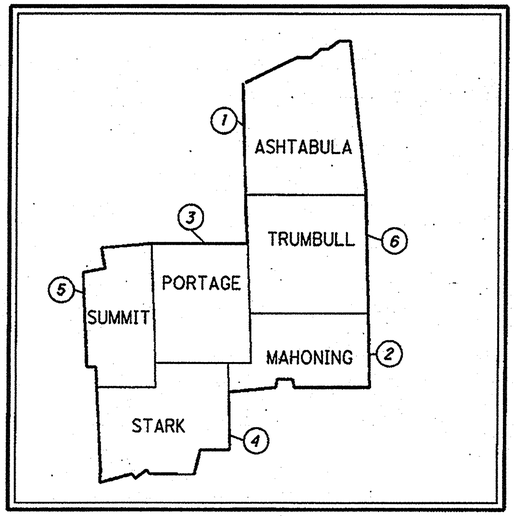



*LOCATION MAP*

*LATITUDE: N41°00'57" LONGITUDE: W81°29'30"*

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

# D04-GR-FY2012A

## ASHTABULA COUNTY, MAHONING COUNTY
## PORTAGE COUNTY, STARK COUNTY
## SUMMIT COUNTY, TRUMBULL COUNTY

*INDEX OF SHEETS:*



*PROJECT DESCRIPTION*

*GUARDRAIL UPGRADE PROJECT*

*GUARDRAIL AND BARRIER END TREATMENT UPGRADE TO CURRENT STANDARDS THROUGHOUT DISTRICT 4.*

*PROJECT EARTH DISTURBED AREA: 2.69 ACRES*
*ESTIMATED CONTRACTOR EDA: N/A (MAINTENANCE PROJECT)*
*NOTICE OF INTENT EDA: NOT REQUIRED*

*2010 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 APPROVED THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.*

*APPROVED* _____ *DISTRICT DEPUTY DIRECTOR*
*DATE* 2-16-12

*APPROVED* Jerry Wray
*DATE* 2-24-12 *DIRECTOR, DEPARTMENT OF TRANSPORTATION*

| FEDERAL PROJECT NO. | PID NO. | CONSTRUCTION PROJECT NO. | RAILROAD INVOLVEMENT |
|---|---|---|---|
| E110(530) | 90394 | | NONE |

D04-GR-FY2012A

1/11

**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 UNDERGROUND
PROTECTION SERVICE CALL: **1-800-925-0988**

*PLAN PREPARED BY:*
*OHIO DEPARTMENT OF TRANSPORTATION*
*DISTRICT 4-- ENGINEERING*

*ENGINEERS SEAL:*

STATE OF OHIO · DOUGLAS A YARD · E-58044 · REGISTERED · PROFESSIONAL ENGINEER

*SIGNED:* _____
*DATE:* 01/09/12

| STANDARD CONSTRUCTION DRAWINGS | | | | | | | | SUPPLEMENTAL SPECIFICATIONS | | SPECIAL PROVISIONS |
|---|---|---|---|---|---|---|---|---|---|---|
| CB-3.2 | 7/15/05 | GR-1.1 | 7/16/04 | MT-35.10 | 4/20/01 | TC-41.10 | 10/19/07 | 800 | 1/20/12 | |
| | | GR-2.1 | 1/16/04 | MT-95.30 | 7/17/09 | TC-41.20 | 1/19/01 | 832 | 5/5/09 | |
| DM-4.3 | 4/17/09 | GR-3.1 | 10/16/09 | MT-95.31 | 7/17/09 | TC-52.10 | 1/19/07 | | | |
| DM-4.4 | 4/17/09 | GR-3.5 | 4/16/10 | MT-95.32 | 7/17/09 | TC-52.20 | 1/19/07 | | | |
| | | GR-4.1 | 1/21/11 | MT-97.10 | 10/15/10 | | | | | |
| | | GR-4.2 | 1/20/12 | MT-98.28 | 7/17/09 | | | | | |
| | | GR-5.1 | 4/16/10 | MT-101.70 | 4/15/11 | | | | | |
| | | GR-5.2 | 4/16/10 | MT-105.10 | 1/16/09 | | | | | |
| | | GR-5.3 | 4/16/10 | | | | | | | |
| | | GR-6.1 | 4/16/10 | RM-4.2 | 10/15/10 | | | | | |
| | | GR-6.2 | 4/16/10 | | | | | | | |
| | | GR-6.3 | 1/20/12 | | | | | | | |
| | | MH-1.2 | 1/20/06 | | | | | | | |

**UTILITIES**

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS:

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE OHIO & GAS PROCEDURES UNDERGROUND PROTECTION SERVICE (OGPUPS), THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEADQUARTERS AND ALL NON REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ALL AREAS.

OUPS 1-800-362-2764 (CONTACT LIMITED BASIS PARTICIPANTS DIRECTLY)
OGPUPS 1-800-925-0988
ODOT 330-786-3145 KEN GREENE

**CLEARING AND GRUBBING**

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

**SEEDING AND MULCHING**

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

659, TOPSOIL 1443 CU. YD.

659, SEEDING AND MULCHING 13000 SQ. YD.

659, REPAIR SEEDING AND MULCHING 650 SQ. YD

659, COMMERCIAL FERTILIZER 1.75 TON

659, LIME 2.69 ACRES

659, WATER 70 M. GAL.

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

**CATCH BASIN No. 5, AS PER PLAN**
**MANHOLE No. 3, AS PER PLAN**

DUE TO THE GRADING REQUIRED BY STD. GR-6.3 AT SLM 26.87, THE CONTRACTOR SHALL REPLACE THE EXISTING MEDIAN CATCH BASIN WITH A MANHOLE No. 3.(4' DEPTH TO FLOW LINE) (EX. 15" CONDUIT WEST, PR. 15' CONDUIT WEST). ALSO, A CATCH BASIN No. 5 (2' DEPTH TO FLOW LINE) IS TO BE INSTALLED 50 FEET TO THE SOUTH WITH A 15" CONDUIT, TYPE C. CONNECTING THE CATCH BASIN TO THE MANHOLE. THE LOCATION AND DEPTHS ARE APPROX. AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR BEFORE MATERIALS ARE ORDERED.

**CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL**

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

**ITEM 606 - ANCHOR ASSEMBLY, TYPE B**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27.75 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

THE FACE OF THE TYPE B IMPACT HEAD SHALL BE COVERED WITH TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE B, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING REFLECTIVE SHEETING AND ALL RELATED HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**ITEM 606 - ANCHOR ASSEMBLY, TYPE E**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27.75 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**ITEM 606 - IMPACT ATTENUATOR, TYPE 1 (UNIDIRECTIONAL OR BIDIRECTIONAL)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY ONE OF THE TYPE 1 IMPACT ATTENUATORS AS LISTED ON THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE 1 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 1 [(UNIDIRECTIONAL OR BIDIRECTIONAL)], EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED TRANSITIONS, HARDWARE, REFLECTIVE SHEETING AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**ITEM 606 - IMPACT ATTENUATOR, TYPE 2, (UNIDIRECTIONAL OR BIDIRECTIONAL)]**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE TYPE 2 IMPACT ATTENUATORS AS LISTED ON THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE. WHEN BI-DIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 2 [(SPEED (IN MPH), HAZARD WIDTH (IN INCHES), (UNIDIRECTIONAL OR BIDIRECTIONAL)], EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS/BACKSTOPS, TRANSITIONS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

CALCULATED | CHECKED

**GENERAL NOTES**

**D04-GR-FY2012A**

## 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.

## 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.

## 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, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF ONE TEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED ON THE EXISTING PAVEMENT DURING DURING CONSTRUCTION OF THE WORK.

2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

3. 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 STANDARD CONSTRUCTION DRAWINGS.

4. 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.

5. TRUCK MOUNTED ATTENUATORS (TMA'S) SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.

6. ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

## 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.

THE CHART CAN BE FOUND AT:
http://plcm.dot.state.oh.us

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE REQUIREMENTS IN THE CHART, THE CONTRACTOR SHALL BE ASSESSED DISINCENTIVES IN THE AMOUNT OF $3000 PER HOUR OR PORTION THEREOF THAT THE LANE REDUCTION REMAINS BEYOND THE SPECIFIED LIMIT.

## LANE CLOSURES - PORTAGE COUNTY STATE ROUTE 14

ONLY ONE LANE IN EACH DIRECTION WILL BE PERMITTED TO BE TO CLOSED IN ORDER TO INSTALL THE BARRIER.

## ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

| | |
|---|---|
| CHRISTMAS | FOURTH OF JULY |
| NEW YEARS | LABOR DAY |
| MEMORIAL DAY | THANKSGIVING |

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

| DAY OF HOLIDAY OR EVENT | TIME ALL LANES MUST BE OPEN TO TRAFFIC |
|---|---|
| SUNDAY | 12:00N FRIDAY THROUGH 6:00 AM MONDAY |
| MONDAY | 12:00N FRIDAY THROUGH 6:00 AM TUESDAY |
| TUESDAY | 12:00N MONDAY THROUGH 6:00 AM WEDNESDAY |
| WEDNESDAY | 12:00N TUESDAY THROUGH 6:00 AM THURSDAY |
| THURSDAY | 12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY |
| THURSDAY (THANKSGIVING ONLY) | 12:00N WEDNESDAY THROUGH 6:00 AM MONDAY |
| FRIDAY | 12:00N THURSDAY THROUGH 6:00 AM MONDAY |
| SATURDAY | 12:00N FRIDAY THROUGH 6:00 AM MONDAY |

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $3000 FOR EACH HOUR THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

## SHOULDER CLOSURES FOR BARRIER REMOVAL AND REPLACEMENT

CLOSE SHOULDER IN ACCORDANCE WITH OMUTCD FIGURE 6H-5 (TA-5) USING PORTABLE CONCRETE BARRIER AND A WORK ZONE IMPACT ATTENUATOR. THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

| | |
|---|---|
| ITEM 622 - PORTABLE CONCRETE BARRIER, 32" | 3000 FT |
| ITEM 614 - WORK ZONE IMPACT ATTENUATOR | 12 EACH |

## ITEM 614, BARRIER REFLECTORS AND/OR OBJECT MARKERS

BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET. AN ESTIMATED QUANTITY OF 60 EACH OF ITEM 614 BARRIER REFLECTOR, TYPE B AND 60 EACH OF ITEM 614 OBJECT MARKER, 1-WAY HAVE BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

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

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS. THE APPROVED LIST IS AVAILABLE AT THE "ROADWAY STANDARDS: PROPRIETARY ROADSIDE SAFETY DEVICES" WEB PAGE ON THE OFFICE OF ROADWAY ENGINEERING WEBSITE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

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 AND MAINTAIN 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.

CALCULATED DAY
CHECKED MJH

# OFFICE OF TRAFFIC GENERAL NOTES

MAINTENANCE

DO4-GR-FY2012A

| SHEET NUMBER | | | | | | | | | PARTICIPATION | | | | | ITEM | ITEM EXT | GRAND TOTAL | UNIT | DESCRIPTION | SEE SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 5 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | ROADWAY | |
| | | | | | | | | | | | | | | 201 | 11000 | LUMP | | CLEARING AND GRUBBING | |
| | | | 420 | | | | | | | | | | | 202 | 30700 | 420 | FT | CONCRETE BARRIER REMOVED | |
| | | | 3313 | | | | | | | | | | | 202 | 38000 | 3313 | FT | GUARDRAIL REMOVED | |
| | | | 1 | | | | | | | | | | | 202 | 58100 | 1 | EACH | CATCH BASIN REMOVED | |
| | | | 2408 | | | | | | | | | | | 203 | 20000 | 2408 | CU YD | EMBANKMENT | |
| | | | 763 | | | | | | | | | | | 606 | 13000 | 763 | FT | GUARDRAIL, TYPE 5 | |
| | | | 575 | | | | | | | | | | | 606 | 15500 | 575 | FT | GUARDRAIL, BARRIER DESIGN, TYPE 5 | |
| | | | 4 | | | | | | | | | | | 606 | 26000 | 4 | EACH | ANCHOR ASSEMBLY, TYPE B | |
| | | | 18 | | | | | | | | | | | 606 | 26100 | 18 | EACH | ANCHOR ASSEMBLY, TYPE E | |
| | | | 4 | | | | | | | | | | | 606 | 26500 | 4 | EACH | ANCHOR ASSEMBLY, TYPE T | |
| | | | 9 | | | | | | | | | | | 606 | 35000 | 9 | EACH | BRIDGE TERMINAL ASSEMBLY, TYPE 1 | |
| | | | 2 | | | | | | | | | | | 606 | 35004 | 2 | EACH | BRIDGE TERMINAL ASSEMBLY, TYPE 1, BARRIER DESIGN | |
| | | | 4 | | | | | | | | | | | 606 | 60012 | 4 | EACH | IMPACT ATTENUATOR, TYPE 1 (BIDIRECTIONAL) | |
| | | | 1 | | | | | | | | | | | 606 | 60028 | 1 | EACH | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)(50 MPH, 36") | |
| | | | 1 | | | | | | | | | | | 606 | 60028 | 1 | EACH | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)(60 MPH, 30") | |
| | | | 2 | | | | | | | | | | | 606 | 60028 | 2 | EACH | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)(70 MPH, 30") | |
| | | | 12 | | | | | | | | | | | 606 | 70000 | 12 | EACH | THRIE BEAM BULLNOSE | |
| | | | 1400 | | | | | | | | | | | 606 | 71000 | 1400 | FT | THRIE BEAM GUARDRAIL | |
| | | | 4 | | | | | | | | | | | 622 | 24841 | 4 | EACH | CONCRETE BARRIER END SECTION, TYPE B, AS PER PLAN | 6,7,8,9 |
| | | | 7 | | | | | | | | | | | 622 | 25001 | 7 | EACH | CONCRETE BARRIER END SECTION, TYPE D, AS PER PLAN | 10,11 |
| | | | | | | | | | | | | | | | | | | EROSION CONTROLL | |
| | 1443 | | | | | | | | | | | | | 659 | 00300 | 1443 | CU YD | TOPSOIL | |
| | 13000 | | | | | | | | | | | | | 659 | 10000 | 13000 | SQ YD | SEEDING AND MULCHING | |
| | 650 | | | | | | | | | | | | | 659 | 14000 | 650 | SQ YD | REPAIR SEEDING AND MULCHING | |
| | 1.75 | | | | | | | | | | | | | 659 | 20000 | 1.75 | TON | COMMERCIAL FERTILIZER | |
| | 2.69 | | | | | | | | | | | | | 659 | 31000 | 2.69 | ACRE | LIME | |
| | 70 | | | | | | | | | | | | | 659 | 35000 | 70 | M GAL | WATER | |
| | | | | | | | | | | | | | | 832 | 30000 | 1000 | EACH | EROSION CONTROL | |
| | | | | | | | | | | | | | | | | | | DRAINAGE | |
| | | | 50 | | | | | | | | | | | 603 | 06100 | 50 | FT | 15" CONDUIT, TYPE C | |
| | | | 1 | | | | | | | | | | | 604 | 01601 | 1 | EACH | CATCH BASIN, NO. 5, AS PER PLAN | 2 |
| | | | 1 | | | | | | | | | | | 604 | 31501 | 1 | EACH | MANHOLE, NO. 3, AS PER PLAN | 2 |
| | | | | | | | | | | | | | | | | | | PAVEMENT | |
| | | | 5 | | | | | | | | | | | 301 | 46000 | 5 | CU YD | ASPHALT CONCRETE BASE, PG64-22 | |
| | | | | | | | | | | | | | | | | | | TRAFFIC CONTROL | |
| | | | 111 | | | | | | | | | | | 626 | 00100 | 111 | EACH | BARRIER REFLECTOR | |
| | | | | | | | | | | | | | | | | | | MAINTENANCE OF TRAFFIC | |
| | | 12 | | | | | | | | | | | | 614 | 12350 | 12 | EACH | WORK ZONE IMPACT ATTENUATOR | |
| | | 60 | | | | | | | | | | | | 614 | 13100 | 60 | EACH | BARRIER REFLECTOR | |
| | | 60 | | | | | | | | | | | | 614 | 13350 | 60 | EACH | OBJECT MARKER, ONE WAY | |
| | | 3000 | | | | | | | | | | | | 622 | 40020 | 3000 | FT | PORTABLE CONCRETE BARRIER, 32" | |
| | | | | | | | | | | | | | | 614 | 11000 | LUMP | | MAINTAINING TRAFFIC | |
| | | | | | | | | | | | | | | 624 | 10000 | LUMP | | MOBILIZATION | |

CALCULATED DAY CHECKED

GENERAL SUMMARY

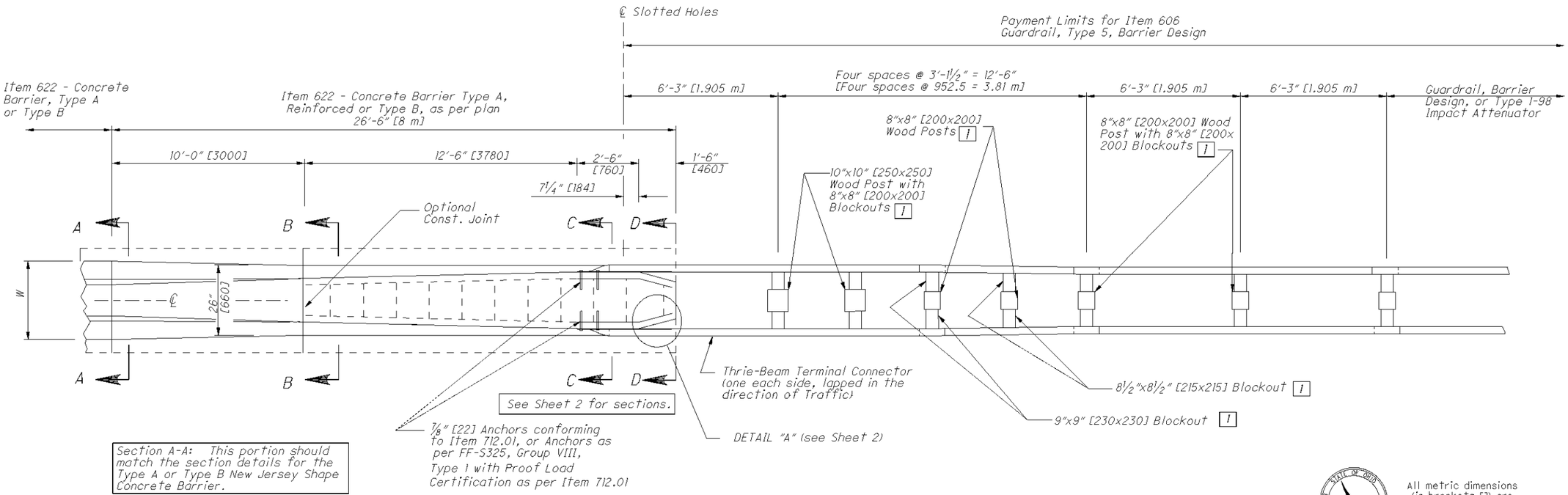
D04-GR-FY2012A

| LOCATION | | | | | 202 | 202 | 202 | 203 | 301 | 603 | 604 | 604 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | 606 | | 622 | 622 | 626 | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PART | COUNTY | ROUTE | S.L.M. | SIDE | CONCRETE BARRIER REMOVED | GUARDRAIL REMOVED | CATCH BASIN REMOVED | EMBANKMENT | ASPHALT CONCRETE BASE, PG64-22 | 15" CONDUIT, TYPE C | CATCH BASIN, NO. 5, AS PER PLAN | MANHOLE, NO. 3, AS PER PLAN | GUARDRAIL, TYPE 5 | GUARDRAIL, BARRIER DESIGN, TYPE 5 | ANCHOR ASSEMBLY, TYPE B | ANCHOR ASSEMBLY, TYPE E | ANCHOR ASSEMBLY, TYPE T | BRIDGE TERMINAL ASSEMBLY, TYPE 1 | BRIDGE TERMINAL ASSEMBLY, TYPE 1, BARRIER DESIGN | IMPACT ATTENUATOR, TYPE 1 (BIDIRECTIONAL) | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL) (50 MPH, 36") | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL) (60 MPH, 30") | IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL) (70 MPH, 30") | THRIE BEAM BULLNOSE | THRIE BEAM GUARDRAIL | | CONCRETE BARRIER END SECTION, TYPE B, AS PER PLAN | CONCRETE BARRIER END SECTION, TYPE D, AS PER PLAN | BARRIER REFLECTOR | |
| | | | | | FT | FT | EACH | CU YD | CU YD | FT | EACH | EACH | FT | FT | EACH | EACH | EACH | EACH | EACH | EACH | EACH | EACH | EACH | EACH | EACH | FT | | EACH | EACH | EACH | |
| 1 | ATB | 11 | 23.86 | MEDIAN | | 325 | | 400 | | | | | | | | | | | | | | | | | 2 | 200 | | | | 8 | GARRISON ROAD BRIDGE PIER |
| | | 11 | 24.63 | MEDIAN | | 325 | | 400 | | | | | | | | | | | | | | | | | 2 | 212.5 | | | | 8 | SEVEN HILLS ROAD BRIDGE PIER |
| | | 11 | 24.72 | MEDIAN | | 325 | | 400 | | | | | | | | | | | | | | | | | 2 | 225 | | | | 8 | RAILROAD BRIDGE PIER(REQUIRES CATCH BASIN TO BE RELOCATED) |
| | | 11 | 25.97 | MEDIAN | | 325 | | 400 | | | | | | | | | | | | | | | | | 2 | 237.5 | | | | 8 | SR 84 BRIDGE PIER |
| | | 11 | 26.20 | MEDIAN | | 325 | | 400 | | | | | | | | | | | | | | | | | 2 | 225 | | | | 8 | RAILROAD BRIDGE PIER |
| | | 11 | 26.89 | MEDIAN | | 325 | 1 | 400 | | 50 | 1 | 1 | | | | | | | | | | | | | 2 | 300 | | | | 8 | US 20 BRIDGE PIER - REQUIRES CATCH BASIN TO BE RELOCATED 50' |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SOUTH TO ALLOW FOR PROPER GRADING. |
| | | 11 | 28.23 | MEDIAN | | 400 | | | | | | | 175 | 175 | | | 2 | | | | | | | | | | | | | 6 | 21ST STREET BRIDGE PIER |
| 2 | MAH | 76 | 6.06 | RT | | 50 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | NB ON BAILEY RD. |
| | | 76 | 6.06 | MEDIAN | | 131.25 | | | | | | | 50 | 100 | | | | 1 | | 1 | | | | | | | | | | 3 | NB ON BAILEY RD. |
| | | 76 | 6.06 | MEDIAN | | 131.25 | | | | | | | 50 | 100 | | | | 1 | | 1 | | | | | | | | | | 3 | SB ON BAILEY RD. |
| | | 76 | 6.06 | LT | | 50 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | SB ON BAILEY RD. |
| | | 680 | 8.34 | LT | | 50 | | | | | | | 25 | | | 1 | | | | | | | | | | | | | | 2 | SB ON RAMP FROM SHIRLEY |
| | | | 8.34 | RT | | 25 | | | | | | | | | 1 | | | | | | | | | | | | | | | 2 | NB OFF RAMP TO SHIRLEY |
| | | | 8.34 | RT | | 25 | | | | | | | | | 1 | | | | | | | | | | | | | | | 2 | NB ON RAMP FROM SHIRLEY |
| | | | 9.48 | MEDIAN | 60 | | | | 4 | | | | | | | | | | | | | | | 1 | | | | | | | ATTACH TO BARRIER |
| | | | 11.86 | RT | | 75 | | | | | | | 75 | | | 1 | | | | | | | | | | | | | | 2 | NB OFF RAMP TO US 224 |
| | | | 11.86 | RT | | 75 | | | | | | | 75 | | | 1 | | | | | | | | | | | | | | 2 | NB OFF RAMP TO US 224 |
| 3 | POR | 14 | 1.78 | MEDIAN | 40 | | | | 1 | | | | | | | | | | | | | | 1 | | | 1 | | | | | ATTACH TO BARRIER |
| | | 480 | 1.05 | MEDIAN | 40 | | | 2 | | | | | | | | | | | | | | | | 1 | | 1 | | | | | ATTACH TO BARRIER |
| 4 | STA | 30 | 13.19 | MEDIAN | 100 | | | 5 | | | | | | 50 | | | | | 1 | 1 | | | | | | | 1 | | | 2 | |
| | | 30 | 17.20 | MEDIAN | 40 | | | 1 | | | | | | 150 | | | | | 1 | 1 | | | | | | | 1 | | | 3 | |
| 5 | SUM | 76 | 2.62 | RT | | 25 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | WB OFF RAMP TO CLEVE-MASS. ROAD |
| | | | 4.16 | RT | | 25 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | EB ON RAMP FROM BARBER ROAD |
| | | | 5.50 | LT | | 25 | | | | | | | | | 1 | | | | | | | | | | | | | | | 2 | EB OFF RAMP TO STATE ROAD |
| | | 77 | 10.11 | RT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 10.19 | RT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 10.48 | RT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 10.87 | LT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 11.02 | LT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 11.24 | RT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 11.87 | LT | 20 | | | | | | | | 37.5 | | | 1 | | 1 | | | | | | | | | | | 1 | 2 | |
| | | | 15.72 | LT | | 75 | | | | | | | | | | | 2 | | | | 1 | | | | | | | | | 2 | SB ON RAMP FROM SR 261, ATTACH TO GUARDRAIL |
| | | 271 | 6.01 | RT | | 25 | | | | | | | 50 | | | 1 | | | | | | | | | | | | | | 2 | NB OFF RAMP TO SR 303 |
| | | 480 | 4.13 | RT | | 25 | | | | | | | | | 1 | | | | | | | | | | | | | | | 2 | SB OFF RAMP TO SR 82 |
| | | | 4.13 | RT | | 50 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | NB ON RAMP FROM SR 82 |
| | | | 4.13 | RT | | 50 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | SB ON RAMP FROM SR 82 |
| 6 | TRU | 80 | 2.16 | RT | | 50 | | | | | | | | | | 1 | | | | | | | | | | | | | | 2 | WB ON RAMP FROM US 422 |
| TOTALS CARRIED TO GENERAL SUMMA | | | | | 420 | 3313 | 1 | 2408 | 5 | 50 | 1 | 1 | 763 | 575 | 4 | 18 | 4 | 9 | 2 | 4 | 1 | 1 | 2 | 12 | 1400 | 0 | 4 | 7 | 111 | |

CALCULATED
DAY
CHECKED

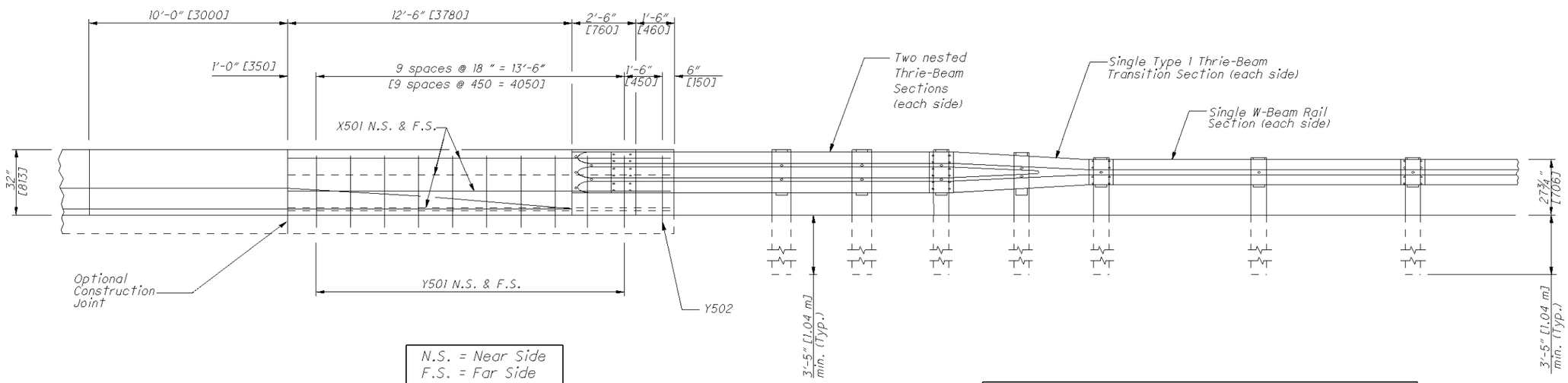
SUB-SUMMARY

D04-GR-FY2012A




PLAN

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




N.S. = Near Side
F.S. = Far Side

ELEVATION

LEGEND

1 Plastic Blockouts are not permitted for Bridge Terminal Assembly, Type 1, Barrier Design.

The purpose of this insert is to show details of the reinforced concrete end section.

The Bridge Terminal Assembly shown is no longer a standard. Refer to Standard Drawing GR-3.5 for the appropriate NCHRP 350 system.

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REVISION DATE 10-20-06 | CHECKED

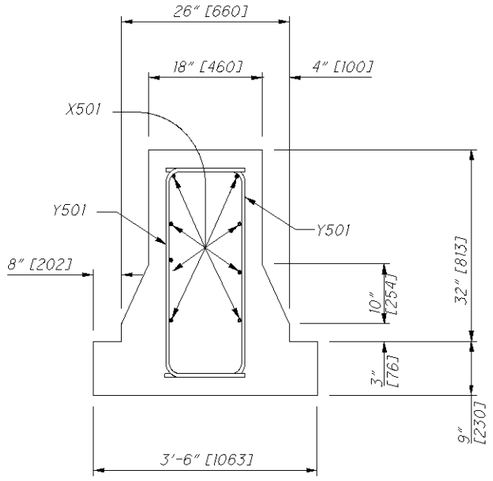
PLAN INSERT SHEET

# NJ BARRIER REINFORCED END SECTION

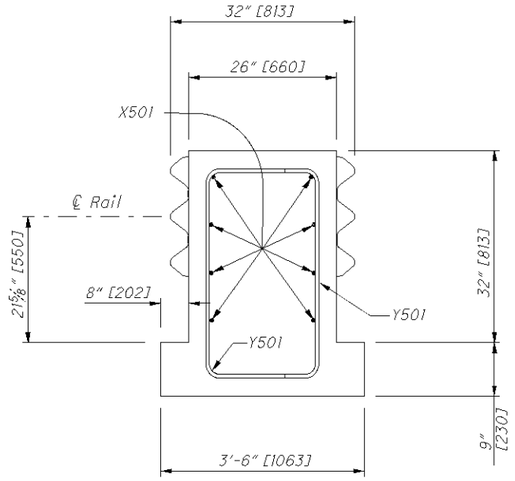
D04-GR-FY2012A

1 / 2

6 / 11

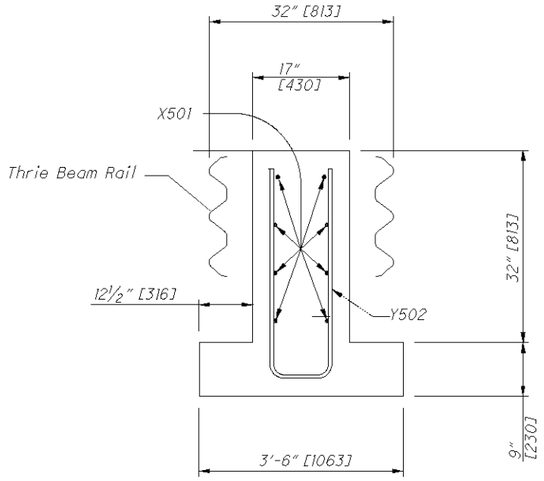



SECTION B-B
See Sheet 1



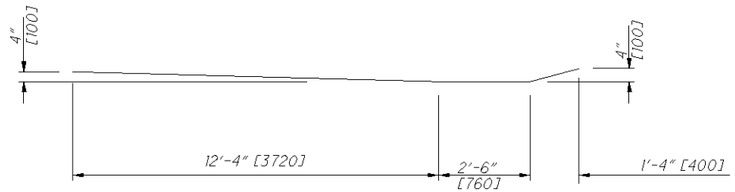

For guardrail connection see SCD GR-3.5.

SECTION C-C
See Sheet 1




VIEW D-D
See Sheet 1

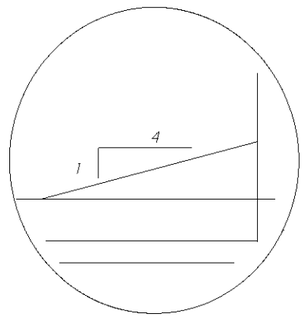

Y501 Y502




X501
BENDING DIAGRAMS

REINFORCING BAR LIST

| MARK | SIZE | LENGTH | SHAPE | QUANTITY | WEIGHT [MASS] (lb) | (kg) |
|---|---|---|---|---|---|---|
| X501 | #5 [#16M] | 16'-2" [4880] | Bent | 8 Each | 134.6 | [61] |
| | | | | | | |
| Y501 | #5 [#16M] | 5'-0" [1530] | Bent | 20 Each | 104.3 | [48] |
| Y502 | #5 [#16M] | 6'-9" [2060] | Bent | 1 Each | 7.0 | [4] |
| | | | | Total (for information only): | 246 | [113] |




Concrete End Flare

DETAIL A
See Plan View, Sheet 1

## NOTES

GENERAL: For additional details, see SCD GR-1.1, and other Drawings pertaining to design of specific guardrail types.

APPLICATION: The Bridge Terminal Assembly, Type 1, Barrier Design, shall be used to connect Type 5 Barrier Design Guardrail or Type 1 Impact Attenuators to Concrete Median Barriers.

POSTS: General - Posts may be set in drilled holes or driven to grade.

Wood Posts shall be square-sawed pressure treated wood as per Item 710.14 and fabricated with square ends. Bolt holes shall be bored and the tops of posts trimmed, if required, after posts are set.

Steel Posts and Blockouts may be furnished as an alternate. The steel alternates for Wood Posts are listed below.

| | | |
|---|---|---|
| Wood Posts | 10"x10" [250x250] | 8"x8" [200x200] |
| Steel Posts | W8x24 [W200x35.9] | W6x25 [W150x37.1] |

REINFORCING: All reinforcing bars shall be epoxy coated and included in the cost of Item 622.

PAYMENT: Payment for the Guardrail Transition Section will be made at the unit price bid per Each for Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design and shall include the extra cost, in excess of normal guardrail costs, for additional and different type Posts and Blockouts, nested Thrie Beam Sections, Terminal Connectors, Thrie Beam Transitions Sections, Bolts, Anchors, Washers, and other hardware.

Payment for the Concrete Transition Section will be made at the unit price bid per Linear Foot [Meter] for Item 622 - Concrete Barrier End Section, type ___ (A or B ), as per plan and shall include all materials, labor, and reinforcing steel required to construct the barrier as shown within the limits defined. (See Plan View, Sheet 1.)

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

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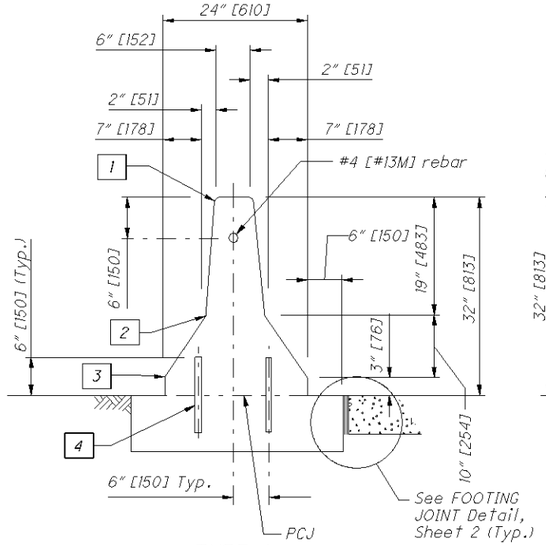
PLAN INSERT SHEET

NJ BARRIER REINFORCED END SECTION

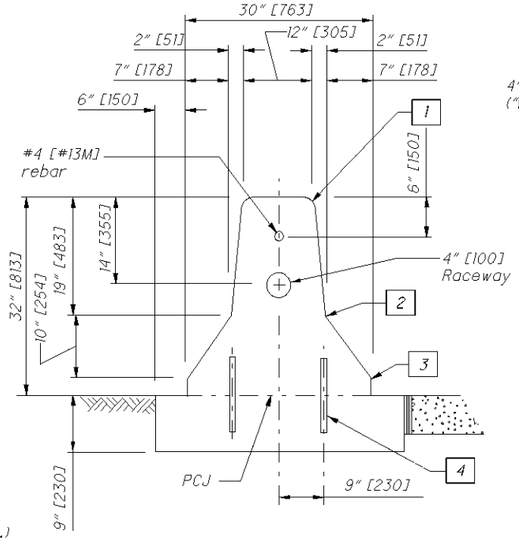
D04-GR-FY2012A

2 / 2

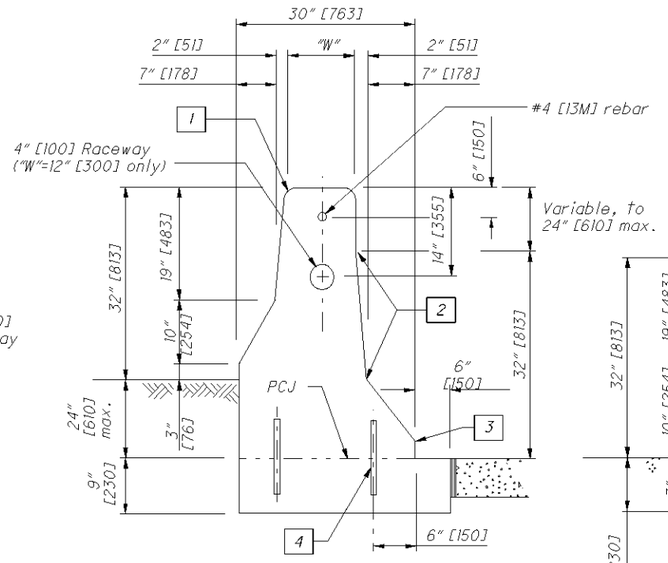
7 / 11



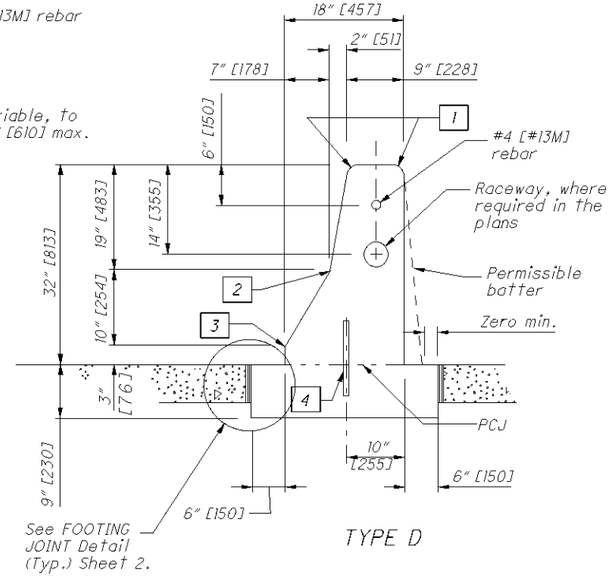

TYPE A




TYPE B




TYPE C

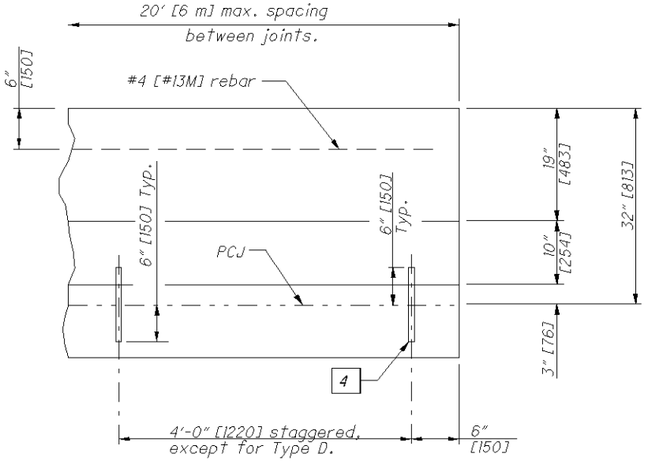



TYPE D

## NORMAL 32 INCH SECTIONS

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

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




32" [813-mm] BARRIER
BARRIER ELEVATION

## NOTES

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]. |

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 ¾" [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.

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

REVISION DATE 10-20-06 | CHECKED

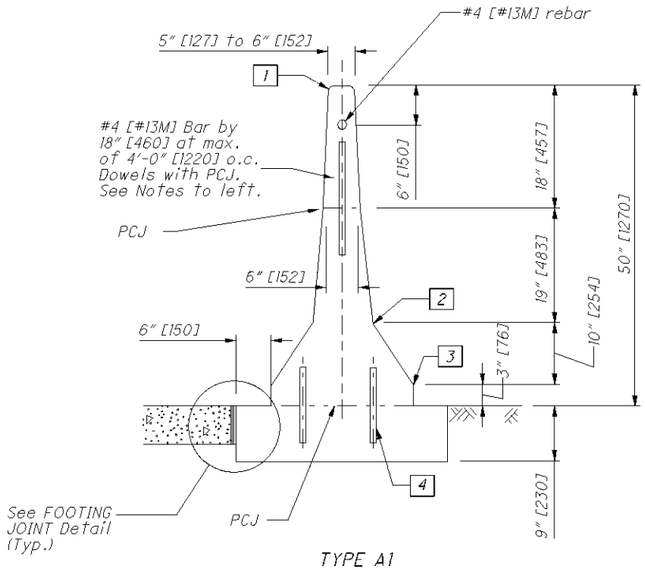
PLAN INSERT SHEET

NEW JERSEY SHAPE CONCRETE BARRIER

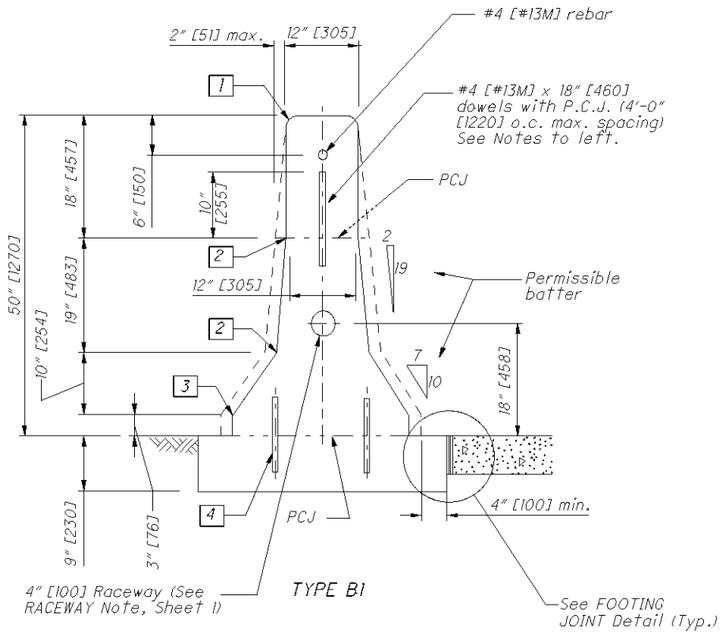
D04-GR-FY2012A

1 / 2

8 / 11



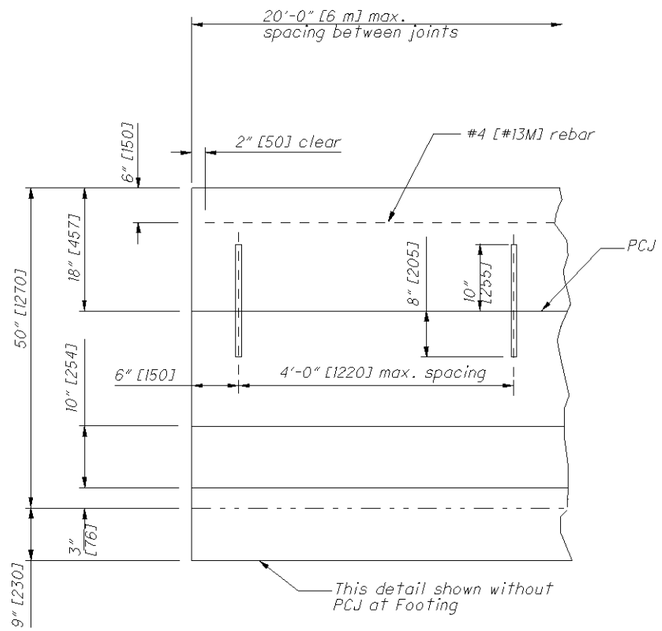

TYPE A1



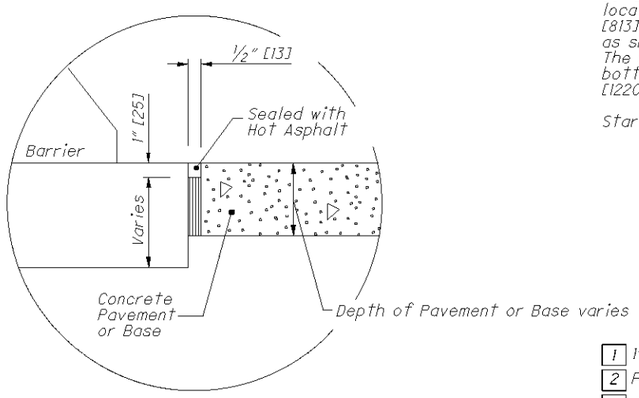

TYPE B1

## 50" [1270-mm] BARRIERS - TYPICAL SECTIONS

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




50" [1270-mm] BARRIER
BARRIER ELEVATION




FOOTING JOINT DETAIL
*See FOOTING NOTE on Sheet 1.*

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

### 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 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. *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.*

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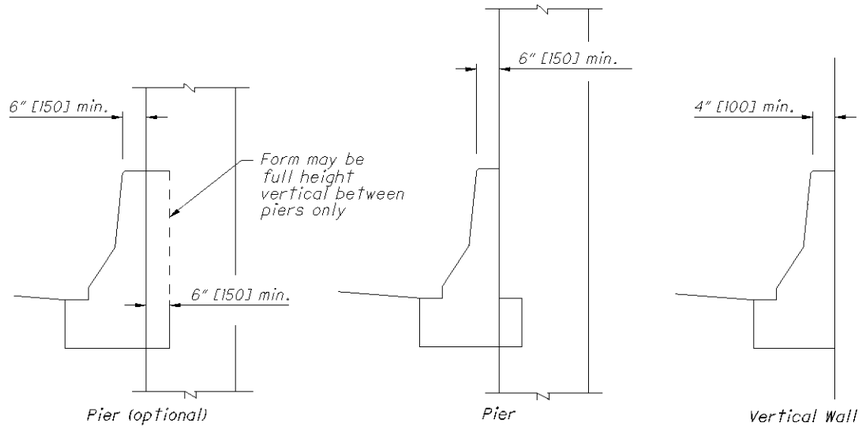
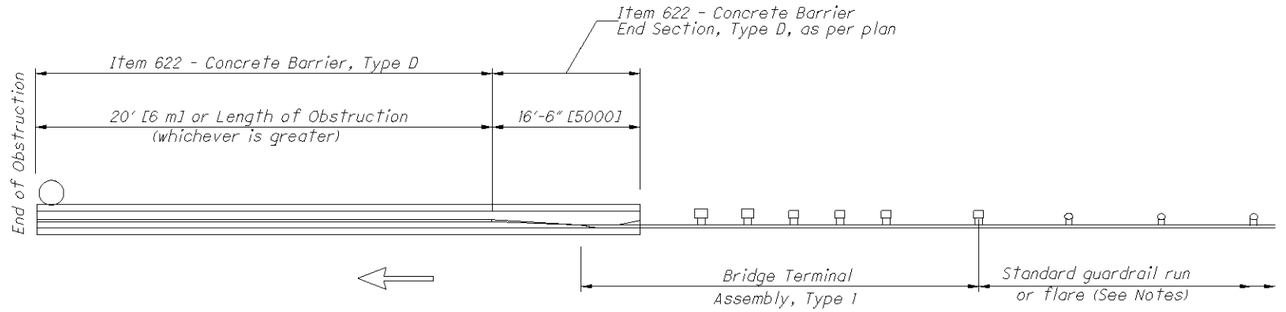
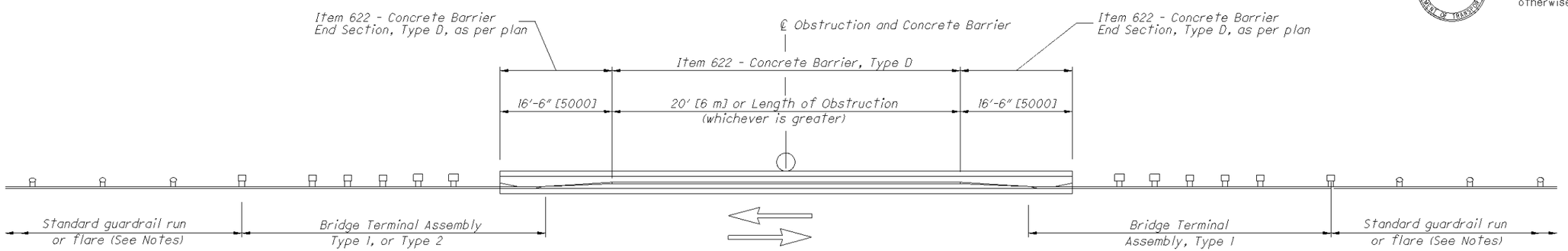
DESIGNED
REVIEWED
REVISION DATE 10-20-06
CHECKED
NEW JERSEY SHAPE CONCRETE BARRIER
PLAN INSERT SHEET
D04-GR-FY2012A
2 / 2
9 / 11




INCORPORATED INSTALLATIONS




DIRECTIONAL TRAVEL WHERE NO TRAILING GUARDRAIL IS USED.




BI-DIRECTIONAL TRAVEL OR UNI-DIRECTIONAL TRAVEL WHERE TRAILING GUARDRAIL IS USED.

TYPICAL INSTALLATIONS

## NOTES

LOCATION: Concrete barrier at obstructions shall be constructed with the toe of the barrier slope at the normal guardrail offset from the roadway. Installations within continuous runs shall be constructed so that no approach or trailing guardrail tapers are required to connect to the barrier.

TYPE D BARRIER: See the New Jersey Shape Barrier insert for Type D Concrete Barrier details.

REINFORCING: All reinforcing bars shall be epoxy coated and shall meet the requirements of CMS 509.

INCORPORATED INSTALLATIONS: For barrier installations that cannot be constructed at the normal guardrail offset, the incorporated installations shown may be installed at vertical walls, piers or other similar obstructions. For pier-incorporated installations the contractor may use the optional treatment, forming the back face of the Type D Concrete Barrier to the location shown (between piers only), with any additional cost being included in the cost of Item 622.

GUARDRAIL: For Types 1 and 2 Bridge Terminal Assemblies and their connections to barrier, see SCD GR-3.1 and GR-3.2, respectively.

For uni-directional roadways where trailing guardrail is used and is located beyond the Clear Zone of opposite direction traffic, use Type 2 Bridge Terminal Assembly.

Barrier installations that cannot be constructed at the normal guardrail offset and are to be connected to approach or trailing guardrail runs shall have a 25:1 guardrail taper to meet the existing or normal guardrail offset. Installations that are not to be connected to approach or trailing guardrail runs shall include the standard guardrail flare as shown on SCD GR-5.1.

PAYMENT: Payment for Item 622, Concrete Barrier, Type D shall include all materials, labor and reinforcing steel required to construct the barrier as shown.

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

OFFICE OF ROADWAY ENGINEERING

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REVISION DATE 10-20-06 | CHECKED

PLAN INSERT SHEET

NJ SHAPE BARRIER AT OBSTRUCTIONS

D04-GR-FY2012A

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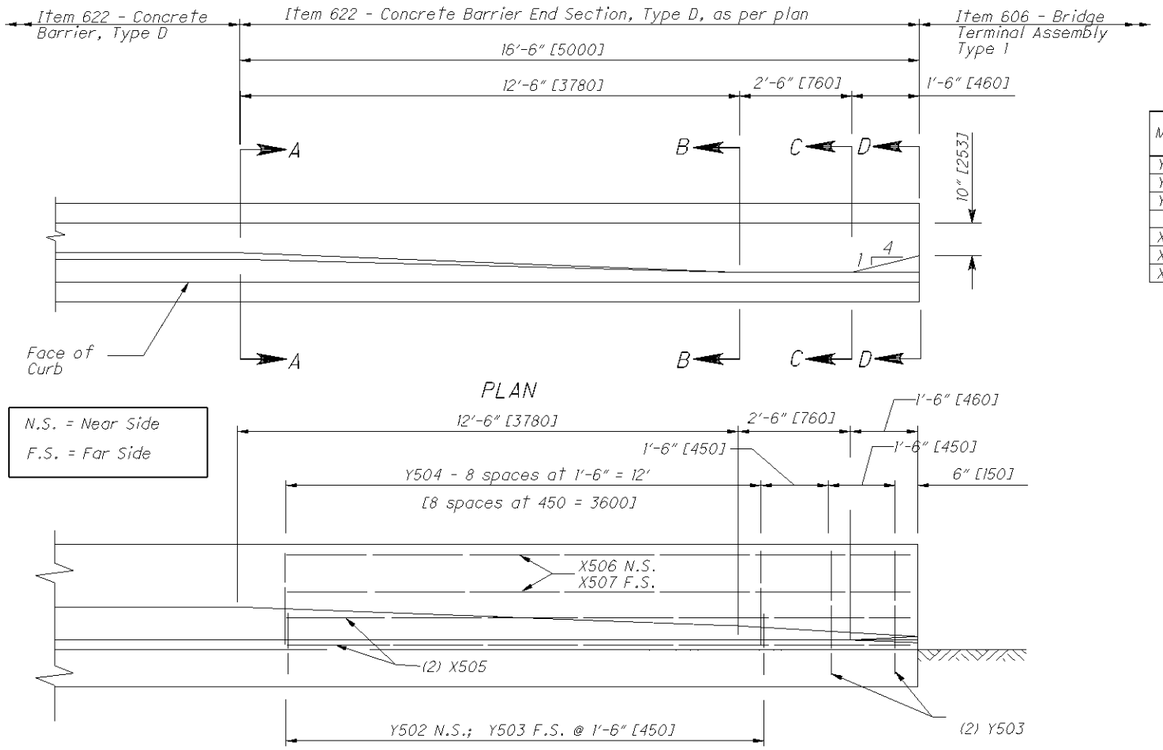
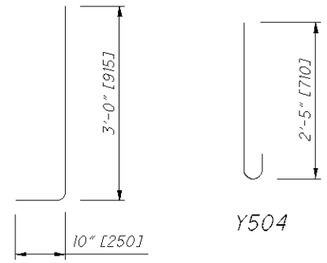


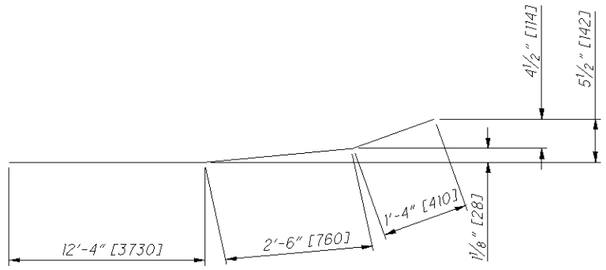

TYPE D REINFORCED BARRIER END SECTION

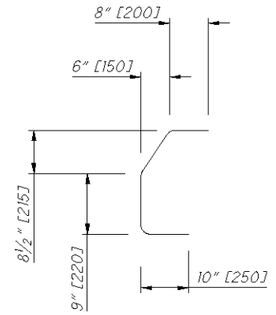
See Sheet 1 for Notes

REINFORCING BAR LIST

| MARK | SIZE | LENGTH | SHAPE | NO. | WEIGHT [MASS] (lb) | (kg) |
|---|---|---|---|---|---|---|
| Y502 | #5 [#16M] | 2'-10" [850] | Bent | 9 | 26.6 | [12] |
| Y503 | #5 [#16M] | 3'-9" [1140] | Bent | 13 | 50.8 | [23] |
| Y504 | #5 [#16M] | 3'-0" [915] | Bent | 9 | 28.2 | [13] |
| | | | | | | |
| X505 | #5 [#16M] | 16'-2" [4900] | Straight | 4 | 67.5 | [31] |
| X506 | #5 [#16M] | 16'-2" [4900] | Bent | 2 | 33.7 | [15] |
| X507 | #5 [#16M] | 16'-2" [4900] | Straight | 2 | 33.7 | [15] |
| | | TOTAL (for info. only): | | | 240 | [109] |

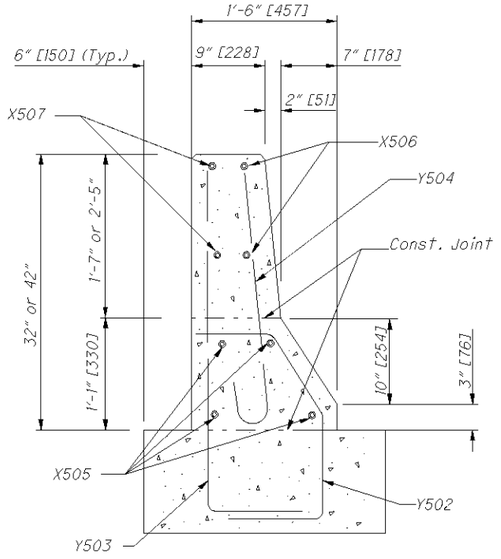


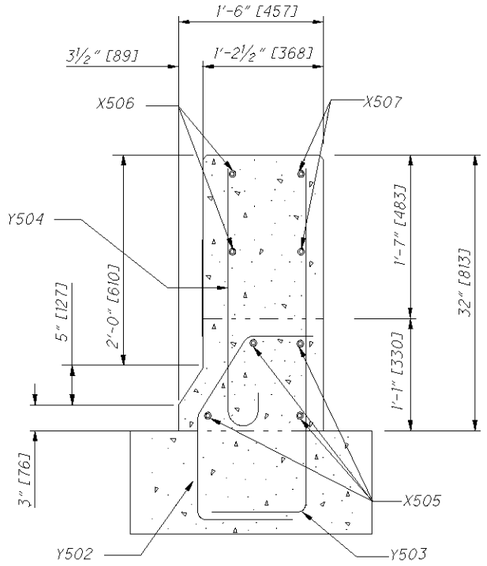




BENDING DIAGRAMS

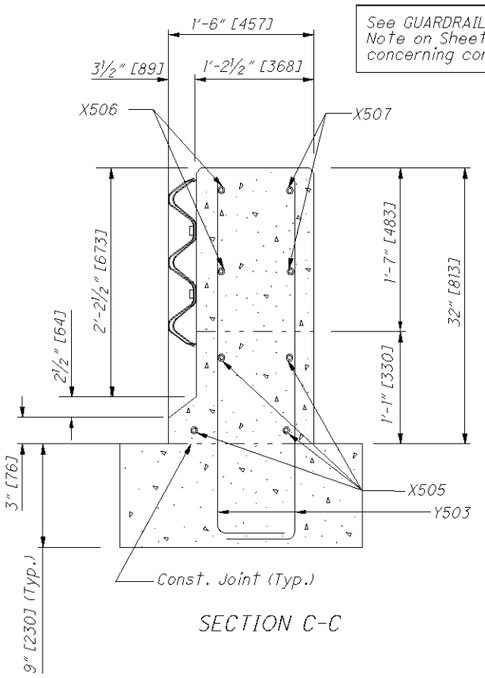
All metric dimensions (in brackets [ ]) are in millimeters unless otherwise noted.



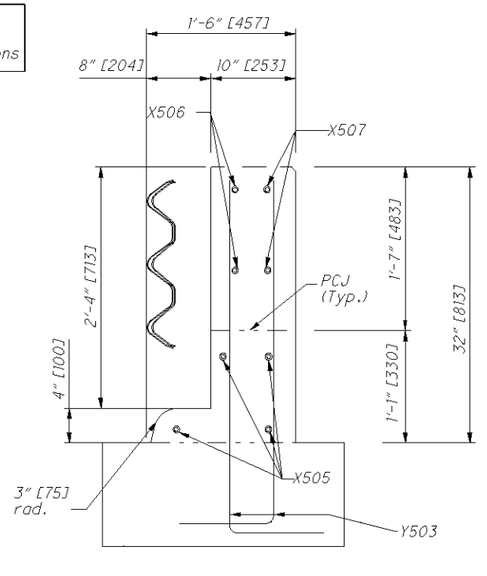

SECTION A-A




SECTION B-B




SECTION C-C




SECTION D-D

OFFICE OF ROADWAY ENGINEERING

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NJ SHAPE BARRIER AT OBSTRUCTIONS

D04-GR-FY2012A

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