

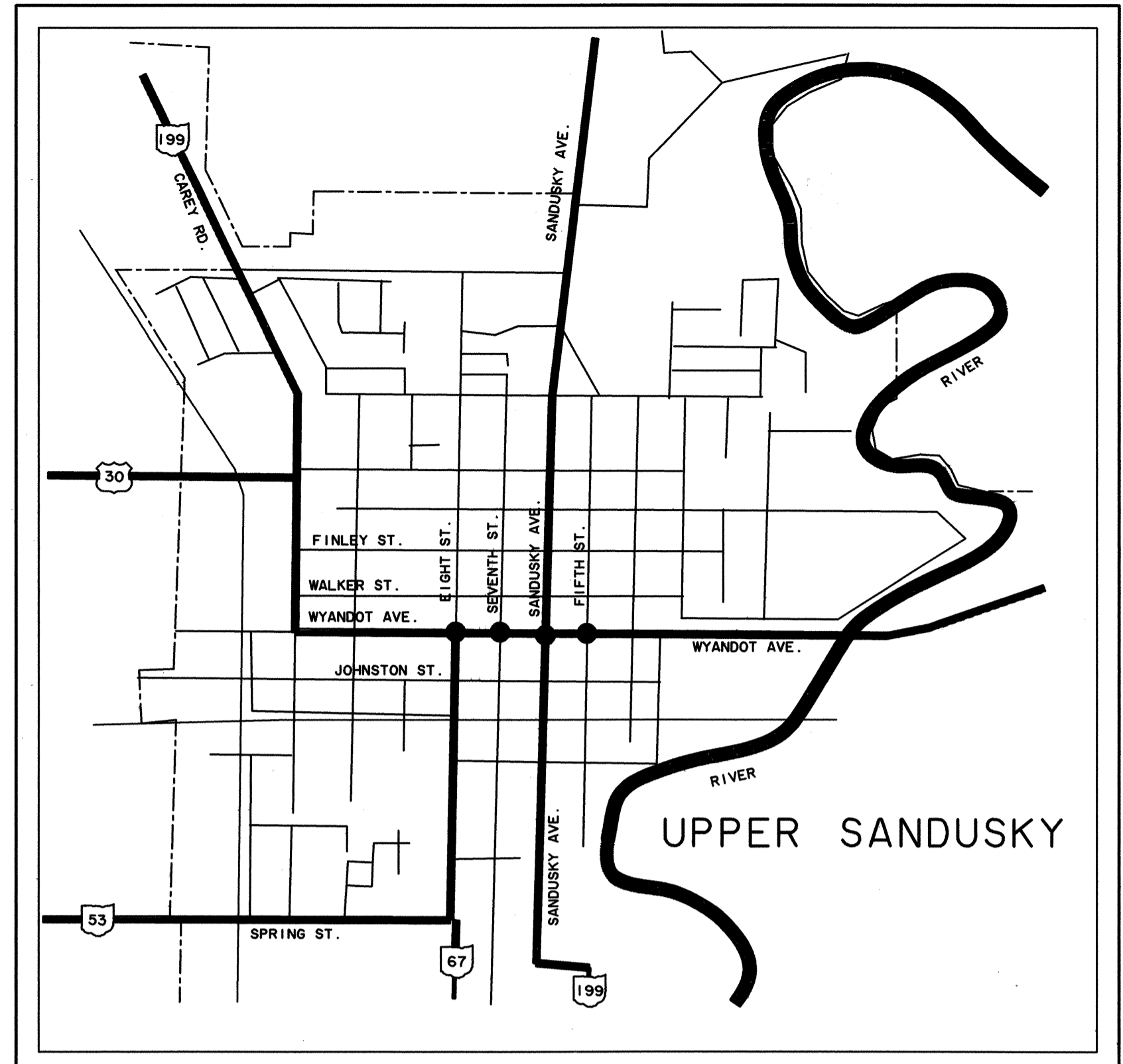
MAY 02 1997

METRIC PROJECT



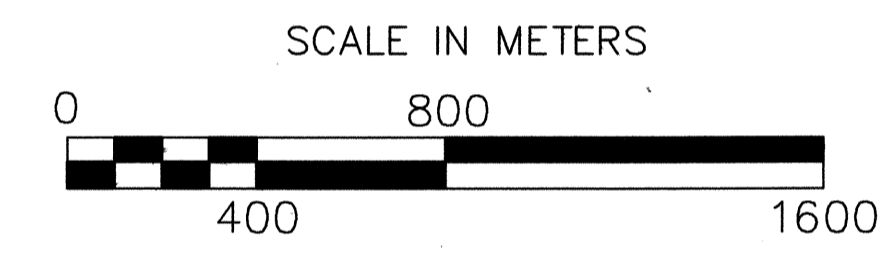
metric units

STATE OF OHIO DEPARTMENT OF TRANSPORTATION WYA - UPPER SANDUSKY TRAFFIC SIGNALS UPPER SANDUSKY WYANDOT COUNTY



LOCATION MAP

LATITUDE N83° 17' 00" LONGITUDE W40° 49' 06"



- INTERSECTION TO BE UPGRADED ●
- US OR STATE ROUTE —
- LOCAL STREET —

INDEX OF SHEETS

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1995 SPECIFICATIONS

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

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.

UNDERGROUND UTILITIES
 TWO WORKING DAYS
 BEFORE YOU DIG
 CALL 1-800-362-2764 (TOLL FREE)
 OHIO UTILITIES PROTECTION SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECTLY



BRANDSTETTER/CARROLL INC.
 ARCHITECTS ENGINEERS PLANNERS
 Brandstetter Carroll, Inc., 424 E 4th Street, Cincinnati, OH 45202

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	
TC-81. 20M	11-24-93	TC-41. 20M	07-01-94		
TC-82. 10M	11-24-93	TC-52. 10M	07-29-94		
TC-83. 10M	11-24-93	TC-52. 20M	07-29-94		
TC-85. 10M	11-24-93	TC-16. 20M	02-01-94		
TC-85. 20M	11-24-93	TC-21. 20M	02-01-94		
TC-21. 10M	02-01-94	TC-41. 41M	03-31-94		
MT-95. 31M	04-25-94				
MT-95. 32M	04-25-94				
MT-97. 10M	04-25-94				
HL-30. 22M	03-31-95				
HL-30. 11M	03-31-95				
MT-35. 10M	01-03-95				
MT-105. 10M	04-29-94				
MT-105. 11M	04-25-94				
TC-41. 10M	03-31-94				

APPROVED *[Signature]*
 DATE 6/21/96 DISTRICT DEPUTY DIRECTOR

APPROVED *[Signature]*
 DATE 7/3/96 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. STP
 PID NO. 13233
 CONSTRUCTION PROJECT NO.
 RAILROAD INVOLVEMENT NONE
 WYA-UPPER SANDUSKY SIGNALS
 1/13

WYA-UPPER SANDUSKY
 960805
 13PGS
 11-06-96
 DIST. 01

CONTRACT SCOPE

THIS CONTRACT INVOLVES THE RECONSTRUCTION OF TRAFFIC SIGNAL SYSTEMS AND INCLUDES THE INSTALLATION OF NEW TRAFFIC SIGNAL EQUIPMENT AND REMOVAL OF EXISTING EQUIPMENT AT:

1. WYANDOT AVE. (US 30) & FIFTH ST.
2. WYANDOT AVE. (US 30) & SANDUSKY AVE.
3. WYANDOT AVE. (US 30) & SEVENTH ST.
4. WYANDOT AVE. (US 30) & EIGHTH ST.

POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO POWER COMPANY AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE

120 VOLTS, 60 HZ, SINGLE PHASE, 2 WIRE SERVICE.

CONTACT FOR ELECTRICAL SERVICE:

MR. DAVID PATCHETT
THE OHIO POWER COMPANY
P.O. BOX 231
BUCYRUS, OHIO 44820
PHONE: (419) 563-1510

ALL CONNECTIONS TO THE ELECTRIC POWER LINES WILL BE MADE BY THE OHIO POWER CO. CREWS.

THE CITY OF UPPER SANDUSKY OPERATES ON A FRANCHISE WITH THE OHIO POWER COMPANY. THIS REQUIRES THAT ALL SIGNAL LOCATIONS BE METERED.

THE OHIO POWER COMPANY WILL PROVIDE THE WATT-HOUR METER AND WILL ALSO PROVIDE THE METER SOCKET TO THE CONTRACTOR FOR INSTALLATION.

THE OHIO POWER COMPANY WILL INSTALL A 3 CONDUCTOR 120/240 VOLT ELECTRIC SERVICE TO THE SIGNAL POLE HOUSING THE METER. THE CONTRACTOR SHALL INSTALL A 3 CONDUCTOR #6 AWG POWER CABLE FROM THE ELECTRIC SERVICE ATTACHMENT ON THE POLE THROUGH A 32mm EXTERNAL CONDUIT RISER TO THE LINE SIDE OF THE METER. THE METER OPERATES ON 240 VOLTS. THE CONTRACTOR SHALL INSTALL A 2 CONDUCTOR #6 AWG (2C#6) POWER CABLE (120 VOLTS) FROM THE LOAD SIDE OF THE METER TO THE DISCONNECT SWITCH AND TO THE TRAFFIC SIGNAL CONTROLLER.

THERE ARE NO CHARGES FOR THE WORK BY THE OHIO POWER COMPANY SINCE ALL ELECTRIC SERVICE POLES ARE ONLY 15 TO 30m FROM THE WATT-HOUR METER LOCATION.

614 MAINTENANCE OF TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 614, TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

PROCEDURES FOR MAINTAINING TRAFFIC SHALL BE IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES CURRENT EDITION AND STANDARD CONSTRUCTION DRAWINGS MT-95.31M, MT-95.32M AND MT-97.10M. WORK ON OR BEYOND THE SHOULDER SHALL BE IN ACCORDANCE WITH PLATES C-II THRU C-13 AS PER THE OMUTD.

ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE, AS DETERMINED BY THE ENGINEER.

UTILITIES

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

GAS COLUMBIA GAS OF OHIO
NORTHWEST DISTRICT
ONE SEAGATE
TOLEDO, OHIO 43653
419-248-5297

TELEPHONE AMERITECH
130 N. ERIE ST.
TOLEDO, OHIO 43624
419-245-7589

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.

IF THE CONTRACTOR FAILS TO COMPLY WITH THE PROVISIONS FOR TRAFFIC CONTROL AS SET FORTH IN THESE PLANS OR WITH PROVISIONS OF THE OMUTCD, AND SUCH FAILURE RESULTS IN A CONDITION AT THE WORK SITE WHICH IS UNSAFE FOR TRAFFIC, THE ENGINEER SHALL SUSPEND WORK UNTIL THE CONTRACTOR COMPLIES WITH THE NECESSARY REQUIREMENTS.

NO WORK SHALL BE PERMITTED DURING THE HOURS OF 7 TO 9 AM AND 4 TO 6 PM WEEKDAYS (PEAK HOURS).

DURING CONSTRUCTION THE MINIMUM OF ONE (1) LANE OF TRAFFIC FOR EACH APPROACH SHALL BE MAINTAINED. PEDESTRIAN ACCESS TO LOCAL BUSINESSES AND STREET CROSSINGS SHALL BE MAINTAINED AT ALL TIMES.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

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

A) EXISTING SIGNAL INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST START CONSTRUCTION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.

B) 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 THESE 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 OR THE CITY OF UPPER SANDUSKY FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES 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.

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 4 HOURS AND SHALL NOT INCLUDE THE PEAK HOURS INDICATED ABOVE. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS. EXCEPT FOR THE FOLLOWING INTERSECTION WHICH SHALL BE PROTECTED BY OFF-DUTY CITY OF UPPER SANDUSKY POLICE, HIRED BY THE CONTRACTOR:

1. SANDUSKY AVE. & WYANDOT AVE. (US 30)

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

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

632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS.

NONE OF THE EXISTING TRAFFIC SIGNAL ITEMS SHALL BE REUSED.

THE FOLLOWING ITEMS SHALL BE REMOVED AND STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF UPPER SANDUSKY.

1. TRAFFIC SIGNAL HEADS
2. TRAFFIC SIGNAL CONTROLLERS INCLUDING CABINETS.

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED; THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

625 PULLBOXES, CONCRETE, 450mm

PULLBOXES SHALL BE REINFORCED CONCRETE WITH CAST IRON FRAMES AND COVERS. PRECAST PULLBOXES SHALL HAVE A 75mm WALL THICKNESS. CAST-IN-PLACE PULLBOXES SHALL HAVE A 100mm WALL THICKNESS. PULLBOXES SHALL BE CONSTRUCTED PER ODOT DETAIL STANDARD HL-30.11M AGGREGATE FOR THE PULLBOX DRAIN SHALL BE A MIN. 230mm DEEP.

PULLBOX COVERS SHALL HAVE THE WORD "TRAFFIC" FORMED IN THE SURFACE. LETTERS SHALL BE 25 TO 50 mm IN HEIGHT.

625 TRENCH IN PAVED AREAS, 762mm DEEP, AS PER PLAN

TRENCH IN PAVED AREA SHALL HAVE A SUFFICIENT DEPTH TO PROVIDE A MINIMUM 610mm OF COVER FROM THE TOP OF THE CONDUIT TO THE ROADWAY SURFACE.

625 TRENCH

TRENCH IN SIDEWALK & OTHER NONROADWAY AREAS SHALL BE 610mm. SIDEWALK RESTORATION SHALL BE FURNISHED UNDER ITEM 608.

608 WALKWAY MISC. : SIDEWALK REMOVAL AND REPLACEMENT

THE CONTRACTOR SHALL REMOVE ALL EXISTING SIDEWALK TO THE NEAREST JOINT WHERE NEW CONDUIT OR STRAIN POLE FOUNDATIONS DISTURB EXISTING SIDEWALKS. THE CONTRACTOR SHALL REPLACE SIDEWALK IN 1.5m SQUARES AS DESCRIBED IN 608.03. PAYMENT FOR TRENCHES AND STRAIN POLE FOUNDATIONS SHALL BE PAID FOR UNDER THEIR RESPECTIVE PAY ITEMS. SIDEWALK REMOVAL AND REPLACEMENT AND DISPOSAL OF REMOVED MATERIAL SHALL BE PAID FOR UNDER THIS PAY ITEM. AN ESTIMATED QUANTITY OF 36 SQUARE METERS HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE. THE CONTRACTOR SHALL BE PAID FOR ONLY THE ACTUAL AMOUNT REQUIRED.

EQUIPMENT GROUNDING

THE ELECTRICAL SYSTEM OF EACH TRAFFIC SIGNAL INSTALLATION SHALL BE GROUNDED PER N.E.C. REQUIREMENTS.

ALL METALLIC EQUIPMENT (I.E. POLES, PUSHBUTTONS, CABINETS AND CONDUIT) SHALL BE GROUNDED TO THE NEAREST POLE GROUNDING LUG AND TO THE ADJACENT GROUND ROD. REFER TO SPECIAL DETAILS ON SHEET I3.

ALL STEEL CONDUIT SHALL BE ELECTRICALLY CONNECTED WITH JUMPER CABLES IN PULLBOXES AND SHALL PROVIDE AN EQUIPMENT GROUNDING CIRCUIT FOR THE SIGNAL SYSTEM TYING ALL METALLIC EQUIPMENT TO THE LOAD SIDE NEUTRAL AT THE POWER DISCONNECT SWITCH AND AT THE TRAFFIC SIGNAL CONTROLLER.

WYE TYPE CABLE SPLICE KITS SHALL BE USED AS SHOWN ON THE DETAILS AND SHALL BE INCIDENTAL TO THE COST OF "625 CONDUIT."

ALL CABINETS AND POLES SHALL BE PROVIDED WITH A GROUNDING LUG.

ALL GROUNDING CABLE INCLUDING JUMPERS SHALL MEET THE REQUIREMENTS OF ITEM 713.17 AND SHALL BE A MIN. NO. 4 AWG.

GROUNDING LUGS SHALL BE MADE OF HIGH STRENGTH COPPER OR COPPER ALLOY AND SHALL BE BLACKBURN L-125, T&B 1300 SERIES OR APPROVED EQUAL.

PAYMENT FOR THE VARIOUS ITEMS TO COMPLETE EQUIPMENT GROUNDING SHALL BE INCIDENTAL TO THE COST OF THE EQUIPMENT ATTACHED THERETO.

625 GROUND ROD

GROUND RODS SHALL MEET THE REQUIREMENTS OF ITEM 625 INCLUDING GROUNDING CABLE(PER ITEM 713.17) TO THE ADJOINING POLE GROUND LUG.

A GROUND ROD SHALL BE INSTALLED FOR EACH POLE.

GROUND RODS SHALL BE DRIVEN IN PULLBOXES ADJOINING OR ABUTTING POLES OR ADJACENT TO POLES WHERE PULLBOXES ARE NOT WITHIN 1.5m OF THE POLE.

GROUND RODS WILL BE PAID FOR EACH UNDER ITEM "625 GROUND ROD".

TRAFFIC CONTROL GENERAL NOTES

WYA-UPPER SANDUSKY SIGNALS

632 SIGNAL SUPPORT, BY TYPE AND DESIGN

IN ADDITION TO THE REQUIREMENTS OF ITEM 632.14, SIGNAL SUPPORT POLES SHALL BE PROVIDED WITH HIGH STRENGTH COPPER OR COPPER ALLOY GROUNDING LUG WHICH SHALL BE SECURED TO THE TAPPED GROUND HOLE PROVIDED ON THE HANDHOLE FRAME.

THE MAST ARM, WHEN ATTACHED TO THE SUPPORT POLE, SHALL BE TESTED FOR ELECTRICAL CONTINUITY WITH THE POLE. IN THE CASE WHERE THERE IS NO ELECTRICAL CONTINUITY THE CONTRACTOR SHALL PROVIDE A GROUNDING CONNECTION (I.E. JUMPER CABLE & LUGS) BETWEEN THE ARM AND THE POLE. SUCH A CONNECTION SHALL MEET WITH THE APPROVAL OF THE ENGINEER.

THE COST OF THESE ITEMS SHALL BE INCIDENTAL TO THE ITEM "632 SIGNAL SUPPORT, BY TYPE AND DESIGN."

625 CONDUIT, 713.04, BY SIZE

ALL UNDERGROUND CONDUIT SHALL BE GALVANIZED STEEL MEETING THE REQUIREMENTS OF 713.04 AND SHALL BE EQUIPPED WITH GROUNDING BUSHINGS.

CONDUIT CONNECTING SIGNAL SUPPORT POLES AND WHICH ARE UNDER ROADWAYS SHALL BE 76MM DIA.

CONDUIT CONNECTING MAIN TRUNK LINES TO LOOP DETECTORS SHALL BE 51MM DIA.

632 VEHICULAR SIGNAL HEAD, BY TYPE, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

A) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITS SPECIFICATIONS.

B) PLASTIC LENSES SHALL BE USED.

C) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OF ALUMINUM.

D) PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

632 PEDESTRIAN SIGNAL HEADS, BY TYPE, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

A) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITS SPECIFICATIONS.

B) PLASTIC LENSES SHALL BE USED.

C) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OF ALUMINUM.

D) PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

632 PEDESTRIAN PUSHBUTTONS, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ITEM 632, PUSHBUTTONS SHALL BE FURNISHED WITH TWO (2) INSTRUCTION SIGNS, ONE MOUNTED ADJACENT TO THE PUSHBUTTON AND ONE MOUNTED ACROSS THE STREET ON THE COMPLEMENTED ACTUATED PEDESTRIAN SIGNAL. MOUNTING DETAILS AND LOCATIONS SHALL BE AS SHOWN ON THE DETAILS AND THE PLANS.

THE SIGN ADJACENT TO THE PUSHBUTTON SHALL BE AN R-73A-MOD-127, NOMINALLY 152mm BY 224mm AND SHALL CONTAIN THE LEGEND SHOWN ON THE PLANS.

THE SIGN ADJACENT TO THE SIGNAL SHALL BE AN R-73B-MOD-457, NOMINALLY 457mm BY 610mm AND SHALL CONTAIN THE LEGEND: "PUSH BUTTON FOR WALK SIGNAL" ARRANGED AS SHOWN ON SHEET 13.

SIGNS SHALL MEET THE REQUIREMENTS OF ITEM 630.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE BID UNIT PRICE FOR PEDESTRIAN PUSHBUTTONS.

632 LOOP DETECTOR UNITS, BY TYPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY, AND ALL CONTACTS SHALL BE IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

ITEM 633 CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR AS PER PLAN

CONTROLLERS SHALL BE CAPABLE OF INTERNAL TIME BASED COORDINATION.

IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL HAVE EXTENDED MONITORING IN ACCORDANCE WITH 733.04 PART 3B, THE MONITOR SHALL ALSO HAVE THE CAPABILITY OF MONITORING EACH LOAD SWITCH SEPARATELY, AS SHOWN IN THE LOAD SWITCH HOOK-UP DIAGRAM. IN ADDITION TO THE REQUIREMENTS OF 733.04, THE CABINET SHALL BE WIRED SO THAT CONTROLLER PIN CONNECTIONS ASSOCIATED WITH A GIVEN PHASE NUMBER SHALL MATCH THE PHASE NUMBER ASSIGNED TO THE SPECIFIED TRAFFIC MOVEMENT AS SHOWN ON THE PLANS. THE CONTROLLER CABINET SHALL BE KEYPED TO THE STATE MASTER. CONTROLLER CABINET SIZE SHALL COMPLY TO THE REQUIREMENTS OF NEMA TS-1 SECTION 14. PRINTED CIRCUIT BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTABLE. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL. ALL CONTROLLER MEMORIES SHALL BE NON-VOLATILE AND SHALL NOT REQUIRE BATTERIES OR OTHER SOURCES OF ENERGY TO RETAIN DATA WHILE POWER IS REMOVED FROM THE CONTROLLER. THE DESIGN OF THE MONITOR SHALL USE MICROPROCESSOR ARCHITECTURE AND LIQUID CRYSTAL DISPLAYS. THE MONITOR SHALL INDICATE THE EXACT LOAD SWITCH CHANNEL IN WHICH THE FAILURE OCCURRED. THE CONFLICT MONITOR SHALL HAVE AN EVENT LOGGING MEMORY. A MINIMUM OF NINE (9) EVENTS SHALL BE LOGGED. EXAMPLES OF EVENTS INCLUDE: POWER OUTAGES, CONFLICTS, CONTROLLER VOLTAGE MONITOR, ETC. EVENTS SHALL BE DISPLAYED ON THE CONFLICT MONITOR'S LIQUID CRYSTAL DISPLAY WHEN INTERROGATED.

PAYMENT FOR ITEM 633 CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH, COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

633 CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN, ALT BID (TRANSYT)

THE CONTROLLERS PROVIDED SHALL BE TRANSYT MODEL 1880EL AS MANUFACTURED BY THE PEEK CORPORATION OF TALLAHASSEE, FLORIDA. CONTROLLERS SHALL CONFORM TO ALL REQUIREMENTS OF THE GENERIC NOTE.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 120 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, INTERCONNECTION ITEMS AND MASTER CONTROL EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

ITEM 619 - FIELD OFFICE, TYPE A, AS PER PLAN

UNDER THIS ITEM, THE CONTRACTOR SHALL PROVIDE A FIELD OFFICE MEETING ALL REQUIREMENTS OF ITEM 619, FIELD OFFICE, TYPE A WITH THE FOLLOWING MODIFICATION. INSTEAD OF PROVIDING ONLY ONE PHONE LINE AS PER THE CMS, THE CONTRACTOR SHALL PROVIDE TWO SEPARATE PHONE LINES FOR THE FIELD OFFICE ON THIS PROJECT.

SIGNAL CONSTRUCTION PERSONNEL REQUIREMENTS

THE CONTRACTOR SHALL ASSIGN A SUPERVISOR FOR THIS PROJECT. THE SUPERVISOR SHALL BE A FULL TIME EMPLOYEE OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT CHANGE A SUPERVISOR ASSIGNED TO A PROJECT WITHOUT PRIOR WRITTEN NOTICE.

ALL CONTROLLER WORK AS DEFINED BELOW IN ITEMS 1 THRU 4 SHALL BE PERFORMED BY AN IMSA LEVEL TWO CERTIFIED TECHNICIAN.

1. BACK PANEL WIRING TERMINATIONS
2. PROGRAMMING
3. TURN ON
4. TROUBLESHOOTING

THE CONTRACTOR SHALL ALSO HAVE A FOREMAN ASSIGNED TO EACH CREW PERFORMING WORK FOR THIS PROJECT. A FOREMAN SHALL BE PRESENT AT ALL TIMES WHEN WORK IS PERFORMED BY THE CREW. EACH FOREMAN SHALL BE AN IMSA LEVEL ONE CERTIFIED TECHNICIAN. PRIOR VERBAL NOTICE SHALL BE PROVIDED TO THE ENGINEER BY THE CONTRACTOR IN ORDER TO REPLACE A CREW FOREMAN.

IN ADDITION, CRAFTS PEOPLE PERFORMING WORK AS DEFINED BELOW IN ITEMS 1 THRU 7 SHALL BE PERFORMED BY AN IMSA LEVEL ONE CERTIFIED TECHNICIAN.

1. CABLE SPLICES
2. SIGNAL HEAD INSTALLATION
3. CABLE AND WIRE INSTALLATION
4. POWER SERVICE INSTALLATION
5. GROUND ROD TESTING
6. CABLE INSULATION TESTING
7. FIELD WIRING TERMINATIONS

THE CONTRACTOR SHALL PRESENT TO THE ENGINEER, PRIOR TO THE COMMENCEMENT OF WORK, THE IMSA LEVEL ONE AND TWO CERTIFICATION PAPERS FOR ALL SIGNAL TECHNICIANS WORKING ON THIS PROJECT.

PARKING SPACE REMOVAL

PAVEMENT MARKING FOR EXISTING PARKING SPACES THAT CONFLICT WITH THE PROPOSED NO PARKING SIGNS SHALL BE REMOVED IN ACCORDANCE WITH 614.10. THE COST OF REMOVAL SHALL BE INCIDENTAL TO THE COST OF THE NO PARKING SIGNS. IN ADDITION, CURBS ADJACENT TO REMOVED PARKING SPACES SHALL BE PAINTED YELLOW. AN ESTIMATED QUANTITY OF 240 METERS OF 642 CURB MARKING, TYPE 2 HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR THIS PURPOSE. THE CONTRACTOR WILL BE PAID FOR ONLY THE QUANTITY ACTUALLY USED.

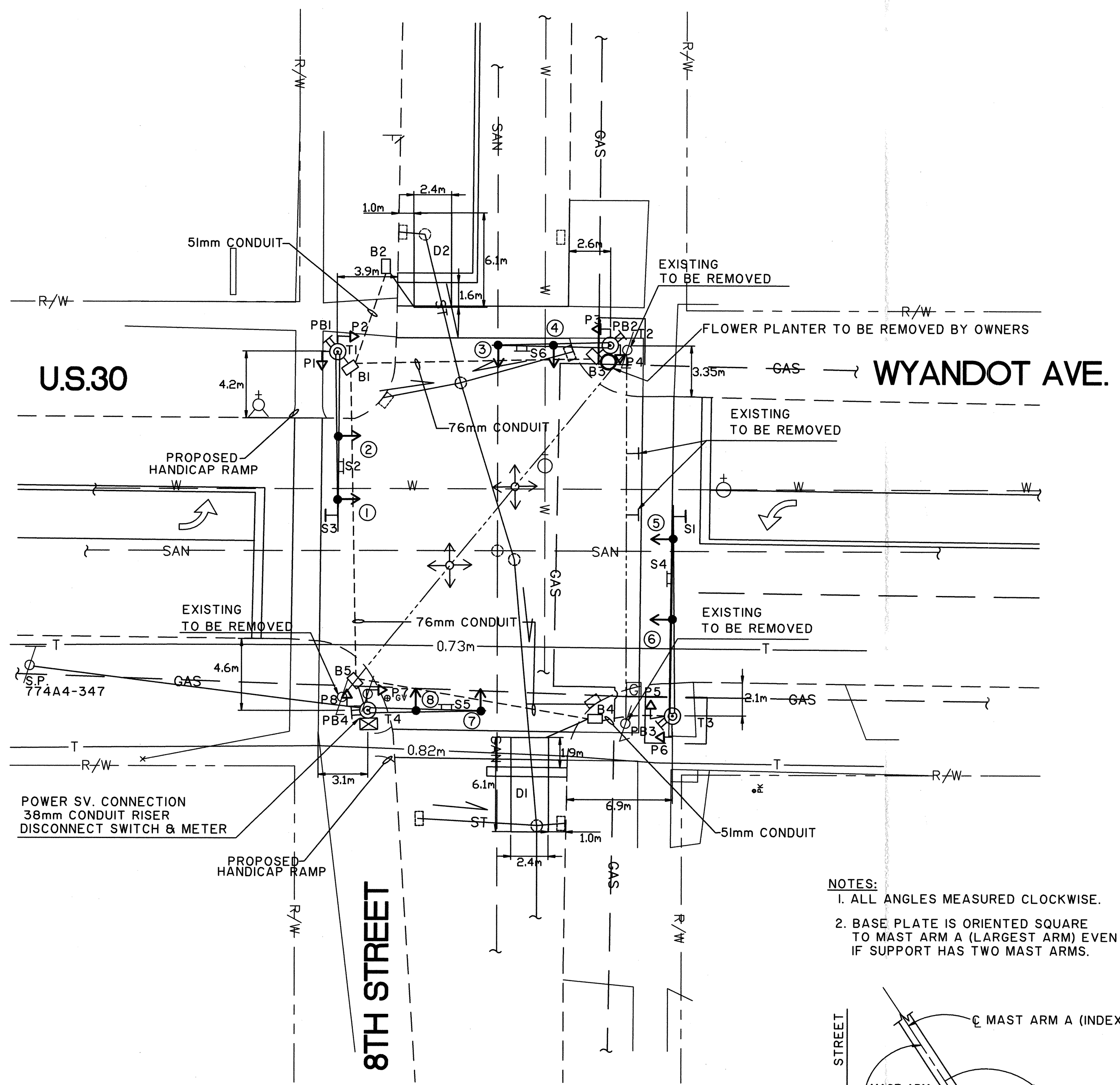
TRAFFIC CONTROL GENERAL NOTES

WYA-UPPER SANDUSKY SIGNALS

SHEET NUMBER							PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	CALCULATED VMG	CHECKED RRR
8TH ST. & WYANDOT	3	7TH ST. & WYANDOT	SANDUSKY WYANDOT	5TH ST. & WYANDOT	2	CITY, STATE & FEDERAL	100% CITY									
3		-	-	3				202	32000	6	m	CURB REMOVED				
4.5		-	-	4.5				608	54000	9	SQ. METER	CURB RAMP, TYPE 2				
-		-	-	-	36			608	98000	36	SQ. METER	WALKWAY MISC. : SIDEWALK REMOVAL AND REPLACEMENT				
12		9	-	10				625	25400	31	m	CONDUIT, 51mm, 713.04				
58		55	65	77				625	25500	255	m	CONDUIT, 76mm, 713.04				
10		10	-	15				625	29000	35	m	TRENCH				
44		55	63	46				625	29401	208	m	TRENCH IN PAVED AREA, 762mm DEEP, AS PER PLAN	2			
5		5	4	6				625	30700	20	EACH	PULL BOX, 713.08, 450mm				
4		4	4	4				625	32000	16	EACH	GROUND ROD				
-		7.9	22	11.9				630	02100	42	m	GROUND MOUNTED SUPPORT, NO. 2 POST				
6		4	4	4				630	79100	18	EACH	SIGN HANGER ASSEMBLY, MAST ARM				
4.90		3.79	5.05	3.92				630	80102	18	SQ. METER	SIGN, FLAT SHEET, TYPE G				
-		-	6	-				630	85100	6	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION				
8		8	8	8				632	00303	32	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 305mm LENS, I-WAY, POLYCARBONATE APP	3			
8		8	8	8				632	20101	32	EACH	PEDESTRIAN SIGNAL HEAD, TYPE A2, AS PER PLAN	3			
8		8	8	8				632	25000	32	EACH	COVERING OF VEHICULAR SIGNAL HEAD				
8		8	8	8				632	25010	32	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD				
4		4	-	4				632	26001	12	EACH	PEDESTRIAN PUSHBUTTON WITH SIGNS, AS PER PLAN	3			
2		2	-	2				632	27009	6	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	3			
39		39	-	39				632	27500	117	m	LOOP DETECTOR PAVEMENT CUTTING				
122		119	260	118				632	40500	619	m	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG				
313		302	197	312				632	40700	1124	m	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG				
84		84	-	84				632	64900	252	m	LOOP DETECTOR WIRE, TYPE E				
59		63	-	71				632	65200	193	m	LOOP DETECTOR LEAD-IN CABLE				
5		5	5	5				632	68200	20	m	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG				
8		8	8	8				632	68300	32	m	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG				
1		1	1	1				632	70000	4	EACH	POWER SERVICE				
4		4	4	4				632	71000	16	EACH	CABLE SUPPORT ASSEMBLY				
7.4		4.96	5.10	4.96				632	72000	22.4	CU. METER	CONCRETE FOR ANCHOR BASE FOUNDATION				
2		1	-	1				632	80100	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN I, 7.6m				
-		3	-	1				632	80200	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 2, 9.8m				
1		-	4	2				632	80500	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN II, 11.6m				
1		-	-	-				632	80500	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN II, 13.7m				
1		1	1	1				632	90100	4	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION				
1		1	1	1				633	34001	4	EACH	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	3			
1		1	1	1				633	34001	4	EACH	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN, ALT BID (TRANSYT)	3			
1.08		1.08	-	1.08				633	70500	3.2	SQ. METER	CONTROLLER WORK PAD				
	240							642	00802	240	m	CURB MARKING, TYPE 2				
								614	11000	LUMP		MAINTAINING TRAFFIC				
	2							619	16001	2	MONTH	FIELD OFFICE, TYPE A, AS PER PLAN	3			
								SPECIAL	61925000	LUMP		COMPUTER EQUIPMENT FOR TYPE A OFFICE				
								624	10000	LUMP		MOBILIZATION				

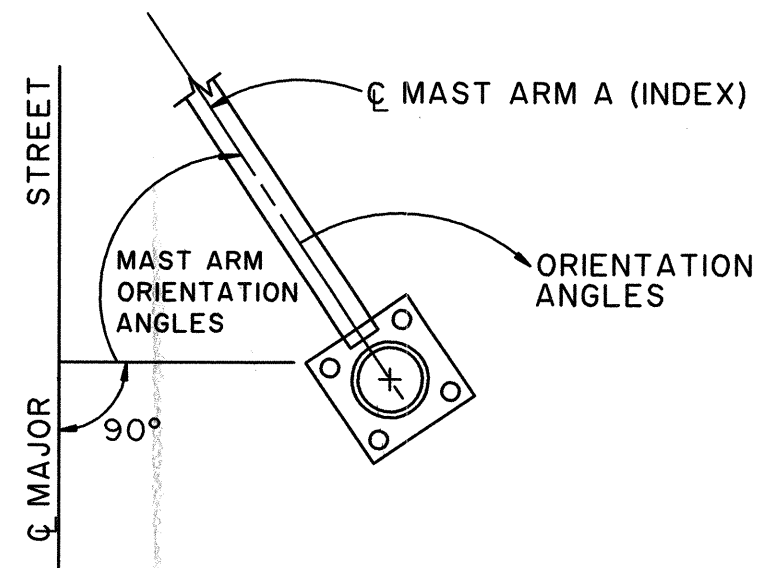
GENERAL SUMMARY

WYA-UPPER SANDUSKY SIGNALS



PROPOSED INTERSECTION
1:200

- NOTES:**
1. ALL ANGLES MEASURED CLOCKWISE.
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.

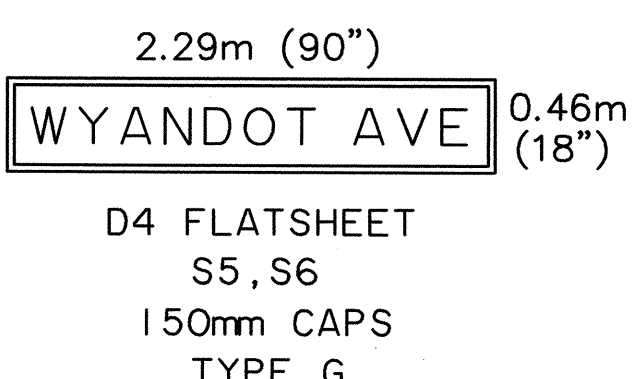
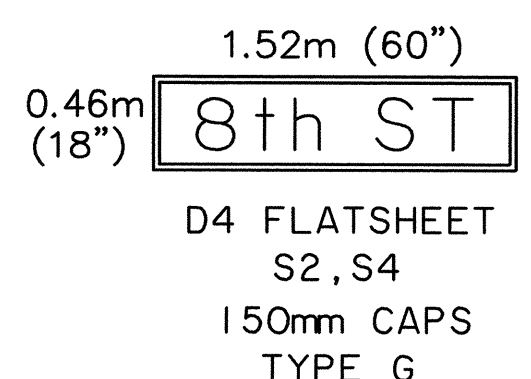


REFLECTORIZED SIGN DETAIL

762mm x 914mm



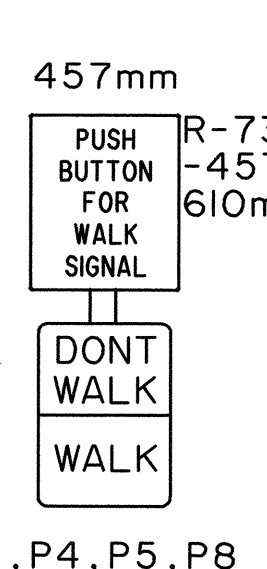
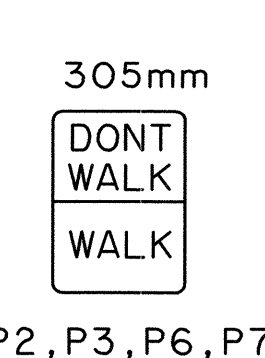
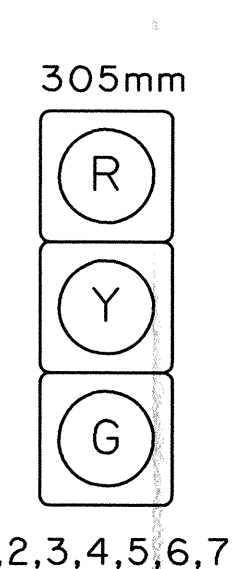
S1, S3
R-26A
TYPE G



NOTES:

1. ALL SIGNAL HEADS AND SIGNS SHALL BE FIELD ADJUSTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER TO INSURE VISIBILITY.
2. ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO POWER CO. ON POLE #774A4-347 AT THE LOCATION INDICATED ON THE PLAN.
3. ALL UNDERGROUND CONDUIT- 76mm, EXCEPT FROM PULLBOXES B1 TO B2 SHALL BE 51mm.

SIGNAL HEAD DETAIL



QNTY=1
152mm

TO CROSS STREET FOR WALK SIGNAL

229mm

R-73E-152(SP)
PB1

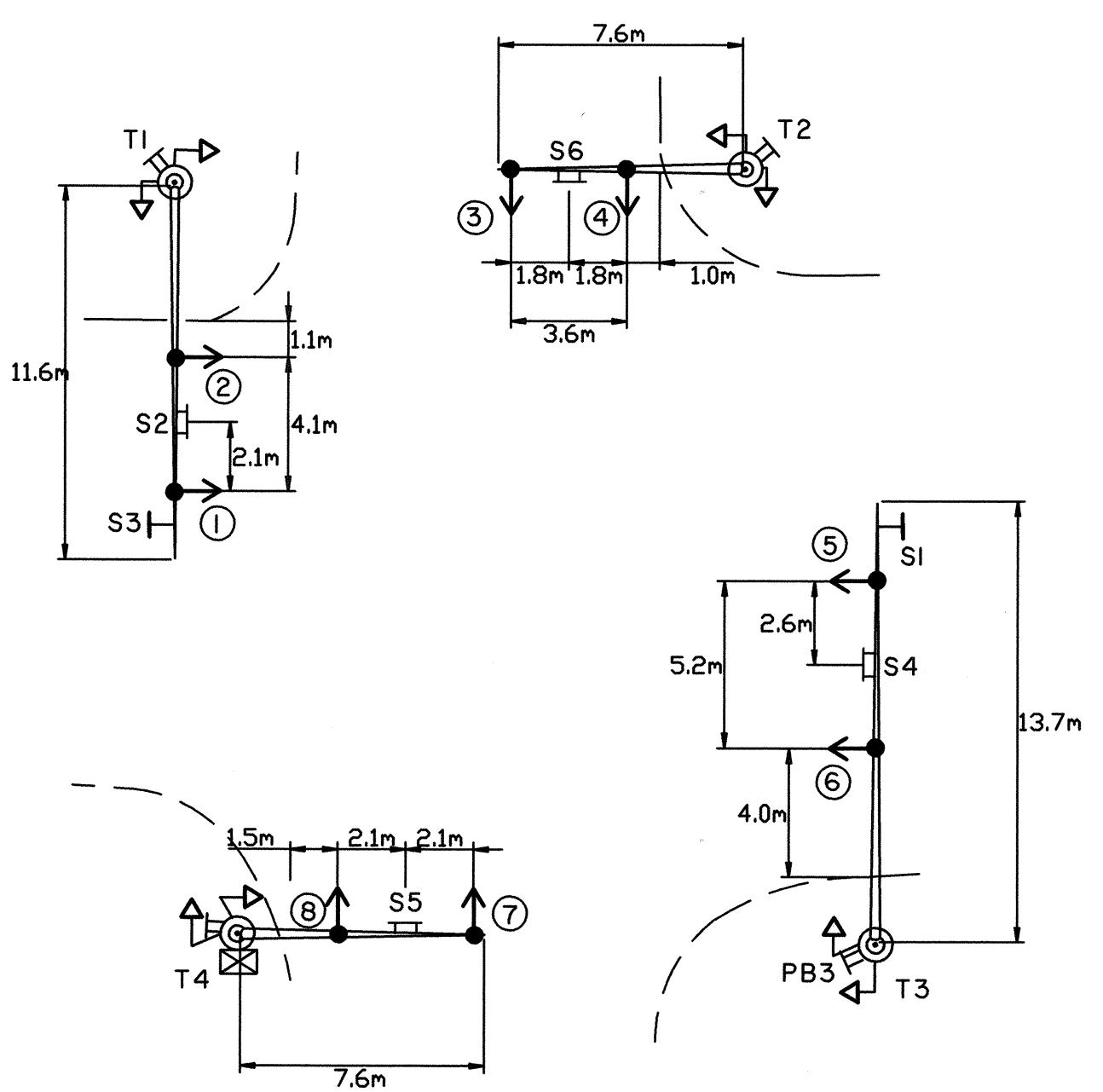
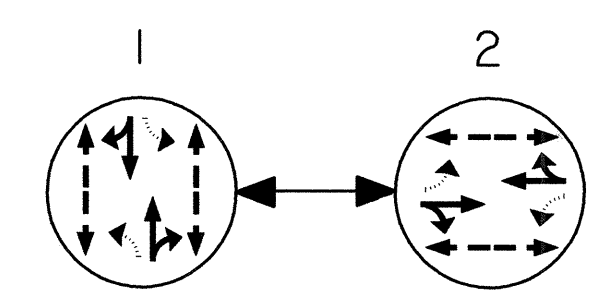
QNTY=3
152mm

TO CROSS STREET FOR WALK SIGNAL

229mm

R-73E-152
PB2, PB3, PB4

PHASING DIAGRAM



MAST ARM DIAGRAM

TRAFFIC SIGNAL CONTROLLER TIMING CHART

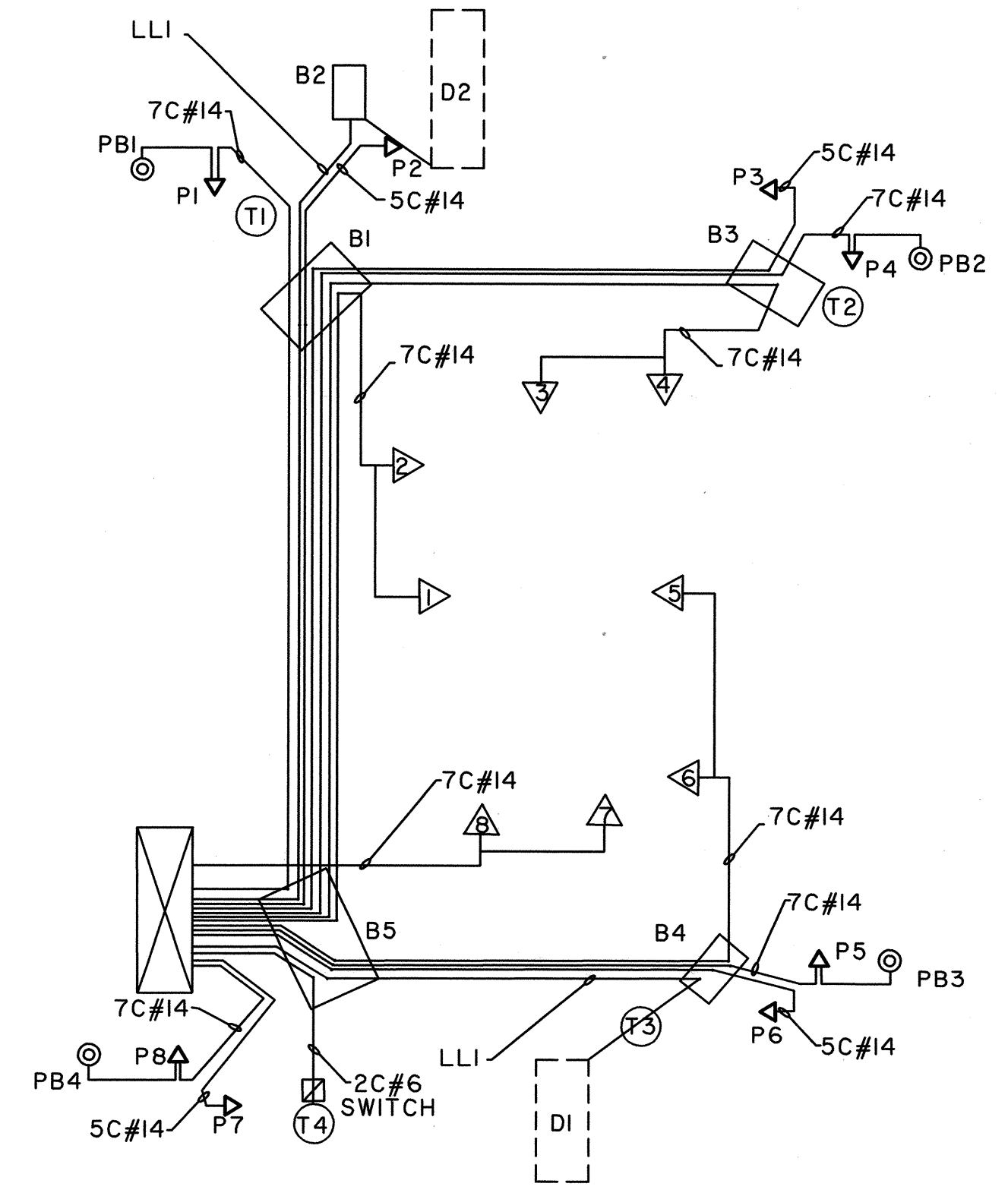
E.WYANDOT AVE. & 8TH STREET
MAINTAINING AGENCY: CITY OF UPPER SANDUSKY, WYANDOT COUNTY, OHIO

START UP
START IN: Y/R FLASH ⊗; ALL RED ⊙
TIME FOR FLASH OR ALL RED
FIRST PHASE ⊙1
COLOR DISPLAYED: GREEN ⊗; YELLOW ⊙

DUAL ENTRY ⊙
REST IN RED: R1 ⊙; R2 ⊙

INTERVAL OR FEATURE	CONTROLLER MOVEMENT N°							
	1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT	↑	→						
MINIMUM GREEN (INITIAL) (SEC.)	8	29						
ADDED INITIAL (sec./actuation)	-	-						
PASSAGE TIME (PRESET GAP)	2	-						
MINIMUM GAP (sec.)	-	-						
TIME TO REDUCE (sec.)	-	-						
MAXIMUM GREEN I (SEC.)	23	29						
MAXIMUM GREEN II (SEC.)	-	-						
YELLOW CHANGE (SEC.)	3	3						
ALL RED CLEARANCE (SEC.)	1	1						
WALK (SEC.)	5*	7						
PEDESTRIAN CLEARANCE (SEC.)	12	14						
RECALL	MAXIMUM (ON/OFF)	OFF	OFF					
	MINIMUM (ON/OFF)	OFF	OFF					
	PEDESTRIAN (ON/OFF)	OFF	ON					
MEMORY (ON/OFF)		OFF	OFF					
CALL TO NON-ACTUATED		N° 1	N° 2					

* - PHASE 1 PED HEADS PROVIDE WALK ONLY WHEN ACTUATED BY PUSHBUTTON

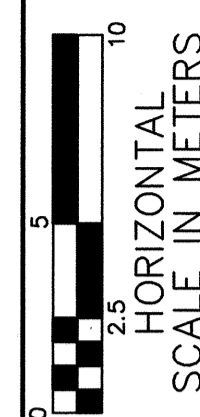
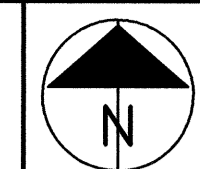


SIGNAL WIRING DIAGRAM

LLI = LOOP LEAD-IN

LEGEND

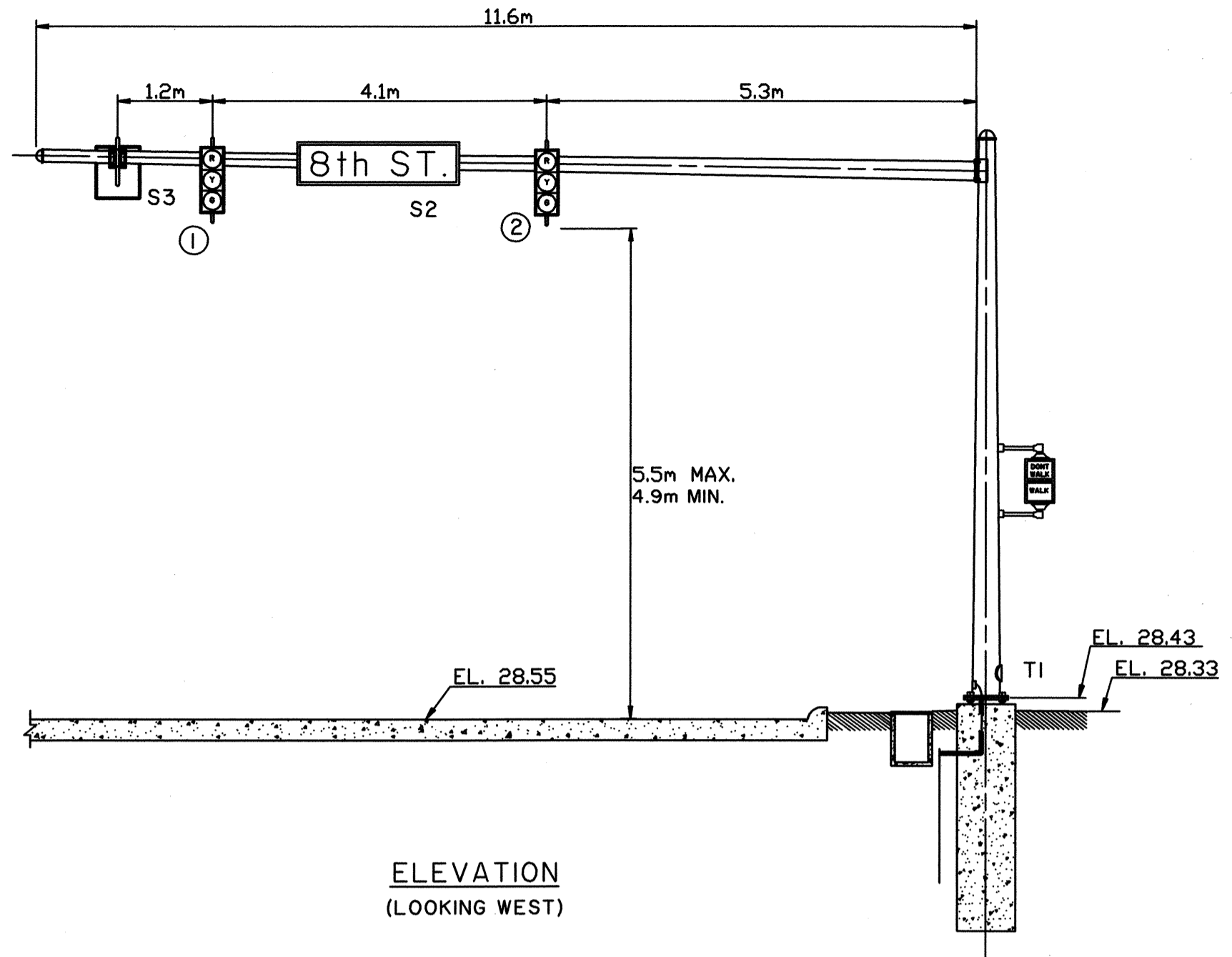
- PROPOSED SIGNAL
- EXISTING SIGNAL (TO BE REMOVED)
- PROPOSED PEDESTRIAN SIGNAL
- ↑ EXISTING SIGN
- ↑ PROPOSED SIGN
- ⊞ PROPOSED PUSH BUTTON
- ⊞ CONTROLLER
- ⊞ SERVICE SWITCH
- ⊞ EXISTING UTILITY POLE
- ⊞ NEW SIGNAL POLE LOCATION
- ⊞ PROPOSED PULLBOX
- ⊞ LOOP DETECTORS
- PROPOSED CONDUIT
- EXISTING MESSENGER CABLE (TO BE REMOVED)



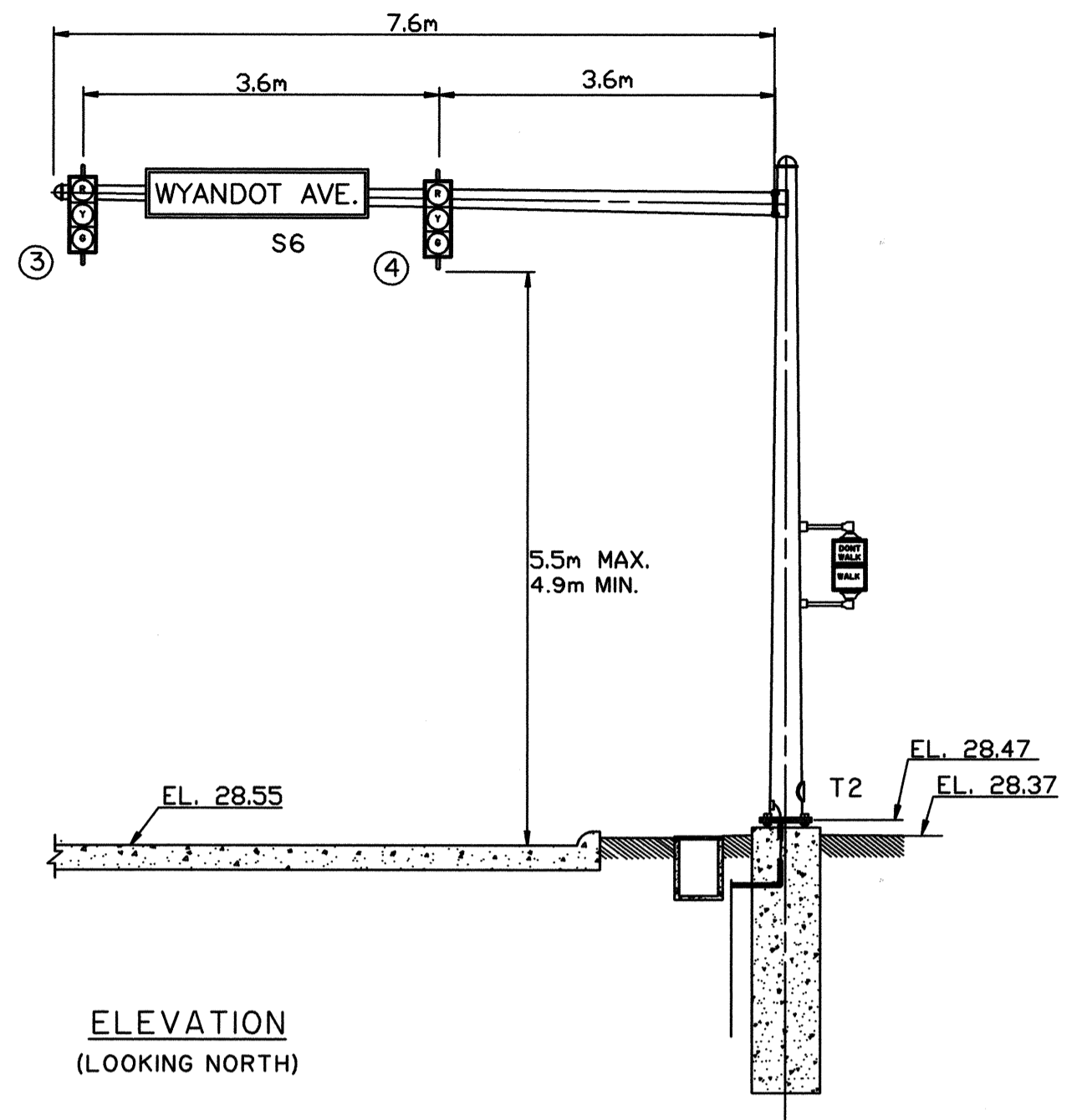
CALCULATED VMG
CHECKED RRR

WYANDOT AVE. &
8TH STREET

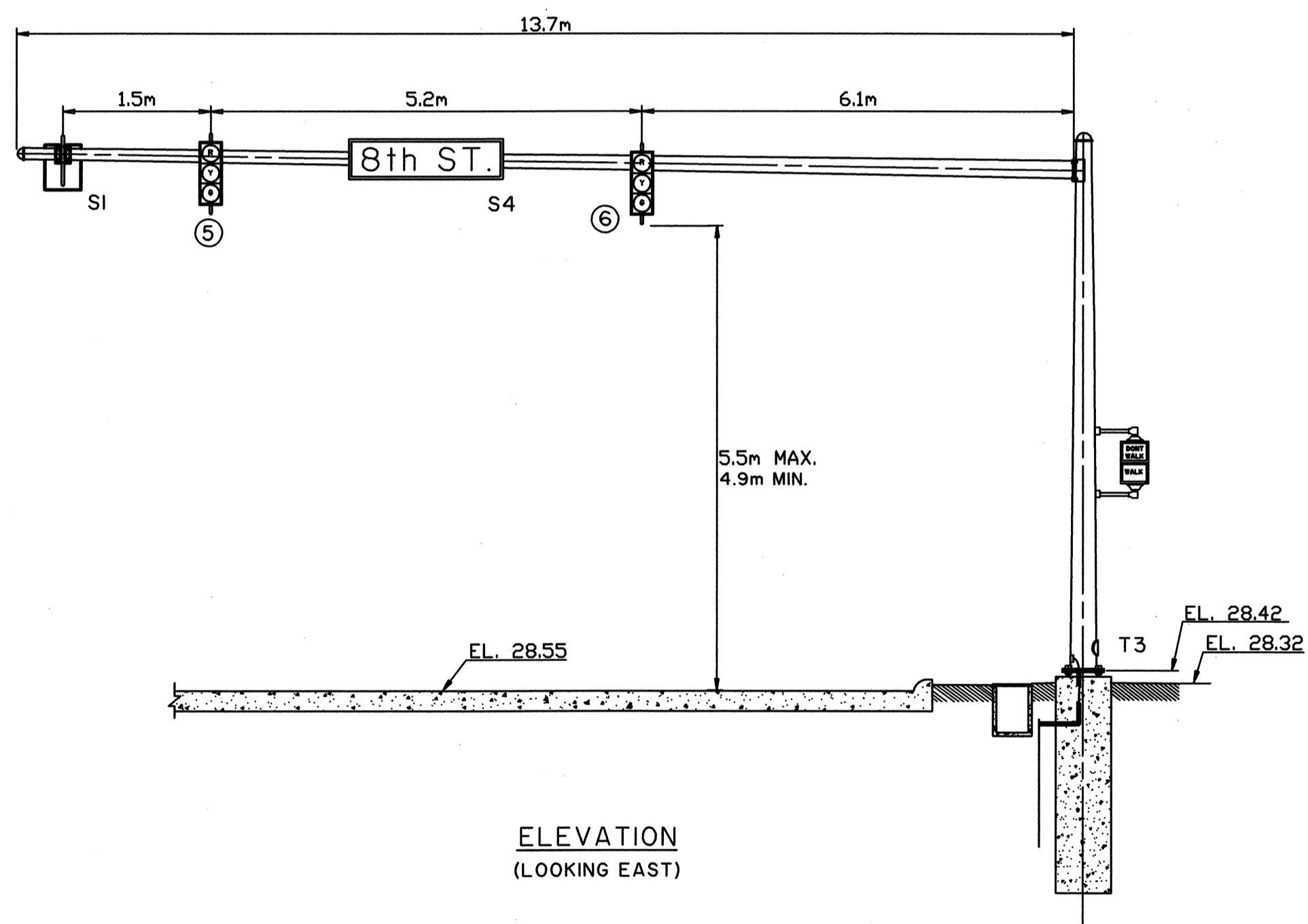
WYA-UPPER SANDUSKY SIGNALS



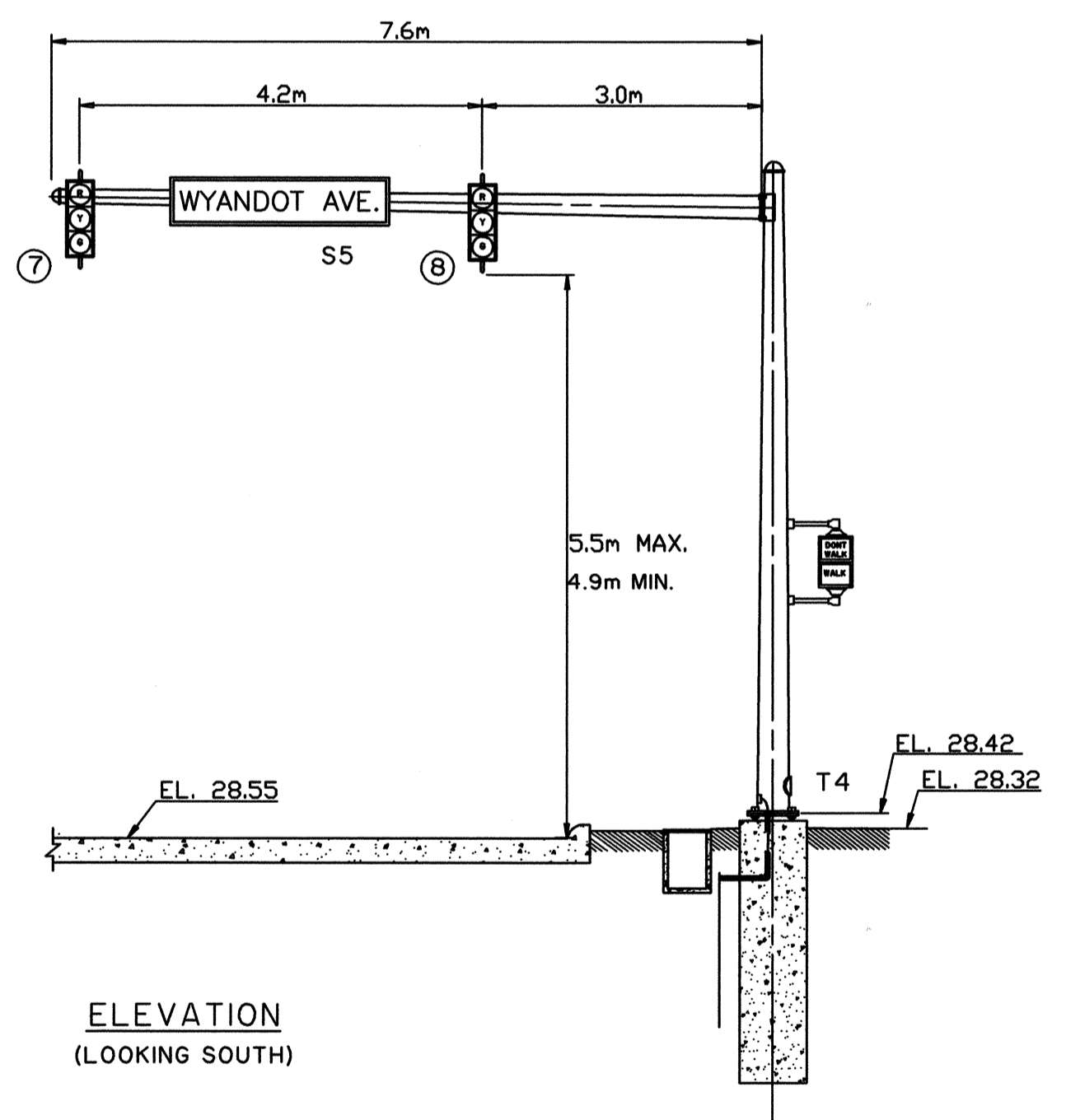
ELEVATION
(LOOKING WEST)



ELEVATION
(LOOKING NORTH)



ELEVATION
(LOOKING EAST)

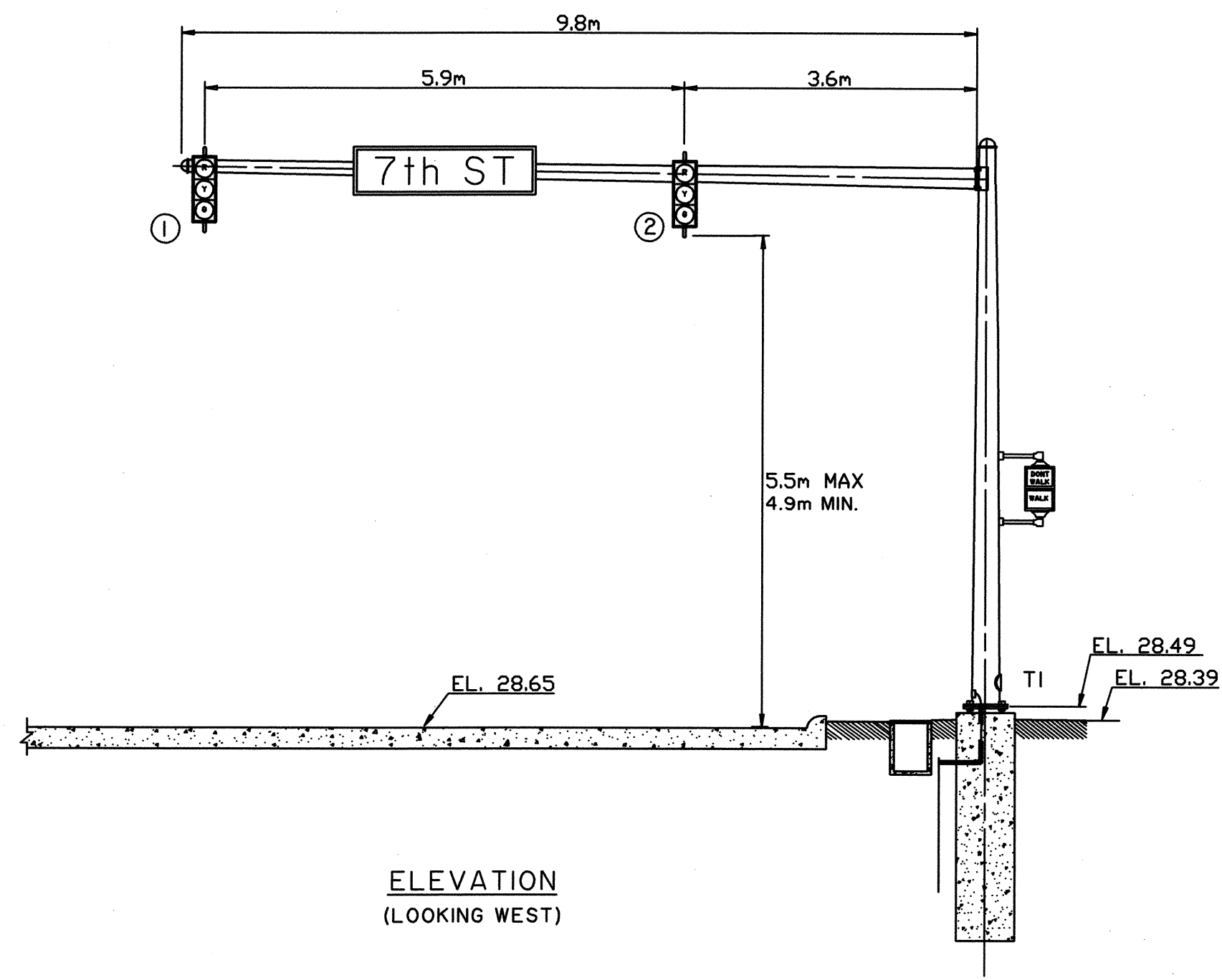


ELEVATION
(LOOKING SOUTH)

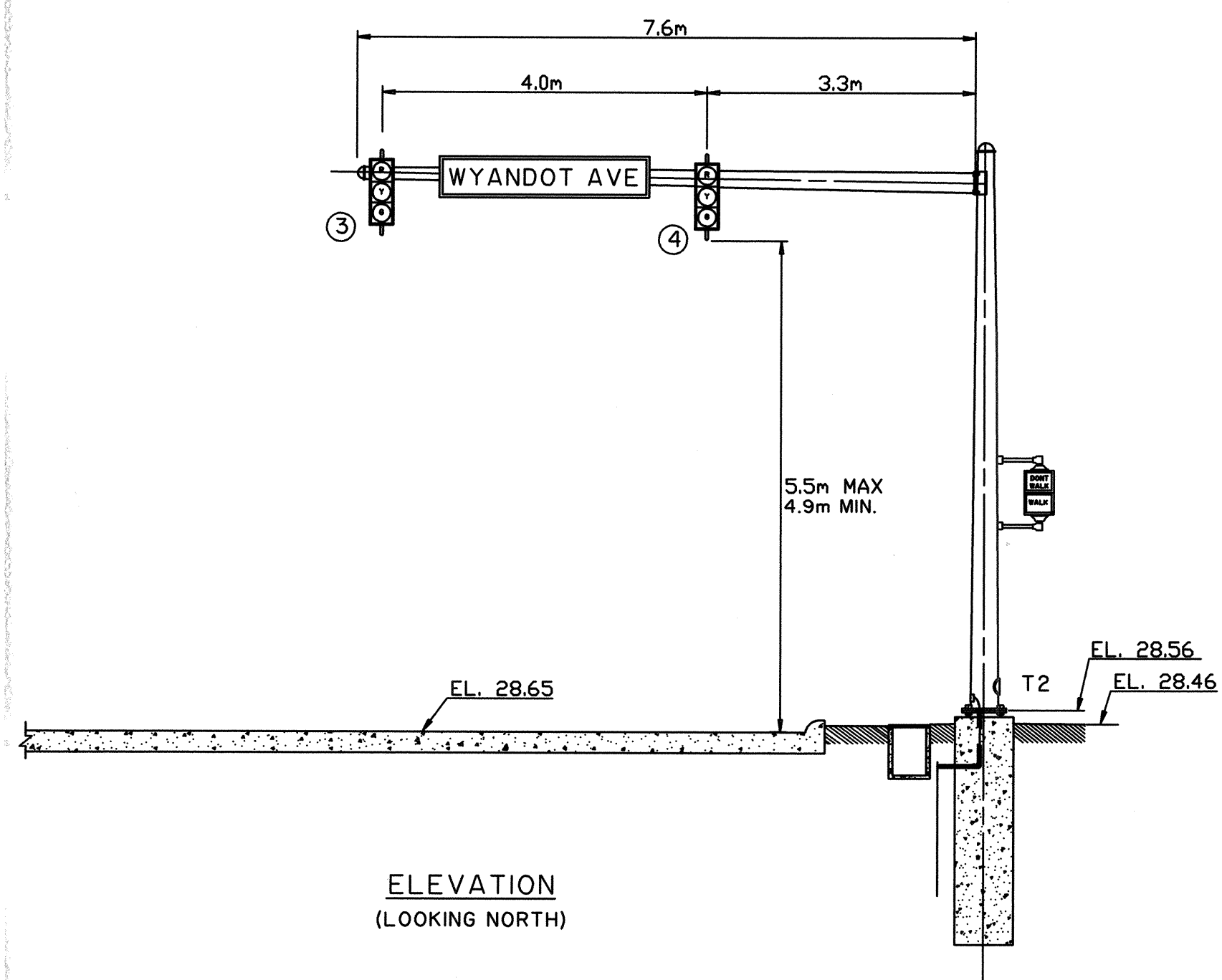
ITEM	DESCRIPTION	UNIT	QUANT
202	CURB REMOVED	m	3.0
608	CURB RAMP, TYPE 2	SQ METER	4.5
625	CONDUIT 76mm, 713.04	m	58
625	CONDUIT 51mm, 713.04	m	12
625	TRENCH	m	10
625	TRENCH IN PAVED AREAS, 762mm DEEP, AS PER PLAN	m	44
625	PULL BOX, 713.08, 450mm	EACH	5
625	GROUND ROD	EACH	4
632	COVERING OF VEHICULAR SIGNAL HEAD	EACH	8
632	COVERING OF PEDESTRIAN HEAD	EACH	8
630	SIGN HANGER ASSEMBLY, MAST ARM	EACH	6
630	SIGN, FLAT SHEET, TYPE G	SQ METER	4.90
632	VEHICULAR SIGNAL HEAD, 3-SECTION, 305mm LENS, I-WAY, POLYCARBONATE, APP	EACH	8
632	PEDESTRIAN SIGNAL HEAD, TYPE A2, AS PER PLAN	EACH	8
632	PEDESTRIAN PUSHBUTTON WITH SIGNS, AS PER PLAN	EACH	4
632	LOOP DETECTOR PAVEMENT CUTTING	m	39
632	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG	m	313
632	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG	m	122
632	POWER CABLE, 2-CONDUCTOR NO. 6 AWG	m	5
632	POWER CABLE, 3-CONDUCTOR NO. 6 AWG	m	8
632	LOOP DETECTOR UNIT, DELAY AND EXTENSION UNIT, AS PER PLAN	EACH	2
632	LOOP DETECTOR WIRE, TYPE E	m	84
632	LOOP DETECTOR LEAD-IN CABLE	m	59
633	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	EACH	1
632	CABLE SUPPORT ASSEMBLY	EACH	4
633	CONTROLLER WORK PAD (1.2m x .9m)	SQ METER	1.08
632	SIGNAL SUPPORT, TYPE TC-81.20' DESIGN I, 7.6 m	EACH	2
632	SIGNAL SUPPORT, TYPE TC-81.20' DESIGN II, 11.6 m	EACH	1
632	SIGNAL SUPPORT, TYPE TC-81.20' DESIGN II, 13.7 m	EACH	1
632	CONCRETE FOR ANCHOR BASE FOUNDATION	CU METER	7.4
632	POWER SERVICE	EACH	1
632	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EACH	1

LOOP	SIZE	TURNS PER LOOP	MODE	DELAY (SEC.)	ASSOCIATED CONTROLLER PHASE	DELAY OVERRIDE PHASE
D1	6.1m x 2.4m	2	PRESENCE	6	I	I
D2	6.1m x 2.4m	2	PRESENCE	6	I	I

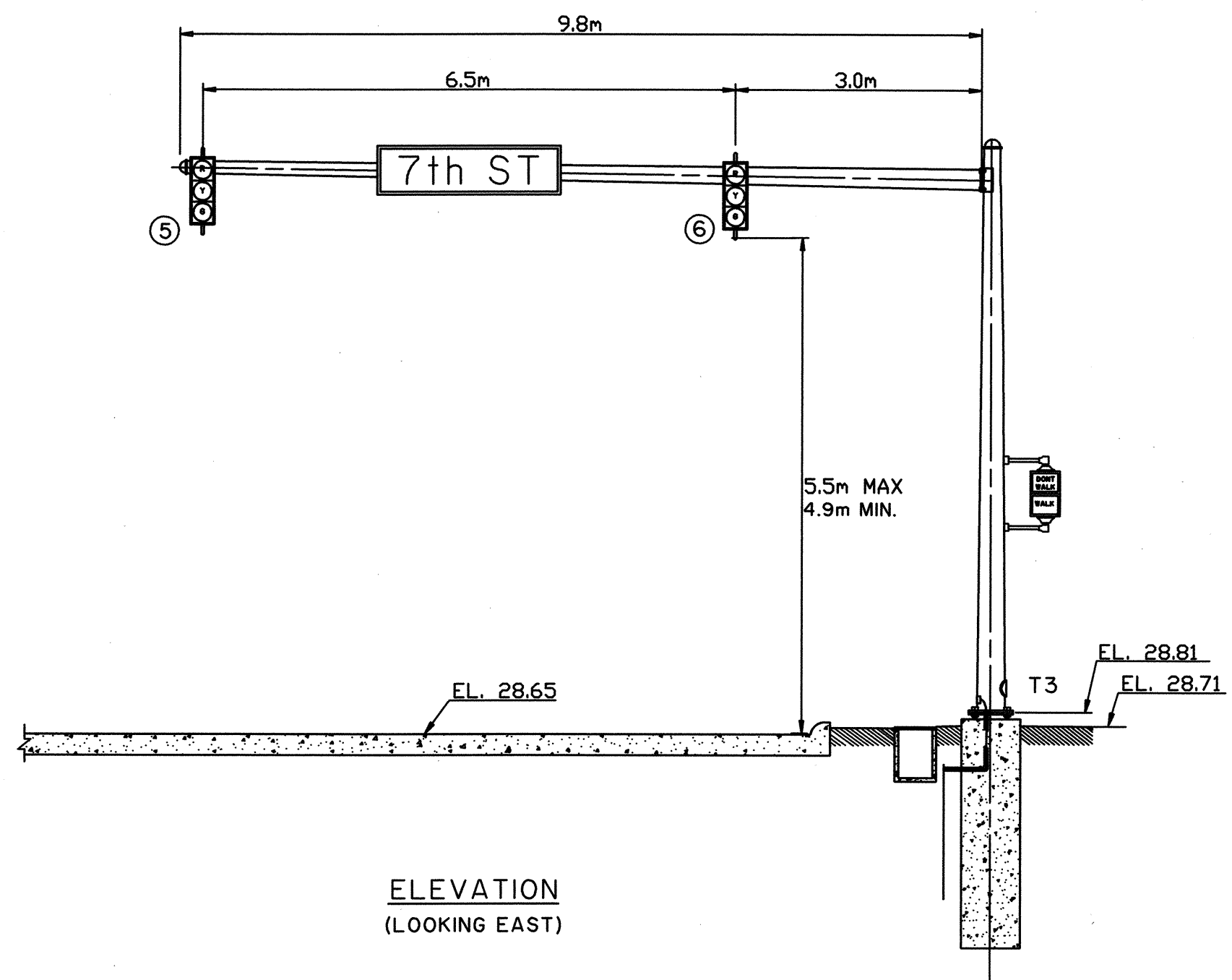
SUPPORT NO.	SIGNAL SUPPORT TYPE TC - 81.20M						ELEVATION		MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A							
	DESIGN NO.	POLE HEIGHT (m)	L (m)	L1 (m)	L2 (m)	L3 (m)	L4 (m)	A		B	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE (0.3 m FROM TOP)
T1	11	6.3	11.6	5.3	9.4			28.55	28.43	0	90/180	135	-	-	-	180	
T2	1	6.3	7.6	3.6	7.2			28.55	28.47	90	90/180	135	-	-	-	180	
T3	11	6.3	13.7	6.1	11.3			28.55	28.42	0	180/270	225	-	-	-	180	
T4	1	6.3	7.6	3.0	7.2			28.55	28.42	90	90/180	135	270	90	-	0	



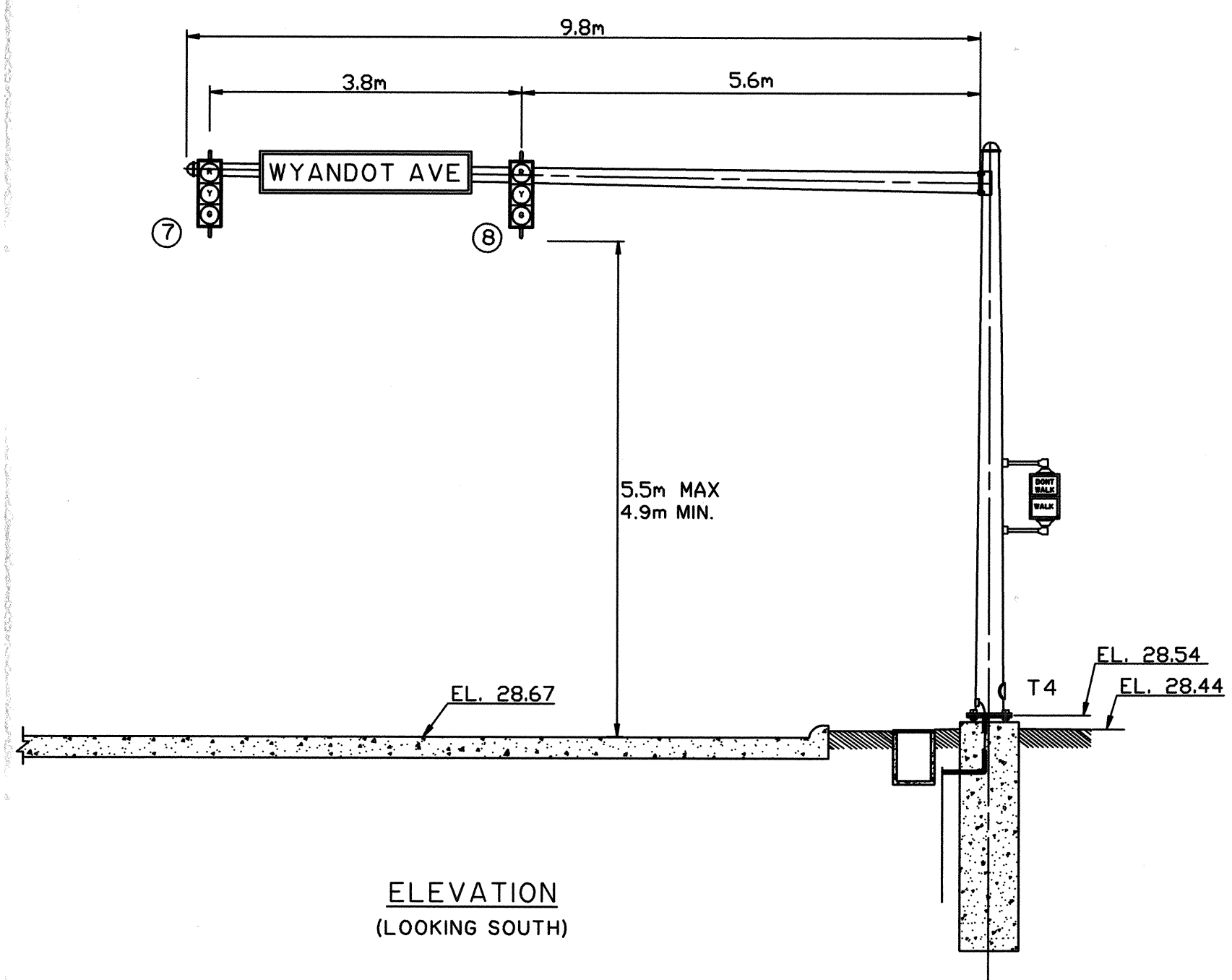
ELEVATION
(LOOKING WEST)



ELEVATION
(LOOKING NORTH)



ELEVATION
(LOOKING EAST)

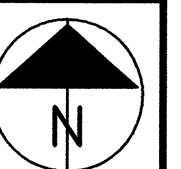


ELEVATION
(LOOKING SOUTH)

ITEM	DESCRIPTION	UNIT	QUANT
625	CONDUIT 76mm, 713.04	m	55
625	CONDUIT 51mm, 713.04	m	9
625	TRENCH	m	10
625	TRENCH IN PAVED AREAS, 762mm DEEP, AS PER PLAN	m	55
625	PULL BOX, 713.08, 450mm	EACH	5
625	GROUND ROD	EACH	4
625	SIGN HANGER ASSEMBLY, MAST ARM	EACH	4
630	SIGN, FLAT SHEET, TYPE G	SQ METER	3.79
630	GROUND MOUNTED SUPPORT, NO. 2 POST	m	7.9
632	COVERING OF PEDESTRIAN SIGNAL HEAD	EACH	8
632	VEH. SIG. HD., 3-SECTION, 305mm LENS, 1 WAY, POLYCARBONATE, APP	EACH	8
632	PEDESTRIAN SIGNAL HEAD, TYPE A2, AS PER PLAN	EACH	8
632	PEDESTRIAN PUSHBUTTON WITH SIGNS, AS PER PLAN	EACH	4
632	LOOP DETECTOR PAVEMENT CUTTING	m	39
632	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG	m	302
632	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG	m	119
632	POWER CABLE, 2-CONDUCTOR NO. 6 AWG	m	5
632	POWER CABLE, 3-CONDUCTOR NO. 6 AWG	m	8
632	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	EACH	2
632	LOOP DETECTOR WIRE, TYPE E	m	84
632	LOOP DETECTOR LEAD-IN CABLE	m	63
632	CABLE SUPPORT ASSEMBLY	EACH	4
632	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 1, 7.6 m	EACH	1
632	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 2, 9.8 m	EACH	3
632	CONCRETE FOR ANCHOR BASE FOUNDATION	CU METER	4.96
632	POWER SERVICE	EACH	1
632	COVERING OF VEHICULAR SIGNAL HEAD	EACH	8
632	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EACH	1
633	CONTROLLER WORK PAD (1.2m x 0.9m)	SQ METER	1.08
633	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	EACH	1

LOOP	SIZE	TURNS PER LOOP	MODE	DELAY (SEC.)	ASSOCIATED CONTROLLER PHASE	DELAY OVERRIDE PHASE
D1	6.1m x 2.4m	2	PRESENCE	6	I	I
D2	6.1m x 2.4m	2	PRESENCE	6	I	I

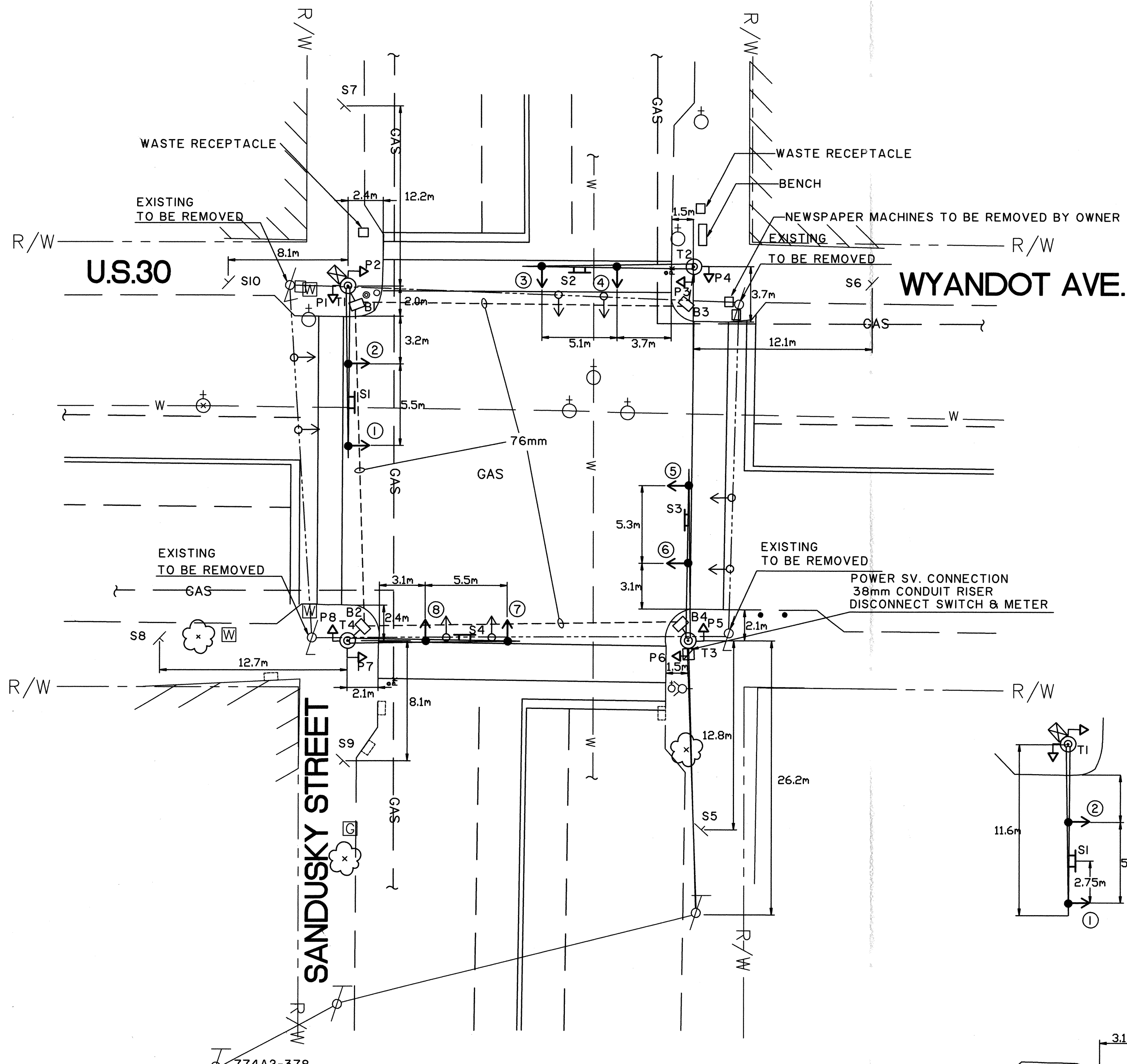
SUPPORT NO.	SIGNAL SUPPORT TYPE TC - 81.20M						ELEVATION		MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A							
	DESIGN NO.	POLE HEIGHT (m)	L (m)	L1 (m)	L2 (m)	L3 (m)	L4 (m)	A		B	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE (0.3 m FROM TOP)
T1	2	6.2	9.8	3.6	9.5			28.65	28.49	0	90/180	135	45	225	-	0	
T2	1	6.2	7.6	3.3	7.3			28.65	28.56	90	90/180	135	-	-	-	180	
T3	2	6.2	9.8	3.0	9.5			28.65	28.81	0	90/180	135	-	-	-	180	
T4	2	6.2	9.8	5.6	9.4			28.65	28.54	90	90/180	135	-	-	-	180	



CALCULATED VMG
CHECKED RRR

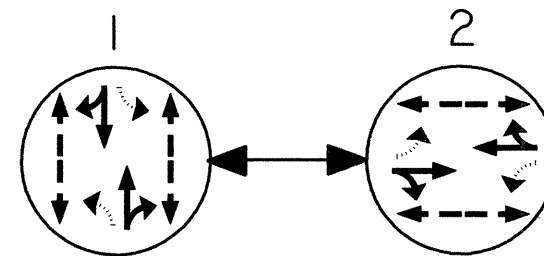
WYANDOT AVE. &
7TH STREET

WYA-UPPER SANDUSKY SIGNALS

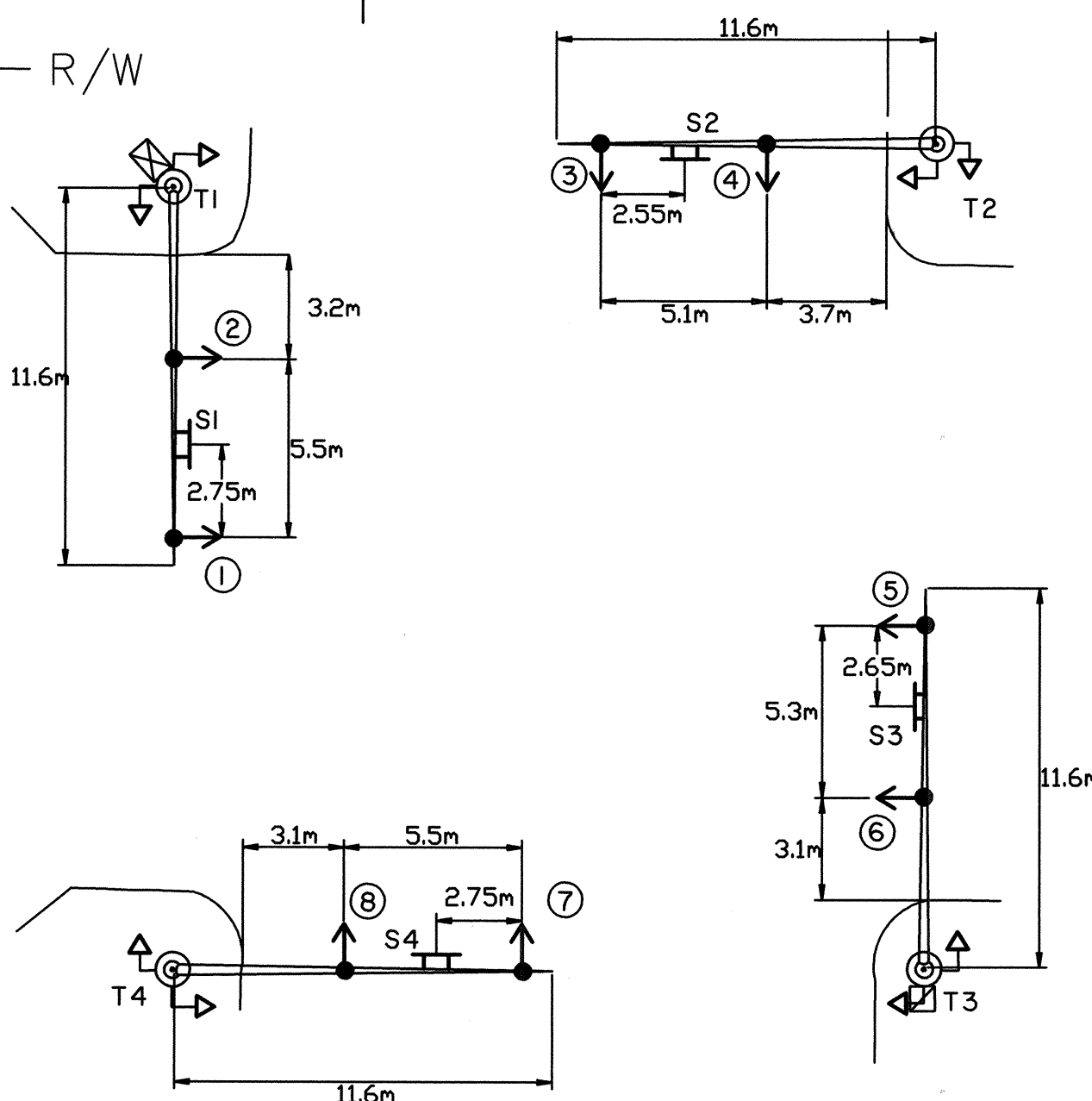
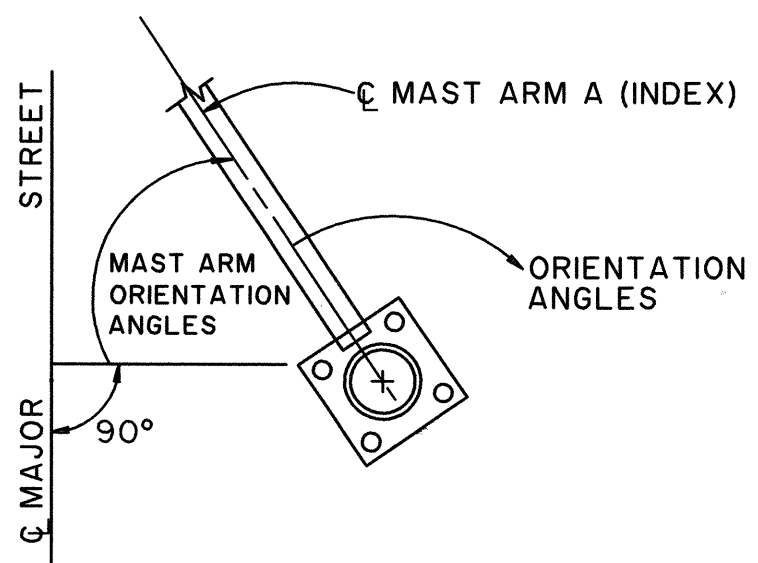


PROPOSED INTERSECTION
1:200

PHASING DIAGRAM

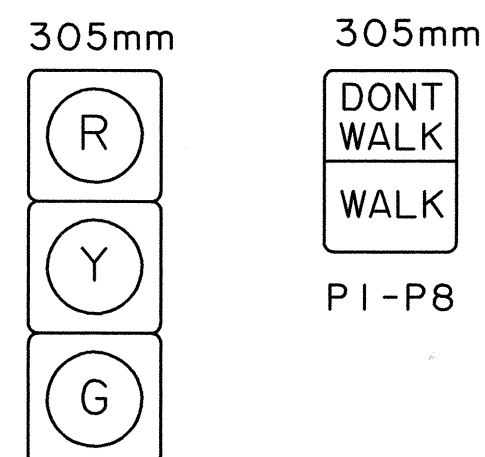


- NOTES:**
1. ALL ANGLES MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.



MAST ARM DIAGRAM

SIGNAL HEAD DETAIL



1,2,3,4,5,6,7,8

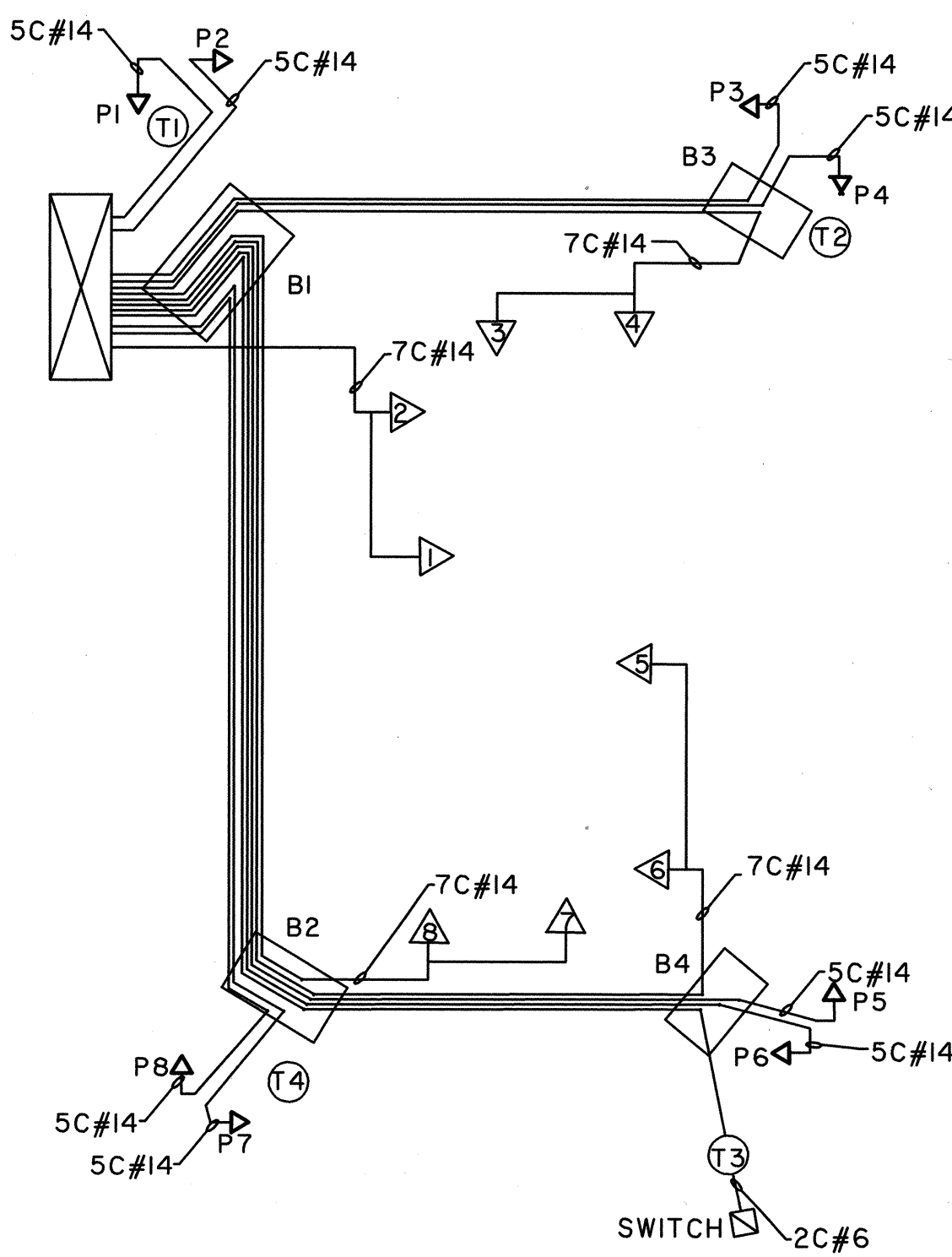
TRAFFIC SIGNAL CONTROLLER TIMING CHART

E. WYANDOT AVE. & SANDUSKY STREET
MAINTAINING AGENCY: CITY OF UPPER SANDUSKY, WYANDOT COUNTY, OHIO

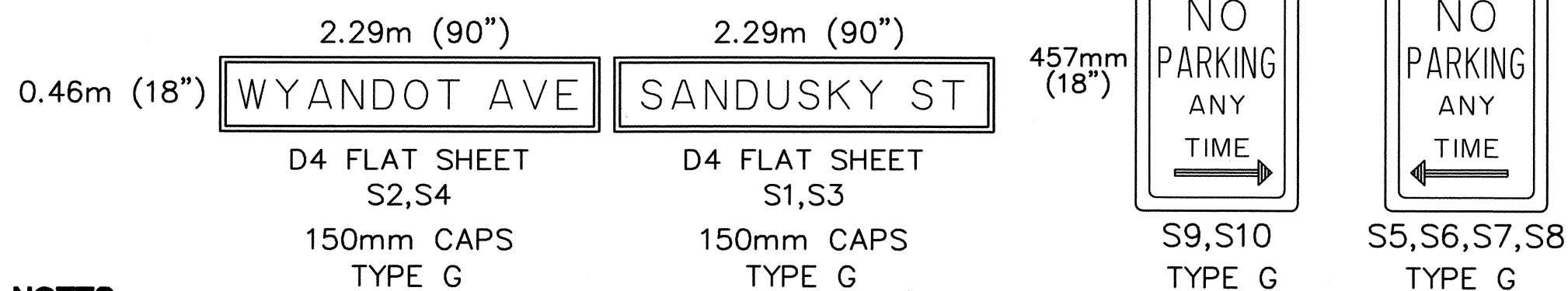
START UP: START IN: Y/R FLASH ⊗; ALL RED ⊙
TIME FOR FLASH OR ALL RED: DUAL ENTRY ⊙
FIRST PHASE: Ⓛ REST IN RED: R1 ⊙; R2 ⊙
COLOR DISPLAYED: GREEN ⊗; YELLOW ⊙

INTERVAL OR FEATURE	CONTROLLER MOVEMENT N°							
	1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT	↑	↓	←	→				
MINIMUM GREEN (INITIAL) (sec.)	29	23						
ADDED INITIAL (sec./actuation)	-	-						
PASSAGE TIME (PRESET GAP)	-	-						
MINIMUM GAP (sec.)	-	-						
TIME TO REDUCE (sec.)	-	-						
MAXIMUM GREEN I (sec.)	29	23						
MAXIMUM GREEN II (sec.)	-	-						
YELLOW CHANGE (sec.)	3	3						
ALL RED CLEARANCE (sec.)	1	1						
WALK (sec.)	7*	7						
PEDESTRIAN CLEARANCE (sec.)	14	14						
RECALL	MAXIMUM (ON/OFF)	MINIMUM (ON/OFF)	PEDESTRIAN (ON/OFF)	OFF	OFF	ON	OFF	ON
MEMORY (ON/OFF)								
CALL TO NON-ACTUATED	N° 1	N° 2						

* - PHASE I PED HEADS PROVIDE WALK ONLY WHEN ACTUATED BY PUSHBUTTON



SIGNAL WIRING DIAGRAM

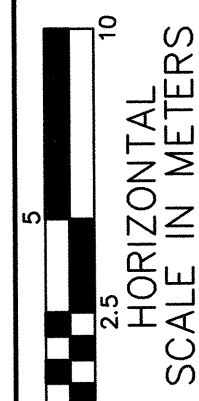
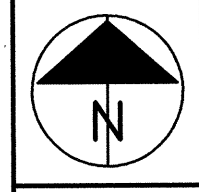


LEGEND

- PROPOSED SIGNAL
- EXISTING SIGNAL (TO BE REMOVED)
- ➔ PROPOSED PEDESTRIAN SIGNAL
- ➔ PROPOSED SIGN
- ⊗ CONTROLLER
- ⊠ SERVICE SWITCH
- ⊙ EXISTING UTILITY POLE
- ⊙ NEW SIGNAL POLE LOCATION
- ⊠ PROPOSED PULLBOX
- ⊠ LOOP DETECTORS
- - - PROPOSED CONDUIT
- - - EXISTING MESSENGER CABLE (TO BE REMOVED)

NOTES:

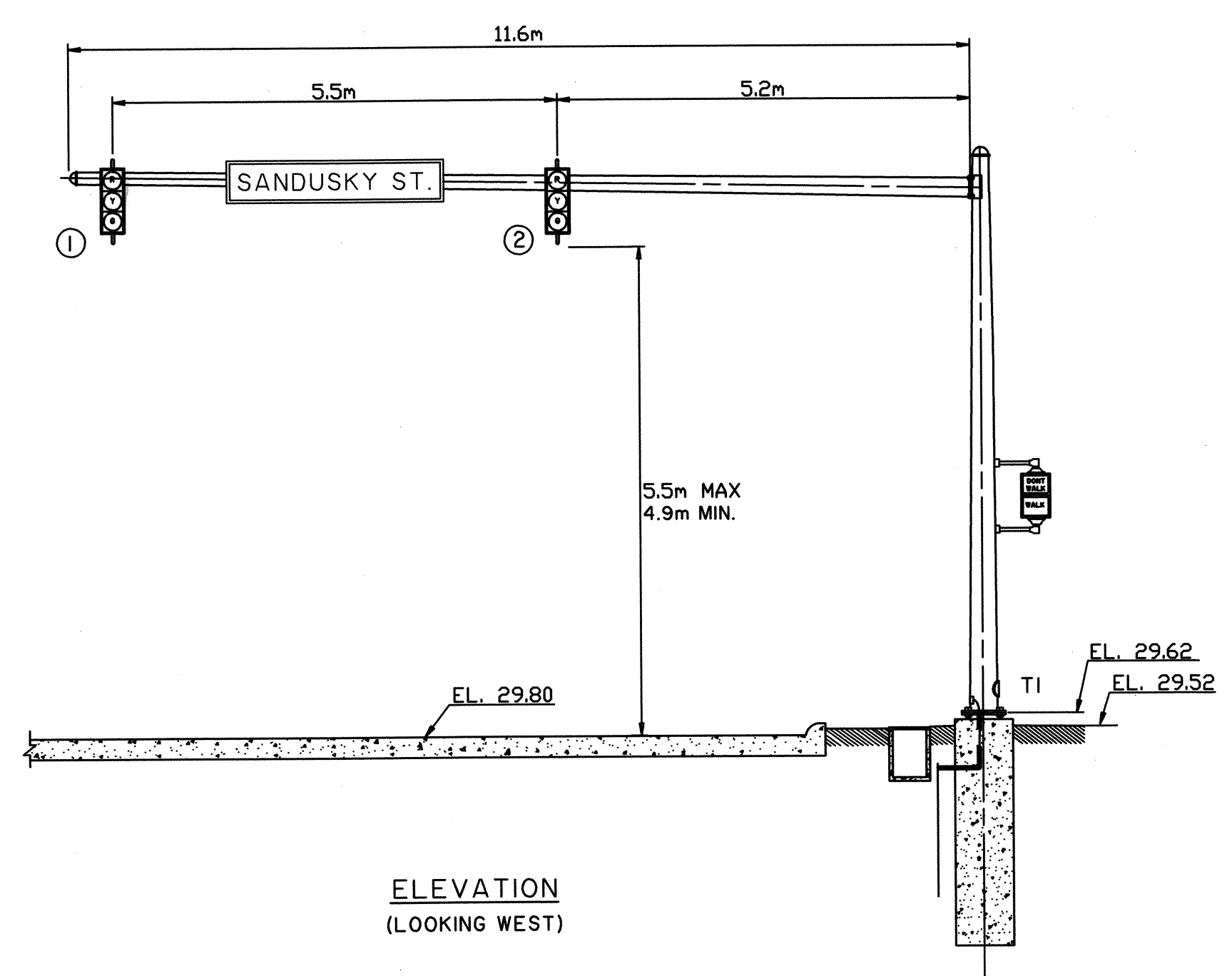
1. ALL SIGNAL HEADS AND SIGNS SHALL BE FIELD ADJUSTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER TO INSURE VISIBILITY.
2. ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO POWER CO. ON POLE #774A2-378 AT THE LOCATION INDICATED ON THE PLAN.
3. ALL UNDERGROUND CONDUIT- 76mm
4. STATE ROUTE MARKERS AND THE HOSPITAL SIGNS MOUNTED ON EXISTING SIGNAL POLES SHALL BE REMOVED AND REERECTED ON THE ADJACENT PROPOSED SIGNAL POLES.



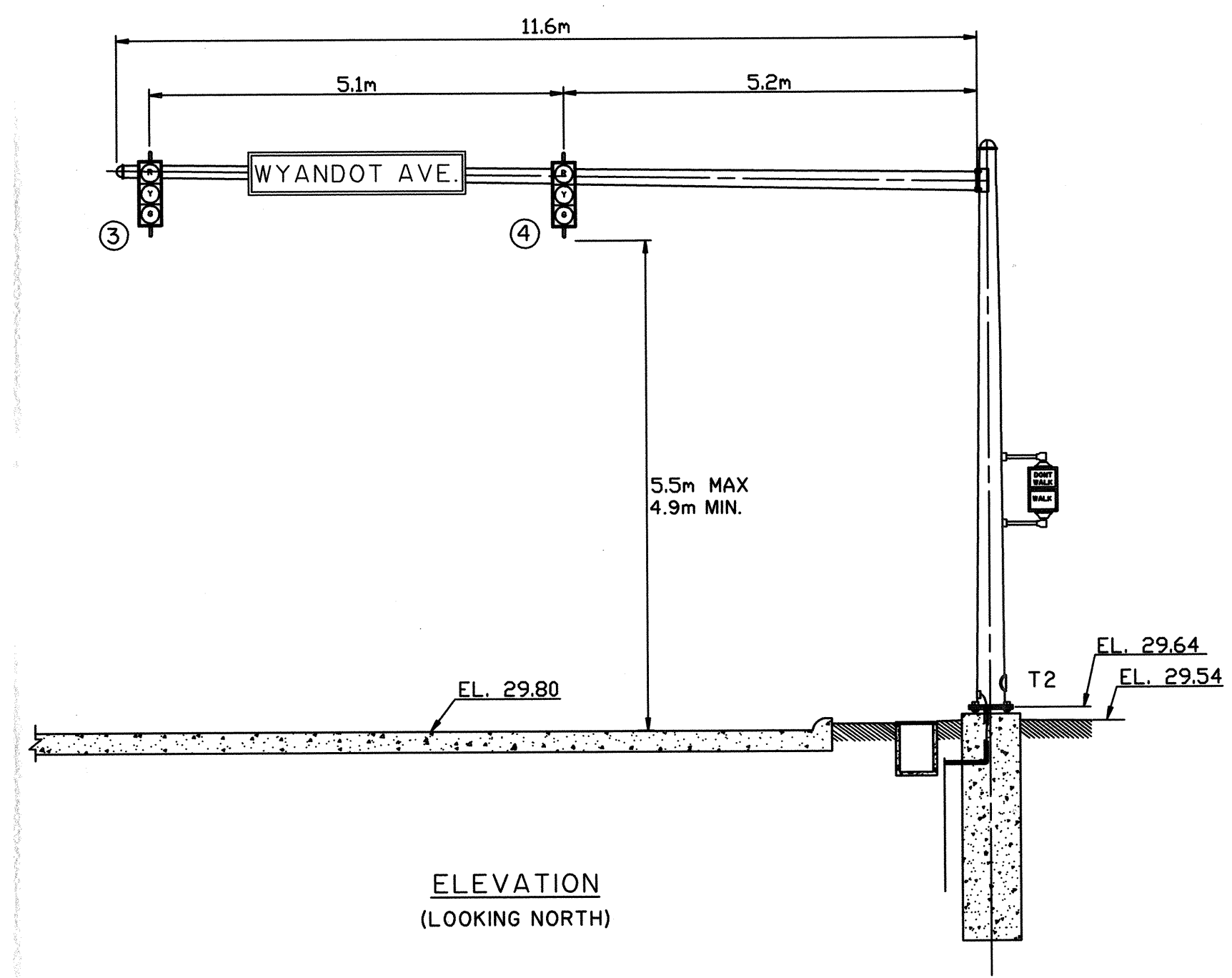
CALCULATED VMG
CHECKED RRR

WYANDOT AVE. &
SANDUSKY AVE.

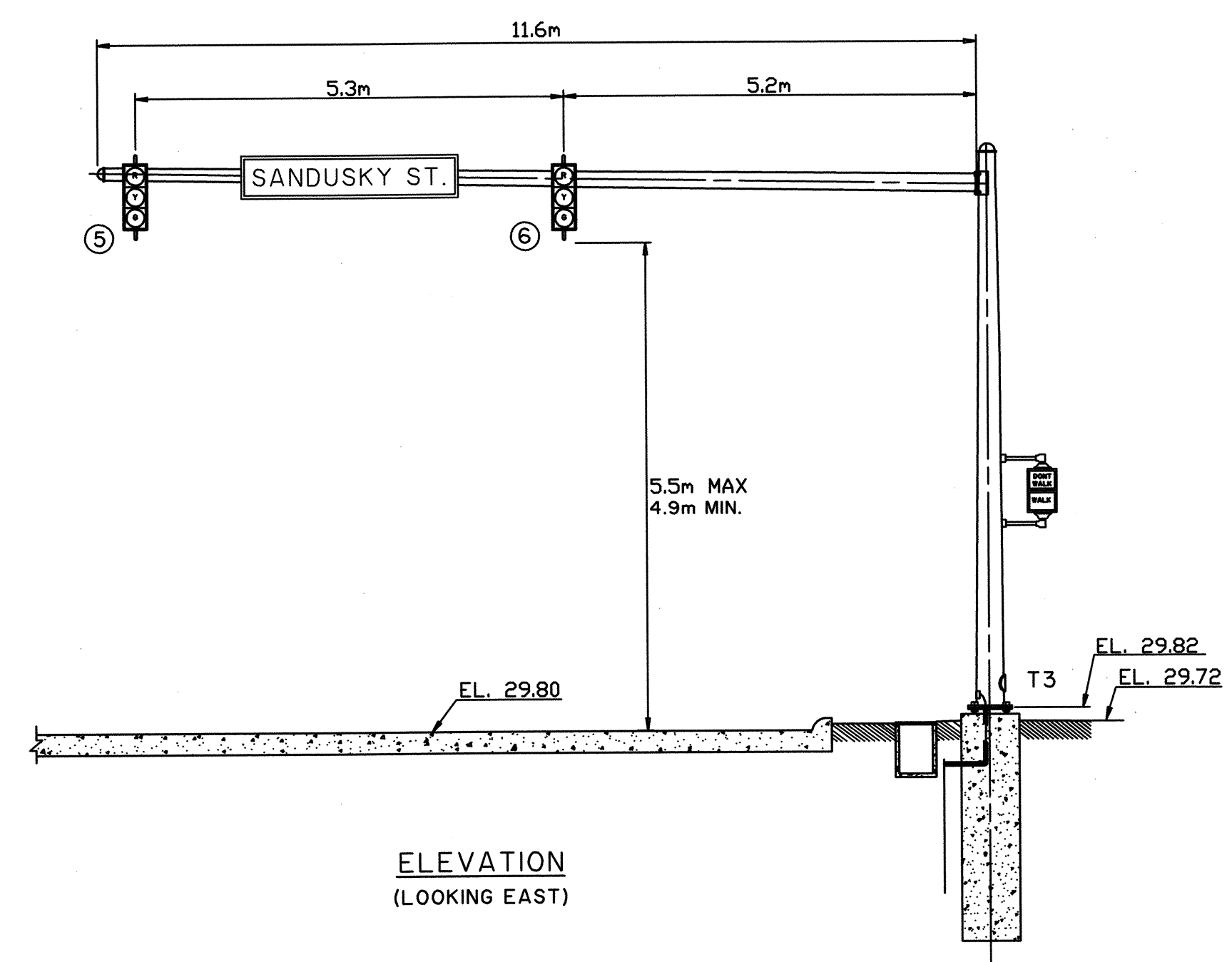
WYA-UPPER SANDUSKY SIGNALS



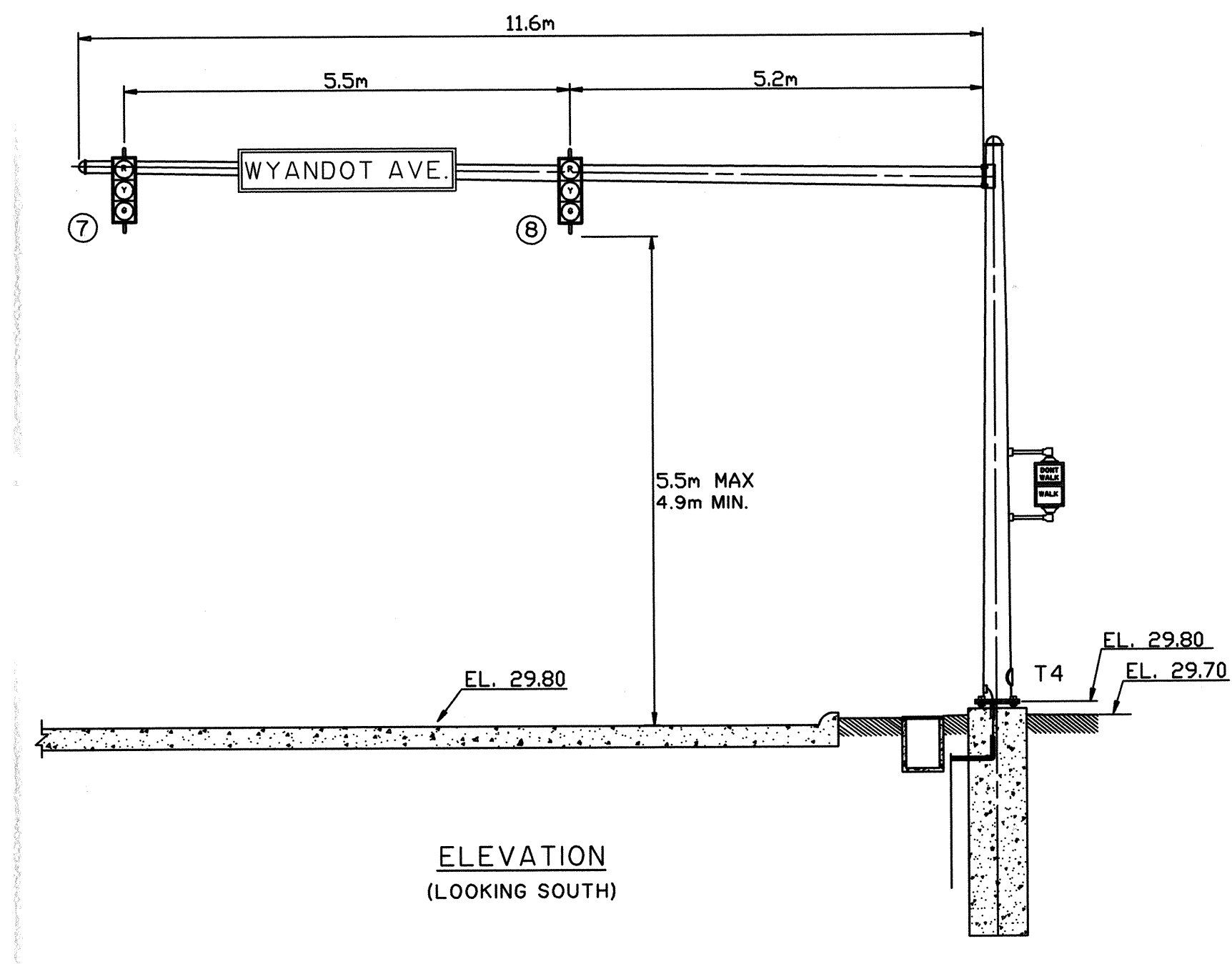
ELEVATION
(LOOKING WEST)



ELEVATION
(LOOKING NORTH)



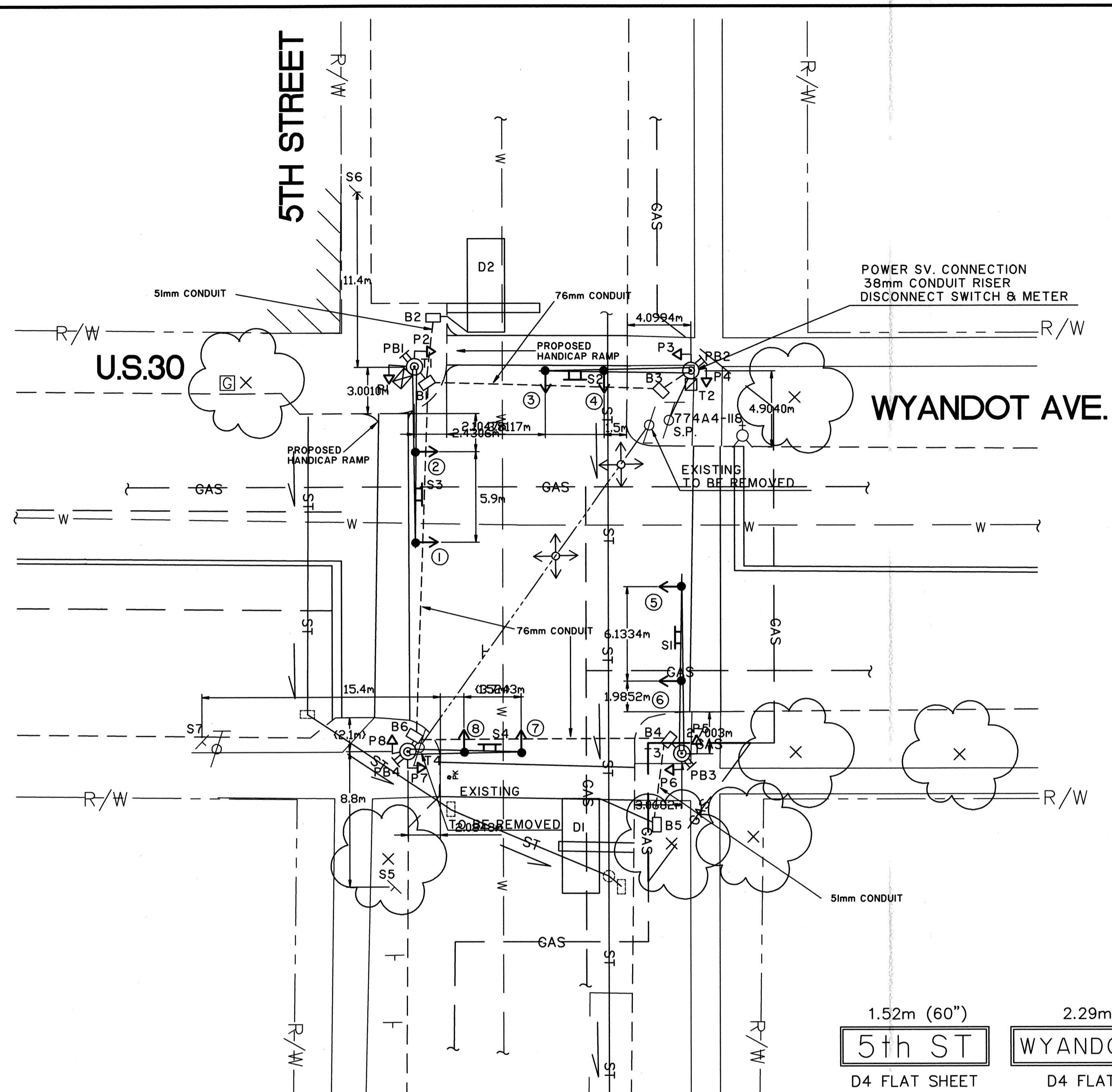
ELEVATION
(LOOKING EAST)



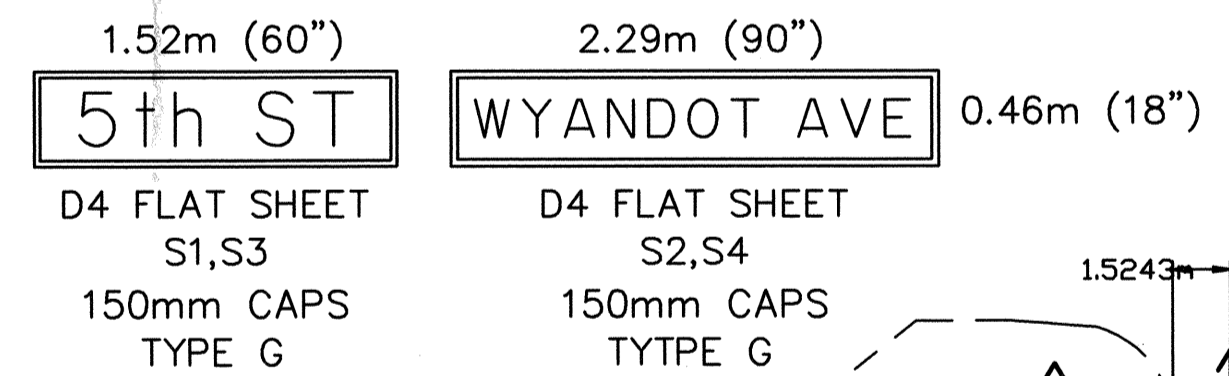
ELEVATION
(LOOKING SOUTH)

ITEM	DESCRIPTION	UNIT	QUANT
625	CONDUIT 76mm, 713.04	m	65
625	TRENCH IN PAVED AREAS, 762mm DEEP, AS PER PLAN	m	63
625	PULL BOX, 713.08, 450mm	EACH	4
625	GROUND ROD	EACH	4
625	SIGN ARM ASSEMBLY, MAST ARM	EACH	4
625	GROUND MOUNTED SUPPORT, NO. 2 POST	m	22.0
630	SIGN, FLATSHEET, TYPE G	SQ METER	5.05
630	COVERING OF PEDESTRIAN SIGNAL HEAD	EACH	8
630	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	EACH	6
632	VEH. SIG. HD., 3-SECTION, 305mm LENS, 1 WAY, POLYCARBONATE, APP	EACH	8
632	PEDESTRIAN SIGNAL HEAD, TYPE A2, AS PER PLAN	EACH	8
632	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG	m	197
632	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG	m	260
632	POWER CABLE, 2-CONDUCTOR NO. 6 AWG	m	5
632	POWER CABLE, 3-CONDUCTOR NO. 6 AWG	m	8
632	CABLE SUPPORT ASSEMBLY	EACH	4
632	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN II, 11.6 m.	EACH	4
632	CONCRETE FOR ANCHOR BASE FOUNDATION	CU METER	5.1
632	POWER SERVICE	EACH	1
632	COVERING OF VEHICULAR SIGNAL HEAD	EACH	8
632	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EACH	1
633	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	EACH	1

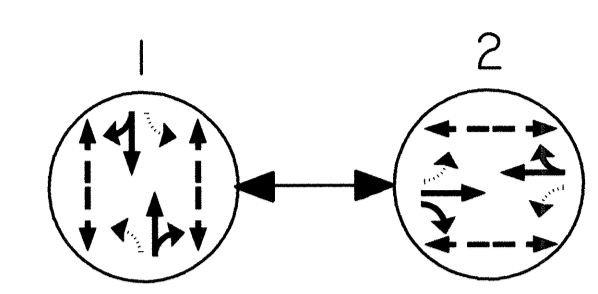
SUPPORT NO.	SIGNAL SUPPORT TYPE TC - 81.20M						ELEVATION		MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A						
	DESIGN NO.	POLE HEIGHT (m)	L (m)	L1 (m)	L2 (m)	L3 (m)	L4 (m)	A		B	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE
T1	11	6.3	11.6	5.2	10.7			29.80	29.62	0	90/180	-	-	135	-	0
T2	11	6.3	11.6	5.2	10.3			29.80	29.64	90	180/270	-	-	-	-	180
T3	11	6.3	11.6	5.2	10.5			29.80	29.82	0	90/180	-	180	-	-	180
T4	11	6.3	11.6	5.2	10.7			29.80	29.80	90	90/180	-	-	-	-	180



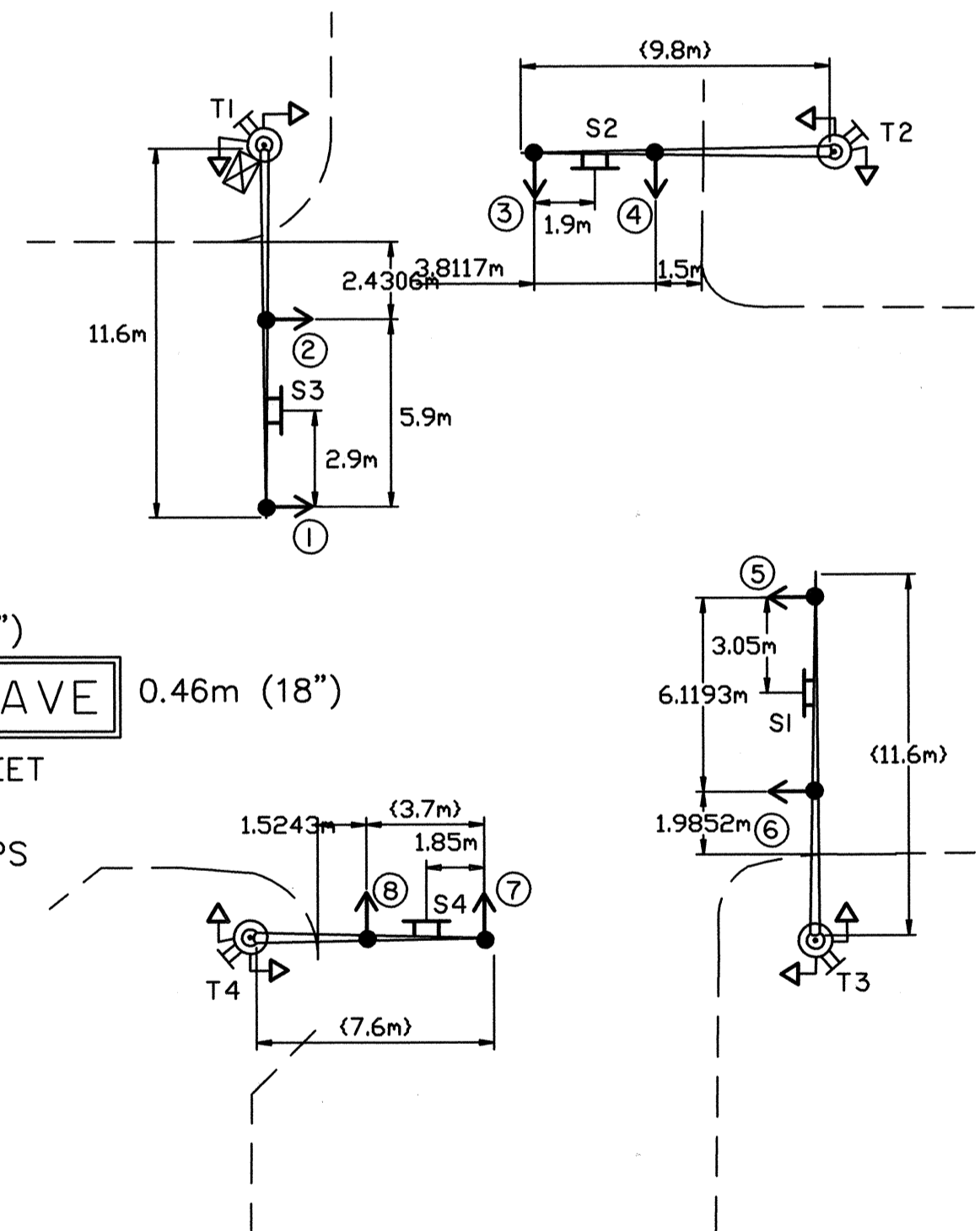
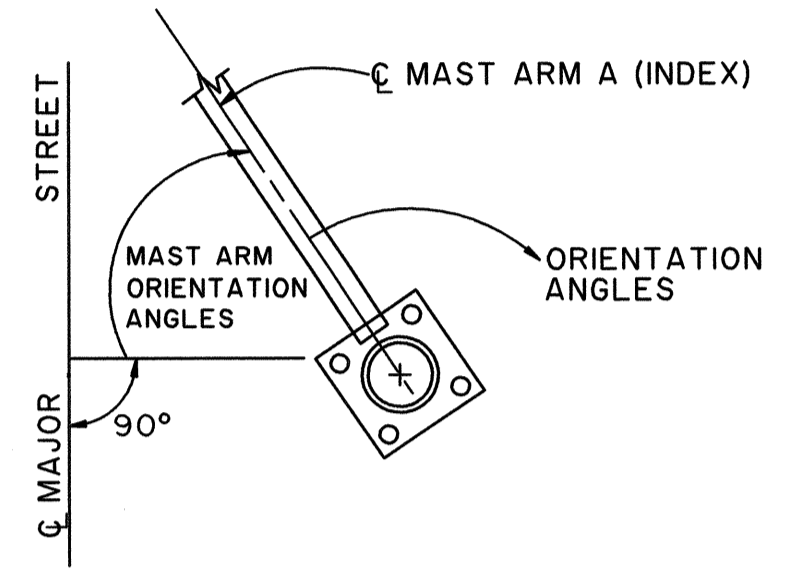
PROPOSED INTERSECTION
1:200



PHASING DIAGRAM



- NOTES:**
 1. ALL ANGLES MEASURED CLOCKWISE.
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MAJOR ARMS.



MAST ARM DIAGRAM

TRAFFIC SIGNAL CONTROLLER TIMING CHART

E. WYANDOT AVE. & 5TH STREET
 MAINTAINING AGENCY: CITY OF UPPER SANDUSKY, WYANDOT COUNTY, OHIO

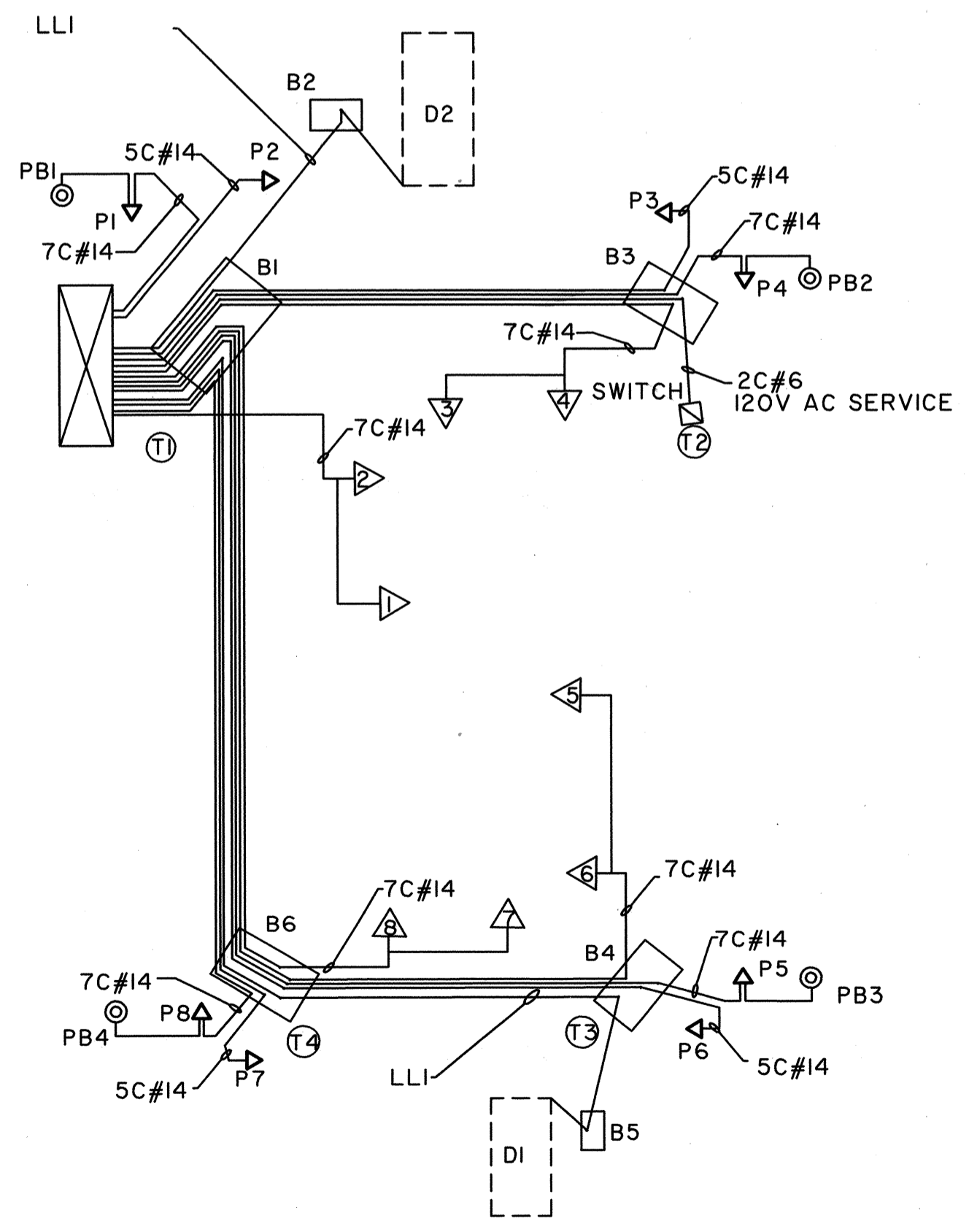
START UP: Y/R FLASH; ALL RED; TIME FOR FLASH OR ALL RED; FIRST PHASE; COLOR DISPLAYED: GREEN; YELLOW

DUAL ENTRY; REST IN RED: R1; R2

OVERLAP; PHASES

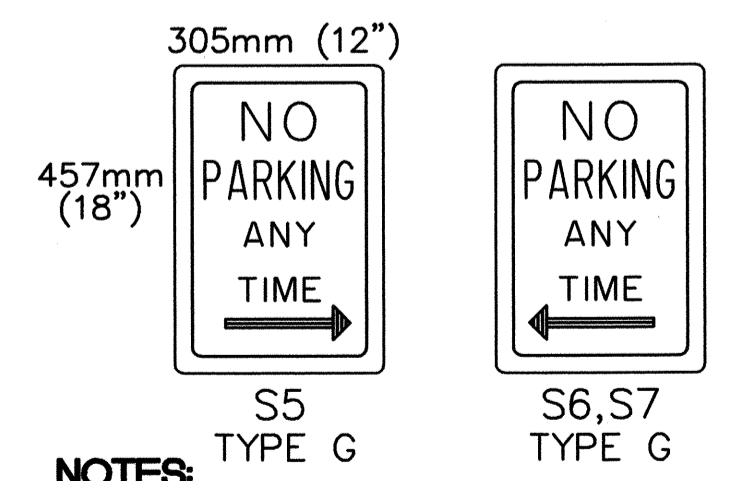
INTERVAL OR FEATURE	CONTROLLER MOVEMENT N°							
	1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT	↑	↓	←	→				
MINIMUM GREEN (INITIAL) (sec.)	7	31						
ADDED INITIAL (sec./actuation)	-	-						
PASSAGE TIME (PRESET GAP)	2	-						
MINIMUM GAP (sec.)	-	-						
TIME TO REDUCE (sec.)	-	-						
MAXIMUM GREEN I (sec.)	21	31						
MAXIMUM GREEN II (sec.)	-	-						
YELLOW CHANGE (sec.)	3	3						
ALL RED CLEARANCE (sec.)	1	1						
WALK (sec.)	4*	7						
PEDESTRIAN CLEARANCE (sec.)	13	14						
RECALL	MAXIMUM (ON/OFF)	OFF	OFF					
	MINIMUM (ON/OFF)	OFF	OFF					
	PEDESTRIAN (ON/OFF)	OFF	ON					
MEMORY (ON/OFF)		OFF	OFF					
CALL TO NON-ACTUATED	N° 1							
	N° 2							

* - PHASE I PED HEADS PROVIDE WALK ONLY WHEN ACTUATED BY PUSHBUTTON



SIGNAL WIRING DIAGRAM
LLI = LOOP LEAD-IN

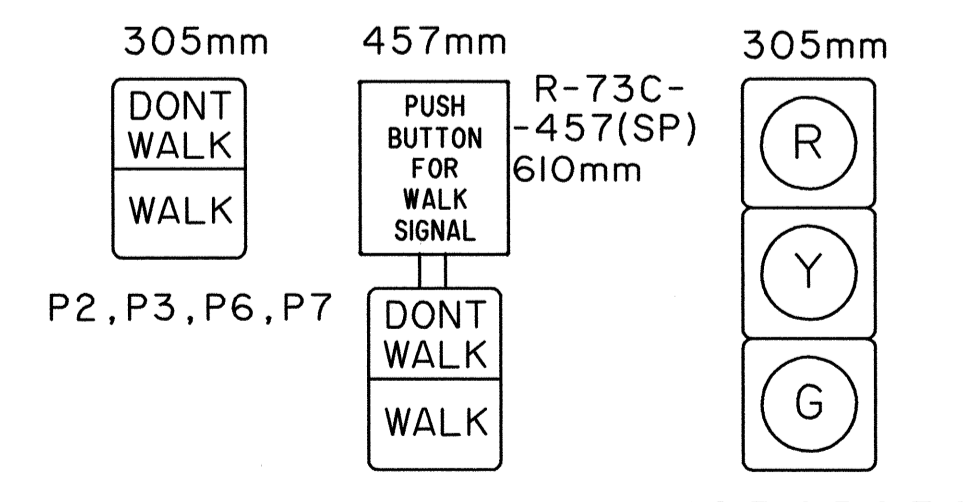
REFLECTORIZED SIGN DETAIL



NOTES:

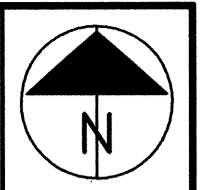
- ALL SIGNAL HEADS AND SIGNS SHALL BE FIELD ADJUSTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER TO INSURE VISIBILITY.
- ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO POWER POLE #774A4-118 AT THE LOCATION INDICATED ON THE PLAN.
- ALL UNDERGROUND CONDUIT- 76mm, EXCEPT FROM PULLBOXES B1 TO B2 AND B4 TO B5 SHALL BE 51mm.

SIGNAL HEAD DETAIL



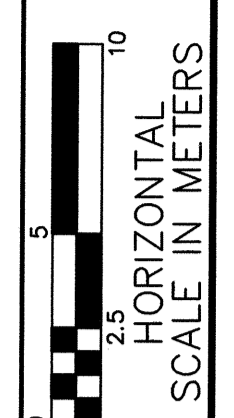
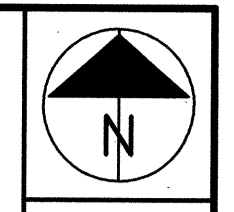
LEGEND

- PROPOSED SIGNAL
- EXISTING SIGNAL (TO BE REMOVED)
- PROPOSED PEDESTRIAN SIGNAL
- ⊥ PROPOSED SIGN
- ⊥ PROPOSED PUSH BUTTON
- ⊠ CONTROLLER
- ⊠ SERVICE SWITCH
- ⊙ EXISTING UTILITY POLE
- ⊙ NEW SIGNAL POLE LOCATION
- ⊠ PROPOSED PULLBOX
- ⊠ LOOP DETECTORS
- PROPOSED CONDUIT
- EXISTING MESSENGER CABLE (TO BE REMOVED)



WYANDOT AVE. & 5TH STREET

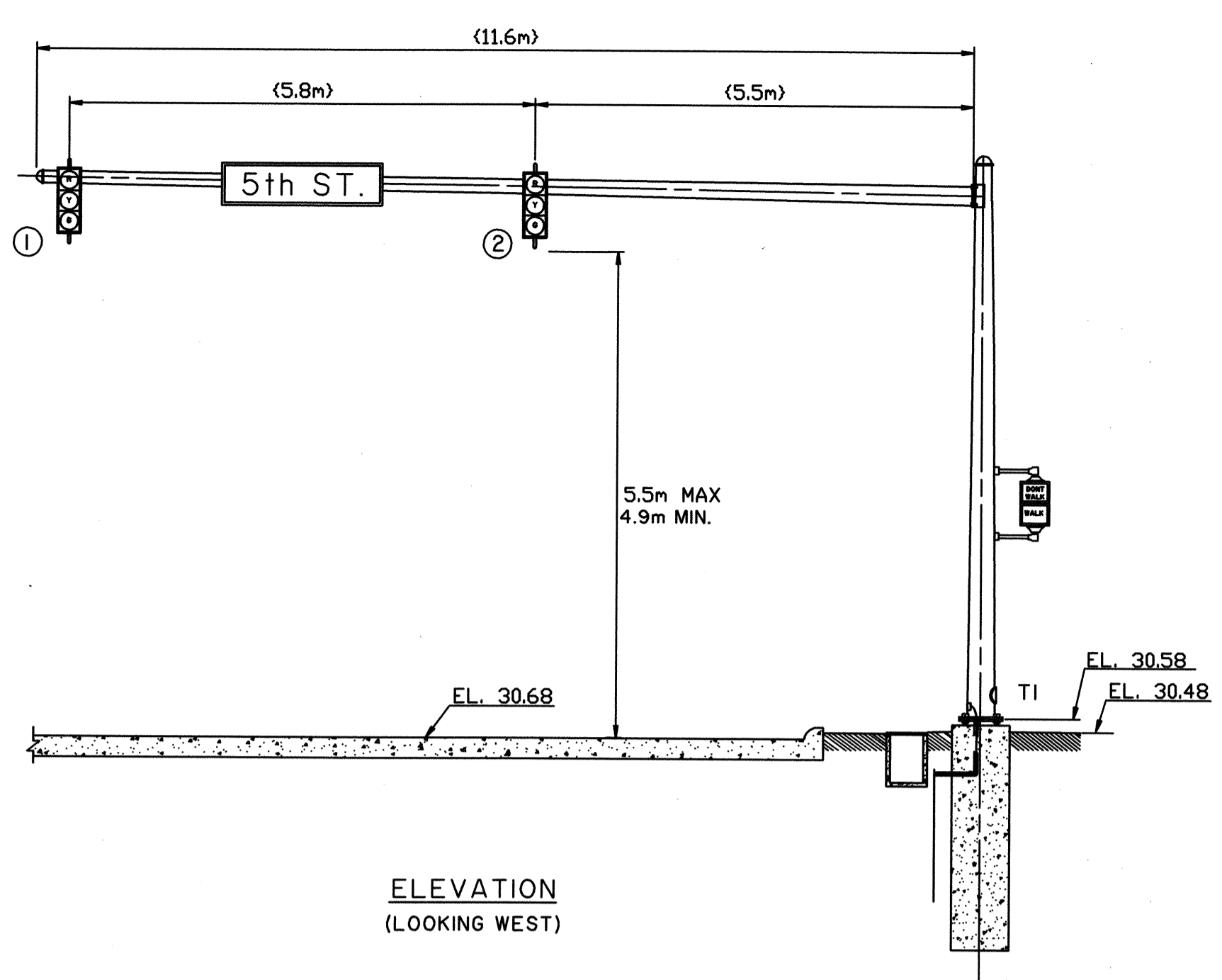
WYA-UPPER SANDUSKY SIGNALS



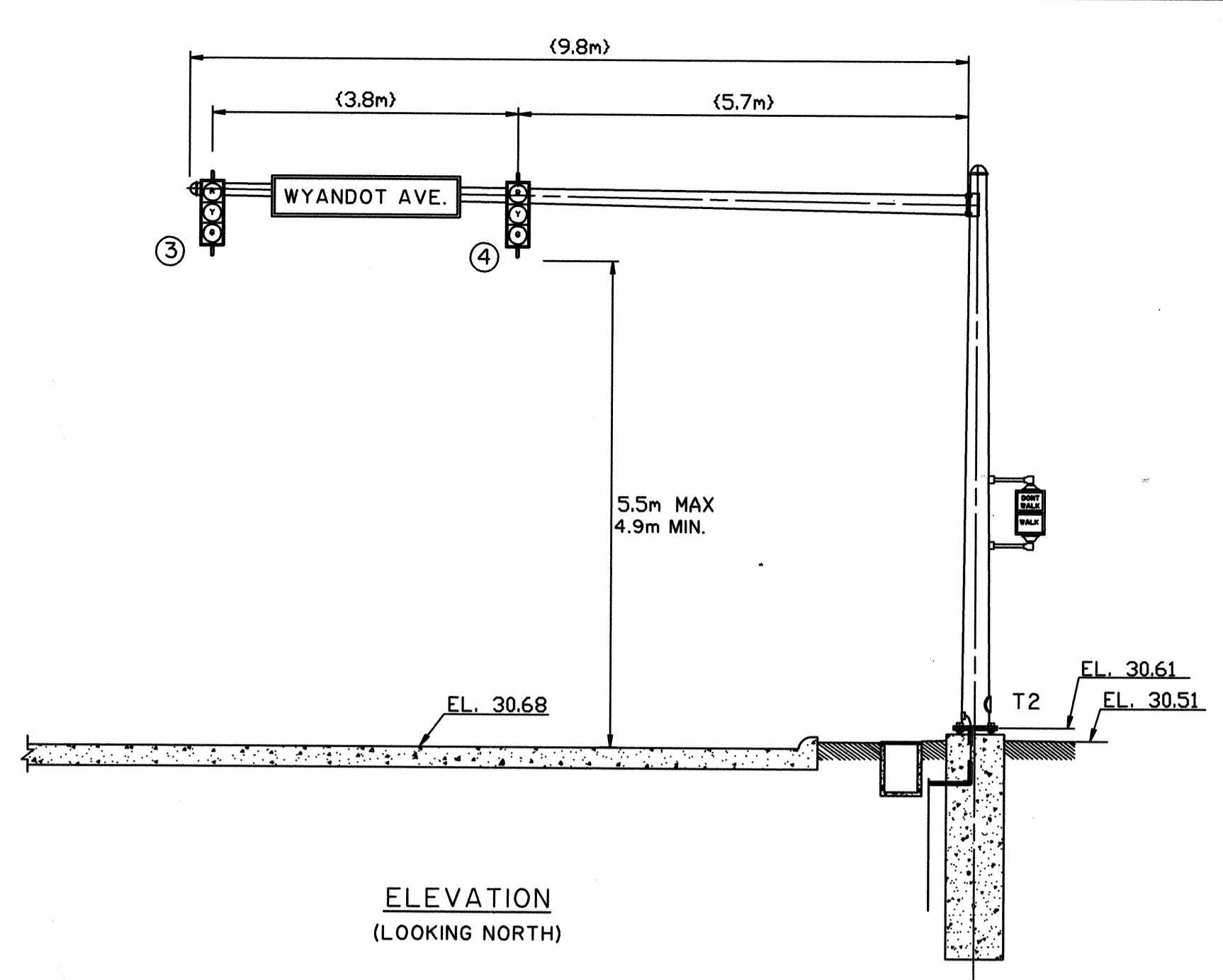
CALCULATED VMG
CHECKED RRR

WYANDOT AVE. &
5TH STREET

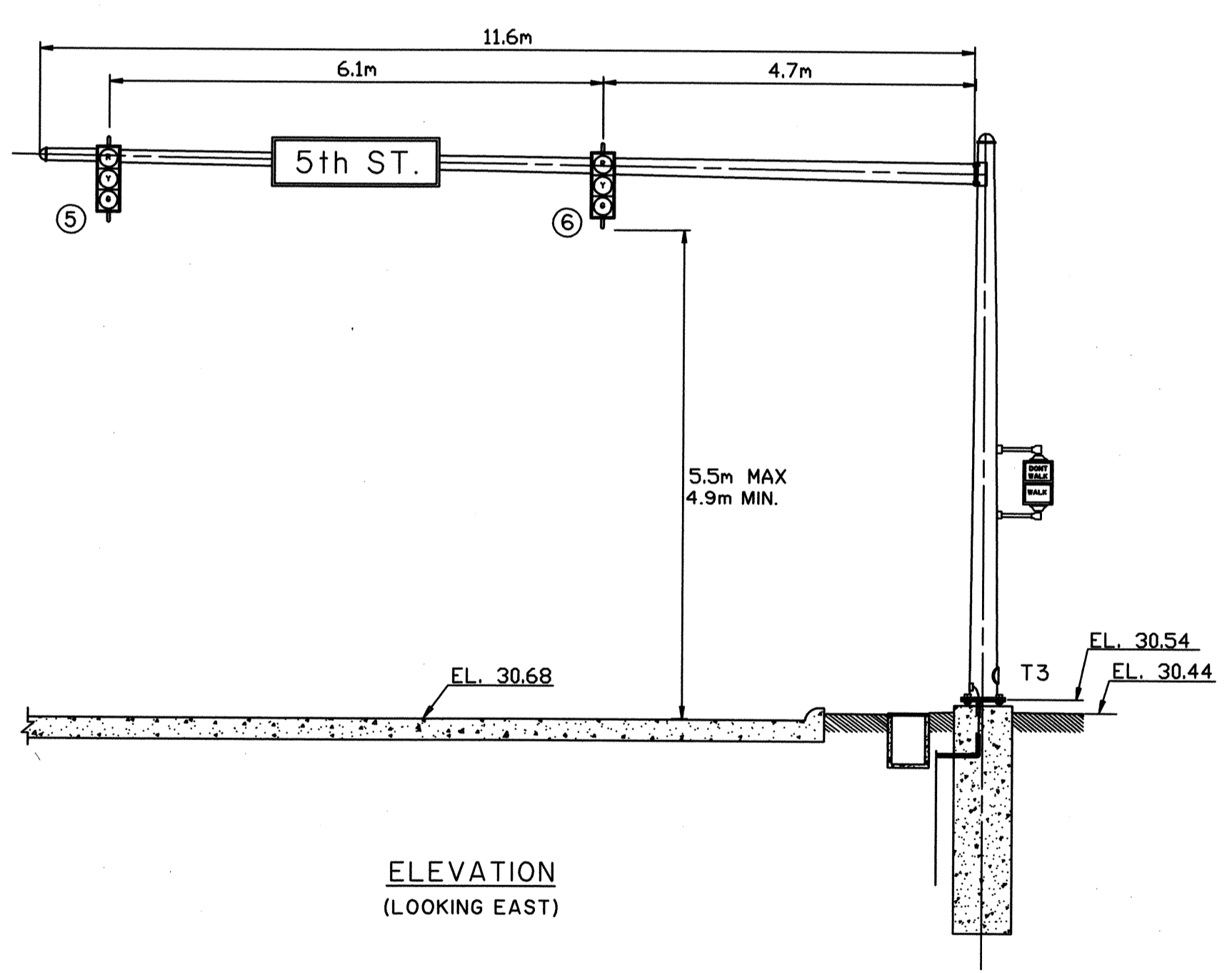
WYA-UPPER SANDUSKY SIGNALS



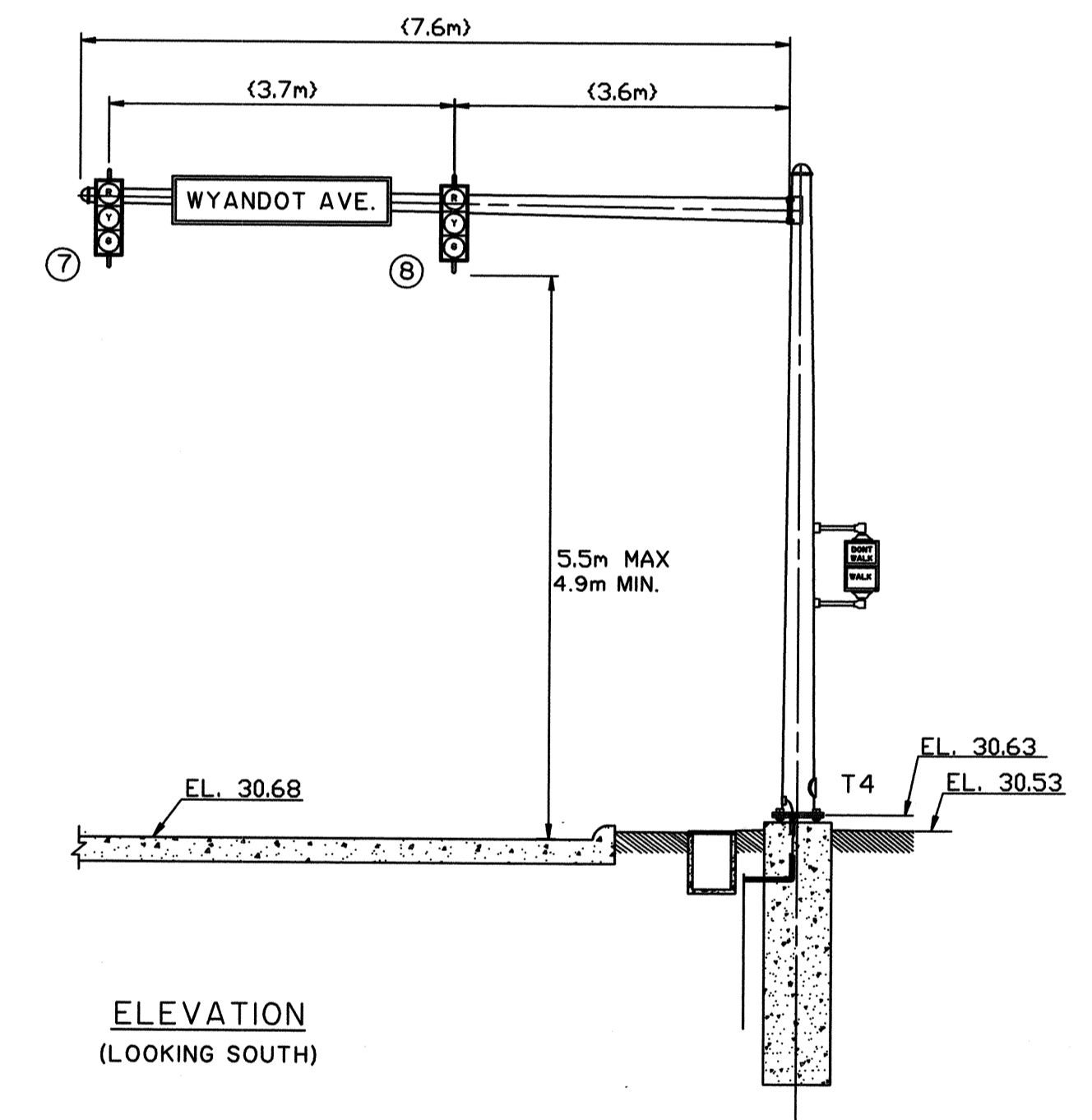
ELEVATION
(LOOKING WEST)



ELEVATION
(LOOKING NORTH)



ELEVATION
(LOOKING EAST)



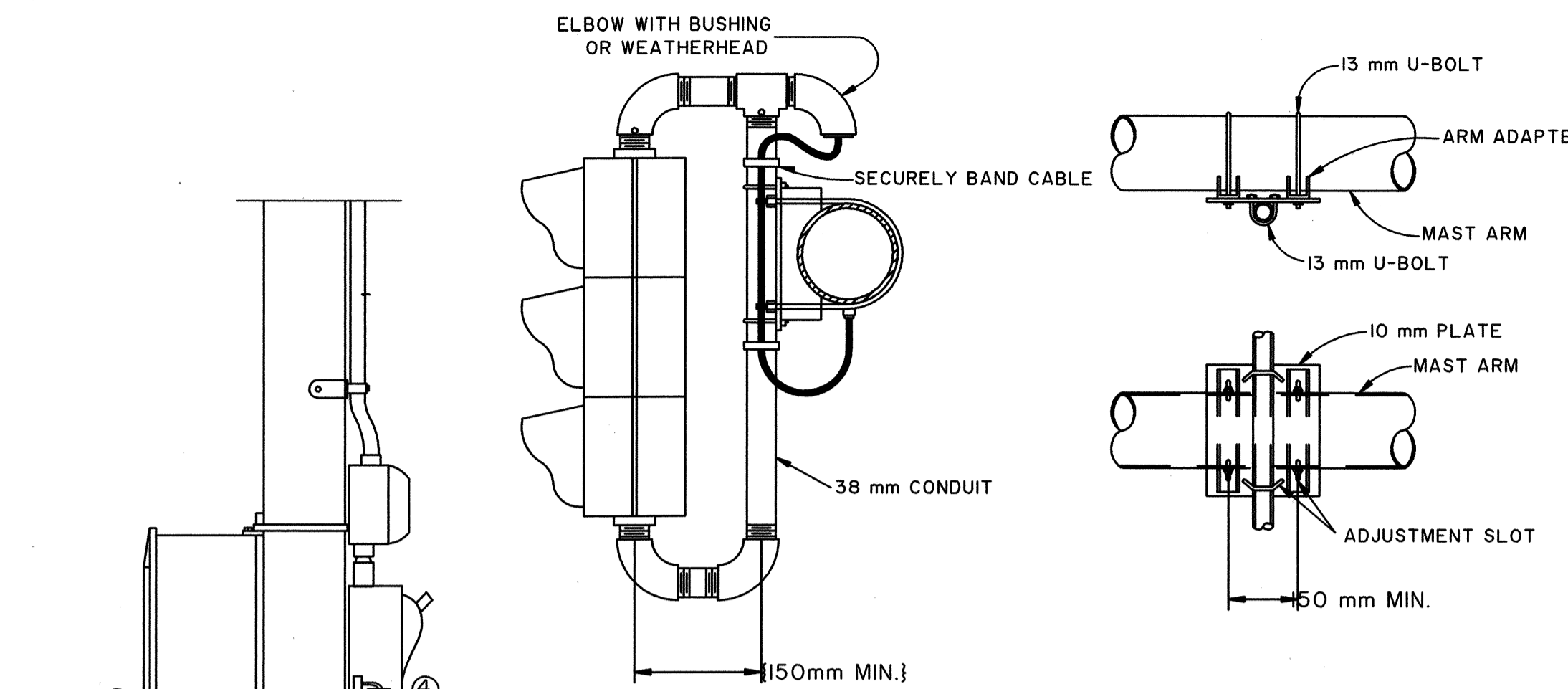
ELEVATION
(LOOKING SOUTH)

ITEM	DESCRIPTION	UNIT	QUANT
202	CURB REMOVED	m	3.0
608	CURB RAMP, TYPE 2	SQ METER	4.5
625	CONDUIT 76mm, 713.04	m	77
625	CONDUIT 51mm, 713.04	m	10
625	TRENCH	m	15
625	TRENCH IN PAVED AREAS, 762mm DEEP, AS PER PLAN	m	46
625	PULL BOX, 713.08, 450mm	EACH	6
625	GROUND ROD	EACH	4
630	SIGN HANGER ASSEMBLY, MAST ARM	EACH	4
630	SIGN, FLAT SHEET, TYPE G	SQ METER	3.92
630	GROUND MOUNTED SUPPORT, NO. 2 POST	m	11.9
632	VEH. SIG. HD., 3-SECTION, 305mm LENS, 1 WAY, POLYCARBONATE, APP	EACH	8
632	PEDESTRIAN SIGNAL HEAD, TYPE A2, AS PER PLAN	EACH	8
632	PEDESTRIAN PUSHBUTTON WITH SIGNS, AS PER PLAN	EACH	4
632	LOOP DETECTOR PAVEMENT CUTTING	m	39
632	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG	m	312
632	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG	m	118
632	POWER CABLE, 2-CONDUCTOR NO. 6 AWG	m	5
632	POWER CABLE, 3-CONDUCTOR NO. 6 AWG	m	8
632	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	EACH	2
632	LOOP DETECTOR WIRE, TYPE E	m	84
632	LOOP DETECTOR LEAD-IN CABLE	m	71
633	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	EACH	1
632	CABLE SUPPORT ASSEMBLY	EACH	4
633	CONTROLLER WORK PAD (1.2m x 0.9m)	SQ METER	1.08
632	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN I, 7.6 m	EACH	1
632	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, 9.8 m	EACH	1
632	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN II, 11.6 m	EACH	2
632	CONCRETE FOR ANCHOR BASE FOUNDATION	CU METER	4.96
632	POWER SERVICE	EACH	1
632	COVERING OF VEHICULAR SIGNAL HEAD	EACH	8
632	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EACH	1
632	COVERING OF PEDESTRIAN SIGNAL HEAD	EACH	8

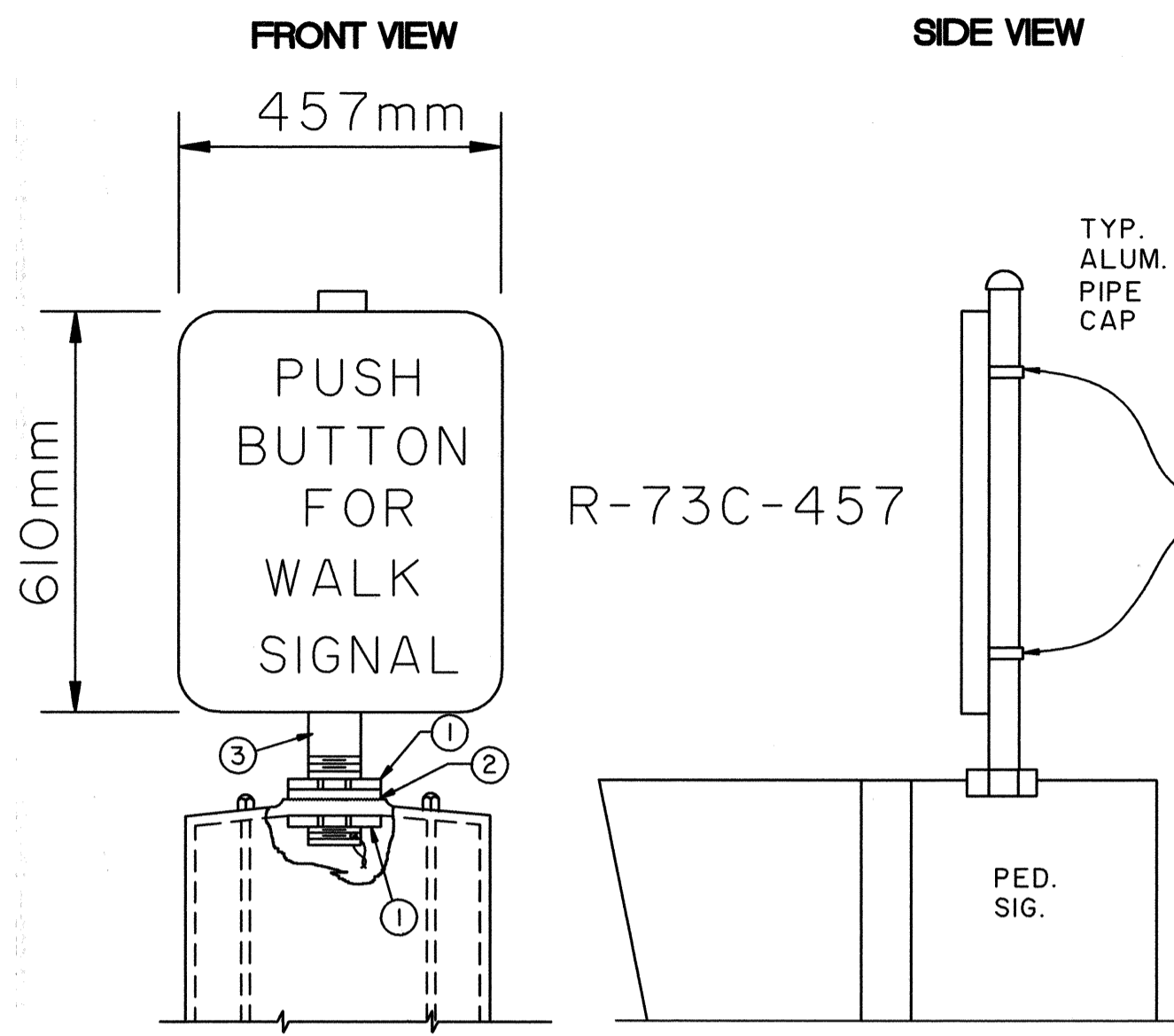
LOOP	SIZE	TURNS PER LOOP	MODE	DELAY (SEC.)	ASSOCIATED CONTROLLER PHASE	DELAY OVERRIDE PHASE
D1	6.1m x 2.4m	2	PRESENCE	6	I	I
D2	6.1m x 2.4m	2	PRESENCE	6	I	I

SUPPORT NO.	SIGNAL SUPPORT TYPE TC - 81.20M						ELEVATION		MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A							
	DESIGN NO.	POLE HEIGHT (m)	L (m)	L1 (m)	L2 (m)	L3 (m)	L4 (m)	A		B	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE (0.3 m FROM TOP)
T1	11	6.3	11.6	5.5	11.3			30.68	30.58	0	90/180	135	-	45	-	180	
T2	2	6.3	9.8	5.7	9.5			30.68	30.61	90	90/180	135	45*	-	-	180	
T3	11	6.3	11.6	4.7	10.8			30.68	30.54	0	90/180	135	-	-	-	180	
T4	1	6.3	7.6	3.6	7.3			30.68	30.63	90	90/180	135	-	-	-	180	

* - POWER IS ROUTED TO CONTROLLER FROM STRAINPOLE T2 TO CONTROLLER AT T1 UNDERGROUND IN SEPERATE 76mm CONDUIT



SIGNAL MOUNTING FOR MAST ARMS

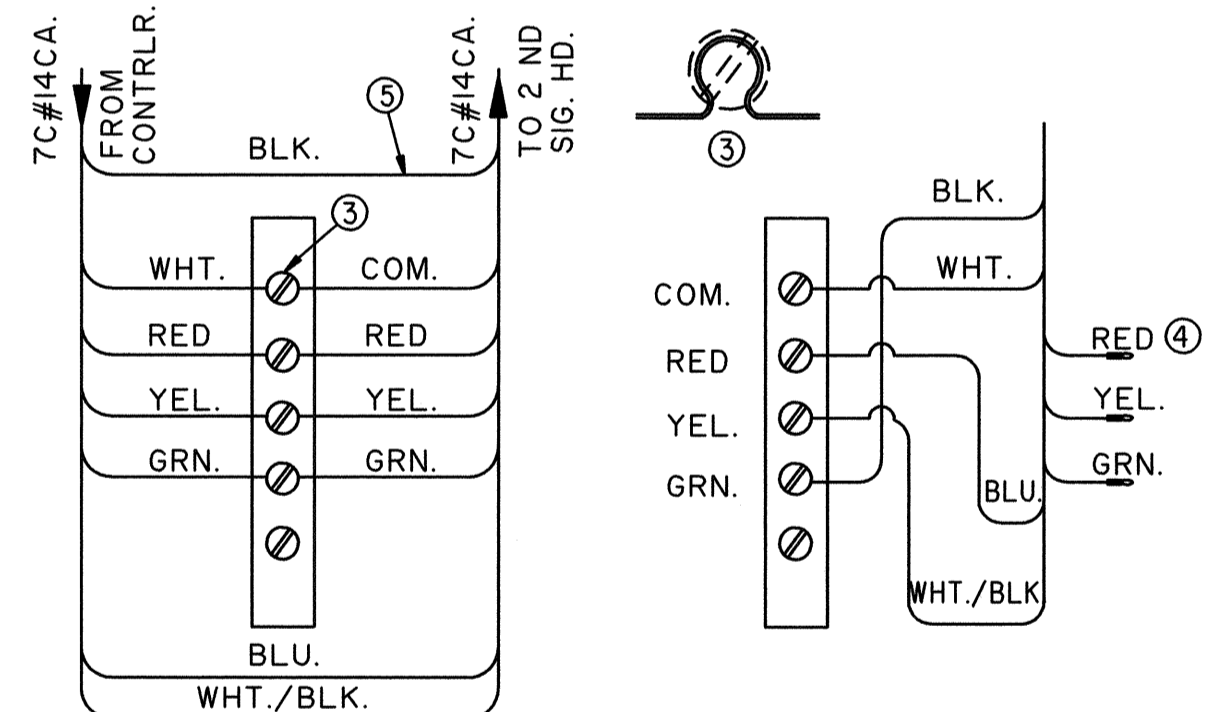


INSTALL AUXILIARY SIGN ON TOP OF PEDESTRIAN SIGNAL

NOTES

- ① 1 1/2" ALUMINUM LOCK NUT, (THICK TYPE 3/8"-1/2" THICK)
- ② SERRATED BUSHING.
- ③ 1-1/2" SCHED. 40 ALUM. PIPE
- ④ AUXILIARY SIGN AND MOUNTING HARDWARE INCLUDED IN UNIT BID PRICE FOR PEDESTRIAN PUSHBUTTONS

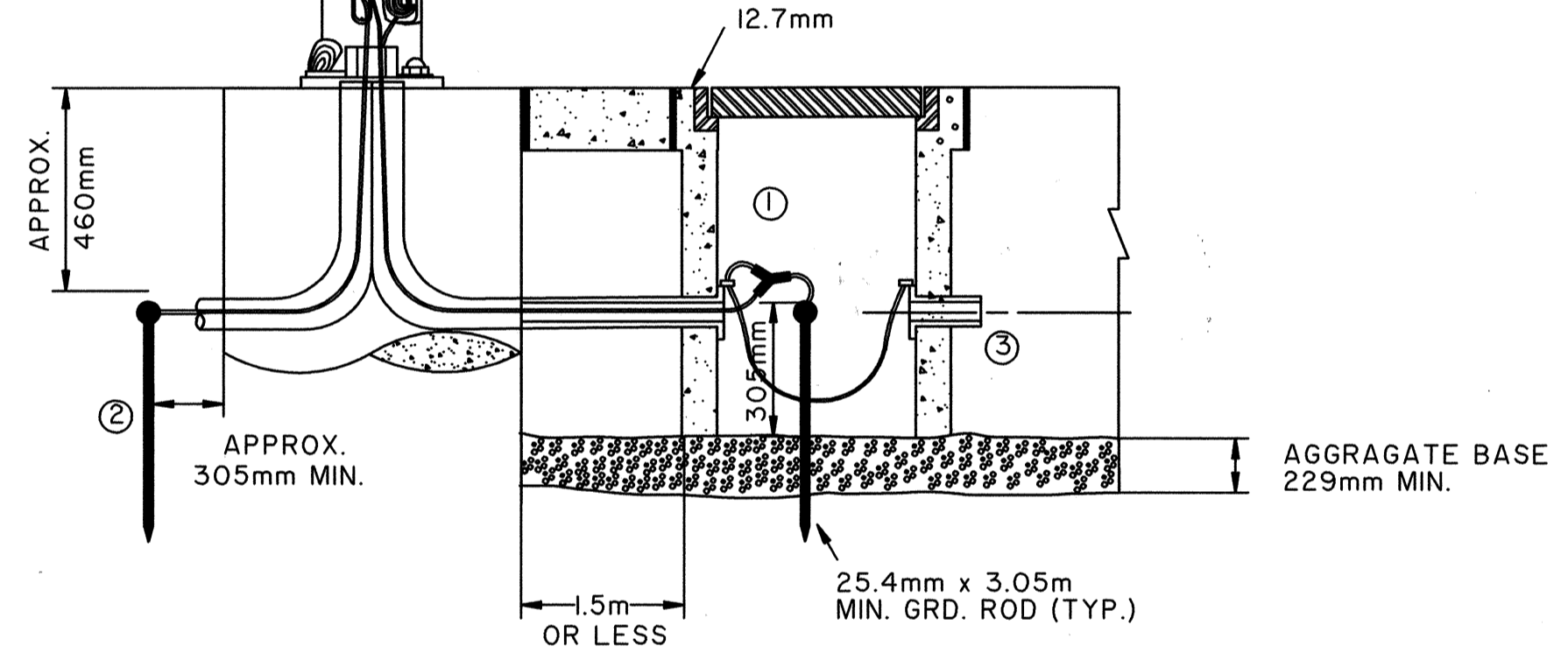
TYP. AUXILIARY PEDESTRIAN PUSH BUTTON SIGN



1ST SIGNAL HEAD THE 7C CA. SHALL BE ROUTED IN & OUT OF FIRST SIGNAL HEAD IN THIS CASE, EACH SIGNAL HEAD SHALL BE FURNISHED WITH A 5 POLE WIRING TERMINAL. SEE NOTES ③, ④ & ⑤ FOR WIRING CONNECTIONS.

NOTES

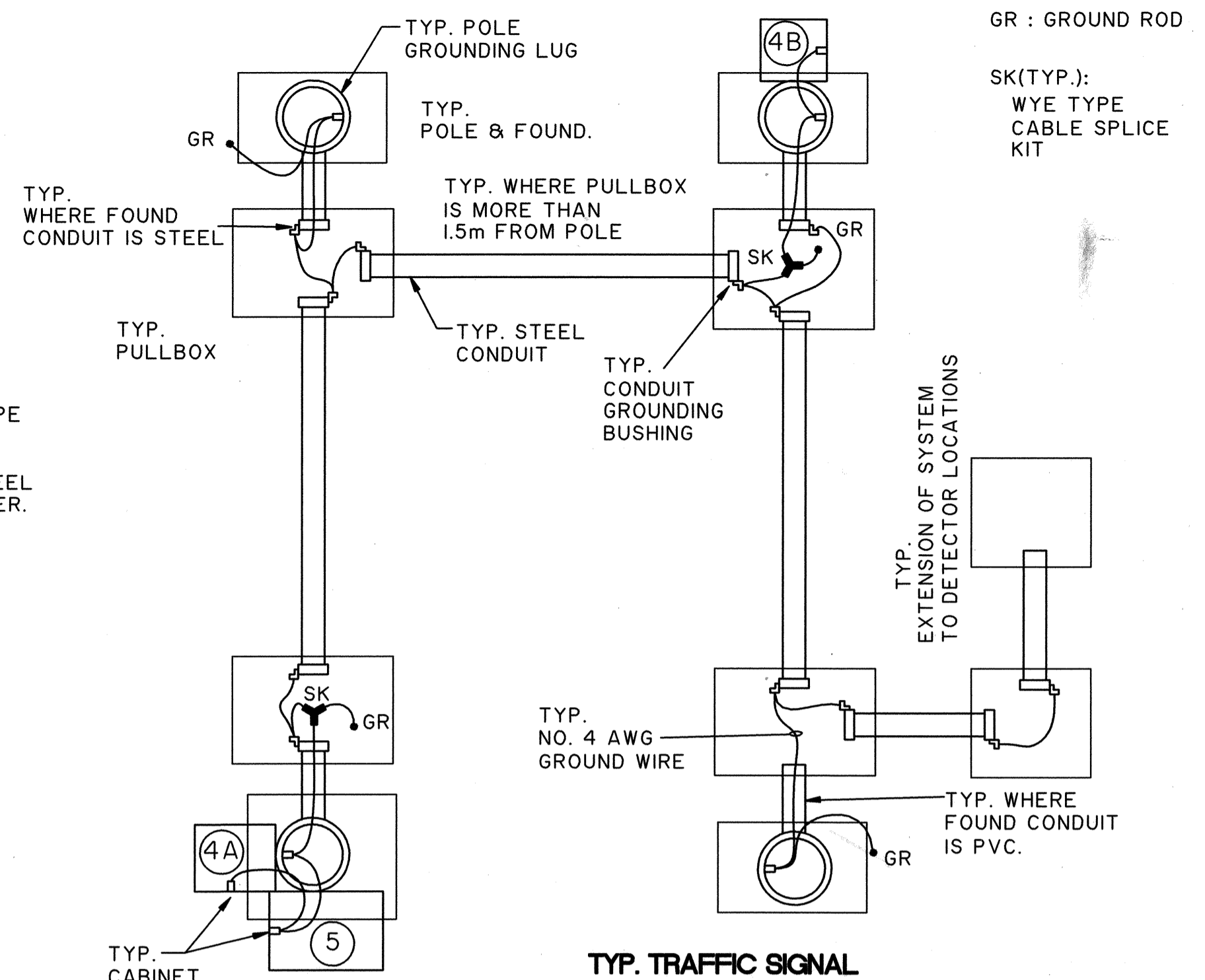
- ALL CABLES SHALL BE ROUTED FROM THE CONTROLLER, DIRECTLY TO THE DEVICE. (HOME RUN) EXCEPTIONS:
- NOTE ① WHERE (2) TWO VEHICLE SIGNALS ARE CONNECTED TO ONE (1) 7C#14 CA. THIS REFERS TO 2 SIGNALS ON THE MAST ARM, AND WHICH SERVICE THE SAME APPROACH OR PHASE. REFER TO WIRING DETAIL THIS SHEET.
- NOTE ② DETECTOR LEAD-IN CABLE SHALL BE CONNECTED FROM LOOP TO AMPLIFIER AND SHALL BE 2C#14 SHIELDED (19x 27 STRANDING). CONNECT SHIELD AT AMPLIFIER CABINET GROUND ONLY.
- NOTE ③ TYPICAL METHODS FOR CONNECTING TO TERMINAL STRIP.
- 1) REMOVE INSULATION FROM APPROX. 1" OF CONDUCTOR AND LOOP AROUND TERMINAL OR
 - 2) CONNECT BOTH CONDUCTORS OF SAME COLOR TO A RING TONGUE OR FORKED TONGUE LUG.
- NOTE ④ TYPICAL METHOD FOR DEAD- END CONDUCTOR W/NO TERMINAL CONNECTION.
- 1) USE INSULATED SPLICE BUTT TYPE CONNECTOR. T & B 2 RB-14, BURNDY #SN-14, 3M CO. "INSULINK" OR APPROVED EQUAL. OR
 - 2) TAPE BACK CONDUCTOR END.
- NOTE ⑤ TYPICAL METHOD FOR CONTINUING CONDUCTOR THRU SIGNAL HEAD W/O TERMINAL CONNECTION.
- 1) MAINTAIN UNUSED CONDUCTOR IN AND OUT OF SIGNAL HEAD W/O CUTTING OR SPLICING. OR
 - 2) SPLICE UNUSED CONDUCTORS W/INSULATED SPLICE BUTT CONNECTORS. SEE NOTE ④ FOR CONNECTOR TYP.



POLE AND PULLBOX DETAIL

NOTES

- PROVIDE A GROUND ROD FOR EACH STEEL POLE.
- ① WHERE A PULLBOX IS WITHIN 1.5M OF A POLE AND IS ELECTRICALLY CONNECTED THROUGH CONDUIT AND WIRING. THE GROUND ROD SHALL BE DRIVEN THROUGH THE OPEN BOTTOM OF THE PULLBOX ALLOWING 305MM OF THE ROD TO BE EXPOSED IN THE PULLBOX BASE.
 - OR
 - ② WHERE THE NEAREST PULLBOX IS GREATER THAN 1.5M FROM A POLE, THE GROUND ROD SHALL BE DRIVEN ADJACENT TO THE POLE FOUNDATION.
 - ③ UNDERGROUND STEEL CONDUIT WITHIN A SIGNALIZED INTERSECTION SHALL BE INTERCONNECTED BY CONNECTING THE GROUNDING BUSHING OF EACH OF THE EXPOSED CONDUITS WHERE A GROUND ROD IS DRIVEN IN THE PULLBOX, CONNECT THE CONDUIT SYSTEM AND GROUND ROD TO THE ADJACENT POLE GROUND LUG WITH A WYE TYPE CABLE SPLICE KIT AND ONE NO. 4 AWG GROUND WIRE.
 - ④ DISCONNECT(SAFETY) SWITCHES SHALL BE PROVIDED WITH A NEUTRAL BUS BAR BONDED TO THE SWITCH ENCLOSURE. CONNECT A NO. 4 AWG GROUND WIRE TO:
 - Ⓐ THE CONTOLLER CABINET GROUNDED NUETRAL BUS WHERE THE TRAFFIC SIGNAL CONTROLLER IS LOCATED ON THE SAME POLE.
 - OR
 - Ⓑ THE POLE GROUND LUG - ⑤ TRAFFIC SIGNAL CONTROLLER CABINETS MOUNTED ON A POLE SHALL HAVE THE NUETRAL BUS BAR OR NUETRAL CONNECTION BONDED TO THE CABINET. CONNECT A NO. 4 AWG GROUND WIRE TO THE POLE GROUND LUG.



TYP. TRAFFIC SIGNAL INTERSECTION GROUNDING SYSTEM (EQUIPMENT GROUNDING)

SIGNAL WIRING CODE

NUMBER OF CONDUCTORS	CONDUCTOR COLOR CODE	VEHICLE SIGNALS		PEDESTRIAN SIGNALS	
		SECTION TRAFFIC SIGNAL HEADS SEE NOTE ①	2-3 SECTION TRAFFIC SIGNAL HEADS SEE NOTE ①	1 PED. SIGNAL PUSHBUTTON	1 PED. SIGNAL
1	BLK.	GRN. SIGNAL (2ND HEAD) & SPARE (1ST HEAD)	SPARE	SPARE	SPARE
2	WHT	COMMON	COMMON	COMMON	COMMON
3	RED	RED SIGNAL (1ST HEAD)	DONT WALK	DONT WALK	DONT WALK
4	GRN	GRN. SIGNAL (1ST HEAD)	WALK	WALK	WALK
5	YEL. (OR ORN.)	YELLOW SIGNAL (1ST HEAD)	SPARE	SPARE	SPARE
6	BLU	RED SIGNAL (2ND HEAD)	PUSHBUTTON	PUSHBUTTON	PUSHBUTTON
7	WHT. BLK-TR	YELLOW SIGNAL (2ND HEAD)	PUSHBUTTON	PUSHBUTTON	PUSHBUTTON
CABLE REQUIREMENTS		1-7C#14CA.	1-7C#14CA.	1-5C#14CA.	1-5C#14CA.

SCALE IN METERS

HORIZONTAL

0 5 10

CHECKED RRR

CALCULATED VMG

SIGNAL DETAILS

WYA-UPPER SANDUSKY SIGNALS

13

13