

LYKENS TOWNSHIP
TEXAS TOWNSHIP
CRAWFORD COUNTY



NONE

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I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED: [Signature]
DATE 1/17/2016 DISTRICT DEPUTY DIRECTOR

APPROVED *[Signature]*
DATE *11-28-76* DIRECTOR, DEPARTMENT OF
TRANSPORTATION

FEDERAL PROJECT NO.

630836

FID NO.

94384

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT

WHEELING & LAKE ERIE

CRA-19-23.28
CRA-100-18.37

1
33

Contract Proposal Available @ www.Contracts.dot.state.oh.us/home

N:\projects\94384\roadway\sheets\94384CT001.dgn 11/7/2016 9:44:38 AM ksoley

CRA 19 23.28-25.28

CURRENT ADT (2017): 730
DESIGN YEAR ADT (2029): 850
DESIGN HOURLY VOLUME (2029): 80
DIRECTIONAL DISTRIBUTION: 51%
TRUCKS (24 HOUR B&C): 7%
DESIGN FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
NHS PROJECT: NO

CRA 19 25.28-28.28

CURRENT ADT (2017): 700
DESIGN YEAR ADT (2029): 720
DESIGN HOURLY VOLUME (2029): 70
DIRECTIONAL DISTRIBUTION: 52%
TRUCKS (24 HOUR B&C): 9%
DESIGN FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
NHS PROJECT: NO

CRA 100 18.37-22.18

CURRENT ADT (2017): 700
DESIGN YEAR ADT (2029): 830
DESIGN HOURLY VOLUME (2029): 70
DIRECTIONAL DISTRIBUTION: 55%
TRUCKS (24 HOUR B&C): 10%
DESIGN FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
NHS PROJECT: NO

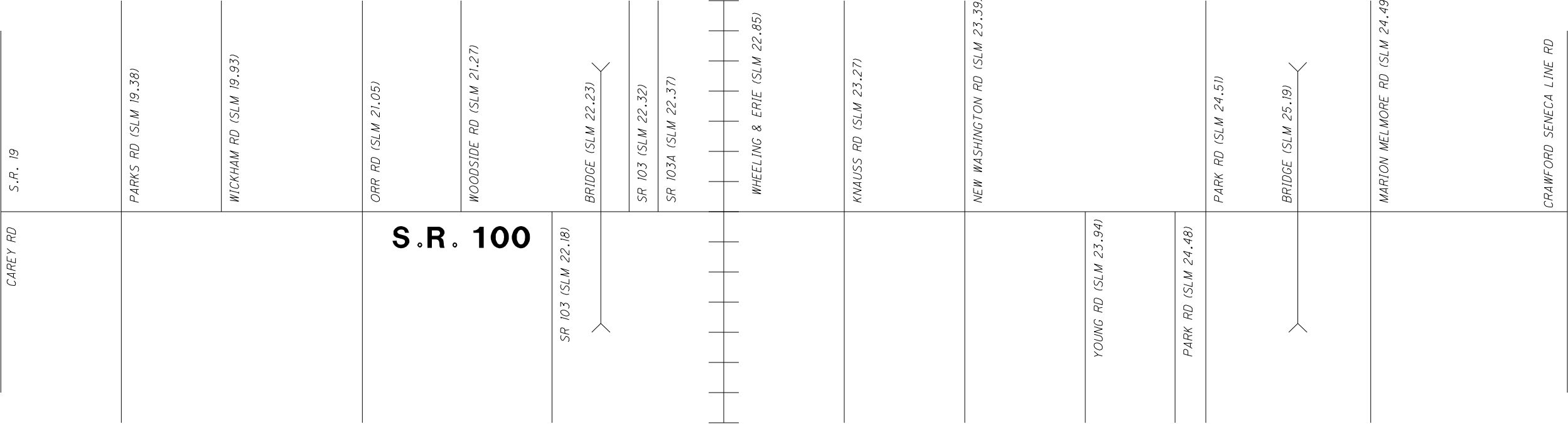
CRA 100 22.18-22.32

CURRENT ADT (2017): 890
DESIGN YEAR ADT (2029): 930
DESIGN HOURLY VOLUME (2029): 90
DIRECTIONAL DISTRIBUTION: 57%
TRUCKS (24 HOUR B&C): 12%
DESIGN FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
NHS PROJECT: NO

CRA 100 22.32-25.62

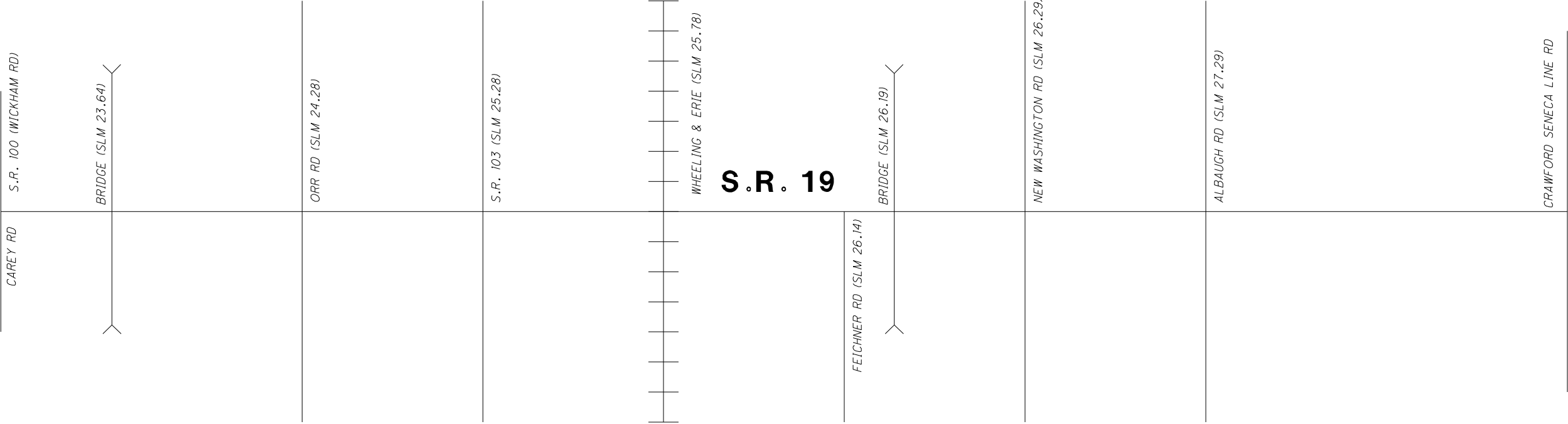
CURRENT ADT (2017): 630
DESIGN YEAR ADT (2029): 720
DESIGN HOURLY VOLUME (2029): 70
DIRECTIONAL DISTRIBUTION: 58%
TRUCKS (24 HOUR B&C): 11%
DESIGN FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
NHS PROJECT: NO

BEGIN PROJECT
SLM 18.37



SENECA COUNTY LINE
END PROJECT
SLM 25.62

BEGIN PROJECT
SLM 23.28



SENECA COUNTY LINE
END PROJECT
SLM 28.28

PAVING AT RAILROAD CROSSINGS

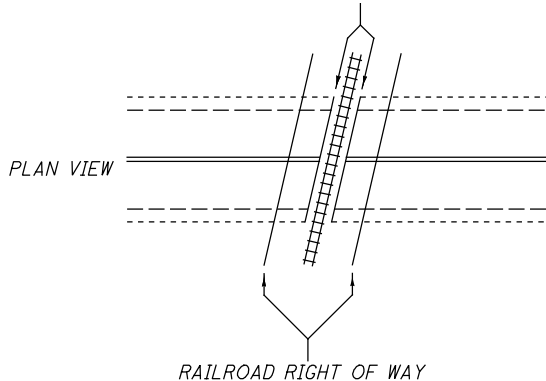
PRIOR TO ANY WORK AT RAILROAD CROSSINGS THE CONTRACTOR SHALL CONTACT THE AFFECTED RAILROAD AUTHORITY SO AS TO MAKE THEM AWARE OF THE PROGRESS AND SCHEDULE OF WORK. THE CONTRACTOR SHALL COOPERATE WITH THE RAILROAD SO AS TO ELIMINATE ANY SAFETY CONCERNS. FLAGGING WILL BE REQUIRED BY THE RAILROAD. ODOT WILL BE RESPONSIBLE FOR PAYING THE RAILROAD FOR ALL FLAGGING COSTS. REFER TO THE RAILROAD SPECIAL CLAUSES IN THE PROPOSAL.

THE CROWN SHALL BE WORKED OUT OF THE RESURFACED PAVEMENT ON EACH SIDE OF THE RAILROAD CROSSING, BEGINNING 50 FEET FROM THE NEAREST RAIL, BY RAISING THE EDGES OF THE RESURFACED PAVEMENT TO MEET THE PLATFORM ELEVATION.

SUSPEND AND RESUME RESURFACING AT THE EDGE OF THE EXISTING CROSSING SURFACE ON BOTH SIDES OF THE TRACK.

DETAIL - PAVING AT RAILROAD CROSSING

BUTT JOINT/BEGIN AND END RESURFACING



NOTE:

- 1.) DO NOT DISTURB RAILROAD GATES
- 2.) RE-INSTALL PAVEMENT MARKINGS
- 3.) RAILROAD MAY DIRECT ENGINEER ON THE LOCATION OF BUTT JOINTS. OTHERWISE OMIT AND RESUME RESURFACING AT AT THE EDGE OF THE EXISTING CROSSING SURFACE ON BOTH SIDES OF THE TRACK.

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.

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.

ITEM 623 - MONUMENT BOX ADJUSTED TO GRADE

ALL WORK RELATED TO ADJUSTING MONUMENT BOXES TO GRADE WILL BE IN ACCORDANCE TO SECTIONS 623.04 AND 623.05 OF THE 2016 ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE MONUMENT BOX TO BE ADJUSTED MAY OR MAY NOT HAVE AN EXISTING ADJUSTABLE FRAME. THE WORK SHALL CONSIST OF ADJUSTING THE EXISTING MONUMENT BOX TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR IS REMINDED TO FIELD CHECK ALL ADJUSTMENT TO GRADE ITEMS PRIOR TO BIDDING, AS NO ADDITIONAL COMPENSATION WILL BE GRANTED FOR LABOR AND MATERIALS REQUIRED TO SATISFACTORILY ADJUST CASTINGS WITHOUT ADJUSTABLE FRAMES.

LOCATIONS:

- CRA-19-25.95
- CRA-100-20.75
- CRA-100-20.80
- CRA-100-25.16
- CRA-100-25.24

UTILITIES

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

Frontier Communications
Randy Howard
6223 Norwalk Road
Medina, Ohio 44256
330-722-9586

North-Central Electric Co-op
Brad Warnement
13978 East C.R. 56
Attica, Ohio 44807
419-426-3072

American Electric Power
Kenneth Prince (Ken)
2552 Quaker Road
Bucyrus, Ohio 44820
419-563-1509

Sycamore Telephone Company
Steve Klusovsky
104 E. Seventh St.
Sycamore, Ohio 44882
419-927-6012

CenturyLink
Tim Bowser
175 Ashland Road
P.O. Box 3555
Mansfield, Ohio 44907
419-755-7956

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.

SAFETY EDGE

IN ADDITION TO THE REQUIREMENTS OF 401.12, ATTACH A DEVICE TO THE SCREED OF THE PAVER THAT CONFINES THE MATERIAL AT THE END GATE AND EXTRUDES THE ASPHALT MATERIAL IN SUCH A WAY THAT RESULTS IN A COMPACTED WEDGE SHAPE PAVEMENT EDGE OF APPROXIMATELY 30 DEGREES (NOT STEEPER THAN 40 DEGREES). ENSURE THE DEVICE MAINTAINS CONTACT WITH THE EXISTING SURFACE, AND ALLOW FOR AUTOMATIC TRANSITION TO CROSS ROADS, DRIVEWAYS AND OBSTRUCTIONS. DO NOT USE CONVENTIONAL SINGLE PLATE STRIKE OFF.

CONSTRUCTION OF SAFETY EDGE CAN BE OMITTED AT LOCATIONS WHERE EXISTING WIDTH OF GRADED SHOULDER OR BERM IS LESS THAN 12". PROJECTS WITH VARYING CONDITIONS SHOULD USE SAFETY EDGE WHERE POSSIBLE. PLAN PREPARATION HAS MADE EVERY REASONABLE ATTEMPT TO IDENTIFY POSSIBLE SAFETY EDGE LOCATIONS.

USE THE TRANSTECH SHOULDER WEDGE MAKER, THE CARLSON SAFETY EDGE END GATE, THE ADVANT-EDGER, THE TROXLER SAFETSLOPE OR A SIMILAR APPROVED-EQUAL DEVICE THAT PRODUCES THE SAME WEDGE CONSOLIDATION RESULTS. CONTACT INFORMATION FOR THESE WEDGE SHAPE COMPACTION DEVICES IS THE FOLLOWING:

TRANSTECH SYSTEMS, INC.
1594 STATE STREET
SCHENECTADY, NY 12304
1-800-724-6306
www.transstechsys.com

CARLSON SAFETY EDGE END GATE
18450 50TH AVENUE EAST
TACOMA, WA 98446
253-875-8000

ADVANT-EDGE PAVING EQUIPMENT LLC
P.O. BOX 9163
NISKAYUNA, NY 12309-0163
518-280-6090
www.advantedgepaving.com

TROXLER ELECTRONICS LABORATORIES INC.
3008 E. CORNWALLIS RD.
RESEARCH TRIANGLE PARK, NC 27709
1-877-TROXLER
www.troxlerlabs.com

IF ELECTING TO USE A SIMILAR DEVICE, PROVIDE PROOF THAT THE DEVICE HAS BEEN USED ON PREVIOUS PROJECTS WITH ACCEPTABLE RESULTS OR CONSTRUCT A TEST SECTION PRIOR TO THE BEGINNING OF WORK AND DEMONSTRATE WEDGE COMPACTION TO THE SATISFACTION OF THE ENGINEER. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS AND TURNOUTS OR OTHERWISE AUTHORIZED BY THE ENGINEER.

IN ADDITION TO THE REQUIREMENTS OF 401.16, MAKE THE FIRST ROLLER PASS 8 TO 12 INCHES AWAY FROM TAPERED EDGE. DO NOT ROLL THE TAPER.

ITEM 209 - PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN

PREPARE THE SHOULDER FOR PAVING A CONSISTENT SAFETY EDGE IN BOTH THICKNESS AND WIDTH.

PRIOR TO PAVING THE SAFETY EDGE, GRADE AN AREA 10 INCHES WIDE, BEGINNING AT THE EDGE OF THE PAVED ROADWAY, TO PROVIDE A LEVEL SURFACE FREE OF VEGETATION FOR CONSTRUCTION OF THE SAFETY EDGE. IF NECESSARY, EXCAVATE THE GRADED AREA TO THE DEPTH NECESSARY TO CONSTRUCT THE SAFETY EDGE. COMPACT THE GRADED SHOULDER ACCORDING TO 617.05 OR AS DIRECTED BY THE ENGINEER. THE GRADED SHOULDER BEYOND THE 10 INCH WIDE AREA FOR THE SAFETY EDGE SHALL BE GRADED AT A 10:1 SLOPE, OR AS DIRECTED BY THE ENGINEER. THE INTENT IS TO PROVIDE AN UNOBSTRUCTED AND POSITIVE FLOW OF STORM WATER FROM THE PAVEMENT TO THE DITCH.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR
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.

PAVEMENT REPAIR SHALL BE PERFORMED AFTER PAVEMENT PLANING AND BEFORE PLACEMENT OF THE INTERMEDIATE AND/OR SURFACE COURSE. THE DEPTH OF REMOVAL SHALL BE SUFFICIENT TO REMOVE ALL DETERIORATED PAVEMENT WITH A MAXIMUM DEPTH OF 10", BASED ON THE PAVEMENT DESIGN AND AN AVERAGE DEPTH OF 4" FOR ESTIMATING PURPOSES.

REPLACEMENT MATERIAL SHALL BE ITEM 301, OR ITEM 442 19MM, AS PER PLAN 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, AS PER PLAN CAN BE USED WHEN THE DEPTH OF THE REPAIR IS BETWEEN 1.5" AND 3". PG 64-22 ASPHALT BINDER SHALL BE USED FOR ALL OF THE ASPHALT CONCRETE MATERIALS FOR THESE REPAIRS.

FOR THE ITEM 442 19 MM, AS PER PLAN MATERIAL, REQUIREMENTS OF 442 APPLY EXCEPT AS FOLLOWS:
MIX DESIGN: FOR Ndes USE 50 GYRATIONS, FOR Nmax USE 75 GYRATIONS. USE A PG 64-22 BINDER.
MAXIMUM RECLAIMED ASPHALT CONCRETE PAVEMENT IS 30 PERCENT.
APPLY 703.05 FOR COARSE AND FINE AGGREGATE EXCEPT GRADATION FOR FINE AGGREGATE DOES NOT APPLY.
QUALITY CONTROL: DO NOT PERFORM Nmax IN QUALITY CONTROL TESTING. DO NOT TAKE EXTRA ASPHALT BINDER SAMPLES AS OUTLINED IN CMS 442.05.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE PAVEMENT REPAIR. FOR PAYMENT PURPOSES ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR IS TO BE A MAXIMUM OF 4" DEEP AND ITEM 253 PAVEMENT REPAIR IS FOR DEPTHS GREATER THAN 4". PAYMENT WILL BE MADE AT THE UNIT BID PRICE PER CUBIC YARD, (BY TICKET WEIGHT CONVERSION), OF ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR OR ITEM 253 - PAVEMENT REPAIR. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

FOR ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR, APPROXIMATELY 90% OF THE QUANTITY IS ESTIMATED FOR LONGITUDINAL REPAIRS, AND APPROXIMATELY 10% OF THE QUANTITY IS ESTIMATED FOR TRANSVERSE REPAIRS.

SR 19 ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE) (30I) 765 CY
SR 19 ITEM 253 - PAVEMENT REPAIR 25 CY

SR 100 ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (ASPHALT CONCRETE BASE) (30I) 1073 CY
SR 100 ITEM 253 - PAVEMENT REPAIR 75 CY

ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE

THE INTENT OF THE PLANING IS TO MILL 1.50 INCHES AT THE CENTER OF PAVEMENT AT NON-CURBED AREAS. 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.

THE PROGRESSION OF THE PLANING SHALL PROCEED IN SUCH A MANNER THAT NORMAL TRAFFIC WILL NOT BE REQUIRED TO RUN OVER THE PLANED ROADWAY SURFACE MORE THAN FOURTEEN (14) CALENDAR DAYS. FOR EACH CALENDAR DAY BEYOND THE 14 DAYS THAT THE ROADWAY REMAINS EXPOSED TO THE PLANED SURFACE, THE CONTRACTOR WILL BE ASSESSED A DISINCENTIVE FEE OF \$1000 PER DAY.

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 442 - ASPHALT CONCRETE SURFACE COURSE, 9.5 MM,
TYPE A (446), AS PER PLAN

ALL OPEN TRANSVERSE JOINTS SHALL BE TAPERED TO MEET EXISTING PAVEMENT BEFORE INTRODUCING TRAFFIC. A "BUMP" SIGN (W8-1-36) SHALL BE ERECTED ON EACH SIDE OF TRANSVERSE JOINTS LEFT OPEN OVER NIGHT, INCLUDING A SPEED ADVISORY SIGN. THESE SIGNS SHALL BE REMOVED IMMEDIATELY AFTER JOINT HAS BEEN CLOSED. PLACEMENT OF SIGNS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

CARE SHALL BE TAKEN TO MATCH EXISTING PAVEMENT ELEVATIONS AT EXISTING PAVED BERMS, DRIVES, INTERSECTIONS, ETC.

REQUIREMENTS OF 442 APPLY EXCEPT AS FOLLOWS:
MIX DESIGN: FOR Ndes USE 50 GYRATIONS, FOR Nmax USE 75 GYRATIONS.
MINIMUM TOTAL PG BINDER CONTENT IS 6.0 PERCENT.
MINIMUM VIRGIN PG BINDER CONTENT IS 5.0 PERCENT.
USE A PG 64-22 BINDER.
MAXIMUM RECLAIMED ASPHALT CONCRETE PAVEMENT IS 20 PERCENT.
WHEN AN AGGREGATE SOURCE IS SPECIALLY DESIGNATED WITH AN SR ON THE AGGREGATE GRAVITY LIST DO NOT USE THE AGGREGATE EXCEPT AS ALLOWED FOR MEDIUM TRAFFIC IN THE GUIDELINES FOR MAINTAINING ADEQUATE PAVEMENT FRICTION IN SURFACE PAVEMENT.
QUALITY CONTROL: DO NOT PERFORM Nmax IN QUALITY CONTROL TESTING. DO NOT TAKE EXTRA ASPHALT BINDER SAMPLES AS OUTLINED IN CMS 442.05.

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.

CONSTRUCTION NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE PROJECT ENGINEER A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE FOLLOWING: THE START OF CONSTRUCTION ACTIVITIES, LANE RESTRICTIONS, LANE CLOSURES, AND OR ROAD CLOSURES. THE PROJECT ENGINEER WILL FORWARD THIS INFORMATION TO THE FOLLOWING:

DISTRICT PUBLIC INFORMATION OFFICE (PIO) BY EMAIL AT D03.PIO@DOT.OHIO.GOV

DISTRICT PERMIT SECTION BY FAX AT (614) 887-4318 OR EMAIL AT LOUIS.TUMBLIN@DOT.OHIO.GOV

CENTRAL OFFICE SPECIAL HAUL PERMITS SECTION BY FAX AT (614) 728-4099 OR EMAIL AT HAULING.PERMITS@DOT.OHIO.GOV

THE PIO WILL, IN TURN, NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF ANY OF THE ABOVE MENTIONED ITEMS, VIA MEDIA SOURCES.

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO CONSTRUCT A TEMPORARY ASPHALT WEDGE FROM THE EXISTING PAVEMENT TO THE PLANED SURFACE AT BUTT JOINTS AND OTHER LOCATIONS THAT RESULT IN A DROP-OFF. THIS QUANTITY SHALL ALSO BE USED AT PLANED SURFACES WHERE A TEMPORARY ASPHALT WEDGE IS NEEDED AROUND CASTINGS. BEFORE RESURFACING OF THE PAVEMENT, THE TEMPORARY WEDGE SHALL BE REMOVED AND THE COST SHALL BE CONSIDERED INCIDENTAL TO ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC.

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 10 CU YD

ITEM 614 - WORK ZONE MARKING SIGN

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR TEMPORARY WORK ZONE MARKING SIGNS PER THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS, 614.04.

SR 19
WORK ZONE MARKING SIGN: (W8-H12A-36) NO EDGE LINE = 15 EACH
WORK ZONE MARKING SIGN: (R4-1-24) DO NOT PASS = 10 EACH
WORK ZONE MARKING SIGN: (R4-2-24) PASS WITH CARE = 10 EACH

SR 100
WORK ZONE MARKING SIGN: (W8-H12A-36) NO EDGE LINE = 14 EACH
WORK ZONE MARKING SIGN: (R4-1-24) DO NOT PASS = 27 EACH
WORK ZONE MARKING SIGN: (R4-2-24) PASS WITH CARE = 18 EACH

TOTAL = 94 EACH

PLACEMENT OF ASPHALT CONCRETE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

INTERSECTIONS AND DRIVES

RURAL-INTERSECTIONS SHALL BE PLANED AND PAVED TO THE END OF THE RADII OR AS DIRECTED BY THE ENGINEER. (TO PROVIDE A SMOOTH TRANSITION BETWEEN THE TWO HIGHWAYS, AND TO ELIMINATE WATER POCKETS).

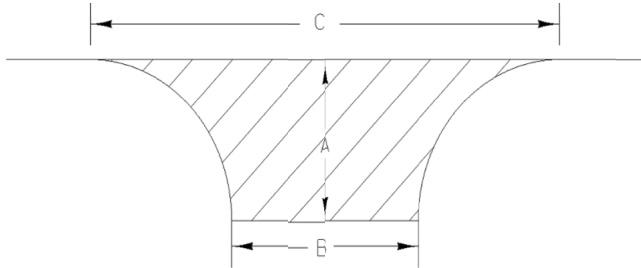
URBAN-INTERSECTIONS SHALL BE PLANED AND PAVED TO THE BACK OF CROSSWALKS OR AS DIRECTED BY THE ENGINEER. (TO PROVIDE A SMOOTH TRANSITION BETWEEN THE TWO HIGHWAYS, AND TO ELIMINATE WATER POCKETS).

EXISTING PAVED DRIVES SHALL BE PAVED SO AS TO PROVIDE A SMOOTH TRANSITION BETWEEN THE HIGHWAY AND THE DRIVE, (DISTANCE FROM EDGE OF ROADWAY MAY VARY AT EACH DRIVE) AS DIRECTED BY THE ENGINEER.

EXISTING AGGREGATE DRIVES SHALL BE PAVED WITH AN APRON AN AVERAGE WIDTH OF 4 FT. THE SLOPE OF THIS APRON SHALL BE THE SAME AS THE ADJACENT PAVEMENT SLOPE OR AS DIRECTED BY THE ENGINEER. ANY GRADING NEEDED TO PAVE THE APRON SHALL BE INCLUDED IN THE RELATED ASPHALT ITEM FOR PAYMENT. ITEM 617 COMPACTED AGGREGATE SHALL BE PLACED ADJACENT TO THIS APRON TO PROVIDE A SMOOTH TRANSITION FROM THE APRON TO THE EXISTING DRIVE, (WIDTH OF THIS 617 APPLICATION MAY VARY) AS DIRECTED BY THE ENGINEER. AN ADDITIONAL QUANTITY OF ITEM 617 HAS BEEN ESTIMATED TO COMPLETE THIS WORK AND IS SHOWN AS AN EXTRA AREA ON THE PAVEMENT & SHOULDER DATA SHEET.

ANY HAZARD OR UNSAFE CONDITION RESULTING FROM THE ABOVE WORK MUST BE CORRECTED IMMEDIATELY. THE CONTRACTOR IS REMINDED OF SECTIONS 105.01, 107.07 & 614.02A OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE PAVING DIMENSIONS FOR THE INTERSECTIONS ARE SHOWN IN THE CHART BELOW.



SR 19

Intersection Name	A (ft.)	B (ft.)	C (ft.)	Area (sy)
CAREY RD	30	24	58	118
ORR RD	22	12	50	60
ORR RD	22	14	44	59
SR 103	26	24	70	114
SR 103	20	24	60	80
FEICHNER RD	24	14	45	65
NEW WASHINGTON RD	34	24	72	151
NEW WASHINGTON RD	22	24	45	76
ALBAUGH RD	16	14	40	40
ALBAUGH RD	20	14	40	50
CRAWFORD SENECA CO. LINE RD	30	32	56	133
CRAWFORD SENECA CO. LINE RD	26	22	60	100
Total Intersection Areas				1046

SR 100

Intersection Name	A (ft.)	B (ft.)	C (ft.)	Area (sy)
SR 100	25	21	77	110
PARKS RD	24	26	48	89
PARKS RD	17	20	50	57
WICKHAM RD	12	110	120	151
ORR RD	4	55	55	24
ORR RD	48	40	55	240
WOODSIDE RD	14	30	40	52
SR 103 (E.)	8	120	127	109
KNAUSS RD	52	15	70	193
KNAUSS RD	40	12	52	113
NEW WASHINGTON RD	4	60	66	28
NEW WASHINGTON RD	16	24	60	64
YOUNG RD	22	16	58	73
PARK RD	20	16	42	55
PARK RD	24	16	40	64
PARK RD	30	16	46	87
MARION MELMORE RD	4	166	176	75
CRAWFORD SENECA CO. LINE RD	14	30	50	57
CRAWFORD SENECA CO. LINE RD	10	44	75	60
Total Intersection Areas				1701

446 DENSITY ACCEPTANCE WITH FLAGGER CLOSING OF A 2-LANE HIGHWAY FOR PAVING OPERATIONS

THIS PLAN NOTE APPLIES ONLY TO A FLAGGER CLOSURE OF ONE LANE OF A 2-LANE HIGHWAY DURING PAVING OPERATIONS WHEN USING STANDARD CONSTRUCTION DRAWING MT-97.11 OR MT-97.12, AND ALLOWS A PAVING OPERATION TO PROCEED CONCURRENTLY WITH THE MARKING AND CUTTING OF CORES REQUIRED FOR 446 DENSITY ACCEPTANCE.

IN ALL CASES THE CONTRACTOR SHOULD LENGTHEN THEIR LANE CLOSURES TO THE MAXIMUM PERMISSIBLE LENGTH DETAILED IN THE ABOVE REFERENCED STANDARD CONSTRUCTION DRAWINGS TO ALLOW THE ENGINEER ADEQUATE TIME TO MARK THE REQUIRED CORE LOCATIONS AND FOR CORE CUTTING OPERATIONS.

THE CONTRACTOR WILL PROVIDE TO THE ENGINEER THE PLANNED QUANTITY THAT WILL BE PLACED FOR THE DAY'S PRODUCTION. EACH DAY'S PRODUCTION WILL BE CONSIDERED ONE LOT AND INCLUDES SHOULDERS. TEN CORES WILL BE OBTAINED BY THE CONTRACTOR FOR EACH LOT AT RANDOM LOCATIONS DETERMINED BY THE ENGINEER. THE ENGINEER WILL DIVIDE A LOT INTO FIVE EQUAL SUBLOTS AND CALCULATE TWO RANDOM CORE LOCATIONS IN EACH SUBLOT AS DESCRIBED IN C&MS 446.05.

THE ENGINEER WILL MARK THE CORE LOCATIONS AFTER THE PAVING OPERATION (INCLUDING THE FINISH ROLLER) HAS COMPLETELY PASSED THE RANDOMLY SELECTED CORE LOCATION. THE CONTRACTOR SHOULD DETERMINE WHEN IT IS APPROPRIATE TO START THE CORE DRILL OPERATION AND BEGIN CUTTING CORES WHEN THE NEWLY PLACED PAVEMENT SURFACE TEMPERATURE IS LESS THAN 140°F. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LANE CLOSURE DURING ALL PAVING, CORE MARKING, AND CORING OPERATIONS PER THE REQUIREMENTS OF THE STANDARD CONSTRUCTION DRAWING USED FOR THE PAVING OPERATION.

ITEM 614 - MAINTAINING TRAFFIC

DETOUR LIMITATION:
TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED FOURTEEN (14) CONSECUTIVE CALENDAR DAYS. THROUGH TRAFFIC WILL BE DETOURED AS SHOWN ON THIS SHEET.

THE CONTRACTOR SHALL NOTIFY THE ODOT DISTRICT THREE ROADWAY SERVICES MANAGER, IN WRITING, A MINIMUM OF FOURTEEN (14) DAYS IN ADVANCE OF THE DATE THE DETOUR IS NEEDED. THE CONTRACTOR WILL INSTALL, MAINTAIN, AND SUBSEQUENTLY REMOVE THE DETOUR SIGNING.

THE CONTRACTOR SHALL ALSO NOTIFY, IN WRITING, THE FOLLOWING AGENCIES AT LEAST FOURTEEN (14) DAYS PRIOR TO THE TIME WHEN THE S.R. 19 DETOUR WILL BE IMPLEMENTED:

CRAWFORD COUNTY ENGINEERS
TOWNSHIP TRUSTEES (TWP. ROADS ONLY)
LOCAL POLICE, FIRE, AND AMBULANCE DEPARTMENT(S)
LOCAL SCHOOL DISTRICT(S)
CRAWFORD COUNTY SHERIFF'S OFFICES

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

INTERIM COMPLETION DATE:
THE FOURTEEN (14) CONSECUTIVE CALENDAR DAYS SHALL BE CONSIDERED AN INTERIM COMPLETION DATE, AND FOR EACH CALENDAR DAY BEYOND THE FOURTEEN (14) CONSECUTIVE CALENDAR DAYS THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF \$1000 PER DAY.

ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES, AS PER SECTION 614.02 (A).

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.

PROJECT DETOUR LIMITATIONS

THE ROADWAY SHALL NOT BE CLOSED TO TRAFFIC FOR THE REMOVAL OR MODIFICATION OF THE EXISTING STRUCTURE OR CONDUIT UNTIL PRECAST STRUCTURE MATERIAL (EG.: CONDUIT, HEADWALLS, ETC.) NECESSARY TO PLACE THE ROADWAY BACK INTO SERVICE HAVE BEEN TESTED, APPROVED AND ARE READY FOR DELIVERY TO THE PROJECT SITE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN ACCORDANCE WITH CMS 108.07.

DETOUR SIGNING

THE FOLLOWING QUANTITY IS INCLUDED FOR THE CONTRACTOR TO PROVIDE THE DETOUR SIGNING AS SHOWN AS PER 614.06 (B):

ITEM 614, DETOUR SIGNING - LUMP

MAINTENANCE OF LOCAL DETOUR ROUTE

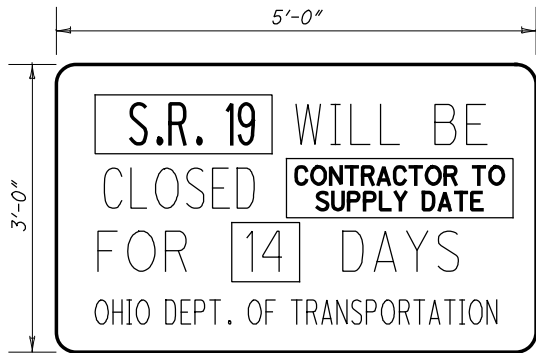
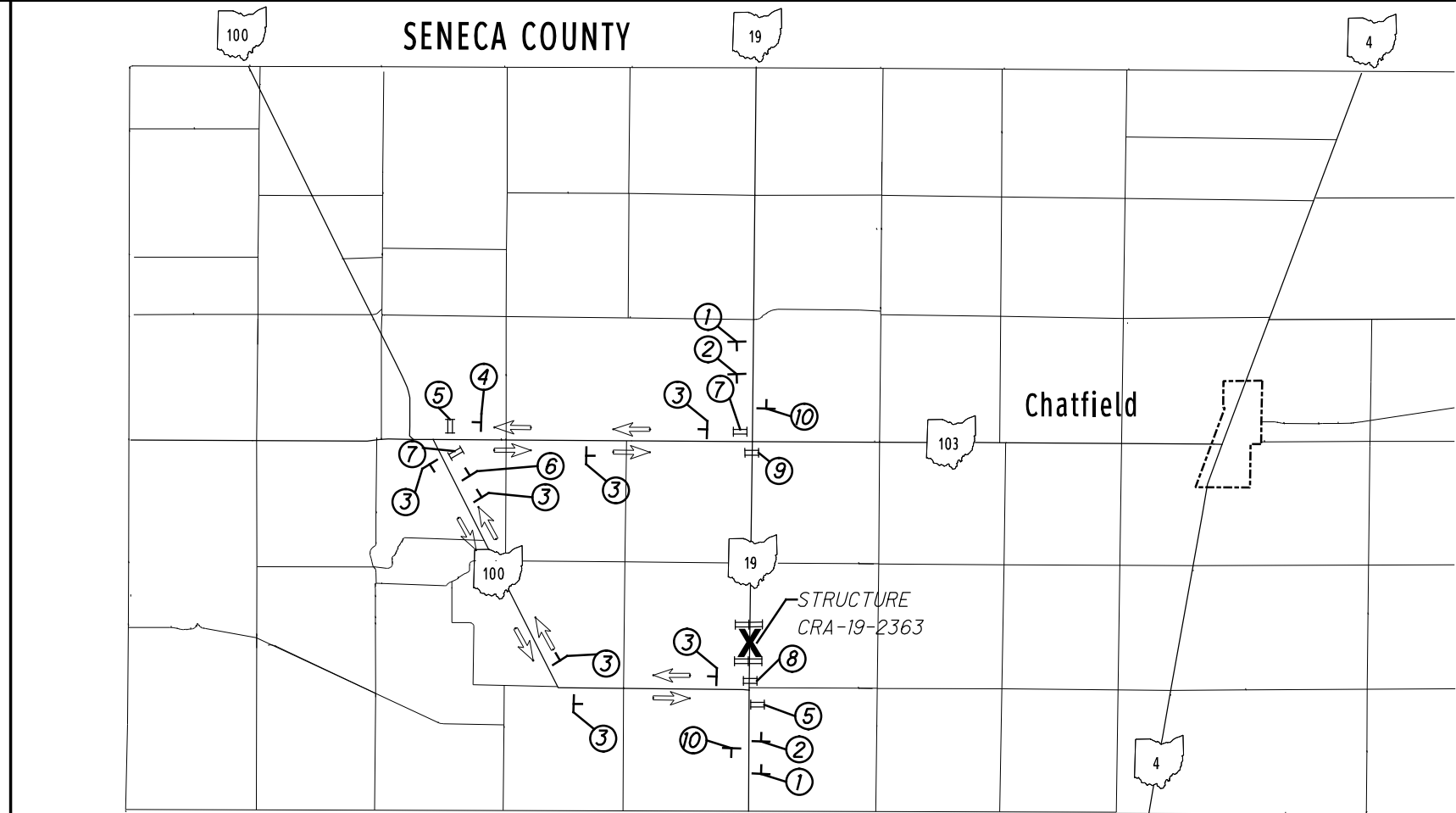
A LOCAL DETOUR ROUTE, OTHER THAN THE OFFICIAL SIGNED ODOT DETOUR ROUTE, WILL BE SELECTED BY AGREEMENT BETWEEN ODOT AND LOCAL GOVERNMENTAL AGENCIES PRIOR TO THE HIGHWAY CLOSURE.

DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DIRECTED BY THE ENGINEER. THE DESIGNATED LOCAL DETOUR ROUTE IS TO BE REVIEWED AND REPAIRED PRIOR TO THE ASPHALT CONTRACTOR OR SUBCONTRACTOR LEAVING THE PROJECT.

PAYMENT FOR THE WORK NECESSARY TO REPAIR THESE LOCAL ROADS WILL BE PERFORMED BY EITHER FORCE ACCOUNT OR CHANGE ORDER.

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 PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. 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 IT SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS AND SUPPORTS.

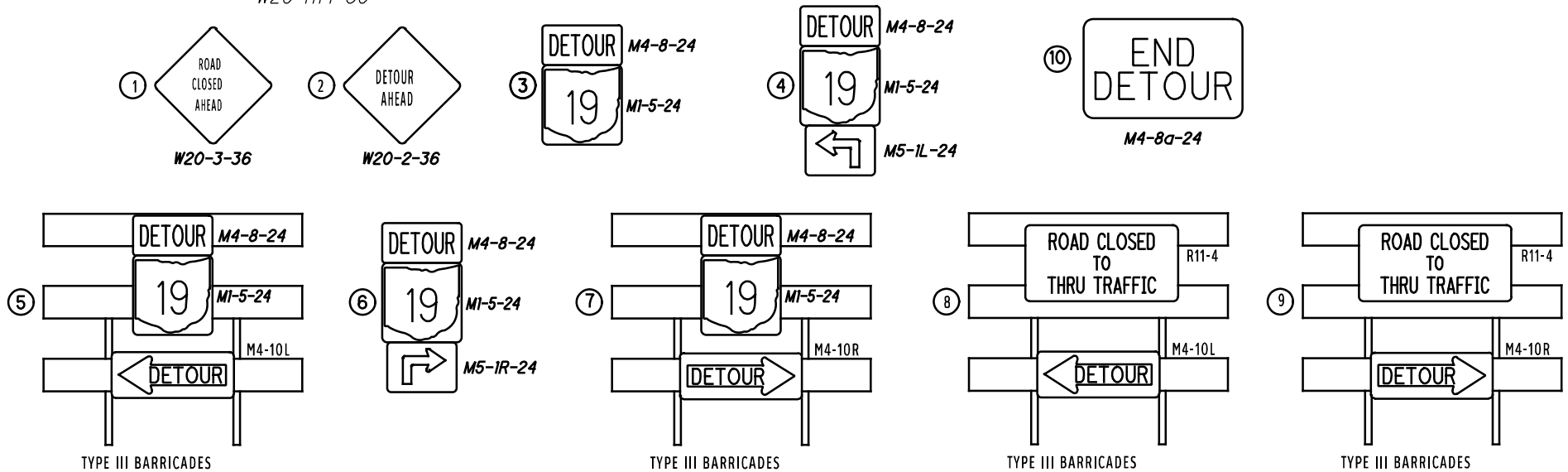


W20-H14-60

MAP LEGEND

- X - PROJECT LOCATION
- ← → - OFFICIAL STATE SIGNED DETOUR
- || - GATES AND BARRICADES, AS PER MT-101.60

SIGN LEGEND



ITEM SPECIAL, MAILBOX SUPPORT SYSTEM

THIS ITEM OF WORK SHALL CONSIST OF THE REMOVAL OF EXISTING NON-STANDARD MAILBOX SUPPORTS AND FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED HARDWARE IN ACCORDANCE WITH THE DETAILS SHOWN, AND ATTACHING AN OWNER SUPPLIED MAILBOX, AT LOCATIONS DETERMINED BY THE ENGINEER.

IN ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE BOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION. SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO MAILBOXES MAY BE MOUNTED ON A SINGLE POST. [HARDWARE SHALL BE COMMERCIAL GRADE GALVANIZED STEEL.]

WOOD POSTS SHALL BE NOMINAL 4 IN. x 4 IN. (S4S) OR 4 1/2 IN. DIAMETER ROUND, AND CONFORM TO 710.14. STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 IN. I.D., AND CONFORM TO AASHTO M 181.

POSTS SHALL BE SET AS PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK WITH THE LOCAL POST MASTER AND NOTIFYING THE PROPERTY OWNERS PRIOR TO WORK.

GROUP MAILBOX SUPPORTS SHALL BE PLACED ON 3 FT. CENTERS AND THE TURNOUT LENGTHENED TO ACCOMMODATE THE GROUPING.

WHERE GUARDRAIL EXISTS, MAILBOXES AND THEIR SUPPORTS SHALL BE PLACED BEHIND THE GUARDRAIL. SUPPORTS MUST STILL MEET THE BREAKAWAY REQUIREMENTS LISTED ABOVE.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DESCRIBED ABOVE.

ITEM SPECIAL-MAILBOX SUPPORT SYSTEM, SINGLE	
S.R. 19	1 EACH
S.R. 100	1 EACH

ITEM SPECIAL-MAILBOX SUPPORT SYSTEM, DOUBLE	
S.R. 100	1 EACH

MAILBOX APPROACHES

THE MAILBOX APPROACHES SHALL BE PAVED WITH 1.50" ITEM 442 SURFACE COURSE. THEY SHALL CONFORM AS MUCH AS PRACTICAL TO STANDARD DRAWING BP-4.1 OR AS DIRECTED BY THE ENGINEER.

GRADING SHALL BE PERFORMED IN THESE AREAS TO OBTAIN A BASE WHICH WILL ALLOW THE FINISHED GRADE TO BE FLUSH WITH ADJACENT PAVEMENT. A QUANTITY OF ITEM 617 COMPACTED AGGREGATE HAS BEEN PROVIDED FOR AREAS WHERE THE SHOULDER IS LOW PRIOR TO GRADING AND/OR LOW AREAS CAUSED BY THE REMOVAL OF UNSUITABLE MATERIAL. QUANTITIES TO PERFORM THIS WORK HAVE BEEN INCLUDED IN THE GENERAL SUMMARY AND ARE ESTIMATED AS FOLLOWS.

ITEM 209 - GRADING MAILBOX APPROACHES:	
S.R. 19	15 EACH
S.R. 100	27 EACH

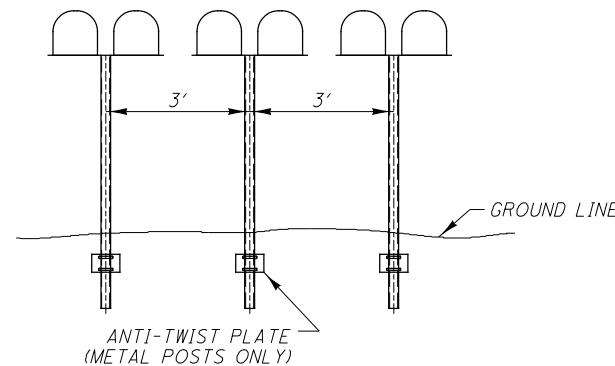
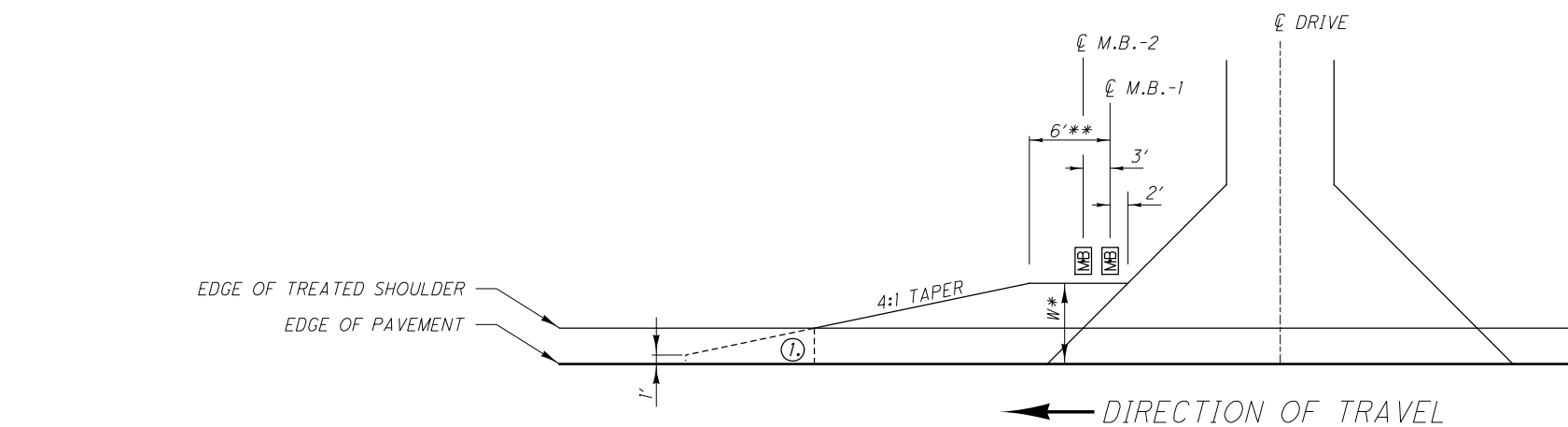
ITEM 617 - COMPACTED AGGREGATE	
S.R. 19	30 CU YD
S.R. 100	54 CU YD

LOCATIONS OF MAILBOX SUPPORT SYSTEM TO BE REPLACED

ADDRESSES AND/OR LOCATIONS OF MAILBOX SUPPORT SYSTEM TO BE REPLACED:

6037	SR 19	23.37
6161	SR 100	20.37
6264	SR 100	20.66

FOR DETAILS NOT SHOWN SEE STANDARD DRAWING BP-4.1



GROUP MAILBOX INSTALLATION

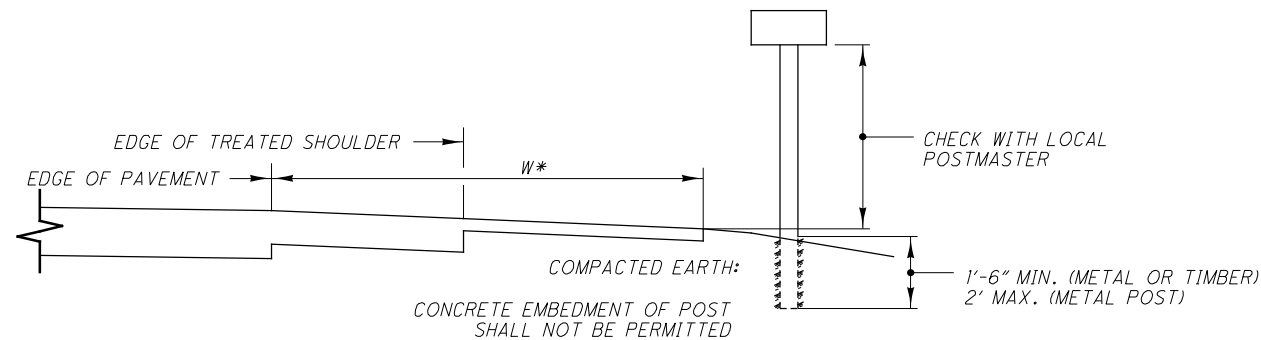
① END MAILBOX TURNOUT AT EDGE OF ASPHALT CONCRETE SHOULDER OR 1' FROM EDGE OF PAVEMENT IF TREATED SHOULDER IS AGGREGATE.

W* NOTES

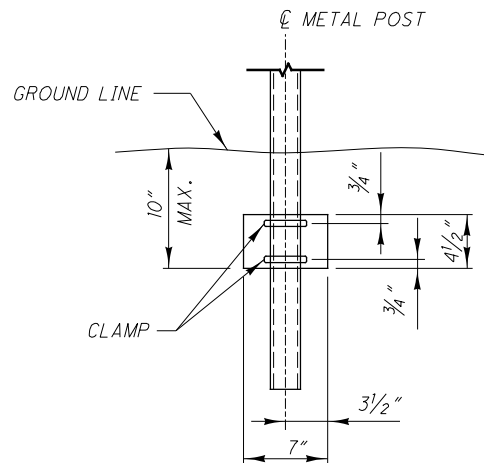
- 1) WHERE EXISTING STANDARD MAILBOX POSTS ARE BEHIND GUARDRAIL AND ARE TO REMAIN IN PLACE, TURNOUT WIDTH SHALL EXTEND TO FACE OF GUARDRAIL.
- 2) WHERE NO GUARDRAIL IS REQUIRED, TURNOUT WIDTH SHALL BE 6 FT MAXIMUM OR TO FACE OF EXISTING STANDARD MAILBOX IF IT IS LESS THAN 6 FT.
- 3) IF THE MAILBOX SUPPORT IS SPECIFIED TO BE REMOVED AND REERECTED OR REPLACED, WHERE GUARDRAIL IS REQUIRED, TURNOUT WIDTH SHALL EXTEND TO FACE OF GUARDRAIL AND MAILBOX SHALL BE INSTALLED BEHIND THE GUARDRAIL.
- 4) IF THE MAILBOX SUPPORT IS SPECIFIED TO BE REMOVED AND REERECTED OR REPLACED, WHERE NO GUARDRAIL IS REQUIRED, TURNOUT WIDTH SHALL BE 6 FT. MAXIMUM.

** NOTE

- 1) 6 FT FOR ONE MAILBOX SUPPORT, ADD 3 FT. FOR EACH ADDITIONAL MAILBOX SUPPORT.

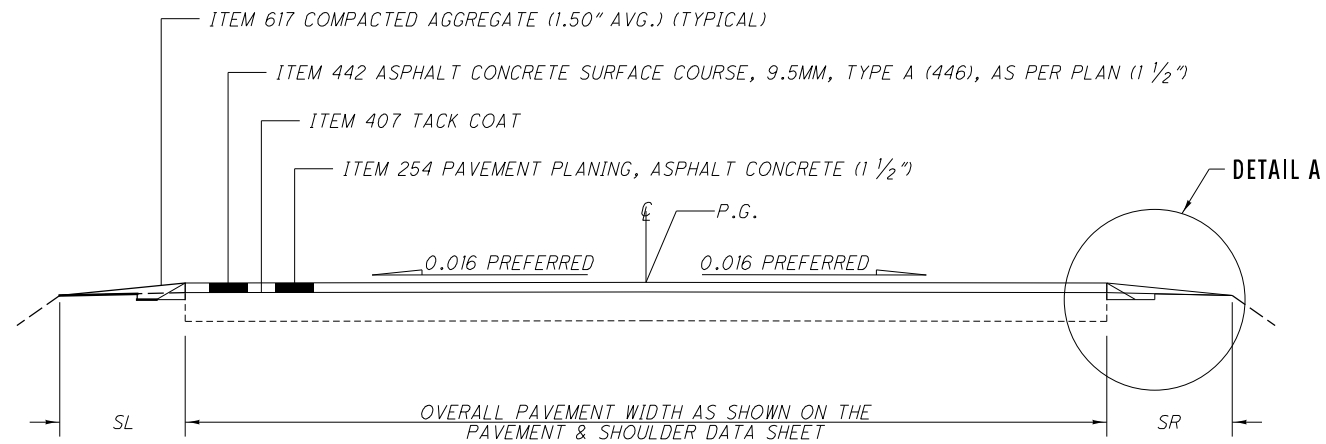


CROSS SECTION / ELEVATION VIEW



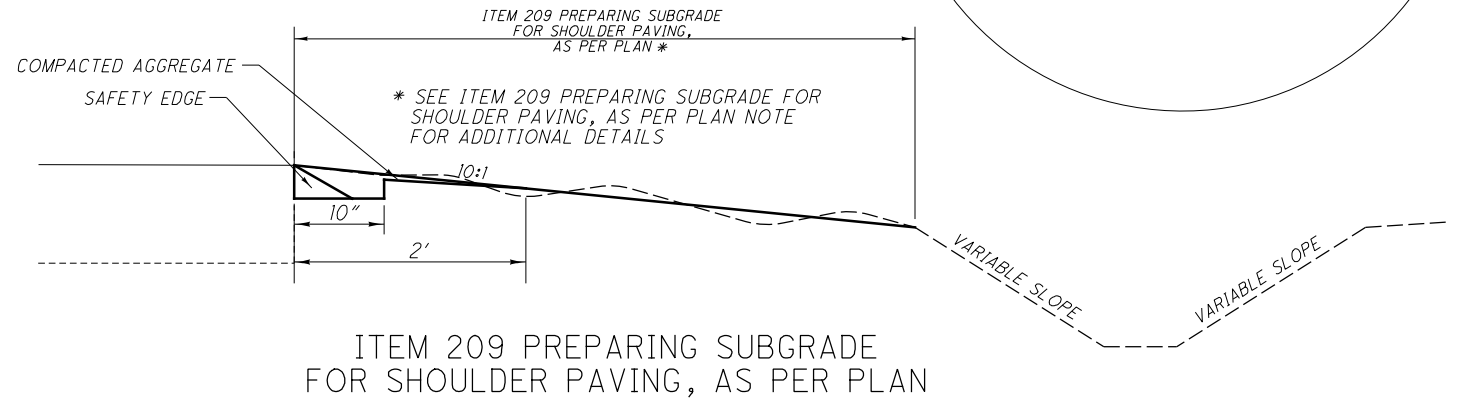
ANTI-TWIST PLATE





TYPICAL 1

SECTIONS:
CRA-19-23.28 TO 28.28
CRA-100-18.37 TO 25.62

[illegible]

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.

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.

SUGGESTED SEQUENCE OF GUARDRAIL WORK

1. GUARDRAIL WORK IS TO BEGIN AFTER THE SAFETY EDGE CONSTRUCTION IS COMPLETED AND THE 617 MATERIAL IS PLACED.
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 SHALLBE 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

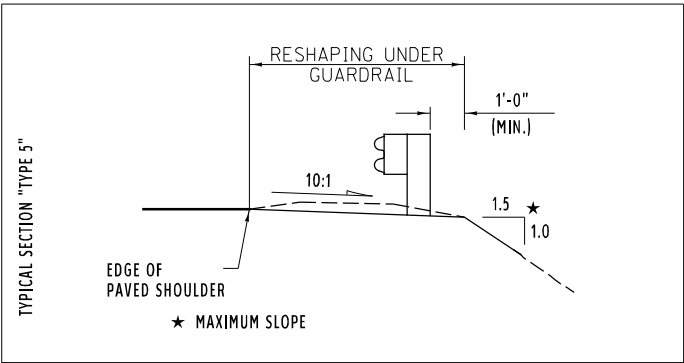
THIS ITEM SHALL BE USED AT LOCATIONS INDICATED IN THE PLANS.

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 - 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.

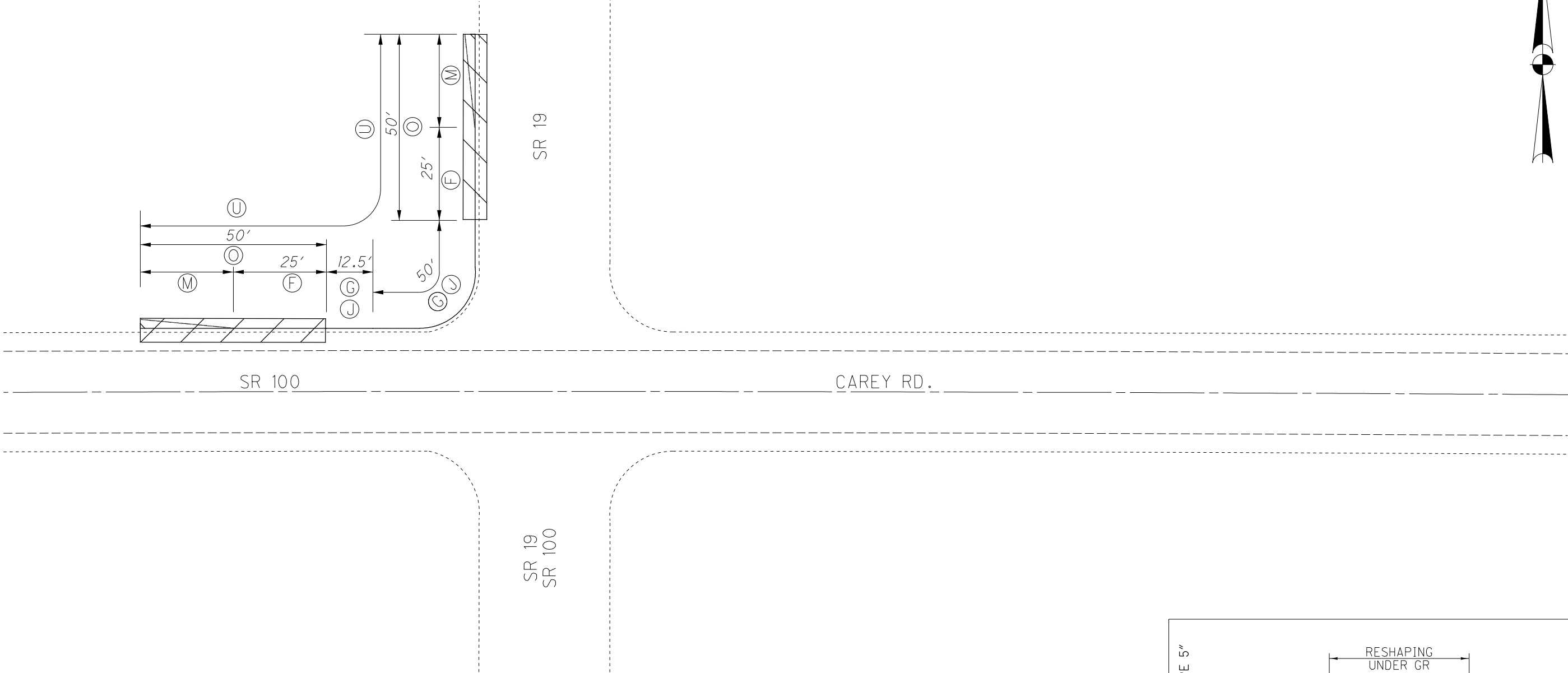
ON SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

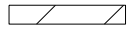
PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE,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

BRIDGE LOCATION MARKER SIGN

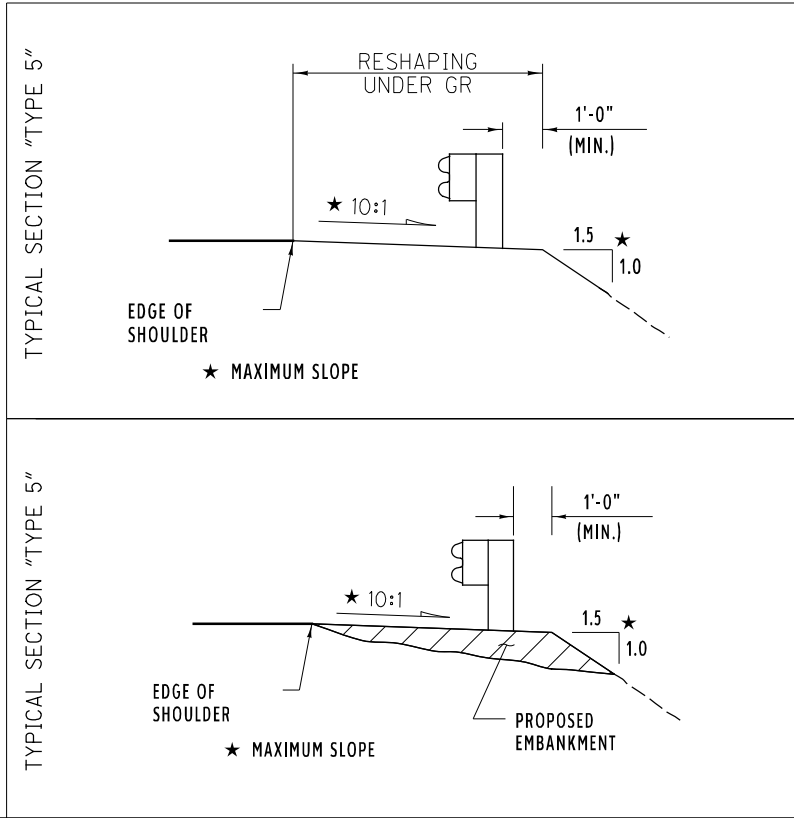
THE BRIDGE LOCATION MARKER SIGN INDICATES THE COUNTY, THE ROUTE, AND THE STRAIGHT LINE MILEAGE OF THE STRUCTURE. THE CONTRACTOR SHALL REMOVE THE EXISTING BRIDGE LOCATION MARKER SIGNS AND REERECT THE SIGNS IN KIND. IF THERE ARE ANY QUESTIONS ON THE LOCATION, PLEASE CONTACT THE DISTRICT BRIDGE ENGINEER.

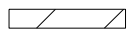
ALL COSTS, INCLUDING THE SIGN REMOVAL, SIGN REERECTION, POST REMOVAL, AND POST INSTALLATION SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 606 - GUARDRAIL REBUILT, TYPE 5.



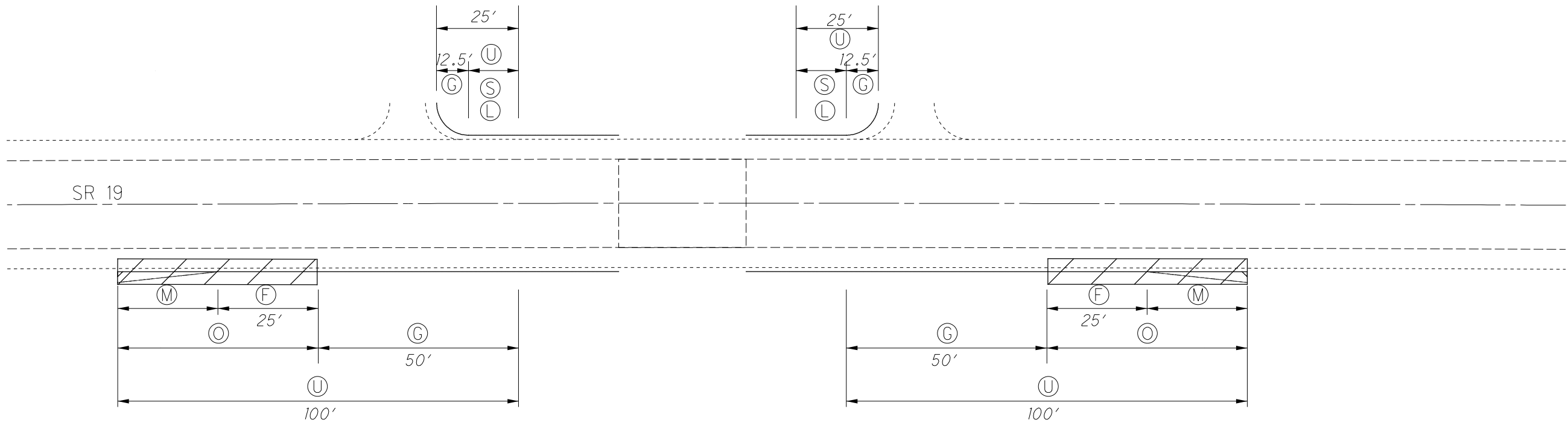
LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
ⓕ	202	GUARDRAIL REMOVED	FT	50		50
ⓐ	202	GUARDRAIL REMOVED FOR REUSE	FT	62.5		62.5
Ⓜ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	2		2
	203	EMBANKMENT, AS PER PLAN	CU YD	40		40
Ⓢ	209	RESHAPING UNDER GUARDRAIL	STA	1.63		1.63
ⓐ	606	GUARDRAIL REBUILT, TYPE 5	FT	62.5		62.5
Ⓢ	606	ANCHOR ASSEMBLY, TYPE E	EACH	2		2
	626	BARRIER REFLECTOR	EACH	5		5

ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

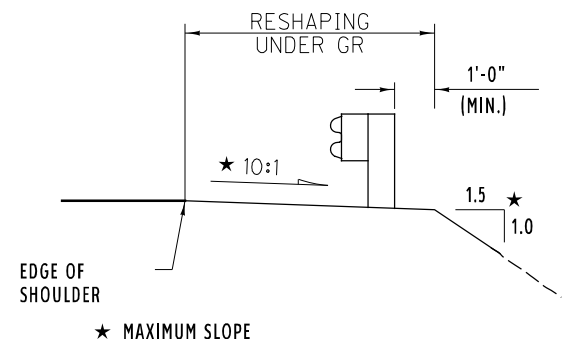


LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
Ⓕ	202	GUARDRAIL REMOVED	FT	50		50
Ⓙ	202	GUARDRAIL REMOVED FOR REUSE	FT	100	25	125
Ⓛ	202	ANCHOR ASSEMBLY REMOVED, TYPE T	EACH		2	2
Ⓜ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	2		2
	203	EMBANKMENT, AS PER PLAN	CU YD	60		60
Ⓤ	209	RESHAPING UNDER GUARDRAIL	STA	2.00	.50	2.50
Ⓒ	606	GUARDRAIL REBUILT, TYPE 5	FT	100	25	125
Ⓢ	606	ANCHOR ASSEMBLY, TYPE T	EACH		2	2
Ⓞ	606	ANCHOR ASSEMBLY, TYPE E	EACH	2		2
	626	BARRIER REFLECTOR	EACH	6	4	10

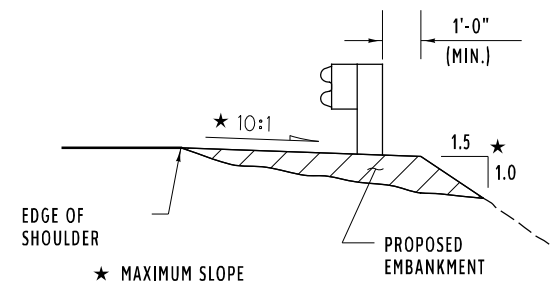
ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

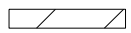


TYPICAL SECTION "TYPE 5"

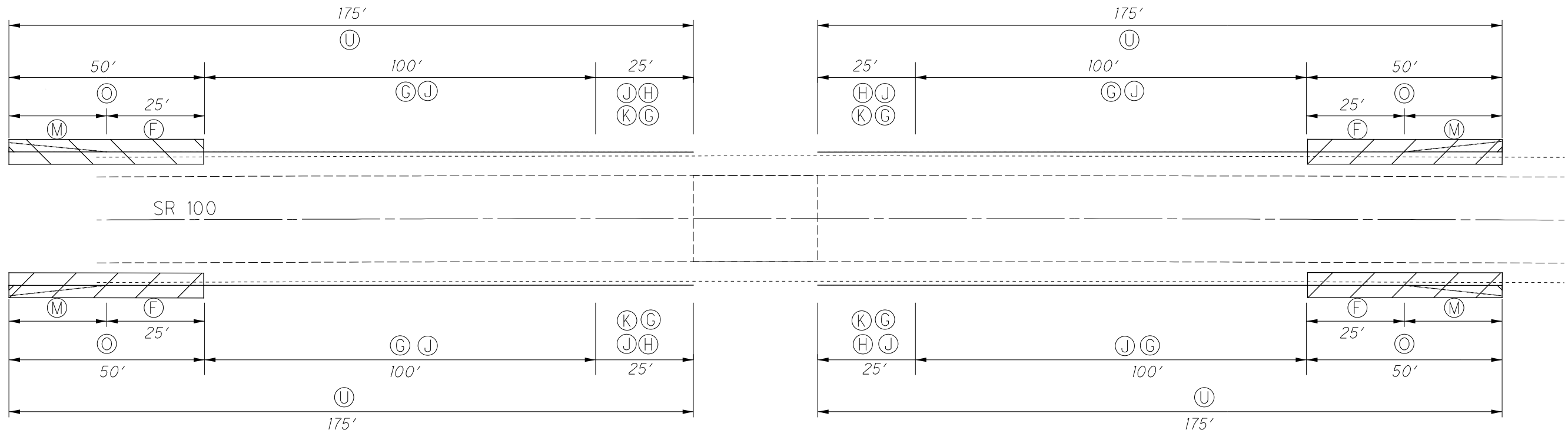


TYPICAL SECTION "TYPE 5"

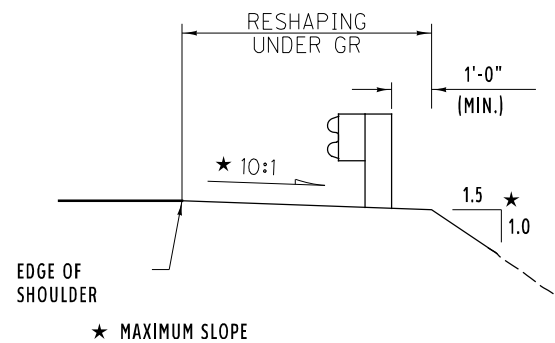


LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
ⓔ	202	GUARDRAIL REMOVED	FT	50	50	100
ⓐ	202	GUARDRAIL REMOVED FOR REUSE	FT	250	250	500
Ⓚ	202	BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	EACH	2	2	4
Ⓜ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	2	2	4
	203	EMBANKMENT, AS PER PLAN	CU YD	60	60	120
Ⓤ	209	RESHAPING UNDER GUARDRAIL	STA	3.50	3.50	7.00
Ⓒ	606	GUARDRAIL REBUILT, TYPE 5	FT	250	250	500
ⓗ	606	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 4	EACH	2	2	4
Ⓒ	606	ANCHOR ASSEMBLY, TYPE E	EACH	2	2	4
	626	BARRIER REFLECTOR	EACH	7	7	14

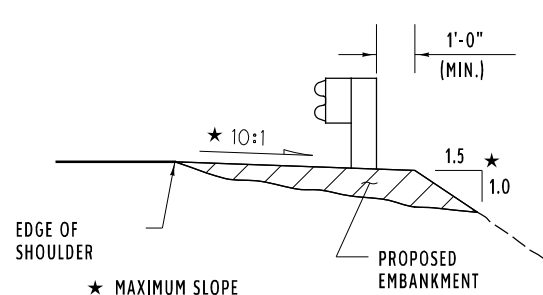
ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY

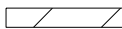


TYPICAL SECTION "TYPE 5"

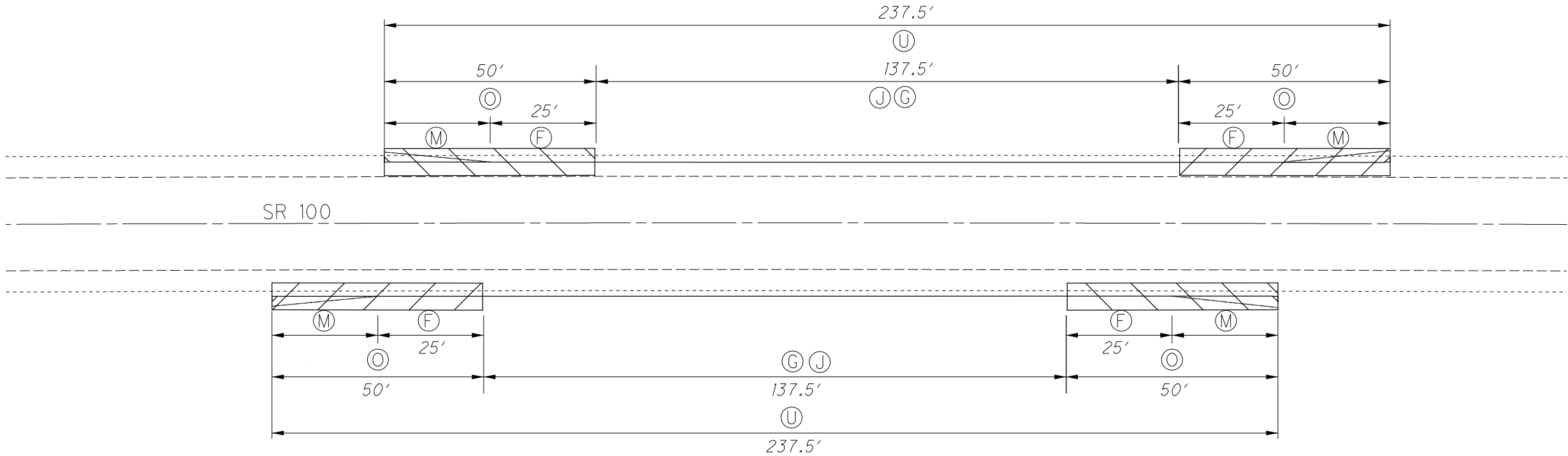


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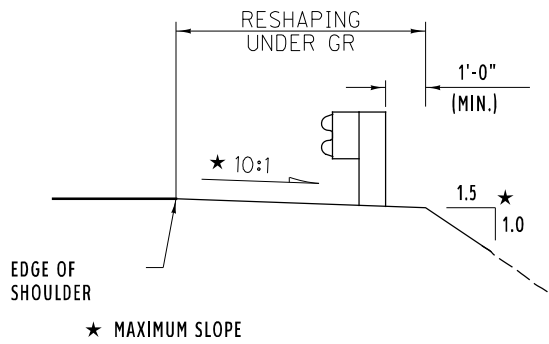


LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
ⓔ	202	GUARDRAIL REMOVED	FT	50	50	100
ⓐ	202	GUARDRAIL REMOVED FOR REUSE	FT	137.5	137.5	275
Ⓜ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	2	2	4
	203	EMBANKMENT, AS PER PLAN	CU YD	60	60	120
Ⓤ	209	RESHAPING UNDER GUARDRAIL	STA	2.38	2.38	4.76
ⓐ	606	GUARDRAIL REBUILT, TYPE 5	FT	137.5	137.5	275
ⓐ	606	ANCHOR ASSEMBLY, TYPE E	EACH	2	2	4
	626	BARRIER REFLECTOR	EACH	7	7	14

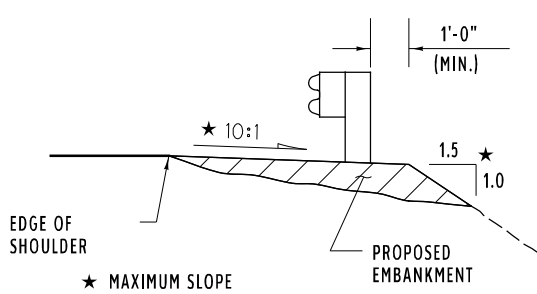
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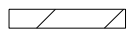


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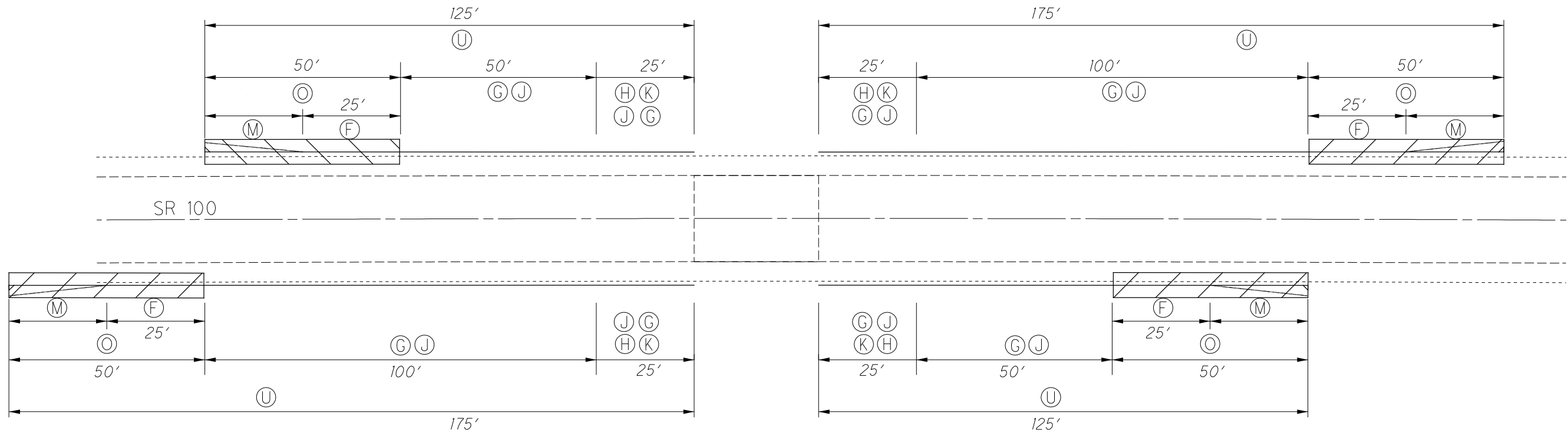


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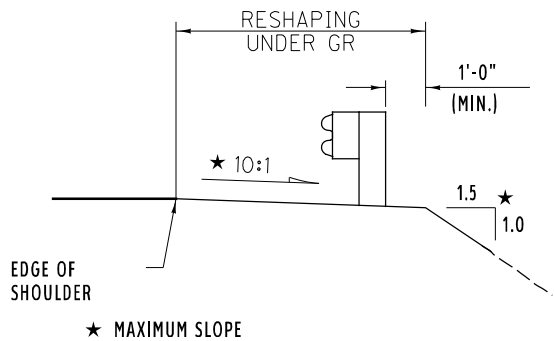


LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL
				LEFT	RIGHT	
ⓔ	202	GUARDRAIL REMOVED	FT	50	50	100
ⓐ	202	GUARDRAIL REMOVED FOR REUSE	FT	200	200	400
Ⓚ	202	BRIDGE TERMINAL ASSEMBLY REMOVED FOR REUSE	EACH	2	2	4
Ⓜ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EACH	2	2	4
	203	EMBANKMENT, AS PER PLAN	CU YD	60	60	120
Ⓤ	209	RESHAPING UNDER GUARDRAIL	STA	3.00	3.00	6.00
Ⓒ	606	GUARDRAIL REBUILT, TYPE 5	FT	200	200	400
Ⓚ	606	BRIDGE TERMINAL ASSEMBLY REBUILT, TYPE 4	EACH	2	2	4
ⓐ	606	ANCHOR ASSEMBLY, TYPE E	EACH	2	2	4
	626	BARRIER REFLECTOR	EACH	7	7	14

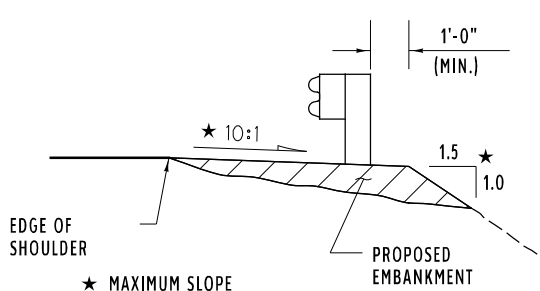
ALL QUANTITIES CARRIED TO THE GUARDRAIL SUB-SUMMARY



TYPICAL SECTION "TYPE 5"



TYPICAL SECTION "TYPE 5"



AUXILIARY & LONG LINE MARKINGS																														CALCULATED	CYH	
COUNTY	ROUTE	STATION / SLM		HIGHWAY MILES	614				642, TYPE 1					644																	SPECIAL	
					WORK ZONE LANE LINE, CLASS I, 642 PAINT	WORK ZONE CENTER LINE, CLASS II, 642 PAINT	WORK ZONE STOP LINE, CLASS I, 642 PAINT	WORK ZONE STOP LINE, CLASS I, 642 PAINT	EDGE LINE 6"		LANE LINE	CENTER LINE		AUXILIARY MARKINGS (740.04)																	AIR SPEED ZONE MARKING	
									TOTAL (PAY QUANTITY) (WHITE)	TOTAL (PAY QUANTITY) (YELLOW)		SOLID LINE EQUIVALENT	TOTAL (PAY QUANTITY)	CHANNELIZING LINE	STOP LINE	CROSSWALK LINE	TRANSVERSE/ DIAGONAL LINE (WHITE)	TRANSVERSE/ DIAGONAL LINE (YELLOW)	ISLAND MARKING	RAILROAD SYMBOL MARKING	SCHOOL SYMBOL MARKING		PARKING LOT STALL MARKING	LANE ARROW				WORD ON PAVEMENT "ONLY"		DOTTED LINE, 4"		HANDICAP SYMBOL MARKING
		FROM	TO	MILE	MILE	MILE	FT	FT	MILE	MILE	MILE	MILE	MILE	FT	FT	FT	FT	FT	SQ FT	EACH	72 INCH	96 INCH		FT	LEFT	RIGHT	THROUGH	COMBINATION	72 INCH			
	CRA	SR 19	23.28	28.28	5.00		10.00	20	20	10.00			3.48	5.00		148					2											
	CRA	SR 100	18.37	25.62	7.25		14.50	56	56	14.50			11.13	7.25		279					2											
TOTALS TO GENERAL SUMMARY							24.50	76	76	24.50			14.610	12.25		427					4											
RAISED PAVEMENT MARKERS																																
COUNTY	ROUTE	STATION/SLM		DETAIL	621 RAISED PAVEMENT MARKER REMOVED	621 RPM	PRISMATIC RETRO-REFLECTOR TYPES					REMARKS	DETAIL	DESCRIPTION																		
							ONE-WAY	TWO-WAY					7	8	9	10	11	12	13	14	15	16	17	18	GAP	NOTES						
								WHITE	YELLOW / YELLOW	WHITE / RED	YELLOW / RED																BLUE / BLUE					
		FROM	TO	EACH	EACH	EACH	YELLOW / YELLOW	WHITE / RED	YELLOW / RED	BLUE / BLUE																						
	CRA	SR 19	23.31	23.48	8	11	11		11				THRU APPROACH @ SR 100 (NORTH APPROACH)		MULTILANE UNDIVIDED TYPICAL SPACING																	
			23.48	25.15	GAP	110	110		110				CONTINUOUS ROUTE TREATMENT		TAPERED ACCEL. LANE																	
			25.15	25.49	8	22	22		22				THRU APPROACHES @ SR 103		DECELERATION LANE																	
			25.49	28.27	GAP	187	187		187				CONTINUOUS ROUTE TREATMENT		PARALLEL ACCEL LANE																	
	CRA	SR 100	18.37	18.52	6	27	27	16	11				STOP APPROACH @ SR 19 (NORTH JUNCTION)		MULTILANE DIVIDED/EXPRESSWAY																	
			18.52	19.86	GAP	84	84		84				CONTINUOUS ROUTE TREATMENT		STOP APPROACH																	
			19.86	20.09	16	36	36		36				CURVE @ 20 FT. SPACINGS		2 LANE APPR. WITH TURN LANE																	
			20.09	21.76	GAP	131	131		131				CONTINUOUS ROUTE TREATMENT		THROUGH APPROACH																	
			21.76	22.16	16	64	64		64				REVERSE CURVE @ 20 FT. SPACINGS @ SR 103 OVERLAP		3 LANE APPR. WITH TURN LANE																	
			22.16	25.32	GAP	205	205		205				CONTINUOUS ROUTE TREATMENT		MULTILANE DIVIDED/EXPRESSWAY																	
TOTALS TO GENERAL SUMMARY						877	877	16	861																							
																	1) THRU LANES SHALL BE STRIPED TO MATCH EXISTING WIDTHS ACCORDING TO CMS 641.08A.															
																	2) WORK ZONE STOP LINES SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS: SR 19 & SR 100 20' SR 19 & SR 103 16' & 18' SR 100 & SR 103 10' & 12'															
																	3) FOR ALL WORK ZONE MARKINGS, THE 642 PAINT USED SHALL BE TYPE 1															

CRA-19-2363 SFN: 1700782					
ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION	REFERENCE SHEET
202	11301	6	CY	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	18
511	34411	2	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (DECK REPAIR)	18
511	53012	4	CY	CLASS QC2 CONCRETE, MISC.: APPROACH SLAB REPAIR	18
512	10100	22	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
516	31000	58	FT	JOINT SEALER	
519	11100	20	SF	PATCHING CONCRETE STRUCTURE	

CRA-100-2075 SFN: 1702955					
ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION	REFERENCE SHEET
202	38603	125	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN	18
409	30001	68	FT	SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, AS PER PLAN	18
512	10100	63	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	

CRA-100-2228 SFN: 1702998					
ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION	REFERENCE SHEET
202	38603	250	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN	18

CRA-100-2519 SFN: 1703013					
ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION	REFERENCE SHEET
202	38603	50	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN	18
202	98200	50	FT	REMOVAL MISC.: STEEL DRIP STRIP	18
512	10100	50	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
SPECIAL	518E22300	50	FT	STEEL DRIP STRIP	18

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO “STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES” ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, INCLUDING THE 2003-2007 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

EXISTING STRUCTURE VERIFICATION

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

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE BID EXAMINATION OF THE EXISTING STRUCTURES. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

UTILITIES

THERE ARE NO UNDERGROUND UTILITIES SHOWN ON THIS PLAN. THE NATURE OF THE WORK REQUIRED BY THIS PROJECT WILL NOT AFFECT ANY KNOWN UNDERGROUND UTILITIES THAT EXIST UNDER OR ADJACENT TO THE WORK AREA.

DESIGN DATA

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4,500 PSI

PLACING ASPHALT CONCRETE FEATHERING ON APPROACHES TO BRIDGES

SPECIAL CARE SHALL BE TAKEN WHEN PLACING THE ASPHALT CONCRETE BUTT JOINT TO EFFECT A SMOOTH TRANSITION FROM THE EXISTING APPROACH PAVEMENT TO THE BRIDGE DECK, THE CONTRACTOR'S ATTENTION IS CALLED TO STANDARD DRAWING BP-3.1 FOR REQUIRED TOLERANCES.

IN-STREAM WORK RESTRICTION

TAKE ALL PRECAUTIONS TO AVOID CONSTRUCTION IN AND/OR LIMIT DEBRIS FROM ENTERING STREAMS OR WETLANDS. REMOVE ANY MATERIAL THAT FALLS INTO STREAMS OR WETLANDS AS SOON AS POSSIBLE.

ALL PROJECTS INVOLVING JURISDICTIONAL WATERS OF THE UNITED STATES (STREAMS, RIVERS, NON-ISOLATED WETLANDS) AND/OR ISOLATED WETLANDS ARE SUBJECT TO REGULATION UNDER SECTIONS 401 AND 404 OF THE CLEAN WATER ACT, AND POSSIBLY OHIO EPA ISOLATED WETLAND LAW. IT IS ANTICIPATED THAT NO IN-STREAM WORK, OR WORK UNDER THE STREAMS’ ORDINARY HIGH WATER MARK (OHWM) WILL BE NEEDED. THEREFORE, NO WATERWAY PERMITS HAVE BEEN GRANTED AND NO IN-STREAM WORK IS PERMITTED.

SHOULD WORK, EITHER TEMPORARY OR PERMANENT, IN THE STREAM BE NEEDED, IT WILL REQUIRE A PERMIT AND AUTHORIZATION BY THE UNITED STATES ARMY CORPS OF ENGINEERS (USACE). DO NOT UTILIZE FILLS BELOW THE OHWM UNTIL SUCH ACTIVITY IS AUTHORIZED BY THE USACE. DETAILS OF THIS REQUIREMENT ARE DESCRIBED IN ODOT’S SUPPLEMENTAL SPECIFICATION 832.09.

USACE DEFINITION OF OHWM: THE ORDINARY HIGH WATER MARK IS THE LINE ON THE SHORES ESTABLISHED BY THE FLUCTUATIONS OF WATER AND INDICATED BY PHYSICAL CHARACTERISTICS SUCH AS A CLEAR, NATURAL LINE IMPRESSED ON THE BANK; SHELVEING; CHANGES IN THE CHARACTER OF THE SOIL; DESTRUCTION OF TERRESTRIAL VEGETATION; THE PRESENCE OF LITTER AND DEBRIS; OR THE APPROPRIATE MAPS THAT CONSIDER THE CHARACTERISTICS OF THE SURROUNDING AREAS.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

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

PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD OF ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 511 - CLASS QC2 CONCRETE, MISC.: APPROACH SLAB REPAIR
ITEM 511 - CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (DECK REPAIR)

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

THE CONCRETE SHALL BE CLASS QC2 WITH THE COARSE AGGREGATE BEING LIMESTONE.

ALL EXISTING SURFACES TO WHICH THE CONCRETE IS TO BOND SHALL BE CLEANED BY ABRASIVE BLASTING. THESE SURFACES SHALL BE MADE FREE OF SPALLS, LAITANCE, PAINT, RUST AND OTHER CONTAMINANTS DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR THE ABOVE WHICH WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

PLACEMENT OF ADJACENT CONCRETE POURS

DO NOT PLACE ADJACENT CONCRETE POURS SIMULTANEOUSLY. ALLOW SUFFICIENT TIME FOR THE FIRST POUR TO CURE TO THE POINT FORMS CAN BE STRIPPED WITHOUT DETRIMENT TO THE POUR BEFORE PLACING THE SECOND POUR. ALL CONSTRUCTION JOINTS NOT SPECIFICALLY LABELED IN THE PLANS AS OPTIONAL ARE TO BE PERFORMED AS DETAILED ABOVE. SHOULD THE CONTRACTOR FAIL TO PERFORM THE CONSTRUCTION JOINT AS DESCRIBED, THE ENGINEER WILL DIRECT THE CONTRACTOR TO REMOVE THE INADEQUATELY PLACED CONCRETE AND REPLACE IT AS DESCRIBED ABOVE AT NO COST TO THE DEPARTMENT. PAYMENT WILL NOT BE MADE FOR INADEQUATELY PLACED CONCRETE NOT REPLACED.

ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NEEDED TO PERFORM THE DESCRIBED WORK IS TO BE CONSIDERED INCIDENTAL TO THE RESPECTIVE 511 CONCRETE ITEM(S) AND WILL BE PAID FOR UNDER THAT (THOSE) CONTRACT BID PRICE(S).

ITEM 202 - BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN

THIS ITEM SHALL BE USED TO REMOVE AND REINSTALL THE EXISTING BRIDGE RAILING TO FACILITATE FULL WIDTH PAVING OVER THE STRUCTURE. BRIDGE RAILING POSTS ARE TO REMAIN IN PLACE. GUARDRAIL AND BRIDGE RAILING MUST BE IN PLACE IF TRAFFIC IS TO BE PERMITTED IN THE ADJACENT LANE.

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

ITEM SPECIAL, STEEL DRIP STRIP

SEE STANDARD DRAWING DS-1-92 FOR DETAILS AND NOTES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID FOR THE ABOVE ITEM WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 - REMOVAL MISC.: STEEL DRIP STRIP

THIS ITEM SHALL BE USED TO REMOVE THE EXISTING STEEL DRIP STRIP.

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

ITEM 409 - SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, AS PER PLAN

THIS ITEM SHALL BE USED AT LOCATIONS INDICATED IN THE PLAN AND CONSISTS OF SAW CUTTING AND SEALING THE FINISHED SURFACE OF THE ASPHALT CONCRETE PAVEMENT.

PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS, NECESSARY TO COMPLETE THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER FOOT FOR THE ABOVE ITEM.

ITEM 614 - MAINTAINING TRAFFIC FOR STRUCTURES
CRA-100-20.75, CRA-100-22.28 AND CRA-100-25.19:

TWO WAY TRAFFIC ON STRUCTURES CRA-100-20.75, CRA-100-22.28 AND CRA-100-25.19 SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT THROUGH TRAFFIC ON THE STRUCTURE MAY HAVE A LANE CLOSURE DURING NORMAL WORKING HOURS USING FLAGGERS AS SHOWN ON STANDARD DRAWING MT-97.10.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, 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.

ITEM 614 - MAINTAINING TRAFFIC FOR STRUCTURE CRA-19-23.63:

TWO WAY TRAFFIC ON STRUCTURE CRA-19-23.63 SHALL BE MAINTAINED AT ALL TIMES, EXCEPT A 14 DAY DETOUR WILL BE ALLOWED ACCORDING TO THE NOTES AND DETAILS AS SHOWN ON SHEET 5.

PAVING AT STRUCTURES

STRUCTURE CRA-19-2363:
SUSPEND PLANING AND PAVING BEFORE CONCRETE BRIDGE DECK AND RESUME AFTER CONCRETE BRIDGE DECK.

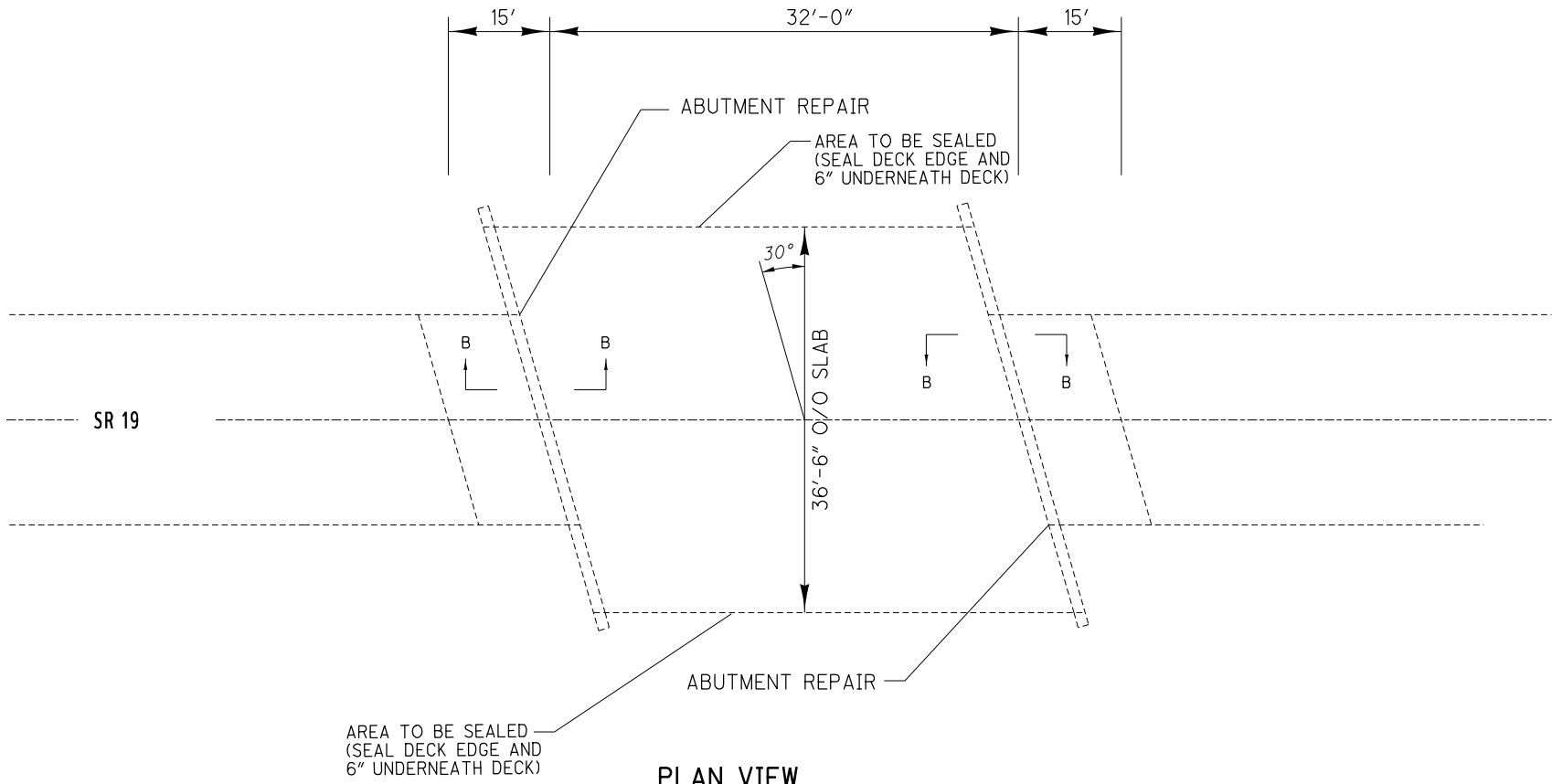
STRUCTURE CRA-19-2618:
PLANE AND PAVE OVER STRUCTURE. SEE PAVEMENT AND SHOULDER DATA SHEET FOR QUANTITIES.

STRUCTURE CRA-100-1839:
PLANE AND PAVE OVER STRUCTURE. SEE PAVEMENT AND SHOULDER DATA SHEET FOR QUANTITIES.

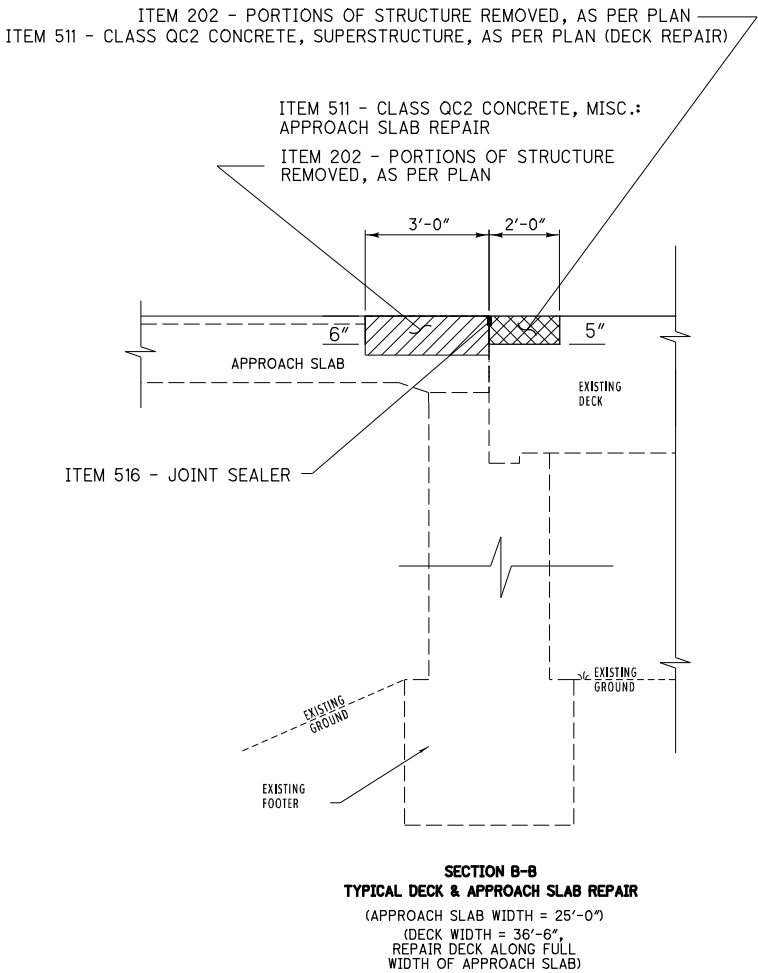
STRUCTURE CRA-100-2075:
TAPER THE PLANING FROM 1.5” TO 1” DEEP IN 25’ AT THE APPROACH TO THE APPROACH SLABS. PLANE 1” DEEP ON APPROACH SLABS AND BRIDGE DECK, PAVE OVER APPROACH SLABS AND BRIDGE DECK WITH 1.5” SURFACE COURSE. PLANE AND PAVE BRIDGE DECK FULL WIDTH FROM DECK EDGE TO DECK EDGE. SEE PAVEMENT AND SHOULDER DATA SHEET FOR QUANTITIES.

STRUCTURE CRA-100-2228:
TAPER THE PLANING FROM 1.5” TO 3.5” DEEP IN 100’ AT THE APPROACH TO THE APPROACH SLABS. PLANE 3.5” DEEP ON APPROACH SLABS AND BRIDGE DECK, PAVE OVER APPROACH SLABS AND BRIDGE DECK WITH 1.5” SURFACE COURSE. PLANE AND PAVE BRIDGE DECK FULL WIDTH FROM DECK EDGE TO DECK EDGE. SEE PAVEMENT AND SHOULDER DATA SHEET FOR QUANTITIES.

STRUCTURE CRA-100-2519:
PLANE AND PAVE OVER STRUCTURE. PLANE AND PAVE BRIDGE DECK FULL WIDTH FROM DECK EDGE TO DECK EDGE. SEE PAVEMENT AND SHOULDER DATA SHEET FOR QUANTITIES.



PLAN VIEW

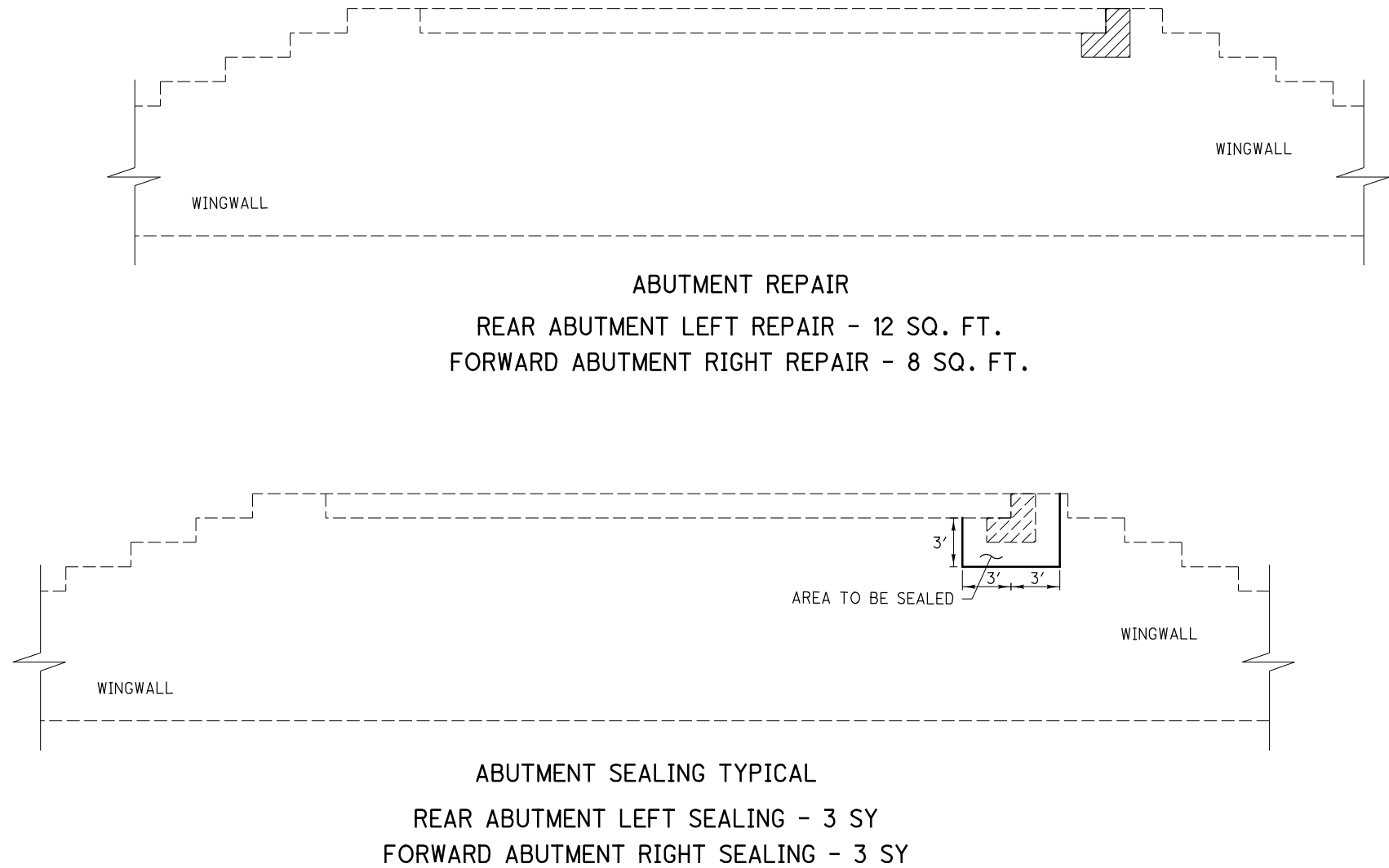


SECTION B-B
TYPICAL DECK & APPROACH SLAB REPAIR
(APPROACH SLAB WIDTH = 25'-0")
(DECK WIDTH = 36'-6")
REPAIR DECK ALONG FULL
WIDTH OF APPROACH SLAB)

NOTES:
1) ALL EXISTING REINFORCING STEEL TO BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
202	6	CY	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN
511	2	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE, AS PER PLAN (DECK REPAIR)
511	4	CY	CLASS QC2 CONCRETE, MISC.: APPROACH SLAB REPAIR
512	16	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
516	58	FT	JOINT SEALER

ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.



NOTES:

1) ALL EXISTING REINFORCING STEEL TO BE PRESERVED.

ITEM	QUANTITY	UNIT	DESCRIPTION
512	6	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
519	20	SF	PATCHING CONCRETE STRUCTURE

ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.

ITEM 409 - SAWING AND SEALING
ASPHALT CONCRETE PAVEMENT JOINTS,
AS PER PLAN

EDGE OF PAVEMENT

EDGE OF PAVEMENT

EDGE OF PAVEMENT

EDGE OF PAVEMENT

54'-2"

34'-0" PAVING WIDTH

BRIDGE RAILING
REMOVED FOR REUSE,
AS PER PLAN

ITEM 409 - SAWING AND SEALING
ASPHALT CONCRETE PAVEMENT JOINTS,
AS PER PLAN

EDGE OF PAVEMENT

EDGE OF PAVEMENT

ITEM 409 - SAWING AND SEALING
ASPHALT CONCRETE PAVEMENT JOINTS,
AS PER PLAN (1/2" WIDE X 1 1/2" DEEP)

CONCRETE
BOX BEAM

APPROACH SLAB

EXPANSION JOINT REPAIR

NOTE:
1) REMOVE AND REINSTALL EXISTING BRIDGE RAILING TO FACILITATE FULL
WIDTH PAVING USING ITEM 202. THE EXISTING BRIDGE RAILING SHALL BE
RAISED APPROXIMATELY 1.5" ON THE EXISTING POSTS WHEN REINSTALLED.

ITEM	QUANTITY	UNIT	DESCRIPTION
202	125	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN
409	68	FT	SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, AS PER PLAN

ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.

DESIGN AGENCY
ODOT DISTRICT THREE
OFFICE OF PLANNING
AND ENGINEERING

DATE
11/2016

REVIEWED
KRB

DRAWN
CVH

DESIGNED
CVH

STRUCTURE FILE NUMBER
1702955

REVISED

CHECKED

PLAN VIEW
CRA -100-2075 OVER SYCAMORE CREEK

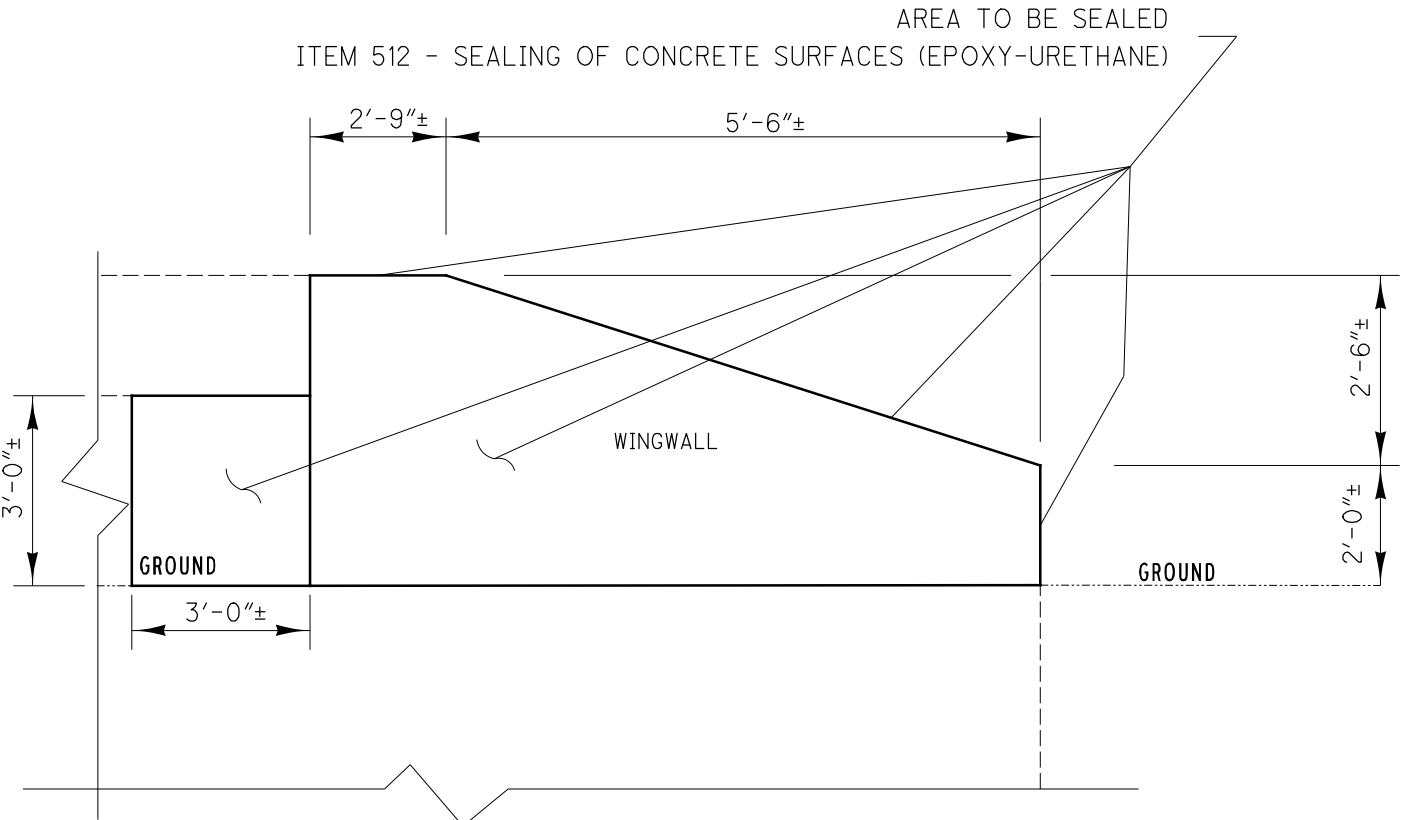
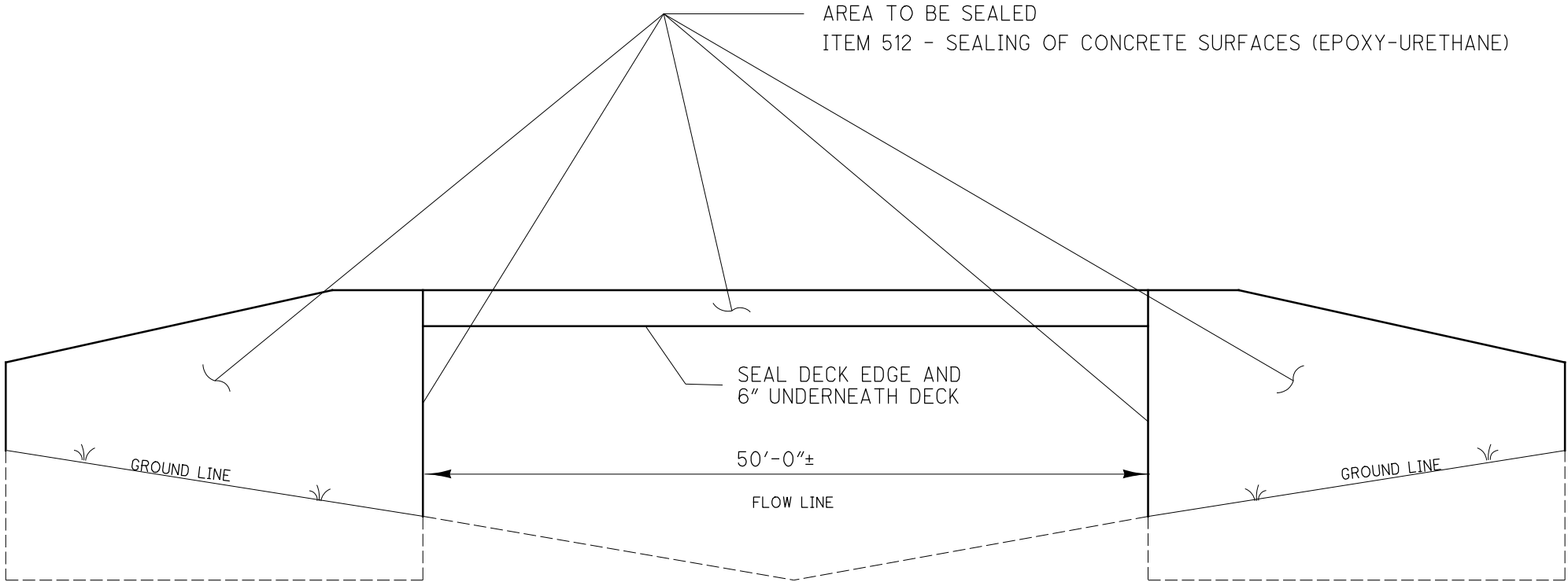
CRA -19-23.28
CRA -100-18.37

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21
33

ITEM	QUANTITY	UNIT	DESCRIPTION
512	63	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

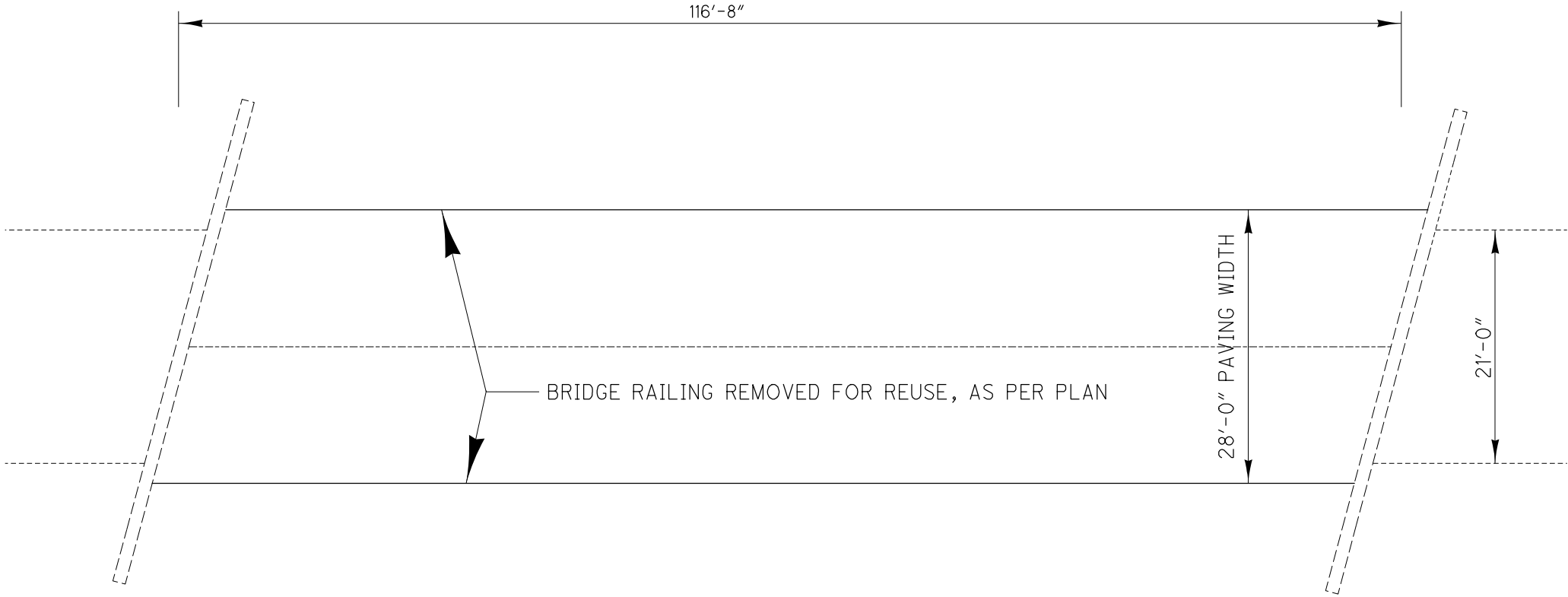
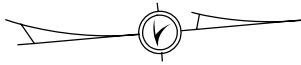
ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.



WINGWALL SEALING
(WINGWALL WIDTH = 1'-6"")

ITEM	QUANTITY	UNIT	DESCRIPTION
202	250	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN

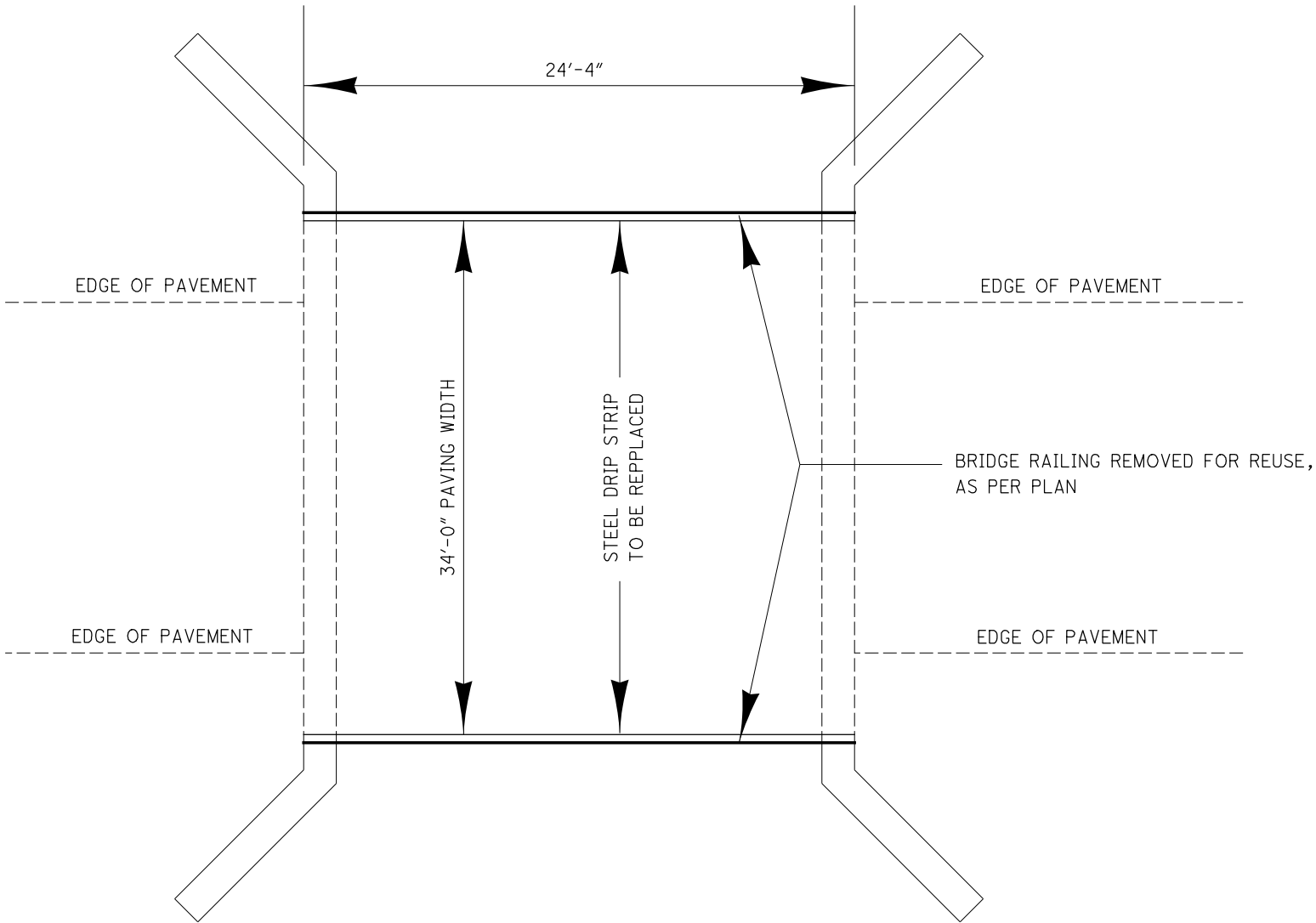
ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.



PLAN VIEW

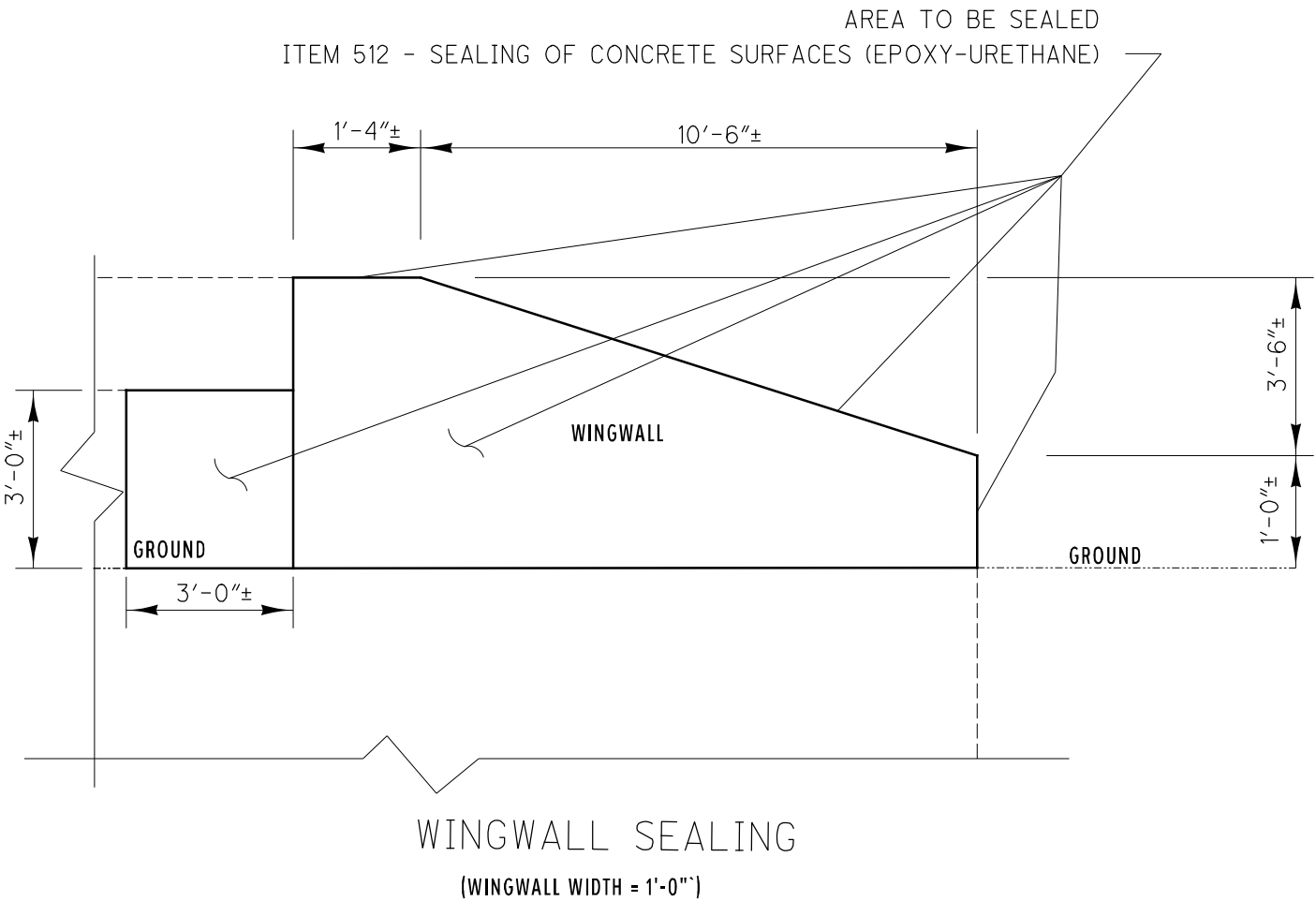
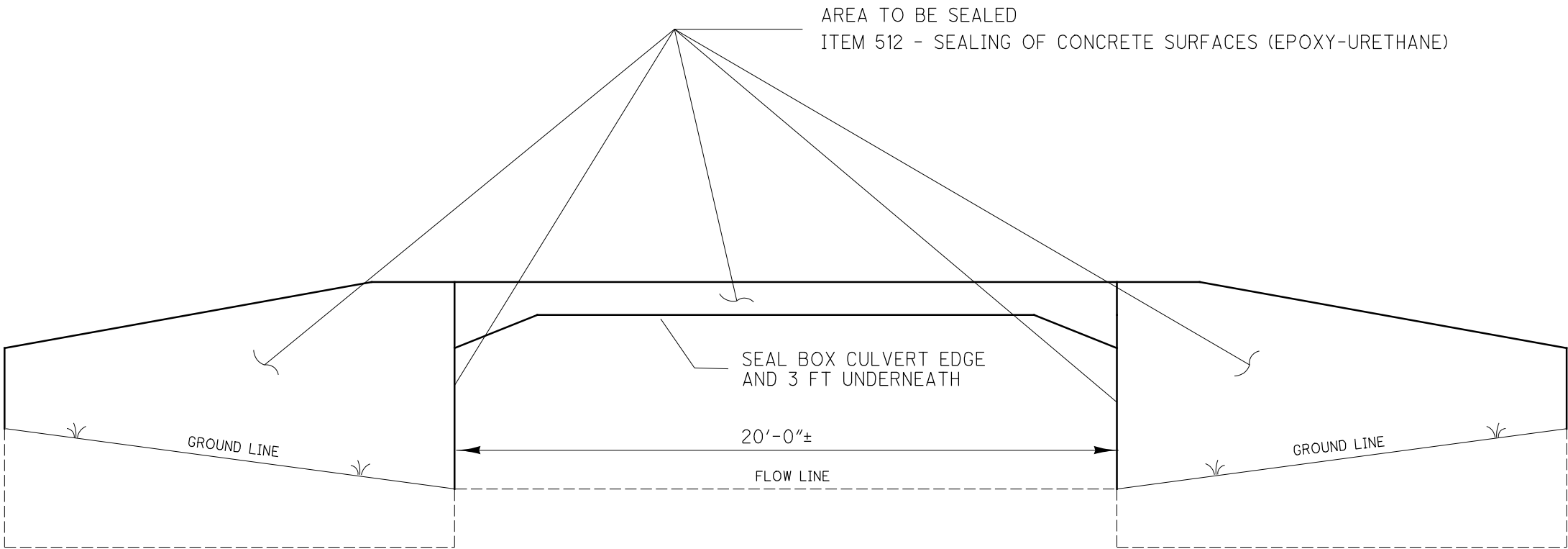
ITEM	QUANTITY	UNIT	DESCRIPTION
202	50	FT	BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN
202	50	FT	REMOVAL MISC.: STEEL DRIP STRIP
SPECIAL	50	FT	STEEL DRIP STRIP

ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.



ITEM	QUANTITY	UNIT	DESCRIPTION
512	50	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

ALL QUANTITIES CARRIED STRUCTURE SUMMARY SHEET.



NOTES

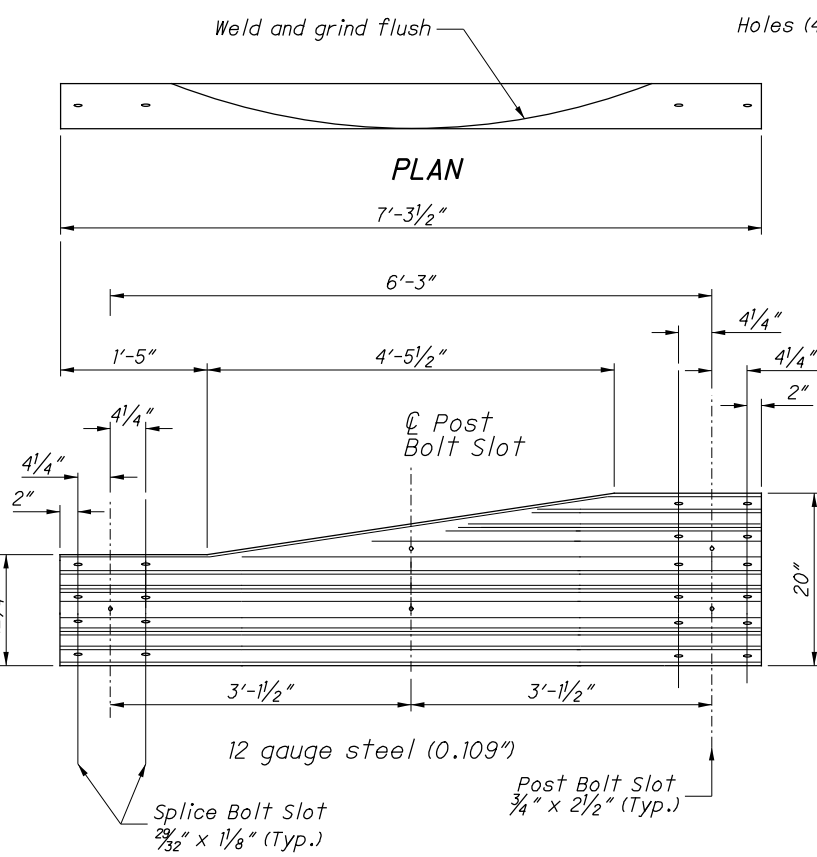
GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

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.

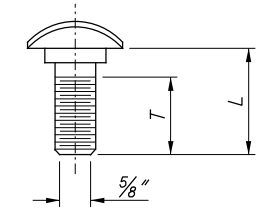
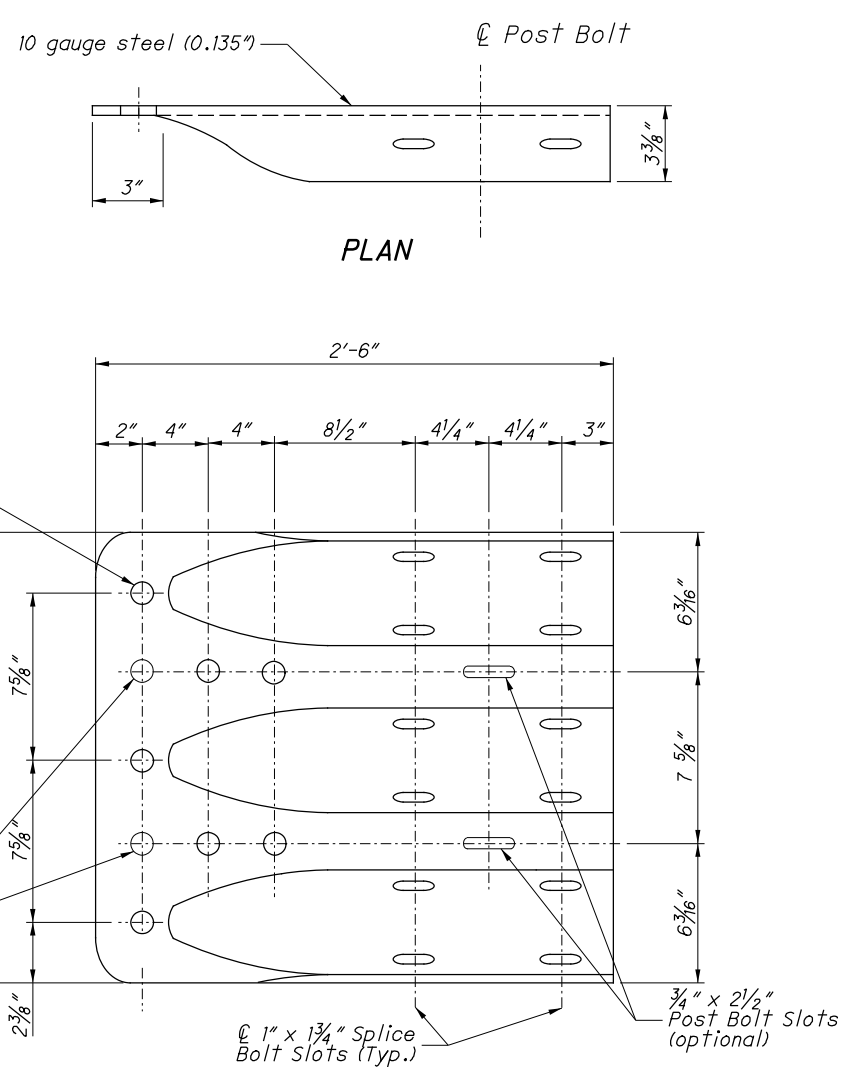
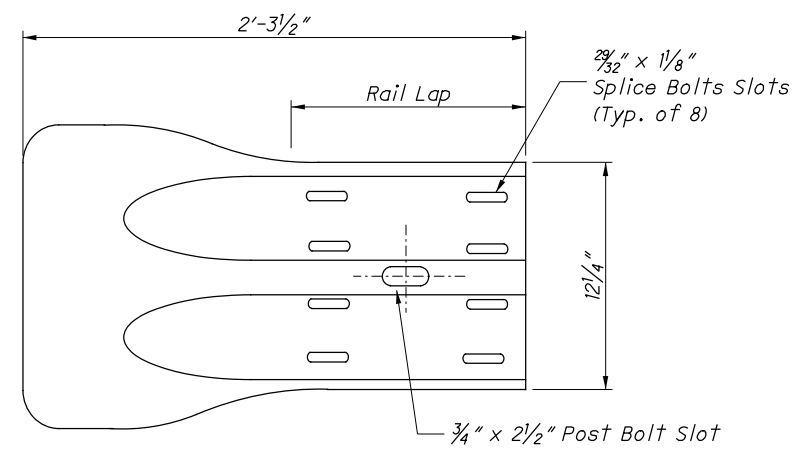
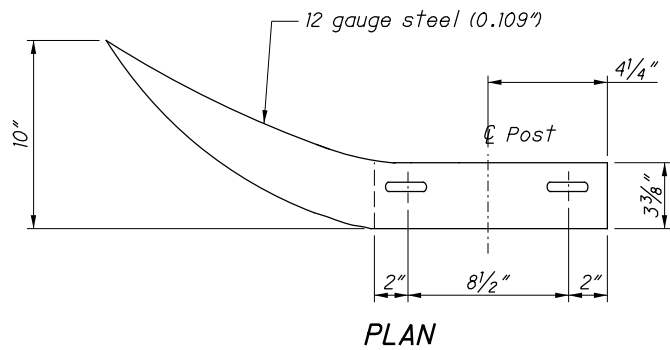
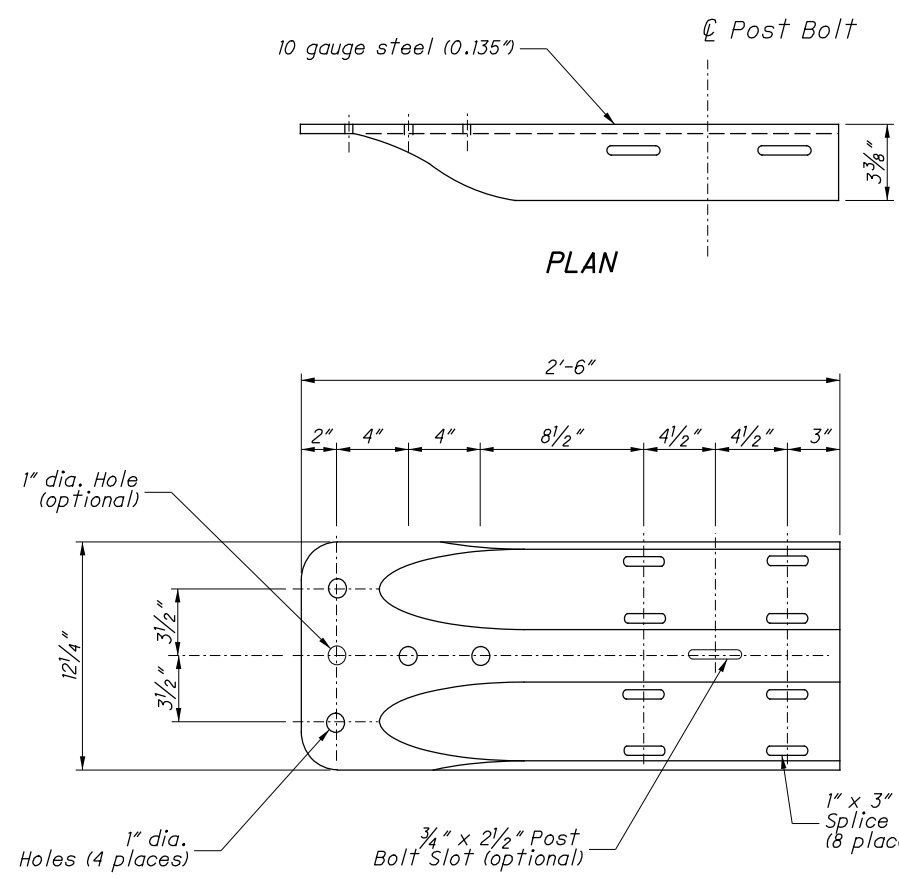
RAIL ELEMENTS: W-Beam Rail has an effective length of 12'-6" unless otherwise specified, with 3/4" x 2 1/2" post bolt slots on 6'-3" centers regardless of post spacing. Field punch or drill bolt holes or slots for irregularly spaced posts as specified in CMS 606.04.

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.

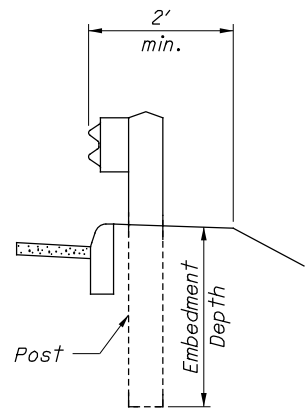


ELEVATION
TYPE 2 TRANSITION SECTION
(Asymmetric W to Thrie-Beam)

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

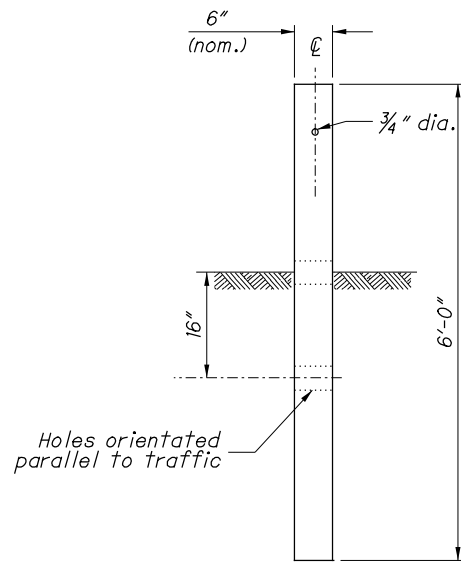


GUARDRAIL BOLT (For Post and Splice Bolts)		
L	T min.	Bolt Use
18" (Standard Rail)	4"	Type 5: WP/WB, PB
26" (Barrier Rail)		
10"	4"	Type 5: SP/WB, PB
1 1/4"	1 1/8"	Splice Bolt
WP = Wood Post WB = Wood Blockout SP = Steel Post PB = Plastic Blockout Longer Bolt may be needed for round Wood Post larger than 8" dia.		

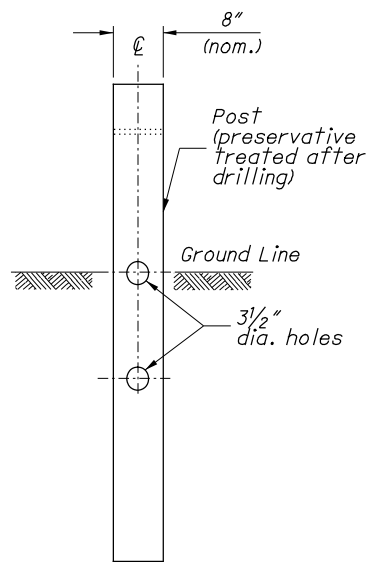


DETAIL A

See POST EMBEDMENT DEPTH Note

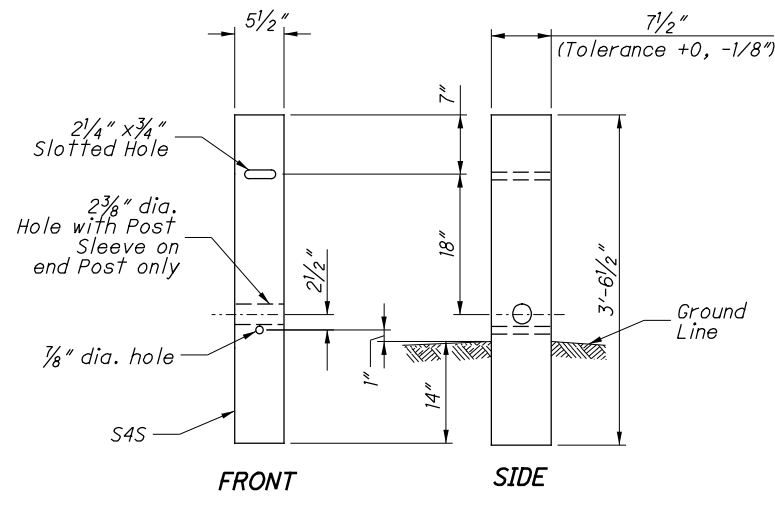


FRONT



SIDE

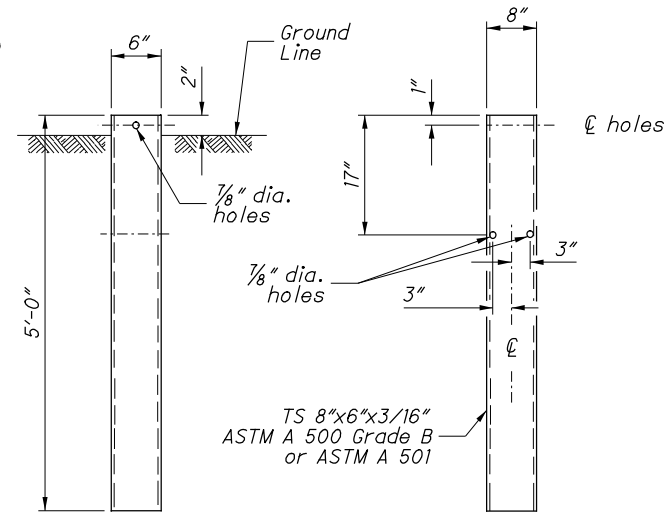
TYPE 1 BREAKAWAY CRT POST



FRONT

SIDE

TYPE 2 BREAKAWAY CRT POST



FRONT

SIDE

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.

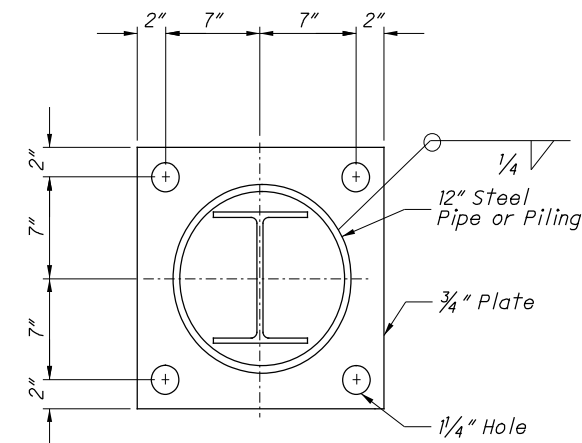
Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where the available post embedment depth is less than 3'-5", encase the post with a minimum of 4" concrete.

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.

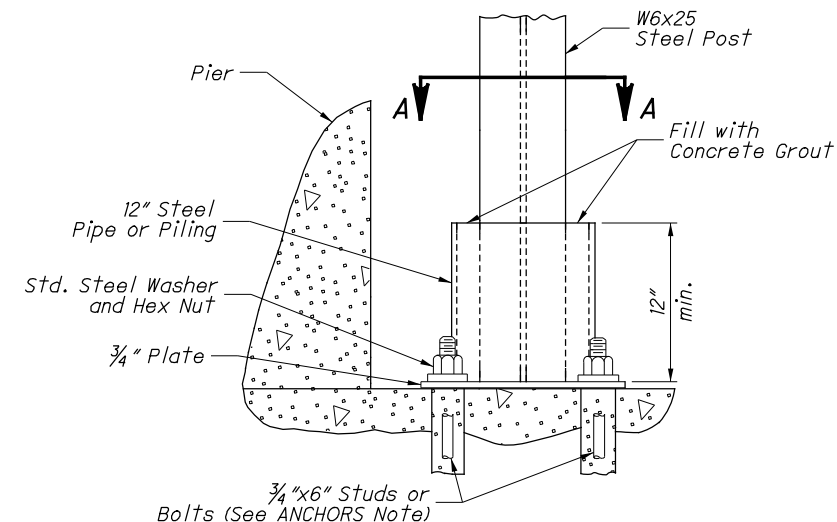
Expansion shield anchors as specified in CMS 712.01 may be substituted except where concrete deterioration has occurred, as determined by the Engineer. Where self-drilling anchors are used, drill the holes with the expansion shield (not by a drill bit) and install the shield flush with the concrete surface.

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.)



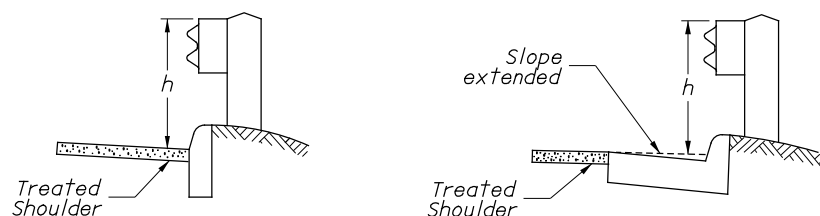
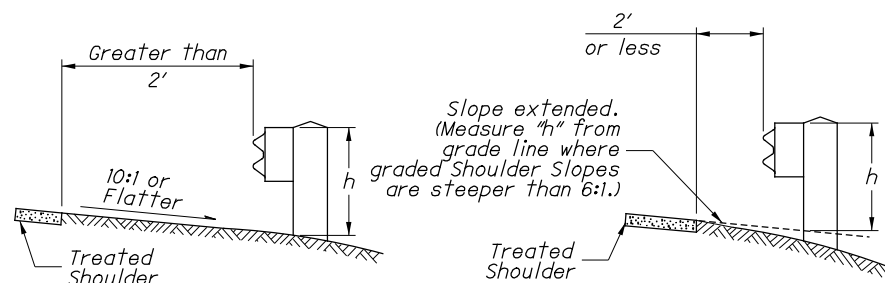
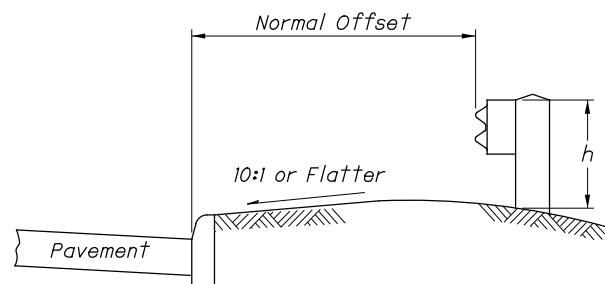
Footing Anchor and hardware need not be galvanized

SECTION A-A



ELEVATION
FOOTING ANCHOR

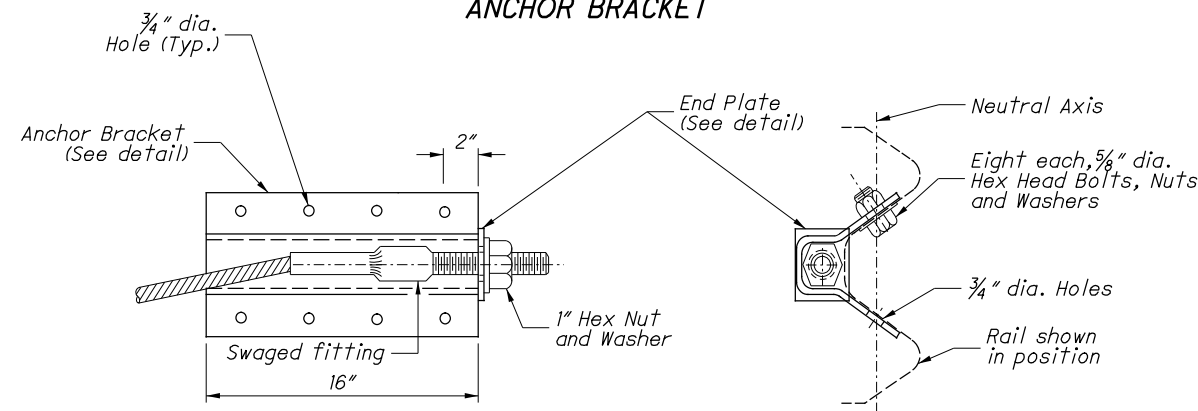
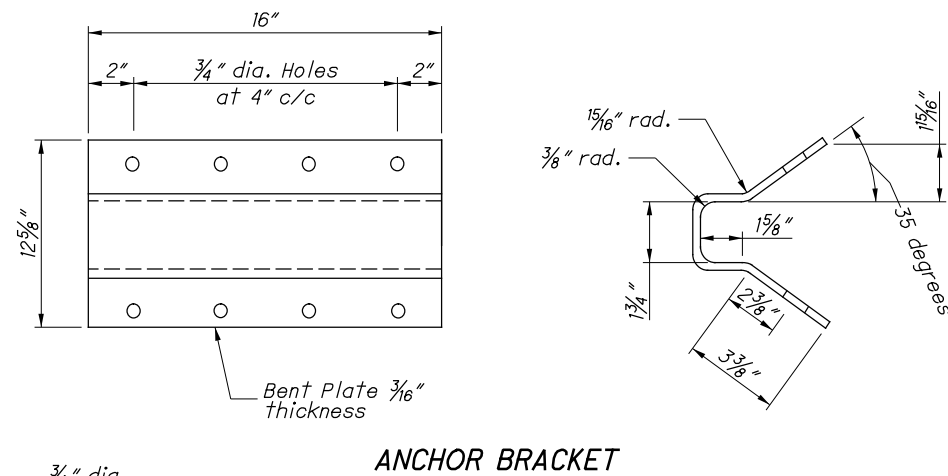
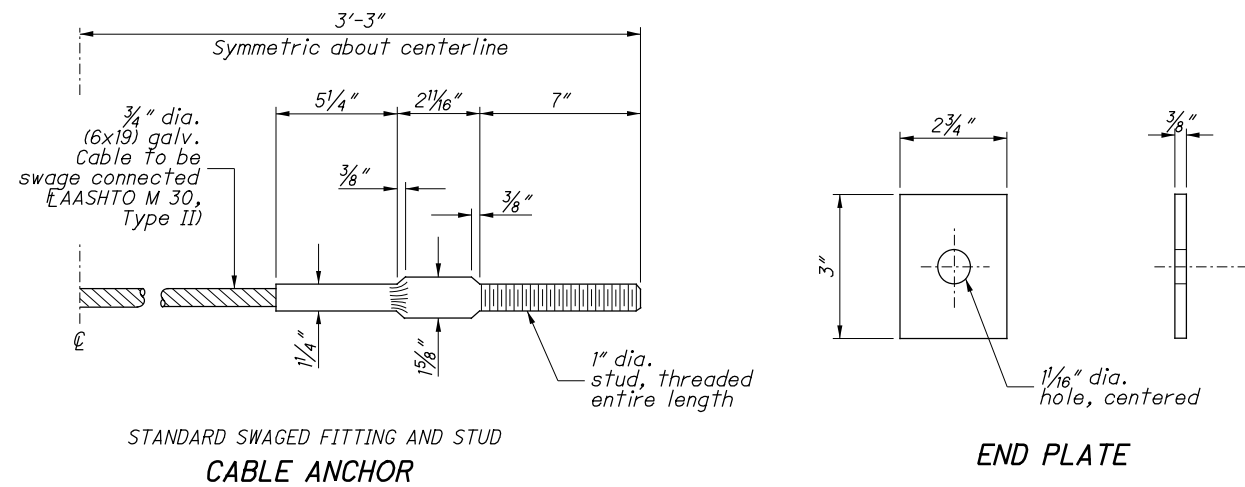
See SPECIAL POST MOUNTINGS Note.



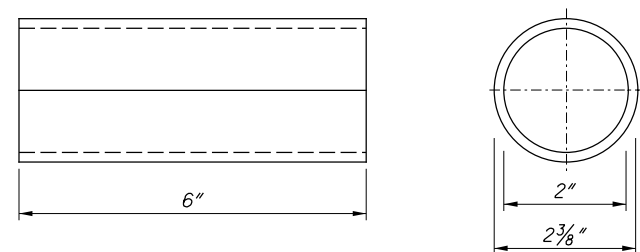
h = Standard Height (See GUARDRAIL HEIGHT Note)

MEASURING GUARDRAIL HEIGHT

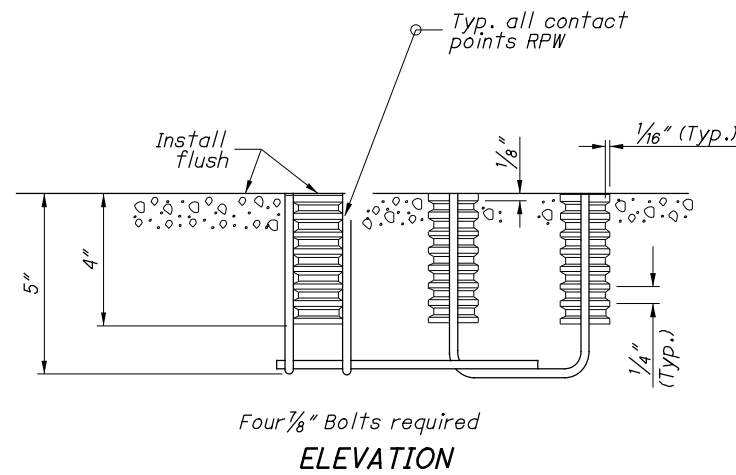
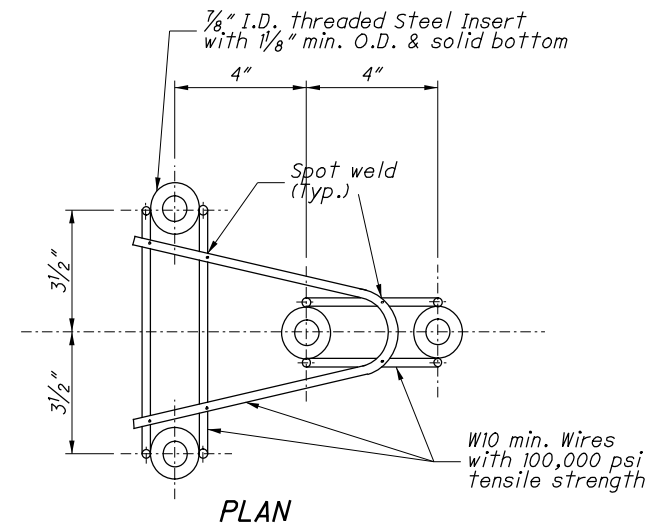
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ANCHOR BRACKET ASSEMBLY DETAILS

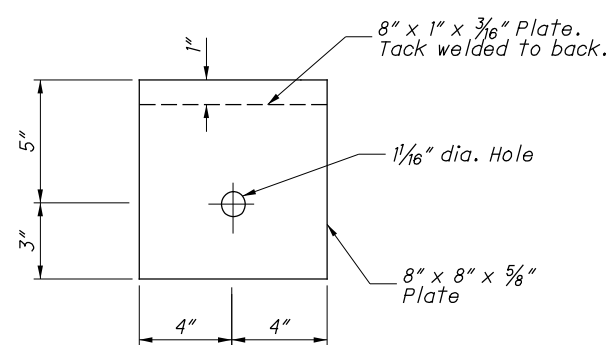


POST SLEEVE

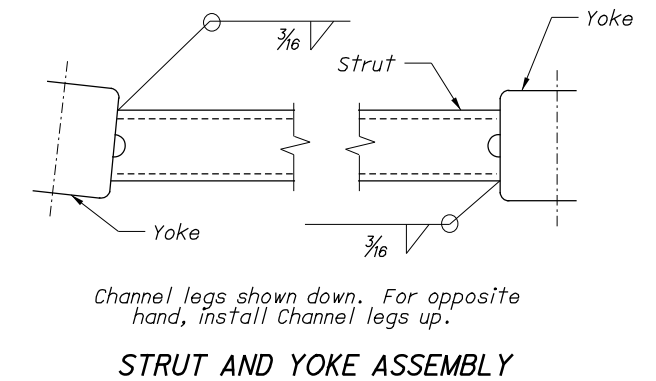
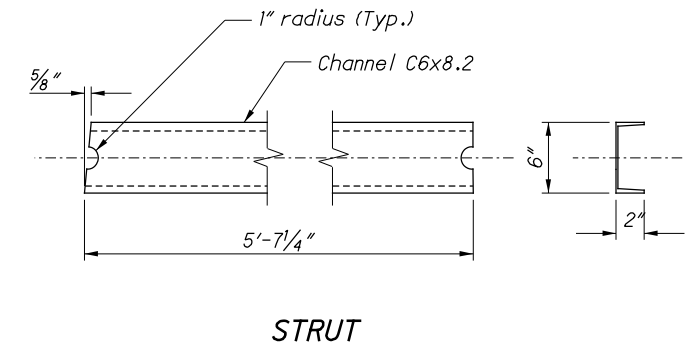
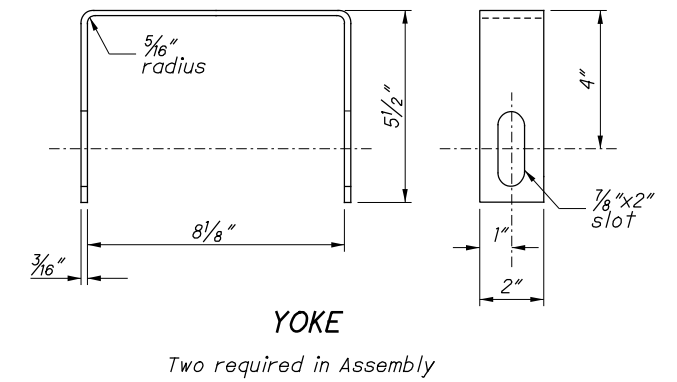


CONCRETE INSERT ANCHOR ASSEMBLY
(W-BEAM ONLY)

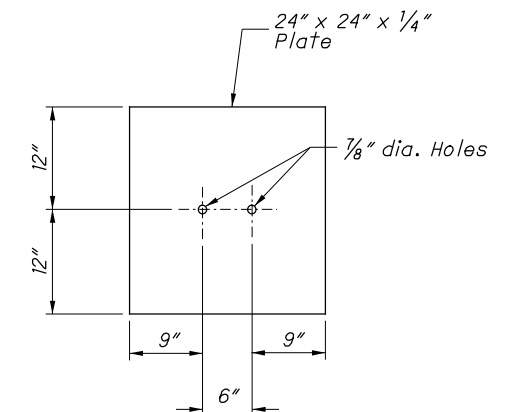
See ANCHORS and PROTECTIVE
COATINGS Notes on Sheet 2



BEARING PLATE

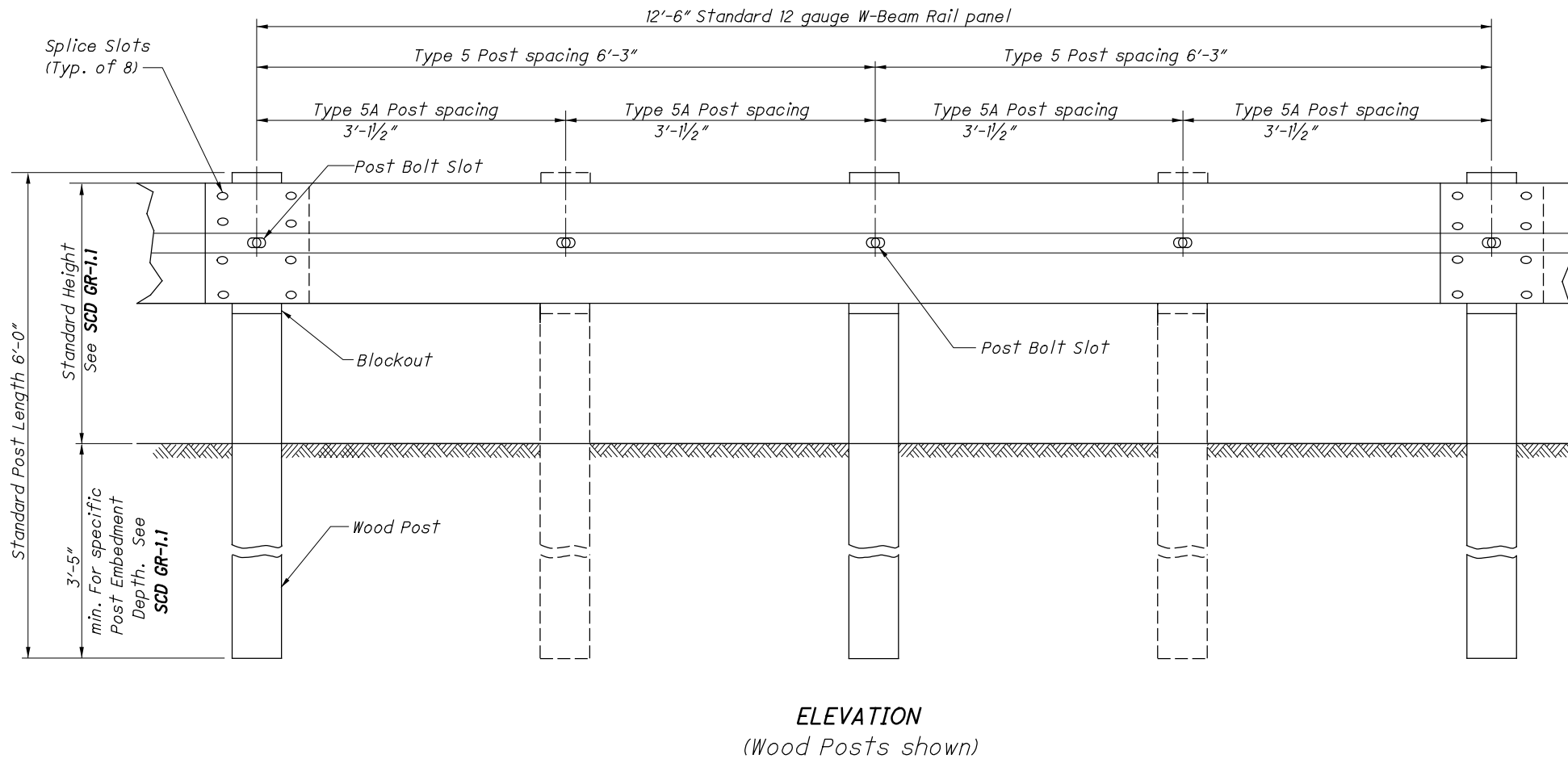
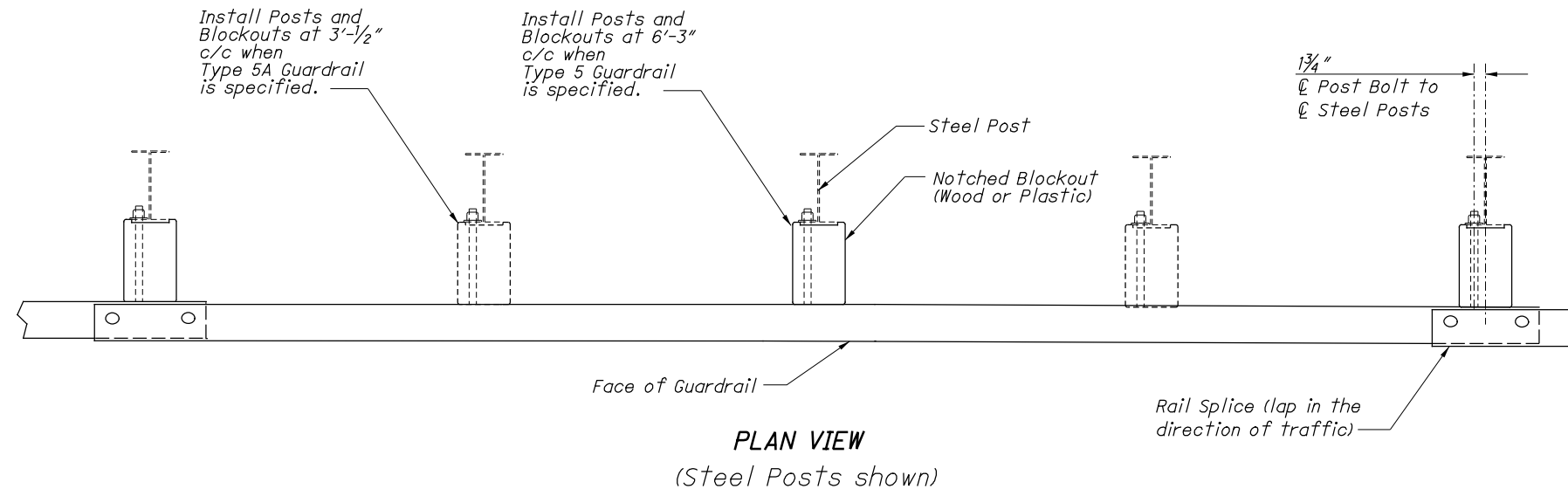


Channel legs shown down. For opposite
hand, install Channel legs up.



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"x1 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:

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**.

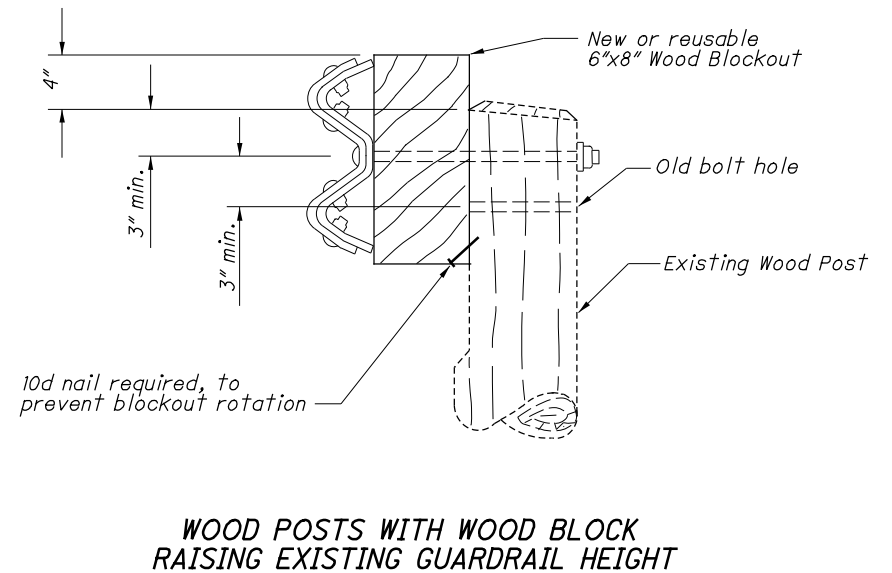
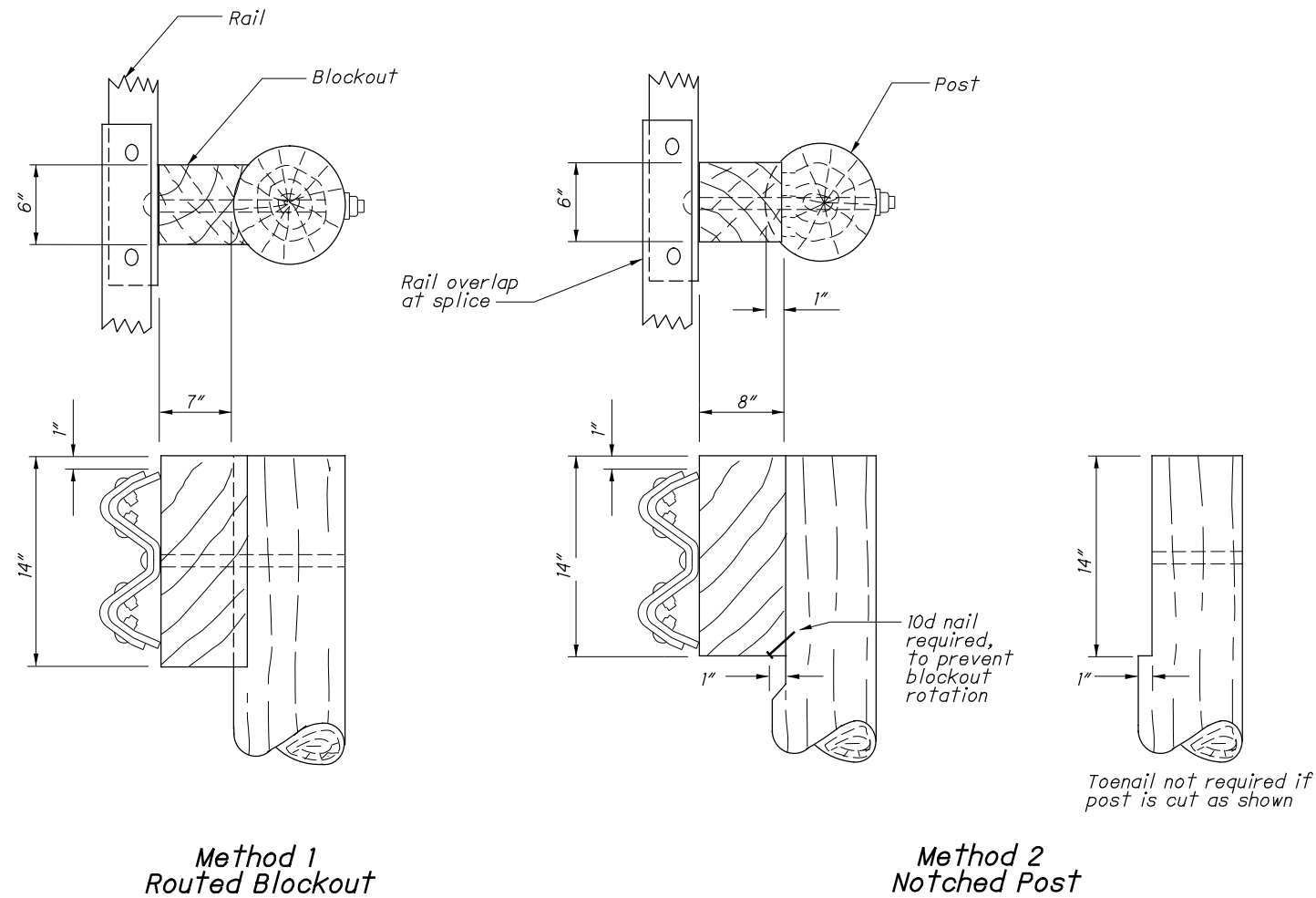
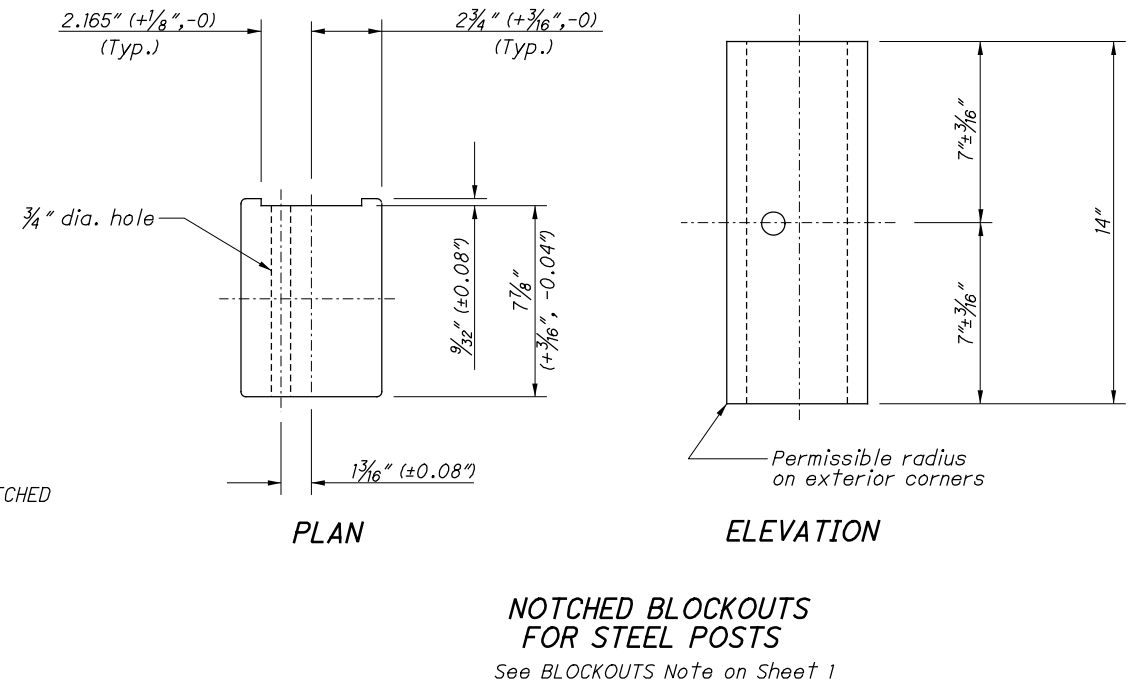
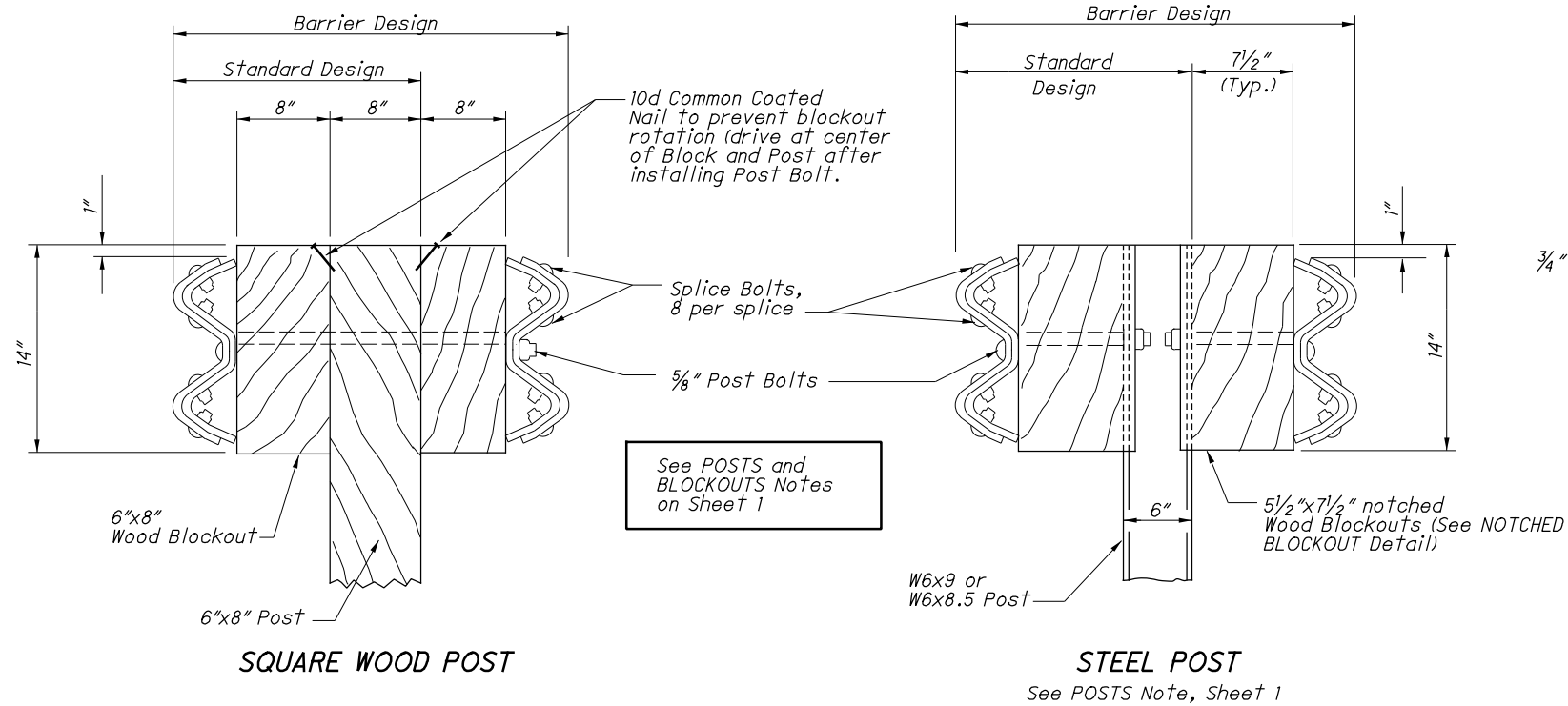
WASHERS: Install appropriate sized standard galvanized steel washers on the nut side of bolts installed on wood posts.

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"

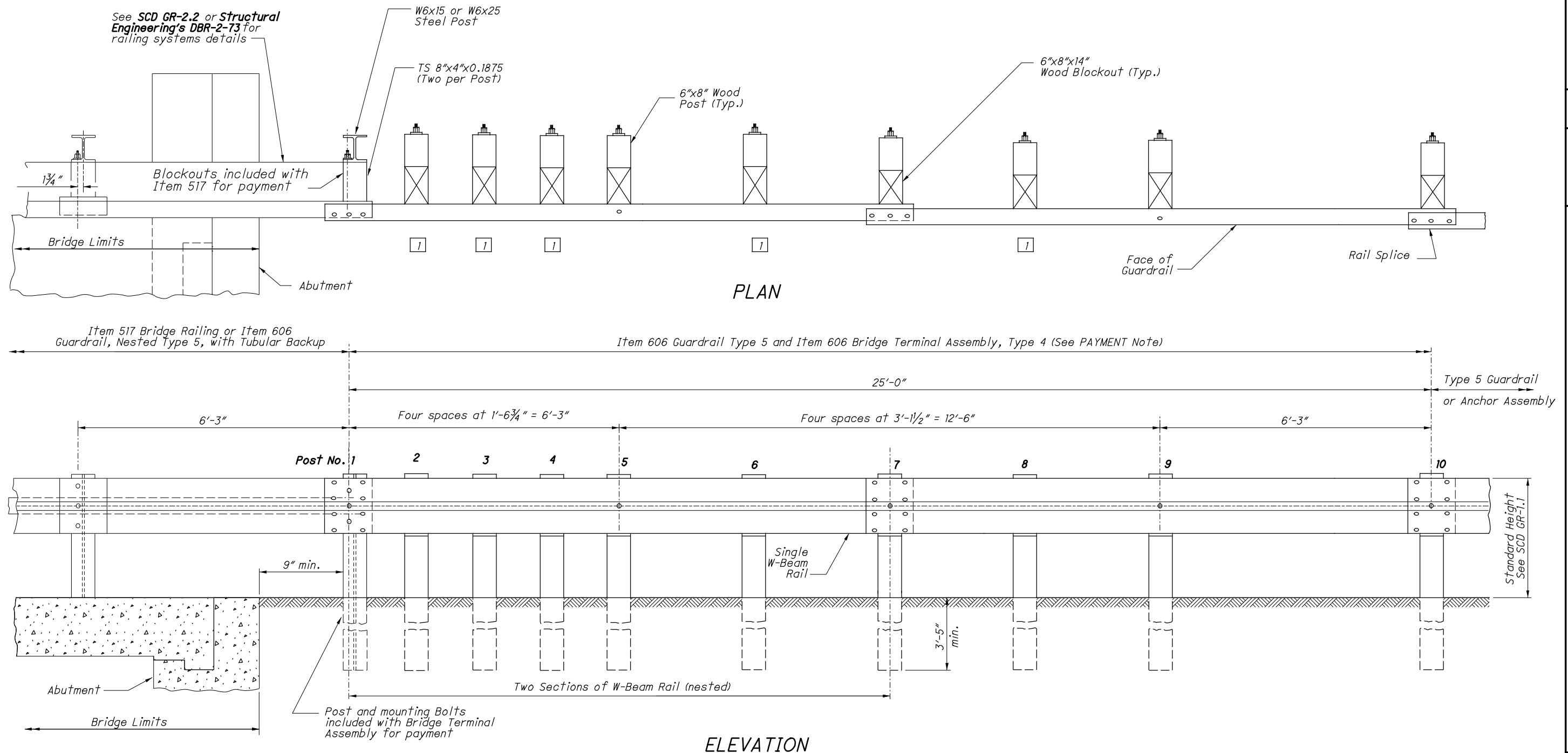
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Alternate methods of placing the Blockouts on round Posts may be submitted for consideration and approved by the Engineer.

ROUND WOOD POSTS
Single Sided runs only (Standard Design)

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NOTES

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

APPLICATION: The Type 4 Bridge Terminal Assembly shall connect Type 5 Guardrail runs to Type 5 Guardrail with Tubular Backup or to Deep Beam Bridge Guardrail (as shown on Structural Engineering SCD DBR-2-73).

DETAIL INFORMATION: The first post off the bridge shall be steel (W6x15 or W6x25). All holes in the off-structure end of the approach panel rail section spanning the abutment are slotted 3/4"x2 1/2". Tighten the bolts as specified for expansion joints in Item 606.05.

POSTS: Posts may be set in drilled holes or driven to grade. See SCD GR-1.1 for additional Post embedment details. Guardrail is not attached to certain posts (see LEGEND).

WOOD POSTS - Use square sawed pressure treated wood as specified in CMS 710.14 and fabricated 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 W6x9 or W6x8.5 in lieu of the 6"x8" wood post. Use same post material through-out assembly.

BLOCKOUTS: Use wood blockouts only. Steel or plastic blockouts are not permitted. Notched wood blockouts are used with steel posts.

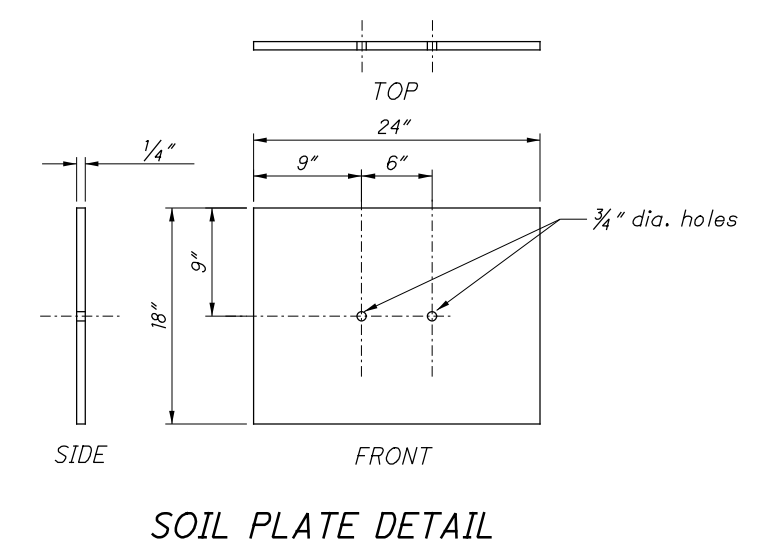
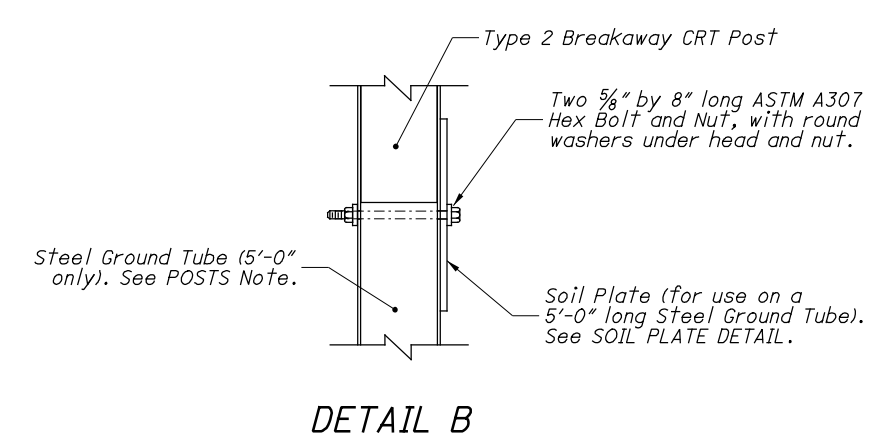
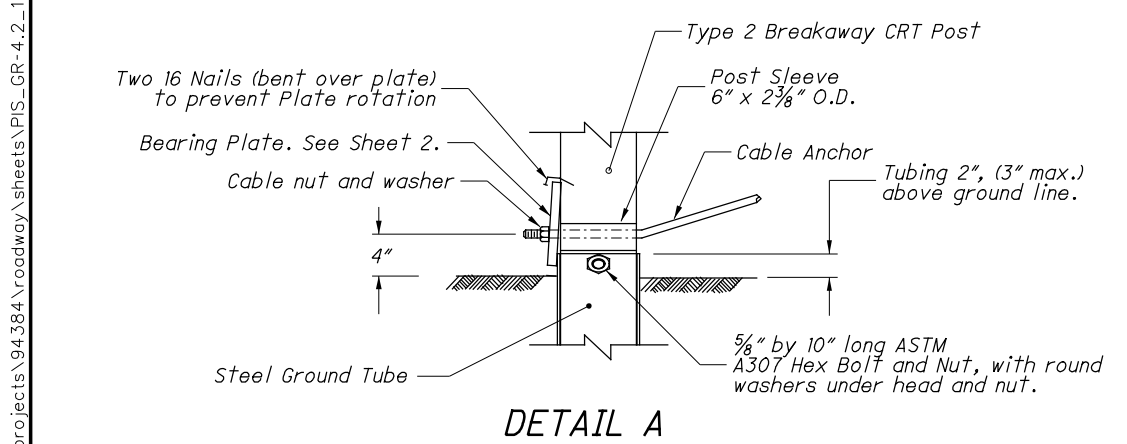
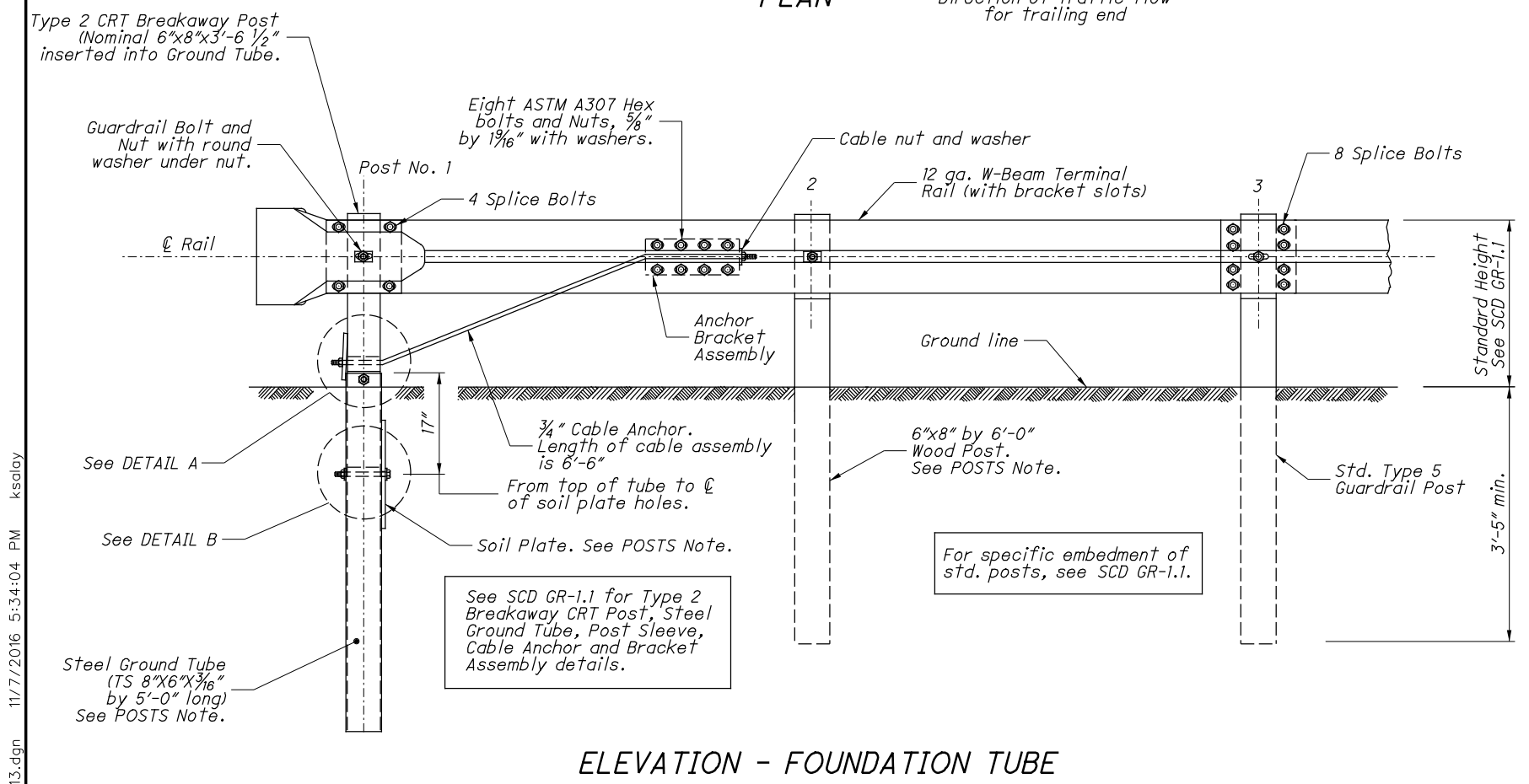
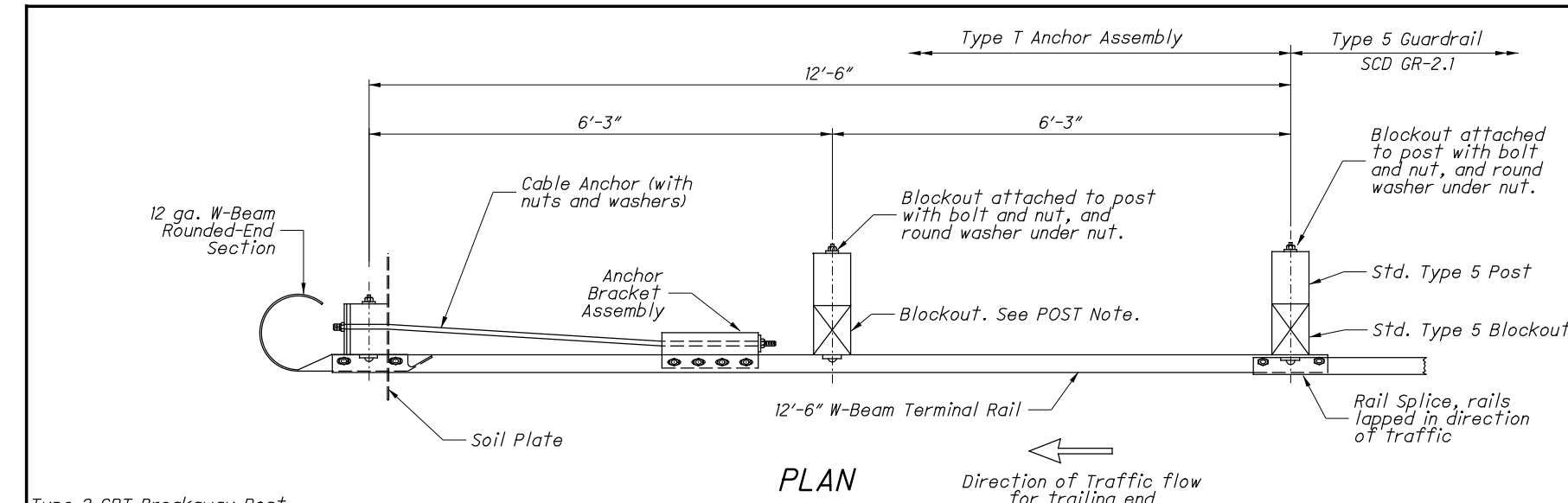
FLARED GUARDRAIL: Start Standard Guardrail Flares as shown on SCD GR-5.1 at or beyond Post No. 10; however, the flare may begin at Post No. 7.

PAYMENT: Item 606 - Bridge Terminal Assembly, Type 4, Each, includes the cost of extra components in excess of normal guardrail, such as additional posts and other hardware. The TS 8"x4" spacers and tubular backup rail extending to the first post off the bridge is included with Item 517 - Railing, or Item 606 - Guardrail, Nested Type 5 with Tubular Backup, for payment.

LEGEND

- 1 Guardrail is not attached to posts at Posts 2, 3, 4, 6, and 8. Blockout is fastened to post with standard Post Bolt.

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NOTES

APPLICATION: Use Type T Anchor Assemblies on the trailing end of guardrail runs, located outside of the clear zone of opposing traffic. The assembly is 12'-6" long, none of which can be considered the Length of Need for the guardrail run.

For termination requirements at driveways, see DRIVEWAY OPENING Detail on Sheet 2. For side road approaches and Terminals at Structures, see Location & Design Manual, Volume 1, Figure 603-3.

ANCHORING OPTIONS: Contractor may choose either the foundation tube (shown on this Sheet) or the concrete footing option (Sheet 2) to construct this anchor assembly.

If the foundation tube option is chosen, the contractor will take proper care to insure that the Soil Plate fasteners are not broken during the driving process.

Concrete footings may be cast-in-place or precast. Compact fill after placing precast unit.

MATERIALS: See SCD GR-1.1 for parts used on this anchor, including the CRT Breakaway Posts, Steel Ground Tube, Post Sleeve, Cable Anchor and Bracket Assembly.

Bearing Plate and Soil Plate is ASTM A709 Grade 36. Steel Ground Tube shall be ASTM A500, Grade B, and meet CMS 707.10. All angles, channels and plates shall meet CMS 711.01. All structural steel shall be galvanized as specified in CMS 711.02. All bolt washers indicated are standard galvanized steel of the appropriate size.

Concrete shall be class C.

Components on this anchor that are not detailed on SCD GR-1.1 include: 1) 12'-6" W-Beam Terminal Rail (standard part RWM14a), and 2) W-Beam Rounded End Section (RWE03a). For complete details and specifications, see part descriptions in the AASHTO/AGC/ARTBA Standardized Hardware Guide.

POSTS: Post No. 1 may be an 8'-0" long Steel Ground Tube without a Soil Plate in lieu of the 5'-0" tube with Soil Plate.

Post No. 2 can be W6x9 (or W6x8.5) with notched wood blockouts or a standard Type 5 post and blockout. Recycled plastic blockouts are permitted.

PAYMENT: All labor and materials, including the W-Beam Rounded End Section and the W-Beam Terminal Rail for the 12'-6" anchor assembly shall be included in the unit price bid for Item 606 - Anchor Assembly, Type T, Each.

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