

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

RIC-30-4.07

CITY OF MANSFIELD
CITY OF ONTARIO

MIFFLIN TOWNSHIP
SPRINGFIELD TOWNSHIP
RICHLAND COUNTY

PROJECT DESCRIPTION

THIS PROJECT WILL INCLUDE PAVEMENT REPAIRS, PAVEMENT PLANING, RESURFACING WITH ASPHALT CONCRETE, GUARDRAIL REPAIR, STRUCTURE MAINTENANCE AND PAVEMENT MARKINGS.

EARTH DISTURBED AREAS

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

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.

2019 SPECIFICATIONS

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

APPROVED: *[Signature]*
DATE: 3/7/19 DISTRICT DEPUTY DIRECTOR

APPROVED: *[Signature]*
DATE: 4/11/19 DIRECTOR, DEPARTMENT OF TRANSPORTATION

PLANS PREPARED BY:
OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT THREE ENGINEERING

FEDERAL PROJECT NO.
E161158

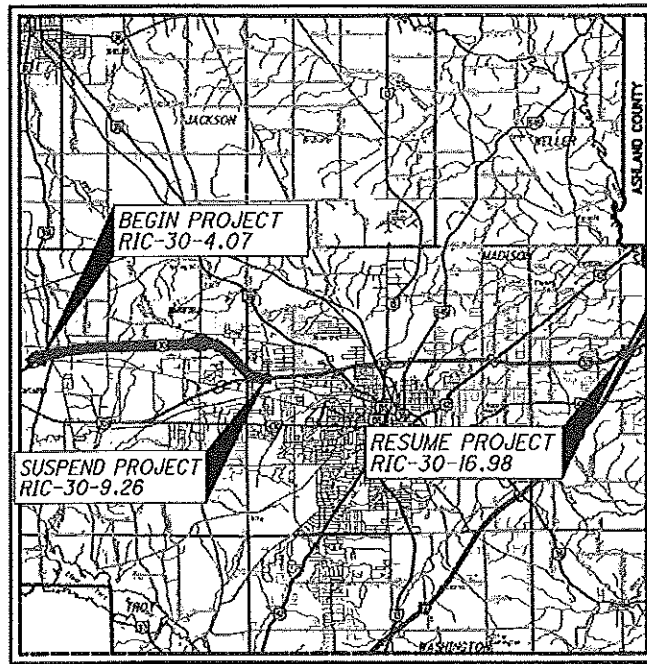
PID NO.
87728

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

RIC-30-4.07

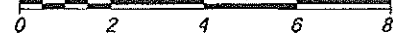
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39



LOCATION MAP

LATITUDE: 40°47'1" LONGITUDE: 82°36'26"

SCALE IN MILES



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

DESIGN DESIGNATION

SEE SHEET 2

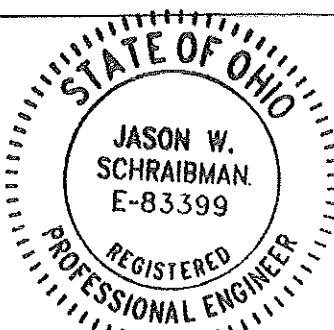
DESIGN EXCEPTIONS

NONE

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ENGINEERS SEAL:



SIGNED: *[Signature]*
DATE: 3-7-2019

STANDARD CONSTRUCTION DRAWINGS

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS	
BP-2.1	7/17/15	MT-95.30	7/21/17	TC-41.20	10/18/13	800	4/19/19
BP-2.2	7/18/08	MT-95.50	7/21/17	TC-41.30	10/18/13	808	1/18/19
BP-3.1	7/18/14	MT-98.10	1/20/17	TC-42.10	10/18/13	821	4/20/12
BP-6.1	7/19/13	MT-98.11	1/20/17	TC-42.20	10/18/13	832	10/19/18
BP-9.1	1/18/19	MT-98.20	7/18/14	TC-52.10	10/18/13		
		MT-98.22	1/20/17	TC-52.20	7/20/18		
DM-4.3	1/15/16	MT-98.28	1/20/17	TC-61.30	1/20/17		
DM-4.4	1/15/16	MT-99.20	7/20/18	TC-64.10	1/20/17		
		MT-101.90	7/21/17	TC-65.10	1/17/14		
MGS-1.1	1/19/18	MT-102.20	1/18/19	TC-65.11	7/21/17		
MGS-2.1	1/19/18	MT-104.10	10/16/15	TC-72.20	7/20/18		
MGS-4.2	7/19/13	MT-105.10	7/19/13	TC-82.10	1/18/19		

SPECIAL PROVISIONS

UNDERGROUND UTILITIES



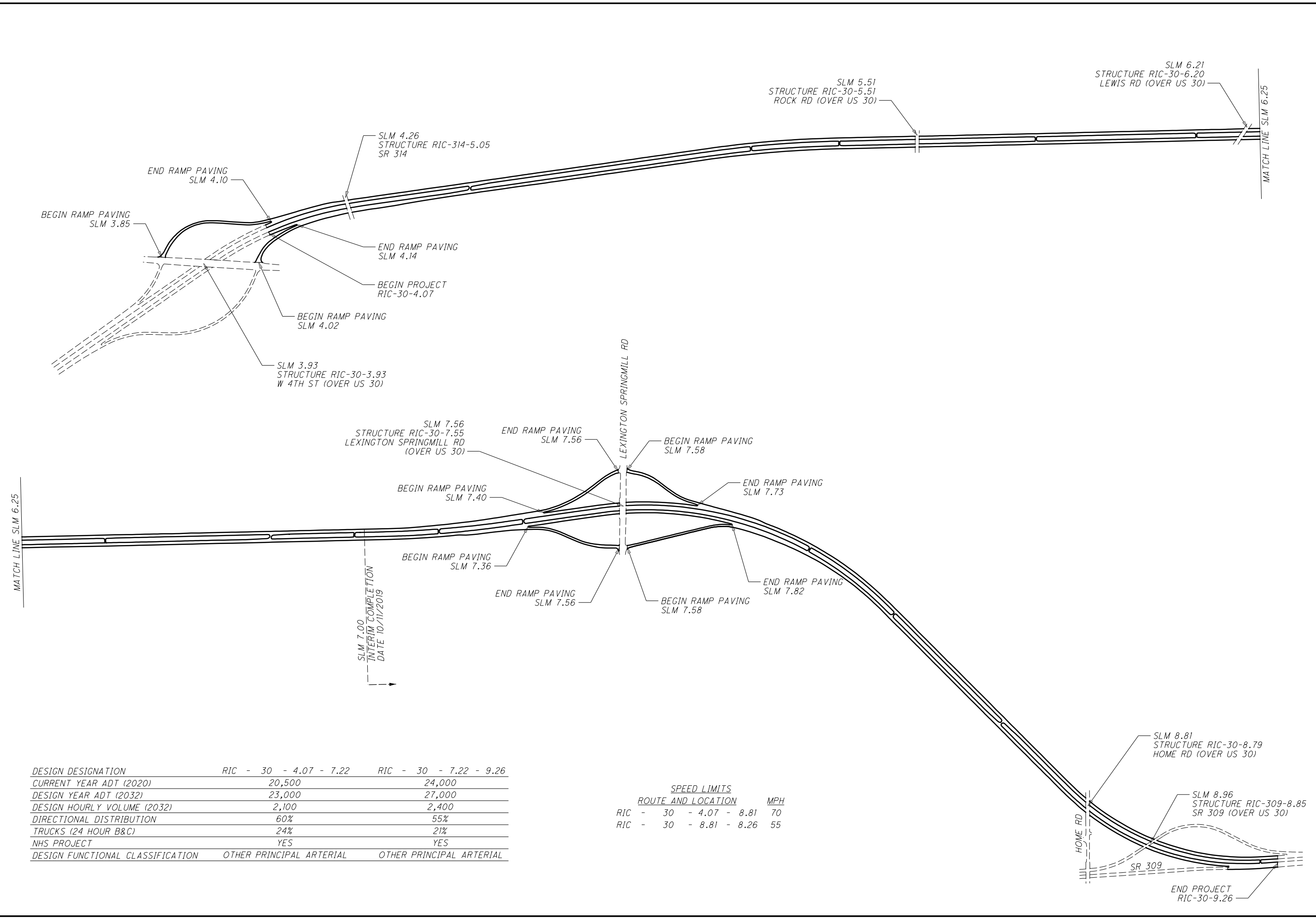
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**SCHEMATIC PLAN
RIC-30**

RIC-30-4.07

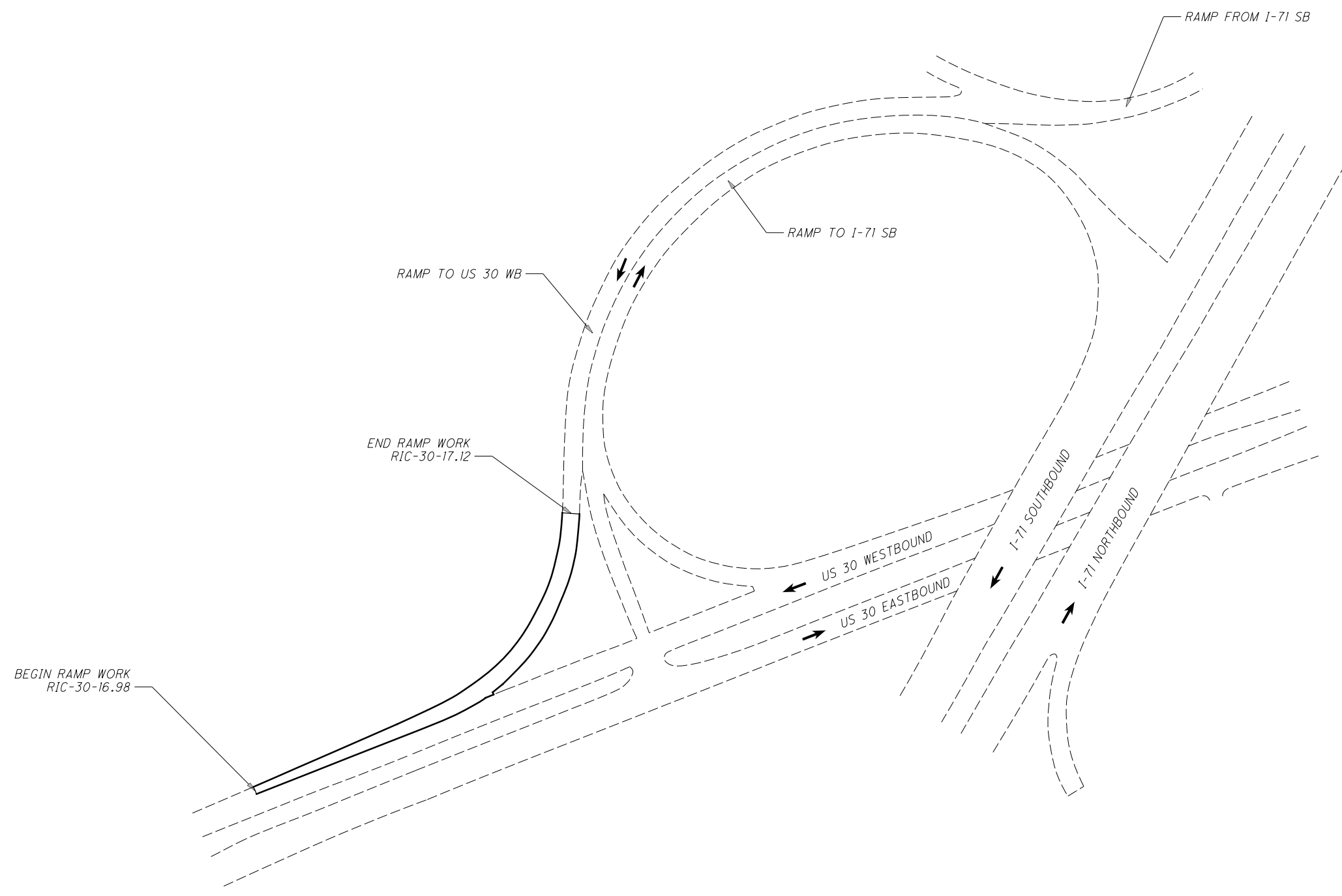


DESIGN DESIGNATION	RIC - 30 - 4.07 - 7.22	RIC - 30 - 7.22 - 9.26
CURRENT YEAR ADT (2020)	20,500	24,000
DESIGN YEAR ADT (2032)	23,000	27,000
DESIGN HOURLY VOLUME (2032)	2,100	2,400
DIRECTIONAL DISTRIBUTION	60%	55%
TRUCKS (24 HOUR B&C)	24%	21%
NHS PROJECT	YES	YES
DESIGN FUNCTIONAL CLASSIFICATION	OTHER PRINCIPAL ARTERIAL	OTHER PRINCIPAL ARTERIAL

SPEED LIMITS		
ROUTE AND LOCATION	MPH	
RIC - 30 - 4.07 - 8.81	70	
RIC - 30 - 8.81 - 8.26	55	

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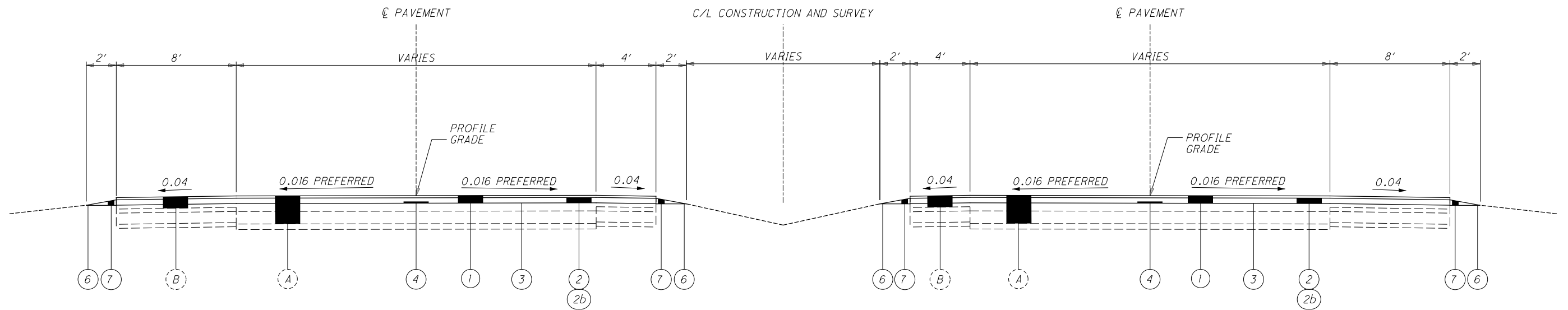


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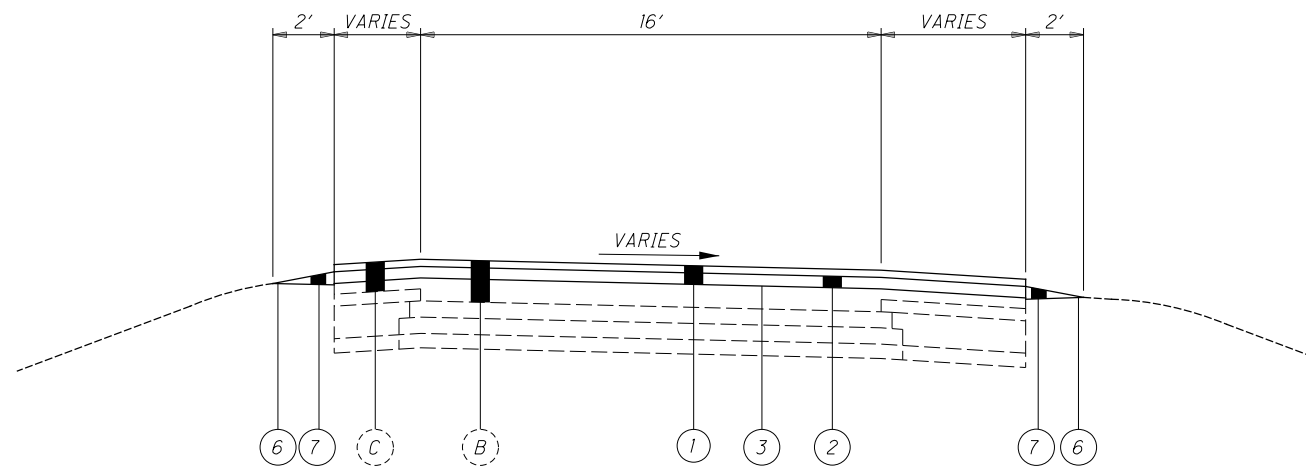
0 100 200
HORIZONTAL
SCALE IN FEET

SCHEMATIC PLAN
RIC-71 SB / 30 WB RAMP

RIC-30-4.07

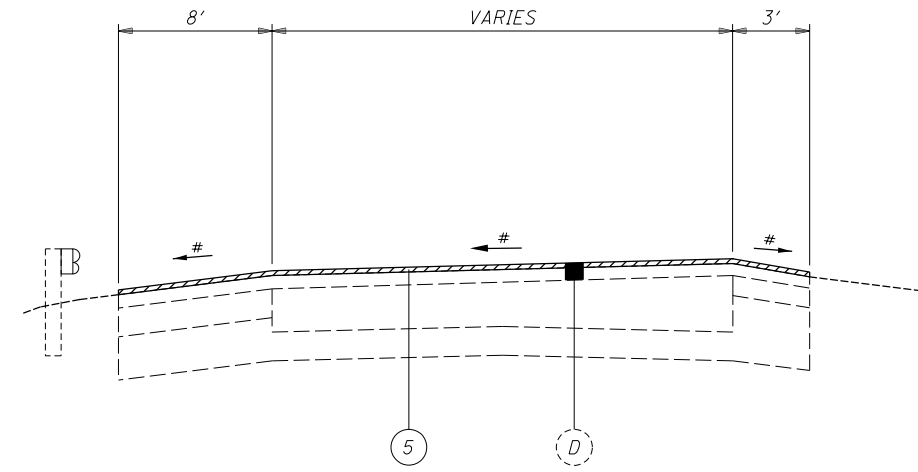


TYPICAL 1
RIC-30 MAINLINE



PROPOSED RAMP SECTION

WB OFF RAMP AT W 4TH ST
EB ON RAMP AT W 4TH ST
ALL RAMPS AT LEXINGTON SPRINGMILL RD



PROPOSED RAMP SECTION

I-71 SB RAMP TO US 30 WB
#MATCH EXISTING PAVEMENT GRADE

PROPOSED LEGEND

- ① ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (1.75")
- ② ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446) (1.50")
- ②b ITEM 442 - ANTI-SEGREGATION EQUIPMENT, TRAVELED WAY ONLY
- ③ ITEM 407 - NON-TRACKING TACK COAT
- ④ ITEM 690 - SPECIAL - VOID REDUCING ASPHALT MEMBRANE (VRAM) (OVER LANE LINE JOINTS)
- ⑤ ITEM 690 - SPECIAL - MISC.: HIGH FRICTION SURFACE COURSE
- ⑥ ITEM 408 - PRIME COAT, AS PER PLAN
- ⑦ ITEM 617 - COMPACTED AGGREGATE

EXISTING LEGEND

- Ⓐ 15"± ASPHALT CONCRETE
- Ⓑ 8"± ASPHALT CONCRETE
- Ⓒ 3"± ASPHALT CONCRETE
- Ⓓ VARIABLE DEPTH ASPHALT CONCRETE

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UTILITIES

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

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

US-30

CABLE
CHARTER COMMUNICATIONS
5520 WHIPPLE AVENUE NW
NORTH CANTON, OH 44720
330.494.9200

CITY
CITY OF ONTARIO
555 STUMBO RD, P.O. BOX 166
ONTARIO, OH 44862
419.529.3723

CITY
CITY OF MANSFIELD
30 N DIAMOND STREET
MANSFIELD, OH 44902
419.755.9626

COMMUNICATION
CENTURYLINK
175 ASHLAND ROAD, P.O. BOX 3555
MANSFIELD, OH 44907
419.755.7956

ELECTRIC
OHIO EDISON
1717 ASHLAND ROAD
MANSFIELD, OH 44905
419.521.6213

ELECTRIC
CONSOLIDATED ELECTRIC COOPERATIVE
5255 STATE ROUTE 95, PO BOX III
MOUNT GILEAD, OH 43338
419.949.2934

GAS
COLUMBIA GAS OF OHIO
1021 N. MAIN ST.
MANSFIELD, OH 44903
419.528.1137

GAS
SPELMAN PIPELINE
9081 STATE ROUTE 250
STRASBURG, OH 44680
800.848.5589

TRAFFIC
ODOT DISTRICT THREE
906 CLARK AVENUE
ASHLAND, OH 44805
419.207.7045

WATER
AQUA OHIO, INC
870 THIRD STREET NW
MASSILLON, OHIO 44647
330.832.7600

US-30/I-71 RAMP

CITY
CITY OF MANSFIELD
30 N DIAMOND STREET
MANSFIELD, OH 44902
419.755.9626

ELECTRIC
FIRELANDS ELECTRIC
1 ENERGY PLACE
NEW LONDON, OH 44851
419.929.1571

ELECTRIC
OHIO EDISON
1717 ASHLAND ROAD
MANSFIELD, OH 44905
419.521.6213

GAS
COLUMBIA GAS OF OHIO
1021 N. MAIN ST.
MANSFIELD, OH 44903
419.528.1137

TRAFFIC
ODOT DISTRICT THREE
906 CLARK AVENUE
ASHLAND, OH 44805
419.207.7045

WATER
AQUA OHIO, INC
870 THIRD STREET NW
MASSILLON, OHIO 44647
330.832.7600

WATER
MADISON WATER DISTRICT
489 INDIANA AVENUE
MANSFIELD, OH 44905
419.589.2135

THE AFOREMENTIONED UTILITY COMPANIES AND AGENCIES HAVE VARIOUS FACILITIES IN THE AREA THAT WILL REMAIN IN PLACE DURING CONSTRUCTION.

EXTREME CAUTION SHOULD BE EXERCISED IN AREAS WITH UTILITIES. SECTIONS 105.07 AND 107.16 OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS REQUIRE, AMONG OTHER THINGS, THAT THE CONTRACTOR COOPERATE WITH ALL UTILITIES LOCATED WITHIN THE LIMITS OF THIS CONSTRUCTION PROJECT AND TAKE RESPONSIBILITY FOR THE PROTECTION OF THE UTILITY PROPERTY AND SERVICES.

ROUTINE MAINTENANCE

BETWEEN THE TIME THAT BIDS ARE TAKEN AND THE START OF CONSTRUCTION, THE MAINTAINING AGENCY MAY ENTER UPON THE PROJECT AND PERFORM ROUTINE MAINTENANCE SUCH AS CRACK SEALING, PATCHING, AND BERM AND SHOULDER REPAIR. THE EFFECTS, IF ANY, OF THE PERFORMANCE OF ROUTINE MAINTENANCE SHALL BE CONSIDERED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLAN AND THE RESULTING CONDITIONS SHALL NOT BE CONSIDERED AS DIFFERING MATERIALLY FROM THOSE EXISTING AT THE TIME BIDS WERE TAKEN.

EXISTING PLANS

EXISTING PLANS ENTITLED BELOW MAY BE INSPECTED IN THE ODOT DISTRICT 3 OFFICE IN ASHLAND.

TITLE:	DATE:
RIC-30-4.07	2011
RIC-30-8.56	2009
RIC-30-9.13 FY17 RM	2017

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

COORDINATION OF WORK BETWEEN CONTRACTORS

THE CONTRACTOR SHOULD BE AWARE THAT THERE MAY BE OTHER WORK BEING PERFORMED BY A SEPARATE CONTRACT. COORDINATION OF WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.

TITLE:	PROJECT:	SEASON:
ASD-42-0.15	BRIDGE REPLACEMENT	2019
RIC-71-6.39(10.77)	RESURFACING	2019
D03-BH-FY2020(A)	BRIDGE MAINTENANCE	2020
RIC-30-9.26	MAJOR REHABILITATION	2020

PROFILE AND ALIGNMENT

PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. (PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE, ARE AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 3 OFFICE). PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY AS SHOWN ON THE TYPICAL SECTIONS.

SEQUENCE OF PAVING OPERATIONS

- 1.) PERFORM PAVEMENT REPAIRS, INCLUDING OVERLAY FABRIC ON TRANSVERSE REPAIRS.
- 2.) PLANE 1.75" OF PAVEMENT
- 3.) PAVE 1.50" OF SURFACE COURSE WITHIN SEVEN (7) DAYS OF PLANING

INTERIM COMPLETION DATE

ALL PAVING OPERATIONS FROM RIC-30-7.00 TO 9.26, INCLUDING THE RAMPS AT LEXINGTON-SPRINGMILL ROAD, AND ALL RAMP WORK AT THE I-71/US-30 INTERCHANGE SHALL HAVE AN INTERIM COMPLETION DATE OF 10/11/2019.

FOR EACH CALENDAR DAY BEYOND THE INTERIM COMPLETION DATE THAT THE ABOVE WORK IS NOT COMPLETED, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE FEE OF \$1,000 PER DAY.

REFER TO THE FOLLOWING PROPOSAL NOTES:

420 DATED 10/21/2016

SEQUENCE OF CONSTRUCTION

THE INTENT IS TO MINIMIZE TRAFFIC CONGESTION AND PERFORM THE WORK AS EXPEDIENTLY AS POSSIBLE WHILE ELIMINATING THE NEED FOR TRAFFIC TO DRIVE OVER THE PLANED SURFACE AS MUCH AS POSSIBLE. THE CONTRACTOR SHALL PLANE AND PAVE ONE LANE AND SHOULDER AT A TIME THEREBY NOT NECESSITATING TRAFFIC TO DRIVE OVER THE PLANED SURFACE.

THE CONTRACTOR SHALL MAKE USE OF WORK ZONE PAVEMENT MARKINGS UNTIL SUCH TIME THAT ALL PAVING WORK IS COMPLETE OVER THE ENTIRETY OF THE PROJECT TO AVOID DRIVER CONFUSION. UPON COMPLETION OF THE PAVING OPERATION, WORK ZONE MARKINGS SHALL BE REMOVED AND PERMANENT MARKINGS SHALL BE APPLIED.

NOTIFICATIONS OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE DISTRICT OFFICE AND THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE DISTRICT TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW. NOTIFICATIONS SHALL BE SENT TO THE EMAIL ADDRESS D03.Detour.Notification@dot.ohio.gov AND THE PROJECT ENGINEER. PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE NOTIFICATION SIGNS OR MESSAGE BOARDS. UPON RECEIPT OF NOTIFICATION BY THE CONTRACTOR, THE DISTRICT OFFICE WILL ARRANGE NOTIFICATION OF THE FOLLOWING ORGANIZATIONS, IN WRITING, IN ACCORDANCE WITH THE BELOW TABLE:

- RICHLAND COUNTY ENGINEER'S OFFICE
- THE CITY OF ONTARIO
- THE CITY OF MANSFIELD
- TOWNSHIP TRUSTEES (TOWNSHIP ROADS ONLY)
- LOCAL POLICE, FIRE, AND EMERGENCY MEDICAL SERVICES
- LOCAL SCHOOL DISTRICTS
- RICHLAND COUNTY SHERIFF'S OFFICE
- ODOT DISTRICT THREE OFFICE OF ROADWAY SERVICES
- ODOT DISTRICT THREE PUBLIC INFORMATION OFFICE
- SPECIAL HAULING PERMITS SECTION (Hauling.Permits@dot.ohio.gov)

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE LEAD TIME REQUIRED*
RAMP AND/OR ROAD CLOSURES	TWO WEEKS OR GREATER	21 CALENDAR DAYS
	12 HOURS TO TWO WEEKS	14 CALENDAR DAYS
	12 HOURS OR LESS	4 BUSINESS DAYS
LANE CLOSURES AND RESTRICTIONS	TWO WEEKS OR GREATER	14 CALENDAR DAYS
	LESS THAN TWO WEEKS	5 BUSINESS DAYS
START OF CONSTRUCTION AND TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

* - PRIOR TO CLOSURE DATE, UNLESS NOTED OTHERWISE

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

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GENERAL NOTES

RIC-30-4.07

PAVEMENT CORING INFORMATION

County	Route	SLM	Asphalt (IN.)	Concrete (IN.)	Brick (IN.)	Location	Direction	Year Cored
RIC	30	4.46	17.0	0.0	0.0	LWP	EB	2018
RIC	30	4.46	17.0	0.0	0.0	RWP	EB	2018
RIC	30	4.46	7.0	0.0	0.0	SH	EB	2018
RIC	30	4.46	16.0	0.0	0.0	MWP	EB	2018
RIC	30	4.96	16.0	0.0	0.0	MWP	EB	2018
RIC	30	4.96	13.5	0.0	0.0	RWP	EB	2018
RIC	30	4.96	17.5	0.0	0.0	RWP	EB	2018
RIC	30	4.96	6.0	0.0	0.0	SH	EB	2018
RIC	30	5.52	15.0	0.0	0.0	LWP	EB	2018
RIC	30	5.52	15.0	0.0	0.0	RWP	EB	2018
RIC	30	5.52	6.0	0.0	0.0	SH	EB	2018
RIC	30	6.33	18.0	0.0	0.0	MWP	EB	2018
RIC	30	6.33	18.0	0.0	0.0	RWP	EB	2018
RIC	30	6.33	9.0	0.0	0.0	SH	EB	2018
RIC	30	7.22	7.5	0.0	0.0	RWP	EB	2018
RIC	30	7.22	17.8	0.0	0.0	MWP	EB	2018
RIC	30	7.50	16.8	0.0	0.0	MWP	EB	2018
RIC	30	7.50	16.5	0.0	0.0	MWP	EB	2018
RIC	30	7.50	16.5	0.0	0.0	MWP	EB	2018
RIC	30	8.20	17.0	0.0	0.0	RWP	EB	2018
RIC	30	8.20	8.5	0.0	0.0	SH	EB	2018
RIC	30	8.50	11.0	0.0	0.0	MWP	EB	2018
RIC	30	8.50	16.0	0.0	0.0	MWP	EB	2018
RIC	30	8.50	16.0	0.0	0.0	WEL	EB	2018
RIC	30	8.90	15.0	0.0	0.0	MWP	EB	2018
RIC	30	8.95	16.0	0.0	0.0	MWP	EB	2018
RIC	30	8.95	2.5	9.5	0.0	MWP	EB	2018
RIC	30	8.95	3.0	0.0	0.0	SH	EB	2018

AIRWAY/HIGHWAY CLEARANCE FOR AIRPORTS AND HELIPORTS

THIS PROJECT HAS BEEN IDENTIFIED AS BEING WITHIN THE INFLUENCE AREA OF A PUBLIC USE AIRPORT OR HELIPORT. THE CONTRACTOR IS ADVISED THAT NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT AT MAXIMUM OPERATING HEIGHT SHALL EXCEED A HEIGHT OF 25 FEET WITHIN THE LIMITS OF RIC-30-4.07 TO RIC-30-8.00. IF ANY TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT WILL EXCEED THIS HEIGHT, THE CONTRACTOR IS ADVISED THAT FURTHER COORDINATION WITH THE FEDERAL AVIATION ADMINISTRATION (FAA) WILL BE NECESSARY PRIOR TO ERECTING SUCH TEMPORARY STRUCTURES OR OPERATING SUCH EQUIPMENT ON THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO FILE A NEW FAA FORM 7460-1, ADVISING THE FAA THAT AERONAUTICAL STUDY NO. (SEE BELOW LIST) IS BEING RESUBMITTED AND THAT AN ALTERATION TO THE ORIGINAL SUBMISSION IS REQUESTED. COPIES OF THE ALTERATION AND FORM 7460-1 SHALL BE FORWARDED TO THE ODOT OFFICE OF AVIATION. THE CONTRACTOR IS ADVISED THAT NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT SHALL EXCEED THE PERMISSIBLE HEIGHT UNTIL A COPY OF THE FAA APPROVAL AND ODOT OFFICE OF AVIATION PERMIT HAS BEEN FURNISHED TO THE PROJECT ENGINEER.

THE CONTRACTOR IS FURTHER ADVISED THAT THE FAA APPROVAL WILL TAKE A MINIMUM OF 45 DAYS. ALL SUBMISSIONS SHALL BE DIRECTED TO THESE OFFICES:

EXPRESS PROCESSING CENTER
THE FEDERAL AVIATION ADMINISTRATION
SOUTHWEST REGIONAL OFFICE
OBSTRUCTION EVALUATION SERVICE, AJR-32
2601 MEACHAN BLVD.
FORT WORTH, TX 76137-0520

ODOT
OFFICE OF AVIATION
2829 W DUBLIN-GRANVILLE RD.
COLUMBUS, OH 43235
614.793.5046

AERONAUTICAL STUDY NUMBER	COUNTY	ROUTE	STRAIGHT LINE MILE	LAT-LONG	
				LATITUDE	LONGITUDE
2019-AGL-944-OE	RIC	30	4.07	40.780478	-82.656428
2019-AGL-945-OE	RIC	30	4.50	40.781792	-82.648413
2019-AGL-946-OE	RIC	30	7.00	40.783859	-82.600875
2019-AGL-947-OE	RIC	30	7.50	40.784584	-82.591481
2019-AGL-948-OE	RIC	30	8.00	40.783347	-82.58234

IN ORDER TO COMPLY WITH ALL FAA REQUIREMENTS AND ALLEVIATE ANY ISSUES THAT MAY ARISE BETWEEN THE WORK ON THE HIGHWAY AND AIRWAY TRAFFIC, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE MANSFIELD LAHM MUNICIPAL AIRPORT MANAGER ADVISING THE MANAGER OF THE LOCATION, SCOPE AND DURATION OF THE PROJECT A MINIMUM OF FIVE BUSINESS DAYS PRIOR TO BEGINNING WORK. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AIRPORT MANAGER. THE FAA HAS MANDATED THAT THE CONTRACTOR ABIDE BY ALL REGULATIONS AND REQUESTS SET FORTH BY THE AIRPORT MANAGER. A MINIMUM OF FIVE BUSINESS DAYS PRIOR TO THE COMPLETION OF ALL WORK ON THE PROJECT, AGAIN CONTACT THE AIRPORT MANAGER IN ORDER TO NOTIFY THE MANAGER OF THE ACTUAL COMPLETION DATE OF THE PROJECT. ANY QUESTIONS REGARDING THIS REQUIREMENT MAY BE DIRECTED TO KENNY KNAPP, DISTRICT FAA COORDINATOR, AT 419.207.7175.

MANSFIELD LAHM MUNICIPAL AIRPORT
MARK DAUGHERTY
2000 HARRINGTON MEMORIAL RD
MANSFIELD, OH 44903
419.522.2191

ITEM 209 - LINEAR GRADING

THE CONTRACTOR IS REQUIRED TO PERFORM LINEAR GRADING ON THE GRADED SHOULDER. IT IS ANTICIPATED THAT THERE ARE AREAS WHERE THE GRADED SHOULDER IS AT A HIGHER ELEVATION THAN THE ADJACENT PROPOSED PAVEMENT. A 10:1 SLOPE SHALL BE ESTABLISHED, OR AS DIRECTED BY THE ENGINEER, WHEN PERFORMING ITEM 209 LINEAR GRADING. THE INTENT IS TO PROVIDE AN UNOBSTRUCTED AND POSITIVE FLOW OF STORM WATER FROM THE PAVEMENT TO THE DITCH. THE LINEAR GRADING SHALL BE PERFORMED AFTER THE INTERMEDIATE COURSE HAS BEEN COMPLETED AND BEFORE THE SURFACE COURSE IS PLACED. ALL LABOR AND EQUIPMENT NECESSARY TO PERFORM THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER MILE FOR ITEM 209 - LINEAR GRADING.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE)

ITEM 253 - PAVEMENT REPAIR

THESE ITEMS OF WORK SHALL CONSIST OF THE REMOVAL OF THE EXISTING PAVEMENT OR PAVED BERM WHICH MAY BE ASPHALT, BRICK, CONCRETE, OR A COMBINATION OF EACH, IN AREAS OF EXISTING PAVEMENT FAILURE. CORING HAS BEEN PERFORMED TO HELP DETERMINE THE COMPONENTS THAT MAY BE ENCOUNTERED DURING THIS ITEM OF WORK. THE PAVEMENT CORING INFORMATION IS SHOWN ON THIS SHEET.

PAVEMENT REPAIRS SHALL BE PERFORMED PRIOR TO PAVEMENT PLANING. THE DEPTH OF REMOVAL SHALL BE SUFFICIENT TO REMOVE ALL DETERIORATED PAVEMENT WITH AN AVERAGE DEPTH OF 6" FOR ESTIMATING PURPOSES.

THE CONTRACTOR SHALL BE CAPABLE OF PERFORMING PAVEMENT REPAIRS 2 FEET WIDE.

REPLACEMENT MATERIAL SHALL BE ITEM 301, OR ITEM 442 19MM MATERIAL AND SHALL BE PLACED AND COMPACTED TO FINISH FLUSH WITH THE ADJACENT PAVEMENT SURFACE. ITEM 301 ASPHALT CONCRETE CAN BE USED WHEN THE DEPTH OF THE REPAIR IS BETWEEN 3" AND 12" WITH A MAXIMUM PAVEMENT LIFT OF 6". ITEM 442 19MM CAN BE USED WHEN THE DEPTH OF THE REPAIR IS BETWEEN 1.5" AND 3". ITEM 301 SHALL USE PG64-22 ASPHALT BINDER AND ITEM 442 19MM SHALL USE PG64-28 BINDER.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE PAVEMENT REPAIR. FOR PAYMENT PURPOSES ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE) IS TO BE A MAXIMUM OF 6" DEEP AND ITEM 253 PAVEMENT REPAIR IS FOR DEPTHS GREATER THAN 6". PAYMENT WILL BE MADE AT THE UNIT BID PRICE PER CUBIC YARD, (BY TICKET WEIGHT CONVERSION), OF ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE) OR ITEM 253 - PAVEMENT REPAIR. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

01/NHS/PV:
ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE), (TRANSVERSE) 600 CY

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE), (LONGITUDINAL) 1,300 CY

ITEM 253 - PAVEMENT REPAIR 400 CY

QUANTITIES HAVE BEEN ESTIMATED USING THE FOLLOWING DIMENSIONS:

LONGITUDINAL REPAIRS, 2 FT WIDE X 6 IN DEEP.

TRANSVERSE REPAIRS, 6 FT WIDE X 12 FT X 6 IN DEEP WITH 5 FT X 12 FT PAVEMENT OVERLAY FABRIC COMPOSITE.

ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE

THE INTENT OF THE PLANING IS TO MILL 1.75 INCHES AT THE CENTER OF PAVEMENT. THE PAVEMENT SLOPE SHALL BE 0.010 MINIMUM AND 0.016 PREFERRED, CONTINUOUS BETWEEN THE CROWN AND THE PROPOSED EDGELINE/SHOULDER. THE MILLING DEPTH SHALL BE CONTROLLED FROM THE CENTER OF PAVEMENT IN CONFORMANCE WITH THE ABOVE GUIDELINES.

SPECIAL ATTENTION SHALL BE GIVEN TO SUPERELEVATED CURVES. THE SUPERELEVATION SHALL BE MAINTAINED AND/OR RESTORED, IF NECESSARY, AS DIRECTED BY THE ENGINEER. IF THERE IS NO INFORMATION IN THE PLANS TO CHANGE THE SUPERELEVATION, THE INTENT IS TO MAINTAIN THE EXISTING SUPERELEVATION.

THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TO ALL CATCH BASINS AND INLETS.

DRAINAGE SLOTS SHALL BE CUT INTO THE SHOULDER(S) AT THE LOW POINT OF EACH PLANED SECTION TO PREVENT TRAPPED WATER PUDDLES, AND REFILLED DURING RESURFACING. CUTTING AND FILLING DRAINAGE SLOTS SHALL BE INCLUDED IN PAYMENT WITH ITEM 254 PAVEMENT PLANING, ASPHALT CONCRETE.

THE AMOUNT OF GRINDINGS RESULTING FROM THIS WORK MAY PRODUCE UNEXPECTED VOLUMES OF GRINDINGS DUE TO THE EXISTING TRANSVERSE SLOPE OF THE PAVEMENT.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE PAVEMENT PLANING, ASPHALT CONCRETE. PAYMENT WILL BE MADE AT THE UNIT BID PRICE PER SQUARE YARD OF ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE.

ITEM 254 - PATCHING PLANED SURFACE

AN ESTIMATED QUANTITY OF ITEM 254 - PATCHING PLANED SURFACE HAS BEEN SET UP TO BE USED AS DIRECTED BY THE ENGINEER AS DESCRIBED IN CMS 254.04. THE LIMIT OF THE PATCHING DEPTH IS 0 TO 2 IN.

ITEM 408 - PRIME COAT, AS PER PLAN

THE CONTRACTOR SHALL APPLY ONE COAT OF MC-70 (AS PER SECTION 702) AT A RATE OF 0.40 GAL/SY TO THE COMPLETED AGGREGATE SHOULDER (ITEM 617) AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE A SHIELD TO PREVENT THE SPRAYING OR DRIFTING OF LIQUID BITUMINOUS MATERIAL ONTO THE EDGE OF PAVEMENT OR EDGE LINE. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO 107.10 OF THE SPECIFICATIONS.

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GENERAL NOTES

RIC - 30 - 4.07

ITEM 690 - SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE

DESCRIPTION. THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING PAVEMENT OVERLAY FABRIC COMPOSITE AS SHOWN ON THE PLANS AND AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS FABRIC COMPOSITE MAY BE PLACED ON A MILLED SURFACE.

MATERIALS. PAVEMENT OVERLAY FABRIC COMPOSITE SHALL BE CONSTRUCTED OF LONG CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85 PERCENT OF POLYOLEPHINES, POLYESTERS, AND POLYAMIDES BY WEIGHT, SHALL BE RESISTANT TO CHEMICAL ATTACK, MILDEW, ROT, AND ATTACHED TO A FIBERGLASS GRID. COMPOSITE SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

PROPERTY	SPECIFICATION	TEST METHOD
PAVING FABRIC: GLASGRID CG200 OR APPROVED EQUAL		
GRAB TENSILE STRENGTH, LBS.	90 MIN.	ASTM D 1682
GRAB ELONGATION, PERCENT	50 MIN.	ASTM D 1682
ASPHALT RETENTION GAL./SY.	0.20 MIN.	AASHTO M-288
COMPOSITE ULTIMATE TENSILE STRENGTH (LBS/FT)	MD 6720 MIN XD 13440 MIN	ASTM D 6637
MAXIMUM ELONGATION	LESS THAN 3%	ASTM D 6637
PERCENT OPEN AREA	>50	TEX-621-J "TESTING GEOGRIDS"
MELTING POINT MIN (DEGREES F)	1000	ASTM C338
LOSS ON IGNITION %	>15	TEX-621-J "TESTING GEOGRIDS"
MASS/UNIT AREA	16.0 OZ. /SY MIN	ASTM D 5261-92

THE COMPOSITE FABRIC SHALL NOT BE EXPOSED TO ULTRAVIOLET RADIATION FOR MORE THAN 7 DAYS. THE FABRIC SHALL BE AT LEAST 60 INCHES BUT NO MORE THAN 150 INCHES IN WIDTH AND FURNISHED IN ROLLS OF APPROXIMATELY 104 YARDS IN LENGTH. THE FABRIC CAN BE CUT TO A 30 INCH WIDTH IF A 30 INCH WIDTH IS SPECIFIED IN THE PLAN.

THE ASPHALT SEALANT SHALL BE PG64-22 MEETING THE REQUIREMENTS OF 702.01.

CERTIFICATION SHALL BE FURNISHED IN ACCORDANCE WITH 101.061 BEFORE THE FABRIC IS PLACED. THE ENGINEER MAY REQUIRE SAMPLING FOR TESTING PURPOSES AS DIRECTED BY THE LABORATORY.

EQUIPMENT. THE CONTRACTOR SHALL PROVIDE EQUIPMENT FOR HEATING AND APPLYING BITUMINOUS MATERIAL. HEATING EQUIPMENT AND DISTRIBUTORS SHALL MEET THE REQUIREMENTS OF 407.

THE MECHANICAL LAYDOWN EQUIPMENT SHALL BE MOUNTED ON A FOUR-WHEELED VEHICLE THAT IS CAPABLE OF DRIVING OVER THE FABRIC WHILE IT IS BEING INSTALLED TO CONTROL THE TENSION ON THE MATERIAL. THE LAYDOWN MACHINE SHALL BE EQUIPPED WITH CLUTCHES TO ADJUST THE ROLL TENSION AND BROOMS TO SMOOTH OUT WRINKLES DURING INSTALLATION. MANUAL LAYDOWN MAY ONLY BE USED IN AREAS INACCESSIBLE TO THE LAYDOWN MACHINE.

CONSTRUCTION DETAILS

1 SURFACE PREPARATION: THE CRACKS AND ENTIRE ROAD SURFACE TO BE TREATED, AND AT LEAST ONE ADDITIONAL FOOT ON EACH SIDE, SHALL BE CLEANED BY SWEEPING, BLOWING, OR OTHER METHODS UNTIL ALL DUST, MUD, CLAY LUMPS, VEGETATION, AND FOREIGN MATERIAL ARE REMOVED ENTIRELY FROM THE PAVEMENT BEFORE THE BITUMINOUS MATERIAL IS APPLIED. CARE SHALL BE EXERCISED TO PREVENT MATERIAL SO REMOVED FROM BECOMING MIXED WITH THE NEW SURFACE. LARGE CRACKS AND POTHOLES SHOULD BE FILLED.

2 APPLICATION OF ASPHALT SEALANT: THE APPLICATION OF THE ASPHALT SEALANT SHALL CONFORM TO THE APPLICABLE PORTIONS OF 407. THE ASPHALT SEALANT SHALL BE UNIFORMLY SPRAYED OVER THE AREA TO BE COVERED BY FABRIC AT A RATE OF 0.25 TO 0.30 GALLON PER SQUARE YARD.

THE QUANTITY APPLIED WILL VARY WITH THE SURFACE CONDITION OF THE EXISTING PAVEMENT (DEGREE OF POROSITY, FOR EXAMPLE). THE FABRIC ALONE, UNDER HEAT OF THE OVERLAY, WILL ABSORB AT LEAST 0.20 GALLON PER SQUARE YARD. WITHIN INTERSECTIONS OR OTHER ZONES WHERE VEHICLE BRAKING IS COMMON PLACE, THE APPLICATION SHALL BE REDUCED 20 PERCENT. THE SEALANT SHALL BE APPLIED TO AN AREA TWO TO SIX INCHES WIDER THAN THE WIDTHS OF THE FABRIC BEING PLACED, BUT RESTRICTED TO THE AREA OF IMMEDIATE FABRIC LAYDOWN. APPLICATION SHALL BE BY DISTRIBUTOR WITH HAND SPRAYING ALLOWED ONLY WHERE THE DISTRIBUTOR CANNOT BE USED. ASPHALT SPILLS SHALL BE CLEANED FROM THE ROAD SURFACE TO AVOID FLUSHING AND POSSIBLE MOVEMENT AT THESE ASPHALT RICH AREAS.

THE ASPHALT CEMENT USED AS A SEALANT SHALL HAVE DISTRIBUTOR TANK TEMPERATURE BETWEEN 300 DEGREES AND 350 DEGREES F. APPLICATION TEMPERATURE IS NOT CRITICAL AFTER THE ASPHALT IS SPRAYED ON THE PAVEMENT. IF THE FABRIC IS TO BE OVER-SPRAYED, DISTRIBUTOR TANK TEMPERATURES SHOULD NOT EXCEED 350 DEGREES F TO AVOID DAMAGE TO THE FABRIC.

3 COMPOSITE FABRIC PLACEMENT: THE COMPOSITE FABRIC SHALL BE PLACED ON THE ASPHALT SEALANT AS SOON AS PRACTICAL AND BEFORE THE TACKINESS OF THE SEALANT IS LOST. THE COMPOSITE SHALL BE PLACED AS SMOOTHLY AS POSSIBLE TO AVOID WRINKLES. IT SHALL BE UNROLLED SO THAT THE SOFT SIDE IS UNWOUND INTO THE SEALANT AND THE GRID SIDE UP, THUS PROVIDING OPTIMUM BOND BETWEEN FABRIC AND PAVEMENT DURING THE CONSTRUCTION PROCESS. WRINKLES SEVERE ENOUGH TO CAUSE "FOLDS" SHALL BE SLIT AND LAID FLAT. SMALL WRINKLES, WHICH FLATTEN UNDER COMPACTION ARE NOT DETRIMENTAL TO PERFORMANCE. THE COMPOSITE SHALL BE BROOMED OR SQUEEGEED TO REMOVE AIR BUBBLES AND MAKE COMPLETE CONTACT WITH THE ROAD SURFACE AS RECOMMENDED BY THE FABRIC MANUFACTURER. THE FABRIC SHALL BE LAID STRAIGHT, WITHIN THE SEALANT AREA. MODERATE CURVES CAN BE NEGOTIATED BY STRETCHING THE FABRIC ON THE OUTSIDE OF THE CURVE BY ADJUSTING THE DRAG ON THE BRAKES OF THE LAYDOWN EQUIPMENT. TRANSVERSE JOINTS SHALL BE "SHINGLED" IN THE DIRECTION OF PAVING.

LONGITUDINAL JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC ONE TO TWO INCHES. TRANSVERSE JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC MINIMUM OF FOUR INCHES. ADDITIONAL SEALANT (ABOUT 0.20 GAL. PER SQ. YD.) SHALL BE ADDED TO THE JOINTS AS REQUIRED. THE ADDITIONAL SEALANT FOR TRANSVERSE JOINTS MAY BE APPLIED BY HAND SPRAYING OR WITH MOP AND BUCKET IF EXTREME CARE IS TAKEN TO NOT EXCEED THE SPECIFIED RATE.

TO ENHANCE THE BOND OF THE FABRIC WITH THE EXISTING PAVEMENT AND TO SMOOTH OUT ANY WRINKLES OR FOLDS IN THE FABRIC, THE CONTRACTOR MAY BE REQUIRED TO PNEUMATICALLY ROLL THE FABRIC AFTER IT IS PLACED.

4 TREATMENT OF THE APPLIED COMPOSITE PRIOR TO PLACEMENT OF ASPHALT CONCRETE: TACK COAT THE FABRIC PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY. TACK COAT SHALL BE APPLIED AT A RATE OF 0.02 TO 0.05 GALLON PER SQUARE YARD. PLACEMENT OF THE ASPHALT CONCRETE OVERLAY SHALL CLOSELY FOLLOW FABRIC LAYDOWN. IN THE EVENT THAT THE SEALANT BLEEDS THROUGH THE FABRIC BEFORE THE ASPHALT CONCRETE IS PLACED, IT MAY BE NECESSARY TO BLOT THE SEALANT BY SPREADING SAND OR ASPHALT CONCRETE OVER THE AFFECTED AREAS. THIS WILL PREVENT ANY TENDENCY FOR CONSTRUCTION EQUIPMENT TO PICK UP THE FABRIC WHEN DRIVING OVER IT.

TURNING OF THE PAVER AND OTHER VEHICLES SHALL BE GRADUAL TO AVOID MOVEMENT OR DAMAGE TO THE COMPOSITE. UNESSENTIAL TRAFFIC ON COMPOSITE SHOULD BE ELIMINATED. IF IT IS NECESSARY TO OPEN THE ROAD TO TRAFFIC AFTER FABRIC PLACEMENT, BUT PRIOR TO PAVING, IT IS ADVISABLE TO SPREAD A SMALL AMOUNT OF SAND OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE COMPOSITE. THIS PRACTICE IS TO BE AVOIDED IF POSSIBLE TO PREVENT DAMAGE TO THE MEMBRANE. QUICK STOPS AND SHARP TURNS MAY DAMAGE THE MATERIAL. IF RAIN PRIOR TO THE OVERLAY SHOULD CAUSE A BLISTERED APPEARANCE AND SOME BOND LOSS THROUGHOUT THE MEMBRANE, IT SHOULD BE CORRECTED BY PNEUMATIC ROLLING UNTIL ADHESION IS RESTORED.

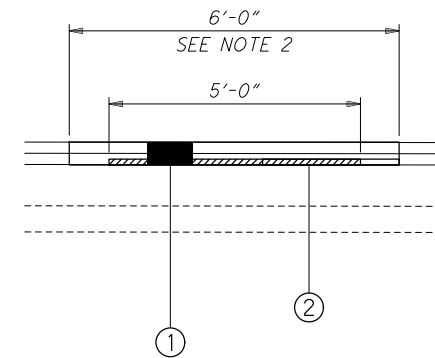
5 ASPHALT CONCRETE: THE ASPHALT CONCRETE OVERLAY SHALL CONFORM TO 401 SPECIFICATION WITH A MINIMUM THICKNESS OF 1.5". A TWO COURSE OVERLAY IS PREFERRED.

METHOD OF MEASUREMENT. THE ACCEPTED FABRIC COMPOSITE PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND AS DIRECTED WILL BE MEASURED BY THE SQUARE YARD OF ROADWAY, RAMPS, AND TURNOUTS COVERED BY THE COMPOSITE FABRIC. LAPS IN COMPOSITE FABRIC WILL NOT BE MEASURED.

BLOTTING THE SEALANT, SPREADING SAND OR ASPHALT CONCRETE OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE FABRIC, ROLLING TO RESTORE BOND, OR APPLICATION OF A TACK COAT WILL NOT BE MEASURED FOR DIRECT PAYMENT BUT SHALL BE CONSIDERED A NECESSARY PART OF THE CONSTRUCTION INVOLVED AND THE COST THEREFORE SHALL BE INCLUDED IN OTHER APPROPRIATE CONTRACT UNIT PRICES.

BASIS OF PAYMENT. THE ACCEPTED QUANTITIES OF PAVEMENT OVERLAY FABRIC COMPOSITE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS (INCLUDING ASPHALT SEALANT AND OVERLAP), TOOLS, EQUIPMENT AND INCIDENTALS FOR DOING ALL THE WORK INVOLVED IN FURNISHING AND PLACING THE COMPOSITE COMPLETE IN PLACE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ITEM 690 - SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE
01/NHS/PV - 3,000 SY



- ① ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE), (TRANSVERSE)
- ② ITEM 690 - SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE (5'-0" WIDE, CENTERED OVER REPAIR)

NOTES:

- 1. ONLY PLACE ITEM SPECIAL PAVEMENT OVERLAY FABRIC COMPOSITE ON MAINLINE US 30 TRANSVERSE REPAIRS, NOT INCLUDING PAVED SHOULDERS OR RAMPS.
- 2. MAINLINE TRANSVERSE REPAIRS ARE TO BE 6'-0" WIDE AND 12'-0" IN LENGTH.
- 3. REPAIR LOCATIONS TO BE IDENTIFIED BY THE ENGINEER.
- 4. FOR ESTIMATING PURPOSES ONLY: USE A PAVEMENT REPAIR DEPTH OF 6".

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GENERAL NOTES

RIC - 30 - 4.07

ITEM 690 - SPECIAL - MISC.: HIGH FRICTION SURFACE COURSE

DESCRIPTION.

THIS WORK SHALL CONSIST OF FURNISHING AND APPLYING EPOXY AND HIGH FRICTION AGGREGATE ON PAVEMENT SURFACE TO PROVIDE A HIGH FRICTION SURFACE.

MATERIALS.

A. EPOXY BINDER. THE BINDER SHALL CONSIST OF TWO PART EXOTHERMIC EPOXY RESIN MEETING THE FOLLOWING REQUIREMENTS:

PROPERTY	VALUE	METHOD
COMPRESSIVE STRENGTH, MIN. PSI	5,000	ASTM C 579
TENSILE STRENGTH, MIN. PSI	2,650	ASTM D 638
TENSILE ELONGATION, MIN. PERCENT	30-80	ASTM D 638
WATER ABSORPTION, MAX. PERCENT BY WT.	1.0	ASTM D 570
SHORE D HARDNESS, MIN 77°F	60-75	ASTM D 2240
GEL TIME, MINUTES	15-45	ASTM C 881
ADHESION TO CONCRETE	100% FAILURE IN CONCRETE	ACI-503-R, PULL OUT TEST
FLEXURAL YIELD STRENGTH, MIN. PSI	3,000	ASTM D 790
PERCENT SOLIDS	100	

EPOXY RESIN BINDER MATERIALS WHICH ARE NOT EXOTHERMIC IN CURING OR BLENDED EPOXY URETHANE BINDERS THAT DO NOT MEET THE TENSILE ELONGATION REQUIREMENTS WILL NOT BE ALLOWED. INDEPENDENT LABORATORY REPORT DOCUMENTS SHALL BE PROVIDED DOCUMENTING THAT THE EPOXY BINDER MEETS THE REQUIREMENTS OF THIS SECTION.

B. AGGREGATE SURFACE TOPPING. THE AGGREGATE SHALL MEET THE REQUIREMENTS SHOWN BELOW. THE HIGH FRICTION AGGREGATE SHALL BE CLEAN, DRY, AND FREE FROM FOREIGN MATTER. THE AGGREGATE ON THE INSTALLED SYSTEM SHALL PRODUCE A SKID RESISTANT READING OF 69 SRV (SKID RESISTANT VALUE) AS TESTED WITH A LOCK WHEEL TESTING APPARATUS. THE SKID TESTING SHALL BE CONDUCTED WITHIN 90 DAYS OF THE COMPLETED PROJECT INSTALLATION. SURFACE APPLICATIONS, NOT MEETING AVERAGE MINIMUM SKID TEST RESULTS OF 65 SRV, SHALL BE REMOVED AND REPLACED. THE INSTALLED SYSTEM SHALL BE TESTED FOR SKID RESISTANCE AT APPROXIMATELY SIX MONTH INTERVALS OR WHEN THE PURCHASING AGENCY DEEMS IT NECESSARY FOR A ONE YEAR PERIOD AFTER THE INSTALLATION. IF THE SKID RESISTANCE READINGS ARE LESS THAN 65 SRV, THE INSTALLATION SHALL BE REMOVED AND REPLACED AT NO COST TO THE PURCHASING AGENCY.

BAUXITE AGGREGATE REQUIREMENTS

SRV	SKID RESISTANCE VALUE TEST 65	ASTM E303
PSV	POLISHED STONE VALUE 70	ASTM E660
AGGREGATE GRADING #6	0.5%	
SIEVE SIZE 5% MAX +/-	0.5%	

C. CERTIFICATION. THE INSTALLER SHALL SUBMIT A LIST OF PROJECTS WITH THE OWNER'S CONTACT INFORMATION ON WHICH A MINIMUM OF 10,000 SQUARE YARDS OF HIGH FRICTION SURFACE TREATMENT HAS BEEN PLACED WITHIN THE PAST THREE YEARS DEMONSTRATING A FRICTION READING OF 65 SRV.

CONSTRUCTION METHODS

A. SAFETY PROVISIONS. PERSONNEL SHALL BE THOROUGHLY TRAINED IN THE SAFE HANDLING OF MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. STORAGE OF MATERIALS. MATERIALS SHALL BE STORED IN ACCORDANCE WITHIN THE REQUIREMENTS OF THE SPECIFICATIONS. MSDS AND OTHER INFORMATION PERTAINING TO THE SAFE PRACTICES FOR THE STORAGE, HANDLING AND DISPOSAL OF THE MATERIALS, AND TO THEIR HEALTH HAZARDS SHALL BE OBTAINED FROM THE MANUFACTURER AND POSTED AT STORAGE AREAS. A COPY OF SUCH INFORMATION SHALL BE PROVIDED TO THE ENGINEER.

C. APPLICATION CONDITIONS. DO NOT APPLY THE EPOXY BINDER ON A WET SURFACE OR WHEN THE AMBIENT TEMPERATURE IS BELOW 40°F OR WHEN THE ANTICIPATED WEATHER CONDITIONS WOULD PREVENT THE PROPER APPLICATION OF THE SURFACE TREATMENT AS DETERMINED BY THE MANUFACTURER'S REPRESENTATIVE.

D. SURFACE PREPARATION. SURFACES SHALL BE CLEAN, DRY, AND FREE OF ALL DUST, OIL, DEBRIS AND ANY OTHER MATERIAL THAT MIGHT INTERFERE WITH THE BOND BETWEEN THE EPOXY RESIN BINDER MATERIAL AND EXISTING SURFACES. ADEQUATE CLEANING OF ALL SURFACES WILL BE DETERMINED BY THE MANUFACTURER'S REPRESENTATIVE. UTILITIES, DRAINAGE STRUCTURES, CURBS AND ANY OTHER STRUCTURES WITHIN OR ADJACENT TO THE TREATMENT LOCATION SHALL BE PROTECTED FROM THE APPLICATION OF THE SURFACE TREATMENT MATERIALS.

COVER AND PROTECT ALL EXISTING PAVEMENT MARKINGS THAT ARE ADJACENT TO THE APPLICATION AS DIRECTED BY THE ENGINEER. PAVEMENT MARKINGS THAT CONFLICT WITH THE SURFACE APPLICATION SHALL BE REMOVED BY GRINDING AND THE SURFACE SHALL BE SWEEPED CLEAN PRIOR TO THE EPOXY BINDER APPLICATION.

PRE-TREAT JOINTS AND CRACKS GREATER THEN 1/4 INCH IN WIDTH AND DEPTH WITH THE MIXED EPOXY SPECIFIED HEREIN. ONCE THE EPOXY IN THE PRE-TREATED AREAS HAS GELLED, THE EPOXY BINDER AND AGGREGATE TOPPING INSTALLATION MAY PROCEED.

FOR APPLICATIONS ON NEW ASPHALT, A MANDATORY 30 DAY CURE PERIOD SHALL TAKE PLACE PRIOR TO THE INSTALLATION OF THE EPOXY BINDER AND HIGH FRICTION BAUXITE AGGREGATE. ON NEW CONCRETE SURFACES, ALL CURING COMPOUNDS SHALL BE COMPLETELY REMOVED PRIOR TO INSTALLATION.

E. EQUIPMENT: AUTOMATED CONTINUOUS APPLICATION. AUTOMATED CONTINUOUS APPLICATION SHALL BE PERFORMED BY AN APPLICATOR VEHICLE WITH A MINIMUM AGGREGATE CAPACITY OF 30,000 LBS AND A MINIMUM OF 1,200 GALLONS OF THE EPOXY BINDER. THE APPLICATOR SHALL HEAT, CONTINUOUSLY MIX, METER, MONITOR AND APPLY THE EPOXY BINDER AND HIGH FRICTION AGGREGATE IN ONE CONTINUOUS PASS.

THE APPLICATOR VEHICLE SHALL BE EQUIPPED WITH AN INBUILT DATA MANAGEMENT UNIT WHICH IS CAPABLE OF PRODUCING REAL TIME DATA FLOW SHOWING THE VOLUME OF RESIN, THE RESIN MIL THICKNESS ON AVERAGE THROUGHOUT THE APPLICATION WIDTH, THE VOLUME OF AGGREGATE APPLIED THROUGHOUT THE APPLICATION WIDTH, THE TEMPERATURE OF THE HEATED RESIN AND THE AMBIENT TEMPERATURE. THE AUTOMATED CONTINUOUS APPLICATION VEHICLE WILL HAVE CONTINUOUS PUMPING AND PORTIONING DEVICES THAT BLEND THE EPOXY BINDER WITHIN A CONTROLLED SEALED SYSTEM. THE EPOXY BINDER SHALL BE BLENDED AND MIXED IN THE RATIO PER THE MANUFACTURER'S SPECIFICATION (+ 2% BY VOLUME): THE EPOXY BINDER SHALL BE CONTINUOUSLY APPLIED ONCE BLENDED. THE APPLICATION VEHICLE SHOULD BE CAPABLE OF A MINIMUM EPOXY BINDER APPLICATION RATE OF 10 GAL/PER MINUTE WITH A MINIMUM UNIFORM APPLICATION THICKNESS OF 50 MILS.

THE HIGH FRICTION AGGREGATE SHALL BE APPLIED BY THE SAME AUTOMATED CONTINUOUS APPLICATION VEHICLE THAT APPLIES THE RESIN BINDER TO THE PAVEMENT SECTION. THE AUTOMATIC AGGREGATE SPREADER SHALL BE CAPABLE OF APPLYING UP TO A CONTINUOUS 12 FOOT WIDTH APPLICATION. THE HIGH FRICTION AGGREGATE SHALL BE APPLIED WITHIN 3 SECONDS (+ 1 SEC) OF THE BASE RESIN BINDER APPLICATION ONTO THE PAVEMENT SECTION, FROM A MINIMUM HEIGHT OF 12 INCHES FROM ABOVE THE PAVEMENT SECTION SURFACE, AT MINIMUM CONTINUOUS RATE OF 11 LBS PER SQUARE YARD OF COVERAGE. THE USE OF CHIP SPREADERS, VEHICLE TIRES, ROLLERS, VIBRATORY COMPACTORS OF DEVICES THAT THROW LOOSE AGGREGATE ONTO ANY PART OF THE LIVE ROADWAY LANES SHALL NOT BE ALLOWED TO APPLY THE HIGH FRICTION AGGREGATE ONTO THE WET UNCURED RESIN.

THE AUTOMATED CONTINUOUS APPLICATOR VEHICLE SHOULD BE CAPABLE OF THE UNIFORM APPLICATION OF THE HIGH FRICTION AGGREGATE TREATMENT AT A MINIMUM CONTINUOUS APPLICATION RATE OF 2,300 SQUARE YARDS PER HOUR. NO EXPOSED WET SPOTS OF THE EPOXY BINDER SHALL BE VISIBLE ONCE THE AGGREGATE IS INSTALLED. THE OPERATIONS SHOULD PROCEED IN SUCH A MANNER THAT WILL NOT ALLOW THE MIXED MATERIAL TO SEPARATE, CURE, DRY, BE EXPOSED OR OTHERWISE HARDEN IN SUCH A WAY AS TO IMPAIR RETENTION AND BONDING OF THE HIGH FRICTION SURFACING AGGREGATE. WALKING, STANDING OR ANY FORM OF CONTACT OR CONTAMINATION WITH THE WET UNCURED RESIN WILL RESULT IN THAT SECTION OF RESIN BEING REMOVED AND REPLACED AT THE INSTALLER'S EXPENSE.

THE EXCESS AGGREGATE CAN BE REUSED; THE AGGREGATE SHALL BE RECLAIMED BY A SUCTION SWEEPER, THE RECOVERED AGGREGATE MUST BE CLEAN, UNCONTAMINATED AND DRY.

APPLICATIONS ON HIGH SPEED HIGHWAYS SUCH AS INTERSTATE RAMPS AND BRIDGE DECKS WILL REQUIRE ADDITIONAL SWEEPING THREE DAYS AFTER THE INITIAL INSTALLATION IS COMPLETED.

MEASUREMENT AND PAYMENT
HIGH FRICTION EPOXY AGGREGATE SURFACE TREATMENT WILL BE MEASURED AND PAID FOR IN SQUARE YARDS, WHICH PRICE SHALL BE FULL COMPENSATION FOR SURFACE PREPARATION, FOR FURNISHING AND APPLYING THE SURFACE TREATMENT, INCLUDING ANY INCIDENTALS NECESSARY TO COMPLETE ALL WORK DESCRIBED ABOVE.

PAYMENT WILL BE MADE UNDER:

PAY ITEM
ITEM 690 - SPECIAL, MISC.: HIGH FRICTION SURFACE COURSE

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GENERAL NOTES

RIC-30-4.07

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ITEM 690 SPECIAL - VOID REDUCING ASPHALT MEMBRANE (VRAM)

THE CONTRACTOR SHALL APPLY VRAM OVER LANE LINE JOINTS FOR A 5.19 MILE SECTION OF RIC-30 FROM SLM 4.07 TO 9.26 (EASTBOUND AND WESTBOUND), TO THE SATISFACTION OF THE ENGINEER. SEE SHEET 16 FOR QUANTITIES

1.0 GENERAL

AS PART OF THIS PROJECT, THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT SECTIONS OF COLD LONGITUDINAL JOINTS USING VOID REDUCING ASPHALT MEMBRANE (VRAM) MATERIAL AT SPECIFIED LOCATIONS. PROVIDE ADDITIONAL CORE SAMPLES, LOOSE MIX SAMPLES AND LIQUID MATERIAL SAMPLES AS DIRECTED BY THE ENGINEER. CONSTRUCT ALL SURFACE COURSE COLD LONGITUDINAL JOINTS FROM SLM 4.07 TO 9.26 USING VRAM MATERIAL AND CONFORMING WITH THE FOLLOWING REQUIREMENTS.

2.0 MATERIALS

PROVIDE J-BAND PRODUCED BY ASPHALT MATERIALS, INC. OR OTHER APPROVED ASPHALT MATERIAL AS FOLLOWS:

PROVIDE A BASE ASPHALT MODIFIED WITH STYRENE-BUTADIENE DIBLOCK OR TRIBLOCK COPOLYMER WITHOUT OIL EXTENSION, OR A STYRENE-BUTADIENE RUBBER ELASTOMERS. DO NOT USE AIR BLOWN ASPHALT, ACID MODIFICATION, OR OTHER MODIFIERS.

TEST	TEST REQUIREMENT	TEST METHOD
DYNAMIC SHEAR @ 82°C (UNAGED), G*/SIN Δ, KPA	1.00 MIN.	AASHTO T 315
CREEP STIFFNESS @ -18°C (UNAGED), STIFFNESS (S), MPA M-VALUE	300 MAX 0.300 MIN.	AASHTO T 313
ASH, %	6.0 MAX.	AASHTO T 111
ELASTIC RECOVERY, 100 MM ELONGATION, CUT IMMEDIATELY, 25°C, %	58 MIN.	AASHTO T301
SEPARATION OF POLYMER, DIFFERENCE IN °C OF THE SOFTENING POINT (RING AND BALL)	3 MAX.	ASTM D7173, AASHTO T53
MIGRATION OF VRAM, %	50-75	ITM XYZ

3.0 EQUIPMENT

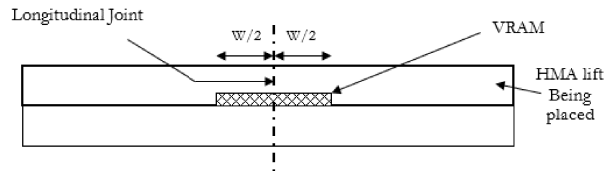
WHEN A PRESSURE DISTRIBUTOR IS USED TO APPLY THE VRAM, EQUIP THE DISTRIBUTOR WITH A HEATING AND RECIRCULATING SYSTEM ALONG WITH A FUNCTIONING AUGER AGITATING SYSTEM OR VERTICAL SHAFT MIXER IN THE HAULING TANK TO PREVENT LOCALIZED OVERHEATING. WHEN A MELTER KETTLE IS USED TO TRANSPORT AND APPLY THE VRAM, USE ONLY OIL JACKETED DOUBLE-BOILER MELTER KETTLES WITH AGITATING AND RECIRCULATING SYSTEMS. MATERIAL FROM THE KETTLE MAY BE DISPENSED THROUGH A PRESSURE FEED WAND WITH AN APPLICATOR SHOE OR THROUGH A PRESSURE FEED WAND INTO A HAND-OPERATED "THERMAL PUSH CART."

4.0 PREPARATION OF SURFACE

PRIOR TO PLACING VRAM, CLEAN THE PAVEMENT SURFACE AREA TO BE TREATED OF ALL FOREIGN MATERIALS DEEMED DETRIMENTAL BY THE ENGINEER. ONLY APPLY VRAM TO SURFACES THAT ARE DRY AND CLEANED OF ALL DUST, DEBRIS, AND ANY SUBSTANCES THAT WILL PREVENT THE VRAM FROM ADHERING. THE VRAM MAY BE PLACED BEFORE OR AFTER THE TACK COAT PLACEMENT. WHEN PLACED AFTER THE TACK COAT, ENSURE THE TACK COAT IS FULLY CURED PRIOR TO PLACEMENT OF THE VRAM.

5.0 APPLICATION OF VRAM

APPLY VRAM TO COLD LONGITUDINAL JOINTS UNDER SURFACE COURSES. ONLY APPLY VRAM WHEN THE PAVEMENT TEMPERATURE AND AMBIENT TEMPERATURE ARE A MINIMUM OF 40°F AND RISING. APPLY VRAM MATERIAL CENTERED ON THE COLD LONGITUDINAL JOINT AS DETAILED BELOW:



ITEM 690 SPECIAL - VOID REDUCING ASPHALT MEMBRANE (VRAM) (CONT'D)

APPLY VRAM AT THE WIDTH AND APPLICATION RATE REQUIRED ACCORDING TO THE FOLLOWING TABLE:

VRAM APPLICATION RATE TABLE		
OVERLAY THICKNESS, (IN.)	VRAM WIDTH, "W", (IN.)	APPLICATION RATE [1], (LB/FT)
HMA MIXTURES [2]		
1	18	1.15
1 1/4	18	1.31
1 1/2	18	1.47
1 3/4	18	1.63
2	18	1.80
2 1/4	18	1.96
2 1/2	18	2.12
2 3/4	18	2.29
3	18	2.45
3 1/4	18	2.61
3 1/2	18	2.78
3 3/4	18	2.94
4	18	3.10
SMA MIXTURES [2]		
1 1/2	12	0.83
1 3/4	12	0.92
2	12	1.00

[1] THE APPLICATION RATE RETAINS A SURFACE DEMAND FOR LIQUID INCLUDED WITHIN IT. THE NOMINAL THICKNESS OF THE VRAM MAY TAPER FROM THE CENTER OF THE APPLICATION TO A LESSER THICKNESS ON THE EDGE OF THE APPLICATION. THE WIDTH AND WEIGHT/FOOT SHALL BE MAINTAINED.

[2] IN THE EVENT OF A JOINT BETWEEN AN SMA AND HMA MIXTURE, THE SMA APPLICATION RATE WILL BE USED.

APPLY VRAM IN A SINGLE PASS WITH A PRESSURE DISTRIBUTOR, MELTER KETTLE, OR HAND APPLIED FROM A ROLL, FOR ASPHALT COURSES UP TO 2 IN. (50 MM) IN THCKNESS. APPLY VRAM IN TWO PASSES FOR ASPHALT COURSES BETWEEN 2 AND 4 IN. (50 AND 100 MM) IN THICKNESS. ENSURE THE APPLIED WIDTH OF VRAM IS WITHIN * 1.5 IN. (38 MM) OF THE WIDTH SPECIFIED. IF THE VRAM FLOWS MORE THAN 2 IN. (50 MM) FROM THE INITIAL PLACEMENT WIDTH, IMMEDIATELY STOP PLACEMENT OF VRAM AND PERFORM CORRECTIVE ACTIONS. COORDINATE THE APPLICATION OF VRAM AND PLACEMENT OF THE ASPHALT MIXTURE TO ENSURE THE CENTER OF THE VRAM APPLICATION IS WITHIN * 2.0 IN. (50 MM) OF THE CENTER OF THE ASPHALT PAVEMENT COLD JOINT BEING CONSTRUCTED.

IF THE VRAM MATERIAL WILL BE EXPOSED TO TRAFFIC PRIOR TO CLOSING THE LONGITUDINAL JOINT, SHIFT THE LOCATION OF THE CENTERLINE OF THE VRAM MATERIAL ABOUT THE CENTERLINE SUCH THAT NO MORE THAN A NOMINAL 6 IN. (152 MM) OF MATERIAL IS EXPOSED. DO NOT OPEN TO TRAFFIC IF WIDTH OF EXPOSED VRAM MATERIAL IS GREATER THAN 6 IN. (152 MM).

IF THE PAVING OPERATION ONLY ALLOWS VRAM TO BE PLACED ON ONE SIDE OF THE LONGITUDINAL JOINT AT A TIME, COAT THE VERTICAL FACE OF THE COLD LONGITUDINAL JOINT WITH VRAM MATERIAL IN ADDITION TO THE REQUIREMENTS ABOVE. DO NOT SEAL THE FACE OF COLD LONGITUDINAL JOINTS AS REQUIRED PER 401.17 WHEN USING VRAM FOR THE COLD LONGITUDINAL JOINT.

FURNISH A BILL OF LADING FOR EACH TANKER SUPPLYING MATERIAL TO THE PROJECT. VERIFY THE APPLICATION RATE OF VRAM WITHIN THE FIRST 1000 FT (305 M) OF THE DAY'S SCHEDULED APPLICATION LENGTH AND EVERY 6000 FT (1829 M) THE REMAINDER OF THE DAY. FOR PROJECTS LESS THAN 3000 FT (914 M), THE RATE WILL BE VERIFIED ONCE. PLACE A SUITABLE PAPER OR PAN AT A RANDOM LOCATION IN THE PATH OF THE PLACEMENT FOR THE VRAM. AFTER APPLICATION OF THE VRAM, PICK UP THE PAPER OR PAN AND OBTAIN THE WEIGHT OF THE MATERIAL. CALCULATE THE WEIGHT PER FOOT OF VRAM. ENSURE THE ACTUAL WEIGHT PER FOOT OF VRAM IS WITHIN * 15 PERCENT OF THE TARGET WEIGHT/FOOT FROM THE VRAM APPLICATION RATE TABLE. REPLACE THE VRAM IN THE AREAS WHERE THE SAMPLES ARE TAKEN.

WHEN BEGINNING PLACEMENT OF A RUN OF VRAM, USE A SUITABLE RELEASE PAPER TO COVER PREVIOUS VRAM APPLICATION TO PREVENT DOUBLING UP OF THICKNESS OF VRAM.

THE VRAM MUST BE SUITABLE FOR CONSTRUCTION TRAFFIC TO DRIVE ON WITHOUT PICKUP OR TRACKING WITHIN 30 MINUTES OF PLACEMENT. IF PICKUP OR TRACKING OCCURS, IMMEDIATELY STOP PLACEMENT OF VRAM AND REPAIR DAMAGED AREAS.

PRIOR TO START OF PAVING, ENSURE THE PAVER END PLATE AND ANY GRADE CONTROL DEVICES ARE ADEQUATELY RAISED ABOVE THE FINISHED HEIGHT OF THE VRAM.

IMMEDIATELY STOP PLACEMENT OF ASPHALT MIXTURE AND VRAM IF FLUSHING IS NOTED IN THE ASPHALT SURFACE. DO NOT CONTINUE PLACEMENT OF THE ASPHALT MIXTURE UNTIL THE ISSUE IS CORRECTED.

6.0 METHOD OF MEASUREMENT
THE DEPARTMENT WILL MEASURE VRAM BY THE NUMBER OF FEET (METERS) COMPLETED AND ACCEPTED IN PLACE.

7.0 BASIS OF PAYMENT
PAYMENT SHALL BE MADE AT THE UNIT BID PRICE PER FOOT FOR ITEM 690 - SPECIAL - VOID REDUCING ASPHALT MEMBRANE (VRAM) AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

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CONNECTING GUARDRAIL TO EXISTING RAIL

IN LOCATIONS WHERE TYPE 5 GUARDRAIL, TERMINAL ASSEMBLIES, ETC. ARE TO BE CONNECTED TO EXISTING RAIL SOME MODIFICATIONS MAY BE REQUIRED, INCLUDING EXTRA POSTS, DRILLING HOLES AND POSSIBLY PARTIAL SECTIONS OF ADDITIONAL RAIL ELEMENTS. THE COST OF THIS ADDITIONAL WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR TYPE 5 GUARDRAIL. IF ADDITIONAL PORTIONS OF RAIL ELEMENT ARE USED THE LINEAL MEASUREMENT OF THIS ADDITIONAL PORTION SHALL BE ADDED FOR PAYMENT.

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 ON STANDARD CONSTRUCTION DRAWING GR-1.1. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

LOCATIONS OF GUARDRAIL

THE GUARDRAIL PROTECTION PROVIDED IN THIS PLAN SHALL BE LOCATED IN THE FIELD TO ASSURE THAT THE INSTALLATION WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC. THIS LOCATION SHALL BE POSITIONED AS FAR AS POSSIBLE FROM THE EDGE OF PAVEMENT WHILE MAINTAINING PROPER GRADE IN FRONT OF GUARDRAIL AS PER STANDARD DRAWINGS AND PLAN DETAILS.

SUGGESTED SEQUENCE OF GUARDRAIL WORK

1. GUARDRAIL WORK IS TO BEGIN AFTER THE LINEAR GRADING IS COMPLETED.
2. REMOVE THE GUARDRAIL.
3. PERFORM THE RESHAPING UNDER GUARDRAIL INCLUDING COMPLETING THE EMBANKMENT, AS PER PLAN.
4. REBUILD/CONSTRUCT THE GUARDRAIL RUN.
5. INSTALL BARRIER REFLECTORS.

ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING TYPE A, ANCHOR ASSEMBLY INCLUDING ALL POSTS, HARDWARE, RAIL ELEMENTS, AND CONCRETE ANCHORS. ALL ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF.

THE EXISTING CONCRETE ANCHOR AND CONCRETE AT POSTS SHALL BE REMOVED ENTIRELY. ALL HOLES REMAINING AFTER REMOVAL SHALL BE FILLED WITH GRANULAR MATERIAL OR EXCESS MATERIAL RESULTING FROM GUARDRAIL CONSTRUCTION. ALL FILL MATERIAL SHALL BE THOROUGHLY COMPACTED AND LEVELED, AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 202, ANCHOR ASSEMBLY REMOVED, TYPE A.

ITEM 203 - EMBANKMENT, AS PER PLAN

AT SPECIFIED LOCATIONS AND LOCATIONS AS DIRECTED BY THE ENGINEER, EMBANKMENT SHALL BE PLACED AS TO PROVIDE A SUITABLE AREA TO CONSTRUCT GUARDRAIL AND TO PROVIDE STRUCTURAL INTEGRITY OF THE ROADWAY SHOULDER.

AREAS WHERE EMBANKMENT MATERIAL IS TO BE PLACED SHALL BE SCALPED. THE REQUIREMENTS FOR BENCHING SHALL BE WAIVED. THE DEPTH OF LAYERS IN WHICH THE EMBANKMENT IS PLACED SHALL BE LIMITED TO EIGHT (8) INCHES IN THICKNESS. THE METHOD OF COMPACTION AND EQUIPMENT USED SHALL BE SUFFICIENT TO PROVIDE A MINIMUM OF 60 PERCENT OF RELATIVE COMPACTION.

AFTER THE EMBANKMENT HAS BEEN PLACED, THE AREAS SHALL BE FERTILIZED, SEEDED, MULCHED, AND WATERED AS PER ITEM 659. THE COST SHALL BE INCLUDED IN THIS ITEM FOR PAYMENT.

THE METHOD OF MEASUREMENT FOR EMBANKMENT MATERIAL SHALL BE BY THE NUMBER OF CUBIC YARDS MEASURED BY LOOSE VOLUME IN THE CARRIER AT THE WORK SITE, IN LIEU OF THE REQUIREMENTS OF 203.09. PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT UNIT BID PRICE PER CUBIC YARD FOR ITEM 203 - EMBANKMENT, AS PER PLAN AND SHALL INCLUDE ALL WORK DESCRIBED ABOVE.

ITEM 209 - RESHAPING UNDER GUARDRAIL

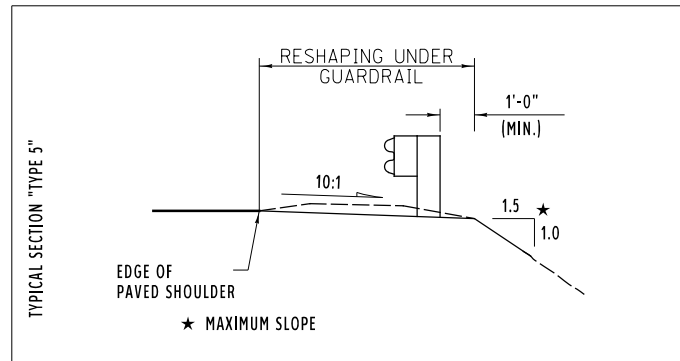
THIS ITEM SHALL BE USED AT LOCATIONS INDICATED IN THE PLANS.

THIS WORK SHALL BE COMPLETED AT LOCATIONS SPECIFIED FOR WORK AS WELL AS PER CMS 209.05 AND AS DESCRIBED HEREIN, AND SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER.

THE AREA IN FRONT OF, UNDER, AND BEHIND THE GUARDRAIL SHALL BE GRADED AND RESHAPED TO PROVIDE AN AREA THAT HAS A SLOPE OF 10:1 MAXIMUM (SEE DETAIL BELOW AS WELL AS THE GUARDRAIL DETAIL SHEETS FOR FURTHER DETAILS AND INFORMATION OF THE LIMITS OF THIS WORK).

EXCESS MATERIAL RESULTING SHALL BE USED ELSEWHERE FOR THIS ITEM IF SO DIRECTED OR DISPOSED OF PROPERLY. IF EXTRA MATERIAL IS REQUIRED IT SHALL BE PAID FOR WITH ITEM 203 - EMBANKMENT, AS PER PLAN. THIS WORK SHALL NOT BE STARTED UNTIL AFTER THE RESURFACING AND BERM WORK HAS BEEN COMPLETED.

THE ABOVE WORK SHALL BE PAID FOR PER STATION WITH ITEM 209, RESHAPING UNDER GUARDRAIL WITH THE EXCEPTION OF ANY EXTRA MATERIAL REQUIRED TO MEET THE SLOPE REQUIREMENTS WHICH SHALL BE PAID BY ITEM 203 - EMBANKMENT, AS PER PLAN.



ITEM 606 - GUARDRAIL REBUILT, TYPE 5

THIS ITEM SHALL BE USED WHEN GUARDRAIL REQUIRES REPAIRS IN WHICH THE RAIL ELEMENT IS REUSABLE. ALSO, THIS ITEM WILL BE USED TO RE-ALIGN GUARDRAIL RUNS, AS DIRECTED BY THE ENGINEER.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT, AS DESCRIBED IN 606.05 FOR ITEM 606 GUARDRAIL REBUILT, TYPE 5.

ITEM 606 - RAISING TYPE 5 GUARDRAIL

WHERE DESIGNATED ON THE PLAN, THE EXISTING TYPE 5 GUARDRAIL SHALL BE RAISED ON THE EXISTING WOOD POSTS AS PER STANDARD DRAWING GR-2.1 SO AS TO OBTAIN THE STANDARD 29 IN. HEIGHT. THE RAIL SHALL BE RE-ATTACHED TO THE POSTS USING NEW POST BOLTS.

THE RAIL SHALL BE DISMANTLED ONLY TO THE EXTENT NECESSARY TO FIELD BORE NEW BOLT HOLES IN THE WOOD POSTS, AND TO RECONNECT THE RAIL AND BLOCK TO THE EXISTING POSTS.

THE EXISTING TYPE "A" ANCHOR ASSEMBLIES THAT ARE TO REMAIN SHALL NOT BE ADJUSTED. THE LAST RAIL ELEMENT SHALL BE TRANSITIONED TO MEET THESE ASSEMBLIES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER FOOT OF ITEM 606 - RAISING TYPE 5 GUARDRAIL, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

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.

THE CONTRACTOR MAY USE A SALVAGED EXTRUDER WHEN ASSEMBLING THE ITEM 606 ANCHOR ASSEMBLY, TYPE E. ALL WELDS ON THE EXTERIOR OF THE SALVAGED EXTRUDER SHALL NOT BE DAMAGED AND THE FEEDER SHUTE SHALL NOT BE BENT.

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 3/4 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 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.

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GUARDRAIL NOTES

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BUTT JOINTS

BUTT JOINTS SHALL NOT BE CUT AND LEFT OPEN TO TRAFFIC. THEY SHALL BE FILLED IN WITH A TEMPORARY ASPHALT CONCRETE WEDGE USING ITEM 614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC.

CONSTRUCTION "BUMP" (W8-1-36) AND "ADVISORY SPEED" (W13-1-24) SIGNS SHALL BE ERECTED AND MAINTAINED DURING THE PERIOD THE BUTT JOINT IS LEFT OPEN. THESE SIGNS SHALL BE PAID FOR UNDER THE LUMP SUM ITEM FOR ITEM 614 MAINTAINING TRAFFIC.

WORK OPERATIONS

IN ADDITION TO THE REQUIREMENTS OF SECTION 614 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS THE FOLLOWING SHALL APPLY:

THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAVEL WHERE PRACTICAL.

THE CONTRACTOR SHALL ARRANGE CONSTRUCTION OPERATIONS SO AS TO PREVENT ANY INTERFERENCE TO THE CONTINUOUS FLOW OF TRAFFIC. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO THE CLOSED LANES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY A MIN. OF 6 FT BEHIND GUARDRAIL OR 30 FT FROM THE NEAREST EDGE OF PAVEMENT WHEN VARIOUS OPERATIONS ARE SCHEDULED TO CONTINUE THE NEXT WORKDAY. ON WEEKENDS OR AT OTHER TIMES OF SUSPENSION OF WORK, THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE OF THE ROADWAY RIGHT-OF-WAY. THE LOCATION SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. 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.

CONSTRUCTION EQUIPMENT SHALL CROSS THE MEDIAN ONLY AT THE EXISTING INTERSECTIONS AND U-TURN CROSSOVERS. NO ADDITIONAL EQUIPMENT CROSSINGS ARE PERMITTED.

REMOVAL ALL TEMPORARY WORK ZONE STRIPING AND RETURN THE LANES CONFIGURATION TO ITS ORIGINAL CONDITION BY THE END OF THE WORKING DAY. NO CONFLICTING MARKINGS ARE TO BE LEFT OPEN TO TRAFFIC AT ANY TIME.

MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. MILL THE SHOULDER TO PERMIT DRAINAGE IN AREAS THAT MAY POND WITH WATER OF SUFFICIENT WIDTH TO ALLOW FOR FULL, UNOBSTRUCTED DRAINAGE OF THE MILLED SURFACE.

MAINTENANCE OF TRAFFIC SCHEME

THE CONTRACTOR SHALL SCHEDULE THEIR WORK AND METHODS IN ORDER TO MEET THE INTENT OF THE PLANS. THE PAVEMENT SURFACES TO BE USED BY THE TRAVELING PUBLIC SHALL BE ABLE TO DRAIN FREELY. ALL COSTS TO MAINTAIN THE ROADWAY AS PER THE CONSTRUCTION AND MATERIALS SPECIFICATIONS AND THE PLANS SHALL BE INCLUDED IN ITEM 614 LUMP SUM MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

MAINTENANCE OF TRAFFIC FOR MARKING PAVEMENT REPAIRS

A MINIMUM OF 24 HOURS PRIOR TO PERFORMING PAVEMENT REPAIRS, THE CONTRACTOR SHALL PROVIDE LANE CLOSURES, PER THE MAINTENANCE OF TRAFFIC NOTES IN THESE PLANS, FOR THE ENGINEER TO IDENTIFY THE AREAS IN NEED OF REPAIR.

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

WORKING HOURS RESTRICTION

US ROUTE 30 IS A RESTRICTED LANE CLOSURE ROUTE DUE TO HIGH TRAFFIC VOLUME. DURING THE PROJECT DURATION, LANE CLOSURES SHALL BE PERMITTED AS LISTED ON THE ODOT PLCM WEB SITE AT <http://plcm.dot.state.oh.us>.

ANY SINGLE LANE CLOSURES MUST CONFORM TO THE HOUR RESTRICTIONS AS SET FORTH ON THE ODOT PLCM WEB SITE. DURING TIMES THAT LANE CLOSURES ARE NOT PERMITTED, ALL LANES SHALL BE OPEN AND CAUSE NO IMPEDANCE TO TRAFFIC.

THE ALLOWABLE LANE CLOSURE TIMES ARE TO INCLUDE ANY TIME NEEDED TO IMPLEMENT AND REMOVE ALL MAINTENANCE OF TRAFFIC MEASURES.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE FEE OF \$125 PER MINUTE THE REQUIREMENTS ARE NOT MET.

ITEM 614 - MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS)

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 THE WEEK	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 MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF \$50 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

ITEM 614 - MAINTAINING TRAFFIC: GENERAL

ONE 11' LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES. ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ITEM 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, PLAN DETAILS, STANDARD DRAWINGS, AND AS OUTLINED IN THE CONSTRUCTION AND MAINTENANCE SECTION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES CURRENT EDITION WITH THE LATEST REVISIONS. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED ON THIS PLAN.

THE FOLLOWING REQUIREMENTS SHALL ALSO APPLY: THE CONTRACTOR SHALL SUBMIT, IN WRITING, A SCHEDULE OF OPERATIONS TO THE ENGINEER AND RECEIVE APPROVAL BEFORE WORK IS STARTED ON THE PROJECT. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL COORDINATE THE MAINTENANCE OF TRAFFIC OPERATIONS WITH THE LOCAL STATE HIGHWAY PATROL.

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PAVEMENT THROUGHOUT THE PROJECT UNDER ITEM 614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC DURING THE PERIOD FROM THE START OF WORK TO THE COMPLETION OF ALL WORK.

ITEM 614 - MAINTAINING TRAFFIC

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

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

ALL MAINTENANCE OF TRAFFIC SIGNS ARE PAID UNDER ITEM 614 - MAINTAINING TRAFFIC.

ITEM 614 - MAINTAINING TRAFFIC LANE CLOSURE/REDUCTION REQUIRED

IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED FOR FIVE (5) CALENDAR DAYS, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

MAINTENANCE OF TRAFFIC FOR LANE LINE PAVEMENT REPAIRS

TRAFFIC SHALL BE RESTRICTED FROM DRIVING ON THE SHOULDER EXCEPT FOR MINIMUM PERIODS DURING LANE LINE PAVEMENT REPAIR OPERATIONS. TRAFFIC SHALL BE TEMPORARILY SHIFTED TOWARDS THE SHOULDER DURING COMPLETION OF ALL LANE LINE PAVEMENT REPAIRS. THIS TRAFFIC PATTERN IS PERMITTED ONLY DURING THIS PERIOD AND SHALL BE REMOVED AT THE END OF EACH DAY.

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC

TEMPORARY WEDGES AT END OF RAMPS, PAVEMENT LAYER ENDS, APPROACH SLABS OR BRIDGE DECKS ARE TO BE CONSTRUCTED AS PER STANDARD DRAWING BP-3.1.

THIS ITEM IS TO BE CONSIDERED INCIDENTAL TO MAINTAINING TRAFFIC ON THIS PROJECT AND WILL BE PAID FOR UNDER THE LUMP SUM CONTRACT BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

ITEM 614 - REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

THIS ITEM IS TO BE CONSIDERED INCIDENTAL TO MAINTAINING TRAFFIC ON THE PROJECT AND WILL BE PAID FOR UNDER THE LUMP SUM CONTRACT BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC. IT SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

ITEM 614 - REPLACEMENT SIGN

FLAT SHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED, BUT GOOD, CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

THIS ITEM IS TO BE CONSIDERED INCIDENTAL TO MAINTAINING TRAFFIC ON THE PROJECT AND WILL BE PAID FOR UNDER THE LUMP SUM CONTRACT BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC. IT SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED SIGN, AND PROVIDING AND MAINTAINING THE REPLACEMENT SIGN IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL SIGN.

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MAINTENANCE OF TRAFFIC NOTES

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ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

IN ADDITION TO THE REQUIREMENTS OF CMS 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 MOUNTED EMERGENCY FLASHING LIGHTS) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS AS DIRECTED BY THE ENGINEER:

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 (LEOs) 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 PROVIDE THE LEO WITH A TWO WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOs SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES AND PROVIDE 72 HOURS ADVANCE NOTICE AS REQUIRED BY THE HIGHWAY PATROL LISTED BELOW:

STATE HIGHWAY PATROL
2255 SOUTH MAIN ST
MANSFIELD, OH 44907
419.756.2222

LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE
01/NHS/PV - 200 HOURS

THE HOURS PAID SHALL INCLUDE MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

IF THE CONTRACTOR WISHES TO UTILIZE LEOs FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN(S) ON SITE FOR THE DURATION OF THE PROJECT. THE SIGN(S) SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE DIRECTOR (OFFICE OF MATERIALS MANAGEMENT). THE APPROVED LIST OF PORTABLE CHANGEABLE MESSAGE SIGNS CAN BE FOUND ON THE ODOT WEB SITE BY CLICKING ON THE SERVICES MENU, THEN CLICKING ON MATERIALS MANAGEMENT. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 650 FT AND 475 FT RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO DIM THE SIGN DURING DARKNESS AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN(S) SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHALL BE DELINEATED ON A PERMANENT BASIS BY AFFIXING CONSPICUITY TAPE CONFORMING TO CMS 614.03 IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

THE PROBABLE PCMS LOCATIONS WILL BE DETERMINED BY THE ENGINEER PRIOR TO BEGINNING WORK ON THIS PROJECT. PLACEMENT, OPERATIONS, MAINTENANCE, AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AD DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION, YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED TO FACE AWAY FROM TRAFFIC AND SHALL DISPLAY A MINIMUM OF ONE YELLOW RETROREFLECTIVE SHEETING SURFACE, A MINIMUM OF 9 INCHES BY 15 INCHES IN 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 ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT AND TO REVISE SIGN MESSAGES IF NECESSARY.

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

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

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF CMS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE WILL BE DEDUCTED FROM MONEYS DUE OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOUR PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK. THE CONTRACTOR SHALL ONLY BE PAID FOR PCMS UNITS WHEN THEY ARE IN OPERATION ON THE PROJECT AS SPECIFIED IN THE PLANS OR BY THE ENGINEER.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN
01/NHS/PV - 12 SIGN-MONTH

ITEM 614 - WORK ZONE SPEED ZONES (WZSZs)

THE FOLLOWING WORK ZONE SPEED ZONE (WZSZ) SPEED LIMIT REVISION(S) HAVE BEEN APPROVED FOR USE ON THIS PROJECT WHEN WORK ZONE CONDITIONS AND FACTORS ARE MET AS DESCRIBED BELOW:

WZSZ REVISION NUMBER	COUNTY, ROUTE, SECTION	DIRECTION
WZ-20550	RIC-30-4.07 TO 9.26	EB & WB

POTENTIAL WZSZ LOCATIONS SHALL HAVE AN ORIGINAL (PRE-CONSTRUCTION) POSTED SPEED LIMIT OF =55 MPH, A QUALIFYING WORK ZONE CONDITION OF AT LEAST 0.5 MILE IN LENGTH, AN EXPECTED WORK DURATION OF AT LEAST THREE HOURS, AND A WORK ZONE CONDITION IN PLACE THAT REDUCES THE EXISTING FUNCTIONALITY OF THE TRAVEL LANES OR SHOULDERS (I.E., LANE CLOSURE, LANE SHIFT, CROSSOVER, CONTRAFLOW AND/OR SHOULDER CLOSURE). THE LENGTH OF THE WORK ZONE CONDITION IS MEASURED FROM THE BEGINNING OF THE TAPER FOR THE SUBJECT WORK ZONE CONDITION IMPACTING THE TRAVEL LANES AND/OR SHOULDER TO THE END OF THE DOWNSTREAM TAPER, WHERE DRIVERS ARE RETURNED TO TYPICAL ALIGNMENT. AN EXPECTED WORK DURATION OF AT LEAST THREE HOURS IS REQUIRED TO BALANCE THE ADDITIONAL EXPOSURE CREATED BY INSTALLING AND REMOVING WZSZ SIGNING WITH THE TIME NEEDED TO COMPLETE THE WORK.

IF THE WORK ZONE MEETS THESE MINIMUM CRITERIA, IT SHALL BE ANALYZED FURTHER USING TABLE 1 BELOW TO DETERMINE IF AND WHEN IT QUALIFIES FOR A SPEED LIMIT REDUCTION. DEPENDING ON THE ORIGINAL POSTED SPEED LIMIT, THE TYPE OF TEMPORARY TRAFFIC CONTROL USED, AND WHETHER OR NOT WORKERS ARE PRESENT, A WARRANTED WZSZ WILL VARY IN THE APPROVED SPEED LIMIT TO BE POSTED OVER TIME.

C&MS ITEM 614, PARAGRAPH 614.02(B), INDICATES THAT TWO DIRECTIONS OF A DIVIDED HIGHWAY ARE CONSIDERED SEPARATE HIGHWAY SECTIONS. THEREFORE, IF THE WORK ON A MULTI-LANE DIVIDED HIGHWAY IS LIMITED TO ONLY ONE DIRECTION, A SPEED LIMIT REDUCTION IN THE DIRECTION OF THE WORK DOES NOT AUTOMATICALLY CONSTITUTE A SPEED LIMIT REDUCTION IN THE OPPOSITE DIRECTION. EACH DIRECTION SHALL BE ANALYZED INDEPENDENTLY FROM EACH OTHER.

ALL WZSZS FLUCTUATE BETWEEN TWO APPROVED REDUCED SPEED LIMITS OR BETWEEN AN APPROVED REDUCED SPEED LIMIT AND THE ORIGINAL POSTED SPEED LIMIT. ONLY ONE OF TWO SIGNING STRATEGIES SHALL BE USED TO IMPLEMENT A WZSZ.

[WZSZS USING DSL SIGN ASSEMBLIES SHALL BE IN ACCORDANCE WITH THIS NOTE, APPROVED LIST, SUPPLEMENTAL SPECIFICATION (SS) 808, AND TRAFFIC SCD MT-104.10.]

ONLY ONE WARRANTED SPEED LIMIT APPLIES AT ANY ONE TIME; SPEED LIMIT REDUCTIONS ARE NOT CUMULATIVE. WZSZS SHALL NOT BE USED FOR MOVING/MOBILE ACTIVITIES, AS DEFINED IN OMUTCD PART 6.

WHEN LOOKING UP THE WARRANTED WORK ZONE SPEED LIMITS, ALWAYS USE THE ORIGINAL, PRECONSTRUCTION, POSTED SPEED LIMIT. DO NOT USE A PRIOR OR CURRENT WORK ZONE SPEED LIMIT AS A LOOK UP VALUE IN THE TABLE. POSITIVE PROTECTION IS GENERALLY REGARDED AS PORTABLE BARRIER OR OTHER RIGID BARRIER IN USE ALONG THE WORK AREA WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WITHOUT POSITIVE PROTECTION IS GENERALLY REGARDED AS USING DRUMS, CONES, SHADOW VEHICLE, ETC., ALONG THE WORK AREA WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WORKERS ARE CONSIDERED AS BEING PRESENT WHEN ON-SITE, WORKING WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WHEN THE WORK ZONE CONDITION REDUCING THE EXISTING FUNCTIONALITY OF THE TRAVEL LANES OR SHOULDERS IS REMOVED, THE SPEED LIMIT DISPLAYED SHALL RETURN TO THE ORIGINAL POSTED SPEED LIMIT.

ORIGINAL POSTED SPEED LIMIT	WITH POSITIVE PROTECTION		WITHOUT POSITIVE PROTECTION	
	WORKERS PRESENT	WORKERS NOT PRESENT	WORKERS PRESENT	WORKERS NOT PRESENT
70	60	65	55	65
65	55	60	50	60
60	55	60	50	60
55	50	55	45	55

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 808 - DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY:
(ASSUMING 6 DSL SIGN ASSEMBLY(IES) FOR 6 MONTH(S) EACH)
01/NHS/PV - 36 SIGN MONTHS

ITEM 614 - MAINTAINING TRAFFIC

DETOUR LIMITATION:
TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD NOT TO EXCEED 24 HOURS IN DURATION. THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE FEE OF \$225 FOR EACH HOUR THAT THIS DETOUR RESTRICTION IS VIOLATED. THROUGH TRAFFIC WILL BE DETOURED AS SHOWN ON THIS SHEET.

THE CONTRACTOR WILL INSTALL, MAINTAIN, AND SUBSEQUENTLY REMOVE THE DETOUR SIGNING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING THE GATES AND BARRICADES AT THE END OF THE WORK AREA AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-101.60.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATION, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DETOUR SIGNING

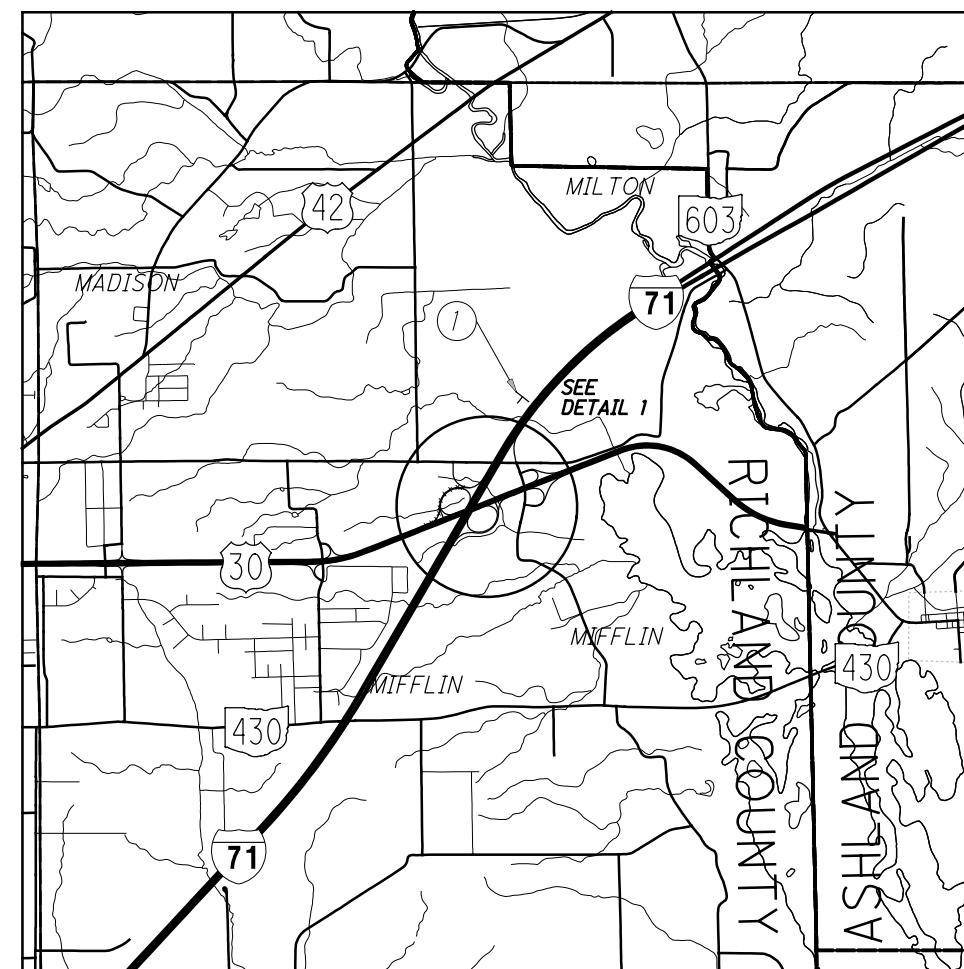
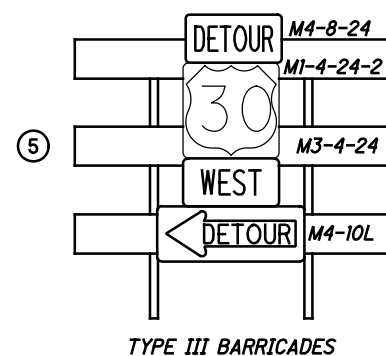
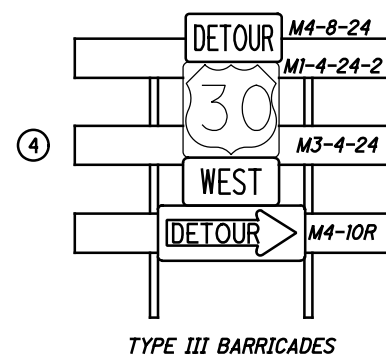
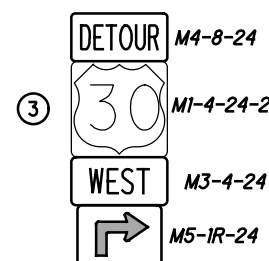
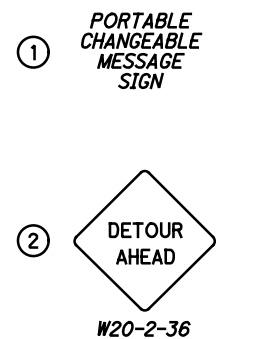
THE FOLLOWING QUANTITY IS INCLUDED FOR THE CONTRACTOR TO PROVIDE THE DETOUR SIGNING AS SHOWN AS PER 614.06 (B), INCLUDING ONE PORTABLE CHANGEABLE MESSAGE SIGN TO BE USED IN CONJUNCTION WITH THE DETOUR:

02/SAF/OT:
ITEM 614 - DETOUR SIGNING LUMP

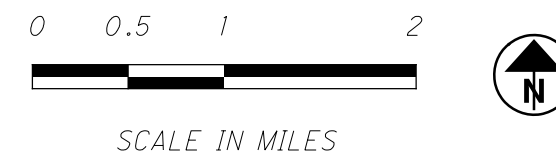
THIS ITEM PERTAINS ONLY TO DETOUR SIGNING AS SHOWN ON THIS SHEET. PAYMENT FOR ALL OTHER DETOURS NOT SHOWN ON THIS SHEET PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER WILL BE MADE AS PART OF THE LUMP SUM CONTRACT BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

NOTICE OF CLOSURE SIGNS

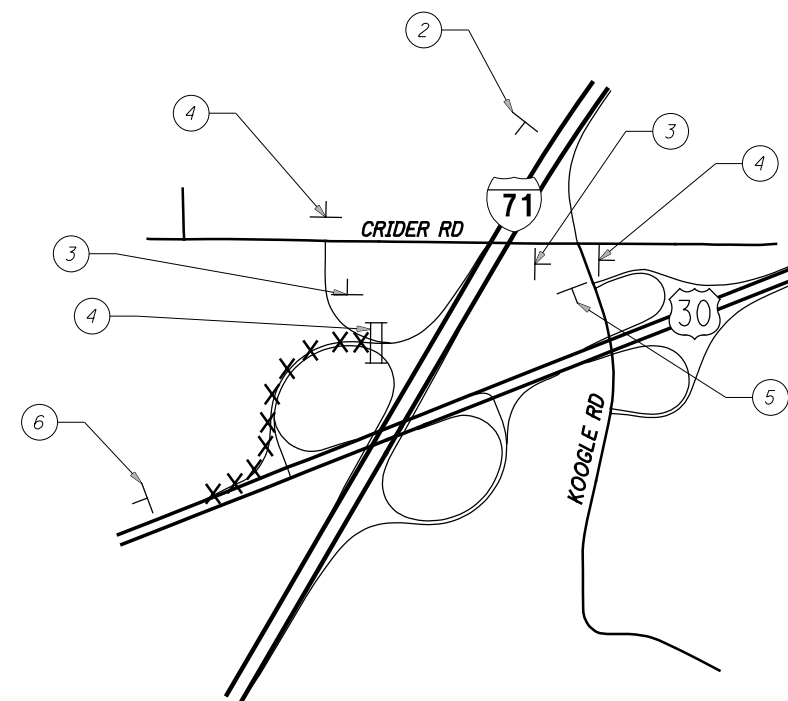
THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING, AND REMOVING THE SIGNS INCLUDING SUPPORTS.



IR 71 SOUTHBOUND TO
US 30 WESTBOUND DETOUR



- X - PROJECT LOCATION
- ↔ - OFFICIAL SIGNED DETOUR
- || - GATES AND BARRICADES, AS PER MT-101.60
- + - SIGN LOCATION
- || - SIGN LOCATION



DETAIL 1

PLAN SPLIT	COUNTY	ROUTE	LOG POINT TO LOG POINT		DIRECTION	LENGTH		AVERAGE WIDTH	AVERAGE PAVED SHOULDER WIDTH		PAVEMENT AREA	254		407	442	442	618	690	690	AGGREGATE SHOULDER PROPOSED WIDTH		AGGREGATE SHOULDER AREA	209	408	617	CALCULATED JLL CHECKED JWS											
						MILE	FEET		SL	SR		SY	SY	GAL	CY	CY	MILE	FT	SY	FT	FT																
			STRAIGHT LINE MILEAGE			FT	FT		FT	SY		SY	SY	SY	SY	SY	SY	SY	SY	SY	SY						SY	SY	SY	SY	SY	SY	SY	SY	SY		
						FT	FT		FT	SY		SY	SY	SY	SY	SY	SY	SY	SY	SY	SY						SY	SY	SY	SY	SY	SY	SY	SY	SY		
01/NHS/PV	RIC	30	4.07	4.14	EB	0.07	370	24.0	4.0	8.0	1,480	1,480	7	118	62	41	0.14	370		2.0	2.0	164	0.14	66	9												
01/NHS/PV	RIC	30	4.14	4.24	EB	0.10	528	42.6	4.0	8.0	3,204	3,204	16	256	134	59	0.20	528		2.0	2.0	235	0.20	94	13												
01/NHS/PV	RIC	30	4.24	4.29	EB	0.05	264	42.6	4.0	8.0	1,602	1,602	8	128	67	29	0.10	264		2.0	2.0	117	0.10	47	7												
01/NHS/PV	RIC	30	4.29	4.43	EB	0.14	739	42.6	4.0	8.0	4,485	4,485	22	359	187	82	0.28	739		2.0	2.0	328	0.28	131	18												
01/NHS/PV	RIC	30	4.43	5.48	EB	1.05	5,544	24.0	4.0	8.0	22,176	22,176	111	1,774	924	616	2.10	5,544		2.0	2.0	2,464	2.10	986	137												
01/NHS/PV	RIC	30	5.48	5.53	EB	0.05	264	24.0	4.0	8.0	1,056	1,056	5	84	44	29	0.10	264		2.0	2.0	117	0.10	47	7												
01/NHS/PV	RIC	30	5.53	6.18	EB	0.65	3,432	24.0	4.0	8.0	13,728	13,728	69	1,098	572	381	1.30	3,432		2.0	2.0	1,525	1.30	610	85												
01/NHS/PV	RIC	30	6.18	6.23	EB	0.05	264	24.0	4.0	8.0	1,056	1,056	5	84	44	29	0.10	264		2.0	2.0	117	0.10	47	7												
01/NHS/PV	RIC	30	6.23	7.20	EB	0.97	5,122	24.0	4.0	8.0	20,488	20,488	102	1,639	854	569	1.94	5,122		2.0	2.0	2,276	1.94	911	126												
01/NHS/PV	RIC	30	7.20	7.36	EB	0.16	824	39.3	4.0	8.0	4,700	4,700	24	376	196	92	0.31	824		2.0	2.0	366	0.31	146	20												
01/NHS/PV	RIC	30	7.36	7.54	EB	0.18	972	24.0	4.0	8.0	3,888	3,888	19	311	162	108	0.37	972		2.0	2.0	432	0.37	173	24												
01/NHS/PV	RIC	30	7.54	7.60	EB	0.06	317	24.0	4.0	8.0	1,268	1,268	6	101	53	35	0.12	317		2.0	2.0	141	0.12	56	8												
01/NHS/PV	RIC	30	7.60	7.82	EB	0.22	1,162	24.0	4.0	8.0	4,648	4,648	23	372	194	129	0.44	1,162		2.0	2.0	516	0.44	207	29												
01/NHS/PV	RIC	30	7.82	8.11	EB	0.29	1,510	39.8	4.0	8.0	8,691	8,691	43	695	362	168	0.57	1,510		2.0	2.0	671	0.57	268	37												
01/NHS/PV	RIC	30	8.11	8.80	EB	0.69	3,664	24.0	4.0	8.0	14,656	14,656	73	1,172	611	407	1.39	3,664		2.0	2.0	1,628	1.39	651	90												
01/NHS/PV	RIC	30	8.80	8.83	EB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	8.83	8.95	EB	0.12	634	24.0	4.0	8.0	2,536	2,536	13	203	106	70	0.24	634		2.0	2.0	282	0.24	113	16												
01/NHS/PV	RIC	30	8.95	8.98	EB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	8.98	9.15	EB	0.17	898	24.0	4.0	8.0	3,592	3,592	18	287	150	100	0.34	898		2.0	2.0	399	0.34	160	22												
01/NHS/PV	RIC	30	9.15	9.26	EB	0.11	581	49.4	4.0	8.0	3,964	3,964	20	317	165	65	0.22	581		2.0	2.0	258	0.22	103	14												
01/NHS/PV	EASTBOUND ENTRANCE RAMP @ 4TH ST					0.12	639	21.9	3.0	6.0	2,194	2,194	11	176	91					2.0	2.0	284	0.24	114	16												
01/NHS/PV	EASTBOUND EXIT RAMP @ LEXINGTON SPRINGMILL RD					0.21	1,083	20.1	3.0	4.0	3,265	3,265	16	261	136					2.0	2.0	481	0.41	193	27												
01/NHS/PV	EASTBOUND ENTRANCE RAMP @ LEXINGTON SPRINGMILL RD					0.23	1,231	13.6	3.0	6.0	3,090	3,090	15	247	129					2.0	2.0	547	0.47	219	30												
EASTBOUND SUBTOTAL (01/NHS/PV)												127,031	632	10,160	5,295		10.38	27,405														11.50	5,398	750			
01/NHS/PV	RIC	30	4.07	4.10	WB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	4.10	4.24	WB	0.14	739	39.0	4.0	8.0	4,188	4,188	21	335	175	82	0.28	739		2.0	2.0	328	0.28	131	18												
01/NHS/PV	RIC	30	4.24	4.26	WB	0.02	106	39.0	4.0	8.0	601	601	3	48	25	12	0.04	106		2.0	2.0	47	0.04	19	3												
01/NHS/PV	RIC	30	4.26	4.29	WB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	4.29	5.48	WB	1.19	6,283	24.0	4.0	8.0	25,132	25,132	126	2,011	1,047	698	2.38	6,283		2.0	2.0	2,792	2.38	1,117	155												
01/NHS/PV	RIC	30	5.48	5.53	WB	0.05	264	24.0	4.0	8.0	1,056	1,056	5	84	44	29	0.10	264		2.0	2.0	117	0.10	47	7												
01/NHS/PV	RIC	30	5.53	6.19	WB	0.66	3,485	24.0	4.0	8.0	13,940	13,940	70	1,115	581	387	1.32	3,485		2.0	2.0	1,549	1.32	620	86												
01/NHS/PV	RIC	30	6.19	6.24	WB	0.05	264	24.0	4.0	8.0	1,056	1,056	5	84	44	29	0.10	264		2.0	2.0	117	0.10	47	7												
01/NHS/PV	RIC	30	6.24	7.10	WB	0.86	4,541	24.0	4.0	8.0	18,164	18,164	91	1,453	757	505	1.72	4,541		2.0	2.0	2,018	1.72	807	112												
01/NHS/PV	RIC	30	7.10	7.40	WB	0.30	1,589	41.0	4.0	8.0	9,363	9,363	47	749	390	177	0.60	1,589		2.0	2.0	706	0.60	282	39												
01/NHS/PV	RIC	30	7.40	7.54	WB	0.14	734	24.0	4.0	8.0	2,936	2,936	15	235	122	82	0.28	734		2.0	2.0	326	0.28	130	18												
01/NHS/PV	RIC	30	7.54	7.60	WB	0.06	317	24.0	4.0	8.0	1,268	1,268	6	101	53	35	0.12	317		2.0	2.0	141	0.12	56	8												
01/NHS/PV	RIC	30	7.60	7.73	WB	0.13	686	24.0	4.0	8.0	2,744	2,744	14	220	114	76	0.26	686		2.0	2.0	305	0.26	122	17												
01/NHS/PV	RIC	30	7.73	7.89	WB	0.16	823	39.4	4.0	8.0	4,704	4,704	24	376	196	91	0.31	823		2.0	2.0	366	0.31	146	20												
01/NHS/PV	RIC	30	7.89	8.79	WB	0.90	4,774	24.0	4.0	8.0	19,096	19,096	95	1,528	796	530	1.81	4,774		2.0	2.0	2,122	1.81	849	118												
01/NHS/PV	RIC	30	8.79	8.82	WB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	8.82	8.95	WB	0.13	686	24.0	4.0	8.0	2,744	2,744	14	220	114	76	0.26	686		2.0	2.0	305	0.26	122	17												
01/NHS/PV	RIC	30	8.95	8.98	WB	0.03	158	24.0	4.0	8.0	632	632	3	51	26	18	0.06	158		2.0	2.0	70	0.06	28	4												
01/NHS/PV	RIC	30	8.98	9.26	WB	0.28	1,478	24.0	4.0	8.0	5,912	5,912	30	473	246	164	0.56	1,478		2.0	2.0	657	0.56	263	36												
01/NHS/PV	WESTBOUND EXIT RAMP @ 4TH ST					0.27	1,445	18.9	4.0	4.0	4,314	4,314	22	345	180					2.0	2.0	642	0.55	257	36												
01/NHS/PV	WESTBOUND ENTRANCE RAMP @ LEXINGTON SPRINGMILL RD					0.19	984	17.4	3.0	6.0	2,888	2,888	14	231	120					2.0	2.0	438	0.37	175	24												
01/NHS/PV	WESTBOUND EXIT RAMP @ LEXINGTON SPRINGMILL RD					0.17	911	19.1	4.0	4.0	2,747	2,747	14	220	114					2.0	2.0	405	0.35	162	22												
02/SAF/OT	WESTBOUND ENTRANCE RAMP FROM I-71					0.14	725	13.1	3.0	8.0	1,938								1,938																		
01/NHS/PV	EXTRA AREA FOR MEDIAN CROSSOVERS										1,003	1,003	5	80	42																						
WESTBOUND PAVEMENT SUBTOTAL (01/NHS/PV)												126,384	633	10,112	5,264		10.38	27,401														11.65	5,464	759			
WESTBOUND PAVEMENT SUBTOTAL (02/SAF/OT)																													1,938								
TOTALS CARRIED TO THE GENERAL SUMMARY												253,415	1,265	20,272	10,559		20.76	54,806															23.15	10,862	1,509		

PAVEMENT & SHOULDER DATA

RIC-30-4.07

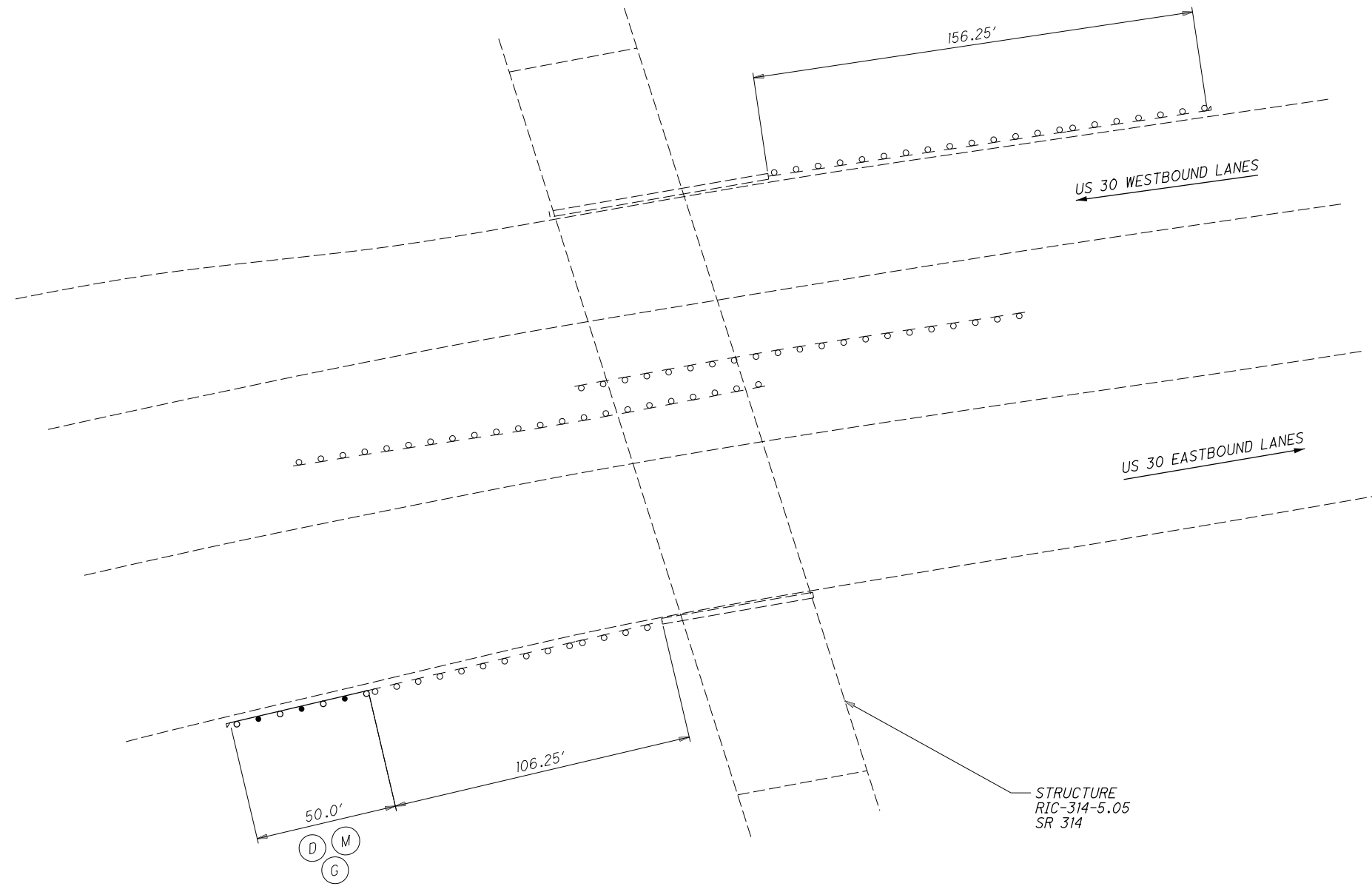
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SHEET	LOCATION	PLAN SPLIT	A	B	C	D	E	F		G		H	J	K	L	M	N	P	O		
			202	202	202	202	202	202	202	202		209		606	606	606	606	606	606	606	606
			GUARDRAIL REMOVED FT	GUARDRAIL REMOVED FOR REUSE FT	ANCHOR ASSEMBLY REMOVED, TYPE A EACH	ANCHOR ASSEMBLY REMOVED, TYPE E EACH	ANCHOR ASSEMBLY REMOVED, TYPE T EACH	BRIDGE TERMINAL ASSEMBLY REMOVED EACH		EMBANKMENT, AS PER PLAN CU YD	RESHAPING UNDER GUARDRAIL STATION	GUARDRAIL, TYPE 5 FT	GUARDRAIL, TYPE MGS FT	GUARDRAIL REBUILT, TYPE 5 FT	RAISING TYPE 5 GUARDRAIL FT	ANCHOR ASSEMBLY, TYPE E EACH	ANCHOR ASSEMBLY, MGS TYPE E (NCHRP 350 OR MASH 2016) EACH	ANCHOR ASSEMBLY, MGS TYPE T EACH	BRIDGE TERMINAL ASSEMBLY, TYPE I EACH		
18	RIC-30-4.26	01/NHS/PV				1					0.500					1					1
19	RIC-30-4.63	01/NHS/PV 02/SAF/OT	587.5	12.5		1	1			37	11.500		687.5	12.5	337.5	1		1			14
20	RIC-30-5.51	01/NHS/PV		50							0.500			50							2
21	RIC-30-6.21	01/NHS/PV	100			1		2			1.500		100			1			2		3
22	RIC-30-7.55	01/NHS/PV	106.25			1		1			1.563		106.25			1			1		3
23	RIC-30-8.81	01/NHS/PV	62.5			2		2			1.625		62.5			2			2		4
24	RIC-30-8.96	01/NHS/PV	75			2		2			1.750		75			2			2		5
SUBTOTAL (01/NHS/PV)			931.25	62.5		8	1	7		37	18.94		343.75	687.5	62.5	337.5	8		1	7	32
SUBTOTAL (02/SAF/OT)					1												1				
TOTALS CARRIED TO THE GENERAL SUMMARY			931.25	62.5	1	8	1	7		37	18.94		343.75	687.5	62.5	337.5	8	1	1	7	32

CALCULATED	JLL	CHECKED	JWS
GUARDRAIL SUB-SUMMARY			
RIC-30-4.07			
			17 39

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LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH		1	1
G	209	RESHAPING UNDER GUARDRAIL	STA		0.500	0.500
M	606	ANCHOR ASSEMBLY, TYPE E	EACH		1	1
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH		1	1

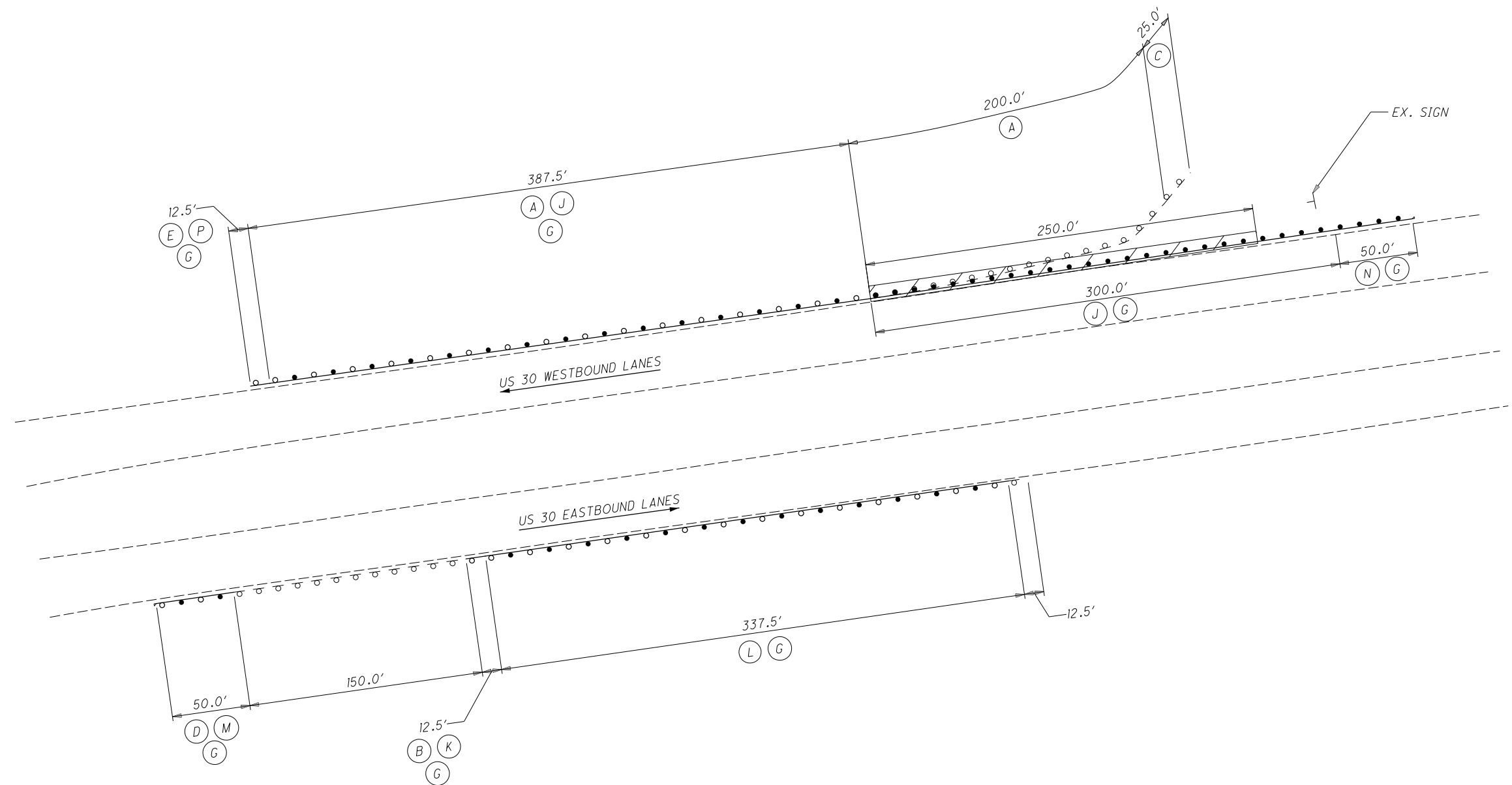
ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY



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GUARDRAIL DETAIL
RIC 30 - 4.26

RIC-30-4.07



LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
A	202	GUARDRAIL REMOVED	FT	587.5		587.5
B	202	GUARDRAIL REMOVED FOR REUSE	FT		12.5	12.5
C	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	1		1
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH		1	1
E	202	ANCHOR ASSEMBLY REMOVED, TYPE T	EACH	1		1
	203	EMBANKMENT, AS PER PLAN	CY	37		37
G	209	RESHAPING UNDER GUARDRAIL	STA	7.500	4.000	11.500
J	606	GUARDRAIL, TYPE MGS	FT	687.5		687.5
K	606	GUARDRAIL REBUILT, TYPE 5	FT		12.5	12.5
L	606	RAISING TYPE 5 GUARDRAIL	FT		337.5	337.5
M	606	ANCHOR ASSEMBLY, TYPE E	EACH		1	1
N	606	ANCHOR ASSEMBLY, MGS TYPE E (NCHRP 350 OR MASH 2016)	EACH	1		1
P	606	ANCHOR ASSEMBLY, MGS TYPE T	EACH	1		1
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH	9	5	14

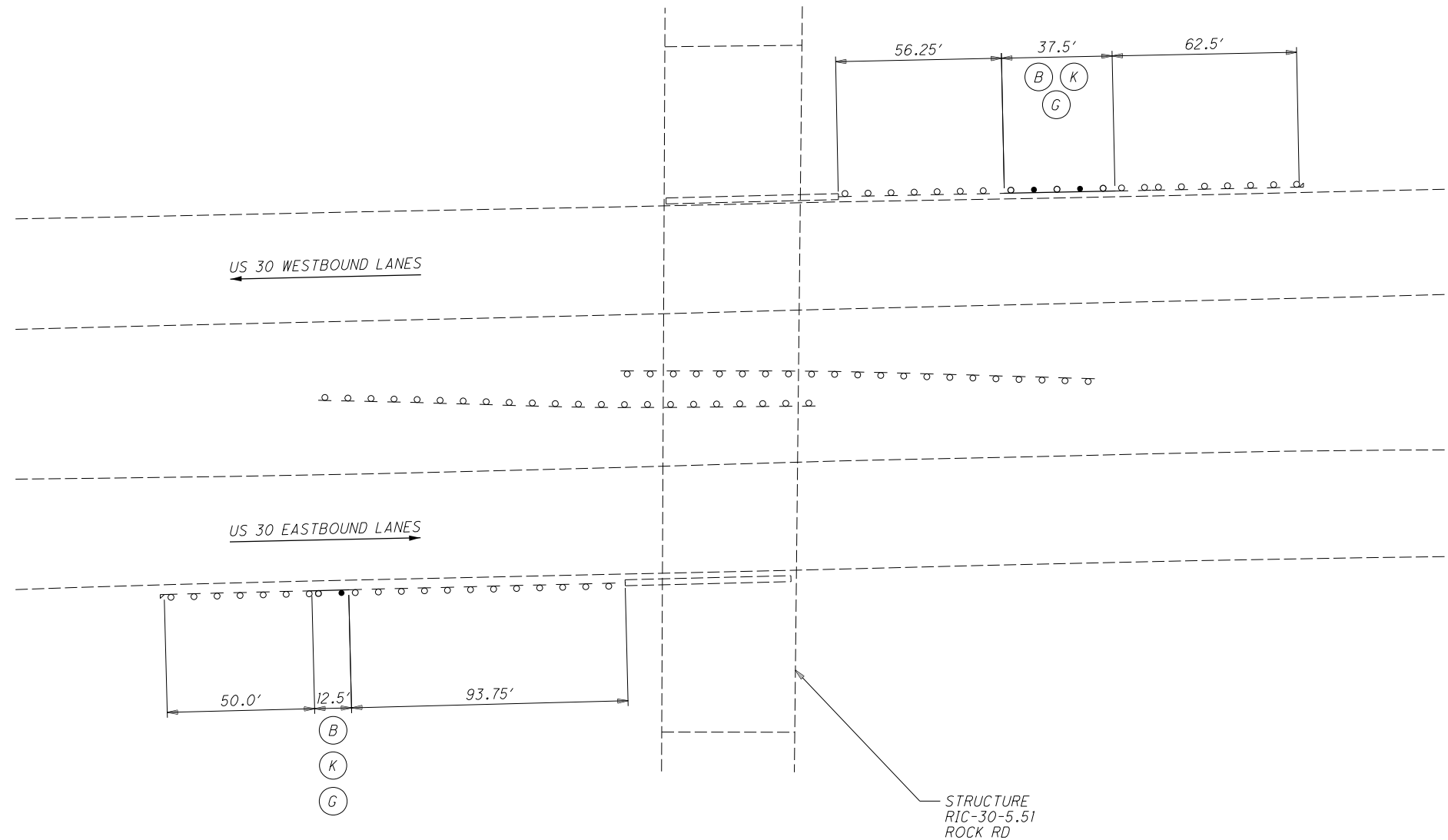
ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

GUARDRAIL DETAIL
RIC 30 - 4.63

RIC-30-4.07

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LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
B	202	GUARDRAIL REMOVED FOR REUSE	FT	37.5	12.5	50.0
G	209	RESHAPING UNDER GUARDRAIL	STA	0.375	0.125	0.500
K	606	GUARDRAIL REBUILT, TYPE 5	FT	37.5	12.5	50.0
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH	1	1	2

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

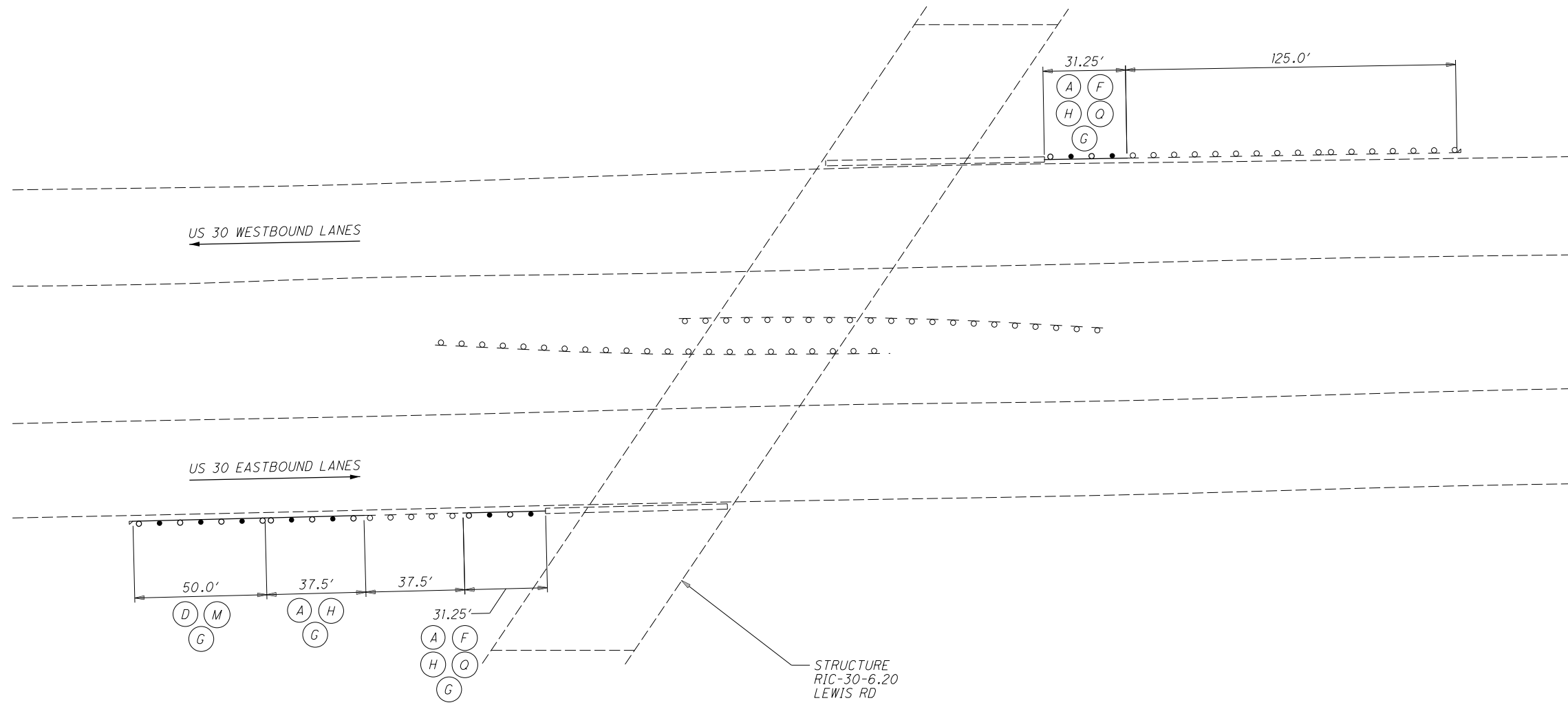
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HORIZONTAL
SCALE IN FEET

GUARDRAIL DETAIL
RIC 30 - 5.51

RIC-30-4.07

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LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
A	202	GUARDRAIL REMOVED	FT	31.25	68.75	100.0
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH		1	1
F	202	BRIDGE TERMINAL ASSEMBLY REMOVED	EACH	1	1	2
G	209	RESHAPING UNDER GUARDRAIL	STA	0.313	1.188	1.500
H	606	GUARDRAIL, TYPE 5	FT	31.25	68.75	100.0
M	606	ANCHOR ASSEMBLY, TYPE E	EACH		1	1
Q	606	BRIDGE TERMINAL ASSEMBLY, TYPE 1	EACH	1	1	2
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH	1	2	3

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

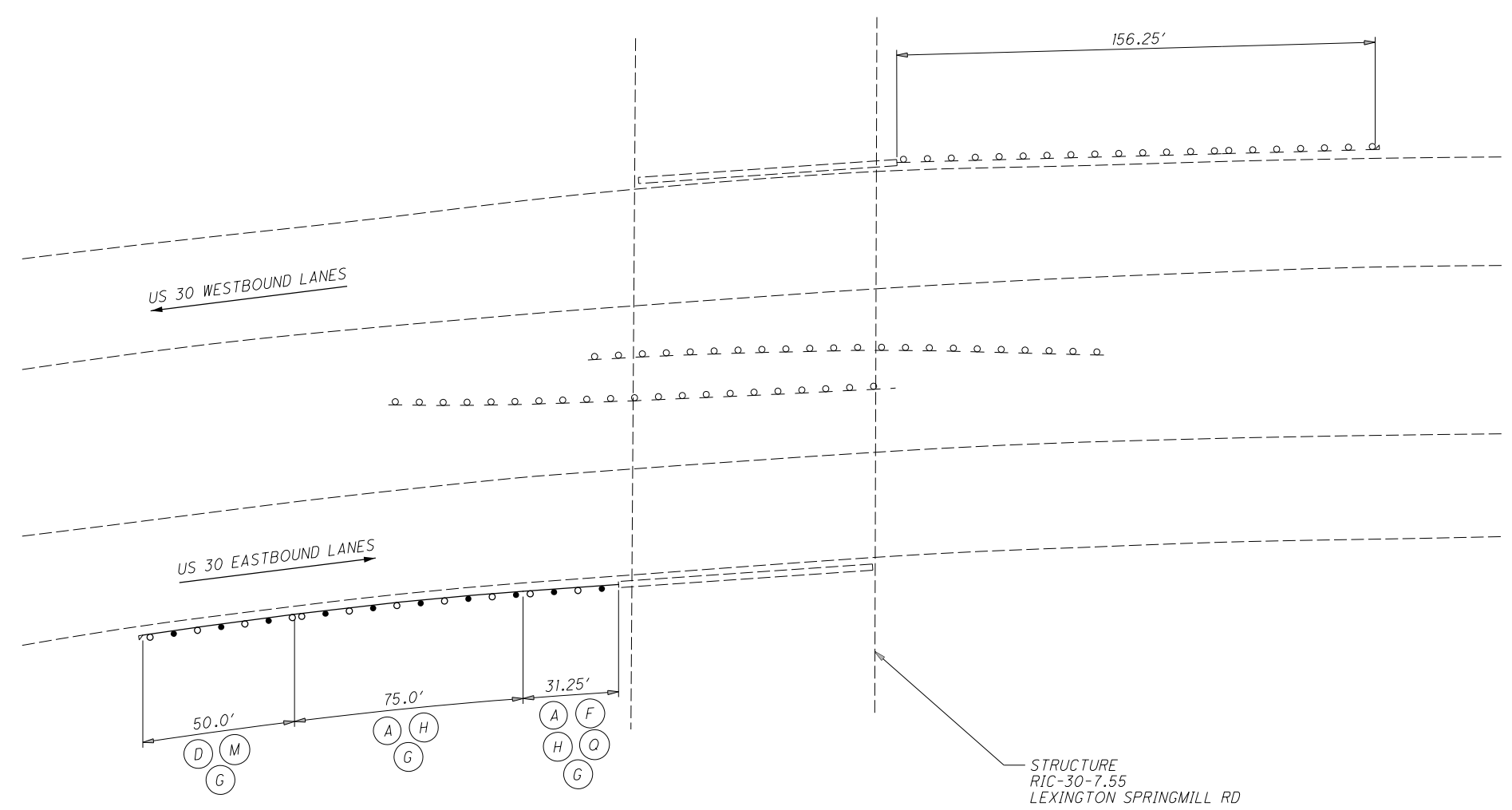
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0 25 50
12.5
HORIZONTAL
SCALE IN FEET

GUARDRAIL DETAIL
RIC 30 - 6.21

RIC-30-4.07

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LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
A	202	GUARDRAIL REMOVED	FT		106.25	106.25
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH		1	1
F	202	BRIDGE TERMINAL ASSEMBLY REMOVED	EACH		1	1
G	209	RESHAPING UNDER GUARDRAIL	STA		1.563	1.563
H	606	GUARDRAIL, TYPE 5	FT		106.25	106.25
M	606	ANCHOR ASSEMBLY, TYPE E	EACH		1	1
Q	606	BRIDGE TERMINAL ASSEMBLY, TYPE 1	EACH		1	1
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH		3	3

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

CALCULATED
JLL
CHECKED
JWS

0 25 50
12.5
HORIZONTAL
SCALE IN FEET

GUARDRAIL DETAIL
RIC 30 - 7.55

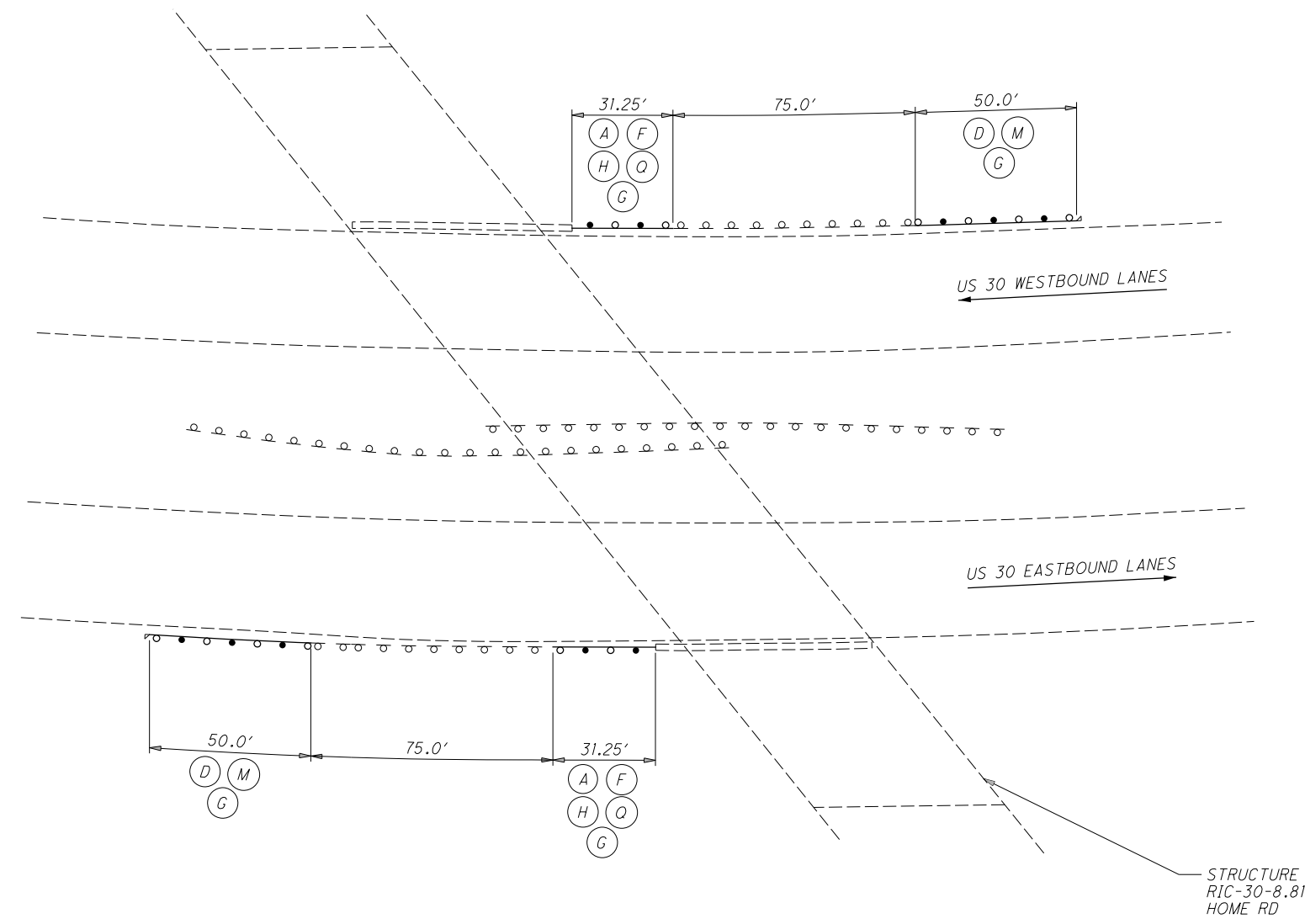
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JWS

GUARDRAIL DETAIL
RIC 30 - 8.81

RIC - 30 - 4.07



LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
A	202	GUARDRAIL REMOVED	FT	31.25	31.25	62.5
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH	1	1	2
F	202	BRIDGE TERMINAL ASSEMBLY REMOVED	EACH	1	1	2
G	209	RESHAPING UNDER GUARDRAIL	STA	0.813	0.813	1.625
H	606	GUARDRAIL, TYPE 5	FT	31.25	31.25	62.5
M	606	ANCHOR ASSEMBLY, TYPE E	EACH	1	1	2
Q	606	BRIDGE TERMINAL ASSEMBLY, TYPE 1	EACH	1	1	2
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH	2	2	4

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

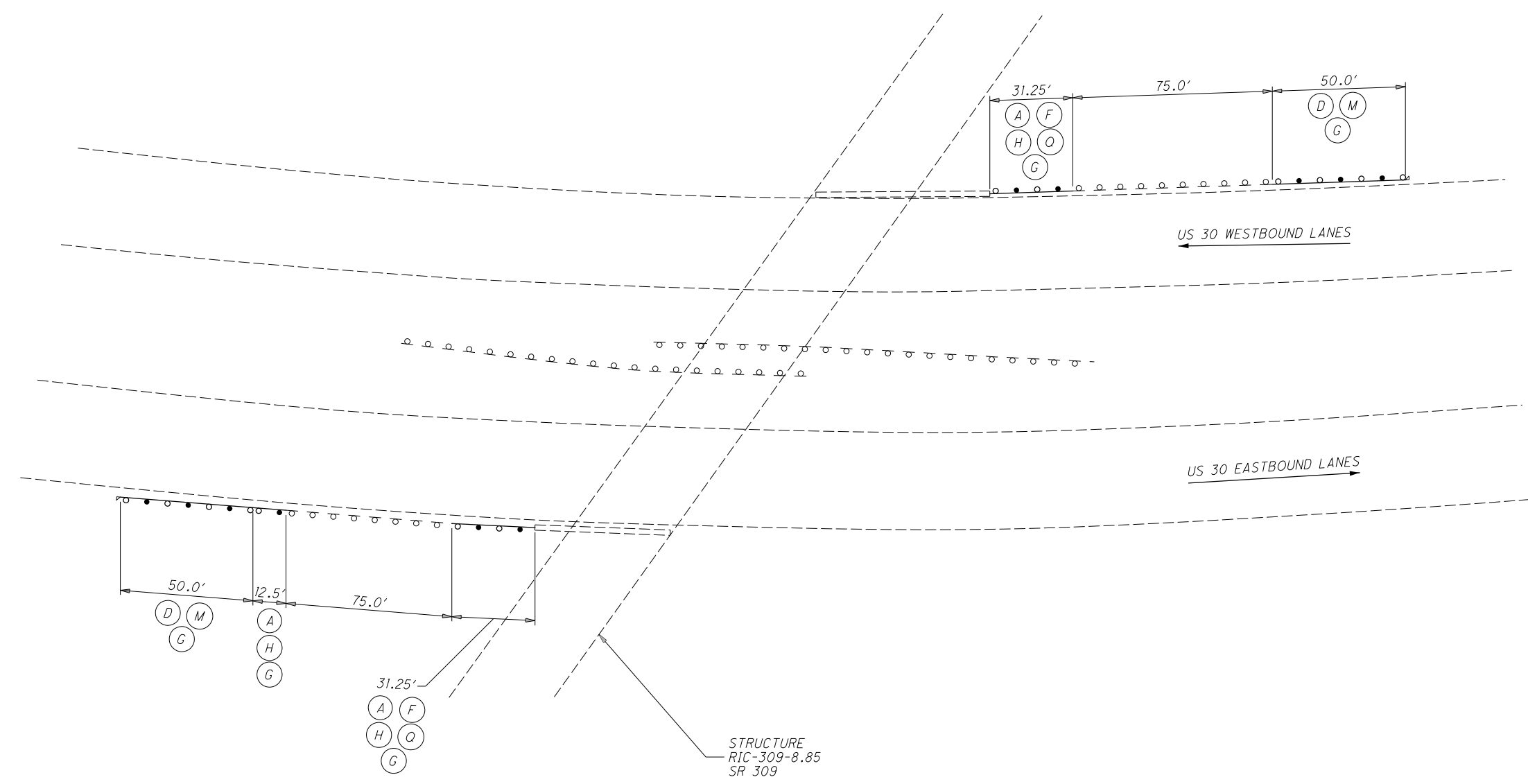
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GUARDRAIL DETAIL
RIC 30 - 8.96

RIC - 30 - 4.07



LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
A	202	GUARDRAIL REMOVED	FT	31.25	43.75	75.0
D	202	ANCHOR ASSEMBLY REMOVED, TYPE E	EACH	1	1	2
F	202	BRIDGE TERMINAL ASSEMBLY REMOVED	EACH	1	1	2
G	209	RESHAPING UNDER GUARDRAIL	STA	0.813	0.938	1.750
H	606	GUARDRAIL, TYPE 5	FT	31.25	43.75	75.0
M	606	ANCHOR ASSEMBLY, TYPE E	EACH	1	1	2
Q	606	BRIDGE TERMINAL ASSEMBLY, TYPE 1	EACH	1	1	2
	626	BARRIER REFLECTOR, TYPE 2 (ONE-WAY)	EACH	2	3	5

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

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AUXILIARY & LONG LINE MARKINGS

PLAN SPLIT	COUNTY	ROUTE	STATION / SLM			HIGHWAY MILES	DESCRIPTION	614				644													
			FROM	TO	MILE			WORK ZONE LANE LINE, CLASS III, 642 PAINT	WORK ZONE EDGE LINE, CLASS III, 642 PAINT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	EDGE LINE, 6"		CENTER LINE		AUXILIARY MARKINGS (740.04)									
												TOTAL (PAY QUANTITY) (WHITE)	TOTAL (PAY QUANTITY) (YELLOW)	LANE LINE, 6"	SOLID LINE EQUIVALENT	TOTAL (PAY QUANTITY)	CHANNELIZING LINE	STOP LINE	CROSSWALK LINE	TRANSVERSE / DIAGONAL LINE (WHITE)	LANE ARROW				
MILE	MILE	FT	FT	MILE	MILE	MILE	MILE	MILE	MILE	FT	FT	FT	FT	LEFT	RIGHT	THROUGH	COMBINATION								
01/NHS/PV	RIC	30	4.07	9.26	5.19	EASTBOUND LONG LINE MARKINGS	10.38	20.76			5.19	5.19	5.19												
01/NHS/PV	RIC	30	4.07	9.26	5.19	WESTBOUND LONG LINE MARKINGS	10.38	20.76			5.19	5.19	5.19												
01/NHS/PV	RIC	30	3.85	4.18	0.33	WB EXIT RAMP @ 4TH ST		1.10	1,242	120	0.28	0.27				621	60		89	3	1				
01/NHS/PV	RIC	30	4.02	4.29	0.27	EB ENTRANCE RAMP @ 4TH ST	0.10	0.60	504		0.12	0.18	0.05			252									
01/NHS/PV	RIC	30	7.23	7.56	0.33	WB ENTRANCE RAMP @ LEXINGTON SPRINGMILL RD	0.08	1.14	534		0.31	0.26	0.04			267		74							
01/NHS/PV	RIC	30	7.27	7.56	0.29	EB EXIT RAMP @ LEXINGTON SPRINGMILL RD	0.08	0.82	1,212	68	0.21	0.20	0.04			606	34	113	101	2					
01/NHS/PV	RIC	30	7.58	7.82	0.24	WB EXIT RAMP @ LEXINGTON SPRINGMILL RD	0.08	0.68	1,136	70	0.17	0.17	0.04			568	35		72	2					
01/NHS/PV	RIC	30	7.58	7.95	0.37	EB ENTRANCE RAMP @ LEXINGTON SPRINGMILL RD	0.08	1.22	400		0.32	0.29	0.04			200									
01/NHS/PV	RIC	30	9.15	9.26	0.11	EASTBOUND ACCEL LANE @ SR 309		0.22	1,160		0.11					580									
02/NHS/OT	RIC	30	16.98	17.12	0.14	RAMP FROM I-71 SB TO US-30 WB	0.02	0.21	88		0.14	0.07	0.02			88									
SUBTOTAL (01/NHS/PV)							21.18	47.30	6,188	258	11.90	11.75	10.59			3,094	129	187	262	7	1				
SUBTOTAL (02/NHS/OT)							0.02	0.21	88		0.14	0.07	0.02			88									
TOTALS TO GENERAL SUMMARY							21.20	47.51	6,276	258	12.04	11.82	10.61			3,182	129	187	262	7	1				

RAISED PAVEMENT MARKERS

PLAN SPLIT	COUNTY	ROUTE	STATION/SLM		DETAIL	621	621	PRISMATIC RETRO-REFLECTOR TYPES				REMARKS	DETAIL	DESCRIPTION	
			FROM	TO		RAISED PAVEMENT MARKER REMOVED	RPM	ONE-WAY	TWO-WAY						
			EACH	EACH		WHITE	YELLOW / YELLOW	WHITE / RED	YELLOW / RED	BLUE / BLUE					
01/NHS/PV	RIC	30	4.07	9.26	5	229	229	229						1	MULTILANE UNDIVIDED TYPICAL SPACING
01/NHS/PV	RIC	30	4.07	9.26	5	229	229	229						2	TAPERED ACCEL. LANE
01/NHS/PV	RIC	30	3.85	4.18	3	34	34							3	DECELERATION LANE
01/NHS/PV	RIC	30	4.02	4.29	2	19	19			17	17			4	PARALLEL ACCEL LANE
01/NHS/PV	RIC	30	7.23	7.56	2	24	24			6	18			5	MULTILANE DIVIDED/EXPRESSWAY
01/NHS/PV	RIC	30	7.27	7.56	3	29	29			16	13			6	STOP APPROACH
01/NHS/PV	RIC	30	7.58	7.82	3	28	28			17	11			7	2 LANE APPR. WITH TURN LANE
01/NHS/PV	RIC	30	7.58	7.95	2	19	19			6	13			8	THROUGH APPROACH
01/NHS/PV	RIC	30	9.15	9.26	2	15	15			15				9	3 LANE APPR. WITH TURN LANE
02/NHS/OT	RIC	30	16.98	17.12	2	6	6			3	3			10	3 LANE DIVIDED TO 2 LANE TRANSITION
SUBTOTAL (01/NHS/PV)						626	626							11	3 LANE UNDIVIDED TO 2 LANE TRANSITION
SUBTOTAL (02/NHS/OT)						6	6							12	TWO LANE NARROW BRIDGE
TOTALS TO GENERAL SUMMARY						632	632							13	TWO WAY LEFT TURN LANE

NOTES
 1) THRU LANES SHALL BE STRIPED AT 12 FT WIDE AND ACCORDING TO CMS 641.08A.
 2) FOR ALL WORK ZONE MARKINGS, THE 642 PAINT USED SHALL BE TYPE 1.

CALCULATED JLL CHECKED JWS
PAVEMENT MARKING / RPM SUB-SUMMARY
RIC-30-4.07
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 39

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ITEM 632- DETECTOR LOOP, AS PER PLAN

AN ESTIMATED QUANTITY OF ITEM 632, DETECTOR LOOP, AS PER PLAN, HAS BEEN PROVIDED FOR THE PURPOSE OF REPLACING DAMAGED DETECTOR LOOPS AND/OR UPGRADING DETECTOR LOOPS TO IMPROVE MOTORCYCLE DETECTION. IT IS IMPERATIVE THAT REPLACEMENT OF DETECTOR LOOPS BE INSTALLED AND FULLY FUNCTIONAL IN THE SHORTEST POSSIBLE TIME. THE CONTRACTOR SHALL HAVE REPLACEMENT DETECTOR LOOPS INSTALLED AND FULLY FUNCTIONAL WITHIN 7 CALENDAR DAYS OF DESTRUCTION OF THE EXISTING DETECTOR LOOPS.

THE CONTRACTOR SHALL NOTIFY MATT BLANKENSHIP, ODOT DISTRICT 3 ROADWAY SERVICES MANAGER, (PHONE 419-207-7045) 5 WORKING DAYS IN ADVANCE OF ANY PLANING OPERATIONS OR PAVEMENT REPAIR WORK. THIS NOTIFICATION IS NEEDED FOR DISTRICT 3 TO SCHEDULE TEMPORARY SIGNAL TIMING MODIFICATIONS FOR THE TIME PERIOD WHEN THE DETECTOR LOOPS ARE OUT OF OPERATION. THE CONTRACTOR SHALL THEN RENOTIFY MR. BLANKENSHIP WITHIN 2 WORKING DAYS AFTER THE NEW DETECTOR LOOPS ARE REPLACED SO THAT HE CAN RESCHEDULE DISTRICT CREWS TO RESTORE SIGNAL TIMINGS TO THE ORIGINAL SETTINGS.

FAILURE TO COMPLY WITH THE ABOVE STATED REQUIREMENTS WILL RESULT IN THE ASSESSMENT OF A DISINCENTIVE FEE OF \$500.00 PER DAY TO THE CONTRACTOR FOR EACH CALENDAR DAY BEYOND THE SPECIFIED LIMIT.

THE NEW DETECTOR LOOPS SHALL BE PLACED PER THE PLAN DETAILS AFTER THE PLANING AND PAVEMENT REPAIR OPERATIONS ARE COMPLETED WITHIN THE AFFECTED AREAS. THE DETECTOR LOOPS SHALL NOT BE CUT INTO THE SURFACE COURSE.

IN ADDITION TO THE REQUIREMENTS OF CMS 632.11, THE CONTRACTOR SHALL PROVIDE A POSITIVE AND EFFECTIVE MEANS FOR REMOVAL OF SOLID RESIDUE RESULTING FROM THE DRY SAW BLADE CUTTING OF LOOP DETECTOR SLOTS IN THE PAVEMENT. THE RESIDUE SHALL BE REMOVED BY VACUUM OR OTHER EFFECTIVE MEANS, BEFORE IT IS BLOWN BY TRAFFIC ACTION OR WIND. RESIDUE FROM DRY CUTTING SHALL NOT BE REMOVED BY COMPRESSED AIR. AS AN ALTERNATE, THE CONTRACTOR MAY USE WET CUTTING.

LOOP DETECTOR WIRE TO LEAD-IN CABLE SPLICES WITHIN EPOXY ENCAPSULATED SPLICE ENCLOSURES SHALL BE JOINED BY AN APPROVED CONNECTOR AND SOLDERED PER CMS 632.23 & 725.15. THE CONNECTOR KIT USED SHALL BE UNFUSED CONFORMING TO 725.15E. IN ADDITION, THE CONNECTOR KIT SHALL HAVE TWO (2) FILL OPENINGS AND THE SPLICE ENCLOSURE SHALL BE A CLEAR TRANSPARENT MATERIAL. THE EPOXY SHALL BE NON-SHRINKING. ALL COSTS ASSOCIATED WITH THIS CONNECTION SHALL BE INCLUDED WITH THIS PAY ITEM.

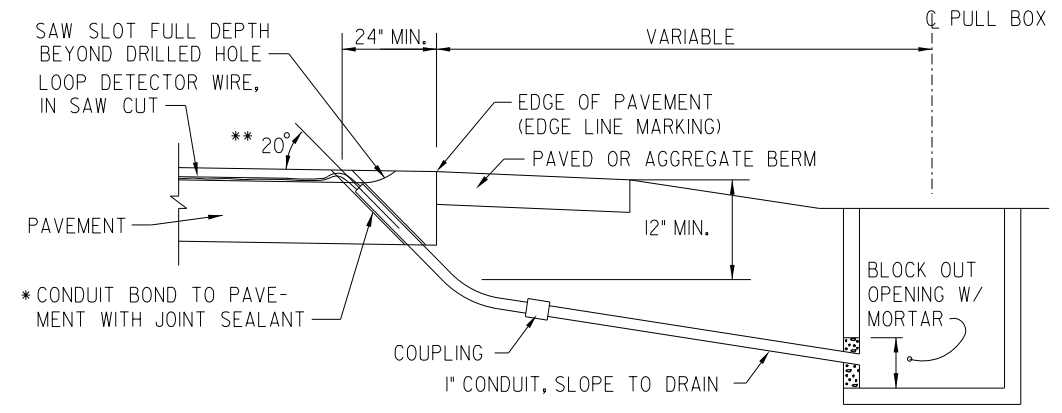
IF THE PULL BOX IS NOT SPECIFIED IN THE PLANS, THE SPLICE SHALL BE MADE IN THE FIRST ENTERED POLE OR PEDESTAL, EXCEPT WHERE THE CONTROLLER CABINET IS MOUNTED ON THE POLE OR PEDESTAL, IN WHICH CASE THE LOOP WIRES SHALL BE ROUTED DIRECTLY INTO THE CABINET UNLESS SPECIFIED DIFFERENTLY IN THE PLANS. LOOP DETECTOR WIRE ROUTED THROUGH CONDUIT, PULL BOXES, POLES, AND PEDESTALS SHALL BE TWISTED PER CMS 632.23.

FURNISH ALL MATERIALS ACCORDING TO THE DEPARTMENT'S QUALIFIED PRODUCTS LIST (QPL).

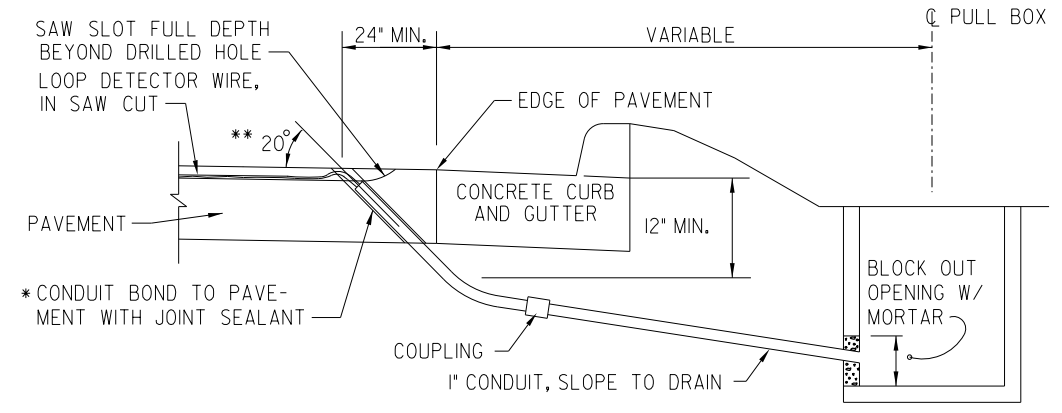
SEE DETAILS ON THIS SHEET FOR ADDITIONAL REQUIREMENTS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR ITEM 632, DETECTOR LOOP, AS PER PLAN.

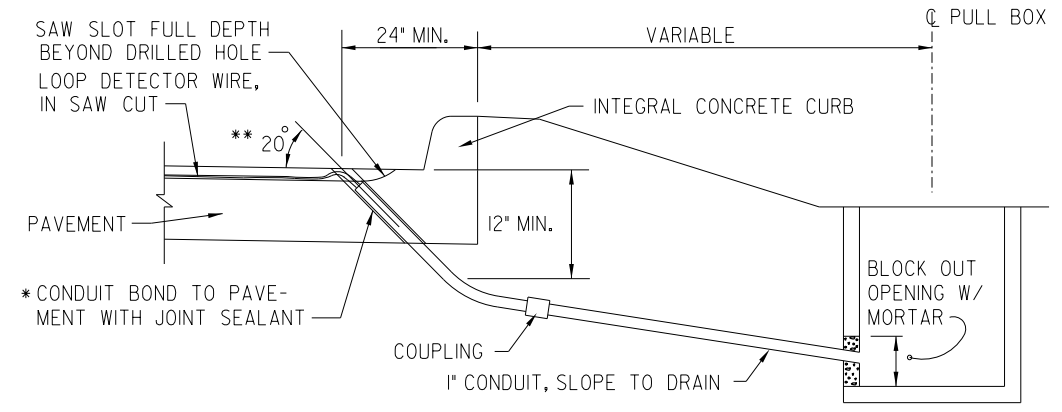
ITEM 632 - DETECTOR LOOP, AS PER PLAN
01/NHS/PV - 8 EACH



DRILLED HOLE LOCATION DETAIL WITH PAVED OR AGGREGATE BERM



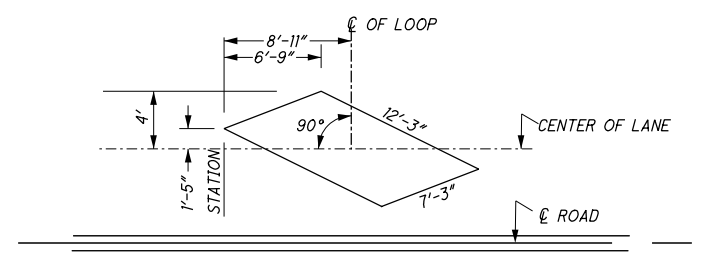
DRILLED HOLE LOCATION DETAIL WITH CONCRETE CURB AND GUTTER



DRILLED HOLE LOCATION DETAIL WITH INTEGRAL CONCRETE CURB

- * CONDUIT SHALL BE 1" DIAMETER 725.04.
- ** THE RANGE OF THIS ANGLE SHALL BE FROM 15 TO 30 DEGREES.

NOTE: SEE STANDARD DRAWING TC-82.J0 FOR ADDITIONAL NOTES AND DETAILS



ANGULAR DESIGN DETECTION (ADD) LOOP DETAIL FOR LANE WIDTH 11' & LARGER

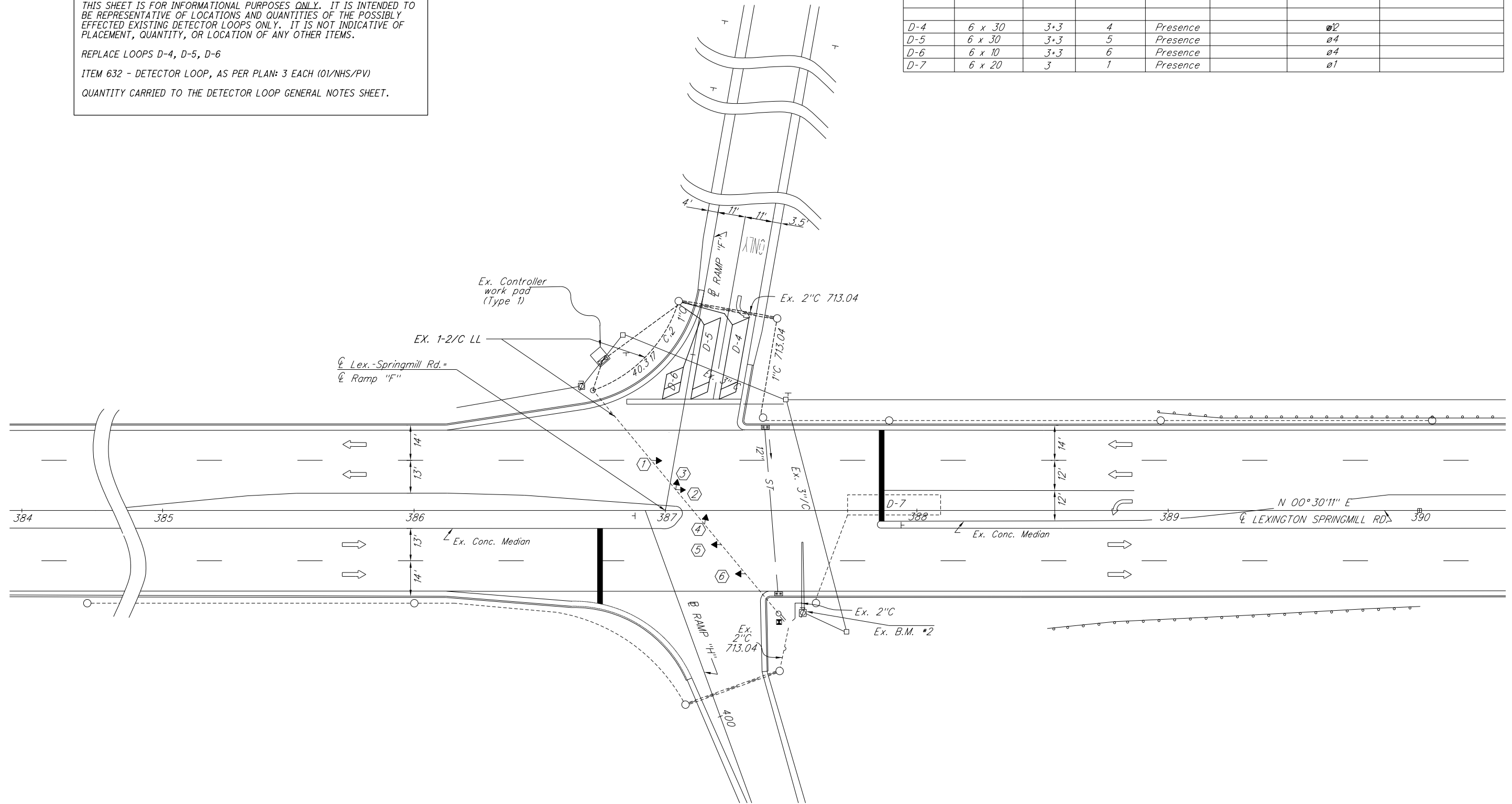
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DETECTOR LOOP REPLACEMENT

NOTE:
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS INTENDED TO BE REPRESENTATIVE OF LOCATIONS AND QUANTITIES OF THE POSSIBLY EFFECTED EXISTING DETECTOR LOOPS ONLY. IT IS NOT INDICATIVE OF PLACEMENT, QUANTITY, OR LOCATION OF ANY OTHER ITEMS.

REPLACE LOOPS D-4, D-5, D-6
ITEM 632 - DETECTOR LOOP, AS PER PLAN: 3 EACH (01/NHS/PV)
QUANTITY CARRIED TO THE DETECTOR LOOP GENERAL NOTES SHEET.

LOOP DETECTORS							
Detector No.	Size (Ft. x Ft.)	No. of Turns	No. of Amplifiers	Detector Function	Extension Delay (Sec.)	Associated Controller Phase	Comments
D-4	6 x 30	3+3	4	Presence		ø2	
D-5	6 x 30	3+3	5	Presence		ø4	
D-6	6 x 10	3+3	6	Presence		ø4	
D-7	6 x 20	3	1	Presence		ø1	



CALCULATED JLL
 CHECKED JWS

LOOP DETAILS
 US 30 & LEXINGTON SPRINGMILL RD (EB RAMP)

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DETECTOR LOOP REPLACEMENT

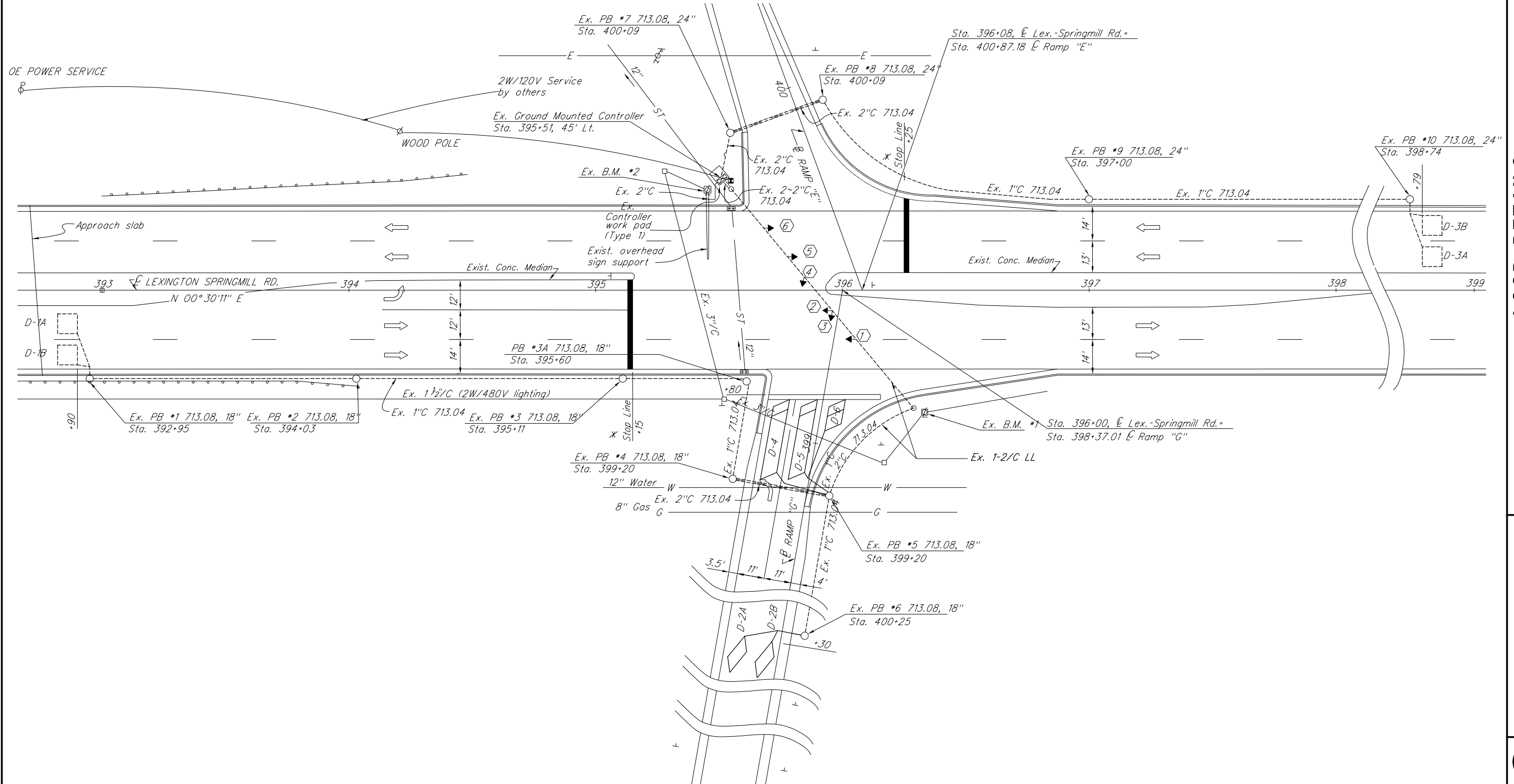
NOTE:
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS INTENDED TO BE REPRESENTATIVE OF LOCATIONS AND QUANTITIES OF THE POSSIBLY EFFECTED EXISTING DETECTOR LOOPS ONLY. IT IS NOT INDICATIVE OF PLACEMENT, QUANTITY, OR LOCATION OF ANY OTHER ITEMS.

REPLACE LOOPS D-2A, D-2B, D-4, D-5, D-6

ITEM 632 - DETECTOR LOOP, AS PER PLAN: 5 EACH (01/NHS/PV)

QUANTITY CARRIED TO THE DETECTOR LOOP GENERAL NOTES SHEET.

LOOP DETECTORS							
Detector No.	Size (Ft. x Ft.)	No. of Turns	No. of Amplifiers	Detector Function	Extension Delay (Sec.)	Associated Controller Phase	Comments
D-1A&B	(2) 8 x 8	3	1	Pulse		ø1	
D-2A&B	**	4	2	Pulse	3 *	ø2	
D-3A&B	(2) 8 x 8	3	3	Pulse		ø1	
D-4	6 x 30	3+3	4	Presence		ø2	
D-5	6 x 30	3+3	5	Presence	8 *	ø2	
D-6	6 x 10	3+3	6	Presence	8 *	ø2	



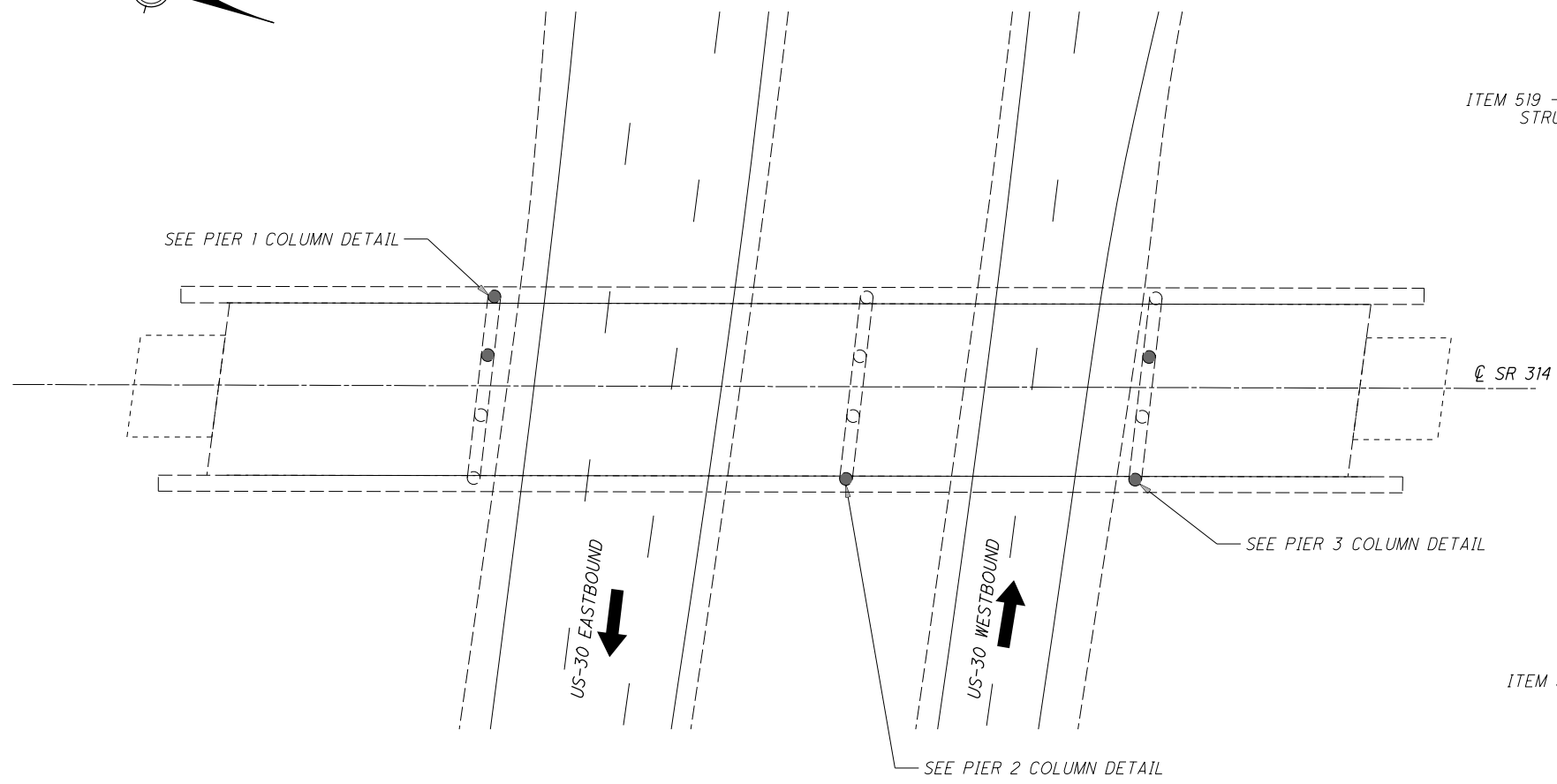
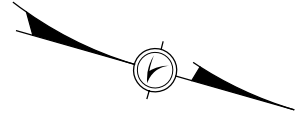




 CALCULATED: JLL
 CHECKED: JWS

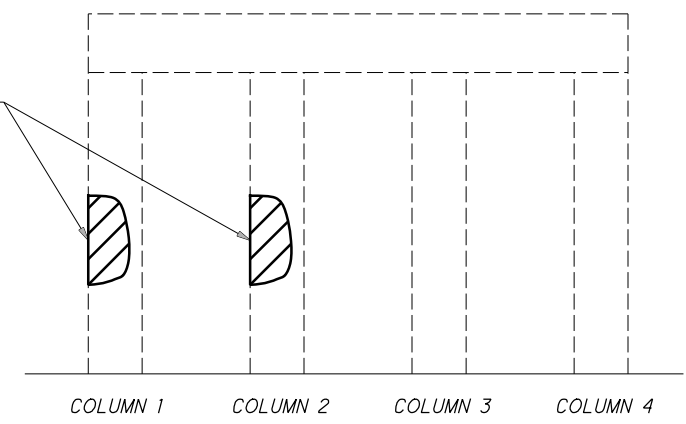
LOOP DETAILS
US 30 & LEXINGTON SPRINGMILL RD (WB RAMP)

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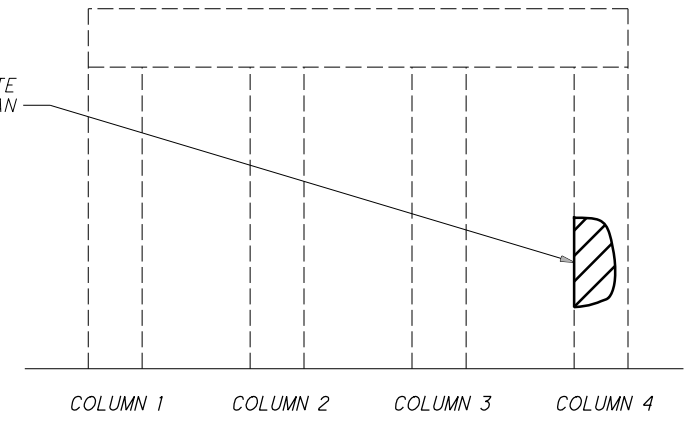
PLAN VIEW

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



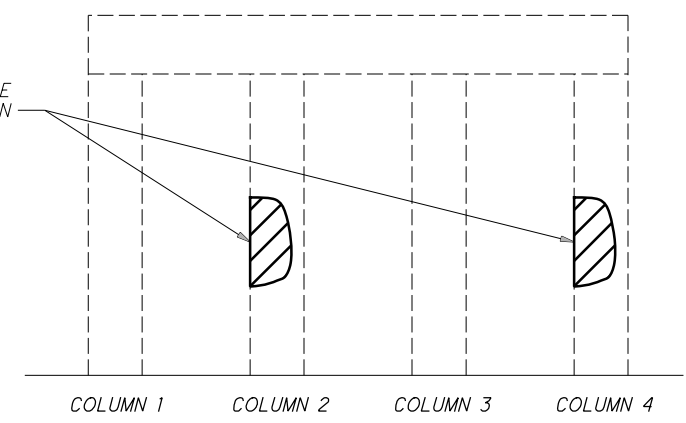
PIER COLUMN 1 DETAIL

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 2 DETAIL

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 3 DETAIL

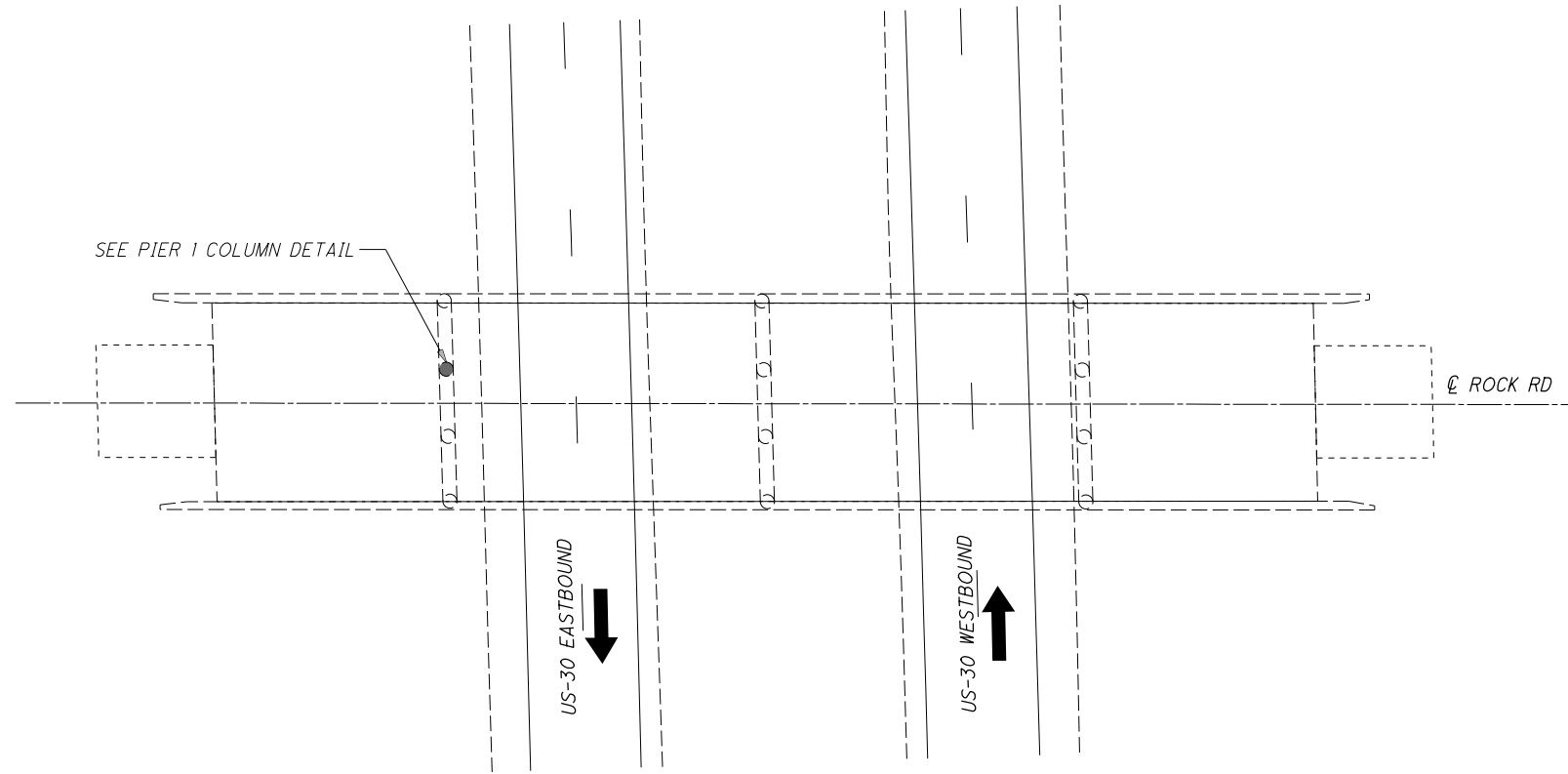
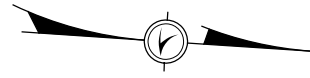
- NOTES:
 1) ACTUAL REPAIR LOCATIONS TO BE IDENTIFIED BY THE ENGINEER.
 2) EXISTING STEEL SHALL BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
519	94	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

ALL QUANTITIES CARRIED TO THE STRUCTURE SUMMARY

I:\ProjectData\87728\Design\Structures\RIC314_0505C\Sheets\314_0505C_S6001.dgn

RIC-30-4.07 PID No. 87728	STRUCTURE DETAILS RIC-314-5.05 OVER RIC-30	DESIGNED JLL CHECKED NRF	DRAWN JLL REVISED	REVIEWED JWS DATE 3/2019 STRUCTURE FILE NUMBER 7006012	DESIGN AGENCY ODOT DISTRICT THREE OFFICE OF ENGINEERING
1 / 1					



PLAN VIEW

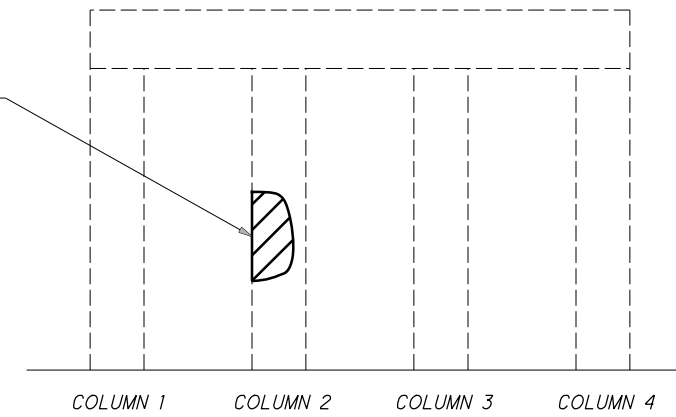
NOTES:

- 1) ACTUAL REPAIR LOCATIONS TO BE IDENTIFIED BY THE ENGINEER.
- 2) EXISTING STEEL SHALL BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
519	21	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

ALL QUANTITIES CARRIED TO THE STRUCTURE SUMMARY

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 1 DETAIL

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DESIGN AGENCY
ODOT DISTRICT THREE
OFFICE OF ENGINEERING

REVIEWED
JWS
DATE
3/2019
STRUCTURE FILE NUMBER
7001010

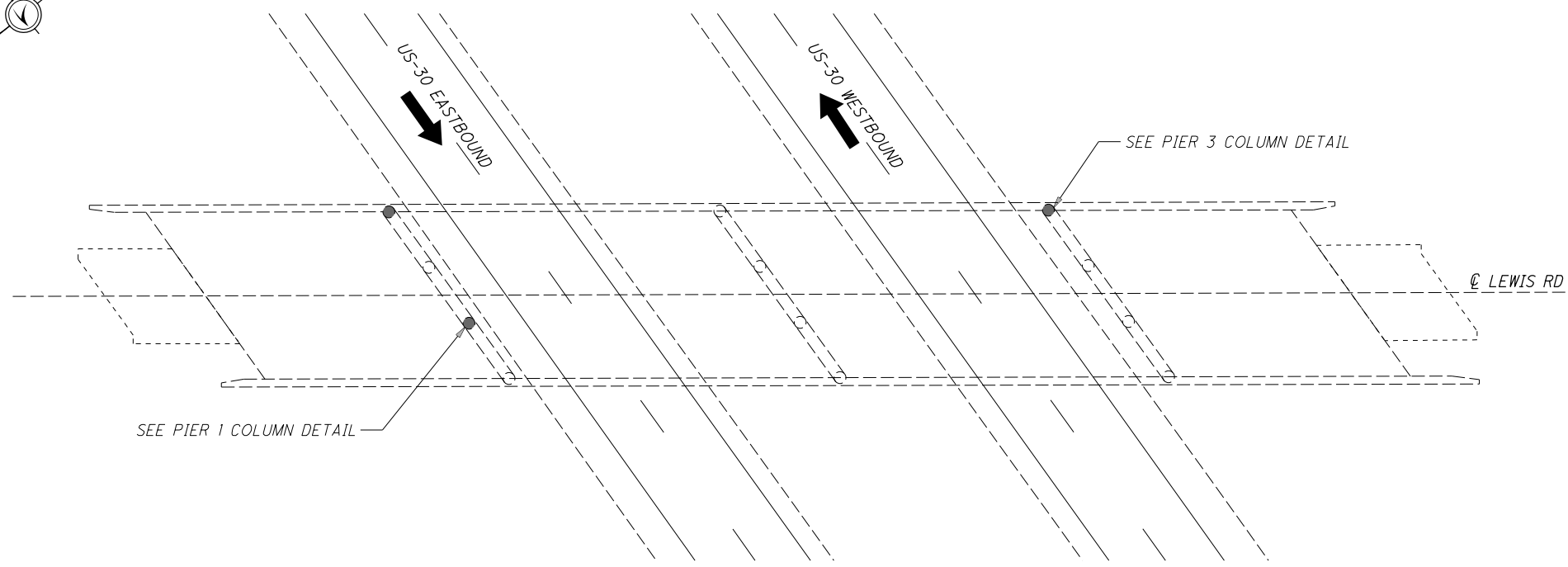
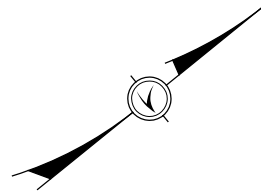
DRAWN
JLL
REVIS
DESIGNED
JLL
CHECKED
NRF

STRUCTURE DETAILS
RIC-30-S.51
ROCK RD

RIC-30-4.07
PID No. 87728

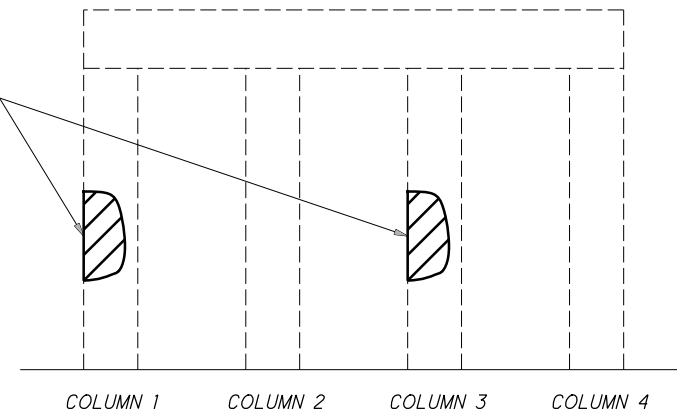
1 / 1

31
39



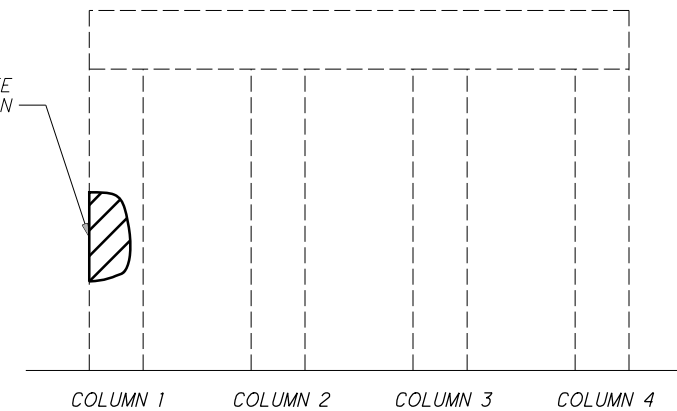
PLAN VIEW

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 1 DETAIL

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 3 DETAIL

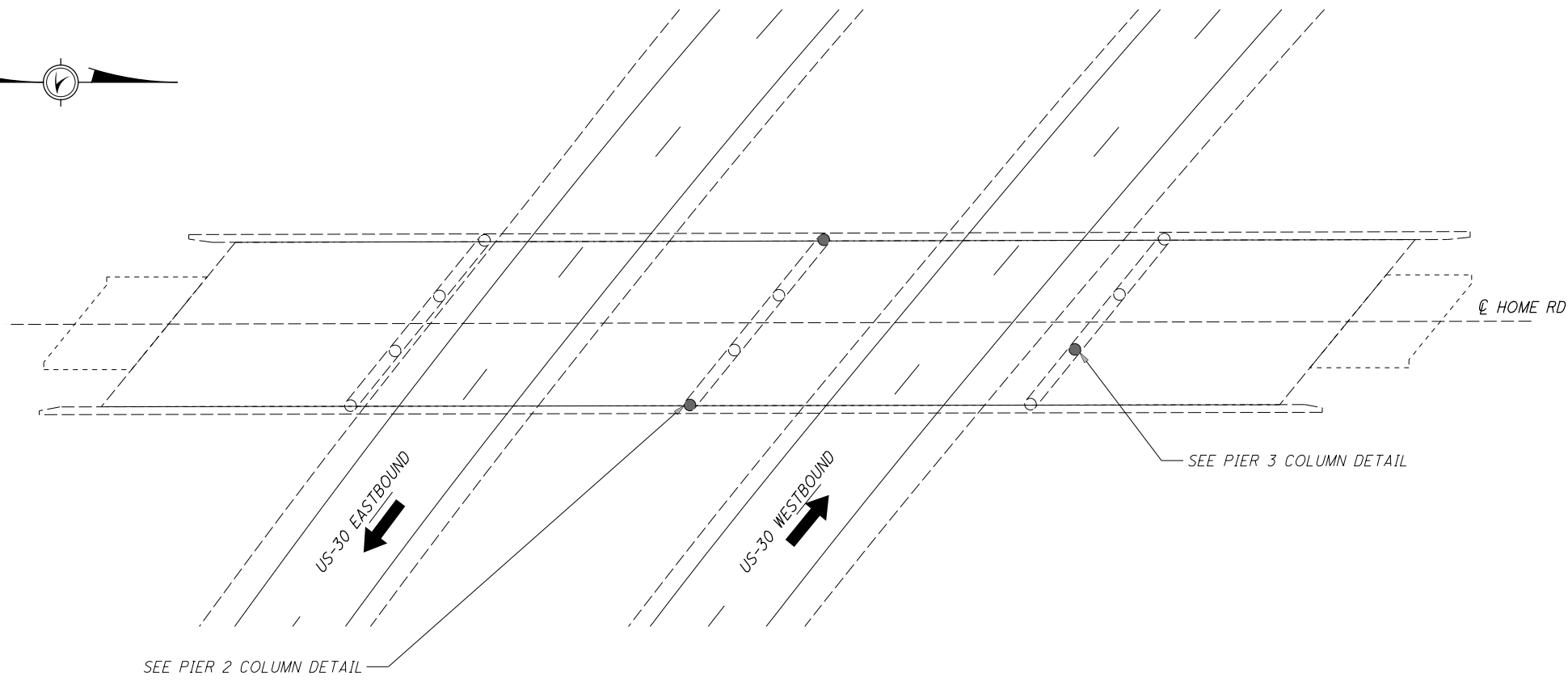
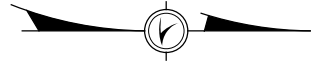
NOTES:

- 1) ACTUAL REPAIR LOCATIONS TO BE IDENTIFIED BY THE ENGINEER.
- 2) EXISTING STEEL SHALL BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
519	58	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

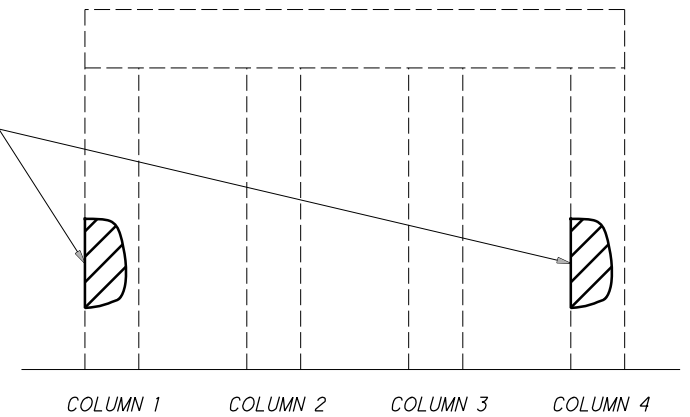
ALL QUANTITIES CARRIED TO THE STRUCTURE SUMMARY

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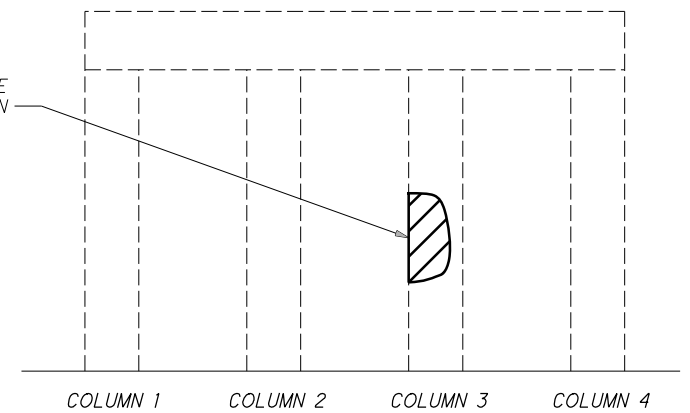
PLAN VIEW

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 2 DETAIL

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN



PIER COLUMN 3 DETAIL

- NOTES:
 1) ACTUAL REPAIR LOCATIONS TO BE IDENTIFIED BY THE ENGINEER.
 2) EXISTING STEEL SHALL BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
519	93	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN

ALL QUANTITIES CARRIED TO THE STRUCTURE SUMMARY

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NOTES

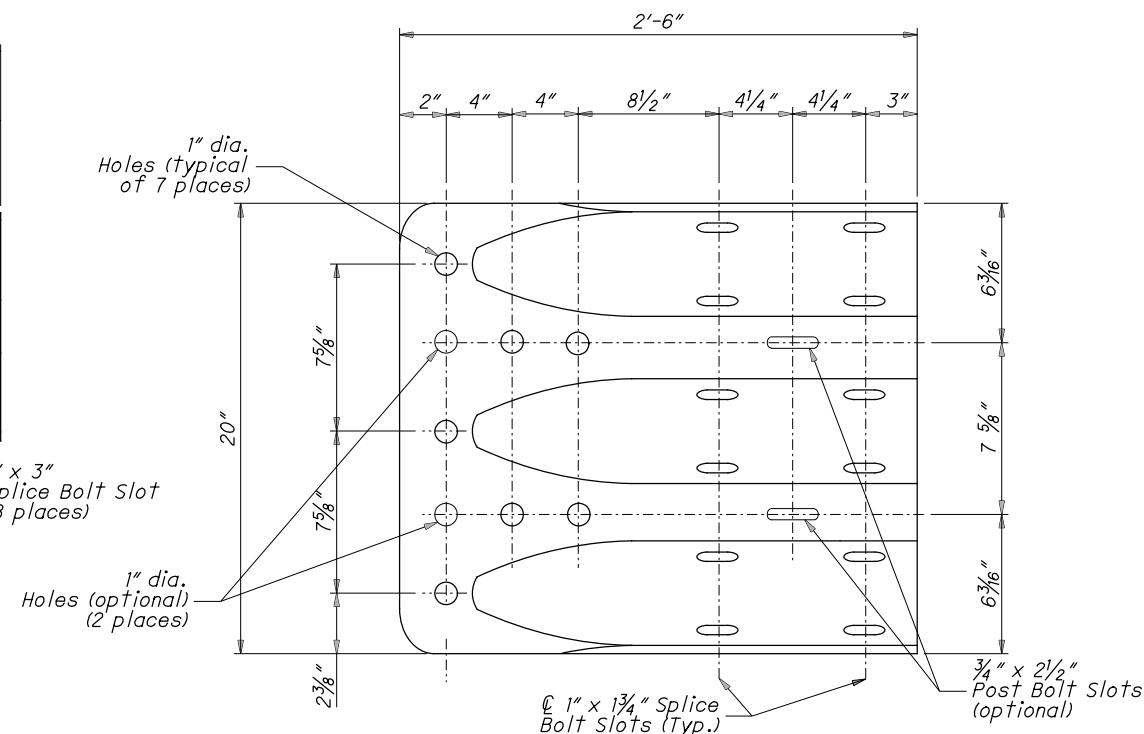
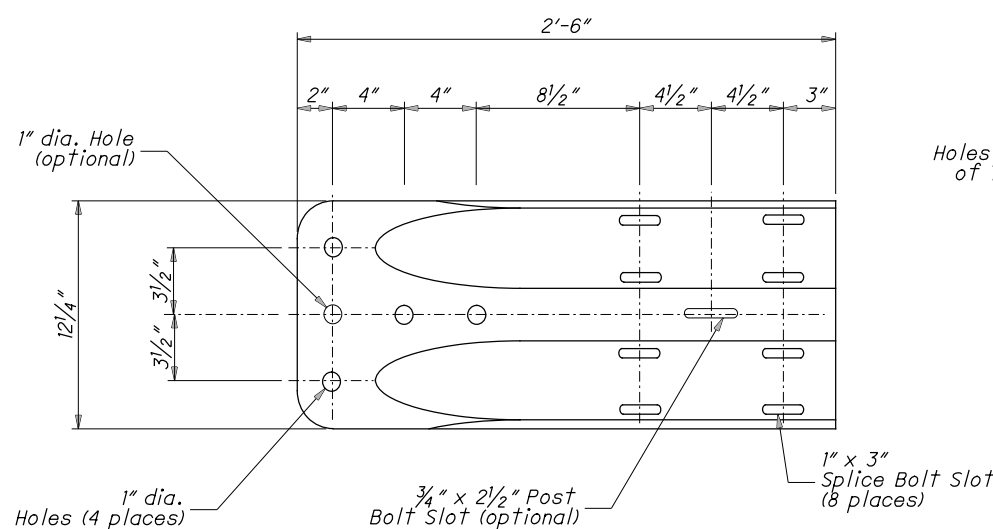
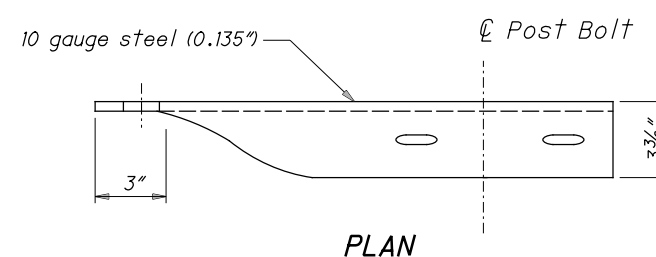
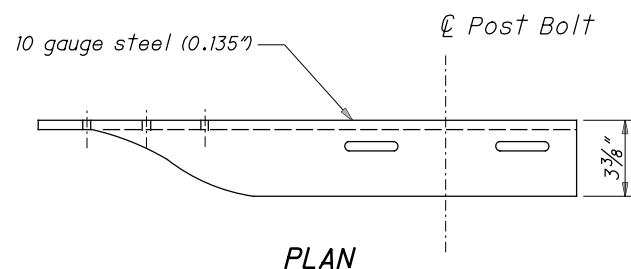
GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

See CMS 606 for guardrail specifications not covered on these drawings.

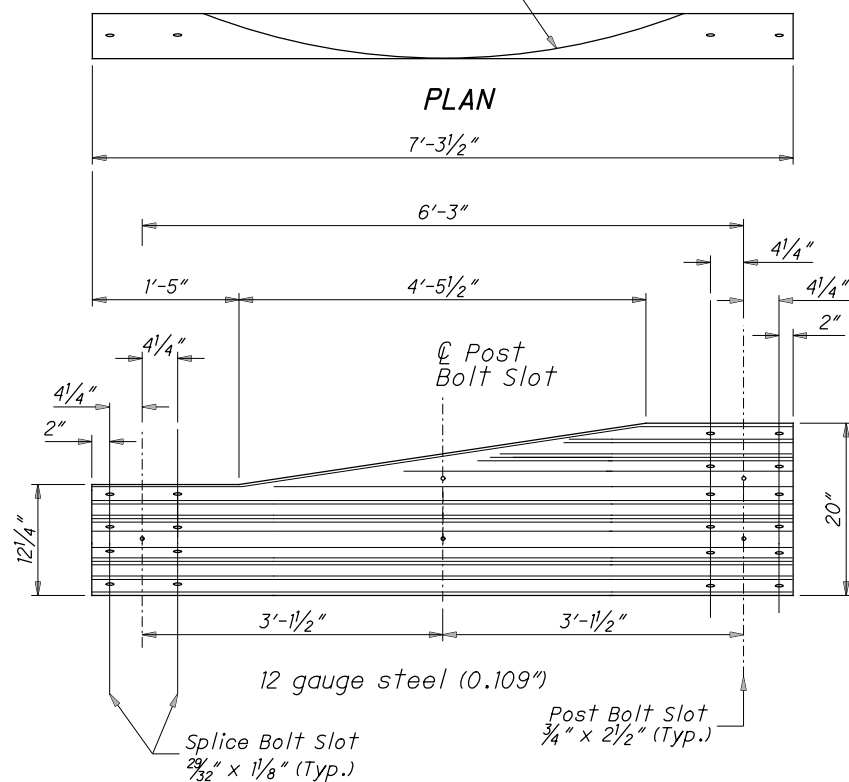
Refer to AASHTO M 180 for dimensional details of W-Beam and Thrie-Beam rail elements, related buffer and end sections, beam splices, post and splice bolts, nuts, and Type 1 W-Beam to Thrie-Beam Transition sections.

RAIL ELEMENTS: W-Beam Rail has an effective length of 12'-6" unless otherwise specified, with $\frac{3}{4}$ " x $2\frac{1}{2}$ " post bolt slots on 6'-3" centers regardless of post spacing. Field punch or drill bolt holes or slots for irregularly spaced posts as specified in CMS 606.04.

RAIL SPLICES: Lap splices between two rail elements or between a rail and terminal connector in the direction of traffic. Lap the buffer or flared end sections in the direction of traffic.

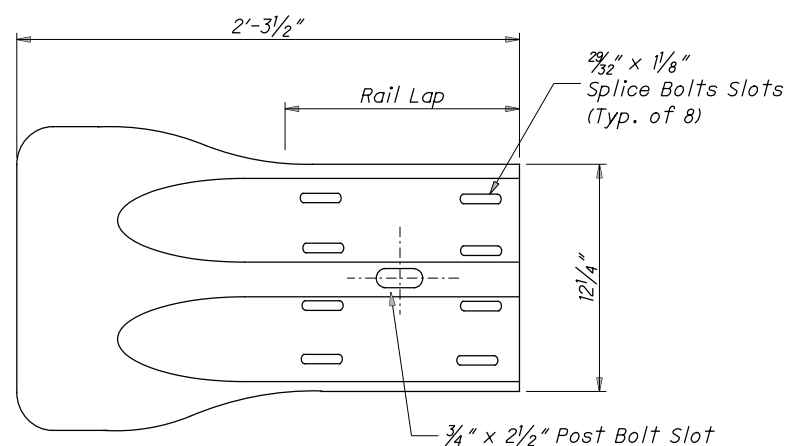
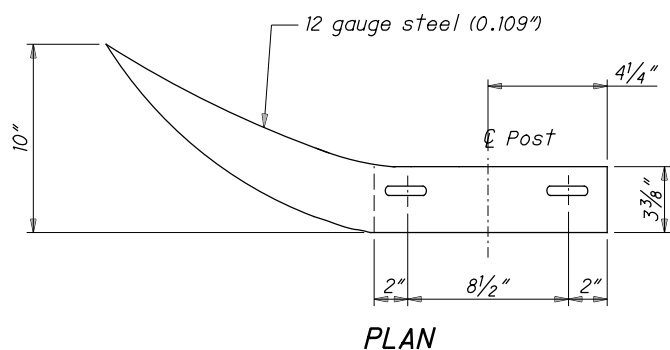


Weld and grind flush



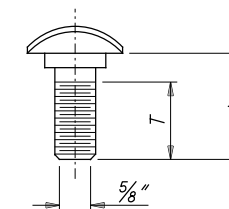
**ELEVATION
TYPE 2 TRANSITION SECTION
(Asymmetric W to Thrie-Beam)**

For details of Type 1 Transition Section (Symmetric), refer to AASHTO M 180, Figure 4.



**ELEVATION
W-BEAM FLARED END SECTION**

**ELEVATION
THRIE-BEAM TERMINAL CONNECTOR**

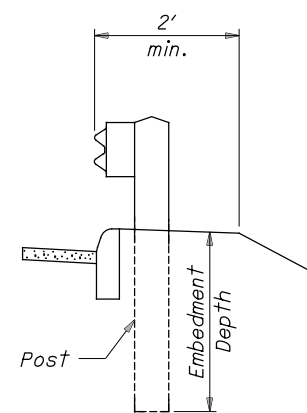


GUARDRAIL BOLT (For Post and Splice Bolts)		
L	T min.	Bolt Use
18" (Standard Rail)	4"	Type 5: WP/WB, PB
26" (Barrier Rail)		
10"	4"	Type 5: SP/WB, PB
1 1/4"	1 1/8"	Splice Bolt

WP = Wood Post WB = Wood Blockout
SP = Steel Post PB = Plastic Blockout

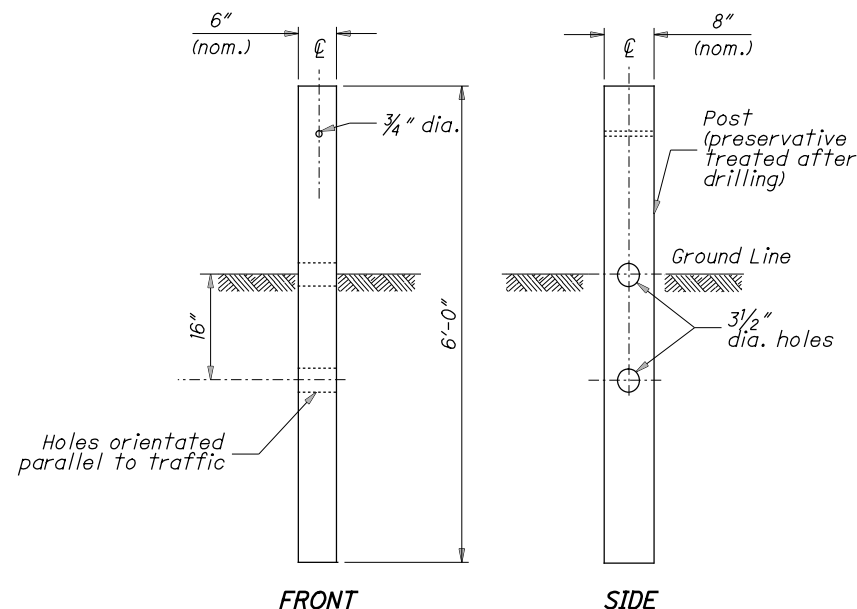
Longer Bolt may be needed for round Wood Post larger than 8" dia.

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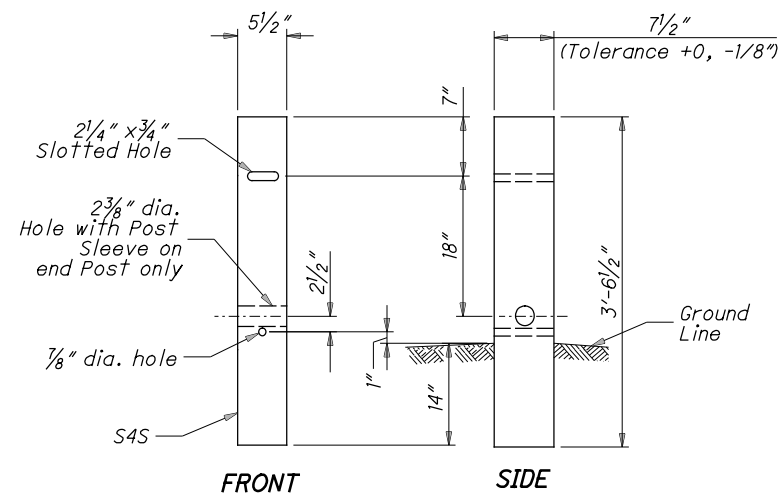


DETAIL A

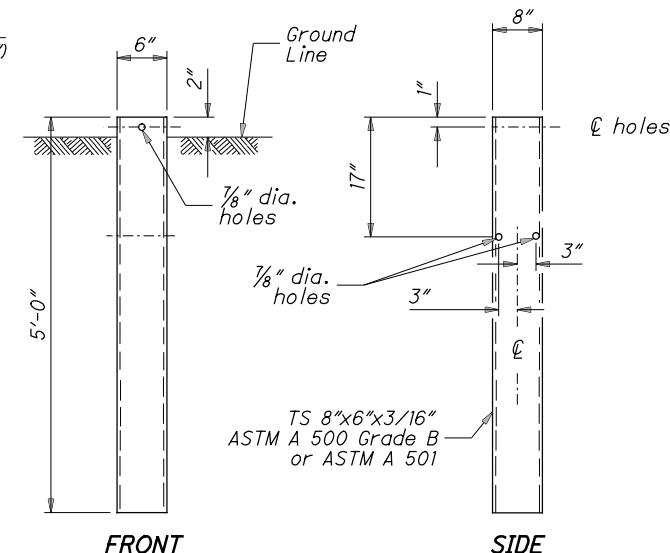
See POST EMBEDMENT DEPTH Note



TYPE 1 BREAKAWAY CRT POST



TYPE 2 BREAKAWAY CRT POST



STEEL GROUND TUBE

NOTES

GUARDRAIL HEIGHT: For initial installation, construct the guardrail within $\pm 1"$ of the standard height, h , or **29"** to the top of W-Beam rail. (See MEASURING GUARDRAIL HEIGHT Detail.)
When subsequent projects, such as resurfacings, affect the height of existing guardrail, the finished height is to be within $\pm 2.5"$ of the standard height.

POST EMBEDMENT DEPTH: Standard embedment is 3'-5" min. Where less than 2' of graded shoulder width (10:1 or flatter) exists, measured from the face of the guardrail (see DETAIL "A"), use longer posts so that a minimum of 5'-5" embedment depth is provided. Payment for the longer posts will be made at the unit price bid for **ITEM 606 - GUARDRAIL POST, 9', Each.**

SPECIAL POST MOUNTINGS: Install posts located over a drainage inlet or structure as shown in the FOOTING ANCHOR Detail, or anchor per the details shown on **SCD GR-2.2.**

Install posts located over a footing with a cover of less than 2'-6" with a footing anchor as detailed here. (A plate, as detailed on SECTION B-B of **SCD GR-2.2,** may be used as an alternative attachment method.) Where the cover is between 2'-6" and 3'-5", the footing anchor may be omitted and the post encased instead with 4" (min.) of concrete.

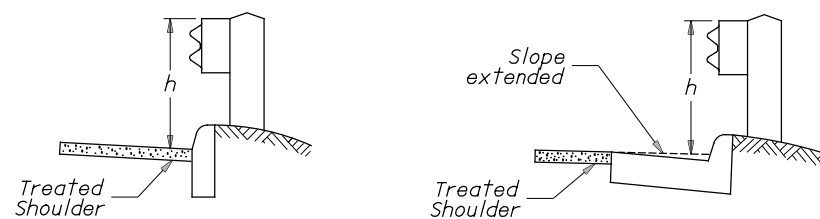
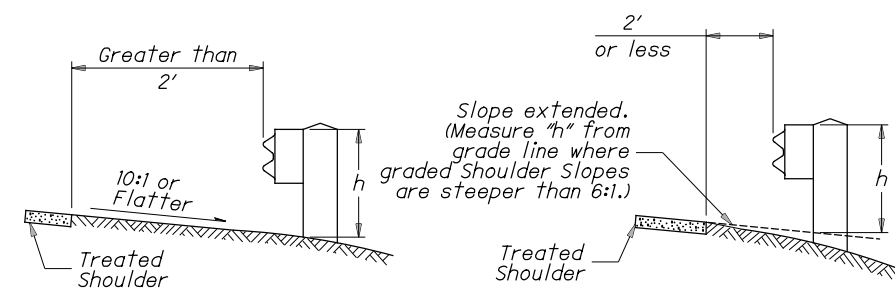
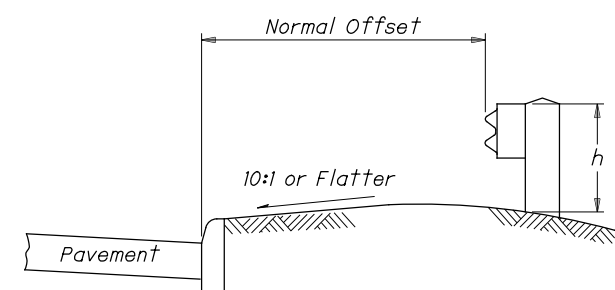
Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where the available post embedment depth is less than 3'-5", encase the post with a minimum of 4" concrete.

All costs associated with special post mountings are included in the unit price bid of Item 606 Guardrail of the type specified in the plans.

ANCHORS: Holes and grouting shall comply with CMS 510. Use either cement or non-shrink, nonmetallic grout.

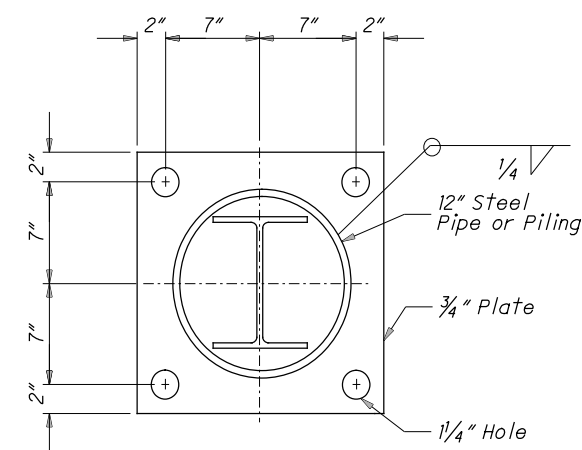
Expansion shield anchors as specified in CMS 712.01 may be substituted except where concrete deterioration has occurred, as determined by the Engineer. Where self-drilling anchors are used, drill the holes with the expansion shield (not by a drill bit) and install the shield flush with the concrete surface.

PROTECTIVE COATING: In lieu of the complying with CMS 710.06, coat expansion shields, anchors and concrete insert anchor assemblies embedded in concrete in accordance with ASTM A 153 or be of stainless steel. Any bolts screwed into these devices shall meet CMS 710.06. (See sheet 3 for Concrete Insert Anchor Assembly Detail.)



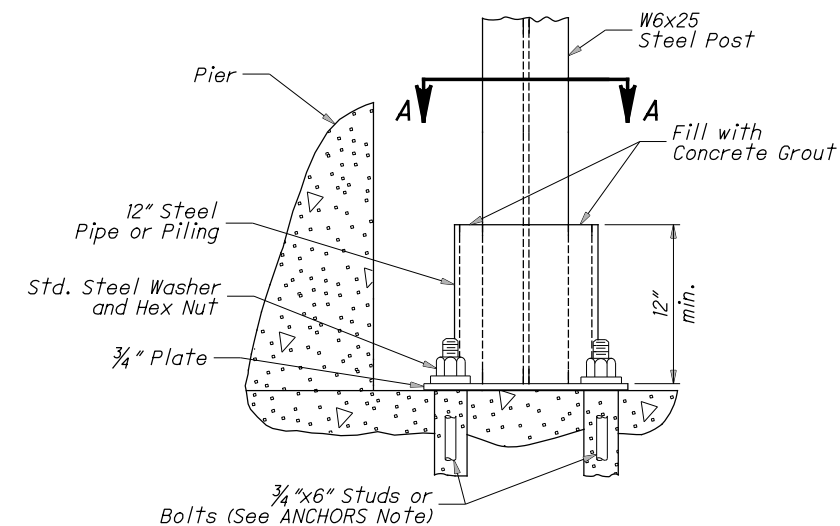
h = Standard Height (See GUARDRAIL HEIGHT Note)

MEASURING GUARDRAIL HEIGHT



Footing Anchor and hardware need not be galvanized

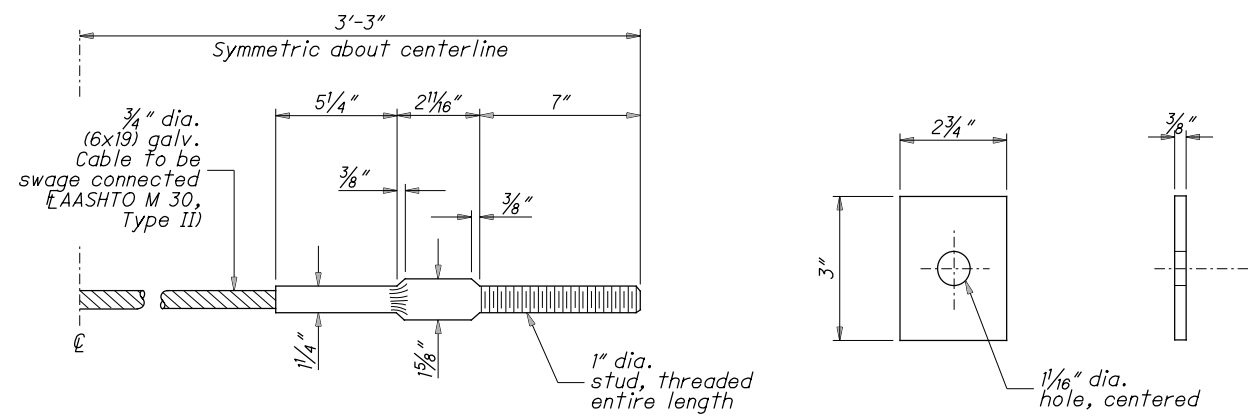
SECTION A-A



ELEVATION FOOTING ANCHOR

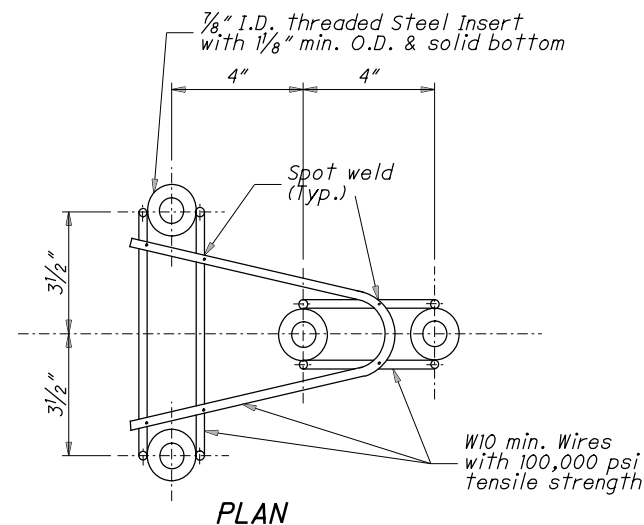
See SPECIAL POST MOUNTINGS Note.

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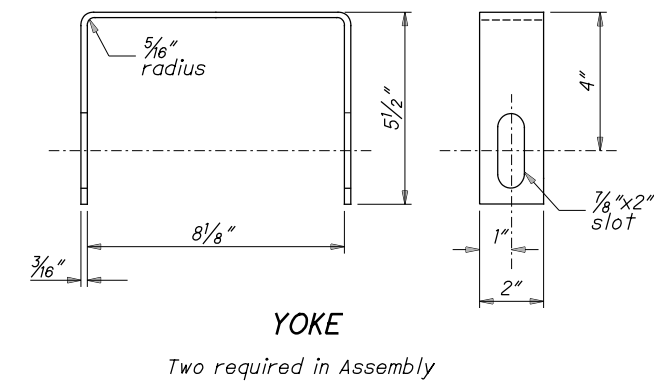


STANDARD SWAGED FITTING AND STUD
CABLE ANCHOR

END PLATE

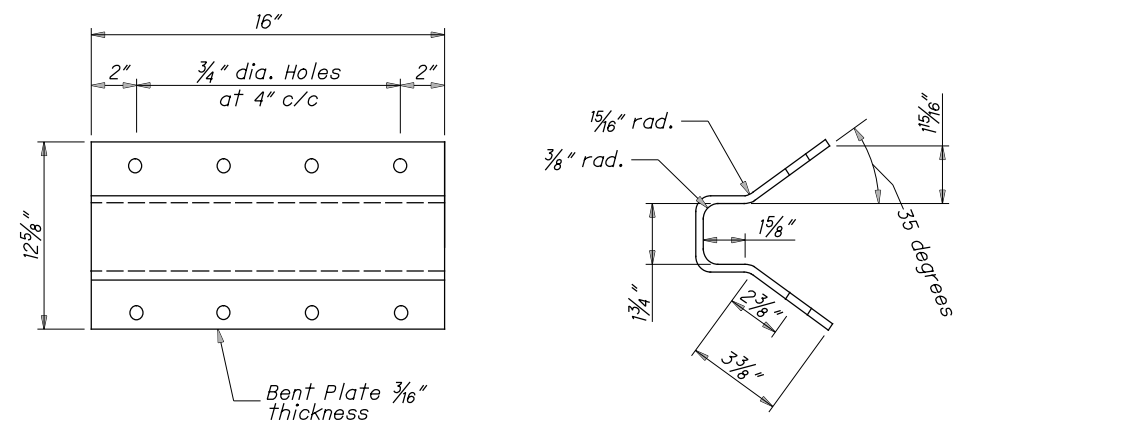


PLAN

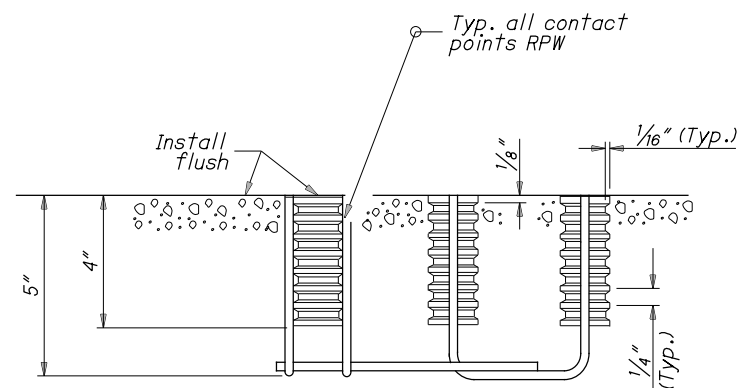


YOKE

Two required in Assembly

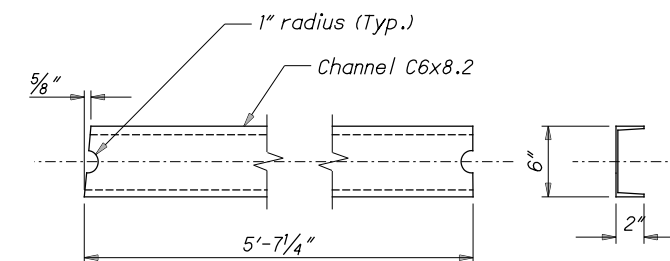


ANCHOR BRACKET



Four 7/8" Bolts required

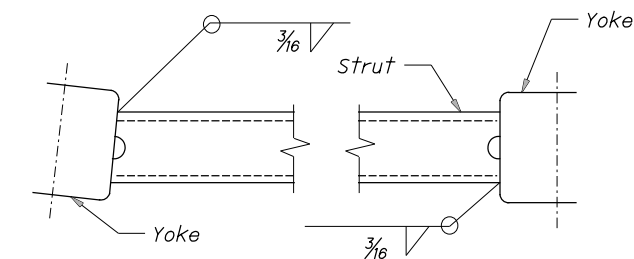
ELEVATION



STRUT

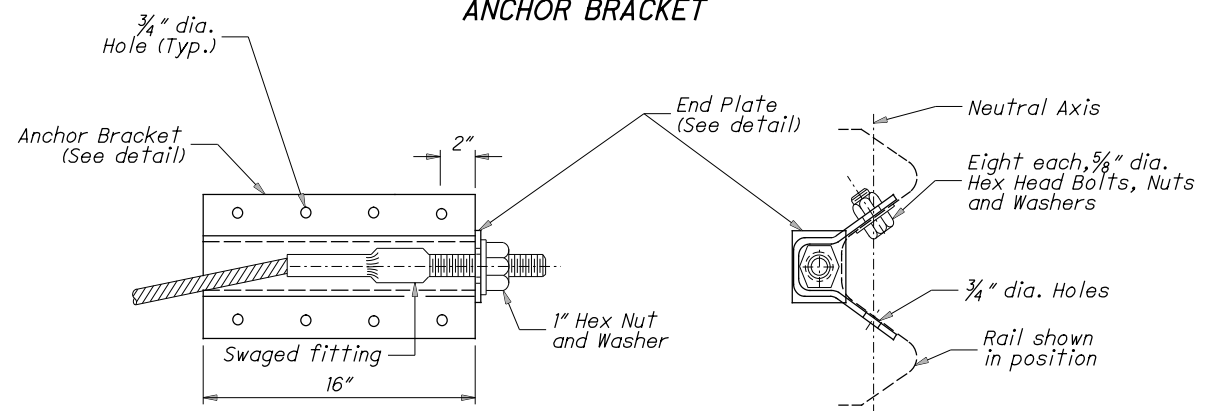
CONCRETE INSERT ANCHOR ASSEMBLY
(W-BEAM ONLY)

See ANCHORS and PROTECTIVE
COATINGS Notes on Sheet 2

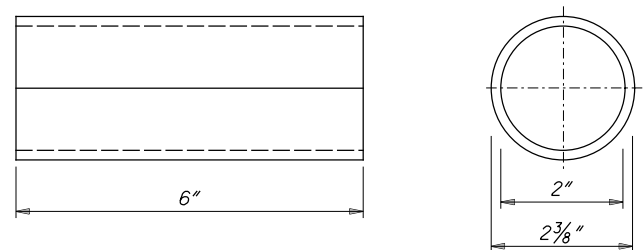


Channel legs shown down. For opposite
hand, install Channel legs up.

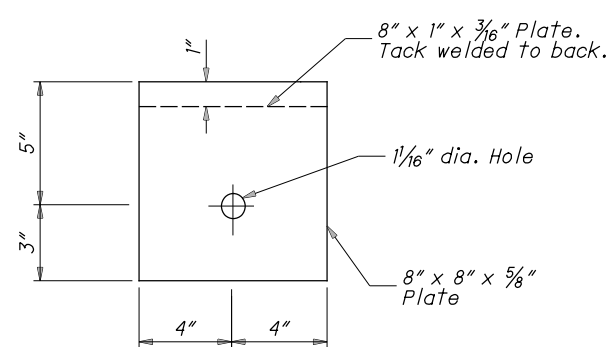
STRUT AND YOKE ASSEMBLY



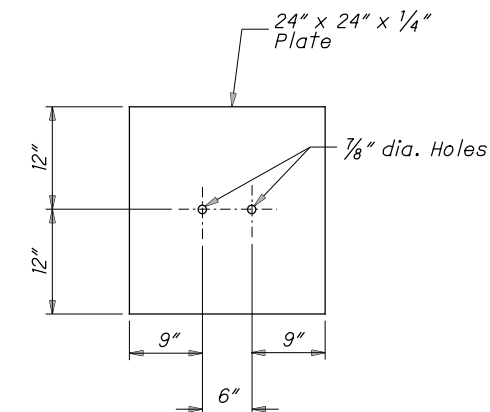
ANCHOR BRACKET ASSEMBLY DETAILS



POST SLEEVE



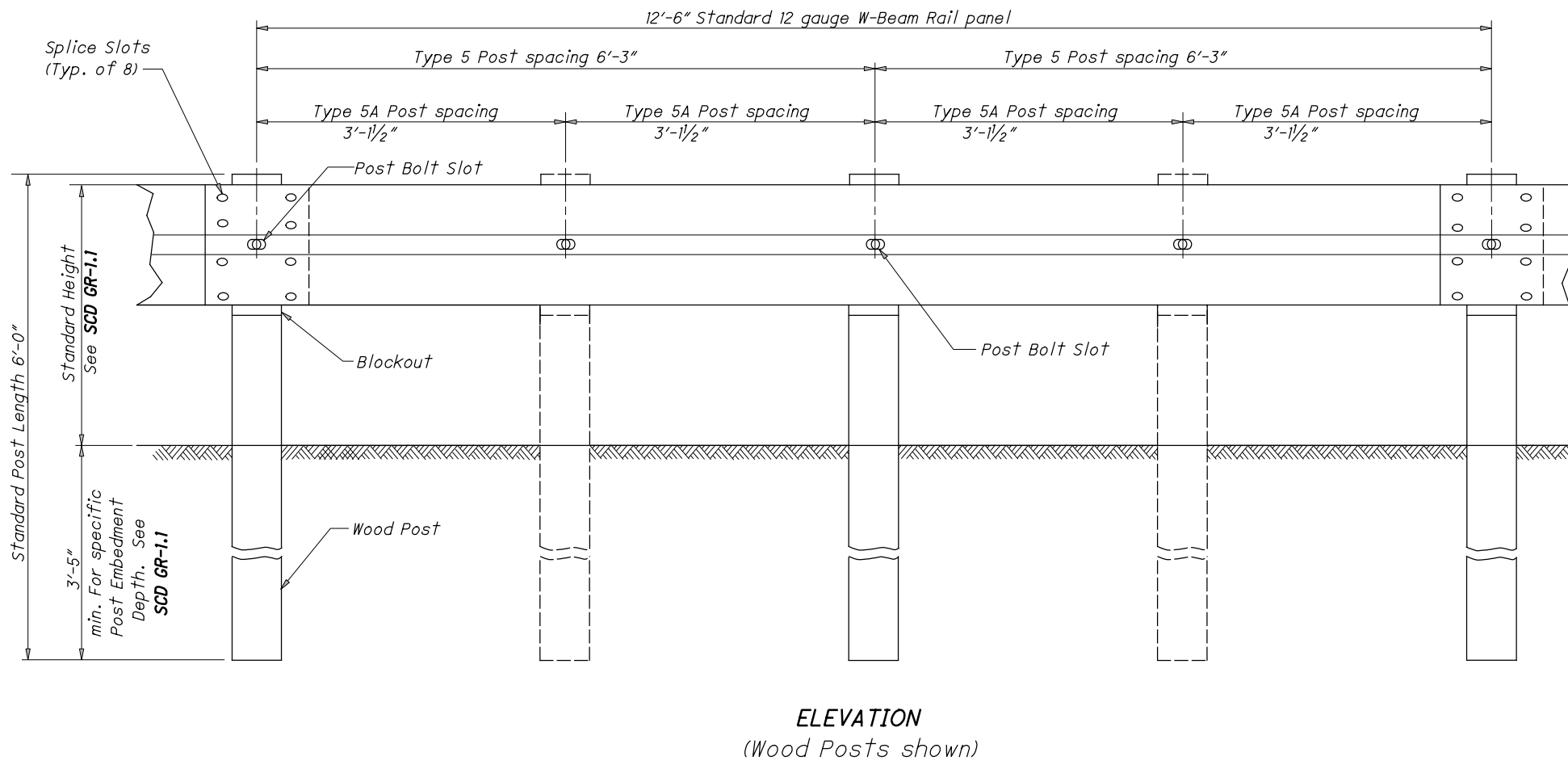
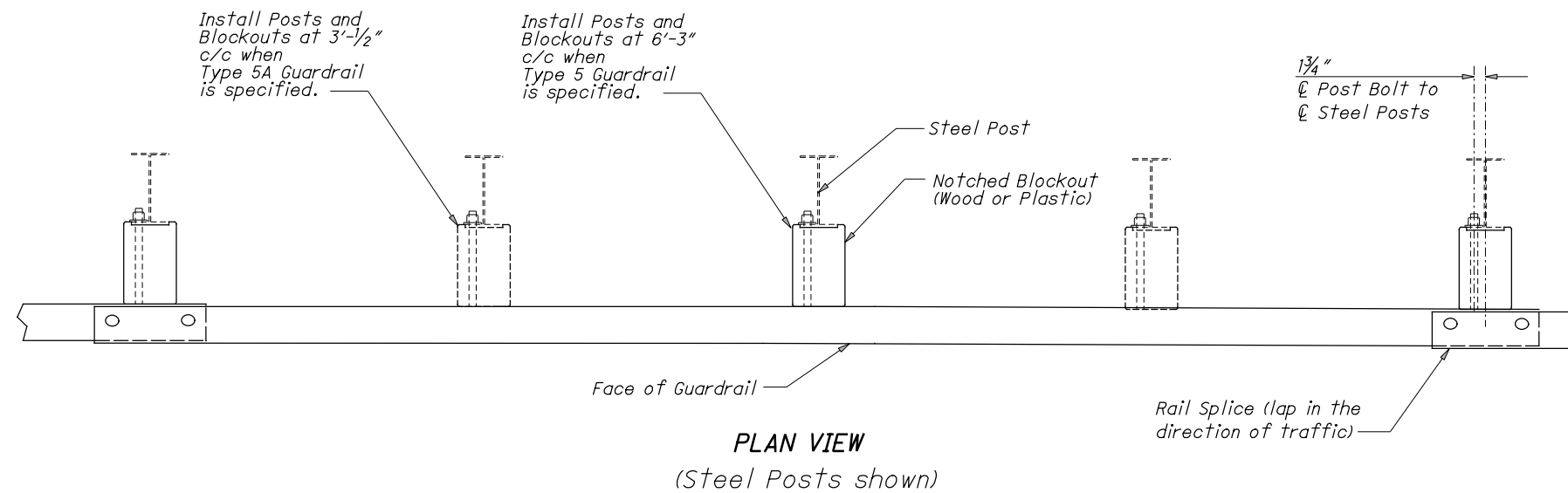
BEARING PLATE



SOIL PLATE

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NOTES

RAIL: Use W-Beam rail meeting AASHTO M 180 Type II Class A, as specified in CMS 606.

POSTS: Posts may be constructed of wood or steel. Wood posts may be round or 6"x8" square-sawed.

Use round wood posts on runs of single-sided rail. The round posts shall be 8"±1 in diameter at the top and not more than 3" larger at the butt with a uniform taper.

Fabricated wood posts with square ends. Posts shall be pressure-treated as per CMS 710.14. Bore bolt holes and, if required, trim the tops of posts after the posts are set.

Steel posts are to be W6x9 or W6x8.5 galvanized steel. Use the same type of post throughout the length of the project unless otherwise specified in the plans or permitted by the Engineer.

All posts are 6'-0" long unless specified otherwise in the Contract Document. Posts may be set in drilled holes or may be driven to grade.

WELDED BEAM POSTS: Welded beam guardrail posts may be used for Item 606, Guardrail, provided the web and flange sizes are as shown here. Welding of the web to the flanges must comply with ASTM A 769, Class 1, using Grade 36 steel [250 MPa yield point] with the following exceptions:

DESIGNED	XXX
REVIEWED	XXX
CHECKED	XXX

- Sec. 7.2 Test reports of tensile properties for each lot shall accompany each shipment.
- Sec. 12 Beams that have imperfections repaired by welding shall not be accepted for use in Item 606.
- Sec. 13 Random samples shall be tested by the Department from materials delivered to the project site, or other locations designated by the Laboratory.

ALTERNATE POSTS: Engineered guardrail posts having met NCHRP 350 criteria, and listed on the **Office of Materials Management's** Approved List are permitted as an equal alternate when installed according to the Manufacturer's instructions and within the limitations shown on the Approved List.

BLOCKOUTS: Blockout dimensions are dependent on post used. Wood Blockouts are to be pressure treated as specified in CMS 710.14. Bore bolt holes. Approved alternate blockouts may be used in lieu of the wood blockouts shown. The approved list is maintained by the **Office of Roadway Engineering**.

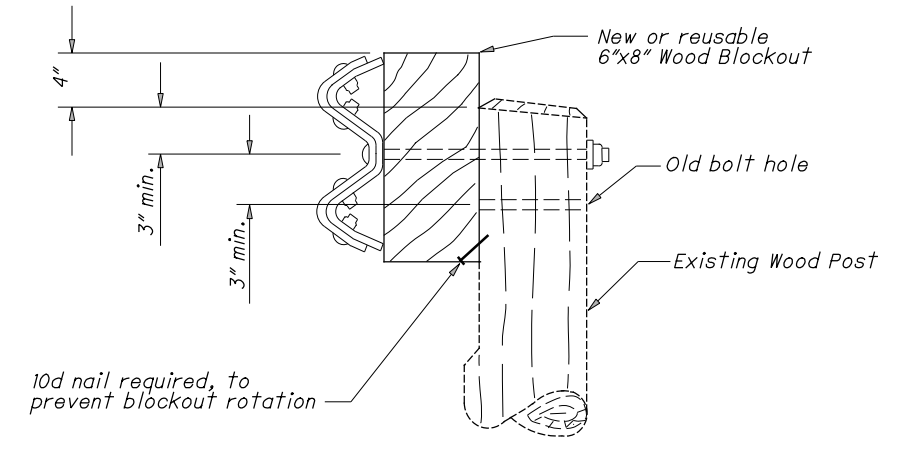
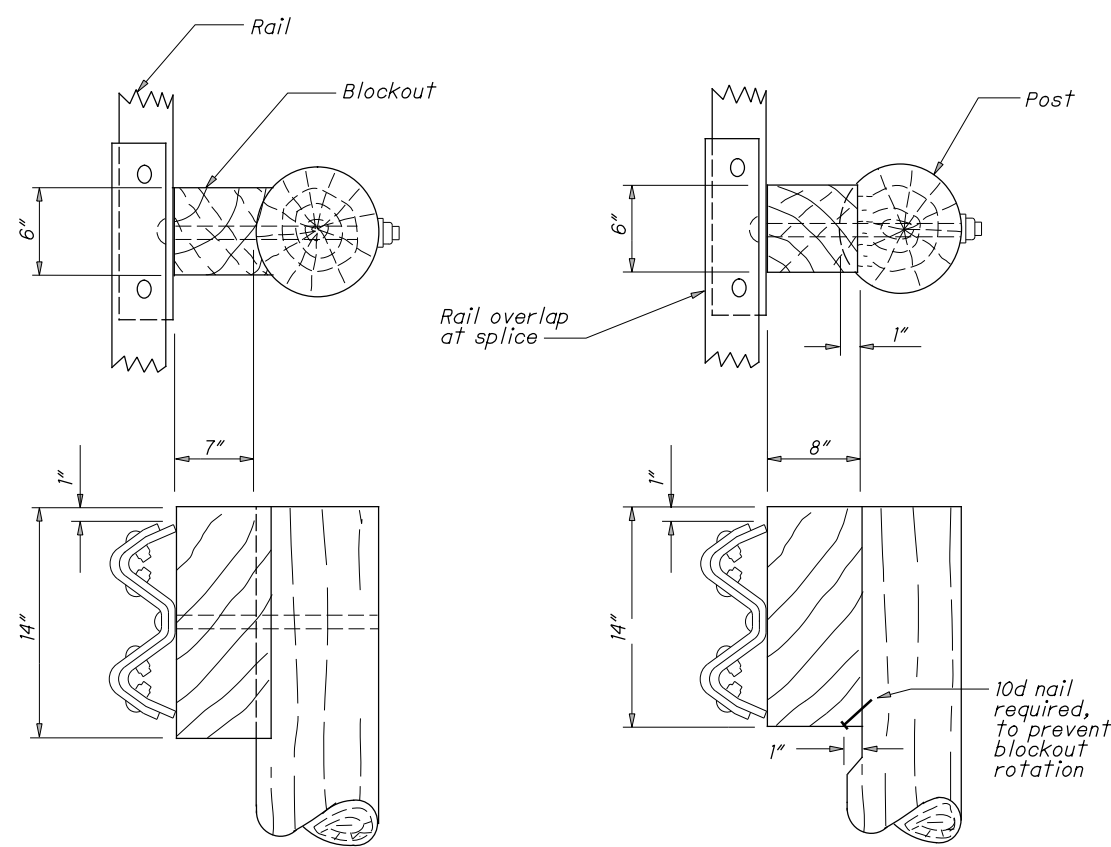
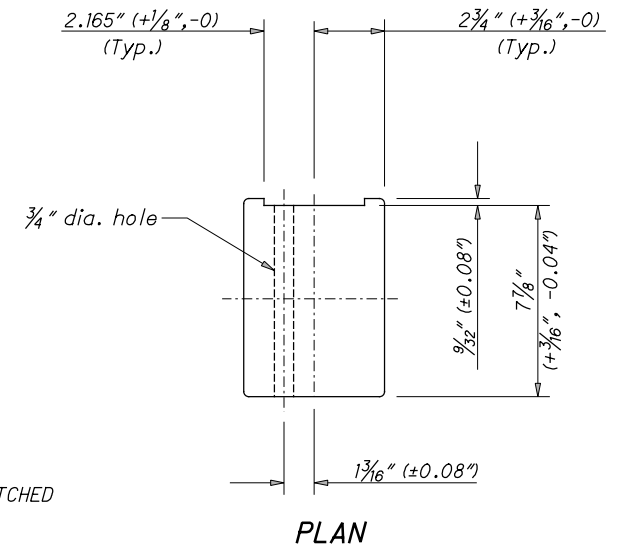
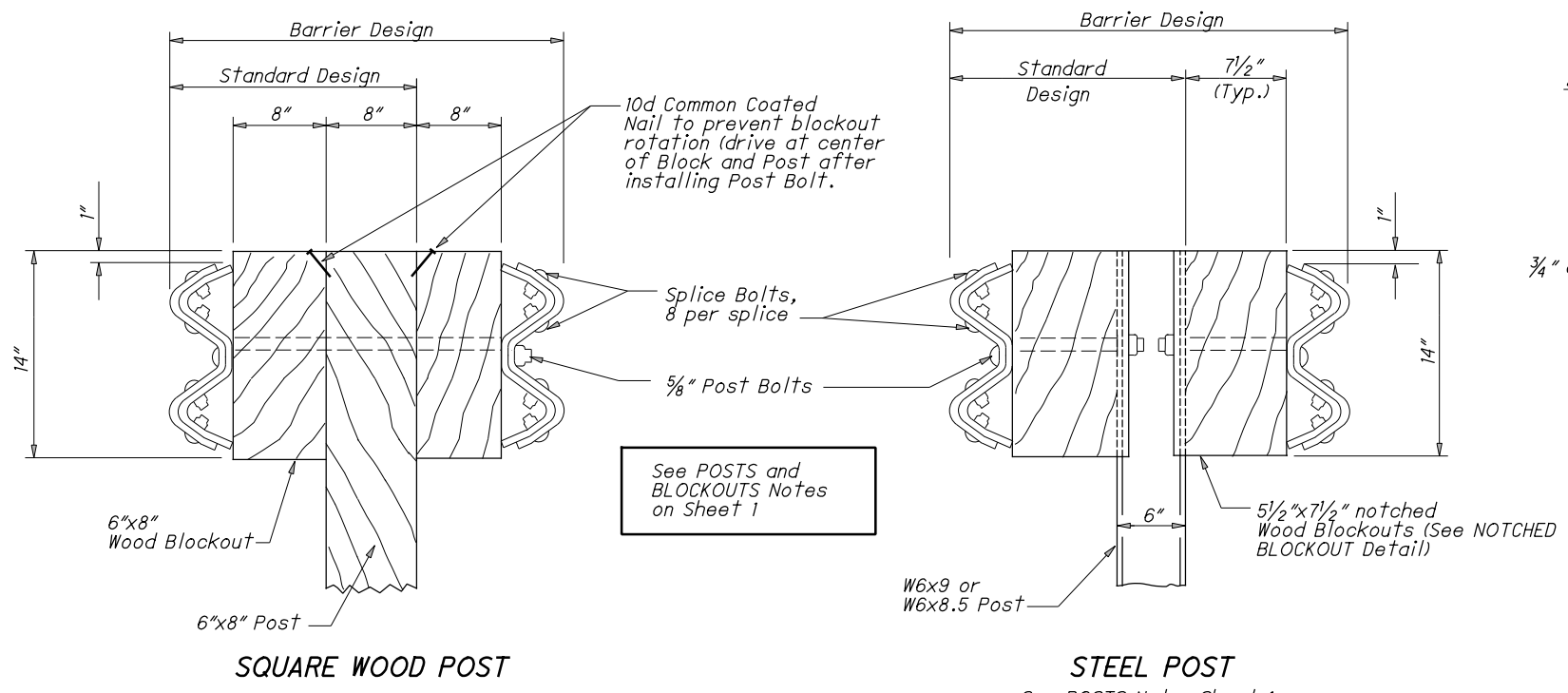
WASHERS: Install appropriate sized standard galvanized steel washers on the nut side of bolts installed on wood posts.

DELINEATION: For barrier reflectors, see CMS 626.

MISCELLANEOUS: For other guardrail details, see SCD GR-1.1.

STEEL BEAM POSTS (English)				
Size	Beam depth	Flange width	Flange thickness	Web thickness
Rolled W6x8.5	5.8"	3.94"	0.193"	0.170"
Rolled W6x9	5.9"	3.94"	0.215"	0.170"
Welded 6x8.5	6.0"	3.94"	0.193"	0.170"
Welded 6x9	6.0"	3.94"	0.215"	0.170"

DESIGNED	XXX
REVISION DATE	1/18/2013
CHECKED	XXX
REVIEWED	XXX
CHECKED	XXX



Method 1
Routed Blockout

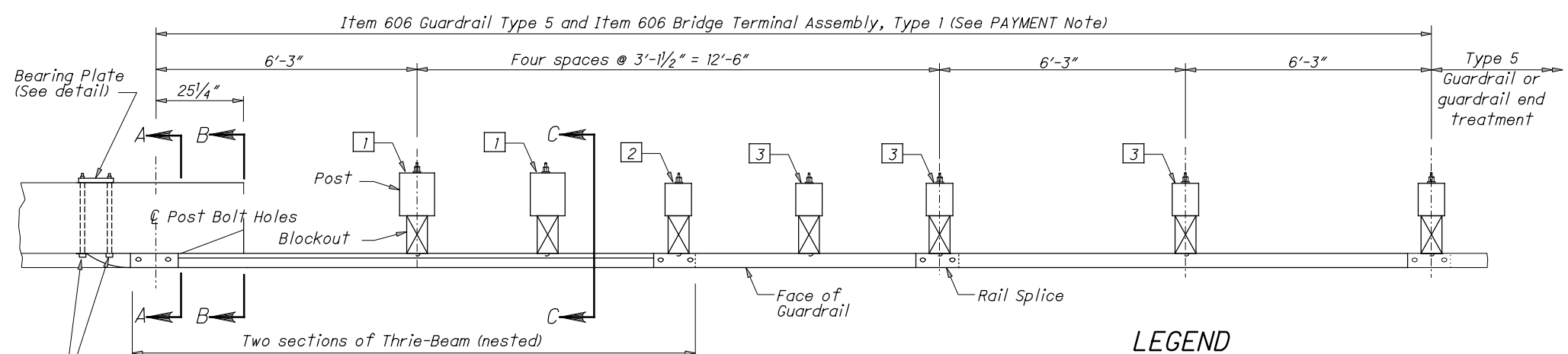
Method 2
Notched Post

WOOD POSTS WITH WOOD BLOCK
RAISING EXISTING GUARDRAIL HEIGHT

Alternate methods of placing the Blockouts on round Posts may be submitted for consideration and approved by the Engineer.

ROUND WOOD POSTS
Single Sided runs only (Standard Design)

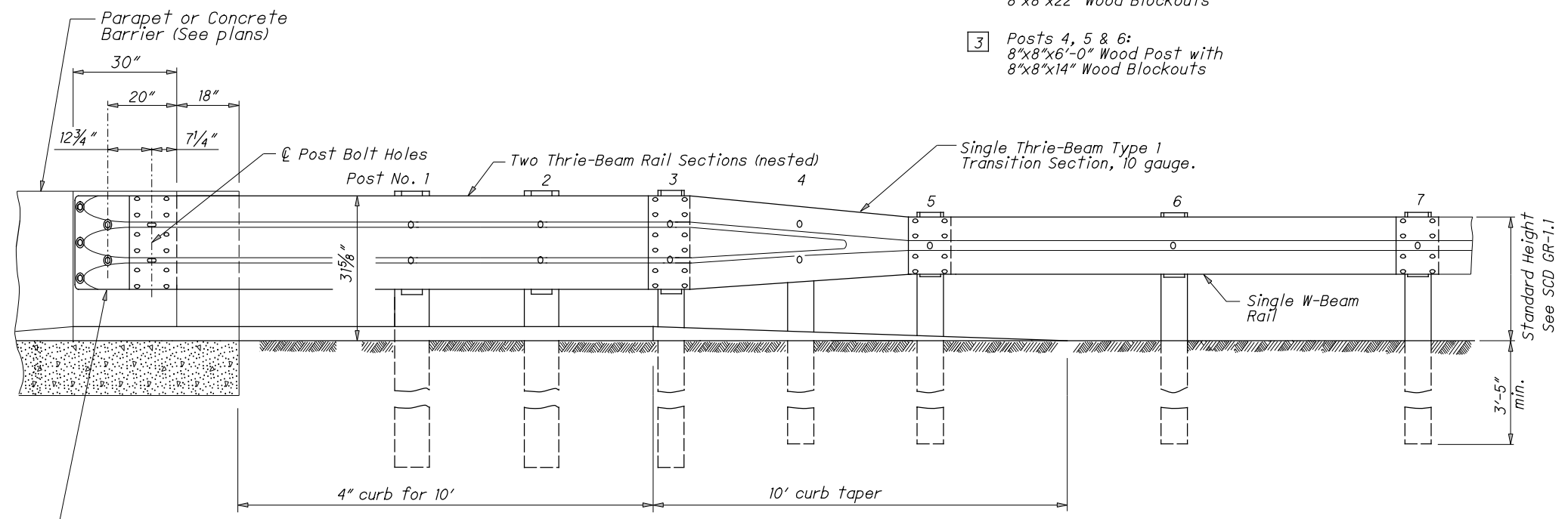
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PLAN

LEGEND

- 1 Posts 1 & 2:
10"x10"x8'-0" Wood Post with
8"x8"x22" Wood Blockouts
- 2 Post 3:
8"x8"x8'-0" Wood Post with
8"x8"x22" Wood Blockouts
- 3 Posts 4, 5 & 6:
8"x8"x6'-0" Wood Post with
8"x8"x14" Wood Blockouts



ELEVATION

NOTES

GENERAL: For additional details, see SCD GR-1.1.

APPLICATION: Use Type 1 Bridge Terminal Assembly to connect guardrail runs to bridges having deflector Parapet Type Bridge Railing (see **Structural Engineering's SCD BR-1**). It may also be used to connect guardrail runs to the approach ends of Concrete Barrier (see **SCD RM-4.6**).

On undivided, bi-directional roadways, Type 1's may be used to anchor guardrail runs to the trailing end of Deflector Parapets or Concrete Barrier installations.

THRIE BEAM TRANSITION: Symmetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Posts may be set in drilled holes or driven to grade. See SCD GR-1.1 for additional Post embedment details.

WOOD POSTS - Use square sawed pressure treated wood as per CMS 710.14 and fabricate with square ends. Bore bolt holes and trim the tops of posts, if required, after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W8x24 for 10"x10" wood posts and use W6x25 for 8"x8" posts. Use same post material throughout assembly.

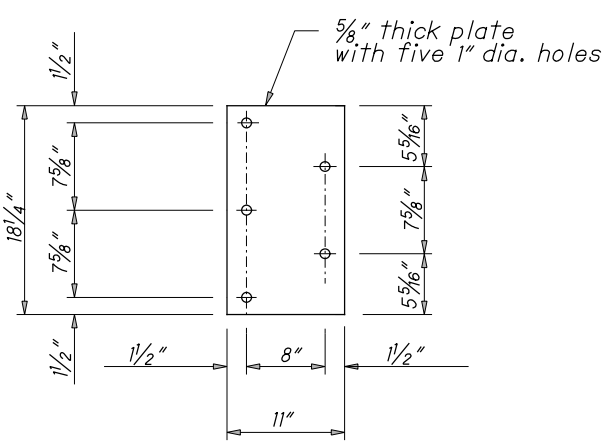
BLOCKOUTS: Use wood blockouts only, steel or plastic blockouts are not permitted. Use notched blockouts with steel posts.

CURB: Provide a Type 4A or 4C concrete curb minimum of 20', or longer as shown on plans, including a 10' taper (from curb height to flush). Front of curb to be flush with face of guardrail.

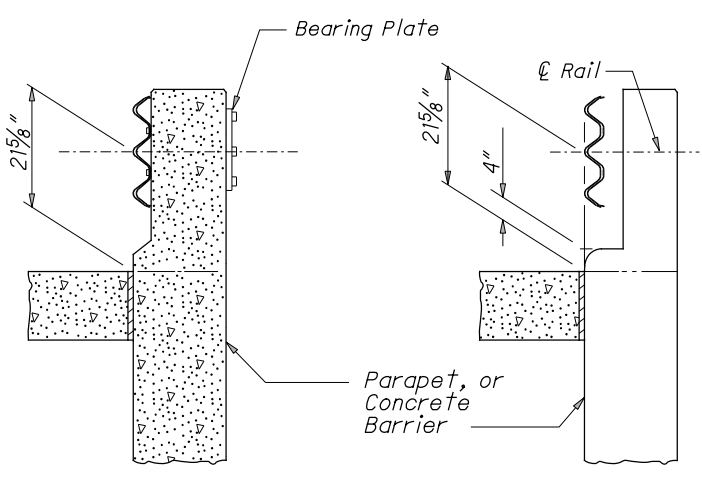
FLARED GUARDRAIL: Begin Standard Guardrail Flares as shown on SCD GR-5.1 preferably at or beyond Post No. 7; however, the flare may begin at Post No. 5.

PAYMENT: Item 606 - Bridge Terminal Assembly, Type 1, Each, includes the cost of extra components, in excess of normal guardrail, for additional and different size of posts and blockouts, nested Thrie-Beam, transition and connector sections, Bearing Plate, bolts, washers, nuts, and other hardware.

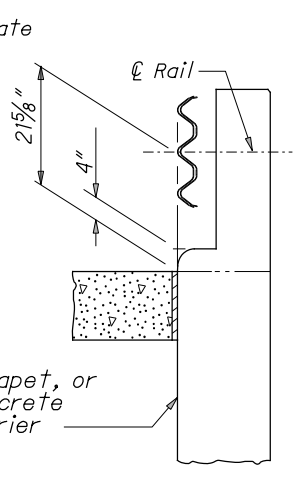
The curb is required in this design, and is paid separately under Item 609 - Curb, Type 4A (or 4C), per Foot, for the curb and taper sections, including materials, forming and labor needed to construct as shown.



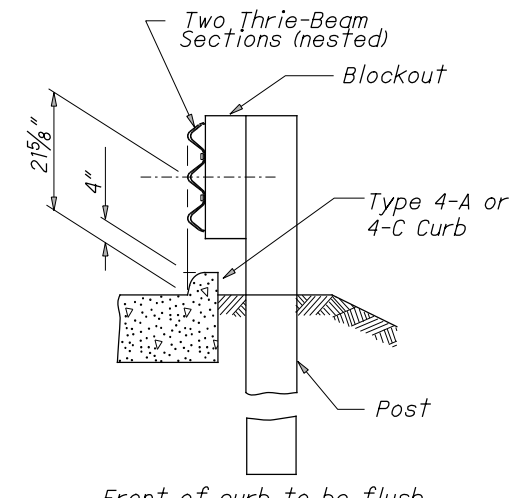
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SECTION A-A



SECTION B-B



SECTION C-C