

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

STA-21-8.98

CITY OF MASSILLON
STARK COUNTY



LOCATION MAP

LATITUDE: N 40°46'05" LONGITUDE: W 81°31'15"

SCALE IN MILES



PORTION TO BE IMPROVED _____
INTERSTATE & DIVIDED HIGHWAY _____
UNDIVIDED STATE & FEDERAL ROUTES _____
OTHER ROADS _____

DESIGN DESIGNATION

	S.R. 21	ERIE ST.
CURRENT ADT (2003)	23,047	15,264
DESIGN YEAR ADT (2023)	37,130	23,848
DESIGN HOURLY VOLUME (2023)	2,970	1,908
DIRECTIONAL DISTRIBUTION	0.50	0.50
TRUCKS (24 HOUR B&C)	11%	6%
DESIGN SPEED	55 MPH	35 MPH
LEGAL SPEED	50 MPH	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION:		
S.R. 21 - URBAN FREEWAY, ERIE ST. - URBAN COLLECTOR		
NHS PROJECT	YES	NO

DESIGN EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:
W.E. QUICKSALL & ASSOCIATES
CIVIL ENGINEERS
NEW PHILADELPHIA, OHIO

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BUILDABLE UNIT #1

ENGINEER'S SEAL:							
SIGNED: _____		STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	
DATE: _____		GR-1.1	7/16/04				800 7/20/07
		GR-2.1	1/16/04				832 4/25/06
		GR-4.2	1/19/07				
ENGINEER'S SEAL:		RM-4.2	10/20/06				
 SIGNED: <i>Danell B. Collins II</i> DATE: <i>1-25-08</i>		MT-95.30	9/05/06				
		MT-95.40	10/20/06				
		MT-95.50	9/05/06				
		MT-97.11	9/05/06				
		MT-101.60	9/20/06				
		MT-101.70	10/18/02				
		MT-105.10	10/18/02				
		MT-105.11	10/18/02				
						SPECIAL PROVISIONS	

PROJECT DESCRIPTION

REPLACE AND WIDEN THE DECK OF THE STA-21-0898
BRIDGE. THE BRIDGE CARRIES ERIE STREET OVER
S.R. 21.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: N/A MAINTENANCE
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A MAINTENANCE
NOTICE OF INTENT EARTH DISTURBED AREA: N/A MAINTENANCE

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR
THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED
ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE
DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF
SECTION 5511.02 OF THE OHIO REVISED CODE.

2005 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 REQUIRE THE
CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DE-
TOURS WILL BE PROVIDED AS INDICATED ON SHEET ____.

APPROVED FOR
CONSTRUCTION
1/25/08

FEDERAL PROJECT NO.
E033(670)

PID NO.
23753

CONSTRUCTION PROJECT NO.
446940

RAILROAD INVOLVEMENT
NONE

STA-21-8.98

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MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2211, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

INTERIM COMPLETION DATE: ALL WORK THAT WILL REQUIRE LANE CLOSURES ON S.R. 21, EXCEPT FOR THOSE IN ACCORDANCE WITH "STOPPAGE OF MAINLINE TRAFFIC (S.R. 21)" NOTE SHALL BE COMPLETED BEFORE JULY 1, 2008. SHOULD THE DBT FAIL TO MEET ANY OF THESE REQUIREMENTS, THE DBT SHALL BE ASSESSED LIQUIDATED DAMAGES IN ACCORDANCE WITH CMS 108.07.

CONES SHALL NOT BE ACCEPTABLE TRAFFIC CONTROL DEVICES FOR LANE RESTRICTIONS OR LANE REDUCTIONS THAT ARE IN OPERATION ONE HALF HOUR AFTER SUNSET OR ONE HALF HOUR BEFORE SUNRISE. ALL NIGHTTIME LANE RESTRICTIONS SHALL REQUIRE DRUMS OR BARRICADES AT A MAXIMUM SPACING OF FIFTY (50) FEET. WEIGHTED CHANNELIZERS MAY BE USED IN ACCORDANCE WITH THE ADDITIONAL NOTE PROVIDED HEREIN.

THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE ALL FLAGS, BARRICADES, SIGNS, SIGN SUPPORTS AND FURNISH AND MAINTAIN ALL FLAGGERS, WATCHERS AND INCIDENTALS RELATED THERETO.

PAYMENT FOR ALL ITEMS REQUIRED BY THE OMUTCD, THE STANDARD CONSTRUCTION DRAWINGS, THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL BE INCLUDED IN THE LUMP SUM PAYMENT FOR ITEM 614, MAINTAINING TRAFFIC AND SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE REQUIRED WORK.

MOT RESTRICTIONS

- SR-21 --- LANE CLOSURES:
- DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AS PER THE PERMITTED LANE CLOSURE CHART. THE PERMITTED LANE CLOSURE CHART USED FOR THIS PROJECT SHALL BE THE MOST CURRENT CHART AVAILABLE ON THE DATE THIS PROJECT SELLS.
 - SHOULD THE DBT FAIL TO MEET ANY OF THE REQUIREMENTS IN THE PERMITTED LANE CLOSURE CHART, THE DBT SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF \$1,250 PER HOUR OR PORTION THEREOF THAT THE LANE REDUCTION REMAINS BEYOND THE SPECIFIED LIMIT.
 - THE PERMITTED LANE CLOSURE CHART CAN BE FOUND AT: [HTTP://PLCM.DOT.STATE.OH.US/](http://PLCM.DOT.STATE.OH.US/)
 - COMPLETE CLOSURE OF SR-21 SHALL ONLY BE PERMITTED ON WEEKENDS FROM 12:00 AM TO 5:00 AM IN ACCORDANCE WITH THE "STOPPAGE OF MAINLINE TRAFFIC" NOTE HEREIN.
 - PERMANENT LANE CLOSURES (CLOSURE FOR MORE THAN 12 HOURS) ON SR-21 WILL NOT BE PERMITTED BETWEEN JULY 1, 2008 AND APRIL 1, 2009. ALL LANE CLOSURES BETWEEN JULY 1, 2008 AND APRIL 1, 2009 WILL HAVE TO BE SHORT-TERM OPERATIONS (12 HOURS OR LESS) AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.

ERIE STREET --- TWO 12'-0" LANES WITH 2'-0" MINIMUM OFFSETS SHALL REMAIN OPEN AT ALL TIMES EXCEPT AS NOTED BELOW:

- EASTBOUND TRAFFIC MAY BE DETOURED FOR A MAXIMUM OF 90 CONSECUTIVE CALENDAR DAYS.
- WESTBOUND MINIMUM LANE WIDTH DURING DETOUR: 10'-0" WITH 6" OFFSETS.
- OFFICIAL (SIGNED) DETOUR ROUTE: SOUTHBOUND SR-21 / US-30 RAMPS / NORTHBOUND SR-21 AS SHOWN ON SHEET NO.---
- THERE IS NO LOCAL DETOUR ROUTE.
- THE DETOUR SIGNING SHALL BE PROVIDED, ERECTED, MAINTAINED AND REMOVED BY THE DBT.
- NO LANE RESTRICTIONS AND/OR CLOSURES SHALL BE MADE DURING 2009.

WEIGHTED CHANNELIZERS

THE WEIGHTED CHANNELIZER SHALL BE PREDOMINATELY ORANGE IN COLOR AND SHALL BE MADE OF A LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIAL. THEY SHALL BE AT LEAST 42 INCHES IN HEIGHT WITH A WEIGHTED BASE. THEY MAY HAVE A "HANDLE" OR LIFTING DEVICE WHICH EXTENDS ABOVE THE 42 INCH MINIMUM HEIGHT.

THE MARKINGS ON THE WEIGHTED CHANNELIZER SHALL BE HORIZONTAL, CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES 6 INCHES WIDE. EACH WEIGHTED CHANNELIZER SHALL HAVE A MINIMUM OF TWO ORANGE AND TWO WHITE STRIPES. ANY NON-RETROREFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES SHALL NOT EXCEED 2 INCHES WIDE. THE WEIGHTED CHANNELIZER SHALL HAVE A 4-INCH MINIMUM WIDTH, REGARDLESS OF ORIENTATION.

ON FREEWAYS AND MULTILANE HIGHWAYS:

- USE OF WEIGHTED CHANNELIZERS ON FREEWAYS AND MULTILANE HIGHWAYS SHALL BE LIMITED TO SHORT-TERM OPERATION, GENERALLY TWELVE HOURS OR LESS, FOR EITHER DAY OR NIGHT. UPON COMPLETION OF WORK WITHIN THE ABOVE NOTED TIME PERIOD, THE WEIGHTED CHANNELIZERS SHALL BE REMOVED. THE WEIGHTED CHANNELIZERS MAY AGAIN BE PLACED ON THE HIGHWAY WHEN THE WORK IS TO RESUME ON THE FOLLOWING DAY OR NIGHT. ANY LANE CLOSURE USING CHANNELIZATION DEVICES, EXPECTED TO REMAIN FOR MORE THAN TWELVE HOURS, SHALL REQUIRE THE USE OF DRUMS OR BARRIERS.
- WHEN USED AT NIGHT, WEIGHTED CHANNELIZERS SHALL ONLY BE PLACED IN THE "TANGENT AREA". THE "TANGENT AREA" IS DEFINED AS THE AREA AFTER THE TRANSITION TAPER WHERE THE WORK TAKES PLACE. DRUMS SHALL BE USED IN THE TRANSITION TAPERS FOR NIGHT OPERATIONS.

ON OTHER HIGHWAYS:

- THERE ARE NO DURATIONS OF WORK RESTRICTIONS FOR USE OF WEIGHTED CHANNELIZERS ON ALL OTHER TYPES OF HIGHWAYS, DAY OR NIGHT. ON THESE ROADWAYS THE WEIGHTED CHANNELIZER MAY BE USED IN THE TRANSITION TAPERS AS WELL AS IN THE TANGENT AREAS, DAY OR NIGHT.

MAXIMUM SPACING OF THE WEIGHTED CHANNELIZER SHALL BE 40 FEET.

STEPS SHOULD BE TAKEN TO ENSURE THAT THE WEIGHTED CHANNELIZERS WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. BALLASTS SHOULD NOT PRESENT A HAZARD IF THE WEIGHTED CHANNELIZERS ARE INADVERTENTLY STRUCK, NOR SHOULD THEY AFFECT THE VISIBILITY OF THE WEIGHTED CHANNELIZERS. ALL BALLASTS USED SHOULD BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

DETOUR NOTIFICATION (ERIE STREET)

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-786-3148) EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL DEVICES NECESSARY TO DEFINE THE ROUTE OF THE DETOUR AND SHALL MAINTAIN THE SAME THROUGHOUT THE DETOUR LIMITATION DATES. ALL WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED, OTHER THAN FOR THE DETOUR, SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. PAYMENT FOR ALL WORK AND MATERIALS REQUIRED TO ACCOMPLISH THIS TASK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

DETOUR DURATION (ERIE STREET)

THE MAXIMUM LENGTH OF TIME FOR THE DETOUR ROUTE TO BE IN EFFECT SHALL BE 90 CONSECUTIVE DAYS. CONSTRUCTION WORK MAY BE PERFORMED BEFORE AND AFTER THE DETOUR LIMITATION DATES, BUT THERE SHALL BE NO RESTRICTIONS (LANE WIDTH REDUCTIONS, TEMPORARY ROADWAYS, OR ONE WAY TRAFFIC) TO THROUGH OR LOCAL TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE AND PERFORM THE CONSTRUCTION WORK WITHIN THE DETOUR LIMITATION TIME. THE FAILURE OF THE CONTRACTOR TO MEET THE DETOUR LIMITATION DATES WILL CAUSE SEPARATE LIQUIDATED DAMAGES IN ACCORDANCE WITH 108.07 TO BE ASSESSED. THE CONTRACTOR WILL COMPLY WITH ALL PROVISIONS OF 108.07 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

WINTER TRAFFIC LIMITATIONS

ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC BETWEEN NOVEMBER 15 AND APRIL 1. NOVEMBER 14 SHALL BE CONSIDERED TO CONSTITUTE AN INTERIM COMPLETION DATE AND LIQUIDATED DAMAGES AS SPECIFIED IN 108.07 SHALL BE ASSESSED FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. THE CONTRACTOR MAY CLOSE LANES PRIOR TO APRIL 1 WITH WRITTEN APPROVAL FROM THE DISTRICT CONSTRUCTION ENGINEER.

CONTRACTOR'S EQUIPMENT - OPERATION AND STORAGE

A QUALIFIED FLAGGER SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT. PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OPERATIONS ARE SCHEDULED TO CONTINUE WITHIN THE NEXT WORKDAY. OTHERWISE, THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE THE R/W, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE PLACED AND DELINEATED AS PER 614.03. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA. NO EQUIPMENT SHALL BE PARKED ON PRIVATE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROJECT ENGINEER/SUPERVISOR HAS BEEN GRANTED.

LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING TASKS:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.
- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION.

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

CANTON PATROL POST
4710 SHUFFEL ROAD
NORTH CANTON, OH 44720
PHONE: 330-433-6200

IF AFTER CONTACTING THE OHIO HIGHWAY PATROL, IT IS DETERMINED THAT THEY CANNOT SUPPLY THE LEO, THEN AN AUTHORIZED MUNICIPAL OR COUNTY POLICE OFFICER WITH A MARKED AND FLASHER-LIGHT EQUIPPED OFFICIAL POLICE OR PATROL CAR SHALL BE PROVIDED.

LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A LUMP SUM BASIS UNDER ITEM 614 MAINTAINING TRAFFIC. THE HOURS PAID SHALL INCLUDE MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

APPROVED FOR
CONSTRUCTION
1/25/08

PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, 2 PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS), ON SITE, FOR THE DURATION OF TIME SPECIFIED IN THIS NOTE, EACH SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE DIRECTOR. THIS LIST IS AVAILABLE ON THE ODOT WEBSITE AT [HTTP://WWW.DOT.STATE.OH.US/TESTLAB/APPLISTS/MISC/PCMS.HTM](http://www.dot.state.oh.us/testlab/applists/misc/pcms.htm). THE CLASS 1 UNITS SHALL HAVE A MINIMUM LEGIBILITY DISTANCE OF 1250 FEET.

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. PCMS TRAILERS SHOULD BE DELINEATED ON A PERMANENT BASIS BY AFFIXING RETROREFLECTIVE MATERIAL, IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

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 PCMS SHOULD NOT BE LOCATED IN THE MEDIAN OF THE HIGHWAY UNLESS IT IS PROTECTED FROM BOTH DIRECTIONS OF TRAFFIC. THE PCMS SHOULD BE LOCATED BEHIND GUARDRAIL WHEREVER POSSIBLE. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE THE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE HIGH INTENSITY YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE 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 CONTRACTOR. A LIST OF ALL PROPOSED PREPROGRAMMED MESSAGES WILL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SIGN SHALL HAVE TWO DIFFERENT MEMORIES (PROM AND RAM) AND CAPABILITY TO STORE UP TO 99 MESSAGES IN EACH MEMORY. 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. IN ORDER TO CONVEY A MAXIMUM OF INFORMATION AT A SINGLE GLANCE, ONLY THREE LINE PRESENTATION FORMATS WITH A MAXIMUM OF SIX MESSAGE PHASES WILL BE PERMITTED. NORMALLY, ONLY A MAXIMUM OF THREE MESSAGE PHASES SHOULD BE EMPLOYED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST ONCE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DE-ACTIVATED 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, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

(CONTINUED...)

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 AND THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES. 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 INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

PORTABLE CONCRETE BARRIER, 32"

THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 32" PORTABLE CONCRETE BARRIER AT THE LOCATIONS PROVIDED IN THE PLAN. FOR DETAILS, SEE STANDARD CONSTRUCTION DRAWING RM-4.2.

PORTABLE CONCRETE BARRIER, 32" HIGH, WITH AN 18" MINIMUM HEIGHT GLARE SCREEN MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE GLARE SCREEN SHALL BE CONSTRUCTED USING ONE (1) OF THE APPROVED SYSTEMS LISTED ON ODOT'S WEBSITE AT [HTTP://WWW.DOT.STATE.OH.US/TESTLAB/APPLISTS/MISC/GLARESCREEN.HTM](http://www.dot.state.oh.us/testlab/applists/misc/glarescreen.htm).

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 THE BARRIER CURVATURE.

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

PORTABLE CONCRETE BARRIER WHICH HAS BEEN DAMAGED BEYOND REPAIR BY TRAFFIC SHALL BE REPLACED BY THE CONTRACTOR WITHIN TWENTY FOUR (24) HOURS OF THE INCIDENT WHICH CAUSED THE DAMAGE. REPLACEMENT BARRIER SHALL BE AS PER SECTION 622.04 OF THE SPECIFICATIONS.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THIS WORK AND SHALL BE PAID FOR ON A LUMP SUM BASIS UNDER ITEM 614 MAINTAINING TRAFFIC.

BARRIER REFLECTORS AND OBJECT MARKERS

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO THE APPROPRIATE PROPOSAL NOTE AND CMS 626 EXCEPT THAT THE SPACING SHALL BE 25 FEET. PAYMENT FOR ALL WORK AND MATERIALS REQUIRED TO ACCOMPLISH THIS TASK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

NOTICE OF CLOSURE SIGNS

THESE 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. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON ROADWAYS THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. ON RAMP THE SIGNS MAY BE ERECTED ANYWHERE ALONG IT; AS LONG AS THE SIGNS ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMP THE SIGNS MAY BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING THE MOTORISTS.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS, INCLUDING SUPPORTS.

COVERING OF SIGNS

WHERE THE PLANS CALL FOR A PERMANENT SIGN TO BE COVERED, THE CONTRACTOR SHALL DO SO IN SUCH A MANNER AS TO AVOID DAMAGING THE PERMANENT SIGN WHEN THE COVER IS REMOVED. THE COVER SHALL BE TOTALLY OPAQUE. THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO A SIGN FACE IS STRICTLY PROHIBITED. THE CONTRACTOR SHALL PROVIDE ALL OF THE "CLOSED" PLAQUES NECESSARY.

STOPPAGE OF MAINLINE TRAFFIC (S.R. 21)

ANY TIME TRAFFIC MUST BE COMPLETELY STOPPED ON A FREEWAY OR INTERSTATE, IT SHALL BE DONE IN THE FOLLOWING MANNER: THE COMPLETE TRAFFIC STOPPAGE ON ALL LANES OF ANY DIRECTIONAL ROADWAY SHALL BE NO MORE THAN 10 MINUTES IN ANY ONE CONSECUTIVE 30 MINUTE PERIOD.

A MINIMUM OF TWO (2) LAW ENFORCEMENT OFFICERS (LEO) WITH PATROL CARS SHALL BE USED TO PACE MOTORISTS TO A STOP. THERE SHALL BE ONE LEO FOR EACH LANE ON THE FREEWAY.

AFTER TRAFFIC HAS BEEN SLOWED, ONE (1) PATROL CAR SHALL TRAVEL ALONG THE ROADWAY SHOULDER 500 FEET BEHIND THE BACKUP OF STOPPED VEHICLES. WHERE STOPPAGE OCCURS IN THE VICINITY OF FREEWAY ENTRANCES, THE CONTRACTOR SHALL PLACE FLAGGERS ON THE RAMPS TO STOP TRAFFIC. PATROL CARS SHALL HAVE FLASHING BEACONS TO PROVIDE ADEQUATE VISIBILITY TO APPROACHING MOTORISTS.

THE CONTRACTOR/PERMITTEE SHALL ERECT AND MAINTAIN "ROAD WORK AHEAD" (W20-1-48) ONE MILE AHEAD OF THE STOP LOCATION, "PREPARE TO STOP" (W3-H5-48) 1/4 MILE AHEAD OF THE STOP LOCATION, AND "STOP AHEAD" (W3-1A-48) SIGNS 1/4 MILE AHEAD OF THE STOP LOCATION. EACH SIGN SHALL BE EQUIPPED WITH A TYPE B FLASHING BARRICADE WARNING LIGHT IN ACCORDANCE WITH SECTION 7G-6 OF THE OMUTCD.

A PORTABLE CHANGEABLE MESSAGE SIGN, TYPE TO BE ON ODOT'S PREAPPROVED LIST, SHALL BE PLACED 1.5 TO 2 MILES IN ADVANCE OF THE CLOSURE OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER/PERMIT OFFICE AND THE ODOT PUBLIC INFORMATION OFFICE, 330-786-2211, THREE (3) DAYS PRIOR TO ANY MAINLINE TRAFFIC STOPPAGE.

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

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

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CONSTRUCTION
1/25/08

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MAINTENANCE OF TRAFFIC GENERAL NOTES

CALCULATED
SAH
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WORK ZONE RAISED PAVEMENT MARKERS (ASPHALT)

WORK ZONE RAISED PAVEMENT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 614 OR CMS 621 AS SPECIFIED HEREIN. RAISED PAVEMENT MARKERS IN USE DURING THE SNOW-PLOWING SEASON SHALL CONFORM TO 621. RAISED PAVEMENT MARKERS IN USE DURING THE NON-SNOW-PLOW SEASON SHALL CONFORM TO EITHER 614 OR TO 621.

THE SNOW-PLOWING SEASON SHALL RUN FROM NOVEMBER 1 THROUGH MARCH 30.

IF PROJECT DELAYS, NOT THE FAULT OF ODOT, CAUSE THE WORK TO EXTEND INTO THE SNOW-PLOWING SEASON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WORK ZONE RAISED PAVEMENT MARKERS (WZRPMS) CONFORMING TO CMS 614, WITH RAISED PAVEMENT MARKERS CONFORMING TO 621, AS DETERMINED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

THIS ITEM SHALL INCLUDE PURCHASE, INSTALLATION AND REMOVAL OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN, INCLUDING FILLING OF ANY DEPRESSIONS CREATED IN THE PAVEMENT AS PER CMS 202.10.

RESURFACING OF THE TRANSITION AREAS SHALL BE PERFORMED AT THE TIME THAT THE SURFACE COURSE IS BEING APPLIED TO THE ENTIRE PROJECT. PRIOR TO APPLICATION OF THE SURFACE COURSE ON THE PROJECT, THE SURFACE COURSE OF THE EXISTING PAVEMENT WITHIN THE TRANSITION AREA SHALL BE REMOVED TO A DEPTH EQUIVALENT TO THE DEPTH OF THE PROPOSED SURFACE COURSE, AS DETERMINED BY THE ENGINEER.

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

WORK ZONE RAISED PAVEMENT MARKERS ON CONCRETE SURFACES

RAISED PAVEMENT MARKERS IN WORK ZONES, INSTALLED ON TO CONCRETE SURFACES, SHALL BE ITEM 614 WORK ZONE RAISED PAVEMENT MARKERS. WZRPMS ARE INTENDED FOR USE ONLY DURING THE NON-SNOW-PLOWING SEASON. WZRPMS SHALL NOT BE PROVIDED DURING THE SNOW-PLOWING SEASON.

THE SNOW-PLOWING SEASON SHALL RUN FROM NOVEMBER 1 THROUGH MARCH 30.

WHERE A TEMPORARY ALIGNMENT WILL REMAIN IN USE THROUGH THE WINTER, THE WZRPMS SHALL BE REMOVED PRIOR TO THE BEGINNING OF THE SNOW-PLOWING SEASON AND REPLACED APPROXIMATELY APRIL 1, OR AS OTHERWISE DETERMINED BY THE ENGINEER.

THIS ITEM SHALL INCLUDE PURCHASE, INSTALLATION AND REMOVAL OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKERS.

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

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1. THE QUADGUARD CZ, (24 INCHES WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9". INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/REVISION DATE	ODOT APPROVAL DATE
QSCZCVR-T4	QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES	5/13/99 REV. J	8/27/99
35-40-10	QUADGUARD SYSTEM CONCRETE PAD, CZ, QG	11/19/97 REV. D	8/27/99
35-40-16	QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG	7/30/99 REV. F	8/27/99
354051Z	QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36	5/17/99	8/27/99
35-40-18	TRANSITION ASSEMBLY, 4 OFFSET, QG	6/25/99 REV. F	8/27/99
35400260	QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY	11/19/97 REV. C	8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" LONG AND 2'-7" WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/REVISION DATE	ODOT APPROVAL DATE
SS450	CRASH-CUSHION ATTENUATING TERMINAL	3/12/99 REV. 1	8/27/99
SS455	TRACC TRANSITION TO W-BEAM MEDIAN	2/18/99	8/27/99
SS461	TRACC TRANSITION TO CONCRETE SAFETY	6/30/99 REV. 1	8/27/99
SS462	TRACC TRANSITION TO CONCRETE BARRIER	6/30/99	8/27/99

3. THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515, (TELEPHONE 330-799-9291)

THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT (24' LONG AND 35" WIDE). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/REVISION DATE	ODOT APPROVAL DATE
A040416	UNIVERSAL TAU-II PARTS LIST	4/22/04	10/16/04
A040420	UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNTED BACKSTOP	4/28/04	10/16/04
A040105	UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)	1/07/04	10/16/04
B040239	APPLICATION, FLUSH MOUNTED BACKSTOP (TYPICAL FOR PARALLEL 60MPH UNIT)	4/21/04	10/16/04

(CONTINUED...)

4. THE GREAT CZ IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC.

THIS ATTENUATOR MAY BE USED UNTIL JANUARY 1, 2007 IF THE ITEM WAS PURCHASED BEFORE OCTOBER 1, 1998 AND IS IN THE CONTRACTOR'S INVENTORY.

THE CONTRACTOR SHALL PROVIDE A REPLACEMENT UNIT WHEN AN IMPACT IS SEVERE ENOUGH TO REQUIRE COMPLETE REPLACEMENT OF THE ATTENUATOR. THE CONTRACTOR SHALL HAVE A SPARE PARTS PACKAGE AVAILABLE ON THE PROJECT SITE AT ALL TIMES WHEN AN ATTENUATOR IS IN PLACE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE COMPLETE SPARE PARTS PACKAGE FOR EVERY ONE TO SIX UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, FIVE INSTALLED UNITS REQUIRE ONE SPARE PARTS PACKAGE AND SEVEN INSTALLED UNITS REQUIRE TWO SPARE PARTS PACKAGES.

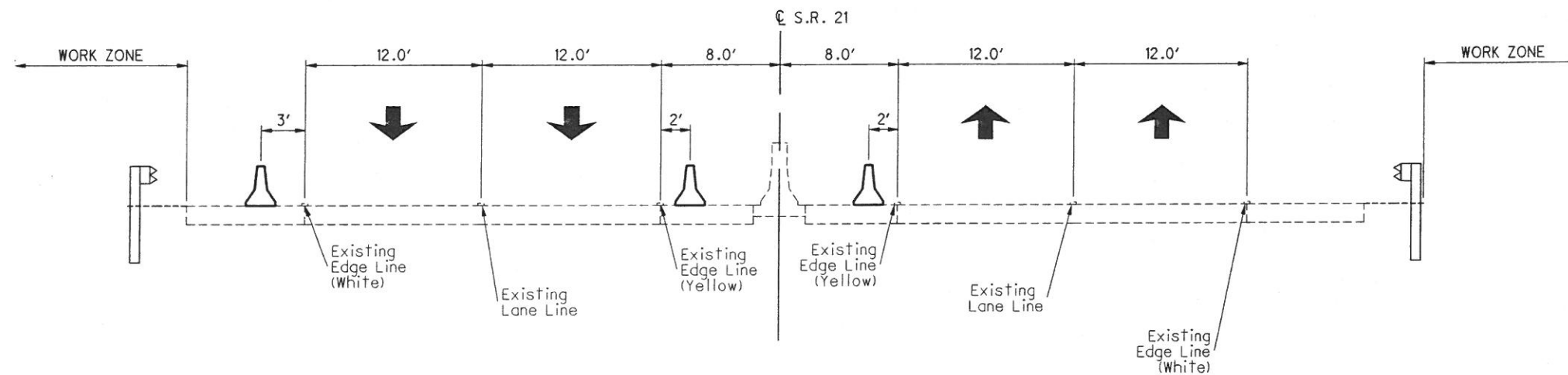
WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT, MAINTAIN AND REPAIR A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE WITH AND COORDINATE HIS OPERATIONS PER CMS SECTION 105.08 WITH THE CONTRACTOR FOR PROJECT STA-21-8.25/12.39 WHICH WILL BE UNDER CONSTRUCTION CONCURRENTLY. ALL COORDINATION ISSUES SHALL BE BROUGHT TO THE ATTENTION OF AND RESOLVED WITH THE APPROVAL OF THE PROJECT ENGINEER.

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CONSTRUCTION
1/25/08

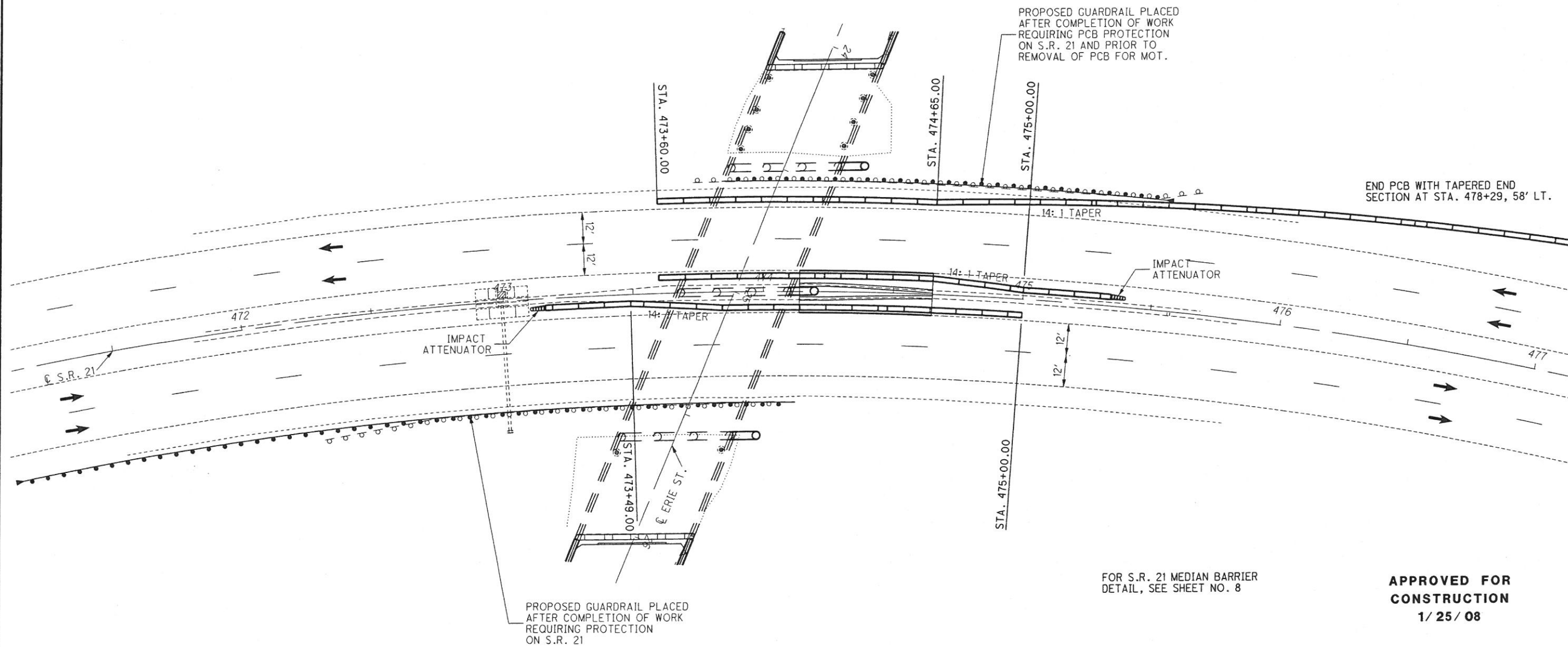
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S.R. 21 - PHASING TYPICAL
NON-WORK ZONE ACTIVITIES AND
NIGHTTIME TREATMENT

APPROVED FOR
CONSTRUCTION
1/25/08

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FOR S.R. 21 MEDIAN BARRIER
DETAIL, SEE SHEET NO. 8

**APPROVED FOR
CONSTRUCTION**
1/25/08

NOTES:

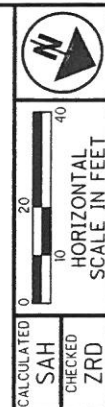
TRAFFIC WILL BE MAINTAINED DURING DAILY WORK ZONE
ACTIVITIES PER STD DWG MT-95.40 AND MT-95.50.

TRAFFIC WILL BE MAINTAINED DURING NON-WORK ZONE
ACTIVITIES AND OVERNIGHT AS DETAILED ON THIS SHEET.
PROVIDE ADVANCED WARNING SIGNS FOR SHOULDER WORK
<W21-5-48> IN COMBINATION WITH APPROPRIATE SIGNING
FROM STD DWG MT-95.40 AND MT-95.50.

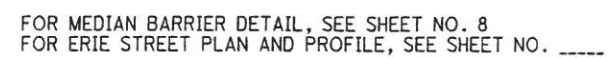
MAINTENANCE OF TRAFFIC DETAIL
S.R. 21

STA-21-8.98

6

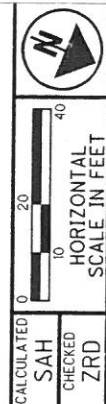


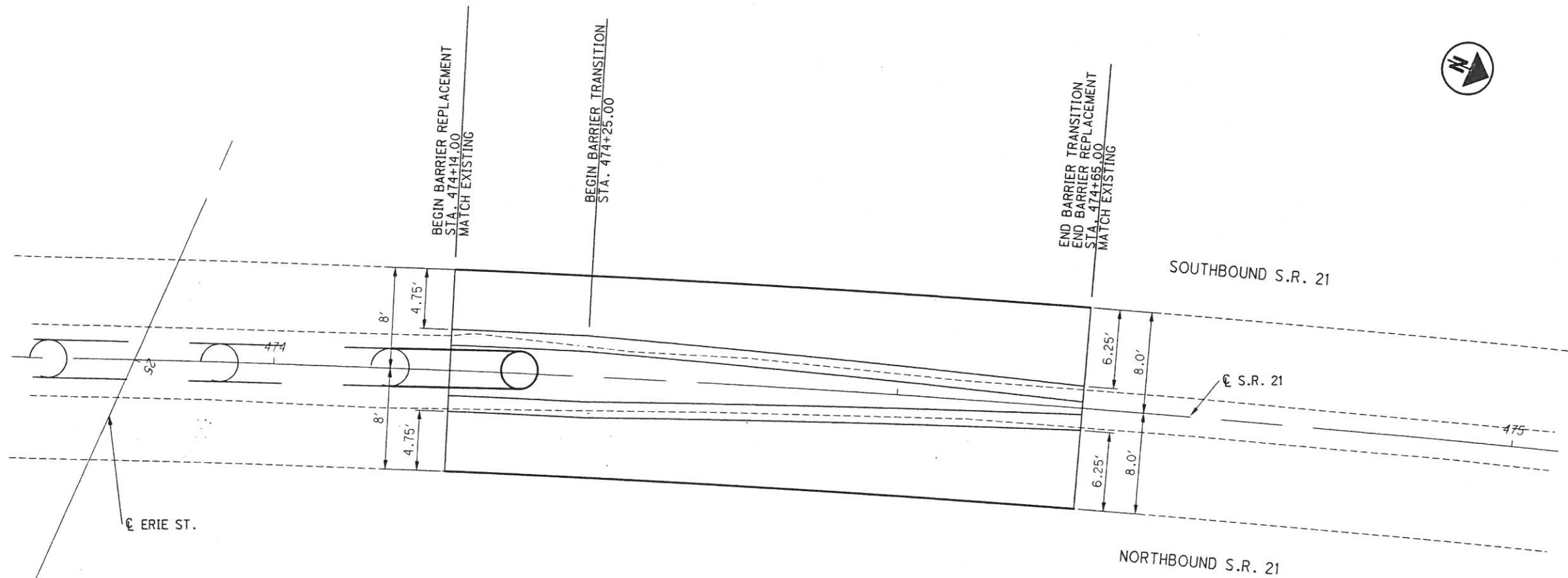
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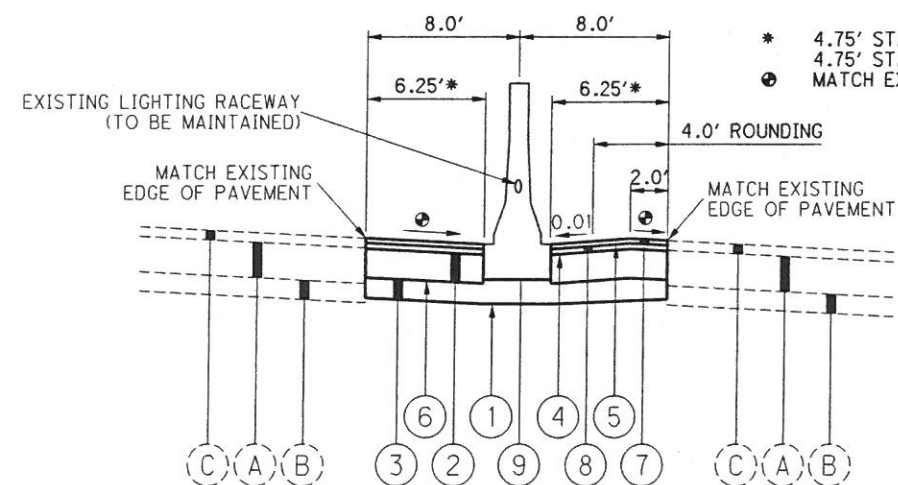
ROADWAY PLAN SHEET
S.R. 21





PROPOSED LEGEND

- ① ITEM 204 - SUBGRADE COMPACTION
- ② ITEM 301 - 9" ASPHALT CONCRETE BASE, PG 64-22
- ③ ITEM 304 - 6" AGGREGATE BASE, AS PER PLAN
- ④ ITEM 407 - TACK COAT (APPLIED AT 0.075 GAL./S.Y.)
- ⑤ ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (APPLIED AT 0.040 GAL./S.Y.)
- ⑥ ITEM 408 - PRIME COAT (APPLIED AT 0.40 GAL./S.Y.)
- ⑦ ITEM 448 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22
- ⑧ ITEM 448 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
- ⑨ ITEM 622 - CONCRETE BARRIER, TYPE B1



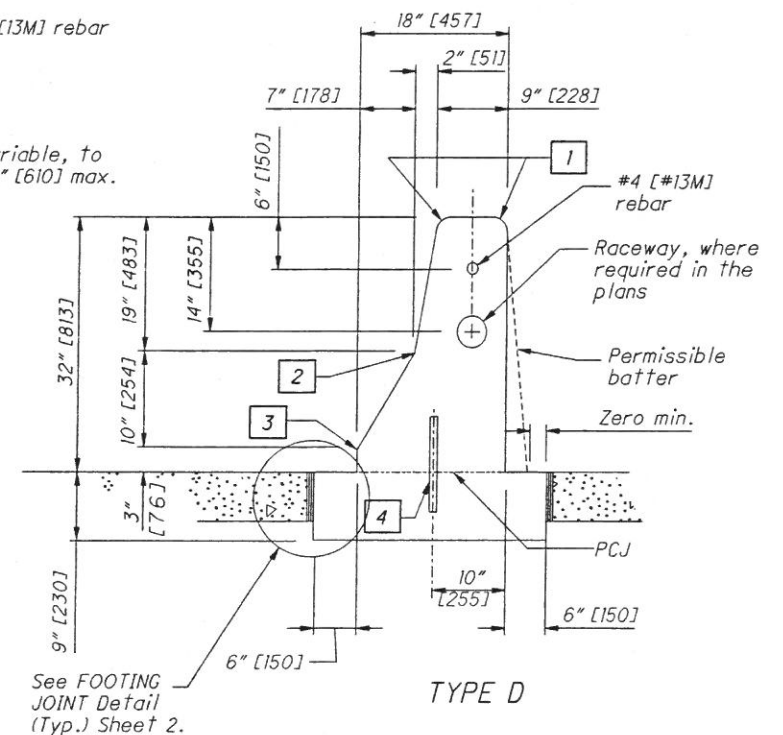
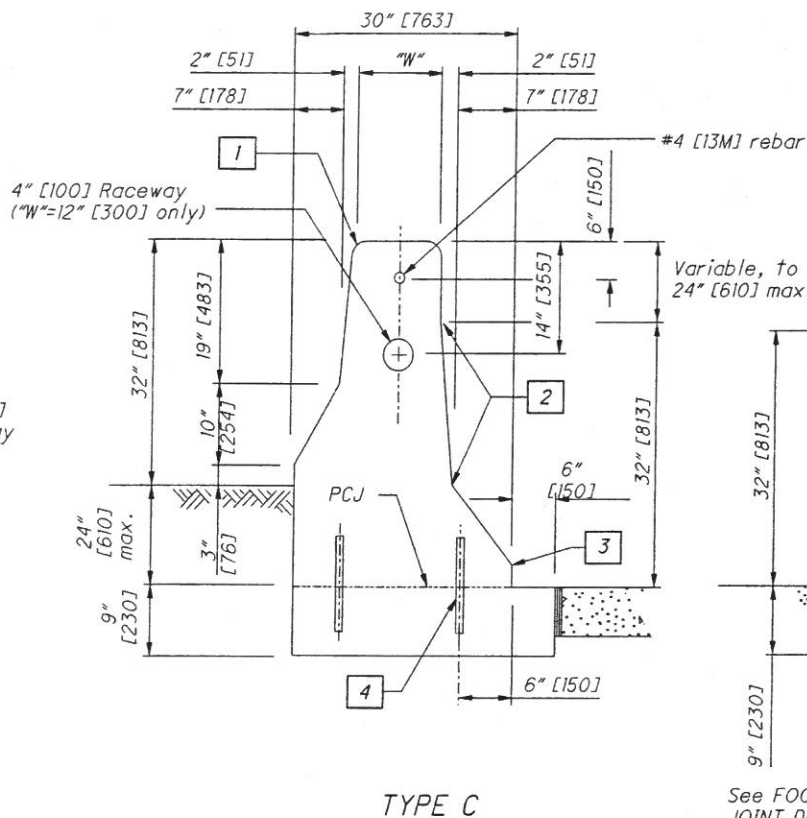
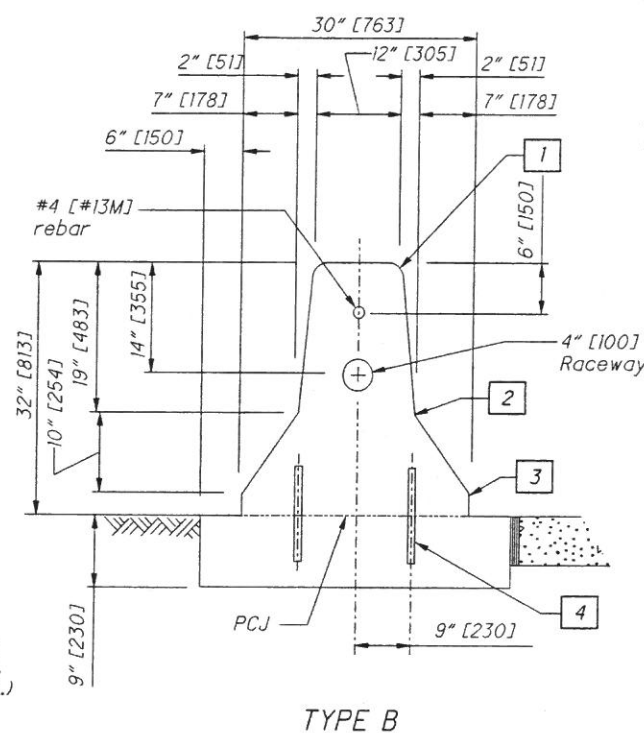
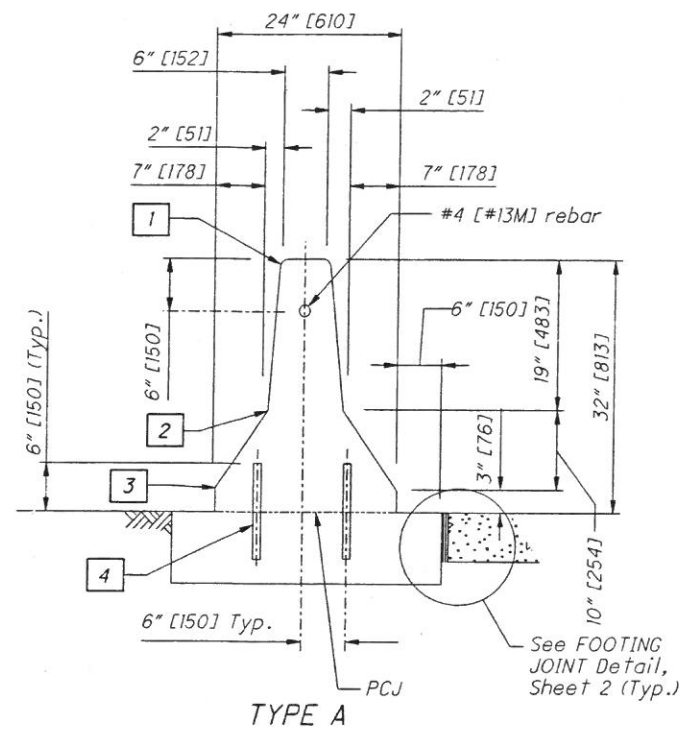
**APPROVED FOR
CONSTRUCTION
1/25/08**

EXISTING LEGEND

- (A) EXISTING 9"± REINFORCED CONCRETE PAVEMENT
- (B) EXISTING 6"± AGGREGATE BASE
- (C) EXISTING 3"± ASPHALT CONCRETE

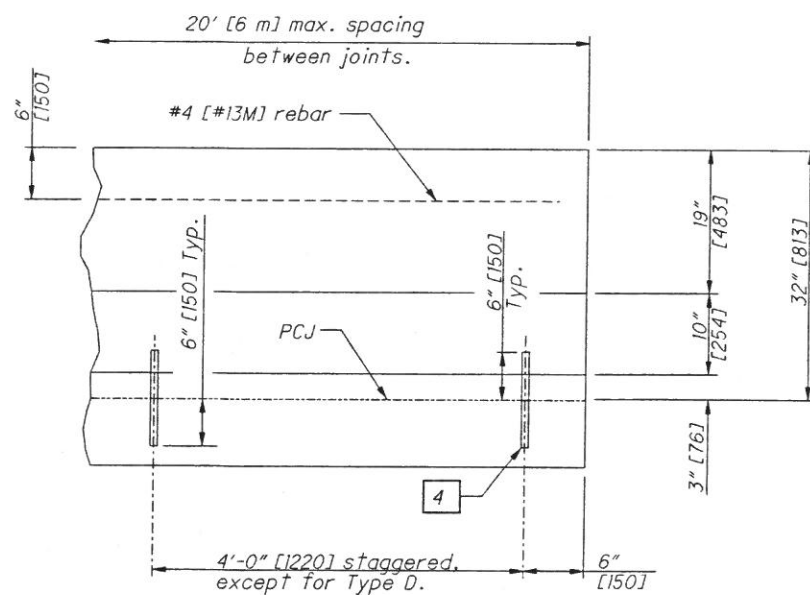
**S.R. 21 MEDIAN BARRIER DETAIL
STA. 474+14.00 TO STA. 474+65.00**

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NORMAL 32 INCH SECTIONS

"W" = 6" [152] or 12" [305] barrier width, as specified in the plans.



32" [813-mm] BARRIER
BARRIER ELEVATION

JOINTS: Unsealed contraction joints spaced at 20' [6 m] maximum shall be constructed throughout the run of Concrete Barrier except that expansion joints shall be used at the center line of and around each bridge pier column and on either side of overhead sign supports, inlets and light pole foundations. If the inlet top is slip formed, the expansion joints adjacent to it may be omitted.

Contraction joints may be constructed with metal inserts inside the forms, preformed full width joint filler, a grooving tool, or by sawing. Inserts, tooled joints, and sawed joints shall have a 3" [75] minimum depth. All joints shall be constructed for the full height of the barrier including the footing. Sawing shall be done as soon as curing will allow, to prevent spalling.

FOOTING JOINTS: The vertical walls between the barrier footing and a concrete pavement or concrete base shall be provided with a sealed joint as shown on Sheet 2. Sealing material shall conform to CMS 705.04.

PCJ = Permissible Construction Joint

MEASUREMENT: Item 622, Concrete Barrier, including transitions and pier sections as detailed on the New Jersey Shape Barrier Transition drawing, is paid for in linear feet [meters] as one of the four types (A, B, C or D) or as Type A1 and B1, (for 50" [1270] high barrier), with appropriate deductions for other items such as:

Item 604 - I-3 Median Inlet	20 Lin. Ft. [6 Meters].
Item 625 - Light Pole Foundation or Pullbox	2.5 Lin. Ft. [1 Meter].
Item 630 - Overhead Sign Support Foundation	10 Lin. Ft. [3 Meters].
Item 630 - Barrier Wall Assembly	10 Lin. Ft. [3 Meters].

NOTES

TRANSITIONS: Linear transitions between the different types of barrier detailed on this Standard Drawing shall occur between contraction joints spaced no closer than 10' [3 m].

RACEWAY: The contractor shall ensure that the electrical raceway is clear of internal obstructions. Cost of the 4" [100] polyvinyl chloride raceway and No. 10 AWG copper-clad or aluminum-clad wire if needed for future installation of circuits shall be included in the unit cost per Linear Foot [Meter] for Item 622 - Concrete Barrier, Type ----.

STATION MARKING: The Station marking shall be impressed in the "green" concrete on both sides at the top of the barrier if specified in the plans. The cost shall be incidental to the unit cost per Linear Foot [Meter] bid for Item 622 - Concrete Barrier, Type ----.

REFLECTORIZATION: Barrier reflectorization shall be installed in accordance with CMS 626.

LEGEND

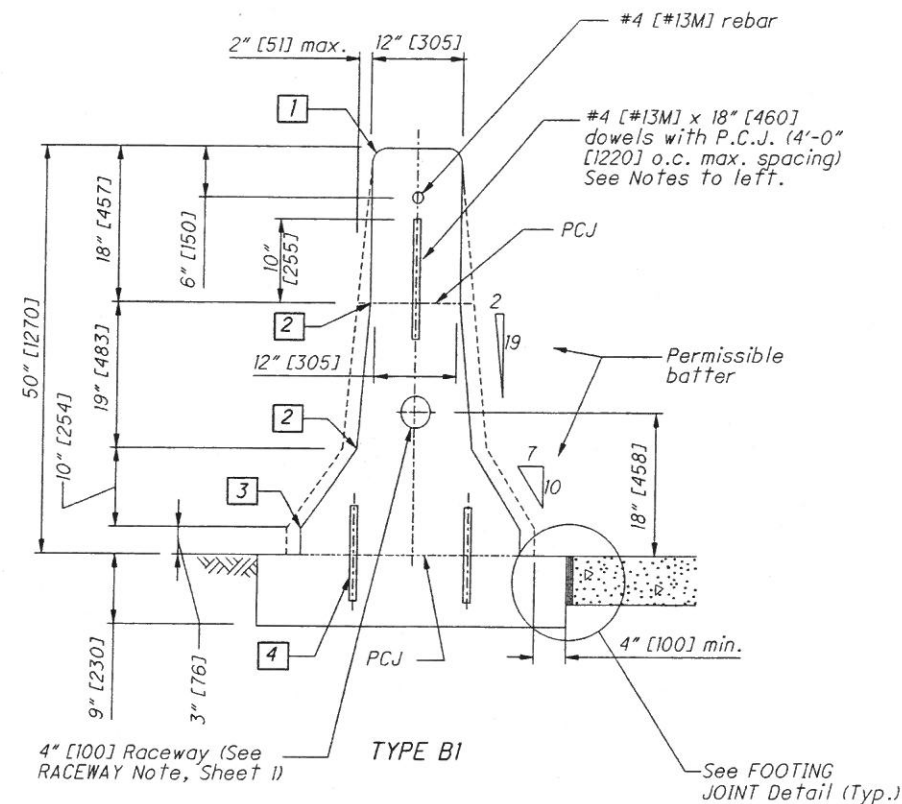
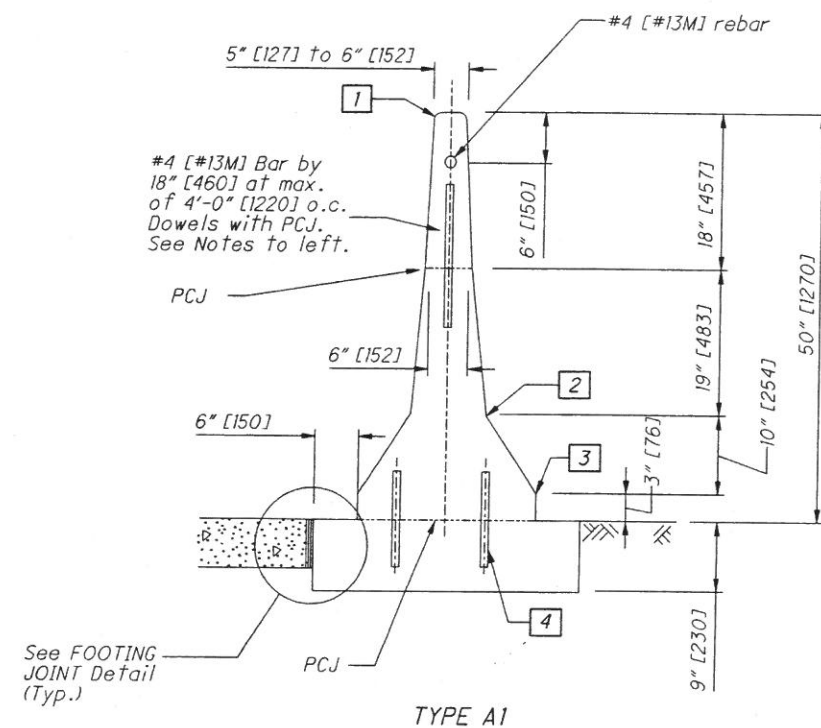
- 1 1" [25] radius or 3/4" [19] chamfer.
- 2 Permissible 10" [250] radius.
- 3 Permissible 1" [25] radius.
- 4 #8 [25M] epoxy coated Deformed Steel Bars, 1'-0" [305] long, spaced 4'-0" [1220] between successive Bars on a staggered pattern except in Type D. Omit Dowels when the top is constructed integrally with the Base.

**APPROVED FOR
CONSTRUCTION**
1/25/08



All metric dimensions (in brackets []) are in millimeters unless otherwise noted.

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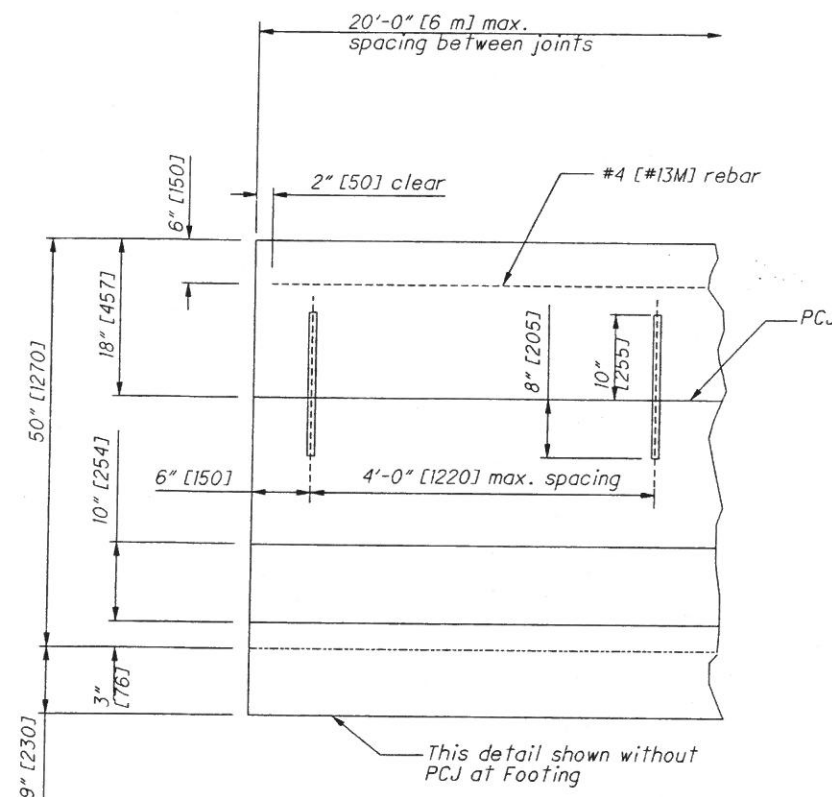


50" [1270-mm] BARRIERS - TYPICAL SECTIONS

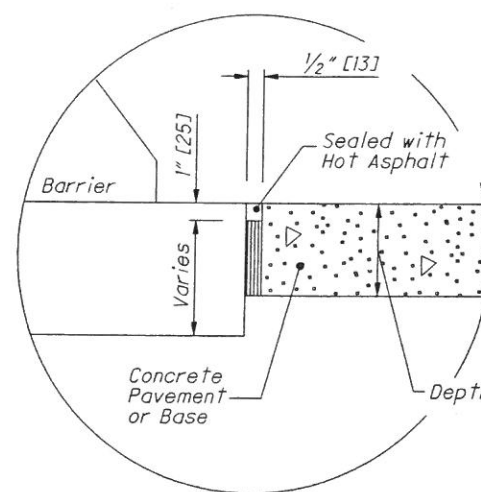
See Type A and Type B Normal Section Details (Sheet 1) for dimensions that are not shown.



All metric dimensions (in brackets []) are in millimeters unless otherwise noted.



50" [1270-mm] BARRIER
BARRIER ELEVATION



FOOTING JOINT DETAIL
See FOOTING NOTE on Sheet 1.

NOTES

50" [1270-mm] BARRIER: High barrier shall be built in locations specified in the plans. Construct the lower 32" [813] of the barrier base using the same dimensions as shown in the corresponding Normal Section on Sheet 1. The upper 18" [457] may be constructed integrally with the bottom, or separately with #4 [#13M] rebar dowels at 4'-0" [1220] maximum spacing.

Start and end dowels 6" [150] from barrier contraction joints.

LEGEND

- 1" [25] radius or 3/4" [19] chamfer.
- Permissible 10" [250] radius.
- Permissible 1" [25] radius.
- #8 [#25M] epoxy coated deformed Steel Bars, 1'-0" [305] long, spaced 4'-0" [1220] between successive Bars on a staggered pattern except in Type D. Omit Dowels when the Top is constructed integrally with the Base.

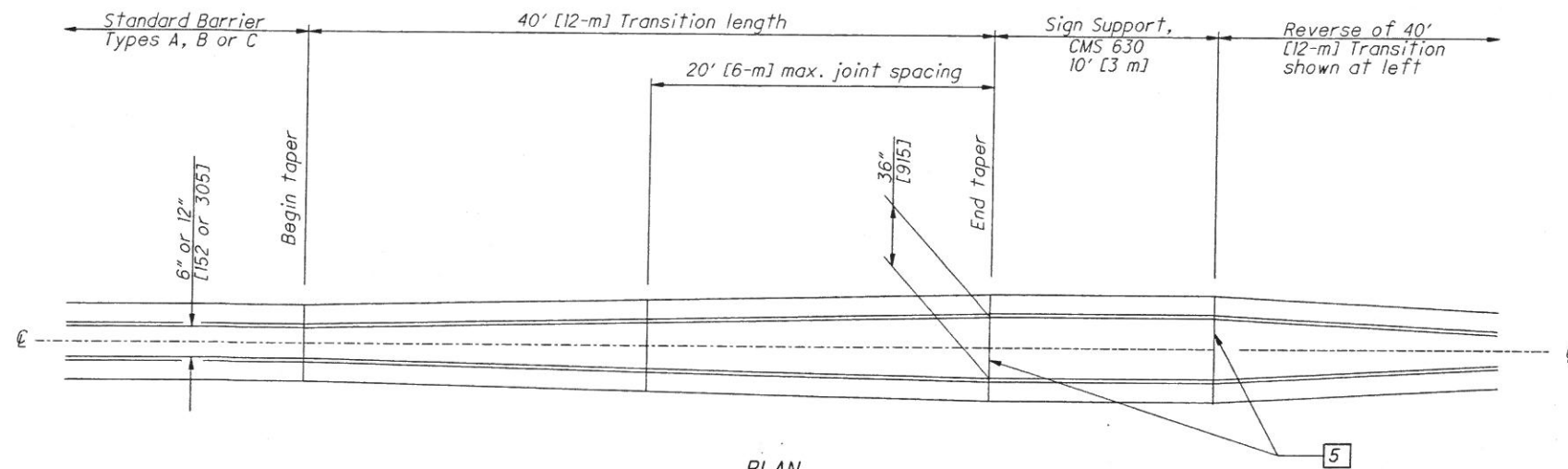
APPROVED FOR
CONSTRUCTION
1/25/08

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NEW JERSEY SHAPE CONCRETE BARRIER

CALCULATED
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PDL

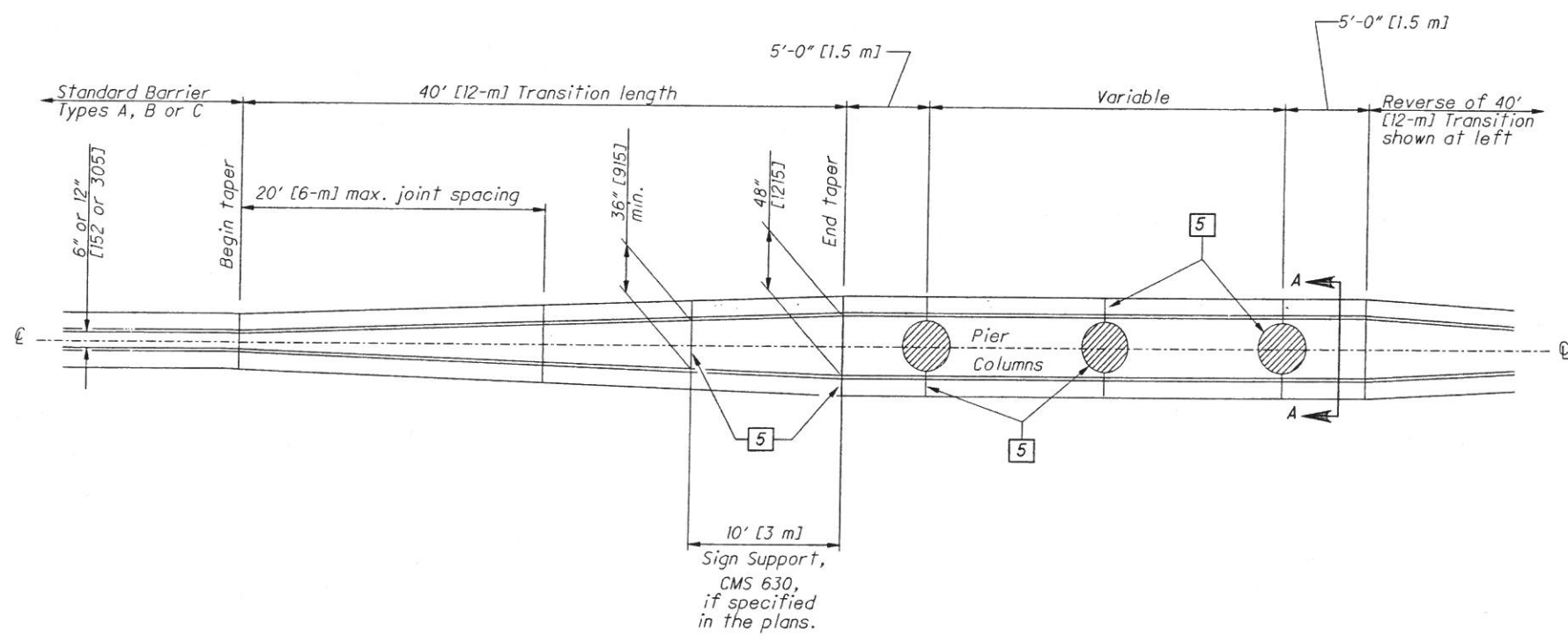
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PLAN

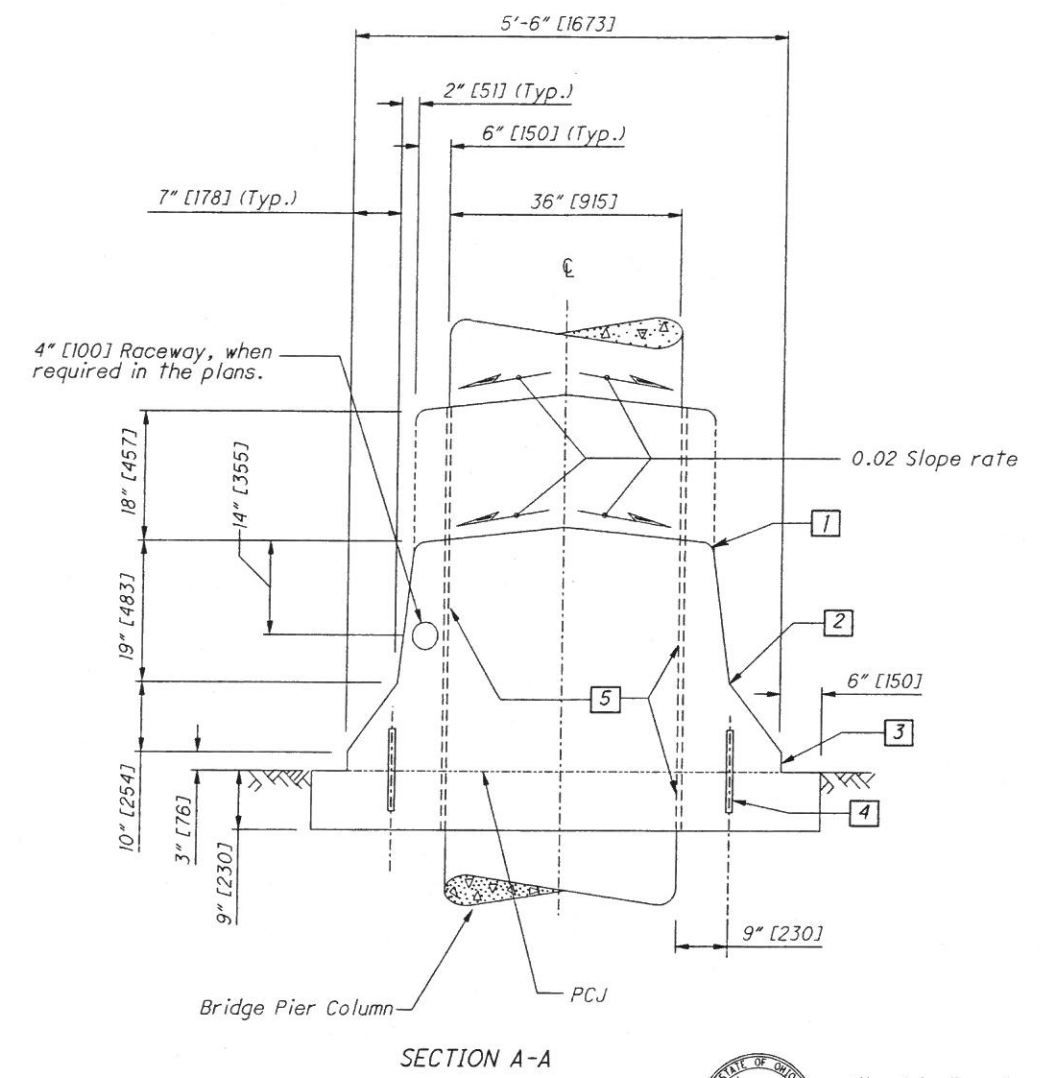
SIGN SUPPORT TRANSITION

(For 50" [1270] Barriers, the upper 18" [457] varies from 6" or 12" [152 or 305] to 36" [915] in width.)



PLAN

BRIDGE PIER TRANSITION
(With Sign Support)



SECTION A-A



All metric dimensions (in brackets []) are in millimeters unless otherwise noted.

NOTES

STANDARD BARRIERS: Types A, B, and C Concrete Barriers shall be constructed as shown on the New Jersey Shape Barrier insert or as detailed in the plans.

LEGEND

- 1 1" [25] radius or 3/4" [19] chamfer.
- 2 Permissible 10" [250] radius.
- 3 Permissible 1" [25] radius.
- 4 #8 [#25M] epoxy coated deformed Steel Bars, 12" [300] long, spaced 2' [600] between successive Bars on a staggered pattern. Dowel Bars shall begin 4' [1220] from the leading edge of the End Terminal. Omit Dowels when the top is constructed integrally with the Base.
- 5 Expansion Joint, 3/4" [19] min. Preformed Filler, CMS 705.03.

APPROVED FOR CONSTRUCTION
1/ 25/ 08

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS

SUPPLEMENTAL SPECIFICATIONS

DESIGN DATA

DESIGN LOADING: HS25, CASE II AND ALT. MILITARY LOADING (SUPERSTRUCTURE)
HS20-44 & ALT. MILITARY LOADING (WIDENED SUBSTRUCTURE)
ORIGINAL HS15-44/CF-400 LOADING (SUBSTRUCTURE TO REMAIN)

FUTURE WEARING SURFACE (FWS) OF 60 PSF

CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL: ASTM A615 OR A996 GRADE 60 MINIMUM YIELD STRENGTH
60,000 PSI. SPIRAL REINFORCEMENT MAY BE PLAIN BARS,
ASTM A82 OR A615.

PROPOSED WORK

1. INSTALL NEW FOOTING AND COLUMN AT EACH PIER.

UTILITY LINES

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

FOUNDATION BEARING PRESSURE:

PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 2.0 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 2.0 TONS PER SQUARE FOOT.

FOOTING REFERENCE MONUMENTS

IN ADDITION TO THE REQUIREMENTS OF ITEM 511, INSTALL A REFERENCE MONUMENT AT EACH END OF EACH SPREAD FOOTING. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REBAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A SIX INCH DIAMETER, SCHEDULE 40, PLASTIC PIPE AROUND THE REFERENCE MONUMENT. CENTER THE PIPE ON THE REFERENCE MONUMENT AND PLACE THE PIPE VERTICAL WITH ITS TOP AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. PERMANENTLY ATTACH THE BOTTOM OF THE PIPE TO THE TOP OF THE FOOTING.

ESTABLISH A BENCHMARK TO DETERMINE THE ELEVATIONS OF THE REFERENCE MONUMENTS AT VARIOUS MONITORING PERIODS THROUGHOUT THE LENGTH OF THE CONSTRUCTION PROJECT. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES.

RECORD THE ELEVATION OF EACH REFERENCE MONUMENT AT EACH MONITORING PERIOD SHOWN IN THE TABLE BELOW.

THE ORIGINAL COMPLETED TABLES WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS. SEND A COPY OF THE COMPLETED TABLES TO THE OFFICE OF STRUCTURAL ENGINEERING.

PROJECT NUMBER: 073000	MAXIMUM BEARING PRESSURE: 2.0 TSF
BRIDGE NUMBER: STA-21-0898	STRUCTURE FILE NUMBER: 7600151
BENCHMARK LOCATION:	
FOOTING LOCATION: NORTH COLUMN, PIER #1	
MONITORING PERIOD	LEFT MONUMENT
AFTER FOOTING CONCRETE IS PLACED	RIGHT MONUMENT
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS	
BEFORE DECK PLACEMENT	
AFTER DECK PLACEMENT	
PROJECT COMPLETION	

PROJECT NUMBER: 073000	MAXIMUM BEARING PRESSURE: 1.9 TSF
BRIDGE NUMBER: STA-21-0898	STRUCTURE FILE NUMBER: 7600151
BENCHMARK LOCATION:	
FOOTING LOCATION: NORTH COLUMN, PIER #2	
MONITORING PERIOD	LEFT MONUMENT
AFTER FOOTING CONCRETE IS PLACED	RIGHT MONUMENT
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS	
BEFORE DECK PLACEMENT	
AFTER DECK PLACEMENT	
PROJECT COMPLETION	

PROJECT NUMBER: 073000	MAXIMUM BEARING PRESSURE: 1.8 TSF
BRIDGE NUMBER: STA-21-0898	STRUCTURE FILE NUMBER: 7600151
BENCHMARK LOCATION:	
FOOTING LOCATION: NORTH COLUMN, PIER #3	
MONITORING PERIOD	LEFT MONUMENT
AFTER FOOTING CONCRETE IS PLACED	RIGHT MONUMENT
BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS	
BEFORE DECK PLACEMENT	
AFTER DECK PLACEMENT	
PROJECT COMPLETION	

PAYMENT FOR ALL OF THE ABOVE TO BE INCLUDED WITH ITEM SPECIAL - STRUCTURE REHABILITATION.

ABBREVIATIONS

N.S. - NEAR SIDE
F.S. - FAR SIDE
R.A. - REAR ABUTMENT
F.A. - FORWARD ABUTMENT
R.P. - REAR PIER
F.P. - FORWARD PIER
CLR. - CLEARANCE
DIA. - DIAMETER
TYP. - TYPICAL
STA. - STATION
F. - FLOW LINE
EL. - ELEVATION
ELEV. - ELEVATION
FWD. - FORWARD
BRG. - BEARING
LB. - POUND
BNT. - BENT
STR. - STRAIGHT
LT. - LEFT
RT. - RIGHT
PSI - POUND/SQ. FT.

MAX. - MAXIMUM
MIN. - MINIMUM
SPA. - SPACES
ST'D. DWG. - STANDARD DRAWING
C. - CENTERLINE
F/F - FACE TO FACE
O/O - OUT TO OUT
C/C - CENTER TO CENTER
YR. - YEAR
O.R. - OUTSIDE RADIUS
I.R. - INSIDE RADIUS
C.R. - COUNTY ROAD
T.R. - TOWNSHIP ROAD
L.F. - LEFT FORWARD
R.F. - RIGHT FORWARD
H.S. - HIGH STRENGTH
CVN - CHARPY V-NOTCH
CONST. - CONSTRUCTION
C.I.P. - CAST-IN-PLACE
TSF - REINFORCED CONCRETE TON/SQ.FT.

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STA-21-8.98
PID No. 23753

STRUCTURAL GENERAL NOTES - BUILDABLE UNIT 1
BRIDGE NO. STA-21-0898
ERIE STREET OVER S.R. 21

DESIGNED: HJS
CHECKED: DBC

DRAWN: MVC
REVISED:

REVIEWED: ZRD
DATE: 1/2008
STRUCTURE FILE NUMBER: 7600151

DESIGN AGENCY: W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

APPROVED FOR
CONSTRUCTION
1/25/08

BM-A, ELEV. = 996.42

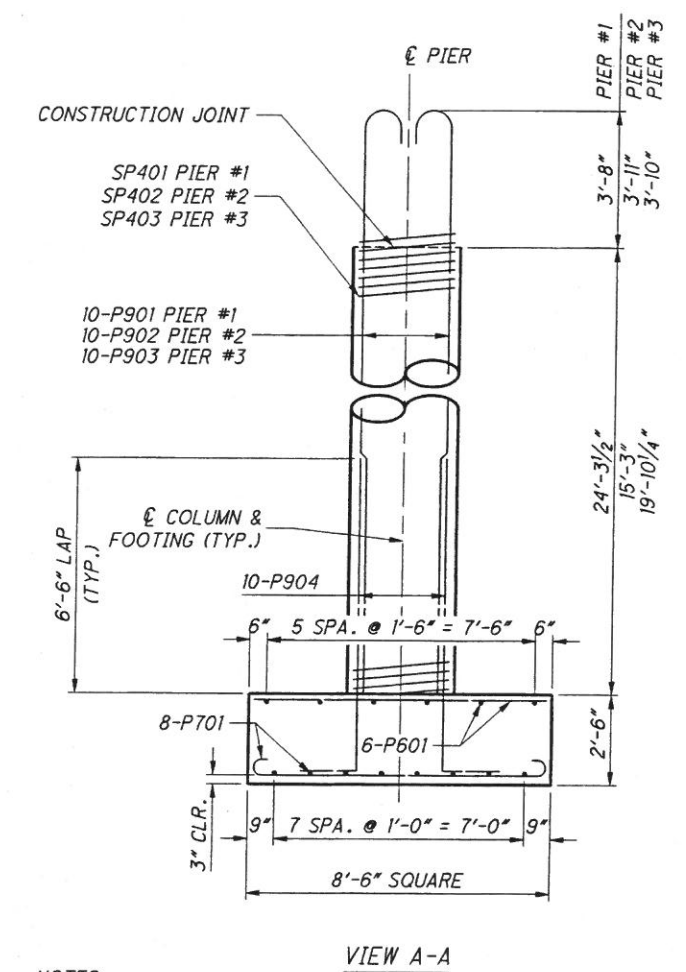
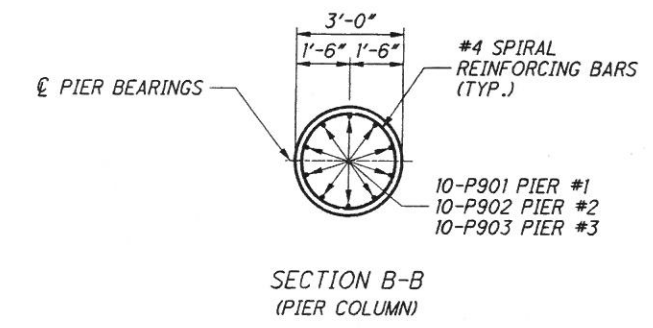
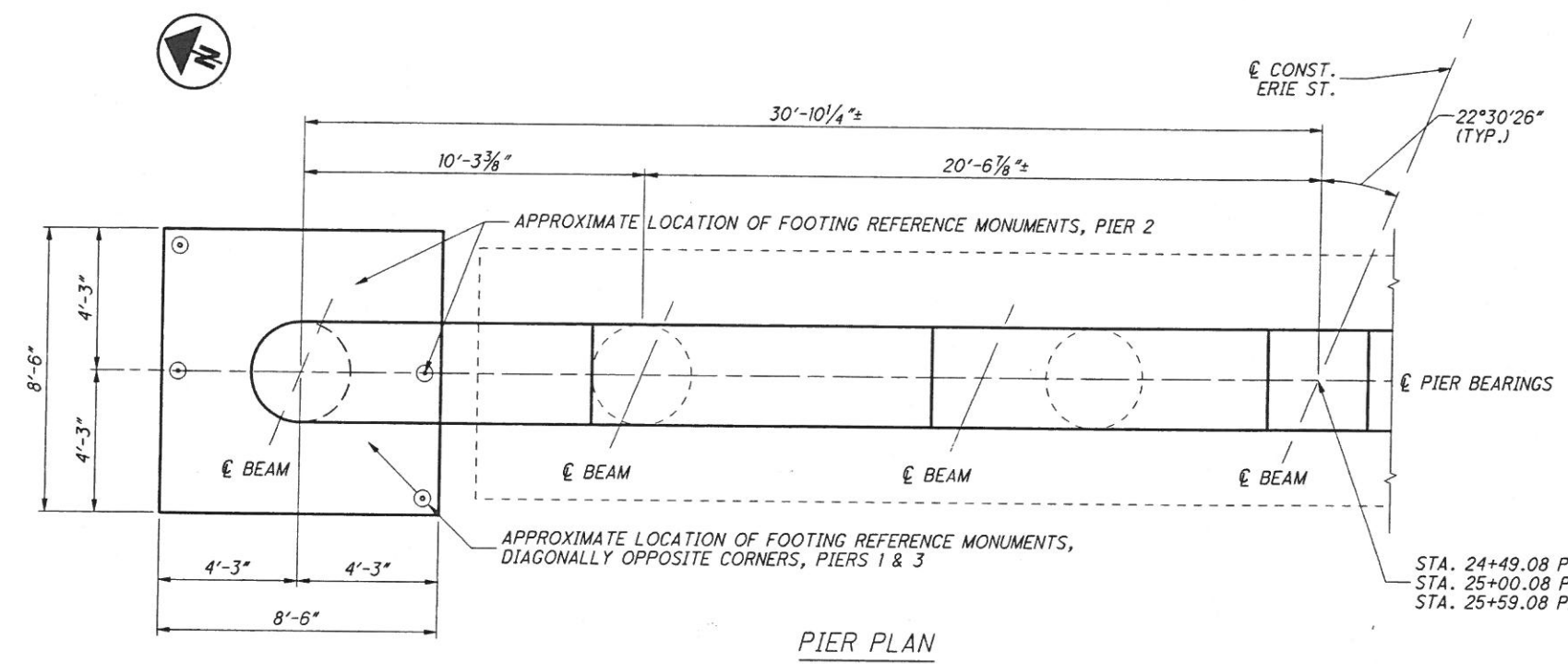
X SET IN TOP OF CONC. FENCE POST BASE AT END OF LA R/W FENCE @ S.E. QUADRANT OF S.R. 21 & ERIE ST. INTERCHANGE.

STA. 30+46.63 - OFF. 68.94' RT. ERIE ST.

BM-B, ELEV. = 987.00

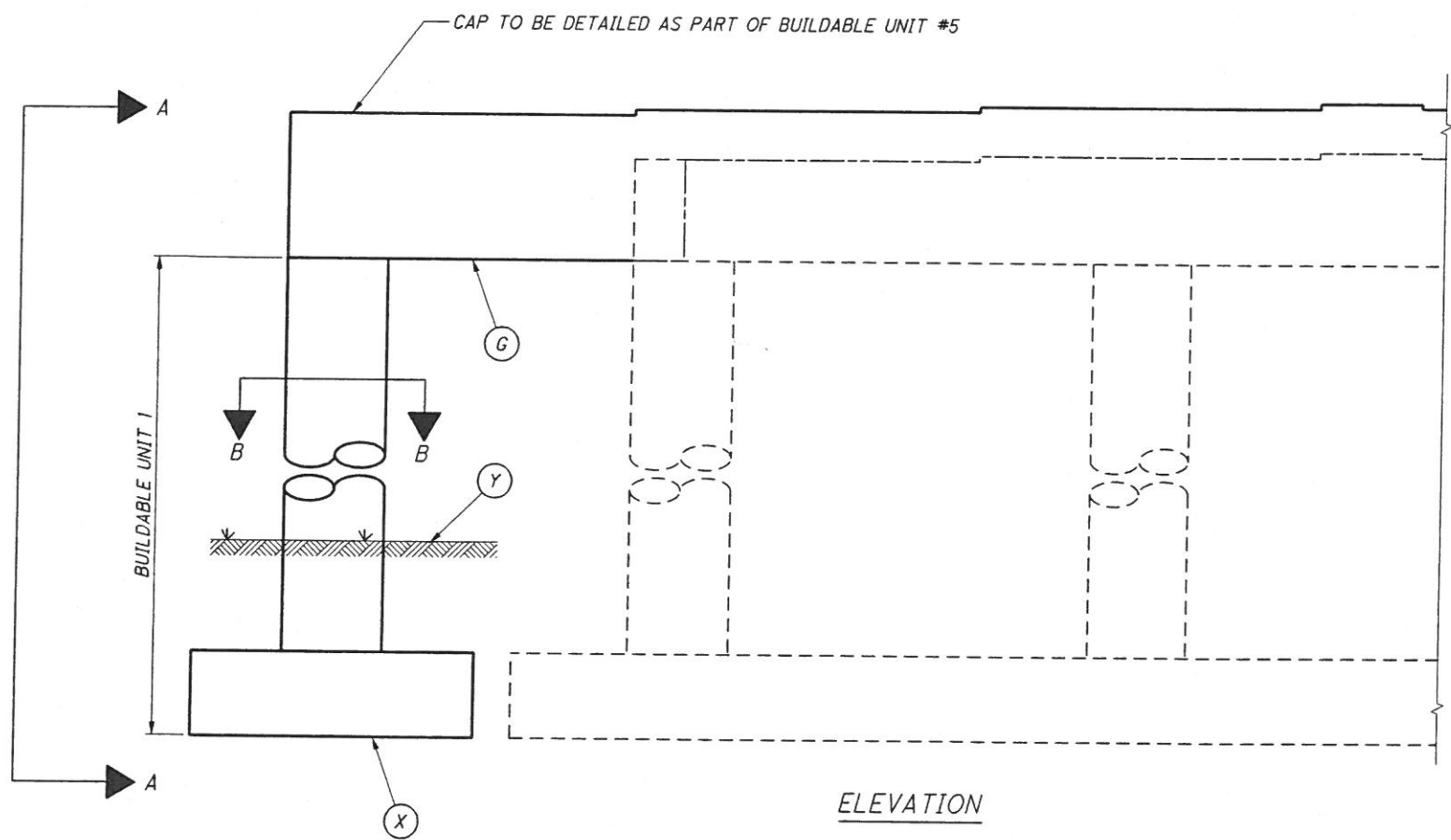
CHISELED SQUARE ON S.E. CORNER OF CONC. HEADWALL @ NORTH SIDE OF BURGER KING PARKING LOT AT S.W. QUADRANT OF S.R. 21 & ERIE ST. INTERCHANGE.

STA. 21+77.27 - OFF. 121.11' RT. ERIE ST.



- NOTES:
- P901, P902 & P903 COLUMN BARS SHALL EXTEND UP TO BOTTOM OF TOP LONGITUDINAL MAT OF REINFORCING STEEL IN CAP. BARS SHALL BE PLACED AS SHOWN TO NOT INTERFERE WITH PROPER PLACEMENT OF REINFORCING IN CAP.
 - ASSURE SPIRALS EXTEND FROM THE TOPS OF FOOTINGS TO THE LEVEL OF THE LOWEST HORIZONTAL REINFORCEMENT IN THE CAPS (2 1/2" ABOVE BOTTOM OF CAP).

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ELEVATIONS				
LOCATION		G	X	Y
PIER #1		988.81	962.02	975.8
PIER #2		988.77	971.02	974.8
PIER #3		988.97	966.62	972.4

W.E. QUICKSALL & ASSOCIATES, INC.

554 WEST HIGH AVE.

NEW PHILADELPHIA, OHIO

CIVIL ENGINEERS

DESIGN AGENCY

DATE 1/2008

REVIEWED ZRD

STRUCTURE FILE NUMBER 7600151

DRAWN MVC

DESIGNED HUS

CHECKED DBC

BUILDABLE UNIT #1 DETAIL

BRIDGE NO. STA-21-0898

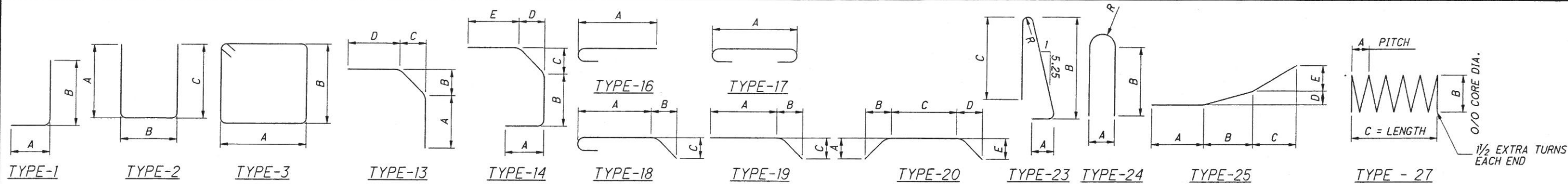
ERIE STREET OVER S.R. 21

STA-21-8.98

PID No. 23753

13

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MARK	NUMBER					LENGTH	WEIGHT	TYPE	DIMENSIONS						
	PIER #1	PIER #2	PIER #3		TOTAL				A	B	C	D	E	R	INC
PIERS															
P601	12	12	12		36	8'- 2"	442	STR							
P701	16	16	16		48	9'- 8"	948	17	8'-2"						
P901					10	29'- 2"	992	16	27'-11 1/2"						
P902		10			10	20'- 5"	694	16	19'-2"						
P903					10	24'- 11"	847	16	23'-8 1/4"						
P904	10	10	10		30	9'- 11"	1012	1	1'-7"	8'-7 1/2"					
SP401	1				1	529'- 3"	354	27	0'-4 1/2"	2'-6"	24'-6"				
SP402		1			1	341'- 7"	228	27	0'-4 1/2"	2'-6"	15'-5"				
SP403			1		1	436'- 3"	291	27	0'-4 1/2"	2'-6"	20'-0"				

1. BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A701 IS A NO. 7 AND A1014 IS A NO. 10 SIZE. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR. "STR" DENOTES STRAIGHT BARS.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.

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1/ 25 / 08

STA-21-8.98
PID NO. 23753

REINFORCING STEEL LIST - BUILDABLE UNIT 1
BRIDGE NO. STA-21-0898
ERIE STREET OVER S.R. 21

DESIGNED
HJS
CHECKED
DBC

DRAWN
MVC
REVISED

REVIEWED
ZRD
DATE
1/2008

STRUCTURE FILE NUMBER
7600151

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
954 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

STA-21-8.98

CITY OF MASSILLON
STARK COUNTY

PROJECT DESCRIPTION

REPLACE AND WIDEN THE DECK OF THE STA-21-0898
BRIDGE. THE BRIDGE CARRIES ERIE STREET OVER
S.R. 21.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: ---- ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: ---- ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: ---- ACRES

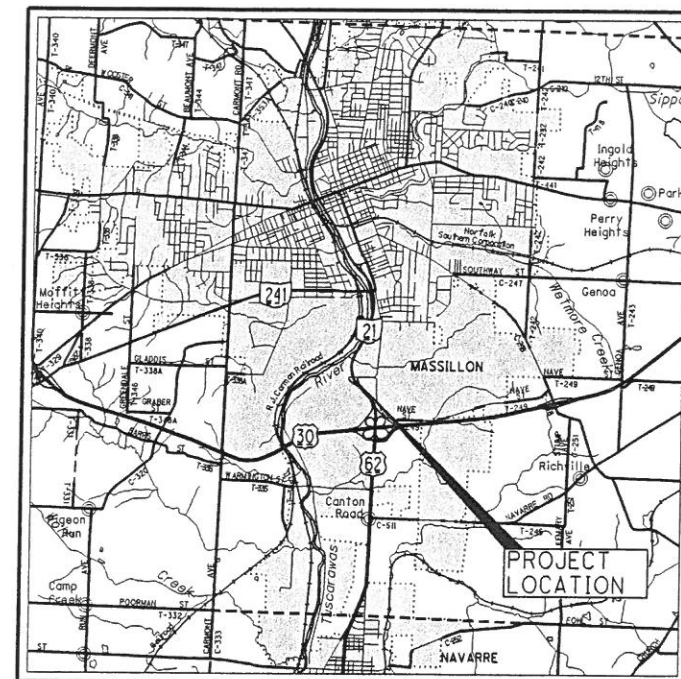
LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR
THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED
ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE
DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF
SECTION 5511.02 OF THE OHIO REVISED CODE.

2005 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.

THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE
CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DE-
TOURS WILL BE PROVIDED AS INDICATED ON SHEET ----.



LOCATION MAP

LATITUDE: N 40°46'05" LONGITUDE: W 81°31'15"

SCALE IN MILES



PORTION TO BE IMPROVED: ----
INTERSTATE & DIVIDED HIGHWAY: ----
UNDIVIDED STATE & FEDERAL ROUTES: ----
OTHER ROADS: ----

DESIGN DESIGNATION

CURRENT ADT (2003)	23,047	15,264
DESIGN YEAR ADT (2023)	37,130	23,848
DESIGN HOURLY VOLUME (2023)	2,970	1,908
DIRECTIONAL DISTRIBUTION	0.50	0.50
TRUCKS (24 HOUR B&C)	11%	6%
DESIGN SPEED	55 MPH	35 MPH
LEGAL SPEED	50 MPH	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION:		
S.R. 21 - URBAN FREEWAY, ERIE ST. - URBAN COLLECTOR		
NHS PROJECT	YES	NO

DESIGN EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:

W.E. QUICKSALL & ASSOCIATES
CIVIL ENGINEERS
NEW PHILADELPHIA, OHIO

INDEX OF SHEETS:

TITLE SHEET	1
TYPICAL SECTIONS	-
GENERAL NOTES	-
MAINTENANCE OF TRAFFIC	-
ERIE ST. - PLAN AND PROFILE	-
ERIE ST. - CROSS SECTIONS	-
INTERSECTION DETAILS	-
STORM SEWER PROFILES	-
TRAFFIC CONTROL PLAN	2 - 4
TRAFFIC SIGNAL PLAN	5 - 6
STRUCTURES OVER 20'	2, 17, 23 - 27, 30

BUILDABLE UNIT #6, #8 & #9

MAY 19, 2008

ENGINEER'S SEAL:

SIGNED:
DATE:

ENGINEER'S SEAL:

SIGNED:
DATE:

STANDARD CONSTRUCTION DRAWINGS

SUPPLEMENTAL
SPECIFICATIONS

BP-3.1	7/16/04	HW-2.2	4/21/05	TC-71.10	1/19/07	AS-1-81	7/19/02	800
BP-5.1	7/28/00			TC-72.20	1/21/05	BR-2-98	7/19/02	832
BP-7.1	7/28/00	RM-4.2	10/20/06	TC-82.10	4/19/02	GSD-1-96	7/19/02	---
CB-2.2	7/15/05					PCB-91	7/19/02	---
DM-1.1	4/21/06					SBR-1-99	7/19/02	---
DM-1.2	10/21/05					SICD-1-96	7/19/02	---
DM-1.4	4/21/06	TC-41.10	10/19/07			VPF-1-90	7/19/02	---
GR-1.1	7/16/04	TC-41.20	1/19/01					---
GR-2.1	1/16/04	TC-41.50	1/19/01					---
GR-3.1	4/18/03	TC-42.10	1/19/07					---
GR-4.2	7/21/06	TC-42.20	7/16/04					---
HW-2.1	4/21/06	TC-65.10	1/21/05					---

APPROVED FOR
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5/19/08

FEDERAL PROJECT NO.
E033(670)

PID NO.
23753

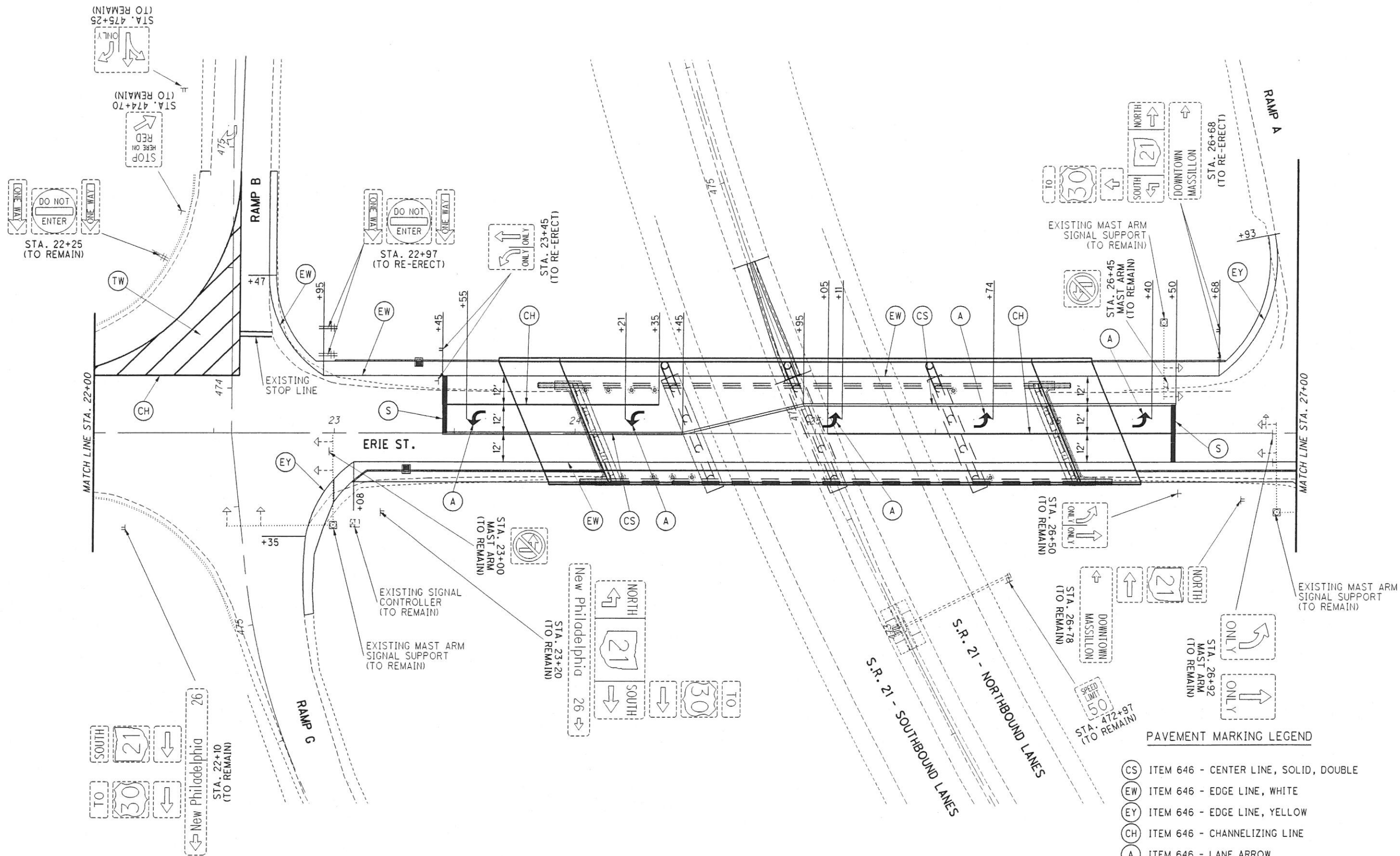
CONSTRUCTION PROJECT NO.
3000(07)

RAILROAD INVOLVEMENT
NONE

STA-21-8.98

1





PAVEMENT MARKING LEGEND

- (CS) ITEM 646 - CENTER LINE, SOLID, DOUBLE
- (EW) ITEM 646 - EDGE LINE, WHITE
- (EY) ITEM 646 - EDGE LINE, YELLOW
- (CH) ITEM 646 - CHANNELIZING LINE
- (A) ITEM 646 - LANE ARROW
- (S) ITEM 646 - STOP LINE
- (LL) ITEM 646 - LANE LINE
- (TY) ITEM 646 - TRANSVERSE/DIAGONAL LINE, YELLOW
- (TW) ITEM 646 - TRANSVERSE/DIAGONAL LINE, WHITE
- (IY) ITEM 646 - ISLAND MARKING, YELLOW

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5/19/08

TRAFFIC CONTROL PLAN

ERIE ST. - STA. 22+00 TO STA. 27+00

STA-21-8.98

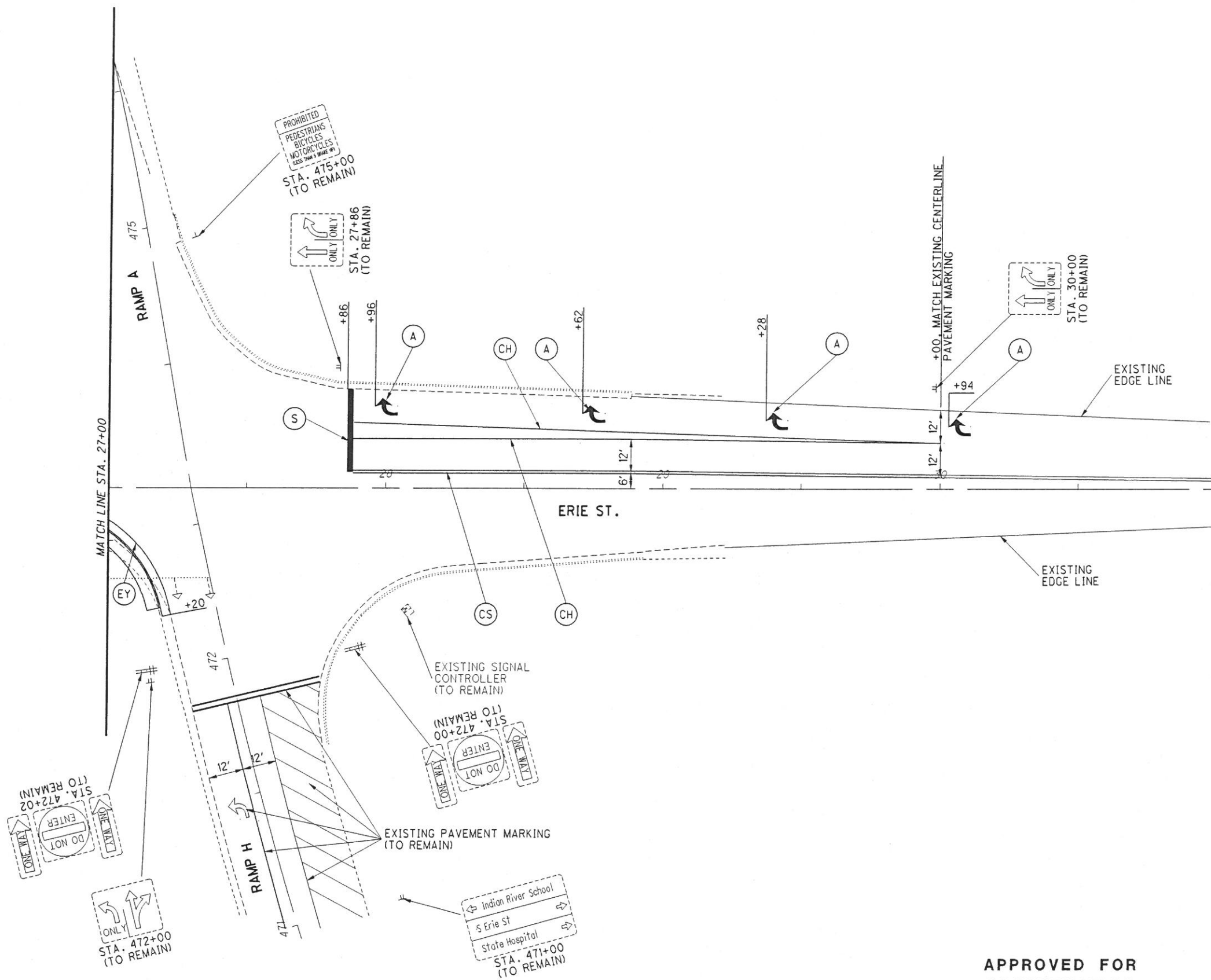
3

CALCULATED
MVC

CHECKED
PDL

0 20 40
HORIZONTAL
SCALE IN FEET

↑
NORTH

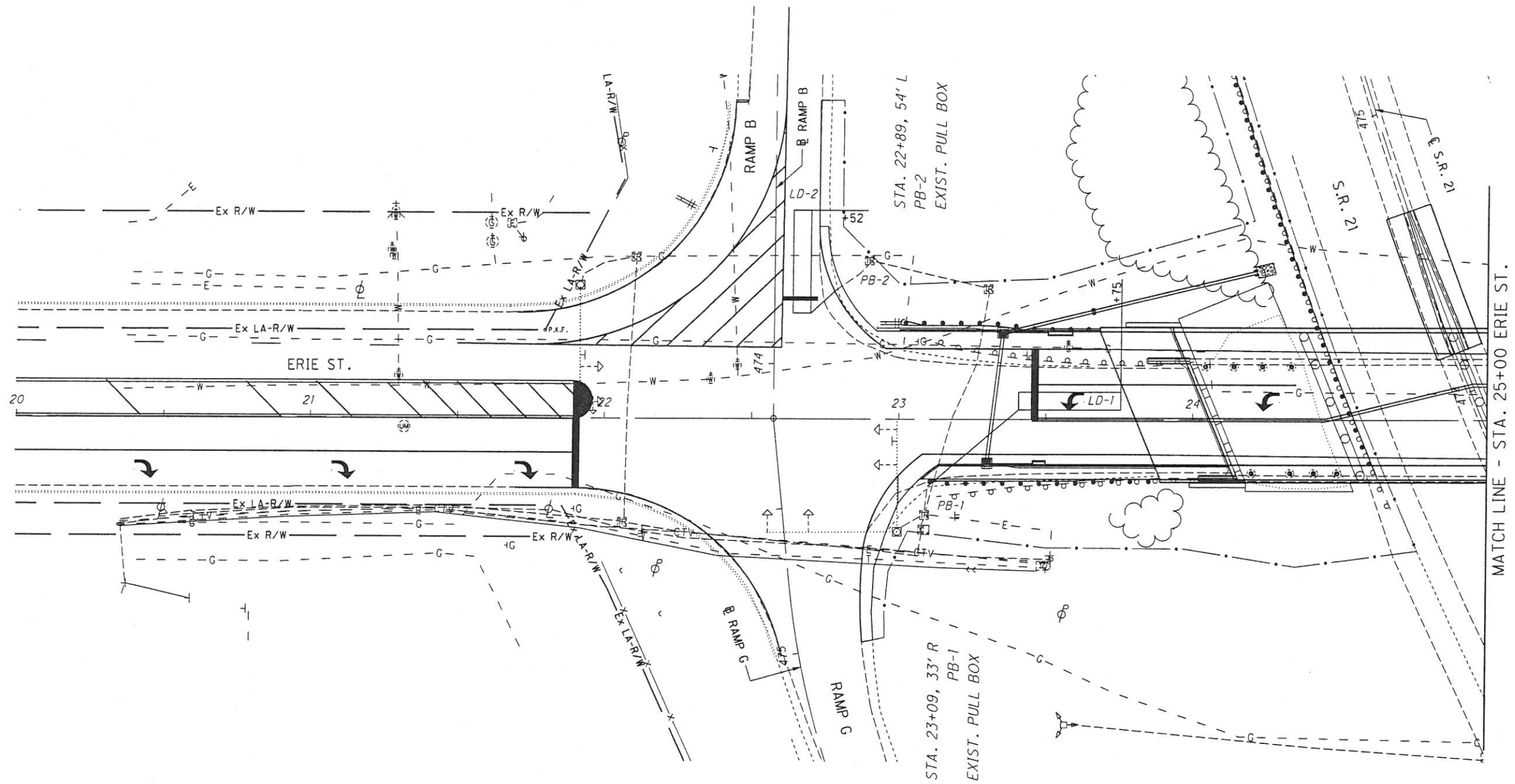


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CONSTRUCTION
5 / 19 / 08

PAVEMENT MARKING LEGEND

- | | |
|----|---|
| CS | ITEM 646 - CENTER LINE, SOLID, DOUBLE |
| EW | ITEM 646 - EDGE LINE, WHITE |
| EY | ITEM 646 - EDGE LINE, YELLOW |
| CH | ITEM 646 - CHANNELIZING LINE |
| A | ITEM 646 - LANE ARROW |
| S | ITEM 646 - STOP LINE |
| LL | ITEM 646 - LANE LINE |
| TY | ITEM 646 - TRANSVERSE/DIAGONAL LINE, YELLOW |
| TW | ITEM 646 - TRANSVERSE/DIAGONAL LINE, WHITE |
| IY | ITEM 646 - ISLAND MARKING, YELLOW |

23753CP001.dgn



LOOP DETECTOR CHART

LOOP #	SIZE	# TURNS	MODE	DELAY	AMP #	PHASE
LD-1	6' x 35'	3	PRESENCE	2	1	1
LD-2	6' x 35'	3	PRESENCE	8	2	4

ESTIMATED QUANTITIES

ITEM	QTY	UNIT	DESCRIPTION
632	2	EACH	DETECTOR LOOP
632	160	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE

APPROVED FOR CONSTRUCTION 5/19/08



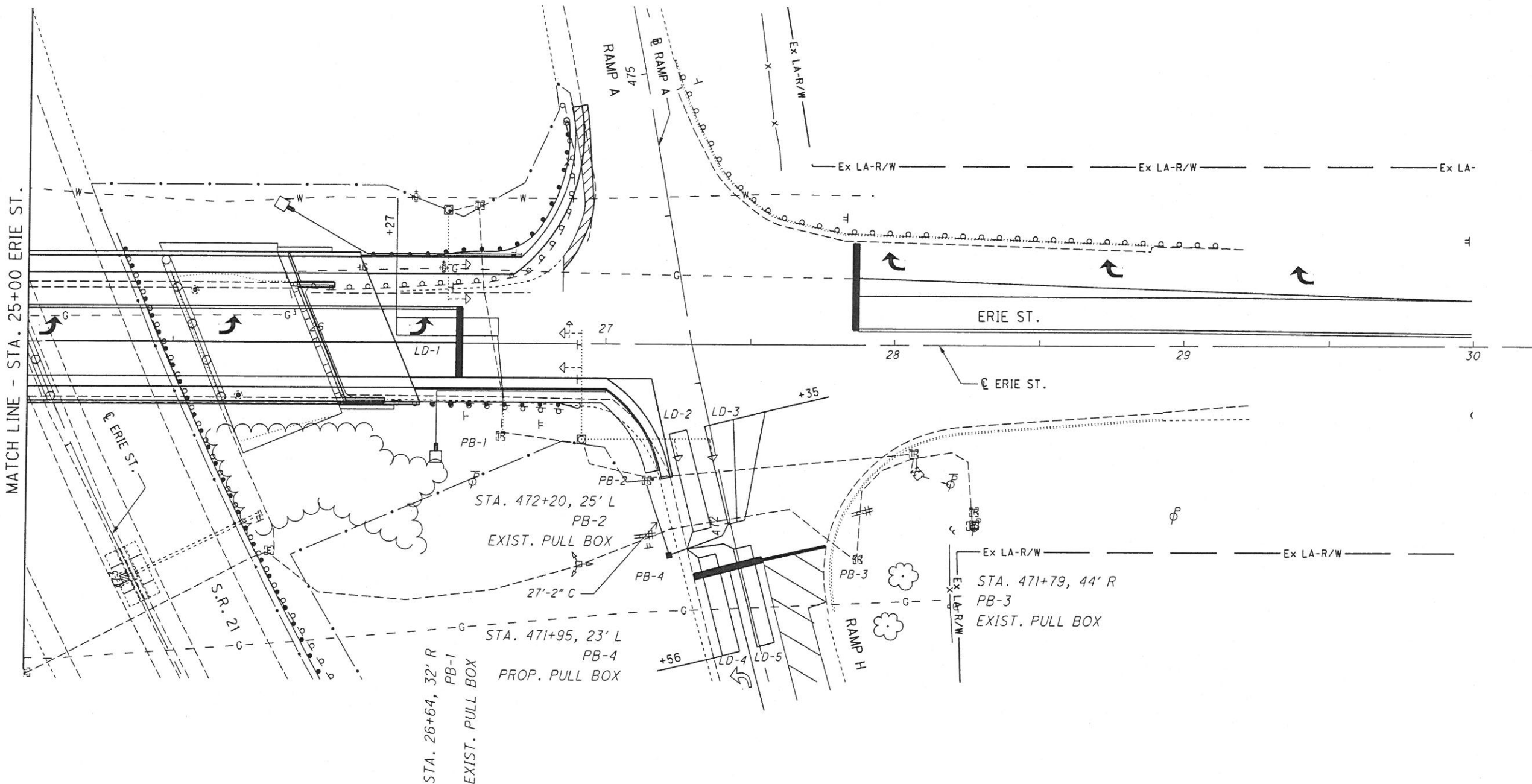
HORIZONTAL
SCALE IN FEET

CALCULATED
JAT
CHECKED
MWS

TRAFFIC SIGNAL PLAN

STA-21-8.98

5



LOOP DETECTOR CHART

LOOP #	SIZE	# TURNS	MODE	DELAY	AMP #	PHASE
LD-1	6' x 35'	3	PRESENCE	2	1	5
LD-2	6' x 35'	3	PRESENCE	2	2	8
LD-3	6' x 21' x 35'	2-4-2	PRESENCE	8	3	8
LD-4	6' x 35'	3	PRESENCE	2	4	8
LD-5	6' x 35'	3	PRESENCE	8	5	8

ESTIMATED QUANTITIES

ITEM	QTY	UNIT	DESCRIPTION
625	27	LIN. FT.	CONDUIT, 2", 725.04
625	27	LIN. FT.	TRENCH
625	1	EACH	PULLBOX, 725.08, 18"
632	5	EACH	DETECTOR LOOP
632	748	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD DRAWINGS:

AS-1-81 REVISED 07-19-02
BR-2-98 REVISED 07-19-02
GSD-1-96 REVISED 07-19-02
PCB-91 REVISED 07-19-02
SBR-1-99 REVISED 07-19-02
SICD-1-96 REVISED 07-19-02
VPF-1-90 REVISED 07-19-02

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING: HS20, CASE II AND ALT. MILITARY LOADING (SUPERSTRUCTURE)
HS20-44 & ALT. MILITARY LOADING (WIDENED SUBSTRUCTURE)
ORIGINAL HS15-44/CF-400 LOADING (SUBSTRUCTURE TO REMAIN)
FUTURE WEARING SURFACE (FWS) OF 60 PSF
CONCRETE CLASS HP: COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS C: COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615 OR A996 GRADE 60 MINIMUM YIELD STRENGTH
60,000 PSI. SPIRAL REINFORCEMENT MAY BE PLAIN BARS,
ASTM A82 OR A615.
STRUCTURAL STEEL: ASTM A709 GRADE 50, YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2 1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

PROPOSED WORK

1. INSTALL NEW FOOTING AND COLUMN AT EACH PIER.
2. WIDEN THE EXISTING ABUTMENTS AND PIERS TO ACCOMMODATE AN ADDITIONAL BEAM LINE ALONG THE NORTH SIDE OF THE BRIDGE, AND RAISE EXISTING BEAM SEATS.
3. CONVERT THE EXISTING ABUTMENTS TO SEMI-INTEGRAL ABUTMENTS.
4. REMOVE THE EXISTING BEARINGS AND INSTALL NEW LAMINATED ELASTOMERIC BEARINGS.
5. REPLACE AND WIDEN THE EXISTING SUPERSTRUCTURE TO 45'-6" TOE OF PARAPET TO TOE OF CURB.
6. INCREASE THE MINIMUM VERTICAL CLEARANCE OVER SR 21 TO 15'-7".
7. MAKE THE SLAB COMPOSITE WITH THE NEW ROLLED STEEL BEAMS.
8. CONSTRUCT NEW 42" CONCRETE BRIDGE RAILING PER STANDARD DRAWING SBR-1-99 WITH VANDAL PROTECTION FENCE ON THE LEFT SIDE OF THE BRIDGE.
9. CONSTRUCT A 5'-0" SIDEWALK AND BRIDGE RAILING PER STANDARD DRAWING BR-2-98 WITH VANDAL PROTECTION FENCE ON THE RIGHT SIDE OF THE STRUCTURE.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

UTILITY LINES

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

FOUNDATION BEARING PRESSURE:

NEW ABUTMENT FOOTINGS, AS DESIGNED, PROVIDE A MAXIMUM BEARING PRESSURE OF 1.25 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 1.25 TONS PER SQUARE FOOT.

NEW PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 2.00 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 2.00 TONS PER SQUARE FOOT.

ITEM SPECIAL - PORTIONS OF STRUCTURE REMOVED

DESCRIPTION

THIS WORK CONSISTS OF THE REMOVAL OF CONCRETE DECKS INCLUDING SIDEWALKS, SAFETY CURBS, PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.) AND PORTIONS OF THE CONCRETE SUBSTRUCTURE UNITS DENOTED IN THE PLANS. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF STEEL SUPPORT SYSTEMS

BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT MUST REMAIN UNTIL REMOVED. THE EXISTING STRUCTURAL STEEL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

SUBSTRUCTURE CONCRETE REMOVAL

CUT LINE CONSTRUCTION JOINT PREPARATION. SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

REMOVAL METHODS

THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNT CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS (PRESTRESSED BOX BEAMS, I-BEAMS, STEEL BEAMS, STEEL GIRDERS, ETC.), THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL TO AVOID DAMAGING STEEL MEMBERS THAT MUST REMAIN UNTIL REMOVED.

FOR SUBSTRUCTURE REMOVALS THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVALS WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

BASIS OF PAYMENT

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM SPECIAL - PORTIONS OF STRUCTURE REMOVED.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

FILL THE VOID CREATED BY EXCAVATING FOR THE ABUTMENTS/WINGWALLS WITH TYPE B GRANULAR MATERIAL, 703.16.C. AFTER THE ABUTMENT BREASTWALLS ARE CONSTRUCTED, FILL THE VOID IMMEDIATELY BEHIND EACH ABUTMENT UP TO AN ELEVATION 1.5 FEET BELOW THE BEAM SEAT AND ON A 1:1 SLOPE UP TO THE SUBGRADE ELEVATION, PRIOR TO SETTING BEAMS ON THE ABUTMENTS.

ALL EMBANKMENT/BACKFILL MATERIAL UNDER THE APPROACH SLABS SHALL BE TYPE B GRANULAR MATERIAL PLACED AND COMPACTED IN 6 INCH LIFTS.

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM SPECIAL - STRUCTURE REHABILITATION.

MECHANICAL CONNECTORS

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. CONNECTORS SHALL BE EPOXY COATED. CONNECTORS WITH COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR CONTINUITY AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS. CONNECTORS SHALL CONFORM WITH ITEM 509.

ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511 - CLASS HP CONCRETE, AS PER PLAN

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS

ALL SUPERSTRUCTURE, BRIDGE DECK, SIDEWALK, APPROACH SLABS AND PARAPET CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN). THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN.

CONCRETE TABLE QUANTITIES PER CUBIC YARD AGGREGATES (SSD)									
MIX 4, AS PER PLAN (GGBF SLAG + MICROSILICA)									
AGG TYPE	FINE (LB)	#8 COARSE AGG (LB)	#57 COARSE AGG (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	GGBF SLAG (LB)	MICRO SILICA (LB)	MAX. WATER TO CEMENTITIOUS RATIO	AIR CONTENT, +/- 2%
GRAVEL	1370	650	790	2810	440	190	30	0.42	6
LIMESTONE	1370	655	800	2820	440	190	30	0.42	6
SLAG	1370	570	695	2635	440	190	30	0.42	6

* ALL COURSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

BASIS OF PAYMENT

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM SPECIAL - STRUCTURE REHABILITATION.

ABBREVIATIONS

N.S.	-	NEAR SIDE	MAX.	-	MAXIMUM
F.S.	-	FAR SIDE	MIN.	-	MINIMUM
E.S.	-	EACH SIDE	SPA.	-	SPACES
PRS.	-	PAIRS	ST'D. DWG.	-	STANDARD DRAWING
R.A.	-	REAR ABUTMENT	C	-	CENTERLINE
F.A.	-	FORWARD ABUTMENT	F/F	-	FACE TO FACE
CLR.	-	CLEAR	O/O	-	OUT TO OUT
DIA.	-	DIAMETER	C/C	-	CENTER TO CENTER
TYP.	-	TYPICAL	YR.	-	YEAR
STA.	-	STATION	O.R.	-	OUTSIDE RADIUS
F	-	FLOW LINE	I.R.	-	INSIDE RADIUS
EL.	-	ELEVATION	C.R.	-	COUNTY ROAD
ELEV.	-	ELEVATION	T.R.	-	TOWNSHIP ROAD
FWD.	-	FORWARD	L.F.	-	LEFT FORWARD
BRG.	-	BEARING	R.F.	-	RIGHT FORWARD
LB.	-	POUND	H.S.	-	HIGH STRENGTH
BNT.	-	BENT	CVN	-	CHARPY V-NOTCH
STR.	-	STRAIGHT	CONST.	-	CONSTRUCTION
LT.	-	LEFT	C.I.P.	-	CAST-IN-PLACE
RT.	-	RIGHT		-	REINFORCED CONCRETE
PSI	-	POUND/SQ. IN.	TSF	-	TON/SQ.FT.
U.N.O.	-	UNLESS NOTED OTHERWISE	T & B	-	TOP & BOTTOM

APPROVED FOR CONSTRUCTION 5/19/08

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DATE
4/2008

REVIEWED
ZRD

STRUCTURE FILE NUMBER
7600151

DRAWN
MYC

DESIGNED
DBC

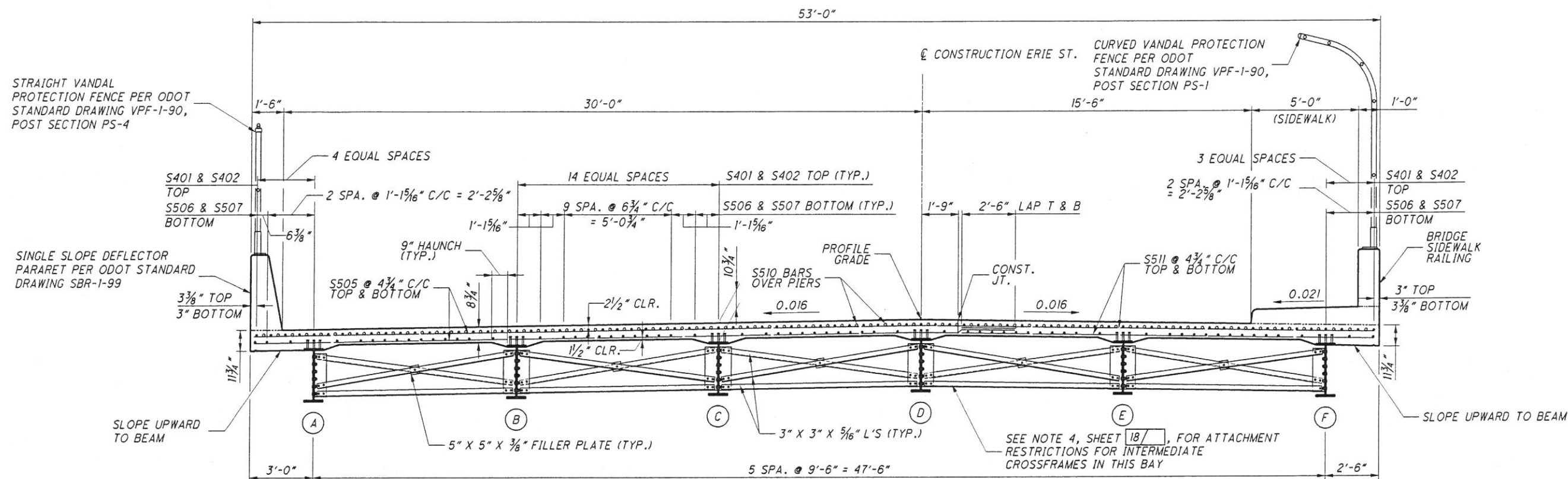
CHECKED
HJS

STRUCTURAL GENERAL NOTES
BRIDGE NO. STA-21-0898
ERIE STREET OVER S.R. 21

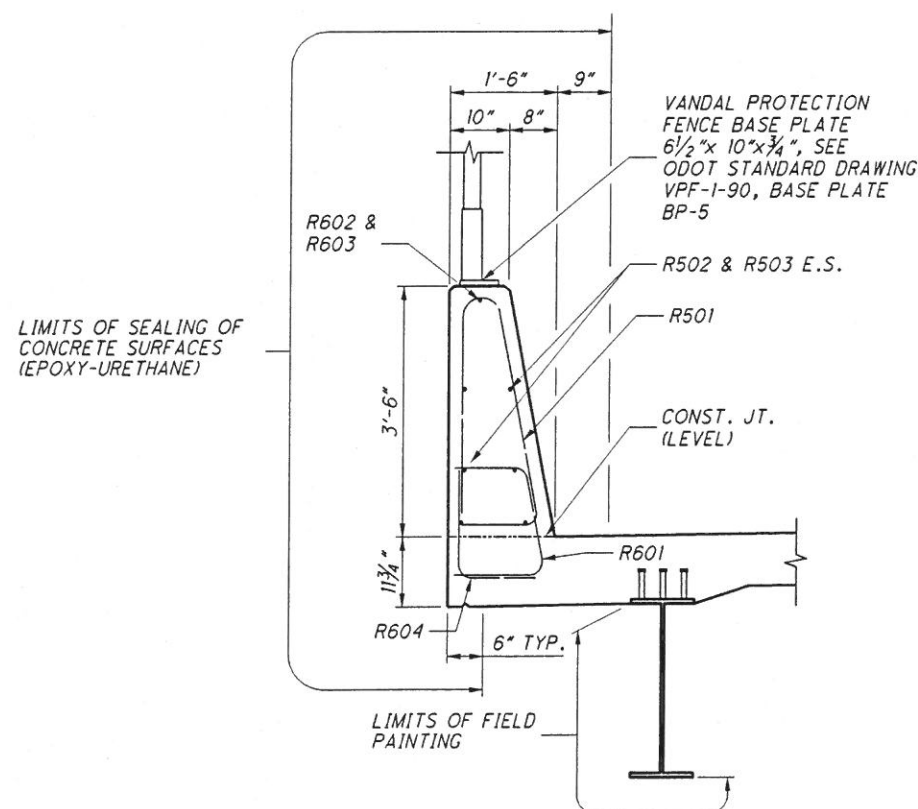
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PID No. 23753

2

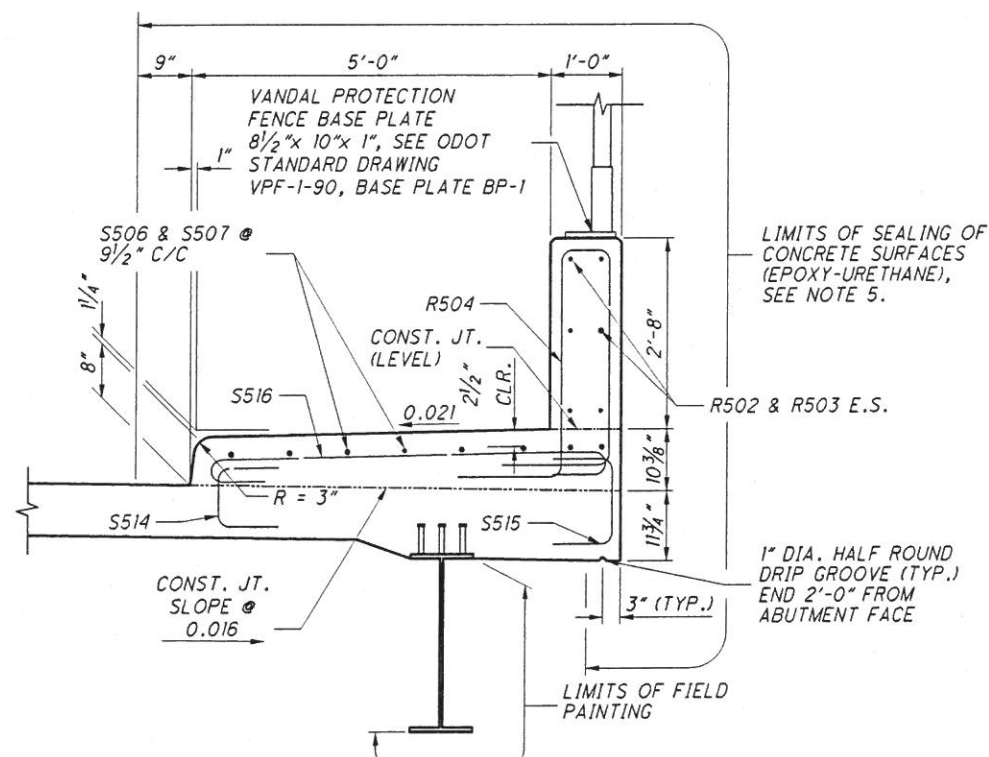
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TRANSVERSE SECTION



TYPICAL SECTION THRU PARAPET



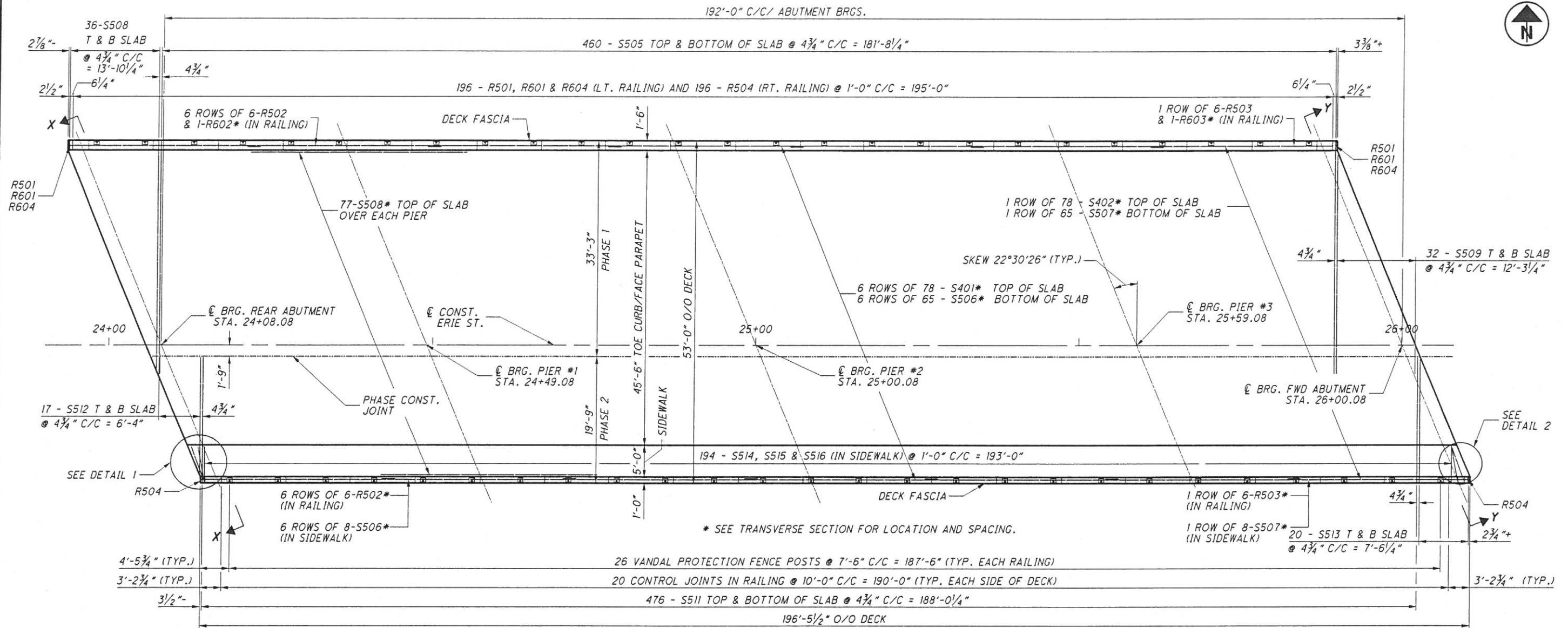
TYPICAL SECTION THRU SIDEWALK

NOTES

- DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORM EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2 3/4 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
- FOR PLAN OF DECK REINFORCING STEEL, SEE SHEET 23/.
- NOT USED
- SEAL A 1'-0" WIDTH EACH SIDE OF THE PHASE CONSTRUCTION JOINT IN THE DECK WITH HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM), 705.15 RESIN. PAYMENT FOR THIS WORK TO BE INCLUDED WITH THE DECK CONCRETE.
- SEE CMS 512.03 FOR TREATMENT OF HORIZONTAL SURFACES W/ REPETITIVE FOOT TRAFFIC.

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DECK REINFORCING PLAN

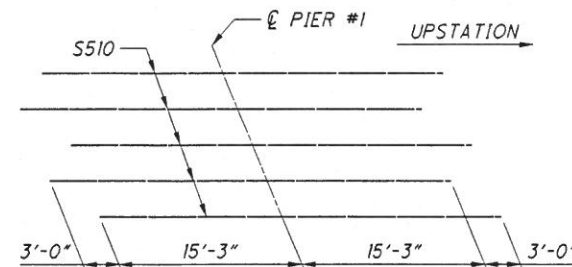


DIAGRAM SHOWING STAGGER OF S510 BARS OVER PIER 1

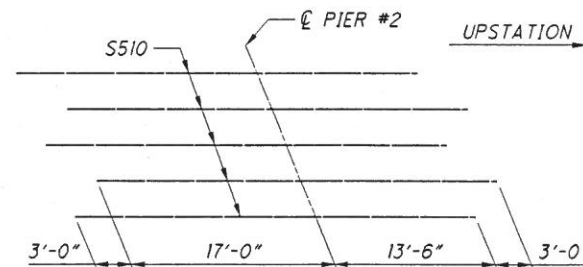


DIAGRAM SHOWING STAGGER OF S510 BARS OVER PIER 2

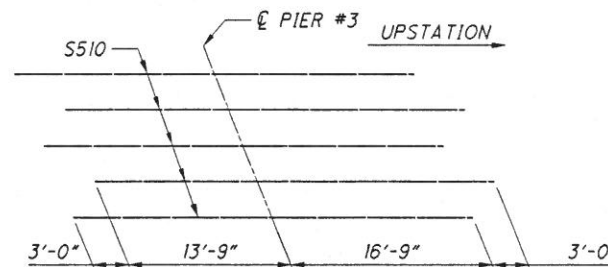
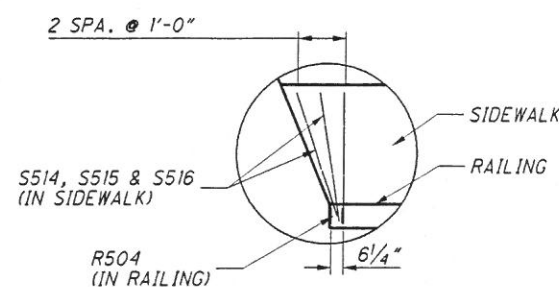
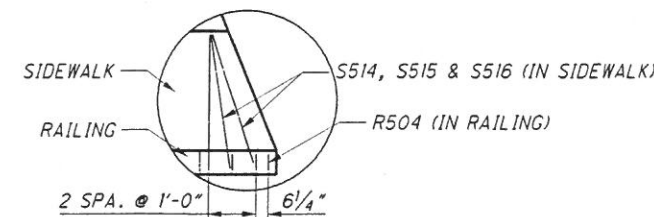


DIAGRAM SHOWING STAGGER OF S510 BARS OVER PIER 3



DETAIL 1



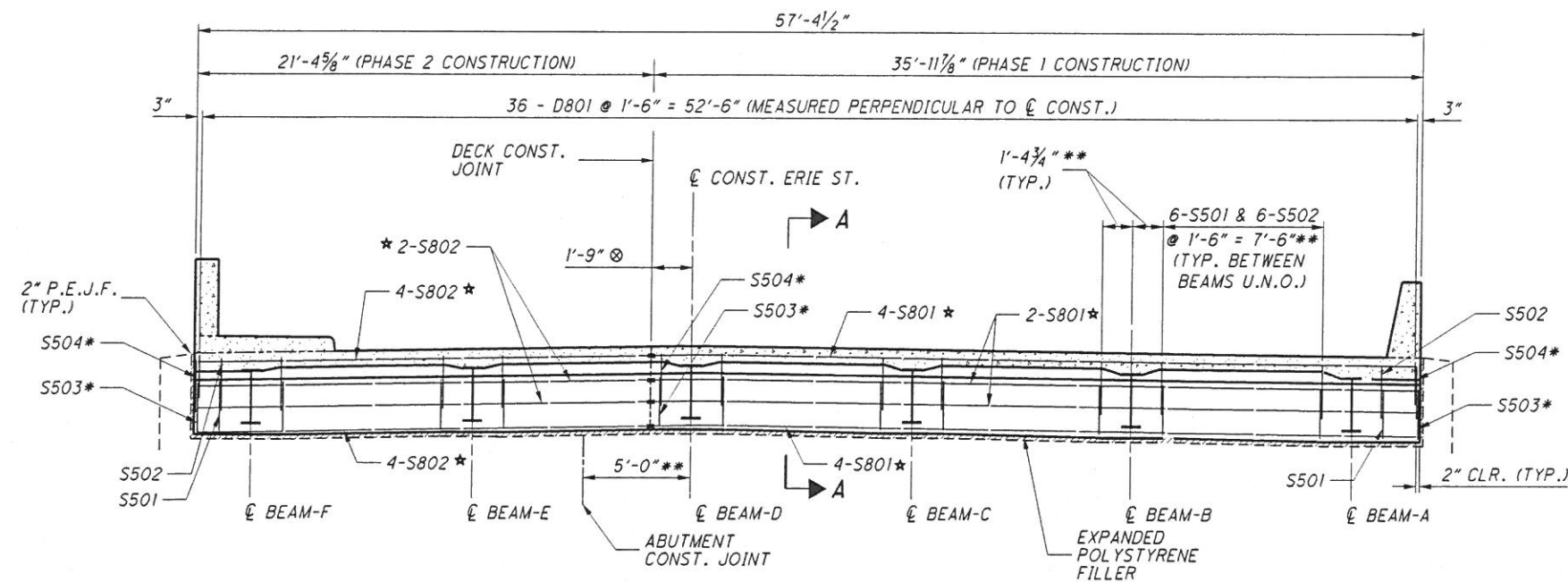
DETAIL 2

NOTES

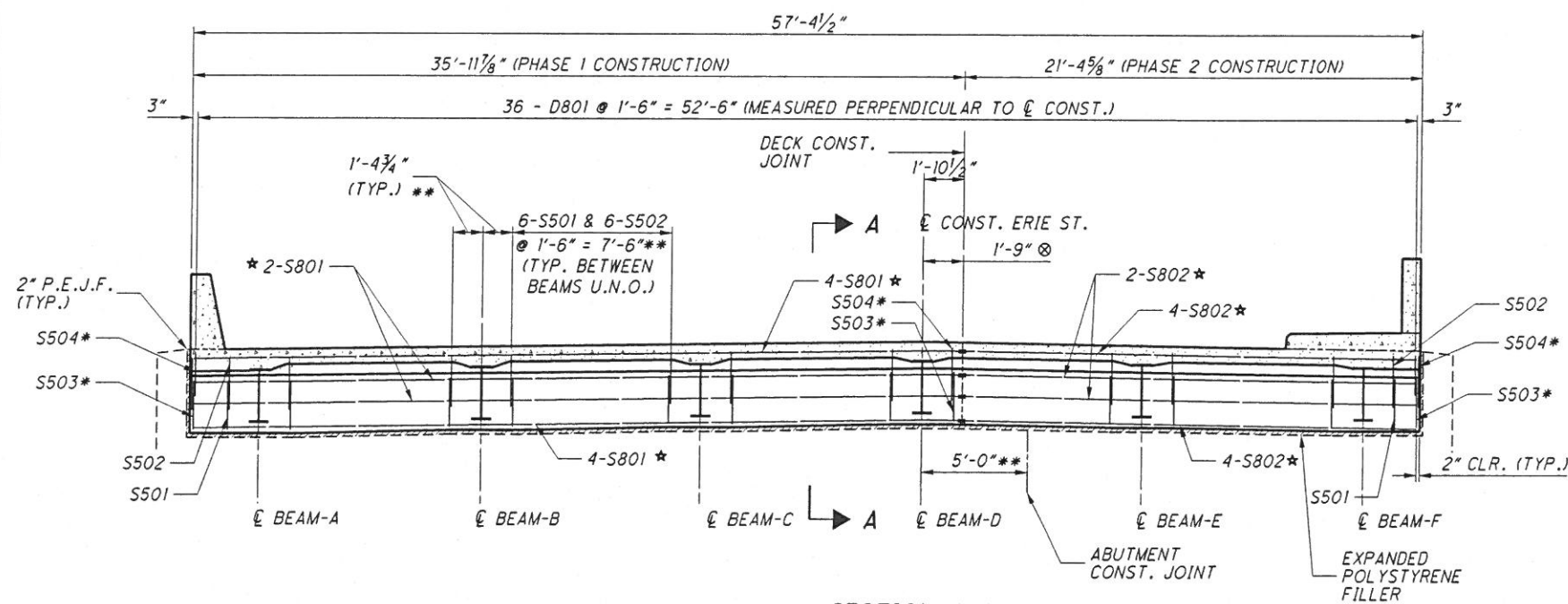
- FOR TRANSVERSE SECTION, SEE SHEET 17/.
- FOR TYPICAL SECTION THRU RAILING AND SIDEWALK, SEE SHEET 17/.
- FOR SEMI-INTEGRAL CONSTRUCTION DETAILS, SEE SHEET 24/ & ODOT STANDARD DRAWING SICD-1-96.
- SECTIONS X-X & Y-Y, SEE SHEET 24/.
- UNLESS NOTED OTHERWISE, REINFORCING SPLICE LENGTHS SHALL BE:
1'-7" FOR #4 BARS
2'-0" FOR #5 BARS (LONGITUDINAL)
2'-6" FOR #5 BARS (TRANSVERSE)
2'-5" FOR #6 BARS
- CONTROL JOINTS IN CONCRETE RAILING, SEE DETAILS AND NOTES ON ST'D. DWGS. BR-2-98 AND SBR-1-99.
- SEE STRUCTURE GENERAL NOTES, SHEET 2/, FOR ADDITIONAL NOTES.

APPROVED FOR
CONSTRUCTION
5/19/08

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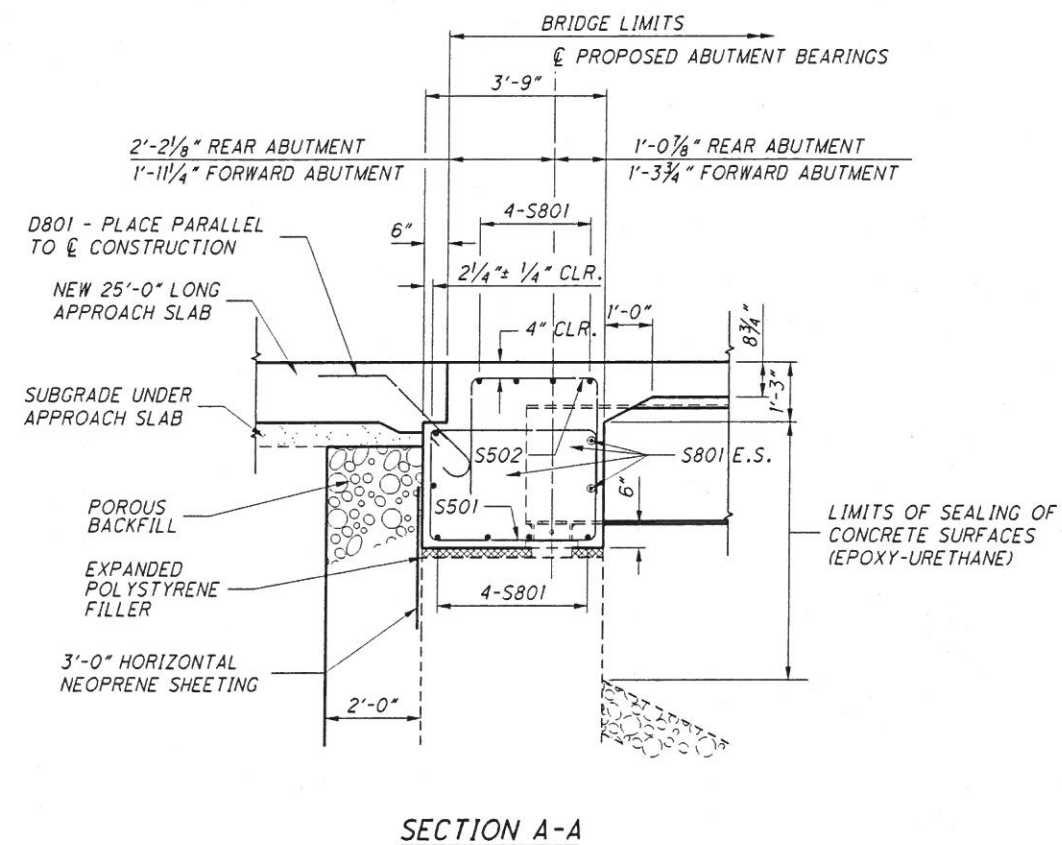
SECTION X-X
REAR ABUTMENT



SECTION Y-Y
FORWARD ABUTMENT

NOTES:

1. * PLACE S503 & S504 BARS PARALLEL TO $\bar{C}$ CONSTRUCTION.
2. ** MEASURED ALONG $\bar{C}$ BEARINGS.
3. * DENOTES MECHANICAL CONNECTOR AT ONE END.
4. $\otimes$ MEASURED PERPENDICULAR TO $\bar{C}$ CONSTRUCTION.
5. FOR LOCATION OF SECTIONS X-X & Y-Y, SEE SHEET 23/...
6. PHASED SEMI-INTEGRAL CONSTRUCTION DETAILS: PLACE DIAPHRAGM CONCRETE ENCASE THE ENDS OF THE BEAMS AT THE ABUTMENTS AT THE SAME TIME AS THE DECK CONCRETE OF THE INDIVIDUAL CONSTRUCTION PHASE TO ALLOW FOR EXPECTED DEAD LOAD ROTATION AT THE ABUTMENTS.
7. SEE STRUCTURE GENERAL NOTES, SHEET 2-3/..., FOR ADDITIONAL NOTES.



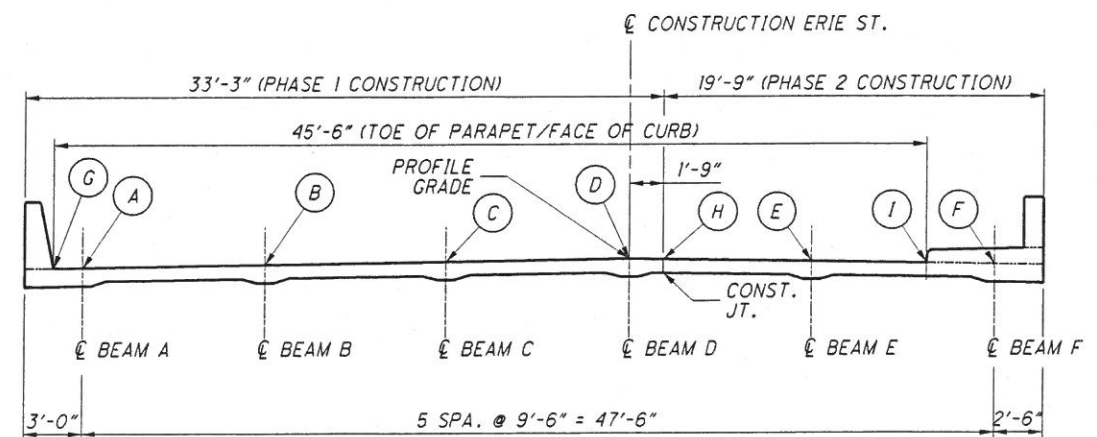
SECTION A-A

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CONSTRUCTION
5/19/08

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SCREED ELEVATIONS																		
LOCATION		SPAN NUMBER 1				SPAN NUMBER 2				SPAN NUMBER 3				SPAN NUMBER 4				
		℄ BRG.	0.25 PT.	0.50 PT.	SPLICE	℄ BRG.	0.25 PT.	0.50 PT.	SPLICE	℄ BRG.	0.25 PT.	0.50 PT.	SPLICE	℄ BRG.	0.25 PT.	0.50 PT.	0.75 PT.	℄ BRG.
SCREED LINE A	STATION	23+96.27	24+06.52	24+16.77	24+27.77	24+37.27	24+50.02	24+62.77	24+76.27	24+88.27	25+03.02	25+17.77	25+34.77	25+47.27	25+57.52	25+67.77	25+78.02	25+88.27
	ELEVATION	996.59	996.64	996.68	996.70	996.72	996.77	996.81	996.84	996.87	996.95	997.01	997.04	997.05	997.08	997.12	997.15	997.17
SCREED LINE B	STATION	24+00.21	24+10.46	24+20.71	24+31.71	24+41.21	24+53.96	24+66.71	24+80.21	24+92.21	25+06.96	25+21.71	25+38.71	25+51.21	25+61.46	25+71.71	25+81.96	25+92.21
	ELEVATION	996.76	996.80	996.84	996.86	996.88	996.93	996.97	997.00	997.03	997.11	997.18	997.20	997.21	997.24	997.28	997.32	997.33
SCREED LINE C	STATION	24+04.14	24+14.39	24+24.64	24+35.64	24+45.14	24+57.89	24+70.64	24+84.14	24+96.14	25+10.89	25+25.64	25+42.64	25+55.14	25+65.39	25+75.64	25+85.89	25+96.14
	ELEVATION	996.92	996.97	997.00	997.03	997.04	997.09	997.14	997.17	997.20	997.27	997.34	997.37	997.37	997.41	997.45	997.48	997.50
SCREED LINE D	STATION	24+08.08	24+18.33	24+28.58	24+39.58	24+49.08	24+61.83	24+74.58	24+88.08	25+00.08	25+14.83	25+29.58	25+46.58	25+59.08	25+69.33	25+79.58	25+89.83	26+00.08
	ELEVATION	997.09	997.13	997.16	997.19	997.21	997.26	997.30	997.33	997.36	997.43	997.50	997.53	997.54	997.57	997.61	997.64	997.66
SCREED LINE E	STATION	24+12.02	24+22.27	24+32.52	24+43.52	24+53.02	24+65.77	24+78.52	24+92.02	25+04.02	25+18.77	25+33.52	25+50.52	25+63.02	25+73.27	25+83.52	25+93.77	26+04.02
	ELEVATION	996.95	996.99	997.03	997.05	997.07	997.12	997.16	997.19	997.22	997.30	997.36	997.39	997.40	997.43	997.47	997.50	997.52
SCREED LINE F	STATION	24+15.95	24+26.20	24+36.45	24+47.45	24+56.95	24+69.70	24+82.45	24+95.95	25+07.95	25+22.70	25+37.45	25+54.45	25+66.95	25+77.20	25+87.45	25+97.70	26+07.95
	ELEVATION	996.81	996.85	996.88	996.91	996.93	996.97	997.02	997.05	997.08	997.15	997.22	997.25	997.26	997.29	997.33	997.36	997.38
SCREED LINE G	STATION	23+95.65	24+05.90	24+16.15	24+27.15	24+36.65	24+49.40	24+62.15	24+75.65	24+87.65	25+02.40	25+17.15	25+34.15	25+46.65	25+56.90	25+67.15	25+77.40	25+87.65
	ELEVATION	996.57	996.61	996.65	996.67	996.69	996.74	996.78	996.81	996.84	996.92	996.98	997.01	997.02	997.05	997.09	997.12	997.14
SCREED LINE H	STATION	24+08.81	24+19.06	24+29.31	24+40.31	24+49.81	24+62.56	24+75.31	24+88.81	25+00.81	25+15.56	25+30.31	25+47.31	25+59.81	25+70.06	25+80.31	25+90.56	26+00.81
	ELEVATION	997.06	997.11	997.14	997.16	997.18	997.23	997.27	997.30	997.34	997.41	997.47	997.50	997.51	997.54	997.58	997.62	997.64
SCREED LINE I	STATION	24+14.50	24+24.75	24+35.00	24+46.00	24+55.50	24+68.25	24+81.00	24+94.50	25+06.50	25+21.25	25+36.00	25+53.00	25+65.50	25+75.75	25+86.00	25+96.25	26+06.50
	ELEVATION	996.86	996.90	996.93	996.96	996.98	997.02	997.07	997.10	997.13	997.20	997.27	997.30	997.31	997.34	997.38	997.41	997.43

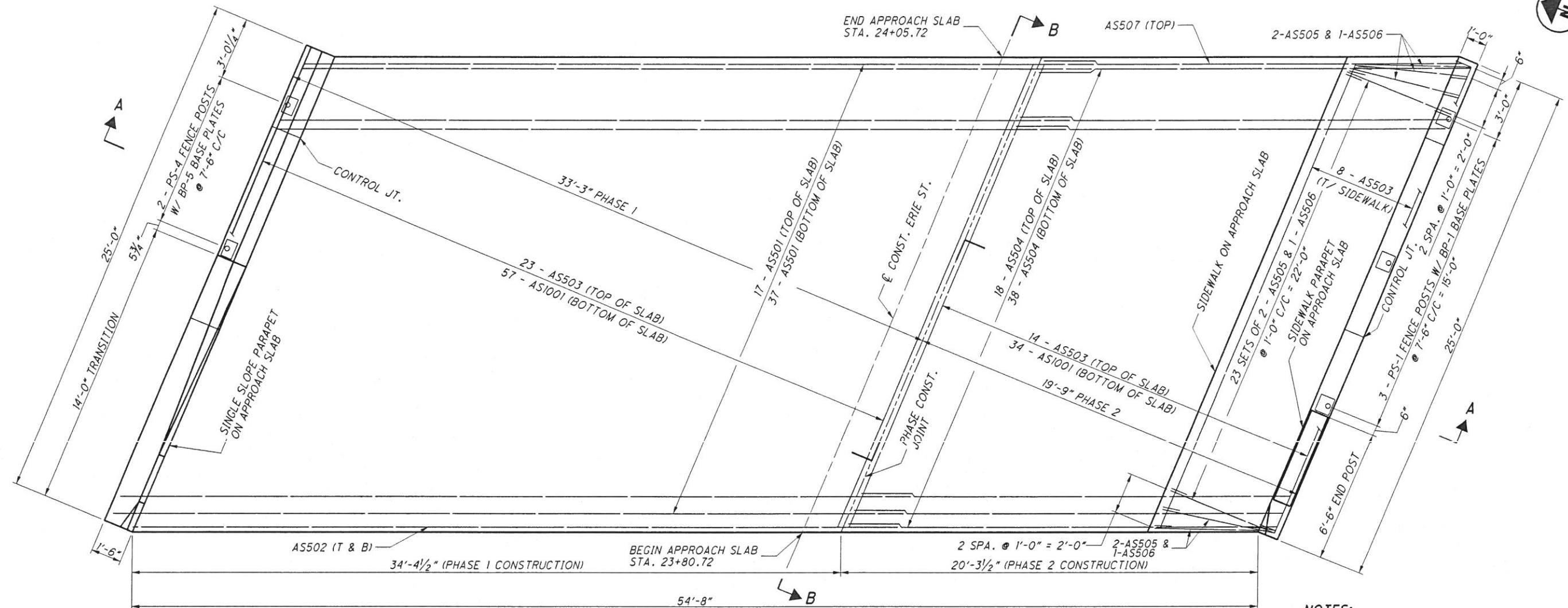
SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.



SCREED ELEVATION DIAGRAM
(LOOKING UPSTATION)

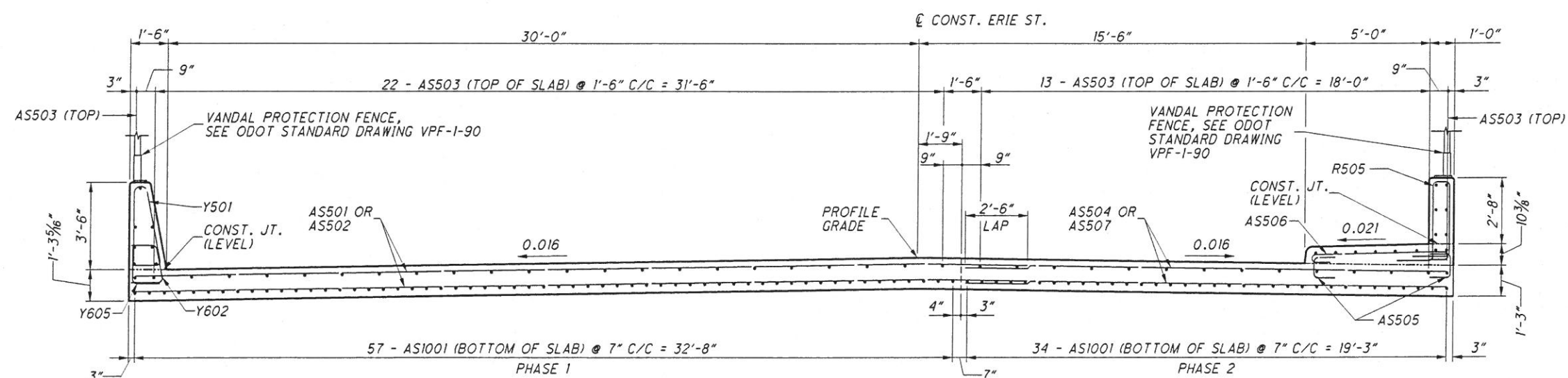
APPROVED FOR CONSTRUCTION 5/19/08

DESIGNED DBC	DRAWN MVC	REVIEWED ZRD	DATE 4/2008	DESIGN AGENCY W.E. QUICKSALL & ASSOCIATES, INC. 554 WEST HIGH AVE. NEW ADELMER, OHIO CIVIL ENGINEERS
CHECKED HJS	REVIEWED	STRUCTURE FILE NUMBER 7600151		
SUPERSTRUCTURE DETAILS BRIDGE NO. STA-21-0898 ERIE STREET OVER S.R. 21				STA-21-8.98 PID No. 23753
25				

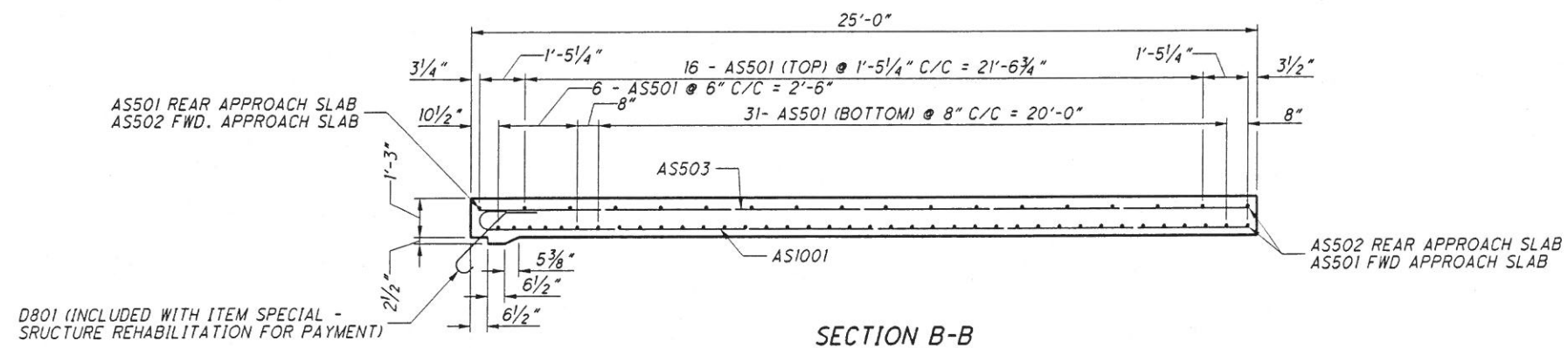
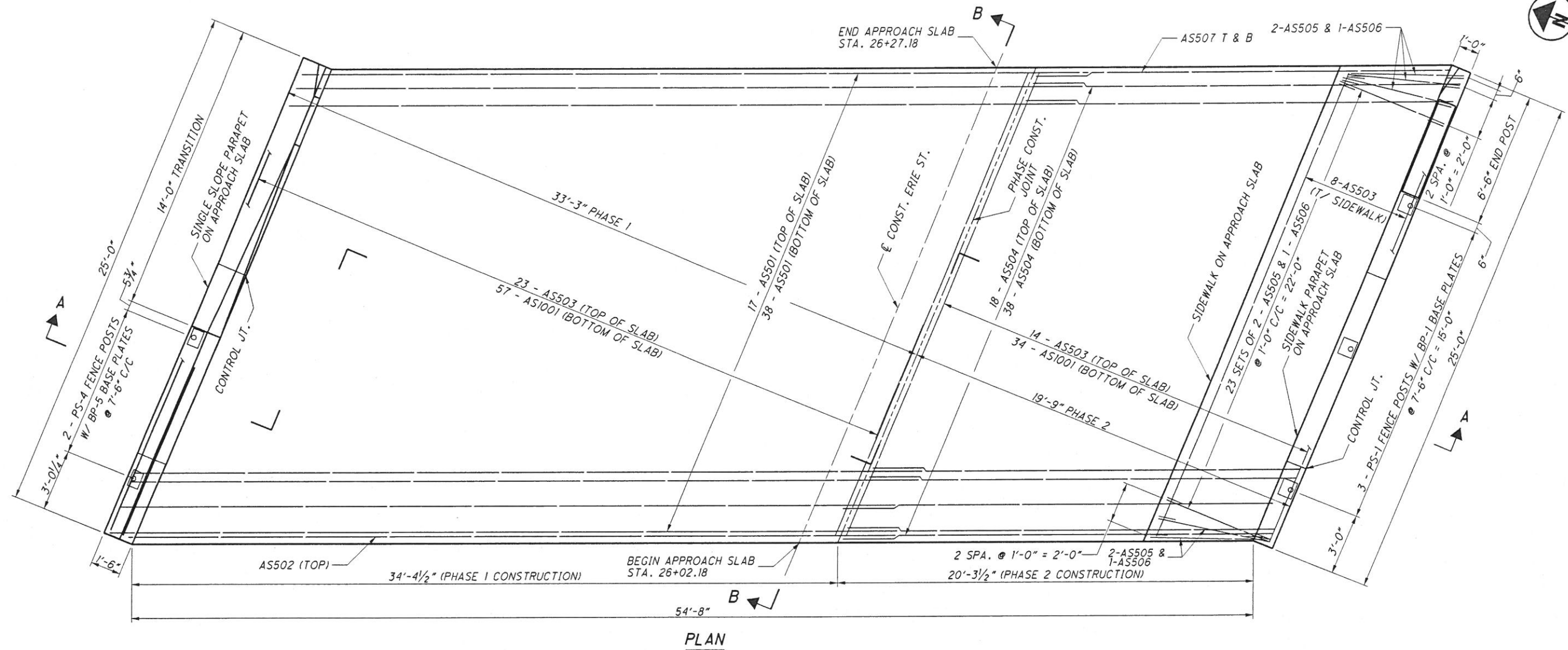


NOTES:

1. SEE SHEET 27/ FOR SECTION B-B AND NOTES.



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5/19/08

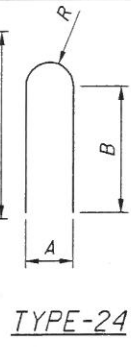
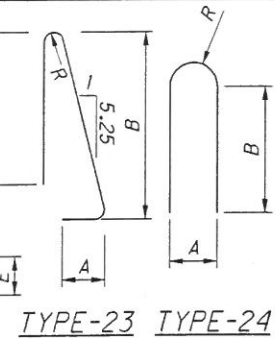
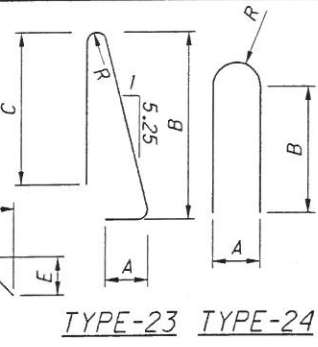
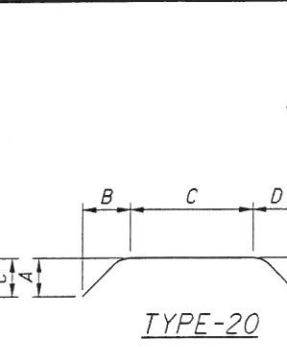
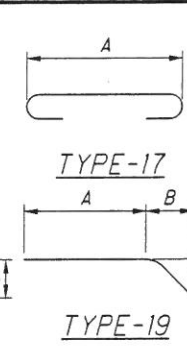
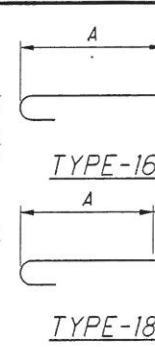
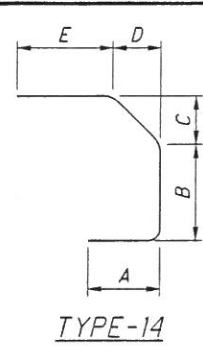
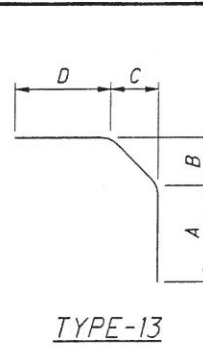
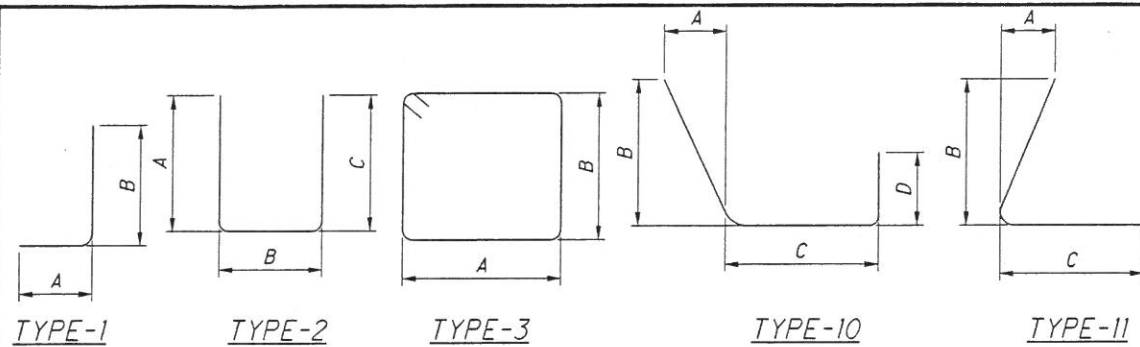


NOTES:

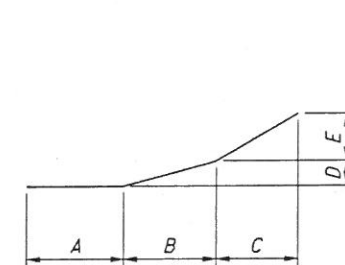
1. UNLESS SHOWN OTHERWISE, LONGITUDINAL BARS SHALL BE PLACED PARALLEL TO PHASE CONSTRUCTION JOINT, AND TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE FACE OF ABUTMENT.
2. CONCRETE SINGLE SLOPE PARAPET, SIDEWALK, SIDEWALK PARAPET AND FENCE ON EACH APPROACH SLAB CARRIED WITH APPROACH SLAB FOR PAYMENT.
3. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL APPROACH SLAB DETAILS AND NOTES.
4. SEE STANDARD DRAWINGS BR-2-98 AND SBR-1-99 FOR PARAPET ELEVATIONS AND SECTIONS SHOWING ADDITIONAL DIMENSIONS AND REINFORCING STEEL. THE TOP OF THE SIDEWALK PARAPET IS 2'-8" ABOVE THE TOP OF SIDEWALK BETWEEN END POSTS. STEEL RAILING IS NOT REQUIRED ON THE WALL.
5. CONTROL JOINTS IN CONCRETE RAILING, SEE DETAILS AND NOTES ON STD. DWGS. BR-2-98 AND SBR-1-99.
6. SEE STRUCTURE GENERAL NOTES, SHEETS 2-3/ FOR ADDITIONAL NOTES.
7. FOR SECTION A-A, SEE SHEET 26/.

APPROVED FOR
CONSTRUCTION
5 / 19 / 08

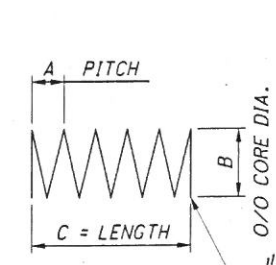
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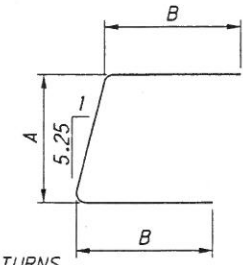
MARK	NUMBER				LENGTH	WEIGHT	TYPE	DIMENSIONS						
	PIER #1	PIER #2	PIER #3					TOTAL	A	B	C	D	E	R
PIERS														
P501	12	12	12		36	8'-3"	310	2	2'-11"	2'-8"	2'-11"			
P502	4	4	4		12	10'-0"	125	STR						
P503	66	70	66		202	2'-10"	597	1	0'-10"	2'-2"				
P504	32	34	32		98	4'-0"	409	2	0'-9 1/2"	2'-8"	0'-9 1/2"			
P601	12	12	12		36	8'- 2"	442	STR						
P602	4		4		8	4'-3"	51	1	1'-7"	2'-10"				
P603	3		3		6	10'-6"	95	29	1'-9 1/2"	2'-10 1/2"	1'-0"			
P604	6		6		12	4'-6"	81	1	1'-9 1/2"	2'-10 1/2"				
P701	16	16	16		48	9'- 8"	948	17	8'-2"					
P801	2	2	2		6	8'-6"	136	24	2'-2 1/2"	2'-6"			1'-0 1/4"	
P901	10				10	29'- 2"	992	16	27'-11 1/2"					
P902		10			10	20'- 5"	694	16	19'-2"					
P903			10		10	24'- 11"	847	16	23'-8 1/4"					
P904	10	10	10		30	9'- 11"	1012	1	1'-7"	8'-7 1/2"				
P905	2	2	2		6	10'-0"	204	STR						
P906	2	2	2		6	11'-0"	224	STR						
P907	2	2	2		6	24'-5"	498	1	3'-6"	21'-2"				
P908	2	2	2		6	21'-7"	440	STR						
P909	2	2	2		6	17'-3"	352	STR						
P1001	4		4		8	4'-1"	141	1	1'-7"	2'-10"				
P1002	4		4		8	2'-10"	98	STR						
P1101	3	3	3		9	27'-5"	1311	1	3'-6"	24'-3"				
P1102	3	3	3		9	23'-10"	1140	STR						
P1103	3	3	3		9	17'-9"	849	STR						
SP401	1				1	529'- 3"	354	27	0'-4 1/2"	2'-6"	24'-6"			
SP402		1			1	341'- 7"	228	27	0'-4 1/2"	2'-6"	15'-5"			
SP403			1		1	436'- 3"	291	27	0'-4 1/2"	2'-6"	20'-0"			
TOTAL						12,869								



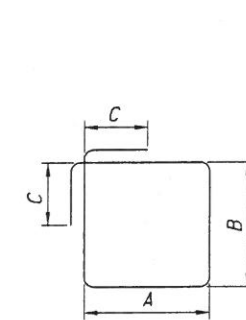
TYPE-25



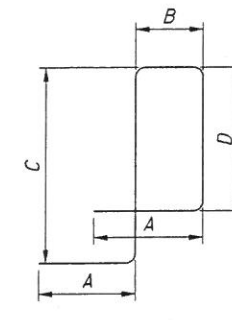
TYPE-27



TYPE-28



TYPE-29



TYPE-30

NOTES:

1. BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A701 IS A NO. 7 AND A1014 IS A NO. 10 SIZE. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR. "STR" DENOTES STRAIGHT BARS.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.
3. ★ DENOTES MECHANICAL CONNECTOR AT ONE END.

APPROVED FOR
CONSTRUCTION
5/19/08

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MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOTAL				A	B	C	D	E	R	INC
SUPERSTRUCTURE											
D801	72	5'-0"	961	18	2'-9 5/8"	1'-0"	1'-0"				
R501	198	7'-5"	1532	23	1'-1"	3'-2"	3'-0"			0'-2 3/4"	
R502	72	30'-0"	2253	STR							
R503	12	28'-3"	354	STR							
R504	198	9'-0"	1859	30	1'-6"	8"	3'-0"	2'-10"			
R601	198	3'-6"	1041	28	1'-6"	1'-1"					
R602	6	30'-0"	270	STR							
R603	1	30'-9"	46	STR							
R604	198	2'-5"	719	1	1'-1"	1'-6"					
S401	468	30'-0"	9379	STR							
S402	78	25'-9"	1342	STR							
S501	62	12'-2"	787	3	3'-5"	2'-4"					
S502	62	7'-2"	463	2	2'-5"	2'-7"	2'-5"				
S503	6	12'-8"	79	3	3'-8"	2'-4"					
S504	6	7'-5"	46	2	2'-5"	2'-10"	2'-5"				
S505	920	35'-9"	34304	STR							
S506	438	30'-0"	13705	STR							
S507	73	28'-3"	2151	STR							
S508	2 SERIES OF 36	1'-6" TO 34'-11"	1367	STR							0'-11 1/2"
S509	2 SERIES OF 32	4'-2" TO 33'-9"	1266	STR							0'-11 1/2"
S510	231	33'-6"	8071	STR							
S511	952	19'-5"	19280	STR							
S512	2 SERIES OF 17	2'-8" TO 17'-11"	365	STR							0'-11 1/2"
S513	2 SERIES OF 20	1'-0" TO 19'-2"	421	STR							0'-11 1/2"
S514	198	2'-5"	499	2	0'-10"	1'-0"	0'-10"				
S515	198	2'-9"	568	2	0'-10"	1'-4"	0'-10"				
S516	198	6'-9"	1394	17	5'-7"						
S801	24	35'-10"	2296	STR							
S802	24	21'-2"	1356	STR							
SUPERSTRUCTURE TOTAL			108,174								

FOR BENDING DIAGRAMS AND REINFORCING NOTES, SEE SHEET 29/ .

APPROVED FOR
CONSTRUCTION
5/19/08

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
564 WEST HIGH AVE
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DATE
4/2008
STRUCTURE FILE NUMBER
7600151

REVIEWED
ZRD
DRAWN
MVC
DESIGNED
HJS
CHECKED
DBC

REINFORCING STEEL LIST
BRIDGE NO. STA-21-0898
ERIE STREET, OVER S.R. 21

STA-21-8.98
PID No. 23753

30/



Route 21 Bridge Replacement
(North of Lake Ave)
August 7, 2006

Keith A. Dylewski, PE
City Engineer
151 Lincoln Way East
Massillon, OH 44640

RE: STA-21-12.48
Stage 2 Plan
PID 25433
Korda File: 2006-0007

Dear Mr. Dylewski:

Transmitted herewith, for your review and comment, are two sets of prints of the Stage 2 plan for the rehabilitation of the U.S. 21 bridge crossing of the Tuscarawas River/Railroads/Riverside Avenue at the Massillon North Corporation Line.

A portion of the south approach roadway work (pavement overlay) is located within the Massillon corporate limits. Also, the proposed Maintenance of Traffic plan requires temporary modifications in the Lake Avenue intersection. A copy of the proposed construction stage signal phasing is included.

Please direct any comments to the undersigned or to Neal C. Miesle, PE, District 4 project manager.

Respectfully,

KORDA/NEMETH ENGINEERING, INC.
Consulting Engineers


Ronald W. Eifert, PE, PS
Project Manager

RWE/jds
Enclosures

xc: Neal C. Miesle, PE
James L. Swartz, PE
Michael Hobbs, PE
Michael Loudiana(Director-Public Service)

**STA-21-12.48
PID No. 24533
STATE ROUTE 21 IMPROVEMENTS**

**STAGE 2
MAINTENANCE OF TRAFFIC & TRAFFIC CONTROL
CALCULATIONS & DETAILS**

PREPARED FOR:



&



PREPARED BY:



GLAUS PYLE SCHOMER BURNS & DEHAVEN INC.

GPD ASSOCIATES

520 South Main Street, Suite 2531 Akron, Ohio 44311
330-572-2100, Fax 330-572-2101

July 19, 2006

Table Of Contents

Horizontal Control	Section 1
MOT Temporary Signal Calculations	Section 2
MOT and Traffic Control Cost Estimate.....	Section 3
Office of Traffic Engineering – Standard Construction Drawings	Section 4
Ohio Department of Transportation – D-4 Preferences	Section 5

SECTION 1

Chain CROSS01 contains:
CR101 CUR CR01 CUR CR02 CR105

Beginning chain CROSS01 description

=====
Point CR101 N 419,026.88 E 2,237,598.27 Sta 10+00.00

Course from CR101 to PC CR01 N 25° 58' 30" W Dist 95.22

Curve Data

Curve CR01
P.I. Station 12+21.97 N 419,226.43 E 2,237,501.05
Delta = 7° 35' 38" (RT)
Degree = 3° 00' 00"
Tangent = 126.75
Length = 253.13
Radius = 1,909.86
External = 4.20
Long Chord = 252.94
Mid. Ord. = 4.19
P.C. Station 10+95.22 N 419,112.48 E 2,237,556.56
P.T. Station 13+48.35 N 419,346.71 E 2,237,461.08
C.C. N 419,948.96 E 2,239,273.50
Back = N 25° 58' 30" W
Ahead = N 18° 22' 52" W
Chord Bear = N 22° 10' 41" W

Curve Data

Curve CR02
P.I. Station 14+75.10 N 419,466.99 E 2,237,421.11
Delta = 7° 35' 38" (LT)
Degree = 3° 00' 00"
Tangent = 126.75
Length = 253.13
Radius = 1,909.86
External = 4.20
Long Chord = 252.94
Mid. Ord. = 4.19
P.C. Station 13+48.35 N 419,346.71 E 2,237,461.08
P.T. Station 16+01.48 N 419,580.94 E 2,237,365.60
C.C. N 418,744.46 E 2,235,648.66
Back = N 18° 22' 52" W
Ahead = N 25° 58' 30" W
Chord Bear = N 22° 10' 41" W

Course from PT CR02 to CR105 N 25° 58' 30" W Dist 100.00

Point CR105 N 419,670.84 E 2,237,321.80 Sta 17+01.48

=====
Ending chain CROSS01 description

Chain CROSS02 contains:
CR201 CUR CR03 CUR CR04 CR205

Beginning chain CROSS02 description

=====
===
Point CR201 N 419,042.64 E 2,237,630.63 Sta 20+00.00

Course from CR201 to PC CR03 N 25° 58' 30" W Dist 95.22

Curve Data

Curve CR03

P.I. Station 22+21.97 N 419,242.19 E 2,237,533.41
Delta = 7° 35' 38" (LT)
Degree = 3° 00' 00"
Tangent = 126.75
Length = 253.13
Radius = 1,909.86
External = 4.20
Long Chord = 252.94
Mid. Ord. = 4.19
P.C. Station 20+95.22 N 419,128.25 E 2,237,588.93
P.T. Station 23+48.35 N 419,347.81 E 2,237,463.33
C.C. N 418,291.77 E 2,235,871.99
Back = N 25° 58' 30" W
Ahead = N 33° 34' 08" W
Chord Bear = N 29° 46' 19" W

Curve Data

Curve CR04

P.I. Station 24+75.10 N 419,453.42 E 2,237,393.24
Delta = 7° 35' 38" (RT)
Degree = 3° 00' 00"
Tangent = 126.75
Length = 253.13
Radius = 1,909.86
External = 4.20
Long Chord = 252.94
Mid. Ord. = 4.19
P.C. Station 23+48.35 N 419,347.81 E 2,237,463.33
P.T. Station 26+01.48 N 419,567.36 E 2,237,337.73
C.C. N 420,403.84 E 2,239,054.67
Back = N 33° 34' 08" W
Ahead = N 25° 58' 30" W
Chord Bear = N 29° 46' 19" W

Course from PT CR04 to CR205 N 25° 58' 30" W Dist 150.00

Point CR205 N 419,702.21 E 2,237,272.03 Sta 27+51.48

=====
===
Ending chain CROSS02 description

Chain CROSS03 contains:

CR301 CUR CR05 CUR CR06 CUR CR07

Beginning chain CROSS03 description

=====

Point CR301 N 420,570.34 E 2,236,883.57 Sta 30+00.00

Course from CR301 to PC CR05 N 25° 58' 30" W Dist 100.35

Curve Data

Curve CR05

P.I. Station 33+26.06 N 420,863.47 E 2,236,740.76
Delta = 13° 28' 48" (LT)
Degree = 3° 00' 00"
Tangent = 225.71
Length = 449.33
Radius = 1,909.86
External = 13.29
Long Chord = 448.30
Mid. Ord. = 13.20
P.C. Station 31+00.35 N 420,660.56 E 2,236,839.62
P.T. Station 35+49.69 N 421,037.74 E 2,236,597.33
C.C. N 419,824.08 E 2,235,122.68
Back = N 25° 58' 30" W
Ahead = N 39° 27' 18" W
Chord Bear = N 32° 42' 54" W

Curve Data

Curve CR06

P.I. Station 36+46.51 N 421,112.50 E 2,236,535.80
Delta = 5° 48' 16" (RT)
Degree = 3° 00' 00"
Tangent = 96.83
Length = 193.48
Radius = 1,909.86
External = 2.45
Long Chord = 193.40
Mid. Ord. = 2.45
P.C. Station 35+49.69 N 421,037.74 E 2,236,597.33
P.T. Station 37+43.17 N 421,193.10 E 2,236,482.15
C.C. N 422,251.40 E 2,238,071.98
Back = N 39° 27' 18" W
Ahead = N 33° 39' 02" W
Chord Bear = N 36° 33' 10" W

Curve Data

Curve CR07

P.I. Station 38+16.59 N 421,254.22 E 2,236,441.46
Delta = 1° 54' 15" (LT)
Degree = 1° 17' 49"
Tangent = 73.42

Length = 146.83
Radius = 4,417.80
External = 0.61
Long Chord = 146.82
Mid. Ord. = 0.61
P.C. Station 37+43.17 N 421,193.10 E 2,236,482.15
P.T. Station 38+90.00 N 421,313.96 E 2,236,398.77
C.C. N 418,745.09 E 2,232,804.62
Back = N 33° 39' 02" W
Ahead = N 35° 33' 17" W
Chord Bear = N 34° 36' 09" W

=====

=====
Ending chain CROSS03 description

Chain CROSS04 contains:
CR401 CUR CR08 CUR CR09 CUR CR010

Beginning chain CROSS04 description

=====
=====
Point CR401 N 420,555.88 E 2,236,856.14 Sta 40+00.00

Course from CR401 to PC CR08 N 25° 58' 30" W Dist 183.11

Curve Data

Curve CR08
P.I. Station 42+68.18 N 420,796.96 E 2,236,738.68
Delta = 5° 06' 03" (RT)
Degree = 3° 00' 00"
Tangent = 85.07
Length = 170.03
Radius = 1,909.86
External = 1.89
Long Chord = 169.97
Mid. Ord. = 1.89
P.C. Station 41+83.11 N 420,720.49 E 2,236,775.94
P.T. Station 43+53.14 N 420,876.45 E 2,236,708.37
C.C. N 421,556.96 E 2,238,492.87
Back = N 25° 58' 30" W
Ahead = N 20° 52' 27" W
Chord Bear = N 23° 25' 28" W

Curve Data

Curve CR09
P.I. Station 45+47.25 N 421,057.83 E 2,236,639.20
Delta = 11° 36' 26" (LT)
Degree = 3° 00' 00"
Tangent = 194.12
Length = 386.91
Radius = 1,909.86
External = 9.84
Long Chord = 386.25
Mid. Ord. = 9.79
P.C. Station 43+53.14 N 420,876.45 E 2,236,708.37
P.T. Station 47+40.04 N 421,221.58 E 2,236,534.95
C.C. N 420,195.94 E 2,234,923.86
Back = N 20° 52' 27" W
Ahead = N 32° 28' 53" W
Chord Bear = N 26° 40' 40" W

Curve Data

Curve CR010
P.I. Station 48+37.54 N 421,303.82 E 2,236,482.60
Delta = 2° 26' 27" (LT)
Degree = 1° 15' 07"
Tangent = 97.49

Length = 194.96
Radius = 4,576.46
External = 1.04
Long Chord = 194.94
Mid. Ord. = 1.04
P.C. Station 47+40.04 N 421,221.58 E 2,236,534.95
P.T. Station 49+35.00 N 421,383.76 E 2,236,426.79
C.C. N 418,763.90 E 2,232,674.41
Back = N 32° 28' 53" W
Ahead = N 34° 55' 20" W
Chord Bear = N 33° 42' 07" W

=====

=====
Ending chain CROSS04 description

Chain BL21 contains:
BL01 CUR BLC1 BL04

Beginning chain BL21 description

=====

Point BL01 N 418,315.57 E 2,237,964.83 Sta 642+00.00

Course from BL01 to PC BLC1 N 25° 58' 30" W Dist 2,256.20

Curve Data

Curve BLC1

P.I. Station 674+85.13 N 421,268.86 E 2,236,526.02

Delta = 15° 20' 30" (LT)

Degree = 0° 45' 00"

Tangent = 1,028.93

Length = 2,045.55

Radius = 7,639.43

External = 68.98

Long Chord = 2,039.44

Mid. Ord. = 68.36

P.C. Station 664+56.20 N 420,343.86 E 2,236,976.67

P.T. Station 685+01.75 N 422,041.66 E 2,235,846.70

C.C. N 416,997.96 E 2,230,108.93

Back = N 25° 58' 30" W

Ahead = N 41° 19' 00" W

Chord Bear = N 33° 38' 45" W

Course from PT BLC1 to BL04 N 41° 19' 00" W Dist 2,288.71

Point BL04 N 423,760.64 E 2,234,335.65 Sta 707+90.46

=====

Ending chain BL21 description

SECTION 2

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: AM Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: S.R. 21 / Lake Ave
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006

N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
LGConfig	L	TR		L	TR		L	T	R	L	TR	
Volume	19	313	25	315	167	131	14	330	175	63	463	15
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left		A			NB	Left	A	
	Thru		A				Thru		A
	Right		A				Right		A
	Peds						Peds		
WB	Left		A		A	SB	Left	A	
	Thru		A		A		Thru		A
	Right		A		A		Right		A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		11.0	16.0				6.0	17.0	
Yellow		3.0	4.0				3.0	4.0	
All Red		1.0	2.0				1.0	2.0	

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	243	1065	0.09	0.23	21.4	C		
TR	429	1879	0.88	0.23	44.2	D	43.0	D
Westbound								
L	393	1805	0.89	0.44	37.0	D		
TR	786	1775	0.42	0.44	13.7	B	25.7	C
Northbound								
L	155	1805	0.10	0.09	29.8	C		
T	461	1900	0.80	0.24	34.3	C	30.6	C
R	392	1615	0.49	0.24	23.8	C		
Southbound								
L	155	1805	0.45	0.09	32.5	C		
TR	874	3600	0.61	0.24	24.8	C	25.7	C

Intersection Delay = 30.0 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: Noon Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: S.R. 21 / Lake Ave
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006

N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
LGConfig	L	TR		L	TR		L	T	R	L	TR	
Volume	10	179	33	208	213	43	20	236	163	43	241	13
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left		A			NB	Left	A	
	Thru		A				Thru		A
	Right		A				Right		A
	Peds						Peds		
WB	Left		A		A	SB	Left	A	
	Thru		A		A		Thru		A
	Right		A		A		Right		A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		11.0	16.0				6.0	17.0	
Yellow		3.0	4.0				3.0	4.0	
All Red		1.0	2.0				1.0	2.0	

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	254	1112	0.04	0.23	21.1	C		
TR	424	1855	0.56	0.23	25.5	C	25.3	C
Westbound								
L	481	1805	0.48	0.44	13.8	B		
TR	820	1852	0.35	0.44	13.1	B	13.4	B
Northbound								
L	155	1805	0.14	0.09	30.0	C		
T	461	1900	0.57	0.24	24.9	C	24.6	C
R	392	1615	0.46	0.24	23.5	C		
Southbound								
L	155	1805	0.31	0.09	31.2	C		
TR	872	3591	0.32	0.24	22.0	C	23.3	C

Intersection Delay = 20.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: PM Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: S.R. 21 / Lake Ave
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006

N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	1	1	2	0
LGConfig	L	TR		L	TR		L	T	R	L	TR	
Volume	15	280	32	319	290	92	50	483	341	107	373	21
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left		A			NB	Left	A	
	Thru		A				Thru	A	A
	Right		A				Right	A	A
	Peds						Peds		
WB	Left		A		A	SB	Left	A	
	Thru		A		A		Thru		A
	Right		A		A		Right		A
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		12.0	17.0				7.0	8.0	12.0
Yellow		3.0	4.0				3.0	3.0	4.0
All Red		1.0	2.0				1.0	1.0	2.0

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	208	978	0.08	0.21	25.4	C		
TR	397	1870	0.87	0.21	49.4	D	48.3	D
Westbound								
L	366	1805	0.97	0.41	57.4	E		
TR	755	1831	0.56	0.41	18.9	B	36.4	D
Northbound								
L	429	1805	0.13	0.24	24.1	C		
T	570	1900	0.94	0.30	51.5	D	43.0	D
R	485	1615	0.78	0.30	33.7	C		
Southbound								
L	158	1805	0.75	0.09	54.0	D		
TR	538	3589	0.81	0.15	42.1	D	44.7	D

Intersection Delay = 42.2 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: AM Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: Lake Ave / Erie St
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006
 N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	0	1	1	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	214	492	19	51	425	29	11	99	43	28	118	225
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A	A			NB	Left	A	
	Thru		A				Thru	A	
	Right		A				Right	A	
	Peds						Peds		
WB	Left	A	A			SB	Left	A	
	Thru		A				Thru	A	
	Right		A				Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		7.0	29.0				20.0		
Yellow		3.0	3.0				3.0		
All Red		1.0	2.0				2.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	403	1805	0.59	0.57	12.2	B		
TR	783	1889	0.73	0.41	20.5	C	18.1	B
Westbound								
L	354	1805	0.16	0.57	9.6	A		
TR	780	1882	0.65	0.41	18.3	B	17.4	B
Northbound								
L	168	589	0.07	0.29	18.4	B		
TR	518	1813	0.31	0.29	19.9	B	19.8	B
Southbound								
L	357	1248	0.09	0.29	18.4	B		
TR	489	1713	0.78	0.29	30.9	C	29.9	C

Intersection Delay = 20.5 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: Noon Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: Lake Ave / Erie St
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006
 N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	0	1	1	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	126	311	15	105	310	35	19	118	67	18	71	133
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	A	A			NB Left	A		
	Thru		A			Thru	A		
	Right		A			Right	A		
	Peds					Peds			
WB	Left	A	A			SB Left	A		
	Thru		A			Thru	A		
	Right		A			Right	A		
	Peds					Peds			
NB	Right					EB Right			
SB	Right					WB Right			
Green		7.0	29.0				20.0		
Yellow		3.0	3.0				3.0		
All Red		1.0	2.0				2.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	499	1805	0.28	0.57	8.3	A		
TR	782	1887	0.46	0.41	15.3	B	13.4	B
Westbound								
L	516	1805	0.23	0.57	8.0	A		
TR	775	1871	0.49	0.41	15.6	B	13.8	B
Northbound								
L	298	1042	0.07	0.29	18.3	B		
TR	513	1797	0.40	0.29	20.7	C	20.5	C
Southbound								
L	317	1110	0.06	0.29	18.3	B		
TR	490	1714	0.46	0.29	21.3	C	21.0	C

Intersection Delay = 15.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: LOB
 Agency: GPD Group
 Date: 7/6/2006
 Period: PM Peak
 Project ID: STA. 21 - 12.48
 E/W St: Lake Avenue

Inter.: Lake Ave / Erie St
 Area Type: All other areas
 Jurisd: ODOT
 Year : 2006

N/S St: S.R. 21

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	0	1	1	0	1	1	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	285	588	27	122	513	43	24	137	78	27	123	209
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A	A			NB Left	A		
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left	A	A			SB Left	A		
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	9.0	35.0			22.0			
Yellow	3.0	3.0			3.0			
All Red	1.0	2.0			2.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/	Lane	Adj Sat	Ratios		Lane Group		Approach	
Lane	Group	Flow Rate						
Grp	Capacity	(s)	v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	361	1805	0.88	0.60	34.4	C		
TR	826	1887	0.83	0.44	26.8	C	29.2	C
Westbound								
L	314	1805	0.43	0.60	13.6	B		
TR	822	1878	0.75	0.44	22.8	C	21.1	C
Northbound								
L	155	563	0.17	0.28	22.6	C		
TR	494	1796	0.48	0.28	25.0	C	24.8	C
Southbound								
L	263	955	0.11	0.28	21.9	C		
TR	473	1721	0.78	0.28	35.0-	C	34.0	C

Intersection Delay = 27.0 (sec/veh) Intersection LOS = C

SECTION 4

Traffic Home	Publications List	Latest Revisions Information	Old or Superseded Publications	Plan Insert Sheets
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Office of Traffic Engineering

Standard Construction Drawings

Description	Standard detail drawings related to the design and use of traffic control devices used in ODOT plans.
Legal Authority	These are ODOT standards drawings for use on ODOT construction projects. However, these drawings are also recommended for ODOT force account work as appropriate, and they are available to others as a reference.
Misc. Information	
Ordering this Manual	Contacts.
Feedback	you are welcome to contact members of the section with questions or comments through the Contacts .

Highway Lighting (HL)	Maintenance of Traffic (MT)	Traffic Control (TC)
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Drawing No.	File Size (Kilobytes)		Description / Title	Date
	Adobe Acrobat 4.0 (.pdf)	Microstation (.dgn)		
---	<u>286</u>	<u>55</u>	SCD Index	04/21/06
Highway Lighting Standard Construction Drawings				
HL-10.11	<u>86</u>	<u>371</u>	Light Pole Styles	01/16/04
HL-10.12	<u>226</u>	<u>490</u>	Light Pole Details	01/21/05
HL-10.13	<u>89</u>	<u>50</u>	Pole Base Details	01/17/03
HL-10.31	<u>143</u>	<u>72</u>	Light Tower Details	07/20/01
HL-20.11	<u>264</u>	<u>281</u>	Foundation And Trench Details	04/19/02
HL-20.13	<u>230</u>	<u>389</u>	Foundation & Junction Box Details Median Mounted Light	01/21/05
HL-20.14	<u>220</u>	<u>964</u>	Structure Lighting I	01/21/05
HL-20.21	<u>155</u>	<u>114</u>	Light Tower Foundations	01/21/05
HL-30.11	<u>173</u>	<u>285</u>	Pull Box Details I	01/21/05
HL-30.21	<u>75</u>	<u>106</u>	Roadway Conduit Details I	04/19/02
HL-30.22	<u>189</u>	<u>851</u>	Roadway Conduit Details II	01/21/05
HL-30.31	<u>163</u>	<u>507</u>	Structure Conduit Details I	01/21/05
HL-30.32	<u>109</u>	<u>251</u>	Structure Conduit Details II	04/19/02
HL-30.33	<u>46</u>	<u>69</u>	Structure Conduit Details Details III	01/21/05
HL-40.10	<u>155</u>	<u>120</u>	Power Service Pole Mounted	04/19/02
HL-40.20	<u>59</u>	<u>53</u>	Power Service Ground Mounted	01/16/04

	HL-50.11	104	188	Grounding Details	07/20/01
	HL-50.21	245	814	Structure Grounding Steel Beam Bridge	01/21/05
	HL-60.11	99	338	Pole Wiring I	01/16/04
	HL-60.12	112	287	Pole Wiring II	01/21/05
	HL-60.21	44	93	Tower Wiring Details	01/21/05
	HL-60.31	171	257	Control Center Wiring	07/20/01
Maintenance of Traffic Standard Construction Drawings (return to top)					
*	MT-35.10	90, 383	170	Flashing Arrow Panel	04/20/01
*	MT-95.30	249	110	Closing Right Or Left Lane Of A Multi-Lane Divided Highway With Drums	07/16/04
	MT-95.31	217	87	Closing Right Lane Of A Multi-Lane Undivided Highway With Drums	07/16/04
	MT-95.32	220	84	Closing Left Lane Of A Multi-Lane Undivided Highway With Drums	07/16/04
*	MT-95.40	214	112	Closing Right Or Left Lane Of A Multi-Lane Divided Highway With Portable Concrete Barrier	07/16/04
	MT-95.41	213	106	Closing Right Lane Of A Multi-Lane Undivided Highway With Portable Concrete Barrier	07/16/04
	MT-95.60	200	124	Closure of Two-Way left Turn Lane	04/19/02
	MT-95.61	208	120	Closure Of Right Lane Of Three Lane Section With Two-Way Left Turn Lane	04/19/02
*	MT-95.70	252	193	Two-Lane, Two-Way Operation For Use On Four Lane Divided Roadways (Portable Concrete Barrier-PCB)	04/19/02
	MT-95.80	286	224	Two-Lane, Two-Way Operation For Use On Four Lane Divided Roadways (Asphalt Curb Divider)	04/19/02
	MT-95.81	98	96	Two-Lane, Two-Way Operations For Use On Four Lane Divided Roadways (Asphalt Curb Divider With Delineation)	04/19/02
*	MT-95.82	55	41	Adjustment For Two Lane, Two-Way Operation On Four Lane Divided Roadways	04/19/02
	MT-96.10	201	136	Signalized Closing 1 Lane Of A 2 Lane Highway With Drums	04/19/02
	MT-96.11	214	170	Signalized Closing 1 Lane Of A 2 Lane Highway With PCB	04/19/02
	MT-96.20	84	88	Details For Signalized Closing 1 Lane Of A 2 Lane Highway - Side Mounted	04/19/02
	MT-96.21	78	90	Details For Signalized Closing 1 Lane Of A 2 Lane Highway - Overhead Mounted	04/19/02
	MT-96.25	137	33	Pre-Timed-Wiring Diagram For Signalized Closing 1 Lane Of A 2 Lane Highway	04/20/01
	MT-96.26	166	50	Actuated-Wiring Diagram For Signalized Closing 1 Lane Of A 2 Lane Highway	04/20/01
	MT-97.10	188	81	Flaggers Closing 1 Lane Of A 2 Lane Highway For Stationary Operations	04/19/02
	MT-97.11	174	95	Flaggers Closing 1 Lane Of A 2 Lane Highway For Paving Operations	04/19/02
	MT-97.12	177	97	Flaggers Closing 1 Lane Of A 2 Lane Highway For Paving Operations (FED)	04/19/02
	MT-98.12	181	85	Lane Closure In Deceleration Lane	04/19/02

	MT-98.13	220	115	Lane Closure Before Exit Gore	04/19/02
	MT-98.14	201	118	Lane Closure At Exit Gore	04/19/02
	MT-98.15	164	70	Lane Closure At Entrance Ramp: Plan A	07/16/04
	MT-98.16	306	133	Lane Closure At Entrance Ramp: Plan B	04/19/02
	MT-98.17	151	78	Typical Lane Closure In Deceleration Lane And Ramp For Closing Inside Portion Of Curve	10/18/02
	MT-98.18	188	86	Typical Lane Closure In Ramp For Closing In Ramp For Closing Outside Portion Of Curve	10/18/02
	MT-98.19	94	58	Exit Ramp Closure	10/18/02
*	MT-99.20M (metric)	294	42	Traffic Control For Long Line Pavement Marking Operations	01/30/95
	MT-99.50	91	70	Freeway/Expressway Closure Using Drums	10/18/02
	MT-99.51	112	92	Freeway/Expressway Closure Using Temporary Concrete Median Barrier	10/18/02
	MT-99.60	183	98	Short Duration Closing of Rural Divided Highway	10/18/02
*	MT-100.00	184	135	Temporary Crossover Lighting System	04/19/02
*	MT-101.20	275	32	Temporary Raised Pavement Markers	10/18/02
*	MT-101.70	44	25	Portable Concrete Barrier	10/18/02
	MT-102.10	308	183	Transition Plan For Use Of Shoulder With PCB	10/18/02
	MT-102.20	287	176	Transition Plan For Use Of Shoulder With Drum	10/18/02
*	MT-105.10	270	34	Temporary Sign Support	10/18/02
*	MT-105.11	100	174	Temporary Sign Support	10/18/02
	MT-110.10	268	49	Detour Of Pedestrians To Temporary Walkway On Roadway	10/18/02
	MT-110.20	247	50	Detour Of Pedestrians To Other Side Of Street	10/18/02
	MT-110.30	242	54	Detour Of Pedestrians To Another Facility	10/18/02
	MT-120.00	207	138	New Signal Activation	03/01/00
Traffic Control Standard Construction Drawings (return to top)					
	TC-07.65	244	324	Aluminum Truss Overhead Sign Support	07/18/03
	TC-09.10	185	263	Semi-Overhead Sign Support	01/19/01
	TC-09.30	213	282	Center Mount Overhead Sign Support	01/19/01
	TC-12.30	330	213	Cantilever Overhead Sign Support	01/19/01
	TC-15.115	213	275	Steel Truss Overhead Sign Support	07/18/03
	TC-16.20	253	239	Single Arm Overhead Sign Support	01/19/01
	TC-17.10	156	258	Span Wire Overhead Sign Support	01/19/01
	TC-18.24	129	142	Flush Structure Mounted Sign Support	01/18/02
	TC-18.26	278	294	Skewed Structure Mounted Sign Support	01/18/02
	TC-21.10	132	115	Sign Support Foundations	01/19/01
	TC-21.20	272	212	Foundations	01/19/01
	TC-21.40	121	181	Concrete Barrier Median Overhead Sign Support Foundations	01/18/02
	TC-21.41	167	214	Barrier Wall Assembly For Sign Supports	01/18/02
	TC-22.10	119	137	Miscellaneous Overhead Sign Support Details	01/19/01
	TC-22.20	212	180	Sign Attachment Assemblies	01/19/01
	TC-31.21	252	268	Mercury Vapor Sign Lighting Details	04/20/01
	TC-32.10	102	160	Sign Service Details I	04/19/02
	TC-32.11	196	380	Sign Service Details II	10/19/01

* TC-41.10	302	231	Structural Beam Sign Supports	01/19/01
* TC-41.20	146	208	Yielding Post	01/19/01
TC-41.40	123	185	Special Sign Attachments and Supports	07/16/04
TC-41.41	99	162	Special Sign Attachments	01/19/01
TC-41.50	99	120	"One Way" Sign Support Details	07/16/04
* TC-42.10	147	93	Typical Sign Placement Guide Signs	01/19/01
* TC-42.20	170	368	Typical Flat Sheet Sign Placement	07/16/04
TC-51.11	146	144	Aluminum Bolted-Extrusheet Panel Sign	04/20/01
TC-51.12	143	158	Aluminum Bolted-Extrusion Panel Sign	04/20/01
* TC-52.10	147	143	Sign Blank Details I	04/20/01
* TC-52.20	276	173	Sign Blank Details II	04/20/01
TC-61.10	136	238	Delineator Details	01/19/01
TC-65.10	91	196	Raised Pavement Marker Placement Details	01/21/05
TC-65.11	264	900	Raised Pavement Marker Spacing Details	01/21/05
* TC-71.10	216	157	Word and Symbol Pavement Markings	01/21/05
TC-72.20	112	263	Freeway Entrance and Exit Markings	01/21/05
* TC-73.10	69	60	Pavement Marking Details	01/19/01
TC-81.10	325	259	Strain Pole Details	05/01/00
TC-81.20	205	619	Single Arm Overhead Signal Support	01/16/04
TC-82.10	261	340	Vehicle Detector Installation Details	04/19/02
TC-83.10	222	180	Pole Mountings For Controller And Power Service	05/01/00
TC-83.20	207	148	Controller Foundation And Pedestals	01/16/04
TC-84.20	182	231	Messenger Wire Details	05/01/00
TC-84.21	89	77	Messenger Wire Details II	03/06/00
TC-85.10	194	158	Pole Mountings For Signal Heads	04/19/02
TC-85.20	228	321	Overhead Signal Attachments	05/01/00

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