CONSTRUCTION PHASING

PHASE I:

- MAINTAIN TWO-WAY TRAFFIC ON EXISTING ROADWAY.
- PRIMARY WORK ZONE IS FROM STA. 13+73 TO STA. 21+40 AND OUTSIDE OF EXISTING PAVEMENT.
- GENERAL OPERATIONS ON THE LEFT SIDE:
  1. INSTALL UNDERGROUND ELECTRIC CIRCUITS AND COMMUNICATION CONDUIT FROM STA. 12+00 TO STA. 22+00. USE TEMP. LANE CLOSURES FOR SERVICE CROSSINGS.
  2. REMOVE DESIGNATED UTILITY POLES AND OVERHEAD LINES. RELOCATE DESIGNATED UTILITY POLES.
  3. INSTALL DRAINAGE STRUCTURES AND UNDERDRAIN. USE TEMP. LANE CLOSURES TO MAKE CONNECTIONS TO EXISTING STORM SEWER. CAP EXISTING CATCH BASIN X1.
  4. INSTALL ROADWAY AND SIDEWALK LIGHTING SYSTEM.
  5. CONSTRUCT CURB AND GUTTER AND SIDEWALK.
  6. BACKFILL BIORETENTION SWALE, PLANT TREES, AND INSTALL EROSION CONTROL BLANKET.
- GENERAL OPERATIONS ON THE RIGHT SIDE:
  1. REMOVE/RELOCATE GARRON GAS CHAIN-LINK FENCE.
  2. INSTALL DRAINAGE STRUCTURES NOS. 1-7 AND 9 AND ASSOCIATED PIPE. USE TEMP. LANE CLOSURES TO MAKE CONNECTIONS TO EXISTING CATCH BASINS X1 AND X2.
  3. REMOVE EXISTING 30" STORM SEWER LINE AND ASSOCIATED CATCH BASINS.
  4. INSTALL DRAINAGE STRUCTURE NO. 8.
  5. INSTALL ROADWAY AND SIDEWALK LIGHTING SYSTEM.
  6. CONSTRUCT SIDEWALK.

PHASE II:

- IMPLEMENT LEFT SIDE LANE CLOSURES WITH FLAGGERS AND SHIFT ALL TRAFFIC TO RIGHT SIDE OF PROPOSED CENTERLINE.
- PRIMARY WORK ZONE IS FROM STA. 13+73 TO STA. 21+40 AND LEFT OF PROPOSED CENTERLINE.
- GENERAL OPERATIONS ON THE LEFT SIDE:
  1. REMOVE EXISTING PAVEMENT AND OTHER OBSTRUCTIONS.
  2. ADJUST MANHOLE/CATCH BASIN CASTINGS AND UTILITY VALVES.
  3. INSTALL AGGREGATE BASE AND ASPHALT BINDER COURSE FOR LEFT LANE AND 8' PARKING.

PHASE III:

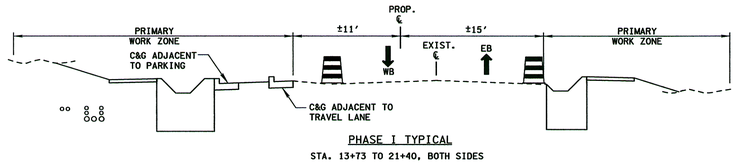
- IMPLEMENT RIGHT SIDE LANE CLOSURES WITH FLAGGERS AND SHIFT ALL TRAFFIC TO LEFT SIDE OF PROPOSED CENTERLINE.
- PRIMARY WORK ZONE IS FROM STA. 11+00 TO STA. 21+40 AND RIGHT OF PROPOSED CENTERLINE.
- GENERAL OPERATIONS ON THE RIGHT SIDE:
  1. REMOVE EXISTING PAVEMENT AND OTHER OBSTRUCTIONS.
  2. INSTALL DRAINAGE STRUCTURE NO. 13 AND CONNECT TO EXISTING CATCH BASIN X4. INSTALL ALL UNDERDRAIN.
  3. CONSTRUCT CURB AND GUTTER.
  4. BACKFILL BIORETENTION SWALE, PLANT TREES, AND INSTALL EROSION CONTROL BLANKET.
  5. ADJUST MANHOLE/CATCH BASIN CASTINGS AND UTILITY VALVES.
  6. INSTALL AGGREGATE BASE AND ASPHALT BINDER COURSE FOR RIGHT LANE.

PHASE IV:

- IMPLEMENT LEFT SIDE LANE CLOSURES WITH FLAGGERS AND SHIFT ALL TRAFFIC TO RIGHT SIDE OF PROPOSED CENTERLINE FROM STA. 11+00 TO 13+73.
- COMPLETELY CLOSE BLOUNT AVENUE FROM STA. 21+40 TO STA. 25+00. PROVIDE DETOUR FOR LOCAL ACCESS VIA HAWTHORNE AVENUE AND DONALDSON STREET.
- PRIMARY WORK ZONES ARE FROM STA. 11+00 TO STA. 13+73 LEFT OF PROPOSED CENTERLINE AND FROM STA. 21+40 TO STA. 26+75.
- GENERAL OPERATIONS, STA. 11+00 TO STA. 13+73 LEFT SIDE:
  1. REMOVE EXISTING PAVEMENT AND OTHER OBSTRUCTIONS.
  2. ADJUST MANHOLE/CATCH BASIN CASTINGS AND UTILITY VALVES.
  3. INSTALL AGGREGATE BASE AND ASPHALT BINDER COURSE FOR LEFT LANE.
- GENERAL OPERATIONS, STA. 21+40 TO STA. 26+75:
  1. CONSTRUCT ALL IMPROVEMENTS (EXCLUDING ASPHALT SURFACE COURSE) FROM STA. 21+40 TO STA. 25+00.
  2. USE TEMP. LANE CLOSURES TO COMPLETE CURB, SIDEWALK, DRAINAGE STRUCTURE NO. 17, AND MILLING FROM STA. 25+00 TO STA. 26+75.

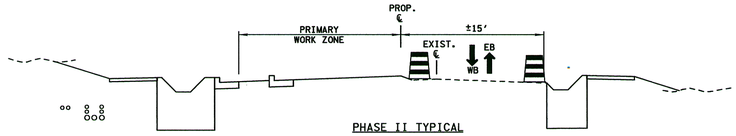
PHASE V:

- USE TEMP. LANE CLOSURES TO COMPLETE THE FOLLOWING:
  1. INSTALL ASPHALT SURFACE COURSE.
  2. INSTALL PERMANENT PAVEMENT MARKINGS AND SIGNS.



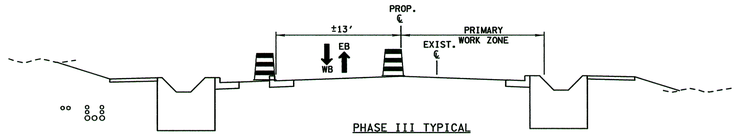
PHASE I TYPICAL

STA. 13+73 TO 21+40, BOTH SIDES



PHASE II TYPICAL

STA. 13+73 TO 21+40, LEFT SIDE



PHASE III TYPICAL

STA. 11+00 TO 21+40, RIGHT SIDE

NOTES:

1. THIS TRAFFIC CONTROL PLAN IS TO BE USED AS A GENERAL GUIDE FOR PHASING OF CONSTRUCTION OPERATIONS. NOT ALL TASKS HAVE BEEN LISTED IN THE PHASING NARRATIVES, AND THE SCHEMATIC DIAGRAMS DO NOT ADDRESS EVERY SITUATION.
2. TEMPORARY CONCRETE BARRIER WALL MAY BE REQUIRED TO PROTECT DROP-OFFS, DEPENDING ON THE SEQUENCE AND TIMING OF CONSTRUCTION OPERATIONS.
3. ALL REQUIRED EROSION CONTROL MEASURES AND DEVICES SHALL BE INSTALLED PRIOR TO START OF CONSTRUCTION.
4. ADVANCE CONSTRUCTION ZONE SIGNING SHALL COMPLY WITH MUTCD STANDARDS AND TDOT STANDARD DRAWINGS.
5. TYPE III BARRICADES WITH TYPE "A" WARNING LIGHTS SHALL BE USED TO BLOCK THE ENTIRE ROADWAY WIDTH FOR THE PHASE IV ROAD CLOSURE.
6. THE DETOUR FOR LOCAL ACCESS (PHASE IV) SHALL BE APPROPRIATELY SIGNED WITH MUTCD APPROVED DETOUR SIGNS. THE EXACT ROUTE OF THE DETOUR WILL BE DETERMINED BY THE CONSTRUCTION ENGINEER.

LEGEND

EB	EASTBOUND TRAFFIC FLOW
WB	WESTBOUND TRAFFIC FLOW
	FLEXIBLE DRUM (20' SPACING)

REVISIONS	DATE

Cannon&Cannon, Inc.
Consulting Engineers • Field Surveyors
8550 Kingston Pike
Knoxville, Tennessee 37919
Telephone: (865) 670-8555 • Fax: (865) 670-8866
www.cannon-cannon.com

CLIENT:

CITY OF KNOXVILLE
SOUTH WATERFRONT
DEVELOPMENT DEPARTMENT

PROJECT:

BLOUNT AVENUE
RECONSTRUCTION PROJECT

TRAFFIC CONTROL PLAN

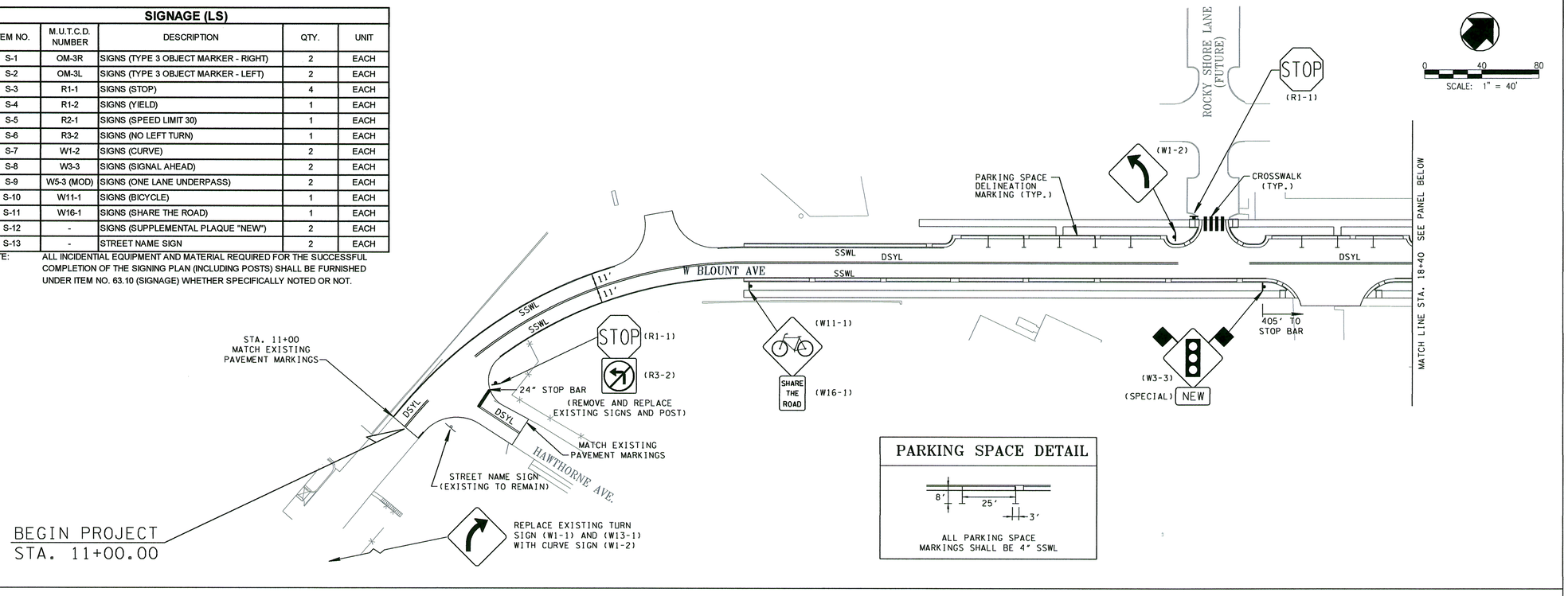
JASON C. ELLIOTT
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE
No. 901[illegible]
STATE OF TENNESSEE
6-26-09

CCI PROJECT NO.	244-0005
DATE	06-26-09
P.I.C.	WHC
DRAWN	TRANSPORTATION
Q.C.	JCE

R5.01

SIGNAGE (LS)				
ITEM NO.	M.U.T.C.D. NUMBER	DESCRIPTION	QTY.	UNIT
S-1	OM-3R	SIGNS (TYPE 3 OBJECT MARKER - RIGHT)	2	EACH
S-2	OM-3L	SIGNS (TYPE 3 OBJECT MARKER - LEFT)	2	EACH
S-3	R1-1	SIGNS (STOP)	4	EACH
S-4	R1-2	SIGNS (YIELD)	1	EACH
S-5	R2-1	SIGNS (SPEED LIMIT 30)	1	EACH
S-6	R3-2	SIGNS (NO LEFT TURN)	1	EACH
S-7	W1-2	SIGNS (CURVE)	2	EACH
S-8	W3-3	SIGNS (SIGNAL AHEAD)	2	EACH
S-9	W5-3 (MOD)	SIGNS (ONE LANE UNDERPASS)	2	EACH
S-10	W11-1	SIGNS (BICYCLE)	1	EACH
S-11	W16-1	SIGNS (SHARE THE ROAD)	1	EACH
S-12	-	SIGNS (SUPPLEMENTAL PLAQUE "NEW")	2	EACH
S-13	-	STREET NAME SIGN	2	EACH

NOTE: ALL INCIDENTIAL EQUIPMENT AND MATERIAL REQUIRED FOR THE SUCCESSFUL COMPLETION OF THE SIGNING PLAN (INCLUDING POSTS) SHALL BE FURNISHED UNDER ITEM NO. 63.10 (SIGNAGE) WHETHER SPECIFICALLY NOTED OR NOT.



REFER TO PRESENT LAYOUT SHEETS FOR CENTERLINE DATA.

PROPOSED LEGEND

DSYL	DOUBLE SOLID YELLOW LINE
SSWL	SINGLE SOLID WHITE LINE
▸	TRAFFIC SIGN ON POST

REVISIONS	DATE

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CLIENT:
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SOUTH WATERFRONT
DEVELOPMENT DEPARTMENT

PROJECT:
BLOUNT AVENUE
RECONSTRUCTION PROJECT

SIGNING AND PAVEMENT MARKINGS PLAN

REBECCA C. BOTTOM
REGISTERED ENGINEER
COMMERCE
No. 108750
STATE OF TENNESSEE
6-26-09

CCI PROJECT NO.	244-0005
DATE	06-26-09
P.I.C.	WHC
DRAWN	TRANSPORTATION
Q.C.	JCE

R6.01

UNDERPASS SIGNALIZATION (LS)

	TDOT ITEM NO.	DESCRIPTION	QTY.	UNIT
	730-02.09	SIGNAL HEAD ASSEMBLY (130 WITH BACKPLATE)	6	EACH
	730-03.21	INSTALL PULL BOX (TYPE B)	10	EACH
(1)	730-03.25	INSTALL PULL BOX (TRAFFIC BEARING)	2	EACH
	730-05.01	ELECTRICAL SERVICE CONNECTION	1	EACH
	730-08.03	SIGNAL CABLE - 7 CONDUCTOR	290	L.F.
	730-08.10	SIGNAL CABLE - 12 CONDUCTOR	580	L.F.
	730-12.02	CONDUIT 2" DIAMETER (PVC)	1580	L.F.
	730-13.01	VEHICLE LOOP DETECTOR (SHELF MOUNT)	5	EACH
	730-14.01	SHIELDED DETECTOR CABLE	1600	L.F.
	730-14.02	SAW SLOT	950	L.F.
	730-14.03	LOOP WIRE	2600	L.F.
(2)	730-15.32	CABINET (EIGHT PHASE BASE MOUNTED)	1	EACH
	730-16.02	EIGHT PHASE ACTUATED CONTROLLER	1	EACH
(2)	730-23.30	PEDESTAL POLE (PEDESTRIAN)	2	EACH
(2)	730-23.31	PEDESTAL POLE (PUSH BUTTON - POST)	2	EACH
(2)	730-23.96	CANTILEVER SIGNAL SUPPORT (1 ARM @ 24')	1	EACH
(2)	730-23.97	CANTILEVER SIGNAL SUPPORT (1 ARM @ 20')	1	EACH
	730-26.02	PEDESTRIAN PUSHBUTTON WITH 12" SIGN	2	EACH
	730-26.05	COUNTDOWN PEDESTRIAN SIGNAL	2	EACH

(1) ITEM SHALL BE GASKETED TRAFFIC BEARING PULL BOX WITH BOLT-DOWN COVER.
(2) ITEM INCLUDES FOOTING/FOUNDATION.

BASIC TIMING (SECS)

PHASE	MINIMUM INITIAL	VEHICLE INTERVAL	MAX I	MAX II	CLEARANCE		PEDESTRIAN		RECALL TO	MEMORY POSITION	LEFT TURN OPERATION
					YELLOW	ALL RED	WALK	FLASHING DON'T WALK			
1	5	3.0	20	20	4.0	0.0			MIN	OFF	
2	5	3.0	20	20	4.0	7.0				OFF	
4	-	-	-	-	-	-	7.0	8.0		OFF	
DOUBLE CLEAR	-	-	7.0 *	7.0	4.0	1.0					

* 1. REPRESENTS TIME BETWEEN BEGINNING OF YELLOW INTERVALS FOR SIGNAL HEADS 1 AND 1A .
2. PRE-EMPTION TIMING TO BE PROVIDED BY CITY OF KNOXVILLE.

CONTROLLER RING DIAGRAM

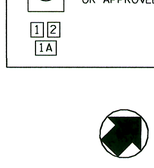
1 ←	2 →	BARRIER	3 NOT USED	4 PED PHASE
5 NOT USED	6 NOT USED		7 NOT USED	8 NOT USED

LOOP AND DETECTOR ASSIGNMENTS

LOOP NO.	NO. OF TURNS*	LOOP LENGTH (FT.)	ASSOC. PHASE	DETECTION OUTPUT	DELAY SETTING	COMMENTS
L1	2-4-2	50	1	NORMAL		LOOP L1 DRIVES Ø1
L2	2-4-2	50	1	DELAY	5 SEC.	LOOP L2 CALLS PRE-EMPT. 1
L3	2-4-2	50	1	DELAY	10 SEC.	LOOP L3 CALLS PRE-EMPT. 1
L4	2-4-2	50	2	NORMAL		LOOP L4 DRIVES Ø2
L5	2-4-2	50	2	DELAY	5 SEC.	LOOP L5 CALLS PRE-EMPT. 1

* ALL LOOPS ARE QUADRAPOLE TYPE AND SHALL OPERATE IN CONTINUOUS - PRESENCE MODE.

SIGNAL HEAD DETAILS



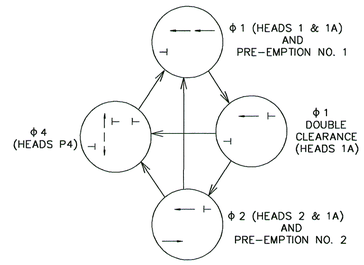
ALL TRAFFIC SIGNAL HEADS SHALL BE 12" WITH BLACK HOUSINGS AND VACUUM FORMED POLYCARBONATE 5 INCH LOUVERED BACKPLATES. DISPLAYS SHALL BE LED TYPE, DIALIGHT, EXCALIBUR, AND GELCORE OR APPROVED EQUIVALENT.

SIGNAL SUPPORT POLE MAST ARM DATA

POLE NO.	STATION	OFFSET (FT.)	NORTHING	EASTING	GROUND ELEV.	ARM LENGTH (FT.)	FOOTING DEPTH (FT.)
A	23+18.00	16.0' LT	596404.11	2585062.85		20'	10'
B	22+12.00	18.0' RT	596305.11	2585011.95		22'	10'
NEW C							
C1	21+64.00	21.0' RT	596269.37	2584979.73		N/A	3'
NEW D							
D1	21+65.00	23.0' LT	596300.69	2584949.65		N/A	3'

1. FOOTING DEPTH IS DEPTH BELOW SURFACE OF GROUND.
2. TOP OF FOOTING SHALL BE FOUR INCHES ABOVE FINISHED GROUND ELEVATION.
3. VERTICAL CLEARANCE FROM PAVEMENT TO BOTTOM OF SIGNAL HEAD HOUSING:
   MIN. = 17.0' MAX = 19.0'
4. POLES SHALL BE PLACED AS CLOSE TO THE LOCATIONS INDICATED AS POSSIBLE. ANY LOCATION CHANGES MUST BE APPROVED BY THE ENGINEER.
5. MAST ARM AND POLE STRENGTH AND RELATED DIMENSIONS SHALL BE DESIGNED BY THE POLE MANUFACTURER FOR THE ARM SPREAD AND LOADINGS REQUIRED BY THIS DESIGN PLAN. THE DESIGN SHALL COMPLY WITH THE REQUIREMENTS OF T.D.O.T. STANDARD SPECIFICATION SECTION 730 AND T.D.O.T. DRAWING T-SG-9.
6. SIGNAL HEAD MOUNTING BRACKETS SHALL BE T.D.O.T. RIGID MOUNTING SIGNAL BRACKETS AS SHOWN ON T.D.O.T. STANDARD DRAWING T-SG-9.

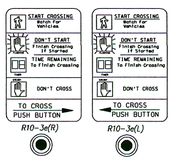
PHASING DIAGRAM



NOTES:
1. ϕ1 AND PRE-EMPTION NO. 1 SHALL ALWAYS CLEAR USING THE ϕ1 DOUBLE CLEARANCE PHASE.
2. PRE-EMPTION NO. 1 SHALL BE CALLED BY PRE-EMPT DETECTOR 1 AND PRE-EMPTION NO. 2 SHALL BE CALLED BY PRE-EMPT DETECTOR 2. PRE-EMPTION NO. 1 SHALL ALSO BE SERVICED VIA A CALL FROM LOOP L2, L3 OR L5 (AFTER LOOP OCCUPANCY FOR SPECIFIED DELAY PERIOD).
3. ALL CLEARANCES SHALL BE IN ACCORDANCE WITH THE MUTCD.
4. FLASHING OPERATION: RED BALL FOR HEADS 1 AND 2, YELLOW BALL FOR HEADS 1A.

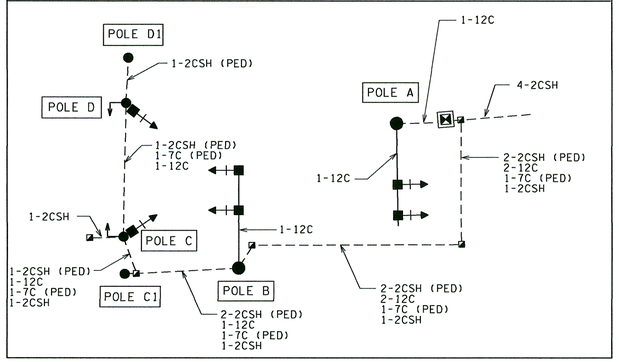
PEDESTRIAN DETAILS

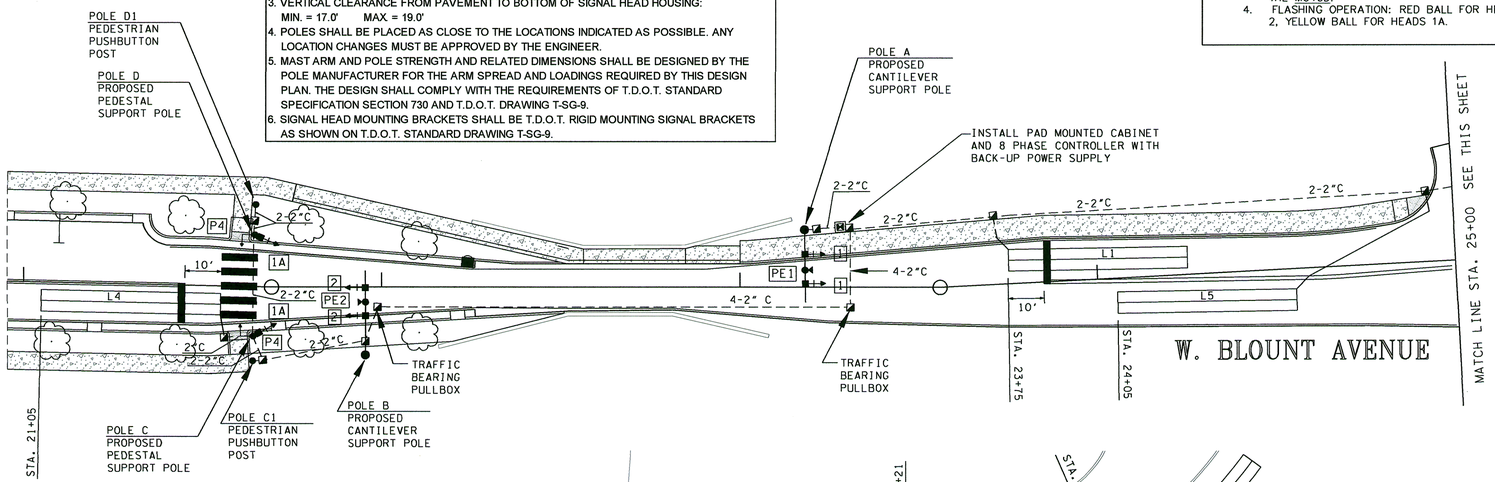
ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE BLACK COLOR HOUSINGS AND LED TYPE DISPLAYS CONFORMING TO CURRENT ITE STANDARDS, WITH WALK/DON'T WALK SYMBOLS DISPLAYED IN SAME FACE WITH COUNTDOWN TIMER. THE SYMBOLS SHALL BE FULLY POPULATED, GELCORE. PED HEAD MOUNTING ON NEW STRAIN POLES SHALL UTILIZE DRILLED ATTACHMENT (BAND MOUNTING NOT ALLOWED).

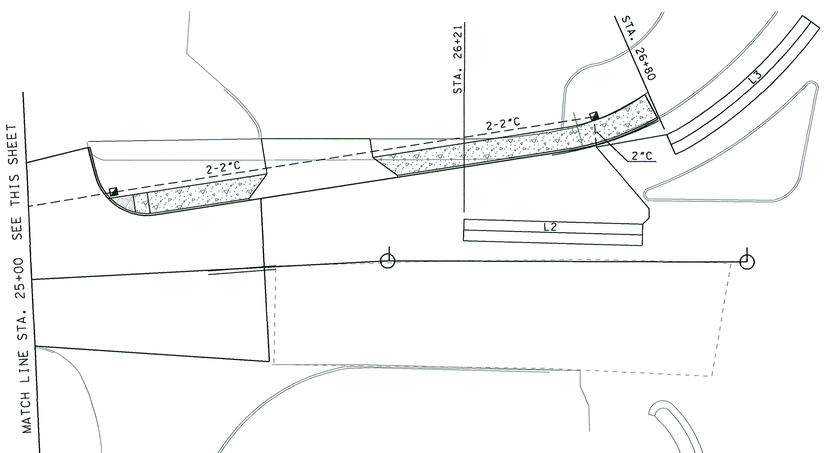


ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PUSH BUTTONS SHALL BE ADA ACCEPTABLE WITH LED INDICATOR AND SHALL BE PROVIDED WITH 2" ADA VANDAL RESISTANT PUSHBUTTONS. POLARIS BULLDOG OR APPROVED EQUIVALENT.

WIRING DIAGRAM







0 20 40
SCALE: 1" = 20'

SPECIAL NOTES

1. SEE SHEET RO.06 FOR TRAFFIC SIGNAL GENERAL NOTES.
2. SEE SHEET E1.01 FOR UTILITY NOTES.
3. SEE PRESENT AND PROPOSED LAYOUT SHEETS (R2.01 AND R2.02) FOR ADDITIONAL EXISTING AND PROPOSED TOPOGRAPHIC INFORMATION INCLUDING UTILITIES, UNDERGROUND STRUCTURES AND RIGHT-OF-WAY.
4. THIS SIGNAL SHALL NOT BE PLACED INTO OPERATION WITHOUT THE PRESENCE OF REPRESENTATIVES OF THE CITY OF KNOXVILLE AND DESIGN ENGINEER. CONTACT ALLEN ARNETT (865-215-6732) AND ALAN CHILDERS (865-670-8555) TO SCHEDULE SIGNAL ACTIVATION.

PROPOSED LEGEND

- ROADWAY CENTERLINE
- CONCRETE SIDEWALK
- CONC. CURB & GUTTER
- CONC. DETACHED CURB

SIGNALIZATION LEGEND

- CANTILEVER SIGNAL SUPPORT POLE (STEEL)
- [2] SIGNAL HEAD WITH BACKPLATE AND ASSOCIATED PHASE
- [P3] PEDESTRIAN HEAD WITH ASSOCIATED PHASE
- PAD MOUNT CABINET AND CONTROLLER
- L4 LOOP DETECTOR WITH ASSOCIATED PHASE
- PULLBOX
- 1"C UNDERGROUND CONDUIT (SIZE)
- [PE1] PRE-EMPTION DETECTOR AND ASSOCIATED PHASE

REVISIONS	DATE

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CLIENT:
CITY OF KNOXVILLE
SOUTH WATERFRONT
DEVELOPMENT DEPARTMENT

PROJECT:
BLOUNT AVENUE
RECONSTRUCTION PROJECT

TRAFFIC SIGNAL PLAN

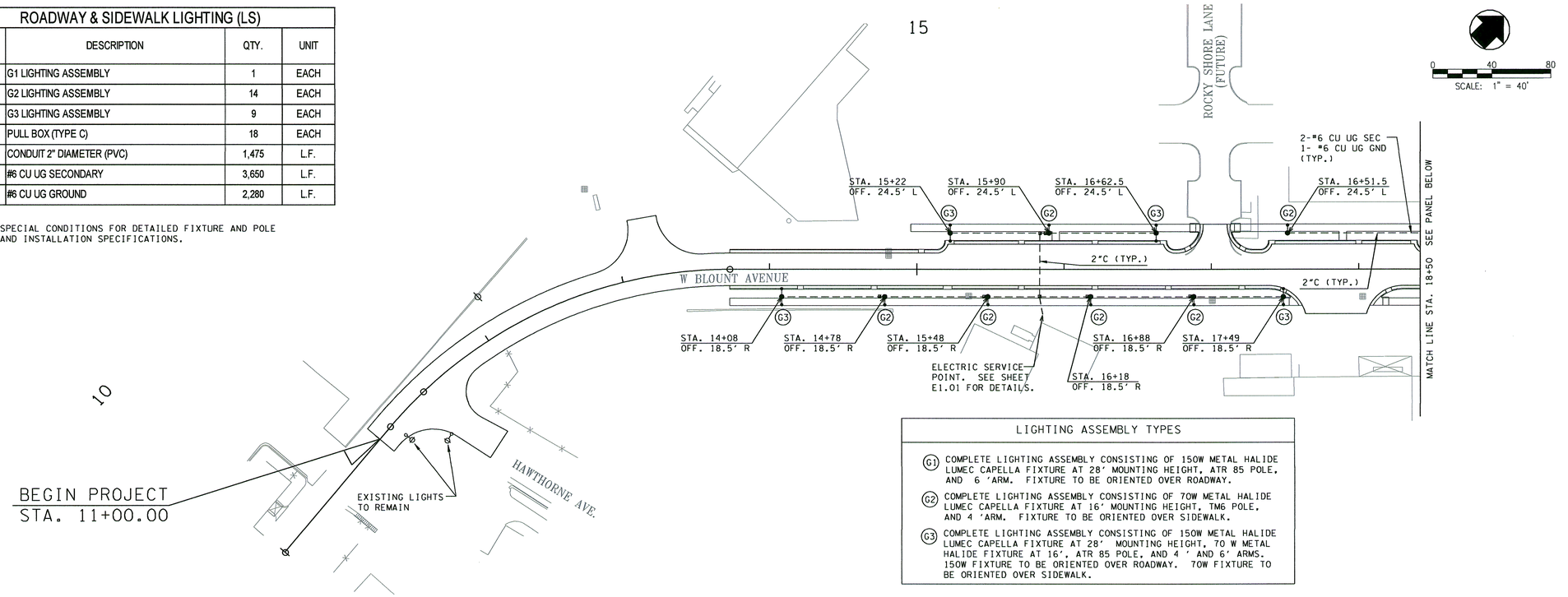
ALAN L. CHILDERS — REGISTERED ENGINEER — STATE OF TENNESSEE

CCI PROJECT NO.	244-0005
DATE	06-26-09
P.I.C.	WHC
DRAWN	TRANSPORTATION
Q.C.	JCE

R7.01

ROADWAY & SIDEWALK LIGHTING (LS)			
ITEM NO.	DESCRIPTION	QTY.	UNIT
L-1	G1 LIGHTING ASSEMBLY	1	EACH
L-2	G2 LIGHTING ASSEMBLY	14	EACH
L-3	G3 LIGHTING ASSEMBLY	9	EACH
L4	PULL BOX (TYPE C)	18	EACH
L-5	CONDUIT 2" DIAMETER (PVC)	1,475	L.F.
L-6	#6 CU UG SECONDARY	3,650	L.F.
L-7	#6 CU UG GROUND	2,280	L.F.

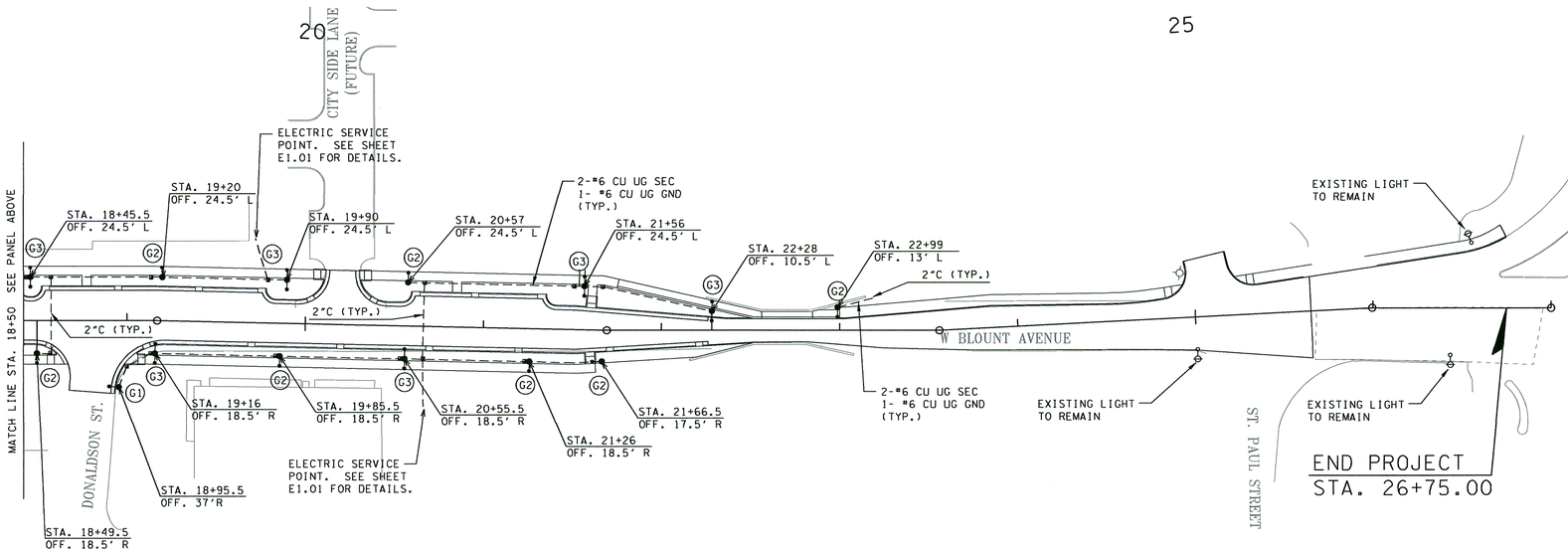
REFER TO SPECIAL CONDITIONS FOR DETAILED FIXTURE AND POLE MATERIAL AND INSTALLATION SPECIFICATIONS.



LIGHTING ASSEMBLY TYPES
(G1) COMPLETE LIGHTING ASSEMBLY CONSISTING OF 150W METAL HALIDE LUMEC CAPELLA FIXTURE AT 28' MOUNTING HEIGHT, ATR 85 POLE, AND 6 'ARM. FIXTURE TO BE ORIENTED OVER ROADWAY.
(G2) COMPLETE LIGHTING ASSEMBLY CONSISTING OF 70W METAL HALIDE LUMEC CAPELLA FIXTURE AT 16' MOUNTING HEIGHT, TM6 POLE, AND 4 'ARM. FIXTURE TO BE ORIENTED OVER SIDEWALK.
(G3) COMPLETE LIGHTING ASSEMBLY CONSISTING OF 150W METAL HALIDE LUMEC CAPELLA FIXTURE AT 28' MOUNTING HEIGHT, 70 W METAL HALIDE FIXTURE AT 16', ATR 85 POLE, AND 4 ' AND 6' ARMS. 150W FIXTURE TO BE ORIENTED OVER ROADWAY. 70W FIXTURE TO BE ORIENTED OVER SIDEWALK.

LEGEND

- LIGHTING ASSEMBLY (DUAL FIXTURES)
- LIGHTING ASSEMBLY (SINGLE FIXTURE)
- EXISTING LIGHT TO REMAIN
- CONDUIT
- PULL BOX (TYPE C)



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SOUTH WATERFRONT
DEVELOPMENT DEPARTMENT

PROJECT:
BLOUNT AVENUE
RECONSTRUCTION PROJECT

LIGHTING PLAN

LESLIE P. BEAVER — REGISTERED ENGINEER — AGRICULTURE — ART — COMMERCE — No. 109599 — STATE OF TENNESSEE
6/26/09

REBECCA C. BOTTOMS — REGISTERED ENGINEER — AGRICULTURE — ART — COMMERCE — No. 109799 — STATE OF TENNESSEE
Rebecca C. Bottoms 6/26/09

CCI PROJECT NO.	244-0005
DATE	06-26-09
P.I.C.	WHC
DRAWN	TRANSPORTATION
Q.C.	JCE

R8.01