

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN (I-76 / I-77)

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB SITE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCE OF 650 FEET AND 475 FEET RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

THE PROBABLY PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF. ADDITIONALLY WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE TO THE CONTRACTOR ON HIS CONTRACT.

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KMK	5/12/15	OVERHEAD SIGN EXTRUSHEET ITEM AND QUANTITY ADDED.
MEP	3/30/16	ADDED BRIDGE MOUNTED BARRIER NOTE
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN (CONT'D)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THEIR USE. THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AS OUTLINED IN 614.02.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 108 SIGN MONTHS

ADVANCE WORK ZONE INFORMATION (I-76 / I-77)

ADVANCE WORK ZONE INFORMATION SIGNS, AS USED IN THIS NOTE, ARE FIXED MESSAGE TYPES. THE SIGNS ARE TO BE LOCATED AT EXTREME DISTANCE FROM THE WORK AREA, AS SHOWN IN THE PLANS.

THE SIGNS SHALL BE BLACK ON ORANGE (INCLUDING A BLACK BORDER). THE LAYOUT SHALL BE IN CONFORMANCE WITH TEM SECTION 211.

WHEN REGULATORY INFORMATION IS PROVIDED, IT SHALL BE DISPLAYED SEPARATELY AS A STANDARD BLACK-ON-WHITE SIGN. MIXING OF BLACK-ON-WHITE REGULATORY INFORMATION ON A BLACK-ON-ORANGE INFORMATION SIGN IS PROHIBITED.

IF THE MOTORIST IS BEING DETOURED OR IF AN ALTERNATE ROUTE IS PROVIDED, THE ROUTE SHALL BE SIGNED WITH ASSEMBLIES CONSISTING OF THE APPROPRIATE BLACK-ON-ORANGE DETOUR OR ALT MARKER WITH A STANDARD ROUTE MARKER AND ARROW PLATE.

ROUTE SIGN ASSEMBLIES SHALL BE SIZED ACCORDING TO THE TYPE OF ROAD ON WHICH THEY ARE LOCATED IN ACCORDANCE WITH THE OMTCD.

SUPPORTS FOR SIGN INSTALLATIONS SHALL CONFORM TO ALL EXISTING STANDARDS FOR PERMANENT SIGNS. THESE SIGNS SHOULD NOT BE ATTACHED TO EXISTING SUPPORTS.

WHERE THE PLANS CALL FOR AN OVERLAY TO COVER A PORTION OF AN EXISTING SIGN, THE OVERLAY SHALL BE BLACK-ON-ORANGE. LETTER SIZES SHOULD BE THE SAME AS ON THE EXISTING SIGNS. WHEN LANE ARROWS ARE TO BE COVERED, RATHER THAN USING A BLANK OVERLAY, THE LEGEND "LANE CLOSED" SHALL BE USED. WHEN A RAMP IS BEING CLOSED, RATHER THAN USING A BLANK OVERLAY TO COVER THE ENTIRE SIGN, THE LEGEND "CLOSED" SHALL BE USED ON A DIAGONAL OVERLAY (LOWER LEFT TO UPPER RIGHT) ON THE SIGN. THE SIZE OF LETTERING ON OVERLAYS AND THE SIZE OF THE OVERLAY ARE INDICATED IN THE PLANS. THE MINIMUM LETTER SIZE FOR "LANE CLOSED" SHALL BE 10" E. THE MINIMUM LETTER SIZE FOR THE DIAGONAL "CLOSED" OVERLAY SHALL BE 12" E.

ALL ADVANCE WORK ZONE INFORMATION SIGN INSTALLATIONS LOCATED OUTSIDE OF THE PROJECT WORK LIMITS SHALL BE PAID FOR UNDER APPROPRIATE 630 ITEMS (SIGNS, SUPPORTS, CONCRETE, BREAKAWAY CONNECTION, OVERLAYS, REMOVALS, ETC.)

ITEM 622 - PORTABLE BARRIER, 50", BRIDGE MOUNTED, AS PER PLAN (I-76 / I-77)

ALL PROVISIONS OF THE "ITEM 622 - PORTABLE BARRIER, 50", AS PER PLAN (I-76 / I-77)" NOTE SHALL APPLY EXCEPT THAT THE BARRIER SHALL BE BRIDGE MOUNTED PER SCD PCB-91.

ITEM 614 - MAINTAINING TRAFFIC (ESTIMATED QUANTITIES)

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE MAINTENANCE OF TRAFFIC GENERAL SUMMARY FOR USE AS DETERMINED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 630	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X22	156.0 FT
	SIGN ATTACHMENT ASSEMBLY	7 EACH
	SIGN, GROUND MOUNTED EXTRUSHEET	320.0 SF
	SIGN, OVERHEAD EXTRUSHEET	237.0 SF
	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION	8 EACH
	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	12 EACH
	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL	18 EACH
	REMOVAL OF GROUND MOUNTED WOODEN BOX BEAM SUPPORT AND DISPOSAL	9 EACH
	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	3 EACH

ITEM 622 - PORTABLE BARRIER, 50", AS PER PLAN (I-76 / I-77)

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 50-INCH PORTABLE CONCRETE BARRIER (PCB) AT THE LOCATIONS SHOWN ON THE PLANS. FOR DETAILS, SEE SCD RM-4.1. PLEASE NOTE THAT SCD RM-4.1 WAS UPDATED 10-20-06 TO PROVIDE A PCB WHICH IS COMPATIBLE WITH NCHRP 350 CRITERIA.

PORTABLE STEEL BARRIER IS AN APPROVED ALTERNATIVE TO PCB. FOR INFORMATION ON APPROVED VENDORS, SEE THE APPROVED PRODUCTS LIST MAINTAINED BY ROADWAY STANDARDS.

PORTABLE CONCRETE BARRIER, 32 INCHES HIGH WITH AN 18-INCH MINIMUM HEIGHT GLARE SCREEN MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE GLARE SCREEN SHALL BE CONSTRUCTED USING ONE OF THE SCREENS PROVIDED ON THE APPROVED LIST, AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE.

PADDLE OR INTERMITTENT TYPE GLARE SCREENS SHALL BE DESIGNED USING A 20 DEGREE CUT-OFF ANGLE BASED ON TANGENT ALIGNMENT. THAT SPACING SHALL BE USED THROUGHOUT THE BARRIER LENGTH WITHOUT REGARD TO BARRIER CURVATURE.

THE GLARE SCREEN SYSTEM SHALL BE SECURELY FASTENED TO THE 32-INCH PORTABLE CONCRETE BARRIER USING THE HARDWARE AND PROCEDURES SPECIFIED BY THE MANUFACTURER.

FOR DIRECTIONS ON HOW TO INSTALL THE GLARE SCREEN AND THE BARRIER, SEE THE MANUFACTURER'S INSTRUCTIONS.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM 622, PORTABLE CONCRETE BARRIER, 50 INCH, AS PER PLAN.

ITEM 614 - BARRIER REFLECTORS AND/OR OBJECT MARKERS (I-76 / I-77)

BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS, AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET.

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 740 M. GAL

EARTHWORK FOR MAINTAINING TRAFFIC

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE PLAN FOR INFORMATION ONLY:

EMBANKMENT FOR MAINTAINING TRAFFIC 2100 CU. YD.

WHEN UNDERCUTS ARE NECESSARY FOR MAINLINE PAVEMENT OR EMBANKMENT CONSTRUCTION, EVALUATE THE NEED FOR TEMPORARY ROAD UNDERCUTS IF WITHIN A CLOSE PROXIMITY TO THE MAINLINE UNDERCUTS.

ALL WORK AND ITEMS REQUIRED TO PROVIDE, MAINTAIN, AND REMOVE TEMPORARY ROADS TO BE INCLUDED IN COST FOR ITEM 615 - ROADS FOR MAINTAINING TRAFFIC. THIS INCLUDES AND IS NOT LIMITED TO GUARDRAIL, EARTHWORK, PAVEMENT, DRAINAGE, ETC.

TEMPORARY TRAFFIC SIGNALS (LOCAL)

TEMPORARY TRAFFIC SIGNALS SHALL BE INSTALLED IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), AND THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS), CURRENT EDITION, LATEST REVISIONS. USED MATERIALS IN GOOD CONDITION ARE ACCEPTABLE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE WOOD POLES. THE CONTRACTOR WILL FURNISH, ERECT, OPERATE, MAINTAIN AND SUBSEQUENTLY REMOVE EACH TEMPORARY SIGNAL. THE CONTRACTOR WILL COORDINATE WITH THE POWER COMPANY FOR POWER SERVICE AND THE CONTRACTOR WILL PAY ALL FEES AND POWER USAGE FOR THE TEMPORARY SIGNALS.

THE RELOCATION OF SIGNAL HEADS FOR EACH PHASE OF CONSTRUCTION AND ALL NECESSARY FIELD ADJUSTMENTS OF THE PHASING AND /OR TIMING WILL BE INCLUDED IN THIS ITEM.

THE CONTRACTOR SHALL FIELD ADJUST PHASING AND TIMING TO MAINTAIN BACKUPS TO A MINIMUM WITH THE APPROVAL OF THE ENGINEER.

TRAFFIC SIGNAL HEAD CLEARANCE SHALL BE 16' MINIMUM AND 18' MAXIMUM.

THE COST FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS TO PROVIDE TEMPORARY SIGNALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

EXTRA ADVANCE WARNING SIGNS (NOTE A)

AN EXTRA ADVANCE WARNING SIGN GROUP CONSISTS OF TWO W20-1 (ROAD WORK AHEAD) SIGNS, TWO W20-5 (RIGHT/LEFT LANE CLOSED AHEAD) SIGNS WITH W16-3A DISTANCE PLATES, AND TWO W3-H7 (WATCH FOR STOPPED TRAFFIC) SIGNS AND REQUIRED WARNING LIGHTS.

THE CONTRACTOR SHALL HAVE AN ADDITIONAL EXTRA ADVANCE WARNING SIGN GROUP (6 SIGNS AND 2 DISTANCE PLATES) AVAILABLE FOR USE WHEN DIRECTED BY THE ENGINEER. THE DISTANCE PLATES FOR THIS GROUP SHALL BE ABLE TO BE MODIFIED IN THE FIELD TO SHOW APPROPRIATE WHOLE MILES TO THE LANE TAPER.

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING AND REMOVING EXTRA ADVANCE WARNING SIGN GROUPS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 622 - PORTABLE BARRIER PLACEMENT (I-76 / I-77)

DURING THE PLACEMENT OF THE PORTABLE BARRIER, TRAFFIC WILL BE PROHIBITED FROM OCCUPYING THE TRAVEL LANE ADJACENT TO THE BARRIER. THE BARRIER WILL BE PLACED AT NIGHT PER THE WORK HOUR RESTRICTION NOTE AND IN ACCORDANCE WITH THE PERMITTED LANE CLOSURE CHART. THE CLOSURE OF THE ADJACENT LANE WILL BE PER THE STANDARD DRAWING MT-95.30. THE CONTRACTOR WILL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL SEVEN (7) DAYS IN ADVANCE OF THE PLANNED LANE CLOSURE. WORK WILL NOT BEGIN UNTIL APPROVAL OF THE PLANS HAS BEEN GRANTED. ALL COSTS INVOLVED IN PLACING THE PORTABLE CONCRETE BARRIER WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR ITEM 622 PORTABLE CONCRETE BARRIER.

614 WORK ZONE PAVEMENT MARKINGS, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 614.11, ALL CLASS 1 EDGE LINES, LANE LINES, CENTER LINES AND DOTTED LINES SHALL BE 6 INCHES WIDE AND CHANNELIZING MARKINGS SHALL BE 8 INCHES WIDE. THE APPLICATION RATES FOR THE 6 INCH LINES SHALL BE 1.5 TIMES THE RATES SPECIFIED FOR 4 INCH LINES IN TABLE 614.11-1.

ITS MESSAGE BOARDS (I-76 / I-77)

THE EXISTING ITS MESSAGE BOARDS IN THE VICINITY OF THE PROJECT WILL BE UTILIZED TO PROVIDE SUPPLEMENTAL INFORMATION TO THE TRAVELING PUBLIC. THE CONTRACTOR WILL NOTIFY THE PROJECT ENGINEER ONE (1) WEEK IN ADVANCE OF ANY PHASE CHANGE. THE PROJECT ENGINEER WILL COORDINATE WITH EITHER LISA BOSE AT 330-786-4817 OR BRENT KOVACS AT 330-786-2208 TO GET THE ITS MESSAGE BOARDS ADJUSTED.

ITEM 614 - BUSINESS ENTRANCE (M4-H15) SIGN, AS PER PLAN (LOCAL)

THE BUSINESS ENTRANCE (M4-H15) SIGN SHOULD BE PROVIDED AT EACH TEMPORARILY RELOCATED COMMERCIAL DRIVEWAY FOR WHICH THE RELOCATION IS NOT OBVIOUS TO THE MOTORIST. THE PROJECT ENGINEER SHALL DETERMINE WHETHER OR NOT THE DRIVEWAY RELOCATION IS, OR IS NOT, OBVIOUS AND WHETHER OR NOT A SIGN SHOULD BE PROVIDED. ONLY ONE SIGN PER BUSINESS SHALL BE PERMITTED. THE SIGN SHALL BE 36 INCH X 48 INCH IN SIZE WITH TYPE G OR TYPE H ORANGE RETROREFLECTIVE SHEETING. THE SIGN LEGEND SHALL BE PLACED ON BOTH SIDES OF THE SIGN (BACK TO BACK). THE SIGN SHALL HAVE THE STANDARD M4-H15 LEGEND WITH THE WORD "BUSINESS" ON THE TOP LINE, EXCEPT UNDER UNUSUAL CIRCUMSTANCES WHERE IT MAY NOT BE INTUITIVE THAT A DRIVEWAY SERVES A SPECIFIC BUSINESS. IN SUCH UNUSUAL CASES, THE ACTUAL BUSINESS NAME MAY BE SUBSTITUTED FOR THE WORD "BUSINESS".

THE SIGN SHALL BE MOUNTED ON TWO NO. 3 POSTS OR ON TEMPORARY POSTS IN ACCORDANCE WITH SCD MT-105.10 AND IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE SIGN SHALL BE CLEARLY VISIBLE AND SHALL CLEARLY IDENTIFY THE LOCATION OF THE DRIVEWAY. THE SIGN SHOULD BE POSITIONED AT 90 DEGREES TO THE DIRECTION(S) OF TRAFFIC. THE SIGN MAY NEED TO BE MOVED FOR EACH PHASE OF THE MAINTENANCE OF TRAFFIC OPERATIONS.

PAYMENT FOR ALL COSTS ASSOCIATED WITH MANUFACTURING, MOUNTING, RELOCATING, AND REMOVING THE SIGN, INCLUDING ALL LABOR, MATERIALS AND EQUIPMENT SHALL BE INCLUDED IN THE CONTRACT PRICE PER EACH FOR ITEM 614-BUSINESS ENTRANCE SIGN.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS ITEM.

ITEM 614 BUSINESS ENTRANCE SIGN, AS PER PLAN 20 EACH

ITEM 614 - COVERING OF SIGNS (I-76 / I-77)

THE CONTRACTOR WILL COVER ANY EXISTING AND/OR PROPOSED SIGN INSTALLATION WHICH IS IN CONFLICT WITH THE MAINTENANCE OF TRAFFIC PLANS. THE SIGNS SHALL BE COVERED IN SUCH A MANNER AS TO AVOID DAMAGING THE SIGN WHEN THE COVER IS REMOVED. THE COVER SHALL BE TOTALLY OPAQUE AND COVERS THE ENTIRE SIGN FACE. THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO THE SIGN FACE IS STRICTLY PROHIBITED. THE CONTRACTOR WILL PROVIDE ALL OF THE "CLOSED" PLAQUES NECESSARY. THE OVERLAY MAY BE RIVETED TO THE SIGN. THE CONTRACTOR SHALL PROVIDE ALL OF THE PLAQUES, SIGNS, AND SIGN PANELS NECESSARY.

UNLESS SEPARATELY ITEMIZED IN THE PLAN, THE LUMP SUM PRICE BID FOR ITEM 614-MAINTAINING TRAFFIC SHALL INCLUDE ALL COSTS NECESSARY TO COVER AND/OR MODIFY CONFLICTING SIGN INSTALLATIONS.

ITEM 625 - LIGHT POLE MISC.: REMOVE, SALVAGE AND RE-ERECT MEDIAN LIGHT POLE WITH RECONSTRUCTION OF MEDIAN FOUNDATION (I-76 / I-77)

CONTRACTOR SHALL REMOVE AND SALVAGE THE EXISTING MEDIAN LIGHT POLE AND LUMINAIRE. THE SALVAGED ITEMS SHALL BE STORED BY THE CONTRACTOR FOR THE DURATION OF THE NEED FOR THE CROSSOVER THROUGH THE MEDIAN. THE FOUNDATION SHALL BE REMOVED TO A DEPTH OF 12" BELOW PROPOSED GUTTER AND PER REQUIREMENTS OF ODOT CMS 202. THE CONTRACTOR SHALL CONSTRUCT A NEW 24" X 10' DEEP FOUNDATION, INCLUDING NEW PULL BOX, ANCHOR BOLTS AND MOUNTING PLATE, ADJACENT TO THE EXISTING FOUNDATION TO REMAIN BELOW GRADE. THE FOUNDATION AND PULL BOX SHALL BE CONSTRUCTED PER SCD HL-20.13. THE SALVAGED POLE AND LUMINAIRE SHALL BE RE-INSTALLED ON THE NEW FOUNDATION AND CONNECTED TO THE EXISTING LIGHTING CIRCUITRY. ALL MATERIALS AND LABOR REQUIRED FOR THE COMPLETE INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH OF ITEM 625 LIGHT POLE MISC.: REMOVE, SALVAGE AND RE-ERECT MEDIAN LIGHT POLE WITH RECONSTRUCTION OF MEDIAN FOUNDATION. CONTRACTOR SHALL MAINTAIN EXISTING LIGHTING CIRCUIT, UNTIL NEW CIRCUIT IS INSTALLED.

CONSTRUCTION ACCESS POINTS

THE CONTRACTOR SHALL USE THE DESIGNED CONSTRUCTION ACCESS POINTS SHOWN ON SHEETS 196, 201, 206, AND 211. FOR PHASE 1, STAGE 1 AND STAGE 2 OF BOTH WOLF LEDGES AND GRANT STREET BRIDGE CONSTRUCTION. FOR ACCESS INTO THE CONSTRUCTION ZONE DURING THESE PHASES, THREE LANES SHALL BE MAINTAINED MONDAY - FRIDAY, 6 AM TO 8 AM AND 3 PM TO 6 PM. ONE LANE CAN BE CLOSED ANY TIME ON SATURDAY AND SUNDAY.

CONSTRUCTION RESTRICTIONS

THE FOLLOWING DISCUSSION OF CONSTRUCTION SEQUENCING RESTRICTIONS IS PROVIDED FOR THE CONTRACTOR'S BENEFIT WHEN PLANNING HIS/HER CONSTRUCTION WORK TASK SEQUENCING. ITEMS UNDER PERMITTED SEQUENCING ARE NON-BINDING AND COULD BE MODIFIED BY THE CONTRACTOR IF AN ALTERNATE MAINTENANCE OF TRAFFIC METHOD IS SELECTED, ANY APPROVED ALTERNATE MUST INCLUDE THESE RESTRICTIONS.

RESTRICTIONS

- THE LOCAL STREET CONSTRUCTION MUST BE COMPLETED TO THE POINT THAT BROADWAY TRAFFIC CAN BE PLACED ONTO THE WIDENED/RELOCATED MAIN STREET BEFORE PHASE 2 CAN BEGIN.
- EXCEPT FOR THE 2 WEEK DETOUR FOR THE CONSTRUCTION OF THE TIE-IN FOR RAMP W-5, WB EXIT TO DOWNTOWN (RAMP W-5A AND W-5) SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- RAMP W-5 MUST BE COMPLETED AND OPEN BEFORE BEGINNING PHASE 3.
- EXISTING RAMP W-9 SHALL NOT BE CLOSED UNTIL THE NEW RAMP W-9 IS COMPLETE AND OPEN.
- WOLF LEDGES PARKWAY MUST BE COMPLETED AND OPEN TO TRAFFIC BEFORE CONSTRUCTION WHICH RESTRICTS LANES CAN BEGIN ON GRANT STREET.
- PHASE 2 MAY BEGIN ONCE STEEL IS SET AND FALSWORK IN PLACE FOR THE GRANT STREET STRUCTURE REPLACEMENT (SUM-76-1085). THE INTENT IS TO HAVE THE GRANT STREET STRUCTURE COMPLETE TO THE POINT OF NOT REQUIRING ANY ZONES ON I-76 BEFORE PHASE 2 BEGINS.
- BUILDING DEMOLITION WORK, INCLUDING RESTORATION OF THE SITES, SHALL BE COMPLETED BY SEPTEMBER 30, 2016.
- WORK ON WOLF LEDGES AND GRANT STREET THAT REQUIRES AND TRAFFIC CONTROL ON I-76 SHALL NOT BEGIN BEFORE AUGUST 1, 2016.
- THERE ARE ADJACENT BRIDGES, WITHIN CLOSE PROXIMITY TO WOLF LEDGES AND GRANT STREET THAT WILL ALSO BE UNDER CONSTRUCTION DURING THE FALL OF 2016. THE CONTRACTOR SHALL COORDINATE WITH THE ADJACENT CONTRACTORS TO MAKE SURE THE I-76 CONSTRUCTION ZONES FOR THIS PROJECT MATCH IN AND DO NOT CONFLICT WITH THE ZONES FOR THE ADJACENT PROJECTS.
- THE WOLF LEDGES AND GRANT STREET STRUCTURES AND APPROACH ROADWAY WORK SHALL BE COMPLETE AND OPEN TO TRAFFIC BY OCTOBER 31, 2017.
- PHASE 2 SHALL BE COMPLETED BY AUGUST 31, 2018.
- PHASE 3 SHALL BE COMPLETED BY AUGUST 31, 2019.
- DUE TO ON-GOING UTILITY RELOCATIONS, THE CONTRACTOR MUST ANTICIPATE COORDINATING HIS WORK ON THE SURFACE STREETS WHILE THE UTILITY RELOCATIONS ARE BEING COMPLETED AS PER THE UTILITY NOTE.

DATES PROVIDED ABOVE SHALL BE CONSIDERED INTERIM COMPLETION DATES AND SHALL BE SUBJECT TO DISINCENTIVE PENALTY IN THE AMOUNT OF \$1,500 PER DAY THAT THE WORK IS NOT COMPLETE BEYOND INTERIM COMPLETION DATE.

ITEM 630 - SIGNING MISC.: REMOVE, SALVAGE AND RE-ERECT CONCRETE MEDIAN BARRIER-MOUNTED MILE MARKER (I-76 / I-77)

CONTRACTOR SHALL REMOVE AND SALVAGE THE EXISTING BARRIER-MOUNTED MILE MARKER PER REQUIREMENTS OF ODOT CMS 202. THE CONTRACTOR SHALL STORE THE EXISTING SIGNS FOR THE DURATION OF THE NEED FOR THE CROSSOVER THROUGH THE MEDIAN. THE EXISTING MOUNTING AND POST SHALL BE REMOVED AND REPLACED WITH NEW MOUNTING AND POST PER DETAILS ON SHEET 1135. ALL MATERIALS AND LABOR REQUIRED FOR THE COMPLETE INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH OF ITEM 630 SIGNING MISC.: REMOVE, SALVAGE AND RE-ERECT CONCRETE MEDIAN BARRIER-MOUNTED MILE MARKER.

MAINTENANCE OF TRAFFIC AND ACCESS TO PROPERTIES

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DETERMINED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC AND ACCESS TO PROPERTIES.

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE A OR B 500 CY

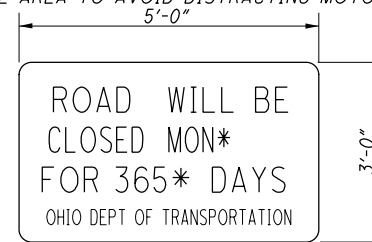
ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE C 500 CY

ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 100 CY

DRIVES TO REMAIN OPEN AT ALL TIMES UNLESS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. DRIVEWAY ACCESS MUST BE MAINTAINED AT ALL TIMES USING PARTIAL WIDTH CONSTRUCTION.

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD OR RAMP CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.



* CONTRACTOR SHALL USE ACTUAL CLOSURE DATE AND DURATION.

THE COST OF THE NOTICE OF CLOSURE SIGN IS CONSIDERED TO BE INCIDENTAL TO AND INCLUDED IN ITEM 614 - MAINTAINING TRAFFIC.

ITEM 611 - SLOTTED DRAIN, TYPE 2, APP

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 6" TEMPORARY SLOTTED DRAIN, TYPE 2, APP, AT THE LOCATIONS SHOWN IN THE PLAN. THIS ITEM IS USED TO ASSIST IN THE DRAINAGE OF THE CROSSOVERS DURING MOT. THIS ITEM TO BE REMOVED WHEN CROSSOVERS FOR MOT ARE NO LONGER NEEDED. ALL NECESSARY CONNECTIONS, LABOR, MATERIAL, AND EQUIPMENT TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR THE ITEM 611 - SLOTTED DRAIN, TYPE 2, APP.

ITEM 611 - CATCH BASIN, NO. 6, APP

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING A TEMPORARY CATCH BASIN, NO. 6, APP, AT THE LOCATIONS SHOWN IN THE PLAN. THIS ITEM IS USED TO ASSIST IN THE DRAINAGE OF THE CROSSOVERS DURING MOT. THIS ITEM TO BE REMOVED WHEN CROSSOVERS FOR MOT ARE NO LONGER NEEDED. 5" OF 12" CONDUIT IS TO BE USED TO MAKE THE CONNECTION TO THE EXISTING CATCH BASIN AND WILL BE INCIDENTAL TO THIS ITEM. ALL NECESSARY CONNECTIONS, LABOR, MATERIAL, AND EQUIPMENT TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER EACH FOR THE ITEM 611 - CATCH BASIN, NO. 6, APP.

LIMITATION OF STREET CLOSURES

THE CONTRACTOR SHALL COMPLETE ALL CONSTRUCTION AND SAFETY ITEMS AND HAVE THE DESIGNATED SECTIONS OPEN TO UNRESTRICTED TRAFFIC WITH IN THE CALENDER DAYS SPECIFIED.

DESCRIPTION OF LOCATION COMPLETION DAYS

PHASE 1, STAGE 1A BROADWAY STREET AND MILLER AVENUE CLOSURE: 10 CALENDAR DAYS

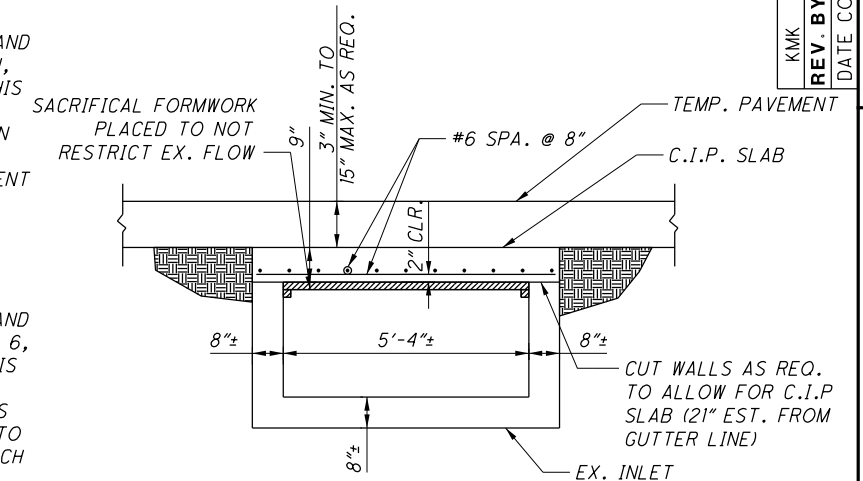
PHASE 1, STAGE 1B BROADWAY STREET AND MILLER AVENUE CLOSURE: 10 CALENDAR DAYS

PHASE 1, STAGE 1C YALE STREET CLOSURE: 21 CALENDAR DAYS

PHASE 2 BROADWAY STREET AND THORNTON INTERSECTION AVENUE CLOSURE: 14 CALENDAR DAYS. NO CLOSURE OF THE BROADWAY/THORNTON INTERSECTION MAY TAKE PLACE UNTIL RAMP W-5 (WB TO NB) BRIDGE IS COMPLETE AND PAVEMENT COMPLETED TO STA 575+75+/- SO THAT THIS MOVEMENT CAN BE OPENED TO TRAFFIC AFTER THE 14 DAY INTERSECTION CLOSURE. THE EXISTING RAMP E MUST REMAIN OPEN PRIOR TO THIS CLOSURE.

ITEM 611 - INLET MISC.: REMOVE, PROTECT AND RECONSTRUCT BARRIER MEDIAN INLET (I-76 / I-77)

CONTRACTOR SHALL SAWCUT THE EXISTING BARRIER MEDIAN INLET TO A DEPTH OF 21" BELOW PROPOSED GUTTER AND PER REQUIREMENTS OF ODOT CMS 202. THE CONTRACTOR SHALL PROTECT THE EXISTING PIPE INVERT WITH A CONCRETE SLAB AND BACKFILL WITH PROPOSED SHOULDER PAVEMENT SECTION FOR THE DURATION OF THE NEED FOR THE CROSSOVER THROUGH THE MEDIAN. THE SLAB SHALL BE AS PER DETAIL SHOWN. CONCRETE SHALL BE CMS ITEM 511, CLASS OCI MISC. WITH 4 KSI DESIGN STRENGTH. REINFORCING SHALL BE PER CMS ITEM 509 NO SEPARATE PAYMENT WILL BE MADE FOR TIME, CONCRETE AND REBAR AND OTHER MISCELLANEOUS ITEMS REQUIRED TO COMPLETE THE WORK AS IT IS INCIDENTAL TO THIS ITEM. THE EXISTING INVERT AND ONE SEGMENT OF EXISTING PIPE SHALL BE REMOVED AND REPLACED PER SCD I-2.4. WHEN THE TIME COMES TO REPLACE THE MEDIAN BARRIER WITH NEW BARRIER THE EXISTING MEDIAN INLET MUST BE REMOVED AND THE NEW MEDIAN INLET RECONSTRUCTED IN IT'S ORIGINAL LOCATION AS APPROVED BY THE ENGINEER. ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH OF ITEM 611 INLET MISC.: REMOVE, PROTECT AND RECONSTRUCT BARRIER MEDIAN INLET.



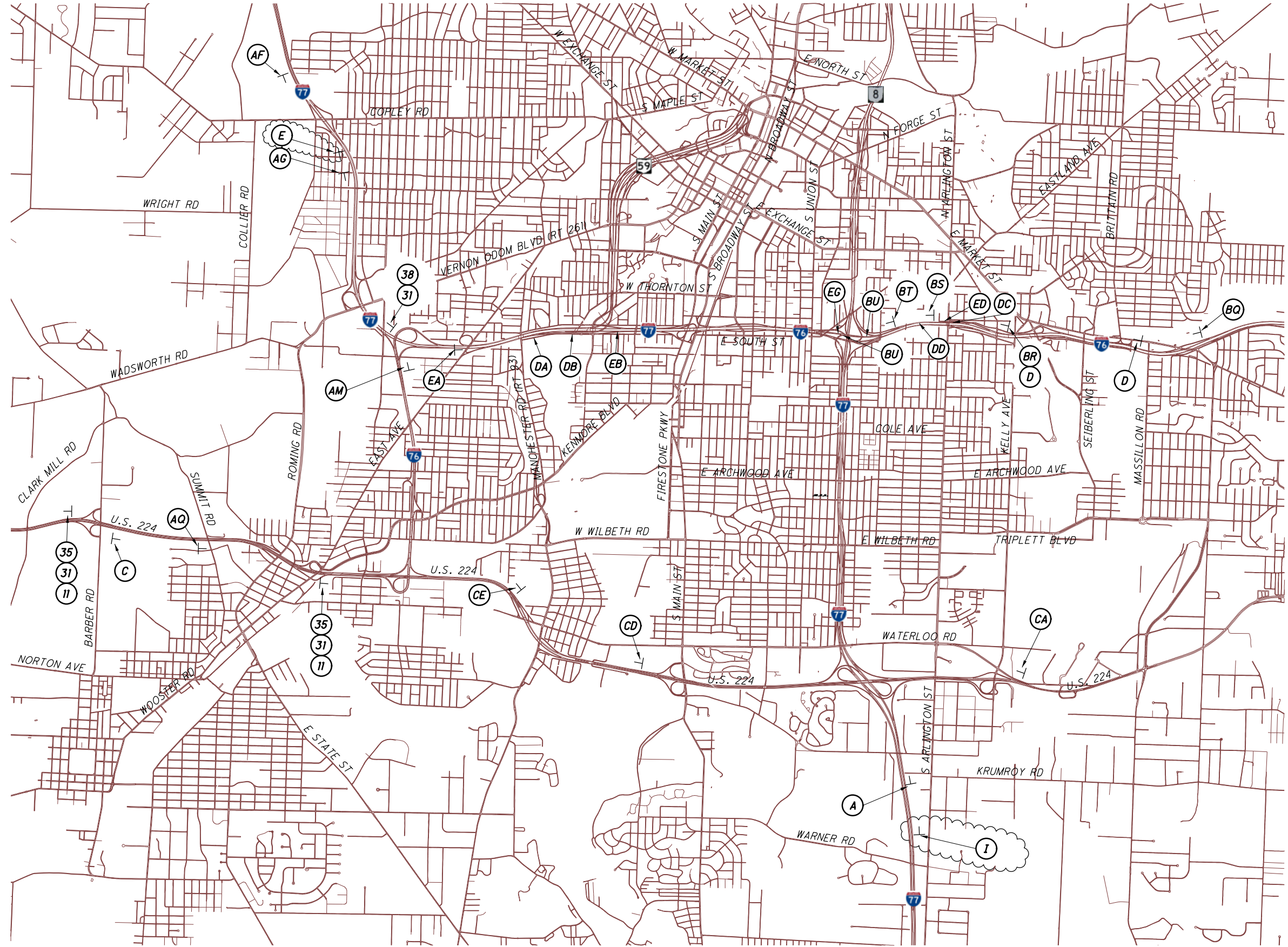
DETAIL FOR ITEM 611 - INLET MISC.: REMOVE, PROTECT AND RECONSTRUCT BARRIER MEDIAN INLET (I-76 / I-77)

REV. BY	DATE	DESCRIPTION
KMK	5/13/16	CONSTRUCTION RESTRICTION NOTE ADDED
KMK	4/25/16	CROSSOVER DRAINAGE-SLOTTED DRAIN & CB-6 ADDED
KMK	4/18/16	CONSTRUCTION RESTRICTIONS NOTE (6) REVISED
MEP	2/12/16	COMPLETION DATE FOR GRANT AND WOLF A.C. FOR MOT QUANTITY REVISION
		DATE COMPLETED

MAINTENANCE OF TRAFFIC NOTES

SUM -76 -10.00

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REV. BY	DATE	DESCRIPTION
KMK	5/12/16	DETOUR SIGN E AND I BUBBLES ADDED

FOR SIGNS SEE SHEETS 107 TO 111

LEGEND	
T	SIGN



PHASE 2 - I-77 DETOUR SIGNING

SUM-76-10.00

106
1822

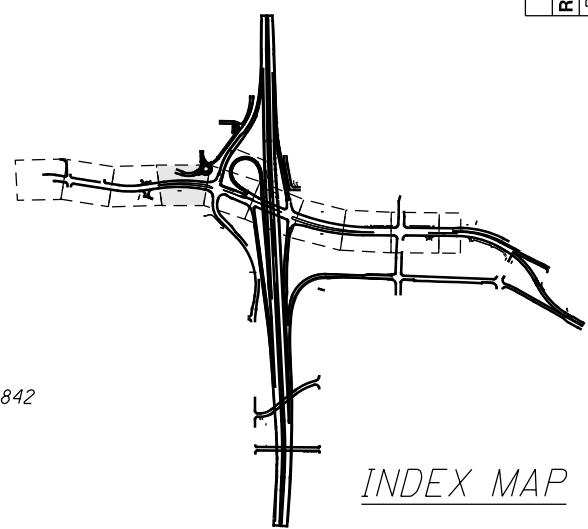
I:\Projects\Main_Broadway\ROADWAY\Sheets\77269GP010.dgn 5/11/2016 4:56:28 PM kyle_koppes

© PROP. R/W & CONST. S. MAIN ST.

(E) P.I. Sta. 33+90.58
 $\Delta = 30^\circ 00' 38''$ (RT)
 $D_c = 4^\circ 00' 00''$
 $R = 1,432.39'$
 $T = 383.95'$
 $L = 750.26'$
 $E = 50.57'$
 $e_{max} = NC$
 P.C. Sta. 30+06.64
 P.T. Sta. 37+56.90

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304 - 369
 FOR S. MAIN STREET PROFILE, SEE SHEET 495
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505 - 533
 FOR OLD MAIN STREET PLAN AND PROFILE, SEE SHEET 643
 FOR ROUNDABOUT PLAN AND PROFILE, SEE SHEETS 646 - 647
 FOR ROUNDABOUT AND SPLITTER ISLAND DETAILS, SEE SHEETS 840 - 842
 FOR DRIVE DETAILS, SEE SHEETS 699 - 725
 FOR REMOVAL PLAN, SEE SHEET 752
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORKS PLAN AND PROFILE, SEE SHEETS 1000 - 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794



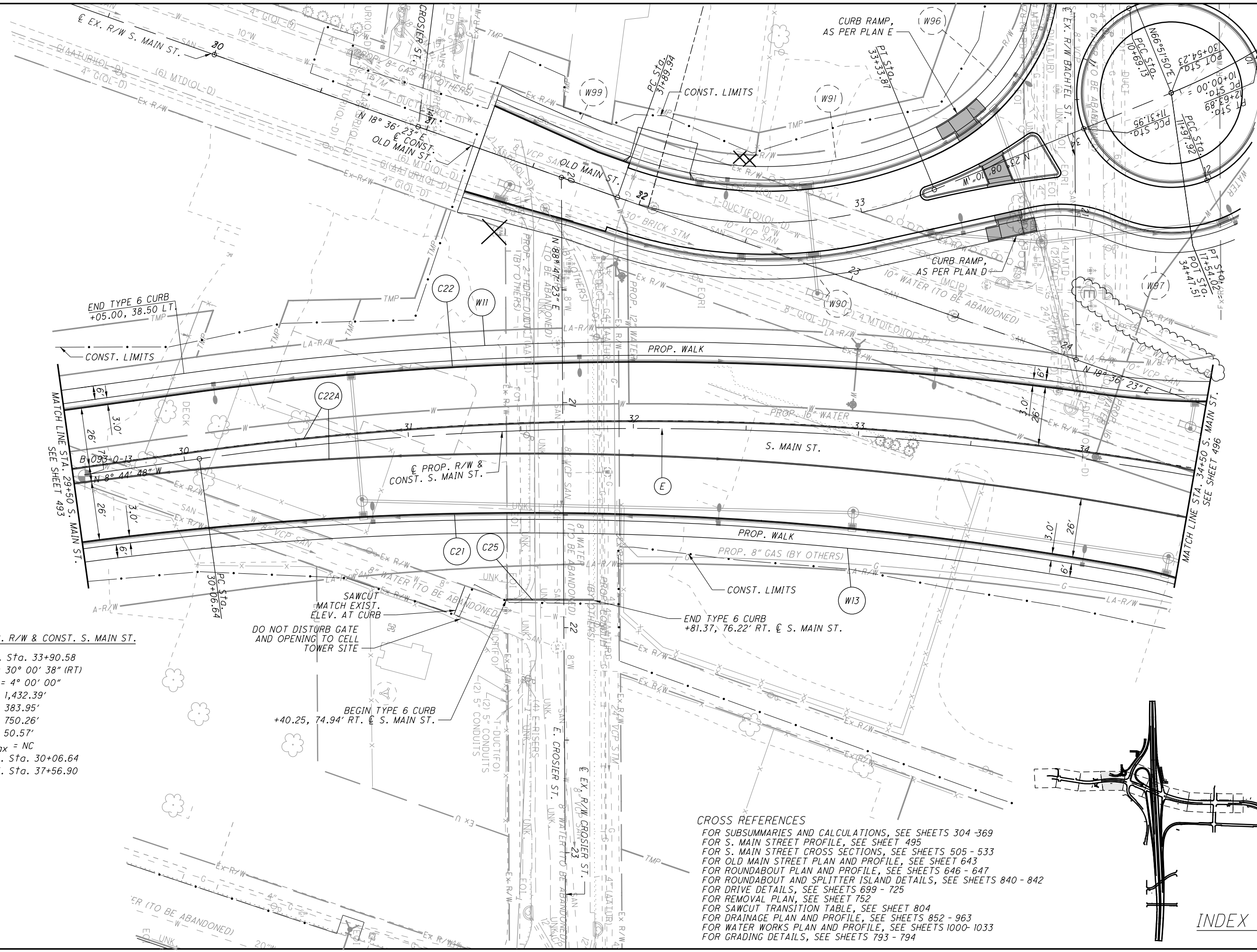
INDEX MAP

KMK	DATE	DESCRIPTION
KMK	5/79/16	UTILITY RELOCATIONS REVISED
		DATE COMPLETED

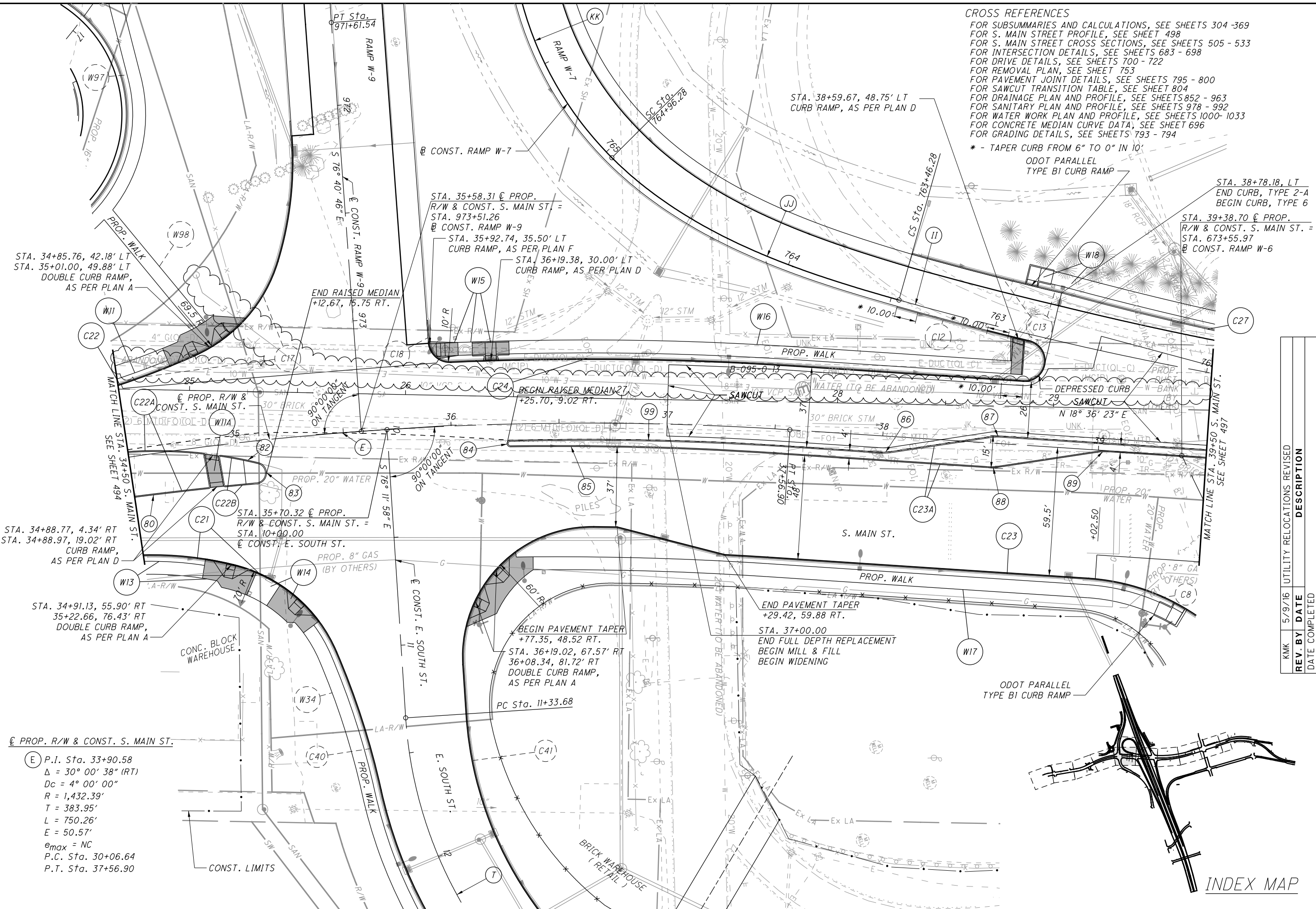


**PLAN - S. MAIN ST.
 STA. 29+50 TO STA. 34+50**

SUM - 76 - 10.00
 494
 1822



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CROSS REFERENCES
 FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304 - 369
 FOR S. MAIN STREET PROFILE, SEE SHEET 498
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505 - 533
 FOR INTERSECTION DETAILS, SEE SHEETS 683 - 698
 FOR DRIVE DETAILS, SEE SHEETS 700 - 722
 FOR REMOVAL PLAN, SEE SHEET 753
 FOR PAVEMENT JOINT DETAILS, SEE SHEETS 795 - 800
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR SANITARY PLAN AND PROFILE, SEE SHEETS 978 - 992
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000- 1033
 FOR CONCRETE MEDIAN CURVE DATA, SEE SHEET 696
 FOR GRADING DETAILS, SEE SHEETS 793 - 794

* - TAPER CURB FROM 6" TO 0" IN 10'
 ODOT PARALLEL TYPE BI CURB RAMP



CALCULATED	
MJT	
CHECKED	
KMK	

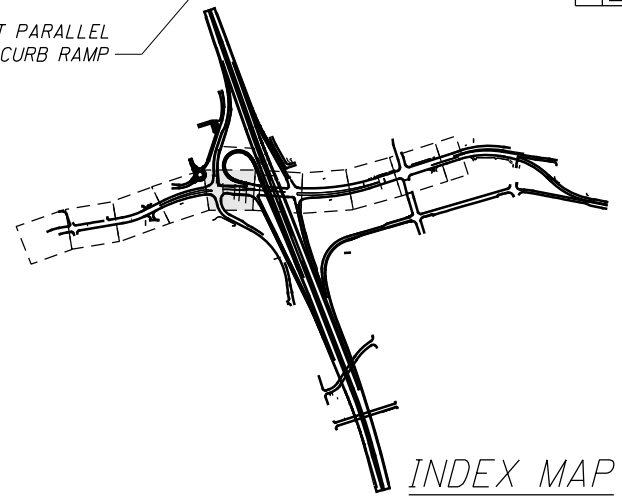
(E) P.I. Sta. 33+90.58
 $\Delta = 30^\circ 00' 38"$ (RT)
 $D_c = 4^\circ 00' 00"$
 $R = 1,432.39'$
 $T = 383.95'$
 $L = 750.26'$
 $E = 50.57'$
 $e_{max} = NC$
 P.C. Sta. 30+06.64
 P.T. Sta. 37+56.90

PLAN - S. MAIN ST.
STA. 34+50 TO STA. 39+50

REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
		DATE COMPLETED

SUM-76-10.00

496
1822



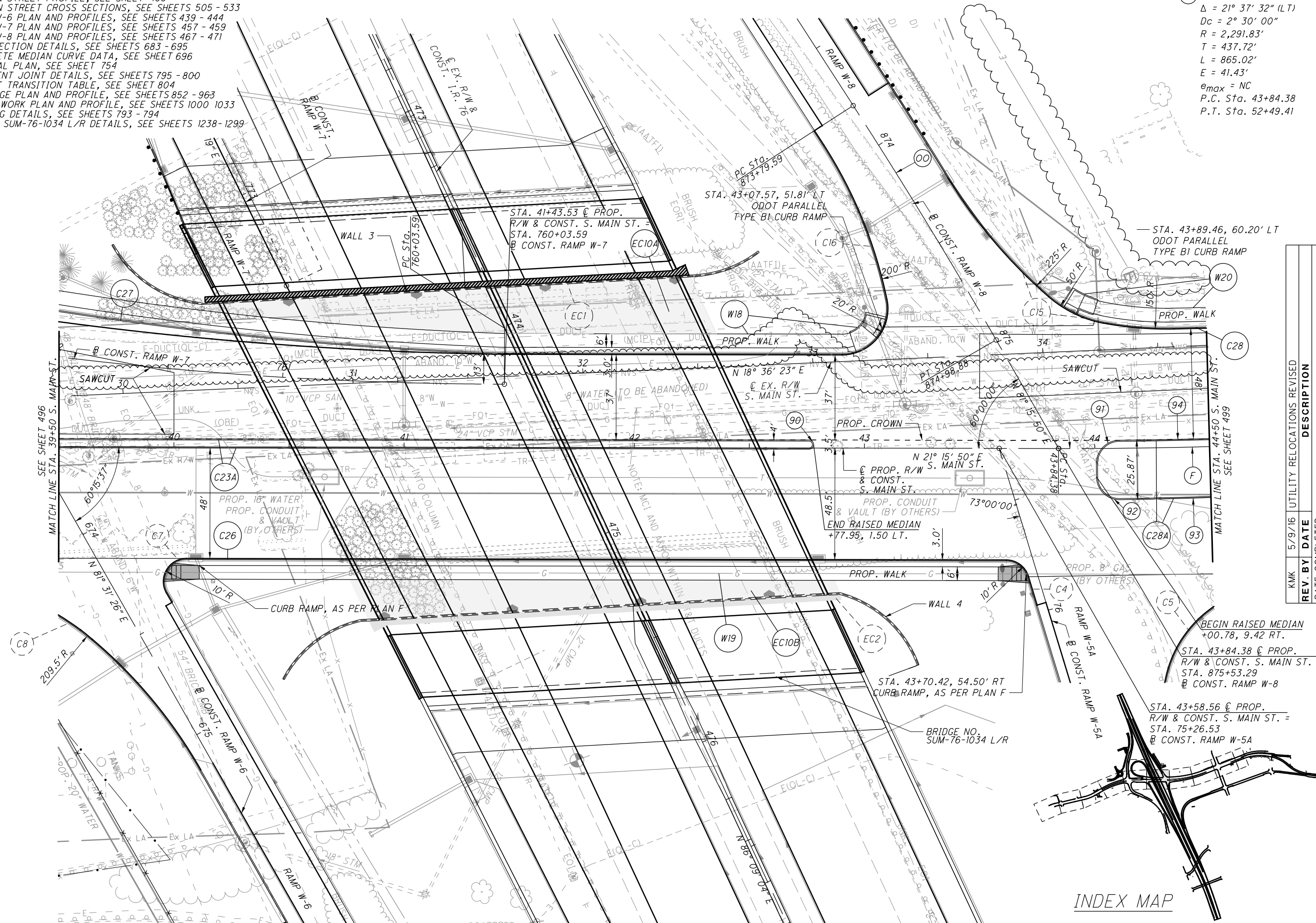
INDEX MAP

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304 -369
 FOR S. MAIN STREET PROFILE, SEE SHEET 498
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505 - 533
 FOR RAMP W-6 PLAN AND PROFILES, SEE SHEETS 439 - 444
 FOR RAMP W-7 PLAN AND PROFILES, SEE SHEETS 457 - 459
 FOR RAMP W-8 PLAN AND PROFILES, SEE SHEETS 467 - 471
 FOR INTERSECTION DETAILS, SEE SHEETS 683 - 695
 FOR CONCRETE MEDIAN CURVE DATA, SEE SHEET 696
 FOR REMOVAL PLAN, SEE SHEET 754
 FOR PAVEMENT JOINT DETAILS, SEE SHEETS 795 - 800
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794
 FOR BRIDGE SUM-76-1034 L/R DETAILS, SEE SHEETS 1238-1299

Ⓢ PROP. R/W & CONST. S. MAIN ST.

ⓕ P.I. Sta. 48+22.10
 $\Delta = 21^\circ 37' 32''$ (LT)
 $D_c = 2^\circ 30' 00''$
 $R = 2,291.83'$
 $T = 437.72'$
 $L = 865.02'$
 $E = 41.43'$
 $e_{max} = NC$
 P.C. Sta. 43+84.38
 P.T. Sta. 52+49.41



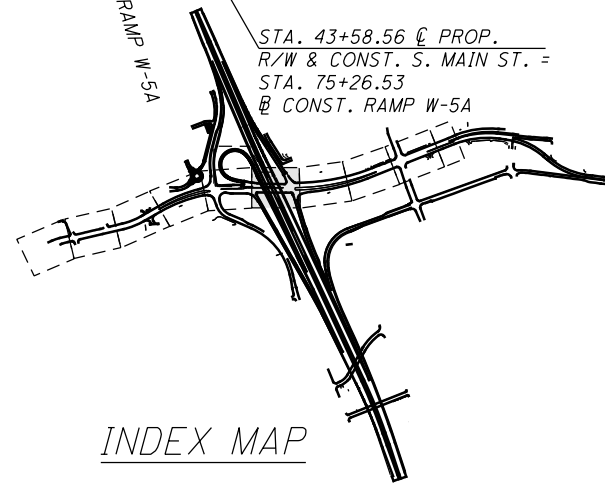
REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
		DATE COMPLETED

**PLAN - S. MAIN ST.
 STA. 39+50 TO STA. 44+50**

SUM-76-10.00

497
 1822

INDEX MAP



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CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR S. MAIN STREET PROFILE, SEE SHEET 501
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505-533
 FOR CONCRETE MEDIAN CURVE DATA, SEE SHEET 696
 FOR REMOVAL PLAN, SEE SHEETS 755
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852-963
 FOR SANITARY PLAN AND PROFILE, SEE SHEETS 978-992
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000-1033
 FOR GRADING DETAILS, SEE SHEETS 793-794

NOTE:
 SAWCUT THE EXISTING WALK AS SHOWN
 OR AS DIRECTED BY ENGINEER.

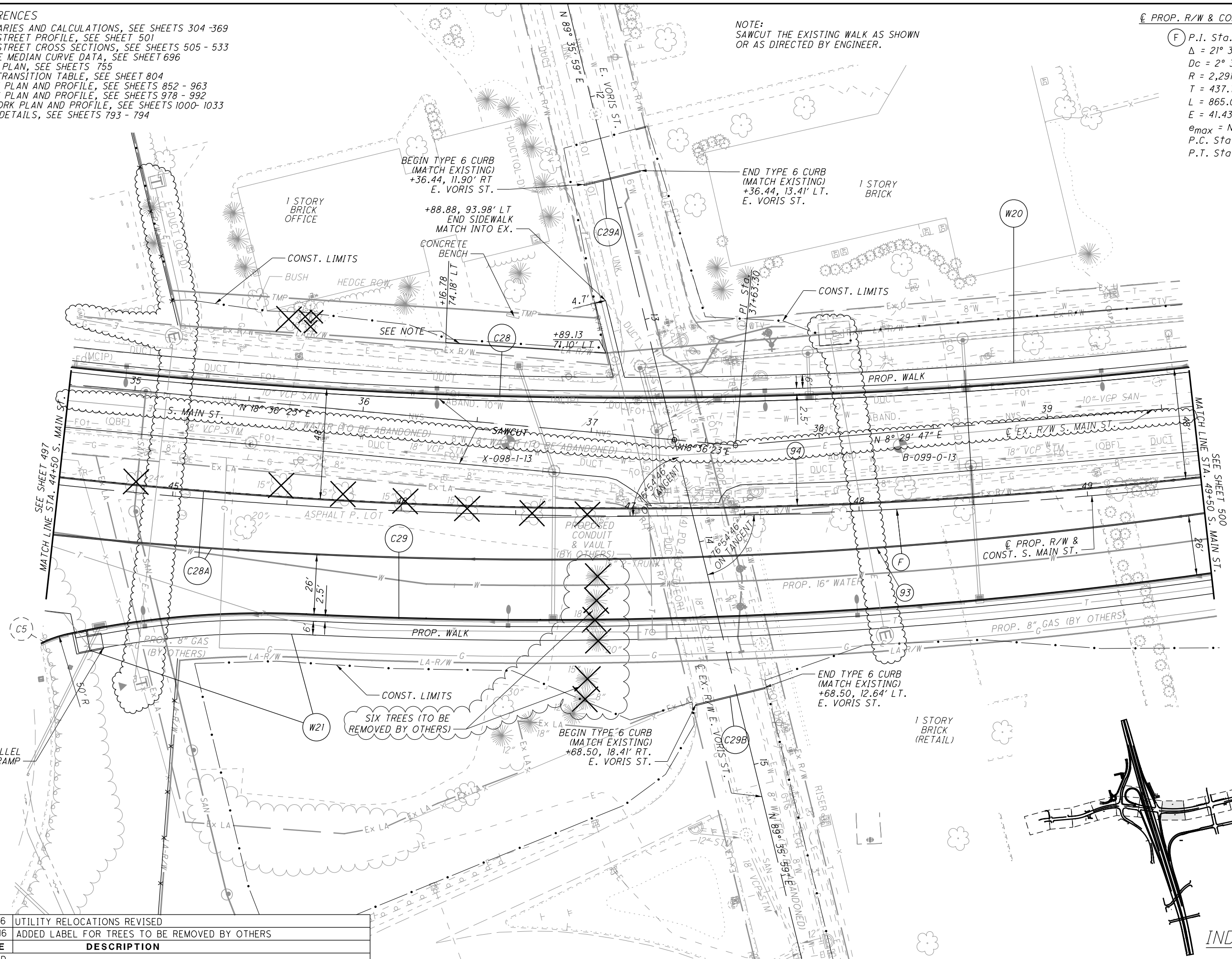
☐ PROP. R/W & CONST. S. MAIN ST.

⊙ P.I. Sta. 48+22.10
 $\Delta = 21^\circ 37' 32''$ (LT)
 $Dc = 2^\circ 30' 00''$
 $R = 2,291.83'$
 $T = 437.72'$
 $L = 865.02'$
 $E = 41.43'$
 $\theta_{max} = NC$
 P.C. Sta. 43+84.38
 P.T. Sta. 52+49.41

CALCULATED
 MJT
 CHECKED
 KMK

0 20 40
 HORIZONTAL
 SCALE IN FEET

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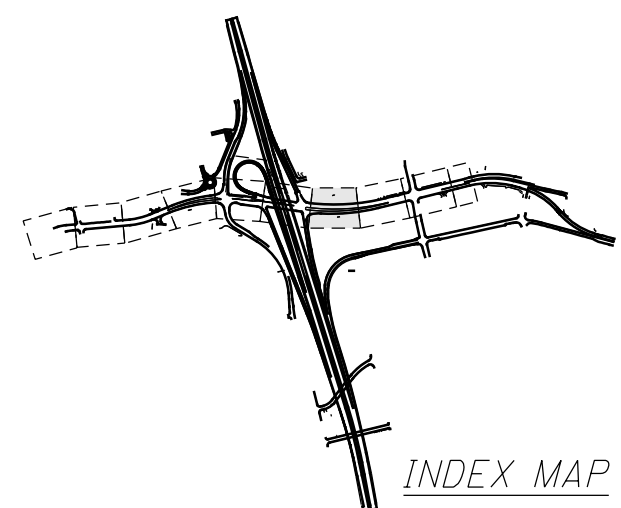


PLAN - S. MAIN ST.
STA. 44+50 TO STA. 49+50

SUM-76-10.00

499
 1822

REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS
DATE COMPLETED		

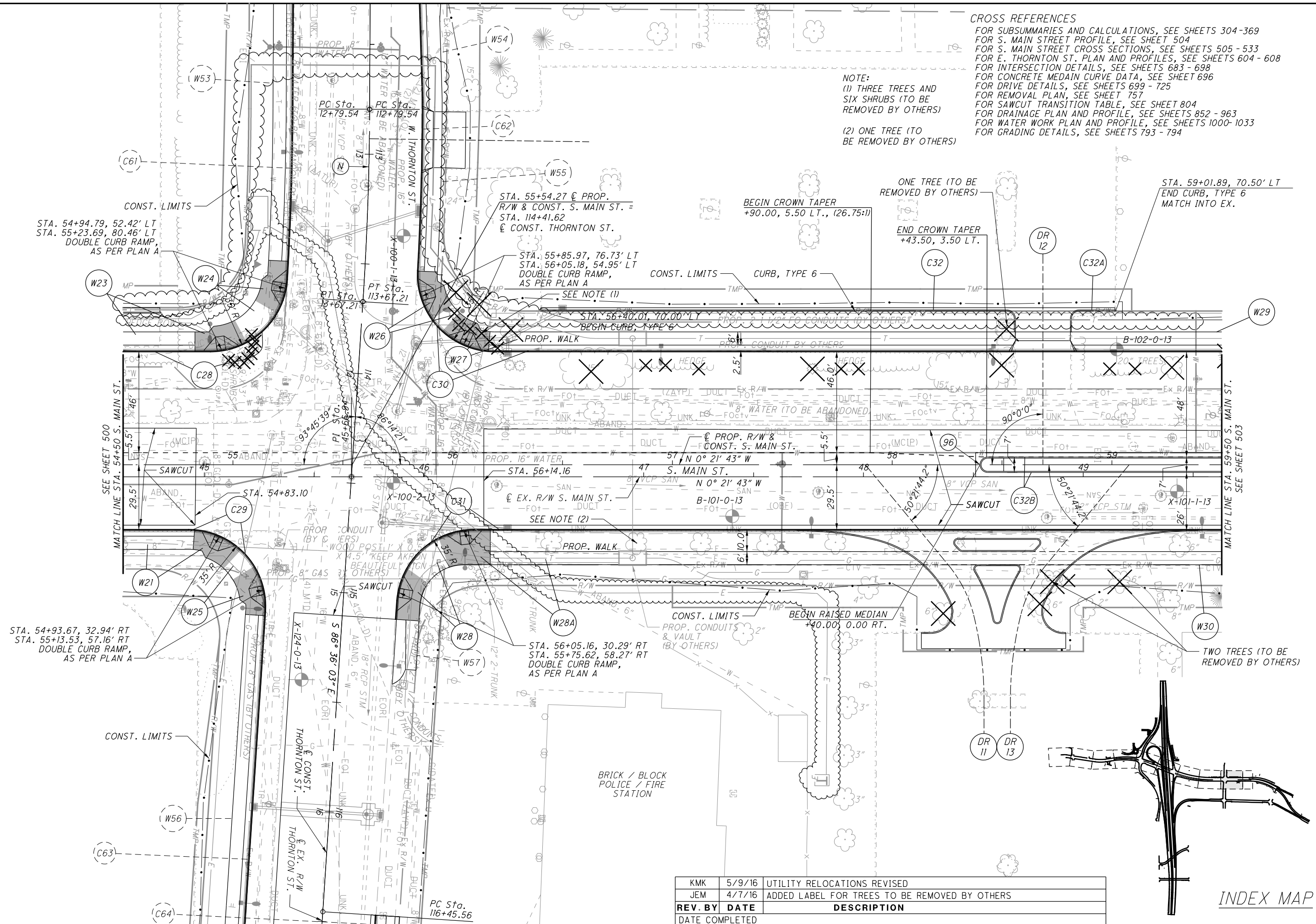


INDEX MAP

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CROSS REFERENCES
 FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR S. MAIN STREET PROFILE, SEE SHEET 504
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505 - 533
 FOR E. THORNTON ST. PLAN AND PROFILES, SEE SHEETS 604 - 608
 FOR INTERSECTION DETAILS, SEE SHEETS 683 - 698
 FOR CONCRETE MEDIAN CURVE DATA, SEE SHEET 696
 FOR DRIVE DETAILS, SEE SHEETS 699 - 725
 FOR REMOVAL PLAN, SEE SHEET 757
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000- 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794

NOTE:
 (1) THREE TREES AND SIX SHRUBS (TO BE REMOVED BY OTHERS)
 (2) ONE TREE (TO BE REMOVED BY OTHERS)



PLAN - S. MAIN ST.
STA. 54+50 TO STA. 59+50

SUM-76-10.00

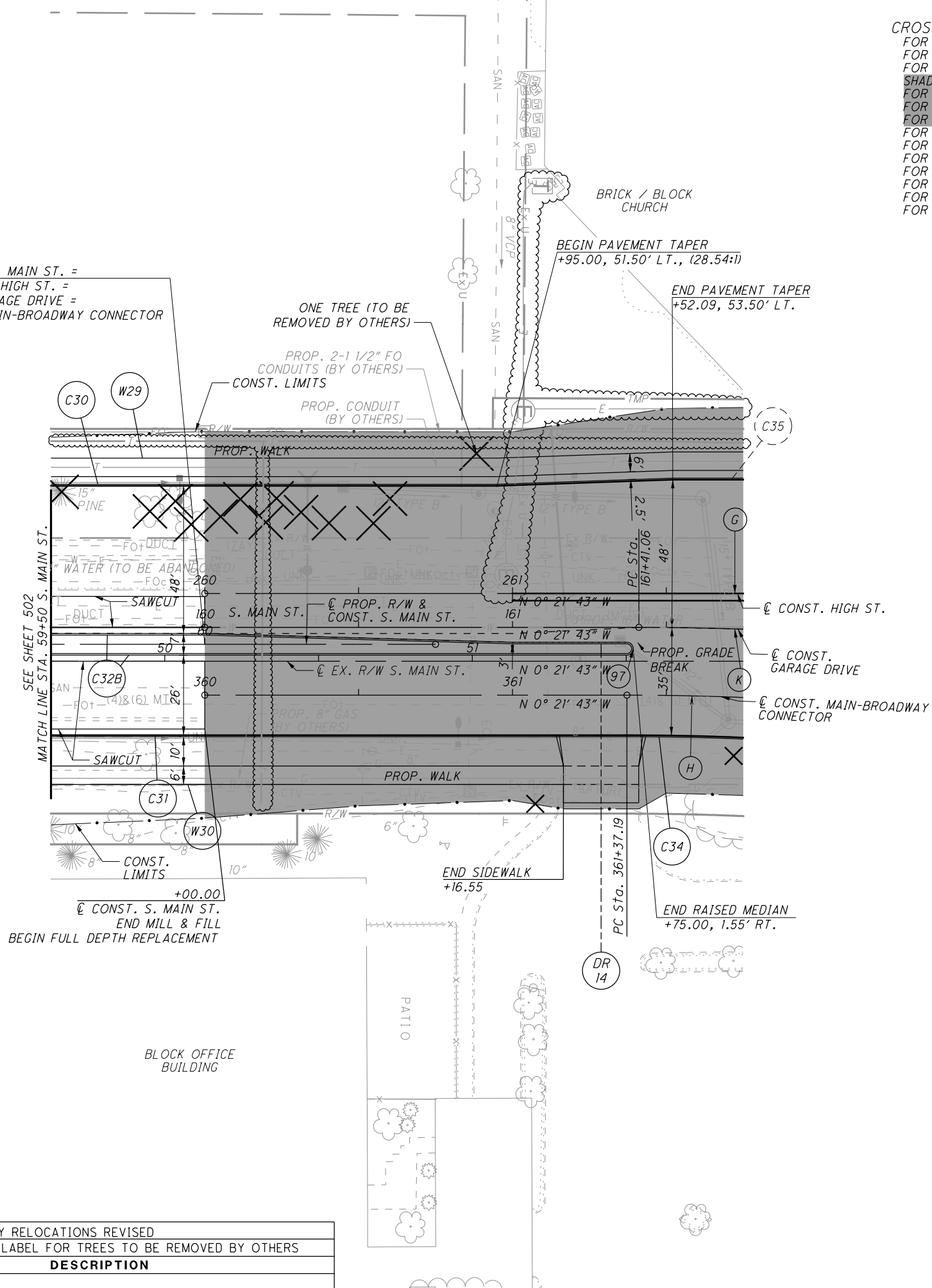
502
1822

REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS

INDEX MAP

CROSS REFERENCES
 FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR S. MAIN STREET PROFILE, SEE SHEET 504
 FOR S. MAIN STREET CROSS SECTIONS, SEE SHEETS 505 - 533
 SHADING LIMITS:
 FOR S. HIGH ST. PLAN AND PROFILES, SEE SHEETS 534 - 536
 FOR GARAGE DRIVE PLAN AND PROFILES, SEE SHEETS 543 - 547
 FOR MAIN-BROADWAY CONNECTOR PLAN AND PROFILES, SEE SHEETS 553 - 556
 FOR CONCRETE MEDIAN CURVE DATA, SEE SHEET 696
 FOR DRIVE DETAILS, SEE SHEETS 699 - 725
 FOR REMOVAL PLAN, SEE SHEET 758
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000- 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794

STA. 60+00.00 @ PROP. R/W & CONST. S. MAIN ST. =
 STA. 260+00.00, 16.50' RT. @ CONST. S. HIGH ST. =
 STA. 160+00.00, 5.50' RT. @ CONST. GARAGE DRIVE =
 STA. 360+00.00, 16.50' LT. @ CONST. MAIN-BROADWAY CONNECTOR



CONST. S. HIGH ST.

G P.I. Sta. 264+06.35
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 30' 00''$
 $R = 881.47'$
 $T = 214.13'$
 $L = 420.13'$
 $E = 25.64'$
 $e_{max} = NC$
 P.C. Sta. 261+92.22
 P.T. Sta. 266+12.35

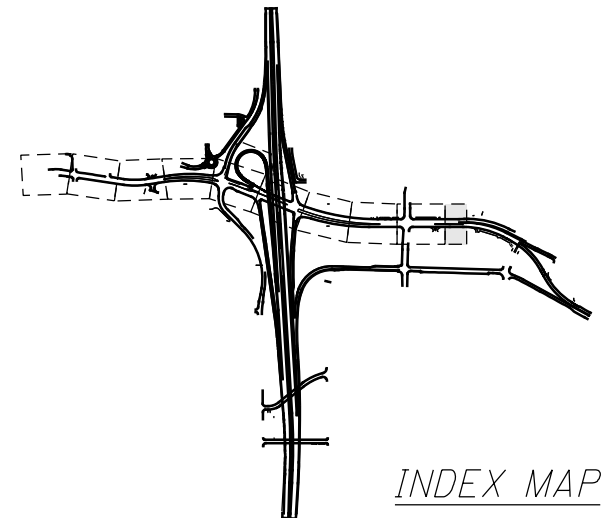
CONST. MAIN-BROADWAY CONNECTOR

H P.I. Sta. 363+63.35
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 09' 15''$
 $R = 931.00'$
 $T = 226.16'$
 $L = 443.73'$
 $E = 27.08'$
 $e_{max} = NC$
 P.C. Sta. 361+37.19
 P.T. Sta. 365+80.92

CONST. GARAGE DRIVE

K P.I. Sta. 163+73.05
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 00' 08''$
 $R = 955.00'$
 $T = 231.99'$
 $L = 454.96'$
 $E = 27.77'$
 $e_{max} = NC$
 P.C. Sta. 161+41.06
 P.T. Sta. 165+96.02

REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS
DATE COMPLETED		



INDEX MAP

REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS
DATE COMPLETED		

NOTE:
TREES (TO BE REMOVED BY OTHERS)

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR S. MAIN ST. PLAN AND PROFILES, SEE SHEETS 490 - 504
 FOR S. HIGH ST. PROFILE, SEE SHEET 536
 FOR S. HIGH ST. CROSS SECTIONS, SEE SHEETS 537 - 542
 SHADING LIMITS:
 FOR MAIN-BROADWAY CONNECTOR PLAN AND PROFILES, SEE SHEETS 553 - 556
 FOR GARAGE DRIVE PLAN AND PROFILES, SEE SHEETS 543 - 547
 FOR SPLITTER ISLAND DETAILS, SEE SHEETS 840 - 842
 FOR DRIVE DETAILS, SEE SHEETS 699 - 725
 FOR REMOVAL PLAN, SEE SHEET 760
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000- 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794
 FOR WALL 10 PLANS AND DETAILS, SEE SHEETS 1685 - 1696

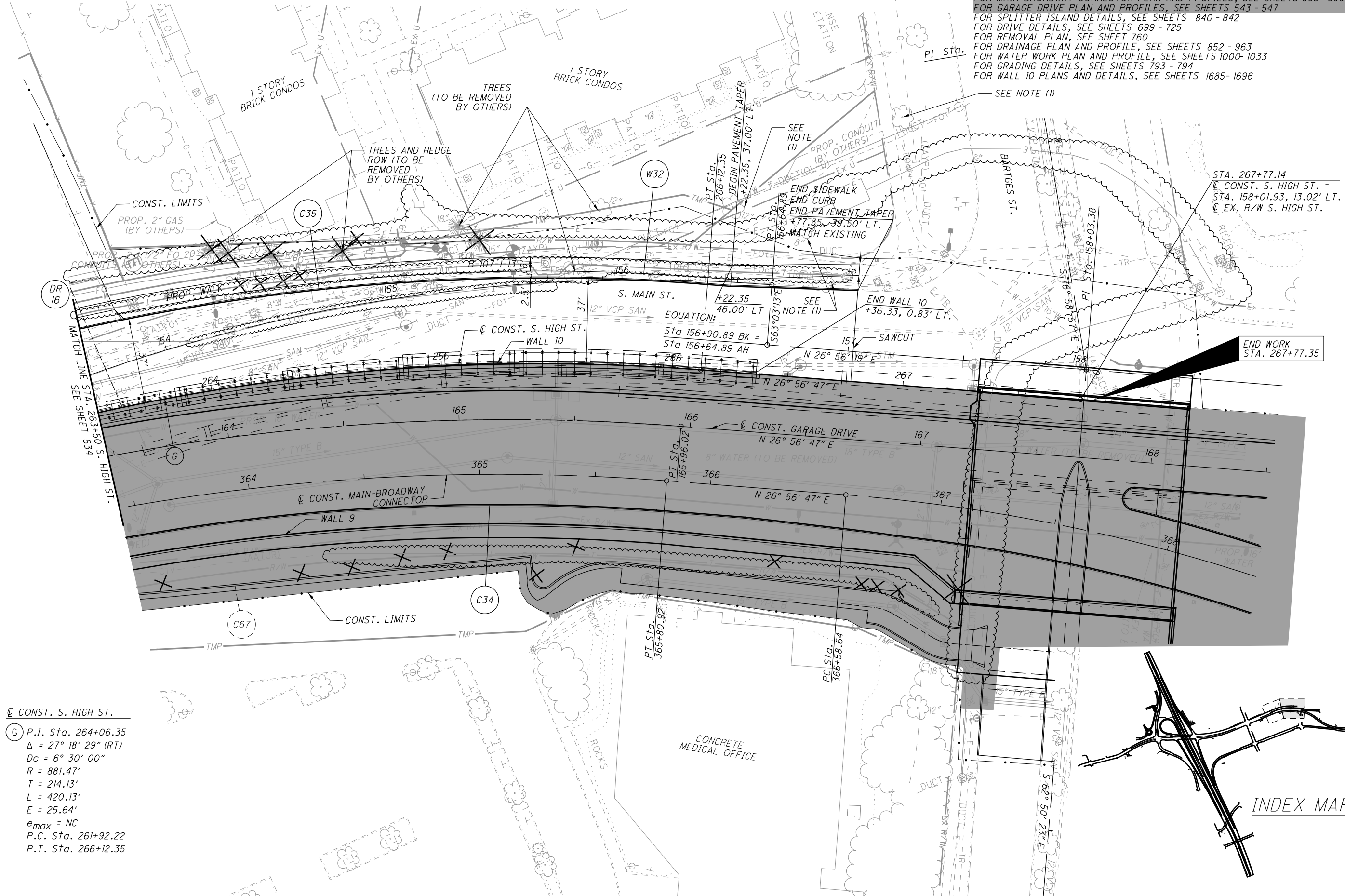


CALCULATED
M/J/T
CHECKED
KMK

PLAN - S. HIGH ST.
STA. 263+50 TO STA. 267+77

SUM - 76 - 10.00

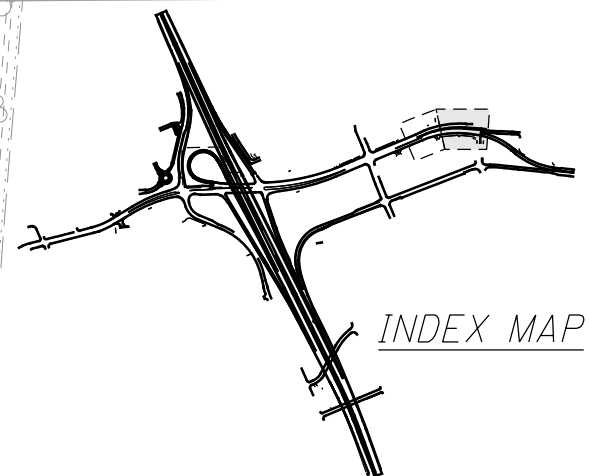
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1822



⊙ CONST. S. HIGH ST.
 (G) P.I. Sta. 264+06.35
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 30' 00''$
 $R = 881.47'$
 $T = 214.13'$
 $L = 420.13'$
 $E = 25.64'$
 $e_{max} = NC$
 P.C. Sta. 261+92.22
 P.T. Sta. 266+12.35

STA. 267+77.14
 ⊙ CONST. S. HIGH ST. =
 STA. 158+01.93, 13.02' LT.
 ⊙ EX. R/W S. HIGH ST.

END WORK
STA. 267+77.35



INDEX MAP

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⊕ CONST. MAIN-BROADWAY CONNECTOR

⊕ CONST. GARAGE DRIVE

(H) P.I. Sta. 363+63.35
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 09' 15''$
 $R = 931.00'$
 $T = 226.16'$
 $L = 443.73'$
 $E = 27.08'$
 $e_{max} = NC$
 P.C. Sta. 361+37.19
 P.T. Sta. 365+80.92

(K) P.I. Sta. 163+73.05
 $\Delta = 27^\circ 18' 29''$ (RT)
 $D_c = 6^\circ 00' 08''$
 $R = 955.00'$
 $T = 231.99'$
 $L = 454.96'$
 $E = 27.77'$
 $e_{max} = NC$
 P.C. Sta. 161+41.06
 P.T. Sta. 165+96.02

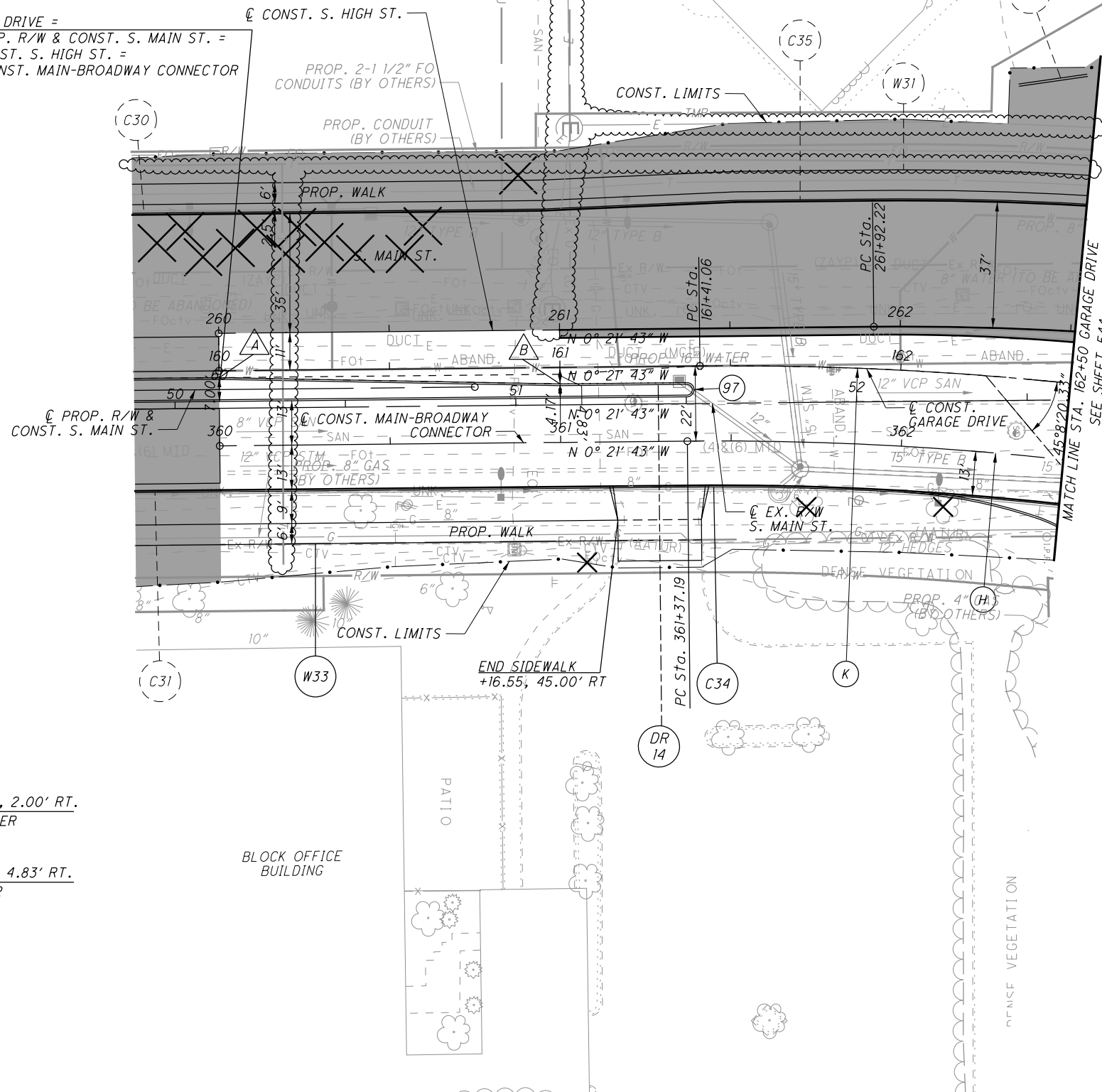
(97) CURVE DATA
 CENTER OF CURVE:
 Sta. 161+37.19, 6.92' RT.
 ⊕ CONST. GARAGE DRIVE
 $\Delta = 180^\circ 00' 00''$
 $R = 2.08'$
 $L = 6.54'$

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR GARAGE DRIVE PROFILE, SEE SHEET 545
 FOR GARAGE DRIVE CROSS SECTIONS, SEE SHEETS 548 - 552
 SHADING LIMITS:
 FOR S. MAIN ST. PLAN AND PROFILES, SEE SHEETS 490 - 504
 FOR S. HIGH ST. PLAN AND PROFILES, SEE SHEETS 534 - 536
 FOR MAIN-BROADWAY CONNECTOR, SEE SHEETS 553 - 556
 FOR REMOVAL PLAN, SEE SHEET 761
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000- 1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794



STA. 160+00.00 ⊕ CONST. GARAGE DRIVE =
 STA. 60+00.00, 5.50' LT. ⊕ PROP. R/W & CONST. S. MAIN ST. =
 STA. 260+00.00, 11.00' RT. ⊕ CONST. S. HIGH ST. =
 STA. 360+00.00, 22.00' LT. ⊕ CONST. MAIN-BROADWAY CONNECTOR

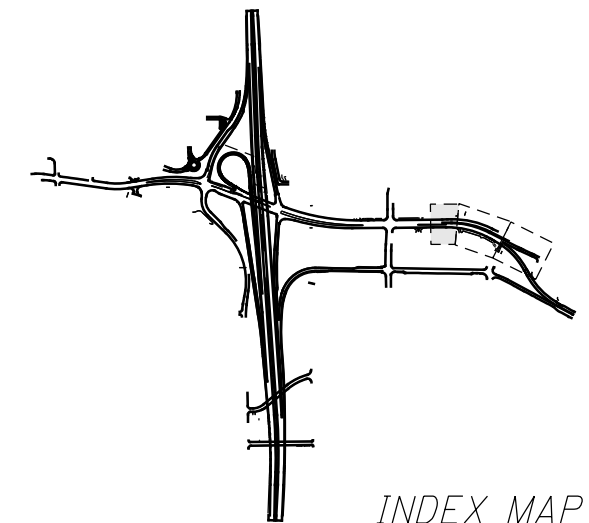


- (A) STA. 160+00.00, 2.00' RT. BEGIN CURB TAPER
- (B) STA. 161+00.00, 4.83' RT. END CURB TAPER

REV. BY	DATE	DESCRIPTION

KMK 5/9/16 UTILITY RELOCATIONS REVISED

PLAN - GARAGE DRIVE
 STA. 159+75 TO STA. 162+50

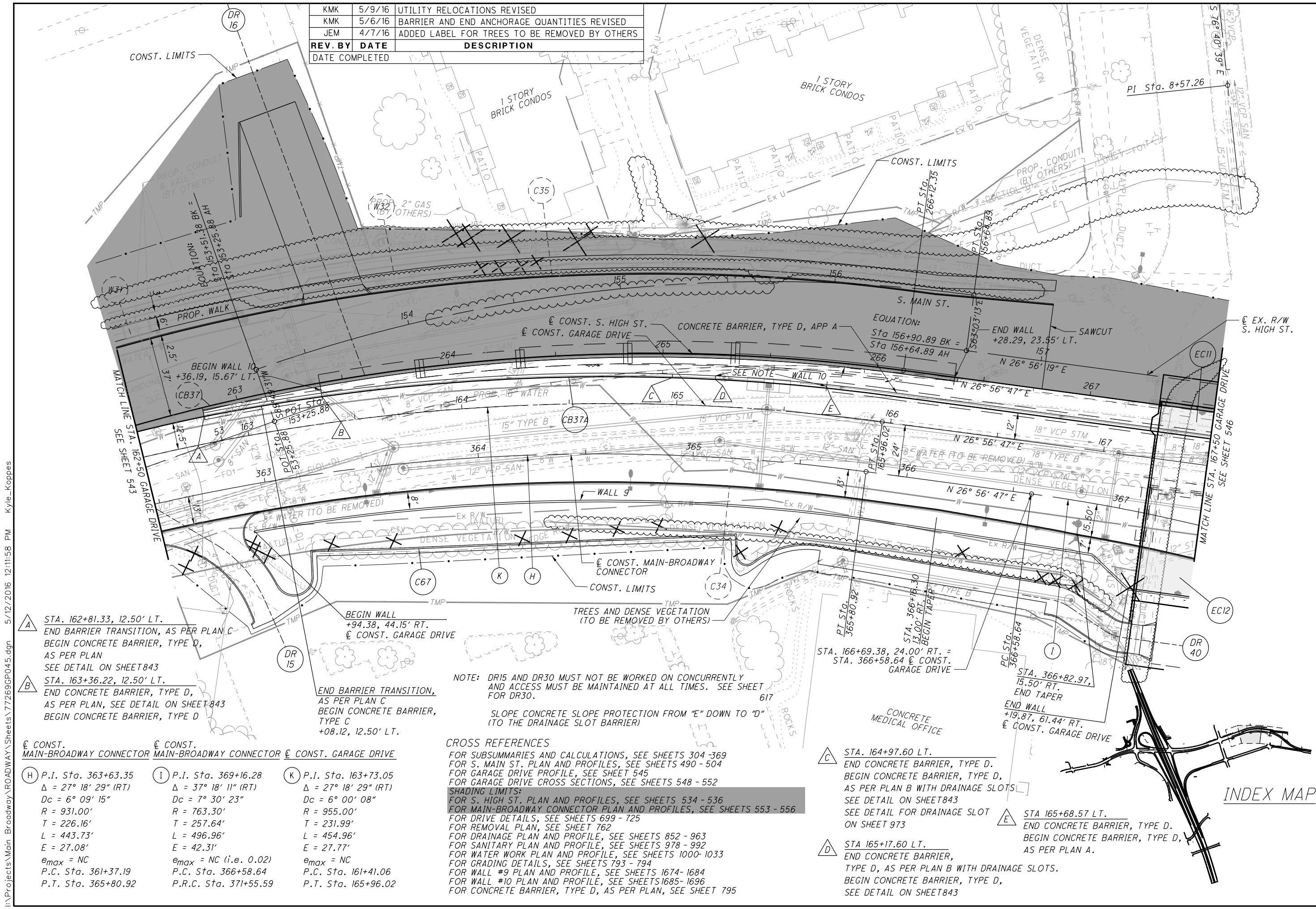


INDEX MAP

SUM-76-10.00

543
1822

KMK	5/9/16	UTILITY RELOCATIONS REVISED
KMK	5/6/16	BARRIER AND END ANCHORAGE QUANTITIES REVISED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		



HORIZONTAL SCALE IN FEET

CALCULATED	MJT	CHECKED	KMK
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**PLAN - GARAGE DRIVE
STA. 162+50 TO STA. 167+50**

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- A** STA. 162+81.33, 12.50' LT.
END BARRIER TRANSITION, AS PER PLAN C
BEGIN CONCRETE BARRIER, TYPE D,
AS PER PLAN
SEE DETAIL ON SHEET 843
- B** STA. 163+36.22, 12.50' LT.
END CONCRETE BARRIER, TYPE D,
AS PER PLAN, SEE DETAIL ON SHEET 843
BEGIN CONCRETE BARRIER, TYPE D
- H** P.I. Sta. 363+63.35
Δ = 27° 18' 29" (RT)
Dc = 6° 09' 15"
R = 931.00'
T = 226.16'
L = 443.73'
E = 27.08'
e_{max} = NC
P.C. Sta. 361+37.19
P.T. Sta. 365+80.92
- I** P.I. Sta. 369+16.28
Δ = 37° 18' 11" (RT)
Dc = 7° 30' 23"
R = 763.30'
T = 257.64'
L = 496.96'
E = 42.31'
e_{max} = NC (i.e. 0.02)
P.C. Sta. 366+58.64
P.R.C. Sta. 371+55.59
- K** P.I. Sta. 163+73.05
Δ = 27° 18' 29" (RT)
Dc = 6° 00' 08"
R = 955.00'
T = 231.99'
L = 454.96'
E = 27.77'
e_{max} = NC
P.C. Sta. 161+41.06
P.T. Sta. 165+96.02

BEGIN WALL
+94.38, 44.15' RT.
@ CONST. GARAGE DRIVE

END BARRIER TRANSITION,
AS PER PLAN C
BEGIN CONCRETE BARRIER,
TYPE C
+08.12, 12.50' LT.

NOTE: DR15 AND DR30 MUST NOT BE WORKED ON CONCURRENTLY
AND ACCESS MUST BE MAINTAINED AT ALL TIMES. SEE SHEET
FOR DR30.

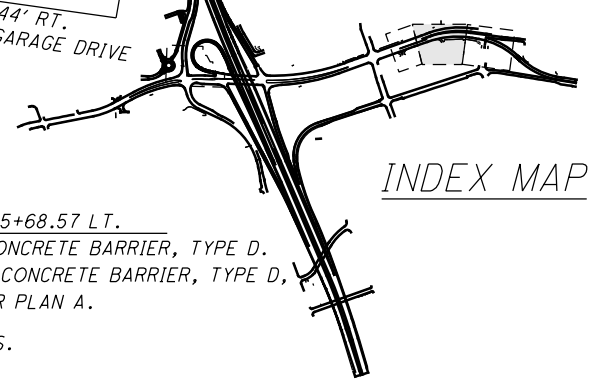
SLOPE CONCRETE SLOPE PROTECTION FROM "E" DOWN TO "D"
(TO THE DRAINAGE SLOT BARRIER)

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304 - 369
FOR S. MAIN ST. PLAN AND PROFILES, SEE SHEETS 490 - 504
FOR GARAGE DRIVE PROFILE, SEE SHEET 545
FOR GARAGE DRIVE CROSS SECTIONS, SEE SHEETS 548 - 552

SHADING LIMITS:
FOR S. HIGH ST. PLAN AND PROFILES, SEE SHEETS 534 - 536
FOR MAIN-BROADWAY CONNECTOR PLAN AND PROFILES, SEE SHEETS 553 - 556
FOR DRIVE DETAILS, SEE SHEETS 699 - 725
FOR REMOVAL PLAN, SEE SHEET 762
FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
FOR SANITARY PLAN AND PROFILE, SEE SHEETS 978 - 992
FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000-1033
FOR GRADING DETAILS, SEE SHEETS 793 - 794
FOR WALL #9 PLAN AND PROFILE, SEE SHEETS 1674- 1684
FOR WALL #10 PLAN AND PROFILE, SEE SHEETS 1685- 1696
FOR CONCRETE BARRIER, TYPE D, AS PER PLAN, SEE SHEET 795

- C** STA. 164+97.60 LT.
END CONCRETE BARRIER, TYPE D.
BEGIN CONCRETE BARRIER, TYPE D,
AS PER PLAN B WITH DRAINAGE SLOTS
SEE DETAIL ON SHEET 843
SEE DETAIL FOR DRAINAGE SLOT
ON SHEET 973
- D** STA 165+17.60 LT.
END CONCRETE BARRIER,
TYPE D, AS PER PLAN B WITH DRAINAGE SLOTS.
BEGIN CONCRETE BARRIER, TYPE D,
SEE DETAIL ON SHEET 843
- E** STA 165+68.57 LT.
END CONCRETE BARRIER, TYPE D.
BEGIN CONCRETE BARRIER, TYPE D,
AS PER PLAN A.



PROP. R/W & CONST. RUSSELL AVE.

(R) P.I. Sta. 10+84.71
 $\Delta = 10^\circ 17' 59''$ (LT)
 $D_c = 11^\circ 15' 00''$
 $R = 509.30'$
 $T = 45.90'$
 $L = 91.55'$
 $E = 2.06'$
 $e_{max} = NC$
 P.C. Sta. 10+38.81
 P.T. Sta. 11+30.36

KMK	5/9/16	UTILITY RELOCATIONS REVISED
KMK	4/21/16	"BLOW-UP" DETAIL ADDED
JEM	4/7/16	ADDED LABEL FOR TREES TO BE REMOVED BY OTHERS
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR RAMP W-8 PLAN AND PROFILES, SEE SHEETS 467 - 471
 FOR RUSSELL AVE. PROFILE, SEE SHEET 598
 FOR REMOVAL PLAN, SEE SHEET 775
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852 - 963
 FOR SANITARY PLAN AND PROFILE, SEE SHEETS 978 - 992
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000-1033
 FOR GRADING DETAILS, SEE SHEETS 793 - 794
 FOR WALL #1 PLANS, SEE SHEETS 1621 - 1624

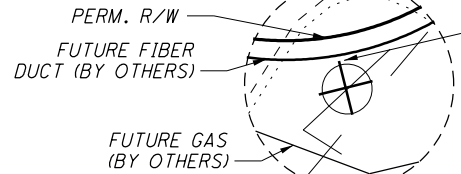


PLAN - RUSSELL AVE.
 STA. 10+00 TO STA 16+00

SUM-76-10.00

597
 1822

"BLOW-UP" DETAIL
 CAUTION DURING
 CONSTRUCTION



NEW FIBER RELOCATED
 BY OTHERS - REMOVE
 LIGHT POLE FOUNDATION
 WITH CAUTION

BEGIN WORK
 STA. 10+38.81

BEGIN WALK
 +38.81, 18.77' LT.
 (MATCH EXISTING)

BEGIN CURB
 +38.81, 14.00' LT. & RT.
 (MATCH EXISTING)

END CURB
 +28.00, 14.00' LT.
 (MATCH EXISTING)
 END WALK
 +28.00, 20.08' LT.
 (MATCH EXISTING)

END WORK
 STA. 214+60.20

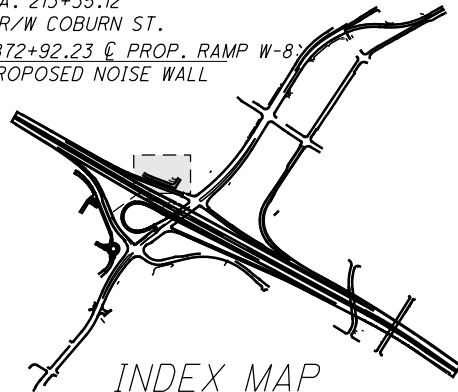
PROP. R/W & CONST.
 RUSSELL AVE.

END TYPE 6 CURB
 214+10.48, 65.00' LT.

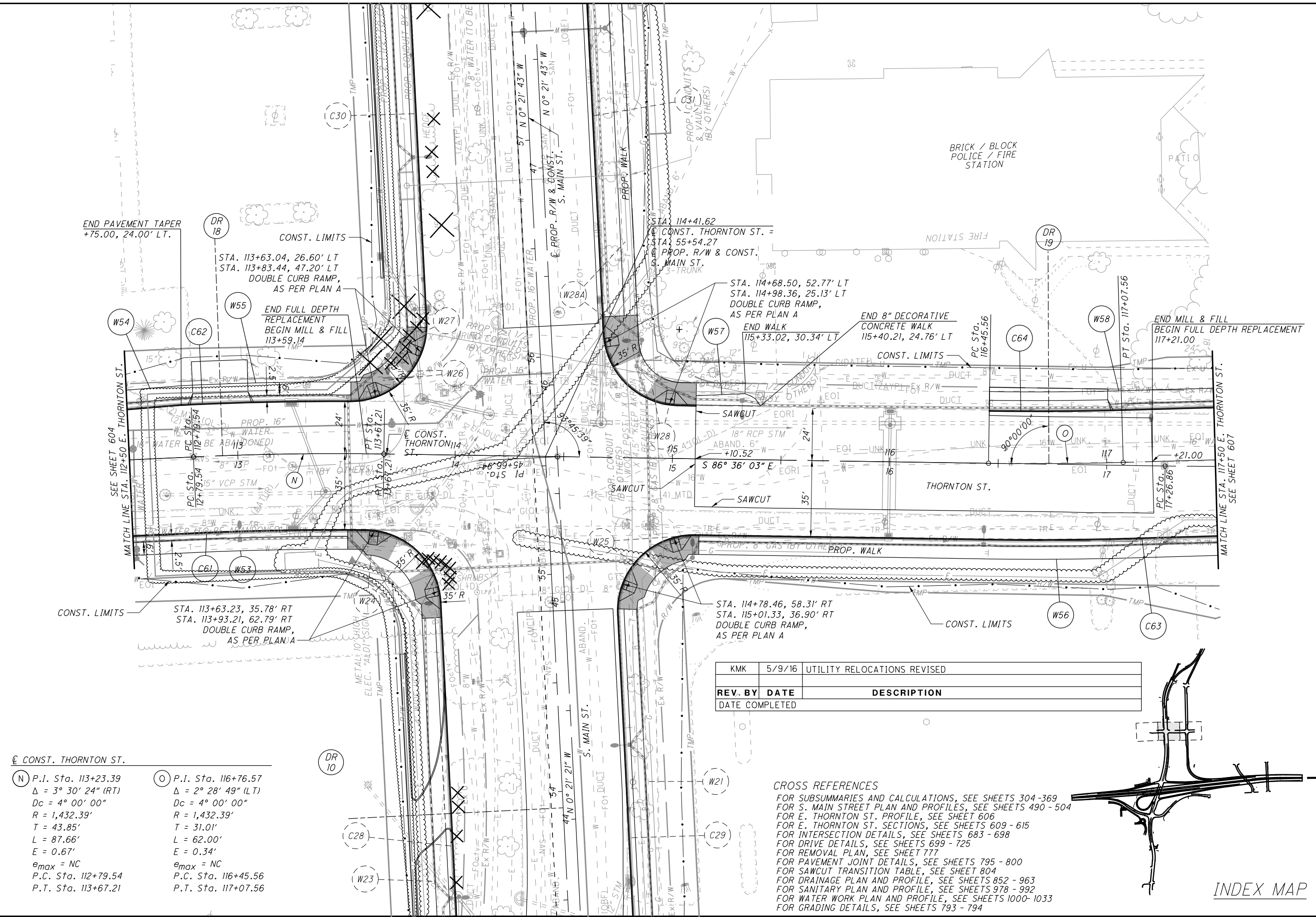
BEGIN TYPE 6 CURB
 213+64.98, 87.02' LT.

END CURB
 +28.00, 14.50' RT.
 (MATCH EXISTING)

STA. 13+80.26 @ PROP.
 R/W & CONST. RUSSELL AVE. =
 STA. 213+35.12
 @ R/W COBURN ST.
 STA. 872+92.23 @ PROP. RAMP W-8
 END PROPOSED NOISE WALL



I:\Projects\Main_Broadway\ROADWAY\Sheets\77269GP055.dgn 5/12/2016 12:12:00 PM Kyle_Koppes



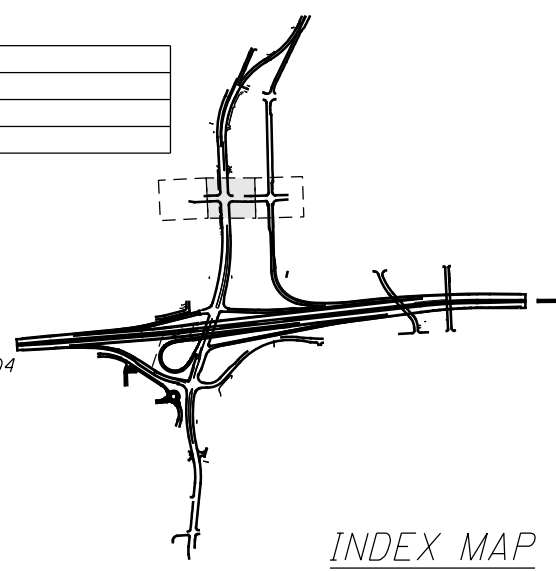
CONST. THORNTON ST.

(N) P.I. Sta. 113+23.39 Δ = 3° 30' 24" (RT) Dc = 4° 00' 00" R = 1,432.39' T = 43.85' L = 87.66' E = 0.67' e _{max} = NC P.C. Sta. 112+79.54 P.T. Sta. 113+67.21	(O) P.I. Sta. 116+76.57 Δ = 2° 28' 49" (LT) Dc = 4° 00' 00" R = 1,432.39' T = 31.01' L = 62.00' E = 0.34' e _{max} = NC P.C. Sta. 116+45.56 P.T. Sta. 117+07.56
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REV. BY	DATE	DESCRIPTION
KMK	5/9/16	UTILITY RELOCATIONS REVISED

CROSS REFERENCES

FOR SUBSUMMARIES AND CALCULATIONS, SEE SHEETS 304-369
 FOR S. MAIN STREET PLAN AND PROFILES, SEE SHEETS 490-504
 FOR E. THORNTON ST. PROFILE, SEE SHEET 606
 FOR E. THORNTON ST. SECTIONS, SEE SHEETS 609-615
 FOR INTERSECTION DETAILS, SEE SHEETS 683-698
 FOR DRIVE DETAILS, SEE SHEETS 699-725
 FOR REMOVAL PLAN, SEE SHEET 777
 FOR PAVEMENT JOINT DETAILS, SEE SHEETS 795-800
 FOR SAWCUT TRANSITION TABLE, SEE SHEET 804
 FOR DRAINAGE PLAN AND PROFILE, SEE SHEETS 852-963
 FOR SANITARY PLAN AND PROFILE, SEE SHEETS 978-992
 FOR WATER WORK PLAN AND PROFILE, SEE SHEETS 1000-1033
 FOR GRADING DETAILS, SEE SHEETS 793-794



INDEX MAP

ITEM 633 - PREEMPTION, AS PER PLAN (CONT)

EACH INTERSECTION SHOWN IN THE PLANS SHALL BE SUPPLIED WITH THE FOLLOWING COMPONENTS, EACH BID SEPARATELY:

1. PREEMPT RECEIVING UNIT.
2. PREEMPT DETECTOR CABLE.
3. PREEMPT PHASE SELECTOR ASSEMBLY AND INTERFACE WIRING PANEL.
4. CONFIRMATION LIGHT.

SINCE A SOUND ACTIVATED SYSTEM IS SPECIFIED, THE CONTRACTOR SHALL INVENTORY THE CITY'S EMERGENCY VEHICLES TO DETERMINE COMPATIBILITY OF THE SIRENS WITH THE SYSTEM. EACH VEHICLE THAT IS DETERMINED TO BE NOT COMPATIBLE SHALL BE SUPPLIED WITH NEW SIRENS AT COST INCIDENTAL TO THE SYSTEM. THE MODEL SUPPLIED SHALL BE SONEM 2000 MANUFACTURED BY TRAFFIC SYSTEMS LLC, RIGHT-O-WAY MANUFACTURED BY WAPITI MICROSYSTEMS, OR APPROVED EQUAL.

THE CITY SHALL BE SUPPLIED WITH SOFTWARE REQUIRED TO CALIBRATE, LOG, AND OPERATE THE SYSTEM. THE SOFTWARE SHALL BE CAPABLE OF OPERATING UNDER WINDOWS 7, 32-BIT OPERATING SYSTEM. TWO (2) OPERATING AND INSTRUCTION MANUALS SHALL BE SUPPLIED WITH THE SOFTWARE.

THE CONTRACTOR SHALL THOROUGHLY TEST THE INSTALLED SYSTEM. AS A MINIMUM, THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINETS. THE CONTRACTOR SHALL CHECK THAT THE RANGE SETTING IS PROPER FOR EACH INTERSECTION. THE CONTRACTOR SHALL DETERMINE THAT ALL PHASE SELECTORS ARE SELECTING THE PROPER PHASE AND TIMING ACCURATELY. THE CONTRACTOR SHALL VERIFY THAT ALL VEHICLE EMITTERS ARE BEING PROPERLY DETECTED.

IF THE PROPOSED PREEMPT SYSTEM IS NOT COMPATIBLE WITH THE EXISTING SYSTEM, THE CONTRACTOR SHALL PROVIDE TRAINING FOR UP TO FIFTEEN (15) PERSONS IN THE OPERATION OF THE SYSTEM. IT SHALL BE PROVIDED WITHIN 48 HOURS OF THE INSTALLATION OF THE SYSTEM. IT SHALL CONSIST OF HANDS-ON INSTRUCTION FOR A MINIMUM OF SIXTEEN (16) HOURS. THE CONTRACTOR SHALL PROVIDE TRAINING FOR UP TO FOUR (4) PERSONS IN THE INSTALLATION AND MAINTENANCE OF THE SYSTEM. IT SHALL CONSIST OF A MINIMUM OF EIGHT (8) HOURS OF INSTRUCTION. TRAINING SHALL BE SUPPLIED WITHIN SEVEN (7) DAYS OF THE INSTALLATION OF THE SYSTEM. ALL TRAINING SHALL BE HELD IN A CITY SUPPLIED LOCATION. TRAINING SHALL BE CONDUCTED BY SOMEONE WHO HAS PERFORMED THIS WITHIN THE LAST YEAR AND DOES IT ON A REGULAR BASIS. THE COST OF TRAINING, INCLUDING COURSE MATERIAL, TRAVEL SUBSISTENCE AND RELATED COSTS, SHALL BE ENTIRELY BORNE BY THE CONTRACTOR AND SHALL BE INCIDENTAL TO THE PREEMPTION EQUIPMENT.

PAYMENT FOR ITEM 633-PREEMPTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PREEMPTION IN PLACE AND FULLY OPERATIONAL AS SHOWN IN THE PLANS, EXCEPT FOR THOSE ITEMS BID SEPARATELY.

ITEM 633 - PREEMPTION RECEIVING UNIT

RECEIVING UNITS SHALL CONSIST OF A LIGHTWEIGHT, WEATHERPROOF AND DIRECTIONAL ASSEMBLY. EACH RECEIVING UNIT SHALL BE 360 DEGREE ADJUSTABLE. THE RECEIVING UNIT SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR CABLE. RECEIVING UNITS SHALL BE SUPPLIED WITH MAST ARM MOUNTING HARDWARE AS SHOWN IN THE PLANS.

FURNISH PREEMPTION RECEIVING UNITS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY, WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

PAYMENT FOR ITEM 633-PREEMPTION RECEIVING UNIT SHALL BE AT THE CONTRACT UNIT PRICE FOR EACH RECEIVING UNIT IN PLACE, COMPLETELY INSTALLED AT THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - PREEMPTION DETECTOR CABLE

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPTION DETECTOR HOME RUN CABLE IN THE LOCATIONS SHOWN IN THE PLANS. IT SHALL CONNECT THE PREEMPT RECEIVING UNITS TO THE PHASE SELECTORS IN THE LOCAL CONTROLLER CABINET.

PREEMPTION DETECTOR CABLE SHALL CONFORM TO ODOT SPECIFICATION 632. ONLY ONE EXTERNAL SPLICE SHALL BE PERMITTED BETWEEN PREEMPTION RECEIVER UNIT AND CONTROLLER CABINET. THIS SPLICE SHALL MEET THE REQUIREMENTS OF C&MS 632.23 USING A WATERPROOF EPOXY SPLICE KIT. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL WITHSTAND EXPOSURE TO SUNLIGHT AND ATMOSPHERIC TEMPERATURES AND STRESSES REASONABLY EXPECTED IN NORMAL INSTALLATIONS.

PAYMENT FOR ITEM 633-PREEMPTION DETECTOR CABLE SHALL BE MADE AT THE CONTRACT UNIT PRICE PER FOOT FOR THE CABLE FURNISHED, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED.

ITEM 632 - SIGNAL SUPPORT FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632.12 AND 730.02, ANCHOR BOLTS, NUTS, LEVELING NUTS, AND WASHERS, AS SPECIFIED ON TC-81.21, SHALL BE FURNISHED AND INSTALLED. THE CONTRACTOR SHALL PROTECT THE ENDS OF THE ANCHOR BOLTS AFTER INSTALLATION. CONTRACTOR SHALL PROVIDE DETAILS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLING ANCHOR BOLTS.

PAYMENT FOR ITEM 632-SIGNAL SUPPORT FOUNDATION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL MATERIAL, TOOLS, EQUIPMENT, AND INCIDENTALS.

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA), THE REQUIREMENTS OF 632.09 AND 732.06 ARE MODIFIED AS FOLLOWS:

- A. THE MAXIMUM FORCE REQUIRED TO OPERATE THE PUSHBUTTON SHALL BE FIVE (5) POUNDS PER FOOT.
- B. THE PUSHBUTTON SHALL BE RAISED OR FLUSH AND SHALL BE A MINIMUM OF TWO (2) INCHES AT THE SMALLEST DIMENSION.
- C. PUSHBUTTONS SHALL BE PIEZOELECTRIC TYPE WITH LED INDICATORS.
- D. PEDESTRIAN PUSHBUTTONS SHALL BE POLERA "BULLDOG" OR PELCO "PASSPORT PIEZO" OR APPROVED EQUAL.

ITEM 633 - PREEMPT PHASE SELECTOR

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT PHASE SELECTORS INCLUDING WIRING INTERFACE PANELS IN THE LOCAL CONTROLLER CABINET AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT PHASE SELECTORS COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS.

THE PHASE SELECTORS SHALL CONSIST OF A MODULE OR MODULES THAT WILL PROVIDE THE NECESSARY INPUTS TO THE CONTROLLER. PHASE SELECTORS SHALL BE SUPPLIED WITH SUFFICIENT QUANTITIES OF CHANNELS TO PROVIDE PREEMPTION FOR ALL APPROACHES TO THE INTERSECTION SEPARATELY. POWER SHALL BE OBTAINED FROM THE PHASE SELECTOR OR PHASE SELECTOR POWER SUPPLY AND NOT FROM THE LOCAL CONTROLLER TIMER.

THE PHASE SELECTORS SHALL HAVE FRONT PANEL INDICATORS FOR ACTIVE PREEMPT CHANNEL STATUS. IT SHALL HAVE TEST SWITCHES TO ACTIVATE ALL PREEMPT CHANNELS.

FURNISH PREEMPT PHASE SELECTORS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY, WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

PAYMENT FOR ITEM 633-PREEMPT PHASE SELECTOR SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PHASE SELECTOR IN PLACE, COMPLETELY INSTALLED IN THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - PREEMPT CONFIRMATION LIGHT

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT CONFIRMATION LIGHTS INCLUDING HARDWARE AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT CONFIRMATION LIGHT COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH INTERSECTION APPROACH TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL.

THE CONFIRMATION LIGHT SHALL BE A VAPOR TIGHT ALUMINUM LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A BLUE GLOBE, LED LAMP AND MOUNTING HARDWARE TO ATTACH TO THE TRAFFIC SIGNAL MAST ARM. THE CONFIRMATION LIGHT SHALL BE POWERED BY A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER. SIGNAL CABLE CONFORMING TO 732.19 SHALL BE USED FOR CONFIRMATION LIGHTS. A MINIMUM OF 4-CONDUCTOR CABLE SHALL BE USED WITH THE GREEN WIRE SERVING AS THE SAFETY GROUND CONDUCTOR.

PAYMENT FOR ITEM 633-PREEMPT CONFIRMATION LIGHT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH LIGHT IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 CONTROLLER, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN INDUSTRY HARDENED, FULLY MANAGED ETHERNET SWITCH PROVIDING DUAL FIBER OPTICAL GIGABIT ETHERNET (100BASEX) PORTS USING INDUSTRY STANDARD SC FIBER OPTIC CONNECTORS AND 8 FAST ETHERNET (10/100BASE TX) RJ45 COPPER PORTS. THE TRANSCEIVER SHALL OPERATE ON 120VAC, 10 WATTS AND SHALL MEET AND/OR EXCEED NEMA TS2 ENVIRONMENTAL REQUIREMENTS.

THE FIBER OPTIC TRANSCEIVER SHALL INTERFACE TO SINGLE-MODE (8/125) FIBER OPTIC CABLE WITH AN OPTICAL WAVELENGTH OF 1310NM USING SC CONNECTORS. IT SHALL BE CAPABLE OF OPERATING OVER A DISTANCE OF AT LEAST 10KM WITH AN OPTICAL POWER BUDGET OF 17DB. THE TRANSCEIVER SHALL BE CAPABLE OF OPERATING IN A FAULT TOLERANT FIBER OPTIC LOOP.

PROVIDE A TRANSCEIVER THAT IS FULLY COMPLIANT WITH IEEE 802.3, 802.3U & 802.3Z. THE TRANSCEIVER SHALL PROVIDE FULL-DUPLEX OPERATION AND FLOW CONTROL.

PROVIDE A SIMPLE INTUITIVE USER INTERFACE FOR CONFIGURATION AND MONITORING OF THE TRANSCEIVER VIA STANDARD HTML GRAPHICAL WEB BROWSER, INCLUDING DETAILED ONLINE HELP. EVENT LOGGING AND RECORDING SHALL BE INCLUDED. ALL SIGNIFICANT EVENTS SHALL BE STORED IN A NON-VOLATILE SYSTEM LOG.

THE OPTICAL ETHERNET TRANSCEIVER SHALL CONNECT TO ALL ETHERNET DEVICES IN THE CONTROLLER CABINET INCLUDING THE CONTROLLER (IF APPLICABLE), VIDEO DETECTION COMMUNICATIONS INTERFACE PANEL AND VIDEO SERVERS AND ANY OTHER ETHERNET DEVICES USING PROPERLY RATED CAT5E CABLES WITH RJ45 CONNECTORS.

PAYMENT FOR ITEM 633 CONTROLLER, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH COMPLETE IN PLACE, INCLUDING ALL CONNECTIONS MADE AND WIRING COMPLETE, TESTED AND ACCEPTED.

ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TSI, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AN ACTUATED, SOLID STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TBC, FSK TELEMETRY MODULE FOR CLOSED LOOP COMMUNICATIONS AND ALL OTHER ACCESSORIES THAT ARE REQUIRED TO MAKE THE CONTROLLER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

THE CONTROLLER UNIT SHALL BE AN ECONOLITE COBALT AS MANUFACTURED BY ECONOLITE CONTROL PRODUCTS OF ANAHEIM, CA, OR EQUAL APPROVED.

THE PROVISIONS OF ITEMS 633 AND 733 SHALL FURTHER INCLUDE THE FOLLOWING:

THE CONTROLLER ASSEMBLY SHALL INCLUDE A NEMA TS2 TYPE 2 CONTROLLER UNIT AND A NEMA TS2 TYPE 16 MALFUNCTION MANAGEMENT UNIT COMPLETE IN A NEMA TSI CABINET ASSEMBLY.

THE CONTROLLER UNIT AND CABINET SHALL CONFORM TO ODOT SPECIFICATIONS 633 AND 733 AND SHALL HAVE THE FOLLOWING FEATURES:

1. LOAD SWITCHES AND FLASH TRANSFER RELAYS SHALL BE SUPPLIED IN SUFFICIENT QUANTITY TO PERFORM THE OPERATION AS SHOWN IN THE PLANS. THE LOAD SWITCHES SHALL PROVIDE INDICATORS ON BOTH THE INPUTS AND OUTPUTS OF EACH CIRCUIT.
 - A. EIGHT (8) PHASE CABINETS SHALL INCLUDE A 12 POSITION NEMA TSI BACK PANEL WITH A FULL COMPLIMENT OF LOAD SWITCHES (12), FLASHER (1) AND FLASH TRANSFER RELAYS (4).
2. THE CONTROLLER UNIT SHALL BE 16 PHASE FULLY ACTUATED AND SHALL MEET ALL REQUIREMENTS FOR A NEMA TS2 TYPE 2 INCLUDING SDLC (PORT1), RS-232 (PORT 2), AND FSK (PORT 3) PORTS. ADDITIONAL MANUFACTURER SPECIFIC "D" CONNECTORS, 10/100 ETHERNET PORT AND REMOVABLE DATAKEY SHALL BE INCLUDED. ADDITIONAL FEATURES SHALL BE AS FOLLOWS:
 - A. THE LCD DISPLAY SHALL BE ALPHANUMERIC AND INCLUDE 16 LINES BY 40 CHARACTERS WITH BACK-LIGHTING AND MULTIPLE LEVELS OF CONTRAST AND A HEATER FOR CONTINUED OPERATION DURING EXTENDED PERIODS BELOW 0° F.
 - B. ALL DATA SHALL BE STORED ON AN EASILY REMOVABLE FRONT PANEL MOUNTED DATAKEY CAPABLE OF STORING A MINIMUM 256KB OF DATA.
 - C. THE CONTROLLER SHALL HAVE THE ABILITY TO ASSIGN INPUT OR OUTPUT FUNCTION TO ANY INPUT OR OUTPUT PIN RESPECTIVELY.
 - D. THE CONTROLLER SHALL BE CAPABLE OF AN ADDITIONAL 16 STANDARD OVERLAPS BY ASSIGNING EACH PHASE OUTPUT TO AN OVERLAP.
 - E. THE CONTROLLER SHALL INCLUDE "TIME-OF-DAY" AND "COORDINATION" CAPABILITIES.
 - F. THE CONTROLLER SHALL INCLUDE "PREEMPTION" CAPABILITIES INCLUDING 10 RAILROAD, FIRE AND EMERGENCY VEHICLE HIGH-PRIORITY PREEMPTORS. THE CONTROLLER SHALL ALSO BE CAPABLE OF 4 LOW-PRIORITY "BUS-PREEMPTORS".
 - G. THE CONTROLLER SHALL BE PROGRAMMABLE TO ALLOW FOR FLASHING "DON'T WALK" THROUGH THE YELLOW SIGNAL PHASE.
3. THE NEMA TS2 TYPE 16 MALFUNCTION MANAGEMENT UNIT SHALL BE PROVIDED WITH AN LCD DISPLAY, AN ETHERNET PORT AND EXTENDED MONITORING IN ACCORDANCE WITH 733.03, PART A. SECTION C. THE CABINET SHALL BE WIRED FOR APPROACH MONITORING. AN SDLC CABLE ASSEMBLY AND TWO RS-485 SDLC CABLES SHALL BE PROVIDED. THE CABLES SHALL CONNECT PORT 1 OF THE CONTROLLER TO PORT 1 OF THE MMU. THIS WILL ENABLE THE ADVANCED ERROR CHECKING, REPORTING AND LOGGING FEATURES AS DEFINED BY NEMA. THE MMU SHALL PASS ALL TESTS AS PERFORMED BY AN AUTOMATIC MONITOR TESTER. TEST RESULTS SHALL BE PRINTED AND SUPPLIED WITH EACH CABINET.
4. THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE PANEL:
 - A. SIGNAL ON/OFF
 - B. FLASH CONTROL
 - C. AUTOMATIC/MANUAL TRANSFER
 - D. MANUAL PUSH-BUTTON AND 10' COILED HAND CORD
5. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON A TECHNICIANS SWITCH PANEL ON THE INSIDE OF THE MAIN CABINET DOOR:
 - A. STOP TIME ON/OFF
 - B. FLASH CONTROL
 - C. TIMER POWER ON/OFF
 - D. DETECTOR TEST, MOMENTARY PUSH-BUTTON
6. A GENERATOR HOOK-UP SHALL BE PROVIDED ON THE EXTERIOR OF THE CABINET AND A GENERATOR PANEL INCLUDED IN THE CABINET.

ITEM 630 - SIGN SUPPORT ASSEMBLY, BARRIER MOUNTED, AS PER PLAN

THE CONTRACTOR SHALL USE CONCRETE BARRIER MOUNTED SIGN SUPPORTS AS DETAILED ON SHEET 1135

PAYMENT FOR ITEM 630-SIGN SUPPORT ASSEMBLY, BARRIER MOUNTED, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL MATERIAL, TOOLS, EQUIPMENT, AND INCIDENTALS.

I:\Projects\Main_Broadway\TRAFFIC_Sheets\77269TN004.dgn 5/13/2016 10:06:29 AM kyle_koppes

TKI	5/11/16	TRANSCEIVER ITEM REMOVED
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

CALCULATED

CHECKED

TRAFFIC CONTROL GENERAL NOTES

SUM - 76 - 10.00

1040
1822

ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TSI, AS PER PLAN (CONT.)

7. THE MAINTENANCE PANEL AND POLICE PANEL SHALL BE INSTALLED AS A COMPLETE AND INDEPENDENT ASSEMBLY. A SINGLE MULTI-PIN CONNECTOR ASSEMBLY SHALL BE USED TO INTERFACE TO THE MAIN BACK PANEL. DIRECT WIRING FROM THE BACK PANEL TO THE MAINTENANCE/POLICE PANEL WILL NOT BE ALLOWED. THE MAINTENANCE/POLICE PANEL ASSEMBLY SHALL BE EASILY REPLACED WITHOUT HAVING TO DISTURB ANY OTHER WIRING IN THE CABINET. THE MAINTENANCE PANEL SHALL BE HINGED WITH A STAINLESS STEEL HINGE TO THE POLICE PANEL TO ALLOW EASY ACCESS TO THE WIRING WITHIN THE ASSEMBLY.
8. AN LED STYLE CABINET LAMP KIT SHALL BE PROVIDED. THE LAMP KIT SHALL ILLUMINATE THE ENTIRE CABINET ASSEMBLY AND INCLUDE TWO (2) FIXTURES. 1 MOUNTED ON THE FAN PLATE A SECOND MOUNTED BELOW THE TIMER SHELF TO ILLUMINATE THE LOAD BAY AREA. THE LED LAMP KIT SHALL INCLUDE A DOOR ACTIVATED PUSH-BUTTON.
9. THE CABINET SHALL BE ALUMINUM, WITH A NATURAL SATIN FINISH OF THE REQUIRED SIZE TO INCLUDE ALL EQUIPMENT, UNLESS SPECIFIED OTHERWISE, AND SHALL COMPLY WITH THE REQUIREMENTS OF 733.03.
 - A. EIGHT (8) PHASE CABINETS SHALL BE A MINIMUM OF 55"Hx44"Wx26"D UNLESS OTHERWISE SPECIFIED
 - B. EIGHT (8) PHASE CABINETS WITH BATTERY BACK-UP SYSTEMS SHALL BE DOUBLE DOOR CABINETS MEASURING 55"Hx60"Wx26"D, INCLUDE A SEPARATE AND ISOLATED COMPARTMENT FOR THE UPS EQUIPMENT UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL FURNISH, FOR APPROVAL, TWO CABINET PLANS SHOWING COMPONENT LAYOUT, AND A COPY IN AUTO CAD FORMAT. IN ADDITION AN OPERATION MANUAL SHALL BE INCLUDED THAT PROVIDES INFORMATION REQUIRED FOR INSTALLATION, OPERATION AND MAINTENANCE OF THE CONTROLLER.
11. THE MAIN POWER SURGE PROTECTOR SHALL BE PLUG-IN TYPE, INCLUDE A FAILURE INDICATOR AND A SET OF DRY CONTACTS TO INDICATE THE UNIT HAS FAILED. THE UNIT SHALL BE AN EDCO MODEL SHAI250, OR EQUAL, INCLUDING BASE. THE FAIL CONTACTS OF THE SURGE PROTECTOR SHALL BE WIRED TO AN ALARM INPUT FOR REPORTING A FAILED DEVICE TO A CENTRAL COMPUTER.
12. THE FOLLOWING LIST OF FEATURES SHALL BE INCORPORATED INTO THE CABINET AND TERMINALS FACILITY:
 - A. THE FIELD TERMINALS FOR SIGNAL HOOKUP SHALL BE MOUNTED TO A PANEL AND ANGLED AT 45° FOR EASE OF INSTALLATION AND MAINTENANCE. THE BACKBOARD SHALL BE MOUNTED AT LEAST 6" ABOVE THE BASE OF THE CABINET. NO WIRES LUGGED OR OTHERWISE, SHALL BE PERMITTED ON THE SIGNAL HOOKUP SIDE OF THE FIELD TERMINAL BLOCKS.
 - B. WIRE CONNECTIONS TO THE BACK PANEL SHALL BE MADE WITH CRIMP TERMINALS AND THREADED FASTENERS. QUICK-CONNECT TERMINALS ARE NOT ACCEPTABLE. SOLDER CONNECTIONS MAY BE USED ON THE BACKSIDE OF A PANEL THAT UTILIZES FEED THRU STYLE TERMINAL BLOCKS. PRINTED CIRCUIT BOARDS SHALL NOT BE USED AS ANY PART OF THE MAIN BACK PANEL ASSEMBLY.
 - C. ALL WIRES FASTENED TO THE LOAD SWITCH, FLASHER AND FLASH TRANSFER RELAY SOCKETS SHALL BE SOLDERED IN PLACE. A GOOD MECHANICAL CONNECTION MUST BE MADE PRIOR TO SOLDERING.
 - D. THE BACK PANEL SHALL BE PROVIDED WITH A UNITIZED SELF-LEVELING/SELF ADJUSTING HINGED MOUNTING MECHANISM TO ALLOW EASY ACCESS TO ALL WIRING ON THE REAR PANEL. THE BACK PANEL SHALL SLIDE ONTO THE HINGE SUPPORT BRACKETS AND BE SECURED IN THE CABINET WITH STAINLESS STEEL MOUNTING HARDWARE SECURELY FASTENED AT NO MORE THAN TWO (2) POINTS. COMPLETE REMOVAL AND REPLACEMENT OF THE MAIN BACK PANEL ASSEMBLY SHALL BE ACCOMPLISHED WITH THE USE OF SIMPLE HAND TOOLS.
 - E. THE BACK PANEL SHALL BE DESIGNED SUCH THAT IT CAN BE EASILY REMOVED AND REPLACED WITHIN THE CABINET. CONNECTORS SHALL BE USED TO CONNECT ALL SIDE PANELS TO THE BACK PANEL INCLUDING THE DETECTOR PANEL, MAINTENANCE/POLICE PANEL, CABINET FAN PLATE AND ANY AUXILIARY PANEL. THE MAIN BACK PANEL ASSEMBLY SHALL BE EASILY REMOVED AND REPLACED WITHOUT REMOVING OR REWIRING ANY OF THE SIDEWALL MOUNTED PANELS.
 - F. ALL WIRING OF HARNESSSES AND INTER-PANEL WIRING, INCLUDING WIRING TO THE POLICE PANEL SHALL BE PROTECTED WITH A NYLON MESH OR "SNAKE SKIN". ANY EXPOSED WIRES, OR THE USE OF CABLE TIES TO HOLD THE WIRE BUNDLES TOGETHER SHALL NOT BE ALLOWED.
 - G. ALL BACK PANEL TERMINALS AND COMPONENTS SHALL HAVE SILK-SCREENED TERMINAL/ SOCKET FUNCTION IDENTIFICATION LABELS SUCH AS AC COM, PHASE 3 GREEN, ETC. SILK-SCREENED TERMINAL REFERENCE NUMBERS SHALL ALSO BE PROVIDED. LOAD SWITCH FIELD TERMINALS SHALL BE LABELED WITH THE LOAD SWITCH NUMBER, COLOR AND TERMINAL REFERENCE NUMBER.
 - H. ALL WIRING FOR PEDESTRIAN OUTPUTS AND OVERLAPS SHALL BE BROUGHT TO TERMINALS ON THE FRONT OF THE BACKBOARD FOR EASY MODIFICATION.
 - I. ALL SWITCHES SHALL BE IDENTIFIED WITH PERMANENT TYPE LABELS. THE USE OF PLASTIC MARKING TAPE OR "CROY" TYPE TAPE IS NOT ACCEPTABLE.
 - J. ALL MAIN POWER PANEL DEVICES SHALL BE AFFIXED TO THE LOWER RIGHT PORTION OF THE MAIN PANEL, INCLUDING ALL CIRCUIT BREAKERS, LINE FILTERS AND LOAD RELAYS. AS AN ALTERNATE, A SEPARATE POWER PANEL MOUNTED TO THE RIGHT SIDE WALL OF THE CABINET WILL BE PERMITTED.
 - K. ALL EQUIPMENT HARNESSSES SHALL BE ATTACHED TO THE UNDERSIDE OF THE FIELD TERMINATION FOR LOOPS, AND PEDESTRIAN PUSH BUTTONS SHALL BE ON THE LEFT SIDEWALL. THE TERMINAL BLOCK FOR THESE ITEMS SHALL BE MOUNTED VERTICALLY. TERMINATING OF FIELD WIRES OVER TOP OF OTHER TERMINAL BLOCKS SHALL NOT BE ALLOWED.
 - L. SHELVES WITH APPROPRIATE CABLE TIE MOUNTING BLOCKS, FOR EASE OF MAINTENANCE, ALL HARNESSSES SHALL BE OF SUFFICIENT LENGTH TO PLACE THE EQUIPMENT ON TOP OF THE CABINET AND BE OPERATIONAL.
 - M. THE CABINET SHALL BE WIRED READY FOR USE IN A "CLOSED LOOP SYSTEM". MEANING A 6 PAIR SYSTEM, RADIO, OR FIBER OPTIC SYSTEM CAN BE INSTALLED WITH A MINIMUM OF FIELD WIRING.

ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TSI, AS PER PLAN (CONT.)

- N. A COLOR-CODED WIRING SYSTEM SHALL BE USED THROUGHOUT THE WIRING OF THE CABINET. THE WIRING COLOR-CODE SHALL BE AS FOLLOWS:
- a) CONTROLLER UNIT - BLUE22 GAUGE
 - b) MMU- VIOLET 22 GAUGE
 - c) RED LOAD SWITCH OUTPUT - RED 16 GAUGE
 - d) YELLOW LOAD SWITCH OUTPUT -YELLOW 16 GAUGE
 - e) GREEN LOAD SWITCH OUTPUT - BROWN16 GAUGE
 - f) AC LINE POWER - BLACK VARIES*
 - g) AC NEUTRAL - WHITE VARIES*
 - h) EARTH GROUND - GREEN VARIES*
 - i) LOGIC GROUND -GRAY 22 GAUGE
 - j) FLASH PROGRAMMING - ORANGE 16 GAUGE
- *SIZED APPROPRIATELY TO HANDLE THE VARYING CURRENT REQUIREMENTS
13. A DETECTOR TERMINATION PANEL SHALL BE INSTALLED AND MOUNTED ON THE LEFT-SIDE WALL OF THE CABINET. A SINGLE MULTI-PIN CONNECTOR SHALL BE USED TO INTERFACE THE DETECTOR PANEL TO THE MAIN BACK PANEL. DIRECT WIRING FROM THE MAIN BACK PANEL TO THE DETECTOR PANEL WILL NOT BE ALLOWED, EXCEPT FOR THE AC SERVICE TO THE PANEL.
 - A. ALL LOOP DETECTOR HARNESSSES SHALL INCLUDE AN APPROPRIATE 10-PIN LOCKING TYPE CONNECTOR TO PLUG INTO THE DETECTOR TERMINATION PANEL. THE LOOP HARNESS SHALL LOCK INTO A MATING CONNECTOR ON THE DETECTOR TERMINATION PANEL.
 - B. THE PANEL SHALL BE PROVIDED WITH PROVISIONS AND FULLY WIRED FOR A MINIMUM OF EIGHT (8) LOOP DETECTORS INCLUDING CONNECTORS AND LOOP TERMINATION BLOCKS. CONNECTORIZED PLUG-IN STYLE LOOP DETECTOR HARNESSSES SHALL BE PROVIDED IN SUFFICIENT QUANTITY TO PERFORM THE REQUIRED SEQUENCE.
 - C. THE DETECTOR TERMINATION PANEL SHALL BE FULLY PROGRAMMABLE. ALL DETECTOR FUNCTIONS SHALL BE PROGRAMMABLE ON THE DETECTOR PANEL INCLUDING PHASE CALLS, DELAY DEFEAT AND DETECTOR COUNT OUTPUTS.
 - D. TERMINATION POINTS SHALL BE PROVIDED FOR FOUR (4) PEDESTRIAN PUSHBUTTONS.
 - E. PROVISIONS FOR INTERFACING SYSTEM DETECTORS AND ADDITIONAL DETECTOR INPUTS SHALL BE INCLUDED ON THE PANEL.
 - F. THE DETECTOR TERMINATION PANEL SHALL ALLOW FOR EASY EXPANSION. ADDITIONAL DETECTOR TERMINATION PANELS SHALL BE ADDED BY MEANS OF A SINGLE CONNECTING HARNESS ASSEMBLY THAT INCLUDES ALL FUNCTIONS AS REQUIRED TO ACHIEVE THE DESIRED SEQUENCE AND OPERATION INCLUDING PHASE CALLS, PHASE GREENS AND AUXILIARY SYSTEM FUNCTIONS.
 - G. ALL LOOP DETECTOR HARNESSSES SHALL BE TAGGED WITH A WHITE CIRCULAR PLASTIC TAG, AND SHALL IDENTIFY, WITH PERMANENT MARKER, THE LOOP NUMBER, DIRECTION OF TRAVEL AND DESIGNATE THE LANE FOR WHICH THE LOOP IS PLACED. IT SHALL ALSO INCLUDE ANY NOMENCLATURE AS SHOWN ON THE DRAWINGS USED FOR IDENTIFICATION OF THE HARNESS.
 - H. LOOP DETECTOR AMPLIFIERS SHALL BE DIGITAL, AUTOMATIC SELF-TUNING AND HAVE AN INDUCTANCE TUNING RANGE OF 10-2000 MICRO HENRIES. A SINGLE CHANNEL LOOP DETECTOR AMPLIFIER WITH SEPARATE DELAY AND EXTENSION TIMERS, SYSTEM COUNT OUTPUT AND LCD DISPLAY SHALL BE SUPPLIED FOR EACH LOOP. LOOP AMPLIFIERS SHALL BE INDIVIDUAL UNITS FOR SHELF MOUNT, NOT RACK MOUNT TYPE AND SHALL BE PROVIDED IN QUANTITIES AS NEEDED TO PERFORM THE SEQUENCE AND OPERATION AS SHOWN AND AS INDICATED IN THE PLANS.
 - I. A MINIMUM OF EIGHT (8) EDCO SRA-6LC SURGE PROTECTION DEVICES SHALL BE SUPPLIED AND TERMINATED ON THE DETECTOR TERMINATION PANEL I FOR EACH LOOP INPUT.
 14. PROVIDE AN ETHERNET COMMUNICATIONS MODULE FOR THE CONTROLLER THAT FULLY SUPPORTS AN IEEE 802.3 COMPLIANT GIGABIT ETHERNET AUTO SENSING PORT FOR ADVANCED SYSTEMS COMMUNICATIONS. THE ETHERNET PORT SHALL PROVIDE AN UPSTREAM CONNECTION TO OTHER ETHERNET DEVICES IN THE CABINET. AN INDUSTRY STANDARD RJ-45 TYPE CONNECTOR SHALL BE INCLUDED THAT SUPPORTS A SIMPLE CAT5E PATCH CABLE INTERFACE. THE ETHERNET PORT SHALL BE FACTORY PRE-CONFIGURED WITH A UNIQUE PRIVATE IP ADDRESS AND CLASS B SUBNET MASK.
 15. A SYSTEMS INTERFACE PANEL SHALL BE MOUNTED ON THE LEFT SIDEWALL, ABOVE THE DETECTOR TERMINATION PANEL(S). TERMINAL BLOCKS SHALL BE FEED-THRU TYPE AND MOUNTED VERTICALLY. ALL SYSTEMS FUNCTIONS OF THE CONTROLLER SHALL BE TERMINATED ON A SINGLE PANEL. AT A MINIMUM, THE SYSTEMS PANELS SHALL INCLUDE TERMINATION POINTS FOR 16 ADDITIONAL DETECTOR INPUTS, 6 PREEMPT INPUTS, 6 PREEMPT OUTPUTS AND 4 SPECIAL FUNCTION OUTPUTS. THE SYSTEMS INTERFACE PANEL SHALL CONNECT TO THE MAIN BACK PANEL ASSEMBLY AND THE DETECTOR PANEL WITH THE USE OF MULTI-PIN CONNECTORS. DIRECT WIRING FROM THE MAIN BACK PANEL TO THE CLOSED LOOP SYSTEMS INTERFACE PANEL WILL NOT BE ALLOWED.
 - A. ONE (1) SEICOR MODEL WICO12 WALL MOUNT INTERCONNECT CENTER WITH 12 "SC" COMPATIBLE SINGLE-MODE COUPLERS WITH CERAMIC INSERT SHALL BE INSTALLED ON THE RIGHT SIDE WALL OF THE CABINET. TWO (2) SINGLE-MODE DUPLEX PATCH CORDS WITH "SC" CONNECTORS AND COLOR-CODED BOOTS SHALL BE PROVIDED.
 - B. CONNECT THE ETHERNET PORT FROM THE CONTROLLER TO THE OPTICAL ETHERNET TRANSCEIVER INSTALLED USING PROPERLY RATED CAT5e CABLES AND RJ45 CONNECTORS.
 16. THE CABINET SHALL BE FULLY WIRED TO ACCOMMODATE EMERGENCY VEHICLE PREEMPTION EQUIPMENT INCLUDING A FULLY WIRED RACK AND TERMINATION PANEL. THE RACK SHALL BE WIRED TO ACCOMMODATE TWO (2) NEMA LOAD SWITCHES FOR CONFIRMATION LIGHT CONTROL. CONFIRMATION LIGHTS SHALL BE WIRED TO THE PREEMPT TERMINATION PANEL.
 17. THE CABINET ASSEMBLY SHALL BE FULLY TESTED, WITH ALL COMPONENTS INSTALLED, AT THE FACTORY PRIOR TO SHIPMENT. THE CONTROLLER, MONITOR AND DETECTORS SHALL BE FULLY PROGRAMMED PER THE PLANS AND SPECIFICATIONS, BY A TRAINED FACTORY REPRESENTATIVE. THE COMPLETE AND FULLY PROGRAMMED CABINET ASSEMBLY SHALL BE FACTORY TESTED FOR A MINIMUM OF 24 HOURS, PRIOR TO SHIPMENT. THE SUPPLIER SHALL CERTIFY IN WRITING THAT THE TESTS HAVE BEEN SUCCESSFULLY PERFORMED PRIOR TO INSTALLATION IN THE FIELD. A REGISTERED PROFESSIONAL ENGINEER SHALL SUPERVISE ALL TESTING.

ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TSI, AS PER PLAN (CONT.)

BASIS OF PAYMENT FOR ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TSI, AS PER PLAN, SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH THE CONTROLLER AND WIRING COMPLETE, TESTED AND ACCEPTED.

ITEM 633 - CABINET FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 633, 733 AND STANDARD CONSTRUCTION DRAWING TC-83.20, THE FOUNDATION AND WORK PAD (IF REQUIRED) SHALL BE CONSTRUCTED AS DETAILED ON SHEET NO. 1179-----.

ALL LABOR, EQUIPMENT, MATERIALS, TOOLS, AND INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE PER EACH ITEM 633-CONTROLLER FOUNDATION, AS PER PLAN.

ITEM 815 - SPREAD SPECTRUM RADIO, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 815, THIS ITEM SHALL INCLUDE INSTALLING AN ANTENNA ON THE POLE AT THE SOUTHEAST CORNER OF THE INTERSECTION OF S. BROADWAY ST. AND E. EXCHANGE ST., PROVIDING WIRE THROUGH EXISTING CONDUITS FROM THE ANTENNA TO THE CONTROLLER ON THE SOUTHWEST CORNER OF THAT INTERSECTION, AND ALL EQUIPMENT AND CONNECTIONS NECESSARY TO TIE THE SIGNALS FROM THIS PROJECT INTO THE CITY OF AKRON'S EXISTING CENTRAL BASED SYSTEM. REPEATER UNITS MAY BE REQUIRED.

ALL MATERIAL, EQUIPMENT, TOOLS, WIRE, AND INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE PER EACH ITEM 815-SPREAD SPECTRUM RADIO, AS PER PLAN.

ITEM 644 - CROSSWALK LINE, AS PER PLAN

CROSSWALK LINES SHALL BE AS PER THE OMTCD, SECTION 3B.18. THE CROSSWALK LINES SHALL BE 10 FEET LONG AND 24" WIDE. THESE LINES SHALL BE SPACED EVERY 2' AS SHOWN IN THE PLANS.

ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE PER FOOT OF ITEM 644-CROSSWALK LINE, AS PER PLAN.

ITEM 633 - SYSTEM ANALYSIS, AS PER PLAN

THE SYSTEM ANALYSIS SHALL ONLY BE PERFORMED ON THE 7 TRAFFIC SIGNALS BEING CONSTRUCTED AS PART OF THIS PROJECT. THESE SIGNALS ARE TO BE RUN AS A SUBSYSTEM ON THE CITY OF AKRON CENTRACS SYSTEM. THE INTERCONNECTION TO THE TRAFFIC SIGNAL AT BROADWAY & EXCHANGE IS FOR COMMUNICATIONS TO THE CENTRACS SYSTEM AND IS NOT INTENDED TO BE FOR COORDINATION BETWEEN THE INTERSECTIONS. ALL OTHER CONDITIONS OF ITEM 633 SYSTEM ANALYSIS SHALL APPLY.

ITEM 633 - PREEMPTION, AS PER PLAN ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPTION, THE SYSTEM SUPPLIED SHALL BE SONEM 2000 MANUFACTURED BY TRAFFIC SYSTEMS, LLC.

ITEM 633 - PREEMPTION RECEIVING UNIT, ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPTION RECEIVING UNIT, THE SYSTEM SUPPLIED SHALL BE SONEM 2000 MANUFACTURED BY TRAFFIC SYSTEMS, LLC.

ITEM 633 - PREEMPTION PHASE SELECTOR, ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPT PHASE SELECTOR, THE SYSTEM SUPPLIED SHALL BE SONEM 2000 MANUFACTURED BY TRAFFIC SYSTEMS, LLC.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN, ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF CMS 633 AND 733 THE UNINTERRUPTIBLE POWER SUPPLY (UPS) SHALL BE A CLARY SP 1250 LX WITH SNMP NETWORK ADAPTER SP-09G AND LED INDICATOR.

ITEM 804 SPLICE ENCLOSURE, ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 804 SPLICE ENCLOSURE, THE SPLICE ENCLOSURE PROVIDED SHALL BE A SIECOR MODEL UCAO, 3M 2178.

ITEM 816 - VIDEO DETECTION SYSTEM, ALTERNATE BID

IN ADDITION TO MEETING THE REQUIREMENTS OF SS 816 AND SS 907 VIDEO DETECTION SYSTEM, THE SYSTEM SUPPLIED SHALL BE AUTOSCOPE ENCORE BRAND AS MANUFACTURED BY ECONOLITE.

ITEM 633 - PREEMPTION, AS PER PLAN ALTERNATE BID NO. 1

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPTION, THE SYSTEM SUPPLIED SHALL BE RIGHT-O-WAY MANUFACTURED BY WAPITI MICROSYSTEMS.

ITEM 633 - PREEMPTION RECEIVING UNIT, ALTERNATE BID NO. 1

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPTION RECEIVING UNIT, THE SYSTEM SUPPLIED SHALL BE RIGHT-O-WAY MANUFACTURED BY WAPITI MICROSYSTEMS.

ITEM 633 - PREEMPTION PHASE SELECTOR, ALTERNATE BID NO. 1

IN ADDITION TO MEETING THE REQUIREMENTS OF ITEM 633 PREEMPT PHASE SELECTOR, THE SYSTEM SUPPLIED SHALL BE RIGHT-O-WAY MANUFACTURED BY WAPITI MICROSYSTEMS.

ITEM 816 - VIDEO DETECTION SYSTEM, ALTERNATE BID NO. 1

IN ADDITION TO MEETING THE REQUIREMENTS OF SS 816 AND SS 907 VIDEO DETECTION SYSTEM, THE SYSTEM SUPPLIED SHALL BE THERMAL IMAGING CAMERAS AS MANUFACTURED BY FLIR SYSTEMS, INC.

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KMK	5/13/16	ITEM 633 - SYSTEM ANALYSIS CHANGED TO BE APP
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

CALCULATED
CHECKED

TRAFFIC CONTROL GENERAL NOTES

SUM - 76 - 10.00

1041
1822

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SHEET NO.											PARTICIPATION 01/IMS/PV	PARTICIPATION 04/IMS/OT/Akrn#	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
1039	1141	1144	1147	1150	1153	1156	1159	1161	1163	1176								
	207	189	111	280	123	454	179	65 *	26 *		1543	91	625	25400	1634	FT	CONDUIT, 2", 725.04	
	287	429	374	400	305	316	350	335 *	322 *	17963 *	14534	6547	625	25500	21081	FT	CONDUIT, 3", 725.04	
	463	612	477	671	417	761	510	379 *	335 *	6082	9993	714	625	29000	10707	FT	TRENCH	
	4	6	4	4	4	6	4	3*	3*	31	63	6	625	31600	69	EACH	PULL BOX, MISC.: PULL BOX, 24" X 36"	1038
	1	1	1	2	1	1	1	1*	1*	11	19	2	625	31600	21	EACH	PULL BOX, MISC.: PULL BOX, 30" X 48" X 24"	1038
	9	10	5	9	6	9	7	7*	5*		55	12	625	32000	67	EACH	GROUND ROD	
	463	612	477	571	417	661	510	379 *	335 *	6082	9793	714	625	36000	10507	FT	PLASTIC CAUTION TAPE	
	8	8	4	7	3	6	3				39		630	79101	39	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	1038
	100.0	96.0	39.5	96.5	52.0	87.5	60.0				531.5		630	80100	531.5	SF	SIGN, FLAT SHEET	
	6	6	9	8	5	6	6				46		632	04913	46	EACH	VEHICULAR SIGNAL HEAD, (LED) YELLOW, 3-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	1038
	2	2		3	1	1					9		632	04923	9	EACH	VEHICULAR SIGNAL HEAD, (LED) YELLOW, 5-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	1038
	8	10	4	8	6	8	6				50		632	20731	50	EACH	PEDESTRIAN SIGNAL HEAD (LED) , (COUNTDOWN), TYPE D2, AS PER PLAN	1038
	8	8	9	11	6	7	6				55		632	25000	55	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
	8	10	4	8	6	8	6				50		632	25010	50	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
	8	8	4	8	6	8	6				48		632	26001	48	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	1040
				558		577					1135		632	40301	1135	FT	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG, AS PER PLAN	1039
	80	535	1026	148	340	325	523				2977		632	40500	2977	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
	1958	2285	871	2250	962	1412	1083				10821		632	40700	10821	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
										LS	LS		632	62830	LS		INTERCONNECT, MISC.: REUSE OF EXISTING INTERCONNECT CABLE	1039
	1	4	3	4	2	3	2				19		632	64010	19	EACH	SIGNAL SUPPORT FOUNDATION	
								4*	4*			8	632	64011	8	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	1040
	6	5	1	4	2	5	4	2*			27		632	64020	29	EACH	PEDESTAL FOUNDATION	
	140	140	140	140	140	140	140				980		632	67300	980	FT	POWER CABLE, 3 CONDUCTOR, NO. 8 AWG	
	1	1	1	1	1	1	1				7		632	70001	7	EACH	POWER SERVICE, AS PER PLAN	1039
							1				1		632	75103	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21 DESIGN 12 POLE, WITH MAST ARMS TC-81.21 DESIGN 11 AND DESIGN 2, AS PER PLAN	1038
	2										2		632	76411	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 8 POLE, WITH MAST ARMS TC-81.21 DESIGN 13 AND DESIGN 11, AS PER PLAN	1038
					1						1		632	80203	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 2, AS PER PLAN	1038
					1						1		632	80303	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 3, AS PER PLAN	1039
							1				1		632	80981	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 2, AS PER PLAN	1038
		1		1							2		632	81001	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 4, AS PER PLAN	1038
			1			2					3		632	81071	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 11, AS PER PLAN	1038
				1		1					2		632	81081	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN	1038
		3	1	2	1						7		632	81091	7	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN	1038
			1								1		632	81091	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN NO.1	1039
	6	5	1	4	2	5	4				27		632	89901	27	EACH	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN	1038
7	1	1		1	1	1	1	1	1		15		632	90101	15	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	1039
										LS	LS		632	90300	LS		SIGNALIZATION, MISC.: EXPANSION OF CENTRACS SYSTEM	1039
	2	4	3	4	2	3	2	4*	4*		20	8	632	90400	28	EACH	SIGNALIZATION, MISC.: FOUNDATION TEST HOLE	1039
	1	1	1	1	1	1	1				7		633	01581	7	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN	1040
	1	1	1	1	1	1	1				7		633	67000	7	EACH	CABINET RISER	
	1	1	1	1	1	1	1	1*	1*		7	2	633	67101	9	EACH	CABINET FOUNDATION, AS PER PLAN	1041
	1	1	1	1	1	1	1	1*	1*		7	2	633	67200	9	EACH	CONTROLLER WORK PAD	
	1	1	1	1	1	1	1				7		633	67301	7	EACH	PREEMPTION, AS PER PLAN	1039
	4	4	3	4	3	3	3				24		633	67310	24	EACH	PREEMPTION RECEIVING UNIT	1040
	763	875	603	838	450	542	476				4547		633	67320	4547	FT	PREEMPTION DETECTOR CABLE	1040
	1	1	1	1	1	1	1				7		633	67350	7	EACH	PREEMPTION PHASE SELECTOR	1040
	4	4	3	4	3	3	3				24		633	67400	24	EACH	PREEMPTION CONFIRMATION LIGHT	1040
										LS	LS		633	72501	LS		SYSTEM ANALYSIS, AS PER PLAN	1041
	1	1	1	1	1	1	1				7		633	74001	7	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN	1039

* - DENOTES 04/IMS/OT/Akrn PARTICIPATION
 * - SEE SHEET NO. 1176 PARTICIPATION SPLIT

KMK	5/13/16	ITEM 633 - SYSTEMS ANALYSIS CHANGED TO APP
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

CALCULATED
 CX
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TRAFFIC SIGNAL GENERAL SUMMARY
SUM - 76 - 10.00
 1137
 1822

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SHEET NO.											PARTICIPATION 01/IMS/PV	PARTICIPATION 04/IMS/OI/Akron*	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
1039	1141	1144	1147	1150	1153	1156	1159	1161	1163	1176									
-1	1	1	1	1	1	1	1				7		633	99000	7	EACH	CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER	1040	
											5264	5264	804	19080	5264	FT	FIBER OPTIC CABLE, ARMORED, 12 FIBER		
											7	7	804	30000	7	EACH	FAN-OUT KIT, 6 FIBER		
											803	803	804	32020	803	FT	DROP CABLE, 6 FIBER		
											7	7	804	33000	7	EACH	FIBER OPTIC PATCH CORD, 4 FIBER		
											7	7	804	34000	7	EACH	TERMINATION PANEL, 6 FIBER		
											28	28	804	35000	28	EACH	FUSION SPLICE		
											6	6	804	36000	6	EACH	SLACK INSTALLATION		
											7	7	804	37000	7	EACH	SPLICE ENCLOSURE		
											7	7	804	38100	7	EACH	FIBER OPTIC CABLE MEDIA CONVERTER, ETHERNET		
							1						815	30001	1	EACH	SPREAD SPECTRUM RADIO, AS PER PLAN	1041	
	1	1	1	1	1	1	1				7		816	30000	7	EACH	VIDEO DETECTION SYSTEM		
	1	1	1	1	1	1	1				7		633	67301	7	EACH	PREEMPTION, SONEM 2000, AS PER PLAN	1041	
	4	4	3	4	3	3	3				24		633	67310	24	EACH	PREEMPTION RECEIVING UNIT, SONEM 2000	1041	
	1	1	1	1	1	1	1				7		633	67350	7	EACH	PREEMPTION PHASE SELECTOR, SONEM 2000	1041	
	1	1	1	1	1	1	1				7		633	74001	7	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), CLARY SP 1250 LX, AS PER PLAN	1041	
											7	7	804	37000	7	EACH	SPLICE ENCLOSURE, SIECOR MODEL UCAO, 3M 2178	1041	
	1	1	1	1	1	1	1				7		816	30000	7	EACH	VIDEO DETECTION SYSTEM, AUTOSCOPE BRAND	1041	
	1	1	1	1	1	1	1				7		633	67301	7	EACH	PREEMPTION, RIGHT-O-WAY, AS PER PLAN	1041	
	4	4	3	4	3	3	3				24		633	67310	24	EACH	PREEMPTION RECEIVING UNIT, RIGHT-O-WAY	1041	
	1	1	1	1	1	1	1				7		633	67350	7	EACH	PREEMPTION PHASE SELECTOR, RIGHT-O-WAY	1041	
	1	1	1	1	1	1	1				7		633	74001	7	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), CLARY SP 1250 LX, AS PER PLAN	1041	
											7	7	804	37000	7	EACH	SPLICE ENCLOSURE, SIECOR MODEL UCAO, 3M 2178	1041	
	1	1	1	1	1	1	1				7		816	30000	7	EACH	VIDEO DETECTION SYSTEM, FLIR SYSTEMS, INC.	1041	

ALTERNATE BID ITEMS

ALTERNATE BID NO. 1 ITEMS

TKI	5/11/16	TRANSCEIVER ITEM REMOVED
REV. BY	DATE	DESCRIPTION
DATE COMPLETED		

CALCULATED	CX	CHECKED	TKI
TRAFFIC SIGNAL GENERAL SUMMARY			
SUM - 76 - 10.00			
1138			
1822			

SHEET NO.	REFERENCE NO.	STATION		SIDE	625	625	625	625	625	625	632	632	633	804	804	804	804	804	804	804	804	804	
		FROM	TO		FT	FT	FT	EACH	EACH	FT	LS	LS	LS	FT	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH
1164	CI	20+17		LT							LS		LS										
1164	IPB1	20+17	20+44	LT	74	37	37		1	37						1							1
1164	IPB2	20+44	22+10	LT	332	166	166	1		166				166									
1165	IPB3	22+10	23+25	LT	230	115	115	1		115				115									
1165	IPB4	23+25	23+90	LT	130	65	65		1	65				65									
1165	IPB5	23+90	25+90	LT	392	196	196	1		196				196									
1165	IPB6	25+90	27+80	LT	362	181	181	1		181				181									
1166	IPB7	27+80	29+70	LT	380	190	190		1	190				190									
1166	IPB8	29+70	31+60	LT	390	195	195	1		195				195									
1166	IPB9	31+60	33+50	LT	390	195	195	1		195				195									
1167	IPB10	33+50	35+08	LT	338	169	169	1		169				169									
1167	IPB11	35+08	36+02	LT	196	98	98		1	98				98		31				4	1	1	
1167	CI	36+02	35+95	LT	22	11	11			11						1			1	1			1
1167	IPB12	36+02	38+00	LT	410	205	205	1		205				205									
1167	IPB13	38+00	38+65	LT	130	65	65	1		65				65									
1167	IPB14	38+65	38+72	LT	92	46	46	1		46				46									
1168	IPB15	38+72	40+61	LT	382	191	191		1	191				191									
1168	IPB16	40+61	42+50	LT	382	191	191	1		191				191									
1168	IPB17	42+50	43+91	LT	282	141	141		1	141				141		29				4	1	1	
1168	CI	43+91	43+98	LT	18	9	9			9						1			1	1			1
1169	IPB18	43+91	46+00	LT	406	203	203	1		203				203									
1169	IPB19	46+00	47+90	LT	370	185	185	1		185				185									
1169	IPB20	47+90	49+80	LT	370	185	185		1	185				185									
1170	IPB21	49+80	51+60	LT	348	174	174	1		174				174									
1170	IPB22	51+60	53+50	LT	376	188	188	1		188				188									
1170	IPB23	53+50	54+94	LT	288	144	144		1	144				144		32				4	1	1	
1170	CI	54+94	54+87	LT	32	16	16			16						1			1	1			1
1170	IPB24	54+94	56+10	LT	252	126	126	1		126				126						4		1	
1170	IPB25	56+10	56+10	LT/RT	222	111	111	1		111										4		1	
1170	IPB26	56+10	115+37 (THORNTON)	RT	118	59	59	1		59													
1171	IPB29	56+10	58+04	LT	368	184	184	1		184				184									
1171	IPB30	58+04	59+94	LT	380	190	190	1		190				190									
1171	IPB31	59+94	261+92	LT	396	198	198		1	198				198									
1172	IPB32	261+92	263+80	LT	394	197	197	1		197				197									
1172	IPB32A	263+80	264+94	LT	240	120	120	1		120				120									
1172	IPB33	264+94	266+12	LT	250	125	125	1		125				125									
1172	IPB34	266+12	266+84	LT	154	77	77		1	77				77		49				4	1	1	
1172	CI	266+84	267+11	LT	58	29	29			29						1			1	1			1
1172	BRIDGE	266+84	267+31	LT	180	90	90			90				90									
1172	IPB35	267+31	11+40 (BARTGES)	RT	254	127	127	1		127				127									
1173	IPB27	115+37 (THORNTON)	117+31.5 (THORNTON)	LT	384	192	192	1		192													
1173	IPB28	117+31.5 (THORNTON)	118+35 (THORNTON)	LT	208	104	104	1		104													
1173	CI	118+35 (THORNTON)	56+39 (BROADWAY)	LT	62	31	31			31						1			1	1			1
1174	IPB36	11+40 (BARTGES)	13+25 (BARTGES)	RT	372	186	186	1		186				186									
1174	IPB37	13+25 (BARTGES)	165+91 (BROADWAY)	RT	116	58	58	1		58				58									
1174	IPB38	165+91	166+85	LT	196	98	98		1	98				98		47				4	1	1	
1174	CI	166+85	167+10	LT	54	27	27			27						1			1	1			1
1174		166+85	167+58.5	LT	81		81			81			LS										
1174		167+58.5	169+38	LT																			
1174		169+38	171+25	LT																			
1175	IPB39	171+25	172+50	LT				1															
1175	IPB40	172+50	172+59	LT	37		37	1		37													
1175	IPB41	172+59	174+32	LT	175		175	1		175													
1175		174+32	176+00	LT																			
1175		176+00	176+60	LT																			
1175		176+60	176+62.5	LT																			
TOTAL CARRIED TO GENERAL SUMMARY SHEET 1137					12073	5890 *	6082	31	11	6082	LS	LS	LS	5264	7	803	7	7	28	6	7	7	
AND TO GENERAL SUMMARY SHEET 1138					17963																		

SYSTEM ANALYSIS, AS PER PLAN

* - DENOTES 04/IMS/OT/Akrn PARTICIPATION

KMK	5/13/16	ITEM 633 - SYSTEMS ANALYSIS CHANGED TO APP
REV. BY	DATE	DESCRIPTION