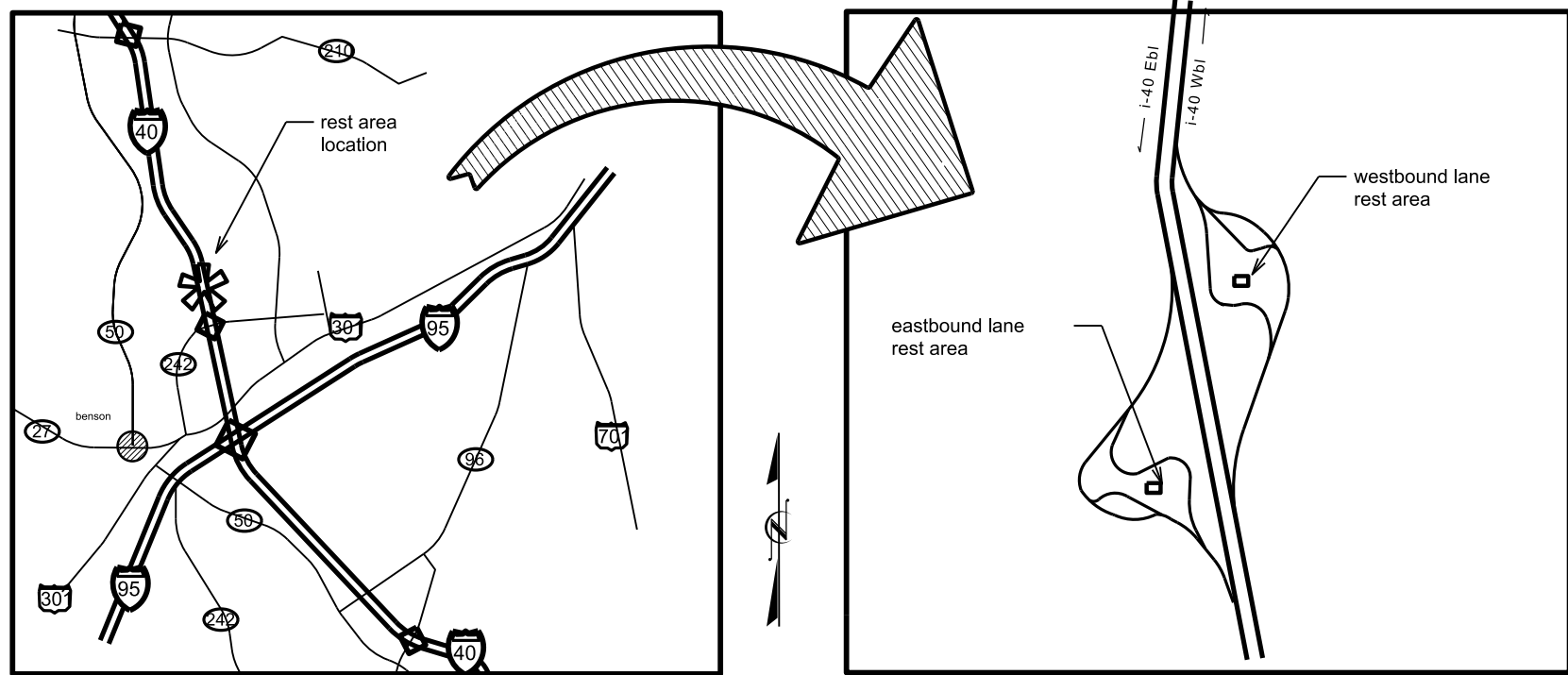
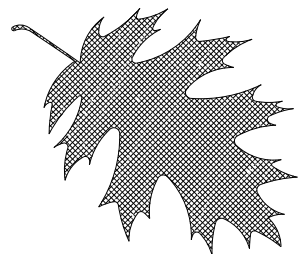


PROPOSED HIGHWAY LANDSCAPE DEVELOPMENT PROJECT



VICINITY MAPS

summary of project quantities

QTY.	UNIT	KEY	BOTANICAL NAME	COMMON NAME	FURNISH	REMARKS
Trees						
2	EA	APB	<i>Acer palmatum 'Bloodgood'</i>	Bloodgood Japanese Maple	7'-8', B&B	ASSHOWN
2	EA	APT	<i>Acer palmatum dissectum 'Tamukeyama'</i>	Tamukeyama Outleaf Japanese Maple	3'-4', B&B (or #15 Cont'd)	ASSHOWN
6	EA	CI	<i>Carya illinoensis 'Sumner'</i>	Sumner Pecan	8'-10', B&B	ASSHOWN
3	EA	CF	<i>Cornus florida 'Rubra'</i>	Pink Flowering Dogwood	7'-8', B&B	ASSHOWN
12	EA	LI	<i>Lagerstroemia indica 'Miami'</i>	Miami Crape Myrtle	8'-10', B&B	ASSHOWN
18	EA	PT	<i>Pinus taeda</i>	Loblolly Pine	8'-10', B&B	ASSHOWN
4	EA	PB	<i>Pinus thunbergii</i>	Japanese Black Pine	6'-8', B&B	ASSHOWN
10	EA	PY	<i>Prunus x yedoensis 'Yoshino'</i>	Yoshino Cherry	8'-10', B&B	ASSHOWN
29	EA	QN	<i>Quercus nuttallii</i>	Nuttall Oak	10'-12', B&B	ASSHOWN
1	EA	ZS	<i>Zelkova serrata 'Green Vase'</i>	Green Vase Zelkova	10'-12', B&B	ASSHOWN
Shrubs						
47	EA	AKP	<i>Azalea x Kurume 'Pink Pearl'</i>	Pink Pearl Azalea	#3 Cont.	ASSHOWN
38	EA	AKS	<i>Azalea x Kurume 'Snow'</i>	Snow Azalea	#3 Cont.	ASSHOWN
6	EA	EA	<i>Euonymus alata 'Compacta'</i>	Dwarf Burning Bush	#3 Cont.	3" O.C.
3	EA	HA	<i>Hibiscus syriacus 'Aphrodite'</i>	Aphrodite Rose of Sharon	#5 Cont.	ASSHOWN
4	EA	HB	<i>Hydrangea serrata 'Bluebird'</i>	Bluebird Hydrangea	#3 Cont.	ASSHOWN
149	EA	IC	<i>Ilex cornuta 'Carissa'</i>	Carissa Holly	#3 Cont.	3" + O.C.
4	EA	IV	<i>Itea virginica 'Henry's Garnet'</i>	Henry's Garnet Sweetspire	#3 Cont.	4" O.C.
81	EA	JN	<i>Juniperus procumbens 'Nana'</i>	Japanese Garden Juniper	#1 Cont.	3" O.C.
11	EA	JS	<i>Juniperus scopulorum 'Skyrocket'</i>	Skyrocket Juniper	#5 Cont.	ASSHOWN
10	EA	LG	<i>Loropetalum chinensis rubrum 'Blush'</i>	Blush Loropetalum	#3 Cont.	ASSHOWN
39	EA	ND	<i>Nandina domestica</i>	Nandina	#3 Cont.	ASSHOWN
111	EA	PL	<i>Prunus laurocerasus 'Otto Luyken'</i>	Otto Luyken Laurel	#3 Cont.	4" O.C.
39	EA	RR	<i>Rosa x 'Baden'</i>	Pink Double Knockout Rose	#3 Cont.	4" O.C.
59	EA	SB	<i>Spiraea x bumalda 'Anthony Waterer'</i>	Anthony Waterer Spirea	#3 Cont.	ASSHOWN
Groundcovers						
346	EA	LM	<i>Liriope muscari 'Big Blue'</i>	Big Blue Liriope	#1 Cont.	12" O.C.
657	EA	OJ	<i>Ophiopogon japonicus 'Nana'</i>	Dwarf Mondo Grass	#SP4, QT	9" O.C.
Grasses						
33	EA	JE	<i>Juncus effusus</i>	Soft Rush	#1 Cont.	ASSHOWN
34	EA	PPS	<i>Panicum virgatum 'Prairie Sky'</i>	Prairie Sky Switch Grass	#1 Cont.	3" O.C.
30	EA	PH	<i>Pennisetum alopecuroides 'Hamelin'</i>	Hamelin Dwarf Fountain Grass	#1 Cont.	24" O.C.
Perennials						
21	EA	APC	<i>Artemisia arborescens 'Powis Castle'</i>	Powis Castle Artemisia	#SP4, QT	
92	EA	DC	<i>Delosperma cooperi</i>	Hardy Ice Plant	#SP4, QT	12" O.C.
71	EA	EKK	<i>Echinacea purpurea 'Kim's Knee High'</i>	Kim's Knee High Coneflower	#SP4, QT	12" O.C.
108	EA	HHR	<i>Hemerocallis 'Happy Returns'</i>	Happy Returns Daylily	#1 Cont.	24" O.C.
15	EA	HAM	<i>Hosta 'Albo-Marginata'</i>	Albo-Marginata Hosta	#1 Cont.	ASSHOWN
119	EA	PFH	<i>Phlox subulata 'Fort Hill'</i>	Fort Hill Phlox	#SP4, QT	12" O.C.
54	EA	RG	<i>Rudbeckia fulgida 'Goldstrum'</i>	Goldstrum Black Eyed Susan	#SP4, QT	12" O.C.
10	EA	VHP	<i>Verbena canadensis 'Homestead Purple'</i>	Homestead Purple Verbena	#1 Cont.	18" O.C.
Descriptions						
100	OY		Mulch for Planting			
20	MG		Water for Planting			
360	OY		Mulch for Planting			
1975	SY		Zeyia Sod			
200	SY		Zeyia Sod (repair areas)			
43	OY		Topsoil			
1	AGR		Compost Seeding	Love Grass		
464	LF		3 Rail Fence			
60	SF		Concrete Pavers			
10	EA		Stepping Stone			
12	LF		Metal Edging	for paver edge		
1	LS		Demolition-Concrete Island			
1	LS		Landscape Lighting			
1	LS		Irrigation			
1,000	SY		Pre-emergence Herbicidal Treatment			
1,000	SY		Post-emergence Herbicidal Treatment			

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.....	-----C-----
Prop. Control of Access Line.....	-----C-----
Property Line.....	-----E-----
Easement Line.....	-----E-----
Slope Stake Line.....	-----S-----
Exist. Fence.....	-----+-----
Prop. Woven Wire Fence.....	-----○-----
Prop. Chain Link Fence.....	-----□-----
Exist. Road.....	=====
Prop. Road.....	=====
Guardrail.....	----- -----
Survey Line.....	-----+-----
Denotes Line Equality.....	-----●-----
Bridge.....	-----B-----
Culvert.....	-----C-----
Railroad.....	-----+-----
Woods.....	-----*-----
Exist. Telephone Pole.....	-----○-----
Prop. Telephone Pole.....	-----○-----
Tower Pole and Line.....	-----●-----
Exist. Power Pole.....	-----●-----
Prop. Power Pole.....	-----○-----
Sanitary Sewer Line.....	-----SS-----
Water Line.....	-----W-----
Gas Line.....	-----GAS-----
Picnic Shelter.....	-----□-----
Regeneration.....	-----X-----
Reforestation.....	-----X-----

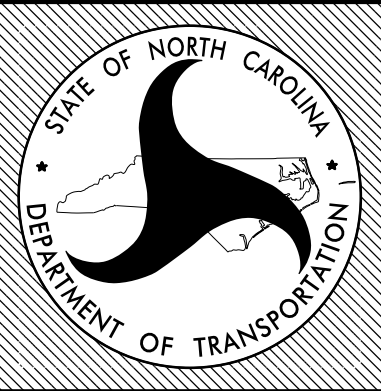
INDEX OF SHEETS:

- L1 ... TITLE SHEET, SUMMARY OF QUANTITIES
- L 2... PLANTING DETAILS
- L 3... WBL/EBL Site Plans (Plant bed & sod layout)
- L 4... WBL/EBL Site Plan Details
- L 5... WBL Landscape plan
- L 6... EBL Landscape plan
- L 7... WBL/EBL Lighting Plans
- L 8... WBL/EBL Irrigation Plans
- L 9... Irrigation Specs & Fence Detail

PREPARED BY: BK DATE: JULY/2013

REVISIONS

DATE	DESCRIPTION



STATE OF
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

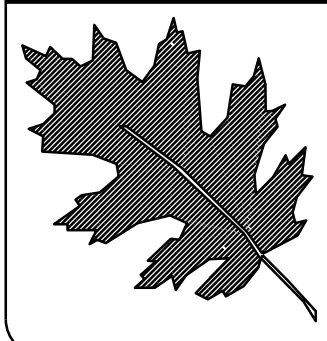
LOCATION: I-40 Rest Area Pair, west OF EXIT 325- benson, NC

TYPE of WORK: Landscape Planting

COUNTY: Johnston

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

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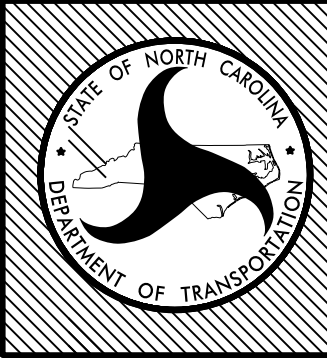
ncdot - Roadside environmental unit
landscape design & Development
1557 mail service center raleigh nc 27699-1557
ph: 919-733-2920 fax: 919-733-9810
http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/

I- 40 Johnston Co
Rest Area Renovation
project #: 41533.3.1

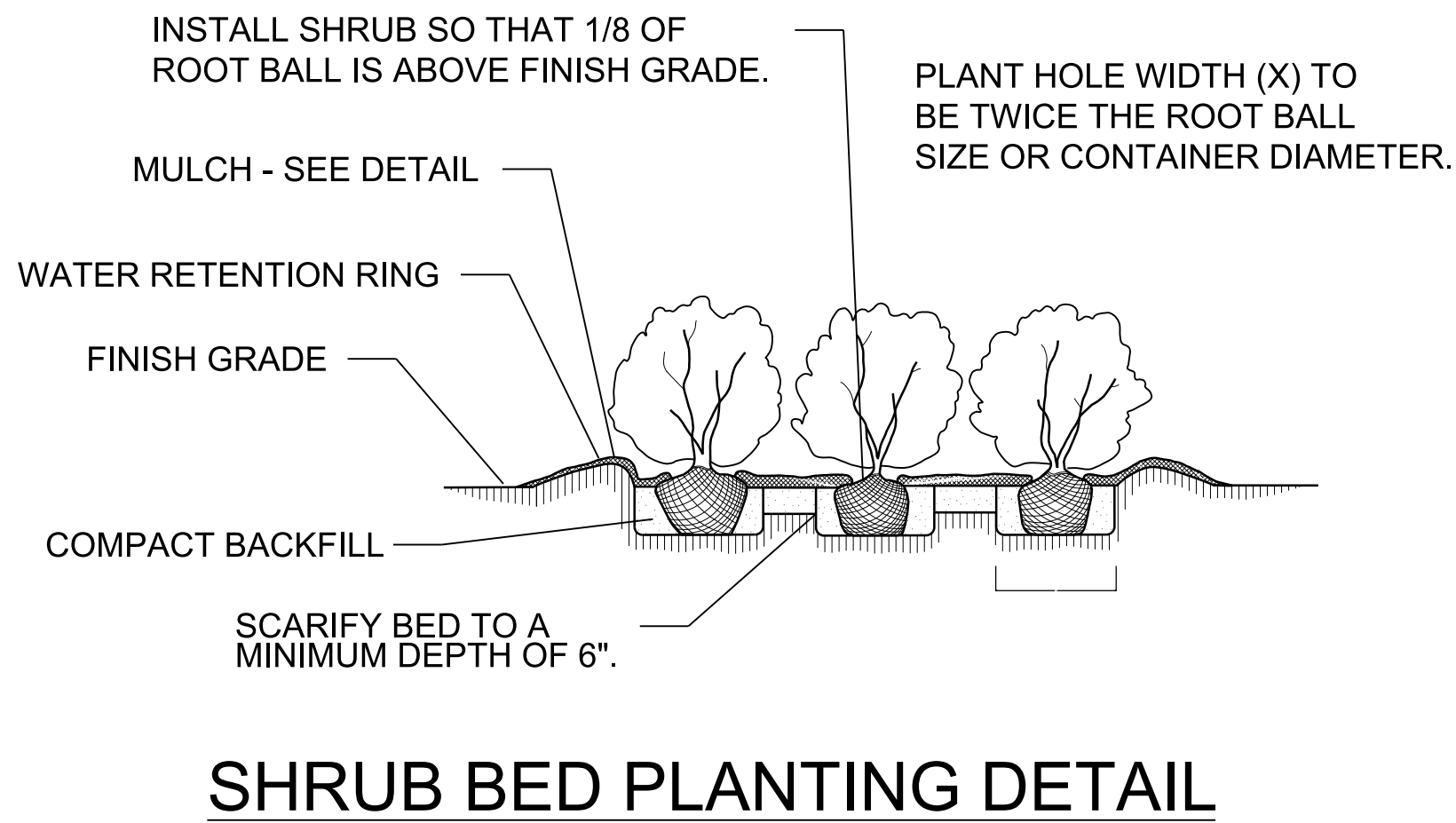
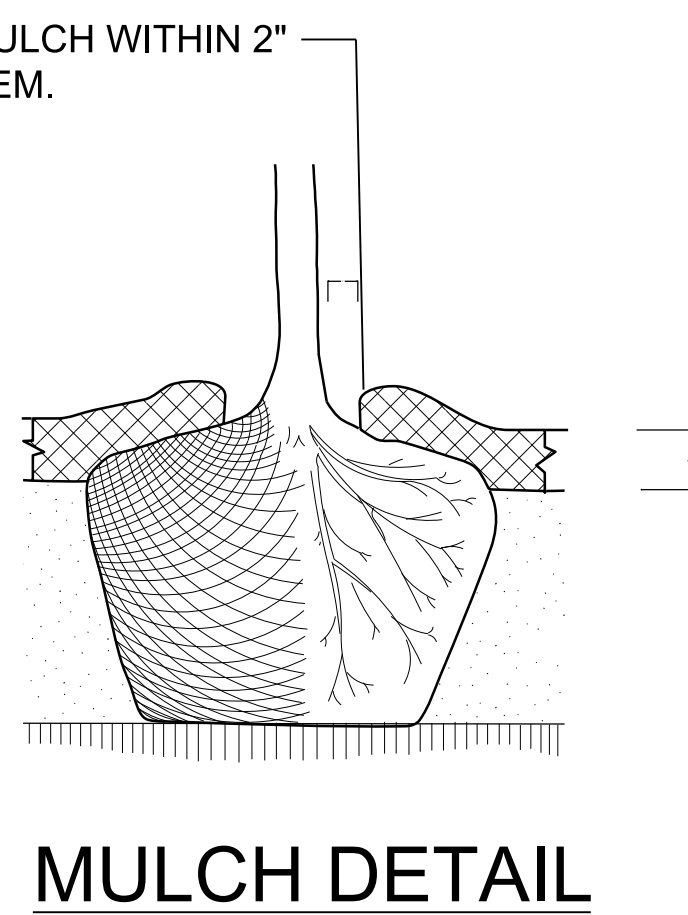
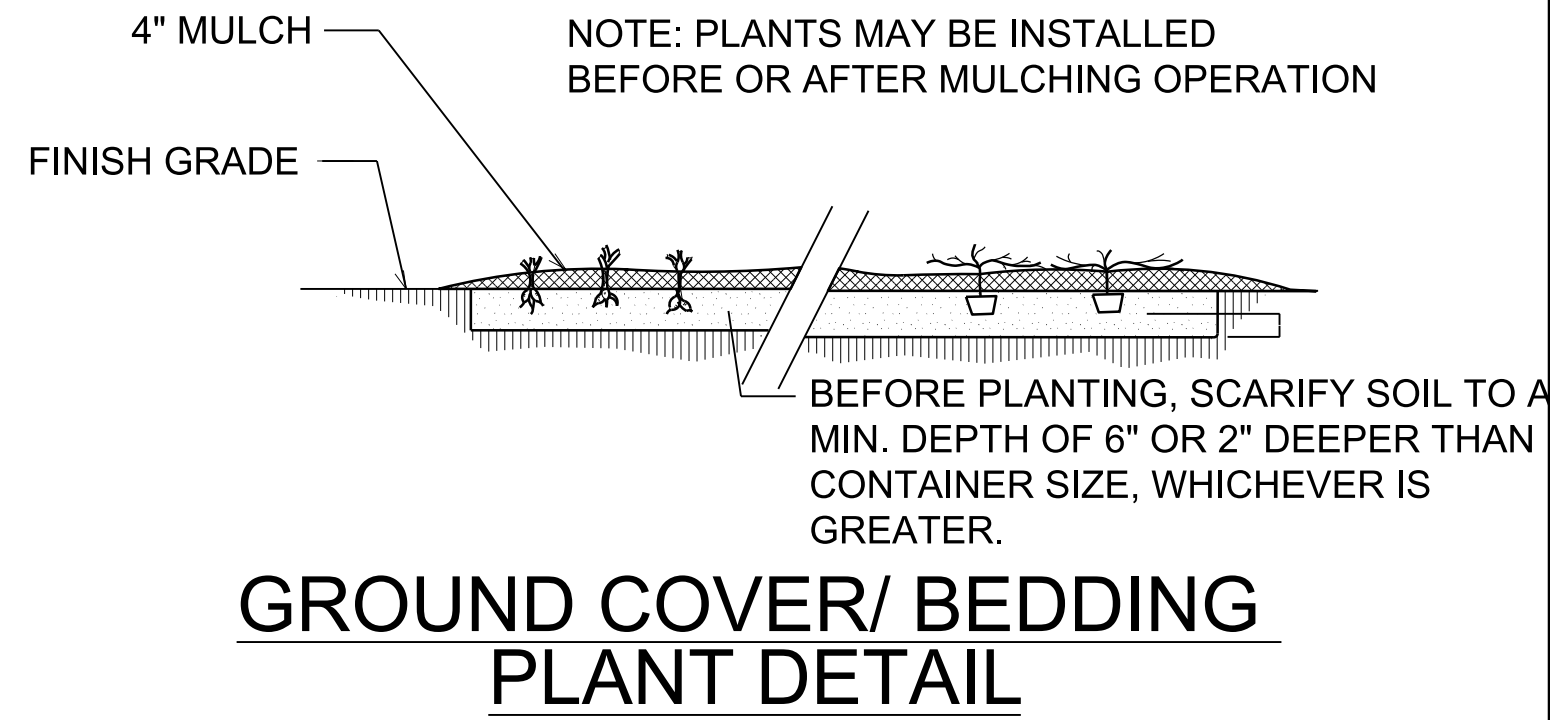
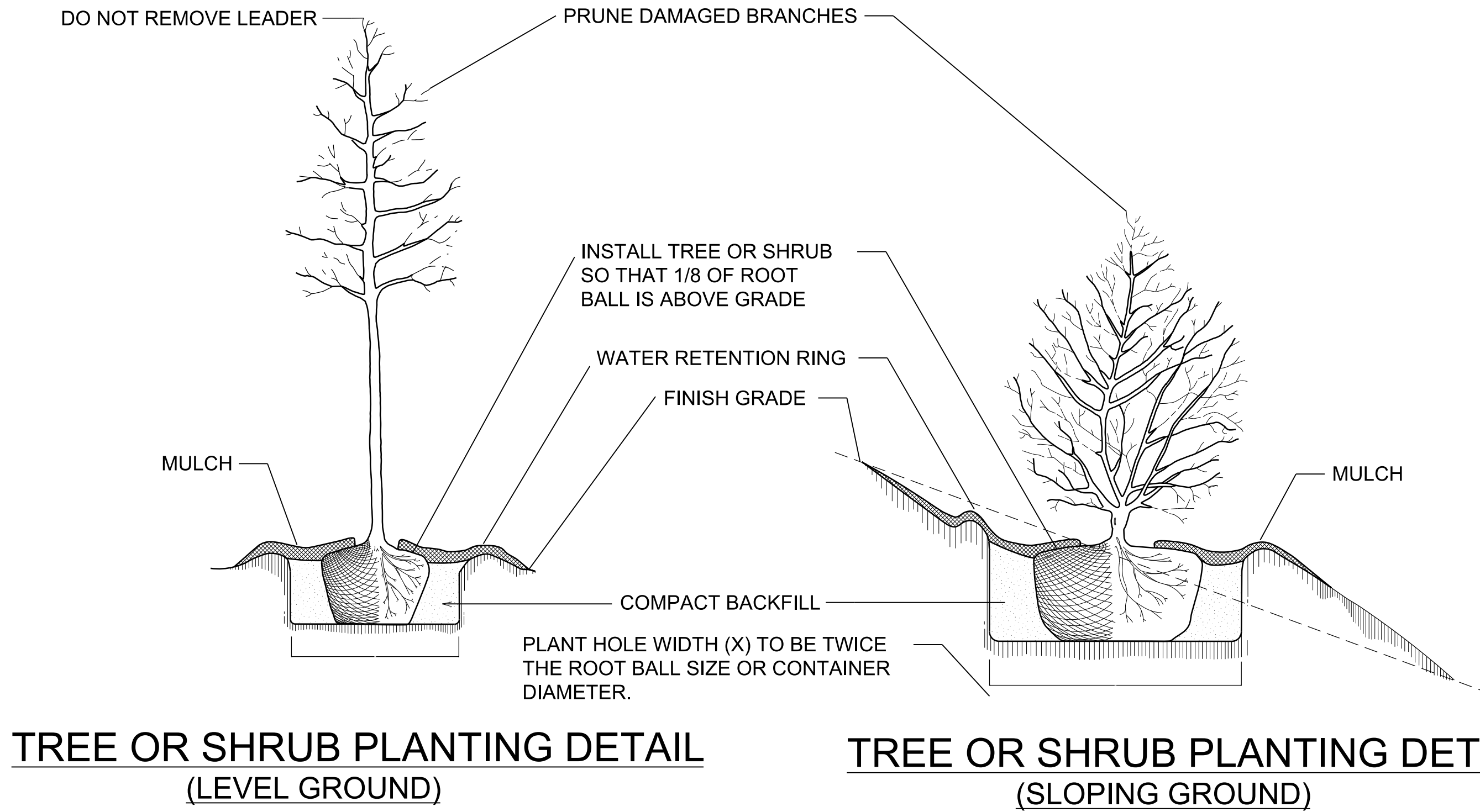
engineer
B. Kopetsky

sheet description:
prel. design date : may/ 2012
checked by & date :
final design date : 7-15-12

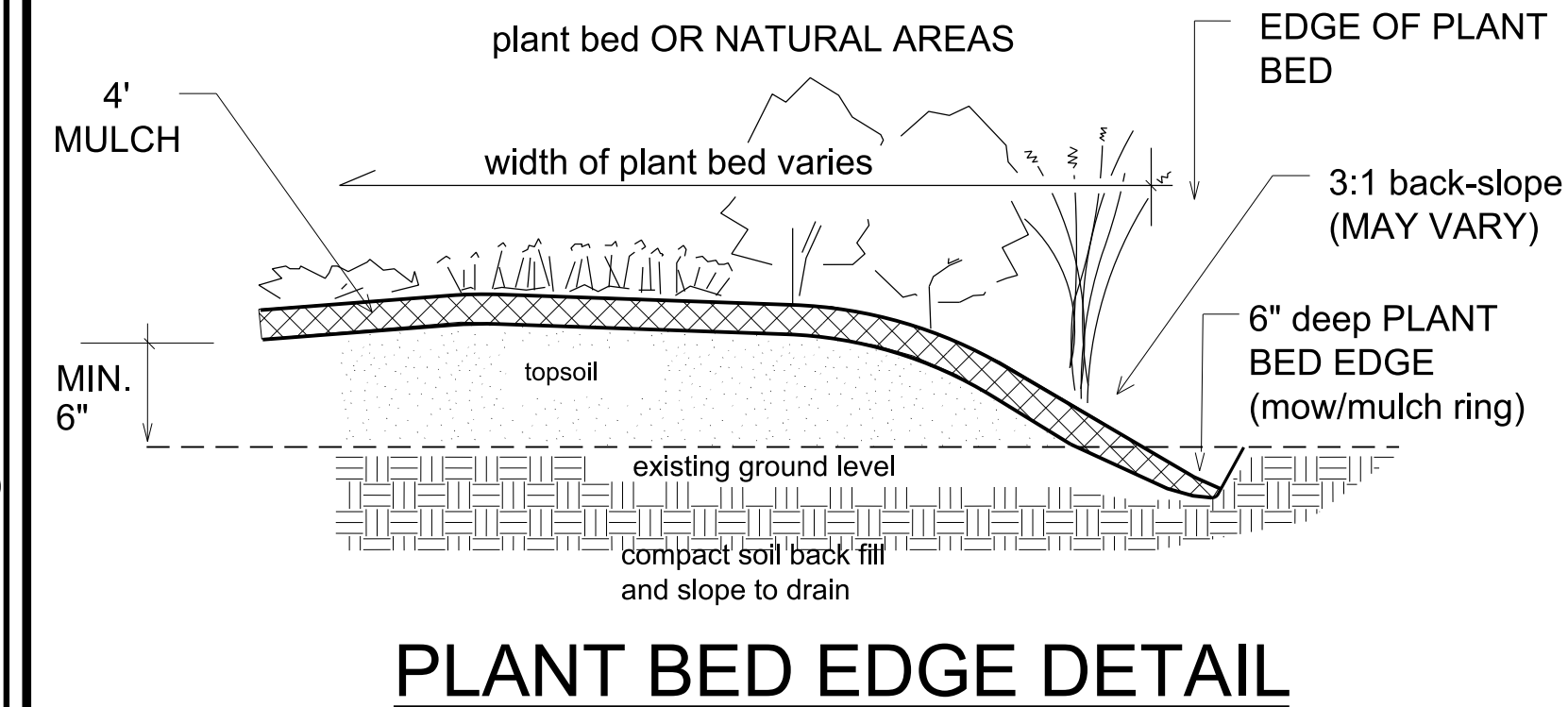
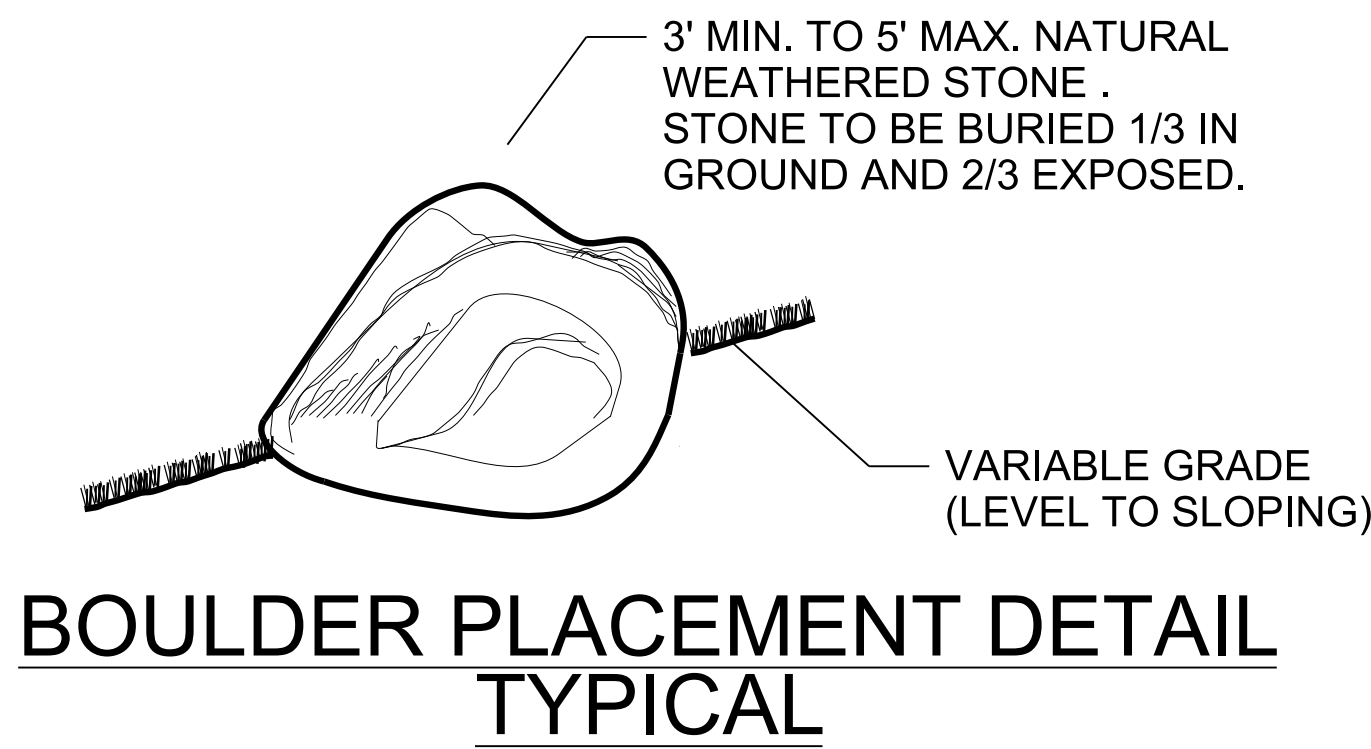
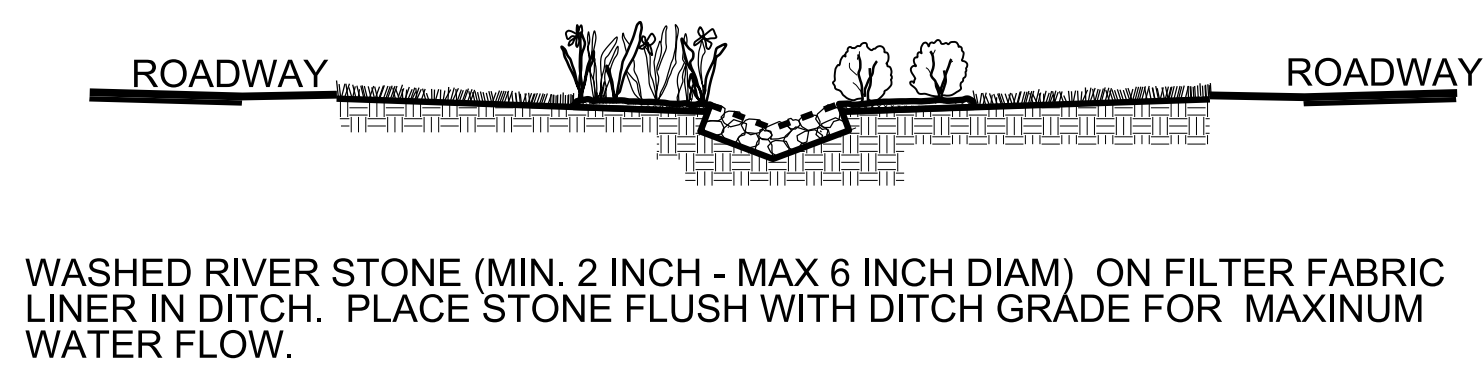
REST AREA renovation
PLANTING DETAILS
PLANT bed edge detail



T.I.P. #
WBS #
FED I.D. #
sheet no : total sheet no :
L2 9



- 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.

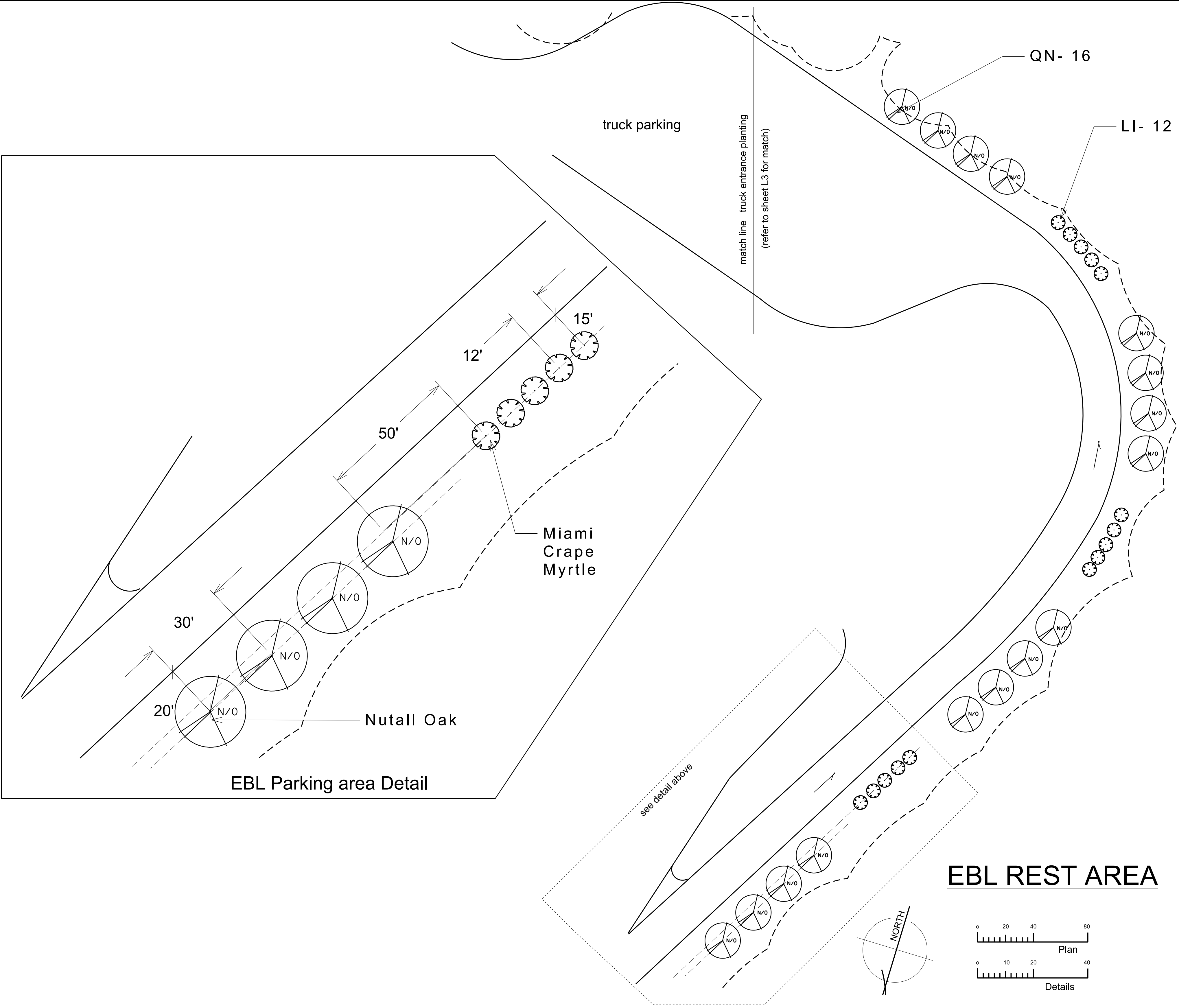
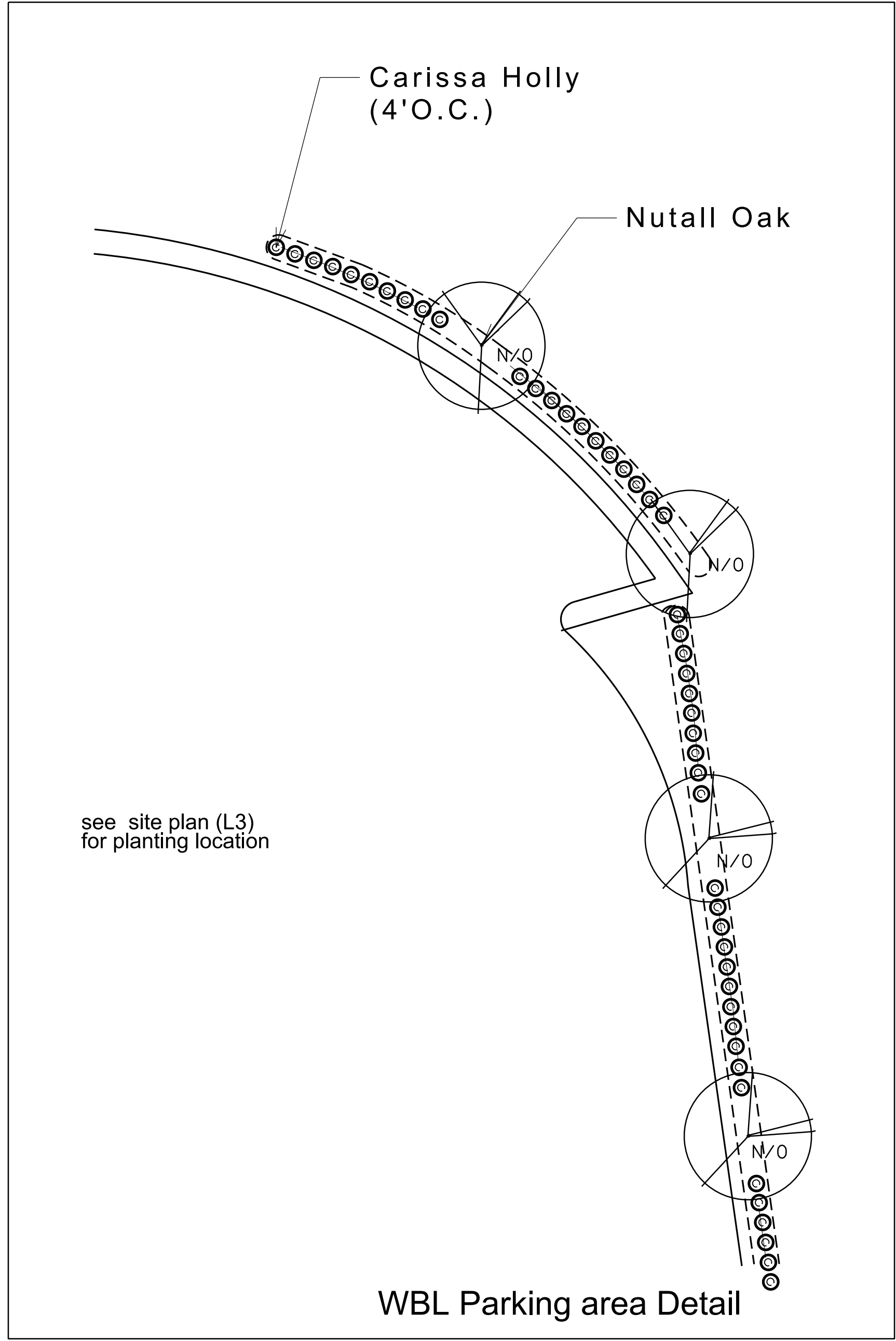


STAKING DETAIL (TREES 6'-10')
USE AS DIRECTED BY FIELD ENGINEER

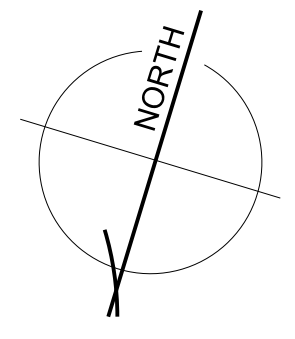
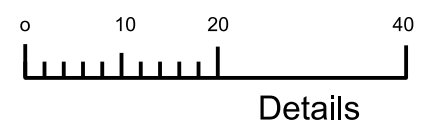
GUYING DETAIL (TREES 10' OR LARGER)
USE AS DIRECTED BY FIELD ENGINEER

PLAN VIEW

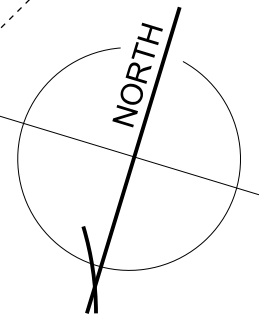
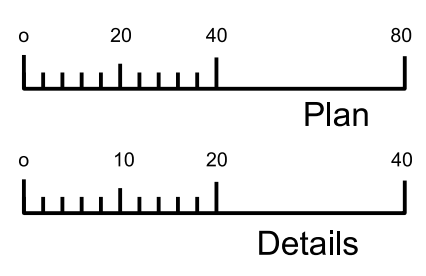
PLAN VIEW



WBL REST AREA



EBL REST AREA



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landscape design & Development
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ph: 919-733-2920 fax: 919-733-9810
http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/

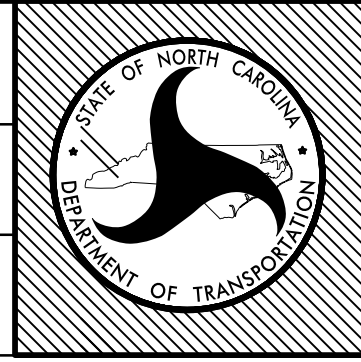
I- 40 Johnston Co
Rest Area Renovation

project #: 41533.3.1

re-engineer
B. Kopetsky

prel. design date :	may/ 2012
checked by & date :	
final design date :	7-15-12

i-40 Rest Area
Site plan Details
Landscape planting



sheet no : **L4**
total sheet no : **9**

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ncdot - Roadside environmental unit
landscape design & Development
1557 mail service center raleigh nc 27699-1557
ph: 919-733-2920 fax: 919-733-9810
http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/

I- 40 Johnston Co
Rest Area Renovation
project #: 41533.3.1

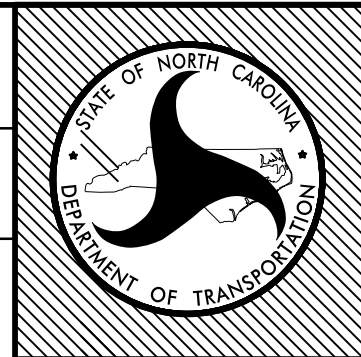
re-engineer

B. Kopetsky

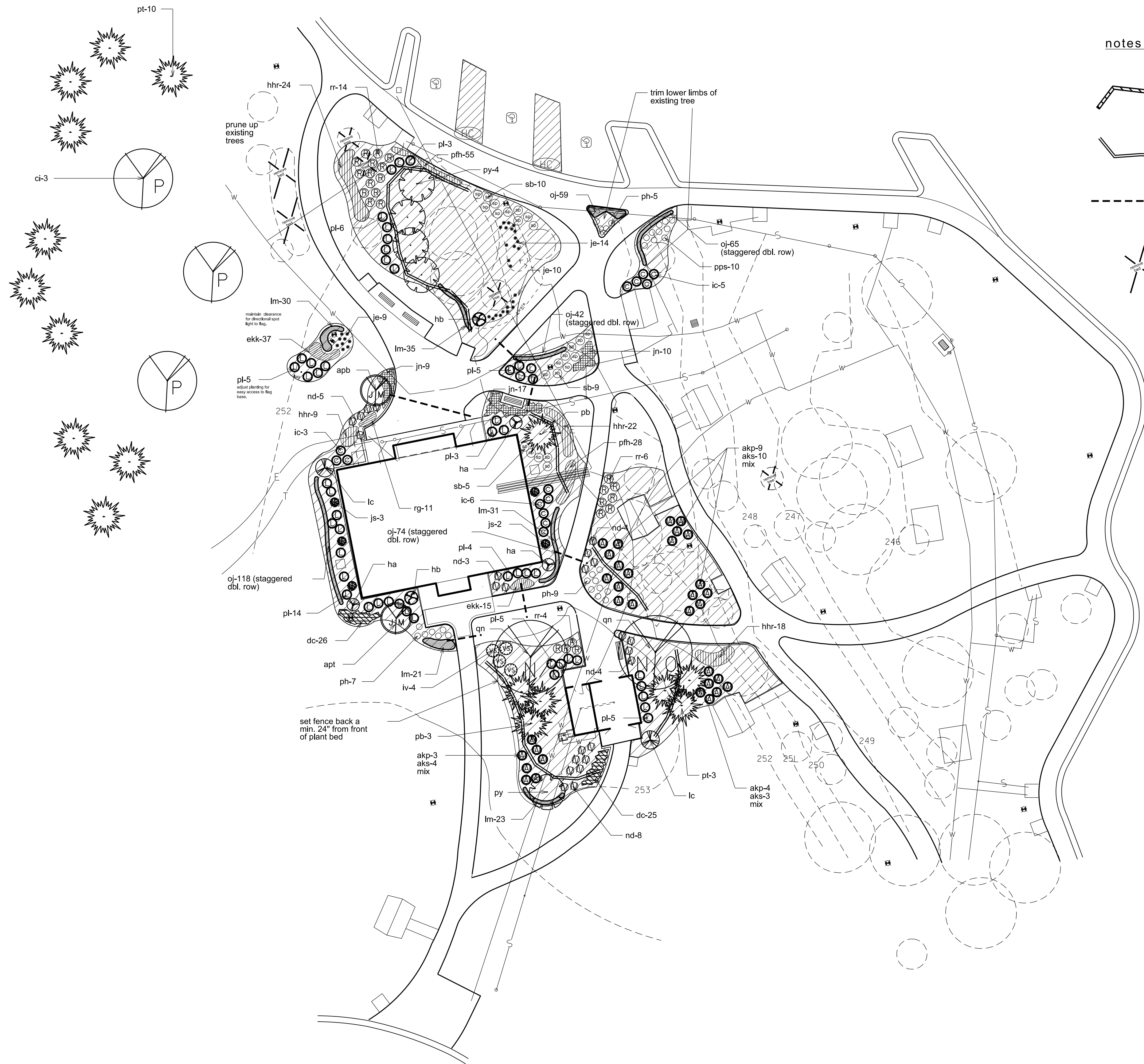
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checked by & date :
final design date : 7-15-12

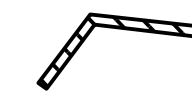
i-40 wbl renovation
landscape plan



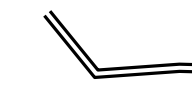
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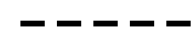
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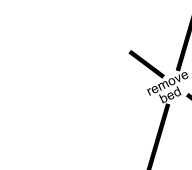
retaining wall.



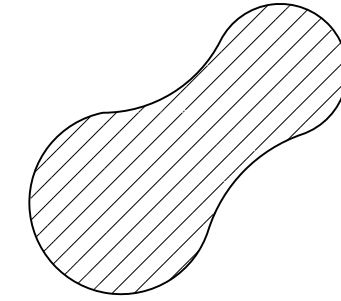
location for
post & rail fence
(see detail).



3" PVC Sleeve
(by others).



Trees/Shrubs
Removed by others.



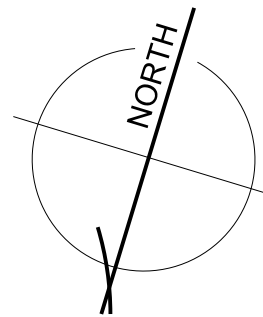
denotes plant bed location.
contractor shall apply herbicide
(as directed) to remove unwanted
vegetation, define bed outline
(see planting details), till/prepare
bed as specified, Plant, and add
4" of mulch.

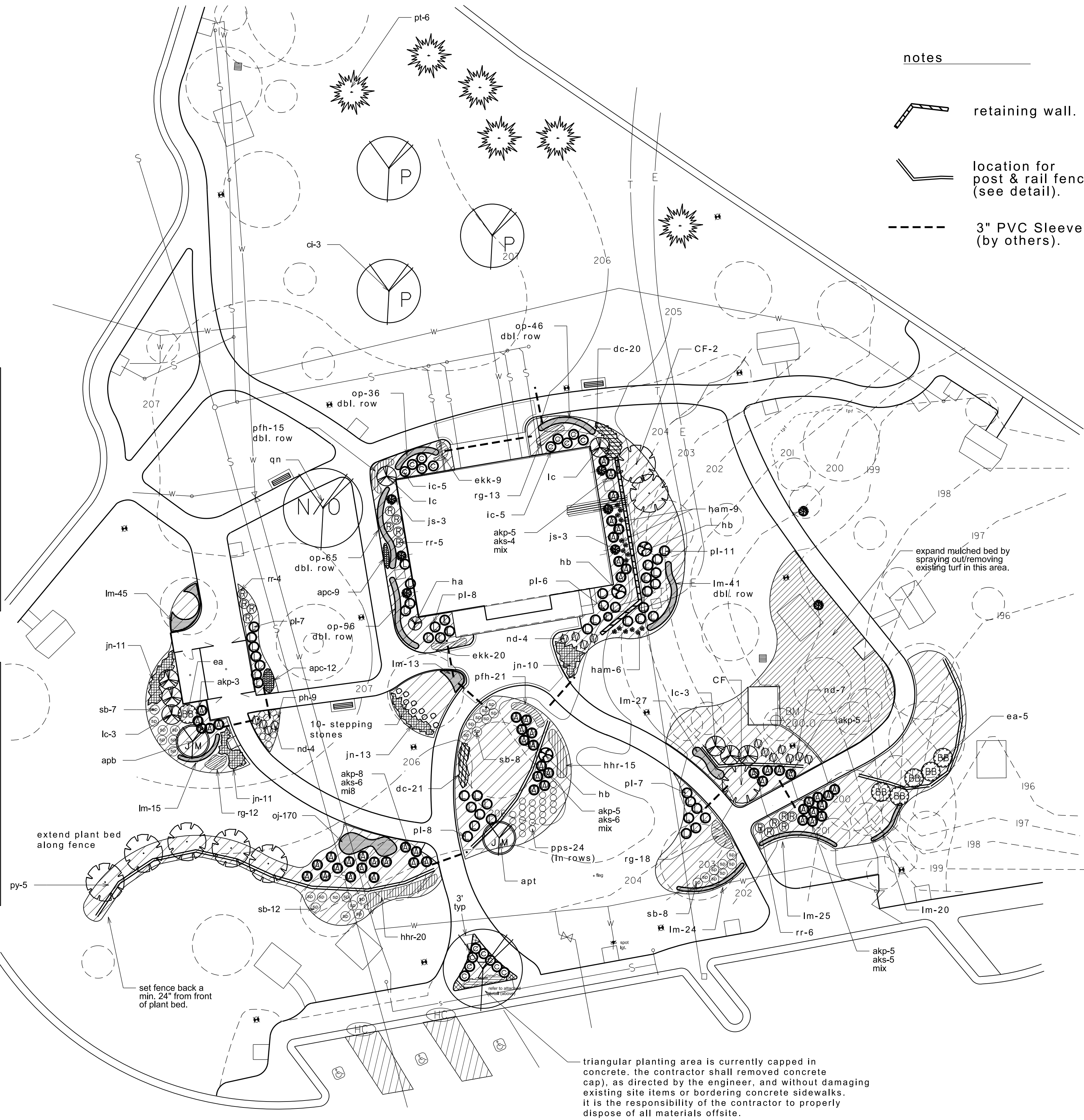
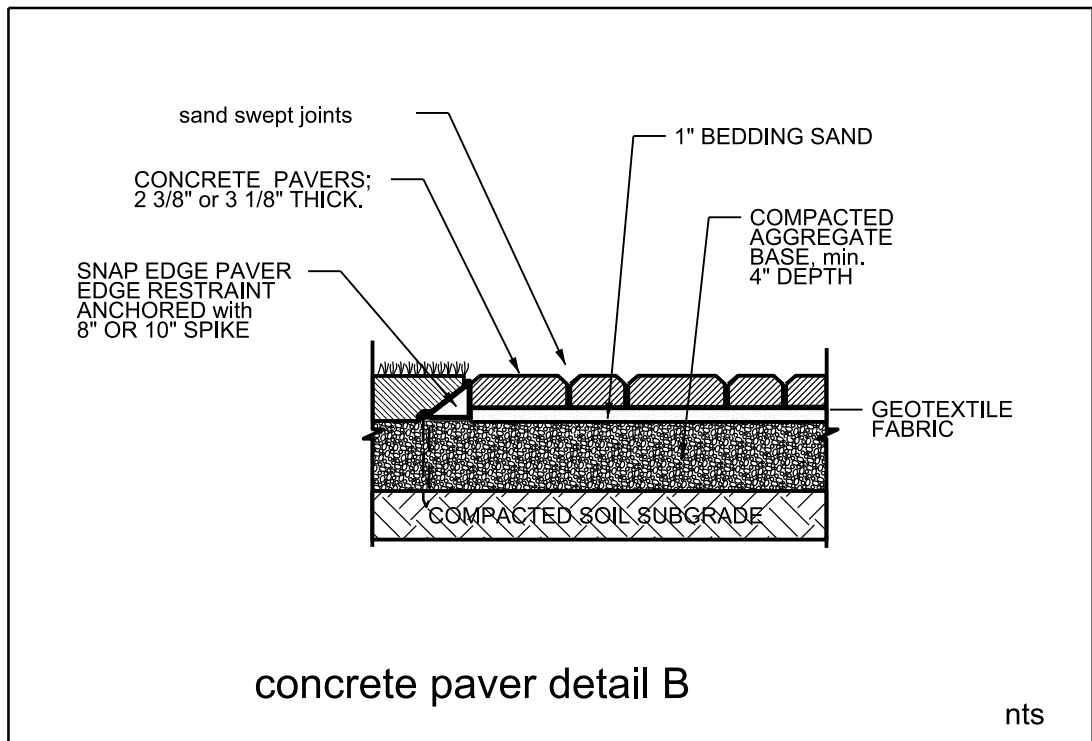
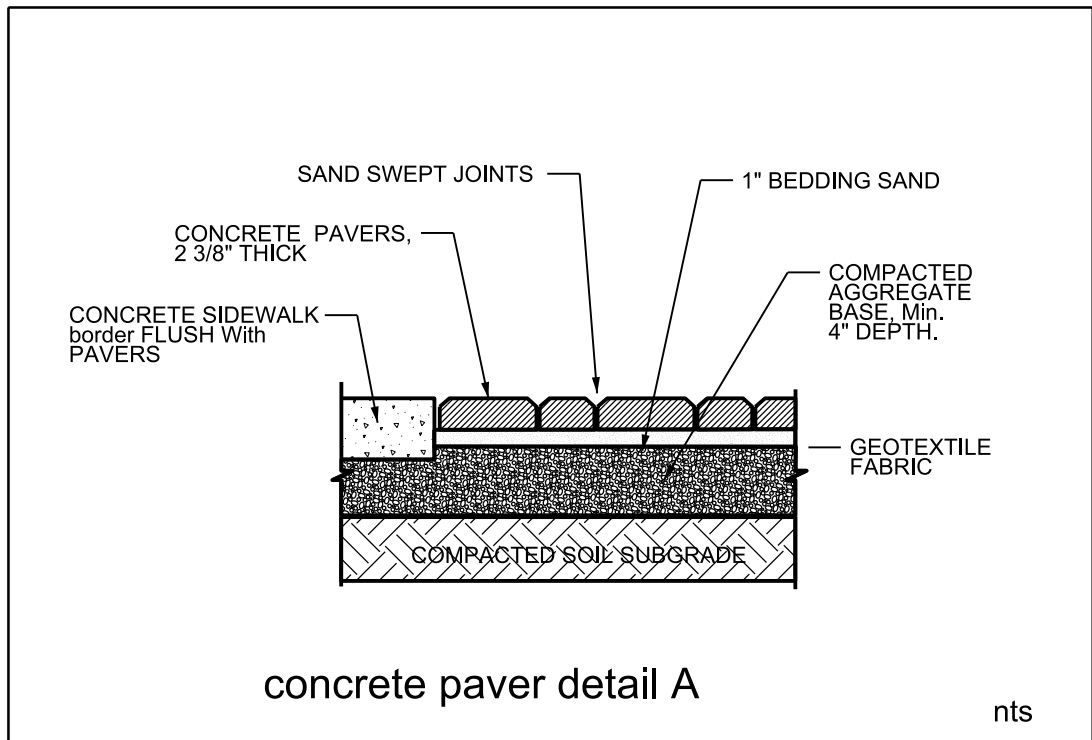
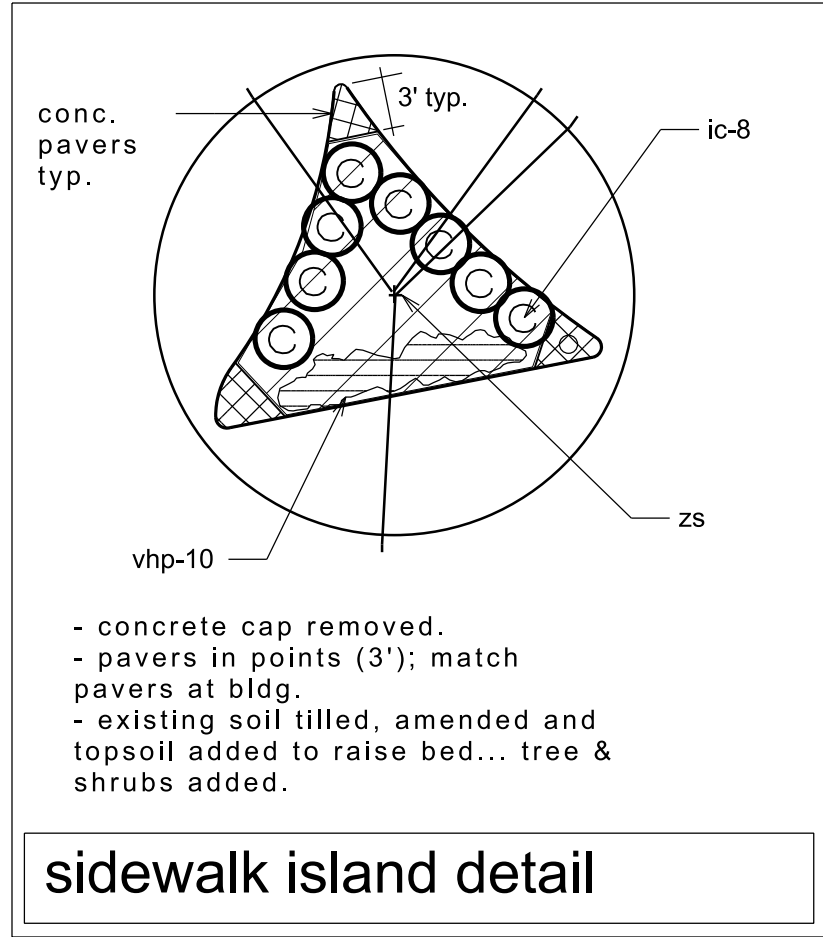
dashed contour lines represent
existing grades (pre const)

solid contour lines represent
proposed grades.

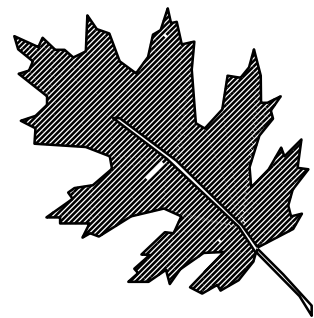
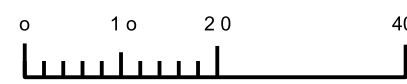
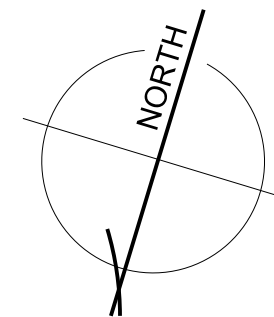
all PLANT BED AREAS ADJOINING
TURF SHALL BE EDGED PER DETAIL;
plant bed soil level along walks
or hardscape shall be two inches
below grade of hard surface.

KEY	BOTANICAL NAME	COMMON NAME	FURNISH	REMARKS
Trees				
APS	<i>Acer palmatum 'Bloodgood'</i>	Bloodgood Japanese Maple	7-8' B&B	AS SHOWN
APT	<i>Acer palmatum dissectum 'Tamukeyama'</i>	Tamukeyama Cutleaf Japanese Maple	34' B&B (or #15 Cont)	AS SHOWN
CI	<i>Carya illinoensis 'Sumner'</i>	Sumner Pecan	8-10' B&B	AS SHOWN
CF	<i>Cornus florida 'Rubra'</i>	Pink Flowering Dogwood	7-8' B&B	AS SHOWN
LI	<i>Ligustrum indicum 'Miami'</i>	Miami Green Myrtle	8-10' B&B	AS SHOWN
PT	<i>Pinus taeda</i>	Loblolly Pine	8-10' B&B	AS SHOWN
PB	<i>Pinus thunbergii</i>	Japanese Black Pine	6-8' B&B	AS SHOWN
PY	<i>Prunus x yedoensis 'Yoshino'</i>	Yoshino Cherry	8-10' B&B	AS SHOWN
QN	<i>Quercus nuttallii</i>	Nuttall Oak	10-12' B&B	AS SHOWN
ZS	<i>Zelkova serrata 'Green Vase'</i>	Green Vase Zelkova	10-12' B&B	AS SHOWN
Shrubs				
AKP	<i>Azalea x Kurume 'Pink Pearl'</i>	Pink Pearl Azalea	#3 Cont	AS SHOWN
AKS	<i>Azalea x Kurume 'Snow'</i>	Snow Azalea	#3 Cont	AS SHOWN
EA	<i>Eucryphia alata 'Companda'</i>	Dwarf Burning Bush	#3 Cont	3' O.C.
HA	<i>Hibiscus syriacus 'Ashradite'</i>	Ashradite Rose of Sharon	#5 Cont	AS SHOWN
HB	<i>Hydrangea serrata 'Bluebird'</i>	Bluebird Hydrangea	#3 Cont	AS SHOWN
IC	<i>Ilex cornuta 'Carissa'</i>	Carissa Holly	#3 Cont	3' + O.C.
IV	<i>Itea virginica 'Henry's Garnet'</i>	Henry's Garnet Sweetspine	#3 Cont	4' O.C.
JA	<i>Juniperus procumbens 'Nana'</i>	Japanese Garden Juniper	#1 Cont	3' O.C.
JS	<i>Juniperus scopulorum 'Skyrocket'</i>	Skyrocket Juniper	#5 Cont	AS SHOWN
LC	<i>Loropetalum chinensis rubrum 'Blush'</i>	Blush Loropetalum	#3 Cont	AS SHOWN
ND	<i>Nandina domestica</i>	Nandina	#3 Cont	AS SHOWN
PL	<i>Phlox laurens 'Otto Luyken'</i>	Otto Luyken Laurel	#3 Cont	4' O.C.
RR	<i>Rosa x 'Buddan'</i>	Pink Double Knockout Rose	#3 Cont	4' O.C.
SB	<i>Spiraea x bumalda 'Anthony Waterer'</i>	Anthony Waterer Spiraea	#3 Cont	AS SHOWN
Groundcovers				
LM	<i>Liriodendron muscari 'Big Blue'</i>	Big Blue Liriodendron	#1 Cont	12" O.C.
OU	<i>Ophiopogon japonicus 'Nana'</i>	Dwarf Mondo Grass	#SP4 QT	9" O.C.
Grasses				
JE	<i>Junca effusus</i>	Soft Rush	#1 Cont	AS SHOWN
PPS	<i>Phlox virginiana 'Prairie Sky'</i>	Prairie Sky Switch Grass	#1 Cont	3' O.C.
PH	<i>Pennisetum alopecuroides 'Hamelin'</i>	Hamelin Dwarf Fountain Grass	#1 Cont	24" O.C.
Perennials				
APC	<i>Artemisia arborescens 'Powis Castle'</i>	Powis Castle Artemisia	#SP4 QT	12" O.C.
DC	<i>Dianthus barbatus 'Crown'</i>	Hardy Joe Plant	#SP4 QT	12" O.C.
EKK	<i>Echinacea purpurea 'Kim's Knee High'</i>	Kim's Knee High Coneflower	#SP4 QT	12" O.C.
HRH	<i>Homocallis 'Happy Returns'</i>	Happy Returns Daylily	#1 Cont	24" O.C.
HAM	<i>Hosta 'Albo-Marginata'</i>	Albo-Marginata Hosta	#1 Cont	AS SHOWN
PHI	<i>Phlox subulata 'Fort Hill'</i>	Fort Hill Phlox	#SP4 QT	12" O.C.
RO	<i>Rudbeckia fulgida 'Goldstrum'</i>	Goldstrum Black Eyed Susan	#SP4 QT	12" O.C.
VHP	<i>Verbena canadensis 'Homestead Purple'</i>	Homestead Purple Verbena	#1 Cont	18" O.C.





KEY	BOTANICAL NAME	COMMON NAME	FURNISH	REMARKS
Trees				
APB	<i>Acer palmatum 'Bloodgood'</i>	Bloodgood Japanese Maple	7-8' B&B	AS SHOWN
APT	<i>Acer palmatum dissectum 'Tanukiyama'</i>	Sumukiyama Outleaf Japanese Maple	3-4' B&B (or #15 Cont.)	AS SHOWN
GT	<i>Quercus ilicifolia 'Summer'</i>	Summer Pines	8-10' B&B	AS SHOWN
GF	<i>Cornus florida 'Rubra'</i>	Pink Flowering Dogwood	7-8' B&B	AS SHOWN
LI	<i>Lagerstroemia indica 'Miami'</i>	Miami Grape Myrtle	8-10' B&B	AS SHOWN
PT	<i>Pinus taeda</i>	Loblolly Pine	8-10' B&B	AS SHOWN
PD	<i>Pinus strobus</i>	Japanese Black Pine	6-8' B&B	AS SHOWN
PY	<i>Prunus x yedoensis 'Yoshino'</i>	Yoshino Cherry	8-10' B&B	AS SHOWN
QN	<i>Quercus nuttallii</i>	Nuttall Oak	10-12' B&B	AS SHOWN
ZS	<i>Zelkova serrata 'Green Vase'</i>	Green Vase Zelkova	10-12' B&B	AS SHOWN
Shrubs				
AKP	<i>Azalea x Kurume 'Pink Pearl'</i>	Pink Pearl Azalea	#3 Cont.	AS SHOWN
AKS	<i>Azalea x Kurume 'Snow'</i>	Snow Azalea	#3 Cont.	AS SHOWN
EA	<i>Euonymus alata 'Compacta'</i>	Dwarf Burning Bush	#3 Cont.	3" O.G.
HA	<i>Hibiscus syriacus 'Autumn Red'</i>	Autumn Red Rose of Sharon	#5 Cont.	AS SHOWN
HB	<i>Hydrangea serrata 'Bluebird'</i>	Bluebird Hydrangea	#3 Cont.	AS SHOWN
IO	<i>Ilex cornuta 'Coriaria'</i>	Coriaria Holly	#3 Cont.	3" O.G.
IV	<i>Ilex virginica 'Henry's Garnet'</i>	Henry's Garnet Sweetgum	#3 Cont.	4" O.G.
JN	<i>Juniperus procumbens 'Nana'</i>	Japanese Garden Juniper	#1 Cont.	3" O.G.
JS	<i>Juniperus squarrosa 'Savoyard'</i>	Savoyard Juniper	#5 Cont.	AS SHOWN
LD	<i>Loropetalum chinensis rubrum 'Blush'</i>	Blush Loropetalum	#3 Cont.	AS SHOWN
ND	<i>Nandina domestica</i>	Nandina	#3 Cont.	AS SHOWN
PL	<i>Prunus laurocerasus 'Otto Luyken'</i>	Otto Luyken Laurel	#3 Cont.	4" O.G.
RR	<i>Rosa x 'Double Knockout'</i>	Pink Double Knockout Rose	#3 Cont.	4" O.G.
SB	<i>Spiraea x bumalda 'Anthony Waterer'</i>	Anthony Waterer Spiraea	#3 Cont.	AS SHOWN
Groundcovers				
LM	<i>Liriope muscari 'Big Blue'</i>	Big Blue Liriope	#1 Cont.	12" O.G.
OL	<i>Ophiopogon japonicus 'Nana'</i>	Dwarf Mondo Grass	#SP4, QT	9" O.G.
Grasses				
JE	<i>Junus effusus</i>	Soft Rush	#1 Cont.	AS SHOWN
PBS	<i>Pennisetum virginicum 'Prairie Sky'</i>	Prairie Sky Switch Grass	#1 Cont.	3" O.G.
PH	<i>Pennisetum alpinum 'Hamelin'</i>	Hamelin Dwarf Fountain Grass	#1 Cont.	24" O.G.
Perennials				
APD	<i>Artemisia arbuscula 'Powis Castle'</i>	Powis Castle Artemisia	#SP4, QT	
DD	<i>Delosperma cooperi</i>	Hardy Sea Blame	#SP4, QT	12" O.G.
EKK	<i>Echinacea purpurea 'Kim's Knee High'</i>	Kim's Knee High Coneflower	#SP4, QT	12" O.G.
HHR	<i>Heimocallis 'Happy Returns'</i>	Happy Returns Daylily	#1 Cont.	24" O.G.
HAM	<i>Hosta 'Alba Marginata'</i>	Alba Marginata Hosta	#1 Cont.	AS SHOWN
PHH	<i>Phlox subulata 'Fort Hill'</i>	Fort Hill Phlox	#SP4, QT	12" O.G.
RG	<i>Rudbeckia fulgida 'Goldstrum'</i>	Goldstrum Black Eyed Susan	#SP4, QT	12" O.G.
VHP	<i>Verbena canadensis 'Homestead Purple'</i>	Homestead Purple Verbena	#1 Cont.	18" O.G.



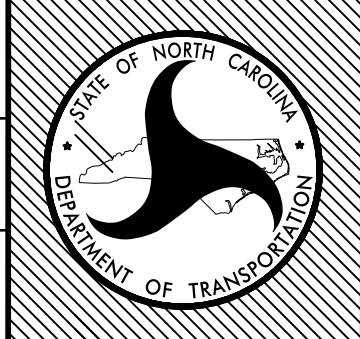
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Rest Area Renovation
project #: 41533.3.1

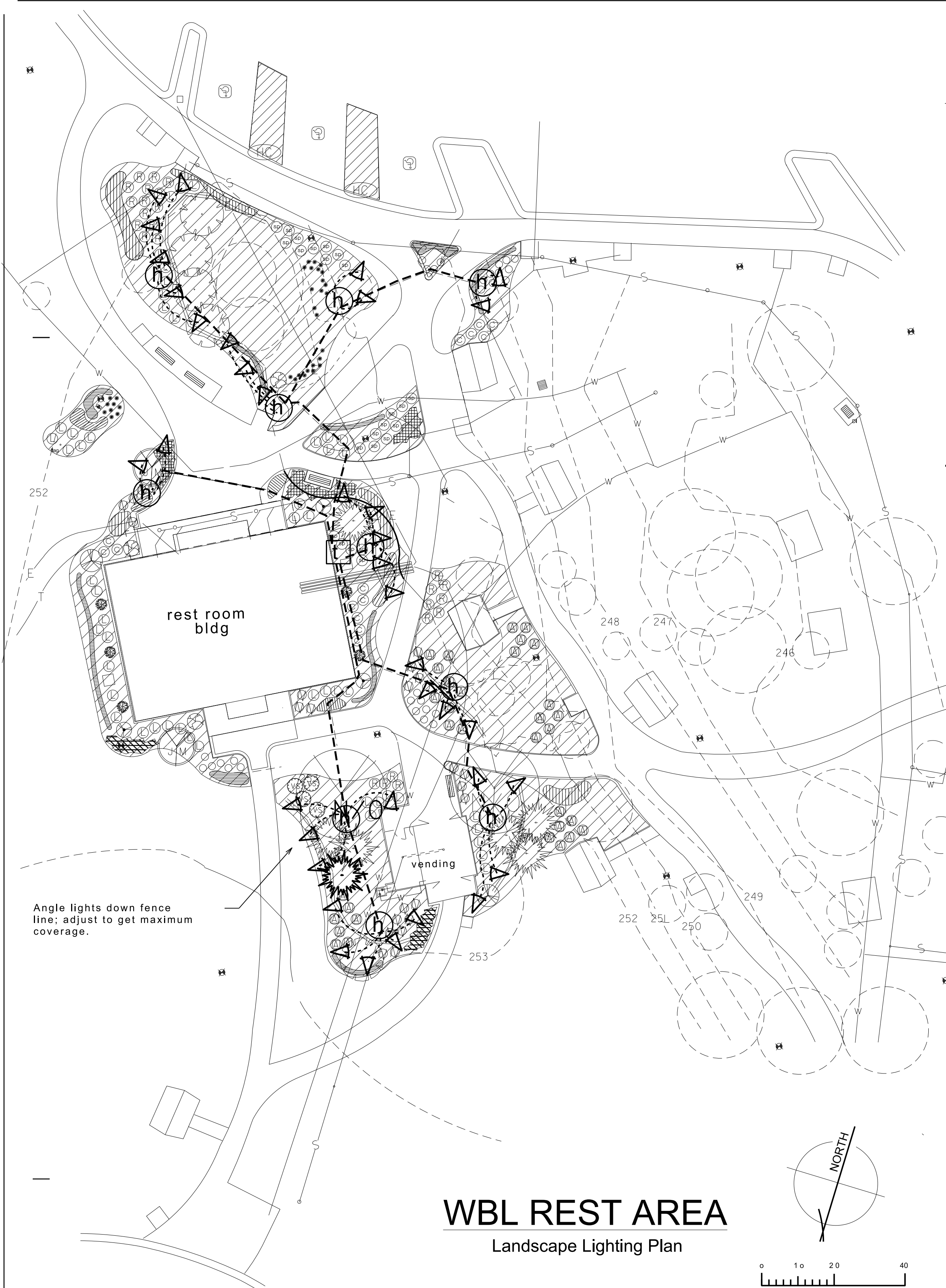
re u engineer :
B. Kopetsky

prel. design date : may/ 2012
checked by & date :
final design date : 7-15-12

i-40 ebl renovation
landscape plan

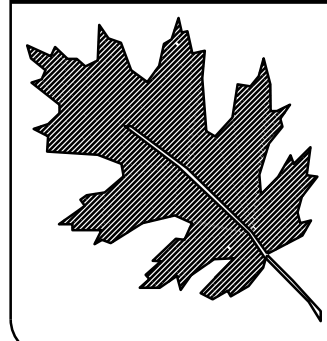
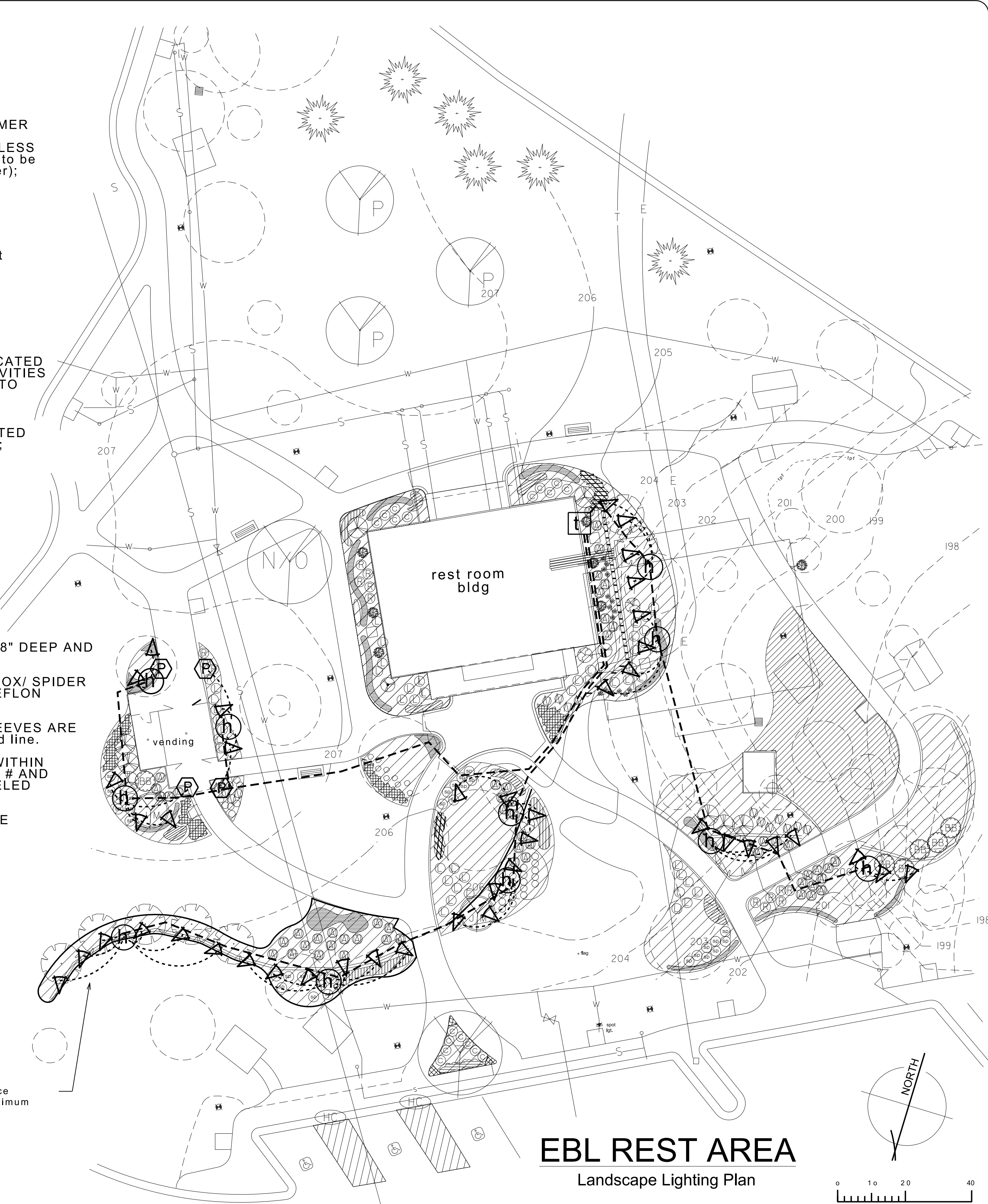


sheet no : **L6**
total sheet no : **9**



- low voltage lighting key
- t** 600 w MULTI TAP TRANSFORMER with digital timer; specified for use with L.E.D fixtures; STAINLESS STEEL or Black coated CASE (to be determined by NCDOT Engineer); SECURITY latch; MOUNTED ON BLDG.
 - ▷** Integrated L.E.D. 4W Wall Wash (flood); solid brass /bronze body with matching adjustable mount; 10" solid cast ground stake.
 - P** Integrated L.E.D. 4W China hat Path Light; solid brass/ bronze body; 24" post and 10" solid cast ground stake.
 - h** hub/ splice box BELOW GRADE PVC BOX; LOCATED OUT OF WAY OF MAINT. ACTIVITIES OR OTHER SITE EQUIPMENT TO AVOID DAMAGE.
 - homerun wire (#10-2) TIN COATED MARINE GRADE FIELD WIRES; install per MANUFACTURER's SPEC.
 - - - - - 25' light lead (#16-2)

- Notes
1. ALL WIRE RUNS SHALL BE A MIN. 8" DEEP AND set within electrical pvc conduit.
 2. ALL WIRE UNIONS AT JUNCTION BOX/ SPIDER SPLICE SHALL BE JOINED WITH A TEFLON WATERPROOF WIRE NUT.
 3. SPECIFIC LOCATIONS OF PVC SLEEVES ARE NOTED on the plans noted by a dashed line.
 4. WIRE RUN # SHALL BE LABELED WITHIN THE TRANSFORMER BOX. WIRE RUN # AND SPECIFIC FIXTURE # SHALL BE LABELED WITHIN/ON THE JUNCTION BOXES.
 5. EACH LIGHT FIXTURE SHALL COME PRE-WIRED WITH 25' OF #16-2 TIN COATED MARINE GRADE WIRE.
 6. place all lights in landscape beds.
 7. adjust wire runs and fixtures in the field to work around site items.
 8. minimize disturbance to root systems of mature trees.
 9. direction of lights should be placed to minimize glare to pedestrians... while highlighting landscape features.

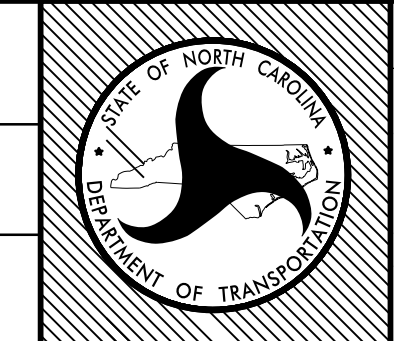


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
engineer
B. Kopetsky

pref. design date :	may/ 2012	Rest Area Renovation	T.I.P. #
checked by & date :		Landscape Lighting	WBS #
final design date :	7-15-12	L.E.D. 12V - low voltage	FED I.D. #
sheet description:			sheet no : total sheet no :
			L7 9

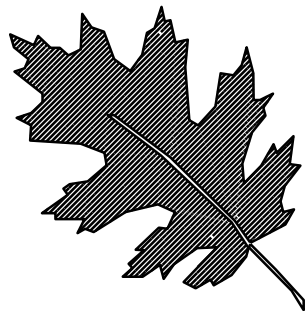


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I- 40 Johnston Co Rest Area Renovation

project #: 41533.3.1

re u engineer
B. Kopetsky

prel. design date : July/2013

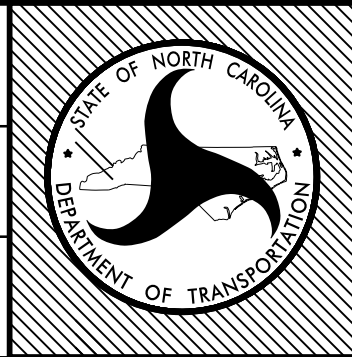
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final design date :

Rest Area Renovation

Irrigation specs &

FENCE DETAIL



T.I.P. #

WBS #

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IRRIGATION SPECIFICATIONS

HEADS

- TORO SERIES 570 PRX-6P POP UP - 6" POP UP SPRINKLER HEAD FITTED WITH PRECISION SPRAY 570 SERIES SPRAY NOZZLE
- ALL HEADS WITH A 12" POP UP STROKE, IF INSTALLED WITH LESS THAN 1/3 OF THE SPINKLER BODY EXPOSED ABOVE GRADE, SHALL BE INSTALLED ON POLYETHYLENE FLEX SWING JOINTS POLY PIPE FITTED WITH (3/8" INSERT BY 1/2" M.P.T. AND /OR 3/8" INSERT BY 3/4" 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 AS WELL AS POSSIBLE WHILE THE NOZZLE IN THE POPPED UP OPERATING POSITION WILL PROVIDE FOR AN UNOBSTRUCTED PATTERN
- 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 SHRUBS RISER OR WITH THE TOP OF THE HEAD MORE THAN 1/2" 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 3/8" I.D. POLY PIPE FITTED WITH #850-31 (3/8" INSERT BY 1/2" M.P.T.) AND /OR #850-32 (3/8" INSERT BY 3/4" M.P.T.) ELBOWS.

PIPE

MINIMUMDEPTH 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 1-1/2" PR 200 PVC PIPE

FRICTION LOSS ALLOWANCES FOR THIS PROJECT HAVE BEEN DETERMINED USING THE ABOVE FLOW RANGES AND DEMANDS

PR 200 MAIN LINE PIPING. SIZE
OF PIPE TO BE 1-1/2" IN MINIMUM DEPTH OF COVER
MAINLINE PIPING TO BE 18"

- 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

DRIP IRRIGATION

drip irrigation is to beTORO NETAFIM TECHLINE 1/2" P.E. TUBING, 18" EMITTER SPACING INTERVALS AT 1 GPM EMITTERS INLINE. NETAFIM (MODEL# TLDL-9-1810) TECHLINE TO BE INSTALLED UNDER MULCH IN LANDSCAPE AREAS AS SHOWN ON THE IRRIGATION PLAN.

- LOCATION OF DRIP VALVE ASSEMBLY WHICH INCLUDES TORO 250 SERIES REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE, NETAFIM 200 MESH FILTER #DF150-140, AND NETAFIM PRESSURE REGULATOR #PVR15045. FLOW CONTROLVALVES SHALL BE AS NOTED ON BOXES WITH LIDS MOUNTED AT GRADE LEVEL.
min 2 emitters per shrub - 3 emitters per tree
no emitters needed for ornamental grasses

HEAD RADII

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

VALVES

ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE
WITH FLOW CONTROL FEATURE (MODEL # TORO 250-06-04).

- ALL IN-LINE REMOTE CONTOL 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

BACKFLOW PREVENTION

- REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY WHICH SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR. THE BACKFLOW SHALL BE 1" 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.

WATER SUPPLY

THE METER SHALL BE THE OWNER'S RESPONSIBLTY. THE METER IS 1" IN SIZE. SINCE THE WATER SUPPLY FOR THE SYSTEM SHALL BE POTABLE WATER, THE CONTRACTOR WILL BE REQUIRED TO INSTALL BACKFLOW PREVENTION DEVICE WHICH WILL BE LOCATED DOWNSTREAM OF THE IRRIGATION METER

MAXIMUM 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

THE CONTROLLER

SHALL BE CUSTOM COMMAND (TMC-424 e SERIES) SOLID STATE UNIT WHICH SHALL BE OF THE WALL MOUNT STYLE. THE CONTROLLER SHALL INCORPORATE 24 V.A.C.

APPROXIMATE LOCATION will be given by division roadside engineer

- ALL ELECTRICAL CONNECTIONS AND INSTALLATIONS SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- ALL 120 VAC WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODE REQUIREMENTS.
NOTE: THE OWNER SHALL BE RESPONSIBLE FOR PROVIDING A 120 VAC POWER CIRCUIT AT THE CONTROLLER LOCATION. THE POWER SOURCE SHALL BE CAPABLE OF SUPPORTING A 10 AMPERE LOAD AT 120 VAC.

GENERAL NOTES

- PLACES VALVES (BOXES) IN PLANT BEDS WHERE-EVER POSSIBLE
- CONTRACTOR IS TO MINIMIZE DISTURBANCE IN SOD AREA. (CUT AND REPLACE SOD)
- PLACE PRESSURE REDUCING VALVE IN DISCREET LOCATION

SLEEVEING

- SLEEVES SHALL BE 3" PVC FOR 24 VAC WIRING PER ELECTRICAL CODE. THE IRRIGATION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE IRRIGATION SYSTEM WITH THE LANDSCAPE CONTRACTOR TO INSURE PROPER INSTALLATION OF BOTH THE IRRIGATION SYSTEM WITH 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 ANYSPECIAL 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.

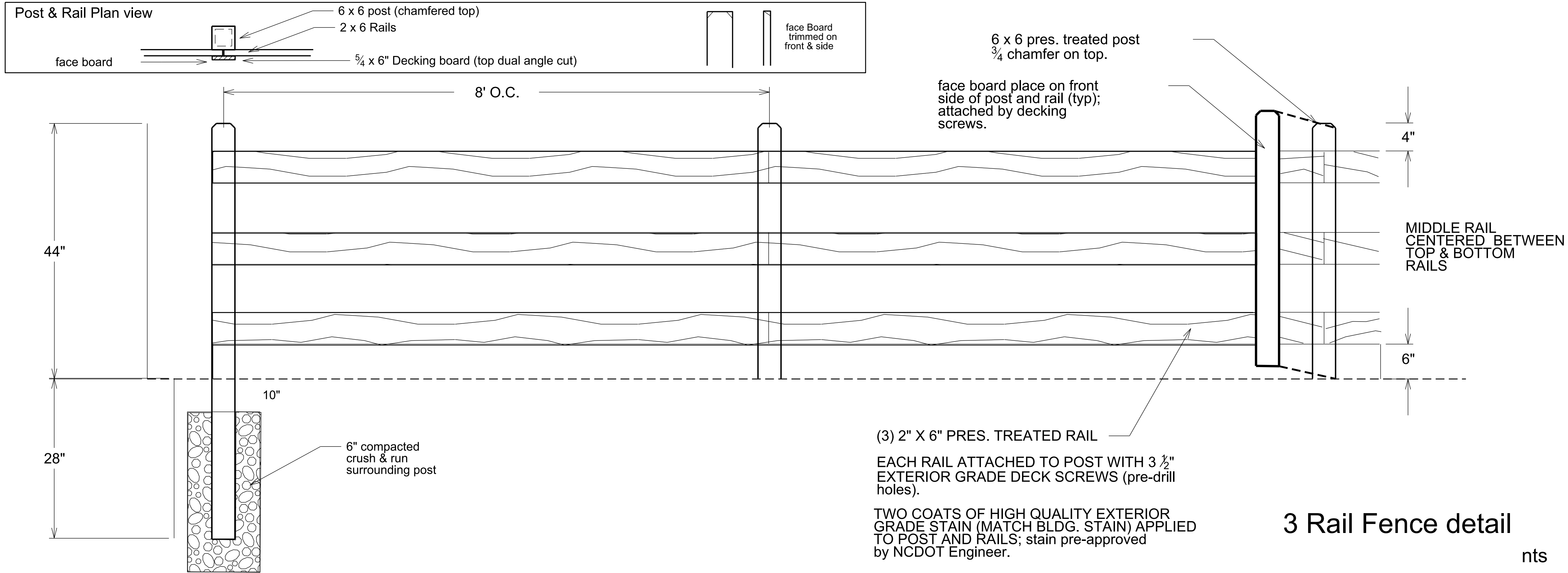
24 VAC CONTROL WIRING

- ALL 24 V.A.C. CONTROL WIRING SHALL BE SINGLE STRAND COPPER WIRE WITH POLYETHYLENE PE DIRECT BURIAL INSULATION RATED FOR 300 V.A.C. VALVE "COMMON" WIRES SHALL HAVE WHITE INSULATION WHILE VALVE "HOT" WIRES SHALL HAVE INSULATION RED IN COLOR. THE "COMMON" WIRES SHALL BE #14 AWG. "HOT" WIRES SHALL BE #14 AWG. VALVE WIRING SHALL FOLLOW MAINLINE PIPING WHERE FEASIBLE AND SHALL BE LAID IN A COMMON TRENCHLINE WITH THE MAINLINE PIPING AND IN THE BOTTOM OF THE TRENCH. 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 SAID SPLICES SHALL BE PLACED IN A CARSON #910-1 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 OCCASIONAL EXPANSION LOOPS TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL CONTRACTION.

- ALL WIRE SPLICES SHALL BE MADE USING UL APPROVED DIRECT BURIAL CONNECTORS AND WATERPROOFING MATERIALS. ALL ELECTRICAL WORK SHALL BE INSTALLED ACCORDING TO CODE

irrigation notes

- 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.
all irrigation products are to be toro or a comparable brand



(3) 2" X 6" PRES. TREATED RAIL

EACH RAIL ATTACHED TO POST WITH 3 1/2" EXTERIOR GRADE DECK SCREWS (pre-drill holes).

TWO COATS OF HIGH QUALITY EXTERIOR GRADE STAIN (MATCH BLDG. STAIN) APPLIED TO POST AND RAILS; stain pre-approved by NCDOT Engineer.

3 Rail Fence detail

nts