

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.

UTILITIES

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

UTILITY CONTACTS ARE TO BE PROVIDED BY ODOT DISTRICT 8 UTILITY ENGINEER.

DUKE ENERGY ELECTRIC
2010 Dana Ave, EF324
Cincinnati, Ohio 45207
Chris Tepe
513-514-8209
chris.tepe@duke-energy.com

DUKE ENERGY GAS
139 E. Fourth St., Rm. 460A
Cincinnati, Ohio 45202
Mark Branscum or Denise Gross
OH/KYHouseBill@duke-energy.com

ALTA FIBER (FORMERLY CINCINNATI BELL)
201 E Fourth St. Bldg. 121-900
Cincinnati, Ohio 45201
513-565-7043
Robert Wittenberg
robert.wittenberg@altafiber.com

AT&T OHIO
7201 Far Hills Avenue
Dayton, Ohio 45459
Alan Stutes
937-708-1026
AS1634@att.com

WARREN COUNTY WATER & SEWER
406 Justice Drive
Lebanon, Ohio 45036
Chris Brausch
513-695-1377
Chris.brausch@co.warren.oh.us

CITY OF FRANKLIN
Nick Miller, Assistant Public Works Director
937-746-5001
nmiller@Franklinohio.org

INDEPENDENTS FIBER NETWORK/COMNET
13888 S Dixie Drive
Wapakoneta, Ohio 45895
OSPeng@cniteam.com

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

ADDITIONAL PROJECT CONTACTS

LISTED BELOW IS INFORMATION FOR ADDITIONAL PROJECT CONTACTS:

Ohio Rail Development Commission
Heather Hamilton - Statewide Preemption Project Manager
614-644-0307
heather.hamilton@dot.ohio.gov

Ohio Rail Development Commission Representative
Woolpert
Sam Bobko
216-416-1513
sam.bobko@woolpert.com

Norfolk Southern Railroad
Aaron Pease
440-429-1960
aaron.pease@nscorp.com

CITY OF FRANKLIN
Nick Miller, Assistant Public Works Director
937-746-5001
nmiller@Franklinohio.org

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
2. COMPACT THE SUBGRADE ACCORDING TO C&MS 204.03.
3. PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO C&MS 204.06.
4. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

ITEM 601 - CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN

REMOVE AND REPLACE THE EXISTING ROCK BEHIND CR-2 AND CR-3 WITH IN-KIND MATERIAL. IF POSSIBLE, REUSE THE EXISTING ROCK.

A CONTINGENCY QUANTITY HAS BEEN INCLUDED AND CARRIED TO THE SUBSUMMARY ON SHEET P.09

ITEM 601 - CRUSHED AGGREGATE SLOPE PROTECTIONS, AS PER PLAN
9 SQ. YD.

MANHOLE AND VALVES ADJUSTED TO GRADE (PRIVATELY OWNED)

ALL MANHOLES AND VALVES ENCOUNTERED IN AREAS THAT REQUIRE GRADE ADJUSTMENT WILL BE PERFORMED PRIOR TO THE APPLICATION OF THE SURFACE COURSE BY THE UTILITY OWNER. CONTACT THE UTILITY OWNER 2 WEEKS PRIOR TO WHEN THE ADJUSTMENTS ARE TO BE COMPLETED.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET P.02 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL

POSITIONING METHOD: ODOT REAL TIME NETWORK (2011) AND DIFFERENTIAL LEVELING
MONUMENT TYPE: B

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: 12B

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2011)
ELLIPSOID: GRS80
OHIO COUNTY COORDINATE SYSTEM: WARREN
WARREN LDP PROJECTION PARAMETERS:
PROJECTION: LCC 1 PARALLEL
CENTRAL LATITUDE: N 39°24'00"
CENTRAL LONGITUDE: E 275°51'00"
FALSE NORTHING: 100,000 METERS
FALSE EASTING: 50,000 METERS
PROJECTION SCALE FACTOR: 1.000035

*THE LOW DISTORTION PROJECTION (LDP) IS A LOCAL COUNTY PROJECTION DEVELOPED BY O.D.O.T. THE DISTORTION BETWEEN GROUND AND GRID IS SO MINIMAL THAT THERE IS NO NEED FOR A SCALE FACTOR TO ADJUST BETWEEN GRID AND GROUND COORDINATES. CONTACT THE DISTRICT SURVEY DEPARTMENT FOR FURTHER INFORMATION OR QUESTIONS.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

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.

BASIS OF BEARINGS

BEARINGS ARE BASED ON GRID NORTH OF THE O.D.O.T. LOW DISTORTION PROJECTION – WARREN COUNTY

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, TOPSOIL	4	CU. YD.
659, SEEDING AND MULCHING	30	SQ. YD.
659, REPAIR SEEDING AND MULCHING	2	SQ. YD.
659, INTER-SEEDING	2	SQ. YD.
659, COMMERCIAL FERTILIZER	0.01	TON
659, LIME	0.01	ACRE
659, WATER	1	M. GAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS. THE SEEDING AND MULCHING QUANTITIES SHOWN ABOVE HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 608 - CURB RAMP, AS PER PLAN

IN AREAS OF INTERSECTION WHERE CURB IS REPLACED, WHEEL CHAIR RAMPS SHALL BE CONSTRUCTED TO MEET ADA REQUIREMENTS IN ACCORDANCE WITH ODOT STANDARD DRAWING BP-7.1 AND AS DIRECTED BY THE ENGINEER.

THE INTENT OF THIS ITEM IS TO INSTALL ADA CURB RAMPS WHERE INDICATED IN THIS SET OF PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING THE EXISTING WALK AND/OR CURB AND GUTTER IN A MANNER THAT DOES NOT DAMAGE OTHER AREAS MEANT TO REMAIN IN PLACE (SEE CURRENT STANDARD DRAWING BP-7.1). AS THESE INSTALLATIONS ARE BEING MADE TO FIT EXISTING CONDITIONS, VARIATIONS FROM STANDARD MAY OCCUR. ANY DEVIATIONS FROM DETAIL IN THESE PLANS MUST FIRST BE APPROVED BY THE ENGINEER. RESTORATION TO EXISTING PAVEMENT AREAS IN FRONT OF THE PROPOSED CURB RAMPS SHALL BE INCLUDED IN THIS ITEM OF WORK. RESTORATION SHALL BE MADE UP TO AND INCLUDE THE SURFACE COURSE. ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE FOOT FOR ITEM 608, CURB RAMP, AS PER PLAN.

PAVEMENT REPAIR

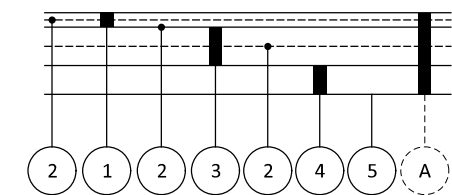
PAVEMENT REPAIR SHALL CONSIST OF PAVEMENT REMOVED AND REPLACED TO CORRECT COUNTER SLOPE AND/OR CROSS SLOPE AT PROPOSED CURB RAMP BASES, AND/OR FOR EASE OF CONSTRUCTION.

IN ADDITION TO THE REQUIREMENT OF ODOT C&MS SECTION 253, THE CONTRACTOR SHALL REMOVE AN ADDITIONAL WIDTH OF PAVEMENT MEASURED 2 FEET FROM THE FACE OF THE CURB/GUTTER TO BE REMOVED. REFER TO THE TYPICAL SECTION BELOW FOR PAVEMENT BUILD-UP OF THE REPLACEMENT MATERIAL.

ESTIMATED QUANTITIES ARE INCLUDED IN THE SUBSUMMARY ON SHEET P.09
THE 6" AGGREGATE BASE SHALL BE INSTALLED UNDER THE CURB AND SHALL EXTEND WIDTHWISE APPROXIMATELY 10" PAST THE BACK OF CURB.

ALL OF THESE ITEMS, INCLUDING THE PAVEMENT REMOVAL, ARE INCLUDED IN THE SQ FT ITEM, CURB RAMP, AS PER PLAN.

TYPICAL SECTION: PAVEMENT REPAIR, AS PER PLAN



- A ITEM 202 - PAVEMENT REMOVED
- 1 ITEM 441 - 3" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22 (2 LIFTS)
- 2 ITEM 407 - NON-TRACKING TACK COAT
- 3 ITEM 301 - 8" ASPHALT CONCRETE BASE, PG64-22 (2 LIFTS)
- 4 ITEM 304 - 6" AGGREGATE BASE
- 5 ITEM 204 - SUBGRADE COMPACTION

EXISTING PAVEMENT BUILD-UPS WERE NOT FOUND. THE EXISTING PAVEMENT IS EXPECTED TO BE BITUMINOUS CONCRETE OVER PENETRATION MACADAM. REGARDLESS OF MATERIAL FOUND, BACKFILL AS SHOWN IN TYPICAL SECTION ABOVE.



MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITION:

NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE FOR POLICE SERVICES AND MAINTENANCE SERVICES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION (CONT)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 6 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7:00 TO 9:00 AM AND 3:00 TO 6:00 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614, MAINTAINING TRAFFIC (AT ALL TIMES)

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, FLAGGER CONTROL PER SCD MT-97.10, AND MT-97.12. MAINTAIN A MINIMUM OF 1 SIDEWALK ON EITHER SIDE OF THE ROAD AT ALL TIMES.

LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

IF IT IS NECESSARY TO STOP ALL TRAFFIC THE WORK SHALL BE SO ARRANGED THAT THE STOPPAGE IS LESS THAN TEN (10) MINUTES IN ANY ONE (1) THIRTY (30) MINUTE PERIOD. NO STOPPAGE OF TRAFFIC SHALL OCCUR FOR THE ERECTION OF SIGNAL SUPPORTS OR HANGING SIGNAL HEADS WITHOUT A LAW ENFORCEMENT OFFICER WITH PATROL CAR AT THE SITE FOR ASSISTANCE IN CONTROLLING TRAFFIC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE SERVICES AND SCHEDULING OF SAID LAW ENFORCEMENT OFFICER WITH PATROL CAR.

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.

ITEM 614, MAINTAINING TRAFFIC (AT ALL TIMES) (CONT)

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. 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 PLANS.

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 TIME FRAME TABLE		
ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS AND PIO
LANE CLOSURES AND RESTRICTIONS	>=2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION AND TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR 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.

WINDOW CONTRACT TABLE

WORK LIMITS

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DESCRIPTION OF CRITICAL WORK	CALENDAR DAYS TO COMPLETE
ALL WORK ON PROJECT	60 DAYS

THE CONSTRUCTION COMPLETION DATE IS 08/01/2026

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 1 M. GAL.

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 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 THE 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 WHICH 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 48 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 A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE. THE QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

DESIGN AGENCY

 CLIENT

 DESIGNER
 DLW
 REVIEWER
 SJS 06/07/24
 PROJECT ID
 115153
 SHEET TOTAL
 P.05 29

ITEM 900, RAILROAD FLAGGING SERVICES

FLAGGING FOR WORK ON RAILROAD RIGHT OF WAY SHALL BE COORDINATED, OBTAINED AND PAID FOR BY THE CONTRACTOR. FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER REQUIRED BY THE NORFOLK SOUTHERN SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTEREST. NORFOLK SOUTHERN SHALL APPROVE THE FLAGGING SERVICE PROVIDER AND THEIR STAFF.

SEE ADDITIONAL REQUIREMENTS IN THE "SPECIAL CLAUSES IN THE PROPOSAL". REFER TO DRAWING P6/22 UNDER ITEM 900-RAILROAD FLAGGING SERVICES.

NORFOLK SOUTHERN HAS THE SOLE AUTHORITY TO DETERMINE THE NEED FOR PROTECTION SERVICES TO PROTECT ITS OPERATIONS IN GENERAL. THE REQUIREMENTS OF SUCH SERVICES WILL BE WHENEVER THE CONTRACTOR'S PERSONNEL OR EQUIPMENT ARE OR ARE LIKELY TO BE, WORKING ON THE RAILROAD'S RIGHT OF WAY, OR ACROSS, OVER, ADJACENT TO, OR UNDER A TRACK, OR WHEN SUCH WORK HAS DISTURBED OR IS LIKELY TO DISTURB A RAILROAD STRUCTURE OR THE RAILROAD ROADBED OR SURFACE AND ALIGNMENT OF ANY TRACK TO SUCH EXTENT THAT THE MOVEMENT OF TRAINS MUST BE CONTROLLED BY FLAGGING.

THE TOTAL DOLLARS IN THE ESTIMATED QUANTITIES IS BASED UPON AN ESTIMATE OF TOTAL FLAGGING DOLLARS NEEDED TO COMPLETE THE PLANNED WORK.

ONLY THE FOLLOWING CERTIFIED FLAGGING PROVIDERS ARE ACCEPTABLE BY NORFOLK SOUTHERN:

R&R CONSULTING TEAM
DAVID N. CRAFT
CO-OWNER & PRESIDENT
R&R CONSULTING TEAM LLC.
P.O. BOX 4739
HARRISBURG, PA 17111
717-497-4373 (CELL)
775-521-2495 (E-FAX)
dcraft@rrconsultingteam.com
www.rrconsultingteam.com

RAILROAD CONSULTANTS
STEVE LLOYD (VP BUSINESS DEVELOPMENT)
(615) 542-8901

RAILPROS
1320 GREENWAY DR., SUITE 490
IRVING, TX 75038
(877) 315-0513
HTTP://WWW.RAILPROS.COM/SERVICES-CATEGORY/FIELD-SERVICES/

PAYMENT FOR CERTIFIED FLAGGING PROVIDERS WILL BE MADE PER ITEM 900, RAILROAD FLAGGING SERVICES, EACH BASED UPON THE INVOICES RECEIVED FROM THE FLAGGING SERVICE FOR THE DOLLARS USED, INCLUDING A FIVE PERCENT MARKUP FOR CONTRACTOR OVERHEAD FOR ADMINISTERING THE CONTRACT WITH THE FLAGGING SERVICE. AN ESTIMATED QUANTITY OF \$5000 HAS BEEN CARRIED TO THE GENERAL SUMMARY.

IN THE EVENT THE PROJECT IS DELAYED DUE TO RAILROAD FLAGGER AVAILABILITY, THE CONTRACTOR WILL PROVIDE DOCUMENTATION SUPPORTING THEIR EFFORTS TO SCHEDULE A FLAGGER FROM THE FLAGGING SERVICE.

MAINTAINING TRAFFIC FOR PEDESTRIAN AND CYCLIST

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN BOTH PEDESTRIAN AND BICYCLIST TRAFFIC AS OUTLINED BELOW:

PEDESTRIAN DETOUR:

THE CONTRACTOR SHALL SHIFT PEDESTRIAN TRAFFIC ONTO THE EXISTING BICYCLIST ROUTE LOCATED ON SOUTH RIVER STREET WITH THE USE OF PEDESTRIAN DETOUR SIGNING M4-9bR(L)-30 (PEDESTRIAN DETOUR). THE DETOUR SIGNS SHALL BE PLACED IN ADVANCE OF THE TEMPORARY ROUTE. THE CONTRACTOR CAN USE THE DRIVE APPROACH AND THE BICYCLIST ROUTE ON THE LEFT SIDE SOUTH RIVER STREET NORTH OF THE 6TH STREET INTERSECTION.

THE CONTRACTOR SHALL INSTALL DRUMS TO PROTECT USERS FROM THE CONSTRUCTION WORK AREA. ONCE THE DETOUR ROUTE AND THE WORK AREA HAS BEEN PROTECTED THE CONTRACTOR CAN CONSTRUCT THE PROPOSED PEDESTAL AND CURB RAMPS.

BICYCLIST DETOUR:

ONCE THE SIDEWALK CURB RAMPS ARE COMPLETED AND OPEN TO PEDESTRIAN TRAFFIC AT THE INTERSECTION OF SOUTH RIVER STREET AND 6TH STREET ARE COMPLETED, THE CONTRACTOR SHALL DETOUR THE BICYCLIST TRAFFIC ONTO THE SIDEWALK AND THEN BACK ONTO THE BICYCLIST ROUTE. THE CONTRACTOR SHALL INSTALL DRUMS TO PROTECT CYCLIST FROM THE CONSTRUCTION AREA. DETOUR SIGNS M4-9cR(L)-30 (BICYCLIST DETOUR) SHALL BE USED TO DIRECT USERS AROUND THE CONSTRUCTION AREA.

THE CONTRACTOR CAN CONSTRUCT THE PROPOSED WALK AND CURB RAMP ON THE LEFT SIDE OF SOUTH RIVER STREET.

THE WORK AS DESCRIBED ABOVE INCLUDING INSTALLING AND THE REMOVAL OF THE DETOUR SIGNS AND DRUMS SHALL BE INCLUDED IN THE LUMP SUM BID OF ITEM 614 MAINTAINING TRAFFIC

DESIGN AGENCY



CLIENT



DESIGNER

DLW

REVIEWER

SJS 06/07/24

PROJECT ID

115153

SHEET TOTAL

P.06 | 29

SHEET NUM.											PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
			9		13		14		20		01/SAF/21	EXT	TOTAL				
																ROADWAY	
			LS								LS	201	11000	LS		CLEARING AND GRUBBING	
			7								7	202	23000	7	SY	PAVEMENT REMOVED	
			832								832	202	30000	832	SF	WALK REMOVED	
			83								83	202	32000	83	FT	CURB REMOVED	
			2								2	202	32001	2	FT	CURB REMOVED, AS PER PLAN	4
			5								5	203	10000	5	CY	EXCAVATION	
			5								5	203	20000	5	CY	EMBANKMENT	
			399								399	608	10000	399	SF	4" CONCRETE WALK	
			515								515	608	52001	515	SF	CURB RAMP, AS PER PLAN	3
			10								10	608	53020	10	SF	DETECTABLE WARNING	
																EROSION CONTROL	
			9								9	601	20001	9	SY	CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN	3
			4								4	659	00300	4	CY	TOPSOIL	
			30								30	659	10000	30	SY	SEEDING AND MULCHING	
			2								2	659	14000	2	SY	REPAIR SEEDING AND MULCHING	
			2								2	659	15000	2	SY	INTER-SEEDING	
			0.01								0.01	659	20000	0.01	TON	COMMERCIAL FERTILIZER	
			0.01								0.01	659	31000	0.01	ACRE	LIME	
			1								1	659	35000	1	MGAL	WATER	
											5,000	832	30000	5,000	EACH	EROSION CONTROL	
																PAVEMENT	
			5								5	452	09010	5	SY	4" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	
			54								54	609	24510	54	FT	CURB, TYPE 4-C	
			20								20	609	26000	20	FT	CURB, TYPE 6	
																TRAFFIC CONTROL	
							53				53	630	03100	53	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
							7				7	630	79101	7	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	18
							35				35	630	80100	35	SF	SIGN, FLAT SHEET	
							18				18	630	84900	18	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
							10				10	630	86002	10	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
							7				7	631	90501	7	EACH	INTERNALLY ILLUMINATED FIXED MESSAGE SIGN, AS PER PLAN, STREET NAME SIGN	
							873				873	642	30000	873	FT	REMOVAL OF PAVEMENT MARKING	
							5				5	642	30020	5	EACH	REMOVAL OF PAVEMENT MARKING	
							0.01				0.01	644	00100	0.01	MILE	EDGE LINE, 4"	
							0.03				0.03	644	00104	0.03	MILE	EDGE LINE, 6"	
							0.13				0.13	644	00300	0.13	MILE	CENTER LINE, DOUBLE SOLID YELLOW	
							63				63	644	00500	63	FT	STOP LINE	
							345				345	644	00620	345	FT	CROSSWALK LINE, 12"	
							2				2	644	01000	2	EACH	RAILROAD SYMBOL MARKING	
							4				4	644	01300	4	EACH	LANE ARROW	
							114				114	644	01510	114	FT	DOTTED LINE, 6", YELLOW	
																TRAFFIC SIGNALS	
							100				100	611	00400	100	FT	4" CONDUIT, TYPE E	
							113				113	625	25604	113	FT	CONDUIT, 4", 725.051	
							275				275	625	25908	275	FT	CONDUIT, JACKED OR DRILLED, 725.052, 4"	
							82				82	625	29000	82	FT	TRENCH	
							8				8	625	30706	8	EACH	PULL BOX, 725.08, 24"	
							9				9	625	32000	9	EACH	GROUND ROD	
							82				82	625	36010	82	FT	UNDERGROUND WARNING/MARKING TAPE	
							2				2	625	76000	2	EACH	ARC FLASH CALCULATIONS AND LABEL - (SIGNAL CONTROLLER)	
							11				11	632	05006	11	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, BLACK	
							2				2	632	05064	2	EACH	VEHICULAR SIGNAL HEAD, (LED), 4-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, BLACK	
							11				11	632	20731	11	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	18
							6				6	632	20750	6	EACH	ACCESSIBLE PEDESTRIAN PUSHBUTTON	
							14				14	632	25000	14	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
							12				12	632	25010	12	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
							1,873				1,873	632	40500	1,873	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	

DESIGN AGENCY

 CLIENT

 DESIGNER
 ARM
 REVIEWER
 SJS 06/07/24
 PROJECT ID
 115153
 SHEET TOTAL
 P.07 29

633 UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 633 AND 733, POLE ATTACHMENT HARDWARE WILL BE INCLUDED FOR POLE-MOUNTED CABINETS, AND A CABINET RISER (8-INCH MINIMUM) AND ANCHOR BOLTS WILL BE PROVIDED FOR BASE-MOUNTED CABINETS. BEFORE PERFORMING THE WORK, THE CONTRACTOR, THE CITY TRAFFIC ENGINEER AND THE PROJECT ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE LOCATION OF THE UPS CABINET AND FOUNDATION.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL WITH A HEAVY-DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSURES OVER THE POWER CORD.

THE CABINET SHALL HAVE A DOOR STOP MECHANISM AND THERMOSTATICALLY CONTROLLED FAN. ADDITIONALLY, THE CABINET SHALL BE BUILT WITH ALL BATTERIES ALWAYS BELOW THE INVERTER TO AVOID POTENTIAL FUTURE BATTERY LEAKAGE ISSUES. THE CABINET SHALL INCLUDE A BATTERY BALANCING DEVICE THAT REGULATES THE BATTERIES AND OPTIMIZES PERFORMANCE.

AFTER FOUR (4) HOURS OF BATTERY RUNTIME, THE SYSTEM SHALL BE PROGRAMMED TO SWITCH THE INTERSECTION FROM FULL OPERATION TO CONTROLLER AUTOMATIC FLASH OPERATION THROUGH THE MONITOR. THE CONTROLLER SHALL BE PROGRAMMED SO THAT FLASH OPERATION SHALL BEGIN ONCE THE INTERSECTION RUNS MINOR STREET GREEN (TYP. PH. 4 & 8), ALL-RED CLEARANCE, AND THEN FLASH OPERATION.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2-HOUR TIMER, AND LOW BATTERY SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL OR THROUGH THE CONTROLLER WITH A C11 TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER.

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IP66, RATED FOR OUTDOOR USE AND BE TAMPER/SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FOOT MINIMUM. THE ENCLOSURE AND LED MODULE SHOULD BE PLACED ON THE SIDE OF THE UPS CABINET FACING TOWARDS THE MAINLINE ROADWAY AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

THE UPS INVERTER SHALL BE CONNECTED TO THE CONTROLLER ETHERNET PORT USING A CAT-5 CABLE AND PROGRAMMED FOR THE REMOTE COMMUNICATIONS.

IP ADDRESS INFORMATION:

6TH AT RIVER	6TH AT MAIN
UPS IP: 10.35.30.17	UPS IP: 10.35.30.20
DEFAULT GATEWAY: 10.35.63.254	DEFAULT GATEWAY: 10.35.63.254
SUBNET MASK: 255.255.0.0	SUBNET MASK: 255.255.0.0

828 LED BLANKOUT SIGN (NO TURN - TRAIN)

THE CONTRACTOR SHALL PROVIDE AND INSTALL A SOLID FILLED RED SYMBOL, SOLID FILLED WHITE ARROW NO RIGHT TURN SYMBOL SIGN ON THE TRAFFIC SIGNAL MAST ARM AT THE LOCATIONS INDICATED ON THE PLANS. THE SYMBOL SIGN SHALL BE A WEATHER TIGHT NEMA ENCLOSURE. THE FOLLOWING SPECIFICATIONS SHALL APPLY:

VOLTAGE: 120V
ILLUMINATION: LED
SYMBOL HEIGHT: 20.0"
CABINET SIZE: 30"H x 24"W x 5.5" D
FINISH: BLACK
WARRANTY: 5 YEARS



THE SIGNS SHALL BE WIRED TO ACTIVATE DURING THE RAILROAD PREEMPTION PHASES AND REMAIN ON FOR THE ENTIRE RAILROAD PREEMPTION CYCLE.

THE MAST ARM MOUNTING BRACKET SHALL BE SUPPLIED BY THE SIGN MANUFACTURER AND INSTALLED BY THE CONTRACTOR. THE SIGN SHALL BE ACTIVATED (ON) WHEN THE CONTROLLER RECEIVES A RAILROAD PREEMPTION CALL. THE REMAINING TIME THE SIGN SHALL BE BLANK OR OFF.

PAYMENT FOR THE ABOVE ITEM SHALL BE PAID AT THE UNIT PRICE BID PER EACH FOR ITEM 828, LED BLANKOUT SIGN, LED BLANKOUT SIGN COMPLETE. PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, MOUNTING HARDWARE FOR RIGID MOUNTING, POWER CABLE AND ALL INCIDENTALS TO COMPLETE THE WORK.

632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITC SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED.
6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04. THE CONTRACTOR SHALL PROVIDE THE CITY OF FRANKLIN ENGINEER, IN WRITING, WITH THE LED MANUFACTURER NAME SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

632 SIGNAL SUPPORT FOUNDATION

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD. THEN THE CONTRACTOR SHALL MEET THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORTS.

DUE TO THE FURTHER POSSIBILITY OF CONFLICT WITH EXISTING OR PROPOSED UNDERGROUND OBSTRUCTIONS (INCLUDING THE POSSIBILITY OF UNRECORDED OBSTRUCTIONS) WHICH COULD AFFECT THE LOCATION OF THE FOUNDATION FOR THIS ITEM, AND CONSEQUENTLY, THE DESIGN OF THE SUPPORT AND/OR ARMS, THE CONTRACTOR SHALL NOT PLACE FINAL ORDERS FOR THE ITEM UNTIL THE FOUNDATIONS HAVE BEEN INSTALLED, AT FINAL GRADE, AND THE CONTRACTOR HAS RECEIVED, FROM ENGINEER, WRITTEN NOTICE TO PROCEED WITH THE ORDERS FOR THE ITEM.

IF ANY FOUNDATION LOCATIONS MUST BE ADJUSTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND MAINTAINING AGENCY, WHO WILL DETERMINE THE REVISED LOCATION AND IF NEEDED, THE SUPPORT DESIGN. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR DETERMINING THE REVISED DESIGN. THE ENGINEER WILL INFORM THE CONTRACTOR OF ANY CHANGES NECESSARY AND AUTHORIZE THE CONTRACTOR TO ORDER THE SUPPORT.

THE CONTRACTOR SHALL, WHEN DEVELOPING THE PROGRESS SCHEDULE, AND THOSE OF SUBCONTRACTORS, ENSURE THAT THE FOUNDATIONS ARE INSTALLED AT THE EARLIEST TIME AS IS FEASIBLE AND PRACTICAL, AND SHALL INCLUDE SUFFICIENT TIME IN THE PROGRESS SCHEDULE FOR ORDERING, MANUFACTURING, DELIVERY, AND INSTALLATION OF THE SUPPORT ITEMS AFTER THE FOUNDATIONS ARE IN PLACE.

NO PAYMENTS FOR DELIVERED MATERIALS FOR THE FOUNDATION OR SUPPORT ITEMS SHALL BE MADE UNTIL THE FOUNDATIONS ARE IN PLACE, AND IF CHANGES IN THE DESIGN OF THIS ITEM ARE REQUIRED, NO PAYMENT SHALL BE MADE FOR THE ITEMS MANUFACTURED TO THE ORIGINAL DESIGN.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

630, SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 630 (SIGN HANGER ASSEMBLY, MAST ARM) THE CONTRACTOR SHALL SUPPLY A RIGID MOUNT TYPE SIGN HANGER ASSEMBLY. THE SIGN HANGER ASSEMBLY SHALL CONTAIN A BRACE THAT RUNS ALONG THE COMPLETE VERTICAL HEIGHT OF THE SIGNS. THE SIGN HANGER ASSEMBLY AND ALL MISCELLANEOUS HARDWARE SHALL BE BLACK IN COLOR.

PAYMENT FOR THIS ITEM SHALL BE AT THE CONTRACT UNIT BID PRICE PER EACH AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL, INCLUDING HARDWARE, INSTALLED COMPLETE.

UNDERDRAINS FOR PULL BOXES

REFERENCE TRAFFIC SCD HL-30.11 FOR DETAILS ABOUT DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. THE FOLLOWING ESTIMATED QUANTITY IS CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 611 4" CONDUIT, TYPE E 100 FT.

631, INTERNALLY ILLUMINATED FIXED MESSAGE SIGN, AS PER PLAN (STREET NAME SIGN)

THIS ITEM SHALL CONSIST OF SUPPLYING AND INSTALLING INTERNALLY ILLUMINATED FIXED MESSAGE STREET NAME SIGNS WITH EDGE LIT LIGHT EMITTING DIODES (LED) OR LIGHT EMITTING CAPACITORS (LEC). THE SIGNS SHALL CONFORM TO ODOT CMS 631 AND 731.05. THE SIGN LEGEND SHALL CONFORM THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (O.M.U.T.C.D.).

STREET NAME SIGNS SHALL HAVE ONE (1) FACE. THE LEGEND BACKGROUND SHALL BE GREEN WITH WHITE LETTERS FOR THE STREET NAME SIGNS. THE SIGN HOUSING ENCLOSURE AND ALL MOUNTING HARDWARE SHALL BE BLACK IN COLOR. SIGN HANGER ASSEMBLIES (SUPPLIED AS PART OF A SEPARATE ITEM) SHALL BE USED TO RIGIDLY MOUNT THE ILLUMINATED STREET NAME SIGN ON THE MAST ARM. THE SIZE OF THE VIEWABLE SIGN LEGEND SHALL BE PER THE DETAILS IN THE PLANS. THIS ITEM SHALL INCLUDE SUPPLYING AND INSTALLING A WATERPROOF SPLICE KIT APPROVED BY THE CITY IF PIGTAILS ARE SUPPLIED WITH THE SIGN. THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS TO THE CITY FOR REVIEW PRIOR TO FABRICATION.

THE COST FOR THIS ITEM SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT FOR A COMPLETE AND OPERATIONAL INTERNALLY ILLUMINATED SIGN, TESTED AND ACCEPTED.

819 RAILROAD PREEMPTION INTERFACE, (LOCATE ON PROP. SIGNAL SP-1)

IN ADDITION TO THE REQUIREMENTS OF THE ODOT SUPPLEMENTAL SPECIFICATIONS 819 INDICATOR PANELS SHALL BE INSTALLED ON THE PROPOSED SIGNAL POLES SP-1 AT THE INTERSECTIONS OF W 6TH STREET/S RIVER STREET AND THE INTERSECTION OF W 6TH STREET/S MAIN STREET. THE INDICATOR PANELS SHALL BE FACING THE TRAFFIC SIGNAL CABINET. MOUNT THE INDICATOR PANEL NO LESS THAN TEN FEET ABOVE THE ROADWAY LEVEL. ALSO, LOCATE THE INDICATORS SO AS TO PROVIDE MINIMAL VISIBILITY TO ROADWAY USERS AT OR APPROACHING THE INTERSECTION.

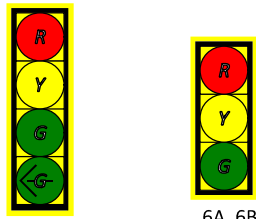
THE CONTRACTOR SHALL SCHEDULE A FINAL FIELD TEST, AFTER THE 10-DAY SIGNAL BURN TEST, WITH THE RAILROAD OWNER, OHIO RAIL DEVELOPMENT COMMISSION REPRESENTATIVE AND THE SIGNAL CONTRACTOR. THE FINAL FIELD TEST SHALL INCLUDE CHECKING THAT THE SIGNAL IS CONNECTED TO THE RAILROAD CONTROLLER AND OPERATES PER THE PLANS DURING A PREEMPTION CALL.

PAYMENT- ALL MATERIALS AND COST FOR THIS ITEM SHALL BE COMPLETE AND INCLUDED IN ITEM 819 - RAILROAD PREEMPTION INTERFACE, 1 EACH PER INTERSECTION AND INCLUDES THE INDICATOR PANEL.

THE 6-PAIR INTERCONNECT CABLE IS ALSO INCLUDED IN PAYMENT WITH ITEM 819 - RAILROAD PREEMPTION. A QUANTITY OF 800 LINEAR FEET OF 6 PAIR INTERCONNECTION CABLE IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.



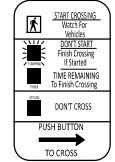
SIGNAL HEADS



ALL SIGNAL HEADS SHALL BE 12" LED WITH BACKPLATES.

PEDESTRIAN SIGNS

S1 (2-SIGNS)
THESE SIGNS ARE INCLUDED IN PAYMENT WITH THE PED PUSHBUTTON AND ARE LOCATED ABOVE THE PUSHBUTTON



1-LEFT ARROWS
1-RIGHT ARROWS

PEDESTRIAN SIGNAL HEADS



PH2A, PH2B
PH8A, PH8B

LED INTERNALLY ILLUMINATED SIGNS

SIGNS TO BE MOUNTED ON SIGNAL MAST ARM SP-2 AND ARE PAID UNDER THE TRAFFIC CONTROL QUANTITIES

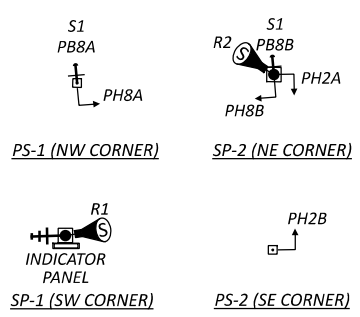


S2
D3-1, 78"x18" (SIGN FACE),
1-WAY LED INTERNALLY ILLUMINATED,
8" INCH "STANDARD HIGHWAY
SERIES D" LETTERS



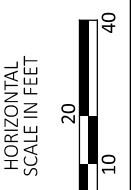
S3
D3-1, 72"x18" (SIGN FACE),
1-WAY LED INTERNALLY ILLUMINATED,
8" INCH "STANDARD HIGHWAY
SERIES D" LETTERS

SIGNAL POLE & PEDESTRIAN POLE DETAILS

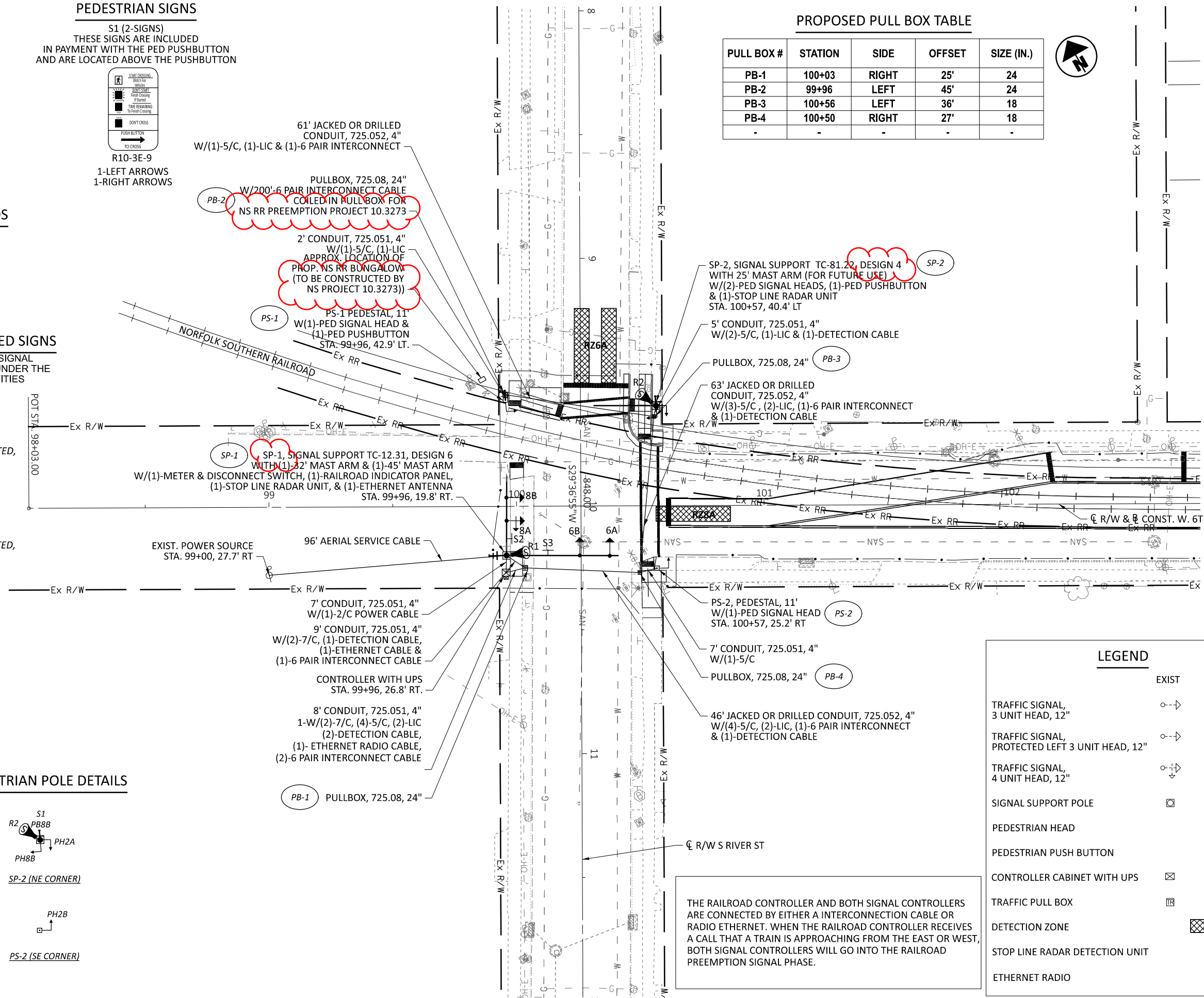


PROPOSED PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	100+03	RIGHT	25'	24
PB-2	99+96	LEFT	45'	24
PB-3	100+56	LEFT	36'	18
PB-4	100+50	RIGHT	27'	18



**SOUTH RIVER ST & WEST 6TH ST
TRAFFIC SIGNAL PLAN**



LEGEND

	EXIST	PROP
TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, PROTECTED LEFT 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, 4 UNIT HEAD, 12"		
SIGNAL SUPPORT POLE		
PEDESTRIAN HEAD		
PEDESTRIAN PUSH BUTTON		
CONTROLLER CABINET WITH UPS		
TRAFFIC PULL BOX		
DETECTION ZONE		
STOP LINE RADAR DETECTION UNIT		
ETHERNET RADIO		

THE RAILROAD CONTROLLER AND BOTH SIGNAL CONTROLLERS ARE CONNECTED BY EITHER A INTERCONNECTION CABLE OR RADIO ETHERNET. WHEN THE RAILROAD CONTROLLER RECEIVES A CALL THAT A TRAIN IS APPROACHING FROM THE EAST OR WEST, BOTH SIGNAL CONTROLLERS WILL GO INTO THE RAILROAD PREEMPTION SIGNAL PHASE.

SIGNAL TIMING CHART

INTERSECTION: WAR-S RIVER & S MAIN NS MAINTAINING AGENCY: CITY OF FRANKLIN									
START UP		DUAL ENTRY: YES		PHASES:					
START IN: ALL RED		REST IN RED:		RING 1			RING 2		
TIME FOR FLASH OR ALL RED: 8 sec				A		B		C	
FIRST PHASE(S): 6		OVERLAP							
COLOR DISPLAYED: GREEN		PHASES		-		-		-	
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		-	-	-	-	-	SB	-	WB LT
MINIMUM GREEN (INITIAL) (SEC.)							10		5
ADDED INITIAL *(SEC./ACTUATION)									
MAXIMUM INITIAL (SEC.)									
PASSAGE TIME (PRESET GAP) (SEC.)							2		2
TIME BEFORE REDUCTION *(SEC.)									
MINIMUM GAP *(SEC.)									
TIME TO REDUCE *(SEC.)									
MAXIMUM GREEN I (SEC.)							40		20
MAXIMUM GREEN II (SEC.)							50		20
YELLOW CHANGE (SEC.)							3.5		4
ALL RED CLEARANCE (SEC.)			1						1
WALK (SEC.)			9						8
PEDESTRIAN CLEARANCE (SEC.)			5						11
RECALL	MAXIMUM (ON/OFF)		OFF				OFF		OFF
	MINIMUM (ON/OFF)		OFF				ON		OFF
	PEDESTRIAN (ON/OFF)		ON				ON		OFF
MEMORY (ON/OFF)									

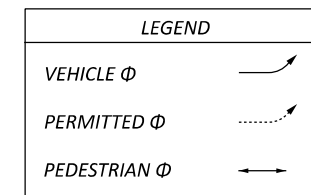
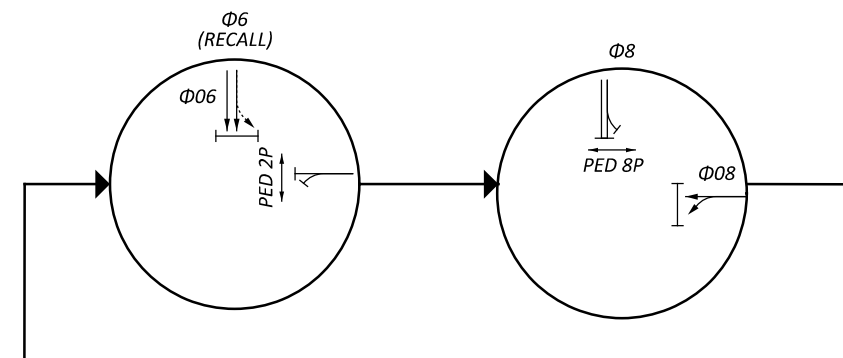
*VOLUME DENSITY CONTROLS

NOTES:
1. COUNTDOWN PEDESTRIAN SIGNAL HEADS SHALL GO TO ZERO ON YELLOW PER O MUTCD FIGURE 4E-2.

RADAR DETECTION CHART

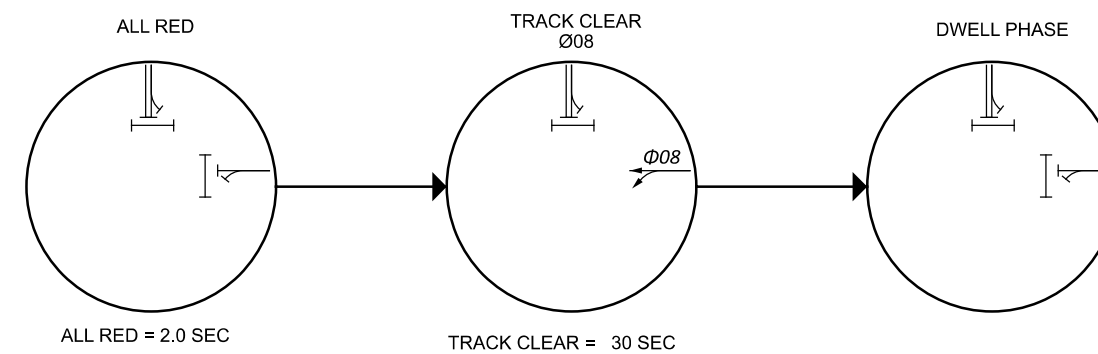
DETECTION ZONE	RADAR NO.	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	EXTENSION PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RZ8A	R1	WB	PRESENCE	8				CALL/EXTEND PHASE 8	30'
RZ8A	R2	SB	PRESENCE	6				CALL/EXTEND PHASE 6	30'

PHASING DIAGRAM

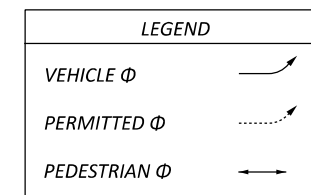


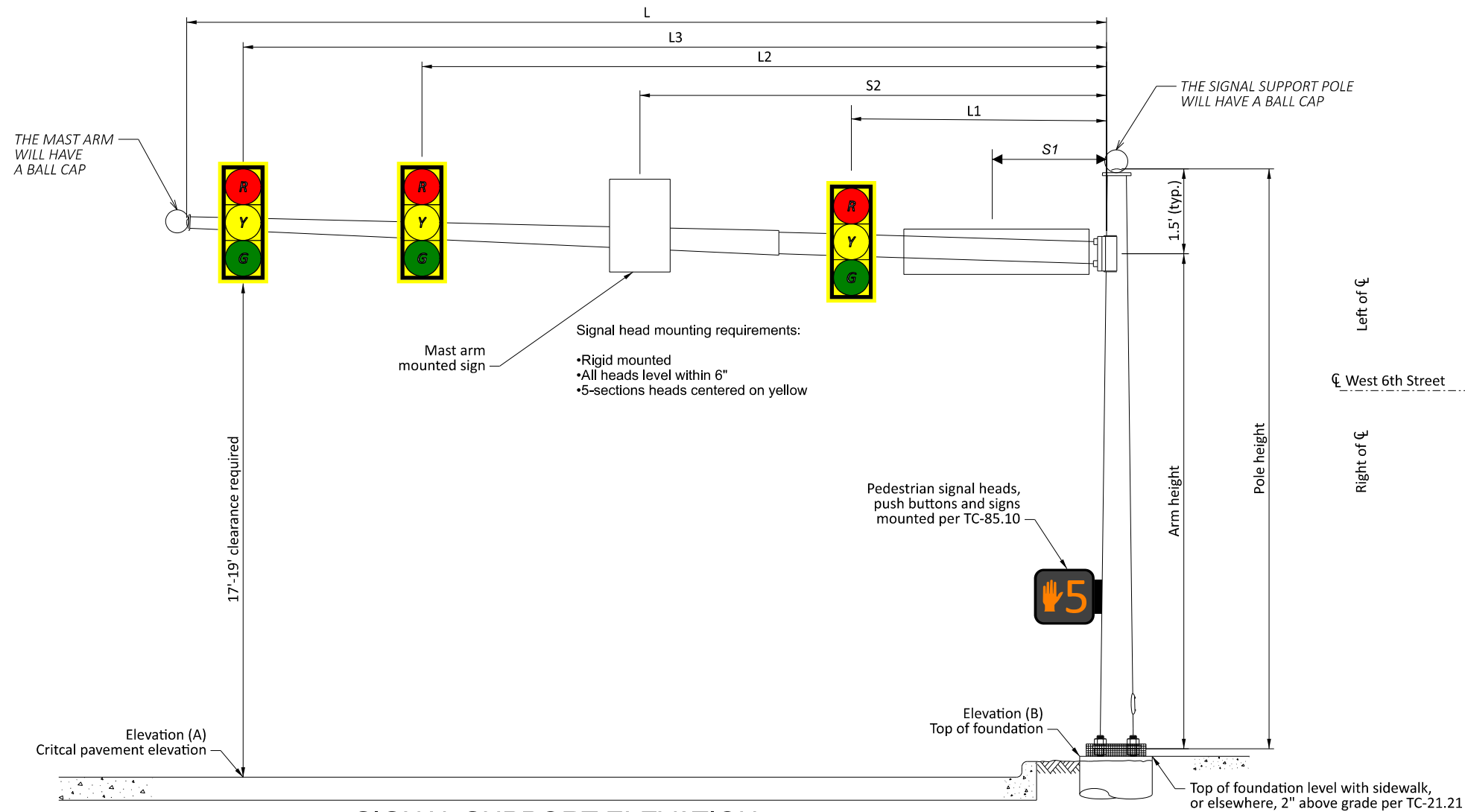
PREEMPTION PHASING DIAGRAM

RRPE AT THIS SIGNAL SHALL BE INITIATED BY INPUT FROM RIVER/6TH STREET NORFOLK SOUTHERN RRPE PEDESTAL

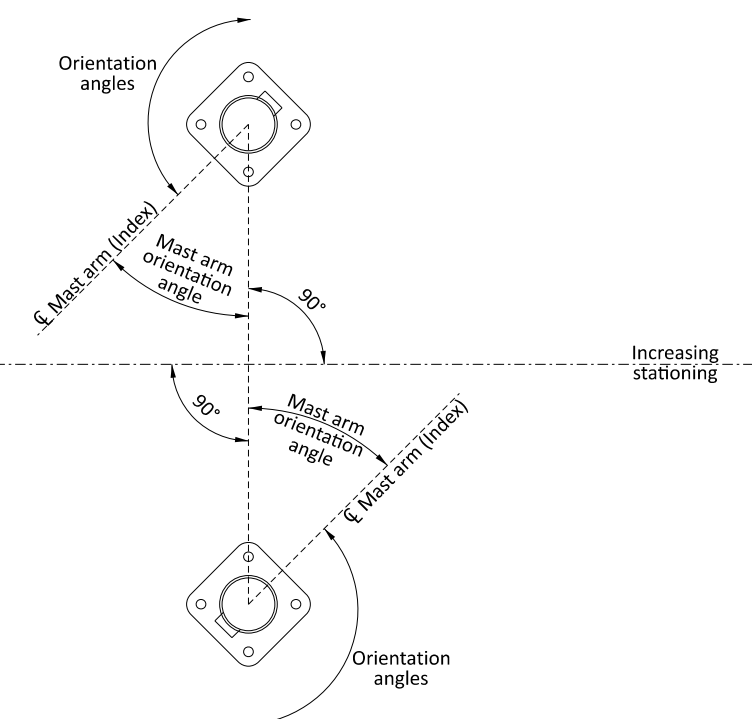


PEDESTRIAN PHASES OPERATING DURING THE PREEMPTION CALL SHALL BE TERMINATED.





SIGNAL SUPPORT ELEVATION

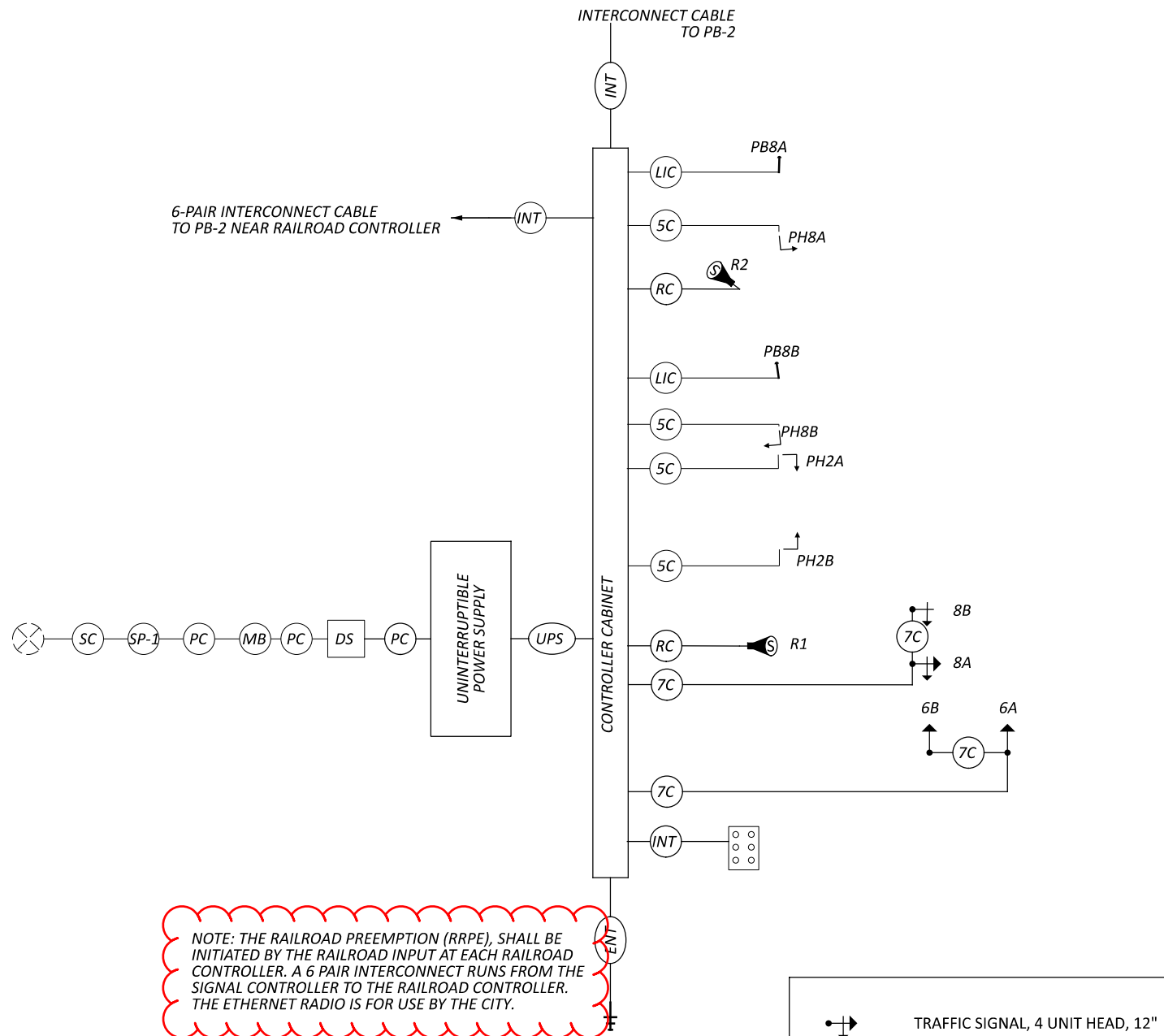


POLE ORIENTATION

MAST ARM TABLE

SUPPORT NO.	STATION	OFFSET	ELEVATION		SIGNAL SUPPORT DETAILS								ORIENTATION ANGLES FROM MAST ARM										
			A	B	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	S1	S2	MAST ARM A ANGLE	MAST ARM B ANGLE	PEDESTRIAN SIGNAL	PEDESTRIAN BUTTON	POWER SERVICE	STOP LINE RADAR UNIT	HANDHOLE	CABLE ENTRANCE 12" FROM TOP		
							FT	FT	FT	FT	FT	FT	FT	FT	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	
SP-1	99+96	19.8' RT		680.62	TC-12.31	8	23																
SP-1 (ARM A)			681.02		TC-81.22	4		21.5	32	14	23	7	28	-	0	-	-	268	81			268	
SP-1 (ARM B)			681.09		TC-81.22	12		20	45	30	42	15	-	90	-	-	-	-	-	-	180	-	
SP-2	100+57	40.4' LT	681.30	681.18	TC-81.22	4	22	20.5	25					90	-	179/265	85	-	-	180	-		
PS-1	99+96	42.9' LT	-	-	-	-	11	-	-	-	-	-	-	-	-	-	355	185	-	-	90	-	
PS-2	100+57	25.2' RT	-	-	-	-	11	-	-	-	-	-	-	-	-	90	-	-	-	180	-		

WIRING DIAGRAM



NOTE: THE RAILROAD PREEMPTION (RRPE), SHALL BE INITIATED BY THE RAILROAD INPUT AT EACH RAILROAD CONTROLLER. A 6 PAIR INTERCONNECT RUNS FROM THE SIGNAL CONTROLLER TO THE RAILROAD CONTROLLER. THE ETHERNET RADIO IS FOR USE BY THE CITY.

FIELD WIRING HOOKUP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH		
6A, 6B (SB)	R	6R	Y	-					
	Y	6Y							
	G	6G							
	-	-							
8A (WB LT)	R	8R/LS 15 R	R	-					
	Y	8Y/LS 15 Y							
	G	8G/LS 15 G							
	<-G-	8Y/LS 15G							
PEDESTRIAN MOVEMENTS									
8B (WB LT)	R	8R/LS 15R	R	-	PED-2	W	2 PED/LS 10G	OUT	
	Y	8Y/LS 15Y				DW	2 PED/LS 10R		
	G	8G/LS 15G				PED-8	W	8 PED/LS 11G	OUT
	-	-				DW	8 PED/LS 11R		
OVERLAPS									
LS = LOAD SWITCH									
LS 15 IS ONLY ACTIVATED DURING TRACK CLEAR OF THE PREEMPTION - GREEN (ARROW /BALL)									

LEGEND

	TRAFFIC SIGNAL, 4 UNIT HEAD, 12"		2/C NO. 14 AWG (LEAD-IN CABLE)		SERVICE CABLE, 3 CONDUCTOR, NO. 4 AWG
	TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG		POWER CABLE, 2 CONDUCTOR, NO. 4 AWG
	TRAFFIC SIGNAL, PROTECTED LEFT, 3 UNIT HEAD, 12"		SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		METER BASE
	PEDESTRIAN SIGNAL		RADAR DETECTION CABLE		SIGNAL DISCONNECT SWITCH
	PEDESTRIAN PUSH BUTTON		6-PAIR INTERCONNECT CABLE		UNINTERRUPTIBLE POWER SUPPLY CABLE
	STOP LINE RADAR DETECTION UNIT		POWER SOURCE		SIGNAL SUPPORT POLE
	ETHERNET RADIO		RAILROAD INDICATOR PANEL		ETHERNET CABLE

PEDESTRIAN SIGNAL HEADS



PROPOSED PEDESTRIAN SIGNAL HEADS
PH2A, PH2B
PH4A, PH4B
PH6A, PH6B
PH8A, PH8B

MAST ARM MOUNTED SIGNS

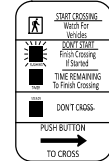


R3-1-30
S1 (2-SIGNS)
S1 & S2 ARE LED BLANKOUT SIGNS AND SHALL BE WIRED TO THE SIGNAL CONTROLLER.



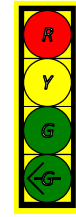
R3-1-30
S2 (1-SIGNS)

PEDESTRIAN SIGNS

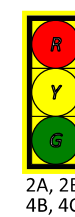


R10-3E-9
S4 (4-SIGNS)
2-LEFT ARROWS
2-RIGHT ARROWS

SIGNAL HEADS



4A



2A, 2B
4B, 4C
6A, 6B
8A, 8B



3A

ALL SIGNAL HEADS SHALL BE 12" LED WITH BACKPLATES.

LED INTERNALLY ILLUMINATED SIGNS

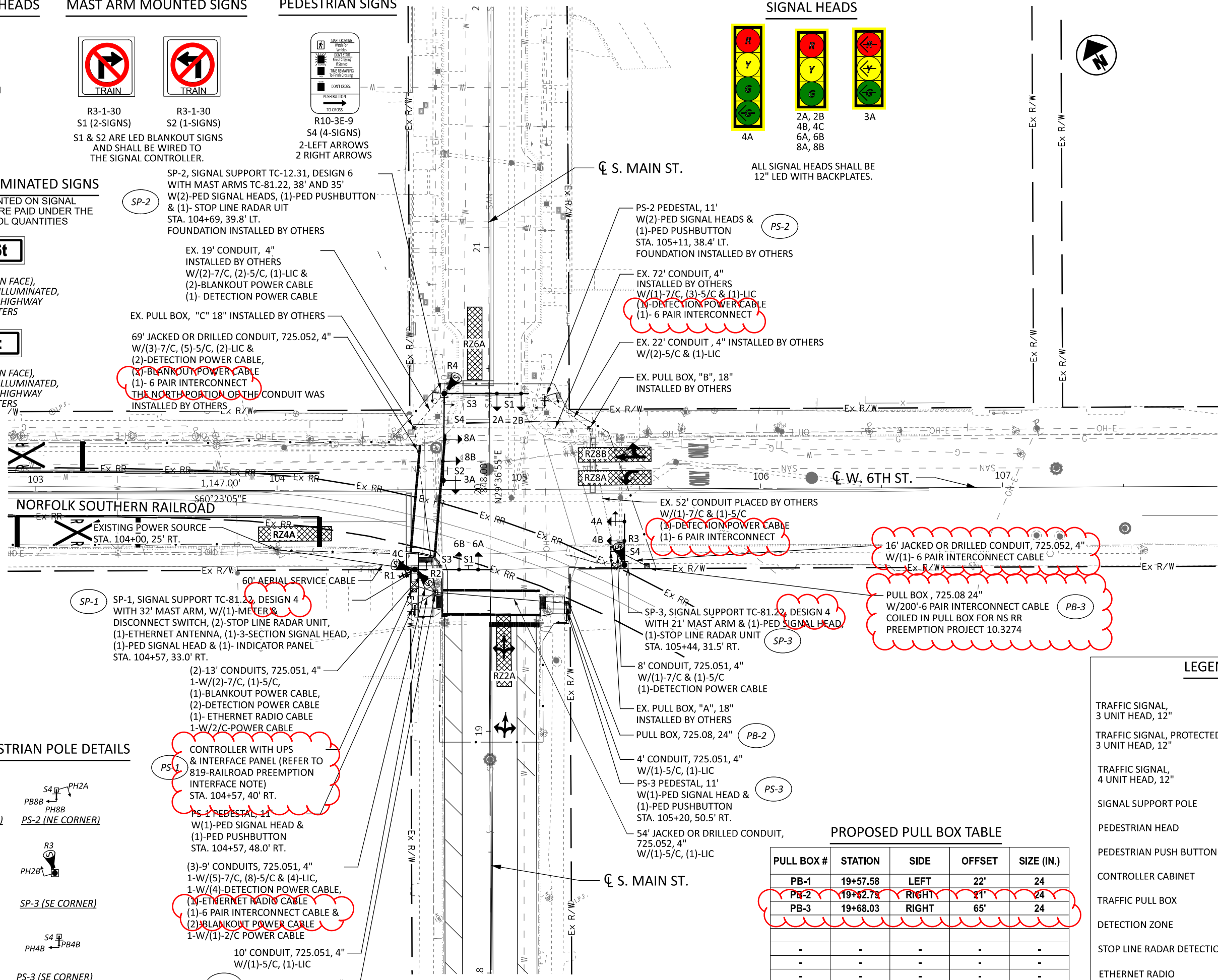
SIGNS TO BE MOUNTED ON SIGNAL MAST ARM SP-1 AND ARE PAID UNDER THE TRAFFIC CONTROL QUANTITIES

S Main St

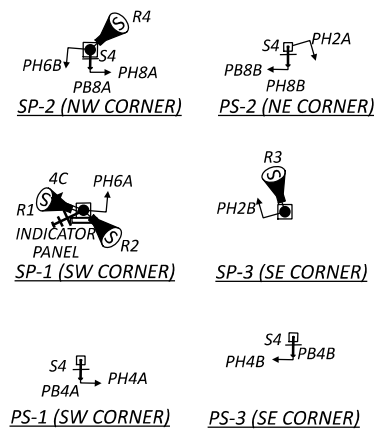
S4
D3-1, 78"X18" (SIGN FACE),
1-WAY LED INTERNALLY ILLUMINATED,
8" INCH "STANDARD HIGHWAY
SERIES D" LETTERS

Sixth St

S3
D3-1, 72"X18" (SIGN FACE),
1-WAY LED INTERNALLY ILLUMINATED,
8" INCH "STANDARD HIGHWAY
SERIES D" LETTERS



SIGNAL POLE & PEDESTRIAN POLE DETAILS



SP-1, SIGNAL SUPPORT TC-81.22, DESIGN 4 WITH 32' MAST ARM, W/(1)-METER & DISCONNECT SWITCH, (2)-STOP LINE RADAR UNIT, (1)-ETHERNET ANTENNA, (1)-3-SECTION SIGNAL HEAD, (1)-PED SIGNAL HEAD & (1)- INDICATOR PANEL STA. 104+57, 33.0' RT.

(2)-13' CONDUITS, 725.051, 4"
1-W/(2)-7/C, (1)-5/C,
(1)-BLANKOUT POWER CABLE,
(2)-DETECTION POWER CABLE
(1)- ETHERNET RADIO CABLE
1-W/2/C-POWER CABLE

CONTROLLER WITH UPS & INTERFACE PANEL (REFER TO 819-RAILROAD PREEMPTION INTERFACE NOTE) STA. 104+57, 40' RT.

PS-1 PEDESTAL, 11' W/(1)-PED SIGNAL HEAD & (1)-PED PUSHBUTTON STA. 104+57, 48.0' RT.

(3)-9' CONDUITS, 725.051, 4"
1-W/(5)-7/C, (8)-5/C & (4)-LIC,
1-W/(4)-DETECTION POWER CABLE,
(1)-ETHERNET RADIO CABLE
(1)-6 PAIR INTERCONNECT CABLE & (2)-BLANKOUT POWER CABLE
1-W/(1)-2/C POWER CABLE

10' CONDUIT, 725.051, 4"
W/(1)-5/C, (1)-LIC

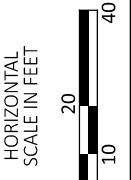
PB-1 PULL BOX, 725.08, 24"

PROPOSED PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	19+57.58	LEFT	22'	24
PB-2	19+62.78	RIGHT	21'	24
PB-3	19+68.03	RIGHT	65'	24
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

LEGEND

TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	PROP
TRAFFIC SIGNAL, PROTECTED LEFT/RIGHT 3 UNIT HEAD, 12"	
TRAFFIC SIGNAL, 4 UNIT HEAD, 12"	
SIGNAL SUPPORT POLE	
PEDESTRIAN HEAD	
PEDESTRIAN PUSH BUTTON	
CONTROLLER CABINET	
TRAFFIC PULL BOX	
DETECTION ZONE	
STOP LINE RADAR DETECTION UNIT	
ETHERNET RADIO	



TRAFFIC SIGNAL PLAN
SOUTH MAIN STREET & WEST 6TH STREET

SIGNAL TIMING CHART

INTERSECTION: WAR-S MAIN ST & W 6TH ST MAINTAINING AGENCY: CITY OF FRANKLIN								
START UP	DUAL ENTRY: YES		PHASES:					
	REST IN RED:		RING 1		RING 2			
START IN: ALL RED	8 sec		OVERLAP		A	B	C	D
TIME FOR FLASH OR ALL RED:	6		PHASES		-	-	-	-
FIRST PHASE(S):	GREEN							
COLOR DISPLAYED:								
INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)	1	2	3	4	5	6	7	8
DIRECTION	-	NB	EB LT	EB	-	SB	-	WB
MINIMUM GREEN (INITIAL) (SEC.)		5	5	10		5		10
ADDED INITIAL *(SEC./ACTUATION)								
MAXIMUM INITIAL (SEC.)								
PASSAGE TIME (PRESET GAP) (SEC.)		2		2		2		2
TIME BEFORE REDUCTION *(SEC.)								
MINIMUM GAP *(SEC.)								
TIME TO REDUCE *(SEC.)								
MAXIMUM GREEN I (SEC.)		30	10	45		30		45
MAXIMUM GREEN II (SEC.)								
YELLOW CHANGE (SEC.)		3.5	3.5	4		3.5		4
ALL RED CLEARANCE (SEC.)		1	1.5	2.5		1		2.5
WALK (SEC.)		6		5		5		5
PEDESTRIAN CLEARANCE (SEC.)		8		9		5		5
RECALL	MAXIMUM (ON/OFF)		OFF	OFF		OFF		OFF
	MINIMUM (ON/OFF)		OFF	OFF		OFF		OFF
	PEDESTRIAN (ON/OFF)		OFF	OFF		OFF		OFF
MEMORY (ON/OFF)								

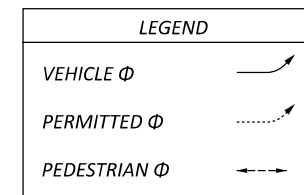
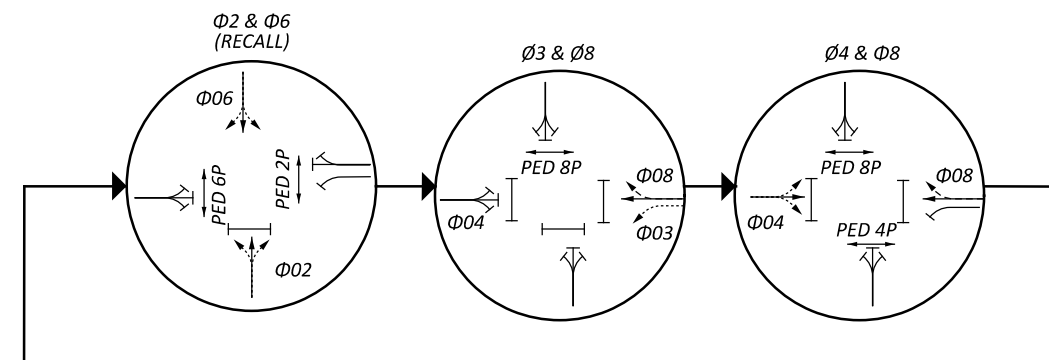
*VOLUME DENSITY CONTROLS

NOTES:
1. COUNTDOWN PEDESTRIAN SIGNAL HEADS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.

RADAR DETECTION CHART

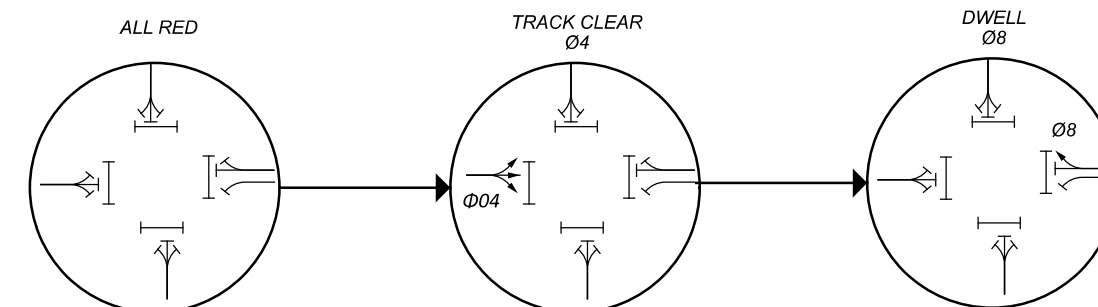
DETECTION ZONE	RADAR NO.	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	EXTENSION PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RZ2A	R2	NB	PRESENCE	2				CALL/EXTEND PHASE 2	30'
RZ3A	R3	WBLT	PRESENCE	3				CALL/EXTEND PHASE 3	30'
RZ4A	R1	EB	PRESENCE	4				CALL/EXTEND PHASE 4	30'
RZ6A	R3	SB	PRESENCE	6				CALL/EXTEND PHASE 6	30'
RZ8A	R3	WB	PRESENCE	8				CALL/EXTEND PHASE 8	30'

PHASING DIAGRAM



PREEMPTION PHASING DIAGRAM

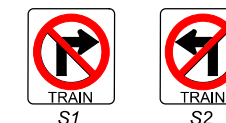
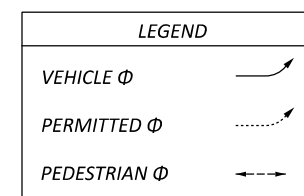
RRPE AT THIS SIGNAL SHALL BE INITIATED BY INPUT FROM MAIN/6TH STREET NORFOLK SOUTHERN RRPE PEDESTAL



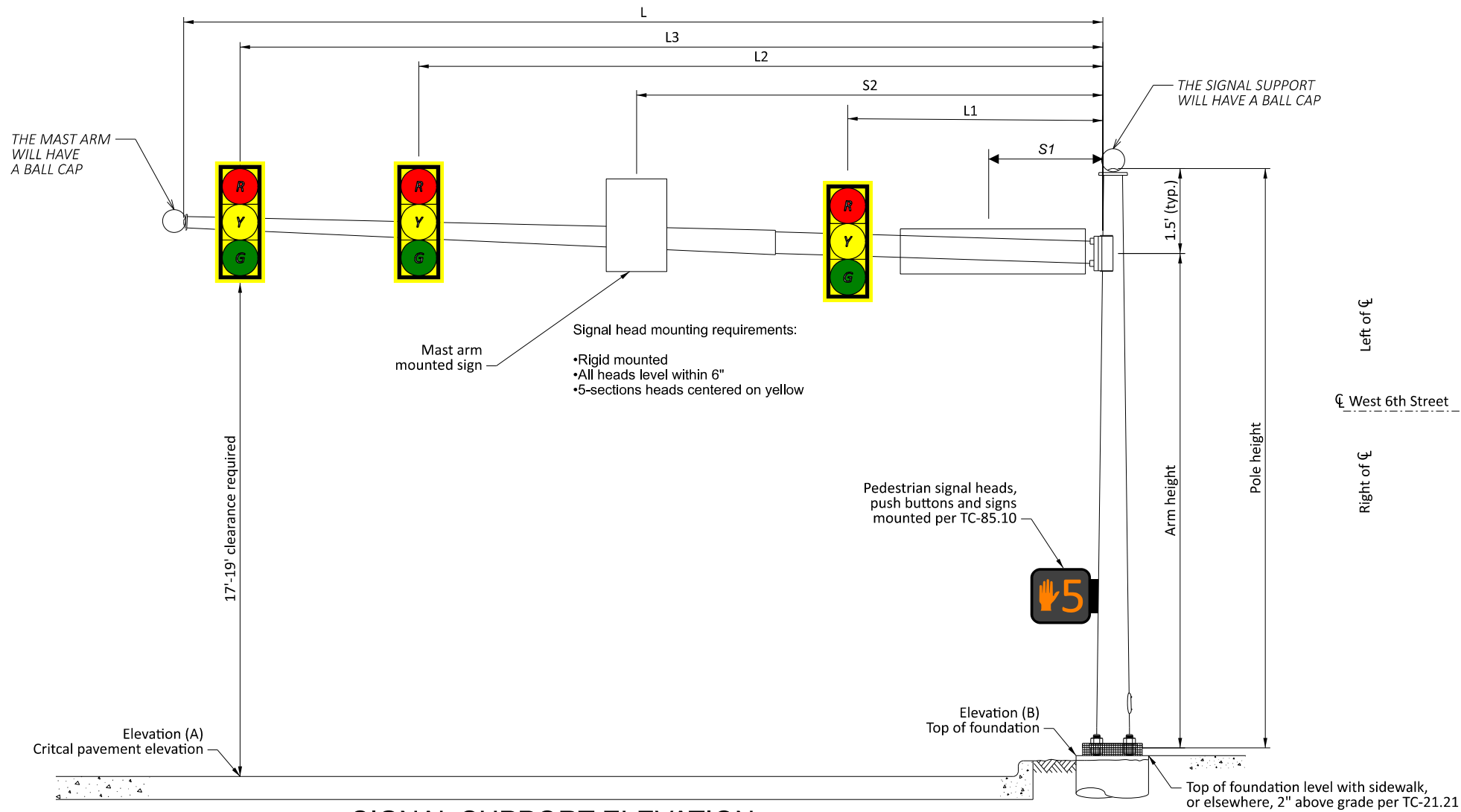
ALL RED = 2.0 SEC

TRACK CLEAR = 30 SEC

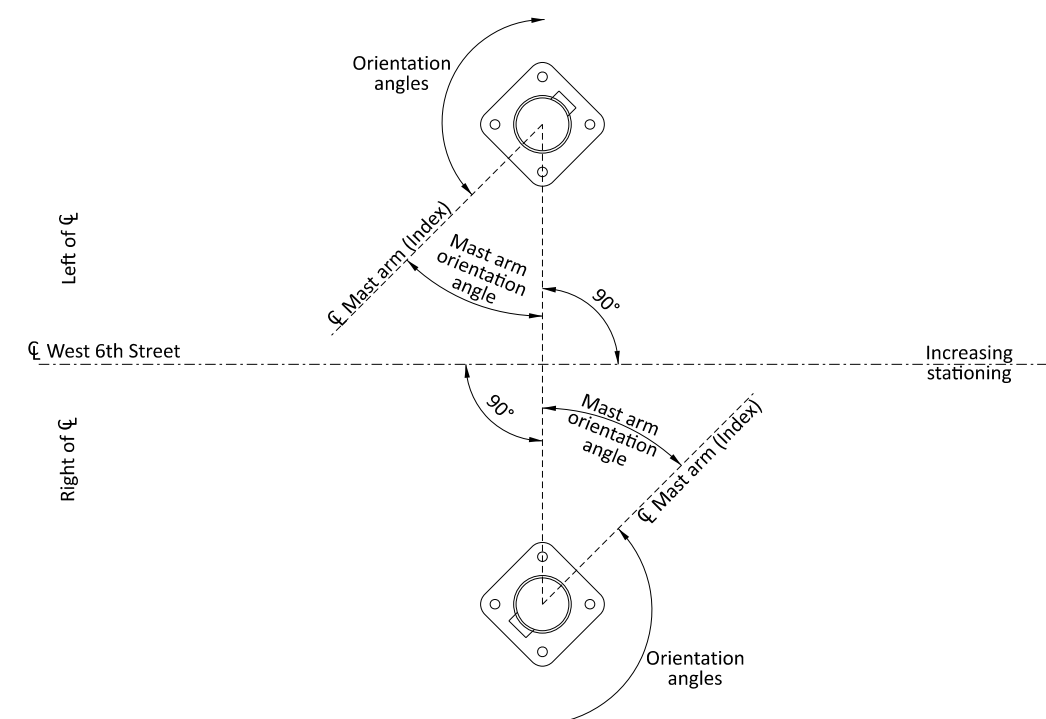
PEDESTRIAN PHASES OPERATING DURING THE PREEMPTION CALL SHALL BE TERMINATED.



LED BLANKOUT SIGN S1 & S2 SHALL BE ACTIVE DURING ALL PHASES OF PREEMPTION



SIGNAL SUPPORT ELEVATION

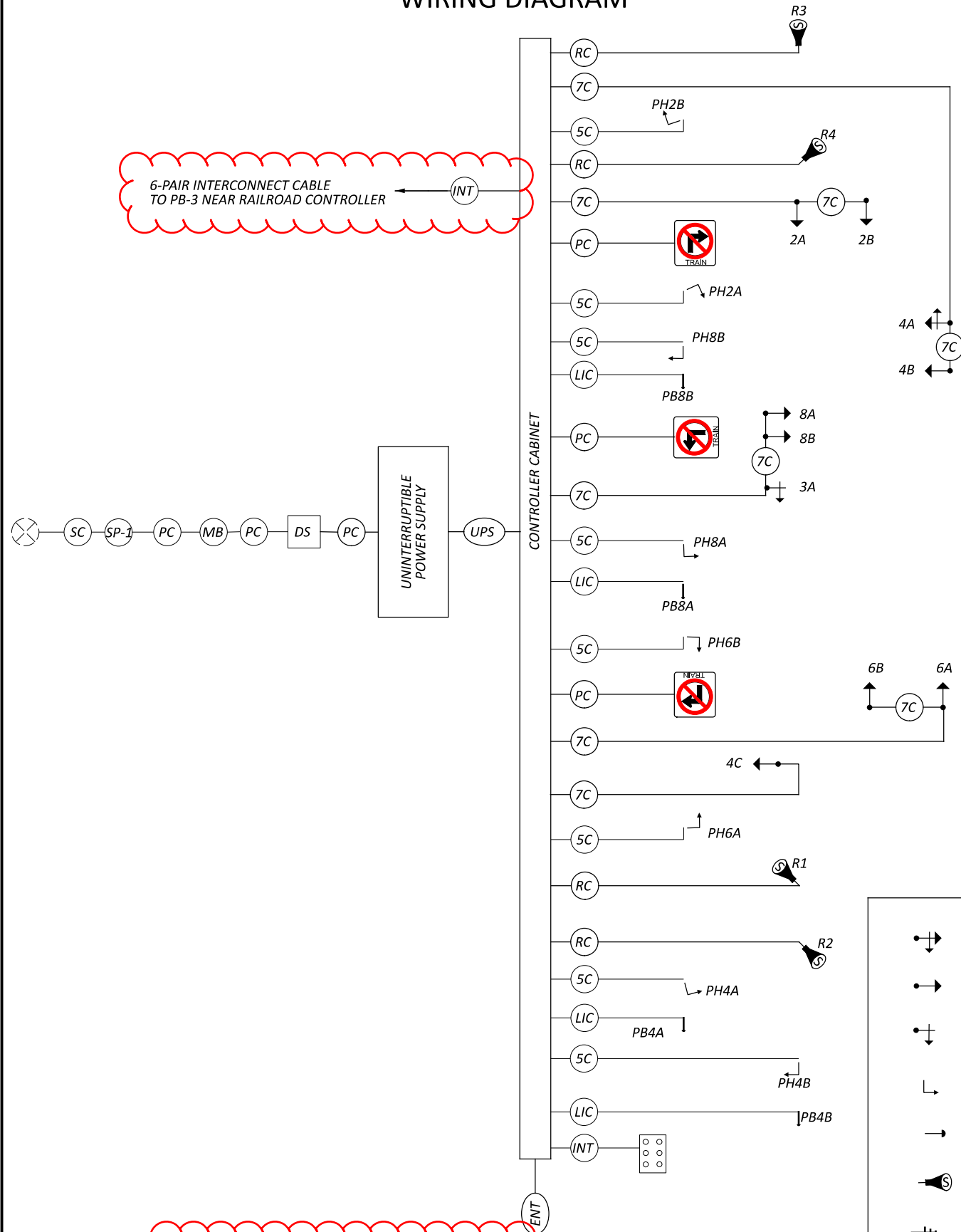


POLE ORIENTATION

MAST ARM TABLE

SUPPORT NO.	STATION	OFFSET	ELEVATION		SIGNAL SUPPORT DETAILS										ORIENTATION ANGLES FROM MAST ARM									
			A	B	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	L3	S1	S2	MAST ARM A ANGLE	MAST ARM B ANGLE	PEDESTRIAN SIGNAL	PEDESTRIAN BUTTON	POWER SERVICE	STOP LINE RADAR UNIT	HANDHOLE	CABLE ENTRANCE 12" FROM TOP	POLE MOUNTED SIGNAL HEAD	STOP BAR DETECTOR
			FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
SP-1	104+57	33.0' RT	681.43	681.76	TC-81.22	4	21.5	20	32	18	26		9	22	90	-	4	-	172	44/200	180	172		
SP-2	104+69	39.8' LT		680.97	TC-12.31	6	23								1	-	0/94	0	-	-	90			
SP-2 (ARM A)			681.11		TC-81.22	4		19.5	38	19	28	36	11	32										
SP-2 (ARM B)			680.92		TC-81.22	4		21	35	21	32		10	26		270								
SP-3	105+44	31.5' RT	681.75	682.03	TC-81.22	4	21.5	20	21	10	18		5		0	-	254	-	-	343	180	-		
PS-1	104+57	48.0' RT					11										180	180			270			
PS-2	105+11	38.4' LT					11										0/254	0			270			
PS-3	105+20	50.5' RT					11										180	180			90			

WIRING DIAGRAM



NOTE: THE RAILROAD PREEMPTION (RRPE), SHALL BE INITIATED BY THE RAILROAD INPUT AT EACH RAILROAD CONTROLLER. A 6 PAIR INTERCONNECT RUNS FROM THE SIGNAL CONTROLLER TO THE RAILROAD CONTROLLER. THE ETHERNET RADIO IS FOR USE BY THE CITY.

FIELD WIRING HOOKUP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	
2A, 2B (NB)	R	2R	R	8A, 8B (WB RT)	R	8R/ LS 14R	R	
	Y	2Y			8Y/LS 14Y			
	G	2G			8G/LS 14G			
	-	-			-			
3A (EB)	R	4R	R	4A (EB LT)	R	4R	R	
	Y	4Y			4Y			
	G	4G			4G			
	-	-			-			
4B,4C (EB)	R	4R	R	PED-2	W	2 PED/LS 10G	OUT	
	Y	4Y			DW	2 PED/LS 10R		
	G	4G			W	4 PED/LS 11G		
	-	-			DW	4 PED/LS 11R		
6A, 6B (SB)	R	6R	R	PED-4	W	6 PED/LS 12G	OUT	
	Y	6Y			DW	6 PED/LS 12R		
	G	6G			W	8 PED/LS/13G		
	-	-			DW	8 PED/LS 13R		
PEDESTRIAN MOVEMENTS								
OVERLAPS								
					OLA	-Y-->	8Y/LS 14Y	
						--G-->	8G/LS 14G	
					S1 & S2		LS 14 R	OUT

LS 14 IS ONLY ACTIVATED DURING TRACK CLEAR OF THE PREEMPTION - GREEN (ARROW /BALL)

LS 14 ACTIVATE DURING ALL PHASES OF PREEMPTION - LED BLANKOUT SIGN S1

LEGEND

	TRAFFIC SIGNAL, 4 UNIT HEAD, 12"		2/C NO. 14 AWG (LEAD-IN CABLE)		SERVICE CABLE, 3 CONDUCTOR, NO. 4 AWG
	TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG		POWER CABLE, 2 CONDUCTOR, NO. 4 AWG
	TRAFFIC SIGNAL, PROTECTED LEFT/RIGHT 3 UNIT HEAD, 12"		SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		METER BASE
	PEDESTRIAN SIGNAL		RADAR DETECTION CABLE		SIGNAL DISCONNECT SWITCH
	PEDESTRIAN PUSH BUTTON		6-PAIR INTERCONNECT CABLE		UNINTERRUPTIBLE POWER SUPPLY CABLE
	STOP LINE RADAR DETECTION UNIT		POWER SOURCE		SIGNAL SUPPORT POLE
	ETHERNET RADIO		ETHERNET CABLE		
	LED BLANKOUT SIGN (NO RIGHT TURN)		RAILROAD INDICATOR PANEL		