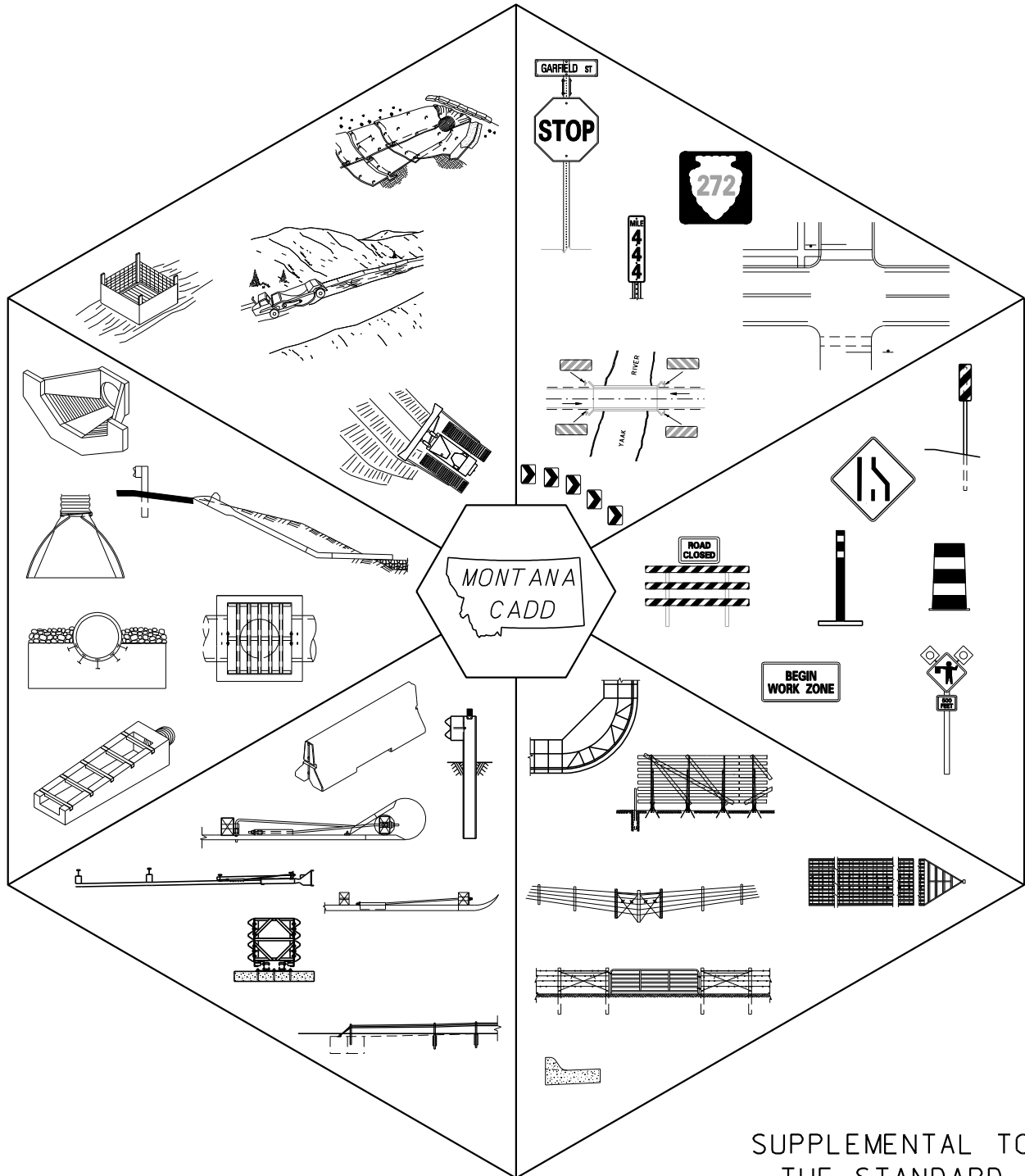


DETAILED DRAWINGS

SUPPLEMENT TO
2005 METRIC EDITION
EFFECTIVE: MAY 2011



SUPPLEMENTAL TO
THE STANDARD
SPECIFICATIONS FOR
ROAD AND BRIDGE
CONSTRUCTION

DETAILED DRAWINGS

FORWARD

ENCLOSED IS THE CURRENT SET OF DETAILED DRAWINGS CONSISTING OF METRIC DIMENSIONS AND QUANTITIES. IT IS A COMBINATION OF HARD AND SOFT NUMBERS. WHERE INDUSTRY HAS ALLOWED, HARD NUMBERS HAVE BEEN SPECIFIED. THE REMAINING NUMBERS HAVE BEEN SOFT COVERED AND ROUNDED AS APPROPRIATE. AS INDUSTRY CHANGES AND PROGRESSES, SO WILL THE DETAILED DRAWINGS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, COMPLY WITH REASONABLE AND CUSTOMARY MANUFACTURING AND CONSTRUCTION TOLERANCES WHERE WORKING TOLERANCES ARE NOT SPECIFIED.

SOME DISCREPANCIES MAY BE FOUND, IMPACTING THE CONSTRUCTABILITY OF CERTAIN ITEMS. PLEASE REPORT PROBLEMS AND ERRORS TO THE CONSTRUCTION BUREAU SO THAT THEY MAY BE RESOLVED IN FUTURE DETAILED DRAWINGS.

DETAILED DRAWINGS

TABLE OF CONTENTS

**SUPPLEMENT TO 2005 METRIC EDITION
EFFECTIVE: MAY 2011**

STANDARD SPECIFICATION SECTION AND DRAWING TITLE	DRAWING NUMBER
<u>SECTION 101: DEFINITIONS AND TERMS</u>	
ABBREVIATIONS	101-05
ABBREVIATIONS	101-06
ABBREVIATIONS	101-07
ABBREVIATIONS	101-08
SYMBOLS	101-10
<u>SECTION 203: EXCAVATION AND EMBANKMENT</u>	
ROADWAY EMBANKMENT AT BRIDGE END	203-00
APPROACHES	203-05
DITCH BLOCKS	203-20
<u>SECTION 208: WATER POLLUTION CONTROL AND STREAM PRESERVATION</u>	
SCHEDULE OF BEST MANAGEMENT PRACTICES	208-00
INLET /OUTLET PROTECTION	208-1A
WATERWAY PROTECTION	208-1B
WATER RESOURCE PROTECTION	208-1C
PRESERVATION OF EXISTING VEGETATION (SS-2)	208-02
HYDRAULIC MULCH (SS-3)	208-04
TEMPORARY SEEDING (SS-4)	208-06
SOIL BINDERS (SS-5)	208-08
STRAW MULCH (SS-6)	208-10
EROSION CONTROL BLANKETS /MATS, PLASTIC COVERS & GEOTEXTILES (SS-7)	208-12A
EROSION CONTROL BLANKETS /MATS, PLASTIC COVERS & GEOTEXTILES (SS-7)	208-12B
WOOD MULCH (SS-8)	208-14
EARTH DIKES /DRAINAGE SWALES & LINED DITCHES (SS-9)	208-16
OUTLET PROTECTION /VELOCITY DISSIPATION DEVICES (SS-10)	208-18
SLOPE DRAINS (SS-11)	208-20
SLOPE ROUGHENING (SS-12)	208-22
TERRACED SLOPES (SS-13)	208-24
VEGETATED BUFFER (SS-14)	208-26
EROSION SEEDING (SS-15)	208-28
SILT FENCE (SC-1)	208-30
DESILTING BASIN (SC-2)	208-32A
DESILTING BASIN (SC-2)	208-32B
SEDIMENT TRAP (SC-3)	208-34
CHECK DAMS (SC-4)	208-36
FIBER ROLLS (SC-5)	208-38
GRAVEL BAG BERM (SC-6)	208-40

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

SAND BAG BARRIERS (SC-8)	208-42
STRAW BALE BARRIERS (SC-9)	208-44
STORM DRAIN INLET PROTECTION (SC-10)	208-46A
STORM DRAIN INLET PROTECTION (SC-10)	208-46B
DUGOUT DITCH BASIN (SC-11)	208-48
WIND EROSION CONTROL (WE-1)	208-50
SNOW ACCUMULATION MANAGEMENT (SN-2)	208-52
FREEZE REDUCTION (SN-3)	208-54
STABILIZED CONSTRUCTION ENTRANCE /EXIT (TC-1)	208-56
ENTRANCE /EXIT TIRE WASH (TC-3)	208-58
TEMPORARY STREAM CROSSINGS (NS-4)	208-60

SECTION 401: COLD MILLING

SHOULDER RUMBLE STRIPS	401-02
------------------------------	--------

SECTION 552: CONCRETE STRUCTURES

CONCRETE CUTOFF WALLS FOR CULVERTS	552-00
CONCRETE, RIPRAP AND BEDDING MATERIAL QUANTITIES FOR SING. AND DBL. CULVERT INSTALLATION	552-04
CONCRETE, RIPRAP AND BEDDING MATERIAL QUANTITIES FOR SING. AND DBL. CULVERT INSTALLATION	552-06
CONCRETE, RIPRAP AND BEDDING MATERIAL QUANTITIES FOR SING. AND DBL. CULVERT INSTALLATION	552-08

**SECTION 603: CULVERTS, STORM DRAINS, SANITARY SEWERS, STOCKPASSES
AND UNDERPASSES**

CMP FLARED END TERMINAL SECTION (FETS)	603-02
PREFABRICATED RCP FLARED END TERMINAL SECTION (FETS)	603-08
PREFABRICATED RCP ARCH FLARED END TERMINAL SECTION (FETS)	603-10
RCP ROAD APPROACH CULVERT END TREATMENT (RACET)	603-12
CMP ROAD APPROACH CULVERT END TREATMENT (RACET)	603-14
PRECAST MEDIAN U-TURN CROSS DRAIN AND CONC. BEVELED END	603-17
BEDDING FOR MAINLINE & PUBLIC APPROACH CULVERTS 1200 mm EQUIVALENT & SMALLER	603-18
BEDDING FOR CULVERTS 1350 mm EQUIVALENT & LARGER	603-19
WATER TIGHT JOINT FOR REINFORCED CONCRETE PIPE	603-22
REINFORCED CONCRETE PIPE JOINT	603-24
TYPICAL FIELD CAST CONCRETE CONNECTIONS	603-26
EMBANKMENT PROTECTOR	603-28
VEHICULAR UNDERPASS AND BACKFILL RETAINER & CUTOFF WALL DETAIL	603-30
STEP BEVEL FOR CIRCULAR METAL CULVERT	603-32
BEVEL ON ARCH METAL CULVERT	603-34
CORRUGATED STEEL PIPE STOCKPASS	603-36

SECTION 604: MANHOLES, COMBINATION MANHOLES AND INLETS, AND INLETS

MEDIAN INLET COVER	604-00
CONCRETE MANHOLE	604-02

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

CURB INLET TYPE II	604-03
DROP INLET TYPE IV	604-04
TYPE IV DROP INLET WITH SLOTTED DRAIN	604-06
TYPE II CURB INLET WITH SLOTTED DRAIN	604-08
DROP INLETS	604-14
DROP INLET STRUCTURE TYPE V AND VI	604-16

SECTION 606: GUARDRAIL AND CONCRETE BARRIER RAIL

METAL GUARDRAIL – WOOD POSTS	606-05A
METAL GUARDRAIL – STEEL POSTS	606-05B
STIFFENED GUARDRAIL SECTIONS	606-07
NESTED W-BEAM GUARDRAIL	606-09
METAL GUARDRAIL – 2.1 m WOOD POSTS	606-11A
METAL GUARDRAIL – 2.1 m STEEL POSTS	606-11B
OPTIONAL TERMINAL SECTION – ET-PLUS	606-13A
OPTIONAL TERMINAL SECTION – SKT 350	606-13B
ONE-WAY DEPARTURE TERMINAL SECTION	606-18
BRIDGE APPROACH SECTIONS – WOOD POSTS	606-24A
BRIDGE APPROACH SECTIONS – STEEL POSTS	606-24B
SKEWED BRIDGE APPROACH SECTIONS – WOOD POSTS	606-25A
SKEWED BRIDGE APPROACH SECTIONS – STEEL POSTS	606-25B
TAPERED CONCRETE CURB DETAIL	606-26
TAPERED CONCRETE CURB DETAIL	606-27
IMPACT ATTENUATOR – QUADGUARD	606-30A
IMPACT ATTENUATOR – TRACC	606-30B
IMPACT ATTENUATOR – QUEST	606-30C
IMPACT ATTENUATOR – QUADGUARD II	606-30D
IMPACT ATTENUATOR – QUADGUARD ASSEMBLY DETAILS	606-31A
IMPACT ATTENUATOR – TRACC ASSEMBLY DETAILS	606-31B
IMPACT ATTENUATOR – QUEST ASSEMBLY DETAILS	606-31C
IMPACT ATTENUATOR – QUADGUARD II ASSEMBLY DETAILS	606-31D
CABLE GUARDRAIL	606-40
CABLE GUARDRAIL TERMINAL ANCHOR ASSEMBLY	606-41
INTERSECTING ROADWAY TERMINAL SECTION	606-46
BOX BEAM GUARDRAIL	606-50
BOX BEAM ONE-WAY DEPARTURE TERMINAL SECTION	606-52
BOX BEAM BRIDGE APPROACH SECTION – TYPES 1 & 2	606-53
BOX BEAM BRIDGE APPROACH SECTION – TYPE 3	606-53A
BOX BEAM ONE-WAY BRIDGE DEPARTURE SECTION	606-54
OPTIONAL BOX BEAM TERMINAL SECTION – WY-BET	606-55A
OPTIONAL BOX BEAM TERMINAL SECTION – BEAT	606-55B
WY-BET BOX BEAM TERMINAL SECTION DETAILS	606-56A
BEAT BOX BEAM TERMINAL SECTION DETAILS	606-56B
BOX BEAM TO W-BEAM TRANSITION SECTION	606-58
CONCRETE BARRIER RAIL	606-60
CONCRETE BARRIER RAIL ANCHORS	606-62
TALL CONCRETE BARRIER RAIL	606-64
CONCRETE BARRIER RAIL TRANSITION	606-66

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

CONCRETE BARRIER RAIL TERMINAL SECTION (ONE-WAY DEPARTURE)	606-68
SCHEDULE OF GUARDRAIL HARDWARE	606-80
GUARDRAIL HARDWARE	606-82
W-BEAM METAL GUARDRAIL HARDWARE	606-84
W-BEAM METAL GUARDRAIL HARDWARE	606-88
CABLE GUARDRAIL HARDWARE	606-92
CABLE GUARDRAIL HARDWARE	606-94
CABLE GUARDRAIL HARDWARE	606-95
BOX BEAM GUARDRAIL HARDWARE	606-97
BOX BEAM GUARDRAIL HARDWARE	606-98
BOX BEAM GUARDRAIL HARDWARE	606-99

SECTION 607: FENCES

FARM FENCE	607-00
WILDLIFE FRIENDLY FENCE 400 BOTTOM WIRE HEIGHT	607-01
WILDLIFE FRIENDLY FENCE 300 BOTTOM WIRE HEIGHT	607-02
INTERSTATE FENCE	607-05
FENCING DETAILS	607-10
FENCING DETAILS	607-15
FARM ENTRANCE GATES	607-20
CHAIN LINK FENCE	607-25
2.4 m WOOD SNOW FENCE W/ANCHOR SYSTEM #1	607-30
3.6 m WOOD SNOW FENCE W/ANCHOR SYSTEM #1	607-35
WOOD SNOW FENCE ANCHOR SYSTEM #3 AND #1 DETAILS	607-40
WOOD SNOW FENCE ANCHOR SYSTEM #2 DETAILS	607-45
WILDLIFE FENCE	607-50

SECTION 608: CONCRETE SIDEWALKS

CONCRETE SIDEWALK	608-05
NEW CONSTRUCTION PUBLIC SIDEWALK CURB RAMPS	608-15
ALTERATIONS TO EXISTING FACILITIES – PUBLIC SIDEWALK CURB RAMPS	608-20
PERPENDICULAR PUBLIC SIDEWALK CURB RAMPS	608-25
PARALLEL PUBLIC SIDEWALK CURB RAMPS	608-30
DIAGONAL PERPENDICULAR PUBLIC SIDEWALK CURB RAMPS	608-35
DETECTABLE WARNING DEVICES	608-40

SECTION 609: CURBS AND GUTTERS

CONCRETE VALLEY GUTTER	609-00
MISCELLANEOUS CURBS	609-05
MEDIAN CONCRETE CURBS	609-10
CONCRETE MEDIAN CAPS	609-12

SECTION 610: ROADSIDE RE-VEGETATION

TOPSOIL AND SEEDING	610-00
---------------------------	--------

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

SECTION 611: CATTLE GUARDS

CAST-IN-PLACE CATTLE GUARD	611-00
CAST-IN-PLACE CATTLE GUARD REBAR DETAILS	611-05
PRECAST CONCRETE BASE FOR CATTLE GUARD - APPROACHES	611-10
PRECAST CONCRETE BASE FOR CATTLE GUARD	611-15
PRECAST CONCRETE CATTLE GUARD BASE DETAILS	611-20

SECTION 613: RIPRAP AND SLOPE AND BANK PROTECTION

CONCRETE EDGE PROTECTION FOR METAL CULVERTS	613-06
CONCRETE EDGE PROTECTION FOR CONCRETE CULVERTS	613-08
CONCRETE SLOPE PROTECTION	613-10
INLET AND OUTLET HEADWALLS FOR RCP AND CMP PIPES	613-12
CULVERT RIPRAP	613-14
EMBANKMENT PROTECTION	613-16
DRAINAGE CHUTES	613-18

SECTION 615: IRRIGATION FACILITIES AND HEADWALLS

TRASHGUARD FOR CONCRETE IRRIGATION INLET AND OUTLET TRANSITION STRUCTURES	615-02
STANDARD CONCRETE IRRIGATION DIVISION BOXES	615-04
CONCRETE IRRIGATION INLET AND OUTLET TRANSITION FOR RCP AND CSP PIPES	615-06

SECTION 618: TRAFFIC CONTROL

BARRICADES, CHANNELIZING DEVICES AND OBJECT MARKERS	618-00
CONSTRUCTION SIGN DETAILS	618-01
PORTABLE SIGN SUPPORT ASSEMBLY	618-02
BARRICADES	618-03
TWO-LANE CONSTRUCTION PROJECT	618-04
TWO-LANE CONSTRUCTION PROJECT WORK ZONES	618-08
TWO-LANE CONSTRUCTION PROJECT SEAL COAT	618-10
TWO-LANE CONSTRUCTION PROJECT LANE CLOSURE - FLAGGER CONTROLLED	618-12
TWO-LANE CONSTRUCTION PROJECT LANE CLOSURE - SIGNAL CONTROLLED	618-13
TWO-LANE EQUIPMENT ENTRANCES	618-14
TWO-LANE EQUIPMENT ENTRANCES	618-16
TWO-LANE CONSTRUCTION PROJECT DETOUR	618-18
DIVIDED FOUR-LANE CONSTRUCTION PROJECT	618-20
TEMPORARY ENTRANCE RAMP MEDIAN CROSSING	618-21
TEMPORARY EXIT RAMP MEDIAN CROSSING	618-22
DIVIDED FOUR-LANE CONSTRUCTION PROJECT WORK ZONES	618-24
DIVIDED FOUR-LANE EQUIPMENT ENTRANCES	618-27
DIVIDED FOUR-LANE MEDIAN CROSSINGS	618-28
TEMPORARY FOUR-LANE TO TWO-LANE MEDIAN CROSSING	618-30
TEMPORARY TWO-LANE TO FOUR-LANE MEDIAN CROSSING	618-32
SHORT DURATION CREW SIGNING	618-34
SHORT-TERM STATIONARY CREW SIGNING	618-36
MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CRACK SEALING WORK ZONE	618-M1

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CHIP SEAL AND OVERLAY (PILOTED TRAFFIC)	618-M2
MAINTENANCE GUIDELINE FOR SHORT-TERM LANE CLOSURE ON INTERSTATE	618-M3
LANE CLOSURE - FLAGGER CONTROLLED (URBAN TWO-LANE, TWO-WAY ROAD)	618-U01
WORK ZONE OCCUPIES ONE HALF OF ROAD (LOW SPEED URBAN TWO-LANE, TWO-WAY ROAD)	618-U02
WORK ZONE IN CENTER OF ROAD (URBAN TWO-LANE, TWO-WAY ROAD)	618-U03
SIDEWALK CLOSURES AND BYPASS WALKWAY	618-U05
CROSSWALK CLOSURES AND PEDESTRIAN DETOURS	618-U10
LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE)	618-U15
TURN LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE)	618-U16
RIGHT LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U20
LEFT LANE CLOSURE (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U25
LEFT LANE CLOSURES (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U30
DOUBLE LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U35
RIGHT LANE CLOSURE - WORK ZONE BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U40
LEFT LANE CLOSER - WORK ZONE BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U45
DOUBLE LANE CLOSURE AT INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	618-U50
LEFT LANE CLOSURE (URBAN LOW SPEED, MULTI-LANE UNDIVIDED ROAD WITH TWO-WAY LEFT TURN LANE)	618-U60

SECTION 619: SIGNS, DELINEATORS AND GUIDEPOSTS

SIGN CLEARANCES AND MOUNTING HEIGHTS	619-00
TYPICAL RURAL AND URBAN APPROACHES	619-02
ALUMINUM SHEET INCREMENT SIGN CONSTRUCTION DETAILS	619-04
PLYWOOD SHEET INCREMENT GUIDE SIGN CONSTRUCTION DETAILS	619-06
GUIDE SIGN CLEARANCE AND MOUNTING DETAILS	619-08
SHEET ALUMINUM OVERLAY	619-10
TUBULAR SIGN POST DETAILS	619-12
BREAKAWAY AND FOUNDATION DETAILS FOR MULTIPLE GUIDE SIGN SUPPORTS	619-13
TYPICAL STEEL POST MOUNTING DETAILS	619-16
CANTILEVER TYPE SIGN SUPPORT DETAILS FOR SIDEWALK AREAS	619-18
STRUCTURAL STEEL POST SIGN MOUNTING DETAILS	619-19
TREATED WOOD POLE SIGN MOUNTING AND SUPPORT DETAILS	619-20
TREATED WOOD POLE SIGN MOUNTING DETAILS	619-21
TREATED WOOD POLE OPTIONAL BACKBRACE	619-22
CHEVRON MOUNTING DETAILS	619-24
SPECIAL DESIGN ROUTE MARKER PANELS AND SHIELDS	619-26
SIGN HINGE DETAILS	619-30
MILEPOST DETAILS	619-32
DELINEATOR DETAILS	619-34
DELINEATOR PLACEMENT DETAILS	619-36
OBJECT MARKER DESIGN AND PLACEMENT DETAILS FOR OBSTRUCTIONS ADJACENT TO OR WITHIN HIGHWAYS	619-38

**STANDARD SPECIFICATION SECTION AND
DRAWING TITLE**

**DRAWING
NUMBER**

FLEXIBLE DELINEATORS	619-40
PERMANENT BARRICADE DESIGN DETAILS	619-42
INSTALLATION DATE TAGS	619-44

SECTION 620: PAVEMENT MARKING APPLICATION

PAVEMENT MARKINGS (LETTERS)	620-00
PAVEMENT MARKINGS (NUMBERS)	620-05
PAVEMENT MARKINGS (WORDS)	620-10
PAVEMENT MARKINGS (ARROWS)	620-15
PAVEMENT MARKINGS (SYMBOLS)	620-20

SECTION 621: REMOVE, RE-SET AND ADJUST FACILITIES

MANHOLE AND VALVE BOX ADJUSTMENT DETAILS	621-00
OPTIONAL MANHOLE AND VALVE BOX ADJUSTMENT DETAILS	621-05

SECTION 623: MAILBOXES

APPROACH MAILBOX TURNOUT	623-10
MAILBOX TURNOUT	623-15
MAILBOX DETAIL	623-20
OPTIONAL MAILBOX DETAIL	623-25
TEMPORARY MAILBOX SUPPORT	623-30
TEMPORARY MAILBOX SUPPORT BRACKET DETAILS	623-35

MISCELLANEOUS

U-TURN MEDIAN OPENINGS ON CONTROLLED ACCESS HIGHWAYS	900-00
ADJUSTABLE MONUMENT BOX	900-15