
 FED I.D. #
 SHEET NO.: L-3 TOTAL SHEET NO.: 7

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.

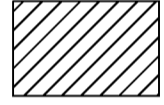

BACKFLOW PREVENTION

-  - 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 X-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. THE RAIN SENSOR MOUNT IS TO BE PAINTED A DARK HUNTER GREEN IN ORDER TO BLEND INTO THE LANDSCAPE.


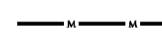
DRIP IRRIGATION

-  - DRIP IRRIGATION IS TO BE 1/2" 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, A MESH FILTER, AND A 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 POP-UP SPRINKLER HEAD FITTED WITH PRO ADJUSTABLE NOZZLES OR 180°, 270°, AND 360° MPR SPRAY SERIES SPRAY NOZZLES WITH THE FOLLOWING RADII: 17".
-  - ALL HEADS WITH A 6"-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 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 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.

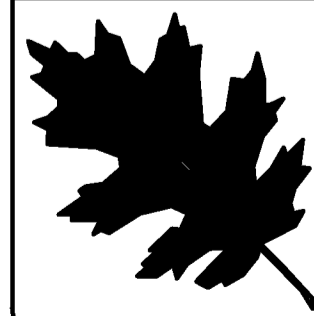
24 VAC CONTROLLER WIRING

- 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 - 1
 BACKFLOW PREVENTERS - 1
 BATTERY POWERED CONTROLLERS - 1
 ZONES VALVES - 2
 MAIN LINE PIPE - 64 LF
 LATERAL PIPE - 432 LF
 SPRAY HEADS (17" R) - 25

QUANTITIES ARE ESTIMATED BASED ON DESIGN DRAWINGS. REFER TO PLANS FOR ANY DISCREPANCIES. PLANS TAKE PRIORITY OVER THESE ESTIMATED QUANTITIES. 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.



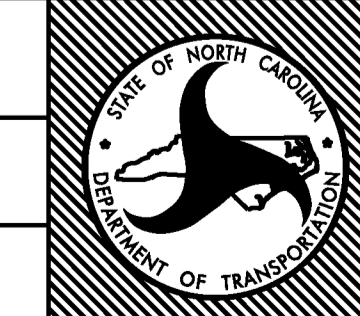
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
 PH: 919-707-2935 FAX: 919-715-2554
 HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

ROUNDABOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

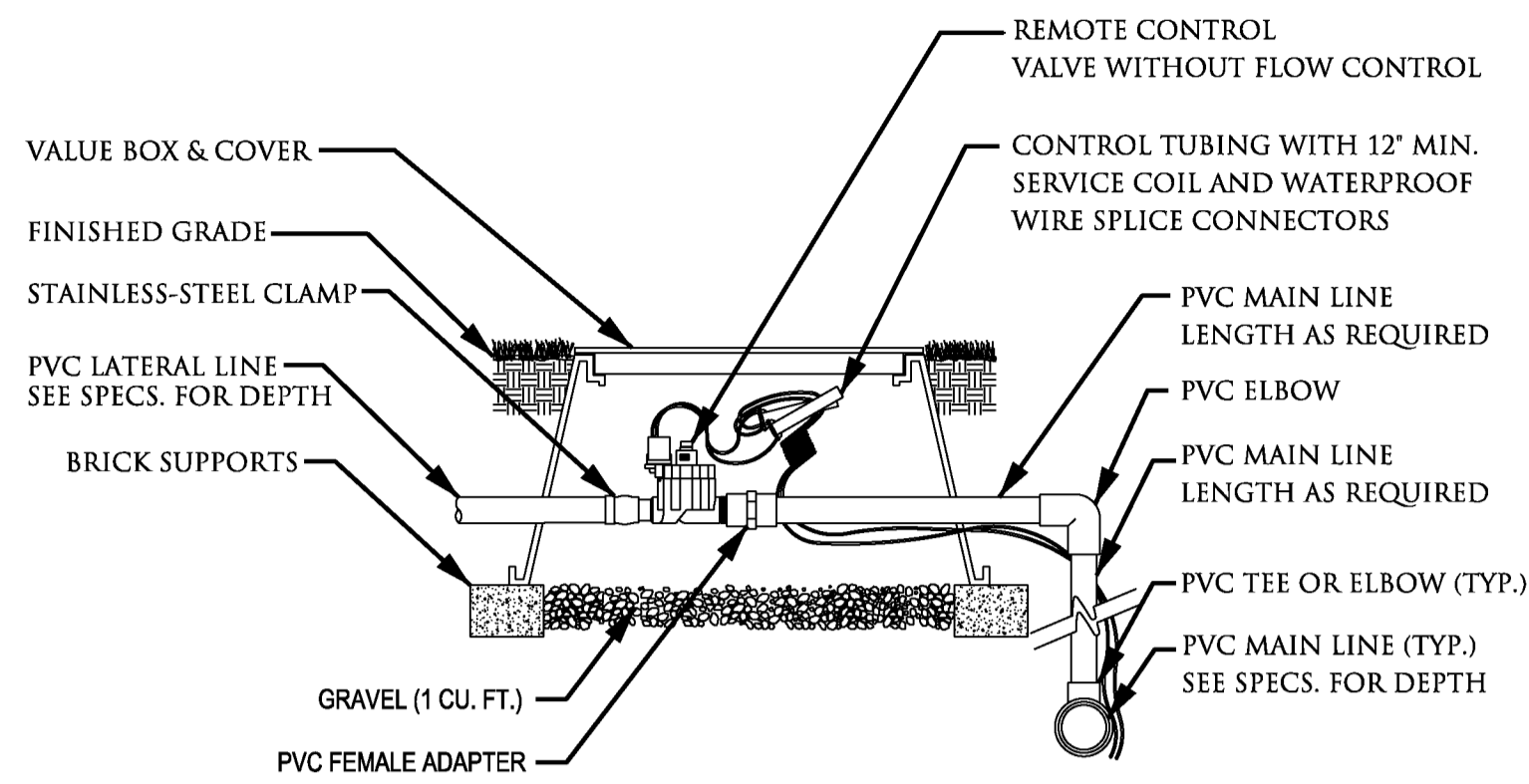
REG. DESIGNER


| | |
|---------------------|---------------|
| PREL. DESIGN DATE : | DEC. 14, 2016 |
| CHECKED BY & DATE : | |
| FINAL DESIGN DATE : | JAN. 13, 2017 |

| | |
|------------------|--|
| IRRIGATION NOTES | |
| | |



| | |
|-------------|-------------------|
| T.I.P. # | W-5206 I |
| WBS # | ----- |
| FED I.D. # | |
| SHEET NO. : | TOTAL SHEET NO. : |
| L-4 | 7 |

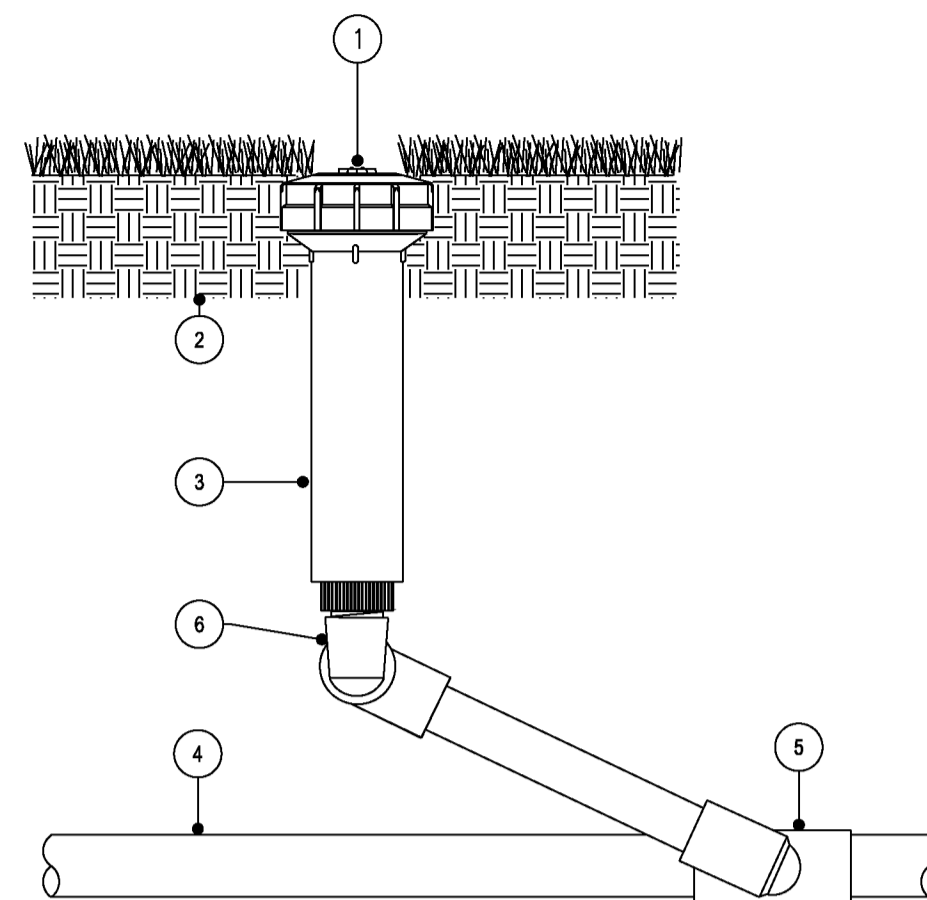


NOTES:
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 2. DO NOT SCALE DRAWINGS.

VALVES & BOX
 1" PLASTIC VALVE (NOT TO SCALE)

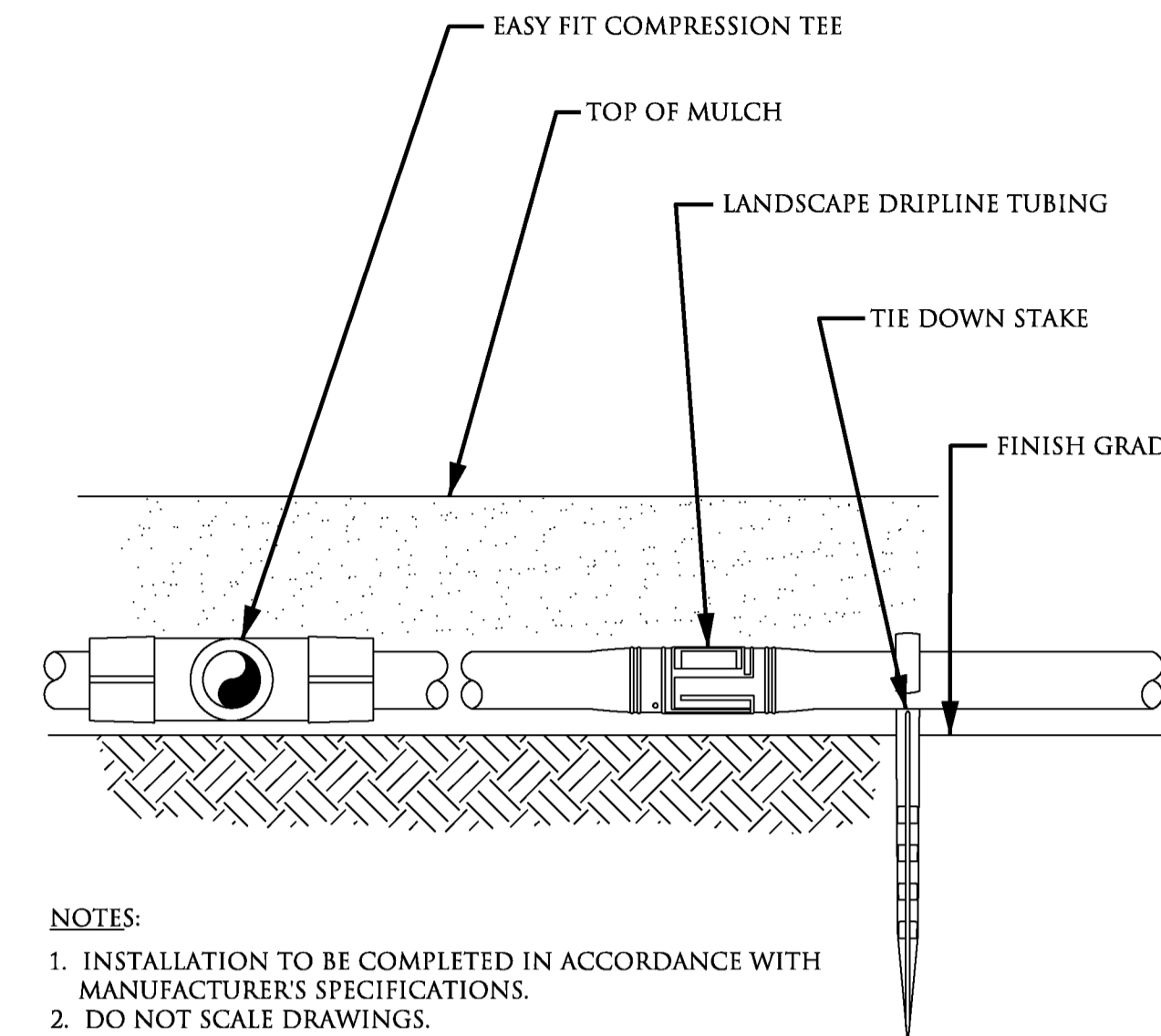
LEGEND

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



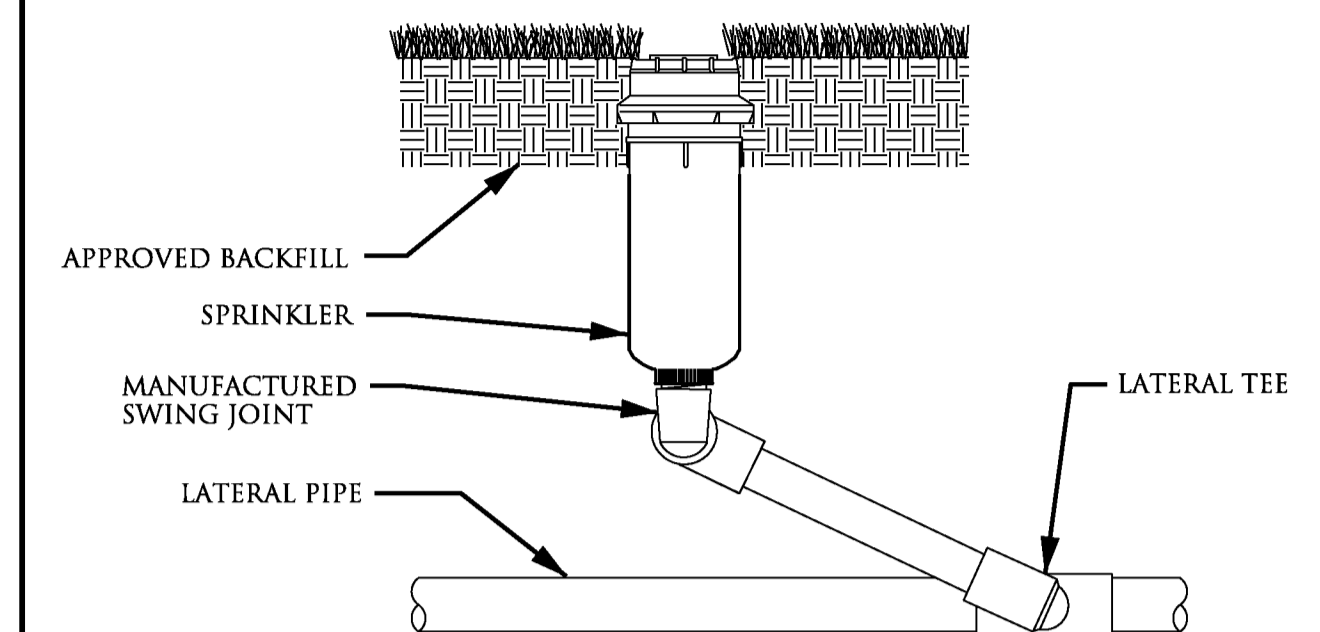
NOTES:
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 2. DO NOT SCALE DRAWINGS.
 3. INSTALL SPRINKLERHEAD AT FINISHED GRADE

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



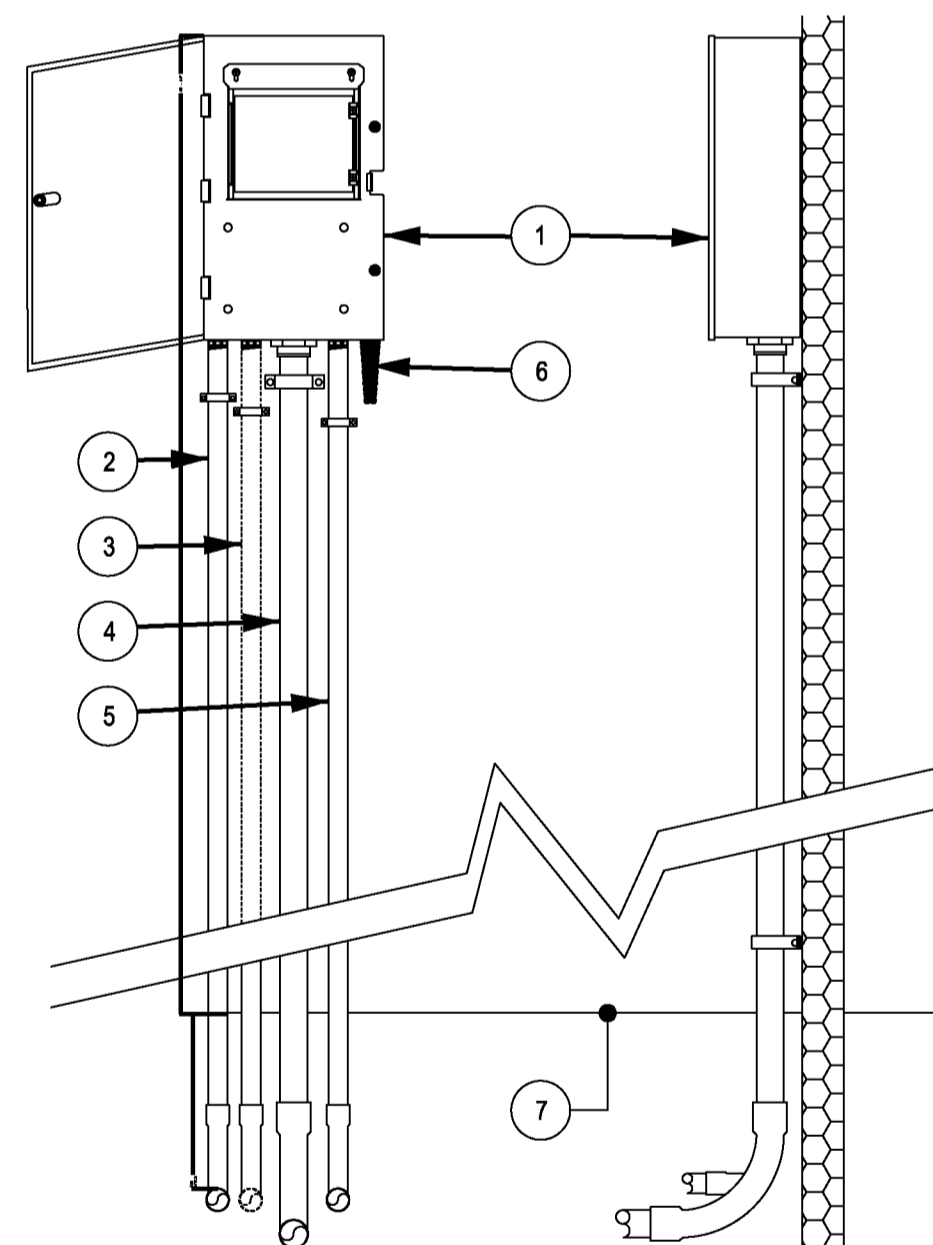
NOTES:
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 2. DO NOT SCALE DRAWINGS.

LANDSCAPE DRIPLINE ON GRADE
 POTABLE SYSTEM (NOT TO SCALE)



NOTES:
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 2. DO NOT SCALE DRAWINGS.
 3. INSTALL SPRINKLER AT FINISHED GRADE.

POP-UP SPRAY HEADS
 SINGLE-STREAM SPRINKLER, SWING JOINT (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:
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CONTROLLER WALL MOUNT
 WALL-MOUNT CONTROLLER, METAL (NOT TO SCALE)

BATTERY POWERED DDCWP CONTROLLER MOUNTED ON INSIDE OF BOX. SUBMIT MOUNT- HARDWARE FOR APPROVAL.

LEAVE SUFFICIENT AMOUNT OF WIRE FOR LID REMOVAL AND ACCESS TO CONTROLLER (APPROX. 3'-4')

HARDWARE TO SECURE BOX LID

PROVIDE SUFFICIENT AMOUNT OF WIRE LENGTH FOR MOUNTING CONTROLLER ON THE LID (APPROX. 3'-4')

VALVE

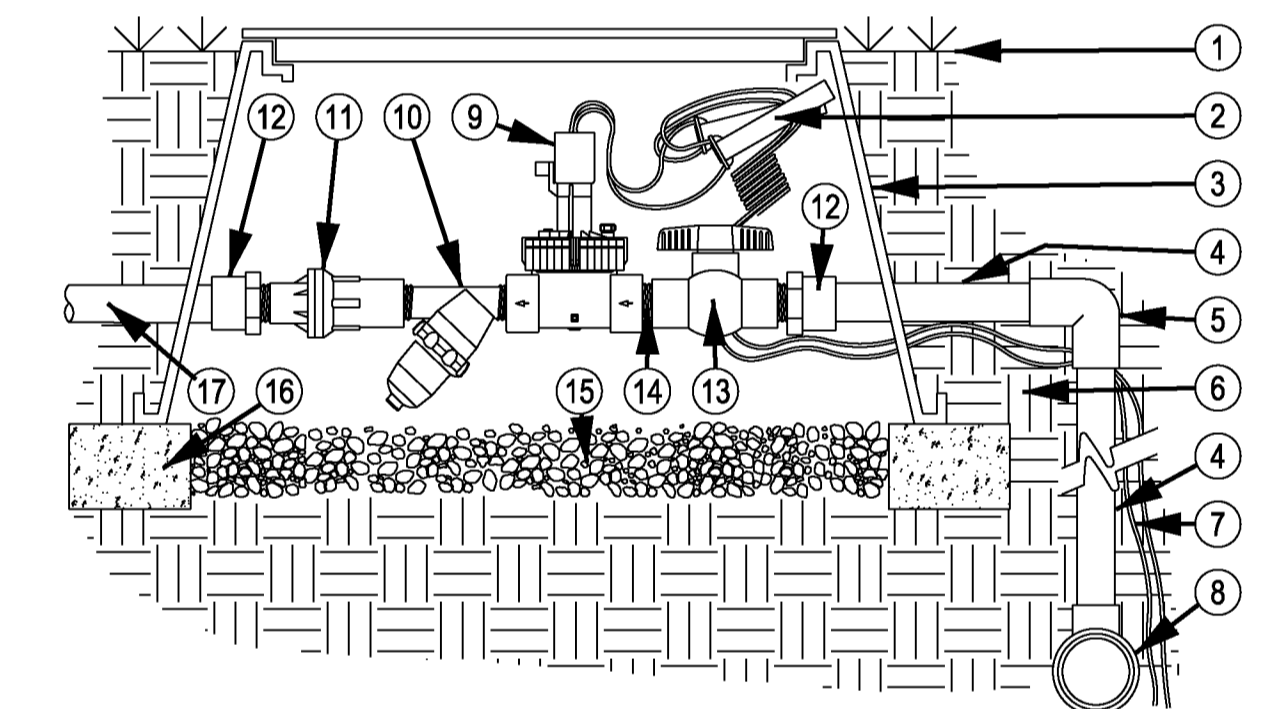
3" GRAVEL BASE

VALVE BOX (INSTALLED PER MANUFACTURER INSTRUCTIONS)

BOX BURIED WITH 1/2" EXPOSED (OR AS DIRECTED BY THE ENGINEER).

FINISHED GRADE

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

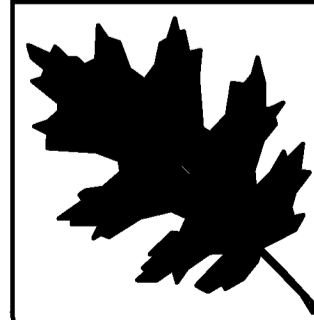


LEGEND

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

NOTES:
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DRIP ZONE ASSEMBLY
 VALVE ASSEMBLY (NOT TO SCALE)



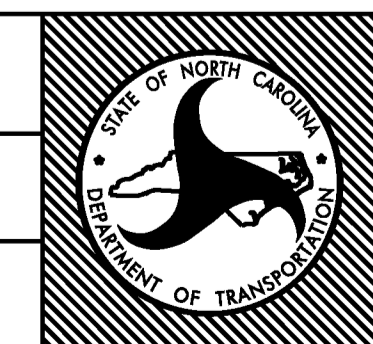
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 LANDSCAPE DESIGN & DEVELOPMENT
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
 PH: 919-707-2935 FAX: 919-715-2554
 HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

ROUNDABOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

REV. DESIGNER

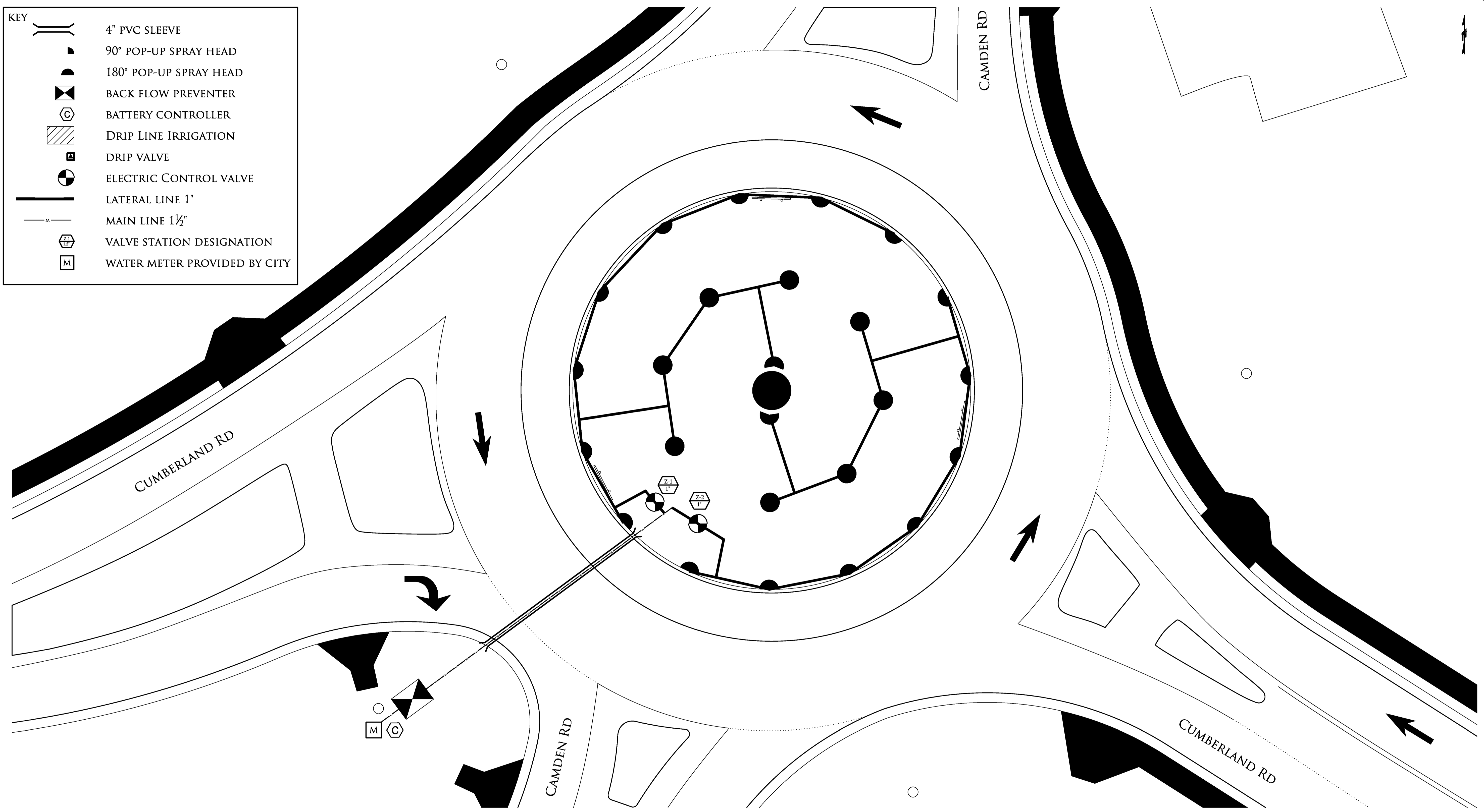
SHEET DESCRIPTION:
 PREL. DESIGN DATE: DEC. 14, 2016
 CHECKED BY & DATE:
 FINAL DESIGN DATE: JAN. 13, 2017

IRRIGATION DETAILS



T.I.P. # W-5206 I
 WBS #
 FED I.D. #
 SHEET NO.: L-5
 TOTAL SHEET NO.: 7

| KEY | |
|-----|------------------------------|
| | 4" PVC SLEEVE |
| | 90° POP-UP SPRAY HEAD |
| | 180° POP-UP SPRAY HEAD |
| | BACK FLOW PREVENTER |
| | BATTERY CONTROLLER |
| | DRIP LINE IRRIGATION |
| | DRIP VALVE |
| | ELECTRIC CONTROL VALVE |
| | LATERAL LINE 1" |
| | MAIN LINE 1 1/2" |
| | VALVE STATION DESIGNATION |
| | WATER METER PROVIDED BY CITY |



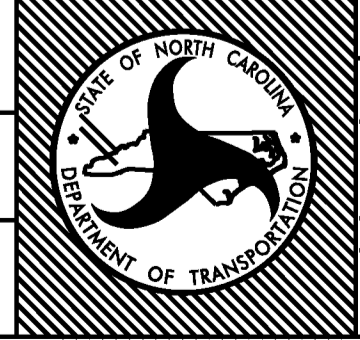
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ROUNDABOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

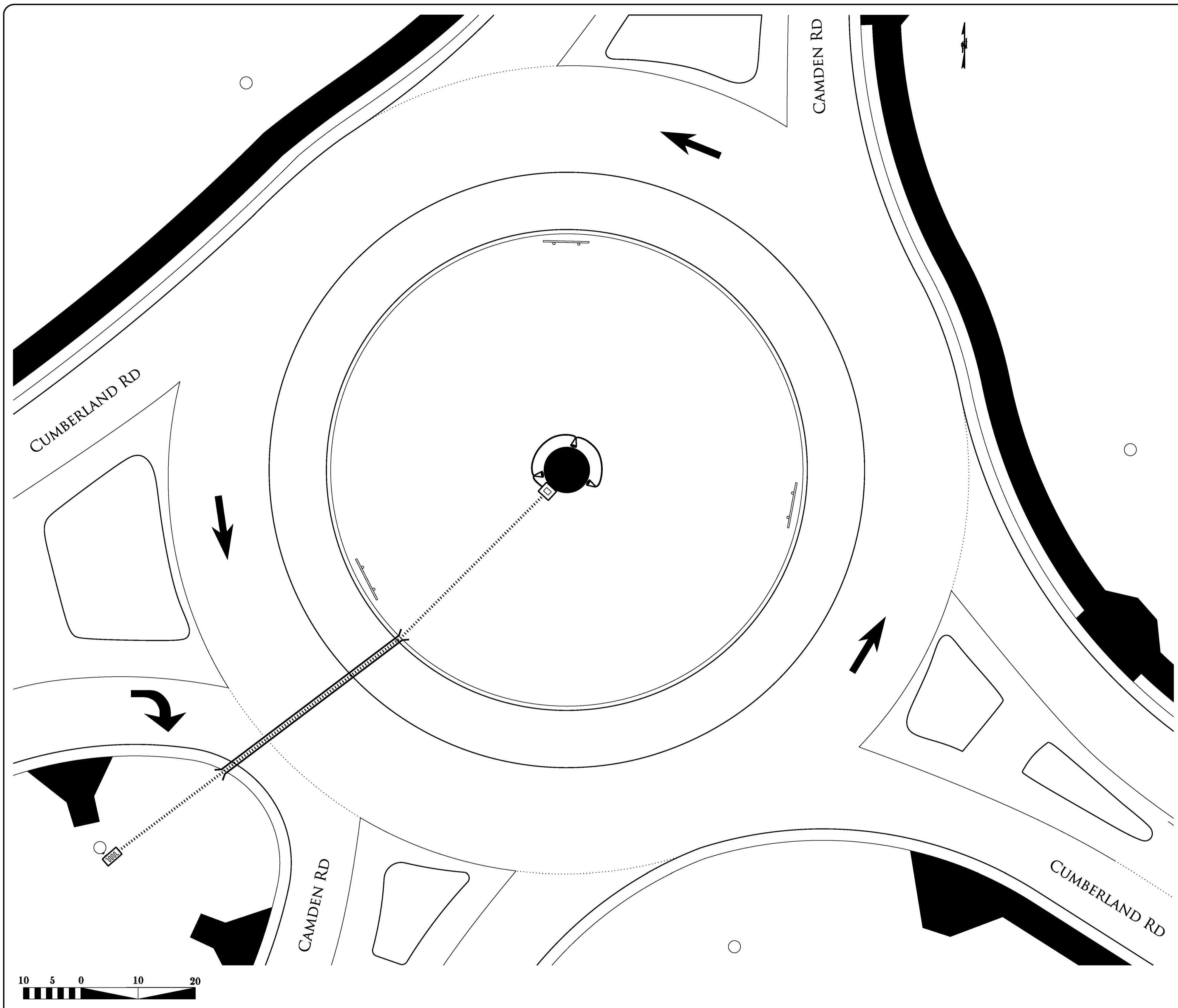
PREP. DESIGNER
Kyle Cooper

| | |
|--------------------|-----------------------------------|
| SHEET DESCRIPTION: | PREL. DESIGN DATE : DEC. 14, 2016 |
| | CHECKED BY & DATE : |
| | FINAL DESIGN DATE : JAN. 13, 2017 |

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|----------------------|
| IRRIGATION PLAN |
| LANDSCAPE PLAN SHEET |



| | |
|------------------------|----------------------------|
| T.I.P. # W-5206 I | |
| WBS # | |
| FED I.D. # | |
| SHEET NO. : L-6 | TOTAL SHEET NO. : 7 |



LIGHTING NOTES & LEGEND

LOW VOLTAGE LIGHT FIXTURE: (MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO NAMED BRAND)

- ▲ - DENOTES THE LOCATION OF EACH DABMAR LV203 DIRECTIONAL SPOT LIGHT WITH HOOD (50 WATT MAXIMUM).
- FIXTURE SHOULD BE LOW VOLTAGE AND IN A BROWN OR BLACK COLOR WITH LED BULBS .
- STAKES OF THE SAME COLOR SHOULD BE PROVIDED FOR IN-GROUND STABILIZATION.
- CONTRACTOR SHALL PROVIDE AND INSTALL SPECIFIED FIXTURES, LAMPS, STAKES AND MOUNT AS NOTED ON THE LANDSCAPE LIGHTING PLANS. ALL WATTAGES AND BEAM SPREADS AS DETAILED ON THE LIGHTING DESIGN. FINAL ADJUSTMENT OF THE SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR AT THE DISCRETION THE ENGINEER. FINAL ADJUSTMENT WILL BE DONE AT NO ADDITIONAL EXPENSE TO THE CLIENT. ALL LAMPS SHALL OPERATE IN THE ACCEPTABLE RANGE OF BETWEEN 10.8 TO 12 VOLTS. IDEAL OPERATING VOLTAGE IS 11.5 VOLTS. IF REQUIRED, CONTRACTOR SHALL DEMONSTRATE IN THE FIELD THE OPERATING VOLTAGES OF THE SYSTEM TO THE THE ENGINEER.

WIRING

- - DENOTES THE LOCATION OF #12 GAUGE 2-CONDUCTOR LIGHTING CABLE.

LOW VOLTAGE JUNCTION BOX: (MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO NAMED BRAND)

- - LOCATION OF LOW VOLTAGE JUNCTION BOX.
- ELECTRICAL JUNCTION BOX / SPIDER SPLICE AND RECORD TAG: THE BELOW GRADE BOX SHALL BE NEMA RATED FOR UNDERGROUND USE AND SIZED TO HOUSE ALL WIRING AND RECORD TAGS. CONTRACTOR SHALL INCLUDE WITHIN EACH JUNCTION BOX / SPIDER SPLICE A TAG NOTING EACH AS BUILT WIRE RUN TO AND FROM THE BOX.. THE TAG SHALL BE CONSTRUCTED OF NON-DEGRADABLE WATERPROOF MATERIAL. NOTATION ON EACH TAG CAN BE STAMPED AND/OR WRITTEN IN LEGIBLE WATERPROOF INK. AS-BUILT RECORDS SHALL INDICATE OFF-GRADE INFORMATION, THE WIRE RUN NUMBER, TRANSFORMER NUMBER, LAMP INSTALLED, AND THE INDIVIDUAL NUMBERED FIXTURE ON THE WIRE RUN AND TOTAL FIXTURES ON THE WIRE RUNS. THE AS-BUILT RECORD TAGS WILL INSURE THAT THE LONG-TERM MAINTENANCE OF THE SYSTEM IS CARRIED OUT FOLLOWING THE ORIGINAL DESIGN OF THE SYSTEM.

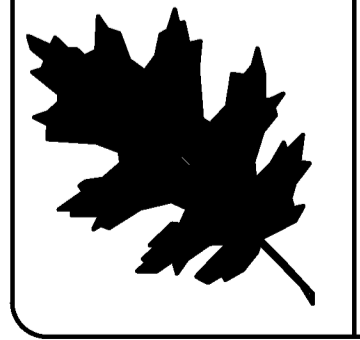
LOW VOLTAGE TRANSFORMER: (MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO NAMED BRAND)

- ⊞ - LOCATION OF 12-VOLT TRANSFORMER WITH DIGITAL TIMER AND DUSK-TO-DAWN SENSOR.
- PROVIDE AND INSTALL 12-VOLT (150 WATT) U.L. LISTED TRANSFORMER. TRANSFORMER SHALL BE MOUNTED FOLLOWING SPECIFICATIONS IN THE TRANSFORMER STAND DETAIL DRAWING. TRANSFORMER INSTALLATION SHALL INCLUDE ROMEX STRAIN RELIEF CONNECTORS ON ALL SECONDARY WIRING ENTERING THE TRANSFORMER. SHOULD CONTRACTOR CHOOSE TO INSTALL HARD PIPE CONDUIT, A VALVE BOX SHALL BE PLACED DIRECTLY UNDER TRANSFORMER WHERE HARD PIPE CONDUIT WILL TERMINATE. VALVE BOX WILL ALLOW SLACK WIRE COLLECTION POINT TO ALLOW FUTURE SERVICING AND CLEANER INSTALLATION. TRANSFORMER CABINET SHALL BE CONSTRUCTED OF STAINLESS STEEL WITH MANUFACTURER APPLIED BLACK POWDER COATING TRANSFORMER SHALL INCLUDE QUICK CONNECT FEATURE TO ALLOW THE QUICK INSTALLATION OF A PHOTO CELL OR 20' REMOTE PHOTO CELL IF REQUIRED AT A LATER DATE. IF NOT ALREADY INCLUDED, TRANSFORMER SHALL INCLUDE PLUG POINT FOR TIMER OR X-10 UNIT FOR ON/OFF CONTROL. A PLUG IN, DIGITAL SETTINGS, MULTI-FUNCTION TIMER SHALL BE PROVIDED WITH EACH INSTALLED TRANSFORMER. TRANSFORMER SHALL INCLUDE 125 AMPERAGE RATED TERMINAL BLOCK SECONDARY WIRING CONNECTION POINT. NO WIRE NUT SECONDARY WIRING CONNECTIONS SHALL BE ALLOWED AT THE TRANSFORMER. ALL INTERNAL TRANSFORMER WIRING SHALL BE 140°C RATED HIGH TEMPERATURE TIN-COATED WIRE. NO INTERNAL WIRING LESS THAN 140°C TIN-COATED SHALL BE ALLOWED. TRANSFORMER SHALL BE CAPABLE OF LOADING 100% OF THE LOAD OF THE TRANSFORMER ON ANY OF THE SECONDARY FIELD TAPS 12V, 13V, 14V, 15V, 16V, 17V AND 18 VOLTS. TRANSFORMER SHALL HAVE VOLTAGE TAPS OF 12V, 13V, 14V, 15V, 16V, 17V AND 18 VOLTS. MOUNT TRANSFORMER BOX TO NOTED LOCATION AND AS DIRECTED/APPROVED BY THE ENGINEER.

GENERAL INFORMATION

- CONTRACTOR SHALL TAKE AMPERAGE READINGS ON ALL SECONDARY FIELD CIRCUIT WIRES WHEN DONE WITH THE INSTALLATION AND RECORD THE READINGS ON THE INSIDE OF THE TRANSFORMER COVER ON THE STICKER PROVIDED WITH A FINE POINT PERMANENT MARKER. CONTRACTOR SHALL BURY ALL SECONDARY WIRES A MIN. OF 8" DEPTH FROM SURFACE. CONTRACTOR SHALL SLEEVE ALL WIRES ENTERING PLANTING BEDS FROM TURF OR UNDER WALKS WITHIN PRE-INSTALLED 3" PVC. REVIEW LANDSCAPE PLANS, AND CONFIRM WITH THE ENGINEER, ON EXACT LOCATIONS OF SLEEVES . CONTRACTOR SHALL LEAVE ALL EXCESS FIXTURE WIRE AT THE FIXTURE TO ALLOW EASY FIELD ADJUSTMENT OF THE FIXTURE IF REQUIRED.

| | | |
|-----|--|----------------------------|
| KEY | | 4" PVC SLEEVE |
| | | ELECTRICAL LINE AND ACCESS |



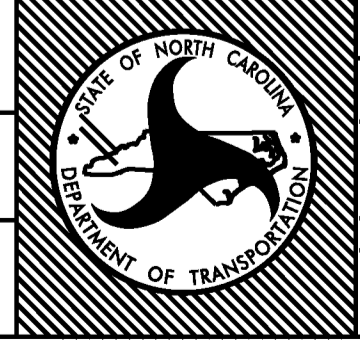
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ROUNDABOUT IN FAYETTEVILLE
 CUMBERLAND COUNTY
 TIP #: W-5206 I

REG. DESIGNER

| | |
|---------------------|---------------|
| PREL. DESIGN DATE : | DEC. 14, 2016 |
| CHECKED BY & DATE : | |
| FINAL DESIGN DATE : | JAN. 13, 2017 |

| |
|----------------------|
| LIGHTING PLAN |
| LANDSCAPE PLAN SHEET |



| | |
|-------------------|---------------------|
| T.I.P. # W-5206 I | |
| WBS # | |
| FED I.D. # | |
| SHEET NO. : L-7 | TOTAL SHEET NO. : 7 |