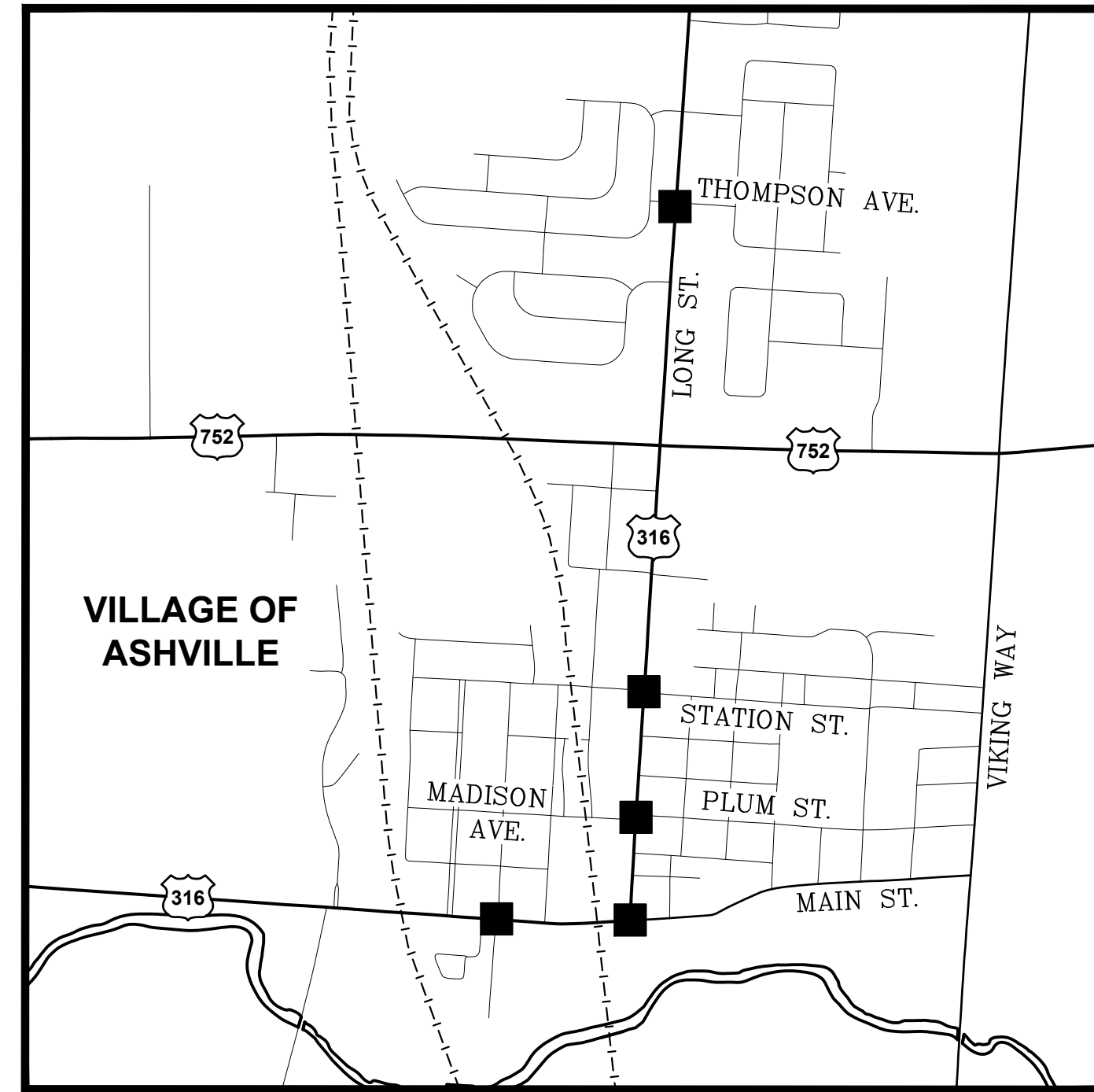


STATE OF OHIO DEPARTMENT OF TRANSPORTATION PIC-ASHVILLE-PED IMPROVEMENT VILLAGE OF ASHVILLE PICKAWAY COUNTY



LOCATION MAP

SCALE: 1" = 1200'

LATITUDE: 39°42'49.17" LONGITUDE: -82°57'12.96"

- PORTION TO BE IMPROVED ■
- COUNTY ROAD _____
- INTERSTATE ROUTE
- STATE ROUTE

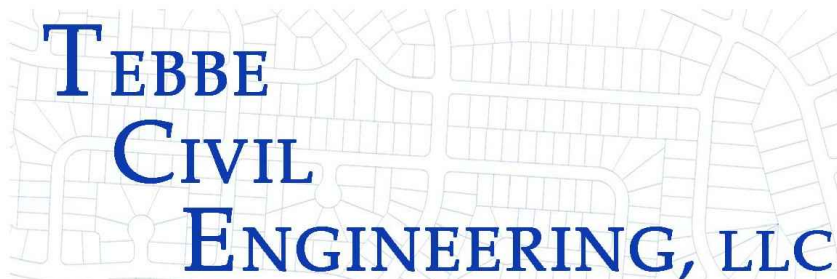
DESIGN DESIGNATION

ADT (2023)	4846
DESIGN YEAR ADT (2032)	4800
DESIGN HOURLY VOLUME (2032)	620
DIRECTIONAL DISTRIBUTION	56%
TRUCKS (24 HOURS B&C)	2%
DESIGN SPEED	35 MPH
LEGAL SPEED	25 MPH
FUNCTIONAL CLASSIFICATION	05 - MAJOR COLLECTOR (RURAL)

DESIGN EXCEPTIONS: NONE REQUIRED

ADA DESIGN WAIVER: NONE REQUIRED

PLANS PREPARED BY:



4700 LAKEHURST DRIVE ~ SUITE 135
DUBLIN, OHIO 43016

ENGINEER'S SEAL:

SIGNED: _____
DATE: _____

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PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF INSTALLING STREET LIGHTS AND/OR RECTANGULAR RAPID FLASHING BEACONS (RRFB) AT FIVE INTERSECTIONS ALONG SR 316 AND LONG STREET IN THE VILLAGE OF ASHVILLE, PICKAWAY COUNTY.

EARTH DISTURBING ACTIVITY

PROJECT EARTH DISTURBED AREA	0.01 AC.
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	0.01 AC.
TOTAL EARTH DISTURBING ACTIVITY	0.01 AC.

* THIS PROJECT CONTAINS LESS THAN 1 ACRE OF EARTH DISTURBING ACTIVITY AND IS CONSIDERED A MAINTENANCE PROJECT. NOTICE OF INTENT (NOI) AND BMPS ARE NOT REQUIRED.



2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS PROJECT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED: _____

DATE: _____ DISTRICT DEPUTY DIRECTOR

APPROVED: _____

DATE: _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	
ODOT		COLUMBUS		ODOT	
TC-74.10	7/21/23		MIS-101	800	01/17/20
TC-87.10	7/21/23		MIS-800		
MT-97.10	4/19/19				
MT-101.90	7/17/20				
MT-105.10	1/17/20				
MT-110.10	7/19/13				

FEDERAL PROJ NO. N/A
PID NO. 117460
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
PIC-ASHVILLE-PED IMPROVEMENT
1/10

GENERAL:

THE CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE OF OPERATIONS TO THE ENGINEER (SEE 108.02) AND RECEIVE APPROVAL IN WRITING BEFORE WORK IS STARTED ON THIS PROJECT. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

NOTIFICATION OF CONSTRUCTION INITIATION:

AT LEAST FOURTEEN DAYS PRIOR TO STARTING INITIAL CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS VIA EMAIL AT d06.pio@dot.ohio.gov, THE DISTRICT WORK ZONE TRAFFIC MANAGER VIA EMAIL AT d06.mot@dot.ohio.gov AND THE CENTRAL OFFICE SPECIAL HAUL PERMITS SECTION BY FAX AT (614) 728-4099 OF THE ANTICIPATED START DATE OF ANY CONSTRUCTION ACTIVITIES INCLUDING BUT NOT LIMITED TO THE PLACING OF WORK ZONE SIGNS. THE NOTIFICATION SHALL ALSO INCLUDE THE PROJECT NUMBER, PID, NAME AND PHONE NUMBER OF THE CONTRACTOR, A POINT OF CONTACT AND THE ANTICIPATED IMPACT ON TRAFFIC. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT WORK ZONE TRAFFIC MANAGER OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION INITIATION DATE.

CONTRACTORS EQUIPMENT – OPERATION AND STORAGE:

THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC WHERE PRACTICAL. EQUIPMENT SHALL HAVE AT LEAST ONE AMBER FLASHING LIGHT. WHEN PARKED ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE LOCATED EITHER A MINIMUM OF THIRTY FEET FROM THE EDGE OF PAVEMENT OR SIX FEET BEHIND GUARDRAIL WITH A MINIMUM OF 125 FEET OF GUARDRAIL PRECEDING THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT AN APPROVED CONTRACTOR'S STORAGE AREA.

CONTINGENCY QUANTITIES:

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

WORK LIMITS:

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS. WORK LIMITS SHALL BE WITHIN THE EXISTING RIGHT OF WAY.

UTILITIES:

THE ODOT CONTRACTOR IS REQUIRED TO CONTACT OUPS A MINIMUM OF 48 HOURS EXCLUDING WEEKENDS AND HOLIDAYS TO PERMIT ALL UNDERGROUND UTILITIES AN OPPORTUNITY TO MARK THEIR LINES. IT IS ALSO THE ODOT CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL NON-MEMBERS OF OUPS DIRECTLY A MINIMUM OF 48 HOURS' NOTICE EXCLUDING WEEKENDS AND HOLIDAYS TO PROVIDE THEM WITH THE SAME OPPORTUNITY.

NO UTILITY RELOCATION WILL BE REIMBURSED NOR WILL DELAY CLAIMS BE PERMISSIBLE BASED ON LACK OF COORDINATION BETWEEN THE ODOT CONTRACTOR AND THE IMPACTED UTILITY.

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

VILLAGE OF ASHVILLE SERVICE DEPARTMENT
160 CHERRY STREET
ASHVILLE, OHIO 43103
740-983-4053

WATERLINE SANITARY SEWER & STORM SEWER ONLY
200 EAST STATION STREET
ASHVILLE, OHIO 43103
740-983-6367
COLUMBIA GAS OF OHIO
MICHAEL PAULES
3550 JOHNNY APPLESEED COURT
COLUMBUS, OHIO 43231
740-466-5131

SPRINT
STEVEN HUGHES
11370 ENTERPRISE PARK DRIVE
SHARONVILLE, OHIO 45241
513-459-5796

SOUTH CENTRAL POWER
MICHAEL CHALFAN
PO BOX 250
LANCASTER, OHIO 43130

CHARTER COMMUNICATIONS/SPECTRUM
SAM LUTZ
3760 INTERCHANGE ROAD
COLUMBUS, OHIO 43204
614-481-5047

VERIZON BUSINESS
AL GUEST
120 RAVINE STREET
AKRON, OHIO 44303
330-253-8267

CONSTRUCTION NOISE:

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 7PM AND 7AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

SURVEYING PARAMETERS:

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL: CP-1

LOCAL PROJECT NORTH: 624,330.12 USFT
LOCAL PROJECT EAST: 1,839,207.96 USFT

POSITIONING METHOD:

GPS RTK AVERAGE, MULTIPLE OBSERVATIONS ON MULTIPLE DAYS OF ODOT VIRTUAL REFERENCE SYSTEM

MONUMENT TYPE:

8" STAINLESS STEEL SPIKE SET IN ASPHALT AT THE CENTERLINE INTERSECTION OF W. MAIN STREET AND LONG STREET.

VERTICAL POSITIONING:

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID 12

HORIZONTAL POSITIONING:

REFERENCE FRAME: NAD 83 (2011)
ELLIPSOID: GRS 80
MAP PROJECTION: OHIO SPC - SOUTH ZONE (3402)
COORDINATE SYSTEM: LOCAL
COMBINED SCALE FACTOR: 1.000000 (LOCAL GROUND)
ORIGIN OF COORDINATE SYSTEM: CP-1
LOCAL PROJECT NORTH: 624,330.12 USFT
LOCAL PROJECT EAST: 1,839,207.96 USFT

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

WORK LIMITS:

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

PROTECTION OF RIGHT-OF-WAY LANDSCAPING:

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT-OF-WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS). A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE.

CONSTRUCT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL, THE CONSTRUCTION LIMITS ARE IDENTIFIED AS 30 FEET FROM THE CENTERLINE OF PAVEMENT UNLESS OTHERWISE NOTED.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS, AS DEFINED ABOVE, WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

REMOVAL ITEMS:

UNLESS OTHERWISE INSTRUCTED, GUARDRAIL, POSTS, ASPHALT, CONCRETE, AND MISCELLANEOUS HARDWARE DESIGNATED FOR REMOVAL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE REMOVED ITEM.

ITEM 617 – WATER:

THIS ITEM IS A CONTINGENCY QUANTITY AND SHALL BE USED WHERE AND AS DIRECTED BY THE ENGINEER.

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 617 – WATER 1 MGAL

642-1 GENERAL:

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CURRENT EDITION). COPIES ARE AVAILABLE FROM:

THE OHIO DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC,
1980 WEST BROAD STREET
COLUMBUS, OHIO 43223

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL PERMANENT TRAFFIC CONTROLS NOT IN CONFLICT WITH THE TEMPORARY TRAFFIC CONTROLS SHALL BE MAINTAINED THROUGHOUT THIS PROJECT BY THE CONTRACTOR. PERMANENT TRAFFIC CONTROLS MAY BE TEMPORARILY RELOCATED BY THE ENGINEER. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED, AND IMPROPERLY PLACED SIGNS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

642-3 ITEM 614, MAINTAINING TRAFFIC (AT ALL TIMES):

A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, ITEM 502 STRUCTURE FOR MAINTAINING TRAFFIC, ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC, ITEM 615 ROADS FOR MAINTAINING TRAFFIC, AND TEMPORARY SURFACES USING ITEMS 410 AND 614.

642-6 ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS):

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO

CALCULATED
CHECKED

GENERAL NOTES

PIC-ASHVILLE-PED
IMPROVEMENT

3
10

TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR SPECIAL EVENTS:

NEW YEAR'S (OBSERVED)	GENERAL/REGULAR ELECTION DAY (NOV)
TOTAL SOLAR ECLIPSE (4/8/24)	THANKSGIVING
MEMORIAL DAY	CHRISTMAS (OBSERVED)
FOURTH OF JULY (OBSERVED)	(OTHER HOLIDAY OR SPECIAL EVENT)
LABOR DAY	

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR SPECIAL EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

<u>DAY OF HOLIDAY/SPECIAL EVENT</u>	<u>TIME ALL LANES MUST BE OPEN TO TRAFFIC</u>
SUNDAY	12:00N FRIDAY – 6:00AM MONDAY
MONDAY	12:00N FRIDAY – 6:00AM TUESDAY
MONDAY (TOTAL SOLAR ECLIPSE)	12:00N FRIDAY – 6:00AM WEDNESDAY
TUESDAY	12:00N MONDAY – 6:00AM WEDNESDAY
TUESDAY (GEN./REG. ELECTION)	5:00AM TUESDAY – 12:00AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY – 6:00AM THURSDAY
THURSDAY	12:00N WEDNESDAY – 6:00AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00AM WEDNESDAY – 6:00AM MONDAY
FRIDAY	12:00N THURSDAY – 6:00AM MONDAY
SATURDAY	12:00N FRIDAY – 6:00AM MONDAY

DURING THE SAME PERIODS, MAINTAIN PEDESTRIAN ACCESS IF PEDESTRIAN ACCESS WAS PRESENT PRIOR TO CONSTRUCTION.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE PER THE LANE VALUE CONTRACT (PN 127).

642-55 ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS:

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).
- FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:
 - ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND
 - AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND,
 - AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

“WITHOUT POSITIVE PROTECTION” MEANS USE OF DRUMS, CONES, SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS “WITHOUT POSITIVE PROTECTION”. FOR WORK ZONES USING A COMBINATION OF

BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:

- THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER; OR
- THE ACTIVE WORK AREA LATERALLY CLOSEST TO THE OPEN TRAVELED LANE; OR
- OTHER LOCATION AS APPROVED BY THE ENGINEER.

THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 40 HOURS. THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

642-58 NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION OF TRAFFIC RESTRICTIONS TIME TABLE

<u>ITEM</u>	<u>DURATION OF CLOSURE</u>	<u>NOTICE DUE TO PERMITS & PIO</u>
RAMP &	≥2 WEEKS	21 CAL. DAYS PRIOR TO CLOSURE
ROAD	>12 HOURS & <2 WEEKS	14 CAL. DAYS PRIOR TO CLOSURE
CLOSURES	≤12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE	≥2 WEEKS	14 CAL. DAYS PRIOR TO CLOSURE
CLOSURES & RESTRICTIONS	<2 WEEKS	5 BIZ. DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION		
& TRAFFIC PATTERN CHANGES	N/A	14 CAL. DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

USE OF STANDARD DRAWINGS:

FOR THE PURPOSE OF THIS PROJECT, “MOVING OPERATION” SHALL BE LIMITED TO PAVEMENT MARKING STRIPING. IT MAY BE NECESSARY TO EXTEND THE ADVANCE WARNING AND BUFFER ZONES BEYOND THE MINIMUM DISTANCES SHOWN ON THE STANDARD DRAWINGS. THIS MAY BE DUE TO HORIZONTAL ALIGNMENT, VERTICAL ALIGNMENT, RAMP LOCATIONS, OR OTHER SIGHT OBSTRUCTIONS. LOCATIONS OF THE TAPER ZONES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER, BUT TAPER LENGTHS MUST MEET THE MINIMUM STANDARDS. TAPERS SHOULD BE PLACED TANGENT SECTIONS WHENEVER POSSIBLE. ADDITIONAL YIELD SIGNS MAY BE REQUIRED FOR RAMPS WITHIN 1,000 FEET OF A WORK ZONE. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 MAINTAINING TRAFFIC.

FOR ANY MULTILANE HIGHWAY, DEVICE SPACING SHALL BE A MAXIMUM OF 40’ (FEET) CENTER ON CENTER IN THE TAPERS AND 80’ (FEET) CENTER ON CENTER IN THE TANGENT SECTIONS.

TRUCK MOUNTED ATTENUATOR – TWO LANE ROADS

WHEN WORKING IN A CLOSED LANE OR SHOULDER ON A TWO LANE HIGHWAY WITHOUT TEMPORARY OR PERMANENT TRAFFIC BARRIERS SEPARATING THE WORK AREA FROM THE TRAVELED LANE, A TRUCK MOUNTED ATTENUATOR (TMA) SHALL BE PROVIDED TO PROTECT EACH WORK AREA ACCORDANCE WITH OMUTCD TYPICAL APPLICATION (TA)4, TA 6 AND TA 17, ALONG WITH STANDARD CONSTRUCTION DRAWING (SCD) MT 97.10. THE TMA SHALL BE PLACED IN SUCH A WAY TO ADEQUATELY PROTECT THE WORKERS INSIDE THE WORK ZONE. THE TMA IS NOT INTENDED TO BE USED AS OR SUBSTITUTED FOR THE FLAGGERS AND/OR WARNING SIGNS AND DEVICES.

THE TMA SHALL MEET NCHRP 350 TEST LEVEL 3 CRITERIA FOR STANDARD AND OPTIONAL TESTS AT 100 KM/H (62 MPH) FOR DESIGN IMPACTS. THE COST FOR PROVIDING THE TMA SHALL INCLUDE ALL MATERIAL, LABOR, EQUIPMENT, AND HARDWARE REPLACEMENT AND IS TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 – MAINTAINING TRAFFIC.

SHEET NUMBER					PARTICIPATION	ITEM	ITEM EXT.	QUANT.	UNIT	DESCRIPTION	SEE SHEET
3	4	8	9	10	01/ENH/28						
										LIGHTING	
		1	1	1	3	625	10500	3	EACH	LIGHTING, MISC.: CITY, POLE, 12' BRACKET, T-BASE, 30' MH (MIS-300)	4
		4	2	1	7	625	10500	7	EACH	LIGHTING, MISC.: CITY, LUMINAIRE, LED, COBRA HEAD, 30' MH (MIS-800)	4
										TRAFFIC CONTROL	
			2	2	4	630	97700	4	EACH	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) PEDESTRIAN WARNING SIGN ASSEMBLY	4
			73	59	132	644	30030	132	FT	REMOVAL OF PAVEMENT MARKINGS	
			73	50	123	644	20030	123	FT	CROSSWALK LINE, 12", B-90	4
			60	43	103	647	20080	103	FT	CROSSWALK LINE, 24", B-90	
			34	8	42	647	20970	42	FT	YIELD MARKING, TYPE B-90	
										MAINTENANCE OF TRAFFIC	
	40				40	614	11110	40	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	4
										INCIDENTALS	
					LS	614	11000	LS		MAINTAINING TRAFFIC	3
1					1	617	25000	1	MGAL	WATER	

CALCULATED
CHECKED

GENERAL SUMMARY

**PIC-ASHVILLE-PED
IMPROVEMENT**

LUMINAIRE, COBRA HEAD, LED NOTES

APPLICATION

THE LED COBRA HEAD LUMINAIRE MAY BE USED FOR:

- 1) NEW INSTALLATION OF COBRA HEAD LUMINAIRES ON NEWLY PLACED POLES WHOSE SPACING HAS BEEN DESIGNED SPECIFICALLY FOR THE LUMINAIRE. STREET LIGHT DESIGNS USING PHOTOMETRIC SOFTWARE ARE REQUIRED FOR EACH LUMINAIRE. THE DESIGNER SHALL COMPLY WITH IESNA RP-08 (latest version).
- 2) REPLACING EXISTING HID LUMINAIRES ON EXISTING POLES WHERE SPACING REMAINS UNCHANGED.

LED GENERAL REQUIREMENTS

- A. CORRELATED COLOR TEMPERATURE (CCT): 3000K.
- B. COLOR RENDERING INDEX (CRI) : MINIMUM 70
- C. AMBIENT OPERATING ENVIRONMENT: -40°C TO +40°C (-40°F TO 104°F)
- D. VOLTAGE : 480V OR 120V AS SPECIFIED BY THE CITY OF COLUMBUS.

E. COOLING SYSTEM: PASSIVE HEAT SINK WITH NO FANS, PUMPS, OR LIQUIDS, AND SHALL BE RESISTANT TO DEBRIS BUILD-UP THAT DOES NOT DEGRADE HEAT DISSIPATION PERFORMANCE.

HOUSING / DOOR ASSEMBLY

THE HOUSING SHALL BE CONSTRUCTED OF DIE-CAST ALUMINUM AND BE RUST RESISTANT. PAINT FINISH SHALL BE POWDER-COATED GRAY, BLACK OR BRONZE OR AS DIRECTED BY THE CITY OF COLUMBUS DIVISION OF POWER. THE PAINT FINISH SHALL EXCEED A RATING OF SIX PER ASTM D 1654 AFTER 1000 HOURS OF TESTING PER B117. PAINTED OR FINISHED LUMINAIRE COMPONENTS EXPOSED TO THE ENVIRONMENT SHALL EXHIBIT NO GREATER THAN 30% REDUCTION OF GLOSS PER ASTM D523, AFTER 500 HOURS OF UV TESTING AT ASTM G154 CYCLE 6. LUMINAIRE HOUSING SHALL ALLOW TOOL-LESS ENTRY. ALL SCREWS SHALL BE STAINLESS STEEL. NO PARTS SHALL BE CONSTRUCTED OF POLYCARBONATES.

LUMINAIRE HOUSING SHALL BE PROVIDED WITH AN INTERNAL LEVEL BUBBLE TO AID IN INSTALLATION. LUMINAIRE DOOR SHALL BE EQUIPPED WITH A LATCHING ACCESS DOOR ASSEMBLY. THE DOOR SHALL BE SECURELY HINGED, AND INCAPABLE OF INVOLUNTARY SEPARATION FROM HOUSING. LUMINAIRE SHALL BE INSTALLED BY MEANS OF A SLIP-FITTER CONNECTION TO AN 2.0" IPS BRACKET. THE SLIP-FITTER SHALL INCLUDE MEANS FOR SECURELY ATTACHING THE LUMINAIRE AND SHALL ALSO PROVIDE FOR TILT ADJUSTMENTS 5° ABOVE AND BELOW HORIZONTAL. THE SLIP-FITTER SHALL BE TOTALLY ENCLOSED IN LUMINAIRE HOUSING.

LED POWER SUPPLY / DRIVER

- A) POWER FACTOR, MINIMUM 0.90
- B) DRIVER OUTPUT CURRENT, mA VARIABLE
- C) DIMMING SIGNAL, CONTROL RANGE, VDC 0 TO 10

D) LED DRIVER SHALL BE MOUNTED INSIDE THE HOUSING, REPLACEABLE, AND SHALL BE PRE-WIRED TO 480V OR 120V READY FOR INSTALLATION. DRIVER AND LED ARRAYS SHALL BE DESIGNED FOR MULTI-CURRENT INPUT OPERATIONS WITH 0-10V DRIVER ADJUSTABLE OUTPUT. THE LED DRIVER SHALL COMPLY WITH FCC RULES AND REGULATIONS, TITLE 47 CFR PART 15 NON-CONSUMER (CLASS A). LED DRIVER SHALL TOLERATE SUSTAINED OPEN CIRCUIT AND SHORT CIRCUIT OUTPUT CONDITIONS WITHOUT DAMAGE. LED DRIVER SHALL HAVE AN INDEPENDENTLY VERIFIED AND DOCUMENTED FAILURE RATE OF < 0.01% PER 1000 HOURS. WIRING INSIDE THE HOUSING SHALL COMPLY WITH 600V/105°C RATING OR HIGHER. THE LED DRIVER SHALL HAVE A "CLASS A" SOUND RATING. POWER SUPPLY/DRIVER SHALL BE UL RECOGNIZED FOR DRY AND DAMP LOCATIONS. ALL OTHER ELECTRICAL COMPONENTS SHALL BE UL LISTED OR RECOGNIZED FOR WET LOCATIONS. OUTPUT OPERATING FREQUENCY MUST BE > 120HZ AND INPUT OPERATING FREQUENCY OF 60 HZ. THE LED DRIVER SHALL BE RoHS COMPLIANT.

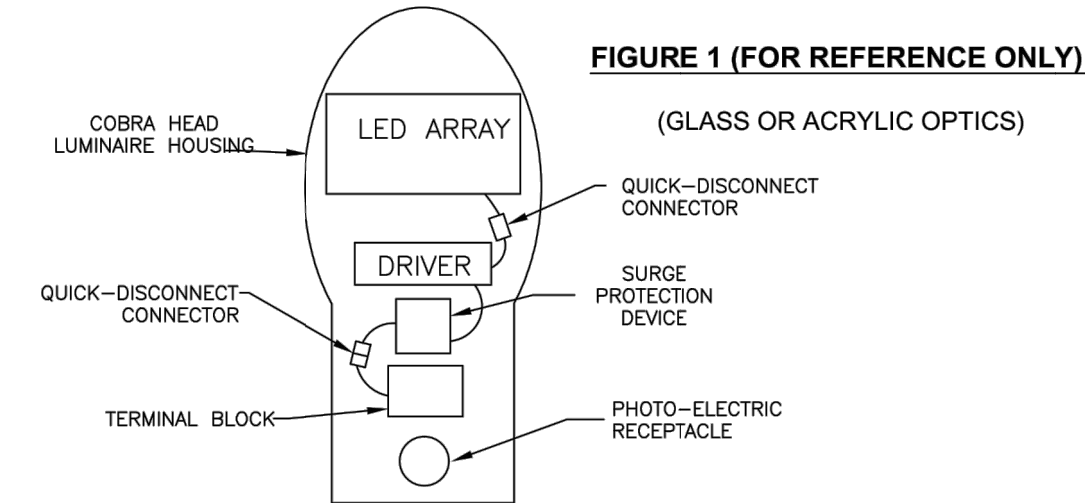
LED SURGE PROTECTION DEVICE

THE SURGE PROTECTION DEVICE SHALL COMPLY WITH ANSI C136.37, AND ANSI/IEEE C62.41.2. EACH SURGE PROTECTION DEVICE SHALL BE INTERNALLY MOUNTED INSIDE HOUSING AND SPECIFIED FOR 480V OR 120V OPERATION WITH A MINIMUM 10 KV/5KA SURGE PROTECTION. THE SURGE PROTECTION DEVICE SHALL BE A UL 1449 4TH EDITION TYPE 4 RECOGNIZED COMPONENT FOR USE IN TYPE 2 LOCATIONS

LUMINAIRE, COBRA HEAD, LED NOTES & DETAIL

LED MODULE / ARRAY REQUIREMENTS

LED MODULE(S)/ARRAY(S) SHALL DELIVER A MINIMUM OF 70% OF INITIAL LUMENS WHEN INSTALLED FOR 100,000 HOURS AND MEET L70 STANDARDS. LIGHTING DISTRIBUTION SHALL BE IN ACCORDANCE WITH "IESNA LIGHTING DISTRIBUTIONS". LAMP LUMEN DEPRECIATION FACTOR SHALL BE SUPPORTED BY TM-21 DATA @ 25 °C FOR 50,000 HOURS. LUMINAIRE DIRT DEPRECIATION(LDD) SHALL BE 0.85 FOR UV STABILIZED ACRYLIC OPTICS AND 0.90 FOR GLASS OPTICS. IT IS THE RESPONSIBILITY OF EACH MANUFACTURER TO PROVIDE A CALCULATION OF LAMP LUMEN DEPRECIATION(LLD). LIGHT LOSS FACTOR USED IN PHOTOMETRIC LAYOUT CALCULATIONS SHALL BE THE PRODUCT OF LDD AND THE MANUFACTURER'S PROJECTED LAMP LUMEN DEPRECIATION AT 100,000 HOURS AT 25°C AMBIENT TEMPERATURE. LUMEN MAINTENANCE SHALL BE A MINIMUM OF 70% OVER 100,000 HOURS OF LIFE WHEN OPERATING AT TEMPERATURES OF 40°C (104°F) OR LESS. OPTICAL SYSTEM COMPONENTS SHALL BE RATED AT IP66 TO PROTECT AGAINST WATER, DIRT, AND INSECT INFILTRATION, AND BE RoHS COMPLIANT. LUMINAIRE CIRCUITRY SHALL INCLUDE QUICK CONNECT/DISCONNECT FOR EASY SEPARATION. SEE FIGURE 1.



THE MINIMUM OPTICAL PERFORMANCE IS DEFINED BY THE APPLICATION INSTALLATION IN CONJUNCTION WITH THE "CITY OF COLUMBUS, DIVISION OF POWER GUIDELINES FOR STREET LIGHTING CIRCUIT LAYOUT".

7-PIN PHOTO-ELECTRIC RECEPTACLE

THE LUMINAIRE SHALL BE FURNISHED WITH A 7-PIN PHOTO-ELECTRIC RECEPTACLE INSTALLED IN THE TOP OF THE LUMINAIRE HOUSING. THE RECEPTACLE SHALL BE TWIST LOCK TYPE, AND HAVE THE CAPABILITY TO BE DIRECTIONALLY ADJUSTED. THE 7-PIN PHOTO -ELECTRIC RECEPTACLE SHALL BE SUITABLE FOR OPERATION WITH LED LUMINAIRES, AND CONFORM TO ANSI DESIGN STANDARD C136.10. THE PHOTO-ELECTRIC SOCKET SHALL ACCOMMODATE DIMMING AND/OR AUTOMATION INTEGRATION.

7-PIN LONG LIFE PHOTO CONTROL (AS REQUIRED BY THE ENGINEER)

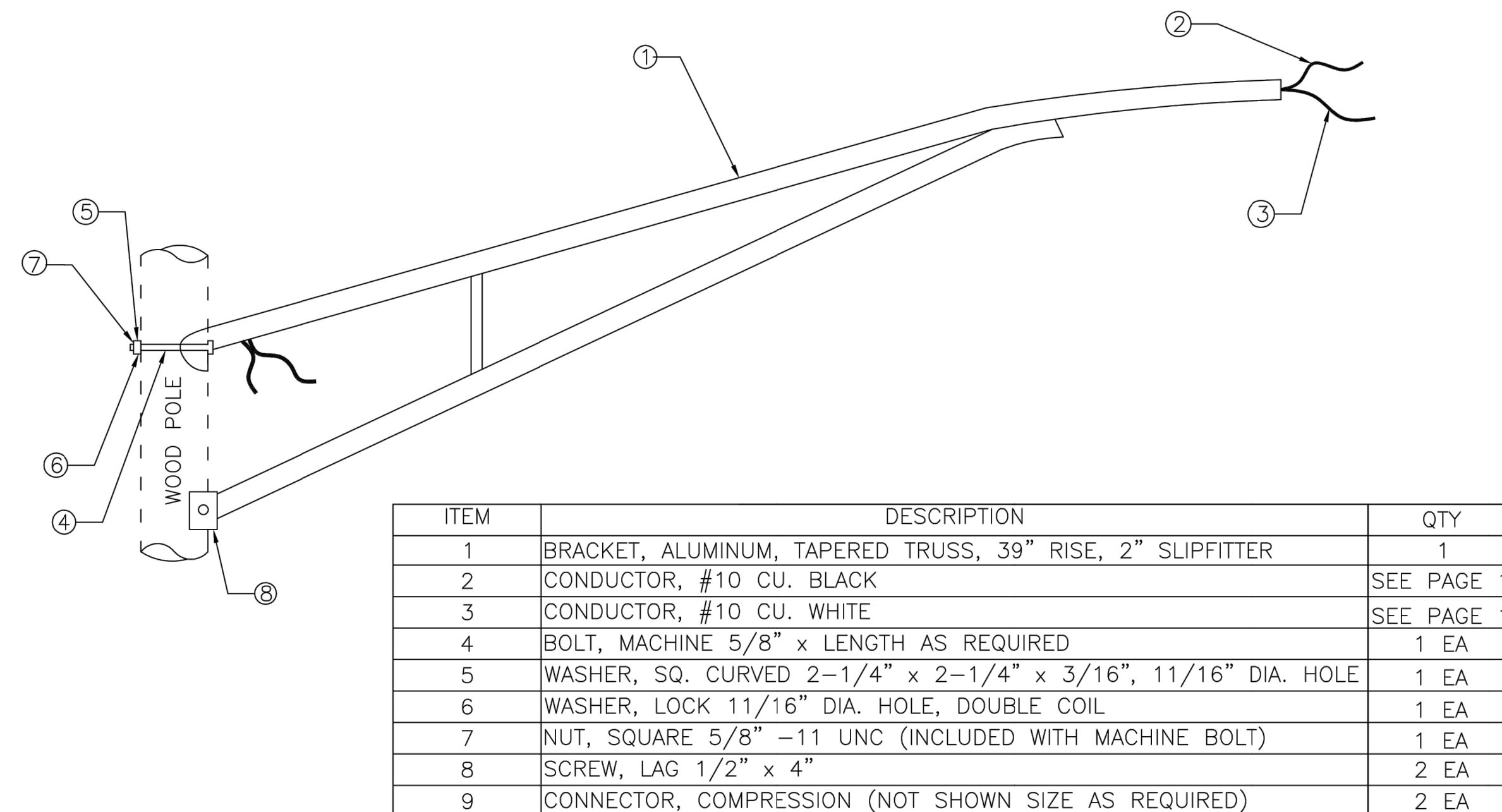
THE LUMINAIRE SHALL BE SUPPLIED WITH A "LONG LIFE" PHOTO CONTROL THAT SHALL BE SOLID STATE, & SUITABLE FOR USE WITH 7-PIN PHOTO CONTROL RECEPTACLES AND LED LUMINAIRES. THE PHOTO CONTROL SHALL HAVE A MINIMUM DESIGN LIFE OF 20 YEARS.

SHORTING CAP FOR 7-PIN LED PHOTO-ELECTRIC RECEPTACLE (480 V LUMINAIRE ONLY)
THE LUMINAIRE SHALL BE SUPPLIED WITH A SHORTING CAP SUITABLE FOR OPERATION WITH A 7-PIN LED PHOTO ELECTRIC RECEPTACLE. THE SHORTING CAP SHALL CONTAIN A GASKET AROUND THE OUTER PERIMETER OF THE CAP FOR PROPER SEALING AGAINST DEBRIS. THE SHORTING CAP SHALL MEET OR EXCEED ANSI DESIGN STANDARD ANSI C136.10.

TESTING / CERTIFICATION / STANDARDS / RECOMMENDED PRACTICES

THE LUMINAIRE SHALL COMPLY WITH THE FOLLOWING STANDARDS:

- A) ANSI C136:31 2010 (or latest) FOR 100,000 CYCLES AT 3G ACCELERATION FOR NORMAL ROAD AND BRIDGE APPLICATIONS.
- B) UL/CUL LISTED, SUITABLE FOR WET LOCATIONS PER UL 1598 OR CSA C22.2 NUMBER 250.
- C) THE LED OPTICAL ASSEMBLY AND DRIVER SHALL BE IP66 RATED PER IEC60529.
- D) LUMINAIRE COMPONENTS AND APPLIED FINISHES SHALL COMPLY WITH THE 1000 HOUR SALT/FOG TEST PER ASTM B117 STANDARD.
- E) LM-79 OPTICAL PERFORMANCE TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH IESNA STANDARD PRACTICES FOR SOLID STATE LIGHTING
- F) LUMINAIRE SHALL BE CERTIFIED WITH A BUG RATING (BACKLIGHT, UPLIGHT, GLARE)
- G) IESNA LM-80-15 (or latest) P) ANSI C78.377-2008 (or latest)
- H) ANSI C136.41-2013 (or latest) Q) TM-21-11 (or latest)
- I) ANSI C136.37 2011 (or latest) R) ASTM D1654-08 (or latest)
- J) ANSI C136.22 -2004 (or latest) S) IES LM-79 (latest version)
- K) IEC 60529 (or latest) T) UL 1449 (Surge Protection Devices)
- L) IEEE C62.41.2-2002 (or latest)
- M) IESNA TM-15-11 (or latest)
- N) RoHS
- O) ANSI C136.10-2010 (or latest)

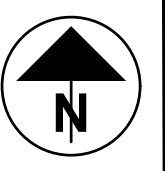


ALUMINUM BRACKET DETAIL

-NOT TO SCALE-

LIGHTING NOTE:

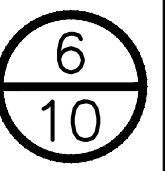
BRACKET AND COBRA HEAD LED NOTES AND DETAILS ARE FOR REFERENCE ONLY. INSTALLATION AND EXACT SPECIFICATIONS TO BE DETERMINED BY SOUTH CENTRAL POWER. CONTRACTOR TO COORDINATE INSTALLATION TIMELINE WITH POWER COMPANY.



CALCULATED
CHECKED

LIGHTING AND RRFB DETAILS

PIC-ASHVILLE-PED
IMPROVEMENT



RECTANGULAR RAPID FLASHING BEACON NOTES

ITEM 630 SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) PEDESTRIAN WARNING SIGN ASSEMBLY

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING PEDESTRIAN CROSSING WARNING SIGN ASSEMBLIES WITH SOLAR POWERED RECTANGULAR RAPID FLASHING BEACONS (RRFB). THE FLASHING UNITS SHALL BE LED, SOLAR POWERED, AND PEDESTRIAN ACTIVATED. MULTIPLE UNITS SHALL BE WIRELESSLY CONTROLLED AND SYNCHRONIZED.

PLAN AND SPECIFICATION COMPLIANCE

THE CONTRACTOR SHALL FURNISH AND INSTALL RECTANGULAR RAPID FLASHING BEACONS IN ACCORDANCE WITH THE STANDARDS SPECIFIED IN THE FOLLOWING DOCUMENTS. ODOT SHALL DETERMINE WHETHER THE SUPPLIED ITEMS MEET OR EXCEED THESE SPECIFICATIONS.

- (A) FHWA MUTCD INTERIM APPROVAL 21 - RECTANGULAR RAPID-FLASHING BEACONS AT CROSSWALKS (IA-21)
- (B) OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS
- (C) SPECIFICATIONS LISTED IN THIS PLAN
- (D) 2018 CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS
- (E) CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS

IN CASE OF A CONFLICTING SPECIFICATION STATEMENT, THE SPECIFICATION DOCUMENT HIERARCHY SHALL BE IN THE ORDER LISTED FROM (A) HIGHEST, TO (E) LOWEST.

GENERAL REQUIREMENTS

EACH RRFB LIGHT BAR UNIT SHALL CONSIST OF TWO RAPIDLY AND ALTERNATELY FLASHING RECTANGULAR YELLOW INDICATIONS HAVING LED ARRAY BASED PULSING LIGHT SOURCES. EACH PEDESTRIAN WARNING SYSTEM SHALL CONSIST OF, BUT NOT NECESSARILY BE LIMITED TO SIGNAGE, SIGN MOUNTING HARDWARE, PUSHBUTTONS, RRFB INDICATIONS, SOLAR PANELS, AND OTHER ELECTRICAL COMPONENTS (WIRING, SOLID-STATE CIRCUIT BOARDS, ETC.). SIGN SUPPORTS AND FOUNDATIONS ARE NOT INCLUDED IN THIS ITEM OF WORK AND SHALL BE PAID FOR SEPARATELY.

THE FOLLOWING MODELS ARE APPROVED BY ODOT AS MEETING THESE SPECIFICATIONS:

- 1.) CARMANAH R920-F
- 2.) OR APPROVED EQUAL

FUNCTIONAL REQUIREMENTS

EACH RRFB UNIT SHALL UTILIZE SOLAR POWER. RRFB UNITS SHALL BE ACTIVATED BY ADA-COMPLIANT PUSHBUTTONS. THE RRFB UNITS SHALL BE NORMALLY DARK AND SHALL INITIATE OPERATION ONLY UPON PEDESTRIAN ACTUATION.

RRFB FLASH DURATION SHALL BE SET TO THE FOLLOWING VALUES: 18 SECONDS

EACH REMOTE RRFB UNIT (THE UNIT ON OPPOSITE SIDE OF STREET FROM EACH PUSHBUTTON) SHALL BE WIRELESSLY ACTIVATED. EACH UNIT SHALL BE LOW CURRENT/HIGH OUTPUT INCLUDING AUTOMATIC DIMMING CAPABILITIES FOR DAY AND NIGHT VISIBILITY. THE UNITS SHALL BE CAPABLE OF RUNNING UP TO 30 DAYS WITHOUT SUNLIGHT. IF VOLTAGES OVER 50V AC OR DC ARE PRESENT, GROUNDING AND BONDING REQUIREMENTS SPECIFIED IN THE CMSC SHALL BE FOLLOWED.

MATERIALS

FURNISH A COMPLETE SYSTEM FOR EACH PEDESTRIAN CROSSING INDICATED IN THE PLANS. THE SYSTEM INCLUDES THE FOLLOWING ITEMS:

1. RRFB INDICATIONS

- A. EACH RRFB INDICATION LENS SHALL BE A MINIMUM SIZE OF APPROXIMATELY 5" WIDE X 2" HIGH.
- B. THE TWO RRFB INDICATIONS FOR EACH UNIT SHALL BE ALIGNED HORIZONTALLY, WITH THE LONGER DIMENSION OF THE INDICATION HORIZONTAL. THERE SHALL BE TWO INDICATIONS ON THE FRONT AND TWO INDICATIONS ON THE BACK.
- C. EACH RRFB SHALL BE SUPPLIED WITH ALL REQUIRED HARDWARE TO INSTALL THE ASSEMBLY. ALL EXPOSED HARDWARE SHALL BE ANTI-VANDAL.
- D. EACH RRFB UNIT SHALL BE LOCATED BETWEEN THE BOTTOM OF THE CROSSING WARNING SIGN AND THE TOP OF THE SUPPLEMENTAL DOWNWARD DIAGONAL ARROW PLAQUE OR THE AHEAD PLAQUE IF USED ON AN ADVANCE SIGN ASSEMBLY.
- E. THE LIGHT INTENSITY OF THE YELLOW INDICATIONS SHALL MEET THE MINIMUM SPECIFICATIONS FOR CLASS 1 YELLOW PEAK LUMINOUS INTENSITY OF SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) STANDARD J595 (DIRECTIONAL FLASHING OPTICAL WARNING DEVICES FOR AUTHORIZED EMERGENCY, MAINTENANCE, AND SERVICE VEHICLES) DATED JANUARY 2005.
- F. A SMALL CONFIRMATION LIGHT DIRECTED AT AND VISIBLE TO PEDESTRIANS IN THE CROSSWALK SHALL BE INSTALLED INTEGRAL TO THE RRFB OR PUSHBUTTON TO GIVE CONFIRMATION THAT THE RRFB IS IN OPERATION.

2. SIGNS

- A. ALL SIGN ASSEMBLIES SHALL USE ANTI-VANDAL FASTENERS TO MOUNT COMPONENTS TO SIGN AND SIGN TO FIXTURE.
- B. SIGNS SHALL BE REQUIRED FOR VIEW FROM EACH APPROACH AS SHOWN ON THE PLAN.
- C. UNLESS MOUNTED BACK-TO-BACK WITH ANOTHER SIGN, THE BACK OF EACH SIGN AND ALL VISIBLE ELEMENTS OF SIGN MOUNTING HARDWARE, EXCLUDING THE BANDING, SHALL BE COATED TO MATCH ITS RESPECTIVE SUPPORT. NUTS AND BOLTS NEED NOT BE PAINTED. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS, AND IN ACCORDANCE WITH ALL MANUFACTURER RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING, AND APPLICATION. PRIOR TO PAINTING, A PAINT SAMPLE SHALL BE SUBMITTED FOR REVIEW.

3. CONTROL CIRCUIT

- A. WHEN ACTIVATED, THE TWO YELLOW INDICATIONS IN EACH RRFB SHALL FLASH IN A RAPIDLY ALTERNATING "WIG-WAG" SEQUENCE.
- B. ALL RRFB UNITS ASSOCIATED WITH A GIVEN CROSSING (INCLUDING ADVANCE UNITS IF APPLICABLE) SHALL, UPON ACTIVATION, SIMULTANEOUSLY COMMENCE FLASHING AND SHALL SIMULTANEOUSLY CEASE FLASHING.
- C. THE CONTROL CIRCUIT SHALL HAVE THE CAPABILITY OF INDEPENDENTLY FLASHING UP TO TWO INDEPENDENT OUTPUTS. THE LED LIGHT OUTPUTS AND FLASH PATTERN SHALL BE COMPLETELY PROGRAMMABLE.
- D. THE FLASH PATTERN AND DURATION OF THE RRFB INDICATIONS SHALL MEET THE REQUIREMENTS OF FHWA MUTCD INTERIM APPROVAL 21.
- E. THE CONTROL CIRCUIT SHALL BE SEALED WATERTIGHT TO ELIMINATE DIRT CONTAMINATION AND ALLOW SAFE HANDLING IN ALL WEATHER CONDITIONS.
- F. THE I-EDS SHALL BE SEALED AGAINST DUST AND MOISTURE INTRUSION AS PER THE REQUIREMENTS OF NEMA STANDARD 250-1991 FOR TYPE 4 ENCLOSURES AND TO PROTECT ALL INTERNAL LED AND ELECTRICAL COMPONENTS.

4. BATTERY AND SOLAR PANELS

- A. THE SOLAR PANEL AND CONTROLLER MANUFACTURER WILL PROVIDE SIGNED COPIES OF CALCULATIONS USED TO SIZE THE SOLAR PANEL AND BATTERIES. INCLUDED IN THESE CALCULATIONS WILL BE THE INSOLATION VALUE USED AND ITS SOURCE, THE SOLAR PANEL EFFICIENCY, PROPOSED LED LAMP LOAD, AND A FIGURE REPRESENTING ANTICIPATED MISCELLANEOUS LOSSES.
- B. THE SOLAR PANEL MANUFACTURER MUST TEST EACH PANEL ACCORDING TO IEC6215 OR EQUIVALENT APPROVED STANDARD. SOLAR PANEL MOUNTING MUST BE RATED FOR 90 MPH DESIGN WIND.
- C. EACH BATTERY UNIT SHALL BE A 12 VDC, 34 AHR MINIMUM, SEALED GEL OR ACM LEAD ACID BATTERY. BATTERIES SHALL HAVE WRITTEN TWO-YEAR FULL REPLACEMENT WARRANTY.
- D. FOUR (4) BATTERIES SHALL BE PROVIDED PER SOLAR ENGINE.
- E. THE SOLAR PANEL SHALL PROVIDE A MINIMUM OF 55 WATTS PEAK TOTAL OUTPUT.
- F. THE SOLAR PANEL SHALL BE MOUNTED TO AN ALUMINUM PLATE AND BRACKET (COATED TO MATCH THE SUPPORT POLE) AND ANGLED TO PROVIDE MAXIMUM OUTPUT.
- G. ALL FASTENERS USED SHALL BE ANTI-VANDAL.

5. WIRELESS RADIO

- A. RADIO CONTROL SHALL OPERATE ON A 900 MHZ FREQUENCY HOPPING SPREAD SPECTRUM NETWORK, WI-FI, OR APPROVED EQUAL.
- B. RADIO SHALL INTEGRATE COMMUNICATION OF RRFB CONTROL CIRCUIT TO ACTIVATE SIGN FROM PUSHBUTTON INPUT.
- C. THE RADIO SHALL BE SYNCHRONIZED SO ALL OF THE REMOTE RRFB LIGHT INDICATIONS WILL TURN ON WITHIN 120 MSEC OF EACH OTHER AND REMAIN SYNCHRONIZED THROUGHOUT THE DURATION OF THE FLASHING CYCLE.

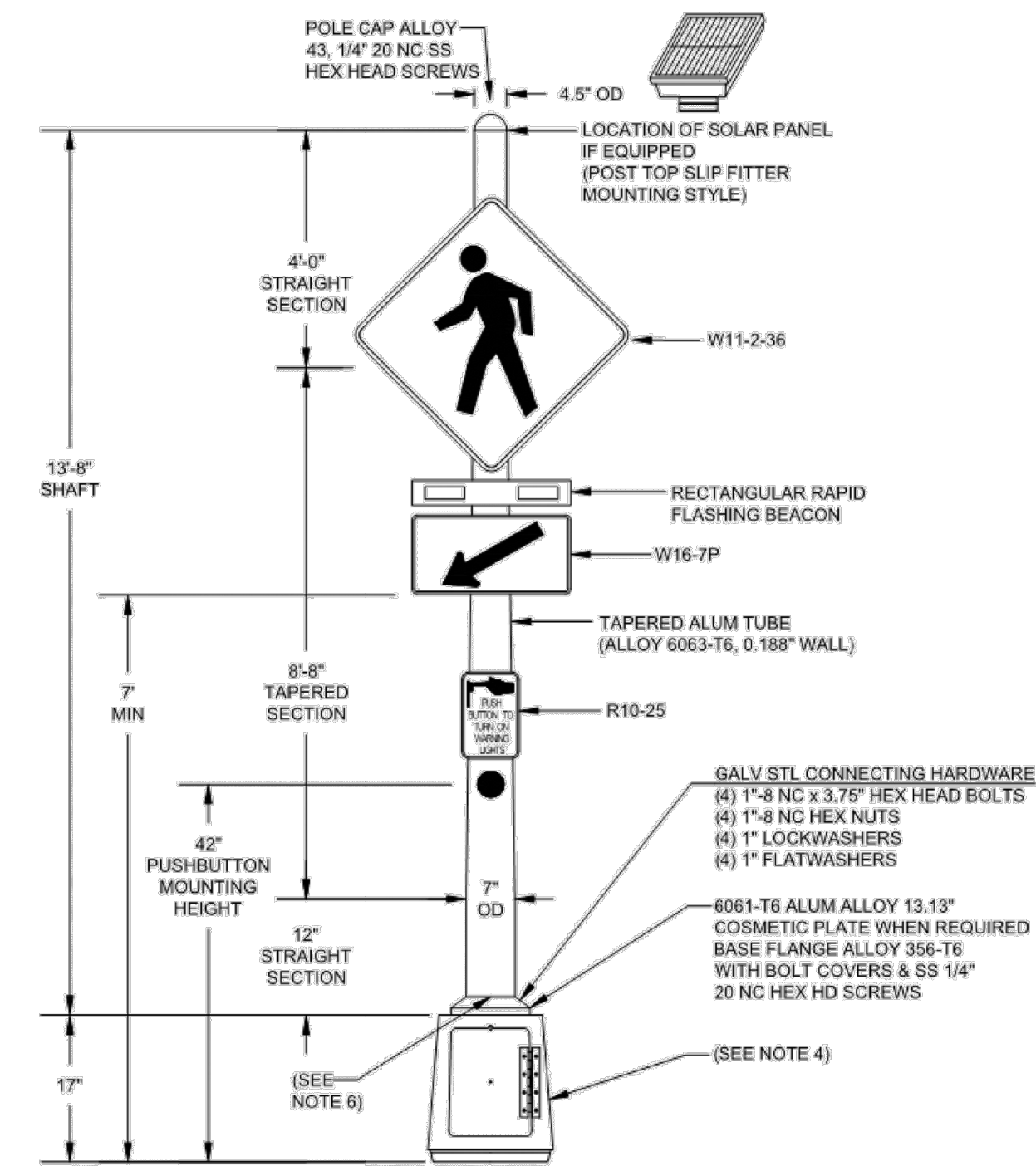
6. PUSHBUTTON AND PUSHBUTTON SIGNS

- A. PUSHBUTTONS SHALL BE PER CMSC 732.06 AND THE CITY'S TRAFFIC QUALIFIED PRODUCTS LIST. ONE SIGN (RIO-25-9) SHALL BE SUPPLIED AND MOUNTED WITH EACH PUSHBUTTON. THE BOTTOM OF THE SIGN SHALL BE MOUNTED JUST ABOVE THE TOP OF THE PUSHBUTTON. MOUNT THE CENTER OF THE PUSHBUTTON 42" ABOVE THE PEDESTRIAN PATHWAY SURFACE.

INSTALLATION

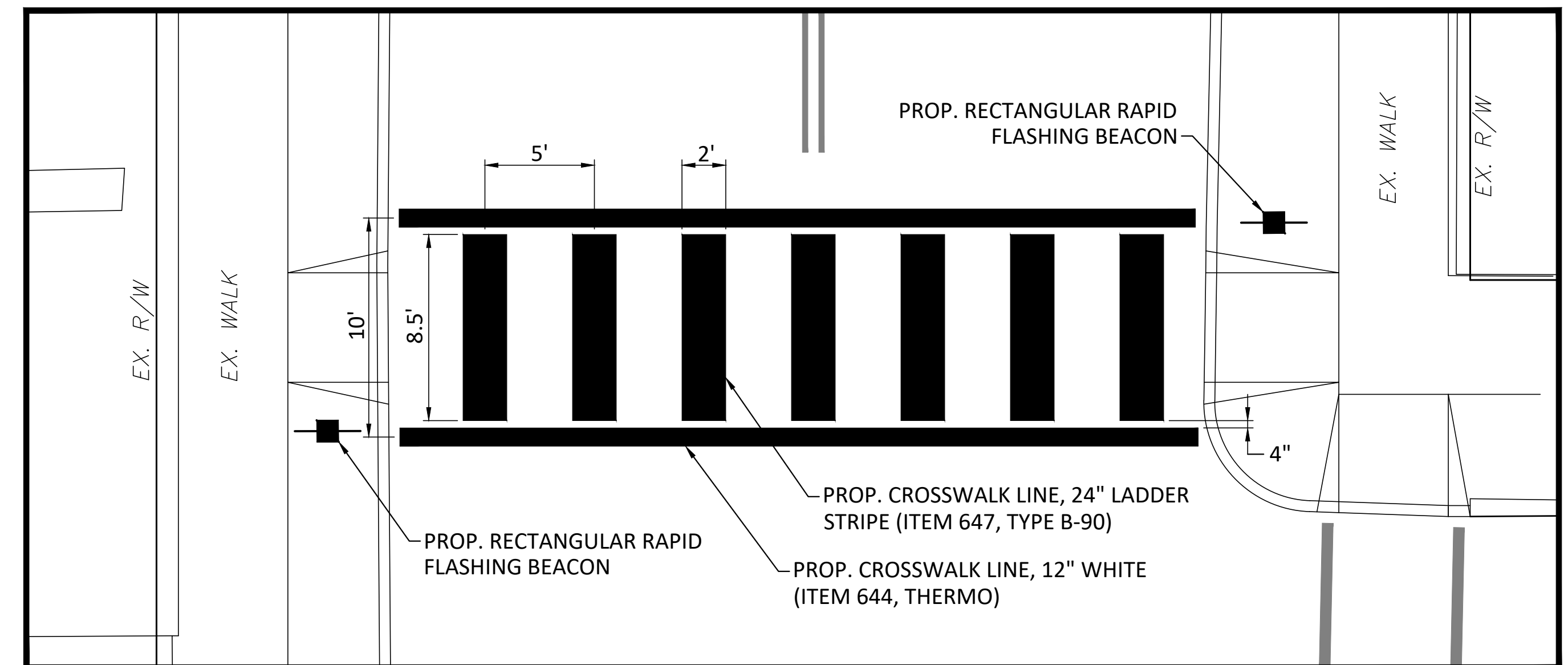
THE RECTANGULAR RAPID FLASHING BEACONS, SIGNS, AND PUSHBUTTONS SHALL REMAIN COVERED UNTIL THE INSTALLATION HAS BEEN INSPECTED BY ODOT FOR INSTALLATION DEFECTS, CONFLICTS, AND SAFETY HAZARDS. ANYTIME THE RRFB IS OUT OF OPERATION, THE CROSSWALK SHALL BE CLOSED USING SIGNS, DETOURS, AND BARRICADES TO PREVENT USE OF THE CROSSWALK. UPON APPROVAL BY ODOT, THE CONTRACTOR SHALL UNCOVER THE RRFB UNITS, SIGNS, AND PUSHBUTTONS AND OPEN THE CROSSWALK FOR USE.

PAYMENT SHALL BE PER THE UNIT PRICE BID FOR ITEM 630 SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) PEDESTRIAN WARNING SYSTEM AND SHALL INCLUDE THE PEDESTRIAN CROSSING SIGNS, PUSHBUTTONS AND PUSHBUTTON SIGNS, ALL EQUIPMENT RELATED TO THE RECTANGULAR RAPID FLASHING BEACONS, ALL COVERINGS SPECIFIED, AND ALL LABOR NECESSARY TO CONSTRUCT AND INSTALL A FULLY FUNCTIONING RRFB SYSTEM PER EACH PEDESTRIAN CROSSING INDICATED IN THE PLANS.



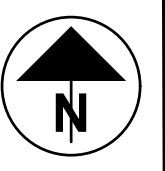
RECTANGULAR RAPID FLASHING BEACON DETAIL

-NOT TO SCALE-



RECTANGULAR RAPID FLASHING BEACON CROSSING DETAIL

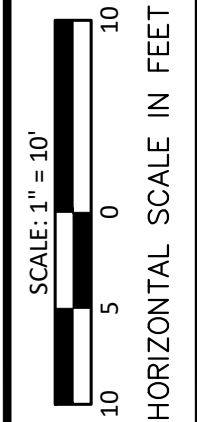
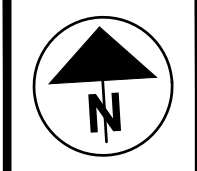
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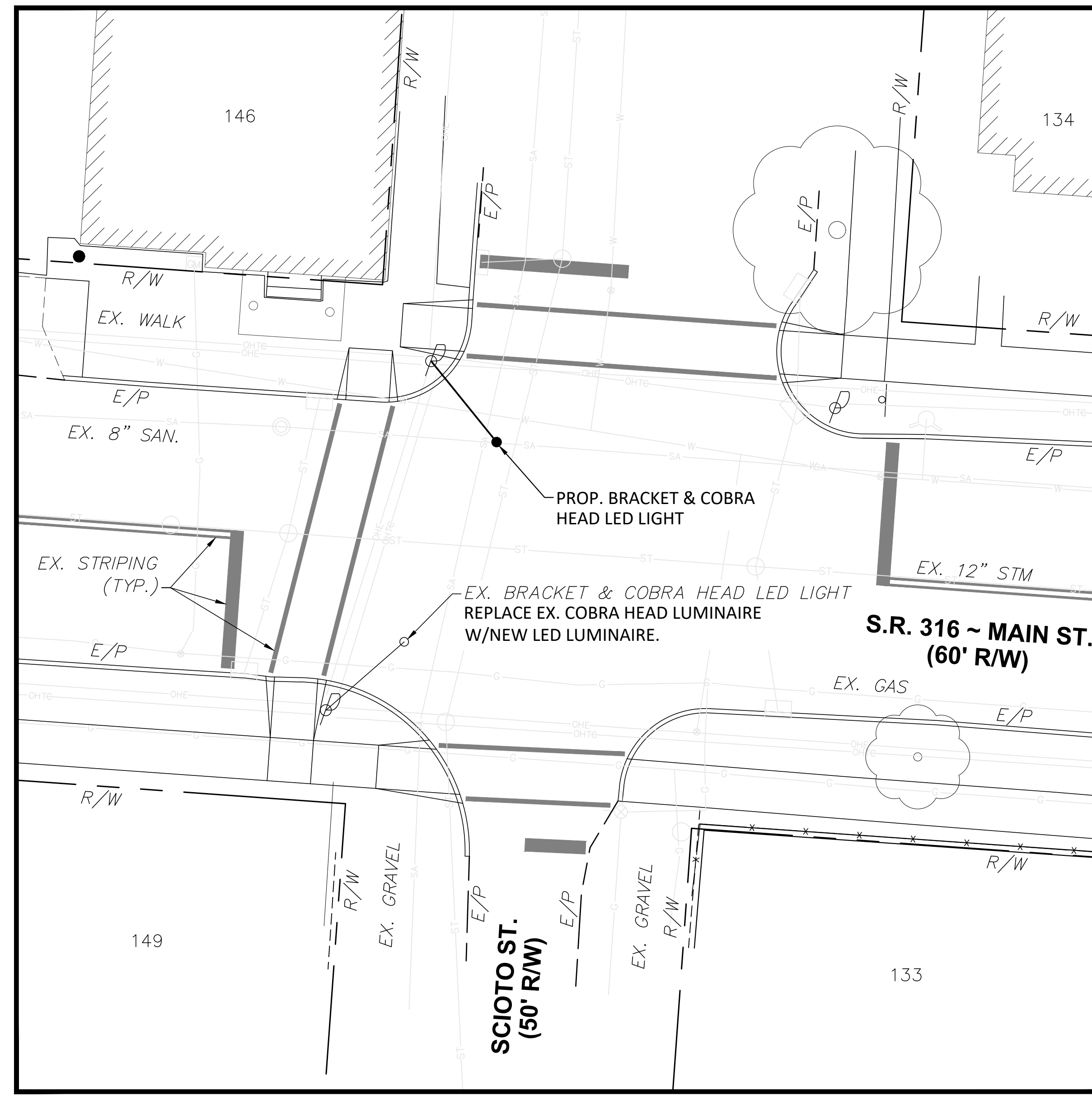
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LIGHTING AND RRFB DETAILS

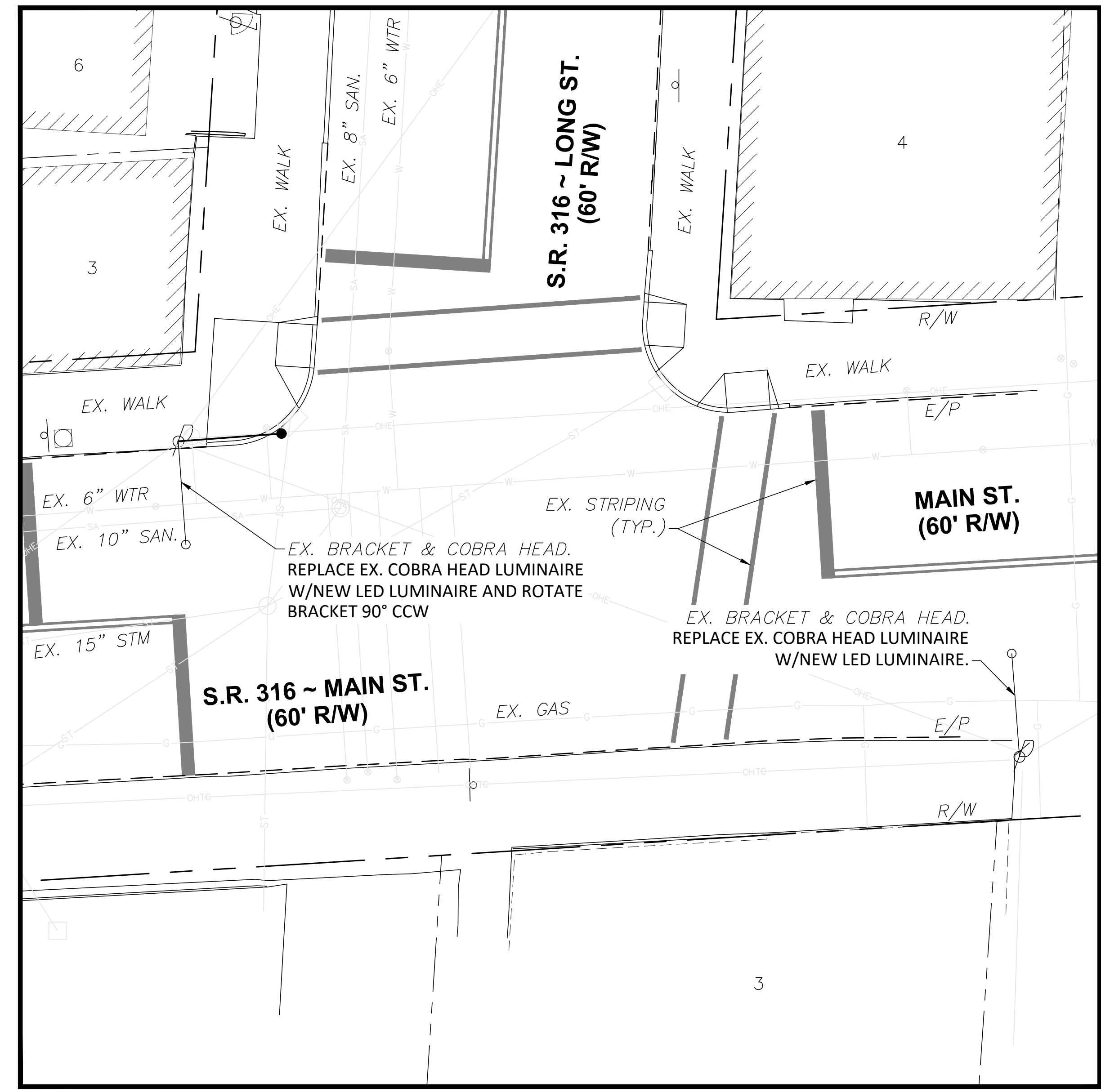
PIC-ASHVILLE-PED IMPROVEMENT



CALCULATED
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





**MAIN STREET AND SCIOTO STREET INTERSECTION
SITE 1**

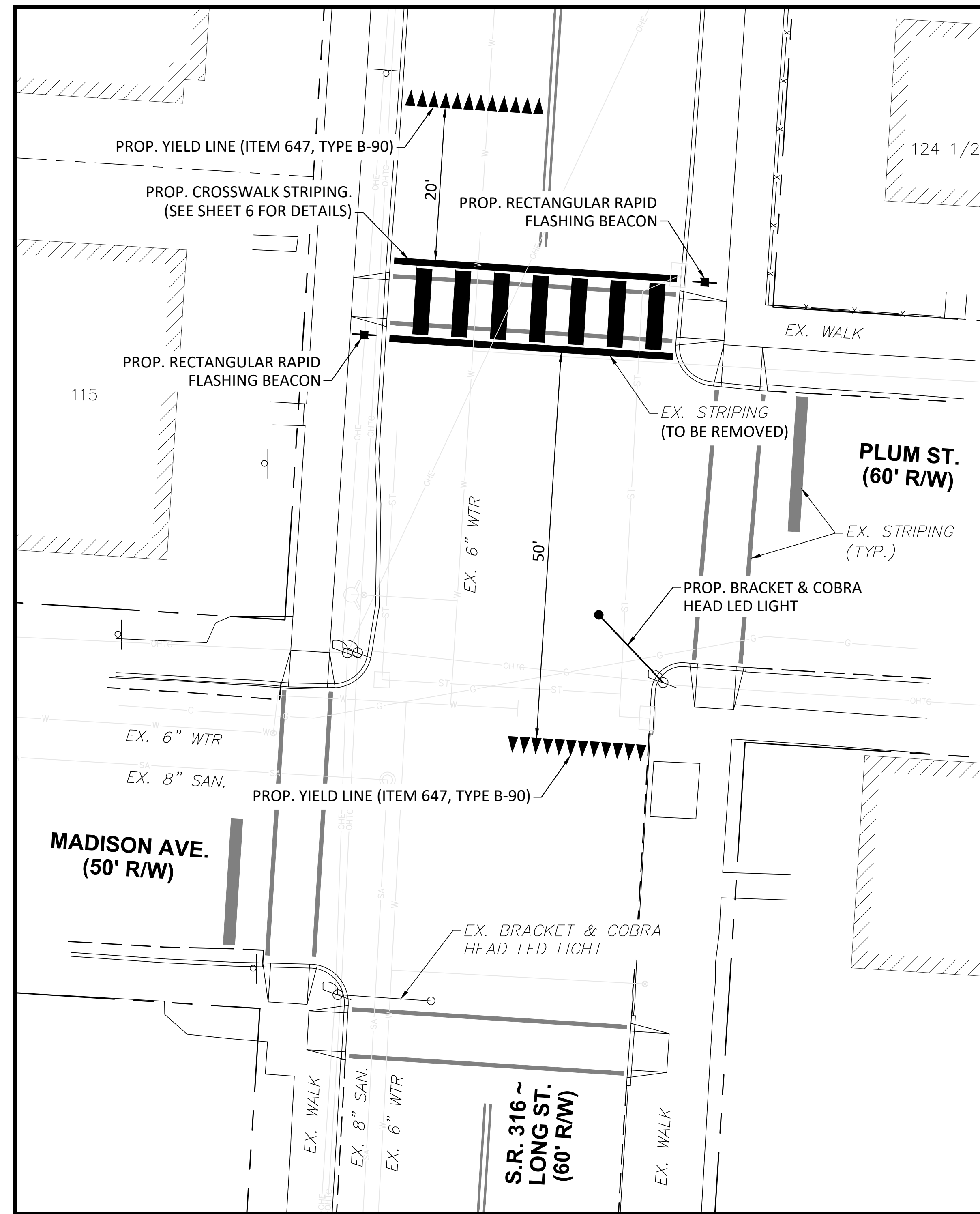


**MAIN STREET AND LONG STREET INTERSECTION
SITE 2**

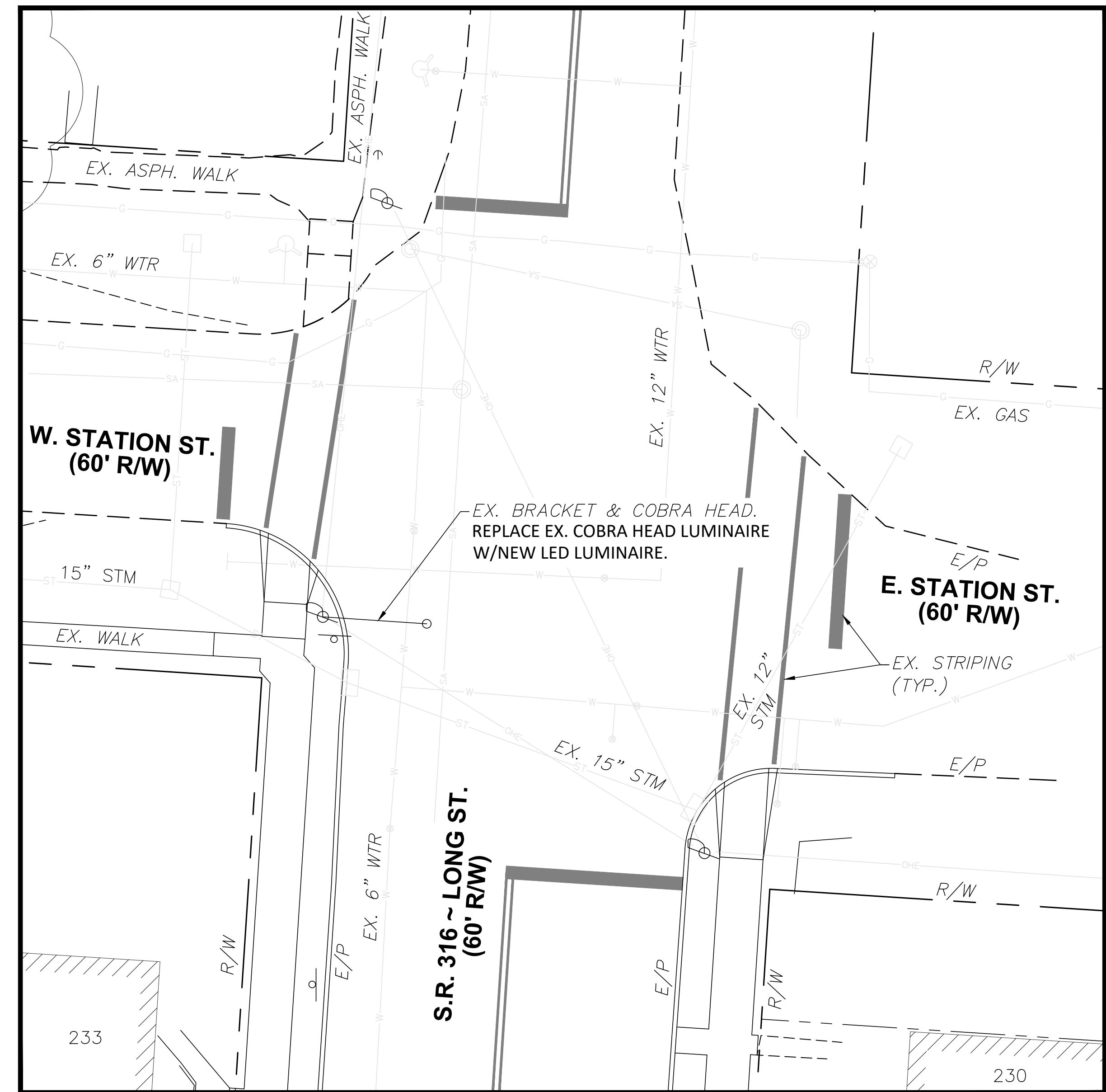
STREET LIGHTING NOTE:
CONTRACTOR TO COORDINATE THE INSTALLATION OF STREET LIGHTING WITH SOUTH CENTRAL POWER.

CIRCUIT SCHEMATIC LEGEND

-  PROPOSED LIGHT BRACKET & COBRA HEAD LUMINAIRE
-  PROPOSED RECTANGULAR RAPID FLASHING BEACON
-  EXISTING OVERHEAD ELECTRIC
-  EXISTING OVERHEAD TELEPHONE & CABLE
-  EXISTING POWER POLE
-  EXISTING LIGHT POLE
-  EXISTING COBRA HEAD LIGHT



LONG STREET AND PLUM STREET INTERSECTION
SITE 3

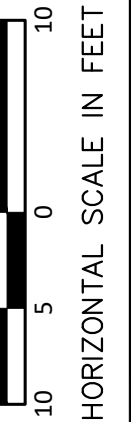


LONG STREET AND STATION STREET INTERSECTION
SITE 4

STREET LIGHTING NOTE:
CONTRACTOR TO COORDINATE THE INSTALLATION OF STREET LIGHTING WITH SOUTH CENTRAL POWER.

CIRCUIT SCHEMATIC LEGEND

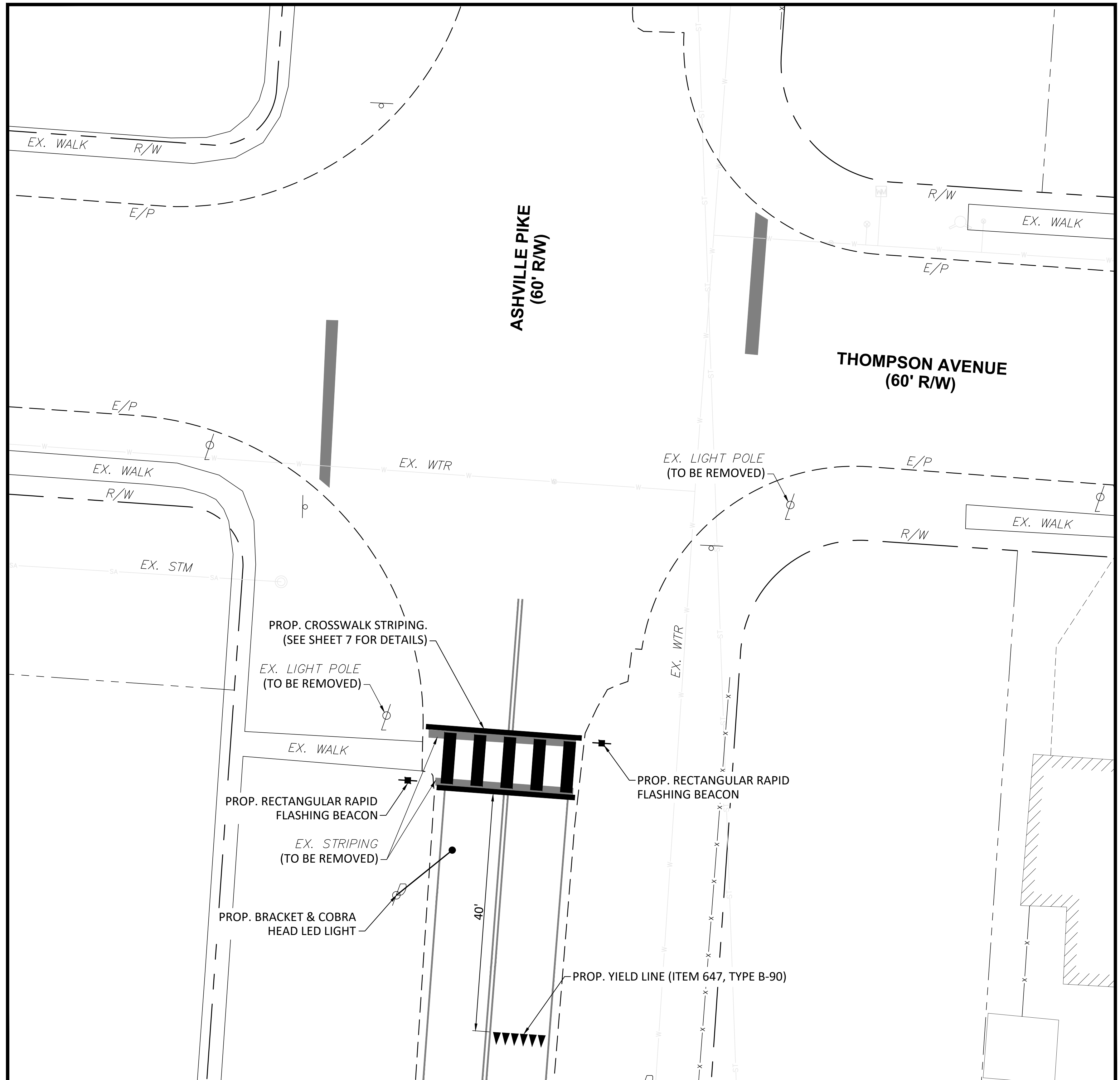
- PROPOSED LIGHT BRACKET & COBRA HEAD LUMINAIRE
- PROPOSED RECTANGULAR RAPID FLASHING BEACON
- EXISTING OVERHEAD ELECTRIC
- EXISTING OVERHEAD TELEPHONE & CABLE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING COBRA HEAD LIGHT



CALCULATED
CHECKED

STREET LIGHTING & RRFB PLAN



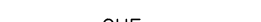



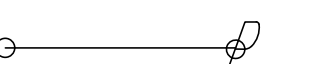
PIC-ASHVILLE-PEP IMPROVEMENT

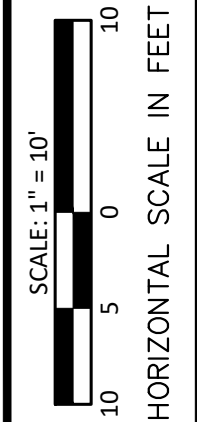
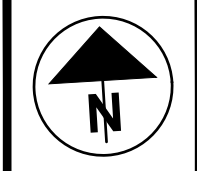


**ASHVILLE PIKE AND THOMPSON AVENUE INTERSECTION
SITE 5**

STREET LIGHTING NOTE:
CONTRACTOR TO COORDINATE THE INSTALLATION OF STREET LIGHTING WITH SOUTH CENTRAL POWER.

CIRCUIT SCHEMATIC LEGEND

-  PROPOSED LIGHT BRACKET & COBRA HEAD LUMINAIRE
-  PROPOSED RECTANGULAR RAPID FLASHING BEACON
-  OHE EXISTING OVERHEAD ELECTRIC
-  OHTC EXISTING OVERHEAD TELEPHONE & CABLE
-  EXISTING POWER POLE
-  EXISTING LIGHT POLE
-  EXISTING COBRA HEAD LIGHT



CALCULATED
CHECKED

STREET LIGHTING & RRFB PLAN

**PIC-ASHVILLE-PED
IMPROVEMENT**